MITSUBISHI ELECTRIC
Changes for the Better

MELSEC-A/QnA Series Transition Guide

e-F@ctory

From MELSEC-A/QnA Series to
MELSEC-Q Series

A → Q

Comprehensive, risk-free upgrade solutions

From MELSEC-A/QnA Series
➡ MELSEC-Q Series

Supporting
A/QnA 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

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

Technical Bulletin

Large type A/QnA Series

		〈Date of discontinuation〉	〈Technical bulletin No.〉
A/QnA (large type)	●CPU module	End of Sep. 2006	T99-0050
	●I/O module	End of Sep. 2006	T99-0050
	●Special function module	End of Sep. 2006	T99-0050
	●Data link module (MELSECNET(Ⅱ), MELSECNET/B module, etc.)	End of Sep. 2006	T99-0050
	●MELSEC-I/OLINK master module	End of Sep. 2006	T99-0050
	●MELSECNET/MINI-S3 master module	End of Sep. 2008	T99-0050
	●Network module (MELSECNET/10)	End of Sep. 2014	FA-A-0141

A2C Series

A2C	●CPU module	End of Sep. 2006	T99-0050
	●A2C I/O module	End of Sep. 2008	T99-0070
	●Special function module etc.	End of Sep. 2008	T99-0070

Network interface board

MELSECNET(Ⅱ), MELSECNET/B	●MELSECNET(Ⅱ), MELSECNET/B interface board	End of Sep. 2008	T99-0049

A0J2(H) Series

A0J2(H)	●CPU module	End of Sep. 2008	T99-0069
	●Power supply module	End of Sep. 2008	T99-0069
	●I/O module	End of Sep. 2008	T99-0069
	●Special function module etc.	End of Sep. 2008	T99-0069

Remote I/O module

Remote I/O module	●MELSECNET/MINI-S3 I/O module	End of Sep. 2008	T99-0070
	●MELSEC-I/OLINK I/O module	End of Sep. 2014	FA-A-0142

Please refer to the Technical Bulletin "Repair acceptance of discontinued models (FA-A-0049)" for the repair acceptance period of the above discontinued products.

In-depth technical documentation resource

Transition Handbook

Transition from MELSEC-A/QnA (Large Type) Series to Q Series Handbook

- Fundamentals   L(NA)08043ENG
- Intelligent Function Modules   L(NA)08046ENG

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

- Network Modules   L(NA)08048ENG
- Communication Modules   L(NA)08050ENG

Transition from MELSEC-A0J2H Series to Q Series Handbook

    L(NA)08060ENG

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

    L(NA)08263ENG

MELSEC-A/QnA (Large), AnS/QnAS (Small)Transition Examples

    L(NA)08121ENG

● 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 this handbook are subject to change without notice.

A/QnA → Q Conversion Support Tool [*1]

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

A/QnA → Q Conversion Support Tool

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

Convert A/QnA programs to Q programs
with the GX Developer's PLC Type Change function.

A/QnA program	→	PLC Type Change **GX Developer**[*2]	→	Q program
Original project				Converted project

Enter the configuration information on the existing A/QnA 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

HTML conversion guidance file

<See **1** on page 9.>

<See **2** on page 10-11.>

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.
　AnS/Q2AS(H)→Q conversion is also supported.
　To perform PLC Type Change to a Universal model QCPU module, the version 1.06 or later is required.
*2: GX Developer does not support the PLC type change to High-speed Universal model QCPU.
　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 betweeen 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.

A0J2 Conversion Support Function

■**ACPU ladder programs, which are not supported by GX Developer, are converted into the GPPA format.**
The ACPU ladder programs, which are not supported by GX Developer, are read and converted into the GPPA format, which are supported by GX Developer.

Convert the ACPU ladder programs, which are not supported by GX Developer, into the GPPA format and save.

ACPU not supported by GX Developer *1

Read from PLC →

A0J2 conversion support function

→ GPPA format file

For the programmable controller supported by GX Developer

A/QnA → Q Conversion Support Tool
Helps converting the A Series ladder programs into Q Series ladder programs.

*1: A0J2CPU, A1CPU, A2CPU, A52GCPU, A3CPU, A3VCPU, A73CPU, A3HCPU, A3MCPU

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>
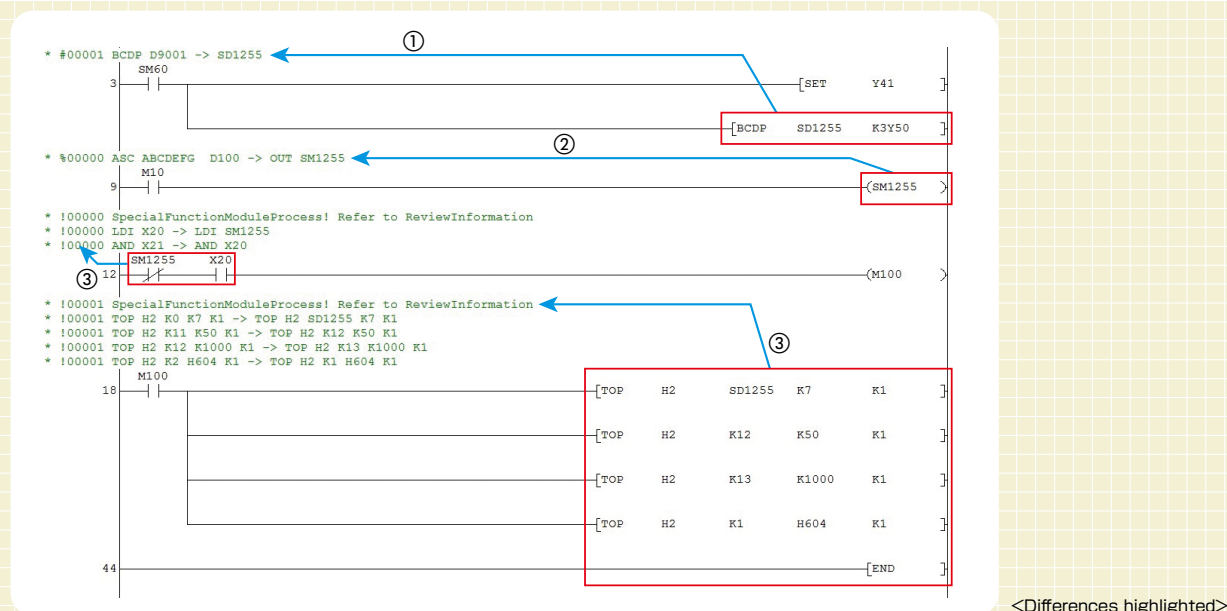
①**Statement for unconverted devices——#**
The original device and the converted device are displayed as shown below. The devices contained in the circuit block are displayed one line at a time.
[Example] #00001 BCDP D9001 → SD1255 (#00001 is a search keyword from the guidance file.)

②**Statement 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.)

