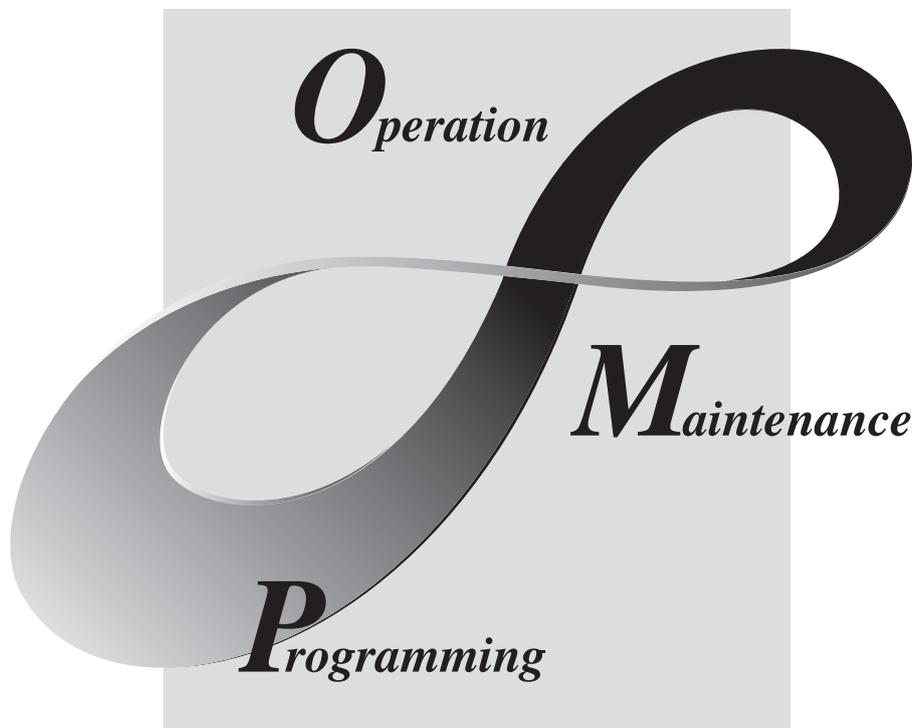


MX Sheet Version 1

Operating Manual

mitsubishi



MELSOFT
Integrated FA Software

SW1D5C-SHEET-E

• SAFETY PRECAUTIONS •

(Always read these instructions before using this equipment.)

Before using this product, please read this manual and the relevant manuals introduced in this manual carefully and pay full attention to safety to handle the product correctly.

The instructions given in this manual are concerned with this product. For the safety instructions of the programmable controller system, please read the CPU module user's manual.

In this manual, the safety instructions 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 instructions of both levels because they are important to personal safety.

Please keep this manual in a convenient place so that you can refer to it and always forward it to the end user.

[Design Instructions]

WARNING

- Build an interlock circuit outside the PLC system to ensure that the whole system always works safely when changing the data of the running PLC or controlling the PLC status from the personal computer.
In addition, be sure to incorporate the corrective action into the system to deal with the communication error due to the poor cable connection while operating the PLC CPU online from the peripheral device.

[Operating Precautions]

CAUTION

- Read the manual carefully and confirm the safety before connecting a personal computer to the running CPU module to perform the online operation (especially forced output and operating status change).
Incorrect operation may cause the machine damage and accidents.

• CONDITIONS OF USE FOR THE PRODUCT •

- (1) Mitsubishi 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 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'S USER, 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 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 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 representative in your region.

REVISIONS

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

Print Date	* Manual Number	Revision
Aug., 2002	SH (NA)-080348E-A	First edition
Dec., 2003	SH (NA)-080348E-B	<p>Correction</p> <p>Section 6.2.1, Section 6.3.1, Section 6.4.1, Section 6.5.1, Section 17.4, Appendix 2</p>
Aug., 2004	SH (NA)-080348E-C	<p>New Addition</p> <p>Chapter 14, Chapter 15, Chapter 16</p> <p>Correction</p> <p>Operating Precautions, How to Use This Manual, Section 1.1, Section 2.1, Section 3.1, Chapter 4, Chapter 5, Section 6.1, Section 6.2, Section 6.3, Section 6.4, Section 6.5, Section 6.6, Chapter 7, Chapter 8, Section 10.1, Section 10.2, Chapter 11, Section 12.1, Section 12.3, Chapter 14 to 17 changed to Chapter 17 to 20, Appendix 2, Appendix 3, Appendix 5</p>
Sep., 2005	SH (NA)-080348E-D	<p>New Addition</p> <p>Appendix 8</p> <p>Correction</p> <p>Precautions on setting MX Sheet, Section 2.1, Section 3.1, Section 3.2, Section 6.2, Section 6.2.2, Section 6.2.3, Section 6.3, Section 6.3.3, Section 6.4, Section 6.4.3, Section 6.5, Section 6.5.4, Section 6.6, Section 6.6.2, Section 6.6.4, Appendix 2</p>
Nov., 2006	SH (NA)-080348E-E	<p>Correction</p> <p>Section 7.2</p>
Oct., 2007	SH (NA)-080348E-F	<p>Correction</p> <p>Operating Precautions, Generic Terms and Abbreviations, Section 2.1, Section 3.1, Chapter 5, Section 6.2.1, Section 7.2, Section 10.1, Section 10.2, Section 14.1, Section 20.1, Appendix 2, Appendix 8</p>
May, 2008	SH (NA)-080348E-G	<p>Correction</p> <p>Section 6.2.1, Section 6.3.1, Section 6.4.1, Section 6.5.1, Section 6.6.1, Section 6.6.3</p>
Jun., 2009	SH (NA)-080348E-H	<p>Correction</p> <p>Operating Precautions, Manuals, Packing List, Section 6.2.1, Section 7.2, Appendix 7, Appendix 8.1</p>

Print Date	* Manual Number	Revision
Dec., 2009	SH (NA)-080348E-I	<p>[Addition]</p> <p>CONDITIONS OF USE FOR THE PRODUCT</p> <p>[Correction]</p> <p>SAFETY PRECAUTIONS, Section 3.2, Chapter 9</p>
May, 2010	SH (NA)-080348E-J	<p>[Addition]</p> <p>Operating Precautions, Generic Terms and Abbreviations, Section 2.1, Section 7.2, Chapter 4, Section 6.2.2, Section 20.1, Appendix 1, Appendix 8, Appendix 9</p> <p>[Correction]</p> <p>Section 6.2.5, Section 6.4.2</p>
May, 2011	SH (NA)-080348E-K	<p>[New Addition]</p> <p>Appendix 9</p> <p>[Addition]</p> <p>Operating Precautions, Generic Terms and Abbreviations, Section 2.1, Chapter 5, Section 6.2.1, Section 6.2.6, Section 7.2, Chapter 9, Section 10.1, Section 10.2, Section 14.1, Appendix 3, Appendix 9</p> <p>[Correction]</p> <p>Appendix 9 changed to Appendix 10</p>

Japanese Manual Version SH-080346-K

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Operating Precautions

This section provides precautions in the following order.

- 1) Precautions on OS and personal computer
- 2) Precautions on setting MX Sheet
- 3) Precautions on editing cells and Excel sheets
- 4) Precautions on communication
- 5) Precautions on use of VBA
- 6) Precautions on use of other MELSOFT products

Precautions on OS and personal computer

- (1) When using of Microsoft® Windows NT® Workstation Operating System Version 4.0, Microsoft® Windows® 2000 Professional Operating System, Microsoft® Windows® XP Professional Operating System, Microsoft® Windows® XP Home Edition, Windows Vista®, and Windows® 7

To make/change Communication Settings, a user who has an administrator authority must log on.

The administrator authority is also required to execute the data conversion function (refer to Chapter 20).

If the user account that does not have the administrator authority is used to execute the data conversion function, MX Links/MX Chart data cannot be converted.

- (2) Coexistence of different Excel versions

When different versions of Excel exist in a single personal computer, MX Sheet will not operate normally. For example, Excel 2000 and Excel 2002 cannot coexist.

- (3) Resume function, etc. of personal computer

If any of the following has been set to the personal computer where MX Sheet is installed, a communication error will occur during communication with the PLC.

Do not set the following functions on the personal computer.

- Resume function
- Suspend function
- Power saving function
- Standby mode

Precautions on setting MX Sheet

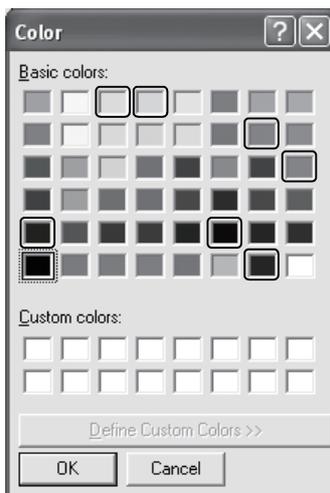
- (1) **Word designation for bit and bit designation for word**
In the following tabs and dialog boxes, word designation for bit (e.g. K4M0) and bit designation for word (e.g. D0.0) cannot be set.
 - 1) <<Access Data>> tab *1
 - 2) <<Device Trigger>> Tab
 - 3) <<Handshake>> tab
 - 4) "Automatic Save" dialog box
 - 5) "Automatic Print" dialog box

*1: When using MX Sheet Version 1.06 G or later, the device can be set by means of bit designated for word device (e.g. D0.0).

- (2) **Reading character strings**
When character strings are read from the PLC, the device data which prefix is either of the following characters are not displayed normally on an Excel sheet. When reading character strings from the PLC, make proper setting so that either of the following characters will not be prefixed.
 - 1) = (equal)
 - 2) ' (single quotation)

- (3) **Save of Excel sheets**
If the file name specified in the "Automatic Save" dialog box or "Operating when cell is full" of the <<Use>> tab already exists, the old data is discarded and overwritten.
Make proper setting so that the file name specified in the "Automatic Save" dialog box or "Operating when cell is full" of the <<Use>> tab does not overlap those of the other Excel books.

- (4) **Color designation**
 - (a) **Color designation**
When using Excel 2003 or earlier and specifying any of the following colors for "Set the Color of Grid line" or "Set the Color for Filling" on the <<Use>> tab, the actual display color differs from the specified color.

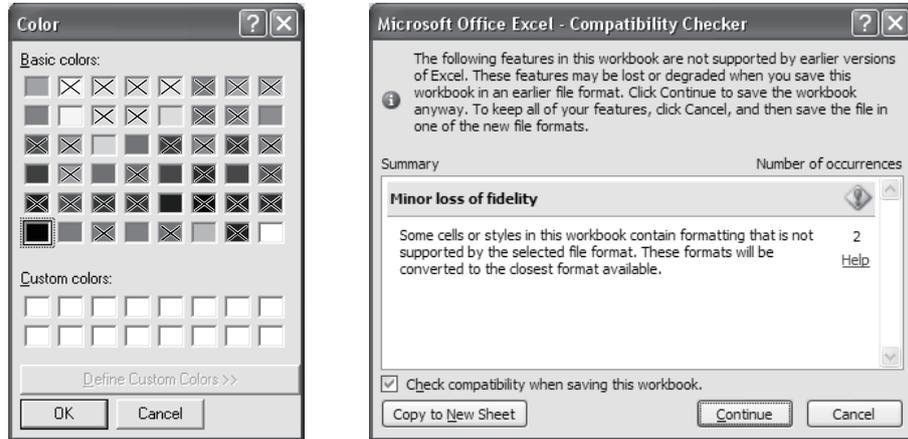


- (b) **Color designation from Excel**
If the line color and cell filling color have been specified from "Format Cells", of Excel, the colors specified in "Set the Color of Grind line" and "Set the Color for Filling" of the <<Use>> tab are made invalid.

(c) Compatibility check

In Excel 2007 or later, when setting colors to a Book in Excel from 97 to 2003 version with Cell Settings of MX Sheet, if specifying the color of  on the following screen, the Compatibility Checker screen appears on the Excel at saving the Book.

< Compatibility Checker screen >



(5) Operation guarantee according to version

Due to the upgrade, the functions of the MX Sheet have been added/extended. Operate the Excel book where MX Sheet functions are set with the MX Sheet whose version is the same or later than the set MX Sheet for operation guarantee.

For description of the added/extended functions, refer to APPENDIX 8.

(6) Excel sheet where buttons are placed

When the Start Communication, End Communication or 1 Shot Communication button placed on the Excel sheet is focused, do not log off from Windows or exit from Windows without closing the Excel book.

To do so will display the following message and disable exit from Excel.



(7) Size of saved Excel file according to Format Cells

On Excel, Format Cells increases the saved file size.

Also on MX Sheet, the size of the saved Excel file may become several M bytes or more since Format Cells is changed according to the setting.

(Example)

- When "Set the Color of Grid line" or "Set the Color of Filling" is checked on the <<Use>> Tab
- When Logging is selected and "Add date and time details" is checked on the <<Use>> Tab
- When Alarm Summary is selected on the <<Use>> Tab
- When "Character string" is specified as the Data Type on the <<Access Data>> Tab
- When "HEX" is specified as the Value on the <<Access Data>> Tab

Precautions on editing cells and Excel sheets

(1) Save function

If either of the following settings has been made to the Excel book where the ActiveX controls and forms have been applied, continuous operation of the personal computer will cause insufficient memory.

If insufficient memory has occurred, shut down the personal computer periodically.

- Save function of MX Sheet (automatic save function or save is performed when cell is full)
- Save function is called in a VBA program.

Excel 2007 or later may require much time to save a Book than Excel 2003 or earlier.

For expected time, refer to APPENDIX 3 (4).

(2) Changing of Excel sheet name

When changing the sheet name of the Excel sheet where MX Sheet has been set, change it from [MX Sheet] → [Change Sheet Name].

(It can also be changed from the toolbar (icons) or a right-click of the mouse.)

If the sheet name is changed directly from Excel or from a VBA program, MX Sheet will not operate normally.

If this happens due to sheet name change, set the previous sheet name again.

(3) ErrorLog sheet

(a) Setting of sheet protection (workbook protection)

Do not set "Protect Sheet" and "Protect Workbook" to the ErrorLog sheet.

If such setting is made, the ErrorLog sheet will not operate normally.

(b) Sheet name

In the Excel book where MX Sheet has been set, do not give the name "ErrorLog" to newly created worksheet, chart or dialog sheet.

If this happens, the ErrorLog sheet created by MX Sheet will not operate normally.

(4) Application error occurring during use of Excel 2000

If an application error occurs at an exit from Excel 2000, check the symptoms and corrective measures at the following URL site (as of July, 2002 *1).

<http://www.microsoft.com/JAPAN/support/kb/articles/jp319/8/02.asp>

Document number: JP319802

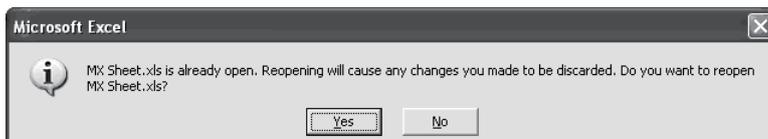
Title: [XL2000] Opening the file that has been sent using Outlook Express results in a forced end at an exit from Excel

*1: The URL is valid as of July, 2002.

If the URL has been changed, confirm the above document number and title and contact Microsoft Corporation.

Precautions on communication

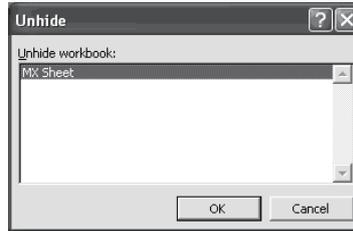
- (1) **Communication between personal computer and PLC**
When PLC device data are collected/written using MX Sheet, the communication restrictions that apply to MX Component also occur between the personal computer and PLC.
For the restrictions on communications between the personal computer and PLC, refer to the MX Component Operating Manual.
- (2) **Preview setting of Excel**
When starting the communication of MX Sheet, do not activate the preview setting (print preview, etc.) of Excel.
If the communication of MX Sheet is started with the preview setting of Excel active, a memory leak will occur.
- (3) **Simultaneous communication from multiple Excel books**
Multiple Excel books where MX Sheet setting has been made cannot be started on a single personal computer to make communication simultaneously.
- (4) **When communicating Excel book is double-started**
Do not make a double start (restart) of the Excel book that is communicating using MX Sheet.
If such operation is performed, the following dialog box appears.
Click **No** to interrupt a double start (restart).



- (5) **When logoff/shutdown is executed during communication**
Do not log off or shut down the personal computer during usual communication or 1 shot communication.
Log off or shut down the personal computer after terminating the communication with the PLC and exiting from Excel.
If logoff or shutdown of the personal computer is executed during communication, the following symptoms will be observed.
In this case, take corrective actions to restore the system.
 - (a) **Symptom**
When MX Sheet setting is made, only the frame of Excel is displayed.
 - (b) **Corrective action**
In the following procedure, remove the hide attributes of the Excel book and overwrite the Excel book to restore the system.
 - 1) Choose [Window] → [Unhide] in the Excel menu.



2) Choose the hidden Excel book and click OK .



3) As the Excel book appears, save the Excel book.

(6) USB communication

If the USB cable is connected/disconnected, the PLC CPU is reset or PLC is powered on/off frequently during communication with the PLC CPU, a communication error occurs and communication cannot be returned to normal. If this happens, disconnect the USB cable completely, leave it for 5 seconds or more and reconnect it. (An error may occur at the time of initial communication after the above operation, however, communication will be made normally at and after the second time.)

(7) Excel operation during communication

(a) If Excel is in either of the following status, MX Sheet cannot execute operations on Excel (e.g. display into cells, or save or print of an Excel book).

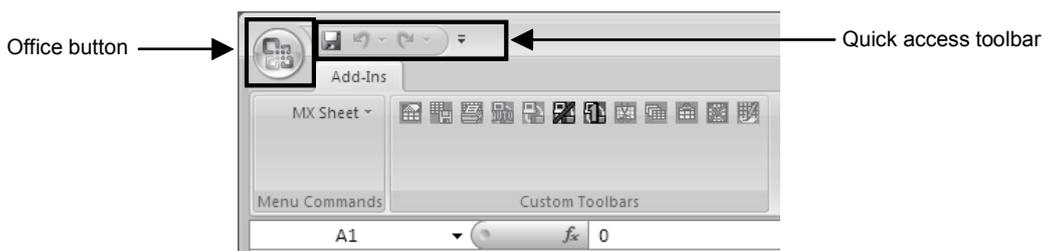
- A cell is in input status (e.g. a cell is double-clicked, or the cursor is at the formula bar).
- A message box or a dialog box is displayed on Excel.

Minimize the number of input processes on Excel during communications.

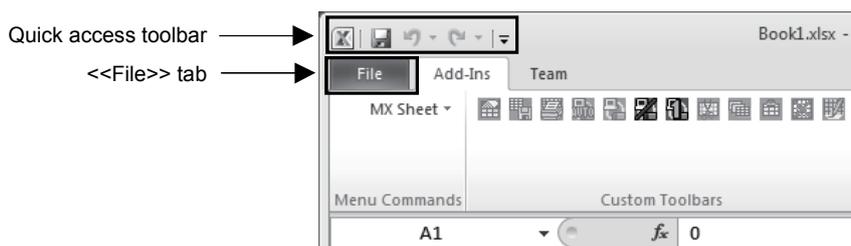
(b) The operation of Excel during communication is restricted as follows:

- Excel 2000/2002/2003 hides the menu bar and toolbar.
- Excel 2007 hides tabs on the ribbon.

Although the office button and the quick access toolbar are displayed, do not operate them during communications.

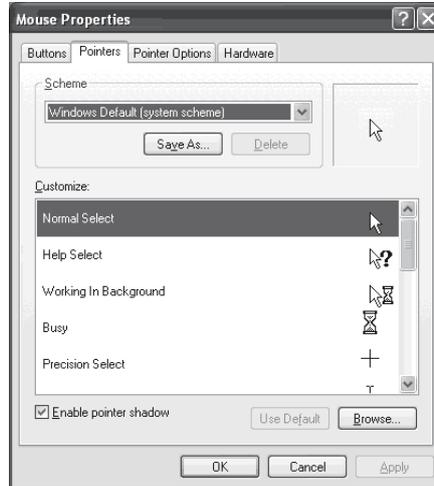


- Excel 2010 hides tabs on the ribbon. Although the <<File>> tab and the quick access toolbar are displayed, do not operate them during communications.



(8) Mouse cursor during communication

While MX Sheet is communicating, the mouse cursor setting of an Excel sheet is fixed to the one of "Normal Select" in "Mouse Properties".



(9) Change to Design Mode of Excel during communication

For Excel during communication, do not change to the Design Mode using the toolbar or similar means. To do so may disable normal operation of MX Sheet.



(10) Continuous operation when saving data automatically in HTML format

Do not operate MX Sheet continuously when the Automatic save function is set to save data in HTML format.

For operating MX Sheet continuously, exit and reactivate Excel periodically.

If data are saved repeatedly in HTML format with the Automatic save function, Excel may not operate properly.

The time for allowable continuous operation differs according to the operating environment.

Precautions on use of VBA

(1) Incorporation of VBA program

When incorporating a user-created VBA program into the Excel sheet where MX Sheet has been set, check the operation of the VBA program first and then perform MX Sheet programming for the Excel sheet.

(2) VBA program creation

MX Sheet utilizes OLE Automation for communication.

Do not perform the following on VBA programs.

- 1) Do not execute the DoEvents method in a For-Next loop.
- 2) FileFilter is ignored in the GetSaveAsFileName method.
- 3) Do not execute the Reset method in the Excel menu.

Precautions on use of other MELSOFT products

(1) MX Component version

MX Component Version 3.01B or later is required to use MX Sheet.

If MX Component Version 3.00A or earlier is used, MX Sheet does not operate normally.

(2) Logical station number

Before deleting the logical station number from the Communication Setup Utility of MX Component, check that the logical station number to be deleted is not used in MX Sheet.

If the logical station number used in MX Sheet is deleted, MX Sheet does not operate normally.

(3) Coexistence with MX Chart

MX Sheet and MX Chart cannot be installed in a single personal computer to make communication simultaneously.

(4) Modem communication

When communication via modem is to be made by MX Sheet, MX Sheet, GX Developer and other applications (e.g. user applications utilizing MX Component) cannot perform communication simultaneously.

If simultaneous communication is attempted using MX Sheet, GX Developer and other applications, a fault such as a communication error, telephone line disconnection will occur.

When making communication via modem using MX Sheet, check that GX Developer and other applications do not use modems.

INTRODUCTION

Thank you for choosing the Mitsubishi Integrated FA 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.

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Manuals

The following manuals are relevant to for this software package.
Refer to the table when ordering the manuals.

Relevant Manuals

Manual Name	Manual Number (Model Code)
MX Sheet Version 1 Operating Manual (Introduction) Explains the installation method, function outlines and operation methods of MX Sheet Version 1. (Sold separately)	SH-080347E (13JU34)
MX Component Version 3 Operating Manual Explains the setting and operation methods of each utility on MX Component. (Sold separately)	SH-0800271 (13JU32)
MX Component Version 3 Programming Manual Explains the programming procedures, details and error codes for ACT control. (Sold separately)	SH-080272 (13JF66)

Note: The MX Sheet Version 1 Operating Manual (Introduction) is stored on CD-ROM of the corresponding software package in PDF format.

Any of the manuals is available separately in printed form. Please indicate its manual number (model code) in the above table, when ordering the printed manual.

Generic Terms and Abbreviations

Unless otherwise stated, this manual uses the following abbreviations and terms for the explanation of MX Sheet.

Generic Term/Abbreviation	Description
MX Sheet	Generic product name for product types SW1D5C-SHEET-E and SW1D5C-SHEET-EA. -EA indicates a volume license product.
IBM-PC/AT compatible	Abbreviation of the IBM PC/AT or its compatible personal computer.
PC CPU module	Abbreviation of the MELSEC-Q series corresponding PC CPU module (CONTEC CO., LTD.).
Personal computer	Generic term of PC CPU module and IBM-PC/AT compatible Personal computer.
MX Component	Generic product name for product types SW3D5C-ACT-E and SW3D5C-ACT-EA. -EA indicates a volume license product.
MX Links	Generic product name of the product type SW3D5F-CSKP-E.
MX Chart	Generic product name of the product type SW3D5F-OLEX-E.
Windows® 7	Microsoft® Windows® 7 Starter Operating System, Microsoft® Windows® 7 Home Premium Operating System, Microsoft® Windows® 7 Professional Operating System, Microsoft® Windows® 7 Ultimate Operating System and Microsoft® Windows® 7 Enterprise Operating System. Note that the 32-bit version is designated as "32-bit Windows® 7", and the 64-bit version is designated as "64-bit Windows® 7".
Windows Vista®	Generic term of Microsoft® Windows Vista® Home Basic Operating System, Microsoft® Windows Vista® Home Premium Operating System, Microsoft® Windows Vista® Business Operating System, Microsoft® Windows Vista® Ultimate Operating System and Microsoft® Windows Vista® Enterprise Operating System.
Windows® XP	Generic term of Microsoft® Windows® XP Professional Operating System and Microsoft® Windows® XP Home Edition Operating System.

How to Use This Manual

This manual is organized with sections representing each aspect of MX Sheet. Refer to the respective section when you need to know the following.

- (1) The features (Section 1.1)
Section 1.1 gives the features.
- (2) The system configuration and operating environment (Section 2.1)
Section 2.1 provides the operating environment.
- (3) The functions, performance and applicable PLC CPUs of MX Sheet (Sections 3.1 to 3.2)
Section 3.1 lists the functions of MX Sheet, and Section 3.2 gives information on the applicable PLC CPUs.
- (4) The operation procedure of MX Sheet (Chapter 4)
Chapter 4 provides the operation procedure of MX Sheet.
- (5) The menu of MX Sheet (Chapter 5)
Chapter 5 describes the MX Sheet menu selection method.
- (6) The cell setting methods of MX Sheet (Chapter 6)
Chapter 6 describes the MX Sheet cell setting methods.
- (7) Automatic save setting (Chapter 7)
Chapter 7 describes the automatic save setting of each data.
- (8) Automatic print setting (Chapter 8)
Chapter 8 describes the automatic print setting of each data.
- (9) Automatic communication startup setting (Chapter 9)
Chapter 9 describes the automatic communication startup setting of each function.
- (10) Communication start and communication end (Chapter 10)
Chapter 10 describes communication start and communication end.
- (11) 1 shot communication (Chapter 11)
Chapter 11 describes 1 shot communication.
- (12) Cell editing (Chapter 12)
Chapter 12 describes cell editing (cutting, copying, pasting and deletion of cell area).
- (13) The sheet name changing method (Chapter 13)
Chapter 13 describes the sheet name changing method.

(14) Create Button (Chapter 14)

Chapter 14 describes the creation of the Start Communication, End Communication, and 1 Shot Communication buttons.

(15) Protect/Unprotect MX Sheet setting (Chapter 15)

Chapter 15 describes Protect/Unprotect MX Sheet setting by password.

(16) Options (Chapter 16)

Chapter 16 describes Options for setting the output format of an error log sheet.

(17) The setting data export (Chapter 17)

Chapter 17 describes the setting data export.

(18) The error log checking method (Chapter 19)

Chapter 19 describes the error log checking method.

(19) The data utilization method of MX Chart (Chapter 20)

Chapter 20 describes the data utilization method of MX Chart.

(20) The version confirmation method (Appendix 1)

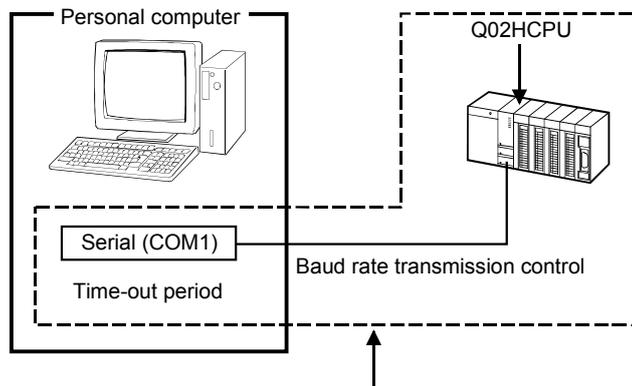
Appendix 1 describes the version confirmation method of MX Sheet.

Definitions of Terms

The terms used in this manual have the following meanings and definitions.

(1) Logical station number

A number assigned to the group of data that is integrated from the connection target information required for communication within the Communication Setup Utility.



Connection information up to CPU of the communication target station is integrated into one data, to which logical station number is assigned.

Packing List

The MX Sheet consists of the following products.

Type	Product Name	Quantity
SW1D5C-SHEET-E	MX Sheet Version 1(1-license product) (CD-ROM)	1
	End-user software license agreement	1
	License certificate	1
SW1D5C-SHEET-EA	MX Sheet Version 1(Volume license product) (CD-ROM)	1
	End-user software license agreement	1
	License certificate	n *1

*1: The number of included license agreements is equivalent to the number of licenses.

1 OVERVIEW

1

MX Sheet is a communication support software package that allows device data collection, etc. by simple, program-less setting using Excel.

Logging function, monitor function				
Logging				
Date	D0	D1	D2	D3
2002/7/31 Wed 17:00:00	1	2	3	4
2002/7/31 Wed 17:05:00	11	12	13	14
2002/7/31 Wed 17:10:00	21	22	23	24
2002/7/31 Wed 17:15:00	31	32	33	34
2002/7/31 Wed 17:20:00	41	42	43	44
2002/7/31 Wed 17:25:00	51	52	53	54
2002/7/31 Wed 17:30:00	61	62	63	64
2002/7/31 Wed 17:35:00	71	72	73	74
Monitor				
	D0	D1	D2	D3
	1	2	3	4

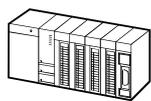
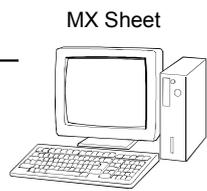
Write function				
Write				
D0	D1	D2	D3	
101	102	103	104	

Alarm summary function				
Generation	2002/07/31 Wed 16:57:30	Material storage	Minor failure	
Generation	2002/07/31 Wed 16:57:30	Material storage	Minor failure	
Restoration	2002/07/31 Wed 16:59:35	Material storage	Minor failure	

Comment display function				
[Temperature] within the normal range				
[Temperature] over the upper limit				

Automatic print function				
				

Automatic save function				
Excel book file				
HTML file				
CSV file				



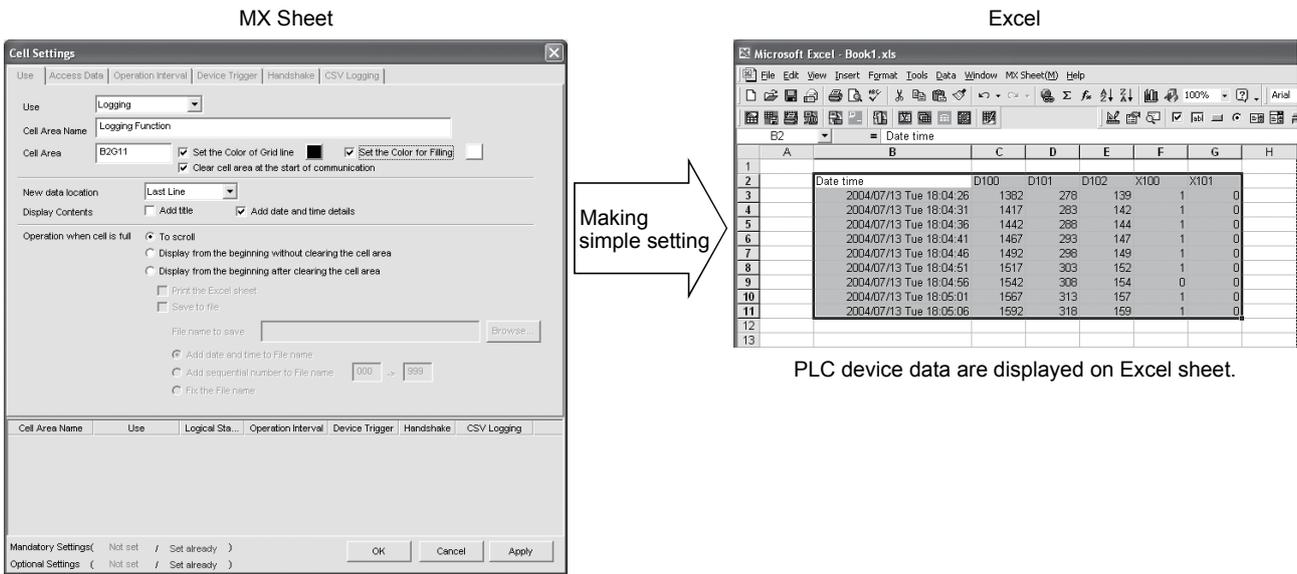
PLC CPU

1.1 Features

This section explains the features of MX Sheet.

(1) Program-less and easy setting

PLC device data can be collected/written by making simple setting without programming.

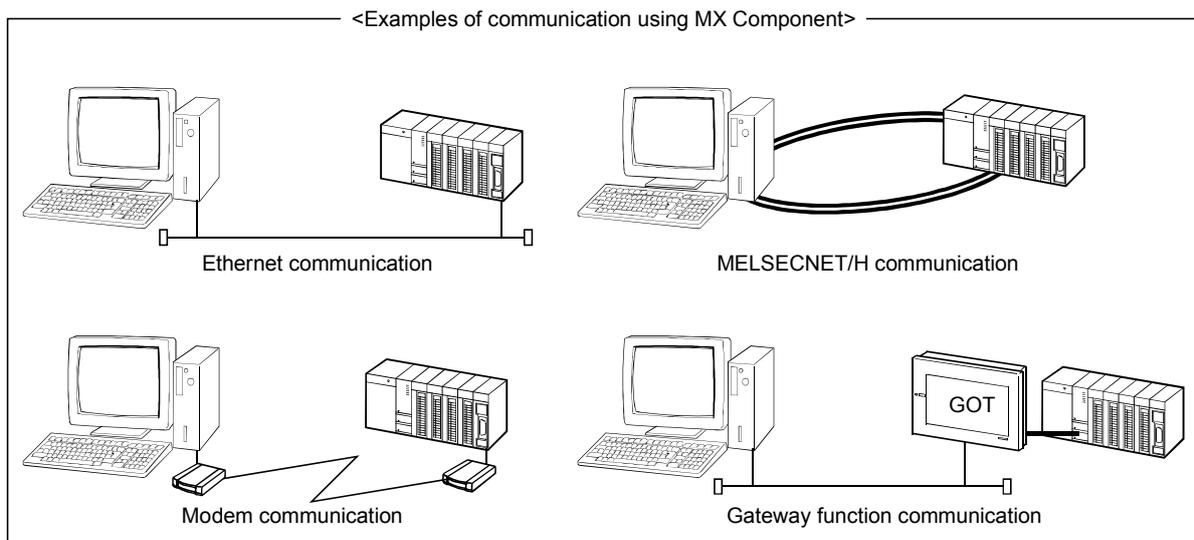


PLC device data are displayed on Excel sheet.

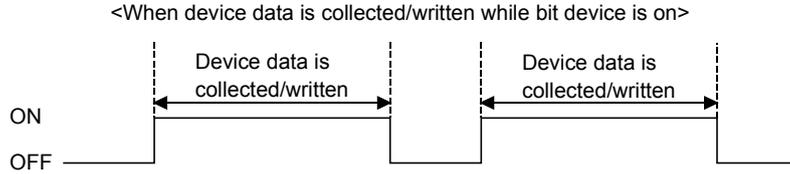
(2) Collection/write of device data using a wide range of communication paths

MX Sheet uses MX Component for communication between the PLC and personal computer.

Using a variety of communication paths supported by MX Component, system configuration that meets user's requirement can be achieved.

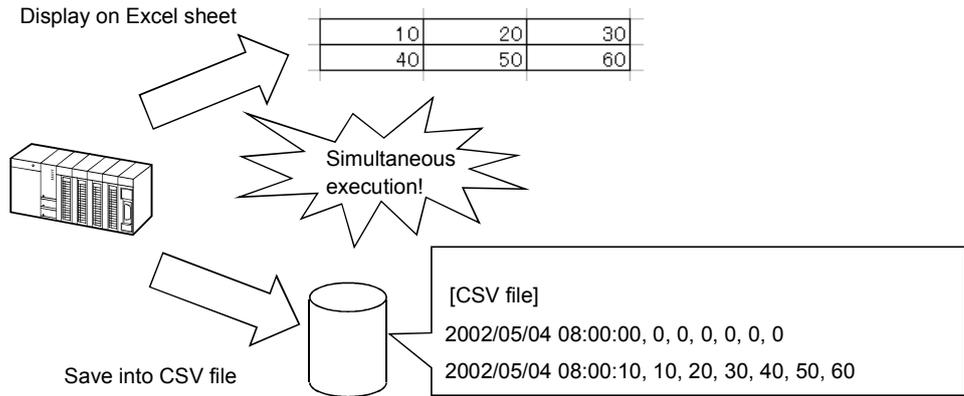


- (3) Each function can be controlled by device condition. The condition of device data collection/write can be set to PLC devices. The execution of any MX Sheet function can be controlled from the PLC side.

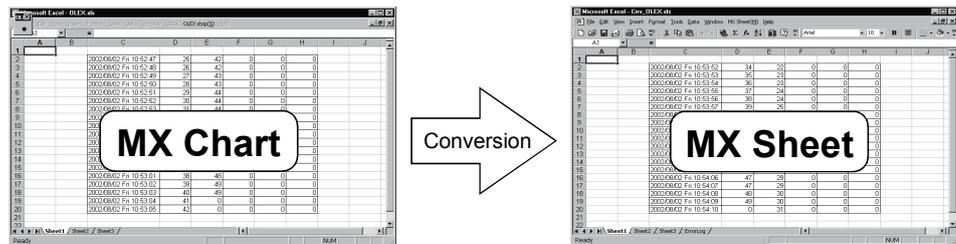


- Corresponding functions
- Logging
 - Write
 - Comment display
 - Automatic print
 - Monitor
 - Alarm summary
 - Automatic save

- (4) Data logging using CSV file
Using the logging or monitor function, device data can be displayed on Excel sheet, and simultaneously, collected data can be saved into a CSV file. Long-term data collection is enabled by a single CSV file.



- (5) Compatibility with MX Chart
MX Sheet can convert the set data of MX Chart into those of MX Sheet. The communication settings of MX Links and various settings of MX Chart can be converted into the logical station numbers of MX Component and cell settings of MX Sheet, respectively, to utilize old assets efficiently.

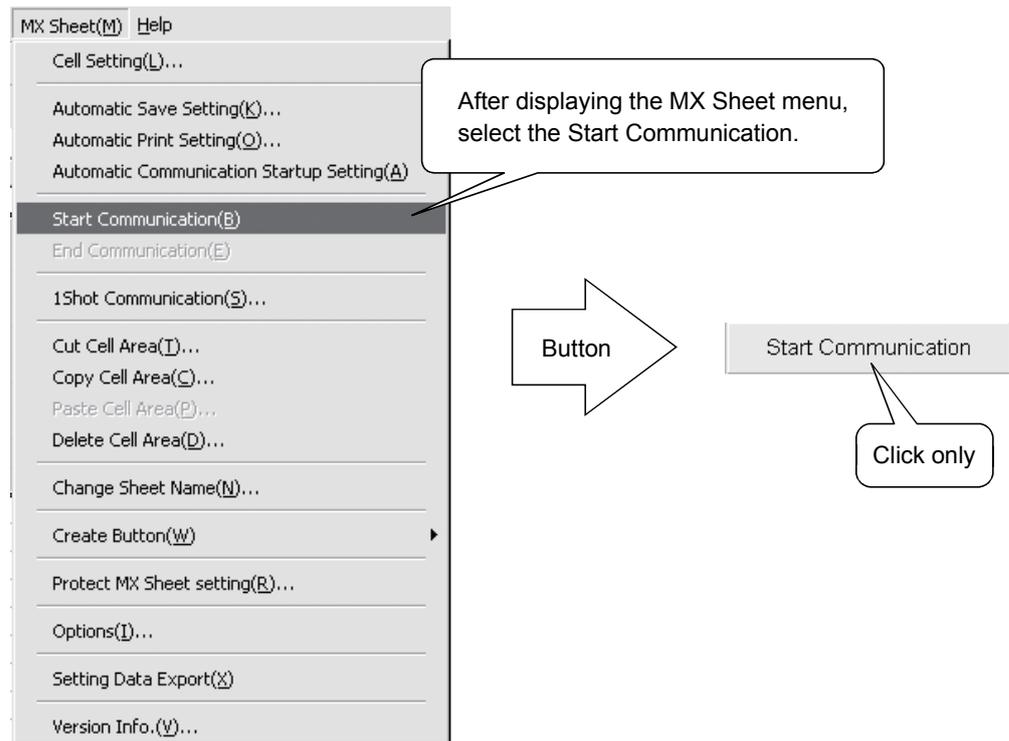


(6) Improvement of operability by buttons

By creating buttons, the Start Communication, End Communication, and 1 Shot Communication functions can be executed by merely clicking the corresponding buttons.

Operability is improved as compared to the execution of the functions from the menu.

(Example) Start Communication



2 SYSTEM CONFIGURATION

The system configuration for MX Sheet is the same as that for MX Component Version 3.
For details, refer to the MX Component Version 3 Operating Manual.

2.1 Operating Environment

The following table indicates the operating environment of MX Sheet.

Item		Description
Computer	IBM PC/AT compatible personal computer	Pentium® 200MHz or higher *1 IBM PC/AT compatible personal computer installed with applicable OS *2
	PC CPU module	MELSEC-Q series compatible PC CPU module (CONTEC CO., LTD.)
Required memory		64MB or more *4
Hard disk free space		100MB or more
Disk drive		CD-ROM disk drive
Display		1024 × 768 dot or higher resolution
System Software		Microsoft® Windows® 98 Operating System (English version), Microsoft® Windows® Millennium Edition Operating System (English version), Microsoft® Windows NT® Workstation Operating System Version 4.0 (English version) *3, Microsoft® Windows® 2000 Professional Operating System (English version), Microsoft® Windows® XP Professional Operating System (English version), Microsoft® Windows® XP Home Edition Operating System (English version), Microsoft® Windows Vista® Home Basic Operating System (English version), Microsoft® Windows Vista® Home Premium Operating System (English version), Microsoft® Windows Vista® Business Operating System (English version), Microsoft® Windows Vista® Ultimate Operating System (English version), Microsoft® Windows Vista® Enterprise Operating System (English version), Microsoft® Windows® 7 Starter Operating System (English version), Microsoft® Windows® 7 Home Premium Operating System (English version), Microsoft® Windows® 7 Professional Operating System (English version), Microsoft® Windows® 7 Ultimate Operating System (English version) or Microsoft® Windows® 7 Enterprise Operating System (English version).
Required Software	Excel *5	Microsoft® Excel 2000 (English version), Microsoft® Excel 2002 (English version), Microsoft® Excel 2003 (English version), Microsoft® Excel 2007 (English version)*6, or 32-bit Microsoft® Excel 2010 (English version)*7
	MX Component*8	MX Component version 3.01B or later

*1: A Pentium® 300MHz processor or higher is recommended for Windows® XP Professional and Windows® XP Home Edition. 1GHz or higher is recommended for Windows Vista® and Windows® 7.

*2: This product does not work with a multiprocessor IBM-PC/AT-compatible personal computer, because the driver is not compatible with it.

*3: Service Pack 3 or more is needed when using Windows NT® Workstation 4.0.

*4: 128MB or more is recommended for Windows® XP, 1GB or more is recommended for Windows® Vista and 32-bit Windows® 7, and 2GB or more is recommended for 64-bit Windows® 7.

*5: Excel sheets created in the English environment can be used in the English environment only. They cannot be used in other environment.

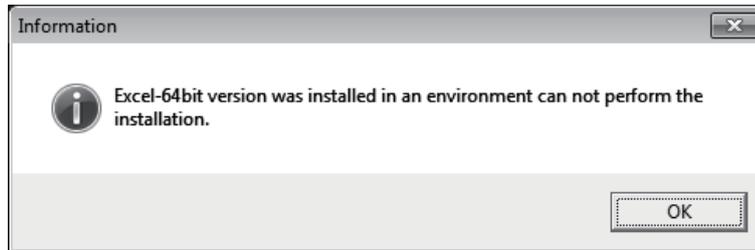
*6: Windows® XP Service Pack 2 or later is required for Excel 2007.

*7: For 32-bit Microsoft® Excel 2010, Windows® XP Service Pack 3, Windows Vista® Service Pack 1 or higher, or Windows® 7 or later is required.
64-bit Microsoft® Excel 2010 is not supported.

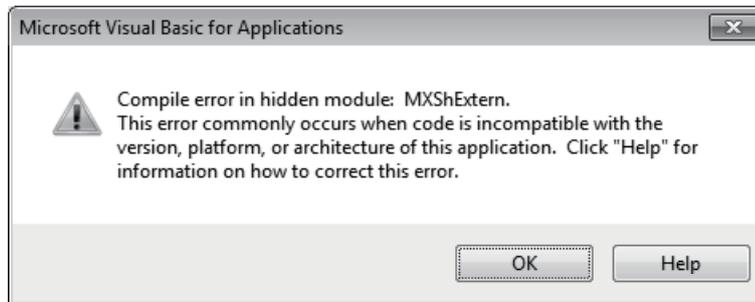
*8: When executing the Communication Setup Utility with administrator authority from Excel, MX Component Version 3.12N or later is required.

POINT

- (1) When Windows® XP Professional Operating System, Microsoft® Windows® XP Home Edition Operating System, Windows Vista® or Windows® 7 is used, the following new functions cannot be used. If any of the following new functions is used, this product may not operate normally.
 - Start of application in Windows® compatible mode
 - Fast user switching
 - Remote desktop
 - Big fonts (Details setting of Screen properties).
 64-bit Windows® XP and 64-bit Windows Vista® are not supported.
- (2) When Windows® 7 is used, the following new functions cannot be used.
 - Windows XP Mode
 - Windows Touch
- (3) When MX Sheet is tried to be installed on the personal computer where 64-bit Microsoft® Excel 2010 has been installed, the following error message appears.



- (4) When MX Sheet is installed, 64-bit Microsoft® Excel 2010 is installed and started, then an add-in is installed, the following error message appears.



To use MX Sheet, install 32-bit Microsoft® Excel 2010.

3 FUNCTION LIST OF MX Sheet

This chapter describes the functions of MX Sheet, accessible CPUs and accessible devices.

3.1 Function List of MX Sheet

The following table lists the functions of MX Sheet.

