

Analog I/O

Analog Input Modules

Model Number	R60AD4		R60ADV8	
Stocked Item	S		S	
Certification	UL • cUL • CE			
Number of Analog Input Points	4 points (4 channels)		8 points (8 channels)	
Analog Input Voltage	-10 to 10 VDC (input resistance 1MΩ)			
Analog Input Current	0 to 20mADC (input resistance 250Ω)		-	
Digital Output Value	16-bit signed binary value (-32768 to 32767)			
I/O Characteristics, Resolution (*1)	Analog Input Range		Digital Output Value	
	Voltage	0 to 10V	0 to 32000	312.5μV
		0 to 5V		156.3μV
		1 to 5V		125.0μV
		1 to 5V (extended mode)	-8000 to 32000	125.0μV
		-10 to 10V	-32000 to 32000	312.5μV
		User range setting		47.7μV
	Current (R60AD4 only)	0 to 20mA	0 to 32000	625.0nA
		4 to 20mA		500.0nA
		4 to 20mA (extended mode)	-8000 to 32000	500.0nA
User range setting		-32000 to 32000	190.7nA	
Accuracy (Accuracy for the Maximum Digital Output Value) (*2)	Ambient temperature 25 ±5°: within ±0.1% (±32 digits) Ambient temperature 0 to 55°: within ±0.3% (±96 digits)			
Conversion Speed	80μs/CH			
Absolute Maximum Input	Voltage: ±15V, Current: 30mA (*3)		Voltage: ±15V (*3)	
Number of Offset/Gain Settings (*4)	50000 times maximum			
Isolation Method	Between I/O terminals and programmable controller power supply: Photocoupler; Between input channels: Non-isolation			
Withstand Voltage	Between I/O terminals and programmable controller power supply: 500 VAC rms for 1 minute			
Insulation Resistance	Between I/O terminals and programmable controller power supply: 10MΩ or higher, at 500 VDC			
Number of Occupied I/O Points	16 points (I/O assignment: Intelligent 16 points)			
External Connection System	18-point terminal block			
Applicable Wire Size	0.3 to 0.75 ² (22 to 18 AWG)			
Applicable Solderless Terminal	R1.25-3 (solderless terminal with an insulation sleeve cannot be used)			
Internal Current Consumption (5 VDC)	0.22A			
External Dimensions (H x W x D) mm	106 x 27.8 x 131 (Base unit mounting side: 98mm)			
Weight (kg)	0.12			

Notes:

- For details on the I/O conversion characteristics, see User's Manual.
- Except for the conditions under noise influence.
- These voltage and current values are instantaneous values at which no breakdown occurs in the internal resistance of the module.
- A count more than 50000 times causes Number of writes to offset/gain settings reach limit error (error code: 1080H).

Model Number	R60AD18			
Stocked Item	S			
Certification	UL • cUL • CE			
Number of Analog Input Points	8 points (8 channels)			
Analog Input Voltage	-			
Analog Input Current	0 to 20mADC (input resistance 250Ω)			
Digital Output Value	16-bit signed binary value (-32768 to 32767)			
I/O Characteristics, Resolution (*1)	Analog Input Range		Digital Output Value	
	Current	0 to 20mA	0 to 32000	625.0nA
		4 to 20mA		500.0nA
		4 to 20mA (extended mode)	-8000 to 32000	500.0nA
		User range setting	-32000 to 32000	190.7nA
Accuracy (Accuracy for the Maximum Digital Output Value) (*2)	Ambient temperature 25 ±5°: within ±0.1% (±32 digits) Ambient temperature 0 to 55°: within ±0.3% (±96 digits)			
Conversion Speed	80μs/CH			
Absolute Maximum Input	Current: 30mA (*3)			
Number of Offset/Gain Settings (*4)	50000 times maximum			
Isolation Method	Between I/O terminals and programmable controller power supply: Photocoupler; Between input channels: Non-isolation			
Withstand Voltage	Between I/O terminals and programmable controller power supply: 500 VAC rms for 1 minute			
Insulation Resistance	Between I/O terminals and programmable controller power supply: 10MΩ or higher, at 500 VDC			
Number of Occupied I/O Points	16 points (I/O assignment: Intelligent 16 points)			
External Connection System	18-point terminal block			
Applicable Wire Size	0.3 to 0.75mm ² (22 to 18 AWG)			
Applicable Solderless Terminal	R1.25-3 (solderless terminal with an insulation sleeve cannot be used)			
Internal Current Consumption (5 VDC)	0.22A			
External Dimensions (H x W x D) mm	106 x 27.8 x 131 (Base unit mounting side: 98mm)			
Weight (kg)	0.12			

