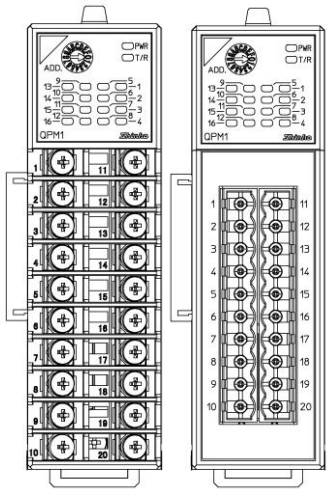


Pulse Input Module

Model: QPM1-PI16

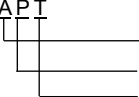
Functions and Features

- 16 points pulse input module
- For host communication, MODBUS/RTU or CUnet can be selected



Model

(e.g.) QPM1 - PI16 A P T



Common: Plus common (NPN)
Power supply / communication option: With power supply / host communication function
Wiring type: Terminal block type

QPM1	-PI16	☐	☐	☐	
Points	PI16				Input 16 points
Plus/Minus common		A			Plus common (NPN)
		B			Minus common (PNP)
Power supply / communication option		0			No option
		P			With power supply / host communication function
		C			With power supply / CUnet communication function
Wiring type				T	Terminal block type
				C	Connector type

Accessories Sold Separately

Product Name	Model
Front terminal cover	TC-QTC
Termination resistor	RES-S07-100 100 Ω

■Rating

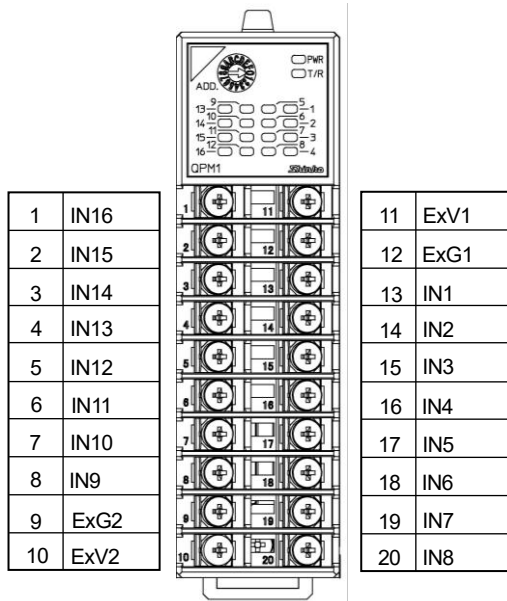
Input	
Common	Plus/Minus common (NPN/PNP compatible)
Input points	16 points
Input indicator	Green LED lights up when ON
Allowable range of input power supply voltage	24 V DC ±10%, ripple content 5% p-p or less
Input ON voltage/ON current	15V DC or more / 3.5mA or more
Input OFF voltage/OFF current	5 V DC or less / 1 mA or less
Input current	5.5 mA or less (at 24 V DC)
Input resistance	Approximately 4.7 kΩ
Digital input ON delay time	0.2 ms or less
Digital input OFF delay time	0.5ms or less
Integrated value reset input delay time	0.2ms or less
Integrated value reset input minimum width	0.5 ms or more (both ON and OFF)
Pulse input minimum pulse width	500 μs or more (both ON and OFF)
Input acquisition cycle	1 to 100 ms
	(default: 1 ms; configurable via communication; applies to all CHs) (Fixed at 0.2 ms for pulse input)

