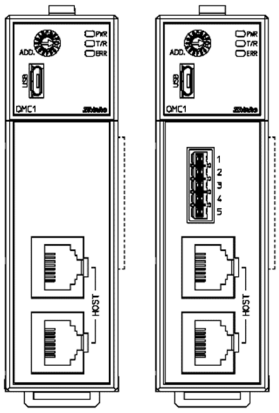
Communication Expansion Module Model: QMC1



■ Model

(e.g.) QMC1 — C5 3 — 0

Communication type: RS-485
Event input/output option: Event input 2 points, Event output 2 points
Communication protocol: Console selection (MODBUS RTU / SIF)

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

(*1): When connecting to an OMRON PLC using the SIF function (Smart InterFace, programless 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.

■ Accessories Sold Separately

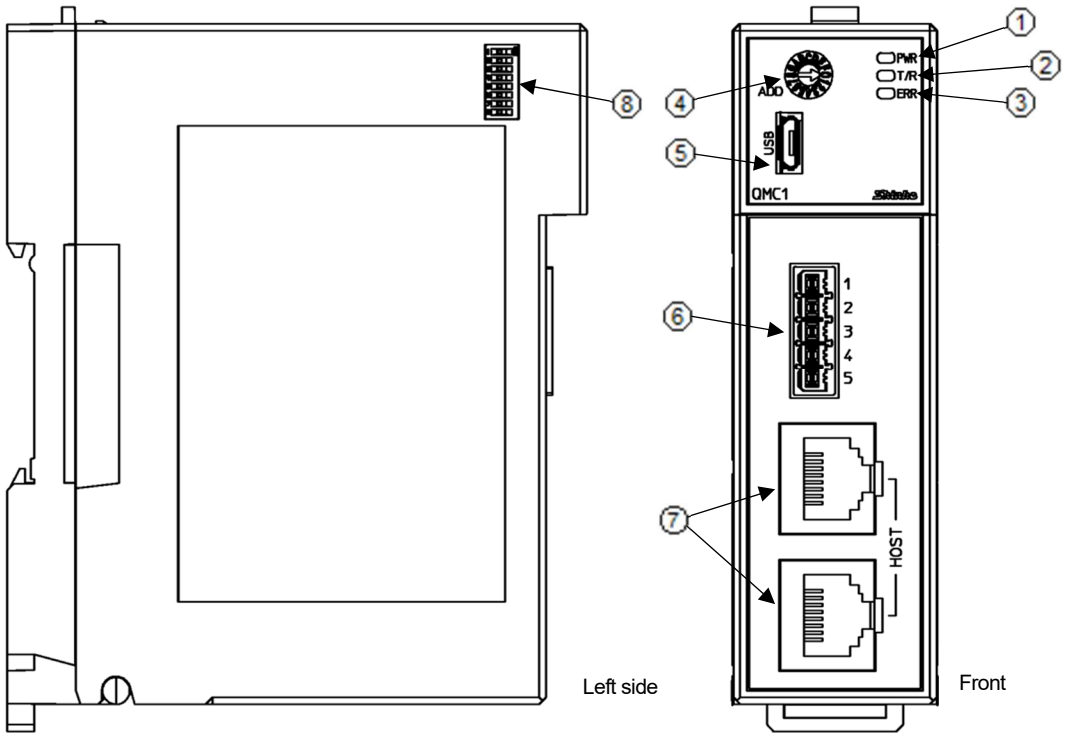
Product Name	Model
Communication cable (USB Type-A- Modular)	CMC-001-4
Communication cable [Modular - Y terminal (RS-485, 3-wire)]	CQM-001
Communication cable [Modular - Y terminal (RS-422A, 5-wire)]	CQM-002
Communication cable (Modular - Modular)	CQQ-001
Wiring connector	0225-0805 (*)

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

■ General Structure

Weight		Approx. 130 g
Dimensions		30 × 100 × 85 mm (W × H × D)
Mounting method		DIN rail mounting
Case material, color		Case material: Flame-resistant resin, Color: Black
Panel		Polycarbonate sheet
Standards (*)	EN	EN61010-1 (Pollution degree 2, Overvoltage category Ⅱ)
	EC (EMC directive)	EMI: EN61326 Electric-field strength of radiated disturbance: EN55011 Group 1, Class A Terminal noise voltage: EN55011 Group 1, Class A EMS: EN61326