Notes:

- For details on the I/O conversion characteristics, see User's Manual.
- Except for the conditions under noise influence.
- These voltage and current values are instantaneous values at which no breakdown occurs in the internal resistance of the module.
- A count more than 50000 times causes number of writes to offset/gain settings reach limit error (error code: 1080H).

Isolated Analog Input Modules

Model Number	R60AD8-G	R60AD16-G		
Stocked Item	S	S		
Certification	UL • cUL • CE			
Number of Analog Input Channels	8 channels	16 channels		
Analog Input Voltage	-10 to 10 VDC (input resistance 1MΩ)			
Analog Input Current	0 to 20mA (input resistance 250Ω)			
Digital Output Value	16-bit signed binary value (-32768 to 32767)			
I/O Conversion Characteristics, Resolution	Analog Input Range	Digital Output Value	Resolution	
	Voltage	0 to 10V	0 to 32000	312.5μV
		0 to 5V		156.3μV
		1 to 5V		125.0μV
		1 to 5V (extended mode)	-8000 to 32767 (-8000 to 36000)	125.0μV
		-10 to 10V	-32000 to 32000	312.5μV
	User range setting	29.2μV		
	User Range Setting	0 to 20mA	0 to 32000	625.0nA
		4 to 20mA		500.0nA
4 to 20mA (extended mode)		-8000 to 32767 (-8000 to 36000)	500.0nA	
User range setting		-32000 to 32000	115.5nA	
Accuracy (Accuracy For the Maximum Digital Output Value)	Reference accuracy: Within ±0.1% (±32 digits) Temperature coefficient: ±35ppm/°C (0.0035%/°C)			
Common Mode Characteristics	Common mode voltage between input and common ground (input voltage 0V): 500VAC Common mode voltage rejection ratio (VCM < 500V): 60Hz 107dB, 50Hz 106dB			
Conversion Speed	10ms/CH			
Response Time	20ms			
Absolute Maximum Input	Voltage: ±15V, Current: 30mA			
Number of Offset/Gain Settings	50000 times maximum			
Isolation Method	Between I/O terminals and programmable controller power supply: Transformer Between analog input channels: Transformer			
Withstand Voltage	Between I/O terminals and programmable controller power supply: 500VACrms for 1 minute; Between analog input channels: 1000VACrms for 1 minute			
Insulation Resistance	Between I/O terminals and programmable controller power supply: 10MΩ or higher, at 500 VDC Between analog input channels: 10MΩ or higher, at 500 VDC			
Number of Occupied I/O Points	16 points, 1 slot (I/O assignment: Intelligent 16 points)	32 points, 2 slots (I/O assignment: Empty 16 points + Intelligent 16 points)		
External Interface	40-pin connector			
Applicable Wire Size	A6CON1 and A6CON4	0.088 to 0.3 ² (28 to 22 AWG) (stranded wire)		
	A6CON2	0.088 to 0.24 ² (28 to 24 AWG) (stranded wire)		
Connector For External Devices	A6CON1, A6CON2, A6CON4 (sold separately)			
Internal Current Consumption (5 VDC)	R60AD8-G: 0.33A; R60AD16-G: 0.52A			
External Dimensions (H x W x D) mm	106 x 27.8 x 110	106 x 56 x 110 (Base unit mounting side: 98mm)		