Function Name	Description	Available Device Points	Available Cells	Reference Section
Logging	Accumulates device data collected from PLC in cell range selected on Excel as history.	256 points *1, *2	256 columns × 65536 rows	Section 6.2
Monitor	Displays device data collected from PLC in cell range selected on Excel.	2000 points *1, *3	2000	Section 6.3
Write	Writes values entered on Excel to PLC devices.	2000 points *1, *3	2000	Section 6.4
Alarm summary	Converts ON/OFF data of bit devices into alarm comment character strings that are set separately and accumulates them on Excel sheet as alarm history.	2000 points *2, *4	6 columns × 65536 rows	Section 6.5
Comment display	Converts bit or word device values into comment character strings that are set separately and displays them on Excel sheet.	1 point *5	1	Section 6.6
Device trigger	Collects/Writes device data when set device conditions set for collection/write are met.	—	—	Section 6.2.4
Handshake	Sets handshake with PLC for secure device data collection/write.	—	—	Section 6.2.5
CSV logging	Displays device data on Excel sheet with logging or monitor function, and simultaneously saves collected data as a CSV file.	—	—	Section 6.2.6
Automatic save	Automatically saves Excel book	—	—	Chapter 7
Automatic print	Automatically prints Excel book.	—	—	Chapter 8
Automatic communication startup	Automatically starts communication with PLC when Excel book is started.	—	—	Chapter 9
Communication start	This function starts communication with the PLC.	—	—	Section 10.1
Communication end	This function ends communication with the PLC.	—	—	Section 10.2
1 shot communication	Executes functions set in the selected cell range at any desired timing.	—	—	Chapter 11
Create Button	This function creates buttons to facilitate Start Communication, End Communication, and 1 Shot Communication operations.	—	—	Chapter 14
Protect/Unprotect MS Sheet setting	This function sets/cancels the password for protecting the MX Sheet setting.	—	—	Chapter 15
Options	This function sets the output format of the error log sheet.	—	—	Chapter 16
Setting data export	Outputs MX Sheet settings in CSV file format.	—	—	Chapter 17
Data conversion	Converts communication settings of MX Links (SW3D5F-CSKPE) and various settings of MX Chart (SW3D5F-OLEXE) into logical station numbers of MX Component and cell settings of MX Sheet respectively.	—	—	Chapter 20

*1: This number of device points refers to the case where word device data are collected/written in 16 bit integer.

The number of device points that can be set changes depending on the device data type, etc.

*2: One Excel file (one Excel book) accepts 100 - cell - area setting.

*3: One Excel file (one Excel book) accepts 1000 - cell - area setting.

*4: Only bit devices can be set.

*5: One Excel file (one Excel book) accepts 500 - cell - area setting.

3.2 Accessible CPUs and Accessible Device Ranges

This section describes the accessible CPUs and accessible device ranges of MX Sheet.

(1) Accessible CPUs

The accessible CPUs in MX Sheet are the same as those in MX Component Version 3.

For details, refer to the MX Component Version 3 Operating Manual.

(2) Accessible device ranges

The accessible device ranges in MX Sheet are the same as those in MX Component Version 3, with the exception of the following item.

For details, refer to the MX Component Version 3 Operating Manual.

1) Device extension representation

MX Sheet does not allow access to any device by word designation for bit device (e.g. K4X0, K8M0) and bit designation for word device (e.g. D0.0, W.01).^{*1}

^{*1}: When using MX Sheet Version 1.06 G or later, device setting by bit designation for word device (e.g. D0.0) is only possible in the setting on <<Access Data >>tab.

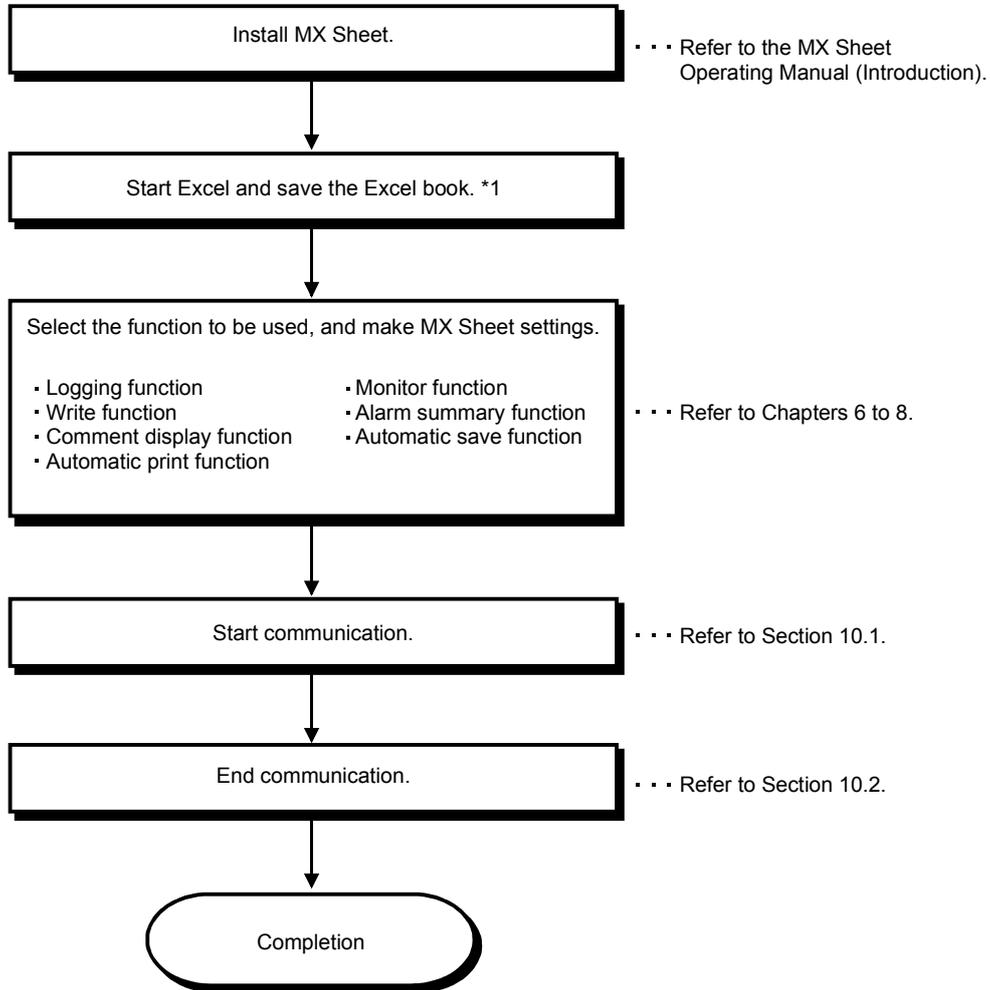
(3) Specifying GOT timer contact devices and counter contact devices

In the cell settings of MX Sheet (Refer to Chapter 6), timer contact devices (TT) and counter contact devices (CT) which are the device representation of GOT can be entered.

The entered "TT" and "CT" are automatically changed to "TS" and "CS" respectively.

4 MX Sheet OPERATION PROCEDURE

The following indicates the MX Sheet operation procedure.



*1: Before starting MX Sheet settings, save the Excel book. If not, MX Sheet cannot be set.

POINT
 Communication efficiency changes depending on the MX Sheet setting. Refer to APPENDIX 3 and APPENDIX 5.

REMARK

Refer to the Excel manual for how to operate Excel.

4

<Administrator authority when setting/changing communication setup on Windows Vista® and Windows® 7>

Administrator authority is required for setting/changing communication setup.

(1) Administrator authority in case of Windows Vista® and Windows® 7

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".

* When executing Excel with administrator authority, even if selecting "NO" for "Do you execute programs as an administrator?" executes with administrator authority.

2) When user account control (UAC) is disabled

Programs can be executed by login user.

(2) When setting/changing the communication setup on Windows Vista® and Windows® 7

The following three methods are available to set/change the communication setup.

- Execute Communication Setup Utility of MX Component with Administrator authority and make setting/change the setting.
- Execute the Communication Setup Utility with administrator authority from Excel for setting/changing.
- Execute Excel with Administrator authority and make setting/change the setting.

* When executing Excel with administrator authority, the operations such as opening the file by dragging and dropping cannot be executed.

5 MX Sheet MENU SELECTION METHOD

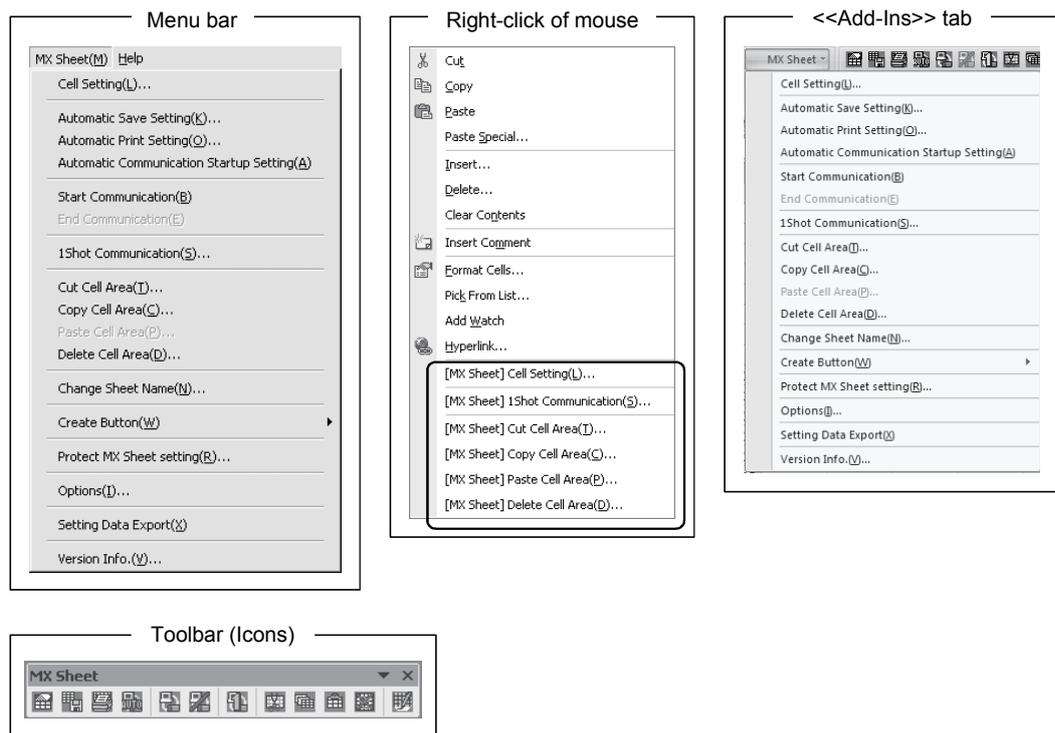
MX Sheet can be operated from the menu bar, toolbar (icons) and right-click of the mouse. When using Excel 2007 or later, operate from the ribbon.

This chapter describes the displaying method and details of the MX Sheet menu options.

(1) Displaying method

- (a) Using the menu bar (Excel 2003 or earlier)
Choose [MX Sheet] from the menu bar.
- (b) Using the toolbar (icons) (Excel 2003 or earlier)
Choose [View] → [Toolbars] on the menu bar and click on "MX Sheet".
- (c) Using the right-click of the mouse
Specify the cell area and right-click the mouse.
- (d) Displaying the <<Add-Ins>> tab (Excel 2007 or later)
Choose the <<Add-Ins>> tab → [MX Sheet] on the ribbon.

5

**REMARK**

If the Excel sheet type is other than the worksheet, the MX Sheet menu is not displayed. When using MX Sheet, make setting on the worksheet.

(2) MX Sheet menu details

The following table details the items of the MX Sheet menu.

Menu bar	Item		Description	Reference Section
	Icon	Right-click		
Cell Setting(L)...		[MX Sheet] Cell Setting(L)...	Used to make cell setting.	Chapter 6
Automatic Save Setting(K)...		—	Used to make automatic save setting.	Chapter 7
Automatic Print Setting(O)...		—	Used to make automatic print setting.	Chapter 8
Automatic Communication Startup Setting(A)		—	Used to make automatic communication startup setting.	Chapter 9
Start Communication(B)		—	Used to start communication.	Section 10.1
End Communication(E)		—	Used to end communication. *1	Section 10.2
1Shot Communication(S)...		[MX Sheet] 1Shot Communication(S)...	Used to make 1 shot communication.	Chapter 11
Cut Cell Area(T)...		[MX Sheet] Cut Cell Area(T)...	Used to cut a cell area	Section 12.1
Copy Cell Area(C)...		[MX Sheet] Copy Cell Area(C)...	Used to copy a cell area.	Section 12.2
Paste Cell Area(P)...		[MX Sheet] Paste Cell Area(P)...	Used to paste a cell area. *2	Section 12.3
Delete Cell Area(D)...		[MX Sheet] Delete Cell Area(D)...	Used to delete a cell area.	Section 12.4
Change Sheet Name(N)...		—	Used to change the Excel sheet name.	Chapter 13
Create Button(W)				
Start Communication Button(B)	—	—	Create the Start Communication Button.	Section 14.1
End Communication Button(E)	—	—	Create the End Communication Button.	Section 14.2
1Shot Communication Button(S)	—	—	Create the 1 Shot Communication Button.	Section 14.3
Protect MX Sheet setting(R)...	—	—	Protect the MX Sheet setting.	Section 15.1
Unprotect MX Sheet setting(R)...	—	—	Unprotect the MX Sheet setting.	Section 15.2
Options(I)...	—	—	Set the error log options.	Section 16.1
Setting Data Export(X)	—	—	Used to execute setting data export.	Chapter 17
Version Info.(V)...	—	—	Used to display the MX Sheet version.	Appendix 1

*1: Can be selected after start of communication.

*2: Can be selected after the cell area has been cut or copied.

6 CELL SETTING

This chapter describes cell setting required to operate MX Sheet.

6.1 Operation of Cell Setting Dialog Box

This section explains the displaying procedure and setting item change of the "Cell Setting" dialog box.

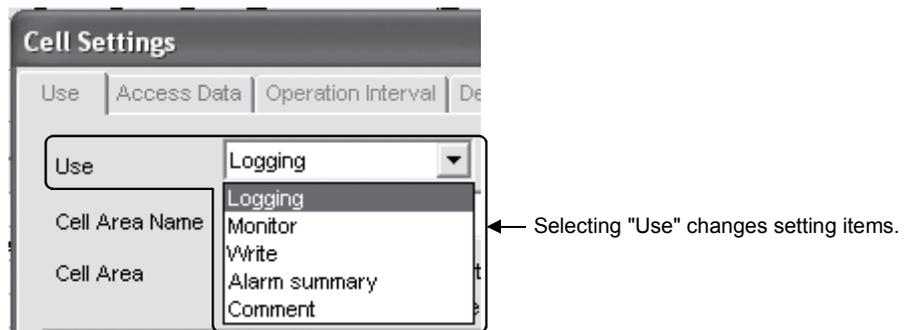
In the "Cell Setting" dialog box, its setting items change automatically depending on the selected function.

(1) Displaying "Cell Setting" dialog box

Choose [MX Sheet] → [Cell Setting] () from the menu bar.

(2) Setting items of "Cell Setting" dialog box

The setting of the "Cell Setting" dialog box can be changed by selecting "Use" of the <<Use>> tab.



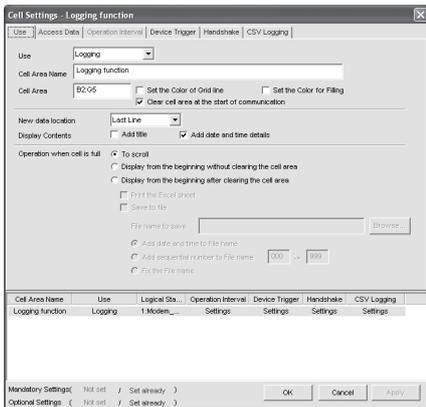
The following table indicates the function outlines and relevant sections for options of "use".

Item	Function	Reference Section
Logging	Set when using the logging function.	Section 6.2
Monitor	Set when using the monitor function.	Section 6.3
Write	Set when using the write function.	Section 6.4
Alarm summary	Set when using the alarm summary function.	Section 6.5
Comment	Set when using the comment display function.	Section 6.6

6.2 When Logging Is Selected

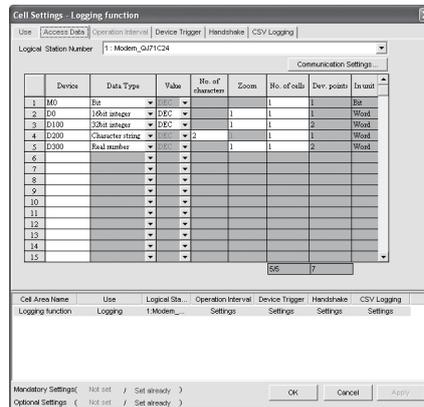
This section describes the "Cell Setting" dialog box when "Logging" is selected from "Use" of the <<Use>> tab.

<<Use>> tab



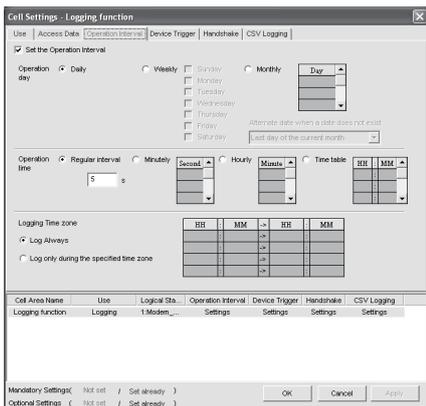
Required setting
Refer to Section
6.2.1.

<<Access Data>> tab



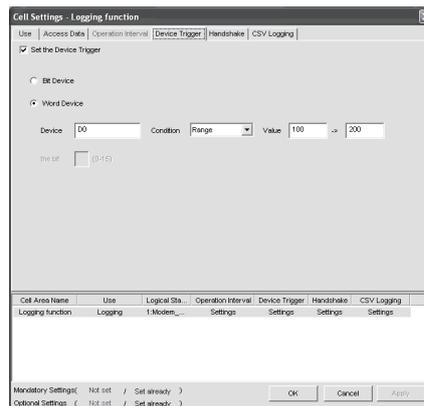
Required setting
Refer to Section
6.2.2.

<<Operation Interval>> tab



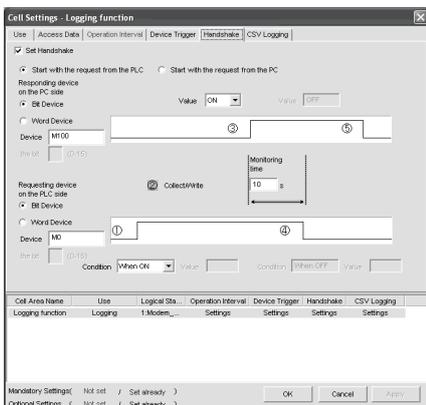
Required setting
Refer to Section
6.2.3.

<<Device Trigger>> tab



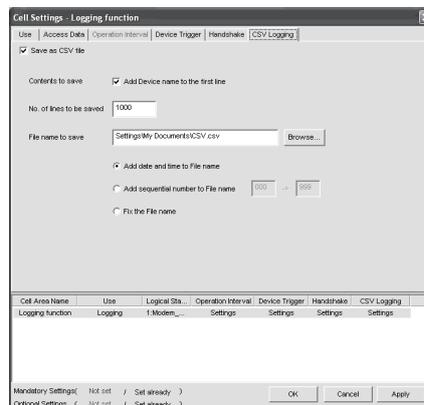
Set as necessary
Refer to Section
6.2.4.

<<Handshake>> tab



Set as necessary
Refer to Section
6.2.5.

<<CSV Logging>> tab



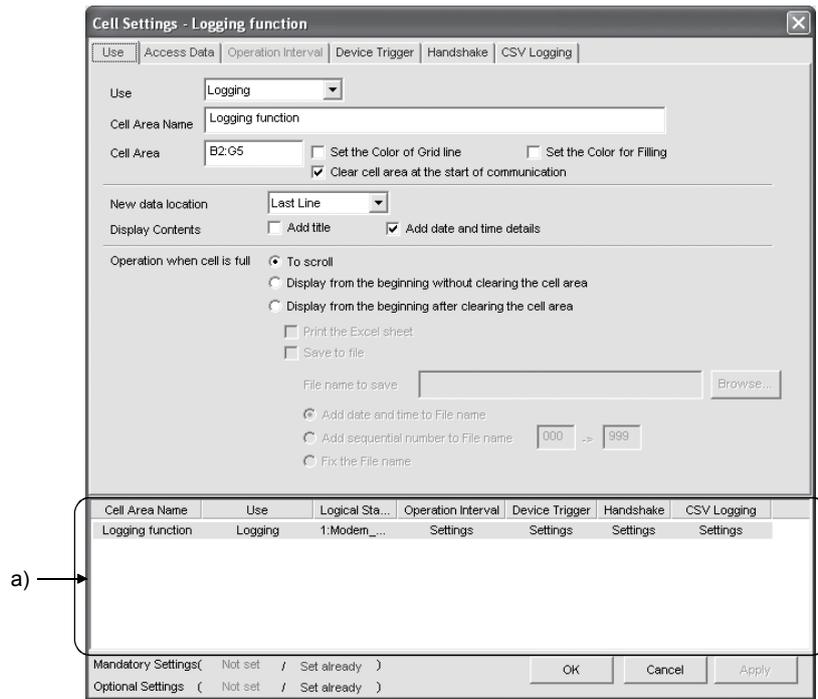
Set as necessary
Refer to Section
6.2.6.



6.2.1 Setting of the Use tab

This section describes the setting of the <<Use>> tab for use of the logging function. In the <<Use>> tab, set the cell area, logging data display position, displayed contents, and operation when the cell is full.

(1) <<Use>> tab



Item	Description	Detailed Explanation
Use	Set the function to be used for the specified cell area. Choose "Logging" when using the logging function.	—
Cell Area Name	Set the name of the specified cell area. (Maximum number of cell area names : 100)	—
Cell Area	Enter the value to specify the cell area.	(2) (a)
Set the Color of Grid line	Set whether the specified cell area is provided with grid lines (including color designation) or not.	(2) (b)
Set the Color for Filling	Set whether the specified cell area is colored or not.	(2) (b)
Clear cell area at the start of communication	When "Clear cell area at the start of communication" has a check mark, the data in the cell area specified at the start of communication is cleared. (Default: check)	(2) (c)
New data location	Set the latest data display position of the logging data. • Last Line The latest data is displayed at the lost of the specified cell area. • First Line The latest data is displayed at the first of the specified cell area.	(2) (d)
Displayed Contents	Set whether the title and the date and time are added to the displayed logging data or not.	(2) (e)

(To the next page)

Item	Description	Detailed Explanation
Operating when cell is full	Set the operation to be performed when the specified cell area is full. <ul style="list-style-type: none"> • To scroll The displayed contents are scrolled and displayed. • Display from the first without clearing the cell area The data currently displayed in the cell area are overwritten and logging is resumed. Before logging is resumed, the Excel sheet can be printed and saved. • Display from the first after clearing the cell area The data displayed in the cell area are erased and logging is resumed. Before logging is resumed, the Excel sheet can be printed and saved. 	(2) (f)
a) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	(2) (g)

(2) Detailed explanation

(a) "Cell Area"

Set the cell area to be used by the logging function.

1) Setting examples

<When a single cell range is specified (B2 to D5)>

B2 : D5

↑ Enter the cell numbers with ":" in between.

	A	B	C	D	E	F
1						
2						
3						
4						
5						
6						
7						

← Cell area from B2 to D5
(Number of cells : 12)

<When multiple cell areas are specified (B2 to D5 (Specified cell area 1) and B8 to D11 (Specified cell area 2))>

B2 : D5 , B8 : D11

↑ Specified cell area 2
↑ Specified cell area 1
↑ Enter the cell areas with "," in between.

	A	B	C	D	E	F
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

← Specified cell areas 1 and 2
are displayed in this order.
In this case;
Number of specified cell area : 2
Number of cells : 24

2) Setting ranges

The following indicates the available setting ranges for the cell area and number of specified cell areas.

• Cell area

When date and time are added: 255 columns × 65536 rows

When date and time are not added: 256 columns × 65536 rows

• Number of specified cell areas: Up to 16

(b) "Set the Color of Grid line" and "Set the Color for Filling"

Set the colors of cell area grid lines and cell filling.
Depending on the selection, all area may be colored gray.
Refer to the Operating Precautions for details.

(c) "Clear cell area at the start of communication"

Set whether the cell area will be cleared or not at the start of communication.

1) Display example in the case where "Clear cell area at the start of communication" is checked

< Before the start of communication >

2004/05/24 Mon 13:00:00	15	37
2004/05/24 Mon 13:00:05	16	39
2004/05/24 Mon 13:00:10	17	42



< At the start of communication >



< At the completion of the first collection >

2004/05/24 Mon 15:00:00	31	102

2) Display example in the case where "Clear cell area at the start of communication" is not checked

< Before the start of communication >

2004/05/24 Mon 13:00:00	15	37
2004/05/24 Mon 13:00:05	16	39
2004/05/24 Mon 13:00:10	17	42



< At the start of communication >

2004/05/24 Mon 13:00:00	15	37
2004/05/24 Mon 13:00:05	16	39
2004/05/24 Mon 13:00:10	17	42



< At the completion of the first collection >

2004/05/24 Mon 13:00:00	15	37
2004/05/24 Mon 13:00:05	16	39
2004/05/24 Mon 13:00:10	17	42
2004/05/24 Mon 15:00:00	31	102

(d) "New data location"

Set the newest data location when the logging function is used.

1) When "Last Line" is selected

2002/08/01 Thu 15:14:34	21	37	↑ Old data
2002/08/01 Thu 15:14:39	26	39	
2002/08/01 Thu 15:14:44	30	42	
2002/08/01 Thu 15:14:49	35	44	
2002/08/01 Thu 15:14:54	39	46	

2) When "First Line" is selected

2002/08/01 Thu 15:23:39	21	16	↓ New data
2002/08/01 Thu 15:23:34	17	13	
2002/08/01 Thu 15:23:29	12	11	
2002/08/01 Thu 15:23:24	8	9	
2002/08/01 Thu 15:23:19	3	6	

(e) "Displayed Contents"

1) "Add title" check box

Set whether the date and time and the title for device name will be displayed or not at the first line of the "Cell Area".

When displaying the title, check the check box.

<Display example>

When "Add date and time details" is checked and the devices D100 to D103 are set

The device name set on the <<Access Data>> tab is displayed.

Title →	Date Time	D100	D101	D102	D103
Collection data {	2004/05/24 Mon 13:24:14	30	100	0	37
	2004/05/24 Mon 13:24:17	40	80	0	55

POINT

- The title display line will not be the target of cell area clear at the start of communication or clear when cell is full.
- When the Cell Area is set at multiple locations, the title is displayed for only the Cell Area specified first.

(Example) When the Cell Area on the <<Use>> tab is set to B2:E4, B6:E8

	A	B	C	D	E
1					
2		Date time	D0	D1	D2
3		2004/07/13 Tue 14:57:26	37	0	100
4		2004/07/13 Tue 14:57:31	41	0	95
5					
6		2004/07/13 Tue 14:57:36	45	0	91
7		2004/07/13 Tue 14:57:41	48	0	88
8		2004/07/13 Tue 14:57:46	52	0	82
9					

2) "Add date and time details" check box

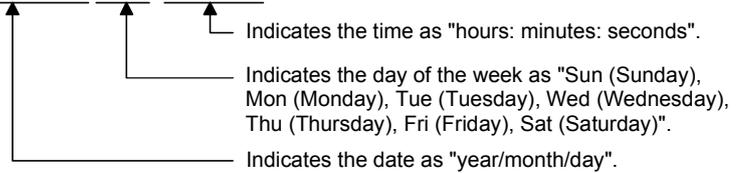
Set whether the logging date and time are added to the cell area set in the "Cell Area" or not.

When adding the date and time, check the check box.

In this case, the leftmost column of the logging data area is used for the date and time. (One item of logging data decreases.)

The date and time column displays the date and time of the personal computer where MX Sheet has been installed.

2002/08/01 Thu 15:14:34

**REMARK**

The above date and time can be edited on Excel.

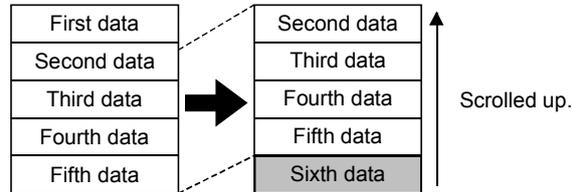
If the cell setting is edited again after editing on Excel, the setting on Excel are invalid.

(f) "Operating when cell is full"

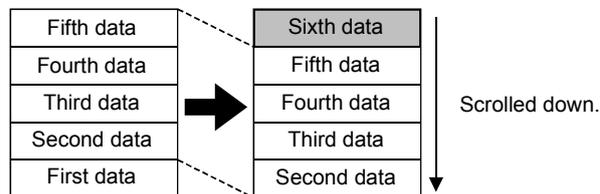
Set the operation to be performed when the cell area is full of logging data. When "New data location" is set for "First Line", "Display from the beginning without clearing the cell area" cannot be chosen.

1) When "To scroll" is selected

<When "New data location" is set for "Last Line">

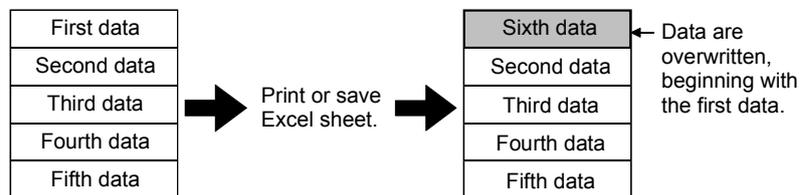


<When "New data location" is set for "First Line">



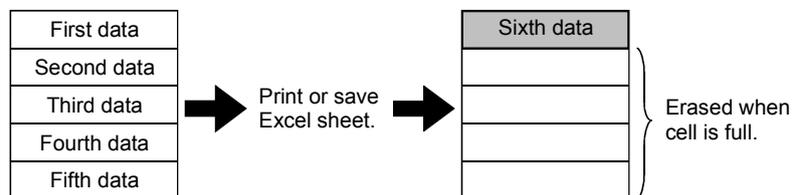
2) When "Display from the beginning without clearing the cell area" is selected

When the cell is full, Excel sheet print or Excel book save can also be performed.



3) When "Display from the beginning after clearing the cell area" is selected

When the cell is full, Excel sheet print or Excel book save can also be performed.



4) When "Print the Excel sheet" is selected

The Excel sheet is printed when the cell is full.

After completion of print, all data are erased and logging is resumed.

This item can be selected when "Operating when cell is full" is set to 2) or 3).

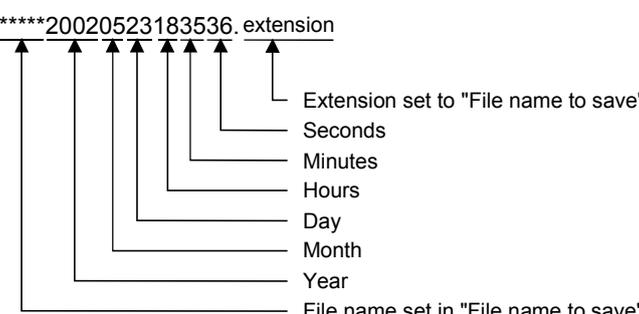
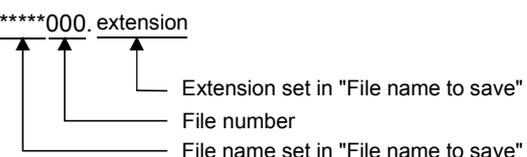
5) When "Save to file" is selected

The Excel book is saved when the cell is full.

After completion of save, all data are erased and logging is resumed.

This item can be selected when "Operating when cell is full" is set to 2) or 3).

When choosing "Save to file", make the following settings for the file where data will be saved.

Item	Description
File name to save	The storage location and file name is set for the Excel book to be saved when the cell is full. *1 The Excel file (.xls, .xlsx*2, .xlsm*2, .xlsb*2) or HTML file (.htm)*3 or CSV file (.csv) can be set as the file type. *4
Add date and time to File name	The file set in "File name to save" saves data with the date and time added to its file name. The following indicates a file name format when data is saved. <div style="text-align: center;"> <p>*****20020523183536.extension</p>  </div>
Add sequential number to File name	The file set in "File name to save" saves data with a number added to its file name. A serial number can be set within the range of 000 to 999. When the number is reached to the last, the file of the first number is overwritten by the newly saving file. The following indicates the file name format when data is saved. <div style="text-align: center;"> <p>*****000.extension</p>  </div>
Fix the File name	The file set in "File name to save" is overwritten by data.

*1: A UNC path name (\\server name\path name) cannot be specified as a file name. After assigning the network drive, specify the path name.
 *2: .xlsx, .xlsm, and .xlsb are Workbook-format extensions added to Excel 2007 or later.
 *3: For the continuous operation when saving data automatically in HTML format, refer to APPENDIX 7.
 *4: In the case of an Excel file or HTML file, the whole Excel book is saved. However, in the case of a CSV file, only the data of the target sheet is saved.

(g) "preset cell areas"

The cell areas already set to the Excel book are displayed.

The following operations are available by selecting the cell area name in the "preset cell areas".

1) Reading the settings

Choose and double-click the cell area name to read the settings of the selected cell area name to the "Cell Setting" dialog box.

2) Deleting the settings

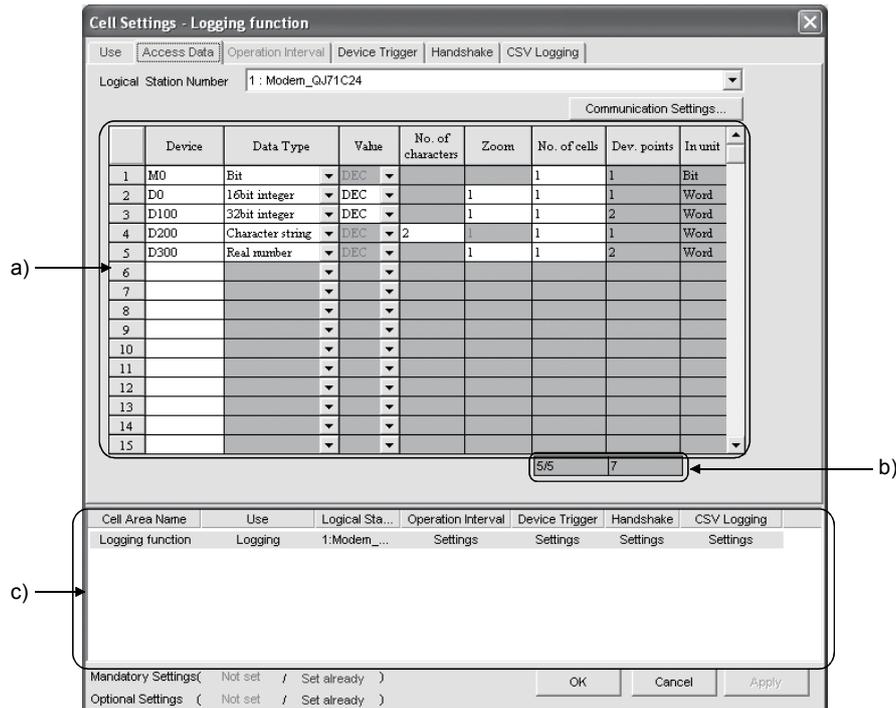
Choose the cell area name and press the key to erase all the settings of the selected cell area name.

6.2.2 Setting of the Access Data tab

This section describes the setting of the <<Access Data>> tab for use of the logging function.

In the <<Access Data>> tab, set the logical station number required for communication with the PLC and the device data to be collected in the cell area.

(1) <<Access Data >> tab



Item	Description	Detailed Explanation
Logical Station Number	Select the logical station number required for making communication.	(2) (a)
Communication settings	Used to start the Communication Setup Utility to set a new logical station number and change the settings.	(2) (b)
Remote password *1	Enter the password when the password has been set to the connection target PLC.	(2) (c)
a) (Access data)	Set the devices to be logged.	(2) (d)
b) (Number of set devices)	The number of devices currently set is displayed.	(2) (e)
c) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Remote password" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for the password function compatible module.

(2) Detailed explanation

(a) "Logical Station Number"

Choose the logical station number required for communication.
 If the logical station number has already been set, the number appears in the list box and can be selected.
 If the logical station number has not been set, click on **Communication Settings** and set a new logical station number.

(b) **Communication settings**

This button is used to start the Communication Setup Utility to set a new logical station number and change the settings.
 Select "Run as administrator" when the screen appears asking if execute programs with administrator authority or not.
 After starting the Communication Setup Utility, click on **Wizard** and set a new logical station number and change the settings with the Communication Setting Wizard.
 For the detailed explanation of the Communication Setup Utility and Communication Setting Wizard, refer to the MX Component Operating Manual.

(c) "Remote password"

"Remote password" box appears when the setting of the logical station number selected in "Logical Station Number" includes information on the connection to the module with the password function.
 When the password has been set to the connection target PLC, enter the password.
 It need not be entered when the password has not been set.

(d) Access data

1) Order of display

Data are displayed in the cell area in the order of the numbers shown on the left of the <<Access Data>> tab.

<Device data display example>

Setting example of <<Access Data>> tab

	Device	Data Type	Value	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	D0	16bit integer	DEC		1	3	3	Word
2	W0	16bit integer	DEC		1	3	3	Word
3	B0	Bit	DEC			3	3	Bit

↑ Data numbers

The device data are displayed on Excel as shown below.

Displayed in order of data numbers.

Data No. 1			Data No. 2			Data No. 3		
D0	D1	D2	W0	W1	W2	B0	B1	B2
18	14	0	0	0	0	0	0	0

2) "Device"

Enter the device to be accessed.
 Enter the device name and device number in this order.
 Refer to Section 3.2 for the accessible devices.

3) "Data Type"

Set the data type to be displayed in the cell.

Item	Available Device	Description
Bit	Bit device	The bit devices set in "Device" are displayed in a single cell in units of one bit.
	Word device (Bit specification)	Designated bits for word device set in "Device" are displayed in a single cell in units of one bit (e.g. D0.0).
16 bit integer (-32768 to 32767)	Bit device	Displayed in a single cell in units of 1 word (16 bits), starting with the device number set in "Device". *1
	Word device	Displayed in a single cell in units of 1 word, starting with the device number set in "Device". *1
32 bit integer (-2147483648 to 2147483647)	Bit device	Displayed in a single cell in units of 2 words (32 bits), starting with the device number set in "Device". *1
	Word device	Displayed in a single cell in units of 2 words, starting with the device number set in "Device". *1
Character string	Bit device	The data of the device number set in "Device" are displayed in the cell as character strings. *2
	Word device	The data of the device number set in "Device" are displayed in the cell as character strings. *2
Real number ($\pm 2^{-126} \leq value < \pm 2^{128}, 0$)	Bit device	Displayed in a single cell in units of 2 words (32 bits), starting with the device number set in "Device". *1
	Word device	Displayed in a single cell in units of 2 words, starting with the device number set in "Device". *1

*1: The displayed value changes depending on the "Zoom" setting.
Refer to 6) for details.

*2: The unit and the number of displayed characters of the read data change depending on the "No. of characters" setting.
Refer to 5) for details.

4) "Value"

Select the display format of the value to be displayed in the cell from DEC and HEX.

Depending on the "Data Type", the "Value" and "Zoom" can be selected/set as described below.

Data Type	Item		Cell data display
	Value	Zoom	
Bit	Cannot be selected	Cannot be set	0 or 1
16 bit integer	DEC	Can be set	Displayed in decimal
	HEX	Cannot be set	Display in 4-digit hexadecimal (ex. 03EB)
32 bit integer	DEC	Can be set	Displayed in decimal
	HEX	Cannot be set	Display in 8-digit hexadecimal (ex. 03EB03EA)
Character String	Cannot be selected	Cannot be set	Character string is displayed (ex. ABCD)
Real number	Cannot be selected	Can be set	Real number is displayed (ex. 1.36E-36)

5) "No. of characters"

Set the number of characters to be displayed in a single cell.

Setting range: 40

Depending on the value set in "No. of characters" and device data, the character strings may not be displayed in the cell.

The following are the examples of setting 1 to 4 in "No. of characters".

(Example) When displaying the character strings stored in D0 to D3

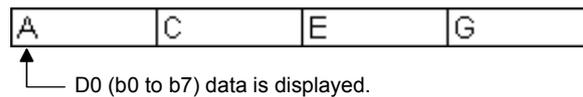
	b15 to b8	b7 to b0
D0	B	A
D1	D	C
D2	F	E
D3	H	G

<When "No. of characters" is set to "1">

The data is displayed in a single cell in units of 1 word (16 bits).

Only the character stored in b0 to b7 of D0 is displayed.

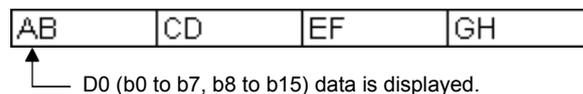
The character stored in b8 to b15 of D0 is not displayed.



<When "No. of characters" is set to "2">

The data is displayed in a single cell in units of 1 word (16 bits).

The character strings stored in b0 to b7 and b8 to b15 are displayed in this order.

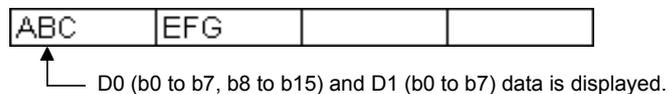


<When "No. of characters" is set to "3">

The data is displayed in a single cell in units of 2 words (32 bits).

The character strings stored in D0 (b0 to b7, b8 to b15) and D1 (b0 to b7) are displayed.

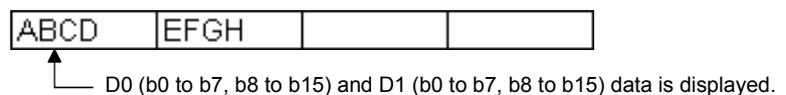
The character string stored in b8 to b15 of D1 is not displayed.



<When "No. of characters" is set to "4">

The data is displayed in a single cell in units of 2 words (32 bits).

The character strings stored in D0 (b0 to b7, b8 to b15) and D1 (b0 to b7, b8 to b15) are displayed in this order.



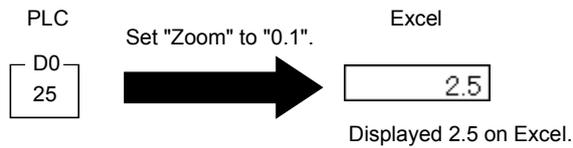
6) "Zoom"

The device value read from the PLC is multiplied by the zoom ratio and displayed in the cell.

When "Data Type" has been set to "Bit" or "Character string", the "Zoom" setting is not possible.

When the "Value" is set to "HEX", the "Zoom" setting is not possible.

Setting range: 0.001 to 1000



7) "No. of cells"

Set the number of cells to be used for the device set in "Device" within the area specified in "Cell Area".

<Device data display example>

Setting example of <<Access Data>> tab

	Device	Data Type	Value	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	D0	16bit integer	DEC		1	3	3	Word
2	Device: D0							
3	Data type: 16 bit integer							
4	Number of cells: 3							

The device data are displayed on Excel as shown below.

3 points are displayed in order, starting with D0.

D0	D1	D2			
18	14	0			

These are set as the cell area but not used.

8) "Dev. Points"

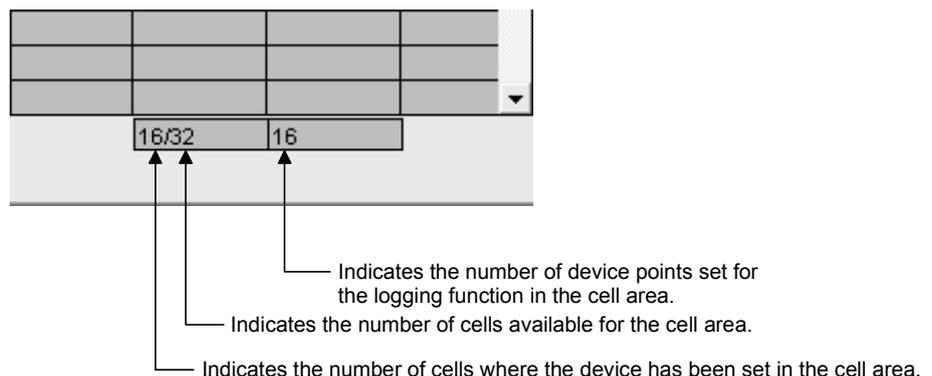
The points of the devices to be consecutively read starting with the device number set in "Device" are displayed.

9) "In unit"

The unit of the device to be shown in the cell is displayed.

(e) The number of set devices

The number of device points and others set to the cell area are displayed.

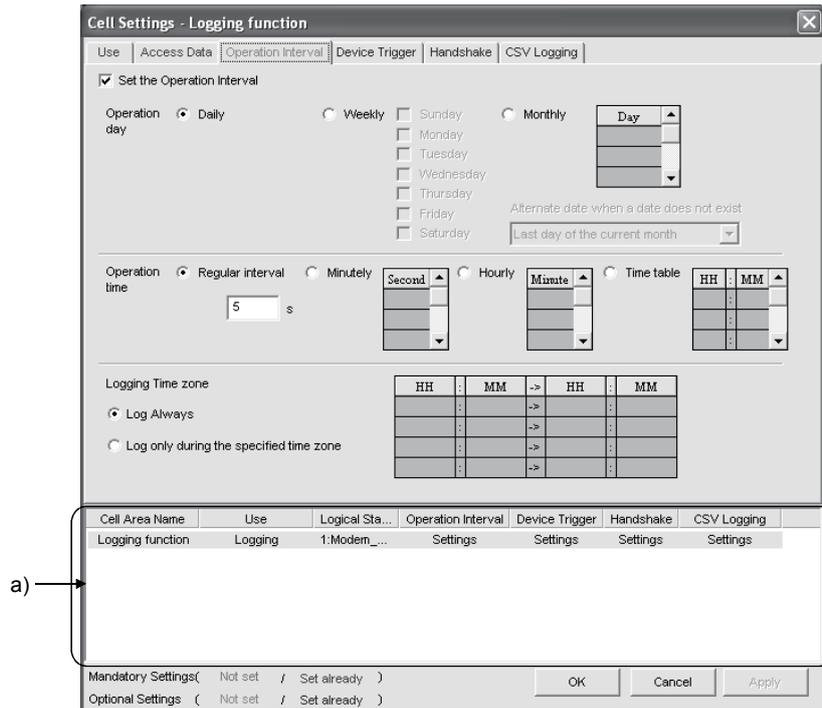


6.2.3 Setting of the Operation Interval tab

This section describes the setting of the <<Operation Interval>> tab for use of the logging function.

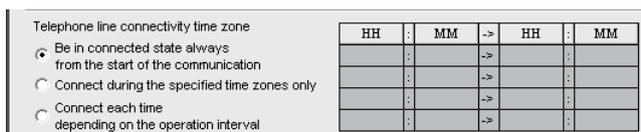
In the <<Operation Interval>> tab, set the day, time and time zone of the activation of the function for the cell area.

(1) <<Operation Interval>> tab



Item	Description	Detailed Explanation
Set the Operation Interval	Set the operation of the cell area valid or invalid.	(2) (a)
Operation day	Set the operation day of the logging activation.	(2) (b)
Operation time	Set the operation time of the logging activation.	(2) (c)
Logging Time zone *1	Set the time zone of the logging activation.	(2) (d)
a) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: If the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for modem communication, "Logging Time zone" is switched to "Telephone line connectivity time zone".



Item	Description	Detailed Explanation
Telephone line connectivity time zone	Sets the timing of connection and disconnection of the telephone line.	(2) (e)

(2) Detailed explanation

(a) "Set the Operation Interval"

To make the settings of cell area invalid or to use the function of cell area for 1 shot communication only, remove the check mark. (Do not remove the check mark for the case of ordinary operation.)

(b) "Operation day"

Set the operation day of device data collection.

1) When "Daily" is selected

Operation is performed every day.

2) When "Weekly" is selected

Operation is performed on the specified day of the week only.
Multiple days of the week can be set.

3) When "Monthly" is selected

Operation is performed on the specified days only.

If the specified day does not exist in some months, an alternate day can be specified.

Number of days that can be set: 31

<When "15th" is set>

Operation is performed on the 15th every month, e.g. January 15, February 15, March 15.

<When "31st" is set>

Excepting February, April, June, September and November, operation is performed on the 31st every month.

