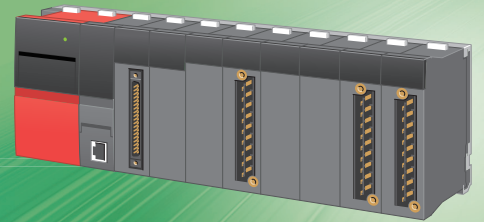


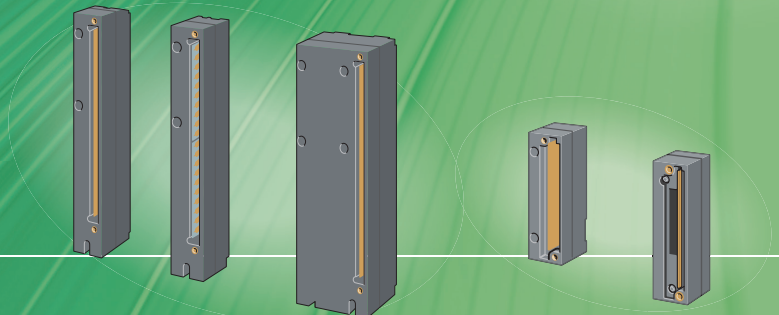
MELSEC-A/AnS Series

→MELSEC iQ-R Series Upgrade Tool

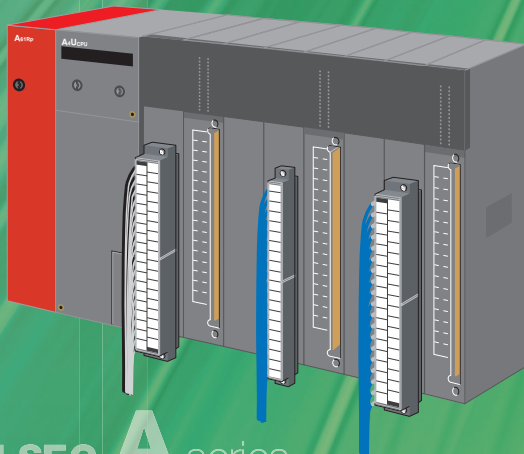
MELSEC **iQ-R** series



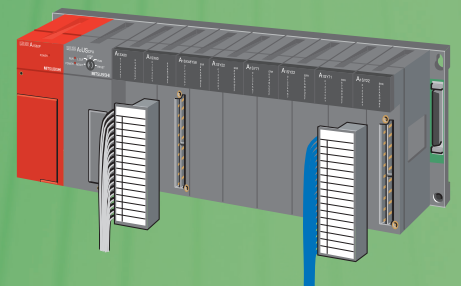
**Upgrade
Tool**



New upgrade tools now available!
Upgrade tools for replacing MELSEC-A/AnS series
with MELSEC iQ-R series



MELSEC-**A** series



MELSEC-**AnS** series

A IQ-R series

MELSEC-A Series / MELSEC iQ-R Series Upgrade Tool

Upgrading the MELSEC-A series to the MELSEC iQ-R series

■ **Simplifies replacement with the MELSEC iQ-R series**

The upgrade tool makes it easy to replace the Mitsubishi Electric programmable controller MELSEC-A series with the MELSEC iQ-R series.

■ **Significantly shortens the time required for input, output, analog, and high-speed counter module wiring, and significantly reduces wiring errors**

• The upgrade tool allows you to connect the wiring connected to the MELSEC-A series input/output/analog/high-speed counter modules as is to the MELSEC iQ-R series using a conversion adapter.

(Some power supply and common terminal connections need to be changed.)

• With a base adapter, the MELSEC iQ-R series can be mounted by using the mounting holes of the MELSEC-A series base unit. (No need to drill any additional mounting holes.)

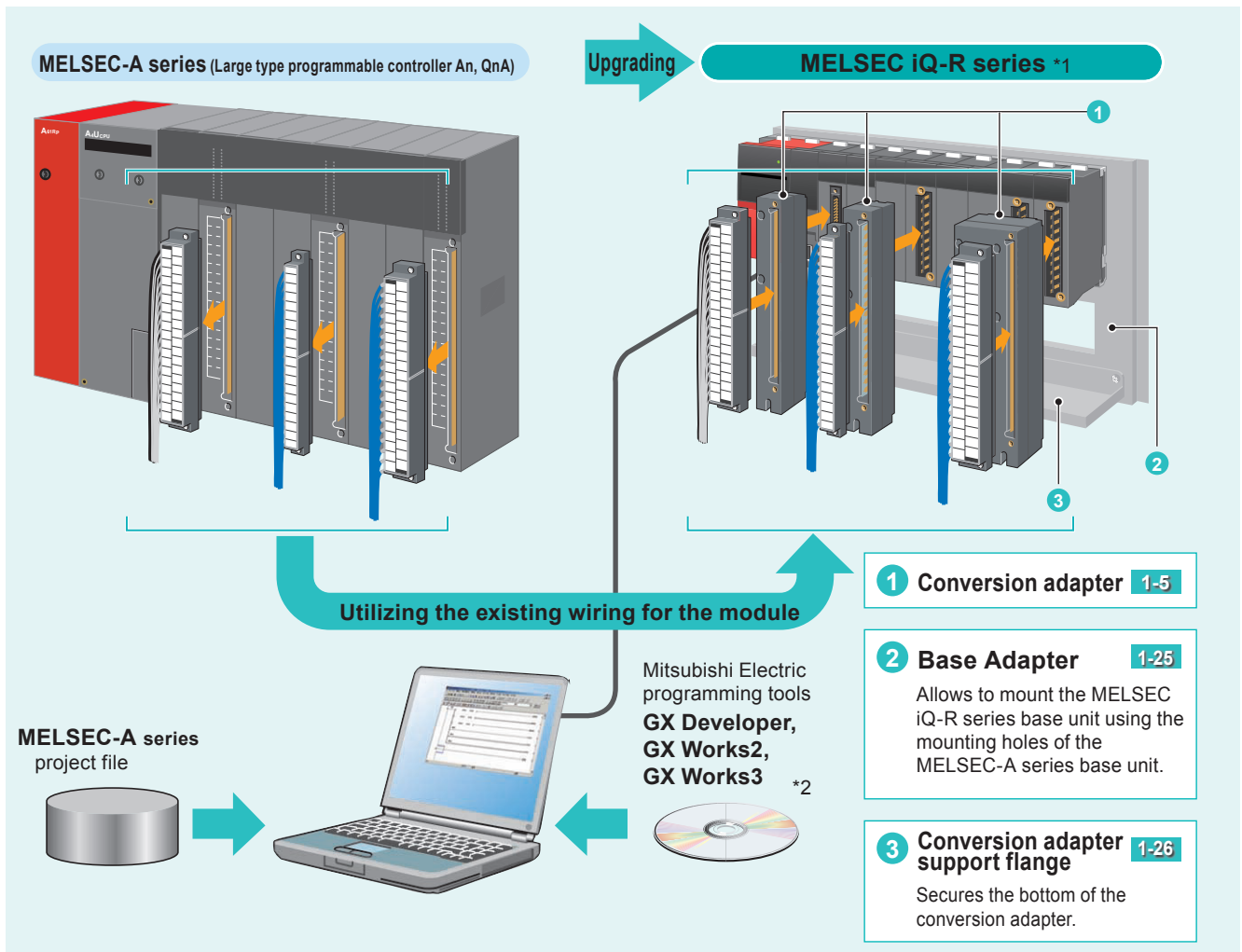
■ **Permits reuse of sequence programs**

The upgrade tool allows you to convert a MELSEC-A series program into a MELSEC iQ-R series program using the Mitsubishi Electric programming tools.

For details, contact Mitsubishi Electric Corporation.

Product Overview

This upgrade tool comprises a "conversion adapter" that is used to transfer the existing wiring of the Mitsubishi Electric programmable controller MELSEC-A series module to wiring for a MELSEC iQ-R series module, a "conversion adapter support flange" that is used to secure the conversion adapter at the bottom, and a "base adapter" that the MELSEC iQ-R series can be mounted by using the mounting holes of the MELSEC-A series base unit.



* 1: When replacing the MELSEC-A series with the MELSEC iQ-R series, check that it can be mounted because the width and depth of the modules differ.

* 2: Example of how to change the program

1) On GX Developer, convert the PLC type for the target program to the MELSEC-Q series and save (GPJ file).

2) On GX Works2, open the saved project by selecting "Open other data" → "Open Other Project" from "Project" and save it (GXW file).

3) On GX Works3, open the saved project by selecting "Open Other Format File" → "GX Works2 Format" → "Open Project" from "Project".

Model List

1 Conversion Adapter

When selecting a conversion adapter, be sure to refer to the specification comparison charts and notes on pages 1-5 to 1-24. These pages describe precautions such as differences in the number of points per common.
 For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.
 Note that the areas where the specifications differ between the MELSEC-A series and the MELSEC iQ-R series are restricted in terms of specifications when replacing. Check the specifications of the connected devices.

For Input/Output Modules

<1-slot type>

Input / Output	MELSEC-A series module mode before replacement	MELSEC iQ-R series module mode after replacement	Note	Conversion adapter			Page	
				Model	Shape (No. of points/No. of pins)			
					MELSEC-A series	MELSEC iQ-R series		
Input	AX10, AX10-UL	RX10	-	ERNT-1AR10XY	Terminal block (20 points)	Terminal block (18 points)	16 points	1-5
	AX40, AX40-UL	RX40C7	*1, 5					
	AX70, AX70-UL							
	AX80, AX80-UL							
	AX80E							
	AI61							
AI61-S1		*5, 9						
Output	AY10	RY10R2	*1	ERNT-1AR40Y	Terminal block (20 points)	Terminal block (18 points)	16 points	1-7
	AY11, AY11-UL							
	AY11E							
	AY11EEU							
	AY22	RY20S6						
	AY40, AY40-UL	RY40NT5P	*1					
	AY40P							
	AY50, AY50-UL							
	AY70, AY70-UL							
	AY80							
AY80EP	RY40PT5P	*1						
Input	AX31	RX41C4, RX41C6HS	*2	ERNT-1AR41X	Terminal block (38 points)	Connector (40P)	32 points	1-8
	AX31-S1		-					
	AX41, AX41-UL							
	AX41-S1							
	AX81							
	AX81-S1							
	AX81-S3							
AX71	RX41C4, RX41C6HS, RX61C6HS	*1, 4						
Output	AY41, AY41-UL	RY41NT2P	*1, 6	ERNT-1AR41Y	Terminal block (38 points)	Connector (40P)	64 points	1-9
	AY41P							
	AY71		*1, 3, 6					
	AY81	RY41PT1P	*1, 7, 8					
	AY81EP							
Input	AX82	RX41C4 × 2 modules, RX41C6HS × 2 modules	*5, 10, 11	ERNT-ASLCXY81 × 2 modules	D-Sub connector (37P) × 2	Connector (40P) × 2	64 points	1-10
Output	AY82EP	RY41PT1P × 2 modules	*10, 11					

- * 1: Since the number of points per common differs, check the common terminal connection of the module before replacement.
- * 2: When a rated input voltage of 12VAC, 24VAC, or 12VDC is used, change the voltage to 24VDC.
- * 3: When a rated input voltage of 5VDC is used, change the voltage to 12VDC or 24VDC.
- * 4: When a rated input voltage of 12VDC is used, change the voltage to 5VDC or 24VDC.
- * 5: When a rated input voltage of 5VDC or 12VDC is used, change the voltage to 24VDC.
- * 6: When 16 points/2 commons are used, consider replacing the module with two RY40NT5Ps using the ERNT-1AR51Y.
- * 7: When 16 points/2 commons are used, consider replacing the module with two RY40PT5Ps using the ERNT-1AR51Y.
- * 8: When the maximum load current is insufficient, consider replacing the module with two RY40PT5Ps using the ERNT-1AR51Y.
- * 9: Set "Interrupt Settings" of "Module Parameter" in the sequence program.
- * 10: For replacement, two MELSEC iQ-R series modules and two conversion adapters are required.
- * 11: A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-L series.

<2-slot type>

Input / Output	MELSEC-A series module model before replacement	MELSEC iQ-R series module model after replacement	Note	Conversion adapter			Page		
				Model	Shape (No. of points/No. of pins)				
					MELSEC-A series	MELSEC iQ-R series			
Input	AX11	RX10 × 2 modules	*12	ERNT-1AR11X13Y	Terminal block (38 points)	Terminal block (18 points) ×2	32 points		
	AX11EU								
	AY13	RY10R2 × 2 modules	*12, 13						
	AY13E								
	AY13EU								
Output	AY23	RY20S6 × 2 modules	*12	ERNT-1AR10AY	Terminal block (38 points)	Terminal block (18 points) ×2	32 points		
	AY10A, AY10A-UL								
	AY11A	RY18R2A × 2 modules	*12						
	AY11AEU								
	AY40A								
	AY51, AY51-UL	RY40NT5P × 2 modules	*12	ERNT-1AR51Y			Terminal block (38 points)	Terminal block (18 points) ×2	32 points
	AY51-S1								
	AY41, AY41-UL								
	AY41P								
	AY71								
AY81	RY40PT5P × 2 modules	*12, 15							
AY81EP			*12						

- * 12: Since a 2-slot type module is replaced, two MELSEC iQ-R series modules are required.
- * 13: Since the number of points per common differs, check the common terminal connection of the module before replacement.
- * 14: The output type is changed from transistor output to contact output.
- * 15: When a rated input voltage of 5VDC is used, change the voltage to 12VDC or 24VDC.

For Analog Modules

<1-slot type>

Input / Output	MELSEC-A series module model before replacement	iQ-R series module model after replacement	Note	Conversion adapter			Page	
				Model	Shape (No. of points/No. of pins)			
					MELSEC-A series	MELSEC iQ-R series		
Input	A68AD (Voltage input)	R60ADV8	*16	ERNT-1AR68AD	Terminal block (38 points)	Terminal block (18 points)	8 channels	
	A68AD (Current input)	R60ADI8						
	A68AD-S2 (Voltage input)	R60ADV8						
	A68AD-S2 (Current input)	R60ADI8	*16					
	A68ADN (Voltage input)	R60ADV8						
	A68ADN (Current input)	R60ADI8						
Output	A62DA	R60DA4	*17, 18	ERNT-AQT62DA	Terminal block (38 points)	Terminal block (18 points)	2 channels	
	A62DA-S1							
	A68DAV	R60DAV8	*18	ERNT-AQT68DA			Terminal block (38 points)	8 channels
	A68DAI							
	A68DAI-S1							

- * 16: For the R60ADV8 and R60ADI8, voltage input and current input cannot be used together in a single module.
- * 17: CH3 and CH4 on the R60DA4 cannot be used. (They are not connected inside the conversion adapter.)
- * 18: A conversion adapter for replacing the MELSEC-A series with the MELSEC-Q series

<2-slot type>

Input / Output	MELSEC-A series module model before replacement	MELSEC iQ-R series module model after replacement	Note	Conversion adapter			Page
				Model	Shape (No. of points/No. of pins)		
					MELSEC-A series	MELSEC iQ-R series	
Input	A616AD (Voltage input)	R60ADV8 × 2 modules	*19, 20	ERNT-1AR616AD	Terminal block (38 points)	Terminal block (18 points) ×2	16 channels
	A616AD (Current input)	R60ADI8 × 2 modules					
Output	A616DAV	R60DAV8 × 2 modules	*19, 20	ERNT-1AR616DA	Terminal block (38 points)	Terminal block (18 points) ×2	16 channels
	A616DAI	R60DAI8 × 2 modules					

- * 19: Since a 2-slot type module is replaced, two MELSEC iQ-R series modules are required.
- * 20: For the R60ADV8 and the R60ADI8, voltage input and current input cannot be used together in a single module. When CH0 to CH7 and CH8 to CHF on the existing module are used for both voltage and current inputs, this product cannot be used.

For High-speed Counter Modules

<1-slot type>

Input / Output	MELSEC-A series module model before replacement	MELSEC iQ-R series module model after replacement	Note	Conversion adapter			Page	
				Model	Shape (No. of points/No. of pins)			No. of channels
					MELSEC-A series	MELSEC iQ-R series		
Input	AD61	RD62P2	*21	ERNT-1AR61D	Terminal block (38 points)	Connector (40P)	2 channels	1-23
	AD61-S1							

*21: When the CH1 side and the CH2 side use different external power supplies, change them to the same power supply. For details on the connection, check the notes on the reference page.

2 Base Adapter

A MELSEC iQ-R series base unit can be mounted by using the mounting holes of the MELSEC-A series base unit.

Type	MELSEC-A series base unit model before replacement	MELSEC iQ-R series base unit model after replacement	Note	Model	Mountable conversion adapter support flange	Page
Main base unit	A38B, A38B-UL, A38HB A38HBEU, A38B-E	R312B	*1	ERNT-AQB38N	ERNT-1AR12F	1-25
		R38B			ERNT-1AR8F	
	A35B, A35B-UL, A35B-E	R38B		ERNT-AQB35N	ERNT-1AR8F	
		R35B			ERNT-1AR5F	
Extension base unit	A68B, A68B-UL	R612B	*1, 2	ERNT-AQB68N	ERNT-1AR12F	
		R68B			ERNT-1AR8F	
	A58B, A58B-UL	R68B	*1	ERNT-AQB65N	ERNT-1AR8F	
		R65B			ERNT-1AR5F	
	A65B, A65B-UL	R65B	*1, 2	ERNT-AQB55N	ERNT-1AR5F	
		R65B				

*1: The ERNT-AQB** (products without "N" at the end of their model names) cannot be used.

*2: Since the base units in the MELSEC iQ-R series are always provided with a power supply, the extension base units with a power supply are the replacement target.

3 Conversion Adapter Support Flange

Model	Description	Remarks	Page
ERNT-1AR12F	12-slot conversion adapter support flange	When using a conversion adapter, the conversion adapter support flange is always required.	1-26
ERNT-1AR8F	8-slot conversion adapter support flange		
ERNT-1AR5F	5-slot conversion adapter support flange		

Conversion Adapter

Specifications

For Input/Output Modules

1-slot type

(1)ERNT-1AR10XY Terminal block (20 points) → Terminal block (18 points)

Model	MELSEC-A series module model	No. of input/output points	MELSEC iQ-R series module model
ERNT-1AR10XY	AX10, AX10-UL	16 points	RX10
	AX40, AX40-UL		RX40C7
	AX70, AX70-UL		
	AX80, AX80-UL		
	AX80E		
	AI61		
	AI61-S1		
	AY10		
	AY11, AY11-UL		
	AY11E		
	AY11EEU		
	AY22		RY20S6

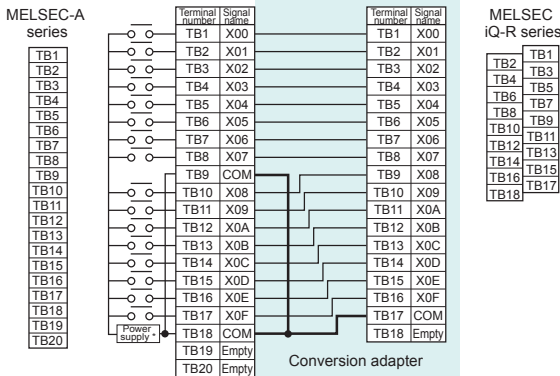
[Specification comparison chart]

Specifications	MELSEC-A series		MELSEC iQ-R series
	AX10	AX10-UL	RX10
No. of input points	16 points		16 points
Rated input voltage	100-120VAC 50/60Hz	110-120VAC 50/60Hz	100-120VAC 50/60Hz
Rated input current	10mA (100VAC, 60Hz)	11mA (110VAC) 12mA (120VAC)	8.2mA (100VAC, 60Hz) 6.8mA (100VAC, 50Hz)
Inrush current	Max. 300mA, 0.3ms or less (132VAC)		Max. 200mA, 1ms or less
ON voltage / ON current	80VAC or more / 6mA or more		80VAC or more / 5mA or more (50Hz, 60Hz)
OFF voltage / OFF current	40VAC or less / 4mA or less		30VAC or less / 1.7mA or less (50Hz, 60Hz)
Input impedance	Approx. 10kΩ (60Hz), Approx. 12kΩ (50Hz)		12.2kΩ (60Hz), 14.6kΩ (50Hz)
Response time	OFF→ON	15ms or less	15ms or less (100VAC 50Hz, 60Hz)
	ON→OFF	25ms or less	20ms or less (100VAC 50Hz, 60Hz)
Internal current consumption	55mA (TYP. all points ON)		110mA (TYP. all points ON)
Wiring method for common	16 points/common		16 points/common
External interface	20-point terminal block		18-point terminal block

AX10/AX10-UL → RX10, and

AX40/AX40-UL/AX70/AX70-UL/

AX80/AX80-UL/AX80E/AI61/AI61-S1 → RX40C7



*Power supply

	RX10	RX40C7
	100/120VAC	24VDC

[Specification comparison chart]

Specifications	MELSEC-A series								MELSEC iQ-R series	
	AX40, AX40-UL (Sink type)		AX70, AX70-UL (Sink/Source type)			AX80, AX80-UL (Source type)		AX80E (Source type)		RX40C7 (Positive common/negative common shared type)
No. of input points	16 points		16 points			16 points		16 points		16 points
Rated input voltage	12VDC	24VDC	5VDC	12VDC	24VDC	12VDC	24VDC	12VDC	24VDC	24VDC
Rated input current	4mA	10mA	3.5mA (TYP) 5.5mA (MAX)	2mA (TYP) 3mA (MAX)	4.5mA (TYP) 6mA (MAX)	4mA	10mA	4mA	10mA	7.0mA (TYP)
ON voltage / ON current	9.5VDC or more / 3mA or more		(SW ON) 3.5VDC or more / 1.0mA or more (SW OFF) 5VDC or more / 1.0mA or more			9.5VDC or more / 3mA or more		9.5VDC or more / 2.6mA or more		15VDC or more / 4mA or more
OFF voltage / OFF current	6VDC or less / 1.5mA or less		(SW ON) 1.1VDC or less / 0.2mA or less (SW OFF) 2VDC or less / 0.2mA or less			6VDC or less / 1.5mA or less		6VDC or less / 1.0mA or less		8VDC or less / 2mA or less
Input resistance	Approx. 2.4kΩ		(SW ON) Approx. 1.4kΩ (SW OFF) Approx. 5.5kΩ			Approx. 2.4kΩ		Approx. 2.4kΩ		3.3kΩ
Response time	OFF→ON	10ms or less	1.5ms or less			10ms or less		0.5ms or less		0.1/0.2/0.4/0.6/ 1/5/10/20/70ms or less
	ON→OFF	10ms or less	3ms or less			10ms or less		10ms or less		0.1/0.2/0.4/0.6/ 1/5/10/20/70ms or less
Internal current consumption	55mA (TYP. all points ON)		55mA (TYP. all points ON)			55mA (TYP. all points ON)		55mA (TYP. all points ON)		110mA (TYP. all points ON)
Wiring method for common	8 points/common		8 points/common			8 points/common		8 points/common		16 points/common
External interface	20-point terminal block		20-point terminal block			20-point terminal block		20-point terminal block		18-point terminal block

Note 3. Since the number of points per common changes from 8 (two circuits) to 16, when terminal numbers TB9 and TB18 on the existing module are used separately from each other, change the wiring.

4. When a rated input voltage of 5VDC or 12VDC is used, change the voltage to 24VDC.

5. Specifications in the areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.

6. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

[Specification comparison chart]

Specifications	MELSEC-A series		MELSEC iQ-R series
	AI61	AI61-S1	RX40C7 (Positive common/negative common shared type)
No. of interrupt input points	16 points		16 points
Rated input voltage	12VDC	24VDC	24VDC
Rated input current	6mA	14mA	7.0mA (TYP)
Operating voltage range	10.2VDC to 26.4VDC		-
Maximum No. of simultaneous input points	100% (16/common) simultaneously ON		-
ON voltage	9V or more		-
OFF voltage	4V or less		-
ON voltage / ON current	-		15VDC or more / 4mA or more
OFF voltage / OFF current	-		8VDC or less / 2mA or less
Input resistance	Approx. 2.4kΩ		3.3kΩ
Response time	OFF→ON	0.2ms or less	2ms or more, 8ms or less
	ON→OFF	0.2ms or less	2ms or more, 8ms or less
No. of occupied points	32 points		16 points
Internal current consumption	140mA (TYP. all points ON)		110mA (TYP. all points ON)
Wiring method for common	16 points/common		16 points/common
External interface	20-point terminal block		18-point terminal block

Note 7. When replacing the AI61 with the RX40C7 and a rated input voltage of 12VDC is used, change the voltage to 24VDC.

8. Specifications in the [] areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.

9. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

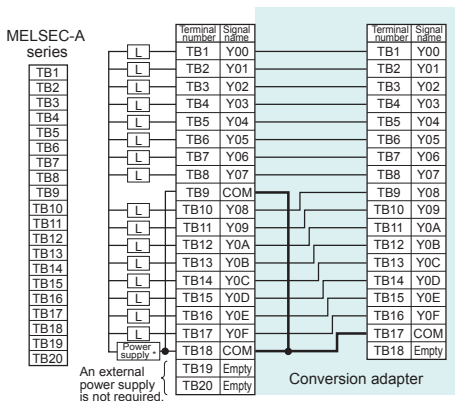
• Note for programming

(1) Set "Interrupt Settings" of "Module Parameter" in the sequence program.

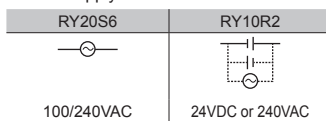
AY22 → RY20S6, and

AY10/AY11/AY11-UL/AY11E/AY11EEU

→ RY10R2



*Power supply



[Specification comparison chart]

Specifications	MELSEC-A series	MELSEC iQ-R series
	AY22	RY20S6
No. of output points	16 points	
Rated load voltage	100-240VAC, 50/60Hz	
Maximum load current	2A/point, 3.3A/common	0.6A/point, 4.8A/common
Minimum load voltage/current	24VAC 100mA, 100VAC 10mA, 240VAC 20mA	24VAC 100mA, 100VAC 25mA, 240VAC 25mA
Maximum inrush current	40A 10ms or less, 15A 100ms or less	20A one cycle or less
Leakage current at OFF	1.5mA (120VAC 60Hz), 3mA (240VAC 60Hz)	1.5mA or less (for 120V, 60Hz), 3mA or less (for 240V, 60Hz)
Maximum voltage drop at ON	1.5VAC or less (1 to 2A), 1.8VAC or less (0.2 to 1A), 5VAC or less (0.2A or less)	1.5VAC or less (for a load current of 0.6A)
Response time	OFF→ON	1ms or less
	ON→OFF	0.5 cycle + 1ms or less
Surge suppressor	CR absorber (0.022μF+47Ω), Varistor (387 to 473V)	CR absorber
Fuse	Yes	None (Installing a fuse per external wiring point is recommended.)
Internal current consumption	305mA (TYP. all points ON)	280mA (MAX. all points ON)
Wiring method for common	8 points/common	16 points/common
External interface	20-point terminal block	18-point terminal block

Note 10. Since the number of points per common changes from 8 (two circuits) to 16, when terminal numbers TB9 and TB18 on the existing module are used separately from each other, change the wiring.

11. Specifications in the [] areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
12. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

[Specification comparison chart]

Specifications	MELSEC-A series				MELSEC iQ-R series
	AY10	AY11 AY11-UL	AY11E	AY11EEU	RY10R2
No. of output points	16 points				16 points
Rated switching voltage/current	24VDC, 2A/point (Resistive load) 240VAC, 2A/point (COSφ = 1) 8A/common	24VDC, 2A/point (Resistive load) 240VAC, 2A/point (COSφ = 1) 8A/common	24VDC, 2A/point (Resistive load) 240VAC, 2A/point (COSφ = 1) 8A/common	24VDC, 2A/point (Resistive load) 24VAC, 2A/point (COSφ = 1) 8A/common	24VDC, 2A/point (Resistive load) 240VAC, 2A/point (COSφ = 1) 8A/common
Minimum switching load	5VDC 1mA				5VDC 1mA
Maximum switching voltage	264VAC 125VDC				264VAC 125VDC
Leakage current at OFF	-	0.1mA (200VAC, 60Hz)	0.1mA (200VAC, 60Hz)	0.1mA (49.9VAC, 60Hz)	-
Response time	OFF→ON	10ms or less	10ms or less	10ms or less	10ms or less
	ON→OFF	12ms or less	12ms or less	12ms or less	12ms or less
Surge suppressor	None	Varistor (387 to 473V)	Varistor (387 to 473V)	Varistor (387 to 473V)	None
Fuse	None	None	Yes	Yes	None
Internal current consumption	115mA (TYP. all points ON)	115mA (TYP. all points ON)	115mA (TYP. all points ON)	115mA (TYP. all points ON)	450mA (TYP. all points ON)
Wiring method for common	8 points/common	8 points/common	8 points/common	8 points/common	16 points/common
External interface	20-point terminal block				18-point terminal block

Note 13. Since the number of points per common changes from 8 (two circuits) to 16, when terminal numbers TB9 and TB18 on the existing module are used separately from each other, change the wiring.

14. The external power supply connected to terminal numbers TB19 and TB20 on the existing terminal block is no longer required. However, since the wiring is not connected inside the conversion adapter, leaving the external power supply connected is not a problem.

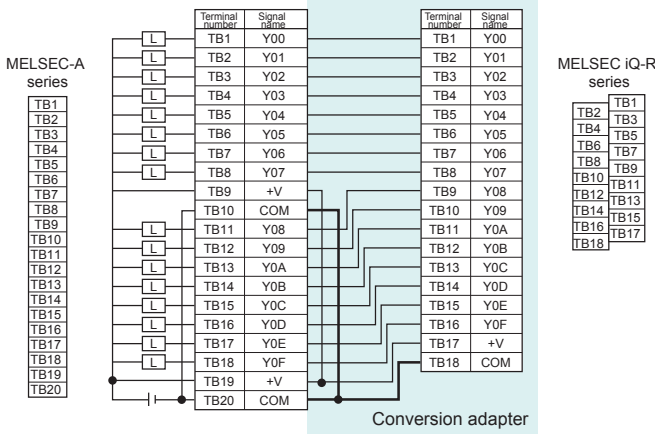
15. Specifications in the [] areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.

16. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

(2)ERNT-1AR40Y Terminal block (20 points) → Terminal block (18 points)

Model	MELSEC-A series module model	No. of output points	MELSEC iQ-R series module model
ERNT-1AR40Y	AY40, AY40-UL	16 points	RY40NT5P
	AY40P		
	AY50, AY50-UL		
	AY70, AY70-UL		
	AY80		RY40PT5P
AY80EP			

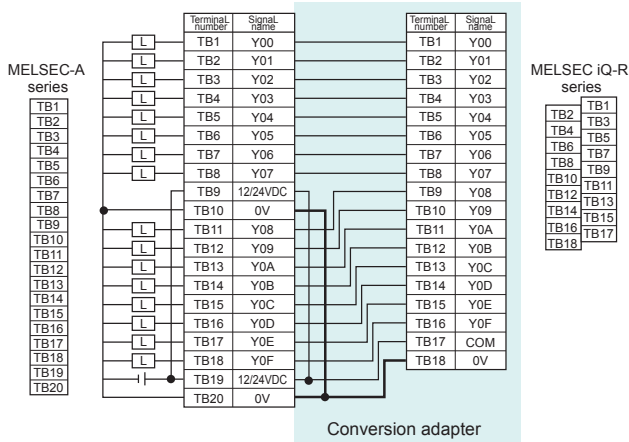
AY40/AY40-UL/AY40P/AY50/AY50-UL/AY70/AY70-UL → RY40NT5P



[Specification comparison chart]

Specifications	MELSEC-A series				MELSEC iQ-R series
	AY40, AY40-UL (Sink type)	AY40P (Sink type)	AY50, AY50-UL (Sink type)	AY70, AY70-UL (Sink type)	RY40NT5P (Sink type)
No. of output points	16 points	16 points	16 points	16 points	16 points
Rated load voltage	12/24VDC	12/24VDC	12/24VDC	5/12VDC	12/24VDC
Maximum load current	0.1A/point, 0.8A/common	0.1A/point, 0.8A/common	0.5A/point, 2A/common	16mA/point, 128mA/common	0.5A/point, 5A/common
Maximum inrush current	0.4A	0.38A, 5ms or less	7A 10ms or less, 3.5A 100ms or less	50mA, 10ms	1.5 to 3.5A/point (Current is restricted by overload protection function.)
Leakage current at OFF	0.1mA or less	0.1mA or less	0.1mA or less	V _{OH} : 3.5VDC (V _{CC} = 5VDC, I _{OH} = 0.4mA)	0.1mA or less
Maximum voltage drop at ON	2.5VDC (0.1A), 1.75VDC (5mA), 1.7VDC (1mA)	2.5VDC (0.1A), 1.75VDC (5mA), 1.7VDC (1mA)	0.9VDC (TYP.) 0.5A, 1.5VDC (MAX.) 0.5A	V _{OH} : 0.2VDC (I _{OH} = 16mA)	0.2VDC (TYP.) 0.5A, 0.3VDC (MAX.) 0.5A
Response time	OFF→ON: 2ms or less (Resistive load) ON→OFF: 2ms or less (Resistive load)	2ms or less (Resistive load)	2ms or less (Resistive load)	1ms or less	0.5ms or less (Rated load, resistive load)
Surge suppressor	Clamp diode	Clamp diode	Varistor (52 to 62V)	None	Zener diode
Fuse	None	None	Yes	None	None
Protection function	None	Yes (Overheat protection, short-circuit protection)	None	None	Yes (Overheat protection, short-circuit protection)
Internal current consumption	115mA (TYP. all points ON)	115mA (TYP. all points ON)	115mA (TYP. all points ON)	100mA (TYP. all points ON)	140mA (TYP. all points ON)
Wiring method for common	8 points/common	8 points/common	8 points/common	8 points/common	16 points/common
External interface	20-point terminal block	20-point terminal block	20-point terminal block	20-point terminal block	18-point terminal block

AY80/AY80EP → RY40PT5P



Specifications	MELSEC-A series		MELSEC iQ-R series
	AY80 (Source type)	AY80EP (Source type)	RY40PT5P (Source type)
No. of output points	16 points	16 points	16 points
Rated load voltage	12/24VDC	12/24VDC	12/24VDC
Maximum load current	0.5A/point, 2A/common	0.8A/point, 0.8A/point (60% ON, 55°C)	0.5A/point, 5A/common
Maximum inrush current	7A 10ms or less, 3.5A 100ms or less	No restriction (Short-circuit protection function)	1.5/point (Current is restricted by overload protection function.)
Leakage current at OFF	0.1mA or less	1mA or less	0.1mA or less
Maximum voltage drop at ON	1.5VDC (MAX.) 0.5A	1.1VDC (TYP.) 0.8A, 1.5VDC (MAX.) 0.8A	0.2VDC (TYP.) 0.5A, 0.3VDC (MAX.) 0.5A
Response time	OFF→ON: 2ms or less ON→OFF: 2ms or less (Resistive load)	0.5ms or less	0.5ms or less (Rated load, resistive load)
Surge suppressor	Varistor (52 to 62V)	Zener diode	Zener diode
Fuse	Yes	None	None
Protection function	None	Yes (Overheat protection, short-circuit protection)	Yes (Overheat protection, overload protection)
Internal current consumption	115mA (TYP. all points ON)	115mA (TYP. all points ON)	130mA (TYP. all points ON)
Wiring method for common	8 points/common	8 points/common	16 points/common
External interface	20-point terminal block	20-point terminal block	18-point terminal block

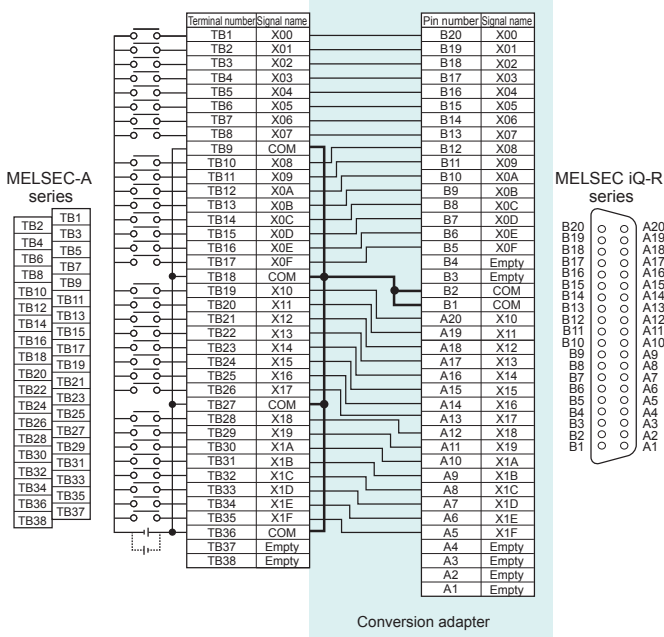
- Note 1. Since the number of points per common changes from 8 (two circuits) to 16, when terminal numbers TB9 and TB19 as well as terminal numbers TB10 and TB20 on the existing module are used separately from each other, change the wiring.
2. When replacing the AY70 or the AY70-UL with the RY40NT5P and a rated input voltage of 5VDC is used, change the voltage to 12VDC or 24VDC.
3. Specifications in the areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
4. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

(3)ERNT-1AR41X Terminal block (38 points) → Connector (40P)

Conversion adapter model	MELSEC-A series module model	No. of input points	MELSEC iQ-R series module model
ERNT-1AR41X	AX31	32 points	RX41C4 RX41C6HS
	AX31-S1		
	AX41, AX41-UL		
	AX41-S1		
	AX81		
	AX81-S1		
	AX81-S3		
	AX71	RX41C4 RX41C6HS RX61C6HS	

[Specification comparison chart]

Model	MELSEC-A series			MELSEC iQ-R series			
	AX71 (Sink/Source type)			RX41C4 (Positive common/negative common shared type)	RX41C6HS (Positive common/negative common shared type)	RX61C6HS (Positive common/negative common shared type)	
Specifications	32 points			32 points	32 points	32 points	
Rated input voltage	5VDC	12VDC	24VDC	24VDC	24VDC	5VDC	
Rated input current	3.5mA (TYP.) 5.5mA (MAX.)	2mA (TYP.) 3mA (MAX.)	4.5mA (TYP.) 6mA (MAX.)	4mA (TYP.)	6.0mA (TYP.)	6.0mA (TYP.)	
ON voltage/ ON current	(SW ON) 3.5VDC or more / 1.0mA or more (SW OFF) 5VDC or more / 1.0mA or more			19VDC or more / 3mA or more	19VDC or more / 4mA or more	3.5VDC or more / 3mA or more	
OFF voltage/ OFF current	(SW ON) 1.1VDC or less / 0.2mA or less (SW OFF) 2VDC or less / 0.2mA or less			6VDC or less / 1.0mA or less	6VDC or less / 1.7mA or less	1VDC or less / 1mA or less	
Input resistance	(SW ON) Approx. 1.4kΩ (SW OFF) Approx. 5.5kΩ			5.3kΩ	4kΩ	600Ω	
Response time	OFF→ON	1.5ms or less			0.1/0.2/0.4/ 0.6/1/5/10/ 20/70ms or less	0.001/0.01/ 0.02/0.05/ 0.1/0.2/0.4/ 0.6/1/5/10/ 20/70ms or less	0.001/0.01/ 0.02/0.05/ 0.1/0.2/0.4/ 0.6/1/5/10/ 20/70ms or less
		ON→OFF	3ms or less			0.1/0.2/0.4/ 0.6/1/5/10/ 20/70ms or less	0.001/0.01/ 0.02/0.05/ 0.1/0.2/0.4/ 0.6/1/5/10/ 20/70ms or less
Internal current consumption	110mA (TYP. all points ON)			150mA (TYP. all points ON)	150mA (TYP. all points ON)	150mA (TYP. all points ON)	
Wiring method for common	8 points/common			32 points/common	32 points/common	32 points/common	
External interface	38-point terminal block			40-pin connector	40-pin connector	40-pin connector	



- Note 1. For replacement of the AX71 with the RX41C4, the RX41C6HS, or the RX61C6HS, since the number of points per common changes from 8 (four circuits) to 32, when the commons on the existing module are used separately from each other, change the wiring.
2. When a rated input voltage of 12VDC is used, change the voltage to 5VDC or 24VDC.
3. Specifications in the [] areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
4. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

[Specification comparison chart]

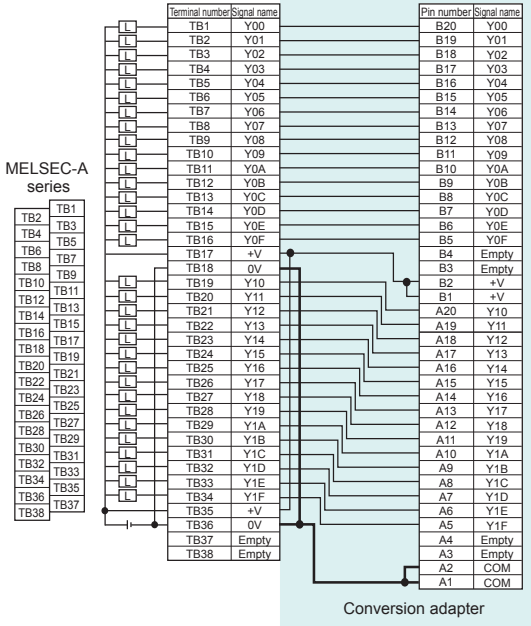
Model	MELSEC-A series								MELSEC iQ-R series			
	AX31 (AC/DC input type)		AX31-S1 (Sink/Source type)	AX41, AX41-UL (Sink type)	AX41-S1 (Sink type)	AX81 (Source type)	AX81-S1 (Sink/Source type)	AX81-S3 (Source type)	RX41C4 (Positive common/negative common shared type)	RX41C6HS (Positive common/negative common shared type)		
Specifications	32 points		32 points	32 points	32 points	32 points	32 points	32 points	32 points			
Rated input voltage	12VDC	24VDC	12/24VAC (50/60Hz)	24VDC	12VDC	24VDC	12VDC	24VDC	12VDC	24VDC		
Rated input current	4mA	8.5mA	4mA (12VAC) 8.5mA (24VAC)	8.5mA	4mA	10mA	4mA	10mA	4mA	10mA		
ON voltage/ ON current	7VDC or more / 2mA or more		16VDC or more / 5mA or more	9.5VDC or more / 3mA or more	9.5VDC or more / 3mA or more	9.5VDC or more / 3mA or more	9.5VDC or more / 3mA or more	5.6VDC or more / 1.1mA or more	9.5VDC or more / 3mA or more	19VDC or more / 3mA or more		
OFF voltage/ OFF current	2.5VDC or less / 0.7mA or less		8VDC or less / 2mA or less	6VDC or less / 1.5mA or less	6VDC or less / 1.5mA or less	6VDC or less / 1.5mA or less	6VDC or less / 1.5mA or less	2.4VDC or less / 0.39mA or less	6VDC or less / 1.5mA or less	6VDC or less / 1.0mA or less		
Input resistance	Approx. 2.7kΩ		Approx. 2.7kΩ	Approx. 2.4kΩ	Approx. 2.4kΩ	Approx. 2.4kΩ	Approx. 2.4kΩ	Approx. 4.8kΩ	Approx. 2.4kΩ	5.3kΩ		
Response time	OFF→ON	20ms or less	25ms or less (12/24VAC 60Hz)	10ms or less	10ms or less	0.1ms or less	10ms or less	10ms or less	0.1ms or less	0.1/0.2/0.4/0.6/ 1/5/10/20/70ms or less		
		ON→OFF	20ms or less	20ms or less (12/24VAC 60Hz)	10ms or less	10ms or less	0.2ms or less	10ms or less	10ms or less	0.2ms or less	0.1/0.2/0.4/0.6/ 1/5/10/20/70ms or less	
Internal current consumption	110mA (TYP. all points ON)		110mA (TYP. all points ON)	110mA (TYP. all points ON)	110mA (TYP. all points ON)	110mA (TYP. all points ON)	110mA (TYP. all points ON)	105mA (TYP. all points ON)	110mA (TYP. all points ON)	150mA (TYP. all points ON)		
Wiring method for common	32 points/common		32 points/common	8 points/common	8 points/common	8 points/common	8 points/common	8 points/common	8 points/common	32 points/common		
External interface	38-point terminal block		38-point terminal block	38-point terminal block	38-point terminal block	38-point terminal block	38-point terminal block	38-point terminal block	38-point terminal block	40-pin connector		

- Note 5. For replacement of the AX41, the AX41-UL, the AX41-S1, the AX81, the AX81-S1, or the AX81-S3 with the RX41C4 or the RX41C6HS, since the number of points per common changes from 8 (four circuits) to 32, when the commons on the existing module are used separately from each other, change the wiring.
6. When a rated input voltage of 12VAC, 24VAC, or 12VDC is used, change the voltage to 24VDC.
7. Specifications in the [] areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
8. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

(4)ERNT-1AR41Y Terminal block (38 points) → Connector (40P)

Model	MELSEC-A series module model	No. of output points	MELSEC iQ-R series module model
ERNT-1AR41Y	AY41, AY41-UL	32 points	RY41NT2P
	AY41P		
	AY71		RY41PT1P
	AY81 AY81EP		

AY41/AY41-UL/AY41P/AY71 → RY41NT2P

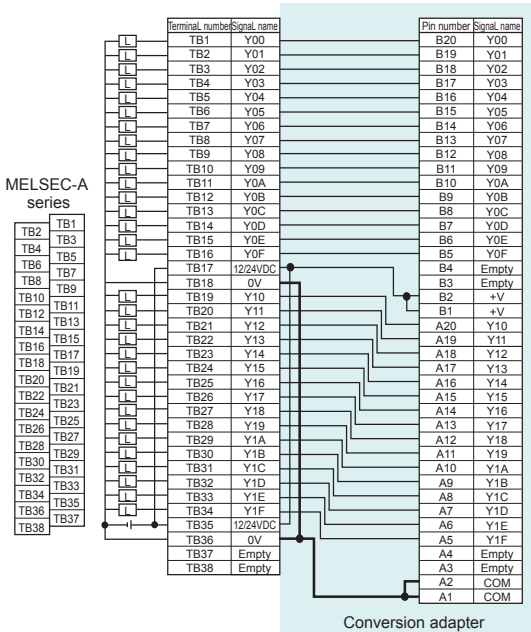


[Specification comparison chart]

Model	MELSEC-A series			MELSEC iQ-R series
	AY41, AY41-UL (Sink type)	AY41P (Sink type)	AY71 (Sink type)	RY41NT2P (Sink type)
Specifications				
No. of output points	32 points	32 points	32 points	32 points
Rated load voltage	12/24VDC	12/24VDC	5/12VDC	12/24VDC
Maximum load current	0.1A/point, 1.6A/common	0.1A/point, 1.0A/common	16mA/point, 256mA/common (Sink load)	0.2A/point, 2A/common
Maximum inrush current	0.4A	0.38A, 5ms or less	50mA 10ms	1.5 to 3A/point (Current is restricted by overload protection function.)
Leakage current at OFF	0.1mA or less	0.1mA or less	-	0.1mA or less
Output voltage at OFF	-	-	$V_{OH}: 3.5VDC$ $(V_{CC} = 5VDC, I_{OH} = 0.4mA)$	-
Maximum voltage drop at ON	2.5VDC (0.1A), 1.75VDC (5mA), 1.7VDC (1mA)	2.5VDC (0.1A), 1.75VDC (5mA), 1.7VDC (1mA)	$V_{OL}: 0.2VDC$ $(I_{OL} = 16mA)$	0.2VDC (TYP.) 0.2A, 0.3VDC (MAX.) 0.2A
Response time	OFF→ON	2ms or less	2ms or less	1ms or less
	ON→OFF	2ms or less (Resistive load)	2ms or less (Resistive load)	1ms or less (Rated load, resistive load)
Surge suppressor	Clamp diode	Clamp diode	None	Zener diode
Fuse	None	None	None	None
Protection function	None	Yes (Overheat protection, short-circuit protection)	None	Yes (Overheat protection, overload protection)
Internal current consumption	230mA (TYP. all points ON)	230mA (TYP. all points ON)	200mA (TYP. all points ON)	180mA (TYP. all points ON)
Wiring method for common	16 points/common	16 points/common	16 points/common	32 points/common
External interface	38-point terminal block	38-point terminal block	38-point terminal block	40-pin connector

- Note 1. Since the number of points per common changes from 16 (two circuits) to 32 (one circuit), when terminal numbers TB17 and TB35 as well as terminal numbers TB18 and TB36 on the existing module are used separately from each other, change the wiring.
2. When replacing the AY71 with the RY41NT2P and a rated voltage of 5VDC is used, change the voltage to 12VDC or 24VDC.
3. Specifications in the areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
4. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

AY81/AY81EP → RY41PT1P



[Specification comparison chart]

Model	MELSEC-A series		MELSEC iQ-R series
	AY81 (Source type)	AY81EP (Source type)	RY41PT1P (Source type)
Specifications			
No. of output points	32 points	32 points	32 points
Rated load voltage	12/24VDC	12/24VDC	12/24VDC
Maximum load current	0.5A/point, 4A/common	0.8A/point, 0.4A/point (60% ON, 55°C)	0.1A/point, 2A/common
Maximum inrush current	4A 10ms or less	No restriction (Short-circuit protection function)	1 to 3A/point (Current is restricted by overload protection function.)
Leakage current at OFF	0.1mA or less	1mA or less	0.1mA or less
Maximum voltage drop at ON	1.5VDC (MAX.) 0.5A	1.1V (TYP.) 0.8A, 1.5V (MAX.) 0.8A	0.1VDC (TYP.) 0.1A, 0.2VDC (MAX.) 0.1A
Response time	OFF→ON	2ms or less	0.5ms or less
	ON→OFF	2ms or less (Resistive load)	1.5ms or less
Surge suppressor	Varistor (52 to 62V)	Surge absorbing diode	Zener diode
Fuse	None	None	None
Protection function	None	Yes (Overheat protection, short-circuit protection)	Yes (Overheat protection, overload protection)
Internal current consumption	230mA (TYP. all points ON)	230mA (TYP. all points ON)	190mA (TYP. all points ON)
Wiring method for common	16 points/common	16 points/common	32 points/common
External interface	38-point terminal block	38-point terminal block	40-pin connector

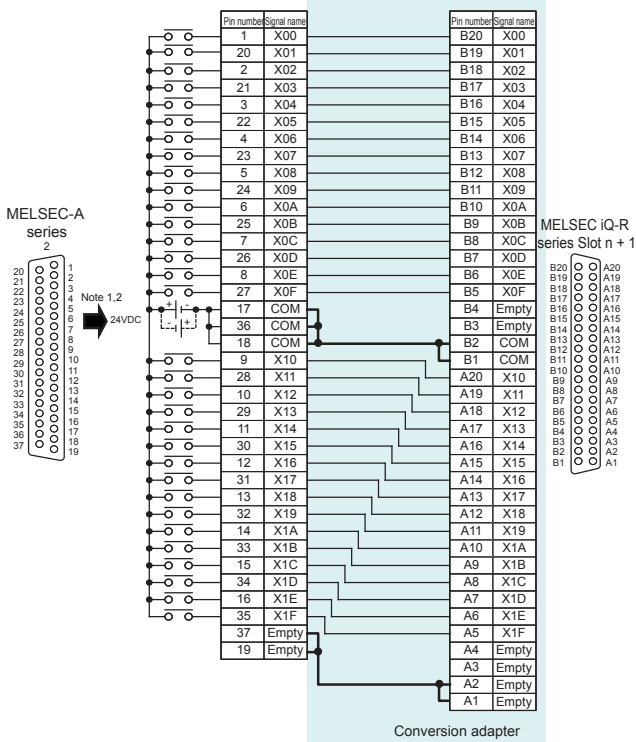
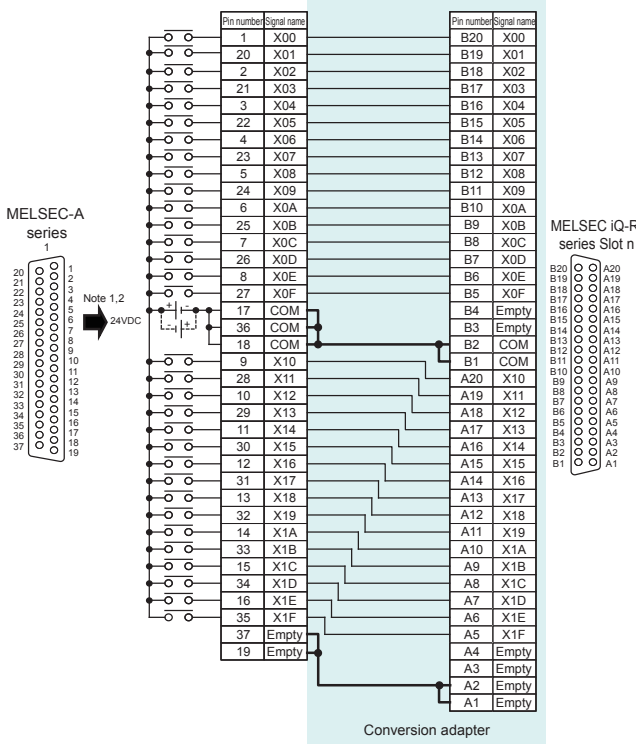
- Note 5. Since the number of points per common changes from 16 (two circuits) to 32 (one circuit), when terminal numbers TB17 and TB35 as well as terminal numbers TB18 and TB36 on the existing module are used separately from each other, change the wiring. However, the wiring does not need to be changed when replacing the module with two RY40PT5Ps by using the ERNT-1AR51Y.
6. When the maximum load current is insufficient, consider replacing the module with two RY40PT5Ps using the ERNT-1AR51Y.
7. Specifications in the areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
8. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

(5)ERNT-ASLCXY81 D-Sub connector (37P) → Connector (40P)

Model	No. of required modules	MELSEC-A series module model	No. of input/output points	MELSEC iQ-R series module model	No. of required modules
ERNT-ASLCXY81	2 modules	AX82	64 points	RX41C4 RX41C6HS	2 modules
		AY82EP		RY41PT1P	

Note 1. A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-L series

AX82 → RX41C4/RX41C6HS ×2



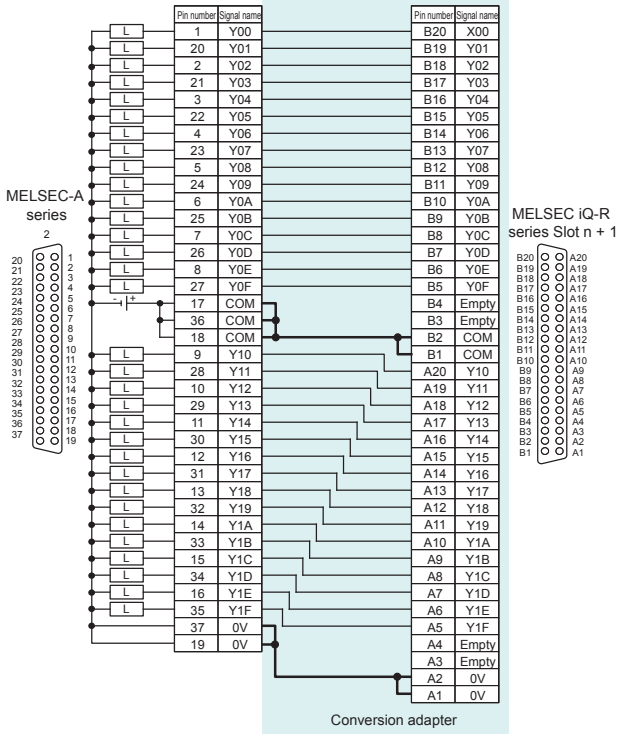
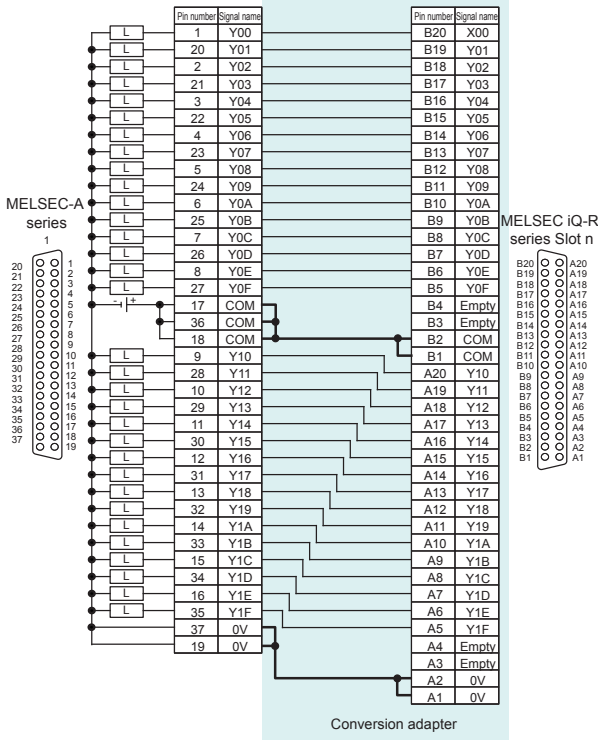
[Specification comparison chart]

Specifications	Model	MELSEC iQ-R series		
		MELSEC-A series AX82 (Source type)	RX41C4 (Positive common/ negative common shared type)	RX41C6HS (Positive common/negative common shared type)
No. of input points		64 points	32 points	32 points
Rated input voltage		12VDC / 24VDC	24VDC	24VDC
Rated input current		3mA / 7mA	4mA TYP.	6.0mA TYP.
ON voltage/ ON current		9.5VDC or more / 2.6mA or more	19V or more / 3mA or more	19V or more / 4mA or more
OFF voltage/ OFF current		6VDC or less / 1.0mA or less	6V or less / 1.0mA or less	6V or less / 1.7mA or less
Input resistance		Approx. 3.4kΩ	5.3kΩ	4kΩ
Response time	OFF→ON	10ms or less	0.1/0.2/0.4/ 0.6/1/5/10/ 20/70ms or less	0.001/0.01/0.02/ 0.05/0.1/0.2/0.4/0.6/ 1/5/10/20/70ms or less
	ON→OFF	10ms or less	0.1/0.2/0.4/ 0.6/1/5/10/ 20/70ms or less	0.001/0.01/0.02/ 0.05/0.1/0.2/0.4/0.6/ 1/5/10/20/70ms or less
Internal current consumption		120mA (TYP. all points ON)	150mA (TYP. all points ON)	150mA (TYP. all points ON)
Wiring method for common		32 points/common	32 points/common	32 points/common
External interface		37-pin D-Sub connector ×2	40-pin connector	40-pin connector

Note 2. When replacing the AX82 and a rated input voltage of 12VDC is used, change the voltage to 24VDC.