SIL2 Analog Control Output Module

Model Number	RY40PT5B-AS		
Stocked Item	S		
Certification	UL • CE		
Number of Output Points	16		
Rated Load Voltage	24VDC (Allowable voltage range: 20.4 to 28.8VDC)		
Maximum Load Current	0.5A/point, 5A/common		
Maximum Inrush Current	Current is to be limited by the overload protection function		
Leakage Current at OFF	0.3mA or lower		
Maximum Voltage Drop at ON	1.0VDC (TYP.) 0.5A		
Output Response Time	OFF-ON	0.5ms or less	
	ON-OFF	1.5ms or less	
Control Cycle Time	2ms		
Surge Suppressor	Zener diode		
Fuse	None		
External Power Supply (*1)	Voltage	24VDC (Ripple ratio: Within 5%) (Allowable voltage range: 20.4 to 28.8VDC)	
	Current	87mA (at 24VDC)	
Withstand Voltage	510VAC rms for one minute		
Isolation Resistance	10MΩ or more with isolation resistance tester		
Noise Immunity	Simulator noise 500Vp-p, noise width 1μs, noise frequency 25 to 60Hz (noise simulator condition)		
Protection Degree	IP2X		
Wiring Method for Common	16 points/common (common terminal: TB18)		
Number of Occupied I/O Points	32 points (I/O assignment: Output 32 points)		
Protection Function	Overload Protection	Limited current when detecting overcurrent: 1.0A or higher/point; Activated to each point.	
	Overheat Protection	Activated to each point.	
External Interface	18-point screw terminal block (M3x6 screw)		
Internal Current Consumption (5VDC)	190mA (TYP. all points ON)		
Weight (kg)	0.24		

Note:

1. For the external power supply, use a product that meets the following conditions: • The overvoltage protection function is available. • The output voltage does not exceed 35VDC in single fault state.

MELSEC iQ-R HART-Enabled Analog-Digital Converter Module

Model Number		R60ADI8-HA	
Stocked Item		S	
Certification		UL • CE	
Number of Analog Input Channels		8 Channels	
Analog Input Current		0 to 20mADC (input resistance: 250Ω)	
Power Supply Part for External Devices	Maximum Supply Current	DC24mA	
	Short-Circuit Protection	Provided (limiting current: 25 to 40mA)	
Digital Output		16-bit signed binary value (-32768 to 32767)	
I/O Characteristics, Resolution (*1)	Analog Current Input Range	Digital Output value	Resolution
	0 to 20mA	0 to 32000	625.0nA
	4 to 20mA		500.0nA
	4 to 20mA (extended mode)	-8000 to 32000	500.0nA
Accuracy (Accuracy of the Maximum Digital Output Value) (*2)	Ambient Temperature 25 ±5°C	Within ±0.1% (±32 digits)	
	Ambient Temperature 0 to 55°C	Within ±0.3% (±96 digits)	
Response Time (*3)		400ms	
Sampling Cycle		80ms/8CH	
Absolute Maximum Input		Current: 30mA (*4)	
Isolation Method		Between I/O terminals and programmable controller power supply: Photocoupler Between input channels: Non-isolation	
Withstand Voltage		Between I/O terminals and programmable controller power supply: 500VACrms for 1 minute	
Isolation Resistance		Between I/O terminals and programmable controller power supply: 10MΩ or higher, at 500VDC	
HART® Modern		HART modem FSK physical layer (multiplexed)	
HART Communication Function		Protocol revision 7 supported; 4 process variables supported; FDT/DTM supported	
Number of Occupied I/O Points		Number of occupied I/O points 16 points (I/O assignment: Intelligent 16 points)	
External Interface		External interface 40-point two-piece spring clamp terminal block (push-in type)	
Applicable Wire Size		Applicable wire size Stranded wire: 0.5 to 1.5 ² (24 to 16 AWG), terminal slot size: 2.4mm x 1.5mm	
Applicable Solderless Terminal		A10.5-10WH (PHOENIX CONTACT GmbH & Co. KG), applicable wire size: 0.5 ² A10.75-10GY (PHOENIX CONTACT GmbH & Co. KG), applicable wire size: 0.75 ² A1-10 (PHOENIX CONTACT GmbH & Co. KG), applicable wire size: 1.0 ² A1.5-10 (PHOENIX CONTACT GmbH & Co. KG), applicable wire size: 1.5 ²	
External Power Supply	24VDC +20%, -15% (*5)		
	Ripple, spike: 500mVP-P or lower		
	Inrush current: 6.2A, 430μs or less		
	Current consumption: 0.22A		
Internal Current Consumption (5VDC)		0.17A	
External Dimensions (H x W x D) mm		106 (base unit mounting side: 98mm) x 27.8 x 125	
Weight (kg)		0.21	

Notes:

- For details on the I/O conversion characteristics, refer to the User's Manual
- Except for the conditions under noise influence.
- The time until an analog input signal reaches the A/D converter in the A/D converter module.
- This current value is an instantaneous value at which no breakdown occurs in the internal resistance of the module.
- Consider voltage drop between the external power supply and the HART-enabled device when supplying the power to the HART enabled device from the A/D converter module.

