New!

OMRON

DeviceNet Smart Slaves

Remote I/O Terminals with Transistors
DRT2-ID08(-1)/OD08(-1)/MD16(-1)

MIL Connector Terminals with Transistors
DRT2-ID16ML(-1)/OD16ML(-1)/ID16MLX(-1)/OD16MLX(-1)

Environment-resistive Terminals with Transistors (without detection functions)
DRT2-ID04CL(-1)/OD04CL(-1)/ID08CL(-1)/OD08CL(-1)/
MD16CL(-1)/HD16CL(-1)

Note: Do not use this document to operate the Unit.

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OMRON Corporation
Industrial Automation Company
Control Devices Division H.Q.
Shiokoji Horikawa, Shimogyo-ku,
Kyoto, 600-8530 Japan
Tel:(81)75-344-7109
Fax:(81)75-344-7149

Regional Headquarters

OMRON EUROPE B.V.
Wegalaan 67-69, NL-2132 JD Hoofddorp
The Netherlands
Tel:(31)2356-81-300/
Fax:(31)2356-81-388

OMRON ELECTRONICS LLC
1 East Commerce Drive, Schaumburg,
IL 60173 U.S.A.
Tel:(1)847-843-7900/Fax:(1)847-843-8568

OMRON ASIA PACIFIC PTE. LTD.
83 Clemenceau Avenue,
#11-01, UE Square,
Singapore 239920
Tel:(65)6835-3011/Fax:(65)6835-2711

OMRON (CHINA) CO., LTD.
Room 2211, Bank of China Tower,
200 Yin Cheng Zhong Road,
PuDong New Area, Shanghai, 200120 China
Tel:(86)21-5037-2222/Fax:(86)21-5037-2200

Authorized Distributor:

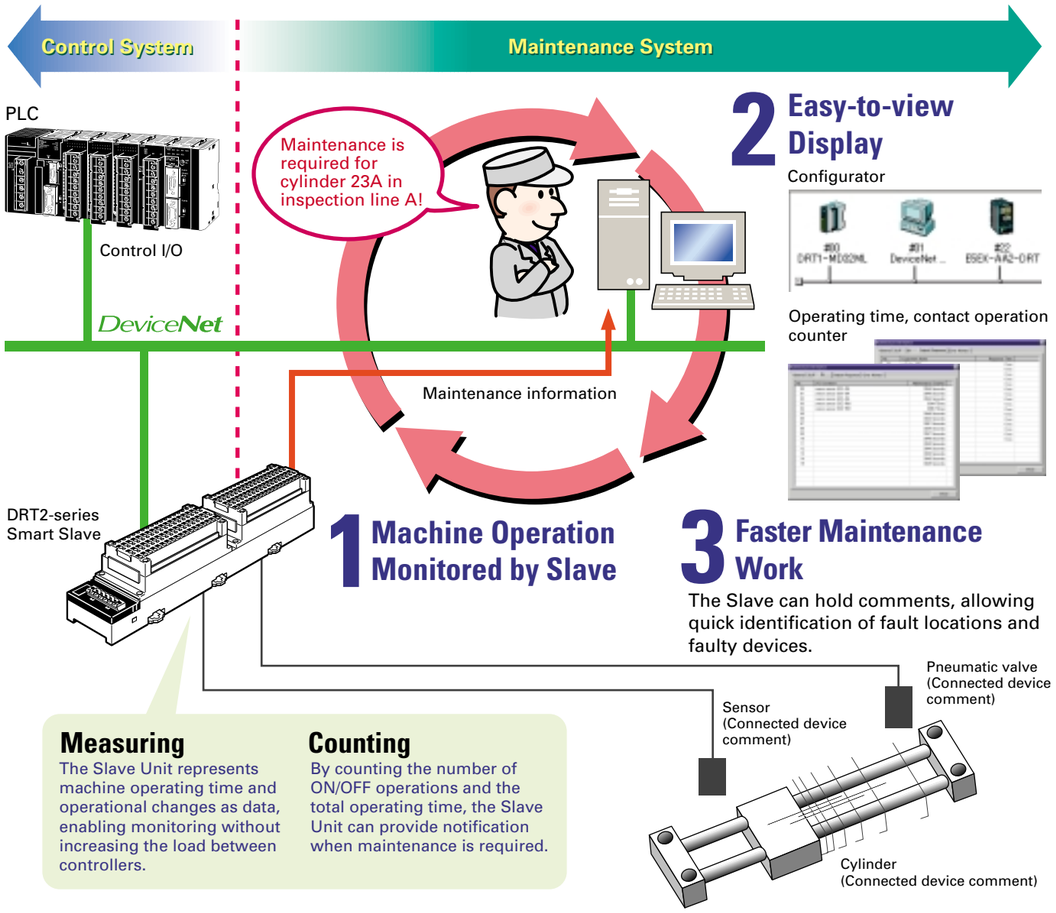
Note: Specifications subject to change without notice.

Cat. No. R110-E1-05
Printed in Japan
1006-0.3M

realrzing

Use production site information in a variety of applications, such as maintenance and quality control.

OMRON's DRT2-series Smart Slaves do not just input and output ON/OFF signals. They collect a variety of value-added information to help increase the rate of operation without changing the wiring for existing DeviceNet networks. In particular, they allow the separation of control systems and maintenance systems so that maintenance systems can be created independently of control systems.



Measuring

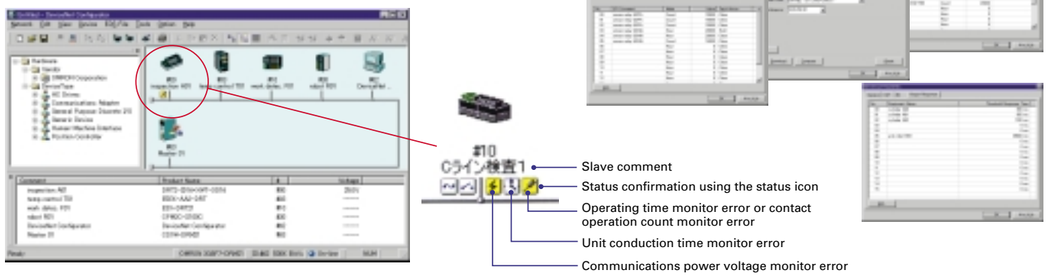
The Slave Unit represents machine operating time and operational changes as data, enabling monitoring without increasing the load between controllers.

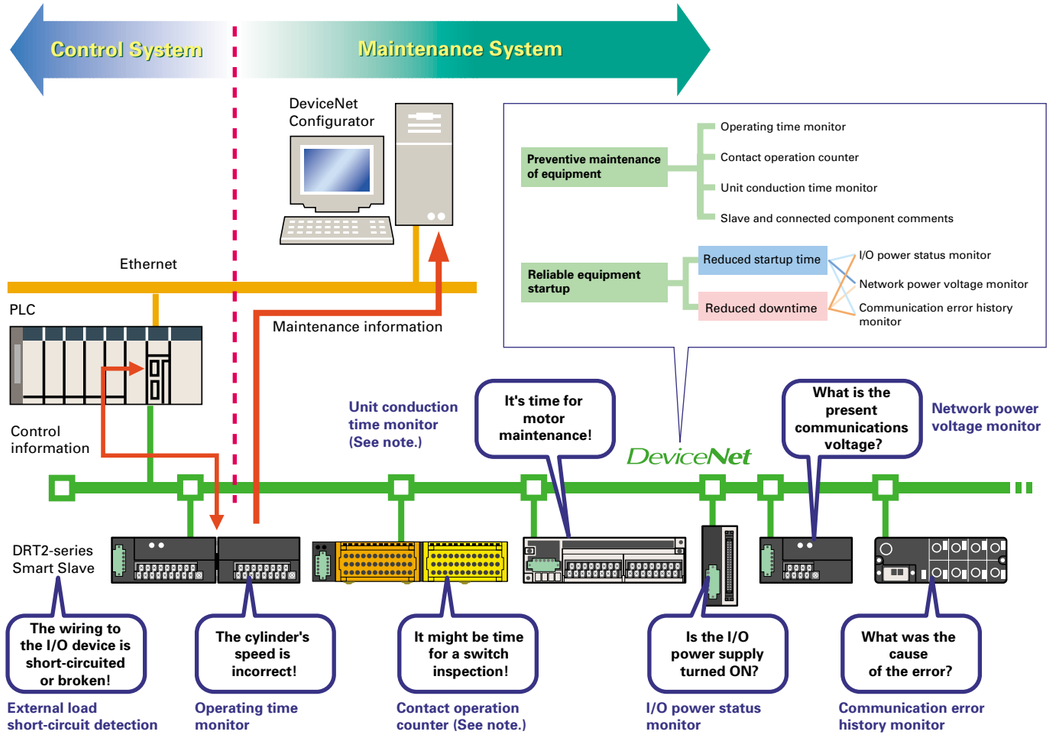
Counting

By counting the number of ON/OFF operations and the total operating time, the Slave Unit can provide notification when maintenance is required.

Collect a variety of data from maintenance systems without influencing control systems and productivity.

All data can be converted to electronic format and, by combining with an OMRON PLC (CS/CJ Series), checked directly from Ethernet or the Internet to allow remote maintenance.





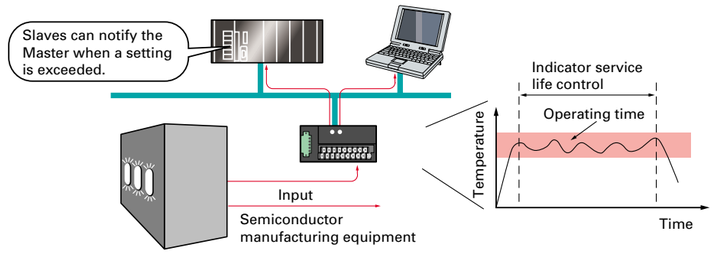
Note: The contact operation counter function and the unit conduction time monitor function cannot be used simultaneously.

Using OMRON Temperature Input Terminals for Maintenance

Failure Prediction and Maintenance

If prolonging the time it takes to reach a certain temperature may degrade equipment:

The operating time of a preset temperature range is counted in 1-s units.

