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OMRON

Transistor Remote Modules

DRT1-ID/OD

Compact 8-point and 16-point Transistorized Modules

- Compact
  (8-point models: 125 x 40 x 50 mm (W x H x D);
  16-point models: 150 x 40 x 50 mm (W x H x D))
- Two independent power supplies can be used because the I/O terminals are insulated from the internal circuits.
- DIN track mounting and screw mounting are available.
- Approved by UL and CSA.



Ordering Information

I/O classification	Internal I/O circuit common	I/O points	Terminal	Rated voltage	I/O rated voltage	Model
Input	NPN (+ common)	8	Screw terminal	24 VDC	24 VDC	DRT1-ID08
	PNP (– common)					DRT1-ID08-1
Output	NPN (– common)					DRT1-OD08
	PNP (+ common)					DRT1-OD08-1
Input	NPN (+ common)	16				DRT1-ID16
	PNP (– common)					DRT1-ID16-1
Output	NPN (– common)					DRT1-OD16
	PNP (+ common)					DRT1-OD16-1

Note: A communications cable, GCN1-004, is included with each module.

Specifications

Ratings

Input

Item		DRT1-ID□□(-1)
Input current		10 mA max./point
ON delay time		1.5 ms max.
OFF delay time		1.5 ms max.
ON voltage	**NPN**	15 VDC min. between each input terminal and V
	PNP	15 VDC max. between each input terminal and G
OFF voltage	**NPN**	5 VDC max. between each input terminal and V
	PNP	5 VDC max. between each input terminal and G
OFF current		1 mA max.
Insulation method		Photocoupler
Input indicators		LED (yellow)

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Output

Item	DRT1-OD□□(-1)
Rated output current	0.3 A/point (see note)
Residual voltage	1.2 V max.
Leakage current	0.1 mA max.
Insulation method	Photocoupler
Output indicators	LED (yellow)

Note: Do not connect the DRT1-OD16 (-1) to loads consuming a total current exceeding 2.4 A.

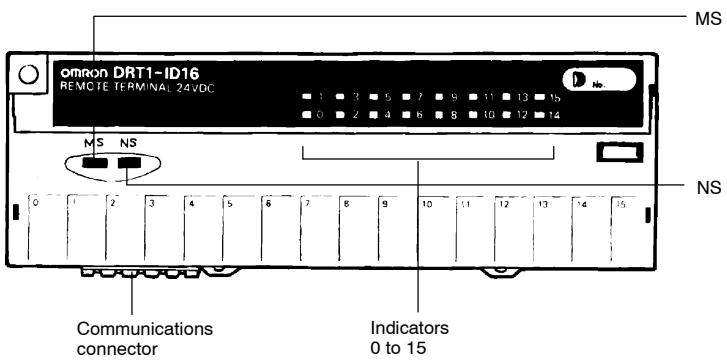
■ Characteristics

Communications power supply voltage	11 to 25 VDC (supplied from the communications connector)
Internal power supply voltage	24 VDC $^{+10\%}/_{-15\%}$
I/O power supply voltage	24 VDC $^{+10\%}/_{-15\%}$
Current consumption (see note)	Communications: 30 mA max. at 24 VDC Internal circuit: 60 mA max. at 24 VDC for DRT1-ID08-1, DRT1-ID16-1, DRT1-OD08-1, DRT1-OD16-1 70 mA max. at 24 VDC for DRT1-ID08 and DRT1-ID16 80 mA max. at 24 VDC for DRT1-OD08 90 mA max. at 24 VDC for DRT1-OD16
Dielectric strength	500 VAC for 1 min (1-mA sensing current between insulated circuits)
Noise immunity	Power supply normal: ±600 V for 10 minutes with a pulse width of 100 ns to 1 μs Power supply common: ±1,500 V for 10 minutes with a pulse width of 100 ns to 1 μs
Vibration resistance	10 to 55 Hz, 1.5-mm double amplitude
Shock resistance	Malfunction: 200 m/s^2 (approx. 20G) Destruction: 300 m/s^2 (approx. 30G)
Mounting strength	No damage when 50 N (approx. 5 kgf) pull load was applied for 10 s in all directions (10 N min. (approx. 1 kgf) in the DIN Track direction)
Terminal strength	No damage when 50 N (approx. 5 kgf) pull load was applied for 10 s
Screw tightening torque	0.6 to 1.18 N • m (6 to 12 kgf • cm)
Ambient temperature	Operating: 0°C to 55°C (with no icing or condensation) Storage: –20°C to 65°C (with no icing or condensation)
Ambient humidity	Operating: 35% to 85%
Weight	8-point model: Approx. 135 g max. 16-point model: Approx. 170 g max.

