

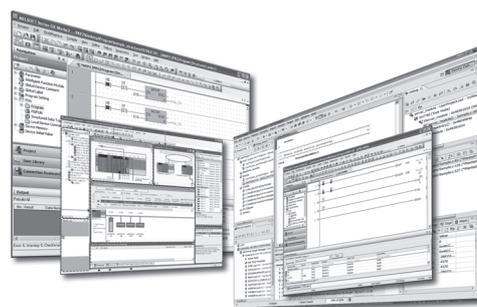


MELSOFT

Engineering Software

PX Developer Version 1 Operating Manual (Monitor Tool)

-SW1D5C-FBDQ-E
-SW1D5C-FBDQMON-E



● SAFETY PRECAUTIONS ●

(Always read these instructions before using this product.)

Before using this product, thoroughly read this manual and the relevant manuals introduced in this manual and pay careful attention to safety and handle the products properly.

The precautions given in this manual are concerned with this product only. For the safety precautions for the programmable controller system, refer to the user's manual for the module used and MELSEC iQ-R Module Configuration Manual.

The precautions given in this manual are concerned with this products. For the safety precautions of the programmable controller system, refer to the User's Manual for the CPU module.

In this manual, the safety precautions are ranked as "⚠ WARNING " and "⚠ CAUTION".

 **WARNING**

Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.

 **CAUTION**

Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

Note that the ⚠ CAUTION level may lead to serious consequences according to the circumstances. Always follow the precautions of both levels because they are important for personal safety.

Please save this manual to make it accessible when required and always forward it to the end user.

[Security Precautions]

 **WARNING**

- To maintain the security (confidentiality, integrity, and availability) of the programmable controller and the system against unauthorized access, denial-of-service (DoS) attacks, computer viruses, and other cyberattacks from external devices via the network, take appropriate measures such as firewalls, virtual private networks (VPNs), and antivirus solutions.

[Startup/Maintenance Precautions]

 **CAUTION**

- The online operations have to be executed after the manual has been carefully read and the safety has been ensured.
Failure to do so may cause a miss operation which results in machine damage or an accident.

[Precautions for Using This Manual]

When reading this manual, the replacement of some terms is required. For more details, refer to Appendix 8. For MELSEC iQ-R series, replace the manual name "PX Developer Version 1 Programming Manual" with "MELSEC iQ-R Programming Manual (Process Control Function Blocks/Instructions)".

● CONDITIONS OF USE FOR THE PRODUCT ●

- (1) MELSEC programmable controller ("the PRODUCT") shall be used in conditions;
- i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and
 - ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.

- (2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.

MITSUBISHI ELECTRIC SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN MITSUBISHI ELECTRIC USER'S, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT.

("Prohibited Application")

Prohibited Applications include, but not limited to, the use of the PRODUCT in;

- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

Notwithstanding the above restrictions, Mitsubishi Electric may in its sole discretion, authorize use of the PRODUCT in one or more of the Prohibited Applications, provided that the usage of the PRODUCT is limited only for the specific applications agreed to by Mitsubishi Electric and provided further that no special quality assurance or fail-safe, redundant or other safety features which exceed the general specifications of the PRODUCTS are required. For details, please contact the Mitsubishi Electric representative in your region.

- (3) Mitsubishi Electric shall have no responsibility or liability for any problems involving programmable controller trouble and system trouble caused by DoS attacks, unauthorized access, computer viruses, and other cyberattacks.

REVISIONS

*The manual number is given on the bottom left of the back cover.

Print date	*Manual number	Revision
Dec., 2002	SH (NA)-080370E-A	First edition
Oct., 2003	SH (NA)-080370E-B	<p>Addition</p> <p>Section 8.6, Section 8.6.1 to 8.6.5, Section 9.15.14, Appendix 1.7, Appendix 2.3</p> <p>Correction</p> <p>Section 2.1.3, Section 2.1.4, Section 2.2, Section 2.3, Section 3.1, Section 3.2, Section 5.1, Section 6.2.1, Section 6.3.1, Section 6.5.2, Section 7.3.1, Section 7.4.1, Section 7.6, Section 7.7.1, Section 7.7.4, Section 8.4, Section 8.5, Section 9.3, Section 9.5, Section 9.11, Section 9.14, Section 9.15, Section 9.15.8, Section 9.15.9, Section 10.1, Section 10.3.5, Section 11.3.4, Section 12.1, Section 12.2, Appendix 1.1, Appendix 1.2, Appendix 1.3, Appendix 1.4, Appendix 1.5, Appendix 2, Appendix 2.1, Appendix 3</p> <p>Section 7.3.4 to 7.3.9 changed to Section 7.3.2 to 7.3.7</p> <p>Appendix 1.7 changed to Appendix 1.8</p> <p>Appendix 2.3 changed to Appendix 2.4</p> <p>Deletion</p> <p>Section 7.3.2, Section 7.3.3</p>
Jun., 2004	SH (NA)-080370E-C	<p>Model Addition</p> <p>Q12PRHCPU, Q25PRHCPU</p> <p>Addition</p> <p>Appendix 1.9, Appendix 4</p> <p>Correction</p> <p>Generic Terms, Abbreviations And Terms, Section 1.2, Section 2.1 to 2.2, Section 4.5, Section 5.1, Section 6.3, Section 7.2.6, Section 7.3.1, Section 7.4.1, Section 7.7.4, Section 8.4 to 8.5, Section 9.3, Section 9.14, Section 10.1, Section 10.3.7, Section 10.5, Section 11.2, Section 11.3.2, Section 11.3.4, Section 12.1, Appendix 1.2, Appendix 1.6 to 1.7, Appendix 2.4, Appendix 3</p>
Feb., 2005	SH (NA)-080370E-D	<p>Correction</p> <p>Section 2.2</p>

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Feb., 2006	SH (NA)-080370E-E	<p>Correction</p> <p>Generic Terms, Abbreviations And Terms, Section 1.1, Section 1.2, Section 2.1.2, Section 2.1.3, Section 2.1.4, Section 2.1.6, Section 2.2, Section 3.2, Section 7.1.3, Section 7.3.1, Section 7.4.1, Section 7.6.2, Section 7.7, Section 7.7.1, Section 7.7.3, Section 7.7.5, Section 7.7.8, Section 8.5.1, Section 8.6, Section 9.1.1, Section 9.3, Section 9.4, Section 9.5, Section 9.11, Section 9.12, Section 9.14, Section 9.15.9, Section 10.1, Section 10.3.1, Section 10.3.2, Section 10.3.3, Section 10.3.4, Section 10.3.5, Section 10.3.6, Section 10.4, Section 10.5, Section 10.5.1, Section 10.5.2, Section 10.5.7, Section 10.6.1, Chapter 11, Appendix 1.2, Appendix 1.3, Appendix 2.1, Appendix 3, Appendix 4.2, Index</p>
Mar., 2007	SH (NA)-080370E-F	<p>Additions</p> <p>Section 10.3.5, Section 10.3.6, Section 10.5.5, Section 11.1, Section 11.1.1, Appendix 3, Appendix 3.2, Appendix 3.2.1</p> <p>Correction</p> <p>Section 1.2, Section 2.1.2, Section 2.1.3, Section 2.2, Section 3.2, Section 5.1, Section 6.3.1, Section 6.3.2, Section 7.2, Section 7.3, Section 7.4, Section 7.5, Section 7.7, Section 7.7.5, Section 8.6.2, Section 9.1.4, Section 9.3, Section 9.8, Section 10.3.1, Section 10.3.2, Section 10.3.3, Section 10.3.4, Section 10.4, Section 10.5, Chapter 11, Section 11.2, Section 11.2.1, Section 11.3.4, Section 12.1, Appendix 1.2, Appendix 1.3, Appendix 1.8, Appendix 1.9.2, Appendix 1.9.3, Appendix 2.2, Appendix 2.4, Appendix 5.2, Section 10.3.5 to 10.3.11 changed to Section 10.3.7 to 10.3.13 Section 10.5.5 to 10.5.9 changed to Section 10.5.6 to 10.5.10 Section 11.1 changed to Appendix 3.1 Section 11.3 changed to Appendix 3.1.2 Section 11.4 changed to Appendix 3.1.1 Appendix 3 changed to Appendix 4 Appendix 4 to 4.3 changed to Appendix 5 to 5.3</p>

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Jun., 2008	SH (NA)-080370E-G	<p>Model Addition</p> <p>Q02PHCPU, Q06PHCPU</p> <p>Addition</p> <p>Section 9.1.4, Appendix 4</p> <p>Correction</p> <p>MANUALS, GENERIC TERMS, ABBREVIATIONS, AND TERMS, Section 1.1, Section 1.2, Section 2.1.1, Section 2.1.2, Section 2.1.4, Section 2.1.6, Section 2.2, Section 3.2, Section 4.6, Section 5.1, Section 6.1, Section 6.3.1, Section 6.4.2, Section 7.1, Section 7.1.3, Section 7.3.1, Section 7.5, Section 7.6.2, Section 7.7, Section 7.7.1, Section 8.3, Section 8.5.1, Section 9.1.1, Section 9.1.3, Section 9.3, Section 9.8, Section 9.14, Section 9.15.2, Section 10.1, Section 10.3.7, Section 10.3.9, Section 10.5.1 to 10.5.3, Section 10.5.6, Section 10.5.8, Section 10.5.9, Section 11.1.1, Section 11.2.1, Section 12.1, Appendix 1.2.1, Appendix 1.2.2, Appendix 3.1.1 [4], Appendix 3.1.2 [2], Appendix 4 to 5.3 changed Appendix 5 to 6.3</p>
Jan., 2009	SH (NA)-080370E-H	<p>Addition</p> <p>Section 6.6, Section 8.6, Section 9.4, Section 10.5.8, Appendix 2</p> <p>Correction</p> <p>GENERIC TERMS, ABBREVIATIONS, AND TERMS, Section 1.2, Section 2.1.6, Section 2.2, Section 2.3, Section 3.1, Section 3.2, Section 4.6, Section 5.1, Section 6.1, Section 6.3.1, Section 6.4.2, Section 6.5.2, Section 7.3.1, Section 7.3.2, Section 7.3.5, Section 7.4.1, Section 7.4.2, Section 7.4.4, Section 7.6, Section 7.7.3, Section 8.1, Section 8.2, Section 8.4 to 8.5.3, Section 9.1.1, Section 9.1.4, Section 9.3, Section 9.14, Section 9.15, Section 10.1, Section 10.3.2, Section 10.3.3, Section 10.3.8, Section 10.4, Section 10.5, Section 11.1.1, Section 12.1, Appendix 1.1 to 1.3, Appendix 1.7, Appendix 3.1.1 [4], Appendix 3.1.2 [2], Appendix 3.2, Appendix 4.1.1 [4], Appendix 4.1.2 [2], Appendix 4.2, Appendix 5, Appendix 6, Appendix 6.2, Appendix 7.2</p> <p>Section 8.6 to 8.6.5 changed to Section 8.7 to 8.7.5</p> <p>Section 9.4 to 9.15.14 changed to Section 9.5 to 9.16.14</p> <p>Section 10.5.8 to 10.5.10 changed to Section 10.5.9 to 10.5.11</p> <p>Appendix 2 to 6.3 changed to Appendix 3 to 7.3</p>

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Dec., 2009	SH (NA)-080370E-I	<p>Addition</p> <p>CONDITIONS OF USE FOR THE PRODUCT, Section 7.2.7, Section 8.6.4, Section 10.3.14, Section 10.5.12, Section 10.6.3, Appendix 2.1</p> <p>Correction</p> <p>SAFETY PRECAUTIONS, Section 1.2, Section 2.1.2, Section 2.1.4, Section 2.1.6, Section 2.2, Section 2.3, Section 3.2, Section 4.7, Section 5.1, Section 6.3.1, Section 6.6, Section 7.2, Section 7.2.1, Section 7.2.3, Section 7.2.4, Section 7.3.1, Section 7.4.1, Section 7.7.1, Section 8.5.1, Section 8.6.1 to 8.6.3, Section 8.6.5, Section 8.7, Section 8.7.1, Section 8.7.4, Section 9.1.4, Section 9.2 to 9.4, Section 9.6, Section 9.11, Section 9.15, Section 9.16.4, Section 9.16.5, Section 9.16.9, Section 9.16.14, Section 10.3.1 to 10.3.3, Section 10.3.8, Section 10.3.9, Section 10.4, Section 10.5, Section 10.6, Section 12.1, Appendix 1.1 to 1.3, Appendix 4.1.1 [4], Appendix 4.1.2 [2], Appendix 5.1, Appendix 6, Appendix 7.2</p> <p>Section 8.6.4 to 8.6.6 changed to Section 8.6.5 to 8.6.7</p> <p>Section 10.6.2 changed to Section 10.6.3</p> <p>Appendix 2 changed to Appendix 2.2</p>
Dec., 2010	SH (NA)-080370E-J	<p>Addition</p> <p>Section 9.5, Section 9.17.12, Appendix 1.6, Appendix 1.7</p> <p>Correction</p> <p>MANUALS, GENERIC TERMS, ABBREVIATIONS, AND TERMS, Section 1.1, Section 1.2, Section 2.1.4, Section 2.1.6, Section 2.2, Section 2.3, Section 3.1, Section 3.2, Section 5.1, Section 6.3.1, Section 6.4.1, Section 6.6, Section 7.2 to 7.2.2, Section 7.2.5, Section 7.2.6, Section 7.3.1, Section 7.4.1, Section 7.5, Section 7.6, Section 7.7.1, Section 7.7.6, Section 8.5.1 to 8.5.3, Section 8.6.6, Section 9.1.1, Section 9.1.3, Section 9.3, Section 9.7, Section 9.10, Section 9.16, Section 9.17, Section 9.17.3, Section 11.2, Section 11.2.1, Section 12.1, Appendix 1.1, Appendix 1.2.2, Appendix 1.8, Appendix 1.10, Appendix 4.1.1 [1], Appendix 4.1.2 [1], Appendix 5 to 5.2, Appendix 6, Appendix 7.1, Appendix 7.2</p> <p>Section 9.5 to 9.16 changed to Section 9.6 to 9.17</p> <p>Appendix 1.6 to 1.9 changed to Appendix 1.8 to 1.11</p>

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Oct., 2011	SH (NA)-080370E-K	<p>Addition</p> <p>Section 7.7.9, Section 9.2, Section 10.5.13, Section 10.5.14, Appendix 4,</p> <p>Correction</p> <p>HOW TO USE THIS MANUAL, GENERIC TERMS, ABBREVIATIONS, AND TERMS, Section 1.2, Section 2.1.2, Section 2.2, Section 3.1, Section 3.2, Section 4.1 to 4.5, Section 5.1, Section 5.2, Section 6.3.1 to 6.3.4, Section 6.3.9, Section 7.2.6, Section 7.3.1, Section 7.3.2, Section 7.3.4 to 7.3.7, Section 7.4.1 to 7.5, Section 7.7.1, Section 7.7.3 to 7.7.5, Section 7.7.8, Section 8.1, Section 8.2, Section 8.5.1, Section 8.5.3, Section 8.6.6, Section 9.1.1, Section 9.1.3, Section 9.3, Section 9.5, Section 9.11, Section 9.13, Section 9.16, Section 9.17, Section 9.18.1, Section 9.18.7, Section 9.18.9, Section 10.1, Section 10.2, Section 10.3.1 to 10.3.3, Section 10.3.8, Section 10.3.9, Section 10.3.13, Section 10.4, Section 10.5, Section 10.5.8, Section 10.5.12, Chapter 11 to Section 11.2.1, Section 12.1, Appendix 1.2, Appendix 1.2.2, Appendix 1.3, Appendix 5.1, Appendix 5.1.1 [1], Appendix 5.1.1 [4], Appendix 5.2, Appendix 7, Appendix 8.1, Appendix 8.2 Section 9.2 to 9.17.15 changed to Section 9.3 to 9.18.15 Appendix 4 to 7.3 changed to Appendix 5 to 8.3</p>
Feb., 2014	SH (NA)-080370E-L	<p>Addition</p> <p>Section 10.7.2, Section 10.8.2</p> <p>Correction</p> <p>GENERIC TERMS, ABBREVIATIONS, AND TERMS, Section 1.2, Section 2.1.2 to 2.1.4, Section 2.2, Section 3.2, Section 4.5, Section 5.1, Section 5.2, Section 6.3.1, Section 6.4.1, Section 6.6, Section 7.2.1, Section 7.3.1, Section 7.4, Section 7.4.1, Section 7.4.5, Section 7.4.6, Section 7.5 to 7.7.1, Section 8.5.1 to 8.5.3, Section 9.1.1, Section 9.4 to 9.6, Section 9.11, Section 9.16, Section 9.17, Section 9.18, Section 9.18.11, Section 9.18.12, Section 10.1, Section 10.2, Section 10.3.2 to 10.3.4, Section 10.4, Section 10.7, Section 10.7.1, Section 10.8, Section 10.8.1, Chapter 11 to 11.1.2, Section 12.1, Appendix 1.1 to 1.2.2, Appendix 4, Appendix 6 to 8, Appendix 8.2, Section 8.3</p>

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Jul., 2015	SH (NA)-080370E-M	<p>Correction</p> <p>GENERIC TERMS, ABBREVIATIONS, AND TERMS, Section 2.1.4, Section 2.1.6, Section 2.2, Section 5.1, Section 6.5.2, Section 7.6, Section 7.7.3, Section 8.6.1, Section 8.6.7, Section 9.5, Appendix 1.10, Appendix 7, Appendix 8.1</p>
Jan., 2017	SH (NA)-080370E-N	<p>Model Addition</p> <p>R08PCPU, R16PCPU, R32PCPU, R120PCPU</p> <p>Addition</p> <p>Appendix 9</p> <p>Correction</p> <p>SAFETY PRECAUTIONS, MANUALS, MANUAL ORGANIZATION, GENERIC TERMS, ABBREVIATIONS, AND TERMS, Section 1.1, Section 1.2, Section 2.1.1, Section 2.1.2, Section 2.1.3, Section 2.1.4, Section 2.1.6, Section 2.2, Section 2.3, Section 3.2, Section 5.1, Section 6.3.1, Section 7.3, Section 8.5.2, Section 9.1.4, Section 9.4, Section 9.6, Section 9.18.12, Section 11.2, Section 12.1, Appendix 1.1, Appendix 1.2.1, Appendix 1.2.2, Appendix 1.9, Appendix 1.10, Appendix 7, Appendix 8, Appendix 8.1, Appendix 8.2, Appendix 8.3</p>
Oct., 2017	SH (NA)-080370E-O	<p>Model Addition</p> <p>R08PSFCPU, R16PSFCPU, R32PSFCPU, R120PSFCPU</p> <p>Addition</p> <p>Appendix 10</p> <p>Correction</p> <p>GENERIC TERMS, ABBREVIATIONS, AND TERMS, Section 1.2, Section 2.1.1, Section 2.1.2, Section 2.1.3, Section 2.1.4, Section 2.1.6, Section 2.2, Section 2.2.1, Section 2.2.2, Section 2.2.3, Section 2.2.4, Section 7.3.1, Section 7.4.1, Section 8.5.2, Section 9.4, Section 9.6, Section 10.1, Appendix 1.1, Appendix 1.2.1, Appendix 1.2.2, Appendix 1.8, Appendix 1.9, Appendix 1.11, Appendix 1.11.1, Appendix 1.11.2, Appendix 1.11.3, Appendix 5.1.1, Appendix 7, Appendix 8.2</p>
Apr., 2018	SH (NA)-080370E-P	<p>Correction</p> <p>Section 2.1.2, Section 2.2, Section 2.2.1, Section 2.2.3, Section 8.1, Section 8.5.2, Section 9.4, Section 9.6, Section 9.8.12, Appendix 1.6, Appendix 7</p>

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Oct., 2018	SH (NA)-080370E-Q	<p>Correction</p> <p>Section 2.2.3, Section 3.2, Section 7.1, Section 9.4, Section 9.7, Section 9.14, Section 9.15, Section 9.17, Section 9.18.10, Appendix 1.4, Appendix 7, Appendix 8.2</p>
Apr., 2019	SH (NA)-080370E-R	<p>Model Addition</p> <p>Q04UDPVCPU, Q06UDPVCPU, Q13UDPVCPU, Q26UDPVCPU</p> <p>Correction</p> <p>GENERIC TERMS, ABBREVIATIONS, AND TERMS, Section 1.2, Section 2.1.1, Section 2.1.2, Section 2.1.4, Section 2.1.6, Section 2.2.2, Section 6.3.1, Section 8.5.1, Section 8.5.2, Section 9.4, Section 9.6, Section 12.1, Appendix 1.1, Appendix 1.2.1, Appendix 1.2.2, Appendix 7</p>
Apr., 2020	SH (NA)-080370E-S	<p>Correction</p> <p>Section 2.2, Section 2.2.1</p>
Apr., 2021	SH (NA)-080370E-T	<p>Correction</p> <p>SAFETY PRECAUTIONS, CONDITIONS OF USE FOR THE PRODUCT, Section 2.1.2, Section 2.2, Section 9.13, Section 9.18.9</p>
Oct., 2021	SH (NA)-080370E-U	<p>Correction</p> <p>Section 2.2.1</p>
Apr., 2022	SH (NA)-080370E-V	<p>Addition</p> <p>COPYRIGHTS</p> <p>Correction</p> <p>GENERIC TERMS, ABBREVIATIONS, AND TERMS, Section 2.2, Section 2.2.1, Appendix 7</p>

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Apr., 2024	SH (NA)-080370E-W	<p>Correction</p> <p>GENERIC TERMS, ABBREVIATIONS, AND TERMS, Section 2.2, Section 2.2.1, Section 3.2, Section 6.6, Section 7.3.1, Section 7.4.1, Section 9.13, Section 9.17, Section 9.18.4, Section 9.18.5, Section 9.18.9, Section 10.1, Section 10.3, Section 10.3.1, Section 10.3.2, Section 10.3.3, Section 10.3.13, Section 10.4, Section 10.6, Section 10.6.4, Section 11.1.1, Section 12.1, Appendix 1.2, Appendix 1.2.2, Appendix 1.3, Appendix 1.9, Appendix 4, Appendix 5.1.1, Appendix 6</p> <p>Deletion</p> <p>Appendix 6</p>

Japanese manual version SH-080260-AQ

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights that may occur as a result of using the contents noted in this manual.

INTRODUCTION

Thank you for purchasing the engineering software, MELSOFT series.

Read this manual and make sure you understand the functions and performance of MELSOFT series thoroughly in advance to ensure correct use.

Note that the menu names and operating procedures may differ depending on an operating system in use and its version. When reading this manual, replace the names and procedures with the applicable ones as necessary.

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MANUALS

The following manuals are also related to this product.
Refer to the following table for ordering a manual.

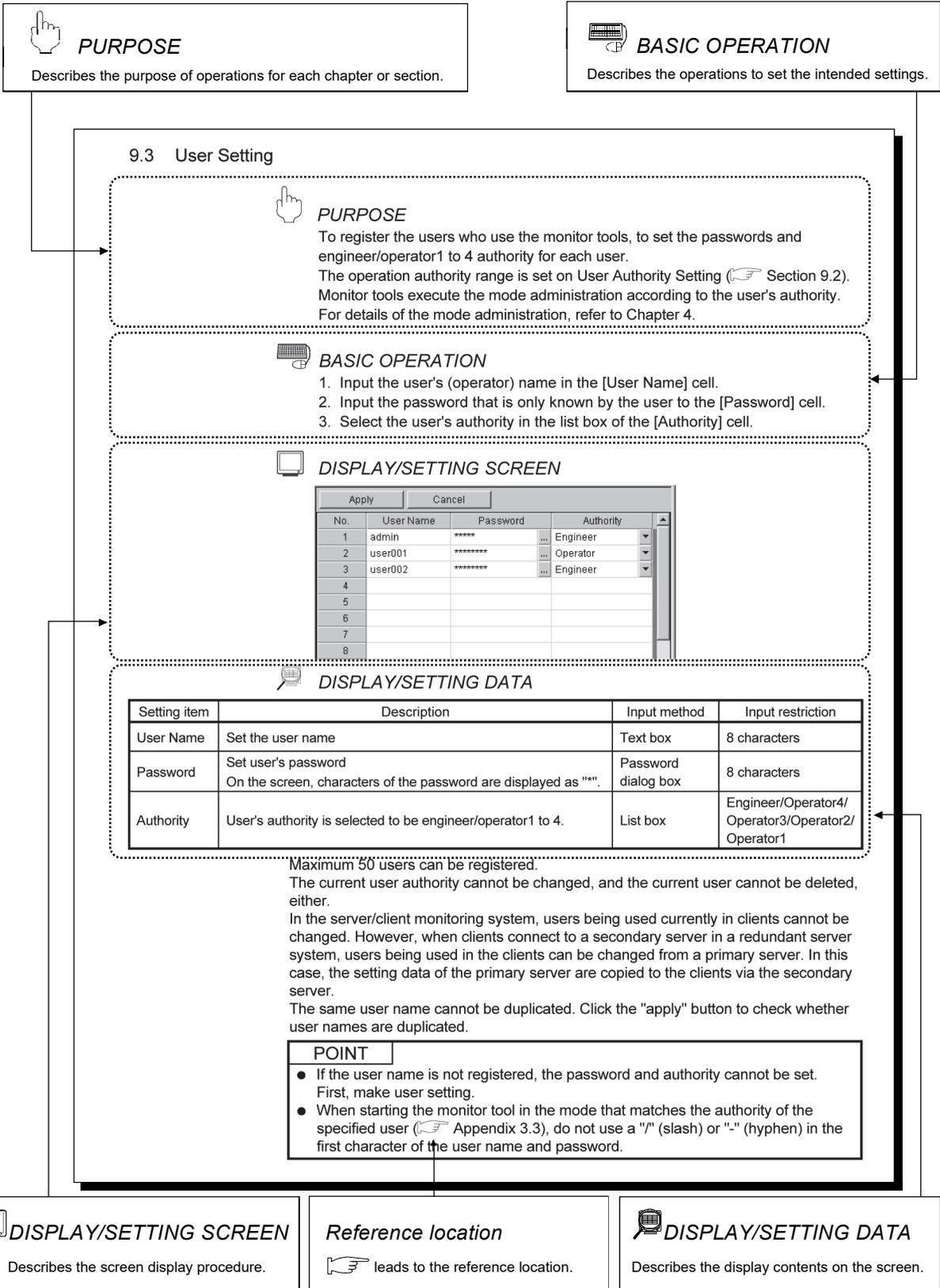
Related manuals

Manual name	Manual number (model code)
PX Developer Version 1 Operating Manual (Monitor Tool) Operation methods of the monitor tool and methods for monitoring and controlling DDC processing with tag FB (this manual) (Sold separately.)	SH-080370E (13JU39)
PX Developer Version 1 Operating Manual (Programming Tool) FBD language programming, compilation, online operations, and debug methods with PX Developer (Sold separately.)	SH-080369E (13JU38)
PX Developer Version 1 Programming Manual Details of programming with PX Developer, lists of FB parts, and the PID instructions (Sold separately.)	SH-080371E (13JW00)
PX Developer Version 1 Operating Manual (GOT Screen Generator) Generation procedure for GOT screen project and details about generated screen (Sold separately.)	SH-080772ENG (13JU61)
PX Developer Version 1 Operating Manual (InTouch Interaction) Interaction between PX Developer monitor tool and SCADA software (InTouch) (Sold separately.)	SH-080773ENG (13JU62)
PX Developer Version 1 Operating Manual (JoyWatcherSuite Interaction) Interaction between PX Developer monitor tool and SCADA software (JoyWatcherSuite) (Sold separately.)	SH-080976ENG (13JU70)

CAUTION

- Please note that we do not guarantee commercially available software compatible with Microsoft® Windows® Operating System introduced in this manual.
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HOW TO USE THIS MANUAL





DISPLAY/SETTING SCREEN
Describes the screen display procedure.

Reference location

 leads to the reference location.



DISPLAY/SETTING DATA
Describes the display contents on the screen.

There are also the following types of explanations.

POINT

Informs items to be noted and useful functions relevant to the contents in the chapter or section.

REMARKS

Supplements contents in the chapter or section.

The following table explains symbols in this manual and their description.

Symbol	Description
[]	Expresses an item in a window or dialog box, or a menu on the menu bar. [] → [] expresses the drop-down menu. Example: [File] → [Save the setting data]
()	Indicates the related button. Example: "Go to Previous Folder" button ()
" "	Expresses a command button. Example: "OK" button
<< >>	Expresses dialog box tab. Example: <<General>> tab

MANUAL ORGANIZATION

This manual consists of 12 chapters and APPENDICES.

The contents of the manual: The steps from the system programming to the run of DC processing on CPU module by using the PX Developer. The steps are shown as follows:

< Operating procedures before running the process control system >

Operating procedure 1: The setting and wiring of the process control system	Reference
<ul style="list-style-type: none"> Install CPU module, Network module, Input/Output module, the related equipments of PLC, and the process control system and other external equipments to realize wiring 	MELSEC iQ-R CPU Module User's Manual (Application) QCPU User's Manual (Hardware Design, Maintenance and Inspection) Qn(H)/QnPH/QnPRHCPU User's Manual (Function Explanation, Program Fundamentals) QnUCPU User's Manual (Function Explanation, Program Fundamentals)



Operating procedure 2: Confirm the base of using the FBD language of GX Works3/ PX Developer for programming	Reference
<ul style="list-style-type: none"> Confirm both of the FBD language form and the instruction/data which can be used on CPU module 	GX Works3 Operating Manual MELSEC iQ-R Programming Manual (Process Control Function Blocks/Instructions) PX Developer Version 1 Programming Manual



Operating procedure 3: Set GX Works3/ PX Developer	Reference
<ul style="list-style-type: none"> Confirm the system which can be used by GX Works3/ PX Developer 	GX Works3 Operating Manual PX Developer Version 1 Operating Manual (Programming Tool)
<ul style="list-style-type: none"> Confirm the function which can run on GX Works3/ PX Developer 	
<ul style="list-style-type: none"> Connect the personal computer to the network of the process control system 	PX Developer Version 1 Operating Manual (Monitor Tool)
<ul style="list-style-type: none"> Install GX Works3/ PX Developer to the personal computer 	GX Works3 Installation Instructions Method of installing the PX Developer/PX Developer Monitor Tool (Included with the product)



Operating procedure 4: Programming with the programming tool	Reference
<ul style="list-style-type: none"> Start the programming tool 	GX Works3 Operating Manual PX Developer Version 1 Operating Manual (Programming Tool)
<ul style="list-style-type: none"> Remember the screen display and basic operation of the programming tool 	
<ul style="list-style-type: none"> Create the project with the programming tool 	
<ul style="list-style-type: none"> Programming with the programming tool in FBD language 	
<ul style="list-style-type: none"> Compile FBD language program with the programming tool 	
<ul style="list-style-type: none"> Download the program to CPU module with the programming tool 	
<ul style="list-style-type: none"> Online operation and debug with the programming tool 	



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Operating procedure 5: Set the monitor tool	Reference
● Start the monitor tool of PX Developer	Chapter 5
● Switch the monitor tool mode to the engineer mode	Chapter 4
● Confirm the screen configuration and basic operation	Chapter 6
● Set the display mode of the monitor target and the monitor screen	Chapter 9



Operating procedure 6: Execute test operation and confirm/adjust the setting	Reference
● Display the monitor screen and reconfirm the settings	Chapter 7 Chapter 10
● Confirm the content of tag data by monitoring the faceplate	
● Execute test operation and tuning	



Operating procedure 7: Set the user-created screen (User monitor screen)	Reference
● Create the user-created screen (user monitor screen) with Microsoft [®] Visual Basic [®] with ActiveX control	Chapter 11
● Assign the created user-created screen to the buttons of the monitor toolbar so that the screen can be started from the monitor tool	Chapter 9



Operating procedure 8: Run the process control system	Reference
● Switch the monitor tool mode to operator mode	Chapter 4
● Display the monitor screen and begin system monitor	Chapter 7
● Run the process control system with the program which has been downloaded to CPU module	MELSEC iQ-R CPU Module User's Manual (Application) QCPU User's Manual (Hardware Design, Maintenance and Inspection) Qn(H)/QnPH/QnPRHCPU User's Manual (Function Explanation, Program Fundamentals) QnUCPU User's Manual (Function Explanation, Program Fundamentals)

GENERIC TERMS, ABBREVIATIONS, AND TERMS

The following table shows the generic terms, abbreviations, and terms in this manual.

(1) Generic terms and abbreviations

Generic term/abbreviation	Description
PX Developer	Generic term for PX Developer Version 1 (SW1D5C-FBDQ-E) and PX Developer Monitor Tool (SW1DNC-FBDQMON-E) For PX Developer, Programming Tool and Monitor Tool are installed. For PX Developer Monitor Tool, only Monitor Tool is installed.
Programming tool	Abbreviation for GX Works3 and PX Developer programming tool
Monitor tool	Abbreviation for PX Developer monitor tool
GX Works3	Software for system design, programming, debug, and maintenance of a programmable controller
GX Works2	
GX Developer	
GX Simulator	
GX Simulator2	Abbreviation for GX Simulator Version 7 (SW7D5C-LLT-E Version 7.27D) or later
GX Simulator3	Abbreviation for GX Works2 simulation function
GX application	Abbreviation for GX Works3 simulation function
GX project	Generic term for GX Works2 and GX Developer interacted with PX Developer
Simulator	Generic term for GX Works2 project and GX Developer project included in PX Developer
OPS	Generic term for GX Simulator2 (GX Works2 simulation function) and GX Simulator
Standalone	Abbreviation for Operator Station
Server	Abbreviation for a monitor tool configured by of the standalone monitoring system with only one OPS, not interacting with other OPSs
Primary server	Abbreviation for a monitor tool which starts up as Server in the server/client monitoring system interacting with multiple OPSs
Secondary server	Abbreviation for a server to which clients connect primarily
Client	Abbreviation for a server to which clients automatically reconnect when a primary server error occurs
GT SoftGOT	Abbreviation for a monitor tool which starts up as Client in the server/client monitoring system interacting with multiple OPSs
GT Designer2	Generic term for GT SoftGOT1000 Version 2, GT SoftGOT1000 Version 3, and GT SoftGOT2000 Version 1
GT Designer3	Abbreviation for GT Designer2 Version 2
Personal computer	Abbreviation for GT Designer3 Version 1
CPU module	Generic term for personal computers on which Windows [®] operates
	Generic term for the MELSEC iQ-R series and MELSEC-Q series CPU modules

Generic term/abbreviation	Description
RCPU	Generic term for the MELSEC iQ-R series CPU modules
Process CPU	Generic term for RnPCPU and QnPHCPU
RnPCPU	Generic term for R08PCPU,R16PCPU,R32PCPU,R120PCPU
Process CPU (Redundant mode)	RnPCPU operating in the redundant mode
Process CPU (Process mode)	RnPCPU operating in the process mode
SIL2 process CPU	Generic term for R08PSFCPU, R16PSFCPU, R32PSFCPU, and R120PSFCPU A CPU module that performs the standard control and safety control by combining with a SIL2 function module.
RnPSFCPU	A redundant system can be configured by combining with a redundant function module.
QCPU	Generic term for the MELSEC-Q series CPU modules
QnPHCPU	Generic term for Q02PHCPU, Q06PHCPU, Q12PHCPU, Q25PHCPU
Universal model process CPU	Generic term for Q04UDPVCPU, Q06UDPVCPU, Q13UDPVCPU, and Q26UDPVCPU
QnUDPVCPU	
Redundant CPU	Generic term for Q12PRHCPU, Q25PRHCPU
QnPRHCPU	
Built-in Ethernet CPU	Generic term for CPU modules with Ethernet ports
PC CPU module	Abbreviation for MELSEC-Q series-compatible PC CPU module manufactured by CONTEC CO. , LTD.
Serial communication module C24	Generic term for QJ71C24, QJ71C24-R2, QJ71C24N, QJ71C24N-R2, and QJ71C24N-R4
Redundant type extension base unit	Abbreviation for Q65WRB extension base unit for redundant system
CC-Link IE Controller Network module	Generic term for RJ71GP21-SX, QJ71GP21-SX, and QJ71GP21S-SX
MELSECNET/H module	Generic term for QJ71LP21, QJ71LP21-25, QJ71LP21S-25, QJ71LP21G, and QJ71BR11
Ethernet module	Generic term for RJ71E71, QJ71E71-100, QJ71E71-B5, QJ71E71-B2, and QJ71E71
CC-Link module	Generic term for AJ61BT11, A1SJ61BT11, AJ61QBT11, A1SJ61QBT11, QJ61BT11, and QJ61BT11N
G4 module	Abbreviation for AJ65BT-G4(-S3) peripheral connection module
MELSECNET/10 compatible mode	Abbreviation for function and performance-compatible mode so that the MELSECNET/H network system can have upward compatibility to existing MELSECNET/10 network system
CC-Link IE Controller Network board	Abbreviation for CC-Link IE Controller Network interface board
MELSECNET/H board	Abbreviation for MELSECNET/H interface board
MELSECNET/10 board	Abbreviation for MELSECNET/10 interface board
Ethernet board	Generic term for Ethernet PC card and Ethernet interface board supported by Windows®
CC-Link board	Generic term for A80BDE-J61BT11, A80BDE-J61BT13, Q81BD-J61BT11, and Q80BD-J61BT11N

(2) Terms

Term	Description
DDC	Abbreviation for Direct Digital Control A control of controller functions with a digital device.
FBD	Abbreviation for Function Block Diagram defined in IEC61131-3 Programs are created by connecting variables, constants, and blocks containing specific processing, according to the flow of data signal.
ST	Abbreviation for Structured Text defined in IEC61131-3 Programs are created by writing arithmetic operations and logical operations in text format.
FB	Abbreviation for Function Block A block with a specific function used in a program.
Tag	Identification symbol attached to each DDC processing defined by JIS This can be likened to a tag attached to process control equipment.
Tag data	Summarizes data attached to DDC processing indicated with a tag (process condition data/process status data). Accessing the tag data can monitor status and set conditions of the relevant DDC.
Tag data item	Each data item that makes up tag data
Tag FB	Function block works as a controller or an indicator containing tag data
Global variable	Variables registered in the global variable declaration window in programming tool.
Faceplate	Gauge window on which an indicator such as a controller is displayed in image format Values assigned to tag data are manipulated.
Lockout tag	Eye-graph tag displayed on a faceplate that indicates precautions for operations and restrictions according to operation authority Also, this designates making the settings to the faceplate.
SV	Setting value
PV	Process variable
DV	Deviation Difference between setting value (SV) and process variable (PV)
MV	Manipulated variable
PID control	Control that calculates and outputs a manipulated variable (MV) to have the process variable (PV) reach to the same value as the setting value (SV) sooner and precisely by combining P action (proportional action), I action (integral action), and D action (derivative action)
Auto tuning step response method	Method that detects dynamic characteristics by moving the plant and automatically obtains proportional gain (Kp), integral time (Ti), and derivative time (Td) of PID based on the Ziegler-Nichols step response method
Auto tuning limit cycle method	Method that detects dynamic characteristics by moving the plant and automatically obtains proportional gain (Kp), integral time (Ti), and derivative time (Td) of PID based on the vibration amplitude and vibration period caused by two-step action (on-off action) of manipulated variable (MV)
Project ID code	Identification code used to check whether the monitor target project (☞ Section 9.4) set with the monitor tool matches the project in the CPU module
Assignment information database	A '*.fadb' file output after a conversion of GX Works3 or '*.mdb' file created when compilation is executed in the PX Developer programming tool This file stores assignment information of variables for storing data such as tag data, global variable and device information of the CPU module.
Operation mode	Mode for determining the operation method of the redundant system The following three modes are available. <ul style="list-style-type: none"> • Backup mode • Separate mode • Debug mode (QnPRHCPU)
Backup mode	Mode for normal operation of the redundant system If a failure or an error occurs in the control system, the standby system switches to the control system to continue the control of the redundant system. The operation mode can be switched to the separate mode using GX Works3 or GX application.
Separate mode	Mode for maintaining a system (partial modification of a program, replacement of modules mounted on the main base unit) without stopping the control during run of the redundant system During this mode, different programs can be executed in the control system and standby system. System switching cannot be made in this mode (User switching is possible). The operation mode can be switched to the backup mode using GX Works3 or GX application.

Term	Description
Debug mode	Mode for performing a debug using a single system prior to redundant system(QnPRHCPU) operation This permits operations without connecting tracking cables. In this mode, the CPU module is fixed to system A, control system. (Tracking of the redundant system is not performed.) Set/cancel this mode in the redundant parameter setting of GX application.
Operation mode change	Switching of the operation mode for system A and system B using GX Works3 or GX application while the redundant system is running The operation mode can be switched between the backup mode and separate mode.
System A System B	In a redundant system, to distinguish the two systems that are connected via a tracking cable, one system is referred to as 'A system' and the other system is referred to as 'B system'.
System switching System switching User switching	Control switching to backup system to continue system control and network communication when a trouble occurs in the system that performs control in the redundant system (when a failure or an error occurs in the power supply system, mounted module, or network) (Switching between control system and standby system to avoid system down) The following two types are available. <ul style="list-style-type: none"> • System switching Automatic system switching by the redundant system when a trouble occurs • User switching System switching by sequence program/ GX Works3 or GX application
Control system	A system that performs program operation, system control, and network communication in the redundant system When system A and system B start concurrently in the backup mode, the system A will be the control system. (Concurrent startup: One system starts within three seconds after the other system has started.) When the system A and system B start separately, a system that starts first will be the control system.
Standby system	Backup system to continue system control in case of a failure or an error in the module in the control system in the redundant system (The CPU module in the standby system does not calculate programs.) When system A and system B start concurrently in the backup mode, the system B will be the standby system. (Concurrent startup: One system starts within three seconds after the other system has started.) When the system A and system B start separately, a system that starts later will be the standby system.
Tracking transfer function	Data transfer function that keeps the data of control system and standby system consistent This function enables the standby system to serve as the control system to continue the system control in case of system down of the control system. The Redundant CPU can perform tracking transfer without making the tracking settings, as it tracking transfer setting data has been set by default. (Change tracking transfer setting data using GX Works3 or GX application.)
Redundant system	System configured using Redundant CPUs This system consists of two basic systems including CPU modules, power supply modules, and network modules. (If module error occurs in one system, the other system continues the system control. Thus, system reliability is improved.) To configure the redundant system, prepare two sets of the systems where the above modules of the same models are mounted on the base unit, and connect the CPU modules with tracking cables.
Redundant parameter	Parameter for setting operation mode of Redundant CPU system and tracking transfer setting data (tracking setting) Use GX Works3 or GX application to set the parameter.
Well-known port number	Port number used in main protocols of TCP/IP Assigned in the range of 0 to 1023.
Modal dialog box	A dialog box that avoids any operations other than relating to the open dialog box until it is closed
Modeless dialog box	A dialog box that can be left open while performing any other operations

1 OVERVIEW

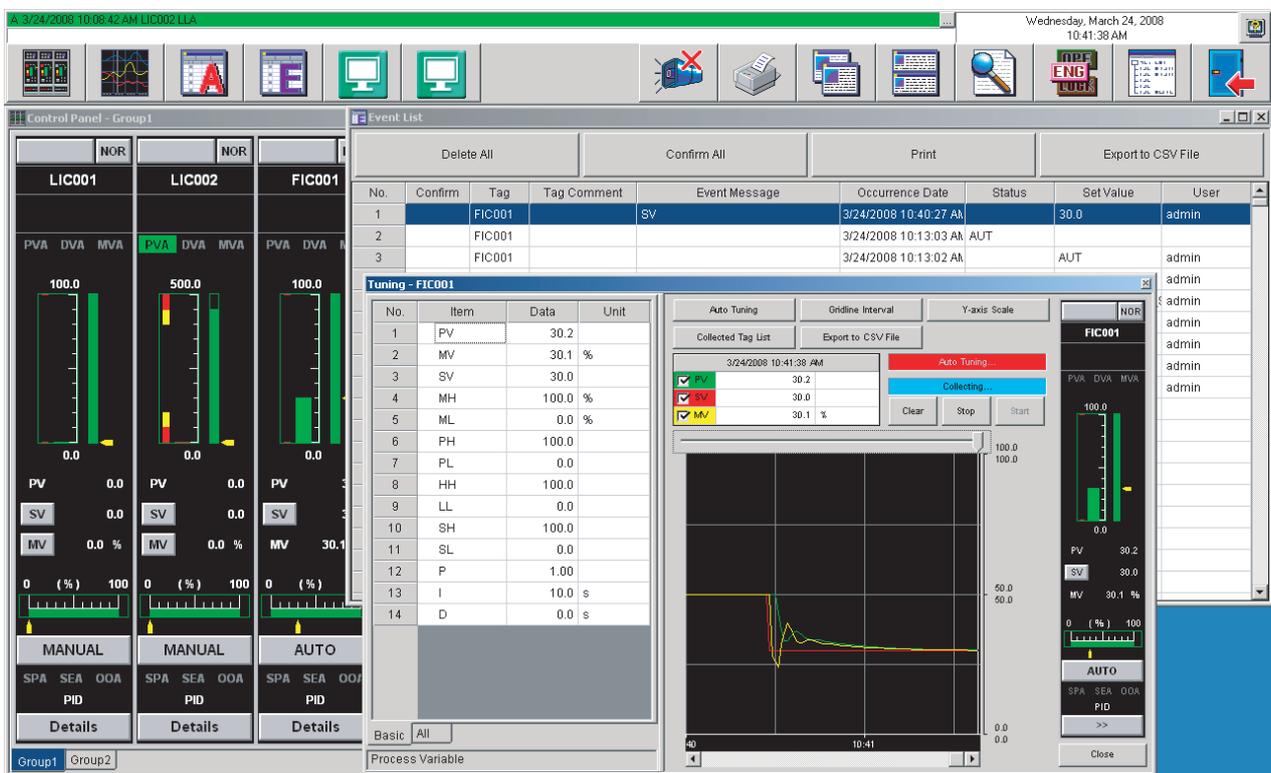
1.1 Overview



PX Developer is a software package which supports processing DDC on CPU module.

PX Developer consists of programming tool and monitor tool. The programming work is done in FBD language. DDC processing monitor is done with tag data.

The monitor tool mentioned in this manual is a software tool monitoring and controlling DDC processing on CPU module.



<Monitor Tool Screen>

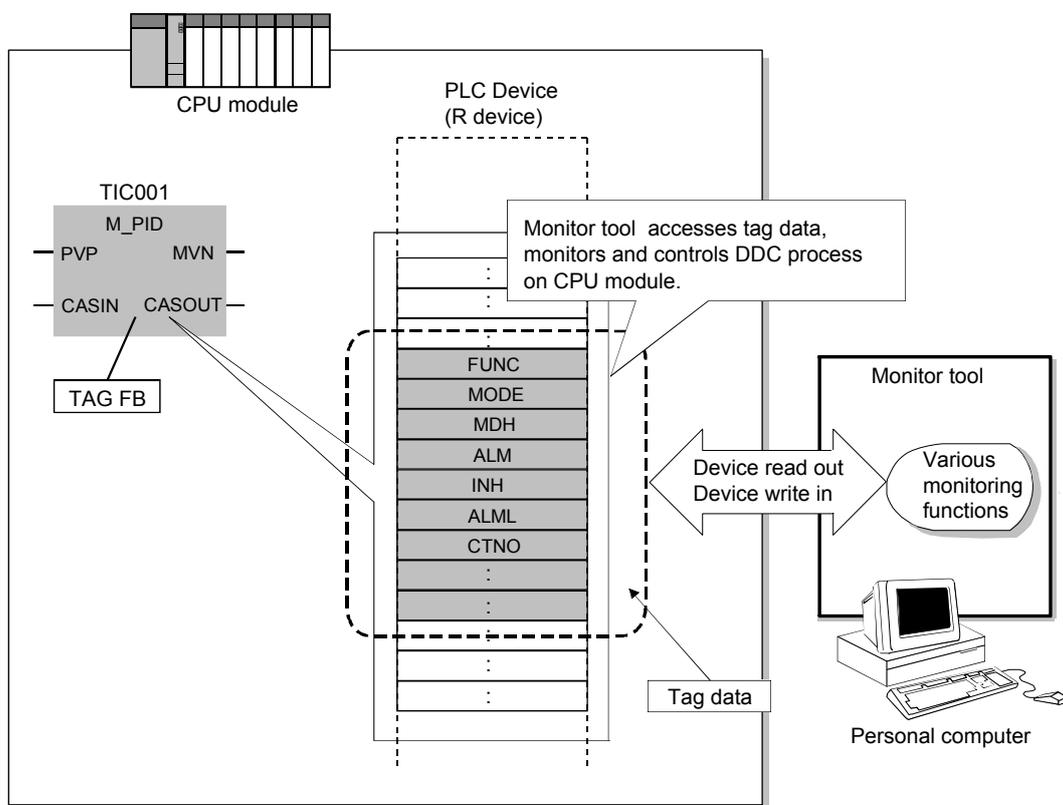
The monitor tool monitors and controls DDC processing executed in the way of tag FB with the programming tool.

Inside Tag FB, there is a data area called tag data. This tag data is arranged on the PLC device. When a program with this tag FB is executed, the tag data can show the logical status of DDC processing at any time. Meanwhile, the monitor tool controls DDC processing logic itself through parameters in this tag data.

Monitor tool communicates with CPU module, and monitors/controls this tag data.

The content of tag data can be read and displayed on various kinds of monitor screens. And values can be written to the tag data by users' operation.

The global variables and devices can be read and displayed on the various kinds of monitor screens.



The monitoring status with the insertion of tag data

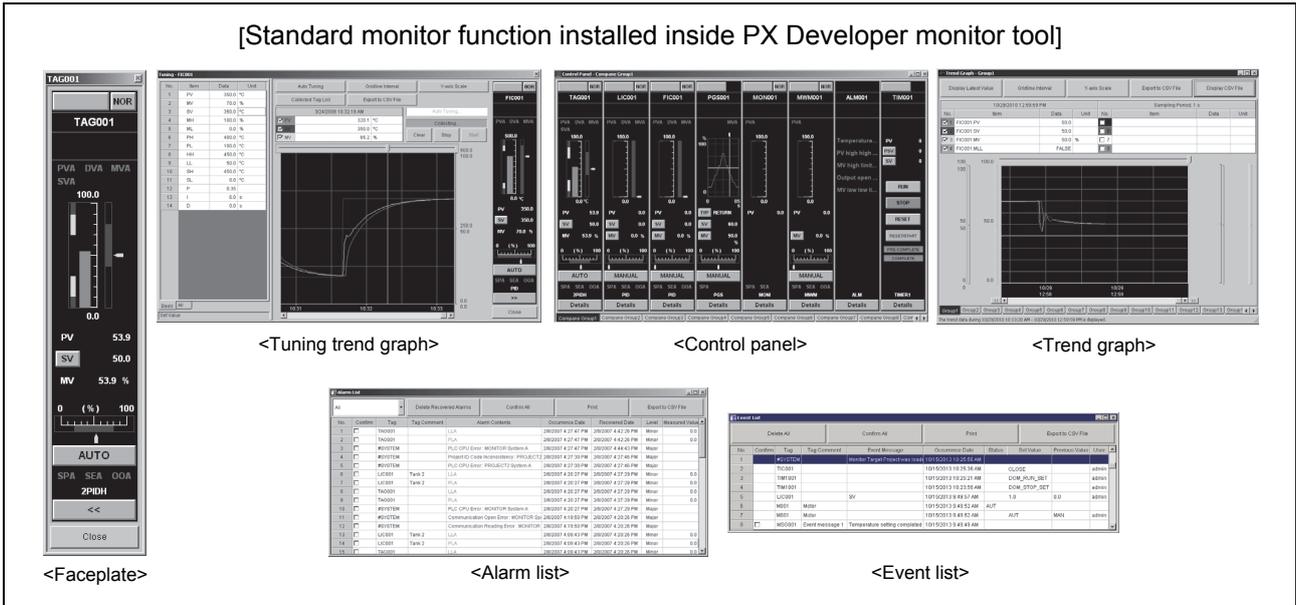
Besides, monitor tool offers ActiveX controls which can be acquired/set the desired values inside tag data or display faceplates. As a result, the desired user graphic screens (user monitor screens) can be created with Microsoft® Visual Basic® . User-created screens made with ActiveX control are easy to be opened by pressing buttons on the monitor tool.

1.2 Features

- (1) Shorten configuration time of process control system with tag monitoring control function.

Various standard functions are installed inside the monitor tool for tag monitoring control, which are necessary for the start adjustment of process control system. Communication processing does not need to be programmed, because monitoring work can be done by easily setting tags made by programming tool.

[Standard monitor function installed inside PX Developer monitor tool]



- (2) Various connection methods with CPU

The monitor tool can monitor and operate up to 16 CPU modules via CC-Link IE Controller Network, MELSECNET/10(H) or Ethernet network. The serial/USB connection, CC-Link connection and GOT transparent are allowed for adjusting the CPU.

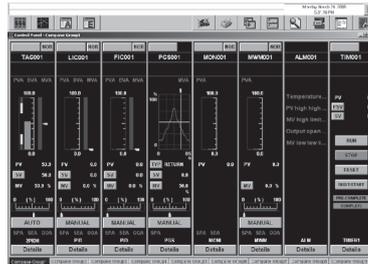
[Communication route of PLC transfer setup that can be set in the monitor tool]

Communication route	Adjustment	Application
Serial/USB	○	×
MELSECNET/10	○	○
MELSECNET/H	○	○
CC-Link IE Controller Network	○	○
Ethernet	○	○*1
CC-Link	○	×
GOT transparent	○	×

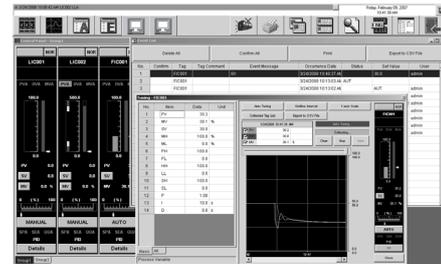
○: usable
 ×: unusable
 *1: It is unusable when directly connecting to the built-in Ethernet port of a built-in Ethernet CPU.

(3) Operation environment with single/multiple windows adapted to different purposes.

According to different purposes, single-window mode and multi-window mode can be selected. The former can always display only one screen in maximal size. The latter can display several screens at the same time, furthermore, the window's size and its arrangement can be changed freely through easy setting.



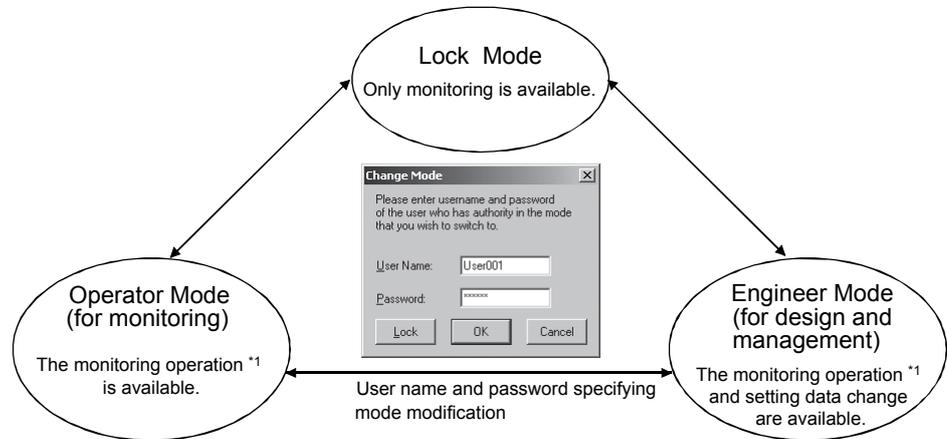
<Single-window mode>



<Multi-window mode>

(4) Mis-operation by persons not concerned can be avoided by managing user names and passwords.

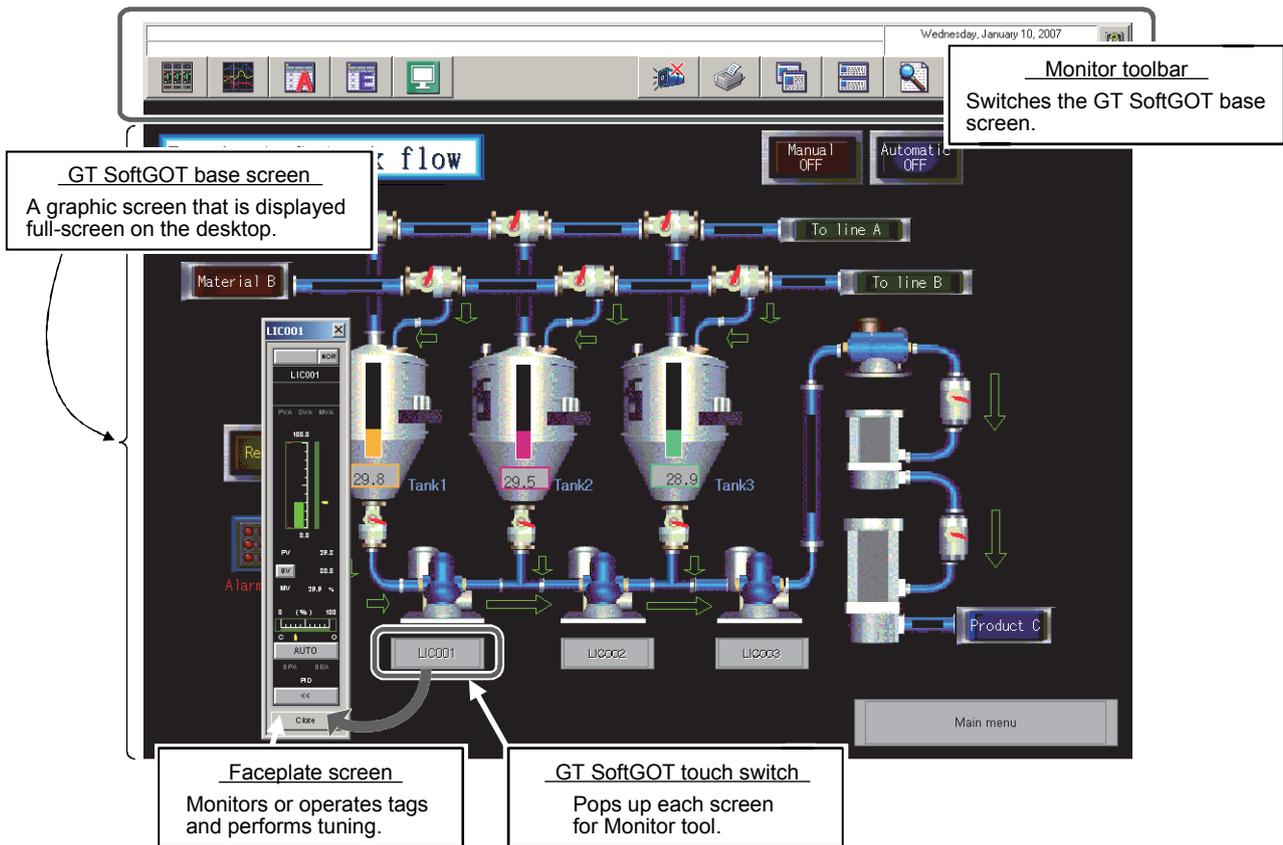
In monitor tool, operators without registering user names and passwords (without right) cannot change modes to change numerical values and setting. Setting the mode to the lock mode enables to avoid mis-operations by persons not concerned even operators are out.



*1: The monitoring operation is for monitoring/changing the tag data.

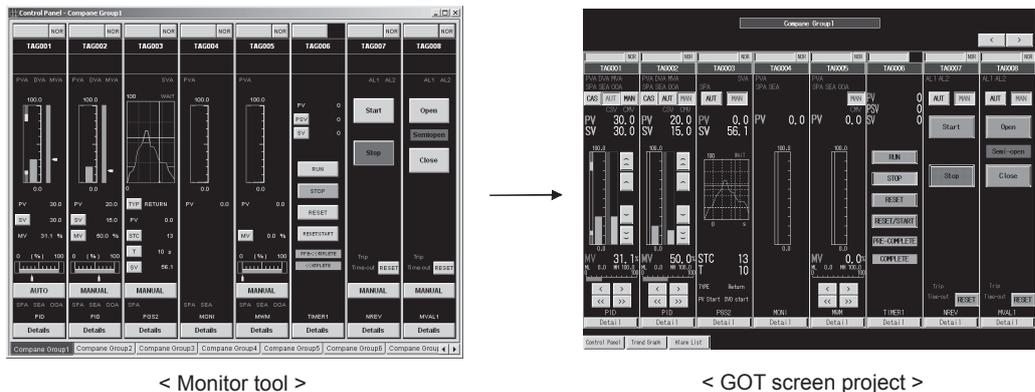
(5) Interaction with GT SoftGOT is possible

Graphic screens created with GT Designer2 can be displayed by starting up GT SoftGOT from the Monitor tool. The existing GOT screens can be utilized and also graphics can be created using familiar GT Designer2 or GT Designer3. Calling monitor tool functions such as faceplate from GT SoftGOT reduces working hours for creating screens.

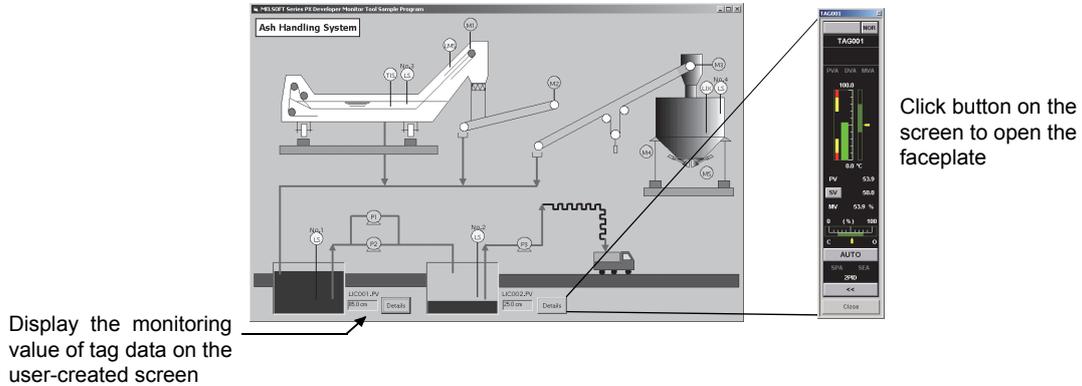


(6) Auto-generation of GOT screen is possible

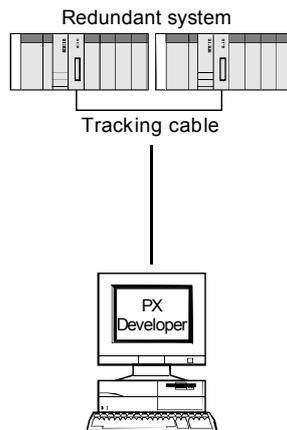
GOT screen project can be generated automatically from PX Developer project by using the monitor tool to execute simple setting such as placing screens and then following the wizard to enter required items. This reduces working hours for creating monitoring operation screens.



- (7) Support user-created screen made by Microsoft® Visual Basic®
Monitor tool provides ActiveX control to get tag data value. To use this control on the graphs made by Microsoft® Visual Basic®, the tag data can be monitored.



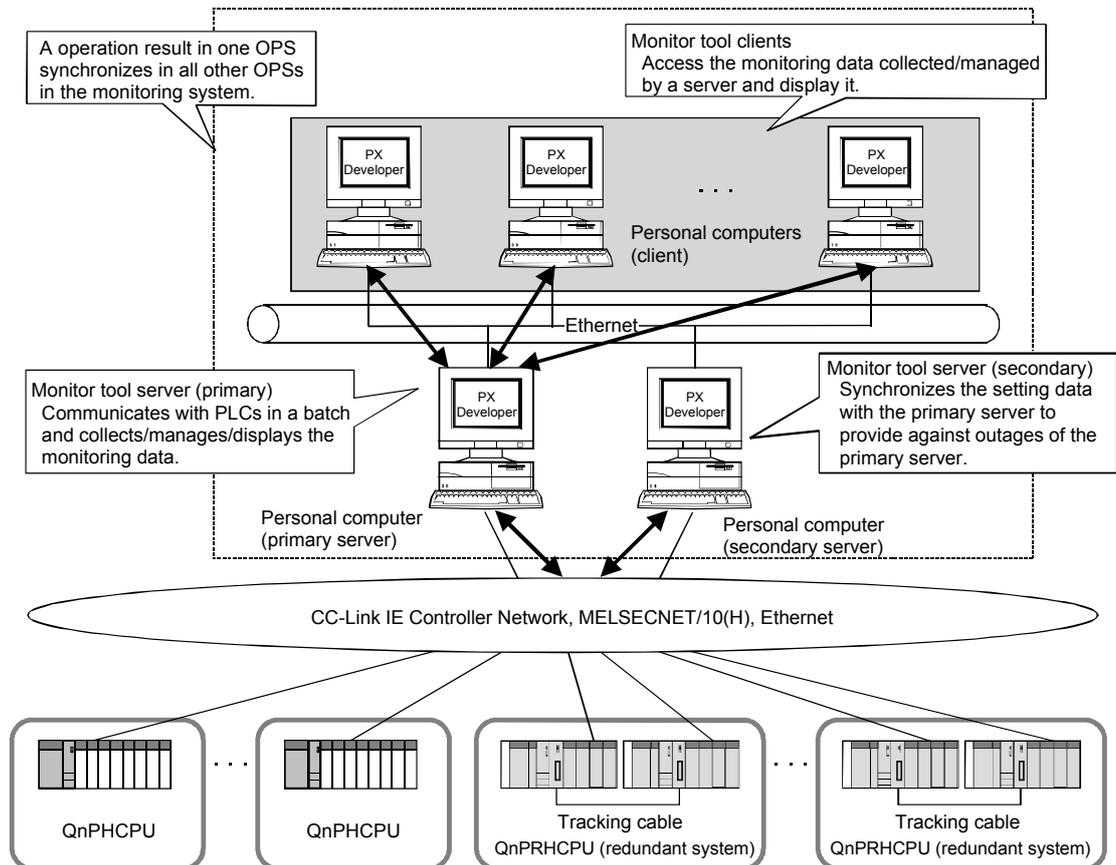
- (8) Application to Redundant CPU
A redundant system can be monitored and controlled.
When the system is switched, the monitoring/control target is automatically changed.



- (9) Monitoring is enabled by the monitor tool only.
The personal computer in which GX application has not been installed can be monitored by the PX Developer Version 1.06G or later monitor tool only.
- (10) Connecting to Simulator
Offline debugging is possible with Simulator in PX Developer Version 1.28E or later.
This enables simulation of setting check and monitor operation without connecting a CPU module.

(11) Configuring the server/client monitoring system is possible

- 1) Improving communication performance between the monitor tool and PLCs
A server performs communication with PLCs in a batch, so communication loads on PLCs can be reduced and communication performance can be improved.
- 2) Displaying the same monitor screen with the monitor tool on every OPS
The monitoring data collected/managed by a server can be displayed on clients. In other words, the same monitor screen can be displayed with the monitor tool on every OPS.
- 3) Continuous monitoring is possible regardless of server errors
Installing a primary server and a secondary server in the monitoring system enables continuous monitoring when an error occurs in the primary server, for clients switch the server to connect automatically.
- 4) Synchronizing a buzzer stop and check/deletion of an alarm/event
When an operation, such as a buzzer stop and check/deletion of an alarm/event, is performed in one of OPSs in the monitoring system, its result synchronizes in every OPS in the monitoring system.



POINT

- In the redundant server system, the setting data can be changed in the primary server. The secondary server starts up using the setting data of the primary server.
- The monitoring data is not equalized between primary and secondary servers. The monitoring data equalization is a process that synchronizes the monitoring data, such as trend and alarm, between primary and secondary servers.

2 SYSTEM CONFIGURATION

2.1 System Configuration

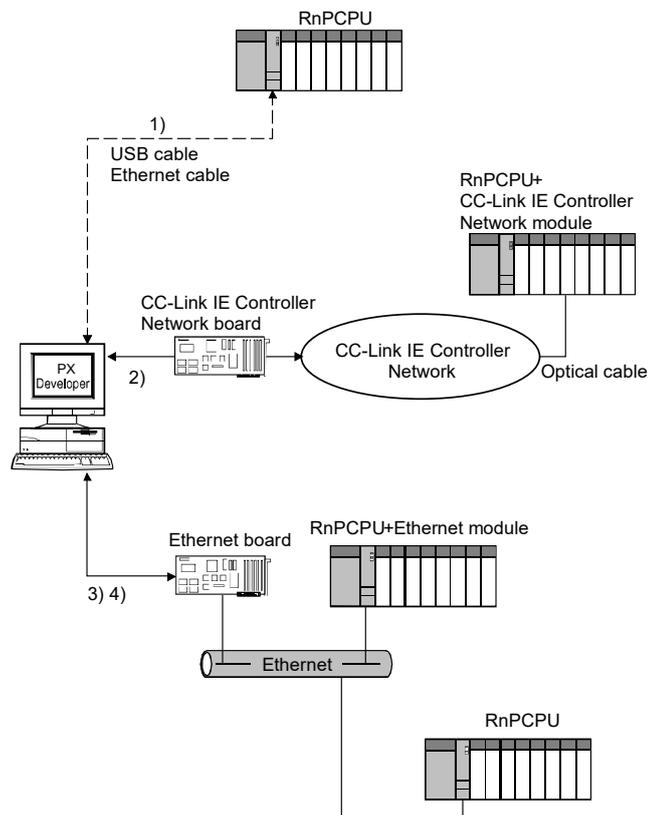
This section deals with system configuration of monitor tools.

2.1.1 Supported CPU

Series	Module type	Model name	Mode	Communication route
MELSEC iQ-R	Process CPU	R08PCPU, R16PCPU, R32PCPU, R120PCPU	Process mode	Refer to Section 2.1.2 (1).
			Redundant mode (Backup mode, Separate mode)	Refer to Section 2.1.2 (2).
	SIL2 process CPU	R08PSFCPU, R16PSFCPU, R32PSFCPU, R120PSFCPU	Backup mode	
MELSEC-Q	Process CPU	Q02PHCPU, Q06PHCPU, Q12PHCPU, Q25PHCPU	—	Refer to Section 2.1.2 (3).
	Universal model process CPU	Q04UDPVCPU, Q06UDPVCPU, Q13UDPVCPU, Q26UDPVCPU	—	Refer to Section 2.1.2 (4).
	Redundant CPU	Q12PRHCPU, Q25PRHCPU	Backup mode	Refer to Section 2.1.2 (5).
			Separate mode	
			Debug mode	Refer to Section 2.1.2 (6).

2.1.2 Communication route

(1) Connecting to a Process CPU in the Process Mode (RnPCPU)



(a) Communication route

When Process CPU is applied for normal operations as operator station, configuring the system that can receive the event notification is required. For details, refer to Appendix 1.2.

No.	Connection method		Precautions for connection
1)	Ethernet Port Direct Connection / USB connection	CPU module	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 One CPU module can be connected from one personal computer by USB cable.
2)	CC-Link IE Controller Network connection		Applicable only for adjusting the CPU when connecting a PLC using different types of networks in single network connection or connecting in coexistence network connection. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 The driver for CC-Link IE Controller Network board which supports the event notification function is required.*2
3)	Ethernet connection	Ethernet module*3 *4	The performance as an operator station in normal operation is not guaranteed under the following conditions.*1 •The IP addresses of the Ethernet module and personal computer are not in the same segment.
4)		CPU module	

*1: This happens as the monitor tool cannot receive event notification. For the system configuration that can receive event notification, refer to Appendix 1.2.

*2: The driver for CC-Link IE Controller Network board (SW1DNC-MNETG-B) version 1.17T or later is required.

*3: The Ethernet Port Direct Connection is not supported since monitor tools cannot receive event notifications.

*4: When Ethernet (connect to the Ethernet Module via HUB) is selected, set the module parameters of GX Works3. For details, refer to POINT in this section.

POINT

When Ethernet (connect to the Ethernet Module via HUB) is selected, set the module parameters of GX Works3.

[Basic Settings]

[Own Node Settings]

[IP Address]

[IP Address] : (IP addresses that is assigned to the module)

[Subnet Mask] : (Consult the network administrator before setting *1)

[Default Gateway] : (Consult the network administrator before setting *1)

[Communications by Network No./Station No.] : Enable

[Setting Method] : Not Use IP Address

[Network Number] : (Network number that is assigned to the module)

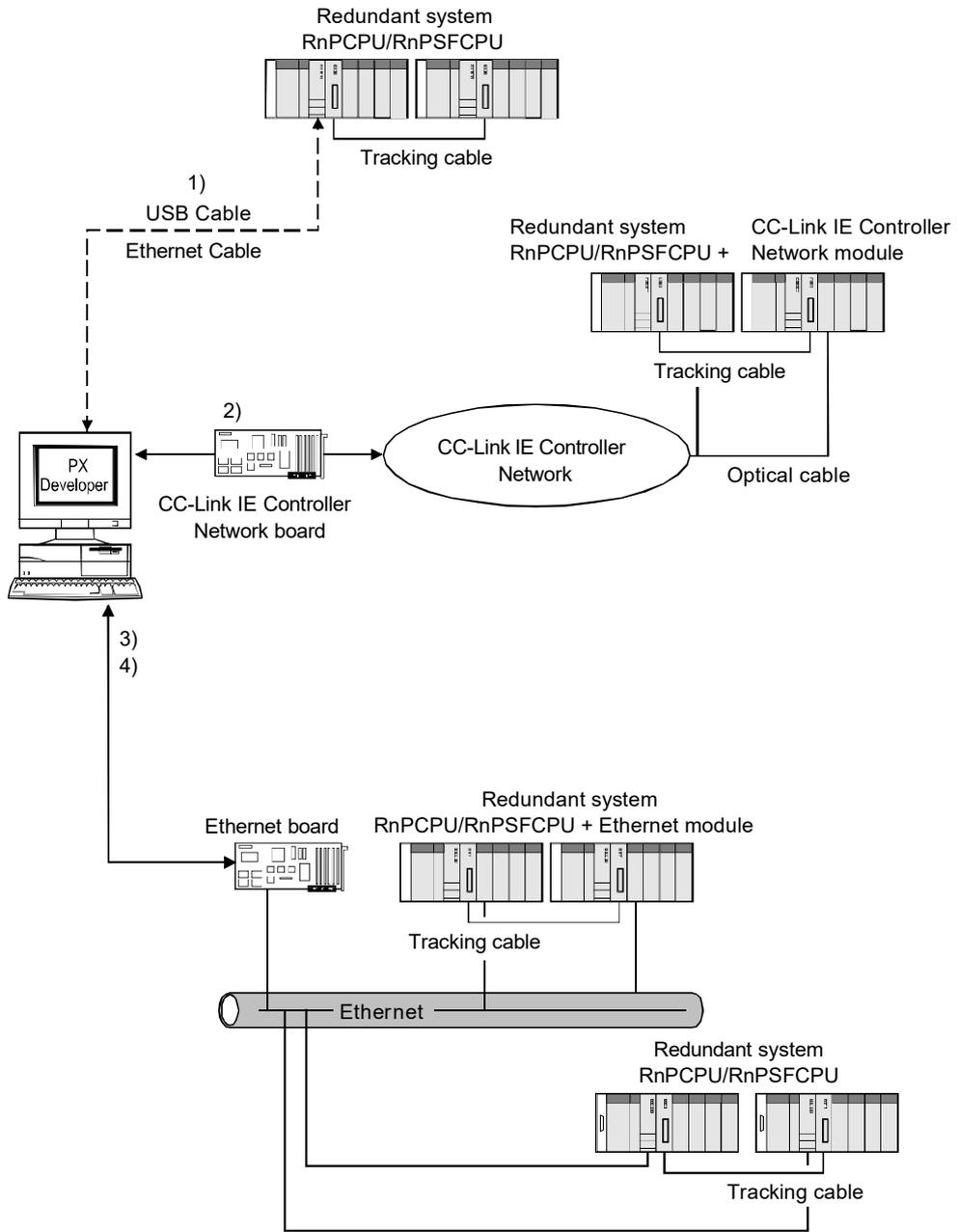
[Station No.] : (Station number that is assigned to the module)

[Communication Data Code]: Binary

[Opening Method] : Do Not Open by Program

*1: Set the same setting configuration with the receiver side personal computer.

(2) Connecting to a Process CPU in the Redundant mode or SIL2 process CPU (RnPCPU, RnPSFCPU)



(a) Communication route

When Process CPU is applied for normal operations as operator station, configuring the system that can receive the event notification is required. For details, refer to Appendix 1.2.

No.	Connection method		Precautions for connection
1)	Ethernet Port Direct Connection / USB connection	CPU module	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 Connect a cable to the CPU module in either of system A or system B. (The communication is performed with the CPU module of another system via tracking cable.) One CPU module can be connected from one personal computer by USB cable.*2
2)	CC-Link IE Controller Network connection		Applicable only for adjusting the CPU when connecting a PLC using different types of networks in single network connection or connecting in coexistence network connection. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 The driver for CC-Link IE Controller Network board which supports the event notification function is required.*3
3)	Ethernet connection	Ethernet module*4 *5	The performance as an operator station in normal operation is not guaranteed under the following conditions.*1 •The IP addresses of the Ethernet module and personal computer are not in the same segment.
4)		CPU module*6	

*1: This happens as the monitor tool cannot receive event notification. For the system configuration that can receive event notification, refer to Appendix 1.2.

*2: Refer to POINT in Section 2.1.3.

*3: The driver for CC-Link IE Controller Network board (SW1DNC-MNETG-B) version 1.17T or later is required.

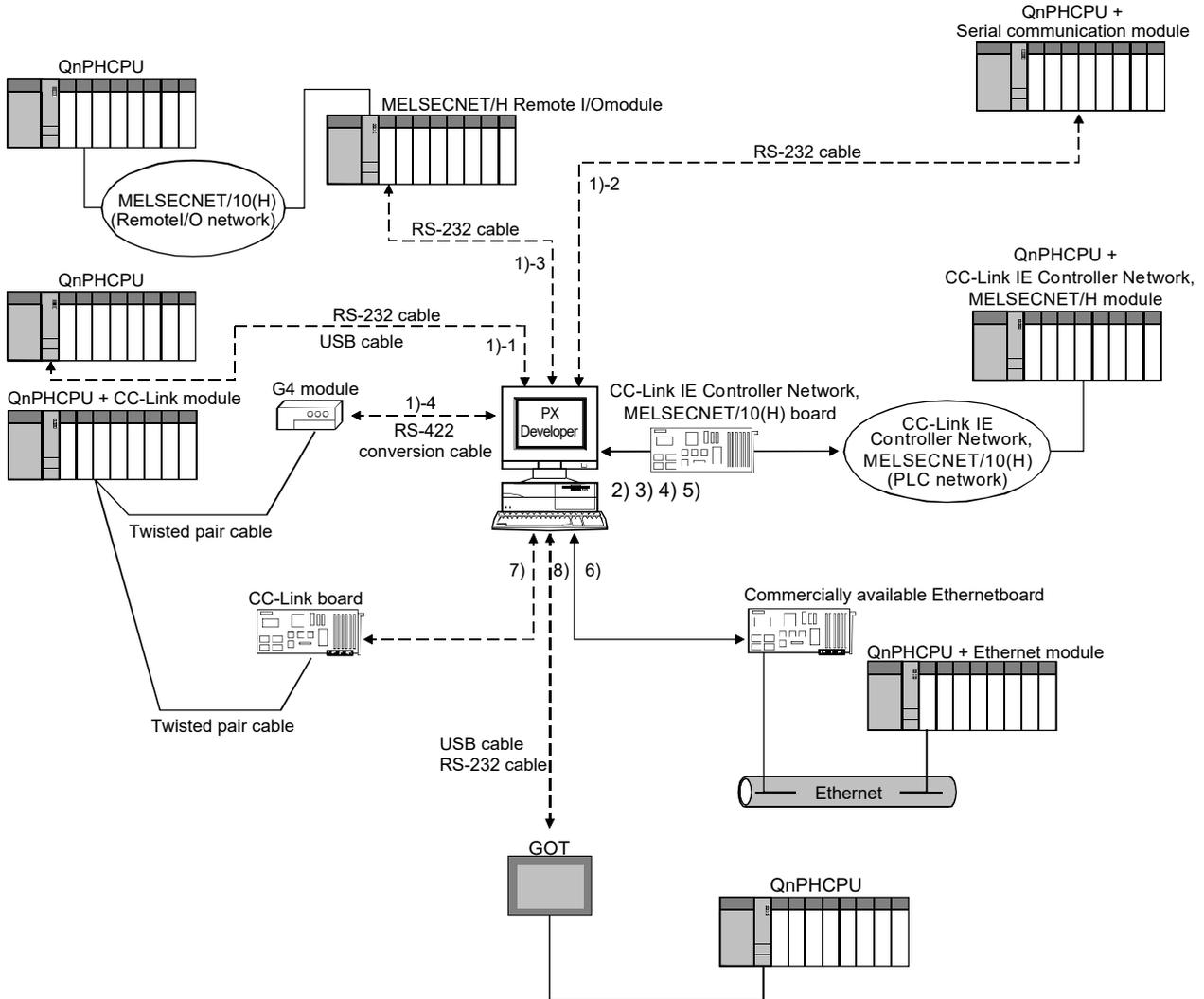
*4: The Ethernet Port Direct Connection is not supported since monitor tools cannot receive event notifications.

*5: When Ethernet (connect to the Ethernet Module via HUB) is selected, set the module parameters of GX Works3. For details, refer to POINT in this section.

*6: When using an RnPCPU built-in Ethernet connection, a system switching cannot be performed by the detection of a communication error or a cable disconnection. Therefore, if a CPU module is applied for performing normal operations as an operator station, the performance cannot be guaranteed.

POINT
<p>When Ethernet (connect to the Ethernet Module via HUB) is selected, set the module parameters of GX Works3.</p> <p>[Basic Settings]</p> <p>[Own Node Settings]</p> <p>[IP Address]</p> <p>[IP Address] : (IP addresses that is assigned to the module)</p> <p>[Subnet Mask] : (Consult the network administrator before setting *1)</p> <p>[Default Gateway] : (Consult the network administrator before setting *1)</p> <p>[Communications by Network No./Station No.] : Enable</p> <p>[Setting Method] : Not Use IP Address</p> <p>[Network Number] : (Network number that is assigned to the module)</p> <p>[Station No.] : (Station number that is assigned to the module)</p> <p>[Communication Data Code]: Binary</p> <p>[Opening Method] : Do Not Open by Program</p> <p>[Application Settings]</p> <p>[Redundant System Settings]</p> <p>[System B IP Address] : (IP addresses that is assigned to the Ethernet module in System B)</p> <p>[System B Station Number] : (Station number that is assigned to the Ethernet module in System B)</p> <p>[Use of Control System IP Address]: Not Use</p> <p>*1: Set the same setting configuration with the receiver side personal computer.</p>

(3) Connecting to a Process CPU(QnPHCPU)



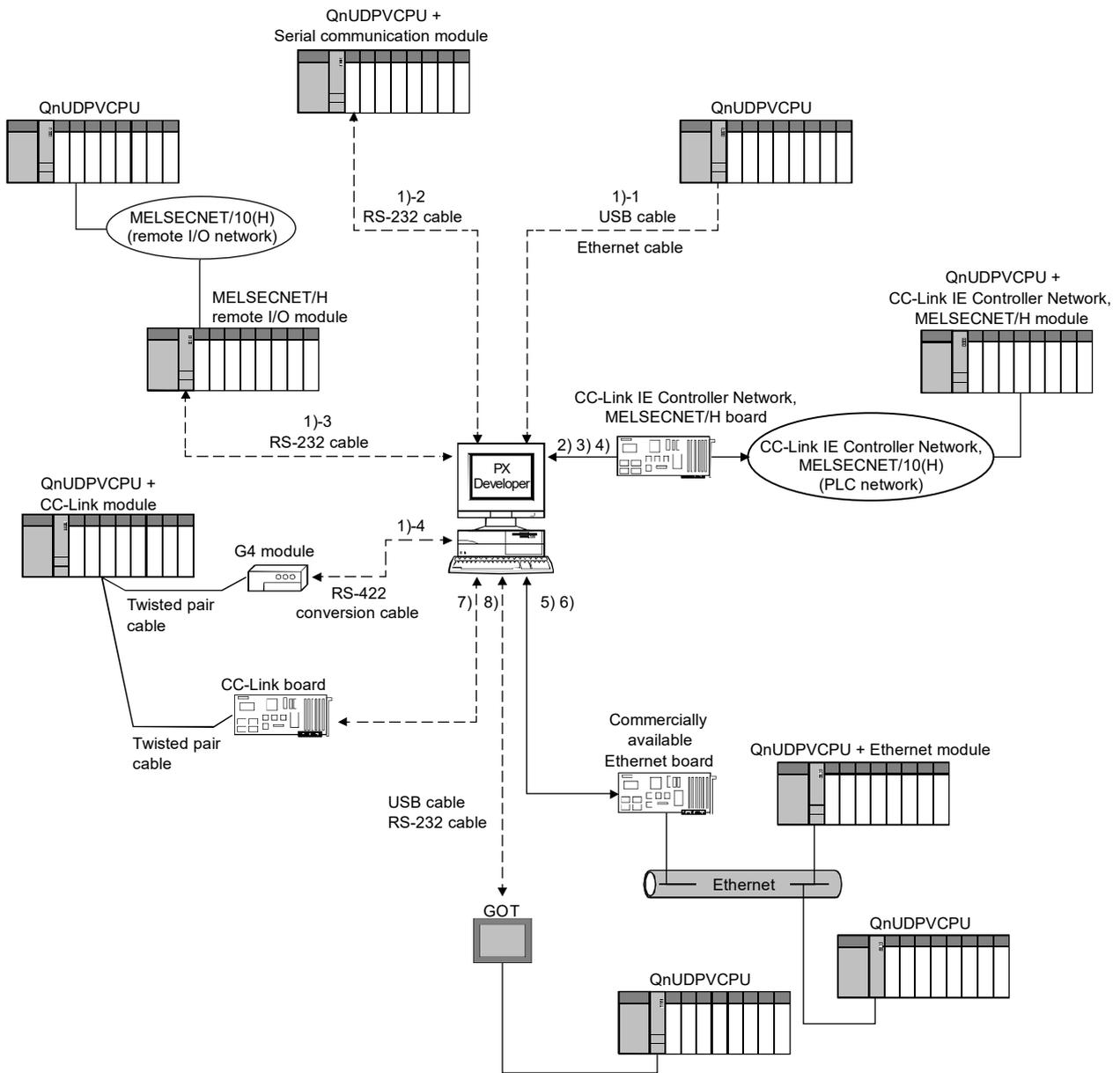
(a) Communication route

When Process CPU is applied for normal operations as operator station, configuring the system that can receive the event notification is required.
For details, refer to Appendix 1.2.

No.	Connection method		Precautions for connection
1)-1	Serial/USB connection	CPU module	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 One CPU module can be connected from one personal computer by USB cable. *2
1)-2		C24	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
1)-3		MELSECNET/10(H) remote	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
1)-4		G4 module	Use the type of AJ65BT-G4-S3. Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
2)	MELSECNET/10 connection (When using the MELSECNET/10 board)		The PLC must be set to the MELSECNET/10 compatible mode. When connecting a PLC using different types of networks in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
3)	MELSECNET/10 connection (When using the MELSECNET/H board)		The MELSECNET board and PLC must be set to the MELSECNET/10 compatible mode. When connecting a PLC using different types of networks in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
4)	MELSECNET/H connection		When connecting a PLC using different types of networks in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
5)	CC-Link IE Controller Network connection		CC-Link IE Controller Network compatible version of Process CPU is required.*3 The driver for CC-Link IE Controller Network board which supports the event notification function is required.*4 Applicable only for adjusting the CPU when connecting a PLC using different types of networks in single network connection or connecting in coexistence network connection. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
6)	Ethernet connection		The performance as an operator station in normal operation is not guaranteed under the following conditions. *1 <ul style="list-style-type: none"> • The IP addresses of the Ethernet module and personal computer are not in the same segment. • When a wireless LAN adapter (NZ2WL) *5 is applied for communication route. • Single network connection in which a PLC is connected using different types of networks or in coexistence network connection.
7)	CC-Link connection		Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 CC-Link Ver.1 and Ver.2 boards cannot be used together.
8)	GOT transparent connection*6		Connection method via GOT is the same as that of GX application. Note that, GOT transparent function via GOT 2000 is not supported by GX Developer. Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1

- *1: This happens as the monitor tool cannot receive event notification. For the system configuration that can receive event notification, refer to Appendix 1.2.
- *2: Refer to POINT in Section 2.1.3 .
- *3: The Process CPU whose first five digits of serial number is 10042 or later is required.
- *4: The driver for CC-Link IE Controller Network board (SW1DNC-MNETG-B) version 1.08J or later is required.
- *5: Use a wireless LAN adapter corresponding to national standards where it is used. For details, refer to the manuals of wireless LAN adapter.
- *6: For details of GOT transparent function, refer to the following manuals:
 - GOT2000 Series Connection Manual (Mitsubishi Electric Products) For GT Works3 Version1
 - GOT1000 Series Connection Manual (Mitsubishi Electric Products) for GT Works3
 - GOT-A900 Series User's Manual (Connection System Manual)
 - GOT-F900 SERIES HARDWARE MANUAL [Connection]

(4) Connecting to a Universal model process CPU(QnUDPVCPU)



(a) Communication route

When Universal model process CPU is applied for normal operations as operator station, configuring the system that can receive the event notification is required. For details, refer to Appendix 1.2.

No.	Connection method		Precautions for connection
1)-1	Built-in Ethernet port direct connection/ USB connection	CPU module	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 One CPU module can be connected from one personal computer by Ethernet port or USB cable.*2
1)-2	Serial	C24	Applicable only for adjusting the CPU.
1)-3		MELSECNET /10(H) remote	If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
1)-4		G4 module	Use the type of AJ65BT-G4-S3. Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
2)	MELSECNET/10 connection (When using the MELSECNET/H board)		The MELSECNET/H board and PLC must be set to the MELSECNET/10 compatible mode. When connecting a PLC using different types of networks in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
3)	MELSECNET/H connection		When connecting a PLC using different types of networks in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
4)	CC-Link IE Controller Network connection		Applicable only for adjusting the CPU when connecting a PLC using different types of networks in single network connection or connecting in coexistence network connection. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
5)	Ethernet connection	Ethernet module	The performance as an operator station in normal operation is not guaranteed under the following conditions. *1 • The IP addresses of the Ethernet module/built-in Ethernet port CPU and personal computer are not in the same segment. • Single network connection in which a PLC is connected using different types of networks or in coexistence network connection.
6)		CPU module	
7)	CC-Link connection		Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 CC-Link Ver.1 and Ver.2 boards cannot be used together.
8)	GOT transparent connection*3		Connection method via GOT is the same as that of GX application. Note that, GOT transparent function via GOT2000 is not supported by GX Developer. Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1

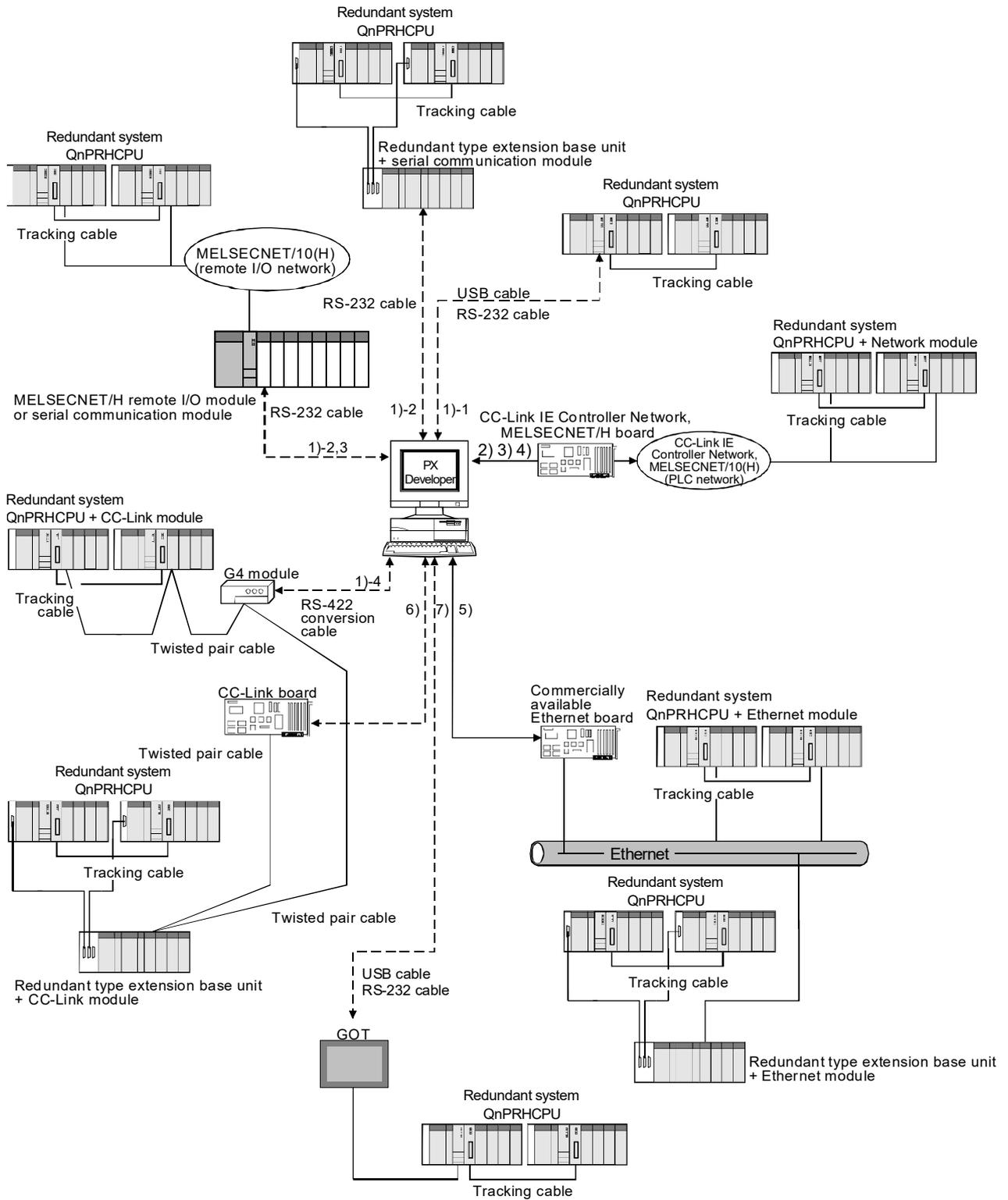
*1: This happens as the monitor tool cannot receive event notification. For the system configuration that can receive event notification, refer to Appendix 1.2.

*2: Refer to POINT in Section 2.1.3.

*3: For details of GOT transparent function, refer to the following manuals:

- GOT2000 Series Connection Manual (Mitsubishi Electric Products) For GT Works3 Version1
- GOT1000 Series Connection Manual (Mitsubishi Electric Products) for GT Works3
- GOT-A900 Series User's Manual (Connection System Manual)
- GOT-F900 SERIES HARDWARE MANUAL [Connection]

(5) Connecting to a Redundant CPU in the Backup Mode/Separate Mode (QnPRHCPU)



(a) Communication route

When Process CPU is applied for normal operations as operator station, configuring the system that can receive the event notification is required. For details, refer to Appendix 1.2.

No.	Connection method		Precautions for connection
1)-1	Serial/USB connection	CPU module	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 Connect a cable to the CPU module in either of system A or system B. (The communication is performed with the CPU module of another system via tracking cable.) One CPU module can be connected from one personal computer by USB cable. *2
1)-2		C24	When connecting via the serial communication module mounted to the redundant type extension base unit, the version of Redundant CPU needs to be compatible with the redundant type extension base unit. *3 Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
1)-3		MELSECNET/10(H) remote	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
1)-4		G4 module	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
2)	MELSECNET/10 connection*4 (When using the MELSECNET/ H board)		The MELSECNET board and PLC must be set to the MELSECNET/10 compatible mode. The driver for MELSECNET/H interface board and the MELSECNET/H module whose versions support Redundant CPU are required. *5 When connecting PLCs using different types of networks in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
3)	MELSECNET/H connection		The driver for MELSECNET/H interface board and the MELSECNET/H module whose versions support Redundant CPU are required. *5 When connecting PLCs using different types of networks in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
4)	CC-Link IE Controller Network connection		CC-Link IE Controller Network compatible version of Redundant CPU is required. *6 The CC-Link IE Controller Network module whose version supports Redundant CPU is required.*7 The driver for CC-Link IE Controller Network board which supports the event notification function is required.*8 Applicable only for adjusting the CPU when connecting a PLC using different types of networks in single network connection or connecting in coexistence network connection. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1

No.	Connection method	Precautions for connection
5)	Ethernet connection	<p>The Ethernet module of function version D or later is required to support the Redundant CPU.</p> <p>When connecting via the Ethernet module mounted to the redundant type extension base unit, the version of Redundant CPU needs to be compatible with the redundant type extension base unit. *3</p> <p>The performance as an operator station in normal operation is not guaranteed under the following conditions. *1</p> <ul style="list-style-type: none"> • The IP addresses of the Ethernet module and personal computer are not in the same segment. • When a wireless LAN adapter (NZ2WL) *9 is applied for communication route. • Single network connection in which a PLC is connected using different types of networks or in coexistence network connection. • Connection via the Ethernet module mounted to a redundant type extension base unit. • When using the monitor tool, the IP addresses of Ethernet modules of both system A and system B are not on the same segment.
6)	CC-Link connection	<p>The driver for CC-Link Ver.1 board and CC-Link module whose versions support Redundant CPU are required. *10</p> <p>Applicable only for adjusting the CPU.</p> <p>If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1</p> <p>CC-Link Ver.1 and Ver.2 boards cannot be used together.</p> <p>When connecting via the CC-Link module mounted to the redundant type extension base unit, the version of Redundant CPU needs to be compatible with the redundant type extension base unit. *3</p>
7)	GOT transparent connection*11	<p>Connection method via GOT is the same as that of GX application.</p> <p>Applicable only for adjusting the CPU.</p> <p>Note that, GOT transparent function via GOT 2000 is not supported by GX Developer.</p> <p>If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1</p>

*1: This happens as the monitor tool cannot receive event notification. For the system configuration that can receive event notification, refer to Appendix 1.2.

*2: Refer to POINT in Section 2.1.3.

*3: The Redundant CPU whose first five digits of serial number is 09012 or later is required.

*4: The MELSECNET/10 board is inapplicable, as the driver (SW□DNF-MNET10) is incompatible with the Redundant CPU.

*5: For MELSECNET/H interface board, refer to Section 2.1.4 (1). For MELSECNET/H interface module, the function version D or later is required.

*6: The Redundant CPU whose first five digits of serial number is 10042 or later is required.

*7: The CC-Link IE Controller Network module whose first five digits of serial number is 10041 or later is required.

*8: The driver for CC-Link IE Controller Network board (SW1DNC-MNETG-B) version 1.08J or later is required.

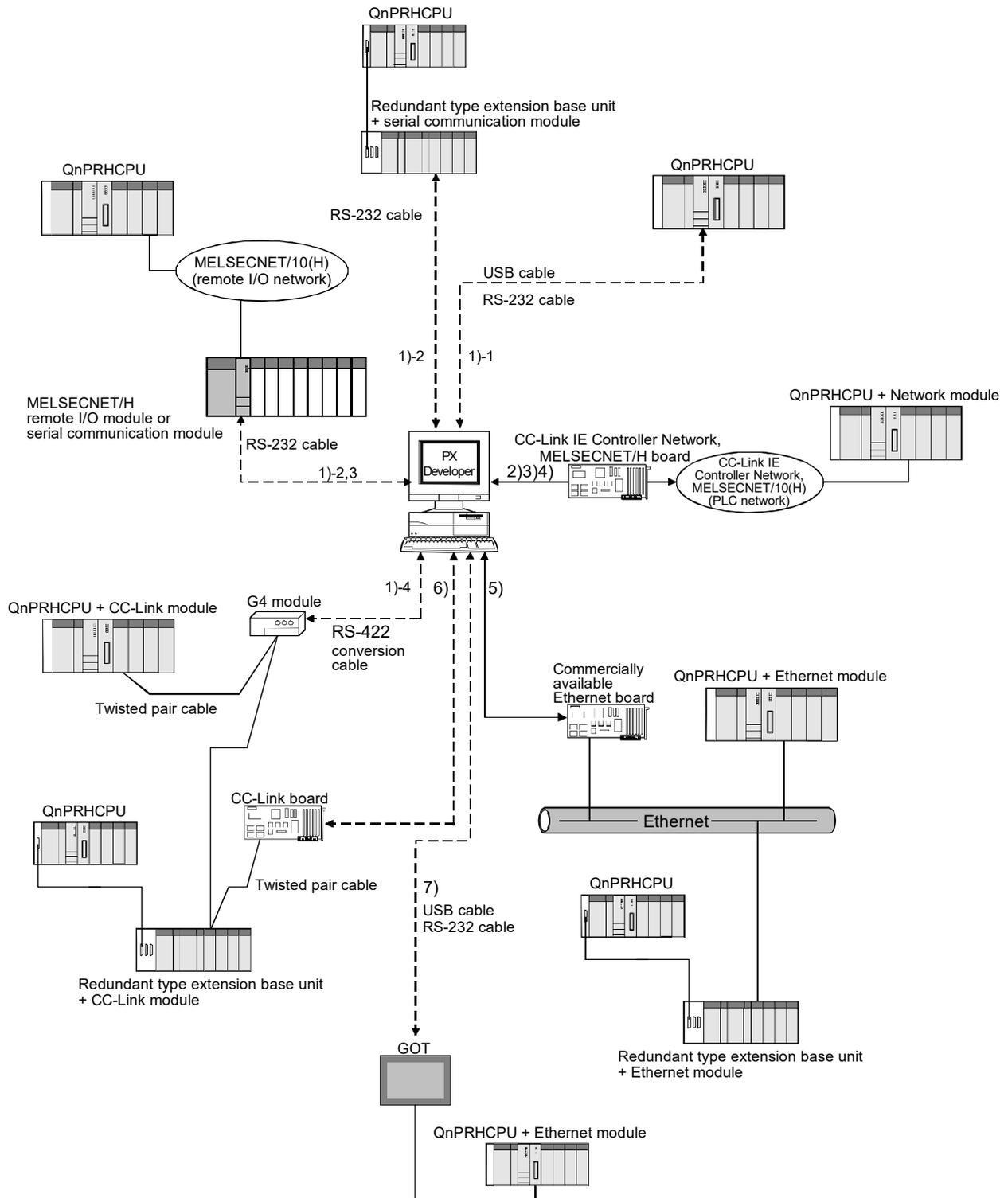
*9: Use a wireless LAN adapter corresponding to national standards where it is used. For details, refer to the manuals of wireless LAN adapter.

*10: For CC-Link Ver.1 board, refer to Section 2.1.4 (3). For CC-Link module, the QJ61BT11N whose first five digits is 06052 or later is required.

*11: For details of GOT transparent function, refer to the following manuals:

- GOT2000 Series Connection Manual (Mitsubishi Electric Products) For GT Works3 Version1
- GOT1000 Series Connection Manual (Mitsubishi Electric Products) for GT Works3
- GOT-A900 Series User's Manual (Connection System Manual)
- GOT-F900 SERIES HARDWARE MANUAL [Connection]

(6) Connecting to a Redundant CPU in the Debug Mode (QnPRHCPU)



POINT
 When monitoring the Redundant CPU in the debug mode, power off the other Redundant CPU or disconnect the CPU from network. Otherwise, a communication error may occur or PX Developer may not normally monitor.

(a) Communication route

When Process CPU is applied for normal operations as operator station, configuring the system that can receive the event notification is required. For details, refer to Appendix 1.2.

No.	Connection method	Precautions for connection
1)-1	CPU module	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 One CPU module can be connected from one personal computer by USB cable. *2
1)-2	Serial/USB connection C24	When connecting via the serial communication module mounted to the redundant type extension base unit, the version of Redundant CPU needs to be compatible with the redundant type extension base unit. *3 Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
1)-3	MELSECNET/10(H) remote	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
1)-4	G4 module	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
2)	MELSECNET/10 connection*4 (When using the MESECNET/ H board)	The MELSECNET board and PLC must be set to the MELSECNET/10 compatible mode. The driver for MELSECNET/H interface board and the MELSECNET/H module whose versions support Redundant CPU are required. *5 When connecting a PLC using different types of networks in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
3)	MELSECNET/H connection	The driver for MELSECNET/H interface board and the MELSECNET/H module whose versions support Redundant CPU are required. *5 When connecting a PLC using different types of networks in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
4)	CC-Link IE Controller Network connection	CC-Link IE Controller Network compatible version of Redundant CPU is required.*6 The CC-Link IE Controller Network module whose version supports Redundant CPU is required. *7 The driver for CC-Link IE Controller Network board which supports the event notification function is required.*8 Applicable only for adjusting the CPU when connecting a PLC using different types of networks in single network connection or connecting in coexistence network connection. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
5)	Ethernet connection	The Ethernet module of function version D or later is required to support the Redundant CPU. When connecting via the Ethernet module mounted to the redundant type extension base unit, the version of Redundant CPU needs to be compatible with the redundant type extension base unit. *3 The performance as an operator station in normal operation is not guaranteed under the following conditions. *1 <ul style="list-style-type: none"> • The IP addresses of the Ethernet module and personal computer are not in the same segment. • When a wireless LAN adapter (NZ2WL) *9 is applied for communication route. • Single network connection in which a PLC is connected using different types of networks or in coexistence network connection. • Connection via the Ethernet module mounted to a redundant type extension base unit.

No.	Connection method	Precautions for connection
6)	CC-Link connection	<p>The driver for CC-Link Ver.1 board and CC-Link module whose versions support Redundant CPU are required. *10</p> <p>Applicable only for adjusting the CPU.</p> <p>If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1</p> <p>CC-Link Ver.1 and Ver.2 boards cannot be used together.</p> <p>When connecting via the CC-Link module mounted to the redundant type extension base unit, the version of Redundant CPU needs to be compatible with the redundant type extension base unit. *3</p>
7)	GOT transparent connection*11	<p>Connection method via GOT is the same as that of GX application.</p> <p>Applicable only for adjusting the CPU.</p> <p>Note that, GOT transparent function via GOT 2000 is not supported by GX Developer.</p> <p>If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1</p>

*1: This happens as the monitor tool cannot receive event notification. For the system configuration that can receive event notification, refer to Appendix 1.2.

*2: Refer to POINT in Section 2.1.3.

*3: The Redundant CPU whose first five digits of serial number is 09012 or later is required.

*4: The MELSECNET/10 board is inapplicable, as the driver (SW□DNF-MNET10) is incompatible with the Redundant CPU.

*5: For MELSECNET/H interface board, refer to Section 2.1.4 (1). For MELSECNET/H interface module, the function version D or later is required.

*6: The Redundant CPU whose first five digits of serial number is 10042 or later is required.

*7: The CC-Link IE Controller Network module whose first five digits of serial number is 10041 or later is required.

*8: The driver for CC-Link IE Controller Network board (SW1DNC-MNETG-B) version 1.08J or later is required.

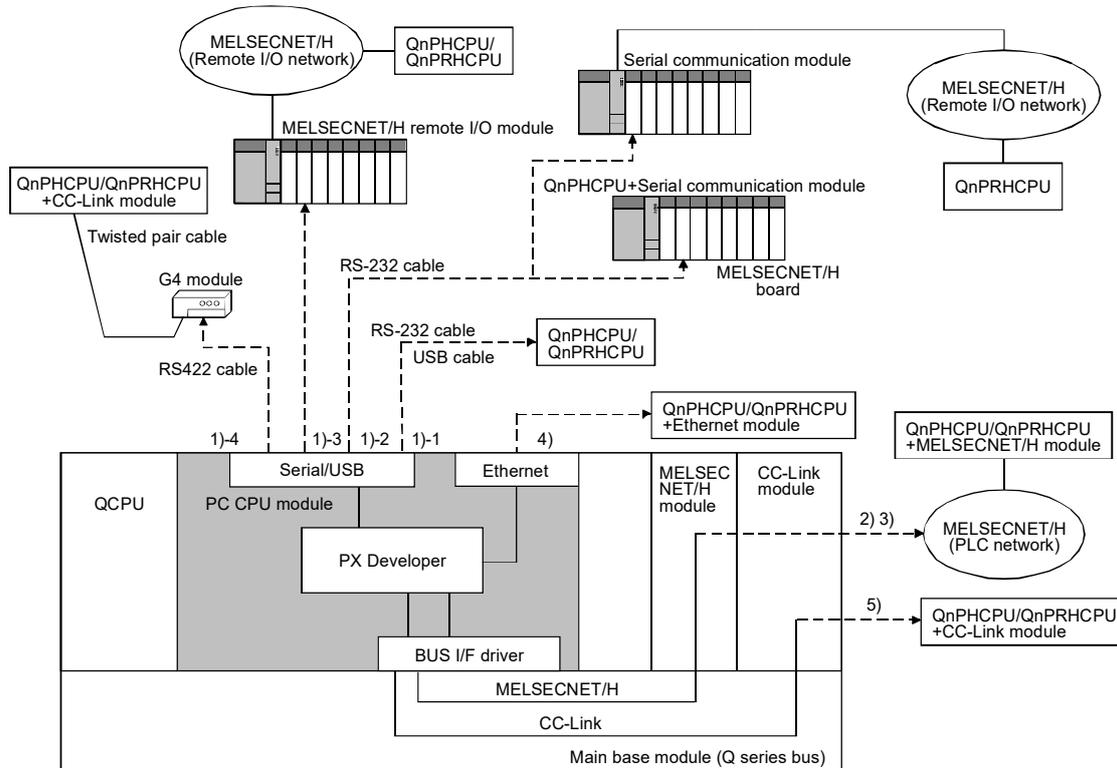
*9: Use a wireless LAN adapter corresponding to national standards where it is used. For details, refer to the manuals of wireless LAN adapter.

*10: For CC-Link Ver.1 board, refer to Section 2.1.4 (3). For CC-Link module, the QJ61BT11N whose first five digits is 06052 or later is required.

*11: For details of GOT transparent function, refer to the following manuals:

- GOT2000 Series Connection Manual (Mitsubishi Electric Products) For GT Works3 Version1
- GOT1000 Series Connection Manual (Mitsubishi Electric Products) for GT Works3
- GOT-A900 Series User's Manual (Connection System Manual)
- GOT-F900 SERIES HARDWARE MANUAL [Connection]

(7) Using the PC CPU module*1



(a) Communication route

When Process CPU is applied for normal operations as operator station, configuring the system that can receive the event notification is required. For details, refer to Appendix 1.2.

No.	Connection method		Precautions for connection
1)-1	Serial/USB connection	CPU module	Same with the precautions for Serial/USB connection of (1) to (3).
1)-2		C24	
1)-3		MELSECNET/H remote	
1)-4		G4 module	
2)	MELSECNET/10 connection (When using the MELSECNET/H module)		Same with the precautions for MELSECNET/10 connection of (1) to (3). *3 However, applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *2
3)	MELSECNET/H connection		Same with the precautions for MELSECNET/H connection of (1) to (3). *3 However, applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *2
4)	Ethernet connection		Same with the precautions for Ethernet connection of (1) to (3).
5)	CC-Link connection		Same with the precautions for CC-Link connection of (1) to (3). *3

*1: Production of the PC CPU module was discontinued in March, 2011.

*2: This happens as the monitor tool cannot receive event notification. For the system configuration that can receive event notification, refer to Appendix 1.2.

*3: If accessing other station via MELSECNET/H module and CC-Link module, the PC CPU must be set to control the network modules.

2.1.3 Serial/USB connection

(1) Connection cables for serial/USB connection

The connection method of serial/USB connection cable is the same when they are connected to GX Works3 or GX application. For the applicable cables, refer to the following manuals:

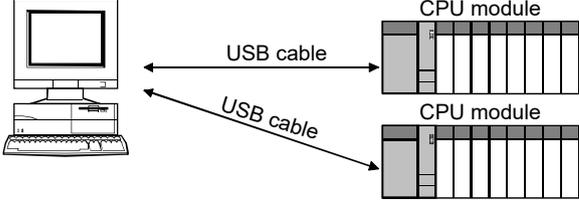
- GX Works3 Operating Manual
- GX Works2 Version 1 Operating Manual (Common)
- GX Developer Version 8 Operating Manual

POINT

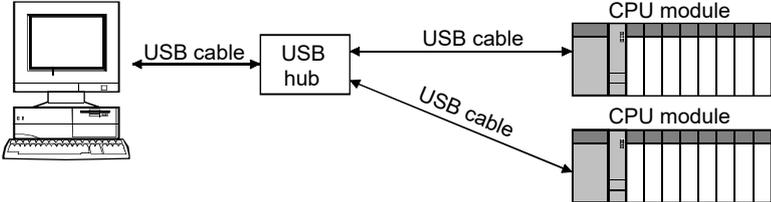
The USB cable connection is not applicable in the following connection structure. Only one personal computer and one CPU module can be connected by USB cable.

<Structures cannot be constructed>

- One personal computer installed with several USB ports is connected to multiple CPU modules.



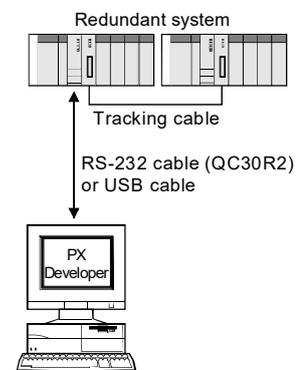
- One personal computer is connected to multiple CPU modules through USB hub.



REMARK

By connecting to either system A or system B in a redundant system, both system A and system B can be monitored.

(The communication is performed with the CPU module of another system via tracking cable.)



(2) Precautions on USB connection

- 1) A communication error may occur when the personal computer communicates with the CPU module after setting the resume function, suspend setting, power-saving function or standby mode.

Do not set any of the above functions for communication with the CPU module.

- 2) A communication error may occur and normal operation may not be recovered if connecting and disconnecting a USB cable, resetting the CPU module or turning the power ON/OFF is performed frequently during communication with the CPU module.

When a communication error occurs and normal operation is not recovered, remove a USB cable from the CPU module, and then reconnect it after more than five seconds.

(Even after this operation, an error may occur at the initial communication. Communication, however, will be performed normally at the second time and later.)

2.1.4 Network board

The following describes the applicable network boards to PX Developer Monitor Tool. For corresponding operating systems of network boards, refer to the each network board manual.

(1) CC-Link IE Controller Network board, MELSECNET/H board, MELSECNET/10 board

Network	Board	Driver
CC-Link IE Controller Network *1, *2	Q81BD-J71GP21-SX (For PC/AT, optical) Q81BD-J71GP21S-SX (For PC/AT, optical) (With external power supply) Q80BD-J71GP21-SX (For PC/AT, optical) Q80BD-J71GP21S-SX (For PC/AT, optical) (With external power supply)	SW1DNC-MNETG-B
MELSECNET/H	Q81BD-J71LP21-25 (For PC/AT, optical) Q80BD-J71LP21-25 (For PC/AT, optical) *3 Q80BD-J71LP21S-25 (For PC/AT, optical) (With external power supply)	SW0DNC-MNETH(-B) (For PC/AT)
MELSECNET/10 *4	Q80BD-J71LP21G (For PC/AT, optical) *3 Q80BD-J71BR11 (For PC/AT, coaxial) *3	
MELSECNET/10	A70BD-J71QLP23 (For PC/AT, optical) *5 A70BD-J71QBR13 (For PC/AT, coaxial) *5	SW3DNF-MNET10 (For PC/AT) *5

- *1: A CPU module whose first five digits of the serial number are "10042" is required to connect to the following CPU modules.
Q12PHCPU, Q25PHCPU, Q12PRHCPU, Q25PRHCPU
- *2: A CC-Link IE Controller Network module whose first five digits of the serial number are "10041" is required to connect to a Redundant CPU.
- *3: A MELSECNET/H board whose first five digits of the serial number are "06051" is required to connect to a Redundant CPU.
- *4: Use in the MELSECNET/10 compatibility mode.
- *5: It has been discontinued.

The following table shows the versions of drivers required to connect to a CPU.

CPU module		SW1DNC-MNETG-B	SW0DNC-MNETH-B	SW3DNF-MNET10
MELSEC-Q series	Process CPU	Q02PHCPU, Q06PHCPU Q12PHCPU, Q25PHCPU	Version 1.03D or later All versions	All versions
	Redundant CPU		All versions	Version 90K or later —
	Universal model process CPU		Version 1.16S or later	Version 26C or later —
MELSEC iQ-R series			Version 1.17T or later	— —

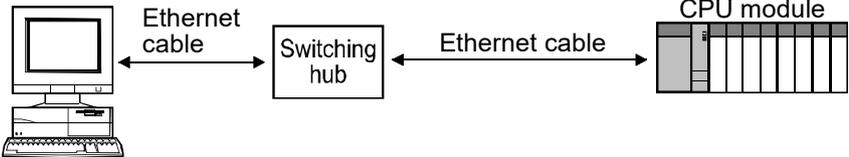
— : Not supported

(2) Ethernet Board

The following table shows the Ethernet board/card whose operations are guaranteed by us.

Maker	Model
3COM	EthernetLinkIII LAN PC Card
Allied Telesis	CentreCOM LA-PCM Ethernet PC Card LAN Adapter
	RE2000 (ISA)
TDK	10BASE-T LAN card (Model: LAN-CD021BX)

If there are restrictions on Ethernet module to Ethernet board, follow the restrictions.

POINT
<p>Direct connection to the built-in Ethernet port of a built-in Ethernet CPU is not applicable in the following connection structure.</p> <p><Structures cannot be constructed></p> <ul style="list-style-type: none"> ● Connection between a built-in Ethernet CPU and a personal computer through a hub.  <pre> graph LR PC[Personal Computer] --- Ethernet cable SH[Switching hub] SH --- Ethernet cable CM[CPU module] </pre> <ul style="list-style-type: none"> ● Two or more Ethernet ports are enabled for network connection on the personal computer side.

(3) CC-Link board

Network	Board	Driver
CC-Link Ver.1 CC-Link Ver.2	Q81BD-J61BT11 (Ver.2 Board) *1 Q80BD-J61BT11N (Ver.2 Board) *1	SW1DNC-CCBD2-B (for PC/AT)
CC-Link Ver.1	A80BDE-J61BT11 (Ver.1 Board) *1, *2 A80BDE-J61BT13 (Ver.1 Board) *1, *2	SW4DNF-CCLINK-B (for PC/AT) *2

*1: CC-Link Ver.1 and Ver.2 boards cannot be used together with the same PC.

*2: It has been discontinued.

The following table shows the versions of drivers required to connect to a CPU.

CPU module		SW1DNC-CCBD2-B	SW4DNF-CCLINK-B
MELSEC-Q series	Process CPU	All versions	All versions
	Redundant CPU	All versions	Version G or later
	Universal model process CPU	Version 1.13P	—
MELSEC iQ-R series		—	—

— : Not supported

2.1.5 Printer

No limitation in this application.
Printer on personal computer can be used.

2.1.6 Monitoring system configuration with Monitor Tool

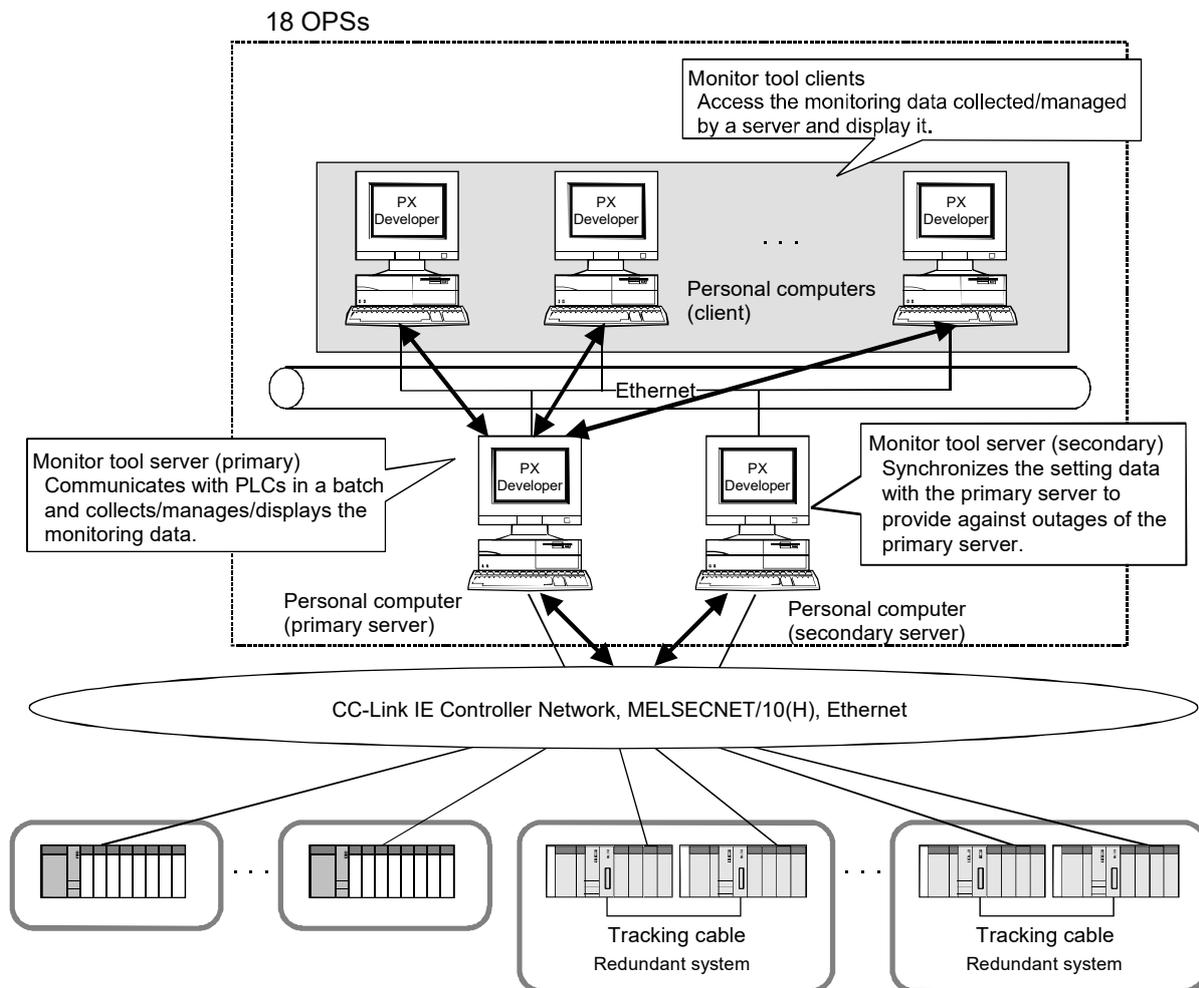
(1) Server/client monitoring system configuration

In the server/client monitoring system, up to eighteen OPSs*1 and up to sixteen PLCs are connectable. In this case, clients access the monitoring data*2 collected/managed by a server.

*1: One primary server, one secondary server, and up to sixteen clients, coming to eighteen in all, in the server/client configuration

*2: Clients can display the following kinds of the monitoring data collected by Server.

- Setting data
- Tag data (Displayed on the control panel and pop-up windows)
- Trend data
- Alarm data
- Event data



POINT
 The CC-Link IE Controller Network or Ethernet connection is recommended if five or more PLCs are to be connected.

<System configuration preparing for server outages>

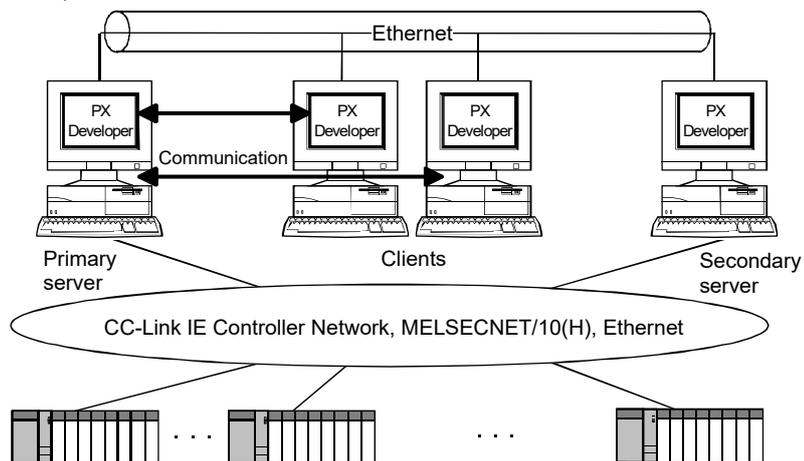
1) Installing two servers (primary and secondary)

Preparing and running a backup server (secondary server) which uses the same setting data as a regular server (primary server) enables the server/client monitoring system configuration providing against server outages. However, the monitoring data is not equalized*1 even though two servers are running. Redundant servers enables automatic server switching in the event of a fault of the primary server. Afterward, the connection server can be manually switched after restoration of the primary server. Refer to Section 9.5 for the setting method, Section 8.6.3 for switching server.

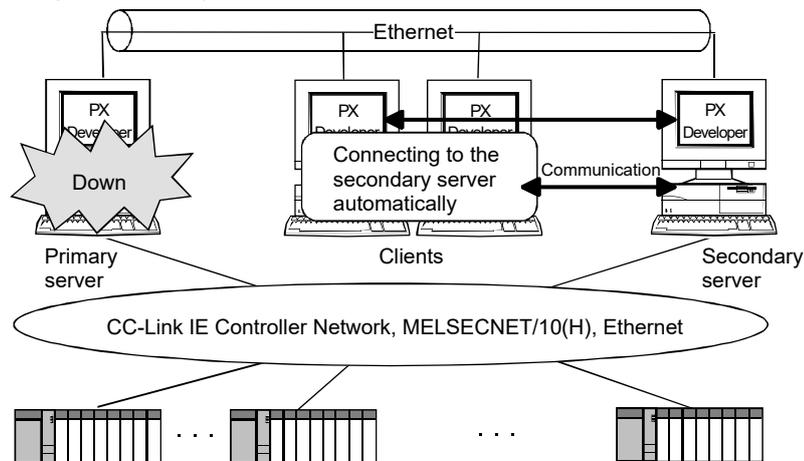
In the redundant server system, the setting data can be changed in the primary server. The secondary server starts up using the setting data of the primary server.

*1: The monitoring data equalization is a process that synchronizes the monitoring data, between the primary server and the secondary server.

(Normal)



(Primary server fails)



2) Installing one server

The server/client monitoring system that has one server (does not have a redundant server) can also be configured.

In the event of a server failure, a client can be connected to PLCs*1, and restarted as a substitute server that uses the same setting data*2 as one used by an original server before the failure.

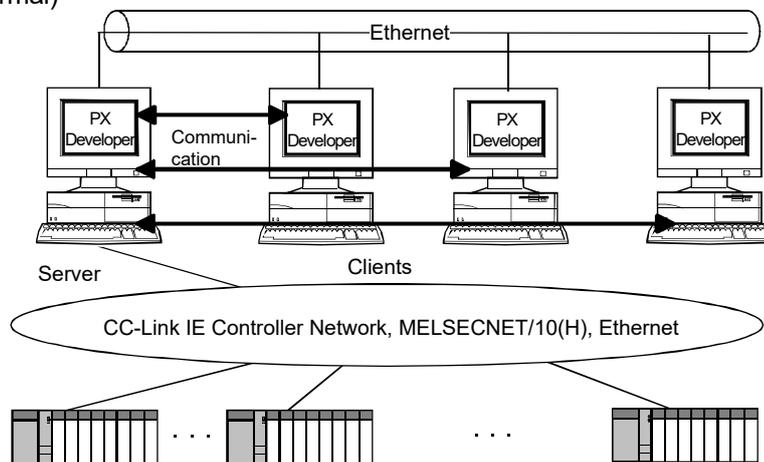
Change the connection server in the client side when starting a new server. For the setting method, refer to Section 9.5.

*1: To connect a client restarted as Server to PLCs via the same communication route as the failed server, mounting the same network board on a personal computer (client) as a personal computer (server) is necessary.