For February, April, June, September and November, set the alternate day and processing in "Alternate day when a date does not exist".

The following table indicates the setting items of "Alternate day when a date does not exist".

Item	Description
Last day of the current month	Operation is performed on the last day of February, April, June, September or November.
First day of the next month	Operation is performed on the first day of the next month.
No operation	Operation is not performed in February, April, June, September and November.

(c) "Operation time"

Set the operation time of device data collection.

1) When "Regular interval" is selected

Device data is collected at the set second intervals.

When modem communication is used and "Connect each time depending..." is set in "Telephone line...", set 30 seconds or more to "Regular interval".

Setting range: 0.1 to 0.9 (in units of 0.1 seconds),

1 to 3600 (in units of 1 second)

When the date and time are added, the date and time displayed on the Excel sheet will be in the "yyyy/mm/dd ddd hh:mm:ss" format if the setting is 0.1 to 0.9 seconds.

(Example) When 0.2 seconds interval is set

Date time	D0	D1	D2
2004/07/13 Tue 14:57:19	37	0	100
2004/07/13 Tue 14:57:20	45	0	94
2004/07/13 Tue 14:57:20	56	0	83
2004/07/13 Tue 14:57:20	67	0	78
2004/07/13 Tue 14:57:20	78	0	62
2004/07/13 Tue 14:57:20	89	0	55
2004/07/13 Tue 14:57:21	101	0	43

- 2) When "Minutely" is selected
Device data is collected at the specified second every minute.
Number of times that can be set: 60
- 3) When "Hourly" is selected
Device data is collected at the specified minute every hour.
Number of times that can be set: 60
- 4) When "Time table" is selected
Device data is collected at the specified time.
Number of times that can be set: 50

(d) "Logging Time zone"

Set the time zone for logging.

- 1) When "Log Always" is selected
Logging is always performed at the specified operation time of the operation day.
- 2) When "Log only during the specified time zone" is selected
Logging is performed in the specified time zone only.
Number of settings: 4

When "Operation day" has been set to "Weekly" or "Monthly", do not make the following setting that will span two days.

HH	:	MM	->	HH	:	MM
22	:	00	->	08	:	00
:	:	:	->	:	:	:
:	:	:	->	:	:	:
:	:	:	->	:	:	:

(e) "Telephone line connectivity time zone"

Set the time zone for connection with the telephone line.

- 1) When "Be in connected state always from the start of the communication" is selected
The telephone line is connected upon start of MX Sheet communication, and is kept connected until termination of MX Sheet communication.
- 2) When "Connect during the specified time zone only" is selected
The telephone line is connected only in the specified time zone.
Number of settings: 4

When "Operation day" has been set to "Weekly" or "Monthly", do not make the following setting that will span two days.

HH	:	MM	->	HH	:	MM
22	:	00	->	08	:	00
:	:	:	->	:	:	:
:	:	:	->	:	:	:
:	:	:	->	:	:	:

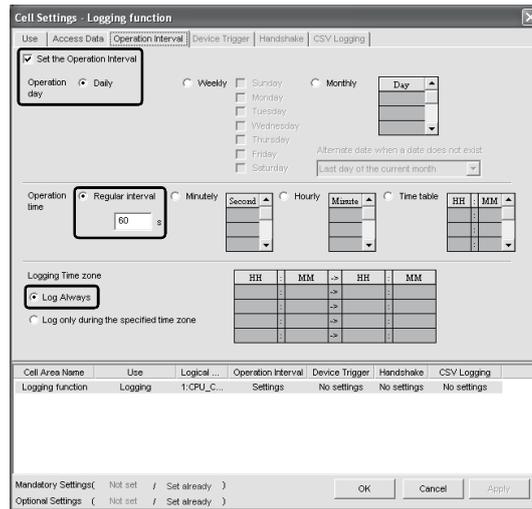
- 3) When "Connect each time depending on the operation interval" is selected
The telephone line is connected and disconnected according to the settings of "Operation day" and "Operation time".

(3) Setting examples

(a) When using communication other than modem communication (Log Always)

1) Setting example

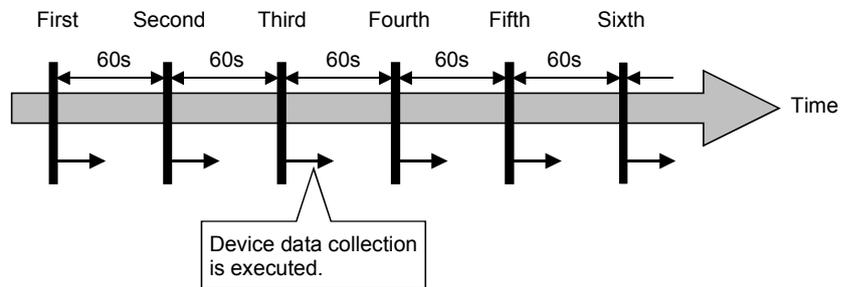
The following setting example shows that logging is always performed at regular intervals.



Set the Operation Interval : Marked
 Operation day : Daily : Marked
 Operation time : Regular interval : 60 seconds
 Logging Time zone : Log Always : Marked

2) Operation timing

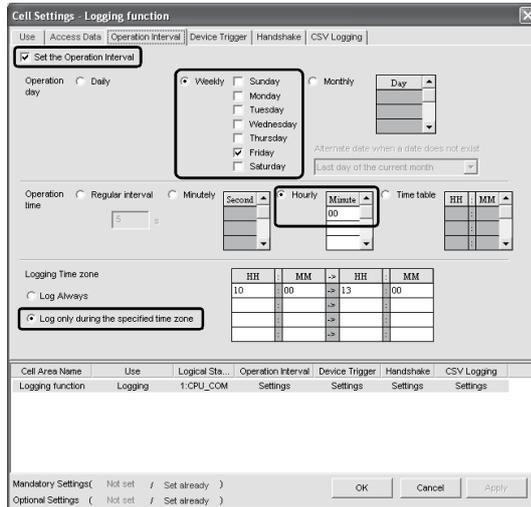
The following shows the operation timings in the setting example.



(b) When using communication other than modem communication (Log only during the specified time zone)

1) Setting example

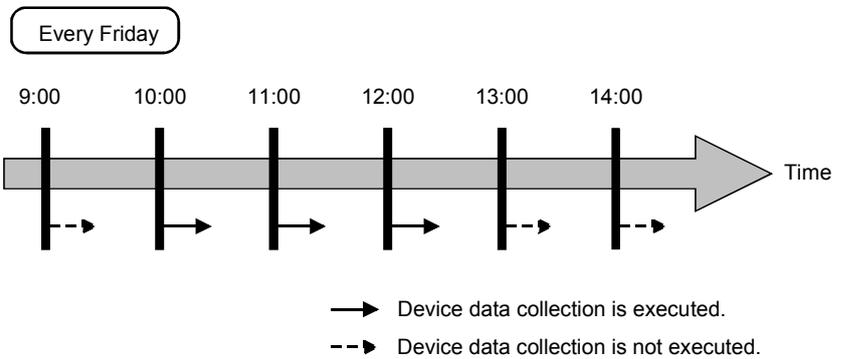
The following setting example shows that logging is performed in the specified time zone only.



- Set the Operation Interval : Marked
- Operation day : Marked
- Weekly : Marked
- Friday : Marked
- Operation time : Marked
- Hourly : 0 (minutes)
- Logging Time zone : Marked
- Log only during the specified time zone: Marked
- Time zone : 10:00 to 13:00

2) Operation timing

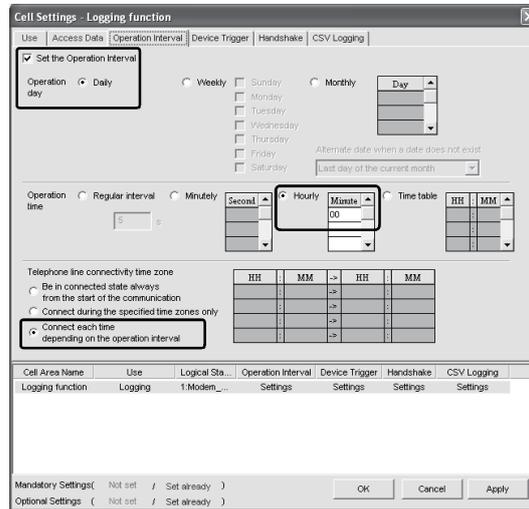
The following shows the operation timing in the setting example.



(c) When using modem communication

1) Setting example

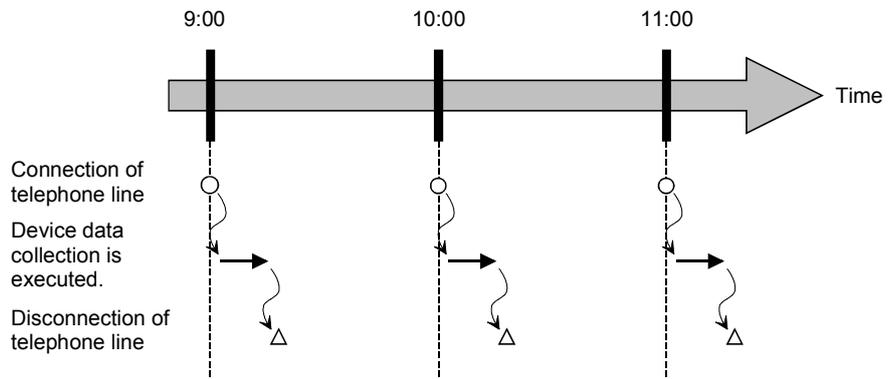
The setting example in the case of modem communication is shown below.



- Set the Operation Interval : Marked
- Operation day : Marked
- Daily : Marked
- Operation time : 0 (minutes)
- Hourly : 0 (minutes)
- Telephone line connectivity time zone : Marked
- Connect each time depending on the operation interval : Marked

2) Operation timing

The following shows the operation timing in the setting example.

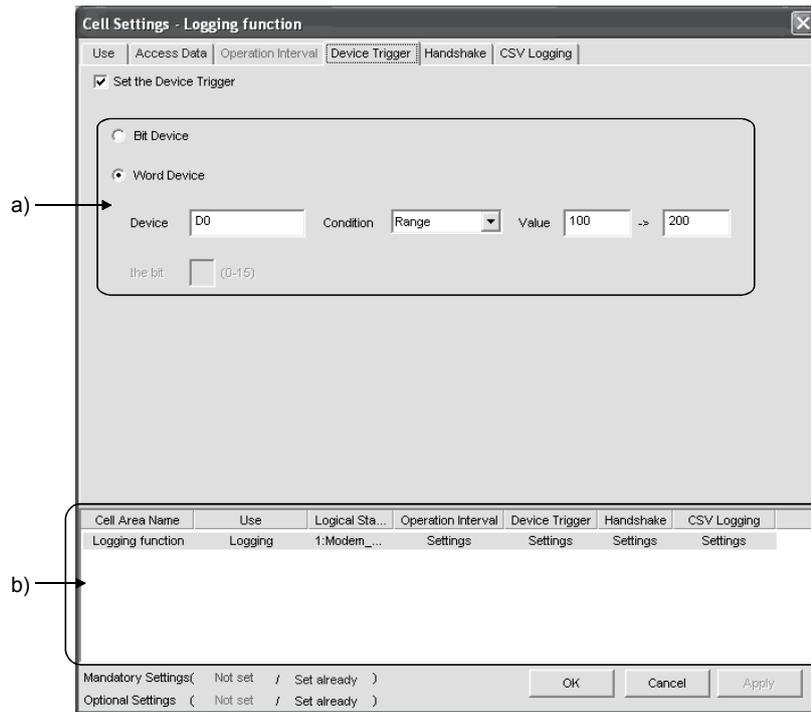


6.2.4 Setting of the Device Trigger tab

This section describes the setting of the <<Device Trigger>> tab for use of the logging function.

In the <<Device Trigger>> tab, set the device conditions for the device trigger.

(1) <<Device Trigger>> tab



Item	Description	Detailed Explanation
Set the Device Trigger	Set when the device trigger is used.	(2) (a)
a) (Device conditions)	Set the device conditions.	(2) (b)
b) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

(a) "Set the Device Trigger"

When using the device trigger, be sure to mark "Set the Device Trigger".

(b) Device conditions

Set the device conditions for the device trigger.

1) Device type

Set the type of the device used for the device trigger.

Item	Description
Bit Device	Set when using a bit device for the device trigger.
Word Device	Set when using a word device for the device trigger.

2) "Device"

Enter the device used for the device trigger.

Enter the device name and device number in this order.

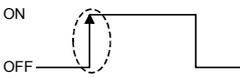
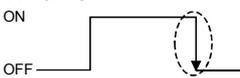
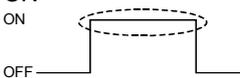
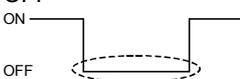
3) "the bit"

Set the corresponding bit of the word device.

Setting range: 0 to 15

4) "Condition"

Set the device trigger condition.

Item	Available Device	Description
When ON 	Bit device	Set when operation is to be performed only once when the bit device turns on.
	Word device	Set when operation is to be performed only once when the corresponding bit of the word device turns on (value: 1).
When OFF 	Bit device	Set when operation is to be performed only once when the bit device turns off.
	Word device	Set when operation is to be performed only once when the corresponding bit of the word device turns off (value: 0).
ON 	Bit device	Set when operation is to be performed while the bit device is on.
	Word device	Set when operation is to be performed while the corresponding bit of the word device is on (value: 1).
OFF 	Bit device	Set when operation is to be performed while the bit device is off.
	Word device	Set when operation is to be performed while the corresponding bit of the word device is off (value: 0).
=	Word device	Set when operation is to be performed when the device value is equal to the "Value" setting.
< >	Word device	Set when operation is to be performed when the device value is not equal to the "Value" setting.
< =	Word device	Set when operation is to be performed when the device value is equal to or less than the "Value" setting.
<	Word device	Set when operation is to be performed when the device value is less than the "Value" setting.
> =	Word device	Set when operation is to be performed when the device value is equal to or greater than the "Value" setting.
>	Word device	Set when operation is to be performed when the device value is greater than the "Value" setting.
Range	Word device	Set when operation is to be performed when the device value is within the specified "Value" setting range.

5) "Value"

Enter the values used for "Condition".

Setting range: -32768 to 32767

<When "Range" has been set in "Condition">

When "Range" has been set in "Condition", enter the values in "Value" as shown below.

Word Device

Device: D0 Condition: Range Value: 100 > 200

Enter the upper limit value of the range.

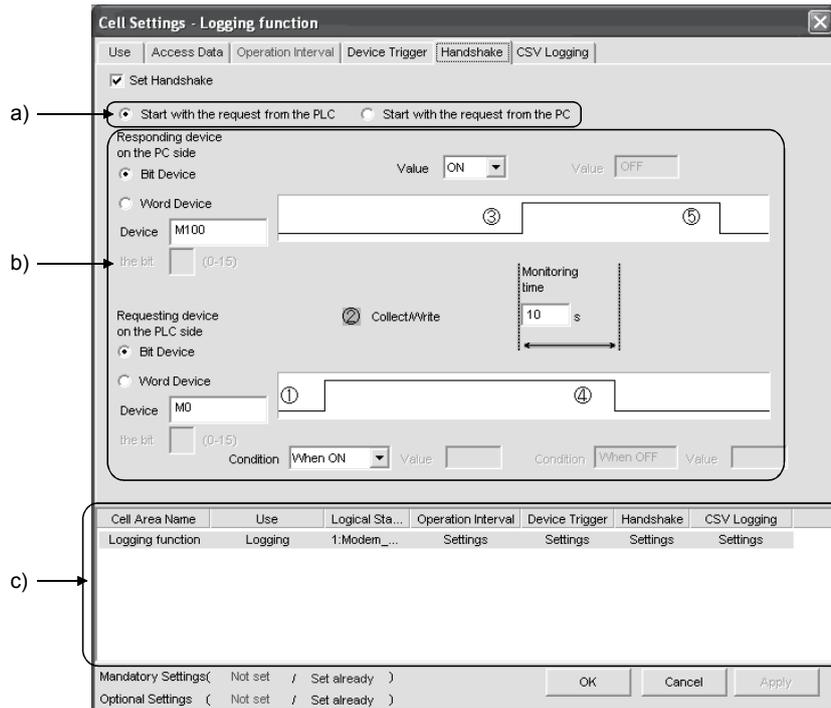
Enter the lower limit value of the range.

6.2.5 Setting of the Handshake tab

This section describes the setting of the <<Handshake>> tab for use of the logging function.

In the <<Handshake>> tab, set the handshake requesting source and handshake processing.

(1) <<Handshake>> tab



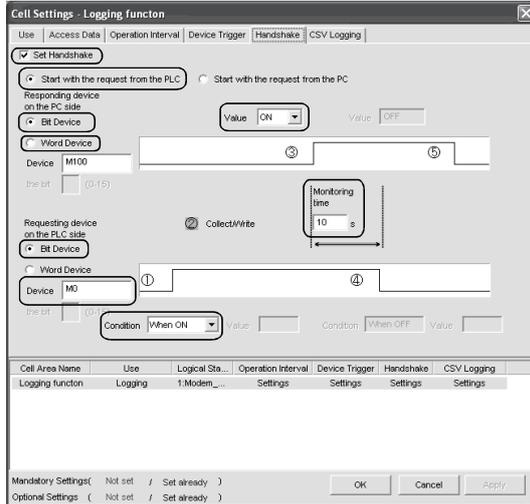
Item	Description	Detailed Explanation
Set Handshake	Set when using a handshake.	(3) (a)
a) (Requesting source setting)	Set the requesting source of the handshake.	(3) (b)
b) (Handshake processing)	Set the handshake processing.	(3) (c)
c) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Setting examples and operation timing

The following shows the handshake setting examples and operation timing.

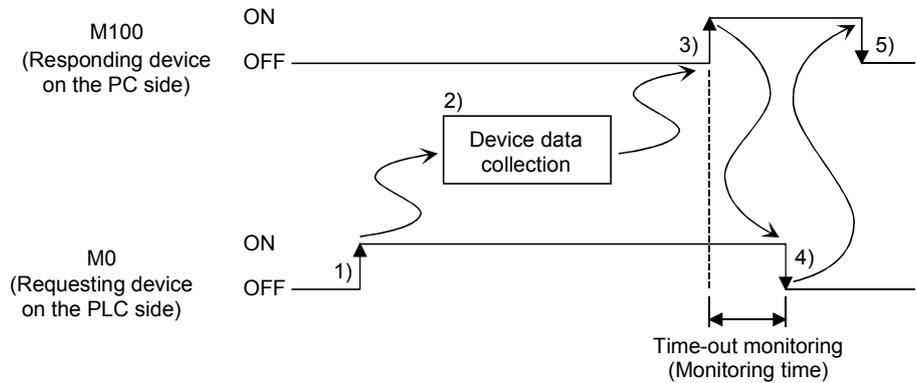
(a) When "Start with the request from the PLC" is selected
(Device: Bit device)

<Setting example>



- Set Handshake : Marked
- Start with the request from the PLC : Marked
- Responding device on the PC side : Marked
- Bit device : Marked
- Device : M100
- Value : ON
- Requesting device on the PLC side : Marked
- Bit device : Marked
- Device : M0
- Condition : When ON
- Monitoring time : 10 seconds

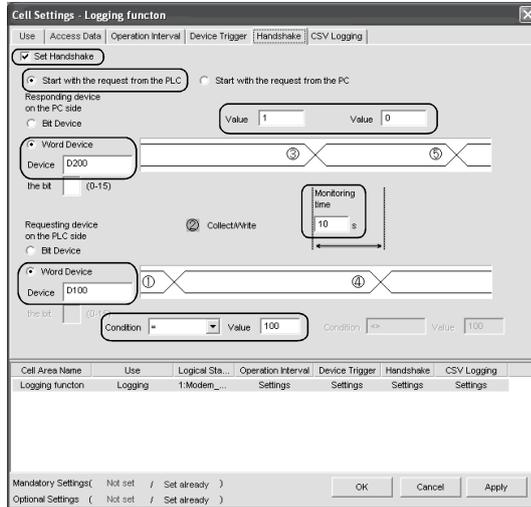
<Operation timing>



- 1) When M0 turns on, processing in 2) is started.
- 2) Device data is collected.
- 3) After device data is collected, M100 is turned on.
- 4) M0 is turned off.
- 5) M100 is turned off.

(b) When "Start with the request from the PLC" is selected
(Device: Word device)

<Setting example>

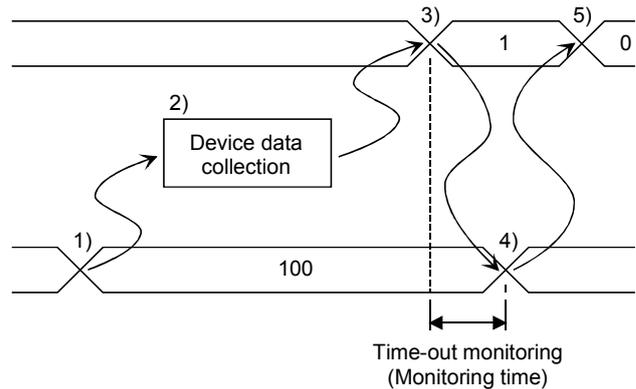


Set Handshake : Marked
 Start with the request from the PLC : Marked
 Responding device on the PC side
 Word device : Marked
 Device : D200
 Value : 1 (left), 0 (right)
 Requesting device on the PLC side
 Word device : Marked
 Device : D100
 Condition : =
 Value : 100
 Monitoring time : 10 seconds

<Operation timing>

D200
(Responding device on the PC side)

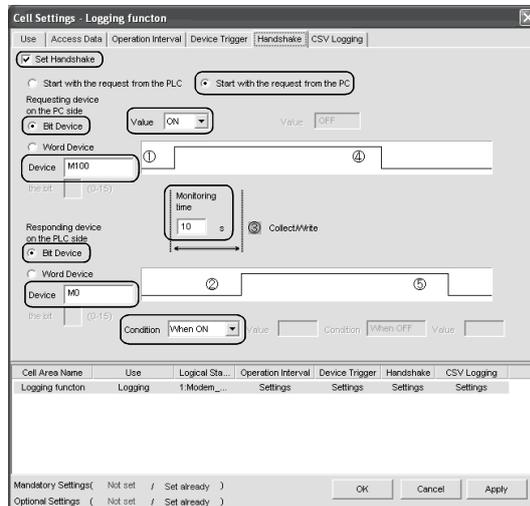
D100
(Requesting device on the PLC side)



- 1) When the D100 value reaches 100, processing in 2) is started.
- 2) Device data is collected.
- 3) After device data is collected, the D200 value is changed to 1.
- 4) The D100 value is changed to other than 100.
- 5) The D200 value is changed to 0.

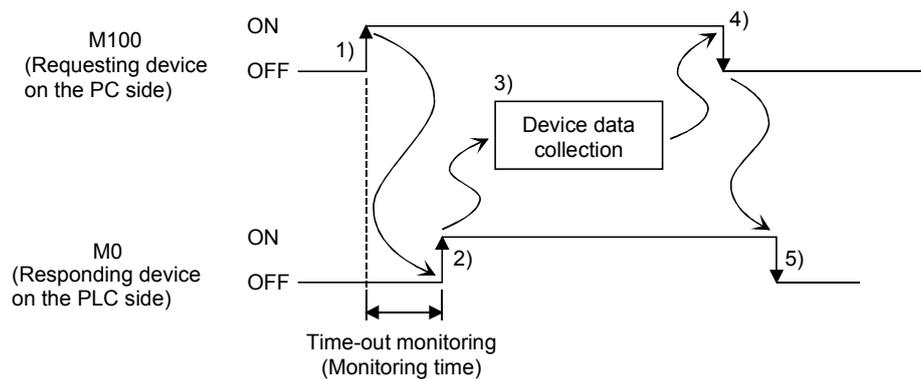
(c) When "Start with the request from the PC" is selected (Device: Bit device)

<Setting example>



- Set Handshake : Marked
- Start with the request from the PC : Marked
- Requesting device on the PC side
- Bit device : Marked
- Device : M100
- Value : ON
- Responding device on the PLC side
- Bit device : Marked
- Device : M0
- Condition : When ON
- Monitoring time : 10 seconds

<Operation timing>



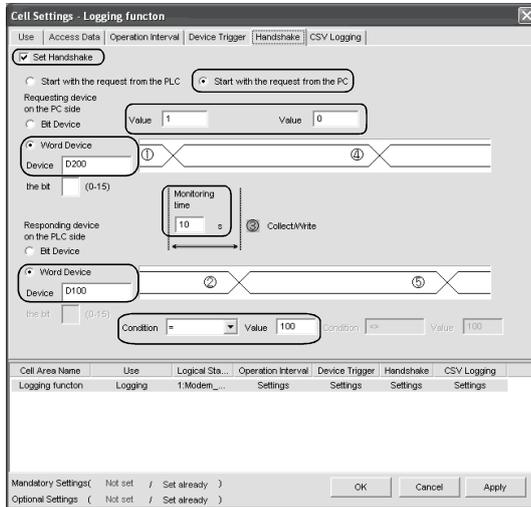
- 1) M100 is turned on.
- 2) When M0 turns on, processing in 3) is started.
- 3) Device data is collected.
- 4) After device data is collected, M100 is turned off.
- 5) M0 is turned off.

REMARK

Time-out monitoring is not executed between 4) and 5) above.
 If the operation in 5) is not performed in the PLC, device data collection is not executed when the handshake conditions are satisfied at the next time.

(d) When "Start with the request from the PC" is selected (Device: Word device)

<Setting example>

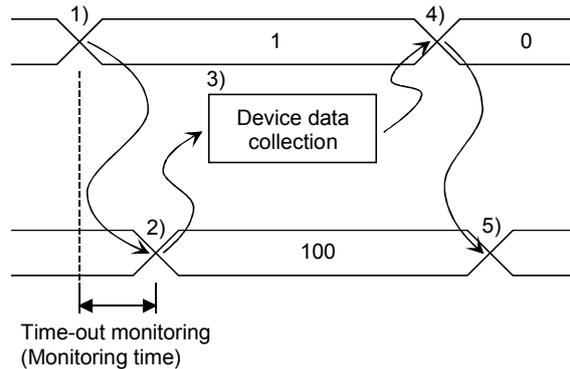


- Set Handshake : Marked
- Start with the request from the PC : Marked
- Requesting device on the PC side : Marked
- Word device : Marked
- Device : D200
- Value : 1 (left), 0 (right)
- Monitoring time : 10 seconds
- Responding device on the PLC side : Marked
- Word device : Marked
- Device : D100
- Condition : =
- Value : 100

<Operation timing>

D200
(Requesting device on the PC side)

D100
(Responding device on the PLC side)



- 1) The D200 value is changed to 1.
- 2) When the D100 value reaches 100, processing in 3) is started.
- 3) Device data is collected.
- 4) After device data is collected, the D200 value is changed to 0.
- 5) The D100 value is changed to other than 100.

REMARK

Time-out monitoring is not executed between 4) and 5) above.
If the operation in 5) is not performed in the PLC, device data collection is not executed when the handshake conditions are satisfied at the next time.

(3) Detailed explanation

(a) "Set Handshake"

When using a handshake, be sure to mark "Set Handshake".

(b) Requesting source setting

Set the requesting source for a device data collection start.

Item	Description
Start with the request from the PLC	Set when starting device data collection at the request of the PLC.
Start with the request from the PC	Set when starting device data collection at the request of the personal computer.

(c) Handshake processing

Set the handshake processing on the personal computer side and PLC side.

1) PC side processing

- Device type

Set the device type used for PC side processing.

Item	Description
Bit device	Set when a bit device is used for PC side processing.
Word device	Set when a word device is used for PC side processing.

- "Device"

Enter the device used for PC side processing.

Enter the device name and device number in this order.

When specifying a bit of the word device, enter the bit number in "the bit".

- "Value"

Set the value of the device used for PC side processing.

Item	Available Device	Description
ON	Bit device	Set when the value of the device used for PC side processing is set for ON.
	Word device (Bit specification)	
OFF	Bit device	Set when the value of the device used for PC side processing is set for OFF.
	Word device (Bit specification)	
Empty (Value input)	Word device	Set the value of the word device used for PC side processing.

2) PLC side processing

- Device type

Set the device type used for PLC side processing.

Item	Description
Bit device	Set when a bit device is used for PLC side processing.
Word device	Set when a word device is used for PLC side processing.

- "Device"

Enter the device used for PLC side processing.

Enter the device name and device number in this order.

When specifying the bit use of the word device, enter the bit number in "the bit".

- "Condition"

Set the conditions of the device used for PLC side processing.

Item	Available Device	Description
ON	Bit device	Set when the value of the device used for PLC side processing is set for ON.
	Word device (Bit specification)	
OFF	Bit device	Set when the value of the device used for PLC side processing is set for OFF.
	Word device (Bit specification)	
=	Word device	Set when the PLC side device value is equal to the "Value" setting.

- "Value"

Set the value of the device used for PLC side processing.

This can be set only when "=" has been selected in "Condition".

3) Monitoring time

Set the time during which the PC side device monitors the PLC side device.

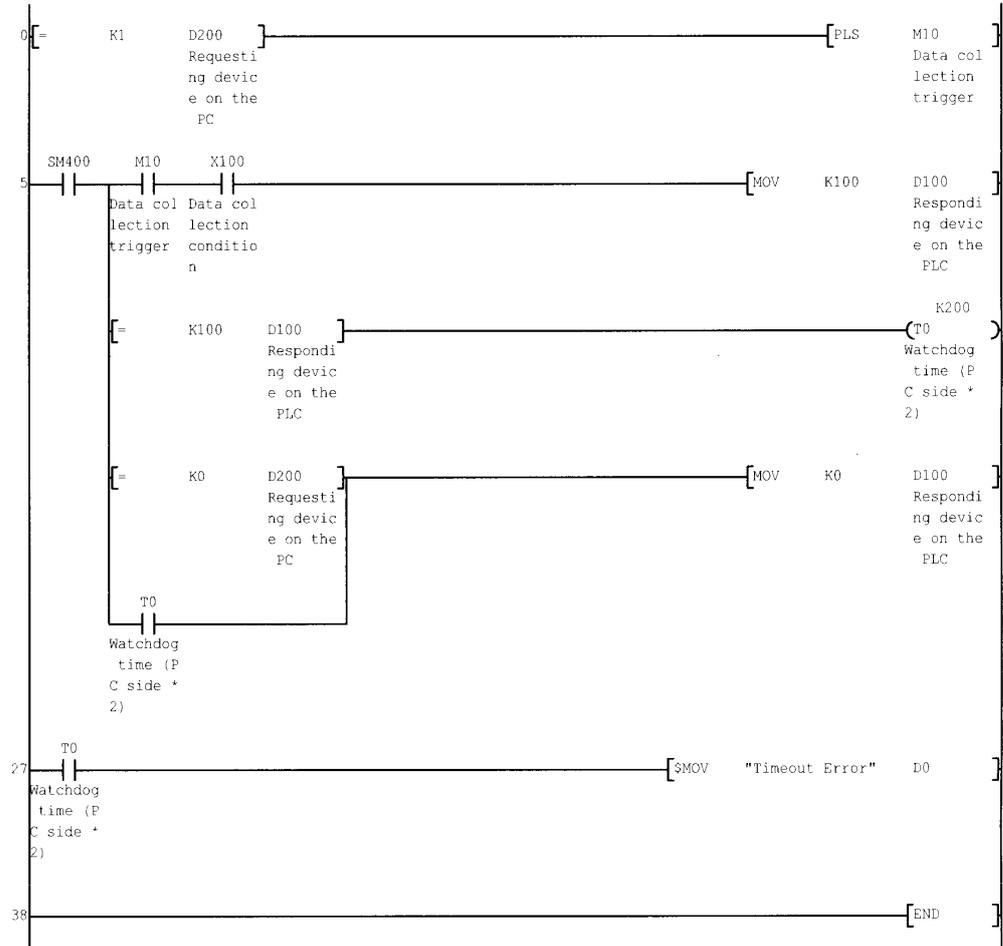
Setting range: 1 to 3600

The monitoring time changes depending on the requesting source setting.

The following table indicates the monitoring time.

Requesting Source Setting	Monitoring time
Start with the request from the PLC	Monitoring is executed from the time when the PC side responding device is set to the time when the PLC side requesting device is reset. If the PLC side responding device is not reset after the elapse of the monitoring time, the collected device data is discarded and the error log is displayed in the ErrorLog sheet.
Start with the request from the PC	Monitoring is executed from the time when the PC side requesting device is set to the time when the PLC side responding device is set. If the PLC side requesting device is not set after the elapse of the monitoring time, the error log is displayed in the ErrorLog sheet.

(d) When "Start with the request from the PC" is selected (Device: Word device)

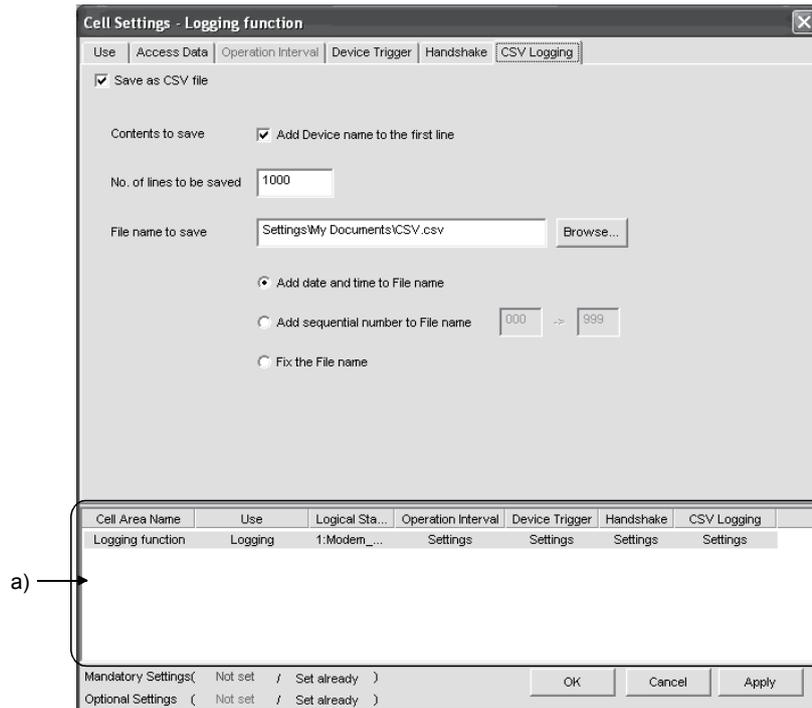


6.2.6 Setting of the CSV Logging tab

This section describes the setting of the <<CSV Logging>> tab for use of the logging function.

In the <<CSV Logging>> tab, the file name and the saving contents with which logging data is saved to CSV file.

(1) <<CSV Logging>> tab



Item	Description	Detailed Explanation
Save as CSV file	Set when using the CSV logging.	(2) (a)
Contents to save	Set when adding the device name to the first line.	(2) (b)
No. of lines to be saved	Set the number of lines to be saved.	(2) (c)
File name to save	Set the file name to save.	(2) (d)
a) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

(a) "Save as CSV file"

When using the CSV logging, be sure to mark "Save as CSV file".

(b) "Contents to save"

Activate this setting when adding the device name to the first line of the data to be saved into a CSV file.

Device name is added to first line.

```

DateTime,D0,D1,D2,D3,D4
2002/07/10 15:57:09,25,16672,0,0,0
2002/07/10 15:57:14,25,16672,0,0,0
  
```

If 0.1 to 0.9 seconds are set to the "Regular interval" on the <<Operation Interval>> tab, the date and time to be written to the CSV file will be in the "yyy/mm/dd hh:mm:ss" format.

(Example) When 0.2 seconds interval is set

```

DateTime,D0,D1,D2
2004/04/23 10:00:19,37,0,100
2004/04/23 10:00:20,45,0,94
2004/04/23 10:00:20,56,0,83
2004/04/23 10:00:20,67,0,78
2004/04/23 10:00:20,78,0,62
2004/04/23 10:00:20,89,0,55
2004/04/23 10:00:21,101,0,43
  
```

(c) "No. of lines to be saved"

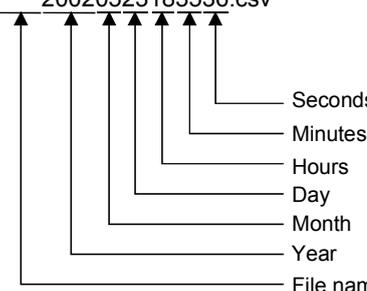
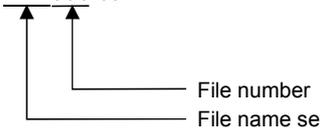
Set the number of lines to be saved into a single CSV file.

Setting range: 1 to 9999999 *1

*1: Set any of 1 to 65535 when using the CSV file on Excel.

(d) "File name to save"

Set the CSV file name to save.

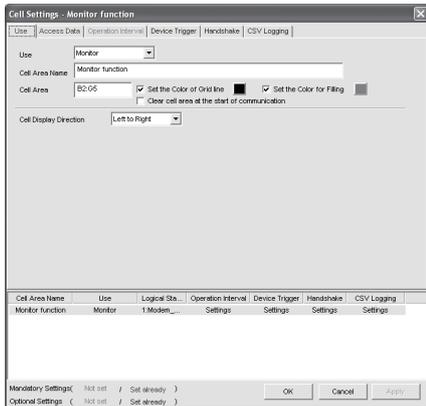
Item	Description
File name to save	Sets the saving location and file name of the CSV file. *1
Add date and time to File name	<p>Adds the date and time data to the file name set in "File name to save" and saves it. In CSV logging, data is added until the data in the CSV file reach the number of lines set in "No. of lines to be saved". When they reach the set number of lines, a new CSV file is created. The following shows the file name when data are saved.</p> <p>*****20020523183536.csv</p> 
Add sequential number to File name	<p>Adds the file number to the file name set in "File name to save" and saves it. The serial number can be set in a range from 000 to 999. When the number reaches the last, the data of the next file are overwritten to the file of the first number. In CSV logging, data is added until the data in the CSV file reach the number of lines set in "No. of lines to be saved". When they reach the set number of lines, a new CSV file is created. The following shows the file name when data are saved.</p> <p>*****000.csv</p> 
Fix the File name	<p>Overwrites data to the CSV file set in "File name to save". In CSV logging, data is added until the data in the CSV file reach the number of lines set in "No. of lines to be saved".</p>

*1: A UNC path name (\\server name\path name) cannot be specified as a file name. After assigning the network drive, specify the path name.

6.3 When Monitor Is Selected

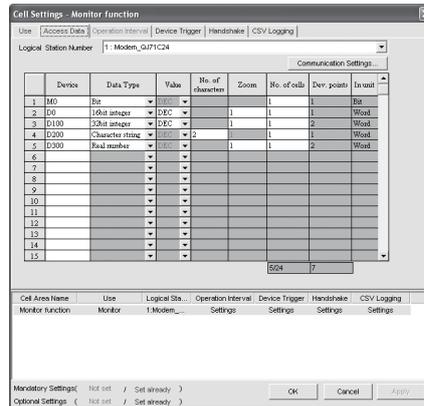
This section describes the "Cell Setting" dialog box when "Monitor" is selected from "Use" of the <<Use>> tab.

<<Use>> tab



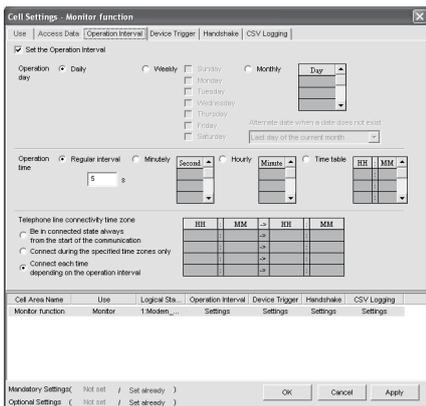
Required setting
Refer to Section
6.3.1.

<<Access Data>> tab



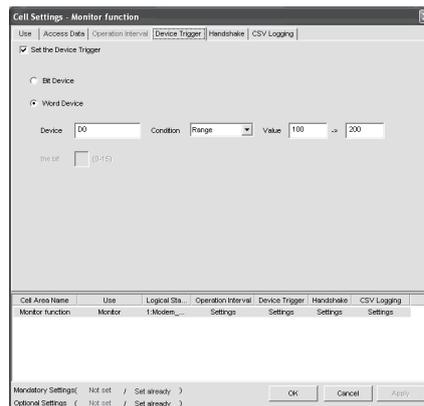
Required setting
Refer to Section
6.3.2.

<<Operation Interval>> tab



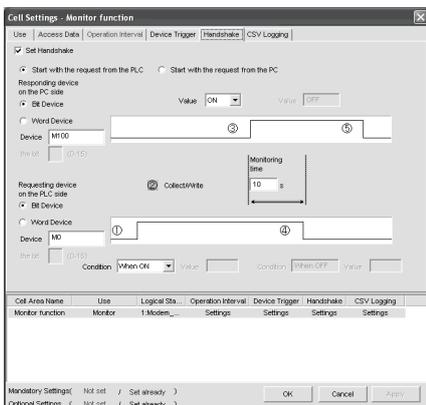
Required setting
Refer to Section
6.3.3.

<<Device Trigger>> tab



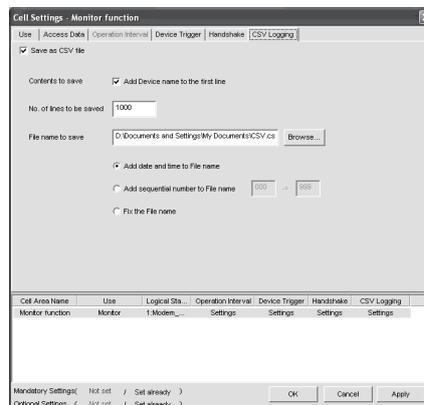
Set as necessary
Refer to Section
6.3.4.

<<Handshake>> tab



Set as necessary
Refer to Section
6.3.5.

<<CSV Logging>> tab

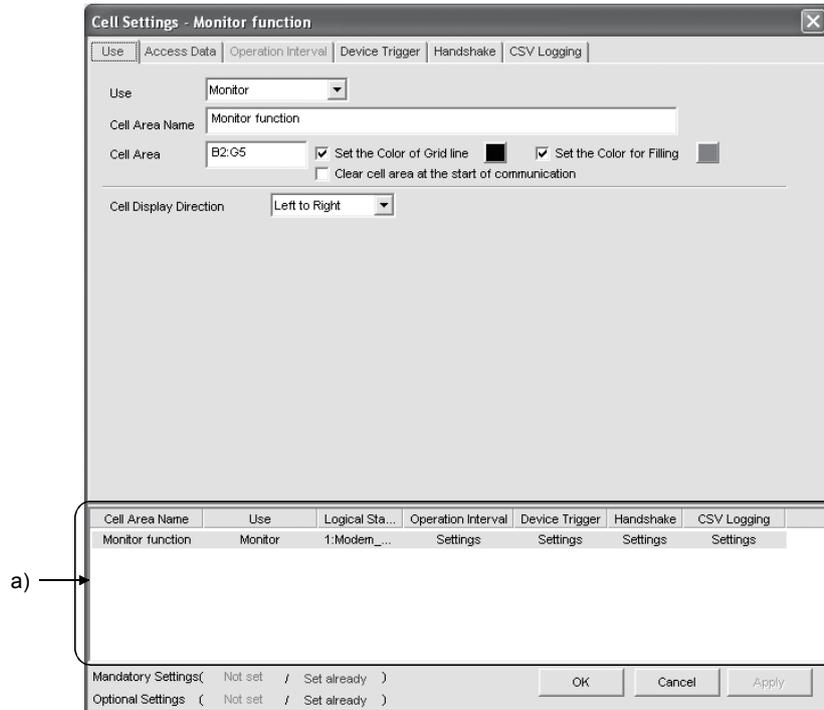


Set as necessary
Refer to Section
6.3.6.

6.3.1 Setting of the Use tab

This section describes the setting of the <<Use>> tab for use of the monitor function. In the <<Use>> tab, set the cell area and monitor data display direction.

(1) <<Use>> tab



Item	Description	Detailed Explanation
Use	Set the function to be used for the specified cell area. Choose "Monitor" when using the monitor function.	—
Cell Area Name	Set the name of the specified cell area. (Maximum number of cell area names : 1000)	—
Cell Area	Enter the value to specify the cell area.	(2) (a)
Set the Color of Grid line	Set whether the specified cell area is provided with grid lines (including color designation) or not.	Section 6.2.1
Set the Color for Filling	Set whether the specified cell area is colored or not.	
Clear cell area at the start of communication	When "Clear cell area at the start of communication" has a check mark, the data in the cell area specified at the start of communication is cleared. (Default: no check)	(2) (b)
Cell Display Direction	Set the monitor data display sequence. <ul style="list-style-type: none"> • Left to Right Monitor data are displayed from left to right in the specified cell area in order. • Top to Bottom Monitor data are displayed from top to bottom in the specified cell area in order. 	(2) (c)
a) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

With the exception of the following items, the setting of the <<Use>> tab for use of the monitor function is the same as that of the <<Use>> tab for use of the logging function.

Refer to Section 6.2.1 for details.

(a) "Cell Area"

Set the cell area to be used by the monitor function.

1) Setting examples

Refer to Section 6.2.1 for the "Cell Area" setting examples.

2) Setting ranges

The following indicates the possible setting ranges of the cell area and number of specified cell areas.

Number of cells : 2000

Number of specified cell areas : 16

(b) "Clear cell area at the start of communication"

Set whether the cell area will be cleared or not at the start of communication.

1) Display example in the case where "Clear cell area at the start of communication" is checked

< Before the start of communication >

1005	35	102	10
1002	30	200	15
990	36	151	25



< At the start of communication >



< At the completion of the first collection >

910	33	111	15
880	34	180	22
925	31	135	18

2) Display example in the case where "Clear cell area at the start of communication" is not checked

< Before the start of communication >

1005	35	102	10
1002	30	200	15
990	36	151	25



< At the start of communication >

1005	35	102	10
1002	30	200	15
990	36	151	25



< At the completion of the first collection >

910	33	111	15
880	34	180	22
925	31	135	18

(c) "Cell Display Direction"

Set the monitor data display sequence.

1) When "Left to Right" is selected

<When cell area (B2:D5) is set to "Left to Right">

	A	B	C	D	E
1		→			
2		1	2	3	
3		4	5	6	
4		7	8	9	
5		10	11	12	
6					

Monitor data are displayed in order of 1 to 12.