Note: The above current consumption is a value with all 8 and 16 points turned ON excluding the current consumption of the external sensor connected to the input Remote Module and the current consumption of the load connected to the output Remote Module.

Nomenclature

DRT1-□D08 (-1)
DRT1-□D16 (-1)

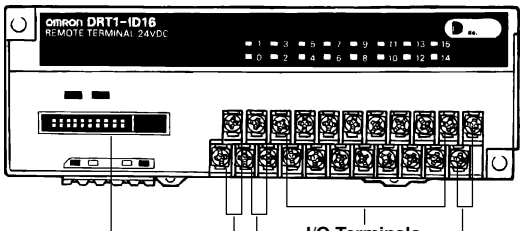


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Indicators

Indicator	Color	Display	Meaning
MS	Green	Lit	The Module is normal.
		Flashes	No node number has been set.
	Red	Lit	The Module has a fatal error.
		Flashes	The Module has a nonfatal error.
	---	Not lit	No power is supplied to the Module.
NS	Green	Lit	The communications path is complete.
		Flashes	The communications path is incomplete.
	Red	Lit	A fatal communications error has occurred.
		Flashes	A nonfatal communications error has occurred.
	---	Not lit	The communications power supply is OFF.
0 to 15 (see note)	Yellow	Lit	The corresponding I/O signal is ON.
	---	Not lit	The corresponding I/O signal is OFF.

Note: The DRT1-□D08 does not have indicators 8 to 15.



I/O Terminals

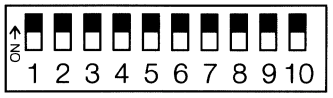
I/O Device Power Supply Terminals
Connected internally to the I/O power supply terminals.

I/O Power Supply Terminals
Connect a 24-VDC power supply.
Supply a maximum of 1.2 A at 24 VDC.

Internal Circuit Power Supply Terminals
Connect a 24-VDC power supply.

DIP Switch
Used for node number setting, baud rate settings, and holding or clearing outputs for communications error.

Note:
1. Always turn OFF the Module and the communications power supply before changing DIP switch settings.
2. Pin 9 is not used. Always set pin 9 to OFF.



Reserved by system (Always set to OFF)

Node Number Settings

Output HOLD/ CLEAR Mode (output model only.)

Baud Rate Setting

Baud Rate Settings

	Pin 8	Pin 7
125,000 bps	OFF	OFF
250,000 bps	OFF	ON
500,000 bps	ON	OFF

Note:
1. Setting both pins 7 and 8 to ON is not allowed.
2. Pins 7 and 8 are factory-set to OFF.

Output HOLD/CLEAR Mode

Mode	Pin 10
HOLD	ON
CLEAR	OFF

Note:
1. Pin 9 is NC.
2. Pin 10 of the DRT1-ID08 or DRT1-ID16 is not used.
3. Pin 10 is factory-set to OFF.