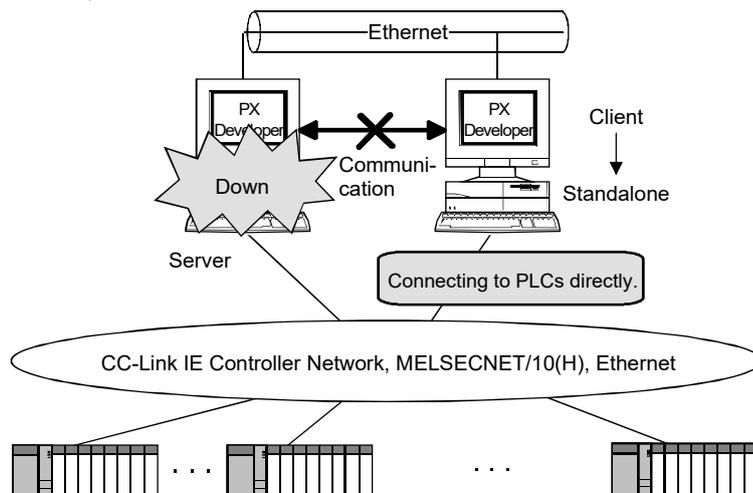
Also, for connecting a client to PLCs directly, change the PC transfer setting in the monitor target project setting (Section 9.4).

*2: A client gets the setting data from a server and saves it in itself during executing. Therefore, when restarting as Server, a client can use the setting data gotten from a server immediately before.

(Normal)



(Server fails)



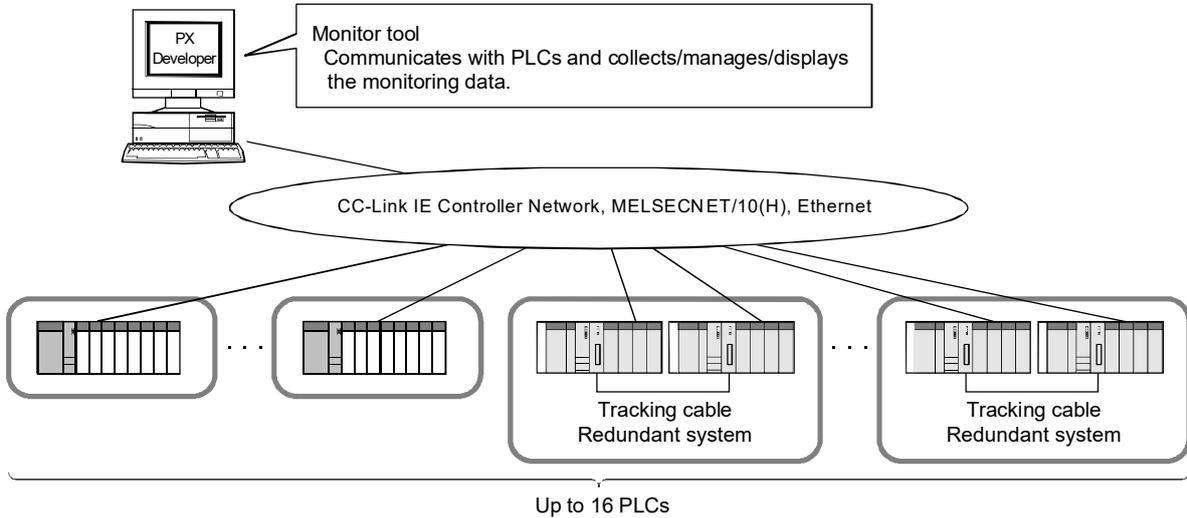
POINT

The monitoring data that had been collected by a failed server cannot be transferred to a substitute server.
 After recovering, a regular server also cannot receive the monitoring data collected by a substitute server during the outage.

(2) Standalone configuration

In the standalone monitoring system, one OPS and up to sixteen PLCs are connectable.

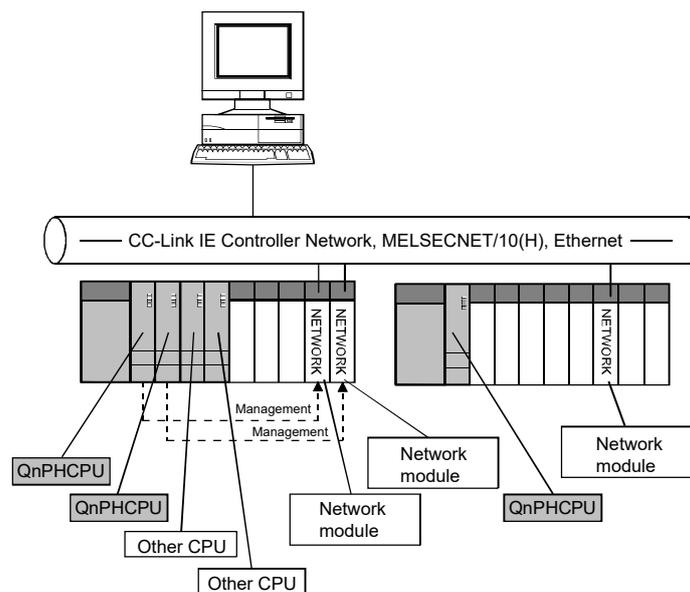
For the system configuration in normal operation, refer to Appendix 1.2.1.



(3) Multiple CPU system with Process CPU/Universal model process CPU

The multiple CPU system including Process CPU or Universal model process CPU can be monitored when the following conditions are satisfied.

- A network module is controlled by each CPU, and each CPU communicates with control CPU via that network module.
(The multiple CPU setting in the transfer setup field cannot be set.)
- The whole network includes up to 16 CPUs, including Process CPU/Universal model process CPU of multiple CPU system and CPU module of single CPU system. (In the following diagram, three CPUs are counted: one QnUDPCPU and two QnPHCPUs.)



<System configuration with multiple CPU system>

* The redundant system does not support the multiple CPU system.

POINT

The CC-Link IE Controller Network or Ethernet connection is recommended if five or more PLCs are to be connected.

2.2 Operating Environment

The following table describes is the operating environment.

Item	Description				
Computer	Microsoft® Windows® supported personal computer				
CPU	Refer to section 2.2.1(1) "Required operating system and personal computer performance".				
Required memory					
Hard disk free space	When installing : Hard disk 200MB or more When operating: Free space of virtual memory 100MB or more				
Disk drive	CD disk drive				
Display	Resolution: 800 × 600 pixels (256 colors) or more				
Network interface	One of the following is required <ul style="list-style-type: none"> ● Ethernet board *1 ● CC-Link IE Controller Network board ● MELSECNET/H interface board ● MELSECNET/10 interface board Serial, USB and CC-Link board can only be used for adjustment.				
Pointing devices	2-button mode mouse or the compatible pointing device				
Operating system (English Version) *2, *3	<ul style="list-style-type: none"> ● Windows 11 (Home, Pro, Enterprise, Education) ● Windows 10 (Home, Pro, Enterprise, Education, IoT Enterprise 2016 LTSC) When using any of the following operating systems, use PX Developer the version of which is 1.52E or earlier. <ul style="list-style-type: none"> ● Windows 8.1, Windows 8.1 (Pro, Enterprise) ● Windows 8, Windows 8 (Pro, Enterprise) ● Windows 7 (Starter, Home Premium, Professional, Ultimate, Enterprise) ● Windows Vista® (Home Basic, Home Premium, Business, Ultimate, Enterprise) ● Windows XP® (Professional, Home) Service Pack 1 or later ● Windows 2000 (Professional) ● Windows NT® Workstation 4.0 Service Pack 3 or later *4 				
Programming language	Visual Basic in the following development software Visual Studio® 2010, Visual Studio 2008, Visual Studio 2005, Visual Studio .NET 2003, Visual Studio .NET 2002, Visual Basic 6.0				
Required software package	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">When PX Developer Version 1.04E or earlier is used</td> <td style="width: 50%;">GX Developer Version 7 (SW7D5C-GPPW Version 7.20W or later is required) *5</td> </tr> <tr> <td>When PX Developer Version 1.06G or later is used</td> <td>None</td> </tr> </table>	When PX Developer Version 1.04E or earlier is used	GX Developer Version 7 (SW7D5C-GPPW Version 7.20W or later is required) *5	When PX Developer Version 1.06G or later is used	None
When PX Developer Version 1.04E or earlier is used	GX Developer Version 7 (SW7D5C-GPPW Version 7.20W or later is required) *5				
When PX Developer Version 1.06G or later is used	None				
Related software package	Refer to section 2.2.2.				
Recommended SCADA software package	Versions of SCADA software package whose operations are verified <ul style="list-style-type: none"> ● Wonderware InTouch: 10.0 or 10.1 ● JoyWatcherSuite: 6.0 or later Note that the operations are not guaranteed when using the mixture of the SCADA software other than mentioned above and ActiveX control provided by the monitor tool. Check the system before operations.				

*1: In the server/client monitoring system configuration, Ethernet boards are necessary for OPS's network interface as network between a personal computer (server) and ones (client) is the Ethernet connection.

*2: Monitor tool cannot be installed on Windows 98 and Windows Millennium Edition.

*3: Windows XP Service Pack3 or later of operating system is required to connect to a MELSEC iQ-R series CPU module.

*4: USB is inapplicable for Windows NT Workstation 4.0, as it will cause a communication error.

*5: GX Developer must be installed because the communication library in GX Developer is used for communication between monitor tool and Process CPU.

2.2.1 Instructions for operating system

(1) Required operating system and personal computer performance

Operating System	Required Personal Computer Performance	
	CPU *1	Required memory
Windows 11	64-bit (x64) processor 1GHz with 2 cores or more	4GB or more
Windows 10 (64-bit edition) Windows 8.1 (64-bit edition) Windows 8 (64-bit edition) Windows 7 (64-bit edition)	64-bit (x64) processor 1GHz or more	2GB or more
Windows 10 (32-bit edition) Windows 8.1 (32-bit edition) Windows 8 (32-bit edition) Windows 7 (32-bit edition) Windows Vista	Pentium® 1GHz or more	1GB or more
Windows XP (Service Pack 1 or later)	Pentium® 300MHz or more	128MB or more
Windows 2000 Professional Windows NT Workstation 4.0 (Service Pack 3 or later)	Pentium® 133MHz or more (Pentium 300MHz or more recommended)	64MB or more

*1: Cannot be used in the multi processor environment.

For Windows Vista and Windows XP, only the 32-bit version is supported.

For Windows 10 IoT Enterprise, only the 64-bit version is supported.

(2) Folder and file access authorization

This product may make change access to the files of the installation destination folder and sub-folder.

Hence, file change access enable must have been set for these folders and files by the user who uses this product.

If file change access enable has not been set, this product may not operate normally.

When this product is used, it is required to log on as the user of the administrators group who has the authority to control all of the computer.

(3) Unusable functions

When the following functions are used, this product may not run properly.

- Windows XP Mode
- Application start-up in Windows compatibility mode
- Fast user switching
- Remote desktop
- Touch function
- Modern UI
- Virtual environment such as Client Hyper-V
- Virtual Desktops
- Tablet mode
- Virtual PC
- Unified Write Filter
- Text cursor indicator

In the following cases, the screen of this product may not work properly.

- The size of the text and other items on the screen is other than 100% (96 DPI, 9 pt etc.).

Big fonts (Details setting of Screen properties) are not supported.

- The resolution of the screen is changed in operation.
- Windows theme is changed in operation.

Surrogate pair characters are not available.

2.2.2 Related software package

- (1) Versions of software package required for interaction between PX Developer and GT SoftGOT

(a) GT SoftGOT2000

Related software	Model name	Version		
		QnPHCPU, QnPRHCPU, QnUDPVCPU	RnPCPU	RnPSFCPU
PX Developer Version 1	SW1D5C-FBDQ-E, SW1DNC-FBDQMON-E	1.42U or later	1.47Z or later	1.49B or later
GT SoftGOT2000 Version 1 GT Designer3 Version 1	SW1DNC-GTWK3-E	1.105K or later	1.160S or later	—

(b) GT SoftGOT1000

Related software	Model name	Version					
		QnPHCPU, QnPRHCPU		QnUDPV CPU	RnPCPU		RnPSF CPU
		Base screen switching PX Developer function call	Security level change		Process mode	Redundant mode	
PX Developer Version 1	SW1D5C-FBDQ-E SW1DNC-FBDQMON-E	1.14Q or later	1.31H or later	1.38Q or later	1.47Z or later		1.49B or later
GT SoftGOT1000 Version 3	SW1DNC-GTWK3-E	3.01B or later	3.37P or later	3.74C or later	1.130L or later	—	—
GT Designer3 Version 1	SW1DNC-GTWK3-E	1.01B or later		1.74C or later			
GT SoftGOT1000 Version 2	SW2D5C-GTD2-E	2.47Z or later	—	—	—	—	—
GT Designer2 Version 2	SW2D5C-GTWK2-E	2.47Z or later		—	—	—	—

— : Not supported

- (2) Versions of software package required for GOT screen generator
Refer to the following manual.
PX Developer Version 1 Operating Manual (GOT Screen Generator)

(3) Versions of software package required for debugging with Simulator

(a) Using GX Simulator

Related software	Model name	Version
PX Developer Version 1	SW1D5C-FBDQ-E SW1DNC-FBDQMON-E	1.28E or later
GX Developer Version 8	SW8D5C-GPPW-E	8.94Y or later
GX Simulator Version 7	SW7D5C-LLT-E	7.27D or later

(b) Using GX Simulator2

When connecting GX Simulator2 to monitor tool, the operating environment of monitor tool is the same as that of GX Works2. For the operating environment of GX Works2, refer to "GX Works2 Installation Instructions".

Related software	Model name	Version	
		QnPHCPU, QnPRHCPU	QnUDPVCPU
PX Developer Version 1	SW1D5C-FBDQ-E SW1DNC-FBDQMON-E	1.42U or later	1.42U or later
GX Works2 Version 1	SW1DNC-GXW2-E	1.98C or later	1.501X or later

(c) Using GX Simulator3

Related software	Model name	Version
PX Developer Version 1	SW1D5C-FBDQ-E	1.50C or later
GX Works2 Version 1	SW1DND-GXW3-E	1.045X or later

(4) A version of software package required to output the assignment information database in order to monitor a MELSEC iQ-R series CPU module

Related software	Model name	Version	
		RnPCPU	RnPSFCPU
GX Works3 Version 1	SW1DNC-GXW3-E	1.032J or later	1.040S or later

2.2.3 Server/client monitoring system configuration

(1) Version compatibility between server and client

In the server/client monitoring system, clients and a connection server must have the same product language, and clients must satisfy the following conditions of versions.

Version of server	Version of server and client
1.20W	Version of client \leq version of server
1.23Z	$1.23Z \leq$ Version of client \leq version of server
1.28E	$1.28E \leq$ Version of client \leq version of server
1.31H to 1.34L	$1.31H \leq$ Version of client \leq version of server
1.42U	$1.42U \leq$ Version of client \leq version of server
1.44W to 1.46Y	$1.44W \leq$ Version of client \leq version of server
1.47Z to 1.48A	$1.47Z \leq$ Version of client \leq version of server
1.49B	$1.49B =$ Version of client
1.50C	$1.50C =$ Version of client
1.51D or later	$1.51D \leq$ Version of client \leq version of server

In the redundant server system, a primary server and secondary server must have the same product language and product version.

(2) Using monitor tools in the server/client monitoring system configuration

When using the Ethernet connection for communication between a server and the PLC, two Ethernet boards need to be mount on the server to configure two Ethernet network separately, for the PLC communication and the server/client communication. In this case, the server address needs to be specified with IP address format in the monitor tool execution type setting (☞ Section 9.5) on the server.

(3) Network setting

(a) Set to use fixed IP addresses in the network connection setting on personal computers (server/client). (The server/client monitoring system cannot be configured with the setting to obtain IP addresses automatically.)

(b) Personal computers (server/client) need to be connected to the same segment network. The following functions are not available among personal computers connected to different segments.

"Time adjustment among OPSs" function (☞ Section 8.6.6)

"Synchronizing a buzzer stop" function (☞ Section 8.1)

- (c) Server/client are required to allow the communication to the monitor tool via a network in Windows® firewall setting.
For details of Windows® firewall setting, refer to the POINT in Appendix 1.2.2.

2.2.4 User account control (UAC)

In the following cases, the monitor tool needs to be started up setting "Privilege Level" to "Run this program as an administrator".

When the setting mentioned above is set, all user-created screens (Applications such as GT SoftGOT and Visual Basic) set in the user-created setting also need to be set to "Run this program as an administrator".

In addition, when communication with the PLC is simultaneously performed using another MELSOFT application (Programming tool, GX application or etc.), the MELSOFT application also needs to be set to "Run this program as an administrator".

- (1) "Privilege Level" of the application that is set in the user-created screen setting is set to "Run this program as an administrator".
"Privilege Level" of the monitor tool also needs to be set to "Run this program as an administrator."

- (2) The "Time adjustment among OPSs" function is used in the server/client monitoring system.

The monitor tools started as Secondary Server or Client need to be set to "Run this program as an administrator".

- (3) PX Developer is installed in the system area*¹ of Windows.

The monitor data file*² of the monitor tool is not saved in the folder of PX Developer installation destination. The data file is saved in the virtualized folder*³ for each user by the virtualization function of Windows.

Therefore, the monitor data file cannot be shared between users.

To save the monitor data in the folder of PX Developer installation destination, "Privilege Level" of the monitor tool needs to be specified to "Run this program as an administrator."

For the method to execute programs as an administrator, refer to Section 5.1.

*1: Folders such as "Program Files" and "Windows"

*2: Monitoring data file includes the following:

- Setting data file
- Trend binary data file (when the storage folder is not specified or in the system area)
- Alarm list/Event list data file
- Trend/Alarm/Event automatic CSV file (when the output folder is not specified or in the system are)

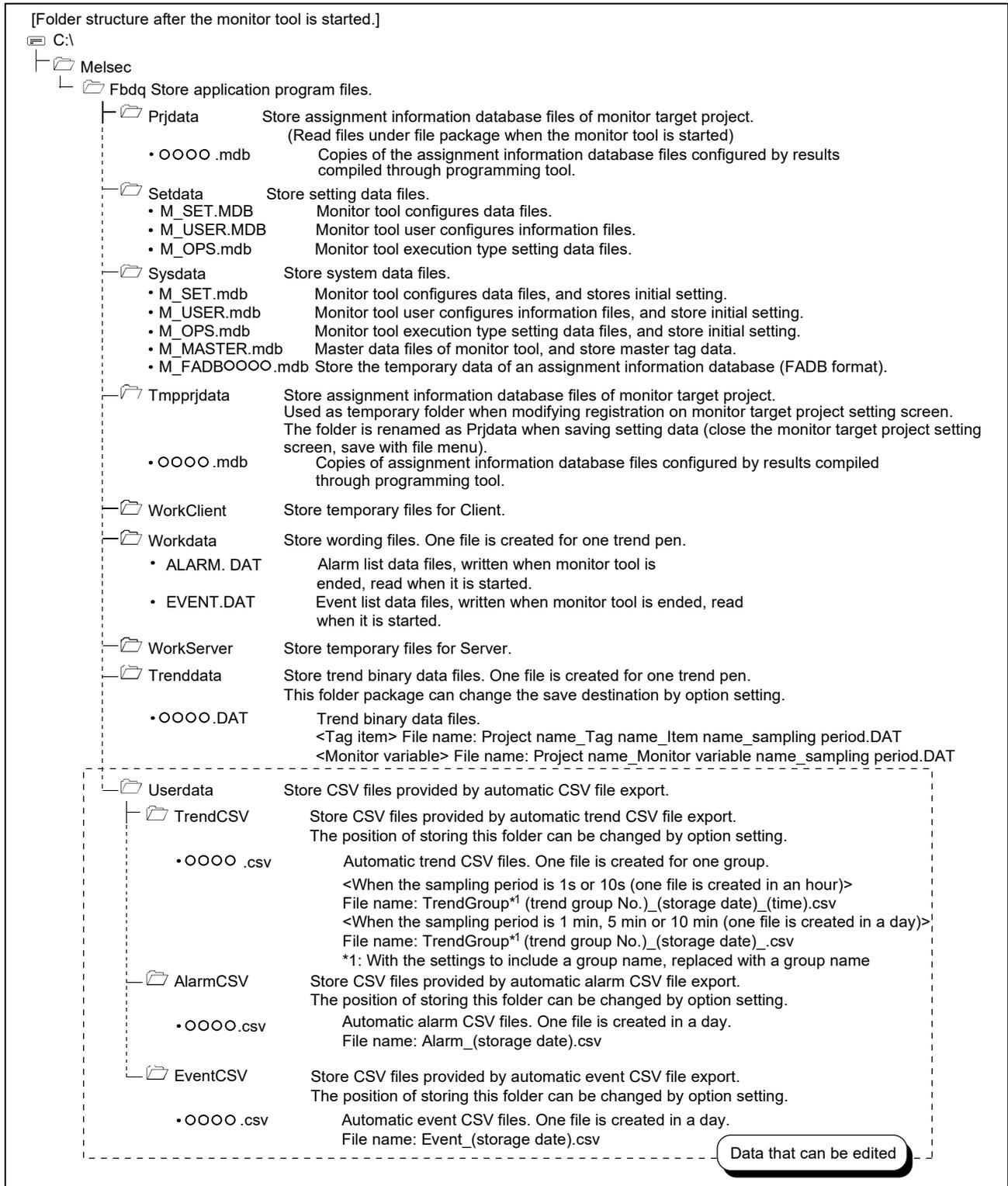
*3: For example, when PX Developer is installed in the "Program Files", the file is stored in the "C:\Users\User_name\AppData\Local\VirtualStore\ProgramFiles\FBDQ" as default.

2.3 Folder Configuration of Monitor Tool

(1) Installation folders/files

Following will explain the folder configuration and file when the monitor tool is stated up correctly and project made by programming tool is monitored.

The default folder structure of monitor tool is as follows.



POINT

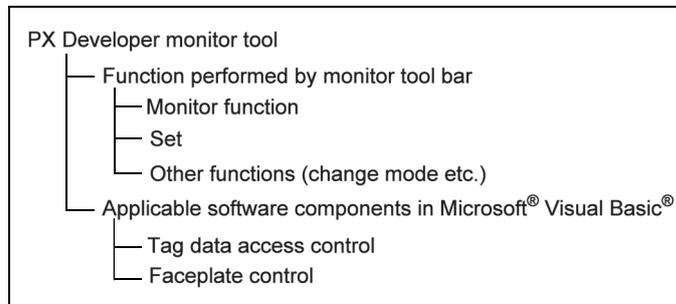
- Do not open or edit the folders/files other than the data that can be edited. However, the copy operation target folders/files of setting data can be copied/pasted. (☞ Section 9.1.4)
- Installation directory can be changed when installing.
- The positions of the "Trenddata", "TrendCSV", "AlarmCSV" and "EventCSV" folders, which store trend binary data files and the files output by automatic CSV file export, can be changed by option setting.

- (2) Reference files in the server/client monitoring system configuration
- In a secondary server and clients, by default, file paths in the following settings in clients are the same as in a primary server. If applications/sound files are installed/located to different paths in a secondary server and clients, change their paths individually in these settings.
- Applications registered in the user-created screen setting
 - Sound files of Minor alarm/Major alarm/Event in the option setting

3 FUNCTION OVERVIEW

3.1 Function Overview

The functions of PX Developer monitor tool are as follows



The primary functions performed by toolbar and their corresponding set function screens are introduced here.

For details, refer to "Section 9.18 Setting under This Condition".

Function		Description	Setting Window
Monitor function	Control panel	Display up to 8 faceplates simulating the process control device	Control panel setting
	Trend graph	A time sequence change chart that displays trend item value.	Trend setting
	Alarm list	A list that maximum displays 2000 alarm records	Alarm setting
	Event list	A list that maximum displays 2000 event records	Event setting
	User-created screen	Applied program pointed by start which can display the user-created screen.	User-created screen setting
	Pop-up faceplate	A faceplate that can display simulating the process control device by using pop-up window.	
	Pop-up tuning	A faceplate that can display a tuning pop-up window (faceplate + tuning trend graph + tag monitor).	
Buzzer stop	Stop alarm buzzer.	Option setting	
Print screen	Hardcopy of whole screen in the print display.	Option setting	
Screen Align	Overlap the diagrams in display or redisplay after vertical arrangement.		
Find	Find tag, Control panel, and Trend graph. Display pop-up faceplate after finding it.	Control panel setting, trend setting.	
Manage Mode	Determining function limit according to the authority of user. (Mode divided into: lock mode, operator mode engineer mode)	User authority setting User setting	
Setting	Set up work conditions of each function.		
Display PLC communication status	Display the communication status between a monitor tool and CPU modules.	Monitor target project setting	
Server/client communication status	Display the communication status between a server and clients in the server/client monitoring system.	OPS setting	
Switch Server	Clients can manually switch the server to be connecting when "Redundant Server" is activated.	OPS setting	
Acquire server setting data	Clients load the setting data from a server when it is changed in the server.	OPS setting	
Automatic CSV file export	Save trend, alarm and event data in CSV files automatically as histories.	Trend setting Option setting	
Exit	Stop monitor, exit monitor tool.		

3.2 Function List

The functions of monitor tool are shown here. "Authority" in the table shows the mode in which this function can be used. A certain function cannot be selected and used in other modes.

For details, refer to "Chapter 4 MODE ADMINISTRATION".

Monitor function (General operation) list

Function	Authority	Reference
General operation of monitor window		Section 6.2
Close window	E/O/L	Section 6.2.1
Maximize/Minimize Window	E/O/L	Section 6.2.2 to Section 6.2.4
Change window size	E/O/L	Section 6.2.5
General operation of faceplate		Section 10.1
SPA (stop alarm) reset	E/(O)	Section 10.1
Setting/Removing Lockout Tag	E/(O)	Section 10.2
Change I/O mode	E/(O)	Section 10.3.2
Change control mode	E/(O)	Section 10.3.3
Change motion type	E/(O)	Section 10.3.4
PV value setting	E/(O)	Section 10.3.7
SV value setting	E/(O)	Section 10.3.8
MV value setting	E/(O)	Section 10.3.9
Count value setting	E/(O)	Section 10.3.10
Batch count operation	E/(O)	Section 10.3.11
Counter/timer operation	E/(O)	Section 10.3.12
Status operation	E/(O)	Section 10.3.13

(Authority...E: Engineer mode/O: Operator mode/(O): Operator mode with operation authority/L: Valid for lock mode)

REMARK

In the operator mode, only tag levels permitted by User Authority Setting (Section 9.2) can be operated with the setting/removing lockout tag function of the faceplate general operation.

Monitor function (Monitor window) list

Function		Authority	Reference
Control panel			Section 7.1
Display	Group tab display (Maximum 1000 group)	E/O/L	Section 7.1.1
	Faceplate display (Maximum 8 per screen)		
Operation	Switch groups to be displayed	E/O/L	Section 7.1.2
	Faceplate operation	E/O	Chapter 10
	Display pop-up tuning screen	E/O/L	Section 7.1.3
Trend graph			Section 7.2
Display	Group tab display (Maximum 125 group)	E/O/L	Section 7.2.1
	Trend graph display (maximum 8 per screen)		
Operation	Switch groups to be displayed	E/O/L	Section 7.2.3
	Latest value display	E/O/L	Section 7.2.4
	Gridline Interval setting	E/O/L	Section 7.2.5
	Y-axis scale setting		
	Export to CSV file	E/(O)	Section 7.2.6
	Display CSV file	E/O/L	Section 7.2.7
Alarm list			Section 7.3
Display	Display system alarm detail screen	E/O/L	Section 7.3.1
	Display pop-up faceplate screen	E/O/L	Section 7.6
	Alarm display	E/O/L	Section 7.3.1
Operation	Confirm check	E/(O)	Section 7.3.2
	Selected display of alarm	E/O/L	Section 7.3.3
	Delete Recovered Alarms	E/(O)	Section 7.3.4
	Confirm all	E/(O)	Section 7.3.5
	Print	E/(O)	Section 7.3.6
	Export to CSV file	E/(O)	Section 7.3.7
Event list			Section 7.4
Display	Operation record	E/O/L	Section 7.4.1
	State change record		
	Information record		
	Monitor target project load history		
	Monitor tool start/stop history		
Operation	Confirm check	E/(O)	Section 7.4.2
	Delete all	E/(O)	Section 7.4.3
	Confirm all	E/(O)	Section 7.4.4
	Print	E/(O)	Section 7.4.5
	Export to CSV file	E/(O)	Section 7.4.6
User-created screen		E/O/L	Section 7.5

(Authority...E: Engineer mode/O: Operator mode/(O): Operator mode with operation authority/L: Valid for lock mode)

Monitor function (Pop-up window) list

Function		Authority	Reference	
Pop-up faceplate			Section 7.6	
Display	Faceplate display	E/O/L	Section 7.6.1	
Operation	Faceplate operation	E/(O)	Chapter 10	
	Display pop-up tuning screen	E/O/L	Section 7.6.2	
Pop-up tuning			Section 7.7	
Display	Faceplate display	E/O/L	Section 7.7.1	
	Tag monitor display			
	Tuning trend display			
Operation	Faceplate operation	E/(O)	Chapter 10	
	Tuning trend collecting instruction	E/(O)	Section 7.7.3	
	Change current value	E/(O)	Section 7.7.4	
	Tuning function	Auto tuning (Step Response method/Limit Cycle method)	E/(O)	Section 7.7.5
		Gridline interval setting	E/O/L	Section 7.7.6
		Y-axis scale setting		
		Collected tag list	E/O/L	Section 7.7.7
Export to CSV file	E/(O)	Section 7.7.8		

(Authority...E: Engineer mode/O: Operator mode/(O): Operator mode with operation authority/L: Valid for lock mode)

Other functions (Monitor toolbar)

Function		Authority	Reference	
Stop Buzzer		E/(O)	Section 8.1	
Print screen		E/(O)	Section 8.2	
Screen Alignment	Cascade display	E/O/L	Section 8.3	
	Tile display			
Find	Search by tag name	E/O/L	Section 8.4	
	Search by control panel group name			
	Search by trend graph group name			
Change Mode		E/O/L	Section 4.5	
Exit		E/(O)	Section 5.2	
Help Menu	Display PLC communication status	Display	E/O/L	Section 8.5
		Reset		
	Display server/client communication status		E/O/L	Section 8.6.7
	Switch Server/Connect Server		E/O/L	Section 8.6.3/ Section 8.6.4
	Acquire server setting data		E/O/L	Section 8.6.5
	PLC error display	Q series	E/O/L	Section 6.3.1
		iQ-R series		
	Display operating manual	Monitor Tool	E/O/L	Section 6.3.1
GOT Screen Generator				
About PX Developer				

(Authority...E: Engineer mode/O: Operator mode/(O): Operator mode with operation authority/L: Valid for lock mode)

Other functions (Automatic functions)

Function		Authority	Reference
Automatic CSV file export			Section 8.7
	Automatic trend CSV file export	E/O/L	Section 8.7.1
	Automatic alarm CSV file export	E/O/L	Section 8.7.2
	Automatic event CSV file export	E/O/L	Section 8.7.3
	Automatic CSV file deletion	E/O/L	Section 8.7.4
	Disk free space check	E/O/L	Section 8.7.5

(Authority ... Valid in E: Engineer mode/O: Operator mode/L: Lock mode)

List of usable software component in Microsoft® Visual Basic®

Function		Authority	Reference
Tag data access control		/	Section 11.2
Faceplate control			

Setting (General operation) list

Function		Authority	Reference	
Common item of setting window			Section 9.1	
Setting item selection		E	Section 9.1.1	
Button operation	Apply setting	E	Section 9.1.3	
	Setting cancel			
Menu	File	E	Section 9.1.1	
				Save the setting data
				Export setting data to CSV file
				Generate GOT screen
	Close			
	Edit			Cut
				Copy
				Paste
				Delete
				Delete row

(Authority...E: Engineer mode/O: Operator mode/L: Valid for lock mode)

Setting (Item) list

Function	Setting item	Authority	Reference	Change in a secondary server	Change in clients
User authority setting			Section 9.2	×	×
General	Stop buzzer	E			
	Print screen				
	Exit monitor tool				
Change of the values of tag data item	Process instruction values/Mode				
	Alarm threshold values				
	Tuning parameter values				
Trend graph	Process design values				
Pop-up tuning	Export to CSV file				
	Tuning trend collecting instruction				
Alarm/event	Export to CSV file				
	Print				
	Confirm				
	Delete				
PLC communication status	Reset				
Setting/removing lockout tag	Operator1 level				
	Operator2 level				
	Operator3 level				
	Operator4 level				
	Engineer level				
User setting			Section 9.3	×	×
	User name	E			
	Password				
	Authority				
Monitor target project setting			Section 9.4	×	×
	Project name	E			
	Assignment information database file				
	Transfer setup				
	Simulator Connection				
OPS setting			Section 9.5	○	○
	Monitor tool execution type setting	E			
	OPS list				
Monitor variable setting			Section 9.6	×	×
	Variable name/Device	E			
	Data type				
	Variable type				
	Low limit				
	High limit				
	Digits after decimal point				
	Unit				
	Comment				

(Authority...E: Engineer mode/O: Operator mode/L: Valid for lock mode)

(Change... ○: Changeable, ×: Not changeable)

Function	Setting item	Authority	Reference	Change in a secondary server	Change in clients
Control panel setting	Group name	E	Section 9.7	×	×
	Tag name				
Trend setting	Group name	E	Section 9.8	×	×
	Sampling period				
	Automatic CSV file export				
	Tag data item				
	Y-axis scale top limit, bottom limit				
Alarm setting	Alarm contents	E	Section 9.9	×	×
	Message contents	E	Section 9.10	×	×
User-created screen setting	Application	E	Section 9.11	○	○
	Argument				
Unit setting	Unit	E	Section 9.12	×	×
	Faceplate display pattern setting	Tag type selection	E	Section 9.13	×
String of display and operation button					
Character string color/background color of operation button and display (indicator)					
Faceplate display scale setting	Tag name	E	Section 9.14	○	○
	PV graph display scale bottom limit				
	PV graph display scale top limit				
	PV graph display division number				
	PV graph display direction				
	PV graph base point when both direction is set				
Faceplate MV characters setting	Tag name	E	Section 9.15	○	○
	MV graph display character (0%)				
	MV graph display character (100%)				
Lockout tag setting	Lockout tag name	E	Section 9.16	×	×
	Text color, background color				
	Authority level				

(Authority...E: Engineer mode/O: Operator mode/L: Valid for lock mode)

(Change... ○: Changeable, ×: Not changeable)

Function		Setting item	Authority	Reference	Change in a secondary server	Change in clients
Option setting						
General	Setting window font		E	Section 9.17	○	○
	Monitor window font				○	○
	Printer				○	○
	Window mode				○	○
	Minor alarm color				○	○
	Major alarm color				○	○
	Return check interval (s)				×	×
	Return check timeout (s)				×	×
	PLC status check interval (s)				×	×
	Write tag data (even if the PC's and PLC's project ID codes are different)				×	×
	Automatic CSV file deletion time (0 to 23)				×	×
	Disk free space check size (MB)				○	○
	Exit monitor tool when windows logoff or shutdown				×	×
	Server/client	Time adjustment among OPSs			○	○
Switch/Reconnect server during screens are displayed		○	○			
Alarm/ event	General	Alarm/Event display on 2nd Line of monitor toolbar	○	○		
		Alarm/Event display format of monitor toolbar	○	○		
		Highlighted display while alarms occur	○	○		
		Event notification UDP port No.(HEX)	×	×		
		Automatic alarm CSV file export	×	×		
		Automatic alarm CSV file deletion	×	×		
		Alarm CSV file storage period (days)	×	×		
		Automatic alarm CSV file export target folder	○	×		
		Tag data item display of alarm	○	○		
		Unconfirmed alarms deletion at delete recovered alarms	×	×		
		Automatic event CSV file export	×	×		
		Automatic event CSV file deletion	×	×		
		Event CSV file storage period (days)	×	×		
	Automatic event CSV file export target folder	○	×			
Minor alarm	Buzzer type		○	○		
	Beep sound time interval (s)		○	○		
	Beep sound frequency		○	○		
	Sound file		○	○		

(Authority...E: Engineer mode/O: Operator mode/L: Valid for lock mode)

(Change... ○: Changeable, ×: Not changeable)

Function		Setting item	Authority	Reference	Change in a secondary server	Change in clients	
Option setting (continued)	Alarm/ event	Major alarm	Buzzer type	E	Section 9.17	○	○
			Beep sound time interval (s)			○	○
			Beep sound frequency			○	○
			Sound file			○	○
		Event	Buzzer type			○	○
			Beep sound time interval (s)			○	○
			Beep sound frequency			○	○
			Sound file			○	○
	Faceplate	SV limit excess setting	×			×	
		Background color	○			○	
		Text color	○			○	
		Alarm area color (No alarm)	○			○	
		Button text color	○			○	
		Button background color	○			○	
		Button cover display setting	○			○	
		Button cover color	○			○	
		Button cover release second	○			○	
		PV bar positive direction color	○			○	
		PV bar negative direction color	○			○	
		PV bar both direction color (Positive)	○			○	
		PV bar both direction color (Negative)	○			○	
		PV high/low limit value bar color	○			○	
		PV high high/low low limit value bar color	○			○	
		SV/MV limit value bar color	○			○	
		SV/MV pointer color	○			○	
		SV(Target) pointer color	○			○	
	MV status color	○	○				
	Frame color (No lockout tag)	○	○				
	Trend graph	Item name display	○			○	
		Gridline	○			○	
		Gridline color	○			○	
		Background color	○			○	
		Graph 1 to 8 color	○			○	
Trend binary data storage folder		○	○				
Automatic trend CSV file export target folder		○	○				
Automatic trend CSV file export file name		×	×				
Automatic trend CSV file export time (0 to 23)		×	×				
Automatic trend CSV file deletion		×	×				
Trend CSV file storage period (days)		×	×				

(Authority...E: Engineer mode/O: Operator mode/L: Valid for lock mode)

(Change... ○: Changeable, ×: Not changeable)

4 MODE ADMINISTRATION

4.1 Mode Overview

When using the monitor tool, register the users in advance and define their password and authority. (Engineer or Operator1 to 4)

When starting the monitor tool, the mode is in the lock mode with which any operations of settings or values cannot be performed.

The monitoring operation can be executed within the user authority with specifying a user name and a password, and changing the mode.

Before the operator leaves, if the lock mode is set, the mis-operation by irrelevant persons can be avoided.

4.2 Mode Types

Among the monitoring tools 3 kinds of modes can be set for every user

Mode name	Description	Corresponding user's authority
Engineer Mode	A mode with which the monitoring operation (monitoring/changing tag data) and setting data change are available	Engineer
Operator Mode	A mode with which the monitoring operation is available	Operator4
		Operator3
		Operator2
		Operator1
Lock Mode	A mode with which only the monitoring is available	(No designated user)

4.3 User Authorities

In the monitor tool, the user authority can be set up to 6, and the operation restrictions for the functions that need the security of monitoring/control can be set depending on user authority for changing the mode.

The operation restrictions for the authority of engineer/ lock are fixed, however, that for the authority of operator1 to 4 can be set with User Authority Setting (☞ Section 9.2).

Operation restriction item \ User authority	Engineer	Operator (1 to 4)	Lock
Monitor tool setting	○	×	×
Exit monitor tool	○	Available only for users whose authority is specified for the corresponding operation on User Authority Setting (☞ Section 9.2)	×
Stop buzzer/Print screen	○		×
Change of the values of tag data item	○		×
Export data to CSV file of trend graph	○		×
Export data to CSV file of pop-up tuning/ Tuning trend collecting instruction	○		×
Export to CSV file/Print/Confirm/Delete of Alarm data	○		×
Reset the maximum value/number of times of PLC communication status	○		×
Setting/Removing lockout tag	○		×

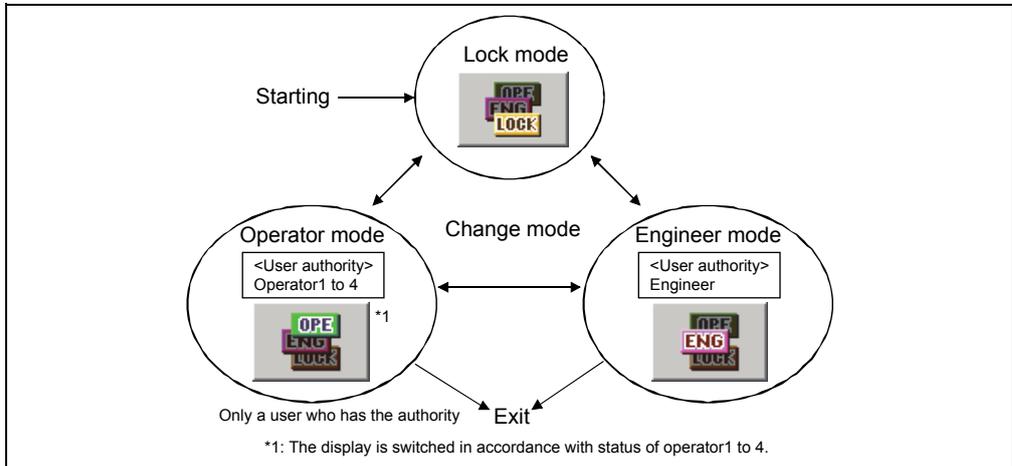
○: Applicable, ×: Not applicable

(For details of operation authority of functions with each mode, refer to "Section 3.2 Function List")

4.4 Mode Transition

At the starting time, the lock mode is used.

The operation for exiting the monitor tool can be executed by a user who has the authority only.



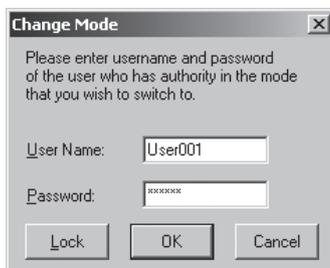
POINT

- Specify the authority for operator1 to 4 on User Authority Setting (Section 9.2), and set the authority specified for user name with User Setting (Section 4.6, Section 9.3) to change the operation range for each operator.
- The operation authority for operator1 to 4 after installation is the initial setting status (Section 9.2).

4.5 Mode Change

The mode can be changed by specifying a user name and a password registered with the Change Mode function beforehand.

User name, its corresponding authority and password are registered by user settings. (Section 4.6, Section 9.3)



1. Click the "Change Mode" button on the monitor toolbar.

2. One of the following two operations can be executed in the "Change Mode" dialog box.

(In the setting operator/engineer mode)

- Input character string to user name and password item. Click the "OK" button.

(Return to lock mode)

- Click the "Lock" button.

POINT

The security level of GT SoftGOT can be changed in accordance with the user authority which changes the mode by setting the security level change on User-created Screen Setting. For details, refer to Section 9.11.

4.6 User Setting

To register the individual user name and password of each operator for operation, the mode must be changed to the engineer mode after a start of the monitor tool.

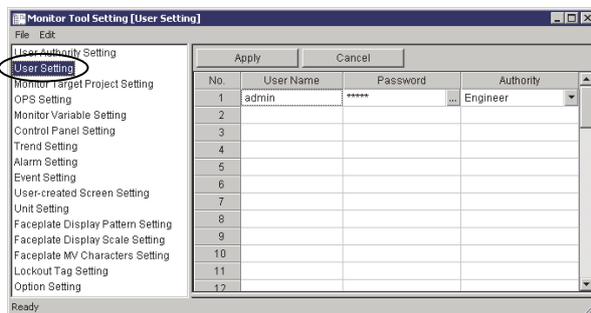
In the following procedure, display the user setting window and make necessary user setting.

Only in the engineer mode, can the user setting be executed.

For details about the setting window, refer to Section 9.3.

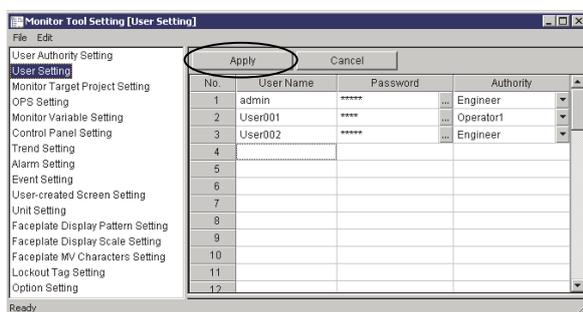


1. Click the "Setting window" button on the monitor toolbar.



2. The monitor tool setting window is displayed.

3. Select "User Setting" in the setting item on the left side of the screen, then set freely on the user setting graph displayed on the right side.



4. Click the "Apply" button after finishing inputting all the user name, password and authority.

5. Execute the instruction in the menu: [File] → [Save the setting data] (even without this operation, the setting result will be automatically saved into the setting data file when the monitor tool finishes its task).

6. Close the setting window.

4.7 Changing Mode after Installation

In order to execute change mode, the user name and password should be registered through the user setting beforehand. (☞ Section 4.6, Section 9.3)

But when the monitor tool starts, the setting window cannot be displayed, and the mode is the lock mode.

After the installation, the user setting has not yet been executed. In order to display the user setting window and use it as the initial screen, the following user name and password have been registered in advance.

If the mode is changed with designated user name and password, all function of the monitor tool can be operated when the mode changes into the engineer mode.

User Name	Password	Authority
admin	admin	Engineer



1. Click the "Change Mode" button in the monitor toolbar.

2. Input user name (admin) and password (admin), and then click the "OK" button. (The mode will be changed into engineer mode.)

POINT

If the user name and password for the registered engineer-authority user have been forgotten and the operation cannot be performed, set the "product ID" in the "User Name" and "Password". The mode can be changed using the first engineer-authority user registered in the user setting.

(The product ID is given in the "License certificate" packed with the product. Replace delimiters in the product ID with "-".)

5 START AND EXIT

5.1 Starting Monitor Tool



PURPOSE

Start the monitor tool.

The execution type (Standalone/Server/Client) can be selected to be suited for the system configuration and the role of an OPS, in the monitor tool execution type setting dialog box displayed from the OPS setting (☞ Section 9.5).



BASIC OPERATION

The following describes a starting method from the start menu of Microsoft® Windows® Operating System.



1. Start the PX Developer monitor tool in "MELSOFT Application" from Windows Start.
2. The monitor toolbar appears on the top of the screen.

Immediately after the installation, a monitor tool is started up as Standalone by default.

POINT

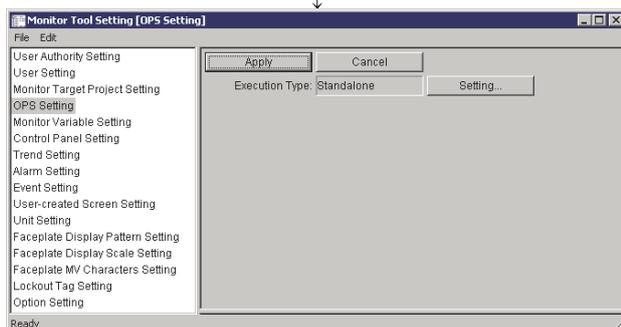
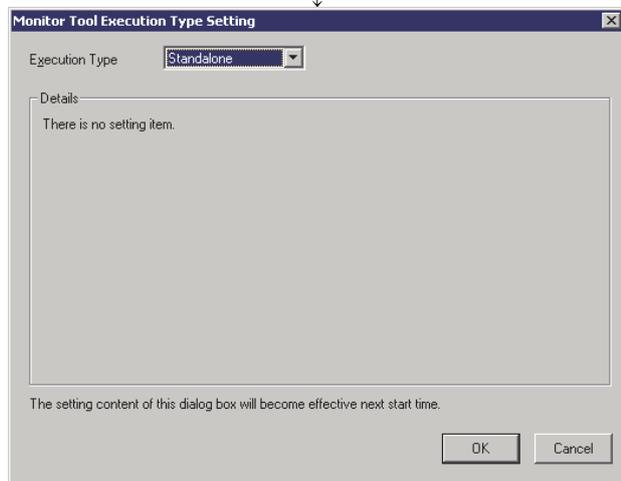
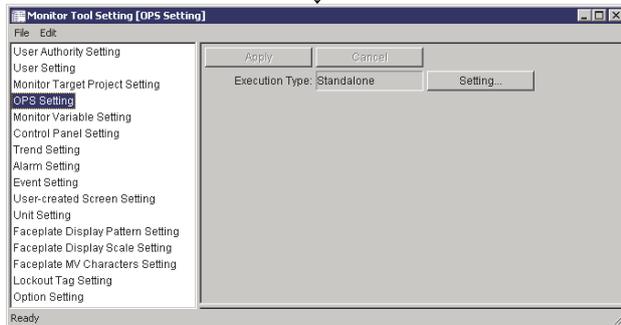
The security level of GT SoftGOT can be changed in accordance with the user authority which changes the mode by setting the security level change on User-created Screen Setting. For details, refer to Section 9.11.

REMARK

Use of PX Developer Version 1.04E or earlier

To use monitor tool, GX Developer Version 7(SW7D5C-GPPW-E Version 7.20W) or later is necessary. Without the above-mentioned software, the corresponding information will be shown at beginning, and the monitor tool cannot be started.

(1) Procedure for starting up a monitor tool as Standalone

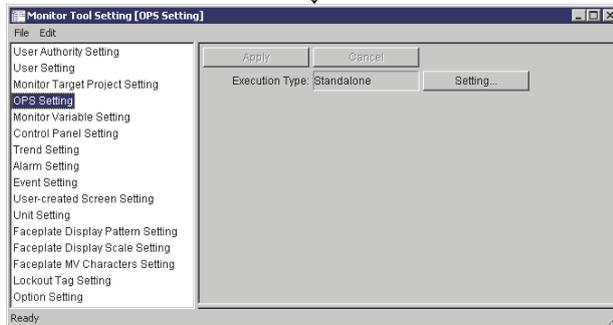


1. Click the "Setting window" button on the monitor toolbar.
2. Select [OPS Setting] in the monitor tool setting screen, and click the "Setting..." button.
3. The monitor tool execution type setting dialog box is displayed. Select "Standalone" in the "Execution Type" and click the "OK" button.
4. Click the "Apply" button in the OPS setting screen, and exit the monitor tool.
5. Restart the monitor tool.

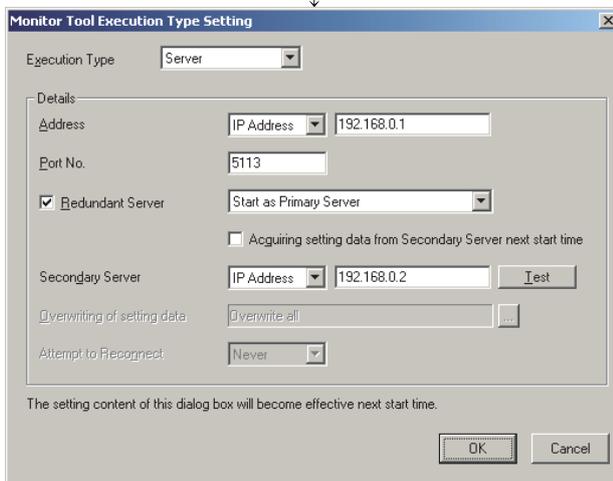
(2) Procedure for starting up a monitor tool as Server



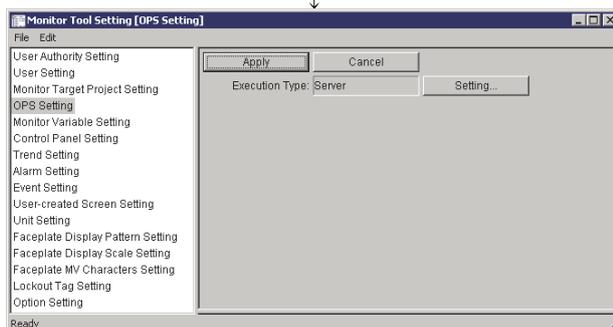
1. Click the "Setting window" button on the monitor toolbar.



2. Select [OPS Setting] in the monitor tool setting screen, and click the "Setting..." button.



3. The monitor tool execution type setting dialog box is displayed.
Select "Server" in the "Execution Type" and click the "OK" button.
To run a redundant server, refer to Section 9.5 and set the required items.



4. Click the "Apply" button in the OPS setting screen, and exit the monitor tool.
5. Restart the monitor tool.

POINT

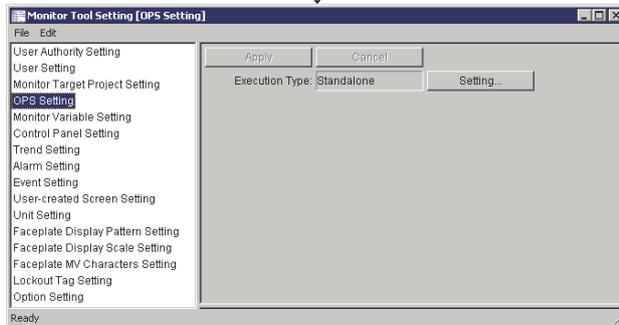
A primary/secondary server starts up acquiring the setting data from another server.*1

*1: A primary server acquires the setting data only when it is restarted checking "Acquiring setting data from Secondary Server next start time".

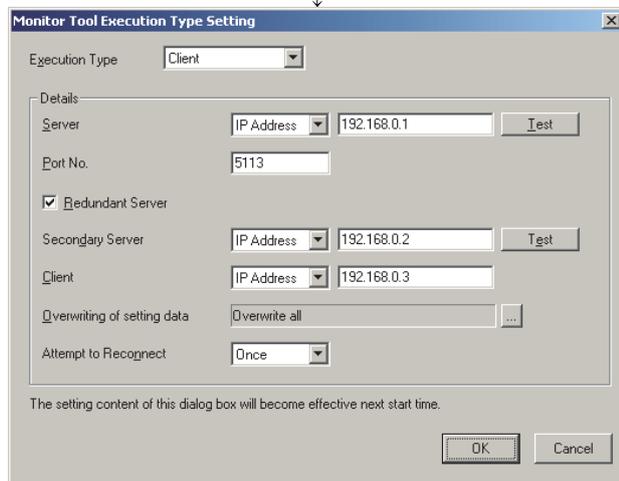
(3) Procedure for starting up a monitor tool as Client



1. Click the "Setting window" button on the monitor tool toolbar.



2. Select [OPS Setting] in the monitor tool setting screen, and click the "Setting..." button.



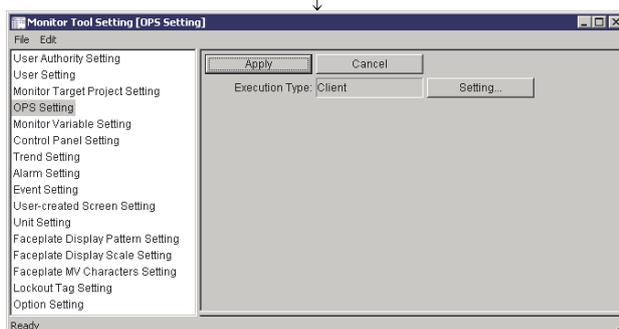
3. The monitor tool execution type setting dialog box is displayed.

Select "Client" in the "Execution Type", enter IP addresses of the connection server and client, and execute the "Test".

(Section 9.5)

Then click the "OK" button.

To connect a redundant server, refer to Section 9.5 and set the required items.



4. Click the "Apply" button in the OPS setting screen, and exit the monitor tool.

5. Restart the monitor tool.

POINT

A client starts up acquiring the setting data from a server.

In the redundant server system, a client firstly connects to a primary server. If it cannot connect to the primary server, then it connects to a secondary server.

<Method to execute programs as an administrator>

(1) When user account control (UAC) is enabled

All users including administrator are fixed at and operate as "standard user".
To execute programs in administrator authority, specify "Run as administrator".

(2) When user account control (UAC) is disabled

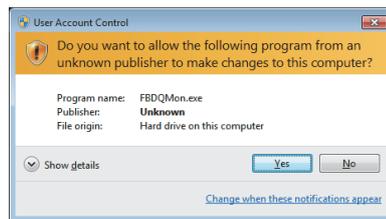
Programs can be executed by logon user.
(Specifying "Run as administrator" is not necessary.)

(3) Procedure to execute programs as an administrator

The following shows a procedure to execute the monitor tool as an administrator when UAC is enabled.

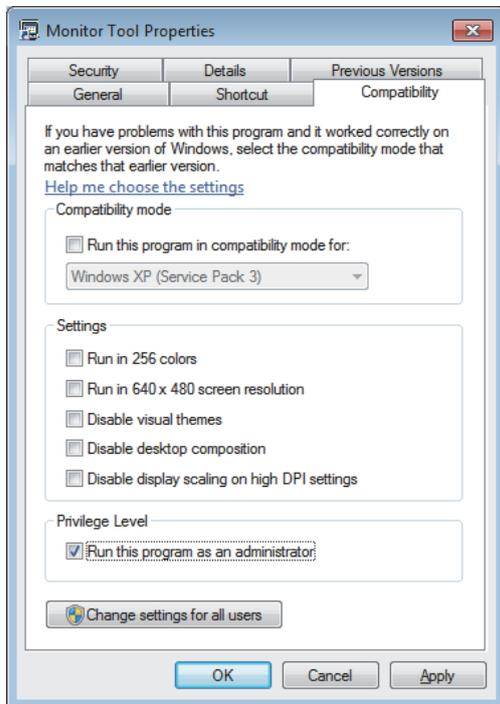
Select the PX Developer monitor tool in "MELSOFT Application" from Windows Start, right-click, and select "Run as administrator".

- * When the user account that is logging on to Windows® is an administrator, the following message will be displayed.
Selecting "Yes" enables to execute as an administrator.



(4) Setting to always execute programs as an administrator

To always "execute programs as an administrator", set as follows.



Select the PX Developer monitor tool in "MELSOFT Application" from Windows Start, right-click it and select "Open file location".

- 1) Select "Monitor Tool", right-click, and select "Properties".
- 2) Select the <<Compatibility>> tab and check "Run this program as an administrator".

5.2 Exiting Monitor Tool

**PURPOSE**

Exit monitor tool.

**BASIC OPERATION**

1. Click the "Exit" button in the monitor toolbar.*1



2. Click the "Yes" button in the dialog box.

3. Exit the monitor tool.

*1: To Enable "Exit" button, change the mode which has the authority for exiting the monitor tool (☞ Section 4.5, Section 4.7).

POINT

- The operation for exiting the monitor tool can be executed by a user who has the authority.
A user who has the authority for exiting the operation is a user for whom user-authority (☞ Section 9.2) is specified to exit the monitor tool (☞ Section 4.6, Section 9.3).
 - "Exit the monitor tool" will stop all the data collecting process.
 - When the monitor tool is closed, the user-created screen started with it (☞ Section 7.5) will also be entirely shut off.
 - Windows® can be logged off/shut down during the monitor tool execution. Note that when the monitor tool is in the following status, Windows® cannot be logged off/shut down.
 - When a current user does not have the authority for exiting the monitor tool operation*1
 - When a modal dialog box or a message box is displayed
 - When applying the setting data*2
 - When switching/connecting the server
 - When acquiring the server setting data
- *1: Only when "Follow the user authority setting" is set to "Exit monitor tool when windows logoff or shutdown" in Option Setting (General)
- *2: Monitor Target Project Setting (apply, reload), Trend Setting, Option Setting (changing the trend binary data storage folder and the related automatic CSV file export), during the processing for applying Monitor Variable Setting

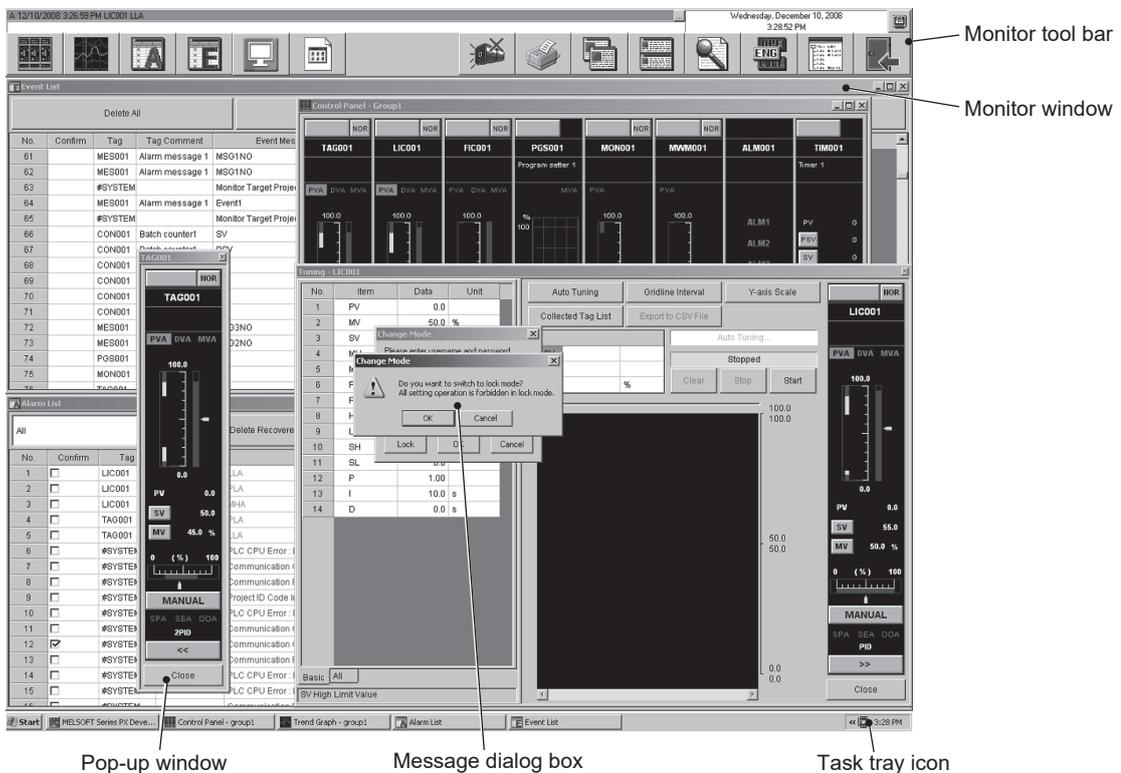
6 SCREEN CONFIGURATION AND BASIC OPERATION

6.1 Overview of Screen Configuration

The screens displayed by monitor tools can be approximately classified as follows:

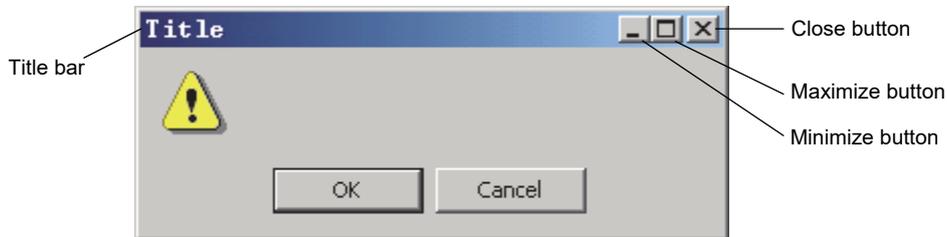
Screen	Feature	Maximum number
Monitor toolbar	Menus to select primary functions. They are always on the top of the screen and will not be cascaded by other windows.	1
Monitor Window	Multi-window mode	4
	Single-window mode	1
Pop-up window	Usually displayed in front of other windows, with variable sizes, maximization and minimization unallowable.	4
Message dialog box	Used for display of confirmations and settings, fixed window-size.	
Task tray icon	An appropriate task tray icon is displayed depending on the execution type of the monitor tool.	

The number of screens that can be displayed is subject to the type of the screen. Besides monitor toolbars, 4 monitor windows and 4 pop-up windows can be displayed simultaneously under the multi-window mode.



6.2 General Operation of Screen

A title bar indicating the name of each screen will be available on the upper part of each window.



The title bar can be used to display the system menu for primary operations of the window. And the system menu can be displayed via two ways.

- Right click the title bar on the upper part of the window.
- Press Alt + Space

6.2.1 Closing a window



PURPOSE

Close a displayed window



BASIC OPERATION

Use any one of the methods shown below to close a window except a toolbar.

- Click the close button at the upper right corner of the window.
- Select the [Close] option from the system menu.
- Press Alt + F4.
- Click the "Close" button on the faceplate. (Except the control panel)

6.2.2 Maximizing a window



PURPOSE

To extend a displayed window to a window overlapping the whole screen below the toolbar.



BASIC OPERATION

Use any one of the methods shown below to maximize a window.

- Click the maximize button at the upper right corner of window.
- Select the [Maximize] option from the system menu.
- Press Alt + Space and press x key.
- Double click the title bar at the top of the window.

6.2.3 Minimizing a window



PURPOSE

Temporarily close a displayed window and show buttons of taskbars of Microsoft® Windows® Operating System.



BASIC OPERATION

Use any one of the methods shown below to minimize a window.

- Click the minimize button at the upper right corner of the window.
- Select the [Minimize] option from the system menu.
- Press Alt + Space and press n key.

6.2.4 Restoring a window



PURPOSE

To restore the maximized window back to its original state before maximization.



BASIC OPERATION

Use any one of the methods shown below to restore a maximized window to its original size.

- Click the restore button at the upper right corner of the window.
- Select the [Restore] option from the system menu.
- Press Alt + Space and press r key.

6.2.5 Changing the window size



PURPOSE

Change the size of a displayed window.



BASIC OPERATION

- (1) Change the width of a window
Scroll the cursor at the right or left of the window until the cursor becomes a right-left directional arrow, and then pull the border of the window rightward or leftward (hold the key of the mouse and move it).
- (2) Change the height of a window
Scroll the cursor at the upper or lower of the window until the cursor becomes an upper-lower directional arrow, then pull the border of the window upward or downward.
- (3) Change the width and height simultaneously
Move the cursor to one corner of the window till the cursor becomes a slant two-direction arrow, and then pull the border of the window toward any direction.

REMARK

- The window size is not changeable after maximized (full-screen display).
- The characters size will be automatically adjusted according to the window size.

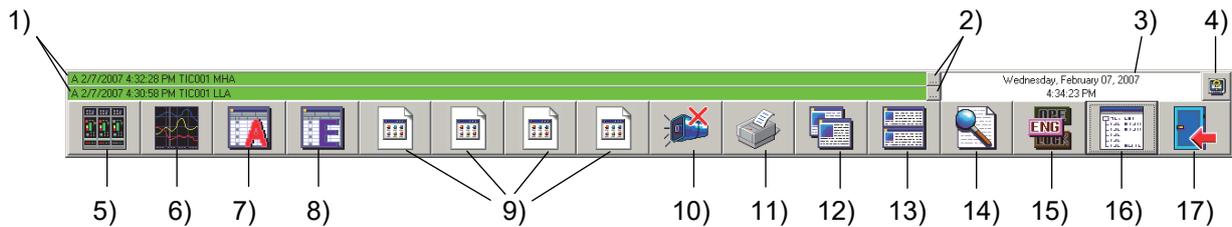
6.3 Monitor Toolbar

The monitor toolbar is displayed on the top of the screen after the monitor tool is started.

The major function menu is displayed in button form, on the monitor toolbar.

6.3.1 Contents of monitor toolbar

The following is the monitor toolbar in the monitor tool.



(1) The list of the displayed components

The components on the monitor toolbar are as follows.

Depending on difference of modes etc, there are also situations in which buttons are not displayed. (The details will be recounted in later part of the passage.)

No.	Item	Description	L	O	E	Setting
1)	Alarm/event display area	Display alarm/events.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2)	Faceplate screen display button	Display pop-up faceplate screens of the tag associated with alarm/events.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
3)	Date/time display area	Display current date/time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4)	Help menu display button	Display help menu.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5)	Control panel screen display button	Display control panel screen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
6)	Trend graph screen display button	Display trend graph screen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
7)	Alarm list screen display button	Display alarm list screen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
8)	Event list screen display button	Display event list screen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
9)	User-created screen button 1 to 4	Start up registered application program and display user-created screen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
10)	Stop buzzer button	Stop the buzzer beep.	<input type="checkbox"/>	<input type="radio"/> *1	<input type="radio"/>	<input type="radio"/>
11)	Print screen button	Print the displayed screen.	<input type="checkbox"/>	<input type="radio"/> *1	<input type="radio"/>	<input type="radio"/>
12)	Cascade window button	Cascade monitor window.	Multi : <input type="radio"/>			
13)	Tile window button	Tile the monitor window.	Single : <input type="checkbox"/>			
14)	Find button	Display find dialog box.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
15)	Change mode button	Display change mode dialog box.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
16)	Setting window button	Display setting window.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
17)	Exit button	Exit monitor tools.	<input type="checkbox"/>	<input type="radio"/> *1	<input type="radio"/>	<input type="checkbox"/>

(L: Lock mode, O: Operator mode, E: Engineer mode, Setting: Setting window is displayed

: Valid display, : Gray display indicates an invalid click, : Nothing displayed)

*1: The button is displayed only for a user who has the authority for the operation.

(2) Display/hide buttons

Depending on different modes and settings, unavailable buttons will not be displayed.

- Buttons of 2), 5) to 9), 14), 15), 17) cannot be clicked when the setting window is opened.
- The applications registered to User-created Screen Setting or icons registered to detail setting of User-created Screen Setting are displayed on the 9) user-created screen button 1 to 4. (For details of the registration, refer to Section 9.11.)
- Cascade window button 12)/ Tile window button 13) is only displayed in multi-window mode, not in single-window mode. Window mode can be switched with option setting (General). (↔ Section 9.17 (1))
- Setting window button 16) is only displayed in engineer mode. Switching to the engineer mode can be implemented with change mode button 15).

The following are some display samples of the monitor toolbars.

Lock Mode (No User-created Screen Setting, multi-window mode)



Operator Mode (User-created screen Setting 3 activated, multi-window mode)



Engineer Mode (User-created screen Setting 1 to 4 activated, multi-window mode, 1 row of alarm messages)



Setting window in display (No User-created screen Setting, multi-window mode)



Setting window in display (User-created screen Setting 3 activated, single-window mode, 2 rows of alarm messages)



(3) Alarm and event display area

The upper portion of the monitor toolbar is the area where 2 rows of messages are shown.



(a) Alarm and event display

The first line of alarm and event display shows the up-to-date alarm.
 The second line can display alarm and event at user's disposal.
 The option at the second line can be executed with option setting (Alarm/Event general) of function setting. (☞ Section 9.17 (3))

1) Case1:

selected "alarm" in option setting (Alarm/Event general)

The first row	The unconfirmed latest alarm highlighted in alarm list screen.
The second row	The second alarm after the unconfirmed latest alarm highlighted in alarm list screen.

2) Case2:

selected "event" in option setting (Alarm/Event general)

The first row	The unconfirmed latest alarm highlighted in alarm list screen.
The second row	The unconfirmed latest event message in event list screen.

<Display form of alarm>

	Occurrence date	Occurrence time	Tag name	Tag comment	Alarm content *1	Faceplate display button
A	01/26/2002	11:13:23AM	TIC001	*****	*****	..

*1: The display format as to the tag data items is according to "Tag Data Item Display of Alarm" of Option Setting (Alarm/Event).

<Display form of event>

	Occurrence date	Occurrence time	Tag name	Tag comment	Event content	Faceplate display button
A	01/26/2002	11:13:23AM	TIC001	*****	*****	..

When a tag name/tag comment is too long to display in the area, it is cut-down. When a tag name/tag comment is cut-down, suspension points (...) are attached to it.

Example) TAG012345678 → TAG012345678
 TAG0123456789 → TAG012345678...

In the "Alarm/Event display format of monitor toolbar" of the option setting, the display format of tag names and tag comments can be changed. The display format is selectable from three choices, "Tag Name", "Tag Comment", and "Tag Name + Tag Comment".
 Tag comments are not displayed for system alarms because they do not have any tag comments.

POINT

Display character counts of tag names, tag comments, and alarm/event contents may flexibly vary, because the size of the display areas varies depending on the screen resolution.

The following table shows approximate display character counts when "Tag Name + Tag Comment" is selected as the display format.

Resolution	Tag name	Tag comment	Alarm/event content
800×600	12 characters	24 characters	12 characters
1024×768	12 characters	24 characters	30 characters
1280×1024	12 characters	24 characters	52 characters
1600×1200	12 characters	36 characters	64 characters

(b) Faceplate display button

The faceplate display button appears at the right end of the alarm/event display area.

A faceplate screen correlative with the displayed alarm will pop up when this button is clicked.

The faceplate display button appears only for able-to-show-faceplate alarms/events.

The so-called able-to-show-faceplate alarm means the alarms other than system alarm.

The so-called able-to-show faceplate event means the event that tag data of message tag has a confirmation check.

For details of warnings and events, refer to Section 7.3.1 and Section 7.4.1.

(c) Displaying alarm/event list

The Alarm list screen/Event list screen is displayed by double-clicking any space other than the Faceplate screen display button in the alarm/event display area while alarm/event is displayed on the monitor toolbar. *1

The Alarm list screen/Event list screen shows relevant alarm/event selected.

*2

No.	Confirm	Tag	Tag Comment	Event Message	Occurrence Date	Status	Set Value	Previous Value	User
1		#SYSTEM		Monitor Target Project was load	10/15/2013 10:25:56 AM				
2		TIC001			10/15/2013 10:25:36 AM	CLOSE			admin
3		TIM1001			10/15/2013 10:25:21 AM	DOM_RUN_SET			admin
4		TIM1001			10/15/2013 10:23:56 AM	DOM_STOP_SET			admin
5		LIC001		SV	10/15/2013 9:49:57 AM		1.0	0.0	admin
6		M001	Motor		10/15/2013 9:49:52 AM	AUT			
7		M001	Motor		10/15/2013 9:49:52 AM	AUT		MAN	admin
8	<input type="checkbox"/>	MSG001	Event message 1	Temperature setting completed	10/15/2013 9:49:49 AM				

Event list example displayed by double-clicking the alarm/event display area

*1: List screen is not displayed in the following cases:

- When the maximum number of screens to be monitored (Section 6.1) is opened
- When the setting window is displayed
- When the change mode screen is displayed
- When the message box, which appears when the "Exit" button or "Print" button is clicked, is displayed

In the Alarm list screen, all alarms are displayed.

*2: When dialog boxes or message boxes are displayed from the list screen, relevant alarm/event will not be selected.

(4) Date/Time display area

It is the upper right area of the monitor toolbar displaying the current date and time according to the personal computer's settings.

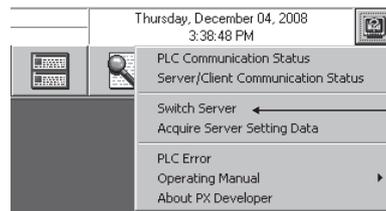


(5) Display button of help menu

It is the button in the top right corner of monitor toolbar. Click this button to display help menu.



Display help menu
Click button to display help menu.



[Connect Server] is displayed for a secondary server or a client in the non-redundant server system

Item		Description
PLC Communication Status		Display the PLC communication status screen (☞ Section 8.5). This menu cannot be selected when the setting window (☞ Section 9.1.1) is in display or when the monitor tool execution type is "Client" (☞ Section 9.5).
Server/Client Communication Status		Display the server/client communication status screen (☞ Section 8.6.7). This menu cannot be selected when the setting window (☞ Section 9.1.1) is in display or when the monitor tool execution type is "Standalone" or "Client" (☞ Section 9.5).
Switch Server/Connect Server		Switch the server to be connecting manually with clients in the redundant server monitoring system (☞ Section 8.6.3). For a secondary server this menu connects it to a primary server manually, and for a client this menu connects it to a server manually (☞ Section 8.6.4). This menu cannot be selected when the setting window (☞ Section 9.1.1) is in display or when the monitor tool execution type is "Standalone" or "Server" ("Primary Server" for Connect Server) (☞ Section 9.5).
Acquire Server Setting Data		A client acquires the setting data from a server when it is changed in the server (☞ Section 8.6.5). This menu cannot be selected when a server error is occurring, when the setting window (☞ Section 9.1.1) is in display or when the setting data has already been acquired.
PLC Error	Q series	Display the help screen related to the PLC CPU error codes of the installed GX application. *1
	iQ-R series	Start e-Manual Viewer to display the page of error codes for iQ-R series. *2
Operating Manual	Monitor Tool	Start Acrobat® Reader to display PX Developer Version 1 Operating Manual (Monitor Tool). *3
	GOT Screen Generator	Start Acrobat® Reader to display PX Developer Version 1 Operating Manual (GOT Screen Generator). *3
About PX Developer		Display product information such as version.

- *1: If GX Works2 has not been installed, the PLC error help screen will not appear.
- *2: Install e-Manual Viewer and download the e-Manual of "MELSEC iQ-R CPU Module User's Manual (Application)".
The page of error codes is not displayed without installing and downloading them.
- *3: If Acrobat® Reader has not been installed, the manual will not appear.

POINT

- Display Help from the menu in GX Developer Version 8.500W or later to refer to CPU errors of GX Developer.

6.3.2 Screen display buttons

It displays all monitor window buttons of the monitoring function.
 For details of the monitoring function, refer to Chapter 7.

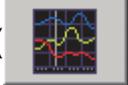


(1) Control panel screen display button ()



PURPOSE

Display the control panel screen. ( Section 7.1)
 Although one control panel screen already exists, another one will be displayed again.

(2) Trend graph screen display button ()



PURPOSE

Display the trend graph screen. ( Section 7.2)
 Although one trend graph screen already exists, another one will be displayed again.

(3) Alarm list screen display button ()



PURPOSE

Display Alarm list screen. ( Section 7.3)
 If the alarm list screen is in display, the current screen can be activated without the need to reopen it.

(4) Event list screen display button ()



PURPOSE

Display Event list screen. ( Section 7.4)
 If the Event list screen is in display, the current screen can be activated without the need to reopen it.

POINT
 When opening the setting window, no buttons can be clicked.

The following functions are to display those screens that are not immediately set after installation.

Arbitrary screen structure can be specially customized depending on different demands.



- (5) User-created screen display button (The button icon is subject to registered application programs.)



PURPOSE

Assign monitoring applications to user-created screen buttons on the monitor toolbar.

Programs created with GT SoftGOT (☞ Section 11.1) or Microsoft® Visual Basic (☞ Section 11.2) can be assigned as applications.

POINT

- When opening the setting window, no buttons can be clicked.
- The applications registered to User-created Screen Setting or icons registered to detail setting of User-created Screen Setting is displayed on the user-created screen button 1 to 4.
- Even though the monitoring screen opened by user-created screen button is not a monitoring screen, it will still be treated as a monitor window.
As for the limitation of screens to be open simultaneously, please calculate it as one screen of monitor window (☞ Section 6.4).
- When the monitor tool is closed, all user-created screens (☞ Section 7.5) started by it are also closed.

6.3.3 Stop buzzer button



PURPOSE

Stop the buzzer beep.
 No changes will occur if this button is clicked when the buzzer is not beeping.
 (☞ Section 8.1)



POINT
 A user who does not have the authority of operation for stopping the buzzer cannot click the button.

6.3.4 Print screen button



PURPOSE

Print the whole hard copy of the displayed desktop. (☞ Section 8.2)



POINT
 A user who does not have the authority of operation for copying the screen cannot click the button.

6.3.5 Screen alignment button



PURPOSE

Rearrange the displayed windows. (☞ Section 8.3)



- (1) Cascade display button
 One window is slightly cascaded on another window for alignment.
- (2) Title display button
 Screens are evenly divided. Windows are aligned when they are not displayed in cascaded way.

POINT
 Buttons will not be displayed in the single-window mode. Switching of the window mode can be accomplished with option setting (General). (☞ Section 9.17 (1))

6.3.6 Find button



PURPOSE

Search for tags, control panel and trend graphs. (☞ Section 8.4)



POINT

Do not click the Find button when opening the setting window.

6.3.7 Change mode button



PURPOSE

Switching the Lock/Operator/Engineer mode. (☞ Chapter 4)



POINT

Do not click the change mode button when opening the setting window.

6.3.8 Setting window button



PURPOSE

Display the monitor tool setting window. (☞ Chapter 9)



POINT

Only executable in engineer mode.
This button will not be displayed in lock mode or operator mode.

6.3.9 Exit button



PURPOSE

Exit the monitor tool. (☞ Section 5.2)



POINT

- This button will not be displayed with a user who does not have the authority for exiting the monitor tool operation.
- All screens displayed from the monitor toolbar are closed.
- Do not click the Exit button during the opening of the setting window.

6.4 Monitor Window

Monitor windows are screens to display monitor results.

6.4.1 Types of monitor window

Monitor windows can be classified as following types:

Type	Description	Reference
Control panel	Display tag faceplates taking group as a unit.	Section 7.1
Trend graph	Display time sequence change of the values of trend items by curves.	Section 7.2
Alarm list	Display a recorded alarm list	Section 7.3
Event list	Display a recorded event list	Section 7.4
User-created screen	Display a created screen. The monitor screen of the desired configuration can be created.	Section 7.5

6.4.2 Display form of monitor window

Monitor windows display in the normal window style. Display styles vary with the window modes, arranging form of the screen and maximize/minimize of the screen.

(1) Window mode

In monitor tool, the display mode can be selected from two types of display forms of monitor window according to different uses.

Window modes can be set through option setting (General).

Window Mode	Description	Maximum display screens
Multi-window	It remembers screen size of each window when they are closed, and still displays at the remembered sizes next time. If sizes are not remembered when installation is finished, it displays the basic sizes.	4 screens
Single-window	It is always displayed at the maximum status. (It cannot be set as the normal window size.)	1 screen

(2) Alignment of the screens

Under the multi-window mode, buttons on the monitor toolbar can be used to set.

Cascade display	One window is slightly cascaded on another window for alignment.
Tile display	Screens are evenly divided. Windows are aligned when they are not displayed in cascaded way.

(3) Maximize/minimize

Under the multi-window mode, windows can be set separately.

Under the single-window mode, only one screen can be displayed and it is always displayed in maximum size.

Maximize	Windows are displayed in full screens.
Minimize	Windows are changed to buttons on the taskbar.

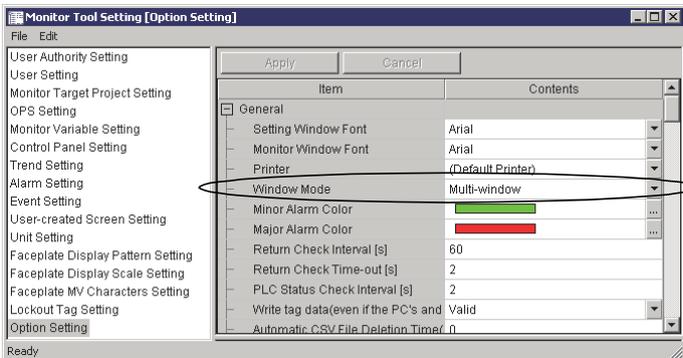
For the operation method, refer to "Section 6.2 General Operation of Screen".

Switch method of window mode is as follows.



1. Click the "Change Mode" button in the monitor toolbar to change to engineer mode.

2. Click the "Setting Window" button in the monitor toolbar.



3. The monitor tool setting window is displayed.

4. Select [Option Setting] from items on the left of the screen, and perform setting in the option setting screen displayed in the right of the screen.

5. Select Multi-window/Single-window from the [Window Mode] of [General].

6. Click the "Apply" button.

7. Execute the instruction in the menu: [File] → [Save the setting data] (even without this operation, the setting result will be automatically saved into the setting data file when the monitor tool finishes its task).

8. Close setting window.

6.5 Pop-up Window

A pop-up window is a window that displays monitor results of each tag.

6.5.1 Types of pop-up window

Pop-up windows are classified as follows.

Type	Description	Reference
Pop-up faceplate	A faceplate to display the adjusting instrument for simulating the process control device.	Section 7.6
Pop-up tuning	A screen to display a tuning screen of control. (Faceplate + tuning trend graph + tag monitor)	Section 7.7

6.5.2 Display form of pop-up window

Up to four pop-up windows can be displayed.

If a new pop-up window is opened when four pop-up windows have already been displayed, the earliest opened (displayed in the bottom) one among the four on-screen windows is automatically closed.

However, if it cannot be closed as displaying a dialog box for example, one next to the bottom is closed.

The window size can be changed as desired. (However, the aspect ratio of the faceplate is not variable.)

Maximize/minimize is not allowed.

REMARK

- When a window is closed, its position and size will be stored. Thus it will be displayed at the same size next time. When other windows have been displayed, a new window is displayed in the slightly bottom-right position of the top window. However, it will be displayed at a specific size after installation, as its size has not been stored.
- If a new pop-up window is opened when four pop-up windows have already been displayed, the bottom of the on-screen pop-up windows is forcibly closed. To keep the desired pop-up window open, close the unnecessary pop-up window before opening a new one.
- In the server/client monitoring system, up to 72 windows among all OPSs (up to 4 windows in each OPS) can be displayed.

6.6 Task Tray Icon

When the monitor tool starts, a monitor tool icon is displayed on the task tray depending on the execution type.

The connecting status can be confirmed with the tooltip.

To display a monitor tool icon and tooltip on the task tray, select "FBDQMon Application" ("PX Dev. Monitor Tool") as the icon displayed on the task bar.

(1) Icon

Icons displayed on the task tray are as follows.

Monitor tool execution type	Icon
Standalone	
Server	
Client	

(2) Tooltip

A tooltip is displayed by hovering the mouse pointer.

The monitor tool execution type is displayed in the tooltip. The status of connection to the server is also displayed.

7 MONITOR FUNCTION

7.1 Control Panel



PURPOSE

Implement grouping administration to the screen called faceplate with the simulating adjusting meter, and every group is displayed in a parallel way. On the faceplate, the current PID control status can be monitored with histogram and be executed ON/OFF control.



BASIC OPERATION

1. Click the "Control Panel" button () on the monitor toolbar.
2. The control panel screen is displayed.



DISPLAY/SETTING SCREEN

8 faceplates/group, 1000 groups at most

At most 1000 groups can be registered.
 Maximum 8 (the number of tags) faceplates can be displayed in one group.
 On the control panel, total 1000 × 8 = 8000 tags can be registered at most.
 ( Section 9.7)

7.1.1 Faceplate display

Every piece of assigned tag information is displayed on the faceplate. In control panel, the tag faceplates of the chosen groups are displayed together on one graphic screen. The group, number and tag allocation of the faceplate can be set with control panel setting (☞ Section 9.7). For details of the faceplate, refer to "Chapter 10 FACEPLATE".

7.1.2 Switching groups to be displayed

- (1) Choose the display group from the tabs displayed on the graphic screen
By means of clicking group selection tab, the faceplate group on the screen can be switched. The group names set with control panel setting configuration (☞ Section 9.7) are displayed in the group selection tab.



At the time of starting, monitor tool will memorize the chosen group, and display it with the "chosen" status next time.

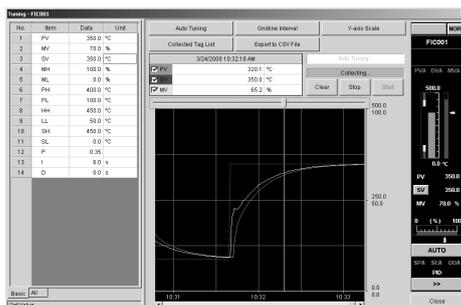
- (2) To see unseen tab with the sheet scroll button.
With the sheet scroll button at the right side of group selection tab, the unseen group selection tab can be displayed on the current screen.



- 1) Scroll one tab to the left with one click. Scroll to the left if pressing the button continuously.
- 2) Scroll one tab to the right with one click. Scroll to the right if pressing the button continuously.

7.1.3 Displaying the pop-up tuning screen

On the control panel, the following operation with displayed faceplate enables this tuning screen in the pop-up window. For details of pop-up tuning screen, refer to "Section 7.7 Pop-up Tuning Screen".



1. Click the "Details" button.
2. The pop-up tuning screen of the selected faceplate is displayed.

7.2 Trend Graph

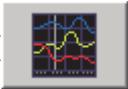


PURPOSE

Display the time series process of the trend item value with curve graph. Trend item is a generic term for tag data items and monitor variables (global variable/device variable). The curve graph is managed in groups, and every group is displayed respectively. The display can be switched between trend data being collected and trend data saved by the automatic trend CSV file export function.

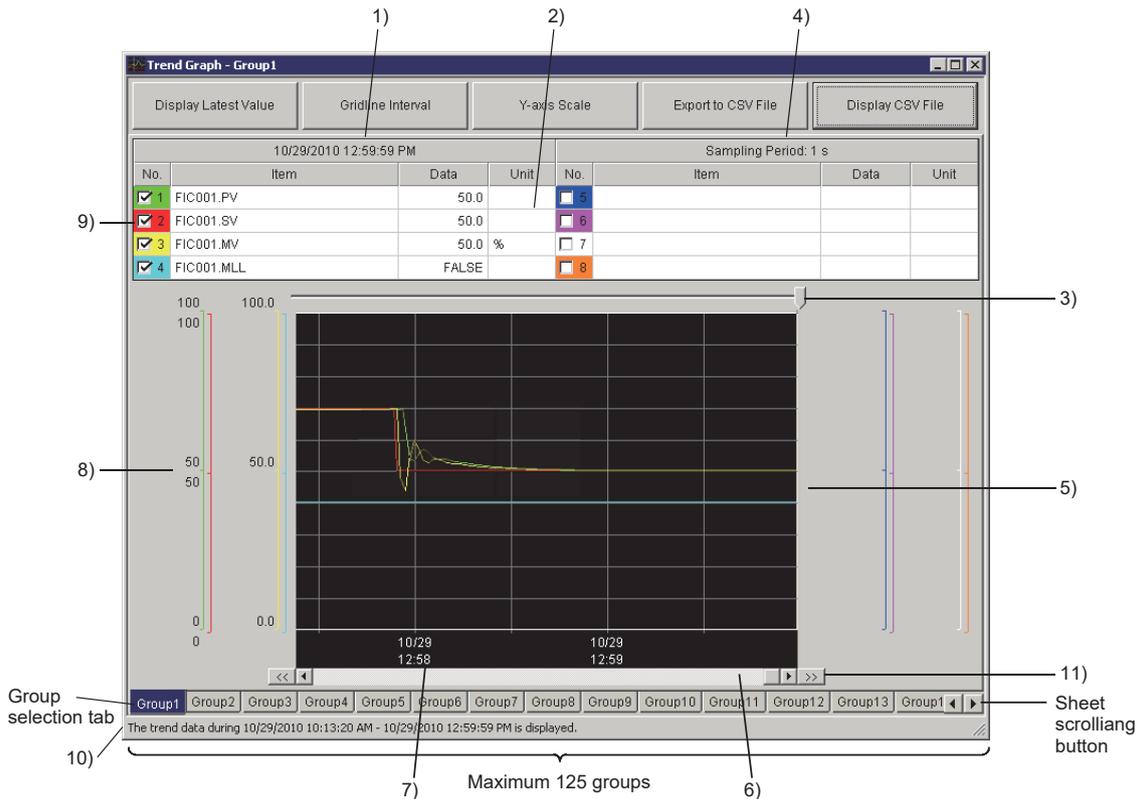


BASIC OPERATION

1. Click the "Trend Graph" button () on the monitor toolbar.
2. The trend graph screen is displayed.



DISPLAY/SETTING SCREEN



For 1) to 11), refer to "Section 7.2.1 Displaying a trend graph".

Maximum 125 groups can be registered.
 Maximum 8(the number of trend items) trend graphs can be displayed in one group.
 At most total $125 \times 8 = 1000$ trend items.
 ( Section 9.8)
 In the 1 second or 10 seconds sampling period, collectable trend item number is 100 at most.

7.2.1 Displaying a trend graph

The trend graph displays the trend item value in chosen group. The group and number of trend graph, trend item allocation and trend item can be set with trend setting (☞ Section 9.8).

The displayed contents on the trend graph are as follows.

No.	Item	Description
1)	Cursor position date and time	Display the date and time at the cursor position.
2)	Cursor position data display grid	Display every trend item value at the cursor position Display the status name (TRUE or FALSE) if it is the bit item. The item column and comment column can be selected whether to display or not with the popup menu which is displayed by right-clicking on a column title.
3)	Trend cursor position	Designate any position in the trend graph. Display the data of that time through moving cursor.
4)	Sampling period	Display the sampling period of the trend data. Sampling period is set by trend setting (☞ Section 9.8).
5)	Trend graph	The background color, gridline and the graph color are set by choice setting (trend graph) (☞ Section 9.17 (5)). In the screen, the newest value is at the right end, and the oldest value at the left end.
6)	Trend graph scroll bar	The trend graph can be scrolled without cursor position change; therefore the cursor position data will change after scrolling.
7)	Gridline time display	Display the date and time indicated by grid line.
8)	Y-axis scale	Display the top and bottom limit of the scale ruler in every trend graph. Automatically calculate and display the result according to the top and bottom limit of the scale simultaneously. Top and bottom limit can be set by trend setting (☞ Section 9.8). <ul style="list-style-type: none"> ● Nothing displays in BOOL type. ● WORD type fixes within the range of 0 to HFFFF. Double-click on 5) Trend graph to switch to display/hide Y-axis scale and zoom in/zoom out the graph area.
9)	Trend Graph Display check box	Checked Display trend graph. Unchecked Not display trend graph.
10)	Status bar	Display the type of data being displayed. <ul style="list-style-type: none"> ● When displaying data being collected Display "The trend data that is being collected is displayed". ● When displaying data of an automatic trend CSV file Display the specified period in "The trend data during Start date - End date is displayed" format.*1
11)	Skip button	Displayed only when data of automatic trend CSV files are displayed. The previous/next 10000 points worth of data are displayed by a click.

*1: The format of the displayed date and time depends on the setting of Microsoft® Windows® Operating System.

POINT

- Collect data from PLCs with the communication functions shown in the chart below in accordance with the type of trend items and sampling cycles (For details of communication type, refer to Appendix 1.3, Appendix 1.6.)

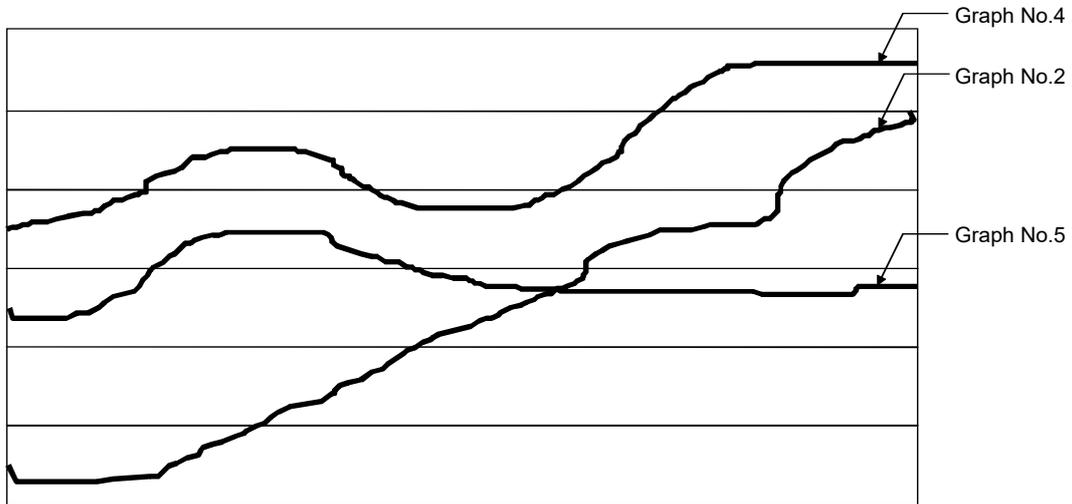
Type of trend item	Sampling period: 1second	Sampling period: 10 seconds or more
Tag data item	High-speed current value collection	Low-speed current value collection
Monitor variable	High-speed process data collection	Low-speed process data collection

- The sampling period of current value collection can be specified in the PLC communication status screen (☞ Section 8.5).
- When registering a trend item whose sampling period is set to 1 second, confirm the following current values displayed on <<High-speed Collection Period>> tab of the PLC Communication Status screen (☞ Section 8.5) are within 1 second.
 - The current value of Current Value Collection (unit: second)
 - The current value of Tag Data Collection (unit: second)
 - The current value of Process Data Collection (unit: second)
 If either of the value exceeds 1 second, the data cannot be collected in 1-second period. Therefore, the last collected data is recorded as the current value of trend items, the same data may be displayed for some sampling periods on the trend graph.
- When registering a trend item whose sampling period is set to 10 seconds or more, confirm the following current value displayed on the <<Low-speed Collection Period>> tab of the PLC Communication Status screen are within the setting value for sampling period.
 - The current value of Current Value (unit: second)
 - The current value of Process Data Collection (unit: second)
 When the current value of Low-speed Current Value Collection exceeds, the data cannot be collected in set sampling period. Therefore, the last collected data is recorded as the current value of trend items, the same data may be displayed for some sampling periods on the trend graph.
- The column display status of cursor position data display grid in displaying the trend graph screen is depending on "Item Name Display" specified in the option setting (trend graph).
- If the Snap function of Windows is applied to the trend graph screen, the area of the pen information and graph display becomes smaller, therefore, the content may not be checked.

In this case, resize the trend graph screen to restore a window size and check the content.

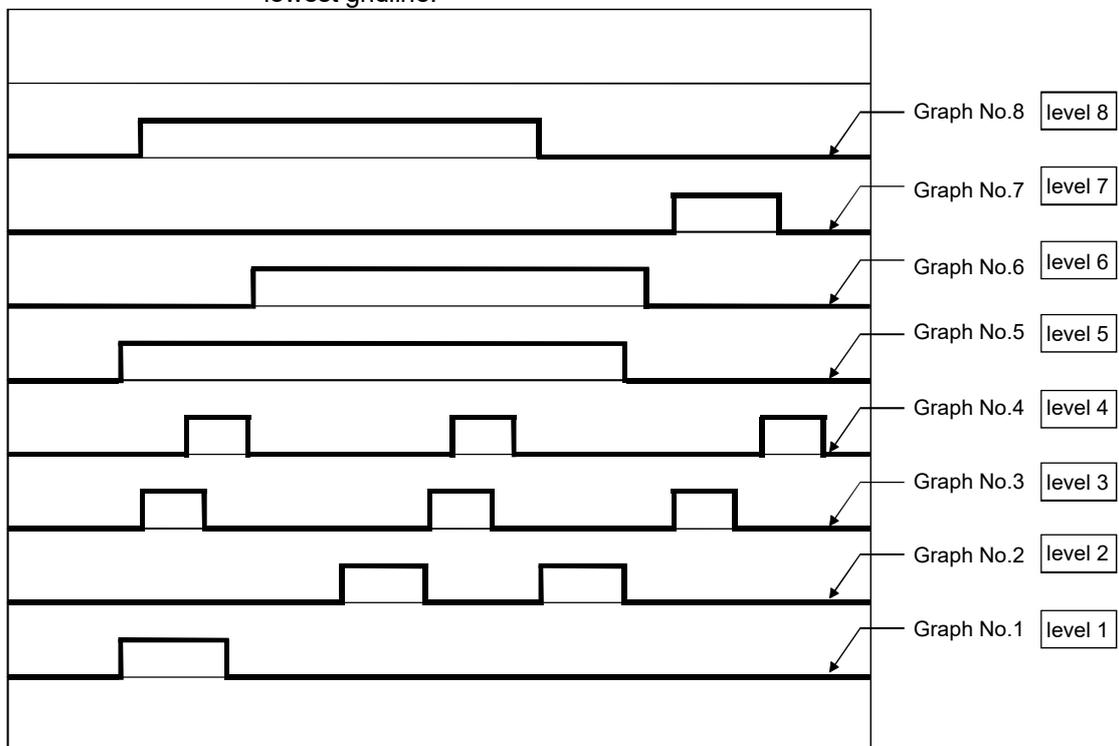
(1) Trend graph (except BOOL type) display

For the types except BOOL (such as REAL), the trend graph is drawn in the drawing zone according to the Y-axis scale without considering the sequence of the graph number.



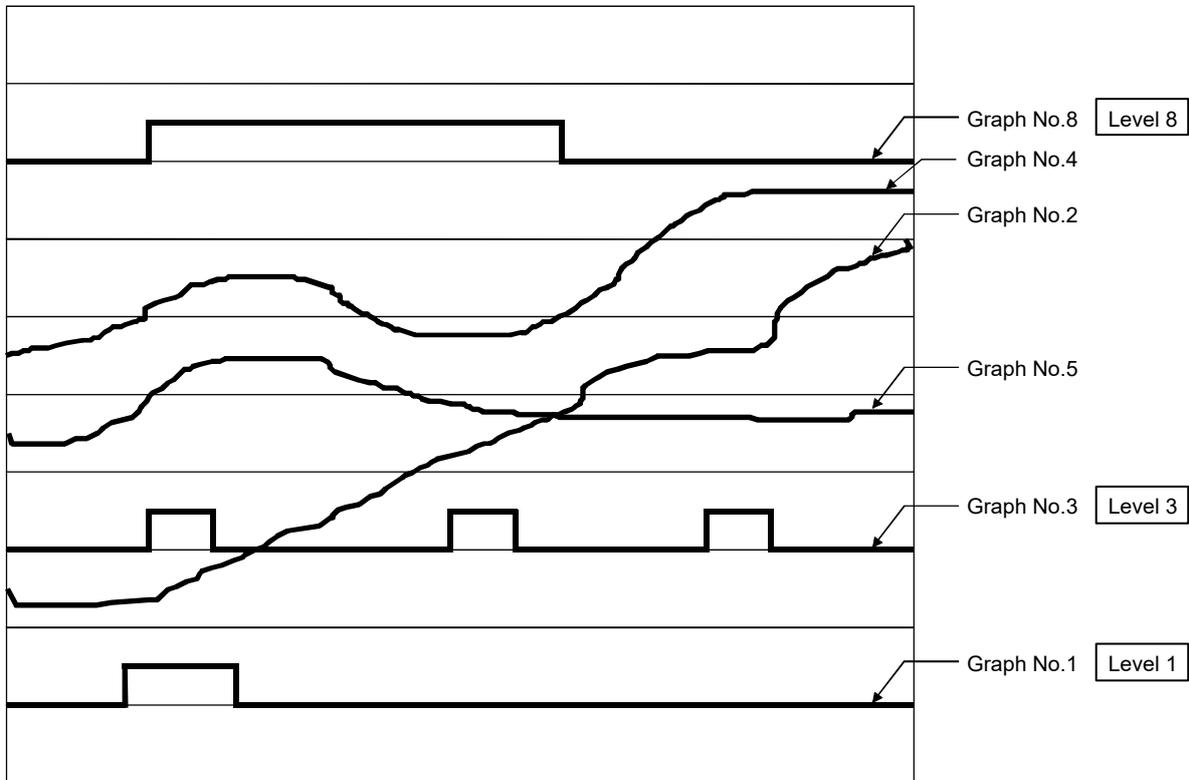
(2) BOOL type trend graph display

For BOOL type, the trend graph drawing zone is fixed by the Graph No. In the order of No.1, No.2, display 8 levels other than Y-axis scale from the lowest gridline.



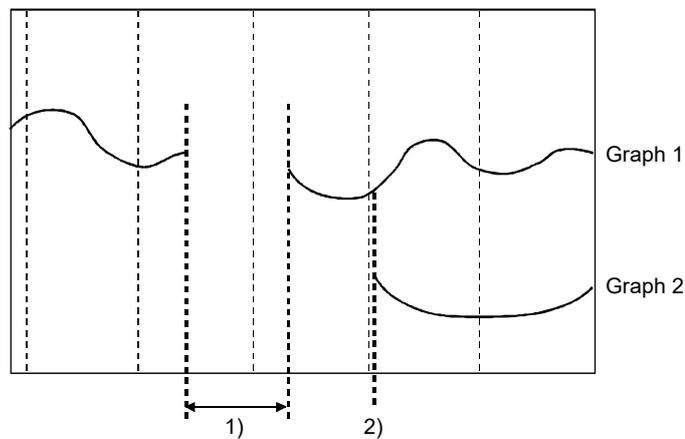
(3) Mixed display of BOOL type and except BOOL type

Graph No.1, 3, 8 (namely level 1, 3, 8 displayed in the diagram) belong to BOOL type.



REMARK

The time interval of trend graph gridline row is fixed, and the collected data is saved into files according to trend item. Therefore the graph will be neither displayed nor collected, when monitor tools stop result in data-collecting termination and the time-difference graph of allocation trend item (When collection begins) is displayed.



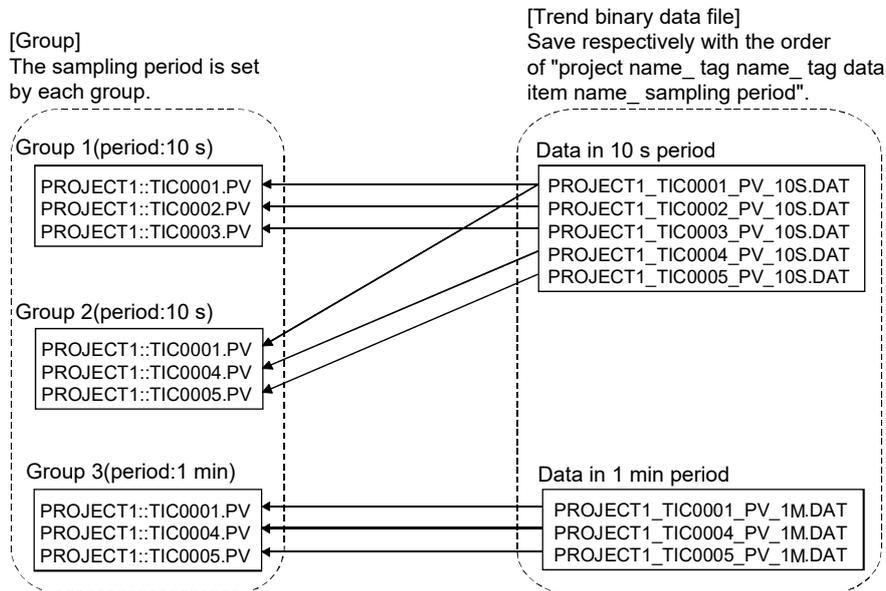
- 1) The termination time of monitor tool (Graph 1 is disconnected halfway).
- 2) The allocation time of trend items (Graph 2 is displayed from the allocation time).

7.2.2 Collecting trend data

The collected data is saved to files with binary system

Item	Description												
Collection target	Tag data item and monitor variable												
Sampling period	Select and designate from 1 s, 10 s, 1 min, 5 min and 10 min.												
Collected data quantity	Maximum 10000 points of collected data can be stored in files. The older data will be overwritten when the maximum points are exceeded.												
Recordable time	<table border="1"> <tr> <td>Sampling period</td> <td>1 s</td> <td>10 s</td> <td>1 min</td> <td>5 min</td> <td>10 min</td> </tr> <tr> <td>Recordable time</td> <td>2.77 hours</td> <td>27.7 hours</td> <td>6.9 days</td> <td>34.7 days</td> <td>69.4 days</td> </tr> </table>	Sampling period	1 s	10 s	1 min	5 min	10 min	Recordable time	2.77 hours	27.7 hours	6.9 days	34.7 days	69.4 days
	Sampling period	1 s	10 s	1 min	5 min	10 min							
Recordable time	2.77 hours	27.7 hours	6.9 days	34.7 days	69.4 days								
Folders for storage	<p>Folders for storage are installation destination. Melsec\Fbdq\Trenddata. File name is as follows Tag data item: "Project name_ tag name_ tag data item name_ sampling period" + extension (.DAT). Monitor variable: "Project name_ monitor variable name_ sampling period" + extension (.DAT). < An example when the installation destination is drive C> C:\Melsec\Fbdq\Trenddata\PROJECT1_TAG001_MV_10S.DAT Make one file for one trend item. The folders for storage can be modified with option setting (trend graph). (☞ Section 9.17 (5))</p>												

When trends are collected, the relation between group and trend binary data file is as following diagram:



7.2.3 Switching groups to be displayed

- (1) Choose the group from displayed tabs in the graphic screen.
Switch to the group displaying trend line by clicking group selection tab. The group names set by trend setting (☞ Section 9.8) are displayed in group-selection tabs.



When monitor tool starts, the chosen group will be memorized and displayed in "chosen" status next time.

When re-switching to the previous group after switching groups from one to another, contents of data are the same as before. Once the trend graph screen is closed, data being collected are displayed in all trend groups next time.

- (2) Display the unseen tabs with sheet scroll button in the graphic screen.

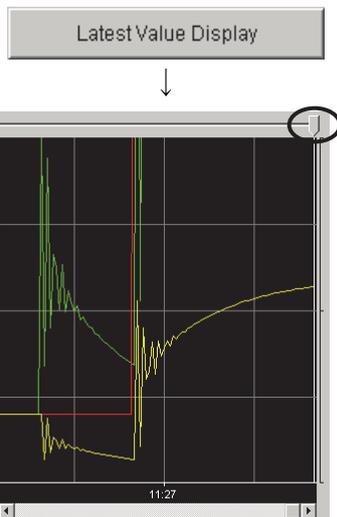
Use the sheet scroll button at the right end of group selection tab to display the unseen group selection tab in current screen.



- 1) Scroll one tab to the left with one click.
Scroll to the left if pressing the button continuously.
- 2) Scroll one tab to the right with one click.
Scroll to the right if pressing the button continuously.

7.2.4 Displaying the latest value

Click the "Latest Value Display" button to display the latest value of trend graph.



1. Click the "Latest Value Display" button on the top of the graphic screen.
2. Trend cursor position and graph-scrolling bar move to the right to display the latest value of the trend graph with data being collected.

POINT

Click the "Latest Value Display" button. When the scroll bar is at the right end, the trend graph automatically scrolls from the right to the left during the collection. If the bar is not at the right end, display the time trend graph designated by diagram scroll bar. At that time, the trend graph will not scroll automatically even if the collection is in execution.

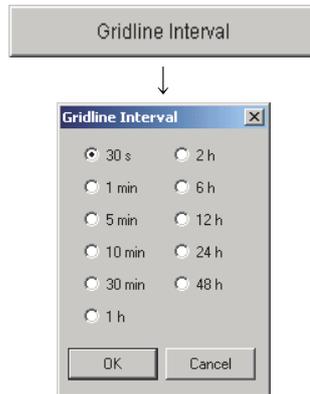
7.2.5 Changing the display magnification

The display magnification of trend graph can be modified by time gridline interval in the diagram and the Y-axis scale setting determined by top and bottom limit of data display. Memorizes changed scale for every group during trend graph display. Once the trend graph screen is closed, the initial scale ruler will appear next time when the trend graph is opened.

	Button name	Description
X-axis	Gridline interval	Select the time interval separated by gridline. (30 s, 1 min, 5 min, 10 min, 30 min, 1 h, 2 h, 6 h, 12 h, 24 h, 48 h).
Y-axis	Y-axis scale	Designate the value of display top and bottom limit for every trend item.

(1) The change of horizontal axis magnification

Transverse magnification can be changed by selecting the time interval for displaying trend graph.



1. Click the "Gridline Interval" button.
2. The "Gridline Interval" dialog box is displayed.
3. Select the time interval separated by gridline.
4. Click the "OK" button.
5. Change the X-axis display magnification of the trend graph.

After the change of gridline intervals, the minimum unit of displayable data by moving the trend cursor changes too. The value appears once every 1 second when the interval is 30 seconds, while once every 2 hours when the interval is 48 hours.

Because the interval value shorter than sampling period cannot be displayed, the designated gridline interval is limited by the length of sampling period.

Sampling period change is executed by trend setting. (Section 9.8)

The relation between the display unit of every gridline interval and sampling period with designation availability is as follows:

Gridline interval	30 s	1 min	5 min	10 min	30 min	1 h	2 h	6 h	12 h	24 h	48 h
Unit of display	1 s	2 s	10 s	20 s	1 min	2 min	5 min	10 min	30 min	1 h	2 h
Sampling period	1 s	○	○	○	○	○	○	○	○	○	○
	10 s	×	×	○	○	○	○	○	○	○	○
	1 min	×	×	×	×	○	○	○	○	○	○
	5 min	×	×	×	×	×	×	○	○	○	○
	10 min	×	×	×	×	×	×	×	○	○	○

○: Available for setting ×: Unavailable for setting

POINT

Ctrl + mouse wheel scroll enables the gridline interval to be wider/narrower on the trend graph screen.

Ctrl + turn mouse wheel forward : wider the gridline Interval

Ctrl + turn mouse wheel backward : narrower the gridline Interval

(2) The change of Y-axis magnification

Longitudinal magnification can be changed by the top and bottom limit of the data displayed in the designated trend graph.



	Item	Low Limit	High Limit
1	TAG001.MLL	FALSE	TRUE
2	TAG001.MV	0.0	500.0
3	TAG001.SV	0.0	500.0
4	TAG001.PV	0.0	500.0
5			
6			
7			
8			

1. Click the "Y-axis Scale" button on the top of the screen.

2. The "Y-axis scale" dialog box is displayed.

3. Designate the top and bottom limit of the data in trend graph.

4. Click the "OK" button.

5. Change the Y-axis display magnification in the trend graph.

The top and bottom limit of WORD type:
H0000-HFFFF fixed

The top and bottom limit of BOOL type:
0-1 fixed

POINT

In the Item field on the Y-axis Scale dialog box, item names or comments are displayed in accordance with the display format of Cursor position data display grid. (An item name is displayed when comment is blank.)

7.2.6 Exporting to CSV file

Click the "Export to CSV File" button in trend graphic screen to save the trend data to files in CSV form after appointing storage folder and file name.

Output form is as follows:

The first line is the title indicating all data contents. Under it, the collecting data is output in the original order of date and time.

```
Data, TAG001.MLL, TAG001.MV, TAG001.SV, TAG00.MODE,,,,
7/30/2002 6:05:52 PM, 0, 65.2, 450.0, H0010,,,,
7/30/2002 6:05:53 PM, 0, 66.9, 450.0, H0010,,,,
      ⋮
```

The format of the outputted date and time depends on the setting of Microsoft® Windows® Operating System. The setting can be changed in "Region" in the control panel.

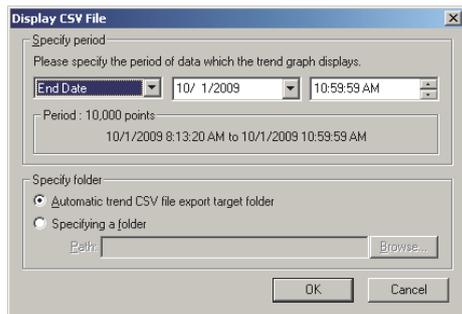
Data type of item	Output form
REAL type	<ul style="list-style-type: none"> ● Tag data item Output in accordance with decimal point digit. ● Monitor variable Output in accordance with digits after decimal point registered in the Monitor variable setting.
INT, DINT type	Output after the character string conversion as the original example.
WORD type	Output after attaching "H" to the head of the value.
BOOL type	Output 0 or 1.

POINT

- Trend data can be output to CSV files automatically. (☞ Section 8.7)
- Only a user who has the authority for CSV file export can execute the operation.
- The title of CSV file is displayed in tag name even though it is displayed in tag comment on the trend graphic screen.

7.2.7 Displaying CSV file

The period of trend data of an automatic trend CSV file to be displayed can be specified by clicking the "Display CSV File" button on the trend graph screen.



1. Click the "Display CSV File" button on the top of the screen.
2. The "Display CSV File" dialog box is displayed.
3. Specify the period and folder of data to display.
4. Click the "OK" button.
5. The specified trend graph is displayed.

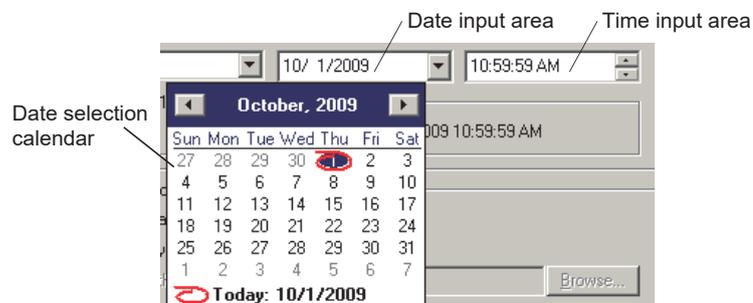
The format of the outputted date and time depends on the setting of Microsoft® Windows® Operating System.

See as below for the specified contents on the "Display CSV File" dialog box.

Item	Description
Specify period	Select 'Start Date' or 'End Date' from the list box, and enter the date and time. For the method for specifying date and time, refer to POINT in this section.
Period : 10,000 points	The period of date and time specified in [Specify period] is displayed.
Specify folder	Specify a folder in which an automatic trend CSV file to be displayed is stored. This item cannot be selected when the monitor tool is running as Client. <ul style="list-style-type: none"> ● Automatic trend CSV file export target folder An automatic trend CSV file saved in the folder set to "Automatic trend CSV file export target folder" in Option setting (Trend graph) is to be referred. ● Specifying a folder Specify a folder in "Path". An automatic trend CSV files saved in the folder is to be referred.

POINT

- When the pen assignment of the group is changed in the trend setting, automatic trend CSV files which are output before the change cannot be displayed.
- When the monitor tool is running as Client, only trend data of automatic trend CSV files saved in the automatic trend CSV file export target folder in the server side can be displayed.
- When the date and time format on OS is changed, trend data of automatic trend CSV files may not be displayed.
For example, when day of week is included in the date format, when an unusual symbol or delimiter is used in the date and time format or when the display order of date and time is changed, automatic trend CSV files saved in the previous date and time format may not be displayed.
- When automatic trend CSV files saved with different language OS are displayed, incorrect date may be displayed or trend data may not be displayed.
- The following explain the method for specifying date and time.



1) Input method of date

Enter a date in the date input area in suitable format for the setting of OS.
It can be input with the keyboard.

The date selection calendar is displayed immediately below by clicking the  button in the date input area.

2) Input method of time

Enter a time in the time input area in suitable format for the setting of OS.
It can be input with the keyboard.

Value of the hour, minute and second at the cursor position can be increased and decreased by clicking the  button in the time input area.

3) Input method using the date selection calendar

The date selection calendar is displayed by clicking the  button in the date input area.

The date is set to the date input area by clicking the desired date.

The  button is displayed and the year can be changed by clicking the year displayed above. Also, the popup menus from January to December are displayed and the month can be selected.

The  button displays the previous month's calendar and the  button displays the next month's calendar.

Also, today's date can be specified by clicking today's date displayed in the lower part of the screen.

- When automatic trend CSV files are saved including group names in accordance with the setting of "Automatic trend CSV file export target folder" in the option setting ( Section 9.17 (5)), if the trend group name is changed, CSV files that were output before the change cannot be displayed on the trend graph.

7.3 Alarm List



PURPOSE

Display a list of alarm record



BASIC OPERATION

1. Click the "Alarm List" button () on the monitor toolbar.
2. The alarm list screen is displayed.



DISPLAY/SETTING SCREEN

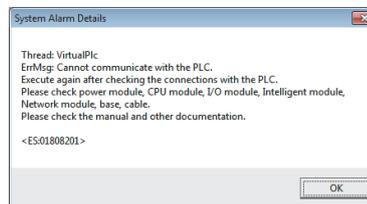
The current row is selected for display.

No.	Confirm	Tag	Tag Comment	Alarm Contents	Occurrence Date	Recovered Date	Level	Measured Value
1	<input checked="" type="checkbox"/>	PGS001	Program setter 1	SPA	2/8/2007 4:01:31 PM	2/8/2007 4:02:14 PM	Minor	
2	<input type="checkbox"/>	LIC001	Tank 2	LLA	2/8/2007 4:01:31 PM		Minor	0.0
3	<input type="checkbox"/>	LIC001	Tank 2	PLA	2/8/2007 4:01:31 PM		Minor	0.0
4	<input type="checkbox"/>	TAG001		LLA	2/8/2007 4:01:31 PM		Minor	0.0
5	<input type="checkbox"/>	TAG001		LLA	2/8/2007 4:01:31 PM		Minor	0.0
6	<input type="checkbox"/>	#SYSTEM		PLC CPU Error : MONITOR System A	2/8/2007 4:01:31 PM		Major	
7	<input type="checkbox"/>	#SYSTEM		Communication Open Error : MONITOR Specified con	2/8/2007 4:01:13 PM	2/8/2007 4:01:29 PM	Major	
8	<input type="checkbox"/>	#SYSTEM		Communication Reading Error : MONITOR Specified c	2/8/2007 4:01:13 PM	2/8/2007 4:01:29 PM	Major	
9	<input type="checkbox"/>	PGS001	Program setter 1	SPA	2/8/2007 4:00:29 PM	2/8/2007 4:01:29 PM	Minor	
10	<input type="checkbox"/>	LIC001	Tank 2	LLA	2/8/2007 3:47:48 PM	2/8/2007 4:01:29 PM	Minor	0.0

Maximum 2000 alarms can be displayed.
 *For 1) to 8), refer to "Section 7.3.1 Displaying alarm list".

POINT

Double-clicking the alarm line displays the alarm-related faceplate (if any) or the system alarm details dialog box (in the case of the system alarm ( Section 7.3.1) line).



The dates and times of the PLC CPU stopping errors and PLC CPU errors displayed in the system alarm details dialog box are those when the errors occurred in the CPU module (dates and times according to the internal clock of the CPU module).

The dates and times of the PLC CPU stopping errors and PLC CPU errors displayed in the alarm list are those when the monitor tool recognized the errors. Hence, the dates and times displayed in the alarm list may not match those displayed in the system alarm details dialog box.

7.3.1 Displaying alarm list

The alarm records are displayed in descending order of the alarm occurrence date and time. Contents of each field are shown as follows.

No.	Item	Description
1)	Confirm field	Display the check box for confirmation only when the alarm occurs.
2)	Tag field	The tag name that displays the alarm occurrence/recovered.
3)	Tag comment field	Displays a tag comment.
4)	Alarm contents field *1	Display the alarm name.
5)	Occurrence date field	Display the date and time of alarm occurrence. *2
6)	Recovered date field	Display the date and time of alarm recovered. *2
7)	Level field	Display Major/Minor alarm. If the alarm level (ALM for alarm tag, ALML_W1 to ALML_W4 for 64-points alarm tag) bit of tag data is ON, display Major error. If the alarm level (ALM) bit of tag data is OFF, display Minor error. Display major error when system alarm occurs.
8)	Measured Value field	Display related measured value.

*1: The display format as to the tag data items is according to "Tag Data Item Display of Alarm" of Option Setting (Alarm/Event).

*2: The format of the displayed date and time depends on the setting of Microsoft® Windows® Operating System.

(1) Alarm types

An alarm will be displayed when the status of related tag data items changes or a system error occurs.

It is displayed on the alarm list screen and in the alarm/event display area of the monitor toolbar (☞ Section 6.3.1).

The following table shows alarm types that are listed.

Type	Description
Measured value exists	<p>To add the related measured value and keep the records for the 6 items of MLA, MHA, PLA, PHA, LLA, HHA involved in item of ALM of the loop tag.</p> <p>If the tag type is 2PIDH, PFC_SF, PFC_SS, PFC_INT or PVAL an alarm is displayed for SVLA and SVHA in item of ALM2.</p> <p>MLA, MHA : Display MV value when measured value alarm occurs.</p> <p>PLA, PHA, LLA, HHA : Display PV value when measured value alarm occurs.</p> <p>SVLA, SVHA : Display SV value when measured value alarm occurs.</p>
Measured value not exist	<p>To use the changing bit of the item of ALM included in the loop tag and the status tag (TIMER1, TIMER2, COUNT1, COUNT2) as the occurrence and recovered of the alarm, and then keep the record.</p> <p>If the tag type is 2PIDH, PFC_SF, PFC_SS, PFC_INT or PVAL, an alarm is displayed for ALM2 items.</p>
Faceplate display pattern	<p>To use the changing bit of the item of ALM included in the loop tag (PVAL) and the status tag (NREV, REV, MVAL1, MVAL2, MTR2, MTR3, SS2P, DS2P, DS3P) as the occurrence and recovered of the alarm, and then keep the record.</p> <p>Alarm contents are to display character string, which is set and registered by faceplate display pattern setting. (☞ Section 9.13)</p> <p>The referred number of display mode is got from the display name mode number of tag data (FPNO). The settings is not registered, it will be displayed as blank. (☞ Section 10.6)</p>
Alarm tag	<ul style="list-style-type: none"> ● Alarm tag <p>To use the changing bit of the item of ALM as the occurrence and recovered the alarm and then keep the record. The alarm contents are to display the character string which is registered to the alarm setting. (☞ Section 9.9)</p> <p>The referred alarm number is the alarm name number of tag data (the value stored to ALM1NO to ALM8NO). The settings is not registered, it will be displayed as blank. (☞ Section 10.7)</p> ● 64-points alarm tag <p>To use the changing bit of the item of ALM_W1 to ALM_W4 as the occurrence and recovered the alarm and then keep the record. The alarm contents are to display connected character string of group name and alarm content which are registered to the alarm setting (☞ Section 9.9).</p> <p>The referred alarm number is the alarm group name number of tag data (the value stored to ALMG1NO to ALMG8NO) and the alarm name number of tag data (the value stored to ALM1NO to ALM64NO). The settings is not registered, it will be displayed as blank. (☞ Section 10.7)</p>
System alarm	<p>To keep the record of the occurrence and recovered of monitor tool system alarm.</p> <p>The displayed alarm contents are determined by alarm types. (refer to the table in next page)</p>

The following table is the system alarm list

Alarm content	Content
"Communication open error" + project name *1,*5,*6	Alarm occurs when network communication open error is detected.
"Communication reading error" + project name *1,*5,*6	Alarm occurs when network communication reading error is detected.
"Communication writing error" project name *1,*5,*6	Alarm occurs when network communication writing is detected.
"Communication close error" + project name *1,*5,*6	Alarm occurs when network communication close error is detected.
"Disk free space error" + drive name *7	Alarm occurs when the free space of the PX Developer installation destination, trend binary data, CSV files created by automatic CSV file export memory driver is under "Disk free space check size" of option setting (general). It will be detected once per 10 minutes.
"File error" + File type *2,*7	Alarm occurs when file exceptional error is detected. A file error occurs for each of trend binary data, automatic trend CSV, automatic alarm CSV and automatic event CSV files.
"Memory error" *2,*7	Alarm occurs when memory exceptional error is detected.
"Exception error" *2,*7	Alarm occurs when exception error (not including file exception and memory exception) is detected.
"PLC CPU stopping error" + project name *3,*4,*5	Alarm occurs when a stop error occurs in the CPU module.
"PLC CPU error" + project name *3,*4,*5	Alarm occurs when an operation continue error occurs in the CPU module.
"Project ID code inconsistency" + project name *4	Alarm occurs if the monitor target project set with the monitor tool does not match the project in the CPU module. If the monitoring target is a GX Works3 project, an alarm occurs even when the tag FB is not used in the project.
"Incorrect PLC type" + project name *4	Alarm occurs when the monitor target project and connected PLC are inconsistent in the PLC type.
"Redundant System: PLC Parameter Read Error" + project name *5	Alarm occurs when the connection target is a redundant system and read of PLC parameter has failed.
"Redundant System: System A/B Identification Error" + project name *1,*4,*5	Alarm occurs when the connection target is a redundant system and the system cannot be identified (system A or system B).
"Redundant System: Control/Standby System Status Error" + project name *3,*4,*5	Alarm occurs when the connection target is a redundant system and the control/standby system status is invalid.
"Event notification source error" *2	Alarm occurs when the event notification source cannot be specified.
"Event notification data receiving error" *2	Alarm occurs when the size of data received through event notification is out of the range, or the tag block No. is invalid.
"SCADA Interaction Function Error" *2,*7	Alarm occurs when an error arises during SCADA interaction function processing. Even if set not to receive event notification for the system configuration that can receive one, alarm also occurs.
"Event notification execution error" + project name *8	Alarm occurs when the event notification function cannot be used.
"Client Communication Error" + client name	Alarm occurs when the communication between a server and client is failed in the server/client monitoring system.
"Server Initialization Error"	Alarm occurs when the initialization of communication is failed at startup as Server.
"Server Communication Error" *9	Alarm occurs when the communication between a primary server and a secondary server is failed.
"Invalid Simulator Version" *10	Alarm occurs when the simulator to be connected has not installed or the version installed is not applicable to the process control instruction when connecting to the simulator.

