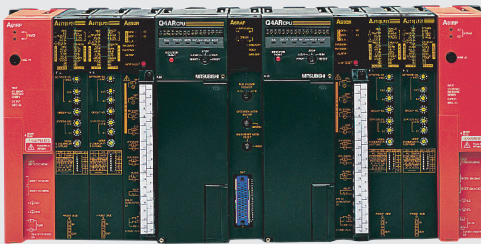# MELSEC A & AnS Series Transition to MELSEC Q Series

A Series refers to the large type An, AnN, AnA, AnU, QnA CPUs. AnS Series refers to the compact AnSH and QnAS(H) CPUs. Both terms, A Series and AnS Series, also include all associated racks, power supplies, I/O, special function and network modules, and related peripherals.

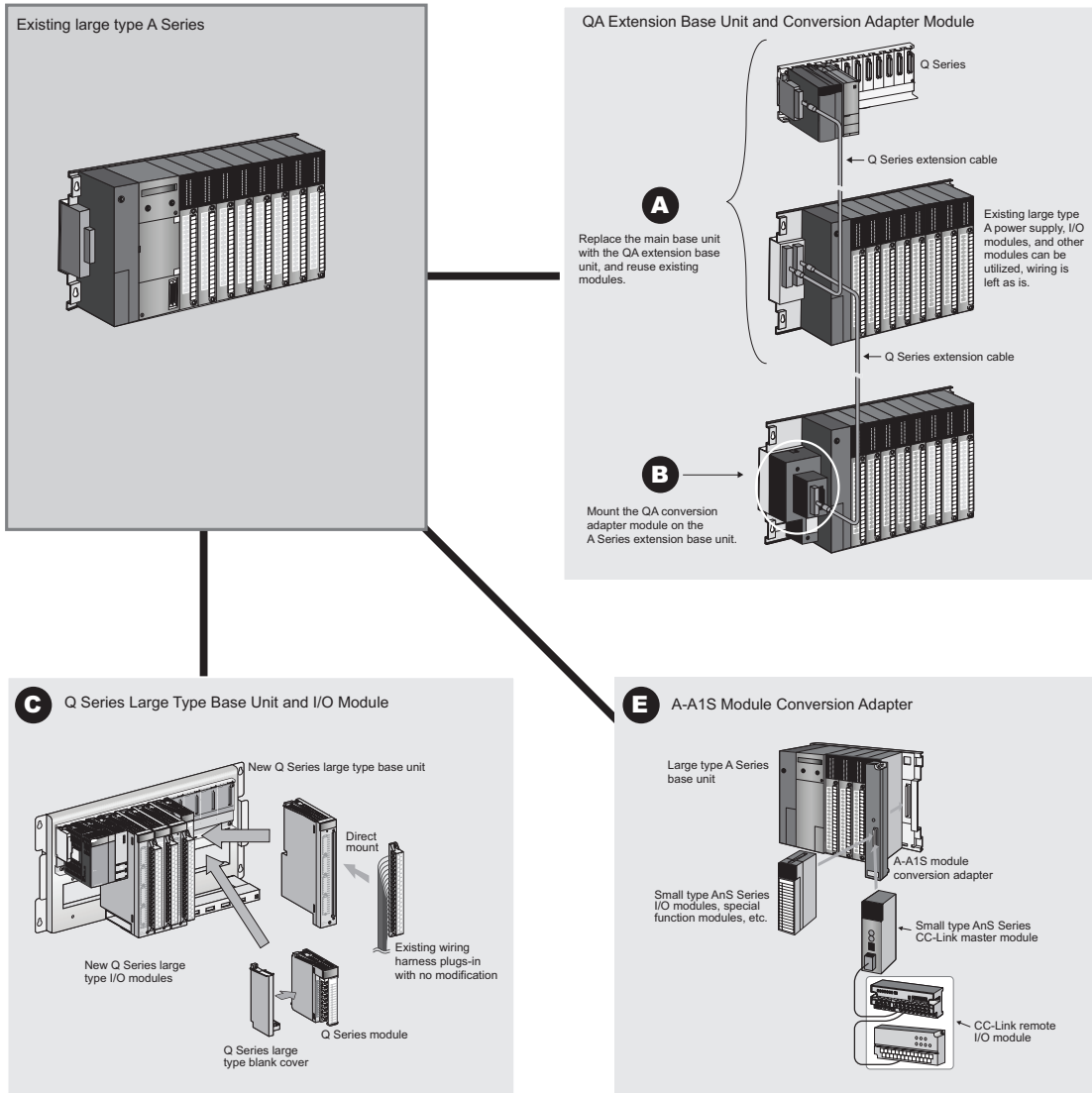### Large Type A Series

A/QnA
10'' rack height

Compact AnS Series

AnSH/QnAS(H)
5'' rack height

MELSEC-A / QnA Series Transition to MELSEC Q Series

System Configuration

Existing large type A Series

QA Extension Base Unit and Conversion Adapter Module

Q Series

Q Series extension cable

A Replace the main base unit with the QA extension base unit, and reuse existing modules.

Existing large type A power supply, I/O modules, and other modules can be utilized, wiring is left as is.

Q Series extension cable

B Mount the QA conversion adapter module on the A Series extension base unit.

C Q Series Large Type Base Unit and I/O Module

New Q Series large type base unit

Direct mount

Existing wiring harness plugs-in with no modification

New Q Series large type I/O modules

Q Series module

Q Series large type blank cover

E A-A1S Module Conversion Adapter

Large type A Series base unit

A-A1S module conversion adapter

Small type AnS Series I/O modules, special function modules, etc.

Small type AnS Series CC-Link master module

CC-Link remote I/O module

Stock Product: Stock product is product MEAU makes every effort to have on hand for immediate shipment. There may be instances when we are out of stock due to unexpected large requirements. All stock product will be indicated in this book by an "S" in the Stocked Item columns/rows.

Non-Stock Product: Non-stock product is product supplied on an "as-needed" basis. Standard lead times of 12 - 16 weeks apply, product is non-returnable and non-cancelable. Product listed as non-stock may change to stock product subject to increases in sales and usage.
All non-stock product will be indicated in this book by a dash "-" in the Stocked Item columns/rows.

A. QA Extension Base Units

- QA6_B extension bases accept existing A Series I/O modules directly, permitting reuse of an A Series I/O installation with a Q Series CPU and Q series extension cable. Use this as a first step towards upgrading an A Series system.
- QA6_B extension base units are compatible with high performance model QCPUs and universal model QCPU (serial number 13102 or later). Basic model, process, redundant, and remote I/O stations are not compatible.
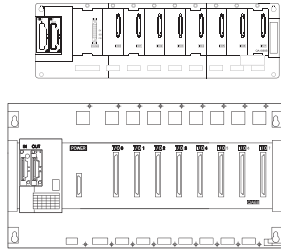
Model Number	QA1S65B	QA1S68B	QA65B-E	QA68B-E
Stocked Item	S	-	-	-
Module Type	Extension Base Unit	Extension Base Unit	Base Unit	Base Unit
Number of I/O Modules Connected	5	8	5	8
Applicable Modules	AnS Series Modules		Large A Series module	
Protection Degree	IPOX			
5VDC Internal Current Consumption (A)	0.117	0.118	0.117	
Weight (kg)	0.75	1.00	1.60	2.00
Dimensions (W x H x D) mm (In)	315 x 130 x 51.2 (12.41 x 5.12 x 2.02)	420 x 130 x 51.2 (16.55 x 5.12 x 2.02)	352 x 250 x 47 (13.87 x 9.85 x 1.85)	466 x 250 x 47 (18.36 x 9.85 x 1.85)

Please refer to the "QA65B/QA68B Extension Base Unit User's Manual (IB(NA)-0800158)" for details of modules that can be mounted on the QA6_B extension base units.

