MITSUBISHI ELECTRIC

Changes for the Better

MELSEC-AnS/QnAS (Small Type) Series Transition Guide

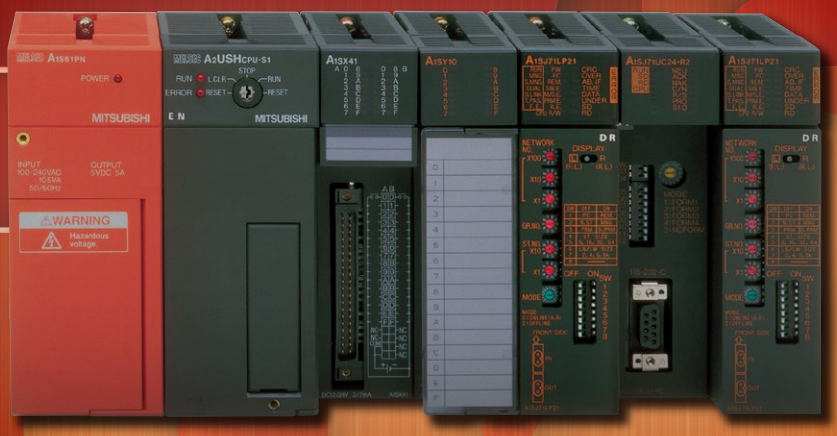
e-F@ctory

From MELSEC-AnS/QnAS (Small Type) Series to MELSEC-L/Q Series

AnS→L　　AnS→Q

Comprehensive, risk-free upgrade solutions

The production of the MELSEC-AnS/QnAS (Small Type) Series was discontinued in September 2014.



AnS→L/Q

From MELSEC-AnS/QnAS Series

➡ MELSEC-L/Q Series

Supporting AnS/QnAS Series Upgrades

Mitsubishi Electric offers a carefully engineered combination of hardware, software, and support designed to allow you to upgrade legacy MELSEC-AnS/QnAS Series controller systems to the current MELSEC-L/Q Series with minimum disruption to your plant operations.

Upgrade Option

At-a-glance technical overview

Technical Bulletin

Production discontinuation of MELSEC-AnS/QnAS (small type) series and MELSEC-I/OLINK
FA-A-0142

Production discontinuation of MELSECNET(II) and /B data link systems
T99-0049

Production discontinuation of MELSECNET/MINI-S3 and A2C series
T99-0070

Production discontinuation of MELSECNET/10 network module
FA-A-0260

Production discontinuation of the CC-Link Modules for the MELSEC-AnS/QnAS Series
FA-A-0364

In-depth technical documentation resource

Transition Handbook

Transition from MELSEC-AnS/QnAS (Small Type) Series to L Series Handbook

- **Fundamentals** L(NA)08258ENG
- **Intelligent function modules** L(NA)08259ENG
- **Network modules** L(NA)08260ENG
- **Communications** L(NA)08261ENG

Transition from MELSEC-AnS/QnAS (Small Type) Series to Q Series Handbook

- **Fundamentals** L(NA)08219ENG
- **Intelligent function modules** L(NA)08220ENG

Transition from MELSEC-A/QnA (Large Type), AnS/QnAS (Small type) Series to Q Series Handbook

- **Network modules** L(NA)08048ENG
- **Communications** L(NA)08050ENG

Transition from MELSECNET/MINI-S3, A2C (I/O) to CC-Link Handbook
L(NA)08061ENG

Transition from MELSEC-I/OLINK to AnyWire DB A20 Handbook*1
L(NA)08263ENG

MELSEC-A/QnA (Large), AnS/QnAS (Small) Transition Examples
L(NA)08121ENG

Transition from MELSEC-AnS/QnAS (Small Type) Series to MELSEC iQ-R Series Handbook
L(NA)08668ENG

*1: AnyWire products are not available in some countries. Please consult your local Mitsubishi Electric Corporation representative for details.

- For the products shown in transition handbook, catalogs, and transition examples, please refer to the manuals for the relevant products and check the detailed specifications, precautions for use, and restrictions before replacement.
  For the products manufactured by Mitsubishi Electric Engineering Co., Ltd., Mitsubishi Electric System & Service Co., Ltd., and other companies, please refer to the catalog for each product and check the detailed specifications, precautions for use, and restrictions before use.
  The manuals and catalogs for our products, products manufactured by Mitsubishi Electric Engineering Co., Ltd., and Mitsubishi Electric System & Service Co., Ltd., are shown in Appendix of each transition handbook.
- Products shown in these handbooks are subject to change without notice.

[Term] This catalog uses the following terms unless otherwise noted.
- AnS/QnAS Series: Abbreviation for small types of MELSEC-A Series and MELSEC-QnA Series programmable controllers
- A/QnA Series: Abbreviation for large types of MELSEC-A Series and MELSEC-QnA Series programmable controllers
- L Series: Abbreviation for MELSEC-L Series Programmable controllers
- Q Series: Abbreviation for MELSEC-Q Series Programmable controllers

A/QnA → Q Conversion Support Tool*1

Minimize program conversion efforts by A/QnA → Q Conversion Support Tool

■Complete conversion from AnS/QnAS program to L/Q program is supported by this tool.
It easily helps to find and correct non-completed conversion parts.

Change to L/Q beforehand

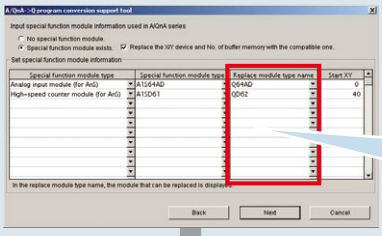
Convert AnS/QnAS programs to L/Q programs
with the GX Developer's PLC Type Change function.

AnS/QnAS program → PLC Type Change **GX Developer*2** → L/Q program

Original project

Converted project
(after PLC type change)

Enter the configuration information on the existing AnS/QnAS special function modules.



Point 1

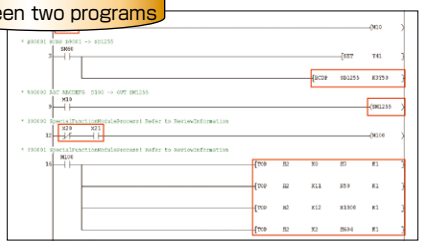
●By specifying module names, the X/Y devices and buffer memory addresses are converted (when the programs are compatible)

A/QnA → Q Conversion Support Tool

Output

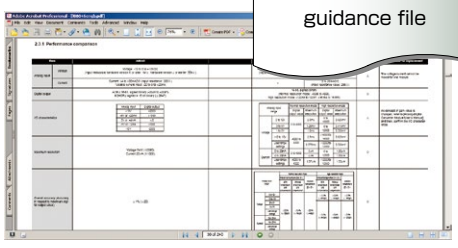
Differences between the two programs and guidance on how to complete the conversion are displayed.

Differences between two programs



<See 1 on page 7.>

HTML conversion guidance file



<See 2 on page 8-9.>

Point 2

●No need to manually compare the existing program with the converted program.

Point 3

●A list of unconverted instructions and devices is displayed.
●Information on recommended products for unconvertible special function modules is displayed.

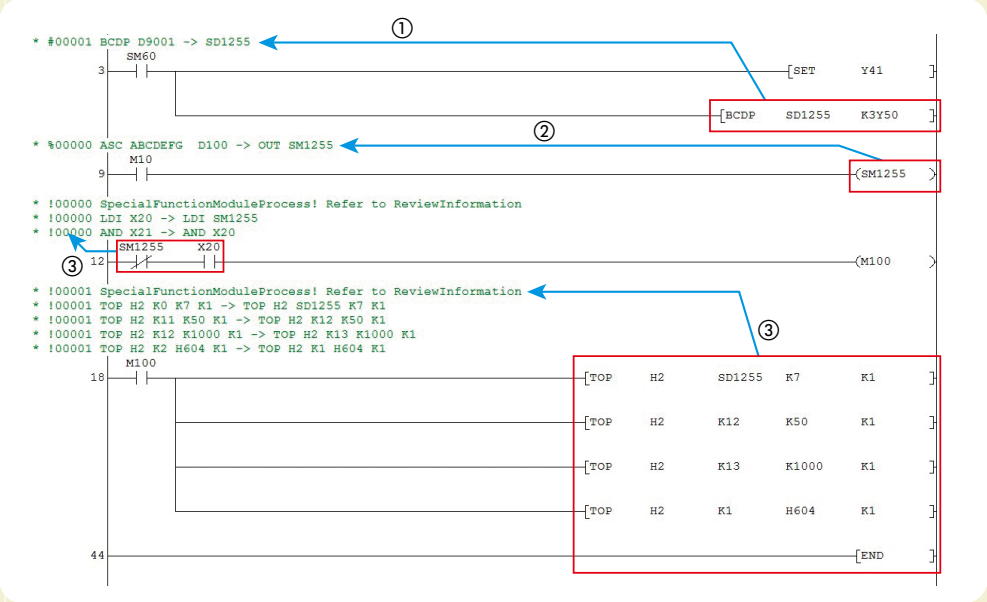
*1: This support tool applies to ladder programs only.
A/QnA → Q Conversion Support Tool Version1.06 or later is required for replacement of CPU with Universal model QCPU.
To replace the CPU with the LCPU, use the A/QnA → Q conversion support tool of Version 1.11 or later.

*2: GX Developer does not support the PLC type change to High-speed Universal model QCPU and to the LCPU (except L02CPU and L26CPU-BT).
Please change the PLC type by the following application and method.
①GX Developer: Convert PLC type to Universal model QCPU then save the project data.
②A/QnA → Q Conversion Support Tool: Output "Differences between two programs" and "HTML conversion guidance file".
③GX Developer: Correct "Differences between two programs" referring to "HTML conversion guidance file".
④GX Works2: Open "Differences between two programs"(Project - Open Other data - Open Other project)
and change the PLC type to High-speed Universal model QCPU.

Note : For the acquisition of A/QnA → Q Conversion Support Tool, please contact your local Mitsubishi Electric sales office or sales representative.

1 Q programs with differences highlighted

■The differences between two programs can be modified directly.
This prevents mistakes and improves the conversion efficiency.



<Differences highlighted>

①Statement of unconverted devices——#

The original device and the converted device are displayed as shown below. The devices contained in the circuit block are displayed one line at a time.

[Example] #00001 BCDP D9001 → SD1255 (#00001 is a search keyword from the guidance file.)

②Statement of unconverted instructions——%

The original instruction and the converted instruction are displayed as shown below. The instructions contained in the circuit block are displayed one line at a time.

[Example] %00000 ASC ABCDEFG D100 → OUT SM1255
(%00000 is a search keyword from the guidance file.)

③Statement of special function module processes——!

For the special function module instructions (FROM, DFRO, TO, DTO and instructions using X/Y devices), a message requesting a review is displayed. For the X/Y devices and buffer memory addresses, their original and modified statuses are displayed.

[Example] !00001 SpecialFunctionModuleProcess! Refer to ReviewInformation
(!00001 is a search keyword from the guidance file.)