- *1: Only when the connection target is a redundant system, either of "Specified connection target" (specification in "Transfer Setup" screen), "System A" or "System B" (connection target for system monitor) is added.
(Alarm example) Communication Open Error: Project1 System A
- *2: With regard to this error, the condition where the system is recovered from the error cannot be recognized. When the confirm field is checked in the alarm list, the system is recovered from the error. When unchecked, the error occurs. "..." always appears in the recovery date.
If the same name alarm (alarm content) has occurred, the alarm is not recorded. If not occurred, the alarm is recorded.
- *3: Only when the connection target is a redundant system, either of "System A" or "System B" (connection target for system monitor) is added.
(Alarm content example) Communication Open Error: Project1 System A
- *4: The alarm is issued/deactivated when checking the PLC status. For details of the relevant processing, refer to Appendix 1.9.
- *5: It is restored once when the operation mode (backup mode/separate mode/debug mode) is switched in a redundant system.
- *6: When communication board errors are detected, communication board name is displayed instead of project name.
(For example: It will be displayed as "Communication open error MELSECNET_BOARD_51" when self-interface access error of MELSECNET/10 is detected.)
- *7: An OPS name is appended only in the server/client monitoring system.
(Alarm example) Memory Error: [Client1]
- *8: This error is caused by either of the following conditions. Once the error occurs due to either of the conditions, another alarm does not occur even the other condition is satisfied.
 - The version of the driver for CC-Link IE Controller Network board (SW1DNC-MNETG-B) is earlier than 1.08J.
 - The network type set in the <<Event Notification>> tab of the project parameter setting and that set in the transfer setup are different.
- *9: This error is recovered when a secondary server connects to a primary server.
- *10: Recovers by the following operation
 - Clear all the connection settings with simulator in the monitor target project setting, and click the "Apply" button. (☞ Section 9.4 (4))
 - Exit the monitor tool and restart the monitor tool after installation of Simulator whose version is applicable to the process control instruction.

POINT

If a system alarm has occurred, double-click the system alarm line in the alarm list to display the corresponding system alarm details dialog box.

Take corrective action, referring to the dialog box.

For details of the other troubleshooting, refer to Section 12.1.

(2) Display items based on alarm types

The description of display items based on alarm types is as follows.

	Confirm	Tag	Alarm contents	Occurrence date *1	Recovered date *1	Level	Measured value
Measured value exists	Display check box	Display tag name	Name of bit item that has been changed. *2	Display date and time of alarm occurrence	Display date and time of alarm recovered *3	Major/minor	MV/PV/SV(Current)
Measured value not exists			Registered character string in Faceplate display pattern setting				None
Faceplate display pattern							
Alarm tag		Registered character string in alarm setting					
System alarm		#SYSTEM	System alarm contents			Major	

*1: When monitor tool is started or "Apply" button or "Reload" button of monitor target project setting (Section 9.4) is clicked, alarms in occurrence status will transit into recovered status.

If alarm is occurring when it is transiting into recovered date, new alarm will be displayed.

Date and time of the operations mentioned above is displayed in the recovered date field.

*2: The display format as to the tag data items is according to "Tag Data Item Display of Alarm" of Option Setting (Alarm/Event).

*3: Recovered date and time of file error, memory error and exception error is not displayed in the recovered date field.

POINT
For the communication open, read, write and close errors, only one of them is displayed for each connection target of the project. Only the first error is displayed. Recovery from the above error is made as soon as communication succeeds.

(3) Display example of alarm

The display examples of alarm types are as follows.

● With measured value

Confirm	Tag	Tag comment	Alarm contents *1	Occurrence Date *2	Recovered Date *2	Level	Measured value
<input type="checkbox"/>	TIC001	Room temperature adjustment valve 1	MLA	1/30/2002 11:43:20 AM		Major	4.8%
<input type="checkbox"/>	TIC001	Room temperature adjustment valve 1	MLA	1/30/2002 11:43:20 AM	1/30/2002 11:43:50 AM	Major	4.8%

● Without measured value

Confirm	Tag	Tag comment	Alarm contents *1	Occurrence Date *2	Recovered Date *2	Level	Measured value
<input type="checkbox"/>	TIC001	Room temperature adjustment valve 1	DVLA	1/30/2002 11:43:20 AM		Minor	
<input type="checkbox"/>	TIC001	Room temperature adjustment valve 1	DVLA	1/30/2002 11:43:20 AM	1/30/2002 11:43:50 AM	Minor	

● Faceplate display pattern

Confirm	Tag	Tag comment	Alarm contents	Occurrence Date *2	Recovered Date *2	Level	Measured value
<input type="checkbox"/>	VALV001	Water level adjustment valve 1	Time-out	1/30/2002 11:43:20 AM		Minor	
<input type="checkbox"/>	VALV001	Water level adjustment valve 1	Time-out	1/30/2002 11:43:20 AM	1/30/2002 11:43:50 AM	Minor	

● Alarm tag

Confirm	Tag	Tag comment	Alarm contents	Occurrence Date *2	Recovered Date *2	Level	Measured value
<input type="checkbox"/>	ALM001	Operation start alarm 1	Processing A abnormal	1/30/2002 11:43:20 AM		Minor	
<input type="checkbox"/>	ALM001	Operation start alarm 1	Processing A abnormal	1/30/2002 11:43:20 AM	1/30/2002 11:43:50 AM	Minor	

● System alarm

Confirm*4	Tag	Tag comment	Alarm contents	Occurrence Date *2	Recovered Date *2 *3	Level	Measured value
<input type="checkbox"/>	#SYSTEM		Communication open error: PROJECT1	1/30/2002 11:43:20 AM		Major	
<input type="checkbox"/>	#SYSTEM		Communication open error: PROJECT1	1/30/2002 11:43:20 AM	1/30/2002 11:43:50 AM	Major	

*1: The display format as to the tag data items is according to "Tag Data Item Display of Alarm" of Option Setting (Alarm/Event).

*2: When monitor tool is started or "Apply" button or "Reload" button of monitor target project setting (Section 9.4) is clicked, alarms in occurrence status will transit to recovered status. (Except the file error, memory error and exception error of system alarm)

If the alarm is occurring when it is transiting to recovered status, the new alarm will be displayed. The date and time displayed by recovered date and time is the date and time of the above operation.

*3: For file error, memory error and exception error, recovered date will not be displayed in recovered date field.

*4: For file error, memory error and exception error, make a check mark in the confirm field to set alarm to recovered status.

If the check is cancelled in the check box, it will be changed to the occurrence status.

The alarm will not be recovered until checking the checkbox in the confirm field.

POINT
<p>If new alarms occur when there have been 2000 registered alarms, the latest alarm is registered by deleting the already registered alarm.</p> <p>The alarm to be deleted is selected in accordance with “Unconfirmed Alarms Deletion at Delete Recovered Alarms” of Option Setting (Alarm/Event) in the following order.</p> <p>The setting is "Yes" : 1) an alarm whose date of occurrence is the oldest in the list and the status is the recovery status.</p> <p>The setting is "No" : 1) a checked alarm whose date of occurrence is the oldest in the list and the status is the recovery status 2) an alarm whose date of occurrence is the oldest in the list and the status is the recovery status</p> <p>When no alarms that can be deleted from the list exist, the latest alarm is not recorded on the alarm list.</p> <p>However, the latest alarm is recorded to the automatic alarm CSV file even though it cannot be recorded on the alarm list.</p>

(4) The display color of alarm

Display color can be set as changing color in terms of the alarm level and status in the alarm list.

Color setting in terms of alarm level can use option setting (General).

If [Highlighted display while alarms occur] is set as <Available> in the option setting (Alarm/Event), the occurring alarm which is not confirmed flashes.

For details, refer to "Section 9.17 Option Setting".

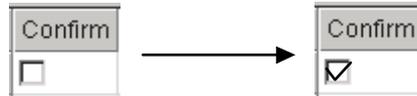
Highlighted display while alarms occur	Not confirmed in occurrence status	After confirmation check	In recovered
Available	Background color flicks in alarm level color in 1-second period.	Background color flicks in alarm level color.	Background: white Character : black
None	No matter what the status is, display characters of alarm content in alarm level color.		

POINT
Character size will not change in changing the window size timely.

7.3.2 Confirm check

Click to check the checkbox.

In the server/client monitoring system, when the confirmation check status is changed on the alarm list screen of one OPS, the alarm list screens of all OPSs are synchronized.

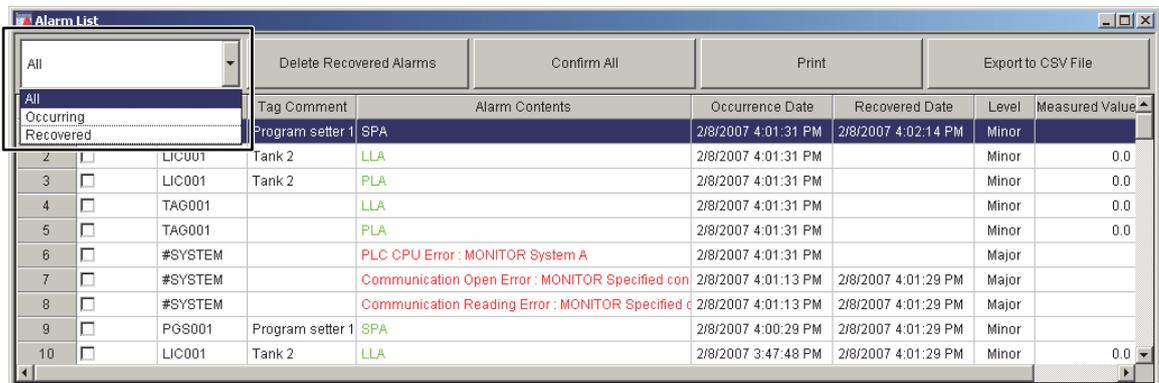


For details of confirming all alarms on the list, refer to "Section 7.3.5 Confirming all alarms".

POINT
<ul style="list-style-type: none"> ● A user who has the authority of operation for checking the alarm can check the check box. ● The file error, memory error and exception error of system alarm are treated as alarm recovered at confirming and checking step. If cancel the check, it will be treated as alarm occurrence.

7.3.3 Displaying selected alarms

Click list box (▾) on the alarm list screen, and select the displayed alarm.



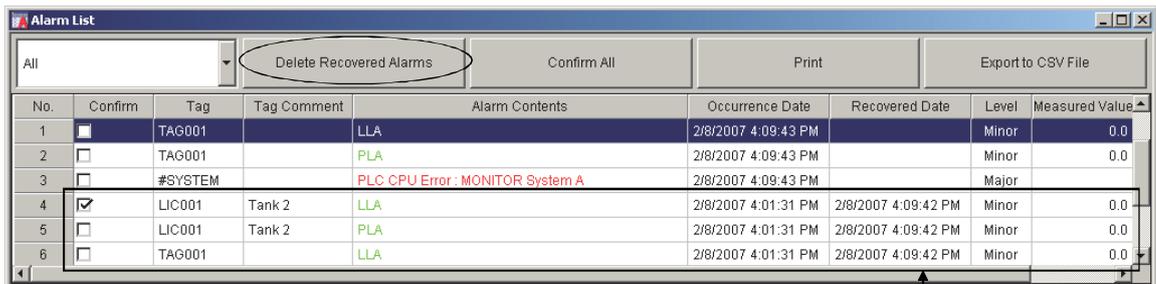
Information about the contents of list box is listed in the following table:

Item	Description
All	Display all the alarms.
Occurring	Display the alarms in occurrence.
Recovered	Display the recovered alarms.

7.3.4 Deleting recovered alarms

Click the "Delete Recovered Alarms" button on the alarm list screen to delete the alarms in the recovered status.

In the server/client monitoring system, when the "Delete Recovered Alarms" button is clicked on the alarm list screen of one OPS, the alarm list screens of all OPSs are synchronized.



The setting for "Unconfirmed Alarms Deletion at Delete Recovered Alarms" of Option Setting (Alarm/Event)
 "Yes" : delete all the alarms in the recovered status
 "No" : delete the checked alarms in the recovered status

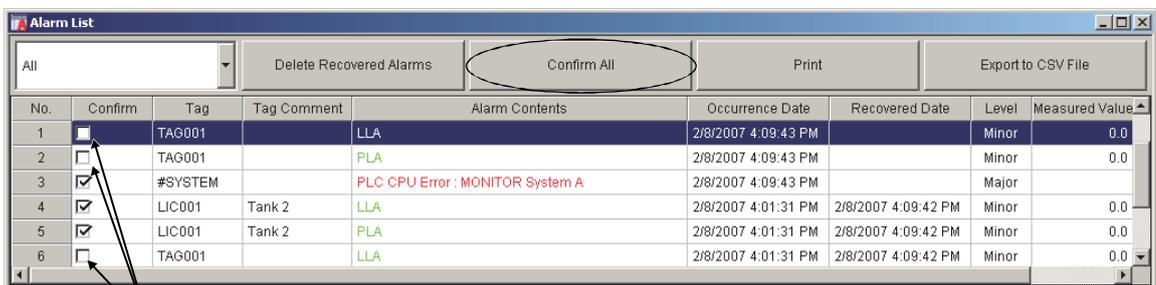
POINT

- A user who has the authority for deleting the alarms can execute the operation.
- "Delete Recovered Alarms" cannot be executed if "Occurring" is selected in selected display of alarm (☞ Section 7.3.3).

7.3.5 Confirming all alarms

Click the "Confirm All" button on the alarm list screen to confirm the unconfirmed alarms that are displayed.

In the server/client monitoring system, when the "Confirm All" button is clicked on the alarm list screen of one OPS, the alarm list screens of all OPSs are synchronized.



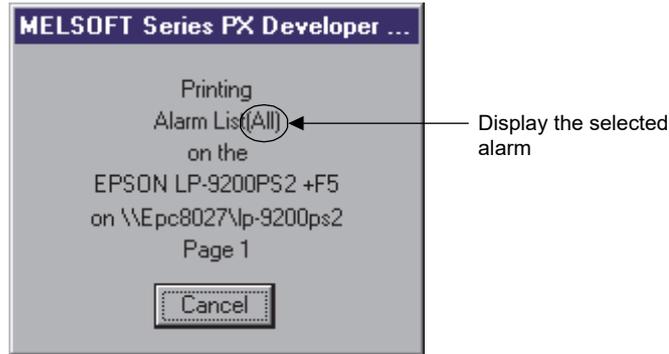
Unconfirmed alarms are all confirmed.

POINT

- A user who has the authority for checking the alarms can execute the operation.
- If "Occurring" and "Recovered" are selected in displayed of alarm (☞ Section 7.3.3), it indicates that the displayed data are confirmed.

7.3.6 Printing an alarm list

Click the "Print" button on the alarm list screen to print the alarm list. It will be printed on the printer that is set in the print setting of option setting (General). If the printer name is not specified, the default printer specified in the personal computer will be applied. Following dialog box will be displayed after printing is started. The dialog box will be closed after printing. Click the "Cancel" button to cancel printing during execution.



Following are the print image.

Alarm List (All)										2/1 3/2007 1:56:00 PM	
No.	Confirm	Tag	Tag Comment	Alarm Contents	Occurrence Date	Recovered Date	Level	Measured Value			
1	<input type="checkbox"/>	LIC002	Tank 2 water level	LLA		2/13/2007 1:51:03 PM		Minor	0.0		
2	<input type="checkbox"/>	LIC002	Tank 2 water level	PLA		2/13/2007 1:51:03 PM		Minor	0.0		
3	<input type="checkbox"/>	#SYSTEM		PLC CPU Error: PROJECT System A		2/13/2007 1:51:03 PM		Major			
4	<input type="checkbox"/>	#SYSTEM		Project ID Code Inconsistency: PROJECT		2/13/2007 1:50:42 PM	2/13/2007 1:51:02 PM	Major			
5	<input type="checkbox"/>	LIC002	Tank 2 water level	LLA		2/13/2007 1:43:42 PM	2/13/2007 1:51:02 PM	Minor	0.0		
6	<input type="checkbox"/>	LIC002	Tank 2 water level	PLA		2/13/2007 1:43:42 PM	2/13/2007 1:51:02 PM	Minor	0.0		
7	<input type="checkbox"/>	#SYSTEM		PLC CPU Error: PROJECT System A		2/13/2007 1:43:41 PM	2/13/2007 1:51:02 PM	Major			
8	<input checked="" type="checkbox"/>	LIC002	Tank 2 water level	LLA		2/13/2007 1:43:26 PM	2/13/2007 1:43:40 PM	Minor	0.0		
9	<input checked="" type="checkbox"/>	LIC002	Tank 2 water level	PLA		2/13/2007 1:43:26 PM	2/13/2007 1:43:40 PM	Minor	0.0		
10	<input checked="" type="checkbox"/>	#SYSTEM		PLC CPU Error: PROJECT System A		2/13/2007 1:43:25 PM	2/13/2007 1:43:40 PM	Major			
11	<input checked="" type="checkbox"/>	#SYSTEM		Project ID Code Inconsistency: PROJECT		2/13/2007 1:43:13 PM	2/13/2007 1:43:24 PM	Major			
12	<input type="checkbox"/>	LIC002	Tank 2 water level	LLA		2/13/2007 1:41:35 PM	2/13/2007 1:43:24 PM	Minor	0.0		
13	<input type="checkbox"/>	LIC002	Tank 2 water level	PLA		2/13/2007 1:41:35 PM	2/13/2007 1:43:24 PM	Minor	0.0		
14	<input type="checkbox"/>	#SYSTEM		PLC CPU Error: PROJECT System A		2/13/2007 1:41:35 PM	2/13/2007 1:43:24 PM	Major			
15	<input type="checkbox"/>	#SYSTEM		Project ID Code Inconsistency: PROJECT		2/13/2007 1:41:21 PM	2/13/2007 1:41:34 PM	Major			
16	<input checked="" type="checkbox"/>	LIC002	Tank 2 water level	LLA		2/13/2007 1:39:09 PM	2/13/2007 1:41:34 PM	Minor	0.0		
17	<input type="checkbox"/>	LIC002	Tank 2 water level	PLA		2/13/2007 1:39:09 PM	2/13/2007 1:41:34 PM	Minor	0.0		
18	<input type="checkbox"/>	#SYSTEM		PLC CPU Error: PROJECT System A		2/13/2007 1:39:09 PM	2/13/2007 1:41:34 PM	Major			
19	<input checked="" type="checkbox"/>	LIC002	Tank 2 water level	LLA		2/13/2007 1:39:05 PM	2/13/2007 1:39:08 PM	Minor	0.0		
20	<input checked="" type="checkbox"/>	LIC002	Tank 2 water level	PLA		2/13/2007 1:39:05 PM	2/13/2007 1:39:08 PM	Minor	0.0		
21	<input checked="" type="checkbox"/>	LIC002	Tank 2 water level	LLA		2/13/2007 12:03:02 PM	2/13/2007 1:38:40 PM	Minor	0.0		
22	<input checked="" type="checkbox"/>	LIC002	Tank 2 water level	PLA		2/13/2007 12:03:02 PM	2/13/2007 1:38:40 PM	Minor	0.0		
23	<input type="checkbox"/>	#SYSTEM		Project ID Code Inconsistency: PROJECT		2/13/2007 12:02:48 PM	2/13/2007 1:39:08 PM	Major			
24	<input type="checkbox"/>	LIC002	Tank 2 water level	LLA		2/13/2007 12:01:25 PM	2/13/2007 12:02:49 PM	Minor	0.0		
25	<input type="checkbox"/>	LIC002	Tank 2 water level	PLA		2/13/2007 12:01:25 PM	2/13/2007 12:02:49 PM	Minor	0.0		
26	<input checked="" type="checkbox"/>	#SYSTEM		PLC CPU Error: PROJECT System A		2/13/2007 12:01:24 PM	2/13/2007 1:39:08 PM	Major			
27	<input checked="" type="checkbox"/>	#SYSTEM		Project ID Code Inconsistency: PROJECT		2/13/2007 11:57:02 AM	2/13/2007 12:01:23 PM	Major			
28	<input type="checkbox"/>	#SYSTEM		PLC CPU Error: PROJECT System A		2/13/2007 11:55:13 AM	2/13/2007 12:01:23 PM	Major			
29	<input type="checkbox"/>	LIC002	Tank 2 water level	LLA		2/13/2007 11:55:12 AM	2/13/2007 12:01:23 PM	Minor	0.0		
30	<input type="checkbox"/>	LIC002	Tank 2 water level	PLA		2/13/2007 11:55:12 AM	2/13/2007 12:01:23 PM	Minor	0.0		
31	<input type="checkbox"/>	#SYSTEM		Communication Open Error: PROJECT Sp		2/13/2007 11:54:08 AM	2/13/2007 11:55:11 AM	Major			
32	<input type="checkbox"/>	#SYSTEM		Communication Open Error: PROJECT Sp		2/13/2007 11:53:56 AM	2/13/2007 11:54:07 AM	Major			
33	<input type="checkbox"/>	#SYSTEM		Communication Reading Error: PROJECT		2/13/2007 11:53:56 AM	2/13/2007 11:54:07 AM	Major			
34	<input type="checkbox"/>	#SYSTEM		Project ID Code Inconsistency: PROJECT		2/13/2007 11:50:34 AM	2/13/2007 11:54:07 AM	Major			
35	<input checked="" type="checkbox"/>	LIC002	Tank 2 water level	LLA		2/13/2007 11:30:33 AM	2/13/2007 11:54:07 AM	Minor	0.0		
36	<input checked="" type="checkbox"/>	LIC002	Tank 2 water level	PLA		2/13/2007 11:30:33 AM	2/13/2007 11:54:07 AM	Minor	0.0		

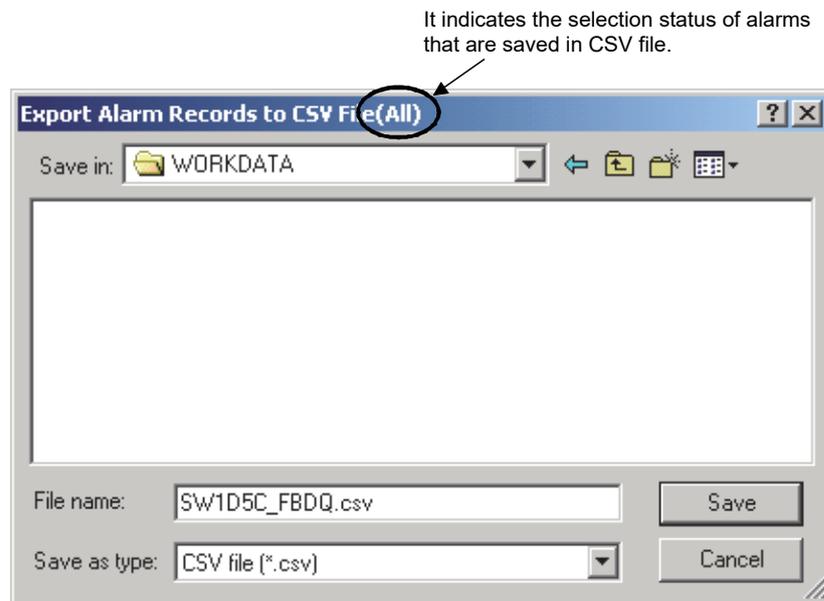
1

POINT

- A user who has the authority for printing the alarms can execute the operation.
- Print in the status that is displayed on alarm list screen.

7.3.7 Exporting to CSV file

Click the "Export to CSV File" button on the alarm list screen to save all the alarms selected for displaying on the alarm list in CSV file format. When saving a file, specify the saving folder and file name.



The output form is as follows.

The first row indicates the title of the data contents and the following rows are output the collected data in chronological order.

```

Tag,Tag Comment,Alarm Contents,Detailed Name of Alarm Contents,Occurrence Date,Recovered
Date,Level,Measured Value
LIC002,Tank 2 water level,PLA,Input low limit,9/5/2011 2:14:10 PM,9/5/2011 2:44:08 PM,Minor,0.0
LIC002,Tank 2 water level,LLA, Input low low limit,9/5/2011 2:14:10 PM,9/5/2011 2:44:08 PM,Minor,0.0
#SYSTEM,,Project ID Code Inconsistency : PROJECT,,9/5/2011 2:43:58 PM,9/5/2011 2:44:16 PM,Major,
#SYSTEM,,PLC CPU Error : PROJECT System A,,9/5/2011 2:44:17 PM,,Major,
LIC002,Tank 2 water level,PLA, Input low limit,9/5/2011 2:44:18 PM,,Minor,0.0
LIC002,Tank 2 water level,LLA, Input low low limit,9/5/2011 2:44:18 PM,,Minor,0.0

```

POINT

- Alarm data can be output to CSV files automatically. (☞ Section 8.7)
(However, its output form differs from that of the alarm list.)
- A user who has the authority for exporting data of the alarms to CSV file can execute the operation.
- In CSV file, output as the status selected in the alarm list screen.
- The items of "Detailed Name of Alarm Contents" are output regardless of "Tag Data Item Display of Alarm" display format of Option Setting (Alarm/Event).

7.4 Event List



PURPOSE

Display a list of event record.



BASIC OPERATION

1. Click the "Event List" button () on the monitor toolbar.
2. The event list screen is displayed.



DISPLAY/SETTING SCREEN

The current row is selected for display.

Delete All		Confirm All		Print		Export to CSV File			
No.	Confirm	Tag	Tag Comment	Event Message	Occurrence Date	Status	Set Value	Previous Value	User
1	<input checked="" type="checkbox"/>	#SYSTEM		Monitor Target Project was load	10/15/2013 10:25:56 AM				
2	<input type="checkbox"/>	TIC001			10/15/2013 10:25:36 AM		CLOSE		admin
3	<input type="checkbox"/>	TIM1001			10/15/2013 10:25:21 AM		DOM_RUN_SET		admin
4	<input type="checkbox"/>	TIM1001			10/15/2013 10:23:56 AM		DOM_STOP_SET		admin
5	<input type="checkbox"/>	LIC001		SV	10/15/2013 9:49:57 AM		1.0	0.0	admin
6	<input type="checkbox"/>	M001	Motor		10/15/2013 9:49:52 AM	AUT			
7	<input type="checkbox"/>	M001	Motor		10/15/2013 9:49:52 AM		AUT	MAN	admin
8	<input type="checkbox"/>	MSG001	Event message 1	Temperature setting completed	10/15/2013 9:49:49 AM				

1) 2) 3) 4) 5) 6) 7) 8) 9)

Maximum 2000 events can be displayed.

* For 1) to 8), refer to "Section 7.4.1 Displaying event list".

POINT

Double-clicking the event line displays the event-related faceplate (if any).

7.4.1 Displaying event list

The event records are displayed in descending order of the event occurrence date and time. Contents of each field are shown as follows.

No.	Item	Description
1)	Confirm field	Display a check box, which attaches a confirm label, when there needs confirm check in information label event, display this check box.
2)	Tag field	Display the tag name of an object.
3)	Tag comment field	Displays a tag comment.
4)	Event Message field * ¹	Display event name (the name is different as the type of event is different).
5)	Occurrence Date field	Display the date and times of an event occur. * ²
6)	Status field * ¹	Display information related to status.
7)	Set Value field * ¹	Display information related to setting value.
8)	Previous Value field	Display when a value before the change exists.
9)	User field	Display the user name that operates the machine when an event occurs.

*1: The display format as for items of tag data is in accordance with "Tag Data Item Display of Event" of Option Setting (Alarm/Event).

*2: The format of the displayed date and time depends on the setting of Microsoft® Windows® Operating System.

(1) Event types

The history of events is the general output of the tag data and the status change of the tag data determined by the system. The event contents can generally be classified into the following four types: operation history, status change history, message history and system event. The types of events are as the following table.

Type		Description					
Operation history *1 (An output history of tag data)	Word write	<p>The history of loop tag and status tag when there is a word write operation. Display the value written to setting value field</p> <ul style="list-style-type: none"> ● When item nature is WORD, DWORD; display in hexadecimal. ● When item nature is INT, DINT; attach item unit. ● When item nature is REAL, display using decimal point of item and attach item unit. ● When item is CTNO (lockout tag), display lockout tag name. 					
	Bit write	<p>The history of loop tag and status tag when there is a kind of bit write operation (ON/OFF). The setting value (FALSE or TRUE) will be displayed in setting value field.</p>					
	Bit write in radio button format	<p>The history of loop tag and status tag, when there is a radio button (when one is on, all others are changed to off) bit write operation. Display selected bit item name in setting field.</p>					
	Faceplate display pattern write	<p>The history when there is a bit write operation that can be registered using the faceplate display pattern setting (☞ Section 9.13). In the setting value field, a string is displayed using faceplate display pattern setting (☞ Section 9.13) to register. If the setting is unregistered or the display pattern number is out of the range, the display is empty (☞ Section 10.6).</p> <ul style="list-style-type: none"> ● For loop tag (PVAL) and status tag (NREV, REV, MVAL1, MVAL2, MTR3, SS2P, DS2P or DS3P) The history when there is a bit write operation in radio button format. The number of display pattern is from display name pattern number of tag data (FPNO). In the case of Time-out reset, it will be Time-out setting name + "RESET". ● For status tag (PB) The history when there is a bit write operation. The number of display pattern is from display name pattern number of tag data (FPNO1 to FPNO5). A string is displayed as follows in accordance with the ON/OFF history type registered in the faceplate display pattern setting. (☞ Section 9.13) <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">ON/OFF history type</th> <th style="width: 50%;">Description</th> </tr> </thead> <tbody> <tr> <td>Only ON</td> <td>The ON name of the operated button is displayed.</td> </tr> <tr> <td>Both ON and OFF</td> <td>The ON name is displayed when the status answer (DIM_ON1 to DIM_ON5) of the tag data corresponding to the button is OFF, and the OFF name is displayed when the status answer is ON.</td> </tr> </tbody> </table>	ON/OFF history type	Description	Only ON	The ON name of the operated button is displayed.	Both ON and OFF
ON/OFF history type	Description						
Only ON	The ON name of the operated button is displayed.						
Both ON and OFF	The ON name is displayed when the status answer (DIM_ON1 to DIM_ON5) of the tag data corresponding to the button is OFF, and the OFF name is displayed when the status answer is ON.						

*1: The record is saved on a personal computer with which tag data was operated.

When the server/client monitoring system has been configured, the operation histories can be checked with any OPS in the system.

Type		Description	
Status change history (Specific tag data status change history)	Control mode	The history of an item, when register bit of mode item of loop tag and status tag is changed to "ON". Display bit item name in the status field.	
	I/O mode	The history when the bit status for TAG STOP (TSTP), OVERRIDE (OVR) and SIMULATION (SIM) in the DIM of loop tag and status tag transferred. Display the mode of changing in status field.	
	DIM	Loop tag (BC, PSUM)	The history when the bit registered in DIM item is changed to "ON". Display bit item name in a status field.
		Loop tag (PVAL, HTCL) Status tag (NREV, REV, MVAL1, MVAL2, PB, MTR2, MTR3, SS2P, DS2P, DS3P)	The history when the bit registered in DIM item is changed to "ON". Display a button name registered in the faceplate display pattern setting (☞ Section 9.13) set in a status field. The number of display pattern is from display name pattern number of FPNO of tag data. If not registered, display is empty. (☞ Section 10.6) <ul style="list-style-type: none"> When the tag type is PB The ON/OFF history type is "Both ON and OFF", the history of OFF triggers is also stored. When the tag type is PVAL The performance differs depending on the open/close status history. Always : store the history at all times. Only MAN Mode : store the history only in the MAN mode. (Store when MAN mode bit is ON.) When the tag type is MTR2, MTR3, SS2P, DS2P, DS3P The history of OFF triggers of interlock for the bit 2, 3, 4, 5, and of output signal status for the bit 6, 7 are also restored. <ul style="list-style-type: none"> History of OFF triggers of interlock : setting name + "OFF" History of OFF triggers of output signal status: setting name + "STOP"
		Status tag (TIMER1, TIMER2, COUNT1, COUNT2)	The history when a bit registered in DIM item is changed to "ON". Display A bit item name in status field.
	DIM 2	Status tag (MTR2, MTR3, SS2P, DS2P, DS3P)	The history when a bit registered in DIM2 item is changed to "ON". Display a name registered in the faceplate display pattern setting (☞ Section 9.13) set in a status field.
	Lockout tag	The history when CTNO of loop tag status tag is changing. Display the name related to number in status field. If not registered, display is empty.	
	Motion type	The history of motion type change when loop tag and tag type are PGS or PGS2. Display the motion type in status field.	

Type		Description
Message history		<ul style="list-style-type: none"> ● Message tag The history of MSG item, when its bit is changed to "ON". Display a confirm check box when there is a specific confirm in tag data. Event message comes from event setting (☞ Section 9.10). Event number is the message number of tag data (the value stored to MSG1NO to MSG8NO). The settings is not registered, it will be displayed as blank (☞ Section 10.8). ● 64-points message tag The history of MSG_W1 to MSG_W4 item, when its bit is changed to "ON". Display a confirm check box when there is a specific confirm in tag data. The event message is to display connected character string of group name and message content which are registered to event setting (☞ Section 9.10). Event number is the message group name number of tag data (the value stored to MSGG1NO to MSGG8NO) and the message number of tag data (the value stored to MSG1NO to MSG64NO). The settings is not registered, it will be displayed as blank (☞ Section 10.8).
System event	Monitor target project load history	The history of monitor target projects read by the monitor tool. Checking this record allows judgment of whether tag data has been newly added or changed.
	Monitor tool start/stop history	The history of starting and stopping the monitor tool. Checking this record allows confirmation of whether or not the monitor tool started in the time zone where no alarms occurred in the alarm list.
	Mode change history	The history when the mode is changed.
	Redundant system: control system switching history	The history when standby system is switched to control system. (connection target is a redundant system)
	Redundant system: operation mode change history	The history when the operation mode is changed. (connection target is a redundant system)

(2) Display items based on event types

The description of display items based on event types is as follows.

Event type		Confirm	Tag	Tag comment	Event message	Occurrence date	Status	Set value	Previous Value	User	
Operation history	Word write	No display	Displays the tag name of operation objects.	Displays a tag comment.	Displays operation item name. *1	Displays date and time of operation.	No display	Setting value	Previous Value	Displays user name (input user name at mode change).	
	Bit write				No display						
	Bit write in radio button format							Bit item name *1			
	Faceplate display pattern write							Displays the character string set in display pattern setting.			
Status changing history	Control mode	No display	Displays the tag name of changing object.	Displays a tag comment.	No display	Displays date and time of changing.	Bit item name *1	No display	No display	No display	
	I/O mode						Mode in changing *1 (NOR/SIM/OVR/TSTP)				
	Loop tag (BC, PSUM)						Bit item name *1				
	Loop tag (PVAL, HTCL)						Displays character string set in display pattern setting.				
	Status tag (NREV, REV, MVAL1, MVAL2, PB, MTR2, MTR3, SS2P, DS2P, DS3P)										
	Status tag (TIMER1, TIMER2, COUNT1, COUNT2)						Bit item name *1				
	Lockout tag						Lockout tag				
	Motion type (PGS)						Motion type				
Motion type (PGS2)	Bit item name *1										
Message history		According to tag data	Displays tag name.	Displays a tag comment.	Set character string in event setting	Displays date and time of changing.	No display	No display	No display	No display	
System event	Monitor target project load history	No display	#SYSTEM	No display	Monitor target project was loaded	Displays date and time of changing.	No display	No display	No display	No display (display a user name when exiting Monitor Tool)	
	Monitor tool start/stop history (standalone)				Monitor Tool was started/ stopped	Displays date and time of start/end.					
	Monitor tool start/stop history (server/client)				Monitor Tool was started:+OPS name/ stopped:+OPS name						
	Mode change history (standalone)				Change mode	Displays date and time of changing.	Mode after change (Engineer mode/ Operator mode/ Lock mode)				Display a user name after change (no user name is displayed when changed to the lock mode)
	Mode change history (server/client)				Change mode +OPS name						
	Redundant system: control system switching history				Redundant system control switching: + Project name	Displays date and time of changing.	System A/B				No display
	Redundant system: operation mode change history				Redundant system operation mode change: + Project name		Separate mode /Backup mode /Debug mode				No display

*1: The display format as for items of tag data is in accordance with "Tag Data Item Display of Event" of Option Setting (Alarm/Event).

POINT

- Even if the size of window is changed, the font size displayed is not changed.
- When a new event occurs while 2000 events have been registered, the latest event is registered by deleting the already registered event.

The event to be deleted is selected in accordance with "Unconfirmed Events Deletion at Delete All" of Option Setting (Alarm/Event) in the following order.

The setting is "Yes" : an event whose date of occurrence is the oldest in the list

The setting is "No" : a checked event or an event without the confirmation check box display whose date of occurrence is the oldest in the list

When no events that can be deleted on the list exist, the latest event is not recorded on the event list.

However, the latest event is recorded to the automatic event CSV file even though it cannot be recorded on the event list.

(3) Display example of event

The display example of event types are as follows.

● Operation record (Word write)

Confirm	Tag	Tag comment	Event Message *1	Occurrence Date	Status	Set value	Previous value	User
	TIC001	Room temperature adjustment valve 1	SV	1/30/2002 11:43:20 AM		23.5°C	19.5°C	UserABC
	TIC001	Room temperature adjustment valve 1	CTNO	1/30/2002 11:43:50 AM		Checking		UserABC

● Operation log (Bit write)

Confirm	Tag	Tag comment	Event Message *1	Occurrence Date	Status	Set value	Previous value	User
	TIC001	Room temperature adjustment valve 1	MLL	1/30/2002 11:43:40 AM		TRUE	FALSE	UserABC

● Operation log (Bit write in radio button format)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value *1	Previous value	User
	TIC001	Room temperature adjustment valve 1		1/30/2002 11:43:40 AM		MAN	AUT	UserABC

● Operation record (Faceplate display pattern write)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	Previous value	User
	VALV001	Water temperature adjustment valve 1		1/30/2002 11:43:40 AM		ON		UserABC
	VALV001	Water temperature adjustment valve 1		1/30/2002 11:43:45 AM		Time-out RESET		UserABC

● Status change record (Control mode)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status *1	Set value	Previous value	User
	TIC001	Room temperature adjustment valve 1		1/30/2002 11:43:40 AM	MAN			

● Status change record (I/O mode)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status *1	Set value	Previous value	User
	TIC001	Room temperature adjustment valve 1		1/30/2002 11:43:40 AM	SIM			

● Status change record (Loop tag BC, PSUM)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status *1	Set value	Previous value	User
	BC001	Batch counter 1		1/30/2002 11:43:40 AM	DIM_RUN			

● Status change record (Loop tag PVAL, HTCL, Status tag NREV, REV, MVAL1, MVAL2, PB, MTR2, MTR3, SS2P, DS2P, DS3P)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	Previous value	User
	VALV001	Water temperature adjustment valve 1		1/30/2002 11:43:40 AM	ON			

● Status change record (Status tag TIMER1, TIMER2, COUNT1, COUNT2)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status *1	Set value	Previous value	User
	TIMER001	Timer 1		1/30/2002 11:43:40 AM	DIM_RUN			

● Status change record (Lockout tag)

Confirm	Tag	Tag comment	Event Message *1	Occurrence Date	Status	Set value	Previous value	User
	TIC001	Room temperature adjustment valve 1	CTNO	1/30/2002 11:43:40 AM	Checking			

● Status change record (Motion type PGS)

Confirm	Tag	Tag comment	Event Message *1	Occurrence Date	Status	Set value	Previous value	User
	PGS001	Program setter 1	TYP	1/30/2002 11:43:40 AM	1			

*1: The display format as for items of tag data is in accordance with "Tag Data Item Display of Event" of Option Setting (Alarm/Event).

- Status change record (Motion type PGS2)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status *1	Set value	Previous value	User
	PGS2001	Program setter 2		3/11/2006 11:43:40 AM	TYP_RETURN			

- Message record

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	Previous value	User
<input type="checkbox"/>	MSG001	Alarm message 1	Please turn to administrator	1/30/2002 11:43:40 AM				
	MSG002	Operation start message 1	Start A process	1/30/2002 11:43:45 AM				

- Monitor target project load history

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	Previous value	User
	#SYSTEM		Monitor target project was loaded	1/30/2002 11:43:40 AM				

- Monitor tool start/stop history

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	Previous value	User
	#SYSTEM		Monitor tool was started	1/30/2002 11:43:40 AM				
	#SYSTEM		Monitor tool was stopped	1/30/2002 11:43:50 AM				

- Monitor tool start/stop history (standalone)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	Previous value	User
	#SYSTEM		Monitor tool was started	8/05/2008 1:43:40 PM				
	#SYSTEM		Monitor tool was stopped	8/05/2008 1:43:50 PM				

- Monitor tool start/stop history (server/client)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	Previous value	User
	#SYSTEM		Monitor tool was started:[Server 1]	8/05/2008 1:43:40 PM				
	#SYSTEM		Monitor tool was stopped:[Server 1]	8/05/2008 1:43:50 PM				admin

- Mode change history (standalone)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	Previous value	User
	#SYSTEM		Change mode	9/05/2011 2:13:32 PM	Engineer mode			admin

- Mode change history (server/client)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	Previous value	User
	#SYSTEM		Change mode:[Server 1]	9/05/2011 2:13:32 PM	Engineer mode			admin

- Redundant system control switching history

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	Previous value	User
	#SYSTEM		Redundant System: Control System switching: PROJECT1	4/01/2004 12:14:28 AM	System A			
	#SYSTEM		Redundant System: Control System switching: PROJECT1	4/01/2004 12:14:28 AM	System B			

- Redundant system operation mode change history

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	Previous value	User
	#SYSTEM		Redundant System: Operation Mode Change: PROJECT1	4/01/2004 11:43:30 AM	Separate mode			
	#SYSTEM		Redundant System: Operation Mode Change: PROJECT1	4/01/2004 11:43:40 AM	Backup mode			
	#SYSTEM		Redundant System: Operation Mode Change: PROJECT1	4/01/2004 11:43:50 AM	Debug mode			

*1: The display format as for items of tag data is in accordance with "Tag Data Item Display of Event" of Option Setting (Alarm/Event).

7.4.2 Confirm check

The check box displays in the message record when tag data of message tag has a confirm tag. Click to check the checkbox.

In the server/client monitoring system, when the confirmation check status is changed on the event list screen of one OPS, the event list screens of all OPSs are synchronized.



For details of confirming all events on the list, refer to "Section 7.4.4 Confirming all events".

POINT
 A user who has the authority of operation for checking the event can check the check box.

7.4.3 Deleting all events

Click the "Delete All" button on the event list screen, the events are deleted.

In the server/client monitoring system, when the "Delete All" button is clicked on the event list screen of one OPS, the event list screens of all OPSs are synchronized.

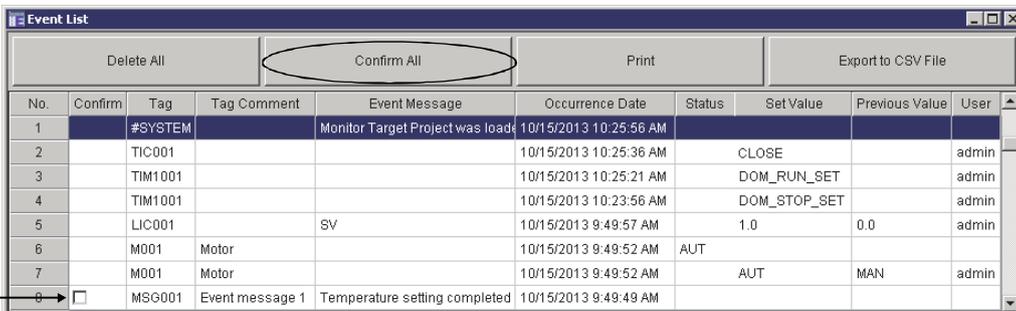
Event List									
Delete All		Confirm All		Print		Export to CSV File			
No.	Confirm	Tag	Tag Comment	Event Message	Occurrence Date	Status	Set Value	Previous Value	User
1	<input type="checkbox"/>	#SYSTEM		Monitor Target Project was load	10/15/2013 10:25:56 AM				
2	<input type="checkbox"/>	TIC001			10/15/2013 10:25:36 AM	CLOSE			admin
3	<input type="checkbox"/>	TIM1001			10/15/2013 10:25:21 AM	DOM_RUN_SET			admin
4	<input type="checkbox"/>	TIM1001			10/15/2013 10:23:56 AM	DOM_STOP_SET			admin
5	<input type="checkbox"/>	LIC001		SV	10/15/2013 9:49:57 AM		1.0	0.0	admin
6	<input type="checkbox"/>	M001	Motor		10/15/2013 9:49:52 AM	AUT			
7	<input type="checkbox"/>	M001	Motor		10/15/2013 9:49:52 AM	AUT		MAN	admin
8	<input type="checkbox"/>	MSG001	Event message 1	Temperature setting completed	10/15/2013 9:49:49 AM				

The setting for "Unconfirmed Events Deletion at Delete All" of Option Setting (Alarm/Event)
 "Yes" : delete all the events in the recovered status
 "No" : delete the checked events and events without the confirmation check box display

POINT
 A user who has the authority for deleting the events can execute the operation.

7.4.4 Confirming all events

Click the "Confirm All" button on the event list screen to confirm all confirmed events. In the server/client monitoring system, when the "Confirm All" button is clicked on the event list screen of one OPS, the event list screens of all OPSs are synchronized.



Unconfirmed events are all confirmed.

No.	Confirm	Tag	Tag Comment	Event Message	Occurrence Date	Status	Set Value	Previous Value	User
1		#SYSTEM		Monitor Target Project was load	10/15/2013 10:25:56 AM				
2		TIC001			10/15/2013 10:25:36 AM	CLOSE			admin
3		TIM1001			10/15/2013 10:25:21 AM	DOM_RUN_SET			admin
4		TIM1001			10/15/2013 10:23:56 AM	DOM_STOP_SET			admin
5		LIC001		SV	10/15/2013 9:49:57 AM		1.0	0.0	admin
6		M001	Motor		10/15/2013 9:49:52 AM	AUT			
7		M001	Motor		10/15/2013 9:49:52 AM	AUT		MAN	admin
8	<input type="checkbox"/>	MSG001	Event message 1	Temperature setting completed	10/15/2013 9:49:49 AM				

POINT

A user who has the authority for checking the events can execute the operation.

7.4.5 Printing an event list

Click the "Print" button on the event list screen to print the event list. It will be printed on the printer that is set in the print setting of option setting (General). If the printer name is not specified, the default printer specified in the personal computer will be applied.

Following dialog box will be displayed after printing is started. The dialog box will be closed after printing.

Click the "Cancel" button to cancel printing execution.



Following are the print image:

Header position print characters fixed.

Event List							10/15/2013 4:57:49 PM		
No.	Confirm	Tag	Tag Comment	Event Message	Occurrence Date	Status	Set Value	Previous Value	User
1		#SYSTEM		Mode was changed.	10/15/2013 4:57:43 PM	Engineer mode			admin
2		#SYSTEM		Mode was changed.	10/15/2013 4:57:24 PM	Lock mode			
3		#SYSTEM		Monitor Target Project was loaded.	10/15/2013 4:57:24 PM				
4		#SYSTEM		Monitor Tool was started.	10/15/2013 4:57:21 PM				
5		#SYSTEM		Monitor Tool was stopped.	10/15/2013 4:56:26 PM				admin
6		#SYSTEM		Mode was changed.	10/15/2013 4:36:03 PM				admin
7		#SYSTEM		Mode was changed.	10/15/2013 3:46:21 PM				
8		TAG001		LL	10/15/2013 3:39:13 PM		10.0	0.0	admin
9		TAG001		PL	10/15/2013 3:39:09 PM		20.0	10.0	admin
10		LIC001		SV	10/15/2013 3:39:06 PM		1.0	0.0	admin
11		MD01	Motor		10/15/2013 3:39:00 PM	AUT			
12		MD01	Motor		10/15/2013 3:38:56 PM	AUT		MAN	admin
13		#SYSTEM		Mode was changed.	10/15/2013 3:38:53 PM	Engineer mode			admin
14		#SYSTEM		Mode was changed.	10/15/2013 3:38:51 PM	Lock mode			
15		#SYSTEM		Monitor Target Project was loaded.	10/15/2013 3:38:49 PM				

Print date and time of printing (with fixed position)

Only the rows with data are printed. Print the displayed image on the event list screen. Use narrow printing if the width of the print paper is less than the width of the grid. 50 rows can be filled in 1 page at most.

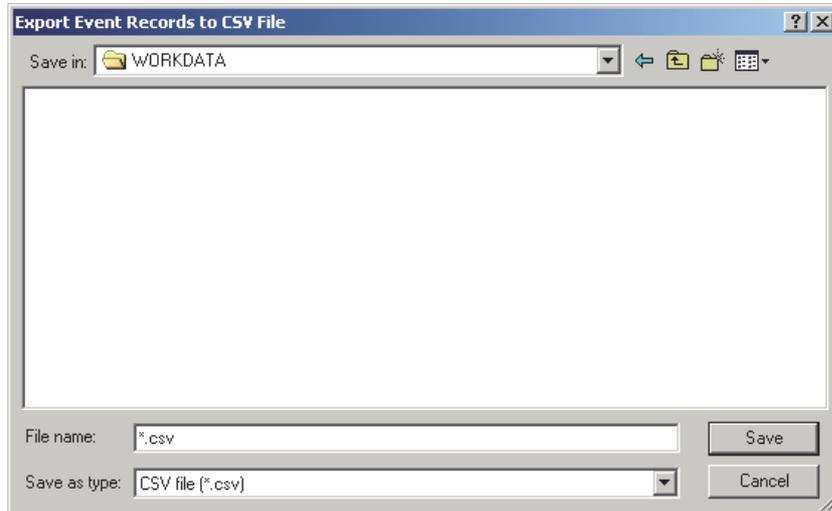
Print page (position, fonts fixed)

POINT

A user who has the authority for printing the events can execute the operation.

7.4.6 Exporting to CSV file

Click the "Export to CSV File" button on the event list screen to save all events in CSV file format. When saving a file, specify the saving folder and file name.



The output format is as follows.

The first row indicates the title of the data contents and the following rows are output the collected data in chronological order.

```
Tag,Tag Comment,Event Message,Detailed Name of Event Message,Occurrence Date,
Status,Detailed Name of Status,Set Value,Detailed Name of Set Value,Previous Value,
Detailed Name of Previous Value,User
CON001,Batch counter1,,9/5/2011 5:46:40 PM,DIM_COMP,Complete external output,,,,,
TIM001,Timer 1,,9/5/2011 5:46:48 PM,DIM_STOP,Stop,,,,,
TIM001,Timer 1,,9/5/2011 5:46:48 PM,DIM_PRE_COMP,Pre-complete external output,,,,,
TIM001,Timer 1,,9/5/2011 5:46:48 PM,DIM_COMP,Complete external output,,,,,
#SYSTEM,,Monitor Target Project was loaded.,9/5/2011 5:46:53 PM,,,,,,
PGS2001,1st step program setter,T,,9/5/2011 5:49:02 PM,,5s,,,,,admin
```

POINT

- Event data can be output to CSV files automatically. (☞ Section 8.7)
- A user who has the authority for exporting data of the events to CSV file can execute the operation.
- The items of "Detailed Name of Event Message", "Detailed Name of Status", "Detailed Name of Set Value" are output regardless of "Tag Data Item Display of Event" display format of Option Setting (Alarm/Event).

7.5 User-created Screen

**PURPOSE**

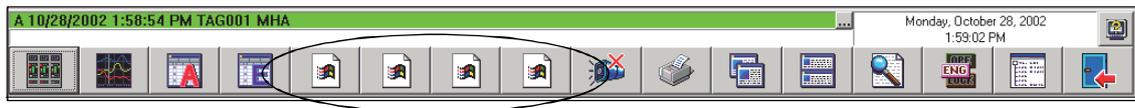
Assign monitoring applications to user-created screen buttons on the monitor toolbar.

Programs created with GT SoftGOT (☞ Section 11.1) or Microsoft® Visual Basic (☞ Section 11.2) can be assigned as applications.

**BASIC OPERATION**

1. Click the "Setting window" button on the monitor toolbar, using [User-created Screen Setting] to pre-register application program of screen necessary for display (☞ Section 9.11). Once an application is registered, as long as the setting is not changed, even if restart after monitor tool is exited, the application program can still display on the monitor toolbar.
2. Click the "User-created screen display" button on the monitor toolbar (Button icon is determined by the registered application).
3. Start the registered application program, display user-created screen.

User-created Screen Button 1 to 4



Maximum 4 application programs can be registered optionally and can be started up by the buttons assigned on the monitor toolbar.

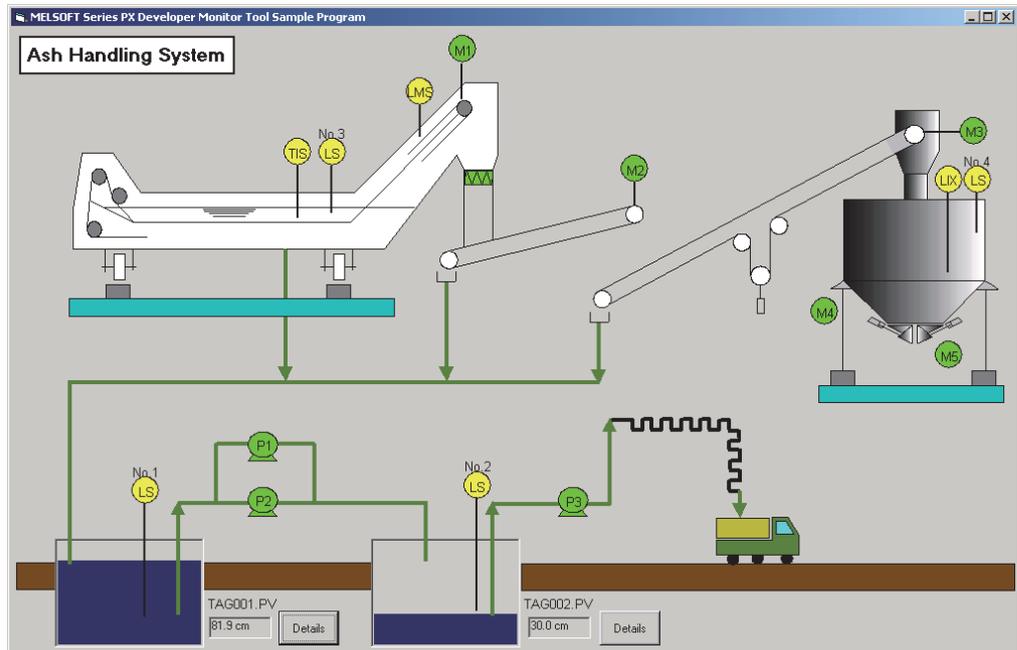
Screen of application program assigned to a button can only display 1 screen (even if click user-created screen button1 twice, it can only activate the registered screen of application program but cannot open two screens). To open multiple screens of the same application program, it needs to register other buttons separately.

POINT

- When monitor screen (such as control panel) is opened or another user-created application is started up in single-window mode during the execution of the application started up by the user-created screen button, the application being executed will be closed.
- When "Do not close when switching Monitor Window." is set in the Detail setting of the user-created screen (☞ Section 9.11) in single-window mode, the application being executed will not be closed.

Note, however, that the application being executed closes regardless of settings when the setting window is displayed or the Monitor tool is exited.

The example of user-created screen is as follows:



POINT

- The button cannot be clicked during setting window opening.
- The applications registered to User-created Screen Setting or icons registered to detail setting of User-created Screen Setting are displayed on the user-created screen button 1 to 4.
- Even if the window opened by using "User-created screen" button is not used for monitor screen, it is still treated as a monitor window about the limit for maximum open screens. (☞ Section 6.4)
- When close monitor tool, all application programs started by "User-created screen" button must be closed.
- Tag data access control (☞ Appendix 5.1.1) can be used to acquire or set the value of tag data and display it on screen. Using a button in a user-created screen, the same faceplate can be opened as the one displayed in other screens of monitor tool. (As for sample data, refer to sample VB folder of CD). Through faceplate control (☞ Appendix 5.1.2), faceplate can be displayed on the screen.
- When "Privilege Level" of the application is specified to "Run this program as an administrator", "Privilege Level" of the monitor tool also needs to be specified to "Run this program as an administrator."

For the method to execute programs as an administrator, refer to Section 5.1.

7.6 Pop-up Faceplate



PURPOSE

To display a screen called faceplate in the form of a pop-up window. This screen displays tag data contents in the forms of simulation adjusting meter and so on.



BASIC OPERATION

Any of the following methods can be used to display pop-up faceplate.

- Find with tag names

1. Click the "Find" button () on the monitor toolbar.
2. Specify and search tag names with the find dialog box ( Section 8.4).
3. The pop-up faceplate screen is displayed.

- Display the related faceplate with alarm display bar.

1. Click the faceplate display button at the alarm display bar. This bar is at the top left corner of the monitor toolbar ( Section 6.3.1).



2. The pop-up faceplate screen related to alarm is displayed.

- Display the related faceplate with alarm display bar

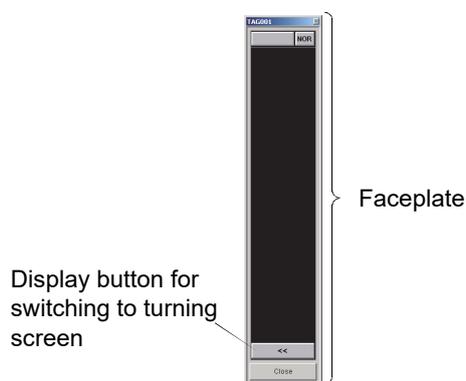
1. Click the "Alarm List" button () on the monitor toolbar.
2. Double click the alarm display bar on the alarm list screen ( Section 7.3).
3. The pop-up faceplate screen related to the alarm is displayed.

- Display from pop-up tuning screen.

1. Click the ">>" button on the pop-up tuning screen.
2. The pop-up tuning screen replaces the displayed pop-up faceplate screen.



DISPLAY/SETTING SCREEN



POINT

- Up to four pop-up windows can be displayed.
If a new pop-up window is opened when four pop-up windows have already been displayed, the earliest opened (displayed in the bottom) one among the four on-screen windows is automatically closed.
However, if it cannot be closed as displaying a dialog box for example, one next to the bottom is closed.
- If a new pop-up window is opened when four pop-up windows have already been displayed, the bottom one of the on-screen pop-up windows is forcibly closed.
To keep the desired pop-up window open, close the unnecessary pop-up window before opening a new one.
- In the server/client monitoring system, up to 72 windows among all OPSs (up to four windows in each OPS) can be displayed.
- Applying Windows Snap function to the pop-up faceplate screen may hinder the normal aspect ratio.
In this case, resize the pop-up faceplate screen to restore to the normal aspect ratio.

7.6.1 Displaying a faceplate

The information of distributed tag is displayed on the faceplate.
 Tags are set by control panel setting (☞ Section 9.7).
 For details of each faceplate, refer to "Chapter 10 FACEPLATE".

7.6.2 Displaying a pop-up tuning screen

Click the "<<" button on the pop-up faceplate, the tuning screen replaces the displayed faceplate screen. For details of the tuning screen, refer to "Section 7.7 Pop-up Tuning Screen".

POINT

Click the button at the bottom of the faceplate to change the window of the display faceplate as shown below.

Control panel

Details

Open a new pop-up tuning screen

<Pop-up tuning>

Change display

<Pop-up faceplate>

7.7 Pop-up Tuning Screen



PURPOSE

Screens for tuning display in the form of pop-up windows.



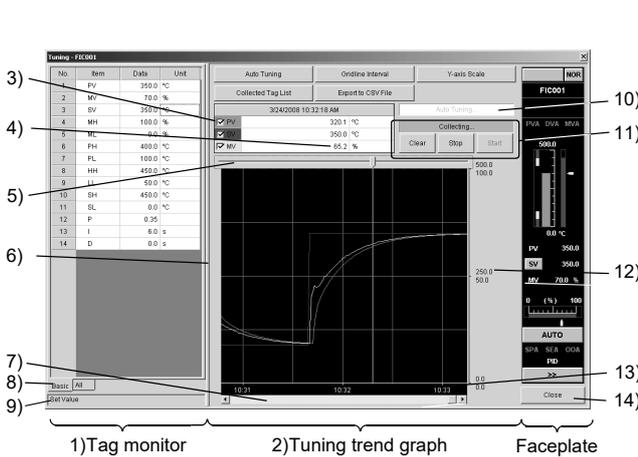
BASIC OPERATION

Any of the following methods can be used to display pop-up tuning screens.

- Display from the control panel
 1. Click the "Control Panel" button () on the monitor toolbar.
 2. Click the "Details" button of the faceplate on the control panel.
 3. The pop-up faceplate screen is displayed.
- Display from the pop-up faceplate screen
 1. Click the "<<" button on the pop-up faceplate screen.
 2. The pop-up tuning screen replaces the pop-up faceplate screen.

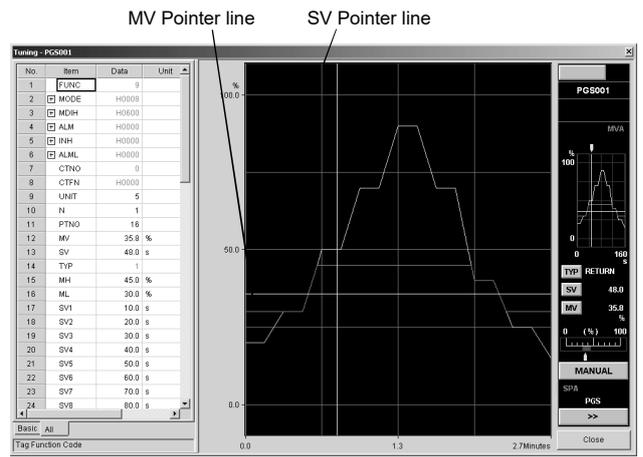


DISPLAY/SETTING SCREEN



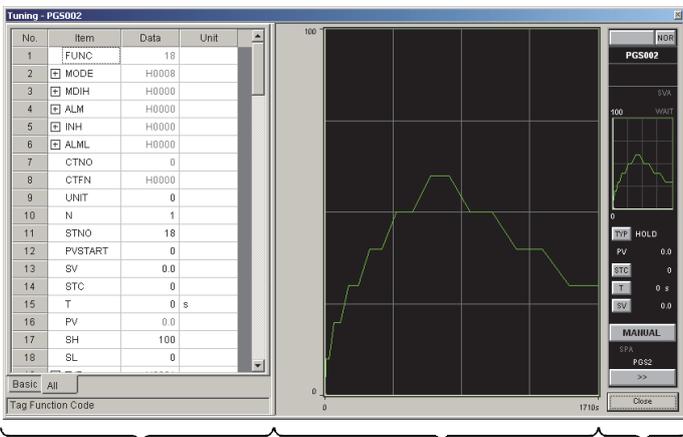
1) Tag monitor 2) Tuning trend graph Faceplate

<Under the loop tag condition (except for tag type PGS, PGS2)>



1) Tag monitor 15) Program pattern graph Faceplate

< Loop tag (PGS tag type) >



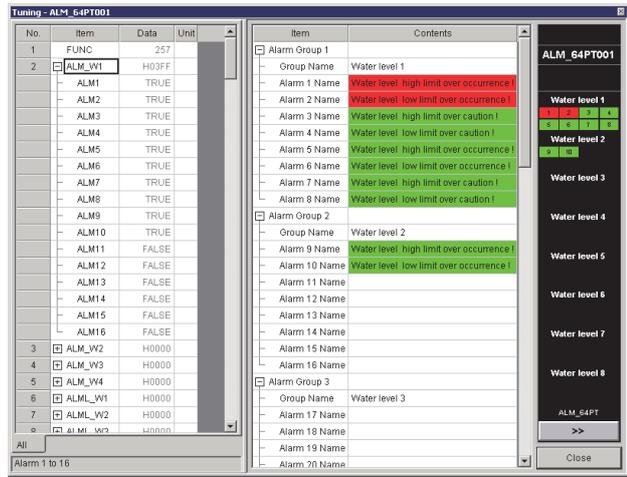
1) Tag monitor 16) Program pattern graph 2 Faceplate

< Loop tag (PGS2 tag type) >



1) Tag monitor Faceplate

< Status tag, Alarm tag (ALM tag type),
Message tag (MSG tag type) >



1) Tag monitor 17) Message display area Faceplate

< Alarm tag (ALM_64PT tag type),
Message tag (MSG_64PT tag type) >

7.7.1 Displaying a pop-up tuning screen

The following table is the displayed contents of all bars on the pop-up tuning screen.

No.	Item	Description																						
1)	Tag monitor *1	It displays values of the tag data items. For the word item that can be displayed for each bit item, a  mark is displayed on the left of the item for level indication. The display of tag data items can be switched in the display switching tab of 8). Values are input to the grid, which can change the values of tag data items. Judgment between changeable tag data items and unchangeable tag data items can be made by the text color displayed in the "Data" field. Changeable data :Black Unchangeable data :Gray A user who has authority of operation for changing tag data items can change the data. For details of operation authority, refer to Appendix 4. Note that data cannot be changed when lockout tag is set.																						
2)	Tuning trend graph *1	Each value of PV, SV, and MV is displayed in graphs. By setting option setting, background color of the screen, color of the gridlines and each graph can be specified ( Section 9.17).																						
3)	Graph display check box	With check.....Display the graphs. Without check.....Cannot display the graphs.																						
4)	Cursor position data	It can only display but cannot change the cursor position data of the tuning trend graph																						
5)	Tuning trend cursor position	By moving the cursor position, data at any time on the tuning trend graph can be displayed on 4) bar.																						
6)	Split bar	When moved on the split bar, the mouse pointer turns to a  mark. Drag the split bar in this status to change the horizontal width of Tag monitor.																						
7)	Graph scroll bar	The tuning trend graph can be rolled. The cursor position on the screen does not change, but the cursor position data changes after rolling. When rolling to the left of the oldest value, it returns to the oldest data position automatically.																						
8)	Display switching tab	Switches the display items in tag monitor. <table border="1"> <thead> <tr> <th>Tab name</th> <th>Display item</th> </tr> </thead> <tbody> <tr> <td>Basic</td> <td>Displays only the tag data items (such as PV/MV/SV value, PID constant and high/low limit alarm value) often monitored/set.</td> </tr> <tr> <td>All</td> <td>Displays all tag data items.</td> </tr> </tbody> </table> <p>As for status, alarm and message tag, only the All tab is displayed.</p>	Tab name	Display item	Basic	Displays only the tag data items (such as PV/MV/SV value, PID constant and high/low limit alarm value) often monitored/set.	All	Displays all tag data items.																
Tab name	Display item																							
Basic	Displays only the tag data items (such as PV/MV/SV value, PID constant and high/low limit alarm value) often monitored/set.																							
All	Displays all tag data items.																							
9)	Detailed names of the tag data items	It displays items' detailed names of the lines selected with tag monitor.																						
10)	Auto tuning status display	Displays only tag types available for auto tuning. <table border="1"> <thead> <tr> <th rowspan="2">Auto tuning executing status</th> <th rowspan="2">Alarm</th> <th colspan="3">Display format</th> </tr> <tr> <th>Display</th> <th>Background color</th> <th>Text color</th> </tr> </thead> <tbody> <tr> <td>In executing</td> <td>Not occurred</td> <td>Auto Tuning...</td> <td>Light blue</td> <td>Black</td> </tr> <tr> <td rowspan="2">Not in executing</td> <td>Not occurred</td> <td>Auto Tuning...</td> <td>White</td> <td>Gray</td> </tr> <tr> <td>Occurred</td> <td>Auto Tuning...</td> <td>Red</td> <td>Gray</td> </tr> </tbody> </table>	Auto tuning executing status	Alarm	Display format			Display	Background color	Text color	In executing	Not occurred	Auto Tuning...	Light blue	Black	Not in executing	Not occurred	Auto Tuning...	White	Gray	Occurred	Auto Tuning...	Red	Gray
Auto tuning executing status	Alarm	Display format																						
		Display	Background color	Text color																				
In executing	Not occurred	Auto Tuning...	Light blue	Black																				
Not in executing	Not occurred	Auto Tuning...	White	Gray																				
	Occurred	Auto Tuning...	Red	Gray																				
11)	Tuning trend collection instructions button and status display	It sets tuning trend collection instructions and displays status. For details, refer to "Section 7.7.3 Tuning trend collection instruction".																						
12)	Y-axis scale	At the bottom is the scale of MV, at the top section is the scale of PV, SV. In the middle are the values automatically calculated and displayed according to top and bottom limits of the scale. The scale of MV displayed at the bottom is -10 to 110, and only the PFC_INT is -110 to 110. For other than tags of PGS type, PGS2 type, double-click on the 2) Tuning trend graph to switch to display/hide Y-axis scale and zoom in/zoom out the graph area.																						
13)	Gridline time display	It displays the gridline time in hour and minute. When the display trend data does not reach the gridline, the time will not be displayed.																						
14)	"Close" button	Used to close the pop-up window.																						

*1: The displayed data are collected through high-speed tag data collection and high-speed current value collection ( Appendix 1.1).
The high-speed current value collection period is confirmed in the PLC communication status screen ( Section 8.5).
During collection of the tuning trend data, confirm the following current values displayed on the Collection Period for Each Communication type tab of the PLC Communication Status screen ( Section 8.5) are within 1 second.

- The current value of High-speed Current Value Collection (unit: second)
- The current value of High-speed Tag Data Collection (unit: second)

If either of the value exceeds 1 second, the data cannot be collected in 1-second period.

No.	Item	Description
15)	Program pattern graph	SV and MV against elapsed time are displayed by graphs. Background color, gridline and color for each graph can be specified in the option setting. (Section 9.17)
16)	Program pattern graph2	Displays SV of the time set in advance for each step as graphs. Background color, gridline and color for each graph can be specified in the option setting. (Section 9.17)
17)	Message display area	Displays alarm/message group name and alarm/message name of 64-point alarm tag or 64-point message tag. <ul style="list-style-type: none"> ● 64-points alarm tag The background color ("Major/Minor alarm color" in the option setting) of the alarm name cell will be changed depending on the alarm level during the corresponding error occur. ● 64-points message tag The background color of the message name cell will be changed to green during the corresponding message occur. When the corresponding alarm is not registered to the alarm setting, or the corresponding message is not registered to the event setting, the cell will be blank.

(1) Loop tag (except for tag type PGS, PGS2)

On the tuning trend graph, the 3 graphs of PV (process variable), SV (setting value) and MV (manipulated variable) are displayed one after another in the passing time sequence. The lines of the graphs are displayed in the colors set as the graph 1 to 3 display colors (PV: Graph 1 Color, SV: Graph 2 Color, MV: Graph 3 Color) in option setting (trend graph). (Section 9.17 (5))



DISPLAY/SETTING SCREEN

<Pop-up tuning screen>
The screen is composed of the tag monitor bar, tuning trend graph and faceplate.

<Tuning trend graph>

Cursor position data
Tuning trend cursor
Gridline time display column
Graph scroll bar



DISPLAY/SETTING DATA

Item	Description
Cursor position data	The values at the time selected with the tuning trend cursor are displayed.
Tuning trend cursor	Used to select a time point of the graph: the values corresponding to the selected point are displayed in the cursor position data field.
Gridline time display column	The time is displayed for each gridline.
Graph scroll bar	Used to scroll the graph that cannot be displayed within a single screen.

REMARK

In the presence of displayed trend data, if the window size is changed or the gridline interval is changed on the pop-up tuning screen, the tuning trend cursor and graph scroll bar move to the right end.

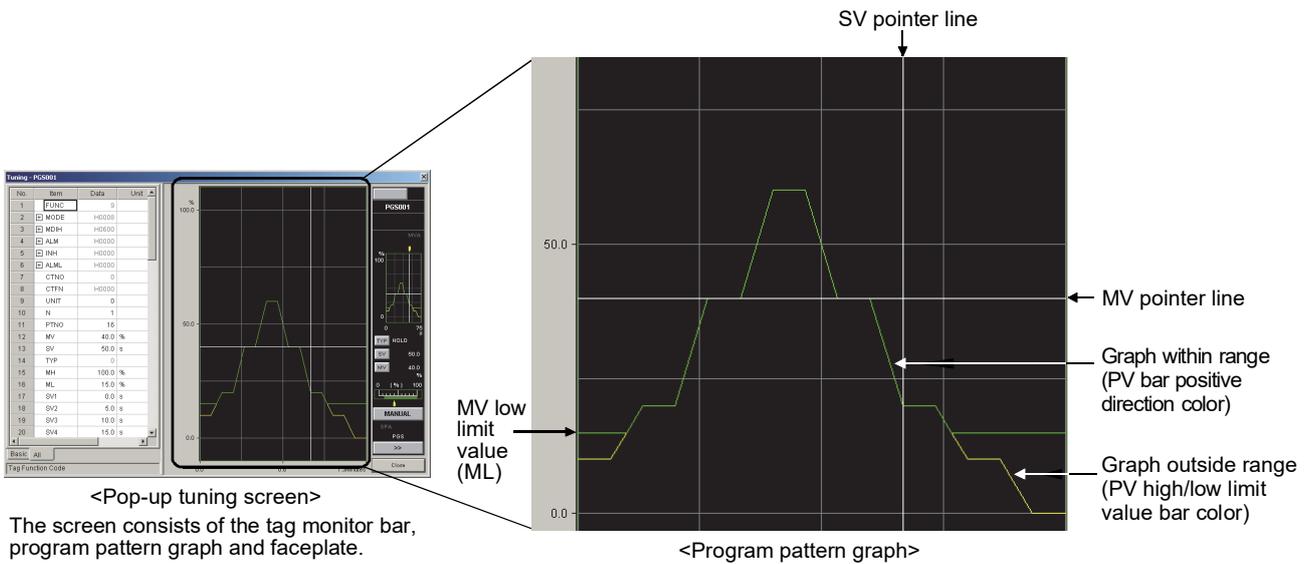
(2) Loop tag (PGS tag type)

On the program pattern graph, values of SV (set time: second) and MV (set output: %) are displayed in graphs. These values are set with the tag item of PGS.

When the MV output value is out of the high and low limit value range (this range is set through tag data items MH and ML), the graph in this section is displayed in a different color. It is displayed as the double graphs by gaining an integer from the high and low limit values of MV.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Item	Description
MV low limit value (ML)	The MV low limit value set in the tag data item ML is displayed.
SV pointer line	The current value of the SV is displayed. The SV pointer line is displayed in white.
MV pointer line	The current value of the MV is displayed. The MV pointer line is displayed in white.
Graph within range (PV value bar positive direction color)	A graph whose MV output value is within the range of the MV high limit value and low limit value set in the tag data items MH, ML. The line of the graph is displayed in the "PV value bar positive direction color" of the option setting (faceplate). (Section 9.17 (4))
Graph outside range (PV high/low limit value bar color)	A graph whose MV output value is outside the range of the MV high limit value and low limit value set in the tag data items MH, ML. The line of the graph is displayed in the "PV high/low limit value bar color" of the option setting (faceplate). (Section 9.17 (4))

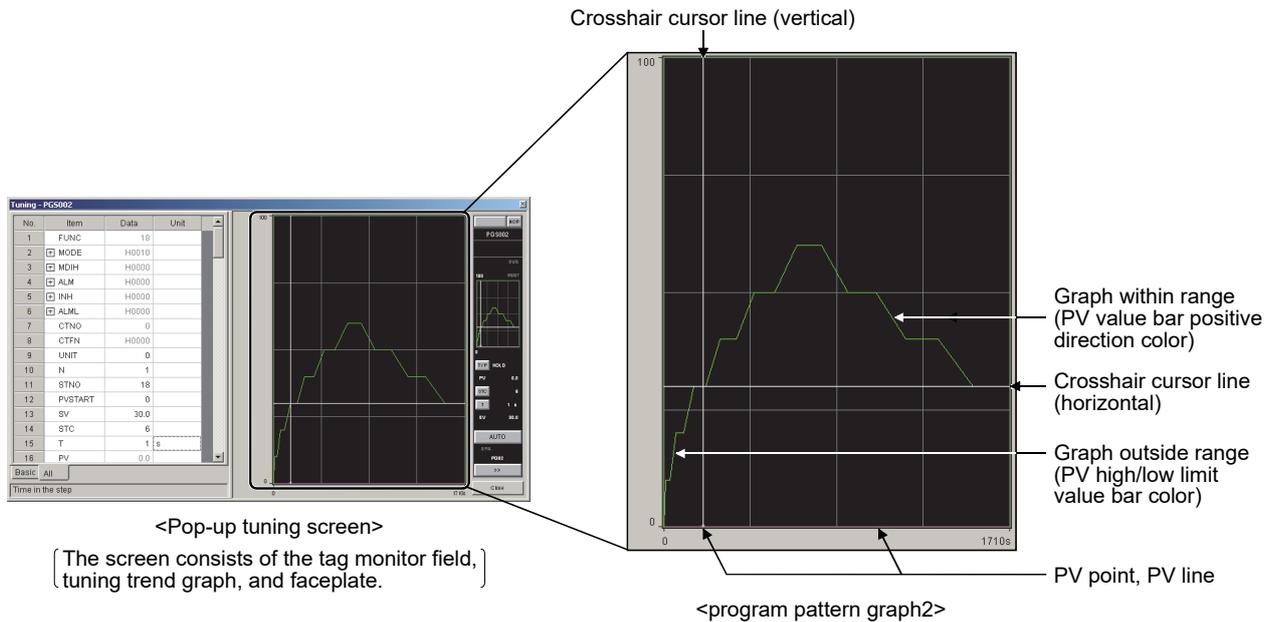
(3) Loop tag (PGS2 tag type)

On the program pattern graph2, the SV output value of the time set in advance for each step are displayed as graphs. For the Y-axis scale of the graph, RH and RL set with the tag data item of PGS2 are used.

When the SV output value is out of the SV high and low limit value range set at the tag data item SH and SL, the corresponding section of the graph is displayed overlapping with the graph, which the values are clipped in the SV high and low limit value range, in a different color.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Item	Description
Crosshair cursor line (vertical)	Displays the current time in the step. The crosshair cursor line (vertical) is displayed in white.
Crosshair cursor line (horizontal)	Displays current setting value. The crosshair cursor line (horizontal) is displayed in white.
PV point, PV line	Displays the current value of PV. (PV point is displayed on the crosshair cursor line (vertical).) PV point and PV line are both displayed in magenta.
Graph within range (PV value bar positive direction color)	A graph displayed when the SV output value is within the SV high and low limit value range set at the tag data item SH and SL. The graph is displayed in color set for "PV bar positive direction color" in option setting. (☞ Section 9.17 (4))
Graph outside range (PV high/low limit value bar color)	A graph displayed when the SV output value is outside of the SV high and low limit value range set at the tag data item SH and SL. The graph is displayed in color set for "PV high/low limit value bar color" in option setting. (☞ Section 9.17 (4))

- (4) Status tag, alarm tag (ALM tag type), and message tag (MSG tag type)
The pop-up tuning screen is composed of the tag monitor bar and faceplate only.
- (5) Alarm tag (ALM_64PT tag type), and message tag (MSG_64PT tag type)
The pop-up tuning screen is composed of the tag monitor bar, message display area, and faceplate.

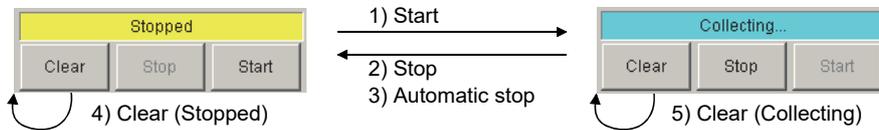
7.7.2 Collecting tuning trend data

The tuned data is not saved in the files, but in the memory.
Data saved in the memory can be export to the CSV files. (☞ Section 7.7.8)

Item	Description
Collection target	Loop tag: 3 values of PV, SV and MV
Sampling period	1 second
Collected data quantity	Maximum number of 20000 points collected data can be stored in the memory each time of tuning. Even if the screen is closed, the collected data will not be cleared, and when collecting, it still continues to collect under the same condition. If the buffer memory is full, it automatically stops collecting.
Recordable time	5.5 hours
Simultaneous execution	16 tuning
Storing destination	Memory

7.7.3 Tuning trend collection instruction

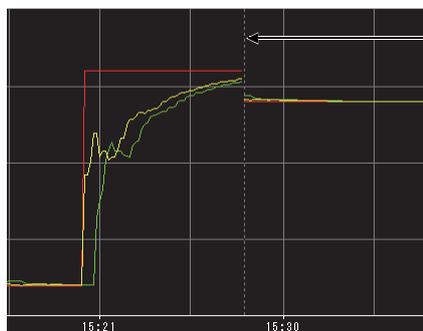
On the pop-up tuning screen, click the button of tuning trend collection instructions to start/stop collecting tuning trend data.



No.	Description	Status display after execution
1) Start	Click the button to start collecting the tuning trend data. When the points are recorded to 20000 and the buffer memory is full, tuning trend collection will start after deleting the current tuning trend data.	Collecting (Light Blue)
2) Stop	Click the button to stop collecting the tuning trend data.	Stopped (Yellow)
3) Automatic stop	When the points are recorded to 20000 and the buffer memory is full, it will automatically stop.	Stopped (Yellow)
4) Clear (Stopped)	Click the button to clear the tuning trend data. The tuning trend graph returns to the initial display status.	Stopped (Yellow)
5) Clear (Collecting)	Click the button to clear the tuning trend data and automatically start collecting tuning trend.	Collecting (Light Blue)

POINT

- A user who has the authority of operation for tuning trend data collecting instructions can execute the operation.
- The collected data is cleared when the monitor tool is finished. When it is restarted, the data should be collected again, and the maximum number of 16 tags is 16.
- The maximum number of tags tuned simultaneously (retainable tuning trend data) is 16.
- If the total number of tag retaining tuning trend data is 16, any one of the existing data must be cleared to start collecting of new tags. Clear any one of the tags displayed in collected tag list (👉 Section 7.7.7) after the collection stops.
- If restarting collection without clearing the data after the collection stop, the graph display in before stop and after restart are separated with dotted line. The following shows the example when the collection is stopped/restarted.



When stops collection at 15:21:45 and restarts 15:29:48:
Skips the time during stop and starts displaying the time when collection restarts.

- In the server/client monitoring system, the maximum number of tags collected simultaneously among all OPSs is 288.

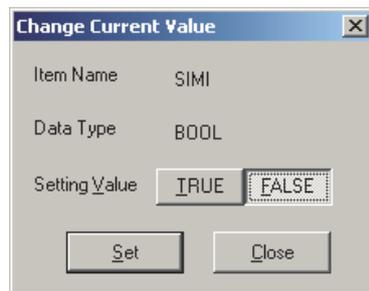
7.7.4 Changing a current value

The tag monitor bar can be used to change current values of the tag data on the pop-up tuning screen. Changed values can be set through a dialog box. This box is displayed from the [Data] quadrille of the tag monitor.

No.	Item	Data	Unit
11	PV	79.1	°C



79.1



1. On the tag monitor, select the [Data] quadrille of the tag data items to be changed.

2. Click the displayed button.

3. The "Change Current Value" dialog box is displayed. (When the dialog box is displayed, the current value is displayed inside the setting value field).

4. Input the setting value.

WORD, DWORD type: Input with H added on the head in the Hex system.

INT, DINT type: Input in the decimal system.

REAL type: Input in the form of floating decimal points.

BOOL type: Select TRUE or FALSE by toggle button.

5. Click the "Set" button, and the current value is changed.

POINT

- A user who has the authority of operation for changing the corresponding tag data items can change a current value.
For details of operation authority, refer to Appendix 4.
- Judgment between changeable tag data and unchangeable tag data can be made by the text color displayed in the "Data" field.
Changeable data : Black
Unchangeable data: Gray
- Before clicking the "Close" button, the "Change Current Value" dialog box will not be closed. Therefore, the setting value can be continuously changed (repeat the operations of step 4 and 5 mentioned above).

REMARK

- The current value should be set within the high and low limit range that is specified by each tag data item.
(If the setting value is out of the limit range, "Error" information will be displayed.)
For the setting range of each tag item, refer to "PX Developer Version 1 Programming Manual".
- Before setting values of PV, SV, and high high/low/low limit (PV, SV, PH, PL, HH, LL, SH, SL), the right high/low values (RL, RH) of the PV engineering value should be set. If the tag data is R, when setting the SV value and its high/low values (SV, SH, SL), the right ratio high/low values (RMAX, MIN) should be set beforehand.

7.7.5 Auto tuning

When tuning on the pop-up tuning screens of the tag of types PID, 2PID and 2PIDH, it can be auto tuning before accurate adjustment. Thus, the value can be automatically adjusted to the approximate value.

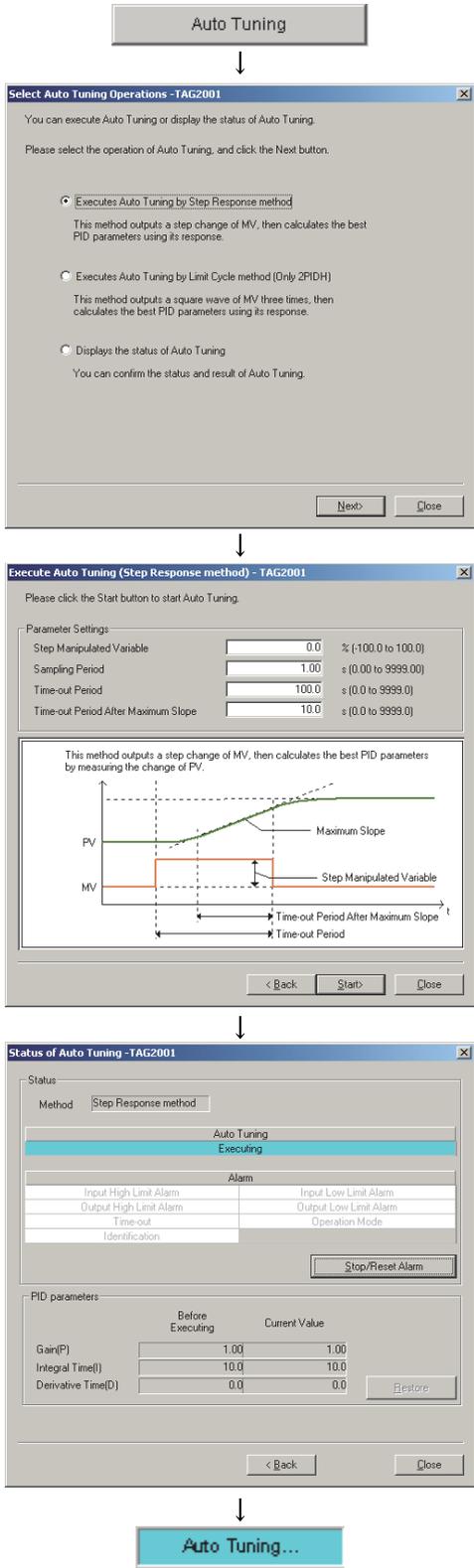
With the auto tuning function, the following operations/displays are performed in the dialog boxes displayed when the "Auto Tuning" button located at the top center of the screen is clicked.

- (1) An execution of auto tuning by the Step Response method
- (2) An execution of auto tuning by the Limit Cycle method (only for the 2PIDH type)
- (3) Auto tuning status display

POINT
<ul style="list-style-type: none">● When the lockout tag is set, or a user who does not have the authority of operation for changing a tuning parameter value cannot execute the following auto tuning operations.<ol style="list-style-type: none">(a) Start(b) Stop/Reset alarm(c) Restore PID parameters● When an alarm occurs, auto tuning will stop automatically.● The Limit Cycle method is available with PX Developer Version 1.14Q or later.● The Step Response method can be executed when the control mode is in MANUAL mode or COMPUTER MV mode.● The Step Response method and the Limit Cycle method share the time-out period (AT1TOUT1). When changing the auto tuning method, please check whether the time-out period is appropriate.

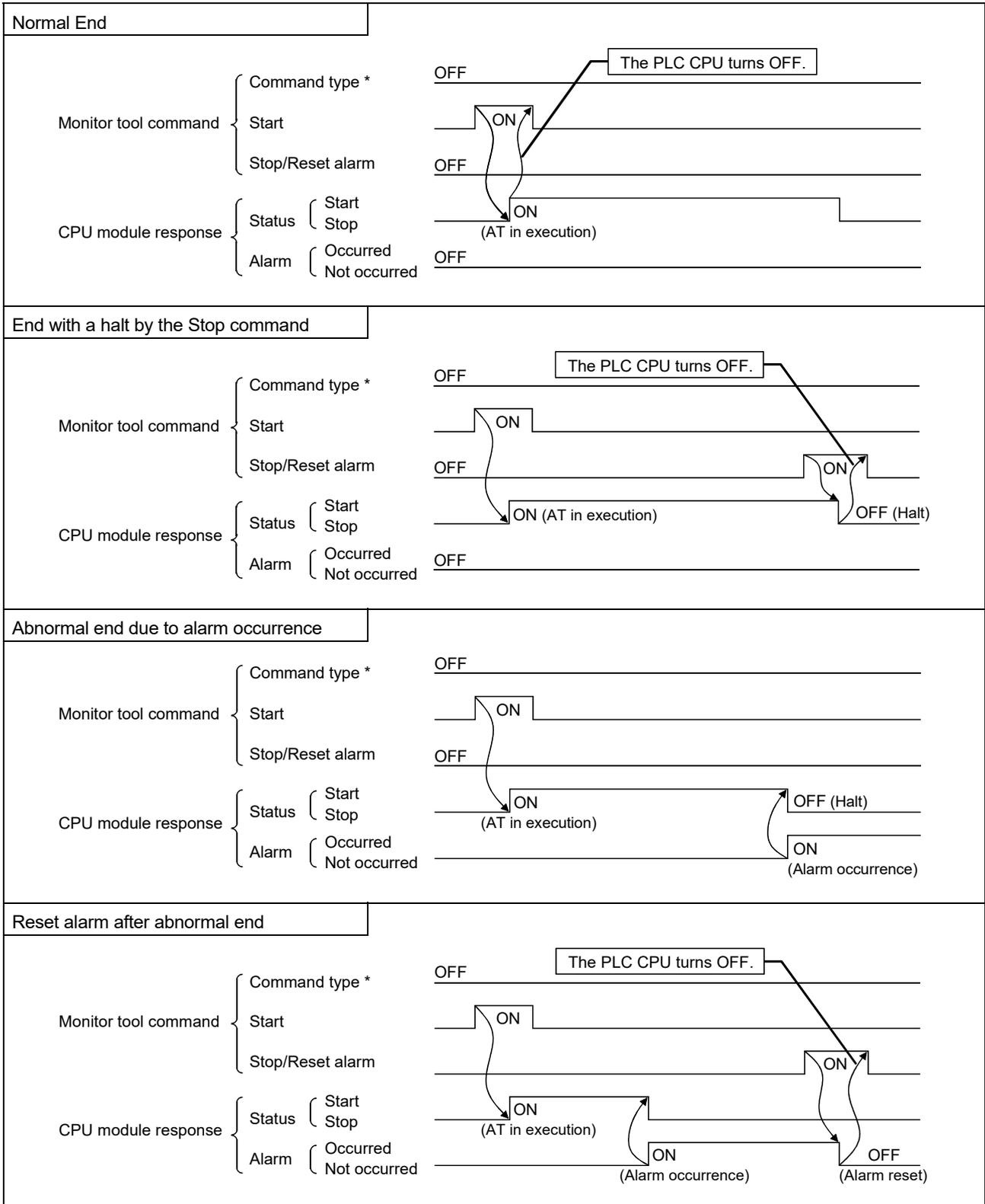
(1) An execution of auto tuning by the Step Response method

 BASIC OPERATION



1. Click the "Auto Tuning" button.
2. The "Select Auto Tuning Operations" dialog box is displayed.
3. Select the radio button that says "Executes Auto Tuning by Step Response method".
4. Click the "Next" button.
5. The "Execute Auto Tuning (Step Response method)" dialog box is displayed.
6. Set the following items.
 - Step Manipulated Variable
 - Sampling Period
 - Time-out Period
 - Time-out Period After Maximum Slope
7. By clicking the "Start" button, auto tuning starts
8. The "Status of Auto Tuning" dialog box is displayed.
9. Execution status of auto tuning can be checked in the auto tuning status display field located above the tuning trend graph even after the "Auto Tuning" dialog box is closed.

The following shows the timing chart for auto tuning by the Step Response method.

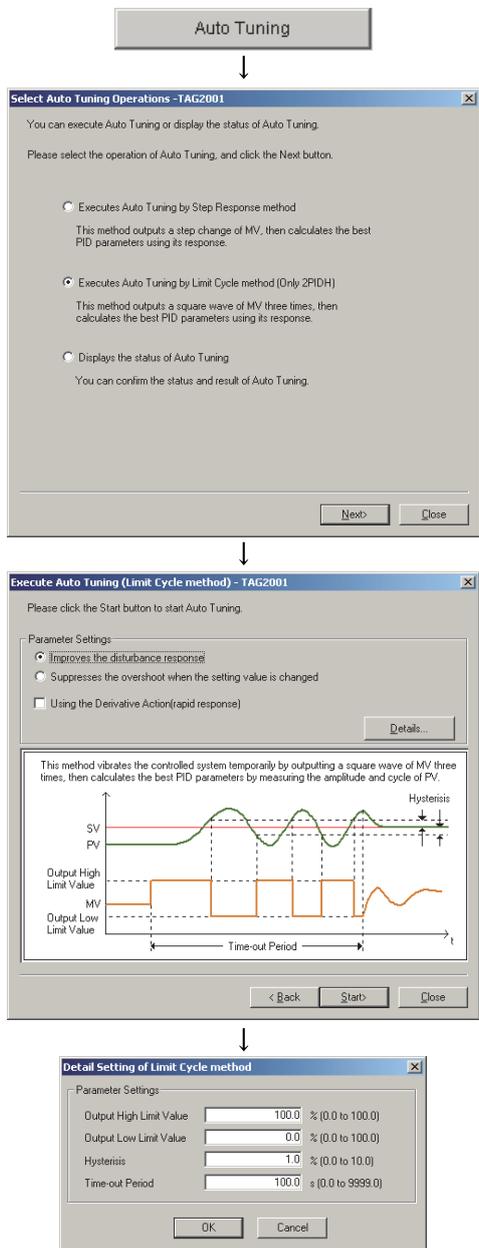


* Command type is used only when auto tuning by the Limit Cycle method by the tag type 2PIDH is executed.

- (2) An execution of auto tuning by the Limit Cycle method (only for the 2PIDH model)

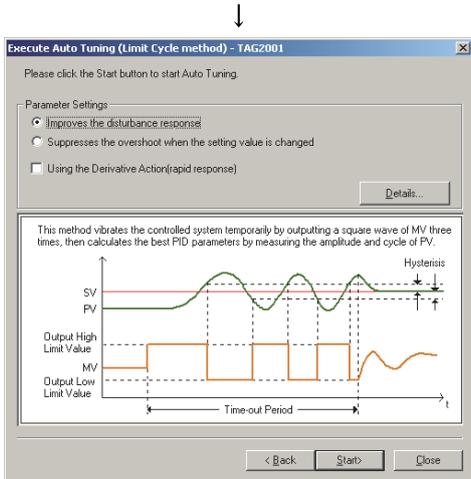


BASIC OPERATION

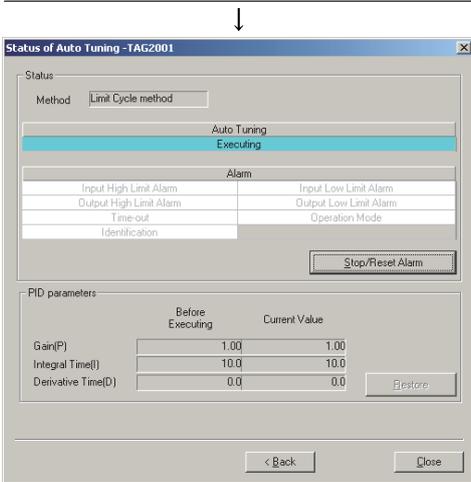


To the next page

1. Click the "Auto Tuning" button.
2. The "Select Auto Tuning Operations" dialog box is displayed.
3. Select the radio button that says "Executes Auto Tuning by Limit Cycle method". (Only the 2PIDH type can select this method.)
4. Click the "Next" button.
5. The "Execute Auto Tuning (Limit Cycle method)" dialog box is displayed.
6. Set the following items.
 - Improves the disturbance response
 - Suppresses the overshoot when the setting value is changed
 - Using the Derivative Action (rapid response)
7. Click the "Details" button if needed.
8. Set the following tag data items.
 - Output High Limit Value (AT2MVH)
 - Output Low Limit Value (AT2MVL)
 - Hysteresis (AT2HS)
 - Time-out Period (AT1TOUT1)
9. Close the "Detail Setting of Limit Cycle method" dialog box by clicking the "OK" button.



10. Click the "Start" button to start auto tuning.

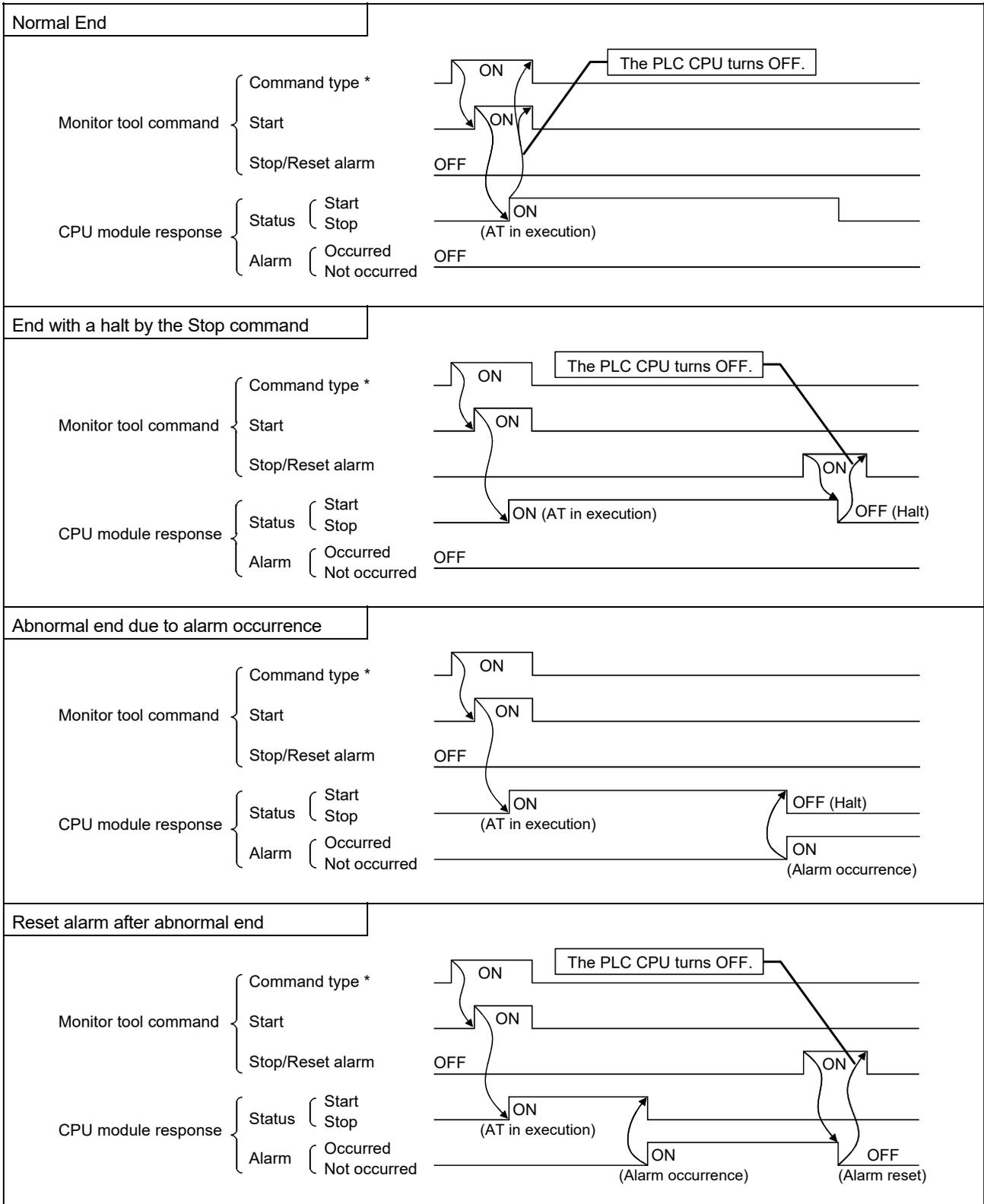


11. The "Status of Auto Tuning" dialog box is displayed.



12. Execution status of auto tuning can be checked in the auto tuning status display field located above the tuning trend graph even after the "Auto Tuning" dialog box is closed.

The following shows the timing chart for auto tuning by the Limit Cycle method.



* When the command type turns ON, the system ladder refers to ATTYPE value to determine auto tuning type.

(3) Auto tuning status display

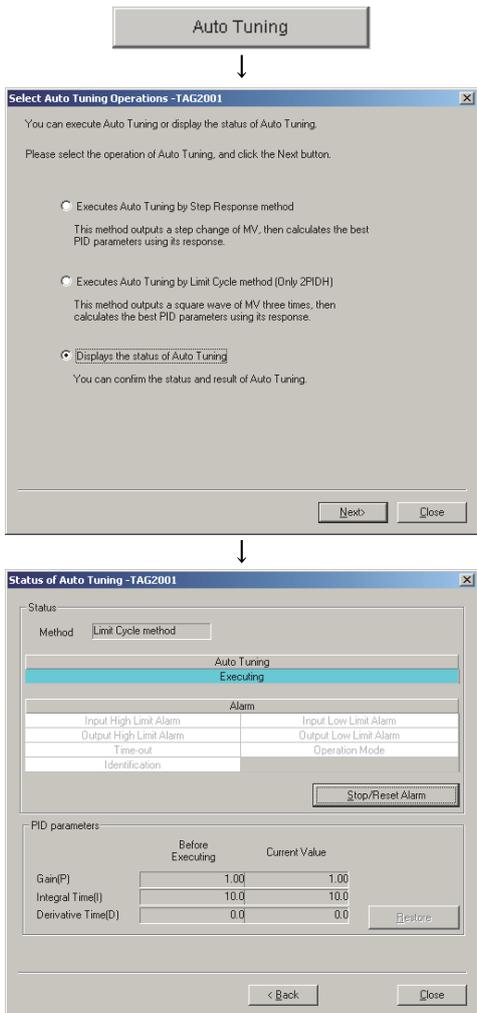


PURPOSE

Displays an execution status or alarm status of auto tuning.



BASIC OPERATION

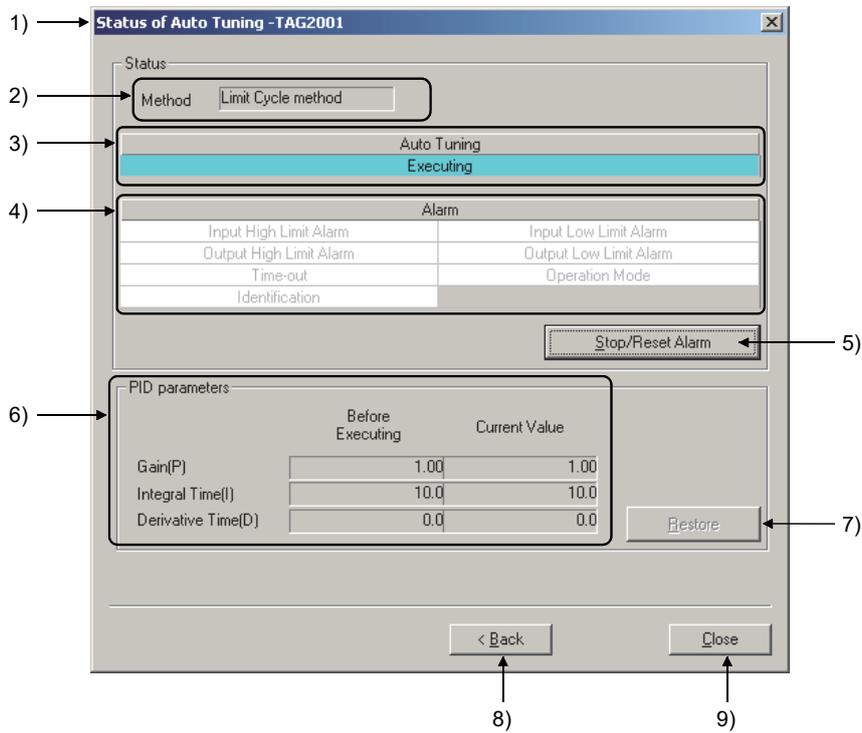


1. Click the "Auto Tuning" button.
2. The "Select Auto Tuning Operations" dialog box is displayed.
3. Select the radio button that says "Displays the status of Auto Tuning".
4. Click the "Next" button.
5. The "Status of Auto Tuning" dialog box is displayed.

POINT

- During execution of auto tuning, the "Select Auto Tuning Operations" dialog box is not displayed. Instead, the "Status of Auto Tuning" dialog box is displayed.

 **DISPLAY/SETTING SCREEN**



 **DISPLAY/SETTING DATA**

The Status of Auto Tuning can be checked on the pop-up tuning screen or Auto Tuning dialog box.

No.	Item	Description															
1)	Title bar	Displays the tag name of auto tuning target.															
2)	Method	Displays auto tuning method. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Display</th> <th>Operating method of auto tuning</th> </tr> </thead> <tbody> <tr> <td>Step Response method</td> <td>Status that auto tuning is executed by the Step Response method</td> </tr> <tr> <td>Limit Cycle method</td> <td>Status that auto tuning is executed by the Limit Cycle method</td> </tr> <tr> <td>—</td> <td>Status that the method is not decided</td> </tr> </tbody> </table>	Display	Operating method of auto tuning	Step Response method	Status that auto tuning is executed by the Step Response method	Limit Cycle method	Status that auto tuning is executed by the Limit Cycle method	—	Status that the method is not decided							
Display	Operating method of auto tuning																
Step Response method	Status that auto tuning is executed by the Step Response method																
Limit Cycle method	Status that auto tuning is executed by the Limit Cycle method																
—	Status that the method is not decided																
3)	Auto tuning	Displays the following depending on the status of auto tuning. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th rowspan="2">Status</th> <th colspan="3">Display format</th> </tr> <tr> <th>Display</th> <th>Background color</th> <th>Text color</th> </tr> </thead> <tbody> <tr> <td>Auto tuning in execution</td> <td>Executing</td> <td>Light blue</td> <td>Black</td> </tr> <tr> <td>Auto tuning not in execution</td> <td>Executing</td> <td>White</td> <td>Gray</td> </tr> </tbody> </table>	Status	Display format			Display	Background color	Text color	Auto tuning in execution	Executing	Light blue	Black	Auto tuning not in execution	Executing	White	Gray
Status	Display format																
	Display	Background color	Text color														
Auto tuning in execution	Executing	Light blue	Black														
Auto tuning not in execution	Executing	White	Gray														

No.	Item	Description																																			
4)	Alarm	<p>Displays the status of each alarm in different background color text color.</p> <table border="1"> <thead> <tr> <th>Alarm status</th> <th>Background color</th> <th>Text color</th> </tr> </thead> <tbody> <tr> <td>Occurred</td> <td>Red</td> <td>Black</td> </tr> <tr> <td>Not occurred</td> <td>White</td> <td>Gray</td> </tr> </tbody> </table> <p>The following shows the alarms to be displayed in the alarm display field.</p> <table border="1"> <thead> <tr> <th rowspan="2">Alarm</th> <th colspan="2">Alarm occurrence condition</th> </tr> <tr> <th>Step Response method</th> <th>Limit Cycle method</th> </tr> </thead> <tbody> <tr> <td>Input High Limit Alarm</td> <td colspan="2">When either of the bit for input high limit alarm (PHA) or input high high limit alarm (HHA) is ON in the alarm (ALM) items of the loop tag data</td> </tr> <tr> <td>Input Low Limit Alarm</td> <td colspan="2">When either of the bit for input low limit alarm (PLA) or input low low limit alarm (LLA) is ON in the alarm (ALM) items of the loop tag data</td> </tr> <tr> <td>Output High Limit Alarm</td> <td>$T1 > MV$ High Limit Value (MH) in Step Manipulated Variable (AT1STEPMV) for T1 = $MV + AT1$</td> <td>Alarms do not occur. *1 (Output value (MV) is controlled below MV High Limit Value (MH).)</td> </tr> <tr> <td>Output Low Limit Alarm</td> <td>$T1 < MV$ Low Limit Value (ML) in Step Manipulated Variable (AT1STEPMV) for T1 = $MV + AT1$</td> <td>Alarms do not occur. *1 (Output value (MV) is controlled above MV Low Limit Value (ML).)</td> </tr> <tr> <td>Time-out</td> <td colspan="2">When the time from the start of auto tuning exceeds the time-out period (AT1TOUT1)</td> </tr> <tr> <td>Operation Mode</td> <td>When the control mode (MODE) is other than MANUAL mode</td> <td> <ul style="list-style-type: none"> When the control mode (MODE) is switched during auto tuning When auto tuning is executed in CASDR mode $ATTYPE < 0$ or $ATTYPE > 4$ $AT2MVH \leq AT2MVL$ </td> </tr> <tr> <td>Identification</td> <td> Response speed for calculation $R' = \text{Maximum slope value (\%)/ Sampling period for AT1}$ Response speed $R = R' /100(s-1)$ When calculation result of above formulas is $R \leq 0$ </td> <td> When PID parameters cannot be calculated <ul style="list-style-type: none"> $Xc=AT2HS$ Calculation result PID parameters are Gain > 999 and Integral Time/Derivative Time > 9999 </td> </tr> </tbody> </table> <p>*1: With auto tuning by the Limit Cycle method, MHA, MLA, and DMLA of ALM tag are cancelled.</p>	Alarm status	Background color	Text color	Occurred	Red	Black	Not occurred	White	Gray	Alarm	Alarm occurrence condition		Step Response method	Limit Cycle method	Input High Limit Alarm	When either of the bit for input high limit alarm (PHA) or input high high limit alarm (HHA) is ON in the alarm (ALM) items of the loop tag data		Input Low Limit Alarm	When either of the bit for input low limit alarm (PLA) or input low low limit alarm (LLA) is ON in the alarm (ALM) items of the loop tag data		Output High Limit Alarm	$T1 > MV$ High Limit Value (MH) in Step Manipulated Variable (AT1STEPMV) for T1 = $MV + AT1$	Alarms do not occur. *1 (Output value (MV) is controlled below MV High Limit Value (MH).)	Output Low Limit Alarm	$T1 < MV$ Low Limit Value (ML) in Step Manipulated Variable (AT1STEPMV) for T1 = $MV + AT1$	Alarms do not occur. *1 (Output value (MV) is controlled above MV Low Limit Value (ML).)	Time-out	When the time from the start of auto tuning exceeds the time-out period (AT1TOUT1)		Operation Mode	When the control mode (MODE) is other than MANUAL mode	<ul style="list-style-type: none"> When the control mode (MODE) is switched during auto tuning When auto tuning is executed in CASDR mode $ATTYPE < 0$ or $ATTYPE > 4$ $AT2MVH \leq AT2MVL$ 	Identification	Response speed for calculation $R' = \text{Maximum slope value (\%)/ Sampling period for AT1}$ Response speed $R = R' /100(s-1)$ When calculation result of above formulas is $R \leq 0$	When PID parameters cannot be calculated <ul style="list-style-type: none"> $Xc=AT2HS$ Calculation result PID parameters are Gain > 999 and Integral Time/Derivative Time > 9999
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5)	Stop/Reset Alarm	Stops auto tuning and resets an alarm.																																			
6)	PID parameters display	Displays current PID parameters and PID parameters before auto tuning execution.																																			
7)	Restore PID parameters	Writes the original PID parameters to the PLC. This button cannot be used in the following cases: (Invalid) <ul style="list-style-type: none"> In lock mode when the lockout tag is set auto tuning in execution when no PID parameters exist before auto tuning execution ("-----" display) 																																			
8)	Back	Displays the previously displayed dialog box.																																			
9)	Close	Closes a dialog box.																																			

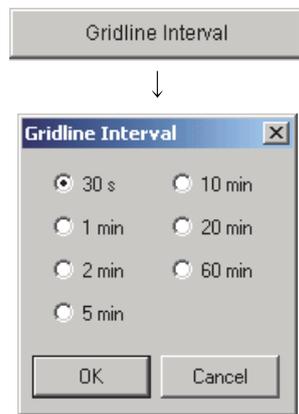
7.7.6 Changing the display magnification

The display magnification of the tuning trend graph can be changed through the time gridline intervals displayed on the screen and the Y-axis scale setting. The Y-axis scale can display the high and low limits of the data. When closing the window, the change will not be remembered, when restarting, the initial scale is displayed.

	Button name	Description
X-axis	Gridline interval	Select the time intervals of the gridline; the initial value is 30 seconds. (30 seconds, 1 minute, 2 minutes, 5 minutes, 10 minutes, 20 minutes, 60 minutes)
Y-axis	Y-axis scale	Specify the display high and low values of each tag data item.

(1) Change the magnification of the X-axis

Selecting time intervals of the trend graph display can change the multiplying power of the horizontal direction.



1. Click the "Gridline Interval" button on the top of the screen.
2. The "Gridline Interval" dialog box is displayed.
3. Select the time intervals for splitting the gridline.
4. Click the "OK" button.
5. Change the X-axis display magnification of the trend graph.

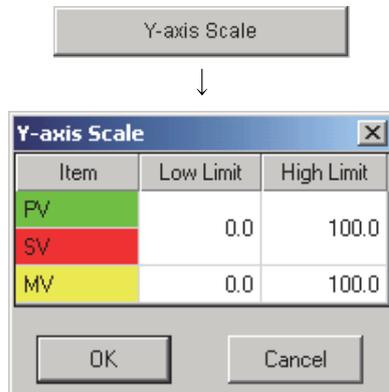
After the gridline intervals are changed, when moving the trend cursor, the minimum unit of the data that can be displayed is also changed. When the gridline interval is 30 seconds, the values per 1 second are displayed. But when the interval is 60 minutes, only the values per 2 minutes can be displayed.

The following table is the display units of each gridline interval.

Gridline interval	30 seconds	1 minute	2 minutes	5 minutes	10 minutes	20 minutes	60 minutes
Display units	1 second	2 seconds	4 seconds	10 seconds	20 seconds	40 seconds	2 minutes

POINT
Ctrl + mouse wheel scroll enables the gridline interval to be wider/narrower on the tuning trend graph screen.
Ctrl + turn mouse wheel forward: wider the gridline Interval
Ctrl + turn mouse wheel backward: narrower the gridline Interval

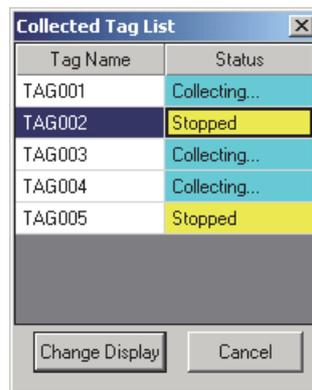
(2) Change the magnification of the Y-axis



1. Click the "Y-axis Scale" button on the top of the screen.
2. The "Y-axis Scale" dialog box is displayed.
3. Specify the high and low limits of the displayed data on the screen.
4. Click the "OK" button.
5. Change the Y-axis display magnification of the tuning trend graph.

7.7.7 Collected tag list

Click the "Collected Tag List" button on the pop-up tuning screen, the collecting and stopping tag lists are displayed on the dialog box. Select the tag on the "Collected Tag List" dialog box. Click the "Change Display" button and the specified tag is displayed on the pop-up tuning screen. Now, on the "Collected Tag List" dialog box on the pop-up tuning screen, tags are displayed at the option status.



POINT

The display status of the "Collected Tag List" dialog box is refreshed at the period of 1 second.

7.7.8 Exporting to CSV file

Click the "Export to CSV File" button on the pop-up tuning screen, and the trend data can be saved in the form of CSV in the files. When saving the data, the saving folder and file name should be specified.

The following table is the output forms.

In the first line are titles that can show contents of the data. In the rest of the lines, the collected data are output at the previous sequence of the date and time.

```
Date, TAG001.PV, TAG001.SV, TAG001.MV
11/30/2005 3:59:25 PM, 0.0, 80.0, 100.0
11/30/2005 3:59:26 PM, 0.0, 80.0, 100.0
11/30/2005 3:59:27 PM, 0.0, 80.0, 100.0
11/30/2005 3:59:28 PM, 0.0, 80.0, 100.0
11/30/2005 3:59:29 PM, 0.0, 80.0, 100.0
,,
11/30/2005 3:59:34 PM, 0.0, 80.0, 100.0
11/30/2005 3:59:35 PM, 0.0, 80.0, 100.0
11/30/2005 3:59:36 PM, 0.0, 80.0, 100.0
11/30/2005 3:59:37 PM, 0.0, 80.0, 100.0
11/30/2005 3:59:38 PM, 0.0, 80.0, 100.0
```

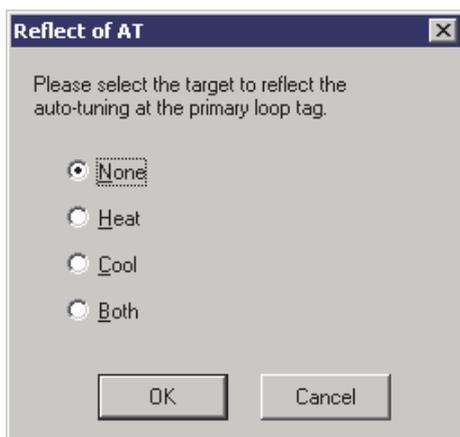
If restarting collection without clearing the data after collection stop, data indicating invalid (row only commas) is inserted for 1 row between the stop and the restart.

POINT

A user who has the authority of operation for exporting data of pop-up tuning to CSV file can save the trend data to the files.

7.7.9 AT reflection target

A reflection target for parameters of the auto tuning result executed by upper loop of HTCL tag can be selected.



1. Click the "Reflect of AT" button on the top of the screen.
2. The "Reflect of AT" dialog box is displayed.
3. Select a reflection target.
4. Click the "OK" button.
5. The value of selected radio button is written to the tag data item (PRM_SEL).

The following are the values written to the tag data items (PRM_SEL).

Reflection target	Value to be written to PRM_SEL
None	0
Heat	1
Cool	2
Both	3

8 OTHER FUNTION

8.1 Starting/Stopping Buzzer



PURPOSE

When there is an alarm or event, it makes the buzzer beep then stop it after confirmation.

In the server/client monitoring system, when the buzzer beep is stopped on one OPS, the buzzer beep on monitor tools*1 of all OPSs in the system can be stopped. In this case, the buzzer beep can be stopped even on an OPS which is in the lock mode.

*1: Including a secondary server in the redundant server system configuration.



BASIC OPERATION

1. Click the "Setting Window" button on the monitor toolbar. Through operating [Option Setting] → [Alarm/Event] on the displayed setting window, the situation whether the buzzer beeps and types of the beeping sound can be set beforehand when there is an alarm and event.
2. When the buzzer is beeping, click the button "Stop Buzzer" on the monitor toolbar to stop it after confirming the cause.



DISPLAY/SETTING SCREEN

Stop buzzer button



On occasion of alarm and event in monitoring, the monitor tool can make the buzzer beep to notify administrator the errors.

(1) Buzzer setting

There are 3 different settings for the buzzer according to the degree of the alarm (Major alarm/Minor alarm/Event).

After the installation, if the setting is not changed, the buzzer will not beep.

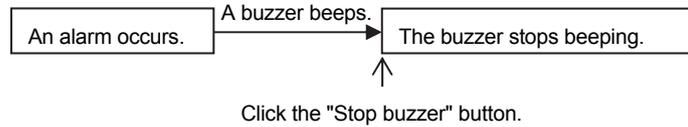
As long as it is not changed, the registered buzzer sound setting is still valid even after the monitor tool is restarted. For details, refer to "Chapter 9 SETTING".

POINT

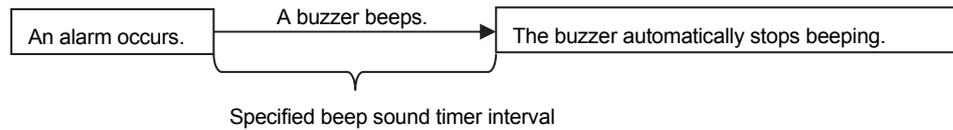
- Besides the normal beep sound, the sound files (with WAV file as their extension character) can be set as the buzzer sound as well.
 (Hand cursor icon) Section 9.17 (3))

(2) Start and stop of a buzzer

A buzzer beeps when a set major alarm/minor alarm/event occurs.
 Clicking the button on the monitor toolbar can stop the beeping buzzer.

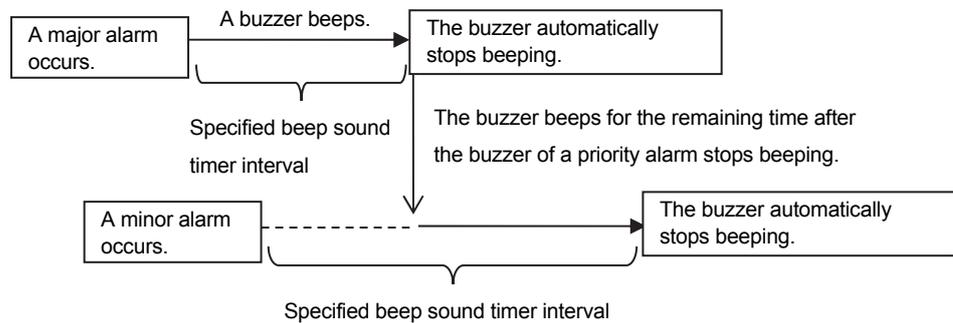


Besides, the buzzer can automatically stop after a specified time.



Beeping time can be set with second as unit (the maximum setting: 99999 seconds = 27 hours 46 minutes and 39 seconds).

When it occurs at the same time, the buzzer beeps in order from a major alarm, a minor alarm, to an event. If the buzzer of an alarm/event with high priority stops earlier, that of either of them with low priority beeps for the remaining time.



POINT	<ul style="list-style-type: none"> ● A user who does not have the authority of operation for stopping the buzzer cannot click the button. ● When the buzzer is not beeping, nothing will change even if the "Stop Buzzer" button is clicked. ● If the setting is changed while the buzzer is beeping, it will not be applied to the beep sound. The changed setting will be applied to an alarm/event that occurs after the change.
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8.2 Print Screen



PURPOSE

Print the hard copy of the entire displayed desktop.

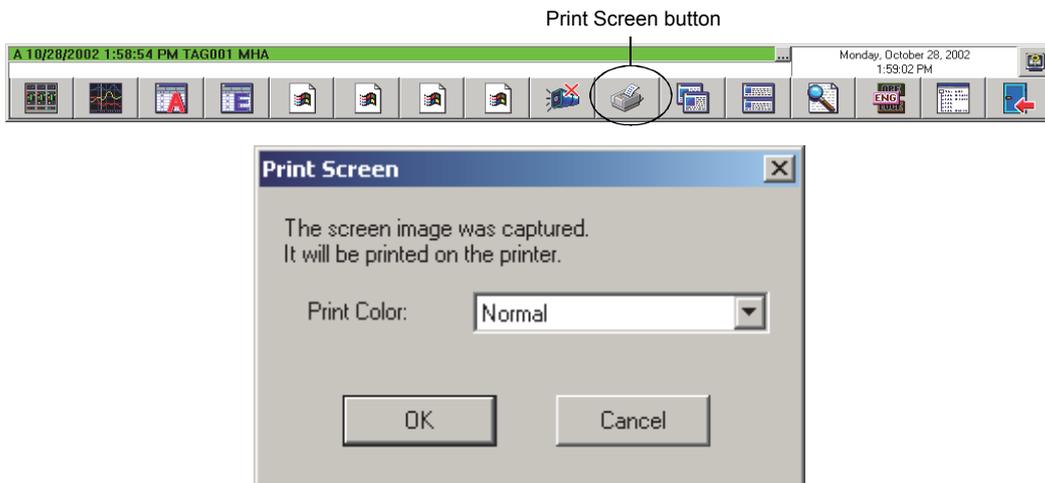


BASIC OPERATION

1. Click the button "Setting Window" on the monitor toolbar. Then on the displayed screen, set the printer as the printing beforehand through operating [Option Setting] → [General] → [Printer], if the printer is preset and normally used, it needs not to be reset. For details, refer to "Chapter 9 SETTING".
2. Click the "Print Screen" button on the monitor toolbar to display the print screen dialog box. Select the print color from Normal/Gray Scale/Invert/Invert black and white, and click the "OK" button to print.



DISPLAY/SETTING SCREEN



<Print Screen dialog box>

It will be printed on the printer that is set in the print setting of Option Setting (General) (Section 9.17 (1)). If the printer name is not specified, then the default printer specified in the personal computer will be applied.

POINT

- A user who does not have the authority of operation for copying the screen cannot click the button.
- Print Screen function prints not only the section related to the monitor tool, but also the entire screen like its original appearance.

8.3 Screen Alignment



PURPOSE

Display the displayed windows after align them.



BASIC OPERATION

1. Click the "Setting Window" button on the monitor toolbar. Through operating [Option Setting] → [General] → [Window mode] on the displayed setting window, the window is changed to multi-window. As long as the setting is not changed after registration, it is still valid even after the monitor tool is restarted. If it is not changed after installation, it is the multi-window setting. For details, refer to "Chapter 9 SETTING".
2. Click the button "Cascade" or "Tile" on the monitor toolbar to print.



DISPLAY/SETTING SCREEN

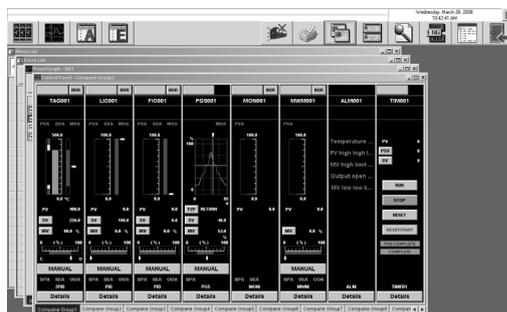
Screen alignment buttons



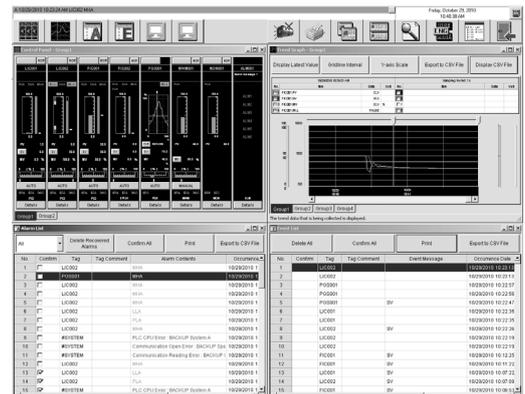
There are two kinds of screen alignment buttons.



Cascade display	One window is slightly cascaded on another window for alignment.
Tile display	Screens are evenly divided. Windows are aligned when they are not displayed in cascaded way.



<Cascaded screens>



<Tiled screens>

Other application windows can also be aligned even if they are not opened with the monitor tool. The pop-up windows of the monitor tool cannot be aligned.

POINT
At the single-window mode, screens cannot be aligned (Buttons are not displayed).

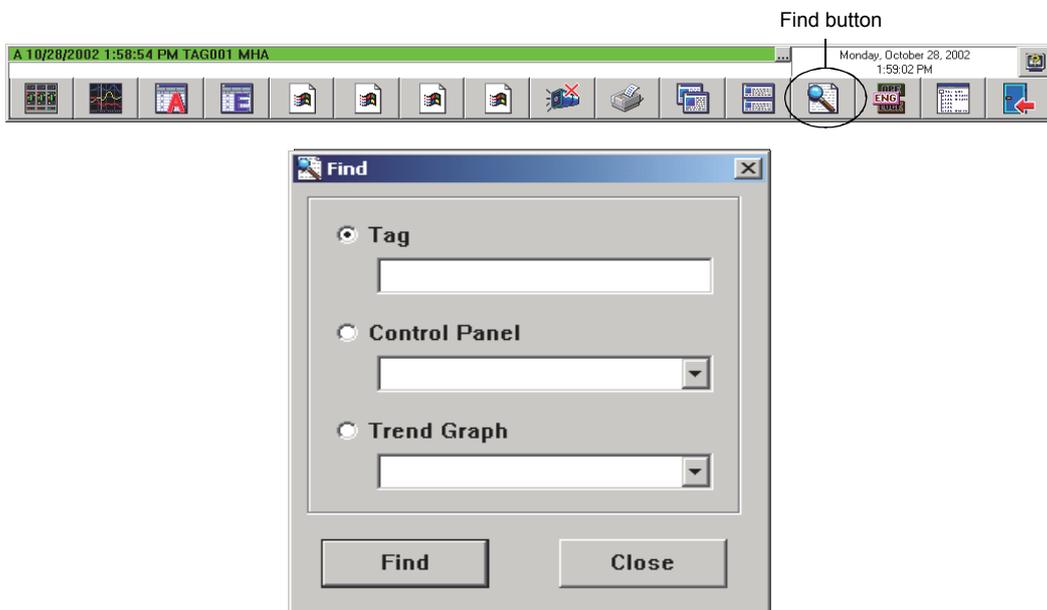
8.4 Find

**PURPOSE**

Find tags, control panel and trend graph.
When finding the target, display it after opening the window.