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Node Number Settings

Node number	Pin 6	Pin 5	Pin 4	Pin 3	Pin 2	Pin 1	Node number	Pin 6	Pin 5	Pin 4	Pin 3	Pin 2	Pin 1
	32	16	8	4	2	1		32	16	8	4	2	1
0	OFF	OFF	OFF	OFF	OFF	OFF	32	ON	OFF	OFF	OFF	OFF	OFF
1	OFF	OFF	OFF	OFF	OFF	ON	33	ON	OFF	OFF	OFF	OFF	ON
2	OFF	OFF	OFF	OFF	ON	OFF	34	ON	OFF	OFF	OFF	ON	OFF
3	OFF	OFF	OFF	OFF	ON	ON	35	ON	OFF	OFF	OFF	ON	ON
4	OFF	OFF	OFF	ON	OFF	OFF	36	ON	OFF	OFF	ON	OFF	OFF
5	OFF	OFF	OFF	ON	OFF	ON	37	ON	OFF	OFF	ON	OFF	ON
6	OFF	OFF	OFF	ON	ON	OFF	38	ON	OFF	OFF	ON	ON	OFF
7	OFF	OFF	OFF	ON	ON	ON	39	ON	OFF	OFF	ON	ON	ON
8	OFF	OFF	ON	OFF	OFF	OFF	40	ON	OFF	ON	OFF	OFF	OFF
9	OFF	OFF	ON	OFF	OFF	ON	41	ON	OFF	ON	OFF	OFF	ON
10	OFF	OFF	ON	OFF	ON	OFF	42	ON	OFF	ON	OFF	ON	OFF
11	OFF	OFF	ON	OFF	ON	ON	43	ON	OFF	ON	OFF	ON	ON
12	OFF	OFF	ON	ON	OFF	OFF	44	ON	OFF	ON	ON	OFF	OFF
13	OFF	OFF	ON	ON	OFF	ON	45	ON	OFF	ON	ON	OFF	ON
14	OFF	OFF	ON	ON	ON	OFF	46	ON	OFF	ON	ON	ON	OFF
15	OFF	OFF	ON	ON	ON	ON	47	ON	OFF	ON	ON	ON	ON
16	OFF	ON	OFF	OFF	OFF	OFF	48	ON	ON	OFF	OFF	OFF	OFF
17	OFF	ON	OFF	OFF	OFF	ON	49	ON	ON	OFF	OFF	OFF	ON
18	OFF	ON	OFF	OFF	ON	OFF	50	ON	ON	OFF	OFF	ON	OFF
19	OFF	ON	OFF	OFF	ON	ON	51	ON	ON	OFF	OFF	ON	ON
20	OFF	ON	OFF	ON	OFF	OFF	52	ON	ON	OFF	ON	OFF	OFF
21	OFF	ON	OFF	ON	OFF	ON	53	ON	ON	OFF	ON	OFF	ON
22	OFF	ON	OFF	ON	ON	OFF	54	ON	ON	OFF	ON	ON	OFF
23	OFF	ON	OFF	ON	ON	ON	55	ON	ON	OFF	ON	ON	ON
24	OFF	ON	ON	OFF	OFF	OFF	56	ON	ON	ON	OFF	OFF	OFF
25	OFF	ON	ON	OFF	OFF	ON	57	ON	ON	ON	OFF	OFF	ON
26	OFF	ON	ON	OFF	ON	OFF	58	ON	ON	ON	OFF	ON	OFF
27	OFF	ON	ON	OFF	ON	ON	59	ON	ON	ON	OFF	ON	ON
28	OFF	ON	ON	ON	OFF	OFF	60	ON	ON	ON	ON	OFF	OFF
29	OFF	ON	ON	ON	OFF	ON	61	ON	ON	ON	ON	OFF	ON
30	OFF	ON	ON	ON	ON	OFF	62	ON	ON	ON	ON	ON	OFF
31	OFF	ON	ON	ON	ON	ON	63	ON	ON	ON	ON	ON	ON

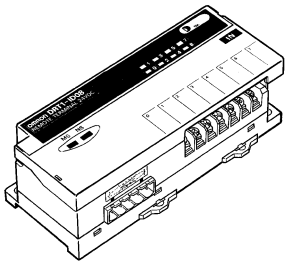
Note: The node number is factory-set to 0.

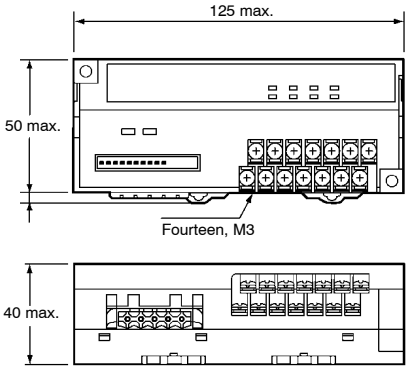
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Dimensions

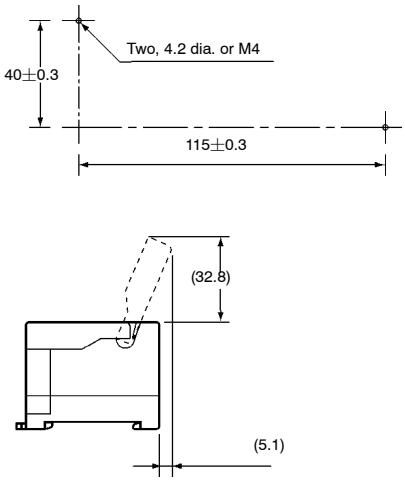
Note: All units are in millimeters unless otherwise indicated.