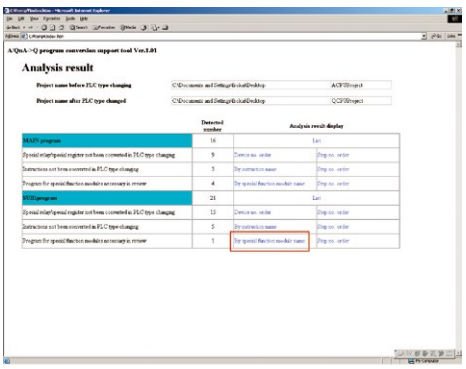
A/QnA → Q Conversion Support Tool

2 HTML conversion guidance file

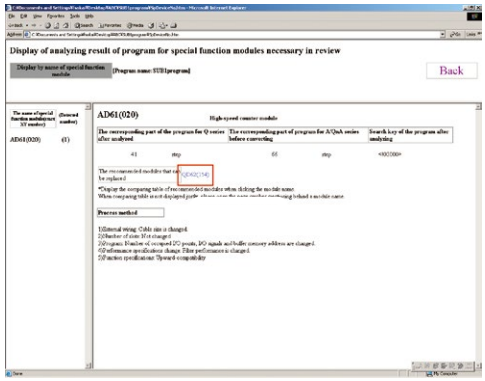
■Easy comparison of performance specifications before and after a replacement.

Detailed information is displayed hierarchically in your Internet Explorer®. Information on the differences between the two programs and the conversion guidance file can be linked together.

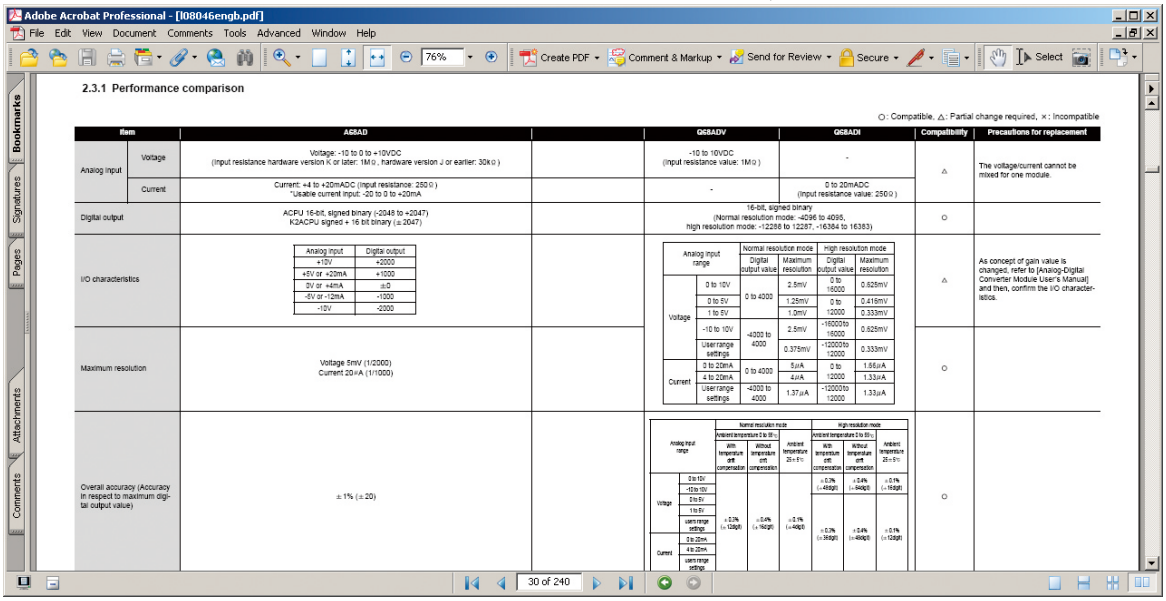
[Example] Special function module processes which need to be reviewed



Click “By special function module name” in the “Programs for special function modules necessary in review” row.



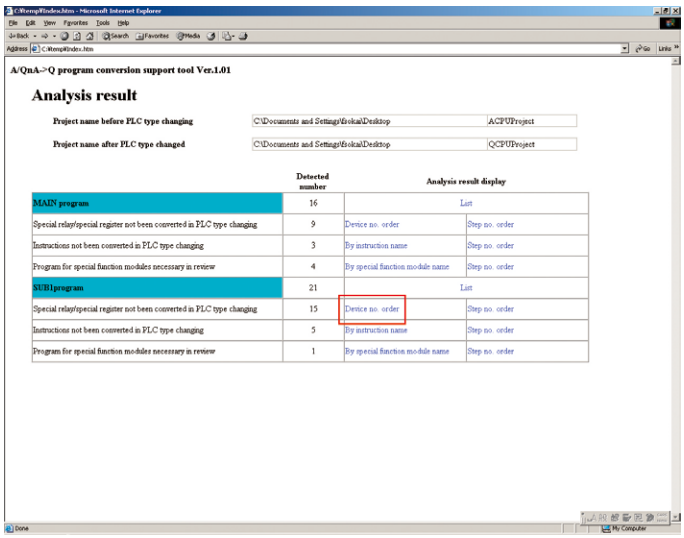
Click the recommended module name next to “The recommended modules that can be replaced.”



The module performance comparison can be confirmed.

■Details of unconverted special relays and registers can be displayed, improving conversion efficiency.

[Example] Special relays and registers which are not converted to the Q program



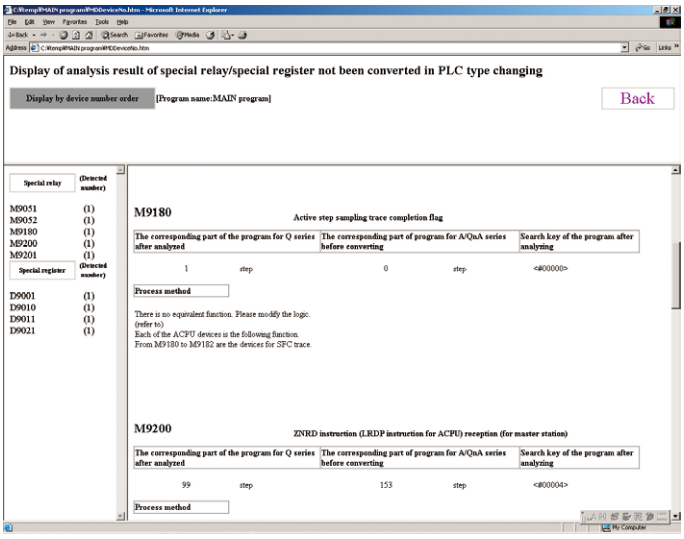
A/QnA->Q program conversion support tool Ver.1.01

Analysis result

Project name before PLC type changing	C:\Documents and Settings\Hokai\Desktop\ACPUProject
Project name after PLC type changed	C:\Documents and Settings\Hokai\Desktop\QCPUProject

	Detected number	Analysis result display	
MAIN program	16	List	
Special relay/special register not been converted in PLC type changing	9	Device no. order	Step no. order
Instructions not been converted in PLC type changing	3	By instruction name	Step no. order
Program for special function modules necessary in review	4	By special function module name	Step no. order
SUB1program	21	List	
Special relay/special register not been converted in PLC type changing	15	Device no. order	Step no. order
Instructions not been converted in PLC type changing	5	By instruction name	Step no. order
Program for special function modules necessary in review	1	By special function module name	Step no. order

Click “Device no. order” in the “Special relay/special register not been converted in PLC type changing” row.



Display of analysis result of special relay/special register not been converted in PLC type changing

Display by device number order [Program name:MAIN program] Back

Special relay	(Detected number)
M9051	(1)
M9052	(1)
M9180	(1)
M9200	(1)
M9201	(1)
Special register	**(Detected number)**
D9001	(1)
D9010	(1)
D9011	(1)
D9021	(1)

M9180 Active step sampling trace completion flag

The corresponding part of the program for Q series after analyzed		The corresponding part of program for A/QnA series before converting		Search key of the program after analyzing
1	step	0	step	<#00000>

Process method

There is no equivalent function. Please modify the logic.
(refer to)
Each of the ACPU devices is the following function.
From M9180 to M9182 are the devices for SFC trace.

M9200 ZNRD instruction (LRDP instruction for ACPU) reception (for master station)

The corresponding part of the program for Q series after analyzed		The corresponding part of program for A/QnA series before converting		Search key of the program after analyzing
99	step	153	step	<#00004>

Process method

The modified contents can be confirmed.

AnS/L Upgrade Tool

(Manufactured by Mitsubishi Electric Engineering Co., Ltd.)

Upgrading to the L Series while keeping the existing wiring unchanged

■Benefits of replacing the AnS/QnAS Series with the L Series

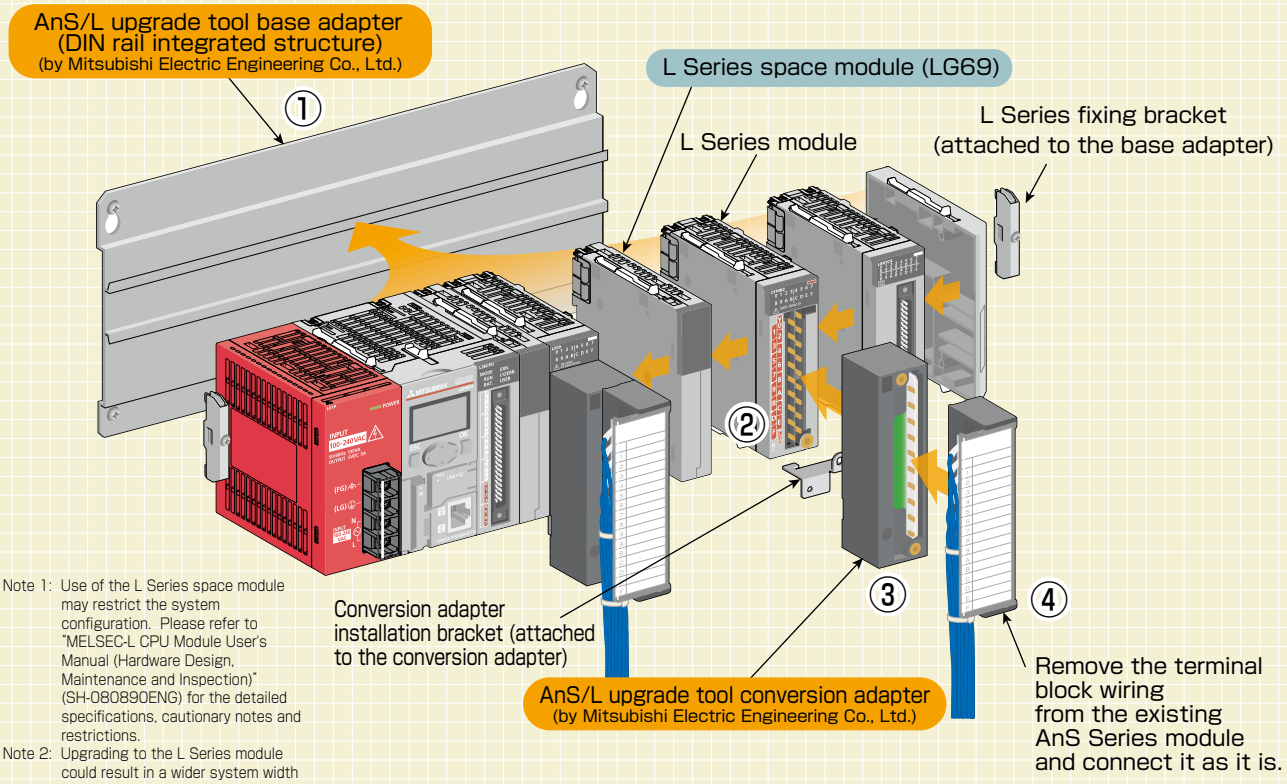
●Increases the production capacity and shortens the operating cycle.
The L Series programmable controllers speed up the operation and processing speed (as fast as about 5 times the processing performance of the AnS Series) and the bus communication speed.
Upgrading the AnS/QnAS Series to the L Series significantly improves the production capacity.