**BASIC OPERATION**

Click the "Find" button on the monitor toolbar to display the Find Dialog Box. It is always displayed at the front position. After finding, the dialog box will not be closed as long as the close button is not clicked. Therefore, the finding can be continuously done.

**DISPLAY/SETTING SCREEN**

<Find dialog box>

POINT

- When the setting window is opened, the find button cannot be clicked.
- The finding cannot be done through wildcards.

(1) Find with tag names

Select the radio button of the tags, then input the tag names, click the find button. When the searching target is found, it becomes the following.

(a) If the pop-up faceplate is not opened

Open the pop-up faceplate on which the tag data is displayed as the target.

(b) If the target pop-up faceplate has already been opened

This faceplate becomes active.

(c) If 4 pop-up faceplate screens have already been opened

The earliest opened (displayed in the bottom) one among them is automatically closed and the pop-up faceplate that displays the target tag data opens.

However, if it cannot be closed as displaying a dialog box, for example, one next to the bottom is closed.

When finding only with the tag names, if there are any duplicated tags, the find will be done in the priority sequence of the projects; If simply finding with the tag names, the finding can be done with "project name::tag name".

(2) Find with group names of the control panel

Select the control panel group by checking the radio button of the control panel. Or input to the Combo box directly, and then click the find button.

When the target is found,

(a) In the case of multi-window mode

Newly open a control panel to display the corresponding group.

However, if 4 monitor windows (maximum) are already opened, a control panel cannot be newly opened. Close the monitor window, and start the operation.

(b) In the case of single-window mode

If no monitor window is opened, newly open a control panel to display the corresponding groups.

If a monitor window has been opened, the window is automatically closed and a control panel is newly opened to display the corresponding group.

(3) Find with group names of the trend graph

Select the radio button of the trend graph, select the trend graph group, or directly input to the Combo box, then click the find button.

When finding the target,

(a) In the case of multi-window mode

Newly open a trend graph to display the corresponding group.

However, if 4 monitor windows (maximum) are already opened, a trend graph cannot be newly opened. Close the monitor window, and start the operation.

(b) In the case of single-window mode

If no monitor window is opened, newly open a trend graph to display the corresponding groups.

If a monitor window has been opened, the window is automatically closed and a trend graph is newly opened to display the corresponding group.

For details of window modes, refer to "Section 6.4.2 Display form of monitor window".

8.5 Displaying the PLC Communication Status

8.5.1 Displaying the communication status



PURPOSE

To check the communication between monitor tool and CPU module for each project.

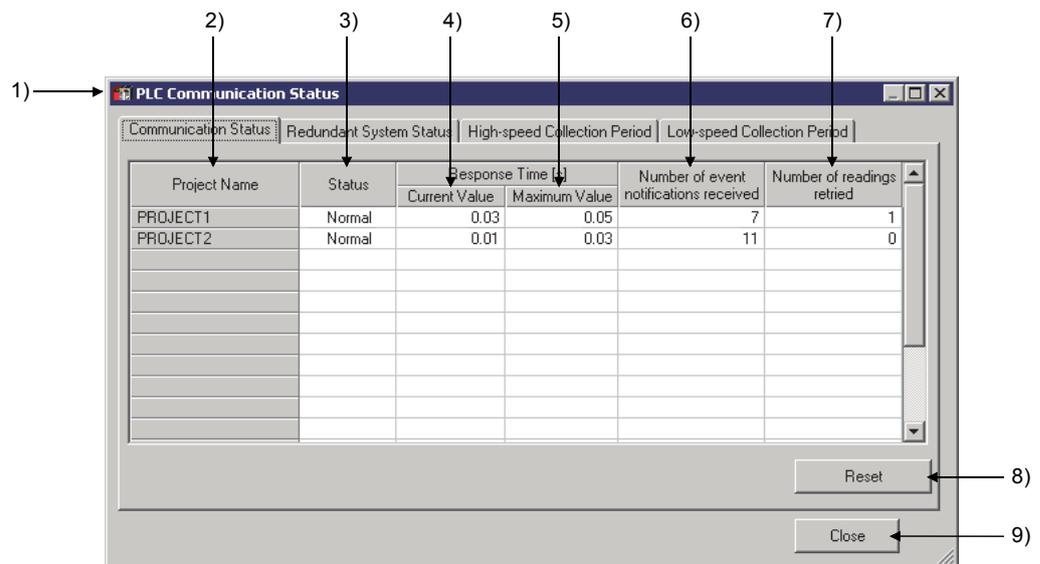


BASIC OPERATION

1. Click the "Help Menu" button () on the monitor toolbar.
2. Select "PLC Communication Status" on the displayed Help Menu.
3. Click the << Status >> tab.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Description
1)	Title bar	"  PLC Communication Status" is displayed when connecting with CPU module, "  PLC Communication Status: [Simulation]" is displayed when a project in which the settings to be connected to simulator exists. ( Section 9.4)
2)	Project Name	Display the target name of monitor target. Execute the setting of monitoring target project through monitor target project setting ( Section 9.4).

No.	Item	Description												
3)	Status	Display the communication condition between monitor tool and the CPU module specified in "Transfer Setup" screen.												
		<table border="1"> <thead> <tr> <th>Display</th> <th>Explanation</th> <th>Text color</th> </tr> </thead> <tbody> <tr> <td>Normal</td> <td>Data communication is normal</td> <td>Black</td> </tr> <tr> <td>Abnormal</td> <td>Data communication is abnormal or "Invalid Simulator Version" system alarm occurs when connecting with Simulator.</td> <td>Red</td> </tr> <tr> <td>—</td> <td> <ul style="list-style-type: none"> The PLC connection target is not set. (☞ Section 9.4) The assignment information database file which is not supported is specified in a monitor target project Improper file is specified in an assignment information database file of the monitor target project The project which is set not to be connected to simulator during simulation*1 of monitor tool </td> <td>Black</td> </tr> </tbody> </table>	Display	Explanation	Text color	Normal	Data communication is normal	Black	Abnormal	Data communication is abnormal or "Invalid Simulator Version" system alarm occurs when connecting with Simulator.	Red	—	<ul style="list-style-type: none"> The PLC connection target is not set. (☞ Section 9.4) The assignment information database file which is not supported is specified in a monitor target project Improper file is specified in an assignment information database file of the monitor target project The project which is set not to be connected to simulator during simulation*1 of monitor tool 	Black
		Display	Explanation	Text color										
		Normal	Data communication is normal	Black										
Abnormal	Data communication is abnormal or "Invalid Simulator Version" system alarm occurs when connecting with Simulator.	Red												
—	<ul style="list-style-type: none"> The PLC connection target is not set. (☞ Section 9.4) The assignment information database file which is not supported is specified in a monitor target project Improper file is specified in an assignment information database file of the monitor target project The project which is set not to be connected to simulator during simulation*1 of monitor tool 	Black												
4)	Current Value	Display the time from read request of low-speed tag data collecting *2 to data receiving. However, "—" is displayed for the following situations. <ul style="list-style-type: none"> The system alarm "Incorrect PLC type" occurs The communication status is error or "—" is displayed 												
5)	Response Time [S] Maximum Value *2	Display maximum response time of 3) above. However, "—" is displayed for the following situations. <ul style="list-style-type: none"> The system alarm "Incorrect PLC type" occurs The communication status "—" is displayed Communication error occurred in initial communication with PLC (when starting monitor tool, re-reading with the monitor target project setting), has not restore the communication error yet. 												
6)	Number of event notification received *2	Display the times of event notification *3 received by CPU module. Display range is 0 to 999999. If it exceeds 999999, it returns to 0. If a communication error occurs during communication condition display, the previous value of the number of event notification received is kept displayed. In any of the following cases, however, "—" is displayed for the following situations. <ul style="list-style-type: none"> The system alarm "Incorrect PLC type" occurs The PLC connection target is not set. (☞ Section 9.4) The PLC connection target is Serial, USB, CC-Link, the built-in Ethernet port of a built-in Ethernet CPU (by direct connection), or GOT transparent (☞ Section 9.4) The following two set network types are different. <ol style="list-style-type: none"> 1) PLC connection target of monitor tool 2) Event notification destination set on the <<Event Notification>> tab in the project parameter setting of the programming tool. A communication error occurred (cable break, etc.) When performing a monitor tool in a PC CPU, the monitor tool is connected to PLC CPU with MELSECNET/10(H). The transfer setup is set to "CC-Link IE Controller Network" and the version of the driver (SW1DNC-MNETG-B) is earlier than 1.08J. The project which is set not to be connected to simulator during simulation*1 of monitor tool 												

*1: The monitor tool will be in simulation when more than one project is set to perform simulator connection in the monitor target project setting. (☞ Section 9.4)

*2: It will be reset after starting monitor tool or executing monitor target project setting (☞ Section 9.4).

*3: For details, refer to Appendix 1.2.

No.	Item	Description
7)	Number of readings retried	<p>Display the number of retry times of device data read processing from CPU module. Display range is 0 to 999999. If it exceeds 999999, it returns to 0. However, "-----" is displayed for the following situations.</p> <ul style="list-style-type: none"> ● The system alarm "Incorrect PLC type" occurs ● The PLC connection target is not set. (☞ Section 9.4) ● The assignment information database file which is not supported is specified in a monitor target project ● Improper file is specified in an assignment information database file of the monitor target project ● Communication error occurs straight after starting the monitor tool or re-reading a monitor target project ● The project which is set not to be connected to simulator during simulation*1 of monitor tool
8)	"Reset" button	<p>Click the button to reset the following items.</p> <ul style="list-style-type: none"> ● Response Time[s] (Maximum Value) ● Number of event notification received ● Number of readings retried <p>A user who has the authority of operation for resetting the maximum value/number of times can reset. Change the mode to the engineer mode or operator mode.</p>
9)	"Close" button	Click the button to close communication condition screen.

*1: The monitor tool will be in simulation when more than one project is set to perform simulator connection in the monitor target project setting. (☞ Section 9.4)

POINT

- If the Setting Window button of monitor toolbar is clicked when displaying communication condition screen, communication condition screen will be closed automatically. Additionally, if Setting Window has been displayed, the communication condition screen cannot be opened.
- If all of the status, response time and number of event notification are displayed as "-----", check the assignment information database file set in monitor target project setting. (☞ Section 9.4)

8.5.2 Displaying the redundant system status



PURPOSE

To check the redundant system status for each project.

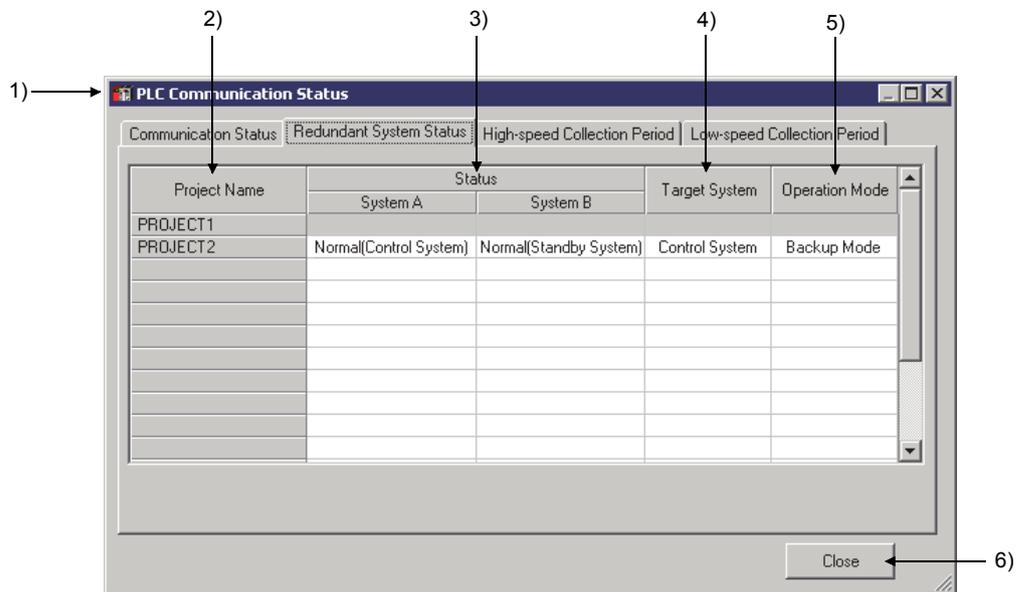


BASIC OPERATION

1. Click the "Help Menu" button () on the monitor toolbar.
2. Select "PLC Communication Status" on the displayed Help Menu.
3. Click the << Redundant System Status >> tab.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Description
1)	Title bar	"  PLC Communication Status" is displayed when connecting with CPU module, "  PLC Communication Status: [Simulation]" is displayed when a project in which the settings to be connected to simulator exists. ( Section 9.4)
2)	Project Name	Display the project name of monitor target. Execute the setting of monitoring target project through monitor target project setting ( Section 9.4).

No.	Item	Description																		
3)	Status	<p>Display the communication conditions of system A and system B, and control/standby system status. Process CPU/Universal model process CPU Nothing is displayed in the gray background. MELSEC iQ-R series redundant system</p> <table border="1"> <thead> <tr> <th></th> <th>Backup mode/Separate mode</th> <th>Debug mode</th> </tr> </thead> <tbody> <tr> <td>Normal</td> <td> Message: • When SM1635 is OFF "Normal (Control System) " • When SM1635 is ON "Normal (Standby System) " • When both SM1634 and SM1635 are OFF or ON "Normal (Unknown) " Message color: Black </td> <td style="text-align: center;">-</td> </tr> <tr> <td>Error</td> <td colspan="2">Message: "Abnormal" Message color: Red</td> </tr> </tbody> </table> <p>MELSEC-Q series redundant system</p> <table border="1"> <thead> <tr> <th></th> <th>Backup mode/Separate mode</th> <th>Debug mode</th> </tr> </thead> <tbody> <tr> <td>Normal</td> <td> Message: • When SM1516 is OFF "Normal (Control System) " • When SM1516 is ON "Normal (Standby System) " • When both SM1515 and SM1516 are OFF or ON "Normal (Unknown) " Message color: Black </td> <td> For system A, the same as described in left section. For system B, "-----" is displayed in black. </td> </tr> <tr> <td>Error</td> <td colspan="2">Message: "Abnormal" Message color: Red</td> </tr> </tbody> </table> <ul style="list-style-type: none"> ● When the redundant system PLC parameter read error occurs, both system A/B) are displayed as "Abnormal". <p>However, "-----" is displayed for the following situations.</p> <ul style="list-style-type: none"> ● The system alarm "Incorrect PLC type" occurs ● The PLC connection target is not set. (☞ Section 9.4) ● The assignment information database file which is not supported is specified in a monitor target project ● Improper file is specified in an assignment information database file of the monitor target project ● When the system (system A/ B) cannot be specified ● The project which is set not to be connected to simulator during simulation*1 of monitor tool 		Backup mode/Separate mode	Debug mode	Normal	Message: • When SM1635 is OFF "Normal (Control System) " • When SM1635 is ON "Normal (Standby System) " • When both SM1634 and SM1635 are OFF or ON "Normal (Unknown) " Message color: Black	-	Error	Message: "Abnormal" Message color: Red			Backup mode/Separate mode	Debug mode	Normal	Message: • When SM1516 is OFF "Normal (Control System) " • When SM1516 is ON "Normal (Standby System) " • When both SM1515 and SM1516 are OFF or ON "Normal (Unknown) " Message color: Black	For system A, the same as described in left section. For system B, "-----" is displayed in black.	Error	Message: "Abnormal" Message color: Red	
	Backup mode/Separate mode	Debug mode																		
Normal	Message: • When SM1635 is OFF "Normal (Control System) " • When SM1635 is ON "Normal (Standby System) " • When both SM1634 and SM1635 are OFF or ON "Normal (Unknown) " Message color: Black	-																		
Error	Message: "Abnormal" Message color: Red																			
	Backup mode/Separate mode	Debug mode																		
Normal	Message: • When SM1516 is OFF "Normal (Control System) " • When SM1516 is ON "Normal (Standby System) " • When both SM1515 and SM1516 are OFF or ON "Normal (Unknown) " Message color: Black	For system A, the same as described in left section. For system B, "-----" is displayed in black.																		
Error	Message: "Abnormal" Message color: Red																			
4)	Target System	<p>Displays the redundant PLC specify in "Connection Setup". However, "-----" is displayed for the following situations.</p> <ul style="list-style-type: none"> ● The PLC connection target is not set. (☞ Section 9.4) ● The assignment information database file which is not supported is specified in a monitor target project ● Improper file is specified in an assignment information database file of the monitor target project ● The project which is set not to be connected to simulator during simulation*1 of monitor tool <p>When Process CPU/Universal model process CPU is specified, nothing is displayed in the gray background. "Not Specified" is displayed for the project which is set to be connected to simulator.</p>																		

No.	Item	Description
5)	Operation Mode	Displays the operation mode (Separate mode/Backup mode/Debug mode). If a communication error occurs, the previous value is displayed. However, "-----" is displayed as communication status. When Process CPU/Universal model process CPU is specified, nothing is displayed in the gray background. The following modes are displayed for the project which is set to be connected to simulator. <ul style="list-style-type: none"> ● Redundant CPU(QnPHCPU): "Debug Mode" ● Process CPU (Redundant mode)(RnPCPU), SIL2 process CPU(RnPSFCPU): "Stand-alone"
6)	"Close" button	Click the button to close the communication condition screen.

*1: The monitor tool will be in simulation when more than one project is set to perform simulator connection in the monitor target project setting (☞ Section 9.4).

POINT
<p>If "Setting window" button of monitor toolbar is clicked when the communication condition screen is displayed, the screen will be automatically closed.</p> <p>In addition, if the setting screen has been already opened, the communication condition screen cannot be opened.</p>

8.5.3 Collection period for each communication type



PURPOSE

To specify the collection period of each communication type of monitor tool and CPU module.

<<High-speed Collection Period>> tab and <<Low-speed Collection Period>> tab are displayed depending on the collection period.

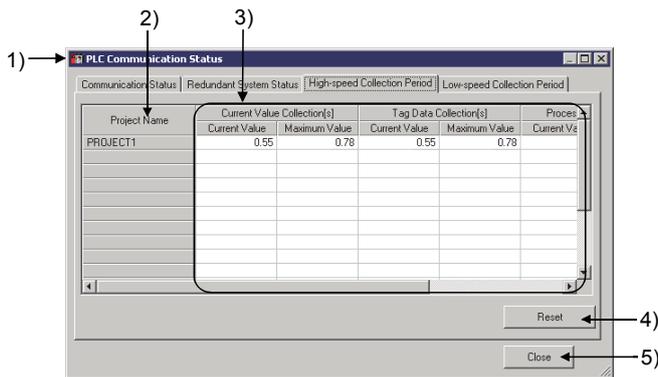


BASIC OPERATION

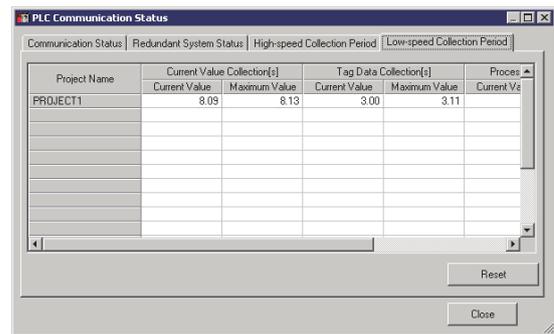
1. Click "Help Menu" button () on the monitor toolbar.
2. Select "PLC Communication Status" on the displayed Help Menu.
3. Click << High-speed Collection Period>> tab or <<Low-speed Collection Period>> tab.



DISPLAY/SETTING SCREEN



<<High-speed Collection Period>> tab



<<Low-speed Collection Period>> tab



DISPLAY/SETTING DATA

No.	Item	Description
1)	Title bar	"  PLC Communication Status" is displayed when connecting with CPU module, "  PLC Communication Status: [Simulation]" is displayed when a project in which the settings to be connected to simulator exists. ( Section 9.4)
2)	Project Name	Display the target name of monitor target. Execute the setting of monitoring target project through monitor target project setting ( Section 9.4).



DISPLAY/SETTING DATA

No.	Item		Description
3)	Current Value and Maximum Value of Collection Period for Each Communication Type *2	Current Value	<p>Display the current value of the collection period of each communication type. (unit: second)</p> <p>However, "-----" is displayed for the following situations.</p> <ul style="list-style-type: none"> ● The system alarm "Incorrect PLC type" occurs ● The PLC connection target is not set. (☞ Section 9.4) ● The assignment information database file which is not supported is specified in a monitor target project ● Improper file is specified in an assignment information database file of the monitor target project ● Communication status error ● The project which is set not to be connected to simulator during simulation*1 of monitor tool
		Maximum Value	<p>Display the maximum value of the collection period of each communication type. (unit: second)</p> <p>However, "-----" is displayed for the following situations.</p> <ul style="list-style-type: none"> ● The system alarm "Incorrect PLC type" occurs ● The PLC connection target is not set. (☞ Section 9.4) ● The assignment information database file which is not supported is specified in a monitor target project ● Improper file is specified in an assignment information database file of the monitor target project ● The project which is set not to be connected to simulator during simulation*1 of monitor tool
4)	"Reset" button		<p>Click the button to reset the maximum value of collection period.</p> <p>A user who has the authority of operation for resetting the maximum value/number of times can reset.</p> <p>Also, reset cannot be done during change mode dialog box.</p>
5)	"Close" button		Click the button to close the communication status screen.

*1: The monitor tool will be in simulation when more than one project is set to perform simulator connection in the monitor target project setting (☞ Section 9.4).

*2: For details, refer to Appendix 1.1.

POINT
<ul style="list-style-type: none"> ● If collection is performed behind the set period, take the measure by referring to Appendix 1.10. ● If "Setting window" button of monitor toolbar is clicked when the communication condition screen is displayed, the screen will be automatically closed. If the setting screen has been already opened, the communication condition screen cannot be opened.

8.6 Server/Client Monitoring System

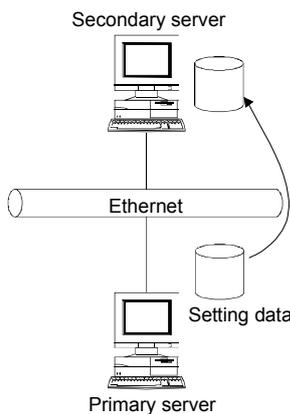
8.6.1 Setting data in the secondary server/clients

(1) Setting data in a secondary server

A secondary server starts up reading the setting data from a primary server so that when the primary server fails and clients connect to the secondary server, the clients can display the monitor screen having the same configuration as when clients connect to the primary server previously.

[When a secondary server is started up]

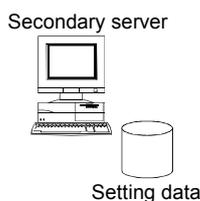
- 1) A secondary server is started up.
- 2) The setting data is copied from the primary server to the secondary server.



Setting data item	Data description to be copied
Setting items customizable in a secondary server (Items described as ○ (changeable) in "Change in a secondary server" in Section 3.2)	Data contents to be copied are different depending on the "detail setting of overwriting the setting data" in the monitor tool execution type setting (refer to Section 9.5). <ul style="list-style-type: none"> • Overwrite all The setting data in a server is copied to the setting data in a secondary server. However, the setting data in the monitor tool execution type setting is not copied. • Leave settings inherent in this OPS Items set to leave the setting inherent in a secondary server are not changed.
Common setting items (Items not mentioned above)	The setting data in a primary server is always copied to the setting data in a secondary server.

[When the setting data in a secondary server is changed]

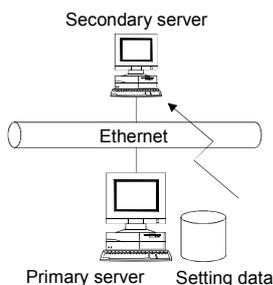
- 1) The setting data in a secondary server is changed.



Setting data item	Data description to be copied
Setting items customizable in a secondary server (Items described as ○ (changeable) in "Change in a secondary server" in Section 3.2)	The setting data which has been copied to a secondary server is changed.
Common setting items (Items not mentioned above)	The setting data cannot be changed in a secondary server.

[When the setting data in a primary server is changed]

- 1) The setting data in a primary server is changed.
- 2) The setting data change is notified from the primary server to a secondary server.
- 3) A message is displayed in the secondary server and the setting data is automatically copied (refer to 2) in [When a secondary server is started up] of this section) from the primary server to the secondary server.



POINT
 If neither setting screen nor monitor screen is opened on a secondary server when the setting data is changed on a primary server, the secondary server copies the setting data from the primary server automatically.

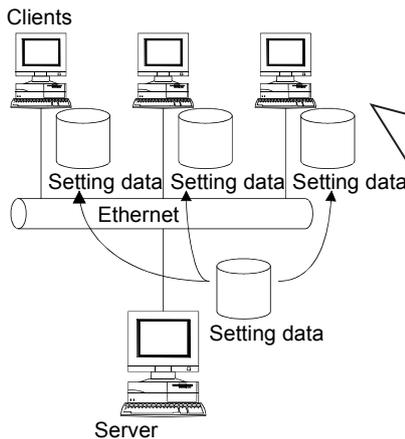
(2) Setting data in clients

In a client, starting up with loading the setting data configured in a server enables to display monitor screens with the same configuration as the server.

Customizable settings (the monitor tool execution type setting, settings to customize displays, and settings depending on environment of a personal computer (client)) can be changed in a client.

[When a client is started up]

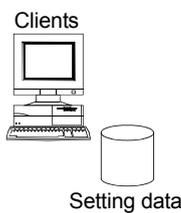
- 1) A client is started up.
- 2) The setting data is automatically copied from the server to the client.



Setting data item	Data description to be copied
Setting items customizable in clients (Items described as ○ (changeable) in "Change in clients" in Section 3.2)	Data contents to be copied are different depending on the "detail setting of overwriting the setting data" in the monitor tool execution type setting (refer to Section 9.5). <ul style="list-style-type: none"> • Overwrite all The setting data in a server is copied to the setting data in a client. However, the setting data in the monitor tool execution type setting is not copied. • Leave settings inherent in this OPS Items set to leave the setting inherent in a client are not changed.
Common setting items (Items not mentioned above)	The setting data in a server is always copied to the setting data in a client.

[When the setting data in a client is changed]

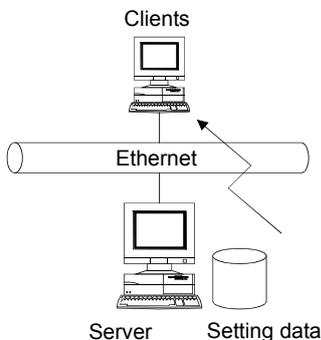
- 1) The setting data in a client is changed.



Setting data item	Data description to be copied
Setting items customizable in clients (Items described as ○ (changeable) in "Change in clients" in Section 3.2)	The setting data which has been copied to a client is changed.
Common setting items (Items not mentioned above)	The setting data cannot be changed in a client.

[When the setting data in a server is changed]

- 1) The setting data in a server is changed.
- 2) The setting data change is notified from the server to a client.
- 3) A message is displayed in the client and the setting data is automatically copied (refer to 2) in [When a client is started up] of this section) from the server to the client.

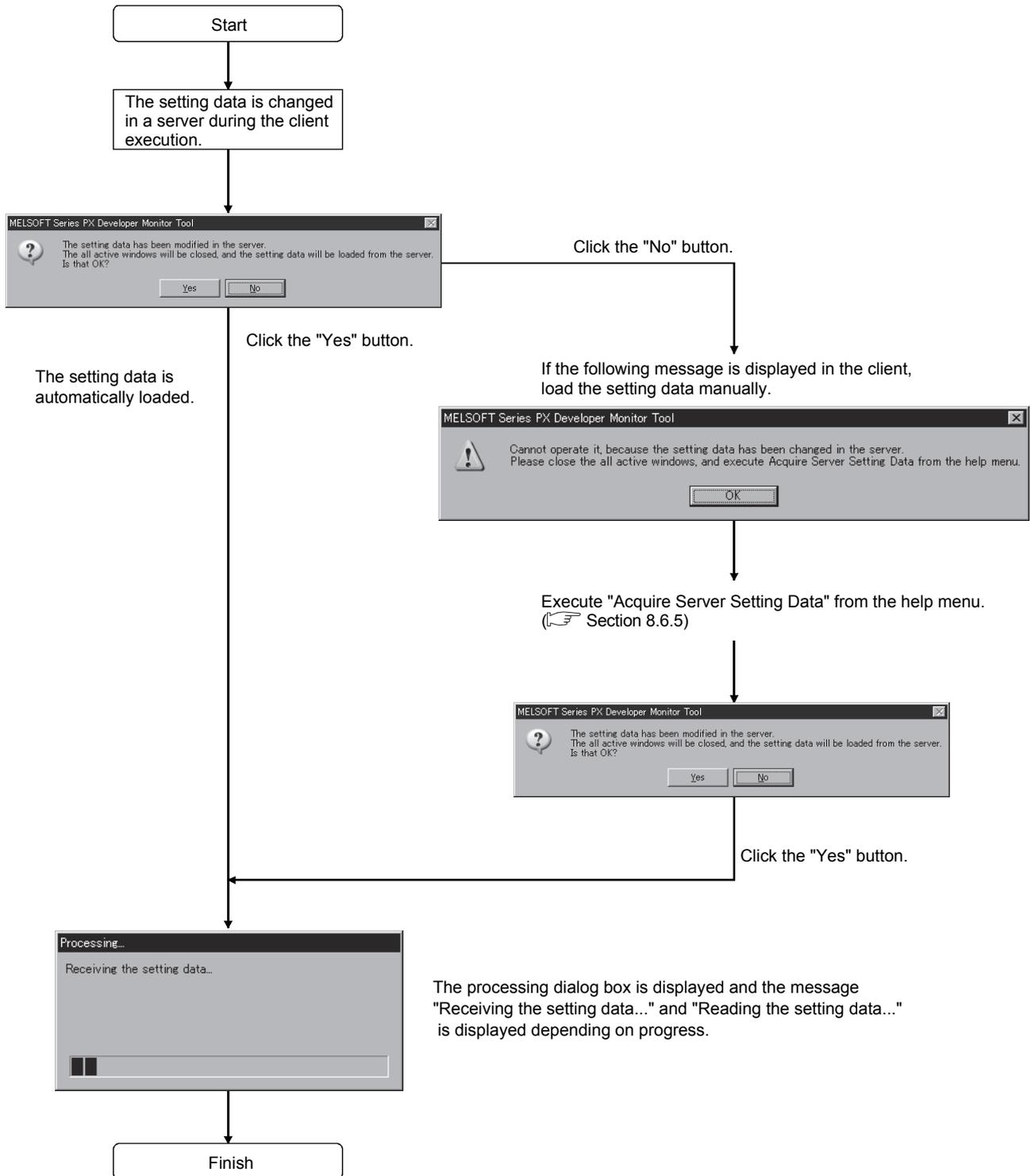


POINT

If neither setting screen nor monitor screen is opened on a client when the setting data is changed on a server, the client copies the setting data from the server automatically.

8.6.2 Procedure for copying the setting data

Load the setting data automatically/manually from a server when the setting data is changed in the server during the secondary server/client execution.



8.6.3 Switching server



PURPOSE

The server to be connecting can be switched with clients when [Details]-"Redundant Server" is activated in the monitor tool execution type setting (Section 9.5).

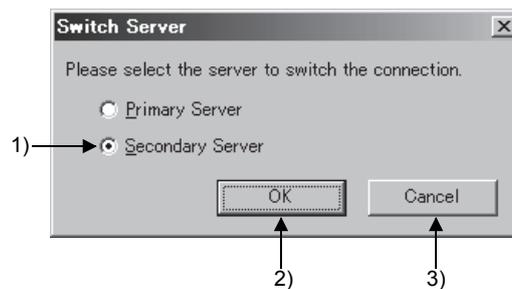


BASIC OPERATION

1. Click "Help Menu" button () on the monitor toolbar.
2. Select "Switch Server" on the displayed Help Menu to display the Switch Server dialog box.
3. Select the server to switch to, and click the "OK" button.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Description
1)	Server to switch	Select the server to switch to, either Primary Server or Secondary Server.
2)	"OK" button	Click the button to close the dialog box and start the switch server process.
3)	"Cancel" button	Click the button to close the dialog box and cancel the switch server process.

POINT

When the current user does not exist or the current user has been modified in the data acquired from a new server after switching server, the monitor tool mode switches to the lock mode automatically.

8.6.4 Connecting to server

**PURPOSE**

When a secondary server is not connected to a primary server or when a client is not connected to a server in a non-redundant server system, they can be connected to the servers manually.

**BASIC OPERATION**

1. Click "Help Menu" button () on the monitor toolbar.
2. A secondary server connects to a primary server and a client connects to a server by selecting "Connect Server" on the displayed Help Menu.

POINT

When the current user does not exist or the current user has been modified in the data acquired from a new server after connecting to server, the monitor tool mode switches to the lock mode automatically.

8.6.5 Acquiring the server setting data

**PURPOSE**

In the server/client monitoring system, clients and a secondary server read the setting data from a server*1 being connected in the following cases.

- The setting data are changed on a server being connected while the client is running.
- The setting data are changed on a primary server being connected while the secondary server is running.

*1: A secondary server connects to a primary server.

In addition, the setting data can manually be acquired when the message box ( Section 8.6.2), which is displayed on a secondary server/client when the setting data are changed on a server, is closed by clicking the "No" or "Cancel" button.

**BASIC OPERATION**

1. Click "Help Menu" button () on the monitor toolbar.
2. Select "Acquire Server Setting Data" on the displayed Help Menu.

8.6.6 Time adjustment among OPSs

In the server/client monitoring system, client time is synchronized with the server time. In the redundant server system, time of the secondary server is synchronized with one of the primary server. The time adjustment among OPSs is executed when "Time Adjustment among OPSs" on Option Setting of client/secondary server is "Yes". Time adjustment is automatically made at the following timing.

- Secondary server start up (in the redundant server configuration)
- Client start up
- Once every hour (5 minutes 0 second past the hour)
- Server time adjustment

POINT
<ul style="list-style-type: none">• Setting "Time Adjustment among OPSs" to "Yes" on Option Setting is recommended. Set to "No" only when another time adjustment system such as SNTP is applied.• Use the following combination of settings to avoid the time adjustment among OPSs in client/secondary server.<ul style="list-style-type: none">• Set the Time Adjustment among OPSs setting to "Enable" in setting data acquisition on Detail setting of overwriting the setting data of Monitor Tool Execution Type Setting.• Set to "No" on "Time Adjustment among OPSs" of Option Setting.• Log on to a personal computer using an account belonging to Administrators group with all rights to control whole the computer, and execute the monitor tool.• When executing a secondary server or client, select "Run this program as an administrator" under "Privilege Level" of the monitor tool and execute it.• The time data is sent from a server (primary) to a secondary server and clients, and delays of less than 1 second may occur due to network loads.

8.6.7 Displaying the server/client communication status



PURPOSE

In the server/client monitoring system, to check the communication status between a server and clients in the monitor tool server.



BASIC OPERATION

1. Click "Help Menu" button () on the monitor toolbar.
2. Select "Server/Client Communication Status" on the displayed Help Menu.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Description												
1)	OPS Name	Display the secondary server name when the monitor tool is executed as Primary Server or display the primary server name when it is executed as Secondary Server, followed by the OPS names registered in the OPS setting ( Section 9.5) in a server in order from Client 1 to Client 16. Lines not registered in the OPS setting remain blank.												
2)	Communication Status	Display the communication status between a server and clients. Lines not registered in the OPS setting remain blank. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Display</th> <th>Explanation</th> <th>Character color</th> </tr> </thead> <tbody> <tr> <td>Not connected</td> <td>Not connected to the client.</td> <td>Red</td> </tr> <tr> <td>Connecting</td> <td>Connecting to the client.</td> <td>Black</td> </tr> <tr> <td>-----</td> <td>Connection from the client is not acceptable due to the following reasons. <ul style="list-style-type: none"> • Conversion from a host name to an IP address is failed. • As a result of conversion from a host name to an IP address, the IP address overlaps with an IP address of another OPS. </td> <td>Black</td> </tr> </tbody> </table>	Display	Explanation	Character color	Not connected	Not connected to the client.	Red	Connecting	Connecting to the client.	Black	-----	Connection from the client is not acceptable due to the following reasons. <ul style="list-style-type: none"> • Conversion from a host name to an IP address is failed. • As a result of conversion from a host name to an IP address, the IP address overlaps with an IP address of another OPS. 	Black
Display	Explanation	Character color												
Not connected	Not connected to the client.	Red												
Connecting	Connecting to the client.	Black												
-----	Connection from the client is not acceptable due to the following reasons. <ul style="list-style-type: none"> • Conversion from a host name to an IP address is failed. • As a result of conversion from a host name to an IP address, the IP address overlaps with an IP address of another OPS. 	Black												
3)	Response Time [s]	Display the response time of the communication with clients. (unit: second) Lines not registered in the OPS setting remain blank. However, this is not displayed when the communication status is "Not connected". ("-----" is displayed.)												
4)	Number of bytes sent	Display the data volume per second sent to clients. (unit: byte) Lines not registered in the OPS setting remain blank. However, this is not displayed when the communication status is "Not connected". ("-----" is displayed.)												
5)	"Close" button	Click the button to close the communication status screen.												

8.7 Automatic CSV File Export

**PURPOSE**

To output trend, alarm and event data to CSV files automatically.

Used when it is desired to save trend, alarm and event data in CSV files automatically as histories.

(1) Functions related to automatic CSV file export

(a) Automatic trend CSV file export (👉 Section 8.7.1)

Trend data are output to CSV files automatically.

(b) Automatic alarm CSV file export (👉 Section 8.7.2)

Alarm data are output to CSV files automatically.

(c) Automatic event CSV file export (👉 Section 8.7.3)

Event data are output to CSV files automatically.

(d) Automatic CSV file deletion (👉 Section 8.7.4)

CSV files output automatically are deleted automatically when the storage period has passed.

(e) Disk free space check (👉 Section 8.7.5)

When the free space of the disk drive that stores the PX Developer installation destination, trend binary data file, and CSV files output automatically has decreased to or below the preset value, the alarm indicates a shortage of the free space of the disk drive.

(2) Setting items related to automatic CSV file export

The following table indicates the setting items related to automatic trend CSV file export, automatic alarm CSV file export and automatic event CSV file export.

Setting item	Setting position	Reference
Trend setting	Automatic CSV file export	Section 9.8
Option setting (General)	Automatic CSV file deletion time (0 to 23) Disk free space check size (MB)	Section 9.17 (1)
Option setting (Alarm/Event)	Automatic alarm CSV file export Automatic alarm CSV file deletion Alarm CSV file storage period (days) Automatic alarm CSV file export target folder Automatic event CSV file export Automatic event CSV file deletion Event CSV file storage period (days) Automatic event CSV file export target folder	Section 9.17 (3)
Option setting (Trend graph)	Automatic trend CSV file export target folder Automatic trend CSV file export file name Automatic trend CSV file export time (0 to 23) Automatic trend CSV file deletion Trend CSV file storage period (days)	Section 9.17 (5)

(3) Automatic CSV file export setting procedure



BASIC OPERATION

1. The monitor tool can be set in the engineer mode only.
When the mode is not the engineer mode, change mode (☞ Section 4.5) to the engineer mode.
2. Click the "Setting Window" button on the monitor toolbar.
The setting window is displayed.
3. Set the automatic CSV file export target folder, whether to include a group name in an export file name, automatic CSV file deletion (Enable/Disable), automatic CSV file export time (automatic trend CSV file export only), and storage period (CSV file storage period when automatic CSV file deletion is executed).
The setting positions are as indicated below.
After setting, click the "Apply" button.

Used function	Setting item	Setting position
Automatic trend CSV file export	Option setting (Trend graph)	Automatic trend CSV file export target folder Automatic trend CSV file export file name Automatic trend CSV file export time (0 to 23) Automatic trend CSV file deletion Trend CSV file storage period (days)
Automatic alarm CSV file export	Option setting (Alarm/Event)	Automatic alarm CSV file deletion Alarm CSV file storage period (days) Automatic alarm CSV file export target folder
Automatic event CSV file export		Automatic event CSV file deletion Event CSV file storage period (days) Automatic event CSV file export target folder

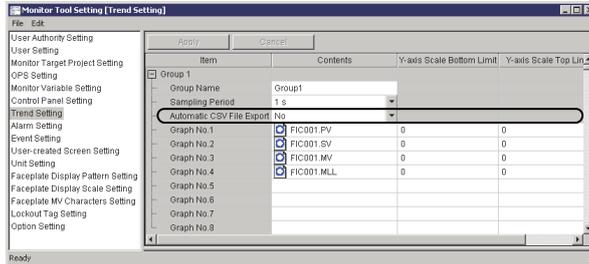
4. When Automatic CSV file deletion is set to "Enable" in above 3., set the time for deleting CSV files automatically.
In Option setting (general), set the "Automatic CSV file deletion time (0 to 23)".
Click the "Apply" button.
5. In Option setting (general), set the "Disk free space check size (MB)."
Click the "Apply" button.
6. Set Automatic CSV file export to "Enable".
The setting positions are as indicated below.
After setting, click the "Apply" button.
Automatic CSV file export starts.

Used function	Setting item	Setting position
Automatic trend CSV file export	Trend setting	Automatic CSV file export (set to each group)
Automatic alarm CSV file export	Option setting (Alarm/Event)	Automatic alarm CSV file export
Automatic event CSV file export		Automatic event CSV file export

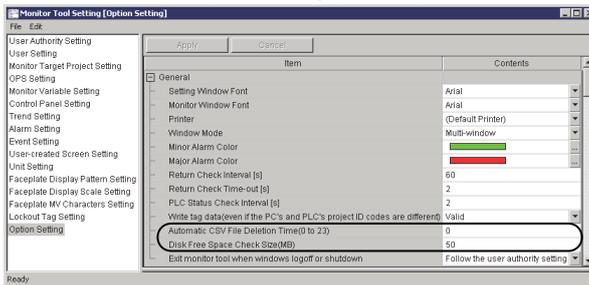


DISPLAY/SETTING SCREEN

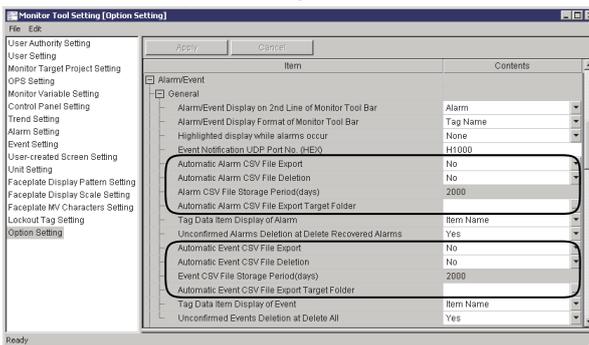
Trend Setting



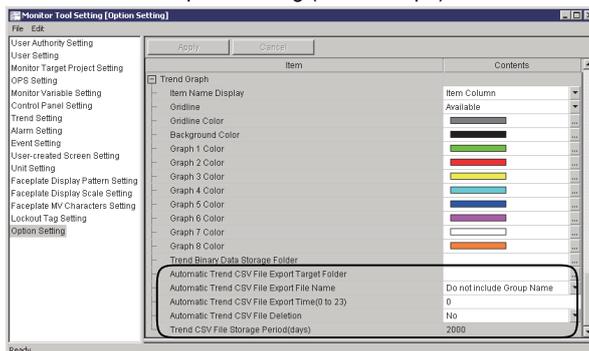
Option Setting (General)



Option Setting (Alarm/Event)



Option Setting (Trend Graph)



POINT

Set the automatic trend CSV file export time and automatic CSV file deletion time to the time when the monitor tool is running.
 If the monitor tool has not yet started at the automatic trend CSV file export time, CSV files not yet exported are output at the next monitor tool start.

8.7.1 Automatic trend CSV file export

This section explains the timing, storage destination, output form, precautions, etc. of automatic trend CSV file export.

(1) Timing and data range of automatic trend CSV file export

The timing of automatic trend CSV file export is as indicated below depending on the sampling period (☞ Section 9.8) of trend data.

Sampling Period	CSV Files Export timing	Range of Data Output to 1 File
1s 10s	Output per hour (0 min every hour).	Trend data of past one hour
1min 5min 10min	Output per day. The CSV files export time is as set to "Automatic trend CSV file export time (0 to 23)" in Option setting (Trend graph).	Trend data of past one day *1

*1: The automatic trend CSV file output per day is the data between 0:00:00 to 23:59:59 of the previous day.

<Output CSV file>

```
Date, TAG001.MLL, TAG001.MV, TAG001.SV, TAG001.MODE,,,,
6/1/2003 0:00:00 AM, 0, 66.9, 450.0, H0010,,,,
6/1/2003 0:01:00 AM, 0, 66.9, 450.0, H0010,,,,
.
.
.
6/1/2003 23:58:00 PM, 0, 53.9, 450.0, H0010,,,,
6/1/2003 23:59:00 PM, 0, 53.9, 450.0, H0010,,,,
```

The output data are those between 0:00:00 to 23:59:59 of the previous day, regardless of the automatic trend CSV file export time (0 to 23).

POINT

- If the monitor tool has not yet started at the time of automatic CSV file export, the automatic trend CSV file is output at the next start of the monitor tool. Automatic trend CSV file export at a monitor tool start outputs the data of the preceding file.
- When the "Automatic trend CSV file export time (0 to 23)" setting in Option setting (Trend Graph) is changed to before the current time, the timing of trend CSV file export changes as described below.

 - When the output of the data for this day's output is completed
 The automatic trend CSV file is output at the new automatic trend CSV file export time, starting with the data for the next output (next day).
 - When the output of the data for this day's output is not completed
 The automatic trend CSV file for this day's output is output immediately after the setting is changed.
 For example, when the current time is 10:30:00, July 10 and the "Automatic trend CSV file export time (0 to 23)" setting is changed to 8 o'clock, the data at 00:00:00 to 23:59:59, July 9 is output.

(2) Output destination and file name of automatic trend CSV file

(a) Output destination of automatic trend CSV file

An automatic trend CSV file is output to the folder set to "Automatic trend CSV file export target folder" in Option setting (Trend graph).

When the above setting has not been made, however, the file is output to the "TrendCSV" folder indicated in Section 2.3.

(b) File name of trend CSV file to be output automatically

One automatic trend CSV file is created for one group.

The file name of the CSV file to be output automatically changes as shown below depending on the sampling period of trend data (Section 9.8) and "Automatic Trend CSV File Export File Name" (Section 9.17 (5)) in the option setting (trend graph).

Sampling Period	File Name
<p>1s 10s</p>	<ul style="list-style-type: none"> When "Do not include Group Name" is selected TrendGroup(trend group No.)_(storage date)_(time).CSV The format of the file name is as shown below. <div style="text-align: center;"> <p>TrendGroup003_20030601_09.CSV</p> </div> When "Include Group Name" is selected (Group name)_(trend group No.)_(storage date)_(time).CSV The "storage date" and "time" are those of the data output to the automatic trend CSV file. (Example) When the trend group No. is 3, the group name is Device A, and the range of the data output to the automatic trend CSV file is 9:00:00 to 9:59:59 on June 1, 2003 "Do not include Group Name" : "TrendGroup003_20030601_09.CSV" "Include Group Name" : "Device A_003_20030601_09.CSV"
<p>1min 5min 10min</p>	<ul style="list-style-type: none"> When "Do not include Group Name" is selected TrendGroup(trend group No.)_(storage date).CSV The format of the file name is as shown below. <div style="text-align: center;"> <p>TrendGroup005_20030603.CSV</p> </div> When "Include Group Name" is selected (Group name)_(trend group No.)_(storage date).CSV The "storage date" is that of the data output to the automatic trend CSV file. (Example) When the trend group No. is 5, the group name is Device A, and the range of the data output to the automatic trend CSV file is 0:00:00 to 23:59:59 on June 3, 2003 "Do not include Group Name" : "TrendGroup005_20030603.CSV" "Include Group Name" : "Device A_005_20030603.CSV"

(4) Error processing

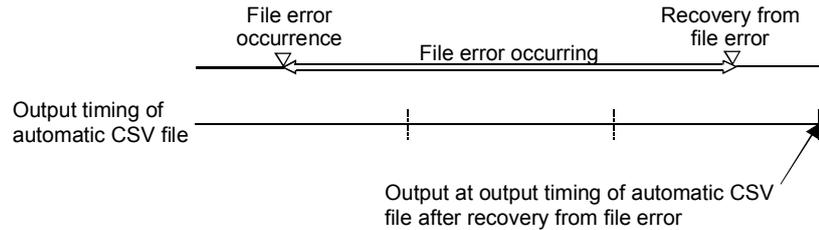
An error may occur during file processing due to the insufficient disk free space at the time of CSV files export.

In this case, the system alarm "file error" (see Section 7.3.1) occurs.

When the file error occurs, the CSV file is not output.

The CSV file that could not be output will be output at either of the following timings.

- Output timing of automatic trend CSV file after recovery from file error



- When monitor tool is started next time

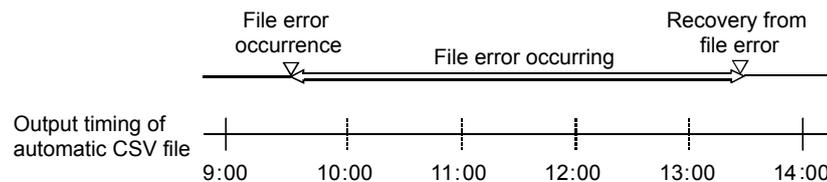
The output timing is the same as when the monitor tool has not started at the time set for exporting CSV file automatically.

For details, refer to POINT in (1) in this section.

POINT

If automatic trend CSV file export could not be performed due to a file error, etc., the file that could not be output will also be output together at the next export time. Only the data of the preceding file is output as the data that could not be output by automatic trend CSV export.

In the case of the trend data whose sampling period is 1 s
(When automatic trend CSV file export is performed at 0 minutes every hour)



Data output at 13:00 and 14:00 are output together. Only the data of the preceding file is output as the data that could not be output by trend CSV file export. (In this example, only the data output at 13:00)

8.7.2 Automatic alarm CSV file export

This section explains the timing, storage destination, output form, precautions, etc. of automatic alarm CSV file export.

(1) Timing and data range of automatic alarm CSV file export

The alarm data is output to a CSV file at alarm occurrence/recovery.

The data of one day are output to one alarm CSV file.

Hence, when the date changes, the output destination file of the automatic alarm CSV file data changes.

POINT
<p>If the alarm is cleared, i.e., alarm recovery is made by taking either of the following actions, the alarm recovery date will not be output to the automatic alarm CSV file, while the date will be stored and displayed in the alarm list.</p> <ul style="list-style-type: none"> ● Restart the monitor tool, or click the "Apply" or "Reload" button in the monitor target project setting (Section 9.4) to clear all the alarms. (Except the following system alarm errors: file error, memory error and exception error.) ● Check the check box within the Confirm field to clear the alarm. (Except the following system alarm errors: file error, memory error and exception error.)

(2) Output destination and file name of automatic alarm CSV file

(a) Output destination of automatic alarm CSV file

An automatic alarm CSV file is output to the folder set to "Automatic alarm CSV file export target folder" in Option setting (alarm/event).

When the above setting has not been made, however, the file is output to the "AlarmCSV" folder indicated in Section 2.3.

(b) File name of alarm CSV file to be output automatically

One automatic alarm CSV file is created a day.

Hence, naming of the CSV file to be output automatically is as described below.

File name
<p>Alarm_(Storage date).CSV The file name format is as indicated below.</p> <p style="text-align: center;">Alarm_20030601.CSV</p> <div style="display: flex; justify-content: center; align-items: center;"> <div style="text-align: center; margin-right: 20px;"> <p>↑</p> <p>↑</p> </div> <div style="text-align: center;"> <p>Storage date Format is "YYYYMMDD". (YYYY: Year in 4 digits, MM: Month in 2 digits, DD: Day in 2 digits)</p> </div> </div> <p style="text-align: center;">↑</p> <p style="text-align: center;">"Alarm" (Fixed to character string)</p> <p>The "storage date" indicates the data when the data are generated and output to the automatic alarm CSV file. (Example) When the data output to the automatic alarm CSV file is the data of June 1, 2003 "Alarm_20030601.CSV"</p>

POINT
<ul style="list-style-type: none"> • When the automatic alarm CSV file export target folder is changed during automatic CSV file export, the setting change is reflected from the next automatic alarm CSV file export processing. • The free space of the disk drive that includes: the PX Developer installation destination, trend binary data storage folder and automatic CSV file export target folder is monitored according to the "Disk free space check size (MB)" in Option setting (general).

(3) Output form of automatic alarm CSV file

Unlike the CSV export of the alarm list (☞ Section 7.3.7), the alarm occurrence and recovery in automatic alarm CSV file export are output to different lines.

<CSV export of alarm list>

```
Tag,Tag Comment,Alarm Contents,Occurrence Date,Recovered Date,Level,Measured Value
#SYSTEM,,Communication Open Error : PROJECT Specified connection target,2/13/2007 3:05:50 PM,2/13/2007 3:06:05 PM,Major,
LIC002,Tank 2 water level,MHA,2/13/2007 3:10:01 PM,2/13/2007 3:10:12 PM,Minor,100.0%
LIC002,Tank 2 water level,MHA,2/13/2007 3:11:00 PM,2/13/2007 3:12:02 PM,Minor,100.0%
```

Alarm occurrence and recovery are output to one line.



<Automatic alarm CSV file export>

```
Tag,Tag Comment,Alarm Contents,Occurrence Date,Recovered Date,Level,Measured Value
#SYSTEM,,Communication Open Error : PROJECT Specified connection target,2/13/2007 3:05:50 PM,,Major,
LIC002,Tank 2 water level,MHA,2/13/2007 3:10:01 PM,,Minor,100.0%
LIC002,Tank 2 water level,MHA,2/13/2007 3:11:00 PM,,Minor,100.0%
LIC002,Tank 2 water level,MHA,,2/13/2007 3:12:12 PM,Minor,100.0%
LIC002,Tank 2 water level,MHA,,2/13/2007 3:13:02 PM,Minor,100.0%
```

Alarm occurrence and recovery are output to different lines.

Recovery date and time are not output to alarm occurrence line.
Occurrence date and time are not output to alarm recovery line.

(4) Error processing

An error may occur during file processing due to the insufficient disk free space at the time of CSV files export.

In this case, the system alarm "file error" (☞ Section 7.3.1) occurs.

When the file error occurs, the alarm definition is not output to the CSV file.

The alarm is displayed in the alarm list (☞ Section 7.3) or in the alarm/event display area (☞ Section 6.3.1) of the monitor toolbar.

8.7.3 Automatic event CSV file export

This section explains the timing, storage destination, output form, precautions, etc. of automatic event CSV file export.

(1) Timing and data range of automatic event CSV file export

The event data is output to a CSV file at event occurrence.

The data of one day are output to a one event CSV file.

Hence, when the date changes, the output destination file of the automatic event CSV file data changes.

(2) Output destination and file name of automatic event CSV file

(a) Output destination of automatic event CSV file

An automatic event CSV file is output to the folder set to "Automatic event CSV file export target folder" in Option setting (alarm/event).

When the above setting has not been made, however, the file is output to the "EventCSV" folder indicated in Section 2.3.

(b) File name of event CSV file to be export automatically

One automatic event CSV file is created a day.

Hence, naming of the CSV file to be export automatically is as described below.

File name	
Event_(Storage date).CSV	
The file name format is as indicated below.	
Event_20030601.CSV 	Storage date Format is "YYYYMMDD". (YYYY: Year in 4 digits, MM: Month in 2 digits, DD: Day in 2 digits)
	"Event" (Fixed to character string)
The "storage date" indicates the data when the data are generated and output to the automatic event CSV file.	
(Example) When the data output to the automatic event CSV file is the data of June 1, 2003 "Event_20030601.CSV"	

POINT

- When the automatic event CSV file export target folder is changed during automatic CSV file export, the setting change is reflected from the next automatic event CSV file export processing.
- The free space of the disk drive that includes the PX Developer installation destination, trend binary data storage folder and automatic CSV file export target folder is monitored according to the "Disk free space check size (MB)" in Option setting (general).

(3) Output form of automatic event CSV file

The output form of an automatic event CSV file is the same as in the CSV export of the event list.

For details of the CSV export of the event list, refer to Section 7.4.6.

(4) Error processing

An error may occur during file processing due to the insufficient disk free space at the time of CSV files export.

In this case, the system alarm "file error" ( Section 7.3.1) occurs.

When the file error occurs, the alarm definition is not output to the CSV file.

The event is displayed in the event list ( Section 7.4) or in the alarm/event display area ( Section 6.3.1) of the monitor toolbar.

8.7.4 Automatic CSV file deletion



PURPOSE

Use of automatic CSV file export stores CSV file automatically. Hence, the disk drive may be short of free space if automatic CSV file storage is continued. Set automatic CSV file deletion in order to prevent the disk drive from being short of free space.



BASIC OPERATION

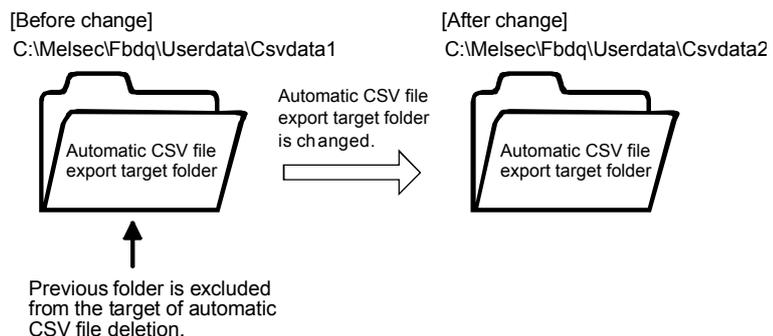
The following table shows the setting item related to the automatic CSV file deletion.

Setting item	Setting position	Reference
Option setting (General)	Automatic CSV file deletion time (0 to 23)	Section 9.17 (1)
Option setting (Alarm/Event)	Automatic alarm CSV file deletion Alarm CSV file storage period (days) Automatic event CSV file deletion Event CSV file storage period (days)	Section 9.17 (3)
Option setting (Trend graph)	Automatic trend CSV file deletion Trend CSV file storage period (days)	Section 9.17 (5)

By setting "Automatic CSV file deletion" to "Enable", CSV files are automatically deleted after the time set to "CSV file storage period (days)" has passed (The execution time (hour and minute) setting is available). This function is applied to the files stored in the corresponding automatic CSV file export target folder. For automatic CSV file deletion, automatic detection execution time can also be set. For details of setting procedure of the automatic CSV file deletion, refer to Section 8.7 (3).

POINT

- When the automatic CSV file export target folder is changed during CSV files delete, the previous folder is excluded from the deletion target at the time of next deletion.



- Even though trend group names can be included in automatic trend CSV file names in accordance with the setting of "Automatic trend CSV file export target folder" in the option setting (trend graph) (Section 9.17 (5)), this function deletes files of both formats: 'Include Group Name' format and 'Do not include Group Name' format. However, a file whose name includes trend group name is deleted only when a combination of a group name and a group number in the file name matches the contents of the trend setting.

8.7.5 Disk free space check



PURPOSE

Set the low limit value of the disk free space, in order that an alarm will occur when the disk drive runs short of space due to automatic CSV file export.



BASIC OPERATION

The following table shows the setting item related to the disk free space check.

Setting item	Setting position	Reference
Option setting (general)	Disk free space check size (MB)	Section 9.17 (1)

For details of setting procedure of the disk free space check size, refer to Section 8.7.

(1) When disk is short of free space

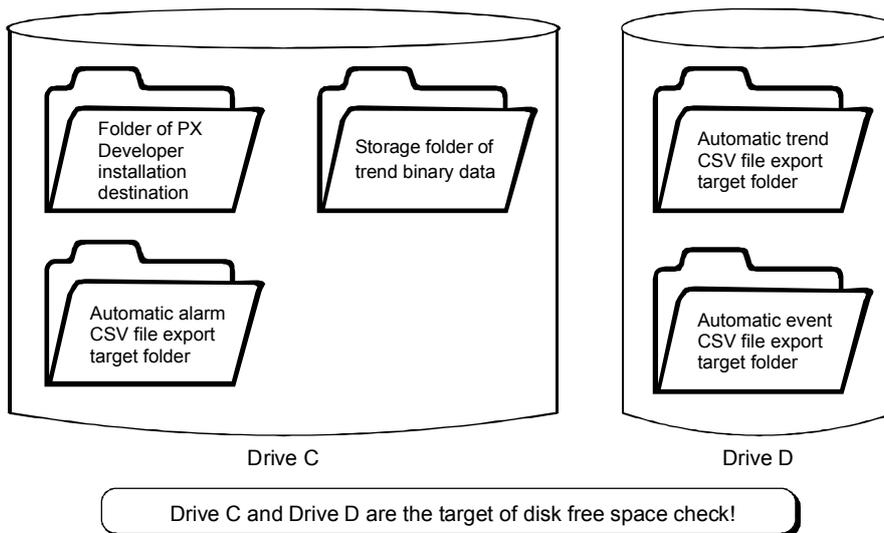
When the free space of the disk drive decreases to or below the "Disk free space check size (MB)" in the option setting (general), the alarm for the disk free space error occurs.

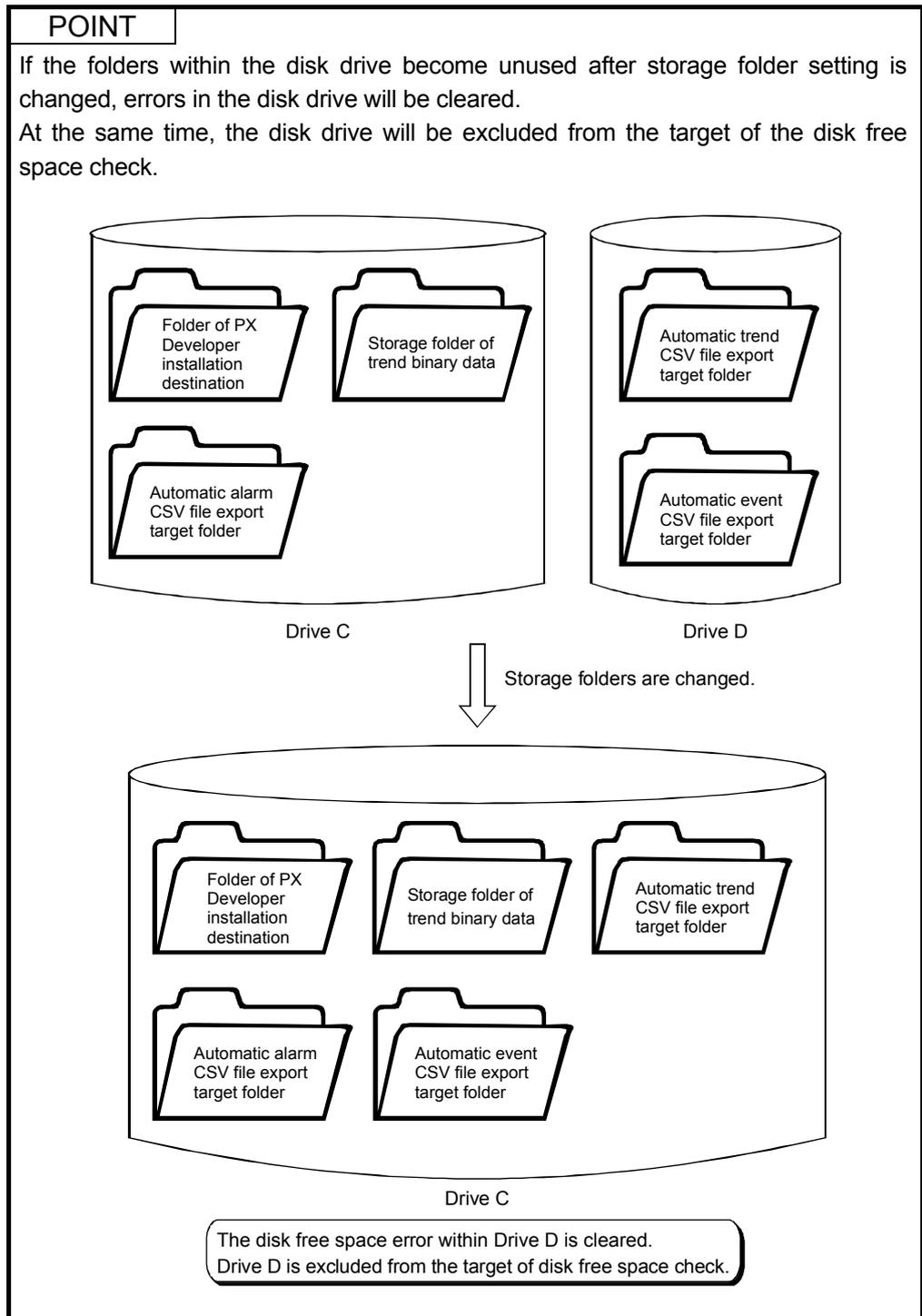
For details of the alarm, refer to Section 7.3.1.

(2) Target disk drive of disk free space check

This function checks the disk drives that include the storage folders of PX Developer installation destination, trend binary data files, automatic trend CSV file, automatic alarm CSV file and automatic event CSV file. (for each partition)
The alarm is occurrence and recovery for each disk drive.

When storage folders of data exist in two disk drives, Drive C and Drive D





(3) Disk free space check period

A disk free space check is performed at intervals of 10 minutes.

9 SETTING

Various functions of the monitor tool are executed according to the settings specified previously.

These settings can only change the users who have been licensed by the user with engineer authority. In order to avoid any change by common operators, the setting window can only be displayed in the engineer mode.

For details, refer to "Chapter 4 MODE ADMINISTRATION".

9.1 Common Setting Window

This part explains the common operation on the setting window.

9.1.1 Displaying and operating the setting window



PURPOSE

Display the windows and conduct basic operations



BASIC OPERATION

Open the setting window with the following methods:

1. Click the "Change Mode" button on the monitor toolbar.
2. On the displayed Change Mode dialog box, input the user name and password with engineer authority to change the mode to the engineer mode. (If it is the engineer mode already, the operations mentioned above are unnecessary.)
3. Click the "Setting window" button on the monitor toolbar.
4. Close the other windows to display the setting window.



DISPLAY/SETTING SCREEN

1) Menu 2) Title bar 7) 8)

No.	User Name	Password	Authority
1	admin	*****	Engineer
2	User001	*****	Operator1
3	User002	*****	Engineer
4			
5			
6			
7			
8			
9			
10			
11			
12			

3) Status bar 4) Setting items selection area 5) Setting contents display area 6) Data setting grid

See the following table for the display contents of each bar.

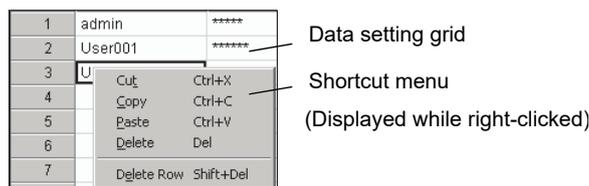
No.	Item	Description
1)	Menu	Select various common functions and execute them.
2)	Title bar	Display the icon, title bar character string, and title bar buttons.
3)	Status bar	Display supplement.
4)	Setting items selection area	Switch various setting items.
5)	Setting contents display area	Display the contents of the specified items in the "Setting items selection area"
6)	Data setting grid	Input the setting data to each lattice-like input to cell.
7)	"Apply" button	Make the set contents valid and displayed them on the monitor.
8)	"Cancel" button	Cancel the setting data on the screen, and return to the former applied setting data.

(1) Menu

See the following table for functions that can be executed from the menu.

	Menu item	Function	Reference
File	Save the setting data	Save the monitor setting information in the setting data file.	Section 9.1.3 (3)
	Export Setting Data to CSV File ...	Export the monitor setting information to the CSV files.	Section 9.1.3 (4)
	Generate GOT Screen ...	Generate a GOT screen project for monitoring and tuning tags.	Section 9.1.3 (5)
	Close	Close the monitor setting window.	—
Edit	Cu <u>t</u> Ctrl + X	Cut the selected character string to the clipboard.	—
	<u>C</u> opy Ctrl + C	Copy the selected character string to the clipboard.	—
	<u>P</u> aste Ctrl + V	Paste the character string of the clipboard in the input cell position.	—
	<u>D</u> elete Del	Delete the selected character string.	—
	Delete Row Shift + Del	Delete the selected line.	—

Shortcut menu displayed when right-clicking the data setting grid, the same functions can be executed as the [Edit] on the menu.

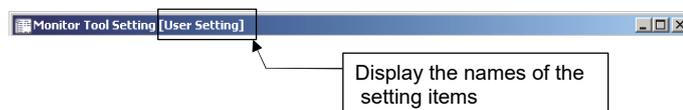


POINT

Targets of the copy and paste on the data setting grid are the basically-displayed character string (things such as the user setting password and the color setting of the lockout tag names displayed when setting lockout tag are not the copy targets).

(2) Title Bar

The display style of the title bar is in accordance with the normal windows. What the title character string displays is the item name character string of the final setting target. After opening the monitor setting window, if the setting items have not been selected, the setting item names will not be displayed.



(3) Setting Items Selection Area

In this area, various setting items can be switched.

This can be done by clicking the corresponding positions in the selection area.

The following are selectable setting items.

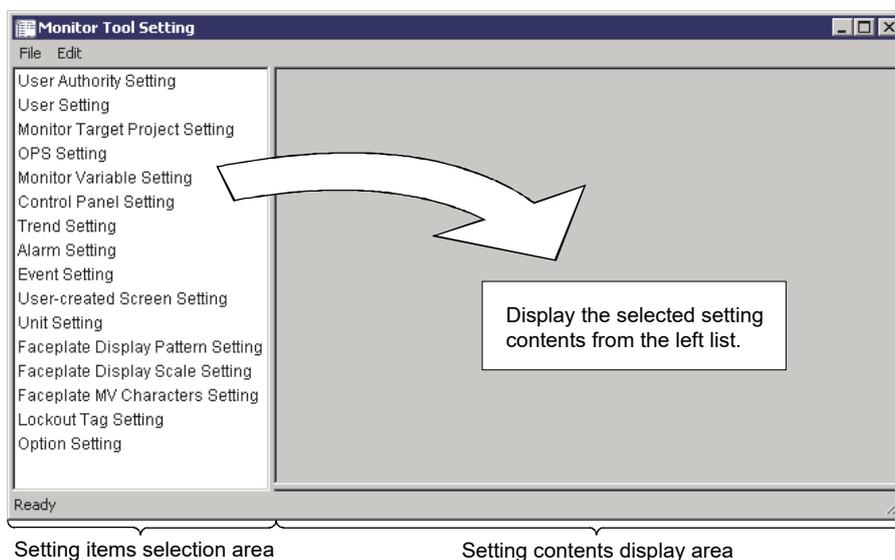
Option Item	Reference
User authority setting	Section 9.2
User setting	Section 9.3
Monitor target project setting	Section 9.4
OPS setting	Section 9.5
Monitor variable setting	Section 9.6
Control panel setting	Section 9.7
Trend setting	Section 9.8
Alarm setting	Section 9.9
Event setting	Section 9.10
User-created screen setting	Section 9.11
Unit setting	Section 9.12
Faceplate display pattern setting	Section 9.13
Faceplate display scale setting	Section 9.14
Faceplate MV characters setting	Section 9.15
Lockout tag setting	Section 9.16
Option setting	Section 9.17

(4) Setting Contents Display Area

In this area, the contents of the specified items on "Setting items selection area" are displayed.

Data setting of the contents can be done by inputting the data to the cell of the data setting grid.

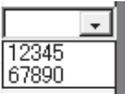
When the monitor setting window is just open (the initial status) and the setting items have not been selected, the background is gray and no content is displayed.



9.1.2 Inputting to data setting grid

(1) Input data to the cells

See the methods of inputting data to the cells of the data setting grid as below.

Input method	Display	Description
Text box		Select the cells directly input the setting data with the keyboard. The following are 2 methods to change the character string of the cell to the selection status. <ul style="list-style-type: none"> ● Move the cursor to the target cell, then press Ctrl + Enter key. ● Move the mouse cursor to the target cell, and then double click.
List box		Click the button on the right of the cell, list the list box, select from the list.
Button		Click the button on the right of the cell, display the dialog box, then execute setting on the dialog box. The same method with the one mentioned above in the text box can be used to input directly for setting the items of names, file names, and folder names.

POINT
<ul style="list-style-type: none"> ● With the various functions in [Edit] of the menu, several operations can be done: change the cell contents to the general file-creating software or paste the contents to the form calculation software, or input in groups the creating contents such as form calculation software to the cells. ● The copy and paste targets of the data setting grid are the basically-displayed character string (things such as the user-setting password and the color setting of the lockout tag names displayed when setting lockout tag are not the copy targets).

(2) Delete the data of the cells

There are 2 methods to delete data from the cells of the data setting grid:

- Press the key Delete.
- Select [Delete] under [Edit] of the menu or on the short-cut menu.

(3) Delete the Row data of the grid

There are 2 methods to delete a whole line of cells

- Press the key Shift + Delete key.
- Select [Delete Row] under the [Edit] of the menu or on the short-cut menu
Select "YES" on the confirm dialog box to delete the entire contents of one line.
When option setting, delete row cannot be used.

(4) Grid hierarchical display

Hierarchical lines according to groups are displayed with a  mark beside the items.

Click the , unbind the hierarchical lines.

Click the , close the hierarchy.

	Trend group names
	Trend group names
	Trend group names
---	Line1
---	Line2
---	Line3

(5) Set with the dialog box

The following part explains the common operations of various functions in the dialog box for the setting displayed when clicking buttons.

(a) File selection dialog box

It is the dialog box used to set the folders or file names of the targets to be specified.

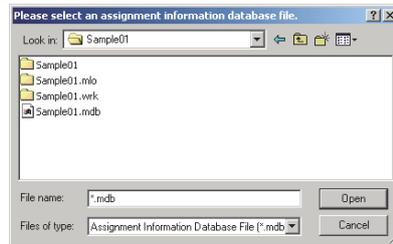


BASIC OPERATION

1. Select the target folder by using the list box on the [Look in] bar or the "Up" button (↑).
2. Display the file type selected by the list box of [Files of type] and the list of the next folders, and then clicks to select the target files/folders on it.
3. Input the file name to the [File name] if a new file is created.
4. Click the "Open" button.



DISPLAY/SETTING SCREEN



(b) Color selection dialog box

It is a dialog box used to set the specified display color.



BASIC OPERATION

1. Click the selected color display bar from [Basic colors].
2. Click the "Define Custom Colors" button to specify a color that does not exist in the [Basic colors]. On the displayed color samples, click the position of their favorite colors, or specify the [Hue], [Sat], [Lum] and the values of [Red], [Green], [Blue] to determinate the created colors. If the "Add to Custom Colors" button is clicked, the created color will be displayed in the bar under [Basic colors].
3. When the specified color is selected, click the "OK" button.



DISPLAY/SETTING SCREEN



9.1.3 Registering and saving the settings

If only the contents of the data setting grid are changed, the monitor tool setting will not change in the actual operation. It is necessary to click the "Apply" button to make the change valid.

The applied setting is saved in the setting data file when closing the setting screen or switching from the monitor target project setting to another setting item. It is still valid when the monitor tool is restarted.

The saving to the setting data file can also be done by operating "[Files] → [Save the setting data]" on the menu.

(1) Apply

Make the setting data valid.

When executing, the edited setting data will be checked.

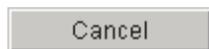
If the setting data is not correct, the message box will be displayed.



1. Click the "Apply" button of the setting window.
2. Click the "OK" button in the confirmation dialog box.

(2) Cancel

Cancel the setting data on the screens to undo the previously applicable data.



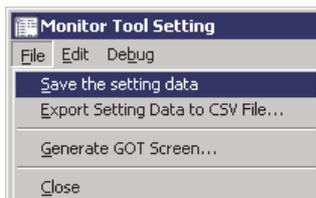
1. Click the "Cancel" button on the setting window.
2. Click the "OK" button in the confirmation dialog box.

(3) Save the setting data

Write the present applicable setting data to the setting data file.

The setting data cannot be saved during the process of changing.

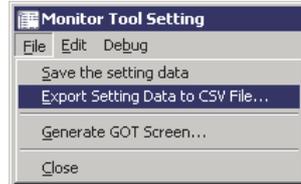
The changed setting can be applied or be saved again after being cancelled.



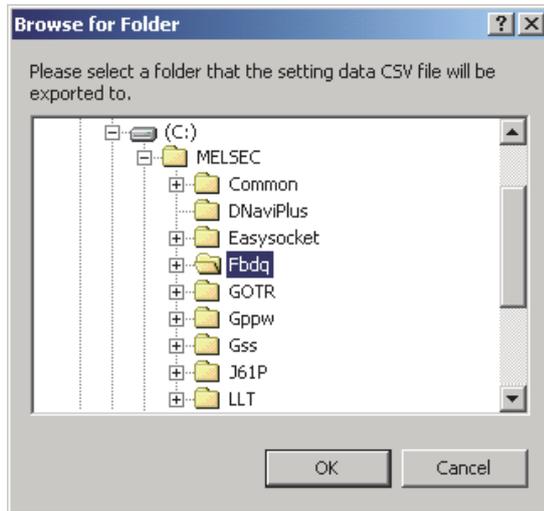
1. Execute "[File] → [Save the setting data]" on the menu.
2. Click the "OK" button in the confirmation dialog box.

(4) Export Setting Data to CSV File

Write the present applicable setting data in the CSV form to the specified files. The setting data cannot be saved during the process of changing. The changed setting can be made to be applicable or be saved again after being cancelled.



1. Execute "[File] → [Export Setting Data to CSV File...]" on the menu.



2. Specify the saving destination.
3. Click the "OK" button

Files are saved in the CSV form to each setting item of the specified folder. Files are automatically named in the form of "(Setting Item Name). csv".

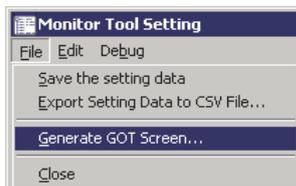
The following are the examples of the Export forms.
(User Setting. csv)

```
No., User Name, Password, Authority
1,admin,****, Enginner
2,user001,*****, Operator1
```

(5) Generate GOT Screen

Start up the GOT screen generator function (Wizard style) and generate a GOT screen project.

The GOT screen generator does not start while the setting data is being changed. For details, refer to "PX Developer Version 1 Operating Manual (GOT Screen Generator)".

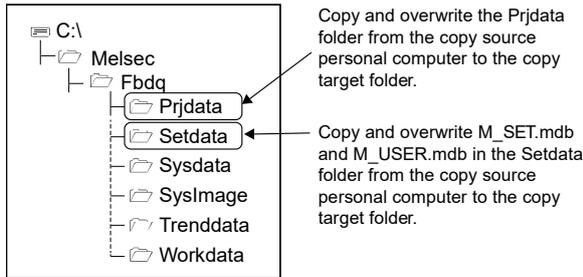


1. Execute "[File] → [Generate GOT Screen...]" on the menu.
2. GOT screen generator wizard is displayed.

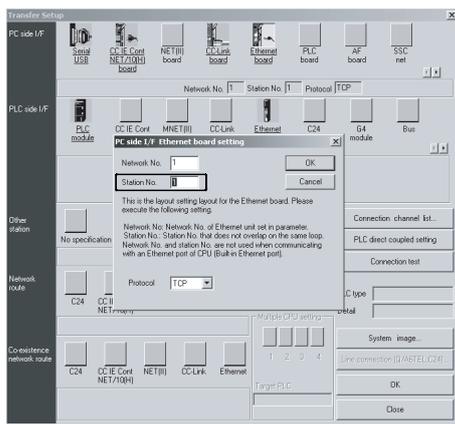
9.1.4 Copying monitoring environment of monitor tool to other computers

To copy the monitoring environment of monitor tool that is constructed in one personal computer to other ones, follow the procedures below.

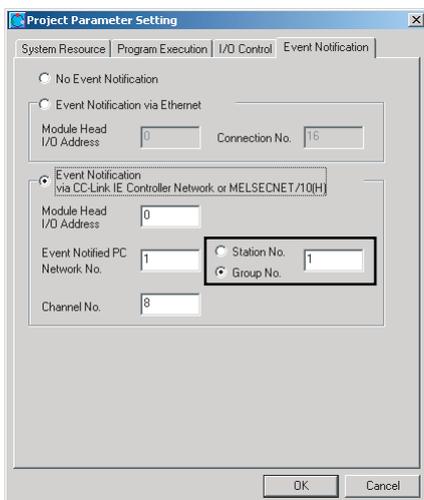
However, the following operations are not necessary in the server/client system configuration because the monitoring environment set in a server (primary server) is automatically copied to clients (secondary server).



1. Close the monitor tool in the copy target personal computers. Close the setting screen of the monitor tool in the copy source personal computer when it is opened.
2. Overwrite the data to the applicable folder in the PX Developer installation destination folder in the copy target personal computer. For the folder configuration of monitor tool, refer to Section 2.3.
3. Start up the monitor tool in the copy target personal computer.



4. When connecting to the PLC via Ethernet, call the "Transfer Setup" dialog box from the monitor target project setting and set a different station number for copy source and copy target personal computers in the PC side I/F Ethernet board setting.
5. Start up the monitor tool in the copy source personal computer.



6. When using the event notification function with CC-Link IE Controller Network or MELSECNET/10(H) connection, specify a group number of the event notified personal computer in the event notification setting of the programming tool. Subsequently, compile again and execute download so that both copy source and copy target personal computers are enabled to receive the event notification from the PLC. (Compilation and download need to be executed using the programming tool.)
For the event notification setting, refer to "GX Works3 Operating Manual" or "PX Developer Version 1 Operating Manual (Programming Tool)".
7. To change the transfer setup of the monitor target project setting in the monitor tool and perform "Apply"/"Reload", place the assignment information database file of the project to the path specified in the monitor target project setting.

POINT

- Communication performance

When the number of personal computers connecting to the PLC increases, the communication performance between the PLC and the personal computers decreases. The following shows how to check the communication performance.

- Display four control panel screens for each different group. Current value can be checked in the collection period of high-speed current value collection on the <<Collection Period for Each Communication Type>> tab of the PLC communication status screen (☞ Section 8.5). It is recommended that this value should be less than one second.
- Display two pop-up faceplate screens. Current value can be checked in the collection period of high-speed tag data collection on the <<Collection Period for Each Communication Type>> tab of the communication status screen. It is recommended that this value should be less than one second.

If the collection period mentioned above is longer than one second, it is recommended to configure the server/client monitoring system.

- Path for printers, folders and files

Monitor tool setting relating to the path for the following printers, folders and files may have different configurations in each personal computer. Therefore, adjust the configuration of the copy target personal computer to match with the configuration of the copy source personal computer. Or, overwrite the setting into the copy target personal computer and then set it again to match with the configuration of the copy target personal computer.

- Application of User-created screen setting
- Printer of option setting (General)
- Automatic alarm/event CSV file export of option setting (Alarm/Event general)
- Major alarm, minor alarm and event sound file of option setting (Alarm/Event)
- Trend binary data storage folder of option setting (trend graph)
- Automatic trend CSV file export target folder of option setting (trend graph)

9.2 User Authority Setting



PURPOSE

Set the operation authority range for users to be specified on User Setting (Section 9.3).



BASIC OPERATION

Check the operations authority for Operator1 to 4.



DISPLAY/SETTING SCREEN

Classification of operations	Operator1	Operator2	Operator3	Operator4	Engineer
<input type="checkbox"/> General					
<input type="checkbox"/> Stop buzzer	<input checked="" type="checkbox"/>				
<input type="checkbox"/> Print screen	<input checked="" type="checkbox"/>				
<input type="checkbox"/> Exit monitor tool	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Change of the values of tag data item					
<input type="checkbox"/> Process instruction values/Mode	<input checked="" type="checkbox"/>				
<input type="checkbox"/> Alarm threshold values	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Tuning parameter values	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Process design values	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Trend graph					
<input type="checkbox"/> Export to CSV file	<input checked="" type="checkbox"/>				
<input type="checkbox"/> Pop-up tuning					
<input type="checkbox"/> Export to CSV file	<input checked="" type="checkbox"/>				
<input type="checkbox"/> Tuning trend collecting instruction	<input checked="" type="checkbox"/>				
<input type="checkbox"/> Alarm/Event					
<input type="checkbox"/> Export to CSV file	<input checked="" type="checkbox"/>				
<input type="checkbox"/> Print	<input checked="" type="checkbox"/>				
<input type="checkbox"/> Confirm	<input checked="" type="checkbox"/>				
<input type="checkbox"/> Delete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> PLC communication status					
<input type="checkbox"/> Reset	<input checked="" type="checkbox"/>				
<input type="checkbox"/> Setting/Removing lockout tag					
<input type="checkbox"/> Operator1 Level	<input checked="" type="checkbox"/>				
<input type="checkbox"/> Operator2 Level	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Operator3 Level	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Operator4 Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Engineer Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



DISPLAY/SETTING DATA

1) Operation authority setting area

Setting item	Description	Input method	Initial setting				
			Operator1	Operator2	Operator3	Operator4	Engineer
General	Stop buzzer	Check box	<input checked="" type="checkbox"/> *1				
	Print screen		<input checked="" type="checkbox"/> *1				
	Exit monitor tool		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> *1

(To the next page)

Setting item		Description	Input method	Initial setting				
				Operator1	Operator2	Operator3	Operator4	Engineer
Change of the values of tag data item	Process instruction values/Mode	Set the authority of operation for changing tag data items which are to be process instruction values/mode such as SV, MV, and MODE.	Check box	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *1
	Alarm threshold values	Set the authority of operation for changing tag data item values which are to be alarm threshold values such as PH, HH, and SH.		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *1
	Tuning parameter values	Set the authority of operation for changing tag data item values which are to be tuning parameters such as P, I, D, and GG.		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *1
	Process design values	Set the authority of operation for changing tag data item values which are to be process design values such as INH, CT, and RH.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *1
Trend graph	Export to CSV file	Set the authority of operation for exporting trend data to CSV file.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *1
Pop-up tuning	Export to CSV file	Set the authority of operation for exporting tuning trend data to CSV file.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *1
	Tuning trend collecting instruction	Set the authority of operation for starting/stopping/clearing tuning trend data collection.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *1
Alarm/Event	Export to CSV file	Set the authority of operation for exporting data of alarm list/event list to CSV file.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *1
	Print	Set the authority of operation for printing the alarm list/event list.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *1
	Confirm	Set the authority of operation for checking the alarm list/event list.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *1
	Delete	Set the authority of operation for deleting the alarm list/event list.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *1
PLC communication status	Reset	Set the authority of operation for resetting the maximum value/number of times.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *1
Setting/Removing lockout tag	Operator1 Level	Set the authority of operation for setting/removing lockout tag for Operator1 level tag.		<input checked="" type="checkbox"/> *1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *1
	Operator2 Level	Set the authority of operation for setting/removing lockout tag for Operator2 level tag.		<input type="checkbox"/> *1	<input checked="" type="checkbox"/> *1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *1
	Operator3 Level	Set the authority of operation for setting/removing lockout tag for Operator3 level tag.		<input type="checkbox"/> *1	<input type="checkbox"/> *1	<input checked="" type="checkbox"/> *1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> *1
	Operator4 Level	Set the authority of operation for setting/removing lockout tag for Operator4 level tag.	<input type="checkbox"/> *1	<input type="checkbox"/> *1	<input type="checkbox"/> *1	<input checked="" type="checkbox"/> *1	<input checked="" type="checkbox"/> *1	
	Engineer Level	Set the authority of operation for setting/removing lockout tag for engineer level tag.	<input type="checkbox"/> *1	<input type="checkbox"/> *1	<input type="checkbox"/> *1	<input type="checkbox"/> *1	<input checked="" type="checkbox"/> *1	

Checked: Permitted, Uncheck: Prohibited

*1: Items for read-only.

- 2) "Restore default" button
Return setting content to the initial setting.

POINT
For details of operation authority for changing tag data items, refer to Appendix 4.

9.3 User Setting



PURPOSE

To register the users who use the monitor tools, to set the passwords and engineer/operator1 to 4 authority for each user.

The operation authority range is set on User Authority Setting (Section 9.2). Monitor tools execute the mode administration according to the user's authority. For details of the mode administration, refer to Chapter 4.



BASIC OPERATION

1. Input the user's (operator) name in the [User Name] cell.
2. Input the password that is only known by the user to the [Password] cell.
3. Select the user's authority in the list box of the [Authority] cell.



DISPLAY/SETTING SCREEN

No.	User Name	Password	Authority
1	admin	*****	Engineer
2	user001	*****	Operator
3	user002	*****	Engineer
4			
5			
6			
7			
8			



DISPLAY/SETTING DATA

Setting item	Description	Input method	Input restriction
User Name	Set the user name	Text box	8 characters
Password	Set user's password On the screen, characters of the password are displayed as "*".	Password dialog box	8 characters
Authority	User's authority is selected to be engineer/operator1 to 4.	List box	Engineer/Operator4/ Operator3/Operator2/ Operator1

Maximum 50 users can be registered.

The current user authority cannot be changed, and the current user cannot be deleted, either.

In the server/client monitoring system, users being used currently in clients cannot be changed. However, when clients connect to a secondary server in a redundant server system, users being used in the clients can be changed from a primary server. In this case, the setting data of the primary server are copied to the clients via the secondary server.

The same user name cannot be duplicated. Click the "apply" button to check whether user names are duplicated.

POINT

- If the user name is not registered, the password and authority cannot be set. First, make user setting.
- When starting the monitor tool in the mode that matches the authority of the specified user (Appendix 3.3), do not use a "/" (slash) or "-" (hyphen) in the first character of the user name and password.

9.4 Monitor Target Project Setting



PURPOSE

Set project (Assignment information database file) as monitor targets on the monitor tool.



BASIC OPERATION

1. Click the [Assignment information database file] button to open the project, and display the dialog box.
If setting the assignment information database file that needs to be opened, click the "Open" button, the assignment information database file name and the path will be displayed in the grid.
2. Click the button in the transfer setup field to display "Transfer Setup" dialog box according to the PLC type.
Specify the PLC transfer setup, click the "OK" button, close the dialog box, thus, connection path types are displayed on PLC transfer setup.
3. If there are any tags with the same name in different setting assignment information database file, when "Apply" or "Reload" button is clicked, the duplicated tag name will be displayed.



DISPLAY/SETTING SCREEN

<For standalone, server (non-redundant server system) and client (non-redundant server system)>

		Apply	Cancel	Reload						
No.	Project Name	Assignment Information Database File		PLC Type	Transfer Setup	Simulator Connection		Simulator Connection Destination		
1	PROJECT1	C:\USER\PROJECT1\PROJECT1.mdb		Q12PH	Ethernet	<input type="checkbox"/>	GX Simulator2	-----		
2	PROJECT2	C:\USER\PROJECT2\PROJECT2.mdb		Q25PRH		<input type="checkbox"/>	GX Simulator2	-----		
3	PROJECT3	C:\USER\PROJECT3\PROJECT3.mdb				<input type="checkbox"/>		-----		
4	PROJECT4	C:\USER\PROJECT4\FADB		R32P		<input type="checkbox"/>	GX Simulator3	-----		
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
		Duplicated Tag Name			Duplicated Project Name					
TAG001		PROJECT2.PROJECT4			PROJECT2.PROJECT4					
TAG002		PROJECT2.PROJECT4			PROJECT2.PROJECT4					

<For primary/secondary server and client (redundant server system)>

		Apply	Cancel	Reload						
No.	Assignment Information Database File	PLC Type	Primary Server Transfer Setup	Secondary Server Transfer Setup	Simulator Connection		Simulator Connection Destination			
1	C:\USER\PROJECT1\PROJECT1.mdb	Q12PH	Ethernet	Ethernet	<input type="checkbox"/>	GX Simulator2	-----			
2	C:\USER\PROJECT2\PROJECT2.mdb	Q25PRH	Ethernet	Ethernet	<input type="checkbox"/>	GX Simulator2	-----			
3	C:\USER\PROJECT3\PROJECT3.mdb				<input type="checkbox"/>		-----			



DISPLAY/SETTING DATA

1) Data setting area

Specify the connection method between GX Works3 project or PX Developer project as the monitor target on the monitor tool and CPU module in which a program is written.

See below for the setting items.

Setting item	Description	Input method	Input restriction
Project Name	Display the project name of the file set to the assignment information database file.	Non-editable	
Assignment Information Database File	Display the dialog box and the selection assignment information database file item of the opened assignment information database file.	File selection dialog box  (1) in this section	Files with fadb or mdb as extension name
PLC type	Display the PLC type stored in the above assignment information database file. For MELSEC iQ-R series redundant system, "(Redundant)" is displayed.	Non-editable	
Transfer Setup	Specify the PLC transfer setup in the PLC Transfer Setup dialog box. When more than one simulator connection is selected, a line will be drawn on the connection transfer.	Transfer Setup dialog box  (2), (3) in this section	
Primary Server Transfer Setup	In the redundant server system, specify the transfer setup with a primary server.		
Secondary Server Transfer Setup	In the redundant server system, specify the transfer setup of a secondary server with a primary server. When executing the connection test, do it with a secondary server.		
Simulator Connection	Select when connecting to simulator. A simulator to connect depends on a GX project type. <ul style="list-style-type: none"> ● GX Works3 project: GX Simulator3. ● GX Works2 project: GX Simulator2. ● GX Developer project: GX Simulator For GX Simulator3 or GX Simulator2, the maximum of 4 projects can be connected. For GX Simulator, only one project can be connected. For PC types which are not supported by simulator connection, "-----" is displayed.	Check box	Can be selected when standalone, server (non-redundant server system), or primary server is set.
Simulator Connection Destination	When connecting to GX Simulator3, '(system number. module number)' of a simulator to be connected is displayed. Select a connection target in the "Transfer Setup" dialog box. If the setting is not necessary, "-----" is displayed.	Connection Setting dialog box  (4) in this section	

POINT
<ul style="list-style-type: none"> ● When the transfer setup is specified with a primary server, the transfer setup of the other server can automatically be set by setting the transfer setup of either a primary or secondary server. In this case, when the PC side I/F is 'Ethernet board', the PC side station numbers of both a primary server and secondary server are automatically set avoiding the duplication. ● When connecting to a simulator, perform the simulation following the procedure shown below. <ol style="list-style-type: none"> 1) Start the programming tool. 2) Select [Project] → [Open Project] under the Menu to open a project (file with fpj extension) which connects to Simulator. 3) Select [Debug] → [Start Simulation] on the menu to start Simulator. ● When connecting to simulator which is not started up, the communication error will occur. ● Do not connect a simulator using monitor tool which is operating as a monitoring system. When more than one project to be connected to simulator is set, the data will not be sampled from PLC CPU. ● Clearing all the settings to be connected to simulator and clicking "Apply" button restart data sampling from PLC CPU. In order to not restart, clear the transfer setup and click the "Apply" button. ● For the project connected to simulator, change of operation mode and notification of warning/event occurrence will be delayed because event notification is not received. ● When starting multiple simulators at the same time, the operation of a personal computer may be slow due to high CPU usage rate. To lower the CPU usage rate, stop unnecessary simulators. It will not be lower even if unchecking the simulator connection on this screen.

2) Duplicated tags display area

Check the tag information of each item when displaying the screen or clicking the "Apply" button or "Reload" button. If there are any duplicated tag names, they will be displayed.

See as below for the setting items.

Setting item	Content	Input method	Input restriction
Duplicated Tag Name	If there are any tags with the same name on the different project the tag name will be displayed.	Non-editable	/
Duplicated Project Name	The projects names with duplicated tag names will be displayed.	Non-editable	/

3) Apply button, Reload button

Read the setting tag data assignment information to the assignment information database file.

POINT
<ul style="list-style-type: none"> ● All data collection operations (including tuning trend collection) are stopped during registration of assignment information database file. ● Reading all tag data may take time until start is completed. ● Use the "Reload" button to re-register the assignment information database file that was recompiled by the programming tool and then written to the PLC. Also make the following checks. <ul style="list-style-type: none"> ● Check that the same project does not exist. ● Check that there is no contradiction between the PLC type of the assignment information database and that of the Transfer Setup. ● Be sure to re-register Assignment information database files when changing the start of file register (ZR) in the <<System Resource>> tab in the project parameter setting of the programming tool and performing PLC download. ● In the monitor tool of PX Developer Version 1.51D or later, up to 1000 tags of assignment information database files which were exported by using GX Works3 Version 1.050C or later can be registered.

4) Supportability icon

Indicates whether the assignment information database file specified in "1) Data setting area" can be used with the monitor tool.

This icon is displayed when the assignment information database is ensured. The display definition is as described below.

Icon	Definition
	The specified assignment information database can be used. Tag data can be monitored/controlled with the monitor tool.
	The specified assignment information database cannot be used. Confirm the displayed error message before taking the action. An error message is displayed in the message box or the status bar (when the relevant cell (s) is (are) selected).

POINT
If the support possibility icon displays "Transfer Setup" dialog box will not appear by clicking "Transfer Setup" button.

REMARK

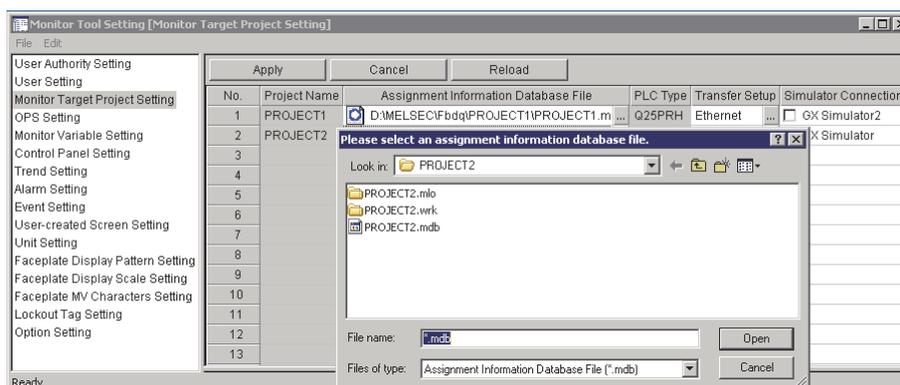
When searching with the find function through the specified tag names, if there are any same tag names on different project, the project tags with a higher priority will be found. When setting the monitor target project, the smaller of the [No.] is, the higher its priority is. If there are several duplicated project tag names, the tag name should be specified in the form of (project name):(tag name) when searching and displaying the only tag by the tag of the monitor tool.

(1) Set assignment information database file

Specify the GX Works3 project or PX Developer project selected as monitor target on the monitor tool. The current specified assignment information database file refers to the files. These files were made beforehand when being compiled by the programming tool.

The files can be set by 2 methods. One is to directly input the character string to the cell of [Assignment Information Database File], the other one is to click the cell button to select in the displayed file selection dialog box.

For details, refer to "Section 9.1.2 Inputting to data setting grid".

**POINT**

- The assignment information database file stores the variable assignment information, which stores tag data, etc., and the device information of the CPU module.

The monitor tool performs monitoring, etc. of tag data on the basis of this assignment information database.
- Do not specify the same project name.

Even if they have different path names of the assignment information database file, the projects will be recognized as the same project, when the same name has been assigned to them.

When changing a project name, save the project as different name using the programming tool, and then re-set the project name using monitor tool.
- When the project has been re-compiled with the programming tool and downloaded to the PLC, it is necessary to click the "Reload" button to re-register the assignment information database file.

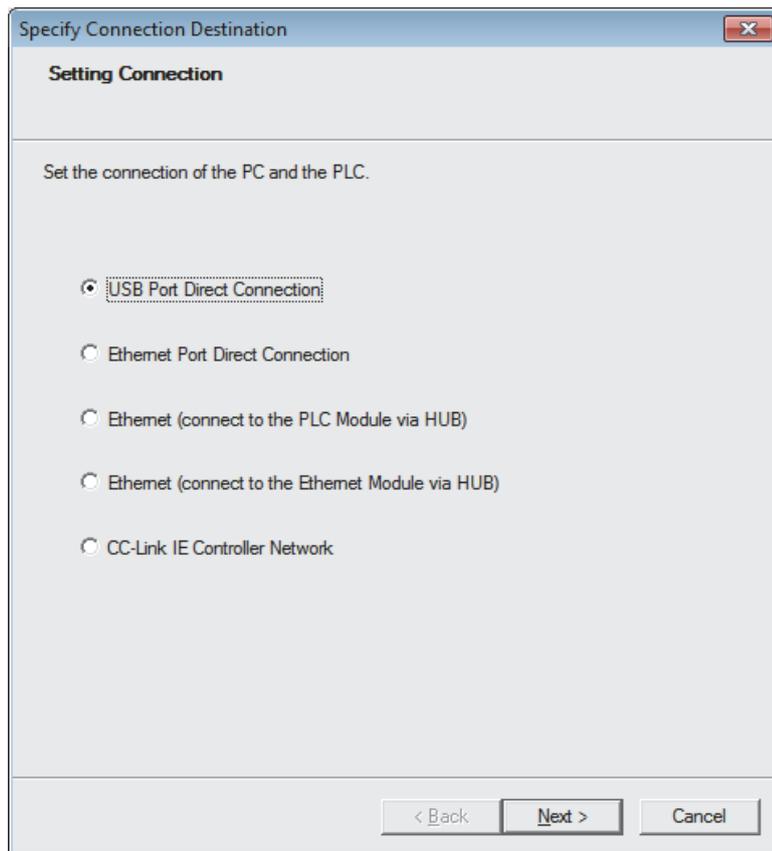
(2) Set transfer setup(MELSEC iQ-R)

Specify the connection method to the CPU module in which a program is written. By clicking the cell button of [Transfer setup], the connection methods can be set on the displayed transfer setup specified window.

(a) "Setting Connection" window

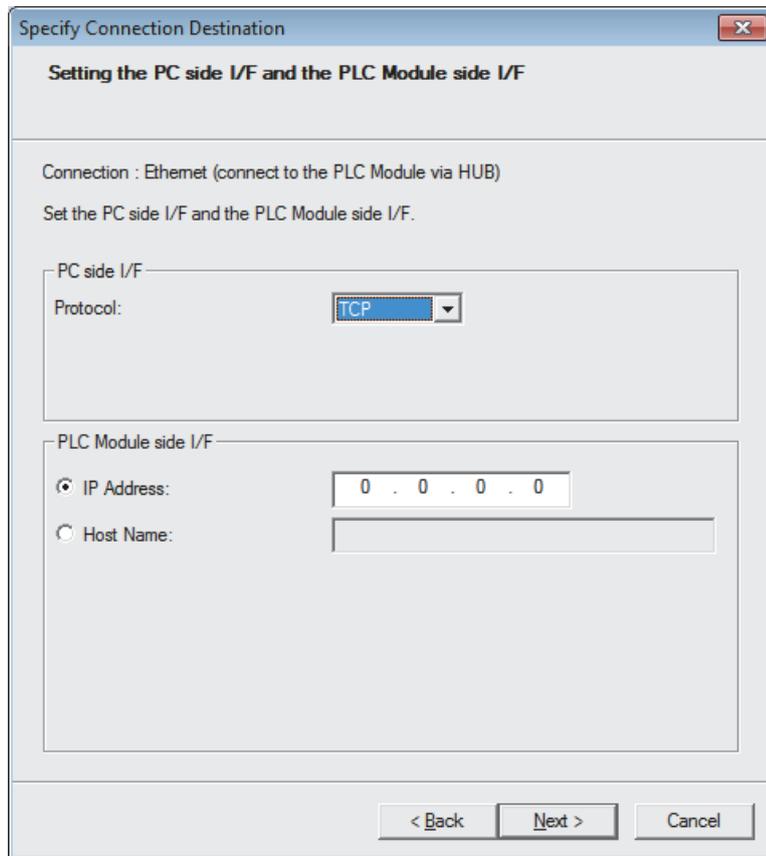
Specify the connection method to a CPU module.

A setting screen for the specified connection method or a checking screen for the set contents is displayed.



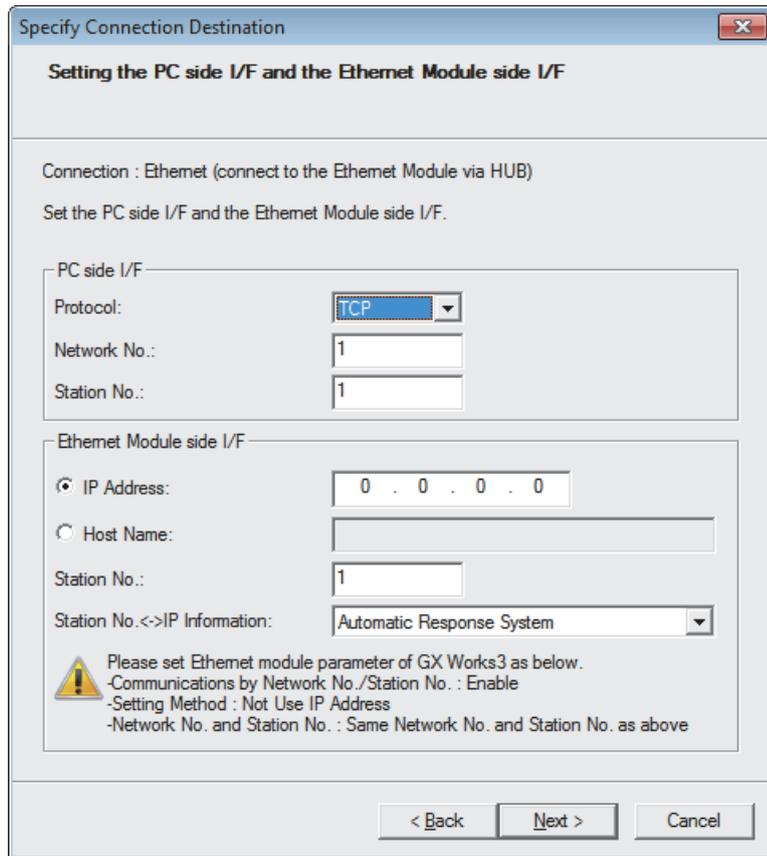
PLC Transfer Setup	Setting Connection
USB	USB Port Direct Connection
Ethernet	Ethernet Port Direct Connection
	Ethernet (connect to the PLC Module via HUB)
	Ethernet (connect to the Ethernet Module via HUB)
CC IE Cont	CC-Link IE Controller Network

(b) "Setting the PC side I/F and the PLC Module side I/F" window



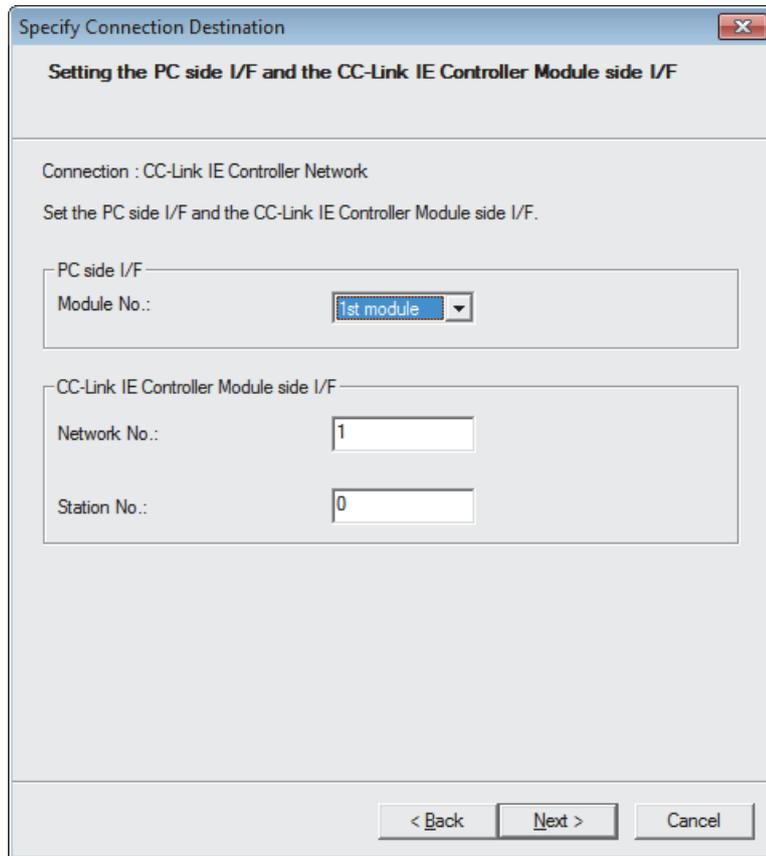
Item		Description
PC side I/F	Protocol	Select the protocol.
PLC Module side I/F	IP Address	Input IP address or host name.
	Host Name	

(c) "Setting the PC side I/F and the Ethernet Module side I/F" window



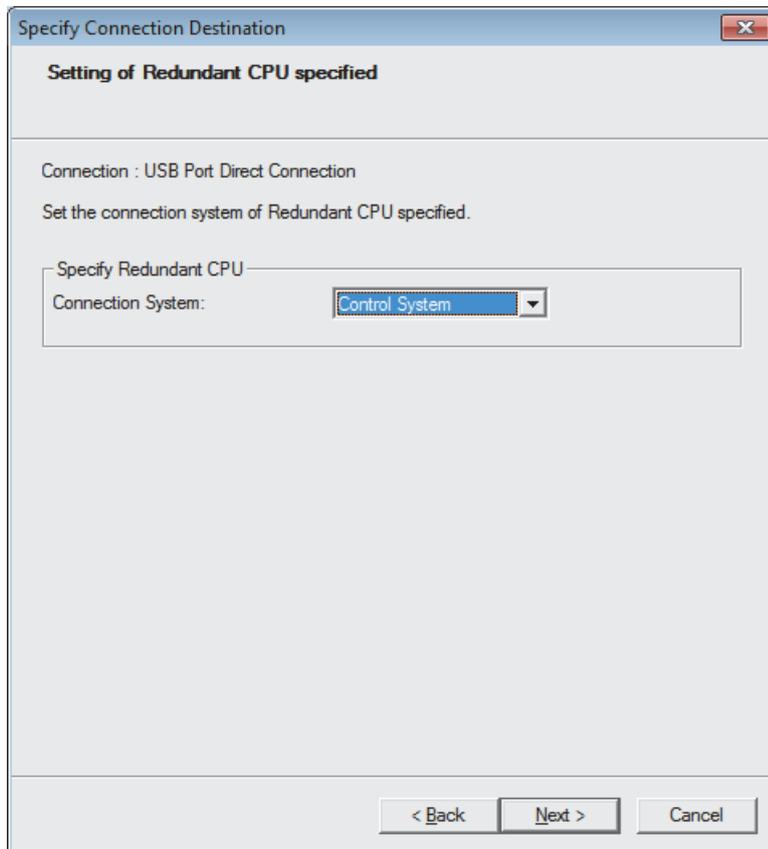
Item		Description
PC side I/F	Protocol	Select the protocol.
	Network No.	Specify the network number.
	Station No.	Specify the station number.
Ethernet Module side I/F	IP Address	Input IP address or host name.
	Host Name	
	Station No.	Specify the station number.
	Station No.<-> IP Information	Specify the Station No.<-> IP Information.

- (d) "Setting the PC side I/F and the CC-Link IE Controller Module side I/F" window



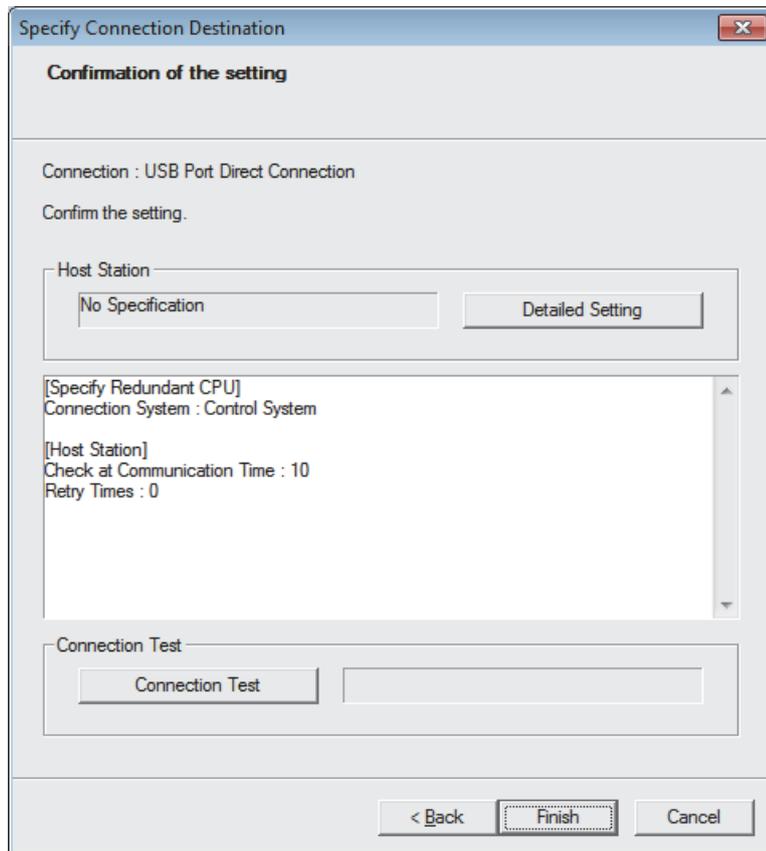
Item		Description
PC side I/F	Module No.	Select the module number.
CC-Link IE Controller Module side I/F	Network No.	Specify the network number.
	Station No.	Specify the station number.

(e) "Setting of Redundant CPU specified" window



Item		Description
Specify Redundant CPU	Connection System	Specify the connection system.

(f) "Confirmation of the setting" window

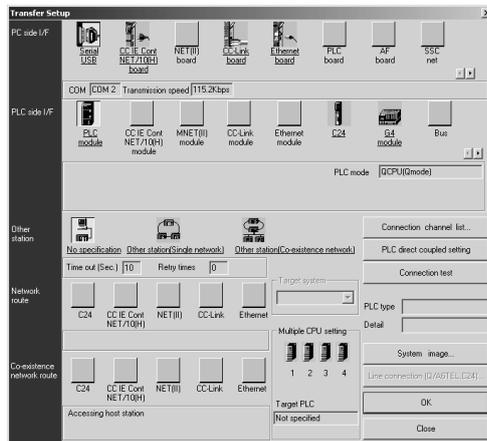


Item	Description
Host Station	Display the Host Station/Other station setting condition.
"Detailed Setting" button	Display the Host station Detailed setting /Other station Detailed setting dialog box.
Setting	Display the setting contents.
"Connection Test" button	Perfomed the connection test with PLC CPU by the setting contents.
Connection Test	Display the connection test results.

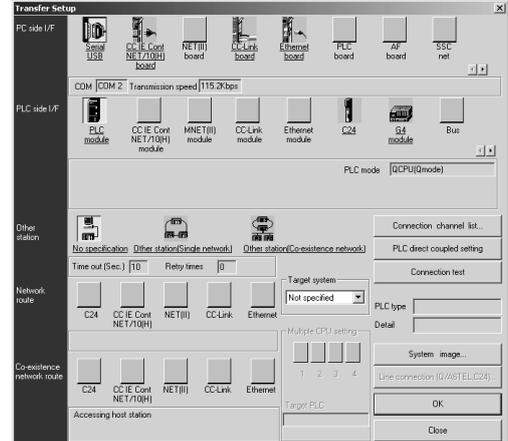
(3) Set transfer setup(MELSEC-Q)

Specify the connection method to the CPU module in which a program is written. By clicking the cell button of [Transfer setup], the connection methods can be set on the displayed transfer setup specified window.

Please refer to the "PX Developer Version 1 Operating Manual (Programming Tool)" for details.



< Process CPU/Universal model process CPU >



< Redundant CPU >

See as below for the transfer setup that can be set by the monitor tool and the specified contents on the "Transfer Setup" dialog box.

(a) Connecting to Process CPU/Universal model process CPU

PLC Transfer Setup	PC side I/F	PLC side I/F	Other station	Network route	Co-existence network route
Serial *1 USB *1	Serial USB	PLC module C24 MNET/10(H) remote	No specification *2		
			Other station (Single network)	C24 CC-Link NET/10(H) Ethernet	
			Other station (Co-existence network)	C24 CC-Link NET/10(H) Ethernet	NET/10(H) Ethernet C24 CC-Link
		G4 module	Other station (Single network)	CC-Link	
			Other station (Co-existence network)	CC-Link	NET/10(H) Ethernet
CC IE Cont MNET/10 MNET/H	CC IE Cont NET/10(H) board	CC IE Cont NET/10(H) module	Other station (Single network)	CC IE Cont NET/10(H)	
			Other station (Co-existence network)		C24 CC-Link
Ethernet	Ethernet board	Ethernet module	Other station (Single network)	Ethernet	
			Other station (Co-existence network)		C24 CC-Link
CC-Link *1	CC-Link board	CC-Link module	Other station (Single network)	CC-Link	
			Other station (Co-existence network)		NET/10(H) Ethernet

*1: Serial, USB, the built-in Ethernet port of a built-in Ethernet CPU (by direct connection) and CC-Link connection are allowed for adjusting the CPU.

*2: Cannot select when PLC side I/F is MNET/10 (H) remote.

(b) Connecting to Redundant CPU

PLC Transfer Setup	PC side I/F	PLC side I/F	Other station	Network route	Co-existence network route	Target system *4
Serial *1 USB *1	Serial USB	PLC module C24 MNET/10(H) remote	No specification *2	/	/	Control System Standby System System A System B Not specified
			Other station (Single network)	C24 CC-Link NET/10(H) Ethernet	/	
			Other station (Co-existence network)	C24 CC-Link NET/10(H) Ethernet	NET/10(H) Ethernet C24 CC-Link	
		G4 module	Other station (Single network)	CC-Link	/	
			Other station (Co-existence network)	CC-Link	NET/10(H) Ethernet	
		CC IE Cont MNET/10 MNET/H	CC IE Cont NET/10(H) board *3	CC IE Cont NET/10(H) module	Other station (Single network)	
Other station (Co-existence network)	C24 CC-Link					
Ethernet	Ethernet board	Ethernet module	Other station (Single network)	Ethernet	/	
			Other station (Co-existence network)		C24 CC-Link	
CC-Link *1	CC-Link board	CC-Link module	Other station (Single network)	CC-Link	/	
			Other station (Co-existence network)		NET/10(H) Ethernet	

*1: Serial, USB and CC-Link connection are allowed for adjusting the CPU.

*2: Cannot select when PLC side I/F is MNET/10 (H) remote.

*3: The MELSECNET/10 board is inapplicable, as the driver (SW□DNF-MNET10) is incompatible with Redundant CPU. Use the MELSECNET/H board compatible with Redundant CPU.

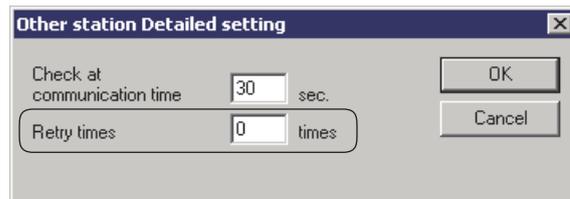
*4: The connection target specified in Target system is as shown in the following table.

Options	Connection target
Not specified	CPU direction connection: The CPU module directly connected to personal computer Via a module mounted to the main base unit: The CPU module of station in which the network module corresponding to the station No. specified in Network communication path is mounted. Via a module mounted to the redundant type extension base unit: The CPU module in the control system
Control System	The CPU module in the control system
Standby System	The CPU module in the standby system
System A	The CPU module to which the A side connector of tracking cable is connected.
System B	The CPU module to which the B side connector of tracking cable is connected.

In the initial setting, "Control system" is set. If this setting causes an error when the system is switched in Redundant CPU, the control system is always monitored.

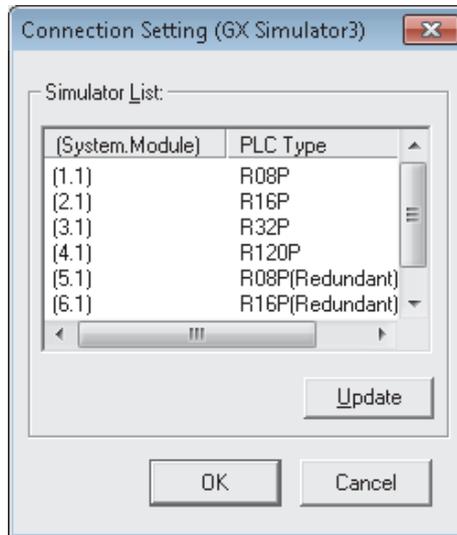
POINT

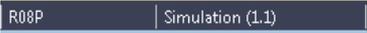
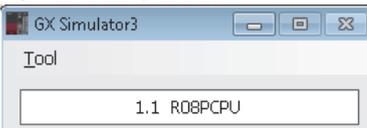
- If the assignment information database file is not registered, PLC connection target cannot be set.
- For communication route, refer to Section 2.1.2.
- If connecting through the network, the network parameter must be set through transfer setup.
For a method for setting the network parameter, refer to the following manuals:
 - GX Works2 Version 1 Operating Manual (Common)
 - GX Developer Version 8 Operating Manual
- When connecting to the Redundant CPU in the debug mode, make sure to specify it as "Not Specified", "System A" or "Control system".
Otherwise, a communication error may occur, or monitoring may not be performed properly.
- Set the number of retry times on the Host station Detailed setting /Other station Detailed setting dialog box selected in Other station to retry (reopen + read) for the number of times being set when the processing which reads device data from CPU module fails. The communication read error does not occur when the read processing succeeds during retry.



- "CC-Link IE Field Network board" cannot be specified as PC side I/F. In addition, it cannot be specified to network communication route.

- (4) Setting a simulator connection target (GX Simulator3)
 Select a connection target in the running simulators.



Item	Description
Simulator List	<p>A running simulator is displayed.</p> <p>Select a simulator to connect.</p> <p>The numbers of a System.Module and PLC types are also displayed in the status bar of GX Works3 that is being simulated and on the GX Simulator3 screen.</p> <ul style="list-style-type: none"> • Status bar of GX Works3  <ul style="list-style-type: none"> • GX Simulator3 screen 
"Update" button	Update the simulator list.

9.5 OPS Setting



PURPOSE

To display the monitor tool execution type setting dialog box and set a monitor tool to be executed as either of Standalone/Server/Client. Additionally in a server, to manage the communication information and OPS names for communicating to all clients.



BASIC OPERATION

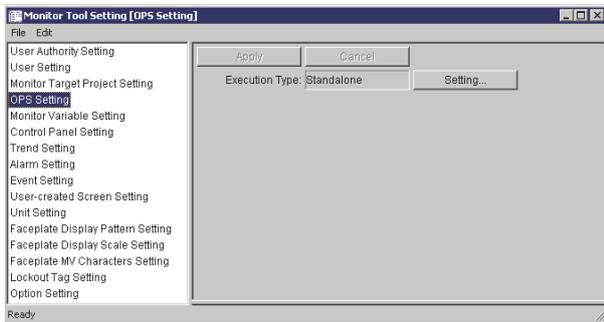
1. Start up a monitor tool and display this setting screen.
2. Click the "Setting..." button to display the monitor tool execution type setting dialog box. Select the execution type and click the "OK" button.
3. In a server, select the address type from the list box and enter IP addresses or host names*1 of clients at [Communication Setting] cells of the OPS setting screen.
4. Enter desired OPS names at the [OPS Name] cells.

*1: The network setting of personal computers must be done in advance.

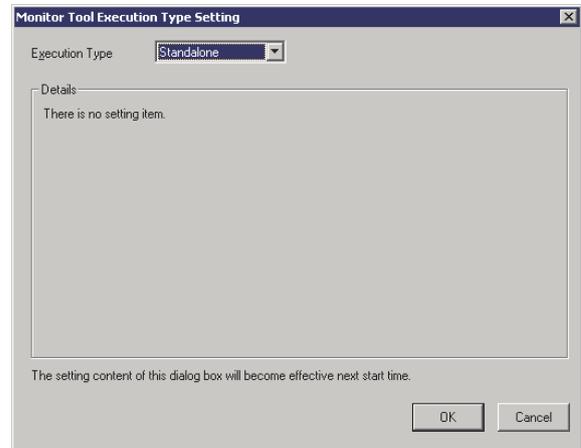
(1) Standalone



DISPLAY/SETTING SCREEN



<OPS Setting screen>



<Monitor Tool Execution Type Setting dialog box>



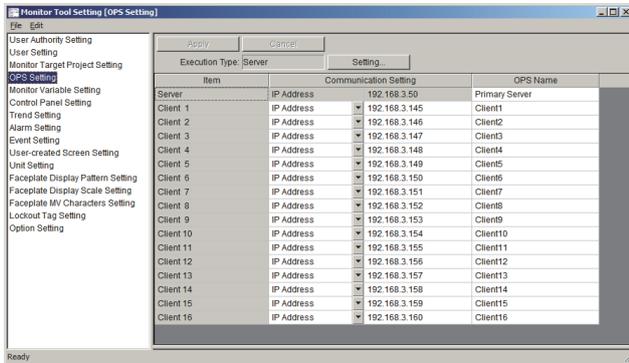
DISPLAY/SETTING DATA

Setting item	Description	Input method	Input restriction	Initial setting
Execution type	Select the execution type of a monitor tool from Standalone/Server/Client.	List box	Standalone/Server/Client	Standalone

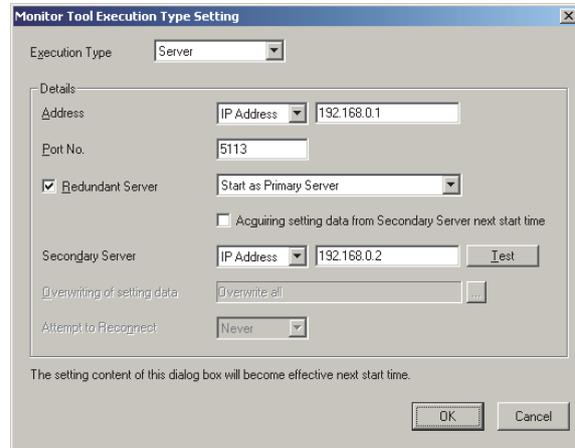
(2) Server



DISPLAY/SETTING SCREEN



<OPS Setting screen>



<Monitor Tool Execution Type Setting dialog box>



DISPLAY/SETTING DATA

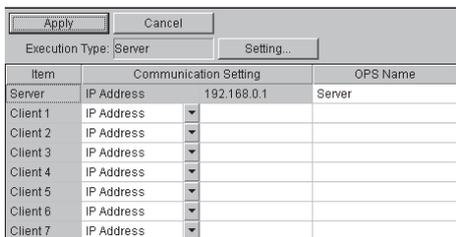
Setting item	Description	Input method	Input restriction	Initial setting
Execution type	Select the execution type of a monitor tool from Standalone/Server/Client.	List box	Standalone/Server/Client	Standalone
Address	Address Type Select IP Address or Host Name with which specifying a server address to be started.	List box	IP Address/Host Name	IP Address
	Server Address Specify an IP address*1 or Host name, depending on the choice at the list box.	Text box	IP Address: 15 characters Host Name: 63 characters	IP address of own personal computer (Depending on the OS specification if multiple network cards are mounted.) It remains blank if the network setting is not done.
Port No.	Specify a port number used by a server as the server/client communication.	Text box	1024 to 65535	5113
Redundant Server	Select whether to configure the redundant server system. Checked.....Redundant Unchecked...Non-redundant	Check box	—	Unchecked
Execution type in the redundant server system	In the redundant system, select whether to start as Primary Server or Secondary Server.	List box	Start as Primary Server/Start as Secondary Server	Start as Primary Server
Acquiring setting data from Secondary Server next start time	In a primary server, select whether to acquire the setting data from a secondary server at the next startup. Checked.....Acquire the setting data from a secondary server at the next startup. This option is reset at the next start up. Unchecked...Not acquire the setting data.	Check box	—	Unchecked

(To the next page)

Setting item		Description	Input method	Input restriction	Initial setting
Another Server	Address Type	For the redundant server system configuration, select IP Address or Host Name with which specifying another server address to be installed.	List box	IP Address/ Host Name	IP Address
	Another Server Address	Specify an IP address*1 or Host name, depending on the choice at the list box.	Text box	IP Address: 15 characters Host Name: 63 characters	—
	"Test" button	Test to connect to another server using the specified server address and port.			—
Overwriting of setting data		The Detail setting of overwriting the setting data dialog box is displayed by clicking the  button. Contents set in the dialog box are displayed.			
Attempt to Reconnect		In a secondary server, select whether to try to reconnect to a primary server when a communication error occurs with the primary server. Never: Not try to reconnect. Once to Three times: Try to reconnect for the specified number of times until it succeeds to connect.	List box	Never/ Once/ Twice/ Three times	Once

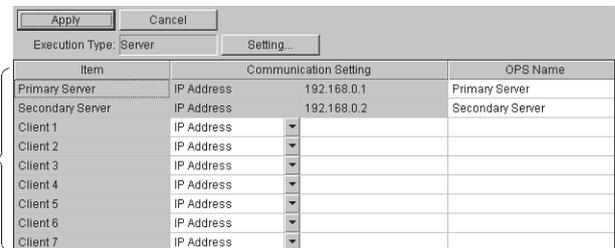
*1: Enter an IP address in dotted-decimal format - 4 sets of numbers from 0 to 255 separated by periods.