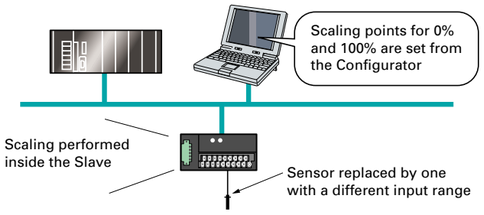


The peaks or valleys of temperature inputs that change in a regular pattern are counted to predict when devices operating with severe temperature swings are due for maintenance.

Short Startup

If it takes too long to modify the ladder program on the Master when a Temperature Sensor is replaced:

Slaves internally convert display values to temperature input values so the Controller program no longer has to be modified to perform this task.



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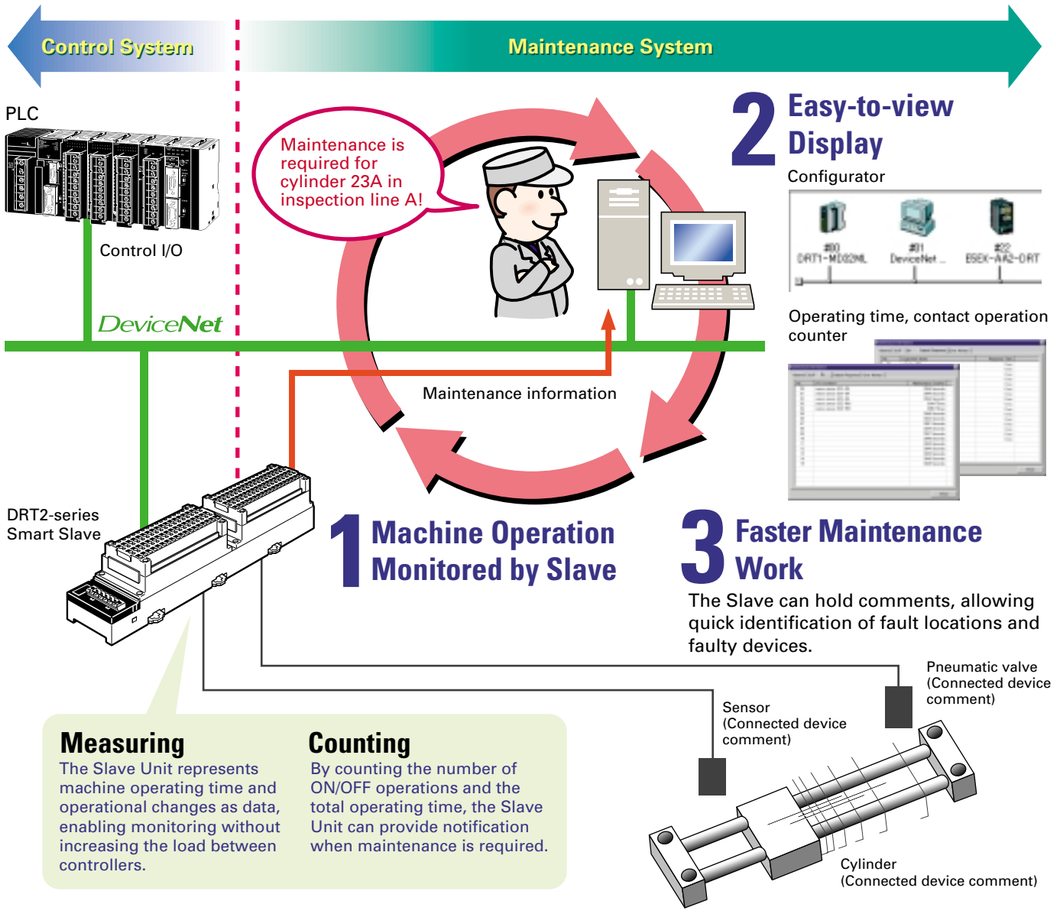

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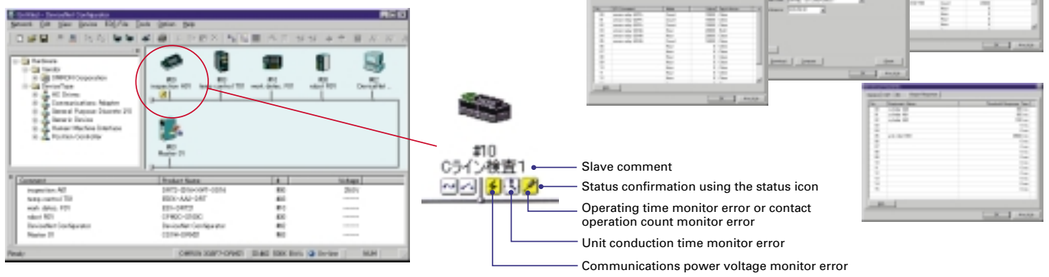

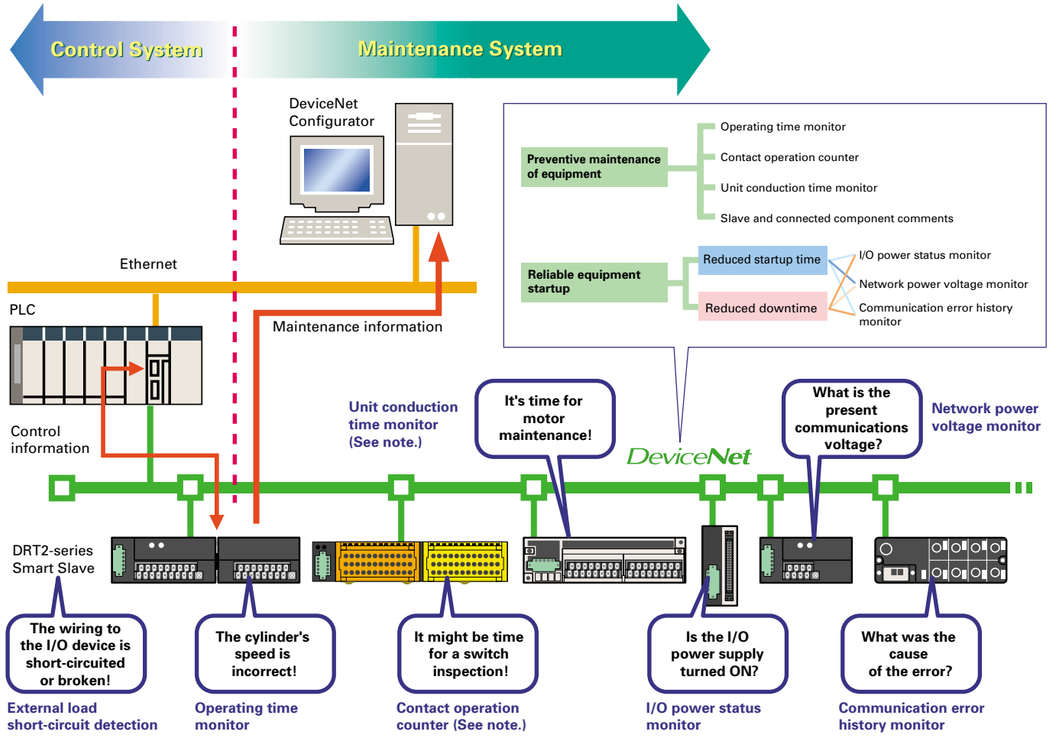

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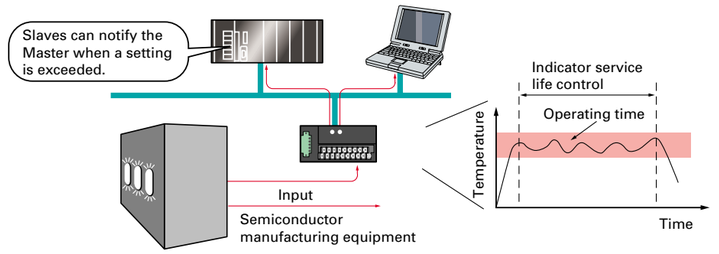

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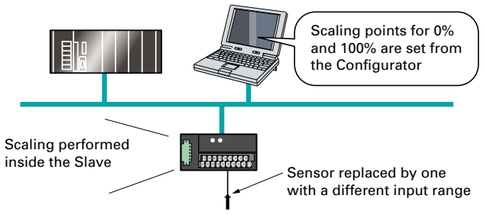
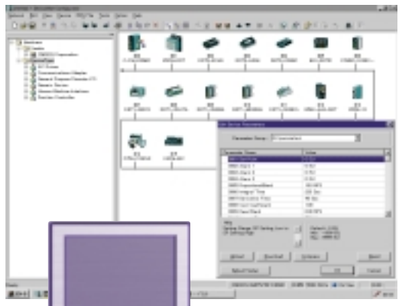


Wide variety of control and maintenance functions using DeviceNet.

Monitor network devices using a DeviceNet Configurator.



DeviceNet Configurator

- Settings and monitoring for startup
- Settings and monitoring for maintenance

CS/CJ-series DeviceNet Unit

PLC

I/O Control and Maintenance

Board Terminals with MIL Connectors

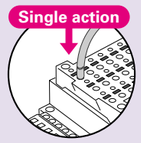
DRT2-ID32B(-1)
DRT2-OD32B(-1)
DRT2-MD32B(-1)
DRT2-ID32BV(-1)
DRT2-OD32BV(-1)
DRT2-MD32BV(-1)

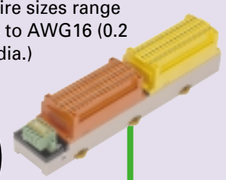
- First Board-type Smart Slave Terminals
- User boards attach easily to the DRT2-□D32V(-1) using screws.

Remote I/O Terminals with Screw-less Clamps

DRT2-ID32SL(H)(-1)
DRT2-OD32SL(H)(-1)
DRT2-MD32SL(H)(-1)

- Wiring is completed in a single action.
- No screw tightening required. Removable terminal blocks.
- Advanced models detect ground faults and broken lines in I/O wiring.
- Applicable wire sizes range from AWG24 to AWG16 (0.2 to 1.25 mm² dia.)