High Speed Analog Input Module

Model Number		R60ADH4			
Stocked Item		S			
Certification		UL • cUL • CE (EMC)			
Number of Analog Inputs		4 channels			
Digital Output		16-bit signed binary value (-32768 to 32767)			
Analog Input	Voltage	-10 to 10VDC (input resistance: 1MΩ)			
	Current	0 to 20mADC (input resistance: 250Ω)			
I/O Characteristics, Resolution (*1)		Analog Input Range	Digital Output Value	Resolution	
		Voltage	0 to 10V	0 to 32,000	312.5 μV
			0 to 5V		156.3 μV
			1 to 5V		125.0 μV
			1 to 5V (Extended mode)	-8000 to 32,000	125.0 μV
			-10 to 10V	-32,000 to 32,000	312.5 μV
			User Range Setting		125.0 μV (*2)
		Current	0 to 20mA	0 to 32,000	625.0 nA
			4 to 20 mA		500.0 nA
			4 to 20V (Extended mode)	-8000 to 32,000	500.0 nA
User Range Setting	-32,000 to 32,000		500.0 nA (*2)		
Accuracy (Accuracy of the Maximum Digital Output Value) (*3)	Ambient Temperature 25±5°C	Within ±0.1% (±32 digit)			
	Ambient Temperature 0 to 55°C	Within ±0.2% (±64 digit)			
Operation Mode (Sampling Cycle) (*4)		Normal mode (medium speed: 10μs/CH)			
		Normal mode (low speed: 20 μs/CH)			
		Simultaneous conversion mode (5 μs/4CH)			
Input Band (*5)		40 kHz (Normal mode (medium speed: 10μs/CH))			
		20 kHz (Normal mode (low speed: 20 μs/CH))			
		60 kHz (Simultaneous conversion mode (5 μs/4CH))			
Input Response Time (*6)		20 μs maximum			
Absolute Maximum Input (*7)		Voltage: ±15V, Current: 30mA			
Number of Offset/Gain Settings (*8)		10,000 times maximum			
Isolation Method		Between I/O terminals and programmable controller power supply: Photocoupler			
		Between input channels: Non-isolation			
Withstand Voltage		Between I/O terminals and programmable controller power supply: 500 VACrms for 1 minute			
Isolation Resistance		Between I/O terminals and programmable controller power supply: 10MΩ or higher, at 500 VDC			
Number of Occupied I/O Points		16 points (I/O assignment: Intelligent 16 points)			
External Interface		18-point terminal block			
Applicable Wire Size		0.3 to 0.75 mm ² (22 to 18 AWG)			
Applicable Solderless Terminal		R1.25-3 (solderless terminal with an insulation sleeve cannot be used)			
Internal Current Consumption (5 VDC)		0.73 A			
External Dimensions (H x W x D) mm		106 x 27.8 x 131			
Weight (kg)		0.20			

Notes:

- For Details on the I/O conversion, refer to iQ-R High Speed Analog-Digital Converter Module User's Manual (Startup).
- Maximum resolution in the user range setting.
- Except for the conditions under noise influence.
- The module becomes more susceptible to noise while operating in the operation mode with faster sampling cycle. For measures to reduce noise, refer to the iQ-R Module Configuration Manual. If the module is still affected by noise after the measures have been taken, use averaging processing, primary delay filter, and digital filter. For how to use them, refer to the MELSEC iQ-R High Speed Analog-Digital Converter Module User's Manual (Application).
- The frequency where the amplitude ratio is -3dB when the sine wave with the amplitude of 5V is input.
- The time until an analog input signal reaches the A/D converter in the A/D converter module.
- This current value is an instantaneous value at which no breakdown occurs in the internal resistance of the module.
- A count more than 10,000 times causes number of writes to offset/gain settings reach limit error (error code: 1080H).

