





# **DeviceNet Continues**

### New Lineup

**Support for Machine Automation Controller NJ-Series!** 



#### Support for open network

The MX2 series/ MX2 series V1 type\* can be connected to DeviceNet by mounting the Communications Unit.

\* Supported for the MX2 series Ver.1.1 or higher.

#### Parameter Edit via DeviceNet

Parameters of the inverter can be edited via DeviceNet communication by using CX-Drive\*, support tool of inverter/servo drive. No tool switching required.

\* Supported for CX-Drive Ver.2.6 or higher.

#### 8 types of remote I/O higher functions

8 types of remote I/O functions that exchange I/O data automatically without program are provided. All of the following functions of the inverter can also be used.

- Simple positioning control
- Torque control
- Setting of acceleration/deceleration time etc.



MX2 series V1 type **DeviceNet Communication Unit** 

3G3AX-MX2-DRT-E

P. 109

### Selecting a Network Is a Strategic Decision. to Evolve.

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# Linking the World. A Global Open Network Greater Wiring Reduction, Standardization, on a Global Scale.

### What Is DeviceNet?

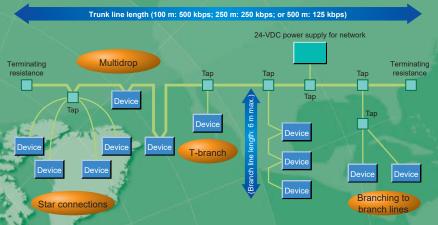
DeviceNet is a field network that easily performs mutual connections between control devices, such as PLCs, computers, and sensors, as well as data devices, such as barcode readers and RFID Systems. DeviceNet is a standardized network that enables intelligent control of field devices and improves system productivity.



### Used Worldwide. and IT Technology at Manufacturing Sites



DeviceNet covers a wide array of FA applications, ranging from the sensor or device level to the controller level. With its superior installation performance, DeviceNet easily achieves mutual connections between sensors and other control devices in one network as well as reducing costs and shortening lead time in many aspects of manufacturing, ranging from design and manufacture of equipment and lines to installation, operation, and maintenance.



#### Accelerating the Global Standardizations Required by Industry in This Age of Global Manufacturing

DeviceNet has been the leader in standardization required for this age of borderless manufacturing as a standard for a variety of countries and industrial organizations, such as with standard sensor bus certification by the SEMI industrial association and compliance with IEC, an international global standard. Equipment and lines at manufacturing sites overseas can be constructed and operated in the same way as at sites in Japan without the need for training on wiring rules or detailed explanations.



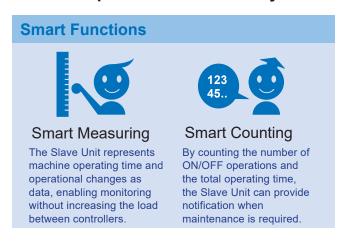
#### **Support for Creating Maintenance and Safety Systems**

Support is provided for creating maintenance systems that provide failure prediction as preventive maintenance to reduce equipment downtime, which is a constant issue at manufacturing sites. Page F-6 Using DeviceNet lets you create safety control networks and program logic. Monitoring with safety controls makes maintenance easier. Page F-8

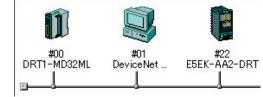
# DRT2-series Smart Slaves are Intelligent for Your Networks from Installation

OMRON DRT2-series Smart Slaves decrease total costs and reduce work when used in a variety of manufacturing site applications, such as maintenance and quality control. The Slave Units monitor the network's power supply voltage and communications errors, which can be easily read using Support Software. In addition, the number of ON/OFF operations and total operating time of the devices wired to the slave are counted at the slave, which enables providing notification when maintenance is required.

#### **Machine Operation Monitored by Slaves**

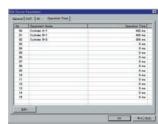






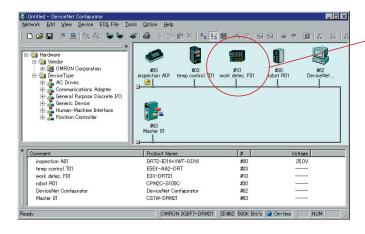
Operating time, contact operation counter

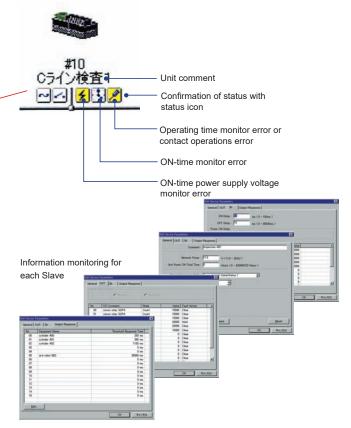




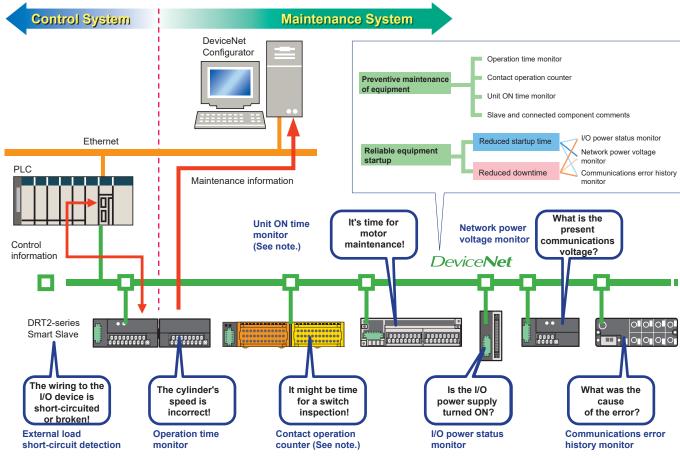
#### **Improve Maintenance Efficiency**

The Slave can hold comments, allowing quick identification of fault locations and faulty devices.



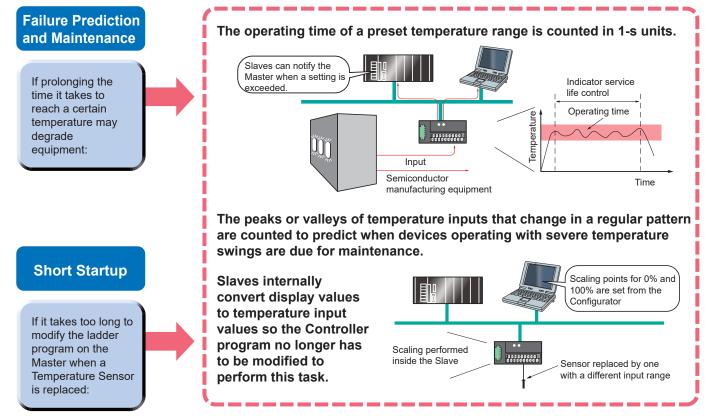


# Slaves with Powerful Support to Maintenance DeviceNet



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

#### **Using OMRON Temperature Input Terminals for Maintenance**



### Complies with the Highest Safety Standards in th

The CIP Safety on DeviceNet System conforms to IEC 61508 SIL3 for functional safety, and EN 954-1 Safety Category 4 for machine safety, complying with the world's highest level of safety standards.

#### IEC 61508 SIL 3

Safety circuits must be able to function to provide safety at anytime.
Conversely, the degree of lack of safety is used as the indicator. In IEC 61508, safety is defined as the Probability of Failure per Hour, or PFH. Based on this, the SIL (Safety Level) is classified into four levels. SIL 3 indicates a probability of dangerous failure of once in 1,000 years, which is the highest level in machine safety.

#### EN 954-1 Safety Category 4

EN standards evaluate the level of machine risk and require the incorporation of risk minimization measures. In EN 954-1, five safety categories have been established, with Safety Category 4 indicating designs that require the highest safety design level. This category is demanded for machines with the highest level of danger, wherein "serious injury (severed limbs, death, etc.) will occur frequently, with little chance of escaping danger." This category demands that a single fault (failure) in any part of the machine, or a series of faults.

the machine, or a series of faults, will not lead to loss of the machine's safety functions.

Programmable Safety Circuits

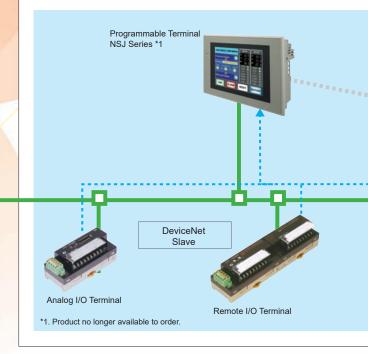
More efficient designing and modification

Compatible with DeviceNet Open Network

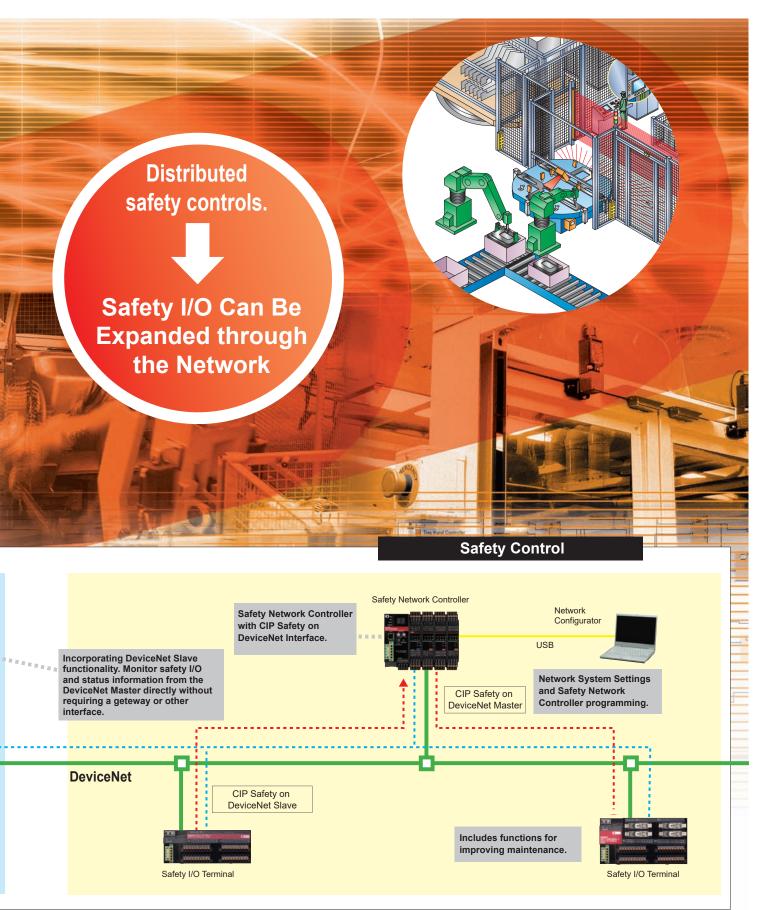
Coordination with standard controls is easy through DeviceNet

#### **Machine Control**





### Device Vet



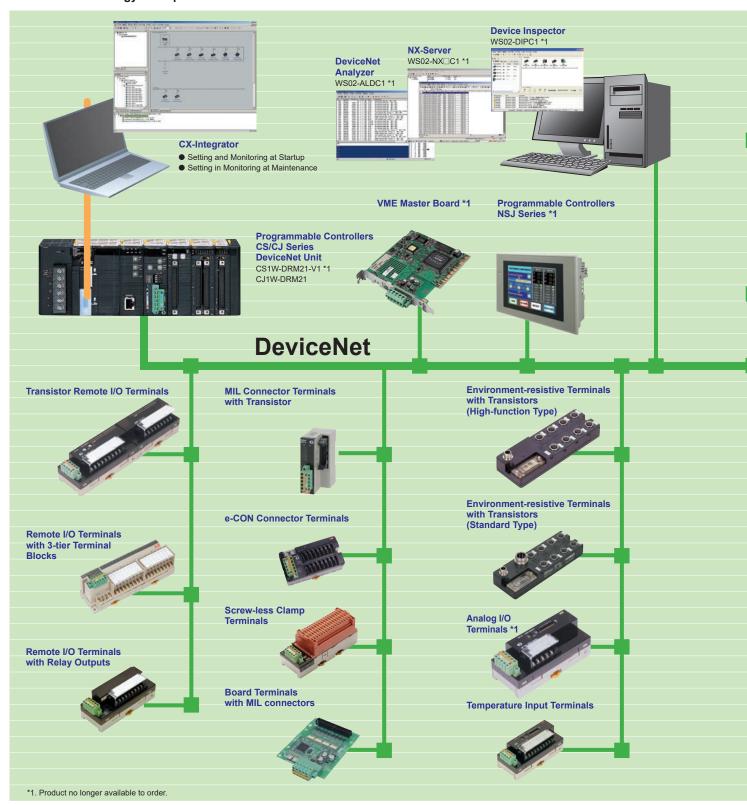
# Through Our High Reliability and Application OMRON Provides a Wide Range of DeviceNet Selection for Your Worksite.