2) When "Top to Bottom" is selected

<When cell area (B2:D5) is set to "Top to Bottom ">

	A	B	C	D	E
1					
2		1	5	9	
3		2	6	10	
4		3	7	11	
5		4	8	12	
6					

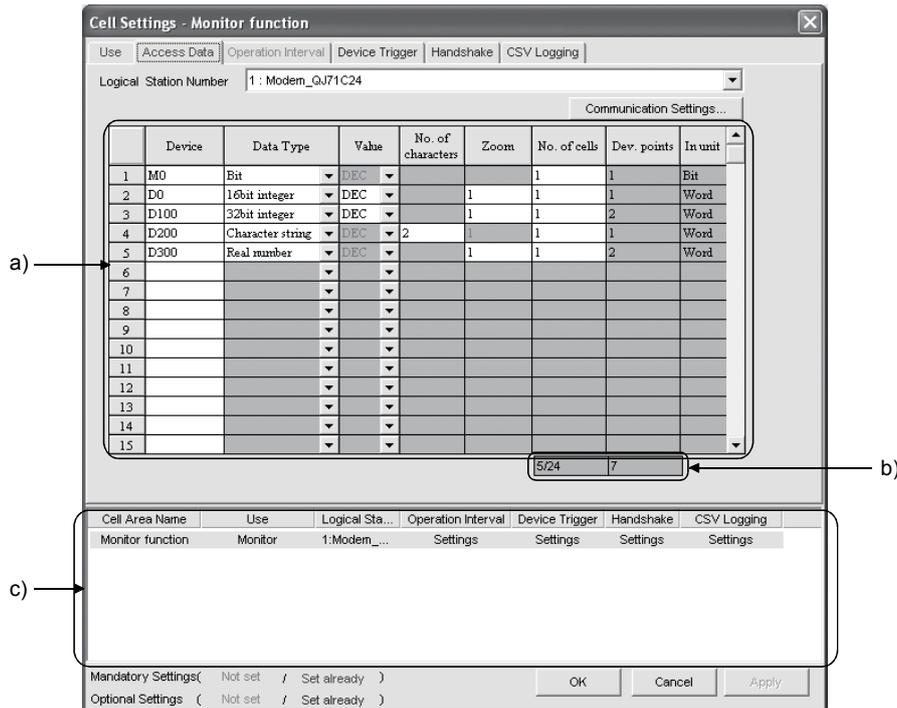
Monitor data are displayed in order of 1 to 12.

6.3.2 Setting of the Access Data tab

This section describes the setting of the <<Access Data>> tab for use of the monitor function.

In the <<Access Data>> tab, set the logical station number required for communication with the PLC and the device data to be collected in the cell area.

(1) <<Access Data >> tab



Item	Description	Detailed Explanation
Logical Station Number	Select the logical station number required for making communication.	Section 6.2.2
Communication settings	Used to start the Communication Setup Utility to set a new logical station number and change the settings.	
Remote password *1	Enter the password when the password has been set to the connection target PLC.	
a) (Access data)	Set the devices to be monitored.	
b) (Number of set devices)	The number of devices currently set is displayed.	
c) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Remote password" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for the password function compatible module.

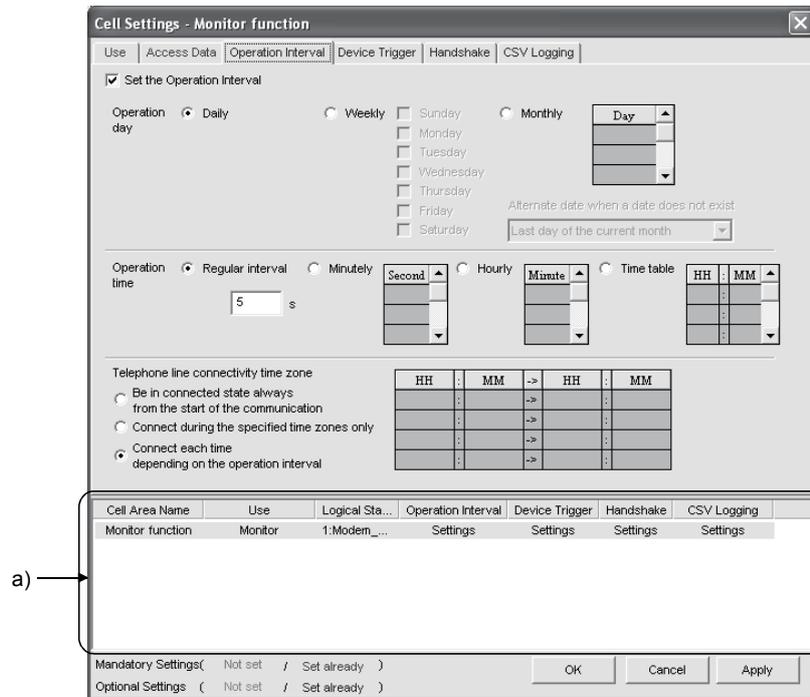
(2) Detailed explanation

The setting of the <<Access Data>> tab for use of the monitor function is the same as that of the <<Access Data>> tab for use of the logging function. Refer to Section 6.2.2 for details.

6.3.3 Setting of the Operation Interval tab

This section describes the setting of the <<Operation Interval>> tab for use of the monitor function.
 In the <<Operation Interval>> tab, set the day, time and time zone of the activation of the function for the cell area.

(1) <<Operation Interval>> tab



Item	Description	Detailed Explanation
Set the Operation Interval	Set the operation of the cell area valid or invalid.	Section 6.2.3
Operation day	Set the operation day of the monitor function activation.	
Operation time	Set the operation time of the monitor function activation.	(2) (a)
Telephone line connectivity time zone *1	Set the telephone line connection timing and disconnection timing.	Section 6.2.3
a) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Telephone line connectivity time zone" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for modem communication.

(2) Detailed explanation

With the exception of the following item, the setting of the <<Operation Interval>> tab for use of the monitor function is the same as the setting of the <<Operation Interval>> tab for use of the logging function.
 Refer to Section 6.2.3 for details.

(a) "Operation time"

The setting except for "Regular interval" is the same as that of the logging function.
 Refer to Section 6.2.3 for the setting except for "Regular interval".

1) When "Regular interval" is selected

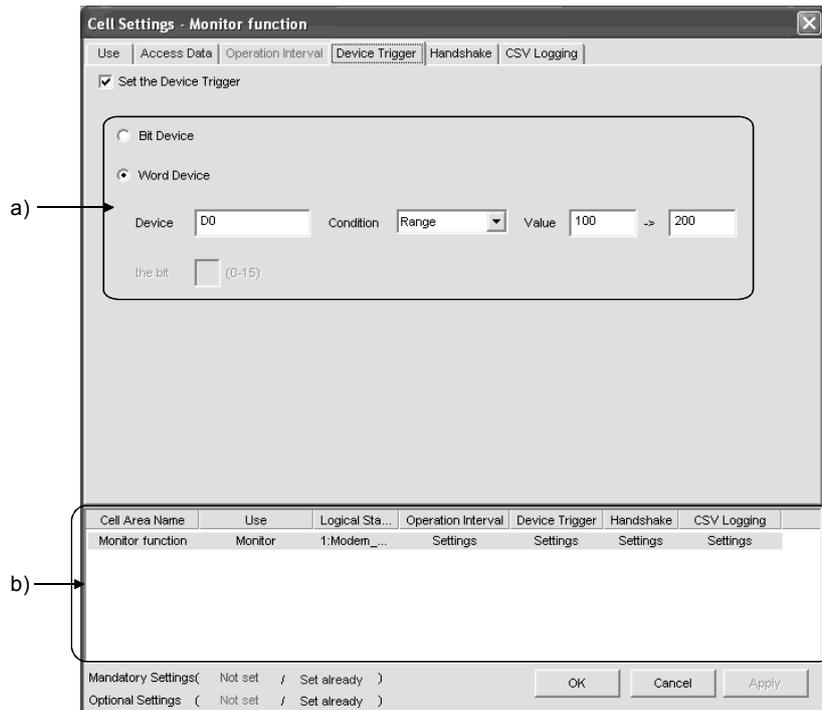
Device data is collected at the set second intervals.
 When modem communication is used and "Telephone line connectivity time zone" is set to "Connect each time depending on the operation interval", set "Regular interval" to 30 seconds or more.
 Setting range: 0.1 to 0.9 (in units of 0.1 seconds), 1 to 3600 (in units of 1 second)

6.3.4 Setting of the Device Trigger tab

This section describes the setting of the <<Device Trigger>> tab for use of the monitor function.

In the <<Device Trigger>> tab, set the device conditions for the device trigger.

(1) <<Device Trigger>> tab



Item	Description	Detailed Explanation
Set the Device Trigger	Set when the device trigger is used.	Section 6.2.4
a) (Device conditions)	Set the device conditions.	
b) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

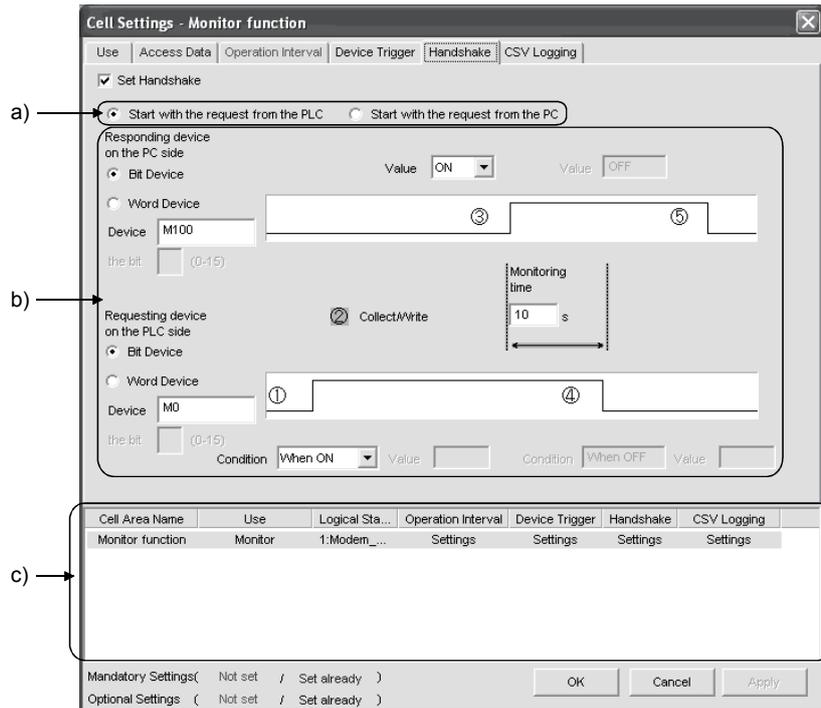
The setting of the <<Device Trigger>> tab for use of the monitor function is the same as that of the <<Device Trigger>> tab for use of the logging function. Refer to Section 6.2.4 for details.

6.3.5 Setting of the Handshake tab

This section describes the setting of the <<Handshake>> tab for use of the monitor function.

In the <<Handshake>> tab, set the handshake requesting source and handshake processing.

(1) <<Handshake>> tab



Item	Description	Detailed Explanation
Set Handshake	Set when using a handshake.	Section 6.2.5
a) (Requesting source setting)	Set the requesting source of the handshake.	
b) (Handshake processing)	Set the handshake processing.	
c) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

The setting of the <<Handshake>> tab for use of the monitor function is the same as that of the <<Handshake>> tab for use of the logging function.

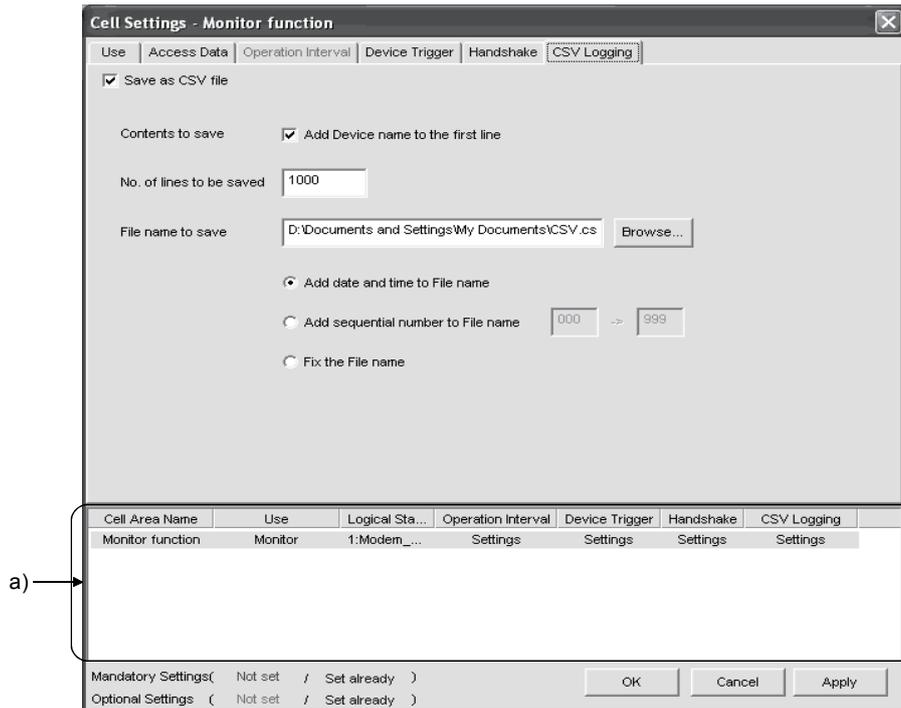
Refer to Section 6.2.5 for details.

6.3.6 Setting of the CSV Logging tab

This section describes the setting of the <<CSV Logging>> tab for use of the monitor function.

In the <<CSV Logging>> tab, set the file name and the saving contents with which the monitor data is saved into the CSV file.

(1) <<CSV Logging>> tab



Item	Description	Detailed Explanation
Save as CSV file	Set when using the CSV logging.	Section 6.2.6
Contents to save	Set when adding the device name to the first line.	
No. of lines to be saved	Set the number of lines to be saved.	
File name to save	Set the file name to save.	
a) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

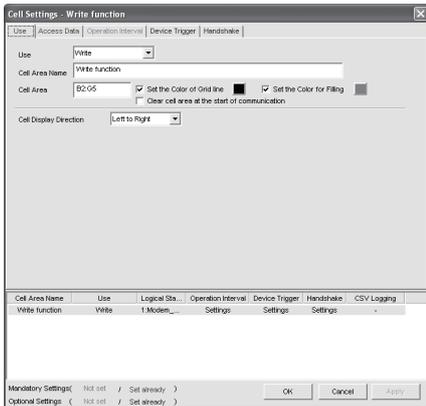
(2) Detailed explanation

The setting of the <<CSV Logging>> tab for use of the monitor function is the same as that of the <<CSV Logging>> tab for use of the logging function. Refer to Section 6.2.6 for details.

6.4 When Write Is Selected

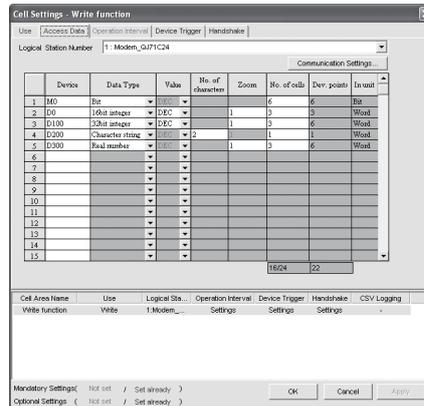
This section describes the "Cell Setting" dialog box when "Write" is selected from "Use" of the <<Use>> tab.

<<Use>> tab



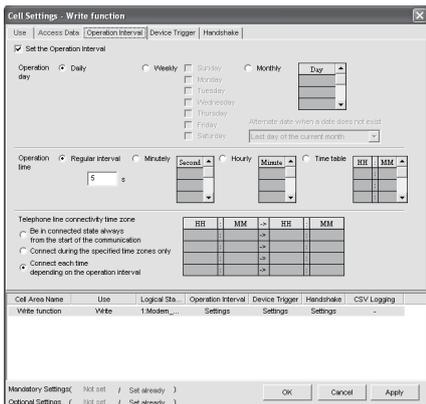
Required setting
Refer to Section
6.4.1.

<<Access Data>> tab



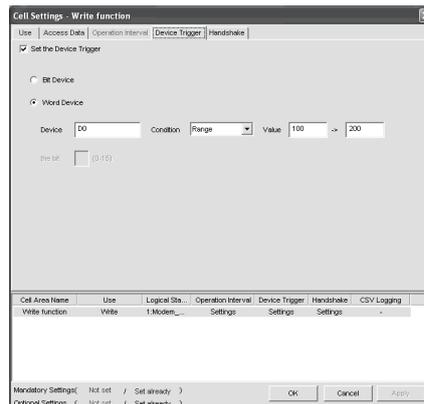
Required setting
Refer to Section
6.4.2.

<<Operation Interval>> tab



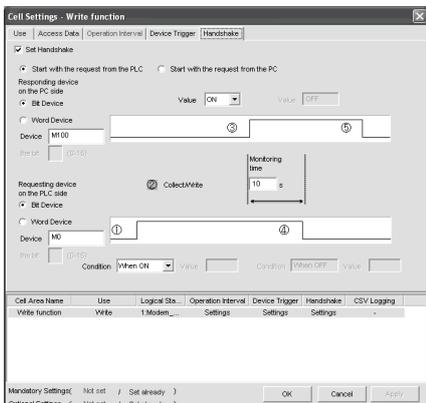
Required setting
Refer to Section
6.4.3.

<<Device Trigger>> tab



Set as necessary
Refer to Section
6.4.4.

<<Handshake>> tab

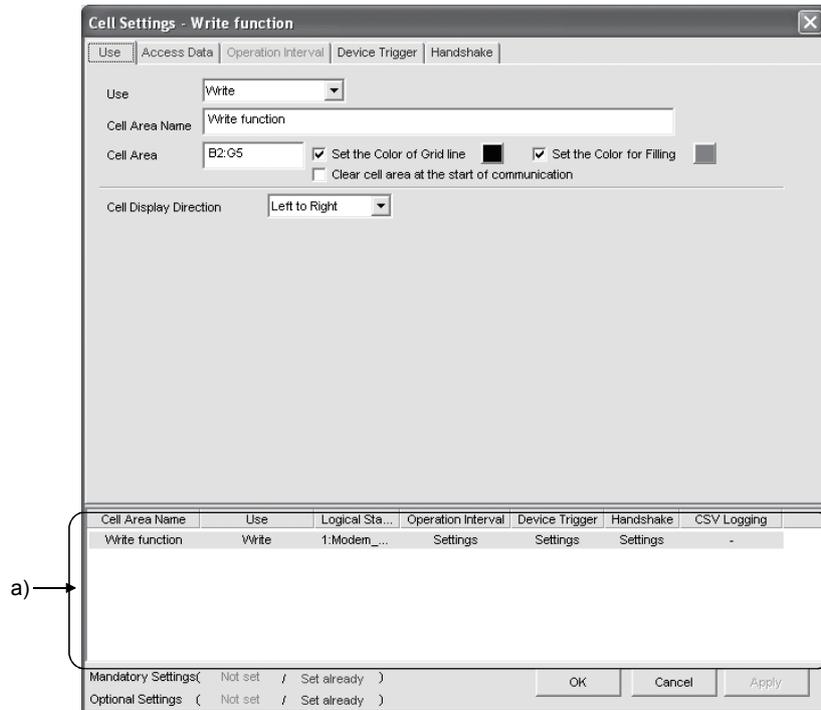


Set as necessary
Refer to Section
6.4.5.

6.4.1 Setting of the Use tab

This section describes the setting of the <<Use>> tab for use of the write function. In the <<Use>> tab, set the cell area and display direction of written data.

(1) <<Use>> tab



Item	Description	Detailed Explanation
Use	Set the function to be used for the specified cell area. Choose "Write" when using the write function.	—
Cell Area Name	Set the name of the specified cell area. (Maximum number of cell area names : 1000)	—
Cell Area	Enter the value to specify the cell area.	(2) (a)
Set the Color of Grid line	Set whether the specified cell area is provided with grid lines (including color designation) or not.	Section 6.2.1
Set the Color for Filling	Set whether the specified cell area is colored or not.	
Clear cell area at the start of communication	When "Clear cell area at the start of communication" has a check mark, the data in the cell area specified at the start of communication is cleared. (Default: no check)	Section 6.3.1
Cell Display Direction	Set the input cells for the write data. <ul style="list-style-type: none"> • Left to Right Write data are set from left to right in the specified cell area in order. • Top to Bottom Write data are set from top to bottom in the specified cell area in order. 	(2) (b)
a) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

With the exception of the following items, the setting of the <<Use>> tab for use of the write function is the same as that of the <<Use>> tab for use of the logging function.

Refer to Section 6.2.1 for details.

(a) The "Cell Area"

Set the cell area to be used by the write function.

1) Setting examples

Refer to Section 6.2.1 for the "Cell Area" setting examples.

2) Setting ranges

The following indicates the possible setting ranges of the cell area and number of specified cell areas.

Number of cells : 2000

Number of specified cell areas : 16

(b) "Cell Display Direction"

Set the written data cell sequence.

1) When "Left to Right" is selected

<When cell area (B2:D5) is set to "Left to Right">

	A	B	C	D	E
1		→			
2		1	2	3	
3		4	5	6	
4		7	8	9	
5		10	11	12	
6					

Cell sequence is set in order of 1 to 12.

2) When "Top to Bottom" is selected

<When cell area (B2:D5) is set to "Top to Bottom ">

	A	B	C	D	E
1					
2		1	5	9	
3		2	6	10	
4		3	7	11	
5		4	8	12	
6					

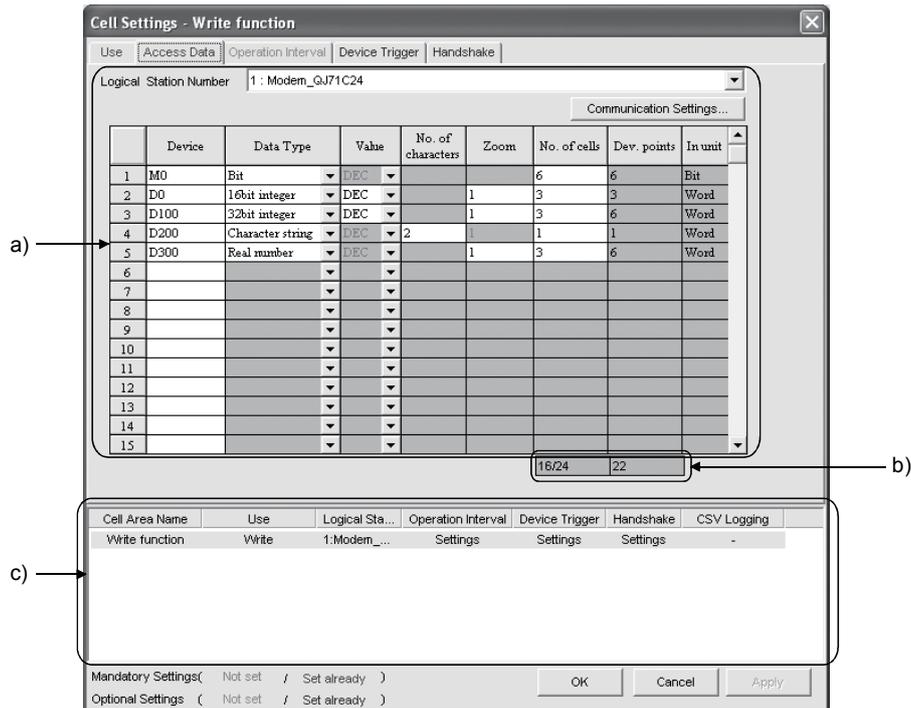
Cell sequence is set in order of 1 to 12.

6.4.2 Setting of the Access Data tab

This section describes the setting of the <<Access Data>> tab for use of the write function.

In the <<Access Data>> tab, set the logical station number required for communication with the PLC and the device data to be written from the cell area.

(1) <<Access Data>> tab



Item	Description	Detailed Explanation
Logical Station Number	Select the logical station number required for making communication.	Section 6.2.2
Communication settings	Used to start the Communication Setup Utility to set a new logical station number and change the settings.	
Remote password *1	Enter the password when the password has been set to the connection target PLC.	
a) (Access data)	Set the devices where data will be written.	(2) (a)
b) (Number of set devices)	The number of devices currently set is displayed.	Section 6.2.2
c) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Remote password" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for the password function compatible module.

(2) Detailed explanation

With the exception of the following item, the setting of the <<Access Data>> tab for use of the write function is the same as that of the <<Access Data>> tab for use of the logging function.

Refer to Section 6.2.2 for details.

(a) "Access data"

The setting except for "Zoom" is the same as that of the logging function. Refer to Section 6.2.2 for the setting except for "Zoom".

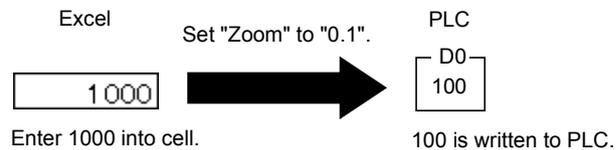
1) "Zoom"

The value entered into the cell is multiplied by the zoom ratio and written to the PLC device.

When "Data Type" has been set to "Bit" or "Character string", the "Zoom" setting is not possible.

When the "Value" is set to "HEX", the "Zoom" setting is not possible.

Setting range: 0.001 to 1000

**POINT**

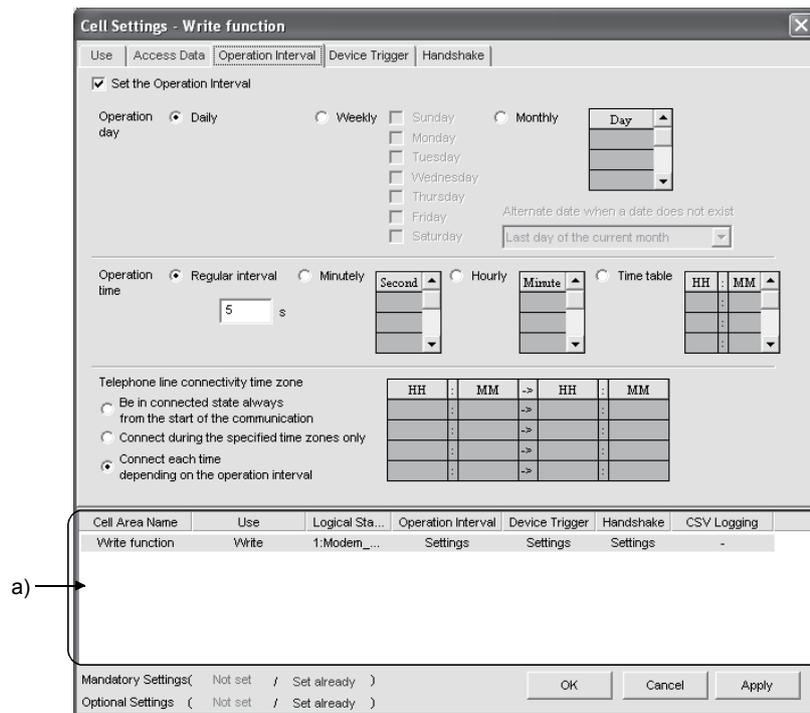
When "Zoom" is set for the write data and fractional decimals occurs in the data to be actually written to PLC, set "Real number" in "Data type".

6.4.3 Setting of the Operation Interval tab

This section describes the setting of the <<Operation Interval>> tab for use of the write function.

In the <<Operation Interval>> tab, set the day, time and time zone of the activation of the function for the cell area will be activated.

(1) <<Operation Interval>> tab



Item	Description	Detailed Explanation
Set the Operation Interval	Set the operation of the cell area valid or invalid.	Section 6.2.3
Operation day	Set the operation day of the write function activation.	(2) (a)
Operation time	Set the operation time of the write function activation.	
Telephone line connectivity time zone *1	Set the telephone line connection timing and disconnection timing.	Section 6.2.3
a) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Telephone line connectivity time zone" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for modem communication.

(2) Detailed explanation

With the exception of the following item, the setting of the <<Operation Interval>> tab for use of the write function is the same as that of the <<Operation Interval>> tab for use of the logging function. Refer to Section 6.2.3 for details.

(a) "Operation time"

The setting except for "Regular interval" is the same as the that of the logging function. Refer to Section 6.2.3 for the setting except for "Regular interval".

1) When "Regular interval" is selected

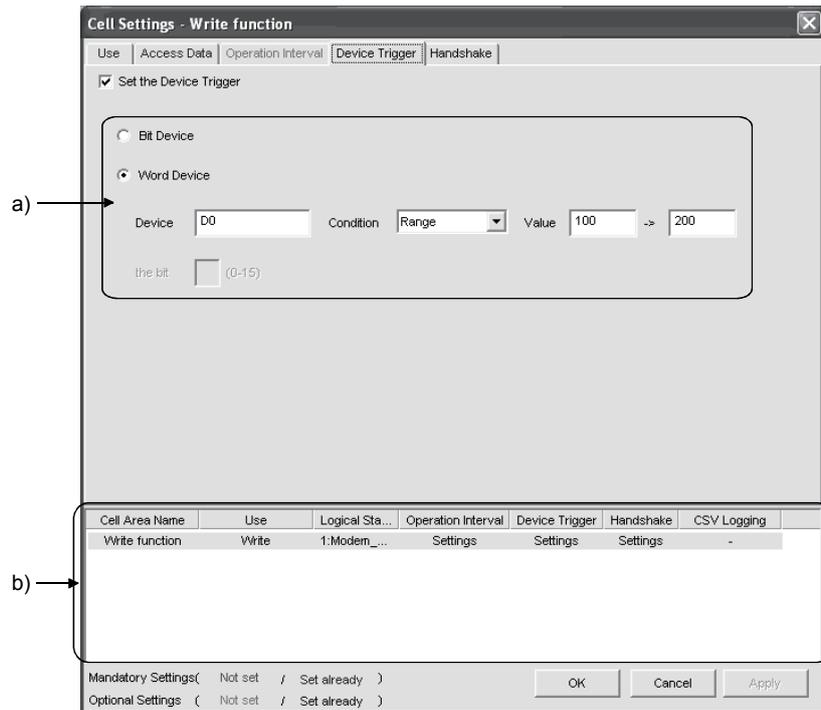
Device data is collected at the set second intervals. When modem communication is used and "Telephone line connectivity time zone" is set to "Connect each time depending on the operation interval", set "Regular interval" to 30 seconds or more. Setting range: 0.1 to 0.9 (in units of 0.1 seconds), 1 to 3600 (in units of 1 second)

6.4.4 Setting of the Device Trigger tab

This section describes the setting of the <<Device Trigger>> tab for use of the write function.

In the <<Device Trigger>> tab, set the device conditions for the device trigger.

(1) <<Device Trigger>> tab



Item	Description	Detailed Explanation
Set the Device Trigger	Set when the device trigger is used.	Section 6.2.4
a) (Device conditions)	Set the device conditions.	
b) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

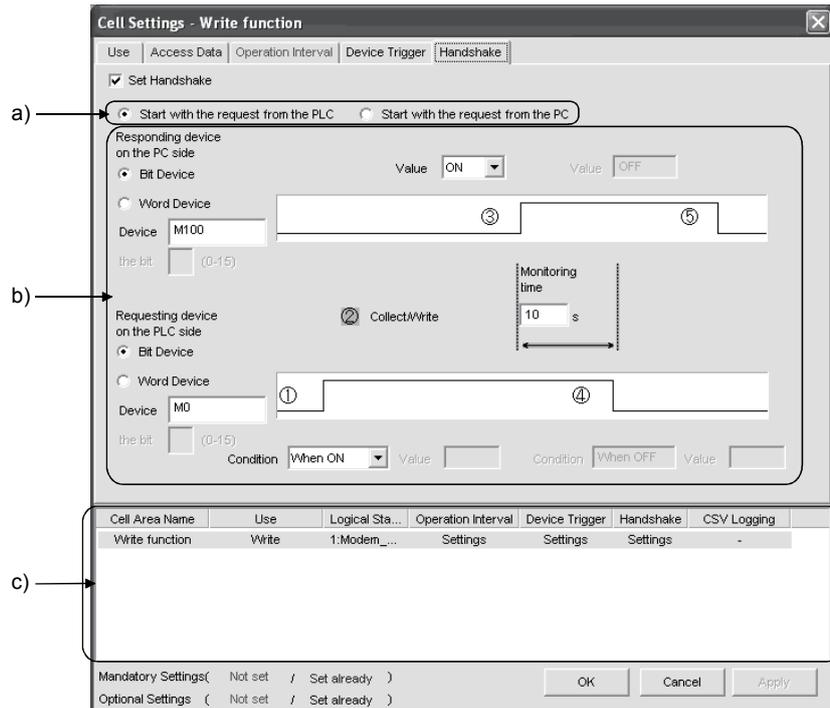
The setting of the <<Device Trigger>> tab for use of the write function is the same as that of the <<Device Trigger>> tab for use of the logging function. Refer to Section 6.2.4 for details.

6.4.5 Setting of the Handshake tab

This section describes the setting of the <<Handshake>> tab for use of the write function.

In the <<Handshake>> tab, set the handshake requesting source and handshake processing.

(1) <<Handshake>> tab



Item	Description	Detailed Explanation
Set Handshake	Set when using a handshake.	Section 6.2.5
a) (Requesting source setting)	Set the requesting source of the handshake.	
b) (Handshake processing)	Set the handshake processing.	
c) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

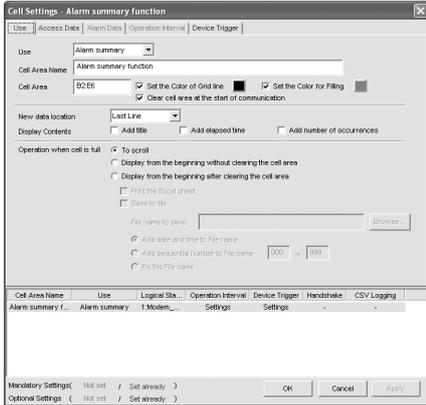
(2) Detailed explanation

The setting of the <<Handshake>> tab for use of the write function is the same as that of the <<Handshake>> tab for use of the logging function. Refer to Section 6.2.5 for details.

6.5 When Alarm Summary Is Selected

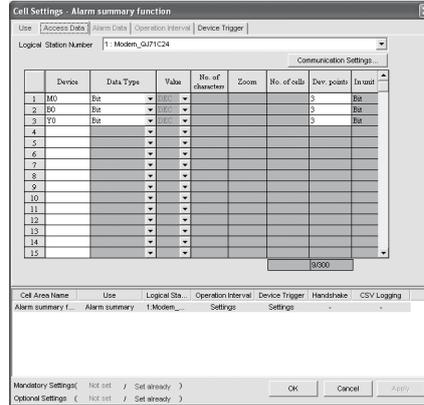
This section describes the "Cell Setting" dialog box when "Alarm summary" is selected from "Use" of the <<Use>> tab.

<<Use>> tab



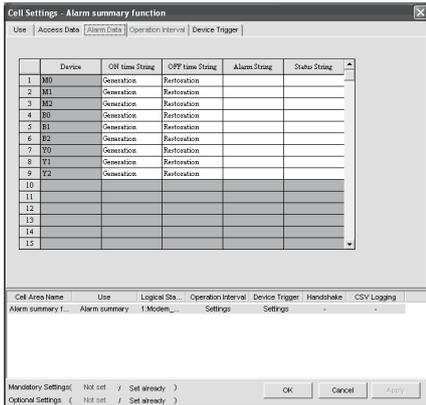
Required setting
Refer to Section 6.5.1.

<<Access Data>> tab



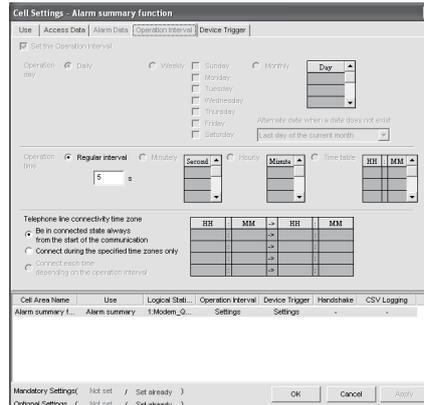
Required setting
Refer to Section 6.5.2.

<<Alarm Data>> tab



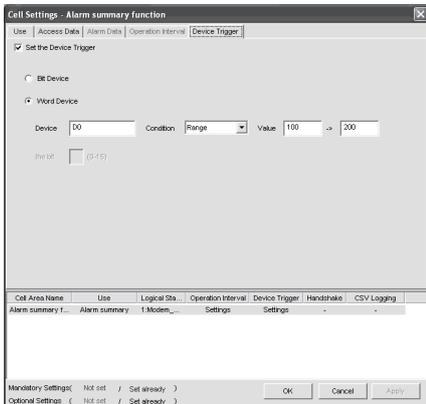
Set as necessary
Refer to Section 6.5.3.

<<Operation Interval>> tab



Set as necessary
Refer to Section 6.5.4.

<<Device Trigger>> tab



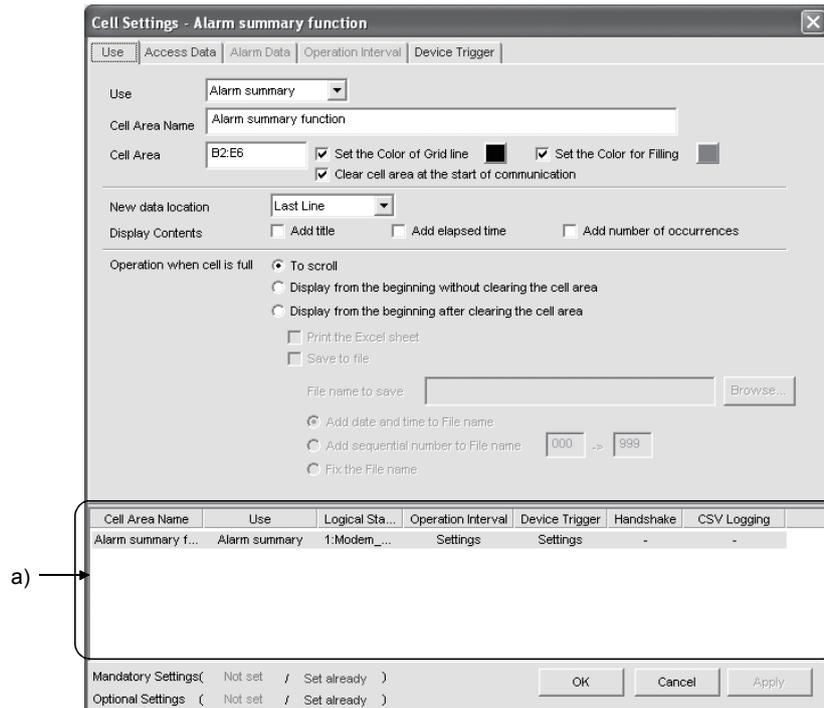
Set as necessary
Refer to Section 6.5.5.

6.5.1 Setting of the Use tab

This section describes the setting of the <<Use>> tab for use of the alarm summary function.

In the <<Use>> tab, set the cell area, display position of alarm data and operation in the case where cell is full.

(1) <<Use>> tab



Item	Description	Detailed Explanation
Use	Set the function to be used for the specified cell area. Choose "Alarm summary" when using the alarm summary function.	—
Cell Area Name	Set the name of the specified cell area. (Maximum number of cell area names : 100)	—
Cell Area	Enter the value to specify the cell area.	(2) (a)
Set the Color of Grid line	Set whether the specified cell area is provided with grid lines (including color designation) or not.	Section 6.2.1
Set the Color for Filling	Set whether the specified cell area is colored or not.	
Clear cell area at the start of communication	When "Clear cell area at the start of communication" has a check mark, the data in the cell area specified at the start of communication is cleared. (Default: check)	
New data location	Set the latest data display position of the alarm summary. <ul style="list-style-type: none"> Last Line The latest data is displayed at the last of the specified cell area. First Line The latest data is displayed at the first of the specified cell area. 	
Displayed Contents	Set whether the title, elapsed time, and number of occurrences will be added to the Alarm Summary or not.	(2) (b)

(To the next page)

Item	Description	Detailed Explanation
Operating when cell is full	Set the operation to be performed when the specified cell area is full. <ul style="list-style-type: none"> • To scroll The displayed contents are scrolled and displayed. • Display from the first without clearing the cell area The data currently displayed in the cell area are overwritten and the alarm summary is resumed. Before the alarm summary is resumed, the Excel sheet can be printed and saved. • Display from the first after clearing the cell area The data displayed in the cell area are erased and the alarm summary is resumed. Before the alarm summary is resumed, the Excel sheet can be printed and saved. 	Section 6.2.1
a) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

With the exception of the following item, the setting of the <<Use>> tab for use of the alarm summary function is the same as that of the <<Use>> tab for use of the logging function.

Refer to Section 6.2.1 for details.

(a) "Cell Area"

Set the cell area to be used by the alarm summary function.

1) Setting examples

Refer to Section 6.2.1 for the "Cell Area" setting examples.

2) Setting ranges

The following indicates the possible setting ranges of the cell area and number of specified cell areas.

Number of cells : 4 columns (indispensable) × 65536 rows

Number of specified cell areas : 16

*1: When displaying the elapsed time and number of occurrences in the Alarm Summary, increase the number of columns by 1, respectively. 6 columns are required to display both.

(b) "Display Contents"

1) "Add title" check box

Set whether the title for the column item indicated in the following table will be displayed or not on the first line of the set "Cell Area".

When displaying the title, check the check box.

Column item	Title
On time String/Off time String (Refer to Section 6.5.3) The On time String is displayed when the device turns from OFF to ON, or the Off time String is displayed when the device turns from ON to OFF.	ON/OFF
Date and time when the device turns from OFF to ON or from ON to OFF	Date time
Alarm String set to the device (Refer to Section 6.5.3)	Alarm
Status String set to the device (Refer to Section 6.5.3)	Status
Elapsed time from when the device turns ON until it turns OFF (Refer to 2))	Elapsed time
Number of times when the device turned from OFF to ON after the start of communication (Refer to 3))	Number of occurrences

POINT	<ul style="list-style-type: none"> • The title display line will not be the target of cell area clear at the start of communication or clear when cell is full. • When the Cell Area is set at multiple locations, the title is displayed for only the Cell Area specified first.
--------------	---

2) "Add elapsed time" check box

Set whether the elapsed time from when the device set on the <<Access Data>> tab turns ON until it turns OFF will be displayed in the Alarm Summary or not.

When displaying the elapsed time, check the check box.

The display format is "hour:minute:second".

(Example) Display when the elapsed time is 1 minute 25 seconds
0:01:25

POINT	<ul style="list-style-type: none"> • When the device is ON at the start of communication, the time from when communication starts until the device turns OFF is displayed as the elapsed time.
--------------	---

3) "Add number of occurrences" check box

Set whether the number of times when the device set on the <<Access Data>> tab turns from OFF to ON after the start of communication will be displayed in the Alarm Summary or not.

When displaying the number of occurrences, check the check box.

In this case, the "Clear cell area at the start of communication" check box must have been checked.

POINT	<ul style="list-style-type: none"> • When the device is ON at the start of communication, it is counted as the first alarm. • When the number of occurrences exceeds 65535, it returns to 0.
--------------	--

<Display contents example on the Excel sheet when "Add title", "Add elapsed time", and "Add number of occurrences" are all checked>

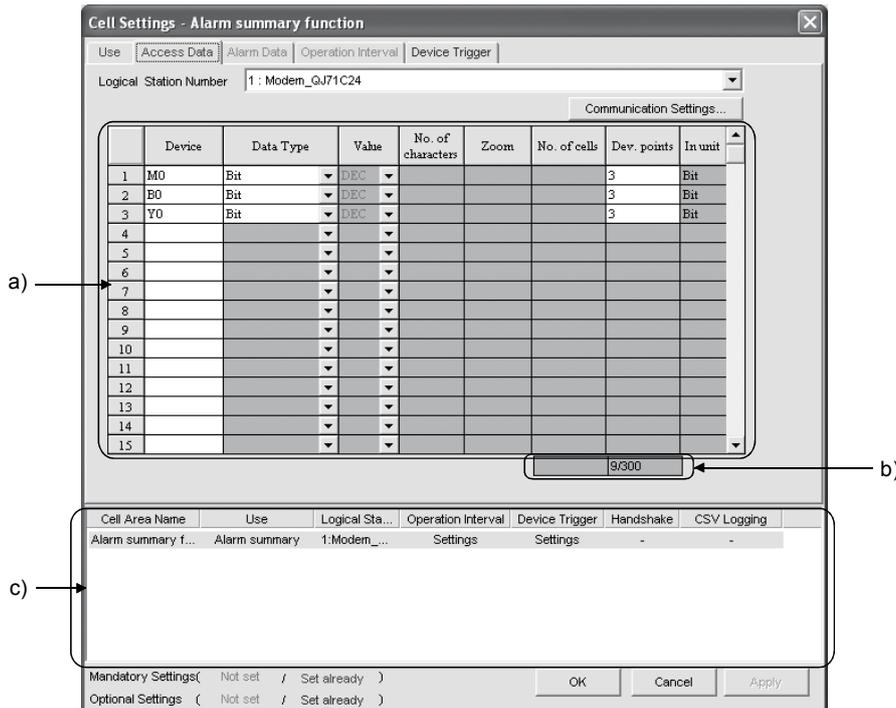
ON/OFF	Date time	Alarm	Status	Elapsed time	Number of occurrences
Generation	2004/05/24 Mon 15:05:20	Parts1 Abnormal fault	Major failure		1
Generation	2004/05/24 Mon 15:05:31	Parts 2 Quantity error	Minor failure		1
Restoration	2004/05/24 Mon 15:06:48	Parts1 Abnormal fault	Major failure	0:01:28	1
Restoration	2004/05/24 Mon 15:07:52	Parts 2 Quantity error	Minor failure	0:02:21	1

6.5.2 Setting of the Access Data tab

This section describes the setting of the <<Access Data>> tab for use of the alarm summary function.

In the <<Access Data>> tab, set the logical station number required for communication with the PLC and the device data to be used for the alarm summary function.

(1) <<Access Data>> tab



Item	Description	Detailed Explanation
Logical Station Number	Select the logical station number required for making communication.	Section 6.2.2
Communication settings	Used to start the Communication Setup Utility to set a new logical station number and change the settings.	
Remote password *1	Enter the password when the password has been set to the connection target PLC.	
a) (Access data)	Set the devices use for the alarm summary function.	(2) (a)
b) (Number of set devices)	The number of devices currently set is displayed.	(2) (b)
c) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Remote password" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for the password function compatible module.

(2) Detailed explanation

With the exception of the following items, the setting of the <<Access Data>> tab for use of the alarm summary function is the same as that of the <<Access Data>> tab for use of the logging function.

Refer to Section 6.2.2 for details.

(a) Access data

1) Registration order

Data are displayed in the <<Alarm Data>> tab in the order of the numbers shown on the left of the <<Access Data>> tab.

Setting example of <<Access Data>> tab

	Device	Data Type	Value	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	M0	Bit	DEC				3	Bit
2	B0	Bit	DEC				3	Bit
3	Y0	Bit	DEC				3	Bit

↑ Data numbers

The device data are displayed on the <<Alarm Data>> tab as shown below.

Displayed in order of data numbers.

	Device	ON time String
Data No. 1	1 M0	Generation
	2 M1	Generation
	3 M2	Generation
Data No. 2	4 B0	Generation
	5 B1	Generation
Data No. 3	6 B2	Generation
	7 Y0	Generation
	8 Y1	Generation
	9 Y2	Generation

2) "Device"

Only the bit device can be specified for the alarm summary. Enter the device name and device number in this order.

3) "Dev. Points"

The points of the devices to be consecutively registered starting with the device number set in "Device" are displayed.

(b) The number of set devices

The number of device points registered to the cell area and the number of device points that can be registered are displayed.