③**Statement 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 in the Q program
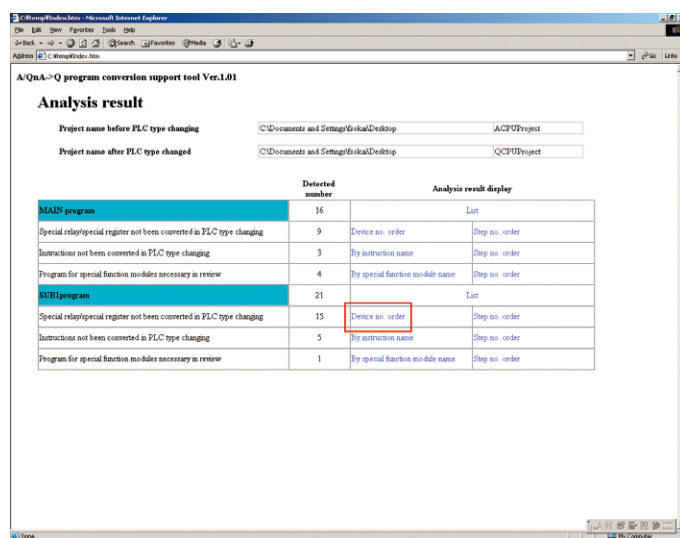
Click "Device no. order" in the "Special relay/special register not been converted in PLC type changing" row.
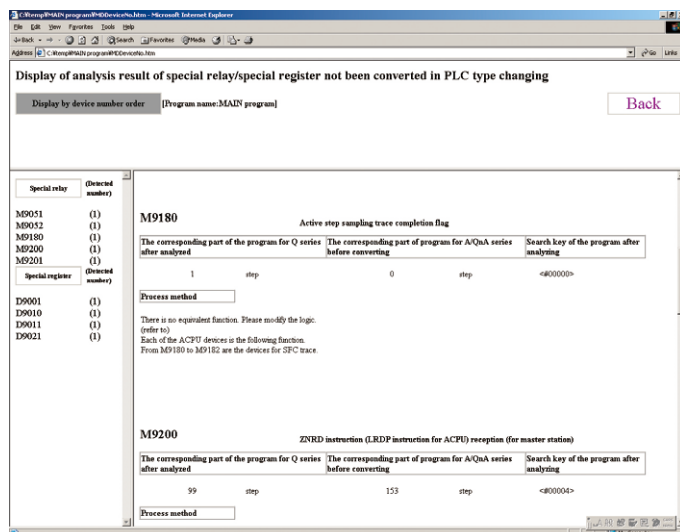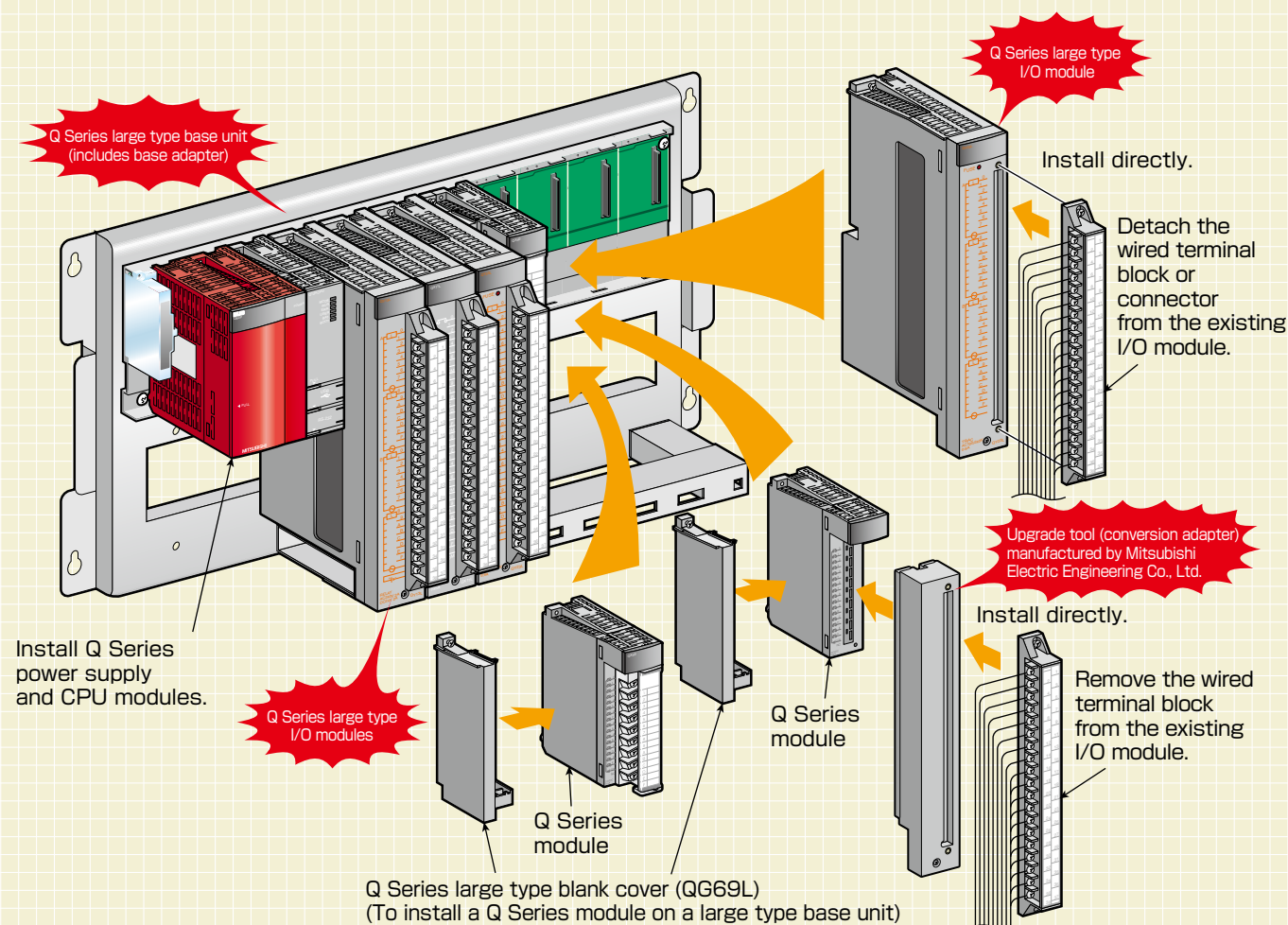

The modified contents can be confirmed.

Q Series Large Type Base Unit, I/O Module (Q38BL · Q68BL · QX11L · QY11AL · QG69L)
Q35BL · Q65BL · QX21L · QY13L
Q55BL · QY23L
QY51PL

Upgrade to Q Series with the existing 32-point I/O wiring

■Minimize wiring modifications by utilizing the existing A Series 32-point I/O wiring.

■No need to make new installation holes. The hole size and pitch of the Q Series large type base units are the same as those of A/QnA Series.

Q Series large type I/O module

Install directly.

Detach the wired terminal block or connector from the existing I/O module.

Q Series large type base unit (includes base adapter)

Upgrade tool (conversion adapter) manufactured by Mitsubishi Electric Engineering Co., Ltd.

Install directly.

Remove the wired terminal block from the existing I/O module.

Install Q Series power supply and CPU modules.

Q Series large type I/O modules

Q Series module

Q Series module

Q Series module

Q Series large type blank cover (QG69L)
(To install a Q Series module on a large type base unit)

·Q Series power supply and CPU modules can be used without any modification (Q Series large type blank cover is not necessary).

·Q Series large type I/O modules can be used with Q Series modules. (Some modules, such as the ones that occupy two slots, cannot be installed. For details, please refer to Q Series Large Type Base Unit User's Manual (IB-0800408).)

Notes

●Through the use of Upgrade Tool (manufactured by Mitsubishi Electric Engineering Co., Ltd., refer to page 14 A/Q Upgrade Tool/FA Goods), terminal block modules that are not compatible with the Q Series large type I/O modules can be installed without rewiring.

●For compatibility of Q Series large type base unit and upgrade tool, refer to page 15 Compatibility of Q Series large type base unit and Upgrade Tool.