DeviceNet is a global open multi-vendor network that is spreading worldwide.

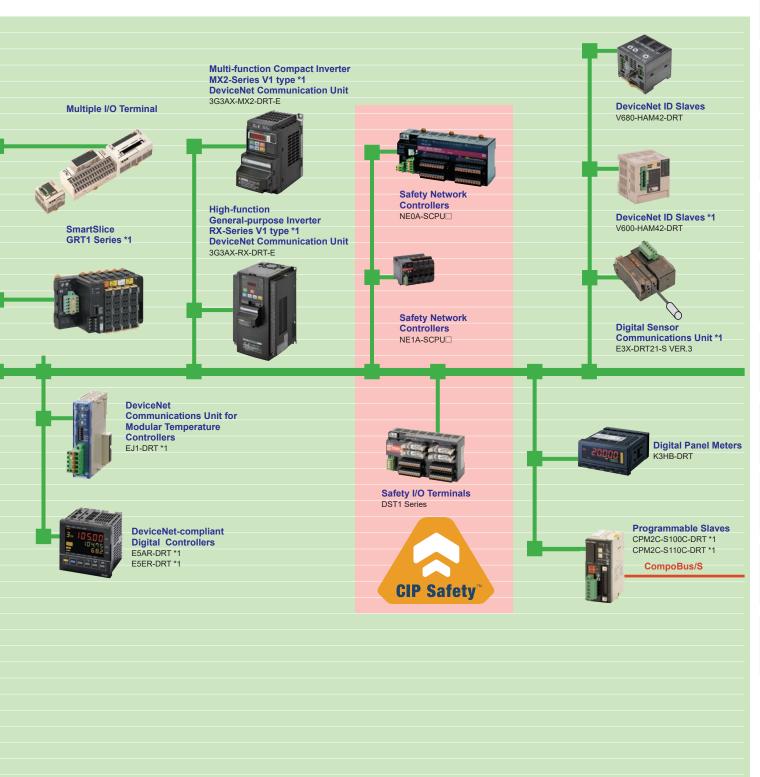
A wide variety of DeviceNet devices are provided by many vendors.

Having recognized the superior flexibility of DeviceNet for FA and its role as a global standard, OMRON provides a broad lineup of compatible devices.

In the future, OMRON will continue to enhance solutions using DeviceNet while further developing information technology and open networks.



### **Know-how Refined at FA Sites,** Devices to Enable the Ideal DeviceNet®





#### Masters

■ DeviceNet Unit for CJ Series

P. 2



CJ1W-DRM21

■ DeviceNet Unit for CS Series \*1

P. 3



CS1W-DRM21-V1

■ Programmable Controllers NSJ Series \*1

P. 4



NSJ□-T□□1(B)-G5D

■ VME Master Board \*1

P. 7



#### **Slaves**

#### **DRT2 Smart Slaves**

■ Transistor Remote I/O Terminal



DRT2-ID16/OD16(-1) DRT2-MD16(-1) DRT2-ID08/OD08(-1) I/O Expansion Unit XWT-ID16/OD16(-1) XWT-ID08/OD08(-1)

■ Remote I/O Terminals with 3-tier Terminal Blocks





■ Remote I/O Terminals with Relay Outputs



■ MIL Connector Terminals with Transistor

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DRT2-ID32ML(-1) DRT2-OD32ML(-1) DRT2-MD32ML(-1) DRT2-ID16ML(-1) DRT2-ID16MLX(-1) DRT2-OD16ML(-1) DRT2-OD16MLX(-1) ■ e-CON connector Terminals

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■ Screw-less Clamp Terminals



■ Board Terminals with MIL connectors



DRT2-ID32B(-1) DRT2-OD32B(-1) DRT2-MD32B(-1) DRT2-ID32BV(-1) DRT2-OD32BV(-1) DRT2-MD32BV(-1) ■ Temperature Input Terminals



DRT2-OD32SLH(-1) DRT2-MD32SLH(-1) DRT2-ID16SL(-1) DRT2-ID16SLH(-1) DRT2-OD16SL(-1) DRT2-OD16SLH(-1)

■ Analog I/O Terminals

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■ Environment-resistive Terminals with Transistors (High-function Type)



■ Environment-resistive Terminals with Transistors (Standard Type)



DRT2-ID04CL(-1) DRT2-OD04CL(-1) DRT2-ID08CL(-1) DRT2-OD08CL(-1)



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



#### **Slaves**



#### **PLC Intelligent Slaves**

■ Programmable Slaves

P. 88



CPM2C-S100C-DRT \*1 CPM2C-S110C-DRT \*1

#### **Slaves**

#### Intelligent Slaves

■ Digital Sensor
Communications Unit \*1

P. 92



E3X-DRT21-S VER.3

■ DeviceNet ID Slave \*1

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V600-HAM42-DRT

ID Slave P. 95

■ DeviceNet



V680-HAM42-DRT

■ DeviceNet-compliant Digital Indicator

P. 96



K3HB-□-DRT

■ DeviceNet Communications Unit for Modular Temperature Controllers

P. 10



EJ1-DRT \*1

■ DeviceNet-compliant Digital Controllers

P. 100



E5AR-DRT \*1



E5ER-DRT \*1

■ Multi-function Compact Inverter MX2-Series V1 type DeviceNet Communication Unit

P. 107



3G3AX-MX2-DRT-E

■ High-function General-purpose Inverter RX-Series V1 type \*1 DeviceNet Communication Unit

P. 108



3G3AX-RX-DRT-E



#### **Configurators and Software**



■ DeviceNet Configurator Ver.2.



■ PC Card DeviceNet Configurator (with software)



WS02-CFDC1-E

#### **Analysis Software**

■ DeviceNet Analyzer

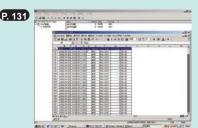




WS02-ALDC1 \*1

#### **Monitor Software**

■ NX-Server



WS02-NX□C1 \*1

#### **Diagnostic Tools**

■ Device Inspector



WS02-DIPC1 \*1

\*1. Product no longer available to order.

#### Safety

■Safety Network Controllers

P. 112



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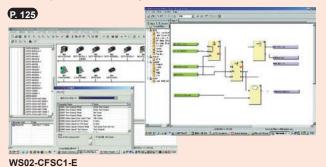


NE1A-SCPU02



NE1A-SCPU01(-V1)

■ Safety Network Configurator



■ Safety I/O Terminals



DST1-ID12SL-1 DST1-MD16SL-1 DST1-XD0808SL-1



DST1-MRD08SL



#### **Peripheral Devices**

#### Standard Cables P. 134

■ T-branch Taps



Parallel

Connectors

with Screws

DCN1-3C

Parallel Connectors with Screws DCN1-1C



Parallel

DCN1-4C

Parallel

Connectors

with Clamps

DCN1-1NC

Connectors

with Screws

Parallel Connectors with Screws DCN1-2C



Orthogonal Connectors with Screws DCN1-2R

Orthogonal

Connectors

with Screws

DCN1-4R

Parallel

Connectors

with Clamps

DCN1-3NC



**Parallel Connector** 

XW4B-05C1-H1-D

with Screws

■ Connectors

Multi-branch Parallel **Connector without Screws** XW4B-05C4-T-D



**Parallel Connector with** Screw-less Clamps XW4G-05C1-H1-D



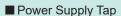
**Multi-branch Parallel Connector with Screws** XW4B-05C4-TF-D



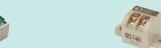
**Orthogonal Connector** with Screws XW4B-05C1-V1R-D



Multi-branch Parallel Connector with Screw-less Clamps XW4G-05C4-TF-D

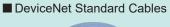


DCN1-1P



■ Terminal-block Terminator

DRS1-T





Thin Cable DCA1-5C10(-B)



**Thick Cable** DCA2-5C10(-B)



#### **Peripheral Devices** Environment-resistive Peripheral Devices (M12 Thin Cable with Micro Connectors) P. 144 ■ Shielded T-branch ■ Shielded Connector Cables ■ Shielded Assembly Connectors **Tap Connector** DCA1-5CNUH1 XS2G-D5S7 DCA1-5CN□□W1 ■ Shielded Terminating Resistor DCN2-1 DRS2-1 DCA1-5CN□□F1 DRS2-2 ■ Shielded Panel-mounting Connectors XS2P-D522-2 Environment-resistive Peripheral Devices (Smartclick Thin Cable with Micro Connectors) P. 145 martclick) ■ Shielded T-branch ■ Shielded Connector Cables Tap Connector DCA1-5CS□□W1 DCA1-5CS□□H1 DCA1-5CS□□F1 ■ Shielded Branching Relay Box ■ Shielded Terminating Resistor DCN2-S8C5H1 DCN2-S4C5H1 **DRS2-1S** DRS2-2S Environment-resistive Peripheral Devices (7/8-16 UN Thick Cable with Mini Connectors) P. 146 ■ Shielded T-branch Tap Connector ■ Shielded Connector Cables DCN3-12 DCN3-11 DCA2-5CN□□W1 DCA2-5CN□□H1 DCA2-5CNUT1 ■ Shielded Terminating Resistor ■ Panel-mounting Connectors

**DRS3-1** 

DCA2-5CNC5P1

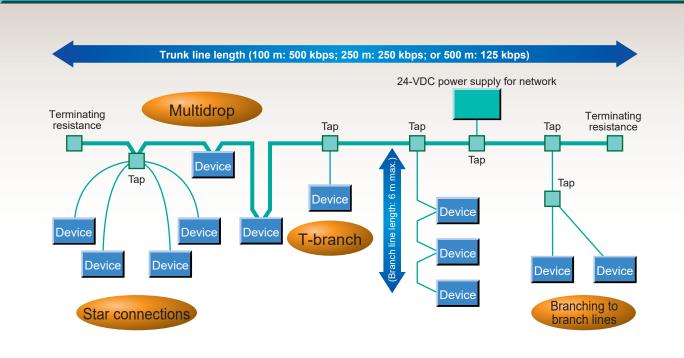
DCA2-5CNC5M1

XS4M-D521-1



### **Network Specifications**

#### **DeviceNet Network Specifications**

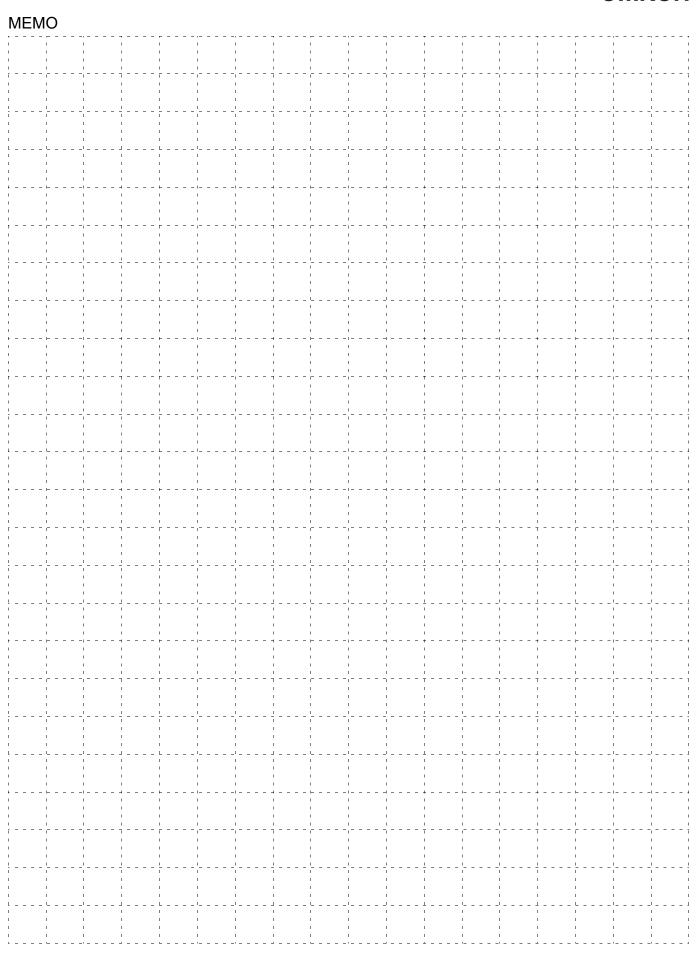


#### **Communications Specifications**

Item	Specification							
Communication protocol	DeviceNet	DeviceNet						
Connection method (See note1.)	Multidrop and T-	Multidrop and T-branch connections can be combined (for trunk lines and branch lines).						
Baud rate	125, 250, or 500	) kbps						
Communication media		Special cable: 5-conductor cable (2 signal lines, 2 power lines and 1 shield) Special Flat cable: 4-conductor cable (2 signal lines, 2 power lines)						
	Using a Speci	al 5-wire Cable						
	Baud rate	Max. network length	Branch line length	Total branch line length				
	500 kbps	100 m max.	6 m max.	39 m max.				
	250 kbps	250 m max. (See note2.	) 6 m max.	78 m max.				
0	125 kbps	500m max. (See note2.)	6 m max.	156 m max.				
Communication distance	Using a Speci	al 4-wire Cable						
	Baud rate	Max. network length	Branch line length	Total branch line length				
	500 kbps	75 m max.	6 m max.	35 m max.				
	250 kbps	150 m max.	6 m max.	48 m max.				
	125 kbps	125 kbps 265 m max. 6 m max.						
Communications power supply	24 VDC (externa	24 VDC (external)						
Max. number of connectable nodes	64 Units (includi	ng Master Units, Slave U	nits and Configurato	or)				