■ Indication Structure / Settings Structure



Action Indicator

No.	Symbol (color)	Name, Task
①	PWR (green)	Power indicator Off: No power supplied to module On: Power supplied to module Flashing for 500 ms (3 seconds): Warming up the instrument Flashing for 500 ms (always): Non-voltage IC memory error
②	T/R (yellow)	Communication indicator On: Serial communication TX output
③	ERR (red)	ERR indicator Off: Normal communication On (1 second): When communication with the slave unit is abnormal (when communication is not established continuously after warm-up) Flashing for 250 ms (always): When powered by bus power from the PC

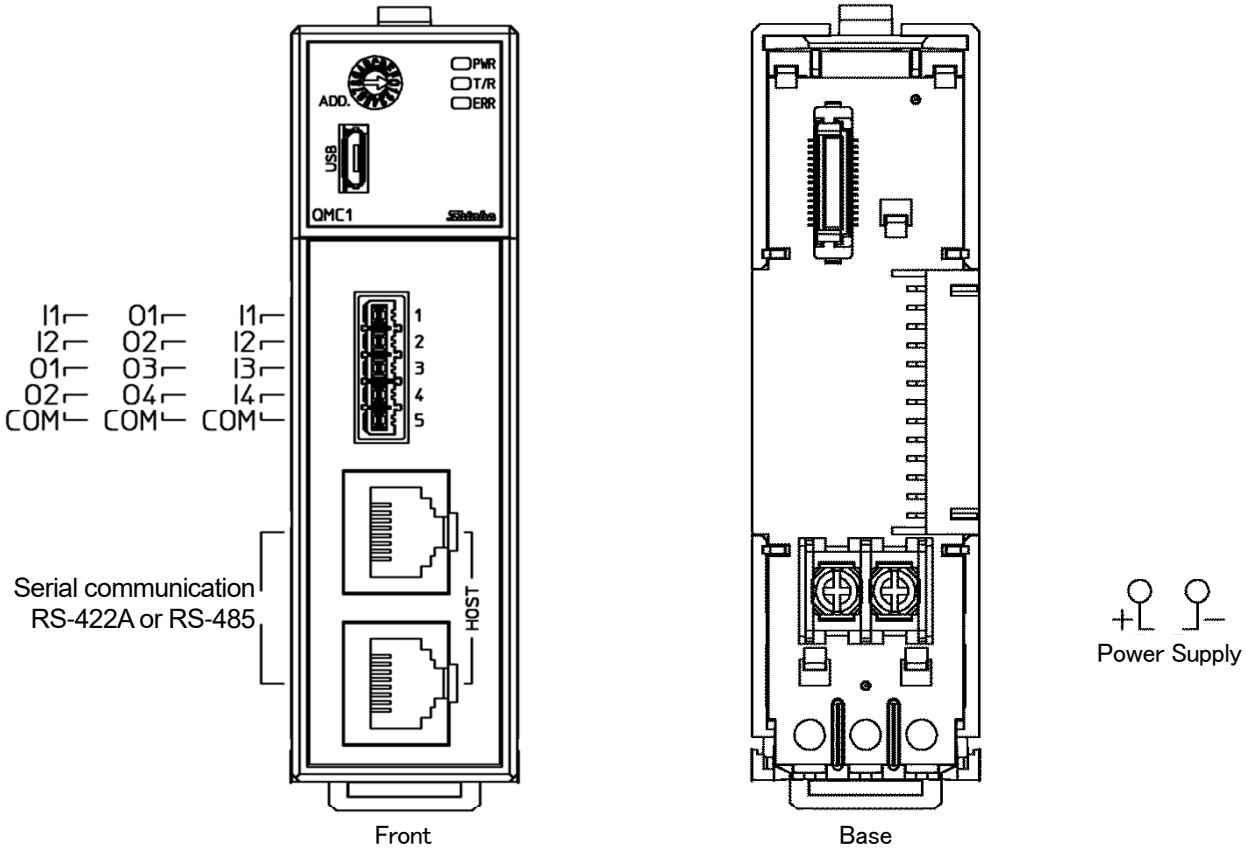
Switches, Connectors

No.	Symbol	Name, Task
④	ADD.	Rotary switch for module address selection Use the rotary switch to select the module address from 0 to F (1 to 16). When QMC1-□□□-1 (C series compatible specification), the selected 0 to F (0 to 15) is the address of the module.
⑤	USB	Micro USB Type-B console communication connector
⑥		Event input/output connector (*)
⑦		Communication connector to PLC or host (RJ-45)
⑧		DIP switches for selecting communications specification Use the DIP switches for selecting the communication speed, data bit, parity and stop bit.

