Digital I/O Module (8ch)

WMB-DIO8R

This is module which inputs 8ch of Relay or Open collector ON/OFF and outputs 8ch Relay. Also able to integrate input signal from pulse output device.
It is compatible with RS-485 Modbus (RTU) of general purpose protocol.

Features

★ 8ch input of Relay / Open collector ON/OFF, pulse signal
★ Outputs 8ch Relay
★ RS-485 Modbus RTU communication
★ Able to expand Input & output to 16ch by Expansion module
★ 4 types output operation (Normal, Reverse, One shot, Start-stop)
★ Easy maintenance by removable terminal block from body
★ Storage integrated value in nonvolatile memory at power failure

Ordering code

WMB - DIO8R □ - 00D □ 00

Series	Type	Output	Expansion	Option	Power supply	Test report	Suffix	Description	
WMB								Series	Modbus I/O module
	DIO8							Type	Digital I/O 8ch
		R						Output	Relay output (Normal open)
			None					Expansion	Main module
			A						Expansion module *
				00				Option	None
					D			Power supply	24VDC ±10%
						0		Test report	Without test report
						1			With test report
							00	Suffix	Standard

* Expansion module WMB-DIO8RA cannot use independently, WMB-DIO8RA can connect only WMB-DIO8

Specifications

◆Standard Specifications

Power supply	24VDC ±10%
Power consumption	DIO8R : Approx.180mA DIO8RA : Approx.120mA
Operating temperature/humidity	-5 to 55°C, 90% (non-condensing)
Storage temperature/humidity	-20 to 60°C, 90% (non-condensing)
Warm-up time	30 min
Dielectric strength	DIO8R : 1500VAC per 1 min. Between Power - Communication - Internal cuircuit - Output DIO8RA : 1500VAC per 1 min. Between Internal cuircuit - Input - Output
Insulation resistance	500Vdc, 100MΩ or more
Dimensions	65(W) x 110(H) x 48mm(D) DIN size
Weight	DIO8R : Approx.250g DIO8RA : Approx.230g
Connection	M3 screw terminai block (removable), 14P, 10P (Tightening torque 0.5N·m)
Mounting	DIN rail or wall surface

◆RS-485 Specifications

Standard	Conform to RS-485
Baud rate	4800 / 9600 / 19200 / 38400 bps (Selectable by DIP switch)
Terminal resistance	Approx. 120Ω (Standard accessory)
Max. No. of connection	31
Node address	1 to 99 (Setting by Rotary switch)
Transmission distance	Approx. 500m or less (Depends on connection device and
Communication form	1:N communication
Protocol	Modbus (RTU) protocol

◆Input Specifications (Main module WMB-DIO8R)

Input signal	Pulse/ no-voltage contact or transistor output · Input sense current : Approx. 4.2mA (when ON resistance is 0 Ω) · Input pull-up voltage : 24VDC (Power supply and internal common) · Input pulse ON time : 10ms or more · Input pulse OFF time : 10ms or more
Number of inputs	8
Input common	Negative common : 1 common for 8 input
Input frequency	50Hz or less
Setting	Max. pulse, Pulse reset, Time integration reset, Simulated input

◆Input Specifications (Expansion module WMB-DIO8RA)

Input signal	Pulse/ no-voltage contact or transistor output · Input sense current : Approx. 4.2mA (when ON resistance is 0 Ω) · Input pull-up voltage : 24VDC (Power supply and internal common) · Input pulse ON time : 25ms or more · Input pulse OFF time : 25ms or more
Number of inputs	8
Input common	Negative common : 1 common for 8 input
Input frequency	15Hz or less
Setting	Max. pulse, Pulse reset, Time integration reset, Simulated input

◆Output Specifications (Main module WMB-DIO8R)

Output signal	Relay contact output (normal open) · Rated control capacity : 2A/250VAC, 2A/30 VDC · Minimum applied load : 10mA/5VDC · Insulation withstand voltage : Open between contacts 750VAC 1min ·Mechanical life : 5,000,000 times or more ·Electrical life : 200,000 times or more (at Rated load)
Number of outputs	8
Output common	Negative common : 1 common for 4 output
Response time	15ms
Output operation	Normal, Reverse, One shot, Start-stop (Start-stop use 2ch to output)
Setting	Simulated input

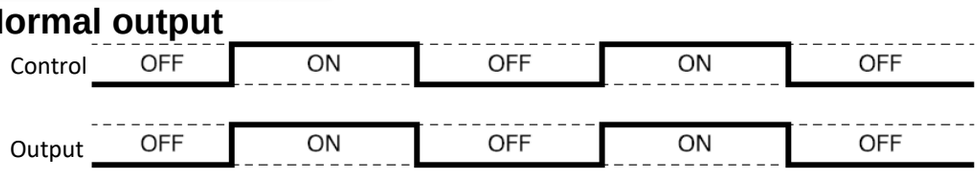
◆Output Specifications (Expansion module WMB-DIO8RA)