- Note 1: Terminating resistance required on both ends of the trunk line.
  - 2: These values apply to using Thick Cable on the trunk line. If Thin Cable is used, the value will be 100 m max.





### Master Unit

CJ-series DeviceNet Unit	. 2
CJ1W-DRM21	
CS-series DeviceNet Unit	. 3
CS1W-DRM21-V1	
Programmable Controllers NSJ Series	. 4
NSJ□-T□□1(B)-G5D	
DeviceNet Board (PCI Board)	. 7
3G8F7-DRM21-E	

#### **CJ-series DeviceNet Unit**

### J1W-DRM21

#### A DeviceNet Unit for the NJ/CJ Series

- Allows control of up to 32,000 points (2,000 words) per master, and ensures a high degree of simultaneity between data.
- Can be used as both a master and a slave at the same time.
- · Equipped with settings and monitor functions aimed at improving both design and startup efficiency. Achieve maximum performance by using in combination with a Configurator.
- · Files of master and slave settings can be uploaded and downloaded using memory cards, allowing effective debugging and easier setup.



#### **Ordering Information**

Unit		Specifications		No. of unit	Current cons	sumption (A)	
classification	Product name		Communications	numbers allocated	5 V	24V	Model
CJ1 CPU Bus Unit	DeviceNet Unit	Equipped with Master and Slave functionality. Controls for up to 32,000 points per Master.	Remote I/O Communications Master (fixed allocations or user-set allocations) Remote I/O Communications Slave (fixed allocations or user-set allocations) Message communications	1	0.29	-	CJ1W-DRM21

#### **Master/Slave Specifications**

Communications power supply voltage	je			11 to 25 VDC *1	
Current consumption		Communications: 18 mA max. Internal circuit: 290 mA max.			
Max. number of connectable slaves	Remote I/O,	explicit message se	rvice	63 *2	
	Fixed allocat	lione	When used as a master	2,048 points	
	Fixeu allocal	110115	When used as a slave	32 points	
Max. number of I/O points		Using allocated	When used as a master	16,000 points	
Max. Humber of 1/O points	User-set	DM Area words	When used as a slave	3,200 points	
	allocations	Using	When used as a master	32,000 points	
		Configurator	When used as a slave	4,800 points	
	Fixed allocations When used as a master			64 input and 64 output words Software switch/status area: 25 words	
			When used as a slave	1 input word, 1 output word *3	
	User-set	Using allocated DM Area words	When used as a master	500 input and 500 output words Software switch/status area: 25 words	
Number of allocated words			When used as a slave	100 input and 100 output words *3 Software switch/status area: 25 words	
	allocations	Using	When used as a master	500 input words x 2 blocks, 500 output words x 2 blocks Software switch/Status area: 25 words	
		Configurator	When used as a slave	100 input words x 1 blocks, 100 output words x 2 blocks *3 Software switch/Status area: 25 words	
Message communications	Max. messag	ge length		542 bytes *4	
Max. number of Units mountable to	Fixed allocations			3	
PLC	User-set allo	cations		16	
Weight				118 g	

- Refer to the DeviceNet Operation Manual (W267) for the communications power supply specifications.
- The Device Unit uses a node, and so connection is possible to 63 slaves only.
- \*3. When the DeviceNet is used as a slave, "input" and "output" respectively refer to input from the slave to the master and output from the master to the slave.

  \*4. The maximum message length includes the command code when using the CMND instruction. (SendCmd instruction with NJ-series controller)

  Note: When using with the Machine Automation Controller NJ Series, note the following points:
- - Simple backup function cannot be used.
    DeviceNet configurator cannot be used. Use CX-Integrator.

#### **General Specifications**

The specifications conform to the CJ Series. Refer to the CJ Series Catalog (P052) for details on CJ-series specifications. CJ2 Series Catalog (P059) for details on CJ2-series specifications.

#### **Dimensions**

31 x 90 x 65 mm (W x H x D)

#### **CS-series DeviceNet Unit**

### S1W-DRM21-V1 Final order entry date: The end of March, 2025

#### A DeviceNet Unit for the CS Series

- · Allows control of up to 32,000 points (2,000 words) per master, and ensures a high degree of simultaneity between data.
- Can be used as both a master and a slave at the same time.
- · Equipped with settings and monitor functions aimed at improving both design and startup efficiency. Achieve maximum performance by using in combination with a Configurator.
- · Files of master and slave settings can be uploaded and downloaded using memory cards, allowing effective debugging and easier setup.



#### Ordering Information

Unit	Product	Specifications					Current consumption (A)			
classification	classification name Communications		Communications	Redundant communications	Max. No. of Units allocated mounted to 1 CPU Unit		5V	26V	Model	
CS1 CPU Bus Unit	DeviceNet Unit	DeviceNet Cable	Remote I/O Communications Master (fixed allocations or user-set allocation) Remote I/O Communications Slave (fixed allocation or user- set allocation) Message communications	Not supported.	16	1	0.29	-	CS1W-DRM21-V1	

#### **Master/Slave Specifications**

Communications power supply voltage	ge	11 to 25 VDC *1			
Current consumption		Communications: 30 mA max. Internal circuit: 290 mA max.			
Max. number of connectable slaves	Remote I/O,	explicit message se	rvice	63 *2	
	Fixed allocate	tions	When used as a master	2,048 points	
	rixeu alloca	lions	When used as a slave	32 points	
Maximum I/O points		Using allocated	When used as a master	16,000 points	
Maximum I/O points	User-set	DM Area words	When used as a slave	3,200 points	
	allocations	Using	When used as a master	32,000 points	
		Configurator	When used as a slave	4,800 points	
	Fixed allocations  When used as a master  When used as a slave		When used as a master	64 input and 64 output words Software switch/status area: 25 words	
			When used as a slave	input word, 1 output word *3	
	User-set	Using allocated DM Area words	When used as a master	500 input and 500 output words Software switch/status area: 25 words	
Number of allocated words			When used as a slave	100 input and 100 output words *3 Software switch/status area: 25 words	
	allocations	Using	When used as a master	500 input words x 2 blocks, 500 output words x 2 blocks Software switch/Status area: 25 words	
		Configurator	When used as a slave	100 input words x 1 blocks, 100 output words x 2 blocks Software switch/Status area: 25 words	
Max. message length	•	542 bytes *4			
Max. number of Units mountable to	Fixed alloca	tions		3	
PLC	User-set allo	cations		16	
Weight				169 g	

- Refer to the DeviceNet Operation Manual (W267) for the communications power supply specifications.
- The Device Unit uses a node, and so connection is possible to 63 slaves only.
- When the DeviceNet is used as a slave, "input" and "output" respectively refer to input from the slave to the master and output from the master to the slave. The maximum message length includes the command code when using the CMND instruction.

#### General Specifications

#### **Dimensions**

The specifications conform to the CS Series. Refer to the CS Series Catalog (P047) for details on CS-series specifications.

34.5 X 130 X 111.2 mm (W X H X D)

### **Programmable Controllers NSJ Series □**□1(B)-G5D Product no longer available to order.

#### The NSJ-series Controller Completely Integrates a PT and Controller into One Package

- A PT, Controller CPU Unit, and DeviceNet Master Unit are completely integrated.
- · Super space-saving design.
- Easily transfer screens and ladder programming using a commercially available USB cable.
- No cable connections or complicated communications settings required. Start operation simply by turning ON the power supply.
- Equipped with troubleshooter for the Controller and DeviceNet Master as a standard feature.



#### **Ordering Information**

#### ■ Controllers

Name	Controller Section	Display	Section	Ethernet port	Model *
Name Controller Section	Display device	Resolution	Ethernet port	WOUGH 4	
	No. of I/O points: 1,280	5.7-inch color High-luminance TFT LCD	320 X 240 (QVGA)		NSJ5-TQ11(B)-G5D
NSJ Series	Program capacity: 60K steps Data memory capacity: 128K words (DM: 32K words, EM: 32K words x 3 banks)		10/100Base-T	NSJ8-TV01(B)-G5D	
			040 X 400 (VGA)		NSJ10-TV01(B)-G5D
		EM: 32K words x 3 banks)  12.1-inch color TFT LCD		800 X 600 (SVGA)	

<sup>(</sup>B) in the model number indicates that the color of the Controller frame is black.

#### ■ Accessories and Expansion Units

	Name	Specifications	Model
NSJ Controller Link Unit		For increasing the number of Controller Link ports Same as the CJ1W-CLK21-V1 Controller Link Unit for the CJ Series.	NSJW-CLK21-V1
Expansion Units	NSJ Ethernet Unit  For increasing the number of Ethernet ports Same as the CJ1W-ETN21 Ethernet Unit for the CJ Series.		NSJW-ETN21
	NSJ I/O Control Unit	For adding CJ-series Expansion Racks. Same as the CJ1W-IC101 I/O Control Unit for the CJ Series.	NSJW-IC101
		Flash memory: 128 MB	HMC-EF183
Options	Memory Cards (for both Controller Section	Flash memory: 256 MB	HMC-EF283
	and Display Section)	Flash memory: 512 MB	HMC-EF583
		Memory Card Adapter	HMC-AP001

#### **■** Support Software

	Specifications					
Product name		Number of licenses	Media	Model	Standards	
Package Ver. 4.□	The CX-One is a package that integrates the Support Software for OMRON PLCs and components.	1 licence * DVD		CXONE-AL01D-V4		
	CX-One Ver.4. ☐ includes CX-Designer Ver.3. ☐				<u> </u>	

Note: For details, refer to the CX-One Catalog (Cat. No. R134), visit your local OMRON website.

\* Multi licenses are available for the CX-One (3, 10, 30, or 50 licenses).

#### **Specifications**

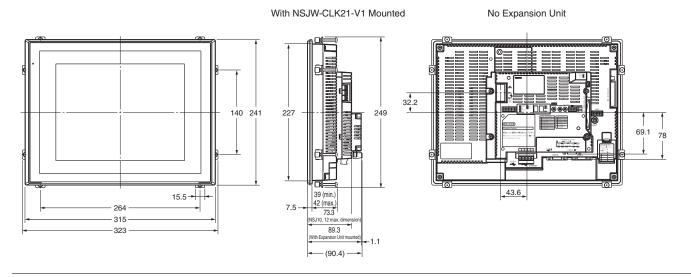
		Bu	ilt-in ports			Display Section					
Model	USB port (Slave: For Support Software)	RS-232C port	DeviceNet port	Ethernet port	USB port (Host: For printer)	Display color	Field of view	Language	Standard screen data capacity		
NSJ5-TQ11-G5D					None		Right/left: ±70°, Top: 70°,				
NSJ5-TQ11B-G5D					None		Bottom: 50°				
NSJ8-TV01-G5D		1 port		3 ports					Right/left: ±65°, Top: 50°,		
NSJ8-TV01B-G5D				1 nort	1 nort	Display Section:     Serial ports A, B	1 port	10/100Base-T		256 colors (BMP/JPEG,	Bottom: 60°
NSJ10-TV01-G5D	i poit	Controller Section:	i port	10/100Dase-1	1 port	32,768 colors for images)	Right/left: ±60°, Top: 35°,	languages *	OU IVIB		
NSJ10-TV01B-G5D		Serial port			i port		Bottom: 65°				
NSJ12-TS01-G5D							Right/left: ±60°, Top: 45°,				
NSJ12-TS01B-G5D							Bottom: 75°				

<sup>\*</sup> Japanese, English, Chinese (traditional and simplified), Spanish, Italian, German, and French.