●Enables a flexible configuration without a base
The L Series does not need a base unit. Its installation footprint is minimum, which otherwise restricted by the size of the base unit. When adding modules, the number of slots on a base unit does not have to considered. The base-less architecture often eliminates the need of additional extension base units, saving the system cost.

●Reduces the system cost by using built-in CPU functions
The LCPU module is equipped with a number of built-in functions such as the general input, interrupt input, pulse catch, general output, high speed counter, positioning, Ethernet and CC-Link communication functions.
Combining the built-in functions eliminates the needs of modules dedicated to each function, and such combined functions realize a variety of control functions while reducing the system cost.

L Series replacement example with the AnS/L upgrading tool set and L Series space modules

①Remove the existing AnS/QnAS Series programmable controllers together with the base unit. Install the AnS/L upgrade tool base adapter.
(The existing installation holes can be used as they are. No additional holes need to be created.)
②Install a space module on the left side of the L Series module to which an AnS/L conversion adapter (terminal block type) will be attached.
③Attach the AnS/L upgrade tool conversion adapters to the L Series modules.
④Remove the wiring terminal block from the existing AnS/QnAS Series module and connect that wiring terminal block to the conversion adapter.



Note 1: Use of the L Series space module may restrict the system configuration. Please refer to "MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)" (SH-080890ENG) for the detailed specifications, cautionary notes and restrictions.

Note 2: Upgrading to the L Series module could result in a wider system width than the system width using the AnS/QnAS (small type). Please refer to "Transition from MELSEC-AnS/QnAS (Small Type) Series to L Series Handbook (Fundamentals)" (L(NA)08258ENG) for more details.

■AnS/L upgrade tool set

The AnS/L upgrade tool consists of two items-"conversion adapter" and "base adapter". The conversion adapter supports the conversion of the AnS/QnAS Series I/O and analog modules wiring to the corresponding L Series modules wiring. The base adapter is used to utilize the existing installation holes of the AnS/QnAS Series base units for the L Series programmable controller installation.

■List of conversion adapters

For input/output modules <Single module type>

Input/output	MELSEC AnS/QnAS Series module model	MELSEC L Series module model	Conversion adapter model	Space module (LG69)
Input	A1SX10, A1SX10EU	LX10	ERNT-ASLTXY10	Can be used
	A1SX40, A1SX40-S1, A1SX40-S2	LX40C6	ERNT-ASLTX40	Can be used
	A1SX41, A1SX41-S1, A1SX41-S2	LX41C4	Unnecessary. The connector shape is the same.	Unnecessary
	A1SX42, A1SX42-S1, A1SX42-S2	LX42C4	Unnecessary. The connector shape is the same.	Unnecessary
	A1SX71	LX41C4	Unnecessary. The connector shape is the same.	Unnecessary
	A1SX80, A1SX80-S1, A1SX80-S2	LX40C6	ERNT-ASLTX80	Can be used
	A1SX81, A1SX81-S2	LX41C4	ERNT-ASLCXY81	Unnecessary
	A1SX82-S1	LX42C4	Unnecessary. The connector shape is the same.	Unnecessary
Output	A1SY10, A1SY10EU	LY10R2	ERNT-ASLTXY10	Can be used
	A1SY22	LY20S6	ERNT-ASLTY22	Can be used
	A1SY40, A1SY40P	LY40NT5P	ERNT-ASLTY40	Can be used
	A1SY41, A1SY41P	LY41NT1P	Unnecessary. The connector shape is the same.	Unnecessary
	A1SY42, A1SY42P	LY42NT1P	Unnecessary. The connector shape is the same.	Unnecessary
	A1SY50	LY40NT5P	ERNT-ASLTY50	Can be used
	A1SY80	LY40PT5P	ERNT-ASLTY80	Can be used
	A1SY81, A1SY81EP	LY41PT1P	ERNT-ASLCXY81	Unnecessary
	A1SY82	LY42PT1P	Unnecessary. The connector shape is the same.	Unnecessary
Input and output	A1SH42, A1SH42P	LH42C4NT1P	Unnecessary. The connector shape is the same.	Unnecessary
	A1SH42-S1, A1SH42P-S1	LH42C4NT1P	Unnecessary. The connector shape is the same.	Unnecessary

For analog modules <Single module type>

Input/output	MELSEC AnS/QnAS Series module model	MELSEC L Series module model	Conversion adapter model	Space module (LG69)
Input	A1S64AD	L60AD4	ERNT-ASLT64AD	Can be used
Output	A1S62DA	L60DA4	ERNT-ASLT62DA	Can be used

For high-speed counter modules <Single module type>

MELSEC AnS/QnAS Series module model	MELSEC L Series module model	Conversion adapter model	Space module (LG69)
A1SD61	LD62	ERNT-ASLTD61	Can be used
A1SD62		ERNT-ASLTD62	Can be used

■List of base adapters

Module type	MELSEC AnS/QnAS Series module model	Base adapter model
Main base unit	A1S32B	ERNT-ASLB32
	A1S33B	ERNT-ASLB33
	A1S35B	ERNT-ASLB35
	A1S38B, A1S38HB	ERNT-ASLB38
Type requiring power supply module	A1S65B	ERNT-ASLB65
	A1S68B	ERNT-ASLB68

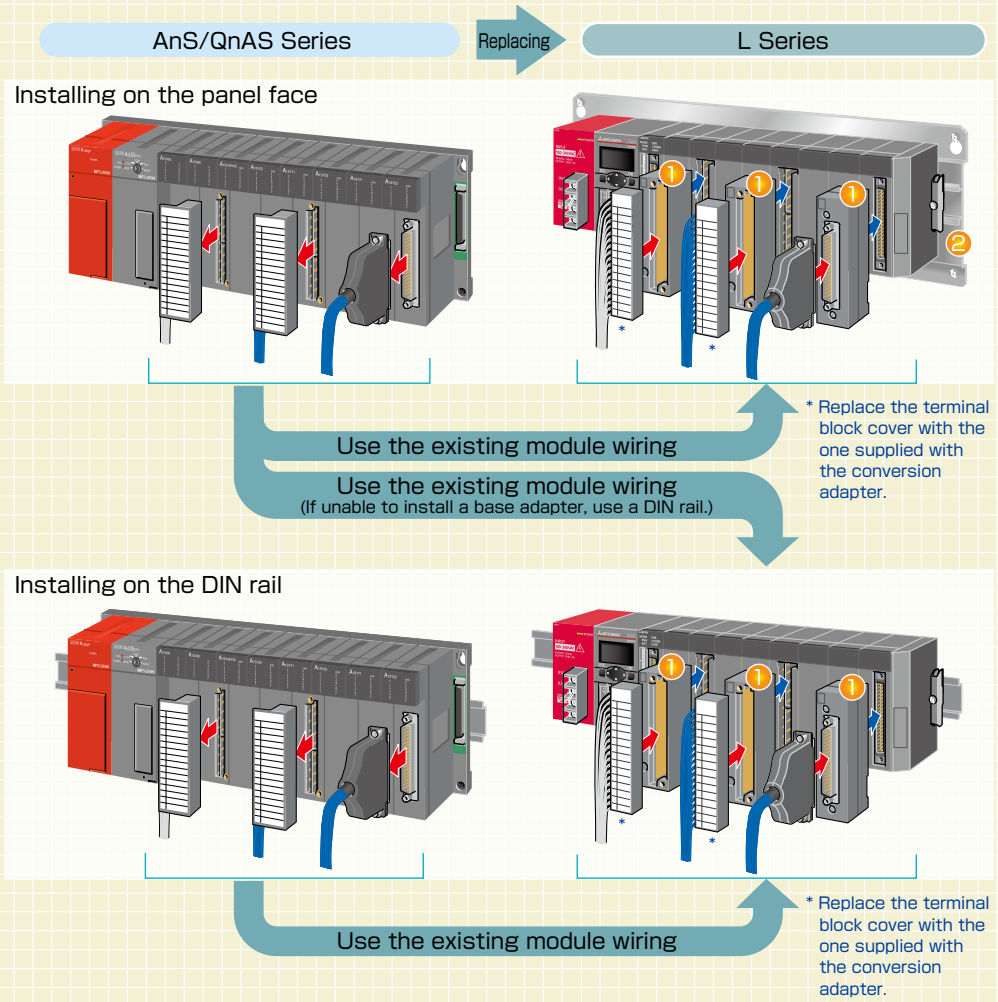
Module type	MELSEC AnS/QnAS Series module model	Base adapter model
Type not requiring power supply module	A1S52B	ERNT-ASLB52
	A1S55B	ERNT-ASLB55
	A1S58B	ERNT-ASLB58
Type unifying CPU, power supply and base unit	A1SJCPU	ERNT-ASLBJ
	A1SJCPU-S3	
	A1SJHCPU	

AnS/L Upgrade Tool

(Manufactured by Mitsubishi Electric Engineering Co., Ltd.)

■Installing the conversion and base adapters

The wiring of the AnS/QnAS Series modules can be used as it is for the L Series modules.



■Upgrade tool contents

❶ Conversion adapter
❷ Base adapter*
For utilizing the installation holes of the AnS/QnAS Series modules for the L Series installation.

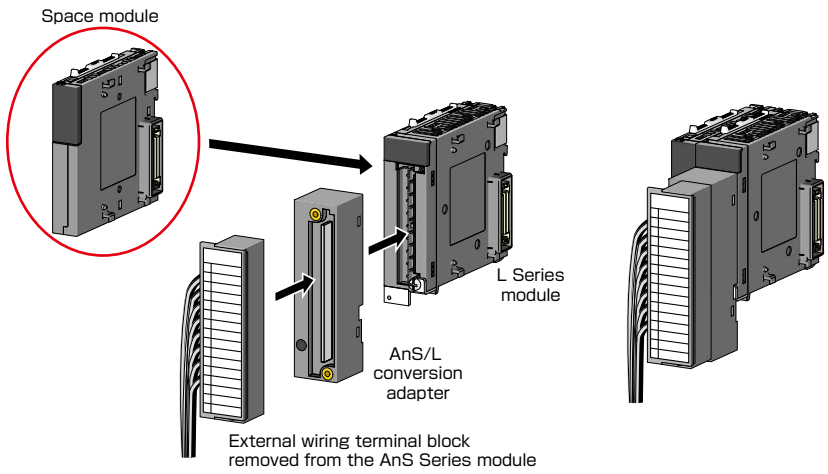
* Upgrading to the L Series module could result in a wider system width than the system width using the AnS/QnAS. If the width after upgrading is impractical, consider use of a DIN rail for installation. Please refer to "Transition from MELSEC-AnS/QnAS (Small Type) Series to L Series Handbook (Fundamentals)" (L(NA)08258ENG) for more details.

Note 1: Use of the L Series space module may restrict the system configuration. Please refer to "MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)" (SH-080890ENG) for the detailed specifications, precautions and restrictions.

L Series Space Module

■L Series space module

The L Series space module (LG69) is used to secure space for the cables when replacing the AnS/QnAS Series system to the L Series system module. Cables can be stored in an area created by a space module, and this space prevents cables from interfering each other.
The space module enables system replacement while utilizing the existing wiring, reducing the rewiring work.

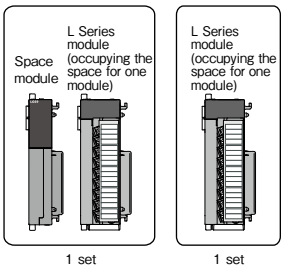
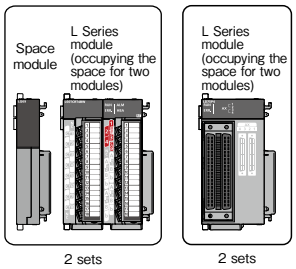


■Number of modules installed on a main/extension block

The main block can accommodate up to 8 sets + 1 branch module.
The extension block can accommodate up to 8 sets/11 modules.