- To replace with the RX41C4 or the RX41C6HS, prepare two sets of the RX41C4 or the RX41C6HS and two sets of conversion adapters (ERNT-ASLCXY81), and use 32 points on each set.
- Specifications in the areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
- For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

AY82EP → RY41PT1P ×2



[Specification comparison chart]

Model	MELSEC-A series	MELSEC iQ-R series
	AY82EP (Source type)	RY41PT1P (Source type)
Specifications		
No. of output points	64 points	32 points
Rated load voltage	12/24VDC	12/24VDC
Maximum load current	0.1A/point 0.04A/point (60% ON, 55°C)	0.1A/point 2A/common
Maximum inrush current	No restriction (Short-circuit protection function)	Current is restricted by overload protection function.
Leakage current at OFF	0.1mA or less	0.1mA or less
Maximum voltage drop at ON	3.5V (0.1A) 2.5V (0.1A TYP.)	0.1VDC (TYP.) 0.1A 0.2VDC (MAX.) 0.1A
Response time	OFF→ON	0.5ms or less
	ON→OFF	1.5ms or less (Rated load, resistive load)
Surge suppressor	Surge absorbing diode	Zener diode
Fuse	None	None
Protection function	Yes (Overheat protection, short-circuit protection)	Yes (Overheat protection, overload protection)
	290mA (TYP. all points ON)	190mA (TYP. all points ON)
Wiring method for common	32 points/common	32 points/common
External interface	37-pin D-Sub connector ×2	40-pin connector

- Note 6. To replace with the RY41PT1P, prepare two sets of the RY41PT1P and two sets of conversion adapters (ERNT-ASLXY81), and use 32 points on each set.
- Specifications in the areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
 - For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

2-slot type

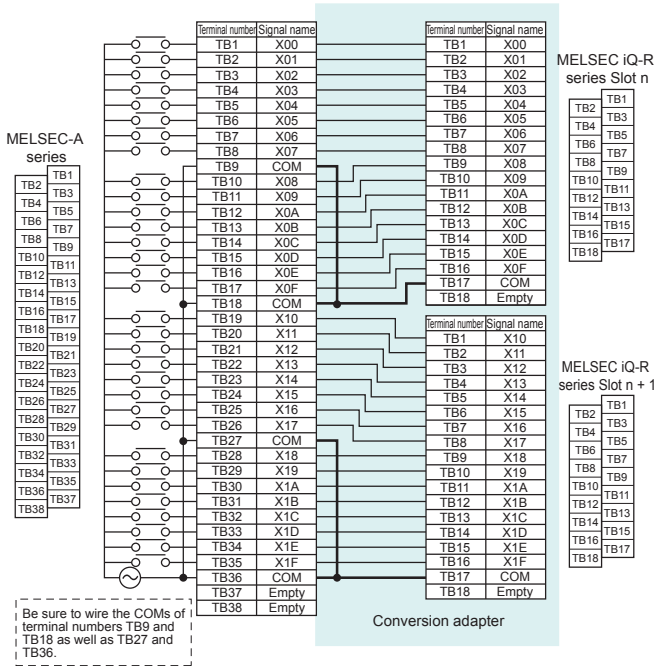
(1) ERNT-1AR11X13Y Terminal block (38 points) → Terminal block (18 points) × 2

Model	MELSEC-A series module model	No. of input/output points	MELSEC iQ-R series	
			module model	No. of required modules
ERNT-1AR11X13Y	AX11	32 points	RX10	2 modules
	AX11EU			
	AY13			
	AY13E			
	AY13EU			
	AY23		RY20S6	

[Specification comparison chart]

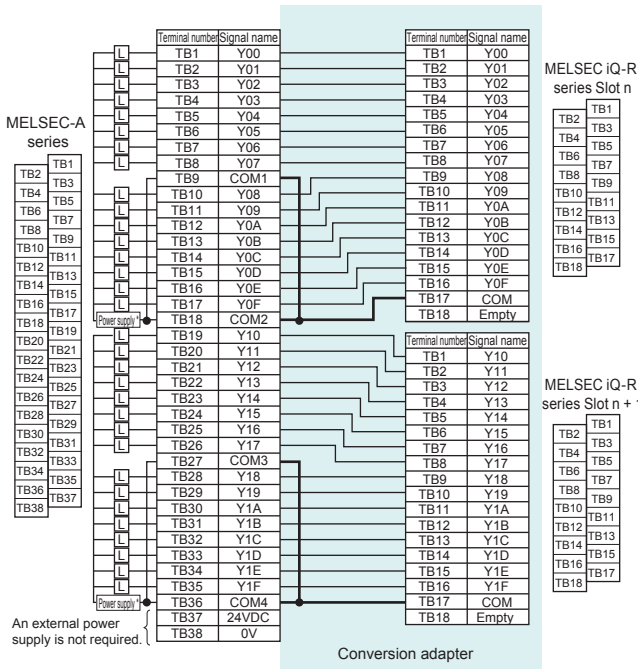
Specifications	MELSEC-A series		MELSEC iQ-R series
	AX11	AX11EU	RX10
No. of input points	32 points	32 points	16 points
Rated input voltage	100-120VAC 50/60Hz	100-120VAC 50/60Hz	100-120VAC 50/60Hz
Rated input current	10mA (100VAC, 60Hz)	12mA (120VAC, 60Hz)	8.2mA (100VAC, 60Hz) 6.8mA (100VAC, 50Hz)
Inrush current	Max. 300mA, 0.3ms or less (for 132VAC)	Max. 300mA, 1ms or less (for 132VAC)	Max. 200mA, 1ms or less
ON voltage / ON current	80VAC or more / 6mA or more	79VAC or more / 6mA or more	80VAC or more / 5mA or more (50Hz, 60Hz)
OFF voltage / OFF current	40VAC or less / 4mA or less	40VAC or less / 4mA or less	30VAC or less / 1.7mA or less (50Hz, 60Hz)
Input impedance	Approx. 10kΩ (60Hz), Approx. 12kΩ (50Hz)	Approx. 10kΩ (60Hz), Approx. 12kΩ (50Hz)	12.2kΩ (60Hz), 14.6kΩ (50Hz)
Response time	OFF→ON ON→OFF	15ms or less 25ms or less	15ms or less (100VAC 50Hz, 60Hz) 20ms or less (100VAC 50Hz, 60Hz)
Internal current consumption	110mA (TYP. all points ON)	150mA (TYP. all points ON)	110mA (TYP. all points ON)
Wiring method for common	32 points/common	32 points/common	16 points/common
External interface	38-point terminal block	38-point terminal block	18-point terminal block

AX11/AX11EU → RX10 × 2



- Note 1. Be sure to wire the COMs of terminal numbers TB9 and TB18 as well as TB27 and TB36 of the MELSEC-A series side.
2. Specifications in the [] areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
3. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

AY13/AY13E/AY13EU → RY10R2 ×2

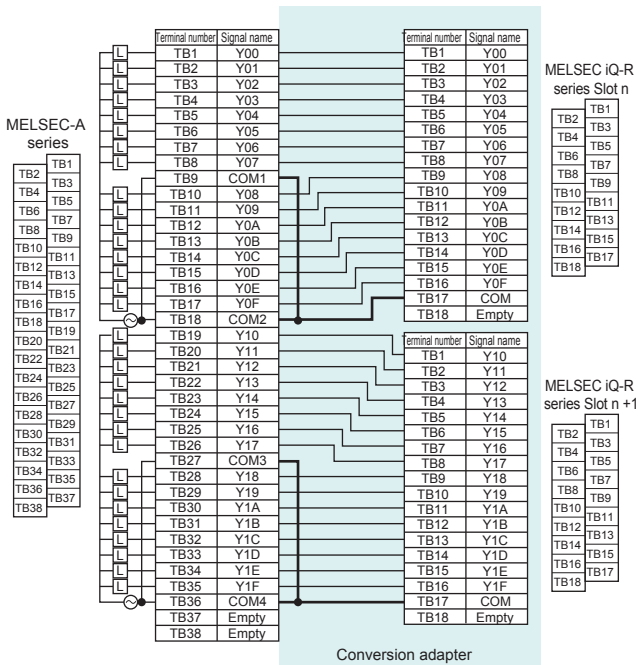


*Power supply



24VDC or 240VAC

AY23 → RY20S6 ×2



*Power supply



24VDC or 240VAC

[Specification comparison chart]

Specifications	MELSEC-A series			MELSEC iQ-R series
	AY13	AY13E	AY13EU	RY10R2
No. of output points	32 points	32 points	32 points	16 points
Rated switching voltage/current	24VDC, 2A/point (Resistive load) 240VAC, 2A/point (COSφ = 1) 5A/common	24VDC, 2A/point (resistive load) 240VAC, 2A/point (COSφ = 1) 5A/common	24VDC, 2A/point (Resistive load) 24VAC, 2A/point (COSφ = 1) 5A/common	24VDC, 2A/point (Resistive load) 240VAC, 2A/point (COSφ = 1) 8A/common
Minimum switching load	5VDC 1mA	5VDC 1mA	5VDC 1mA	5VDC 1mA
Maximum switching voltage	264VAC 125VDC	250VAC 125VDC	49.9VAC 74.9VDC	264VAC 125VDC
Leakage current at OFF	-	-	-	-
Response time	OFF→ON	10ms or less	10ms or less	10ms or less
	ON→OFF	12ms or less	12ms or less	12ms or less
Surge suppressor	None	None	None	None
Fuse	None	Yes	None	None
Internal current consumption	230mA (TYP. all points ON)	230mA (TYP. all points ON)	230mA (TYP. all points ON)	450mA (TYP. all points ON)
Wiring method for common	8 points/common	8 points/common	8 points/common	16 points/common
External interface	38-point terminal block	38-point terminal block	38-point terminal block	18-point terminal block

- Note 4. Since the number of points per common changes from 8 (four circuits) to two sets of 16 (one circuit), when terminal numbers TB9 and TB18 as well as terminal numbers TB27 and TB36 on the existing module are used separately from each other, change the wiring.
- The external power supply connected to terminal numbers TB37 and TB38 on the existing terminal block is no longer required. However, since the wiring is not connected inside the conversion adapter, leaving the external power supply connected is not a problem.
 - Specifications in the areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
 - For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

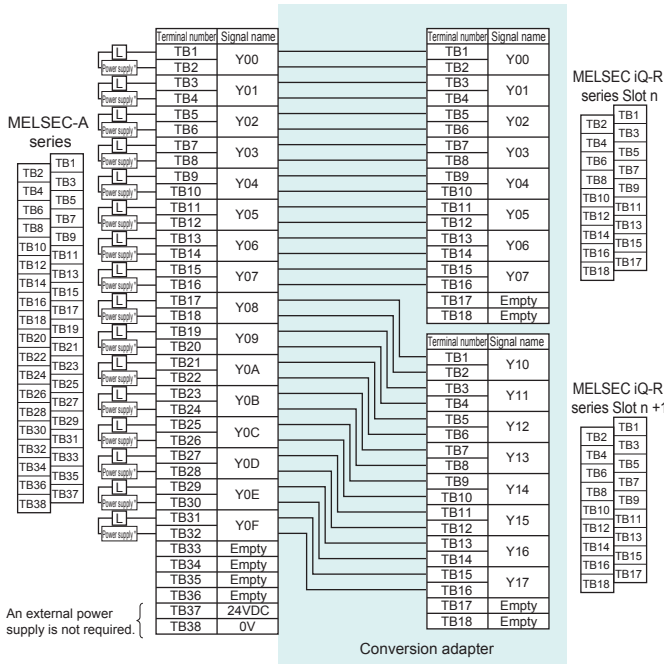
[Specification comparison chart]

Specifications	MELSEC-A series	MELSEC iQ-R series
	AY23	RY20S6
No. of output points	32 points	16 points
Rated load voltage	100-240VAC 40 to 70Hz	100-240VAC 50/60Hz (±3Hz)
Maximum load current	0.6A/point, 2.4A/common	0.6A/point, 4.8A/common
Minimum load voltage/current	24VAC 100mA, 100VAC 10mA, 240VAC 10mA	24VAC 100mA, 100VAC 25mA, 240VAC 25mA
Maximum inrush current	20A 10ms or less, 8A 100ms or less	20A one cycle or less
Leakage current at OFF	1.5mA (120VAC 60Hz), 3mA or less (240VAC 60Hz)	1.5mA or less (for 120VAC 60Hz), 3mA or less (for 240VAC 60Hz)
Maximum voltage drop at ON	1.5VAC or less (100 to 600mA), 1.8VAC or less (50 to 100mA), 2VAC or less (10 to 50mA)	1.5V or less (for a load current of 0.6A)
Response time	OFF→ON	1ms
	ON→OFF	0.5 cycle + 1ms or less
Surge suppressor	CR absorber	CR absorber
Fuse	Yes	None (Installing a fuse per external wiring point is recommended.)
Internal current consumption	590mA (TYP. all points ON)	280mA (TYP. all points ON)
Wiring method for common	8 points/common	16 points/common
External interface	38-point terminal block	18-point terminal block

- Note 8. Since the number of points per common changes from 8 (four circuits) to two sets of 16 (one circuit), when terminal numbers TB9 and TB18 as well as terminal numbers TB27 and TB36 on the existing module are used separately from each other, change the wiring.
- Specifications in the areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
 - For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

(2)ERNT-1AR10AY Terminal block (38 points) → Terminal block (18 points) ×2

Model	MELSEC-A series module model	No. of output points	MELSEC iQ-R series	
			module model	No. of required modules
ERNT-1AR10AY	AY10A, AY10A-UL	16 points	RY18R2A	2 modules
	AY11A			
	AY11AEU			
	AY40A			



*Power supply

 24VDC or 240VAC

[Specification comparison chart]

Model	MELSEC-A series				MELSEC iQ-R series
	AY10A AY10A-UL	AY11A	AY11AEU	AY40A	RY18R2A
Specifications					
No. of output points	16 points	16 points	16 points	16 points	8 points
Rated switching voltage/current	24VDC, 2A/point (Resistive load) 240VAC, 2A/point (COSφ = 1) 16A/all points	24VDC, 2A/point (Resistive load) 240VAC, 2A/point (COSφ = 1) 16A/all points	24VDC, 2A/point (Resistive load) 24VAC, 2A/point (COSφ = 1) 16A/all points	-	24VDC, 2A/point (Resistive load) 240VAC, 2A/point (COSφ = 1) 8A/module
Minimum switching load	5VDC 1mA	5VDC 1mA	5VDC 1mA	-	5VDC 1mA
Maximum switching voltage	264VAC 125VDC	264VAC 125VDC	49.9VAC 74.9VDC	-	264VAC 125VDC
Rated load voltage	-	-	-	12V/24VDC	-
Maximum load current	-	-	-	0.3A/point	-
Maximum inrush current	-	-	-	1A 100ms or less	-
Leakage current at OFF	-	0.1mA (200VAC, 60Hz)	0.1mA (49.9VAC, 60Hz)	0.1mA or less	-
Maximum voltage drop at ON	-	-	-	1.5VDC (50mA to 0.3A) 1.0VDC (50mA or less)	-
Response time	OFF→ON ON→OFF	10ms or less 12ms or less	10ms or less 12ms or less	2ms or less 2ms or less (Load resistance)	10ms or less 12ms or less
Surge suppressor	None	Varistor (387 to 473V)	Varistor (387 to 473V)	Surge absorbing diode	None
Fuse	None	None	None	None	None
Internal current consumption	115mA (TYP. all points ON)	115mA (TYP. all points ON)	115mA (TYP. all points ON)	190mA (TYP. all points ON)	260mA (TYP. all points ON)
Wiring method for common	None (All points independent contacts)	None (All points independent contacts)	None (All points independent contacts)	None (All points independent contacts)	None (All points independent contacts)
No. of occupied points	16 points	16 points	16 points	16 points	16 points
External interface	38-point terminal block	38-point terminal block	38-point terminal block	38-point terminal block	18-point terminal block

- Note 1. The external power supply connected to terminal numbers TB37 and TB38 on the existing terminal block is no longer required.
 2. When replacing the AY40A with the RY18R2A, the output type is changed from transistor output to contact output. Check the specifications of the connected devices.
 3. Specifications in the [] areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
 4. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

• Note for programming

(1) Since the RY18R2A is a 16-point occupied module, change the program so that the latter 8 points from Y08 to Y0F used in the AY10A, the AY10A-UL, the AY11A, the AY11AEU, or the AY40A become points from Y10 to Y17.

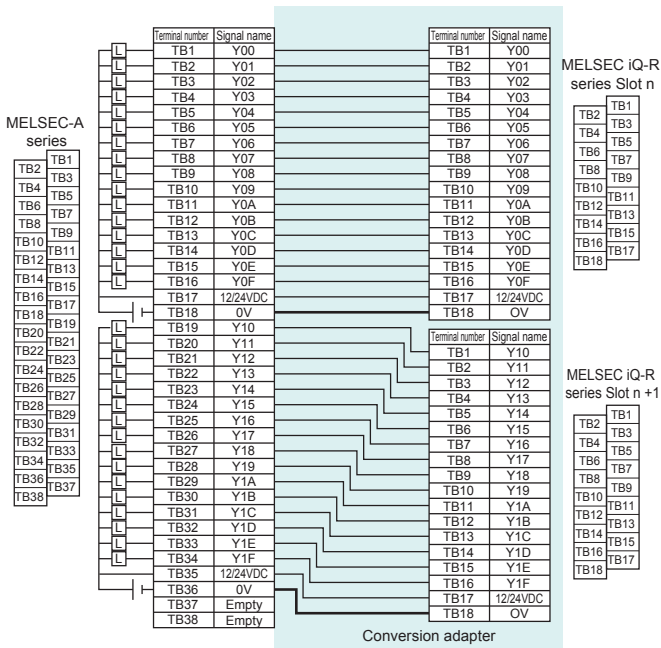
(3)ERNT-1AR51Y Terminal block (38 points) → Terminal block (18 points) ×2

Model	MELSEC-A series module model	No. of output points	MELSEC iQ-R series	
			module model	No. of required modules
ERNT-1AR51Y	AY51, AY51-UL	32 points	RY40NT5P	2 modules
	AY51-S1			
	AY41, AY41-UL			
	AY41P			
	AY71			
	AY81			
	AY81EP		RY40PT5P	

[Specification comparison chart]

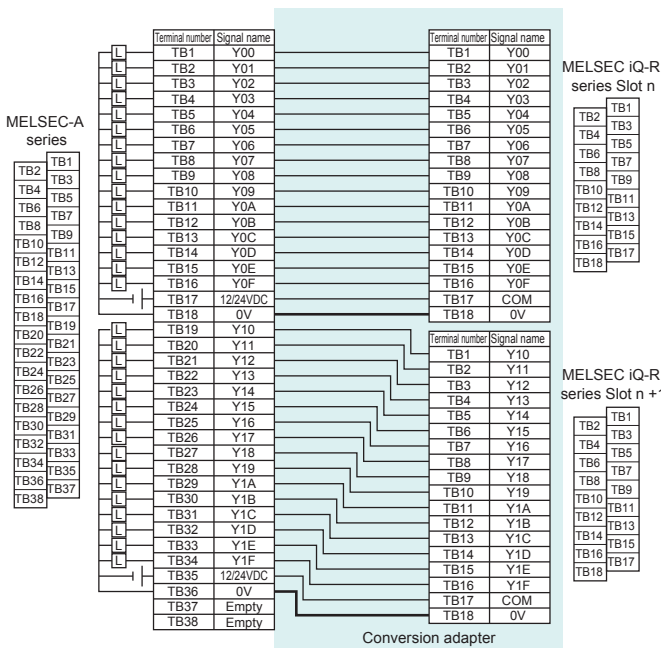
Model	MELSEC-A series		MELSEC iQ-R series
	AY51, AY51-UL (Sink type)	AY51-S1 (Sink type)	RY40NT5P (Sink type)
Specifications			
No. of output points	32 points	32 points	16 points
Rated load voltage	12/24VDC	12/24VDC	12/24VDC
Maximum load current	0.5A/point, 4A/common	0.3A/point, 2A/common (1A/fuse common)	0.5A/point, 5A/common
Maximum inrush current	4A 10ms or less	3A 10ms or less	1.5 to 3.5A/point (Current is restricted by overload protection function.)
Leakage current at OFF	0.1mA or less	0.1mA or less	0.1mA or less
Maximum voltage drop at ON	0.9VDC (TYP.) 0.5A, 1.5VDC (MAX.) 0.5A	1VDC (TYP.) 0.3A, 1.5VDC (MAX.) 0.3A	0.2VDC (TYP.) 0.5A, 0.3VDC (MAX.) 0.5A
Response time	OFF→ON	2ms or less	2ms or less
	ON→OFF	2ms or less (Resistive load)	2ms or less (Resistive load)
Surge suppressor	Varistor (52 to 62V)	Transistor built-in zener diode	Zener diode
Fuse	None	Yes	None
Internal current consumption	230mA (TYP. all points ON)	310mA (TYP. all points ON)	140mA (TYP. all points ON)
Wiring method for common	16 points/common	16 points/common	16 points/common
External interface	38-point terminal block	38-point terminal block	18-point terminal block

AY51/AY51-UL/AY51-S1/AY41/AY41-UL/AY41P/AY71 → RY40NT5P ×2



Model	MELSEC-A series			MELSEC iQ-R series
	AY41, AY41-UL (Sink type)	AY41P (Sink type)	AY71 (Sink type)	RY40NT5P (Sink type)
Specifications				
No. of output points	32 points	32 points	32 points	16 points
Rated load voltage	12/24VDC	12/24VDC	5/12VDC	12/24VDC
Maximum load current	0.1A/point 1.6A/common	0.1A/point 1.0A/common	16mA/point 256mA/common (Sink load)	0.5A/point 5A/common
Maximum inrush current	0.4A	0.38A, 5ms or less	50mA 10ms	Current is restricted by overload protection function.
Leakage current at OFF	0.1mA or less	0.1mA or less	-	0.1mA or less
Output voltage at OFF	-	-	$V_{OH} : 3.5VDC (V_{CC} = 5VDC, I_{OH} = 0.4mA)$	-
Maximum voltage drop at ON	2.5VDC (0.1A)	2.5VDC (0.1A)	$V_{OL} : 0.2VDC (I_{OL} = 16mA)$	0.2VDC (TYP.) 0.5A 0.3VDC (MAX.) 0.5A
	1.75VDC (5mA)	1.75VDC (5mA)		
Response time	OFF→ON	2ms or less	2ms or less	1ms or less
	ON→OFF	2ms or less (Resistive load)	2ms or less (Resistive load)	1ms or less (Rated load, resistive load)
Surge suppressor	Clamp diode	Clamp diode	None	Zener diode
Fuse	None	None	None	None
Internal current consumption	230mA (TYP. all points ON)	230mA (TYP. all points ON)	200mA (TYP. all points ON)	140mA (TYP. all points ON)
Wiring method for common	16 points/common	16 points/common	16 points/common	16 points/common
External interface	38-point terminal block	38-point terminal block	38-point terminal block	18-point terminal block

AY81/AY81EP → RY40PT5P ×2



Model	MELSEC-A series		MELSEC iQ-R series
	AY81 (Source type)	AY81EP (Source type)	RY40PT5P (Source type)
Specifications			
No. of output points	32 points	32 points	16 points
Rated load voltage	12/24VDC	12/24VDC	12/24VDC
Maximum load current	0.5A/point, 4A/common	0.8A/point, 0.4A/point (60% ON, 55°C)	0.5A/point, 5A/common
Maximum inrush current	4A 10ms or less	No restriction (Short-circuit protection)	1.5A/point (Current is restricted by overload protection function.)
Leakage current at OFF	0.1mA or less	1mA or less	0.1mA or less
Maximum voltage drop at ON	1.5VDC (MAX.) 0.5A	1.1V (TYP.) 0.8A 1.5V (MAX.) 0.8A	0.2VDC (TYP.) 0.5A 0.3VDC (MAX.) 0.5A
Response time	OFF→ON	2ms or less	0.5ms or less
	ON→OFF	2ms or less (Resistive load)	1.5ms or less
Surge suppressor	Varistor (52 to 62V)	Surge absorbing diode	Zener diode
Fuse	None	None	None
Protection function	None	Yes (Overheat protection, short-circuit protection)	Yes (Overheat protection, overload protection)
Internal current consumption	230mA (TYP. all points ON)	230mA (TYP. all points ON)	130mA (TYP. all points ON)
Wiring method for common	16 points/common	16 points/common	16 points/common
External interface	38-point terminal block	38-point terminal block	18-point terminal block

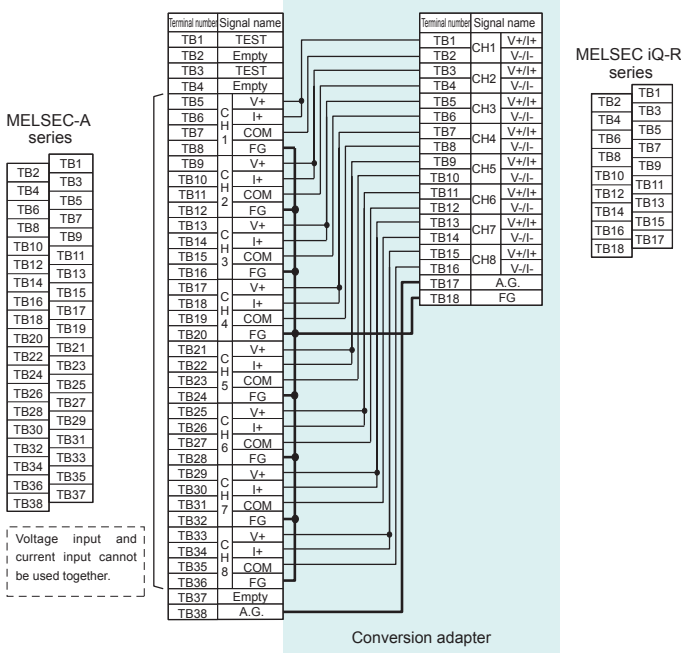
- Note 1. When replacing the AY71 with the RY40NT5P and a rated voltage of 5VDC is used, change the voltage to 12VDC or 24VDC.
- Specifications in the areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
 - For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

For Analog Modules

1-slot type

(1)ERNT-1AR68AD Terminal block (38 points) → Terminal block (18 points)

Model	MELSEC-A series module model	No. of channels	MELSEC iQ-R series module model
ERNT-1AR68AD	A68AD (Voltage input)	8 channels	R60ADV8
	A68AD (Current input)		R60ADI8
	A68AD-S2 (Voltage input)		R60ADV8
	A68AD-S2 (Current input)		R60ADI8



[Specification comparison chart]

Specifications	Model	MELSEC-A series		MELSEC iQ-R series			
		A68AD, A68AD-S2		R60ADV8	R60ADI8		
Analog input	Voltage	(Input resistance hardware version K or later: 1MΩ, hardware version J or earlier: 30kΩ)		-10 to 10VDC (Input resistance: 1MΩ)			
	Current	4 to 20mA DC (Input resistance: 250Ω)		-	0 to 20mA DC (Input resistance: 250Ω)		
Digital output		ACPU: 16-bit signed binary (-2048 to 2047) K2ACPU: sign + 16-bit binary (±2047)		16-bit signed binary (-32768 to 32767)			
I/O characteristics	Analog input	Digital output		Voltage	Analog input range		
		+10V	+2000		0 to 10V	Digital output	Resolution
		+5V or +20mA	+1000		0 to 5V		
		0V or +4mA	±0		1 to 5V		
		-5V or -12mA	-1000		1 to 5V (Extended mode)		
-10V	-2000	-10 to 10V	125.0μV				
Maximum resolution	Voltage	Voltage 5mV (1/2000) Current 20μA (1/1000)		User range setting	-8000 to 32000	312.5μV	
		Current			0 to 20mA	0 to 32000	47.7μV
			4 to 20mA				625.0nA
			4 to 20mA (Extended mode)				500.0nA
			User range setting				190.7nA
Overall accuracy	±1.0% (±20)		Ambient temperature 25±5°C: ±0.1% (±32digit) or less Ambient temperature 0 to 55°C: ±0.3% (±96digit) or less				
Maximum conversion speed	Max. 2.5ms/channel		80μs/channel				
Absolute maximum input	Voltage	±15V		±15V			
	Current	±30mA		-	30mA		
No. of analog input points	8 channels/module		8 channels/module				
Isolation method	Between input terminal and power supply of programmable controller	Photocoupler		Photocoupler			
	Between channels	Non-isolation		Non-isolation			
No. of occupied points	32 points		16 points				
External interface	38-point terminal block		18-point terminal block				
Current consumption	Hardware version K or later: 0.39A Hardware version J or earlier: 0.9A		0.23A	0.22A			

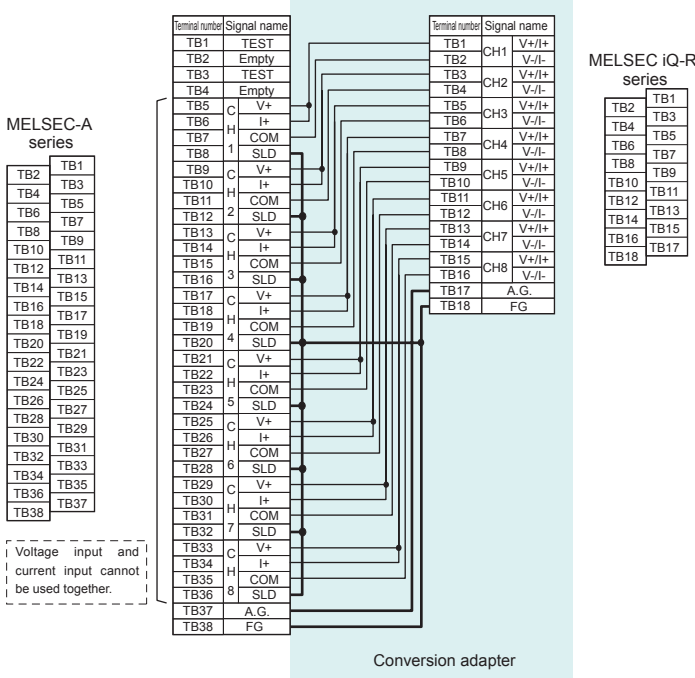
- Note 1. For the R60ADV8 and the R60ADI8, voltage input and current input cannot be used together in a single module.
 2. The R60ADV8 and the R60ADI8 do not have an offset/gain setting terminal. For details on the offset/gain setting, refer to the user's manual for the R60ADV8 and the R60ADI8.
 3. Specifications in the [] areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
 4. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

• Notes for programming

- Since the assignment of the input/output signals (X, Y) and buffer memory addresses differs between the A68AD/A68AD-S2 and the R60ADV8/R60ADI8, change the sequence program accordingly.
- Compared to the A68AD and the A68AD-S2, the conversion speed of the R60ADV8 and the R60ADI8 is faster. For that reason, noise that was not picked up by the A68AD or the A68AD-S2 may be picked up by the R60ADV8 and the R60ADI8 as analog signals. In such cases, use the averaging processing function to eliminate the influence of noise.