DRT1-ID08 (-1)
DRT1-OD08 (-1)

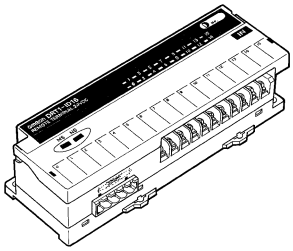


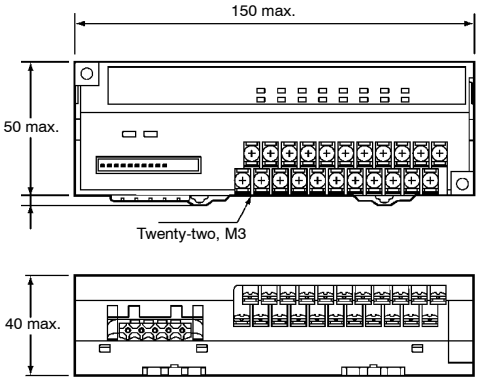


Mounting Holes

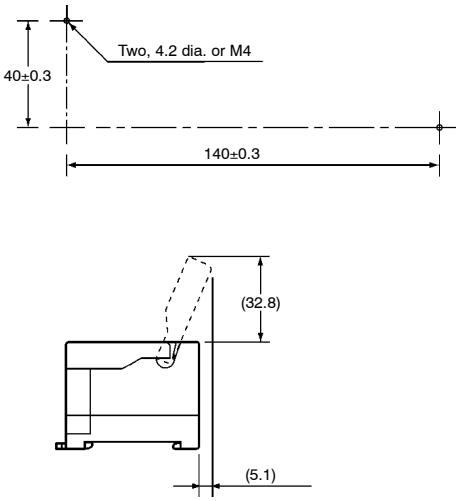


DRT1-ID16 (-1)
DRT1-OD16 (-1)





Mounting Holes

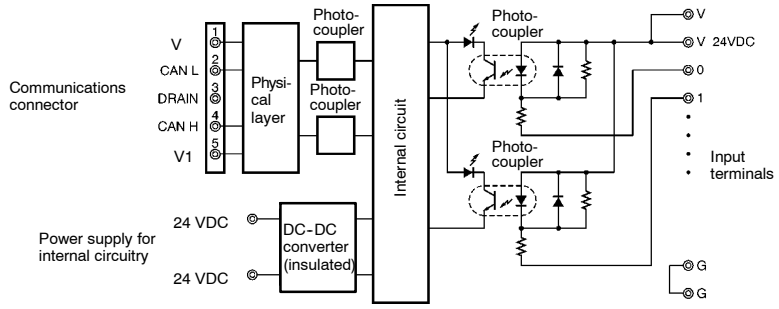


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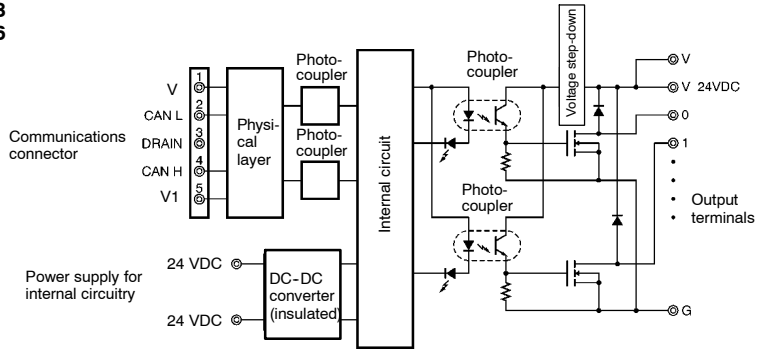
Installation

