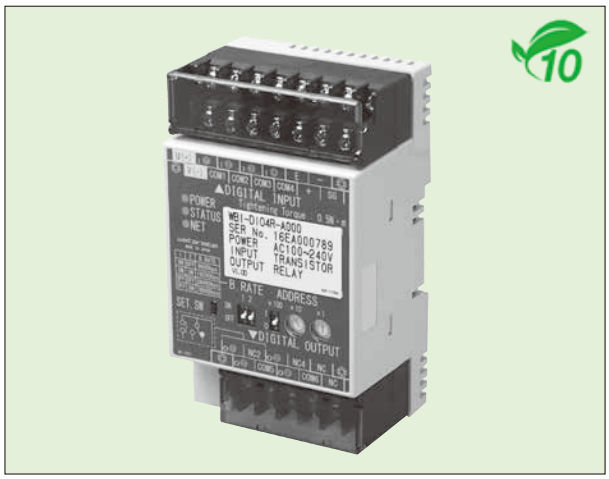
Digital I/O Module (4 points)

WBI-DIO4R



This module accepts ON/OFF signals from relay contacts or open collectors and outputs relay contacts, and is compatible with BACnet MS/TP.

It can also accept and accumulate signals from equipment that outputs pulses.

Features

- Digital inputs 1 to 4 ch can also be used as pulse inputs
- Built-in a-contact and c-contact relays allow the unit to be incorporated into control circuits in power panels, making CX/TX relays unnecessary
- In addition to standard output objects, equipped with run/stop control objects *1
- Accumulates the number of changes and the operating time of the digital inputs
- Built-in 220 Ω terminating resistor
- Can join the network without a dedicated configuration tool
- Terminal block and main unit are detachable for ease of maintenance

*1 Use only one of them during operation

Model Number

WBI－DIO4R－A□02

Series	Type	Power Supply	Test report	Suffix	Description
WBI					BACnet MS/TP module
	DIO4R				Digital I/O, 4 points
		A			AC100～240V ±10%(50/60Hz)
			0		Not included
			1		Included
				02	Standard

Communication Specifications

Protocol	BACnet MS/TP (master)
Standard	EIA-485 compliant (RS-485)
Communication speed	9600 bps / 19200 bps / 38400 bps / 76800 bps (set by DIP switch) *Factory setting: 38400 bps
Terminating resistor	Approx. 220 Ω (built-in; enabled by shorting terminal numbers 11 and 13)
Number of connected units	Max. 31 units per segment (max. 80 units with 2 repeaters connected)
Node address	0 to 127 (set by DIP switches and rotary switches)
Transmission distance	1200 m or less per segment (varies with connected equipment and transmission path)

Input Specifications

Input signal	Pulse / voltage-free contact or transistor output signal (open collector) • Input sensing current: approx. 5.5 mA (when ON resistance is 0 Ω) • Input pull-up voltage: DC24 V ±10% (internal pull-up) • Input pulse ON time: 10 ms or more • Input pulse OFF time: 10 ms or more
Number of input points	4 points
Input common	Negative common (1 common per input point)
Allowable pulse input frequency	50 Hz or less
Input settings	Pulse maximum value, pulse reset, time accumulation reset, change count reset, prescale setting, pulse coefficient setting, unit setting