(*): When using the event input/output option (event input/output option symbols: 1, 2, 3)

■ Terminal Arrangement

QMC1−□□□−□



■ Standard Functions

Inter-host communication

Relays communication between host computer or PLCs made by each manufacturer and functional modules.	
Communication lines	EIA RS-422A compliant EIA RS-485 compliant
Communication method	Half-duplex communication
Synchronization method	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 (Set with console software)	<table><tr><th>Communication protocol</th><th>Register</th><th>Communication command</th></tr><tr><td>MODBUS</td><td>—</td><td>—</td></tr><tr><td>Made by Mitsubishi Electric</td><td>D register</td><td>QR/QW</td></tr><tr><td>Made by Mitsubishi Electric</td><td>R register</td><td>QR/QW</td></tr><tr><td>Made by Mitsubishi Electric</td><td>D register</td><td>WR/WW</td></tr><tr><td>Made by Mitsubishi Electric</td><td>R register</td><td>WR/WW</td></tr><tr><td>Made by OMRON</td><td>DM register</td><td>FINS command</td></tr><tr><td>Made by Keyence</td><td>DM register</td><td>RDS/WRS</td></tr></table> C series compatible protocols are selected by model name.
Number of connections	Control module: Max 16 modules For C SERIES COMPATIBLE, max 5 modules
SIF function (Smart InterFace, programless communication function)	A function that writes and reads various data into and out of PLC registers using the communication protocols of PLCs from each manufacturer.

Inter-module communication

Communication line	Internal bus
Communication method	Half-duplex communication
Synchronization method	Start-stop synchronization
Communication speed	57600 bps
Data bit/parity	Data bit: 8 bits Parity: Even
Stop bit	1 bit

Console communication

The following operations are performed from an external computer using the tool cable connector. (1) Read and select host communication protocols, event input assignments, and event output assignments (2) Operation ststus reading (3) Read and set the each setting value of the SIF function (4) Function changes	
Communication specifications	Cable used Commercially available (micro USB Type-B)

■ Optional Functions

Event Input (Event input/output option symbol: 1, 3)

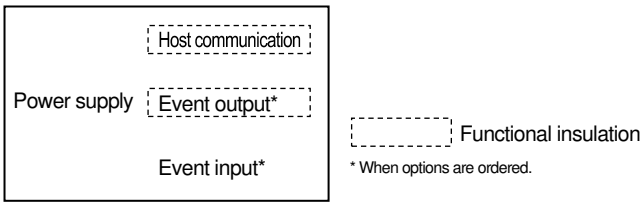
When an event input is input, the operations selected by the QMC1 event input assignment selection are performed. Non-existent event input will be invalid.	
Event input assignment selection	Status read by communication, control allowed/ prohibited
No. of inputs	4 or 2
Input method	Voltage contact input sink method
Circuit current when closed	Approx. 6 mA
Reading judgment time	Approx. 100 ms

Event Output (Event input/output option symbol: 2, 3)

The operations selected by the QMC1 event output assignment selection are performed. Non-existent event output will be invalid.	
Event output assignment selection	Output ON/OFF designation by communication, Alarm 1, Alarm 2, Alarm 3, Alarm 4, Heater burnout alarm, Loop break alarm
No. of outputs	4 or 2
Circuit	NPN open collector
Maximum load voltage	30 V DC
Maximum load capacity	50 mA

■ Insulation / Dielectric Resistance

Circuit Insulation Configuration



When event input/output is added simultaneously, the connection between event output and power supply is not isolated.