Analog Output Modules

Model Number	R60DA4	R60DA8		
Stocked Item	S	S		
Certification	UL • cUL • CE			
Number of Analog Output Points	4 points (4 channels)	8 points (8 channels)		
Digital Input	16-bit signed binary value (-32768 to 32767)			
Analog Output Voltage	-10 to 10 VDC (external load resistance value 1kΩ or more) 0 to 5 VDC (external load resistance value 500Ω or more)			
Analog Output Current	0 to 20mADC (external load resistance value 0 to 600Ω)	-		
I/O Characteristics, Resolution (*1)	Analog Input Range		Digital Output Value	Resolution
	Voltage	0 to 10V	0 to 32000	156.3μV
		0 to 5V		125.0μV
		1 to 5V	-32000 to 32000	312.5μV
	User range setting			
	Current (R60DA4 Only)	-10 to 10V	0 to 32000	625.0nA
4 to 20mA		500.0nA		
User range setting		-32000 to 32000	350.9nA	
Accuracy (Accuracy for the Maximum Value of the Analog Output Value) (*2)	Ambient temp 25 ±5°: within ±0.1% (Volt ±10mV, current ±20μA) Ambient temp 0 to 55°: within ±0.3% (Volt ±30mV, current ±60μA)		Ambient temp 25 ±5°: within ±0.1% (Voltage ±10mV) Ambient temp 0 to 55°: within ±0.3% (Voltage ±30mV)	
Conversion Speed	Normal Output Mode	80μs/CH		
	Wave Output Mode	80μs/CH		
Number of Offset/Gain Settings	Up to 50000 times (A count more than 50000 times causes Number of writes to offset/gain settings reach limit error (error code: 1080H))			
Output Short Protection	Protected			
Isolation Method	Between I/O terminals and programmable controller power supply: Photocoupler; Between output channels: Non-isolation Between the external power supply and analog outputs: Transformer isolation			
Withstand Voltage	Between I/O terminals and programmable controller power supply: 500 VAC rms for 1 minute Between the external power supply and analog outputs: 500 VAC rms for 1 minute			
Insulation Resistance	Between I/O terminals and programmable controller power supply: 10MΩ or higher, at 500 VDC			
Number of Occupied I/O Points	16 points (I/O assignment: Intelligent 16 points)			
External Connection System	18-point terminal block			
Applicable Wire Size	0.3 to 0.75mm ²			
Applicable Solderless Terminal	R1.25-3 (solderless terminal with an insulation sleeve cannot be used)			
External Power Supply	24 VDC +20%, -15%			
	Ripple, spike 500mVP-P or lower			
	Inrush current: 5.0A, 690μs or shorter	Inrush current: 5.0A, 670μs or shorter		
	Current consumption: 0.14A	Current consumption: 0.16A		
Internal Current Consumption (5 VDC)	0.16A			
External Dimensions (H x W x D) mm	106 x 27.8 x 131 (Base unit mounting side: 98mm)			
Weight (kg)	0.14			

Notes: See below.