Small type AnS/Q2AS Series modules can also be used by connecting them as a QCPU extension base. QA1S65B/QA1S658B extension base units can be used with QA65B and QA68B.

B. QA Conversion Adapter Module

- QA conversion adapter module allows use of existing A Series extension base units with a Q Series extension cable.
- QA6ADP adapter is compatible with high performance model QCPUs only. Basic model process, redundant, and universal QCPUs, as well as remote I/O stations are not compatible.
- Modules which can be mounted on the extension base unit (A6_B) are the same as when QA6_B is used.

- An adapter module mounting bracket is required to mount the QA6ADP adapter.
- When an AC input module is mounted on the "A5_B" extension base unit (without power supply) using the QA6ADP, either the "A6_B with QA6ADP" or "QA6_B" extension base unit (with power supply) is required in the system.
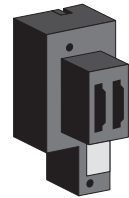
Model Number	QA6ADP (*1)
Stocked Item	-
5VDC Internal Current Consumption	110 mA
Weight (kg)	0.2
Dimensions W x H x D mm (in) (*2)	73.5 x 130 x 74 (2.89 x 5.11 x 2.91)

Notes:
1. QA6ADP adapter cannot be used with the small type AnS/QnS Series extension base units.
2. The dimension values are with QA6ADP mounted on the extension base unit.

C. Q Series Large Type Base Units

- Minimize wiring modifications by reusing existing A Series 32-point I/O wiring.

- No need to make new mounting holes. Hole size and pitch of the Q Series large type base units are the same as those of large type A Series.

- Simple wiring. Just mount the existing wired terminal block on the Q Series large type I/O module.

- Use standard Q Series power supply and CPU modules without modification.

- Q Series large type I/O modules and standard Q Series modules can be used together (excluding modules which occupy two slots).

- By using the upgrade tool, modules which are not equivalent to Q Series large type I/O can be mounted without rewiring.

- The Q Series Large Type Base Units and I/O modules are compatible with Universal and High Performance QCPUs, as well as MELSECNET/H Remote I/O Station modules. The Process, Redundant, Basic, and Safety CPUs are not compatible.
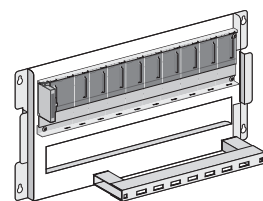
Model Number	Q35BL	Q38BL	Q55BL	Q65BL	Q68BL
Stocked Item	S	S	S	S	S
Option	Main Base Unit		Extension		
Power Supply	-	-	-	Yes	Yes
Number of Mountable I/O Modules	5	8	5	5	8
Applicable Module	Q Series PSU and CPU, Q Series Large Type I/O Module				
5VDC Internal Current Consumption (A)	0.11	0.12	0.10	0.11	0.12
Weight (kg)	1.87	2.35	1.59	1.81	2.32
External Dimensions W x H x D mm (in)	382 x 240 x 110 (15.04 x 9.45 x 4.33)	480 x 240 x 110 (18.90 x 9.45 x 4.33)	297 x 240 x 110 (11.69 x 9.45 x 4.33)	352 x 240 x 110 (13.86 x 9.45 x 4.33)	466 x 240 x 110 (18.35 x 9.45 x 4.33)

Q Series Large Type I/O Modules

| Model Number		QX11L	QY13L	QY23L
Stocked Item		S	S	S
Number of Input Points		32 points	-	-
Number of Output Points		-	32 points	32 points
Rated Input Voltage, Frequency		100 to 120VAC (+10/-15%), 50/60Hz (3Hz)	-	-
Rated Switching Voltage/ Current		-	24VDC / 240VAC	100 to 240VAC (+10/-15%)
Input Voltage Distortion		Within 5%	-	-
Rated Input Current		10mA (100VAC, 60Hz)	-	-
Maximum Number of Simultaneous Input Points		60% (20 points) simultaneously on	-	-
Maximum Load Voltage		-	264VAC / 125VAC	264VAC
Maximum Load Current		-	2A/point, 5A/common	0.6A/point, 2.4A/common
Minimum Load Voltage/Current		-	5VDC / 1mA	24VAC 100mA, 100VAC 10mA, 240VAC 10mA
On Voltage / On Current		80VAC or more/6mA or more	-	-
Off Voltage / Off Current		30VAC or less/2mA or less	-	-
Response Time	OFF-ON	15ms or less	10ms or less	1ms or less
	ON-OFF	25ms or less	12ms or less	1ms + 0.5 cycles or less
Maximum Switching Frequency		-	3600 times/hour	-
Points / Common		32 points/common (common terminal: TB9, TB18, TB27, TB36)	8 points/common (common terminal: TB9, TB18, TB27, TB36)	8 points/common (common terminal: TB9, TB18, TB27, TB36)
External Supply Power	Voltage	-	24VDC ±10% Ripple voltage 4Vp-p or less	-
	Current	-	290mA (TYP. 24VDC all points On)	-
Connection Type		Screw Terminals		
5VDC Internal Current Consumption		75mA (TYP. all points On) (0.08A is shown on the rating plate of the module.)	230mA (TYP. all points On)	590mA (TYP. all points On)
Weight (kg)		0.33	0.45	0.45
Base Unit Slots Occupied		1		

Q Series Large Type Blank Cover

Model Number	QG69L
Stocked Item	S
Weight (kg)	0.03
Base Unit Slots Occupied	1
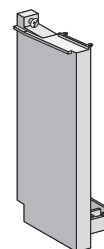
D. Upgrade Tool

