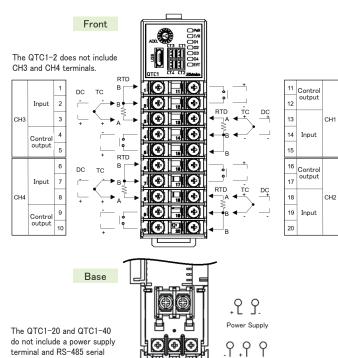
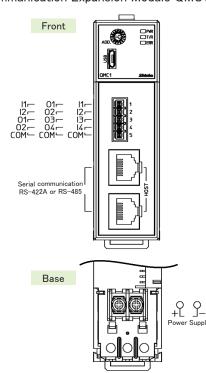
Terminal Arrangement

Control Module QTC1-2/QTC1-4

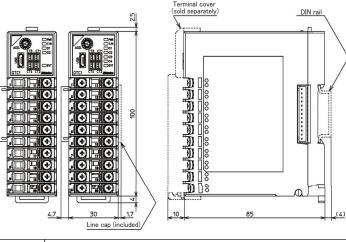


Communication Expansion Module QMC1

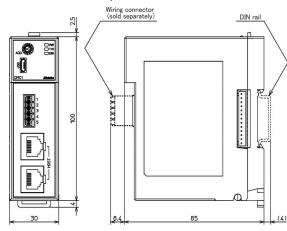


Dimensions (Scale: mm)

Control Module QTC1-2/QTC1-4



Communication Expansion Module QMC1





- ●To ensure safe and correct use, thoroughly read and understand the manual before using this instrument.

 This instrument is intended to be used for industrial machinery, machine tools and measuring equipment.

 Verify correct usage after consulting with our agency or main office regarding the purpose of use.

 (Never use this instrument for medical purposes in which human lives are involved.)

 External protection devices such as protection equipment against excessive temperature rise, etc. must be
- External protection devices such as protection equipment against excessive temperature rise, etc. must be installed, as a malfunction of this product could result in serious damage to the system or injury to personnel. Also, proper periodic maintenance is required.

 This instrument must be used under the conditions and environment described in the manual.

YA YB SG

This instrument must be used under the conditions and environment described in the manual. Shinko Technos Co., Ltd. does not accept liability for any injury, loss of life or damage occurring due to the instrument being used under conditions not otherwise stated in this manual. Caution with respect to Export Trade Control Ordinance

To avoid this instrument from being used as a component in or being utilized in the manufacture of weapons of mass destruction (i.e. military applications, military equipment), please investigat the end users and the final use of this instrument. In the case of resale, ensure that this instrument in ot illegally exported.

- This catalog is current as of July 2021, and its contents are subject to change without notice.
- The photos in this catalog do not show actual usage.
- If you have any inquiries, please consult your us or our agency

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202107 E06

Max. 1024-point measurement, control, and monitoring

MODULAR CONTROLLERS

QX1 series



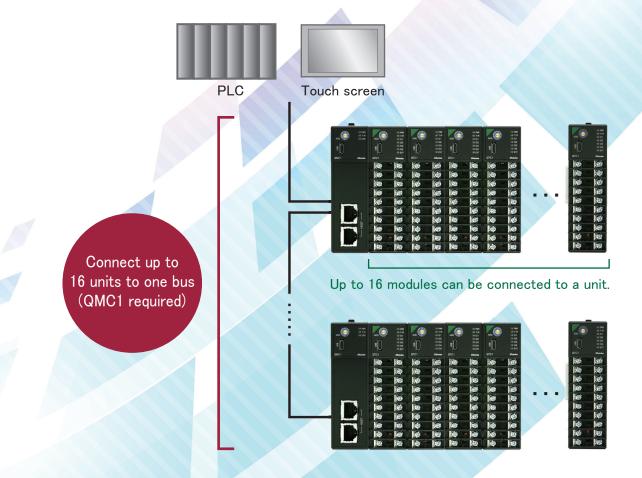
Internally mounted control system for multi-point measurement, control, and monitoring functionality



Multi-point controller for infinite possibilities



Max. 1024-point measurement and control





Program-less connections to PLCs for reduced work (SIF function)

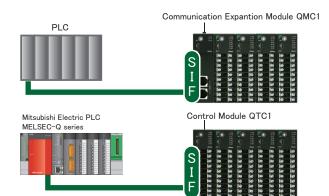
The Smart InterFace (SIF) function (program-less PLC communication function) enables direct connectivity to PLCs from various manufacturers.

(Connect up to 1 unit to one bus)

Supported PLC

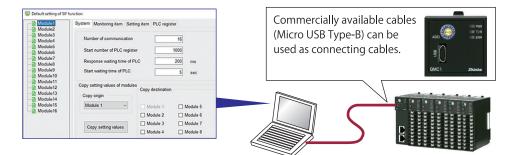
L	Manufacturer	Resister	Communication command	
ſ	Mitsubishi Electric	D resister	QR/QW	(*)
ſ	Mitsubishi Electric	R resister	QR/QW	
	Mitsubishi Electric	D resister	WR/WW	
	Mitsubishi Electric	R resister	WR/WW	
	OMRON	DM resister	FINS command	
ſ	KEYENCE	DM resister	RDS/WRS	

(*) The SIF function of the control module QTC1 is exclusively for Mitsubishi Electric Corporation PLC D register QR/QW.



Settings can be easily changed using the console software, making it possible to manage multiple modules at once.

OS: Windows 10
(Japanese/English)



Please use Communication Expansion Module QMC1 when replacing Shinko C series devices.



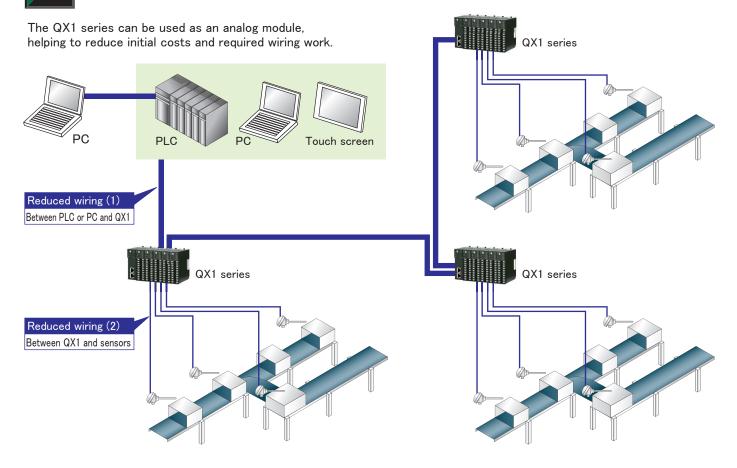
Some communication commands are different.

When replacing the C series with the

When replacing the C series with the QX1 series, please contact us.

2

Usable as an analog module for reducing initial costs and wiring



Administrative support

Failure prediction maintenance

Failure prediction maintenance

Check usage statuses using the following measurement functions.

