MITSUBISHI ELECTRIC ENGINEERING

#### MELSEC-A/AnS Series →MELSEC iQ-R Series Upgrade Tool







MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED



#### 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

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".

Upgrade

#### **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>

Innet				Conversion adapter				
input	MELSEC-A series	MELSEC IQ-R series	Note		Shape (No. of poir	nts/No. of pins)	No. of	Page
, Output	before replacement	after replacement	NOLE	Model	MELSEC-A series	MELSEC iQ-R series	input/output points	Faye
	AX10, AX10-UL	RX10	-					
	AX40, AX40-UL							
	AX70, AX70-UL		*1 5					
Input	AX80, AX80-UL	RX40C7	1, 5					
	AX80E	1004007						
ļ	Al61		*5, 9	ERNT-1AR10XY				1-5
	Al61-S1		*9					1-0
ļ	AY10							
	AY11, AY11-UL	RY10R2			Terminal block	Terminal block	16 points	
ļ	AY11E	TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT	*1		(20 points)	(18 points)	TO POINTS	
ļ	AY11EEU							
ļ	AY22	RY20S6			_			
Output	AY40, AY40-UL							
ļ	AY40P	RY40NT5P	*1					
ļ	AY50, AY50-UL			FRNT-1AR40Y				1-7
ļ	AY70, AY70-UL		*1, 3					
-	AY80	RY40PT5P	*1					
	AY80EP							
ļ	AX31		*2					
ļ	AX31-S1		-					1-8
ļ	AX41, AX41-UL	RX41C4						
ļ	AX41-S1	RX41C6HS						
Input	AX81		*1, 5	ERNT-1AR41X				
•	AX81-S1							
	AX81-S3				Terminal block	Connector	00	
	AX71	RX41C4, RX41C6HS, RX61C6HS	*1, 4		(38 points)	(40P)	32 points	
	AY41, AY41-UL		*1 6					
	AY41P	RY41NT2P	1,6					
Output	AY71		*1, 3, 6	ERNT-1AR41Y				1-9
	AY81		*1 7 0					
	AY81EP	RT4IFTIF	1, 7, 0					
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. When a rated input voltage of 12VAC, 24VAC, or 12VDC is used, change the voltage to 24VDC. When a rated input voltage of 5VDC is used, change the voltage to 12VDC or 24VDC.

\* 2: \* 3:

\* 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: \* 7:

When 16 points/2 commons are used, consider replacing the module with two RY40NT5Ps using the ERNT-1AR51Y. When 16 points/2 commons are used, consider replacing the module with two RY40PT5Ps using the ERNT-1AR51Y. When the maximum load current is insufficient, consider replacing the module with two RY40PT5Ps using the ERNT-1AR51Y. \* 8:

\* 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>

Upgrade Tool

			<b>D</b> and a s			Conversion ada	pter		
	MELSEC-A series	MELSEC IQ module i	module model			Shape (No. of po	oints/No. of pins)	No. of input/	Page
Output	before replacement	after repla	cement	Note	Model	MELSEC-A series	MELSEC iQ-R series	LSEC iQ-R output points series	
Input	AX11	PY10	× 2	*10					
input	AX11EU	KX IU	modules	12					
	AY13		0						
	AY13E	RY10R2	× Z modules		ERNT-1AR11X13Y				1-12
	AY13EU		modules						
	AY23	RY20S6	× 2 modules			Terminal block (38 points)		32 points	L
	AY10A, AY10A-UL			2 *12 nodules					
	AY11A		× 2 modules		ERNT-1AR10AY		Terminal block		4 4 4
الدينية	AY11AEU	RTIORZA					(18 points) ×2		1-14
Output	AY40A			*12, 14					
	AY51, AY51-UL								
	AY51-S1		0	*10					
	AY41, AY41-UL	RY40NT5P	× Z	12					
	AY41P	]	modules		ERNT-1AR51Y				1-15
-	AY71			*12, 15					
	AY81			*40					
	AY81EP	K140P15P	RY40PT5P modules *						

\* 12: \* 13: \* 14: Since a 2-slot type module is replaced, two MELSEC IQ-R series modules are required. Since the number of points per common differs, check the common terminal connection of the module before replacement. 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>

Innert	MELSEC-A series module model before replacement				Conversion adapter					
input			IQ-R series	Note		Shape (No. of po	ints/No. of pins)	No. of channels	Page	
Output			after replacement	Note	Model	MELSEC-A series	MELSEC iQ-R series		i age	
	A68AD	(Voltage input)	R60ADV8					8 channels		
Input	A68AD	(Current input)	R60ADI8	*16	ERNT-1AR68AD	Terminal block (38 points)	Terminal block (18 points)		1 16	
	A68AD-S2	(Voltage input)	R60ADV8						1-10	
	A68AD-S2	(Current input)	R60ADI8							
	A68ADN	(Voltage input)	R60ADV8	*16	ERNT-1AR68AN				4 47	
	A68ADN	(Current input)	R60ADI8	10					1-17	
	A62DA			*17 10	EDNT AOTEODA	Terminal block		2 obannola	1 10	
	A62DA-S1		R00DA4	17, 10	ERNT-AQT02DA	(20 points)		2 channels	1-10	
Output	A68DAV		R60DAV8			Terminal block				
	A68DAI		PENDAIS	*18	ERNT-AQT68DA	(38 points)		8 channels	1-19	
	A68DAI-S1		ROODAIO			(00 points)				
* 16: F * 17: C	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>

Innut	Input / Dutput Dutput MELSEC-A series module module before replacement		MELSEC iQ-R series module model after replacement			Conversion adapter				
input					Noto		Shape (No. of po	pints/No. of pins)	No. of	Page
Output					Note	Model	MELSEC-A series	MELSEC iQ-R series	channels	i age
Input -	A616AD	(Voltage input)	R60ADV8	× 2 modules	*10.20					4 24
	A616AD	(Current input)	R60ADI8	× 2 modules	19, 20	ERNI-TAROTOAD	Terminal block	Terminal block	16 abannala	1-21
Output -	A616DAV A616DAI		R60DAV8	× 2 modules	*10.00	ERNT-1AR616DA	(38 points)	(16 points) ×2	To channels -	4.00
			R60DAI8	× 2 modules	19, 20					1-22

\* 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

# MELSEC-A series / MELSEC iQ-R series Upgrade Tool

#### <1-slot type>

Input	MELSEC-A series module model before replacement			Conversion adapter				
		module model after replacement	Note	Model	Shape (No. of p	No of Pi	Page	
, Output					MELSEC-A series	MELSEC iQ-R series	channels	Fage
Input -	AD61	006202	*01		Terminal block	Connector (40D)	2 shannala	4.00
	AD61-S1	RD02F2	21	ERNIFIAROID	(38 points)			1-23

\* 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.

Туре	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
	A38B, A38B-UL, A38HB	R312B			ERNT-1AR12F	
Main base unit	A38HBEU, A38B-E	R38B		EKNI-AQDJON	ERNT-1AR8F	
Main base unit		R38B	*1		ERNT-1AR8F	
	A35B, A35B-UL, A35B-E	R35B		EKNI-AQDJON	ERNT-1AR5F	
		R612B			ERNT-1AR12F	4 25
	A00B, A00B-UL	R68B		ERNI-AQDOON	ERNT-1AR8F	1-25
Extension	A58B, A58B-UL	R68B	*1, 2	ERNT-AQB58N	ERNT-1AR8F	
base unit		R68B	*4		ERNT-1AR8F	
	A030, A030-UL	R65B	EKNT-AQB65N		ERNT-1AR5F	
	A55B, A55B-UL	R65B	*1, 2	ERNT-AQB55N	ERNT-1AR5F	

\*1: \*2: The ERNT-AQB\*\* (products without "N" at the end of their model names) cannot be used.

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					
ERNT-1AR12F	12-slot conversion adapter support flange						
ERNT-1AR8F	8-slot conversion adapter support flange	when using a conversion adapter, the conversion adapter support fiange is	1-26				
ERNT-1AR5F 5-slot conversion adapter support flange		aiways required.					

#### **Conversion Adapter**

#### **Specifications**

#### For Input/Output Modules

#### 1-slot type

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

		-		
Model	MELSEC-A series module model	No. of input/ output points	MELSEC iQ-R series module model	
	AX10, AX10-UL		RX10	
	AX40, AX40-UL			
	AX70, AX70-UL			
	AX80, AX80-UL		<b>BV40C7</b>	
	AX80E		RA4007	
EDNT 1AD10YV	Al61	16 points		
	Al61-S1	TO POINTS		
	AY10			
	AY11, AY11-UL		DV10D2	
	AY11E		RTIURZ	
	AY11EEU			
	AY22		RY20S6	

#### AX10/AX10-UL $\rightarrow$ RX10, and AX40/AX40-UL/AX70/AX70-UL/

#### AX80/AX80-UL/AX80E/AI61/AI61-S1 $\rightarrow$ RX40C7



[Specification comparison chart]									
	Model	MELSEC	-A series	MELSEC iQ-R series					
Specifi	cations	AX10	AX10-UL	RX10					
No. of	input points	16 p	oints	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, (132	0.3ms or less VAC)	Max. 200mA, 1ms or less					
ON vol current	ltage / ON t	80VAC or more	e / 6mA or more	80VAC or more / 5mA or more (50Hz, 60Hz)					
OFF vo current	oltage / OFF	40VAC or less	s / 4mA or less	30VAC or less / 1.7mA or less (50Hz, 60Hz)					
Input ir	mpedance	Approx. 10kΩ 12kΩ	(60Hz), Approx. (50Hz)	12.2kΩ (60Hz), 14.6kΩ (50Hz)					
Response	OFF→ON	15ms	or less	15ms or less (100VAC 50Hz, 60Hz)					
time	ON→OFF	25ms	or less	20ms or less (100VAC 50Hz, 60Hz)					
Interna consur	Il current	55mA (TYP. a	all points ON)	110mA (TYP. all points ON)					
Wiring commo	method for on	16 points	/common	16 points/common					
Extern	al interface	20-point ter	minal block	18-point terminal block					

1. 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.

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

RX10	RX40C7						
100/120VAC	24VDC						
[Specification comparison chart]							

-	i
100/120VAC	24VDC
[Specification com	parison chai

	Model				М	ELSEC-A series	i				MELSEC iQ-R series
Specifi	cations	AX40, AX40-UL AX70, AX70-UL (Sink type) (Sink/Source type)		AX80, AX80-UL (Source type)		AX80E (Source type)		RX40C7 (Positive common/negative common shared type)			
No. of	input points	16 p	oints	16 points		16 p	16 points		oints	16 points	
Rated voltag	input e	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 /	6VDC or less / 1.5mA or less (SW O (SW C		W ON) 1.1VDC or less / 0.2mA or less W 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	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	
time	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) 55m		55m/	A (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	
Exterr	nal interface	20-point ter	minal block	20-	point terminal bl	ock	20-point terminal block		20-point ter	minal block	18-point terminal block

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, Note 3. change the wiring.

4

When a rated input voltage of 5VDC or 12VDC is used, change the voltage to 24VDC. Specifications in the \_\_\_\_\_ areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. 5.

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.

#### [Specification comparison chart]

Model			MELSEC	C-A series	MELSEC iQ-R series	
Specifications		Al	61	Al61-S1	RX40C7 (Positive common/negative common shared type)	
No. of interrupt	input points	16 p	oints	16 points	16 points	
Rated input vol	tage	12VDC	24VDC	24VDC	24VDC	
Rated input cur	rent	6mA	14mA	14mA	7.0mA (TYP)	
Operating volta	ge range	10.2VDC to	o 26.4VDC	21.6VDC to 26.4VDC	-	
Maximum No. o simultaneous in	of iput points	100% (16 simultane	/common) ously ON	100% (16/common) simultaneously ON	-	
ON voltage		9V or more		16V or more	-	
OFF voltage		4V or less		9V or less	-	
ON voltage / OI	N current	-		-	15VDC or more / 4mA or more	
OFF voltage / OF	F current	-		-	8VDC or less / 2mA or less	
Input resistance	e	Approx. 2.4kΩ		Approx. 2.4kΩ	3.3kΩ	
Deenenee time	OFF→ON	0.2ms or less		2ms or more, 8ms or less	0.1/0.2/0.4/0.6/ 1/5/10/20/70ms or less	
Response ume	ON→OFF	0.2ms	or less	2ms or more, 8ms or less	0.1/0.2/0.4/0.6/ 1/5/10/20/70ms or less	
No. of occupied points		32 p	oints	32 points	16 points	
Internal current	consumption	140mA (TYP.	all points ON)	140mA (TYP. all points ON)	110mA (TYP. all points ON)	
Wiring method	for common	16 points	/common	16 points/common	16 points/common	
External interfa	се	20-point ter	minal block	20-point terminal block	18-point terminal block	

When replacing the AI61 with the RX40C7 and a rated input voltage of 12VDC is used, change the voltage to 24VDC. Specifications in the \_\_\_\_\_\_areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. Note 7.

8. 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 $\rightarrow$ RY20S6, and AY10/AY11/AY11-UL/AY11E/AY11EEU → RY10R2



#### \*Power supply

chart1

RY20S6	RY10R2
-0-	
100/240\/AC	24\/DC or 240\/AC

[Specification comparison

[Specific	[Specification comparison chart]									
	Model	MELSEC-A series	MELSEC iQ-R series							
Specificatio	ons	AY22	RY20S6							
No. of outp	out points	16 points	16 points							
Rated load	l voltage	100-240VAC, 50/60Hz	100-240VAC, 50/60Hz							
Maximum	load current	2A/point, 3.3A/common	0.6A/point, 4.8A/common							
Minimum loa current	ad voltage/	24VAC 100mA, 100VAC 10mA, 240VAC 20mA	24VAC 100mA, 100VAC 25mA, 240VAC 25mA							
Maximum i	nrush current	40A 10ms or less, 15A 100ms or less	20A one cycle or less							
Leakage c OFF	urrent at	1.5mA (120VAC 60Hz), 3mA (240VAC 60Hz)	1.5mA or less (for 120V, 60Hz), 3mA or less (for 240V, 60Hz)							
Maximum v ON	oltage drop at	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)							
Baananaa	OFF→ON	1ms or less	1ms + 0.5 cycle or less							
time	ON→OFF	0.5 cycle + 1ms or less	1ms + 0.5 cycle or less (rated load, resistive load)							
Surge sup	pressor	CR absorber (0.022μF+47Ω), Varistor (387 to 473V)	CR absorber							
Fuse		Yes	None (Installing a fuse per external wiring point is recommended.)							
Internal curre	ent consumption	305mA (TYP. all points ON)	280mA (MAX. all points ON)							
Wiring metho	od for common	8 points/common	16 points/common							
External in	terface	20-point terminal block	18-point terminal block							
Note 10 Si	ince the number	of points per common changes from 8 (to	vo circuits) to 16 when terminal numbers							

TB9 and TB18 on the existing module are used separately from each other, change the wiring.

 Specifications in the material 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.

-						
	Model		MELSEC	C-A series		MELSEC iQ-R series
Specifications		AY10	AY11 AY11-UL	AY11E	AY11EEU	RY10R2
No. of output	points	16 points	16 points	16 points	16 points	16 points
Rated switching voltage/ current		24VDC, 2A/point (Resistive load) 240VAC, 2A/point (COSφ = 1) 8A/common	a load) 24VDC, 2A/point (Resistive load) 24VDC, 2A/point (Resist ) = 1) 240VAC, 2A/point (COSφ = 1) 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 swit	ching load	5VDC 1mA	5VDC 1mA 5VDC 1mA 5VDC 1mA		5VDC 1mA	5VDC 1mA
Maximum swit	ching voltage	264VAC 125VDC	264VAC 125VDC	250VAC 125VDC	49.9VAC 74.9VDC	264VAC 125VDC
Leakage curre	ent at OFF	-	0.1mA (200VAC, 60Hz)	0.1mA (200VAC, 60Hz)	0.1mA (49.9VAC, 60Hz)	-
Response	OFF→ON	10ms or less	10ms or less	10ms or less	10ms or less	10ms or less
time	ON→OFF	12ms or less	12ms or less	12ms or less	12ms or less	12ms or less
Surge suppre	ssor	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	d for common	8 points/common	8 points/common	8 points/common	8 points/common	16 points/common
External inter	face	20-point terminal block	20-point terminal block	20-point terminal block	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. Specifications in the \_\_\_\_\_ areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. 15. Specifications in the

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) $\rightarrow$ Terminal block (18 points) [Specification comparison chart]

Model	MELSEC-A series module model	No. of output points	MELSEC iQ-R series module model	
	AY40, AY40-UL			
	AY40P	]		
	AY50, AY50-UL	16 pointo	RT40INT5P	
ERNT-TAR401	AY70, AY70-UL	To points		
	AY80			
	AY80EP		IN HOF ISF	

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



Upgrade Tool

		number	name		number	name
		TB1	Y00		TB1	Y00
MELSEC-A		TB2	Y01		TB2	Y01
series		TB3	Y02		TB3	Y02
		TB4	Y03		TB4	Y03
TB2		TB5	Y04		TB5	Y04
TB3		TB6	Y05		TB6	Y05
TB4		TB7	Y06		TB7	Y06
TB5		TB8	Y07		TB8	Y07
TB7		TB9	+V		TB9	Y08
TB8		TB10	COM	┝┿┓╎┌────┤	TB10	Y09
TB9		TB11	Y08	┝┼┼╢┌────	TB11	Y0A
TB10		TB12	Y09	┝┽╂╜╓━━━━┥	TB12	Y0B
TB12		TB13	Y0A	┝┽╂┙║┍━━━┥	TB13	YOC
TB13		TB14	Y0B	┝┽╂╌╢┍──┥	TB14	Y0D
TB14		TB15	Y0C	┝┽╂╾╜╓╾╾┥	TB15	Y0E
TB16		TB16	Y0D	┝┽╉╾┙╽┍╾┥	TB16	Y0F
TB17		TB17	Y0E	┝┽╉╾╾╝┍╼╾	TB17	+V
TB18		TB18	Y0F	┝┽╂──┘╽┏━	TB18	COM
TB20	<b>♦</b> ───┼	TB19	+V	┠┥╂─────────────────		
1620	└ <u></u> ╷⊢♠	TB20	COM			
				Conve	rsion	adapte