■Q Series large type base units

Type	Model	Outline
Main base unit	Q38BL	8 slots, 1 power supply module required, Q Series large type I/O module supported
	Q35BL	5 slots, 1 power supply module required, Q Series large type I/O module supported
Extension base unit	Q68BL	8 slots, 1 power supply module required, Q Series large type I/O module supported
	Q65BL	5 slots, 1 power supply module required, Q Series large type I/O module supported
	Q55BL	5 slots, power supply module not required, Q Series large type I/O module supported

■Q Series large type I/O modules

Type	Model		Outline
	Existing A Series module	Q Series large type module	
Input module	AX11	QX11L	32 points; 100 to 120 V AC; rated input current: 10 mA (100 V AC, 60 Hz); response time: 15 ms or less (OFF to ON), 25 ms or less (ON to OFF); 32 points/common; 38-point terminal block
	AX21	QX21L	32 points; 200 to 240 V AC input; rated input current: 10 mA (220 V AC, 60 Hz); response time: 15 ms or less (OFF to ON), 25 ms or less (ON to OFF); 32 points/common; 38-point terminal block
Output module	AY10A AY11A	QY11AL	16-point contact output, 24 V DC/240 V AC, 2 A/point, 16 A/all points, all points independent, 38-point terminal block, surge suppressor (varistor 387 to 473 V)
	AY13	QY13L	32-point contact output, 24 V DC/240 V AC, 2 A/point, 5 A/common, 8 points/common, 38-point terminal block
	AY23	QY23L	32-point triac output, 100 to 240 V AC, 0.6 A/point, 2.4 A/common, 8 points/common, 38-point terminal block
	AY51 AY51-S1	QY51PL	32-point transistor output (Sink), 12/24 V DC, 0.5 A/point, 4 A/common, 16 points/common, 38-point terminal block
Q Series large type blank cover	—	QG69L	Blank cover for installing the existing Q Series module on the Q Series large type base unit

Note

●The Q Series large type base units and I/O modules are compatible with Universal model QCPUs[1]
(including High-speed Universal model QCPUs), and MELSECNET/H remote I/O stations.
The following CPUs and system are not compatible:
・Process CPUs, redundant CPUs, and safety CPUs
・Q00UJCPU

*1: Universal model QCPU, whose first 5-digit serial number is 13102 or later, is compatible

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

Replace A/QnA Series system with Q Series system without extensive I/O rewiring
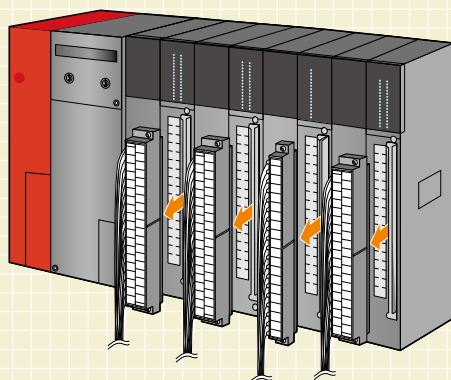
■Upgrade tool

The upgrade tool consists of three components: a conversion adapter, which modifies the existing wiring of the A/QnA Series input/output/analog/high-speed counter modules to correspond to the Q Series modules; a conversion adapter support flange, which supports the conversion adapters from the bottom, and a base adapter, which allows the Q Series base unit to be installed using the installation holes of the A/QnA Series base unit. (The upgrade tool does not include the Q Series base unit. Please prepare it separately.)

●Remove the large type A/QnA Series programmable controllers along with the base unit, install the base adapter in the same position, and install Q Series modules. (New installation holes are unnecessary when installing the base adapter)

●Attach the conversion adapters to the Q Series modules.

●Remove the terminal blocks from the existing large type A/QnA Series modules and attach them to the conversion adapters. (The existing wiring can be used without modification.)

●FA goods may be used for an I/O module that is not available in the Q Series.

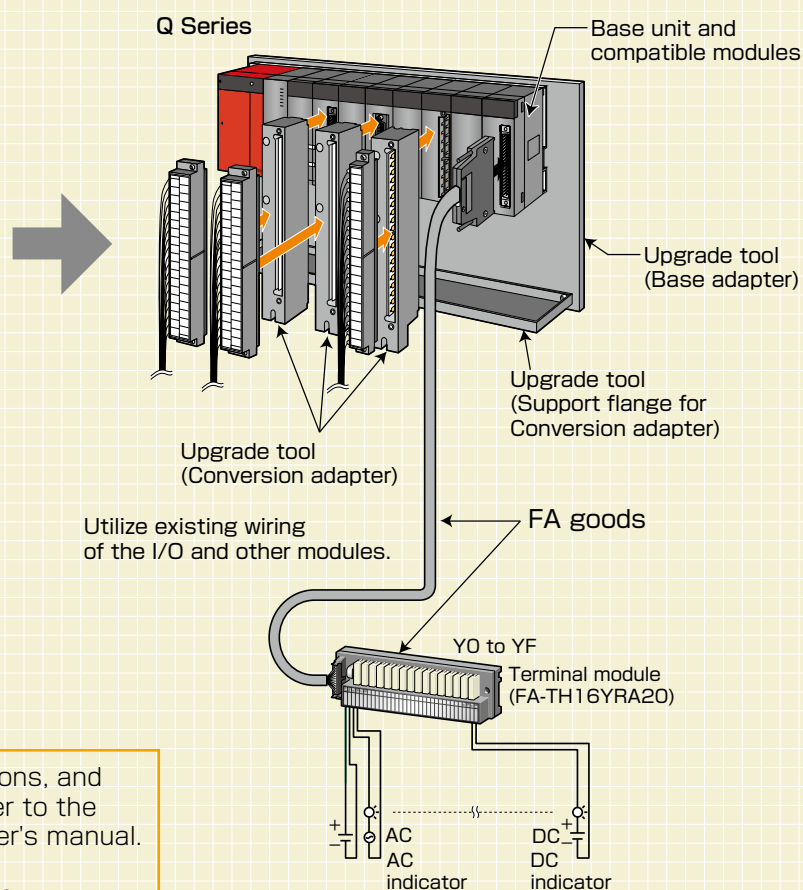### ■FA goods

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

A/QnA Series

Q Series

Base unit and compatible modules

Upgrade tool (Base adapter)

Upgrade tool (Support flange for Conversion adapter)

Upgrade tool (Conversion adapter)

Utilize existing wiring of the I/O and other modules.

FA goods

Y0 to YF
Terminal module (FA-TH16YRA20)

AC
AC indicator

DC
DC indicator

For the detailed specifications, precautions, and restrictions of Upgrade Tool, please refer to the brochure (SAN C033E-04Z) and the user's manual.

To obtain the upgrade tool and FA goods, please contact your local Mitsubishi Electric sales office or representative.

When replacing the A/QnA Series I/O module with the Q Series I/O module, the FA goods connector/terminal conversion module and terminal module can also be used.
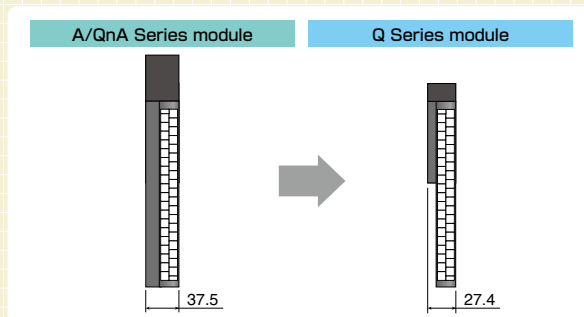
Compatibility of Q Series large type base unit and Upgrade Tool

■Compatibility of Q Series large base unit and Base Adapter/Conversion Adapter
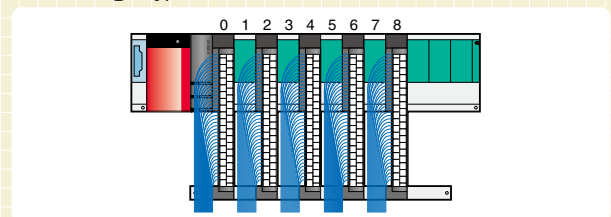
Item			Q Series large type base unit*1	Base adapter/conversion adapter*2
Slot width of base unit*3			Same width as the A/QnA Series base unit (37.5 mm)	Same width as Q Series base unit (27.4 mm)
Installable module	Power supply module	Q Series power supply module	○	○
	CPU module	Process CPU	×	○
		Universal model QCPU	○*4	○
	· I/O module · Intelligent function module	Q Series large type I/O modules*5	○	×
		Q Series module (occupies 1 slot)	○*6	○
		Q Series module (occupies 2 slots)	×	○
Conversion adapter *7	For terminal block type 16-point I/O module (occupies 1 slot)		○*6	○
	For terminal block type 32-point I/O module (occupies 1 slot)		○*6	△*9
	For terminal block type 32-point I/O module (occupies 2 slots)		×	△*10
	For high-speed counter module		○*6	△*9
	For analog module (occupies 1 slot)		○*6	△*9
	For analog module (occupies 2 slots)		×	△*10
Connection of Q/QA/QA1S extension base unit*8			○	○

○: Applicable (installable)　△: Applicable with restrictions (installable)　×: Not Applicable (Not installable)

*1: Q Series large type base units can be used with Q Series base units.