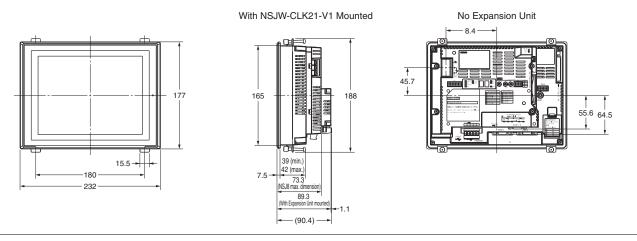


**Dimensions** (Unit: mm)

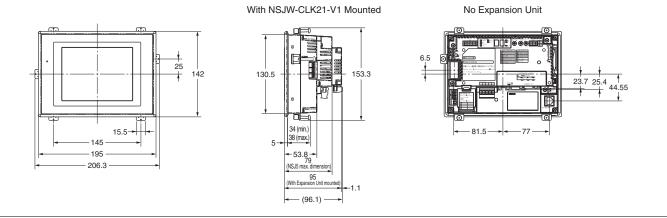
#### NSJ12-TS01(B)-G5D NSJ10-TV01(B)-G5D



#### NSJ8-TV01(B)-G5D



#### NSJ5-TQ11(B)-G5D



#### **DeviceNet Board (PCI Board)**

## 3G8F7-DRM21-E Final order entry date: The end of September, 2023

#### **PCI Bus DeviceNet Board**

- Perform control using up to 25,200 bytes per master. Up to 400 bytes of I/O points per slave (Inputs: 200 bytes, Outputs: 200 bytes)
- Master and slave functions are included to enable simultaneous operation.
- DeviceNet Slave Data I/O
- I/O can be performed with slaves simply by reading from and writing to the corresponding memory for each slave.
- The Board can be operated in combination with DeviceNet Configurator software and NX-Server Analyzer software.



#### Ordering Information

Unit	I/O allocation	Model
PCI Board	25,200 bytes	3G8F7-DRM21-E

#### **Master/Slave Specifications**

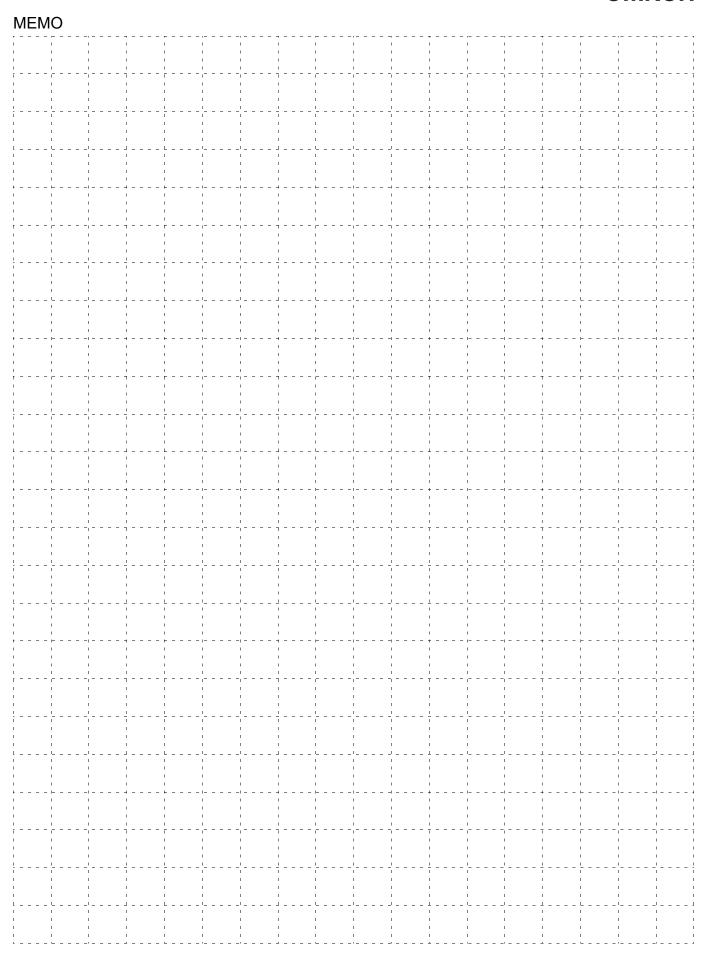
It	em	Product				
	Max. I/O points	IN: 12,600 bytes (100,800 points) OUT: 12,600 bytes (100,800 points)				
	Max. I/O points per Slave	IN: 200 bytes (1,600 points) OUT: 200 bytes (1,600 points)				
Master Specifications	I/O connections	Up to two Poll, Bitstrobe, or COS/Cyclic connections can be used.				
	Explicit messages	Up to 552 bytes				
	Max. No. of connected slaves	63				
Slave Specifications	Max. I/O points	IN: 200 bytes (1,600 points) OUT: 200 bytes (1,600 points)				
	I/O connections	Up to two Poll, Bitstrobe, or COS/Cyclic connections can be used.				

#### **System Requirements**

Item	Specifications
Computer	IBM PC/AT or compatible with PCI bus
os	Windows 95, 98, NT4.0, 2000, XP, and 7
Available hard disk space	5 MB min.
Memory	32 MB min.
MPU	Pentium 166-MHz processor or better
Language	Microsoft Visual C++ Ver.6.0 (Include Service Pack3)

Note: At least one CD-ROM drive is required to install the drivers and software.

#### OMRON



### **Smart Slaves DRT2 Series**

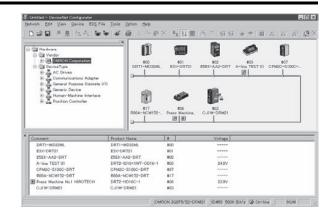
Smart Slaves DRT2 Series	. 10
■ DRT2-series Smart Slave Features	
■ Configurator (Ver. 2.20 or Later) Maintenance Window	
■ Functions Supported by Smart Slaves	
■ Smart Slave Functions	
Transistor Remote I/O Terminals	18
DRT2-□D08(-1)/□D16(-1)	
Expansion Units	22
XWT-ID08(-1)/OD08(-1)/ID16(-1)/OD16(-1)	
Remote I/O Terminal with Relay Outputs	26
DRT2-ROS16	
Transistor Remote I/O Terminals with 3-tier Terminal Blocks	28
DRT2-□D16TA(-1)	
e-CON Connector Terminals	31
DRT2-□D16S(-1)	
MIL Connector Terminals with Transistors	34
DRT2-□D32ML(-1)/□D16ML(-1)	
Board Terminals with MIL Connector	39
DRT2-□D32B(-1)/□D32BV(-1)	
Screw-less Clamp Terminals with Transistors	43
DRT2-□D16SL(H)(-1)/□D32SLH(-1)	
Environment-resistive Terminals with Transistors (High-function Type)	48
DRT2-□D08C(-1)/□D16C(-1)	
Environment-resistive Terminals with Transistors (Standard Type)	51
DRT2-□D04CL(-1)/□D08CL(-1)/□D16CL(-1)	
Analog I/O Terminals	57
DRT2-AD04(H)/DA02	
Temperature Input Terminals	60
DRT2-TS04□	

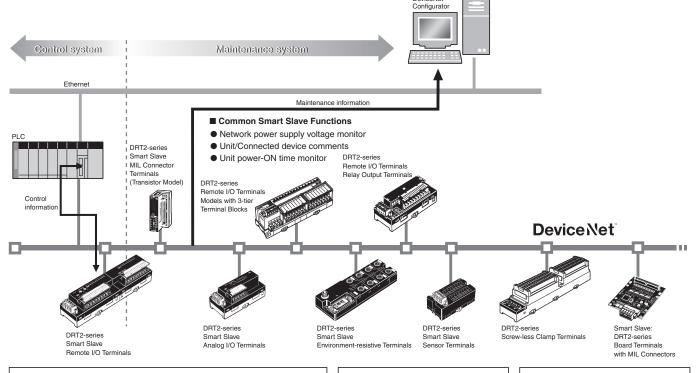
## **Smart Slaves DRT2 Series**

In addition to the standard control functions, the DRT2-series Smart Slaves can collect a wide variety of manufacturing plant information and serve as key components in maintenance and quality control systems.

#### **DRT2-series Smart Slave Features**

The DRT2-series Smart Slaves do not just handle the ON/OFF signals of I/O devices; they can accumulate a variety of information to improve the operating efficiency of the equipment. A maintenance system can be constructed that is separate from the control system. The side-by-side control system/maintenance system configuration allows the existing DeviceNet wiring to be used, reduces the customer's equipment setup time, reduces the downtime in the event of a problem, and provides preventative maintenance capabilities.





#### **Reduce Setup Time**

- Network power supply monitor function
- Input filter function
- Power-ON inrush current protection function
- Communications speed auto-detect function
- · Scaling function
- User compensation function
- Cumulative counter
- · Moving average processing function
- Number of A/D conversion points
- (conversion cycle) settingPeak/bottom hold function
- Top/valley hold function
- Percentage change calculation function

#### **Reduce Downtime**

- Unit comments function
- Connected device comments function
- I/O power supply monitor functionSensor power supply short-circuit
- detection function
   External load short-circuit detection
- function
- Disconnected sensor detection function

#### Improve Maintenance

- Operation time monitor function
- Contact operations counter
- Unit conduction time monitor function
- Total ON time monitor function \*
- Network power supply voltage monitor function
- Communications error log function
- · Last maintenance date
- · Comparator function
- Selectable output value after error

The number of contact operations monitor function and the cumulative ON time monitor function cannot be used simultaneously for the same contact.

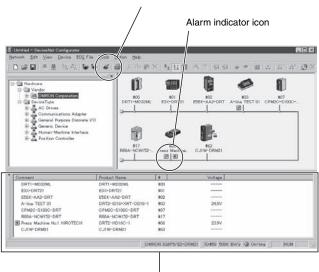


#### Configurator (Ver. 2.20 or Later) Maintenance Window

Various equipment information can be monitored from the following Configurator window (Ver. 2.20 or later) through DRT2-series Smart Slaves.

#### ● Maintenance Mode Window

Maintenance information refresh icon Reads the current maintenance information.



Maintenance information window

#### ●Individual Slave's Maintenance Information Window

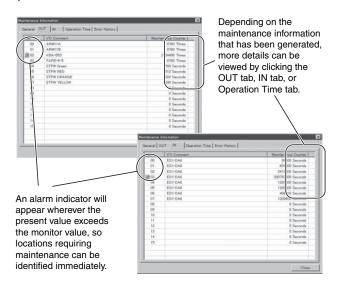
A DRT2-series Smart Slave's maintenance information window can be displayed by double-clicking the Slave's icon if an alarm indicator appears next to the Slave's icon.

Maintenance information
Displays current maintenance information.

A Smart Slave's maintenance counters can be stored in flash memory. The "number of contact operations" count is normally stored every 6 minutes, so up to 6 minutes of data may be lost

Depending on the maintenance information that has been generated, more details can be viewed by clicking the **OUT** tab, **IN** tab, or **Operation Time** tab.

depending on when the power is turned OFF.



#### **Functions Supported by Smart Slaves**

OK: Function supported, ---: Function not supported.

