## ■ Analog modules for temperature measurement
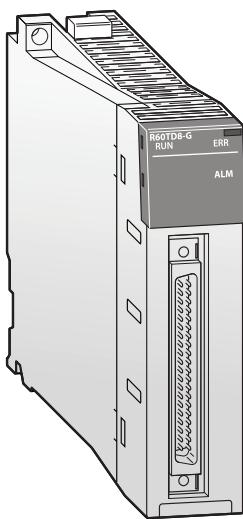
Temperature sensors are connected directly to these modules. They convert measured analog values into 16-bit signed binary temperature measurement values.

Special features:

- Scaling operations without programs
- Averaging processing
- Disconnection detection function
- Alarm output function
- Logging function
- Issue of an interrupt in case of alarm output or disconnection
- Error history and event history function

| Specifications		R60RD8-G	R60TD8-G
Input channels		8	8
Connectable thermocouple	type	Pt100, JPt100, Ni100, Pt50	B, R, S, K, E, J, T, N
Temperature measuring range		Depends on the temperature sensor used	
Temperature scaling value		16-bit, signed binary: -2000–8500	16-bit, signed binary: -2700–18200
Max. resolution	°C	0.1	B, R, S, N: 0.3 °C; K, E, J, T: 0.1 °C
Cold junction temp. compensation accuracy		—	±1.0 °C
Overall accuracy		Depends on the thermocouple used	
Max. conversion time		10 ms/channel	30 ms/channel
Analog inputs		8 channels	8 channels + cold junction compensation
Temp. measurement output current	mA	—	max. 1
Insulation method		Transformer insulation between RTD inputs and PLC power supply, and between RTD input channels	Transformer insulation between thermocouple inputs and PLC power supply, and between thermocouple input channels
Disconnection detection		Built-in	Built-in
Occupied I/O points		16	16
Connection terminal		40-pin connector	40-pin connector
Applicable wire size	mm²	0.088–0.3 (A6CON1/4) 0.088–0.24 (A6CON2)	0.088–0.3 (A6CON1/4) 0.088–0.24 (A6CON2)
Internal power consumption (5 V DC)	mA	350	360
Weight	kg	0.19	0.19
Dimensions (WxHxD)	mm	27.8x106x110	27.8x106x110
Order information	Art. no.	285505	285506

■ Temperature control modules
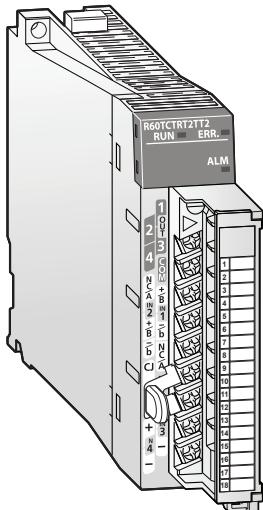
MELSEC iQ-R Series temperature control modules are ideal for applications requiring highly stable and responsive temperature control. The series comes with thermocouple and RTD input module types and are available with or without heater disconnection detection.

Special features:

● Selection of various control modes possible

● Easy parameter setting with GX Works3

● Auto-tuning function for setting of suitable PID constants.

● Sensor correction function

● Scaling function

● Heater disconnection detection function

● Unused channels can be used for temperature measurement

● Inter-module link function

● Q compatible mode allows to use existing programs for a MELSEC series Q module

● Error history and event history function

Specifications		R60TCTRT2TT2	R60TCRT4	R60TCTRT2TT2BW	R60TCRT4BW
Control output	type	Transistor	Transistor	Transistor	Transistor
Inputs		4 channels	4 channels	4 channels	4 channels
Supported temperature sensors		R, K, J, T, S, B, E, N, U, L, PLII, W5Re/W26Re	Pt100, JPt100	R, K, J, T, S, B, E, N, U, L, PLII, W5Re/W26Re	Pt100, JPt100
Sampling cycle		Switchable between 250 ms and 500 ms/4 channels			
Control output cycle	s	0.5–100	0.5–100	0.5–100	0.5–100
Input filter		1–100 s (0 s: input filter OFF)	1–100 s (0 s: input filter OFF)	1–100 s (0 s: input filter OFF)	1–100 s (0 s: input filter OFF)
Temperature control method		PID ON/OFF impulse or 2-position control			
PID constant range	PID constant setting	Setting with automatic tuning possible			
	Proportional band P	0.0–1000 % (0 %: 2-position control)	0.0–1000 % (0 %: 2-position control)	0.0–1000 % (0 %: 2-position control)	0.0–1000 % (0 %: 2-position control)
	Integral time I	0–3600 s (0 setting for P/PD control)	0–3600 s (0 setting for P/PD control)	0–3600 s (0 setting for P/PD control)	0–3600 s (0 setting for P/PD control)
	Differential time D	0–3600 s (0 setting for P/PI control)	0–3600 s (0 setting for P/PI control)	0–3600 s (0 setting for P/PI control)	0–3600 s (0 setting for P/PI control)
Target value setting range		Within the temperature range of the thermocouple/platinum resistance thermomete used			
Dead band setting range		0.1–10.0 %	0.1–10.0 %	0.1–10.0 %	0.1–10.0 %
Transistor output	Output signal (sink)	ON/OFF pulse	ON/OFF pulse	ON/OFF pulse	ON/OFF pulse
	Rated load voltage	10–30 V DC	10–30 V DC	10–30 V DC	10–30 V DC
	Max. load current	0.1 A/1 point, 0.4 A/common	0.1 A/1 point, 0.4 A/common	0.1 A/1 point, 0.4 A/common	0.1 A/1 point, 0.4 A/common
	Max. rush current	400 mA, 10 ms	400 mA, 10 ms	400 mA, 10 ms	400 mA, 10 ms
	Max. voltage drop when ON	0.1 V DC (TYP) 0.1 A 2.5 V DC (MAX) 0.1 A	0.1 V DC (TYP) 0.1 A 2.5 V DC (MAX) 0.1 A	0.1 V DC (TYP) 0.1 A 2.5 V DC (MAX) 0.1 A	0.1 V DC (TYP) 0.1 A 2.5 V DC (MAX) 0.1 A
	Response time	OFF → ON: <2 ms ON → OFF: <2 ms	OFF → ON: <2 ms ON → OFF: <2 ms	OFF → ON: <2 ms ON → OFF: <2 ms	OFF → ON: <2 ms ON → OFF: <2 ms
Insulation method		Transformer insulation between input terminals and PLC power supply, and between input channels			
Occupied I/O points		16	16	32	32
Connection terminal		18-point removable terminal block with screws	18-point removable terminal block with screws	Two 18-point removable terminal blocks with screws	Two 18-point removable terminal blocks with screws
Applicable wire size	mm²	0.3–0.75	0.3–0.75	0.3–0.75	0.3–0.75
Internal power consumption (5 V DC)	mA	280	280	310	310
Weight	kg	0.22	0.22	0.34	0.34
Dimensions (WxHxD)	mm	27.8x106x110	27.8x106x110	56x106x110	56x106x110
Order information	Art. no.	290202	290203	290204	290225