Output signal	Relay contact output (normal open) · Rated control capacity : 2A/250VAC, 2A/30 VDC · Minimum applied load : 10mA/5VDC · Insulation withstand voltage : Open between contacts 750VAC 1min ·Mechanical life : 5,000,000 times or more ·Electrical life : 200,000 times or more (at Rated load)
Number of outputs	8
Output common	Negative common : 1 common for 4 output
Response time	15ms
Output operation	Normal, Reverse, One shot, Start-stop (Start-stop use 2ch to output)
Setting	Simulated input

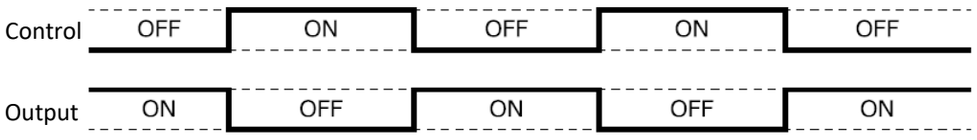
∗ Specification is subject to change without notice

Output operation

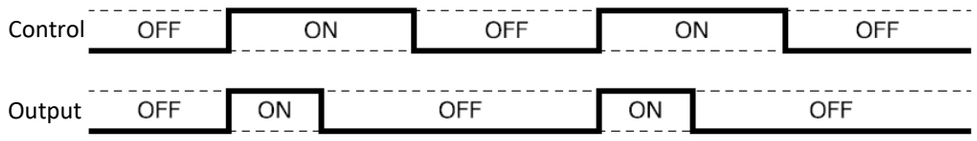
1) Normal output



2) Reverse output

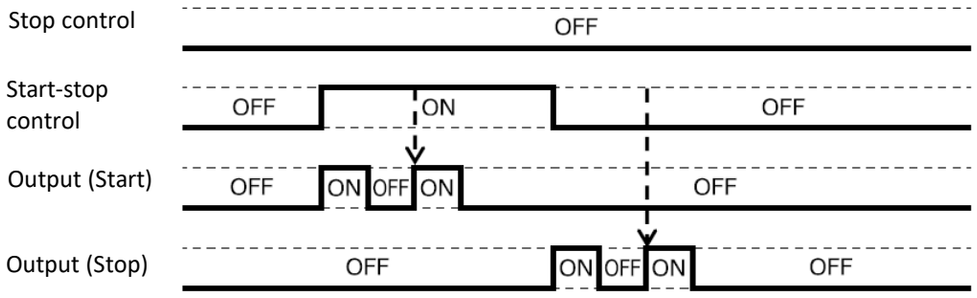


3) One shot output

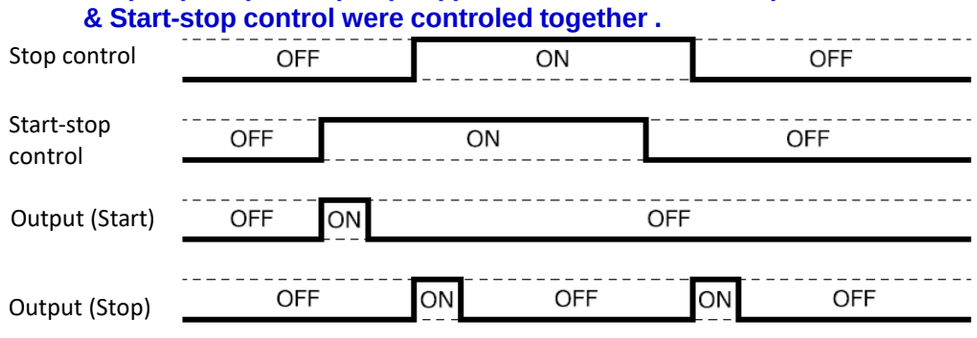


4) Start-stop output

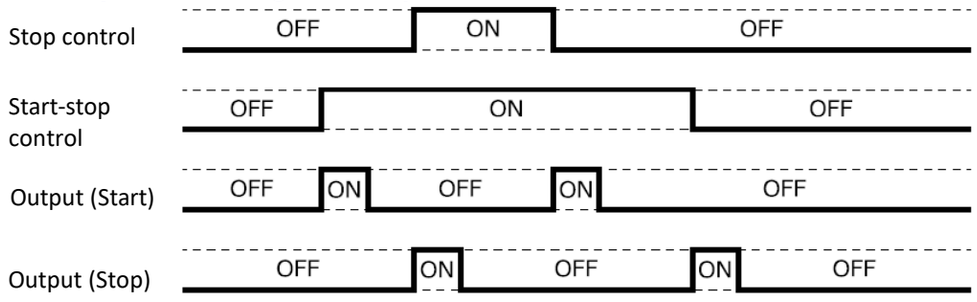
Case 1 : Output (Start) & Output (Stop) status of Start-stop control when Forced stop control is OFF.