		128/300	

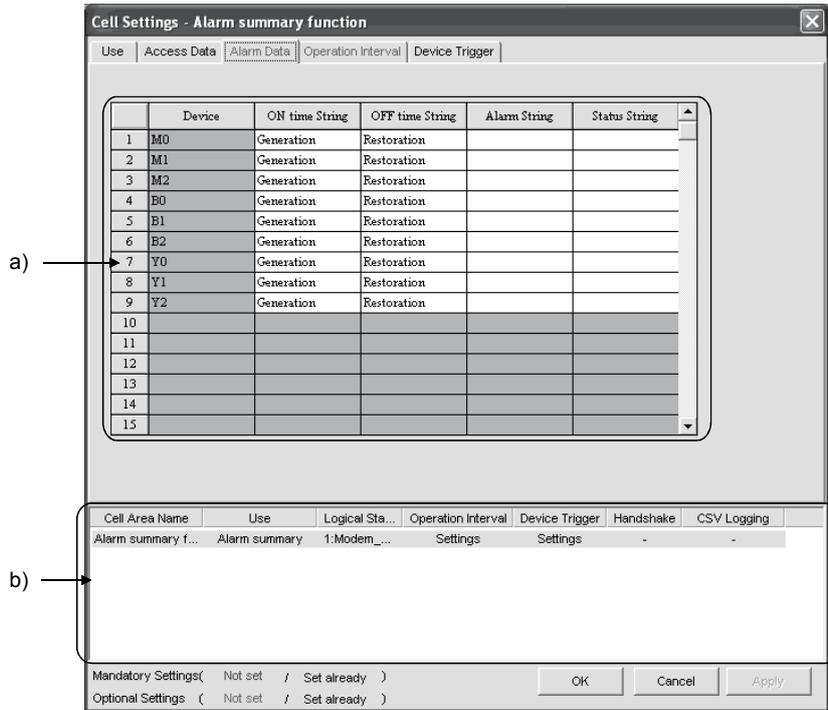
↑ Indicates the number of device points that can be registered to the cell area.

↑ Indicates the number of device points that has been registered to the cell area.

6.5.3 Setting of the Alarm Data tab

This section describes the setting of the <<Alarm Data>> tab for use of the alarm summary function.
 In the <<Alarm Data>> tab, set the character strings to be displayed in the cell area.

(1) <<Alarm Data>> tab



Item	Description	Detailed Explanation
a) (Alarm data)	Set the alarm data to be used for the alarm summary function.	(2) (a) to (e)
b) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

(a) "Device"

The device registered to the <<Access Data>> tab is displayed.

(b) "ON time String"

Enter the character string to be displayed in the cell when the registered device turns on.

Number of characters: Up to 16

(c) "OFF time String"

Enter the character string to be displayed in the cell when the registered device turns off.

Number of characters: Up to 16

(d) "Alarm String"

Enter an alarm character string.
 Number of characters: Up to 40

(e) "Status String"

Enter a status character string.
 Number of characters: Up to 16

(3) Setting example

The following shows the <<Alarm Data>> tab setting example and the data displayed on the Excel sheet.

<<Alarm Data>> tab setting example

	Device	ON time String	OFF time String	Alarm String	Status String
1	M0	Generation	Restoration	Material storage	Minor failure
2	Device	:M0			
3	ON time String	: Generation			
4	OFF time String	: Restoration			
	Alarm String	: Material storage			
	Status String	: Minor failure			

<Operation of M0>



<Data displayed on Excel sheet>

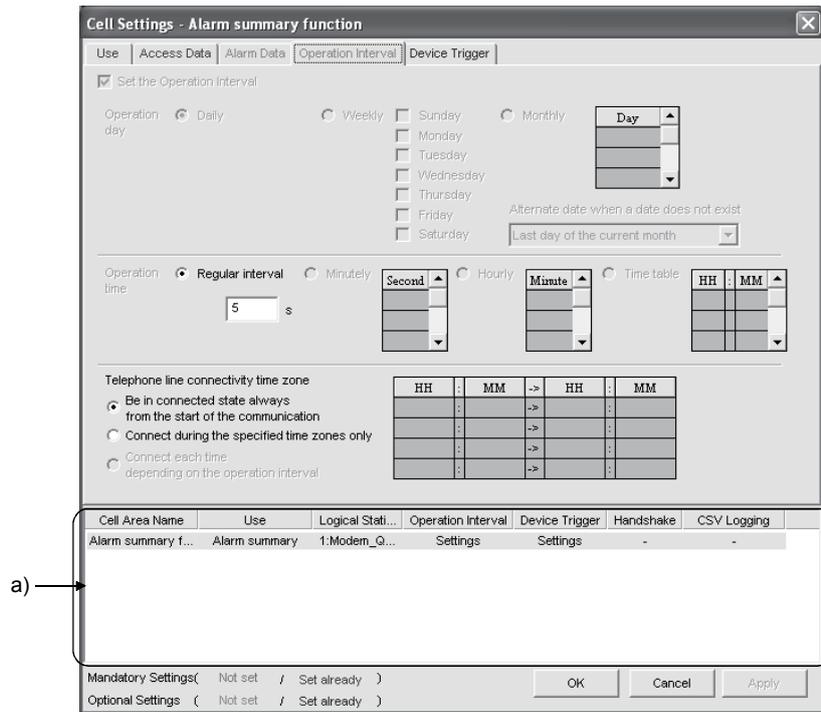
Displayed in order of "date and time of occurrence", "alarm character string" and "status character string".

Generation	2002/08/01 Thu 16:18:12	Material storage	Minor failure
Restoration	2002/08/01 Thu 16:18:32	Material storage	Minor failure
1) Displayed in the cell (when M0 is on).			
2) Displayed in the cell (when M0 is off).			

6.5.4 Setting of the Operation Interval tab

This section describes the setting of the <<Operation Interval>> tab for use of the alarm summary function.
 In the <<Operation Interval>> tab, set the operation interval for the function of the cell area.

(1) <<Operation Interval>> tab



Item	Description	Detailed Explanation
Regular interval	Set the operation interval of the alarm summary function.	(2) (a)
Telephone line connectivity time zone *1	Set the telephone line connection timing and disconnection timing.	Section 6.2.3
a) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Telephone line connectivity time zone" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for modem communication.

(2) Detailed explanation

With the exception of the following item, the setting of the <<Operation Interval>> tab for use of the alarm summary function is the same as that of the <<Operation Interval>> tab for use of the logging function.
 Refer to Section 6.2.3 for details.

(a) "Regular interval"

Device data is collected at the set second intervals.

Setting range: 0.1 to 0.9 (in units of 0.1 seconds), 1 to 3600 (in units of 1 second)

If 0.1 to 0.9 seconds are set to the "Regular interval" on the <<Operation Interval>> tab, the ON/OFF time displayed on the Excel sheet will be in the "yyyy/mm/dd ddd hh:mm:ss" format.

(Example) When 0.2 seconds interval is set and the ON time is 11 hours 5 minutes 2 seconds 80

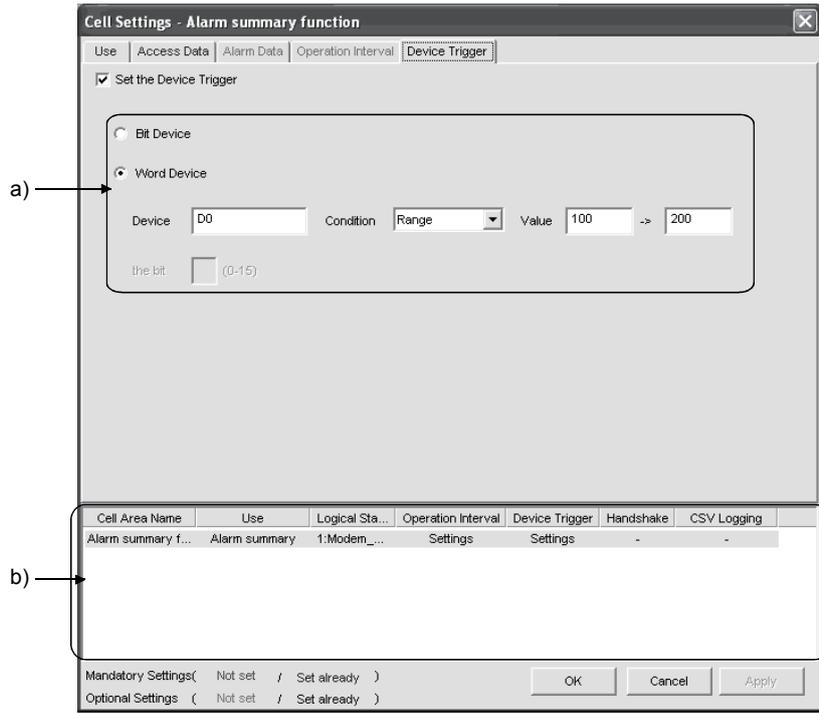
Generation	2004/07/13 Tue 16:55:41	Material storage	Minor failure
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6.5.5 Setting of the Device Trigger tab

This section describes the setting of the <<Device Trigger>> tab for use of the alarm summary function.

In the <<Device Trigger>> tab, set the device conditions for the device trigger.

(1) <<Device Trigger>> tab



Item	Description	Detailed Explanation
Set the Device Trigger	Set when the device trigger is used.	Section 6.2.4
a) (Device conditions)	Set the device conditions.	
b) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

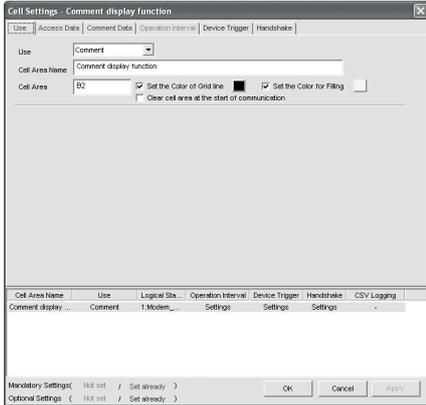
(2) Detailed explanation

The setting of the <<Device Trigger>> tab for use of the alarm summary function is the same as that of the <<Device Trigger>> tab for use of the logging function. Refer to Section 6.2.4 for details.

6.6 When Comment Is Selected

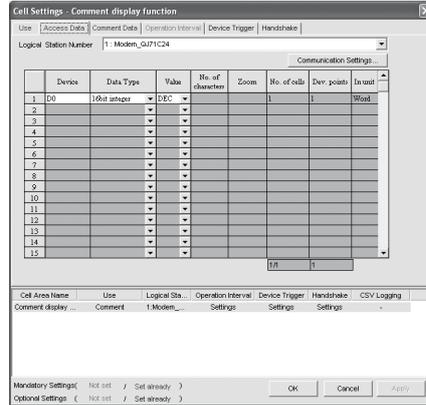
This section describes the "Cell Setting" dialog box when "Comment" is selected from "Use" of the <<Use>> tab.

<<Use>> tab



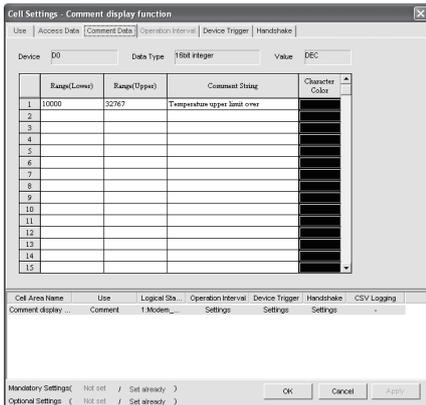
Required setting
Refer to Section 6.6.1.

<<Access Data>> tab



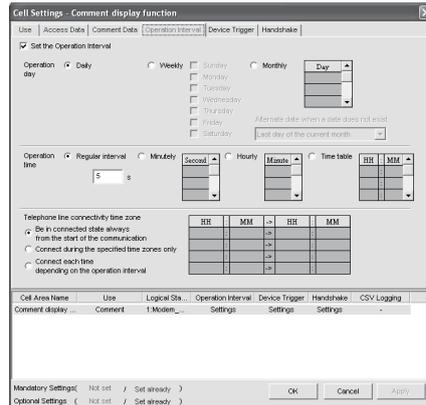
Required setting
Refer to Section 6.6.2.

<<Comment Data>> tab



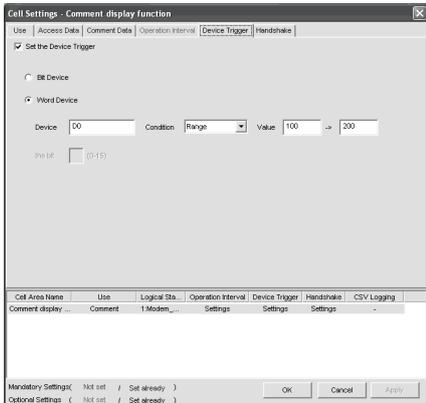
Required setting
Refer to Section 6.6.3.

<<Operation Interval>> tab



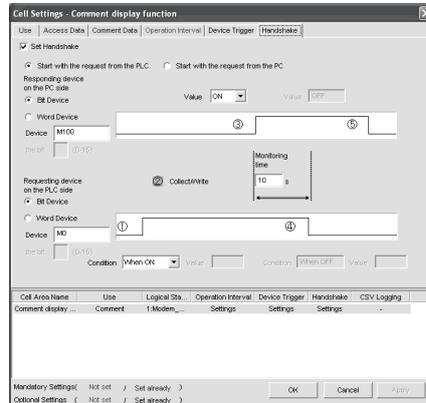
Set as necessary
Refer to Section 6.6.4.

<<Device Trigger>> tab



Set as necessary
Refer to Section 6.6.5.

<<Handshake>> tab



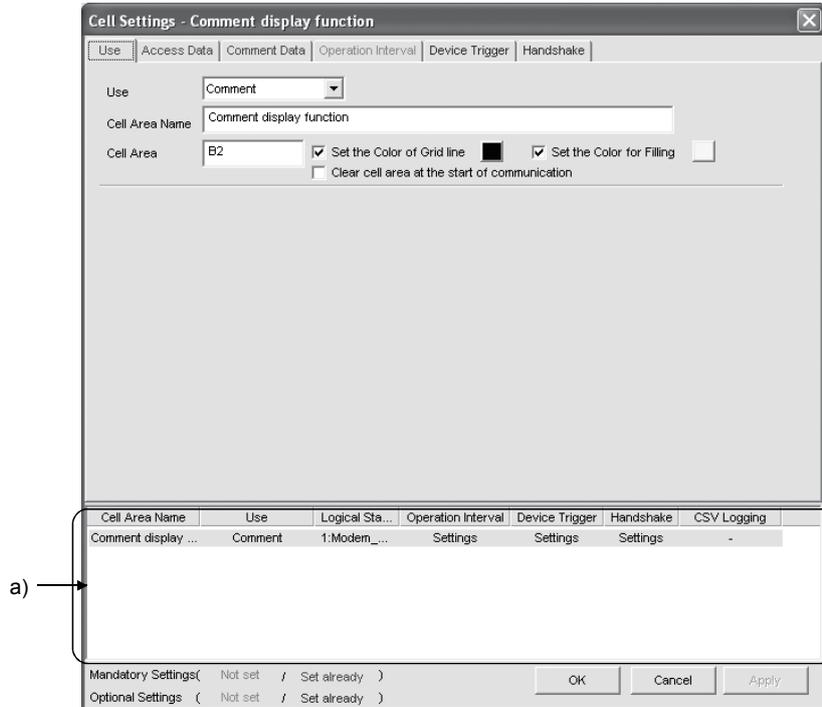
Set as necessary
Refer to Section 6.6.6.

6.6.1 Setting of the Use tab

This section describes the setting of the <<Use>> tab for use of the comment display function.

In the <<Use>> tab, set the cell area.

(1) <<Use>> tab



Item	Description	Detailed Explanation
Use	Set the function to be used for the specified cell area. Choose "Comment" when using the comment display function.	—
Cell Area Name	Set the name of the specified cell area. (Maximum number of cell area names : 500)	—
Cell Area	Enter the value to specify the cell area.	(2) (a)
Set the Color of Grid line	Set whether the specified cell area is provided with grid lines (including color designation) or not.	Section 6.2.1
Set the Color for Filling	Set whether the specified cell area is colored or not.	
Clear cell area at the start of communication	When "Clear cell area at the start of communication" has a check mark, the data in the cell area specified at the start of communication is cleared. (Default: no check)	Section 6.3.1
a) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

With the exception of the following item, the setting of the <<Use>> tab for use of the comment display function is the same as that of the <<Use>> tab for use of the logging function.

Refer to Section 6.2.1 for details.

(a) "Cell Area"

Set the cell area to be used by the comment display function.

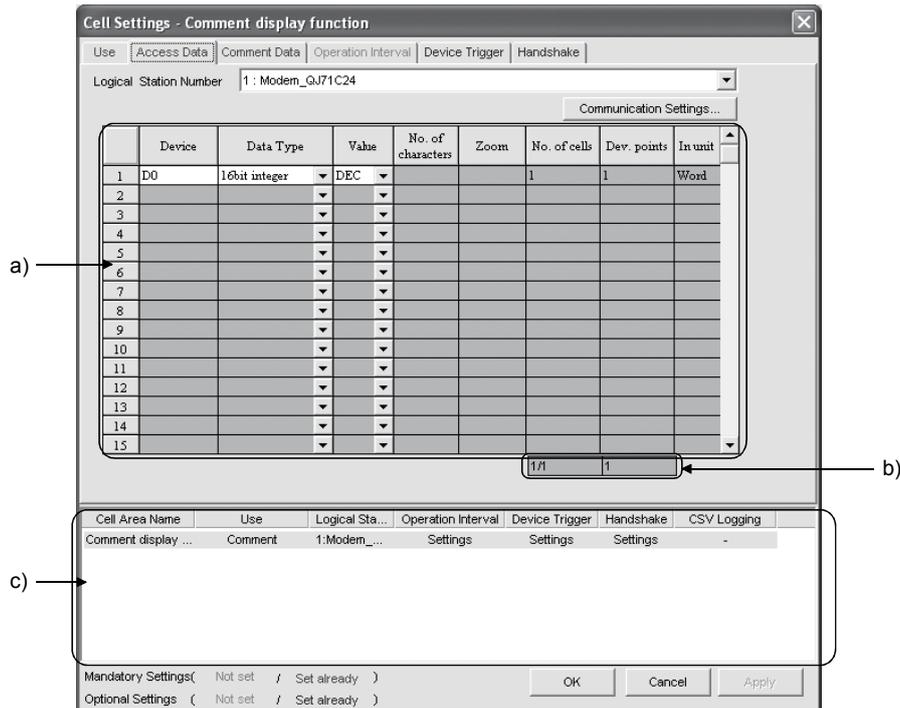
Setting range: 1

6.6.2 Setting of the Access Data tab

This section describes the setting of the <<Access Data>> tab for use of the comment display function.

In the <<Access Data>> tab, set the logical station number required for communication with the PLC and the device data to be used for the comment display function.

(1) <<Access Data >> tab



Item	Description	Detailed Explanation
Logical Station Number	Select the logical station number required for making communication.	Section 6.2.2
Communication settings	Used to start the Communication Setup Utility to set a new logical station number and change the settings.	
Remote password *1	Enter the password when the password has been set to the connection target PLC.	
a) (Access data)	Set the devices use for the comment display function.	(2) (a)
b) (Number of set devices)	The number of devices currently set is displayed.	Section 6.2.2
c) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Remote password" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for the password function compatible module.

(2) Detailed explanation

With the exception of the following items, the setting of the <<Access Data>> tab for use of the comment display function is the same as that of the <<Access Data>> tab for use of the logging function.

Refer to Section 6.2.2 for details.

(a) Access data

1) "Device"

Set the device used for the comment display function.

Enter the device name and device number in this order.

Refer to Section 3.2 for the accessible devices.

2) "Data Type"

Set the data type of the device used for the comment display function.

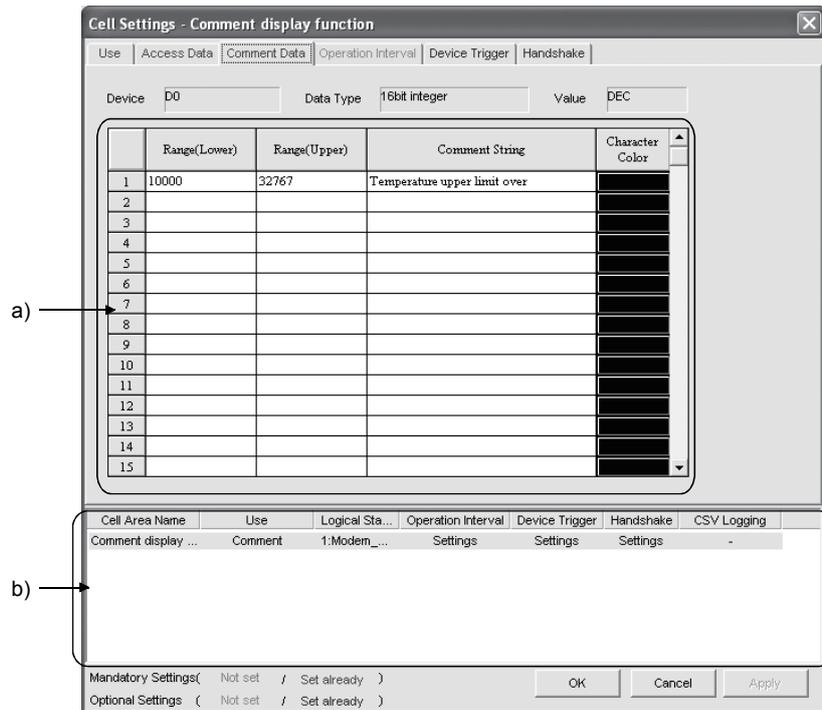
Item	Device That Can be Specified	Description
Bit	Bit device	The bit devices set in "Device" are displayed in a single cell in units of one bit.
	Word device (Bit specification)	Designated bits for word device set in "Device" are displayed in a single cell in units of one bit (e.g. D0.0).
16 bit integer (-32768 to 32767)	Bit device	Set when 1 word (16 bits), starting from the device number set in "Device", is used for the comment display function.
	Word device	Set when the word device set in "Device" is used for the comment display function.
32 bit integer (-2147483648 to 2147483647)	Bit device	Set when 2 words (32 bits), starting from the device number set in "Device", are used for the comment display function.
	Word device	Set when 2 words, starting from the device number set in "Device", are used for the comment display function.

6.6.3 Setting of the Comment Data tab

This section describes the setting of the <<Comment Data>> tab for use of the comment display function.

In the <<Comment Data>> tab, set the comment data to be displayed in the cell area.

(1) <<Comment Data>> tab



Item	Description	Detailed Explanation
Device	The device set in "Device" of the <<Access Data>> tab is displayed.	—
Data Type	The data type set in "Data Type" of the <<Access Data>> tab is displayed.	—
Value	The contents set to the "Value" on the <<Access Data>> tab are displayed.	—
a) (Comment data)	Set the comment data to be used for the comment display function.	(2) (a)
b) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

(a) Comment data

1) "Range (Lower)" and "Range (Upper)"

Set the lower and upper limit values of the device.

The setting range changes depending on the data type.

The following table indicates the setting range of each data type.

Data Type	Setting Range
Bit	1 (ON), 0 (OFF)
16 bit integer	-32768 to 32767
32 bit integer	-2147483648 to 2147483647

2) "Comment String"

Enter the comment character string to be displayed in the cell.

Number of characters: up to 40

3) "Character Color"

Set the color of the comment character string displayed in the cell.

Depending on the specified colors, all colors may turn to gray.

Refer to the Operating Precautions for details.

POINT

If multiple comment data are set and their setting ranges are overlapped, the comment character string with the lowest data number is displayed.

Be sure to prevent double setting of the setting ranges.

(3) Setting example

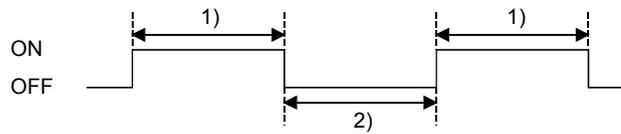
The following shows the setting examples in the cases where the data type is set to "Bit" and "16 bit integer".

(a) When data type is set to "Bit"

<<Comment data>> tab setting example

Device	M0	Data Type	Bit	Value	DEC
	Range(Lower)	Range(Upper)	Comment String	Character Color	
1	0	0	Normal operation		
2	1	1	Error occurrence		
3					
4					

Operation of M0



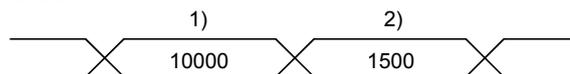
- 1) While M0 is on, "Error occurrence" is displayed in the cell.
- 2) While M0 is off, "Normal operation" is displayed in the cell.

(b) When data type is set to "16 bit integer"

<<Comment data>> tab setting example

Device	D0	Data Type	16bit integer	Value	DEC
	Range(Lower)	Range(Upper)	Comment String	Character Color	
1	10000	32767	Temperature upper limit over		
2					
3					
4					

Operation of D0

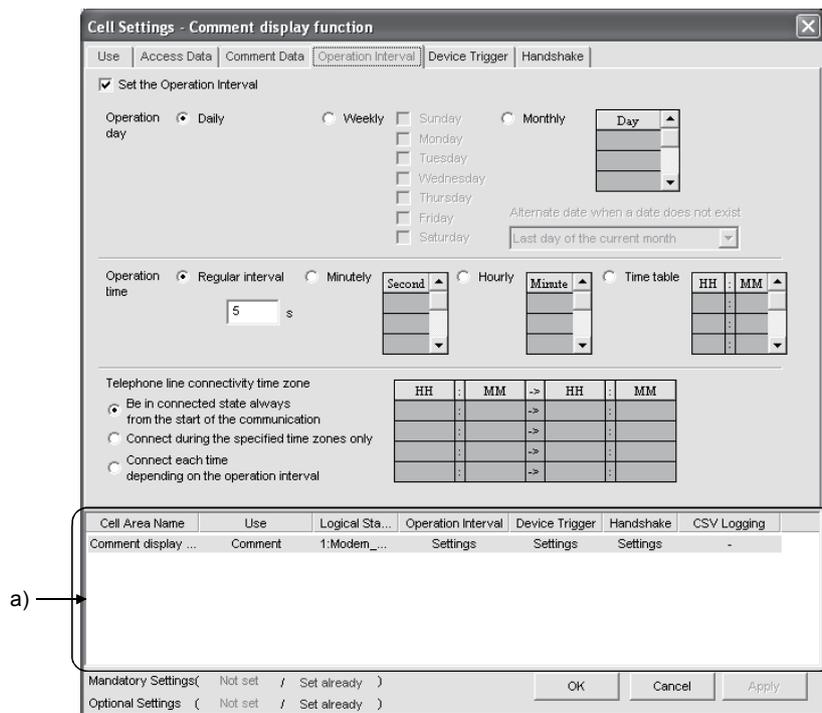


- 1) If the D0 value is 10000 or more, "Temperature upper limit over" is displayed in the cell.
- 2) If the D0 value is less than 10000, no comment character string is displayed.

6.6.4 Setting of the Operation Interval tab

This section describes the setting of the <<Operation Interval>> tab for use of the comment display function.
 In the <<Operation Interval>> tab, set the day, time and time zone of the activation of the function for the cell area.

(1) <<Operation Interval>> tab



Item	Description	Detailed Explanation
Set the Operation Interval	Set the operation of the cell area valid or invalid.	Section 6.2.3
Operation day	Set the operation day of the comment display function activation.	
Operation time	Set the operation time of the comment display function activation.	(2) (a)
Telephone line connectivity time zone *1	Set the telephone line connection timing and disconnection timing.	Section 6.2.3
a) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Telephone line connectivity time zone" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for modem communication.

(2) Detailed explanation

With the exception of the following item, the setting of the <<Operation Interval>> tab for use of the comment display function is the same as that of the <<Operation Interval>> tab for use of the logging function.
 Refer to Section 6.2.3 for details.

(a) "Operation time"

The setting except for "Regular interval" is the same as that of the logging function.

Refer to Section 6.2.3 for the setting except for "Regular interval".

1) When "Regular interval" is selected

Device data is collected at the set second intervals.

When modem communication is used and "Telephone line connectivity time zone" is set to "Connect each time depending on the operation interval", set "Regular interval" to 30 seconds or more.

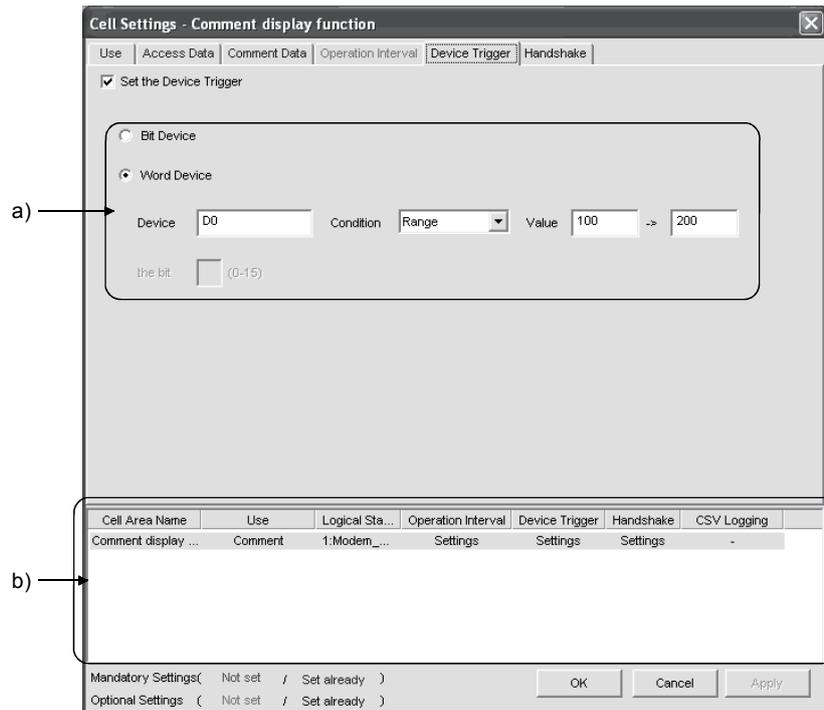
Setting range: 0.5 to 0.9 (in units of 0.1 seconds), 1 to 3600 (in units of 1 second)

6.6.5 Setting of the Device Trigger tab

This section describes the setting of the <<Device Trigger>> tab for use of the comment display function.

In the <<Device Trigger>> tab, set the device conditions for the device trigger.

(1) <<Device Trigger>> tab



Item	Description	Detailed Explanation
Set the Device Trigger	Set when the device trigger is used.	Section 6.2.4
a) (Device conditions)	Set the device conditions.	
b) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

The setting of the <<Device Trigger>> tab for use of the comment display function is the same as that of the <<Device Trigger>> tab for use of the logging function.

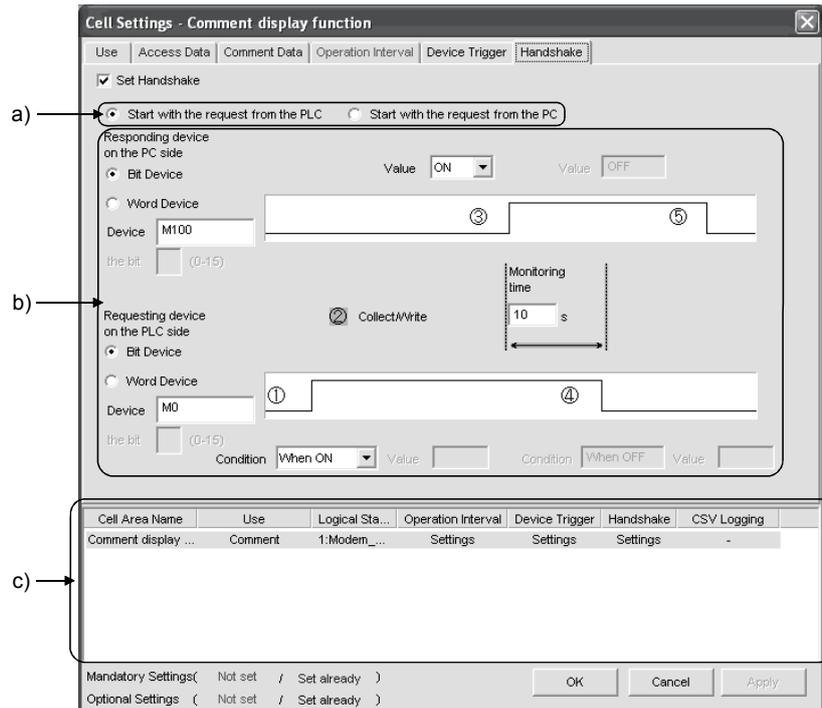
Refer to Section 6.2.4 for details.

6.6.6 Setting of the Handshake tab

This section describes the setting of the <<Handshake>> tab for use of the comment display function.

In the <<Handshake>> tab, set the handshake requesting source and handshake processing.

(1) <<Handshake>> tab



Item	Description	Detailed Explanation
Set Handshake	Set when using a handshake.	Section 6.2.5
a) (Requesting source setting)	Set the requesting source of the handshake.	
b) (Handshake processing)	Set the handshake processing.	
c) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

The setting of the <<Handshake>> tab for use of the comment display function is the same as that of the <<Handshake>> tab for use of the logging function. Refer to Section 6.2.5 for details.

7 AUTOMATIC SAVE SETTING

The following explains the setting contents for saving the Excel book or Excel sheet (CSV format) during MX Sheet operation (hereafter abbreviated to the Automatic save setting data).

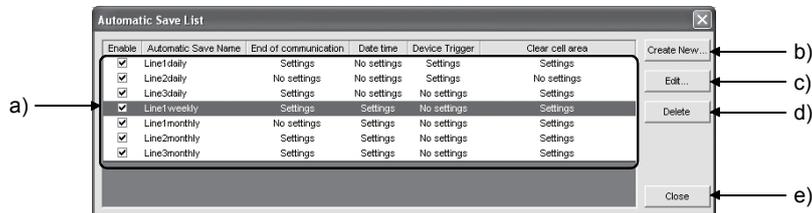
7.1 Operation of Automatic save list Dialog Box

In the "Automatic save list" dialog box, manage the automatic save conditions in the form of a list.

(1) Displaying "Automatic save list" dialog box

Choose [MX Sheet] → [Automatic save list] () from the menu bar.

(2) "Automatic save list" dialog box



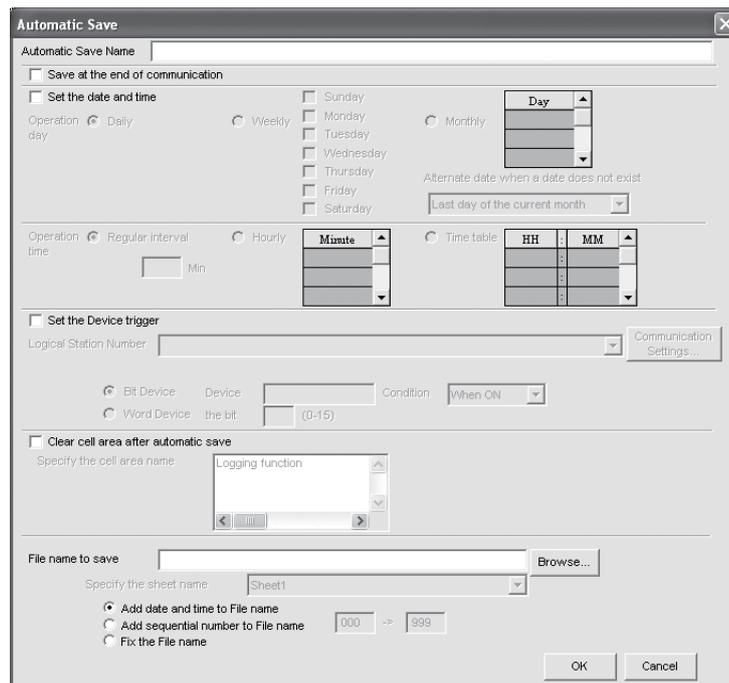
Item	Description	Detailed Explanation
a) Automatic save name list	Display a list of automatic save names created in the "Automatic save" dialog box (refer to Section 7.2).	(3) (a)
b) 	Create new automatic save setting data.	(3) (b)
c) 	Change the contents of the existing automatic save setting data.	(3) (c)
d) 	Delete the selected automatic save name from the automatic save name list.	(3) (d)
e) 	Close the "Automatic save list" dialog box.	—

(3) Detailed explanation
 (a) Automatic save name list

Item	Description
Enable	Check the one to be automatically saved. Checked when new data is created.
Automatic save name	Display the automatic save names created in the "Automatic save" dialog box.
End of communication	Display whether the "Save at the end of communication" check box in the "Automatic save" dialog box is checked or not in the form of Settings or No settings.
Date time	Display whether the "Set the date and time" check box in the "Automatic save" dialog box is checked or not in the form of Settings or No settings.
Device trigger	Display whether the "Set the Device trigger" check box in the "Automatic save" dialog box is checked or not in the form of Settings or No settings.
Clear cell area	Display whether the " Clear cell area after automatic save" check box in the "Automatic save" dialog box is checked or not in the form of Settings or No settings.

(b) **Create New** button

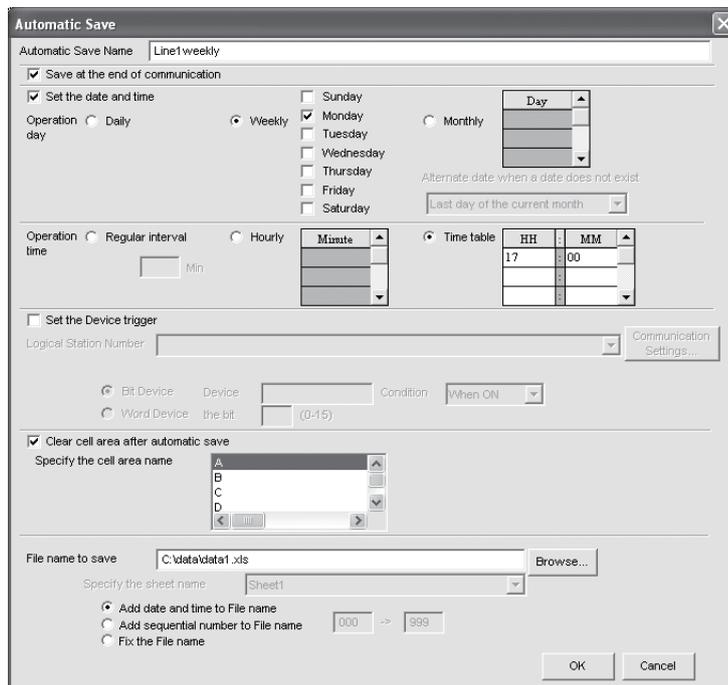
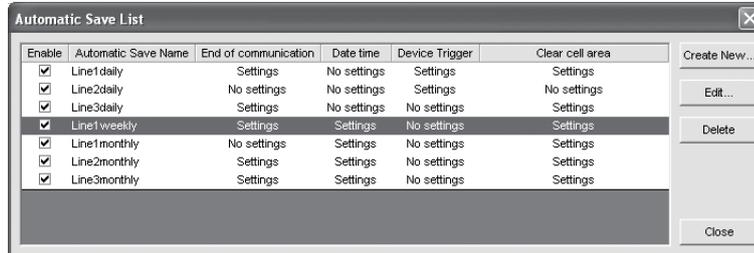
When **Create New** is clicked, the "Automatic save" dialog box is displayed. Refer to Section 7.2 for the setting operation.



7

(c) **Edit**

In the setting of the selected automatic save name, the "Automatic save" dialog box is displayed. Refer to Section 7.2 for the setting operation.

**POINT**

When the automatic save name list is double-clicked or the **Enter** key is pressed with the clicked line highlighted, that operation has the same function as **Edit**.

(d) **Delete**

The selected automatic save name is deleted.

POINT

When the **Delete** key is pressed with the clicked line highlighted, that operation has the same function as **Delete**.

7.2 Setting of the Automatic Save Dialog Box

In the "Automatic Save" dialog box, set the save timing and file name.

(1) Save timing

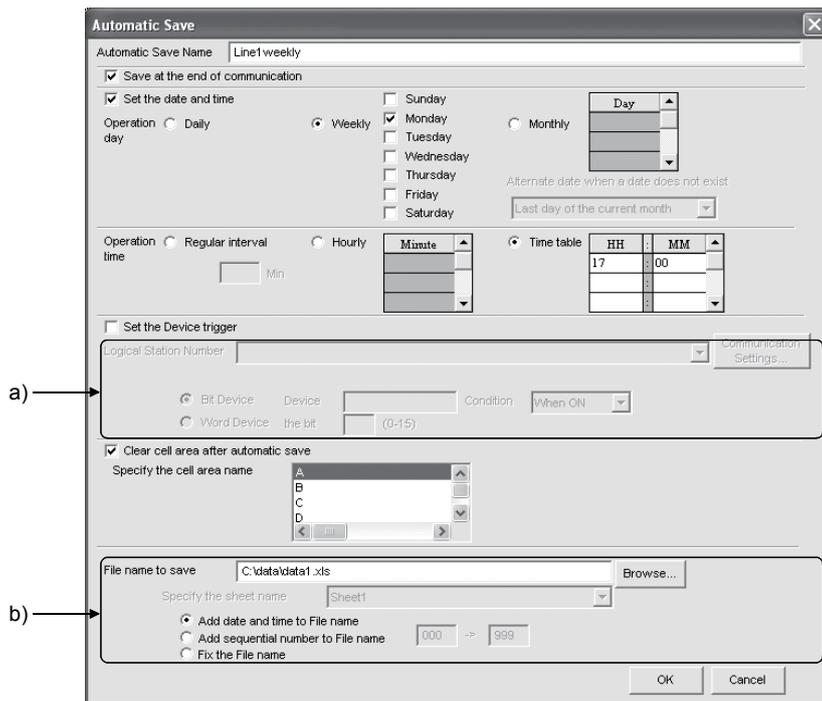
The following 3 save timings are available for the automatic save setting. (All of them can be set at a time.)

- Automatic save is performed at the end of communication. (Detailed explanation: (4) (b))
- Automatic save is performed at a specified time. (Detailed explanation: (4) (c) to (e))
- Automatic save is performed using the device trigger. (Detailed explanation: (4) (f) to (g))

(2) Displaying "Automatic Save" dialog box

In the "Automatic save list" dialog box, click **Create New** or **Edit**.

(3) "Automatic Save" dialog box



Item	Description	Detailed Explanation
Automatic save name	Manage the automatic save setting data with specific names.	(4) (a)
Save at the end of communication	Set when performing automatic save at the end of communication.	(4) (b)
Set the date and time	Set when performing automatic save at the specified date and time.	(4) (c)
Operation day	Set the operation day when automatic save is performed at the specified date and time.	(4) (d)

(To the next page)

Item	Description	Detailed Explanation
Operation time	Set the operation time when automatic save is performed at the specified date and time.	(4) (e)
Set the device trigger	Set when performing automatic save using the device trigger.	(4) (f)
a) (Device conditions)	Set the device conditions for the device trigger.	(4) (g)
Clear cell area after automatic save	Make setting when clearing the cell area data after automatic save.	(4) (h)
Specify the cell area name	From the list, select the cell area name that will be the target of "Clear cell area after automatic save".	(4) (i)
b) (Save file setting)	Set the file name to automatically save data. *1	(4) (j)
<input type="checkbox"/> OK	Register the newly created or edited "Automatic save name" to the "Automatic save list" dialog box.	(4) (k)

*1: A UNC path name (\\server name\path name) cannot be specified as a file name. After assigning the network drive, specify the path name.

(4) Detailed explanation

(a) "Automatic save name"

Attach specific names to the automatic save setting data.
Up to 50 automatic save names can be registered.

(b) "Save at the end of communication"

Set this when performing automatic save at the end of communication.

POINT

When "Clear cell area at the start of communication" has been checked on the <<Use>> tab in the "Cell Settings" dialog box, MX Sheet clears the target cell area data at the start of communication and starts data collection.
To save the data at the end of communication, check "Save at the end of communication".

(c) "Set the date and time"

Set this when performing automatic save at the specified date and time.

(d) "Operation day"

Set the operation day of the automatic save function.

1) When "Daily" is selected

Save is performed every day.

2) When "Weekly" is selected

Save is performed on the specified day of the week only.
Multiple days of the week can be set.

3) When "Monthly" is selected

Save is performed on the specified days only.

If the specified day does not exist in some months, an alternate day can be specified.

Number of days that can be set: 31

<When "15th" is set>

Operation is performed on the 15th every month, e.g. January 15, February 15, March 15.

<When "31st" is set>

Excepting February, April, June, September and November, operation is performed on the 31st every month.

For February, April, June, September and November, set the alternate day and processing in "Alternate day when a date does not exist".

The following table indicates the setting items of "Alternate day when a date does not exist".

Item	Description
Last day of the current month	Operation is performed on the last day of February, April, June, September or November
First day of the next month	Operation is performed on the first day of the next month.
No operation	Operation is not performed in February, April, June, September and November

(e) "Operation time"

Set the operation time of automatic save.

1) When "Regular interval" is selected

The Excel book is saved at the set minute intervals.

Setting range: 1 to 1440

<When "Regular interval" is set to "5">

The Excel book is saved at intervals of 5 minutes, e.g. 8:05, 8:10, 8:15.

2) When "Hourly" is selected

Automatic save is performed at the specified minute every hour.

Number of times that can be set: 60

3) When "Time table" is selected

Automatic save is performed at the specified time.

Number of times that can be set: 50

(f) "Set the Device trigger"

Set this when performing automatic save using the device trigger.

Whether the device trigger conditions are satisfied or not is checked at intervals of 1 second.

(g) Device conditions

1) "Logical Station Number"

Choose the logical station number used for the device trigger.
 If the logical station number has already been set, the number appears in the list box and can be selected.
 If the logical station number has not been set, click on **Communication Setting** and set a new logical station number.

2) **Communication Setting** button

This button is used to start the Communication Setup Utility to set a new logical station number and change the settings.
 Select "Run as administrator" when the screen appears asking if execute programs with administrator authority or not.
 After starting the Communication Setup Utility, click on **Wizard** and set a new logical station number and change the settings with the Communication Setting Wizard.
 For the detailed explanation of the Communication Setup Utility and Communication Setting Wizard, refer to the MX Component Operating Manual.

3) "Remote password"

"Remote password" box appears when the setting of the logical station number selected in "Logical Station Number" includes information on the connection to the module with the password function.
 When the password has been set to the connection target PLC, enter the password.
 It need not be entered when the password has not been set.

4) Device type

Set the type of the device used for the device trigger.

Item	Description
Bit Device	Set when using a bit device for the device trigger.
Word Device	Set when using a word device for the device trigger.

5) "Device"

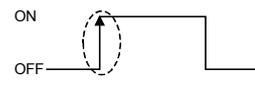
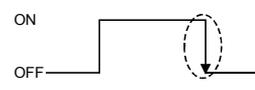
Enter the device used for the device trigger.
 Enter the device name and device number in this order.

6) "the bit"

Set the corresponding bit of the word device.
 Setting range: 0 to 15

7) "Condition"

Set the device trigger conditions.

Item	Available Device	Description
When ON 	Bit device	Set when automatic save is to be performed when the bit device turns on.
	Word device	Set when automatic save is to be performed when the corresponding bit of the word device turns on (value: 1).
When OFF 	Bit device	Set when automatic save is to be performed when the bit device turns off.
	Word device	Set when automatic save is to be performed when the corresponding bit of the word device turns off (value: 0).

(h) "Clear cell area after automatic save"

Set whether the data of the cell area selected in the "Specify the cell area name" will be cleared or not after automatic save is performed.

To clear the cell area data after automatic save, check the check box.

(i) "Specify the cell area name"

From the list box, select the "Cell Area Name" of the cell area whose data will be cleared after automatic save. (Multiple names can be selected.)

The list box displays all "Cell Area Names" set in the "Cell Settings" dialog box.

(j) Save file setting

1) "File name to save"

Set the storage location and file name of the Excel book to be saved automatically.

The Excel file (.xls, .xlsx^{*1}, .xlsm^{*1}, .xlsb^{*1}) or HTML file (.htm)^{*2} or CSV file (.csv) is available as the file type.