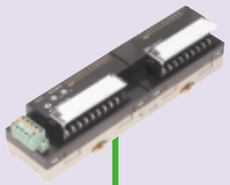




Remote I/O Terminals with Transistors

DRT2-ID16(-1)
DRT2-OD16(-1)
DRT2-ID08(-1) *NEW*
DRT2-OD08(-1) *NEW*
DRT2-MD16(-1) *NEW*

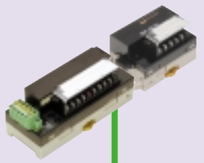
- I/O points can be extended by adding Expansion Units.



Remote I/O Terminal with Relay Outputs

DRT2-ROS16

- One-step relay exchange
- Operation time monitor function enabled by combining Remote I/O Terminals with Expansion I/O Units.



Environment-resistive Terminals with Transistors (with detection functions)

DRT2-ID08C(-1)
DRT2-OD08C(-1)
DRT2-HD16C(-1)

- High resistance to environments (IP67).
- Detecting shorts in the sensor power supply is also possible.

e-CON Connector Terminals

DRT2-ID16S(-1)
DRT2-MD16S(-1)

- Includes industry-standard e-CON connector that can be used to connect prewired sensors without using special tools.
  (The OMRON XN2 Connector can be used.)

Sensor Input and Maintenance

Analog I/O Terminals

DRT2-AD04/DRT2-AD04H
DRT2-DA02

- The DRT2-AD04H offers high resolution at 1/30,000 (full scale) and insulation between input channels.
- The DRT2-AD04 and DRT2-DA02 support a wide variety of data sampling function, including scaling, peak/bottom hold, top/valley hold, comparator, integral, and differential operation functions.

Temperature Input Terminals

DRT2-TS04T
DRT2-TS04P

- Offers basically the same Analog Input Terminals, scaling and comparators. Also provides functions available only from Temp Input Terminals, such as preset temperature rang temperature difference c between input channels.

Analog Control and Mair

New Lineup

Models with 8 Input, 8 Output, or 16 I/O Points Added to the Lineup

Remote I/O Terminals with Transistors
DRT2-ID08(-1)/OD08(-1)/MD16(-1)

- Collect a variety of data from maintenance systems without influencing control systems and productivity.
- Communications power supply voltage monitor, deterioration due to aging, operating time data, and other information can be easily collected and managed via the network.
- Locations of problems can be easily identified.

Remote I/O Terminals with IP67 High Environmental Resistance

Environment-resistive Terminals with Transistors
DRT2-ID04CL(-1)/OD04CL(-1)/ID08CL(-1)/OD08CL(-1)/MD16CL(-1)/HD16CL(-1)/WD16CL(-1)

- Smart Slave functions provide robust support for effective maintenance and monitoring device operation status.
- The terminals conform to IP67 and use materials selected for resistance to oil and spattering.
- Models with two-output connector are also available to improve ease of connection with hydraulic valve devices.

Terminals with 16 Inputs or Outputs

MIL Connector Terminals with Transistors
DRT2-ID16ML(-1)/OD16ML(-1)/ID16MLX(-1)/OD16MLX(-1)

- Connection with an array of I/O interfaces is achieved by combining adaptor boards for D-Sub or other interfaces.

Functions Supported by Smart Slaves

Function	Slave name	General-purpose Slaves																General-purpose Slaves						Environment-resistive Slaves						General-purpose Slaves	Analog Slaves			
		Remote I/O Terminals									MIL Connector Terminals			Board Terminals			Screw-less Clamp Terminals						Environment-resistive Terminals						e-con Connector Terminals	Analog I/O Terminals			Temperature Input Terminals
	Type	Models with Transistors				Model with Relay Outputs		Models with 3-tier Terminal Blocks			Models with Transistors			Models with MIL Connectors			Models with Transistors With Detection Functions			Models with Transistors Without Detection Functions			Models with Transistors With Detection Functions			Models with Transistors Without Detection Functions							
	Model	DRT2-□D16(-1)		DRT2-□D08(-1)		DRT2-MD16(-1)	DRT2-ROS16	DRT2-□D16TA(-1)			DRT2-□D32ML(-1) DRT2-□D16ML(-1) DRT2-□D16MLX(-1)			DRT2-□D32B(-1) DRT2-□D32BV(-1)			DRT2-□D32SLH(-1)			DRT2-□D32SL(-1)			DRT2-□D08C(-1) DRT2-□D16C(-1)			DRT2-□D04CL(-1) DRT2-□D08CL(-1) DRT2-□D16CL(-1)			DRT2-□D16S(-1)	DRT2-AD04	DRT2-AD04H	DRT2-DA02	DRT2-TS04□
I/O classification		Input	Output	Input	Output	Input/output	Output	Input	Output	Input/output	Input	Output	Input/output	Input	Output	Input/output	Input	Output	Input/output	Input	Output	Input/output	Input	Output	Input	Output	Input/output	Input	Output	Input/output	Input	Input/output	Input	Output	Input
Operating time monitor		❍ (Inputs and outputs only)		---		❍		❍			❍			❍			❍			❍			---				❍	---	❍	---			---
Contact operation count monitor		❍									❍			❍			❍						❍					❍		---			---
Unit conduction time monitor		❍									❍			❍			❍						❍					❍		❍			❍
Total RUN (ON) time monitor		❍									❍			❍			❍						❍					❍		---			---
Unit comment		❍									❍			❍			❍						❍					❍		❍			❍
Connected device comment		❍									❍			❍			❍						❍					❍		❍			❍
Network power voltage monitor		❍									❍			❍			❍						❍					❍		❍			❍
I/O power status monitor		❍				---		❍			❍			❍			❍						❍					---		---			---
Communications error history monitor		❍									❍			❍			❍						❍					❍		❍			❍
Input filter		❍	---	❍	---	❍	---	❍	---	❍	❍	---	❍	❍	---	❍	❍	---	❍			❍	❍	---	❍	---	❍	❍	---		---			---
Prevention of malfunctions due to sensor inrush current		❍	---	❍	---	❍	---	❍	---	❍	❍	---	❍	❍	---	❍	❍	---	❍			❍	❍	---	❍	---	❍	❍	---		---			---
Sensor power short-circuit detection		---									---			---			❍	---	❍		---		❍	---				❍	---		---			---
External load short-circuit detection		---									---			---			---	❍ (See note.)			---		---	❍		---		---	❍		---			---
Sensor disconnection detection		---									---			---			❍	---	❍		---		❍	---				---			---			---
External load disconnection detection		---									---			---			---	❍	❍		---		---					---			---			---
Removable terminal blocks		❍									---			---			❍						---					---			❍			❍
Automatic baud rate detection		❍									❍			❍			❍						❍					❍			❍			❍
Unit power supply wiring not required		❍									❍			❍			❍						❍					❍			❍			❍
Power supply wiring not required for input devices		---									---			---			---						❍		---			❍			---			---
Expansion I/O Units mountable		❍		---		❍		---			---			---			---						---					---			---			---
Scaling		---									---			---			---						---					---			❍			❍
User calibration		---									---			---			---						---					---			❍			❍
Last maintenance date		❍									❍			❍			❍						❍					❍			❍			❍
Integral function		---									---			---			---						---					---			❍			❍
Moving average processing		---									---			---			---						---					---			❍		---	❍
Number of AD conversion points setting (conversion cycle)		---									---			---			---						---					---			❍		---	---
Peak/bottom hold		---									---			---			---						---					---			❍		---	❍
Top/valley hold		---									---			---			---						---					---			❍		---	❍
Change rate calculations		---									---			---			---						---					---			❍		---	❍
Comparator function		---									---			---			---						---					---			❍		---	❍
Setting output value for errors		---									---			---			---						---					---			---		❍	---
Top/valley count		---									---			---			---						---					---			---			❍
Operating time in a preset temperature range		---									---			---			---						---					---			---			❍
Temperature difference detection between input channels		---									---			---			---						---					---			---			❍

❍: Yes, ---: No

Note: The contact operation count monitor and the total RUN (ON) time monitor cannot be used at the same time for one contact.
External load detection is supported only by the DRT2-MD32SLH-1 and DRT2-OD32SLH-1.

Specifications

Communications power supply voltage	11 to 25 VDC (supplied from communications connector)
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC −15% to +10%)
Noise immunity	Conforms to IEC61000-4-4, 2 kV (power lines)
Vibration resistance	10 to 60 Hz, 0.7-mm double amplitude, 60 to 150 Hz, 50 ms^2 for 80 min each in the X, Y, and Z directions
Shock resistance	150m/s^2, 6 directions, 3 times each
Dielectric strength	500 VAC (between isolated circuits)
Insulation resistance	20 MΩ min. (between isolated circuits)
Ambient operating temperature	−10 to 55°C
Ambient operating humidity	25 to 85%
Ambient operating atmosphere	No corrosive gases
Ambient storage temperature	−20 to 65°C
Degree of protection	IP67
Mounting method	DRT2-□D08□-1□/□D16(-1): 35-mm DIN Track DRT2-□D32ML(-1)/□D16ML(-1): 35-mm DIN Track DRT2-□D04CL(-1)/□D08CL(-1)/□D16CL(-1): M5 screws mounting (front or back)
Screw tightening torque	DRT2-□D08(-1)/□D16(-1): M3 (power supply and I/O terminals): 0.3 to 0.5 N·m DRT2-□D32ML(-1)/□D16ML(-1): M2 (communications connector screws): 0.26 to 0.3 N·m, M3 (screw terminals): 0.3 to 0.5N·m DRT2-□D04CL(-1)/□D08CL(-1)/□D16CL(-1): Round connectors (communications connector, power supply, and I/O): 0.39 to 0.49 N·m M5 (Unit mounting from the front): 1.47 to 1.96 N·m

Input Specifications

■Remote I/O Terminals with Transistors

●Terminals with 8 Inputs

Item	Model	DRT2-ID08(-1)
Input current		6.0 mA max. per point at 24 VDC
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 min. (between each input terminal and G)
OFF voltage	NPN	5 VDC max. (between each input terminal and V)
	PNP	5 VDC min. (between each input terminal and G)
OFF current		1.0 mA max.
Isolation method		Photocoupler isolation
Input indicator		Yellow LED indicator

