Functions Supported by Smart Slaves

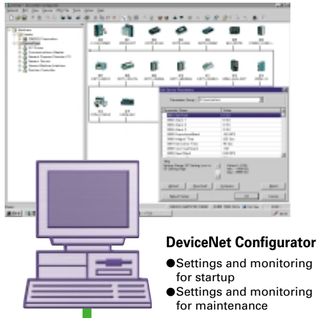
Slave name	General-purpose Slaves															General-purpose Slaves						Environment-resistive Slaves					General-purpose Slaves	Analog Slaves			
	Remote I/O Terminals									MIL Connector Terminals			Board Terminals			Screw-less Clamp Terminals						Environment-resistive Terminals					e-con Connector 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□
Function / 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	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.

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

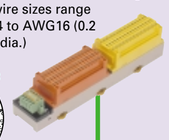
DRT2-ID32B(-1)
DRT2-OD32B(-1)
DRT2-MD32B(-1)
DRT2-ID32BV(-1)
DRT2-OD32BV(-1)
DRT2-MD32BV(-1)

- 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)

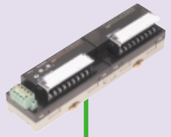
- Wiring is completed in a single action.
- No screw tightening required. Removable terminal blocks.
- Advanced models detect ground faults and broken lines in I/O wiring.
- Applicable wire sizes range from AWG24 to AWG16 (0.2 to 1.25 mm² dia.)



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

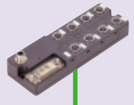
DRT2-ROS16

- 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.



Environment-resistive Terminals with Transistors (without detection functions)

DRT2-ID04CL(-1) NEW
DRT2-OD04CL(-1) NEW
DRT2-ID08CL(-1) NEW
DRT2-OD08CL(-1) NEW
DRT2-MD16CL(-1) NEW
DRT2-HD16CL(-1) NEW
DRT2-WD16CL(-1) NEW

Remote I/O Terminals with 3-tier Terminal Blocks

DRT2-ID16TA(-1)
DRT2-OD16TA(-1)
DRT2-MD16TA(-1)

- The 3-tier Terminal Block means that wiring locations are easy to find with no wiring to intermediate terminals.

MIL Connector Terminals

DRT2-ID32ML(-1)
DRT2-OD32ML(-1)
DRT2-MD32ML(-1)
DRT2-ID16ML(-1) NEW
DRT2-OD16ML(-1) NEW
DRT2-ID16MLX(-1) NEW
DRT2-OD16MLX(-1) NEW

- Ultra-small 32-point remote terminals (35 x 60 x 80 mm (W x D x H)).

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.

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 functions as Analog Input Terminals, such as scaling and comparators. Also provides functions that are available only from Temperature Input Terminals, such as the time in a preset temperature range and temperature difference detection between input channels.

DeviceNet Communications Unit for E5ZN Digital Temperature Controllers

E5ZN-DRT

- Monitoring and setting of Temperature Controller from PLC.
- Batch download of all Temperature Controller parameters from Configurator.