This upgrade tool includes the Conversion Adapter, Conversion Adapter Fixture and Base Adapter. The Conversion Adapter changes the existing wiring for the MELSEC-A series I/O modules to the one applicable to the MELSEC-Q series. The Conversion Adapter Fixture fixes the bottom of the Conversion Adapter in place. The Base Adapter allows installation of the MELSEC-Q series using the mounting holes for the MELSEC-A series base unit.
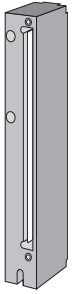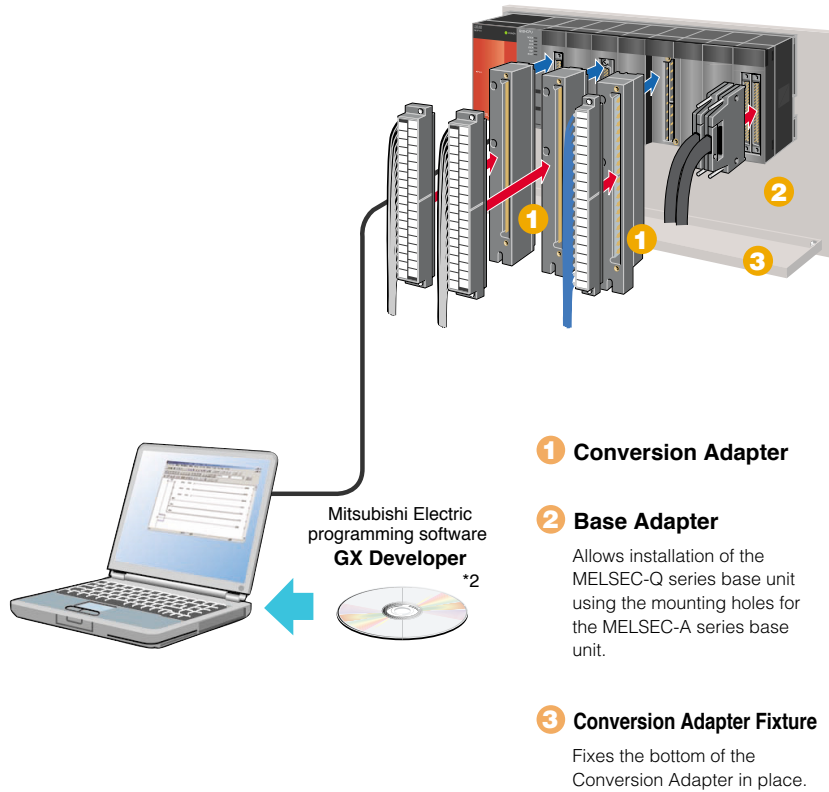
Conversion Adapters

Type	A Series Model	Q Series Model	Conversion Adapter				Number of I/O
			Model Number	Stocked Item	A Series	Q Series	
Input	AX10	QX10	ERNT-AQTX10	S	Terminal Block (20 points)	Terminal Block (18 points)	16 points
	AX11, AX11EU	QX10 (2 required)	ERNT-AQTX11	S	Terminal Block (38 points)	Terminal Block (18 points) x 2	32 points
	AX40	QX40, QX40-S1	ERNT-AQTX40	S	Terminal Block (20 points)	Terminal Block (18 points)	16 points
	AX70	QX70					
	AX80, AX80E	QX80	ERNT-AQTX80	S			
	AX41	QX41	ERNT-AQTX41	S	Terminal Block (38 points)	FCN Connector (40-pin)	32 points
	AX41-S1	QX41-S1					
	AX71	QX71					
	AX81, AX81-S1	QX81	ERNT-AQTX81	S	Terminal Block (38 points)	D-Sub Connector (37-pin)	
Output	AY10, AY11, AY11E, AY11EEU	QY10	ERNT-AQTY10	S	Terminal Block (20 points)	Terminal Block (18 points)	16 points
	AY10A, AY11A, AY11AEU	QY18A (2 required)	ERNT-AQTY10A	S	Terminal Block (38 points)	Terminal Block (18 points) x 2	
	AY13, AY13E, AY13EU	QY10 (2 required)	ERNT-AQTY13	S			32 points
	AY22	QY22	ERNT-AQTY22	S	Terminal Block (20 points)	Terminal Block (18 points)	16 points
	AY23	QY22 (2 required)	ERNT-AQTY23	S	Terminal Block (38 points)	Terminal Block (18 points) x 2	32 points
	AY40, AY40P	QY40P	ERNT-AQTY40	S	Terminal Block (20 points)	Terminal Block (18 points)	16 points
	AY70	QY70					
	AY50	QY50	ERNT-AQTY50	S			
	AY51, AY51-S1	QY50 (2 required)	ERNT-AQTY51	S	Terminal Block (38 points)	Terminal Block (18 points) x 2	32 points
	AY60	QY40P, QY50	ERNT-AQTY50	S	Terminal Block (20 points)	Terminal Block (18 points)	16 points
	AY60S	QY40P, QY50					
	AY80, AY80EP, AY60E, AY60EP	QY80	ERNT-AQTY80	-			
	AY41, AY41P	QY41P	ERNT-AQTY41	S	Terminal Block (38 points)	FCN Connector (40-pin)	32 points
	AY71	QY71					
	AY81, AY81EP	QY81P	ERNT-AQTY81	S	Terminal Block (38 points)	D-Sub Connector (37-pin)	
Analog Input	A68AD, A68AD-S2	Q68ADV, Q68ADI	ERNT-AQT68AD	-	Terminal Block (38 points / 32 I/O)	Terminal Block (18 points / 16 I/O)	32 points
	A68ADN	Q68ADV, Q68ADI	ERNT-AQT68ADN	-	Terminal Block (38 points / 32 I/O)	Terminal Block (18 points / 16 I/O)	32 points
Analog Output	A68DAV, A68DAI, A68DAI-S1	Q68DAVN, Q68DAIN	ERNT-AQT68DA	-	Terminal Block (38 points / 32 I/O)	Terminal Block (18 points / 16 I/O)	32 points

Base Adapter

A Series Unit Model	Q Series Unit Model	Base Adapter Model	Stocked Item	Remarks
A38B, A38HB	Q312B, Q38B	ERNT-AQB38	S	Conversion Adapter Fixture ERNT-AQF12 or ERNT-AQF8 can be used.
A68B	Q312B, Q38B	ERNT-AQB68	S	
A58B	Q68B	ERNT-AQB58	-	Conversion Adapter Fixture ERNT-AQF8 can be used.
A35B	Q38B, Q35B	ERNT-AQB35	S	Conversion Adapter Fixture ERNT-AQF8 and ERNT-AQF5 can be used.
A65B	Q68B, Q65B, Q55B	ERNT-AQB65	S	
A55B	Q65B, Q55B	ERNT-AQB55	-	Conversion Adapter Fixture ERNT-AQF5 can be used.
A32B	Q33B	ERNT-AQB32	-	Conversion Adapter Fixture ERNT-AQF3 can be used.
A62B	Q63B, Q52B	ERNT-AQB62	-	
A52B	Q52B	ERNT-AQB52	-	

Conversion Adapter Fixture

Conversion Adapter Fixture Model	Description	Stocked Item	Remarks
ERNT-AQF12	Conversion Adapter Fixture for 12 slots	S	
ERNT-AQF8	Conversion Adapter Fixture for 8 slots	S	The Conversion Adapter Fixture is required to use the Conversion Adapter.
ERNT-AQF5	Conversion Adapter Fixture for 8 slots	S	
ERNT-AQF3	Conversion Adapter Fixture for 3 slots	-	

Mitsubishi Electric programming software
GX Developer
*2

1 **Conversion Adapter**

2 **Base Adapter**

Allows installation of the MELSEC-Q series base unit using the mounting holes for the MELSEC-A series base unit.

3 **Conversion Adapter Fixture**

Fixes the bottom of the Conversion Adapter in place.