MELSEC iQ-R	Le O
series TB2 TB4 TB5	Mat
TB6 TB7 TB8 TB9 TB10 TB11 TB12 TB13	Re tin
TB14 TB15 TB16 TB17	S
TB18	F
	P
	In
	CC

		Model		MELSEC-A series								
		$\searrow$	AY40, AY40-UL	AY40P	AY50, AY50-UL	AY70, AY70-UL	RY40NT5P					
	Specifica	tions	(Sink type)	(Sink type)	(Sink type)	(Sink type)	(Sink type)					
	No. of output points		16 points	16 points	16 points	16 points	16 points					
	Rated loa	ad voltage	12/24VDC	12/24VDC	12/24VDC	5/12VDC	12/24VDC					
	Maximun	n load	0.1A/point,	0.1A/point,	0.5A/point,	16mA/point,	0.5A/point,					
	current		0.8A/common	0.8A/common	2A/common	128mA/common	5A/common					
	Maximun current	n inrush	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.)					
1	Leakage OFF	age current at 0.1mA or less		0.1mA or less less		$V_{OH}$ : 3.5VDC ( $V_{cc}$ = 5VDC, $I_{OH}$ = 0.4mA)	0.1mA or less					
	Maximum voltage dro 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 <sub>OL</sub> : 0.2VDC (I <sub>OL</sub> = 16mA)	0.2VDC (TYP.) 0.5A, 0.3VDC (MAX.) 0.5A					
	Boononoo	$OFF{\rightarrow}ON$	2ms or less	2ms or less	2ms or less 1ms or less		0.5ms or less					
	time	ON→OFF	2ms or less (Resistive load)	2ms or less (Resistive load)	2ms or less (Resistive load)	1ms or less	1ms or less (Rated load,resistive load)					
	Surge su	ppressor	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)					
			115mA	115mA	115mA	100mA	140mA					
	Wiring metho	d for common	8 nointe/common	8 nointe/common	8 nointe/common	8 noints/common	16 noints/common					
	Thing mean		20-noint	20-noint	20-noint	20-point	18-point					
	External	rnal interface		terminal block	terminal block	terminal block	terminal block					

#### AY80/AY80EP $\rightarrow$ RY40PT5P



/	Model	MELSEC	-A series	MELSEC iQ-R series		
	$\sim$	AY80	AY80EP	RY40PT5P		
Speci	ifications	(Source type)	(Source type)	(Source type)		
No. of	output points	16 points	16 points	16 points		
Rated	load voltage	12/24VDC	12/24VDC	12/24VDC		
Maxim	um load current	0.5A/point, 2A/common	0.8A/point, 0.8A/point (60% ON, 55°C)	0.5A/point, 5A/common		
Maxir currei	num inrush nt	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.)		
Leakag	ge 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		
Deenenee	OFF→ON	2ms or less	0.5ms or less	0.5ms or less		
time	ON→OFF	2ms or less (Resistive load)	1ms or less	1ms 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)		
Intern consu	al current	115mA (TYP. all points ON)	115mA (TYP. all points ON)	130mA (TYP. all points ON)		
Wiring m	nethod for common	8 points/common	8 points/common	16 points/common		
E est a se	and interate as	00 maintenantinal black	00 a sint to main all bla all	40 a sint to make at black		

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. Specifications in the areas differ between the MELSEC-A series and the 3. 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 4.

specification comparison charts, refer to the user's manual for the module used.

		10CK (30 h	$Domes) \to Commet$		
Conversion adapter model	MELSEC-A series module model	No. of input points	MELSEC iQ-R series module model		
	AX31				
	AX31-S1	]			
	AX41, AX41-UL		DV4404		
	AX41-S1		RX41C6HS		
ERNT-1AR41X	AX81	32 points	1004100110		
	AX81-S1				
	AX81-S3				
			RX41C4		
	AX71		RX41C6HS		
			RX61C6HS		

#### X00 X01 MELSEC-A MELSEC iQseries series TB1 TB' TB2 TB3 TB<sup>.</sup> TB<sup>.</sup> Empty



[Specification comparison chart]

Conversion adapter

	N							
	Specif	ications	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)
	No. of i	nput points	:	32 points	6	32 points	32 points	32 points
	Rated i	nput 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 vo	oltage/	3.5VDC or	(SW ON) more / 1.0r (SW OFF)	nA or more	19VDC or more	19VDC or more	3.5VDC or more
	01100	arrent	5VDC or r	more / 1.0m	A or more	3mA or more	4mA or more	3mA or more
	OFF \ OFF (	voltage/ 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	VDC or less / 6VDC or less / 1.7mA or less	
	Input	resistance	$\begin{array}{l} (SW \ ON) \ Approx. \ 1.4 k\Omega \\ (SW \ OFF) \ Approx. \ 5.5 k\Omega \end{array}$			5.3kΩ	4kΩ	600Ω
Q-R A20 A19	Response	OFF→ON	1.5	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
A18 A17 A16 A15 A14 A13 A12 A12 A11	time	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	0.001/0.01/ 0.02/0.05/ 0.1/0.2/0.4/ 0.6/1/5/10/ 20/70ms or less	
A9 A8 A7	Intern consu	al current	(TYP.	110mA all point	s ON)	150mA (TYP. all points ON)	150mA (TYP. all points ON)	150mA (TYP. all points ON)
A5	Wiring me	thod for common	8 po	ints/com	mon	32 points/common	32 points/common	32 points/common
A3 A2	Extern	al interface	38-point terminal block			40-pin connector	connector 40-pin connector 40-p	
AI	Note 1	For rep	lacamon	t of the A	X71 with	the RX41C4 th	RX41C6HS or	the RX61C6HS

MELSEC iQ-R series

[Specification comparison chart] Model MELSEC-A series

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

Specifications in the areas differ between the MELSEC-A series and the 3. 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.

$\backslash$	Model	MELSEC-A series												MELSEC	MELSEC iQ-R series						
Specific	ations	(4	AX AC/DC ir	31 iput type)	AX31-S1 (Sink/Source type)	AX AX4 (Sink	(41, 1-UL type)	AX4 (Sink	AX41-S1 (Sink type)		AX81 (Source type)		AX81-S1 (Sink/Source type)		1-S3 e type)	RX41C4 (Positive common/ negative common shared type)	RX41C6HS (Positive common/ negative common shared type)				
No. of i	nput points		32 po	pints	32 points	32 p	oints	32 p	oints	32 p	oints	32 p	oints	32 p	oints	32 points	32 points				
Rated in	nput voltage	12VDC	24VDC	12/24VAC (50/60Hz)	24VDC	12VDC	24VDC	12VDC	24VDC	12VDC	24VDC	12VDC	24VDC	12VDC	24VDC	24VDC	24VDC				
Rated current	input t	4mA	8.5mA	4mA (12VAC) 8.5mA (24VAC)	8.5mA	4mA	10mA	4mA	10mA	4mA	10mA	2.5mA	5mA	4mA	10mA	4mA (TYP.)	6.0mA (TYP.)				
ON vo ON cu	ON voltage/ ON current		7VDC or more / 2mA or more		16VDC or more / 5mA or more	9.5VI mo 3mA o	DC or ore / 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	19VDC or more / 4mA or more				
OFF v OFF c	OFF voltage/ OFF current		2.5VDC or less / 0.7mA or less		8VDC or less / 2mA or less	6VDC ( 1.5mA	or less / or less	6VDC or less / 1.5mA or less		6VDC or less / 1.5mA or less 0.39mA or less		DC or is / or less	6VDC 1.5mA	or less / or less	6VDC or less / 1.0mA or less	6VDC or less / 1.7mA or less					
Input r	esistance		Approx	. 2.7kΩ	Approx. 2.7kΩ	Approx	. 2.4kΩ	Approx	. 2.4kΩ	Approx	ox. 2.4kΩ Approx. 4.8kΩ		Approx. 2.4kΩ		5.3kΩ	4kΩ					
Response	OFF→ON	20ms	or less	25ms or less (12/24VAC 60Hz)	10ms or less	10ms	or less	0.1ms	or less	10ms	or less	ss 10ms or less		ess 0.1ms 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				
time	ON→OFF	20ms	or less	20ms or less (12/24VAC 60Hz)	10ms or less	10ms	or less	0.2ms	or less	10ms	10ms or less		10ms or less		10ms or less		is or less 0.2ms or l		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
Interna consur	al current	nt 110mA 110mA 110mA 110mA 110mA (TYP. all points ON) (TYP. all points ON) (TYP. all points ON) (TYP. all points ON)		110 (TYP. all p	mA points ON)	105 (TYP. all p	imA points ON)	110 (TYP. all )	0mA points ON)	150mA (TYP. all points ON)	150mA (TYP. all points ON)										
Wiring for co	g method mmon	32 points/common 32 points/ 8 points/ common common		8 pc com	oints/ mon	8 pc com	oints/ mon	8 pc com	ints/ mon	8 pc com	oints/ mon	32 points/common	32 points/common								
Extern interfa	al ce	38-	point ter	minal block	38-point terminal block	38-p termina	ooint al block	38-p termina	ooint al block	38-point terminal block te		38-point 38-point k terminal block terminal block		40-pin connector	40-pin connector						

#### (3) FRNT-1AR41X Terminal block (38 points) Connector (40P)

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

6.

7.

8.

#### (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	
	AY41, AY41-UL			
	AY41P	]	RY41NT2P	
ERNT-1AR41Y	AY71	32 points		
	AY81	] [		
	AY81EP		RT4IPTIP	

#### AY41/AY41-UL/AY41P/AY71 $\rightarrow$ RY41NT2P



Upgrade Tool

Upgrade Tool



	[Spec	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)	
	No. of c	output points	32 points	32 points	32 points	32 points	
	Rated I	oad voltage	12/24VDC	12/24VDC	5/12VDC	12/24VDC	
	Maxim current	um load	0.1A/point, 1.6A/common	0.1A/point, 1.0A/common	16mA/point, 256mA/common (Sink load)	0.2A/point, 2A/common	
	Maxim current	um inrush	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 <sub>OH</sub> : 3.5VDC (V <sub>∞</sub> = 5VDC, I <sub>OH</sub> = 0.4mA)	-	
1	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 <sub>oL</sub> : 0.2VDC (I <sub>oL</sub> = 16mA)	0.2VDC (TYP.) 0.2A, 0.3VDC (MAX.) 0.2A	
		OFF→ON	2ms or less	2ms or less	1ms or less	0.5ms or less	
	Response time	ON→OFF	2ms or less (Resistive load)	2ms or less (Resistive load)	1ms or less	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)	
	Interna consur	I current	230mA (TYP. all points ON)	230mA (TYP. all points ON)	200mA (TYP. all points ON)	180mA (TYP. all points ON)	
	Wiring me	thod for common	16 points/common	16 points/common	16 points/common	32 points/common	
	Extern	al interface	38-point terminal block	38-point terminal block	38-point terminal block	40-pin connector	

Since the number of points per common changes from 16 (two circuits) to 32 (one Note 1. 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.

When replacing the AY71 with the RY41NT2P 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 2

3. 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

#### [Specification comparison chart]

series

Model		MELSEC	MELSEC iQ-R series	
		AY81 (Source type)	AY81EP (Source type)	RY41PT1P (Source type)
No. of c	output points	32 points	32 points	32 points
Rated I	oad voltage	12/24VDC	12/24VDC	12/24VDC
Maximu current	um load	0.5A/point, 4A/common	0.8A/point, 0.4A/point (60% ON, 55°C)	0.1A/point, 2A/common
Maximu current	um inrush	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
Deenenee	OFF→ON	2ms or less	0.5ms or less	0.5ms or less
time	ON→OFF	2ms or less (Resistive load)	1.5ms or less	1ms or less (Rated load, resistive load)
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 consum	l current	230mA (TYP. all points ON)	230mA (TYP. all points ON)	190mA (TYP. all points ON)
Wiring met	thod for common	16 points/common	16 points/common	32 points/common
Externa	al 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.

- When the maximum load current is insufficient, consider replacing the module with two RY40PT5Ps using the ERNT-1AR51Y. 6. 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

#### AY81/AY81EP → RY41PT1P



Conversion adapter

(5)ERNT-ASLCXY81	D-Sub connector (37P) $\rightarrow$ Connecto	r (40P)
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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

#### $\text{AX82} \rightarrow \text{RX41C4/RX41C6HS} \times 2$



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	Specification	comparison char	ij.
N			

Model		MELSEC-A series		MELSEC iQ-R series		
Specifications		AX82 (Source type)		RX41C4 (Positive common/ negative common shared type)	RX41C6HS (Positive common/negative common shared type)	
No. of in	nput points	64 p	oints	32 points	32 points	
Rated in	nput voltage	12VDC	24VDC	24VDC	24VDC	
Rated in	nput current	3mA	7mA	4mA TYP.	6.0mA TYP.	
ON volt ON curr	age/ ent	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	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	
time	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 me	thod for common	32 points	/common	32 points/common	32 points/common	
Externa	l 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 $\rightarrow$ RY41PT1P ×2



#### [Specification comparison chart]

	Model	MELSEC-A series	MELSEC iQ-R series
Specifications		AY82EP (Source type)	RY41PT1P (Source type)
No. of c	output points	64 points	32 points
Rated lo	oad voltage	12/24VDC	12/24VDC
Maximu current	ım load	0.1A/point 0.04A/point (60% ON, 55°C)	0.1A/point 2A/common
Maximu current	ım inrush	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
Doopopoo	OFF→ON	0.5ms or less	0.5ms or less
time	ON→OFF	1.5ms or less	1ms or less (Rated load, resistive load)
Surge s	uppressor	Surge absorbing diode	Zener diode
Fuse		None	None
Protection function		Yes (Overheat protection, short-circuit protection)	Yes (Overheat protection, overload protection)
Internal current consumption		290mA (TYP. all points ON)	190mA (TYP. all points ON)
Wiring r commo	method for n	32 points/common	32 points/common
Externa	I 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-ASLCXY81), and use 32 points on each set.
7. Specifications in the areas differ between the MELSEC-A series and the

 Specifications in the areas differ between the MELSEC-A series and the MELSEC IO-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 MELSEC iQ-R series [Specification comparison chart]

		No. of input/	MELSEC iQ-R series	
Model	MELSEC-A series module model	output points	module model	No. of required modules
	AX11		DV10	
	AX11EU	AX11EU		
EDNT 1AD11Y12V	AY13 22 points			2 modules
ERNT-TARTIAIST	AY13E	52 points	RY10R2	2 modules
	AY13EU	1		
	AY23		RY20S6	

#### $\text{AX11/AX11EU} \rightarrow \text{RX10} \text{ } \text{\times2}$



	Model MELSEC-A series			MELSEC iQ-R series	
	Specifications No. of input points		AX11	AX11EU	RX10
			32 points 32 points		16 points
	Rated in	nput voltage	100-120VAC 50/60Hz	100-120VAC 50/60Hz	100-120VAC 50/60Hz
	Rated ir	nput current	10mA (100VAC, 60Hz)	12mA (120VAC, 60Hz)	8.2mA (100VAC, 60Hz) 6.8mA (100VAC, 50Hz)
_	Inrush c	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 Input impedance		40VAC or less / 4mA or less	40VAC or less / 4mA or less	30VAC or less / 1.7mA or less (50Hz, 60Hz)
			Approx. $10k\Omega$ (60Hz), Approx. $12k\Omega$ (50Hz)	Approx. $10k\Omega$ (60Hz), Approx. $12k\Omega$ (50Hz)	12.2kΩ (60Hz), 14.6kΩ (50Hz)
	Response	OFF→ON	15ms or less	15ms or less (100VAC, 60Hz)	15ms or less (100VAC 50Hz, 60Hz)
	time	ON→OFF	25ms or less	25ms or less (100VAC, 60Hz)	20ms or less (100VAC 50Hz, 60Hz)
	Internal current consumption Wiring method for common		ternal current 110mA 150mA onsumption (TYP. all points ON) (TYP. all points C		110mA (TYP. all points ON)
			32 points/common	32 points/common	16 points/common
	Externa	l interface	38-point terminal block	38-point terminal block	18-point terminal block

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

 Specifications in the areas differ between the MELSEC-A series and the MELSEC iO-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.

#### AY13/AY13E/AY13EU $\rightarrow$ RY10R2 ×2

Upgrade Tool



\*Power supply

24VDC or 240VAC

#### $AY23 \rightarrow RY20S6 \times 2$



#### [Specification comparison chart]

	Model		MELSEC iQ-R series		
Specif	fications	AY13	AY13E	AY13EU	RY10R2
No. of points	f output	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
Minim switch	num ning 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	OFF→ON	10ms or less	10ms or less	10ms or less	10ms or less
time	ON→OFF	12ms or less	12ms or less	12ms or less	12ms or less
Surge	suppressor	None	None	None	None
Fuse		None	Yes	None	None
Intern consu	al current	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
Exterr	nal 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 achieves the writer as 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 5 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

6. 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 7. specification comparison charts, refer to the user's manual for the module used.

#### [Specification comparison chart]

1-1				
/	Model	MELSEC-A series	MELSEC iQ-R series	
Specifi	ications	AY23	RY20S6	
No. o points	of output s	32 points	16 points	
Rateo voltag	d load ge	100-240VAC 40 to 70Hz	100-240VAC 50/60Hz (±3Hz)	
Maxir curre	mum load nt	0.6A/point, 2.4A/common	0.6A/point, 4.8A/common	
Minim voltag	num load ge/current	24VAC 100mA, 100VAC 10mA, 240VAC 10mA	24VAC 100mA, 100VAC 25mA, 240VAC 25mA	
Maxir curre	mum inrush nt	20A 10ms or less, 8A 100ms or less	20A one cycle or less	
Leaka at OF	age current F	1.5mA (120VAC 60Hz), 3mA or less (240VAC 60Hz)	1.5mA or less (for 120VAC 60Hz), 3mA or less (for 240VAC 60Hz)	
Maxin drop a	num voltage 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)	
D	OFF→ON	1ms	1ms + 0.5 cycle or less	
time ON→OFF Surge suppressor		0.5 cycle + 1ms or less	1ms + 0.5 cycle or less (Rated load, resistive load)	
		CR absorber	CR absorber	
Fuse		Yes	None (Installing a fuse per external wiring point is recommended.)	
Intern consi	nal current umption	590mA (TYP. all points ON)	280mA (TYP. all points ON)	
Wiring	g method for non	8 points/common	16 points/common	
Exter	nal 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 9. MELSEC iQ-R series and are restricted when replacing. Check that the specifications of devices and equipment to be connected are satisfied.