(2)ERNT-1AR68AN Terminal block (38 points) → Terminal block (18 points)

Model	MELSEC-A series module model	No. of channels	MELSEC iQ-R series module model
ERNT-1AR68AN	A68ADN (Voltage input)	8 channels	R60ADV8
	A68ADN (Current input)		R60ADI8



[Specification comparison chart]

Specifications	Model	MELSEC-A series			MELSEC iQ-R series						
		A68ADN			R60ADV8	R60ADI8					
Analog input	Voltage	-10 to 0 to 10VDC (Input resistance: 1MΩ)			-10 to 10VDC (Input resistance: 1MΩ)	-					
	Current	-20mA to 0 to 20mA (Input resistance: 250Ω)			-	0 to 20mA DC (Input resistance: 250Ω)					
Digital output		16-bit signed binary When 1/4000 is set: -4096 to 4095 When 1/8000 is set: -8192 to 8191 When 1/12000 is set: -12288 to 12287			16-bit signed binary (-32768 to 32767)						
I/O characteristics	Analog input	Digital output value (With a 5V/20mA gain and 0V/0mA offset)			Analog input range	Digital output	Resolution				
		10V	4000	8000				12000	0 to 10V	0 to 32000	312.5μV
		5V or 20mA	2000	4000				6000	0 to 5V		156.3μV
	Maximum resolution	Voltage input	0V or 0mA	0		0	1 to 5V		125.0μV		
			-5V or -12mA	-2000		-4000	-6000	1 to 5V (Extended mode)	-8000 to 32000	125.0μV	
			-10V	-4000		-8000	-12000	-10 to 10V	-32000 to 32000	312.5μV	
Overall accuracy	Current input	When 1/4000 is set	When 1/8000 is set	When 1/12000 is set	User range setting		47.7μV				
		2.5mV	1.25mV	0.83mV	0 to 20mA	0 to 32000	625.0nA				
		10μA	5μA	3.33μA	4 to 20mA		500.0nA				
Maximum conversion speed	Voltage	±1.0%			Current	-8000 to 32000	190.7nA				
		1/4000: ±40						Ambient temperature 25±5°C: ±0.1% (±32digit) or less Ambient temperature 0 to 55°C: ±0.3% (±96digit) or less			
		1/8000: ±80 1/12000: ±120									
Absolute maximum input	Current	±30mA			±15V	-	±30mA				
No. of analog input points		8 channels/module			8 channels/module						
Isolation method	Between input terminal and power supply of programmable controller	Photocoupler			Photocoupler						
	Between channels	Non-isolation			Non-isolation						
No. of occupied points		32 points			16 points						
External interface		38-point terminal block			18-point terminal block						
Current consumption		0.4A			0.23A	0.22A					

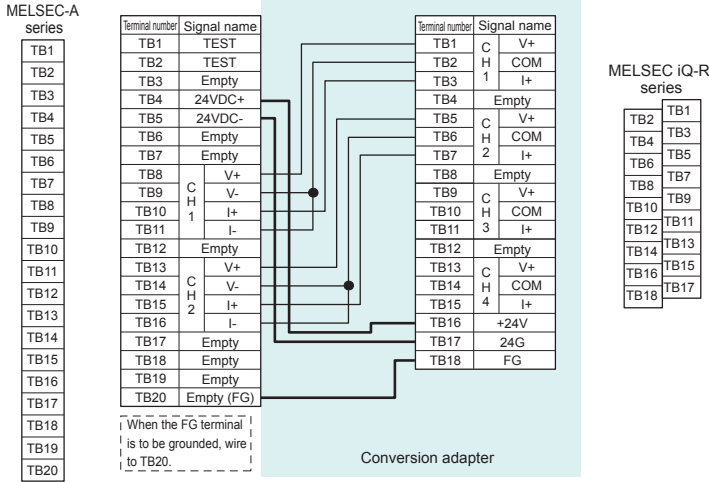
- Note 1. For the R60ADV8 and the R60ADI8, voltage input and current input cannot be used together in a single module.
 2. The R60ADV8 and the R60ADI8 do not have an offset/gain setting terminal. For details on the offset/gain setting, refer to the user's manual for the R60ADV8 and the R60ADI8.
 3. Specifications in the □ areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
 4. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

- **Notes for programming**
 (1) Since the assignment of the input/output signals (X, Y) and buffer memory addresses differs between the A68ADN and the R60ADV8/R60ADI8, change the sequence program accordingly.
 (2) Compared to the A68ADN, the conversion speed of the R60ADV8 and the R60ADI8 is faster. For that reason, noise that was not picked up by the A68ADN may be picked up by the R60ADV8 and the R60ADI8 as analog signals. In such cases, use the averaging processing function to eliminate the influence of noise.

(3)ERNT-AQT62DA Terminal block (20 points) → Terminal block (18 points)

Model	MELSEC-A series module model	No. of channels	MELSEC iQ-R series module model
ERNT-AQT62DA	A62DA	2 channels	R60DA4
	A62DA-S1		

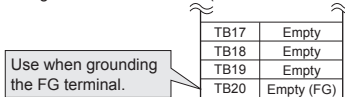
Note 1. A conversion adapter for replacing the MELSEC-A series with the MELSEC-Q series



[Specification comparison chart]

Item	Model	MELSEC-A series		MELSEC iQ-R series										
		A62DA	A62DA-S1	R60DA4										
Digital input		16-bit signed binary (Voltage: -2000 to 2000, Current: -1000 to 1000)	16-bit signed binary (0 to 4000)			16-bit signed binary (-32768 to 32767)								
Analog output	Voltage	-10 to 0 to 10VDC (External load resistance value: 500Ω to 1MΩ)	0 to 10VDC (External load resistance value: 500Ω to 1MΩ)			-10 to 10VDC (External load resistance value: 1kΩ or more) 0 to 5VDC (External load resistance value: 500Ω or more)								
	Current	4 to 20mA DC (External load resistance value: 0Ω to 600Ω)	4 to 20mA DC (External load resistance value: 0Ω to 600Ω)			0 to 20mA DC (External load resistance value: 0Ω to 600Ω)								
I/O characteristics	Digital input	Analog output	Output range	Digital input	Analog output	Analog output range	Digital value	Resolution						
				2000	10V				-	0 to 5V	0 to 32000	156.3μV		
				1000	5V				20mA	0 to 5V	4000	5V or 20mA	125.0μV	
				0	0V				4mA	0 to 20mA	0	0V or 0mA	312.5μV	
				-1000	-5V				-12mA	1 to 5V	4000	5V or 20mA	32000	312.5μV
				-2000	-10V				-	4 to 20mA	0	1V or 4mA	User range setting (Voltage)	32000
Maximum resolution	Voltage: 5mV (1/2000) Current: 20μA (1/1000)	Voltage: 1 to 5V: 1mV (1/4000) 0 to 5V: 1.25mV (1/4000) 0 to 10V: 2.5mV (1/4000) Current 4 to 20mA: 4μA (1/4000) 0 to 20mA: 5μA (1/4000)	Current	0 to 20mA	0 to 32000	625.0nA								
				4 to 20mA	0 to 32000	500.0 nA								
				User range setting (current)	-32000 to 32000	350.9 nA								
Overall accuracy	±1.0% (Voltage: ±0.1V Current: ±0.2mA)	Temperature range	1 to 5V	0 to 5V	0 to 10V	4 to 20mA	0 to 20mA	Ambient temperature 25±5°C: ±0.1% or less (Voltage: ±10mV, Current: ±20μA) Ambient temperature 0 to 55°C: ±0.3% or less (Voltage: ±30mV, Current: ±60μA)						
			±25mV	±25mV	±50mV	±0.1mA	±0.1mA							
Maximum conversion speed	15ms or less/2 channels (One channel is also the same length of time.)	15ms or less/2 channels (One channel is also the same length of time.)	80μs/channel											
			80μs/channel											
Absolute maximum output	Voltage	±12V	0 to 12V			-								
	Current	±28mA	0 to 28mA			-								
No. of analog output points	2 channels/module	2 channels/module	4 channels/module											
Isolation method	Between output terminal and power supply of programmable controller	Photocoupler	Photocoupler			Photocoupler								
	Between channels	Non-isolation	Non-isolation			Non-isolation								
	Between external power supply and analog output	-	-			Transformer								
No. of occupied points	32 points	32 points	16 points											
External interface	20-point terminal block	20-point terminal block	18-point terminal block											
Current consumption	0.60A	0.60A	0.16A											
External power supply	Voltage	21.6 to 26.4VDC	21.6 to 26.4VDC			24VDC +20%, -15%								
	Current	0.35A	0.35A			0.14A								

Note 2. To ground the FG terminal (terminal number TB18) on the R60DA4, use terminal number TB20 on the existing terminal block.



- The R60DA4 does not have an offset/gain setting terminal. For details on the offset/gain setting, refer to the user's manual for the R60DA4.
- CH3 and CH4 on the R60DA4 cannot be used. (They are not connected inside the conversion adapter.)
- Specifications in the [] areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
- For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

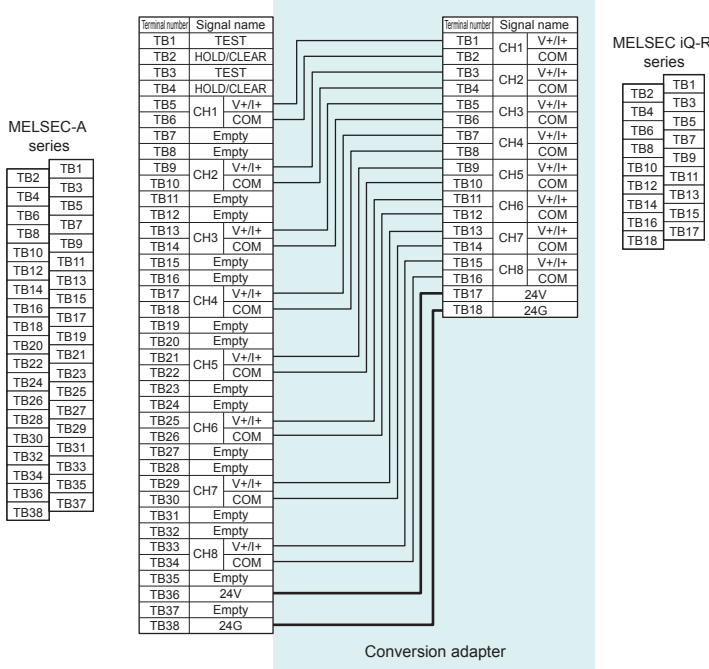
• Note for programming

(1) Since the assignment of the input/output signals (X, Y) and buffer memory addresses differs between the A62DA/A62DA-S1 and the R60DA4, change the sequence program accordingly.

(4)ERNT-AQT68DA Terminal block (38 points) → Terminal block (18 points)

Model	MELSEC-A series module model	No. of input/output points	MELSEC iQ-R series module model
ERNT-AQT68DA	A68DAV	8 channels	R60DAV8
	A68DAI		R60DAI8
	A68DAI-S1		

Note 1. A conversion adapter for replacing the MELSEC-A series with the MELSEC-Q series



[Specification comparison chart]

Specifications	Model	MELSEC-A series	MELSEC iQ-R series					
		A68DAV	R60DAV8					
Digital input		16-bit signed binary (-4000 to 4000, -8000 to 8000, -12000 to 12000)	16-bit signed binary (-32768 to 32767)					
Analog output		-10 to 0 to 10VDC (External load resistance value: 2kΩ to 1MΩ)	-10 to 10VDC (External load resistance value: 1kΩ or more) 0 to 5VDC (External load resistance value: 500Ω or more)					
I/O characteristics	Digital input value	Digital value resolution				Analog output range	Digital value	Resolution
		1/4000	1/8000	1/12000	Analog output value			
		4000	8000	12000	10V			
		2000	4000	6000	5V			
		0	0	0	0V			
Maximum resolution		2.5mV (1/4000)			Voltage	-32000 to 32000	312.5μV	
		1.25mV (1/8000)						
		0.83mV (1/12000)						
Overall accuracy		±1.0% (±100mV)	Ambient temperature 25±5°C: ±0.1% or less (Voltage: ±10mV) Ambient temperature 0 to 55°C: ±0.3% or less (Voltage: ±30mV)					
Maximum conversion speed		40ms or less/8 channels (One channel is also the same length of time.)	80μs/channel					
Absolute maximum output		-12 to 12V	-					
No. of analog output points		8 channels/module	8 channels/module					
Isolation method	Between output terminal and power supply of programmable controller	Photocoupler		Photocoupler				
	Between channels	Non-isolation		Non-isolation				
	Between external power supply and analog output	-		Transformer				
No. of occupied points		32 points	16 points					
External interface		38-point terminal block	18-point terminal block					
Current consumption		0.15A	0.16A					
External power supply	Voltage	21.6 to 26.4VDC	24VDC +20%, -15%					
	Current	0.2A	0.16A					

Model		MELSEC-A series				MELSEC iQ-R series			
Specifications		A68DAI, A68DAI-S1				R60DAI8			
Digital input		16-bit signed binary (0 to 4000, 0 to 8000, 0 to 12000)				16-bit signed binary (-32768 to 32767)			
Analog output		0 to 20mA DC (External load resistance value: 0Ω to 600Ω)				0 to 20mA DC (External load resistance value: 0Ω to 600Ω)			
I/O characteristics	Digital input value	Digital value resolution			Analog output value	Analog output range		Digital value	Resolution
		1/4000	1/8000	1/12000		0 to 20mA	0 to 32000		
		4000	8000	12000				4 to 20mA	500.0nA
		2000	4000	6000		User range setting (Voltage)	-32000 to 32000		
0	0	0	4mA						
Maximum resolution		5.0μA (1/4000) 2.5μA (1/8000) 1.6μA (1/12000)							
Overall accuracy		±1.0% (±200μA)				Ambient temperature 25±5°C: ±0.1% or less (Current: ±20μA) Ambient temperature 0 to 55°C: ±0.3% or less (Current: ±60μA)			
Maximum conversion speed		40ms/8 channels (One channel is also the same length of time.)				80μs/channel			
Absolute maximum output		0 to 28mA				-			
No. of analog output points		8 channels/module				8 channels/module			
Isolation method	Between output terminal and power supply of programmable controller	Photocoupler				Photocoupler			
	Between channels	Non-isolation				Non-isolation			
	Between external power supply and analog output	-				Transformer			
No. of occupied points		32 points				16 points			
External interface		38-point terminal block				18-point terminal block			
Current consumption		0.15A				0.16A			
External power supply	Voltage	21.6 to 26.4VDC				24VDC +20%, -15%			
	Current	0.4A				0.26A			

- Note 2. The R60DAV8 and the R60DAI8 do not have an offset/gain setting terminal. For details on the offset/gain setting, refer to the user's manual for the R60DAV8 and the R60DAI8.
3. Changes of the sequence program (the number of occupied I/O points, the I/O signals, and the buffer memory address) are necessary.
4. Specifications in the areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
5. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

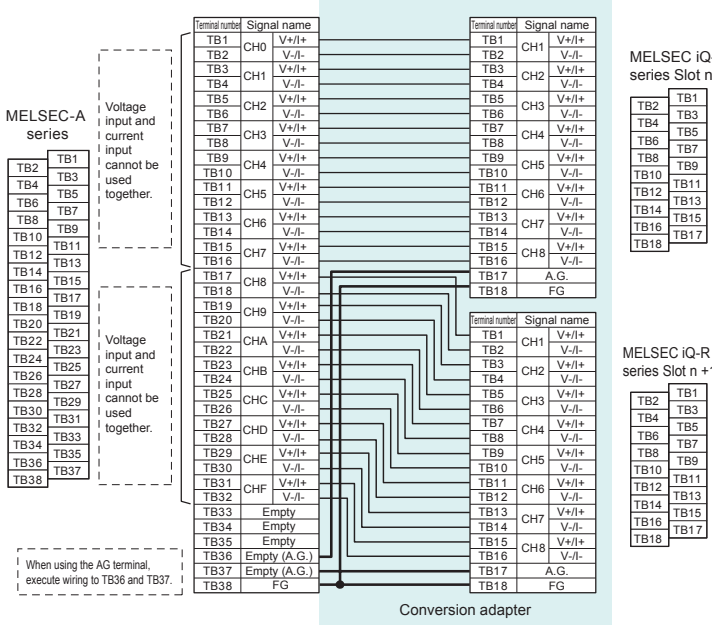
•Note for programming

(1) Since the assignment of the input/output signals (X, Y) and buffer memory addresses differs between the A68DAV/A68DAI/A68DAI-S1 and the R60DAV8/R60DAI8, change the sequence program accordingly.

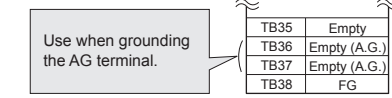
2-slot type

(1) ERNT-1AR616AD Terminal block (38 points) → Terminal block (18 points) × 2

Model	MELSEC-A series module model	No. of channels	MELSEC iQ-R series	
			module model	No. of required modules
ERNT-1AR616AD	A616AD (Voltage input)	16 channels	R60ADV8	2 modules
	A616AD (Current input)		R60ADI8	



Note 1. To ground the AG terminal (terminal number TB17) on the R60ADV8 or the R60ADI8, use terminal numbers TB36 or TB37 on the existing terminal block.



- The R60ADV8 and the R60ADI8 do not have an offset/gain setting terminal. For details on the offset/gain setting, refer to the user's manual for the R60ADV8 and the R60ADI8.
- For the R60ADV8 and the R60ADI8, voltage input and current input cannot be used together in a single module. When CH0 to CH7 and CH8 to CHF on the existing module are used for both voltage and current inputs, this product cannot be used.
- For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

[Specification comparison chart]

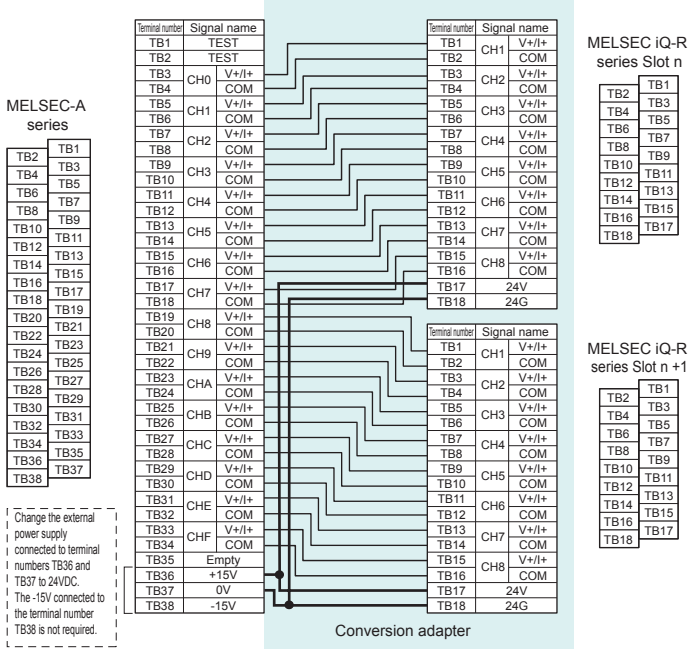
Specifications	Model	MELSEC-A series				MELSEC iQ-R series			
		A616AD				R60ADV8		R60ADI8	
Analog input	Voltage	-10 to 0 to 10VDC (Input resistance: 1MΩ)				-10 to 10VDC (Input resistance: 1MΩ)		-	
	Current	-20mA to 0 to 20mA (Input resistance: 250Ω)				-		0 to 20mA DC (Input resistance: 250Ω)	
Digital output		16-bit (12-bit for the data portion) signed binary (-48 to 4047, -2048 to 2047) Configurable for each channel				16-bit signed binary (-32768 to 32767)			
I/O characteristics and maximum resolution	Voltage	Input	Analog input range	Maximum resolution	Digital output value	Analog input range	Digital output	Resolution	
			0 to 10	2.5mV (1/4000)					0 to 10V
		0 to 5	1.25mV (1/4000)	0 to 5V					156.3μV
		1 to 5	1.0mA (1/4000)	0 to 4000 -2000 to 2000					125.0μV
		-10 to 10	5.0mV (1/4000)	1 to 5V (Extended mode)					125.0μV
	Current (mA)	Input	Analog input range	Maximum resolution	Digital output value	Analog input range	Digital output	Resolution	
			0 to 20	10μA (1/4000)					0 to 2000 -2000 to 0
		0 to 20	5μA (1/4000)	0 to 2000 -2000 to 2000					47.7μV
		4 to 20	4μA (1/4000)	0 to 4000 -2000 to 2000					625.0nA
		-20 to 20	20μA (1/2000)	1000 to 3000 -1000 to 1000					500.0nA
-20 to 20	10μA (1/4000)	0 to 4000 -2000 to 2000	190.7nA						
Overall accuracy		0 to 10V, -10 to 10V -5V to 5V, -20mA to 20mA	±0.3% (Digital value ±12)	Ambient temperature 25±5°C: ±0.1% (±32digit) or less Ambient temperature 0 to 55°C: ±0.3% (±96digit) or less					
Maximum conversion speed			1ms/channel	80μs/channel					
Absolute maximum input	Voltage	±15V				±15V		-	
	Current	±30mA				-		30mA	
No. of analog input points		16 channels/module				8 channels/module			
Isolation method	Between input terminal and power supply of programmable controller	Photocoupler				Photocoupler			
	Between channels	Non-isolation				Non-isolation			
No. of occupied points		32 points				16 points			
External interface		38-point terminal block				18-point terminal block			
Current consumption		1A				0.23A		0.22A	

• Notes for programming

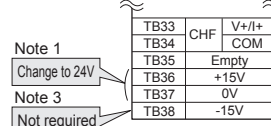
- Since the assignment of the input/output signals (X, Y) and buffer memory addresses differs between the A616AD and the R60ADV8/R60ADI8, change the sequence program accordingly.
- Compared to the A616AD, the conversion speed of the R60ADV8 and the R60ADI8 is faster. For that reason, noise that was not picked up by the A616AD may be picked up by the R60ADV8 and the R60ADI8 as analog signals. In such cases, use the averaging processing function to eliminate the influence of noise.

(2)ERNT-1AR616DA Terminal block (38 points) → Terminal block (18 points) ×2

Model	MELSEC-A series module model	No. of channels	MELSEC iQ-R series	
	A616DAV A616DAI		module model	No. of required modules
ERNT-1AR616DA	A616DAV	16 channels	R60DAV8	2 modules
	A616DAI		R60DAI8	



- Note 1. Change the external power supply connected to terminal numbers TB36 and TB37 on the existing terminal block to 24VDC.
- Note 2. The R60DAV8 and the R60DAI8 do not have an offset/gain setting terminal. For details on the offset/gain setting, refer to the user's manual for the R60DAV8 and the R60DAI8.



- Note 3. The -15V power supply that was connected to terminal number TB38 on the existing terminal block is not required.
- Note 4. Specifications in the areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
- Note 5. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

[Specification comparison chart]

Specifications	Model	MELSEC-A series		MELSEC iQ-R series			
		A616DAV		R60DAV8			
Digital input		16-bit signed binary (-4096 to 4095)		16-bit signed binary (-32768 to 32767)			
Analog output		When the output voltage range setting is 10V -10 to 0 to 10V (External load resistance value: 2kΩ to 1MΩ) When the output voltage range setting is 5V -5 to 0 to 5V (External load resistance value: 2kΩ to 1MΩ)		-10 to 10VDC (External load resistance value: 1kΩ or more) 0 to 5VDC (External load resistance value: 500Ω or more)			
I/O characteristics	Digital input	Analog output		Voltage	Analog output range	Digital value	Resolution
		When 5V is set					
	4000	5V	10V		0 to 5V	0 to 32000	156.3μV
	2000	2.5V	5V		1 to 5V		
	0	0V	0V		-10 to 10V	-32000 to 32000	312.5μV
	-2000	-2.5V	-5V		User range setting (Voltage)		
-4000	-5V	-10V		312.5μV			
		Maximum resolution: 1/4000					
Overall accuracy	Output voltage range setting	10V	5V	Ambient temperature 25±5°C: ±0.1% or less (Voltage: ±10mV) Ambient temperature 0 to 55°C: ±0.3% or less (Voltage: ±30mV)			
	Ambient temperature (0 to 55°C)	±0.6% (±60mV)	±0.6% (±30mV)				
	Ambient temperature (25°C)	±0.3% (±30mV)	±0.3% (±15mV)				
Maximum conversion speed		0.5ms (-10V→10V/10V→-10V conversion time)		80μs/channel			
Absolute maximum output		15V		-			
No. of analog output points		16 channels/module		8 channels/module			
Isolation method	Between output terminal and power supply of programmable controller	Photocoupler		Photocoupler			
	Between channels	Non-isolation		Non-isolation			
	Between external power supply and analog output	-		Transformer			
No. of occupied points		32 points		16 points			
External interface		38-point terminal block		18-point terminal block			
Current consumption		0.38A		0.16A			
External power supply	Voltage	15VDC / -15VDC		24VDC +20%, -15%			
	Current	15VDC: 0.2A / -15VDC: 0.17A		0.16A			

Specifications	Model	MELSEC-A series	MELSEC iQ-R series			
		A616DAI	R60DAI8			
Digital input		16-bit signed binary (0 to 4095)	16-bit signed binary (-32768 to 32767)			
Analog output		0 to 20mA DC (External load resistance value: 0Ω to 600Ω)	0 to 20mA DC (External load resistance value: 0Ω to 600Ω)			
I/O characteristics	Digital input	4000	Current	Analog output range	Digital value	Resolution
		2000		20mA	0 to 20mA	0 to 32000
	0	12mA	4 to 20mA	-32000 to 32000	350.9nA	
	Maximum resolution: 1/4000		User range setting (Current)			
Overall accuracy		±0.6% ±0.3% when the ambient temperature is 25°C		Ambient temperature 25±5°C: ±0.1% or less (Current: ±20μA) Ambient temperature 0 to 55°C: ±0.3% or less (Current: ±60μA)		
Maximum conversion speed		0.5ms (0mA→20mA, 20mA→0mA conversion time)		80μs/channel		
Absolute maximum output		-		-		
No. of analog output points		16 channels/module		8 channels/module		
Isolation method	Between output terminal and power supply of programmable controller	Photocoupler		Photocoupler		
	Between channels	Non-isolation		Non-isolation		
	Between external power supply and analog output	-		Transformer		
No. of occupied points		32 points		16 points		
External interface		38-point terminal block		18-point terminal block		
Current consumption		0.3A		0.16A		
External power supply	Voltage	15VDC/-15VDC		24VDC +20%, -15%		
	Current	15VDC: 0.53A / -15VDC: 0.125A		0.26A		

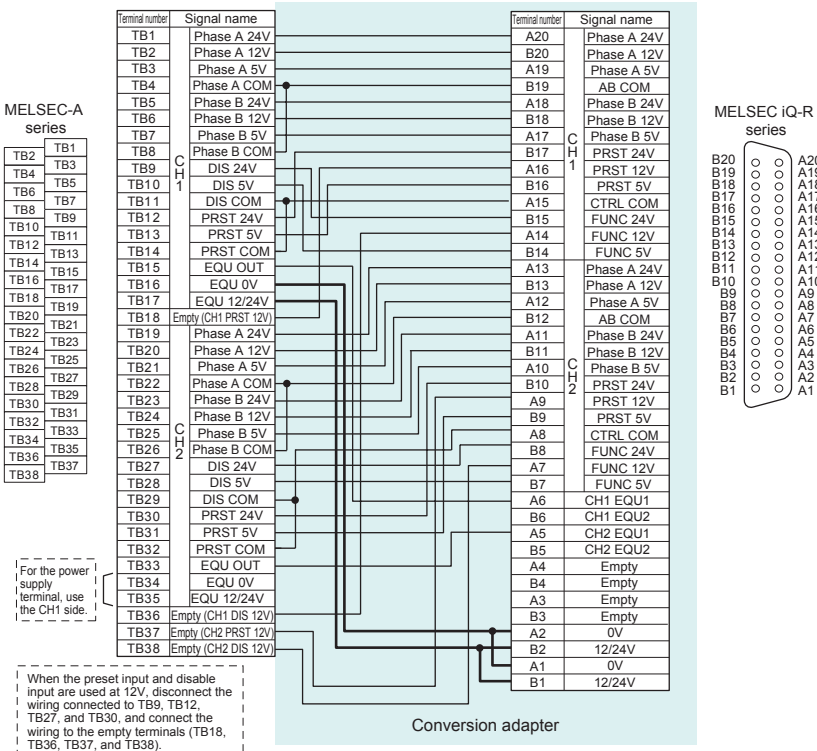
• Note for programming
 (1) Since the assignment of the input/output signals (X, Y) and buffer memory addresses differs between the A616DAV/A616DAI and the R60DAV8/R60DAI8, change the sequence program accordingly.

For High-speed Counter Modules

1-slot type

(1)ERNT-1AR61D Terminal block (38 points) → Connector (40P)

Model	MELSEC-A series module model	No. of channels	MELSEC iQ-R series module model
ERNT-1AR61D	AD61	2 channels	RD62P2
	AD61-S1		



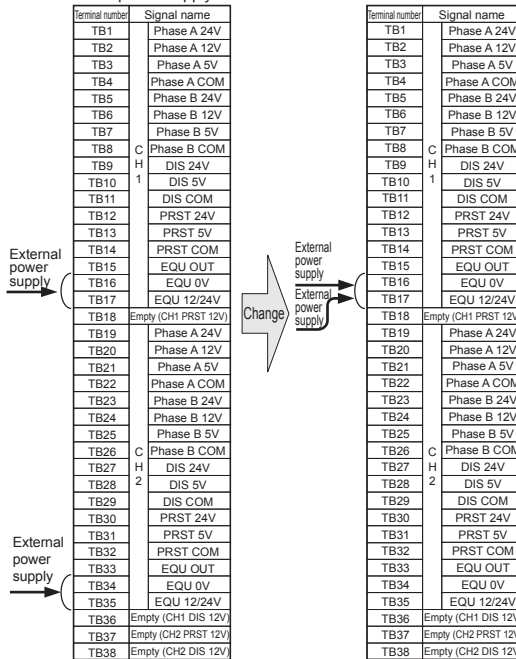
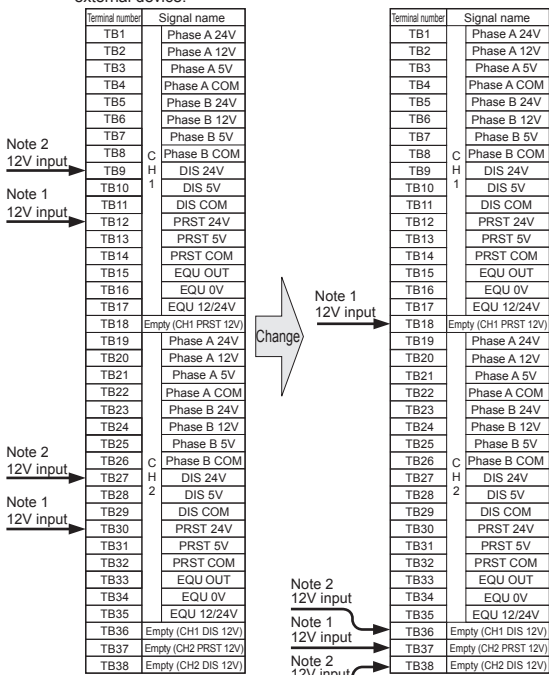
[Specification comparison chart]

Item		Model	MELSEC-A series		MELSEC iQ-R series		
			AD61	AD61-S1	RD62P2		
No. of channels			2 channels	2 channels	2 channels		
Counting speed switch setting			-	-	200kPPS (100k to 200kPPS)	100kPPS (10k to 100kPPS)	10kPPS (10kPPS or less)
Count input signal	Phases		1-phase input, 2-phase input	1-phase input, 2-phase input	1-phase input (1x/2x), 2-phase input (1x/2x/4x), CW/CCW input		
	Signal level (φA, φB)		5/12/24VDC: 2 to 5mA	5/12/24VDC: 2 to 5mA	5/12/24VDC: 2 to 5mA		
Counter	Maximum counting speed		1-phase input: 50kPPS 2-phase input: 50kPPS	1-phase input: 10kPPS 2-phase input: 7kPPS	200kPPS	100kPPS	10kPPS
	Counting range		24-bit binary (0 to 16777215)	24-bit binary (0 to 16777215)	32-bit binary (-2147483648 to 2147483647)		
	Type		UP/DOWN preset counter + Ring counter function	UP/DOWN preset counter + Ring counter function	UP/DOWN preset counter + Ring counter function		
	Minimum count pulse width (Duty ratio: 50%)						
Size comparison	Comparison range		Binary format (binary) 24 bits	Binary format (binary) 24 bits	32-bit signed binary		
	Comparison result		Setting value < Count value Setting value = Count value Setting value > Count value	Setting value < Count value Setting value = Count value Setting value > Count value	Setting value < Count value Setting value = Count value Setting value > Count value		
External input	Preset		12/24VDC: 3/6mA 5VDC: 5mA	12/24VDC: 3/6mA 5VDC: 5mA	5/12/24VDC 7 to 10mA		
	Count disable		12/24VDC: 3/6mA 5VDC: 5mA	12/24VDC: 3/6mA 5VDC: 5mA	-		
	Function start		-	-	5/12/24VDC 7 to 10mA		
	Digital filter		-	-	0ms, 0.1ms, 1ms, 10ms		
External output	Coincidence output		Transistor output (Open collector) 12/24VDC 0.5A	Transistor output (Open collector) 12/24VDC 0.5A	Transistor output (Sink type), 2 points/channel 12/24VDC 0.5A/point 2A/common		
No. of occupied points			32 points	32 points	16 points		
Current consumption			0.30A	0.30A	0.11A		

- Note 1. The PRST 24V terminals (terminal numbers TB12 and TB30) on the existing terminal block are connected to the PRST 24V terminals on the RD62P2. When the module is used with the preset input of 12V, it can be used by connecting the wiring of the PRST 24V terminals (terminal numbers TB12 and TB30) with terminal numbers TB18 and TB37. (Refer to the figure below.) Since the specifications for the external input differ, check the specifications of the external device.
- Note 2. The DIS 24V terminals (terminal numbers TB9 and TB27) on the existing terminal block are connected to the FUNC 24V terminals on the RD62P2. When the module is used with the disable input of 12V, it can be used by connecting the wiring of the DIS 24V terminals (terminal numbers TB9 and TB27) with terminal numbers TB36 and TB38. (Refer to the figure below.) Since the specifications for the external input differ, check the specifications of the external device.