The following shows the OPS setting screen when the execution type is Server.



Not displayed when the execution type is not Server.

<OPS Setting screen (Server (non-redundant server system))>



<OPS Setting screen (Server (redundant server system))>

Setting item		Description	Input method	Input restriction
Execution Type		Display the execution type specified in the monitor tool execution type setting dialog box.		
"Setting..." button		Display the monitor tool execution type setting dialog box.		
Communication setting	Address Type	Select IP Address or Host Name with which specifying the communication setting of each OPS. *1	List box	IP Address/ Host Name
	OPS Address	Specify an IP address*2 or host name, depending on the choice at the list box.*1	Text box	IP Address: 15 characters Host Name: 63 characters
OPS Name		Specify an OPS name.	Text box	32 characters

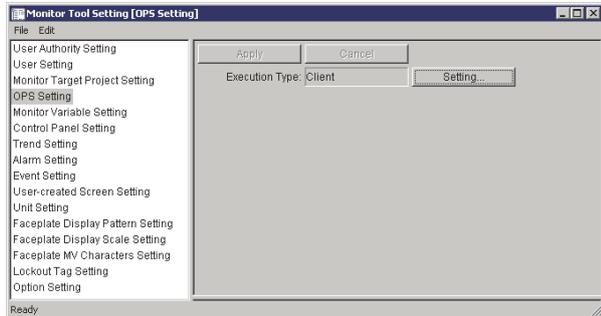
*1: In the line of Server, settings specified in "Server" of the monitor tool execution type setting are displayed and cannot be changed.

*2: Enter an IP address in dotted-decimal format - 4 sets of numbers from 0 to 255 separated by periods.

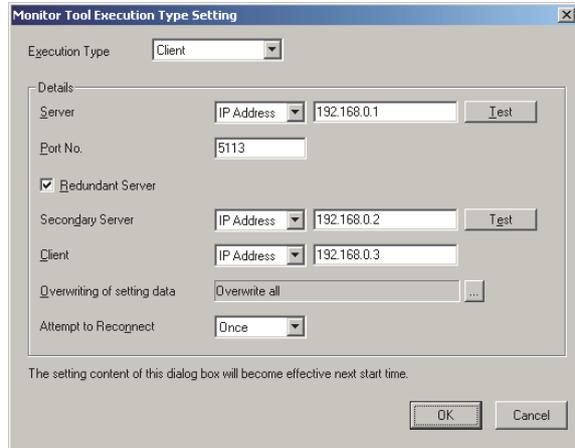
(3) Client



DISPLAY/SETTING SCREEN



<OPS Setting screen>



<Monitor Tool Execution Type Setting dialog box>



DISPLAY/SETTING DATA

Setting item	Description	Input method	Input restriction	Initial setting	
Execution type	Select the execution type of a monitor tool from Standalone/Server/Client.	List box	Standalone/Server/Client	Standalone	
Server	Address Type	Select IP Address or Host Name with which specifying a server address to be connected.	List box	IP Address/Host Name	IP Address
	Server Address	Specify an IP address*1 or Host name, depending on the choice at the list box. When connecting to the redundant server system, specify an IP address of a primary server.	Text box	IP Address: 15 characters Host Name: 63 characters	—
	"Test" button	Test to connect to a server using the specified server address and port.			—
	Port No.	Specify a port number used by a client as the server/client communication.	Text box	1024 to 65535	5113
Redundant Server	Select whether to connect to the redundant server system and switch servers automatically when a server error occurs.	Check box	—	Unchecked	
Secondary Server	Address Type	When connecting to the redundant server system, select IP Address or Host Name with which specifying a secondary server address to be connected.	List box	IP Address/Host Name	IP Address
	Secondary Server Address	Specify an IP address*1 or Host name, depending on the choice at the list box.	Text box	IP Address: 15 characters Host Name: 63 characters	—
	"Test" button	Test to connect to secondary server using the specified server address and port.			—

(To the next page)

*1: Enter an IP address in dotted-decimal format - 4 sets of numbers from 0 to 255 separated by periods.

Setting item		Description	Input method	Input restriction	Initial setting
Client	Address Type	Select IP Address or Host Name with which specifying a client address.	List box	IP Address/ Host Name	IP Address
	Client Address	Specify an IP address*1 or host name, depending on the choice at the list box.	Text box	IP Address: 15 characters Host Name: 63 characters	IP address of own personal computer (Depending on the OS specification if multiple network cards are mounted.) It remains blank if the network setting is not done.
Overwriting of setting data		The Detail setting of overwriting the setting data dialog box is displayed by clicking the <input type="checkbox"/> button. Contents set in the dialog box are displayed.			
Attempt to Reconnect		In a secondary server, select whether to try to reconnect to a primary server when a communication error occurs with the primary server. Never: Not try to reconnect. Once to Three times: Try to reconnect for the specified number of times until it succeeds to connect.	List box	Never/ Once/ Twice/ Three times	Once

*1: Enter an IP address in dotted-decimal format - 4 sets of numbers from 0 to 255 separated by periods.

POINT
<ul style="list-style-type: none"> ● When being started as Primary server, the OPS can be started using the setting data of a secondary server. In the redundant server system, even after a primary server is replaced due to its failure, it can be started up using the same setting data as before the failure by acquiring the setting data from a secondary server. To enable this function, select "Start as Primary Server" in the monitor tool execution type setting and check "Acquiring setting data from Secondary Server next start time". ● Specify the same port number for one used by a server and ones used by clients. ● Make the port number setting not to overlap on well-known port numbers and port numbers used by software other than the monitor tool. ● In a monitor tool running as Client, if 'Overwrite all' is selected in "Overwriting of setting data", customizable settings changed in a client are overlapped with the setting data of a server when the client is started up or the setting data are acquired from the server. (☞ Section 8.6.1) ● The settings changed in the monitor tool execution type setting become valid at the next start up of the monitor tool. ● In a monitor tool running as Secondary Server in the server redundant system, if 'Overwrite all' is selected in "Overwriting of setting data", customizable settings changed in the secondary server are overlapped with the setting data of a primary server when the secondary server is started up or the setting data are acquired from the primary server. In addition, the same thing happens when a primary server is started up using the setting data of a secondary server. ● Even though the communication with a server temporarily fails due to reasons such as bad cable connection and heavy network load, it may be reconnected to the server automatically by setting the number of times of retry in "Attempt to Reconnect".

(4) Detail setting of overwriting the setting data dialog box

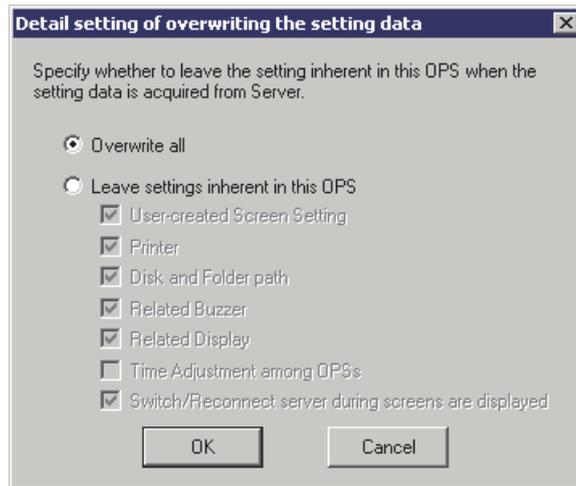


PURPOSE

To specify whether to leave the setting inherent in the OPS when the setting data are acquired from a primary server to a secondary server or a server to a client.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Setting item	Description	Input method	Initial setting
Overwrite all	Select this to overwrite all settings in the OPS when acquiring the setting data. However, even if the "overwrite all" setting is enabled, the data is not overwritten if monitor tool execution type setting is done.	Radio button	ON
Leave settings inherent in this OPS	Select this not to overwrite the setting items in the OPS selected in the following check boxes when acquiring the setting data.	Radio button	OFF
User-created Screen Setting	Select this not to overwrite each setting.	Check box	Checked
Printer			
Disk and Folder path			
Related Buzzer			
Related Display			
Time Adjustment among OPSs*1	Select this not to overwrite setting.	Check box	Unchecked
Switch/Reconnect server during screens are displayed*2	Select this not to overwrite setting.	Check box	Checked

*1: When the "Time Adjustment among OPSs" setting is disabled in setting data acquisition, "Time Adjustment among OPSs" on Option Setting is switched to "Yes" when acquiring setting data from a server.

*2: When the "Switch/Reconnect server during screens are displayed" setting is disabled in setting data acquisition, "Switch/Reconnect server during screens are displayed" on Option Setting is switched to "No" when acquiring setting data from a server.

9.6 Monitor Variable Setting



PURPOSE

Register global variables and devices as monitor variable beforehand when monitoring process data other than tag variable.



BASIC OPERATION

1. Input the global variable or device name in the content cell of [Variable Name/Device].
2. When specifying device name directly, select data type from the list box.
3. Set upper/lower limit as monitor variable, select digits after decimal point and unit from the list box.
4. Setting on [Variable Name/Device] verifies project variables which are registered on the monitor target project setting (global variables) with setting data being input, and displays existence or nonexistence of global variables, valid/invalid device name automatically.
5. When clicking the "Apply" button, checks whether [Variable Name/Device] are duplicated or not, Low Limit < High Limit or not. When an error is found, error message will be displayed.



DISPLAY/SETTING SCREEN

The × icon indicates that the variable is unusable.

Error message display area

No.	Variable Name/Device	Data Type	Variable Type	Low Limit	High Limit	Digits after Decimal Point	Unit	Comment
1	Global1	REAL	Global Variable	-100	300	1	1 °C	Variable comment
2	Global2	WORD	Global Variable	H0000	HFFFF		2 t	
3	Global3							
4	Global4	REAL	Global Variable	0	14	4	3 mm	
5	M3000	BOOL	Device					
6	D1000	INT	Device	0	100		1 °C 2 t 3 mm 4 pH 5 6 7 8 9 10 11 12	
7								
8								
9								
10								
11								
12								
13								
14								
15								



DISPLAY/SETTING DATA

Setting item	Description	Input method	Input restriction	Initial setting
Variable Name/Device	Set the global variables of which elementary data type (except ADR_REAL, STRING) are declared in programming tool or device name (Example: D100).	Text box	213 characters	—

(To the next page)

Setting item	Description	Input method	Input restriction	Initial setting															
Data Type	Select data type for direct specification of device name.	List box	Editable only for direct specification of device name.	<ul style="list-style-type: none"> Global variable The data types of global variables are displayed. Device Bit device: BOOL (Ex: M1000, D1000.1) Word device: INT 															
Variable Type	Display a variable type (global variable/device variable) of monitor variable.	Text box		—															
Low Limit	Set the low limit as monitor variable.	Text box	REAL (Single precision floating decimal fraction) Editable only for the data type is INT/DINT/REAL.	<table border="1"> <thead> <tr> <th>Data type</th> <th>Low limit</th> <th>High limit</th> </tr> </thead> <tbody> <tr> <td>INT/DINT/REAL</td> <td>0</td> <td>100</td> </tr> <tr> <td>BOOL</td> <td>—</td> <td>—</td> </tr> <tr> <td>WORD</td> <td>H0000</td> <td>HFFFF</td> </tr> <tr> <td>DWORD</td> <td>H00000000</td> <td>HFFFFFFFF</td> </tr> </tbody> </table>	Data type	Low limit	High limit	INT/DINT/REAL	0	100	BOOL	—	—	WORD	H0000	HFFFF	DWORD	H00000000	HFFFFFFFF
Data type	Low limit				High limit														
INT/DINT/REAL	0	100																	
BOOL	—	—																	
WORD	H0000	HFFFF																	
DWORD	H00000000	HFFFFFFFF																	
High Limit	Set the high limit as monitor variable.																		
Digits after Decimal Point	Set the digits after decimal point of monitor variable.	List box	Selectable from 0 to 4 only when the data type is REAL.	When data type is REAL: 1 Other than the above : —															
Unit	Select a unit for monitor variable.	List box	Items set in the unit setting (☞ Section 9.12)	—															
Comment	Set a comment of monitor variable.	Text box	64 characters	—															
Error message display area	When clicking the "Apply" button, check the following description, and if an error is found in the setting, the error message will be displayed. <ul style="list-style-type: none"> Whether [Variable Name/Device] are duplicated or not. Whether upper/lower limit value is proper or not Double-click an error line to display the corresponding line of data setting grid.																		

POINT

- Only registering a monitor variable will not be a communication target with PLC for monitor tool. Registering a monitor variable in the trend setting becomes a communication target.
- If × icon is displayed, confirm the error message to be displayed before taking the action.
When the relevant cell (s) is (are) selected, an error message is displayed in the status bar.

REMARK

When the variable name (global variable/direct specification of device) is specified, if the same variable name exists in different projects, the project variable with higher priority level will be found.
As project is concerned, the smaller [No.] is, the higher the priority will be in the monitor target project setting. If the variable name is duplicated in duplicated project, the form of (project name)::(variable name) should be specified to indicate the exclusive variable.

(1) Device Range that can be specified

For device range which can be specified, set global variable/device to monitor variable within the number of device points*1 range registered in monitoring target PLC.

*1: To specify, [PLC Parameter] → [Device] in GX application.

For GX Works3, it can be specified in [Device Setting] of CPU parameters.

POINT
<ul style="list-style-type: none"> ● Bit specification for word devices (After inputting period (.), specify a bit position in hexadecimal digit with 0 to F following word device.) can be specified. The following cannot be specified. <ul style="list-style-type: none"> ● Digit specification for bit devices (Example: K4M0) ● Indirectly specified devices (@) ● Index setting

(a) CPU module of MELSEC Q series

- Process CPU(QnPHCPU)/Redundant CPU(QnPRHCPU)

Category	Device type	Device name	Input range
Internal user device	Bit device	Input	X0 to X1FFF
		Output	Y0 to Y1FFF
		Internal relay	M0 to M32767
		Latch relay	L0 to L32767
		Annunciator	F0 to F32767
		Link relay	B0 to B7FFF
		Link special relay	SB0 to SB7FF
	Word device	Data register	D0 to D25983
		Link register	W0 to W657F
Link special register		SW0 to SW7FF	
Internal system device	Bit device	Special relay	SM0 to SM2047
	Word device	Special register	SD0 to SD2047
Direct device	Bit device	Direct input	DX0 to DXFFF
		Direct output	DY0 to DYFFF
File register	Word device	File register	ZR0 to ZR1042431

● Universal model process CPU (QnUDPVCPU)

Category	Device type	Device name	Input range			
			Q04UDPVCPU	Q06UDPVCPU	Q13UDPVCPU	Q26UDPVCPU
Internal user device	Bit device	Input	X0 to X1FFF			
		Output	Y0 to Y1FFF			
		Internal relay	M0 to M61439			
		Latch relay	L0 to L32767			
		Annunciator	F0 to F32767			
		Link relay	B0 to BEFFF			
	Link special relay	SB0 to SB7FFF				
	Word device	Data register* ¹	D0 to D4365311	D0 to D4627455	D0 to D4779007	D0 to D4910079
		Link register* ¹	W0 to W429BFF	W0 to W469BFF	W0 to W48EBFF	W0 to W4AEBFF
Link special register		SW0 to SW7FFF				
Internal system device	Bit device	Special relay	SM0 to SM2047			
	Word device	Special register	SD0 to SD2047			
Direct device	Bit device	Direct input	DX0 to DXFFF			
		Direct output	DY0 to DYFFF			
File register	Word device	File register* ¹	ZR0 to ZR4325375	ZR0 to ZR4587519	ZR0 to ZR4718591	ZR0 to ZR4849663

*1: The maximum value obtained by summing up the internal devices and extended file register

(b) CPU module of MELSEC iQ-R series

● Process CPU(RnPCPU)

Category	Device type	Device name	Input range			
			R08PCPU	R16PCPU	R32PCPU	R120PCPU
User device	Bit device	Input	X0 to X2FFF			
		Output	Y0 to Y2FFF			
		Internal relay*1	M0 to M76816383	M0 to M81174527	M0 to M86056959	M0 to M94773247
		Latch relay	L0 to L32767			
		Annunciator	F0 to F32767			
		Edge relay	V0 to V32767			
		Link relay*1	B0 to 4941FFF	B0 to B4D69FFF	B0 to B5211FFF	B0 to B5A61FFF
	Link special relay*1	SB0 to SB4941FFF	SB0 to SB4D69FFF	SB0 to SB5211FFF	SB0 to SB5A61FFF	
	Word device	Data register*1	D0 to D4801023	D0 to D5073407	D0 to D5378559	D0 to D5923327
		Link register*1	W0 to W4941FF	W0 to W4D69FF	W0 to W5211FF	W0 to W5A61FF
Link special register*1		SW0 to SW4941FF	SW0 to SW4D51FF	SW0 to SW51F9FF	SW0 to SW5A49FF	
System device	Bit device	Special relay	SM0 to SM4095			
	Word device	Special register	SD0 to SD4095			
Direct device	Bit device	Direct input	DX0 to DXFFF			
		Direct output	DY0 to DYFFF			
File register	Word device	File register*1	ZR0 to ZR4751359	ZR0 to ZR5013503	ZR0 to ZR5308415	ZR0 to ZR5832703

*1: Maximum value when an extended SRAM8M is attached

● SIL2 process CPU(RnPSFCPU)

Category	Device type	Device name	Input range			
			R08PSFCPU	R16PSFCPU	R32PSFCPU	R120PSFCPU
User device	Bit device	Input	X0 to X2FFF			
		Output	Y0 to Y2FFF			
		Internal relay*1	M0 to M76718079	M0 to M81076223	M0 to M85958655	M0 to M94674943
		Latch relay	L0 to L32767			
		Annunciator	F0 to F32767			
		Edge relay	V0 to V32767			
		Link relay*1	B0 to 4929FFF	B0 to B4D51FFF	B0 to B51F9FFF	B0 to B5A49FFF
	Link special relay*1	SB0 to SB4929FFF	SB0 to SB4D51FFF	SB0 to SB51F9FFF	SB0 to SB5A49FFF	
	Word device	Data register*1	D0 to D4794879	D0 to D5067263	D0 to D5372415	D0 to D5917183
		Link register*1	W0 to W4929FF	W0 to W4D51FF	W0 to W51F9FF	W0 to W5A49FF
Link special register*1		SW0 to SW4929FF	SW0 to SW4D51FF	SW0 to SW51F9FF	SW0 to SW5A49FF	
System device	Bit device	Special relay	SM0 to SM4095			
	Word device	Special register	SD0 to SD4095			
Direct device	Bit device	Direct input	DX0 to DXFFF			
		Direct output	DY0 to DYFFF			
File register	Word device	File register*1	ZR0 to ZR4751359	ZR0 to ZR5013503	ZR0 to ZR5308415	ZR0 to ZR5832703

*1: Maximum value when an extended SRAM8M is attached

POINT

- For RnPCPU/RnPSFCPU, only devices can be registered. Global labels which are to be declared in GX Works3 cannot be used. To monitor global labels of GX Works3, register devices assigned in the global label setting in GX Works3 in the monitor variable setting in PX Developer Monitor Tool as monitor variables.

9.7 Control Panel Setting



PURPOSE

To distribute the tag displayed on the control panel screen.



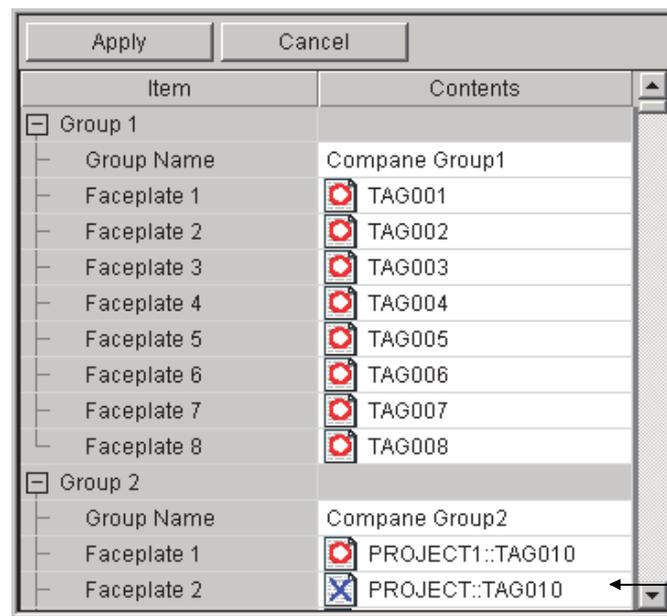
BASIC OPERATION

1. Input optional group name in the content cell of [Group Name].
2. Input the tag name that is assigned to the faceplate which belongs to the group in the content cell of [Faceplate].
3. When setting the tag name, compare the device data with the tag Information of the projects registered by monitor target project setting, and then the icon that indicates tag existence/inexistence will be displayed automatically.

Click the "Delete" key under the condition that there is the input cell on the group name line (multiple lines can be selected), and then all the tag including the group-affiliated tag name will be deleted.



DISPLAY/SETTING SCREEN



At most 1000 groups can be registered
 Maximum 8 tags can be registered in each group (total 8 × 1000 = 8000 tags)



DISPLAY/SETTING DATA

Setting item	Description	Input method	Input restriction
Group name	Set the name of each group.	Text box	32 characters
Faceplate 1 to 8	Set the tag name distributed to each group affiliated faceplate.	Text box	180 characters

POINT

- The tag name of the corresponding group cannot be set without the group name registration.
- When the settings beyond the group name without the group name registration, error message will be displayed and the input cell will be moved to the position of group name.
- If × icon is displayed, confirm the error message to be displayed before taking the action.
When the relevant cell (s) is (are) selected, an error message is displayed in the status bar.

REMARK

When the tag name is specified, if the same tag name exists in different projects, the project tag with higher priority level will be found.

As project is concerned, the smaller [No.] is, the higher the priority will be in the monitor target project setting. If the tag name is duplicated in duplicated project, the form of (project name)::(tag name) should be specified to indicate the exclusive tag.

9.8 Trend Setting



PURPOSE

To set the process data item and the sampling period that are displayed on the trend graph screen.



BASIC OPERATION

1. Input any group name in the content cell of [Group Name].
2. Select the period from the List box in the content cell of [Sampling Period].
3. Select whether the CSV files export of trend data will be executed automatically or not. (See Section 8.7)
4. Input the assigned trend items distributed to the affiliated trend graph in the form of (tag name). (tag data item name) for tag data item, (monitor variable name) for monitor variable in the content cell of [Trend Graph No. *].
5. When setting the data item, compare the input set data with the tag information of item that is registered by the monitor target project setting and monitor variable that is validated in monitor variable setting. The icon that indicates the existent/inexistent data item will be displayed automatically.
6. When clicking the "Apply" button, check whether the bottom limit of the Y-axis scale is lower than the top limit or not. Error message will be displayed when error occurs. (Except for the condition that bottom limit=top limit=0)

Click the "Delete" button under the condition that there is the input cell on the group name line (multiple lines can be selected), and then the group-affiliated sampling period, automatic CSV files export, together with item will be deleted.



DISPLAY/SETTING SCREEN

Item	Contents	Y-axis Scale Bottom Limit	Y-axis Scale Top Limit
Group 1			
Group Name	GR1		
Sampling Period	1 s		
Automatic CSV File Export	Disable		
Graph No.1	TAG001.MLL	0	120
Graph No.2	TAG001.MV	0	500
Graph No.3	TAG001.SV	0	500
Graph No.4	TAG001.PV	0	500
Graph No.5	PROJECT2::TAG002.MV	0	0
Graph No.6	PROJECT3::TAG002.MV	0	0
Graph No.7	PROJECT2::TAG003.MV	0	0
Graph No.8	PROJECT2::TAG003.MV	0	0
Group 2			
Group Name	GR2		
Sampling Period	1 min		

The maximum group number to be registered is 125
 At most 8 items can be registered in each group
 (All together 8 × 125 = 1000 items)
 Within the sampling period of 1s or 10s, at most 100
 items can be collected.

The × icon indicates that the item is unusable.



DISPLAY/SETTING DATA

Setting item	Description	Input method	Input restriction	Initial setting
Group Name	Set the name of each group.	Text box	32 characters Invalid characters: /,;,*\?"<>	—
Sampling Period	Set the sampling period of the trend data.	List box	1s/10s/1min/5min/10min	1s
Automatic CSV File Export	Set whether the CSV file export of trend data will be executed automatically or not.	List box	Disable/Enable	Disable
Graph No.1 to 8	Set the item which is assigned to the trend graph.	Text box	213 characters	—
Y-axis Scale Bottom Limit *1	Set the bottom limit of the Y-axis scale which is displayed on the trend graph.	Text box	REAL (Single precision floating decimal fraction)	0
Y-axis Scale Top Limit *1	Set the top limit of the Y-axis scale which is displayed on the trend graph.	Text box	REAL (Single precision floating decimal fraction)	0

*1 When the bottom limit of the Y-axis scale=0, the top limit of the Y-axis scale=0, the bottom/top limit which is defined by the tag data item or monitor variable settings should be used.

POINT

- Make the "automatic CSV file export" setting after setting the items related to other automatic CSV file export. (☞ Section 8.7 (3))
- The tag data item of the corresponding group cannot be set without the group name registration.
When the settings beyond the group name without the group name registration, the error message will be displayed and the input cell will be moved to group name.
- For registering global variables and devices on the trend, register them on the monitor variable setting beforehand. (☞ Section 9.6)
- The Y-axis scale of the corresponding item cannot be set without the item registration.
When setting the Y-axis scale without the item registration, the error message will be displayed and the input cell will be moved to the item name.
- If × icon is displayed, confirm the error message to be displayed before taking the action.
When the relevant cell (s) is (are) selected, an error message is displayed in the status bar.

REMARK

When the tag name is specified, if the same tag name exists in different project, the project tag of higher priority will be found.

As project is concerned, the smaller [No.] is, the higher the priority will be in the monitor target project setting. If the tag name is duplicated in multiple projects, the form of (project name)::(tag name).(tag data item name) should be specified to indicate the exclusive tag.

9.9 Alarm Setting



PURPOSE

To set the alarm content assigned to the alarm tag.
To display the set character string on the alarm list screen.



BASIC OPERATION

Input optional character string in the cell of [Alarm Contents].



DISPLAY/SETTING SCREEN

No.	Alarm Contents
1	Temperature high limit over
2	PV high high limit abnormal
3	MV high limit abnormal
4	Output open abnormal
5	MV low low limit abnormal
6	
7	
8	
9	
10	
11	
12	
13	

Maximum 10000 pieces of alarm content can be set.



DISPLAY/SETTING DATA

Setting item	Description	Input method	Input restriction
No.	It equals to the alarm name number corresponding to the tag data (the value saved in ALM1NO to ALM8NO). (Section 10.7)	Input not allowed	
Alarm Contents	Set the character string that displays the alarm contents on the alarm tag faceplate.	Text box	64 characters

9.10 Event Setting



PURPOSE

To set the message content that is assigned to the message tag.
To display the set character string on the event list screen.



BASIC OPERATION

Input optional character string in the cell of [Message Contents].



DISPLAY/SETTING SCREEN

Apply		Cancel	
No.	Message Contents		
1	Temperature setting completed		
2	Level addition		
3	Temperature low limit		
4	No.1 Heater		
5	No.2 Heater		
6	No.3 Heater		
7	No.1 Valve open		
8	No.2 Valve open		
9	No.3 Valve open		
10			
11			
12			
13			

Maximum 10000 pieces of message content can be set.



DISPLAY/SETTING DATA

Setting item	Description	Input method	Input restriction
No.	It equals to the message name number corresponding to the tag data (the value saved in MSG1NO to MSG8NO). (Section 10.8)	Input not allowed	/
Message Contents	Set the displayed message content on the message tag faceplate.	Text box	

9.11 User-created Screen Setting



PURPOSE

Assign monitoring applications to user-created screen buttons on the monitor toolbar.

Programs created with GT SoftGOT (☞ Section 11.1) or Microsoft® Visual Basic® (☞ Section 11.2) can be assigned as applications.



BASIC OPERATION

1. Click the button of [Application] cell and the file selection dialog box will be displayed.
2. Select "Application" on the file of file selection dialog box. Click the "Open" button and then the application program path will be input in the cell.
3. Set the starting argument in the cell of [Argument] according to the need of the application program.



DISPLAY/SETTING SCREEN

Apply		Cancel	
No.	Application	Argument	Detail
1	D:\Program Files\MELSOFT\SGT1000\SGT1000.exe	... -SGT1	Setting...
2	D:\Program Files\MELSOFT\SGT1000\SGT1000.exe	... -SGT1	Setting...
3	D:\WINDOWS\notepad.exe	...	Setting...
4		...	Setting...

Error message display area →

There are 4 execution application programs that can be registered. They are assigned to the display button 1 to 4 of the user application which is affiliated to the monitor toolbar in turn. The assignment starts from No.1.



DISPLAY/SETTING DATA

Setting item	Description	Input method	Input restriction
No.	It equals to the number 1 to 4 of the user-created screen button.	Input not allowed	
Application	Set the path of the application program that is assigned to the user-created screen display button of the monitor toolbar.	File Selection Dialog Box	The maximum character number of the path is 255
Argument	Set the argument number given to the application. *1	Text box	255 characters
Detail	Displays the Detail setting of the user-created screen dialog box by clicking the "Setting..." button. *2 ( (1), (2) in this Section)	Dialog Box	—
Error message display area	<p>When clicking the "Apply" button, check the following description, and if an error is found in the setting, the error message will be displayed.</p> <ul style="list-style-type: none"> • Whether the settings of "Changes the security level" are different when GT SoftGOT1000 where the same module number is specified is registered to multiple rows. • Whether the settings of "Changes the security level" are different when GT SoftGOT2000 where the same module number is specified is registered to multiple rows. • Whether the content of Detail setting of the security level is different when GT SoftGOT1000 where the same module number is specified is registered to multiple rows. • Whether the content of Detail setting of the security level is different when GT SoftGOT2000 where the same module number is specified is registered to multiple rows. <p>Double-click an error line to display the corresponding line of user-created screen setting grid.</p>		

*1: When the file path of GT SoftGOT is set to Application, specifies the module number of GT SoftGOT to be started.

Default of the argument is "-SGT1".

For details, refer to the following manuals.

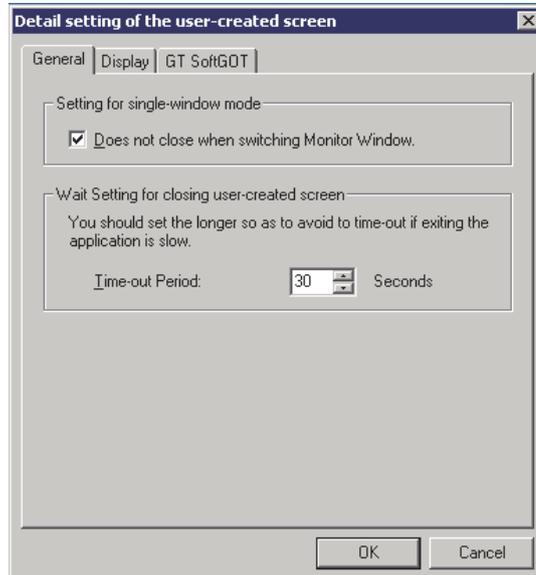
- GT SoftGOT2000 Version1 Operating Manual
- GT SoftGOT1000 Version 3 Operating Manual for GT Works3
- GT SoftGOT1000 Version 2 Operating Manual

*2: When the file path of GT SoftGOT is set to Application, the <<GT SoftGOT>> tab is added in the detail setting dialog box of the user-created screen.

(1) Detail setting for GT SoftGOT

The following shows the Detail setting dialog box for GT SoftGOT.

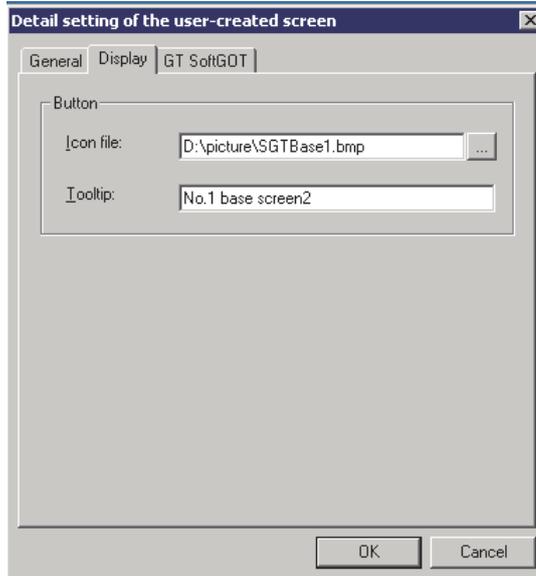
(a) Setting in the <<General>> tab



Item	Description	Input restriction	Initial setting
Does not close when switching Monitor Window.	Does not close GT SoftGOT assigned to the user-created screen button when switching the monitor screen in single-window mode. Note, however, that GT SoftGOT1000 closes regardless of this setting when the setting window is displayed or the monitor tool is exited.	—	Checked
Time-out Period (Seconds)	Set the time that the Monitor tool waits for GT SoftGOT to be closed when closing GT SoftGOT. *1	1 to 99	30 seconds

- *1: GT SoftGOT is closed automatically in the following cases:
- when the monitor screen is switched in single-window mode
 - when the setting window is displayed
 - when the Monitor tool is exited

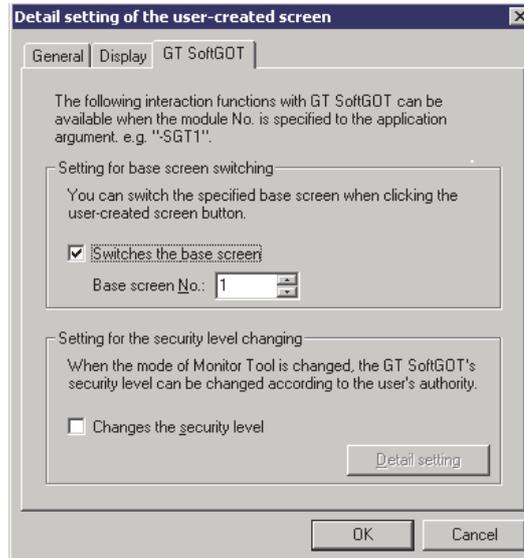
(b) Setting in the <<Display>> tab



Item	Description	Input method	Input restriction										
Icon file	<p>Set the path of icon file for the user-created screen display button of the monitor toolbar.</p> <p>The following are the format of graphics file that can be used as an icon.</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>File format</th> <th>Extension</th> </tr> </thead> <tbody> <tr> <td>Bitmap</td> <td>.bmp</td> </tr> <tr> <td>Icon</td> <td>.ico</td> </tr> </tbody> </table> <p>When the file path is blank or incorrect, the icon of application registered to the user-created screen is displayed as a user-created screen button.</p>	File format	Extension	Bitmap	.bmp	Icon	.ico	File Selection Dialog Box	The maximum character number of the path is 255				
File format	Extension												
Bitmap	.bmp												
Icon	.ico												
Tooltip	<p>Set the character strings of tooltip displayed when placing the mouse on the user-created screen button.</p> <p>The following character strings are displayed when a text box is blank.</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Button</th> <th>Tooltip</th> </tr> </thead> <tbody> <tr> <td>User-created screen button1</td> <td>User-created Screen1</td> </tr> <tr> <td>User-created screen button2</td> <td>User-created Screen2</td> </tr> <tr> <td>User-created screen button3</td> <td>User-created Screen3</td> </tr> <tr> <td>User-created screen button4</td> <td>User-created Screen4</td> </tr> </tbody> </table>	Button	Tooltip	User-created screen button1	User-created Screen1	User-created screen button2	User-created Screen2	User-created screen button3	User-created Screen3	User-created screen button4	User-created Screen4	Text box	64 characters
Button	Tooltip												
User-created screen button1	User-created Screen1												
User-created screen button2	User-created Screen2												
User-created screen button3	User-created Screen3												
User-created screen button4	User-created Screen4												

POINT						
<p>The icon size is enlarged/reduced in accordance with range of resolution (pixel) of display as shown in the table below.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Range of resolution</th> <th>Icon size (pixel)</th> </tr> </thead> <tbody> <tr> <td>1280 pixel or more</td> <td>48 × 48</td> </tr> <tr> <td>Less than 1280 pixel</td> <td>32 × 32</td> </tr> </tbody> </table>	Range of resolution	Icon size (pixel)	1280 pixel or more	48 × 48	Less than 1280 pixel	32 × 32
Range of resolution	Icon size (pixel)					
1280 pixel or more	48 × 48					
Less than 1280 pixel	32 × 32					

(c) Setting in the <<GT SoftGOT>> tab



Item	Description	Input restriction	Initial setting
Switches the base screen	Set whether to switch the base screen to the specified one when GT SoftGOT is started or activated.	—	Checked
Base screen No.	Set the base screen number to be displayed when GT SoftGOT is started or activated.	1 to 32767	1
Changes the security level	Select whether to change the security level of GT SoftGOT in accordance with user authority of the monitor tool operation.	—	Unchecked
"Detail setting" button	Displays the Detail Setting of the security level dialog box.		

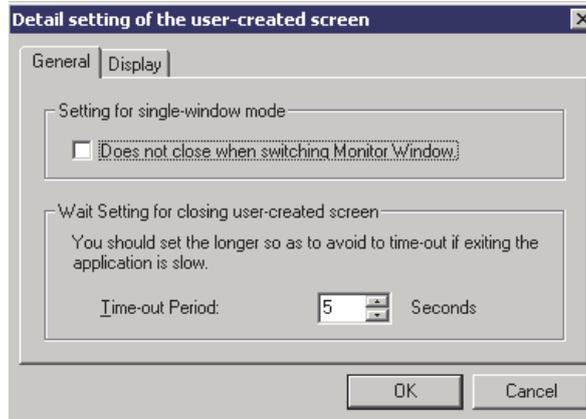
(d) Detail Setting of the security level dialog box



Item	Description	Input restriction	Initial setting												
GT SoftGOT security level	Set the security levels of GT SoftGOT that correspond user authority.	0 to 15 The following user authority is read-only items. • Engineer • Lock	<table border="1"> <tr><td>Engineer</td><td>15</td></tr> <tr><td>Operator4</td><td>12</td></tr> <tr><td>Operator3</td><td>9</td></tr> <tr><td>Operator2</td><td>6</td></tr> <tr><td>Operator1</td><td>3</td></tr> <tr><td>Lock</td><td>0</td></tr> </table>	Engineer	15	Operator4	12	Operator3	9	Operator2	6	Operator1	3	Lock	0
Engineer	15														
Operator4	12														
Operator3	9														
Operator2	6														
Operator1	3														
Lock	0														
"Restore default" button	Return setting content to the initial setting.														

(2) Detail setting for other than GT SoftGOT

The following shows the Detail setting dialog box for applications other than GT SoftGOT.



Item	Description	Input restriction	Initial setting
Does not close when switching Monitor Window.	Does not close an application assigned to the user-created screen button when switching the monitor screen in single-window mode. Note, however, that GT SoftGOT closes regardless of this setting when the setting window is displayed or the monitor tool is exited.	—	Unchecked
Time-out Period (Seconds)	Set the time that the Monitor tool waits for an application to be closed when closing the application. *1	1 to 99	5 seconds

- *1: An application is closed automatically in the following cases:
- when the monitor screen is switched in single-window mode
 - when the setting window is displayed
 - when the Monitor tool is exited

POINT
<ul style="list-style-type: none"> • The argument cannot be set without the application registration. • When setting argument without the application registration, error message will be displayed and the input cell will be moved to the application program. • In the exe form, the application program sold in the market can be registered even if the user does not user-created screen. But the maximum number restriction limitation displayed on the screen will not change even if the registered application is not related to the monitor. (☞ Section 6.4.2) • When the application is changed or deleted, the argument and initial setting are initialized. • When "Privilege Level" of the application is specified to "Run this program as an administrator", "Privilege Level" of the monitor tool also needs to be specified to "Run this program as an administrator". For the method to execute programs as an administrator, refer to Section 5.1. • The following are the range of module number that can be specified for argument of GT SoftGOT. GT SoftGOT1000 Version 2.47X to 3.18U earlier : 1 to 99 GT SoftGOT1000 Version 3.19V or later : 1 to 32767 GT SoftGOT2000 Version 1.105K or later : 1 to 32767

9.12 Unit Setting



PURPOSE

Set the unit name that indicates the tag data item.



BASIC OPERATION

Input optional unit character string in the cell of [Unit].



DISPLAY/SETTING SCREEN

Apply		Cancel	
No.	Unit		
1	°C		
2	K		
3	F		
4	RH		
5	%		
6	s		
7	min		
8	h		
9	d		
10	a		
11	m		
12	km		
13	m2		
14	m3		

127 units can be set.



DISPLAY/SETTING DATA

Setting item	Description	Input method	Input restriction
No.	It equals to the unit number specified by the tag data.	Input not allowed	
Unit	Set the unit used.	Text box	8 characters

9.13 Faceplate Display Pattern Setting



PURPOSE

To set the status button, as well as the character string and background color pattern of the status display (indicator), which are displayed on the loop tag faceplate and status tag faceplate.

To set the pattern number for the display name pattern (FPNO, FPNO1 to FPNO5) which is affiliated to the tag data item by using the FB property of the programming tool. The pattern of the displayed character string and background color corresponding to the set pattern number can be displayed on the status tag faceplate.

Furthermore, the character string is recorded as the operation record character string on the event list (Section 7.4).



BASIC OPERATION

1. Select the tag type in the list box 1) and then the bit map corresponding to the tag type will be displayed on the tag type faceplate image 2).
2. Input the character string that is assigned to the status button and indicator of the faceplate in each cell.
3. Click the button to the right of the cell and then the "Change Background Color/Text Color" dialog box will be displayed. If the color is selected, click the "OK" button and then the background color and text color of the set cell will be displayed. (Trip display, time-out display, communication error display, and answer indefinite display are displayed by the faceplate alarm graph color, so that they cannot be set.)



DISPLAY/SETTING SCREEN

The screenshot shows the 'DISPLAY/SETTING SCREEN' with a table of tag settings. The table has columns for 'No.', 'Operation Button', 'Stop Button', 'Remote Display', 'Local Display', 'Trip Display', and 'Time-out Display'. The 'Tag Type' is set to 'NREV'. A 'Change Background Color/Text Color' dialog box is open, showing 'Background Color' set to green and 'Text Color' set to black. Arrows point from the dialog box to the 'Local Display' cell in the table.

No.	Operation Button	Stop Button	Remote Display	Local Display	Trip Display	Time-out Display
1	Start	Stop	Remote	Local	Trip	Time-out
2	Run					
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						

- 1) The list box of the tag type selection
 Select the tag type of the set name pattern (PVAL, HTCL, NREV, REV, MVAL1, MVAL2, PB, MTR2, MTR3, SS2P, DS2P, DS3P).
 For the details of relating display content, refer to the following.

Display content	Reference
Status operation	Section 10.3.13
Command button operation	Section 10.3.14
PVAL	Section 10.5.13
HTCL	Section 10.5.14
NREV, REV, MVAL1, MVAL2	Section 10.6.1
PB	Section 10.6.3
MTR2, MTR3, SS2P, DS2P, DS3P	Section 10.6.4

- 2) Tag type faceplate image
 Display the screen display image of the tag type that is affiliated to the set name pattern.

Each tag type can set maximum 50 pieces of name patterns.
 The tag type PB can be set maximum 10000 pieces of button patterns.



DISPLAY/SETTING DATA

The set item and initial set of each tag type are shown as the following chart.

Tag type	Setting item	Description	Initial setting			Input method	Input restriction
			Character	Text color	Background color		
PVAL	Open Button	Set the Button name and status display color.	Open	Black	Red	Character: Text box	8 characters
	Close Button	Set the Button name and status display color.	Close	Black	Red		
	Stop Button	Set the Button name and status display color.	Stop	Black			
	Remote Display	Set the indicator name and status display color.	Remote	Black	Green	Color: the Change Background Color/Text Color dialog box (color dialog box)	
	Local Display	Set the indicator name and status display color.	Local	Black	Green		
	Trip Display	Set the indicator name.	Trip	Black			
	Time-out Display	Set the indicator name.	Time-out	Black			
Open/Close Status History	Select whether to always leave the open/close status history or leave it only in the MAN mode.	Always			List box	Always/ Only MAN Mode	
HTCL	Using the PID Cooling	Set the indicator name and status display color.	COOL	Black	Light blue	Character: Text box	8 characters
	Using the PID Heating	Set the indicator name and status display color.	HEAT	Black	Red		
	Heating Close Direction	Set the character string for heating close direction.	Blank			Color: the Change Background Color/Text Color dialog box (color dialog box)	2 characters
	Heating Open Direction	Set the character string for heating open direction.	Blank				
	Cooling Close Direction	Set the character string for cooling close direction	Blank				
	Cooling Open Direction	Set the character string for cooling open direction	Blank				

Tag type	Setting item	Description	Initial setting			Input method	Input restriction
			Character	Text color	Background color		
NREV	Operation Button	Set the Button name and status display color.	Start	Black	Red	Character: Text box Color: the Change Background Color/Text Color dialog box (color dialog box)	8 characters
	Stop Button	Set the Button name and status display color.	Stop	Black	Red		
	Remote Display	Set the indicator name and status display color.	Remote	Black	Green		
	Local Display	Set the indicator name and status display color.	Local	Black	Green		
	Trip Display	Set the indicator name.	Trip	Black			
	Time-out Display	Set the indicator name.	Time-out	Black			
REV	Forward Run Button	Set the Button name and status display color.	FWD Run	Black	Red		
	Stop Button	Set the Button name and status display color.	Stop	Black	Red		
	Reverse Run Button	Set the Button name and status display color.	REV Run	Black	Red		
	Remote Display	Set the indicator name and status display color.	Remote	Black	Green		
	Local Display	Set the indicator name and status display color.	Local	Black	Green		
	Trip Display	Set the indicator name.	Trip	Black			
MVAL1	Open Button	Set the Button name and status display color.	Open	Black	Red		
	Close Button	Set the Button name and status display color.	Close	Black	Red		
	Semi-open Display	Set the indicator name and status display color.	Semiopen	Black	Red		
	Remote Display	Set the indicator name and status display color.	Remote	Black	Green		
	Local Display	Set the indicator name and status display color.	Local	Black	Green		
	Trip Display	Set the indicator name.	Trip	Black			
MVAL2	Time-out Display	Set the indicator name.	Time-out	Black			
	Open Button	Set the Button name and status display color.	Open	Black	Red		
	Close Button	Set the Button name and status display color.	Close	Black	Red		
	Stop Button	Set the Button name and status display color.	Stop	Black			
	Semi-open Display	Set the indicator name and status display color.	Semiopen	Black	Red		
	Remote Display	Set the indicator name and status display color.	Remote	Black	Green		
PB	Local Display	Set the indicator name and status display color.	Local	Black	Green		
	Trip Display	Set the indicator name.	Trip	Black			
	Time-out Display	Set the indicator name.	Time-out	Black			
	ON Name	Set the ON status name and display color.	ON	Black	Red		
	OFF Name	Set the OFF status name and display color.	ON	Black	Gray		
	ON/OFF History Type	Select whether to store only ON history or both ON and OFF history at time of button operation and status change of the status answer (DIM), against each button.	Only ON			List box	Only ON/ Both ON and OFF

Tag type	Setting item	Description	Initial setting			Input method	Input restriction
			Character	Text color	Background color		
MTR2	Forward Rotation Button	Set the Button name and status display color.	FWD Rot	Black	Red	Character: Text box Color: the Change Background Color/Text Color dialog box (color dialog box)	8 characters
	Inching Forward Rotation Button	Set the Button name and status display color.	InchFWD	Black	Red		
	Stop Button	Set the Button name and status display color.	Stop	Black	Red		
	Lamp Display	Set the indicator name and status display color.	Lamp	Black	Green		
	Status Answer Display	Set the indicator name and status display color.	StatAns	Black	Green		
	Start IL Display	Set the indicator name and status display color.	StartIL	Black	Green		
	Run IL Display	Set the indicator name and status display color.	RunIL	Black	Green		
	Time-out Display	Set the indicator name.	Time-out	Black			
	Trip Display	Set the indicator name.	Trip	Black			
	Communication Error Display	Set the indicator name.	ComErr	Black			
	Lamp A Display	Set the indicator name and status display color.	LampA	Black	Green		
	Lamp B Display	Set the indicator name and status display color.	LampB	Black	Green		
MTR3	Forward Rotation Button	Set the Button name and status display color.	FWD Rot	Black	Red	Character: Text box Color: the Change Background Color/Text Color dialog box (color dialog box)	8 characters
	Inching Forward Rotation Button	Set the Button name and status display color.	InchFWD	Black	Red		
	Reverse Rotation Button	Set the Button name and status display color.	REV Rot	Black	Red		
	Inching Reverse Rotation Button	Set the Button name and status display color.	InchREV	Black	Red		
	Stop Button	Set the Button name and status display color.	Stop	Black	Red		
	Lamp 1 Display	Set the indicator name and status display color.	Lamp1	Black	Green		
	Status Answer 1 Display	Set the indicator name and status display color.	StatAns1	Black	Green		
	Start IL 1 Display	Set the indicator name and status display color.	StartIL1	Black	Green		
	Run IL 1 Display	Set the indicator name and status display color.	RunIL1	Black	Green		
	Lamp 2 Display	Set the indicator name and status display color.	Lamp2	Black	Green		
	Status Answer 2 Display	Set the indicator name and status display color.	StatAns2	Black	Green		
	Start IL 2 Display	Set the indicator name and status display color.	StartIL2	Black	Green		
	Run IL 2 Display	Set the indicator name and status display color.	RunIL2	Black	Green		
	Time-out Display	Set the indicator name.	Time-out	Black			
	Trip Display	Set the indicator name.	Trip	Black			
	Communication Error Display	Set the indicator name.	ComErr	Black			
	Answer Indefinite Display	Set the indicator name.	AnsIndef	Black			
	Lamp A Display	Set the indicator name and status display color.	LampA	Black	Green		
Lamp B Display	Set the indicator name and status display color.	LampB	Black	Green			
SS2P	Port Button	Set the Button name and status display color.	Port	Black	Red	Character: Text box Color: the Change Background Color/Text Color dialog box (color dialog box)	8 characters
	Stop Button	Set the Button name and status display color.	Stop	Black	Red		
	Lamp Display	Set the indicator name and status display color.	Lamp	Black	Green		
	Status Answer Display	Set the indicator name and status display color.	StatAns	Black	Green		
	Start IL Display	Set the indicator name and status display color.	StartIL	Black	Green		
	Run IL Display	Set the indicator name and status display color.	RunIL	Black	Green		
	Time-out Display	Set the indicator name.	Time-out	Black			
	Trip Display	Set the indicator name.	Trip	Black			
	Communication Error Display	Set the indicator name.	ComErr	Black			
	Lamp A Display	Set the indicator name and status display color.	LampA	Black	Green		
Lamp B Display	Set the indicator name and status display color.	LampB	Black	Green			

Tag type	Setting item	Description	Initial setting			Input method	Input restriction
			Character	Text color	Background color		
DS2P	Port 1 Button	Set the Button name and status display color.	Port1	Black	Red	Character: Text box Color: the Change Background Color/Text Color dialog box (color dialog box)	8 characters
	Port 2 Button	Set the Button name and status display color.	Port2	Black	Red		
	Lamp 1 Display	Set the indicator name and status display color.	Lamp1	Black	Green		
	Status Answer 1 Display	Set the indicator name and status display color.	StatAns1	Black	Green		
	Start IL 1 Display	Set the indicator name and status display color.	StartIL1	Black	Green		
	Run IL 1 Display	Set the indicator name and status display color.	RunIL1	Black	Green		
	Lamp 2 Display	Set the indicator name and status display color.	Lamp2	Black	Green		
	Status Answer 2 Display	Set the indicator name and status display color.	StatAns2	Black	Green		
	Start IL 2 Display	Set the indicator name and status display color.	StartIL2	Black	Green		
	Run IL 2 Display	Set the indicator name and status display color.	RunIL2	Black	Green		
	Time-out Display	Set the indicator name.	Time-out	Black			
	Trip Display	Set the indicator name.	Trip	Black			
	Communication Error Display	Set the indicator name.	ComErr	Black			
	Answer Indefinite Display	Set the indicator name.	AnsIndef	Black			
	Lamp A Display	Set the indicator name and status display color.	LampA	Black	Green		
	Lamp B Display	Set the indicator name and status display color.	LampB	Black	Green		
DS3P	Port 1 Button	Set the Button name and status display color.	Port1	Black	Red	Color: the Change Background Color/Text Color dialog box (color dialog box)	8 characters
	Inching 1 Button	Set the Button name and status display color.	Inching1	Black	Red		
	Port 2 Button	Set the Button name and status display color.	Port2	Black	Red		
	Inching 2 Button	Set the Button name and status display color.	Inching2	Black	Red		
	Stop Button	Set the Button name and status display color.	Stop	Black	Red		
	Lamp 1 Display	Set the indicator name and status display color.	Lamp1	Black	Green		
	Status Answer 1 Display	Set the indicator name and status display color.	StatAns1	Black	Green		
	Start IL 1 Display	Set the indicator name and status display color.	StartIL1	Black	Green		
	Run IL 1 Display	Set the indicator name and status display color.	RunIL1	Black	Green		
	Lamp 2 Display	Set the indicator name and status display color.	Lamp2	Black	Green		
	Status Answer 2 Display	Set the indicator name and status display color.	StatAns2	Black	Green		
	Start IL 2 Display	Set the indicator name and status display color.	StartIL2	Black	Green		
	Run IL 2 Display	Set the indicator name and status display color.	RunIL2	Black	Green		
	Time-out Display	Set the indicator name.	Time-out	Black			
	Trip Display	Set the indicator name.	Trip	Black			
	Communication Error Display	Set the indicator name.	ComErr	Black			
Answer Indefinite Display	Set the indicator name.	AnsIndef	Black				
Lamp A Display	Set the indicator name and status display color.	LampA	Black	Green			
Lamp B Display	Set the indicator name and status display color.	LampB	Black	Green			

Trip display, time-out display, communication error display, and answer indefinite display are displayed with the alarm color of the faceplate, so that the color does not need to be set. According to the alarm level of trip, time-out, communication error, and answer indefinite, the major alarm color is displayed when a major alarm occurs and the minor alarm color is displayed when a minor alarm occurs.

For details of setting of alarm display color, refer to "Section 9.17 Option Setting".

POINT

- The background color/text color which equals to those of the first line (No.1) will all be set automatically if new character string is input in certain line.
- Only character string can be cut/copied/pasted.
(The color setting is excluded)

9.14 Faceplate Display Scale Setting



PURPOSE

To set the display scale, division number, display direction and both direction base point of the PV graph that are displayed on the faceplate.
To set when the initial set content changed.



BASIC OPERATION

1. Set optional tag name in [Tag Name].
2. When setting the tag name, the tag information of the item that is registered by the monitor target project setting will be compared with the input set data. And then the mark that indicates tag existent/inexistent will be displayed automatically.
3. Input the display scale top/bottom limit, division number, display direction and base point when both direction is set of the set tag.
4. Click the "Apply" Button and check whether the bottom limit of the display scale is less than the top limit. The error message will be displayed when error occurs.

When the tag name is deleted, the display scale top/bottom limit, division number, display direction and base point when both direction is set are also deleted simultaneously.



DISPLAY/SETTING SCREEN

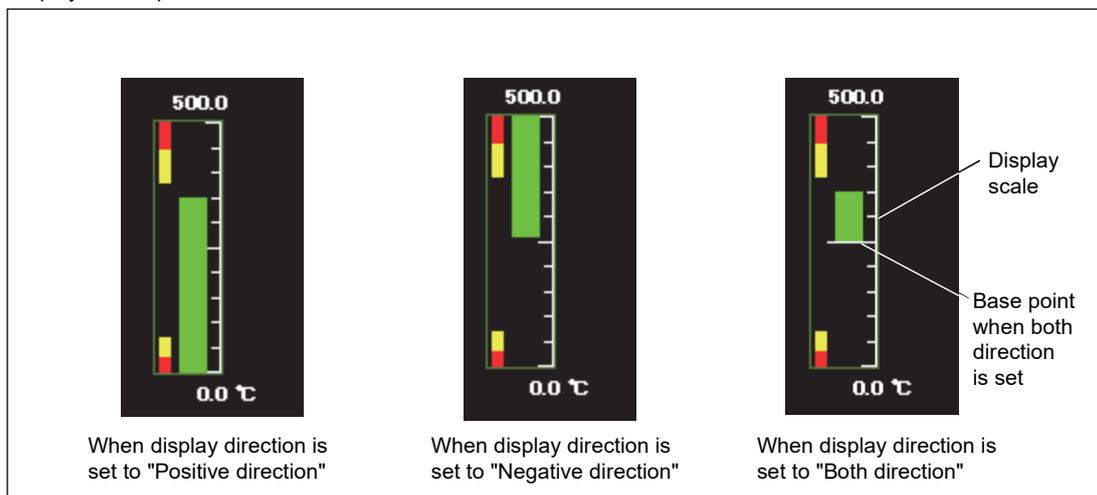
Apply		Cancel					
No.	Tag Name	Display Scale Bottom Limit	Display Scale Top Limit	Division Number	Display Direction	Base Point when Both Direction is set	
1	FIC001	0	500	10	Negative Direction	0	
2	LIC002	0	500	10	Positive Direction	0	
3							
4							
5							
6							

The x icon indicates that the tag is unusable.

Maximum 16000 pieces of tag can be registered



Display on faceplate





DISPLAY/SETTING DATA

Setting item	Description	Input method	Input restriction	Initial setting
Tag Name	Set the tag name of the display scale.	Text box	180 characters	—
Display Scale Bottom Limit	Set the display scale bottom limit of the PV graph which is displayed on the faceplate.	Text box	REAL (Single precision floating decimal)	0
Display Scale Top Limit	Set the display scale top limit of the PV graph which is displayed on the faceplate.	Text box	REAL (Single precision floating decimal)	100
Division Number	Set the division number of the PV graph which is displayed on the faceplate.	Text box	1 to 10	10
Display Direction	Set the display direction of the PV graph bar to be displayed on the faceplate.	List box	Positive direction/ Negative direction/ Both direction	Positive direction
Base Point when Both Direction is set	When setting "Both direction" as the display direction, set the base point of the PV graph bar to be displayed on the faceplate. This setting is available only when "Both direction" is set as the display direction.	Text box	REAL (Single precision floating decimal)	0

POINT

- The display scale top/bottom limit, division number, display direction and "base point when both direction is set" cannot be set without registering the tag name.
- When "Both direction" is set as the display direction, set the both direction base point within the range indicated below.
Display scale bottom limit \leq base point when both direction is set \leq display scale top limit
- If \times icon is displayed, confirm the error message to be displayed before taking the action.
When the relevant cell (s) is (are) selected, an error message is displayed in the status bar.

9.15 Faceplate MV Characters Setting



PURPOSE

To set the MV characters of the MV graph which is displayed on the faceplate.



BASIC OPERATION

1. Set optional tag name in the cell of [Tag Name].
2. When setting the tag name, the tag information of the project that is registered by the monitor target project setting will be compared with the input setting data. And then the mark that indicates tag existence/inexistence will be displayed automatically.
3. Input the displayed character string of the set tag.

The displayed character string will be deleted when the tag name is deleted.

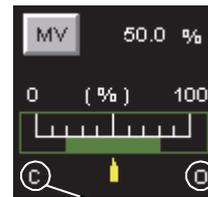


DISPLAY/SETTING SCREEN

No.	Tag Name	Displayed Character String(0%)	Displayed Character String(100%)
1	TAG001	C	O
2	LIC001	C	O
3	LIC002		
4			
5			
6			
7			
8			
9			

The x icon indicates that the tag is unusable.

Maximum 16000 pieces of tag can be registered



Display character string

<MV graph>



DISPLAY/SETTING DATA

Setting item	Description	Input method	Input restriction
Tag name	Set the tag name of the open/close direction display character.	Text box	180 characters
Displayed character string (0%)	Set the display character on the 0% position of the MV graph which is displayed on the faceplate.	Text box	2 characters
Displayed character string (100%)	Set the display character on the 100% position of the MV graph which is displayed on the faceplate.	Text box	2 characters

POINT

- The displayed character strings cannot be set without the tag name registration. When doing setting beyond the tag name without tag name registration, error message will be displayed and the input cell will be moved to the position of tag name.
- If x icon is displayed, confirm the error message to be displayed before taking the action. When the relevant cell (s) is (are) selected, an error message is displayed in the status bar.

9.16 Lockout Tag Setting



PURPOSE

Set the lockout tag types which are used on the faceplate of the monitor window. Lockout tag is used when operation limit is put on the control device. As the monitor tool is concerned, operation limit is added by the operation of lockout tag on the faceplate.

Lockout tag has levels of engineer and operator1 to 4.

The lockout tag where the operation of setting/removing is authorized can be operated.

The authority of operation for setting/removing lockout tag can be set on User Authority Setting (Section 9.2).



BASIC OPERATION

1. Input the character string that indicates the lockout tag name in the cell of [Lockout Tag Name].
2. Click the Button right to the cell and then the "Change Background Color/Text Color" dialog box will be displayed. Select the color and click the "OK" Button, then the background color and text color of the cell will be displayed as the set color.
3. Set the authority of user who can operate the lockout tag on the list box of the [Level] cell.

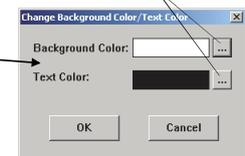
Graph color, background color and level will be deleted when the Lockout tag name is deleted.



DISPLAY/SETTING SCREEN

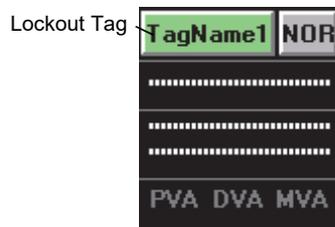
No.	Lockout Tag Name	Level
1	TagName1	Engineer
2	TagName2	Operator4
3	TagName3	Operator3
4	TagName4	Operator2
5	TagName5	Operator1
6		
7		
8		
9		
10		

The color dialog box will be displayed after clicking the button



<The Change Background Color /Text Color dialog box>

Maximum 32 kinds of tags can be set



The lockout tag is displayed in the lockout tag area at the top of the faceplate.

POINT

When inputting the new character string to the lockout tag name, the background color which is the same as that of the first line (No. 1) will be set automatically.



DISPLAY/SETTING DATA

Setting items of each lockout tag is shown as the following chart.

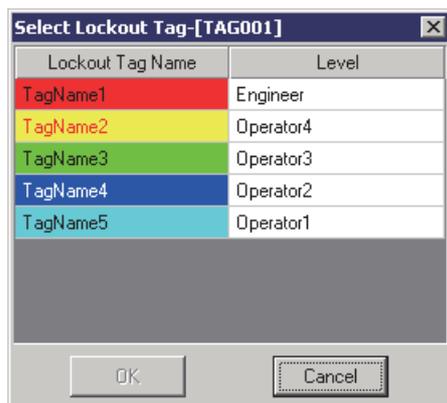
Setting item	Description	Input method	Input restriction
Lockout Tag Name	Set the character string that is displayed on the lockout tag.	Text box	8 characters
	Text color	Change Background Color/Text Color dialog box	—
	Background color		
Level	Set the authority of user who can operate the lockout tag. (User authority is defined by the user setting)	List box	Engineer/ Operator4/ Operator3/ Operator2/ Operator1

POINT

- Text color, background color and level cannot be set without the lockout tag name registration.
- When doing setting beyond lockout tag name without the lockout tag name registration, error message will be displayed and the input cell will be moved to the position of lockout tag name.

REMARK

The lockout tag setting can be operated on the faceplate.
Click the display area of lockout tag on the faceplate without the lockout tag setting; the "Select Lockout Tag" dialog box and the set ticket list will be displayed.
The lockout tag that can be set/removed with the current user authority is displayed.



9.17 Option Setting

**PURPOSE**

Option setting refers to all the setting of the displayed text font, the buzzer sound of alarm, the graph color of faceplate and other items that can be set on the monitor tool.

Items that can be set by the option setting function are shown in the following chart.

Classification item		Setting item
General		Setting window font
		Monitor window font
		Printer
		Window mode
		Minor alarm color
		Major alarm color
		Return check interval (s)
		Return check time-out (s)
		PLC status check interval(s)
		Write tag data (even if the PC's and PLC's project ID codes are different)
		Automatic CSV file deletion time (0 to 23)
		Disk free space check size (MB)
		Exit monitor tool when windows logoff or shutdown
	Server/Client	
Alarm/Event	General	Alarm/Event display on 2nd line of monitor toolbar
		Alarm/Event display format of monitor toolbar
		Highlighted display while alarms occur
		Event notification UDP port No.(HEX)
		Automatic alarm CSV file export
		Automatic alarm CSV file deletion
		Alarm CSV file storage period (days)
		Automatic alarm CSV file export target folder
		Tag Data Item Display of Alarm
		Unconfirmed Alarms Deletion at Delete Recovered Alarms
		Automatic event CSV file export
		Automatic event CSV file deletion
		Event CSV file storage period (days)
		Automatic event CSV file export target folder
	Tag Data Item Display of Event	
	Unconfirmed Events Deletion at Delete All	
	Minor alarm	Buzzer type
		Beep sound time interval (s)
		Beep sound frequency
		Sound file
Major alarm	(The items same as those of the minor alarm)	
Event	(The items same as those of the minor alarm)	

(To the next page)

Classification item	Setting item
Faceplate	SV limit excess setting
	Background color
	Text color
	Alarm area color (No alarm)
	Button text color
	Button background color
	Button cover display setting
	Button cover color
	Button cover release second
	PV bar positive direction color
	PV bar negative direction color
	PV bar both direction color (Positive)
	PV bar both direction color (Negative)
	PV High/Low limit value bar color
	PV High High/ Low Low limit value bar color
	SV/MV limit value bar color
	SV/MV pointer color
	SV (target) pointer color
	MV status color
	Frame color (No lockout tag)
Trend Graph	Item name display
	Gridline
	Gridline color
	Background color
	Graph 1 to 8 colors
	Trend binary data storage folder
	Automatic trend CSV file export target folder
	Automatic trend CSV file export file name
	Automatic trend CSV file export time (0 to 23)
	Automatic trend CSV file deletion
	Trend CSV file storage period (days)

(1) General

Set the common items of the monitor tool general function and set the items that cannot be particularly classified by monitor tool general function.



DISPLAY/SETTING SCREEN

General	
Setting Window Font	Arial
Monitor Window Font	Arial
Printer	(Default Printer)
Window Mode	Multi-window
Minor Alarm Color	
Major Alarm Color	
Return Check Interval [s]	60
Return Check Time-out [s]	2
PLC Status Check Interval [s]	2
Write tag data(even if the PC's and PLC's project ID codes are different)	Valid
Automatic CSV File Deletion Time(0 to 23)	0
Disk Free Space Check Size(MB)	50
Exit monitor tool when windows logoff or shutdown	Follow the user authority setting



DISPLAY/SETTING DATA

Setting item	Description	Input method	Input limit	Initial setting
Setting Window Font*1	Set the font used on the monitor setting window.	List box	The font list of the personal computer	Arial
Monitor Window Font*1	Set the font used on the monitor window.	List box	The font list of the personal computer	Arial
Printer*1	Set the printer used in printing.	List box	The printer list of the personal computer	(Default Printer)
Window Mode	Select window mode.	List box	Multi-window/Single window	Multi-window
Minor Alarm Color	Set the graph color of Minor alarm.	Color dialog box	—	Green
Major Alarm Color	Set the graph color of Major alarm.	Color dialog box	—	Red
Return Check Interval (s)	When communication open error occurs, set the interval seconds return check communication return check of the CPU module with error. (☞ Appendix 1.8)	Text box	10 to 3600	60
Return Check time-out (s)	Set the time-out seconds of communication return check. (☞ Appendix 1.8)	Text box	1 to 60	2
PLC Status Check Interval (s)	Set the interval (s) for making PLC status check, such as PLC CPU error. (☞ Appendix 1.9)	Text box	1 to 10	2
Write tag data (even if the PC's and PLC's project ID codes are different)	Set whether tag data write will be made valid or not at occurrence of the alarm for project ID code inconsistency. (☞ Section 7.3)	List box	Invalid/Valid	Valid

(To the next page)

Setting item	Description	Input method	Input limit	Initial setting
Automatic CSV File Deletion Time (0 to 23)	Set the time when the CSV files output by automatic CSV file export will be deleted (0 minutes every hour). (☞ Section 8.7)	Text box	0 to 23	0
Disk Free Space Check Size (MB)	Set the disk free space check size of the disk drive that stores CSV files output by the PX Developer installation destination, trend data and automatic CSV file export. When the free space of the disk drive decreases to or below the setting, the alarm for disk free space error occurs. (☞ Section 7.3)	Text box	50 to 1024	50
Exit monitor tool when windows logoff or shutdown	For the end operation of monitor tool when logging off or shutting down Windows®, set whether to operate according to the user authorization of the current user.	List box	Follow the user authority setting/ Not follow the user authority setting	Follow the user authority setting

*1: The content set in the personal computer is displayed in the font list and the printer list. The detailed setting of the printer is set on the setting window of personal computer. (Except the tag monitor display area of pop-up tuning)
The font size will be selected automatically according to the window size.
The character string of the button, the tab title and the list is change by the monitor window font. The displayed character string on the faceplate cannot change the font.
The font name of 33 characters or more cannot be selected.

POINT

<p>Write tag data (even if the PC's and PLC's project ID codes are different) (☞ Appendix 1.9) is "Enable" (write enabled status) in the initial setting. If tag data write is performed when the project ID code inconsistency, the system may malfunction. Change this setting of write tag data (even if the PC's and PLC's project ID codes are different) to "Disable" (write disabled status) when operation has been started after completion of system adjustment.</p>
--

(2) Server/Client



DISPLAY/SETTING SCREEN

Server/Client	
Time Adjustment among OPSs	Yes
Switch/Reconnect server during screens are displayed	No



DISPLAY/SETTING DATA

Setting item	Content	Input method	Input limit	Initial setting
Time Adjustment among OPSs	Set whether to adjust the time of client/secondary server to that of connecting server (primary server) in the server/client configuration.*1	List box	No/Yes	Yes
Switch/Reconnect server during screens are displayed	In the server/client configuration, set whether to switch/reconnect the server if the monitor screen or the setting screen is being displayed.*1	List box	No/Yes	No

*1:When Monitor Tool Execution Type Setting is standalone/server (primary server), "-----" is displayed, and cannot be edited.

POINT
<ul style="list-style-type: none"> ● Setting "Time Adjustment among OPSs" to "Yes" on Option Setting is recommended. Set to "No" only when another time adjustment system such as SNTP is applied. Note when setting to "No" on "Time Adjustment among OPSs" of Option Setting, setting to enable on Detail setting of overwriting the setting data of Monitor Tool Execution Type Setting is required. ● When setting to "Yes" on "Switch/Reconnect server during screens are displayed" of Option Setting, setting to enable on Detail setting of overwriting the setting data of Monitor Tool Execution Type Setting is required.

(3) Alarm/Event

Set the items that is related to display or beep sound when alarm or event occurs.
The setting of "Event Notification UDP Port No.(HEX)" must be confirmed.



DISPLAY/SETTING SCREEN

Alarm/Event	
General	
Alarm/Event Display on 2nd Line of Monitor Tool Bar	Alarm
Alarm/Event Display Format of Monitor Tool Bar	Tag Name
Highlighted display while alarms occur	None
Event Notification UDP Port No. (HEX)	H1000
Automatic Alarm CSV File Export	No
Automatic Alarm CSV File Deletion	No
Alarm CSV File Storage Period(days)	2000
Automatic Alarm CSV File Export Target Folder	...
Tag Data Item Display of Alarm	Item Name
Unconfirmed Alarms Deletion at Delete Recovered Alarms	Yes
Automatic Event CSV File Export	No
Automatic Event CSV File Deletion	No
Event CSV File Storage Period(days)	2000
Automatic Event CSV File Export Target Folder	...
Tag Data Item Display of Event	Item Name
Unconfirmed Events Deletion at Delete All	Yes
Minor Alarm	
Buzzer Type	None
Beep Sound Time Interval [s]	10
Beep Sound Frequency	2000
Sound File	
Major Alarm	
Buzzer Type	None
Beep Sound Time Interval [s]	10
Beep Sound Frequency	2000
Sound File	
Event	
Buzzer Type	None
Beep Sound Time Interval [s]	10
Beep Sound Frequency	2000
Sound File	



DISPLAY/SETTING DATA

Setting item	Description	Input method	Input restriction	Initial setting
General	Alarm/Event Display on 2nd Line of Monitor Toolbar Bar	List box	Alarm/event	Alarm
	Alarm/Event Display Format of Monitor Toolbar Bar	List box	Tag Name/Tag Comment/Tag Name + Tag Comment	Tag Name
	Highlighted display while alarms occur	List box	None/ Available	None

(To the next page)

Setting item		Description	Input method	Input restriction	Initial setting
General (Continued)	Event Notification UDP Port No.(HEX) *1	Set the UDP port number of Change notification on the CPU module which is connected with Ethernet.	Text box	H0401 to HFFFF	H1000
	Automatic Alarm CSV File Export	Set whether automatic alarm CSV file export will be executed or not.	List box	No/Yes	No
	Automatic Alarm CSV File Deletion	Set whether alarm CSV file will be deleted automatically or not.	List box	No/Yes	No
	Alarm CSV File Storage Period (days)	Set the storage period of CSV files output by automatic alarm CSV file export. When "Automatic alarm CSV file deletion" is "Enable", files that have passed the storage period are automatically deleted.	Text box	1 to 2000	2000
	Automatic Alarm CSV File Export Target Folder *2	Set the destination folder to which the CSV files will be output by automatic alarm CSV file export.	Folder selection dialog box	200 characters*3 Invalid characters: /,:;*?"<>	(No setting)
	Tag Data Item Display of Alarm	Set the display format of tag data items displayed on the alarm contents field of the Alarm List screen and the alarm/event display area of the monitor toolbar.	List box	Item Name/ Detailed Name/ Item Name (Detailed Name)	Item Name
	Unconfirmed Alarms Deletion at Delete Recovered Alarms	Set whether to delete the unchecked rows when deleting the alarm data.	List box	No/Yes	Yes
	Automatic Event CSV File Export	Set whether automatic event CSV file export will be executed or not.	List box	No/Yes	No
	Automatic Event CSV File Deletion	Set whether event CSV file will be deleted automatically or not.	List box	No/Yes	No
	Event CSV File Storage Period (days).	Set the storage period of CSV files output by automatic event CSV file export. When "Automatic event CSV file deletion" is "Enable", files stored longer than the set period are automatically deleted.	Text box	1 to 2000	2000
	Automatic Event CSV File Export Target Folder *2	Set the destination folder to which the CSV files will be output by automatic event CSV file export.	Folder selection dialog box	200 characters*3 Invalid characters: /,:;*?"<>	(No setting)

*1: "Open Setting" of Ethernet by the network parameter of GX application, "Event Notification UDP Port No.(HEX) " becomes the setting value of "Destination Port No."

If Microsoft® Windows® XP cannot receive event notification, it may be caused by the setting of Windows® firewall.

For details, refer to the POINT in Appendix 1.2.2 (2).

*2: When no folder is set to this item, CSV files are export to the "AlarmCSV" or "EventCSV" folder given in Section 2.3.

*3: Up to 255 characters with the monitor tool of PX Developer Version 1.04E or earlier and up to 225 characters with the monitor tool of PX Developer Version 1.06G to 1.20W. Data can be read with PX Developer Version 1.23Z or later even if the number of input characters exceed the limit.

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Setting item		Description	Input method	Input restriction	Initial setting
General (Continued)	Tag Data Item Display of Event	Set the display format of tag data items displayed on the event message, status, set value field of the Event List screen.	List box	Item Name/ Detailed Name/ Item Name (Detailed Name)	Item Name
	Unconfirmed Events Deletion at Delete All	Set whether to delete the unchecked rows when deleting the event data.	List box	No/Yes	Yes
Minor alarm*4	Buzzer Type	Set whether the buzzer buzzes or not when alarm occurs. (Beep/Sound)	List box	None/Beep/ Sound	None
	Beep Sound Time Interval (s)	Set the beep sound timer interval. In the case of "sound", repeat play the content of specified sound file in the set time.	Text box	1 to 99999	10
	Beep Sound Frequency	Set the beep sound frequency when alarm occurs. (Unit: Hz) Set when the buzzer type is <Beep>.	Text box	50 to 10000	2000
	Sound File	Set the sound file to be played when alarm occurs. Set when the buzzer type is <sound>.	File selection dialog box	The file whose extension is WAV	(No setting)
Major alarm*4	(The items same as those of the minor alarm)				
Event*4	(The items same as those of the minor alarm)				

*4: The buzzer alarm sound is set according to minor alarm, major alarm and event. Types of the buzzer sound can be selected from the beep sound and sound file. If the "Beep" sound is selected, [Beep Sound Time Interval (s)] and [Beep Sound Frequency] should be specified. If the sound file is selected, [Beep Sound Time Interval (s)] and [Sound File] should be specified.

Item which needs to be set (classified in terms of buzzer type)

Setting item	Buzzer type		
	None	Beep	Sound
Beep sound time interval (s)	—	○	○
Beep sound frequency	—	○	—
Sound file	—	—	○

(○: Need to be set, —: Cannot be set)

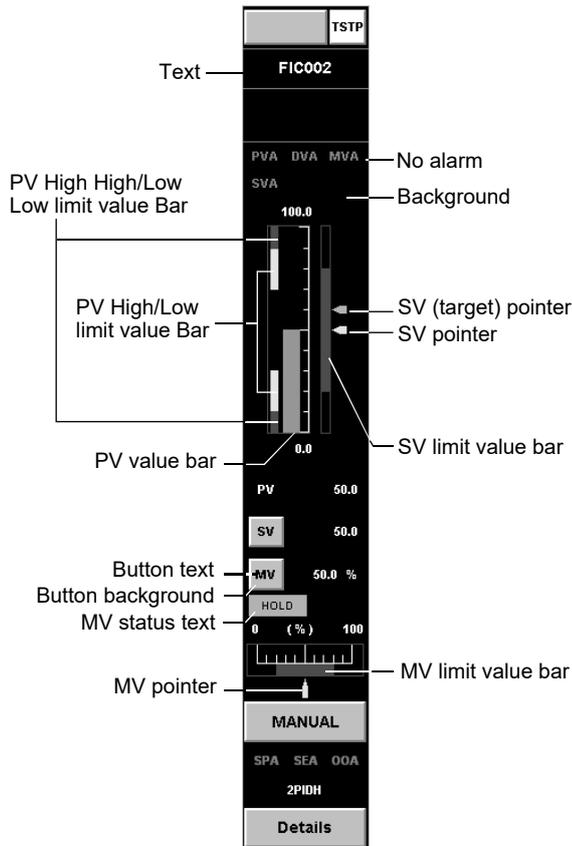
POINT
<ul style="list-style-type: none"> ● Make the "Event notification UDP Port No.(HEX)" setting not to overlap on well-known port numbers and any port numbers used by software other than the monitor tool. ● Make the "automatic CSV file export" setting after setting the items related to other automatic CSV file export. (☞ Section 8.7 (3))

(4) Faceplate

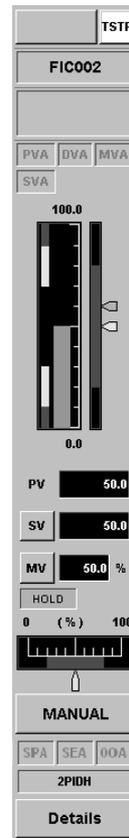
Set the graph color of the faceplate. The initial setting of it can be usual as it was.

 **DISPLAY/SETTING SCREEN**

Faceplate	
SV Limit Excess Setting	Valid
Background Color	
Text Color	
Alarm Area Color (No Alarm)	
Button Text Color	
Button Background Color	
Button Cover Display Setting	Valid
Button Cover Color	
Button Cover Release Second	3
PV Bar Positive Direction Color	
PV Bar Negative Direction Color	
PV Bar Both Direction Color (Positive)	
PV Bar Both Direction Color (Negative)	
PV High/Low Limit Value Bar Color	
PV High High/Low Low Limit Value Bar Color	
SV/MV Limit Value Bar Color	
SV/MV Pointer Color	
SV(Target) Pointer Color	
MV Status Color	
Frame Color(No Lockout Tag)	



Background color : black
 Text color : gray
 (Initial setting)



Background color : gray
 Text color : black



DISPLAY/SETTING DATA

Setting item	Description	Input method	Input restriction	Initial setting
SV Limit Excess Setting	When SV value is set in a faceplate, set input availability (Enable/Disable) of the value exceeding SL and SH.	List box	Valid/Invalid	Valid
Background Color	Set the whole background color of the faceplate.	Color dialog box	—	Black
Text Color	Set the text color of the faceplate.	Color dialog box	—	White
Alarm Area Color (No Alarm)	Set the text color of the alarm display area when no alarm occurs.	Color dialog box	—	Dark gray
Button Text Color	Set the text color of the button.	Color dialog box	—	Black
Button Background Color	Set the background color of the button.	Color dialog box	—	Gray
Button Cover Display Setting	Set the necessity of display for the button cover of push button with cover of the faceplate.	List box	Valid/Invalid	Valid
Button Cover Color	Set the color of the button cover.	Color dialog box	—	Teal
Button Cover Release Second	Set the release time for the button cover.	Text box	1 to 5	3
PV Bar Positive Direction Color	Set the PV bar display color when the display direction of the faceplate display scale setting is "positive direction".	Color dialog box	—	Green
PV Bar Negative Direction Color	Set the PV bar display color when the display direction of the faceplate display scale setting is "negative direction".	Color dialog box	—	Green
PV Bar Both Direction Color (Positive)	Set the PV bar display color when the display direction of the faceplate display scale setting is "both direction". (Display color when the PV is equal to or greater than the "Base point when both direction is set".)	Color dialog box	—	Green
PV Bar Both Direction Color (Negative)	Set the PV bar display color when the display direction of the faceplate display scale setting is "both direction". (Display color when the PV is less than the "Base point when both direction is set".)	Color dialog box	—	Green
PV High/Low Limit Value Bar Color	Set the graph color of PV high/low limit value display bar range.	Color dialog box	—	Yellow
PV High High/Low Low Limit Value Bar Color	Set the graph color of PV high high/low low limit value display bar range.	Color dialog box	—	Red
SV/MV Limit Value Bar Color	Set the display color of SV/MV limit value range.	Color dialog box	—	Dark green
SV/MV Pointer Color	Set the graph color of pointer the SV/MV graph.	Color dialog box	—	Yellow
SV (Target) Pointer Color	Set the display color for SV (target) pointer of a faceplate (used only for the tag type 2PIDH).	Color dialog box	—	Light blue
MV Status Color	Set the background color for MV status display of a faceplate.	Color dialog box	—	Light blue
Frame Color (No Lockout Tag)	Set the frame color of the faceplate.	Color dialog box	—	Gray

REMARK

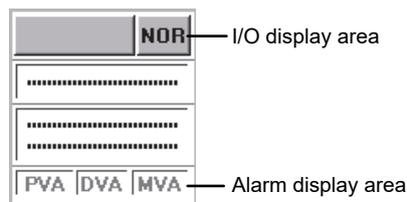
When the I/O mode display area of the faceplate is NOR, the graph color is the same as that of normal button. When the area is SIM/OVR/TSTP, the different specified color will be displayed.

	NOR	SIM	OVR	TSTP
Text color	Button text color	White	Black	Black
Background color	Button background color	Blue	Light blue	White

The graph color of the alarm display area is shown as the following chart according to whether alarm occurs or not.

Minor alarm color and major alarm color are set by the Option Setting (General).

	No alarm	Minor alarm	Major alarm
Text color	No alarm color	Black	Black
Background color	Background color	Minor alarm color	Major alarm color



(5) Trend Graph

Set the graph color of the trend graph or use the initial set color.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Setting item	Description	Input method	Input limit	Initial setting
Item Name Display	When the trend graph is displayed, select the column to be displayed on the Cursor position data display grid.	List box	Item Column/ Comment Column/ Item + Comment Column	Item Column
Gridline	Set whether the gridline is added to the trend graph.	List box	Available/None	Available
Gridline Color	Set the color of the gridline.	Color dialog box	—	Dark gray
Background Color	Set the background color of the graph.	Color dialog box	—	Black
Graph 1 to 8 Color	Set the line color of the graph.	Color dialog box	—	1 Green 2 Red 3 Yellow 4 Light blue 5 Blue 6 Magenta 7 White 8 Orange

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Setting item	Description	Input method	Input limit	Initial setting
Trend Binary Data Storage Folder	Set the folder path that saves the trend binary data collection file.	Folder selection dialog box	200 characters* ² ,* ³ Invalid characters: /,:;*?"<>	(No setting) * ¹
Automatic Trend CSV File Export Target Folder	Set the destination folder to which the CSV files will be output by automatic trend CSV file export.	Folder selection dialog box	200 characters* ² Invalid characters: /,:;*?"<>	(No setting) * ¹
Automatic Trend CSV File Export File Name	Set whether the group name will be included in the name of the automatic export file.	List box	Do not include Group Name/ Include Group Name	Do not include Group Name
Automatic Trend CSV File Export Time (0 to 23)	Set the time when the CSV files output by automatic trend CSV file export will be stored (0 minute every hour).	Text box	0 to 23	0
Automatic Trend CSV File Deletion	Set whether trend CSV file will be deleted automatically or not.	List box	No/Yes	No
Trend CSV File Storage Period (days)	Set the storage period of CSV file output by automatic trend CSV file export. When "Automatic trend CSV file deletion" is "Enable", files stored longer than the set period are automatically deleted.	Text box	1 to 2000	2000

*1: If the output destination folder is not set to the output folder, the file is output to the "Trenddata" or "TrendCSV" folder given in Section 2.3.

*2: Up to 255 characters with the monitor tool of PX Developer Version 1.04E or earlier and up to 225 characters with the monitor tool of PX Developer Version 1.06G to 1.20W. Data can be read with PX Developer Version 1.23Z or later even if the number of input characters exceed the limit.

*3: The total number of characters of both trend binary data storage folder name and trend binary file name must be within 259.

POINT

- With the setting to include a group name in a name of an automatic export file, invalid characters (/,:;*?"<>|) are restricted in a trend group name.
- When automatic trend CSV files are saved including group names, if the trend group name is changed, CSV files that were output before the change cannot be displayed on the trend graph.

9.18 Setting under This Condition

The set items and operating procedure that are necessary for the following conditions are explained here.

For details of setting window and operation method, refer to the following sections.

Section	Title
Section 9.18.1	Changing the mode
Section 9.18.2	Displaying the control panel
Section 9.18.3	Displaying a trend graph
Section 9.18.4	Displaying an alarm
Section 9.18.5	Displaying an event
Section 9.18.6	Setting character string displayed on faceplate
Section 9.18.7	Design lockout tag
Section 9.18.8	Specifying a font
Section 9.18.9	Specifying a display color
Section 9.18.10	Specifying a beep sound
Section 9.18.11	Changing the transfer setup
Section 9.18.12	Connecting to Simulator
Section 9.18.13	Specifying a printer
Section 9.18.14	Changing the window mode
Section 9.18.15	Using automatic CSV file export

9.18.1 Changing the mode

The user authority that is corresponding to the user name and password must be specified by user setting for changing at first.

Related setting items

Setting Item	Reference
User Authority Setting	Section 9.2
User Setting	Section 9.3



BASIC OPERATION

1. Click the "Change Mode" button on the monitor toolbar. (Section 4.5)
The "Change Mode" screen is displayed.
2. Input the user name and password with engineer authority to change to the engineer mode. (Section 4.7)
(In the default status, enter user name: admin, password: admin.)
3. Click the "Setting window" button on the monitor toolbar. (Section 6.3.8)
The setting window is displayed.
4. Select [User Authority Setting]. (Section 9.2)
Set the operation authority range for users to be specified.
Click the "Apply" button.
5. Select [User Setting]. (Section 9.3)
Set at optional on the user setting window.
Click the "Apply" button.
6. Close the setting window.
7. Click the "Change Mode" button on the monitor toolbar. (Section 4.5)
The "Change Mode" screen is displayed.
8. Input the user name and password.
It will be changed to the setting authority mode.
(When setting the lock mode, the "Lock" button can be clicked)

9.18.2 Displaying the control panel

In order to display the faceplate of optional tag data on the control panel, the projects of monitor target and the writing method of connecting monitor target must be specified. Meanwhile the tags to be displayed should be set by groups.

Related setting item

Setting Item	Reference
Monitor Target Project Setting	Section 9.4
Control Panel Setting	Section 9.7

For details of the setting that is related to the display content of the faceplate on the control panel, refer to Section 9.18.6.

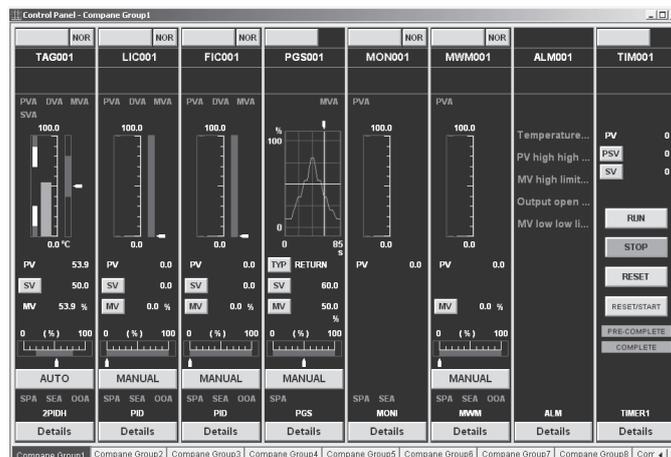


BASIC OPERATION

1. Click the "Change Mode" button on the monitor toolbar. (Section 4.5)
The "Change Mode" screen is displayed.
2. Input the user name and password with engineer authority to change to the engineer mode.
3. Click the "Setting window" button on the monitor toolbar. (Section 6.3.8)
The setting window is displayed.
4. Select [Monitor Target Project Setting]. (Section 9.4)
Set the assignment information database file on the screen of the monitor target project.
Click the "Apply" button.
5. Select [Control Panel Setting]. (Section 9.7)
Specify the display tag on the screen of control panel setting window.
Click the "Apply" button.
6. Close the setting window.
7. Click the "Control Panel" button on the monitor toolbar and then the control panel will be displayed. (Section 6.3.2)
(Section 7.1)



DISPLAY/SETTING SCREEN



9.18.3 Displaying a trend graph

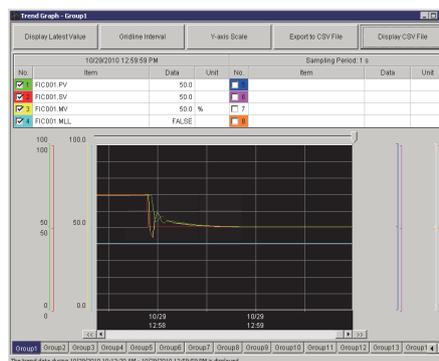
In order to display the value of optional process data on the trend graph, the monitor target projects and the connection method to the monitor target must be specified. Meanwhile, the tags to be displayed need to be set by groups. In addition, the existence of the gridline and the graph color can be changed by the option setting.

Related setting items

Setting Item	Reference
Monitor Target Project Setting	Section 9.4
Monitor Variable Setting	Section 9.6
Trend Setting	Section 9.8
Option Setting (Trend Graph)	Section 9.17 (5)

**BASIC OPERATION**

1. Click the "Change Mode" button on the monitor toolbar. (Section 4.5)
The "Change Mode" screen is displayed.
2. Input the user name and password with engineer authority to change to the engineer mode.
3. Click the "Setting Window" button on the monitor toolbar. (Section 6.3.8)
The setting window is displayed.
4. Select [Monitor Target Project Setting]. (Section 9.4)
Set the assignment information database file on the screen of the monitor target project.
Click the "Apply" button.
5. Select [Trend Setting]. (Section 9.6)
When displaying global variables or devices on the trend graph, register monitor variables on the monitor variable setting.
6. Specify the display tag data item and monitor variable on the trend setting window. (Section 9.8)
Click the "Apply" button.
7. Select [Option Setting]. (Section 9.17)
Set [Trend Graph] on the option setting screen.
Click the "Apply" button.
8. Close the setting window.
9. Click the "Trend Graph" button on the monitor toolbar and then (Section 6.3.2)
the trend graph will be displayed. (Section 7.2)

**DISPLAY/SETTING SCREEN**

9.18.4 Displaying an alarm

Two methods can be used to display the events of alarm occurrence on the screen: One is to display one line or two lines of the latest alarm on the monitor toolbar and the other is to display the alarm records on the alarm list screen.

With regard to the alarms of alarm tags or some of status tags (NREV, REV, MVAL1, MVAL2, PB, MTR2, MTR3, SS2P, DS2P, DS3P), preset the character string which displays the alarm content is required.

The option setting can change the graph color and display method of the alarm.

Set the UDP port number that is used for monitor tool to receive communication from CPU module by the option setting when connecting Ethernet.

Related setting items

Setting Item	Reference
Monitor Target Project Setting	Section 9.4
Alarm Setting	Section 9.9
Faceplate Display Pattern Setting	Section 9.13
Option Setting (General): minor alarm color, major alarm color	Section 9.17 (1)
Option Setting (Alarm/Event)	Section 9.17 (3)



BASIC OPERATION

- (1) Two lines of alarm are displayed on the monitor toolbar
 1. Click the "Change Mode" button on the monitor toolbar. (Section 4.5)
The "Change Mode" screen is displayed.
 2. Input the user name and password with engineer authority to change to the engineer mode.
 3. Click the "Setting Window" button on the monitor toolbar. (Section 6.3.8)
The setting window is displayed.
 4. Select [Monitor Target Project Setting]. (Section 9.4)
Set the assignment information database file on the monitor target project screen.
Click the "Apply" button.
 5. Select [Alarm Setting]. (Section 9.9)
Specify the alarm content which is assigned to the alarm tag on the alarm setting window.
Click the "Apply" button.
(It does not need to be set if the alarm tag has not been set)
 6. Select [Faceplate Display Pattern Setting]. (Section 9.13)
Set the content which is assigned to the status tag (NREV, REV, MVAL1, MVAL2, PB, MTR2, MTR3, SS2P, DS2P, DS3P) on the setting window of the faceplate display pattern.
Click the "Apply" button.
(It does not need to be set if the status tag has not been set)
 7. Select [Option Setting]. (Section 9.17)
Set [Event Notification UDP Port No.(HEX)] of [Alarm/Event]-[General] on the option setting screen.
 8. If necessary, [Minor Alarm Color] and [Major Alarm Color] of [General] can be changed to optional color on the option setting screen.
 9. [Alarm/Event Display on 2nd Line of Monitor Tool Bar] of [Alarm/Event]-[General] is set to [Alarm] on the option setting screen.
Click the "Apply" button.
 10. Close the setting window.

(2) Display Alarm List

1 to 8. Operating steps are the same as those of (1)

9. If necessary, the setting of [Highlighted Display while alarms Occur] of [Alarm/Event]-[General] can be changed on the option setting screen. (Section 9.17)
Click the "Apply" button.

10. Close the setting window.

11. Click the "Alarm List" button of the monitor toolbar. (Section 6.3.2)
The alarm list is displayed. (Section 7.3)



DISPLAY/SETTING SCREEN

<Alarm/event display area on the monitor toolbar>



<Alarm list screen>

No.	Confirm	Tag	Tag Comment	Alarm Contents	Occurrence Date	Recovered Date	Level	Measured Value
1	<input type="checkbox"/>	LIC002	Tank 2 water level	LLA	2/1 3/2007 2:14:10 PM		Minor	0.0
2	<input type="checkbox"/>	LIC002	Tank 2 water level	PLA	2/1 3/2007 2:14:10 PM		Minor	0.0
3	<input checked="" type="checkbox"/>	#SYSTEM		PLC CPU Error : PROJECT System A	2/1 3/2007 2:14:09 PM		Major	
4	<input checked="" type="checkbox"/>	#SYSTEM		Project ID Code Inconsistency : PROJECT	2/1 3/2007 2:13:41 PM	2/1 3/2007 2:14:08 PM	Major	
5	<input checked="" type="checkbox"/>	LIC002	Tank 2 water level	LLA	2/1 3/2007 2:06:20 PM	2/1 3/2007 2:13:49 PM	Minor	0.0
6	<input checked="" type="checkbox"/>	LIC002	Tank 2 water level	PLA	2/1 3/2007 2:06:20 PM	2/1 3/2007 2:13:49 PM	Minor	0.0
7	<input checked="" type="checkbox"/>	#SYSTEM		PLC CPU Error : PROJECT System A	2/1 3/2007 2:06:20 PM	2/1 3/2007 2:14:08 PM	Major	
8	<input checked="" type="checkbox"/>	#SYSTEM		Project ID Code Inconsistency : PROJECT	2/1 3/2007 2:06:09 PM	2/1 3/2007 2:06:19 PM	Major	
9	<input checked="" type="checkbox"/>	LIC002	Tank 2 water level	LLA	2/1 3/2007 1:51:03 PM	2/1 3/2007 2:06:19 PM	Minor	0.0
10	<input checked="" type="checkbox"/>	LIC002	Tank 2 water level	PLA	2/1 3/2007 1:51:03 PM	2/1 3/2007 2:06:19 PM	Minor	0.0
11	<input checked="" type="checkbox"/>	#SYSTEM		PLC CPU Error : PROJECT System A	2/1 3/2007 1:51:03 PM	2/1 3/2007 2:06:19 PM	Major	
12	<input checked="" type="checkbox"/>	#SYSTEM		Project ID Code Inconsistency : PROJECT	2/1 3/2007 1:50:42 PM	2/1 3/2007 1:51:02 PM	Major	
13	<input type="checkbox"/>	LIC002	Tank 2 water level	LLA	2/1 3/2007 1:43:42 PM	2/1 3/2007 1:51:02 PM	Minor	0.0
14	<input type="checkbox"/>	LIC002	Tank 2 water level	PLA	2/1 3/2007 1:43:42 PM	2/1 3/2007 1:51:02 PM	Minor	0.0
15	<input checked="" type="checkbox"/>	#SYSTEM		PLC CPU Error : PROJECT System A	2/1 3/2007 1:43:41 PM	2/1 3/2007 1:51:02 PM	Major	

9.18.5 Displaying an event

Two methods are used to display the event on the screen.

One is to display one line of the latest event on the monitor toolbar and the other is to display the list of event record on the event list screen.

With regard to the event of the message tag or status tag (NREV, REV, MVAL1, MVAL2, PB, MTR2, MTR3, SS2P, DS2P, DS3P), preset the character string of the event content that is displayed is required.

Set the UDP port number that is used for monitor tool to receive communication from CPU module by the option setting when connecting Ethernet.

Related setting items

Setting item	Reference
Monitor Target Project Setting	Section 9.4
Event Setting	Section 9.10
Faceplate Display Pattern Setting	Section 9.13
Option Setting (Alarm/Event): General	Section 9.17 (3)



BASIC OPERATION

(1) Display the latest event on the monitor toolbar

1. Click the "Change Mode" button on the monitor toolbar. (Section 4.5)
The change mode screen is displayed.
2. Input the user name and password with engineer authority to change to the engineer mode.
3. Click the "Setting Window" button on the monitor toolbar. (Section 6.3.8)
The setting window is displayed.
4. Select [Monitor Target Project Setting]. (Section 9.4)
Set the assignment information database file on the screen of the monitor target project.
Click the "Apply" button.
5. Select [Event Setting]. (Section 9.10)
Specify the alarm content which is assigned to the alarm tag on the event setting window.
Click the "Apply" button. (It does not need to be set if the alarm tag has not been set)
6. Select [Faceplate Display Pattern Setting]. (Section 9.13)
Set the content which is assigned to the status tag (NREV, REV, MVAL1, MVAL2, PB, MTR2, MTR3, SS2P, DS2P, DS3P) on the setting screen of the faceplate display pattern.
Click the "Apply" button. (It does not need to be set if the status tag has not been set) (Section 9.17)
7. Select [Option Setting].
Set [Event Notification UDP Port No.(HEX)] of [Alarm/Event]-[General] on the option setting screen.
8. [Alarm/Event Display on 2nd Line of Monitor Tool Bar] of [Alarm/Event] - [General] is set to [Event] on the option setting screen.
Click the "Apply" button.
9. Close the setting screen.

(2) Display Event List

1. to 7. Operating steps are the same as those of (1)

Click the "Apply" button.

8. Close the setting window.

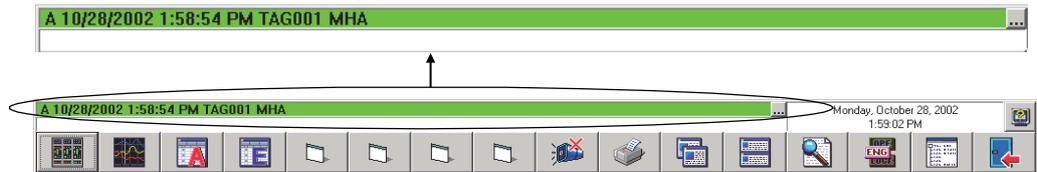
9. Click the "Event List" button on the monitor toolbar. (Section 6.3.2)

The event list is displayed. (Section 7.4)



DISPLAY/SETTING SCREEN

<Alarm/event display area on the monitor toolbar>



<Event list screen>

		Delete All		Confirm All		Print		Export to CSV File	
No.	Confirm	Tag	Tag Comment	Event Message	Occurrence Date	Status	Set Value	Previous Value	User
1		#SYSTEM		Monitor Target Project was load	10/15/2013 10:25:56 AM				
2		TIC001			10/15/2013 10:25:36 AM	CLOSE			admin
3		TIM1001			10/15/2013 10:25:21 AM	DOM_RUN_SET			admin
4		TIM1001			10/15/2013 10:23:56 AM	DOM_STOP_SET			admin
5		LIC001		SV	10/15/2013 9:49:57 AM		1.0	0.0	admin
6		M001	Motor		10/15/2013 9:49:52 AM	AUT			
7		M001	Motor		10/15/2013 9:49:52 AM		AUT	MAN	admin
8	<input type="checkbox"/>	MSG001	Event message 1	Temperature setting completed	10/15/2013 9:49:49 AM				

9.18.6 Setting character string displayed on faceplate

Among the character strings displayed on the faceplate, the character string which is assigned to the operation button and indicator is set by the faceplate display pattern setting. The character string which is assigned to the alarm tag and message tag is set by the alarm setting and event setting.

In addition, the character string that can be defined by the monitor tool includes unit, MV characters of MV graph and lockout tag name. The display high/low limit of PV graph can be set by setting the faceplate display scale. The character string (set by the alarm setting, event setting and faceplate display pattern setting) is also displayed on the alarm list screen or event list screen.

Related setting items

Setting item	Reference
Monitor Target Project Setting	Section 9.4
Alarm Setting	Section 9.9
Event Setting	Section 9.10
Unit Setting	Section 9.12
Faceplate Display Pattern Setting	Section 9.13
Faceplate Display Scale Setting	Section 9.14
Faceplate MV Characters Setting	Section 9.15

For details of setting method as for displaying content of lockout tag which is displayed on the faceplate, refer to "Section 9.18.7 Design lockout tag".

For details of setting method as for graph color setting of the faceplate, refer to "Section 9.18.9 Specifying a display color".



BASIC OPERATION

1. Click the "Change Mode" button on the monitor toolbar. (Section 4.5)
The "Change Mode" screen is displayed.
2. Input the user name and password with engineer authority to change to the engineer mode.
3. Click the "Setting Window" button on the monitor toolbar. (Section 6.3.8)
The setting window is displayed.
4. Select [Monitor Target Project Setting]. (Section 9.4)
Set the assignment information database file on the screen of the monitor target project.
Click the "Apply" button.
5. Select the item to be set. (Section 9.9,
Section 9.10,
Section 9.12 to
Section 9.15)
Set the character string that is assigned to the tag on the setting window.
Click the "Apply" button.
(It does not need to be set if the corresponding tag has not been set on the project)
6. Close the setting window. (Section 6.3.6)
Click the "Find" button of the monitor toolbar and search by tag name.
The pop-up faceplate is displayed. (Section 7.6)

9.18.7 Design lockout tag

The user authority needs to be set for the lockout tag to restrict the operation. The name and color of lockout tag can be set freely.

Related setting items

Setting item	Reference
User Authority Setting	Section 9.2
User Setting	Section 9.3
Lockout Tag Setting	Section 9.16

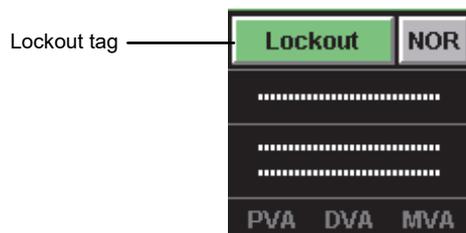


BASIC OPERATION

1. Click the "Change Mode" button on the monitor toolbar. (Section 4.5)
The "Change Mode" screen is displayed.
2. Input the user name and password with engineer authority to change to the engineer mode.
3. Click the "Setting Window" button on the monitor toolbar. (Section 6.3.8)
The setting window is displayed.
4. Select [User Authority Setting]. (Section 9.2)
Set the operation authority range for users to be specified.
Click the "Apply" button.
5. Select [User Setting]. (Section 9.3)
Set optionally on the user setting window.
Click the "Apply" button.
6. Select [Lockout Tag Setting]. (Section 9.16)
Set optionally on the Lockout Tag setting window.
Click the "Apply" button.
7. Close the setting window.
8. Click the "Find" button of the monitor toolbar and search by tag name. (Section 6.3.6)
The pop-up faceplate is displayed. (Section 7.6)
9. Click the lockout tag display area on the faceplate. (Section 10.2)
The "Select Lockout Tag" dialog box is displayed.
10. Select the lockout tag and click the "OK" button.
The lockout tag is displayed in the "Lockout Tag Display Area".



DISPLAY/SETTING SCREEN



9.18.8 Specifying a font

The display character font of the setting window and the monitor screen can be changed.

Related setting items

Setting item	Reference
Option Setting (General): Setting Window Font and Monitor Window Font	Section 9.17 (1)



BASIC OPERATION

1. Click the "Change Mode" button on the monitor toolbar. (Section 4.5)
The "Change Mode" screen is displayed.
2. Input the user name and password with engineer authority to change to the engineer mode.
3. Click the "Setting Window" button on the monitor toolbar. (Section 6.3.8)
The setting window is displayed.
4. Select [Option Setting]. (Section 9.17)
Change [Setting Window Font] and [Monitor Window Font] of [General] optionally on the option setting screen.
Click the "Apply" button.
5. Close the setting window.

REMARK

- The font can be selected from the font set in the personal computer.
- The size of the font is automatically selected by the screen size. (Except the tag monitor display area of pop-up tuning.)
- The change of the monitor window font is to change the button, tab title and character string of the list. The font of the displayed character string of on the faceplate cannot be changed.

9.18.9 Specifying a display color

The display color of the faceplate, lockout tag, alarm display and trend graph can be changed.

Related setting items

Setting item	Reference
Faceplate Display Pattern Setting	Section 9.13
Lockout Tag Setting: Text Color and Background Color	Section 9.16
Option Setting (General): Minor Alarm Color and Major Alarm Color	Section 9.17 (1)
Option Setting (Faceplate)	Section 9.17 (4)
Option Setting (Trend Graph): Gridline Color, Background Color and Graph 1 to 8 Color	Section 9.17 (5)



BASIC OPERATION

1. Click the "Change Mode" button on the monitor toolbar. (Section 4.5)
The "Change Mode" screen is displayed.
2. Input the user name and password with engineer authority to change to the engineer mode.
3. Click the "Setting Window" button on the monitor toolbar. (Section 6.3.8)
The setting window is displayed.
4. Select the item to be set.
Select the display color in the color dialog box. (Section 9.1.2)
Click the "OK" button.
5. Confirm that the color displayed in the cell is the selected color.
Click the "Apply" button.
6. Close the setting window.

The items whose color can be set and their initial color settings are listed in the follow table.

Setting item		Initial setting	
		Text color	Background color
Faceplate Display Pattern Setting	Open Button	Black	Red
	Close Button	Black	Red
	Semi-open Display	Black	Red
	Operation Button	Black	Red
	Forward Run Button	Black	Red
	Forward Rotation Button	Black	Red
	Inching Forward Rotation Button	Black	Red
	Reverse Run Button	Black	Red
	Reverse Rotation Button	Black	Red
	Inching Reverse Rotation Button	Black	Red
	Port Button	Black	Red
	Port 1 Button	Black	Red
	Inching 1 Button	Black	Red
	Port 2 Button	Black	Red
	Inching 2 Button	Black	Red
	Stop Button	Black	Red
	Using the PID Cooling	Black	Light blue
	Using the PID Heating	Black	Red
	ON Name	Black	Red
	OFF Name	Black	Gray
	Remote Display	Black	Green
	Local Display	Black	Green
	Lamp Display	Black	Green
	Status Answer Display	Black	Green
	Start IL Display	Black	Green
	Run IL Display	Black	Green
	Lamp 1 Display	Black	Green
	Status Answer 1 Display	Black	Green
	Start IL 1 Display	Black	Green
	Run IL 1 Display	Black	Green
	Lamp 2 Display	Black	Green
	Status Answer 2 Display	Black	Green
	Start IL 2 Display	Black	Green
Run IL 2 Display	Black	Green	
Lamp A Display	Black	Green	
Lamp B Display	Black	Green	

Setting item		Initial setting	
Lockout Tag setting	Text color		
	Background color		
Option Setting	General	Minor alarm color	Green
		Major alarm color	Red
	Faceplate	Background color	Black
		Text color	White
		Alarm area color (No alarm)	Dark-gray
		Button text color	Black
		Button background color	Gray
		Button cover color	Teal
		PV Bar positive direction color	Green
		PV Bar negative direction color	Green
		PV Bar both direction color (Positive)	Green
		PV Bar both direction color (Negative)	Green
		PV High/ Low Limit Value Bar color	Yellow
		PV High High/Low Low Limit Value Bar Color	Red
		SV/MV Limit Value Bar Color	Dark-green
		SV/MV pointer color	Yellow
		SV (target) pointer color	Light blue
		MV status color	Light blue
	Frame color (No lockout tag)	Gray	
	Trend Graph	Gridline color	Gray
		Background color	Black
		Graph 1 color	Green
		Graph 2 color	Red
		Graph 3 color	Yellow
		Graph 4 color	Light blue
		Graph 5 color	Blue
		Graph 6 color	Magenta
Graph 7 color		White	
Graph 8 color	Orange		

9.18.10 Specifying a beep sound

In order to beep when alarm or event occurs, it is necessary to set buzzer in option setting. Buzzer type and beep time can be specified.

Related setting items

Setting item	Reference
Option Setting (Alarm/Event)	Section 9.17 (3)



BASIC OPERATION

1. Click the "Change Mode" button on the monitor toolbar. (Section 4.5)
The "Change Mode" screen is displayed.
2. Input the user name and password with engineer authority to change to the engineer mode.
3. Click the "Setting Window" button on the monitor toolbar. (Section 6.3.8)
The setting window is displayed.
4. Select [Option Setting]. (Section 9.17)
Set the buzzer-related projects as [Alarm/Event] on the option setting screen.
Click the "Apply" button.
5. Close the setting window.

The beep sound is set according to Minor alarm/Major alarm/event when alarm occurs. There are two types of beep sound: Beep sound or sound in the sound file.

Setting item	Initial setting	
Buzzer Type		
	None	
Minor alarm	Beep Sound Time Interval (s)	(10)
	Beep Sound Frequency	(2000)
	Sound File	(No setting)
Major alarm	(The same as that of minor alarm)	
Event	(The same as that of minor alarm)	

When beep sound occurs, [Beep Sound Time Interval (s)] and [Beep Sound Frequency] should be specified. When file sound happens, [Beep Sound Time Interval (s)] and [Sound File] should be specified.

Items to be set (according to the buzzer type)

Setting item	Buzzer type		
	None	Beep	Sound
Beep sound time interval (s)	—	○	○
Beep sound frequency	—	○	—
Sound file	—	—	○

(○: Need to be set, —: Setting not allowed)

REMARK

The beep sound can be stopped by clicking the "Stop Buzzer" button of the monitor toolbar. (Section 8.1)

9.18.11 Changing the transfer setup

The screen that is the same as that of GX Developer will be displayed by selecting [Transfer Setup] of [Monitor Target Project Setting] on the monitor toolbar. In order to change transfer setup of PLC, it should be set on the specified screen of the connected target.

For details of basic operation method of transfer setup screen, refer to "GX Developer Version 8 Operating Manual". But the connection of the monitor tool cannot be the relay station's connection of the network with the different network number. (It cannot be connected by blend network of MELSECNET/10(H) and Ethernet which are permitted in GX application)

Related setting items

Setting item	Reference
Monitor Target Project Setting	Section 9.4
Option Setting (Alarm/Event)	Section 9.17 (3)



BASIC OPERATION

1. Click the "Change Mode" button on the monitor toolbar. (Section 4.5)
The "Change Mode" screen is displayed.
2. Input the user name and password with engineer authority to change to the engineer mode.
3. Click the "Setting Window" button on the monitor toolbar. (Section 6.3.8)
The setting window is displayed.
4. Select [Monitor Target Project Setting]. (Section 9.4)
Set assignment information database file to the target on monitor target project screen.
5. Click [Transfer Setup] on the monitor target project screen to display the transfer setup screen.
6. Select [PC Side I/F], [PLC Side I/F] and [Network route] in turn on the specified screen of the connected target.
7. Click the "Connection Test" button to confirm the normal communication.
8. Click the "OK" button to activate transfer setup and close the window.
9. Specify the path and the transfer setup of projects.
Click the "Apply" button.

When setting the connection of <Ethernet>:

10. Select [Option Setting]. (Section 9.17)
Confirm that the value of [Alarm/Event]-[General]-[Event Notification UDP Port No.(HEX)] is in accordance with the [Destination Port Number] value of the destination network parameter setting (set by GX application which started from programming tool) on the option setting screen.
Click the "Apply" button.
11. Close the setting window.

9.18.12 Connecting to Simulator

Start Simulator in the PX Developer programming tool, execute the simulation of monitoring screen of monitor tool.

Related setting items

Setting item	Reference
Monitor Target Project Setting	Section 9.4



BASIC OPERATION

1. Start the PX Developer programming tool.
2. Select [Project] → [Open Project] under the Menu to open a project which executes the simulation.
3. Select [Debug] → [Start Simulation] under the Menu to start Simulator.
4. Click the "Change Mode" button on the monitor toolbar. The "Change Mode" screen is displayed.
5. Input the user name and password with engineer authority to change to the engineer mode.
6. Click the "Setting Window" button on the monitor toolbar. The setting window is displayed.
7. Select [Monitor Target Project Setting]. Set assignment information database file to the target on the monitor target project screen.
8. Select [Simulator Connection] of the project to be connected to simulator on the monitor target project screen. For GX Simulator3, select a simulator to connect on the transfer setup screen. Click the "Apply" button.
9. Close the setting window.

PX Developer
Version 1
Operating
Manual
(Programming
Tool)
(Section 4.5)
(Section 6.3.8)
(Section 9.4)

9.18.13 Specifying a printer

When clicking the "Print Screen" button on the monitor toolbar or the "Print" button on the alarm/event list, the output printer will be selected among the printers that have been registered in the printer setting of the personal computer. The printer cannot be set in detail (such as print paper setting) by the monitor tool. It is printed by the setting that is specified by the printer setting of the personal computer. When specifying the printer without the monitor tool setting, the printer that is set as the "Default printer" will be output.

Related setting items

Setting item	Reference
Option Setting (General): Printer	Section 9.17 (1)



BASIC OPERATION

1. Click the "Change Mode" button on the monitor toolbar. (Section 4.5)
The "Change Mode" screen is displayed.
2. Input the user name and password with engineer authority to change to the engineer mode.
3. Click the "Setting Window" button on the monitor toolbar. (Section 6.3.8)
The setting window is displayed.
4. Select [Option Setting]. (Section 9.17)
Select [Printer] of [General] on the option setting screen.
Select the printer name from the list.
Click the "Apply" button.
5. Close the setting window.

9.18.14 Changing the window mode

Window mode is to select multi-screen or maximum display mode of single screen (☞ Section 6.4.2). Set the mode in option setting.

Related setting items

Setting Item	Reference
Option Setting (General): Window Mode	Section 9.17 (1)



BASIC OPERATION

1. Click the "Change Mode" button of the monitor toolbar. (Section 4.5)
The "Change Mode" screen is displayed.
2. Input the user name and password with engineer authority to change to the engineer mode.
3. Click the "Setting Window" button on the monitor toolbar. (Section 6.3.8)
The setting window is displayed.
4. Select [Option Setting]. (Section 9.17)
Set the [Window Mode] of [General] by selecting Multi-window or Single window in option setting screen.
Click the "Apply" button.
5. Close the setting window.

9.18.15 Using automatic CSV file export

Automatic CSV file export is a function that saves trend, alarm and event data in CSV files automatically as histories.

To use automatic CSV file export, set whether automatic CSV file export will be executed or not for each data (trend, alarm, event).

Related setting items

Setting item	Reference
Trend Setting	Section 9.8
Option Setting (General)	Section 9.17 (1)
Option Setting (Alarm/Event)	Section 9.17 (3)
Option Setting (Trend Graph)	Section 9.17 (5)



BASIC OPERATION

1. Click the "Change Mode" button on the monitor toolbar. (Section 4.5)
The "Change Mode" screen is displayed.
2. Input the user name and password with engineer authority to change to the engineer mode.
3. Click the "Setting" button on the monitor toolbar (Section 6.3.8)
The setting screen is displayed.
4. Set the automatic CSV file export target folder, whether to include a group name in an export file name, automatic CSV file deletion (Enable/Disable), automatic CSV file export time (automatic trend CSV file export only) and storage period (only when automatic deletion is made).
The setting positions are as follows.
After setting, click the "Apply" button.

Setting item	Setting position
Option Setting (Trend Graph)	Automatic trend CSV file export target folder
	Automatic trend CSV file export file name
	Automatic trend CSV file export time (0 to 23)
	Automatic trend CSV file deletion
	Trend CSV file storage period (days)
Option Setting (Alarm/Event)	Automatic alarm CSV file deletion
	Alarm CSV file storage period (days)
	Automatic alarm CSV file export target folder
Option Setting (Alarm/Event)	Automatic event CSV file deletion
	Event CSV file storage period (days)
	Automatic event CSV file export target folder

(Section 9.17 (5))

(Section 9.17 (3))

(Section 9.17 (3))

5. When automatic CSV file deletion is set to "Enable" in above 4., set the time for automatically deleting CSV files. In the option setting (general), set the "Automatic CSV file deletion time (0 to 23).
Click the "Apply" button. (Section 9.17 (1))
6. In the option setting (general), set the "Disk free space check size (MB)".
Click the "Apply" button. (Section 9.17 (1))

7. Set automatic CSV file export to "Enable".

The setting positions are as follows.

After setting, click the "Apply" button.

Automatic CSV file export starts.

Setting item	Setting position
Trend Setting	Automatic CSV file export (set for each group)
Option Setting (Alarm/Event)	Automatic alarm CSV file export
Option Setting (Alarm/Event)	Automatic event CSV file export

(Section 9.8)

(Section 9.17 (3))

(Section 9.17 (3))

10 FACEPLATE

The so-called faceplate is the graphic screen displaying tag data content to simulate controller.

Accessing to the tag data, execute corresponding process status observation and condition setting. For details of tag types, refer to Section 10.4.

Tag data value cannot only be displayed but also be changed on the faceplate.

Term	Description
Tag	Originally, it indicates certain measurement for process control or JIS definition identifier on hardware; as for the computer control system, it indicates the identifier of various DDC processing.
Tag data	A generic name of the data (process condition data/process status data) from DDC processing indicating tag.
Tag data item	Items for value setting in tag data.

10.1 Faceplate Display



PURPOSE

To display the graphic screen the simulating controller.

To monitor the current PID control status as well as to execute ON/OFF control with the bar graph in each faceplate.

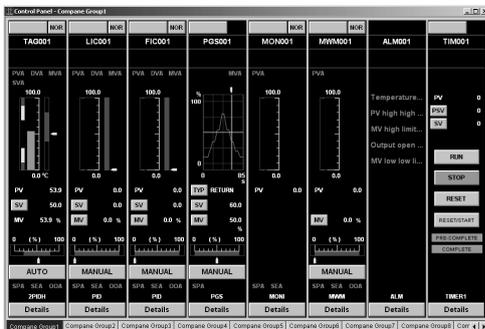


BASIC OPERATION

The faceplate can be displayed in the following monitor screen.

For details of each screen and its displaying method, refer to Section 6.3.2 and Chapter 7.

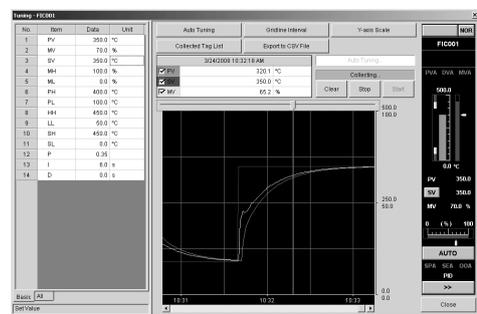
- Control panel Section 7.1
- Pop-up faceplate Section 7.6
- Pop-up tuning Section 7.7



<Control panel>



<Pop-up faceplate>

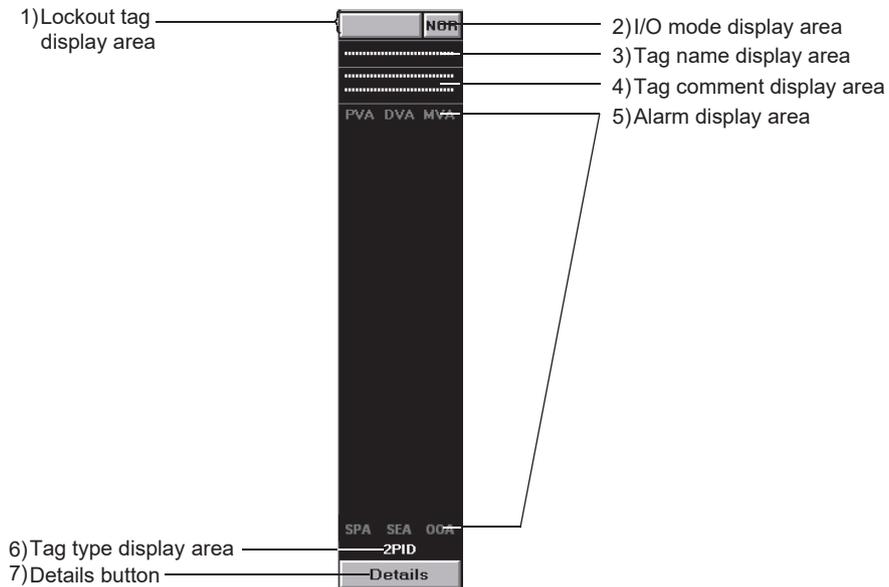


<Pop-up tuning >



DISPLAY/SETTING SCREEN

The basic display contents of the faceplate are as follows:



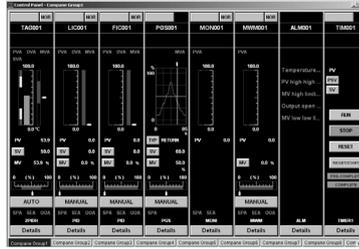
DISPLAY/SETTING DATA

No.	Item	Description	Text color	Background color	Number of characters
1)	Lockout tag display area	Display Lockout tag name. (For details, refer to Section 10.2)	Without lockout tag: Button text color With tag: Setting color	Without lockout tag: Button background color With lockout tag: Setting color	8 characters
2)	I/O mode display area	Display I/O mode. Click the button to change the I/O mode. (For details, refer to Section 10.3.2)	NOR : Button text color SIM : White OVR : Black TSTP : Black	NOR: Button background color SIM: Blue OVR: Light blue TSTP: White	4 characters
3)	Tag name display area	Display tag names. (For details, refer to (1) in this section)	Generally: Text color When tag data cannot be written: Black In setting operation: White	Normal connection: Background color Abnormal communication: Red When tag data cannot be written: Light blue In setting operation: Blue	12 characters (depends on the width of faceplate)
4)	Tag comment display area	Display tag comment in two lines. Set the tag comment in the tag FB declaration window of the programming tool.	Text color	Background color	28 characters (depends on the width of faceplate)
5)	Alarm display area	Display tag alarm. (For details, refer to (2) in this section)	Without alarm: No alarm color With alarm: Black	No alarm: Background color Minor alarm: Minor alarm color Major alarm: Major alarm color	3 characters
6)	Tag type display area	Display the tag type of the tag.	Text color	Background color	8 characters
7)	Details button	Click the "Details" button to display the pop-up tuning screen. (For details, refer to Section 7.7)	Button text color	Button background color	Details/⟨⟨/⟩⟩

Employ the ellipsis "." at the end of a long character string in the tag name display area or tag comment display area.

POINT

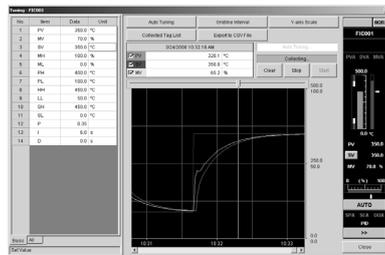
Click the button at the bottom of the faceplate to change the window of the display faceplate as shown below.



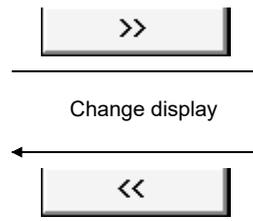
<Control panel>

Details

Open new pop-up tuning screen



<Pop-up tuning>



<Pop-up faceplate>

(1) Display data of tag name display area

Status	Description
Faceplate operation	 <p>When the SV/MV setting dialog box, etc. is opened from the faceplate, the background color turns blue.</p>
When tag data cannot be read/written	 <p>When the tag data cannot be read/written, the background color turns red. The tag data cannot be read/written in the following cases.</p> <ul style="list-style-type: none"> • A communication error with a PLC has occurred. • "Incorrect PLC type" error has occurred. • A communication error with a server has occurred in a client. <p>In either of the above cases, the displayed value will not be updated. In the case of a redundant system, the status is relevant to a CPU module in the system that has been selected in the "Transfer Setup" dialog box.</p>
When tag data cannot be written	 <p>When tag data cannot be written, the background color turns light blue. The tag data cannot be read/written in the following cases.</p> <ul style="list-style-type: none"> • The project ID code inconsistent error has occurred, and "Write tag data (even if the PC's and PLC's project ID codes are different)" has been set as "Enable" in the Option setting (General). • The redundant system A/B identification error has occurred. • The redundant control/standby system status error has occurred. <p>As the data can be read from the PLC CPU, the displayed value will be updated. In the case of a redundant system, the status is relevant to a CPU module in the system that has been selected in the "Transfer Setup" dialog box.</p>

POINT

When tag data cannot be read/written, check the following points.