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

			meloco	i a i i oonoo
Model	MELSEC-A series module model	No. of output points	module model	No. of required modules
ERNT-1AR10AY	AY10A, AY10A-UL AY11A AY11AEU AY40A	16 points	RY18R2A	2 modules
Image: Test of the second se	wheek         Signal name           2         Y00           3         Y01           5         Y02           7         Y03           0         Y04           1         Y05           2         Y06           4         Y06           6         Y07           7         Y08	Termial Termial TE TE TE TE TE TE TE TE TE TE TE TE TE	numbel Signal name           31         Y00           32         Y00           33         Y01           35         Y02           36         Y02           37         Y03           38         Y03           39         Y04           10         Y04           11         Y05           13         Y06           14         Y07           15         Y07           16         Empty           18         Empty	MELSEC iQ-R series Slot n TB2 TB1 TB6 TB5 TB6 TB7 TB8 TB7 TB8 TB9 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18 TB17

#### (2) ERNT-1AR10AY Terminal block (38 points) $\rightarrow$ Terminal block (18 points) ×2 MELSEC iQ-R series

ignal name

Y10

Y11

Y12

Y13

Y14

Y15

Y16

Y17

Empty

TB18 Empty

Conversion adapter

TB3 TB4

TB5 TB6

TB7

MELSEC iQ-R

series Slot n +1

TB6 TB7 TB9

TB8

TB10

TB12

TB14 B15

TB16 B17

TB18

TB1 TB2 TB4

твз

TB5

TB11 TB13

\*Power supply

An external power

supply is not required.

Fore etc. TB19

Fores c...

e over supply " TB25 TB27

-ver supp. Power ser TB29 TB31

Cover --

L

Y09

Y0A

Y0B

YOC

Y0D

Y0E

Y0F

Empty Empty Empty Empty 24VDC

0٧

TB34 TB35

TB36 TB37

**TB38** 

TB18

TB2

TB26 TB28

TB30

TB32

TB34 TB36

FB21 TB22 TB22

TB23

твзз

B35 Power supp

TB37 TB38

24VDC or 240VAC

#### [Specification comparison chart]

SpecificationsAY10A AY10A-ULAY11AAY11AEUAY40ARY18R2ANo. of output points16 points16 points16 points16 points8 pointsRated switching voltage/current24VDC, 2A/point (Resistive load) 240VAC, 2A/point (COS\$	Model	
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 (COSφ = 1) 16A/all points       -       -       24VDC, 2A/point (COSφ = 1) 16A/all points       -       -       -       -       24VDC, 2A/point (COSφ = 1) 16A/all points       -	Specifications	
Rated switching voltage/current24VDC, 2A/point (Resistive load) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 2A/point (COSφ = 1) 240VAC, 24/point (COSφ = 1) 240VAC, 24/point (COSφ = 1) 16A/all points24VDC, 2A/point (COSφ = 1) 240VAC, 24/point (COSφ = 1) 240VAC, 24/point (COSφ = 1) 240VAC, 24/point (COSφ = 1) 	No. of output points	
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         -         264VAC 125VDC           Maximum load current         -         -         0.3A/point         -         -           Maximum inush current at OFF         -         -         1A100ms or less         -         -	Rated switching voltage/current	
Maximum switching voltage         264VAC 125VDC         264VAC 125VDC         49.9VAC 74.9VDC         -         264VAC 125VDC         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         -	Minimum switching load	
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 switching voltage	
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     -	Rated load voltage	
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 load current	
Leakage current at OFF         0.1mA (200VAC, 60Hz)         0.1mA (49.9VAC, 60Hz)         0.1mA or less         -	Maximum inrush current	
	Leakage current at OFF	
Maximum voltage 1.5VDC (50mA to 0.3A) drop at ON 1.0VDC (50mA or less)	Maximum voltage drop at ON	
Response         OFF→ON         10ms or less         10ms or less         2ms or less         10ms or less	Response OFF→ON	
ime         ON→OFF         12ms or less         12ms or less         12ms or less         2ms or less (Load resistance)         12ms or less	time ON→OFF	
Surge suppressor         None         Varistor (387 to 473V)         Varistor (387 to 473V)         Surge absorbing diode         None	Surge suppressor	
Fuse         None         None         None         None	Fuse	
Internal current consumption         115mA         115mA         115mA         190mA         260mA           (TYP. all points ON)	Internal current consumption	
Wiring method for common         None         None         None         None           (All points independent contacts)	Wiring method for common	
No. of occupied points         16 points         16 points         16 points         16 points         16 points	No. of occupied points	
External interface 38-point terminal block 38-point terminal block 38-point terminal block 18-point terminal block	External interface	

The external power supply connected to terminal numbers TB37 and TB38 on the existing terminal block is no longer required. Note 1.

When replacing the AV4A with the RY18R2A, the output type is changed from transistor output to contact output. Check the specifications of the connected devices. Specifications in the areas differ between the MELSEC-A series and the MELSEC iQ-R series and are restricted when replacing. 2. 3.

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.

• 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.

# Upgrade Tool

#### (3)ERNT-1AR51Y Terminal block (38 points) → Terminal block (18 points) ×2 MELSEC IQ-R series [Specification comparison chart]

			MELSEC i	Q-R series
Model	MELSEC-A series module model	No. of output points	module model	No. of required modules
	AY51, AY51-UL			
	AY51-S1			
	AY41, AY41-UL	, AY41-UL		
ERNT-1AR51Y	AY41P 32 points			2 modules
	AY71	]		
	AY81			
	AY81EP		R140F15F	

#### AY51/AY51-UL/AY51-S1/AY41/AY41-UL/AY41P/AY71

 $\rightarrow$  RY40NT5P ×2





Mode		Mode	MELSE(		C-A series		MELSEC iQ-R series		
								MELSEC IQ-R series	
	0		(Sink type)	JL	(Sink	type)		(Sink type)	
	Specifi No. of		22 points		22 m	ointo		16 pointo	
	Rated	load voltage	12/24VDC		12/24	12/24VDC		12/24VDC	
	Maxim	um load	0 EA/neint 4A/aar	0.54/22:24 44/22:2020		2A/common	0.54	laciat EA/common	
	curren	t	0.5A/point, 4A/cor	nmon	(1A/fuse	common)	0.5A	point, 5A/common	
	Maxim	um inrush	44.10mp.or.lo	4A 10ma or loss		o or loop	1.	5 to 3.5A/point	
	curren	t	4A TOTHS OF IC	33	3/ 10/11	SA TUINS OF less		ad protection function.)	
	Leaka	ge current at	0.1mA or les	e	0.1mA	or less	0		
	OFF		0.1117 01 103	3	0.111/4	011033		0.1117 01 1035	
	Maxim drop at	um voltage	0.9VDC (TYP.) ( 1.5VDC (MAX.)	).5A, 0 5A	1VDC (T	YP.) 0.3A, //AX ) 0.3A	0.2	DC (TYP.) 0.5A,	
	urop a	OFF→ON	2ms or less	0.54	2ms c	or less	0.50	).5ms or less	
	Respons		2ms or less		2ms o	or less	1	1ms or less	
	unio		(Resistive loa	d)	(Resisti	ve load)	(Rated	d load, resistive load)	
	Surge	suppressor	Varistor (52 to 6	62V)	Transiste	or built-in		Zener diode	
	Fuse		None		Y	es		None	
	Interna	al current	230mA		310	)mA		140mA	
	consur	mption	(TYP. all points	ON)	(TYP. all p	points ON)	(TY	P. all points ON)	
	Wiring m	ethod for commo	n 16 points/comr	non	16 points	/common	16	points/common	
	Extern	al interface	38-point terminal	block	38-point ter	minal block	18-p	oint terminal block	
		Mode	el	MEL	SEC-A series	6		MELSEC iQ-R series	
			AY41, AY41-UL		AY41P	AY71	1	RY40NT5P	
	Specifi	ications	(Sink type)	(\$	Sink type)	(Sink ty	pe)	(Sink type)	
	No. of	output points	32 points	;	32 points	32 poir	nts	16 points	
	Rated	load voltage	12/24VDC	1	2/24VDC	5/12VE	DC	12/24VDC	
	Maxim	um load	0.1A/point	C	.1A/point	16mA/p 256mA/co	oint mmon	0.5A/point	
	curren	t	1.6A/common	1.0	A/common	(Sink lo	ad)	5A/common	
	Maxim	um inrush	0.4A	0.38	A. 5ms or less	50mA 10	Oms	Current is restricted by	
	curren	t a surrant at OF		0.1				overload protection function.	
	Output	voltage at	F 0. IMA of less	0.1	ma or less	V <sub>OH</sub> : 3.5VDC (V <sub>CC</sub> =		0. ITTA OF less	
	OFF	voltage at	-		-	5VDC, I <sub>OH</sub> =	0.4mA)	-	
	Maxim	um voltage	2.5VDC (0.1A)	2.5	VDC (0.1A)	Var 0 2	/DC	0.2VDC (TYP.) 0.5A	
	drop at	ON	1.75VDC (5mA)	1.75	5VDC (5mA)	(I <sub>OL</sub> = 16	mA)	0.3VDC (MAX.)	
		OFF→ON	2ms or less	2	ms or less	1ms or I	less	0.5ms or less	
	Respons		2ms or less	21	ms or less	1mc or l		1ms or less	
	unio		(Resistive load)	(Re	sistive load)	1115 01 1	1035	(Rated load, resistive load)	
	Surge	suppressor	Clamp diode	CI	amp diode	None	e	Zener diode	
	Interna	al current	230mA		230m4	200m	Δ	140mA	
	consur	nption	(TYP. all points ON)	(TYP	all points ON)	(TYP. all poir	nts ON)	(TYP. all points ON)	
	Wiring	method for	16 points/	1	6 points/	16 poir	nts/	16 points/	
	comme	on	common		common	comm	on	common	
	Extern	al interface	terminal block	ter	minal block	terminal I	block	terminal block	
	Model		MEL	SEC	-A series	1	MEL	SEC iO-R series	
	Model		AY81	AY81 AY8		EP		RY40PT5P	
	Specifications		(Source type)		(Source type)		(\$	Source type)	
	No. of output points		32 points		32 points		16 points		
	Rated	load voltage	12/24VDC		12/24VDC 0.8A/point, 0.4A/point		12/24VDC		
	curren	t un ioau	0.5A/point, 4A/common		0.8A/point, 0.4A/point (60% ON, 55°C)		0.5A/point, 5A/common		
	Maxim	um inruch			No restriction		1.5A/point		
	curren	t	4A 10ms or less	8	(Short-	circuit	(Cur	rent is restricted by	
	Leakage	current at OFF	0.1mA or less		1mA o	r less	overioa	1mA or less	
	Maxim	um voltage	0.1117.01 1033		1.1V (TY	P.) 0.8A	0.2V	DC (TYP.) 0.5A	
	drop at	ON	1.5VDC (MAX.) 0	.5A	1.5V (MA	X.) 0.8A	0.3V	DC (MAX.) 0.5A	
	Response -	OFF→ON	2ms or less		0.5ms c	or less	0	.5ms or less	
	time	ON→OFF	2ms or less	、	1.5ms c	or less	(Pated	1ms or less	
	Surge	suppressor	Varistor (52 to 62	/ V)	Surge absor	bing diode	(i tateu	Zener diode	
	Fuse		None	,	Nor	ne	-	None	
					Ye	s		Yes	
	Protec	tion function	None		(Overheat p	protection,	(Ove	rheat protection,	
	Interna	al current	230mA		230r	nA	ove	130mA	
	consur	nption	(TYP. all points C	N)	(TYP. all po	oints ON)	(TYF	P. all points ON)	
	Wiring me	ethod for common	16 points/commo	on	16 points/	common	16 p	points/common	
	Extern	al interface	38-point terminal b	lock	38-point terr	ninal block	18-po	int terminal block	
	Note 1.	When repl	acing the AY71 with	ים//2	RY40NT5P a	and a rated	voltag	e of 5VDC is	
		uuuu, uidi	igo the volidye to I	~ v D'	VDU.				

 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
	A68AD (Voltage input)		R60ADV8
	A68AD (Current input)	0 shannala	R60ADI8
ERNI-TAR00AD	A68AD-S2 (Voltage input)	o channeis	R60ADV8
	A68AD-S2 (Current input)		R60ADI8
Tern	rinal rumbel Signal name TB1 TEST TB2 Empty	Teminal num	



#### [Specification comparison chart]

~ .								
Model MELSEC-A set			C-A series		MELSE	C iQ-R series		
Specifications		A68AD, A68AD-S2			R60ADV8	F	R60AD18	
Analog input	Voltage	-10 to 0 to 10VDC (Input resistance hardware version K or later: 1MΩ, hardware version J or earlier: 30kΩ)		-10 to 10\	/DC (Input resistance: 1MΩ)	-		
	Current	4 to 20mA DC (Input resistance: 250Ω)			-	0 to 20mA DC (I	nput resistance: 250Ω)	
Digital output		ACPU: 16-bit signed binary (-2048 to 2047) K2ACPU: sign + 16-bit binary (±2047)			16-bit signed bin	ary (-32768 to 3276	7)	
		Analog input	Digital output		Analog input range	Digital output	Resolution	
		+10V	+2000		0 to 10V		312.5µV	
1/O abarastari	inting	+5V or +20mA	+1000		0 to 5V	0 to 32000	156.3µV	
1/O characteri	ISUCS	0V or +4mA	±0	Valtaga	1 to 5V		125.0µV	
		-5V or -12mA	-1000	voltage	1 to 5V (Extended mode)	-8000 to 32000	125.0µV	
		-10V	-2000		-10 to 10V	22000 to 22000	312.5µV	
					User range setting	-32000 10 32000	47.7µV	
Maximum resolution		Voltage 5mV (1/2000) Current 20µA (1/1000)			0 to 20mA	0 to 22000	625.0nA	
				Current	4 to 20mA	0 10 32000	500.0nA	
				Current	4 to 20mA (Extended mode)	-8000 to 32000	500.0nA	
				User range setting -32000 to 32000 190			190.7nA	
Overall accuracy		±1.0% (±20)			Ambient temperature 25 Ambient temperature 0 to	±5°C: ±0.1% (±32dig 55°C: ±0.3% (±96di	jit) or less git) or less	
Maximum cor	nversion speed	Max. 2.5ms/channel			80µ:	s/channel		
Absolute	Voltage	±1	5V	±15V		-		
maximum input	Current	±30	DmA	-		30mA		
No. of analog	input points	8 channels/module		8 channels/module				
Between input terminal Isolation and power supply of Photocoupler method programmable controller		Photocoupler						
	Between channels	Non-is	olation	Non-isolation				
No. of occupie	ed points	32 p	oints		16	6 points		
External inter	tace	38-point tei	minal block		18-point	terminal block		
Current consu	umption	Hardware version	J or earlier: 0.39A		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.

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. 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.

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 A68AD/A68AD-S2 and the R60ADV8/R60ADI8, change the sequence program accordingly.

(2) 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) A68ADN (Current input)         8 channels         R60ADV8	• •		•	• •
ERNT-1AR68AN A68ADN (Voltage input) 8 channels R60ADV8	Model	MELSEC-A series module model	No. of channels	MELSEC iQ-R series module model
ERNIT-TARGOAN		A68ADN (Voltage input)	9 obonnolo	R60ADV8
AddADN (Current input) ROOADI8	ERNI-TAROOAN	A68ADN (Current input)	o channels	R60ADI8
	ERNT-1AR68AN	A68ADN (Voltage input) A68ADN (Current input)	8 channels	R60ADV8 R60ADI8

MEL se TB2 TB4 TB6 TB8 TB10 TB12 TB14 TB16 TB18 TB20 TB22 TB24 TB26 TB28 TB30 TB32 TB34 TB36

Upgrade Tool

MELSEC-A series TB2 TB4 TB5 TB6 TB7 TB8 TB10 TB10 TB10 TB11 TB11 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB17 TB17 TB18 TB17 TB18 TB17 TB20 TB21 TB23 TB23 TB23 TB23 TB23 TB23 TB23 TB23	Terms numer         Signal name           TB2         Empty           TB3         TEST           TB4         Empty           TB5         C         V+           TB6         H         H           TB7         H         COM           TB8         SLD         TB9           TB1         C         V+           TB10         H         L           TB11         C         VH           TB13         C         V+           TB14         C         COM           TB15         G         SLD           TB16         H         COM           TB17         C         V+           TB18         H         H           TB19         C         V+           TB21         C         V+           TB22         H         COM           TB23         C         V+           TB23         C         V+           TB24         COM         H           TB25         C         V+           TB30         T         COM           TB33         C         V+	Temel nutrie         Signal name           TB2         CH1         V+/I+           TB2         CH1         V+/I+           TB2         CH1         V+/I+           TB3         CH2         V+/I+           TB4         CH2         V+/I+           TB5         CH3         V+/I+           TB6         CH3         V+/I+           TB7         CH4         V+/I+           TB10         CH4         V+/I+           TB10         CH4         V+/I+           TB10         CH4         V+/I+           TB10         CH4         V+/I+           TB12         CH4         V+/I+           TB13         CH7         V+/I+           TB13         CH7         V+/I+           TB13         CH8         V-/I+           TB15         CH8         V-/I+           TB18         FG         V-/I+           TB17         A.G.         TB18           TB18         FG         V-/I+           TB18         FG         V-/I+           TB18         FG         V-/I+           TB18         FG         V-/I+           TB1	MELSEC iQ-R series TB2 TB3 TB4 TB5 TB6 TB7 TB1 TB1 TB12 TB13 TB14 TB13 TB14 TB13 TB16 TB17 TB18 TB17
		Conversion adapter	

#### [Specification comparison chart]

Lopooniouni									
Model		MELSEC-A series					MELSEC i	Q-R series	
Specifications			A68AD	N			R60ADV8	R60ADI8	
Analog input Voltage Current		-10 to 0 to 10VDC (Input resistance: 1MΩ)				-10 to 10	OVDC (Input resistance: 1MΩ)	-	
Analog Input	Current	-20mA to 0 to 20mA (Input resistance: 250Ω)					-	0 to 20mA DC (Input res	sistance: 250Ω)
Digital output		(V V Wr	16-bit signed When 1/4000 is set: When 1/8000 is set: Ien 1/12000 is set:	binary -4096 to 4095 -8192 to 8191 -12288 to 12287	)		16-bit signed binary	/ (-32768 to 32767)	
				Digital output value	e		Analog input range	Digital output	Resolution
		Analog input	Analog input (With a 5V/20mA gain and 0V/0m		/0mA offset)		0 to 10V		312.5µV
		· ·	When 1/4000 is set	When 1/8000 is set	When 1/12000 is set		0 to 5V	0 to 32000	156.3µV
		10V	4000	8000	12000		1 to 5V		125.0µV
I/O characteris	stics	5V or 20mA	2000	4000	6000	Voltage	1 to 5V (Extended mode)	-8000 to 32000	125.0µV
		0V or 0mA	0	0	0		-10 to 10V		312.5µV
		-5V or -12mA -2000 -4000 -6000					User range setting	-32000 to 32000	47.7µV
		-10V	-4000	-8000	-12000		0 to 20mA	0.1.00000	625.0nA
			When 1/4000 is set When 1/8000 is set When 1/12000 is set		Current	4 to 20mA	0 to 32000	500.0nA	
Maximum resolution		Voltage input	2.5mV	1.25mV	0.83mV	Current	4 to 20mA (Extended mode)	-8000 to 32000	500.0nA
		Current input	10µA	5µA	3.33µA		User range setting	-32000 to 32000	190.7nA
Overall accura	асу		±1.0% 1/4000: : 1/8000: : 1/12000: :	±40 ±80 ±120		Ambient temperature 25±5°C: ±0.1% (±32digit) Ambient temperature 0 to 55°C: ±0.3% (±96digit		°C: ±0.1% (±32digit) c 5°C: ±0.3% (±96digit)	or less or less
Maximum conversion speed		20ms/channel			80µs/channel				
Absolute	Voltage		±15V				±15V -		
maximum input	Current		±30m/	A			- ±30mA		
No. of analog	input points		8 channels/r	nodule		8 channels/module			
Isolation method	Between input terminal and power supply of programmable controller		Photocou	ıpler			Photoc	coupler	
	Between channels		Non-isola	ation			Non-is	olation	
No. of occupie	ed points		32 poin	ts			16 p	oints	
External interf	ace		38-point termi	nal block			18-point ter	minal block	
Current consu	Imption		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. 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. 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. 2. 3.