Analog Control and Maintenance

DeviceNet Communications Units/Cards for Inverters

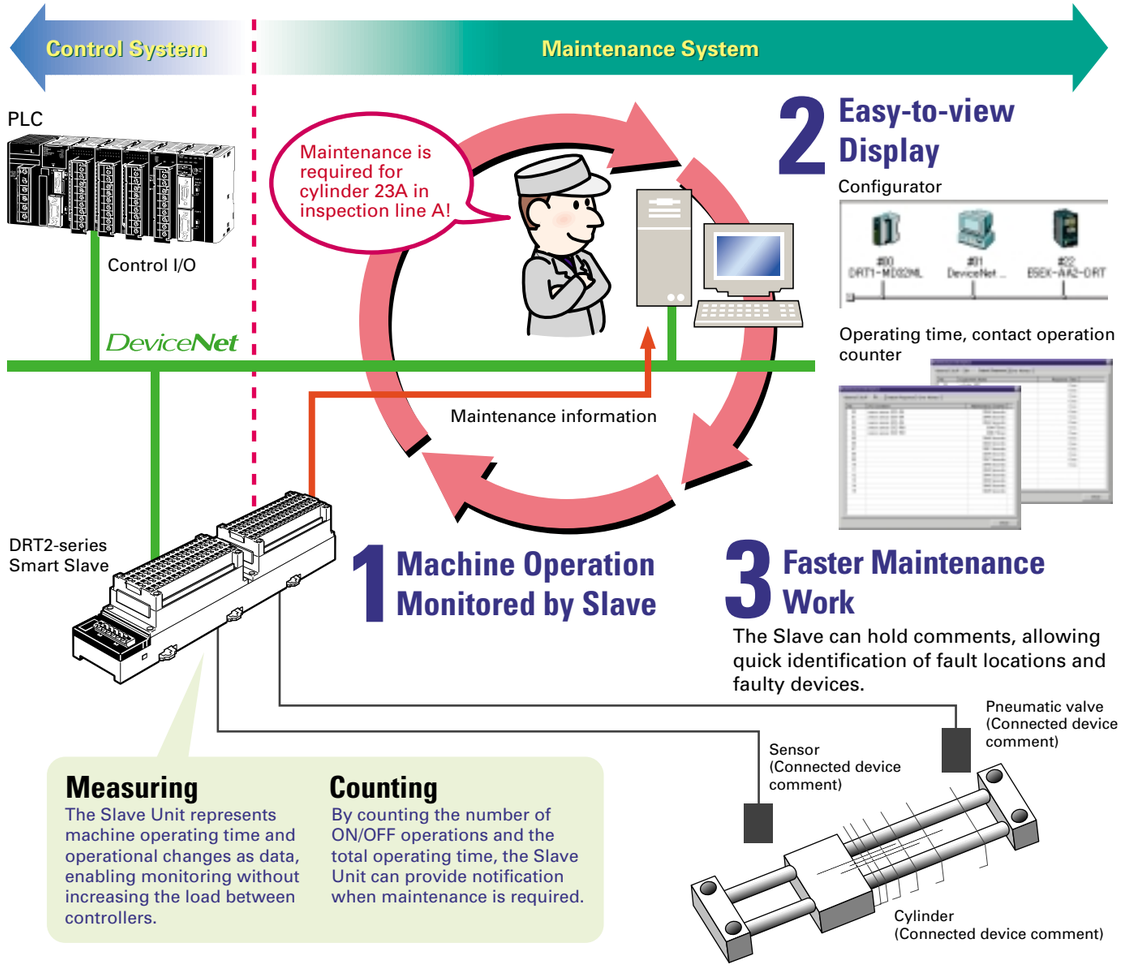
3G3MV-PDRT2 (for 3G3MV Series)
3G3RV-PDRT2 (for 3G3RV Series)

- Frequencies and other specifications can be designated from PLC.
- Monitor-related maintenance possible, including output current (torque) error detection/trace, operation monitor, and general-purpose I/O read.

Monitor Control and Maintenance

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.