Model Number	R60DA8			
Stocked Item	S			
Certification	UL • cUL • CE			
Number of Analog Output Points	8 points (8 channels)			
Digital Input	16-bit signed binary value (-32768 to 32767)			
Analog Output Voltage	-			
Analog Output Current	0 to 20mADC (external load resistance value 0 to 600Ω)			
I/O Characteristics, Resolution (*1)	Analog Input Range		Digital Output Value	Resolution
	Current	0 to 20mA	0 to 32000	625.0nA
		4 to 20mA		500.0nA
		User range setting	-32000 to 32000	350.9nA
Accuracy (Accuracy for the Maximum Value of the Analog Output Value) (*2)	Ambient temperature 25 ±5°: within ±0.1% (Current ±20μA) Ambient temperature 0 to 55°: within ±0.3% (Current ±60μA)			
Conversion Speed	80μs/CH			
Number of Offset/Gain Settings	Up to 50000 times (A count more than 50000 times causes Number of writes to offset/gain settings reach limit error (error code: 1080H))			
Output Short Protection	Protected			
Isolation Method	Between I/O terminals and programmable controller power supply: Photocoupler; Between output channels: Non-isolation Between the external power supply and analog outputs: Transformer isolation			
Withstand Voltage	Between I/O terminals and programmable controller power supply: 500 VAC rms for 1 minute Between the external power supply and analog outputs: 500 VAC rms for 1 minute			
Insulation Resistance	Between I/O terminals and programmable controller power supply: 10MΩ or higher, at 500 VDC			
Number of Occupied I/O Points	16 points (I/O assignment: Intelligent 16 points)			
External Connection System	18-point terminal block			
Applicable Wire Size	0.3 to 0.75mm ²			
Applicable Solderless Terminal	R1.25-3 (solderless terminal with an insulation sleeve cannot be used)			
External Power Supply	24 VDC +20%, -15%			
	Ripple, spike 500mVP-P or lower			
	Inrush current: 5.0A, 700s or shorter	Current consumption: 0.26A		
Internal Current Consumption (5 VDC)	0.16A			
External Dimensions (H x W x D) mm	106 x 27.8 x 131 (Base unit mounting side: 98mm)			
Weight (kg)	0.14			

Notes: 1. For details on the I/O conversion characteristics, see User's Manual. 2. Except for the conditions under noise influence.

Isolated Analog Output Modules

Model Number	R60DA8-G	R60DA16-G		
Stocked Item	S	S		
Certification	UL • cUL • CE			
Number of Analog Output Channels	8 channels	16 channels		
Digital Input	16-bit signed binary value (-32768 to 32767)			
Analog Output Voltage	-12 to 12 VDC (external load resistance value 1kΩ or more)			
Analog Output Current	0 to 20mA (external load resistance value 0Ω to 600Ω); 0 to 22mA (external load resistance value) (*5)			
I/O Conversion Characteristics, Resolution (*1)	Analog Output Range	Digital Value	Resolution	
	Voltage	0 to 5V	0 to 32000	156.3μV
		1 to 5V		125.0μV
		-10 to 10V	-32000 to 32000	312.5μV
		-12 to 12V		378.4μV
		1 to 5V (extended mode)	-32000 to 32000	125.0μV
		User range setting 2		378.4μV
	User range setting 3	312.0μV		
	Current	0 to 20mA	0 to 32000	625.0nA
		4 to 20mA		500.0nA
4 to 20mA (extended mode)		-32000 to 32000	500.0nA	
User range setting 1			360.1nA	
Accuracy (Accuracy For The Maximum Analog Output Value) (*2)	Reference accuracy: Within ±0.1% (Voltage: ±10mV, Current: ±20μA) (*3) Temperature coefficient: ±50ppm/°C (0.005%/°C) (*4)			
Conversion Speed	1ms/CH			
Number of Offset/Gain Settings	Up to 50000 times (A count more than 50000 times causes Number of writes to offset/gain settings reach limit error (error code: 1080H))			
Output Short Circuit Protection	Built-in			
Isolation Method	Between I/O terminals and programmable controller power supply: Transformer Between analog output channels: Transformer Between external power supply and analog output channel: Transformer			
Withstand Voltage	Between I/O terminals and programmable controller power supply: 500VACrms for 1 minute Between analog output channels: 1000VACrms for 1 minute Between external power supply and analog output channel: 500VACrms for 1 minute			
Insulation Resistance	Between I/O terminals and programmable controller power supply: 10MΩ or higher, at 500 VDC Between analog output channels: 10MΩ or higher, at 500 VDC Between external power supply and analog output channel: 10MΩ or higher, 500 VDC			
Number of Occupied I/O Points	R60DA8-G: 16 points, 1 slot (I/O assignment: Intelligent 16 points) R60DA16-G: 48 points, 2 slots (I/O assignment: Empty 16 points + Intelligent 32 points)			
External Interface	40-pin connectors			
Applicable Wire Size	A6CON1 and A6CON4	0.088 to 0.3 ² (28 to 22 AWG) (stranded wire)		
	A6CON2	0.088 to 0.24 ² (28 to 24 AWG) (stranded wire)		
Connectors For External Devices	A6CON1, A6CON2, A6CON4 (sold separately)			
External Power Supply	24 VDC +20%, -15%			
	Ripple, spike 500mVp-p or lower			
	Inrush current: R60DA8-G: 4.2A, 540μs or less; R60DA16-G: 4.2A, 540μs or less, for DC24V_1 and DC24V_2 respectively Current consumption: R60DA8-G: 0.36A; R60DA16-G: 0.70A			
Internal Current Consumption (5 VDC)	R60DA8-G: 0.18A; R60DA16-G: 0.25A			
External Dimensions (H x W x D)	R60DA8-G: 106 x 27.8 x 110; R60DA16-G: 106 x 56 x 110 (Base unit mounting side: 98mm)			
Weight (kg)	R60DA8-G: 0.21; R60DA16-G: 0.32			