3. For the power supply of the coincidence output on AD61, use only the CH1 side (terminal numbers TB16 and 17). When an external power supply is used on the CH2 side (terminal numbers TB34 and 35), change the wiring. (Refer to the figure below.)

When the CH1 side (terminal numbers TB16 and 17) and the CH2 side (terminal numbers TB35 and 34) use different external power supplies, change them to the same power supply.



4. The counting speed is affected by the pulse rise time and fall time (t). The countable counting speeds are as shown in the table below. Note that if pulses whose rise or fall time is great are counted, a count error may occur.

Counting speed switch setting	Shared by 1-phase input and 2-phase input		
	200k	100k	10k
t = 1.25µs or less	200kPPS	100kPPS	10kPPS
t = 2.5µs or less	100kPPS	100kPPS	10kPPS
t = 25µs or less	-	10kPPS	10kPPS
t = 500µs	-	-	500PPS

5. Specifications in the areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.

6. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

• Note for programming

- (1) Since the assignment of the input/output signals (X, Y) and buffer memory addresses differs between the AD61/AD61-S1 and the RD62P2, change the sequence program accordingly.

Base Adapter

Specifications

A MELSEC iQ-R series base unit can be mounted by using the mounting holes of the MELSEC-A series base unit. (No need to drill any additional mounting holes.)

Model (*1)	Specifications		Mountable conversion adapter support flange
	MELSEC-A series compatible module	MELSEC iQ-R series compatible module	
ERNT-AQB38N	A38B, A38B-UL, A38HB A38HBEU, A38B-E	R312B	ERNT-1AR12F
		R38B	ERNT-1AR8F
ERNT-AQB35N	A35B, A35B-UL, A35B-E	R38B	ERNT-1AR8F
		R35B	ERNT-1AR5F
ERNT-AQB68N	A68B, A68B-UL	R612B	ERNT-1AR12F
		R68B	ERNT-1AR8F
ERNT-AQB58N	A58B, A58B-UL	R68B (*2)	ERNT-1AR8F
ERNT-AQB65N	A65B, A65B-UL	R68B	ERNT-1AR8F
		R65B	ERNT-1AR5F
ERNT-AQB55N	A55B, A55B-UL	R65B (*2)	ERNT-1AR5F

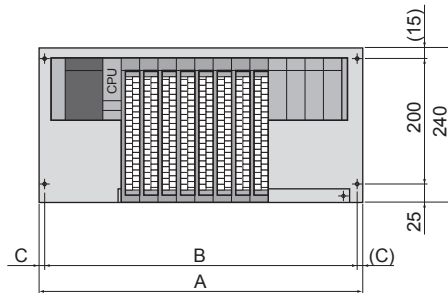
*1: ERNT-AQB** (products without "N" at the end of their model names) cannot be used.

*2: Since base units without a power supply do not exist in the MELSEC iQ-R series, the model here is the extension base unit after replacement.

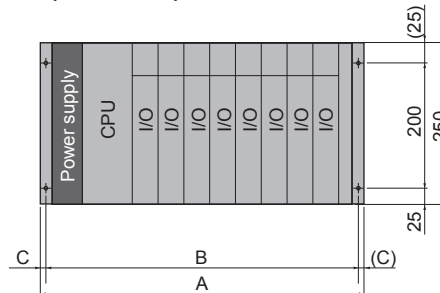
Mounting Dimensions

- Compared to the MELSEC-A series, the height is shorter after replacement. (For details on the width and depth of the module, refer to Usage Cautions"Usage Cautions" (page 1-27).)
- Since the dimensions of the base adapter mounting holes (four points) are the same as those of the mounting holes on the MELSEC-A series base unit, there is no need to drill any additional mounting holes on the control panel.
- The slot positions of modules differ between the MELSEC-A series and the MELSEC iQ-R series. After replacement, adjust the lengths of the cables.

◎ MELSEC iQ-R series



◎ (Reference) MELSEC-A series



Unit: mm

Model	A	B	C	MELSEC-A series base unit model	A	B	C
ERNT-AQB38N	480	460	10	A38B (-UL/-E), A38HB (EU)	480	460	10
ERNT-AQB68N	466	446	10	A68B(-UL)	466	446	10
ERNT-AQB58N	411	391	10	A58B(-UL)	411	391	10
ERNT-AQB35N	382	362	10	A35B(-UL/-E)	382	362	10
ERNT-AQB65N	352	332	10	A65B(-UL)	352	332	10
ERNT-AQB55N	297	277	10	A55B(-UL)	297	277	10

When Not Using a Base Adapter

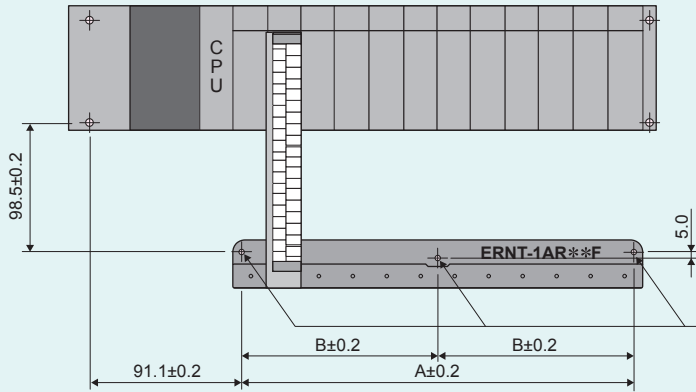
When not using a base adapter, screw holes (M4 screw x 3 points) need to be provided to mount a conversion adapter support flange as shown below.

The conversion adapter support flange must be mounted.

When using a main base unit

◎ With R312B, R38B, and R35B

Unit: mm



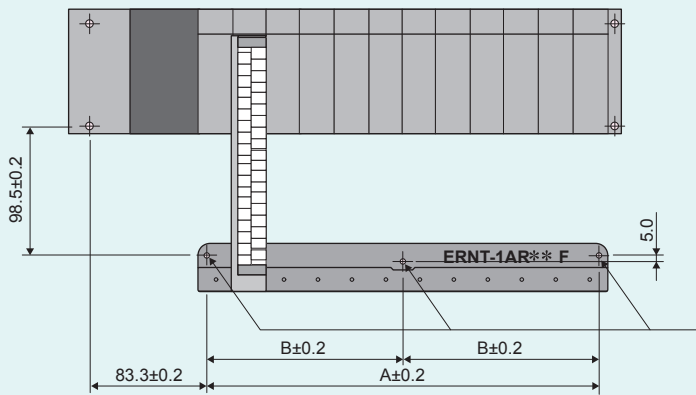
Conversion adapter support flange	A	B
ERNT-1AR12F	325.6	162.8
ERNT-1AR8F	212.8	106.4
ERNT-1AR5F	128.2	64.1

Drill screw holes (M4 screw, 3 locations) at these positions, and mount the conversion adapter support flange.

When using an extension base unit

◎ With R612B, R68B, and R65B

Unit: mm



Conversion adapter support flange	A	B
ERNT-1AR12F	325.6	162.8
ERNT-1AR8F	212.8	106.4
ERNT-1AR5F	128.2	64.1

Drill screw holes (M4 screw, 3 locations) at these positions, and mount the conversion adapter support flange.

Conversion adapter support flange

Specifications

The conversion adapter support flange is used to secure the bottom of the conversion adapter. One flange is required for each base unit.

Model	Specifications
ERNT-1AR12F	Conversion adapter support flange for 12-slot MELSEC iQ-R series modules
ERNT-1AR8F	Conversion adapter support flange for 8-slot MELSEC iQ-R series modules
ERNT-1AR5F	Conversion adapter support flange for 5-slot MELSEC iQ-R series modules

Usage Cautions

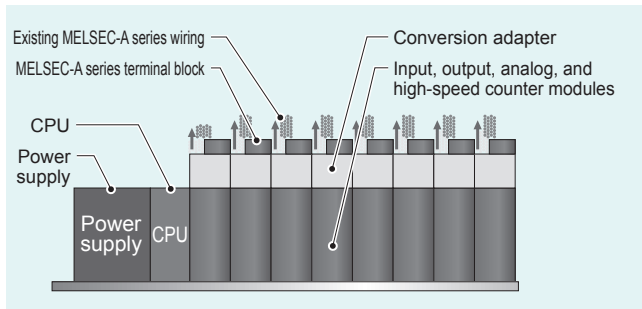
A conversion adapter is a product that converts the pin assignments of a MELSEC-A series module into the pin assignments of a MELSEC iQ-R series module. To check differences in performance, functionality, I/O signals for CPU, buffer memory addresses, and other items when replacing the MELSEC-A series with the MELSEC iQ-R series, be sure to refer to the manual for each MELSEC iQ-R series module before using the product.

Module Width

- (1) Since the width of MELSEC iQ-R series modules is smaller (MELSEC-A series: 37.5mm → MELSEC iQ-R series: 27.8mm), the wiring area becomes smaller as well. Check the wiring area when mounting a conversion adapter.

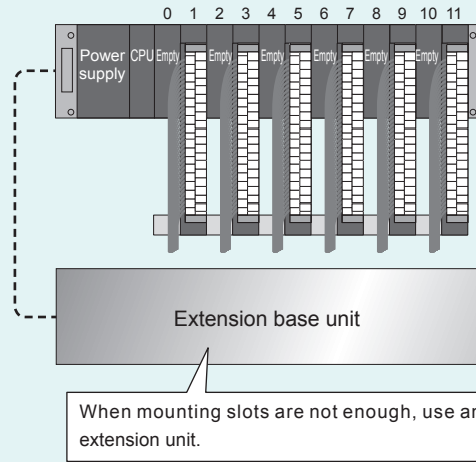


- (2) If the wiring causes interference with adjacent modules, take an action such as lifting the wiring forward to prevent interference.



- (3) If interference still occurs, keep the next slot open to secure a space for wiring.

Example) With R312B



Attach a connector cover (accessory) or blank cover module (RG60) to a connector where no module is mounted to prevent entry of foreign matter such as dust.

Depth

Since the depth becomes larger, check that it can be mounted.

MELSEC-A : MELSEC-A series MELSEC iQ-R : MELSEC iQ-R series

Model	ERNT-1AR10XY ERNT-1AR40Y ERNT-1AR68AD ERNT-1AR68AN ERNT-AQT62DA	ERNT-1AR41X ERNT-1AR41Y ERNT-1AR61D ERNT-AQT68DA	ERNT-1AR11X13Y ERNT-1AR10AY ERNT-1AR51Y ERNT-1AR616AD ERNT-1AR616DA
Depth	184.7mm		194.7mm
Mounting diagram	<p>MELSEC-A MELSEC iQ-R + Upgrade Tool</p> <p>130 184.7</p> <p>54.7 mm increase</p>		<p>MELSEC-A MELSEC iQ-R + Upgrade Tool</p> <p>140 194.7</p> <p>54.7 mm increase</p>

Model	ERNT-ASLCXY81
Depth	203.9mm
Mounting diagram	<p>MELSEC-A MELSEC iQ-R + Upgrade Tool</p> <p>177 203.9</p> <p>40.6 48</p> <p>26.9 mm increase</p>

*: Each depth is measured from the panel surface.

- MELSEC-A series: Base unit + Input/output/analog/high-speed counter modules + Terminal block
- MELSEC iQ-R series + Upgrade tool: Base adapter + Base unit + Input/output/analog/high-speed counter modules + Conversion adapter + Terminal block

Conversion Adapter Support Flange / Base Adapter

When using a conversion adapter, the conversion adapter support flange is required.

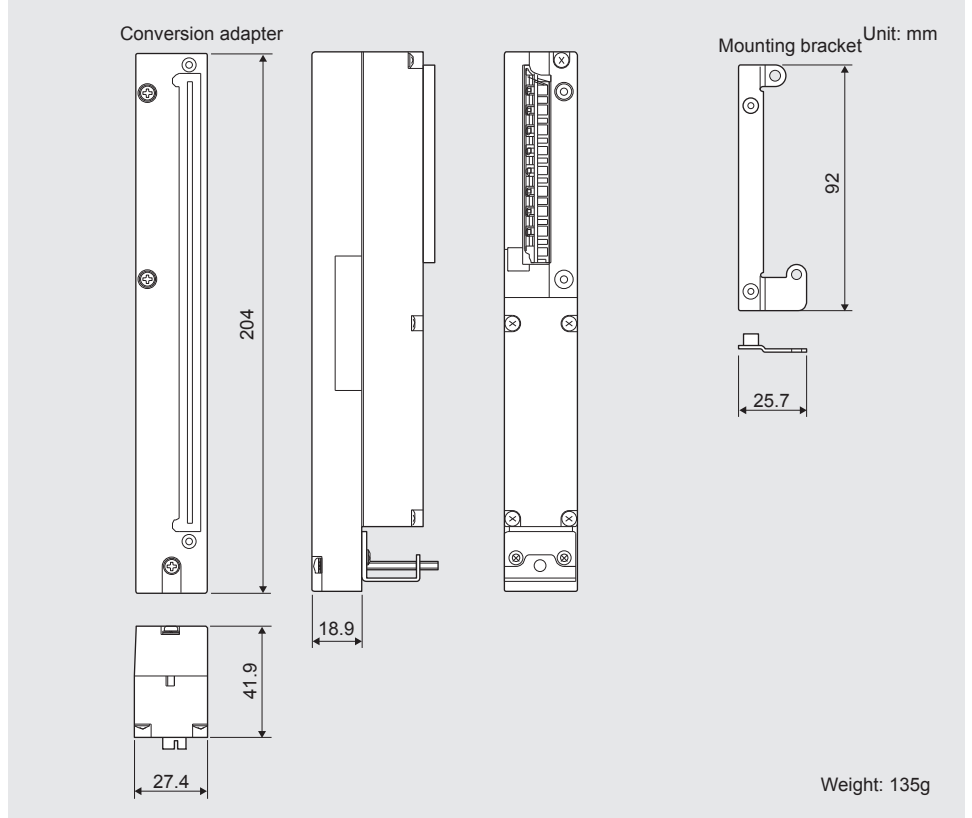
We recommend using a base adapter that permits the MELSEC iQ-R series to be mounted using the mounting holes of the MELSEC-A series. (No need to drill any additional mounting holes.)

External Dimensions

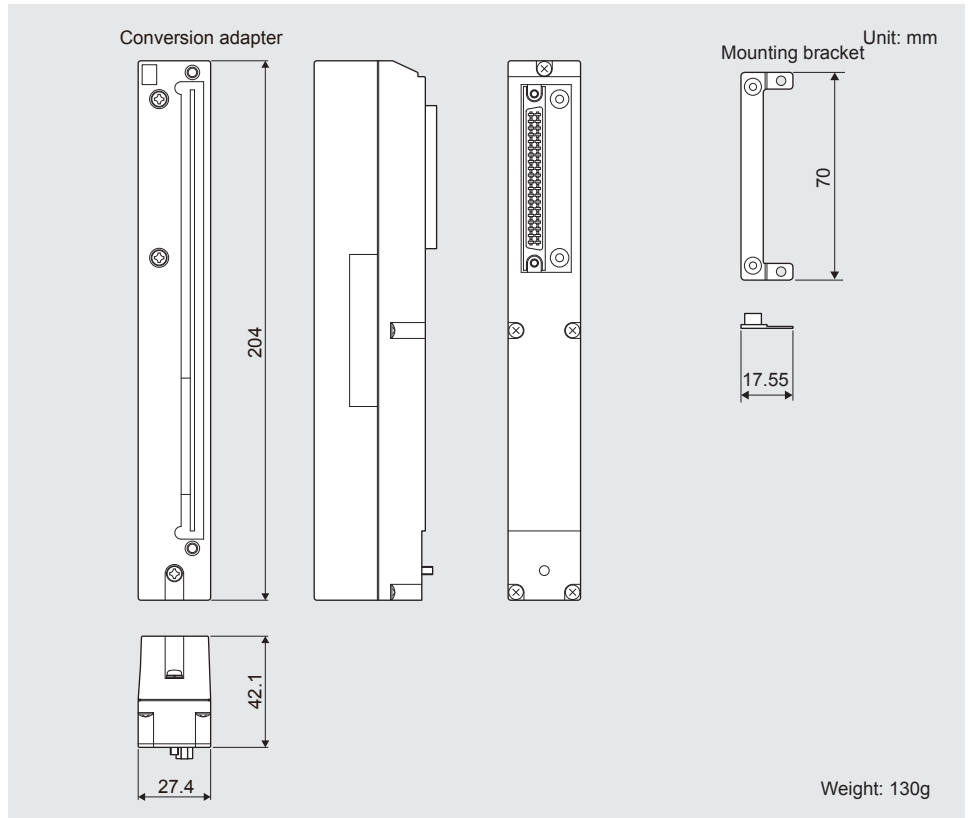
Conversion Adapter



ERNT-1AR10XY
 ERNT-1AR40Y
 ERNT-1AR68AD
 ERNT-1AR68AN
 ERNT-AQT62DA
 ERNT-AQT68DA



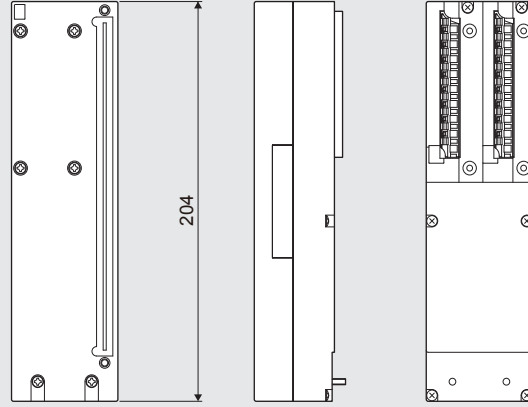
ERNT-1AR41X
 ERNT-1AR41Y
 ERNT-1AR61D



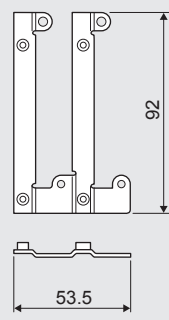


ERNT-1AR11X13Y
 ERNT-1AR10AY
 ERNT-1AR51Y
 ERNT-1AR616AD
 ERNT-1AR616DA

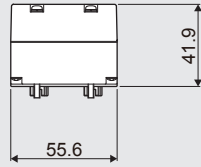
Conversion adapter



Mounting bracket



Unit: mm

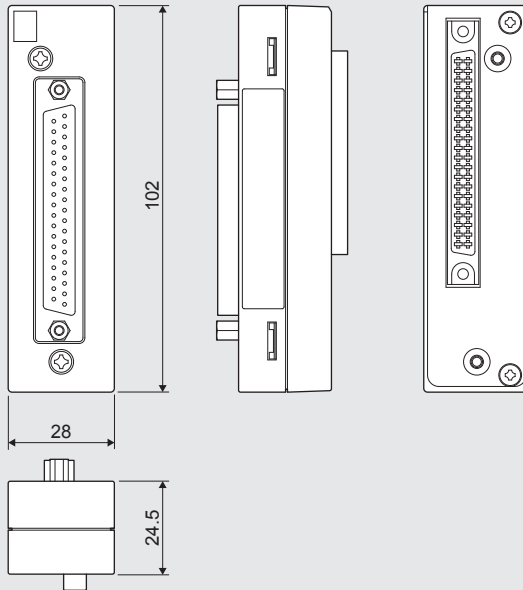


Weight: 210g

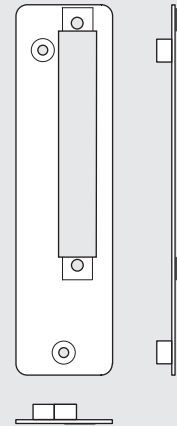


ERNT-ASLCXY81

Conversion adapter



Mounting bracket



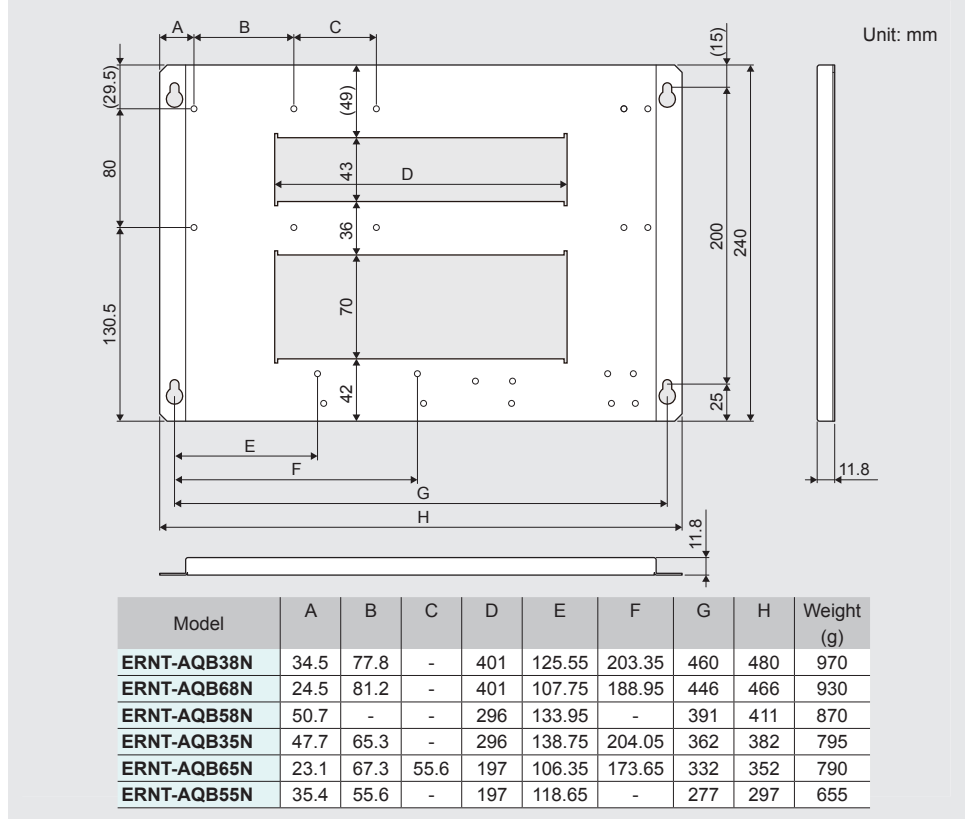
Unit: mm

Weight: 95g

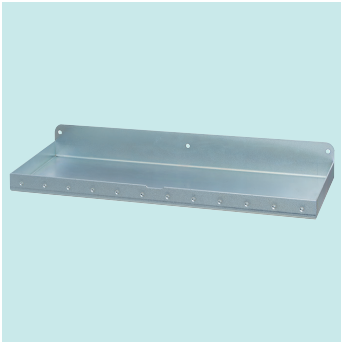
Base Adapter



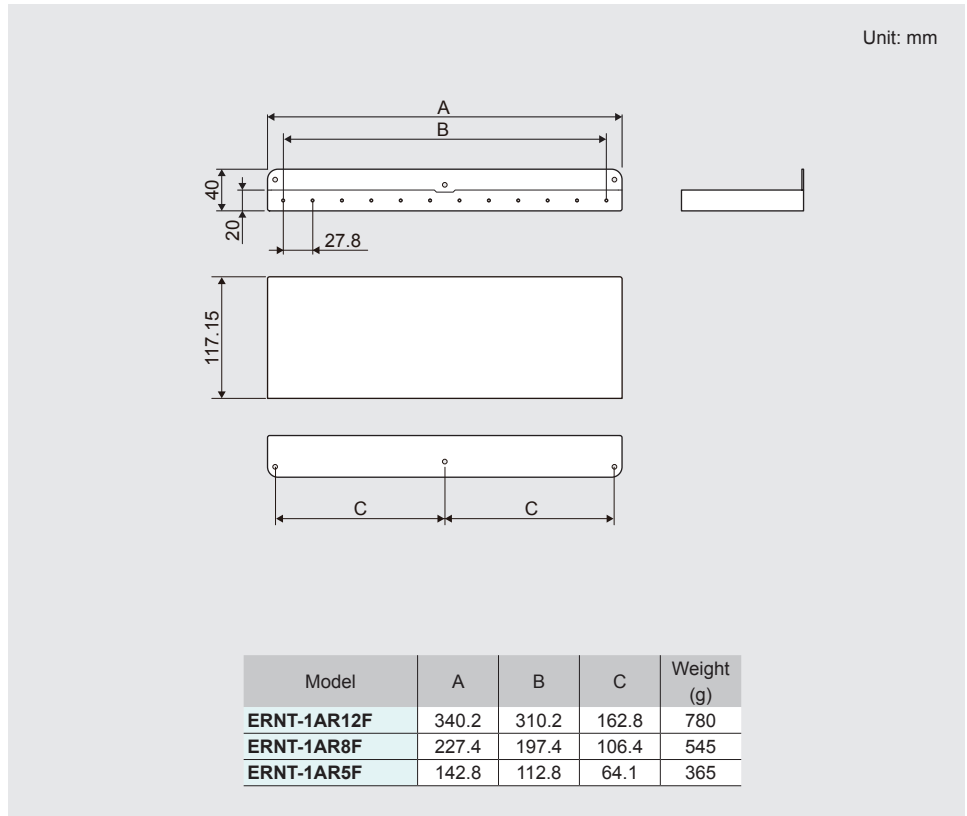
- ERNT-AQB38N
- ERNT-AQB68N
- ERNT-AQB58N
- ERNT-AQB35N
- ERNT-AQB65N
- ERNT-AQB55N



Conversion Adapter Support Flange



- ERNT-1AR12F
- ERNT-1AR8F
- ERNT-1AR5F



AnS → iQ-R series

MELSEC-AnS series / MELSEC iQ-R series Upgrade Tool

Upgrading the MELSEC-AnS series to the MELSEC iQ-R series

- Simplifies replacement with the MELSEC iQ-R series**
 The upgrade tool makes it easy to replace the Mitsubishi Electric programmable controller MELSEC-AnS series with the MELSEC iQ-R series.
- Significantly shortens the time required for input, output, analog, and high-speed counter module wiring, and significantly reduces wiring errors**
 - The upgrade tool allows you to connect the wiring connected to the MELSEC-AnS series input/output/analog/high-speed counter modules as is to the MELSEC iQ-R series using a conversion adapter. (Some power supply and common terminal connections need to be changed.)
 - With a base adapter, the MELSEC iQ-R series can be mounted by using the mounting holes of the MELSEC-AnS series base unit. (No need to drill any additional mounting holes.) Upgrading is possible also when a DIN rail is attached.
- Permits reuse of sequence programs**
 The upgrade tool allows you to convert a MELSEC-AnS series program into a MELSEC iQ-R series program using the Mitsubishi Electric programming tools. For details, contact Mitsubishi Electric Corporation.

Product Overview

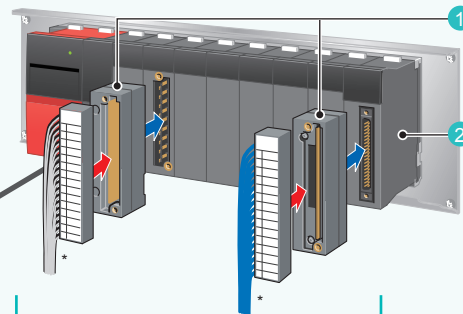
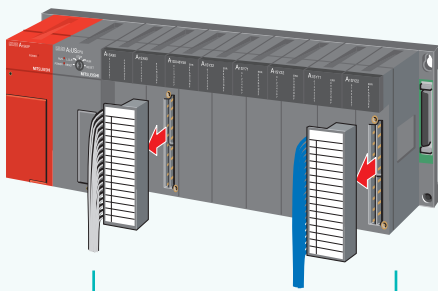
This upgrade tool comprises a "conversion adapter" that is used to transfer the existing wiring of the Mitsubishi Electric programmable controller MELSEC-AnS series module to wiring for a MELSEC iQ-R series module and a "base adapter" that the MELSEC iQ-R series can be mounted by using the mounting holes of the MELSEC-A series base unit. (When a DIN rail is mounted, the "base adapter" is not required.)