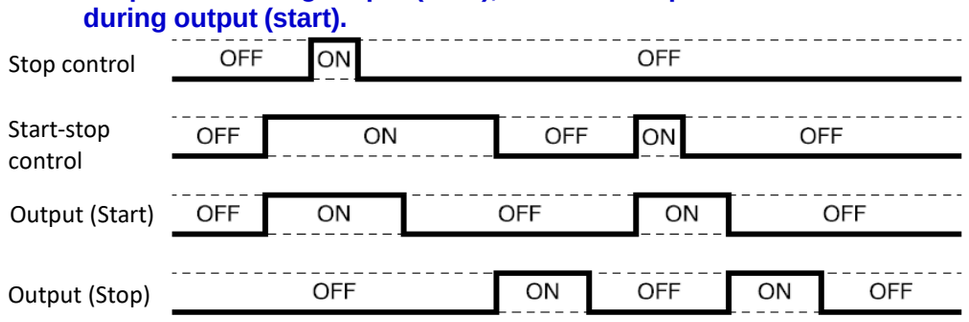
Case 2 : Output (Start) & Output (Stop) status when Forced stop control & Start-stop control were controled together .



Case 3 : Output (Start) and Output (Stop) status when forced stop control is operated during start-stop control.



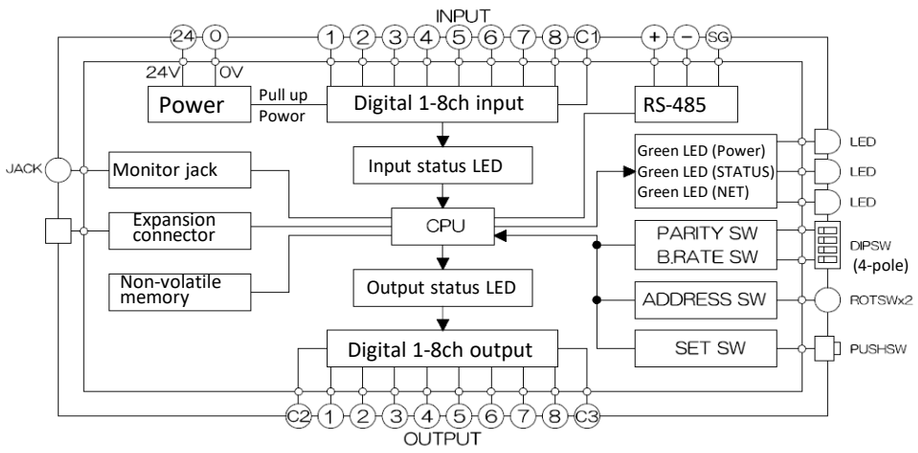
Case 4 : Output (Start) and Output (Stop) status when forced stop control is operated during output (start), and start-stop control is OFF during output (start).



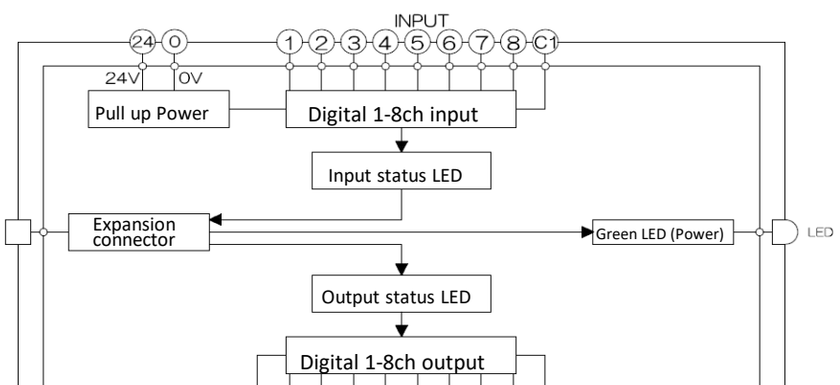
*Start-stop output : Ignores start-stop control while forced stop control is ON.