Notes:

- For details on the I/O conversion characteristics, refer to the User's Manual.
- Except for the conditions under noise influence.
- The accuracy at an ambient temperature when the offset/gain setting is configured. Obtaining sufficient accuracy requires a warm-up of 30 minutes (energization).
- The accuracy based on a temperature change of 1°C.
- For an output current of 20mA or higher, see User's Manual.

High Speed Analog Output Module

Model Number		R60DAH4			
Stocked Item		S			
Certification		UL • cUL • CE			
Number of Analog Output Channels		4			
Digital Input		16-bit signed binary value (-32768 to 32767)			
Analog Output Voltage		-10 to 10VDC (external load resistance value 1kΩ or higher); 0 to 5VDC (external load resistance value 500Ω or higher)			
Analog Output Current		0 to 20mA (external load resistance value 50 to 600Ω)			
I/O Characteristics, Resolution		Analog Output Range	Digital Value	Resolution	
		Voltage	0 to 5V	0 to 32000	156.3μV
			1 to 5V		125.0μV
			-10 to 10V	-32000 to 32000	312.5μV
			User range setting (voltage)		312.5μV
		Current	0 to 20mA	0 to 32000	625.0nA
			4 to 20mA		500.0nA
User range setting (current)	-32000 to 32000		360.0nA		
Accuracy	Ambient Temperature 25 ±5°C	Within ±0.1% (voltage ±10mV, current ±20μA)			
	Ambient Temperature 0 to 55°C	Within ±0.3% (voltage ±30mV, current ±60μA)			
Operation Mode (Conversion Speed)		High speed output mode (conversion speed: 1μs/CH) Normal output mode (conversion speed: 10μs/CH) Wave output mode (conversion speed: 20μs/CH)			
Output Response Time		Voltage output: Maximum 20μs (-10 to 10V, 2kΩ load); Current output: Maximum 10μs (0 to 20mA, 250Ω load)			
Number of Offset/Gain Settings		10000 times maximum			
Output Short Circuit Protection		Equipped			
Isolation Method		Between I/O terminals and programmable controller power supply: Photocoupler Between output channels: Non-isolation Between external power supply and analog output: Transformer isolation			
Number of Occupied I/O Points		16 points (I/O assignment: Intelligent 16 points)			
External Interface		18-point terminal block			
Applicable Wire Size		0.3 to 0.75 (22 to 18 AWG)			
Applicable Solderless Terminal		R1.25-3 (solderless terminal with an insulation sleeve cannot be used)			
External Power Supply		24VDC +20%, -15%, Inrush current: 3.8A, 700μs or lower, Current consumption: 0.13A			
Internal Current Consumption (5VDC)		0.27A			
External Dimensions (H x W x D) mm		106 x 27.8 x 131			
Weight (kg)		0.2			