*1: .xlsx, .xlsm, and .xlsb are Workbook-format extensions added to Excel 2007 or later.

*2: For the continuous operation when saving data automatically in HTML format, refer to APPENDIX 7.

2) "Specify the sheet name"

Select the sheet name to be saved from the combo box.

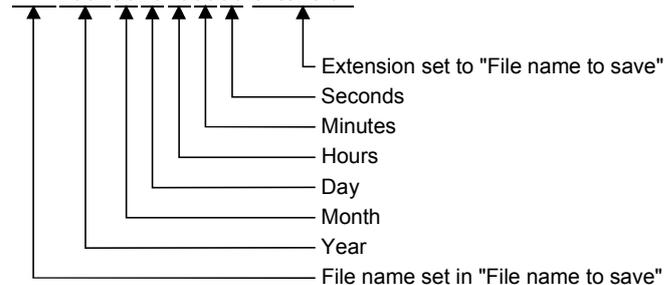
It can be specified only when the "File name to save" is a CSV file.

3) "Add date and time to File name"

The data and time data are added to the file name set in "File name to save".

The following indicates the file name format when data is saved.

****20020523183536.extension



4) "Add sequential number to File name"

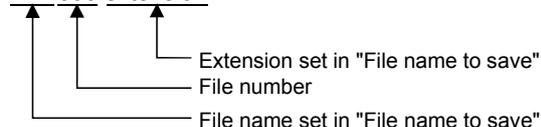
The file number is added to the file name set in "File name to save".

A serial number can be set within the range from 000 to 999.

When the number reaches the last, the data of the next file are overwritten to the file of the first number.

The following indicates the file name format when data is saved.

****000.extension



5) "Fix the File name"

Data is overwritten to the file set in "File name to save".

(k)

Register the newly created or edited automatic save setting data.
When the registration is completed, the automatic save name and settings are displayed as described below in the "Automatic save list" dialog box.

Operation		Display in "Automatic save list"
Create New		The automatic save name and settings are additionally displayed at the bottom of the list, and "enable" is checked.
Edit	When automatic save name is changed	The automatic save name and settings are additionally displayed at the bottom of the list, and "enable" is checked.
	When automatic save name is the same	The automatic save name and settings are displayed in the same position of the list. When the settings are changed, the new settings are displayed.

POINT

When registering the existing automatic save setting data under a different automatic save name, change the automatic save name in the "Automatic save" dialog box.

8 AUTOMATIC PRINT SETTING

The following explains the setting contents for printing the Excel book or Excel sheet (CSV format) during MX Sheet operation (hereafter abbreviated to the Automatic print setting data).

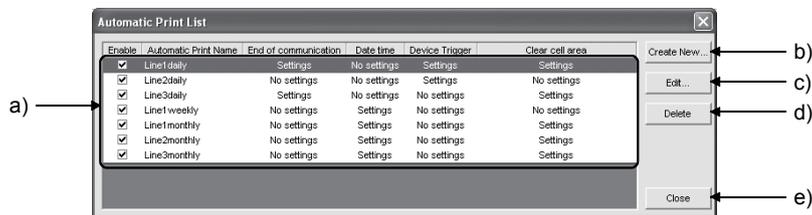
8.1 Operation of Automatic print list Dialog Box

In the "Automatic print list" dialog box, manage the automatic print conditions in the form of a list.

(1) Displaying "Automatic print list" dialog box

Choose [MX Sheet] → [Automatic print list] () from the menu bar.

(2) "Automatic print list" dialog box



Item	Description	Detailed Explanation
a) Automatic print name list	Display a list of automatic print names created in the "Automatic print" dialog box (refer to Section 8.2).	(3) (a)
b) <input type="button" value="Create New"/>	Create new automatic print setting data.	(3) (b)
c) <input type="button" value="Edit"/>	Change the contents of the existing automatic print setting data.	(3) (c)
d) <input type="button" value="Delete"/>	Delete the selected automatic print name from the automatic print name list.	(3) (d)
e) <input type="button" value="Close"/>	Close the "Automatic print list" dialog box.	—

(3) Detailed explanation

(a) Automatic print name list

Item	Description
Enable	Check the one to be automatic printed. Checked when new data is created.
Automatic print name	Display the automatic print names created in the "Automatic print" dialog box.
End of communication	Display whether the "Print at the end of communication" check box in the "Automatic print" dialog box is checked or not in the form of Settings or No settings.
Date time	Display whether the "Set the date and time" check box in the "Automatic print" dialog box is checked or not in the form of Settings or No settings.
Device trigger	Display whether the "Set the Device trigger" check box in the "Automatic print" dialog box is checked or not in the form of Settings or No settings.
Clear cell area	Display whether the "Clear cell area after automatic print" check box in the "Automatic print" dialog box is checked or not in the form of Settings or No settings.

(b)

When is clicked, the "Automatic print" dialog box is displayed. Refer to Section 8.2 for the setting operation.

(c)

In the setting of the selected automatic print name, the "Automatic print" dialog box is displayed. Refer to Section 8.2 for the setting operation.

POINT

When the automatic print name list is double-clicked or the key is pressed with the clicked line highlighted, that operation has the same function as .

(d)

The selected automatic print name is deleted.

POINT

When the key is pressed with the clicked line highlighted, that operation has the same function as .

8.2 Setting of the Automatic Print Dialog Box

In the "Automatic Print" dialog box, set the print timing and print area.

(1) Print timing

The following 3 timings are available for the automatic print setting. (All of them can be set at a time.)

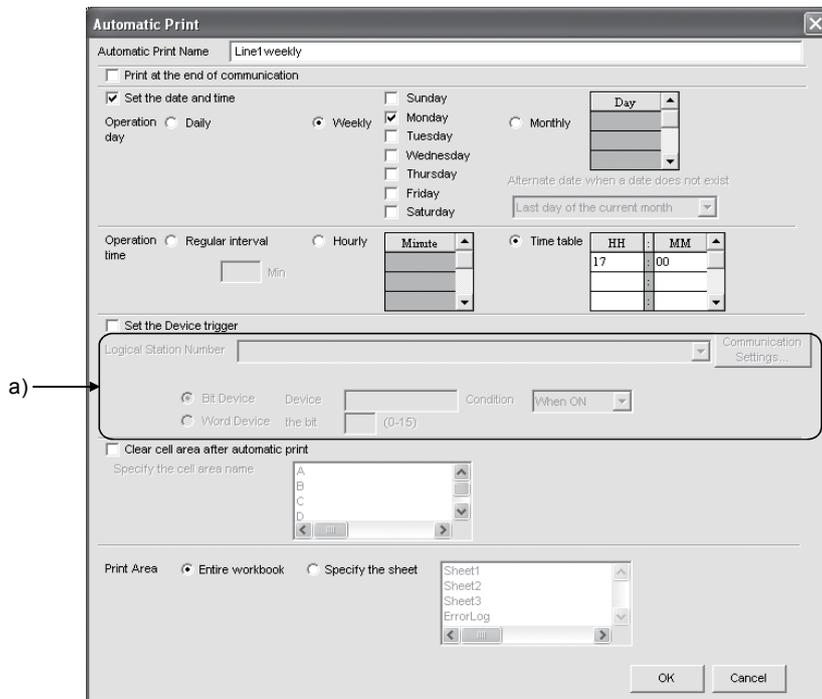
Refer to Chapter 7 for details.

- Automatic print is performed at the end of communication.
- Automatic print is performed at a specified time.
- Automatic print is performed using the device trigger.

(2) Displaying "Automatic Print" dialog box

In the "Automatic print list" dialog box, click **Create New** or **Edit**.

(3) "Automatic Print" dialog box



Item	Description	Detailed Explanation
Automatic print name	Manage the automatic print setting data with specific names.	(4) (a)
Print at the end of communication	Set when performing automatic print at the end of communication.	Section 7.1
Set the date and time	Set when performing automatic print at the specified date and time.	
Operation day	Set the operation day when automatic print is performed at the specified date and time.	
Operation time	Set the operation time when automatic print is performed at the specified date and time.	
Set the device trigger	Set when performing automatic print using the device trigger.	
a) (Device conditions)	Set the device conditions for the device trigger.	

(To the next page)

Item	Description	Detailed Explanation
Clear cell area after automatic print	Make setting when clearing the cell area data after automatic print.	(4) (b)
Specify the cell area name	From the list, select the cell area name that will be the target of "Clear cell area after automatic print".	(4) (c)
Print Area	Set the area where automatic print will be performed.	(4) (d)
<input type="checkbox"/> OK	Register the newly created or edited "Automatic print name" to the "Automatic print list" dialog box.	(4) (e)

(4) Detailed explanation

With the exception of the following items, the setting of the "Automatic Print" dialog box is the same as that of the "Automatic Save" dialog box. Refer to Chapter 7 for details.

(a) "Automatic print name"

Attach specific names to the automatic print setting data.
Up to 50 automatic print names can be registered.

(b) "Clear cell area after automatic print"

Set whether the data of the cell area selected in the "Specify the cell area name" will be cleared or not after automatic print is performed.
To clear the cell area data after automatic print, check the check box.

(c) "Specify the cell area name"

From the list box, select the "Cell Area Name" of the cell area whose data will be cleared after automatic print. (Multiple names can be selected.)
The list box displays all "Cell Area Names" set in the "Cell Settings" dialog box.

(d) "Print Area"

Set the area where automatic print will be performed.

1) "Entire workbook"

The entire Excel book (all sheets) where automatic print setting has been made is printed automatically.

2) "Specify the sheet"

Automatic print is executed for the specified sheet only.
Multiple sheets can be selected and printed simultaneously.

(e)

Register the newly created or edited automatic print setting data.
 When the registration is completed, the automatic print name and settings are displayed as described below in the "Automatic print list" dialog box.

Operation		Display in "Automatic print list"
Create New		The automatic print name and settings are additionally displayed at the bottom of the list, and "enable" is checked.
Edit	When automatic print name is changed	The automatic print name and settings are additionally displayed at the bottom of the list, and "enable" is checked.
	When automatic print name is the same	The automatic print name and settings are displayed in the same position of the list. When the settings are changed, the new settings are displayed.

POINT
<ul style="list-style-type: none"> • When registering the existing automatic print setting data under a different automatic print name, change the automatic print name in the "Automatic print" dialog box. • When multiple printers are set to a single personal computer, the Excel sheet where automatic print is set is output from the printer specified to "Set as Default" in [Printers] in [My Computer].

9 AUTOMATIC COMMUNICATION STARTUP SETTING

This chapter describes the settings for starting communication with the PLC automatically at the start of the Excel book.

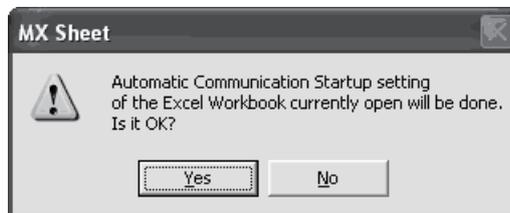
(1) Displaying "Automatic Communication Startup setting/Disabled" dialog box

Choose [MX Sheet] → [Automatic Communication Startup setting] (🔧) from the menu bar.

(2) Dialog boxes

(a) Dialog boxes for "Automatic Communication Startup setting"

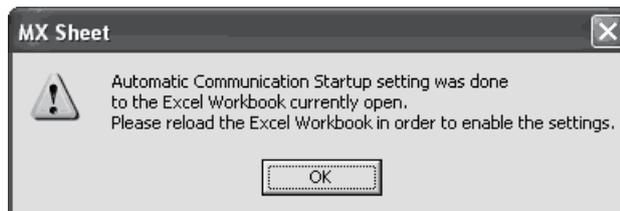
When the automatic communication startup setting has not been set to the Excel book being edited, the following dialog box appears.



Click on **Yes** to set the automatic communication startup setting to the Excel book being edited.

When the automatic communication startup setting has been made, communication with the PLC is started automatically at the start of the set Excel book.

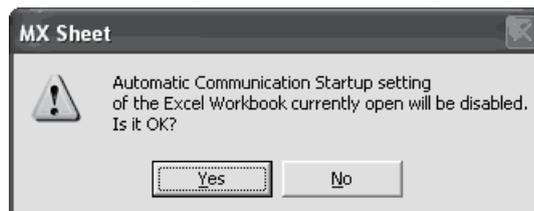
As the following dialog box appears, click on **OK**.



After editing the Excel book, restart the Excel book to make the automatic communication startup setting valid.

(b) "Automatic Communication Startup Disabled" dialog box

When the automatic communication startup setting has been set to the Excel book being edited, the following dialog box appears.



Click on **Yes** to cancel the automatic communication startup setting of the Excel book being edited.

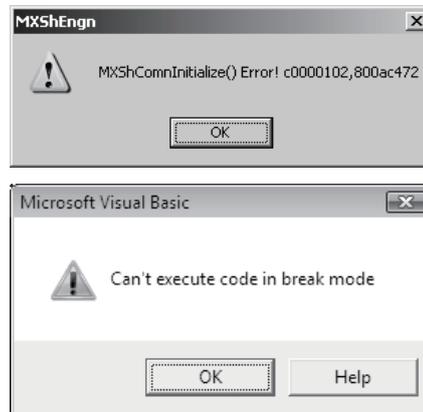
POINT

(1) For the automatic communication startup setting, do not save the Excel book under the hidden status. An error occurs when starting the Excel book and MX Sheet cannot be used. In such case, save the Excel book under the display status, and restart Excel.

To display the Excel book, choose [Window] → [Unhide] from the menu bar.

(2) When an Excel book on which the automatic communication startup has been set is opened with Excel 2007 or later, the following symptoms may occur.

- Excel does not respond.
- Either of the following errors occurs.



If the symptoms described above occur, refer to APPENDIX 9 and install the COM add-in "MXShRibbon".

10 COMMUNICATION START AND COMMUNICATION END

This chapter describes the start and end of MX Sheet communication.

10.1 Communication Start

This section explains the procedure to start MX Sheet communication manually.

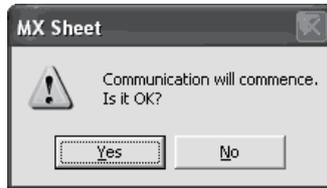
(1) Starting communication

Choose [MX Sheet] → [Start Communication] (🔌) from the menu bar. (Excel 2003 or earlier)

Choose <<Add-Ins>> tab → [MX Sheet] → [Start Communication] (🔌) (Excel 2007 or later).

Or, click the Start Communication Button (refer to Section 14.1).

(2) Explanation of "Start Communication" dialog box



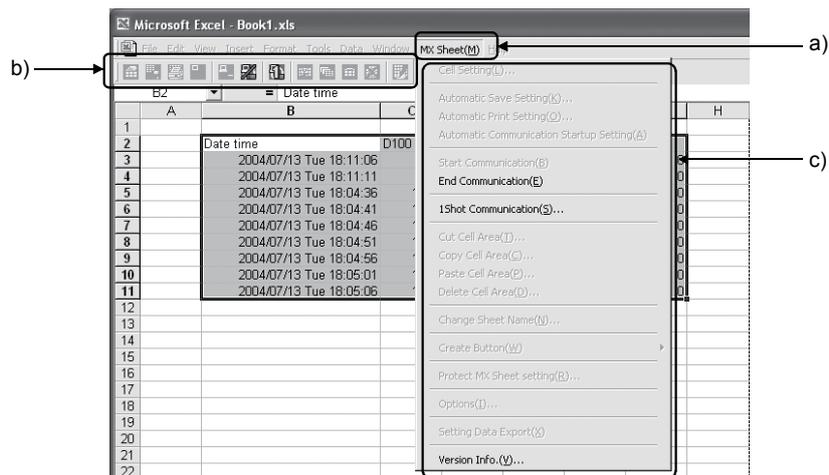
Click on **Yes** to start communication between the Excel book being edited and the PLC and read/write device data.

(3) Display of Excel book and task bar during communication

The following shows how the Excel book, which is communicating with the PLC using MX Sheet, and the task bar are displayed.

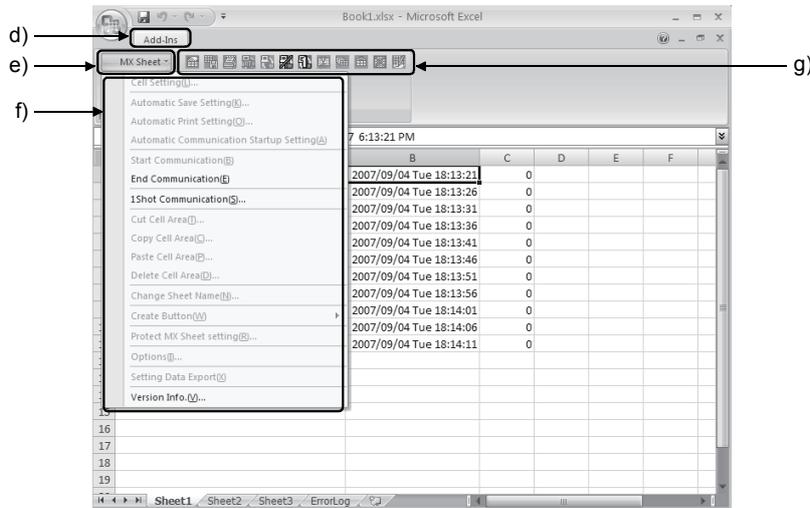
(a) Display of Excel book

<Excel 2003 or earlier>



Item	Status during Communication
a) (Menu bar)	Only [MX Sheet] can be selected.
b) (Icons)	Only the End Communication and 1 Shot Communication icons can be selected.
c) (MX Sheet menu)	Only [End Communication], [1 Shot Communication] and [Version Info.] can be selected.

<Excel 2007 or later>



Item	Status during Communication
d) (Tab)	Only the <<Add-Ins>> tab can be selected.
e) (Group)	Only [MX Sheet] can be selected.
f) (MX Sheet menu)	Only [Communication End], [1 Shot Communication...], and [Version Info....] can be selected.
g) (Icon)	Only the Communication End and 1 Shot Communication icons can be selected.

(b) Display of task bar

During communication with the PLC using MX Sheet, the following icon is displayed on the task bar of Windows®.



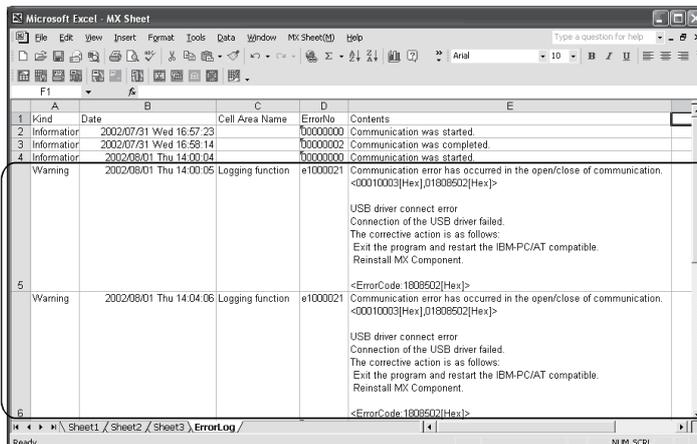
Icon is displayed on task bar.

(4) Confirmation at communication error

If an error occurs at the start of communication or during communication, the error information is displayed on the "ErrorLog" sheet.

When a communication error has occurred, end MX Sheet communication and correct the error in accordance with the corrective action on the "ErrorLog" sheet.

Refer to Chapter 19 for details of the "ErrorLog" sheet.



At occurrence of communication error, error information is displayed on "ErrorLog" sheet.

10.2 Communication End

This section explains the procedure to end MX Sheet communication.

(1) Ending communication

Choose [MX Sheet] → [End Communication] () from the menu bar. (Excel 2003 or earlier)

Choose <<Add-Ins>> tab → [MX Sheet] → [End Communication] () (Excel 2007 or later).

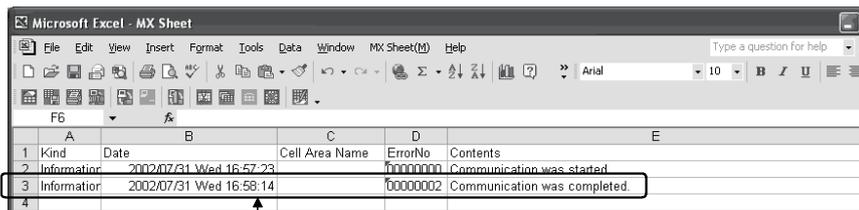
Or, click the End Communication Button (refer to Section 14.2).

(2) Confirmation at communication end

At the end of communication, MX Sheet displays the communication end message on the "ErrorLog" sheet.

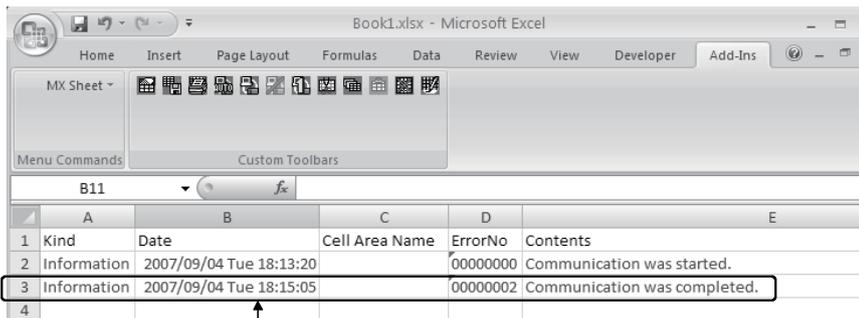
Confirm the message on the "ErrorLog" sheet at the end of communication. Refer to Chapter 19 for details of the "ErrorLog" sheet.

<Excel 2003 or earlier>



At end of communication, communication end message is displayed on "ErrorLog" sheet.

<Excel 2007 or later>



At end of communication, communication end message is displayed on "ErrorLog" sheet.

11 1 SHOT COMMUNICATION

This chapter describes 1 shot communication function that makes communication with the selected cell area only once at any timing.

The "1 Shot Communication" dialog box is used to set a cell area and execute 1 shot communication for the cell area.

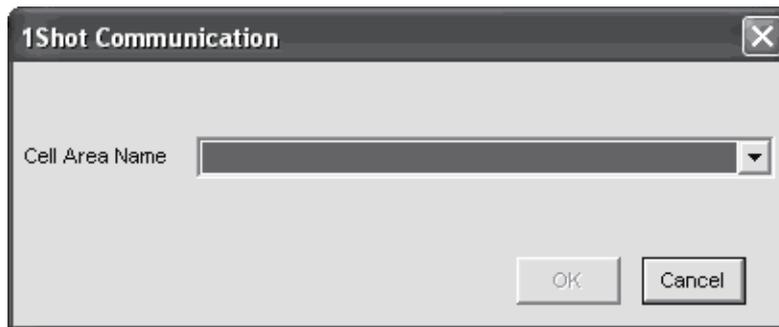
POINT

- (1) 1 shot communication function ignores the device trigger and handshake settings made to the cell area, and makes communication only once.
- (2) 1 shot communication function cannot work with the alarm summary function.

(1) Displaying "1 Shot Communication" dialog box

Choose [MX Sheet] → [1 Shot Communication] (F1) from the menu bar.
Or, click the 1 Shot Communication Button (refer to Section 14.3).

(2) "1 Shot Communication" dialog box



Item	Description
Cell Area Name	Choose the cell area for 1 shot communication. Only the cell area name set in the currently selected Excel sheet is displayed in "Cell Area Name".
<input type="button" value="OK"/>	<input type="button" value="OK"/> can be clicked after the cell area is selected in "Cell Area Name". Click on <input type="button" value="OK"/> to execute 1 shot communication.
<input type="button" value="Cancel"/>	Used to close the "1 Shot Communication" dialog box.

REMARK

- (1) After selecting the cell area set on the Excel sheet with the mouse or similar device, start 1 shot communication by clicking [OK] in the "1 Shot Communication" dialog box. This displays the cell area name specified in "Cell Area Name".
- (2) Setting the cell area name in "Cell Area Name" displays the cell area on the Excel sheet.

12 CELL EDITING

This chapter describes how to edit the cell area set using MX Sheet.

12.1 Cutting the Cell Area

This section explains the procedure to delete the settings of the selected cell area and paste them to another cell area.

(1) Displaying "Cut Cell Area" dialog box

Choose [MX Sheet] → [Cut Cell Area] () from the menu bar.

(2) "Cut Cell Area" dialog box



Item	Description
Cell Area Name	Choose the cell area name to be cut.
	 can be clicked after the cell area name is selected in "Cell Area Name". Click on  to cut the cell area.
	Used to close the "Cut Cell Area" dialog box.

REMARK

Paste the cell area after cutting it.
Refer to Section 12.3 for pasting the cell area.

12.2 Copying the Cell Area

This section explains the procedure to copy the settings of the selected cell area to another cell area.

- (1) Displaying "Copy Cell Area" dialog box
Choose [MX Sheet] → [Copy Cell Area] () from the menu bar.
- (2) "Copy Cell Area" dialog box



Item	Description
Cell Area Name	Choose the cell area name to be cut.
	 can be clicked after the cell area name is selected in "Cell Area Name". Click on  to copy the cell area.
	Used to close the "Copy Cell Area" dialog box.

REMARK

Paste the cell area after copying it.
Refer to Section 12.3 for pasting the cell area.

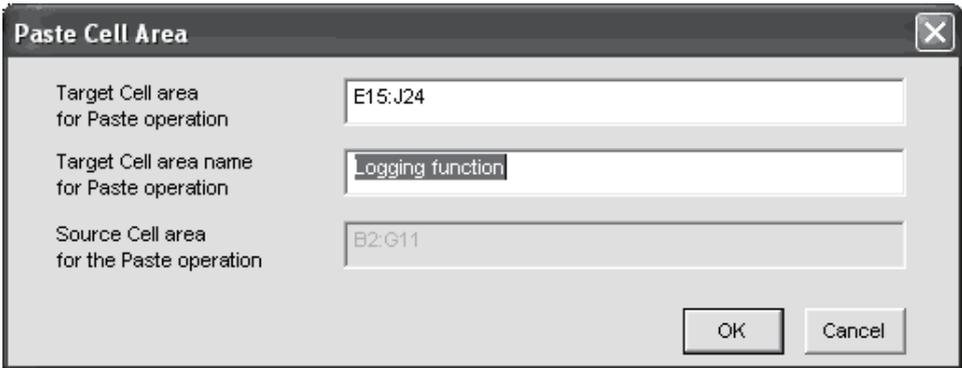
12.3 Pasting the Cell Area

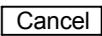
This section explains the procedure to paste the cut or copied cell area to another cell area.

(1) Displaying "Paste Cell Area" dialog box

Choose [MX Sheet] → [Paste Cell Area] () from the menu bar.

(2) "Paste Cell Area" dialog box



Item	Description
Target Cell area for Paste operation	Enter the cell area to be pasted.
Target Cell area name for Paste operation	Enter the cell area name to be pasted. *1
Source Cell area for the Paste operation	The cut or copied cell area is displayed.
	 can be clicked after the "Target Cell area for Paste operation" and "Target Cell area name for Paste operation" are set. Click on  to copy the cell area.
	Used to close the "Paste Cell Area" dialog box.

*1: When pasting the cell area after copying it, enter into "Target Cell area name for Paste Operation" the cell area name that differs from the copied cell area name.

REMARK

Paste the cell area after cutting or copying it.

The cell area cannot be pasted unless the cell area has been selected by cutting or copying it.

(3) Precautions for pasting the cell

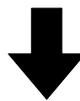
Paste the cell area while paying attention to the followings:

(a) Paste starting cell in cell area

The paste starting cell in the cell area is the cell selected on the Excel sheet.

	A	B	C	D	E	F
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

1) Select cell and past cell area.



	A	B	C	D	E	F
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

2) Paste cell area using selected cell as paste starting cell.

(b) Overlap of cell areas

If the paste area overlaps the other cell area that is already set, the selected cell cannot be pasted.

Paste the cell after checking the other cell area.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													

Cell area to be pasted

Already set cell area

As cell area enclosed by dotted lines overlaps, cell area cannot be pasted.

12.4 Deleting the Cell Area

This section explains the procedure to delete the settings of the cell area.

(1) Displaying "Delete Cell Area" dialog box

Choose [MX Sheet] → [Delete Cell Area] () from the menu bar.

(2) "Delete Cell Area" dialog box



Item	Description
Cell Area Name	Choose the cell area name of which settings will be deleted.
	 can be clicked after the cell area name is selected in "Cell Area Name". Click on  to delete the cell area.
	Used to close the "Delete Cell Area" dialog box.

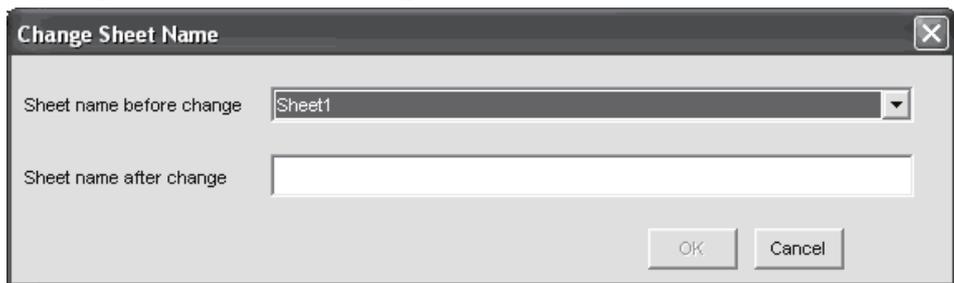
13 CHANGING THE SHEET NAME

This chapter describes the changing the sheet name of the Excel sheet where MX Sheet has been set.

In the "Change Sheet Name" dialog box, choose a Excel sheet and set a new name for the sheet.

POINT
<p>Always change the sheet name of the Excel sheet, where MX Sheet has been set, from the "Change Sheet Name" dialog box.</p> <p>If the sheet name is changed from Excel directly or from a VBA program, MX Sheet will not operate normally.</p>

- (1) **Displaying "Change Sheet Name" dialog box**
 Choose [MX Sheet] → [Change Sheet Name] (📄) from the menu bar.
- (2) **"Change Sheet Name" dialog box**



Item	Description
Sheet name before change	Select the Excel sheet of which sheet name to be changed.
Sheet name after change	Enter a new sheet name.
<input type="button" value="OK"/>	<input type="button" value="OK"/> can be clicked after the "Sheet name before change" and "Sheet name after change" are selected. Click on <input type="button" value="OK"/> to change the sheet name.
<input type="button" value="Cancel"/>	Used to close the "Change Sheet Name" dialog box.

- (3) **Changing the sheet name**
 If the sheet name of the Excel sheet, where MX Sheet has been set, is changed from Excel directly or from a VBA program, return the sheet name to the old one from Excel.
 If the sheet name is changed from the VBA program, delete the program part that changes the sheet name.

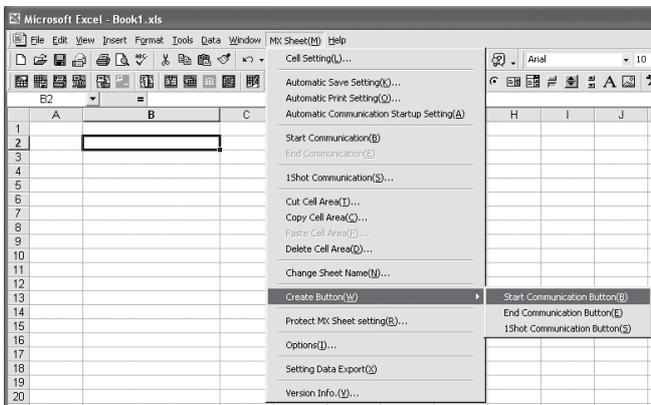
14 Create Button

The following explains the Start Communication, End Communication and 1 Shot Communication execution button creation procedures and the property setting. By merely clicking the created button, Start Communication, End Communication or 1 Shot Communication operation can be performed and easily operated.

14.1 Start Communication Button

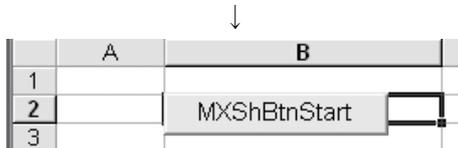
Create the button for execution of Start Communication and paste it to an Excel sheet.

(1) Button pasting method



- 1) Specify the cell on the Excel sheet where the button will be placed, and choose [MX Sheet] - [Create Button] - [Start Communication Button] on the menu bar.

* In Excel 2007 or later, choose the <<Add-Ins>> tab → [MX Sheet] → [Create Button] → [Start Communication Button].



- 2) The button is placed in the specified cell position. Use the property setting of the property page to change the display characters on the button, set whether the start message will be displayed or hidden at execution of the button function, and change the type/size of the display character font on the button. Refer to (2), (3).

(2) Property page starting method



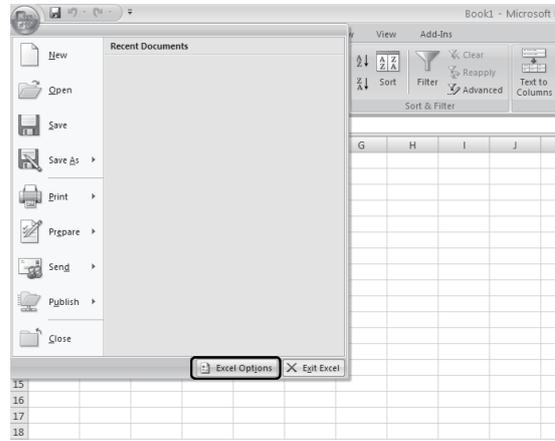
1) Click  in the Control Toolbox*1 to select the Design Mode.

To display the Control Toolbox, check the Control Toolbox on the <<Toolbars>> Tab in the dialog box that is displayed by choosing [Tools] - [Customize] in the Excel menu.

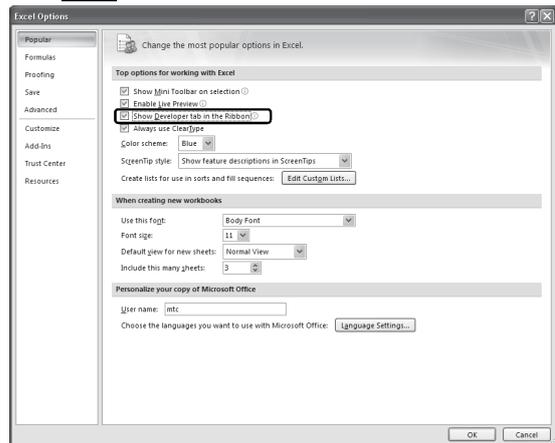
*1: In Excel 2007 or later, click  in the <<Developer>> tab.

<Excel 2007>

To display the <<Developer>> tab, choose [Office button] - [Excel Options].



Select "Show Developer tab in the Ribbon" and click **OK**.



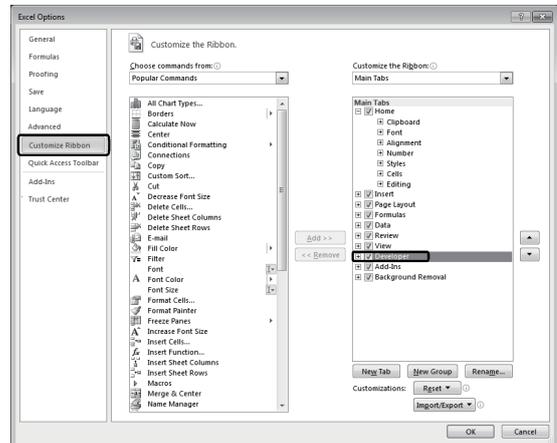
(To the next page)

(From the previous page)

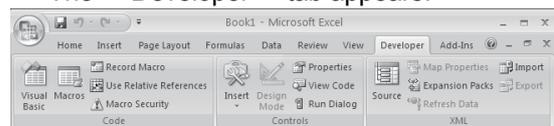
<Excel 2010>

To display the <<Developer>> tab, choose <<File>> tab - [Options].

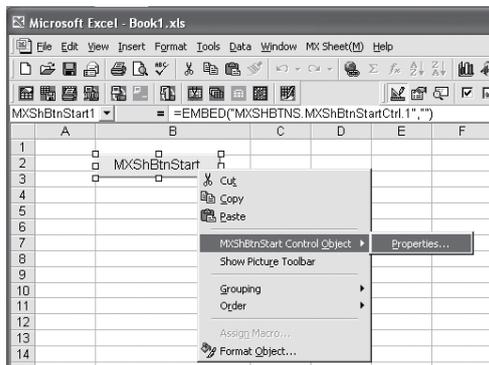
Choose "Customize Ribbon", select "Developer", and click **OK**.



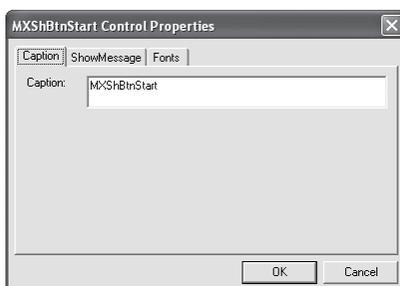
The <<Developer>> tab appears.



2) Choose [MXShBtnStart Control Object] - [Properties] in the menu displayed by right-clicking the created button with the mouse.



3) The property page starts. Set the properties shown in (3).



POINT

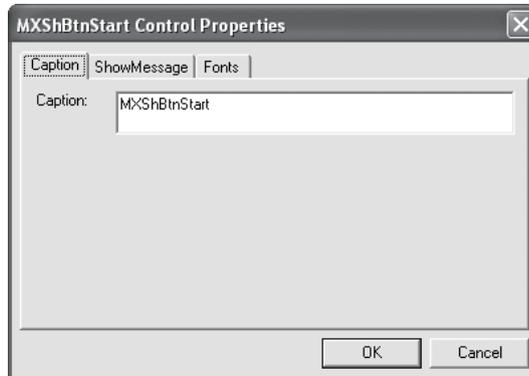
When the property setting is finished, click  ( for Excel 2007 or later) to exit from the Design Mode.

(3) Property setting

Set the Caption, ShowMessage and Font properties.

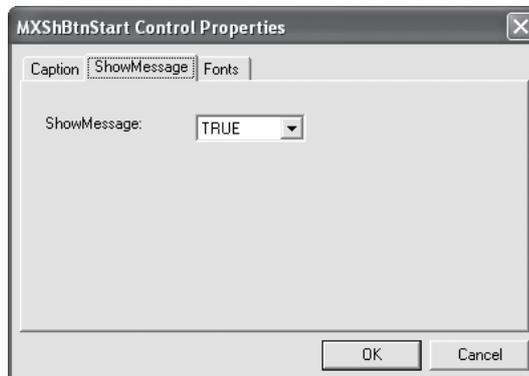
1) <<Caption>> tab

Edit the Caption (display characters on the button) of the button.



2) <<Show Message>> tab

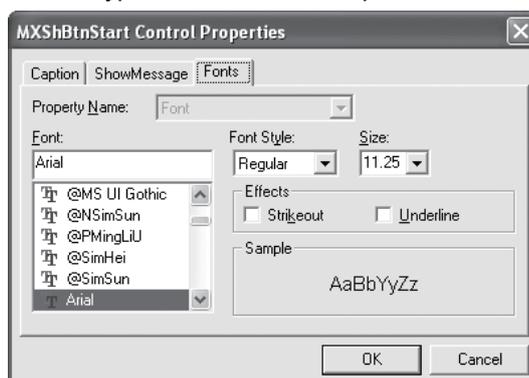
Set whether the following Start Communication message will be displayed or not when the Start Communication button is clicked.



TRUE : Display
FALSE : Not display

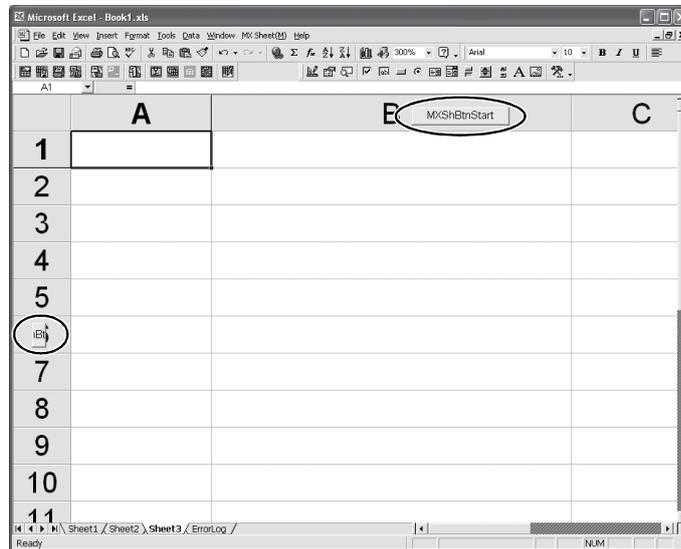
3) <> tab

Set the type and size of the Caption font.



POINT

- When the button was created or any property was changed, save the Excel book.
- Do not execute [Grouping] - [Ungroup] from the right-click menu of the button. Executing Ungroup will disable the button from functioning.
- If the font size is set on the <> Tab of the property, a value (error) different from the set font size may be displayed when the <> Tab is displayed next time.
(Example) When the font size is set to 8, 8.25 will be displayed next time.
- If [Split], [Freeze Panes] or [New Window] in the [Window] menu is executed for the Excel sheet where buttons have been placed, correct operation may not be performed, e.g. the buttons remain displayed or the buttons cannot be clicked.
- If the zoom of Excel is set to a large magnification, the button may be displayed above the row/column number. When this phenomenon has occurred, click the button. The button will then move to the correct position.



- If a button is created in design mode and then the mode is ended and set repeatedly, the button may not be clicked.
In this case, minimize and restore the Excel book window. This enables the button to be clicked.
- When moving a button or changing button size after creating it, the button is not checked for its position.
- If the button position exceeds the supported range (256 columns ×65536 rows) when Excel from 97 to 2003 version is saved in book format, any of the following occurs depending on the button size, button position, height of the row and/or cell width.
 - (1) When saved Book is reopened, the button is reduced or moved so that it is fit within the supported range.
 - (2) The button has disappeared when saved Book is reopened.
 - (3) The Compatibility Checker screen appears on the Excel at saving the Book.

14.2 End Communication Button

Create the button for execution of End Communication and paste it to an Excel sheet.

(1) Button pasting method

Similar to the Start Communication Button. Refer to Section 14.1 (1).

Choose [MX Sheet] → [Create Button] → [End Communication Button] in the menu.

(2) Property page starting method

Similar to the Start Communication Button. Refer to Section 14.1 (2).

Choose [MXShBtnEnd Control Object] → [Properties] in the menu.

(3) Property setting

Set the Caption and Font properties.

Refer to Section 14.1 (3).

14.3 1 Shot Communication Button

Create the button for execution of 1 Shot Communication and paste it to an Excel sheet.

(1) Button pasting method

Similar to the Start Communication Button. Refer to Section 14.1 (1).

Choose [MX Sheet] → [Create Button] → [1 Shot Communication Button] in the menu.

(2) Property page starting method

Similar to the Start Communication Button. Refer to Section 14.1 (2).

Choose [MXShBtn1Shot Control Object] → [Properties] in the menu.

(3) Property setting

Set the Caption, CellAreaName and Font properties.

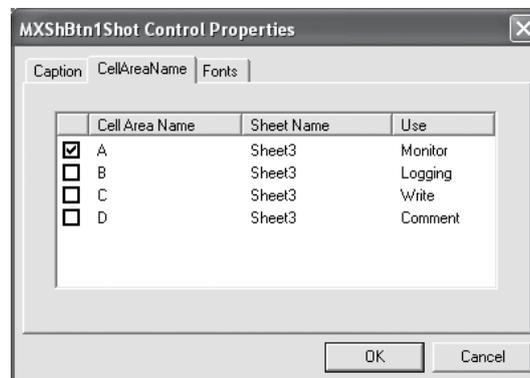
Similar to the Start Communication Button. Refer to Section 14.1 (3).

1) <<CellAreaName>> Tab

The Cell Area Name list displays all Cell Area Names of Logging, Monitor, Write and Comment in the Excel book.

Check the check box for the Cell Area Name that will be the target of 1 Shot Communication.

Up to 10 Cell Area Names can be checked.



15 Protect/Unprotect MX Sheet setting

The following explains Protect MX Sheet setting and Unprotect MX Sheet setting by a password.

15.1 Protect MX Sheet setting

Protect the MX Sheet setting by a password so that the setting contents cannot be changed.

The setting contents cannot be edited until the MX Sheet setting is unprotected.

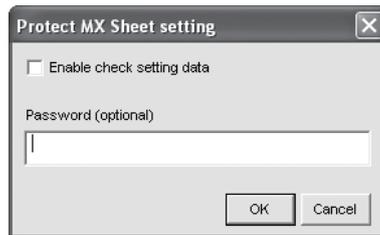
(1) Displaying "Protect MX Sheet setting" dialog box

Choose [MX Sheet] → [Protect MX Sheet setting] from the menu bar.

POINT

When Protect MX Sheet setting has been set, the [Protect MX Sheet setting] menu is not displayed and the [Unprotect MX Sheet setting] menu is displayed.

(2) "Protect MX Sheet setting" dialog box



Item	Description	Detailed Explanation
Enable check setting data	The menu that can be selected when Protect MX Sheet setting has been set changes depending on whether a check mark exists or not.	(3) (a)
Password (optional)	Enter the password for protecting the setting contents. The password may also be registered as a blank.	—
OK	The "Confirm Password" dialog box is displayed. When the password is blank, however, the "Confirm Password" dialog box is not displayed and the MX Sheet setting is protected.	(3) (b)
Cancel	The "Protect MX Sheet setting" dialog box is closed. The MX Sheet setting is not protected.	—

(3) Detailed explanation

(a) "Enable check setting data"

Depending on whether "No check" (setting contents cannot be confirmed) or "Check" (setting contents can be confirmed) is selected, the menu that can be selected when Protect MX Sheet setting has been set changes as described in the following table.

MX Sheet menu	No check	Check
Cell Settings	×	○ *1
Automatic Save Setting	×	○ *1
Automatic Print Setting	×	○ *1
Automatic Communication Startup Setting	×	×
Communication Start	○	○
Communication End	○	○
1 Shot Communication	○	○
Cutting the Cell Area	×	×
Copying the Cell Area	×	×
Pasting the Cell Area	×	×
Deleting the Cell Area	×	×
Changing the Sheet Name	×	×
Create Button	×	×
Unprotect MX Sheet setting	○	○
Options	×	×
Setting data export	×	×
Version Info.	○	○

○: Menu that can be selected

×: Menu that cannot be selected

*1: [Read only] is displayed after the title of the following dialog box related to the Cell Settings, Automatic save setting and Automatic print setting. The setting contents can be confirmed but cannot be changed.

- Cell Settings
- Automatic Save list
- Automatic Save
- Automatic Print list
- Automatic Print

(b)

The "Confirm Password" dialog box is displayed.
 Enter the password entered in the "Protect MX Sheet setting" dialog box again.



Item	Description
<input type="button" value="OK"/>	The "Confirm Password" dialog box is closed, and the MX Sheet setting is protected.
<input type="button" value="Cancel"/>	The "Confirm Password" dialog box is closed. The MX Sheet setting is not protected.

POINT

If the MX Sheet setting is protected, the properties of the Start Communication, End Communication, and 1 Shot Communication buttons can be edited.

15.2 Unprotect MX Sheet setting

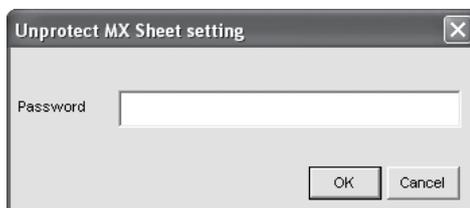
The MX Sheet setting is unprotected, and the setting contents can be changed.