Contact operation counter  Unit conduction time monitor  OK  Unit comments  Connected device comments  Network power supply voltage monitor  (I) Opwer supply monitor  Communications error log monitor  Input filter  OK  Input fil		General Slaves  Remote I/O Terminals									
Transistors   Relays   Transistors   Hand   VIO   Output   Input   Output   VIO   Output   Input   Output   VIO   OK   OK   OK   OK   OK   OK   OUTput   O	<b>-</b>										
Operation time monitor	Function		Transistors		Relays	Relays Transistors with 3-tier term					
Contact operation counter		Input	Output	I/O	Output	Input	Output	I/O			
Unit conduction time monitor  Total Ok time monitor  Ok Connected device comments  Ok Network power supply short-circuit detection  Disconnected sensor detection  External load short-circuit detection  Disconnected sensor detection  External load short-circuit detection  Disconnected sensor load to wire linput device power supply  No need to wire linput device power supply  Expansion via Expansion I/O Units  Communications  OK	Operation time monitor		OK (Input+O	utput only) *1			ОК				
Total ON time monitor  Unit comments  Connected device comments  OK  Connected device comments  OK  OK  OK  OK  OK  OK  OK  OK  OK  O	Contact operation counter				OK						
Unit comments	Unit conduction time monitor		ОК								
OK	Total ON time monitor		ОК								
Network power supply voltage monitor	Unit comments				OK						
OK	Connected device comments				OK						
Communications error log monitor   OK   OK   OK   OK   OK   OK   OK   O	Network power supply voltage monitor				OK						
Input filter OK	I/O power supply monitor		OK				ОК				
Power-ON inrush current protection OK	Communications error log monitor				OK						
Sensor power supply short-circuit detection	Input filter	OK		OK		OK		OK			
detection	Power-ON inrush current protection	OK		OK		OK		OK			
External load short-circuit detection  Disconnected sensor detection  Removable terminal block  Communications speed auto-detect  No need to wire Unit power supply  No need to wire input device power supply  Expansion via Expansion I/O Units  OK *2   Scaling  User compensation  Last maintenance date  Comulative counter  Moving average processing  Number of A/D conversion points (conversion cycle) setting  Peak/bottom hold  Top/valley hold  Percentage change calculation  Comparator     OK  OK	Sensor power supply short-circuit detection										
Disconnected sensor detection  Removable terminal block Communications speed auto-detect No need to wire Unit power supply No need to wire input device power supply Expansion via Expansion I/O Units OK **2  Scaling  User compensation  Last maintenance date OK  Cumulative counter  Moving average processing Number of A/D conversion points (conversion cycle) setting Peak/bottom hold Top/valley hold Percentage change calculation Comparator	Disconnected sensor detection										
Removable terminal block  Communications speed auto-detect  No need to wire Unit power supply  No need to wire input device power supply  Expansion via Expansion I/O Units  OK *2   User compensation  Last maintenance date  OK  Cumulative counter  Moving average processing  Number of A/D conversion points (conversion cycle) setting  Peak/bottom hold  Top/valley hold  Percentage change calculation  Comparator  OK  OK  OK  OK      -	External load short-circuit detection										
Communications speed auto-detect  No need to wire Unit power supply  No need to wire input device power supply  Expansion via Expansion I/O Units  OK *2   Scaling  User compensation  Last maintenance date  OK  Cumulative counter  Moving average processing  Number of A/D conversion points (conversion cycle) setting  Peak/bottom hold  Top/valley hold  Percentage change calculation  Comparator  OK  OK	Disconnected sensor detection										
No need to wire Unit power supply  No need to wire input device power supply  Expansion via Expansion I/O Units  OK *2   Scaling  User compensation  Last maintenance date  Cumulative counter  Moving average processing  Number of A/D conversion points (conversion cycle) setting  Peak/bottom hold  Top/valley hold  Percentage change calculation  Comparator   Comparator	Removable terminal block				OK						
No need to wire input device power supply  Expansion via Expansion I/O Units  OK *2   User compensation  Last maintenance date  OK  Cumulative counter  Moving average processing  Number of A/D conversion points (conversion cycle) setting  Peak/bottom hold   Comparator   Comparator	Communications speed auto-detect				OK						
Expansion via Expansion I/O Units  OK *2   User compensation  Last maintenance date  OK  Cumulative counter  Moving average processing  Number of A/D conversion points (conversion cycle) setting  Peak/bottom hold  Top/valley hold  Percentage change calculation  Comparator   OK **2   OK  OK  CUmulative counter   Moving average processing   Comparator	No need to wire Unit power supply				OK						
Scaling User compensation Last maintenance date OK Cumulative counter Moving average processing Number of A/D conversion points (conversion cycle) setting Peak/bottom hold Top/valley hold Percentage change calculation Comparator	No need to wire input device power supply										
User compensation Last maintenance date OK  Cumulative counter Moving average processing Number of A/D conversion points (conversion cycle) setting Peak/bottom hold Top/valley hold Percentage change calculation Comparator	Expansion via Expansion I/O Units		OK	*2							
Last maintenance date  Cumulative counter  Moving average processing  Number of A/D conversion points (conversion cycle) setting  Peak/bottom hold  Top/valley hold  Percentage change calculation  Comparator  OK  OK  OK  OK  OK  OK  OK  OK  OK  O	Scaling										
Cumulative counter  Moving average processing  Number of A/D conversion points (conversion cycle) setting  Peak/bottom hold  Top/valley hold  Percentage change calculation  Comparator	User compensation										
Moving average processing  Number of A/D conversion points (conversion cycle) setting  Peak/bottom hold  Top/valley hold  Percentage change calculation  Comparator	Last maintenance date				ОК						
Number of A/D conversion points (conversion cycle) setting  Peak/bottom hold  Top/valley hold  Percentage change calculation  Comparator	Cumulative counter										
(conversion cycle) setting Peak/bottom hold Top/valley hold Percentage change calculation Comparator	Moving average processing										
Top/valley hold Percentage change calculation Comparator	Number of A/D conversion points (conversion cycle) setting										
Percentage change calculation  Comparator	Peak/bottom hold										
Comparator	Top/valley hold										
·	Percentage change calculation										
Selectable output value after error	Comparator										
	Selectable output value after error										

Notice: The contact operation counter function and the total ON time monitor function cannot be used simultaneously for the same contact.

<sup>\*1.</sup> The operation time monitor cannot be used with the DRT2-□D08(-1).
\*2. Expansion Units cannot be added with the DRT2-□D08(-1) or DRT2-MD16(-1).

OK: Function supported, ---: Function not supported.

	General Slaves								
	Connector Terminals								
Function	e-CON C	onnector	Boa	Board Terminals with MIL Connector					
	Input	I/O	Input	Output	I/O				
Operation time monitor		OK		OK					
Contact operation counter			OK						
Unit conduction time monitor		OK							
Total ON time monitor			OK						
Unit comments			OK						
Connected device comments			OK						
Network power supply voltage monitor			OK						
I/O power supply monitor	-	-		OK					
Communications error log monitor			OK						
Input filter	C	K	OK		OK				
Power-ON inrush current protection	C	K	OK		OK				
Sensor power supply short-circuit detection	C	DK							
External load disconnection detection									
External load short-circuit detection		OK							
Disconnected sensor detection									
Removable terminal block									
Communications speed auto-detect			OK						
No need to wire Unit power supply			OK						
No need to wire input device power supply	C	Ж							
Expansion via Expansion I/O Units									
Scaling									
User compensation									
Last maintenance date	ОК								
Cumulative counter									
Moving average processing									
Number of A/D conversion points (conversion cycle) setting									
Peak/bottom hold									
Top/valley hold									
Percentage change calculation									
Comparator	<u></u>								
Selectable output value after error									

Notice: The contact operation counter function and the total ON time monitor function cannot be used simultaneously for the same contact.

OK: Function supported, ---: Function not supported.

	General Slaves									
	Screw-less clamp terminals									
Function		D16SLH n function)		□D16SL ion function)	DRT2-□D32SLH (Detection function)					
	Input	Output	Input	Output	Input	Output	I/O			
Operation time monitor		II.	"	ОК	1	1	1			
Contact operation counter	OK									
Unit conduction time monitor		OK								
Total ON time monitor		OK								
Unit comments				OK						
Connected device comments				OK						
Network power supply voltage monitor				OK						
I/O power supply monitor				OK						
Communications error log				OK						
Input filter	OK		OK		OK		OK			
Power-ON inrush current protection	OK		OK		OK		OK			
Sensor power supply short-circuit detection	ОК				ОК		ОК			
External load disconnection detection	OK				OK		OK			
External load short-circuit detection		OK				OK (See Note.)	OK (See Note.)			
Disconnected sensor detection		OK				OK	OK			
Removable terminal block				OK	1		1			
Communications speed auto-detect				OK						
No need to wire Unit power supply				OK						
No need to wire input device power supply										
Expansion via Expansion I/O Units										
Scaling										
User compensation										
Last maintenance date				OK						
Cumulative counter										
Moving average processing										
Number of A/D conversion points (conversion cycle) setting										
Peak/bottom hold										
Top/valley hold										
Percentage change calculation										
Comparator										
Selectable output value after error										

Notice: The contact operation counter function and the total ON time monitor function cannot be used simultaneously for the same contact. Note: The DRT2-OD32SLH-1/MD32SLH-1 of unit version 2.0 or higher support External load short-circuit detection function.

OK: Function supported, ---: Function not supported.

	OK: Function supported,: Function not s  Analog Slaves									
	Environment-resistive Slaves					Ar	Analog I/O Terminals Temperature			
Function	Advanced Model Standard Model					DRT2-AD04				
	Input	Output	Input	Output	I/O		Input Outpu		Input	
Operation time monitor			-	*	OK					
Contact operation counter			OK							
Unit conduction time monitor			OK			OK			ОК	
Total ON time monitor			OK							
Unit comments			OK			ОК			OK	
Connected device comments			OK				OK		OK	
Network power supply voltage monitor			OK				OK		OK	
I/O power supply monitor		OK		OK						
Communications error log		OK		OK			OK		OK	
Input filter	OK		ОК		OK				-	
Power-ON inrush current protection	OK		OK		OK					
Sensor power supply short-circuit detection	OK									
External load disconnection detection	OK									
External load short-circuit detection		OK								
Disconnected sensor detection										
Removable terminal block						ОК				
Communications speed auto-detect			OK				ОК			
No need to wire Unit power supply			OK				OK			
No need to wire input device power supply	OK									
Expansion via Expansion I/O Units										
Scaling							OK		OK	
User compensation						OK			OK	
Last maintenance date			OK			ОК			OK	
Cumulative counter							ОК		OK	
Moving average processing						ОК	ОК		OK	
Number of A/D conversion points (conversion cycle) setting						ОК				
Peak/bottom hold					ОК	ОК		OK		
Top/valley hold					OK	OK		OK		
Percentage change calculation					OK	OK		OK		
Comparator					ОК	OK		OK		
Selectable output value after error							OK			
Top/valley count								OK		
Operating time in preset temperature								OK		
Temperature difference detection between input channels									ОК	

<sup>\*</sup> The operation time monitor can be used with the DRT2-\\_D04CL(-1).

Notice: The contact operation counter function and the total ON time monitor function cannot be used simultaneously for the same contact.

#### **Smart Slave Functions**

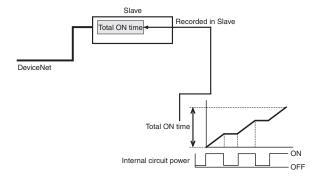
#### Network Power Voltage Monitor

The present, bottom, and peak values of the Network power voltage can be recorded in the Slave. Also, the monitor voltage can be set using the CX-Integrator to maintain the monitor voltage in the slave (default setting: 14 V), and a Status Area in the Unit will turn ON if the voltage falls below the monitor voltage.

#### Unit Conduction Time Monitor

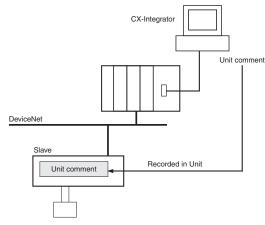
The total ON time of the Slave's internal circuit power can be calculated and recorded. (The CX-Integrator or explicit messages can be used to read the information.)

Also, the monitor value can be maintained in the Slave, and a Status Area will turn ON in the Unit when the total time reaches the set value.



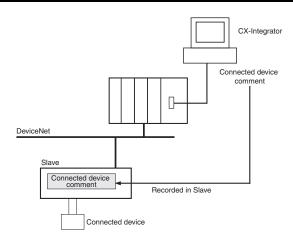
#### Unit Comment Function

The user can assign and record a name or comment for every Unit (up to 32 characters).