■ Internal Circuit Configuration

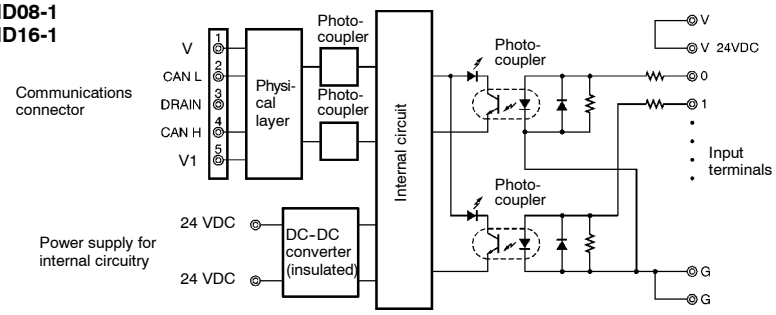
DRT1-ID08
DRT1-ID16



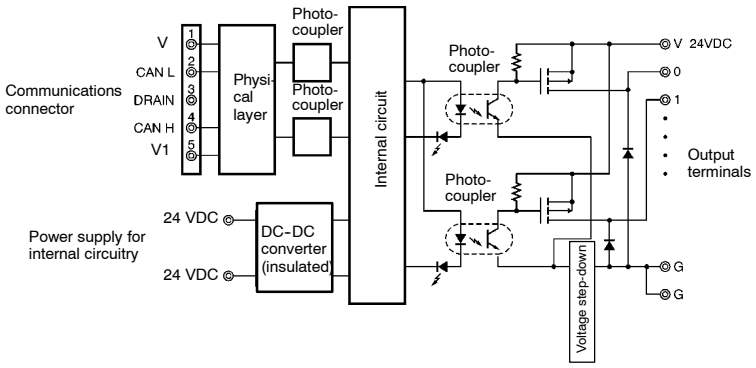
DRT1-OD08
DRT1-OD16



DRT1-ID08-1
DRT1-ID16-1



DRT1-OD08-1
DRT1-OD16-1



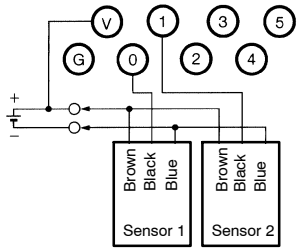
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■ Wiring

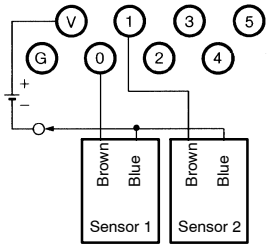
• Input

DRT1-ID08, DRT1-ID16

Three-wired Sensors (NPN Output)

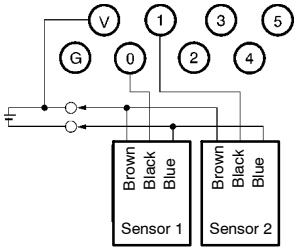


Two-wired Sensors

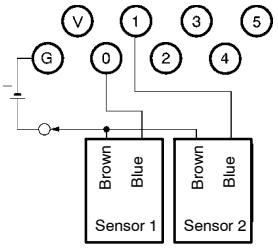


DRT1-ID08-1, DRT1-ID16-1

Three-wired Sensors (NPN Output)

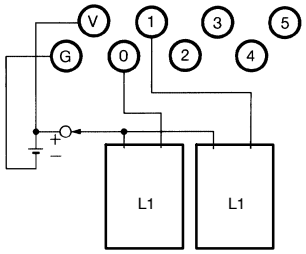


Two-wired Sensors

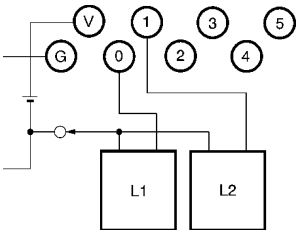


• Output

DRT1-OD08, DRT1-OD16



DRT1-OD08-1, DRT1-OD16-1

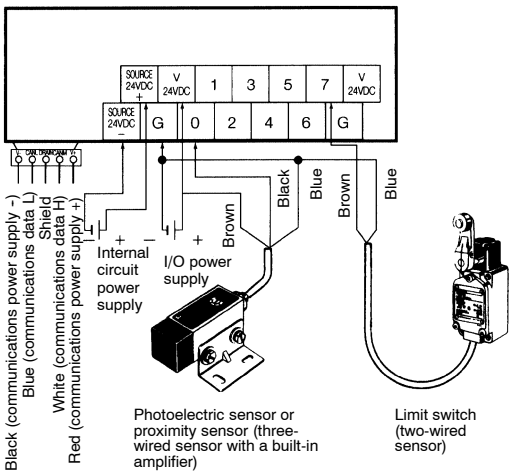


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■ Terminal Arrangement and I/O Device Connection Example