■General Structure

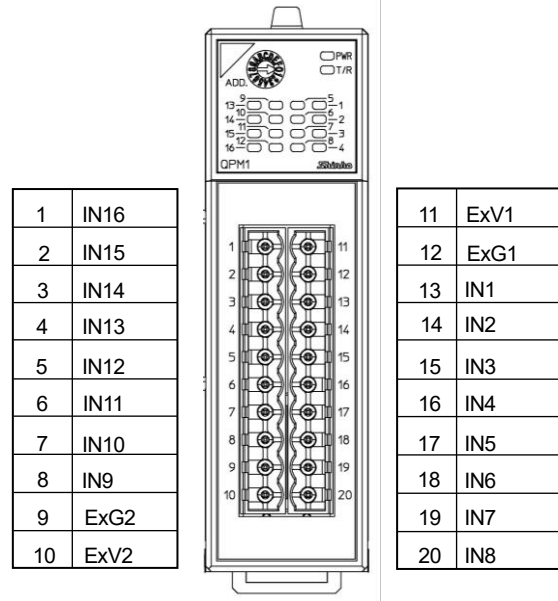
Weight	Approx. 160 g
External dimensions	30 × 100 × 85 mm (W × H × D excluding protrusion) 95 mm depth when the terminal cover is attached
Mounting type	DIN rail mounting type
Case	Flame-resistant resin, Color: Black

■ Terminal Arrangement

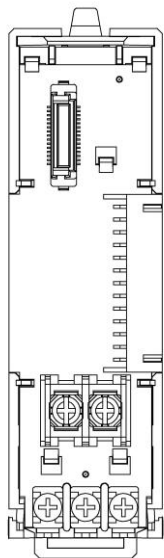
Terminal block type



Connector type

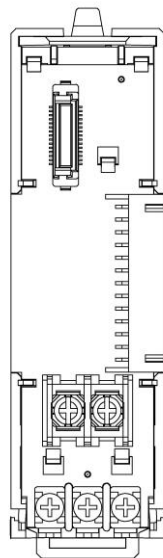


[Base part] QPM-PI16□P□



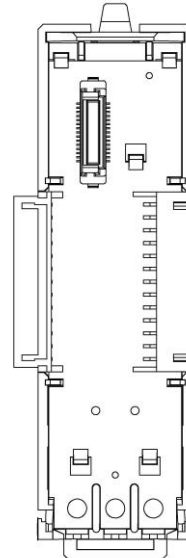
+ -
 Power supply voltage
 24 V DC
 - + -
 YA YB SG
 Serial communication
 RS-485

[Base part] QPM-PI16□C□



+ -
 Power supply voltage
 24 V DC
 - + -
 TRX TRX SG
 CUnet communication

[Base part] QPM-PI16□0□



■ Indication Structure / Settings Structure

Operation indicator

Symbol (color)	Name and Function
PWR (Green)	Power indicator Lights up: When power supply to this instrumen
T/R (Yellow)	Communication indicator Lights up: When communication with another device is established
Inx (Green)	Input indicator Lights up: When pulse input is ON (1 point/1 channel)

Switches, Connectors

Symbol	Name and Function
ADD	Module address setting rotary switch The module address is the value of the selected rotary switch plus one.
	Communication specification setting dip switch Set the communication specifications such as communication speed, data bit, parity, stop bit and communication protocol.
SW10	CUNet communication specification setting dip switch Set the station address and communication speed.
SW11	CUNet communication specification setting dip switch Set the master address and number of occupied (OWN) items.

■ Standard Functions

Input method selection

Input functions can be selected from pulse input, DI input, or pulse integrated value reset. If pulse input is selected, the number of pulses is accumulated when the input state changes from OFF to ON. If DI input is selected, changes in the input state are reflected in the communication parameters, allowing the input state to be checked via communication. If pulse integrated value reset is selected, the pulse integrated values for all channels are initialized when the input state changes from OFF to ON.
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Pulse integration

Integration method	The pulse integration method can be set to either ring count or linear count. If ring count is selected, integration continues even if the integrated value exceeds the integrated maximum value. If linear count is selected, when the accumulated value exceeds the integrated maximum value, the value remains at the integrated maximum value, and the overflow flag is set. If the accumulated value is reset or the integrated maximum value is changed, the overflow flag is cleared.
Integrated maximum value	The pulse integrated maximum value can be set within the range of 1,000 to 4,294,967,295 (0xFFFFFFFF).
Integrated minimum value	If ring count is selected as the accumulation method, set the reset value to 0 or 1 when the integrated value exceeds the integrated maximum value. When the integrated value is reset, it returns to 0 regardless of the integrated minimum value setting.
Division ratio	The pulse division ratio can be set from 1 to 10,000. The number of measured pulses is calculated as the number of input pulses divided by the pulse division ratio. Any remainder is cleared when the total count is reset or when the power is cycled.
Integrated value reset	If integrated value reset is selected in the input method selection, the pulse integrated value for all channels will be reset to 0 when the input status changes from OFF to ON. The integrated value for each channel can also be reset via communication.