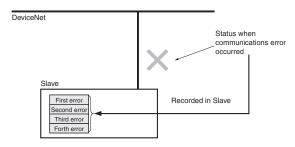
#### **●**Connected Device Comment Function

The user can assign a name for each of the Unit's I/O contacts (up to 32 characters) and record it in the Unit. The connected device can be checked for each I/O contact, allowing faulty devices to be identified during remote maintenance.



#### **●**Communication Error History Monitor

The error status information (communications error code and communications power voltage when the error occurred) for the last four communications errors that occurred can be recorded in the Slave.



#### ● Last Maintenance Date

This function enables writing to the Unit the date on which maintenance was last performed. This means that the timing for future maintenance can be judged more easily.

#### Contact Operation Count Monitor Function

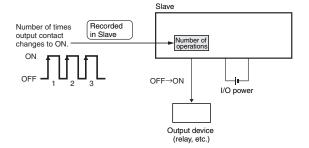
The Contact Operation Counter is used to count the number of times each input or output contact changes from OFF to ON (maximum sampling cycle: 50 Hz) and record the total value calculated in the slave. (The CX-Integrator or explicit messages can be used to read the information.)

The monitor value can be set in the slave, and when the set number of operations is reached, a bit in the Status Area in the Unit will be turned ON. (The CX-Integrator or explicit messages can be used to read the details of the notification.)

- Counted operations: 0 to 4,294,967,295 operations (Stored data: 0000 0000 to FFFF FFFF hex)
- Counting unit: One operation

Note 1: The Contact Operation Counter and Total ON Time Monitor cannot be used at the same time for the same contact. Select the function to be used under the Detection Mode heading.

Note 2: The Contact Operation Counter will operate only when the I/O power is ON.



#### ● Total ON Time Monitor Function

The total ON time for each I/O contact can be calculated (unit: s) and recorded in the Slave. (The CX-Integrator or explicit messages can be used to read the information.)

The monitor value can be set in the Slave, and when the set total time is reached, a bit in the Status Area in the Unit will be turned ON. (The CX-Integrator or explicit messages can be used to read the details of the notification.)

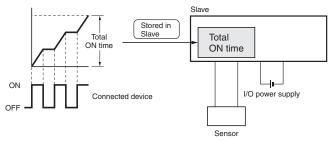
Counted time: 0 to 4,294,967,295 seconds

(stored data: 0000 0000 to FFFF FFFF hex)

· Counting unit: One second

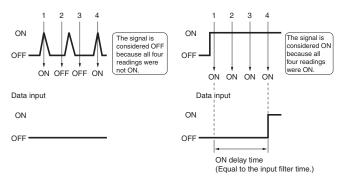
Note 1: The Contact Operation Counter and Total ON Time Monitor cannot be used at the same time for the same contact. Select the function to be used under the Detection Mode heading.

- 2: The Total ON Time Monitor operates only when the I/O power is ON.
- The Total ON Time Monitor checks approximately every second whether the connected devices are ON.
  - If the total ON time is calculated for ON times of less than a second, the measurement may not be accurate.



#### ●Input Filter Function

This function can read the input value several times within a preset period and reduce the influence of incorrect signals due to switch chattering or data corrupted by noise. The input filter function can also be used for ON delay operation and OFF delay operation.



## Function to Prevent Incorrect Inputs Caused by Inrush Current when Power Is Turned ON (input only)

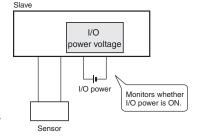
The I/O power supply can be monitored to stop any input when the I/O power is OFF and for 100 ms after it is turned ON. This function reduces incorrect inputs caused by inrush current for 100ms after the I/O power is turned ON.

#### ●I/O Power Status Monitor Function

This function is used to detect whether the I/O power is ON.

When the I/O power supply is turned OFF, a bit in the Status Area in the Unit is turned ON. (The CX-Integrator or explicit messages can be used to read the content of the notification.)

Note: The value for detecting a low voltage for the I/O power cannot be set.



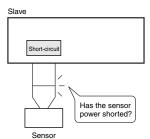
## Sensor Power Short-circuit Detection Function (input only)

The sensor power supply current can be monitored, and when the current reaches or exceeds 100 mA per input contact, a sensor power short-circuit is detected.

Check whether a sensor power short-circuit has been detected using the indicators on the slave. When a sensor power short-circuit is detected, a bit in the Status Area in the Unit will turn ON. (The CX-Integrator or explicit messages can be used to read the details of the notification.) The sensor will automatically recover when the cause of the short-circuit is removed, and the power output to the connector where the short-circuit was detected will turn ON.

Note: Use a Power Supply Unit with a rated power supply of 50 W or higher for the communications power supply. A short-circuit is detected when the Unit's sensor power output current reaches or exceeds 100 mA per input connector. When a short-circuit occurs, the communications power supply may be temporarily interrupted. After a short-circuit has been detected, the power will be automatically restored, but during the power interruption use an external circuit in the configuration to make sure the system is operating safely. Use the following equations to calculate the sensor's current consumption.

- Total network current = Total Unit current consumption + Total sensor current consumption
- Communications power supply capacity ≥ (Total network current + Short-circuit detection current) x (=100 mA) x (DeviceNet network voltage)



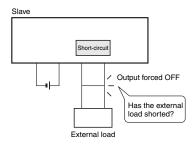
#### External Load Short-circuit Detection Function (output only)

The load current of the Output Unit can be monitored, and an external load short-circuit can be detected when the current exceeds a set value per contact (or per common). When an external load short-circuit is detected, the output is turned OFF to prevent damage to the Unit's output circuit. The LED indicators on the Slave Unit can be used to check which contact has been detected as having an external load short-circuit. When an external load short-circuit is detected, a bit in the Status Area in the Unit will turn ON. (The CX-Integrator or explicit messages can be used to read the details of the notification.)

Manual recovery is the only way to remove the cause of the short-circuit.

Note: The OMRON S8 Dever Supply Unit is recommended for the I/O power supply.

If a Power Supply Unit with a dropping overcurrent protection characteristic is used, the load short-circuit may not be detected. Always use a Power Supply Unit with a rating of 100 W or higher if it uses a dropping overcurrent protection characteristic.



## **Transistor Remote I/O Terminals**

## DRT2-□D08(-1)/□D16(-1)

## Allows I/O Expansion with **Transistor Terminals**

- · Wide variety of data, such as maintenance system data, can be collected without affecting the productivity of the control system.
- · Valuable information can be collected and managed through the network, including information on the communications power supply voltage levels, Unit wear and tear, and equipment operating information.
- Expansion via Expansion I/O Units
- · With no communications baud rate settings required and detachable terminal blocks, maintenance is easier.



## Smart Slave Functions



- The operation time monitor cannot be used with the DRT2- $\square$ D08(-1). Expansion Units cannot be added with the DRT2- $\square$ D08(-1)or DRT2-MD16(-1).

## **Ordering Information**

Specifications			I/O connections	Rated internal circuit power supply voltage	Rated I/O power supply voltage	Model
la accide	NPN (+ common)			Supplied from the communications connector	24 VDC	DRT2-ID16
Inputs	PNP (- common)	40				DRT2-ID16-1
Outrute	NPN (- common)	16 points				DRT2-OD16
Outputs	PNP (+ common)					DRT2-OD16-1
I/O	NPN (input: + common, output: - common)	Input: 8 points/				DRT2-MD16
1/0	PNP (input: - common, output: + common)	Output: 8 points				DRT2-MD16-1
la a colo	NPN (+ common)	0				DRT2-ID08
Inputs	PNP (- common)	8 points	8 points 8 points			DRT2-ID08-1
Outroute	NPN (- common)	0				DRT2-OD08
Outputs	PNP (+ common)	o points				DRT2-OD08-1

#### **Expansion Units**

One Expansion Unit can be added to each DRT2-ID16(-1)/-OD16(-1) or DRT2-ROS16 I/O Slave. The following Expansion Units are available to enable flexible expansion with combinations for the required number of points.

• '	·
Model	Number of I/O points
XWT-ID08	8-point inputs (NPN)
XWT-ID08-1	8-point inputs (PNP)
XWT-OD08	8-point outputs (NPN)
XWT-OD08-1	8-point outputs (PNP)
XWT-ID16	16-point inputs (NPN)
XWT-ID16-1	16-point inputs (PNP)
XWT-OD16	16-point outputs (NPN)
XWT-OD16-1	16-point outputs (PNP)



## **General Specifications**

Communications power supply voltage	11 to 25 VDC		
Unit power supply voltage	Not required (Supplied from the communications connector.)		
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)		
Communications power supply current consumption	DRT2-ID08(-1) : 40 mA max. (24 VDC), 70 mA max. (11 VDC) DRT2-OD08 : 40 mA max. (24 VDC), 60 mA max. (11 VDC) DRT2-ID16(-1) : 35 mA max. (24 VDC), 55 mA max. (11 VDC) DRT2-ID16(-1) : 40 mA max. (24 VDC), 65 mA max. (11 VDC) DRT2-MD16(-1) : 40 mA max. (24 VDC), 65 mA max. (11 VDC)		
Dielectric strength	500 VAC (between isolated circuits)		
Noise immunity	Conforms to IEC61000-4-4, 2 kV (power line)		
Vibration resistance	10 to 60 Hz, 0.7-mm double amplitude, 60 to 150 Hz, 50 m/s <sup>2</sup> for 80 min each in the X, Y, and Z directions		
Shock resistance	150m/s², 6 directions, 3 times each		
Mounting method	DIN 35 mm-track mounting		
Screw tightening torque	M3 (power, I/O terminal): 0.5 N m		
Ambient operating temperature	-10°C to 55°C		
Ambient operating humidity	25 to 85% (with no condensation)		
Ambient storage temperature	-25°C to 65°C		
Weight	DRT2-ID08(-1)/OD08(-1) : 135 g max. DRT2-MD16(-1) : 145 g max. DRT2-ID16(-1)/OD16(-1) : 140 g max.		

## **Input Specifications**

## ●8-point Inputs Terminals with Transistors

Item Model	DRT2-ID08	DRT2-ID08-1	
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	1.0 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 per common		

## ●16-point Inputs Terminals with Transistors

Item	Model	DRT2-ID16	DRT2-ID16-1	
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)	5 VDC min. (between each input terminal and G)	
OFF current		1.0 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 of	ommon	16 per common		

## ●8-point Inputs/8-point Outputs Terminals with **Transistors**

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		1.0 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 co	ommon	n 8 per common		

## **Output Specifications**

## ●8-point Outputs Terminals with Transistors

Item Model	DRT2-OD08	DRT2-OD08-1	
Internal I/O common	NPN	PNP	
Number of I/O points	8 outputs		
Rated output current	0.5 A per point, 4 A pe	r 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	nt 0.1 ms max.		
ON delay time	0.5 ms max.		
OFF delay time	1.5 ms max.		
Number of points per common	8 per common		

## ●16-point Outputs Terminals with Transistors

Item Model	DRT2-OD16	DRT2-OD16-1	
Internal I/O common	NPN	PNP	
Number of I/O points	16 outputs		
Rated output current	0.5 A per point, 4 A pe	r 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 ms max.		
ON delay time	0.5 ms max.		
OFF delay time	1.5 ms max.		
Number of points per common			

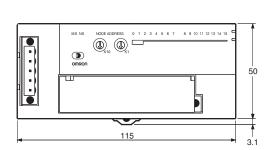
## ●8-point Inputs/8-point Outputs Terminals with **Transistors**

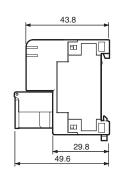
Item	Model	DRT2-MD16	DRT2-MD16-1	
Internal I/O common		NPN	PNP	
Number of I/O points		8 outputs		
Rated output current		0.5 A per point, 4 A per	r common	
Residual voltage		1.2 V max. (0.5 A DC between each output terminal and G)	1.2 V max. (0.5 A DC between each output terminal and V)	
Leakage current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



**Dimensions** (Unit: mm)

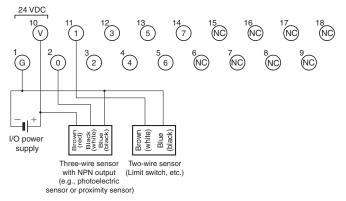
DRT2-ID16(-1) DRT2-OD16(-1) DRT2-ID08(-1) DRT2-OD08(-1) DRT2-MD16(-1)