*2: The base adapter manufactured by Mitsubishi Electric Engineering Co., Ltd. is to be installed to the Q Series base unit.

*3: Check the installation conditions before using the upgrade tool, because wiring space is reduced due to a decrease in the module's width.
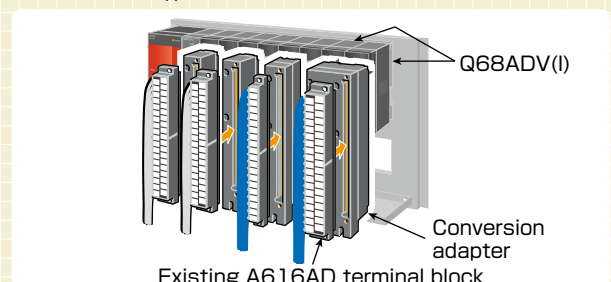
A/QnA Series module → Q Series module

37.5 → 27.4

*4: Q00UJCPU is not compatible.

*5: The common terminal arrangement and electrical specifications are same as that of large type A Series I/O module.

*6: Q Series large type blank cover (QG69L) is required. Some modules are not compatible. (Some exceeds 98 mm height.) For details, please refer to the Q Series Large Type Blank Cover User's Manual (IB-0800408).

*7: Since the conversion adapters are to be installed onto the Q Series modules, the specifications and functions are same as that of the Q Series modules. (Please check the transition handbook, since the specifications and functions are different from that of large type A Series module)

Note: Universal model QCPU, whose first 5-digit serial number is 13102 or later, is compatible with the base units.

*8: Universal model QCPUs[Note] (include High-speed Universal model QCPUs) can be connected to the QA/QA1S extension base unit.

*9: If the size of cable connected to the terminal block is larger than 1.25 mm², ERNT-AQTX41, AQTY41, AQTX81, AQTY81, AQT68AD, AQT68ADN, AQT68DA, and AQTD61 modules may have a difficulty in installation. In this case, secure wiring space by leaving empty slots in between modules. For example, install modules on slot No. 0, 2, 4, 6, 8, and leave slot No. 1, 3, 5, 7 empty. If the number of slots is insufficient, consider using the Q Series large type base unit.

0 1 2 3 4 5 6 7 8

*10: When using two Q Series modules with the existing wiring terminals using conversion adapters. For example, when replacing an A616AD module with two Q68ADV(I) modules.

Q68ADV(I)

Conversion adapter

Existing A616AD terminal block

Modules for Easy Replacement

Plentiful Q Series modules facilitate the replacement

■DC input module

DC input modules compatible with 6 mA rated input current are available.
When replacing the A/QnA Series modules and utilizing the external devices as they are, the existing Q Series modules may not receive signals sent from external devices, such as proximity sensors, due to incompatibility with low-rated input current, and thus, external resistors need to be installed.
With the QX41-S2 and QX81-S2 modules, which are compatible with 6 mA rated input current, external resistors are no longer required. (The existing external devices can be utilized after replacing modules.)

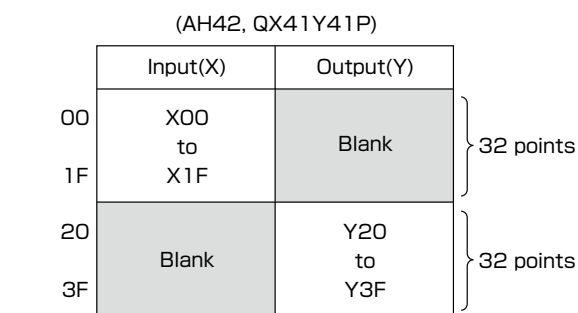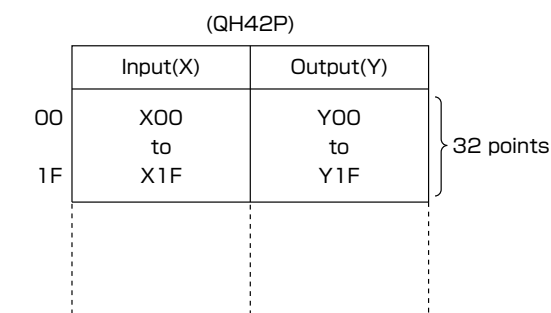**Comparison of QX41-S2/QX81-S2 with large type A/QnA Series modules**

Item		Specification			
		A/QnA Series model		Q Series replacement model	
Model	Positive common type	AX41	AX42	QX41-S2[*1]	QX41
	Negative common type	AX81	AX82	QX81-S2[*1]	QX81
Number of input points		32	64	32	32
Rated input current	24 V DC	Approx. 10 mA	Approx. 7 mA	Approx. 6 mA	Approx. 4 mA
	12 V DC	Approx. 4 mA	Approx. 3 mA	(N/A)	(N/A)

*1 The pin arrangement is same as that of the existing A/QnA Series connector type module.
 Use Conversion Adapter manufactured by Mitsubishi Electric Engineering Co., Ltd. when replacing the A/QnA Series 32-point terminal block module.

■I/O combined module * A module with sequential I/O numbers

QX41Y41P's I/O assignment is the same as that of the A/QnA Series I/O combined module, AH42. This module can be used as the I/O module on the programmable controller side when using AOJ2 Renewal Tool (manufactured by Mitsubishi Electric System & Service Co., Ltd., refer to page 20 AOJ2 Renewal Tool) to replace the AOJ2(H)CPU.
It is not necessary to change the programs when replacing AH42 or AOJ2(H)CPU. (Minimize the need to modify programs)

(QH42P)			(AH42, QX41Y41P)		

(QH42P)

	Input(X)	Output(Y)	
00	X00 to	Y00 to	} 32 points
1F	X1F	Y1F	

Same I/O numbers are used for input and output

(AH42, QX41Y41P)

	Input(X)	Output(Y)	
00	X00 to	Blank	} 32 points
1F	X1F		
20	Blank	Y20 to	} 32 points
3F		Y3F	

Sequential I/O numbers are used for input and output

■High-speed counter module

These high-speed counter modules are used to replace the A/QnA Series high-speed counter modules (AD61 and AD61-S1) and have the same input filtering system and counting speed.
Modules can be replaced without being restrained by the specifications of existing pulse generators (e.g. an encoder).

Counting speed switch setting	A/QnA Series model	Q Series replacement model
50K PPS	AD61	QD62-H01
10K PPS	AD61-S1	QD62-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 compared to the conventional module).
Replace the positioning module while keeping the existing external devices such as servo amplifiers.