●Terminals with 8 Inputs/8 Outputs

Item	Model	DRT2-MD16	DRT2-MD16-1
Internal I/O common		NPN	PNP
Number of I/O points		8 inputs	
ON voltage		15 VDC min. (between each input terminal and V)	15 VDC min. (between each input terminal and G)
OFF voltage		5 VDC max. (between each input terminal and V)	5 VDC min. (between each input terminal and G)
OFF current		1 mA max.	
Input current		6.0 mA max. per point at 24 VDC 3.0 mA max. per point at 17 VDC	
ON delay time		1.5 ms max.	
OFF delay time		1.5 ms max.	
Number of points per common		8 points per common	

■MIL Connector Terminals with Transistors

●Terminals with 16 Inputs, with Connectors

Item	Model	DRT2-ID16ML DRT2-ID16MLX	DRT2-ID16ML-1 DRT2-ID16MLX-1
Internal I/O common		NPN	PNP
Number of I/O points		16 inputs	
ON voltage		17 VDC min. (between each input terminal and V)	17 VDC min. (between each input terminal and G)
OFF voltage		5 VDC max. (between each input terminal and V)	15 VDC min. (between each input terminal and G)
OFF current		1 mA max.	
Input current		6.0 mA max. per point at 24 VDC 3.0 mA max. per point at 17 VDC	
ON delay time		1.5 ms max.	
OFF delay time		1.5 ms max.	
Max. number of simultaneous ON input points		16	
Number of points per common		16 points per common	

■Standard Environment-resistive Terminals and Environment-resistive Terminals with Transistors

●Terminals with 4 Inputs

Item	Model	DRT2-ID04CL	DRT2-ID04CL-1
Internal I/O common		NPN	PNP
Number of I/O points		4 inputs	
ON voltage		15 VDC min. (between each input terminal and V)	15 VDC min. (between each input terminal and G)
OFF voltage		5 VDC max. (between each input terminal and V)	5 VDC min. (between each input terminal and G)
OFF current		1 mA max.	
Input current		6.0 mA max. per point at 24 VDC 3.0 mA max. per point at 17 VDC	
I/O power supply voltage		20.4 to 26.4 VDC (24 VDC, –15 to +10%)	
ON delay time		1.5 ms max.	
OFF delay time		1.5 ms max.	
Number of points per common		4 points per common	

●Terminals with 8 Inputs

Item	Model	DRT2-ID08CL	DRT2-ID08CL-1
Internal I/O common		NPN	PNP
Number of I/O points		8 inputs	
ON voltage		15 VDC min. (between each input terminal and V)	15 VDC min. (between each input terminal and G)
OFF voltage		5 VDC max. (between each input terminal and V)	5 VDC min. (between each input terminal and G)
OFF current		1 mA max.	
Input current		6.0 mA6.0 mA max. per point at 24 VDC 3.0 mA max. per point at 17 VDC	
I/O power supply voltage		20.4 to 26.4 VDC (24 VDC, –15 to +10%)	
ON delay time		1.5 ms max.	
OFF delay time		1.5 ms max.	
Number of points per common		8 points per common	

●Terminals with 16 Inputs

Item	Model	DRT2-HD16CL	DRT2-HD16CL-1
Internal I/O common		NPN	PNP
Number of I/O points		16 inputs	
ON voltage		15 VDC min. (between each input terminal and V)	15 VDC min. (between each input terminal and G)
OFF voltage		5 VDC max. (between each input terminal and V)	15 VDC min. (between each input terminal and G)
OFF currrent		1 mA max.	
Input current		6.0 mA max. per point at 24 VDC 3.0 mA max. per point at 17 VDC	
I/O power supply voltage		20.4 to 26.4 VDC (24 VDC, –15 to +10%)	
ON delay time		1.5 ms max.	
OFF delay time		1.5 ms max.	
Number of points per common		16 points per common	

●Terminals with 8 Inputs/8 Outputs

Item	Model	DRT2-MD16CL	DRT2-MD16CL-1
Internal I/O common		NPN	PNP
Number of I/O points		8 inputs	
ON voltage		15 VDC min. (between each input terminal and V)	15 VDC min. (between each input terminal and G)
OFF voltage		5 VDC max. (between each input terminal and V)	5 VDC min. (between each input terminal and G)
OFF currrent		1 mA max.	
Input current		6.0 mA max. per point at 24 VDC 3.0 max. per point at 17 VDC	
I/O power supply voltage		20.4 to 26.4 VDC (24 VDC, –15 to +10%)	
ON delay time		1.5 ms max.	
OFF delay time		1.5 ms max.	
Number of points per common		8 points per common	

Output Specifications

■Remote I/O Terminals with Transistors

●Terminals with 8 Outputs

Item / Model	DRT2-OD08(-1)
Rated output current	0.5 A per point, 4.0 A per common
ON delay time	0.5 ms max.
OFF delay time	1.5 ms max.
Residual voltage	1.2 V max.
Leakage current	0.1 mA max.
Isolation method	Photocoupler isolation
Output indicator	Yellow LED indicator

●Terminals with 8 Inputs/8 Outputs

Item / Model	DRT2-MD16	DRT2-MD16-1
Internal I/O common	NPN	PNP
Number of I/O points	8 outputs	
Rated output current	0.5 A per point, 4 A per common	
Residual voltage	1.2 V max. (0.5 A DC between each output terminal and G)	1.2 V max. (0.5 A DC between each output terminal and V)
Leakage current	0.1 mA max.	
ON delay time	0.5 ms max.	
OFF delay time	1.5 ms max.	
Number of points per common	8 points per common	

■MIL Connector Terminals with Transistors

●Terminals with 16 Outputs, with Connectors

Item / Model	DRT2-OD16ML DRT2-OD16MLX	DRT2-OD16ML-1 DRT2-OD16MLX-1
Internal I/O common	NPN	PNP
Number of I/O points	16 outputs	
Rated output current	0.3 A per point, 2 A per common (See note.)	
Residual voltage	1.2 V max. (0.3 A DC between each output terminal and G)	1.2 V max. (0.3 A DC between each output terminal and V)
Leakage current	0.1 mA max.	
ON delay time	0.5 ms max.	
OFF delay time	1.5 ms max.	
Number of points per common	16 points per common	

Note: Make sure the total external load current does not exceed 2 A.
Make sure that the V and G terminals do not exceed 1 A per terminal.

■Standard Environment-resistive Terminals and Environment-resistive Terminals with Transistors

●Terminals with 4 Outputs

Item / Model	DRT2-OD04CL	DRT2-OD04CL-1
Internal I/O common	NPN	PNP
Number of I/O points	4 outputs	
Rated output current	0.5 A per point, 4 A per common	
Residual voltage	1.2 V max. (0.5 A DC between each output terminal and G)	1.2 V max. (0.5 A DC between each output terminal and V)
Leakage current	0.1 mA max.	
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC, −15 to +10%)	
ON delay time	0.5 ms max.	
OFF delay time	1.5 ms max.	
Number of points per common	4 points per common	

●Terminals with 8 Outputs

Item / Model	DRT2-OD08CL	DRT2-OD08CL-1
Internal I/O common	NPN	PNP
Number of I/O points	8 outputs	
Rated output current	0.5 A per point, 4 A per common	
Residual voltage	1.2 V max. (0.5 A DC between each output terminal and G)	1.2 V max. (0.5 A DC between each output terminal and V)
Leakage current	0.1 mA max.	
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC, −15 to +10%)	
ON delay time	0.5 ms max.	
OFF delay time	1.5 ms max.	
Number of points per common	8 points per common	

●Terminals with 16 Outputs

Item / Model	DRT2-WD16CL	DRT2-WD16CL-1
Internal I/O common	NPN	PNP
Number of I/O points	16 outputs	
Rated output current	0.5 A per point, 4 A per common	
Residual voltage	1.2 V max. (0.5 A DC between each output terminal and G)	1.2 V max. (0.5 A DC between each output terminal and V)
Leakage current	0.1 mA max.	
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC, −15 to +10%)	
ON delay time	0.5 ms max.	
OFF delay time	1.5 ms max.	
Number of points per common	16 points per common	

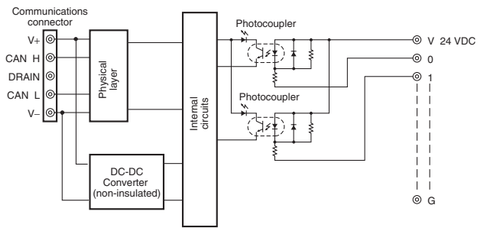
●Terminals with 8 Inputs/8 Outputs

Item / Model	DRT2-MD16CL	DRT2-MD16CL-1
Internal I/O common	NPN	PNP
Number of I/O points	8 outputs	
Rated output current	0.5 A per point, 4 A per common	
Residual voltage	1.2 V max. (0.5 A DC between each output terminal and G)	1.2 V max. (0.5 A DC between each output terminal and V)
Leakage current	0.1 mA max.	
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC, −15 to +10%)	
ON delay time	0.5 ms max.	
OFF delay time	1.5 ms max.	
Number of points per common	8 points per common	

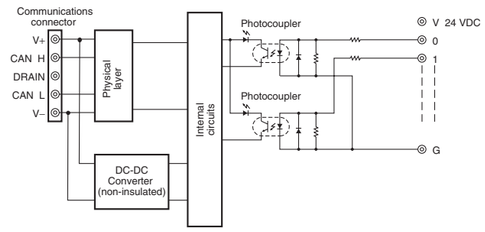
Internal Circuit Configuration

■Remote I/O Terminals with Transistors

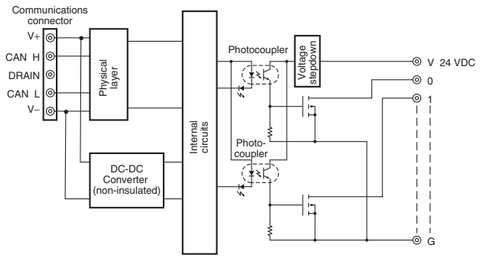
DRT2-ID08 (NPN)