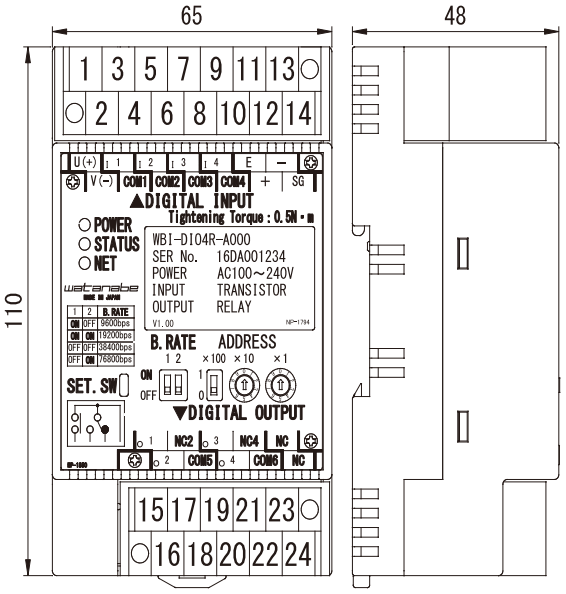
Output Specifications

Output signal	Relay contact output (a-contact × 2, c-contact × 2) • Rated control capacity: 2 A/250 V AC, 2 A/30 V DC • Minimum applicable load: 10 mA/5 V DC • Dielectric strength: between open contacts AC750 V for 1 minute • Mechanical life: 5 million operations or more • Electrical life: 200,000 operations or more (at rated load)
Number of output points	4 points (a-contact × 2, c-contact × 2)
Output common	1 common per 2 outputs (1 common for O1, O2, NC2; 1 common for O3, O4, NC4)
Response time	15 ms
Output settings	Output inversion setting, standard / run-stop output switching, minimum ON/OFF time setting, time accumulation reset, change count reset, output restoration setting at power recovery, startup delay setting

Basic Specifications

Supply voltage	AC100–240 V ±10% (50/60 Hz)
Power consumption	Approx. 7 VA (AC100 V), approx. 9.5 VA (AC240 V)
Operating temperature and humidity range	−5 °C to +55 °C, 10 to 90% RH or less (no condensation)
Storage temperature and humidity range	−20 °C to +60 °C, 90% RH or less (no condensation)
Warm-up time	30 minutes
Dielectric strength	Between power – communication – input – output terminals, AC1500 V for 1 minute
Insulation resistance	100 MΩ or more (DC500 V)
Dimensions	110 (H) × 65 (W) × 48 (D) mm
Mass	Approx. 250 g
Wiring section	M3 screw terminal block (detachable) 14P / 10P (tightening torque 0.5 N·m)
Applicable wire	16 to 24 AWG
Mounting method	DIN rail mounting
Case color / material	Ivory, self-extinguishing ABS resin (UL94V-0)

Outline Dimensions and Terminal Arrangement



Unit: mm

No.	Symbol	Description		
1	U(+)	Control power supply	Power terminals (AC100–240 V ±10%)	
2	V(−)			
3	I 1	Digital input terminals	Digital input 1	
4	COM1		Common 1 (for digital input 1) *1	
5	I 2		Digital input 2	
6	COM2		Common 2 (for digital input 2) *1	
7	I 3		Digital input 3	
8	COM3		Common 3 (for digital input 3) *1	
9	I 4		Digital input 4	
10	COM4		Common 4 (for digital input 4) *1	
11	E	MS/TP communication terminals	Communication terminating terminal *2	
12	+		Communication + terminal	
13	−		Communication − terminal	
14	SG		Communication SG terminal	
15	O 1	Digital output terminals	a-contact relay	Digital output 1 (normally open)
16	O 2		c-contact relay	Digital output 2 (normally open)
17	NC2			Digital output 2 (normally closed)
18	COM5		O1, O2, NC2	Common 5 (for digital outputs 1/2)
19	O 3		a-contact relay	Digital output 3 (normally open)
20	O 4		c-contact relay	Digital output 4 (normally open)
21	NC4			Digital output 4 (normally closed)
22	COM6		O3, O4, NC4	Common 6 (for digital outputs 3/4)
23	NC	Empty terminal *3		
24	NC			

*1 The commons for digital inputs 1 to 4 are common internally.

*2 Terminating resistor

● Shorting "11 (terminating terminal)" and "13 (− terminal)" of the MS/TP communication terminals enables the built-in 220 Ω terminating resistor.

● If this product is located at the end of the line, enable the terminating resistor.

● If you do not enable the terminating resistor, do not connect anything.

*3 Do not connect anything to empty terminals.

Circuit Block Diagram