Positioning mode	A/QnA Series model	Q Series replacement model
Position control mode	AD70	QD73A1
Speed-position control switch mode		

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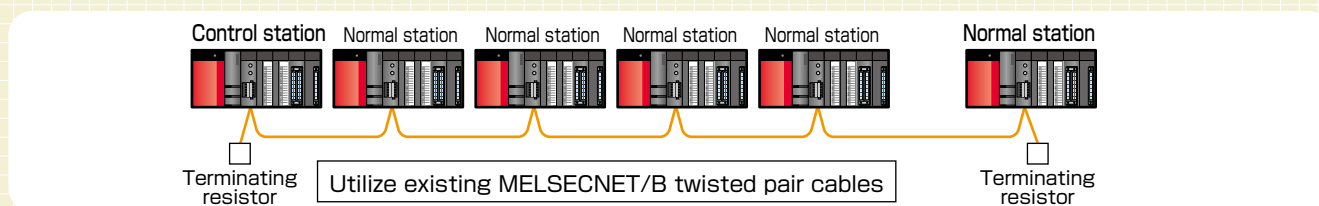 If the number of occupied points differs, set the start I/O number of the replacing module same with the start I/O number of the existing module to utilize the existing programs.

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 A/QnA 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.
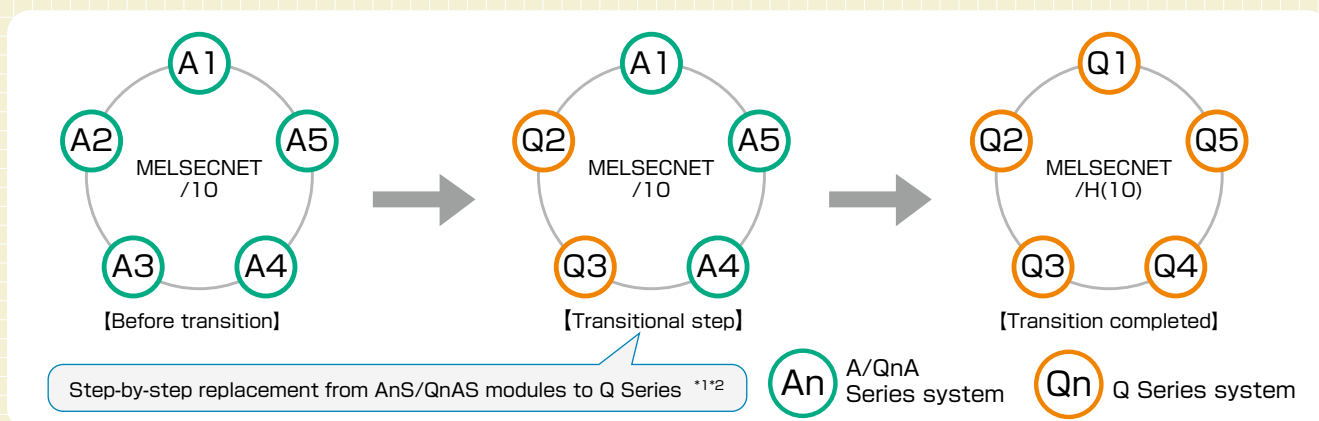

Control station   Normal station   Normal station   Normal station   Normal station   Normal station

Terminating resistor   Utilize existing MELSECNET/B twisted pair cables   Terminating resistor

Model	Outline
QJ71NT11B	MELSECNET/H network module (twist bus type)

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

Gradual transition from the existing A/QnA modules in MELSECNET/10 network system to Q Series with MELSECNET/H(10) network system is possible.[1]
For both the PLC-to-PLC network and the remote I/O network, the transition can be completed by the step-by-step replacement from A/QnA Series modules to Q Series modules.[1]

【Before transition】   【Transitional step】   【Transition completed】

Step-by-step replacement from AnS/QnAS modules to Q Series [1][2]

An A/QnA Series system   Qn Q Series system

●PLC to PLC network, remote I/O network

A/QnA Series model	Q Series equivalent model
AJ71LP21 AJ71QLP21	QJ71LP21-25 [2]
AJ71LP21G AJ71QLP21G	QJ71LP21G [2]
AJ71QLP21S	QJ71LP21S-25 [2]
AJ71BR11 AJ71QBR11 AJ71LR21 [1] AJ71QLR21 [1]	QJ71BR11 [2]

●Remote I/O network

A/QnA Series model	Q Series equivalent model
AJ72LP25 AJ72QLP25	QJ72LP25-25 [3]
AJ72LP25G AJ72QLP25G	QJ72LP25G [3]
AJ72BR15 AJ72QBR15 AJ72LR25 [1] AJ72QLR25 [1]	QJ72BR15 [3]

*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.

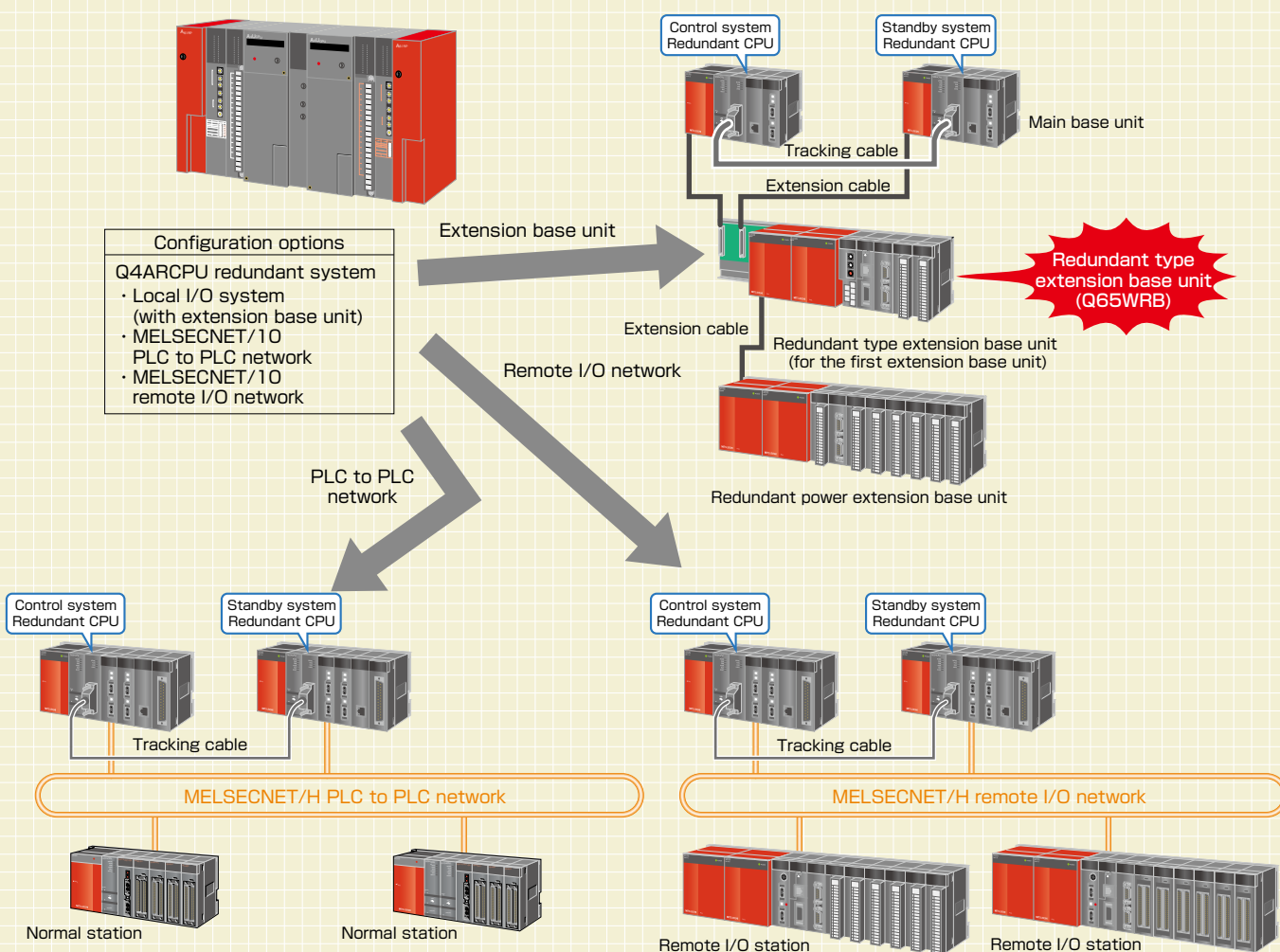*2 : The Q Series remote master station is not compatible with the A/QnA Series remote I/O stations, and therefore the master station should be replaced with Q Series remote master station after replacing the entire A/QnA Series remote I/O stations with the Q Series stations.