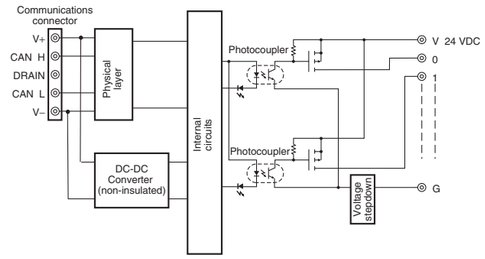
DRT2-ID08-1 (PNP)



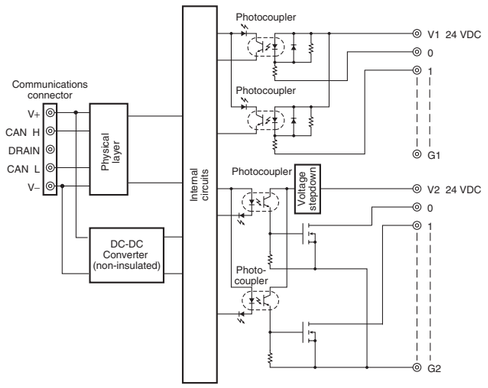
DRT2-OD08 (NPN)



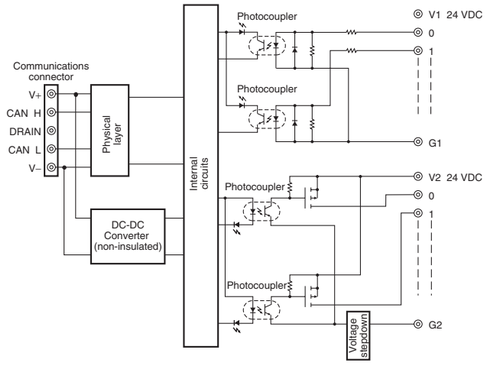
DRT2-OD08-1 (PNP)



DRT2-MD16 (NPN)

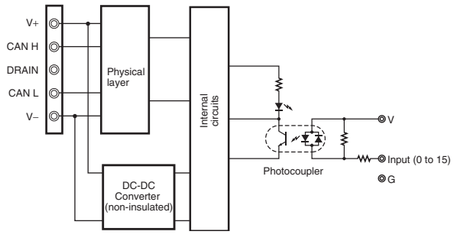


DRT2-MD16-1 (PNP)

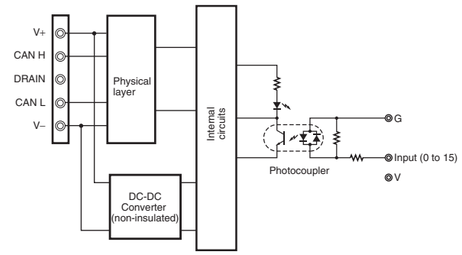


■MIL Connector Terminals with Transistors

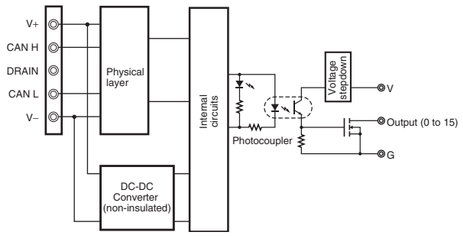
DRT2-ID16ML(X)



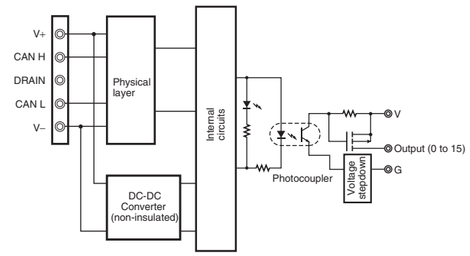
DRT2-ID16ML(X)-1



DRT2-OD16ML(X)

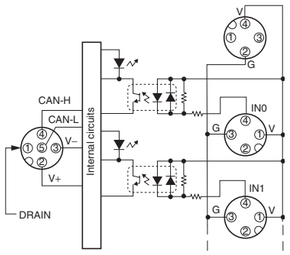


DRT2-OD16ML(X)-1

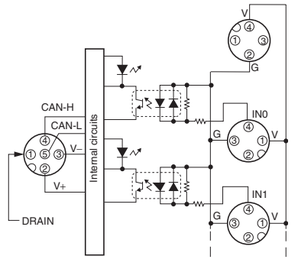


■Standard Environment-resistive Terminals and Environment-resistive Terminals with Transistors

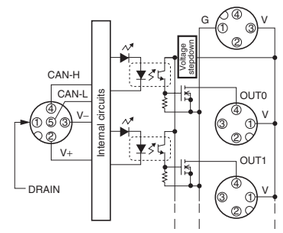
DRT2-ID04CL (NPN)



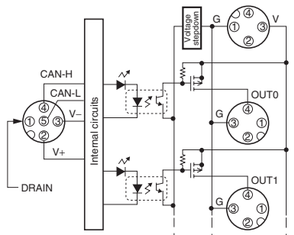
DRT2-ID04CL-1 (PNP)



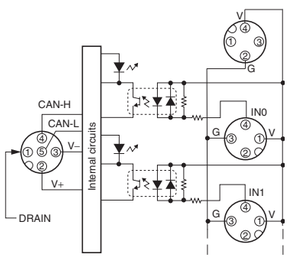
DRT2-OD04CL (NPN)



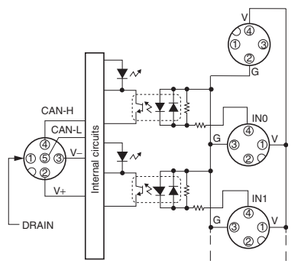
DRT2-OD04CL-1 (PNP)



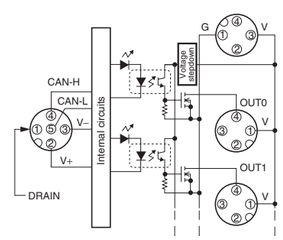
DRT2-ID08CL (NPN)



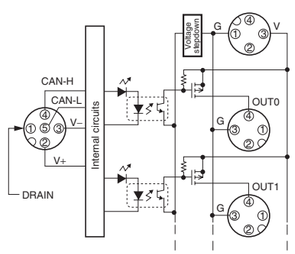
DRT2-ID08CL-1 (PNP)



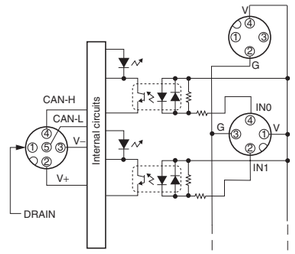
DRT2-OD08CL (NPN)



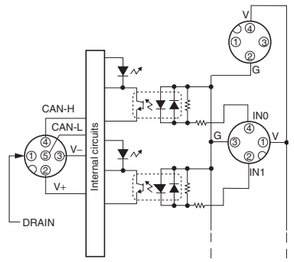
DRT2-OD08CL-1 (PNP)



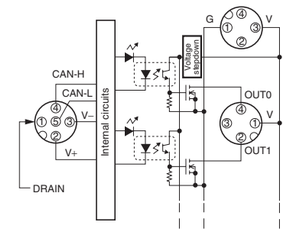
DRT2-HD16CL (NPN)



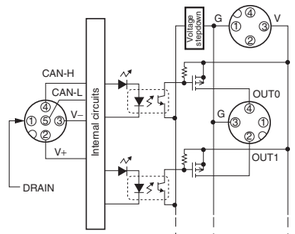
DRT2-HD16CL-1 (PNP)



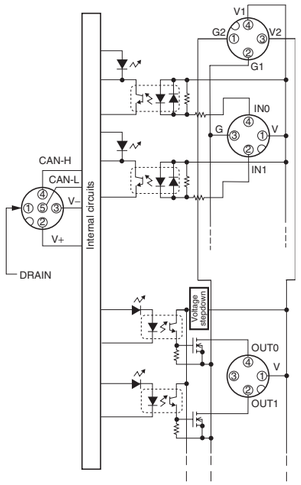
DRT2-WD16CL (NPN)



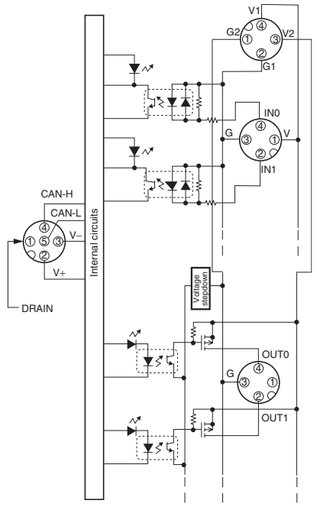
DRT2-WD16CL-1 (PNP)



DRT2-MD16CL (NPN)



DRT2-MD16CL-1 (PNP)



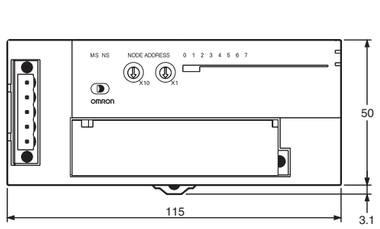
Dimensions

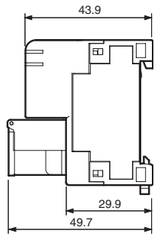
(Unit: mm)

■Remote I/O Terminals with Transistors

●Remote I/O Terminals

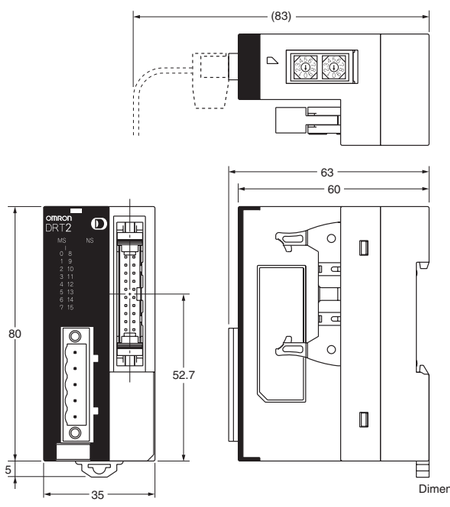
DRT2-ID08(-1)
DRT2-OD08(-1)
DRT2-MD16(-1)





■MIL Connector Terminals with Transistors

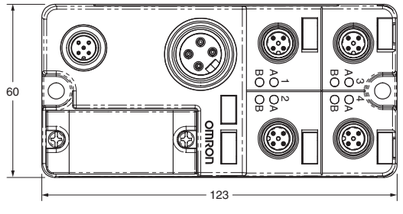
DRT2-ID16ML(-1)
DRT2-OD16ML(-1)
DRT2-ID16MLX(-1)
DRT2-OD16MLX(-1)

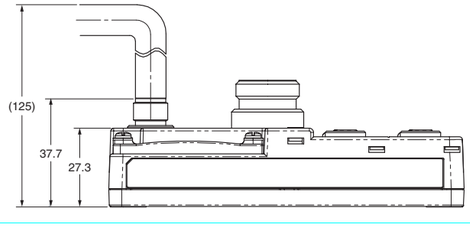


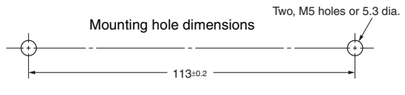
Dimensions inside parentheses are for reference only.