- 1. Cumulative heater energization time (QTC1)
- 2. Cumulative module energization time (QMC1, QTC1)
- 3. Cumulative relay contact open/close count (QTC1)

In the event of an error, the error number and energization time are saved. The 10 most recent errors are saved. (Error history: Can be checked with console software) (QTC1)

	Items	CH1	CH2	CH3	CH4
۰	Content of error history 1	384	384	384	384
	Energizing integrated time of error history 1	790	790	790	767
	Content of error history 2	384	384	384	384
	Energizing integrated time of error history 2	790	790	790	767
	Content of error history 3	384	384	384	384
	Energizing integrated time of error history 3	789	789	789	767
	Content of error history 4	384	384	384	256
	Energizing integrated time of error history 4	766	789	766	767
	Content of error history 5	256	256	256	384
	Energizing integrated time of error history 5	766	789	766	767
	Content of error history 6	640	384	384	256
	Energizing integrated time of error history 6	764	787	763	767
	Content of error history 7	384	384	256	384
	Energizing integrated time of error history 7	764	786	763	767
	Content of error history 8	384	256	384	384
	Energizing integrated time of error history 8	763	786	763	766
	Content of error history 9	256	384	384	384
	Energizing integrated time of error history 9	763	785	758	766
	Content of error history 10	384	256	256	384
	Energizing integrated time of error history 10	762	785	758	766

The input difference detection function makes it possible to monitor for input differences between channels.

Risk avoidance in case of emergency

The output selection function can be used to switch between outputs. For example, in the event of a CH1 output failure, CH2 output is enabled.

A signal can be output if heater burnout is detected. (QTC1)

[Heater burnout alarm options:

Single-phase, 3-phase (3-phase: QTC1-2

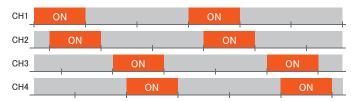
Alarm output signals can be used to start or stop control. [Event input/output (optional)]

eak power suppression function for lower power equipment costs

Peak power suppression function

The total current can be set for the module, and power suppression control can be performed when the sum of the current values set for each channel is less than or equal to the total current. This can help minimize investments in power equipment.

■ Example of peak power suppression function output timing



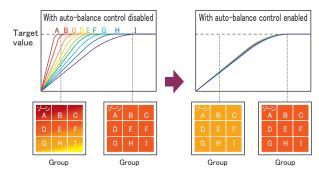
Improved product quality

Multi-zone connection (Auto-balance control)

Take advantage of uniform control of multiple control locations (zones) of a control target (group) through linking. This helps prevent partial burning and mechanical distortion while also reducing adverse effects on product quality.

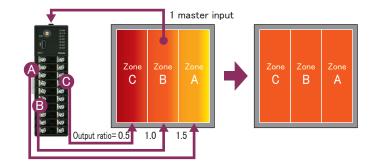


Auto-balance control works with multiple connected modules.



Individual output amount settings (output gain, bias control)

If required output amounts are known in advance, such as when controlling heaters in multiple locations (zones) for a single input point, uniform control of multiple zones is possible. Combining output selection functions reduces the number of input terminals needed, initial costs can also be reduced.



Rich functions

Five included control methods for reduced manual labor

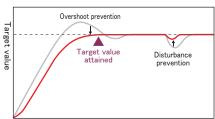
Control characteristics vary depending on the control target.

The QX1 series includes five control methods to meet a variety of control characteristics.

2DOF PID control

In addition to target value tracking and disturbance responsiveness, this well-balanced system reduces overshooting.

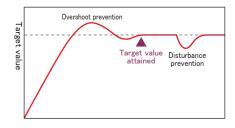
(When using default control action.)



Fast-PID control

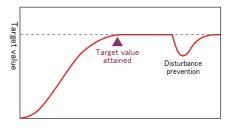
This control method emphasizes target value

This control method works best when replacing the controller with a Shinko product. (Doing so provides better performance.)



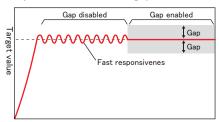
Slow-PID control

This control method prioritizes preventing overshooting rather than attaining a target value.

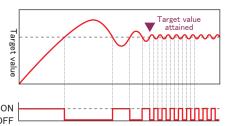


Gap-PID control

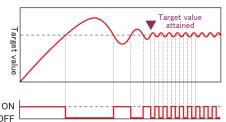
This control method is effective with fast responses such as for flow rates and valves. (Deviation characteristics are provided within the gap.)



ON-OFF control



This control method is selected for operating devices that turn heaters and other equipment on or off.



Maintenance improvements

The numerous LEDs allow users to visually check statuses and errors on-site



Settings can be easily changed using the console software, making it possible to manage multiple modules at once. OS: Windows 10 (Japanese/English)



used as connecting cables.

Heating/cooling control

Heating and cooling are controlled with CH1 used as the heating-side input and CH2 as the cooling-side input. (Up to 2 loops are possible with the QTC1-4.)



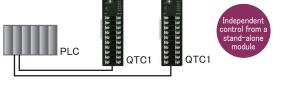
Cascade control

The adjusted CH1 variable, obtained from the SV and PV of CH1, is substituted for the SV of CH2, enabling CH2 control calculation and outputting.

(Up to 2 loops are possible with the QTC1-4.)



When used independently, the QTC1 can be used for control or to communicate with a host, and adding monitoring targets is easy.



Model

Control Module (2ch) QTC1-2

Control Module (4ch) QTC1-4





Model name

QTC1-2			-0								-0		
QTC1-4			-0								-0		
Power supply /	0												No options
communication options	Р												Power supply / host communication function
Wiring method		Т											Terminal block type
CH1 control output	ıt												
CH2 control output	ıt												See output code table
CH3 control output (*1)													Gee output code table
CH4 control output (*1)													
CH1 input													
CH2 input													Can innut and table
CH3 input (*1)									See input code table				
CH4 input (*1)													
0								No options					
Heater burnout alarm options					2							4 points CT, 20 A (*2) (*3	
						Α		4 points CT, 100 A (*2) (*3)					
								0	No options				
Event input/output options							1	Event input (4 points) (*4) (*5)					
•												2	Event output (4 points) (*4) (*5)

- (*1) For the QTC1-2, CH3 and CH4 are not available.
 (*2) CT and connector harness are sold separately.
 (*3) Single-phase or 3-phase is available for the QTC1-2.
 (*4) Connector harness is sold separately.
 (*5) For the QTC1-2, Event input/output (2 points)