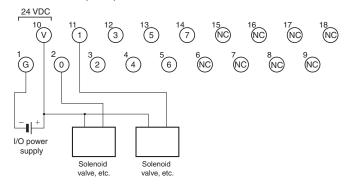


## **Wiring Diagrams**

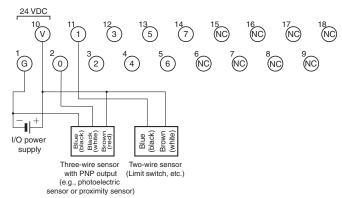
## DRT2-ID08 (NPN)



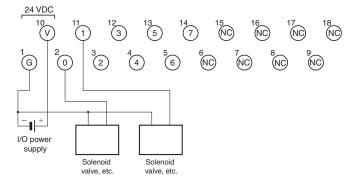
#### DRT2-OD08 (NPN)



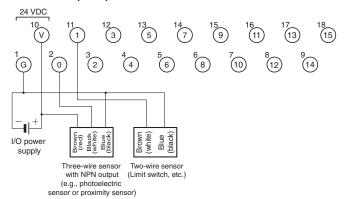
## **DRT2-ID08-1 (PNP)**



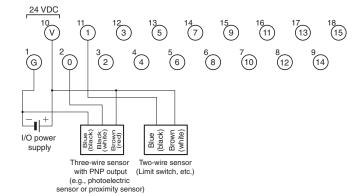
#### **DRT2-OD08-1 (PNP)**



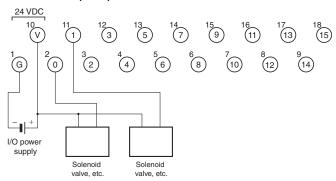
#### DRT2-ID16 (NPN)



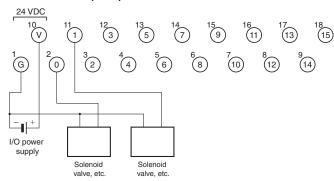
#### **DRT2-ID16-1 (PNP)**



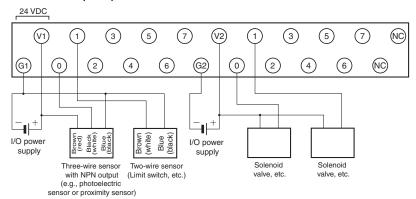
#### DRT2-OD16 (NPN)



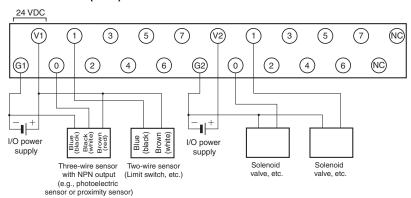
#### **DRT2-OD16-1 (PNP)**



#### DRT2-MD16 (NPN)



## DRT2-MD16-1 (PNP)



# XWT-ID08(-1)/OD08(-1)/ID16(-1)/OD16(-1)

## Expansion I/O Units make expansion easy!

One Expansion Unit can be added to each Digital I/O Slave Unit. This makes a variety of I/O combinations possible, such as 16 inputs + 8 outputs, extending the range of possible system configurations.



- Flexible expansion with many different combinations.
- Detachable I/O terminal block enables faster startup time and improved maintainability.
- Collect various preventive maintenance data required to improve productivity, as information on equipment deterioration due to aging and equipment operating time data.

## **Ordering Information**

Name			Model		
	Innuto		NPN		XWT-ID08
	inputs	Inputs	PNP		XWT-ID08-1
	Outputs	8 points	NPN	One Expansion Unit can be mounted per DRT2-ID16(-1)/-OD16(-1) or DRT2-ROS16 Remote I/O Terminal.	XWT-OD08
Expansion Units	Outputs		PNP		XWT-OD08-1
	Innuto	lawata	NPN		XWT-ID16
	Inputs	16 points	PNP		XWT-ID16-1
	Outputa	Outputs	NPN		XWT-OD16
	Outputs		PNP		XWT-OD16-1

## **General Specifications**

I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)
Noise immunity	Conforms to IEC 61000-4-4 2 kV (power line).
Vibration resistance	10 to 60 Hz with double-amplitude of 0.7 mm, 60 to 150 Hz and 50 m/s $^2$ in X, Y, and Z directions for 80 min each
Shock resistance	150 m/s² (3 times each in 6 directions on 3 axes)
Dielectric strength	500 VAC (between isolated circuits)
Insulation resistance	20 MΩ min. (between isolated circuits)
Ambient operating temperature	-10°C to 55°C
Ambient operating humidity	25% to 85% (with no condensation)
Ambient operating atmosphere	No corrosive gases
Storage temperature	-25°C to 65°C
Storage humidity	25% to 85% (with no condensation)
Tightening torque for the terminal block screws	M3 terminal screws: 0.5 N m M3 mounting screws: 0.5 N m
Mounting method	Mounted on 35-mm DIN Track

## **Input Specifications**

Item Model	XWT-ID08	XWT-ID08-1	XWT-ID16	XWT-ID16-1	
Internal I/O common	NPN	PNP	NPN	PNP	
I/O points	8 inputs		16 inputs		
ON voltage	15 VDC min. (between each input terminal and the V terminal)	15 VDC min. (between each input terminal and the G terminal)	15 VDC min. (between each input terminal and the V terminal)	15 VDC min. (between each input terminal and the G terminal)	
OFF voltage	5 VDC max. (between each input terminal and the V terminal)	5 VDC max. (between each input terminal and the G terminal)	5 VDC max. (between each input terminal and the V terminal)	5 VDC max. (between each input terminal and the G terminal)	
OFF current	1.0 mA max.				
Input current At 24 VDC: 6.0 mA max./input At 17 VDC: 3.0 mA max./input					
ON delay time	1.5 ms max.				
OFF delay time 1.5 ms max.					
Number of circuits per common 8 per common			16 per common		
Communications power supply current consumption	5 mA max. (24 VDC), 5 mA max.	(11 VDC)	10 mA max. (24 VDC), 15 mA max. (11 VDC)		
Weight	80 g max.		120 g max.		

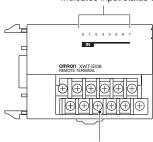
## **Output Specifications**

Item	Model	XWT-OD08	XWT-OD08-1	XWT-OD16	XWT-OD16-1	
Internal I/O common		NPN	PNP	NPN	PNP	
I/O points		8 outputs	8 outputs		16 outputs	
Rated output curren	Rated output current 0.5 A/output, 2.0 A/common			0.5 A/output, 4.0 A/common		
Residual voltage		1.2 V max. (0.5 A DC, between each output terminal and the G terminal)	1.2 V max. (0.5 A DC, between each output terminal and the V terminal)	1.2 V max. (0.5 A DC, between each output terminal and the G terminal)	1.2 V max. (0.5 A DC, between each output terminal and the V terminal)	
Leakage current	Leakage current 0.1 mA max.					
ON delay time		0.5 ms max.				
OFF delay time		1.5 ms max.				
Number of circuits p	Number of circuits per common 8 per common		16 per common			
Communications po current consumptio	mmunications power supply rrent consumption 5 mA max. (24 VDC), 5 mA max. (11 VDC)		10 mA max. (24 VDC), 15 mA max. (11 VDC)			
Weight		80 g max.		120 g max.		

## **Nomenclature and Functions**

#### XWT-ID08/XWT-ID08-1

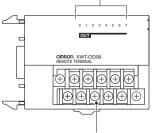
Operation indicators Indicates input status of each terminal.



Removable terminal block

## XWT-OD08/XWT-OD08-1 Operation

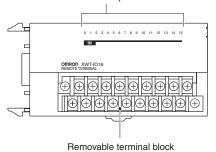
Operation indicators Indicates output status of each terminal.



Removable terminal block

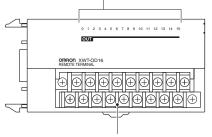
#### XWT-ID16/XWT-ID16-1

Operation indicators Indicates input status of each terminal.



XWT-OD16/XWT-OD16-1

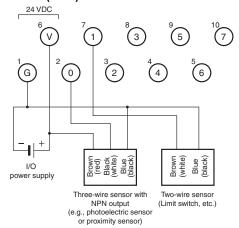
Operation indicators Indicates output status of each terminal.



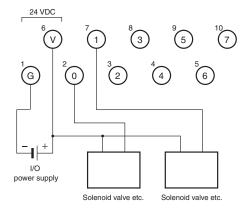
Removable terminal block

## **Wiring Diagrams**

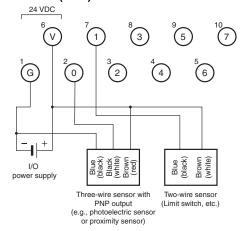
#### XWT-ID08 (NPN)



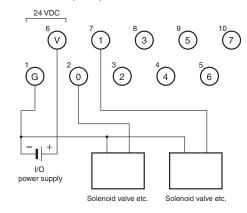
## XWT-OD08 (NPN)



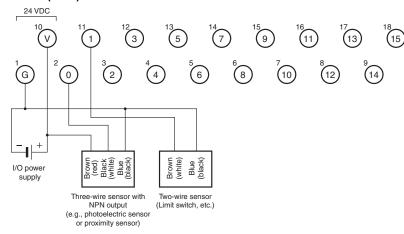
#### XWT-ID08-1 (PNP)



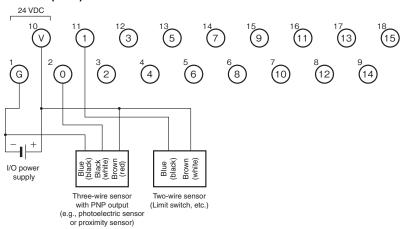
## XWT-OD08-1 (PNP)



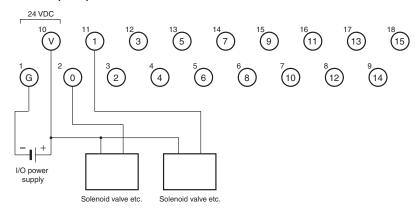
## XWT-ID16 (NPN)



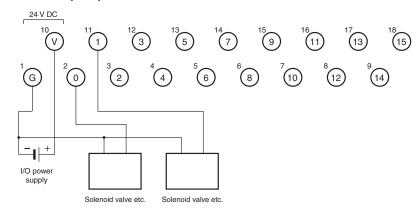
#### XWT-ID16-1 (PNP)



## XWT-OD16 (NPN)

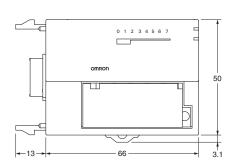


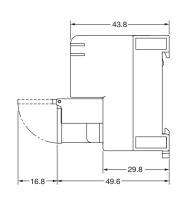
#### XWT-OD16-1 (PNP)



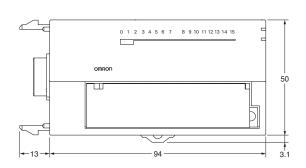
**Dimensions** (Unit: mm)

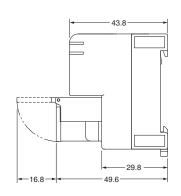
●8-point Model XWT-ID08 XWT-ID08-1 XWT-OD08 XWT-OD08-1





●16-point Model XWT-ID16 XWT-ID16-1 XWT-OD16 XWT-OD16-1



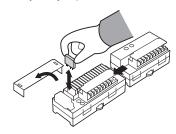


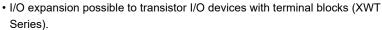
## Remote I/O Terminal with Relay Outputs

## DRT2-ROS16

# A Smart Slave with Relay Outputs and One-step Relay Replacement for Remote Maintenance.

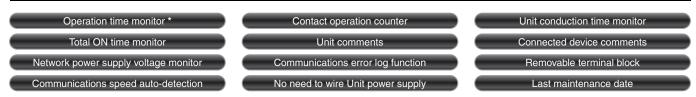
- Capable of handling large-capacity output devices (3 A max.)
- Easy relay replacement.







#### **Smart Slave Functions**



\* Applicable only when an Expansion Unit (XWT Series) is used.