■Standard Environment-resistive Terminals and Environment-resistive Terminals with Transistors

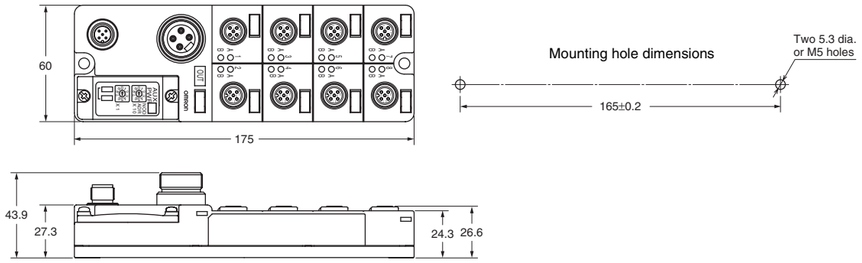
DRT2-ID04CL(-1)
DRT2-OD04CL(-1)







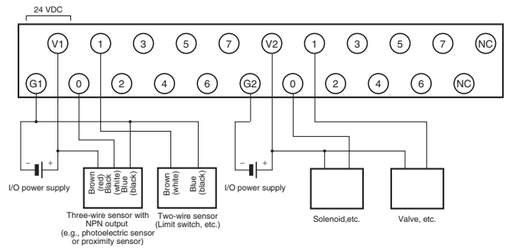
DRT2-ID08CL(-1)
DRT2-OD08CL(-1)
DRT2-HD16CL(-1)
DRT2-WD16CL(-1)
DRT2-MD16CL(-1)



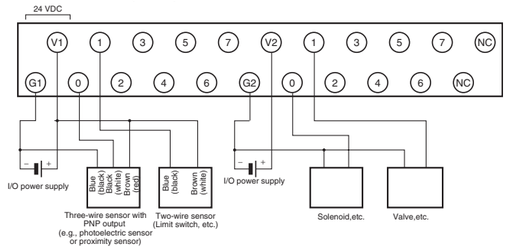
Wiring Diagrams

■Remote I/O Terminals with Transistors

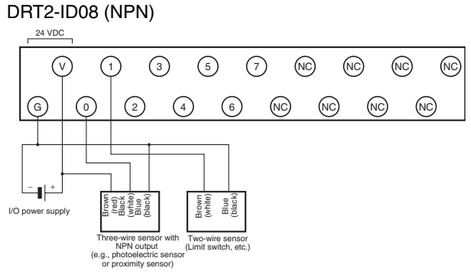
DRT2-MD16 (NPN)



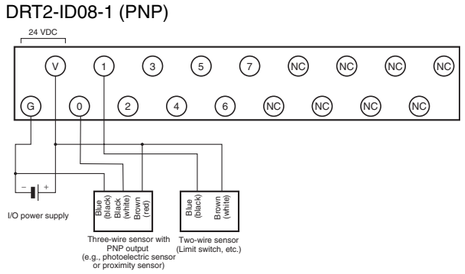
DRT2-MD16-1 (PNP)



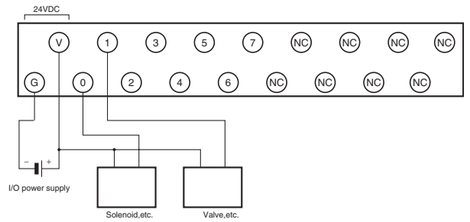
DRT2-ID08 (NPN)



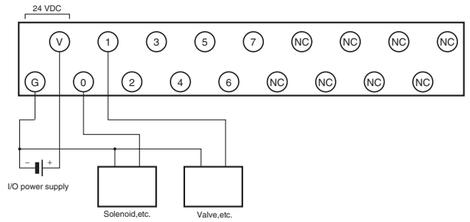
DRT2-ID08-1 (PNP)



DRT2-OD08 (NPN)

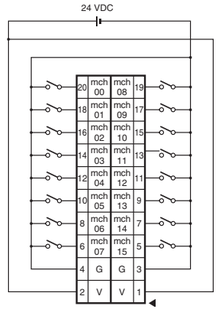


DRT2-OD08-1 (PNP)

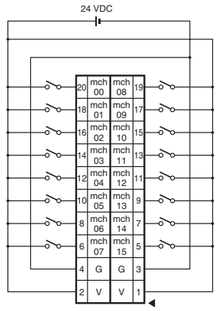


■MIL Connector Terminals with Transistors

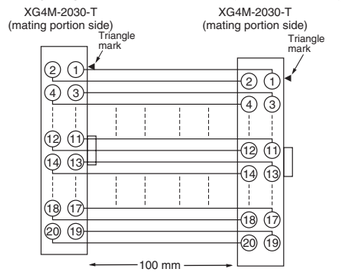
DRT2-ID16ML(X)



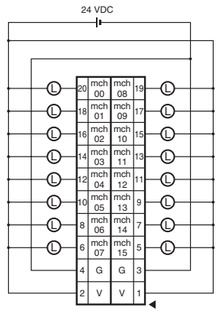
DRT2-ID16ML(X)-1



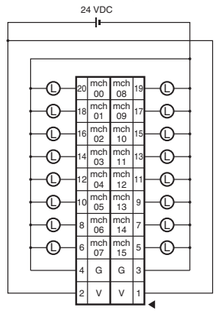
DRT2-ID16MLX(-1)/DRT2-OD16MLX(-1)
Wiring Diagram for Enclosed Cable (with Connectors)



DRT2-OD16ML(X)

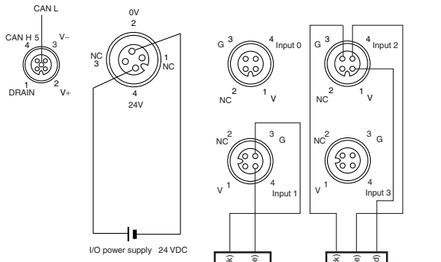


DRT2-OD16ML(X)-1

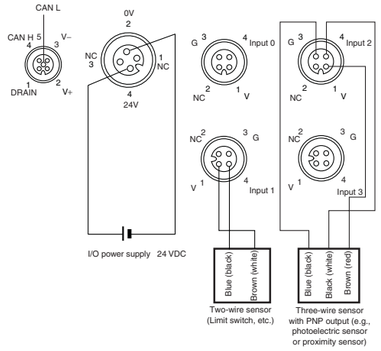


■Standard Environment-resistive Terminals and Environment-resistive Terminals with Transistors

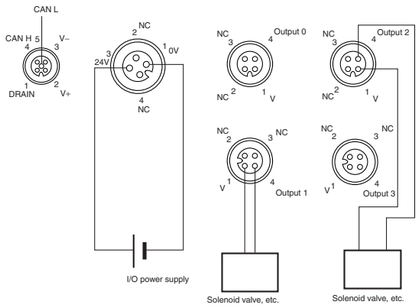
DRT2-ID04CL (NPN)



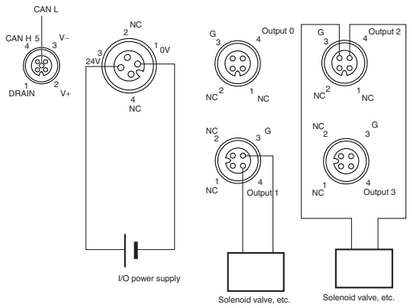
DRT2-ID04CL-1 (PNP)



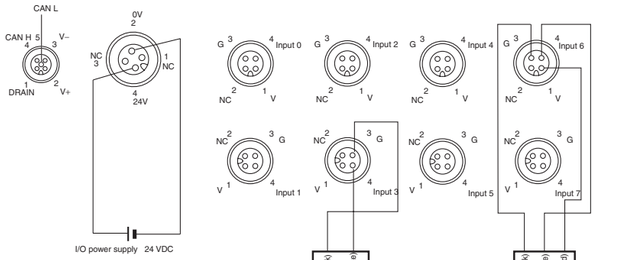
DRT2-OD04CL (NPN)



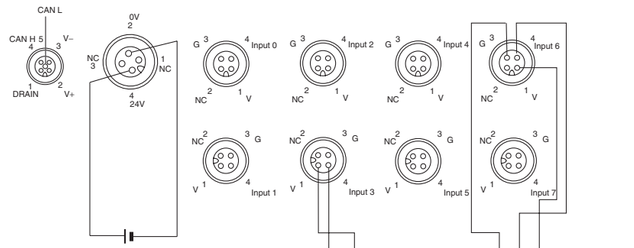
DRT2-OD04CL-1 (PNP)



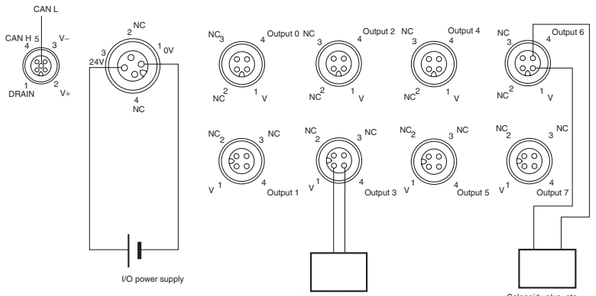
DRT2-ID08CL (NPN)