E. Conversion Adapters

- Allows use of AnS equivalent modules when A Series spare parts are not available.
- Select an AnS module with equivalent functionality to the A Series module to be replaced. Use the A1ADP adapter to mount the AnS module on the A Series rack.
- Use CC-Link to add additional I/O to systems where there are no free slots.
- Use an A1ADP adapter to mount an AnS CC-Link master module on the A Series rack in place of an I/O module. The removed I/O module can be duplicated via CC-Link I/O on the network.
- Up to three A1ADP adapters per base unit can be used.
- For details of the compatible modules and applicable adapter type, refer to the following documents. Technical bulletin: T99-0050-F or later.

Model Number	A1ADP-XY	A1ADP-SP
Stocked Item	-	S
Applicable Modules	I/O	Special Function
5VDC Internal Current Consumption	3.4 mA	0 mA
Weight (kg)	0.20	
Base Unit Slots Occupied	1	

F. MELSECNET (II) - MELSECNET/10 Gateway Set

(Example) Partial replacement of MELSECNET (II), from A (large type) Series PLCs to Q Series PLCs

Step-by-step replacement with the Q Series
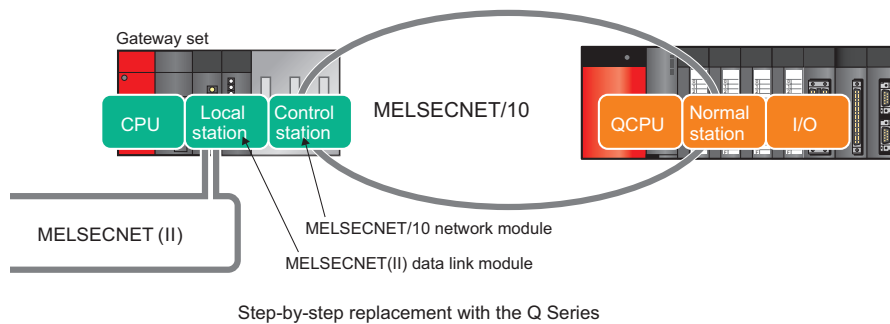
- Use a Q2AS based MELSECNET(II) / MELSECNET/10 gateway to gradually convert MELSECNET(II) stations to MELSECNET/10. MELSECNET/10 is forward compatible with the Q Series via MELSECNET/H.

MELSECNET (II) • MELSECNET/10 Gateway Set

Model Number	Stocked Item	Main Part			NET(II)/B	NET/10
Q6KT-NETGW-SS	-	A1S35B	A1S61PN	Q2ASCPU	A1SJ71AP21	A1SJ71QLP21
Q6KT-NETGW-GS	-				A1SJ71AP21-S3	A1SJ71QLP21
Q6KT-NETGW-RS	-				A1SJ71AR21	A1SJ71QLP21
Q6KT-NETGW-RB	-					A1SJ71QBR11
Q6KT-NETGW-TS	-				A1SJ71AT21B	A1SJ71QLP21
Q6KT-NETGW-TB	-					A1SJ71QBR11

G. MELSECNET (II), MELSECNET/B Local Station Data Link Module

Q Series

Q Series
extension cable

QA1S6_B extension base unit

AnS local station data link module

Note: Existing versions of this module cannot be used due to incompatible firmware.

MELSECNET (II)

- Replace A Series MELSECNET(II)/NET/B stations with Q Series systems. MELSECNET(II)/ MELSECNET/B local station data link modules allow a Q Series system to directly connect to existing MELSECNET(II)/MELSECNET/B via a QA1S6_B extension base unit.

- Allows gradual Q Series integration into the network while maintaining communications.

Model Number	A1SJ71AP23Q			A1SJ71AR23Q		A1SJ71AT23BQ
Stocked Item	-			-		-
MELSECNET Data Link System			**MELSECNET Mode**	**MELSECNET II Mode**	**MELSECNET II Composite Mode**	
	Maximum Link Points in the System	B	1024 points (128 byte)	4096 points (512 byte)		
		W	1024 points (128 byte)	4096 points (512 byte)		
	Maximum Link Points per System	Master Station	1024 bytes	1024 bytes (First half of link parameters)		
		Local Station		1024 bytes (Latter half of link parameters)		
		Remote I/O Station	512 bytes; Number of I/O points: 512 points	-	512 bytes; Number of I/O points: 512 points	
Communication Speed	1.25Mbps					125kbps/250kbps/500kbps/1Mbps
Overall Cable Distance	Up to 10km (Station-to-station 1km)			Up to 10km (Station-to-station 500m)		Changed due to communication speed (125kbps: 1200m, 250kbps: 600m, 500kbps: 400m, 1Mbps: 200m)
Number of Connected Stations	Up to 65 (Master station: 1; The total number of local stations and remote I/O stations: 64)					Up to 32 (Master station: 1; The total number of local stations and remote I/O stations: 31)
Connector	2-core optical connector plug (User prepared (*1))			Connector plug of 3C-2V (User prepared): BNC-P-3-NiCAu-CF (DDK Ltd.) Connector plug for 5C-2V (User prepared): BNC-P-5-NiCAu-CF (DDK Ltd.); BNC-P-5DV SA (41) (Hirose Electric Co., Ltd.)		Terminal block
Applicable Cable	Optical fiber cable (User prepared) (*1)			Cables equivalent to 3C-2V or 5C-2V (User prepared)		Shielded twisted pair cable (User prepared)
I/O Device Points Occupied	32 points			32 points		32 points
Internal Current Consumption (5VDC) A	0.33			0.80		0.66
Weight (kg)	0.30			0.33		0.22
Base Unit Slots Occupied	1					

Note:
1. Connecting an optical fiber cable with a connector requires professional skills and special tools. Also, a connector dedicated to an optical fiber cable is required.
   For purchase, contact your local Mitsubishi Electric System Service or representative.
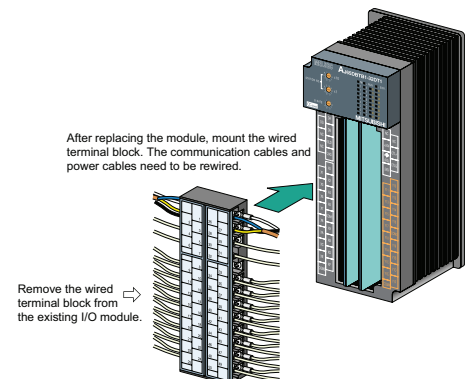
Overall cable distance

- MELSECNET data link system. The overall cable distance refers to a distance from OUT of the master station to IN of the master station via a slave station.

- MELSECNET/B data link system. The overall cable distance refers to a distance between stations at both ends. The overall cable distance of the MELSECNET/B data link system is determined depending on communication speed. The communication speed is set by the communication speed setting switch of each link module.

Communication Speed	Overall Cable Distance
125kbps	1200m
250kbps	600m
500kbps	400m
1Mbps	200m

H. A2C CC-Link Remote I/O Modules

- Replace A2CCPU and MELSECNET/MINI-S3 I/O modules with CC-Link using existing MELSECNETMINI-S3 wiring.

- Simple replacement process helps minimize upgrade time.

- Installation size is the same as that of A2C I/O modules. Existing terminal block can be mounted.