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 (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) $\rightarrow$ Terminal block (18 points)

Model	MELSEC-A series module model	No. of channels	MELSEC iQ-R series module model	
	A62DA	2 obonnolo	R60DA4	
ERNT-AQ102DA	A62DA-S1	2 Charmers		

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



#### [Specification comparison chart]

	•														
	Model				MELS	EC-A serie	s					MELSEC	iQ-R series		
Item			A62DA		A62DA-S1							Re	0DA4		
Digital input		16-bit (Voltage Current	t signed bin e: -2000 to t: -1000 to	nary 2000, 1000)		10	6-bit signed (0 to 40	d binary 00)				16-bit signed binary (-32768 to 32767)			
	Voltage	-10 t (External load re	o 0 to 10V sistance value:	DC 500Ω to 1MΩ)	0 to 10VDC (External load resistance value: 500Ω to 1MΩ)					-10 to 1 0 to 5\	-10 to 10VDC (External load resistance value: $1k\Omega$ or more) 0 to 5VDC (External load resistance value: $500\Omega$ or more)				
Analog output	Current	4 t (External load re	o 20mA De	C e: 0Ω to 600Ω)	(Ex	ternal load	4 to 20m/ resistance	ADC value: 00	Ω to 600Ω)		(Exte	0 to 20mA DC (External load resistance value: 0Ω to 600Ω)			
		Digital	Analog	output	Output range	Dig	gital input		Analog o	utput	Analog output range		Digital value	Resolution	
		input	Voltage	Current	0.4- 401/		4000		10V			0 to 5V		156 3uV	
		2000	10V	-	0 to 10V		0		0V			01030	0 to 32000	100.0µ v	
I/O character	ristics	1000	5V	20mA	0 to 5V		4000		5V or 20	)mA	]	1 to 5V		125.0µV	
		0	0V	4mA	0 to 20mA		0		0V or 0	mA	Voltage	-10 to 10V	-32000 to	312.5uV	
		-1000	-5V	-12mA	1 to 5V		4000		5V or 20	mA		Lines renge			
		-2000	-10V	-	4 to 20mA		0		1V or 4	mA		setting (Voltage)	32000	312.5µV	
						1 ti	Voltag o 5V: 1mV	e (1/4000)	<u>,</u>			0 to 20mA	0 to 32000	625.0nA	
Maximum res	solution	Voltage: 5mV (1/2000) Current: 20μΑ (1/1000)			0 to 59. 1.25mV (1/4000) 0 to 10V: 2.5mV (1/4000) Current						Current	1t 4 to 20mA	0.0002000	500.0 nA	
						4 to 20mA: 4μA (1/4000) 0 to 20mA: 5μA (1/4000)						User range setting (current)	-32000 to 32000	350.9 nA	
		±1.0% (Voltage: ±0.1V Current: ±0.2mA)			Output range Temperature range	Dutput range 1 to 5V 0 to 5V 0 to 10V 4 to 20mA 0 to 20m/ Temperature range				0 to 20mA	Amb	ient temperature	e 25±5°C: ±0.1	1% or less	
Overall accur	racy				25°C (±0.5% or less)	±25mV	±25mV	±50mV	±0.1mA	±0.1mA	Ambi	ent temperature (Voltage: ±30m	0 to 55°C: ±0.3% or les V, Current: ±60µA)		
					(±1% or less)	±50mV	±50mV	±100mV	±0.2mA	±0.2mA					
Maximum co	nversion speed	15ms of (One channel is	r less/2 cha also the same l	annels ength of time.)	(One	15m e channel i	ns or less/2 s also the s	channels same leng	th of time.)			80µs	/channel		
Absolute	Voltage		±12V				0 to 12	V					-		
maximum output	Current		±28mA				0 to 28r	mA					-		
No. of analog	g output points	2 cha	annels/mod	dule		2	channels/	module				4 chanr	nels/module		
logistion	Between output terminal and power supply of programmable controller	Pł	notocouple	r			Photocou	ıpler				Phot	ocoupler		
method	Between channels	N	on-isolatio	ı			Non-isola	ation				Non-	isolation		
Between external power supply and analog output					-					Transformer					
No. of occup	No. of occupied points		32 points				32 poir	nts				16	points		
External inter	rface	20-poir	nt terminal	block		20-	point termi	nal block			18-point terminal block				
Current cons	umption		0.60A				0.604	4			0.16A				
External	Voltage	21.6	6 to 26.4VI	C			21.6 to 26.	4VDC				24VDC ·	+20%, -15%		
power supply	Current		0.35A				0.35A	A				0	.14A		

Note 2. To ground the FG terminal (terminal number TB18) on the R60DA4, use terminal number TB20 on the existing terminal block.  $\hat{\sim}$ 

	TB17	Empty
	TB18	Empty
Use when grounding	TB19	Empty
the FG terminal.	TB20	Empty (FG)

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.)

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.

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

• 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) $\rightarrow$ Terminal block (18 points)

(4)ERNI-AG	100DA	Iermina	al block (3	8 points) $\rightarrow$	lerminal blo
Model	MELSEC	A series model	No. of input/ output points	MELSEC iQ-R module mod	series del
ERNT-AQT68DA	A681 A681 A68D/	DAV DAI AI-S1	8 channels	R60DAV8 R60DAI8	50.0
Note 1.         A conversion series           MELSEC-A         TE           TE2         TE1           TE3         TE           TE4         TE5           TE4         TE           TE1         TE           TE1         TE           TE4         TE           TE10         TE11           TE12         TE13           TE14         TE           TE30         TE31           TE31         TE           TE32         TE31           TE34         TE32           TE31         TE           TE32         TE31           TE33         TE33           TE33         TE33           TE33         TE           TE34         TE35           TE         TE           TE33         TE           TE34         TE35           TE         TE           TE34         TE           TE         TE           TE         TE           TE         TE           TE         TE           TE         TE           TE         TE	adapter for rej           unter         Signal name           1         TEST           2         HOLD/CLEAR           3         TEST           4         HOLD/CLEAR           5         GCH1           V-H         VH           10         Empty           9         CH2           VH         Empty           9         CH2           VH         COM           11         Empty           9         CH2           VH         COM           11         Empty           9         CH2           VH         COM           16         Empty           17         CH4           V+/H         Empty           20         Empty           21         CH5           COM         V+/H           22         CH6           CH4         CH4           23         Empty           24         Empty           25         CH6         COM           26         CH6         COM           27         Empty           28         Empty		Conversion a	Bits         Virth           TB1         CH1         V/I/H           TB2         CH1         COM           TB3         CH2         V/I/H           TB4         COM         TB5           CH2         V/I/H         COM           TB5         CH3         V/I/H           TB6         COM         COM           TB7         CH4         COM           TB7         CH4         COM           TB9         CH5         V/I/H           TB10         CH6         V/I/H           TB11         COM         COM           TB12         CH4         COM           TB13         CH4         COM           TB14         COM         COM           TB15         CH4         COM           TB13         CH4         COM           TB14         24Q         COM           TB18         24G         State	MELSEC iQ-R series TB2 TB1 TB4 TB3 TB6 TB7 TB8 TB7 TB10 TB11 TB12 TB13 TB14 TB15 TB16 TB17 TB18

#### [Specification comparison chart]

	Model			MELSEC-A ser	ies			MELS	EC iQ-R series			
Specificat	ions	A68DAV						R60DAV8				
Digital input (-4000 to				16-bit signed binary 4000, -8000 to 8000, -12000 to 12000)				16-bit signed binary (-32768 to 32767)				
Analog ou	itput		(External lo	-10 to 0 to 10VI ad resistance val	DC ue: 2kΩ to 1MΩ)		-10 0 to	to 10VDC (External lo 5VDC (External load	bad resistance value: 1 d resistance value: 500	kΩ or more) Ω or more)		
			Dię	ion	Analog	Analog output range		Digital value	Resolution			
			1/4000	1/8000	1/12000	output value		0 to 5\/	0 to 32000	156 301		
			4000	8000	12000	10V		010 3 1		100.04 V		
I/O charae	cteristics	Digital	2000	4000	6000	5V		1 to 5\/		125 0uV		
		input value	0	0	0	0V		110 01		120.001		
			-2000	-4000	-6000	-5V	Voltage	-10V to 10V		312 5uV		
			-4000	-8000	-12000	-10V				0.12.001		
Maximum resolution				2.5mV (1/400) 1.25mV (1/800) 0.83mV (1/120)	0) 0) 00)		User range setting (Voltage)	-32000 to 32000	312.5µV			
Overall accuracy		±1.0% (±100mV)						Ambient tempera (Vol Ambient temperatu (Vol	ture 25±5°C: ±0.1% or tage: ±10mV) ure 0 to 55°C: ±0.3% o tage: ±30mV)	less r less		
Maximum	conversion speed	40ms or	less/8 channels	(One channel is a	also the same len		80	)µs/channel				
Absolute	maximum output			-12 to 12V		-						
No. of ana	alog output points			8 channels/mod	ule	8 channels/module						
Isolation	Between output terminal and power supply of programmable controller			Photocouple	r		Photocoupler					
method	Between channels			Non-isolation	1			Non-isolation				
Between external power supply and analog output					Т	ransformer						
No. of occupied points				32 points					16 points			
External interface 38-point terminal block				18-poi	nt terminal block							
Current consumption 0.15A						0.16A						
External	Voltage			21.6 to 26.4VE	C			24VD	C +20%, -15%			
power supply Power supply	Current			0.2A					0.16A			

Upgrade Tool

	Model			MELSEC-A seri	es			MELS	EC iQ-R series			
Specificat	ions			A68DAI, A68DAI	-S1	R60DAI8						
Digital inp	ut	16-bit signed binary (0 to 4000, 0 to 8000, 0 to 12000)					16-bit signed binary (-32768 to 32767)					
Analog ou	itput		(External lo	0 to 20mA DC ad resistance valu	; ue: 0Ω to 600Ω)			0 (External load res	to 20mA DC sistance value: 0Ω to 6	00Ω)		
		$\sim$	Dig	jital value resoluti	on	Analog	Analo	g output range	Digital value	Resolution		
			1/4000	1/8000	1/12000	output value		0 to 20mA		625.0nA		
I/O charao	cteristics	Digital	4000	8000	12000	20mA			0 to 32000			
		input value	2000	4000	6000	12mA	Current	4 to 20mA		500.0nA		
Maximum	resolution		0	0 5.0μΑ (1/4000 2.5μΑ (1/8000 1.6μΑ (1/12000	0 ) )))	4mA	Current	User range setting (Voltage)	-32000 to 32000	350.9nA		
Overall accuracy		±1.0% (±200µA)						Ambient tempera (Cu Ambient temperat (Cu	ture 25±5°C: ±0.1% or rrent: ±20μA) ure 0 to 55°C: ±0.3% o rrent: ±60μA)	less r less		
Maximum	conversion speed	40ms/8 channels (One channel is also the same length of time.)						80	)µs/channel			
Absolute I	maximum output			0 to 28mA				-				
No. of ana	alog output points	8 channels/module						8 channels/module				
	Between output terminal and power supply of programmable controller			Photocoupler				Photocoupler				
Isolation method	Between channels			Non-isolation				Ν	on-isolation			
Between external power supply and analog output					т	ransformer						
No. of occupied points				32 points					16 points			
External interface 38-point terminal block					18-poi	nt terminal block						
Current consumption 0.15A					0.16A							
External	Voltage	21.6 to 26.4VDC					24VDC +20%, -15%					
Power supply Power supply	Current			0.4A					0.26A			

Note 2. The R60DAV8 and the R60DAl8 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 R60DAV8.
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.

# Upgrade Tool

#### 2-slot type

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

Model	MELSEC-A series	No. of	MELSEC iQ-R series		
Woder	module model	channels	module model	No. of required modules	
	A616AD (Voltage input)	16 channels	R60ADV8	0 madulaa	
ERNI-TAROTOAD	A616AD (Current input)	to channels	R60ADI8	2 modules	

MELSEC-A series TB1 TB3 TB2 TB4 TB5 TB6 TB8 TB10 TB7 TB9 TB11 **TB12** TB13 TB14 TB16 TB15 TB17 **TB18** TB19 TB20 TB22 TB21 TB23 TB24 TB25 TB26 TB28 TB27 TB29 TB30 TB31 TB32 TB34 TB33 TB35 TB36 TB37 **TB38** 





	. ^	E .	1	~
		TB35	Empty	
when grounding		TB36	Empty (A.G.)	
AG terminal.	$\geq$	TB37	Empty (A.G.)	
		TB38	FG	

Use

the

- 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 2. for the R60ADV8 and the R60ADI8.
- For the R60ADV8 and the R60ADI8, voltage input and current input 3. 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 4. the specification comparison charts, refer to the user's manual for the module used.

#### [Specification comparison chart]

	Model		MEI	_SEC-A series		MELSEC iQ-R series				
Specificat	ions			A616AD			R60ADV8	R60AI	218	
Analog	Voltage		-10 to 0 to 10VD	C (Input resistanc	e: 1MΩ)	-10 to 10VDC	C (Input resistance: 1MΩ)	-		
input	Current		-20mA to 0 to 20r	nA (Input resistand	ce: 250Ω)		-	0 to 20mA DC (Input	resistance: 250Ω)	
Digital out	iput	16-bit (12-l	bit for the data portion) Configura	signed binary (-48 ble for each chann	8 to 4047, -2048 to 2047) iel	16-bit signed binary (-32768 to 32767)				
		Input	Analog input range	Maximum resolution	Digital output value	Anal	og input range	Digital output	Resolution	
			0 to 10	2.5mV (1/4000)			0 to 10V		312.5µV	
			0 to 5	1.25mV (1/4000)			0 to 5V	0 to 32000 -8000 to 32000	156.3µV	
		Voltage	1 to 5	1.0mA (1/4000)	0 to 4000 -2000 to 2000	Voltage	1 to 5V		125.0µV	
			-10 to 10	5.0mV (1/4000)		vollage	1 to 5V (Extended mode)		125.0µV	
I/O characteristics and maximum resolution			-5 to 5	2.5mV (1/4000)			-10 to 10V	-32000 to 32000	312.5µV	
			0 to 20	10µA (1/4000)	0 to 2000 -2000 to 0		User range setting	-32000 10 32000	47.7µV	
			0 to 20	5μA (1/4000)	0 to 4000		0 to 20mA	0 to 32000	625.0nA	
		Current (mA)	4 to 20	4μA (1/4000)	-2000 to 2000	Current	4 to 20mA	0 10 32000	500.0nA	
			-20 to 20	20μA (1/2000)	1000 to 3000 -1000 to 1000	Guilent	4 to 20mA (Extended mode)	-8000 to 32000	500.0nA	
			-20 to 20	10μA (1/4000)	0 to 4000 -2000 to 2000		User range setting	-32000 to 32000	190.7nA	
Overall ac	curacy	0 to 10V, -5V to 5V, 0 to 5V, 1 0mA to 20	-10 to 10V , -20mA to 20mA to 5V )mA, 4mA to 20mA	<pre> 1 ±0.3% (Digital value) 1 ±0.6% (Digital value) </pre>	±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		1	ms/channel			80µ	s/channel		
Absolute	Voltage			±15V			±15V	-		
maximum input	Current			±30mA			-	30m	A	
No. of ana	Io. of analog input points 16 channels/module						8 char	inels/module		
Isolation method	Between input terminal and power supply of programmable controller		Photocoupler				Pho	otocoupler		
	Between channels		N	on-isolation			Nor	n-isolation		
No. of occ	cupied points			32 points			10	6 points		
External in	nterrace		38-poi	nt terminal block			18-point	terminal block	٨	
Current co	Disumption			IA			0.23A	0.22	A	

Notes for programming

(2) 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.