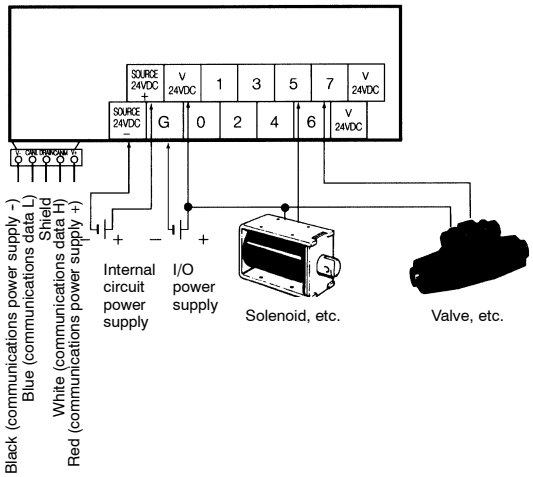
- **Input**

DRT1-ID08

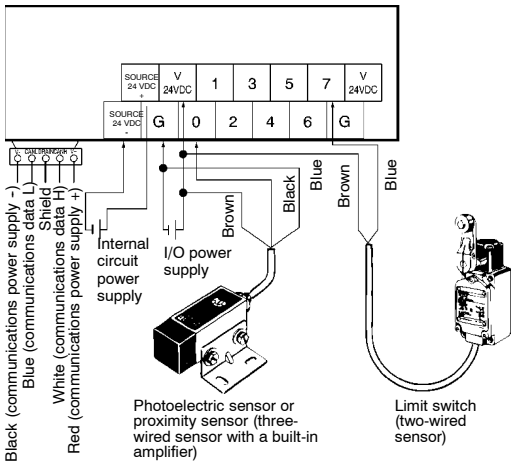


- **Output**

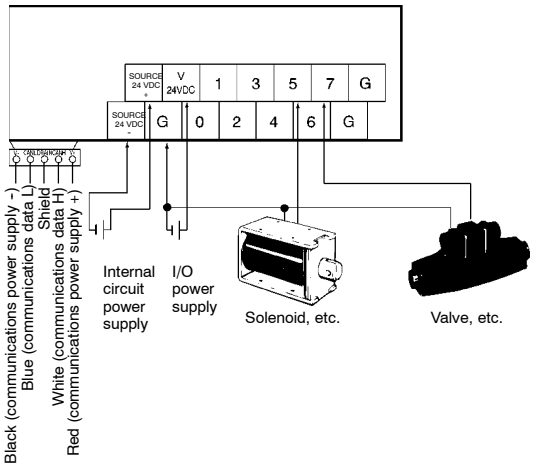
DRT1-OD08



DRT1-ID08-1

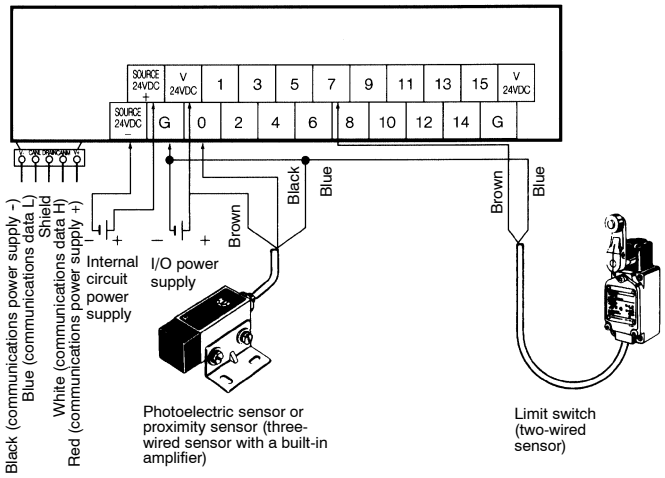


DRT1-OD08-1

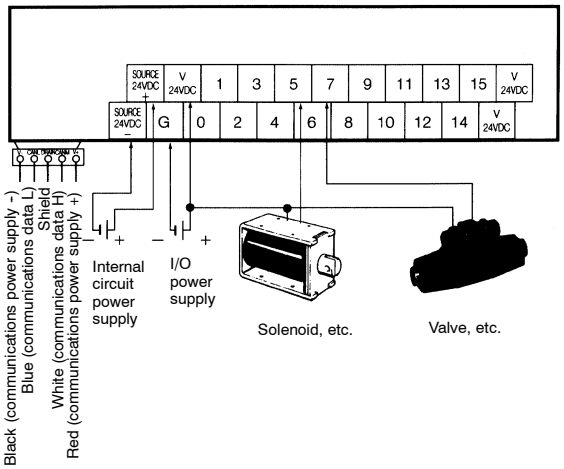


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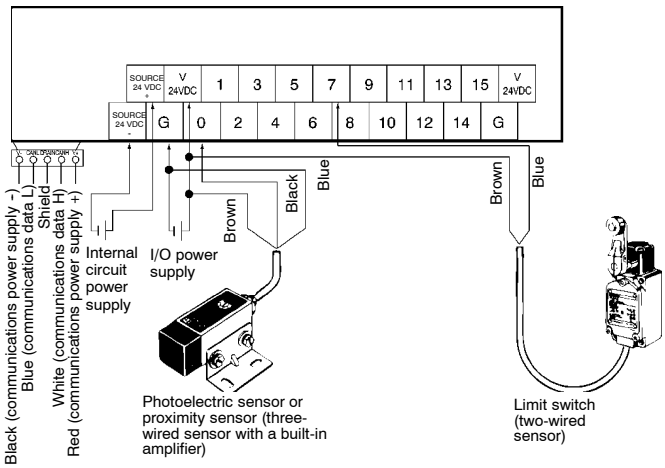
DRT1-ID16



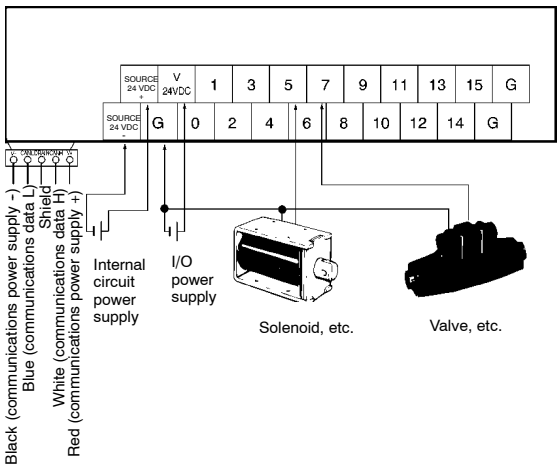
DRT1-OD16



DRT1-ID16-1



DRT1-OD16-1



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Precautions

Refer to the *DeviceNet Operation Manual (W267)* before using the Module.

These precautions are also for the DRT1-ID16X/OD16X.

General Safety Precautions

Wiring

Turn OFF the Module before wiring the Module and do not remove the terminal block cover or touch the terminal block while the Module is turned ON, otherwise an electric shock may occur.

Do not impose any voltage other than the rated voltage on the input terminal. Doing so may result in damage to the Module or cause the Module to malfunction.

Do not connect the Module to loads consuming a total current exceeding the rated output current of the Module. Doing so may damage the output element and a short- or open-circuit malfunction may result.

If the Module is connected to a DC inductive load, connect a diode to the Module to protect the Module from counter-electromotive voltage, otherwise the counter-electromotive voltage may damage the output element and a short- or open-circuit malfunction may result.

Do not wire power lines or high-tension lines along with or close to the lines of the DRT1-ID/OD.

Be sure that the terminal polarity is correct.

Pay the utmost attention to wire the communications path and power supply line correctly.