*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.

Q Series Redundant System

Select the best Q Series redundant system configuration for the application

■Easily replace the existing Q4ARCPU redundant system to the QCPU redundant system.

Control system Redundant CPU

Standby system Redundant CPU

Main base unit

Tracking cable

Extension cable

Configuration options

Q4ARCPU redundant system
・Local I/O system
  (with extension base unit)
・MELSECNET/10
  PLC to PLC network
・MELSECNET/10
  remote I/O network

Extension base unit

Extension cable

Remote I/O network

Redundant type extension base unit (Q65WRB)

Redundant type extension base unit (for the first extension base unit)

Redundant power extension base unit

PLC to PLC network

Control system Redundant CPU

Standby system Redundant CPU

Control system Redundant CPU

Standby system Redundant CPU

Tracking cable

Tracking cable

MELSECNET/H PLC to PLC network

MELSECNET/H remote I/O network

Normal station

Normal station

Remote I/O station

Remote I/O station

■Network modules of MELSECNET/H PLC to PLC network and remote I/O network can be installed to the Q Series redundant CPU main base. (They can be used together.)
A wide variety of system is constructed to suit the needs of the control target.

■Realizes local I/O system equivalent to Q4ARCPU using the redundant type extension base unit.

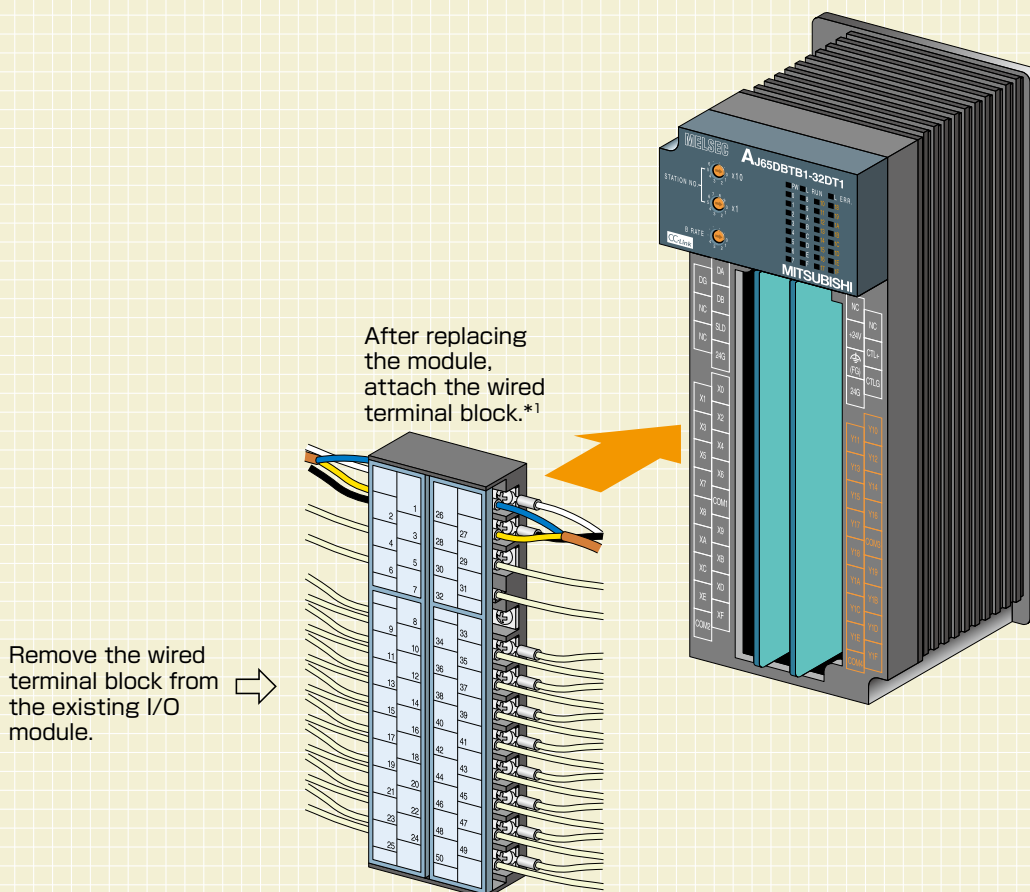■Up to 63 modules can be installed using the redundant type extension base unit.

■Fast system switching time at approx. 50 ms in the redundant local I/O system, remarkable improvement compared to the Q4ARCPU redundant system (300 ms + 1 scan time).

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.

After replacing the module, attach the wired terminal block.*1

Remove the wired terminal block from the existing I/O module.

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

Discontinued model	Alternative model	
	Model	Outline
AX41C	AJ65DBTB1-32D	Terminal block type, 24 V DC input, 32 points, positive/negative common shared
AX81C		
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	AJ65DBTB1-32DR	Terminal block type, 24 V DC input, 16 points, positive/negative common shared, relay output, 16 points
AX80Y10C		

A0J2 Renewal Tool
(manufactured by Mitsubishi Electric System & Service Co., Ltd.)

Replace A0J2(H) system with Q Series system using the existing wiring
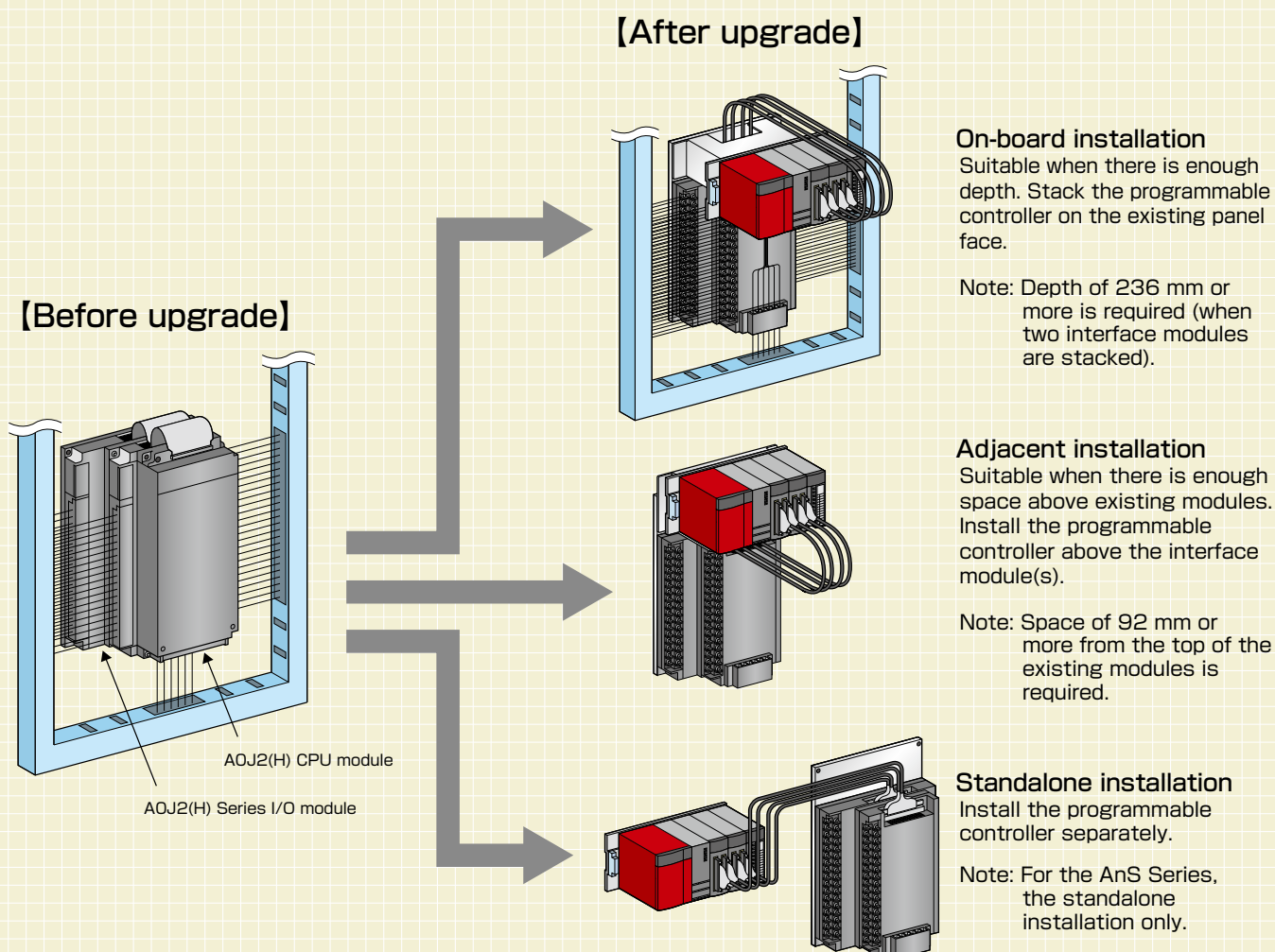
■A0J2 renewal tool features