<sup>(1)</sup> 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

<b>`</b>					(*******	
		MELSE	C A porios	No. of	MELSEC	iQ-R series
Model		modu	le model	channels	module model	No. of required modules
ERNT-1AR61	I6DA	A61 A6	16DAV 16DAI	16 channel	s R60DAV8 R60DAI8	- 2 modules
MELSEC-A series           TB2         TB1 TB4           TB5         TB5           TB6         TB7           TB1         TB1           TB1         TB1           TB1         TB1           TB1         TB1           TB14         TB15           TB16         TB17           TB18         TB17           TB18         TB17           TB18         TB17           TB22         TB23           TB22         TB23           TB23         TB23           TB30         TB31           TB36         TB37           Concected to terminal number TB36 and TB37         TB36 and TB34           TB36 and TB37         TB36 and TB37           TB36 and TB37 ta94/CC.         TTA+510 CORected to terminal number TB36 and TB36	Itemid numbel         S           TB1         TB2           TB3         C           TB4         TB5           TB4         TB5           TB5         TB7           TB7         C           TB10         C           TB11         C           TB13         C           TB14         C           TB15         C           TB10         C           TB21         C           TB22         C           TB23         C           TB24         C           TB25         C           TB23         C           TB33         C           TB33         C           TB34         C           TB35         TB37           TB38         C           TB38         C           TB38         C <td>Signal name           TEST           TEST           CH0           V+/I+           COM           V+/I+           COM<td></td><td>nversion ad</td><td>Initial unter         Signal name           TB1         V-r/I+           TB2         CH1         V-r/I+           TB3         CH2         V-r/I+           TB6         CH3         COM           TB5         CH4         V-r/I+           TB9         CH6         COM           TB1         CH7         V-r/I+           TB1         CH6         COM           TB1         CH7         V-r/I+           TB1         CH7         COM           TB13         CH7         COM           TB14         COM         COM           TB15         CH8         COM           TB16         CA9         V-r/I+           TB16         COM         TB17           TB17         CH4         COM           TB18         CH2         COM           TB2         CH1         COM           TB3         CH2         COM           TB4         CCM         COM           TB5         CH3         COM           TB1         CH4         COM           TB11         CH4         COM           TB12         CH4         COM<td>MELSEC IQ-R series Slot n TB2 TB3 TB6 TB7 TB1 TB1 TB12 TB13 TB14 TB13 TB14 TB13 TB14 TB15 TB18 TB14 TB15 TB18 TB17 MELSEC IQ-R series Slot n +11 TB2 TB3 TB6 TB7 TB18 TB114 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB18 TB18 TB18 TB18 TB18 TB18 TB18</td></td></td>	Signal name           TEST           TEST           CH0           V+/I+           COM           V+/I+           COM <td></td> <td>nversion ad</td> <td>Initial unter         Signal name           TB1         V-r/I+           TB2         CH1         V-r/I+           TB3         CH2         V-r/I+           TB6         CH3         COM           TB5         CH4         V-r/I+           TB9         CH6         COM           TB1         CH7         V-r/I+           TB1         CH6         COM           TB1         CH7         V-r/I+           TB1         CH7         COM           TB13         CH7         COM           TB14         COM         COM           TB15         CH8         COM           TB16         CA9         V-r/I+           TB16         COM         TB17           TB17         CH4         COM           TB18         CH2         COM           TB2         CH1         COM           TB3         CH2         COM           TB4         CCM         COM           TB5         CH3         COM           TB1         CH4         COM           TB11         CH4         COM           TB12         CH4         COM<td>MELSEC IQ-R series Slot n TB2 TB3 TB6 TB7 TB1 TB1 TB12 TB13 TB14 TB13 TB14 TB13 TB14 TB15 TB18 TB14 TB15 TB18 TB17 MELSEC IQ-R series Slot n +11 TB2 TB3 TB6 TB7 TB18 TB114 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB18 TB18 TB18 TB18 TB18 TB18 TB18</td></td>		nversion ad	Initial unter         Signal name           TB1         V-r/I+           TB2         CH1         V-r/I+           TB3         CH2         V-r/I+           TB6         CH3         COM           TB5         CH4         V-r/I+           TB9         CH6         COM           TB1         CH7         V-r/I+           TB1         CH6         COM           TB1         CH7         V-r/I+           TB1         CH7         COM           TB13         CH7         COM           TB14         COM         COM           TB15         CH8         COM           TB16         CA9         V-r/I+           TB16         COM         TB17           TB17         CH4         COM           TB18         CH2         COM           TB2         CH1         COM           TB3         CH2         COM           TB4         CCM         COM           TB5         CH3         COM           TB1         CH4         COM           TB11         CH4         COM           TB12         CH4         COM <td>MELSEC IQ-R series Slot n TB2 TB3 TB6 TB7 TB1 TB1 TB12 TB13 TB14 TB13 TB14 TB13 TB14 TB15 TB18 TB14 TB15 TB18 TB17 MELSEC IQ-R series Slot n +11 TB2 TB3 TB6 TB7 TB18 TB114 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB18 TB18 TB18 TB18 TB18 TB18 TB18</td>	MELSEC IQ-R series Slot n TB2 TB3 TB6 TB7 TB1 TB1 TB12 TB13 TB14 TB13 TB14 TB13 TB14 TB15 TB18 TB14 TB15 TB18 TB17 MELSEC IQ-R series Slot n +11 TB2 TB3 TB6 TB7 TB18 TB114 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB18 TB18 TB18 TB18 TB18 TB18 TB18

#### (2) ERNT-1AR616DA Terminal block (38 points) $\rightarrow$ Terminal block (18 points) ×2

Note 1.

Change the external power supply connected to terminal numbers TB36 and TB37 on the existing terminal block to 24VDC. 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 2. and the R60DAI8. ¥

ົ	Ĕ		~
	TB33	CHE	V+/I+
Note 1	TB34	СПГ	COM
	TB35	E	mpty
Change to 24V	TB36	+	15V
Note 3	TB37		0V
Natroquirod	TB38	-	15V
Not required			

- The -15V power supply that was connected to terminal number TB38 on the existing terminal block is not required.
   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 deviced an equipment and an equipment to be connected in the sectifications and an 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 5. used.

[Specific	cation comparis	on chart]									
	Model		MELSEC-A series			MELSEC iQ-R series					
Specificat	ions		A616DAV		R60DAV8						
Digital inp	out	16-bit	signed binary (-4096 to	4095)	16-bit signed binary (-32768 to 32767)						
Analog ou	utput	When the c -10 to 0 to 10V (Ex When the -5 to 0 to 5V (Exte	output voltage range set ternal load resistance v output voltage range se ernal load resistance va	tting is 10V alue: 2kΩ to 1MΩ) tting is 5V lue: 2kΩ to 1MΩ)		-10 to 10VDC (External load resistance value: $1k\Omega$ or more) 0 to 5VDC (External load resistance value: $500\Omega$ or more)					
		Digital input	Analog output		Ana	log output range	Digital value	Resolution			
		Digital input	When 5V is set	When 10V is set		0 to 51/		150 201/			
		4000	5V	10V		01050	0 to 22000	150.5µV			
I/O characteristics		2000	2.5V	5V		1 to 51/	0 10 32000	125.0.1/			
		0	0V	0V	Voltage	1 10 5 V		125.0µV			
		-2000	-2.5V	-5V	Voltage	-10 to 10\/		312 5u\/			
		-4000	-5V	-10V		-1010107	-32000 to 32000	512.5µV			
		Ma	aximum resolution: 1/40	00		User range setting (Voltage)		312.5µV			
		Output voltage range setting	10V	5V	Ambient temperature 25+5°C: +0.1% or less						
Overall ad	ccuracy	Ambient temperature (0 to 55°C)	±0.6% (±60mV)	±0.6% (±30mV)	(Voltage: ±10mV) Ambient temperature 0 to 55°C: ±0.3% or less (Voltage: ±30mV)						
		Ambient temperature (25°C)	±0.3% (±30mV)	±0.3% (±15mV)							
Maximum	conversion speed	(-10V→1	0.5ms I0V/10V→-10V conversi	ion time)	80µs/channel						
Absolute	maximum output		15V		-						
No. of ana	alog output points		16 channels/module			8 cł	nannels/module				
	Between output terminal and power supply of programmable controller		Photocoupler			F	Photocoupler				
Isolation	Between channels		Non-isolation			Non-isolation					
metrioa	Between external power supply and analog output		-			-	Transformer				
No. of occ	cupied points		32 points				16 points				
External interface 38-point terminal block			18-ро	int terminal block							
Current c	onsumption					0.16A					
External	Voltage 15VDC/ - 15VDC					24VI	DC +20%, -15%				
power supply Power supply	Current	15\	/DC: 0.2A / -15VDC: 0.1	17A			0.16A				

	Model	MELSEC	-A series		ME	LSEC iQ-R series			
Specificat	tions	A616	5DAI	R60DAI8					
Digital inp	out	16-bit signed bir	nary (0 to 4095)	16-bit signed binary (-32768 to 32767)					
Analog ou	utput	0 to 20mA DC (External load resistance value: $0\Omega$ to $600\Omega$ )			0 to 20mA DC (Externa	al load resistance value: 0Ω to	ο 600Ω)		
		Digital input	put Analog output		Analog output range Digital value Resol				
		4000	4000 20mA		0 to 20mA 0 to 22000 625.0r				
I/O chara	cteristics	2000	12mA	Current 4 to 20mA	0 10 32000	500.0nA			
		0 4mA			Lines report antipe (Current)	-32000 to	250.0m4		
		Maximum reso	olution: 1/4000		User range setting (Current)	32000	350.9NA		
Overall ad	ccuracy	±0. ±0.3% when the ambie	6% nt 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	0.5 (0mA→20mA, 20mA–	ms ₀0mA conversion time)			80µs/channel	ıµs/channel		
Absolute maximum output -						-			
No. of and	alog output points	16 channe	els/module		8 0	hannels/module			
Isolation	Between output terminal and power supply of programmable controller	Photoc	coupler	Photocoupler					
method	Between channels	Non-is	olation	Non-isolation					
	Between external power supply and analog output			Transformer					
No. of occ	lo. of occupied points 32 points		oints	16 points					
External i	xternal interface 38-point terminal block		minal block		18-p	oint terminal block			
Current c	Current consumption 0.3A		3A			0.16A			
External	Voltage	15VDC/	-15VDC		24\	/DC +20%, -15%			
power supply Power supply 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) $\rightarrow$ Connector (40P)

Model	MELSEC-A series module model	No. of channels	MELSEC iQ-R series module model		
ERNT-14R61D	AD61	2 channels	PD62P2		
ERNI-TAR61D	AD61-S1	2 charmens	RD02F2		



#### [Specification comparison chart]

Model		Model		MELSEC-A series		MELSEC iQ-R series			
Item			AD61	AD61-S1		RD62P2			
No.	of channe	ls	2 channels	2 chan	nels	2 channels			
Counting speed switch setting		ed switch setting	-	-		200kPPS (100k to 200kPPS)	100kPPS (10k to 100kPPS)	10kPPS (10kPPS or less)	
	Count input	Phases	1-phase input, 2-phase input	1-phase input, 2	2-phase input	2-phase	1-phase input (1x/2x), input (1x/2x/4x), CW/CC	CW input	
	signal	Signal level (φA, φB)	5/12/24VDC: 2 to 5mA	5/12/24VDC	: 2 to 5mA		5/12/24VDC: 2 to 5mA		
		Maximum counting speed	1-phase input: 50kPPS 2-phase input: 50kPPS	1-phase inpu 2-phase inpu	t: 10kPPS ut: 7kPPS	200kPPS	100kPPS	10kPPS	
		Counting range	24-bit binary (0 to 16777215)	24-bit b (0 to 167)	inary 77215)	(-2	32-bit binary 147483648 to 214748364	47)	
Performance specific:	Туре	UP/DOWN preset counter + Ring counter function	UP/DOWN preset counter	+ Ring counter function	UP/DOWN p	reset counter + Ring cou	inter function		
	Counter	Minimum count pulse width (Duty ratio: 50%)	20 µs 10 µş10 µş (1- or 2-phase input)	100 µs 50 µ <u>ş</u> 50 µ <u>ş</u> (1-phase input)	142 µs 1142 µs 1145 [114] (2-phase input)	Sus <u>2.5µs</u> <u>2.5µs</u> (Minimum phase difference during) 2-phase input: 1.25 µs)	10µs ↓5µs↓5µs↓ Minimum phase difference during 2-phase input: 25 µs)	100 µs ↓50 µs,50 µs (Minimum phase difference during 2-phase input: 25 µs	
ations	Cize	Comparison range	Binary format (binary) 24 bits	Binary forma 24 bi	Binary format (binary) 24 bits		32-bit signed binary		
per chan	comparison	Comparison result	Setting value < Count value Setting value = Count value Setting value > Count value	Setting value < Setting value = Setting value >	Count value Count value Count value	Setting value < Count value Setting value = Count value Setting value > Count value			
nel		Preset	12/24VDC: 3/6mA 5VDC: 5mA	12/24VDC 5VDC:	: 3/6mA 5mA	5/12/24VDC 7 to 10mA			
	External input	Count disable	12/24VDC: 3/6mA 5VDC: 5mA	12/24VDC 5VDC:	: 3/6mA 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 ( 12/24VD	Open collector) C 0.5A	Transistor output (Sink type), 2 points/channel 12/24VDC 0.5A/point 2A/common		nts/channel nmon	
No.	of occupie	ed points	32 points	32 poi	nts		16 points		
Cur	ent consu	mption	0.30A	0.30	A	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. 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.



Note for programming

- For the power supply of the coincidence output on AD61, use only the CH1 side (terminal 3. 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.

Shared by 1-phase input and 2-phase input						
200k	100k	10k				
200kPPS	100kPPS	10kPPS				
100kPPS	100kPPS	10kPPS				
-	10kPPS	10kPPS				
-	-	500PPS				
	Shared by 1- 200k 200kPPS 100kPPS - -	Shared by 1-phase input and 2           200k         100k           200kPPS         100kPPS           100kPPS         100kPPS           -         10kPPS				

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.

#### **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.)

Madal	Specification	Mountable conversion		
(*1)	MELSEC-A series compatible module	MELSEC iQ-R series compatible module	adapter support flange	
	A38B, A38B-UL, A38HB	R312B	ERNT-1AR12F	
ERNI-AQB38N	A38HBEU, A38B-E	R38B	ERNT-1AR8F	
ERNT-AQB35N		R38B	ERNT-1AR8F	
	A35B, A35B-0L, A55B-E	R35B	ERNT-1AR5F	
		R612B	ERNT-1AR12F	
ERNT-AQBOON	A00B, A00B-0E	R68B	ERNT-1AR8F	
ERNT-AQB58N	A58B, A58B-UL	R68B (*2)	ERNT-1AR8F	
		R68B	ERNT-1AR8F	
ERNI-AQB65N	A05B, A05B-OL	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" (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.





Model	А	В	С	MELSEC-A series base unit model	А	В	С
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



#### When using an extension base unit



#### 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.



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.

**MELSEC-A series / MELSEC iQ-R series** 

Upgrade Tool



Model	ERNT-ASLCXY81
Depth	203.9mm
Mounting diagram	MELSEC-A Upgrade Tool

\*: 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



प्रा) 27.4 Mounting bracket



Weight: 130g



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







Weight: 210g

Unit: mm



**ERNT-ASLCXY81** 







Unit: mm

Weight: 95g

### Upgrade Tool

#### Base Adapter



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



#### Conversion Adapter Support Flange



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



Unit: mm

ERNT-1AR12F         340.2         310.2         162.8         780           ERNT-1AR8F         227.4         197.4         106.4         545           EDNT 1ABEE         142.8         112.8         64.4         265	Model	А	В	С	Weight (g)	
ERNT-1AR8F 227.4 197.4 106.4 545	ERNT-1AR12F	340.2	310.2	162.8	780	
EDNT 4 A DEE 142.9 112.9 64.1 265	ERNT-1AR8F	227.4	197.4	106.4	545	
ERNT-TARSF 142.0 112.0 04.1 303	ERNT-1AR5F	142.8	112.8	64.1	365	

MELSEC-AnS series / MELSEC iQ-R series

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#### 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.)



- \* 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

   1) On GX Developer convert the PLC type for the target program to the MELSEC-O series and save (GPL file)
  - 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".

Upgrade

#### 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	MELSEC-AnS series	MELSEC iQ-R series		Conversion adapter						
1	module model	module model	Note	lote Shape (No. of points/No. of pins) No. of	Shape (No. of po		Shape (No. of points/No. of pins)		No. of input/	Page
Output	before replacement	after replacement		IVIOUEI	MELSEC-AnS series	MELSEC iQ-R series	output points			
Innut	A1SX10	BV10	*4							
input	A1SX10EU	RAIU	4	EDNT ACOTYVA				2.4		
Output	A1SY10		*4 4	ERNI-ASQIXT10				2-4		
Output	A1SY10EU	RTIURZ	1, 4							
	A1SX30		*2, 4							
	A1SX40		*3, 4							
	A1SX40-S1		*0		Terminal block (20 points)	Terminal block (18 points)		25		
1	A1SX40-S2	RX40C7	-3							
Input	A1SX80		*3, 4	ERN1-ASQ1X40			16 points	2-5		
	A1SX80-S1		*2							
	A1SX80-S2		3							
	A1SI61		*3, 4, 6							
	A1SY22	RY20S6	*1, 4	ERNT-ASQTY22				2-6		
	A1SY40		*4 4	EDNT ACOTVA				2.6		
Output	A1SY40P	RT40NT5P	1, 4	ERNT-ASQ1140				2-0		
	A1SY50	RY40NT5P	*1, 4	ERNT-ASQTY50				2-7		
	A1SY80	RY40PT5P	*1, 4	ERNT-ASQTY80				2-7		
Innut	A1SX81		*3, 5							
input	A1SX81-S2	KA41C4, KA41C0N5			D-Sub connector					
0	A1SY81	DV44DT4D	*5	ERNI-ASLCXY81	(37P)	Connector (40P)	3∠ points	∠-8		
Output	A1SY81EP	RT41PT1P								

\* 1: Since the number of points per common differs, check the common terminal connection of the module before replacement.

\* 2: \* 3: When a rated input voltage of 12VAC, 24VAC, or 12VDC is used, change the voltage to 24VDC.

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

\* 4: \* 5:

A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-Q series A conversion adapter for replacing the MELSEC-AnS series with the MELSEC-L series Set "Interrupt Settings" of "Module Parameter" in the sequence program.