Input Codes

Code	Input Type	Range		RTD Pt100	-328.0 to 1562.0°F	
	Thermocouple K	−200 to 1370°C	М	DC voltage input 0 to 1 V DC	-2000 to 10000	
	Thermocouple K	-200.0 to 400.0°C	IVI	Direct current input 4 to 20 mA DC	0000 : 10000	
	Thermocouple J	-200 to 1000°C		(Externally mounted shunt resistor)	-2000 to 10000	
	Thermocouple R	0 to 1760°C		Direct current input 0 to 20 mA DC		
	Thermocouple S	0 to 1760°C		(Externally mounted shunt resistor)	-2000 to 10000	
	Thermocouple B	0 to 1820°C		Direct current input 4 to 20 mA DC	0000 . 10000	
	Thermocouple E	-200 to 800°C		(Built-in shunt resistor)	-2000 to 10000	
	Thermocouple T	-200.0 to 400.0°C	Α	Direct current input 0 to 20 mA DC		
	Thermocouple N	−200 to 1300°C		(Built-in shunt resistor)	-2000 to 10000	
	Thermocouple PL-II	0 to 1390°C		DC voltage input 0 to 5 V DC	-2000 to 10000	
М	Thermocouple C	0 to 2315°C	V	DC voltage input 1 to 5 V DC	-2000 to 10000	
IVI	Thermocouple K	−328 to 2498°F		DC voltage input 0 to 10 V DC	-2000 to 10000	
	Thermocouple K	-328.0 to 752.0°F				
	Thermocouple J	−328 to 1832°F	Output	t Codes		
	Thermocouple R	32 to 3200°F	Code	Output Typ	е	
	Thermocouple S	32 to 3200°F	R	Relay contact output		
	Thermocouple B	32 to 3308°F	S	Non-contact voltage outp	out (for driving SSR)	
	Thermocouple E	-328 to 1472°F	Α	Direct current output, 4 to 20 mA DC		
	Thermocouple T	−328.0 to 752.0°F	0	Direct current output, 0 to 20 mA DC		
	Thermocouple N	−328 to 2372°F	V	DC voltage output, 0 to 1 V DC		
	Thermocouple PL-II	32 to 2534°F	1	DC voltage output, 0 to 5 V DC		
	Thermocouple C	32 to 4199°F	2	DC voltage output, 1 to 5 V DC		
	RTD Pt100	-200.0 to 850.0°C	3	DC voltage output, 0 to 10 V DC		
			С	Open collector output		

Specification

Rated Scale

Itato	u ocale						
Input (TC)	Scale	Range	Resolution	Input (RTD)	Scale	Resolution	
К	-200 to 1370°C	-328 to 2498°F	1°C(°F)	Pt100	−200.0 to 850.0°C	-328.0 to 1562.0°F	0.1 °C(°F)
K	-200.0 to 400.0°C	-328.0 to 752.0°F	0.1 °C(°F)				
J	-200 to 1000°C	-328 to 1832°F	1°C(°F)]			
R	0 to 1760°C	32 to 3200°F	1°C(°F)				
S	0 to 1760°C	32 to 3200°F	1°C(°F)	Input (DC)	Scale	Scale Range	
В	0 to 1820°C	32 to 3308°F	1°C(°F)	4 to 20 mA	-2000 to 10000 (*)		
Е	−200 to 800°C	−328 to 1472°F	1°C(°F)	0 to 20 mA			
Т	-200.0 to 400.0°C	-328.0 to 752.0°F	0.1°C(°F)	0 to 1 V			1
N	-200 to 1300°C	−328 to 2372°F	1°C(°F)	0 to 5 V	2000 to	10000 (1)	· '
PL-II	0 to 1390°C	32 to 2534°F	1°C(°F)	1 to 5 V			
С	0 to 2315°C	32 to 4199°F	1°C(°F)	0 to 10 V			

(*) Scalable

	Thermocouple (TC)	K, J, R, S, B, E, T, N, C, PL-II					
		External resistance: 100 Ω or less (However, B input: 40 Ω or less)					
	RTD	Pt100, 3-wire type					
	Direct current (mA DC)	Allowable input lead wire resistance: 10 Ω or less per wire 0 to 20 mA DC, 4 to 20 mA DC Input impedance: 50 Ω (Shunt resistance)					
		Allowable input current: 50 mA or less					
Input	DC voltage (V DC)	0 to 1 V DC Input impedance: 1 M Ω or more					
		Allowable input voltage: 5 V DC or less					
		Allowable signal source resistance: $2 \text{ k}\Omega$ or less 0 to 5 V DC, 1 to 5 V DC, 0 to 10 V DC					
		Input impedance: 100 k Ω or more					
		Allowable input voltage: 15 V DC or less Allowable signal source resistance: 100 Ω or less					
	At ambient temperature	e of 23°C and mounting angle of ±5 degrees					
		$\pm 0.2\%$ of each input span ver, below 0°C (32°F): Within $\pm 0.4\%$ of each input span					
Base	R, S in	nputs, 0 to 200°C (32 to 392°F): Within \pm 6°C (12°F)					
accuracy		ut, 0 to 300°C (32 to 572°F): Accuracy is not guaranteed. ±0.1% of each input span					
	Direct current Within	$\pm 0.2\%$ of each input span					
Cold junction	DC voltage Within	±0.2% of each input span					
temperature compensation	Within ±1°C at −10 to	55°C					
accuracy	Thermocouple input (no decim	al point): Within ±100 ppm/°C of each input span					
Effect of		Below 0°C (32°F): Within ±200 ppm/°C of each input spar					
ambient temperature	Thermocouple input (decimal p	boint): Within ±200 ppm/°C of each input span Below 0°C (32°F): Within ±400 ppm/°C of each input spar					
		Other: Within ±100 ppm/°C of each input span					
Effects of electromagnetic interference	Within ±1% of each inp	ut span					
Innest	I	Itage input and Direct current input enabled)					
Input sampling period	50 ms (with only DC vo 125 ms	Itage input and Direct current input enabled)					
period	Note: Fixed to 125 ms r	regardless of settings for thermocouple input and RTD input					
	2DOF PID control	offers both tracking characteristics with SV changes,					
	and disturbance suppr	ression.					
		e same disturbance responsiveness as Fast-PID control as swith reduced overshooting.					
	Fast-PID control	rol method is used for constant value control					
	(SV control at a single	e value).					
		egral time and derivative time are set to 0. erivative time is set to 0.					
	· PD control: When in	ntegral time is set to 0.					
		rol: When the proportional gain 2DOF coefficient (α) is se ivative 2DOF coefficient (γ , Cd) is set to 1.00.					
	Slow-PID control	s effective for processes where generating overshoot is					
	not desired, and proce	esses where the PV does not easily decrease after having					
	exceeded the SV. Gap-PID control						
		there is hysteresis in the operation unit, a slight fluctuation					
		ar the deviation of 0. In such cases, a dead band is usually of is not performed within dead bands, the PV changes in the					
		e. In this way, this control method ensures deviation d bands and allows for disturbance responses.					
	Item	Setting Range					
Control action	Proportional band (P)	1 to Input span °C (°F) or 0.1 to Input span °C (°F) Direct current input, DC voltage input: 0.10 to 100.00%					
		0 to 3600 sec or 0.0 to 2000.0 sec					
		1 to 3600 sec or 0.1 to 2000.0 sec					
	Integral time (I)	(When Slow-PID control is selected) The setting range varies depending on the selected integral/					
		derivative decimal point position.					
	Derivative time (D)	0 to 3600 sec or 0.0 to 2000.0 sec The setting range varies depending on the selected integral/					
		derivative decimal point position.					
	Proportional gain 2DOF coefficient (α)	0.00 to 1.00					
	Integral 2DOF coefficient (β)	0.00 to 10.00					
	Derivativ 2DOF coefficient (γ, Cd)	0.00 to 1.00					
	2DOF coefficient (γ, Cd) Proportional cycle	0.1 to 100.0 sec					
	2DOF coefficient (γ, Cd)						
	2DOF coefficient (\(\gamma \), Cd) Proportional cycle Output high limit,	0.1 to 100.0 sec 0.0 to 100.0%					
	2DOF coefficient (y, Cd) Proportional cycle Output high limit, output low limit Gap width (*) Gap coefficient (*)	0.1 to 100.0 sec 0.0 to 100.0% Direct current output: -5.0 to 105.0% 0.0 to 10.0% Proportional band × Gap width 0.0 to 1.0					
	2DOF coefficient (γ, Cd) Proportional cycle Output high limit, output low limit Gap width (*) Gap coefficient (*) (*) With Gap-PID co	0.1 to 100.0 sec 0.0 to 100.0% Direct current output: -5.0 to 105.0% 0.0 to 10.0% Proportional band × Gap width 0.0 to 1.0					
	2DOF coefficient (y, Cd) Proportional cycle Output high limit, output low limit Gap width (*) Gap coefficient (*) (*) With Gap-PID cc ON-OFF control	0.1 to 100.0 sec 0.0 to 100.0% Direct current output: -5.0 to 105.0% 0.0 to 10.0% Proportional band × Gap width 0.0 to 1.0					
	2DOF coefficient (y, Cd) Proportional cycle Output high limit, output low limit Gap width (*) Gap coefficient (*) (*) With Gap-PID cc ON-OFF control	0.1 to 100.0 sec 0.0 to 100.0% Direct current output: -5.0 to 105.0% 0.0 to 10.0% Proportional band × Gap width 0.0 to 1.0 introl only					
	2DOF coefficient (y , Cd) Proportional cycle Output high limit, output low limit Gap width (*) Gap coefficient (*) (*) With Gap-PID cc ON-OFF control Control method that of	0.1 to 100.0 sec 0.0 to 100.0% Direct current output: -5.0 to 105.0% 0.0 to 10.0% Proportional band × Gap width 0.0 to 1.0 ontrol only operates with only two values: ON and OFF Setting Range 0.1 to 1000.0°C (0.1 to 1800.0°F)					