(1) Displaying "Unprotect MX Sheet setting" dialog box

Choose [MX Sheet] → [Unprotect MX Sheet setting] from the menu bar.

POINT
<ul style="list-style-type: none"> • When Protect MX Sheet setting has not been set, the [Unprotect MX Sheet setting] menu is not displayed. • When the password is blank, the "Unprotect MX Sheet setting" dialog box is not displayed and the MX Sheet setting is unprotected.

(2) "Unprotect MX Sheet setting" dialog box



Item	Description
Password	Enter the password set in the "Protect MX Sheet setting" dialog box.
<input type="button" value="OK"/>	The "Unprotect MX Sheet setting" dialog box is closed, and the MX Sheet setting is unprotected. The MX Sheet menu selection and setting screen editing restriction are cancelled.
<input type="button" value="Cancel"/>	The "Unprotect MX Sheet setting" dialog box is closed. The MX Sheet setting is not unprotected.

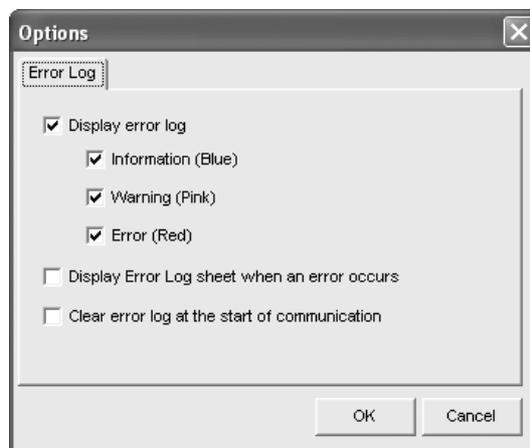
16 Options

Make Option setting for specifying the Error log sheet output format, etc.
 To display the "Options" dialog box, choose [MX Sheet] - [Options] on the menu bar.

16.1 Setting of the error log

Set the Error log sheet output format on the <<Error log>> tab in the "Options" dialog box.
 Refer to Chapter 19 for details of the Error log sheet.

<<Error log>> tab



16

Item	Description
Display error log	Set whether the information/warning/error that occurred during the execution of communication will be displayed in the Error log sheet or not. Check: Display / No check: Not display
Information (Blue) *1	Set whether the information message (blue) during the execution of communication will be displayed in the Error log sheet or not. Check: Display / No check: Not display
Warning (Pink) *1	Set whether the warning message (pink) during the execution of communication will be displayed in the Error log sheet or not. Check: Display / No check: Not display
Error (Red) *1	Set whether the error message (red) during the execution of communication will be displayed in the Error log sheet or not. Check: Display / No check: Not display
Display Error Log sheet when an error occurs	Set whether the display will be switched to the Error log sheet or not if a warning or error occurs during the execution of communication. Check: Display will be switched to the Error log sheet. No check: Display will not be switched to the Error log sheet.
Clear error log at the start of communication	Set whether the Error log will be cleared or not at the start of communication. Check: clear / No check: Not clear

*1: Setting can be made only when the "Display error log" check box has been checked.

17 SETTING DATA EXPORT

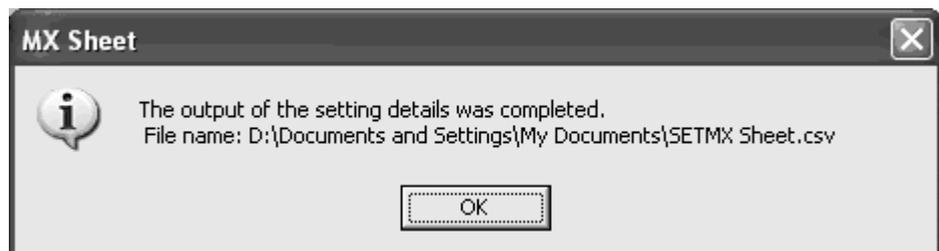
This chapter describes the procedure to output the settings of MX Sheet to a CSV file.

(1) "Setting Data Export" procedure

Choose [MX Sheet] → [Setting Data Export] from the menu bar.

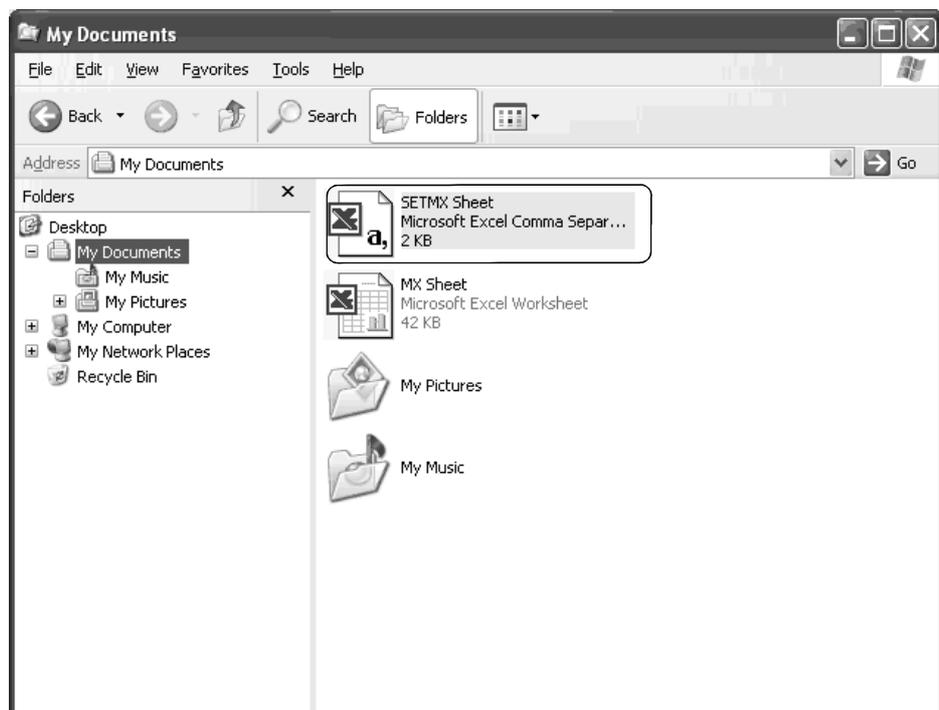
By selecting the above menu, the details of MX Sheet set in the Excel book are output to the CSV file.

After setting data export, the following dialog box appears.



(2) Save destination of CSV file

After setting data export, MX Sheet saves the CSV file in the folder where the original Excel book is saved.



(3) File name of CSV file

The following indicates the file name of the CSV file.

SET*****.csv

↑
Excel book name that executed
setting data export

(4) Saved contents of CSV file

The following shows the contents of the CSV file saved by the setting data export.

The screenshot shows an Excel spreadsheet with the following content:

	A	B	C	D	E	F	G	H	I	J	K
1	<Sheet Na	Sheet1									
2	<Use>	Use	Cell Area	Cell Area	New data	Operation	Print the E	Save to file	File name	Save method	
3		Logging	Logging fu	B2:G11	Last Line	To scroll	No setting	No settings			
4											
5	<Access	Logical St	Device	Data Type	Device poi	In unit	Password				
6		1:Modem	D100	16bit integ	3	Word	No settings				
7			X100	Bit	2	Bit					
8											
9	<Operator	Operation	Daily	Weekly	Monthly	Regular int	Hourly	Time Table	Logging Tr	Logging Time zone	
10		Settings	Daily			5			Log Always		
11											
12	<Device Tr	Device Trig	Device	The bit	Condition						
13		No settings									
14											
15	<Handshal	Handshake									
16		No settings									
17											
18	<CSV Log	CSV Loggi	No. of line	File name	Save method						
19		No settings									
20											
21											
22	<Automati	Automatic	Save Name								
23		Line1	daily								
24											
25			Automatic	Save							
26			Settings								
27											
28			Save at the end of communication								
29			Settings								
30											
31			Set the da	Daily	Weekly	Monthly	Regular int	Hourly	Time table		
32			No settings								
33											
34			Set the De	Logical St	Device	The bit	Condition	Password			
35			No settings								
36											
37			Clear cell <Specify the cell area name								
38			No settings								
39											
40			File name	Save method							
41			C:\data\da	Add date and time to File name							
42											
43											
44	<Automati	Automatic	Print Name								
45		Line1	daily								
46											
47			Automatic	Print							
48			No settings								
49											
50			Print at the end of communication								
51			Settings								
52											
53			Set the da	Daily	Weekly	Monthly	Regular int	Hourly	Time table		
54			No settings								
55											
56			Set the De	Logical St	Device	The bit	Condition	Password			
57			Settings	1:Modem	_MO		(When ON	No settings			
58											
59			Clear cell <Specify the cell area name								
60			Settings								
61											
62			Print Area	Sheet name to print							
63			Entire workbook								
64											
65			Line1	weekly							
66											
67			Automatic	Print							
68			Settings								
69											
70			Print at the end of communication								
71			No settings								
72											
73			Set the da	Daily	Weekly	Monthly	Regular int	Hourly	Time table		
74			Settings	Friday					17:00		
75											
76			Set the De	Logical St	Device	The bit	Condition	Password			
77			No settings								
78											
79			Clear cell <Specify the cell area name								
80			Settings	Logging function							
81											
82			Print Area	Sheet name to print							
83			Specify th	Sheet1							
84											
85											
86	<Automati	Automatic	Communication Startup Settings								
87		Settings									

Labels a, b, c, and d point to sections of the spreadsheet:

- a) Points to rows 9-19.
- b) Points to rows 22-43.
- c) Points to rows 44-84.
- d) Points to rows 86-87.

Item	Description
a) (Cell Setting)	The settings of the sheet name and cell setting are displayed.
b) (Automatic Save)	The settings of automatic save are displayed.
c) (Automatic Print)	The settings of automatic print are displayed.
d) (Automatic Communication Startup)	The settings of automatic communication startup are displayed.

18 SAMPLE PROGRAMS

This chapter describes the sample programs registered at MX Sheet installation.

(1) Sample programs

(a) Sample programs

The sample programs are attached for reference when creating user programs.

Please use them on customer's own responsibility.

(b) Logical station number

"1" is assigned to all sample programs as logical station number by default.

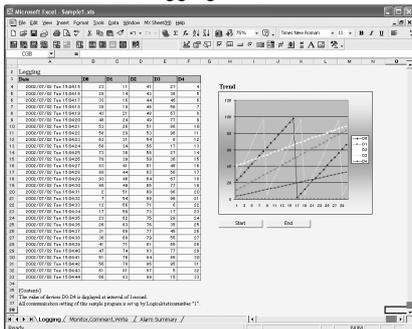
To use the sample programs, make the settings for the logical station number "1" or assign other logical station number and make the setting for the number.

(2) Sample program list

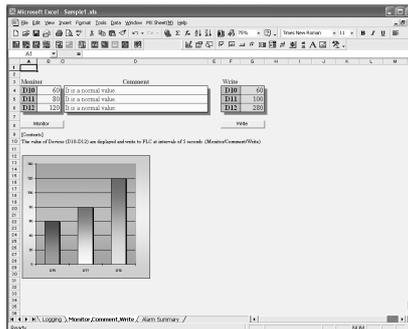
The following table indicates the sample programs (Sample1.xls, Sample2.xls) that are registered by choosing [User-specified folder] → [Sheet] → [Sample] at MX Sheet installation.

Sample Program		Description
Excel book name	Excel sheet name	
Sample1.xls	Logging	Logging is performed for D0 to D4 at 1 second intervals.
	Monitor, Comment, Write	Monitor, display their assigned comments and write the device data D10 to D12 at intervals of 5 seconds.
	Alarm Summary	Alarm summary is performed using M0 to M4.
Sample2.xls	Monitor, Write (Conditioning)	Monitor and write the device data using device trigger.
	Logging (Conditioning)	Logging is performed using handshake.
	Automatic Save	Save the data on the Excel sheet automatically when M20 turns on. (Automatic save is described in Excel sheet.)

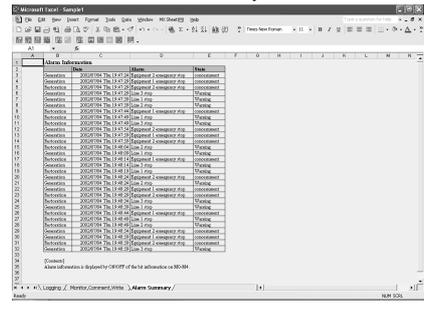
Logging Sheet



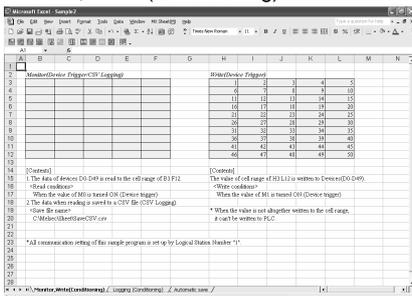
Monitor, Comment, Write Sheet



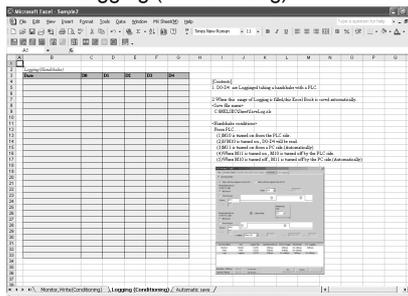
Alarm Summary Sheet



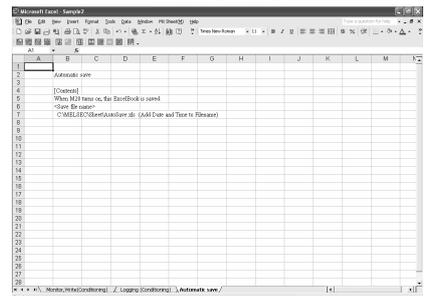
Monitor, Write (Conditioning) Sheet



Logging (Conditioning) Sheet



Automatic Save Sheet



18

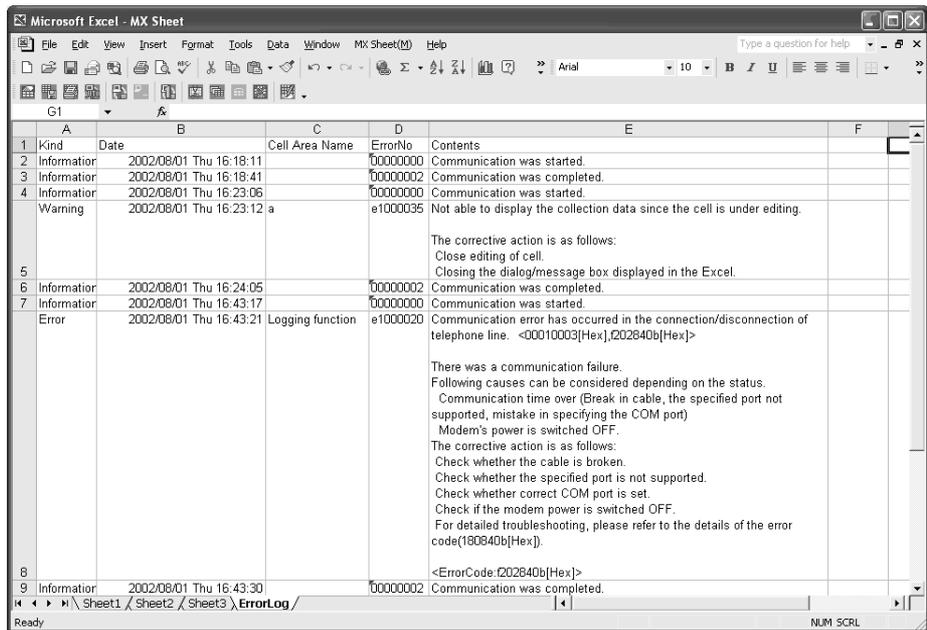
19 ERRORLOG SHEET

This chapter describes the ErrorLog sheet that displays the communication status of MX Sheet.

The communication status, error information and corrective action of MX Sheet are displayed in the ErrorLog sheet.

Troubleshooting can be performed by confirming the corrective action displayed in the ErrorLog sheet.

(1) ErrorLog sheet



Item	Description	Detailed Explanation
Kind	The type of the communication status is displayed.	(2) (b)
Date	The date and time when the communication status is changed are displayed. The displayed time is the date and time of the personal computer where MX Sheet is operating.	(2) (c)
Cell Area Name	The cell area name where the communication status is changed is displayed.	(2) (d)
Error No	The error number of the error that has occurred is displayed.	(2) (e)
Contents	The details of the communication status is displayed. The error definition, error code and corrective action are displayed when an error occurs.	(2) (f)

(2) Details

(a) ErrorLog sheet

The following table indicates the ErrorLog sheet specifications.

Item	Description
Maximum number of display lines	2000 lines (fixed)
New data location	The last line has the latest data.
Operating when cell is full	Overwritten in due order, starting with the first line.

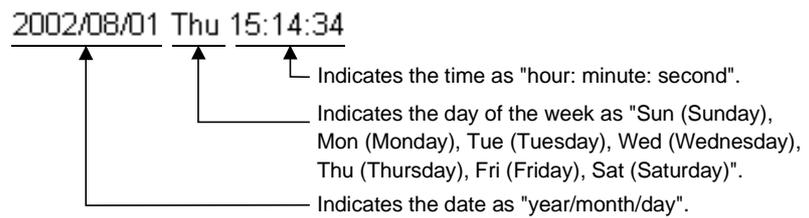
(b) "Kind"

The following table indicates the communication statuses displayed in "Kind".

Communication Status	Description
Information	Displayed when the communication with the PLC starts and ends during 1 shot communication.
Error	Displayed when a fatal error occurred and the function of the cell area stopped.
Warning	Displayed when communication error or collection delay occurs.

(c) "Date"

"Date" displays the date and time of the personal computer at ErrorLog sheet registration.



(d) "Cell Area Name"

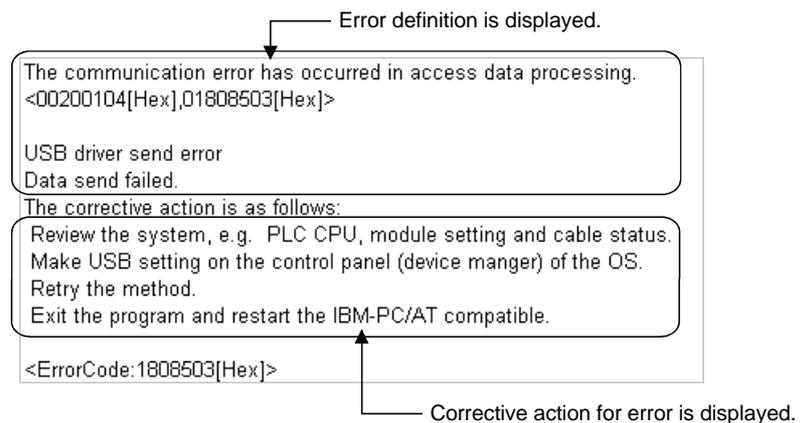
The cell area name registered to the ErrorLog sheet is displayed. It is not displayed when the communication starts and ends.

(e) "Error No"

The error number is displayed. Please specify the error number when inquiring about errors.

(f) "Contents"

The data displayed in "Contents" are shown below.



POINT

- If the same error occurs twice or more successively in the same cell area, only the error information of the first error will be registered to the ErrorLog sheet. (The error information of the second error or later will not displayed.)
- Make setting related to the Error Log sheet output format in the "Options" dialog box. Refer to Section 16.1.

20 DATA CONVERSION FUNCTION

This chapter describes the function to convert the Excel book created using MX Chart into the Excel book for MX Sheet.

20.1 Data Conversion Function

This section explains the data conversion functions, the relevant system configuration and utility.

(1) Function list

The following table lists the data conversion functions.

Function	Description
Conversion of MX Links data	This function converts automatically the communication settings made using the utilities of MX Links into the communication settings (logical station numbers) of MX Component.
Conversion of MX Chart data	This function converts automatically the set data of MX Chart into the cell settings of MX Sheet.

(2) System configuration

The following table indicates the system configuration that executes the data conversion function.

Function	Description
Personal computer	Personal computer where any of the following OSes operates and MX Links and MX Chart have been installed *1 Microsoft® Windows® 98 Operating System (English version) Microsoft® Windows NT® Workstation Operating System Version 4.0 (English version)
MX Links	SW3D5F-CSKP-E Version 10B or later
MX Chart	SW3D5F-OLEX-E Version 00A or later
Conversion source Excel book	Excel book created using Excel 97 (English version) or Excel 2000 (English version) *2

*1: The utilities of MX Links must have been set for communication.

*2: MX Chart must have been set to the Excel book for data conversion.

REMARK

The following OSes and conversion source Excel book do not support the data conversion function.

Item	Compatible Version
OS	Microsoft® Windows® 95 Operating System (English version)
	Microsoft® Windows® Millennium Edition Operating System (English version)
	Microsoft® Windows® 2000 Professional Operating System (English version)
	Microsoft® Windows® XP (English version)
	Microsoft® Windows Vista® (English version)
	Microsoft® Windows® 7 (English version)
Conversion source Excel book	Excel 95 (English version)

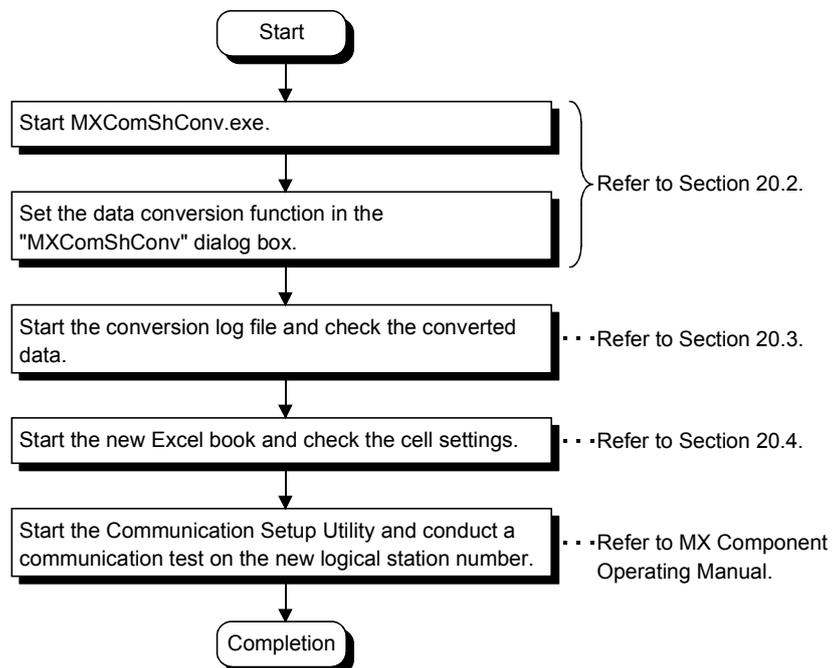
(3) Utility

Data conversion function uses MXComShConv.exe stored in the following folder.
 [User-specified folder *1] → [Sheet] → MXComShConv.exe

*1: This will be "Melsec" when the installation destination folder has not been changed at installation.

(4) Data conversion function procedure

The following indicates the data conversion function procedure.



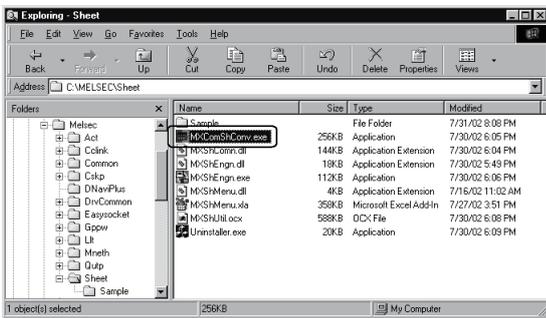
20.2 Operation Procedure of MXComShConv.exe

This section explains the operation procedure of MXComShConv.exe used for the data conversion function.

- 1) Install MX Component and MX Sheet into the personal computer where MX Links and MX Chart have been installed.
Set various settings of MX Links and MX Chart correctly.

- 2) Double-click MXComShConv.exe stored in the following folder.
[User-specified folder *1] → [Sheet] → MXComShConv.exe

*1: This will be "Melsec" when the installation destination folder has not been changed at installation.

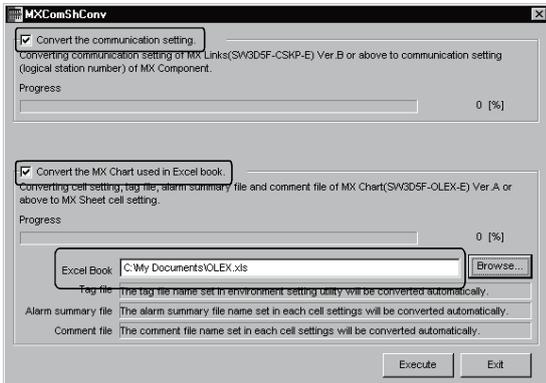


- 3) The "MXComShConv" dialog box appears. Set the following items and click on **Execute**.

"Convert the communication setting"
Mark the check box when converting the set data of MX Links.

"Convert the MX Chart used in Excel book"
Mark the check box when converting the set data of MX Chart.

"Excel book"
Enter the save place and file name of the Excel book to be converted.

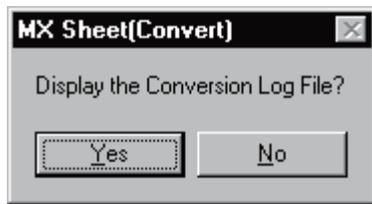


- 4) The left screen appears during conversion of the Excel book for MX Chart. Click on **OK**.



(To the next page)

(From the previous page)



(Complete)

- 5) After all data are converted, the left dialog box appears. Click on **Yes** to start the conversion log file. Check the logical station numbers registered to the conversion log file and the log messages such as the error information that occurred during conversion. The conversion log file is saved automatically as a txt file after the data conversion function is executed. Refer to Section 20.3 for the save destination and details of the conversion log file.

Data conversion is complete.

The new Excel book is saved under the following file name in the same folder as the conversion source Excel book.

Cnv_*****.xls
 ↑
 Conversion source Excel book name

After data conversion, start the new Excel book, and perform a check on the MX Sheet settings and a communication test on the logical station number.

Refer to Section 20.4 for the precautions on the new Excel book.

20.3 Conversion Log File

This section explains the save destination and display data of the conversion log file.

(1) Save destination of conversion log file

The conversion log file is saved in the following folder as a txt file.

[Temporary folder *1] → ConvLogMXLinksToMXCom.txt

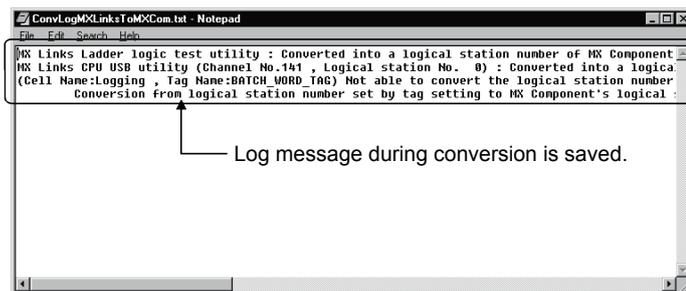
*1: The conversion log file is saved in the following folder when the temporary folder setting has not been changed.

When Windows® 98 is used : [Windows] → [Temp]

When Windows NT® Workstation 4.0 is used: [Temp]

(2) Display data of conversion log file

With the conversion log file, the new logical station numbers and the log messages such as the error information that occurred during conversion can be checked.



20.4 Precautions on Excel Book after Data Conversion Function Execution

After the data conversion function is executed, the settings in the Excel book have been converted for MX Sheet.

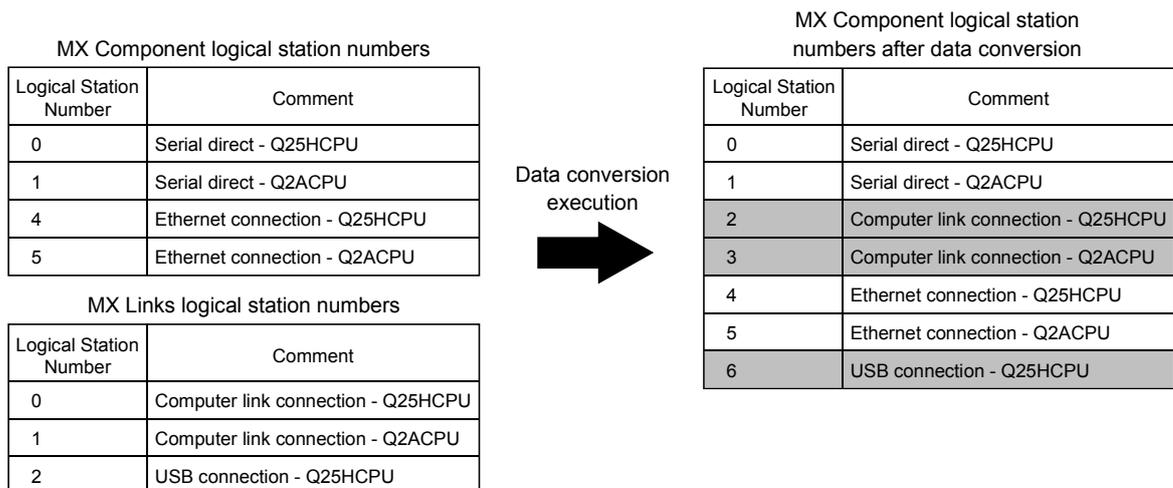
This section describes things to be cautioned. Be sure to start the Excel book and recheck the settings after executing the data conversion function.

This section describes the precautions in the following order.

- 1) Precautions logical station numbers
- 2) Precautions cell areas and sheet names
- 3) Precautions devices
- 4) Precautions alarm summary conversion
- 5) Precautions simple logging conversion
- 6) Precautions automatic save and automatic print conversion
- 7) Precautions tag setup conversion
- 8) Precautions on OLEX functions

Precautions on logical station numbers

- (1) When only the data of MX Chart have been converted by the data conversion function, the "Logical Station Numbers" in the <<Access Data>> tabs are all converted into "0" in the cell settings of MX Sheet.
- (2) When setting has been made using the direct station number system in "Network" of the Tag Setup Utility of MX Chart, the "Logical Station Numbers" in the <<Access Data>> tabs are all converted into "0" in the "Cell Setting" dialog box of MX Sheet.
- (3) When converting the MX Links communication settings for MX Component, data conversion function automatically searches the empty MX Component logical station numbers and assigns the numbers to the communication settings.



Precautions on cell areas and sheet names

- (1) When the cell area name has been set to "invalid" in the "Cell area name valid/invalid" dialog box of MX Chart, the "Set the Operation Interval" checkbox of the <<Operation Interval>> tab is unmarked in the "Cell Setting" dialog box of MX Sheet to make the cell area setting invalid.
- (2) If a non-existing Excel sheet has been set in the "Cell area name valid/invalid" dialog box of MX Chart, data conversion is continued ignoring the settings of the non-existing Excel sheet.

Precautions on devices

- (1) When the data types of the following devices have been set to other than "Bit" on MX Chart, the settings are not converted for MX Sheet.
 - TT (timer contact)
 - TC (timer coil)
 - CT (counter contact)
 - CC (counter coil)
 - STT (retentive timer contact)
 - STC (retentive timer coil)

Precautions on alarm summary conversion

- (1) When a handshake has been set in the cell area used for the alarm summary of MX Chart, the handshake settings are not converted. The alarm summary function of MX Sheet does not support a handshake.
- (2) If device settings overlap in the cell area for the alarm summary of MX Chart, the settings made second and later are not converted.

Precautions on simple logging conversion

- (1) If "Interrupt logging" has been set in "Display option when reach to the end of cell areas" of the "Logging setup/revision" dialog box of MX Chart, "Operating when cell is full" of the <<Use>> tab is changed to "Display from the beginning after clearing the cell area" in the "Cell Setting" dialog box of MX Sheet.
- (2) "Display option" in the "Logging setup/revision" dialog box of MX Chart is converted into the following display format on MX Sheet.

2002/05/22 Wed 18:31:06

↑ Indicates the time as "hour: minute: second".
 ↑ Indicates the day of the week as "Sun (Sunday),
 Mon (Monday), Tue (Tuesday), Wed (Wednesday),
 Thu (Thursday), Fri (Friday), Sat (Saturday)".
 ↑ Indicates the date as "year/month/day".

- (3) If multiple cells of different column widths have been set in "Cell Area" of the "Logging setup/revision" dialog box of MX Chart, the column widths of the cell area are converted into the same minimum column width in the cell area.

Precautions on automatic save and automatic print conversion

- (1) If "At refresh timing" has been set in "Save timing" of the "Automatic Save Setting" dialog box of MX Chart, "Save Automatically" check box is unmarked to make the automatic save settings invalid in the "Automatic Save" dialog box of MX Sheet.
- (2) If "At refresh timing" has been set in "Print timing" of the "Automatic Print Setting" dialog box of MX Chart, "Print Automatically" check box is unmarked to make the automatic print settings invalid in the "Automatic Print" dialog box of MX Sheet.

Precautions on tag setup conversion

- (1) If "Comm. Status" of the <<Communication settings>> tab has been set to "invalid" in the "Tag setup" utility of MX Chart, the "Set the Operation Interval" check box of the <<Operation Interval>> tab is unmarked to make the cell area settings invalid in the "Cell Setting" dialog box of MX Sheet.
- (2) If the collection conditions and handshake have been set in the "Extended" dialog box of MX Chart, they are converted into the settings of the <<Device Trigger>> tab and <<Handshake>> tab of the "Cell Setting" dialog box of MX Sheet. Also in the "Extended" dialog box of MX Chart, the logical station numbers in the collection conditions and handshake are not converted for MX Sheet.
- (3) If the ms unit setting has been made in "Comm. Period name" of the "Tag setup" utility of MX Chart, it is rounded up to the second unit and converted into MX Sheet.
However, when the following functions are used, 0.5s to 0.9s settings are not rounded up.
 - Monitor function
 - Write function
 - Alarm summary function
 - Comment display function

Precautions on OLEX functions

- (1) Be sure to delete the user program which uses OLEX functions after converting the Excel book which uses the OLEX functions.
OLEX function will not work on MX Sheet.

APPENDICES

APPENDIX 1 VERSION CONFIRMATION

This section explains how to confirm the MX Sheet version.

Confirm the MX Sheet version in the "Product information about MX Sheet" dialog box.

(1) Displaying "Product information about MX Sheet" dialog box

Choose [MX Sheet] → [Version Info.] from the menu bar.



APPENDIX 2 COMPARISON BETWEEN MX Sheet AND MX Chart

The following table indicates comparison between MX Sheet and MX Chart.

Item		MX Sheet	MX Chart
Logging function	Number of device points	256 points * ¹	256 points
	Number of logging lines	65536 lines	2000 lines
	Number of cell areas that can be set	100/1 Excel book	
	Communication interval	0.1s to 3600s, time designation	1s to 3600s, time designation
	Save, print when cell is full	Available	N/A
	Number of CSV logging save points	256 points	N/A
	Number of CSV logging save lines	9999999 lines	N/A
Monitor function	Number of device points	2000 points * ¹	1000 points
	Number of cell areas that can be set	1000/1 Excel book	
	Communication interval	0.1s to 3600s, time designation	0.5s to 3600s, time designation
	Number of CSV logging save points	1000 points	N/A
	Number of CSV logging save lines	9999999 lines	N/A
Write function	Number of device points	2000 points * ¹	1000 points
	Number of cell areas that can be set	1000/1 Excel book	
	Communication interval	0.1s to 3600s, time designation	0.5s to 3600s, time designation
Alarm summary function	Number of device points	2000 points	300 points
	Number of history lines	65536 lines	300 lines
	Number of cell areas that can be set	100/1 Excel book	
	Communication interval	0.1s to 3600s	0.5s to 3600s
Comment display function	Number of device points	1 points	
	Number of comments	1000 comments	
	Maximum number of registered points	500/1 Excel book	
	Communication interval	0.1s to 3600s, time designation	0.5s to 3600s, time designation
Automatic save/automatic print function	Time designation	Available	
	Device trigger designation	Available	N/A
	Automatic save format	Excel file, HTML file, CSV file	Excel file
1 shot communication	For logging function	Available	
	For monitor function	Available	
	For write function	Available	
	For alarm summary function	N/A	
	For comment function	Available	N/A
Macro	Read function	N/A	Available (OLEXRead function)
	Write function	N/A	Available (OLEXWrite function)

*1: This number of device points applies to the case word device data is collected/written in 16 bit integer.

APPENDIX 3 PROCESSING SPEED OF MX Sheet

This section explains the performance values and the scroll processing performance of Excel when the monitor and logging functions have been executed using the personal computer of the following performance.

The performance values indicate the numbers of device points where no collection delay will occur when only one cell area has been set to the Excel book and the device data of D device are collected by the monitor or logging function. (If multiple cell areas have been set, reduce the number of device points per cell to maintain the same performance.)

The actual performance values vary depending on the performance or similar of the personal computer.

Use the performance values given in this section as reference values.



OS : Windows® XP Professional
 CPU : Pentium III(800MHz)
 Memory : 256MB
 Excel : Excel 2002
 Cell area : Only one

<Setting example 1>

The setting example 1 indicates the case where only one access data is set.

	Device	Data Type	Value	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	D0	16bit integer	DEC		1			Word
2								
3								

<Setting example 2>

The setting example 2 indicates the case where two or more access data are set.

	Device	Data Type	Value	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	D0	16bit integer	DEC		1			Word
2	D500	16bit integer	DEC		1			Word
3								

(1) Performance values for computer link communication

The following table indicates the performance values when the monitor and logging functions are executed using computer link communication.

CPU type: A3ACPU

Connected module: AJ71UC24 (19200bps)

Function	Operation Interval	Number of Device Points	
		Setting example 1	Setting example 2
Monitor function	0.5s	120 points	30 points
	1s	260 points	70 points
	5s	1400 points *1	400 points
Logging function	1s	200 points	70 points
	5s	1024 points *1	400 points *1

*1: This number of device points applies to the case the data type is set to a character string.

(2) Performance values for Ethernet communication

The following table indicates the performance values when the monitor and logging functions are executed using Ethernet communication.

CPU type: Q25HCPU

Connected module: QJ71E71 (10Mbps)

Function	Operation Interval	Number of Device Points	
		Setting example 1	Setting example 2
Monitor function	0.5s	4000 points * ¹	800 points
	1s	12000 points * ¹	1792 points * ¹
	5s	20000 points * ¹	10000 points * ¹
Logging function	1s	5120 points * ¹	1792 points * ¹
	5s	5120 points * ¹	5120 points * ¹

*1: This number of device points applies to the case the data type is set to a character string.

(3) Scroll processing performance of Excel

The following table indicates the times required by Excel for scroll processing when the logging function is used.

The following times applies to the case only Excel has been started on the personal computer.

Scroll Range	Time Required for Scroll Processing
10 columns × 1000 rows	0.95s
10 columns × 2000 rows	1.1s
10 columns × 65536 rows	6.1s
256 columns × 1000 rows	4.5s
256 columns × 2000 rows	6.8s
256 columns × 65536 rows	20min and 30s

(4) File size at save and required time

The following table shows references for file size at save and time taken for saving a file depending on Excel version (Book format).

In Excel 2007 or later (especially in standard format), file size may increase or time taken for saving a file may lengthen.

Cell range \ Excel version	12 columns × 30 rows		128 columns × 32768 rows		255 columns × 65535 rows	
	Size (MB)	Time (second)	Size (MB)	Time (second)	Size (MB)	Time (second)
Excel 2000	0.112	Less than 1	9.4	1	35.1	5
Excel 2007 (standard format)	0.034	Less than 1	11.1	7	42.5	23
Excel 2007 (binary format)	0.022	Less than 1	0.45	3	14.3	11
Excel 2010 (standard format)	0.035	Less than 1	11.1	4	42.5	14
Excel 2010 (binary format)	0.022	Less than 1	0.46	2	14.3	8

Measurement condition: 1 type is set for cell settings (application: logging).

Measurement environment: Intel® Core™2 Duo E8400 3.0GHz, 1GB MM, Windows® XP Professional SP3

APPENDIX 4 PROCESSING MX Sheet

This section explains the processing of MX Sheet.

Appendix 4.1 Collection Delay and Data Dropout

On MX Sheet, collection delay, data dropout or similar problem may occur depending on the communication time with the PLC and the collection timing of device data. The following explains the collection delay and data dropout.

(1) Collection delay

Device data collection delay will occur depending on the communication time with the PLC and the corresponding processing time.

Collection delay occurs only when "Operation time" is set to "Regular interval".

When a collection delay occurs, it will be registered to the ErrorLog sheet as error information.

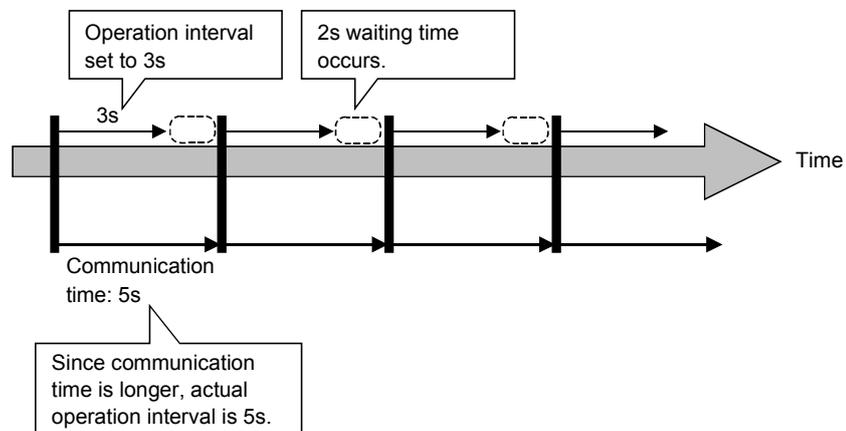
When a collection delay occurs, check the ErrorLog sheet.

The following explains the cases where a collection delay occurs.

(a) When the actual communication time is longer than the specified operation interval

When the communication time with the PLC is longer than the operation interval of MX Sheet, a device data collection delay occurs.

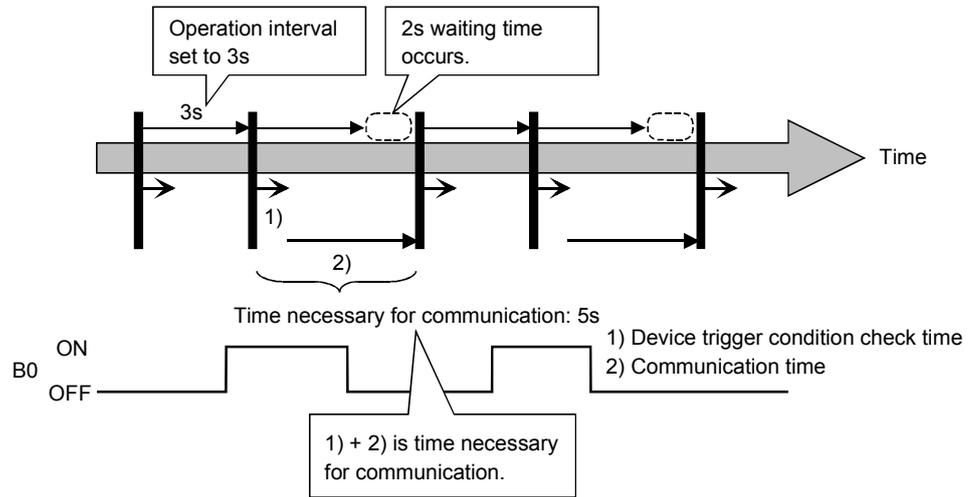
(Example) "Operation time" is set to "Regular interval (3s)" but the communication time with the PLC is 5s



(b) Collection delay when device trigger function is used

When the sum of the device trigger condition check time and the communication time with PLC is longer than the operation interval of MX Sheet, a collection delay occurs during the next device trigger condition check.

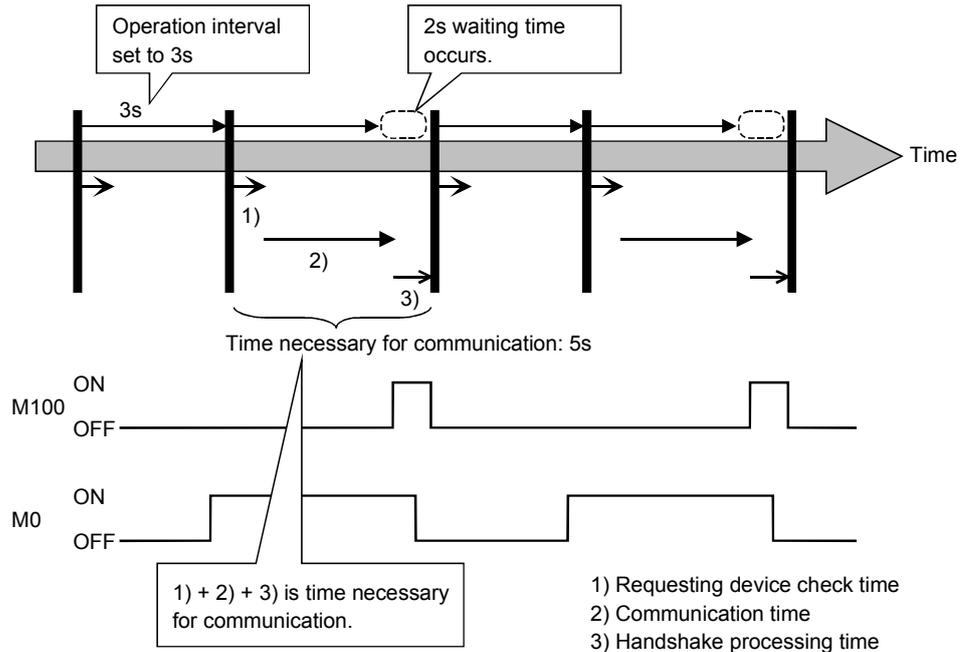
(Example) When "B0" = "When ON" has been set as the device trigger condition (operation interval is 3s)



(c) Collection delay when handshake function is used

When the sum of the requesting device check time, the communication time with PLC and the handshake processing time is longer than the operation interval of MX Sheet, a collection delay occurs during the next requesting device check.

(Example) When the PLC side requesting device has been set to "M0" and the PC side responding device to "M100" (operation interval is 3s)



(2) Data dropout

The data to be collected may dropout depending on the communication time with the PLC and the collection timing of device data.

The following explains the cases where a data dropout occurs.

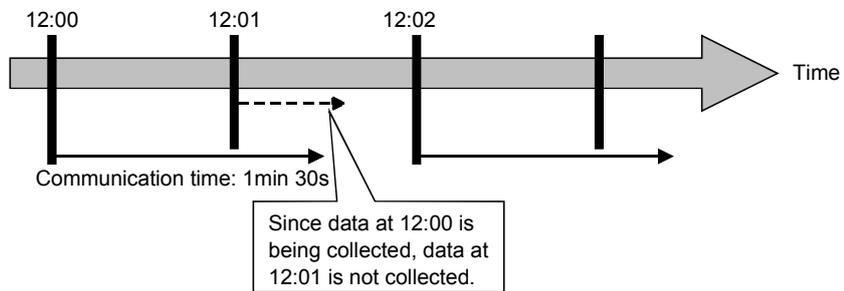
(a) When the actual communication time is longer than the specified operation interval

When the communication time with the PLC is longer than the operation interval, the data to be collected dropouts.