\* 6:

#### **For Analog Modules**

#### <1-slot type>

Input	MELSEC-AnS series	MELSEC iQ-R series	Conversion adapter					
	module model	module model	Note	Model	Shape (No. of points/No. of pins)		No. of	Page
Output	before replacement	before replacement			MELSEC-AnS series	MELSEC iQ-R series	channels	
	A1S64AD	R60AD4	*8	ERNT-ASQT64AD	Terminal block (20 points)		4 channels	2-9
Input	A1S68AD (Voltage input)	R60ADV8	*7, 9	ERNT-ASQT68AD		Terminal block (18 points)	8 channels	2 10
	A1S68AD (Current input)	R60ADI8						2-10
	A1S62DA	R60DA4	*8, 9	ERNT-ASQT62DA			2 channels	2-11
Output	A1S68DAV	R60DAV8	*0				0	2 4 2
	A1S68DAI	R60DAI8	9	ERNI-ASQ168DA			o channels	2-12

\* 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	MELSEC-AnS	MELSEC iQ-R series			Conversion ad			
1	series module model	module model	Note	Note Model M	Shape (No. of points/No. of pins)		No. of	Page
Output	before replacement	before replacement			MELSEC-AnS series	MELSEC iQ-R series	channels	
Input	A1SD61	RD62P2	*10, 11	ERNT-ASLTD61	Tannin al bla als		1 channel	2-13
	A1SD62	RD62P2	*11		(20 points)	Connector (40P)	2 chonnolo	2.45
	A1SD62E	RD62P2E	^11	ERNI-ASLID62	(20 points)		2 channels	2-15

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 \* 10: 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

Upgrade Tool

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

Туре	MELSEC-AnS series base unit model before replacement	MELSEC iQ-R series base unit model after replacement	Note	Model	Remarks	Page
	A1S38B					
	A1S38HB	R38B	*1	ERNT-ASQB38N		
	A1S38HBEU					
	A1S35B	R35B	*1	ERNT-ASQB35N		
Main	A1S33B	N/A	-	-		
	A1S32B	N/A	-	-	To use the Q7BAT-SET, keep the CPU module	
	A1SJCPU		*1	ERNT-ASQB00JN	(before mounting the Q7BAT-SET) mounted to its base adapter when mounting the Q7BAT-SET to	2 47
	A1SJCPU-S3	R35B				2-17
	A1SJHCPU				the CPU module.	
	A1S68B	R68B	*1	ERNT-ASQB68N		
	A1S65B	R65B	*1	ERNT-ASQB65N		
Extension	A1S58B	R68B	*1, 2	ERNT-ASQB58N		
	A1S55B	N/A	-	-		
-	A1S52B	N/A	-	-		

A base adapter for replacing the MELSEC-AnS series with the MELSEC-Q series 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. \*1: \*2:

#### **Conversion Adapter**

#### **Specifications**

#### For Input/Output Modules

#### 1-slot type

#### (1) ERNT-ASQTXY10 Terminal block (20 points) $\rightarrow$ Terminal block (18 points)

Model	MELSEC-AnS series module model	No. of input/ output points	MELSEC iQ-R series module model
	A1SX10 A1SX10EU		RX10
ERNI-ASQIXY10	A1SY10	A1SY10 16 points	
	A1SY10EU	1	RTIURZ

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

#### $\textbf{A1SX10/A1SX10EU} \rightarrow \textbf{RX10}$



[Specification comparison chart]						
	Model	MELSEC-	AnS series	MELSEC iQ-R series		
Specificat	ions	A1SX10	A1SX10EU	RX10		
No. of inp	put points	16 points	16 points	16 points		
Rated inp	out 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 cu	ırrent	Max. 200mA, 1ms or less (132VAC)	Max. 200mA, 1ms or less (132VAC)	Max. 200mA, 1ms or less		
ON volta current	ge / ON	80VAC or more/ 5mA or more	80VAC or more/ 5mA or more	80VAC or more / 5mA or more (50Hz, 60Hz)		
OFF volta current	age / OFF	30VAC or less/ 1.4mA or less	30VAC or less/ 1.4mA or less	30VAC or less/ 1.7mA or less (50Hz, 60Hz)		
Input imp	edance	Approx. 18kΩ (60Hz) Approx. 21kΩ (50Hz)	Approx. 18kΩ (60Hz) Approx. 21kΩ (50Hz)	12.2kΩ (60Hz) 14.6kΩ (50Hz)		
Response	OFF→ON	20ms or less	20ms or less	15ms or less (100VAC 50Hz, 60Hz)		
time	ON→OFF	35ms or less	35ms or less	20ms or less (100VAC 50Hz, 60Hz)		
Internal p consump	oower otion	50mA (TYP. all points ON)	50mA (TYP. all points ON)	110mA (TYP. all points ON)		
Wiring m common	ethod for	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.

#### [Specification comparison chart]

Model		MELSEC-	MELSEC iQ-R series	
Specifica	ations	A1SY10	A1SY10 A1SY10EU	
No. of ou	Itput 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
Maximur voltage	n switching	264VAC 125VDC	132VAC 125VDC	264VAC 125VDC
Response	OFF→ON	10ms or less	10ms or less	10ms or less
time	ON→OFF	12ms or less	12ms or less	12ms or less
Surge su	ppressor	None	None	None
Fuse		None	None	None
Internal of consump	current otion	120mA (TYP. all points ON)	120mA (TYP. all points ON)	450mA (TYP. all points ON)
Wiring m common	ethod for	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.

 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.
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

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.

MELSEC-A series / N Upgrad

2-4

#### $\textbf{A1SY10/A1SY10EU} \rightarrow \textbf{RY10R2}$



\*Power supply



24VDC or 240VAC

#### (2) ERNT-ASQTX40 Terminal block (20 points) $\rightarrow$ Terminal block (18 points)

		-		
Model	MELSEC-AnS series module model	No. of input points	MELSEC iQ-R series module model	
	A1SX30			
	A1SX40		RX40C7	
	A1SX40-S1			
EDNT ACOTY40	A1SX40-S2	16 points		
EKNI-ASQ1X40	A1SX80	To points		
	A1SX80-S1			
	A1SX80-S2	1		
	A1SI61			

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



[Specification comparison chart]

	Model	-	-		MELSEC-A	nS series				MELSEC iQ-R series
Spec	ifications	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. c point	f input s	16 points	16 points	16 points	16 points	16 points	16 points	16 points	16 points	16 points
Rate volta	d input ge	12/24VDC 12/24VAC 50/60Hz	12/24VDC	24VDC	24VDC	12/24VDC	24VDC	24VDC	12/24VDC	24VDC
Rate curre	d input nt	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 v ON c	oltage/ urrent	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 OFF	voltage/ 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	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
time	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
Intern cons	nal power umption	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)
Wirin for co	g method	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
Exter interf	nal ace	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.

Upgrade Tool

				-	-	-
Mo	del	MELSEC-Ans module m	S series odel	No. of output points	t MEL	SEC iQ-R series nodule model
ERNT-A	SQTY22	A1SY2	2	16 points		RY20S6
ERNT-A3 Note 1. A cc series MELSEC-AnS series <u>TE2_TE1</u> <u>TE4_TE3</u> <u>TE6_TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE6</u> <u>TE</u>	SQTY22 inversion ada es	A1SY2 pter for replaci TB1 Y00 TB2 Y01 TB3 Y02 TB4 Y03 TB5 Y04 TB5 Y04 TB6 Y05 TB7 Y06 TB8 Y07 TB9 COM TB10 200AC TB11 Y08 TB12 Y09 TB12 Y00 TB12 Y	2 ng the M	16 points           ELSEC-AnS           Imid unit           TB1           TB2           TB3           TB4           TB5           TB6           TB7           TB8           TB9           TB1           TB1           TB1           TB10           TB11           TB12	Series w           Sparane           Y00           Y01           Y02           Y03           Y04           Y06           Y07           Y08           Y00           Y00           Y00           Y00	RY20S6 iith the MELSEC-C MELSEC iQ-R series TB2 TB1 TB4 TB3 TB4 TB5 TB6 TB7 TB9 TB7 TB1 TB5 TB6 TB7 TB1 TB5 TB1 TB13 TB12 TB13 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17 TB18 TB17
	The external power supply connected to terminal numbers TB10 and TB20 is not required.	TB13         YOA           TB13         YOA           TB14         YOB           TB15         YOC           TB16         YOD           TB17         YOE           TB18         YOF           TB10         COM           TB20         200VAC	Cor	TB13 TB14 TB15 TB16 TB16 TB17 TB17 TB18 nversion adapter	YOC YOD YOE YOF COM Empty	

#### (3) ERNT-ASQTY22 Terminal block (20 points) $\rightarrow$ Terminal block (18 points)

#### [Specification comparison chart] MELSEC-AnS series MELSEC iQ-R series Model Specifications A1SY22 **RY20S6** No. of output points 16 points 16 points Rated load voltage 100-240VAC 50/60Hz ±3Hz 100-240VAC 50/60Hz ±5Hz Maximum load 0.6A/point, 2.4A/common 0.6A/point, 4.8A/common current 24VAC 100mA 24VAC 100mA Minimum load 100VAC 10mA 100VAC 25mA voltage/current 240VAC 20mA 240VAC 25mA Maximum inrush current 20A 10ms or less, 8A 100ms or less 20A one cycle or less Leakage current at 1.5mA (120VAC 60Hz) 1.5mA or less (for 120V, 60Hz) OFF 3mA (240VAC 60Hz) 3mA or less (for 240V, 60Hz) 1.5VAC or less (0.1 to 0.6A) Maximum voltage 1.5VAC or less 1.8VAC or less (50 to 100mA) drop at ON (for a load current of 0.6A) 2VAC or less (10 to 50mA) 1ms + 0.5 cycle or less OFF→ON 1ms or less Response 1ms + 0.5 cycle or less time ON→OFF 1ms + 0.5 cycle or less (Rated load, resistive load) Surge suppressor CR absorber CR absorber None 5A (1 common/set) Fuse (Installing a fuse per external wiring point Not replaceable 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

 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.

[Specification comparison chart]

#### (4) ERNT-ASQTY40 Terminal block (20 points) $\rightarrow$ Terminal block (18 points)

Model	MELSEC-AnS series module model	No. of output points	MELSEC iQ-R series module model
EDNT ACOTVAD	A1SY40	1C nointe	
ERNI-ASQ1140	A1SY40P	1 to points	RT40NT5P

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



	Model	MELSEC-	MELSEC-AnS series	
Specifications		A1SY40 (Sink type)	A1SY40P (Sink type)	RY40NT5P (Sink type)
No. of ou	tput points	16 points	16 points	16 points
Rated loa	ad voltage	12/24VDC	12/24VDC	12/24VDC
Maximun current	n load	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 c	urrent 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
Bospopoo	OFF→ON	2ms or less	1ms or less	0.5ms or less
time	ON→OFF	2ms or less (Resistive load)	1ms or less (Rated load, resistive load)	1ms or less (Rated load, resistive load)
Surge su	ppressor	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 m common	ethod for	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)

			$points) \rightarrow remin$
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 ada series	apter for replacing the N	IELSEC-AnS s	eries with the MELSEC-Q
MELSEC-AnS series 182 181 184 183 184 185 1810 1811 1812 181 1812 181	Test         VO0           TB2         VO1           TB3         VO2           TB4         VO3           TB5         VO4           TB6         VO5           TB7         YO6           TB8         VO7           TB9         I2002A40C           TB10         COM           TB11         YO8           TB12         YO4           TB13         YO4           TB14         YO8           TB15         YOC           TB14         YO8           TB15         YOC           TB14         YO8           TB15         YOC	Januar andar           TB1           TB2           TB3           TB4           TB5           TB6           TB7           TB8           TB8           TB9           TB11           TB12           TB14           TB14           TB14           TB16	Signal name         MELSEC iQ-R           Y00         series           Y01         TB2         TB1           Y02         TB4         TB5           Y04         TB1         TB1           Y05         TB10         TB1           Y06         TB12         TB1           Y06         TB12         TB1           Y06         TB12         TB1           Y06         TB12         TB1           Y07         TB16         TB15           Y08         TB16         TB17           Y09         Y00         Y00           Y00         Y0F         Y0F

[Specification comparison chart]							
	Model	MELSEC-AnS series	MELSEC iQ-R series				
		A1SY50	RY40NT5P				
Spec	cifications	(Sink type)	(Sink type)				
No. of	output points	16 points	16 points				
Rated	load voltage	12/24VDC	12/24VDC				
Maxim	um 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				
D	OFF→ON	2ms or less	0.5ms or less				
Kesponse time	ON→OFF	2ms or less (Resistive load)	1ms or less (Rated load, resistive load)				
Surge	e 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)				
Wirir for c	ng method ommon	8 points/common	16 points/common				
Exter	nal 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 3. 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 4. specification comparison charts, refer to the user's manual for the module used.

#### (6) **ERNT-ASQTY80** Terminal block (20 points) $\rightarrow$ Terminal block (18 points)

Conversion adapte

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

MELSEC-AnS ser

		Terminal number	Signal name				Terminal number	Signal name	MELSEC iQ-R
L		TB1	Y00				TB1	Y00	series
L	┣───	TB2	Y01				TB2	Y01	TDO TB1
L	┣──	TB3	Y02				TB3	Y02	TB2 TB3
L	┣	TB4	Y03	I			TB4	Y03	TB6 TB5
L	┝──	TB5	Y04	I			TB5	Y04	TB8 TB9
L	i—	TB6	Y05	1			TB6	Y05	TB10 TB11
L	i—	TB7	Y06	1			TB7	Y06	TB12 TB13
L	i—	TB8	Y07	1			TB8	Y07	TB16 TB15
	_	TB9	COM	<b> </b>	ı ——		TB9	Y08	TB18
	-	TB10	0V	<b>—</b>			TB10	Y09	
L	$\vdash$	TB11	Y08		₽1		TB11	Y0A	
L	$\vdash$	TB12	Y09		$\vdash$		TB12	Y0B	
L	$\vdash$	TB13	Y0A	$\vdash$	┢─╵┌─		TB13	Y0C	
L	$\vdash$	TB14	Y0B	1	┢──╵┌╴		TB14	Y0D	
L	$\vdash$	TB15	Y0C				TB15	Y0E	
L	$\vdash$	TB16	Y0D	$\vdash$			TB16	Y0F	
L	$\vdash$	TB17	Y0E	$\vdash$			TB17	COM	
L	$\vdash$	TB18	Y0F	$\vdash$		┘┢╴	TB18	0V	
	-	TB19	COM	$\vdash$		-1			
				1 1					

Conversion adapter

TB20 0V

series	
TB2         TB           TB4         TB           TB4         TB           TB6         TB           TB10         TB           TB12         TB           TB10         TB           TB10         TB           TB112         TB           TB12         TB           TB10         TB           TB10	1 3 5 7 9 11 13 15 17
1 1 1 3 1 6 1	

[Specification comparison chart]									
Model	MELSEC-AnS series	MELSEC iQ-R series							
	A1SY80	RY40PT5P							
Specifications	(Source type)	(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 OFF→ON	2ms or less	0.5ms or less							
time 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 3. 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.

Upgrade

(7)ERNT-ASLCXY81 D-Sub connector (37P) $\rightarrow$ Connector (40P)									
Model	MELSEC-AnS series module model	No. of input/ output points	MELSEC iQ-R series module model	[Specific					
	A1SX81		RX41C4						
ERNT-ASLCXY81	A1SY81	32 points							
	A1SY81EP		RT4IPTIP	Specificati					

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

#### A1SX81/A1SX81-S2 $\rightarrow$ RX41C4



# B18 O A10 B19 O A148 B18 O A147 B18 O A147 B16 O A148 B17 O A141 B18 O A141 B14 O A141 B13 O A141 B14 O A141 B12 O A141 B12 O A141 B14 O A142 B14 O A142 B14 O A142 B15 O A141 B16 O A142 B10 O A142 B10 O A43 B14 O A43 B15 O A43 B16 O A43 B17 O A14 B18 O A32 B14 O A43 B15</t

series

series

	Model	N	IELSEC-	AnS series	MELSEC iQ-R series			
Specifications		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 p	oints	32 points	32 points	32 points		
Rated	input voltage	12VDC	24VDC	24VDC	24VDC	24VDC		
Rateo currer	l input nt	Approx. Approx. 3mA 7mA		Approx. 7mA	4mA TYP.	6.0mA TYP.		
ON voltage/ ON current		8VDC c 2mA o	or more/ r 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	OFF→ON	10ms (24V	or less /DC)	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		
time	ON→OFF	10ms or less (24VDC)		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		
Intern consu	al current	80mA (TYP. all points ON)		80mA (TYP. all points ON)	150mA (TYP. all points ON)	150mA (TYP. all points ON)		
Wiring for co	g method mmon	32 po com	oints/ mon	32 points/ common	32 points/ common	32 points/common		
Extern interfa	nal ace	37-pin conn	D-Sub ector	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.