Block Diagram

■ WMB-DIO8R

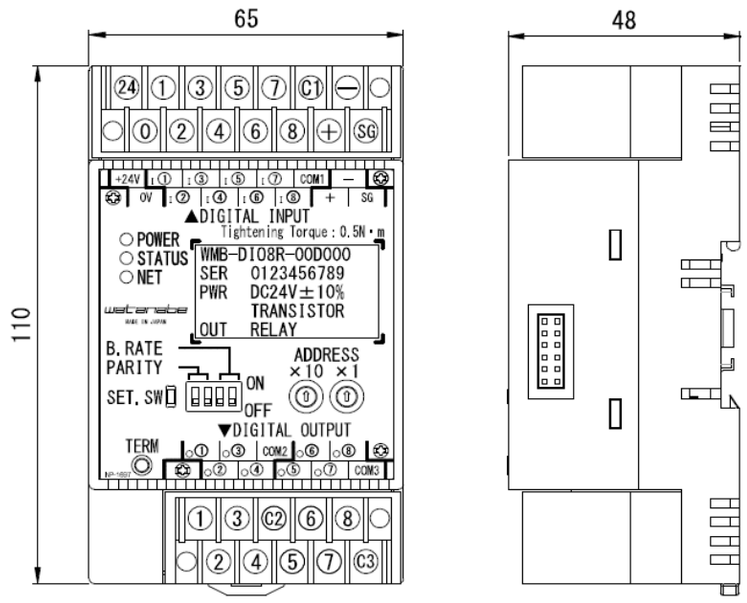


■ WMB-DIO8RA



Demensions / Terminal connections

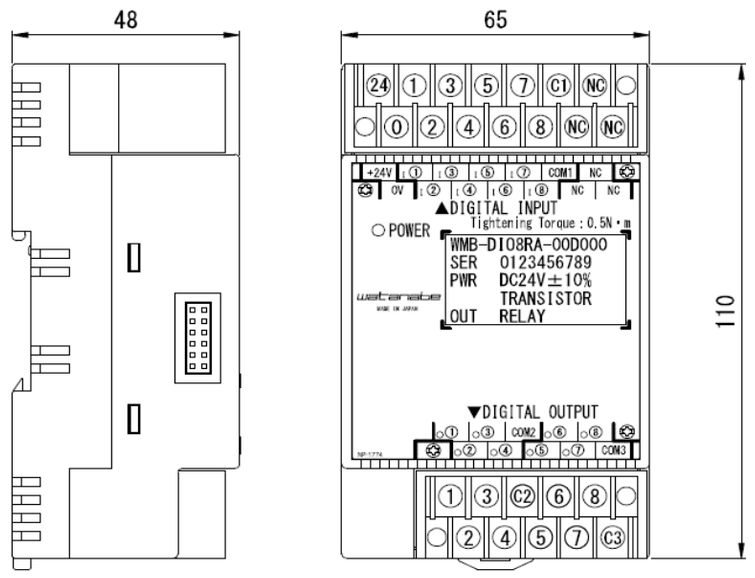
■ WMB-DIO8R



Unit : mm

No	Symbol		Description
24	Power supply	+24V	Power supply + terminal (24VDC ±10%)
0		0V	Power supply - terminal
1	Digital input	I1	Digital input 1
2		I2	Digital input 2
3		I3	Digital input 3
4		I4	Digital input 4
5		I5	Digital input 5
6		I6	Digital input 6
7		I7	Digital input 7
8		I8	Digital input 8
C1		COM1	Common 1 (For Digital input 1 to 8)
+	RS485 (Modbus)	+	RS-485 + terminal
-		-	RS-485 - terminal
SG		SG	RS-485 SG terminal
1	Digital output	O1	Digital output 1
2		O2	Digital output 2
3		O3	Digital output 3
4		O4	Digital output 4
C2		COM2	Common 2 (For Digital output 1 to 4)
5		O5	Digital output 5
6		O6	Digital output 6
7		O7	Digital output 7
8		O8	Digital output 8
C3		COM3	Common 3 (For Digital output 5 to 8)

■ WMB-DIO8RA



Unit : mm

No	Symbol		Description
24	Power supply	+24V	Power supply + terminal (24VDC ±10%)
0		0V	Power supply - terminal
1	Digital input	I1	Digital input 1
2		I2	Digital input 2
3		I3	Digital input 3
4		I4	Digital input 4
5		I5	Digital input 5
6		I6	Digital input 6
7		I7	Digital input 7
8		I8	Digital input 8
C1		COM1	Common 1 (For Digital input 1 to 8)
NC			No connection
NC			
NC			
1	Digital output	O1	Digital output 1
2		O2	Digital output 2
3		O3	Digital output 3
4		O4	Digital output 4
C2		COM2	Common 2 (For Digital output 1 to 4)
5		O5	Digital output 5
6		O6	Digital output 6
7		O7	Digital output 7
8		O8	Digital output 8
C3		COM3	Common 3 (For Digital output 5 to 8)

∗ **Specification is subject to change without notice**