- Connection status of the communication cable.
- PLC connection target in the monitor target project setting (☞ Section 9.4).
- In the alarm list (☞ Section 7.3), double-click the corresponding alarm item to display the system alarm details dialog box.
Confirm the displayed error definition and take corrective action.

When tag data cannot be written, observe the following instructions.

- Reload the monitor target instructions.
- When PLC download has not been performed after execution of compile with the programming tool, perform PLC download and then reload the monitor target project with the monitor tool.

(2) Display data of alarm display area

(a) PVA, DVA, MVA, SVA, or AL1 to AL4 display area

Tag type	Displayed characters *1	Description	
Loop tag	PVA	PV-related	Positive/negative variation rate Input high high/high/low/low low limit over
	DVA	DV-related	Large deviation
	MVA	MV-related	Output variation rate limit Output high/low limit
	SVA	SV-related	SV variation rate limit SV high/low limit
Status tag	AL1	Time-out-related	When the tag type is NREV, REV, MVAL1, MVAL2 Time-out over When the tag type is MTR2, MTR3, SS2P, DS2P, DS3P Mismatch between status answer and output signal
	AL2	Trip-related	Current and overloaded trip over
	AL3	Communication error-related	Communication error
	AL4	Status answer indefinite-related	Indefinite device status (multiple status answer input)
Other tags	(Nothing displayed)		

*1: The alarm that has not occurred in the corresponding tag type is not displayed.

(b) SPA, SEA (or HBOA), OOA display area

Tag type	Displayed characters	Description									
Loop tag	SPA	<p>Stop alarm</p> <p>When SPA turns ON, the "SPA" part changes to a button. Clicking this button resets SPA.</p> <p>However, a user who has the authority of operation for changing tag data of process design values can reset SPA.</p> <table border="1"> <thead> <tr> <th>SPA status</th> <th>Operation display type *2</th> <th>Indication</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>PB-C</td> <td></td> </tr> <tr> <td>OFF</td> <td>PL</td> <td></td> </tr> </tbody> </table>	SPA status	Operation display type *2	Indication	ON	PB-C		OFF	PL	
	SPA status	Operation display type *2	Indication								
	ON	PB-C									
OFF	PL										
SEA or HBO *1	<p>Sensor error (SEA)</p> <p>SEA turns ON when the sensor is abnormal.</p> <p>Heater failure (HBOA)</p> <p>HBOA turns ON in heater failure.</p>										
OOA	<p>Output open alarm</p> <p>Turns ON when the output disconnection is detected in the user program.</p>										
Other tag	(No indication)										

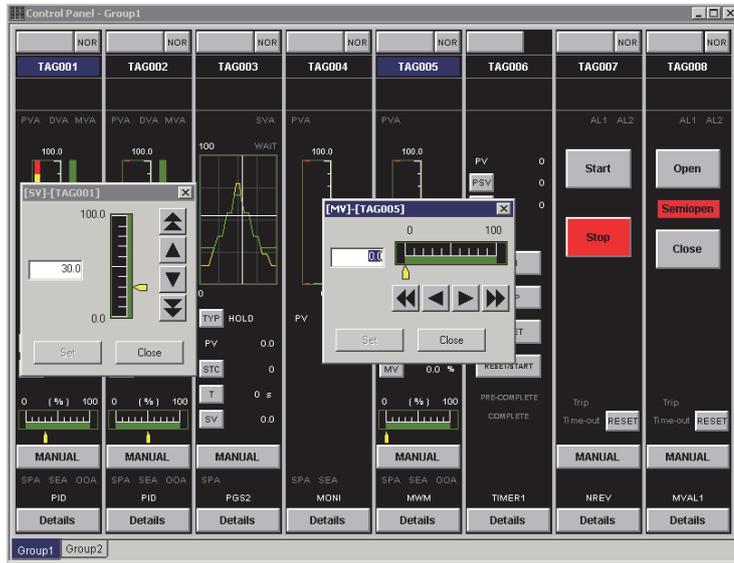
*1: HBOA is displayed as "HBO".

*2: For details, refer to Section 10.3.1.

For details of tag types, refer to Section 10.4.

(3) Display on modeless dialog box

- The dialog boxes to operate the tag data can be displayed simultaneously from the multiple faceplates on the control panel.
- When the dialog box which is started up from faceplate is displayed, other dialog boxes can be opened without closing the displayed dialog box.



The following shows the modeless dialog boxes which can be displayed by clicking the parts on the faceplate.

Parts	Dialog box
Lockout tag display area	Select Lockout Tag dialog box
I/O mode display button	Change I/O Mode dialog box
Control mode display button	Change Control Mode dialog box
Motion type setting button	Change Motion Type dialog button box
PV value setting button	PV value setting dialog box
SV value setting button	SV value setting dialog box
MV value setting button	MV value setting dialog box
Count value setting button	Count value setting dialog box
Executing step No. setting button	Executing step No. setting dialog box
Time in the step setting button	Time in the step setting dialog box

10.2 Lockout Tag



PURPOSE

Limit the tag data operation on the faceplate by the authority-specified lockout tag.



BASIC OPERATION

(Setting Lockout tag)

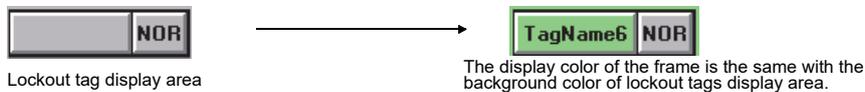
1. Click the lockout tag display area of the faceplate without lockout tag.
2. The "Select Lockout Tag" dialog box is displayed.
3. Select the lockout tag in the "Select Lockout Tag" dialog box then click the "OK" button.
4. The Confirmation dialog box is displayed and the lockout tag is set on the faceplate.

(Removing lockout tag)

1. Click the lockout tag display area of the faceplate with lockout tag.
2. If the set tag can be removed within the authority of current mode, a confirmation dialog box for removing the tag is displayed and the Lockout Tag can be removed.
3. If the lockout tag cannot be removed within the authority of current mode, the Corresponding message is displayed: The tag cannot be removed. Execute again after changing mode (Section 4.5).



DISPLAY/SETTING SCREEN



<Select Lockout Tag dialog box>

The lockout tag list available in current mode is displayed "Select Lockout Tag" dialog box. In the lockout tag list display the tags set according to "Section 9.16 Lockout Tag Setting". The corresponding lockout tag classes available in the mode are as follows:

Current mode	Available lockout tag level
Engineer Mode	Operator1 to 4, engineer
Operator Mode	Operator1 to 4 who have the authority of operation for setting/removing lockout tag on User Authority Setting (Section 9.2) Example (initial setting): when the current user authority is operator3, lockout tag of operator1 to 3 level can be used.
Lock Mode	Lockout tag operation cannot be executed.

10.3 Displaying Parts on Faceplate

Display parts simulated to display lamp and push button according to the display tag data contents on the faceplate.

10.3.1 Operation display types

The following list shows the parts names and abbreviations displayed on the faceplate:
For operating the buttons, the user authority in accordance with the tag data items is required.
For details of operation authority for tag data items, refer to Appendix 4.

Name		Abbreviation	Description
Push Button	Push button	PB	Display the general push buttons
	Push button with confirmation	PB-C	Display the confirmed message before execution
	Button with display	PB-L	Flick display in 1 second interval in execution
	Push button with output display	PB-S	Display the output status of tag FB. (FALSE: Not lit, TRUE: Lit)
	Push button with cover	PB-CV	The button cover can be set. <ul style="list-style-type: none"> When the setting is disabled, this button is the same as the push button with confirmation. When the setting is enabled, the button cover is displayed.
	Push button with confirmation and display	PB-LC	Displaying the confirmed information before execution Flick display every 1 second in execution
	Push button with cover and output display	PB-SCV	Display the push buttons with output display to set the button cover. The output status of tag FB is displayed. (FALSE: Not lit, TRUE: Lit) <ul style="list-style-type: none"> When the setting is disabled, this button is the same as the push button with output display. When the setting is enabled, the button cover is displayed.
	Push button with ON/OFF history	PB-ONF	Display the confirmed message before execution
	I/O mode display button	PB-SIM	Display change I/O Mode dialog box
	Control mode display button	PB-MODE	Display change Control Mode dialog box
	Motion type setting button	PB-TYPE	Display change Motion Type dialog button box
	PV value setting button	PB-PV	Display PV value setting dialog box
	SV value setting button	PB-SV	Display SV value setting dialog box
	MV value setting button	PB-MV	Display MV value setting dialog box
	Count value setting button	PB-CNT	Display count value setting dialog box
	Executing step No. setting button	PB-STC	Displays the executing step No. setting dialog box
Time in the step setting button	PB-T	Displays the time in the step setting dialog box	
Value display		NUM	Display value data with character and decimal point
Character display		STR	Display ASCII character string
Bar display		BAR	Display the value in bar pattern
Pointer display		IND	Display the current value on the bar With the pointer
Graph display	Pattern graph display	PGS	Display SV and MV pattern by graph
		PGS2	Displays the SV output values of the time set in advance for each step as graphs
	Split graph display	SPLT	Display a heating/cooling graph.
Status, alarm display		PL	Display at the time of status change and alarm occurrence

The faceplate display consists of the above parts.

The common display composition of the faceplate is introduced through the usage samples of the components in following content. In every description, the operation display types are stated in abbreviation.

Item	Component mainly used	Reference
I/O mode change	I/O mode display button	Section 10.3.2
Control mode change	Control mode display button	Section 10.3.3
Motion type change	Motion type setting button	Section 10.3.4
Executing step No. setting	Executing step No. setting button	Section 10.3.5
Time in the step setting	Time in the step setting button	Section 10.3.6
PV value setting	PV value setting button and bar display	Section 10.3.7
SV value setting	SV value setting button, bar display and pointer display	Section 10.3.8
MV value setting	MV value setting button, bar display and pointer display	Section 10.3.9
Count value setting	Count value setting button	Section 10.3.10
Batch Count operation	Push button with confirmation and display	Section 10.3.11
Count/timer operation	Push button with confirmation and display	Section 10.3.12
Status operation	Push button with confirmation and display, push button with cover and output display, alarm display	Section 10.3.13
	Push button with ON/OFF history	Section 10.3.14

(1) Push button displays

(a) Push button with display

The background color of the displayed button changes with the change of the status of the equipment.

Before operation, the button color is its background color. After operation, the set color and button background color flicks (with the interval of 1 second).

During the flicking time, the flick status will not be kept when redisplayed owing to page change. If time-out or trip alarm occurs, flicking will stop.

(b) Push button with cover

When the button cover setting is enabled, the cover is displayed on the button.

The cover is released by clicking it, and the button operation can be executed.

Once the cover is clicked, it is displayed again after set seconds have elapsed.

The elapsed time is reset even by clicking to execute the button.

Multiple button covers cannot be released at the same time.

If there is a button with cover which is already released and another cover is clicked, the released cover is displayed again.

10.3.2 Changing the I/O mode



PURPOSE

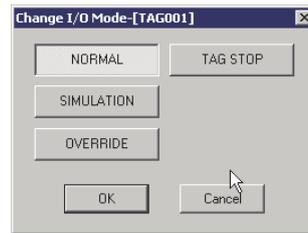
To change the connection status of the sequence I/O module during the operation.

I/O mode can be classified as follows:

I/O mode	Abbreviation	Description
NORMAL	NOR	Mode for input/output module connection normal status.
SIMULATION	SIM	Mode for input/output module disconnection and executing simulation operation.
OVERRIDE	OVR	An operation mode only to cut off the signal from input module and hold output when sensor fails. PV value can be input from the screen configuration.
TAG STOP	TSTP	Mode for not performing the processing regarding a tag. Stops input processing and loop control operation. Set to the predefined tags and the currently stopped tags for future use. Unnecessary alarm is not occurred as all the alarms to tags are recovered.



DISPLAY/SETTING SCREEN



<Change I/O Mode dialog box >



DISPLAY/SETTING DATA

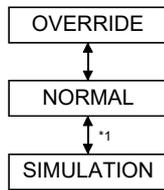
Item	Operation display type	Description	Text color	Background color
I/O mode display button	PB-SIM	Display current I/O mode. Click button to display the change I/O mode dialog box for changing I/O mode.	NOR: Button text color SIM: White OVR: Black TSTP: Black	NOR: Button background color SIM: Blue OVR: Light blue TSTP: White

POINT

For tags without I/O mode (When the tag type PGS, MOUT, SEL, BC, PSUM, PB, TIMER1, TIMER2, COUNT1 and COUNT2) the I/O mode display button will not be displayed (button display area is covered by the background color).

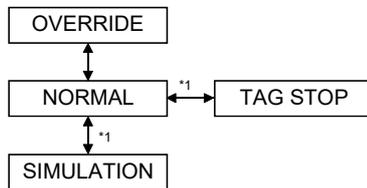
The selectable I/O modes depend on the tag types. In addition, some switches from one mode into another are limited because of the tag types. For details of tag types, refer to Section 10.4.

- (1) Loop tag (PID, PIDP, SPI, IPD, BPI, R, 2PID) and status tag (NREV, REV, MVAL1, MVAL2, MTR2, MTR3, SS2P, DS2P, DS3P).
The following shows mode transition is possible.



*1: Can be switched only when the user authority (☞ Section 4.3) is engineer mode.

- (2) Loop tag (2PIDH, PFC_SF, PFC_SS, PFC_INT, PVAL)
The following shows mode transition is possible.

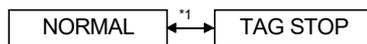


*1: Can be switched only when the user authority (☞ Section 4.3) is engineer mode.

- (3) Loop tag (ONF2, ONF3, MONI, MWM)
NORMAL and OVERRIDE modes can be set.

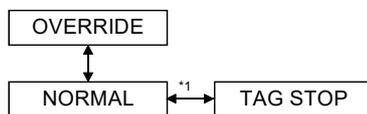
- (4) Loop tag (PGS, MOUT, SEL, BC, PSUM) and status tag (TIMER1, TIMER2, COUNT1, COUNT2)
I/O mode display button is not displayed. (NORMAL mode always)

- (5) Loop tag (PGS2, HTCL)
The following mode transition is possible.



*1: Can be switched only when the user authority (☞ Section 4.3) is engineer mode.

- (6) Loop tag (SWM)
The following shows mode transition is possible.



*1: Can be switched only when the user authority (☞ Section 4.3) is engineer mode.

POINT
<ul style="list-style-type: none"> ● PV value can be changed when the I/O mode is OVERRIDE. ● I/O mode can be changed only when the control mode (☞ Section 10.3.3) is MANUAL. Note that switching the mode from NORMAL to TAG STOP is possible even if the control mode is not MANUAL. ● If MDIH (Disable mode change) setting is executed by memory item (☞ Section 10.5) of tag data, the disable mode cannot be selected.

REMARK

If the improper value is set on DOM of the memory item for the tag data (☞ Section 10.5), the button displayed will be blank. At this time, I/O mode should be set again by "Change I/O Mode" dialog box. (The improper value will not be set on DOM, if the user takes the normal operation with the monitor tool.)

10.3.3 Changing the Control mode



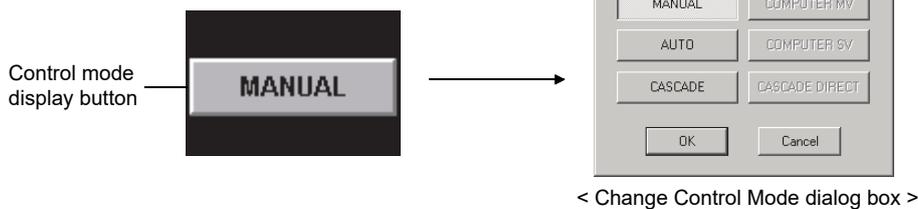
PURPOSE

Switch SV and MV value control method for PID control.
The types of control mode (Operation mode) are as follows.

Control mode	Abbreviation	Description
MANUAL	MAN	The mode performs manual operation. Output MV setting value.
AUTO	AUT	The mode performs auto operation. Control MV value based on SV setting value.
CASCADE	CAS	The mode performs cascade operation. Perform control by using output value (MV) of upper loop as setting value (SV).
COMPUTER MV	CMV	The mode performs manual operation from upper computer. Output MV setting value from upper computer.
COMPUTER SV	CSV	The mode performs automatic operation from upper computer. Based on SV setting value, Control MV value from upper computer.
CASCADE DIRECT	CASDR	Directly outputs the output value of primary loop as the output value of secondary loop in cascade connection.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Item	Operation display type	Description	Text color	Background color
Control mode display button	PB-MODE	Display current control mode. Click button to display "Change Control Mode" dialog box thus control mode can be changed	Button text color	Button background Color

POINT

- Control mode cannot be displayed when control mode does not exist (when tag type is MONI, BC, PSUM, TIMER1, TIMER2, COUNT1 or COUNT2).
- MIDH (disable mode change) setting is made to COMPUTER MV and COMPUTER SV in initial setting by memory item (☞ Section 10.5) of tag data.

Following table indicates whether mode is enabled/disabled for SV and MV operation.

Mode	Operation from faceplate		Operation from upper computer	
	SV operation*1	MV operation*2	SV operation	MV operation
MANUAL	Enable	Enable	Disable	Disable
AUTO	Enable	Disable	Disable	Disable
CASCADE	Disable	Disable	Disable	Disable
COMPUTER MV	Disable	Disable	Enable	Enable
COMPUTER SV	Disable	Disable	Enable	Disable
CASCADE DIRECT	Disable	Disable	Disable	Disable

*1: Indicates the operations of executing step number (STC) and time in the step (T) for PGS2 when the tag type is PGS2.

*2: Indicates the operation of PGS2 setting value (SV) when the tag type is PGS2.

Control modes are different according to different tag types.

Besides, mode switching is restricted according to tag types. For details of tag types, refer to Section 10.4

- (1) Loop tag (PID, PIDP, SPI, IPD, BPI, R, ONF2, ONF3, SEL, 2 PID PGS, PFC_SF, PFC_SS and PFC_INT, HTCL)

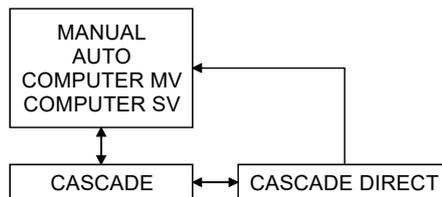
All modes except for CASCADE DIRECT can be set and no restrictions regarding mode transition.

- (2) Loop tag (2PIDH)

All modes can be set.

Switching to CASCADE DIRECT mode is only possible from CASCADE mode.

No restrictions regarding other modes.



- (3) Loop tag (MOUT and MWM)

MANUAL and COMPUTER MV modes can be set for them. No restrictions regarding other modes.

- (4) Loop tag (PGS2) and Status tag (NREV, REV, MVAL1, MVAL2 and PB, MTR2, MTR3, SS2P, DS2P, DS3P)

MANUAL and AUTO modes can be set for them. No restrictions regarding other modes.

- (5) Loop tag (MONI, BC and PSUM) and status tag (TIMER1, TIMER2, COUNT1 and COUNT2)

Control mode display button is not displayed.

- (6) Loop tag (SWM, PVAL)

All modes except for COMPUTER MV and CASCADE DIRECT can be set and no restrictions regarding mode transition.

POINT

- If the I/O mode (☞ Section 10.3.2) is either OVERRIDE or TAG STOP, the control mode cannot be switched from MANUAL.
- If MDIH (Disable mode change) setting is executed by memory item (☞ Section 10.5) of tag data, the disable mode cannot be selected.

REMARK

If the improper value is set on MODE of the memory item for the tag data (☞ Section 10.5), the button displayed will be blank. At this time, control mode should be set again by "Change Control Mode" dialog box. (The improper value will not be set on MODE, if the user takes the normal operation with the monitor tool.)

10.3.4 Changing the PGS motion type



PURPOSE

Display and set motion type by loop tag (PGS, PGS2).
The motion types are as follows:

Motion type	Tag type	Description
HOLD	PGS	After processing SV1 to SVn, the SVn and MVn values are held by SV and MV respectively and the program is stopped.
	PGS2	After processing T1 to Tn, the SVn value is held by SV and the program is stopped.
RETURN	PGS	After processing SV1 to SVn, the SV value is set to 0 and MVn value is held by MV and the program is stopped.
	PGS2	After processing T1 to Tn, the STC and T values are set to 0 and SVn value is held by SV and the program is stopped.
CYCLIC	PGS	Repeats the processing from SV1 to SVn.
	PGS2	Repeats the processing from T1 to Tn.

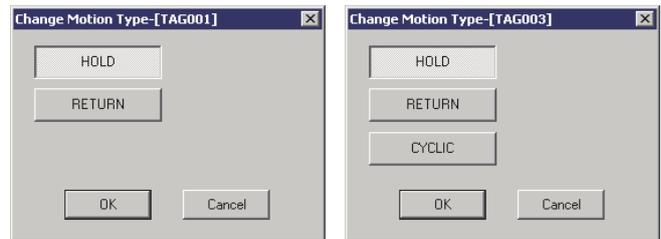


DISPLAY/SETTING SCREEN

1) Motion type setting button



2) Motion type display



PGS PGS2
<Change Motion Type dialog box>



DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Display color	Background color
1)	Motion type setting button	PB-TYPE	Click the button to display "Change Motion Type" dialog box.	Valid: Button text color Invalid: White	Valid: Button background color Invalid: Black
2)	Motion type display *1	STR	Display motion type.	White	Black

*1: Left blank if the motion type is invalid.

The relation between control mode (👉 Section 10.3.3) and motion type is as following table.

(1) PGS

Control mode	Motion type setting button	Motion type display	Motion status
MAN	Enabled	HOLD/RETURN	Stop the motion by SV and MV value.
AUT	Enabled	HOLD/RETURN	Operate the selection motion type.
CAS	Disabled	CYCLIC	Operate by CYCLIC motion type.
CMV	Enabled	HOLD/RETURN	Stop the motion by current SV and MV value.
CSV	Disabled	CYCLIC	Operate by CYCLIC motion.

POINT	<ul style="list-style-type: none"> • When it stops in HOLD/RETURN mode, change the control mode (☞ Section 10.3.3) to MANUAL mode. • When the control mode (☞ Section 10.3.3) is set as CAS/CSV mode, operate by CYCLIC type no matter what motion type is selected in the "Change Motion Type" dialog box.
--------------	---

(2) PGS2

Control mode	Motion type setting button	Motion type display	Motion status
MAN	Enabled	HOLD/RETURN/CYCLIC	Operates with the current SV value.
AUT	Enabled	HOLD/RETURN/CYCLIC	Operates with the selected motion type.

POINT	When the motion is stopped at HOLD/RETURN mode, the control mode (☞ Section 10.3.3) is switched to MANUAL mode.
--------------	---

10.3.5 Executing step No. setting

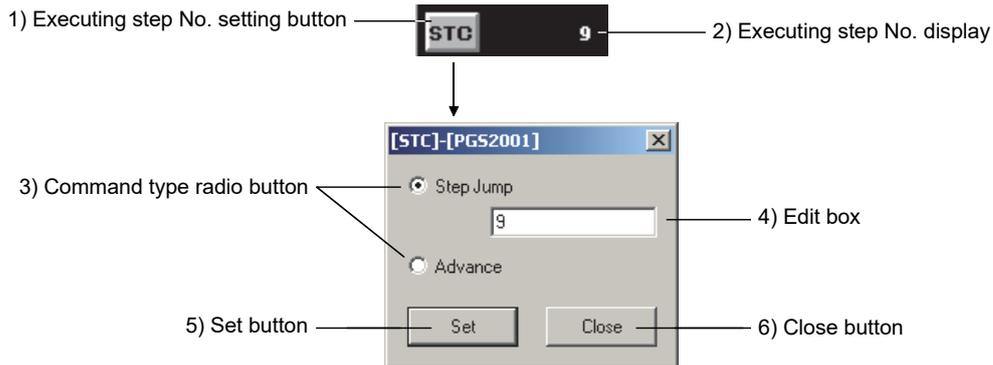


PURPOSE

Displays/sets an executing step No. with loop tag (PGS2).



DISPLAY/SETTING SCREEN



<Executing step No. setting dialog box>



DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Display color	Background color
1)	Executing step No. setting button	PB-STC	Displays the executing step No. setting dialog box.	Button text color	Button background color
2)	Executing step No. display	NUM	Displays the executing step No.	White	Black
3)	Command type radio button		Select the command type.	(Follows the display color setting of the dialog box.)	
4)	Edit box		Enables to enter a jump destination step No. when step jump is selected.		
5)	Set button		Step jump is selected: Sets the value in the edit box to the executing step No. (Can be set within the range of 0 to 32). Advance is selected: Turns ON the advance command bit only when the control mode is AUTO.		
6)	Close button		Closes the dialog box.		

10.3.6 Time in the step setting

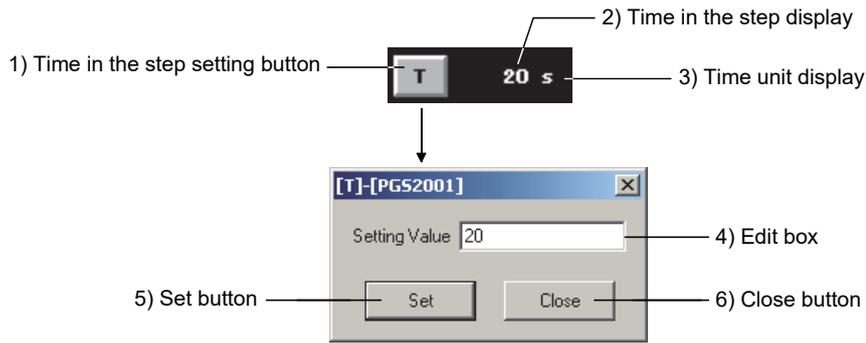


PURPOSE

Displays/sets the time in the step with loop tag (PGS2).



DISPLAY/SETTING SCREEN



<Time in the step setting dialog box>



DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Display color	Background color
1)	Time in the step setting button	PB-T	Displays the Time in the step setting dialog box.	Button text color	Button background color
2)	Time in the step display	NUM	Displays the time in the step.	White	Black
3)	Time unit display	STR	Displays the unit of the time in the step ("s" or "min").	White	Black
4)	Edit box		Enter the time in the step.	(Follows the display color setting of the dialog box.)	
5)	Set button		Sets the time in the step.		
6)	Close button		Closes the dialog box.		

10.3.7 PV value setting



PURPOSE

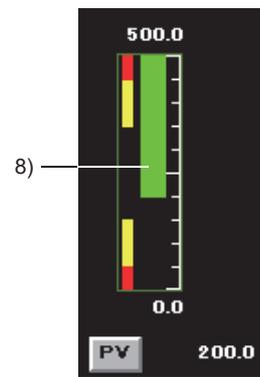
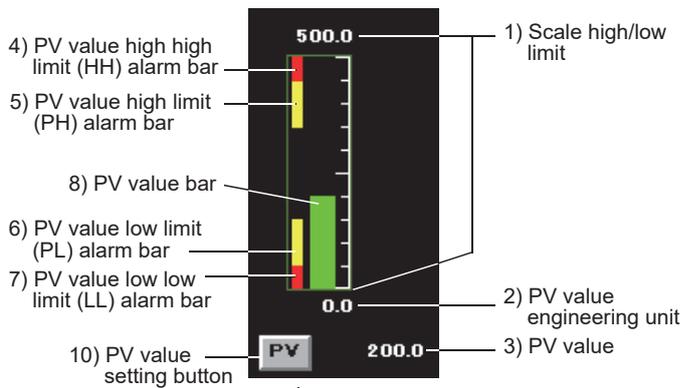
Display and set PV value with high high/high/low/low low limit by bar graph.



DISPLAY/SETTING SCREEN

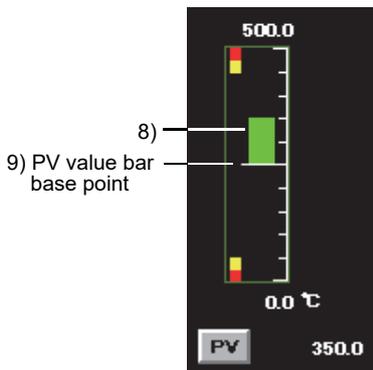
(1) When the PV value bar is displayed in the positive direction

(2) When the PV value bar is displayed in the negative direction

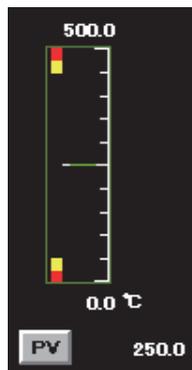


< PV value setting dialog box >

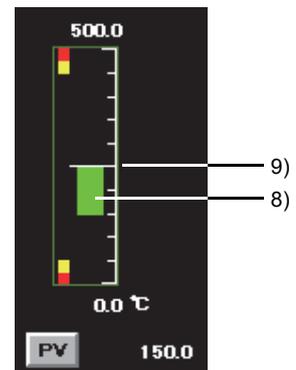
(3) When the PV value bar is displayed both positive and negative direction from the base point



When the PV value bar is greater than the base point



When the PV value bar is equal to the base point



When the PV value bar is less than the base point

When the PV value is equal to the value of "Base Point when Both Direction is set" (see Section 9.14), PV value bar is overlapped over the PV value bar base point and is displayed.



DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Display color	Background color
1)	Scale high/low limit	NUM	Display scale high/low limit.	Text color	High limit PV ≤ RH: Background color PV > RH: PV high high/low low Limit value bar color
					Low limit PV ≥ RL: Background color PV < RL: PV high high/low low Limit value bar color
2)	PV value engineering unit	STR	Display engineering unit of PV value. (8 characters)	Text color	Background color
3)	PV value	NUM	Display the PV value. (A total number of 8 bits including symbols and decimal point)	White	Black
4)	PV value high high limit (HH) alarm bar	BAR	Display PV value high high limit (HH) alarm range by bar.	PV high high/low low limit value bar color	Black
5)	PV value high limit (PH) alarm bar	BAR	Display PV value high limit (PH) alarm range by bar.	PV high/low limit value bar color	Black
6)	PV value low limit (PL) alarm bar	BAR	Display PV value low limit (PL) alarm range by bar.	PV high/low limit value bar color	Black
7)	PV value low low limit (LL) alarm bar	BAR	Display PV value low/low limit (LL) alarm range by bar.	PV high high/low low limit value bar color	Black
8)	PV value bar	BAR	Display the PV value as a bar. The PV value bar can be displayed in the positive direction, negative direction or both direction. The input high high, high, low and low low limit alarms occur according to the alarm bit status.	<p><Normal></p> <ul style="list-style-type: none"> ● When the display direction is the positive direction, the display color is the PV value bar positive direction color. ● When the display direction is the negative direction, the display color is the PV bar negative direction color. ● When the display direction is both directions, the display color is the PV bar both direction color (positive) if the PV value is equal to or greater than the PV bar base point. The display color is the PV bar both direction color (negative) if the PV value is less than the PV bar base point. <p>< When input high high limit/low low limit alarm occurs ></p> <p>PV high high/low low limit value bar color</p> <p>< When input high low limit alarm occurs ></p> <p>PV value high limit value/low limit value bar color</p>	Black
9)	PV value bar base point	BAR	When the PV value bar is displayed in both directions, the base point of the PV value is displayed.	White	Background color
10)	PV value setting button	PB-PV	Click the button to display the PV value setting dialog box. Changes to the button display when the I/O mode is OVERRIDE.	Valid: Button text color Invalid: Text color	Valid: Button background color Invalid: Background color

No.	Item	Operation display type	Description	Display color	Background color
11)	Edit box		Key in the PV value to be set directly. Click the "Enter" key or set button, Input value is displayed in device.	Change with the display color set of dialog box.	
12)	Set button		Set PV value of edit box.		
13)	Close button		Close dialog box.		

The display color can be set in the faceplate of option setting (👉 Section 9.17 (4)).

10.3.8 SV value setting



PURPOSE

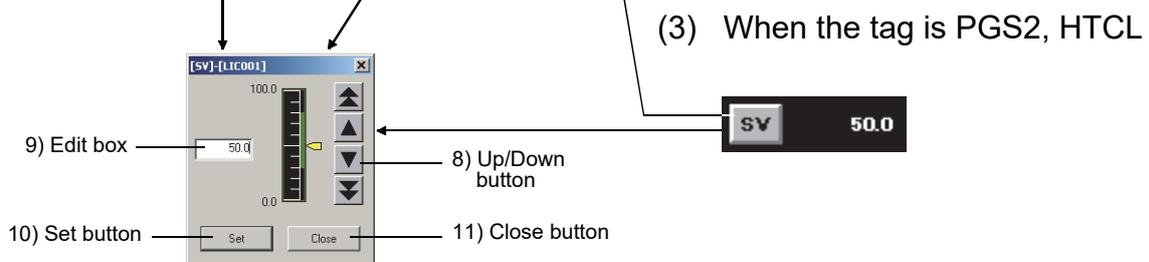
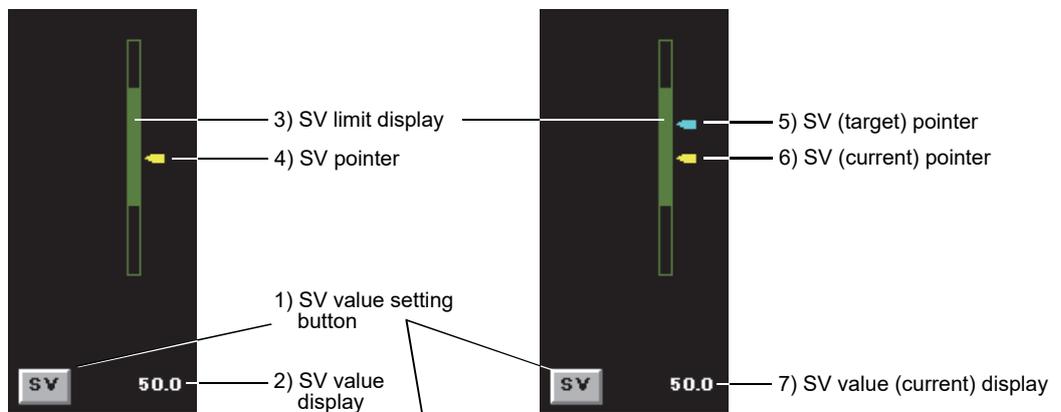
Display and set SV value.



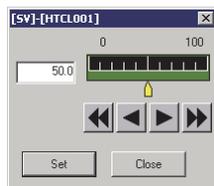
DISPLAY/SETTING SCREEN

(1) When the tag type is other than 2PIDH, PGS2, SWM, PFC_SF, PFC_SS, PFC_INT, PVAL, HTCL

(2) When the tag type is 2PIDH, SWM, PFC_SF, PFC_SS, PFC_INT, PVAL

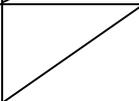


< SV value setting dialog box (when the tag type is other than HTCL) >



< SV value setting dialog box (when the tag type is HTCL) >

 **DISPLAY/SETTING DATA**

No.	Item	Operation display type	Description	Display color	Background color
1)	SV value setting button	PB-SV	Click the button to display SV value setting dialog box.	Valid: Button text color Invalid: Text color	Valid: Button background color Invalid: Background color
2)	SV value display	NUM	Display and set SV value display a string of 8 bits including characters and decimal point.	White	Black
3)	SV limit display	BAR	Display the limit of SV value.	SV/MV limit value bar color	Black
4)	SV pointer	IND	Indicate the position of SV value in display bar.	SV/MV pointer color	Background color
5)	SV (target) pointer	IND	Indicate the position of SV value (target) in display bar.	SV (target) pointer color	Background color
6)	SV (current) pointer	IND	Indicate the position of SV value (current) in display bar.	SV/MV pointer color	Background color
7)	SV value (current) display	NUM	Display the SV value (current).	White	Black
8)	Up/Down button		Click the button; SV value is changed in a fixed amount each time.	Change with the display color set of dialog box.	
9)	Edit box		Key in the SV value to be set directly. Click the "Enter" key or set button, Input value is displayed in device.		
10)	Set button		Set SV value of edit box.		
11)	Close button		Close dialog box.		

The display color can be set in the [Faceplate] of option setting ( Section 9.17 (4)).

SV value is changed when the up/down button is released. Operations in clicking the up/down button are as follows.

	Low speed Up/Down button	Increase/decrease SV value by using the lowest unit.
	High speed Up/Down button	Increase/decrease SV value by using the bigger value between 10 times of minimum value and 1% of display scale.
		Increase/decrease SV value by using 10 times of minimum value.

POINT

When setting the SV Limit Excess Setting ( Section 9.17) of the Option setting (faceplate) to "Valid", the SV value can be set exceeding the SV high/low limit value.

10.3.9 MV value setting



PURPOSE

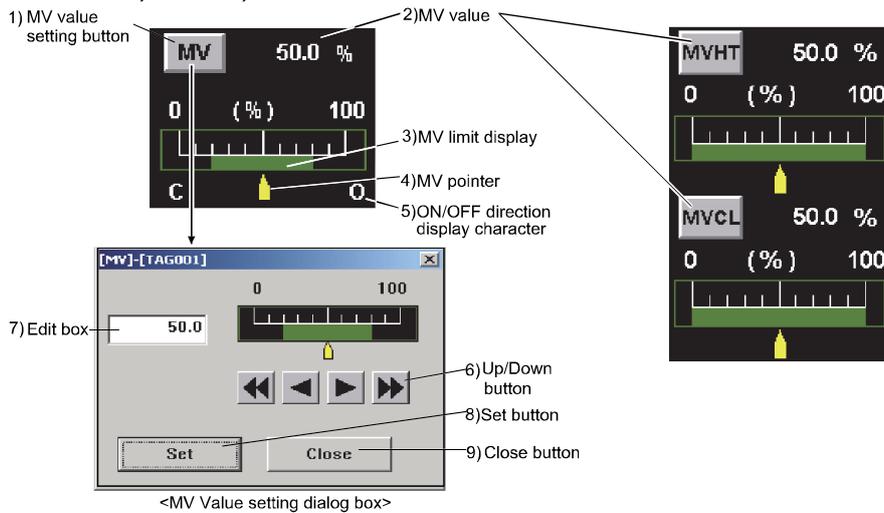
Display and set the value of MV.



DISPLAY/SETTING SCREEN

(1) When the tag type is other than ONF2, ONF3, HTCL

(2) When the tag type is HTCL



DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Display color	Background color
1)	MV value setting button	PB-MV	Click the button, display MV value setting dialog box.	Valid: Button text color Invalid: Text color	Valid: Button background color Invalid: Background color
2)	MV value display	NUM	Display and set MV value. (Display a string of 6 bits at most including symbols and decimal point.) Other than PFC_INT tag: -10.0 to 110.0 PFC_INT tag: -110.0 to 110.0	White	Black
3)	MV limit display	BAR	Display the limit of MV value.	SV/MV limit value bar color	Black
4)	MV pointer	IND	Indicate the position of SV value background in display bar.	SV/MV pointer color	Background color
5)	ON/OFF direction display character	STR	Display the MV value character. (☞ Section 9.15) For MV_HT, MV_CL of HTCL tag, display the content registered on Faceplate Display Pattern Setting. (☞ Section 9.13)	Text color	Background color
6)	Up/Down button		Click the button to change MV value in a constant amount.	(Change with the display color setting of dialog box.)	
7)	Edit box		Key in the tag item value to be set directly. Click the "Enter" key or set button Input value is displayed in device.		
8)	Set button		Set the tag item value within edit box.		
9)	Close button		Close dialog box.		

The display color can be set in the [Faceplate] of option setting (Section 9.17 (4)).

The tag item value is changed when the up/down button is released. Operations in clicking the up/down button are as follows.

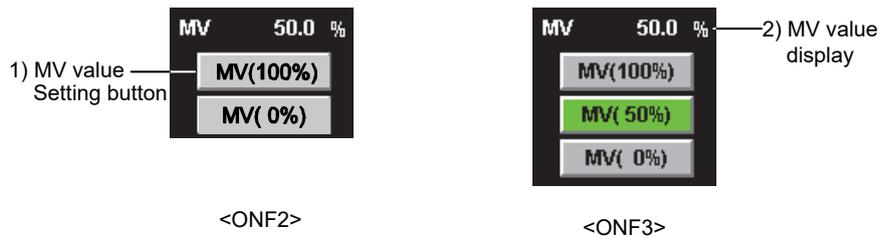
	Low speed Up/Down button	Increase/decrease the tag item value by using minimum value.
	High speed Up/Down button	Increase/decrease the tag item value by using 10 times of minimum value.

(3) When tag type is ONF2, ONF3

MV can only be set as two values (100%, 0%) or three values (100%, 50%, 0%) when loop tags are ONF2 and ONF3, so MV value setting button is designed as a button with display. The value is set as a constant value; other values cannot be set in setting dialog box.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Display color	Background color
1)	MV value setting button	PB-CL	Click MV button to change MV value to the value within (). For the ONF2 tag, a setting of 0% or 100% is available. MV<50% : 0% switch lights up. MV ≥ 50%: 100% switch lights up. For the ONF3 tag, a setting of 0%, 50% or 100% is available. MV<25% : 0% switch lights up. 25% ≤ MV<75% : 50% switch lights up. MV ≥ 75% : 100% switch lights up.	Button text color	Lit: green Not lit: Button background color
2)	MV value display	NUM	Display and set MV value. The displayed characters shall be no more than 5 bits including symbols and decimal points.	White	Black

10.3.10 Count value setting

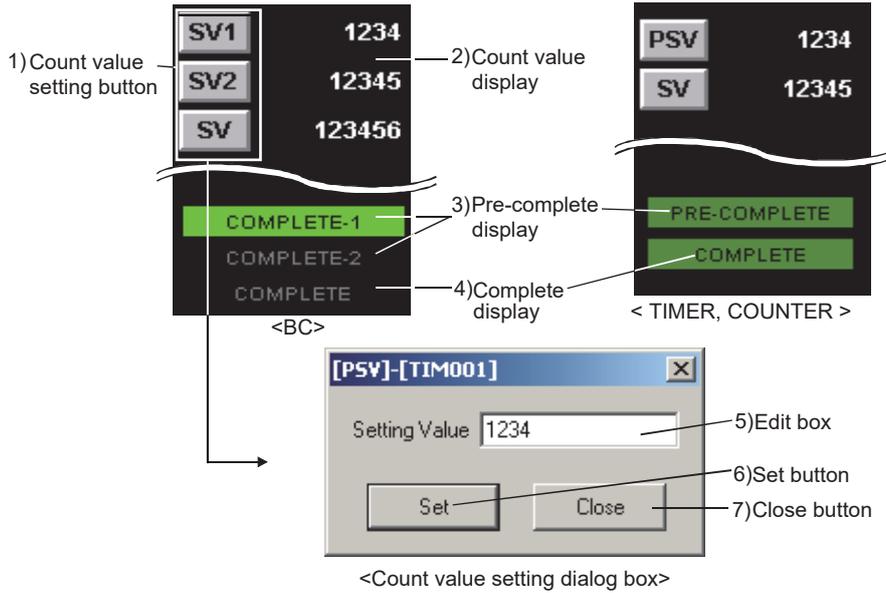


PURPOSE

Display and set the count value by using loop tag (BC) and status tag (TIMER1, TIMER2, COUNT1 and COUNT2).



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Display color	Background color
1)	Count value setting button	PB-CNT	Click the button to, display count value setting dialog box.	Button text color	Button background color
2)	Count value display	NUM	Graph a count value with 8 bits.	White	Black
3)	Pre-complete display	PL	Graph color is changed when count reaches SV1, 2 or PSV value.	Pre-complete: Black Others: No alarm color	Pre-complete: Green Others: Background color
4)	Complete display	PL	Display color is changed when count up reaches SV value.	Complete: Black Others: No alarm color	Complete: Green Others: Background color
5)	Edit box		Key in the count value to be set directly. Click the "Enter" key or set button Input value is displayed in device.	(Change with the graph color setting dialog box.)	
6)	Set button		Set count value of edit box.		
7)	Close button		Close dialog box.		

The graph color can be set in [Faceplate] of option setting (👉 Section 9.17 (4)).

10.3.11 Batch count operation

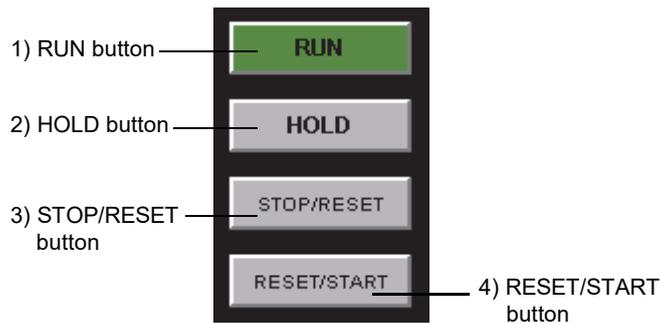


PURPOSE

Start/Stop count and reset value by using loop tag (BC, PSUM)



DISPLAY/SETTING SCREEN

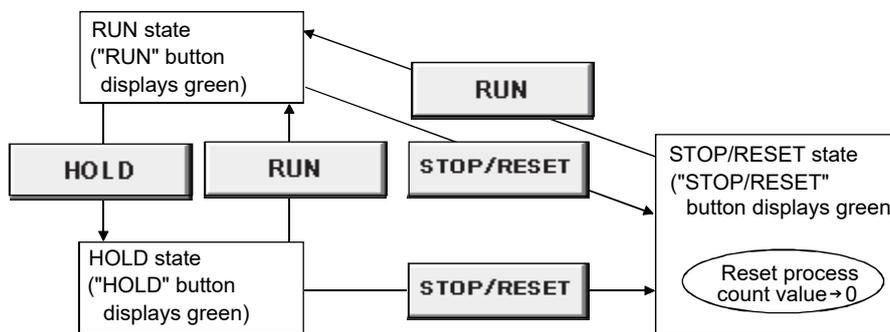


DISPLAY/SETTING DATA

No	Item	Operation display type	Description	Text color	Background color
1)	RUN button	PB-CL	Start the operation.	Button text color	Valid : Green Invalid : Button background color
2)	HOLD button	PB-CL	Hold the value and stop operation.	Button text color	Valid : Green Invalid : Button background color
3)	STOP/RESET button	PB-CL	Stop operation and, reset value.	Button text color	Valid : Green Invalid : Button Background color
4)	RESET/START button	PB-C	Start operation after resetting value.	Button text color	Button Background color

The display color can be set in the [Faceplate] of option setting (Section 9.17 (4)).

The status change caused by clicking the button is as follows:



10.3.12 Count/Timer operation

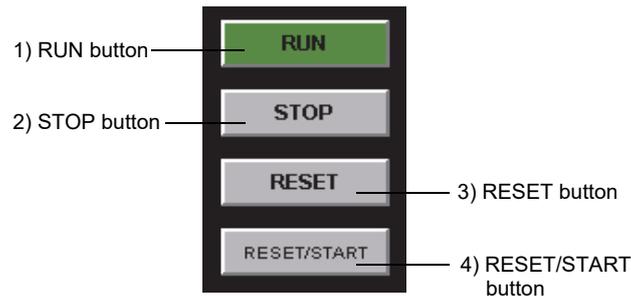


PURPOSE

Start/Stop counter/Timer and reset value by using status tag (TIMER1, TIMER2, COUNT1 and COUNT2).



DISPLAY/SETTING SCREEN

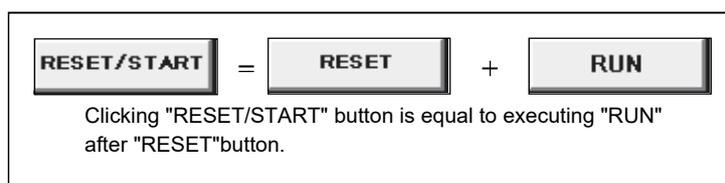
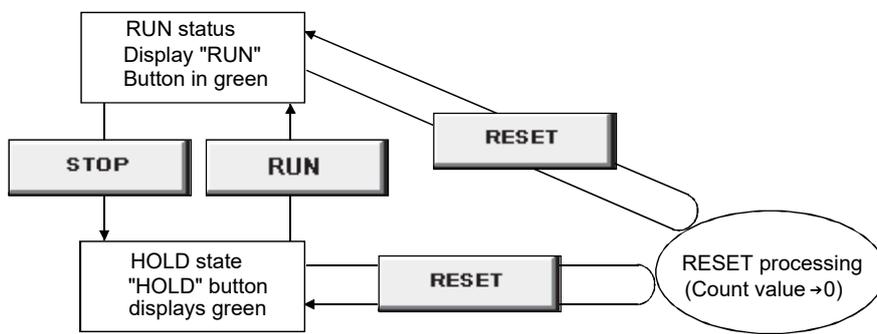


DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Text color	Background color
1)	RUN button	PB-CL	Start operation	Button text color	Valid : Green Invalid : Button background color
2)	STOP button	PB-CL	Stop operation	Button text color	Valid : Green Invalid : Button background color
3)	RESET button	PB-C	Reset value	Button text color	Button background color
4)	RESET/START button	PB-C	Start operation after resetting value	Button text color	Button background color

The display color can be set in the [Faceplate] of option setting (Section 9.17 (4)).

The status change caused by clicking the button is as follows:



10.3.13 Status operation



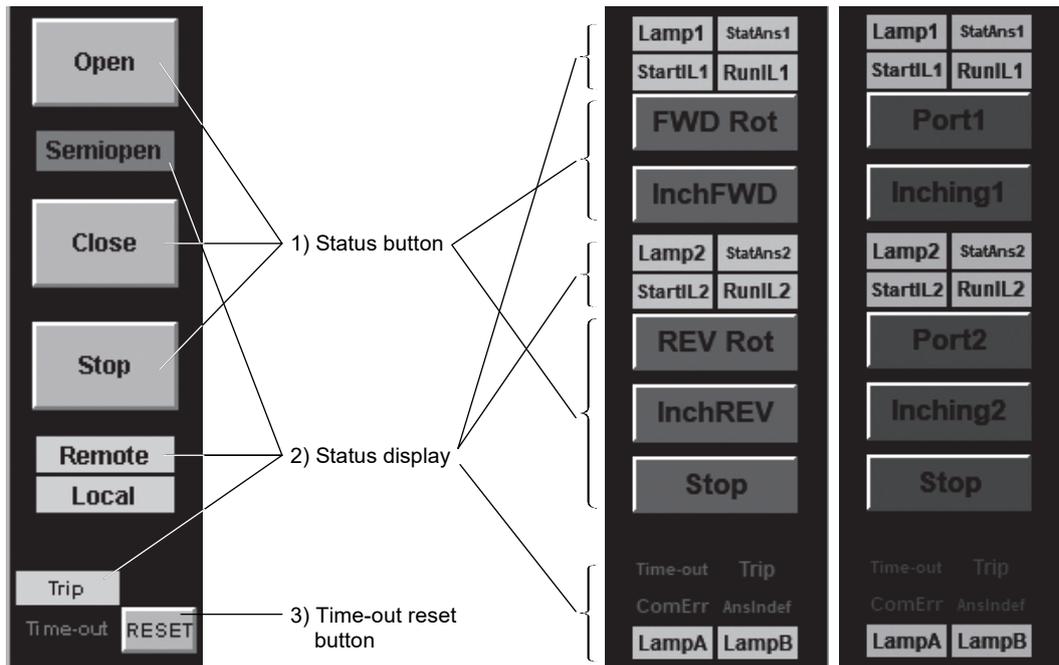
PURPOSE

Display the control status of device operation by loop tag (PVAL), status tag (NREV, REV, MVAL1, MVAL2, MTR2, MTR3, SS2P, DS2P, DS3P).



DISPLAY/SETTING SCREEN

- (1) When the tag type is PVAL, NREV, REV, MVAL1, MVAL2
- (2) When the tag type is MTR2, MTR3, SS2P, DS2P, DS3P



DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Display color	Background color	Number of characters
1)	Status button	PB-LC PB-SCV	Change the status of device. Display the change of color between status of set. (Open/Close/Start/FWD Run/REV Run/FWD Rot/REV Rot/Port/Inching/Stop)	Valid: Set color Invalid: Button text color	Valid: Set color Invalid: Button background color	8 characters
		PB-C	Change device status. Display color does not change (MVAL2 STOP)	Button text color	Button background color	8 characters
2)	Status display	PL	Display device status (Semiopen/Remote/Local)	Valid: Set color Invalid: Background color	Valid: Set color Invalid: Background color	8 characters
		PL	Display device status. (Lamp/StatAns/StartIL/RunIL)	Valid: Set color Invalid: Gray	Valid: Set color Invalid: Background color	8 characters
		PL	Display abnormal status of device. (Trip/Time-out/ComErr/AnsIndef)	Occurring: Black Recovered: No alarm color	Occurring: Alarm color Recovered: Background color	8 characters
3)	Time-out reset button	PB-C	Reset the time-out status	Button text color	Button background color	

The display color (set color) and displayed string of status button and status display can be set by faceplate display pattern setting (Section 9.13). Alarm color can be set by [General] (Section 9.17 (1)) in option setting. No alarm color, button text color and button background color can be set by [Faceplate] (Section 9.17 (4)) in option setting

(1) Status button

(a) When the tag type is PVAL, NREV, REV, MVAL1, MVAL2

The push button with confirmation and display (PB-LC).

By clicking the button, a confirmation message is displayed. After the confirmation, operation is executed and the button flashes until the status answer signal is received.

Since the stop button of MVAL2 is the push button with confirmation (PB-C), there is no flashing display.

(b) When the tag type is MTR2, MTR3, SS2P, DS2P, DS3P

The push button with cover and output display (PB-SCV).

When the communication error alarm is FALSE, the cover is displayed by changing the start interlock and run interlock to TRUE.

The cover is released by clicking it, and the button operation can be executed.

Button	Start interlock	Run interlock	Communication error alarm
FWD Rot InchFWD	DIM_FWD_START_IL: TRUE	DIM_FWD_RUN_IL: TRUE	COMA: FALSE
REV Rot InchREV	DIM_REV_START_IL: TRUE	DIM_REV_RUN_IL: TRUE	
Port Port1 Inching1	DIM_PORT_START_IL: TRUE	DIM_PORT_RUN_IL: TRUE	
Port2 Inching2	DIM_PORT2_START_IL: TRUE	DIM_PORT2_RUN_IL: TRUE	
Stop	----	----	

Lighting and operation of buttons support the following tag data.

Button	Tag data to be referred at lighting		Tag data to be changed by operation	
	Label	Lighting condition	Label	Setting condition
FWD Rot InchFWD	DIM_FWD_OUT_ST	<ul style="list-style-type: none"> • TRUE: Lit • FALSE: Not lit 	DOM_FWD_SET	<ul style="list-style-type: none"> • In operation: TRUE • Not in operation: FALSE
REV Rot InchREV	DIM_REV_OUT_ST		DOM_FWD_INCH	
Port Port1 Inching1	DIM_PORT_OUT_ST		DOM_REV_SET	
Port2 Inching2	DIM_PORT1_OUT_ST		DOM_REV_INCH	
	DIM_PORT2_OUT_ST		DOM_PORT_SET	
	DIM_PORT1_OUT_ST		DOM_PORT1_SET	
	DIM_PORT2_OUT_ST	DOM_PORT1_INCH		
		DOM_PORT2_SET		
		DOM_PORT2_INCH		
Stop	DIM_FWD_OUT_ST DIM_REV_OUT_ST DIM_PORT_OUT_ST DIM_PORT1_OUT_ST DIM_PORT2_OUT_ST	<ul style="list-style-type: none"> • All FALSE: Lit • Other than the above: Not lit 	DOM_STOP_SET	

(2) Status display

Lighting of status supports the following tag data.

Status display	Tag data to be referred at lighting	
	Label	Lighting condition
Lamp Display	DIM2_LAMP	<ul style="list-style-type: none"> • TRUE: Lit • FALSE: Not lit
Status Answer Display	DIM_FWD_ST, DIM_PORT_ST	
Start IL 1 Display	DIM_FWD_START_IL, DIM_PORT_START_IL	
Run IL 1 Display	DIM_FWD_RUN_IL, DIM_PORT_RUN_IL	
Lamp 1 Display	DIM2_LAMP1	
Status Answer 1 Display	DIM_FWD_ST, DIM_PORT1_ST	
Start IL 1 Display	DIM_FWD_START_IL, DIM_PORT1_START_IL	
Run IL 1 Display	DIM_FWD_RUN_IL, DIM_PORT1_RUN_IL	
Lamp 2 Display	DIM2_LAMP2	
Status Answer 2 Display	DIM_REV_ST, DIM_PORT2_ST	
Start IL 2 Display	DIM_REV_START_IL, DIM_PORT2_START_IL	
Run IL 2 Display	DIM_REV_RUN_IL, DIM_PORT2_RUN_IL	
Time-out Display	TOA	
Trip Display	TRIPA	
Communication Error Display	COMA	
Answer Indefinite Display	ISTA	
Lamp A Display	DIM2_LAMPA	
Lamp B Display	DIM2_LAMPB	

10.3.14 Command button operation

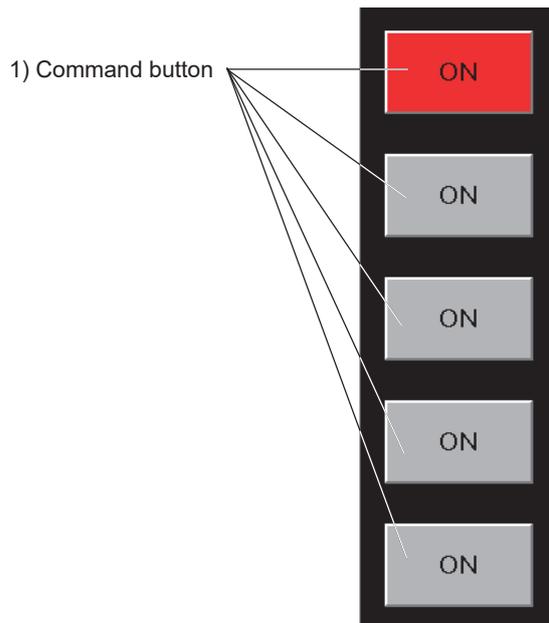


PURPOSE

To change the status of the device on the status tag (PB).



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Display color	Background color	Number of characters
1)	Command button	PB-ONF	Change the status of the device. The display color and background color change in accordance with the status being set.	Valid: ON set color Invalid: OFF set color	Valid: ON set color Invalid: OFF set color	8 characters

The ON/OFF history type, display color (set color) and display string can be set in the faceplate display pattern setting (👉 Section 9.13) against each button.

10.4 Tag Types

The types of tag that can be displayed in a faceplate are listed in the following table. As for the contents displayed in the faceplate of each tag, please refer to the sections in "Reference".

Classification	Tag type	Name	Reference
Loop tag	PID	PID control	Section 10.5.1
	2PID	2-degree-of-freedom PID control	Section 10.5.1
	2PIDH	2-degree-of-freedom Advanced PID control	Section 10.5.2
	PIDP	Position type PID control	Section 10.5.1
	SPI	Sample PI control	Section 10.5.1
	IPD	I-PD control	Section 10.5.1
	BPI	Blend PI control	Section 10.5.1
	R	Ratio control	Section 10.5.1
	ONF2	2 position ON/OFF control	Section 10.5.3
	ONF3	3 position ON/OFF control	Section 10.5.3
	PFC_SF	Predictive functional control (simple first order lag)	Section 10.5.12
	PFC_SS	Predictive functional control (simple second order lag)	Section 10.5.12
	PFC_INT	Predictive functional control (integral process)	Section 10.5.12
	PGS	Program setter	Section 10.5.4
	PGS2	Multi-point program setter	Section 10.5.5
	MOUT	Manual output	Section 10.5.6
	MONI	Monitor	Section 10.5.7
	SWM	Manual setter with monitor	Section 10.5.8
	MWM	Manual output with monitor	Section 10.5.9
	SEL	Loop selector	Section 10.5.10
	BC	Batch counter	Section 10.5.11
	PSUM	Pulse integrator	Section 10.5.11
PVAL	Position-proportional output	Section 10.5.13	
HTCL	Heating and cooling output	Section 10.5.14	
Status tag	NREV	Motor Irreversible Control	Section 10.6.1
	REV	Motor reversible Control	Section 10.6.1
	MVAL1	ON/OFF control 1 (without intermediate value)	Section 10.6.1
	MVAL2	ON/OFF control 2 (with intermediate value)	Section 10.6.1
	PB	Push button operation	Section 10.6.3
	MTR2	Motor Irreversible Control (Status output)	Section 10.6.4
	MTR3	Motor reversible Control (Status output)	Section 10.6.4
	SS2P	ON/OFF control (2 Input, 1 Output, Status output)	Section 10.6.4
	DS2P	ON/OFF control (2 Input, 2 Output, Status output)	Section 10.6.4
	DS3P	ON/OFF control (3 Input, 2 Output, Status output)	Section 10.6.4
	TIMER1	Timer1 (Timer stops when COMPLETE flag is on.)	Section 10.6.2
	TIMER2	Timer2 (Timer continues when COMPLETE flag is on.)	Section 10.6.2
	COUNT1	Count1 (Counter stops when COMPLETE flag is on.)	Section 10.6.2
	COUNT2	Count2 (Counter continues when COMPLETE flag is on.)	Section 10.6.2
Alarm tag	ALM	Alarm	Section 10.7.1
	ALM_64PT	64-points alarm	Section 10.7.2
Message tag	MSG	Message	Section 10.8.1
	MSG_64PT	64-points message	Section 10.8.2

These items in the following table are the example items of "Section 10.3 Displaying Parts on Faceplate" displayed in the faceplate of each tag type. As for the display contents and operations of the corresponding item in the following explanations of each faceplate display, refer to sections in "Reference".

Part	I/O Mode	Control mode	Motion type	STC setting	Time in the step setting	PV value setting	SV value setting	MV value setting	Count setting	BC operation	C/T operation	STATUS operation	Command button operation		
Reference	Section 10.3.2	Section 10.3.3	Section 10.3.4	Section 10.3.5	Section 10.3.6	Section 10.3.7	Section 10.3.8	Section 10.3.9	Section 10.3.10	Section 10.3.11	Section 10.3.12	Section 10.3.13	Section 10.3.14		
Tag type	Loop	PID	○	○	—	—	—	○	○	○	—	—	—		
		2PID	○	○	—	—	—	○	○	○	—	—	—		
		2PIDH	○	○	—	—	—	○	○	○	—	—	—		
		PIDP	○	○	—	—	—	○	○	○	—	—	—		
		SPI	○	○	—	—	—	○	○	○	—	—	—		
		IPD	○	○	—	—	—	○	○	○	—	—	—		
		BPI	○	○	—	—	—	○	○	○	—	—	—		
		R	○	○	—	—	—	○	(○)	○	—	—	—	—	
		ONF2	○	○	—	—	—	○	○	(○)	—	—	—	—	
		ONF3	○	○	—	—	—	○	○	(○)	—	—	—	—	
		PFC_SF	○	○	—	—	—	○	○	○	—	—	—	—	
		PFC_SS	○	○	—	—	—	○	○	○	—	—	—	—	
		PFC_INT	○	○	—	—	—	○	○	○	—	—	—	—	
		PGS	—	○	○	—	—	—	○	○	—	—	—	—	
		PGS2	○	○	○	○	○	(○)	○	—	—	—	—	—	
		MOUT	—	○	—	—	—	—	—	○	—	—	—	—	
		MONI	○	—	—	—	—	○	—	—	—	—	—	—	
		SWM	○	○	—	—	—	○	○	—	—	—	—	—	
		MWM	○	○	—	—	—	○	—	○	—	—	—	—	
		SEL	—	○	—	—	—	(○)	—	○	—	—	—	—	
		BC	—	—	—	—	—	(○)	—	—	○	○	—	—	
		PSUM	—	—	—	—	—	(○)	—	—	—	○	—	—	
		PVAL	○	○	—	—	—	○	○	—	—	—	○	—	
		HTCL	○	○	—	—	—	—	○	○	—	—	—	—	
		Status	NREV	○	○	—	—	—	—	—	—	—	—	○	—
			REV	○	○	—	—	—	—	—	—	—	—	○	—
			MVAL1	○	○	—	—	—	—	—	—	—	—	○	—
MVAL2	○		○	—	—	—	—	—	—	—	—	○	—		
PB	—		○	—	—	—	—	—	—	—	—	—	○		
MTR2	○		○	—	—	—	—	—	—	—	—	○	—		
MTR3	○		○	—	—	—	—	—	—	—	—	○	—		
SS2P	○		○	—	—	—	—	—	—	—	—	○	—		
DS2P	○		○	—	—	—	—	—	—	—	—	○	—		
DS3P	○		○	—	—	—	—	—	—	—	—	○	—		
TIMER1	—		—	—	—	—	(○)	—	—	○	—	○	—		
TIMER2	—		—	—	—	—	(○)	—	—	○	—	○	—		
COUNT1	—		—	—	—	—	(○)	—	—	○	—	○	—		
COUNT2	—		—	—	—	—	(○)	—	—	○	—	○	—		
Alarm	ALM	—	—	—	—	—	—	—	—	—	—	—	—		
	ALM_64PT	—	—	—	—	—	—	—	—	—	—	—	—		
Message	MSG	—	—	—	—	—	—	—	—	—	—	—	—		
	MSG_64PT	—	—	—	—	—	—	—	—	—	—	—	—		

○: Display corresponding to faceplate, (○): Only display a part of common pattern, —: No display

REMARK

- In SV value of R, bar is display by ratio to PV value.
- In MV value setting of ONF2 and ONF3, bar is not displayed and the MV value setting button can only be set as 2 position (0%, 100%) or 3 position (0%, 50%, 100%)

- In SV value setting of PGS, bar is not displayed, display SV pointer on the pattern graph (👉 Section 10.3.1).

10.5 Loop Tag Faceplate

Loop tag is a tag used for loop control processing.

The types in the loop tag and reference section are as follows:

Tag type	Reference
PID, PIDP, SPI, IPD, BPI, R, 2PID	Section 10.5.1
2PIDH	Section 10.5.2
ONF2, ONF3	Section 10.5.3
PGS	Section 10.5.4
PGS2	Section 10.5.5
MOUT	Section 10.5.6
MONI	Section 10.5.7
SWM	Section 10.5.8
MWM	Section 10.5.9
SEL	Section 10.5.10
BC, PSUM	Section 10.5.11
PFC_SF, PFC_SS, PFC_INT	Section 10.5.12
PVAL	Section 10.5.13
HTCL	Section 10.5.14

The memory configurations of tag data generally used in loop tag are as follows:

For details of each tag data, refer to "PX Developer Version 1 Programming Manual".

Offset	Tag data item		Description	Reference
+ 0	FUNC	Tag function code	A code represents tag type (System area *1)	Section 10.4
+ 1	MODE	Control mode	Valid/invalid of each selection item of control mode	Section 10.3.3
+ 2	MDIH	Disable Mode Change	Valid/invalid of each selection item of I/O mode control mode and auto tuning	Section 10.3.2 Section 10.3.3 Section 7.7.5
+ 3	ALM	Alarm	The occur/recovery status of each alarm	Section 7.3
+ 4	INH	Disable Alarm Detection	The valid/invalid of each alarm	Section 7.3
+ 5	ALML	Alarm level	The level of each alarm (major/minor alarm)	Section 7.3
+ 6	CTNO	Lockout tag No.	0: no lockout tag, 1 to 32: lockout tag No in display (System area *1)	Section 9.16
+ 7	CTFN	Lockout tag function	The authority of using lockout tag (system area *1)	Section 10.2
+ 8	UNIT	Unit	Industrial unit No. (0 to 127)	Section 9.12
+ 9	N	No. of digits after decimal point	Display digits after decimal point (0 to 4)	—
+ 10 to 93	(The contents are different according to different tag types)			
+ 94	DOM	Monitor output butter	The information downloaded from personal computer to CPU module such as valid/invalid setting in each selection item of I/O mode. (System area *1)	Section 10.3.2
+ 95	DIM	Monitor input butter	Occur/recovery status of error read from CPU module to personal computer (system area *1)	Section 7.4.1

*1: Please do not perform writing by user in system area.

POINT

- In setting MDIH (disable mode change), the disabled mode on the faceplate which displays tag data (or auto tuning function) cannot be selected.
- In setting INH (disable alarm detection), the disabled alarm for tag data will not occur.
- If tag types are PID, 2PID, 2PIDH, set contents related to tuning function in DOM/DIM (Monitor Input/Output Buffer).
- If tag types are BC, PSUM, set contents related to batch counter operation in DOM/DIM (Monitor Input/Output Buffer).

10.5.1 PID, PIDP, SPI, IPD, BPI, R, 2PID



PURPOSE

Perform display and operation of PV, SV, MV values of loop tag in the faceplate of basic PID control, position type PID control, sample PI control, I-PD control (IPD), blend PI control (BPI), 2-degree-of-freedom PID control (2PID).
Set SV value using ratio (%) to PV value in the faceplate of ratio control.



DISPLAY/SETTING SCREEN

1) I/O mode change

2) Control mode change

3) PV value setting

4) PV value display (Bar display)

5) SV value setting

6) SV value display (Bar display)

7) MV value setting

8) MV value display (Bar display)

9) Ratio high/low limit. SV value display (Bar display) Display the ratio corresponding to PV value

<In PID,PIDP,SPI,IPD,BPI,2PID>

< R >

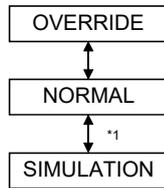


DISPLAY/SETTING DATA

No.	Item	Description	Reference
1)	I/O mode change	Display and set I/O mode.	Section 10.3.2
2)	Control mode change	Display and set control mode.	Section 10.3.3
3) 4)	PV value setting	Display and set PV value.	Section 10.3.7
5) 6)	SV value setting	Display and set SV value.	Section 10.3.8
7) 8)	MV value setting	Display and set MV value.	Section 10.3.9
9)	Ratio high/low limit	Display ratio high/low limit (RMIN, RMAX) of SV value. (Operation display type: NUM)	

(1) Selectable I/O mode

The following mode transition is possible.



*1: Can be switched only when the user authority (👉 Section 4.3) is engineer mode.

(2) Selectable control mode

All modes except for CASCADE DIRECT can be set and no restrictions regarding mode transition.

Enabling/disabling SV, MV operations in different modes are as follow.

Mode	SV operation	MV operation
MANUAL	Enable	Enable
AUTO	Enable	Disable
CASCADE, COMPUTER MV, COMPUTER SV	Disable	Disable

POINT

- PV value can be changed when the I/O mode (👉 Section 10.3.2) is OVERRIDE.
- I/O mode can be changed only when the control mode (👉 Section 10.3.3) is MANUAL.
- If the I/O mode (👉 Section 10.3.2) is OVERRIDE, the control mode cannot be switched from MANUAL.
- If the setting of MDIH (disable mode change) is performed in the memory item (👉 Section 10.5) of tag data, disabled mode cannot be selected.

10.5.2 2PIDH



PURPOSE

PV, SV and MV values of loop tag are displayed and operated in the faceplate of 2-degree-of-freedom Advanced PID control (2PIDH).

To avoid the sudden change of MV value in SV value change, SV value can gradually be changed in 2-degree-of-freedom Advanced PID control. *1

Therefore, the following two values are displayed in the faceplate.

- SV value (target) : SV value set by an user in SV value change
- SV value (current): SV value gradually changes from the value before the change to SV value (target)

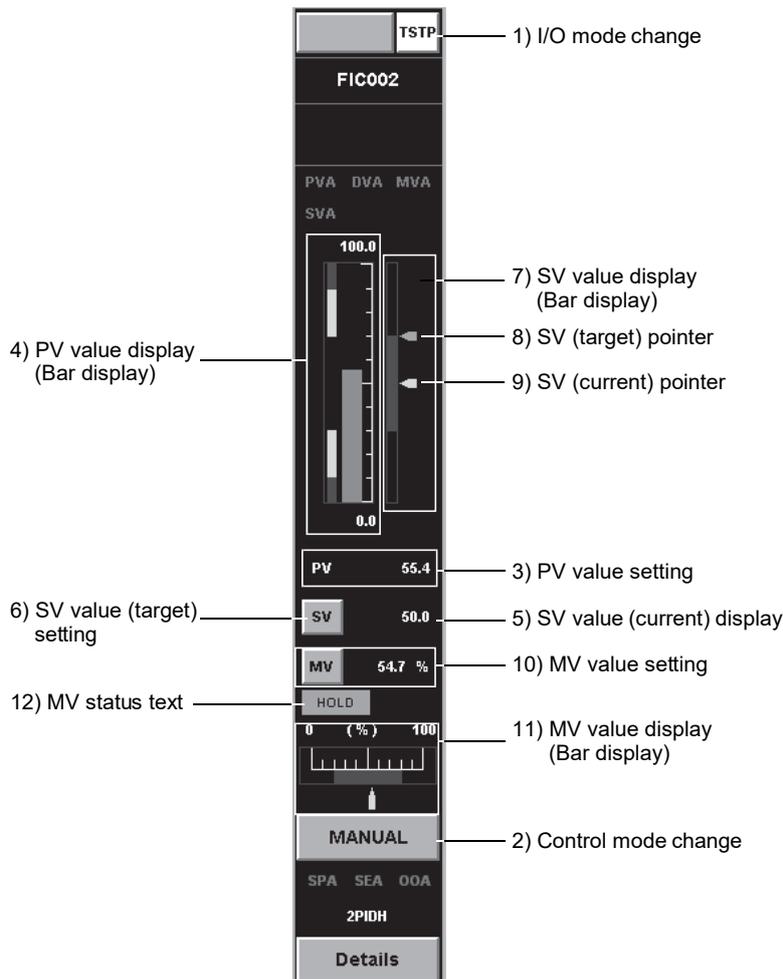
Moreover, the processing status of MV output is displayed in a MV status.

*1: Set the SV value (current) variation in the SV variation rate high limit value (DSVL) of tag data item.

If the SV variation rate high limit value is 100% (initial setting status), the SV value (current) will become the same value with the SV value (target) and the SV value (current) cannot gradually be changed.



DISPLAY/SETTING SCREEN



 **DISPLAY/SETTING DATA**

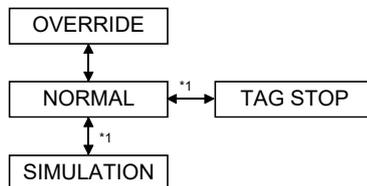
No.	Item	Description	Reference
1)	I/O mode change	Display and set I/O mode.	Section 10.3.2
2)	Control mode change	Display and set control mode.	Section 10.3.3
3) 4)	PV value setting	Display and set PV value.	Section 10.3.7
5) 6) 7) 8) 9)	SV value setting	Display and set SV value (target) and SV value (current).	Section 10.3.8
10) 11)	MV value setting	Display and set MV value.	Section 10.3.9
12)	MV status text	Display processing status for MV output.	(Following table)

The following shows the display contents of MV status.
 MV status is stored in an input monitor buffer (DIM) of tag data.

Display item		Display string	Text color	Background color
Preset MV output processing	Stopped	Nothing displayed	Background color	Background color
	Executing	"PRESET"	Black	MV status color
MV hold processing	Stopped	Nothing displayed	Background color	Background color
	Executing	"HOLD"	Black	MV status color
MV tracking processing	Stopped	Nothing displayed	Background color	Background color
	Executing	"TRK"	Black	MV status color

(1) **Selectable I/O mode**

The following mode transition is possible.



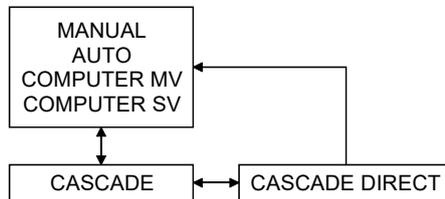
*1: Can be switched only when the user authority ( Section 4.3) is engineer mode.

(2) Selectable control mode

All modes can be set.

Switching to CASCADE DIRECT mode is only possible from CASCADE mode.

No restrictions regarding other modes.



Following table indicates whether mode is enabled/disabled for SV and MV operation.

Mode	SV operation	MV operation
MANUAL	Enable	Enable
AUTO	Enable	Disable
CASCADE, CASCADE DIRECT, COMPUTER MV, COMPUTER SV	Disable	Disable

POINT

- PV value can be changed when the I/O mode (☞ Section 10.3.2) is OVERRIDE.
- I/O mode can be changed only when the control mode (☞ Section 10.3.3) is MANUAL.
Note that switching the mode from NORMAL to TAG STOP is possible even if the control mode is not MANUAL.
- If the I/O mode (☞ Section 10.3.2) is either OVERRIDE or TAG STOP, the control mode cannot be switched from MANUAL.
- If the setting of MDIH (disable mode change) is performed in the memory item (☞ Section 10.5) of tag data, disabled mode cannot be selected.

10.5.3 ONF2, ONF3



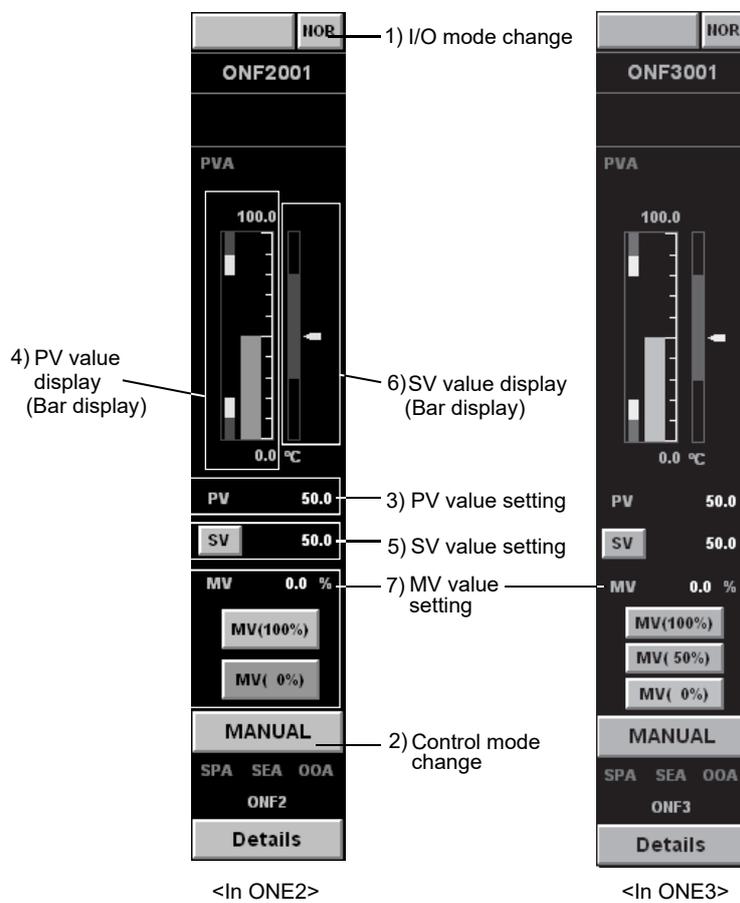
PURPOSE

To set loop tag, perform display and operation of PV, SV, MV values in the faceplate of 2 position ON/OFF control (ONF2) and 3 position ON/OFF control (ONF3).

MV value is set in two positions of 0%, 100%, (or three positions of 0%, 50%, 100%)



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Description	Reference
1)	I/O mode change	Display and set I/O mode.	Section 10.3.2
2)	Control mode change	Display and set control mode.	Section 10.3.3
3) 4)	PV value setting	Display and set PV value.	Section 10.3.7
5) 6)	SV value setting	Display and set SV value.	Section 10.3.8
7)	MV value setting	Display and set MV value.	Section 10.3.9

(1) Selectable I/O mode

It is possible set NORMAL and OVERRIDE mode.

(2) Selectable control mode

All modes except for CASCADE DIRECT can be set and no restrictions regarding mode transition.

Enable/Disable SV, MV operations in different modes are shown as follows.

Mode	SV operation	MV operation
MANUAL	Enable	Enable
AUTO	Enable	Disable
CASCADE, COMPUTER MV, COMPUTER SV	Disable	Disable

POINT

- PV value can be changed when the I/O mode (☞ Section 10.3.2) is OVERRIDE.
- I/O mode can be changed only when the control mode (☞ Section 10.3.3) is MANUAL.
- If the I/O mode (☞ Section 10.3.2) is OVERRIDE, the control mode cannot be switched from MANUAL.
- If the setting of MDIH (disable mode change) is performed in the memory item (☞ Section 10.5) of tag data, disabled mode cannot be selected.

10.5.4 PGS

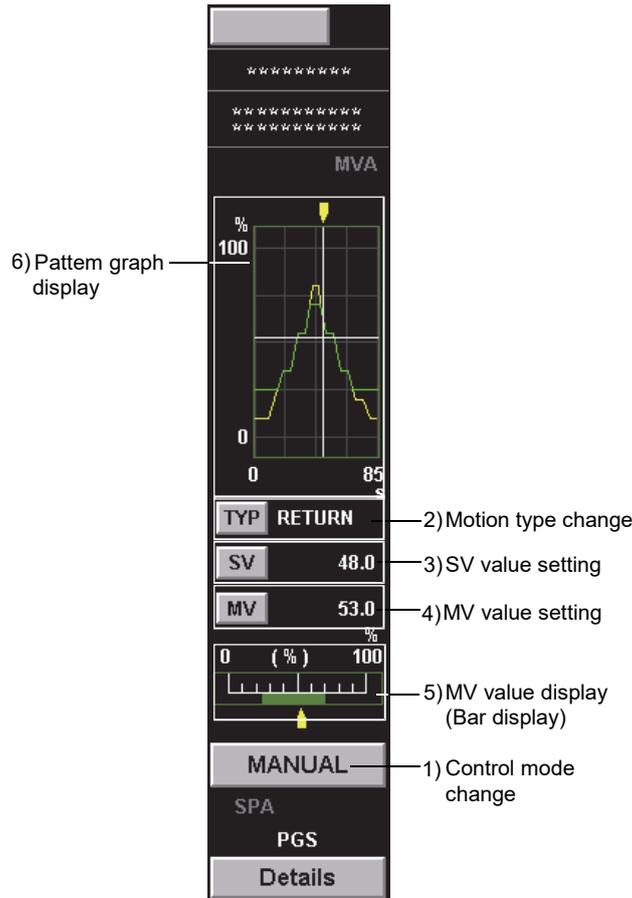


PURPOSE

To set loop tag, display the pattern of MV corresponding to SV (elapsed time) using graph in the faceplate of program setting device (PGS), set motion type.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Description	Reference
1)	Control mode change	Display and set control mode.	Section 10.3.3
2)	Motion type change	Display and set motion type.	Section 10.3.4
3)	SV value setting	Display and set SV value.	Section 10.3.8
4) 5)	MV value setting	Display and set MV value.	Section 10.3.9
6)	Pattern graph display	Display the pattern of MV corresponding to SV using graph. (Operation display type: PGS)	The display contents are same as the one shown in Section 7.7.1 (2)

(1) Selectable control mode

It is possible to set all modes, no restrictions for mode change.

Enabling/disabling SV, MV operations in different modes are as the following table.

Mode	SV operation	MV operation
MANUAL	Enable	Enable
AUTO	Enable	Disable
CASCADE, COMPUTER MV, COMPUTER SV	Disable	Disable

POINT

If the setting of MDIH (disable mode change) is performed in the memory item  Section 10.5) of tag data, disabled mode cannot be selected.

10.5.5 PGS2



PURPOSE

Displays the setting values to the predetermined time in every step on a graph in the faceplate for Multi-point program setter (PGS2) of the loop tag.



DISPLAY/SETTING SCREEN

The screenshot shows the PGS002 control interface. At the top is a title bar 'PGS002' with a close button. Below it is a 'I/O mode change' button labeled 'I/O'. The main display area shows 'PGS002' and 'SVA'. A 'WAIT' status display shows '100'. A pattern graph display shows a green line on a grid. Below the graph are several control elements: a 'Motion type change' button labeled 'TYP HOLD', a 'PV value display' showing '0.0', an 'Executing step No. setting' field labeled 'STC' with '10', a 'Time in the step setting' field labeled 'T' with '11 s', an 'SV value setting' field labeled 'SV' with '50.0', and a 'Control mode change' button labeled 'AUTO'. At the bottom are 'SPA PGS2', '<<', and 'Close' buttons.



DISPLAY/SETTING DATA

No.	Item	Description	Reference
1)	I/O mode change	Displays/sets the I/O mode.	Section 10.3.2
2)	Control mode change	Displays/sets the control mode.	Section 10.3.3
3)	Motion type change	Displays/sets the motion type.	Section 10.3.4
4)	Executing step No. setting	Displays/sets the executing step No.	Section 10.3.5
5)	Time in the step setting	Displays/sets the time in the step.	Section 10.3.6
6)	PV value display	Displays the PV value.	Section 10.3.7
7)	SV value setting	Displays/sets the SV value.	Section 10.3.8
8)	Wait status display	Displays the current wait status.	The next page
9)	Pattern graph display	Displays the setting values to the predetermined time in every step on a graph. (Operation display type: PGS2)	The display contents are same as the one shown in Section 7.7.1 (3).

The display during wait status is as follows.

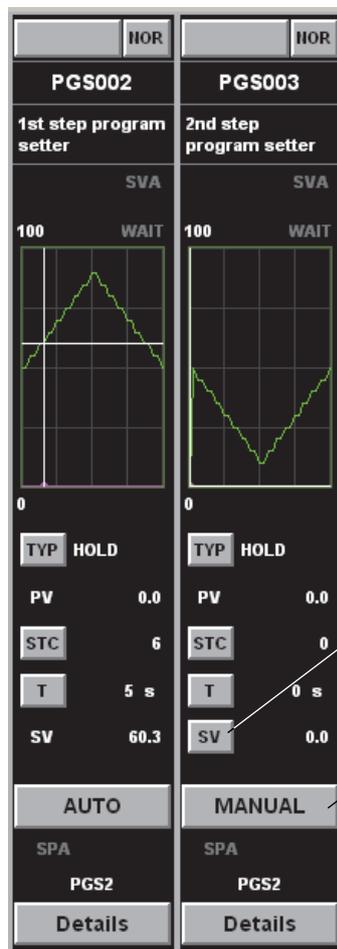
The wait status is stored at input monitor buffer (DIM) in the tag data.

Status	Display string	Text color	Background color
Normal	"WAIT"	No alarm color	Background color
During WAIT	"WAIT"	Black	Green

Multi-point program setter FB (PGS2) enables to set the optional points exceeding 32 to the program by connecting two or more FBs in multi-link.

For program examples, refer to "PX Developer Version 1 Programming Manual".

The tag of Multi-point program setter FB (PGS2) in multi-link enables the following operations on the faceplate.

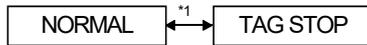


The SV value changed on the SV setting when the control mode is MANUAL is reflected to other faceplates of the multi-linked FBs in multistage connection.

Only one FB can be switched to AUTO mode in the faceplates of the multi-linked FBs in multistage connection. If switched to AUTO mode on any of the faceplates, the AUTO modes set on other faceplates are automatically switched to MANUAL mode.

(1) Selectable I/O mode

The following mode transition is possible.



*1: Can be switched only when the user authority (👉 Section 4.3) is engineer mode.

(2) Selectable I/O mode

MANUAL and AUTO modes can be set.
Mode transition is not restricted.

POINT

- Clicking on the graph enables to switch between "All step display" and "Executing step display".

When a mouse cursor is on the graph, its shape varies depending on the display status as follows:

All step display: 📏

Executing step display: 📏

- SV value can be changed only when the control mode (👉 Section 10.3.3) is MANUAL.
- If the setting of MDIH (disable mode change) is performed in the memory item (👉 Section 10.5) of tag data, disabled mode cannot be selected.

10.5.6 MOUT

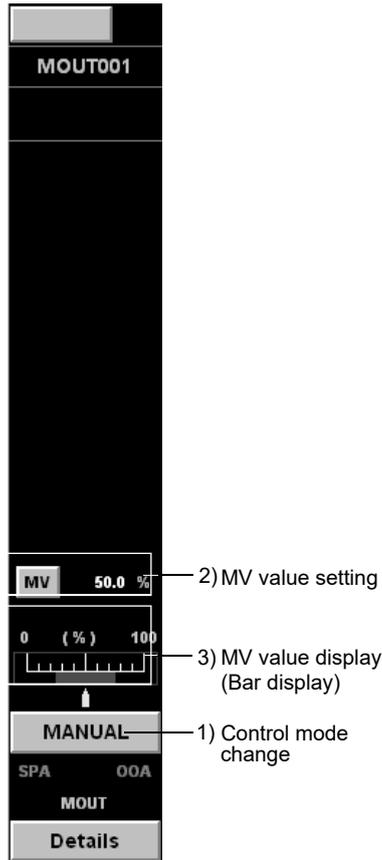


PURPOSE

The MV value of loop tag can be displayed and operated in the faceplate of manual output (MOUT).



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Description	Reference
1)	Control mode change	Display and set control mode.	Section 10.3.3
2) 3)	MV value setting	Display and set MV value.	Section 10.3.9

(1) Selectable control mode

MANUAL and COMPUTER MV modes can be set.

Enabling/disabling MV operations in different modes are as the following table.

Mode	MV operation
MANUAL	Enable
COMPUTER MV	Disable

POINT

If the setting of MDIH (disable mode change) is performed in the memory item (Section 10.5) of tag data, disabled mode cannot be selected.

10.5.7 MONI

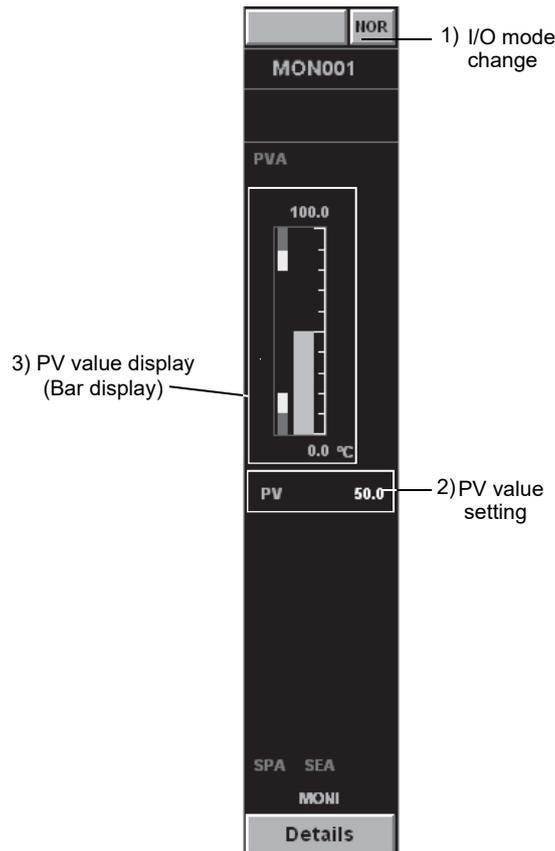


PURPOSE

The PV value of loop tag can be displayed and operated in the faceplate monitor (MONI).



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Description	Reference
1)	I/O mode change	Display and set I/O mode.	Section 10.3.2
2) 3)	PV value setting	Display and set PV value.	Section 10.3.7

(1) Selectable I/O mode

It is possible to set NORMAL and OVERRIDE mode.

POINT
<ul style="list-style-type: none"> ● PV value can be changed when the I/O mode (Section 10.3.2) is OVERRIDE. ● If the setting of MDIH (Disable mode change) is performed in the memory item (Section 10.5) of tag data, disabled mode cannot be selected.

10.5.8 SWM



PURPOSE

PV and SV values of loop tag are displayed and operated in the faceplate of manual setter with monitor (SWM).

To avoid the sudden change of MV value in SV value change, SV value can gradually be changed in manual setter with monitor. *1

Therefore, the following two values are displayed in the faceplate.

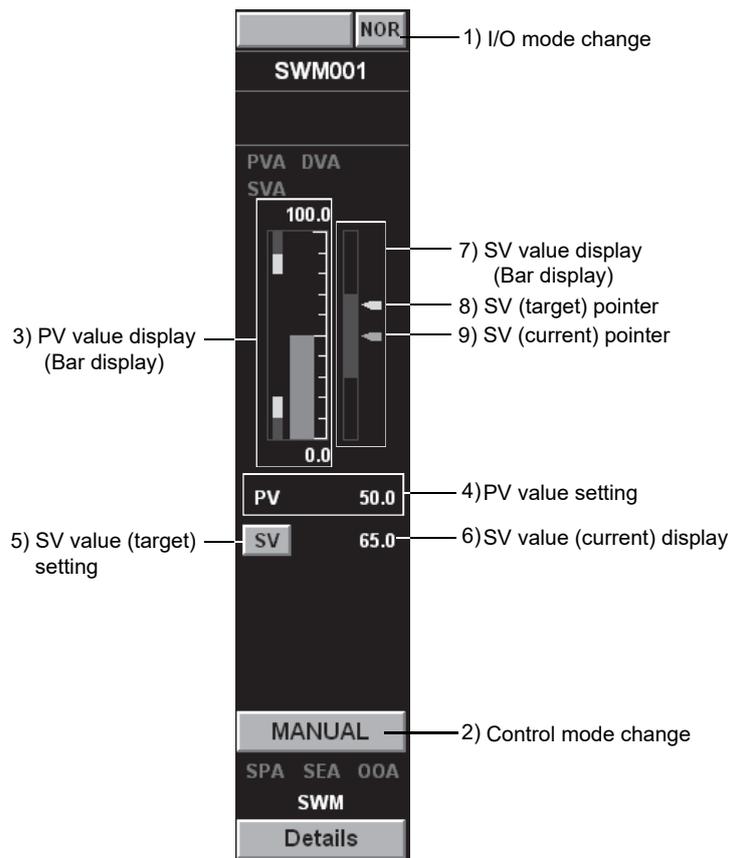
- SV value (target) : SV value set by an user in SV value change
- SV value (current): SV value gradually changes from the value before the change to SV value (target)

*1: Set the SV value (current) variation in the SV variation rate high limit value (DSVL) of tag data item.

If the SV variation rate high limit value is 100% (initial setting status), the SV value (current) will become the same value with the SV value (target) and the SV value (current) cannot gradually be changed.



DISPLAY/SETTING SCREEN

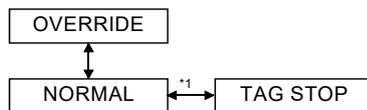


 **DISPLAY/SETTING DATA**

No.	Item	Description	Reference
1)	I/O mode change	Display and set I/O mode.	Section 10.3.2
2)	Control mode change	Display and set control mode.	Section 10.3.3
3) 4)	PV value setting	Display and set PV value.	Section 10.3.7
5) 6) 7) 8) 9)	SV value setting	Display and set SV value (target) and SV value (current).	Section 10.3.8

(1) Selectable I/O mode

The following mode transition is possible.



*1: Can be switched only when the user authority ( Section 4.3) is engineer mode.

(2) Selectable control mode

All modes except for COMPUTER MV and CASCADE DIRECT can be set and no restrictions regarding mode transition.

Enabling/Disabling SV operation in different modes is as following table.

Mode	SV operation
MANUAL	Enable
AUTO	Enable
CASCADE, COMPUTER SV	Disable

POINT

- PV value can be changed when the I/O mode ( Section 10.3.2) is OVERRIDE.
- I/O mode can be changed only when the control mode ( Section 10.3.3) is MANUAL.
Note that switching the mode from NORMAL to TAG STOP is possible even if the control mode is not MANUAL.
- If the I/O mode ( Section 10.3.2) is OVERRIDE, the control mode cannot be switched from MANUAL.

10.5.9 MWM

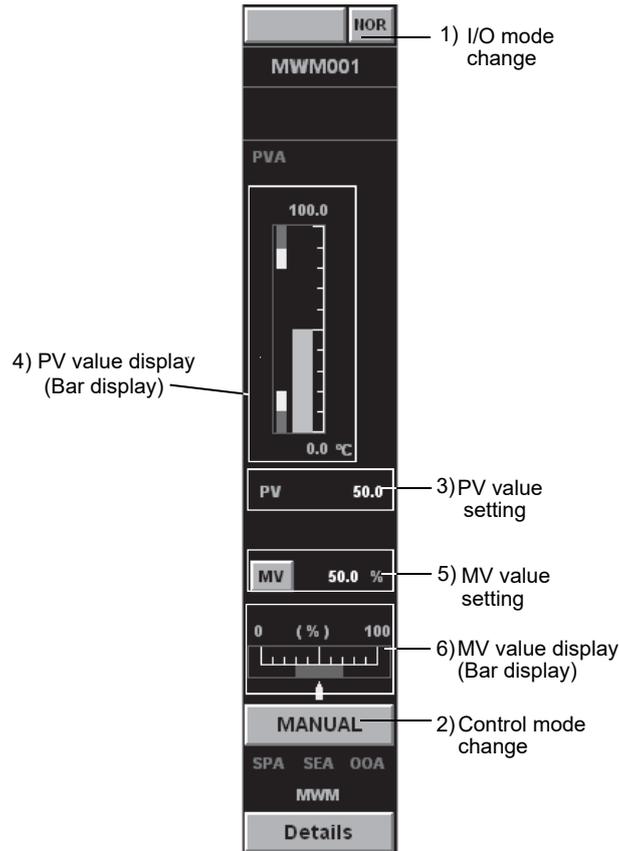


PURPOSE

PV and MV values of loop tag are displayed and operated in the faceplate of manual output with monitor (MWM).



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Description	Reference
1)	I/O mode change	Display and set I/O mode.	Section 10.3.2
2)	Control mode change	Display and set control mode.	Section 10.3.3
3) 4)	PV value setting	Display and set PV value.	Section 10.3.7
5) 6)	MV value setting	Display and set MV value.	Section 10.3.9

(1) Selectable I/O mode

It is possible to set NORMAL and OVERRIDE mode.

(2) Selectable control mode

MANUAL and COMPUTER MV modes can be set.

Enabling/Disabling MV operation in different modes is as following table.

Mode	MV operation
MANUAL	Enable
COMPUTER MV	Disable

POINT

- PV value can be changed when the I/O mode (☞ Section 10.3.2) is OVERRIDE.
- I/O mode can be changed only when the control mode (☞ Section 10.3.3) is MANUAL.
- If the I/O mode (☞ Section 10.3.2) is OVERRIDE, the control mode cannot be switched from MANUAL.
- If the setting of MDIH (disabled mode change) is performed in the memory item (☞ Section 10.5) of tag data, disabled mode cannot be selected.

10.5.10 SEL

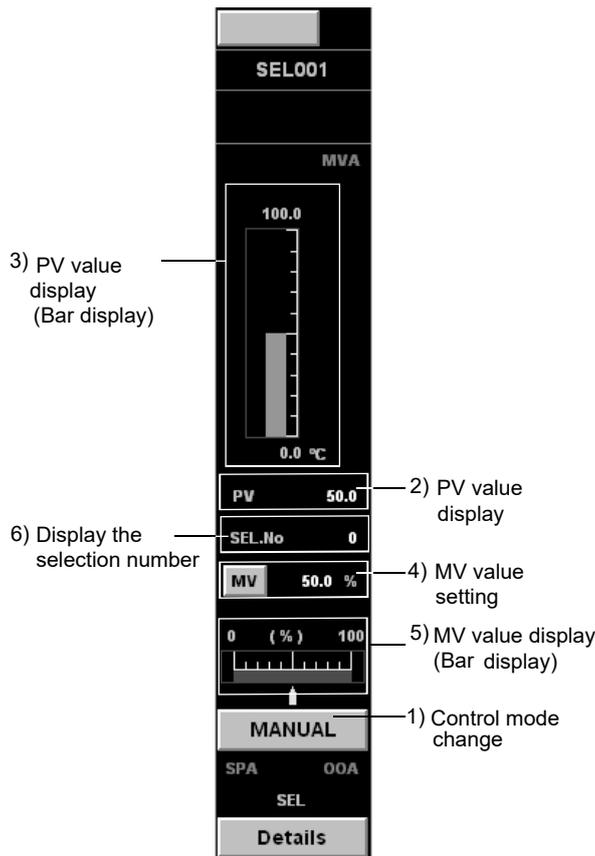


PURPOSE

PV and MV values of loop tag are displayed and operated in the faceplate of loop selector (SEL). The selected No. can be displayed.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Description	Reference
1)	Control mode change	Display and set control mode.	Section 10.3.3
2) 3)	PV value display	Display PV value.	Section 10.3.7
4) 5)	MV value setting	Display and set MV value.	Section 10.3.9
6)	Display the selection number	Display selected number of signal (SLNO). (Operation display type: NUM)	Section 10.3.1

(1) Selectable control mode

All modes except for CASCADE DIRECT can be set and no restrictions regarding mode transition.

Enabling/disabling MV operations of different modes are as the following table.

Mode	MV operation
MANUAL	Enable
AUTO	Disable
CASCADE, COMPUTER MV, COMPUTER SV	Disable

POINT

If the setting of MDIH (disable mode change) is performed in the memory item (☞ Section 10.5) of tag data, disabled mode cannot be selected.

10.5.11 BC, PSUM

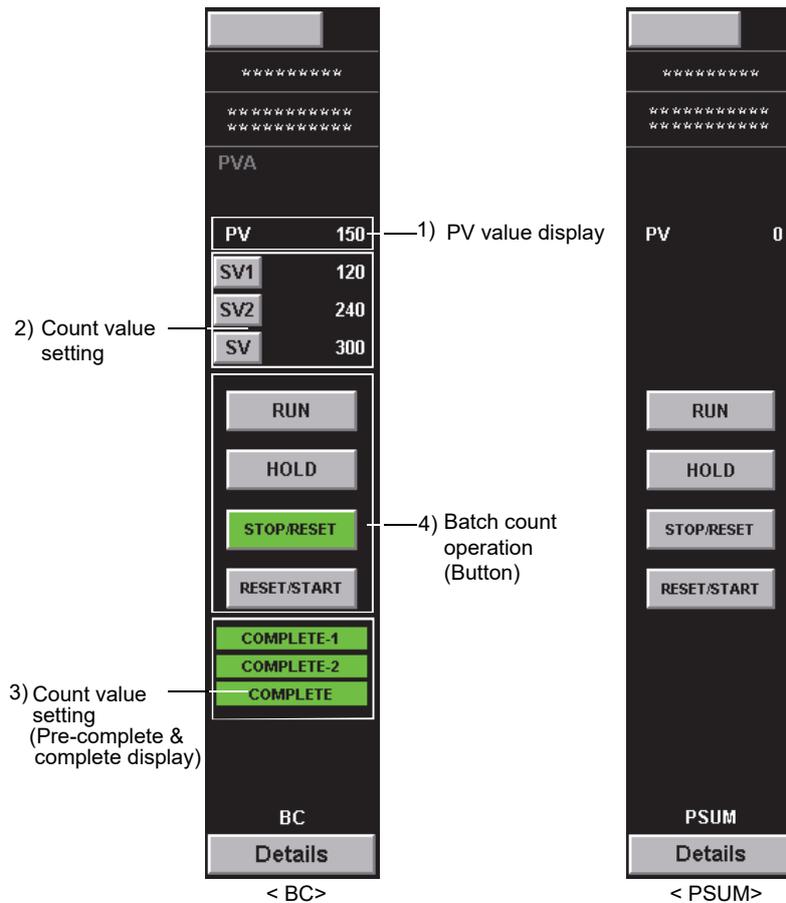


PURPOSE

To display PV value of loop tag and set count/timer, one can operate RUN button in the faceplate of batch counter (BC) and pulse integrator (PSUM).
 Count value can be operated and displayed in the faceplate of batch counter (BC).
 Display pre-complete and complete.



DISPLAY/SETTING SCREEN

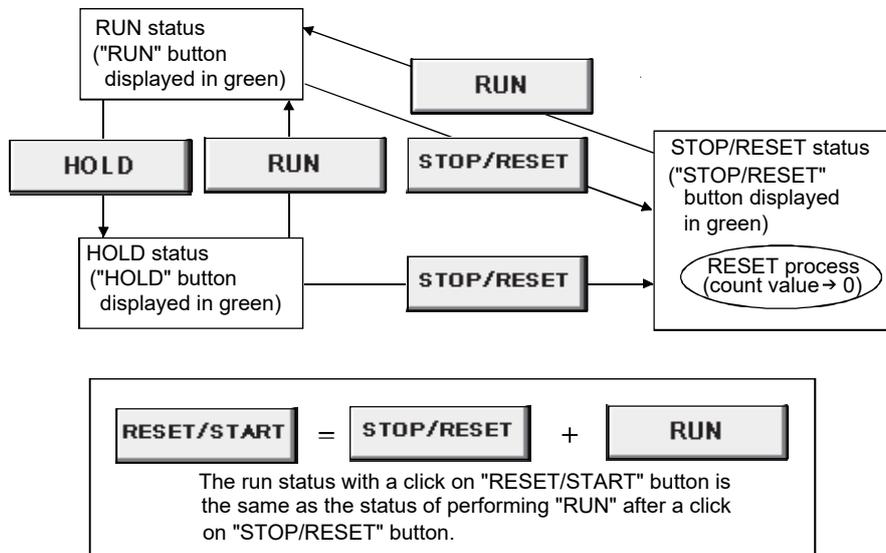


DISPLAY/SETTING DATA

No.	Item	Description	Reference
1)	PV value display	Display PV value.	Section 10.3.7
2) 3)	Count value setting	Display and set count value.	Section 10.3.10
4)	Batch count operation	Perform such as start/stop operation count.	Section 10.3.11

Pre-complete and complete is displayed in green when PV value reaches the SV value set.
 The display of COMPLETE-1 is changed when PV value reaches SV1 value. The display of COMPLETE-2 is changed when PV value finally reaches SV2 value.
 Then the display of COMPLETE is changed when PV value finally reaches SV value.

The status change caused by clicking the button is as follows:



The three status of: RUN, HOLD, STOP/RESET can be changed in the faceplate of loop tag (BC, PSUM). The button corresponding to current status displays in green. Count value reset to 0 in STOP/RESET status. Count value cannot be reset to 0 by clicking button in RUN status.

<Button operation examples>

1. Click RUN button when STOP/RESET button is green.
2. Starts to count value when RUN button is displayed in green.
3. Click HOLD button when RUN button is green.
4. The count stops when HOLD button changes to green.
5. Click RESET/START button when HOLD button is green.
6. RUN button changes to green after count is reset to 0, and count value starts to count value.
7. Click STOP/RESET button when RUN button is green.
8. Count value stops and resets when STOP/RESET button is changed to green.

10.5.12 PFC_SF, PFC_SS, PFC_INT



PURPOSE

PV, SV and MV values of loop tag are displayed and operated in the faceplate of predictive functional control (PFC_SF, PFC_SS, PFC_INT).

To avoid the sudden change of MV value in SV value change, SV value can gradually be changed in predictive functional control. *1

Therefore, the following two values are displayed in the faceplate.

- SV value (target) : SV value set by an user in SV value change
- SV value (current): SV value gradually changes from the value before the change to SV value (target)

*1: Set the SV value (current) variation in the SV variation rate high limit value (DSVL) of tag data item.

If the SV variation rate high limit value is 100% (initial setting status), the SV value (current) will become the same value with the SV value (target) and the SV value (current) cannot gradually be changed.



DISPLAY/SETTING SCREEN

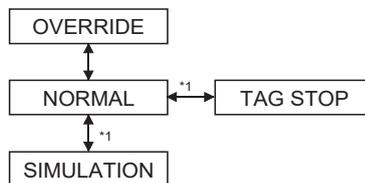
The screenshot shows the PFC_SF001 faceplate interface. At the top right is a 'NOR' button (1). The main display area shows 'PFC_SF001' and 'SVA' with a bar chart (7) and two pointers: a yellow one for 'SV (target)' (8) and a blue one for 'SV (current)' (9). Below the chart are 'PV' (3) and 'MV' (10) settings, both at 50.0. The 'PV' (4) and 'SV' (5) values are displayed as 50.0. A 'MANUAL' button (2) is at the bottom left. At the bottom right are 'SPA', 'SEA', 'OOA' indicators, 'PFC_SF', and a 'Details' button. A bar chart (11) at the bottom shows the 'MV' value as 50.0%.

 **DISPLAY/SETTING DATA**

No.	Item	Description	Reference
1)	I/O mode change	Display and set I/O mode.	Section 10.3.2
2)	Control mode change	Display and set control mode.	Section 10.3.3
3) 4)	PV value setting	Display and set PV value.	Section 10.3.7
5) 6) 7) 8) 9)	SV value setting	Display and set SV value (target) and SV value (current).	Section 10.3.8
10) 11)	MV value setting	Display and set MV value.	Section 10.3.9

(1) Selectable I/O mode

The following mode transition is possible.



*1: Can be switched only when the user authority (👉 Section 4.3) is engineer mode.

(2) Selectable control mode

All modes except for CASCADE DIRECT can be set and no restrictions regarding mode transition.

Enable/Disable SV, MV operations in different modes are shown as follows.

Mode	SV operation	MV operation
MANUAL	Enable	Enable
AUTO	Enable	Disable
CASCADE, COMPUTER MV, COMPUTER SV	Disable	Disable

POINT

- PV value can be changed when the I/O mode (👉 Section 10.3.2) is OVERRIDE.
- I/O mode can be changed only when the control mode (👉 Section 10.3.3) is MANUAL.
Note that switching the mode from NORMAL to TAG STOP is possible even if the control mode is not MANUAL.
- If the I/O mode (👉 Section 10.3.2) is either OVERRIDE or TAG STOP, the control mode cannot be switched from MANUAL.
- If the setting of MDIH (disable mode change) is performed in the memory item (👉 Section 10.5) of tag data, disabled mode cannot be selected.

10.5.13 PVAL



PURPOSE

Display/operate the PV value, SV value and the open/close status of motor valve on the faceplate of position-proportional output (PVAL) in loop tag.

To avoid the sudden change of MV value in SV value change, SV value can gradually be changed in position-proportional output. *1

Therefore, the following two values are displayed in the faceplate.

- SV value (target) : SV value set by an user in SV value change
- SV value (current): SV value gradually changes from the value before the change to SV value (target)

*1: Set the SV value (current) variation in the SV variation rate high limit value (DSVL) of tag item.

If the SV variation rate high limit value is 100% (initial setting status), the SV value (current) will become the same value with the SV value (target) and the SV value (current) cannot gradually be changed.



DISPLAY/SETTING SCREEN

The screenshot shows the PVAL001 faceplate control screen. At the top, there is a 'NOR' button (1) for I/O mode change. Below it is the title 'PVAL001'. The screen is divided into several sections:

- A bar chart area (3) for PV value display (Bar display) showing a green bar at 50.0%.
- A bar chart area (7) for SV value display (Bar display) showing a green bar at 65.0%.
- Two pointers (8 and 9) on the SV bar chart: a blue arrow for SV (target) and a yellow arrow for SV (current).
- Input fields for 'PV' (4) set to 50.0 and 'SV' (5) set to 65.0, with the SV field also serving as the current display (6).
- A control panel (10) with buttons: 'Open' (red), 'Close' (grey), 'Stop' (grey), 'Remote' (green), and 'Local' (green).
- Below the control panel are 'Trip' and 'Time-out' indicators, and a 'RESET' button.
- A 'MANUAL' button (2) for control mode change.
- At the bottom, there are 'SPA SEA', 'PVAL', and 'Details' buttons.

 **DISPLAY/SETTING DATA**

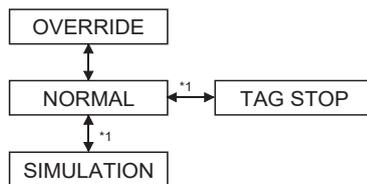
No.	Item	Description	Reference
1)	I/O mode change	Display and set I/O mode.	Section 10.3.2
2)	Control mode change	Display and set control mode.	Section 10.3.3
3) 4)	PV value setting	Display and set PV value.	Section 10.3.7
5) 6) 7) 8) 9)	SV value setting	Display and set SV value (target) and SV value (current).	Section 10.3.8
10)	Status operation	Using Open/Close/Stop status button to operate device.	Section 10.3.13

Status button	Description
Open/Close/Stop	Open/Close/Stop motor valve

Status display	Description
Remote/Local	Light in set color in remote and local status
Trip	Light in alarm color in device trip status due to overloading
Time-out	Light in alarm color when device time-out is exceeded

(1) Selectable I/O mode

The following mode transition is possible.



*1: Can be switched only when the user authority ( Section 4.3) is engineer mode.

(2) Selectable control mode

All modes except for COMPUTER MV and CASCADE DIRECT can be set and no restrictions regarding mode transition.

Enabling/Disabling SV operation in different modes is as following table.

Mode	SV operation
MANUAL	Enable
AUTO	Enable
CASCADE, COMPUTER SV	Disable

POINT

- PV value can be changed when the I/O mode ( Section 10.3.2) is OVERRIDE.
- I/O mode can be changed only when the control mode ( Section 10.3.3) is MANUAL.
Note that switching the mode from NORMAL to TAG STOP is possible even if the control mode is not MANUAL.
- If the I/O mode ( Section 10.3.2) is either OVERRIDE or TAG STOP, the control mode cannot be switched from MANUAL.
- If the setting of MDIH (disable mode change) is performed in the memory item ( Section 10.5) of tag data, disabled mode cannot be selected.

10.5.14 HTCL

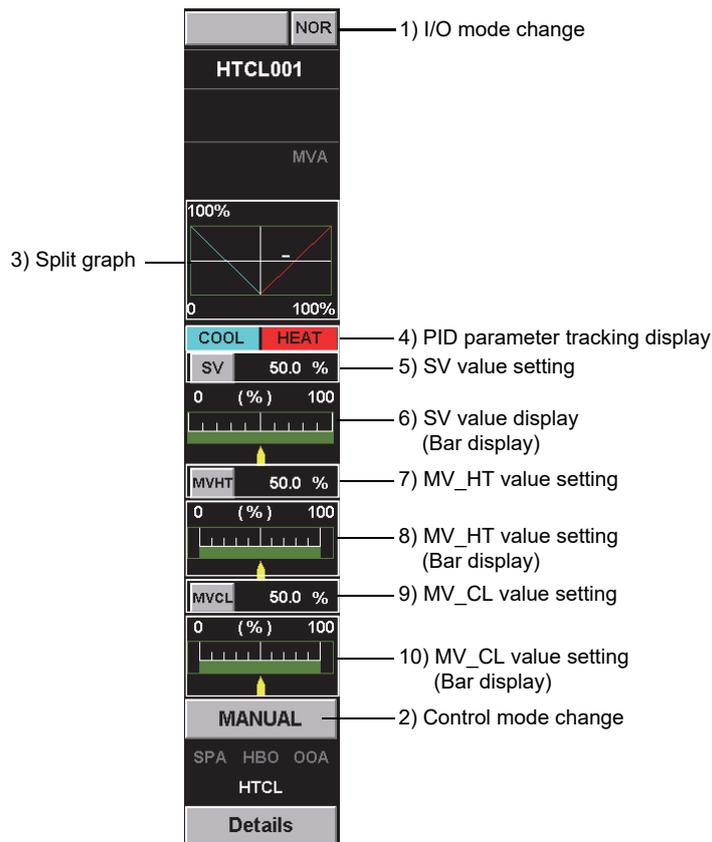


PURPOSE

SV, MV_HT and MV_CL values of loop tag are displayed and operated in the faceplate of heating and cooling output (HTCL).



DISPLAY/SETTING SCREEN



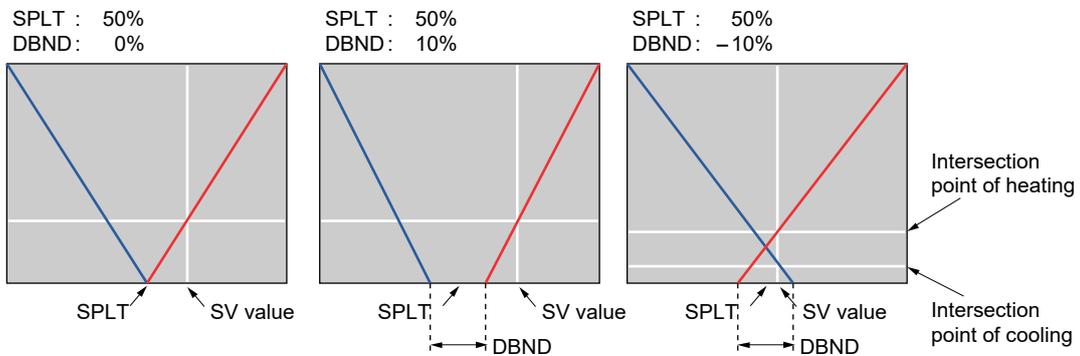
DISPLAY/SETTING DATA

No.	Item	Description	Reference
1)	I/O mode change	Display and set I/O mode.	Section 10.3.2
2)	Control mode change	Display and set control mode.	Section 10.3.3
3)	Split graph	Display the graphs.	
4)	PID parameter tracking display	Display the PID parameter that is tracking the upper tag.	
5) 6)	SV value setting	Display and set SV value.	Section 10.3.8
7) 8)	MV_HT value setting	Display and set MV_HT value.	Section 10.3.9
9) 10)	MV_CL value setting	Display and set MV_CL value.	Section 10.3.9

[Display split graph]

- X-axis : SV value from the primary loop
- Y-axis : MV_CL, MV_HT
- Line of heating side : Red (changeable depending on the background color of "Using the PID Heating" on Faceplate Display Pattern Setting (☞ Section 9.13))
- Line for cooling side : Light blue (changeable depending on the background color of "Using the PID Cooling" on Faceplate Display Pattern Setting (☞ Section 9.13))
- Intersection line of SV and MV_HT/MV_CL: White
 Nothing is displayed when DBND value or SPLT value is out of range.
 The intersection line of SV and MV_HT/MV_CL is not displayed when SV value is under 0 or over 100.
 The horizontal line of MV_CL is displayed when DBND is negative value, or SV value is under SPLT value.
 The horizontal line of MV_HT is displayed when DBND is negative value, or SV value is over SPLT value.
- Background : Black

The graph is displayed starting from SPLT, DBND toward 100% of heating, cooling.
 The intersection lines which indicate the current SV value and MV value of heating/cooling are displayed.



[Display PID of heating /cooling]

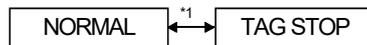
Display which PID is used.

Display item	Display string	Text color	Background color
Using the PID Heating	HEAT *1	Normal : No alarm color Executing : Black *1	Normal : Background color Executing : Red *1
Using the PID Cooling	COOL *1	Normal : No alarm color Executing : Black *1	Normal : Background color Executing : Light Blue *1

*1: It can be switched on Faceplate Display Pattern Setting (☞ Section 9.13).

(1) Selectable I/O mode

The following mode transition is possible.



*1: Can be switched only when the user authority (👉 Section 4.3) is engineer mode.

(2) Selectable control mode

All modes except for CASCADE DIRECT can be set and no restrictions regarding mode transition.

Enable/Disable SV, MV operations in different modes are shown as follows.

Mode	SV operation	MV_HT/MV_CL operation
MANUAL	Enable	Enable
AUTO	Enable	Disable
CASCADE, COMPUTER MV, COMPUTER SV	Disable	Disable

POINT

- PV value can be changed when the I/O mode (👉 Section 10.3.2) is OVERRIDE.
- I/O mode can be changed only when the control mode (👉 Section 10.3.3) is MANUAL.
Note that switching the mode from NORMAL to TAG STOP is possible even if the control mode is not MANUAL.
- If the I/O mode (👉 Section 10.3.2) is either OVERRIDE or TAG STOP, the control mode cannot be switched from MANUAL.
- If the setting of MDIH (disable mode change) is performed in the memory item (👉 Section 10.5) of tag data, disabled mode cannot be selected.

10.6 Status Tag Faceplate

Status tag is a tag used to monitor and control ON/OFF status.
The tag types in the status tag and reference sections are as follows.

Tag type	Reference
NREV, REV, MVAL1, MVAL2	Section 10.6.1
TIMER1, TIMER2, COUNT1, COUNT2	Section 10.6.2
PB	Section 10.6.3
MTR2, MTR3, SS2P, DS2P, DS3P	Section 10.6.4

The memory configurations of tag data generally used in status tag are as follows.
For details of each tag data, refer to "PX Developer Version 1 Programming Manual".

Offset	Tag data item	Description	Reference	
+ 0	FUNC	Tag function code	A code represents tag type (System area *1)	Section 10.4
+ 1	MODE	Control mode	Valid/invalid of each selection item of control mode	Section 10.3.3
+ 2	MDIH	Disable mode change	Valid/invalid of each selection item of I/O mode, control mode and auto tuning	Section 10.3.2 Section 10.3.3 Section 7.7.5
+ 3	ALM	Alarm	The Occur/Recovery status of each alarm	Section 7.3
+ 4	INH	Disable alarm detection	The Valid/Invalid of each alarm	Section 7.3
+ 5	ALML	Alarm level	The level of each alarm (Major/Minor alarm)	Section 7.3
+ 6	CTNO	Lockout tag No.	0: No lockout tag, 1 to 32: lockout tag No in display. (System area *1)	Section 9.16
+ 7	CTFN	Lockout tag function	The authority of using lockout tag (system area *1)	Section 10.2
+ 8 ^{*2}	FPNO	Display name pattern	Display name pattern No. (1 to 50)	Section 9.13
+ 9	DOM	Monitor output buffer	The information downloaded from personal computer to CPU module such as valid/invalid setting in each selection item of I/O mode.	Section 10.3.2 Section 10.6.1 Section 10.6.2 Section 10.6.3
+ 10	DIM	Monitor input buffer	The information uploaded from CPU module to personal computer such as Executing/Unexecuted. (System area *1)	Section 10.6.1 Section 10.6.2 Section 10.6.3 Section 7.4.1
+ 11 to +18	(The tag types are different according to contents.)			
+ 19 ^{*2}	FPNO1	Display name pattern 1	Display name pattern No. (1 to 10,000)	Section 9.13
+ 20 ^{*2}	FPNO2	Display name pattern 2		
+ 21 ^{*2}	FPNO3	Display name pattern 3		
+ 22 ^{*2}	FPNO4	Display name pattern 4		
+ 23 ^{*2}	FPNO5	Display name pattern 5		

* 1: Please do not perform writing by user in system area.

*2: +8 is only for tags other than PB tag, and +19 to +23 are only for PB tag.

POINT
<ul style="list-style-type: none"> ● In setting MDIH (disable mode change), the inhibited mode on the faceplate which displays tag data cannot be selected. ● In setting INH (disable alarm detection), the inhibited alarm related to the tag data cannot occur. ● DOM (Monitor output buffer) can be loaded from tag data access control (👉 Appendix 5.1.1). Please do not load it from user program.

10.6.1 NREV, REV, MVAL1, MVAL2



PURPOSE

Open/Close/Start/Forward Run/Reverse Run status of motor and motor valve of status tag are displayed and operated in the faceplate of motor irreversible control (NREV), motor reversible (REV), ON/OFF control (MVAL1, MVAL2).



DISPLAY/SETTING SCREEN

1) I/O mode change

3) Status operation

2) Control mode change

<In NREV> <In REV> <In MVAL1> <In MVAL2>



DISPLAY/SETTING DATA

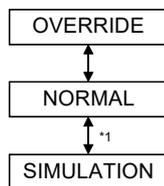
No.	Item	Description	Reference
1)	I/O mode change	Display and set I/O mode.	Section 10.3.2
2)	Control mode change	Display and set control mode.	Section 10.3.3
3)	Status operation	Using Open/Close/Start/FWD Run/REV Run status button to operate device.	Section 10.3.13

Status button	Description
Start/Stop	Start or stop the run of motor
FWD Run/REV Run/Stop	Start or stop the forward or reverse run of motor
Open/Close	Open or close motor valve

Status display	Description
Semiopen	Light in set color in semi open status
Remote/Local	Light in set color in remote and local status
Trip	Light in alarm color in device trip status due to overloading
Time-out	Light in alarm color when device time-out is exceeded

(1) Selectable I/O mode

The following mode transition is possible.



*1: Can be switched only when the user authority (👉 Section 4.3) is engineer mode.

(2) Selectable control mode

MANUAL and AUTO modes can be set.

Enable/disable status operations in different modes are as following table.

Mode	Status operation
MANUAL	Enable
AUTO	Disable

POINT
<ul style="list-style-type: none"> ● I/O mode (👉 Section 10.3.2) can be changed only when the control mode (👉 Section 10.3.3) is MANUAL. ● If the I/O mode is OVERRIDE, the control mode cannot be switched from MANUAL. ● If the setting of MDIH (disable change mode) is performed in the memory item (👉 Section 10.6) of tag data, disabled mode cannot be selected.

10.6.2 TIMER1, TIMER2, COUNT1, COUNT2

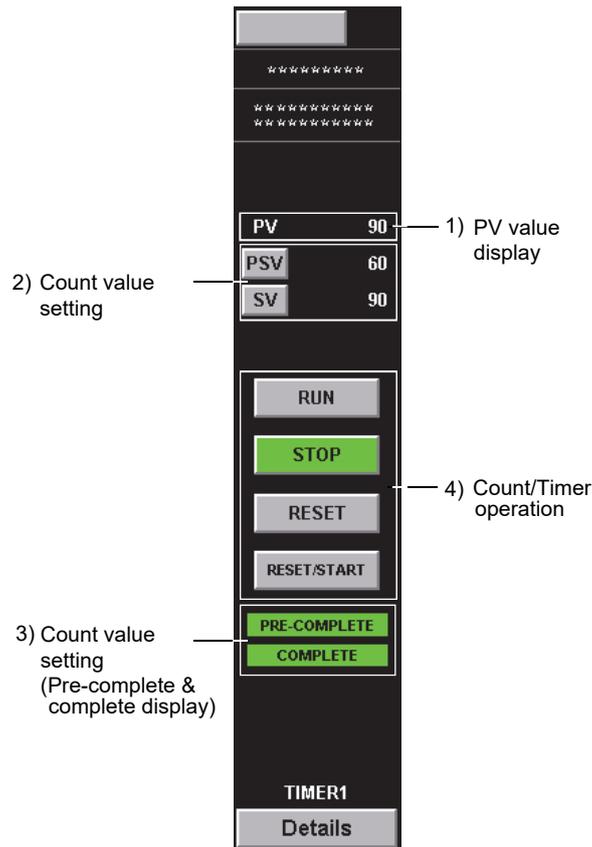


PURPOSE

Timer/Count value of status tag is displayed and operated in the faceplate of timer (TIMER1, TIMER2), counter (COUNT1, COUNT2).



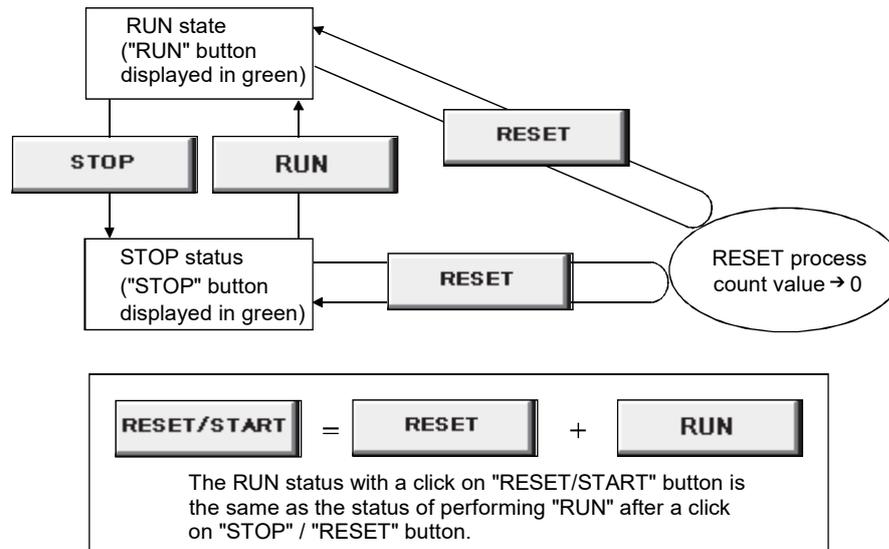
DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Description	Reference
1)	PV value display	Display PV value	Section 10.3.7
2) 3)	Count value setting	Display and set count value	Section 10.3.10
4)	Count/Timer operation	Perform Run/Stop operation of Count/Timer	Section 10.3.12

The status change caused by clicking the button is as follows:



The two status of RUN, STOP can be changed in the faceplate of status tag (TIMER1, TIMER2, COUNT1, COUNT2).

The button corresponding to current status is displayed in green color.

Count value is reset to low limit when clicking "Reset" button.

Count value itself can be reset in RUN status.