MELSEC-AnS series (Small type programmable controller AnS, QnAS)

Upgrading

MELSEC iQ-R series *1

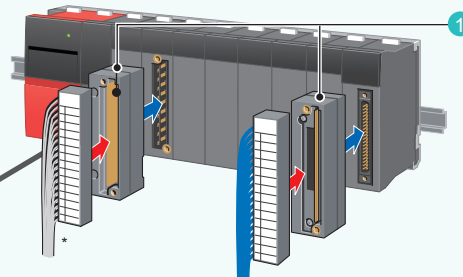
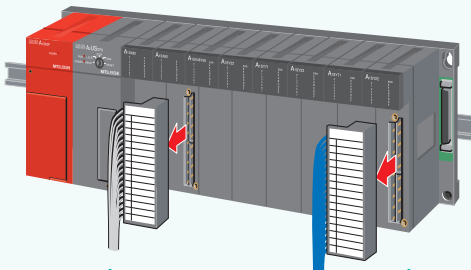
Mounting to a panel surface



Utilizing the existing wiring for the module

*Replace the terminal block cover with the cover provided with the conversion adapter.

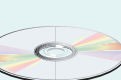
Mounting to a DIN rail



Utilizing the existing wiring for the module

*Replace the terminal block cover with the cover provided with the conversion adapter.

MELSEC-AnS series project file



*2

Mitsubishi Electric programming tools
GX Developer,
GX Works2,
GX Works3

1 Conversion adapter

2-4

2 Base Adapter

2-17

Allows to mount the MELSEC iQ-R series base unit using the mounting holes of the MELSEC-AnS series base unit.

* 1: When replacing the MELSEC-AnS series with the MELSEC iQ-R series, check that it can be mounted, because the width and depth of the modules differ.

* 2: Example of how to change the program

- On GX Developer, convert the PLC type for the target program to the MELSEC-Q series and save (GPJ file).
- On GX Works2, open the saved project by selecting "Open other data" → "Open Other Project" from "Project" and save it (GXW file).
- On GX Works3, open the saved project by selecting "Open Other Format File" → "GX Works2 Format" → "Open Project" from "Project".

Model List

1 Conversion Adapter

When selecting a conversion adapter, be sure to refer to the specification comparison charts and notes on pages 2-4 to 2-16. These pages describe precautions such as differences in the number of points per common. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used. Note that the areas where the specifications differ between the MELSEC-AnS series and the MELSEC iQ-R series are restricted in terms of specifications when replacing. Check the specifications of the connected devices.

For Input/Output Modules

<1-slot type>

Input / Output	MELSEC-AnS series module model before replacement	MELSEC iQ-R series module model after replacement	Note	Conversion adapter			Page
				Model	Shape (No. of points/No. of pins)		
					MELSEC-AnS series	MELSEC iQ-R series	
Input	A1SX10	RX10	*4	ERNT-ASQTX10			2-4
	A1SX10EU						
Output	A1SY10	RY10R2	*1, 4				
	A1SY10EU						
Input	A1SX30	RX40C7	*2, 4	ERNT-ASQTX40	Terminal block (20 points)	Terminal block (18 points)	16 points
	A1SX40		*3, 4				
	A1SX40-S1		*3				
	A1SX40-S2						
	A1SX80		*3, 4				
	A1SX80-S1		*3				
	A1SX80-S2						
	A1SI61		*3, 4, 6				
Output	A1SY22	RY20S6	*1, 4	ERNT-ASQTY22			2-6
	A1SY40	RY40NT5P	*1, 4	ERNT-ASQTY40			2-6
	A1SY40P						
	A1SY50	RY40NT5P	*1, 4	ERNT-ASQTY50			2-7
	A1SY80	RY40PT5P	*1, 4	ERNT-ASQTY80			2-7
Input	A1SX81	RX41C4, RX41C6HS	*3, 5	ERNT-ASLCXY81	D-Sub connector (37P)	Connector (40P)	32 points
	A1SX81-S2						
Output	A1SY81	RY41PT1P	*5				2-8
	A1SY81EP						

- * 1: Since the number of points per common differs, check the common terminal connection of the module before replacement.
- * 2: When a rated input voltage of 12VAC, 24VAC, or 12VDC is used, change the voltage to 24VDC.
- * 3: When a rated input voltage of 12VDC is used, change the voltage to 24VDC.
- * 4: A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-Q series
- * 5: A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-L series
- * 6: Set "Interrupt Settings" of "Module Parameter" in the sequence program.

For Analog Modules

<1-slot type>

Input / Output	MELSEC-AnS series module model before replacement	MELSEC iQ-R series module model before replacement	Note	Conversion adapter			Page
				Model	Shape (No. of points/No. of pins)		
					MELSEC-AnS series	MELSEC iQ-R series	
Input	A1S64AD	R60AD4	*8	ERNT-ASQT64AD	Terminal block (20 points)	Terminal block (18 points)	4 channels
	A1S68AD (Voltage input)	R60ADV8	*7, 9	ERNT-ASQT68AD			8 channels
	A1S68AD (Current input)	R60ADI8					
Output	A1S62DA	R60DA4	*8, 9	ERNT-ASQT62DA			2 channels
	A1S68DAV	R60DAV8	*9	ERNT-ASQT68DA			8 channels
	A1S68DAI	R60DAI8					

- * 7: For the R60ADV8 and the R60ADI8, voltage input and current input cannot be used together in a single module.
- * 8: CH3 and CH4 on the R60DA4 cannot be used. (They are not connected inside the conversion adapter.)
- * 9: A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-Q series

For High-speed Counter Modules

<1-slot type>

Input / Output	MELSEC-AnS series module model before replacement	MELSEC iQ-R series module model before replacement	Note	Conversion adapter			Page
				Model	Shape (No. of points/No. of pins)		
					MELSEC-AnS series	MELSEC iQ-R series	
Input	A1SD61	RD62P2	*10, 11	ERNT-ASLTD61	Terminal block (20 points)	Connector (40P)	1 channel
	A1SD62	RD62P2	*11	ERNT-ASLTD62			2 channels
	A1SD62E	RD62P2E					

- * 10: The RD62P2 does not have the limit switch output function of the A1SD61. Use the coincidence output function of the RD62P2 instead. Note that the specifications differ, such as a fewer number of settings.
- * 11: A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-L series

2 Base Adapter

A MELSEC iQ-R series base unit can be mounted by using the mounting holes of the MELSEC-AnS series base unit.

Type	MELSEC-AnS series base unit model before replacement	MELSEC iQ-R series base unit model after replacement	Note	Model	Remarks	Page
Main	A1S38B	R38B	*1	ERNT-ASQB38N	To use the Q7BAT-SET, keep the CPU module (before mounting the Q7BAT-SET) mounted to its base adapter when mounting the Q7BAT-SET to the CPU module.	2-17
	A1S38HB					
	A1S38HBEU					
	A1S35B	R35B	*1	ERNT-ASQB35N		
	A1S33B	N/A	-	-		
	A1S32B	N/A	-	-		
	A1SJCPU	R35B	*1	ERNT-ASQB00JN		
A1SJCPU-S3						
A1SJHCPU						
Extension	A1S68B	R68B	*1	ERNT-ASQB68N		
	A1S65B	R65B	*1	ERNT-ASQB65N		
	A1S58B	R68B	*1, 2	ERNT-ASQB58N		
	A1S55B	N/A	-	-		
	A1S52B	N/A	-	-		

* 1 : A base adapter for replacing the MELSEC-AnS series with the MELSEC-Q series

* 2 : Since the base units in the MELSEC iQ-R series are always provided with a power supply, the extension base units with a power supply are the replacement target.

Conversion Adapter

Specifications

For Input/Output Modules

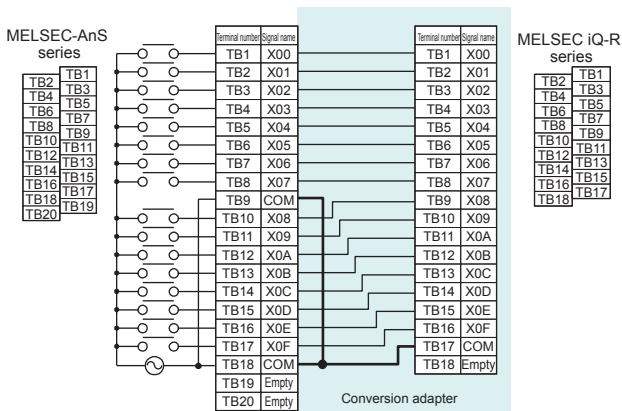
1-slot type

(1) ERNT-ASQTY10 Terminal block (20 points) → Terminal block (18 points)

Model	MELSEC-AnS series module model	No. of input/output points	MELSEC iQ-R series module model
ERNT-ASQTY10	A1SX10	16 points	RX10
	A1SX10EU		
	A1SY10		RY10R2
	A1SY10EU		

Note 1. A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-Q series

A1SX10/A1SX10EU → RX10

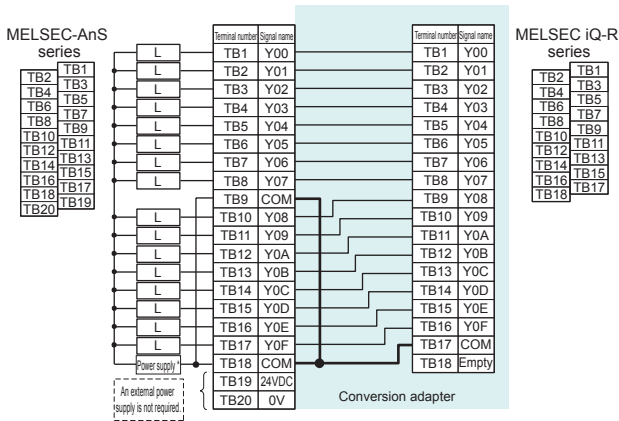


[Specification comparison chart]

Specifications	MELSEC-AnS series		MELSEC iQ-R series
	A1SX10	A1SX10EU	RX10
No. of input points	16 points	16 points	16 points
Rated input voltage	100-120VAC 50/60Hz	100-120VAC 50/60Hz	100-120VAC 50/60Hz
Rated input current	Approx. 6mA (100VAC, 60Hz)	Approx. 7mA (120VAC, 60Hz)	8.2mA (100VAC, 60Hz) 6.8mA (100VAC, 50Hz)
Inrush current	Max. 200mA, 1ms or less (132VAC)	Max. 200mA, 1ms or less (132VAC)	Max. 200mA, 1ms or less
ON voltage / ON current	80VAC or more / 5mA or more	80VAC or more / 5mA or more	80VAC or more / 5mA or more (50Hz, 60Hz)
OFF voltage / OFF current	30VAC or less / 1.4mA or less	30VAC or less / 1.4mA or less	30VAC or less / 1.7mA or less (50Hz, 60Hz)
Input impedance	Approx. 18kΩ (60Hz) Approx. 21kΩ (50Hz)	Approx. 18kΩ (60Hz) Approx. 21kΩ (50Hz)	12.2kΩ (60Hz) 14.6kΩ (50Hz)
Response time	OFF→ON: 20ms or less ON→OFF: 35ms or less	20ms or less 35ms or less	15ms or less (100VAC 50Hz, 60Hz) 20ms or less (100VAC 50Hz, 60Hz)
Internal power consumption	50mA (TYP. all points ON)	50mA (TYP. all points ON)	110mA (TYP. all points ON)
Wiring method for common	16 points/common	16 points/common	16 points/common
External interface	20-point terminal block	20-point terminal block	18-point terminal block

- Note 2. Specifications in the areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
3. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

A1SY10/A1SY10EU → RY10R2



*Power supply



24VDC or 240VAC

[Specification comparison chart]

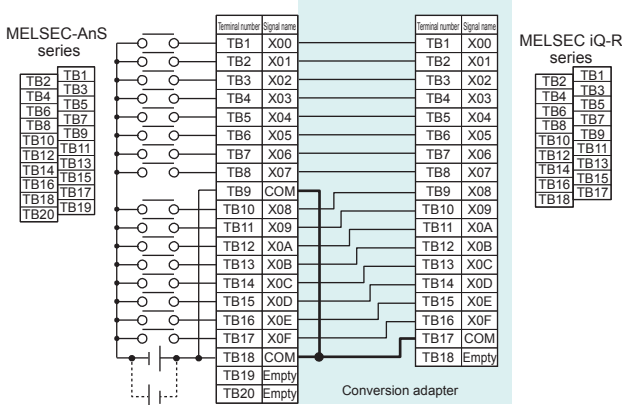
Specifications	MELSEC-AnS series		MELSEC iQ-R series
	A1SY10	A1SY10EU	RY10R2
No. of output points	16 points	16 points	16 points
Rated switching voltage/current	24VDC/2A (Resistive load) 240VAC/2A (COSφ = 1) 8A/common	24VDC/2A (Resistive load) 120VAC/2A (COSφ = 1) 8A/common	24VDC 2A/point (Resistive load) 240VAC 2A/point (COSφ = 1) 8A/common
Minimum switching load	5VDC 1mA	5VDC 1mA	5VDC 1mA
Maximum switching voltage	264VAC 125VDC	132VAC 125VDC	264VAC 125VDC
Response time	OFF→ON: 10ms or less ON→OFF: 12ms or less	10ms or less 12ms or less	10ms or less 12ms or less
Surge suppressor	None	None	None
Fuse	None	None	None
Internal current consumption	120mA (TYP. all points ON)	120mA (TYP. all points ON)	450mA (TYP. all points ON)
Wiring method for common	8 points/common	8 points/common	16 points/common
External interface	20-point terminal block	20-point terminal block	18-point terminal block

- Note 4. Since the number of points per common changes from 8 (two circuits) to 16, when terminal numbers TB9 and TB18 on the existing module are used separately from each other, change the wiring.
5. The external power supply connected to terminal numbers TB19 and TB20 on the existing terminal block is no longer required. However, since the wiring is not connected inside the conversion adapter, leaving the external power supply connected is not a problem.
6. Specifications in the areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
7. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

(2)ERNT-ASQTX40 Terminal block (20 points) → Terminal block (18 points)

Model	MELSEC-AnS series module model	No. of input points	MELSEC iQ-R series module model
ERNT-ASQTX40	A1SX30	16 points	RX40C7
	A1SX40		
	A1SX40-S1		
	A1SX40-S2		
	A1SX80		
	A1SX80-S1		
	A1SX80-S2		
A1SI61			

Note 1. A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-Q series



[Specification comparison chart]

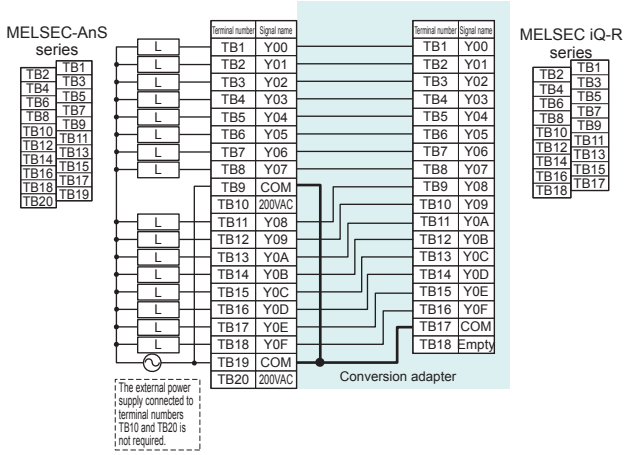
Model	MELSEC-AnS series								MELSEC iQ-R series
	A1SX30 (DC/AC input type)	A1SX40 (Sink type)	A1SX40-S1 (Sink type)	A1SX40-S2 (Sink type)	A1SX80 (Sink/Source type)	A1SX80-S1 (Sink/Source type)	A1SX80-S2 (Sink/Source type)	A1SI61	RX40C7 (Positive common/ negative common shared type)
No. of input points	16 points	16 points	16 points	16 points	16 points	16 points	16 points	16 points	16 points
Rated input voltage	12/24VDC 12/24VAC 50/60Hz	12/24VDC	24VDC	24VDC	12/24VDC	24VDC	24VDC	12/24VDC	24VDC
Rated input current	4mA (12VDC/VAC) 8.5mA (24VDC/VAC)	Approx. 3mA/ Approx. 7mA	Approx. 7mA	Approx. 7mA	Approx. 3mA/ Approx. 7mA	Approx. 7mA	Approx. 7mA	Approx. 4mA (12VDC) Approx. 8mA (24VDC)	7.0mA (TYP.)
ON voltage/ ON current	7VDC/VAC or more/ 2mA or more	8VDC or more / 2mA or more	14VDC or more / 4mA or more	14VDC or more / 3.5mA or more	8VDC or more / 2mA or more	17VDC or more / 5mA or more	13VDC or more / 3.5mA or more	9V or more/ 3mA or more	15VDC or more / 4mA or more
OFF voltage/ OFF current	2.7VDC/VAC or less/ 0.7mA or less	4VDC or less / 1mA or less	6.5VDC or less / 1.7mA or less	6.5VDC or less / 1.7mA or less	4VDC or less / 1mA or less	5VDC or less / 1.7mA or less	6VDC or less / 1.7mA or less	4V or less/ 1mA or less	8VDC or less / 2mA or less
Input resistance	Approx. 2.7kΩ	Approx. 3.3kΩ	Approx. 3.3kΩ	Approx. 3.3kΩ	Approx. 3.3kΩ	Approx. 3.3kΩ	Approx. 3.3kΩ	Approx. 2.7kΩ	3.3kΩ
Response time	OFF→ON 20ms or less (12/24VDC) 25ms or less (12/24VAC 60Hz)	10ms or less	0.1ms or less	10ms or less	10ms or less	0.4ms or less	10ms or less	0.2ms or less	0.1/0.2/0.4/0.6/1/ 5/10/20/70ms or less
	ON→OFF 20ms or less (12/24VDC) 20ms or less (12/24VAC 60Hz)	10ms or less	0.2ms or less	10ms or less	10ms or less	0.5ms or less	10ms or less	0.2ms or less	0.1/0.2/0.4/0.6/1/ 5/10/20/70ms or less
Internal power consumption	50mA (TYP. all points ON)	50mA (TYP. all points ON)	50mA (TYP. all points ON)	50mA (TYP. all points ON)	50mA (TYP. all points ON)	50mA (TYP. all points ON)	50mA (TYP. all points ON)	57mA (TYP. all points ON)	110mA (TYP. all points ON)
Wiring method for common	16 points/common	16 points/ common	16 points/ common	16 points/ common	16 points/ common	16 points/ common	16 points/ common	16 points/ common	16 points/common
External interface	20-point terminal block	20-point terminal block	20-point terminal block	20-point terminal block	20-point terminal block	20-point terminal block	20-point terminal block	20-point terminal block	18-point terminal block

- Note 2. When replacing the A1SX30 with the RX40C7 and a rated input voltage of 12VAC, 24VAC, or 12VDC is used, change the voltage to 24VDC.
 3. When replacing the A1SX40, the A1SX80, or the A1SI61 with the RX40C7 and a rated input voltage of 12VDC is used, change the voltage to 24VDC.
 4. Specifications in the areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing.
 Check that the specifications of devices and equipment to be connected are satisfied.
 5. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

(3) ERNT-ASQTY22 Terminal block (20 points) → Terminal block (18 points)

Model	MELSEC-AnS series module model	No. of output points	MELSEC iQ-R series module model
ERNT-ASQTY22	A1SY22	16 points	RY20S6

Note 1. A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-Q series



[Specification comparison chart]

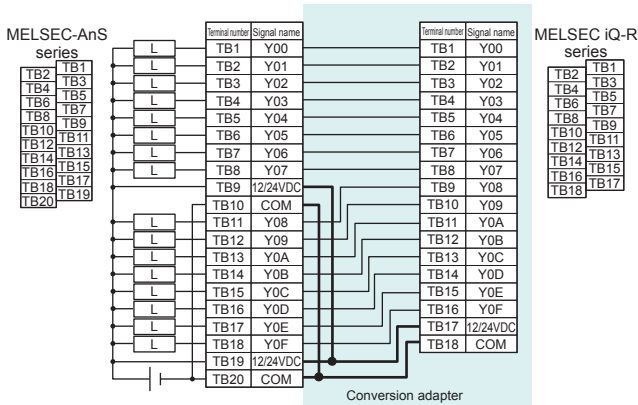
Specifications	Model	
	MELSEC-AnS series A1SY22	MELSEC iQ-R series RY20S6
No. of output points	16 points	16 points
Rated load voltage	100-240VAC 50/60Hz ±3Hz	100-240VAC 50/60Hz ±5Hz
Maximum load current	0.6A/point, 2.4A/common	0.6A/point, 4.8A/common
Minimum load voltage/current	24VAC 100mA 100VAC 10mA 240VAC 20mA	24VAC 100mA 100VAC 25mA 240VAC 25mA
Maximum inrush current	20A 10ms or less, 8A 100ms or less	20A one cycle or less
Leakage current at OFF	1.5mA (120VAC 60Hz) 3mA (240VAC 60Hz)	1.5mA or less (for 120V, 60Hz) 3mA or less (for 240V, 60Hz)
Maximum voltage drop at ON	1.5VAC or less (0.1 to 0.6A) 1.8VAC or less (50 to 100mA) 2VAC or less (10 to 50mA)	1.5VAC or less (for a load current of 0.6A)
Response time	OFF→ON	1ms or less
	ON→OFF	1ms + 0.5 cycle or less
Surge suppressor	CR absorber	CR absorber
Fuse	5A (1 common/set) Not replaceable	None (Installing a fuse per external wiring point is recommended.)
Internal current consumption	270mA (TYP. all points ON)	280mA (MAX. all points ON)
Wiring method for common	8 points/common	16 points/common
External interface	20-point terminal block	18-point terminal block

- Note 2. Since the number of points per common changes from 8 (two circuits) to 16, when terminal numbers TB9 and TB19 on the existing module are used separately from each other, change the wiring.
- The external power supply connected to terminal numbers TB10 and TB20 on the existing terminal block is no longer required.
 - Specifications in the [] areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
 - For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

(4) ERNT-ASQTY40 Terminal block (20 points) → Terminal block (18 points)

Model	MELSEC-AnS series module model	No. of output points	MELSEC iQ-R series module model
ERNT-ASQTY40	A1SY40	16 points	RY40NT5P
	A1SY40P		

Note 1. A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-Q series



[Specification comparison chart]

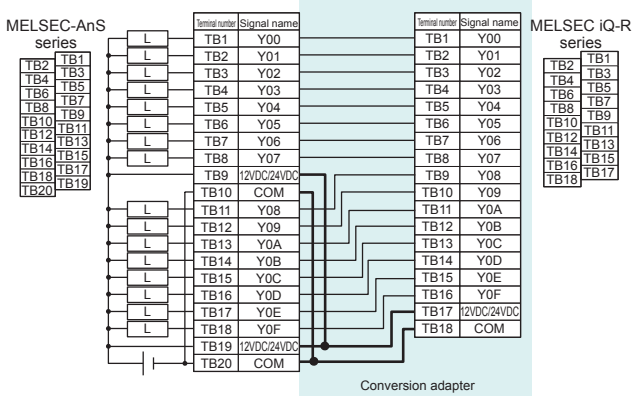
Specifications	Model		
	MELSEC-AnS series A1SY40 (Sink type)	MELSEC-AnS series A1SY40P (Sink type)	MELSEC iQ-R series RY40NT5P (Sink type)
No. of output points	16 points	16 points	16 points
Rated load voltage	12/24VDC	12/24VDC	12/24VDC
Maximum load current	0.1A/point 0.8A/common	0.1A/point 0.8A/common	0.5A/point 5A/common
Maximum inrush current	0.4A 10ms or less	0.7A 10ms or less	1.5 to 3.5A/point (Current is restricted by overload protection function.)
Leakage current at OFF	0.1mA or less	0.1mA or less	0.1mA or less
Maximum voltage drop at ON	1.0VDC (TYP.) 0.1A 2.5VDC (MAX.) 0.1A	0.1VDC (TYP.) 0.1A 0.2VDC (MAX.) 0.1A	0.2VDC (TYP.) 0.5A 0.3VDC (MAX.) 0.5A
Response time	OFF→ON	2ms or less	1ms or less
	ON→OFF	2ms or less (Resistive load)	1ms or less (Rated load, resistive load)
Surge suppressor	Zener diode	Zener diode	Zener diode
Fuse	1.6A (1 common/set) Not replaceable	None	None
Protection function	None	Yes (Overheat protection, short-circuit protection)	Yes (Overheat protection, overload protection)
Internal current consumption	270mA (TYP. all points ON)	79mA (TYP. all points ON)	140mA (TYP. all points ON)
Wiring method for common	8 points/common	8 points/common	16 points/common
External interface	20-point terminal block	20-point terminal block	18-point terminal block

- Note 2. Since the number of points per common changes from 8 (two circuits) to 16, when terminal numbers TB9 and TB19 as well as terminal numbers TB10 and TB20 on the MELSEC-AnS series side are used separately from each other, change the wiring.
- Specifications in the [] areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
 - For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

(5)ERNT-ASQTY50 Terminal block (20 points) → Terminal block (18 points)

Model	MELSEC-AnS series module model	No. of output points	MELSEC iQ-R series module model
ERNT-ASQTY50	A1SY50	16 points	RY40NT5P

Note 1. A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-Q series



[Specification comparison chart]

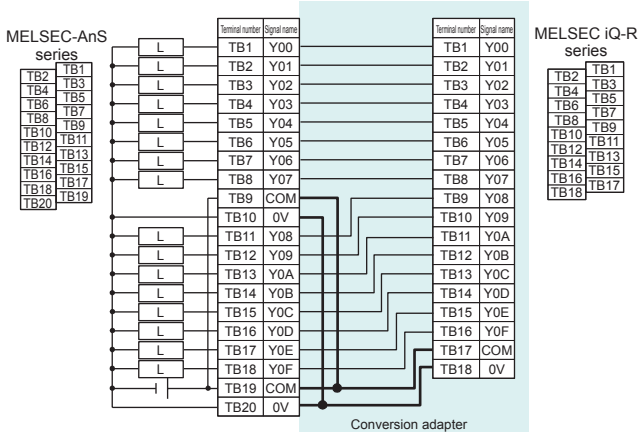
Specifications	Model	MELSEC-AnS series	MELSEC iQ-R series
		A1SY50 (Sink type)	RY40NT5P (Sink type)
No. of output points		16 points	16 points
Rated load voltage		12/24VDC	12/24VDC
Maximum load current		0.5A/point, 2A/common	0.5A/point, 5A/common
Maximum inrush current		4A 10ms or less	1.5 to 3.5A/point (Current is restricted by overload protection function.)
Leakage current at OFF		0.1mA or less	0.1mA or less
Maximum voltage drop at ON		0.9VDC (TYP.) 0.5A 1.5VDC (MAX.) 0.5A	0.2VDC (TYP.) 0.5A 0.3VDC (MAX.) 0.5A
Response time	OFF→ON	2ms or less	0.5ms or less
	ON→OFF	2ms or less (Resistive load)	1ms or less (Rated load, resistive load)
Surge suppressor		Zener diode	Zener diode
Fuse		3.2A (1 common/set) Not replaceable	None
Internal current consumption		120mA (TYP. all points ON)	140mA (TYP. all points ON)
Wiring method for common		8 points/common	16 points/common
External interface		20-point terminal block	18-point terminal block

- Note 2. Since the number of points per common changes from 8 (two circuits) to 16, when terminal numbers TB9 and TB19 as well as terminal numbers TB10 and TB20 on the existing module are used separately from each other, change the wiring.
- Specifications in the areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
 - For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

(6)ERNT-ASQTY80 Terminal block (20 points) → Terminal block (18 points)

Model	MELSEC-AnS series module model	No. of output points	MELSEC iQ-R series module model
ERNT-ASQTY80	A1SY80	16 points	RY40PT5P

Note 1. A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-Q series



[Specification comparison chart]

Specifications	Model	MELSEC-AnS series	MELSEC iQ-R series
		A1SY80 (Source type)	RY40PT5P (Source type)
No. of output points		16 points	16 points
Rated load voltage		12/24VDC	12/24VDC
Maximum load current		0.8A/point, 3.2A/common	0.5A/point, 5A/common
Maximum inrush current		8A 10ms or less	1.5A/point (Current is restricted by overload protection function.)
Leakage current at OFF		0.1mA or less	0.1mA or less
Maximum voltage drop at ON		1.5VDC (MAX.) 0.8A	0.2VDC (TYP.) 0.5A 0.3VDC (MAX.) 0.5A
Response time	OFF→ON	2ms or less	0.5ms or less
	ON→OFF	2ms or less (Resistive load)	1ms or less (Rated load, resistive load)
Surge suppressor		Zener diode	Zener diode
Fuse		5A (1 common/set) Not replaceable	None
Internal current consumption		120mA (TYP. all points ON)	130mA (TYP. all points ON)
Wiring method for common		8 points/common	16 points/common
External interface		20-point terminal block	18-point terminal block

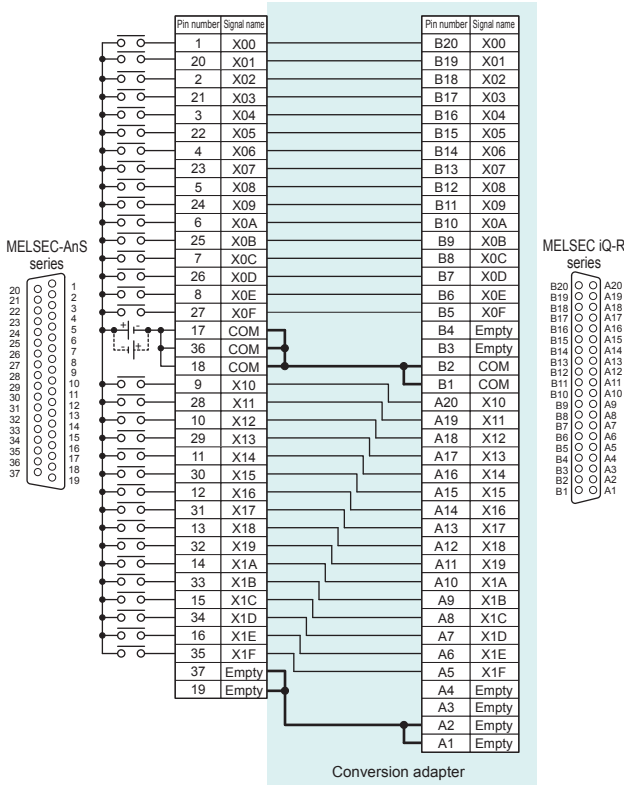
- Note 2. Since the number of points per common changes from 8 (two circuits) to 16, when terminal numbers TB9 and TB19 as well as terminal numbers TB10 and TB20 on the existing module are used separately from each other, change the wiring.
- Specifications in the areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
 - For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