■Optional Functions

Power Supply / Host Communication Function (Power supply/communication option symbol: P)

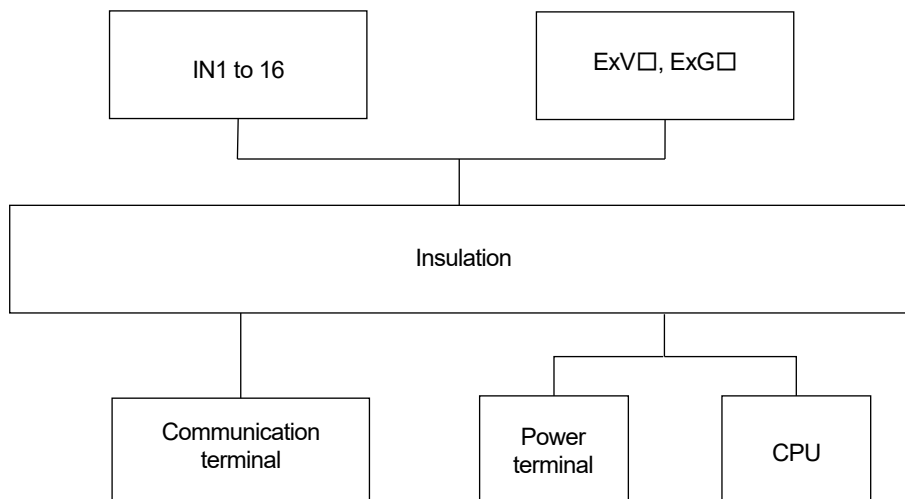
Communication line	EIARS-485 compliant
Communication method	Half-duplex communication
Communication speed	Selecting 9600, 19200, 38400, or 57600 bps is possible using the DIP switches. (Factory default: 57600 bps)
Synchronization method	Start-stop synchronization
Data bit/ parity/ Stop bit	Data bit: 8 Parity: Selecting even, odd, or no parity is possible Stop bit: Selecting 1 or 2 Selected by communication specification selection DIP switch (Factory default: 8 bits/even/1 bit)
Response delay time setting	0 to 1000 ms (Factory default: 0 ms)

CUnet communication function (Power supply/communication option symbol: C)

Connection type	ulti-drop	
Communication method	2-wire half-duplex	
Synchronization method	Bit-synchronous	
Error detection	CRC-16	
Number of occupied slave addresses	1	
Maximum number of connected nodes	64 nodes	
Communication speed, Communication distance	Communication speed	Maximum network length
	12 Mbps	100 m
	6 Mbps	200 m
	3 Mbps	300 m
Isolation method	Pulse transformer isolation	
Impedance	100 Ω	
Termination resistance	Last connection, set by CUnet slave This instrument is not equipped.	

■Insulation / Dielectric Resistance

Circuit insulation configuration



Insulation resistance	500 V DC, 10 MΩ or more
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■Environmental Conditions

Ambient temperature	-10 to 50°C (Non-condensing, no icing)
Ambient humidity	35 to 85% RH (Non-condensing)
Environmental specifications	RoHS Directive Compliant