* Please refer to the "MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)" (SH-080890ENG) for the details of the installable modules.

■Number of installation module sets

Installation module	Module occupying the space for one module	Module occupying the space for two modules
Number of sets	1 set (Counted as 1 set with or without a space module)  	2 sets (Counted as 2 sets with or without a space module) 

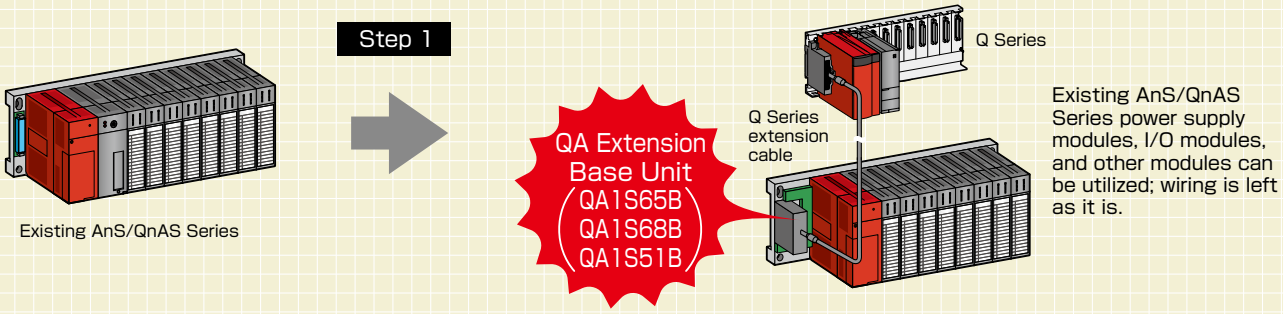
For AnS/QnAS Series

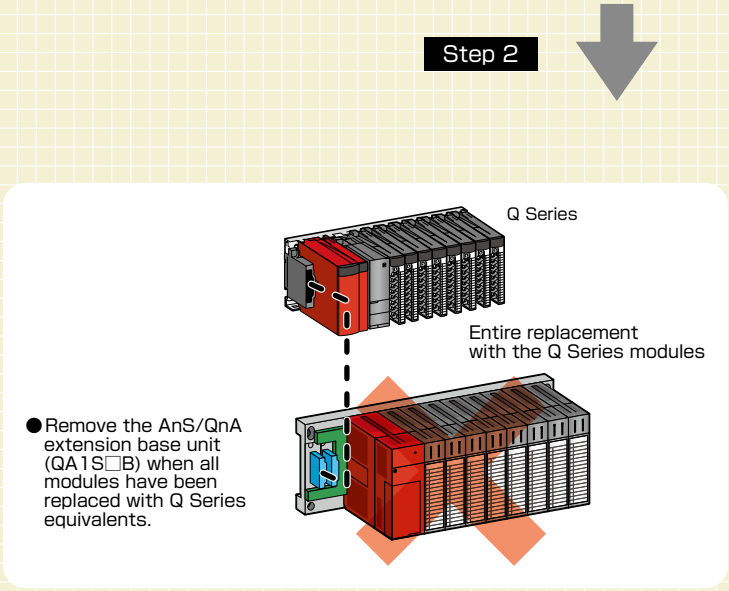
QA Extension Base Unit (QA1S65B QA1S68B QA1S51B)

Replace the AnS/QnAS Series CPU with the Q Series CPU while keeping the existing AnS/QnAS Series modules

■Gradual transition from the AnS/QnAS Series to the Q Series (Q mode).

●Construct a system that is controlled by the new Q Series CPU (Q mode) while keeping the existing AnS/QnAS Series modules installed to a QA1S□B extension base unit. The AnS/QnAS Series modules can gradually be replaced to comprise a Q Series-only system at the end.





●The QA1S□B extension base units are compatible with Universal model QCPUs*1 (including High-speed Universal model QCPUs). Process CPUs, redundant CPUs, Safety CPUs and remote I/O Stations are not compatible.

●Some modules are not installable on the QA1S□B extension base unit. For details, please refer to the "QCPU User's Manual (Hardware Design, Maintenance and Inspection) (SH(NA)-080473ENG)".

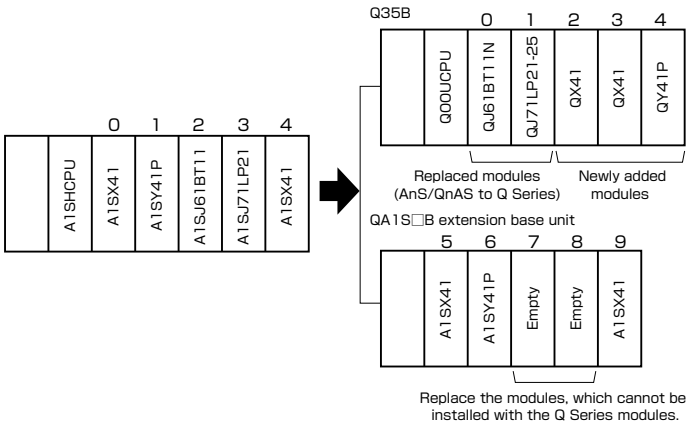
●No further extensions can be made to QA1S51B because QA1S51B is not equipped with an extension cable connector.

●This unit cannot be used with QA6□B or with QA6ADP + A5□B/A6□B.

*1: Universal model QCPU of which first 5-digit serial number is 13102 or later, is compatible with the base units.

■Reduce conversion effort by using the same I/O addresses.

●When utilizing existing modules with a Q Series CPU, it is not required to change the I/O number of the existing modules. For new module(s) on the main base unit, assign a subsequent number, which comes after the existing module numbers in the I/O assignment settings. This can greatly reduce the program modification time.



Note: Assign the I/O numbers in the following order: Q Series to AnS/QnAS Series or AnS/QnAS Series to Q Series.
When the order is mixed (i.e., Q Series → AnS/QnAS Series → Q Series), an error will occur in the CPU.

■Example of I/O assignment

		Model	Type	Point	Address
Main base unit	0	QJ61BT11N	Intelli.	32	100
	1	QJ71LP21-25	Intelli.	32	120
	2	QX41	Input	32	140
	3	QX41	Input	32	160
	4	QY41P	Output	32	180

		Model	Type	Point	Address
Extension base unit	5	A1SX41	Input	32	00
	6	A1SY41P	Output	32	20
	7	——	Empty	32	40
	8	——	Empty	32	60
	9	A1SX41	Input	32	80

Q Series Large Type Base Unit
(AnS Series size)

■Q Series large type base unit (AnS Series size)

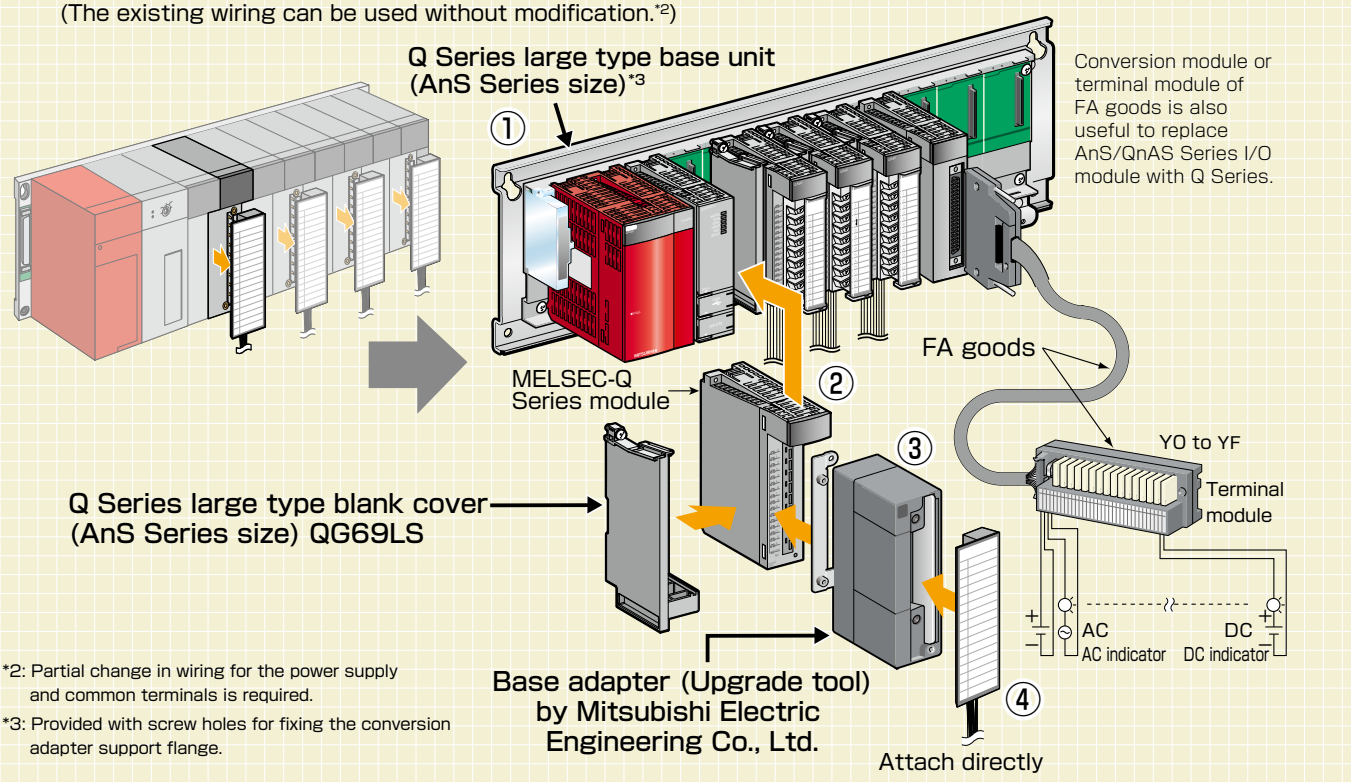
The Q Series large type base unit is used to replace the AnS Series module with the Q Series, using the existing installation area and cables.

- ●Utilizing a 16-point terminal block from the existing AnS/QnAS Series module reduces the rewiring work.
- ●When replacing the AnS/QnAS Series module with the Q Series by using the conversion adapter (Upgrade tool by Mitsubishi Electric Engineering Co., Ltd.) and the existing AnS/QnAS Series terminal block without rewiring, the width of I/O slot of this base unit is just the same as the existing wide-sized AnS/QnAS Series, then the space reduces noise interference from nearby modules.*1
- ●The installation position is the same as the AnS/QnAS Series, and the installation holes can be used to install the Q Series large type base unit.
- ●Q Series large type base units (AnS Series size) for panel installation and DIN rail installation are available. Select the type for your need.

*1: The Q Series large type blank cover QG69LS (selling separately) is required with the Q Series I/O module.

[Example] Replacing AnS/QnAS Series module with Q Series module using conversion adapters and Q Series large type base unit

①Remove the AnS/QnAS Series module along with the base unit, install the Q Series large type base unit in the same position using the same installation holes, and install the Q Series modules. (No need of making new installation holes when installing the Q Series large type base unit.)
②Attach the Q Series large type blank cover (AnS Series size) to the Q Series module and install the Q Series module to the Q Series large type base unit.
③Attach the conversion adapter (Upgrade tool) to the Q Series module with the Q Series large type base unit.
④Remove the terminal blocks from the existing AnS/QnAS Series module and attach them to the conversion adapter. (The existing wiring can be used without modification.*2)



*2: Partial change in wiring for the power supply and common terminals is required.
*3: Provided with screw holes for fixing the conversion adapter support flange.