Control output is turned OFF when the following control ranges are exceeded. Thermocouple input fon decimal point). Input range low limit value —50°C (90°F) to Input range high limit +50°C (90°F) Thermocouple input (decimal point). RTD input Input range high limit +50°C (90°F) Direct current input, D2 voltage input 5 caling low limit value —5 caling widh × 15 to Scaling high limit +50°C (90°F) Direct current input, D2 voltage input 5 caling low limit value —5 caling widh × 15 to Scaling high limit value + Scaling widh × 10°S (Fortrol capacity: 3 A 250 V AC (resistive load) 1 A 250 V AC (resistive lo		Thermocouple input (no deci Input range low limit value - Thermocouple input (decimal Input range low limit value - (Direct current input, DC volt Scaling low limit value - Scaling low limit value - Scaling low limit value - Scaling Input range low limit value - Scaling Input range low limit value - Scaling Input range Input ran	mal point) 50°C (90°F) to Input r. 50°C (90°F) to Input r. point), RTD input Input span × 1%, °C(°F) to age input g width × 1% to Scaling 1a Control capacity: 3 Minimum applicable load: 1 12 V DC ± 15% (for driving SSR)Max. * The power supply is from the output. 4 to 20 mA DC, 0 to Load resistance: * * The power supply is from the output. 0 to 1 V DC, 0 to 5 V (Resolution: 12000) Allowable load cresite * The power supply is from the output. Allowable load curren Load voltage: Allowable load curren Load voltage: Allowable load curren Load voltage: Allowable load curren	ange high limit $+50^{\circ}\text{C}$ (90°F) Input range high limit $+50.0^{\circ}\text{C}$ (90.0°F) Input range high limit $+50.0^{\circ}\text{C}$ (90.0°F) high limit value $+50.0^{\circ}\text{C}$ (90.0°F) A 250 V AC (resistive load) A 250 V AC (inductive load $\cos \phi = 0.4$) Electrical life: 100,000 cycles 0 mA 5 V DC 40 mA (short circuit protected) s not electrically insulated 20 mA DC (Resolution: 12000) Maximum 550 Ω s not electrically insulated DC, 1 to 5 V DC, 1 to 10 V DC nce: 1 k Ω or more not electrically insulated tt: 100 mA or less					
Input range low limit value – 50°C (90°F) to Input range high limit +50°C (90°F) Thermocouple input (decimal point, RTD input. Input range high limit +50°C (90.0°F) Direct current input, D0 voltage input span × 18)°C(F) to Input range high limit +50°C (90.0°F) Direct current input, D0 voltage input span × 18)°C(F) to Input range high limit +50°C (90.0°F) Direct current input, D0 voltage input span × 18)°C(F) to Input range high limit +50°C (90.0°F) Direct current output. Relay contact output:		Input range low limit value Thermocouple input (decimal Input range low limit value – (Direct current input, DC volt Scaling low limit value – Scaling Relay contact output: Non-contact voltage output Direct current output DC voltage output: Open collector output (NPN): Triac output: (AC output zero-cross method) Alarm Function, Loop Break Ala	-50°C (90°F) to Input n. Ipoint), RTD input Input pan × 18)°C(F) to age input g width × 18 to Scaling 1a Control capacity: 1 Minimum applicable load: 12 V DC ± 15% (for driving SSR)Max. * The power supply is from the output. 4 to 20 mA DC, 0 to 1. Load resistance: * The power supply is from the output. 4 to 1 V DC, 0 to 5 V (Resolution: 12000) Allowable load curren Load voltage: * The power supply is from the output. Allowable load curren Load voltage:	Input range high limit $\pm 50.0^{\circ}\text{C}(90.0\text{F})$ high limit value $\pm 50.0^{\circ}\text{C}(90.0\text{F})$ high limit $\pm 50.0^{\circ}\text{C}(90.0\text{F})$ high					
Thermocouple input (decimal point), RTD input range high limit + 500°C(90.0F) Direct current input, DC voltage input. Scaling low limit value. "Scaling width × 1% to Scaling high limit value + Scaling width × 10% and va		Thermocouple input (decimal Input range low limit value — (Direct current input, DC volt Scaling low limit value — Scaling low limit value — Scaling Relay contact output: Non-contact voltage output Direct current output DC voltage output: Open collector output (NPN): Triac output: (AC output zero-cross method)	point), RTD input Input span × 1%)°C(F) to age input g width × 1% to Scaling 1a Control capacity: 3 Minimum applicable load: 1 12 V DC ± 15% (for driving SSR)Max. * The power supply is from the output. 4 to 20 mA DC, 0 to 5 Load resistance: * The power supply is from the output. 0 to 1 V DC, 0 to 5 V (Resolution: 12000) Allowable load resista * The power supply is from the output. Allowable load curren Load voltage: Allowable load curren Load voltage: Allowable load curren	Input range high limit $\pm 50.0^{\circ}\text{C}(90.0\text{F})$ high limit value $\pm 50.0^{\circ}\text{C}(90.0\text{F})$ high limit $\pm 50.0^{\circ}\text{C}(90.0\text{F})$ high					
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Control capacity: 3 A 250 V AC (resistive load) 1 A 250 V AC (inductive load cos d = 0.4) Electrical life: 100,000 cycles Minimum applicable loat: 10 M A 5 V DC 12 V DC ± 15% (for driving SSR/Max. 40 mA (short circuit protected)) * The power supply is not electrically insulated from the output. 4 to 20 m A DC, 0 to 20 m A DC (Resolution: 12000) Load resistance: Maximum 550 \(\Omega) * The power supply is not electrically insulated from the output. DC voltage output: DC voltage output: Open collector output (NPN): Allowable load resistance: 1 k \(\Omega) or more * The power supply is not electrically insulated from the output. Open collector output (NPN): Allowable load resistance: 1 k \(\Omega) or more * The power supply is not electrically insulated from the output. Open collector output (NPN): Allowable load current: 100 m A or less Allowable load current: 00 m A or less Allowable load current:	Control output	Non-contact voltage output Direct current output DC voltage output: Open collector output (NPN): Triac output: (AC output zero-cross method) Alarm Function, Loop Break Ali	Control capacity: 3 Minimum applicable load: 1 12 V DC ± 15% (for driving SSR/Max. * The power supply is from the output. 4 to 20 mA DC, 0 to 1 Load resistance: N * The power supply is from the output. 0 to 1 V DC, 0 to 5 V (Resolution: 12000) (Resolution: 12000) * The power supply is from the output. Allowable load resista * The power supply is from the output. Allowable load current. Load voltage: Allowable load current.	A 250 V AC (inductive load $\cos \phi = 0.4$) Electrical life: 100,000 cycles 0 mA 5 V DC 40 mA (short circuit protected) s not electrically insulated 20 mA DC (Resolution: 12000) Maximum 550 Ω s not electrically insulated DC, 1 to 5 V DC, 1 to 10 V DC nee: 1 k Ω or more not electrically insulated					
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Non-contact voltage output Non-contact voltage output Non-contact voltage output 12 V DC ± 15% (for driving SSR/Max. 40 mA (short circuit protected) * The power supply is not electrically insulated from the output 4 to 20 mA DC, 0 to 20 mA DC (Resolution: 12000) Load resistance: Maximum 550 Ω * The power supply is not electrically insulated from the output. 4 to 20 mA DC, 0 to 20 mA DC (Resolution: 12000) Load resistance: Maximum 550 Ω * The power supply is not electrically insulated from the output. 10 to 1 V DC, 0 to 5 V DC, 1 to 5 V DC, 1 to 10 V DC (Resolution: 12000) Allowable load resistance: 1 kΩ or more * The power supply is not electrically insulated from the output. 100 mA or less Load voltage: 30 V DC or less Allowable load current: 100 mA or less Load voltage: 30 V DC or	Control output	Direct current output DC voltage output: Open collector output (NPN): Triac output: (AC output zero-cross method) Alarm Function, Loop Break Ala	Minimum applicable load: 1 12 V DC ± 15% (for driving SSR)Max. * The power supply is from the output. 4 to 20 mA DC, 0 to Load resistance: N * The power supply is from the output. 0 to 1 V DC, 0 to 5 V (Resolution: 12000) Allowable load resista * The power supply is from the output. Allowable load curren Load voltage: Allowable load curren Load voltage: Allowable load curren	Electrical life: 100,000 cycles 0 mA 5 V DC 40 mA (short circuit protected) s not electrically insulated 20 mA DC (Resolution: 12000) daximum 550 Ω s not electrically insulated DC, 1 to 5 V DC, 1 to 10 V DC noce: 1 k Ω or more not electrically insulated to 100 mA or less					