<Button operation examples>

1. Click RUN button when STOP button is green.
2. Count value starts to count-up when RUN button changes to green.
3. Click STOP button when RUN button is green.
4. The count stops when STOP button changes to green.
5. Click RESET/START button when STOP button is green.
6. RUN button changes to green after count value is reset, count value starts to count-up.
7. Click RESET button when RUN button is green.
8. Count value is reset, RUN button keeps green, and count-up starts from the initial status.

10.6.3 PB

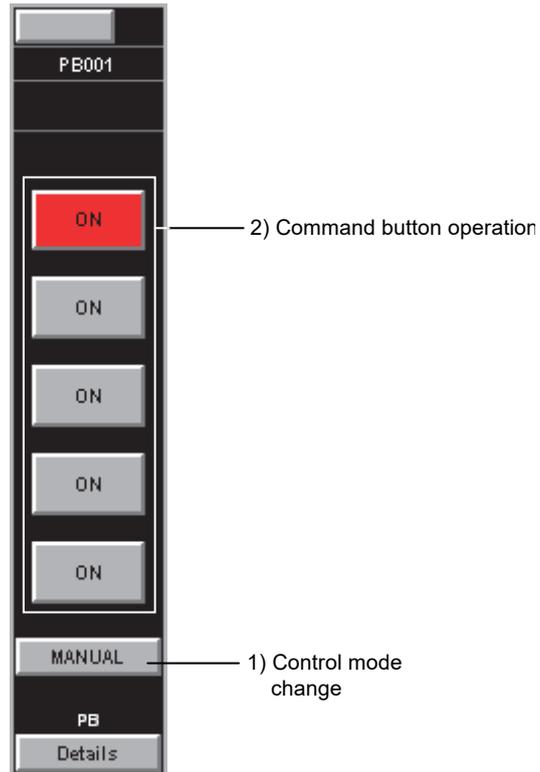


PURPOSE

The reset button and radio button are displayed and operated, and the status of the process etc. is displayed in the faceplate of push button operation (PB).



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Description	Reference
1)	Control mode change	Display and set control mode	Section 10.3.3
2)	Command button operation	Operate the device with the command button.	Section 10.3.14

(1) Selectable control mode

MANUAL and AUTO modes can be set.

Enable/disable command button operations in different modes are as following table.

Mode	Status operation
MANUAL	Enable
AUTO	Disable

POINT

The following show the restrictions for making the setting in the memory item (☞ Section 10.6) of tag data.

- If the setting of MDIH (disable mode change) is made, disabled modes cannot be selected.
- If the setting of FPINH (disable display) is made, relevant buttons cannot be displayed.
- If the setting of BTNINH (disable button control) is made, relevant buttons cannot be operated.

10.6.4 MTR2, MTR3, SS2P, DS2P, DS3P



PURPOSE

Forward Rotation/Reverse Rotation, Inching, and Port status of motor and motor valve of status tag are displayed and operated in the faceplate of motor irreversible control (MTR2), motor reversible control (MTR3), ON/OFF control (SS2P, DS2P, DS3P) with status output.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

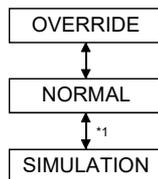
No.	Item	Description	Reference
1)	I/O mode change	Display and set I/O mode.	Section 10.3.2
2)	Control mode change	Display and set control mode.	Section 10.3.3
3)	Status operation	Operate the device with the status button such as FWD Rot/REV Rot/Port/Inching.	Section 10.3.13

Status button	Description
FWD Rot/REV Rot Stop	Start or stop the forward or reverse rotation of motor.
InchFWD/InchREV Inching1/Inching2	Operate the inching forward or reverse rotation of motor.
Port Port1/Port2	Switch ON and OFF.

Status display	Description
Lamp Lamp1/Lamp2 LampA/LampB	Light according to the monitor input buffer 2 (DIM2) of corresponding tag data. Set data to be displayed in the monitor input buffer 2 (DIM2).
StatAns/StartIL/RunIL StatAns1/StartIL1/RunIL1 StatAns2/StartIL2/RunIL2	Light in set color according to the corresponding signal.
Time-out	Light in alarm color when there is a mismatch between the device status and output signal.
Trip	Light in alarm color in device trip status due to overloading.
ComErr	Light in alarm color in device communication error status.
AnsIndef	Light in alarm color in indefinite device status (multiple status answer input).

(1) Selectable I/O mode

The following mode transition is possible.



*1: Can be switched only when the user authority (👉 Section 4.3) is engineer mode.

(2) Selectable control mode

MANUAL and AUTO modes can be set.

Enable/disable status operations in different modes are as following table.

Mode	Status operation
MANUAL	Enable
AUTO	Disable

POINT

- I/O mode (☞ Section 10.3.2) can be changed only when the control mode (☞ Section 10.3.3) is MANUAL.
- If the I/O mode is OVERRIDE, the control mode cannot be switched from MANUAL.
- If the setting of MDIH (disable change mode) is performed in the memory item (☞ Section 10.6) of tag data, disabled mode cannot be selected.

10.7 Alarm Tag Faceplate

Alarm tag is a tag that indicates displays alarm occurrence.

The tag type in the alarm tag and reference section are show in the following table.

Tag type	Reference
ALM	Section 10.7.1
ALM_64PT	Section 10.7.2

The memory structure of alarm tag is as follows.

For details of each tag data, refer to "PX Developer Version 1 Programming Manual".

(1) ALM tag

Offset	Tag data item		Description	Reference
+ 0	FUNC	Tag function code	A code represents tag type(System area *1)	Section 10.4
+ 1	ALM	Alarm	The occur/recovery status of alarm 1 to 8 (System area *1)	Section 7.3
+ 2	ALML	Alarm level	Alarm 1 to 8 level (Major/Minor alarm)	Section 7.3
+ 4 to + 11	ALM1NO to ALM8NO	Alarm 1 Name No. to Alarm 8 Name No.	The number to specify displayed string at alarm occurrence (1 to 10000)	Section 9.9

*1: Please do not perform writing by user in system area.

POINT
Set display string corresponding to each alarm (1 to 8) by alarm setting ( Section 9.9).

(2) ALM_64PT tag

Offset	Tag data item		Description	Reference
+ 0	FUNC	Tag function code	A code represents tag type(System area *1)	Section 10.4
+ 1	ALM_W1	Alarm 1 to 16	The occur/recovery status of alarm 1 to 16 (System area *1)	Section 7.3
+ 2	ALM_W2	Alarm 17 to 32	The occur/recovery status of alarm 17 to 32 (System area *1)	
+ 3	ALM_W3	Alarm 33 to 48	The occur/recovery status of alarm 33 to 48 (System area *1)	
+ 4	ALM_W4	Alarm 49 to 64	The occur/recovery status of alarm 49 to 64 (System area *1)	
+ 5	ALML_W1	Alarm 1 to 16 level	Alarm 1 to 16 level (Major/Minor alarm)	Section 7.3
+ 6	ALML_W2	Alarm 17 to 32 level	Alarm 17 to 32 level (Major/Minor alarm)	
+ 7	ALML_W3	Alarm 33 to 48 level	Alarm 33 to 48 level (Major/Minor alarm)	
+ 8	ALML_W4	Alarm 49 to 64 level	Alarm 49 to 64 level (Major/Minor alarm)	
+ 9 to + 72	ALM1NO to ALM64NO	Alarm 1 Name No. to Alarm 64 Name No.	The number to specify displayed string at alarm occurrence (1 to 10000)	Section 9.9
+ 73 to + 80	ALMG1NO to ALMG8NO	Alarm group 1 name No. to Alarm group8 name No.	The number to specify displayed group name at alarm occurrence (1 to 10000)	—

*1: Please do not perform writing by user in system area.

POINT
Set display string corresponding to each alarm (1 to 64) and each alarm group name by alarm setting ( Section 9.9).

10.7.1 ALM

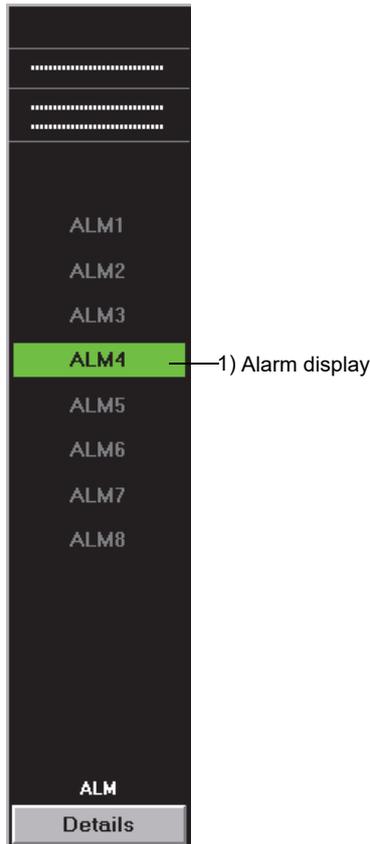


PURPOSE

Occurrence status of alarm is displayed in the faceplate of alarm tag for 8 points.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Text color	Background color
1)	Alarm display	PL	Display occurred alarm. Maximum display a string of 12 characters set by alarm setting (☞ Section 9.9).	Occurring: Black Recovered: No alarm color	Occurring: Alarm color Recovered: Background color

10.7.2 ALM_64PT

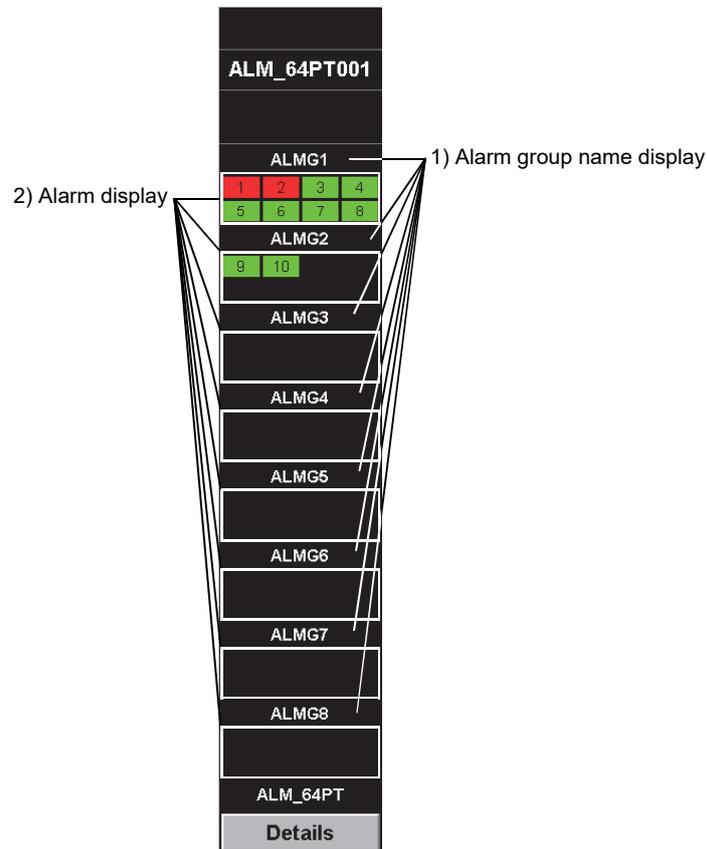


PURPOSE

Occurrence status of alarm is displayed in the faceplate of alarm tag for 64 points.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Text color	Background color
1)	Alarm group name display	STR	Display alarm group name.	White	Black
2)	Alarm display	PL	Display occurred alarm. Display the alarm separated in each alarm group. The alarms are displayed in ascending order from upper left in alarm group. The alarm content is displayed not with alarm name, but with alarm number (example: for ALM1, '1'). If the tag data item (ALM1NO to ALM64NO) of the corresponding alarm name No. is '0', it will be blank.	Occurring: Black Recovered: No alarm color	Occurring: Alarm color Recovered: Background color

10.8 Message Tag Faceplate

Message tag is a tag that displays occurred event.

The tag types of message tag and reference chapters are as follows.

Tag type	Reference
MSG	Section 10.8.1
MSG_64PT	Section 10.8.2

The memory structure of message tag are as follows.

For details of each tag data, refer to "PX Developer Version 1 Programming Manual".

(1) MSG tag

Offset	Tag data item		Description	Reference
+ 0	FUNC	Tag function code	A code represents tag type (System area *1)	Section 10.4
+ 1	MSG	Message	The occurred/recovered status of event 1 to 8 (System area *1)	Section 7.4
+ 2	MSGCHK	Message confirm check	The confirmation check status of event 1 to 8 (Yes/No)	Section 7.4
+ 4 to + 11	MSG1NO to MSG8NO	Message 1 Name No. to Message 8 Name No.	The number to specify displayed string at event occurrence (1 to 10000)	Section 9.10

*1: Please do not perform writing by user in system area.

POINT
Set display string corresponding to each event (1 to 8) by event setting (☞ Section 9.10).

(2) MSG_64PT tag

Offset	Tag data item		Description	Reference
+ 0	FUNC	Tag function code	A code represents tag type (System area *1)	Section 10.4
+ 1	MSG_W1	Message 1 to 16	The occurred/recovered status of event 1 to 16 (System area *1)	Section 7.4
+ 2	MSG_W2	Message 17 to 32	The occurred/recovered status of event 17 to 32 (System area *1)	
+ 3	MSG_W3	Message 33 to 48	The occurred/recovered status of event 33 to 48 (System area *1)	
+ 4	MSG_W4	Message 49 to 64	The occurred/recovered status of event 49 to 61 (System area *1)	
+ 5	MSGCHK_W1	Message confirm check 1 to 16	The confirmation check status of event 1 to 16 (Yes/No)	Section 7.4
+ 6	MSGCHK_W2	Message confirm check 17 to 32	The confirmation check status of event 17 to 32 (Yes/No)	
+ 7	MSGCHK_W3	Message confirm check 33 to 48	The confirmation check status of event 33 to 48 (Yes/No)	
+ 8	MSGCHK_W4	Message confirm check 49 to 64	The confirmation check status of event 49 to 64 (Yes/No)	
+ 9 to + 72	MSG1NO to MSG64NO	Message 1 Name No. to Message 64 Name No.	The number to specify displayed string at event occurrence (1 to 10000)	Section 9.10
+ 73 to + 80	MSGG1NO to MSGG8NO	Message group 1 Name No. to Message group 8 Name No.	The number to specify displayed group name at event occurrence (1 to 10000)	—

*1: Please do not perform writing by user in system area.

POINT

Set display string corresponding to each event (1 to 64) and each message group name by event setting (☞ Section 9.10).

10.8.1 MSG

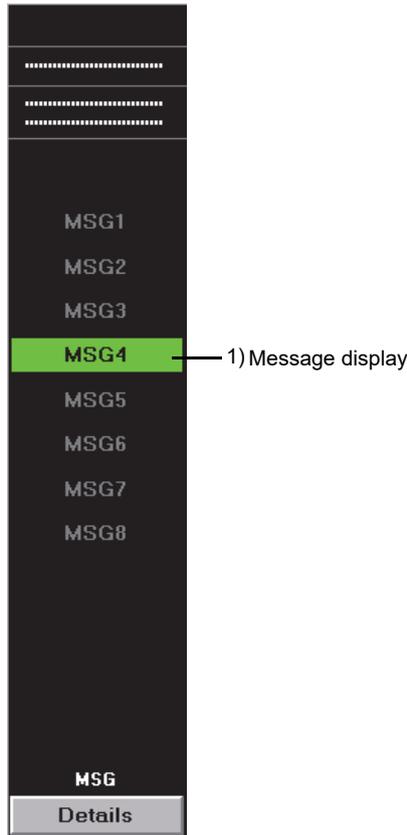


PURPOSE

Occurrence status of event is displayed in the faceplate of message tag for 8 points.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Text color	Background color
1)	Message display	PL	Display occurred event. Maximum display a string of 12 characters set by event setting (☞ Section 9.10).	Occurring: Black Recovered: No alarm color	Occurring: Green Recovered: Background color

10.8.2 MSG_64PT

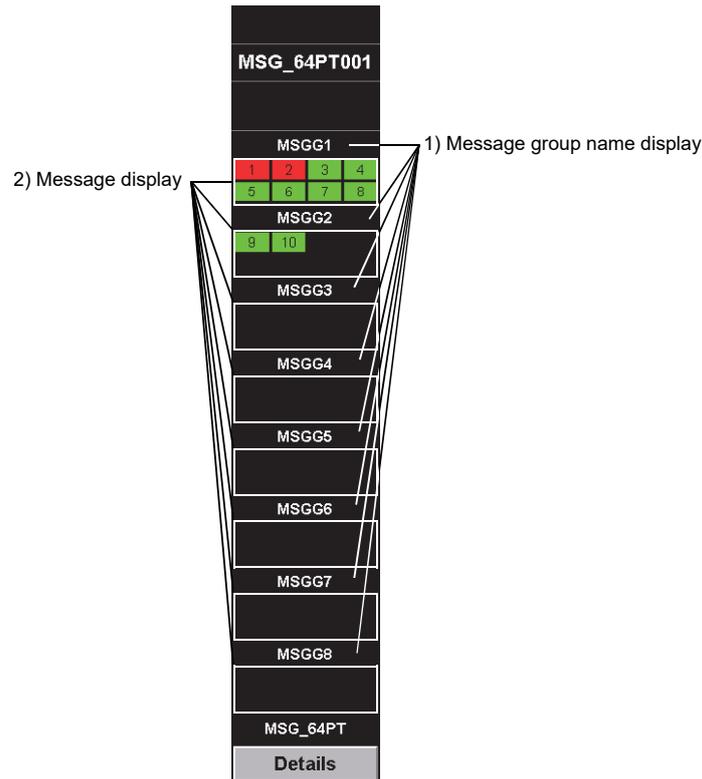


PURPOSE

Occurrence status of event is displayed in the faceplate of message tag for 64 points.



DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Text color	Background color
1)	Message group name display	STR	Display event group name.	White	Black
2)	Message display	PL	Display occurred event. Display the message separated in each message group. The messages are displayed in ascending order from upper left in message group. The message content is displayed not with message name, but with message number (example: for MSG1, '1'). If the tag data item (MSG1NO to MSG64NO) of the corresponding message name No. is '0', it will be blank.	Occurring: Black Recovered: No alarm color	Occurring: Green Recovered: Background color

11 MONITORING WITH USER-CREATED SCREEN

The Monitor tool has the interaction function for utilizing the applications created in GT SoftGOT1000 or Microsoft® Visual Basic® as the graphic screen.

(1) Utilizing GT SoftGOT

GT Designer2 or GT Designer3 enables to easily create the graphic screen. It also enables to utilize edit data of the GOT for field monitoring.

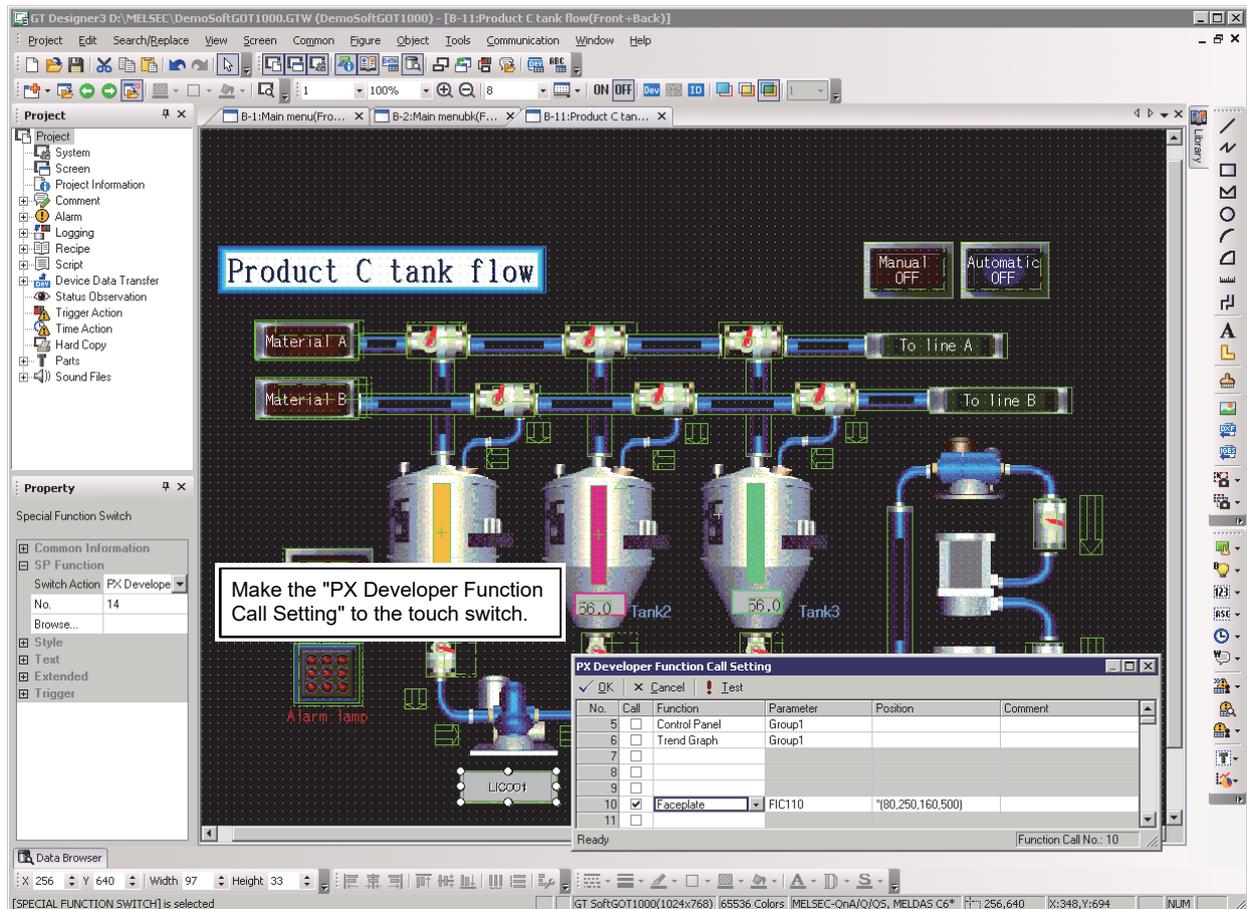
(2) Utilizing Microsoft® Visual Basic®

The MonCtrl command and ActiveX control which controls the Monitor tool enable to create a graphic screen application with great flexibility.

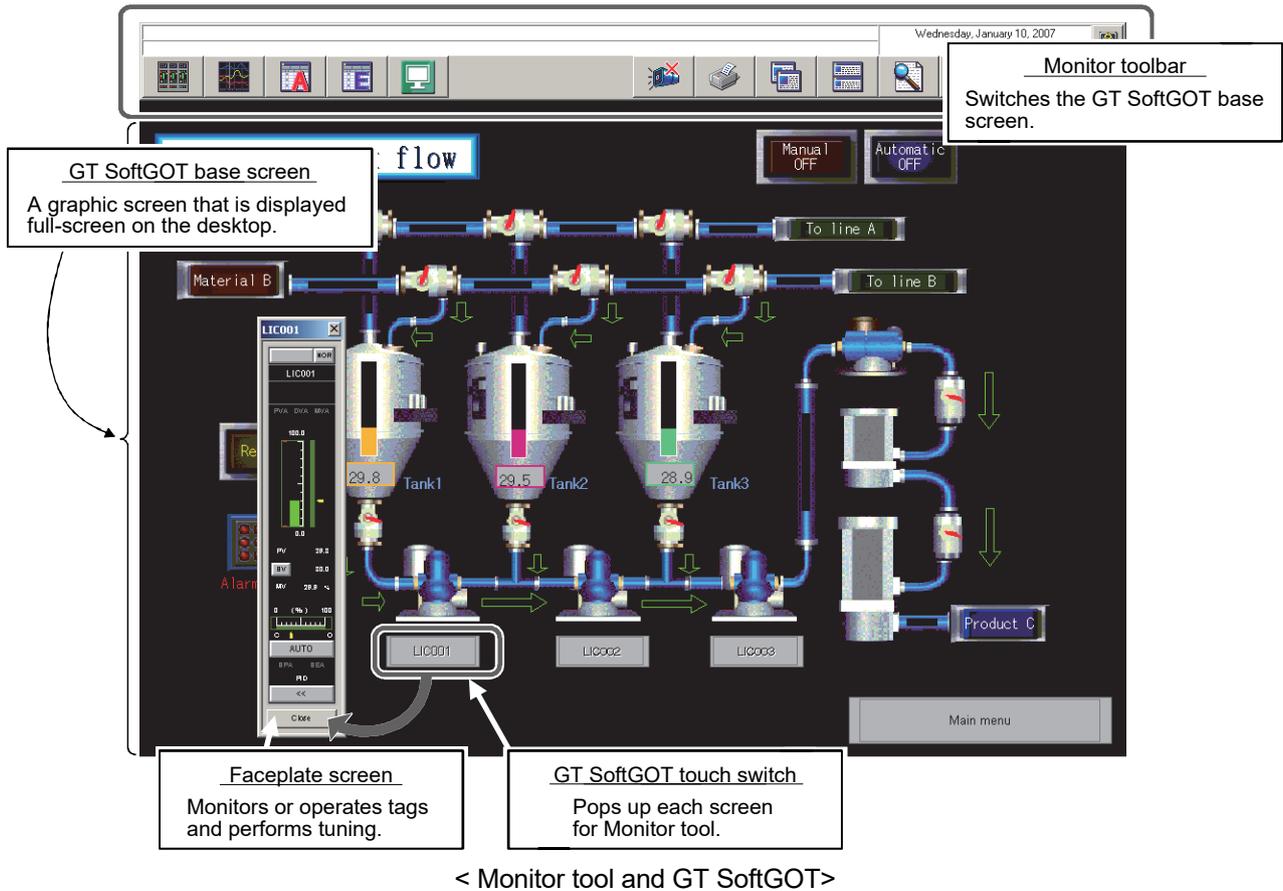
11.1 Utilizing GT SoftGOT

GT SoftGOT can call the PX Developer monitor tool function.

GT SoftGOT can be started by specifying a base screen with PX Developer Monitor tool. The security level in accordance with the user authority can be specified when starting GT SoftGOT.



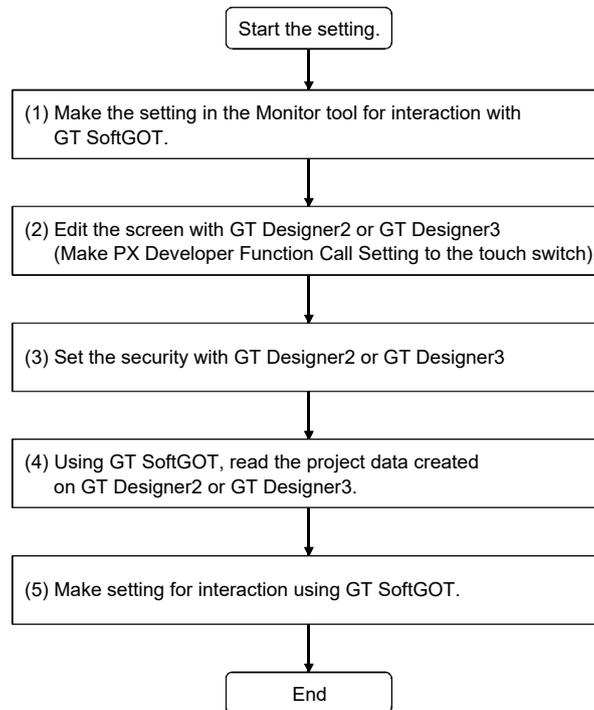
<GT Designer3>



- POINT**
- For compatible software package versions, refer to Section 2.2.
 - For using method of GT SoftGOT, GT Designer2 and GT Designer3, refer to the following manuals.
 - GT SoftGOT2000 Version 1 Operating Manual
 - GT SoftGOT1000 Version 3 Operating Manual for GT Works3
 - GT SoftGOT1000 Version 2 Operating Manual
 - GT Designer3 (GOT2000) Screen Design Manual
 - GT Designer3 Version 1 Screen Design Manual (Fundamentals)
 - GT Designer3 Version 1 Screen Design Manual (Functions)
 - GT Designer2 Version 2 Screen Design Manual (For GOT1000 Series)

11.1.1 Setting procedure to use the interaction function between the Monitor tool and GT SoftGOT

The following flowchart shows the setting procedure to use the Monitor tool and interaction function in GT SoftGOT.



(1) Making the setting in the Monitor tool for interacting with GT SoftGOT

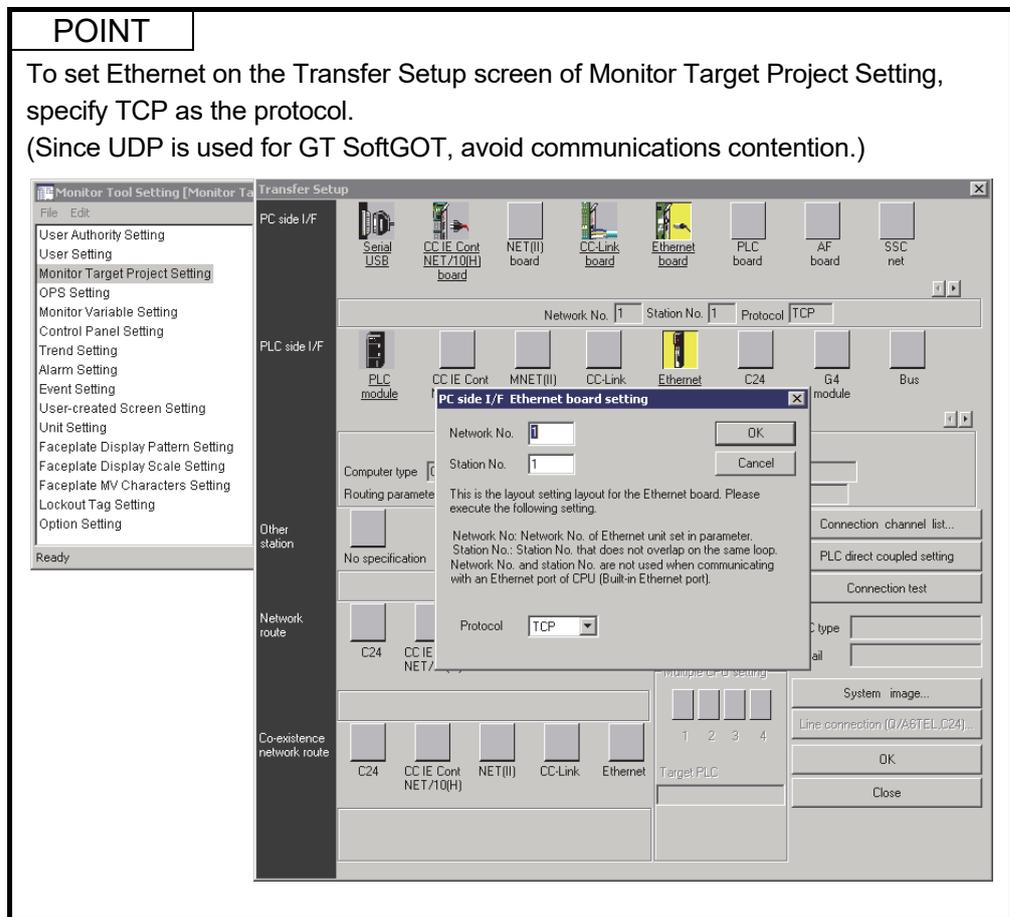
Make the following settings in the Monitor tool.

- 1) Setting the monitor target project (☞ Section 9.4)
- 2) Setting the user-created
Specify the module number of GT SoftGOT to be started to the argument (☞ Section 9.11).
- 3) Setting the control panel (☞ Section 9.7)
Set the control panel to display it on GT SoftGOT.
- 4) Setting the trend graph (☞ Section 9.8)
Set the trend graph to display it from GT SoftGOT.

POINT

To set Ethernet on the Transfer Setup screen of Monitor Target Project Setting, specify TCP as the protocol.

(Since UDP is used for GT SoftGOT, avoid communications contention.)



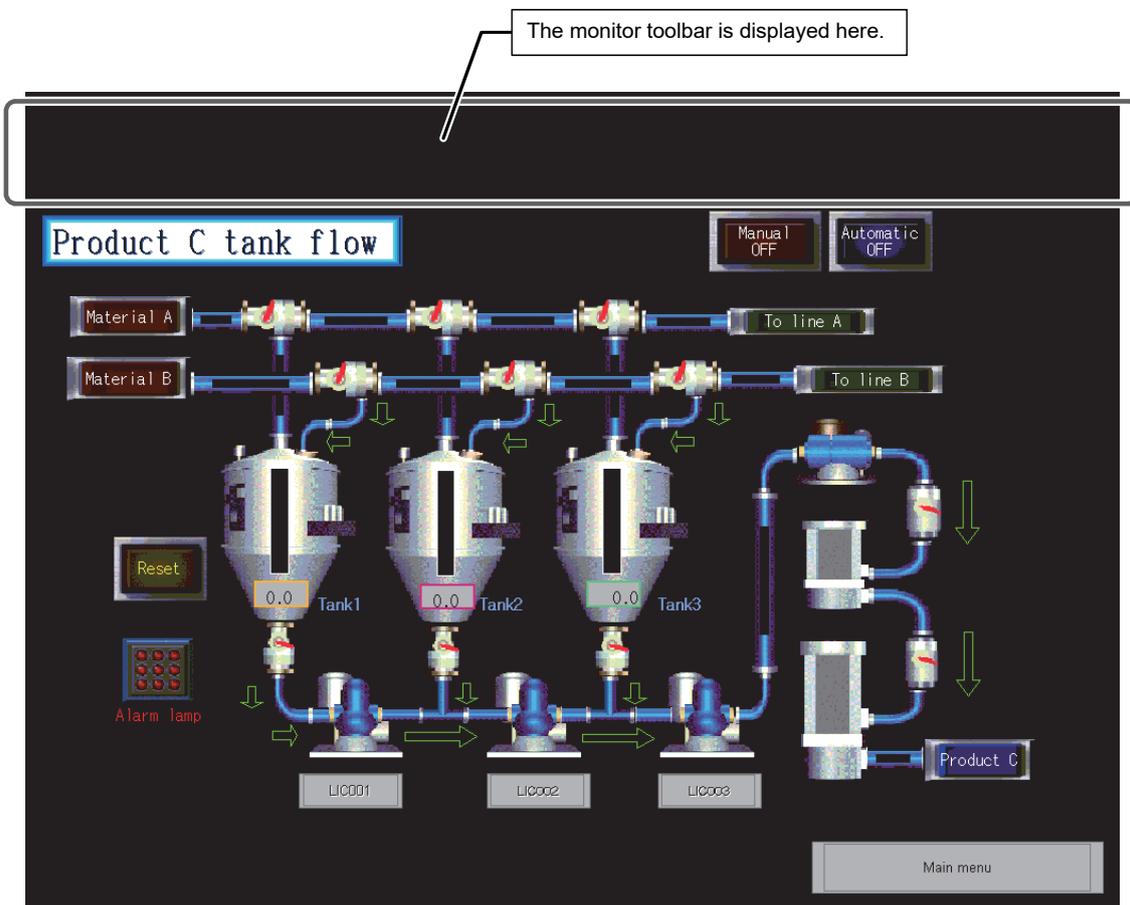
(2) Editing with GT Designer2 or GT Designer3 (Making PX Developer Function Call Setting to the touch switch)

- Positioning the base screen

Edit a screen for monitoring.

When displaying GT SoftGOT in full screen mode, make the margin by the following areas.

Screen resolution (width) [pixel]	Display area for the Monitor tool (vertical length from the top of the screen) [pixel]
Less than 1280	86
1280 or more	102

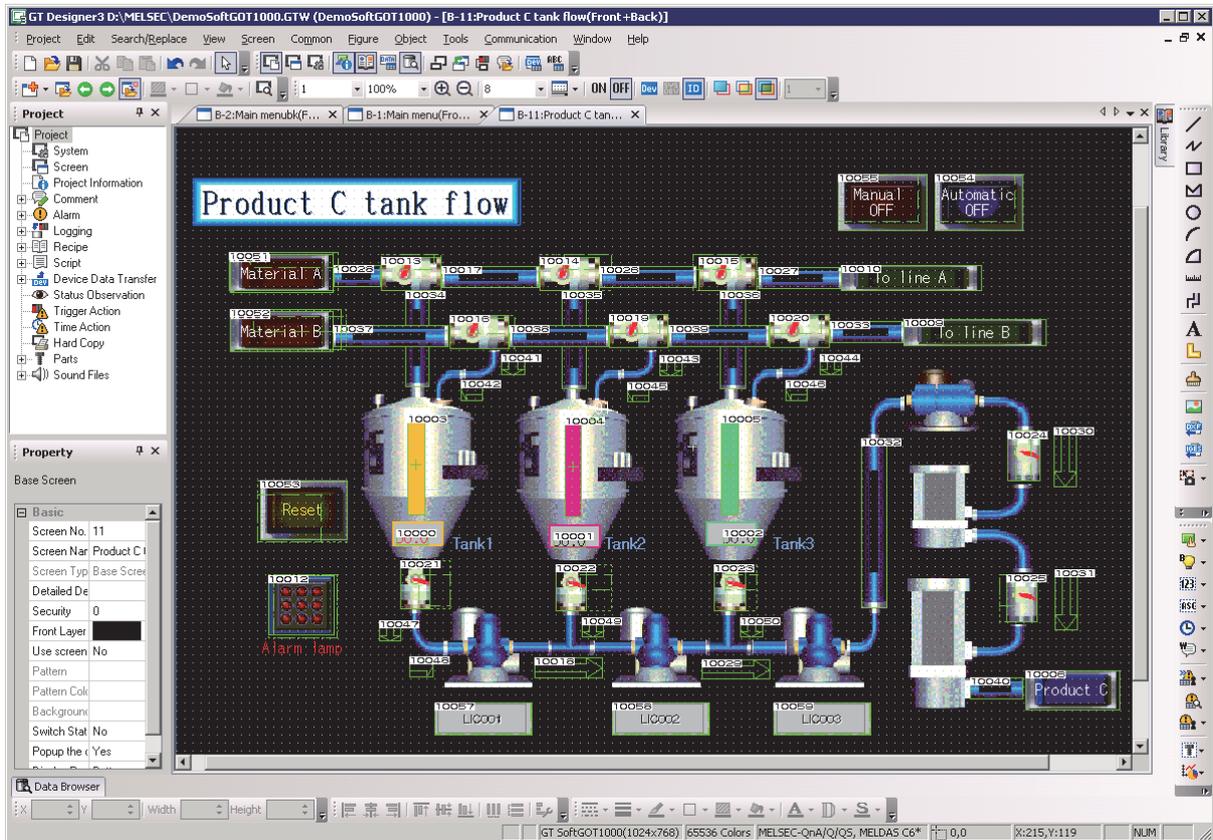


POINT

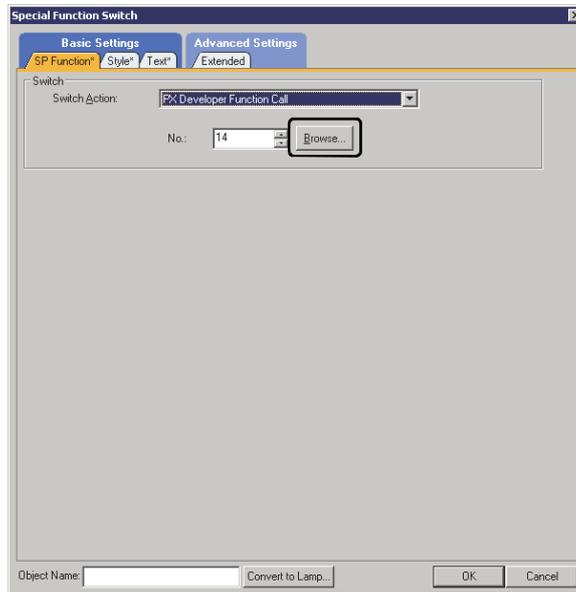
If the monitor toolbar is not displayed on the upper part of GT SoftGOT in full screen mode due to overlapping, start software in the order of the monitor tool and GT SoftGOT, so that they can be displayed.

- Setting the touch switch
The following shows the method for the setting to start the faceplate with the touch switch.

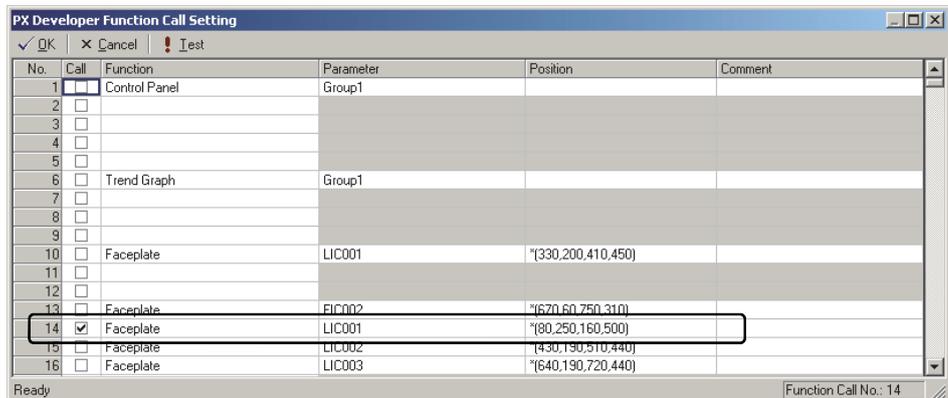
1) Double-click the touch switch.



- 2) Select "PX Developer Function Call" item in Switch Action, and click the "Browse..." button.



- 3) Register the function to be called with "PX Developer Function Call Setting" dialog box for specifying it.



(3) Setting the security with GT Designer2 or GT Designer3

The following shows the setting method for security level authentication with GT Designer3.

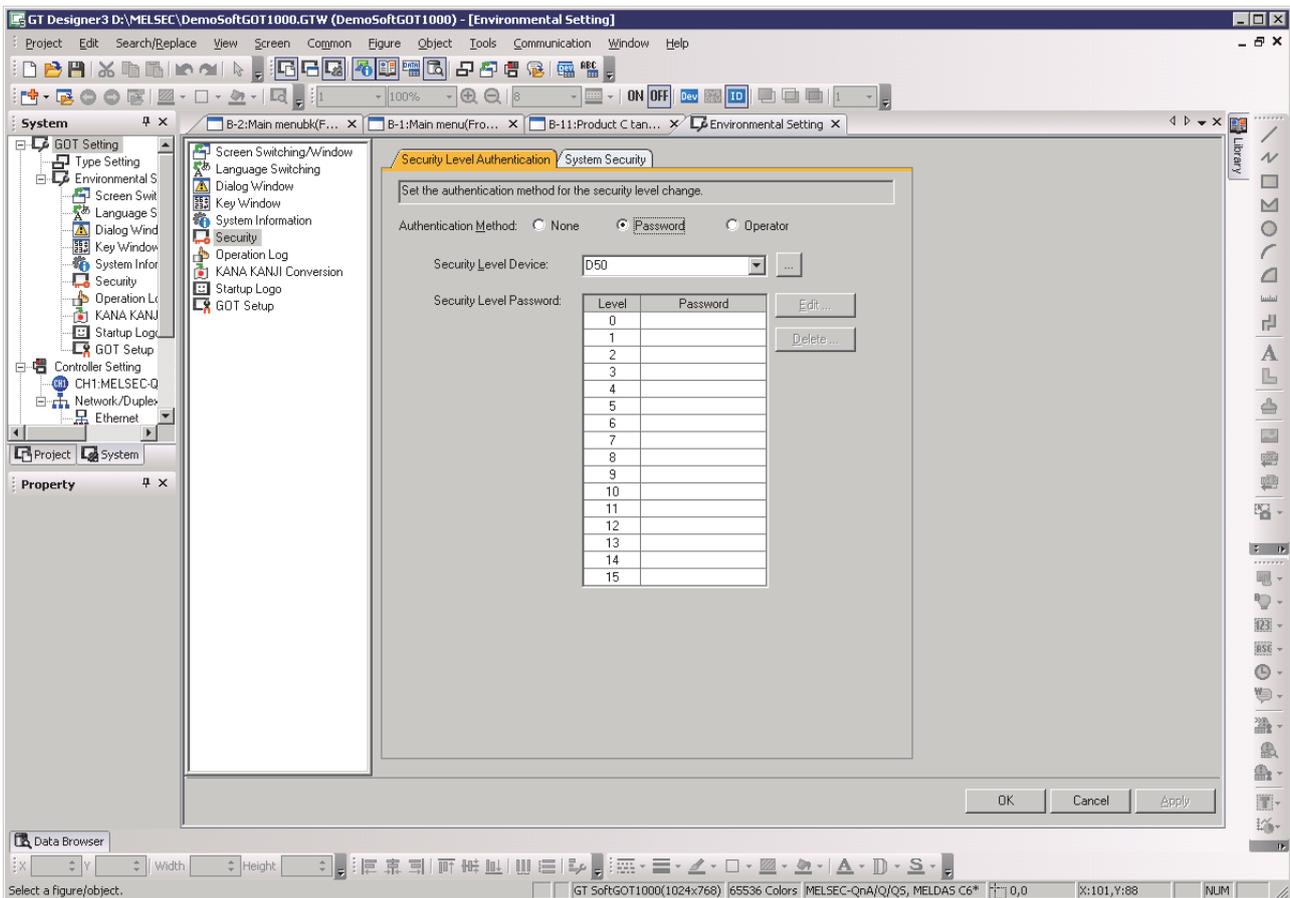
For details of setting method with GT Designer2, refer to "GT Designer2 Version 2 Screen Design Manual".

- 1) Set the following on the Environmental Setting screen displayed with selecting [Security...] under [Common] → [GOT Environmental Setting] on the menu.

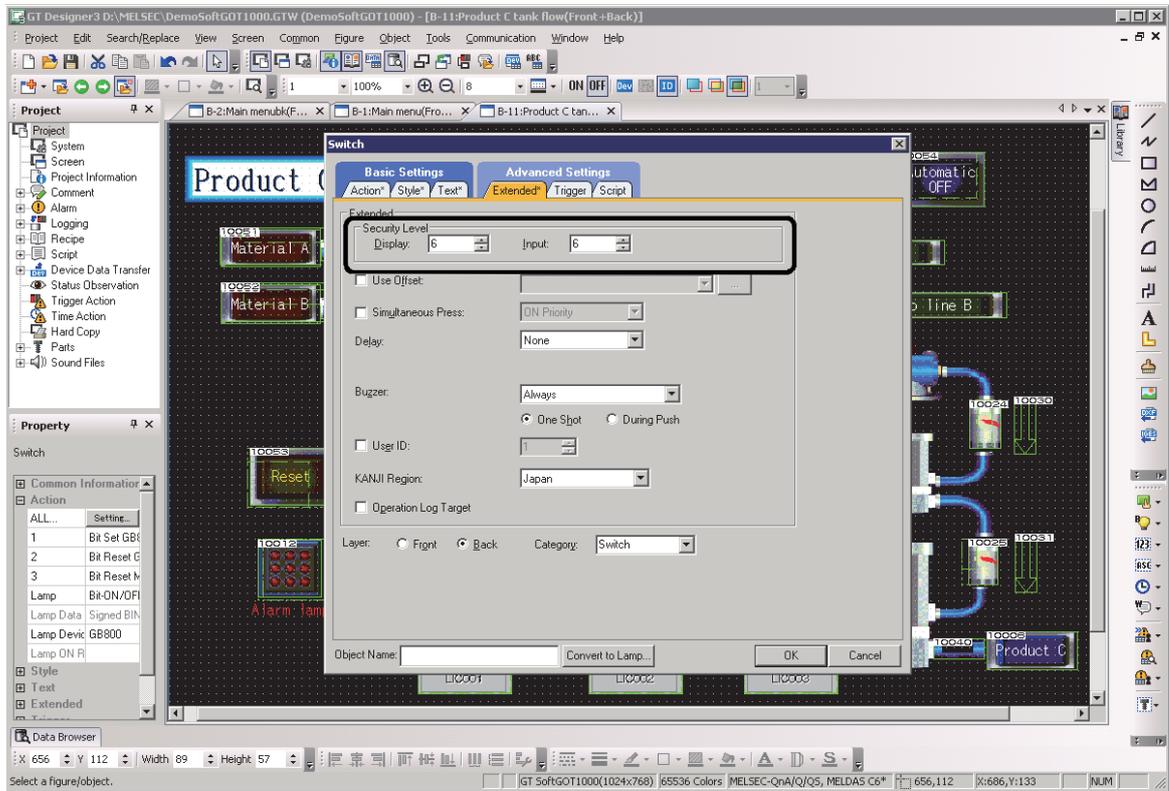
Authentication Method : Password *1
 Security Level Device : desired device
 Security Level Password : no setting *2

*1: "Level" for GT Designer3 (GOT2000)

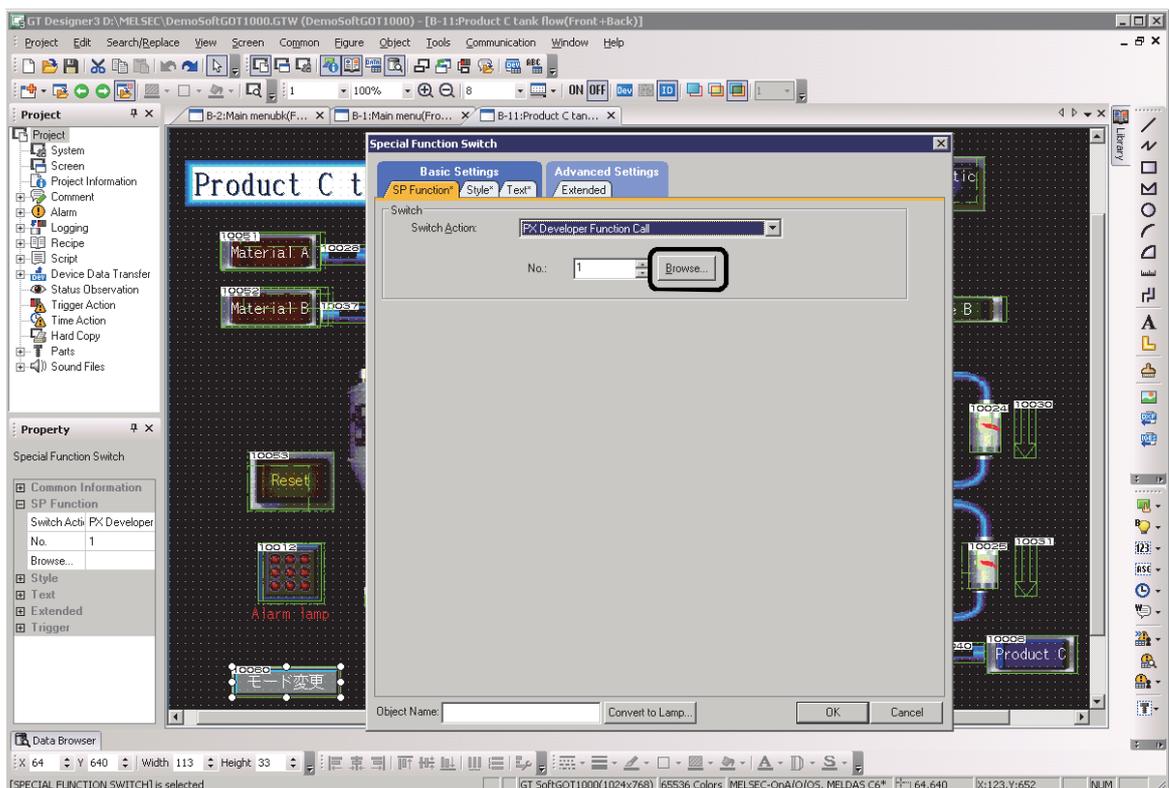
*2: When executing security interaction between PX Developer and GT SoftGOT, the security level of GT SoftGOT is changed to that of the corresponding user authority of the monitor tool. Therefore, do not set a password to avoid the security level change with GT SoftGOT.



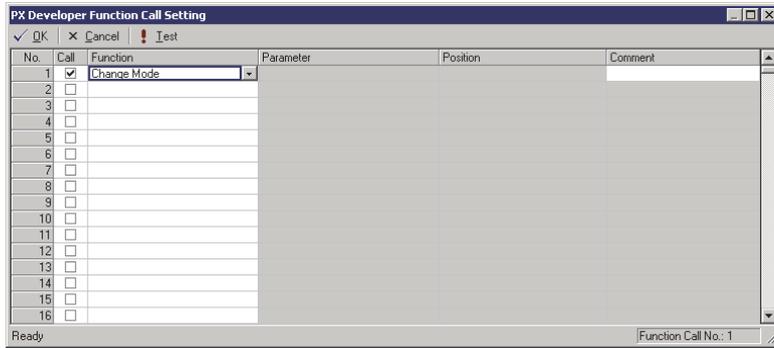
- Set the security level (0 to 15) that is required to display or input on the screen properties or advanced setting of objects.



- Select "PX Developer Function Call" from "Switch Action" displayed by double-clicking special function switch, and click the "Browse..." button.



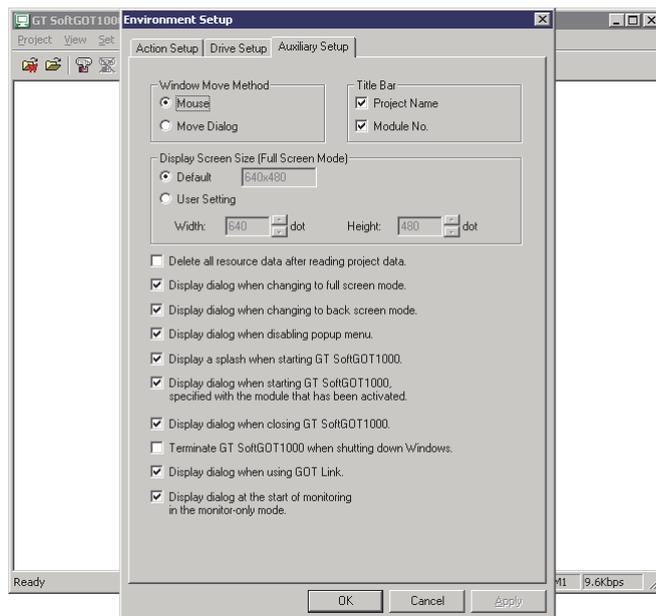
- 4) Register "Change Mode" on the "PX Developer Function Call Setting" dialog box being displayed.



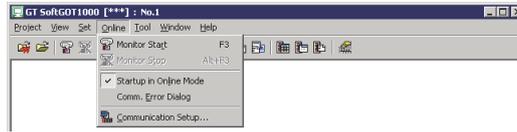
- (4) Using GT SoftGOT, read the project data created on GT Designer2 or GT Designer3.
- (5) Making setting for interaction using GT SoftGOT.
 - 1) Setting necessary items

The following table shows the required setting items for interaction with GT SoftGOT.

Item	Description
Display dialog when starting GT SoftGOT1000 (2000), specified with the module that has been activated.	Has to be unchecked. The dialog box is not displayed at base screen switching by unchecking this item.
Display dialog when closing GT SoftGOT1000 (2000).	Has to be unchecked. A time-out error when the monitor tool setting screen is displayed can be avoided by unchecking this item.



Item	Description
Startup in Online Mode	Has to be checked. A monitor starts immediately after GT SoftGOT start-up by checking this item.

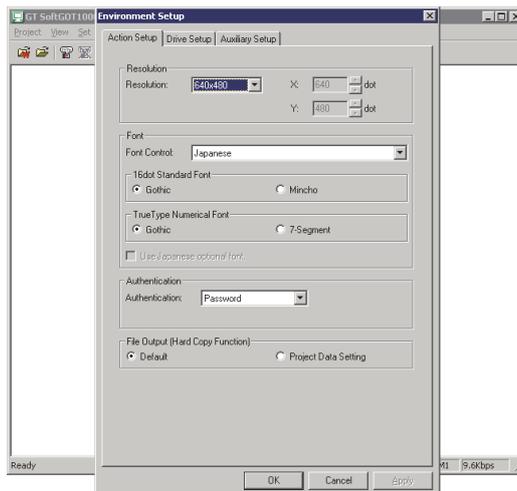
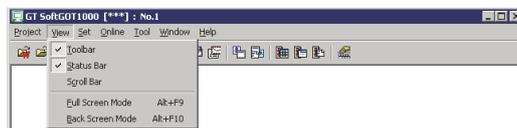


2) Setting optional items

The following table shows the optional setting items for interaction with GT SoftGOT.

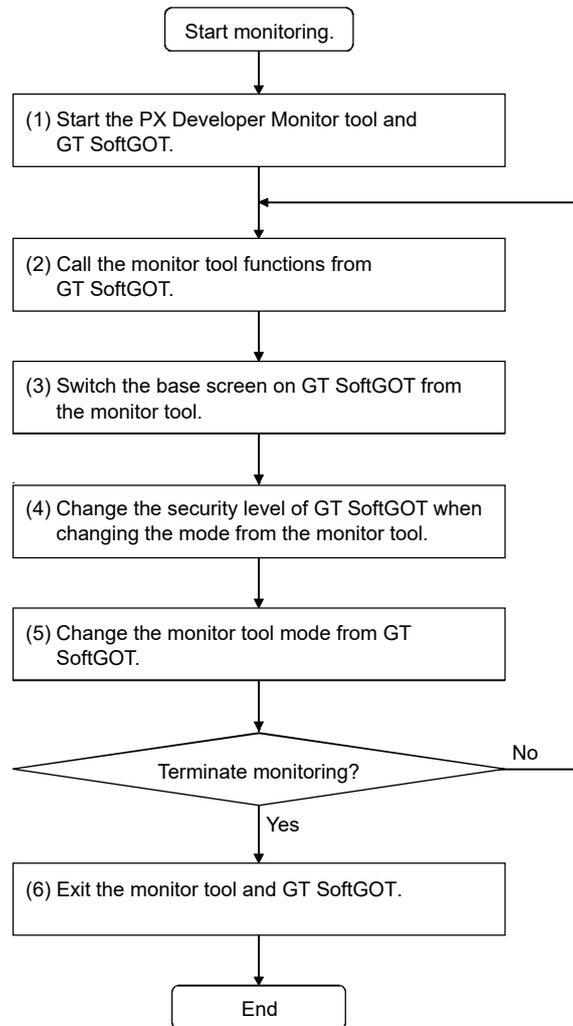
Item	Description	Remarks
Full Screen Mode	Displays GT SoftGOT in full screen mode.	Also selecting Back Screen Mode is recommended.
Back Screen Mode	Always displays GT SoftGOT to the backmost.	—
Authentication*1	Select a password.	The authentication "Security Level" of GT Designer2 and the authentic method "Password" of GT Designer3 are the same function, and both perform with the authentic method "Password" of GT SoftGOT1000.

*1: GT SoftGOT1000 only.



11.1.2 Monitoring procedure using the interaction function between the Monitor tool and GT SoftGOT

The following flowchart shows the monitoring procedure using the interaction function between the PX Developer monitor tool and GT SoftGOT.



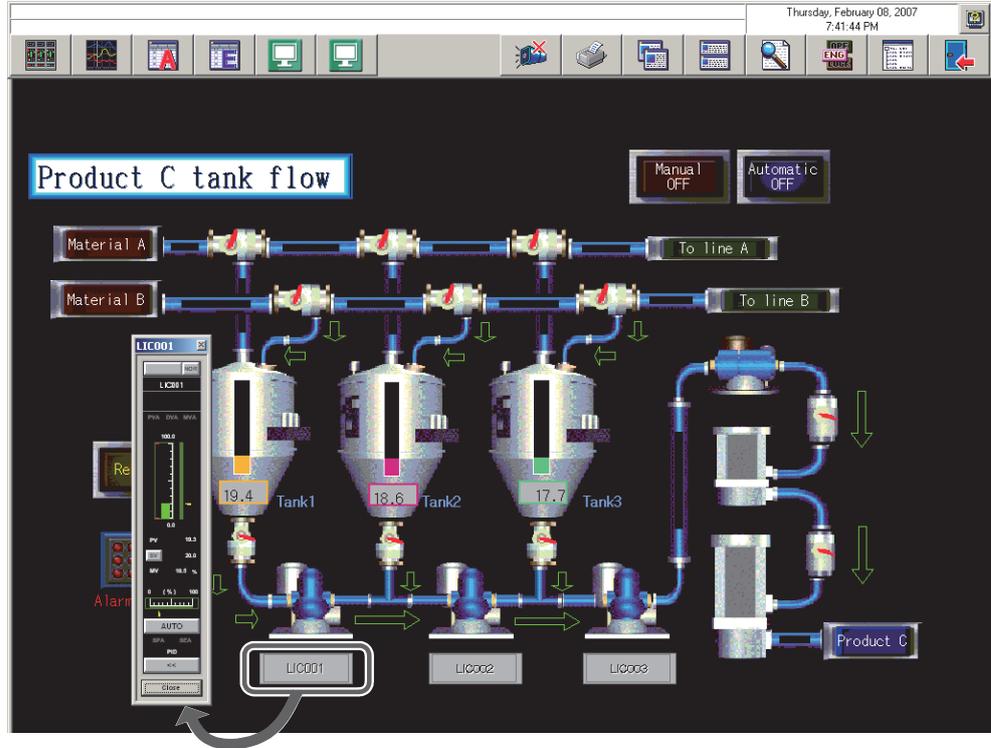
(1) Starting the PX Developer Monitor tool and GT SoftGOT (👉 Section 7.5)

- 1) Starting the Monitor tool
Start the Monitor tool from the Windows start menu.
- 2) Starting GT SoftGOT
Start GT SoftGOT with the user-created screen display button.



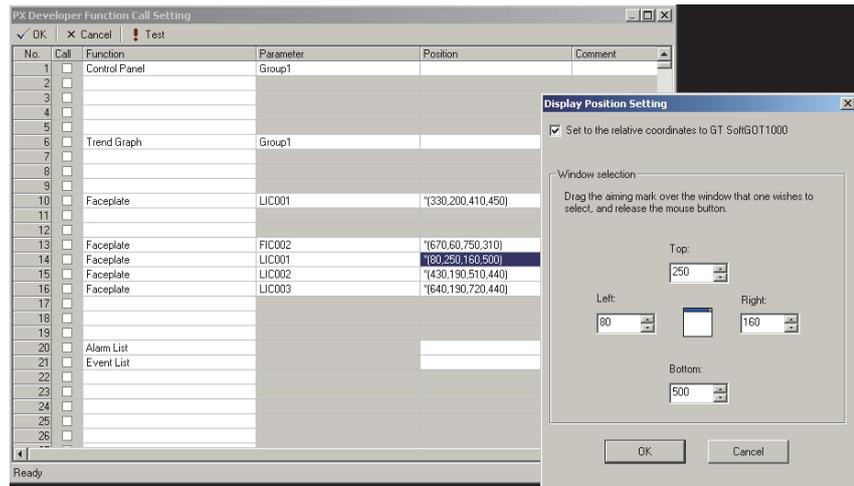
(2) Calling the monitor tool function from GT SoftGOT

Click the touch switch to which "PX Developer Function Call" has been set to call the monitor tool function.

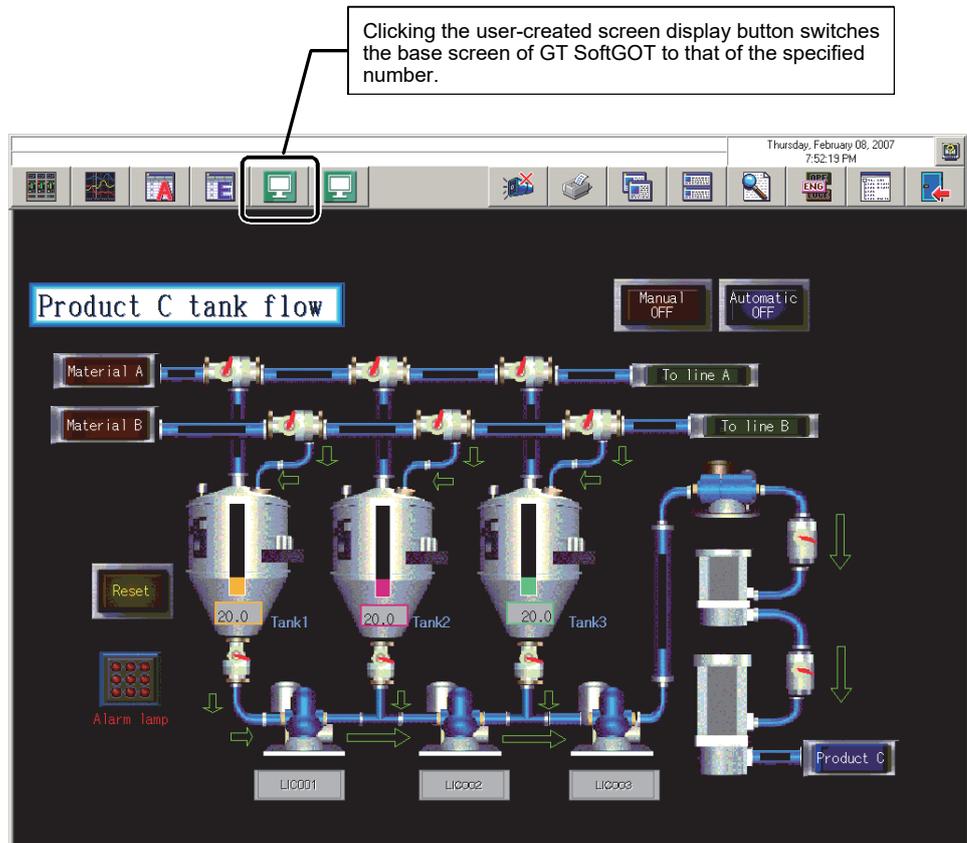


POINT

- A display position of the Monitor tool to be called can be adjusted as needed (The position can be changed with PX Developer Function Call Setting).



(3) Switching the base screen of GT SoftGOT from the Monitor tool



(4) Changing mode from the Monitor tool

When changing a mode of the monitor tool, the security level of GT SoftGOT is changed to that of corresponding user authority of PX Developer.

(5) Changing mode of the Monitor tool from GT SoftGOT

Display the "Change Mode" dialog box from a touch switch of PX Developer Function Call, and input a user name and a password to change a mode.

For executing security interaction between the monitor tool and GT SoftGOT, change the user authority with the Change Mode function.

Note that changing the security level by password authentication of GT SoftGOT or changing security level device value cannot change a mode of the monitor tool.

(6) Exiting the Monitor tool and GT SoftGOT

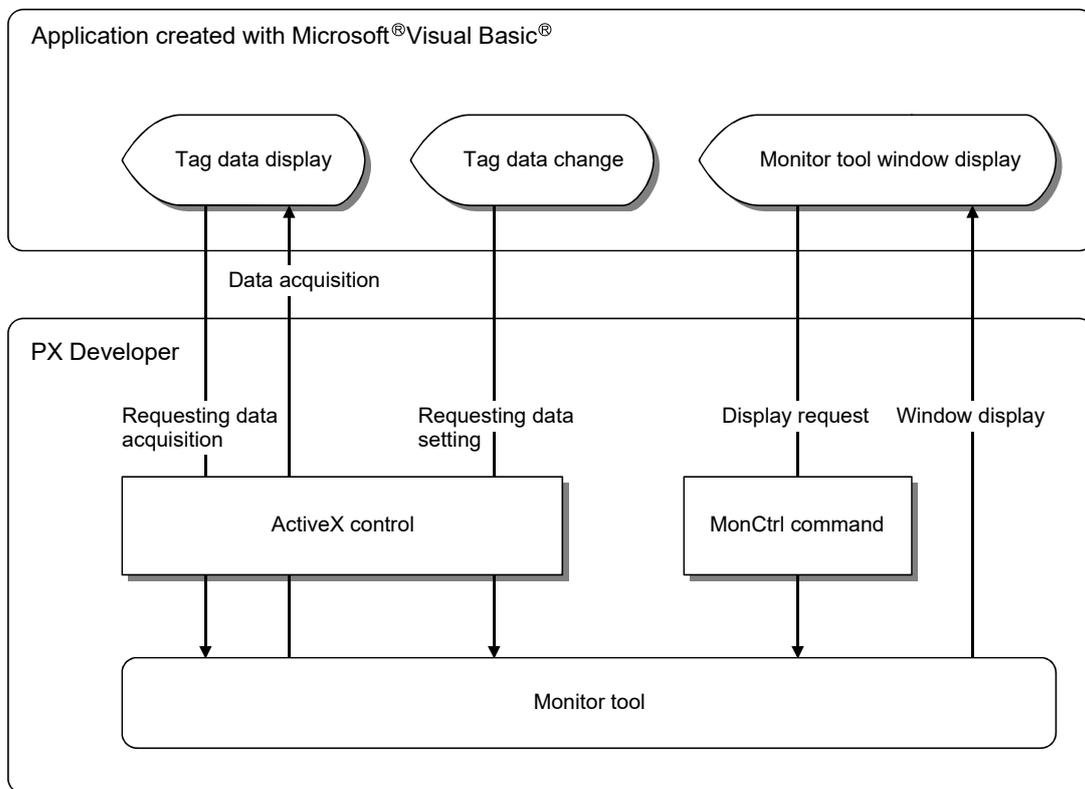
Clicking the Exit button on the Monitor tool exits the Monitor tool and GT SoftGOT started with the user-created screen display button on the Monitor tool.



11.2 Utilizing Microsoft® Visual Basic® Application

When using Microsoft® Visual Basic®, MonCtrl command (Appendix 5.2) and ActiveX control (tag data access control and faceplate control) which externally control the Monitor tool allow to create graphic screen applications with great flexibility.

Function	Description	Measures	Reference
Tag data acquisition/ setting	Can obtain and set a tag data item value.	ActiveX control (tag data access control)	Appendix 5.1.1
Faceplate display	Can display a pop-up faceplate. Can embed a faceplate on the screen of external application.	ActiveX control (faceplate control)	Appendix 5.1.2
Monitor tool calling	Calls each function of the Monitor tool.	MonCtrl command	Appendix 5.2



POINT

Further, the interaction function with the following SCADA software is available in PX Developer.

- Wonderware InTouch Version 10.0 or 10.1
- JoyWatcherSuite Version 6.0

For details, refer to the following manuals.

- PX Developer Version 1 Operating Manual (InTouch Interaction)
- PX Developer Version 1 Operating Manual (JoyWatcherSuite Interaction)

Note that the operations are not guaranteed when using the mixture of the SCADA software other than mentioned above and ActiveX control provided by PX Developer.

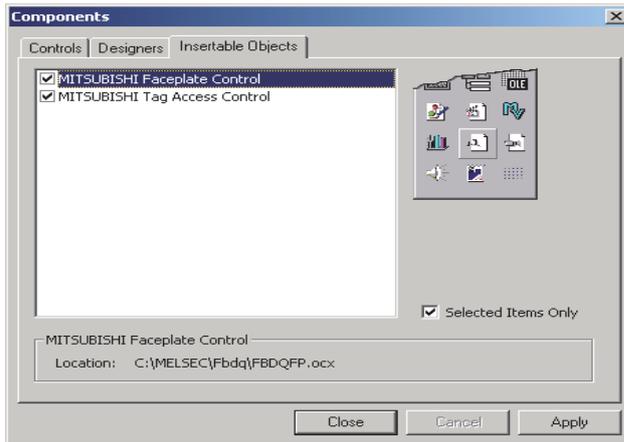
Check the system before the operations.

11.2.1 Using procedure for ActiveX control

The operation steps in using tag data access control and faceplate control in Visual Basic® are as follows.

For detailed operation methods, refer to manuals and help of Visual Basic® .

(1) Setting method with Visual Basic® 6.0



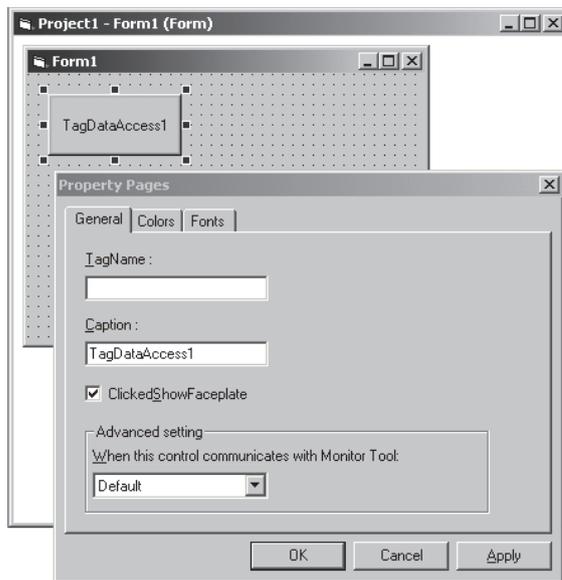
1. Click [Project] → [Components...] on the menu.
2. Click the <<Insertable Objects>> tab and select "MITSUBISHI Faceplate Control" and "MITSUBISHI Tag Access Control".
3. Click the "OK" button.



4. "MITSUBISHI Tag Access Control" and "MITSUBISHI Faceplate Control" are added to the tool box.

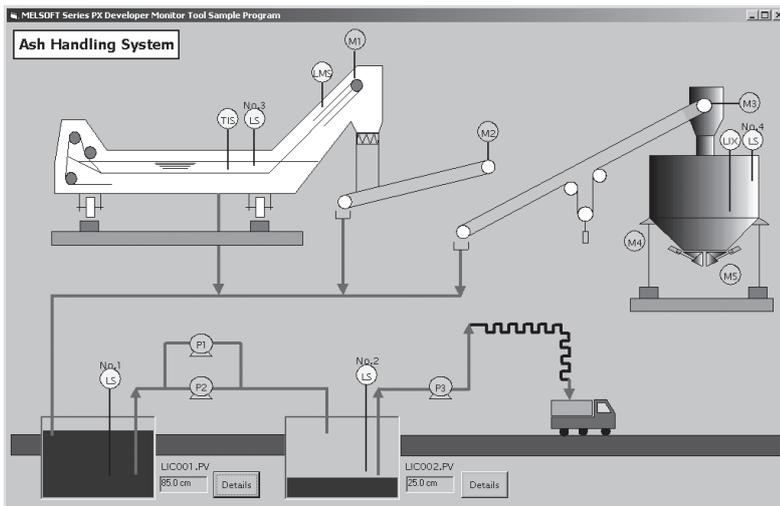
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5. Deploy "MITSUBISHI Tag Access Control" and "MITSUBISHI Faceplate Control" as the usual command buttons on the form of the user-created screen.

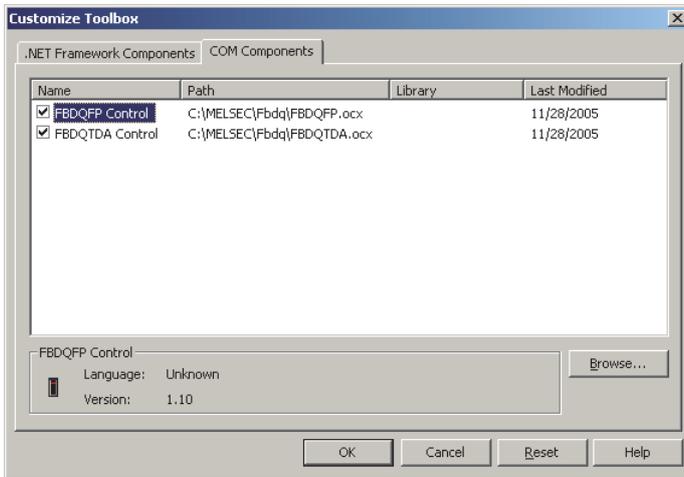
6. Display the control property dialog box and specify tag name (TagName). Other programs related to screen display such as color and character display are executed in the case of "MITSUBISHI Tag Access Control".



7. Create the exe format application that are created by compiling, which is displayed on user-created screen.

8. Start monitor tool and register the above application to user-created screen setting (see Section 9.11). Display user-created screen.

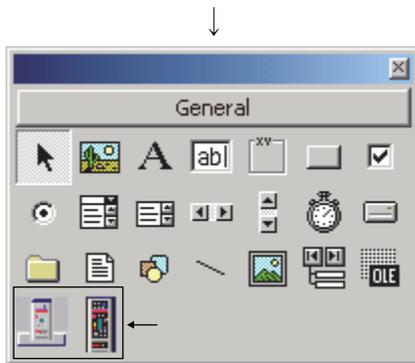
(2) Setting method with Visual Basic® .NET



1. Click [Tools] → [Add/Remove Toolbox Items...] on the menu. *1
2. Click the <<COM Components>> tab and select "FBDQFP Control" and "FBDQTDA Control".
3. Click the "OK" button.

*1: The menu name differs depending on Visual Basic® version being used. The menu names for versions are as follows.

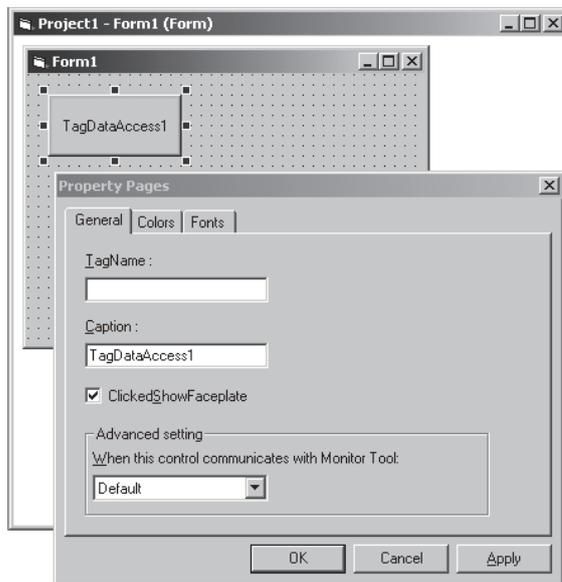
Version	Menu name
Visual Basic® .NET 2002	Customize Toolbox
Visual Basic® .NET 2003	Add/Remove Toolbox Items...
Visual Studio 2005/2008/2010 Visual Basic®	Choose Toolbox Items...



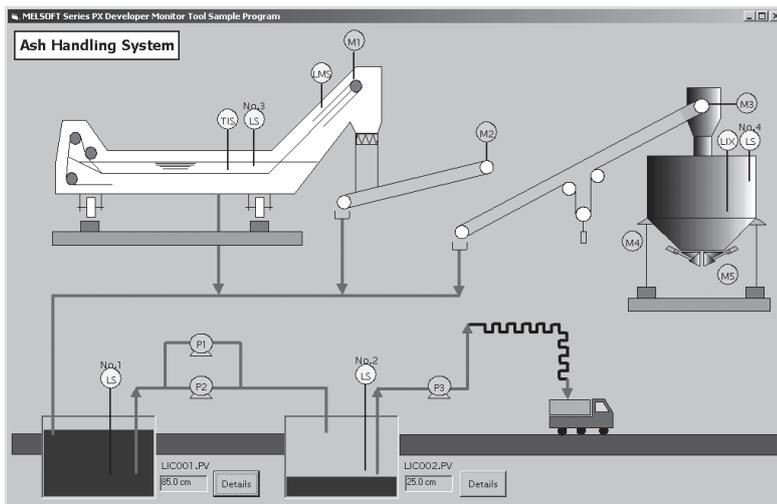
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4. "MITSUBISHI Tag Access Control" and "MITSUBISHI Faceplate Control" are added to the tool box.

(From the previous page)



5. Deploy "MITSUBISHI Tag Access Control" and "MITSUBISHI Faceplate Control" as the usual command buttons on the form of the user-created screen.
6. Display the control property dialog box and specify tag name (TagName). Other programs related to screen display such as color and character display are executed in the case of "MITSUBISHI Tag Access Control".



7. Create the exe format application that are created by compiling, which is displayed on user-created screen.
8. Start monitor tool and register the above application to user-created screen setting (see Section 9.11). Display user-created screen.

POINT											
	<ul style="list-style-type: none"> ● Please refer to contents in CD\SampleVB for sample data. ● If a project created with a Visual Basic® 6.0 is used in a Visual Basic® .NET, the project must be upgraded for a Visual Basic® .NET according to the "Visual Basic Upgrade Wizard" that is opened and displayed in a Visual Basic® .NET. Note that as for "tag data access control" offered by a monitor tool, the following corrections may be required after upgrading. 										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Property</th> <th style="width: 55%;">Case that the corrections are necessary</th> <th style="width: 30%;">Correction method</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Item</td> <td>When acquiring or setting the Item property value, the following notation appears and the conversion is unsuccessful in upgrading, therefore a compile error occurs. TagAccess1!PV TagAccess1 ("PV")</td> <td>Refer to Appendix 5.1.1 [1] (2) and correct the sentence structure for a Visual Basic® .NET.</td> </tr> <tr> <td style="text-align: center;">BackColor</td> <td>BackColor property value of tag data access control remains default (&H8000000F) and turns black (&H00000000) after upgrading.</td> <td>Correct the BackColor property to the default.</td> </tr> </tbody> </table>	Property	Case that the corrections are necessary	Correction method	Item	When acquiring or setting the Item property value, the following notation appears and the conversion is unsuccessful in upgrading, therefore a compile error occurs. TagAccess1!PV TagAccess1 ("PV")	Refer to Appendix 5.1.1 [1] (2) and correct the sentence structure for a Visual Basic® .NET.	BackColor	BackColor property value of tag data access control remains default (&H8000000F) and turns black (&H00000000) after upgrading.	Correct the BackColor property to the default.	
Property	Case that the corrections are necessary	Correction method									
Item	When acquiring or setting the Item property value, the following notation appears and the conversion is unsuccessful in upgrading, therefore a compile error occurs. TagAccess1!PV TagAccess1 ("PV")	Refer to Appendix 5.1.1 [1] (2) and correct the sentence structure for a Visual Basic® .NET.									
BackColor	BackColor property value of tag data access control remains default (&H8000000F) and turns black (&H00000000) after upgrading.	Correct the BackColor property to the default.									
	<ul style="list-style-type: none"> ● Note that if the Visual Basic® project or SCADA application is edited and saved after uninstalling PX Developer, the original setting contents (Tag name etc.) of Active X (faceplate control, tag data access control) will be deleted when PX Developer is reinstalled ● For details of ActiveX control, refer to Appendix 5.1. ● Precautions for using Visual Studio 2010 Visual Basic® For a project where .NET Framework Version 4 of Visual Basic® project is used, building a project causes 2 alarm errors of BC40059 when a tag access control is set on a form of Visual Basic® . This alarm is not occurred by such as application operation. Method for avoiding occurrence of BC40059 alarm: <ol style="list-style-type: none"> 1) Select "Show All Files" from Solution Explorer. 2) Select "FBDQTDALib", "stdole" from the items of "References" on the displayed tree, and select "Properties" from the menu displayed by right-clicking. 3) Change "Embed Interop Types" from "True" to "False" on the displayed Properties, and build. 										

POINT

- Using Visual Studio 2005 Visual Basic® or later in 64-bit OS
Setting solution platform of Visual Basic® project to "x86" is required.

Method for setting solution platform of Visual Basic® project to "x86":

- 1) Select [Configuration Manager] *1 on the [Build] menu.
- 2) Select [<New...>] from the list box of [Platform] on the displayed "Configuration Manager" dialog box.
- 3) Select "x86" from the list box of [New Platform] on the displayed "New Project Platform" dialog box, and click the "OK" button.
- 4) Click the "Close" button on the "Configuration Manager" dialog box.

*1: When the [Configuration Manager] menu is not displayed, display the menu by the following operation.

- 1) Select [Options] on the [Tools] menu.
- 2) Select [General] under [Projects and Solutions] on a tree of displayed dialog box, check [Show advanced build configurations], and click the "OK" button.

- The sample program of Visual Basic® is stored on the product (\SampleVB folder). Following are the sample programs corresponding to versions.

Version	Sample program
Visual Basic® 6.0	VB6.0
Visual Basic® .NET 2002	VB.NET
Visual Basic® .NET 2003	
Visual Studio 2005 Visual Basic®	VB2005
Visual Studio 2008 Visual Basic®	
Visual Studio 2010 Visual Basic®	

12 TROUBLE OCCURRENCE

12.1 Troubleshooting

This section explains the possible troubles caused by monitor tool execution, the troubleshooting methods and reference section.

12

Trouble	Troubleshooting method	Reference
The monitor tool cannot be started	GX Developer Version 7.20W or later has not been installed when using PX Developer Version 1.04E or earlier. Install the GX Developer and start the monitor tool again.	Section 5.1
	Insufficient memory. Terminate other applications, and start the monitor tool again.	-
The monitor tool cannot be exited	The operation for exiting the monitor tool cannot be executed by a user without the authority. Ask a user who has the authority of operation for exiting the monitor tool to change the mode, and exit the monitor tool.	Chapter 4
	Insufficient memory. Terminate other applications, and start the monitor tool again.	-
The password is forgotten	Ask the authorized personnel to register the password in the user setting screen again.	Section 9.3
	If the user name and password for the registered engineer-authority user have been forgotten and the operation cannot be performed, set the "product ID" in the "User Name" and "Password". The mode can be changed using the first engineer-authority user registered in the user setting. (The product ID is given in the "License certificate" or "Software registration card" packed with the product. Replace delimiters in the product ID with "-".)	Section 4.7 Section 9.3
Buttons do not appear on the monitor toolbar	The incorrect mode has been selected. Change the mode into the correct one.	Section 6.3.1
The corresponding screen does not appear when a button is clicked on the monitor toolbar	The number of displayed monitor screens has exceeded the maximum. Close unnecessary screens and click the button again.	Section 6.4.2
	A setting screen is being displayed. Close the screen and click the button again.	Section 6.3.1 Section 9.1.1
	Insufficient memory. Terminate other applications, and start the monitor tool again.	-
The values are updated slowly in the monitor tool display	The FBD program may be too many or too large. Set "Communicates with peripherals after program execution" in Program Execution Setting of the PX Developer Programming tool.	Appendix 1.10 Programming tool*1
The faceplate does not appear in the control panel	The displayed target has not been set. Set the target.	Section 9.18.2
	The PLC connection target settings are wrong. Use the monitor tool to set the correct PLC connection target.	Section 9.4
	The communication with the monitor target cannot be done. Check the communication status on the alarm list screen and PLC communication status screen.	Section 7.3 Section 8.5
	The monitor target project and the CPU module that monitors it are different in the PLC type. Check the PLC type and PLC connection target on the monitor target project setting screen.	Section 9.4

*1: Indicates the PX Developer Version 1 Operating Manual (Programming Tool).

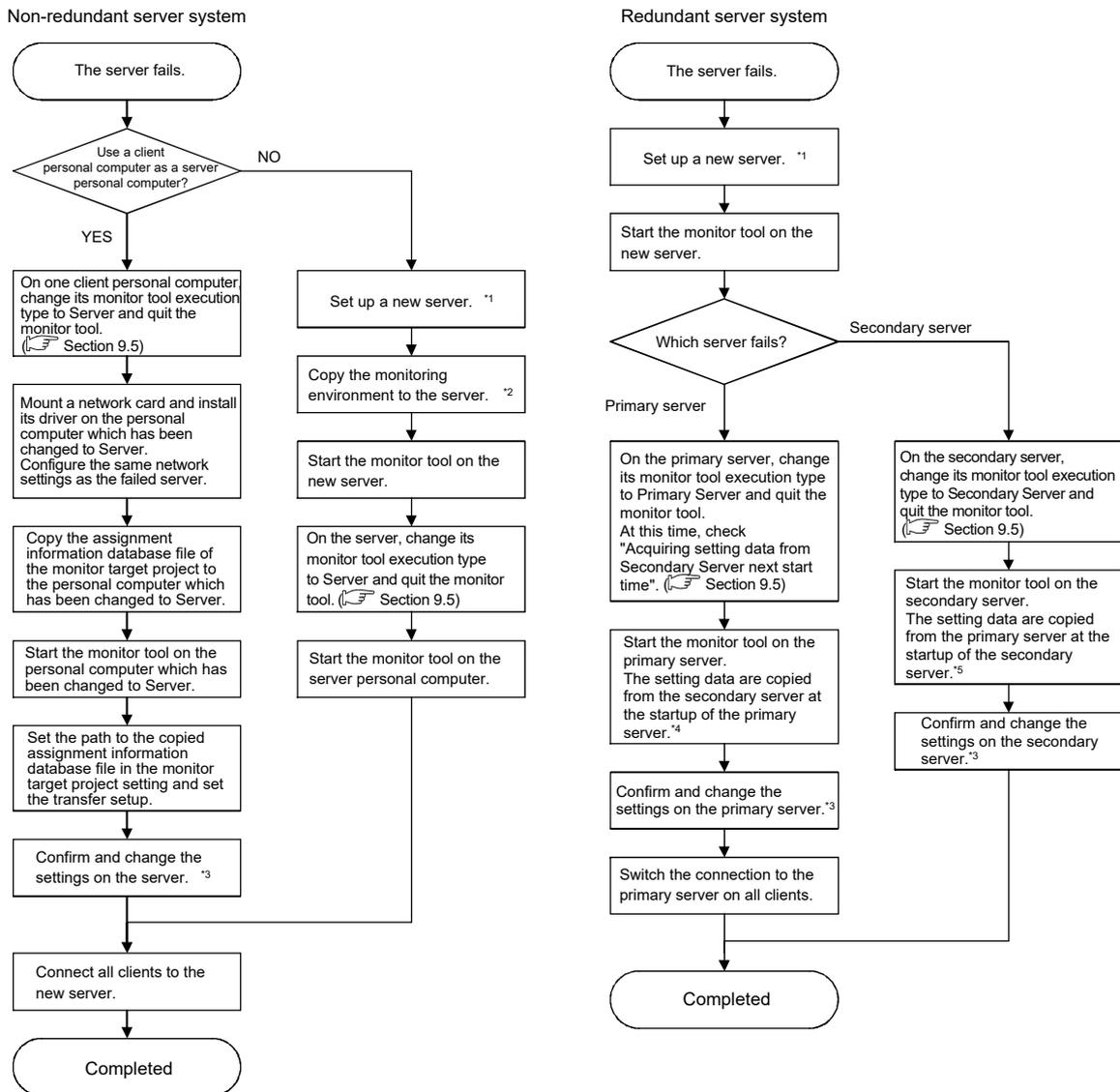
Trouble	Troubleshooting method	Reference
The occurred event and alarm are not displayed Or The occurred event and alarm are not immediately displayed	In the case of PLC direct connection (RS-232, USB, and the built-in Ethernet port of a built-in Ethernet CPU (by direct connection), CC-Link, Simulator, GOT transparent, the event notification and alarm notification will not be performed, as the event notification function is not available.	Appendix 1.2.1
	The character string of the event or alarm has not been defined. Set the character string of the event or alarm.	Section 9.18.4 to Section 9.18.5
	The PLC connection target settings are wrong. Use the monitor tool to set the correct PLC connection target.	Section 9.4
	The communication with the monitor target cannot be done. Check the communication status on the alarm list screen and PLC communication status screen.	Section 7.3 Section 8.5
	The event notification target (event notification target within a CPU module) settings made by the programming tool are wrong. Use the programming tool to set the correct event notification target. Also, carry out the following check and setting operations relevant to event notification. (Ethernet connection) <ul style="list-style-type: none"> • Use GX application to check the "open setting" of network parameter and set the IP address and port number of the communication target for broadcasting. • Use GX application to check the port number of communication target set in "open setting" of network parameter. Then, set the same value as the port number of communication target to the "Event Notification UDP Port No.(HEX)" in the option setting of monitor tool. (CC-Link IE Controller Network, MELSECNET/10(H) connection) Set the same value to the network No. and station No./group No. for the following : The personal computer of event notification target set in the event notification settings within the project parameter settings of the programming tool, and the CC-Link IE Controller Network board and MELSECNET/10(H) board of the personal computer that is executing the monitor tool.	Appendix 1.2.2 Programming tool*1
	Due to the security enhancement function (Windows® firewall), event notification from the PLC CPU in Ethernet connection is blocked. Add the Monitor tool to the Exceptions setting of Windows® Firewall.	Appendix 1.2.2
The error message box of "Failed in creating new window" is displayed	Insufficient memory. Terminate other applications, and start the monitor tool again.	-
The error message box on the user-created screen is displayed	Refer to the error list.	Appendix 5.1.1[4] Appendix 5.1.2[2]
The current value of tag data item cannot be changed from tag monitor	The operation for changing the tag data items cannot be executed by a user without the authority. Ask a user who has the authority of operation for changing the tag data items to change the mode, and change the current value.	Chapter 4
The error message dialog box of "Communication status is abnormal" during tag data write, etc. is displayed	Confirm that the communication cable has been correctly connected. Check the PLC connection target set in the monitor target project setting. Double-click the corresponding alarm item in the alarm list to display the "System Alarm Details" dialog box. Take the corrective action according the displayed error.	Section 2.1.3 Section 7.3 Section 9.4

*1: Indicates the PX Developer Version 1 Operating Manual (Programming Tool).

Trouble	Troubleshooting method	Reference
The error message dialog box of "The Project ID Code of the Monitor Target Project is different from that in the PLC due to the following causes:" is displayed	The monitor target project set with the monitor tool and that within CPU module are different. Reload the monitor target project. Also when the download to PLC is performed with the programming tool, reload the monitor target project.	Section 9.4 GX Works3 Operating Manual Programming tool*1
Reinstalling the tool initializes the user settings	Installing the monitor tool (Version 1.00A) initializes (i.e., makes it admin settings only) the user settings (user name, password, authorization). Make the settings in the user setting screen again.	Section 4.7 Section 9.3
Assignment information database file of Version 1.01B or earlier cannot be set as the monitor target project.	This happens because the assignment information database file is the old version. Convert the assignment information database file by switching to the monitor mode in the PX Developer Programming tool of Version 1.02C or later.	Section 9.4 Appendix 7.2 Programming tool*1
The redundant system A/B identification error occurs when connecting with the control system IP address	The control system IP address cannot be used in the monitor tool. Set "Use of Control System IP Address" of the module parameter to "Not Use".	Section 2.1

*1: Indicates the PX Developer Version 1 Operating Manual (Programming Tool).

The following flowcharts show the recovery procedures in case of server failure.



- *1: Mount a network card and install its driver on the personal computer. Configure the same network settings as the failed server.
Install PX Developer, and as necessary, install user-created applications and sound files for alarm/event.
- *2: Copy the backup copy of the setting data.
Files need to be backed up in advance are all files in the Prjdata folder and 'M_SET.mdb' and 'M_USER.mdb' in the Setdata folder in the installation destination folder.
As necessary, make a backup copy of the assignment information database file of the monitor target project and copy it.
For the method for copying the setting data, refer to Section 9.1.4.
- *3: Confirm that the path of each folder/file is appropriate for the environment of the new server.
- *4: Confirm that the secondary server is running.
- *5: Confirm that the primary server is running.

12.2 Convenience Function

This section illustrates the functions that can be used in accordance with the "Such things desired to do" requirements of the monitor tool. It also indicates the reference chapters and sections about these functions.

Things desired to do	Methods	Reference
To make a file according to the monitoring result.	Use the "Print Screen" function to print a displayed screen	Section 8.2
	Use the "Print" function to print the result.	Section 7.3.6 Section 7.4.5
	Use the "Export to CSV File" function and use the EXCEL (Software to edit an output file.)	Section 7.2.6 Section 7.3.7 Section 7.4.6 Section 7.7.7
To make a file according to the setting contents	Use the "Export to CSV File" function and use the EXCEL Software to edit an output file.	Section 9.1.3
	Use the "Edit" function (Cut/Paste) to directly paste the contents of a grid into the Editor Software or the EXCEL Software.	Section 9.1.1
To make a backup of the setting contents	Save the set contents to the folder: Melsec\Fbdq\set data	Section 2.3 Section 9.1.3
To zoom out a screen display	Change the sizes of the screens freely.	Section 6.2.2 Section 6.2.5
	Always keep the window in maximum size if it is a Single-Window mode monitoring screen	Section 9.18.14
	Change the display scale of a Trend Graph.	Section 7.2.5 Section 7.7.6
To change the display colors	Set the display color of the faceplate freely. Set the display colors of the title bar of the dialog box and the screen according to the color settings of the personal computer.	Section 9.18.9
To find occurrence of warnings/events immediately	Display the latest alarm/event content specified in the monitor toolbar.	Section 6.3.1
	Make the beep sound when an alarm/event occurs.	Section 9.18.10 Section 8.1
To display tag data in a special monitor screen	Use "ActiveX control" to produce user-created screens by yourself	Chapter 11 Section 7.5
To use the entire computer screen without displaying the monitor toolbar	Hide the monitor toolbar to start. Additionally, control application programs can be used for external control to change the monitor toolbar between Display and Hide.	Appendix 3.1 Appendix 3.2
To start the monitor tool by the mode that matches the authority of the specified user	The mode that matches the authority of the specified user can start the monitor tool.	Appendix 3.3
Not to operate the "Exit" button but use the software control executed externally to close the monitor tool	Exit the monitor tool via the external control application programs.	Appendix 5.1
To output the trend, alarm and event data to CSV files automatically	With the automatic CSV file export function, the trend, alarm and event data can be saved in CSV files automatically as histories.	Section 8.7

APPENDIX

Appendix 1 Communication of the Monitor Tool

For the monitor tool, multiple communication methods can be combined for monitoring so as to maintain the communication performance when the amount of the monitored targets increase. Here each communication method is targets respectively.

Appendix 1.1 Communication types

Communications between the monitor tool and CPU module can be generally classified as follows.

APP

Communication type		Description	Purpose
Event notification*1 (alarm notification, event notification)		The CPU module initiatively notifies the monitor tool after it detects changes of the alarm/event signal within each tag data.	Monitor the occurrence of alarms and events.
Current value collection	High-speed current value collection *1	Poll current value with given priorities and execute collection within each about 1-second interval.	Refresh current value at a high frequency in control panel displaying, collection of tuning trend or trend graph displaying (only when the sampling period is set to 1 second).
	Low-speed current value collection *1	Collect current value of the tag data within each about 10-second interval	Collect data if the current value has been entered in trend setting (except 1-second sampling period).
Tag data collection	High-speed tag data collection *1	Poll the displayed tag data with given priority and execute collection with each about 1-second interval.	Collect tag data displayed in the pop-up window at high frequency.
	Low-speed tag data collection *1	Read all tag data in turn registered in the monitor tool.	Periodically acquire tag data except the current value.
	Read all tags	Batch read all tag data registered in the monitor tool.	Full tag read during start-up or alteration of monitored target items so as to correctly display the faceplate.
	Read one-shot tag	Read all specified tag data at once.	Read one-shot tag when writing tag data so as to read reply data.
Tag data write		Write the value of a tag data item	Execute write operation when altering the value of a tag data in the faceplate etc.
Process data collection	High-speed process data collection	Collect monitor variables registered in monitor tool with the interval of 1 second or less.	Collect data if the monitor variable has been entered in trend setting (1-second sampling period).
	Low-speed process data collection	Collect monitor variables registered in monitor tool with the interval of 10 seconds or less.	Collect data if the monitor variable has been entered in trend setting (except 1-second sampling period).
Return check		Check if the communication with CPU module is in normal operation	Execute this check when a communication open error occurs.
PLC status check	Check for CPU module error occurrence.		Whether a CPU module error has occurred or not can be checked on the monitor tool.
	Check whether the monitor target project set with the monitor tool matches the project in the CPU module.		If there is a mismatch between the monitor target project and the project in the CPU module, write of illegal tag data is prevented.
	Monitors the CPU module operation mode and system the status when monitoring the redundant system.		Record the history of the operation mode change of a CPU module and the control system switching in a redundant system.
	Read the PLC CPU type name from the PLC CPU of the system specified in "Transfer Setup" to compare with the PLC type of the assignment information database file.		Issue the system alarm when the PLC type is incorrect.

*1: The current value and maximum value of collection period can be confirmed by PLC the communication status screen (☞ Section 8.5).

POINT

- In order to communicate via the network, the network parameters of the GX Works3 or GX application should be set. For details of the method of network parameter setting, refer to the following manuals:
 - GX Works3 Operating Manual
 - GX Works2 Version 1 Operating Manual (Common)
 - GX Developer Version 8 Operating Manual
- For event notification, the CC-Link IE Controller Network and MELSECNET/10(H) apply the communication among channels function, and the Ethernet and the built-in Ethernet connection apply the broadcasting communication function. In order to execute event notification, the path to notify an event should be set in the event notification of the project parameter setting in the programming tool.
For details of the method of project parameter setting, refer to "GX Works3 Operating Manual" or "PX Developer Version 1 Operating Manual (Programming Tool)".

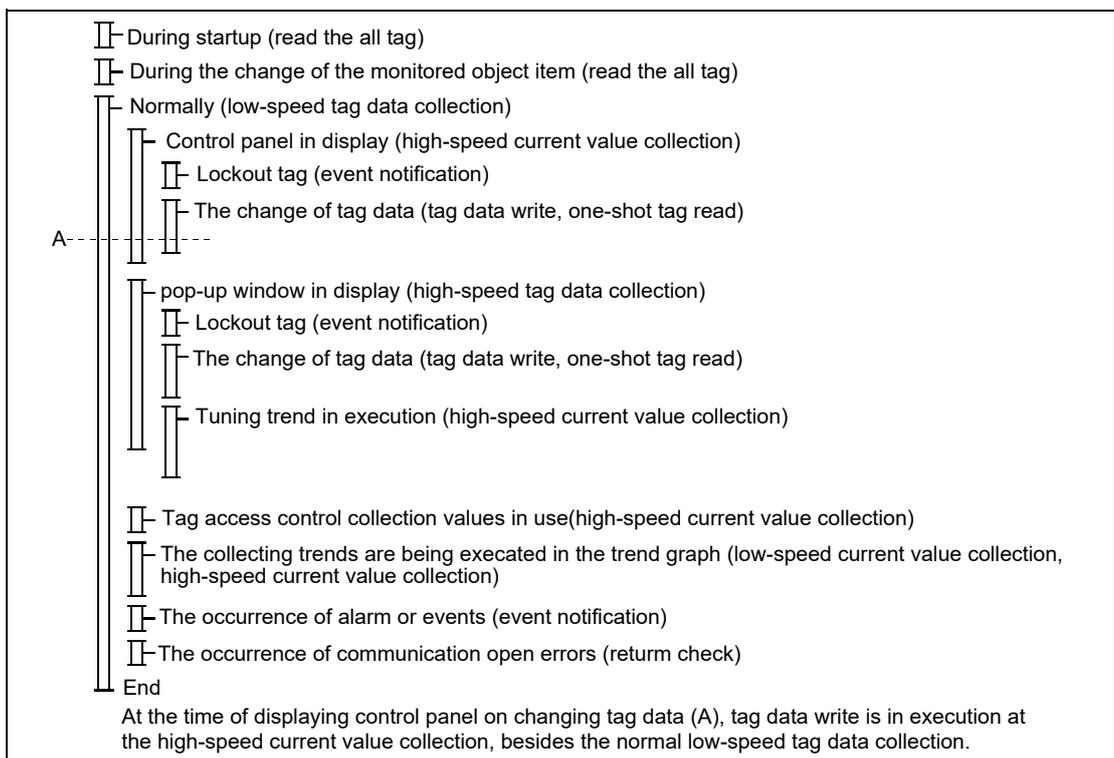
According to the display status of the screen, the communication methods adopted in the monitor tool can be categorized as following.

Condition		Communication type
During start-up		Read the all tag
Change of monitored target project		Read the all tag
Normally		Low-speed tag data collection, PLC status check *1
Control panel in display		Low-speed tag data collection, high-speed current value collection
Pop-up window in display		High-speed tag data collection
Tuning trend in execution	With screen display	High-speed tag data collection, high-speed current value collection
	Without screen display	Low-speed tag data collection, high-speed current value collection
Being using tag to access control collection values		Low-speed tag data collection, high-speed current value collection
Being collecting trend data in the trend graph		Low-speed tag data collection, low-speed current value collection, high-speed current value collection
Occurrence of alarm or events		Event notification
Setting lockout tag		Event notification
Change of tag data		Tag data write, one-shot tag read
Occurrence of communication open error		Return check

*1: The PLC status check is executed at intervals set to "PLC status check interval(s)" in the option setting (general). (☞ Section 9.17)

At the time of start-up of the monitor tool or the alteration of the monitored target project, updating of tag data is fundamentally executed with low-speed tag data collection after batch reading all registered tag data. Collection of current value or high-speed tag data collection will be executed in the case of faceplate display etc which requires as real time updating of latest values as possible.

The diagram shown below presents the time sequence of each communication method.



Appendix 1.2 Event notification

Monitor alarms and events with reduced network traffic.

The CPU module only emits a notice when an alarm or event occurs.

The CC-Link IE Controller Network and MELSECNET/10(H) apply the communication among channels function, but the Ethernet applies the broadcasting communication function.

Communication direction	CPU module → monitor tool
Communication object	Altered tag data (96 words per tag)

The items for detecting change of tag data are shown in the table as below.

Tag type	Tag data item		Memo
PID, 2PID, NREV, REV, MVAL1, MVAL2, PGS2, HTCL, MTR2, MTR3, SS2P, DS2P, DS3P	MODE	Mode	Control each selection item of the mode to be valid/invalid
	ALM	Alarm	Occurrence/recovery status of each alarm
	CTNO	Lookout tag No.	0: no lockout tags, 1 to 32: display lockout tag No.
	DIM	Monitor input buffer	Occurrence/recovery status of each error, in-execution/non-execution status of a operation
2PIDH, SWM, PFC_SF, PFC_SS, PFC_INT, PVAL	MODE	Mode	Control each selection item of the mode to be valid/invalid
	ALM	Alarm	Occurrence/recovery status of each alarm
	ALM2	Alarm 2	Occurrence/recovery status of each alarm
	CTNO	Lookout tag No.	0: no lockout tags, 1 to 32: display lockout tag No.
PIDP, SPI, IPD, BPI, R, ONF2, ONF3, MWM, SEL, MOUT, PGS	MODE	Mode	Control each selection item of the mode to be valid/invalid
	ALM	Alarm	Occurrence/recovery status of each alarm
	CTNO	Lookout tag No.	0: no lockout tags, 1 to 32: display lockout tag No.
	MONI	Alarm	Occurrence/recovery status of each alarm
BC, PSUM, TIMER1, TIMER2, COUNT1, COUNT2	CTNO	Lookout tag No.	0: no lockout tags, 1 to 32: displayed lockout tag No.
	ALM	Alarm	Occurrence/recovery status of each alarm
	DIM	Monitor input buffer	Occurrence/recovery status of each error, in-execution/non-execution status of a operation
PB	MODE	Mode	Control each selection item of the mode to be valid/invalid
	CTNO	Lookout tag No.	0: no lockout tags, 1 to 32: displayed lockout tag No.
	DIM	Monitor input buffer	Occurrence/recovery status of each error, in-execution/non-execution status of a operation
ALM	ALM	Alarm	Occurrence/recovery status of alarm 1 to 8
ALM_64PT	ALM_W1	Alarm 1 to 16	Occurrence/recovery status of alarm 1 to 16
	ALM_W2	Alarm 17 to 32	Occurrence/recovery status of alarm 17 to 32
	ALM_W3	Alarm 33 to 48	Occurrence/recovery status of alarm 33 to 48
	ALM_W4	Alarm 49 to 64	Occurrence/recovery status of alarm 49 to 64
MSG	MSG	Message	Occurrence/recovery status of event 1 to 8
MSG_64PT	MSG_W1	Message 1 to 16	Occurrence/recovery status of event 1 to 16
	MSG_W2	Message 17 to 32	Occurrence/recovery status of event 17 to 32
	MSG_W3	Message 33 to 48	Occurrence/recovery status of event 33 to 48
	MSG_W4	Message 49 to 64	Occurrence/recovery status of event 49 to 64

Appendix 1.2.1 System configuration that can receive event notification

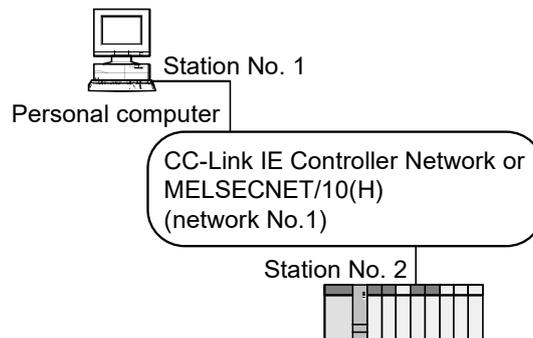
Transfer Setup	Connection method		CPU module
CC IE Control	CC-Link IE Controller Network	Single network system	All CPUs supported by Monitor tool (Refer to Section 2.1.1)
		Multiple network systems*1	Process CPU(QnPHCPU) Universal model process CPU (QnUDPVCPU) Redundant CPU(QnPRHCPU)
MNET/10 MNET/H	MELSECNET/10 connection MELSECNET/H connection	Single network system	Process CPU(QnPHCPU) Universal model process CPU (QnUDPVCPU) Redundant CPU(QnPRHCPU)
		Multiple network systems*1	Redundant CPU(QnPRHCPU)
Ethernet	Connect to the PLC Module via HUB*2		All CPUs supported by Monitor tool (Refer to Section 2.1.1)
	Connect to the Ethernet Module via HUB*2		
	Connect to the PC CPU module		Process CPU(QnPHCPU) Redundant CPU(QnPRHCPU)
	Direct Connection		-
Other than the above	USB connection, Serial connection, CC-Link connection, GOT transparent connection etc.		-

*1: An event notification from a CPU module can be received via up to eight of relaying network systems. When connecting PLCs using different types of networks in single network connection or connection in coexistence network connection, an event notification is not received.

*2: An event notification from a CPU module in the same segment can be received.

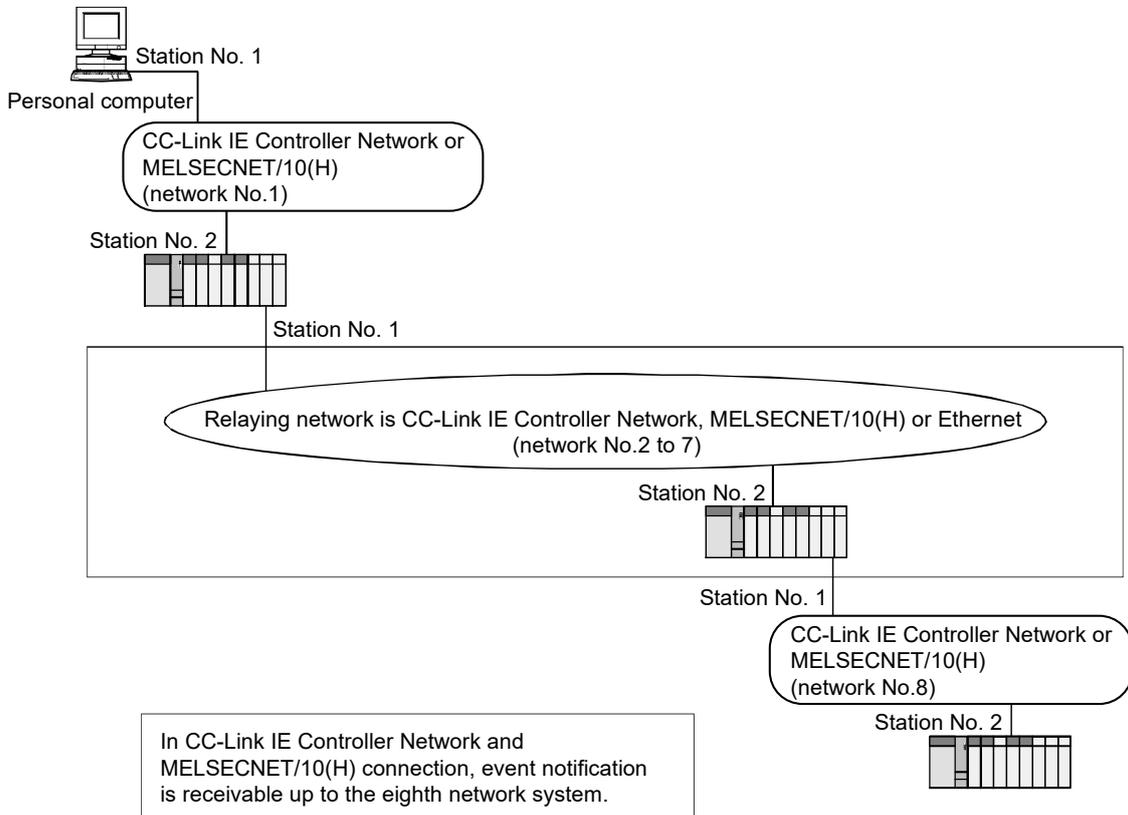
(1) In case that transfer setup of a monitor tool is set to "CC IE Cont", "MNET/10" or "MNET/H"

(a) Single network system



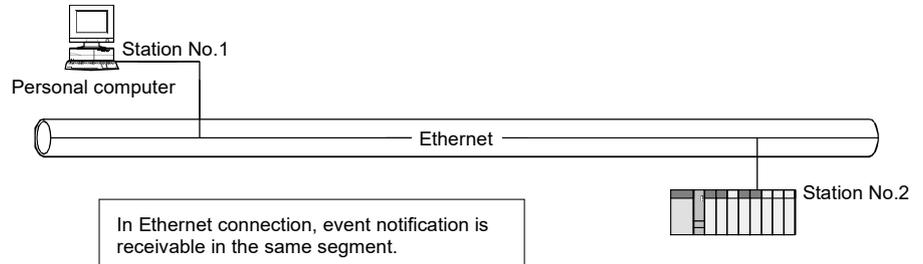
(b) Multiple network systems

Event notification from the PLC can be received via up to eight of relaying network systems, each of which is configured by the CC-Link IE Controller Network, MELSECNET/10 (H) or Ethernet.



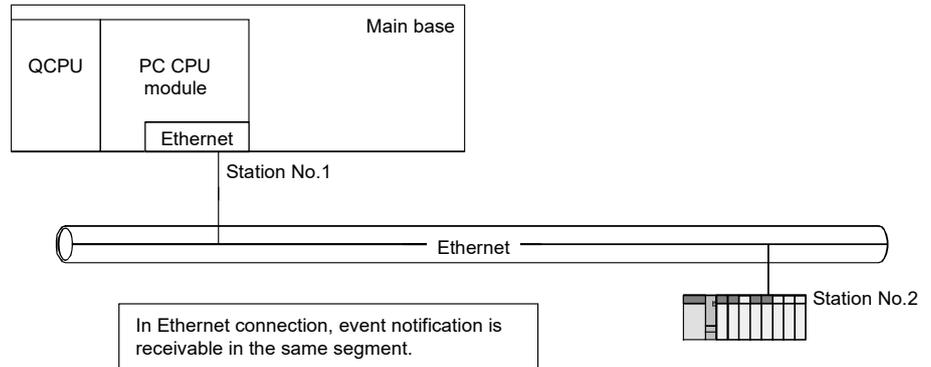
- (2) In case that transfer setup of a monitor tool is set to "Ethernet"
(Excluding direct connection to the built-in Ethernet port of a built-in Ethernet CPU)

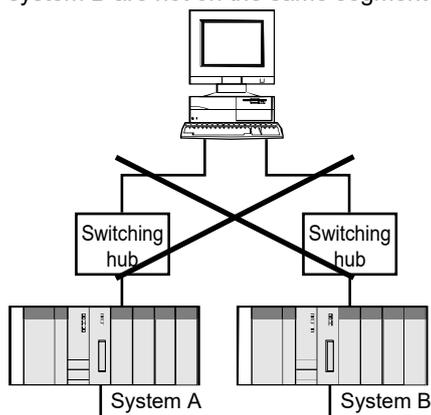
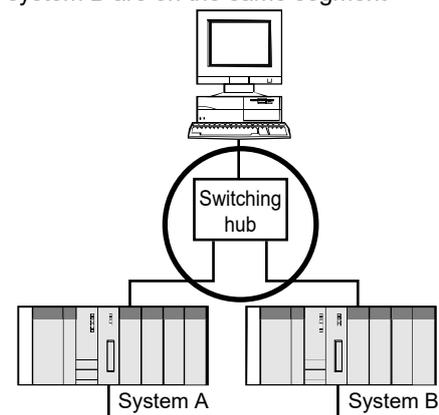
In Ethernet connection, event notification is receivable from a PLC CPU in the same segment.



- (3) In case that performing a monitor tool in a PC CPU

When the transfer setup of a monitor tool is set to "Ethernet", event notification is receivable from a PLC CPU(Process CPU(QnPHCPU) or Redundant CPU(QnPRHCPU)) in the same segment.



POINT
<ul style="list-style-type: none"> ● The event notification does not work when using serial interface (RS-232), USB, CC-Link, Simulator, GOT transparent, to directly connect with the CPU module. ● To use the event notification function with the CC-Link IE Controller Network connection, the driver (SW1DNC-MNETG-B) version 1.08J or later which supports the event notification function is required. ● "Event notification source error" may occur when the transfer setup of a monitor tool is set to a built-in Ethernet port (by direct connection). ● The event notification does not work when the monitor tool is connected to the PLC module via the Ethernet module mounted to a redundant type extension base unit. ● The event notification does not work normally when using the project parameter setting of the programming tool to specify the setting of No Event Notification. ● Even the event notification does not work normally; the occurrence of alarms and events is also notified via low-speed tag data collection (Appendix 1.4). During the low-speed tag data collection, the time consumed from the occurrence of alarms or events till the notice to the monitor tool is directly proportional to the numbers of registered tags. ● Make sure to use PX Developer Version 1.06G or later monitor tool to monitor the CPU module that includes the projects compiled using the PX Developer Version 1.06G or later programming tool. The PX Developer Version 1.04E or earlier monitor tool cannot receive the event notification sent by the project compiled using the PX Developer Version 1.06G or later programming tool. ● The Redundant CPU system receives the event notification when the control/standby system status or operation mode is changed. ● When the incorrect PLC Type system alarm has occurred, the received event notification data is abandoned. ● When connecting monitor tool to a redundant system using Ethernet connection, in case Ethernet modules of both system A and system B are on the same segment, the normal operation will be guaranteed because event notification can be received. <p style="margin-left: 20px;"> < Ethernet module of system A and system B are not on the same segment > < Ethernet module of system A and system B are on the same segment > </p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>System A System B</p> </div> <div style="text-align: center;">  <p>System A System B</p> </div> </div>

Appendix 1.2.2 Settings for executing event notification

(1) On the occasion of CC-Link IE Controller Network, MELSECNET/10(H) connection

To execute notification by using the communication function among channels.
Set a channel number for sender side of CPU module on the programming tool.

POINT
<p>Do not use the following channel number when using MELSEC data link library with user-created application.</p> <ul style="list-style-type: none"> • Channel used by the host station No. : 1 (fixed channel number for the monitor tool) • Target station used by the host station No. : channel number set with the programming tool <p>For details of channel number, refer to "MELSEC Data Link Library Reference Manual".</p>

(2) On the occasion of Built-in Ethernet port or Ethernet port connection

The Ethernet uses the Broadcasting function to execute notification when it is connected.

The following settings are required in the network parameter setting of the GX Works3 or GX application.

(a) Built-in Ethernet port connection

1) MELSEC iQ-R

[Own Node Settings]	
[IP Address]	: (IP addresses that is assigned to the module)
[Subnet Mask]	: (Consult the network administrator before setting *1)
[Default Gateway]	: (Consult the network administrator before setting *1)
[Communication Data Code]	: Binary
[Opening Method]	: Do Not Open by Program
[External Device Configuration]	
[Model Name]	: UDP Connection Module
[Communication Method]	: Broadcast Send
[PLC Port No.]	: (The port number not used by other connection(DEC))
[Sensor/Device Port No.]	: (The same number(DEC) as [Event Notification UDP port number(HEX)] option setting of the monitor tool *2)
*1: Set the same setting configuration with the receiver side personal computer.	
*2: Set a port number not to overlap on well-known port numbers and port numbers used by software other than the monitor tool.	

2) MELSEC-Q

[IP Address Setting]

[IP Address] : (IP addresses that is assigned to the module)
 [Subnet Mask Pattern] : (Consult the network administrator before setting *1)
 [Default Router IP Address] : (Consult the network administrator before setting *2)

[Open Setting]

[Protocol] : UDP
 [Open System] : Socet Communication
 [Local station port No.] : (The No. not used by other connection.)
 [Destination IP Address] : Broadcasting ([IP Address] 255.255.255.255)
 [Dest. Port No.] : (the same as [Event Notification UDP Port No. (HEX)] open setting of the monitor tool*3)

- *1: Set the same setting configuration with the receiver side personal computer.
 *2: If there is no router, set the IP address that is not used in the system for the address of router.
 *3: Set a port number not to overlap on well-known port numbers and port numbers used by software other than the monitor tool.

(b) Ethernet port connection

1) MELSEC iQ-R

Set for the module parameter on port 1.

[Own Node Settings]

[IP Address] : (IP addresses that is assigned to the module)
 [Subnet Mask] : (Consult the network administrator before setting *1)
 [Default Gateway] : (Consult the network administrator before setting *1)
 [Communications by Network No./Station No.] : Enable
 [Setting Method] : Not Use IP Address
 [Network Number] : (Network number that is assigned to the module)
 [Station No.] : (Station number that is assigned to the module)
 [Communication Data Code] : Binary
 [Opening Method] : Do Not Open by Program

[External Device Configuration]

[Model Name] : UDP Connection Module
 [Communication Method] : Broadcast Send
 [PLC Port No.]: (The port number not used by other connection(DEC))
 [Sensor/Device Port No.] : (The same number(DEC) as [Event Notification UDP port number(HEX)] option setting of the monitor tool *2)

- *1: Set the same setting configuration with the receiver side personal computer.
 *2: Set a port number not to overlap on well-known port numbers and port numbers used by software other than the monitor tool.

2) MELSEC-Q

[Motion Setting]

[Communication Data Code Setting]: Binary code communication
 [Initial timing]: Always waiting for OPEN (Communication possible at STOP time)
 [IP Address Setting]: (Assigned IP addresses)
 [Transmission Frame Setting]: Ethernet (V2.0)

[Open Setting]

[Protocol]: UDP
 [Fixed Buffer]: Send
 [Fixed Buffer Communication]: No procedure
 [Pairing Open]: No pairs
 [Existence confirmation]: No confirm
 [Local station port No.]: (The No. not used by other connection.)
 [Destination IP Address]: Broadcasting ([IP Address] 255.255.255.255)
 [Dest. Port No.]: (the same as [Event Notification UDP Port No.(HEX)] open setting of the monitor tool^{*1})

[Router Relay Parameter]

[Router relay function] : Use
 [Sub-net mask pattern] : (Consult the network administrator before setting ^{*2})
 [Default router IP address]: (Consult the network administrator before setting ^{*3})

*1: Set a port number not to overlap on well-known port numbers and port numbers used by software other than the monitor tool.

*2: Set the same setting configuration with the receiver side personal computer.

*3: If there is no router, set the IP address that is not used in the system for the address of router.

To connect multiple MELSOFT products (monitor tool, programming tool, GX application, etc.) to a single CPU module with TCP, configure settings as shown below.

● GX Works3 project

Add the following external device configuration to the module parameter of a target module in GX Works3 for each MELSOFT product added and connected.

[External Device Configuration]

[Model Name]: MELSOFT Connection Module

For details of the setting, refer to the following manual:

- MELSEC iQ-R Ethernet User's Manual (Application)

● PX Developer project

Add the following open setting to the parameter in GX application for each MELSOFT product added and connected.

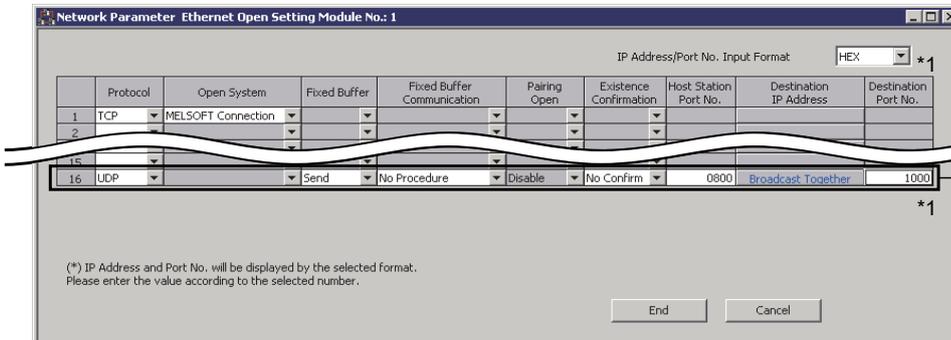
[Open Setting]

[Protocol]: TCP
 [Open System]: MELSOFT connection

For the Ethernet port connection and the built-in Ethernet port connection, the open setting can be configured in the network parameter and the built-in Ethernet port setting of PLC parameter, respectively.

For details of the method of network parameter setting, refer to the following manuals:

- GX Works2 Version 1 Operating Manual (Common)
- GX Developer Version 8 Operating Manual



Set the settings in the connection number which is set in the <<Event Notification>> tab of the project parameter setting in the programming tool.

<Network parameter settings of GX Works2 (open setting)>

*1: In monitor tool, the input format of "Event Notification UDP Port No.(HEX)" in Option Setting (Alarm/Event) is "HEX". The input format of GX application port number can be selected from "DEC" and "HEX", but setting the same hexadecimal value as set to monitor tool is required.

POINT

- When the setting for blocking the access to the monitor tool via a network is made with the security enhancement function (Windows® firewall), the monitor tool cannot receive event notification from the PLC CPU in Ethernet connection. In this case, allow communication with monitor tool via with either of the following methods.
 - 1) Allow communication with monitor tool on the "Windows Security Alert" screen displayed when connecting to Ethernet for the first time.



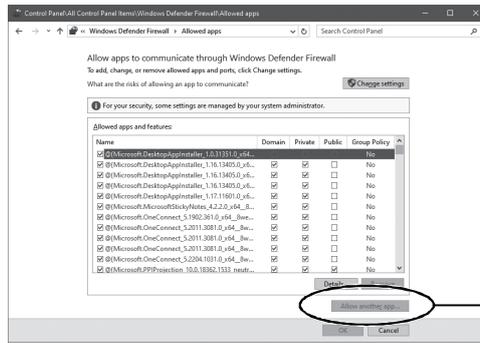
Check the network and allow communication with the "Allow access" button.

POINT

2) Allow exceptional program communication with monitor tool on the Windows Firewall window*1.

Add monitor tool (C:\Melsec\Fbdq\FBDQMon.exe*2) to apps where the Windows Firewall setting*1 is allowed. Note that even when the monitor tool is already added to allowed apps, select the checkbox to validate it according to the network.

(Before adding the allowed app)



Add allowed app and features with the "Allow another app..." button which is validated with the "Change settings" button.

(After adding the allowed app)

Allowed apps and features:

Name	Domain	Private	Public	Group Policy
<input checked="" type="checkbox"/> FBDQ Application	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	No
<input checked="" type="checkbox"/> FBDQMon Application	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	No

"FBDQMon Application" is added.

- *1: The Windows® Firewall setting screen is displayed by selecting [System and Security] → [Allow an app through Windows Firewall] from the control panel of Windows.
To change Windows Firewall setting, logon as a user in administrators group, having authority for controlling all operations of personal computer.
- *2: When an installation destination path is changed during PX Developer installation, FBDQMon.exe will be in the path after change.

Appendix 1.3 Collecting current value data

For such data as PV, SV and MV among the tag data items that need to be updated at high frequency, they are generally collected as current value data in the buffer area at the PLC side.

The current value data collection reads the current value data from the buffer area. It can be categorized into two types as high-speed current value collection and low-speed current value collection according to the length of read interval.

Communication direction	CPU module → Monitor tool
Communication target	Current value data

The tag data items of collected current values are listed in the table shown below.