■Q Series large type base unit (AnS Series size) list

The following base units are available to use the Q Series modules with the installation holes of the AnS/QnAS Series modules. DIN rail can also be used. The width of I/O slots of this base unit is the same with that of the existing wide-sized AnS/QnAS Series, minimizing the interference from nearby modules.*4

Installation area	Main base unit	Extension base unit
Panel surface	Q35BLS Q38BLS	Q65BLS Q68BLS Q55BLS

Installation area	Main base unit	Extension base unit
DIN rail	Q35BLS-D Q38BLS-D	Q65BLS-D Q68BLS-D Q55BLS-D

*4: To install the Q Series module on the I/O slot of the Q Series large type base unit, always attach the Q Series large type blank cover QG69LS (sold separately).

AnS/Q Upgrade Tool/FA Goods
(Manufactured by Mitsubishi Electric Engineering Co., Ltd.)

■Upgrade tool

The upgrade tool consists of the following three parts:
- a conversion adapter, which enables utilization of the wiring, which was connected to the AnS/QnAS Series input/output/analog/high-speed counter/temperature input/temperature control module, with the Q Series module,
- a base adapter, which enables a Q Series base unit installation using the installation holes of the AnS/QnAS Series base unit, and
- a conversion adapter DIN rail mounting bracket, which enables the use of a conversion adapter with support flange (for a Q Series base unit) and a disconnection detection connector conversion cable (for a temperature control module).

■FA goods

FA goods are useful for system configuration with the Q Series modules.
These goods consist of connector/terminal conversion module, terminal module, positioning module cable, etc.
Modules are replaced using FA goods when the replacement is not available because of the module's specification, etc.

■Conversion adapter list

For input/output modules*1 (One slot type)

Input / Output	AnS/QnAS Series model	Q Series model	Conversion adapter model
Input	A1SX10	QX10	ERNT-ASQTXY10
	A1SX10EU		
Output	A1SY10	QY10	
	A1SY10EU		
Input	A1SX40	QX40, QX70	ERNT-ASQTX40
	A1SX40-S2	QX40	
	A1SX40-S1	QX40-S1	
	A1SX80	QX80	ERNT-ASQTX80
	A1SX80-S1		
	A1SX80-S2		
Output	A1SY22	QY22	ERNT-ASQTY22
	A1SY40 (P)	QY40P	ERNT-ASQTY40
	A1SY50	QY50	ERNT-ASQTY50
	A1SY80	QY80	ERNT-ASQTY80

For input/output modules*1 (Two slots type)

Input / Output	AnS/QnAS Series model	Q Series model	Conversion adapter model
Input	A1SX20	QX28 ×2	ERNT-ASQTX20*2
	A1SX20EU		
Output	A1SY60	QY68A ×2	ERNT-ASQTY60*2
	A1SY60E		ERNT-ASQTY60E*2

For analog modules (One slot type)

Input / Output	AnS/QnAS Series model	Q Series model	Conversion adapter model
Input	A1S64AD	Q64AD	ERNT-ASQT64AD
	A1S68AD (Voltage input)	Q68ADV	ERNT-ASQT68AD
	A1S68AD (Current input)	Q68ADI	
	A1S68AD	Q68AD-G*2	ERNT-ASQT68AD-G*3
Output	A1S62DA	Q62DAN	ERNT-ASQT62DA
	A1S68DAV	Q68DAVN	ERNT-ASQT68DA
	A1S68DAI	Q68DAIN	
I/O	A1S63ADA	Q64AD2DA*2	ERNT-ASQT63ADA

For high-speed counter modules (One slot type)

Input / Output	AnS/QnAS Series model	Q Series model	Conversion adapter model
Input	A1SD61	QD62	ERNT-ASQTD61*3
		QD62-H01	
		QD62-H02	
	A1SD62	QD62	ERNT-ASQTD62*3
	A1SD62E	QD62E	
	A1SD62D	QD62D	ERNT-ASQTD62D*3

For temperature input modules (One slot type)

Input / Output	AnS/QnAS Series model	Q Series model	Conversion adapter model
Input	A1S68TD	Q68TD-G-H01	ERNT-ASQT68TD-H01*3
		Q68TD-G-H02*2	ERNT-ASQT68TD-H02*3
	A1S62RD3 (N)	Q64RD	ERNT-ASQT62RD
	A1S62RD4 (N)		

For temperature control modules (One slot type)

AnS/QnAS Series model	Q Series model	Conversion adapter model
A1S64TCTT-S1	Q64TCTTN	ERNT-ASQT64TCTT
A1S64TCTRT*4		
A1S64TCRT-S1	Q64TCRTN	ERNT-ASQT64TCRT
A1S64TCTRT*5		
A1S62TCTT-S2	Q64TCTTN	ERNT-ASQT62TCTT
A1S64TCTRT*6		
A1S62TCRT-S2	Q64TCRTN	ERNT-ASQT62TCRT
A1S64TCTRT*7		

For temperature control modules with disconnection detection
(1 slot type with disconnection detection connector conversion cable)

AnS/QnAS Series model	Q Series model	Set model (Conversion adapter model)
A1S64TCTTBW-S1	Q64TCTTBWN*2	ERNT-ASQT64TCTTBW (ERNT-ASQT64TCTT)*8
A1S64TCTRTBW*4		
A1S64TCRTBW-S1	Q64TCRTBWN*2	ERNT-ASQT64TCRTBW (ERNT-ASQT64TCRT)*8
A1S64TCTRTBW*5		
A1S62TCTTBW-S2	Q64TCTTBWN*2	ERNT-ASQT62TCTTBW (ERNT-ASQT62TCTT)*8
A1S64TCTRTBW*6		
A1S62TCRTBW-S2	Q64TCRTBWN*2	ERNT-ASQT62TCRTBW (ERNT-ASQT62TCRT)*8
A1S64TCTRTBW*7		

*1: Partial change in wiring for the power supply and common terminals is required.
*2: Not applicable to Q Series large type base unit (AnS size).
*3: Conversion adapter support flange is attached. The support flange must be securely connected to the base adapter, or to the conversion adapter DIN rail mounting bracket.
*4: For thermocouple inputs under standard control.
*5: For platinum RTD inputs under standard control.
*6: For thermocouple inputs under heating and cooling control
*7: For platinum RTD inputs under heating and cooling control
*8: Disconnection detection connector conversion cable is required to be connected to the base adapter, or conversion adapter DIN rail mounting bracket.

AnS/Q Upgrade Tool/FA Goods
(Manufactured by Mitsubishi Electric Engineering Co., Ltd.)

■Base adapter list

The base adapters are used to install the Q Series base unit using the existing AnS/QnAS Series installation holes. Also, these adapters are required to install the conversion adapter with the support flange or the disconnection detection connector conversion cable for temperature control modules with disconnection detection.

For main base units

AnS/QnAS Series model	Q Series model	Base adapter model*1
A1S38B/A1S38HB	Q38B	ERNT-ASQB38N(-S*2)
A1S35B	Q35B	ERNT-ASQB35N(-S*2)
A1S33B	Q33B	ERNT-ASQB33N(-S*2)
A1S32B	Q33B	ERNT-ASQB32N
A1SJCPU	Q00UJCPU	ERNT-ASQB00JN
A1SJCPU-S3		
A1SJHCPU		

*1: The conversion adapter with support flange is applicable to the adapter of which model name ends with "N".
*2: The base adapter of which model name ends with "-S1" is applicable to the Q Series base unit and "QA1S51B".

For extension base units

AnS/QnAS Series model	Q Series model	Base adapter model*3
A1S68B	Q68B	ERNT-ASQB68N
A1S65B	Q65B	ERNT-ASQB65N
A1S58B	Q68B*4	ERNT-ASQB58N
A1S55B	Q55B	ERNT-ASQB55N
A1S52B	Q52B	ERNT-ASQB52N

*3: The conversion adapter with support flange is applicable to the adapter of which model name ends with "N".
*4: For the base unit mounting power supply module.

■Conversion adapter DIN rail mounting bracket list

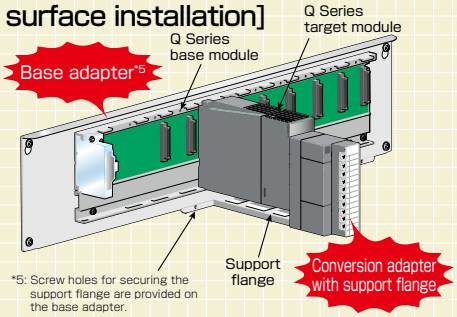
Mounting brackets for conversion adapters with support flange while installing the MELSEC-Q Series base unit to DIN rail. Also, these brackets are used to install the disconnection detection connector conversion cable for temperature control modules with disconnection detection.

Main/ extension base	AnS/QnAS Series model	Q Series model	Mounting bracket model
Main	A1S38B/A1S38HB	Q38B	ERNT-ASQDIN3868
Extension	A1S68B	Q68B	
	A1S58B	Q68B	
Main	A1S35B	Q35B	ERNT-ASQDIN356500J
Extension	A1S65B	Q65B	
Main	A1SJCPU	Q00UJCPU	
	A1SJCPU-S3		
	A1SJHCPU		
	A1S33B	Q33B	ERNT-ASQDIN3355
	A1S32B	Q33B	
Extension	A1S55B	Q55B	
	A1S52B	Q52B	ERNT-ASQDIN52

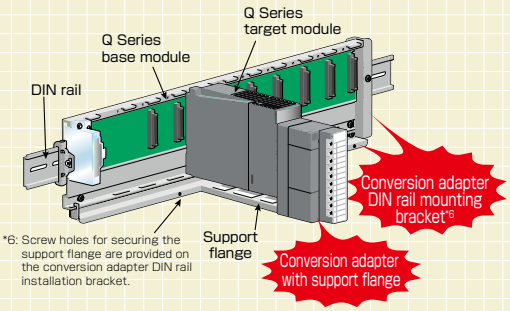
Note: A Q6DIN1, Q6DIN2 or Q6DIN3 adapter for the DIN rail installation (manufactured by Mitsubishi Electric Corporation) is also required to install the MELSEC-Q Series base unit to a DIN rail.