Correct Use

Cable Locks

Before turning on the Module, make sure that the connector of each cable connected to the Module is locked.

Do not connect or disconnect the connectors while the Module is turned ON. Doing so may cause the Module to malfunction.

Installation Environment

Do not install the Module in the following places. Doing so may result in damage to the Module or cause the Module to malfunction.

- Places with direct sunlight.
- Places with ambient temperature ranges not within 0°C to 55°C.
- Places with rapid temperature changes resulting in condensation or relative humidity ranges not within 10% to 90%.
- Places with corrosive or inflammable gas.
- Places with excessive dust, salinity, or metal powder.
- Places with vibration or shock affecting the Module.
- Places with water, oil, or chemical sprayed on the Module.

Screw Tightening Torques

Tighten all screws of the Module properly, otherwise the Module may malfunction.

- Tighten each terminal screw to a torque of 0.6 to 1.18 N • m (6.2 to 12.0 kgf • cm).
- Tighten each mounting screw to a torque of 0.6 to 0.98 N • m (6.2 to 10.0 kgf • cm) if the Module is mounted to a panel.

Cleaning

Do not use paint thinner to clean the surface, otherwise the surface will be damaged or discolored.

Handling

Do not drop the Module or shock or vibrate the Module excessively. Doing so may result in damage to the Module or cause the Module to malfunction.

Disassembling, Repairing, and Modifying

Do not disassemble, repair, or modify the Module, otherwise an electric shock may occur or the Module may malfunction.

NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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416-286-6465

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