3. 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

#### [Specification comparison chart]

	Model	MELSEC-	AnS series	MELSEC iQ-R series		
Specifi	cations	A1SY81 (Source type)	A1SY81EP (Source type)	RY41PT1P (Source type)		
No. of c	output points	32 points	32 points	32 points		
Rated le	oad 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.)		
Leakao at OFF	ge current	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		
Deenenee	OFF→ON	2ms or less	0.5ms or less	0.5ms or less		
time	ON→OFF	OFF 2ms or less 1.5ms of (Resistive load) (Resistive		1ms or less (Rated load, 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)		
Interna consur	Il current	500mA (TYP. all points ON)	500mA (TYP. all points ON)	190mA (TYP. all points ON)		
Wiring commo	method for	32 points/common	32 points/common	32 points/common		
Extern	al 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

6. 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



MELSEC-AnS series / MELSEC iQ-R series

Upgrade Tool

#### [Specification comparison chart]

#### **For Analog Modules**

#### 1-slot type

Upgrade Tool

#### (1) ERNT-ASQT64AD Terminal block (20 points) $\rightarrow$ Terminal block (18 points)



#### [Specification comparison chart]

	Model	-	MELSEC-	AnS series			MELSE	C iQ-R series		
Specificat	ions		A1S6	64AD		R	60AD4			
Analog	Voltage		-10 to 0 to 10VDC (Ir	put resistance: 1MΩ)		-10 to 10VDC (Input resistance: 1MΩ)				
input	Current		-20 to 0 to +20mA (In	put resistance: 2500)			0 to 20mA DC (Ir	put resistance: 250Ω)		
Digital out	tput		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 s (-3276	igned binary 8 to 32767)		
			Digital output value	(With a 5V/20mA gair	and 0V/0mA offset)	Ar	alog input range	Digital output	Resolution	
		Analog input	When 1/4000 is set	When 1/8000 is set	When 1/12000 is set		0 to 10V		312.5µV	
		10V	4000	8000	12000	1	0 to 5V	0 to 32000	156.3µV	
I/O charao	cteristics	5V or 20mA	2000	4000	6000	Valtaga	1 to 5V		125.0µV	
		0V or 0mA	0	0	0	voltage	1 to 5V (Extended mode)	-8000 to 32000	125.0µV	
		-5V or -12mA	-2000	-4000	-6000	1	-10 to 10V	00000 to 00000	312.5µV	
		-10V	-4000	-8000	-12000	1	User range setting -32000 to 32000		47.7µV	
			When 1/4000 is set	When 1/8000 is set	When 1/12000 is set		0 to 20mA	0 to 22000	625.0nA	
Maximum	resolution	Voltage input	2.5mV	1.25mV	0.83mV	Current	4 to 20mA	0 10 32000	500.0nA	
		Current input	10µA	5μΑ	3.33µA	4 to 20mA (Extended mode)		-8000 to 32000	500.0nA	
			Digital output value	value (With a 5V/20mA gain and 0V/0mA offset)			User range setting	-32000 to 32000	190.7nA	
Overall ac	ccuracy		When 1/4000 is set	When 1/8000 is set	When 1/12000 is set	A	Ambient temperature 25±5°C: ±0.1% (±32digit) or less			
		±1% or less	±40	±80	±120	A	mbient temperature 0 to	55°C: ±0.3% (±96digi	t) or less	
Maximum	conversion speed		20ms/c	channel			80µ:	s/channel		
Absolute	Voltage		±1	5V				±15V		
maximum input	Current		±30	mA			±	:30mA		
No. of ana	alog input channels		4 channe	ls/module			4 chan	nels/module		
Isolation method			Photo	coupler		Pho	tocoupler			
	Between channels		Non-is	olation			Non	-isolation		
No. of occ	cupied points		32 p	oints			16	6 points		
External in	nterface		20-point ter	minal block			18-point	terminal block		
Current co	onsumption		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

 (1) 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.
 (2) 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.

Model	MELSEC-AnS series module model	No. of channels	MELSEC iQ-R series module model
	A1S68AD (Voltage input)	9 obonnolo	R60ADV8
ERNI-ASQ166AD	A1S68AD (Current input)	o channels	R60ADI8

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

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



For the R60ADV8 and the R60ADI8, voltage input and current input cannot be used together in a single module.

3 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. 4



#### [Specification comparison chart]

	Mod	el MELSEC-	AnS series	MELSEC iQ-R series					
Specifications		A1S	68AD	R60ADV8		R60ADI8			
Analagianut	Voltage	-10 to 0 to 10VDC (II	nput resistance: 1MΩ)	-10 to 10\	/DC (Input resistance: 1MΩ)	-			
Analog Input	Current	0 to 20mA (Input	resistance: 250Ω)		-	0 to 20mA DC (Input	resistance: 250Ω)		
Digital output		16-bit sig	ned binary		16-bit signe	binary (-32768 to 32767)			
Analog input value Digital output value Analog input range Digital output				Resolution					
I/O characteristics		0 to 10V	0 to 4000		0 to 10V		312.5µV		
		-10 to 10V	-2000 to 2000		0 to 5V	0 to 32000	156.3µV		
		0 to 5V or 0 to 20mA	0 to 4000	Veltere	1 to 5V	Γ	125.0µV		
		1 to 5V or 4 to 20mA	0 to 4000	voltage	1 to 5V (Extended mode)	-8000 to 32000	125.0µV		
		Analog input value	Digital output value	1	-10 to 10V	22000 to 22000	312.5µV		
		0 to 10V	2.5mV		User range setting	-32000 10 32000	47.7µV		
		-10 to 10V	5mV		0 to 20mA	0 to 20mA			
Maximum resolution		0 to 5V	1.25mV		4 to 20mA	0 10 32000	500.0nA		
		1 to 5V	1.0mV	Current	4 to 20mA	8000 to 32000	500 0nA		
		0 to 20mA	5µV		(Extended mode)	-8000 10 32000	500.0HA		
		4 to 20mA	4µV		User range setting	-32000 to 32000	190.7nA		
Overall accura	асу	±1% or less (Digita	al output value ±40)		Ambient temperatu Ambient temperatur	re 25±5°C: ±0.1% (±32digit) c e 0 to 55°C: ±0.3% (±96digit)	or less or less		
Maximum con	version speed	0.5ms/ If average processing is spec conversion speed becomes	channel ified even for one channel, the 1ms/channel for all channels.			80µs/channel			
Absolute	Voltage	±3	5V		±15V	-			
maximum input	Current	±30	DmA		-	±30n	A		
No. of analog	input channels	8 channe	ls/module		8	channels/module			
Isolation method	Between input terminal and power supp of programmable controller	y Photo	coupler			Photocoupler			
	Between channe	s Non-is	solation			Non-isolation			
No. of occupie	ed points	32 p	oints			16 points			
External interf	face	20-point te	rminal block		18-	point terminal block			
Current consu	Imption	0.	4A		0.23A	0.22	A		

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. 6. 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 A1S68AD and the R60ADV8/R60ADI8, change the sequence program accordingly.

(2) 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 A1S64AD 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
ERN	T-ASQT62DA	A1S62DA	2 channels	R60DA4
Note 1.	A conversion ada	pter for replacing the M	ELSEC-AnS se	eries with the MELSEC-Q

Upgrade Tool

						_						
			Terminal number	Sig	nal name					Terminal number	Sig	nal name
MELSE	EC-AnS	5	TB1		TEST					TB1	С	V+
sei	ries		TB2	H	LD/CLR					TB2	Ĥ	COM
	TB1		TB3		TEST	1    –				TB3	1	+
TB2	TB3		TB4	Н	LD/CLR					TB4	E	Empty
TB4	100		TB5		Empty	1    ,				TB5	С	V+
TB6	185		TB6		Empty	1				TB6	н	COM
TB8	TB7		TB7		V+		Пг			TB7	2	+
7040	TB9		TB8	C	V-	1●				TB8	E	mpty
1810	TB11		TB9	1	+	$\square$				TB9	E	Empty
TB12	TB13		TB10	· ·	-					TB10	E	Empty
TB14	TDIC		TB11		Empty	1				TB11	E	Empty
TB16	1815		TB12		Empty	1				TB12	E	Empty
TB18	TB17		TB13		V+					TB13	E	Empty
TD00	TB19		TB14	С	V-	<b></b>	- <b>•</b>			TB14	E	Empty
1820			TB15	н 2	+	<b></b>	+			TB15	E	Empty
TB18	and TB1	9	TB16	2	I-	<b></b>				TB16		24V
are us	ed as	- 1	TB17		Empty			L		TB17		24G
terminals for an		n i	TB18	Em	pty (24V)			ן נ		TB18		FG
extern	al power		TB19	Em	pty (24G)							
	`·		TB20	Em	npty (FG)			_				
TB20	s used a	as				-		С	onvers	sion adap	ter	

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. Ground the FG terminal (terminal number TB18) on the R60DA4 by using an

3. empty terminal (terminal number TB20) on the existing terminal block

241/00	¥	$\approx$
	TB18	Empty (24V)
	TB19	Empty (24G)
	TB20	Empty (FG)
÷		

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 4. R6DDA4 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 5. the conversion adapter.)

#### [Specification comparison chart]

an FG terminal.

	Model				MELSE	C-Ans se	ries			MELSEC IQ-R series				
Item					A	1S62DA				R60DA4				
					16-bit :	signed bin	ary							
				Vo	oltage output			Current outpu	ut		16-bit	signed binary		
Digital input		1/4000	0	-4	1000 to 4000			0 to 4000		-	(-327	68 to 32767)		
		1/8000	0	-8	-8000 to 8000			0 to 8000						
		1/1200	00	-1200	00 to 0 to 12000			0 to 12000						
	Valtaga		10 to 0	10		lood resist		values 2kO to 1MC		-10 to 1	0VDC (Externa	l load resistance	value: 1kΩ or	
Analog output	vollage		-10 10 0		UVDC (External	ioau resisi	ance v		2)	0 to 5VDC (External load resistance value: $500\Omega$ or more				
	Current		0 to 2	20mA	DC (External lo	ad resistar	nce va	lue: 0Ω to 600Ω)		0 to 20mA DC (External load resistance value: 0Ω to 60/				
			Resolutio	on	1/4000	1/800	00	1/12000	Analog output value	Analog	output range	Digital value	Resolution	
					4000	8000	0	12000	10V		0 to 5V	0.4- 00000	156.3µV	
			Digital	ĺ	2000	4000	0	6000	5V	1 [	1 to 5V	0 to 32000	125.0µV	
I/O characteris	tice	Voltage	input val	ue	0	0		0	0V	1	40 to 40 /		040 5-04	
	1003			ľ	-2000	-400	0	-6000	-5V	Voltage	-10 to 10V		312.5µV	
					-4000	-800	0	-12000	-10V	] [	User range	-32000 to 32000		
			Distic		4000	8000	0	12000	20mA		setting		312.5µV	
		Current	input val		2000	4000	0	6000	12mA		(Voltage)			
					0	0		0	4mA		0 to 20mA		625.0nA	
					Voltage output			Current ou	itput	4 to	4 to 20mA	0 to 32000	500.0nA	
Maximum reso	lution	1/4000		2.5mV (10V) 5µA (20mA)			או)	Current User ra	User range					
Maximum rese	hation	1/8000			1.25mV (10V)		2.5µA (20mA)			setting	-32000 to	350.9nA		
		1/12	2000		0.83mV (10)	V)		1.7µA (20ı	mA)		(Current)	32000		
Overall accura	су				Voltage: ± Current: ±	±1.0% (±10 ±1.0% (±20	00mV) 00µA)			Am Amt	bient temperatu (Voltage: ±10 bient temperatur (Voltage: ±30	ure 25±5°C: ±0.19 mV, Current: ±20 re 0 to 55°C: ±0.3 mV, Current: ±60	% or less μA) % or less μA)	
Maximum con	version speed		25ms or les	ss/2 c	channels (One ch	hannel is a	also the	e same length of t	time.)		80	us/channel		
Absolute	Voltage					±12V						-		
output	Current					28mA				-				
No. of analog	output channels				2 char	nnels/modu	ule				4 chai	nnels/module		
Isolation	Between output terminal and power supply of programmable controller				Pho	otocoupler					Ph	otocoupler		
method	Between channels				Nor	n-isolation					No	n-isolation		
	Between external power supply and analog output					-					Tra	ansformer		
No. of occupie	d points				3	2 points					1	6 points		
External interfa	ace				20-point	t terminal b	olock				18-poin	t terminal block		
Current consu	mption					0.80A						0.16A		
External	Voltage					-					24VD0	C +20%, -15%		
power supply	Current					-						0.14A		

Note 6. Specifications in the constrained 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.

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.

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

#### (4) ERNT-ASQT68DA Terminal block (20 points) $\rightarrow$ Terminal block (18 points)

Model	MELSEC-AnS series module model	No. of channels	MELSEC iQ-R series module model
	A1S68DAV	0 shannala	R60DAV8
EKNI-ASQ160DA	A1S68DAI	o channels	R60DAI8

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

MEL	SEC-AnS	Terminal number	Signa	l name		Terminal number	Signa	l name	MELSEC iQ-R
-	series	TB1	HLC	/CLR		TB1	CU1	V+/I+	series
	TB1	TB2	HLC	/CLR		TB2	СПІ	COM	TB1
TB	2 TB3	TB3	0114	V+/I+	┝─┘│┌───────────────────────────────────	TB3	0110	V+/I+	TB2 TB2
TB	4 705	TB4		COM	f	TB4	CHZ	COM	TB4
TB	6 185	TB5	0.10	V+/I+	ī	TB5	0110	V+/I+	TB6 TB5
ТВ	B TB7	TB6	CHZ	COM		TB6	CH3	COM	TB9 TB7
TD	TB9	TB7		V+/I+	T	TB7	0114	V+/I+	TD40 TB9
1B	TB11	TB8	CH3	COM	ī	TB8	CH4	COM	TB10 TB11
TB	12 TB13	TB9	0.14	V+/I+	f	TB9	0.115	V+/I+	TB12 TB12
TB	14 1015	TB10	CH4	COM		TB10	CH5	COM	TB14
TB	16	TB11		V+/I+		TB11		V+/I+	TB16
TB	TB17	TB12	CH5	COM	T	TB12	CH6	COM	TB18 TB17
	TB19	TB13		V+/I+	l  t	TB13		V+/I+	
LIB.	20	TB14	CH6	COM	T	TB14	CH7	COM	
TB	19 and TB20	TB15		V+/I+	l  t	TB15		V+/I+	
are	used as	TB16	CH/	COM		TB16	CH8	COM	
i teri	minals for an i	TB17		V+/I+		TB17	24	1V	
Isur	only.	TB18	CH8	COM	╞━━━━┘┃┍━╹	TB18	24	G	
I		TB19	Empt	(24V)	· الــــــــــــــــــــــــــــــــــــ				
		TB20	FG	(24G)					

Conversion adapter

#### Constitution comparison short

For supplying power to the R60DAV8 or the R60DAl8 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. Note 2.



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.