■Installing the base adapter

[Panel surface installation]

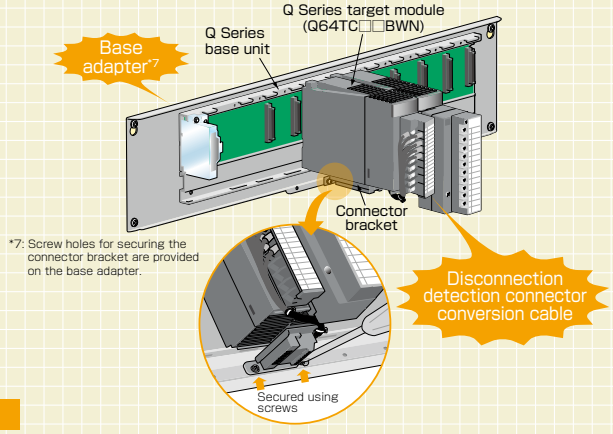


[DIN rail installation]

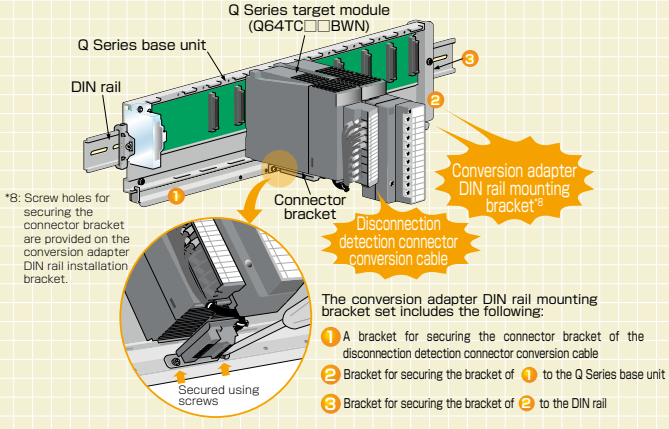


■Installing the disconnection detection connector conversion cable

[Panel surface installation]



[DIN rail installation]

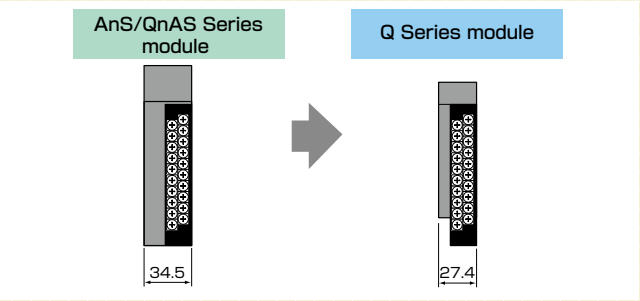


The conversion adapter DIN rail mounting bracket set includes the following:

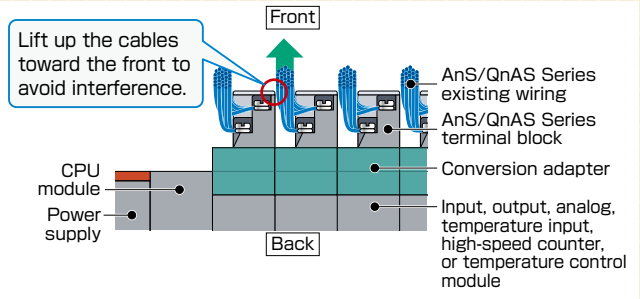
1. A bracket for securing the connector bracket of the disconnection detection connector conversion cable
2. Bracket for securing the bracket of 1 to the Q Series base unit
3. Bracket for securing the bracket of 2 to the DIN rail

■Precaution on using the base adapter and the conversion adapter DIN rail mounting bracket

●Check the installation conditions before using the upgrade tool, as the module width and the wiring space is decreased. (34.5 mm (1.36 inches) →27.4 mm (1.08 inches))

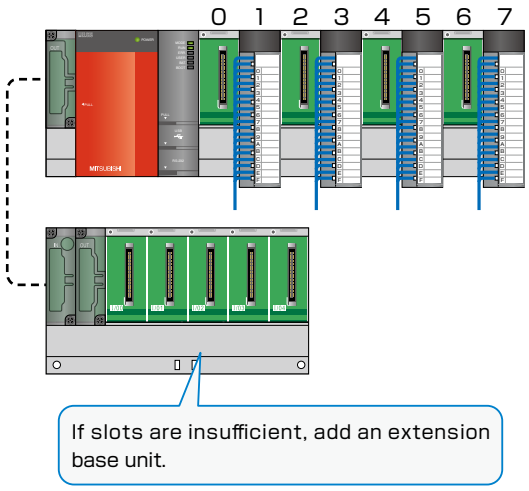


●If cables interfere with the module, lift up the cables toward the front side to avoid interference.



●If the cables still interfere, leave an empty slot between modules to secure wiring space.

[Example] Q38B



●Replace a terminal block cover with the one provided with the conversion adapter.

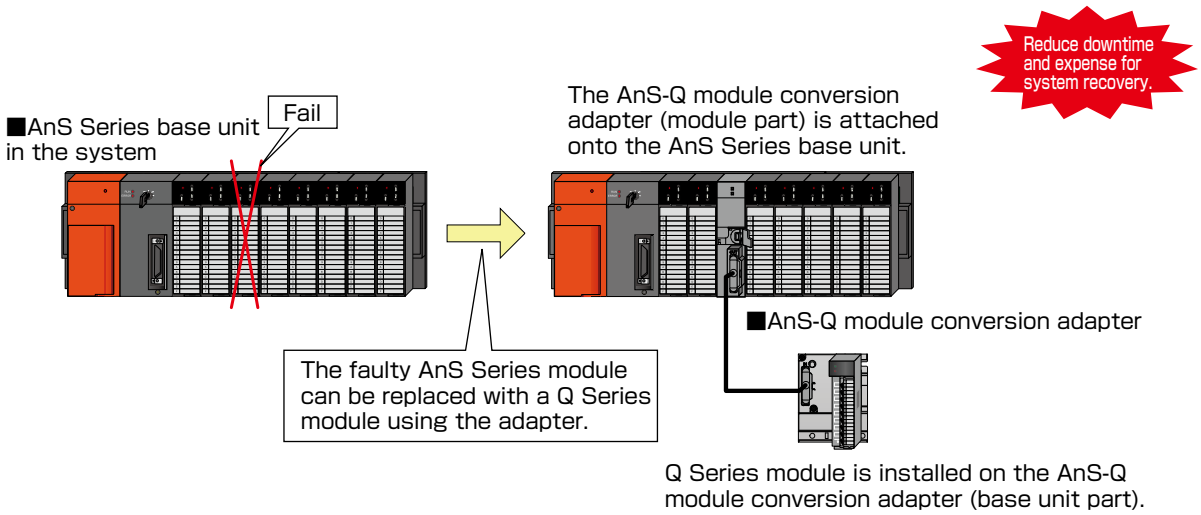
For further specifications, precautions, and restrictions of the upgrade tool, please refer to the brochure (NA C088E-116 published by Mitsubishi Electric Engineering Co., Ltd.) or the relevant product manual.
To obtain the upgrade tool, please contact your local Mitsubishi Electric sales office or sales representative.

AnS-Q Module Conversion Adapter

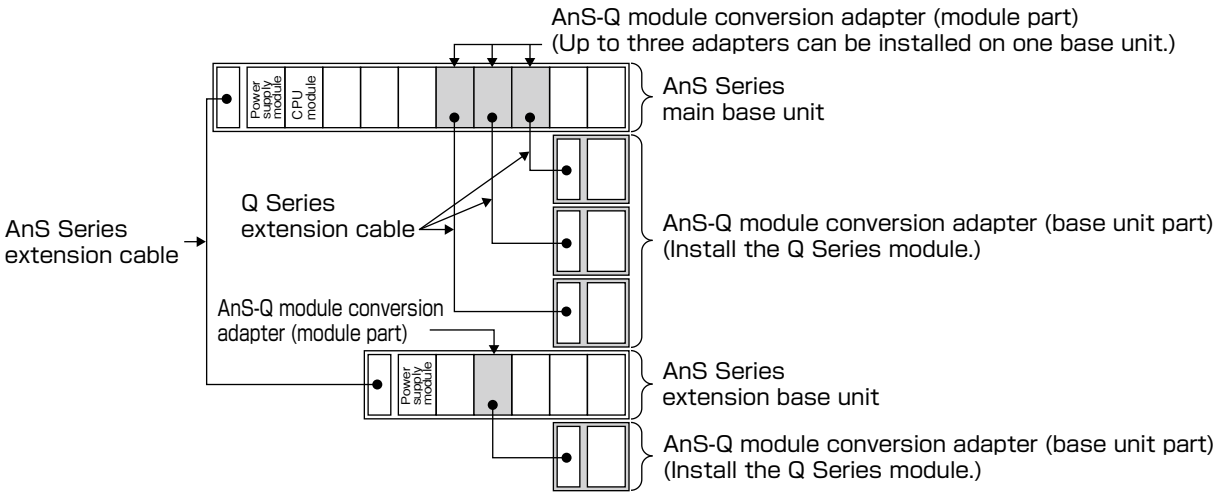
(A1SADP-Q-SET1/A1SADP-Q-SET2)

The Q Series module replacing a faulty AnS Series module

■Q Series I/O and intelligent function modules can be installed on an AnS Series base unit. This enables to build a system using a Q Series module with the existing system remains unaltered.



●Up to three AnS-Q module conversion adapters (module part) can be installed on one base unit.



■AnS-Q Module Conversion Adapter

●A1SADP-Q-SET1

Type	Model	Remarks
AnS-Q module conversion adapter (module part)	A1SADP-Q	–
AnS-Q module conversion adapter (base unit part)	A1SADP-Q51B	One-slot type

●A1SADP-Q-SET2

For a module occupying 2 slots

Type	Model	Remarks
AnS-Q module conversion adapter (module part)	A1SADP-Q	–
AnS-Q module conversion adapter (base unit part)	A1SADP-Q52B	Two-slot type *1

*1 A one-slot type module can be attached to the adapter, but one one-slot type module can be attached.

■Supported models

●Existing systems supporting the AnS-Q module conversion adapter (module part)
AnS Series: main base unit, extension base unit
QCPU (A mode): main base unit, extension base unit

●CPU modules and remote I/O stations that support AnS-Q module conversion adapter
AnS Series: AnSCPU, QnASCPU, MELSECNET/B remote I/O station, MELSECNET/10 remote I/O station
Q Series: QCPU (A mode)

●Q Series modules supporting the AnS-Q module conversion adapter (base unit part)
Input module, output module, I/O combined module, interrupt module, blank cover module, high-speed counter module, positioning module, A/D converter module, D/A converter module, temperature input module, temperature control module, serial communication module, AS-i master module, DeviceNet module, PROFIBUS-DP module.

* Please refer to the product manual (IB(NA)-0800540E) for the details of the model identifications and restrictions.

●Extension cable

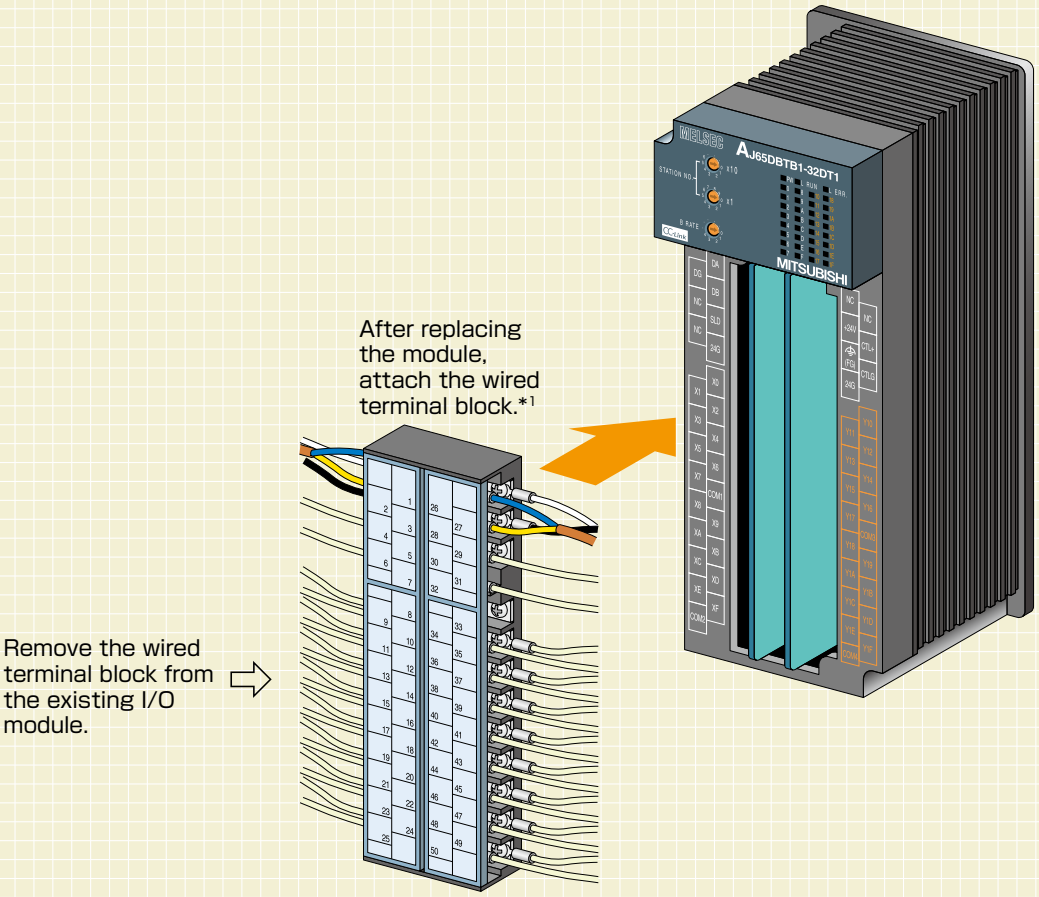
Type*	Model
Q Series extension cable	QC05B, QC06B, QC12B, QC30B

* Necessary to connect the AnS-Q module conversion adapter (module part) with the AnS-Q module conversion adapter (base unit part).