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Control output Direct current output A to 20 mA DC, 0 to 20 mA DC (Resolution: 12000) Load resistance: Maximum 550 Ω	Control output	DC voltage output: Open collector output (NPN): Triac output: (AC output zero-cross method) Alarm Function, Loop Break Ala	from the output. 4 to 20 mA DC, 0 to Load resistance: N * The power supply is from the output. 0 to 1 V DC, 0 to 5 V (Resolution: 12000) Allowable load resista * The power supply is from the output. Allowable load curren Load voltage: Allowable load curren	20 mA DC (Resolution: 12000) Maximum 550 Ω s not electrically insulated DC, 1 to 5 V DC, 1 to 10 V DC Ince: 1 k Ω or more s not electrically insulated t: 100 mA or less					
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From the output. DC voltage output: O to 1 V DC, 0 to 5 V DC, 1 to 10 V DC (Resolution: 12000) Allowable load resistance: 1 k Q or more * The power supply is not electrically insulated from the output. Open collector output (NPN): Allowable load current: 100 mA or less Load voltage: 30 V DC or less Triac output: (AC output: zero-cross method) Allowable load current: 0.5 A or less (AC output: zero-cross method) Allowable load current: 0.5 A or less (AC output: zero-cross method) Load voltage: 75 to 250 V AC Alarm Function, Loop Break Alarm, Set Value Ramp Function Power-On Return Action Selection, Non-Volatile IC Memory Data Save Selection, Automatic/Manual Control Switching, Sensor Correction Coefficient, Sensor Correction, Control Function Selection, Extension Function Selection, Output Gain/Bias Function, Input Calculation Function, Input Difference Detection Function Communication line Communication ine Communication speed Communication speed Optional Function Optional Functions Power Supply Po		Open collector output (NPN): Triac output: (AC output zero-cross method) Alarm Function, Loop Break Ala	from the output. 0 to 1 V DC, 0 to 5 V (Resolution: 12000) Allowable load resista * The power supply is from the output. Allowable load curren Load voltage: Allowable load curren	DC, 1 to 5 V DC, 1 to 10 V DC nce: $1 \text{ k}\Omega$ or more in ot electrically insulated to 100 mA or less					
DC voltage output: Oto 1 V DC, 0 to 5 V DC, 1 to 5 V DC, 1 to 10 V DC (Resolution: 12000) Allowable load resistance: 1 kΩ or more * The power supply is not electrically insulated from the output. Open collector output (NPN): Allowable load current: 100 mA or less Load voltage: 30 V DC or less Allowable load current: 10.5 A or less (AC output zero-cross method) Load voltage: 75 to 250 V AC Alarm Function, Loop Break Alarm, Set Value Ramp Function, Power-On Return Action Selection, Non-Volatile IC Memory Data Save Selection, Automatic/Manual Control Switching, Sensor Correction Coefficient, Sensor Correction, Control Function Selection, Extension Function Selection, Output Gain/Bias Function, Input Calculation Function, Input Difference Detection Function Power Communication line Communication ine Communication method Communication method Communication speed Communication speed Selecting 9600, 19200, 38400, or 57800 bps is possible using the DIP switches. (Factory default: 57600 bps) Synchronization method Data bit/parity Parity: Selecting even, odd, or no parity is possible using the communication specification selection DIP switch. (Factory default: 8 bits / Even) Stop bit Stop bit Stop bit Stop bit 1 07 2 This function enables a serial communication connection with Mitsubishi Electric Communication protocol MODBUS RTU Start bit 1 Data bit 8 Parity Enabled (even, odd), Disabled Stop bit 1 or 2 This function enables a serial communication connection with Mitsubishi Electric MELSEC-Q series PLCs and writes/reads various data to/from the PLC register using the Communication protocol The communication protocol uses QW and QR commands, and PLCs capable of using A-compatible IC frame AnA/AnU common commands (QR/QW) (D resister) are supported.		Open collector output (NPN): Triac output: (AC output zero-cross method) Alarm Function, Loop Break Ala	0 to 1 V DC, 0 to 5 V (Resolution: 12000) Allowable load resista * The power supply is from the output. Allowable load curren Load voltage: Allowable load curren	nce: $1 \text{ k}\Omega$ or more not electrically insulated t: 100 mA or less					
Allowable load resistance: 1 kΩ or more * The power supply is not electrically insulated from the output. Open collector output (NPN): Allowable load current: 100 mA or less allowable load current: 0.5 A or less Allowabl		Triac output: (AC output zero-cross method) Alarm Function, Loop Break Ala	Allowable load resista * The power supply is from the output. Allowable load curren Load voltage: Allowable load curren	not electrically insulated t: 100 mA or less					
* The power supply is not electrically insulated from the output. Open collector output (NPN): Allowable load current: 100 mA or less and voltage: 30 V DC or less Allowable load current: 0.5 A or less (AC output zero-cross method) Load voltage: 75 to 250 V AC Standard Functions Allowable load current: 0.5 A or less (AC output zero-cross method) Load voltage: 75 to 250 V AC Alarm Function, Loop Break Alarm, Set Value Ramp Function, Power-On Return Action Selection, Non-Volatile IC Memory Data Save Selection, Automatic/Manual Control Switching, Sensor Correction Coefficient, Sensor Correction, Control Function Selection, Extension Function Selection, Output Gain/Bias Function, Input Calculation Function, Input Difference Detection Function Optional Functions Optional Functions Communication method Communication ine Communication method Communication speed Selecting 9600, 19200, 38400, or 57600 bps is possible using the DIP switches. (Factory default: 37600 bps) Synchronization method Data bit/parity Data bits: 8 Parity: Selecting even, odd, or no parity is possible using the communication specification selection DIP switch. (Factory default: 8 bits / Even) Slepting for 2 is possible using the communication specification selection DIP switch. (Factory default: 1) Oto 1000 ms (Factory default: 0 ms) The response from the module after receiving a command from the host can be delayed. Start bit 1 Data bit 8 Parity Enabled (even, odd), Disabled Stop bit 1 or 2 This function enables a serial communication connection with Mitsubishi Electric MELSEC-0 series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.		Triac output: (AC output zero-cross method) Alarm Function, Loop Break Ala	* The power supply is from the output. Allowable load curren Load voltage: Allowable load curren	not electrically insulated t: 100 mA or less					
Open collector output (NPN): Load voltage: 30 V DC or less Allowable load current: 0.5 A or less 30 V DC or less 30 V DC or less Allowable load current: 0.5 A or less 30 V DC or less Allowable load current: 0.5 A or less 30 V DC or less Allowable load current: 0.5 A or less 30 V DC or less 75 to 250 V AC Alarm Function, Loop Break Alarm, Set Value Ramp Function, Power-On Return Action Selection, Non-Volatile IC Memory Data Save Selection, Automatic/Manual Control Switching, Sensor Correction Coefficient, Sensor Correction, Control Function Selection, Extension Function Selection, Output Gain/Bias Function, Input Calculation Function, Input Difference Detection Function Optional Functions Communication line Communication method Communication speed Communication method Communication method Data bit/parity Parity: Selecting 9600, 19200, 38400, or 57600 bps is possible using the DIP switches. (Factory default: 57600 bps) Synchronization method Data bit/parity Data bits: 8 Selecting even, odd, or no parity is possible using the communication specification selection DIP switch, (Factory default: 8 bits / Even) Stop bit Selecting 1 or 2 is possible using the communication specification selection DIP switch, (Factory default: 8 bits / Even) Stop bit Selecting 1 or 2 is possible using the communication specification selection DIP switch, (Factory default: 8 bits / Even) The response from the module after receiving a command from the host can be delayed. Data structure Communication protocol MODBUS RTU Start bit 1		Triac output: (AC output zero-cross method) Alarm Function, Loop Break Ala	Allowable load curren Load voltage: Allowable load curren						