(7)ERNT-ASLCXY81 D-Sub connector (37P) → Connector (40P)

Model	MELSEC-AnS series module model	No. of input/output points	MELSEC iQ-R series module model
	A1SX81		RX41C4
	A1SX81-S2		RX41C6HS
	A1SY81EP		RY41PT1P

Note 1. A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-L series

A1SX81/A1SX81-S2 → RX41C4

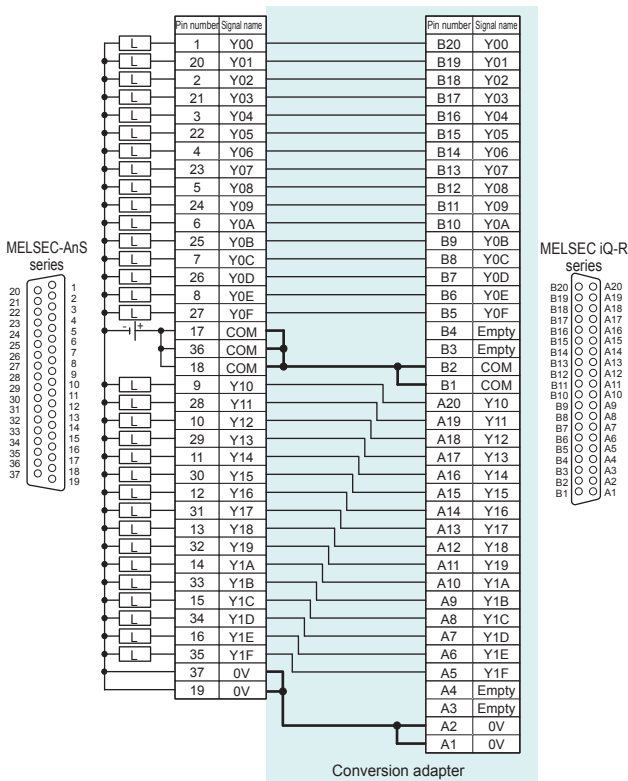


[Specification comparison chart]

Specifications	MELSEC-AnS series		MELSEC iQ-R series	
	A1SX81 (Sink/Source shared type)	A1SX81-S2 (Sink/Source shared type)	RX41C4 (Positive common/negative common shared type)	RX41C6HS (Positive common/negative common shared type)
No. of input points	32 points	32 points	32 points	32 points
Rated input voltage	12VDC	24VDC	24VDC	24VDC
Rated input current	Approx. 3mA	Approx. 7mA	Approx. 7mA	4mA TYP. / 6.0mA TYP.
ON voltage/ON current	8VDC or more/ 2mA or more	13VDC or more/ 3.5mA or more	19VDC or more/ 3mA or more	19V or more/ 4mA or more
OFF voltage/OFF current	4VDC or less/ 1mA or less	6VDC or less/ 1.7mA or less	6VDC or less/ 1.0mA or less	6V or less/ 1.7mA or less
Input resistance	Approx. 3.3kΩ	Approx. 3.3kΩ	5.3kΩ	4kΩ
Response time	OFF→ON	10ms or less (24VDC)	10ms or less	0.1/0.2/0.4/0.6/1/5/10/20/70ms or less
	ON→OFF	10ms or less (24VDC)	10ms or less	0.1/0.2/0.4/0.6/1/5/10/20/70ms or less
Internal current consumption	80mA (TYP. all points ON)	80mA (TYP. all points ON)	150mA (TYP. all points ON)	150mA (TYP. all points ON)
Wiring method for common	32 points/common	32 points/common	32 points/common	32 points/common
External interface	37-pin D-Sub connector	37-pin D-Sub connector	40-pin connector	40-pin connector

- Note 2. When replacing the A1SX81 and a rated input voltage of 12VDC is used, change the voltage to 24VDC.
- Specifications in the areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
 - For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

A1SY81/A1SY81EP → RY41PT1P



[Specification comparison chart]

Specifications	MELSEC-AnS series		MELSEC iQ-R series
	A1SY81 (Source type)	A1SY81EP (Source type)	RY41PT1P (Source type)
No. of output points	32 points	32 points	32 points
Rated load voltage	12/24VDC	12/24VDC	12/24VDC
Maximum load current	0.1A/point / 2A/common	0.1A/point / 2A/common (25°C) / 0.05A/point / 1.6A/common (55°C)	0.1A/point / 2A/common
Maximum inrush current	0.4A 10ms or less	No restriction (Overload protection function)	1 to 3A/point (Current is restricted by overload protection function.)
Leakage current at OFF	0.1mA or less	0.1mA or less	0.1mA or less
Maximum voltage drop at ON	1.0VDC (TYP.) 0.1A / 2.5VDC (MAX.) 0.1A	2.5VDC (0.1A Min) / 3.5VDC (0.1A Max)	0.1VDC (TYP.) 0.1A / 0.2VDC (MAX.) 0.1A
Response time	OFF→ON	2ms or less	0.5ms or less
	ON→OFF	2ms or less (Resistive load)	1.5ms or less (Resistive load)
Surge suppressor	Zener diode	Clamp diode	Zener diode
Fuse	3.2A (1 common/set) / Not replaceable	None	None
Protection function	None	Yes (Overheat protection, overload protection)	Yes (Overheat protection, overload protection)
Internal current consumption	500mA (TYP. all points ON)	500mA (TYP. all points ON)	190mA (TYP. all points ON)
Wiring method for common	32 points/common	32 points/common	32 points/common
External interface	37-pin D-Sub connector	37-pin D-Sub connector	40-pin connector

- Note 5. Specifications in the areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
- For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

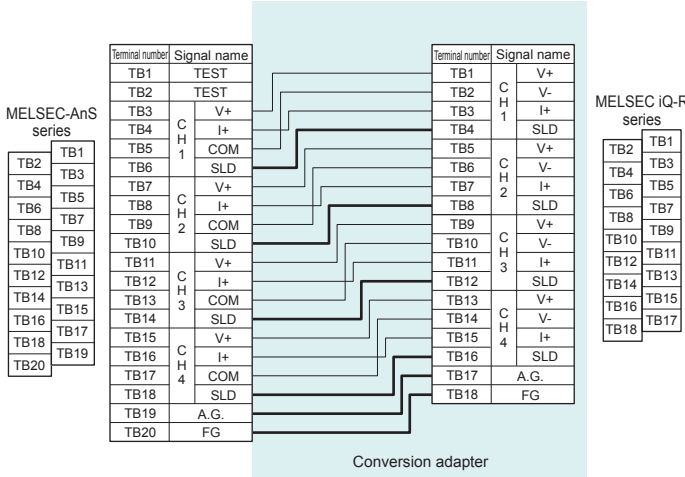
For Analog Modules

1-slot type

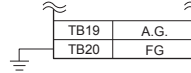
(1)ERNT-ASQT64AD Terminal block (20 points) → Terminal block (18 points)

Model	MELSEC-AnS series module model	No. of channels	MELSEC iQ-R series module model
ERNT-ASQT64AD	A1S64AD	4 channels	R60AD4

Note 1. A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-Q series



Note 2. Ground the FG terminal (terminal number TB18) on R60AD4 by using the FG terminal (terminal number TB20) on the existing terminal block.



3. The R60AD4 does not have an offset/gain setting terminal. For details on the offset/gain setting, refer to the user's manual for the R60AD4.

[Specification comparison chart]

Specifications		MELSEC-AnS series A1S64AD			MELSEC iQ-R series R60AD4					
Analog input	Voltage	-10 to 0 to 10VDC (Input resistance: 1MΩ)			-10 to 10VDC (Input resistance: 1MΩ)					
	Current	-20 to 0 to +20mA (Input resistance: 250Ω)			0 to 20mA DC (Input resistance: 250Ω)					
Digital output		16-bit signed binary (When 1/4000 is set: -4096 to 4095 When 1/8000 is set: -8192 to 8191 When 1/12000 is set: -12288 to 12287)			16-bit signed binary (-32768 to 32767)					
I/O characteristics	Analog input	Digital output value (With a 5V/20mA gain and 0V/0mA offset)			Analog input range	Digital output	Resolution			
		When 1/4000 is set	When 1/8000 is set	When 1/12000 is set						
	10V	4000	8000	12000				0 to 10V	0 to 32000	312.5μV
	5V or 20mA	2000	4000	6000				0 to 5V		156.3μV
	0V or 0mA	0	0	0				1 to 5V (Extended mode)	-8000 to 32000	125.0μV
	-5V or -12mA	-2000	-4000	-6000				-10 to 10V		312.5μV
-10V	-4000	-8000	-12000	User range setting	47.7μV					
Maximum resolution	Voltage input	When 1/4000 is set	When 1/8000 is set	When 1/12000 is set	Current	0 to 20mA	0 to 32000	625.0nA		
		2.5mV	1.25mV	0.83mV		4 to 20mA		500.0nA		
	Current input	10μA	5μA	3.33μA		4 to 20mA (Extended mode)	-8000 to 32000	500.0nA		
Overall accuracy	Digital output value (With a 5V/20mA gain and 0V/0mA offset)			User range setting			-32000 to 32000	190.7nA		
	±1% or less	±40	±80	±120	Ambient temperature 25±5°C: ±0.1% (±32digit) or less					
Maximum conversion speed		20ms/channel			80μs/channel					
Absolute maximum input	Voltage	±15V			±15V					
	Current	±30mA			±30mA					
No. of analog input channels		4 channels/module			4 channels/module					
Isolation method	Between input terminal and power supply of programmable controller	Photocoupler			Photocoupler					
	Between channels	Non-isolation			Non-isolation					
No. of occupied points		32 points			16 points					
External interface		20-point terminal block			18-point terminal block					
Current consumption		0.4A			0.22A					

Note 4. Specifications in the □ areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing.

Check that the specifications of devices and equipment to be connected are satisfied.

5. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

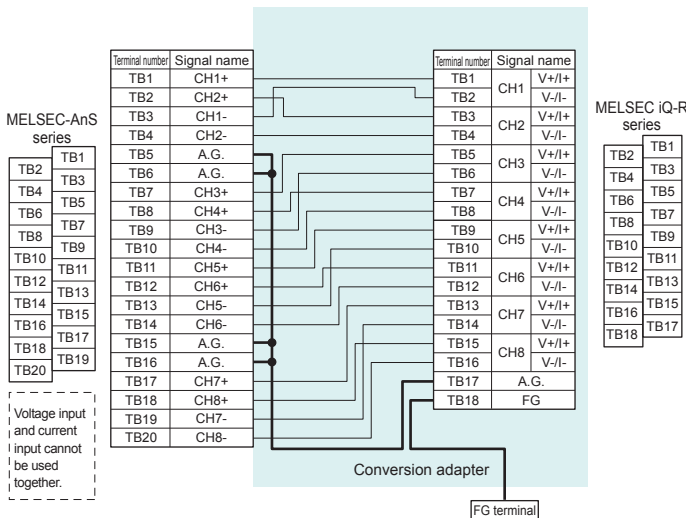
• Notes for programming

- Since the assignment of the input/output signals (X, Y) and buffer memory addresses differs between the A1S64AD and the R60AD4, change the sequence program accordingly.
- Compared to the A1S64AD, the conversion speed of the R60AD4 is faster. For that reason, noise that was not picked up by the A1S64AD may be picked up by the R60AD4 as analog signals. In such cases, use the averaging processing function to eliminate the influence of noise.

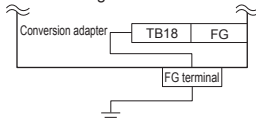
(2)ERNT-ASQT68AD Terminal block (20 points) → Terminal block (18 points)

Model	MELSEC-AnS series module model	No. of channels	MELSEC iQ-R series module model
ERNT-ASQT68AD	A1S68AD (Voltage input)	8 channels	R60ADV8
	A1S68AD (Current input)		R60ADI8

Note 1. A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-Q series



- Note 2. For the R60ADV8 and the R60ADI8, voltage input and current input cannot be used together in a single module.
- The R60ADV8 and the R60ADI8 do not have an offset/gain setting terminal. For details on the offset/gain setting, refer to the user's manual for the R60ADV8 and the R60ADI8.
 - Be sure to ground the FG terminal on the bottom of the conversion adapter.



[Specification comparison chart]

Specifications	Model	MELSEC-AnS series		MELSEC iQ-R series			
		A1S68AD		R60ADV8	R60ADI8		
Analog input	Voltage	-10 to 0 to 10VDC (Input resistance: 1MΩ)		-10 to 10VDC (Input resistance: 1MΩ)	-		
	Current	0 to 20mA (Input resistance: 250Ω)		-	0 to 20mA DC (Input resistance: 250Ω)		
Digital output		16-bit signed binary		16-bit signed binary (-32768 to 32767)			
I/O characteristics	Voltage	Analog input value	Digital output value	Analog input range	Digital output	Resolution	
		0 to 10V	0 to 4000		0 to 10V	0 to 32000	312.5μV
		-10 to 10V	-2000 to 2000		0 to 5V		125.0μV
		0 to 5V or 0 to 20mA	0 to 4000		1 to 5V		125.0μV
		1 to 5V or 4 to 20mA	0 to 4000		1 to 5V (Extended mode)	-8000 to 32000	125.0μV
Maximum resolution	Current	Analog input value	Digital output value	-10 to 10V	-32000 to 32000	312.5μV	
		0 to 10V	2.5mV	User range setting		47.7μV	
		-10 to 10V	5mV	0 to 20mA	0 to 32000	625.0nA	
		0 to 5V	1.25mV	4 to 20mA	-8000 to 32000	500.0nA	
		1 to 5V	1.0mV	4 to 20mA (Extended mode)			
		0 to 20mA	5μV	User range setting			-32000 to 32000
		4 to 20mA	4μV				
Overall accuracy		±1% or less (Digital output value ±40)		Ambient temperature 25±5°C: ±0.1% (±32digit) or less Ambient temperature 0 to 55°C: ±0.3% (±96digit) or less			
Maximum conversion speed		0.5ms/channel (If average processing is specified even for one channel, the conversion speed becomes 1ms/channel for all channels.)		80μs/channel			
Absolute maximum input	Voltage	±35V		±15V	-		
	Current	±30mA		-	±30mA		
No. of analog input channels		8 channels/module		8 channels/module			
Isolation method	Between input terminal and power supply of programmable controller	Photocoupler		Photocoupler			
	Between channels	Non-isolation		Non-isolation			
No. of occupied points		32 points		16 points			
External interface		20-point terminal block		18-point terminal block			
Current consumption		0.4A		0.23A	0.22A		

Note 5. Specifications in the [] areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.

- For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

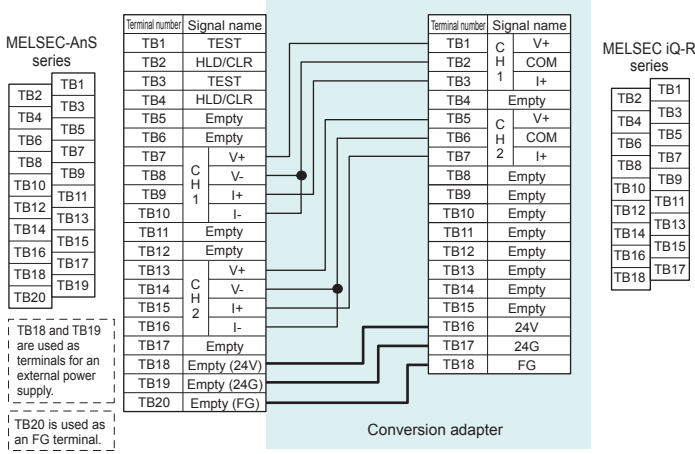
• Notes for programming

- Since the assignment of the input/output signals (X, Y) and buffer memory addresses differs between the A1S68AD and the R60ADV8/R60ADI8, change the sequence program accordingly.
- Compared to the A1S68AD, the conversion speed of the R60ADV8 and the R60ADI8 is faster. For that reason, noise that was not picked up by the A1S68AD may be picked up by the R60ADV8 and the R60ADI8 as analog signals. In such cases, use the averaging processing function to eliminate the influence of noise.

(3)ERNT-ASQT62DA Terminal block (20 points) → Terminal block (18 points)

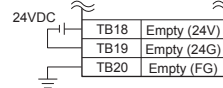
Model	MELSEC-AnS series module model	No. of channels	MELSEC iQ-R series module model
ERNT-ASQT62DA	A1S62DA	2 channels	R60DA4

Note 1. A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-Q series



Note 2. Since power must be supplied to the R60DA4, use empty terminals (TB18, TB19) on the existing terminal block to connect a 24VDC power supply.

3. Ground the FG terminal (terminal number TB18) on the R60DA4 by using an empty terminal (terminal number TB20) on the existing terminal block.



- R60DA4 does not have an offset/gain setting terminal or analog output hold/clear setting terminal. Configure the analog output hold/clear setting with the R60DA4 intelligent function module switch setting. For details on the offset/gain setting and analog output hold/clear setting, refer to the user's manual for the R60DA4.
- CH3 and CH4 on the R60DA4 cannot be used. (They are not connected inside the conversion adapter.)

[Specification comparison chart]

Item	Model	MELSEC-AnS series					MELSEC iQ-R series					
		A1S62DA					R60DA4					
Digital input		16-bit signed binary					16-bit signed binary (-32768 to 32767)					
		Voltage output		Current output								
		1/4000	-4000 to 4000		0 to 4000							
		1/8000	-8000 to 8000		0 to 8000							
Analog output	Voltage	-10 to 0 to 10VDC (External load resistance value: 2kΩ to 1MΩ)					-10 to 10VDC (External load resistance value: 1kΩ or more)					
	Current	0 to 20mA DC (External load resistance value: 0Ω to 600Ω)					0 to 20mA DC (External load resistance value: 0Ω to 600Ω)					
I/O characteristics	Voltage	Resolution	1/4000	1/8000	1/12000	Analog output value	Analog output range	Digital value	Resolution			
			4000	8000	12000	10V				0 to 5V	0 to 32000	156.3μV
			2000	4000	6000	5V				1 to 5V		125.0μV
	Current	Digital input value	0	0	0	0V	Voltage	-10 to 10V	312.5μV			
			-2000	-4000	-6000	-5V						
			-4000	-8000	-12000	-10V						
Maximum resolution		Resolution	1/4000	1/8000	1/12000	Analog output value	Current	0 to 32000	625.0nA			
			2.5mV (10V)	5μA (20mA)		0 to 20mA				500.0nA		
			1/8000	1.25mV (10V)							2.5μA (20mA)	
Overall accuracy		Resolution	Voltage: ±1.0% (±100mV)			Ambient temperature 25±5°C: ±0.1% or less						
			Current: ±1.0% (±200μA)			Ambient temperature 0 to 55°C: ±0.3% or less						
Maximum conversion speed		25ms or less/2 channels (One channel is also the same length of time.)					80μs/channel					
Absolute maximum output	Voltage	±12V					-					
	Current	28mA					-					
No. of analog output channels		2 channels/module					4 channels/module					
Isolation method	Between output terminal and power supply of programmable controller	Photocoupler					Photocoupler					
	Between channels	Non-isolation					Non-isolation					
	Between external power supply and analog output	-					Transformer					
No. of occupied points		32 points					16 points					
External interface		20-point terminal block					18-point terminal block					
Current consumption		0.80A					0.16A					
External power supply	Voltage	-					24VDC +20%, -15%					
	Current	-					0.14A					

Note 6. Specifications in the [] areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.

- For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

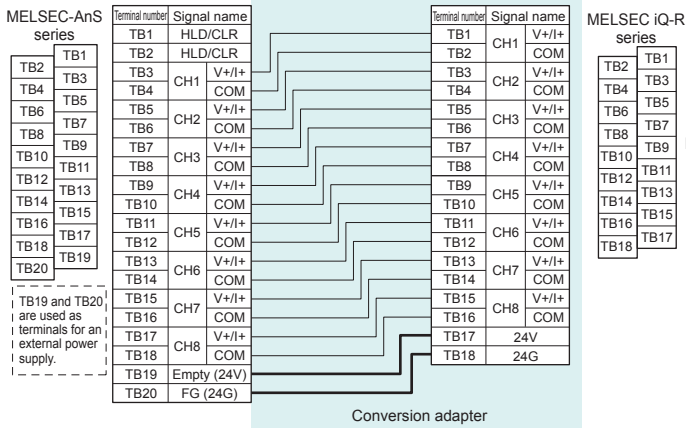
• Note for programming

(1) Since the assignment of the input/output signals (X, Y) and buffer memory addresses differs between the A1S62DA and the R60DA4, change the sequence program accordingly.

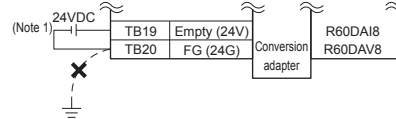
(4)ERNT-ASQT68DA Terminal block (20 points) → Terminal block (18 points)

Model	MELSEC-AnS series module model	No. of channels	MELSEC iQ-R series module model
ERNT-ASQT68DA	A1S68DAV	8 channels	R60DAV8
	A1S68DAI		R60DAI8

Note 1. A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-Q series



Note 2. For supplying power to the R60DAV8 or the R60DAI8 side (power supply terminals (TB17, TB18)), use terminal numbers TB19 and TB20 on the existing terminal block. Note that the FG wiring connected to the existing terminal block is no longer required.



3. The R60DAV8 and the R60DAI8 do not have an offset/gain setting terminal or analog output hold/clear setting terminal. Configure the analog output hold/clear setting with the R60DAV8 or the R60DAI8 intelligent function module switch setting. For details on the offset/gain setting and analog output hold/clear setting, refer to the user's manual for the R60DAV8 and the R60DAI8.

[Specification comparison chart]

Model		MELSEC-AnS series	MELSEC iQ-R series		
		A1S68DAV	R60DAV8		
Specifications		16-bit signed binary (-2048 to 2047)	16-bit signed binary (-32768 to 32767)		
Digital input		-10 to 0 to 10VDC	-10 to 10VDC (External load resistance value: 1kΩ or more)		
Analog output		(External load resistance value: 2kΩ to 1MΩ)	0 to 5VDC (External load resistance value: 500Ω or more)		
I/O characteristics	Digital input value	2000	Analog output range	Digital value	Resolution
		1000	0 to 5V	0 to 32000	156.3μV
		0	1 to 5V		125.0μV
		-1000	-10V to 10V	-32000 to 32000	312.5μV
		-2000	User range setting (Voltage)		312.5μV
Maximum resolution		5mV			
Overall accuracy		±1.0% (±100mV)	Ambient temperature 25±5°C: ±0.1% or less (Voltage: ±10mV) Ambient temperature 0±55°C: ±0.3% or less (Voltage: ±30mV)		
Maximum conversion speed		4ms or less/8 channels	80μs/channel		
Absolute maximum output		-	-		
No. of analog output channels		8 channels/module	8 channels/module		
Isolation method	Between output terminal and power supply of programmable controller	Photocoupler	Photocoupler		
	Between channels	Non-isolation	Non-isolation		
	Between external power supply and analog output	-	Transformer		
No. of occupied points		32 points	16 points		
External interface		20-point terminal block	18-point terminal block		
Current consumption		0.65A	0.16A		
External power supply	Voltage	-	24VDC +20%, -15%		
	Current	-	0.16A		

Model		MELSEC-AnS series	MELSEC iQ-R series		
		A1S68DAI	R60DAI8		
Specifications		16-bit signed binary (0 to 4096)	16-bit signed binary (-32768 to 32767)		
Digital input		4 to 20mA DC (External load resistance value: 0 to 600Ω)	0 to 20mA DC (External load resistance value: 0Ω to 600Ω)		
I/O characteristics	Digital input value	4000	Analog output range	Digital value	Resolution
		2000	0 to 20mA	0 to 32000	625.0nA
		0	4 to 20mA		500.0nA
			User range setting (Voltage)	-32000 to 32000	350.9nA
Maximum resolution		4μA			
Overall accuracy		±1.0% (±200μA)	Ambient temperature 25±5°C: ±0.1% or less (Current: ±20μA) Ambient temperature 0 to 55°C: ±0.3% or less (Current: ±60μA)		
Maximum conversion speed		4ms or less/8 channels	80μs/channel		
Absolute maximum output		-	-		
No. of analog output channels		8 channels/module	8 channels/module		
Isolation method	Between output terminal and power supply of programmable controller	Photocoupler	Photocoupler		
	Between channels	Non-isolation	Non-isolation		
	Between external power supply and analog output	-	Transformer		
No. of occupied points		32 points	16 points		
External interface		20-point terminal block	18-point terminal block		
Current consumption		0.85A	0.16A		
External power supply	Voltage	-	24VDC +20%, -15%		
	Current	-	0.26A		

Note 4. Specifications in the [] areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.

5. For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

• Note for programming

(1) Since the assignment of the input/output signals (X, Y) and buffer memory addresses differs between the A1S68DAV/A1S68DAI and the R60DAV8/R60DAI8, change the sequence program accordingly.

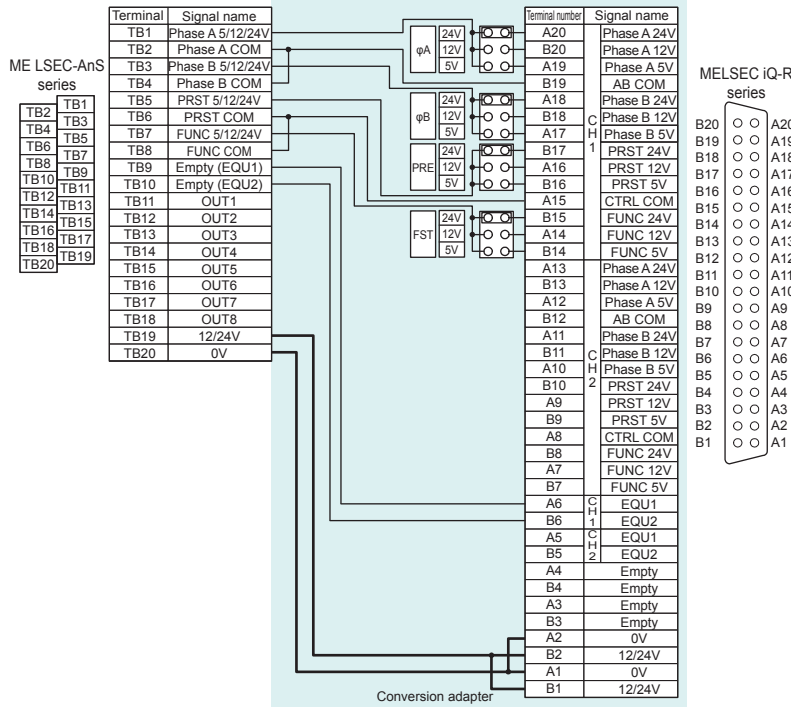
For High-speed Counter Modules

1-slot type

(1)ERNT-ASLTD61 Terminal block (20 points) → Connector (40P)

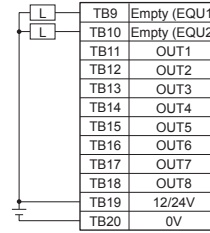
Model	MELSEC-AnS series module model	No. of channels	MELSEC iQ-R series module model
ERNT-ASLTD61	A1SD61	1 channel	RD62P2

Note 1. A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-L series



- Note 2. For the phase A pulse input [φA], the phase B pulse input [φB], the preset input [PRE], and the function start input [FST], set the short bars for the setting pins inside the conversion adapter to match the input voltage: [24V] for 24V input, [12V] for 12V input, and [5V] for 5V input. Note that all of the short bars are set to [24V] by factory default.
- Also, if a voltage higher than the voltage set with the setting pins is input, the MELSEC iQ-R series module will fail.
3. Since the RD62P2 does not have the limit switch output function of the A1SD61, terminals OUT1 (TB11) to OUT8 (TB18) cannot be used.
- To use the coincidence output function (terminals EQU1 (A6) and EQU2 (B6)) of the RD62P2 instead, use empty terminals (EQU1 (TB9) and EQU2 (TB10)) of the A1SD61.

Note that the specifications differ, such as having a fewer number of settings.



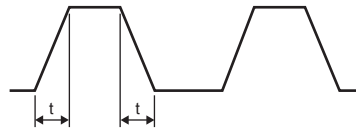
4. After setting the voltage switch setting pins, connect the external wiring.

[Specification comparison chart]

Model		MELSEC-AnS series		MELSEC iQ-R series		
Specifications		A1SD61		RD62P2		
Counting speed switch setting		Setting pin based switching		Intelligent function module switch setting based switching		
		50k side	10k side	200k (100k to 200kPPS)	100k (10k to 100kPPS)	10k (10kPPS or less)
No. of channels		1 channel		2 channels		
Count input signal		1-phase input, 2-phase input		1-phase input (1x/2x), 2-phase input (1x/2x/4x), CW/CCW input		
Signal level (ϕA , ϕB)		5/12/24VDC 2 to 5mA				
Counter	Counting speed (max.)	1-phase input 50kPPS	10kPPS	200kPPS (Note 5)	100kPPS (Note 5)	10kPPS (Note 5)
	2-phase input	50kPPS	7kPPS			
	Counting range	32-bit signed binary (-2147483648 to 2147483647)				
	Type	UP/DOWN preset counter + Ring counter function				
Minimum count pulse width (Duty ratio: 50%)	(1- or 2-phase input)					
	(1-phase input)					
Limit switch output	Comparison range	32-bit signed binary			-	
	Comparison result	Normally open contact operation: dog ON address ≤ count value ≤ dog OFF address Normally closed contact operation: dog OFF address ≤ count value ≤ dog ON address			-	
Coincidence output	Comparison range	-			32-bit signed binary	
	Comparison result	-			Setting value < Count value, Setting value = Count value, Setting value > Count value	
External input	Preset	5/12/24VDC 2 to 5mA			5/12/24VDC 7 to 10mA	
	Function start	5/12/24VDC 2 to 5mA			5/12/24VDC 7 to 10mA	
External output	Limit switch output	Transistor (Open collector) output 12/24VDC 0.1A/point 0.8A/common			-	
	Coincidence output	-			Transistor (Sink type) output, 2 points/channel 12/24VDC 0.5A/point 2A/common	
No. of occupied I/O points		32 points		16 points		
Connection method		20-point terminal block		40-pin connector		
Internal current consumption (5VDC)		0.35A		0.11A		

Note 5. The counting speed is affected by the pulse rise time and fall time (t). The countable counting speeds are as shown in the table below. Note that if pulses whose rise or fall time is great are counted, a count error may occur.