A2C Shape CC-Link Remote I/O Module

Replace A2CCPU and NET/MINI-S3 I/O module with CC-Link module using the existing NET/MINI-S3 wiring

■The simple replacement process helps minimize the upgrade time.
The installation size is the same as that of A2C I/O modules; the existing terminal block can be installed directly.



*1: The communication cables and power cables need to be rewired.

Discontinued model	Alternative model	
	Model	Outline
AX41C AX81C	AJ65DBTB1-32D	Terminal block type, 24 V DC input, 32 points, positive/negative common shared
AY51C	AJ65DBTB1-32T1	Terminal block type, 0.5 A transistor output, 32 points, sink
AX40Y50C	AJ65DBTB1-32DT1	Terminal block type, 24 V DC input, 16 points, positive common, 0.5 A transistor output, 16 points, sink
AY13C	AJ65DBTB1-32R	Terminal block type, relay output, 32 points
AX40Y10C AX80Y10C	AJ65DBTB1-32DR	Terminal block type, 24 V DC input, 16 points, positive/negative common shared, relay output, 16 points

Modules for Easy Replacement

Plentiful Q Series modules facilitate the replacement

■DC input module

Use modules that have a high rated input current and are compatible with proximity sensor inputs.

Common type	AnS/QnAS Series	Q Series
Positive common	A1SX41*1, A1SX41-S2	QX41-S2
	A1SX42*2,*3, A1SX42-S2*3	
Negative common	A1SX81*1, A1SX81-S2	QX81-S2

*1: Use QX71 when 12 V DC is selected.
*2: Use QX72 when 12 V DC is selected.
*3: Use two QX41-S2 modules when using more than 32 points.

■Relay output module (all points independent)

For a smooth transition from the MELSEC-AnS/QnAS Series system containing a relay output module to a MELSEC-L Series system.

Type	AnS/QnAS Series	L Series
Relay output	A1SY18A, A1SY18AEU	LY18R2A

■Triac output module (all points independent)

For a smooth transition from the MELSEC-AnS/QnAS Series system containing a triac output module to a MELSEC-L Series system.

Type	AnS/QnAS Series	L Series
Triac output	A1SY28A, A1SY28EU	LY28S1A

■Temperature control module

To replace a temperature control module without changing the existing temperature sensor.

Temperature sensor	AnS/QnAS Series	L Series	Q Series
Thermocouple	A1S64TCTT-S1, A1S62TCTT-S2	L60TCTT4	Q64TCTTN
	A1S64TCTRT		
Thermocouple (Heater disconnection detection function)	A1S64TCTTBW-S1, A1S62TCTTBW-S2	L60TCTT4BW	Q64TCTTBWN
	A1S64TCTRTBW		
Platinum resistance thermometers	A1S64TCRT-S1, A1S62TCRT-S2	L60TCRT4	Q64TCRTN
	A1S64TCTRT		
Platinum resistance thermometers (Heater disconnection detection function)	A1S64TCRTBW-S1, A1S62TCRTBW-S2	L60TCRT4BW	Q64TCRTBWN
	A1S64TCTRTBW		

■High-speed counter module

To replace a high-speed counter module without considering the specification of the existing pulse generator (encoders, etc.).

Counting speed switch setting	AnS/QnAS Series	Q Series
50KPPS	A1SD61	QD62-H01
10KPPS		QD62-H02

Note: In some cases, the “limit switch output function” of A1SD61 can be replaced by the “coincidence output function” of QD62-H01/H02.

■Analog output positioning module

The positioning module realizes servo motor control with a high-resolution encoder, and is compatible with a 1 Mpps maximum input pulse (x10 conventional module).
The positioning module can be replaced while maintaining existing external devices such as servo amplifiers.

Positioning mode	AnS/QnAS Series	Q Series
Position control mode	A1SD70	QD73A1
Speed-position control switch mode		

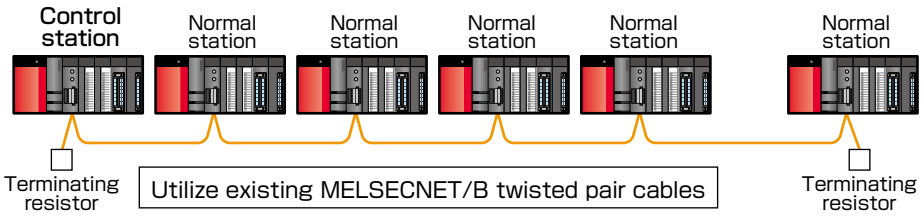
Note: The number of occupied points may differ between the existing and newly replacing modules. If the number of occupied points differs, set the start I/O number of the replacing module same with the start I/O number of the existing module to utilize the existing programs.

MELSECNET/H Network Module

Utilize the existing network cables to build the MELSECNET/H(10) network system

■MELSECNET/H Network module (twisted bus type)

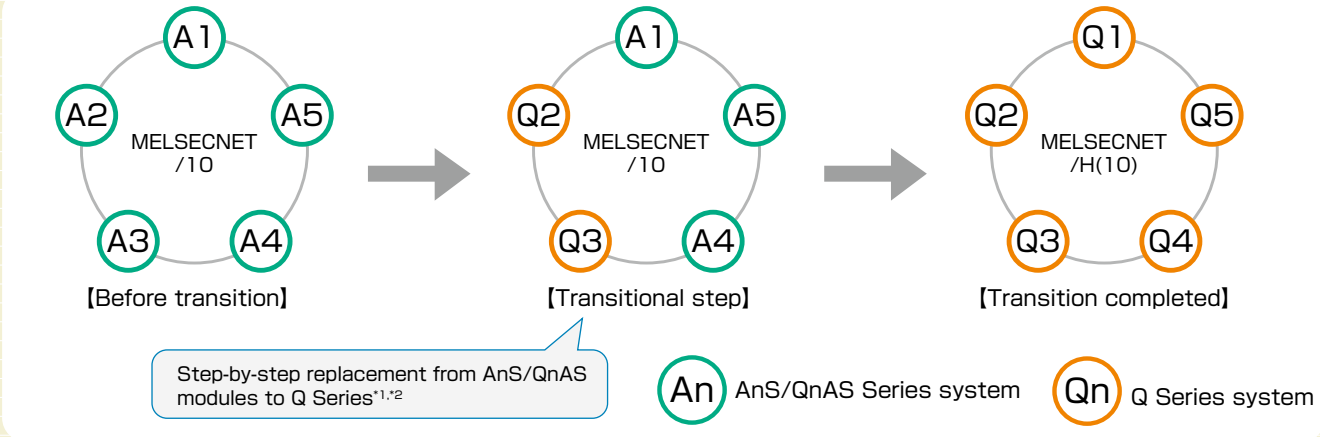
The existing twisted pair cables of the MELSECNET/B data link system can be used to build the MELSECNET/H network system when replacing AnS/QnAS Series modules with Q Series modules. Modules are replaced without modifying the previously laid network cables. Network system with an even higher speed can also be configured by replacing the twisted pair cables with CC-Link cables.



Model	Outline
QJ71NT11B	MELSECNET/H Network module (twisted bus type)

■MELSECNET/H Network module (optical loop type, coaxial bus type)

Gradual transition from the existing AnS/QnAS modules with MELSECNET/10 network system to the Q Series modules with MELSECNET/H(10) network system is possible.
For both the PLC to PLC network system and remote I/O network, the transition can be completed by the step-by-step replacements from AnS/QnAS Series modules to Q Series modules.



PLC to PLC network, remote I/O network

AnS/QnAS Series model	Q Series equivalent model
A1SJ71LP21 A1SJ71QLP21	QJ71LP21-25 *2
A1SJ71QLP21S	QJ71LP21S *2
A1SJ71BR11 A1SJ71QBR11 A1SJ71LR21 *1 A1SJ71QLR21 *1	QJ71BR11 *2

Remote I/O network

AnS/QnAS Series models	Q Series equivalent model
A1SJ72QLP25	QJ72LP25-25 *3
A1SJ72QBR15	QJ72BR15 *3
A1SJ72QLR25 *1	QJ72BR15

*1: The Q Series modules do not support the MELSECNET/10 coaxial loop system; therefore, step-by-step replacement is not possible. The coaxial loop system should be replaced with the coaxial bus system, optical loop system or twisted bus system at once.

*2: The Q Series remote master station is not compatible with the A/QnA Series remote I/O stations, and therefore the master station should be replaced with Q Series remote master station after replacing the entire A/QnA Series remote I/O stations with the Q Series stations.

*3: When mixing the A/QnA Series and Q Series modules on the same network, please use this product whose first 5-digit serial number is 15012 or later.

Product List

List of products used for upgrade

L Series space module

Type	Model	Outline
L Series Space Module	LG69	Module for ensuring wiring space when upgrading AnS/QnAS Series module to L Series

Extension base unit

Type	Model	Outline
QA(QnA Series) extension base unit	QA1S65B	5 slots, for AnS Series modules
	QA1S68B	8 slots, for AnS Series modules
	QA1S51B	1 slot, for AnS Series modules (power supply module not required)

Q Series large type base unit (AnS Series size)

Type	Model	Outline
Main base unit	Q35BLS	5 slots, for Q Series modules, panel installation type
	Q38BLS	8 slots, for Q Series modules, panel installation type
	Q35BLS-D	5 slots, for Q Series modules, DIN rail installation type
	Q38BLS-D	8 slots, for Q Series modules, DIN rail installation type
Extension base unit	Q65BLS	5 slots, for Q Series modules, panel installation type
	Q68BLS	8 slots, for Q Series modules, panel installation type
	Q65BLS-D	5 slots, for Q Series modules, DIN rail installation type
	Q68BLS-D	8 slots, for Q Series modules, DIN rail installation type
	Q55BLS	5 slots, for Q Series modules, panel installation type, power supply module not required
	Q55BLS-D	5 slots, for Q Series modules, DIN rail installation type, power supply module not required
Q Series large type blank cover (AnS Series size)	QG69LS	Blank cover for the Q Series module on the Q Series large type base unit (AnS Series size)

AnS-Q module conversion adapter

Type	Model	Outline
AnS-Q module conversion adapter	A1SADP-Q-SET1	1 slot: Adapter to install devices such as Q Series module and intelligent function module on AnS Series base unit.
	A1SADP-Q-SET2	2 slots: Adapter to install devices such as Q Series module and intelligent function module on AnS Series base unit.