After replacing the module, mount the wired terminal block. The communication cables and power cables need to be rewired.

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

A2C CC-Link Remote Input I/O Module

Model Number		AJ65DBTB1-32D
Stocked Item		-
Number of Input Points		32 points
Rated Input Voltage		24VDC
Rated Input Current		Approx. 5 mA
Operating Voltage Range		20.4 to 31.2 VDC (ripple ratio: within 5 %)
ON Voltage / ON Current		15 V or higher/3 mA or higher
OFF Voltage / OFF Current		5 V or lower/1.5 mA or lower
Response Time	OFF-ON	10 ms or lower (when 24VDC)
	ON-OFF	10 ms or lower (when 24VDC)
Points / Common		16 points/common (2 points)
Input Form		Positive/Negative common shared type (sink/source shared type)
Number of Stations Occupied		1 station 32 points assignment (use 32 points)
I/O Module Power Supply	Voltage	20.4 to 26.4VDC (ripple ratio: within 5%)
	Current	45 mA or lower (when 24VDC, all points on)
Protection of Degree		IP2X
Weight (kg)		0.6
Base Unit Slots Occupied		1
Parts Sold Separately		A6DIN1C, A2CCOM-TB; Refer to CC-Link System Compact Type Remote I/O Module User's Manual SH(NA)4007

A2C CC-Link Remote Output I/O Modules

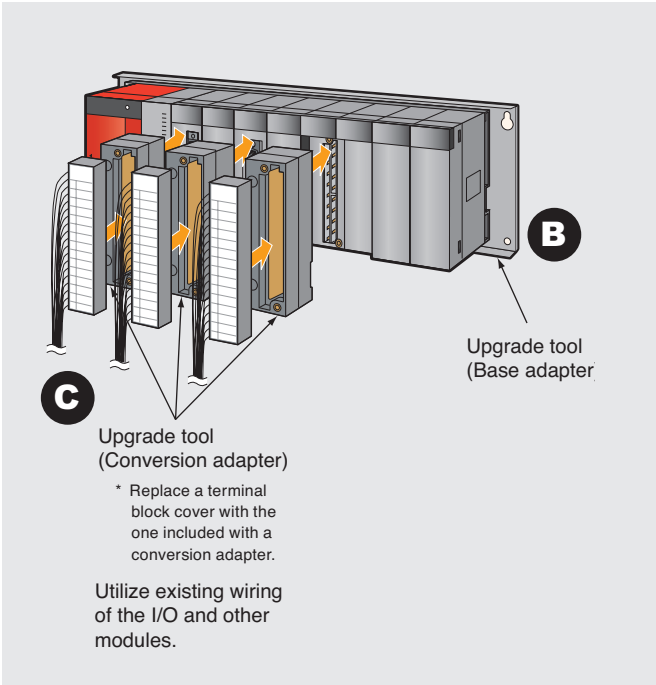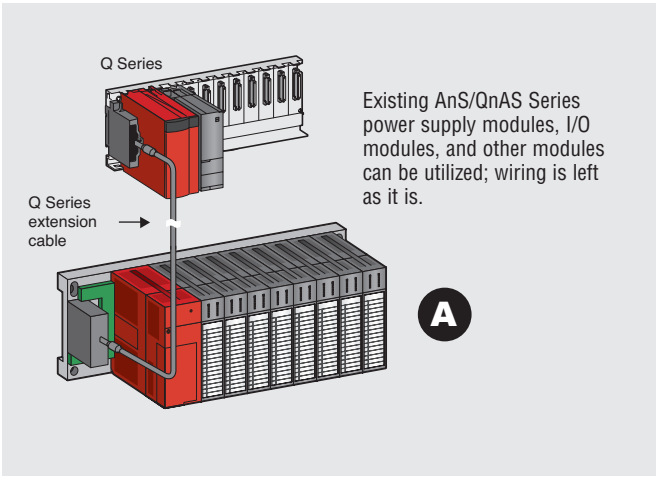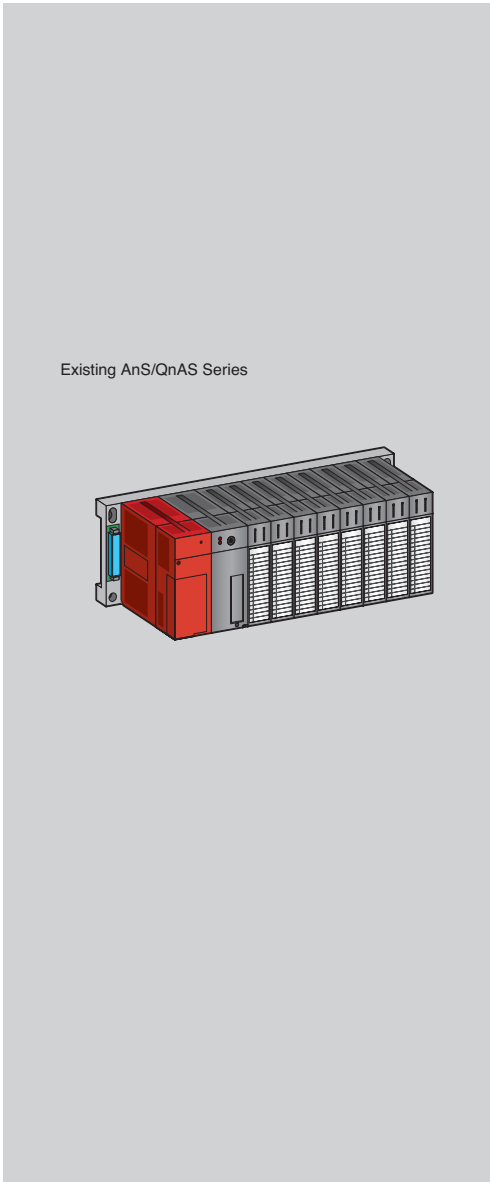| Model Number		AJ65DBTB1-32T1	AJ65DBTB1-32R
Stocked Item		-	-
Number of Output Points		32 points	32 points
Output Form		Transistor (Sink)	Relay
Rated Load Voltage		12/24VDC	24VDC (Resistive load) 240VAC (COSø =1)
Max. Load Current		0.5 A/point 8 A/common (2A/terminal)	2A/point 4A/common (2A/terminal)
Rely Service Life	Mechanical	-	More than 20 million times
	Electrical	-	Rated switching voltage/current loads 100 thousand times or more 200VAC 1.5 A, 240VAC 1A (COSø =0.7): 100 thousand times or more 200VAC 1 A, 240VAC 0.5 A (COSø =0.35): 100 thousand times or more 24VDC 1 A, 100VDC 0.1A (L/R=7ms): 100 thousand times or more
	Max. Switching Frequency	-	3600 times/hour
Response Time	OFF-ON	0.5 ms or lower	10 ms or lower
	ON-OFF	1.5 ms or lower (resistive load)	12 ms or lower
External Power Supply for Output	Voltage	10.2 to 31.2VDC (ripple ratio: within 5%)	24VDC ±10% ripple ratio 4 Vp-p or lower
	Current	50 mA or lower (When 24VDC, all points on) Not including external load current	180 mA or lower (when 24VDC, all points on)
Points / Common		32 points/common (4 points) (terminal block 1-wire type)	8 points/common (terminal block 1-wire type)
Occupied Station Number		1 station 32 points assignment (use 32 points)	
I/O Module Power Supply	Voltage	20.4 to 26.4VDC (ripple ratio: within 5%)	
	Current	65 mA or lower (when 24VDC, all points on)	85 mA or lower (when 24VDC, all points on)
Protection of Degree		IP2X	IP1X
Weight (kg)		0.7	
Parts Sold Separately		A6DIN1C, A2CCOM-TB; Refer to CC-Link System Compact Type Remote I/O Module User's Manual SH(NA)4007	