Insulation resistance	500 V DC, 10 MΩ or more
Dielectric resistance	Between Power terminal and ground: 1.5 kV AC for 1 minute Between Power terminal and Communication: 1.5 kV AC for 1 minute

■ Environmental Conditions

Ambient temperature	-10 to 55°C (Non-condensing, no icing)
Ambient humidity	35 to 85% RH (Non-condensing)
Environmental specifications	Compliant with revised RoHS Directive (RoHS2)

■ Attached Functions

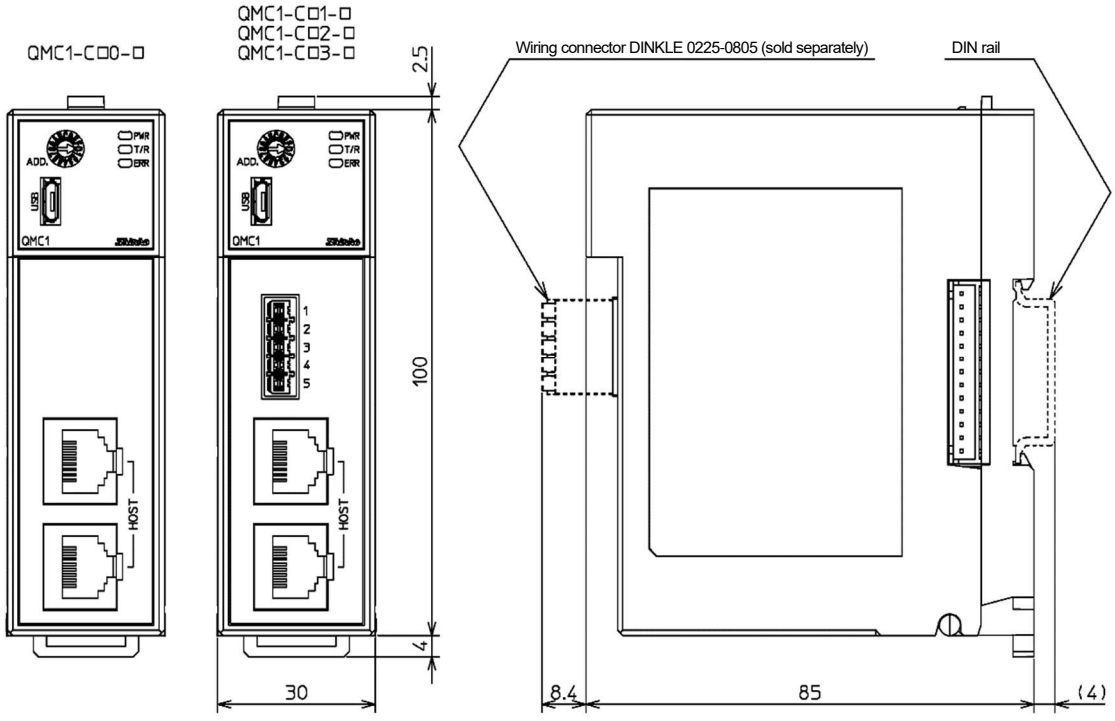
Power failure countermeasures	Setting data is backed up to non-volatile IC memory.
Self-diagnosis	The watchdog timer monitors the CPU, and if an error occurs, all outputs are turned OFF and the instrument is initialized.
Warm-up display	After the power is turned on, the power indicator flashes every 500 ms for about 3 seconds.
Total energizing time measurement function	It can check and set the time that the power is on.

■ Other

Power supply voltage	24 V DC Allowable fluctuation range: 20 to 28 V DC	
Power consumption	3 W or less	
Rush current	Max. 10 A	
Accessories included	Power supply terminal cover (1) Mounting and wiring instruction manual (1)	
Accessories sold separately	Communication cable (USB Type-A - Modular) Communication cable [Modular - Y terminal (RS-485, 3-wire)] Communication cable [Modular - Y terminal (RS-422A, 5-wire)] Communication cable (Modular - Modular) Wiring connector	(CMC-001-4) (CQM-001) (CQM-002) (CQQ-001) (0225-0805)
Instruction manual	Please download the full Instruction Manual from the Shinko website. http://www.shinko-technos.co.jp/e/	