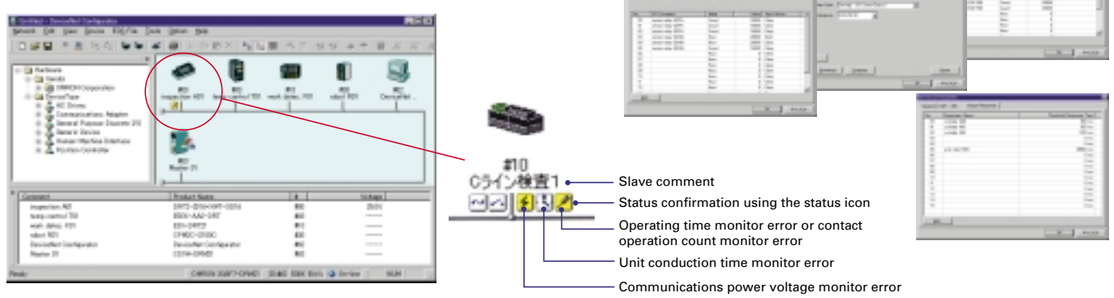


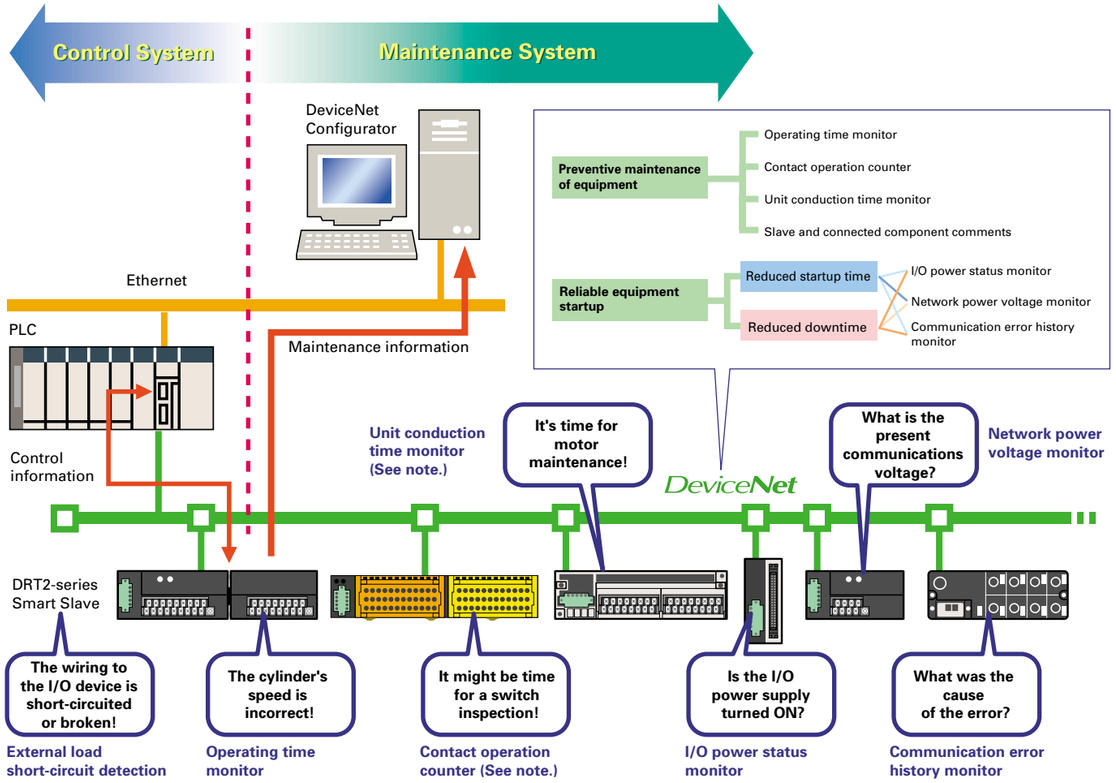
Measuring
The Slave Unit represents machine operating time and operational changes as data, enabling monitoring without increasing the load between controllers.

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.





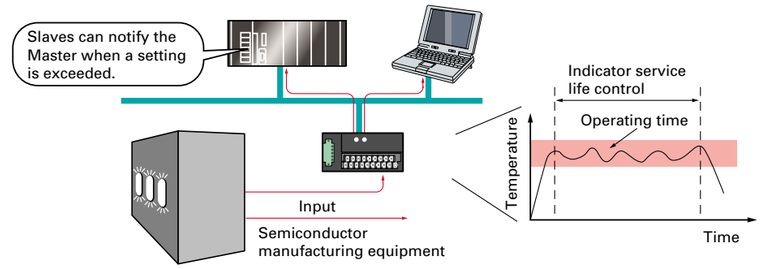
Note: The contact operation counter function and the unit conduction time monitor function cannot be used simultaneously.

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.

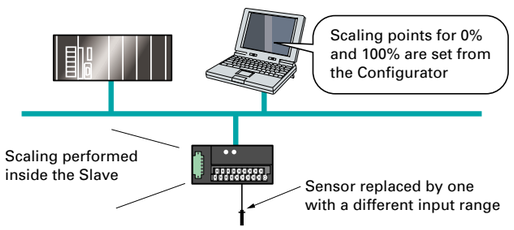


The peaks or valleys of temperature inputs that change in a regular pattern are counted to predict when devices operating with severe temperature swings are due for maintenance.

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.



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)

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