A2C CC-Link Remote I/O Module

Model Number			AJ65DBTB1-32DT1
Stocked Item			-
Input	Number of Output Points		16 points
	Rated Input Voltage		24VDC
	Rated Input Current		Approx. 5 mA
	Operating Voltage Range		20.4 to 31.2 VDC (ripple ratio: within 5%)
	ON Voltage/ON Current		15 V or higher/3 mA or higher
	OFF Voltage/OFF Current		5 V or lower/1.5 mA or lower
	Response Time	OFF-ON	10 ms or lower (when 24VDC)
		ON-OFF	10 ms or lower (when 24VDC)
	Input Form		Positive common (sink type)
	Points / Common		16 points/common (2 points)
Output	Number of Output Points		16 points
	Rated Load Voltage		12/24VDC
	Operating Load Voltage Range		10.2 to 31.2VDC (ripple ratio: within 5%)
	Max. Load Current		0.5 A/point 4 A/common (2A/terminal)
	Output Form		Sink type
	Response Time	OFF-ON	0.5 ms or lower
		ON-OFF	1.5 ms or lower (resistive load)
	External Power Supply for Output	Voltage	10.2 to 31.2VDC (ripple ratio: within 5%)
		Current	30 mA or lower (when 24VDC, all points on) Not including external load current
	Points / Common		16 points/common (2 points)
Number of Stations Occupied			1 station 32 points assignment (use 32 points)
I/O Module Power Supply	Voltage		20.4 to 26.4VDC (ripple ratio: within 5%)
	Current		55 mA or lower (When 24VDC, all points on)
Protection of Degree			IP2X
Weight (kg)			0.65
Parts Sold Separately			A6DIN1C, A2CCOM-TB Refer to CC-Link System Compact Type Remote I/O Module User's Manual SH(NA)4007

A2C CC-Link Remote I/O Module

Item			AJ65DBTB1-32DR
Stocked Item			-
Input	Number of Output Points		16 points
	Rated Input Voltage		24VDC
	Rated Input Current		Approx. 5 mA
	Operating Voltage Range		20.4 to 31.2VDC (ripple ratio: within 5%)
	ON Voltage / ON Current		15 V or higher/3 mA or higher
	OFF Voltage / OFF Current		5 V or lower/1.5 mA or lower
	Response Time	OFF-ON	10 ms or lower (when 24VDC)
		ON-OFF	10 ms or lower (when 24VDC)
	Points / Common		16 points/common (2 points)
	Input Form		Positive/Negative common shared type (sink/source shared type)
Output	Number of Output Points		16 points
	Rated Load Voltage		24VDC (Resistive load) 240VAC(COSø =1) 2 A/point 4 A/common (2A/terminal)
	Min. Switching Load		5VDC/1 mA
	Max. Switching Voltage		264VAC 125VDC
	Service Life	Mechanical	More than 20 million times
		Electrical	Rated switching voltage/current loads 100 thousand times or more 200VAC 1.5 A, 240VAC 1 A (COSø =0.7): 100 thousand times or more 200VAC 1 A, 240VAC 0.5 A (COSø =0.35): 100 thousand times or more 24VDC 1 A, 100VDC 0.1 A (L/R=7ms): 100 thousand times or more
	Max. Switching Frequency		3600 times/hour
	Response Time	OFF-ON	10 ms or lower
		ON-OFF	12 ms or lower
	Points / Common		8 points/common
	External Power Supply for Output (CTL+/CTLG Terminal)	Voltage	24VDC ±10% ripple ratio 4 Vp-p or lower
		Current	90 mA or lower (When 24VDC, all points on)
Number of Stations Occupied			1 station 32 points assignment (use 32 points)
I/O Module Power Supply		Voltage	20.4 to 26.4VDC (ripple ratio: within 5%)
		Current	60 mA or lower (When 24VDC, all points ON)
Protection of Degree			IP1X
Weight (kg)			0.65
Parts Sold Separately			A6DIN1C, A2CCOM-TB; Refer to CC-Link System Compact Type Remote I/O Module User's Manual SH(NA)4007

MELSEC AnS Series Transition to MELSEC Q Series

Q Series

Existing AnS/QnAS Series power supply modules, I/O modules, and other modules can be utilized; wiring is left as it is.

Q Series extension cable

A

Existing AnS/QnAS Series

B

Upgrade tool (Base adapter

C

Upgrade tool (Conversion adapter)

* Replace a terminal block cover with the one included with a conversion adapter.

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

A. QA Extension Base Units

- QA1S_B extension bases accept existing AnS Series I/O modules directly, permitting reuse of an AnS Series I/O installation with a Q Series CPU and Q Series extension cable. Use this as a first step towards upgrading an AnS Series System.

- QA1S_B extension base units are compatible with high performance model QCPUs and universal model QCPU (serial number 13102 or later). Basic model, process, redundant, and remote I/O stations are not compatible.
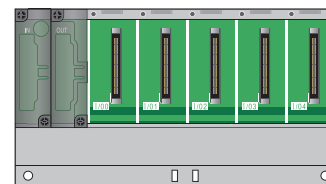
Model Number	QA1S51B	QA1S65B	QA1S68B
Stocked Item	-	S	-
Number of Slots	1	5	8
Power Supply Required	No	Yes	Yes
Extendable	No	Yes	Yes
5VDC Internal Current Consumption (A)	0.12	0.117	0.118
Weight (kg)	0.23	0.75	1.00
Dimensions (W x H x D) mm (In)	130 x 100 x 50.7 (5.12 x 3.94 x 2.00)	130 x 315 x 51.2 (5.12 x 12.41 x 2.02)	130 x 420 x 51.2 (5.12 x 16.55 x 2.02)

Some modules cannot be mounted on the QA1S_B extension base units. For details, see the QCPU User's Manual (Hardware Design, Maintenance and Inspection) (SH(NA)-080473E)
No further extensions can be made to QA1S54B as it does not have an extension cable connector. It also cannot be used with QA6_B and QA6ADP with A5_B or A6_B.