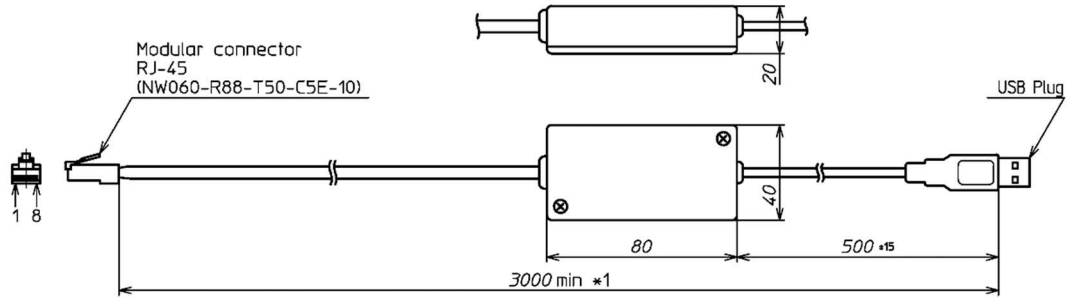
■ Dimensions (Scale: mm)

Main Unit

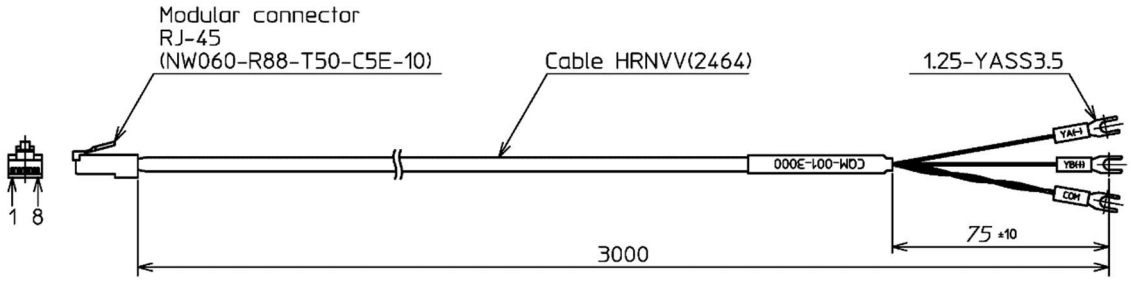


Accessories Sold Separately

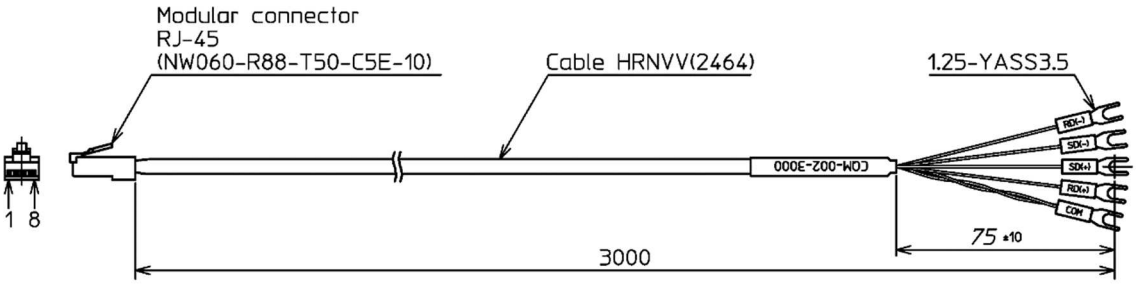
Communication cable (USB Type-A - Modular)　CMC-001-4



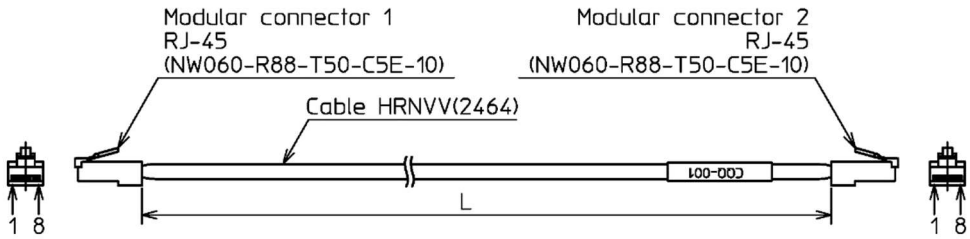
Communication cable [Modular - Y terminal (RS-485, 3-wire)]　CQM-001



Communication cable [Modular - Y terminal (RS-422A, 5-wire)]　CQM-002

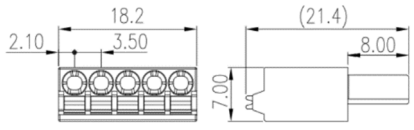


Communication cable (Modular - Modular)　CQQ-001



L:500,1000,3000　Specify when ordering

Wiring connector　0225-0805



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