If a data dropout has occurred, increase the operation interval setting of MX Sheet.

(Example) When "Operation time" has been set to "Hourly (0min, 1min, 2min)" but the communication time with the PLC is longer than 1min

If previous data collection is still being executed when it has reached the operation time as shown below, a data dropout occurs on MX Sheet.



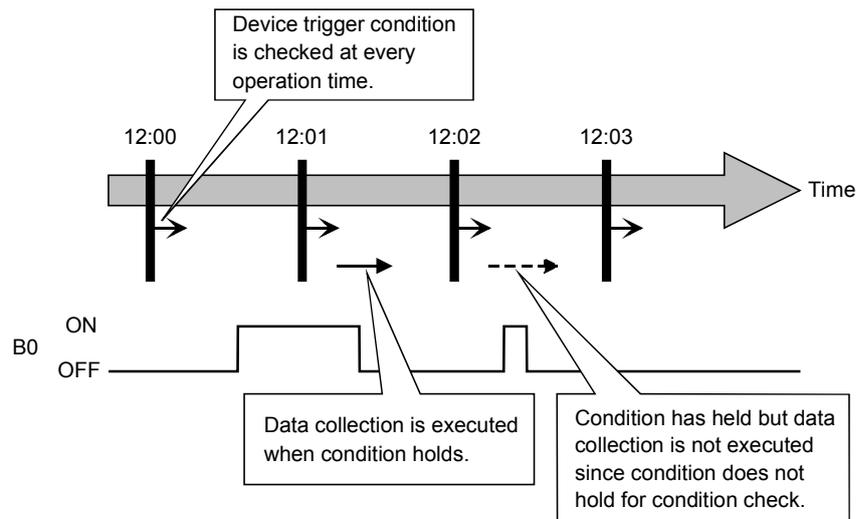
(b) Data dropout when device trigger function is used

When the device trigger condition holds for the specified operation time, the condition cannot be checked and the data to be collected dropouts.

If a data dropout occurs during use of the device trigger, decrease the operation interval setting of MX Sheet.

(Example) When "B0" = "When ON" has been set as the device trigger condition (operation interval is 60s)

If the device trigger condition holds for the specified operation time as shown below, a data dropout occurs on MX Sheet.



REMARK

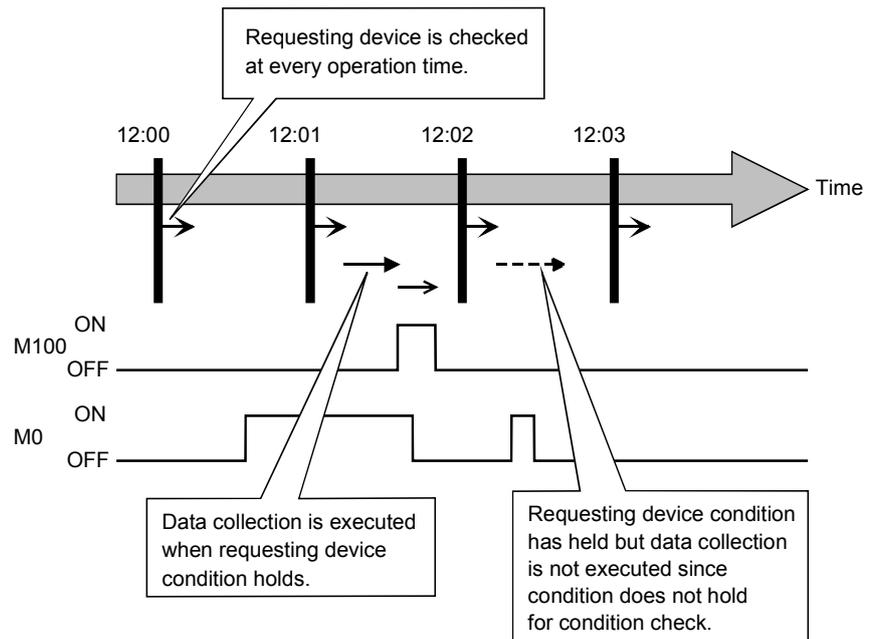
Note that if a data dropout occurs during use of the device trigger, error information is not registered to the ErrorLog sheet.

(c) Data dropout when handshake function is used

When the requesting device condition holds for the specified operation time, the data to be collected dropouts.

If a data dropout occurs during use of the handshake, decrease the operation interval setting of MX Sheet.

(Example) When the PLC side requesting device has been set to "M0" and the PC side responding device to "M100" (operation interval is 60s)
 If the requesting device condition holds for the operation time as shown below, a data dropout occurs on MX Sheet.



REMARK

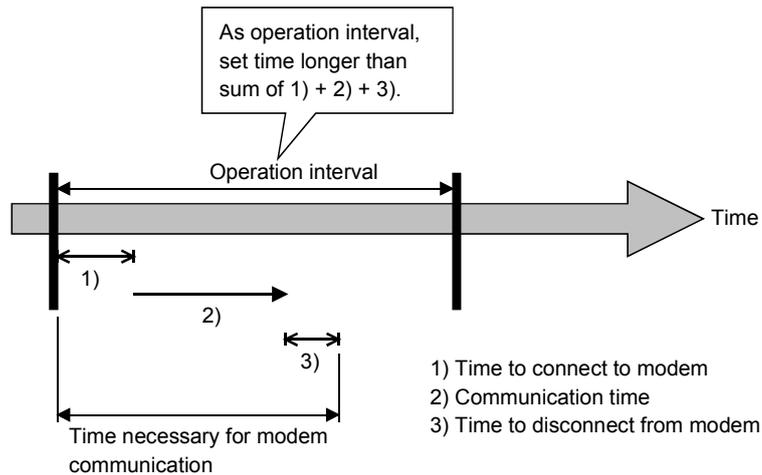
Note that if a data dropout occurs during use of the handshake, error information is not registered to the ErrorLog sheet.

(3) Data dropout when modem communication function is used

When modem communication function is used and "Telephone line connectivity time zone" is set for "Connect each time depending on the operation interval", a data dropout occurs due to use of a modem.

To collect PLC device data using modem communication function, set MX Sheet while considering the modem connection time.

If a data dropout occurs during modem communication, increase the operation interval setting of MX Sheet.



Appendix 4.2 Date and Time

When the logging function and CSV logging are used, the date and time in the cell area and the CSV file may not be displayed correctly.

The following describes an example of the incorrect display, the causes and corrective actions.

<Example (when "Regular interval" is set to 1s)>

Although communication is made at the specified interval, the date and time are not displayed correctly as shown below, since the time when data has been actually read exceeds the regular interval.

(Unlike with collection delay, the error information is not displayed in the ErrorLog sheet.)

2002/08/01 Thu 13:08:25	32	26
2002/08/01 Thu 13:08:26	33	27
2002/08/01 Thu 13:08:28	35	27
2002/08/01 Thu 13:08:29	36	28

Time of 13:08:27 is incorrectly displayed as 13:08:28.

<Causes>

- Multiple cell areas have been set to the Excel book.
- Multiple cell areas use the same communication path.
- "Operation time" of the <<Operation Interval>> tab has been set to "Regular interval".

<Corrective actions>

- Decrease the number of cells set to the Excel book.
- Increase the "Regular interval" setting.
- Reexamine the cell area settings. (Refer to APPENDIX 5.)

APPENDIX 5 CREATING THE Excel SHEET FOR MX Sheet

When collecting/writing device data by using MX Sheet, the efficiency of communication with the PLC varies depending on the cell area settings. The following provides the example of setting cell area for more effective communication.

(1) Communication efficiency and cell area specifying method

When multiple cell areas have been set, MX Sheet executes communication with the PLC in order of the cell areas.

When the same communication path has been set to multiple cell areas, communication efficiency decreases since all cell areas use one communication path to communicate with the PLC.

The following setting example indicates the case where the same communication path has been set to multiple cell areas.

<Setting example>

	A	B	C	D	E	F
1						
2		Model name	D0 to D3			
3		Lot No.	D5 to D8			
4						
5		Maximum value	D10	Maximum value	D13	
6		Minimum value	D11	Minimum value	D14	
7		Current value	D12	Current value	D15	
8						

(a) Inefficient setting

When the above setting example is divided into four cell areas as indicated in the following table, MX Sheet executes communication four times. This causes communication load to increase, decreasing communication efficiency.

Cell Area Name	Cell Area	Access Data Settings			Operation Interval
		Logical station number	Device setting	Number of cells	
Product type	C2	0: Ethernet	D0 Character string	1	1s interval
Lot No.	C3	0: Ethernet	D5 Character string	1	1s interval
A	C5: C7	0: Ethernet	D10 16 bit integer	3	1s interval
B	E5: E7	0: Ethernet	D20 16 bit integer	3	1s interval

(b) Efficient setting

When the above setting example is integrated into one cell area as indicated in the following table, the collection/write of device data is completed by making communication once. This enables communication load to decrease, improving communication efficiency.

Cell Area Name	Cell Area	Access Data Settings			Operation Interval
		Logical station number	Device setting	Number of cells	
Product information	C2, C3, C5: C7, E5: E7	0: Ethernet	D0 Character string	1	1s interval
			D5 Character string	1	
			D10 16 bit integer	3	
			D20 16 bit integer	3	

(2) Communication efficiency and access data setting

When one type of device is set as multiple devices, the efficiency of communication with the PLC decreases.

The following setting example indicates the case where one type of device is specified consecutively.

<Setting example>

	A	B	C	D
1				
2		Maximum value	D0	
3		Minimum value	D1	
4		Current value	D2	
5				

(a) Inefficient setting

If the above setting example is divided into three access data as indicated below, MX Sheet recognizes them as three types of devices and executes communication, decreasing communication efficiency.

	Device	Data Type	Value	No. of characters	Zoom	No. of cells	Dev. points	In unit	▲
1	D0	16bit integer	DEC		1	1	1	Word	
2	D1	16bit integer	DEC		1	1	1	Word	
3	D2	16bit integer	DEC		1	1	1	Word	

(b) Efficient setting

If the above setting example is integrated into one access data as indicated below, MX Sheet recognizes it as one type of device and executes communication, improving communication efficiency.

	Device	Data Type	Value	No. of characters	Zoom	No. of cells	Dev. points	In unit	▲
1	D0	16bit integer	DEC		1	3	3	Word	
2									
3									

REMARK

Any of the following settings prevents the improvement of communication efficiency even if efficient setting has been made.

- (1) When "Data Type" has been set to "Bit", the device number setting of "Device" is not a multiple of 16.
- (2) CN200 (current value of 32-bit counter device) or later of the FXCPU has been set.

(3) Communication efficiency and use of Excel function (cell reference)

When inconsecutive device data are displayed on Excel, the efficiency of communication with the PLC decreases if multiple cell areas are set.

The following setting example indicates the case where inconsecutive device data are displayed on Excel.

<Setting example>

	A	B	C	D	E	F
1						
2			Maximum value	Minimum value	Current value	
3		Line A	D0	D1	D2	
4		Line B	D5	D6	D7	
5		Line C	D10	D11	D12	
6		Line D	D15	D16	D17	
7						

(a) Inefficient setting

When the above setting example is divided into four cell areas as indicated in the following table, MX Sheet executes communication four times. This causes communication load to increase, decreasing communication efficiency.

Cell Area Name	Cell Area	Access Data Settings			Operation Interval
		Logical station number	Device setting	Number of cells	
Line A	C3: E3	0: Ethernet	D0 16 bit integer	3	1s interval
Line B	C4: E4	0: Ethernet	D5 16 bit integer	3	1s interval
Line C	C5: E5	0: Ethernet	D10 16 bit integer	3	1s interval
Line D	C6: E6	0: Ethernet	D15 16 bit integer	3	1s interval

(b) Efficient setting

When the above setting example is integrated into one cell area as indicated in the following table and device data are collected in the other Excel sheet (Sheet 2), this decreases communication load, improving communication efficiency.

Set cell reference so that Excel sheet 1, which actually displays the device data, will refer to the corresponding cells within Excel sheet2, which collects the device data.

(MX Sheet need not be set in the Excel sheet where device data will be displayed actually (Sheet 1).)

Cell Area Name	Cell Area	Access Data Settings			Operation Interval
		Logical station number	Device setting	Number of cells	
Line information	A2: E5 (Area set to Sheet 2)	0: Ethernet	D0 16 bit integer	20	1s interval

Sheet 1 (Excel sheet where device data will be displayed actually)

	A	B	C	D	E	F
1						
2			Maximum value	Minimum value	Current value	
3		Line A	=Sheet2!A2	=Sheet2!B2	=Sheet2!C2	
4		Line B	=Sheet2!A3	=Sheet2!B3	=Sheet2!C3	
5		Line C	=Sheet2!A4	=Sheet2!B4	=Sheet2!C4	
6		Line D	=Sheet2!A5	=Sheet2!B5	=Sheet2!C5	
7						

Sheet 2 (Excel sheet where device data will be collected)

	A	B	C	D	E	F
1	Line monitor					
2	D0	D1	D2	D3	D4	
3	D5	D6	D7	D8	D9	
4	D10	D11	D12	D13	D14	
5	D15	D16	D17	D18	D19	
6						

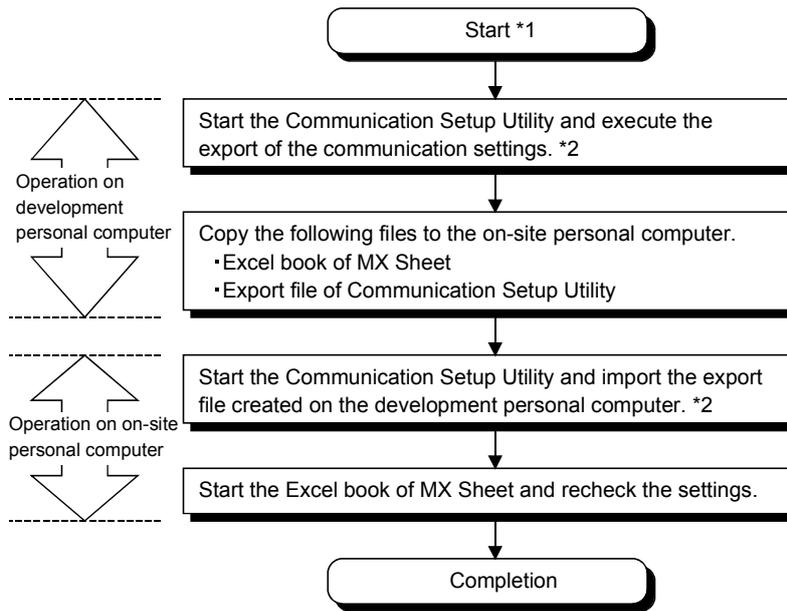


Set Sheet 1 to refer to cells of Sheet 2.

APPENDIX 6 PROCEDURE TO TRANSPORT DATA TO OTHER PERSONAL COMPUTER

This section explains the procedure to transport the settings of MX Sheet from a development personal computer to an on-site personal computer.

POINT
 MX Sheet and MX Component must have been installed in the personal computer where the settings of MX Sheet will be transported.



*1: The Excel book for MX Sheet should have been created on the development personal computer.

*2: For the import and export operations of communication settings, refer to the MX Component Operating Manual.

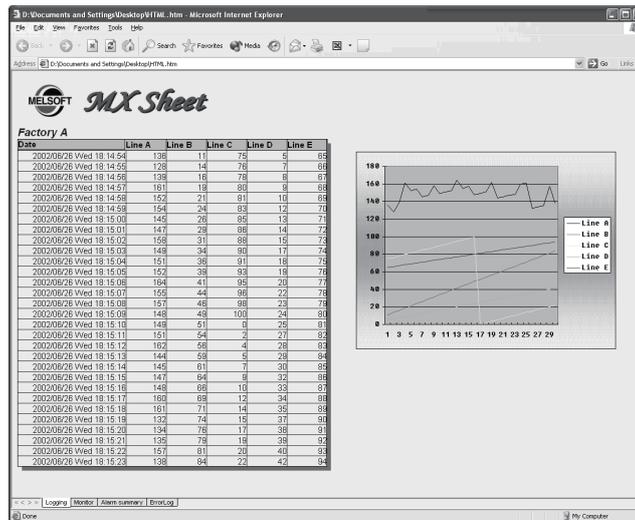
APPENDIX 7 HTML FILE

This section explains the HTML file saved during MX Sheet operation.

(1) HTML file

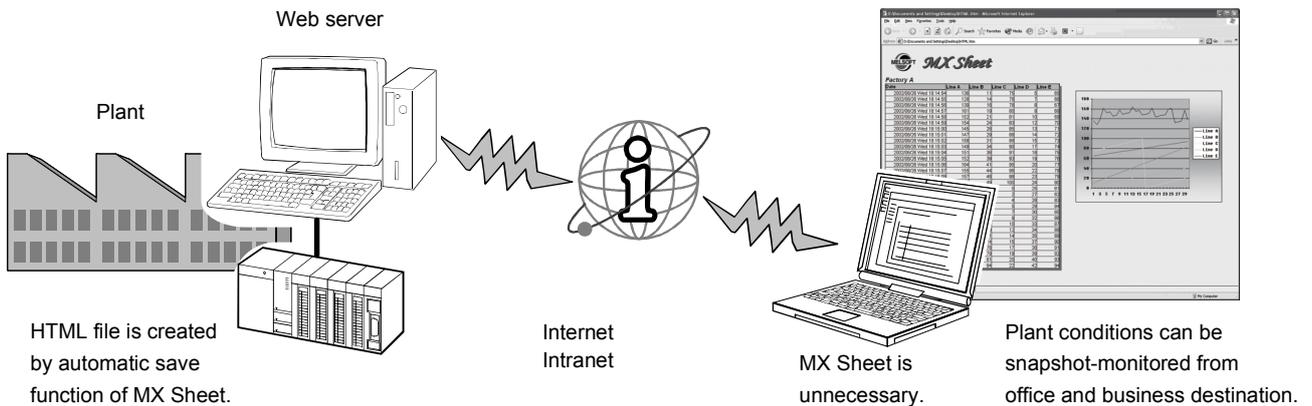
MX Sheet allows an HTML file to be saved automatically into the folder specified when any of the following functions is used.

- Logging function (when cell is full)
- Alarm summary function (when cell is full)
- Automatic save setting



(2) Convenient use of HTML file

The data collected by MX Sheet can be snapshot-monitored from a business destination, office or other place via the Internet/intranet, with the plant side personal computer (personal computer where MX Sheet is operating) used as a Web server.



(3) Continuous operation when saving data automatically in HTML format

Do not operate MX Sheet continuously when the Automatic save function is set to save data in HTML format.

For operating MX Sheet continuously, exit and reactivate Excel periodically.

If data are saved repeatedly in HTML format with the Automatic save function, Excel may not operate properly.

The time for allowable continuous operation differs according to the operating environment.

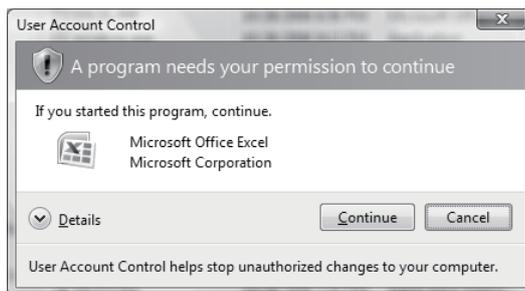
APPENDIX 8 Warning Message Appears on Windows Vista® and Windows® 7

Appendix 8.1 Overview of warning message

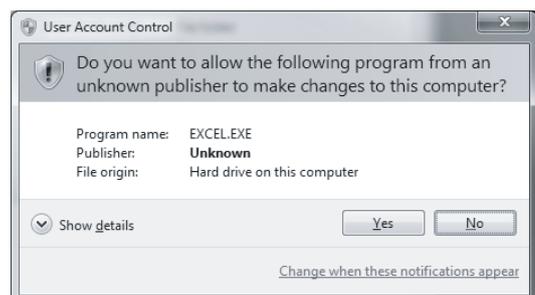
The user account control function has been added to Windows Vista® and Windows® 7.

By this function, a warning message appears when executing Excel with Administrator authority. (Refer to Chapter 4)

< Windows Vista® >



< Windows® 7>



Appendix 8.2 Methods for preventing the warning message

POINT

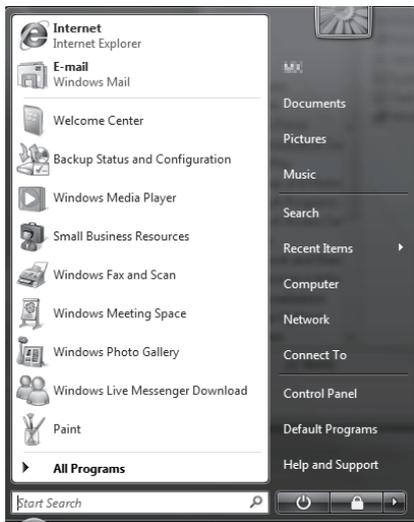
The user account control (UAC) function prevents a crash (e.g. prevention of start-up of a program which executes unintended operation).
 Before setting this function, grasp that the security function offered by UAC will be disabled and fully understand the risk.

The following two methods are available for preventing a warning message.

(1) Disabling the user account control function

The following shows a procedure for disabling the user account control function.

1) Select [Start] – [Control Panel].

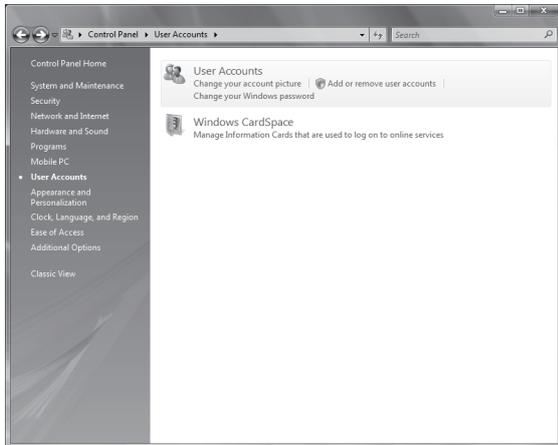


2) Select [User Accounts].

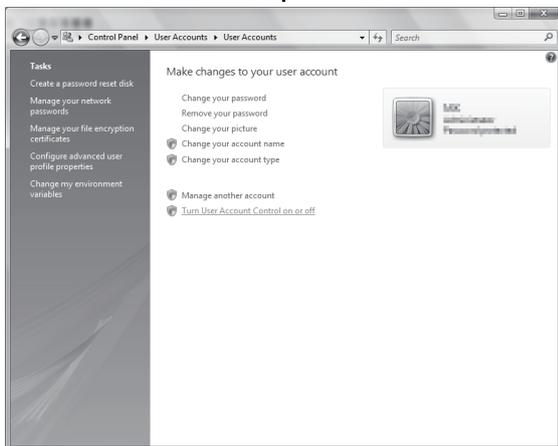


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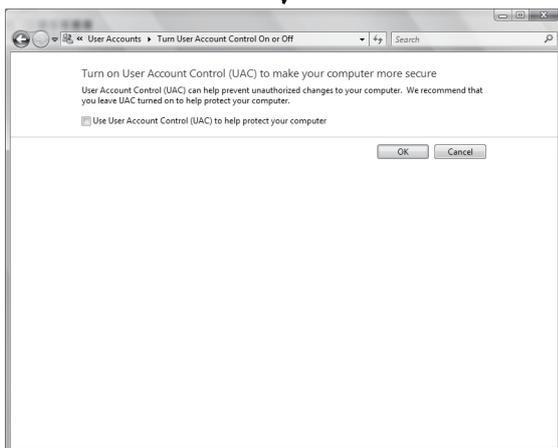
(From preceding page)



3) Select [User Accounts].



4) Select [Turn User Account Control on or off].



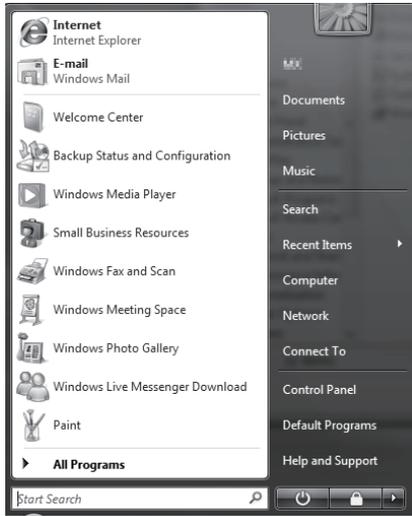
5) Deselect [Turn on User Account Control (UAC) to make your computer more secure].



(Setting completion)

- (2) Allowing the warning message without showing it
 The following shows a procedure for allowing a warning message without showing it.

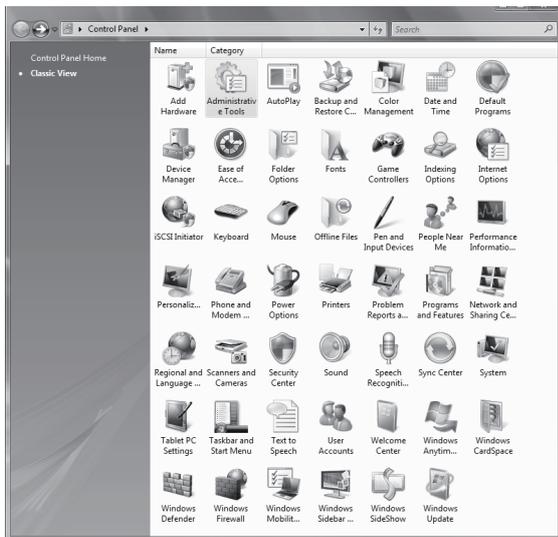
1) Select [Start] – [Control Panel].



2) Select [Classic View].

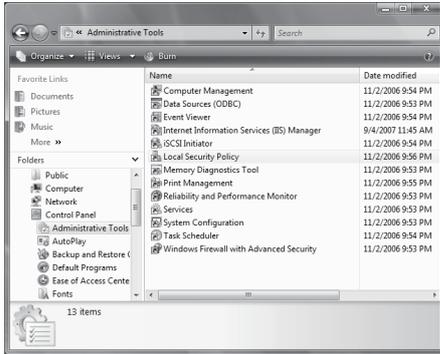


3) Select [Administrative Tools].



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(From preceding page)

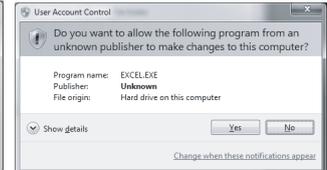
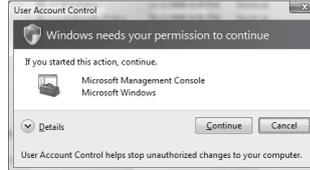


4) Select [Local Security Policy].

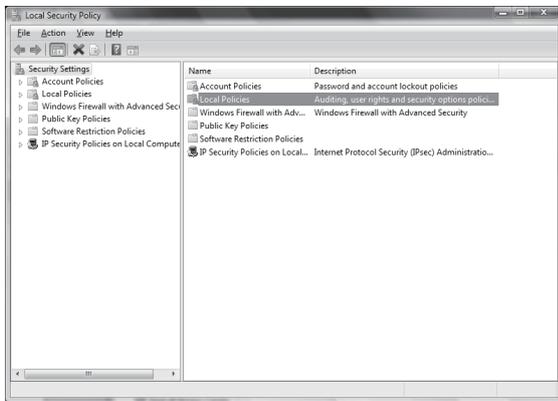
* When user account control is enabled, the following screen appears. Click [Continue] or [Yes].

< Windows Vista® >

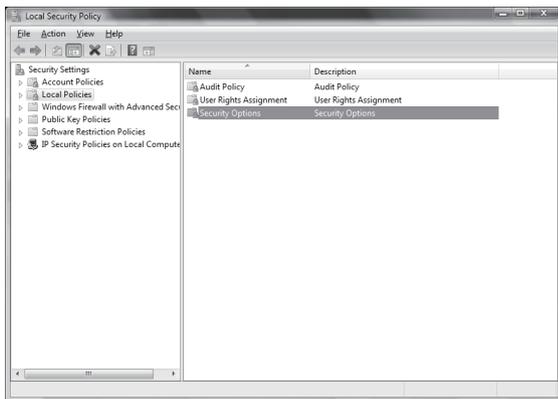
< Windows® 7>



5) Select [Local Policies].

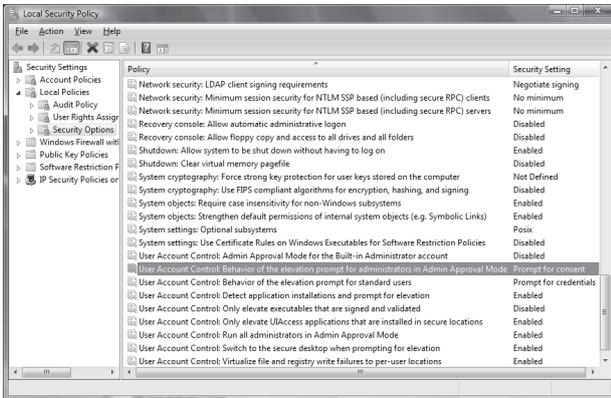


6) Select [Security Options].



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(From preceding page)



7) Select [User Account Control: Behavior of the elevation prompt for administrators in Admin Approval Mode Prompt for consent



8) Select [Elevate without prompting] on the <<Local Security Setting>> tab, and click **OK**.



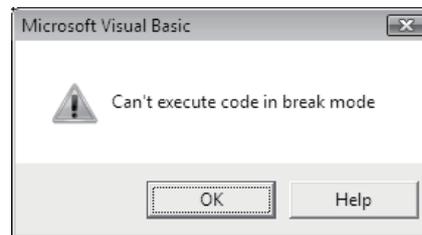
(Setting completion)

APPENDIX 9 ACTION FOR ERRORS OCCURRED WHEN EXCEL 2007 OR LATER FOR WHICH AUTOMATIC COMMUNICATION STARTUP HAS BEEN SET IS OPENED

When an Excel book for which automatic communication startup has been set is opened with Microsoft® Excel 2007 or later, the following situations may occur (refer to Chapter 9).

Appendix 9.1 Situations

- Excel does not respond.
- Either of the following errors occurs.



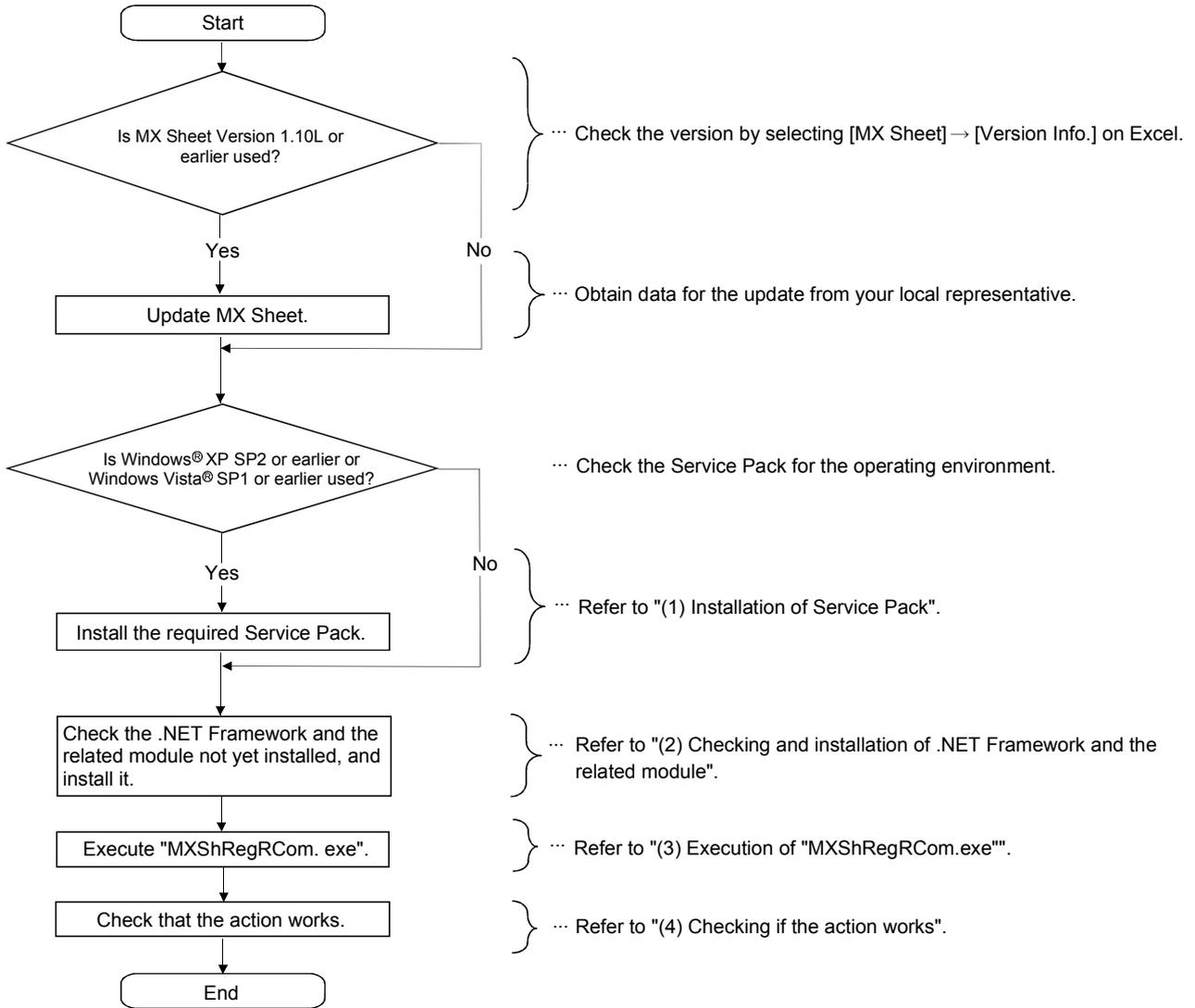
Appendix 9.2 Error Cause

The errors occur if the following three conditions are met:

- (1) MX Sheet Version 1.08J or later is used.
- (2) An Excel book for which MX Sheet automatic communication startup has been set is opened.
- (3) An Excel book is opened with Microsoft® Excel 2007 or later.

Appendix 9.3 Corrective Action

Take an action in the following flow.



POINT
 Update MX Sheet or install Service Pack, .NET Framework, and the related module using the administrator account.

(1) Installation of Service Pack

Install the Service Pack required for the used OS.

Used OS	Service Pack	URL (as of March 4, 2011)
Windows® XP	Windows® XP Service Pack 3	http://windows.microsoft.com/en-us/windows/help/learn-how-to-install-windows-xp-service-pack-3-sp3
Windows Vista®	Windows Vista® Service Pack 2	http://windows.microsoft.com/en-US/windows-vista/Learn-how-to-install-Windows-Vista-Service-Pack-2-SP2

(2) Checking and installation of .NET Framework and the related module

The following tables list .NET Frameworks and the related modules required for each operating environment.

If they are not installed, install them in the order listed in (a), (b), or (c).

The installers of .NET Frameworks and the related modules are stored on the CD-ROM provided with MX Sheet Version 1.11M or later. If the CD-ROM is not obtained, visit the website shown in (a), (b), or (c).

(a) Excel 2007 is used on Windows® XP

Order	.NET Framework and the related module	File name on the CD-ROM*1	URL *2 (as of March 4, 2011)
1	Microsoft® .NET Framework 3.5 SP1	dotnetfx35.exe	http://www.microsoft.com/downloads/en/details.aspx?displaylang=en&FamilyID=ab99342f-5d1a-413d-8319-81da479ab0d7
2	Microsoft® .NET Framework 4.0 Extended	dotNetFx40_Full_x86_x64.exe	http://www.microsoft.com/downloads/en/details.aspx?displaylang=en&FamilyID=0a391abd-25c1-4fc0-919f-b21f31ab88b7
3	Microsoft® Visual Studio 2010 Tools for Office Runtime (x86)	vstor40_x86.exe	http://www.microsoft.com/downloads/en/details.aspx?FamilyID=06C32242-2289-4471-93AA-CE96AA5CBC36

*1: The file is in the "DOTNET" folder.

*2: If the website cannot be accessed, refer to (d).

(b) Excel 2010 is used on Windows® XP, or Excel 2007 or later is used on Windows Vista® or 32-bit Windows® 7

Order	.NET Framework and the related module	File name on the CD-ROM*1	URL*2 (as of March 4, 2011)
1	Microsoft® .NET Framework 4.0 Extended	dotNetFx40_Full_x86_x64.exe	http://www.microsoft.com/downloads/en/details.aspx?displaylang=en&FamilyID=0a391abd-25c1-4fc0-919f-b21f31ab88b7
2	Microsoft® Visual Studio 2010 Tools for Office Runtime (x86)	vstor40_x86.exe	http://www.microsoft.com/downloads/en/details.aspx?FamilyID=06C32242-2289-4471-93AA-CE96AA5CBC36

*1: The file is in the "DOTNET" folder.

*2: If the website cannot be accessed, refer to (d).

(c) Excel 2007 or later is used on 64-bit Windows® 7

Order	.NET Framework and the related module	File name on the CD-ROM*1	URL*2 (as of March 4, 2011)
1	Microsoft® .NET Framework 4.0 Extended	dotNetFx40_Full_x86_x64.exe	http://www.microsoft.com/downloads/en/details.aspx?displaylang=en&FamilyID=0a391abd-25c1-4fc0-919f-b21f31ab88b7
2	Microsoft® Visual Studio 2010 Tools for Office Runtime (x64)	vstor40_x64.exe	http://www.microsoft.com/downloads/en/details.aspx?FamilyID=06C32242-2289-4471-93AA-CE96AA5CBC36

*1: The file is in the "DOTNET" folder.

*2: If the website cannot be accessed, refer to (d).

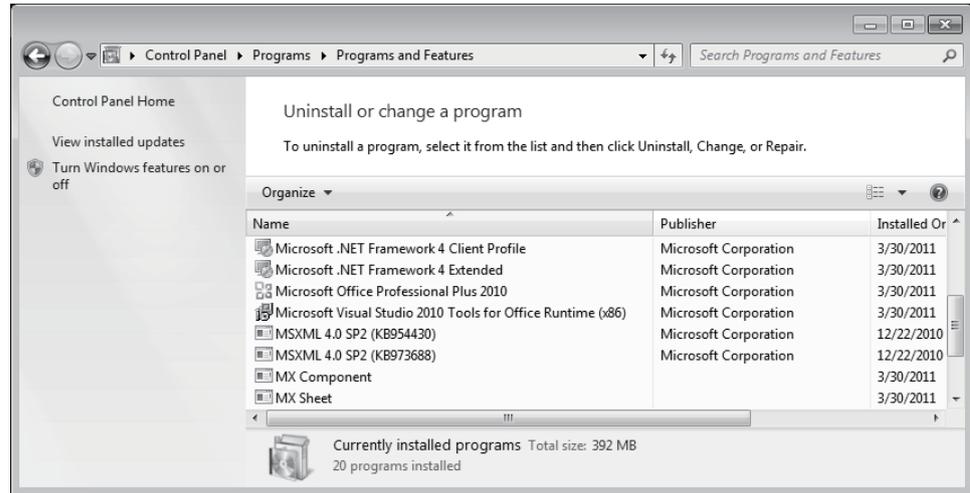
(d) If a website shown in (a), (b), or (c) cannot be accessed

URL (as of March 4, 2011)	Operation
http://msdn.microsoft.com/en-us/netframework/	The module related to Microsoft® .NET Framework can be obtained. Read the explanation on the displayed page.
http://www.microsoft.com/downloads/en/default.aspx	The module related to Microsoft® Visual Studio 2010 Tools for Office Runtime can be obtained. Search for "Visual Studio 2010 Tools for Office Runtime" on the displayed page.

POINT

Check if the required .NET Framework and the related module are installed or not by the following operations.

- When using Windows® XP
Select [Start] → [Control Panel] → [Add or Remove Programs].
- When using Windows Vista® or Windows® 7
Select [Start] → [Control Panel] → [Uninstall a program].



Check if the "Add or Remove Programs" screen or the "Uninstall or a change a program" screen displays the required .NET Framework and the related module.

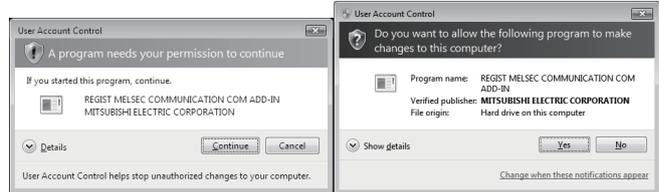
(3) Execution of "MXShRegRCom.exe"

After installing .NET Framework and the related module, execute "MXShRegRCom.exe" in the folder where MX Sheet has been installed ("C:\MELSEC\Sheet") when the installation location folder was not changed at installation).

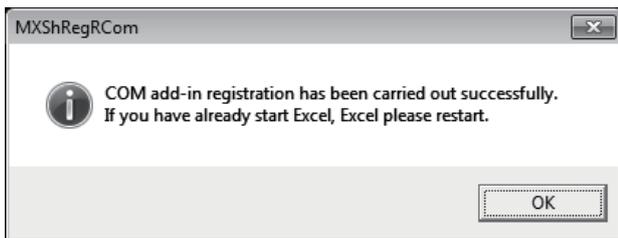
- * When the user account control is enabled, the following screen appears.
Click **Continue** or **Yes**.

<Windows Vista® >

<Windows® 7>



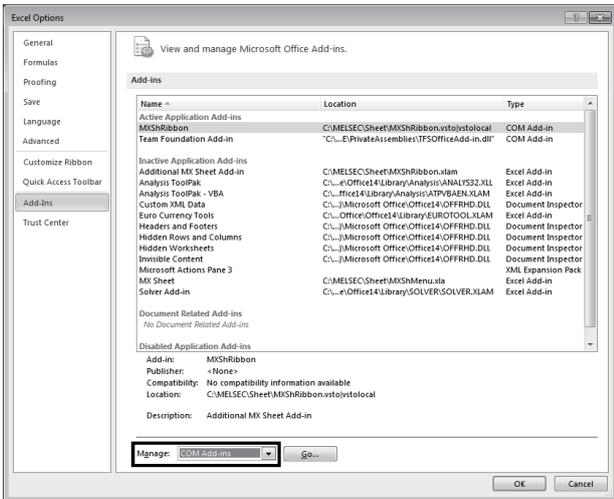
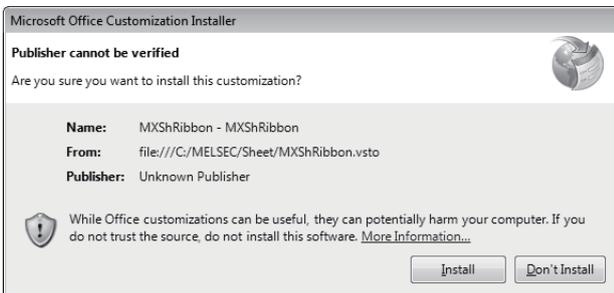
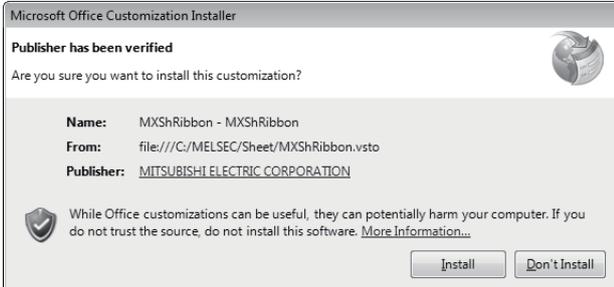
The message shown in the figure to the left appears to notify the completion. Click **OK**.



(4) Checking if the action works

The following explains how to check if the action works or not.

- 1) Start Excel.
- 2) When either of the screens to the left is displayed, click **Install**.



- 3) < Office 2007 >
Select [Office button] → [Excel Options].
- < Office 2010 >
Select <<File>> tab → [Options].

The "Excel Options" screen appears. Select [Add-Ins], change the item in "Manage" to [COM Add-ins], and click **Go...**.



- 4) In the "COM Add-Ins" dialog box, check that "MXShRibbon" is displayed, and its check box is selected.



Checked

APPENDIX 10 ADDED/EXTENDED FUNCTIONS

The following shows the functions added/extended to the MX Sheet due to upgrade.

Compatible Versions	Added/extended Functions	Description	Reference Section
Version 1.03D	(Operating Environment)	Under the following operating systems, MX Sheet can be operated regardless of administrator authority. <ul style="list-style-type: none"> • Microsoft® Windows NT® Workstation Operating System Version 4.0 • Microsoft® Windows® 2000 Professional Operating System • Microsoft® Windows® XP Professional Operating System • Microsoft® Windows® XP Home Edition Operating System 	Section 2.1
	(Excel)	Microsoft® Excel 2003 (English version)	Section 2.1
	Cell Settings <<Use>> tab settings	Enabled to clear a desired cell range at the start of communication.	Chapter 6
	Cell Settings <<Access Data>> tab settings	Enabled to express the numeric in hexadecimal.	Chapter 6
	Cell Settings <<Operation Interval>> tab settings	Enabled to set data collection at 0.1-second interval.	Chapter 6
	Error log	The following options can be set on the <<Error log>> tab. <ul style="list-style-type: none"> • Clears error log at the start of communication. • Selects the display format of error log. • Automatically displays the error log sheet when an error occurs. 	Section 16.1
	Logging	• Enabled to automatically create a title in the display area of Logging/Alarm Summary.	Section 6.2
	Alarm Summary	• Enabled to set CSV file format to save Excel book when the cell is full.	Section 6.5
	Alarm Summary	Enabled to display the number of occurrences and elapsed time.	Section 6.5
	Automatic save	• Enabled to clear a desired cell range after performing Automatic save/Automatic print.	Chapter 7
	Automatic print	• Enabled to make multiple setting of Automatic Save/Automatic Print condition. <ul style="list-style-type: none"> • Enabled to save a file as a CSV file using Automatic Save dialog box. 	Chapter 8
	Communication Start Communication End Shot Communication	Enabled to create the buttons for operation and paste them in Excel sheet for operation.	Chapter 10 Chapter 11 Chapter 14
	Protect MX Sheet setting	Enabled to protect the setting by means of password.	Chapter 15

(To the next page)

Compatible Versions	Added/extended Functions	Description	Reference Section
Version 1.06G	Cell Settings <<Access Data>> tab settings	<ul style="list-style-type: none"> Enabled to extend the settable number of points in a cell range. Monitor: 1000 points → 2000 points*¹ Write: 1000 points → 2000 points*¹ Alarm Summary: 300 points → 2000 points Enabled to set the device up as word device with bit specification by device specification in the access data 	Chapter 6
	Cell Settings <<Operation Interval>> tab settings	Enabled to set the operation interval at 1-minute and n-second interval.	Chapter 6
Version 1.08J	(Operating Environment)	Windows Vista® (English version)	Section 2.1
	(Excel)	Microsoft® Excel 2007 (English version)	Section 2.1
Version 1.09K	Cell Settings	Enabled to specify GOT timer contact devices (TT) and counter contact devices (CT).	Section 3.2 Chapter 6
Version 1.10L	(Operating Environment)	32-bit Windows® 7 (English version)	Section 2.1
Version 1.11M	(Operating Environment)	64-bit Windows® 7 (English version)	Section 2.1
	(Excel)	32-bit Microsoft® Excel 2010 (English version)	Section 2.1

*1: This number of device points is applied to the case the word device is set as 16 bit integer.
The settable device points depend on the device data type, etc.

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MX Sheet Version 1

Operating Manual

MODEL	MELS1-SHEET-O-E
MODEL CODE	13JU35
SH(NA)-080348E-K(1105)MEE	

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