A2C shape CC-Link remote I/O module

Type	Model	Outline
CC-Link remote I/O module (Screw/2-piece terminal block, dustproof type)	AJ65DBTB1-32D	Input: 32 points, 24 V DC (positive/negative common (sink/source)), terminal block 1-wire type, response time: 10 ms
	AJ65DBTB1-32T1	Output: 32 points, 12/24 V DC, 0.5 A transistor output (sink), terminal block 1-wire type (low leakage current type)
	AJ65DBTB1-32DT1	Input: 16 points, 24 V DC (positive common), 1-wire type, response time: 10 ms Output: 16 points, 24 V DC, 0.5 A transistor output (sink), terminal block 1-wire type (low leakage current type)
	AJ65DBTB1-32R	Output: 32 points, 24 V DC/240 V AC, 2 A relay output, terminal block 1-wire type
	AJ65DBTB1-32DR	Input: 16 points, 24 V DC (positive/negative common (sink/source)), response time: 10 ms Output: 16 points, 24 V DC/240 V AC, 2 A relay output, terminal block 1-wire type

Product List

DC input module

Type	Model	Outline
DC input module	QX41-S2	32 points, 24 V DC, rated input current: approximately 6 mA, positive common type, 32 points/common, response time: 1 ms/5 ms/10 ms/20 ms/70 ms or less (Set by the CPU parameter at the initial setting of 10 ms for both ON to OFF and OFF to ON)
	QX81-S2	32 points, 24 V DC, rated input current: approximately 6 mA, negative common type, 32 points/common, response time: 1 ms/5 ms/10 ms/20 ms/70 ms or less (Set by the CPU parameter at the initial setting of 10 ms for both ON to OFF and OFF to ON)

Relay output module (all points independent)

Type	Model	Outline
Relay output module	LY18R2A	8 points, 24 V DC / 240 V AC, 2A/1 point, 8A/1 module Response time: 12 ms or less, no common (all points independent)

Triac output module (all points independent)

Type	Model	Outline
Triac output module	LY28S1A	8 points, 100 VAC / 240 VAC, 1A/1 point, 8A/module Response time: 1 ms +0.5 cycle or less, no common (all points independent)

Temperature control module

Type	Model	Outline
Temperature control module	Q64TCRTN	4 channels, platinum resistance thermometers (Pt100, JPt100)　No heater disconnection detection function　Sampling cycle: 0.5 s/4CH, 18-point terminal block
	Q64TCRTBWN	4 channels, platinum resistance thermometers (Pt100, JPt100)　Heater disconnection detection function　Sampling cycle: 0.5 s/4CH, 18-point terminal block × 2
	Q64TCTTN	4 channels, thermocouple (K, J, T, B, S, E, R, N, U, L, PL2, W5Re/W26Re)　No heater disconnection detection function　Sampling cycle: 0.5 s/4CH, 18-point terminal block
	Q64TCTTBWN	4 channels, thermocouple (K, J, T, B, S, E, R, N, U, L, PL2, W5Re/W26Re)　Heater disconnection detection function　Sampling cycle: 0.5 s/4CH, 18-point terminal block × 2

High-speed counter module

Type	Model	Outline
High-speed counter module	QD62-H01	High-speed counter module for replacing the A1SD61(50KPPS setting) (with the same input filtering system and counting speed)
	QD62-H02	High-speed counter module for replacing the A1SD61(10KPPS) (with the same input filtering system and counting speed)

Analog output positioning module

Type	Model	Outline
Analog output positioning module	QD73A1	1-axis analog output type　Position control mode (positioning control, two-phase trapezoidal positioning control)　Speed-position control switch mode

MELSECNET/H network module

Type	Model	Outline
MELSECNET/H twisted bus type network module	QJ71NT11B	MELSECNET/H twisted pair cable, single bus, for control/normal station

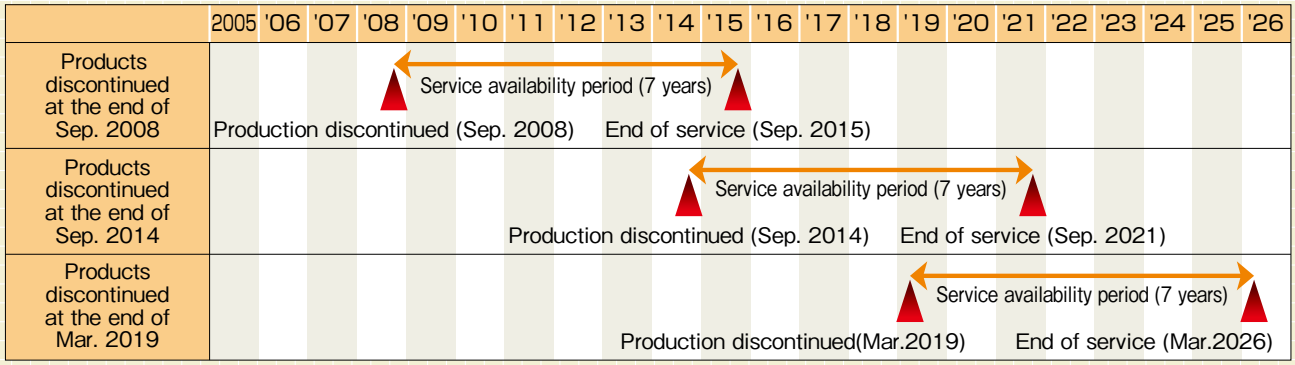
Models in continuous production

Type	Model
Power supply module	A1S61PN
	A1S63P
Battery	A6BAT
	A8BAT
	A10BAT

Discontinued products

Discontinued products		Date of discontinuation
Small type AnS Series Small type QnAS Series	●MELSECNET(Ⅱ)(A1SJ71AP21-S3), MELSECNET/B data link remote I/O module (A1SJ72T25B) ●MELSECNET/MINI-S3 AnS master module (A1SJ71PT32-S3)	End of Sep. 2008
	●CPU module ●Some of the power supply modules ●Base unit ●I/O module ●Special function module ●Network module ●Other related products (made-to-order based on AnS/QnAS Series to be discontinued)	End of Sep. 2014
	●MELSECNET/10 network module	End of Mar. 2019
	●CC-Link module (A1SJ61BT11, A1SJ61QBT11)	End of Mar. 2023
Remote I/O module	●MELSECNET/MINI-S3 I/O module	End of Sep. 2008
	●MELSEC-I/OLINK I/O module	End of Sep. 2014

Service availability period



For the details of continued/discontinued products including the MELSEC-AnS/QnAS Series and their service availability period, please refer to the Technical Bulletins (on page 5.)

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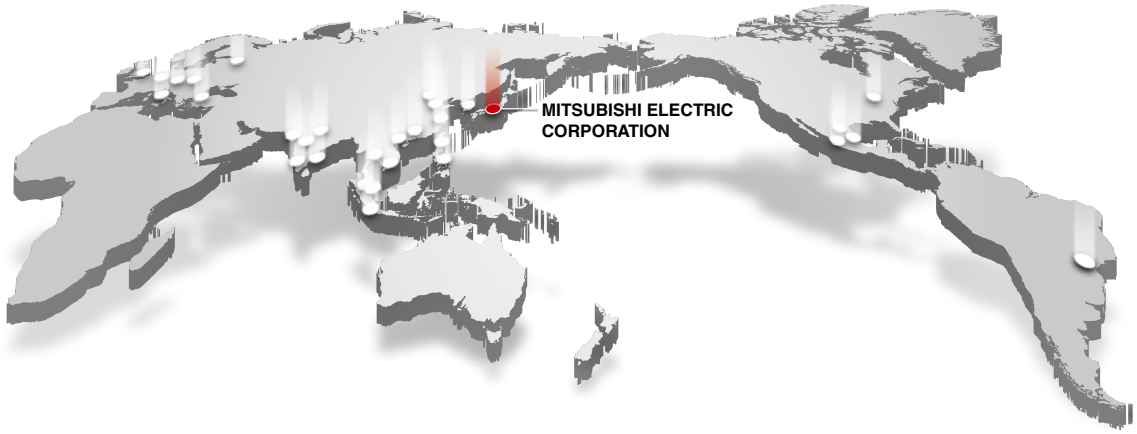

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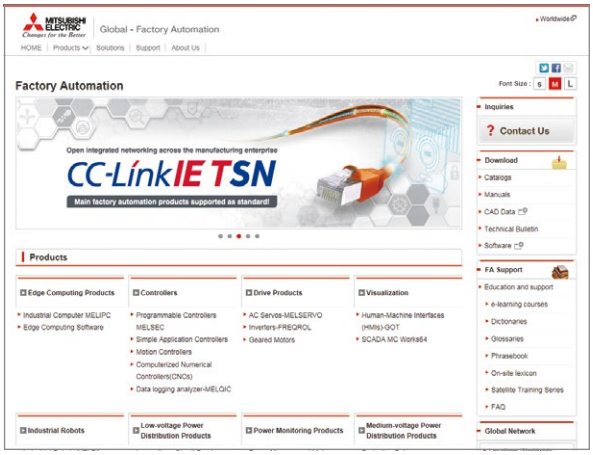

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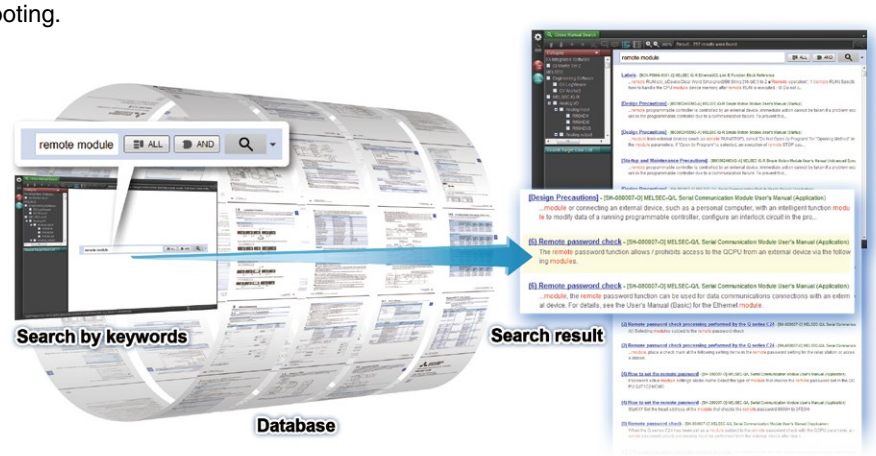

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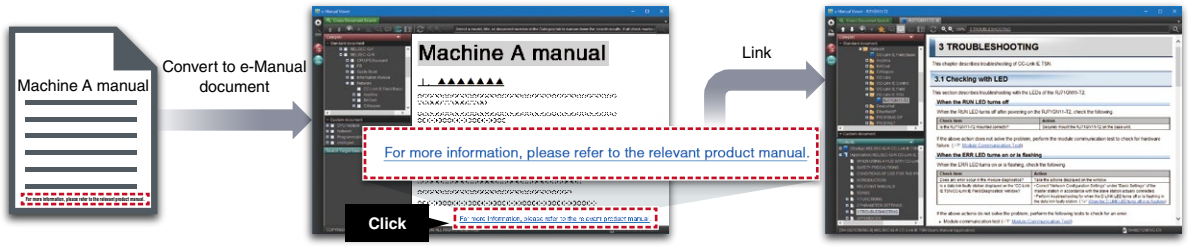

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