DRT2-ID08CL-1 (PNP)



DRT2-OD08CL (NPN)



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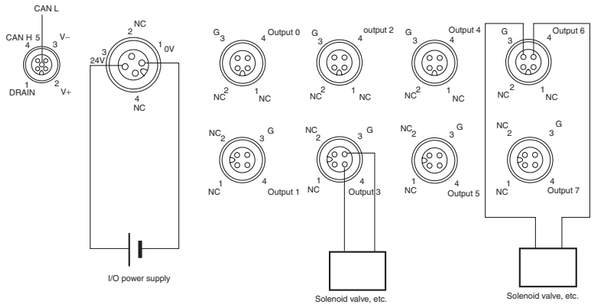
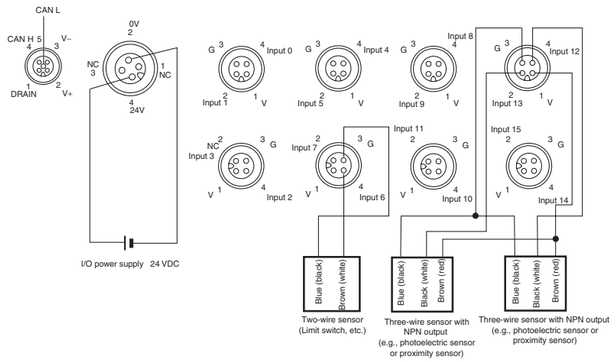
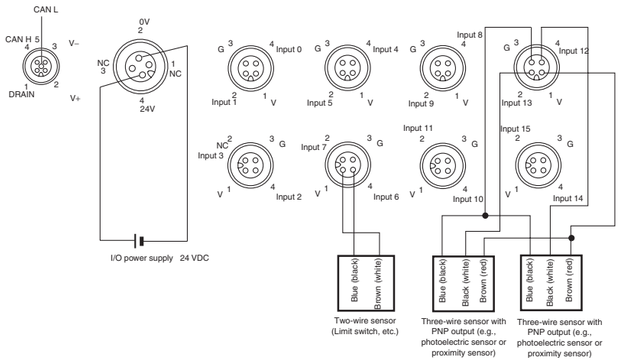


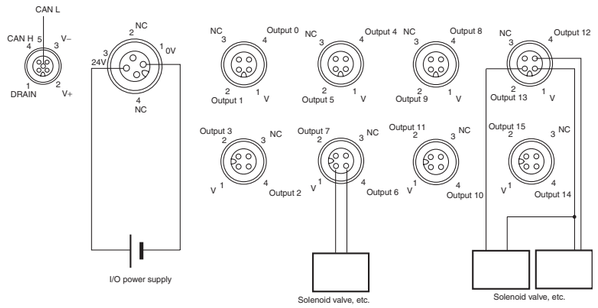
DRT2-HD16CL (NPN)



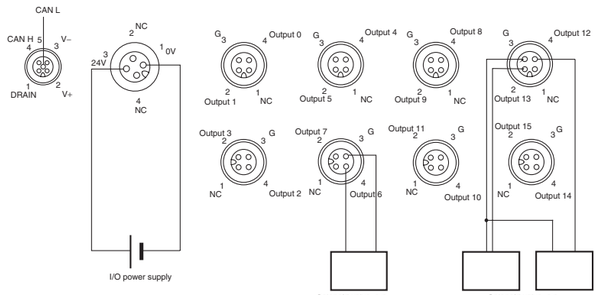
DRT2-HD16CL-1 (PNP)



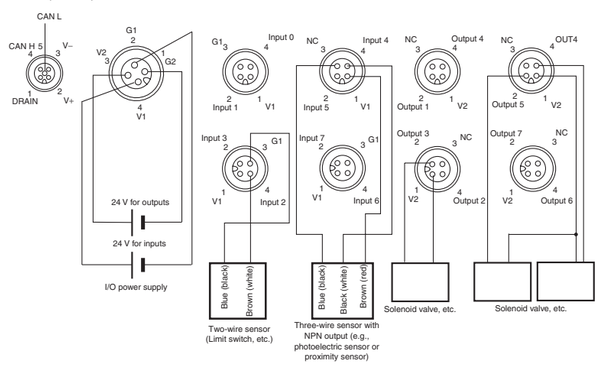
DRT2-WD16CL (NPN)



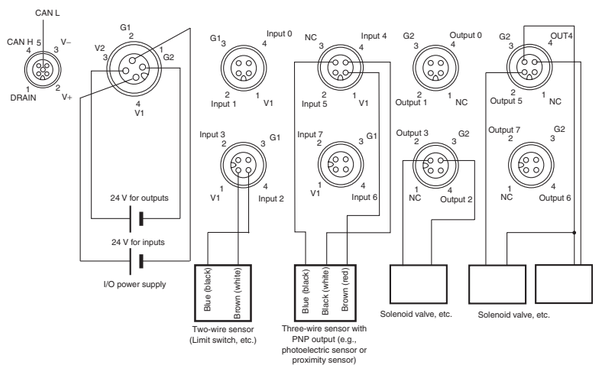
DRT2-WD16CL-1 (PNP)



DRT2-MD16CL (NPN)



DRT2-MD16CL-1 (PNP)



Applicable Cables

■MIL Connectors with Transistors

●Connector-Terminal Block Conversion Unit and Connecting Cable (16 Points)

Cables with Connectors (1:1)

Model	Applicable cable	Connected Relay Terminal	Remarks
DRT2-ID16ML DRT2-ID16ML-1 DRT2-OD16ML DRT2-OD16ML-1	G79-O□C	XW2D-20G6 XW2B-20G5 XW2B-20G4 XW2C-20G6-IO16	Connector Terminal Block Conversion Unit

●I/O Relay Terminal Connector Cables (16 Points)

Cables with Connectors (1:1)

Model	Applicable cable	Connected Relay Terminal	Remarks
DRT2-ID16ML	G79-I□C	G7TC-ID16 G7TC-IA16	For I/O Relay Terminal inputs
DRT2-ID16ML-1	---	---	(No applicable models)
DRT2-OD16ML	G79-O□C	G7TC-OC16/OC08 G70D-SOC16/VSOC16 G70D-FOM16/VFOM16 G70A-ZOC16-3 G70D-SOC08 G70R-SOC08	For I/O Relay Terminal outputs
DRT2-OD16ML-1	G79-I□C	G7TC-OC16-1	For I/O Relay Terminal outputs
	G79-O□C	G70D-SOC16-1 G70D-FOM16-1 G70A-Z0C16-4	For I/O Relay Terminal outputs

●Cables with Loose Wires with Crimp Terminals

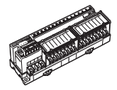
Model	Applicable cable	Remarks
DRT2-ID16ML DRT2-ID16ML-1 DRT2-OD16ML DRT2-OD16ML-1	G79A-Y□C-D1	20-pole connector/ bundled cable (with crimp-style terminals) conversion cable

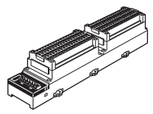
●Cables with Loose Wires

Model	Applicable cable	Remarks
DRT2-ID16ML DRT2-ID16ML-1 DRT2-OD16ML DRT2-OD16ML-1	G79A-A□C-D1	20-pole connector/ bundled cable conversion cable

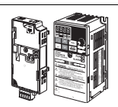
List of Models

●DRT2-series Smart Slaves

Product name	Shape	Model	Specifications	Approved standards
Remote I/O Basic Terminals with Transistors		DRT2-ID16	16 inputs, NPN (+ common)	UC, CE
		DRT2-ID16-1	16 inputs, PNP (– common)	
		DRT2-OD16	16 outputs, NPN (– common)	
		DRT2-OD16-1	16 outputs, PNP (+ common)	
		DRT2-MD16	8 inputs/8 outputs with NPN, + common for inputs, – common for outputs	
		DRT2-MD16-1	8 inputs/8 outputs with PNP, – common for inputs, + common for outputs	
		DRT2-ID08	8 inputs, NPN (+ common)	
		DRT2-ID08-1	8 inputs, PNP (– common)	
		DRT2-OD08	8 outputs, NPN (– common)	
		DRT2-OD08-1	8 outputs, PNP (+ common)	
Remote I/O Terminal Expansion Units with Transistors		XWT-ID08	8 inputs for terminals with NPN, + common	UC, CE
		XWT-ID08-1	8 inputs for terminals with PNP, – common	
		XWT-OD08	8 outputs for terminals with NPN, – common	
		XWT-OD08-1	8 outputs for terminals with PNP, + common	
		XWT-ID16	16 inputs for terminals with NPN, + common	
		XWT-ID16-1	16 inputs for terminals with PNP, – common	
		XWT-OD16	16 outputs for terminals with NPN, – common	
		XWT-OD16-1	16 outputs for terminals with PNP, + common	
Remote I/o Terminals with 3-tier Terminal Blocks with Transistors		DRT2-ID16TA	16 inputs with NPN, + common	UC, CE
		DRT2-ID16TA-1	16 inputs with PNP, – common	
		DRT2-OD16TA	16 outputs with NPN, – common	
		DRT2-OD16TA-1	16 outputs with PNP, + common	
		DRT2-MD16TA	8 inputs/8 outputs with NPN, + common for inputs, – common for outputs	
		DRT2-MD16TA-1	8 inputs/8 outputs with PNP, – common for inputs, + common for outputs	
MIL Connector Terminals with Transistors		DRT2-ID32ML	32 inputs with NPN, + common	UC, CE
		DRT2-ID32ML-1	32 inputs with PNP, – common	
		DRT2-OD32ML	32 outputs with NPN, – common	
		DRT2-OD32ML-1	32 outputs with PNP, + common	
		DRT2-MD32ML	16 inputs/16 outputs with NPN, + common for inputs, – common for outputs	
		DRT2-MD32ML-1	16 inputs/16 outputs with PNP, – common for inputs, + common for outputs	
		DRT2-ID16ML	16 inputs with NPN, + common	
		DRT2-ID16ML-1	16 inputs with PNP, – common	
		DRT2-OD16ML	16 outputs with NPN, – common	
		DRT2-OD16ML-1	16 outputs with PNP, + common	
		DRT2-ID16MLX	16 inputs with NPN, + common, cable with connectors: 10 cm	
		DRT2-ID16MLX-1	16 inputs with PNP, – common, cable with connectors: 10 cm	
		DRT2-OD16MLX	16 outputs with NPN, – common, cable with connectors: 10 cm	
		DRT2-OD16MLX-1	16 outputs with PNP, + common, cable with connectors: 10 cm	
Remote I/O Terminals with Relay Outputs		DRT2-ROS16	16 outputs	UR, CE
Board Terminals with MIL Connectors (horizontal mounting)		DRT2-ID32B	32 inputs, NPN (+ common)	U, CE
		DRT2-ID32B-1	32 inputs, PNP (– common)	
		DRT2-OD32B	32 outputs, NPN (– common)	
		DRT2-OD32B-1	32 outputs, PNP (+ common)	
		DRT2-MD32B	16 inputs/16 outputs, NPN (inputs: + common/outputs: – common)	
		DRT2-MD32B-1	16 inputs/16 outputs, PNP (inputs: – common/outputs: + common)	
Board Terminals with MIL Connectors (vertical mounting)		DRT2-ID32BV	32 inputs, NPN (+ common)	U, CE
		DRT2-ID32BV-1	32 inputs, PNP (– common)	
		DRT2-OD32BV	32 outputs, NPN (– common)	
		DRT2-OD32BV-1	32 outputs, PNP (+ common)	
		DRT2-MD32BV	16 inputs/16 outputs, NPN (inputs: + common/outputs: – common)	
		DRT2-MD32BV-1	16 inputs/16 outputs, PNP (inputs: – common/outputs: + common)	