Thermocouple Input Module

Model Number		R60TD8-G	R60RD8-G	
Stocked Item		S	S	
Certification		UL • cUL • CE		
Number of Analog Input Points		8 points (8 channels) + Cold junction compensation channel per module	8 points (8 channels)	
Output	Measured Temperature Value	16-bit signed binary value (-2700 to 18200)	6-bit signed binary value (-2000 to 8500)	
	Scaling Value	16-bit signed binary value		
Thermocouple Compliance Standards		JIS C1602-1995, IEC 60584-1(1995), IEC60584-2(1982)	-	
Usable Thermocouples and Conversion Accuracy		For details, refer to User's Manual	Pt100 (JIS C 1604-1997, IEC 751:1983); JPt100 (JIS C 1604-1981); Ni100 (DIN 43760 1987); Pt50 (JIS C 1604-1981)	
Cold Junction Compensation Accuracy (*3)		±1.0°C	-	
Accuracy (*1)		For details, refer to User's Manual		
Resolution		B, R, S, N: 0.3°C; K, E, J, T: 0.1°C	0.1	
Conversion Speed (*2)		30ms/channel	10ms/channel	
Conversion Speed (*2)	Between Thermocouple Input Channel and Programmable Controller Power Supply	Transformer isolation	-	
	Between Thermocouple Input Channels	Transformer isolation		
Withstand Voltage	Between Thermocouple Input Channel and Programmable Controller Power Supply	500 VAC rms for 1 minute	-	
	Between Thermocouple Input Channels	1000 VAC rms for 1 minute		
	Between RTD Input Channel and Programmable Controller Power Supply	-		500 VAC rms for 1 minute
	Between RTD Input Channels	-		1000 VAC rms for 1 minute
Insulation Resistance	Between Thermocouple Input Channel and Programmable Controller Power Supply	500 VDC 10MΩ or higher	-	
	Between Thermocouple Input Channels	500 VDC 10MΩ or higher		
	Between RTD input Channel and Programmable Controller Power Supply	-		500 VDC 10MΩ or higher
	Between RTD Input Channels	-		500VDC 10MΩ or higher
Temperature Measuring Range	Pt100	-	-200 to 850°C	
	JPt100	-	-180 to 600°C	
	Ni100	-	-60 to 250°C	
	Pt50	-	-200 to 650°C	
Conversion Accuracy	Pt100	-200 to 850°C	±0.8°C (ambient temperature: 25±5°C), ±2.4°C (ambient temperature: 0 to 55°C)	
		-20 to 120°C	±0.3°C (ambient temperature: 25±5°C), ±1.1°C (ambient temperature: 0 to 55°C)	
		0 to 200°C	±0.4°C (ambient temperature: 25±5°C), ±1.2°C (ambient temperature: 0 to 55°C)	
	JPt100	-180 to 600°C	±0.8°C (ambient temperature: 25±5°C), ±2.4°C (ambient temperature: 0 to 55°C)	
		-20 to 120°C	±0.3°C (ambient temperature: 25±5°C), ±1.1°C (ambient temperature: 0 to 55°C)	
		0 to 200°C	±0.4°C (ambient temperature: 25±5°C), ±1.2°C (ambient temperature: 0 to 55°C)	
Ni100	-60 to 250°C	±0.4°C (ambient temperature: 25±5°C), ±1.2°C (ambient temperature: 0 to 55°C)		
Pt50	-200 to 650°C	±0.8°C (ambient temperature: 25±5°C), ±2.4°C (ambient temperature: 0 to 55°C)		
Isolation Method	Between RTD Input Channel and Programmable Controller Power Supply	-	Transformer isolation	
	Between RTD Input Channels	-	Transformer isolation	
Disconnection Detection		Built-in		
Number of Offset/Gain Settings (*4)		50000 times maximum		
Number of Occupied I/O Points		16 points (I/O assignment: Intelligent 16 points)		
External Interface		40-pin connector		
Applicable Wire Size	A6CON1 and A6CON4	0.088 to 0.3mm ² (28 to 22 AWG) (stranded wire)		
	A6CON2	0.088 to 0.24mm ² (28 to 24 AWG) (stranded wire)		
Connector For External Devices		A6CON1, A6CON2, A6CON4 (sold separately)		
Internal Current Consumption (5 VDC)		0.36A	0.35A	
External Dimensions (H x W x D) mm		106 x 27.8 x 110		
Weight (kg)		0.19		

Notes:

1. Except for the conditions under noise influence.
2. This conversion speed is the time required to store a measured temperature value into the buffer memory in sampling processing.
3. No isolation is provided between the cold junction compensation channel and the programmable controller power supply.
4. A count more than 50000 times causes number of writes to offset/gain settings reach limit error (error code: 1080H).