Triac output: (AC output zero-cross method) Allowable load current: 0.5 A or less 75 to 250 V AC Alarm Function, Loop Break Alarm, Set Value Ramp Function, Power-On Return Action Selection, Non-Volatile IC Memory Data Save Selection, Automatic/Manual Control Switching, Sensor Correction Coefficient, Sensor Correction, Control Function Selection, Extension Function Selection, Output Gain/Bias Function, Input Calculation Function, Input Difference Detection Function Optional Functions Communication line Communication method Communication speed Communication speed Communication method Communication method Data bit/parity Data bits: Parity: Selecting 9600, 19200, 38400, or 57600 bps is possible using the DIP switches. (Factory default: 57600 bps) Start-rstop synchronization DIP switch. (Factory default: 8 bits / Even) DIP switch. (Factory default: 8 bits / Even) DIP switch. (Factory default: 8 bits / Even) The response from the module after receiving a communication specification selection DIP switch. (Factory default: 1) Data structure Communication protocol MODBUS RTU Start bit 1 Data bit 8 Parity Enabled (even, odd), Disabled Stop bit 1 or 2 This function enables a serial communication connection with Mitsubishi Electric MELSEC-Q series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are suppo		Triac output: (AC output zero-cross method) Alarm Function, Loop Break Ala	Load voltage: Allowable load curren						
Triac output: (AC output zero-cross method) Allowable load current: Doad voltage: 75 to 250 V AC Alarm Function, Loop Break Alarm, Set Value Ramp Function, Power-On Return Action Selection, Non-Volatile IC Memory Data Save Selection, Automatic/Manual Control Switching, Sensor Correction Coefficient, Sensor Correction, Control Function Selection, Extension Function Selection, Output Gain/Bias Function, Input Calculation Function, Input Difference Detection Function Power Supply / Heater Burnout Alarm, Event Input, Event Output Communication line Communication method Communication speed Selecting 9600, 19200, 38400, or 57600 bps is possible using the DIP switches. Synchronization method Data bit/parity Data bits: 8 Parity: Selecting even, odd, or no parity is possible using the communication specification selection DIP switch. (Factory default: 8 bits / Even) Selecting 1 or 2 is possible using the communication specification selection DIP switch. (Factory default: 1) to to 1000 ms (Factory default: 0 ms) The response from the module after receiving a command from the host can be delayed. Data structure Communication protocol MODBUS RTU Start bit 1 Data bit 8 Parity Enabled (even, odd), Disabled This function enables a serial communication connection with Mitsubishi Electric MELSEC-Q series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.		(AC output zero-cross method) Alarm Function, Loop Break Ala	Allowable load curren						
Standard Functions Alarm Function, Loop Break Alarm, Set Value Ramp Function, Power-On Return Action Selection, Non-Volatile IC Memory Data Save Selection, Automatic/Manual Control Switching, Sensor Correction Coefficient, Sensor Correction, Control Function Selection, Extension Function Selection, Output Gain/Bias Function, Input Calculation Function, Input Difference Detection Function Optional Functions Heater Burnout Alarm, Event Input, Event Output Communication line Communication method Communication method Communication speed Selecting 9600, 19200, 38400, or 57600 bps is possible using the DIP switches. (Factory default: 57600 bps) Synchronization method Data bit/parity Data bits: 8 Parity: Selecting even, odd, or no parity is possible using the communication specification selection DIP switch. (Factory default: 8 bits / Even) Selecting 1 or 2 is possible using the communication specification selection DIP switch. (Factory default: 1) Otal 1000 ms (Factory default: 0 ms) The response from the module after receiving a command from the host can be delayed. Data structure Communication protocol MODBUS RTU Start bit 1 0 ata bit 8 Parity Enabled (even, odd), Disabled Stop bit 1 or 2 This function enables a serial communication connection with Mitsubishi Electric MELSEC-Q series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.		Alarm Function, Loop Break Ala	Load voltage:						
Power-On Return Action Selection, Non-Volatile IC Memory Data Save Selection, Automatic/Manual Control Switching, Sensor Correction Coefficient, Sensor Correction, Control Function Selection, Extension Function Selection, Output Gain/Bias Function, Input Calculation Function, Input Difference Detection Function Detection Function Power Supply Response delay time setting Oto 1000 ms (Factory default: 97 defau				75 to 250 V AC					
Standard Functions Automatic/Manual Control Switching, Sensor Correction Coefficient, Sensor Correction, Control Function Selection, Extension Function Selection, Output Gain/Bias Function, Input Calculation Function, Input Difference Detection Function Power Supply / Heater Burnout Alarm, Event Input, Event Output Communication line Communication speed Communication speed Communication speed Selecting 9600, 19200, 38400, or 57600 bps is possible using the DIP switches. (Factory default: 57600 bps) Synchronization method Data bit/parity Data bits: 8 Parity: Selecting even, odd, or no parity is possible using the communication specification selection DIP switch. (Factory default: 8 bits / Even) Stop bit Selecting 1 or 2 is possible using the communication specification selection DIP switch. (Factory default: 1) O to 1000 ms (Factory default: 0 ms) The response from the module after receiving a command from the host can be delayed. Data structure Communication protocol MODBUS RTU Start bit 1 Data bit 8 Parity Enabled (even, odd), Disabled Stop bit 1 or 2 This function enables a serial communication connection with Mitsubishi Electric MELSEC-Q series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.			arm, Set Value Ramp Fu	nction,					
Sensor Correction, Control Function Selection, Extension Function Selection, Output Gain/Bias Function, Input Calculation Function, Input Difference Detection Function Optional Functions Heater Burnout Alarm, Event Input, Event Output Communication line Communication Method Communication speed Selecting 9600, 19200, 38400, or 57600 bps is possible using the DIP switches. (Factory default: 57600 bps) Synchronization method Start-stop synchronization Data bit/ parity Data bits: 8 Parity: Selecting even, odd, or no parity is possible using the communication specification selection DIP switch. (Factory default: 8 bits / Even) Stop bit Selecting 1 or 2 is possible using the communication specification selection DIP switch. (Factory default: 1) Oto 1000 ms (Factory default: 0 ms) The response from the module after receiving a command from the host can be delayed. Data structure Communication protocol MODBUS RTU Start bit 1 Data bit 8 Parity Enabled (even, odd), Disabled Stop bit 1 or 2 This function enables a serial communication connection with Mitsubishi Electric MELSEC-Q series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.	Standard								
Optional Functions Communication line Communication method Communication speed									
Functions Communication line		Output Gain/Bias Function, Inp	out Calculation Function,	Input Difference Detection Function					