■Attached Functions

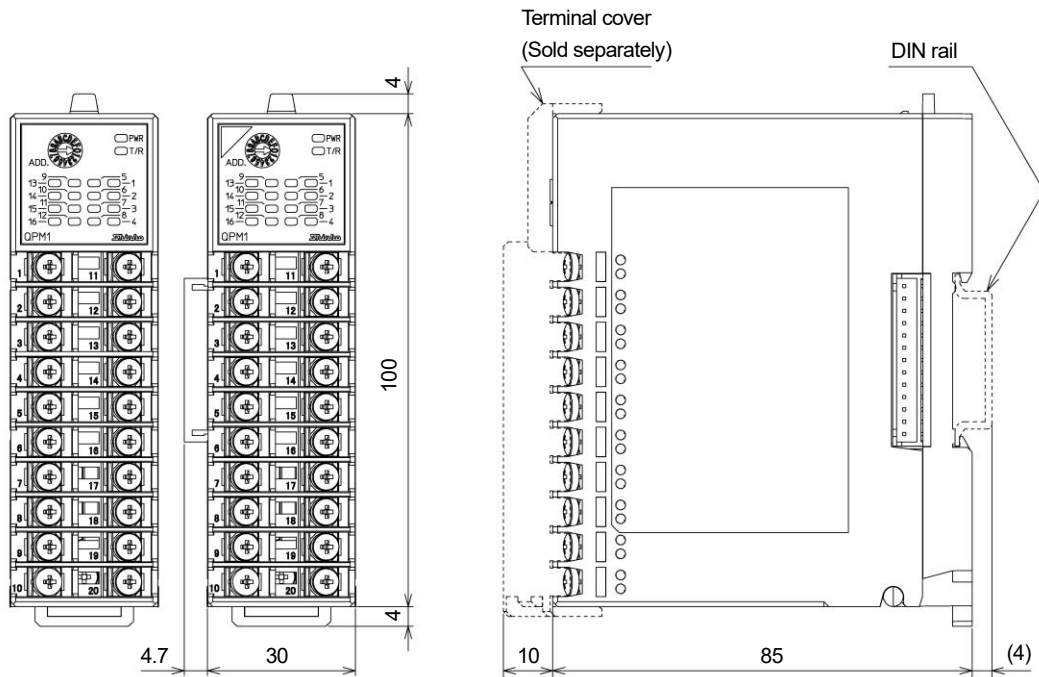
Self-Diagnosis	The watchdog timer monitors the CPU and resets the instrument to its factory defaults in the event of an abnormality.
Warm-up Display	For about 3 seconds after the power is turned on, the operation indicator will flash (on for 500 ms, off for 500 ms).
Contact Switching Total Number of Times	The control output ON/OFF count can be integrated and measured. This allows you to grasp the approximate contact life as the number of switching times of the switch used externally. However, since the saving cycle is 1 hour, the number of times within 1 hour may not be saved due to a power failure.
Pulse Integrated Value Backup Function	The pulse integrated value is backed up periodically. When power is restored, you can choose whether to continue the accumulation. However, since the backup interval is 1 minute, data for periods shorter than 1 minute may not be saved due to a power outage or other issues. If Continue is selected in the "Startup pulse integration selection," the count will resume from the backed-up value when power is restored. If Reset is selected in the "Startup pulse integration selection," the count will start from 0 when power is restored.
Power Failure Countermeasure	The non-volatile IC memory backs up the setting data.
Non-volatile IC Memory Save Selection	All settings can be temporarily changed. When the power is turned on, the settings will revert to the values that were in effect before the "Disable Non-Volatile IC Memory Storage" option was selected. However, this does not apply to the cumulative operating time, cumulative pulse count, or the "Enable Non-Volatile IC Memory Storage" setting.

■Other

Power supply voltage	24 V DC Allowable fluctuation range: 20 to 28 V DC
Power consumption	2 W or less
Rush current	Max. 10 A
Accessories included	Mounting and wiring instruction manual: 1 Wiring Connector (2ESS-10P): 1 piece (connector type) Power supply terminal cover: 1 (Included when adding "With power supply / host communication function" and "With power supply / CUnet communication function")
Instruction manual	Please download the full Instruction Manual from the Shinko website. https://shinko-technos.co.jp/e/

■ External Dimensions (Scale: mm)

Terminal block type



Connector type