Rise/Fall time	Counting speed switch setting	Shared by 1-phase input and 2-phase input		
		200k	100k	10k
t = 1.25µs or less		200kPPS	100kPPS	10kPPS
t = 2.5µs or less		100kPPS	100kPPS	10kPPS
t = 25µs or less		-	10kPPS	10kPPS
t = 500µs		-	-	500PPS



- Specifications in the [] areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
- For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

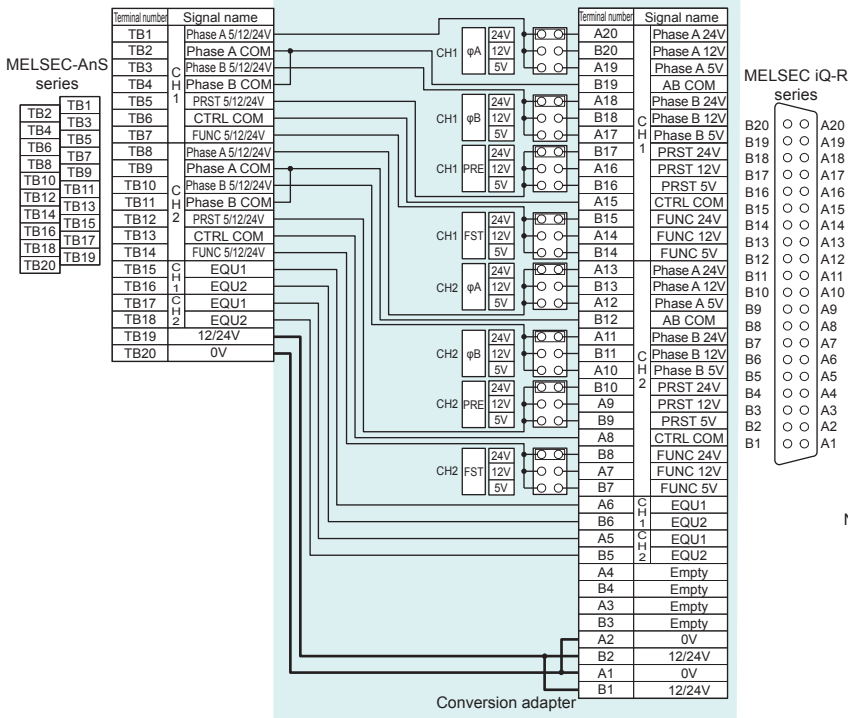
• Notes for programming

- Since the assignment of the input/output signals (X, Y) and buffer memory addresses differs between the A1SD61 and the RD62P2, change the sequence program accordingly.
- For the limit switch output function of the A1SD61, the coincidence output function of the RD62P2 is used instead. Change the sequence program accordingly.
- For the RD62P2, use the I/O signals (X, Y) and buffer memory address on CH1. Operation is not possible on CH2.
- For the A1SD61, the counting speed setting is performed with the setting pins. For the RD62P2, it is performed with the intelligent function module switch setting.

(2)ERNT-ASLTD62 Terminal block (20 points) → Connector (40P)

Model	MELSEC-AnS series module model	No. of channels	MELSEC iQ-R series module model
ERNT-ASLTD62	A1SD62	2 channels	RD62P2
	A1SD62E		RD62P2E

Note 1. A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-L series



- Note 2. For the phase A pulse input ϕA , the phase B pulse input ϕB , the preset input PRE , and the function start input FST , set the short bars for the setting pins inside the conversion adapter to match the input voltage: $[24V]$ for 24V input, $[12V]$ for 12V input, and $[5V]$ for 5V input. Note that all of the short bars are set to $[24V]$ by factory default. Also, if a voltage higher than the voltage set with the setting pins is input, the MELSEC iQ-R series module will fail.
- After setting the voltage switch setting pins, connect the external wiring.

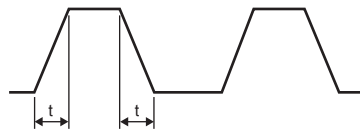
[Specification comparison chart]

Model		MELSEC-AnS series		MELSEC iQ-R series		
Specifications		A1SD62		RD62P2		
Counting speed switch setting		Setting pin based switching		Intelligent function module switch setting based switching		
		100k side	10k side	200k (100k to 200kPPS)	100k (10k to 100kPPS)	10k (10kPPS or less)
No. of channels				2 channels		
Count input signal	Phases	1-phase input, 2-phase input		1-phase input (1x/2x), 2-phase input (1x/2x/4x), CW/CCW input		
	Signal level (φA, φB)			5/12/24VDC 2 to 5mA		
Counter	Counting speed (max.)	1-phase input 100kPPS	10kPPS	200kPPS (Note 4)	100kPPS (Note 4)	10kPPS (Note 4)
		2-phase input 100kPPS	7kPPS			
	Counting range	24-bit binary (0 to 16777215)		32-bit signed binary (-2147483648 to 2147483647)		
	Type	UP/DOWN preset counter + Ring counter function				
	Minimum count pulse width (Duty ratio: 50%)					
Coincidence output	Comparison range	24-bit binary		32-bit signed binary		
	Comparison result	Setting value < Count value, Setting value = Count value, Setting value > Count value				
External input	Preset			5/12/24VDC 2 to 5mA		
	Function start			5/12/24VDC 7 to 10mA		
External output	Coincidence output	Transistor (Sink type) output, 2 points/channel 12/24VDC 0.5A/point 2A/common				
No. of occupied I/O points		32 points		16 points		
Connection method		20-point terminal block		40-pin connector		
Internal current consumption (5VDC)		0.1A		0.11A		

Model		MELSEC-AnS series		MELSEC iQ-R series		
Specifications		A1SD62E		RD62P2E		
Counting speed switch setting		Setting pin based switching		Intelligent function module switch setting based switching		
		100k side	10k side	200k (100k to 200kPPS)	100k (10k to 100kPPS)	10k (10kPPS or less)
No. of channels				2 channels		
Count input signal	Phases	1-phase input, 2-phase input		1-phase input (1x/2x), 2-phase input (1x/2x/4x), CW/CCW input		
	Signal level (φA, φB)			5/12/24VDC 2 to 5mA		
Counter	Maximum counting speed	1-phase input 100kPPS	10kPPS	200kPPS (Note 4)	100kPPS (Note 4)	10kPPS (Note 4)
		2-phase input 100kPPS	7kPPS			
	Counting range	24-bit binary (0 to 16777215)		32-bit signed binary (-2147483648 to 2147483647)		
	Type	UP/DOWN preset counter + Ring counter function				
	Minimum count pulse width (Duty ratio: 50%)					
Coincidence output	Comparison range	24-bit binary		32-bit signed binary		
	Comparison result	Setting value < Count value, Setting value = Count value, Setting value > Count value				
External input	Preset			5/12/24VDC 2 to 5mA		
	Function start			5/12/24VDC 7 to 10mA		
External output	Coincidence output	Transistor (Source type) output, 2 points/channel 12/24VDC 0.5A/point 2A/common				
No. of occupied I/O points		32 points		16 points		
Connection method		20-point terminal block		40-pin connector		
Internal current consumption (5VDC)		0.1A		0.20A		

Note 4. The counting speed is affected by the pulse rise time and fall time (t). The countable counting speeds are as shown in the table below. Note that if pulses whose rise or fall time is great are counted, a count error may occur.

Counting speed switch setting	Shared by 1-phase input and 2-phase input		
	200k	100k	10k
t = 1.25µs or less	200kPPS	100kPPS	10kPPS
t = 2.5µs or less	100kPPS	100kPPS	10kPPS
t = 25µs or less	-	10kPPS	10kPPS
t = 500µs	-	-	500PPS



- Specifications in the areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.
- For detailed specifications and general specifications not described in the specification comparison charts, refer to the user's manual for the module used.

• Notes for programming

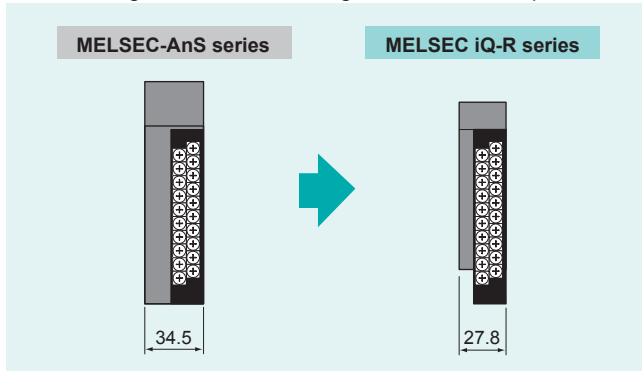
- Since the assignment of the input/output signals (X, Y) and buffer memory addresses differs between the A1SD62 and the RD62P2, change the sequence program accordingly.
- For the A1SD62, the counting speed setting is performed with the setting pins. For the RD62P2, it is performed with the intelligent function module switch setting.
- Since the assignment of I/O signals (X, Y) and buffer memory addresses differs between the A1SD62E compared to the RD62P2E, change the sequence program accordingly.
- For the A1SD62E, the counting speed setting is performed with the setting pins. For the RD62P2E, it is performed with the intelligent function module switch setting.

Usage Cautions

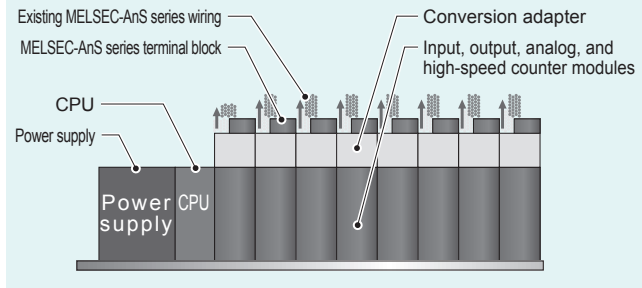
A conversion adapter is a product that converts the pin assignments of a MELSEC-AnS series module into the pin assignments of a MELSEC iQ-R series module.
To check differences in performance, functionality, I/O signals for CPU, buffer memory addresses, and other items when replacing the MELSEC-AnS series with the MELSEC iQ-R series, be sure to refer to the manual for each MELSEC iQ-R series module before using the product.

Module Width

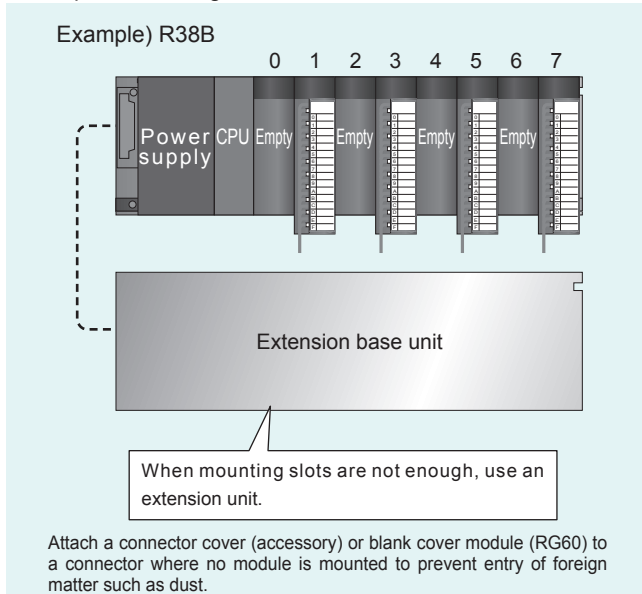
- (1) Since the width of MELSEC iQ-R series modules is smaller (MELSEC-AnS series: 34.5mm → MELSEC iQ-R series: 27.8mm), the wiring area becomes smaller as well. Check the wiring area when mounting a conversion adapter.



- (2) If the wiring causes interference with adjacent modules, take an action such as lifting the wiring forward to prevent interference.



- (3) If interference still occurs, keep the next slot open to secure a space for wiring.



- (4) If the wiring space is taken into account, the number of replacement modules is as follows.

MELSEC-AnS series base unit model	MELSEC iQ-R series base unit model	Replaced with	
		Mounting method	No. of replaceable modules
A1S38B A1S38HB A1S38HBEU	R38B		4 modules
A1S35B	R35B		2 modules
A1S68B A1S58B	R68B		4 modules
A1S65B	R65B		2 modules
A1SJCPU A1SJCPU-S3 A1SJHCPU	R35B		2 modules

Depth / Height

When mounting a base adapter

Since the depth becomes larger, check that it can be mounted.

The height dimension also becomes larger in the downward direction, depending on how replacement is executed, so check that it can be mounted.

MELSEC-AnS : MELSEC-AnS series MELSEC iQ-R : MELSEC iQ-R series

Model	ERNT-ASQTY10 ERNT-ASQTY22 ERNT-ASQTX40 ERNT-ASQTY40 ERNT-ASQTY50	ERNT-ASQTY80 ERNT-ASQT64AD ERNT-ASQT62DA ERNT-ASQT68DA	ERNT-ASQT68AD
Depth	66.9 mm increase		66.9 mm increase
Height	No increase		11 mm increase
Mounting diagram			

Model	ERNT-ASLTD61 ERNT-ASLTD62	ERNT-ASLCXY81
Depth	66.9 mm increase	59.6 mm increase
Height	6.4 mm increase	6.4 mm increase
Mounting diagram		

*: Each depth is measured from the panel surface.

- MELSEC-AnS series: Base unit + Input/output/analog/high-speed counter modules + Terminal block
- MELSEC iQ-R series + Upgrade tool: Base adapter + Base unit + Input/output/analog/high-speed counter modules + Conversion adapter + Terminal block

When using the DIN rail

Since the depth becomes larger, and the height becomes larger in the downward direction, check that it can be mounted.

MELSEC-AnS : MELSEC-AnS series MELSEC iQ-R : MELSEC iQ-R series

Model	ERNT-ASQTY10 ERNT-ASQTY22 ERNT-ASQTX40 ERNT-ASQTY40 ERNT-ASQTY50	ERNT-ASQTY80 ERNT-ASQT64AD ERNT-ASQT62DA ERNT-ASQT68DA	ERNT-ASQT68AD
Depth	63.9 mm increase		63.9 mm increase
Height	4 mm increase		15.5 mm increase
Mounting diagram			

Model	ERNT-ASLTD61 ERNT-ASLTD62	ERNT-ASLCXY81
Depth	63.9 mm increase	56.6 mm increase
Height	10.4 mm increase	10.4 mm increase
Mounting diagram		

*: Each depth is measured from the panel surface.

- MELSEC-AnS series: DIN rail + Base unit + Input/output/analog/high-speed counter modules + Terminal block
- MELSEC iQ-R series + Upgrade tool: DIN rail + Base unit + Input/output/analog/high-speed counter modules + Conversion adapter + Terminal block

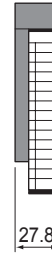
Terminal Block Cover

The terminal block cover for the MELSEC-AnS series is larger than the width of modules in the MELSEC iQ-R series. Replace it with the terminal block cover that comes with the conversion adapter.

MELSEC-AnS series



MELSEC iQ-R series



Replace the terminal block cover with the cover provided with the conversion adapter.

Base Adapter

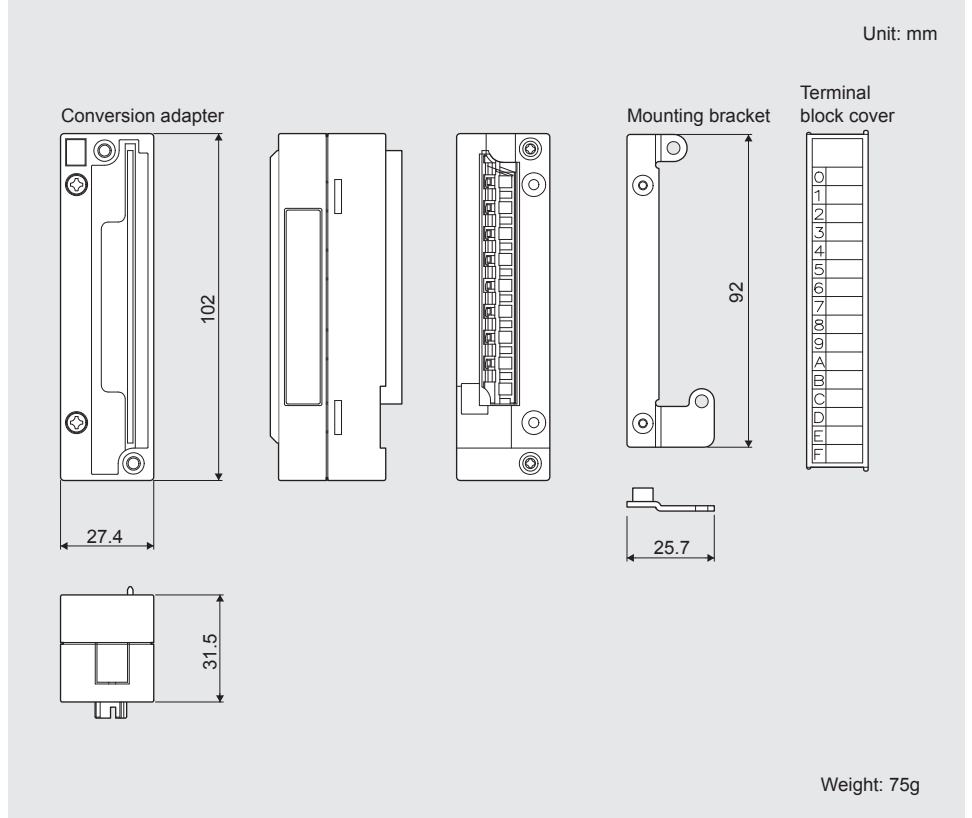
Using a base adapter that permits the MELSEC iQ-R series to be mounted using the mounting holes of the MELSEC-AnS series is recommended. (No need to drill any additional mounting holes.)

External Dimensions

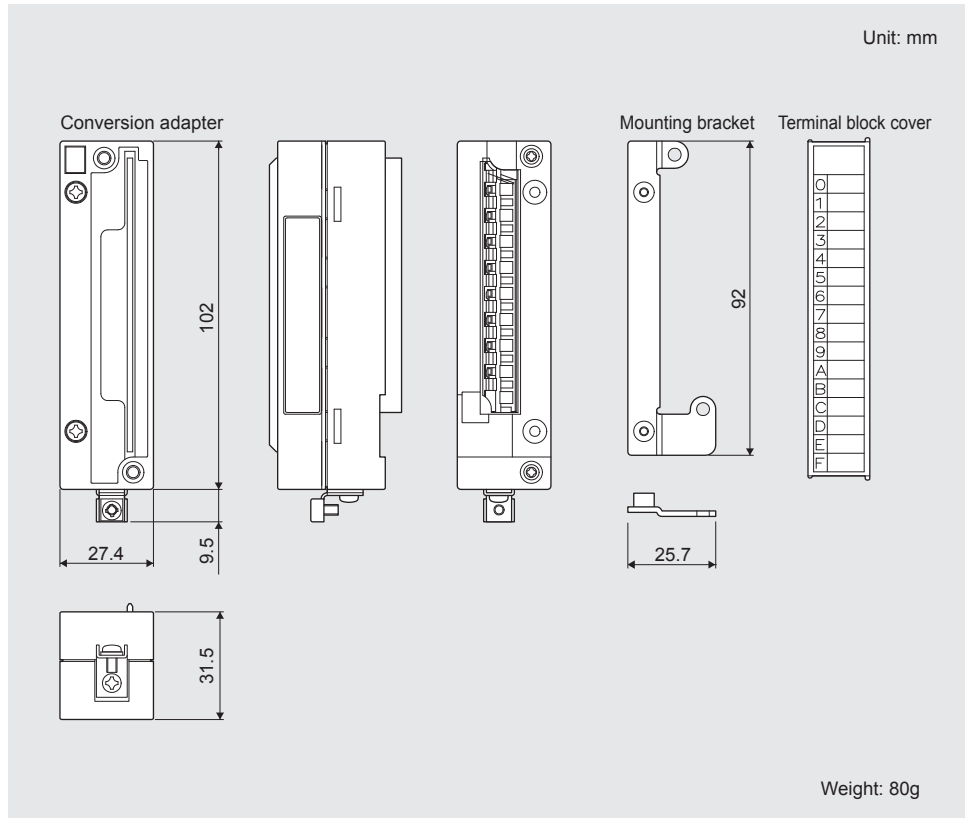
Conversion Adapter



- ERNT-ASQTY10
- ERNT-ASQTY40
- ERNT-ASQTY22
- ERNT-ASQTY40
- ERNT-ASQTY50
- ERNT-ASQTY80
- ERNT-ASQTY64AD
- ERNT-ASQTY62DA
- ERNT-ASQTY68DA

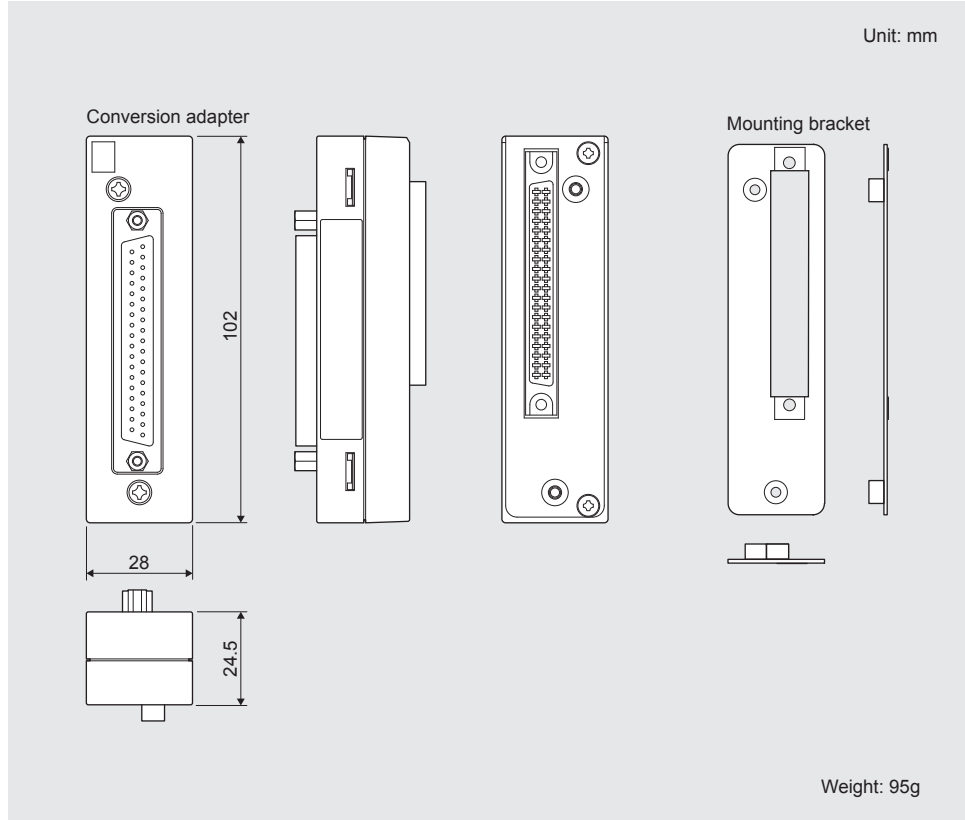


ERNT-ASQT68AD

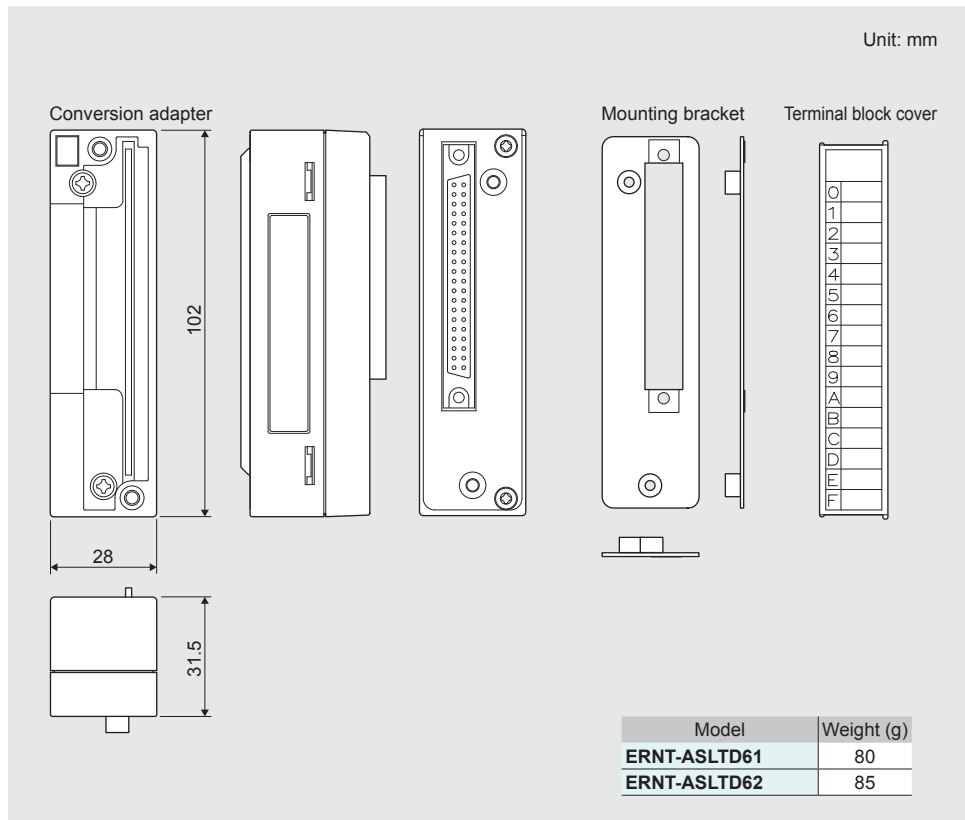




ERNT-ASLCXY81



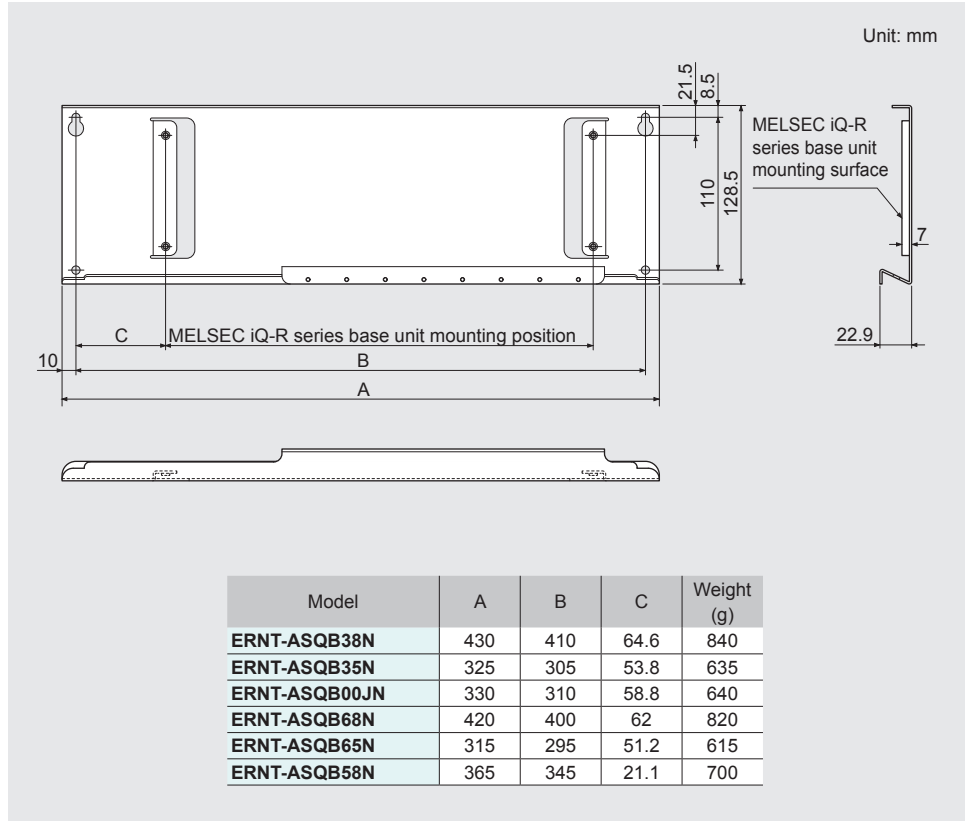
ERNT-ASLTD61
ERNT-ASLTD62



Base Adapter



- ERNT-ASQB38N**
- ERNT-ASQB35N**
- ERNT-ASQB00JN**
- ERNT-ASQB68N**
- ERNT-ASQB65N**
- ERNT-ASQB58N**



■Product List

MELSEC-A Series / MELSEC iQ-R Series Upgrade Tool

Product name		Model
Conversion adapter	1-slot type	ERNT-1AR10XY
		ERNT-1AR40Y
		ERNT-1AR41X
		ERNT-1AR41Y
		ERNT-1AR61D
		ERNT-1AR68AD
		ERNT-1AR68AN
		ERNT-AQT62DA
		ERNT-AQT68DA
		ERNT-ASLCXY81
	2-slot type	ERNT-1AR10AY
		ERNT-1AR11X13Y
		ERNT-1AR51Y
		ERNT-1AR616AD
		ERNT-1AR616DA
Conversion adapter support flange		ERNT-1AR12F
		ERNT-1AR5F
		ERNT-1AR8F
Base adapter		ERNT-AQB35N
		ERNT-AQB38N
		ERNT-AQB55N
		ERNT-AQB58N
		ERNT-AQB65N
		ERNT-AQB68N


MELSEC-AnS Series / MELSEC iQ-R Series Upgrade Tool

Product name		Model
Conversion adapter	1-slot type	ERNT-ASQTX10
		ERNT-ASLCXY81
		ERNT-ASLTD61
		ERNT-ASLTD62
		ERNT-ASQT62DA
		ERNT-ASQT64AD
		ERNT-ASQT68AD
		ERNT-ASQT68DA
		ERNT-ASQTX40
		ERNT-ASQTY22
		ERNT-ASQTY40
		ERNT-ASQTY50
		ERNT-ASQTY80
Base adapter		ERNT-ASQB00JN
		ERNT-ASQB35N
		ERNT-ASQB38N
		ERNT-ASQB58N
		ERNT-ASQB65N
		ERNT-ASQB68N

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 Before using this product, ensure the safety in case of failure.
We shall not bear any responsibility for consequential damages caused by failure of the product.

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Specifications are subject to change without notice.