The A0J2 renewal tool is used to replace the A0J2(H) system with Q Series system. It consists of an interface module to which the existing wiring terminal block can be installed, and a base adapter that can be installed using the existing installation holes.
A variety of installation methods is available to fit the installation space.

■Interface module features

The interface module has DC to relay output conversion and AC to DC input conversion functions. Hence, replacement is possible together with Q Series connector type DC I/O modules.
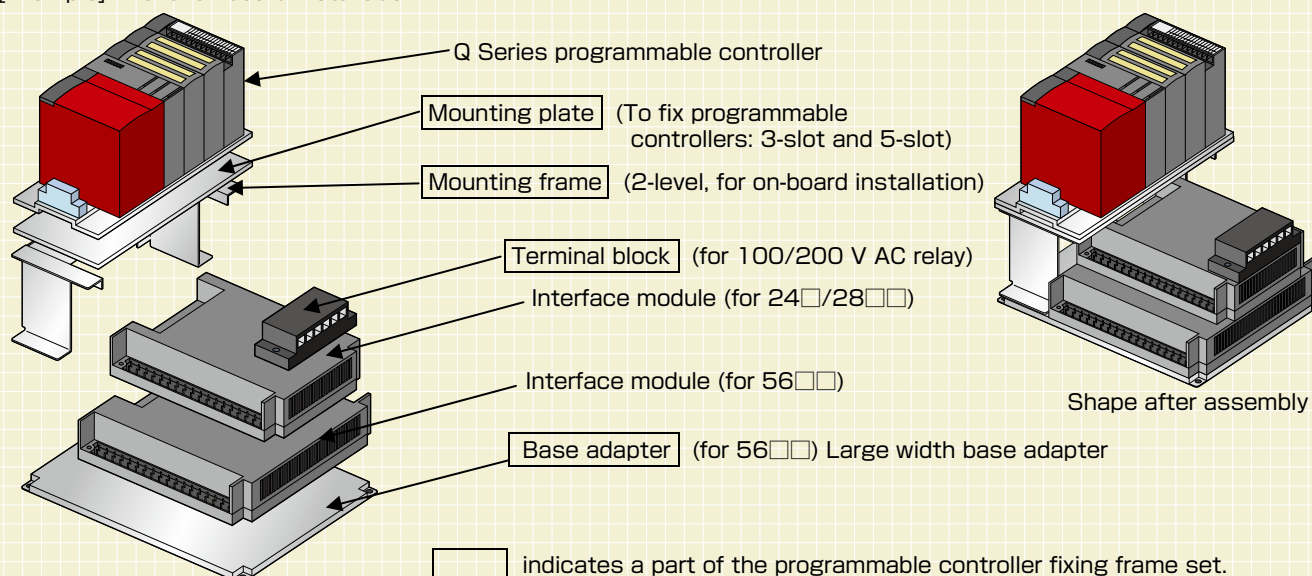Dedicated cables are used to connect the interface module to Q Series I/O modules.

【After upgrade】

【Before upgrade】

A0J2(H) CPU module

A0J2(H) Series I/O module

On-board installation
Suitable when there is enough depth. Stack the programmable controller on the existing panel face.

Note: Depth of 236 mm or more is required (when two interface modules are stacked).

Adjacent installation
Suitable when there is enough space above existing modules. Install the programmable controller above the interface module(s).

Note: Space of 92 mm or more from the top of the existing modules is required.

Standalone installation
Install the programmable controller separately.

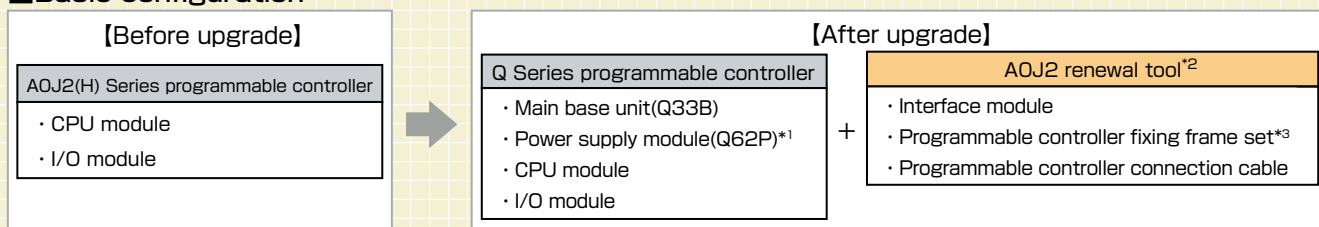Note: For the AnS Series, the standalone installation only.

For detailed specifications, precautions, and restrictions of the A0J2 renewal tool, please refer to the brochure (X900904-165) and user's manual. For further information, please contact your local Mitsubishi Electric sales office or sales representative.

■Structure

[Example] 2-level on-board installation

Q Series programmable controller

Mounting plate (To fix programmable controllers: 3-slot and 5-slot)

Mounting frame (2-level, for on-board installation)

Terminal block (for 100/200 V AC relay)

Interface module (for 24□/28□□)

Interface module (for 56□□)

Base adapter (for 56□□) Large width base adapter

Shape after assembly

□ indicates a part of the programmable controller fixing frame set.

■Basic configuration

【Before upgrade】
A0J2(H) Series programmable controller
· CPU module
· I/O module

【After upgrade】

Q Series programmable controller	AOJ2 renewal tool*2
· Main base unit(Q33B) · Power supply module(Q62P)*1 · CPU module · I/O module	· Interface module · Programmable controller fixing frame set*3 · Programmable controller connection cable

*1: The interface modules except for some models require 24 V DC power supply. If the Q62P is not used, provide a separate external power supply.
*2: See the following list for the applicable interface module.
*3: Includes a base adapter, mounting plate, mounting frame, terminal block, and power supply cable.