Tag type	Tag data item		Remark
PID, 2PID, PIDP, SPI, IPD, BPI, R, ONF2, ONF3	PV	Process variable	—
	MV	Manipulated variable	—
	SV	Setting value	—
2PIDH, SWM, PFC_SF, PFC_SS, PFC_INT	PV	Process variable	—
	MV	Manipulated variable	—
	SVC	Setting value (Current)	—
	SV	Setting value (Target)	—
PGS	SV	Setting value	—
	TYP	Motion type	Motion type when control mode is AUT
	PV	Process variable	—
PGS2	SV	Setting value	—
	STC	Executing step No.	—
	T	Time in the step	—
	PV	Process variable	—
	TYP	Operation type	—
	SV0C	Start point (Current)	—
MOUT	MV	Manipulated variable	—
MONI	PV	Process variable	—
MWM	PV	Process variable	—
	MV	Manipulated variable	—
SEL	PV	Process variable	—
	MV	Manipulated variable	—
	SLNO	Selection No.	Selected signal (0/1)
BC	SV1	Setting value1	The 1st preset value when SV is reached
	SV2	Setting value2	The 2nd preset value when SV is reached
	SV	Setting value	—
	PV	Process variable	—
PSUM	PV	Process variable	—
NREV, REV, MVAL1, MVAL2, PB	DIM	Monitor input buffer	—
MTR2, MTR3, SS2P, DS2P, DS3P	DIM2	Monitor input buffer2	—
	DIM	Monitor input buffer	—
TIMER1, TIMER2, COUNT1, COUNT2	PSV	Setting value (Preset)	The preset value when SV is reached
	SV	Setting value	—
	PV	Process variable	—
	DIM	Monitor input buffer	—
PVAL	PV	Process variable	—
	VOUT	Command signal output status	—
	SVC	Setting value (Current)	—
	SV	Setting value (Target)	—
	DIM	Monitor input buffer	—
HTCL	MV_HT	Manipulated variable of heating	—
	MV_CL	Manipulated variable of cooling	—
	SV	Setting value	—

POINT

The current values and maximum values collected by this communication (high-speed current value collection, low-speed current value collection) can be confirmed on the PLC communication status screen (☞ Section 8.5).
When the collection period is long, refer to Appendix 1.10 and take corrective action.

(1) High-speed current value collection

It is the current value collection for use of control panel displaying, trend collecting of trend graph (only when the sampling period is 1 second) and tuning trend collection.

Read for the purpose of high frequency refreshing the current value monitoring display on the control panel.

Read the current value data of tag at about 1-second intervals.

POINT

Based on the number of tag data items that is being monitored and CPU module scanning execution conditions, the collection period may be longer than 1 second.

(2) Low-speed current value collection

Read the variance if the current value data has been entered to trend pen.

(However, read if the sampling period is set to 1 second, read via high-speed current value collection.)

Read the current value data at about 10-second intervals.

Appendix 1.4 Collecting tag data

The tag data collection reads tag data. It can be categorized into 4 types according to different read interval and targets.

(1) High-speed tag data collection

Read the tag data displayed in the pop-up window at about 1-second intervals.

Communication direction	CPU module → Monitor tool
Communication target	Tag data (96 words per tag) in display

(2) Low-speed tag data collection

Read tag data once every 5 seconds for all tags registered in the monitor tool. Up to 5 tags of data can be read at a time. If the amount of tags reaches the maximum, all tags are processed in 1000 seconds for each project.

Communication direction	CPU module → Monitor tool
Communication target	All the tag data (one time every 5 seconds, maximum 5 tags)

(3) Full tag read

Read all the tag data of the registered tags in the monitor tool during start-up or change of object items.

Communication direction	CPU module → Monitor tool
Communication target	All the tag data

(4) One-shot tag read

After Tag data are written, read the object tag data so as to confirm the written result.

Communication direction	CPU module → Monitor tool
Communication target	Write-in tag data (96 words per tag)

POINT

The current values and maximum values collected by this communication (high-speed tag data collection, low-speed tag data collection) can be confirmed on the PLC communication status screen (☞ Section 8.5).

When the collection period is long, refer to Appendix 1.10 and take corrective action.

Appendix 1.5 Writing tag data

The write tag data writes tag data. It can be categorized into 2 types according to different tag data write-in targets.

(1) Word write

Directly write WORD, DWORD, INT, DINT, REAL type tag data items without any conversion of the setting values.

Communication direction	Monitor tool → CPU module
Communication target	Changed tag data items

(2) Bit write

Write the setting value in bit unit to BOOL type tag data items.

Communication direction	Monitoring tool → CPU module
Communication target	Changed tag data items

(3) Bit write in radio button format

As for the tag data items in the radio button format where the other buttons turn OFF when one of them is selected for ON, perform bit write that will turn ON the selected bit item and turn OFF the other bit items.

Communication direction	Monitor tool → CPU module
Communication target	The changed tag data items

POINT

- If the communication is abnormal, tag data cannot be written. (The "Communication status is abnormal" error message dialog box is displayed.) Check the connection status of the communication cable, the PLC connection target or other to return the communication condition to normal, and then write the tag data again.
- In the initial setting, tag data can be written if the monitor target project set with the monitor tool differs from the project in the CPU module (project ID code inconsistency).
However, if tag data is written when the project ID code inconsistency, the system may malfunction. Change the "Write tag data (even if the PC's and PLC's project ID codes are different)" setting of the option setting (general) to "Disable" when operation has been started after completion of system adjustment.
- If tag data cannot be written when the project ID code inconsistency, reload the monitor target project or perform PLC download after execution of compile with the programming tool, and then write the tag data again.

REMARK

If tag data write operation is executed, the event will be displayed in the operation history. (📄 Section 7.4.1)

Appendix 1.6 Collecting process data

Read the process data of CPU module registered in the monitor variable settings. It can be categorized into two types as high-speed process data collection and low-speed process data collection according to the length of read interval.

Communication direction	CPU module → Monitor tool
Communication target	Process data

When the connection target is a redundant system, a CPU in a system specified in "Specify Redundant CPU" (☞ Section 9.4) is monitored.

When a control system or a standby system is specified, the connection target is switched according to the system switching.

POINT

The current values and maximum values collected by this communication (high-speed process data collection, low-speed process data collection) can be confirmed on the PLC communication status screen (☞ Section 8.5).
When the collection period is long, refer to Appendix 1.10 and take corrective action.

(1) High-speed process data collection

When a monitor variable is registered to trend pen whose sampling period in the trend setting is 1 second, read the current value of monitor variable with the interval of approximately 1 second.

POINT

The collection period may be longer than 1 second due to the number of monitoring process data and scan execution of CPU module.

(2) Low-speed process data collection

When a monitor variable is registered to trend pen whose sampling period in the trend setting is 10 seconds or more, read the current value of monitor variable with the interval of approximately 10 seconds.

Appendix 1.7 Communication error

The errors of communication processing (open, read*1, write, close) occur in each connection destination, and are displayed on the alarm screen. The recover of the communication processing error is completed when the communication processing (open, read*1, write, close) is succeeded after a return check (Appendix 1.8) is completed successfully.

When the open processing succeeds, recover another communication error.

*1: When read processing from monitor tool to CPU module fails, retry (reopen + read) the number of times being set on the "Transfer Setup" dialog box.

When the read processing succeeds during the retry, the communication read error will not occur.

When the read processing fails for the number of retry times, the communication read error and communication open error will occur.

POINT		
Operation differences in read error between different versions		
<Version 1.23Z or earlier monitor tool>		
When a read error occurred, the system alarm of communication read error occurs without retry.		
If the communication error is not recovered, the system alarm of communication open error will occur.		
<Version 1.28E or later monitor tool>		
The number of retry times when a read error occurs can be set.		
(When the number of retry times is set to 0)		
When a read error occurs, communication read error will occur without retry.		
(When the number of retry times is set to 1 or larger)		
When succeeded in reading by retry, the system alarm of communication read error will not occur. If failed in reading by retry, a communication read error and communication open error will occur.		
The relation between the number of retry times and the system alarm which occurs in communication error is as follows.		
Monitor tool version	Number of reading retried	Occurrence of system alarm
1.02C to 1.23Z	-	Communication reading error occurs
		↓ Communication open error occurs
1. 28E or later	0 time (default)	Communication reading error occurs
	1 to 5 times	Communication reading error occurs *1 ↓ Communication open error occurs

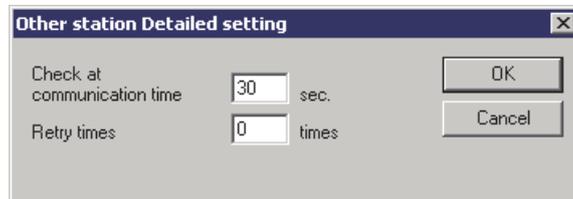
*1: Alarm will not occur when succeeded by retry.

Appendix 1.8 Return check

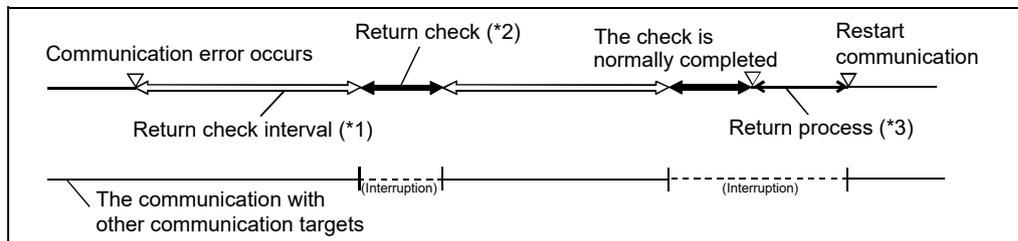
PX Developer checks if the communication has returned to its normal operation when a communication open error, communication reading error, or communication writing error occurs because of malfunctions of CPU module etc. This function is "Return check".

Return check will be executed repeatedly before normal communication is confirmed. After the return check is normally finished and normal communication is confirmed, a return processing operation will be executed for system reconnection.

The interval (*1) of the return check and the timeout (*2) of the return check itself can be arbitrarily varied by unit of seconds. Please use the option setting (general) to set [Return Check Interval (s)] and [Return Check Time-out (s)] (Section 9.17). Please use [Other stations] in the "Transfer Setup" dialog box of the monitored target project setting to set [Check at communication time] of the timeout of the recovery processing (*3) operation.



The diagram shown below illustrates the situation when the normal communication has been confirmed during the 2nd return check.



POINT

For the return check in a redundant system, a reconnection is performed for each route at the return check intervals (seconds), if a communication error has occurred in the following routes.

- The route specified in the Transfer Setup.
- The route to connect to system A.
- The route to connect to system B.

Maximum of 3 times the connection route timeout (seconds) is required to perform Return check when all of the above connection routes have been disconnected

REMARK

If frequent accesses to the CPU module, which has communication errors, are executed before the return of normal communication, the communication with other communication targets will be delayed. In order to avoid this situation, please adjust [Return Check Interval (s)] and [Return Check Time-out (s)] at high speed. During [Return Check Interval (s)], the connected targets, which have no communication errors, can communicate normally.

Appendix 1.9 PLC status check

The monitor tool checks for error occurrence in the CPU module and checks the projects.

The PLC status check indicates the following checks.

- Check for CPU module stop error
- Check for CPU module operation continue error
- Check of project ID code
- CPU model name check
- Check for the operation mode in a redundant system
- Check for the status of control/standby system in a redundant system
- Check for the system A/B identification flag in a redundant system

(1) Check details and error display positions in PLC status check

This section explains the check details and error display positions in PLC status check.

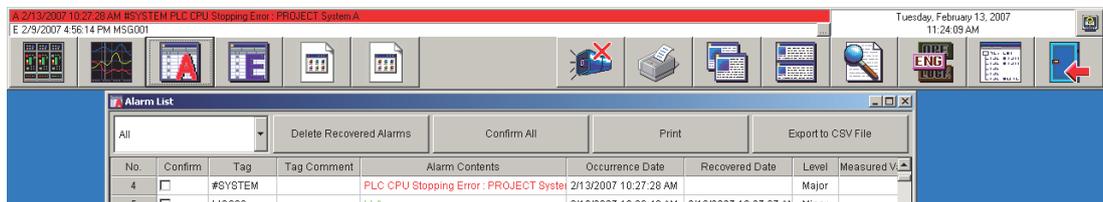
(a) Check for CPU module stop error

[Check details]

Whether a stop error has occurred in the CPU module or not is checked. If a stop error has occurred in the CPU module, the "PLC CPU stopping error" alarm occurs on the monitor tool.

[Error display position]

The alarm is displayed on the monitor toolbar and in the alarm list.



(b) Check for CPU module operation continue error

[Check details]

Whether an operation continue error has occurred in the CPU module or not is checked.

If an operation continue error has occurred in the CPU module, the "PLC CPU error" alarm occurs on the monitor tool.

[Error display position]

The alarm is displayed on the monitor toolbar and in the alarm list.



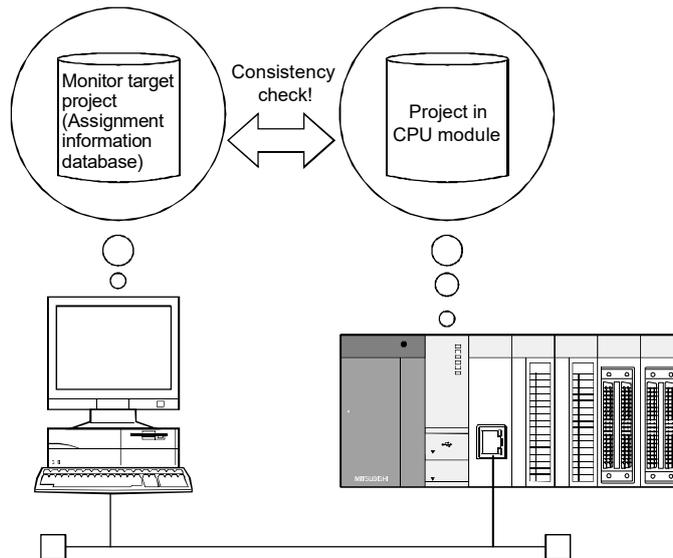
(c) Check of project ID code

[Check details]

Whether the monitor target project set with the monitor tool matches the project in the CPU module or not is checked.

When the monitor target project does not match the project in the CPU module, illegal tag data write is prevented.

If the project ID codes do not match, the "project ID code inconsistency" alarm occurs on the monitor tool.



[Error display position]

The alarm is displayed on the monitor toolbar and in the alarm list.

(d) CPU model name check

[Check details]

Read the PLC CPU type name from the PLC CPU of the system specified in "Transfer Setup" to compare with the PLC type of the assignment information database file.

When PLC type is incorrect, issue the "Incorrect PLC Type" alarm.

[Error display area]

The alarm is displayed in the monitor toolbar and alarm list.

(e) Check for the operation mode in a redundant system

[Check details]

Check if the operation mode has been changed or not.

[Display area]

The operation mode is displayed in the operation mode area of the communication status screen.

[Event record]

Record the operation mode switching event when the operation mode is changed.

(f) Check for the status of control/standby system in a redundant system

[Check details]

Check the control/standby system status.

When an element of inconsistency is found in the control/standby system status, "Redundant system: Control/Standby System Status Error" for each system.

[Display area]

The control/standby system status is displayed in the Communication Status system A/B area.

[Error display area]

The alarm is displayed in the monitor toolbar and alarm list.

[Event record]

Record the control system switching event when the standby system is switched to control system.

(g) Check for the system A/B identification flag in a redundant system

[Check details]

When an element of inconsistency is found in the system A/B identification flag, issue the redundant system A/B identification error for each system.

[Error display area]

The alarm is displayed in the monitor toolbar and alarm list.

POINT

If the "PLC CPU stopping error" or "PLC CPU error" occurs, download of data to the CPU module can be performed.

When the error is caused due to the setting of illegal tag data, set the tag data again.

The error definition can be checked by the CPU module diagnostic of GX Works3 or the FBD program diagnostics of the PX Developer programming tool.

REMARK

For details of monitor toolbar, refer to Section 6.3.

For details of alarm list, refer to Section 7.3.

(2) PLC status check timing

The PLC status check is performed at any of the following timings.

- When the monitor tool starts
- When the monitor target project is reloaded
- At the "PLC status check interval (s)" set in the option setting (general)

(3) Recovery procedure and timing for alarm that has occurred due to PLC status check

Use the following procedure to clear the alarm that has occurred due to PLC status check.

(a) Recovery procedure

[CPU module stop error or CPU module operation continue error]

- 1) On the alarm list screen, double-click the line of the alarm that has occurred due to PLC status check.

The system alarm details dialog box is displayed.

( Section 7.3)

- 2) The error code is displayed in the system alarm details dialog box. Click "PLC error" within the Help menu on the monitor toolbar to display the error code list. ( Section 6.3.1 (5))
Observe the "corrective action" in the error code list.

[Project ID code inconsistency error]

Reload the monitor target project ( Section 9.4).

Observe this instruction as well when PLC download is performed with the programming tool.

If the monitoring target is a GX Works3 project, an alarm occurs even when the tag FB is not used in the project.

Enable the process control extension in the GX Works3 setting, and use the tag FB in the project.

[When the PLC type is inconsistent]

The assignment information database file and the PLC CPU connected to the file are different in the PLC type. Correct the PLC connection target settings.

[When the redundant system control/standby status error has occurred]

The possible cause is that the tracking cable has not been connected or broken when the CPU is started.

Check the tracking cable.

[When the redundant system A/B identification error has occurred]

- 1) Check the Redundant CPU settings of network parameter.
- 2) The possible cause is that the tracking cable has not been connected or broken when the CPU is started.
Check the tracking cable.

(b) Recovery timing

To recover from the alarm that has occurred due to PLC status check, resolve the cause of the alarm.

Appendix 1.10 Measures for delayed collection periods

Following table describes the reasons and measures for delayed high-speed current value collection, high-speed process data collection and high-speeding tag data collection.

Reasons	Measures (execute operations (a) to (c))
The scan time of CPU module is long	(a) Please make the program start frequency of scan lower according to different period types of program. (b) Divide this program into several small programs including necessary operation. Set some of them as "Scan" type and some of them as "normal" or "low" types also set their phase. (c) Set "Communicates with peripherals after program execution" in program execution setting of the PX Developer programming tool. (For details, refer to the Operating Manual (Programming Tool).)
Execute monitoring when multiple CPU module is connected with a single OPS	(a) Please reduce the number of CPU modules being connected and monitored with one OPS.
Execute monitoring when multiple CPU module is connected with multiple OPS	(a) Please configure the server/client monitoring system. (b) Please reduce the collection of trend data and tuning trend from CPU module.
Network is crowded	(a) When Ethernet is applied, please reduce other kinds of OPS communication. (b) When MELSECNET/10 or MELSECNET/H is applied, please reduce the number of station and total link station. (c) Please set the communication speed at 25 Mbps.
Displaying control panel screen or pop-up faceplate in OPS	(a) Please close the control panel screen or pop-up faceplate if it is not necessary in each OPS.
Different project tags exist in a same group of control panel screen	(a) Divide the control panel setting in several groups for each project.
The range of assigned device of tag that executes trend collection becomes wide	(a) Please narrow the range of assigned device of tag that executes trend collection. Assignment device of tag is displayed in tag FB declaration window of programming tool. For example, if No.1, No.2 and No.100 (line number) tags in tag FB declaration window of programming tool are monitored, please move No.100 tag to No.3 in tag FB declaration window. *1
The range of assigned device of monitor variable that executes trend collection becomes wider	(a) Gather the monitor variables which execute trend collection and assign to the devices. The assigned devices of monitor variable can be checked by the methods shown below. <ul style="list-style-type: none"> ● When a monitor variable is global variable, the Global Variable Declaration window in PX Developer programming tool For global variable in which assigned device is not specified cannot be checked. ● When a monitor variable is device direct specification, the Monitor variable setting screen For example, assign 4 monitor variables to the close addresses for each monitor variable such as D0, D1, D1000, D1001, do not assign apart such as assigning to the addresses of D0, D100, D1000, D5000.

*1: There are limits for moving (changing) tag FB line number in the tag FB declaration window of programming tool. For details, refer to "GX Works3 Operating Manual " or " PX Developer Version 1 Operating Manual (Programming Tool)".

Appendix 1.11 Communication with a redundant system

This section explains the communication with a redundant system using the monitor tool.

Appendix 1.11.1 Communication route for monitoring

The monitor tool monitors a CPU module in a redundant system via the following communication routes.

- (1) The communication route specified in "Transfer Setup".
Reads/Writes the tag data in the communication route specified for the Redundant CPU specified as the connection target.
- (2) The communication route that the monitor tool uses in the system
Always monitors CPUs of both system A and B in the two communication routes for both system A and B that the monitor tool use in the system.

Appendix 1.11.2 Monitor operation when the system is switched

This section explains the operation performed when system switching of a redundant system occurs.

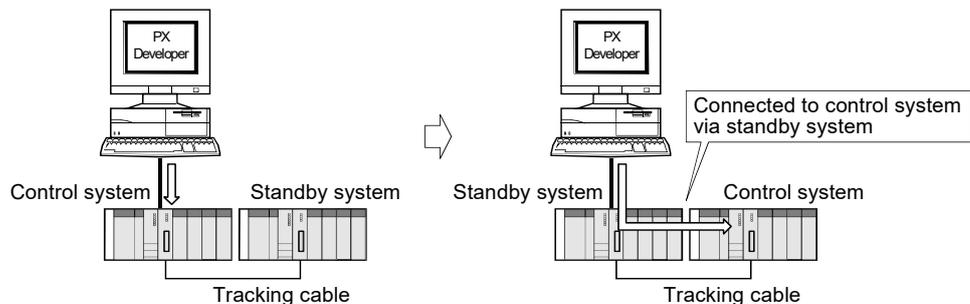
- (1) The communication route specified in "Transfer Setup".

Target system	When the system is switched
Control system	The communication is continued according to system switching.
Standby system	
System A	The communication with system A is continued.
System B	The communication with system B is continued.
Not specified	<ul style="list-style-type: none"> • Via a module mounted to a main base unit or in CPU direct coupled connection: The communication with the target CPU is continued. • Via a module mounted to the redundant type extension base unit: The communication is continued with following system switching.

<Example>

When system switching occurs during access to a redundant system with the "control system" selected as the target system, access is continued as shown below.

<CPU direct coupled connection>



- (2) Communication route used by monitor tool in system
Both System A and System B are monitored regardless of whether system switching occurred or not.

Appendix 1.11.3 Monitor operation when a communication error has occurred

This section explains the operation performed when a communication error occurs while a redundant system is being monitored.

- (1) The communication route specified in "Transfer Setup".
 - (a) In the backup mode or separate mode

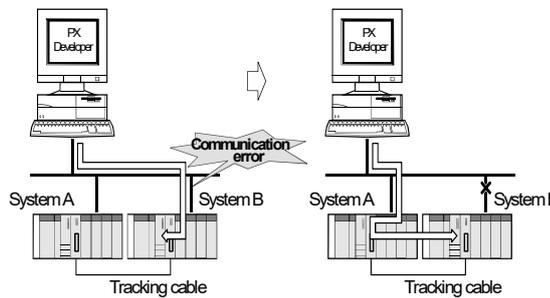
Target system	When a communication error has occurred.
Control system	When the CPU module is connected via the MELSECNET/H module or an Ethernet module mounted to a main base unit, the communication is continued by automatically switching the connection route. (Automatic switching of communication route is hereafter abbreviated to route switching.)
Standby system	
System A	
System B	
Not specified	A communication error occurs without route switching being executed.*1

*1: A communication error message is displayed and monitor operation is suspended.
The monitor operation is restarted when the normal communication of monitor tool has been confirmed.

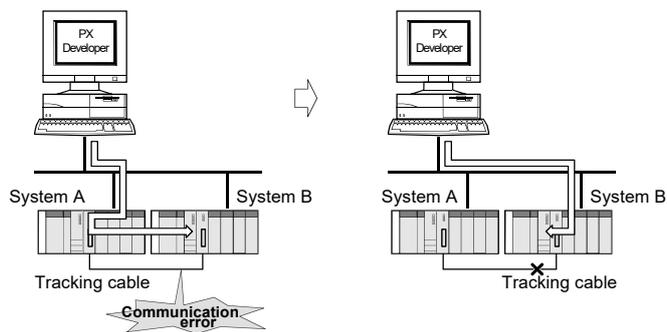
<Example>

When a communication error occurs during access to a redundant system with "System B" selected as the target system, access is continued as shown below.

1) When network error occurs



2) When tracking cable error occurs



(b) In the debug mode

A communication error occurs without route switching being executed.
(Refer to (a)*1.)

- (2) Communication route used by monitor tool in system
 - A communication error occurs without route switching being executed. (Refer to (a)*1.)

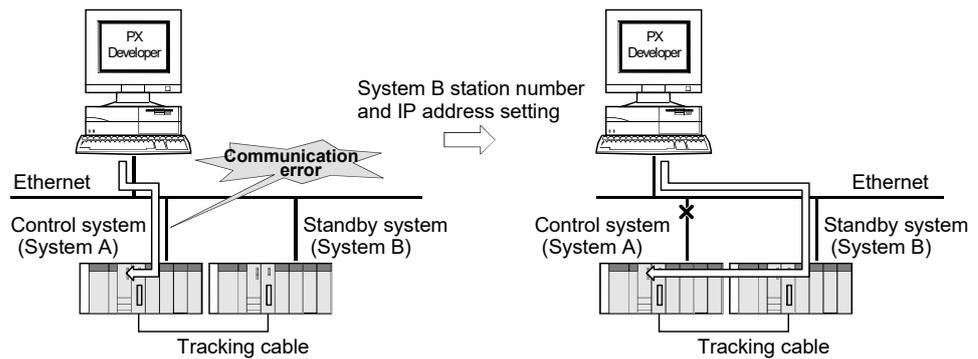
POINT

If a communication cannot be made to a CPU module set in the transfer setup at the first connection in the monitoring of a redundant system, the monitoring will not be started. The first connection indicates the following case.

- When the monitor tool is started
- When "Apply" or "Reload" button is clicked in the monitor target project setting.

In this case, restart communication after removing the communication disturbance or changing the transfer setup to the station number of the other CPU module.

<Example> When the control system is set as the target system and the station number and IP address (host name) of the Ethernet module in System A is set as the PLC side I/F on the transfer setup screen
 If communication cannot be made with the Ethernet module of System A at the first connection to the monitor tool, a communication error occurs without route switching being executed.
 To start communication in this case, set the station number and IP address (host name) of the Ethernet module in System B as the PLC side I/F.



Appendix 2 Refreshing the monitoring data in the server/client monitoring system

Appendix 2.1 Refreshing the monitoring data in a secondary server

A secondary server starts up acquiring the setting data from a primary server.
 The monitoring data are collected by the secondary server itself.
 The secondary server treats the setting data differently depending on the status of connection to the primary server.
 The following table shows the refreshing of the setting/monitoring data.

Monitoring data	Data refreshing	Status of connection to the primary server	
		Connected	Not connected
Setting data	Acquisition	The secondary server acquires the setting data and assignment information database file from the primary server when the secondary server connects to the primary server or the setting data are changed in the primary server.	The secondary server uses the setting data and assignment information database file in the secondary server.
Tag data	Read	The secondary server communicates with the PLC and reads the tag data.	
	Write	The secondary server communicates with the PLC and writes the tag data.	
Trend data	Data collection	The secondary server collects the trend data.	
Alarm data	Occurrence/recovery of alarm	The secondary server monitors the occurrence/recovery of alarms and refreshes the alarm data in the secondary server.	
	'Confirm'/ 'Confirm All'/ 'Delete Recovered Alarms' operation	The secondary server reflects each operation in the alarm data in the secondary server.	
Event data	Occurrence of event	The secondary server monitors the occurrence of events and refreshes the event data in the secondary server.	
	'Confirm'/ 'Confirm All'/ 'Delete All' operation	The secondary server reflects each operation in the event data in the secondary server.	
Trend/Alarm/Event automatic CSV file	Export/deletion	The secondary server performs the automatic export and automatic deletion.	

Appendix 2.2 Refreshing the monitoring data in clients

In the server/client monitoring system, clients acquire the monitoring data from a server periodically and display it on screens.

The refreshing period of each monitoring data is as follows.

Monitoring data	Refreshing period
Setting data	A client acquires the setting data and assignment information database file from a server when the monitor tool client starts up, when it connects to the server or when the setting data is changed in the server.
Tag data	<p>A client acquires the tag data of all tags from a server when the monitor tool client starts up, when it connects to the server or when it acquires the setting data.</p> <p>After acquiring the tag data of all tags in a batch, a client acquires the tag data of the following tags once every 0.5 second.</p> <ul style="list-style-type: none"> • Tags displayed on the control panel. • Tags displayed on the pop-up faceplate/tuning. • Tags whose tuning trend data is currently collected. • Tags referred from the tag access control/faceplate control. • Tags whose data is read/written with process control tag names of PX Developer in InTouch.
Trend data	<p>A client acquires the trend pen data of the groups concerned from a server when it displays the trend graph screen or when it switches groups.</p> <p>After acquiring the trend pen data in a batch, a client acquires the trend pen data from a server depending on the sampling period of each pen.</p> <ul style="list-style-type: none"> • Trend's sampling period is one second. Getting the trend pen data once every five seconds. • Trend sampling period is ten or more seconds. Getting the trend pen data once every ten seconds.
Alarm data	<p>A client acquires all records of the alarm data from a server with the following timing.</p> <ul style="list-style-type: none"> • When a client starts up. • When a client connects to a server. • When "Confirm All" is executed in a server/client. • When "Delete Recovered Alarms" is executed in a server/client. • When the monitor target project setting is changed in a server. <p>After acquiring all records of the alarm data in a batch, a client checks the change of the alarm data in a server once a second, acquires the differential records, and refreshes the data.</p>
Event data	<p>A client acquires all records of the event data from a server with the following timing.</p> <ul style="list-style-type: none"> • When a client starts up. • When a client connects to a server. • When "Confirm All" is executed in a server/client. • When "Delete All" is executed in a server/client. <p>After acquiring all records of the event data in a batch, a client checks the change of the event data in a server once a second, acquires the differential records, and refreshes the data.</p>
PLC communication status data	<p>A client acquires the following PLC communication status data from a server once a second.</p> <p>Acquiring the PLC communication status data enables a client to display "tag data cannot be read/written" / "tag data cannot be written" status on the faceplate.</p>

Appendix 3 Monitor Tool Startup Option

The monitor tool can be started with the monitor toolbar/start-up screen hidden and by the mode that matches the authority of the user.

Appendix 3.1 Starting under hiding status

When the monitor tool starts up, it can start up without displaying the monitor toolbar and the start-up screen if the following arguments are specified.

Argument	Operation	Example
/h or /H	Starts up the Monitor tool without displaying the monitor toolbar.	C:\Melsec\Fbdq\FBDQMon.exe /h
/nologo or /NOLOGO	Start up without displaying the start-up screen	C:\Melsec\Fbdq\FBDQMon.exe /nologo

POINT

- If starting up with specifying the arguments both /h and /nologo, the monitor tool can be activated without any influence on the displayed screen.
- If starting up without displaying the monitor toolbar (/h specified), the monitor tool starts up in the mode corresponding to the user name and its authority registered at the top of the user setting (☞ Section 9.3).

Example 1) User setting goes as follows:

No.	User name	Password	Authority
1	User001	*****	Operator1
2	User002	****	Engineer

→ use the Operator Mode to activate the monitor tool.

Example 2) Initialized user settings (as shown below)

No.	User name	Password	Authority
1	Admin	*****	Engineer
2			

→ use the Engineer Mode to activate the monitor tool.

(Normally the monitor tool is activated in the lock mode, refer to "Chapter 4 MODE ADMINISTRATION")

- If starting up with specifying the user *1 (/u, /p specified) as well as the monitor toolbar non-display (/h specified), the monitor tool starts up in the mode corresponding to the authority of the specified user.

*1: Refer to Appendix 3.3.

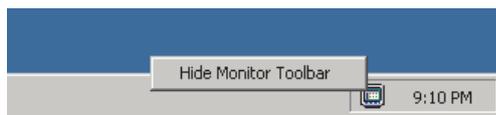
Appendix 3.2 Switching between monitor toolbar show/hide after starting

The monitor toolbar can be changed between Show/Hide after start-up.

(1) Use the icon in the task tray

The monitor toolbar can be changed between show/hide via the icon in the task tray.

The operation procedure goes as follows:



1. Start up the Monitor tool.
2. Display the icon of the monitor tool in the task tray.

[Show Monitor Toolbar]

1. If the monitor toolbar is hidden, right click the icon and select [Show Monitor Toolbar] in the displayed menu.
2. Show the monitor toolbar.

[Hide Monitor Toolbar]

1. If the monitor toolbar is in show, right click the icon in the task tray and select [Hide Monitor Toolbar] in the displayed menu.
2. The monitor toolbar is hidden again.

POINT

- If the monitor toolbar is displayed from hidden status after activation, it will not occupy "Desktop" area, and the other windows can be overlapped over the monitor toolbar and be displayed.
(When the monitor toolbar is switched from hidden status to displayed status after normal start-up, the toolbar is always displayed in front of other windows. Refer to "Section 6.1 Overview of Screen Configuration")
- When the setting window is in display, the monitor toolbar cannot be hidden.

(2) Use the control application

Display status of the monitor toolbar can be switched using MonCtrl command during the Monitor tool start-up.

Refer to Appendix 5.2.

Appendix 3.3 Starting the Monitor Tool by the Mode That Matches the Authority of the Specified User

This section explains how to specify the user who starts the monitor tool by using arguments.

Argument	Description	Example
/u or /U	Specify the user name to be used at the startup of the monitor tool by the mode that matches the authority of the specified user. (The user name is case sensitive.) Enter the user name after the argument /u and a space.	Refer to the example below.
/p or /P	Specify the password to be used at the startup of the monitor tool by the mode that matches the authority of the specified user. (The password is case sensitive.) Enter the password after the argument /p and a space. When the password has not been specified for the user (see Section 4.6), this argument specification is not needed. This argument is always used with the argument /u.	

[Example]

```
C:\Melsec\Fbdq\FBDQMon.exe /u username /p password
```

[Example (when space is included in user name or password)]

When a space is included in the user name or password, enclose the user name or password in " " (double quotations).

```
C:\Melsec\Fbdq\FBDQMon.exe /u "PX Dev" /p "mon tool"
```

POINT

- If the user name specified with the argument has not yet registered or the password does not match the preset one, the monitor tool starts up in the lock mode.
- If the user is specified (/u, /p specified) as well as the monitor toolbar is set to be hidden (/h specified), the monitor tool is started up in the mode that matches the authority of the specified user.
- When starting the monitor tool in the mode that matches the authority of the specified user, do not use a "/" (slash) or "-" (hyphen) in the first character of the user name and password.

Appendix 4 Operation authority for tag data items

Operation authority for tag data items is classified as shown below.

The authority of operation for changing can be set on User Authority Setting

( Section 9.2) per unit of classified tag data items.

Classification No.	Operation authority	Description
0	Inoperable *1	Read-only item
1	Process instruction values/Mode	Items which are to be process instruction values/mode such as SV, MV, and Mode
2	Alarm threshold values	Items which are to be alarm threshold values such as PH, HH, and SH
3	Tuning parameter values	Items which are to be tuning parameters such as P, I, D, and GG
4	Process design values	Items which are to be process design values such as INH, CT, and RH
5	Simulation/ tag stop *1	Items which are to be simulation/tag stop such as SIM and TSTP Only a user with the authority of engineer can operate the simulation/tag stop since the control output to the system is changed.

*1: The authority of operation for changing cannot be set on User Authority Setting.

(1) Loop tag (when the tag type is other than PGS, PGS2, PVAL, HTCL)

Tag data item	Classification No.	Tag data item	Classification No.	Tag data item	Classification No.	Tag data item	Classification No.
FUNC	0	INH	4	RH	4	ALM2	0
MODE	0	MLI	4	RL	4	SVLA	0
MAN	1	MHI	4	PH	2	SVHA	0
AUT	1	DVLI	4	PL	2	DSVLA	0
CAS	1	DPNI	4	HH	2	INH2	4
CMV	1	DPPI	4	LL	2	SVLL	4
CSV	1	PLI	4	SH	2	SVHL	4
CASDR	1	PHI	4	SL	2	DSVLL	4
MDIH	5 *1	LLI	4	ALPHA	3	ALML2	4
MANI	4	HHI	4	HS	2	SVLL	4
AUTI	4	SEI	4	CTIM	2	SVHL	4
CASI	4	DMLI	4	DPL	2	DSVLL	4
CMVI	4	TRKF	0	CT	4	DSVL	2
CSVI	4	ERRI	4	ST	3	DOM	0
CASDRI	4	ALML	4	SLNO	0	DOM_AT_START_SET	3
TSTPI	5	MLL	4	DML	2	DOM_AT_STOP_SET	3
ATI	4	MHL	4	DVL	2	DOM_AT_TYPE	3
OVRI	4	DVLL	4	P	3	TSTP	5
SIMI	5	DPNL	4	I	3	OVR	1
ALM	4 *1	DPPL	4	D	3	SIM	5
MLA	0	PLL	4	SDV	0	NOR	1
MHA	0	PHL	4	DR	3	DIM	0
DVLA	0	LLL	4	RMAX	4	DIM_AT_RUN	0
DPNA	0	HHL	4	RMIN	4	DIM_AT_PH	0
DPPA	0	SENL	4	GW	3	DIM_AT_PL	0
PLA	0	OOL	4	GG	3	DIM_AT_MVH	0
PHA	0	DMLL	4	DM	3	DIM_AT_MVL	0
LLA	0	SPL	4	KM	3	DIM_AT_TO	0
HHA	0	CTNO	0	TM	3	DIM_AT_MODE	0
SEA	0	CTFN	0	TM1	3	DIM_AT_ID	0
OOA	4	UNIT	4	TM2	3	DIM_PREMV	0
DMLA	0	N	4	MVP	0	DIM_MVHLD	0
SPA	4	PV	1 *2	HORIZON	3	DIM_MVTRK	0
		MV	1 *3	TRBF	3		
		SVC	0	ALPHA2	3		
		SV	1	BETA2	3		
		DV	0	CTDUTY	4		
		BIAS	3	AT1STEPMV	3		
		HS0	4	AT1ST	3		
		HS1	4	AT1TOUT1	3		
		PV1	0	AT1TOUT2	3		
		PV2	0	AT2HS	3		
		MH	2	AT2MVH	3		
		ML	2	AT2MVL	3		
				ATTYPE	3		

*1: The largest classified number in the tag data items of BOOL types that form the tag data items of WORD type

*2: For PV whose tag type is SEL, BC, or PSUM, classification number is 0.

*3: Only when the tag type is SWM, classification number is 0.

(2) Loop tag (when the tag type is PGS, PGS2)

Tag data item	Classification No.	Tag data item	Classification No.	Tag data item	Classification No.
FUNC	0	ALML	4	SH	2
MODE	0	MLL	4	SL	2
MAN	1			MHL	1
AUT	1			SVLL	4
CAS	1			SVHL	4
CMV	1			SPL	4
CSV	1			CTNO	0
MDIH	5 *1	CTFN	0	T1 to 32	1
MANI	4	UNIT	4	SV1 to 32	1
AUTI	4	N	4	MV1 to 16	1
CASI	4	PTNO	1	DOM	0
CMVI	4	STNO	1	DOM_ADV_START	1
CSVI	4	PVSTART	1	TSTP	5
TSTPI	5	MV	1	NOR	1
ALM	4	SV	1	DIM	0
MLA	0	TYP(PGS2)	0	DIM_WAIT_MODE	0
MHA	0	TYP_HOLD	1		
SVLA	0	TYP_RETURN	1		
SVHA	0	TYP_CYCLIC	1		
SPA	4	TUNIT	1		
INH	4	TYP(PGS)	1		
MLI	4	STC	1		
MHI	4	T	1		
SVLI	4	MH	2		
SVHI	4	ML	2		
ERRI	4	PV	0		

*1: The largest classified number in the tag data items of BOOL types that form the tag data items of WORD type.

(3) Loop tag (when the tag type is PVAL)

Tag data item	Classification No.	Tag data item	Classification No.	Tag data item	Classification No.
FUNC	0	ALML	4	ALML	0
MODE	0	TOL	4	SVLA	0
MAN	1	TRIPL	4	SVHA	0
AUT	1	DVLL	4	DSVLA	0
CAS	1	DPNL	4	INH2	4
CSV	1	DPPL	4	SVLI	4
MDIH	5 *1	PLL	4	SVHI	4
MANI	4	PHL	4	DSVLI	4
AUTI	4	LLL	4	ALML2	4
CASI	4	HHL	4	SVLL	4
CSVI	4	SENL	4	SVHL	4
TSTPI	5	SPL	4	DSVLL	4
OVRI	4	CTNO	0	SV	1
SIMI	5	CTFN	0	DSVL	2
ALM	4 *1	FPNO	4	DOM	0
TOA	0	PV	1	DOM_OPEN_SET	1
TRIPA	0	VOUT	0	DOM_CLOSE_SET	1
DVLA	0	VOUT_OPEN	0	DOM_STOP_SET	1
DPNA	0	VOUT_CLOSE	0	DOM_TO_RESET	1
DPPA	0	SVC	0	TSTP	5
PLA	0	DV	0	OVR	1
PHA	0	HS0	4	SIM	5
LLA	0	DBND	4	NOR	1
HHA	0	PH	2	DIM	0
SEA	0	PL	2	DIM_OPEN	0
SPA	4	HH	2	DIM_CLOSE	0
INH	4	LL	2	DIM_LOCAL	0
TOI	4	SH	2	DIM_REMOTE	0
TRUPI	4	SL	2		
DVLI	4	ALPHA	3		
DPNI	4	HS	2		
DPPI	4	CTIM	2		
PLI	4	DPL	2		
PHI	4	DVL	2		
LLI	4	TOT	2		
HHI	4	DOT	4		
SEI	4	SIMT	1		
ERRI	4				

*1: The largest classified number in the tag data items of BOOL types that form the tag data items of WORD type.

(4) Loop tag (when the tag type is HTCL)

Tag data item	Classification No.	Tag data item	Classification No.	Tag data item	Classification No.
FUNC	0	INH	4	MH_HT	2
MODE	0	MLI_HT	4	ML_HT	2
MAN	1	MHI_HT	4	MH_CL	2
AUT	1	DMLI_HT	4	ML_CL	2
CAS	1	MLI_CL	4	SH	2
CMV	1	MHI_CL	4	SL	2
CSV	1	DMLI_CL	4	DML_HT	2
MDIH	5 *1	HBOI	4	DML_CL	2
MANI	4	ERRI	4	P_HT	3
AUTI	4	ALML	4	I_HT	3
CASI	4	MLL_HT	4	D_HT	3
CMVI	4	MHL_HT	4	P_CL	3
CSVI	4	DMLL_HT	4	I_CL	3
TSTPI	5	MLL_CL	4	D_CL	3
ALM	4 *1	MHL_CL	4	DBND	3
MLA_HT	0	DMLL_CL	4	HS	4
MHA_HT	0	OOL	4	SPLT	3
DMLA_HT	0	HBOL	4	PRM_SEL	3
MLA_CL	0	SPL	4	DOM	0
MHA_CL	0	CTNO	0	TSTP	5
DMLA_CL	0	CTFN	0	NOR	1
OOA	4	FPNO	4	DIM	0
HBOA	0	PRM_TRK	3	DIM_PID_HT	0
SPA	4	MV_HT	1	DIM_PID_CL	0
		MV_CL	1		
		SV	1		

*1: The largest classified number in the tag data items of BOOL types that form the tag data items of WORD type.

(5) Alarm tag, Message tag (ALM tag type, MSG tag type)

Tag data item	Classification No.
FUNC	0
ALM	0
ALM1 to 8	0
MSG	0
MSG1 to 8	0
ALML	4
ALML1 to 8	4
MSGCHK	4
MSGCHK1 to 8	4
ALM1 to 8NO	4
MSG1 to 8NO	4

(6) Alarm tag, Message tag (ALM_64PT tag type, MSG_64PT tag type)

Tag data item	Classification No.	Tag data item	Classification No.
FUNC	0	MSG_W1	0
ALM_W1	0	MSG 1 to 16	0
ALM1 to 16	0	MSG_W2	0
ALM_W2	0	MSG 17 to 32	0
ALM17 to 32	0	MSG_W3	0
ALM_W3	0	MSG 33 to 48	0
ALM33 to 48	0	MSG_W4	0
ALM_W4	0	MSG 49 to 64	0
ALM49 to 64	0	MSGCHK_W1	4
ALML_W1	4	MSGCHK1 to 16	4
ALML1 to 16	4	MSGCHK_W2	4
ALML_W2	4	MSGCHK17 to 32	4
ALML17 to 32	4	MSGCHK_W3	4
ALML_W3	4	MSGCHK33 to 48	4
ALML33 to 48	4	MSGCHK_W4	4
ALML_W4	4	MSGCHK49 to 64	4
ALML49 to 64	4	MSG1 to 64NO	4
ALM1 to 64NO	4	MSGG1 to 8NO	4
ALMG1 to 8NO	4		

(7) Status tag

Tag data item	Classification No.	Tag data item	Classification No.	Tag data item	Classification No.
FUNC	0	RH	4	DIM_PRE_COMP2	0
MODE	0	RL	4	DIM_COMP	0
MAN	1	PH	2	DIM_ON1 to 5	0
AUT	1	CTIM	2	DIM_FWD_ST	0
MDIH	5 *1	DPL	2	DIM_REV_ST	0
MANI	4	FPNO	4	DIM_PORT_ST	0
AUTI	4	DOM	0	DIM_PORT1_ST	0
OVRI	4	DOM_OPEN_SET	1	DIM_PORT2_ST	0
SIMI	5	DOM_CLOSE_SET	1	DIM_FWD_START_IL	0
ALM	0	DOM_RUN_SET	1	DIM_FWD_RUN_IL	0
DPPA	0	DOM_HOLD_RESET	1	DIM_REV_START_IL	0
PLA	0	DOM_FWD_SET	1	DIM_REV_RUN_IL	0
PHA	0	DOM_REV_SET	1	DIM_PORT_START_IL	0
TOA	0	DOM_PORT_SET	1	DIM_PORT_RUN_IL	0
TRIPA	0	DOM_PORT1_SET	1	DIM_PORT1_START_IL	0
COMA	0	DOM_PORT2_SET	1	DIM_PORT1_FWD_IL	0
ISTA	0	DOM_PORT1_INCH	1	DIM_PORT2_START_IL	0
DPPI	4	DOM_PORT2_INCH	1	DIM_PORT2_FWD_IL	0
PHI	4	DOM_FWD_INCH	1	DIM_FWD_OUT_ST	0
ERRI	4	DOM_REV_INCH	1	DIM_REV_OUT_ST	0
TOI	4	DOM_RESET_SET	1	DIM_PORT_OUT_ST	0
TRIPI	4	DOM_RESET_START_SET	1	DIM_PORT1_OUT_ST	0
COMI	4	DOM_STOP_SET	1	DIM_PORT2_OUT_ST	0
ISTI	4	DOM_TO_RESET	1	TOT	2
ERRI	4	DOM_SET1 to 5	1	DOT	4
ALML	4	OVR	1	TMT	2
DPPL	4	SIM	5	INCHT	4
PHL	4	NOR	1	SIMT	1
TOL	4	DIM	0	FPINH	0
TRIPL	4	DIM_OPEN	0	FPINH1 to 5	4
COML	4	DIM_SEMI_CLOSE	0	BTNINH	0
ISTL	4	DIM_CLOSE	0	BTNINH1 to 5	4
CTNO	0	DIM_FWD_SET	0	FPNO1 to 5	4
CTFN	0	DIM_RUN	0	DIM2	0
UNIT	4	DIM_STOP	0	DIM2_LAMP	0
PV	0	DIM_HOLD	0	DIM2_LAMP1	0
PSV	1	DIM_REV	0	DIM2_LAMP2	0
SV	1	DIM_LOCAL	0	DIM2_LAMPA	0
SUM2	0	DIM_REMOTE	0	DIM2_LAMPB	0
SV1	1	DIM_STOP_RESET	0		
SV2	1	DIM_RESET	0		
MULT	4	DIM_PRE_COMP	0		
		DIM_PRE_COMP1	0		

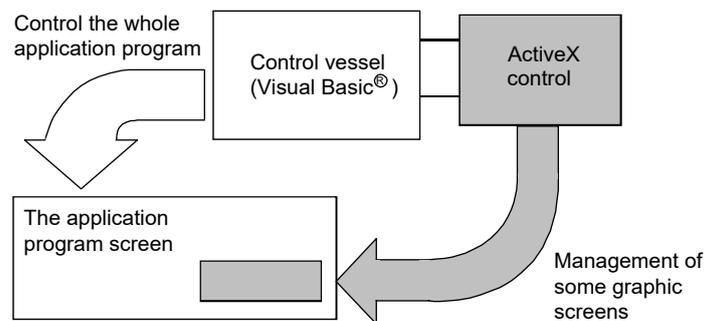
*1: The largest classified number in the tag data items of BOOL types that form the tag data items of WORD type.

Appendix 5 External Control of the Monitor Tool

Appendix 5.1 ActiveX control

The so-called ActiveX is a kind of compound technology offering service among different software components. Because the standard method of the so-called COM (Component Object Model) is adopted, different software can converse in the network environment no matter what kind of languages used for different softwares. If using ActiveX, the screens managed by other software can be embedded in the pages of Microsoft® Word®, as embedded the tables created using Microsoft® Excel® .

The so-called ActiveX control is a software component that executes particular process. It itself is not an executable application program component. ActiveX control needs to be plugged-in control containers like Visual Basic® and Web browser program. Designer can create a software with wide range of functions by combining the exiting ActiveX controls without coding all of the necessary functions.



POINT

When creating a graphic screen application which is executed with Visual Basic® in 64-bit Windows®, create as a 32-bit application since ActiveX control provided by PX Developer is 32 bit.

Appendix 5.1.1 Tag Data Access Control

Tag data access control is the ActiveX control that acquires or sets tag data value. For format such as appearance please refer to the command button control provided by Visual Basic®.

The tag data access control button can be placed on the created screen. Click the button to display pop-up faceplate screen (☞ Section 7.6) of tags. When using the tag data access control, tag data items can be specified individually regardless of the button operation, and acquire or set the value.

The tag data access control can be used as the pop-up faceplate display button or control to acquire/set tag data.

(1) When used as a display button of pop-up faceplate.

Please set the property dialog box to display faceplate at click event.

(ClickedShowFaceplate = True)

Click the tag data access control button in the screen, and the pop-up faceplate screen of the specified tag appears.

(2) Used for acquiring or setting tag data value

Set the corresponding button hidden when required.

(Visible = False).

Use the item property of tag data access control to acquire/set tag-data item value in the program.

If the acquired tag-data item value is set for display programming on other control of the screen, such as text box, the tag item value will appear in the screen.

Or, the SV value can be set on user-created screen if programming by substituting the Item property of tag data access control with input value in text box.

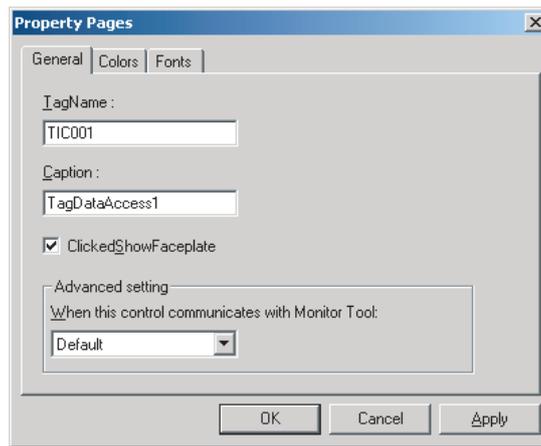
POINT
<ul style="list-style-type: none">● The faceplate cannot be displayed when the monitor tool is not started. And some value cannot be acquired/set according to the Item property.● After the faceplate is shown, even if the application program as a start-up resource is closed, the faceplate screen cannot be closed.● The faceplate control is executed through the monitor tool, so when the monitor tool is exit, the faceplate screen is closed too.

Appendix 5.1.1 [1] Custom Property

The custom property is an interface to the container provided by the controller.
 The following is a custom property list of tag data access control.

Custom property	Description
TagName	Specify the name of target tag. Additionally, properties can be acquired and set on the user-created screen.
ClickedShowFaceplate	Specify whether to show the faceplate by click event. (TRUE: display/FALSE: not display) Additionally, properties can be acquired and set on the user-created screen.
Item	Tag data item value can be acquired and set.

The <<General>> tab in the custom property dialog box can be used to set the TagName and ClickedShowFaceplate of the custom property of TagDataAccess control.



<Property dialog box>

● Advanced setting

Item	Description
When this control communicates with Monitor Tool	This setting is not applied to each control. This setting is applied as a common setting in the ActiveX container application. Default: When this control is in communication with Monitor Tool, an ActiveX container application follows the default processing. Normally, select this option. Only update screen: When this control is in communication with Monitor Tool, an ActiveX container application only updates the screen. When an error occurs in the control, the error may be resolved by using with this option.

Following paragraphs explain the custom properties of tag access data control itself.

(1) TagName property

Specify the name of the tag as access target.

TagName property	
Syntax	object.TagName
Argument	object: specify the name of tag data access control object. TagName: specify the name of tag as access object to String type character string.
Data type	String type
Comment	Specify the name of tag as access object. Additionally, tag name specified by TagName property can be acquired or set in execution. If same tag name exist in different projects, the name shall be specified in format of (project name)::(tag name). If the same tag name exist in different projects and the name is not specified in the above format, the project tag whose priority is higher is taken as the access object.
Example	<Acquire tag name> Val=TagDataAccess1.TagName <Set tag name> TagDataAccess1.TagName="LIC001" or TagDataAccess1.TagName="Project1::LIC001"

(2) Item property

Acquire/set the value of tag data item of tag name that is specified by TagName property of tag data access control.

Item property			
Syntax	Visual Basic® 6.0: object.Item("Name"), Visual Basic® .NET: Acquire tag data: object.get_Item("Name"), Set tag data: object.set_Item("Name",Value) object: specify the name of tag data access control object.		
Argument	Name: specify the tag data item name of acquire/setting value as String type character string. Value: Specify the setting value to the tag data item name as a Variant type.		
Data type	Variant type		
Comment	Acquire/setting value of tag data item in the tag that is specified by TagName property of tag data access control. Value of tag data item specified by argument "Name" can be acquire/set in execution. However, if the tag data item specified by argument "Name" does not exist, error will occur. Error object will be created when error occurs.		
Example		Visual Basic® 6.0	Visual Basic® .NET
	Acquire tag data	Debug.Print TagDataAccess1!PV or Debug.Print TagDataAccess1("PV") or Debug.Print TagDataAccess1.Item("PV")	Debug.WriteLine (TagDataAccess1!PV) or Debug.WriteLine (TagDataAccess1("PV")) or Debug.WriteLine (TagDataAccess1.get_Item("PV"))
	Set tag data	TagDataAccess1!SV = 50.0 or TagDataAccess1("SV") = 50.0 or TagDataAccess1.Item("SV") = 50.0	TagDataAccess1!SV = 50.0 or TagDataAccess1("SV") = 50.0 or TagDataAccess1.set_Item("SV",50.0)

POINT
<ul style="list-style-type: none"> ● For details about the tag item of tag data that can be written and read by users' program, refer to "PX Developer Version 1 Programming Manual". ● I/O mode and control mode can be changing. For details about mode changing conditions, refer to Section 10.3.2 and Section 10.3.3. There are limits in changing I/O mode and control mode according to different tag types. For details, refer to "PX Developer Version 1 Programming Manual". ● Tag data cannot be set in the following situations. <ol style="list-style-type: none"> 1) The mode is in the lock mode, or the user does not have authority of operation for changing the tag data item on User Authority Setting (☞ Section 9.2). (When setting the tag data, switch to a user who has the authority of operation for changing the tag data item.) For details of operation authority, refer to Appendix 4. 2) Faceplate with lockout tag (Please remove the lockout tag from the faceplate that is related to the setting tag data)

(3) ClickedShowFaceplate property

To specify whether to display show faceplate by click event.

ClickedShowFaceplate property	
Syntax	object.ClickedShowFaceplate
Argument	object: specify the name of tag data access control object. ClickedShowFaceplate: specify whether to display faceplate by click event.
Data type	Boolean type
Comments	Set whether to display faceplate by click event. TRUE: Display faceplate when click event occurs. FALSE: Does not display faceplate when click event occurs. Additionally, contents specified by ClickedShowFaceplate property can be acquired or set in execution.
Example	<Acquire whether display faceplate or not> Val=TagDataAccess1.ClickedShowFaceplate <Set whether display faceplate or not> TagDataAccess1.ClickedShowFaceplate=True or TagDataAccess1.ClickedShowFaceplate=False

Appendix 5.1.1 [2] Method

Method is the processing available for turning to objects for execution. The methods tag data access control are displayed.

- ShowFaceplate method
Pop-up faceplate displayed.
The details are as follows:

Item	Description
Name	ShowFaceplate
Grammar	object.ShowFaceplate
Argument	object: Specifying the name of tag data access control objects.
Return value	Display the executing result with Boolean type. (True: Success/False: Error Occur)
Description	Pop-up faceplate screen is displayed in modeless status. In the screen, the displayed tag data are specified by tag names set in the property of tag data access control. Error objects are generated at the occurrence of error.
Example	Dim Ret As Boolean Ret=TagDataAccess1.ShowFaceplate

Appendix 5.1.1 [3] Event

Event is a notification process about status change such as clicking control or keyboard operation from control to container.

The following events can be used in tag data access control.

For details, refer to MSDN library through the help function of Visual Basic® .

Event	Description
Click	When objects are pointed using mouse, the event occurs after releasing the button.
KeyDown	When objects are focused, the event occurs after pressing the button.
KeyUp	When objects are focused, the event occurs after releasing the button.
DragDrop	The event occurs after drag-drop operation completed.
DragOver	In the drag-drop operation, the event occurs when mouse pointer is dragged over the object.
GotFocus	The event occurs when the focus is set at the object.
LostFocus	The event occurs when the object loses the focus.
Validate	The event occurs before moving focus to the control set as True in CausesValidation Property.

Appendix 5.1.1 [4] Error list

Error detection will be executed by tag data access control in the following cases:

(1) Error objects are not created

Error message box will be listed which gives the error contents.

Occurrence timing	Message	Reasons	Measures
Click button when ClickedShowFaceplate =True	PX Developer monitor tool not found.	Monitor tool is not started.	Please start the monitor tool.
	The connection with PX Developer monitor tool failed.	Registry data has been damaged.	Please restart monitor tool.
	Failed in registering a tag name to the list of tags collected at high speed. Setting window is being displayed.	The Setting window of monitor tool is in display.	Please close the setting window.
	Failed in registering a tag name to the list of tags collected at high speed. Tag Name is incorrect.	The name set by tag name property is invalid.	Please check the tag name.
	Failed in registering a tag name to the list of tags collected at high speed. The communication with the server has failed.	(a) The content of the OPS list has been modified in the server. (b) The server does not start. (c) The server is breakdown. (d) The Ethernet cable is disconnected. (e) The Ethernet equipment such as HUB is breakdown.	(a) Refer to the recovery procedures in case of server failure in "Section 12.1 Troubleshooting" and recover the server. (b) to (e) Resolve the reasons listed in the left column, and from the help menu, execute Swiath Server for the redundant server system or Connect Server for the non-redundant server system.
	Failed in registering a tag name to the list of tags collected at high speed. The setting data has been modified in the server.	Though the setting data has been modified in the server, the secondary server/client has not acquired it yet.	Please execute Acquire Server Setting Data from the help menu in the monitor tool.
	Failed in registering a tag name to the list of tags collected at high speed. Monitor Tool is establishing a connection from this client to the server.	The request cannot be processed because the monitor tool is establishing a connection to the server.	Please wait until the connection to the server is completed.
	Failed in registering a tag name to the list of tags collected at high speed. The tag name is incorrect.	Tag name set by TagName property is invalid.	Please check tag name.
	Faceplate cannot be displayed. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the Setting window.
	Faceplate cannot be displayed. A message box is displayed. Or it is in the state which cannot display a faceplate.	(a) The message box is being displayed. (b) Waiting for the user graphic screen to be closed.	(a) Close the message box. (b) After the user graphic screen has been closed, display the faceplate.
	Faceplate cannot be displayed. Please close the currently displayed Faceplate, and try again.	A new Faceplate cannot be displayed because the Faceplate being displayed is in operation.	Please close the Faceplate being displayed.
	Faceplate cannot be displayed. The communication with the server has failed.	(a) The content of the OPS list has been modified in the server. (b) The server does not start. (c) The server is breakdown. (d) The Ethernet cable is disconnected. (e) The Ethernet equipment such as HUB is breakdown.	(a) Refer to the recovery procedures in case of server failure in "Section 12.1 Troubleshooting" and recover the server. (b) to (e) Resolve the reasons listed in the left column, and from the help menu, execute Swiath Server for the redundant server system or Connect Server for the non-redundant server system.

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Occurrence timing	Message	Reasons	Measures
Click button when ClickedShowFaceplate =True	Faceplate cannot be displayed. The setting data has been modified in the server.	Though the setting data has been modified in the server, the secondary server/client has not acquired it yet.	Please execute Acquire Server Setting Data from the help menu in the monitor tool.
	Faceplate cannot be displayed. Monitor Tool is establishing a connection from this client to the server.	The request cannot be processed because the monitor tool is establishing a connection to the server.	Please wait until the connection to the server is completed.
	The container application requires administrative privileges to perform this action. Please close the application and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the application's manual or help.	Privilege level of the container application is lower than the privilege level of the monitor tool.	Close the container application and set it to run as an administrator.
	Monitor Tool requires administrative privileges to perform this action. Please close Monitor Tool and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the following manual: PX Developer Version 1 Operating Manual (Monitor Tool)	Privilege level of the monitor tool is lower than the privilege level of the container application.	Close the monitor tool and set it to run as an administrator.

REMARK

- Control container is Visual Basic® and Web browser that ActiveX controls are inserted to and applied.
- High-speed current value collection is a type of communication executed by monitor tool. For details, refer to "Appendix 1.3 Collecting current value data". High-speed current value collection of tag set by TagName property is executed on tag data access control.

(2) Create error object

Error object will be created when error occurs. The "No." in the following table are the code numbers of the created error object.

Occurrence timing	No.	Message	Reasons	Measures
Setting TagName property	1001	PX Developer monitor tool not found.	Monitor tool is not started.	Please start the monitor tool.
	1002	The connection with PX Developer monitor tool failed.	Registry data has been damaged.	Please restart monitor tool.
	1003	Failed in registering a tag name to the list of tags collected of high speed. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the setting window.
		Failed in registering a tag name to the list of tags collected of high speed. The tag name is incorrect.	The name set by tag name property is invalid.	Please check the tag name.
		Failed in registering a tag name to the list of tags collected at high speed. The communication with the server has failed.	(a) The content of the OPS list has been modified in the server. (b) The server does not start. (c) The server is breakdown. (d) The Ethernet cable is disconnected. (e) The Ethernet equipment such as HUB is breakdown.	(a) Refer to the recovery procedures in case of server failure in "Section 12.1 Troubleshooting" and recover the server. (b) to (e) Resolve the reasons listed in the left column, and from the help menu, execute Switich Server for the redundant server system or Connect Server for the non-redundant server system.
		Failed in registering a tag name to the list of tags collected at high speed. The setting data has been modified in the server.	Though the setting data has been modified in the server, the client has not acquired it yet.	Please execute Acquire Server Setting Data from the help menu in the monitor tool.
		Failed in registering a tag name to the list of tags collected at high speed. Monitor Tool is establishing a connection from this client to the server.	The request cannot be processed because the monitor tool is establishing a connection to the server.	Please wait until the connection to the server is completed.
	1007	The processing failed because of the interruption from the windows task bar.	The pop-up menu of user-created screen is displayed on the taskbar of Microsoft® Windows® Operating System. This may occur only on Microsoft® Windows NT® Workstation 4.0 Operating System.	Please add error processing to Visual Basic® program.
	1010	The container application requires administrative privileges to perform this action. Please close the application and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the application's manual or help.	Privilege level of the container application is lower than the privilege level of the monitor tool.	Close the container application and set it to run as an administrator.
	1011	Monitor Tool requires administrative privileges to perform this action. Please close Monitor Tool and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the following manual: PX Developer Version 1 Operating Manual (Monitor Tool)	Privilege level of the monitor tool is lower than the privilege level of the container application.	Close the monitor tool and set it to run as an administrator.

Occurrence timing	No.	Message	Reasons	Measures
Executing Item property	1001	PX Developer monitor tool not found.	Monitor tool is not started.	Please start the monitor tool.
	1002	The connection with PX Developer monitor tool failed.	Registry data has been damaged.	Please restart monitor tool.
	1003	Failed in registering a tag name to the list of tags collected of high speed. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the setting window.
		Failed in registering a tag name to the list of tags collected of high speed. The tag name is incorrect.	The name set by tag name property is invalid.	Please check the tag name.
		Failed in registering a tag name to the list of tags collected at high speed. The communication with the server has failed.	(a) The content of the OPS list has been modified in the server. (b) The server does not start. (c) The server is breakdown. (d) The Ethernet cable is disconnected. (e) The Ethernet equipment such as HUB is breakdown.	(a) Refer to the recovery procedures in case of server failure in "Section 12.1 Troubleshooting" and recover the server. (b) to (e) Resolve the reasons listed in the left column, and from the help menu, execute Switth Server for the redundant server system or Connect Server for the non-redundant server system.
		Failed in registering a tag name to the list of tags collected at high speed. The setting data has been modified in the server.	Though the setting data has been modified in the server, the secondary server/client has not acquired it yet.	Please execute Acquire Server Setting Data from the help menu in the monitor tool.
		Failed in registering a tag name to the list of tags collected at high speed. Monitor Tool is establishing a connection from this client to the server.	The request cannot be processed because the monitor tool is establishing a connection to the server.	Please wait until the connection to the server is completed.
	1006 *1	Failed in acquiring the tag data. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the setting window.
		Failed in acquiring the tag data. The tag Item name incorrect.	The set tag data item name is invalid.	Please check tag data item name.
	1007	The processing failed because of the interruption from the windows task bar.	The pop-up menu of user-created screen is displayed on the taskbar of Microsoft® Windows® Operating System. This may occur only on Microsoft® Windows NT® Workstation 4.0 Operating System.	Please add error processing to Visual Basic® program.
	1008 *2	Failed in setting the tag data. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the setting window.
		Failed in setting the tag data. The current user does not have an authority to operate it. Please operate it by the user who has its operation authority.	The user is not authorized for executing this operation.	Please operate it by the user who has its operation authority.
		Failed in setting the tag data. Tag Item name is incorrect.	The set tag data Item name is invalid.	Please check the tag data item name.
		Failed in setting the tag data. This item cannot be set.	Setting value of tag data item whose value is not allowed to be set.	Please manage to acquire the value not setting the value of set tag data item.
		Failed in setting the tag data. The specified type is incorrect.	Set invalid data type to tag data item.	Set valid data type to set tag data item.
Failed in setting the tag data. Alternative bit items should be set to TRUE.		Set FALSE or 0 to this item.	Please do not set FALSE or 0 to this item.	

*1: Occur only when tag data are acquired.

*2: Occur only when tag data are set.

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Occurrence timing	No.	Message	Reasons	Measures
Executing Item property	1008 *2	Failed in setting the tag data. The state transition of Control mode is invalid.	The state transition of control mode is invalid. Tried to change control mode by specifying untransferable mode.	Specify valid mode switch.
		Failed in setting the tag data. It is not changed by the specified control mode in a present I/O mode.	Tried to change control mode when I/O mode is OVERRIDE or TAG STOP.	Set I/O mode to the mode other than OVRRIIDE and TAG STOP.
		Failed in setting the tag data. Please operate this after changing control mode into MANUAL.	The operation that is not executable in the control mode other than MANUAL is performed (I/O mode change or command bit setting in a status tag).	Set control mode to MANUAL.
		Failed in setting the tag data. The state transition of I/O mode is invalid.	Illegal mode switch is executed in I/O mode setting.	Please specify valid mode switch. For restrictions of I/O mode switch, refer to Section 10.3.2.
		Failed in setting the tag data. The corresponding disable bit is TRUE.	The corresponding disabled bit is TRUE. Example: To execute mode change to the control mode whose corresponding bit of tag data mode inhibited (MDIH) is TRUE.	Please set the corresponding inhibited bit to FALSE.
		Failed in setting the tag data. The corresponding display disable bit is TRUE.	The corresponding display disabled bit is TRUE.	Please set the corresponding display inhibited bit to FALSE.
		Failed in setting the tag data. A lockout tag is set, therefore data cannot be written.	As setting lockout tag on the faceplate, it is not allowed to set value to tag data item.	Please remove the lockout tag.
		Failed in setting the tag data. The specified item cannot be set in the current mode. (I/O mode)	To set value of items that cannot be set in the current I/O mode.	Please change to the I/O mode in which value can be set.
		Failed in setting the tag data. The specified item cannot be set in the current mode. (Control mode)	To set value of items that cannot be set in the current control mode.	Please change to the control mode in which value can be set.
		Failed in setting the tag data. The setting value is out of range. (Range: xx <= xx <= xx)	Value exceeding the range has been set.	Please set value within the range.
		Failed in setting the tag data. Communication status is abnormal.	Communication is not normally performed.	Set communication status right.
		Failed in setting the tag data. The Project ID Code of the Monitor Target Project is different from that in PLC CPU: *3	(a) The PLC connection target in the monitor target project setting is wrong. (b) PLC download has not been performed after execution of compile with the programming tool. (c) Reload of the monitor target project with the monitor tool has not been performed after execution of PLC download with the programming tool.	(a) Specify the correct connection target. (b) Perform PLC download with the programming tool. (c) Perform reload of the monitor target project with the monitor tool.
		Failed in setting the tag data. The following error is occurring. (Redundant system: System A/B identification error)	The Redundant CPU settings of network parameters are wrong, or the tracking cable has not been connected or broken when the Redundant CPU is started.	Correct the Redundant CPU settings of network parameters or connect the tracking cable correctly to reset the CPU module.
		Failed in setting the tag data. The following error is occurring. (Redundant system: Control/ Standby system status error)	The tracking cable has not been connected or broken when a CPU module in a redundant system is started.	Connect the tracking cable correctly, and reset the CPU module.
Failed in setting the tag data. The PLC type in the assignment information database is different from that of the connected PLC CPU.	The PLC connection target is wrong.	Set the correct PLC connection target.		

*2: Occur only when tag data are set.

*3: Occurs only when "Write tag data (even if the PC's and PLC's project ID codes are different)" is set to invalid in the option setting (general).

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Occurrence timing	No.	Message	Reasons	Measures	
Executing Item property	1008 *2	Failed in setting the tag data. Operate after changing the control mode into AUTO.	The control mode is not in AUTO. (at DOM_ADV_START command bit setting for PGS2)	Set the control mode to AUTO.	
		Failed in setting the tag data. The communication with the server has failed.	(a) The content of the OPS list has been modified in the server. (b) The server does not start. (c) The server is breakdown. (d) The Ethernet cable is disconnected. (e) The Ethernet equipment such as HUB is breakdown.	(a) Refer to the recovery procedures in case of server failure in "Section 12.1 Troubleshooting" and recover the server. (b) to (e) Resolve the reasons listed in the left column, and from the help menu, execute Swich Server for the redundant server system or Connect Server for the non-redundant server system.	
		Failed in setting the tag data. The setting data has been modified in the server.	Though the setting data has been modified in the server, the secondary server/client has not acquired it yet.	Please execute Acquire Server Setting Data from the help menu in the monitor tool.	
		Failed in registering a tag name to the list of tags collected at high speed. Monitor Tool is establishing a connection from this client to the server.	The request cannot be processed because the monitor tool is establishing a connection to the server.	Please wait until the connection to the server is completed.	
		Failed in setting the tag data. Operate after changing the input value of start interlock and run interlock to TRUE.	The start interlock or run interlock is FALSE at command bit setting for MTR2, MTR3, SS2P, DS2P, DS3P.	Operate after changing the input value of start interlock and run interlock to TRUE.	
		Failed in setting the tag data. Operate after resolving the communication error alarm (COMA).	The communication error alarm (COMA) is TRUE at command bit setting for the status tag.	Operate after changing the communication error alarm (COMA) to FALSE.	
		1010	The container application requires administrative privileges to perform this action. Please close the application and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the application's manual or help.	Privilege level of the container application is lower than the privilege level of the monitor tool.	Close the container application and set it to run as an administrator.
		1011	Monitor Tool requires administrative privileges to perform this action. Please close Monitor Tool and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the following manual: PX Developer Version 1 Operating Manual (Monitor Tool)	Privilege level of the monitor tool is lower than the privilege level of the container application.	Close the monitor tool and set it to run as an administrator.

*2: Occur only when tag data are set.

Occurrence timing	No.	Message	Reasons	Measures	
Executing ShowFaceplate method	1001	PX Developer monitor tool not found.	Monitor tool is not started.	Please start monitor tool.	
	1002	The connection with PX Developer monitor tool failed.	Registry data has been damaged.	Please restart monitor tool.	
	1003	Failed in registering a tag name to the list of tags collected at high speed. Setting window is being displayed.	The setting window of monitor tool is in display.		Please close the setting window.
		Failed in registering a tag name to the list of tags collected at high speed. The tag name is incorrect.	Tag name set by TagName property is invalid.		Please confirm tag name.
		Failed in registering a tag name to the list of tags collected at high speed. The communication with the server has failed.	(a) The content of the OPS list has been modified in the server. (b) The server does not start. (c) The server is breakdown. (d) The Ethernet cable is disconnected. (e) The Ethernet equipment such as HUB is breakdown.	(a) Refer to the recovery procedures in case of server failure in "Section 12.1 Troubleshooting" and recover the server. (b) to (e) Resolve the reasons listed in the left column, and from the help menu, execute Swith Server for the redundant server system or Connect Server for the non-redundant server system.	
		Failed in registering a tag name to the list of tags collected at high speed. The setting data has been modified in the server.	Though the setting data has been modified in the server, the secondary server/client has not acquired it yet.	Please execute Acquire Server Setting Data from the help menu in the monitor tool.	
		Failed in registering a tag name to the list of tags collected at high speed. Monitor Tool is establishing a connection from this client to the server.	The request cannot be processed because the monitor tool is establishing a connection to the server.	Please wait until the connection to the server is completed.	
	1005	Faceplate cannot be displayed. Setting window is being displayed.	The setting window of monitor tool is in display.		Please close the setting window.
		Faceplate cannot be displayed. A message box is displayed. Or it is in the state which cannot display a faceplate.	(a) The message box is being displayed. (b) Waiting for the user graphic screen to be closed.	(a) Close the message box. (b) After the user graphic screen has been closed, display the faceplate.	
		Faceplate cannot be displayed. Please close the currently displayed Faceplate, and try again.	A new Faceplate cannot be displayed because the Faceplate being displayed is in operation.	Please close the Faceplate being displayed.	
		Faceplate cannot be displayed. The communication with the server has failed.	(a) The content of the OPS list has been modified in the server. (b) The server does not start. (c) The server is breakdown. (d) The Ethernet cable is disconnected. (e) The Ethernet equipment such as HUB is breakdown.	(a) Refer to the recovery procedures in case of server failure in "Section 12.1 Troubleshooting" and recover the server. (b) to (e) Resolve the reasons listed in the left column, and from the help menu, execute Swith Server for the redundant server system or Connect Server for the non-redundant server system.	
		Faceplate cannot be displayed. The setting data has been modified in the server.	Though the setting data has been modified in the server, the secondary server/client has not acquired it yet.	Please execute Acquire Server Setting Data from the help menu in the monitor tool.	

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Occurrence timing	No.	Message	Reasons	Measures
Executing ShowFaceplate method	1005	Faceplate cannot be displayed. Monitor Tool is establishing a connection from this client to the server.	The request cannot be processed because the monitor tool is establishing a connection to the server.	Please wait until the connection to the server is completed.
	1007	The processing failed because of the interruption from the windows task bar.	The pop-up menu of user-created screen is displayed on the taskbar of Microsoft® Windows® Operating System. This may occur only in Microsoft® Windows NT® Workstation 4.0 Operating System.	Please add error processing to Visual Basic® program.
	1010	The container application requires administrative privileges to perform this action. Please close the application and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the application's manual or help.	Privilege level of the container application is lower than the privilege level of the monitor tool.	Close the container application and set it to run as an administrator.
	1011	Monitor Tool requires administrative privileges to perform this action. Please close Monitor Tool and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the following manual: PX Developer Version 1 Operating Manual (Monitor Tool)	Privilege level of the monitor tool is lower than the privilege level of the container application.	Close the monitor tool and set it to run as an administrator.

REMARK

- High-speed current value collection is a type of communication executed by monitor tool. For details, refer to "Appendix 1.3 Collecting current value data".
- High-speed current value collection of tag set by TagName property will be executed on the tag data access control.

Appendix 5.1.2 Faceplate Control

Faceplate control is the ActiveX control that displays faceplate on user-created screen.

The external appearance and function are as same as that of monitor tool faceplate. The faceplate can be placed freely on the user-graphic screen to be created.

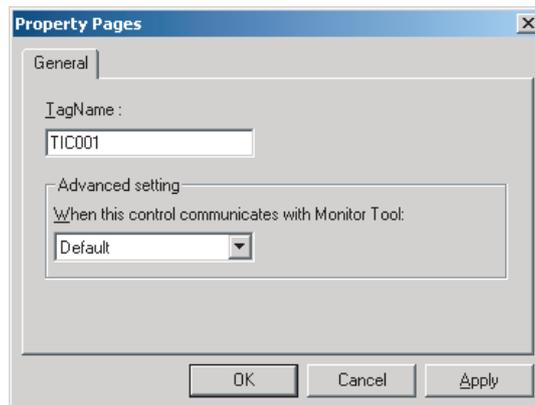
POINT
Faceplate cannot be displayed if monitor tool is not started.

Appendix 5.1.2 [1] Custom Property

The following is a list of custom properties of faceplate control.

Custom property	Description
TagName	Specify the target tag name.

Custom property TagName can be set through the <<General>> tab of property dialog box.



- Advanced setting
Refer to Appendix 5.1.1 [1]

Following table describes the contents related to the custom properties of faceplate control.

TagName property	
Comments	<p>Specify the name of tag as access target. If different projects have the same tag name, specify the name in (project name)::(tag name) format.</p> <p>If different projects have the same tag name which is not specified in the above format, the tag which priority is higher will become access target.</p> <p>If resetting the tag name in its execution, the display in a faceplate changes as well.</p> <p>When the tag name is blank, the tag name display for faceplate is also blank.</p>

Appendix 5.1.2 [2] Error list

(1) Error display by message box

When the faceplate control detects an error, the background color of tag name display area turns yellow and the tag name turns black. If the faceplate is clicked in this status, the following message will appear.

Occurrence timing	Message	Reasons	Measures
In executing faceplate controls	PX Developer monitor tool not found.	Monitor tool is not started.	Please start monitor tool.
	The connection with PX Developer monitor tool failed.	Registry data has been damaged.	Please restart monitor tool.
	Failed in registering a tag name to the list of tags collected at high speed. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the setting window.
	Failed in registering a tag name to the list of tags collected at high speed. The tag name is incorrect.	The name set by TagName property is invalid.	Please check the tag name.
	Failed in registering a tag name to the list of tags collected at high speed. The communication with the server has failed.	(a) The content of the OPS list has been modified in the server. (b) The server does not start. (c) The server is breakdown. (d) The Ethernet cable is disconnected. (e) The Ethernet equipment such as HUB is breakdown.	(a) Refer to the recovery procedures in case of server failure in "Section 12.1 Troubleshooting" and recover the server. (b) to (e) Resolve the reasons listed in the left column, and from the help menu, execute Switch Server for the redundant server system or Connect Server for the non-redundant server system.
	Failed in registering a tag name to the list of tags collected at high speed. The setting data has been modified in the server.	Though the setting data has been modified in the server, the secondary server/client has not acquired it yet.	Please execute Acquire Server Setting Data from the help menu in the monitor tool.
	Failed in registering a tag name to the list of tags collected at high speed. Monitor Tool is establishing a connection from this client to the server.	The request cannot be processed because the monitor tool is establishing a connection to the server.	Please wait until the connection to the server is completed.
	Failed in acquiring the tag data. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the setting window.
	The processing failed because of the interruption from the windows task bar.	The pop-up menu of user-created screen is displayed on the taskbar of Microsoft® Windows® Operating System. This may occur only in Microsoft® Windows NT® Workstation 4.0 Operating System.	Please close the pop-up menu.
	Failed in acquiring the faceplate setting information. Setting window is being displayed.	Setting window is being displayed.	Close the setting window.
Faceplate cannot be displayed. The communication with the server has failed.	(a) The content of the OPS list has been modified in the server. (b) The server does not start. (c) The server is breakdown. (d) The Ethernet cable is disconnected. (e) The Ethernet equipment such as HUB is breakdown.	(a) Refer to the recovery procedures in case of server failure in "Section 12.1 Troubleshooting" and recover the server. (b) to (e) Resolve the reasons listed in the left column, and from the help menu, execute Switch Server for the redundant server system or Connect Server for the non-redundant server system.	

(To the next page)

Occurrence timing	Message	Reasons	Measures
In executing faceplate controls	Faceplate cannot be displayed. The setting data has been modified in the server.	Though the setting data has been modified in the server, the secondary server/client has not acquired it yet.	Please execute Acquire Server Setting Data from the help menu in the monitor tool.
	Faceplate cannot be displayed. Monitor Tool is establishing a connection from this client to the server.	The request cannot be processed because the monitor tool is establishing a connection to the server.	Please wait until the connection to the server is completed.
	Failed in setting the tag data. The communication with the server has failed.	(a) The content of the OPS list has been modified in the server. (b) The server does not start. (c) The server is breakdown. (d) The Ethernet cable is disconnected. (e) The Ethernet equipment such as HUB is breakdown.	(a) Refer to the recovery procedures in case of server failure in "Section 12.1 Troubleshooting" and recover the server. (b) to (e) Resolve the reasons listed in the left column, and from the help menu, execute Swich Server for the redundant server system or Connect Server for the non-redundant server system.
	Failed in setting the tag data. The setting data has been modified in the server.	Though the setting data has been modified in the server, the secondary server/client has not acquired it yet.	Please execute Acquire Server Setting Data from the help menu in the monitor tool.
	Failed in setting the tag data. Monitor Tool is establishing a connection from this client to the server.	The request cannot be processed because the monitor tool is establishing a connection to the server.	Please wait until the connection to the server is completed.
	The container application requires administrative privileges to perform this action. Please close the application and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the application's manual or help.	Privilege level of the container application is lower than the privilege level of the monitor tool.	Close the container application and set it to run as an administrator.
	Monitor Tool requires administrative privileges to perform this action. Please close Monitor Tool and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the following manual: PX Developer Version 1 Operating Manual (Monitor Tool)	Privilege level of the monitor tool is lower than the privilege level of the container application.	Close the monitor tool and set it to run as an administrator.

(2) Creation of error object

Error object will be created when an error occurs. The No.s in the following table are the code numbers of the created error objects.

Occurrence timing	No.	Message	Reasons	Measures
Calling or Setting TagName property	1001	PX Developer monitor tool not found.	Monitor tool is not started.	Please start the monitor tool.
	1002	The connection with PX Developer monitor tool failed.	Registry data has been damaged.	Please restart monitor tool.
	1003	Failed in registering a tag name to the list of tags collected of high speed. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the setting window.
		Failed in registering a tag name to the list of tags collected of high speed. The tag name is incorrect.	The name set by tag name property is invalid.	Please check the tag name.
		Failed in registering a tag name to the list of tags collected of high speed. The communication with the server has failed.	(a) The content of the OPS list has been modified in the server. (b) The server does not start. (c) The server is breakdown. (d) The Ethernet cable is disconnected. (e) The Ethernet equipment such as HUB is breakdown.	(a) Refer to the recovery procedures in case of server failure in "Section 12.1 Troubleshooting" and recover the server. (b) to (e) Resolve the reasons listed in the left column, and from the help menu, execute Switich Server for the redundant server system or Connect Server for the non-redundant server system.
		Failed in registering a tag name to the list of tags collected of high speed. The setting data has been modified in the server.	Though the setting data has been modified in the server, the secondary server/client has not acquired it yet.	Please execute Acquire Server Setting Data from the help menu in the monitor tool.
		Failed in registering a tag name to the list of tags collected at high speed. Monitor Tool is establishing a connection from this client to the server.	The request cannot be processed because the monitor tool is establishing a connection to the server.	Please wait until the connection to the server is completed.
	1007	The processing failed because of the interruption from the windows task bar.	The pop-up menu of user-created screen is displayed on the taskbar of Microsoft® Windows® Operating System. This may occur only on Microsoft® Windows NT® Workstation 4.0 Operating System.	Please add error processing to Visual Basic® program.
	1009	Failed in acquiring the faceplate setting information.	Setting window is being displayed.	Please close the setting window.
Calling or Setting TagName property	1010	The container application requires administrative privileges to perform this action. Please close the application and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the application's manual or help.	Privilege level of the container application is lower than the privilege level of the monitor tool.	Close the container application and set it to run as an administrator.
	1011	Monitor Tool requires administrative privileges to perform this action. Please close Monitor Tool and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the following manual: PX Developer Version 1 Operating Manual (Monitor Tool)	Privilege level of the monitor tool is lower than the privilege level of the container application.	Close the monitor tool and set it to run as an administrator.

REMARK

High-speed current value collection is one type of communication executed by monitor tool.

For details, refer to "Appendix 1.3 Collecting current value data".

High-speed current value collection of tag set by TagName property will be executed on the tag data access control.

Appendix 5.2 MonCtrl command

Functions of the monitor tool can be called from external applications, such as Microsoft® Visual Basic® using the MonCtrl command (MonCtrl.exe).

(1) Restrictions on the MonCtrl command

The monitor tool cannot be called in the following cases:

- when the monitor tool is not started
- when the setting window is displayed
- when the "Change Mode" dialog box is displayed
- when the monitor toolbar is displaying modal dialog boxes (message box or error message)
- when the monitor toolbar is closing an application opened from the user-created screen buttons
- when the monitor screen is displayed additionally as the fifth screen in multi-window mode

(2) Arguments of the MonCtrl command

The following shows arguments used for the MonCtrl command. Only one function (argument) can be specified.

Item	Argument*1	Description*2						
Hide monitor Toolbar	/hide or /h	Hides the monitor toolbar. <table border="1" style="width: 100%;"> <tr> <td>Format</td> <td>MonCtrl.exe /hide or MonCtrl.exe /h</td> </tr> </table>	Format	MonCtrl.exe /hide or MonCtrl.exe /h				
Format	MonCtrl.exe /hide or MonCtrl.exe /h							
Display monitor Toolbar	/show or /s	Displays the monitor toolbar. <table border="1" style="width: 100%;"> <tr> <td>Format</td> <td>MonCtrl.exe /show or MonCtrl.exe /s</td> </tr> </table>	Format	MonCtrl.exe /show or MonCtrl.exe /s				
Format	MonCtrl.exe /show or MonCtrl.exe /s							
Exit monitor tool	/exit or /e	Exits the monitor tool. <table border="1" style="width: 100%;"> <tr> <td>Format</td> <td>MonCtrl.exe /exit or MonCtrl.exe /e</td> </tr> <tr> <td>Restrictions</td> <td>When the monitor toolbar is displayed, only a user who has the authority of operation for exiting the monitor tool can exit.</td> </tr> <tr> <td>Point</td> <td>Confirmation dialog box is not displayed. Exits regardless of the mode (lock mode, operator mode or engineer mode) if the monitor toolbar is hidden.</td> </tr> </table>	Format	MonCtrl.exe /exit or MonCtrl.exe /e	Restrictions	When the monitor toolbar is displayed, only a user who has the authority of operation for exiting the monitor tool can exit.	Point	Confirmation dialog box is not displayed. Exits regardless of the mode (lock mode, operator mode or engineer mode) if the monitor toolbar is hidden.
Format	MonCtrl.exe /exit or MonCtrl.exe /e							
Restrictions	When the monitor toolbar is displayed, only a user who has the authority of operation for exiting the monitor tool can exit.							
Point	Confirmation dialog box is not displayed. Exits regardless of the mode (lock mode, operator mode or engineer mode) if the monitor toolbar is hidden.							
Display control panel	/controlpanel	Displays the control panel with the specified group name. <table border="1" style="width: 100%;"> <tr> <td>Format</td> <td>MonCtrl.exe /controlpanel [Group name] [/position <u>left coordinate</u>, <u>top coordinate</u>, <u>right coordinate</u>, <u>bottom coordinate</u>] [/maximize]</td> </tr> </table>	Format	MonCtrl.exe /controlpanel [Group name] [/position <u>left coordinate</u> , <u>top coordinate</u> , <u>right coordinate</u> , <u>bottom coordinate</u>] [/maximize]				
Format	MonCtrl.exe /controlpanel [Group name] [/position <u>left coordinate</u> , <u>top coordinate</u> , <u>right coordinate</u> , <u>bottom coordinate</u>] [/maximize]							
Display trend graph	/trend	Displays the trend graph with the specified group name. <table border="1" style="width: 100%;"> <tr> <td>Format</td> <td>MonCtrl.exe /trend [Group name] [/position <u>left coordinate</u>, <u>top coordinate</u>, <u>right coordinate</u>, <u>bottom coordinate</u>] [/maximize]</td> </tr> <tr> <td>Restrictions</td> <td>When specifying trend graph display position, the Monitor tool adjusts height to three-quarters of width automatically if height exceeds three-quarters of width.</td> </tr> </table>	Format	MonCtrl.exe /trend [Group name] [/position <u>left coordinate</u> , <u>top coordinate</u> , <u>right coordinate</u> , <u>bottom coordinate</u>] [/maximize]	Restrictions	When specifying trend graph display position, the Monitor tool adjusts height to three-quarters of width automatically if height exceeds three-quarters of width.		
Format	MonCtrl.exe /trend [Group name] [/position <u>left coordinate</u> , <u>top coordinate</u> , <u>right coordinate</u> , <u>bottom coordinate</u>] [/maximize]							
Restrictions	When specifying trend graph display position, the Monitor tool adjusts height to three-quarters of width automatically if height exceeds three-quarters of width.							
Display alarm list	/alarm	Displays the Alarm list screen. <table border="1" style="width: 100%;"> <tr> <td>Format</td> <td>MonCtrl.exe /alarm [/position <u>left coordinate</u>, <u>top coordinate</u>, <u>right coordinate</u>, <u>bottom coordinate</u>] [/maximize]</td> </tr> </table>	Format	MonCtrl.exe /alarm [/position <u>left coordinate</u> , <u>top coordinate</u> , <u>right coordinate</u> , <u>bottom coordinate</u>] [/maximize]				
Format	MonCtrl.exe /alarm [/position <u>left coordinate</u> , <u>top coordinate</u> , <u>right coordinate</u> , <u>bottom coordinate</u>] [/maximize]							

Item	Argument*1	Description*2				
Display event list	/event	<p>Displays the event list screen.</p> <table border="1"> <tr> <td>Format</td> <td>MonCtrl.exe /event [/position <u>left coordinate</u>, <u>top coordinate</u>, <u>right coordinate</u>, <u>bottom coordinate</u>] [/maximize]</td> </tr> </table>	Format	MonCtrl.exe /event [/position <u>left coordinate</u> , <u>top coordinate</u> , <u>right coordinate</u> , <u>bottom coordinate</u>] [/maximize]		
Format	MonCtrl.exe /event [/position <u>left coordinate</u> , <u>top coordinate</u> , <u>right coordinate</u> , <u>bottom coordinate</u>] [/maximize]					
Display pop-up faceplate screen	/faceplate	<p>Displays the pop-up faceplate screen with the specified tag name.</p> <table border="1"> <tr> <td>Format</td> <td>MonCtrl.exe /faceplate <u>tag name</u> [/position <u>left coordinate</u>, <u>top coordinate</u>, <u>right coordinate</u>, <u>bottom coordinate</u>]</td> </tr> <tr> <td>Restrictions</td> <td>When specifying faceplate display coordinates, the monitor tool adjusts aspect ratio to 5:1 automatically.</td> </tr> </table>	Format	MonCtrl.exe /faceplate <u>tag name</u> [/position <u>left coordinate</u> , <u>top coordinate</u> , <u>right coordinate</u> , <u>bottom coordinate</u>]	Restrictions	When specifying faceplate display coordinates, the monitor tool adjusts aspect ratio to 5:1 automatically.
Format	MonCtrl.exe /faceplate <u>tag name</u> [/position <u>left coordinate</u> , <u>top coordinate</u> , <u>right coordinate</u> , <u>bottom coordinate</u>]					
Restrictions	When specifying faceplate display coordinates, the monitor tool adjusts aspect ratio to 5:1 automatically.					
Display find screen	/find	<p>Displays the find screen.</p> <table border="1"> <tr> <td>Format</td> <td>MonCtrl.exe /find</td> </tr> </table>	Format	MonCtrl.exe /find		
Format	MonCtrl.exe /find					
Change mode	/changemode	<p>Displays the change mode screen. When user name and password are specified for argument, the mode is changed according to the registered user authority. When "/lock" is specified for argument, the mode is changed to lock mode. Note that user name, password, and lock are specified for argument, the change mode screen is not displayed.</p> <table border="1"> <tr> <td>Format</td> <td>MonCtrl.exe /changemode [/user <u>User name</u> [/password <u>Password</u>]] or MonCtrl.exe /changemode [/u <u>User name</u> [/p <u>Password</u>]] or MonCtrl.exe /changemode /lock</td> </tr> <tr> <td>Restrictions</td> <td>When the Change mode screen is displayed, mode cannot be changed.</td> </tr> </table>	Format	MonCtrl.exe /changemode [/user <u>User name</u> [/password <u>Password</u>]] or MonCtrl.exe /changemode [/u <u>User name</u> [/p <u>Password</u>]] or MonCtrl.exe /changemode /lock	Restrictions	When the Change mode screen is displayed, mode cannot be changed.
Format	MonCtrl.exe /changemode [/user <u>User name</u> [/password <u>Password</u>]] or MonCtrl.exe /changemode [/u <u>User name</u> [/p <u>Password</u>]] or MonCtrl.exe /changemode /lock					
Restrictions	When the Change mode screen is displayed, mode cannot be changed.					
Display PLC communication status screen	/comstatus	<p>Displays the PLC communication status screen.</p> <table border="1"> <tr> <td>Format</td> <td>MonCtrl.exe /comstatus</td> </tr> </table>	Format	MonCtrl.exe /comstatus		
Format	MonCtrl.exe /comstatus					
Display Server/Client communication status screen	/cscmstatus	<p>Displays the Server/Client communication status screen.</p> <table border="1"> <tr> <td>Format</td> <td>MonCtrl.exe /cscmstatus</td> </tr> </table>	Format	MonCtrl.exe /cscmstatus		
Format	MonCtrl.exe /cscmstatus					
Stop buzzer	/buzzeroff	<p>Stops the buzzer of the monitor tool.</p> <table border="1"> <tr> <td>Format</td> <td>MonCtrl.exe /buzzeroff</td> </tr> <tr> <td>Restrictions</td> <td>A user who has the authority of operation for stopping the buzzer can stop.</td> </tr> </table>	Format	MonCtrl.exe /buzzeroff	Restrictions	A user who has the authority of operation for stopping the buzzer can stop.
Format	MonCtrl.exe /buzzeroff					
Restrictions	A user who has the authority of operation for stopping the buzzer can stop.					

*1: Arguments are not case-sensitive.

*2: Format is written without path. For actual use, describe with full path (refer to Application examples of the MonCtrl command) according to the install destination of PX Developer.

The following shows regulations for notation of arguments.

Notation	Description
Underline (_)	Information that the user must specify
Bracket ([])	Omittable item

POINT
<ul style="list-style-type: none"> • "/" (slash) and "-" (hyphen) cannot be used for the first character of group names, user names or passwords. • Group names, user names or passwords are case-sensitive. If group names, user names or passwords include any spaces, are included, quote them using double quotation(""). • When group names, user names or passwords include double quotation ("), specify them using three double quotations (""") for one double quotation ("). Example) Specify "abc """"def" for the user name "abc "def".

(3) Display position and maximum display specification

The following explains the method for specifying display position and maximum display.

The display position and maximum display can be specified using the following arguments in combination with the arguments for display position and maximum display.

/controlpanel, /trend, /alarm, /event, /faceplate

Item	Argument*1	Description*2		
Display position	/position	Specifies the display position of a window.		
		<table border="1"> <tr> <td>Format</td> <td>/position <u>left coordinate</u>, <u>top coordinate</u>, <u>right coordinate</u>, <u>bottom coordinate</u></td> </tr> <tr> <td>Point</td> <td> <ul style="list-style-type: none"> In single-window mode, this argument specification is ignored because the window is always displayed at maximum on the primary monitor. Note when displaying the pop-up faceplate screen, the window is displayed at the specified coordinates position. Specify the left, right, top, and bottom of coordinates within the range of -32768 to 32767, without including spaces and tabs between commas and numbers. </td> </tr> </table>	Format	/position <u>left coordinate</u> , <u>top coordinate</u> , <u>right coordinate</u> , <u>bottom coordinate</u>
Format	/position <u>left coordinate</u> , <u>top coordinate</u> , <u>right coordinate</u> , <u>bottom coordinate</u>			
Point	<ul style="list-style-type: none"> In single-window mode, this argument specification is ignored because the window is always displayed at maximum on the primary monitor. Note when displaying the pop-up faceplate screen, the window is displayed at the specified coordinates position. Specify the left, right, top, and bottom of coordinates within the range of -32768 to 32767, without including spaces and tabs between commas and numbers. 			
Maximum display	/maximize	Displays a window in its maximum size.		
		<table border="1"> <tr> <td>Format</td> <td>/maximize</td> </tr> <tr> <td>Point</td> <td> <ul style="list-style-type: none"> Display coordinates at disabling maximum display can be set in advance by specifying an argument"/maximize" after "/position". In single-window mode, this argument specification is ignored. </td> </tr> </table>	Format	/maximize
Format	/maximize			
Point	<ul style="list-style-type: none"> Display coordinates at disabling maximum display can be set in advance by specifying an argument"/maximize" after "/position". In single-window mode, this argument specification is ignored. 			

*1: Arguments are not case-sensitive.

*2: The following table shows regulations for notation of arguments.

Notation	Description
Underline (_)	Information must be specified by a user

Application examples of the MonCtrl command

The following shows the application examples of the MonCtrl command using Microsoft® Visual Basic® application.

- Calling the faceplate whose tag name is TIC001
Dim RetVal
RetVal = Shell ("C:\Melsec\fbdq\MonCtrl.exe /faceplate TIC001")
- Calling the control panel whose group name is A tank by specifying the display position
Dim RetVal
RetVal = Shell ("C:\Melsec\fbdq\MonCtrl.exe /controlpanel A Tank /position 110,150,1180,980")
- Calling the Change Mode screen
Dim RetVal
RetVal = Shell ("C:\Melsec\fbdq\MonCtrl.exe /changemode")

Appendix 6 Functions Added to and Changed from Old Version

The following table indicates the functions added and changed with this upgrade.

Compatible version*1	Added/changed function	Addition/change	Reference
Version 1.04E	Microsoft® Windows® XP compatibility	Compatible with Microsoft® Windows® XP Professional and Microsoft® Windows® XP Home Edition.	Section 2.2
	Help menu	The error codes related to the CPU module error can be displayed from the monitor tool.	Section 6.3.1 (5)
	Pop-up window	If a new pop-up window is opened when two pop-up windows have already displayed, the first opened one of the two on-screen windows is closed automatically.	Section 6.5.2
	Event list	The history of starting and exiting the monitor tool and the history of loading the monitor target projects are left as event history.	Section 7.4.1
	Pop-up tuning window	<ul style="list-style-type: none"> ● In pop-up tuning, the BOOL type items are displayed in a tree form. Also, BOOL type tag data can be changed. ● The pop-up tuning window size can be changed regardless of the aspect ratio. 	Section 7.7
	Number of event notifications received on communication condition screen	The number of event notifications received on the communication condition screen is changed to the "-----" at a communication error, etc.	Section 8.5
	Automatic CSV file export	The function that outputs trend, alarm and event data to CSV files automatically is added.	Section 8.7
	Monitor target project setting	Whether the file specified in the monitor target project setting can be used with the monitor tool or not is displayed.	Section 9.4
	Write tag data (even if the PC's and PLC's project ID codes are different)	The setting can be made to disable tag data write at a project ID code inconsistency.	Section 9.17 (1)
	Disk free space check	The disk free space check size can be set.	Section 9.17 (1)
	Faceplate	<ul style="list-style-type: none"> ● The "Close" button is added to the faceplate. ● The display direction of the PV value bar on the faceplate can be changed. ● When a project ID code inconsistency is detected, the background of the tag name is changed to light blue, and tag data write can be disabled. ● The stop alarm (SPA) can be reset from the faceplate. 	Section 10.1
	PLC status check	The error of the CPU module can be detected on the monitor tool. (The error is displayed as an alarm.) Also, the consistency between the monitor target project set with the monitor tool and the project in the CPU module is checked.	Appendix 1.9
Monitor tool startup option	The monitor tool can be started up by the mode that matches the authority of the user. (The user name and password can be specified with the arguments for monitor tool startup.)	Appendix 3.3	

*1: The compatible version can be confirmed within About PX Developer.

For details, refer to "Section 6.3.1 (5) Display button of help menu".

Compatible version*1	Added/changed function	Addition/change	Reference
Version 1.06G	Supported CPU	The Redundant CPU is supported.	Section 2.1.1
	Monitor tool startup	The monitor tool can be started without GX Developer.	Section 5.1 Appendix 3.1
	Alarm list	The following system alarms have been added. <ul style="list-style-type: none"> ● Redundant system PLC parameter read error ● Redundant system A/B identification error ● Redundant system control/standby status error ● PLC type inconsistency ● Event notification source error ● Event notification data receiving error 	Section 7.3.1
	Even list	The following system events have been added. <ul style="list-style-type: none"> ● Redundant system control switching history ● Redundant system operation mode switching history 	Section 7.4.1
	Communication condition screen	The display of redundant system status has been added.	Section 8.5
	Monitor target project setting screen	"Transfer Setup" dialog box varies with the CPU type.	Section 9.4
	Communication function	In the redundant system, event notification is issued when the operation status or operation mode is changed.	Appendix 1.2
Version 1.10L	Communication route	The following communication route are extended. <ul style="list-style-type: none"> ● C24 connection, MELSECNET/H remote connection and G4 module connection in serial/USB ● CC-Link connection ● Coexistence network connection of other station 	Section 2.1.2 Section 9.4
	Changing the I/O mode	The mode selection in the change I/O mode dialog box is changed to a toggle button.	Section 10.3.2
	Changing the control mode	<ul style="list-style-type: none"> ● The mode selection in the change control mode dialog box is changed to a toggle button ● No restrictions on control mode transition 	Section 10.3.3 Section 10.5
	Changing the motion type	The mode selection in the change motion type dialog box is changed to a toggle button.	Section 10.3.4
	Tag data access control	The Visual Basic® .NET is supported.	Appendix 5.1.1
	Faceplate control	<ul style="list-style-type: none"> ● The Visual Basic® .NET is supported ● Tag name change during execution is enabled ● Error contents of an error object have been added 	Appendix 5.1.2
	Event notification	The unreceivable cases of event notification have been added. <ul style="list-style-type: none"> ● CC-Link connection ● When connecting a PLC via MELSECNET/10(H) and Ethernet in single network connection or connecting in coexistence network connection ● When performing a monitor tool in a PC CPU, a PLC CPU is connected using MELSECNET/H module 	Section 8.5.1
	Alarm list	SVLA and SVHA of ALM2 item have been added (changed with the addition of 2PIDH).	Section 7.3
	Event list	Tag stop has been added to the status change history for I/O mode (changed with the addition of 2PIDH).	Section 7.4

*1: The compatible version can be confirmed within About PX Developer.

For details, refer to "Section 6.3.1 (5) Display button of help menu".

Compatible version*1	Added/changed function	Addition/change	Reference
Version 1.10L	Pop-up tuning	The tag monitor is changed to a tab display (Basic/All tab). Only highly used tag items are displayed in the Basic tab.	Section 7.7
		Changed the specifications of the tuning trend collection instructions button and the status display (enabled to restart tuning trend without clearing the data).	Section 7.7.3
		2PIDH has been added to auto tuning target.	Section 7.7.5
	Setting window	The status bar has been added. If the x icon is displayed in the setting item, an error message will be displayed in the status bar.	Section 9.1.1 Section 9.4 Section 9.7 Section 9.8 Section 9.14
	Option setting (Faceplate)	SV limit excess setting, SV Pointer Color (2PIDH) and MV status color have been added to the setting item.	Section 9.17
	Faceplate	2PIDH (2-degree-of-freedom Advanced PID control) has been added to the tag type.	Section 10.5 Section 10.5.2
		SVA has been added to the alarm display (changed with the addition of 2PIDH).	Section 10.1
		Tag stop (TAG STOP) mode has been added to the I/O mode (changed with the addition of 2PIDH).	Section 10.3.2 Section 10.3.3
		The restriction on the I/O mode transition by operation mode is added.	
		CASCADE DIRECT mode has been added to the control mode (changed with the addition of 2PIDH).	Section 10.3.3 Section 10.3.1
		The restriction on the control mode transition by I/O mode has been added.	
		The PV setting button has been added to the operation display type. PV value can be set in a faceplate.	Section 10.3.7
		SV limit excess setting has been added to the SV setting.	Section 10.3.8
Version 1.14Q	Monitor toolbar	Tag comment is added for alarm/event.	Section 6.3.1
		Event is added for the target of the faceplate screen display button.	Section 6.3.1
		The alarm list screen/event list screen are changed to be displayed by double-clicking.	Section 6.3.1
	Event list	Faceplate is changed to be displayed by double-clicking.	Section 7.4.1
		Status change record for PGS2 is added.	Section 7.4.1
	Pop-up tuning	Descriptions for PGS2 are added.	Section 7.7.1
	Option setting	Alarm/event display format of monitor toolbar is added.	Section 9.17
	Operation display type	The executing step No. setting button, time in the step setting button, and pattern graph display have been added.	Section 10.3.1 Section 10.3.5 Section 10.3.6
	Faceplate	PGS2 (Multi-point program setter) has been added to the tag type.	Section 10.5.5
	Auto tuning	Limit Cycle method is added. An existing method is defined as Step Response, the method can be selected.	Section 3.2 Section 7.7.5
	User-created	The detail setting for interacting with GT SoftGOT1000 has been added. The MonCtrl command option for controlling the monitor tool from Microsoft® Visual Basic® application has been added.	Chapter 11 Appendix 5.2

*1: The compatible version can be confirmed within About PX Developer.

For details, refer to "Section 6.3.1 (5) Display button of help menu".

Compatible version*1	Added/changed function	Addition/change	Reference
Version 1.14Q	Communication route	Specifications of redundant type extension base unit are added.	Section 2.1.2
	Trend graph	"Displays tag comment instead of tag name" checkbox has been added and the display can be switched between tag name and tag comment.	Section 7.2
	Alarm list	"Tag Comment" has been added to the display item. "Tag Comment" has been added to Print and Export to CSV file.	Section 7.3
	Event list	"Tag Comment" has been added to the display item. "Tag Comment" has been added to Print and Export to CSV file.	Section 7.4
	Automatic alarm CSV file export	"Tag Comment" has been added to the export item.	Section 8.7.2
	Automatic event CSV file export	"Tag Comment" has been added to the export item.	Section 8.7.3
	Option setting	Item Name Display Format has been added to an item in Trend Graph.	Section 9.17
Version 1.18U	SCADA interaction	Interaction function with InTouch has been added.	PX Developer Version 1 Operating Manual (InTouch Interaction)
	Communication route	CC-Link IE Controller Network is supported.	Chapter 2 Section 9.4
	Supported CPU	Q02PHCPU and Q06PHCPU are supported.	Section 2.1.1
	Supported OS	Windows Vista® is supported.	Section 2.2
	Generate GOT screen	GOT screen generator function has been added.	Section 9.1
	Faceplate		00A has been added to the alarm display.
		The scale high/low limit display area illuminates when the PV value is outside the range of engineering high/low limit.	Section 10.3.7
Version 1.20W	Monitoring system configuration with Monitor Tool	<ul style="list-style-type: none"> ● The server/client monitoring system can be configured. ● Up to 16 PLCs can be connected. ● Compatible with the redundant server system configuration. 	Section 2.1.6 Section 5.1 Section 8.6 Section 8.7 Section 9.4 Section 9.5
	Monitor toolbar	<ul style="list-style-type: none"> ● As substitute for tag names, tag comments can be displayed in the alarm/event display area. ● Display character counts in the alarm/event display area have been flexible depending on the screen resolution. 	Section 6.3.1
	Pop-up faceplate	Up to 4 screens can be displayed.	Section 6.5.2 Section 7.6
	Alarm list	The following system alarms have been added. <ul style="list-style-type: none"> ● Event notification execution error ● Client Communication Error 	Section 7.3.1
	Faceplate	SWM (Manual setter with monitor) tag has been added to the tag type.	Section 10.5 Section 10.5.8

*1: The compatible version can be confirmed within About PX Developer.

For details, refer to "Section 6.3.1 (5) Display button of help menu".

Compatible version*1	Added/changed function	Addition/change	Reference
Version 1.23Z	Event notification	Event notification can be received in the CC-Link IE Controller Network.	Section 2.1.2 Appendix 1.2
	Server/client monitoring system	<ul style="list-style-type: none"> ● The setting data are synchronized between primary/secondary servers. ● In the non-redundant server system, clients can reconnect to a server without quitting the monitor tool. ● System alarms: "Server Initialization Error" and "Server Communication Error" have been added in the alarm list. 	Section 2.1.6 Section 7.3.1 Section 8.6.4
	Trend graph	CSV files output by the automatic trend CSV file export function can be displayed.	Section 7.2
	Faceplate	PFC_SF (Predictive functional control (simple first order lag)), PFC_SS (Predictive functional control (simple second order lag)), and PFC_INT (Predictive functional control (integral process)) tag have been added to the tag type.	Section 10.5 Section 10.5.12
		PB (Push button operation) tag has been added to the tag type.	Section 10.6 Section 10.6.3
	Automatic trend CSV file export	Trend group names can be included in names of CSV files to be output.	Section 8.7 Section 9.7
Version 1.28E	SCADA interaction	Interaction function with JoyWatcherSuite has been added.	PX Developer Version 1 Operating Manual (JoyWatcherSuite Interaction)
	Supported OS	Windows® 7 is supported.	Section 2.2
	Trend graph	<ul style="list-style-type: none"> ● Global variables and devices can be displayed. ● The item name of trend pen and comments can be displayed simultaneously and the displayed items can be switched. ● Zoom in/out of the graph area can be operated with a mouse. ● Double-clicking the graph area allows to switch display/hide the Y-axis scale can be switched by double-clicking the graph area. 	Section 7.2 Section 8.5.3 Section 9.6 Section 9.8
	Alarm list	The following system alarm has been added. <ul style="list-style-type: none"> ● Invalid GX Simulator Version 	Section 7.3.1
	Communication error	The number of retry times can be set when a read error occurs.	Section 8.5.1 Appendix 1.7
	Monitor target project setting screen	GX Simulator connection is supported.	Section 9.4
	ActiveX control	The option that updates the ActiveX container application screen when this control is in communication with Monitor Tool is added.	Appendix 5.1

*1: The compatible version can be confirmed within About PX Developer.

For details, refer to "Section 6.3.1 (5) Display button of help menu".

Compatible version*1	Added/changed function	Addition/change	Reference
Version 1.31H	Supported OS	Windows® 7 (64-bit edition) is supported.	Section 2.2
	Mode administration	The operator authority is segmented to limit the monitoring operation in accordance with the authority.	Chapter 4 Section 9.2
	Exiting Monitor Tool	Log off/shut down of Windows® 7 is supported.	Section 5.2
	Monitor toolbar	The icons of user-created screen button and the character strings of tooltip can be changed.	Section 6.3.1
	Alarm list Event list	The detailed name of tag data item can be displayed as the alarm content/event message. Only checked items can be deleted when deleting the alarm list/event list.	Section 7.3 Section 7.4
	Server/client monitoring system	Enable/disable the time adjustment among OPSs can be selected.	Section 8.6.6 Section 9.5
	Faceplate	PVAL (Position-proportional output) and HTCL (Heating and cooling output) have been added to the tag type.	Section 10.5 Section 10.5.13 Section 10.5.14
Version 1.42U	Supported CPU	Q04UDPVCPU, Q06UDPVCPU, Q13UDPVCPU, and Q26UDPVCPU are supported.	Section 2.1.1
	Communication route	GOT transparent connection via GOT200 series is supported.	Section 2.1.2
	Supported OS	Windows® 8 is supported.	Section 2.2
	Event list	"Previous Value" has been added to the display item. "Previous Value" has been added to Print and Export to CSV file.	Section 7.4
	Monitor target project setting screen	<ul style="list-style-type: none"> ● GX Works2 format project is supported. ● GX Simulator2 connection is supported. 	Section 9.4
	Server/client monitoring system	Switching server/reconnection/no reconnection can be selected while displaying monitor screens or setting screen on the client.	Section 9.5
	Option setting	"Exit monitor tool when windows logoff or shutdown." is added to "General".	Section 9.17
	Modeless dialog box	Multiple dialog box displayed from faceplate can be displayed.	Section 10.1 (3)
	Faceplate	ALM_64PT (64-points alarm) and MSG_64PT (64-points message) have been added to the tag type.	Section 10.7 Section 10.7.2 Section 10.8 Section 10.8.2
	User-created screen	Interaction with GT SoftGOT2000 is supported.	Chapter 11
Version 1.44W	Supported OS	Windows® 8.1 is supported.	Section 2.2
	Monitoring system configuration with Monitor Tool	Up to eighteen OPSs (up to sixteen clients) can be connected.	Section 2.1.6 Section 8.6.7 Section 9.5
Version 1.47Z	Supported CPU	R08PCPU, R16PCPU, R32PCPU, and R120PCPU are supported.	Section 2.1.1
	Supported OS	Windows® 10 is supported.	Section 2.2
Version 1.49B	Supported CPU	R08PSFCPU, R16PSFCPU, R32PSFCPU, and R120PSFCPU are supported.	Section 2.1.1
Version 1.50C	Supported OS	Windows® 10 IoT Enterprise is supported.	Section 2.2
	Monitor target project setting	GX Simulator3 connection is supported.	Section 2.2.2 Section 9.4
	Monitor variable setting	Monitoring devices in an RnPCPU/RnPSFCPU is supported.	Section 9.6

*1: The compatible version can be confirmed within About PX Developer.

For details, refer to "Section 6.3.1 (5) Display button of help menu".

Compatible version*1	Added/changed function	Addition/change	Reference
Version 1.51D	Control panel	The maximum number of groups that can be registered has been changed to 1000.	Section 7.1
	Monitor target project setting	For RnPCPUs and RnPSFCPUs, an assignment information database in which 1000 tags are registered in maximum is supported.	Section 9.4
	Faceplate display scale setting	The maximum number of tags that can be registered has been changed to 16000.	Section 9.14
	Faceplate MV characters setting	The maximum number of tags that can be registered has been changed to 16000.	Section 9.15
Version 1.53F	Supported OS	Windows 2000 and Windows NT are no longer supported.	Section 2.2
Version 1.54G	Supported OS	Windows Vista and Windows XP are no longer supported.	Section 2.2
Version 1.56J	Supported OS	Windows® 11 is supported.	Section 2.2
Version 1.58L	Supported OS	Windows 8.1, Windows 8, and Windows 7 are no longer supported.	Section 2.2
	Faceplate	Monitoring the following tag types for GX Works3 are supported. MTR2, MTR3, SS2P, DS2P, DS3P	Section 10.6.4

*1: The compatible version can be confirmed within About PX Developer.
For details, refer to "Section 6.3.1 (5) Display button of help menu".

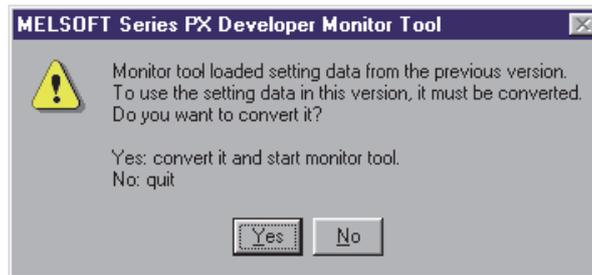
Appendix 7 Version Compatibility

The following shows the monitor tool version compatibility, version compatibility between the PX Developer programming tool and monitor tool, and version compatibility between GX Works3/GX application and monitor tool.

Appendix 7.1 Monitor tool version compatibility

(1) Setting data file

When an access is made to the setting data file of old version (when the monitor tool is started), the following dialog box appears.



Clicking "Yes" button converts the setting data file.

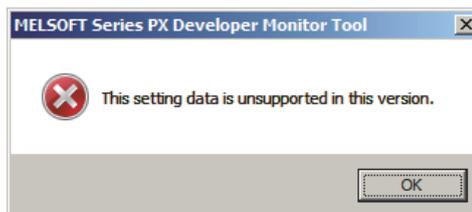
Clicking "No" button closes the dialog box without converting the setting data file. (The monitor tool is not started.)

If the setting data file contains settings that are not supported by the version being used in the following table, the following dialog box appears and the monitor tool is not started.

Version with which the setting data files were saved	Setting contents		Version with which the setting data files are used		
			1.00A to 1.43V	1.44W	1.47Z or later
1.00A to 1.43V	-		○	○	○
1.44W	OPS setting/communication setting for client 8 or later	Not use	○	○	○
		Use	○	○	○
1.47Z or later	Extension of an assignment information database (fadb)	Not use	○ ^{*1}	○ ^{*1}	○
		Use	×	×	○

○: Supported, ×: Not supported

*1: Depending on the OPS setting/communication setting for client 8 or later, the applicability of the setting data differs. The applicability of the setting data when the OPS setting/communication setting for client 8 or later is set is the same as 1.44W.



If the setting data file includes the data of unsupported PLC CPU, the following dialog box appears and the monitor tool is not started.



POINT

- When using the Version 1.04E or earlier monitor tool to communicate the setting data file created using the PX Developer Version 1.06G or later, set the PLC connection target in the monitor target project setting screen again.
- For details of setting data file, refer to Section 2.3.

(2) Alarm list data file

When an alarm list data file saved with the monitor tool version 1.30G or earlier is accessed with the monitor tool version 1.31H or later, the detailed names are not displayed on the alarm content even though "Tag Data Item Display of Alarm" on Option Setting (Alarm/Event) is set other than [Item Name].

(3) Event list data file

When an event list data file saved with the monitor tool version 1.30G or earlier is accessed with the monitor tool version 1.31H or later, the detailed names are not displayed on the event message, status, or set value even though "Tag Data Item Display of Event" on Option Setting (Alarm/Event) is set other than [Item Name].

(4) Server/client monitoring system

For the server/client monitoring system, clients and a connection server must have the same product language, and clients must satisfy the conditions of versions.

For details, refer to Section 2.2.3(1).

For the redundant server system, a primary server and secondary server must have the same product language and product version.

(5) ActiveX Control

This section explains the compatibility between the old version monitor tool and ActiveX control.

If the user graphic screen that uses the ActiveX control provided by the monitor tool is started using the old version monitor tool, the screen may not operate correctly.

When the method that does not exist in the ActiveX control provided by the old version monitor tool is called, the created user graphic will not operate correctly.

(6) Automatic CSV file export

Tag comment field is not output to Automatic alarm CSV file and Automatic event CSV file when using Monitor tool version 1.10L or earlier.

When upgrading from Version 1.10L or earlier to Version 1.14Q or later, tag comment field may not be output to Automatic alarm CSV file and Automatic event CSV file on the day when upload is carried out.

When upgrading the monitor tool from version 1.30G or earlier to version 1.31H or later, the detailed names of alarm content on the automatic alarm CSV files and event message, status, and set value on the automatic event CSV files may not output within the day.

Appendix 7.2 Version compatibility between monitor tool and PX Developer programming tool

(1) Assignment information database file

The following table shows the version compatibility between the monitor tool and the assignment information database file compiled using the programming tool.

Assignment information database file version compatibility

Monitor tool version	Programming tool version used to compile									
	1.02C to 1.04E	1.05F to 1.09K	1.10L to 1.12N	1.13P to 1.18U	1.20W	1.23Z	1.28E to 1.34L	1.42U to 1.44W	1.47Z to 1.50C	1.51D or later
1.02C to 1.03D	○	×	×	×	×	×	×	×	×	×
1.04E	○	×	×	×	×	×	×	×	×	×
1.05F to 1.09K	○	○	△ *1	△ *1	△ *1 *4	△ *1 *4	△ *1 *4 *5	△ *1 *4 *5 *6	△ *1 *4 *5 *6 *7	△ *1 *4 *5 *6 *7 *8
1.10L to 1.12N	○	○	○	○	△ *2 *4	△ *2 *4	△ *2 *4 *5	△ *2 *4 *5 *6	△ *2 *4 *5 *6 *7	△ *2 *4 *5 *6 *7 *8
1.13P to 1.18U	○	○	△ *3	○	△ *2 *4	△ *2 *4	△ *2 *4 *5	△ *2 *4 *5 *6	△ *2 *4 *5 *6 *7	△ *2 *4 *5 *6 *7 *8
1.20W	○	○	△ *3	○	○	△ *2	△ *2 *5	△ *2 *5 *6	△ *2 *5 *6 *7	△ *2 *5 *6 *7 *8
1.23Z	○	○	△ *3	○	○	○	△ *5	△ *5 *6	△ *5 *6 *7	△ *5 *6 *7 *8
1.28E to 1.34L	○	○	△ *3	○	○	○	○	△ *6	△ *6 *7	△ *6 *7 *8
1.42U to 1.48A	○	○	△ *3	○	○	○	○	○	△ *7	△ *7 *8
1.49B to 1.50C	○	○	△ *3	○	○	○	○	○	○	△ *8
1.51D or later	○	○	△ *3	○	○	○	○	○	○	○

○: Usable, △: Usable with restrictions, × : Not compatible

- *1: Can be used if tags with tag type added in PX Developer Version 1.10L or later are not set to assignment information database files. The following shows the tag types added for each version.

Version	Tag type
1.10L	2PIDH
1.11M	PGS2
1.20W	SWM
1.22Y	PFC_SF, PFC_SS, PFC_INT, PB
1.31H	PVAL, HTCL
1.42U	ALM_64PT, MSG_64PT

- *2: Cannot be used only tag type which cannot be recognized in monitor tool of the versions concerned. For tag type added in the versions, refer to *1 shown in the above table.
- *3: Auto tuning by the Limit Cycle method cannot be used.
- *4: Cannot be used if the start of file register (ZR) has been changed from the default in the <<System Resource>> tab in the project parameter setting of the PX Developer programming tool.
- *5: Can be used if the device variables added to Version 1.28E is not set to assignment information database files.
- *6: Cannot be used if GX project type is GX Works2 project.
- *7: Cannot be used if the type of CPU module set in a GX Works3 project is not supported by the monitor tool.
- *8: Can be used if the maximum number of tags is 480 or less. When using an assignment information database file (*.fadb) exported from a project that the maximum number of tags is set to 481 or more in GX Works3, use the monitor tool of PX Developer Version 1.51D or later.

(2) Event notification

When the Version 1.04E or earlier monitor tool is used to monitor the PLC CPU that includes projects compiled with the Version 1.06G or later PX Developer programming tool, the event notification cannot be received.

To receive the event notification, use the Version 1.06G or later monitor tool.

Appendix 7.3 Combined use of monitor tool and GX Works3/GX application

The following table shows the combined use of the monitor tool and GX Works3/GX application.

Monitor tool version	Restrictions on monitor tool startup
1.02C to 1.04E	GX Developer Version 7.20W or later must be installed.
1.06G to 1.34L	GX Developer is not required.* ¹
1.42U to 1.44W	Installation of GX Works2 or GX Developer is not required. * ²
1.47Z or later	Installation of GX Works3, GX Works2, or GX Developer is not required. * ² * ³

*1: GX Developer must be installed only when displaying CPU error help.
The help details of the installed GX Developer will be displayed.

*2: GX Works2 or GX Developer must be installed only when displaying CPU error help.
The help details of the installed GX Works2 or GX Developer will be displayed.

*3: e-Manual Viewer must be installed and the e-Manual of "MELSEC iQ-R CPU Module User's Manual (Application)" must be downloaded when displaying CPU error help for RCP.

Appendix 8 Difference of terms used for PX Developer and GX Works3

Between PX Developer and GX Works3, different terms are used for a same function. The following table shows the difference of the terms.

PX Developer term	GX Works3 term
Compile	Convert
Download	Write to PLC
Operation mode	Operation mode change
Redundant parameter setting	Redundant System Settings
Tracking setting	Tracking transfer
Project parameter setting	[Tool]-[Options]-[Convert]-[Process Control Extension Setting]
Tag FB declaration window	Tag FB setting editor
Network parameter	Module Parameter
Open setting	External Device Configuration

Appendix 9 Precautions for connecting with a PLC where a GX Works3 project has been written

The following table shows the tag items that are displayed with different names between PX Developer Monitor Tool and GX Works3.

Tag type	Tag item name		Comment
	PX Developer Monitor Tool	GX Works3	
PID	N	N_	No. of digits after the decimal point
	PH	PH_	PV High Limit Alarm Value
	P	PROPORTIONAL	Gain
	I	INTEGRAL	Integral Time
	D	DERIVATIVE	Derivative Time
2PID	N	N_	No. of digits after the decimal point
	PH	PH_	PV High Limit Alarm Value
	P	PROPORTIONAL	Gain
	I	INTEGRAL	Integral Time
	D	DERIVATIVE	Derivative Time
2PIDH	N	N_	No. of digits after the decimal point
	PH	PH_	PV High Limit Alarm Value
	P	PROPORTIONAL	Gain
	I	INTEGRAL	Integral Time
	D	DERIVATIVE	Derivative Time
PIDP	N	N_	No. of digits after the decimal point
	PH	PH_	PV High Limit Alarm Value
	P	PROPORTIONAL	Gain
	I	INTEGRAL	Integral Time
	D	DERIVATIVE	Derivative Time

Tag type	Tag item name		Comment
	PX Developer Monitor Tool	GX Works3	
SPI	N	N	No. of digits after the decimal point
	PH	PH	PV High Limit Alarm Value
	ST	ST	Operating Time
	P	PROPORTIONAL	Gain
	I	INTEGRAL	Integral Time
IPD	N	N	No. of digits after the decimal point
	PH	PH	PV High Limit Alarm Value
	P	PROPORTIONAL	Gain
	I	INTEGRAL	Integral Time
	D	DERIVATIVE	Derivative Time
BPI	N	N	No. of digits after the decimal point
	PH	PH	PV High Limit Alarm Value
	P	PROPORTIONAL	Gain
	I	INTEGRAL	Integral Time
R	N	N	No. of digits after the decimal point
	PH	PH	PV High Limit Alarm Value
ONF2	N	N	No. of digits after the decimal point
	PH	PH	PV High Limit Alarm Value
ONF3	N	N	No. of digits after the decimal point
	PH	PH	PV High Limit Alarm Value
PGS	N	N	No. of digits after the decimal point
PGS2	N	N	No. of digits after the decimal point
	T	T	Time in the step
	T1	T1	Time Span of Step 1
	T2	T2	Time Span of Step 2
	T3	T3	Time Span of Step 3
	T4	T4	Time Span of Step 4
	T5	T5	Time Span of Step 5
	T6	T6	Time Span of Step 6
	T7	T7	Time Span of Step 7
	T8	T8	Time Span of Step 8
	T9	T9	Time Span of Step 9
	T10	T10	Time Span of Step 10
	T11	T11	Time Span of Step 11
	T12	T12	Time Span of Step 12
	T13	T13	Time Span of Step 13
	T14	T14	Time Span of Step 14
	T15	T15	Time Span of Step 15
	T16	T16	Time Span of Step 16
	T17	T17	Time Span of Step 17
	T18	T18	Time Span of Step 18
	T19	T19	Time Span of Step 19
T20	T20	Time Span of Step 20	

Tag type	Tag item name		Comment
	PX Developer Monitor Tool	GX Works3	
PGS2	T21	T21	Time Span of Step 21
	T22	T22	Time Span of Step 22
	T23	T23	Time Span of Step 23
	T24	T24	Time Span of Step 24
	T25	T25	Time Span of Step 25
	T26	T26	Time Span of Step 26
	T27	T27	Time Span of Step 27
	T28	T28	Time Span of Step 28
	T29	T29	Time Span of Step 29
	T30	T30	Time Span of Step 30
	T31	T31	Time Span of Step 31
	T32	T32	Time Span of Step 32
MOUT	N	N	No. of digits after the decimal point
MONI	N	N	No. of digits after the decimal point
	PH	PH	PV High Limit Alarm Value
MWM	N	N	No. of digits after the decimal point
	PH	PH	PV High Limit Alarm Value
SWM	N	N	No. of digits after the decimal point
	PH	PH	PV High Limit Alarm Value
SEL	N	N	No. of digits after the decimal point
BC	PH	PH	PV High Limit Alarm Value
PVAL	PH	PH	PV High Limit Alarm Value

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