B. QA Base Adapter

The base adapters allow standard Q Series systems to fit in the same position as previous AnS Series installations. Size and location of the holes on these base adapters are same as those of the AnS Series. This eliminates the need to make new mounting holes.
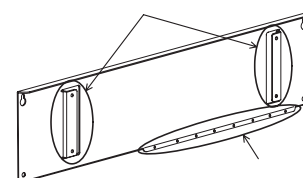
Base Adapters for Conversion Adapters without Fixture

	AnS Series Model	Q Series Model	Base Adapter Model	Stocked Item
Main Base Units	A1S38B/A1S38HB	Q38B	ERNT-ASQB38N	S
	A1S35B	Q35B	ERNT-ASQB35N	S
	A1S33B	Q33B	ERNT-ASQB33N	-
	A1SJCPU	Q00JCPU Q00UJCPU	ERNT-ASQB00JN	-
	A1SJCPU-S3			-
	A1SJHCPU			-
Extension Base Units	A1S68B	Q68B	ERNT-ASQB68N	-
	A1S65B	Q65B	ERNT-ASQB65N	-
	A1S55B	Q55B	ERNT-ASQB55N	-

Mounting Brackets for Conversion Adapters with Fixture

	AnS Series Model	Q Series Model	Mounting Bracket	Stocked Item
Main Base	A1S38B/A1S38HB	Q38B	ERNT-ASQDIN3868	S
Extension Base	A1S68B	Q68B		
Main Base	A1S35B	Q35B	ERNT-ASQDIN356500J	S
Extension Base	A1S65B	Q65B		
Main Base	A1SJCPU	Q00JCPU Q00UJCPU		
	A1SJCPU-S3			
	A1SJHCPU			
	A1S33B	Q33B	ERNT-ASQDIN3355	-
Extension Base	A1S55B	Q55B		

Note:
1. Q6DIN1, Q6DIN2, or Q6DIN3 adapter for the DIN rail installation is also required to mount the MELSEC-Q Series base unit and the mounting bracket to a DIN rail.
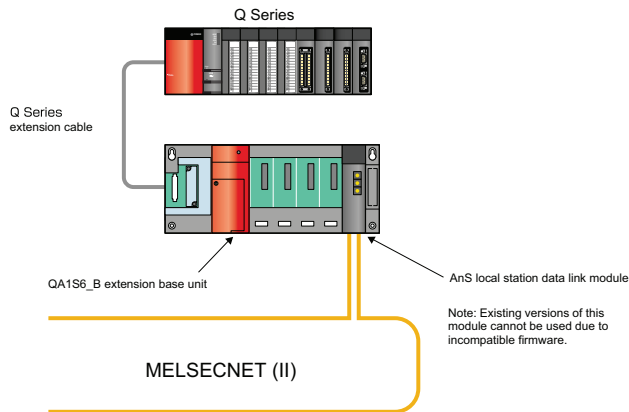
C. QA Conversion Adapters

These conversion adapters allow the reuse of existing AnS Series I/O terminal blocks by connecting them to standard Q Series I/O modules. This allows the reuse of exiting AnS wiring without modification.

Type	AnS Series Model	Q Series Model	Conversion Adapter		AnS Series	Q Series	Number of I/O
			Model Number	Stocked Item			
Input (*1)	A1SX10	QX10	ERNT-ASQTXY10	S	Terminal Block (20 points)	Terminal Block (18 points)	16 points
	A1SX10EU						
Output (*1)	A1SY10	QY10					
	A1SY10EU						
Input (*1)	A1SX40	QX40	ERNT-ASQTX40	S	Terminal Block (20 points)	Terminal Block (18 points)	16 points
	A1SX40-S2						
	A1SX40-S1	QX40-S1					
	A1SX80	QX80	ERNT-ASQTX80	S			
	A1SX80-S1						
	A1SX80-S2						
	A1SX20 (two-slot type)	QX28 ×2	ERNT-ASQTX20	-			
	A1SX20EU (two-slot type)						
Output (*1)	A1SY22	QY22	ERNT-ASQTY22	S	Terminal Block (20 points)	Terminal Block (18 points)	16 points
	A1SY40(P)	QY40P	ERNT-ASQTY40	S			
	A1SY50	QY50	ERNT-ASQTY50	S			
	A1SY80	QY80	ERNT-ASQTY80	S			
	A1SY60 (two-slot type)	QY68A ×2	ERNT-ASQTY60	S			
	A1SY60E (two-slot type)		ERNT-ASQTY60E	-			
Analog Input	A1S64AD	Q64AD	ERNT-ASQT64AD	S	Terminal Block (20 points)	Terminal Block (18 points)	32 points
	A1S68AD (Voltage input)	Q68ADV	ERNT-ASQT68AD	S			
	A1S68AD (Current input)	Q68ADI					
	A1S68AD	Q68AD-G	ERNT-ASQT68AD-G (*2)	-			
Analog Output	A1S62DA	Q62DAN	ERNT-ASQT62DA	S	Terminal Block (20 points)	Terminal Block (18 points)	32 points
	A1S68DAV	Q68DAVN	ERNT-ASQT68DA	S			
	A1S68DAI	Q68DAIN		-			
Analog I/O	A1S63ADA	Q64AD2DA	ERNT-ASQT63AD (*2)	-	Terminal Block (20 points)	Terminal Block (18 points)	32 points
High Speed Counter	A1SD61	QD62	ERNT-ASQTD61 (*2)	-	Terminal Block (20 points)	40-pin connector	32 points
		QD62-H01					
		QD62-H02					
	A1SD62	QD62	ERNT-ASQTD62 (*2)	-		40-pin connector	32 points
	A1SD62E	QD62E					
	A1SD62D	QD62D	ERNT-ASQTD62D (*2)	-			
Temperature Input Modules	A1S68TD	Q68TD-G-H01	ERNT-ASQT68TD-H01 (*2)	-	Terminal Block (20 points)	40-pin connector	32 points
		Q68TD-G-H02	ERNT-ASQT68TD-H02 (*2)	-			
	A1S62RD3(N)	Q64RD	ERNT-ASQT62RD (*2)	-		Terminal Block (18 points)	32 points
	A1S62RD4(N)						

Notes:
1. Partial change in wiring for the power supply and common terminals is required.
2. Conversion Adapter Fixture is attached. This fixture is used to mount the Conversion Adapter to the Base Adapter or to the mounting bracket.

D. MELSECNET (II), MELSECNET/B Local Station Data Link Module

Q Series

Q Series
extension cable

QA1S6_B extension base unit

AnS local station data link module

Note: Existing versions of this
module cannot be used due to
incompatible firmware.

MELSECNET (II)

- Replace A Series MELSECNET(II)/NET/B stations with Q Series systems. MELSECNET(II)/ MELSECNET/B local station data link modules allow a Q Series system to directly connect to existing MELSECNET(II)/MELSECNET/B via a QA1S6_B extension base unit.
- Allows gradual Q Series integration into the network while maintaining communications.