Discontinued model		Replacement interface module	Discontinued model		Replacement interface module
Input module	A0J2-E32A	SC-A0JQIF-32A		A0J2-E28DS	SC-A0JQIF-28DS
	A0J2-E32D	SC-A0JQIF-32D		A0J2-E28DT	SC-A0JQIF-28DT
Output module	A0J2-E24R	SC-A0JQIF-24R		A0J2-E56AR	SC-A0JQIF-56AR
	A0J2-E24S	SC-A0JQIF-24S	I/O module	A0J2-E56AS	SC-A0JQIF-56AS
	A0J2-E24T	SC-A0JQIF-24T		A0J2-E56DR	SC-A0JQIF-56DR
I/O module	A0J2-E28AR	SC-A0JQIF-28AR		A0J2-E56DS	SC-A0JQIF-56DS
	A0J2-E28AS	SC-A0JQIF-28AS		A0J2-E56DT	SC-A0JQIF-56DT
	A0J2-E28DR	SC-A0JQIF-28DR			

1. When upgrading to the Q Series module, programs do not need to be modified if the I/O combined module "QX41Y41P (32-point input for the first half and 32-point output for the second half)" is used. (Refer to page 16 Modules for Easy Replacement)
2. The A0J2 renewal tool can be used to replace MELSECNET/MINI compact type I/O modules (AJ35PTF-□ (such as 28AR and 56DR)) with CC-Link modules.
3. For products that are not described (such as connection cables for programmable controller), please contact your local Mitsubishi sales office or representative

Product List

■ List of products used for upgrade

Extension base unit

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

Q Series large type base unit

Type	Model	Outline
Main base unit	Q38BL	8 slots, 1 power supply module required, for the Q Series large type I/O modules
	Q35BL	5 slots, 1 power supply module required, for the Q Series large type I/O modules
Extension base unit	Q68BL	8 slots, 1 power supply module required, for the Q Series large type I/O modules
	Q65BL	5 slots, 1 power supply module required, for the Q Series large type I/O modules
	Q55BL	5 slots, power supply module not required, for the Q Series large type I/O modules

Q Series large type I/O module

Type	Model	Outline
Input module	QX11L	32 points, 100 to 120 V AC, rated input current: 10 mA (100 V AC, 60 Hz), response time: 15 ms or less (OFF to ON), 25 ms or less (ON to OFF), 32 points/common, 38-point terminal block
	QX21L	32 points, 200 to 240 V AC, rated input current: 10 mA (220 V AC, 60 Hz), response time: 15 ms or less (OFF to ON), 25 ms or less (ON to OFF), 32 points/common, 38-point terminal block
Output module	QY11AL	16-point contact output, 24 V DC/240 V AC, 2 A/point, 16 A/all points, all points independent, 38-point terminal block, surge suppressor (varistor 387 to 473 V)
	QY13L	32-point contact output, 24 V DC/240 V AC, 2 A/point, 5 A/common, 8 points/common, 38-point terminal block
	QY23L	32-point triac output, 100 to 240 V AC, 0.6 A/point, 2.4 A/common, 8 points/common, 38-point terminal block
	QY51PL	32-point transistor output (Sink), 12/24 V DC, 0.5 A/point, 4 A/common, 16 points/common, 38-point terminal block
Q Series large type blank cover	QG69L	Blank cover for installing the existing Q Series module on the Q Series large type base unit

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)

I/O combined module

Type	Model	Outline

I/O combined module	QX41Y41P	Input specifications (positive common type)
		    32 points, 24 V DC, 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)
		Output specifications (sink type)
		    32 points, 24 V DC, 0.1 A/point, 2 A/common,
		    response time: 1 ms or less (OFF to ON), 1ms or less (ON to OFF, rated load, resistance load)
		Number of occupied I/O points:
		    64 points (32-point input for the first half and 32-point output for the second half)

High-speed counter module

Type	Model	Outline
High-speed counter module	QD62-H01	High-speed counter module for replacing the AD61 (with the same input filtering system and counting speed)
	QD62-H02	High-speed counter module for replacing the AD61-S1 (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

Product List

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, high-speed response, response time: 10ms Output: 16 points, 24 V DC 0.5A, transistor output (sink) terminal block 1-wire type (low leakage current type)
	AJ65DBTB1-32R	Output: 32 points, 24 V DC/240 V AC 2A 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

■ Models in continuous production

The production of the A/QnA Series products except the following modules has been discontinued since September 2006.

Note: In accordance with the continuation of production, model names may be changed.

Power supply module

Type	Model
Large type A/QnA Series power supply module	A61PN*1
	A61RP

If using power supplies other than the above, please consider switching over to one of the above models.
*1: A61PN is a replacement of A61P/A61PEU/A61P-UL.

Battery

Type	Model
Battery	A6BAT

Only some models of the MELSEC-A/QnA (Large Type) Series are still in limited production. However, the EN61131-2:2003 certification has expired, so the CE Declaration for models still in production has been withdrawn. (Technical Bulletin No. FA-A-0071)

■ Discontinued products

Discontinued products		Date of discontinuation
Large type A Series/ Large type QnA Series	●CPU module ●I/O module ●Special function module ●Data link module (MELSECNET(II), MELSECNET/B module, etc.) ●MELSECNET/MINI-S3 master module ●MELSEC-I/OLINK master module	End of Sep. 2006
	●MELSECNET/10 network module	End of Sep. 2014
A2C Series	●CPU module	End of Sep. 2006
	●A2C I/O module ●Special function module etc.	End of Sep. 2008
Network interface board	●MELSECNET(II), MELSECNET/B interface board	End of Sep. 2008
A0J2(H) Series	●CPU module ●Power supply module ●I/O module ●Special function module etc.	End of Sep. 2008
Remote I/O module	●MELSECNET/MINI-S3 I/O module	End of Sep. 2008
	●MELSEC-I/OLINK I/O module	End of Sep. 2014

Note: The production of the AnS/QnAS Series was also discontinued at the end of September 2014.

Product List

■ Service availability period

		2005	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22
Products discontinued at the end of Sep. 2006	Service availability period*1			Service availability period (7 years) ▲ Production discontinued (Sep. 2006) → ▲ End of service (Sep. 2013)															
	Schedule for spare products*2		▲ Start of order acceptance (Sep. 2006)		▲ Production discontinued (Sep. 2008) → Service availability period (7 years) → ▲ End of service (Sep. 2015)														
Products discontinued at the end of Sep. 2008	Service availability period*1				▲ Production discontinued (Sep. 2008) → Service availability period (7 years) → ▲ End of service (Sep. 2015)														
Products discontinued at the end of Sep. 2014	Service availability period*3										▲ Production discontinued (Sep. 2014) → Service availability period (7 years) → ▲ End of service (Sep. 2021)								

*1: For details of the service availability period of discontinued products, refer to Technical Bulletin No.FA-A-0049.

*2: Production of selected products , which were discontinued at the end of September 2006 (Technical Bulletin No.T99-0050), were extended until end of September 2008 as spare. However, its continued production has ended as of the end of September 2008.

*3: For details of the service availability period of discontinued products, refer to Technical Bulletin No. FA-A-0141 and No. FA-A-0142.

Precautions before use

This publication explains the typical features and functions of the products herein and does not provide restrictions or other information related to usage and module combinations. Before using the products, always read the product user manuals. Mitsubishi Electric will not be held liable for damage caused by factors found not to be the cause of Mitsubishi Electric; opportunity loss or lost profits caused by faults in Mitsubishi Electric products; damage, secondary damage, or accident compensation, whether foreseeable or not, caused by special factors; damage to products other than Mitsubishi Electric products; or any other duties.

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Mitsubishi Electric's e-F@ctory concept utilizes both FA and IT technologies, to reduce the total cost of development, production and maintenance, with the aim of achieving manufacturing that is a "step ahead of the times". It is supported by the e-F@ctory Alliance Partners covering software, devices, and system integration, creating the optimal e-F@ctory architecture to meet the end users needs and investment plans.

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