	Model	MELSEC-	AnS series		М	ELSEC IO-R series			
Specifications	Widder	A1S6	8DAV	R60DAV/8					
Digital input		16-bit signed bina	16-bit signed binary (-2048 to 2047) 16-bit signed binary (-32768 to 32767)						
		-10 to 0 t	.0 10VDC		-10 to 10VDC (Extern	nal load resistance value: 1kg	2 or more)		
Analog output	t	(External load resistan	ce value: 2kΩ to 1MΩ)		0 to 5VDC (External	load resistance value: 500Ω	or more)		
		Digital input value	Analog output value	A	nalog output range	Digital value	Resolution		
		2000	10V	0 to 5V			156.3µV		
	- 4'	1000	5V	1		0 to 32000			
I/O characteri	SUCS	0	0V	Valtaga	1 to 5V		125.0µV		
		-1000	-5V	voltage			312 5uV		
		-2000	-10V			-32000 to 32000			
Maximum res	olution	5r	nV		User range setting (Voltage)		312.5µV		
Overall accura	acv	±1.0% (-	±100mV)		Ambient temperature 2	25±5°C: ±0.1% or less (Voltag	ge: ±10mV)		
Maximum aar	, version encod		, /0. shannala		Ambient temperature (	)±55°C: ±0.3% or less (Voltag	ge: ±30mV)		
viaximum cor	iversion speed	4ms or less	/8 channels			80µs/channel			
Absolute max	imum output					-			
to. of analog	output channels	8 channe	is/module		8	3 channels/module			
	Between output terminal	Bhoto	auplor			Photocouplor			
laciation	and power supply of	Photoc	Joupier			Filotocoupier			
solation	Programmable controller	Non in	olation			Non isolation			
nethou	Between external nower	INOI1-IS				NUT-ISUIdUUTI			
	supply and analog output					Transformer			
No. of occupie	ed points		oints			16 points			
External inter	face	20-point terminal block			18	-point terminal block			
Current consu	umption	0.6	i5Α			0.16A			
External	Voltage		-		24	4VDC +20%, -15%	0%, -15%		
power supply	Current	_				0.16A			
,									
	Model	MELSEC-	AnS series		M	ELSEC iQ-R series			
Specifications		A1S6	8DAI			R60DAI8			
Digital input		16-bit signed bi	nary (0 to 4096)		16-bit sign	ed binary (-32768 to 32767)			
Analog output	t	4 to 20mA DC (External lo 60/	oad resistance value: 0 to 0Ω)		0 to 20mA DC (Extern	nal load resistance value: 0Ω	to 600Ω)		
		Digital input value	Analog output value	A	nalog output range	Digital value	Resolution		
VO abaraatari	otion	4000	20mA		0 to 20mA	0 to 22000	625.0nA		
/U characien	SHCS		10mm A	1	4 to 20mm A	0.10.52000	500.0.4		
	01.00	2000	IZIIIA	Current 4 to 20mA		0 10 02000	500.0nA		
		2000 0	4mA	Current	User range setting	22000 to 22000	250.0nA		
Maximum res	olution	2000 0 4	4mA	Current	User range setting (Voltage)	-32000 to 32000	350.9nA		
Maximum res	olution	2000 0 4µ 	4mA JA ±200µA)	Current	User range setting (Voltage) Ambient temperature	-32000 to 32000 25±5°C±0.1% or less (Curre 0 to 55°C±0.3% or less (Curre	350.9nA 350.9nA nt: ±20μA) ent: ±60μA)		
Maximum res Overall accur Maximum cor	olution acy iversion speed	2000 0 41 ±1.0% (: 4ms or less	4mA 4mA ±200μA) /8 channels	Current	4 to 20MA User range setting (Voltage) Ambient temperature Ambient temperature C	-32000 to 32000 25±5°C±0.1% or less (Curre 0 to 55°C±0.3% or less (Curre 80µs/channel	350.0nA 350.9nA nt: ±20μA) ent: ±60μA)		
Maximum res Overall accur Maximum cor Absolute max	olution acy iversion speed imum output	2000 0 41 ±1.0% (: 4ms or less	4mA JA ±200µA) /8 channels	- Current	4 to 20mA User range setting (Voltage) Ambient temperature Ambient temperature C	-32000 to 32000 25±5°C±0.1% or less (Curre 0 to 55°C±0.3% or less (Curre 80µs/channel	350.9nA 350.9nA nt: ±20μA) ent: ±60μA)		
Maximum res Overall accur Maximum cor Absolute max No. of analog	olution acy iversion speed imum output output channels	2000 0 4 ±1.0% (: 4ms or less 8 channe	1210A 4mA 1A ±200µA) /8 channels 	- Current	4 to 2011A User range setting (Voltage) Ambient temperature Ambient temperature C	-32000 to 32000 25±5°C±0.1% or less (Curre 0 to 55°C±0.3% or less (Curre 80µs/channel 3 channels/module	500.0nA 350.9nA nt: ±20μA) ent: ±60μA)		
Maximum res Overall accur Maximum cor Absolute max No. of analog	olution acy iversion speed imum output output channels [Between output terminal	2000 0 41 ±1.0% (; 4ms or less 8 channe	1210A 4mA JA ±200µA) /8 channels - - s/module	Current	4 to 2011A User range setting (Voltage) Ambient temperature ( Ambient temperature (	-32000 to 32000 25±5°C±0.1% or less (Curre 0 to 55°C±0.3% or less (Curre 80µs/channel - 3 channels/module	500.0nA 350.9nA nt: ±20μA) ent: ±60μA)		
Maximum res Dverall accur: Maximum cor Absolute max No. of analog	olution acy iversion speed imum output output channels Between output terminal and power supply of programmable controller	2000 0 41 ±1.0% (; 4ms or less 8 channe Photoc	I2TIA 4mA JA ±200µA) /8 channels - Is/module :oupler	Current	4 to 2014A User range setting (Voltage) Ambient temperature Ambient temperature C	-32000 to 32000 25±5°C±0.1% or less (Curre 0 to 55°C±0.3% or less (Curre 80µs/channel - 3 channels/module	500.0nA 350.9nA nt: ±20μA) ent: ±60μA)		
Maximum res Overall accura Maximum cor Absolute max No. of analog	olution acy iversion speed imum output output channels Between output terminal and power supply of programmable controller Between channels	2000 0 4 ±1.0% (; 4ms or less 8 channe Photoc	1210A 4mA 1A ±200µA) /8 channels 	Current	4 to 2011A User range setting (Voltage) Ambient temperature Ambient temperature C	-32000 to 32000 25±5°C±0.1% or less (Curre 0 to 55°C±0.3% or less (Curre 80µs/channel - 3 channels/module Photocoupler Non-isolation	500.0nA 350.9nA nt: ±20μA) ent: ±60μA)		
Maximum res Dverall accura Maximum cor Absolute max No. of analog solation method	olution acy inum output output channels Between output terminal and power supply of programmable controller Between channels Between external	2000 0 4 ±1.0% (; 4ms or less 8 channe Photoc Non-is	1210A 4mA 1A ±200µA) /8 channels - - Is/module xoupler olation	Current	4 to 2011A User range setting (Voltage) Ambient temperature Ambient temperature C	-32000 to 32000 25±5°C±0.1% or less (Curre 0 to 55°C±0.3% or less (Curre 80µs/channel - - 8 channels/module Photocoupler Non-isolation	500.0nA 350.9nA nt: ±20μA) ent: ±60μA)		
Maximum res Dverall accur: Maximum cor Absolute max No. of analog solation nethod	olution acy inum output output channels between output terminal and power supply of programmable controller Between channels Between external between external	2000 0 41 ±1.0% (; 4ms or less 8 channe Photoc Non-is	1210A 4mA JA ±200µA) /8 channels - - s/module xoupler olation	Current	4 to 2011A User range setting (Voltage) Ambient temperature C	-32000 to 32000 25±5°C±0.1% or less (Curre 0 to 55°C±0.3% or less (Curre 80µs/channel - 3 channels/module Photocoupler Non-isolation Transformer	500.0nA 350.9nA nt: ±20μA) ent: ±60μA)		
Maximum res Overall accura Maximum cor Absolute max No. of analog solation method	olution acy inversion speed immm output output channels Between output terminal and power supply of programmable controller Between channels Between external power supply and analog output	2000 0 41 ±1.0% ( 4ms or less 8 channe Photoc Non-is	12/11A 4mA 4200µA) /8 channels - Is/module coupler olation	Current	4 to 2011A User range setting (Voltage) Ambient temperature Ambient temperature C	-32000 to 32000 25±5°C±0.1% or less (Curre 0 to 55°C±0.3% or less (Curre 80µs/channel - - 3 channels/module Photocoupler Non-isolation Transformer	500.0nA 350.9nA nt: ±20μA) ent: ±60μA)		
Maximum res Overall accur. Maximum cor Absolute max No. of analog solation method	olution acy iversion speed imum output output channels Between output terminal and power supply of programmable controller Between channels Between external power supply and analog output ed points	2000 0 4  ±1.0% (; 4ms or less 8 channe Photoc Non-is 32 p	12/11A 4mA 4mA 4200µA) /8 channels - Is/module xoupler olation	Current	4 to 2011A User range setting (Voltage) Ambient temperature Ambient temperature C	-32000 to 32000 25±5°C±0.1% or less (Curre 0 to 55°C±0.3% or less (Curre 80µs/channel - 3 channels/module Photocoupler Non-isolation Transformer 16 points	500.0nA 350.9nA nt: ±20μA) ent: ±60μA)		
Maximum res Overall accurr Maximum cor Absolute max No. of analog Isolation method No. of occupie External inter	olution acy iversion speed imum output output channels Between output terminal and power supply of programmable controller Between channels Between external power supply and analog output ed points face	2000 0 4  ±1.0% (; 4ms or less 8 channe Photoc Non-is 32 p 20-point ter	1210A 4mA 4200µA) /8 channels - is/module coupler olation pints minal block	Current	4 to 2011A User range setting (Voltage) Ambient temperature Ambient temperature C	-32000 to 32000 25±5°C±0.1% or less (Curre 0 to 55°C±0.3% or less (Curre 80µs/channel - 3 channels/module Photocoupler Non-isolation Transformer 16 points -point terminal block	500.0nA 350.9nA nt: ±20μA) ent: ±60μA)		
Maximum res Overall accurr Maximum cor Absolute max No. of analog Isolation method No. of occupie External inter Current consu	olution acy inum output output channels Between output terminal and power supply of programmable controller Between channels Between external power supply and analog output ed points face	2000 0 4  ±1.0% (; 4ms or less 8 channe Photoc Non-is 32 p 20-point ter 0.8	1210A 4mA 4mA 4200µA) /8 channels - /8 channels - /8 channels - /8 channels - /9 chann	Current	4 to 2011A User range setting (Voltage) Ambient temperature Ambient temperature C	-32000 to 32000 25±5°C±0.1% or less (Curre 0 to 55°C±0.3% or less (Curre 80µs/channel - 3 channels/module Photocoupler Non-isolation Transformer 16 points -point terminal block 0.16A	500.0nA 350.9nA nt: ±20μA) ent: ±60μA)		
Maximum res Overall accur Maximum cor Absolute max No. of analog solation method Vo. of occupii External inter Current consu	olution acy inum output output channels Between output terminal and power supply of programmable controller Between channels Between external power supply and analog output ed points face imption	2000 0 4  ±1.0% ( 4ms or less 8 channe Photoc Non-is 20-point ter 0.8	12/11A 4mA uA ±200µA) /8 channels - Is/module coupler olation - oints minal block 5A	Current	4 to 2011A User range setting (Voltage) Ambient temperature Ambient temperature 0 8	-32000 to 32000 25±5°C±0.1% or less (Curre 0 to 55°C±0.3% or less (Curre 80µs/channel - - 8 channels/module Photocoupler Non-isolation Transformer 16 points -point terminal block 0.16A 4VDC +20%, -15%	500.0nA 350.9nA nt: ±20μA) ent: ±60μA)		

 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)



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



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

#### [Specification comparison chart]

	Model	MELSEC-	AnS series	MELSEC iQ-R series				
Specificati	ions	A1S	SD61	RD62P2				
Counting	speed switch setting	Setting pin ba	ased switching	Intelligent fur	ction module switch setting ba	sed switching		
Counting	speed switch setting	50k side	10k side	200k (100k to 200kPPS)	100k (10k to 100kPPS)	10k (10kPPS or less)		
No. of cha	annels	1 cha	annel		2 channels			
Count	Phases	1-phase input,	, 2-phase input	1-phase input (1	x/2x), 2-phase input (1x/2x/4x)	, CW/CCW input		
input signal	Signal level (φA, φB)			5/12/24VDC 2 to 5mA				
	Counting 1-phase input	50kPPS	10kPPS	200kBBS (Note 5)	100kPPS (Note 5)	10kBBS (Note 5)		
	(max.) 2-phase input	50kPPS	7kPPS	200KFF3 (Note 3)	10000103	TOKE F 3 (NOLE 3)		
	Counting range		32-bit sign	ed binary (-2147483648 to 214	47483647)			
	Туре		UP/DOWI	N preset counter + Ring counter	er function			
Counter	Minimum count pulse width (Duty ratio: 50%)	20 µs 10 µs 10 µs (1- or 2-phase input)	100 µs 50 µş 50 µş (1-phase input) 142 µs 71µş 71µş (2-phase input)	Sµs <u>2-545</u> (Minimum phase difference during) 2-phase input: 1.25 µs)	10µs 15µs 15µs 15µs 15µs 15µs 10µs 15µs 10µs 1	100 µs 50 µs 50 µs (Minimum phase difference during 2-phase input: 25 µs		
Limit	Comparison range	32-bit sigr	ned binary		-			
switch output	Comparison result	Normally open contact operation: dog ON Normally closed contact operation: dog OF	address ≤ count value ≤ dog OFF address F address ≤ count value ≤ dog ON address		-			
Coincidence	Comparison range		-		32-bit signed binary			
output	Comparison result	· · · ·	-	Setting value < Count value	e, Setting value = Count value,	Setting value > Count value		
External	Preset	5/12/24VD	C 2 to 5mA		5/12/24VDC 7 to 10mA			
input	Function start							
External	Limit switch output	Transistor (Open 12/24VDC 0.1A/p	oint 0.8A/common		-			
output	Coincidence output		-	Transis 1	tor (Sink type) output, 2 points/ 2/24VDC 0.5A/point 2A/commo	channel on		
No. of occ	cupied I/O points	32 p	oints		16 points			
Connectio	on method	20-point ter	rminal block		40-pin connector			
Internal cu (5VDC)	urrent consumption	0.3	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.

Counting speed switch setting	Shared by 1-	phase input and 2	-phase input			
Rise/Fall time	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	↓ ↓	<b>↓</b>	

areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing. 6. Specifications in the

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.

Notes for programming
(1) 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.
(2) For the limit switch output function of the A1SD61, the coincidence output function of the RD62P2 is used instead. Change the sequence program accordingly.
(3) For the RD62P2, use the I/O signals (X, Y) and buffer memory address on CH1. Operation is not possible on CH2.
(4) 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) $\rightarrow$ Connector (40P)

Model	MELSEC-AnS series module model	No. of channels	MELSEC iQ-R series module model
	A1SD62	2 shannala	RD62P2
ERNI-ASLID62	A1SD62E	2 channels	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 PEE, 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.

Upgrade Tool

<sup>3.</sup> After setting the voltage switch setting pins, connect the external wiring.

#### [Specification comparison chart]

	Model	MELSEC-	AnS series		MELSEC iQ-R series			
Specifications		A1S	D62		RD62P2			
Counting speed	switch setting	Setting pin ba	sed switching	Intelligent fun	Intelligent function module switch setting based switching			
No. of channels		100k side	10k side	200k (100k to 200kPPS) 2 channels	100k (10k to 100kPPS)	10k (10kPPS or less)		
Count input	Phases	1-phase input.	2-phase input	1-phase input (1)	x/2x), 2-phase input (1x/2x/4x)	CW/CCW input		
signal	Signal level ( $\phi A, \phi B$ )		P P	5/12/24VDC 2 to 5mA				
	Counting speed 1-phase input	100kPPS	10kPPS	200kDDC (Nate 4)	100kDDC (Nata 1)	10kDDC (Nata 4)		
	(max.) 2-phase input	100kPPS	7kPPS	200kPPS (Note 4)	TUUKPPS (Note 4)	TUKPPS (Note 4)		
	Counting range	24-bit binary (0	) to 16777215)	32-bit signed binary (-2147483648 to 2147483647)				
	Туре		UP/DOWN	N preset counter + Ring counter function				
Counter	Minimum count pulse width (Duty ratio: 50%)	$10 \ \mu s$ $5 \ \mu s$ $5 \ \mu s$ $(1- \text{ or } 2-\text{phase input})$	(1-phase input)	Sµs <u>2-5µs</u> <u>2-5µs</u> (Minimum phase difference during) 2-phase input: 1.25 µs)	10µs 10µs 15µs 5µs 15µs 10µs 1	100 µs 50 µş 50 µş (Minimum phase difference during 2-phase input 25 µs		
Coincidence	Comparison range	24-bit	binary		32-bit signed binary			
output	Comparison result		Setting value < Count value	, Setting value = Count value,	Setting value > Count value			
External input	Preset Function start	5/12/24VD	C 2 to 5mA		5/12/24VDC 7 to 10mA			
External output	Coincidence output		Transist 12	or (Sink type) output, 2 points 2/24VDC 0.5A/point 2A/comm	/channel on			
No. of occupied	I/O points	32 p	oints	16 points				
Connection me	thod	20-point ter	minal block					
Internal current	consumption (5VDC)	0.	1A		0.11A			
	Model	MELSEC-	AnS series		MELSEC iQ-R series			
Specifications		A1SI	062F		RD62P2F			
		Setting nin ba	sed switching	Intelligent fun	ction module switch setting ba	sed switching		
Counting speed	d switch setting	100k side		200k (100k to 200kPPS)	k (100k to 200kPPS) 100k (10k to 100kPPS) 10k (10kPPS or less)			
No. of channels		Took blue	Tok olde	2 chappels				
NO. OF CHAINER	Phases	1 phase input	2 phase input	1 phase input (1)	x/2x) 2 phase input $(1x/2x/4x)$			
Count	Cignel Javel	i-phase input,		1-phase input (1)	(1,2,2,), 2-phase input (1,2,2,4,4,			
Input signal	(φA, φB)			5/12/24VDC 2 to 5mA				
	Maximum 1-phase input	100kPPS	10kPPS	200kPPS (Note 4)	100kPPS (Note 4)	10kPPS (Note 4)		
	counting speed 2-phase input	100kPPS 7kPPS						
	Counting range	24-bit binary (0	) to 16777215)	32-bit signed binary (-2147483648 to 2147483647)				
	Туре		UP/DOWN	V preset counter + Ring counter	er function			
Counter	Minimum count pulse width (Duty ratio: 50%)	10 µs ↓5 µs↓5 µs↓ (1- or 2-phase input)	100 µs 100 µs 150 µş50 µş (1-phase input) 142 µs ↓ 142 µs ↓ 142 µs ↓ (2-phase input)	5µs <u>2-5µs</u> <u>2-5µs</u> (Minimum phase difference during) 2-phase input 1.25 µs)	10µs 10µs 15µs 5µs 15µs 5µs (Minimum phase difference during) 2-phase input: 25 µs)	100 µs 50 µş 50 µş (Minimum phase difference during 2-phase input: 25 µs		
Coincidence	Comparison range	24-bit	binary		32-bit signed binary			
output	Comparison result		Setting value < Count value	, Setting value = Count value,	Setting value > Count value			
External input	Preset	5/12/24VD	C 2 to 5mA		5/12/24VDC 7 to 10mA			
External output	Coincidence output		Transistor 12	r (Source type) output, 2 point 2/24VDC 0.5A/point 2A/comm	s/channel on			
No. of occupied	I/O points	32 p	oints		16 points			
Connection me	thod	20-noint ter	minal block		40-pin connector			
Internal ourrent	consumption (5\/DC)		14		0.204			
Internal current consumption (SVDC) 0.1A 0.20A								

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. Note 4.

Counting speed switch setting	Shared by 1-	-phase input and 2	-phase input		
Rise/ Fall time	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		1
t = 500µs	-	-	500PPS	<b>↓</b>	

Specifications in the \_\_\_\_\_ areas differ between the MELSEC-AnS series and the MELSEC iQ-R series and are restricted when replacing. 5. 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.

• Notes for programming
(1) 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. (2) 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.
 (3) 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.
 (4) 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.

#### **Base Adapter**

#### Specifications

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

Madal	Specifications					
(*1)	(*1) MELSEC-AnS series compatible module		Remarks			
ERNT-ASQB38N	A1S38B/A1S38HB/A1S38HBEU	R38B				
ERNT-ASQB35N	A1S35B	R35B				
ERNT-ASQB00JN	A1SJCPU/A1SJCPU-S3/A1SJHCPU	R35B	To use the Q/BAT-SET, keep the CPU module (before mounting the Q7BAT SET) mounted to its base adapter			
ERNT-ASQB68N	A1S68B	R68B	when mounting the Q7BAT-SET in the CPU module			
ERNT-ASQB65N	A1S65B	R65B				
ERNT-ASQB58N	A1S58B	R68B (*2)				

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

\* 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

#### Replacement using an ERNT-ASQB N base adapter

- Since the dimensions of the base adapter mounting holes (four points) are the same as those of the mounting holes on the MELSEC-AnS 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-AnS series and the MELSEC iQ-R series. After replacement, adjust the lengths of the cables.



Model	А	В	MELSEC-AnS series base unit model	С	D
ERNT-ASQB38N	430	410	A1S38B/A1S38HB/A1S38HBEU	430	410
ERNT-ASQB35N	325	305	A1S35B	325	305
ERNT-ASQB00JN	330	310	A1SJCPU		310
			A1SJCPU-S3	330	
			A1SJHCPU		
ERNT-ASQB68N	420	400	A1S68B	420	400
ERNT-ASQB65N	315	295	A1S65B	315	295
ERNT-ASQB58N	365	345	A1S58B	365	345

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#### **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.



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

(4) If the wiring space is taken into account, the number of

replacement modules is as follows.

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



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.

#### 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-A series / MELSEC Upgrade Tool

\*: 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

### Upgrade Tool

#### 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.



\*: 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

**MELSEC-AnS series / MELSEC iQ-R series** 

Upgrade Tool

#### 

#### 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**



Weight: 75g

Unit: mm



**ERNT-ASQT68AD** 





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#### ERNT-ASLCXY81



Weight: 95g

Weight (g)

80

85

Model ERNT-ASLTD61

ERNT-ASLTD62

Unit: mm

Unit: mm



ERNT-ASLTD61 ERNT-ASLTD62



# MELSEC-A

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

# Upgrade Tool

#### **Base Adapter**



#### Product List

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

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

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

Product name		Model
		ERNT-ASQTXY10
	1-slot type	ERNT-ASLCXY81
		ERNT-ASLTD61
		ERNT-ASLTD62
		ERNT-ASQT62DA
Conversion		ERNT-ASQT64AD
Conversion		ERNT-ASQT68AD
adapter		ERNT-ASQT68DA
		ERNT-ASQTX40
		ERNT-ASQTY22
		ERNT-ASQTY40
		ERNT-ASQTY50
		ERNT-ASQTY80
		ERNT-ASQB00JN
		ERNT-ASQB35N
Deep adaptor		ERNT-ASQB38N
base auapter		ERNT-ASQB58N
		ERNT-ASQB65N
		ERNT-ASQB68N

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