Communication line Communication method Communication speed Communication speed Communication speed Communication speed Communication speed Communication speed Selecting 9600, 19200, 38400, or 57600 bps is possible using the DIP switches. (Factory default: 57600 bps) Synchronization method Data bit/parity Data bits: 8 Parity: Selecting even, odd, or no parity is possible using the communication specification selection DIP switch. (Factory default: 8 bits / Even) Stop bit Selecting 1 or 2 is possible using the communication specification selection DIP switch. (Factory default: 0 ms) The response from the module after receiving a command from the host can be delayed. Data structure Communication protocol MODBUS RTU Start bit 1 Data bit 8 Parity Enabled (even, odd), Disabled Stop bit 1 or 2 This function enables a serial communication connection with Mitsubishi Electric MELSEC-Q series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.		Heater Burnout Alarm, Event Input, Event Output							
Communication method Communication speed Communication speed Communication speed Synchronization method Data bit/ parity Parity: Selecting even, odd, or no parity is possible using the DIP switches. Selecting even, odd, or no parity is possible using the communication specification selection DIP switch. (Factory default: 8 bits / Even) Stop bit Selecting even, odd, or no parity is possible using the communication specification selection DIP switch. (Factory default: 8 bits / Even) Selecting of or 2 is possible using the communication specification selection DIP switch. (Factory default: 1) O to 1000 ms (Factory default: 0 ms) The response from the module after receiving a command from the host can be delayed. Data structure Communication protocol MODBUS RTU Start bit 1 Data bit 8 Parity Enabled (even, odd), Disabled Stop bit 1 or 2 This function enables a serial communication connection with Mitsubishi Electric MELSEC-Q series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of are supported.	Tanoasis	, , ,							
Communication speed Selecting 9600, 19200, 38400, or 57600 bps is possible using the DIP switches. (Factory default: 57600 bps) Synchronization method Data bit/parity Parity: Power Supply / Host Communication Function (QTC1-2/QTC1-4) Response delay time setting Data structure Communication protocol Start bit Data bit Barity Response delay time setting Data bit setting Dip switch. (Factory default: 8 bits / Even) Selecting on even, odd, or no parity is possible using the communication specification selection DIP switch. (Factory default: 8 bits / Even) Selecting 1 or 2 is possible using the communication specification selection DIP switch. (Factory default: 1) Oto 1000 ms (Factory default: 0 ms) The response from the module after receiving a command from the host can be delayed. Data structure Communication protocol MODBUS RTU Start bit 1 Data bit 8 Parity Enabled (even, odd), Disabled Stop bit 1 or 2 This function enables a serial communication connection with Mitsubishi Electric MELSEC-Q series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of are supported.									
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Synchronization method Data bits: 8 Parity: Selecting even, odd, or no parity is possible using the communication specification selection DIP switch. (Factory default: 8 bits / Even) Stop bit Selecting or 2 is possible using the communication specification selection DIP switch. (Factory default: 8 bits / Even) Selecting or 2 is possible using the communication specification selection DIP switch. (Factory default: 1) Oto 1000 ms (Factory default: 0 ms) The response from the module after receiving a command from the host can be delayed. Data structure Communication protocol MODBUS RTU									
Parity: Selecting even, odd, or no parity is possible using the communication specification selection DIP switch. (Factory default: 8 bits / Even) Stop bit Selecting 1 or 2 is possible using the communication specification selection DIP switch. (Factory default: 0 ms) Response delay time setting 0 to 1000 ms (Factory default: 0 ms) The response from the module after receiving a command from the host can be delayed. Data structure Communication protocol MODBUS RTU		Synchronization method							
Communication specification selection DIP switch. (Factory default: 8 bits / Even)									
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Support Selection Select	Power Supply /		DIP switch. (Factory	default: 8 bits / Even)					
Response delay time setting 0 to 1000 ms (Factory default: 0 ms) The response from the module after receiving a command from the host can be delayed. Data structure Communication protocol MODBUS RTU Start bit 1 Data bit 8 Parity Enabled (even, odd), Disabled Stop bit 1 or 2 This function enables a serial communication connection with Mitsubishi Electric MELSEO-Q series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol uses GW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.	Function	Stop bit							
Command from the host can be delayed. Data structure Communication protocol MODBUS RTU	(QTC1-2/QTC1-4)	Response delay time setting							
Data structure Communication protocol MODBUS RTU				_					
Communication protocol MODBUS RTU Start bit 1 Data bit 8 Parity Enabled (even, odd), Disabled Stop bit 1 or 2 This function enables a serial communication connection with Mitsubishi Electric MELSEC-Q series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.		Data structure	command from the ho	ost can be delayed.					
Start bit 1 Data bit 8 Parity Enabled (even, odd), Disabled Stop bit 1 or 2 This function enables a serial communication connection with Mitsubishi Electric MELSEC-Q series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.			MODBUS RT	II.					
Data bit Parity Enabled (even, odd), Disabled Stop bit 1 or 2 This function enables a serial communication connection with Mitsubishi Electric MELSEC-Q series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.									
Stop bit 1 or 2 This function enables a serial communication connection with Mitsubishi Electric MELSEC-Q series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.		Data bit	8						
Smart InterFace (SIF) Function (Program-less communication) This function enables a serial communication connection with Mitsubishi Electric MELSEC-Q series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.		Parity	Enabled (even, odd),	Disabled					
Smart InterFace (SIF) Function (Program-less communication protocol uses QW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.		Stop bit	1 or 2						
Smart InterFace (SIF) Function (Program-less communication function) MELSEC-Q series PLCs and writes/reads various data to/from the PLC register using the PLC communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.									
(SIF) Function (Program-less communication protocol. The communication protocol uses QW and QR commands, and PLCs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.	Smart InterFace								
communication function) Ine communication protocol uses UW and UR commands, and PLUs capable of using A-compatible 1C frame AnA/AnU common commands (QR/QW) (D resister) are supported.									
are supported.	communication								
Power failure countermeasures Self-diagnosis Automatic cold junction	function)		E ANA/ AND COMMON C	ommands (QR/ QW) (D resister)					
FOWER INDICE COURTERINGS NAIT-DISCOURS AUTOMOTIC COID DISCTION		Power failure	roo Colf-diai- A	amatic cold innetice					
temperature, Compensation,			es, Seit-diagnosis, Aut	omatic cold junction					
Attached PV filter time constant setting, Moving average count setting, CH enable/disable		PV filter time constant setting							
selection, Overscale, Underscale, Sensor error, Cold junction error, ADC error, Warm-up display, Cumulative contact open/close count measurement function,									
Cumulative energization time measurement function, Cumulative heater energization		Cumulative energization time	measurement function	n, Cumulative heater energization					
time, measurement function, Error history, Console communication		time, measurement function,	Error history, Console	communication					
Power supply 24 V DC Allowable fluctuation range: 20 to 28 V DC		24 V DC Allowable fluct	uation range: 20 to 28	V DC					
	voltage		-						