Dimensions

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■ Safety function module and safety CPU

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106

110

27.8
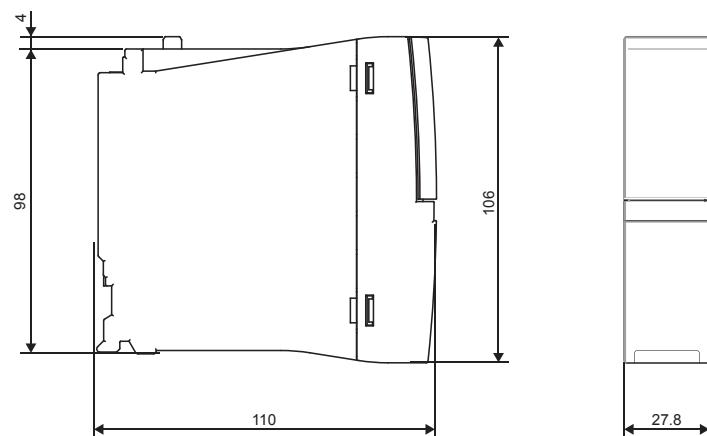
Unit: mm

■ I/O modules, blank cover module special function modules

18-point screw terminal block

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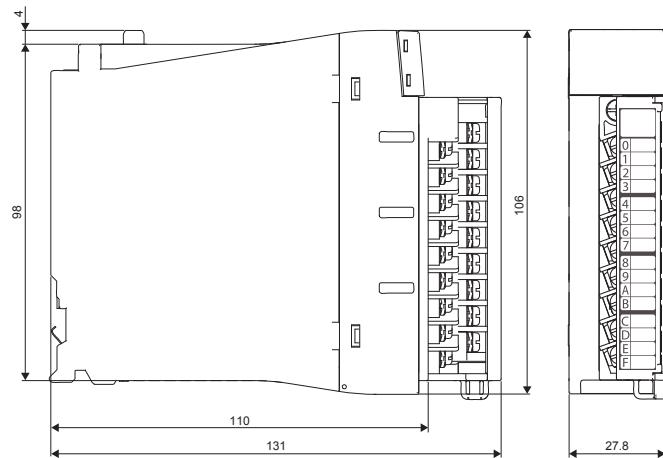
Blank cover module

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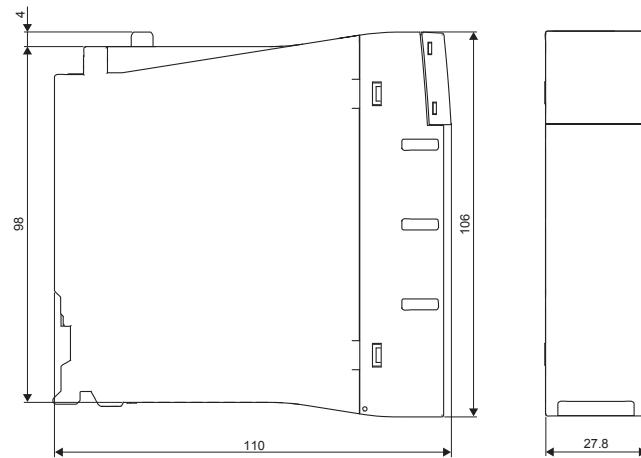
40-pin connector, 32 points module

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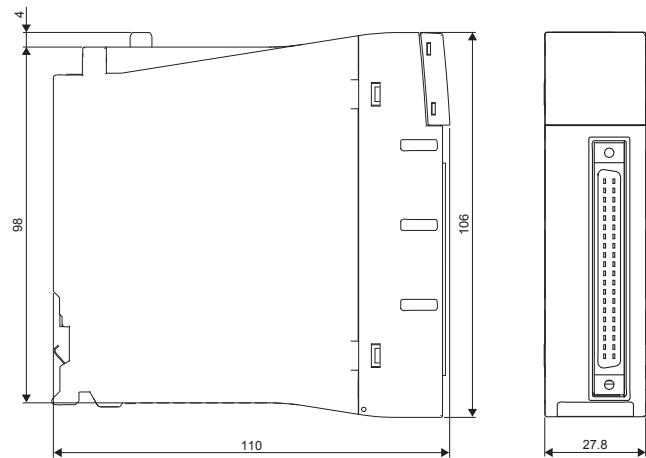
40-pin connector, 64 points module

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27.8

Unit: mm

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