Model Number	A1SJ71AP23Q	A1SJ71AR23Q	A1SJ71AT23BQ
Stocked Item	-	-	-

MELSECNET Data Link System			MELSECNET Mode	MELSECNET II Mode	MELSECNET II Composite Mode
	Maximum Link Points in the System	B	1024 points (128 byte)	4096 points (512 byte)	
		W	1024 points (128 byte)	4096 points (512 byte)	
	Maximum Link Points per System	Master Station	1024 bytes	1024 bytes (First half of link parameters) 1024 bytes (Latter half of link parameters)	
		Local Station			
		Remote I/O Station	512 bytes; Number of I/O points: 512 points	-	512 bytes; Number of I/O points: 512 points

Communication Speed	1.25Mbps		125kbps/250kbps/500kbps/1Mbps
Overall Cable Distance	Up to 10km (Station-to-station 1km)	Up to 10km (Station-to-station 500m)	Changed due to communication speed (125kbps: 1200m, 250kbps: 600m, 500kbps: 400m, 1Mbps: 200m)
Number of Connected Stations	Up to 65 (Master station: 1; The total number of local stations and remote I/O stations: 64)		Up to 32 (Master station: 1; The total number of local stations and remote I/O stations: 31)
Connector	2-core optical connector plug (User prepared) (*1)	Connector plug of 3C-2V (User prepared): BNC-P-3-NiCAu-CF (DDK Ltd.) Connector plug for 5C-2V (User prepared): BNC-P-5-NiCAu-CF (DDK Ltd.); BNC-P-5DV SA (41) (Hirose Electric Co., Ltd.)	Terminal block
Applicable Cable	Optical fiber cable (User prepared) (*1)	Cables equivalent to 3C-2V or 5C-2V (User prepared)	Shielded twisted pair cable (User prepared)
I/O Device Points Occupied	32 points	32 points	32 points
Internal Current Consumption (5VDC) A	0.33	0.80	0.66
Weight (kg)	0.30	0.33	0.22
Base Unit Slots Occupied	1		

Note:
1. Connecting an optical fiber cable with a connector requires professional skills and special tools. Also, a connector dedicated to an optical fiber cable is required.
   For purchase, contact your local Mitsubishi Electric System Service or representative.

Overall cable distance
- MELSECNET data link system. The overall cable distance refers to a distance from OUT of the master station to IN of the master station via a slave station.
- MELSECNET/B data link system. The overall cable distance refers to a distance between stations at both ends. The overall cable distance of the MELSECNET/B data link system is determined depending on communication speed. The communication speed is set by the communication speed setting switch of each link module.

Communication Speed	Overall Cable Distance
125kbps	1200m
250kbps	600m
500kbps	400m
1Mbps	200m

E. MELSECNET/B to MELSECNET/H

- Existing MELSECNET/B twisted pair cables are compatible with QJ71NT11B, the Q Series MELSECNET/H module.
- Simply replace the modules and keep the twisted pair cables intact.
- CC-Link Ver. 1.10 cables may also be used.

Item	Twisted Bus System Specification	
Number of Stations Per Network	32 stations (1 control station, 31 normal stations)	
Cable Type	Twisted pair cable	CC-Link Ver. 1.10 compatible cable
Overall Distance Per Network	-	-
Communication Speed — 156 kbps	1200 m	1200 m
312 kbps	600 m	900 m
625 kbps	400 m	600 m
1.25 Mbps	200 m	400 m
2.5 Mbps		200 m
5 Mbps	(N/A)	150 m
10 Mbps		100 m

F. Transition to Q Series with MELSECNET/10 Network Options

MELSECNET/II to MELSECNET/10 Gateway Set Options

A MELSECNET/II system can be gradually replaced with MELSECNET/10 through the use of a Gateway Set. AnS/QnAS Series stations can then be replaced by the Q Series as needed.

Item	Components of the Gateway Set						
Description	Gateway Set Part Number	Stocked Item	Base Unit	Power Supply	CPU Module	MELSECNET/II or MELSECNET/B Module	MELSECNET/10 Module
MELSECNET/II to MELSECNET/10	Q6KT-NETGW-SS	-	A1S35B	A1S61PN	Q2ASCPU	A1SJ71AP21	A1SJ71QLP21
	Q6KT-NETGW-RS	-				A1SJ71AR21	A1SJ71QLP21
	Q6KT-NETGW-RB	-					A1SJ71QBR11
MELSECNET/B to MELSECNET/10	Q6KT-NETGW-TS	-				A1SJ71AT21B	A1SJ71QLP21
	Q6KT-NETGW-TB	-					A1SJ71QBR11

MELSECNET/10 Network Modules

A MELSECNET/II system can be completely replaced with MELSECNET/10 while reusing existing cable installations. This requires MELSECNET/II data link modules at all stations to be replaced with MELSECNET/10 network modules. Following this replacement, the AnS/QnAS Series stations can be replaced with Q Series Stations as needed.

The production of the following MELSECNET/10 modules will continue.

Model Number		A1SJ71LP21	A1SJ71BR11	A1SJ71QLP21	A1SJ71QBR11
Stocked Item		S	S	-	-
Certification		CE	CE	UL • cUL • CE	UL • cUL • CE
Module Type		Master/Local	Master/Local	Master/Local	Master/Local
Network Topology		Dual Loop	Bus	Dual Loop	Bus
Media		SI Optical Fiber (AS-1000M-B)	Coax (RG-59B/U, RG-11A/U)	SI Optical Fiber (AS-1000M-B)	Coax (RG-59B/U, RG-11A/U)
Media Configuration		Forward & reverse fiber cable loops (2 cables/module, 2 fibers/cable)	Single cable bus T tap connections	Forward & reverse fiber cable loops (2 cables/module, 2 fibers/cable	Single cable bus (T tap connections)
Fiber Core/Cladding Diameter (Microns)		200/250	N/A	200/250	N/A
Required Connections		DL-72ME (2 per module, supplied separately.)	BNC-P-3-Ni/BNC-P-5 (1 per module, supplied separately.)	DL-72ME (2 per module, supplied separately.)	BNC-P-3Ni/BNC-P-5 (1 per module, supplied separately)
Termination Resistance Required		N/A	75 (must be BNC type)	N/A	75 (must be BNC type)
Number of Link Registers (LW)		8192	8192	8192	8192
Number Link Bits (LB)		8192	8192	8192	8192
Max. Cyclic Data Transfer for 1 Station (Bytes)		2000	2000	2000	2000
Max. Number of Modules Per CPU		4	4	4	4
Max. Number of Networks Per System		255	255	239	255
Max. Number of Stations per Network Segment		64 (including master)	32 (including master)	64 (including master)	32 (including master)
Max. Number of Groups		9	9	9	9
Max. Distance Between Stations		1000	300-500 m, depending on cable	1000	300-500 m, depending on cable
Transmission	Rate (Mbit/s)	10 per loop, total 20 when using both loops simultaneously	10	10 per loop, total 20 when using both loops simultaneously	10
	Max. Distance (m)	30,000 (loop circumference)	300-500m, depending on cable	30,000 (loop circumference)	300-500m, depending on cable
Reliability, Availability, Serviceability (RAS) Functions		Automatic master redundancy (floating master) Automatic loopback (loop topology only) Error detection by special devices Module and network diagnostics Programming and monitoring across the network			
I/O Points Occupied		32	32	32	32
Internal Power Consumption 5 VDC (mA)		650	800	650	800
Weight (kg)		0.33	0.33	0.45	0.3
Dimensions (W x H x D) (mm)		34.5 x 130 x 93.6	34.5 x 130 x 93.6	34.5 x 130 x 93.6	34.5 x 130 x 93.6