Accessories Sold Separately

recessories sora separatery							
Product Name	Model						
50 Ω shunt resistor	RES-S01-050						
Front terminal cover	TC-QTC						
CT for 20 A	CTL-6-S-H (*1)						
CT for 100 A	CTL-12-S36-10L1U (*1)						
Heater burnout alarm connector harness	WQ (*1)						
Event input/output connector harness	EVQ (*2)						

(*1) For heater burnout alarm (heater burnout alarm option symbols: 2, A)

Communication Expansion Module QMC1



Model name

QMC1	-0		-0	
Communication	C4			RS-422A
type	C5			RS-485 (*1)
		0		No options
Event input/		1		Event input 4 points (*2)
output options		2		Event output 4 points (*2)
		3		Event input 2 points, Event output 2 points (*2)
0			0	Console selection (MODBUS RTU / SIF) (*1)
Communication prote	ocoi		1	C series compatible

(*1): When connecting to an OMRON PLC or Keyence PLC using the SIF function (Smart InterFace, program-less communication function), it cannot be connected using the RS-485 communication type (QMC1-C5). Use communication type RS-422A(QMC1-C4).

(*2): The plug side connector of the event input/output connector is sold separately

Communication lines	EIA RS-422A compliant EIA RS-485 compliant							
Communication method	Half-duplex communication							
Synchronization method	Start-stop synchronization	Start-stop synchronization						
Communication speed	Selecting 9600, 19200, 38400, or 57600 bps is possible using the DIP switches. (Factory default: 9600 bps)							
Data bit/ parity	Data bit: 7 bits, 8 bits (Factory default: 8 bits) Parity bit: With parity, No parity (Factory default: With parity) Parity: Even, Odd (Factory default: Even) Select by communication specification selection DIP switch							
Stop bit	Selecting 1 or 2 is possible using the communication specification selection DIP switch. (Factory default: 1 bit)							
Response delay time setting	0 to 1000 ms (Factory default: 0 ms) The response from the module after receiving a command from the host can be delayed.							
	Communication protocol MODBUS	Register	Communication command					
	Made by Mitsubishi Electric	D register	QR/QW					
Communication protocol	Made by Mitsubishi Electric	-						
(Set with console software)	Made by Mitsubishi Electric D register WR/WW							
	Made by Mitsubishi Electric R register WR/WW							
	Made by OMRON	DM register	FINS command					
	Made by Keyence	DM register	RDS/WRS					
	C series compatible protocols are selected by model name.							
Number of connections	Control module: Max 16 modules							
Event Input (optional)	No. of inputs 4 or 2 Input method Voltage contact input sink method Circuit current when closed Approx. 6 mA Reading judgment time Approx. 100 ms							
Event Output (optional)	No. of outputs 4 or 2 Circuit NPN open collector Maximum load voltage 30 V DC Maximum load capacity 50 mA							
Attached Functions	Power failure countermeasures Cumulative energization time n		display,					
Power supply voltage	24 V DC Allowable fluctuation range: 20 to 28 V DC							

Accessories Sold Separately

Product Name	Model
Communication cable (USB Type A - Modular)	CMC-001-4
Communication cable [Modular - Y terminal (RS-485, 3-wire)]	CQM-001
Communication cable [Modular - Y terminal (RS-422A, 5-wire)]	CQM-002
Communication cable (Modular - Modular)	CQQ-001
Wiring connector	0225-0805 (*)

^{(*):} For event input/output (event input/output option symbols: 1, 2, 3)

^(*2) For event input or event output (event input/output option symbols: 1, 2)