Product name	Shape	Model	Specifications	Approved standards
Screw-less Clamp Terminals with Transistors		DRT2-ID32SLH	32 inputs, NPN (+ common) with detection functions	UC, CE
		DRT2-ID32SLH-1	32 inputs, PNP (– common) with detection functions	
		DRT2-OD32SLH	32 outputs, NPN (– common) with detection functions	
		DRT2-OD32SLH-1	32 outputs, PNP (+ common) with detection functions	
		DRT2-MD32SLH	16 inputs/16 outputs, NPN (inputs: + common/outputs: – common) with detection functions	
		DRT2-MD32SLH-1	16 inputs/16 outputs, PNP (inputs: – common/outputs: + common) with detection functions	
		DRT2-ID32SL	32 inputs, NPN (+ common) without detection functions	
		DRT2-ID32SL-1	32 inputs, PNP (– common) without detection functions	
		DRT2-OD32SL	32 outputs, NPN (– common) without detection function	
		DRT2-OD32SL-1	32 outputs, PNP (+ common) without detection function	
		DRT2-MD32SL	16 inputs/16 outputs, NPN (inputs: + common/outputs: – common) without detection function	
		DRT2-MD32SL-1	16 inputs/16 outputs, PNP (inputs: – common/outputs: + common) without detection function	
Environment-resistive Terminals with Transistors		DRT2-ID08C	8 inputs, NPN (+ common) with detection functions	UC, CE
		DRT2-ID08C-1	8 inputs, PNP (– common) with detection functions	
		DRT2-OD08C	8 outputs, NPN (– common) with detection functions	
		DRT2-OD08C-1	8 outputs, PNP (+ common) with detection functions	
		DRT2-HD16C	16 inputs, NPN (+ common) with detection functions	
		DRT2-HD16C-1	16 inputs, PNP (– common) with detection functions	
		DRT2-ID04CL	4 inputs, NPN (+ common) without detection functions	UC, CE
		DRT2-ID04CL-1	4 inputs, PNP (– common) without detection functions	
		DRT2-OD04CL	4 outputs, NPN (– common) without detection functions	
		DRT2-OD04CL-1	4 outputs, PNP (+ common) without detection functions	
		DRT2-ID08CL	8 inputs, NPN (+ common) without detection functions	UC, CE
		DRT2-ID08CL-1	8 inputs, PNP (– common) without detection functions	
		ÂDRT2-OD08CL	8 outputs, NPN (– common) without detection functions	
		DRT2-OD08CL-1	8 outputs, PNP (+ common) without detection functions	
		DRT2-HD16CL	16 inputs, NPN (+ common) without detection functions	
		DRT2-HD16CL-1	16 inputs, PNP (– common) without detection functions	
		DRT2-WD16CL	16 outputs, NPN (– common) without detection functions	
		DRT2-WD16CL-1	16 outputs, PNP (+ common) without detection functions	
		DRT2-MD16CL	8 inputs/8 outputs, NPN (inputs: + common/outputs: – common) without detection function	
		DRT2-MD16CL-1	8 inputs/8 outputs, PNP (inputs: – common/outputs: + common) without detection function	
e-con Connector Terminals		DRT2-ID16S	16 inputs, NPN (+ common)	UC, CE
		DRT2-ID16S-1	16 inputs, PNP (– common)	
		DRT2-MD16S	8 inputs/8 outputs, NPN (inputs: + common/outputs:– common)	
		DRT2-MD16S-1	8 inputs/8 outputs, PNP (inputs: – common/outputs: + common)	
Analog Input Terminals		DRT2-AD04	4 inputs (resolution: 6,000)	UC, CE
		DRT2-AD04H	4 inputs (resolution: 30,000)	
Analog Output Terminals		DRT2-DA02	2 outputs	
Temperature Input Terminals with Thermocouple Inputs		DRT2-TS04T	4 inputs	U, CE
Temperature Input Terminals with Resistance-thermometer Inputs		DRT2-TS04P	4 inputs	

●Intelligent Slaves

Product name	Shape	Model	Specifications	Approved standards
Modular Temperature Controllers		E5ZN-DRT	DeviceNet Communications Unit for E5ZN	---
		E5ZN-SCT24S	Terminal Unit	
	---	E5ZN-SDL	Setting Display Unit	
Multi-function Compact Inverter		3G3MV-PDRT2	Communications Unit for 3G3MV Inverters	U, CE
High-function General-purpose Inverters		3G3RV-PDRT2	3G3RV/3G3FV DeviceNet Communications Card	U, CE

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   (i) Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this document.
   (ii) Use in consumer products or any use in significant quantities.
   (iii) Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
   (iv) Systems, machines and equipment that could present a risk to life or property. Please know and observe all prohibitions of use applicable to this Product.
   NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON'S PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
2. Programmable Products. Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.
3. Performance Data. Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.
4. Change in Specifications. Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.
5. Errors and Omissions. Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

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1. Offer; Acceptance. These terms and conditions (these "Terms") are deemed part of all quotes, agreements, purchase orders, acknowledgments, price lists, catalogs, manuals, brochures and other documents, whether electronic or in writing, relating to the sale of products or services (collectively, the "Products") by Omron Electronics LLC and its subsidiary companies ("Omron"). Omron objects to any terms or conditions proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms.
2. Prices; Payment Terms. All prices stated are current, subject to change without notice by Omron. Omron reserves the right to increase or decrease prices on any unshipped portions of outstanding orders. Payments for Products are due net 30 days unless otherwise stated in the invoice.
3. Discounts. Cash discounts, if any, will apply only on the net amount of invoices sent to Buyer after deducting transportation charges, taxes and duties, and will be allowed only if (i) the invoice is paid according to Omron's payment terms and (ii) Buyer has no past due amounts.
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5. Orders. Omron will accept no order less than $200 net billing.
6. Governmental Approvals. Buyer shall be responsible for, and shall bear all costs involved in, obtaining any government approvals required for the importation or sale of the Products.
7. Taxes. All taxes, duties and other governmental charges (other than general real property and income taxes), including any interest or penalties thereon, imposed directly or indirectly on Omron or required to be collected directly or indirectly by Omron for the manufacture, production, sale, delivery, importation, consumption or use of the Products sold hereunder (including customs duties and sales, excise, use, turnover and license taxes) shall be charged to and remitted by Buyer to Omron.
8. Financial. If the financial position of Buyer at any time becomes unsatisfactory to Omron, Omron reserves the right to stop shipments or require satisfactory security or payment in advance. If Buyer fails to make payment or otherwise comply with these Terms or any related agreement, Omron may (without liability and in addition to other remedies) cancel any unshipped portion of Products sold hereunder and stop any Products in transit until Buyer pays all amounts, including amounts payable hereunder, whether or not then due, which are owing to it by Buyer. Buyer shall in any event remain liable for all unpaid accounts.
9. Cancellation; Etc. Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Omron against all related costs or expenses.
10. Force Majeure. Omron shall not be liable for any delay or failure in delivery resulting from causes beyond its control, including earthquakes, fires, floods, strikes or other labor disputes, shortage of labor or materials, accidents to machinery, acts of sabotage, riots, delay in or lack of transportation or the requirements of any government authority.
11. Shipping; Delivery. Unless otherwise expressly agreed in writing by Omron:
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    b. Such carrier shall act as the agent of Buyer and delivery to such carrier shall constitute delivery to Buyer;
    c. All sales and shipments of Products shall be FOB shipping point (unless otherwise stated in writing by Omron), at which point title and risk of loss shall pass from Omron to Buyer; provided that Omron shall retain a security interest in the Products until the full purchase price is paid;
    d. Delivery and shipping dates are estimates only; and
    e. Omron will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
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16. Property; Confidentiality. Any intellectual property in the Products is the exclusive property of Omron Companies and Buyer shall not attempt to duplicate it in any way without the written permission of Omron. Notwithstanding any charges to Buyer for engineering or tooling, all engineering and tooling shall remain the exclusive property of Omron. All information and materials supplied by Omron to Buyer relating to the Products are confidential and proprietary, and Buyer shall limit distribution thereof to its trusted employees and strictly prevent disclosure to any third party.
17. Export Controls. Buyer shall comply with all applicable laws, regulations and licenses regarding (i) export of products or information; (iii) sale of products to "forbidden" or other proscribed persons; and (ii) disclosure to non-citizens of regulated technology or information.
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   (ii) Use in consumer products or any use in significant quantities.
   (iii) Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
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Note: This datasheet is provided as a guideline for selecting products. Do not use this document to operate the Unit.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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