## **Ordering Information**

Specifications		I/O connections	Rated internal circuit power supply voltage	I/O power supply voltage	Model	
	Relay output	16 points	M3 terminal block	Supplied from the communications connector	Supplied from communications connector	DRT2-ROS16

## **General Specifications**

Communications power supply voltage	11 to 25 VDC (Supplied from communications connector)	
Communications power supply current consumption	215 mA max. (24 VDC), 395 mA max. (11 VDC)	
Noise immunity	Conforms to IEC61000-4-4, 2 kV (power line)	
Vibration resistance	10 to 55 Hz, 0.7-mm double amplitude, 80 min each in the X, Y, and Z directions	
Shock resistance	100 m/s <sup>2</sup>	
Dielectric strength	500 VAC (between isolated circuits)	
Insulation resistance	20 MΩ min.	
Ambient operating temperature	-10°C to 55°C	
Ambient operating humidity	25% to 85% (with no condensation)	
Ambient atmosphere	No corrosive gases	
Ambient storage temperature	-25°C to 65°C	
Mounting method	35-mm DIN rail mounting	
Screw tightening torque	M2 (communications connector screws): 0.2 to 0.3 N * m M3 (screw terminals): 0.5 N * m M3 (mounting screws): 0.5 N * m	
Weight	260 g max.	

## **Output Specifications per Relay**

Mounted relays	DRTA-NY5W-K *1	
Rated load	Resistive load: 2 A at 250 VAC, 8 A per common 2 A at 30 VDC, 8 A per common	
Rated current	3A *2	
Max. contact voltage	250 VAC, 125 VDC	
Max. contact current	3A	
Max. switching capacity	750 VA AC, 90 VDC	
Min. applicable load (reference value)	1 mA at 5 VDC	

**\*1.** Order replacement relays using the following model number.

Model				
DRTA-NY5W-K				

The maximum number of ON contacts per common is four, and 3 A (10 A per common) will flow at an ambient temperature of 45°C max.

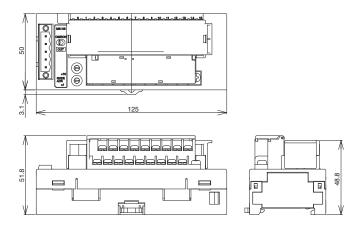
#### **Expansion Units**

One Expansion Unit can be added to each DRT2-ID16(-1)/-OD16(-1) or DRT2-ROS16 I/O Slave.
The following Expansion Units are available to enable flexible expansion with combinations for the required number of points.

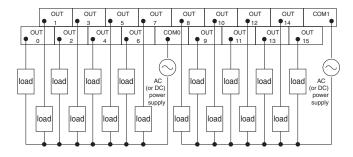
Model	Number of I/O points
XWT-ID08	8-point inputs (NPN)
XWT-ID08-1	8-point inputs (PNP)
XWT-OD08	8-point outputs (NPN)
XWT-OD08-1	8-point outputs (PNP)
XWT-ID16	16-point inputs (NPN)
XWT-ID16-1	16-point inputs (PNP)
XWT-OD16	16-point outputs (NPN)
XWT-OD16-1	16-point outputs (PNP)

**Dimensions** (Unit: mm)

## DRT2-ROS16



## **Wiring Diagrams**



## **Transistor Remote I/O Terminals with 3-tier Terminal Blocks**

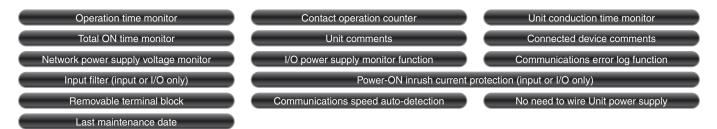
## **DRT2-**□**D16TA(-1**

## A Smart Slave with a 3-tier Terminal **Block That Means Wiring Locations** Are Easy to Understand with No **Sharing of Terminals.**

- Easy wiring with no sharing of terminals. Easy-to-understand wiring locations.
- No relay terminal block terminals required.
- Detachable cassette-type circuit sections.



## **Smart Slave Functions**



## Ordering Information

Specifications			I/O connections	Rated internal circuit power supply voltage	I/O power supply voltage	Model
Innuta	NPN (+ common)					DRT2-ID16TA
Inputs —	PNP (- common)	16 points		Supplied from Basic Unit.	24 VDC	DRT2-ID16TA-1
Outputs —	NPN (- common)		M3			DRT2-OD16TA
	PNP (+ common)		screw terminals			DRT2-OD16TA-1
I/O –	NPN (input: + common, output: - common)	Input: 8 points/				DRT2-MD16TA
	PNP (input: - common, output: + common)	Output: 8 points				DRT2-MD16TA-1

## **General Specifications**

Communications power supply voltage	11 to 25 VDC (Supplied from communications connector)	
Communications power supply current consumption	45 mA max. (24 VDC), 80 mA max. (11 VDC)	
Noise immunity	Conforms to IEC61000-4-4, 2 kV (power line)	
Vibration resistance	10 to 60 Hz, 0.7-mm double amplitude, 60 to 150 Hz, 50 m/s² for 80 min each in the X, Y, and Z directions	
Shock resistance	150 m/s² (3 times each in 6 directions on 3 axes)	
Dielectric strength	500 VAC (between isolated circuits)	
Insulation resistance	20 MΩ min. (between isolated circuits)	
Ambient operating temperature	-10°C to 55°C	
Ambient operating humidity	25% to 85% (with no condensation)	
Ambient atmosphere	No corrosive gases	
Ambient storage temperature	-25°C to 65°C	
Mounting method	DIN 35 mm-track mounting, M4 screw mounting	
Screw tightening torque	M2 (communications connector screws): 0.26 to 0.3 N m M3 (screw terminals): 0.5 N m M3 (screw terminals): 0.5 N m M4 (unit mounting): 0.6 to 0.98 N m	
Weight	300 g max.	

## **Input Specifications**

#### ●16-point Inputs Terminals with Transistors

Item Model	DRT2-ID16TA	DRT2-ID16TA-1	
Internal I/O common	NPN	PNP	
I/O points	16 inputs		
ON voltage	15 VDC min. (between input and V terminal)	15 VDC min. (between input and G terminal)	
OFF voltage	5 VDC max. (between input and V terminal)	5 VDC max. (between input and G terminal)	
OFF current	1.0 mA max.		
Input current	24 VDC: 6.0 mA max./point 17 VDC: 3.0 mA max./point		
ON delay time	1.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	8 per common		

## ●8-point Inputs/8-point Outputs Terminals with **Transistors**

Item Model	DRT2-MD16TA	DRT2-MD16TA-1		
Internal I/O common	NPN	PNP		
I/O points	8 inputs	8 inputs		
ON voltage	15 VDC min. (between input and V terminal)	15 VDC min. (between input and G terminal)		
OFF voltage	5 VDC max. (between input and V terminal)	5 VDC max. (between input and G terminal)		
OFF current	1.0 mA max.			
Input current	24 VDC: 6.0 mA max./point 17 VDC: 3.0 mA max./point			
ON delay time	1.5 ms max.			
OFF delay time	1.5 ms max.			
Number of circuits per common	8 per common			

## **Output Specifications**

#### ●16-point Outputs Terminals with Transistors

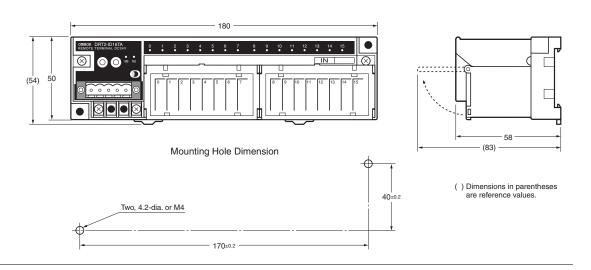
Item Model	DRT2-OD16TA	DRT2-OD16TA-1	
Internal I/O common	NPN	PNP	
I/O points	16 outputs		
Rated output current	0.5 A/point		
Residual voltage	1.2 VDC max. (0.5 A DC between output and G terminal)	1.2 VDC max. (0.5 A DC between output and V terminal)	
Leakage current	0.1 mA max.		
ON delay time	0.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	8 per common		

#### ●8-point Inputs/8-point Outputs Terminals with **Transistors**

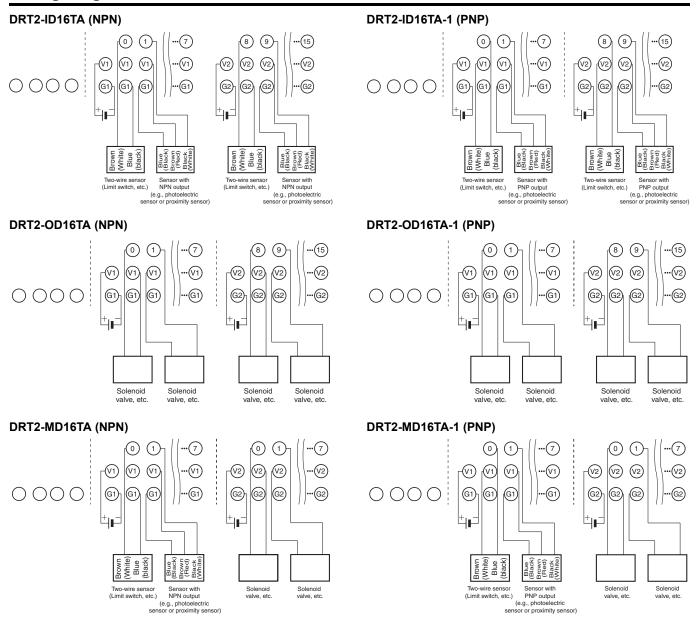
Item Model	DRT2-MD16TA	DRT2-MD16TA-1	
Internal I/O common	NPN	PNP	
I/O points	8 outputs		
Rated output current	0.5 A/point		
Residual voltage	1.2 VDC max. (0.5 A DC between output and G terminal)	1.2 VDC max. (0.5 A DC between output and V terminal)	
Leakage current	0.1 mA max.		
ON delay time	0.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	8 per common		

**Dimensions** (Unit: mm)

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



## **Wiring Diagrams**



## **e-CON Connector Terminals**

## DRT2-□D16S(-1)

## Includes Sensor Connector That **Conforms to Industry Standards** And Can Be Used to Connect **Sensors with Pre-wired Cables** without Using Special Tools.

- Equipped with the standard Smart Slave functions that provide powerful preventative maintenance and troubleshooting capabilities.
- Digital I/O Terminal compatible with industry-standard sensor connectors
- · Connect sensors easily without special tools. Reduce time required for wiring.
- · Load short-circuit detection.



## **Smart Slave Functions**

Operation time monitor (I/O only)	Contact operation counter	Unit conduction time monitor
Total ON time monitor	Unit comments	Connected device comments
Network power supply voltage monitor	Communications error log function	Input filter
Power-ON inrush current protection	Sensor power supply short-circuit detection	External load short-circuit detection
Communications speed auto-detection	No need to wire Unit power supply	No need to wire input device power
Last maintenance date		

## Ordering Information

Specifications		I/O connections	Rated internal circuit power supply voltage	Rated I/O power supply voltage	Model		
Inputs	NPN (+ common)	16 inputs			Supplied from the	DRT2-ID16S	
inputs	PNP (- common)	10 iliputs	Sensor	Supplied from the communications	communications connector	DRT2-ID16S-1	
I/O	NPN (input: + common, output: - common)	8 inputs/	8 inputs/	connector	connector	Supplied from external	DRT2-MD16S
1/0	PNP (input: - common, output: + common)	8 outputs			source for outputs	DRT2-MD16S-1	

## **General Specifications**

Item Model	DRT2-ID16S(-1)	DRT2-MD16S(-1)
Communications power supply voltage	11 to 25 VDC	
Communications power supply current consumption	45 mA max. (24 VDC), 80 mA max. (11 VDC)	
Unit power supply voltage	Not required (Supplied from the communications connector.)	
I/O power supply voltage	20.4 to 26.4 VDC (24 V	/DC -15%/+10%)
Current consumption	Communications power supply: 230 mA max.	Communications power supply: 135 mA max.
Dielectric strength	500 VAC between isolated circuits	
Noise immunity	Conforms to IEC61000-4-4, 2 kV (power line)	
Vibration resistance	10 to 60 Hz, 0.7-mm double amplitude, 60 to 150 Hz, 50 m/s² for 80 min each in the X, Y, and Z directions	
Shock resistance	150m/s <sup>2</sup> , 6 directions, 3	3 times each
Mounting method	DIN 35 mm-track mounting or M4 screw mounting	
Screw tightening torque	M2 (communications connector screws): 0.26 to 0.3 N m M4 (unit mounting): 0.6 to 0.98 N m	
Ambient operating temperature	-10°C to 55°C	

Item Mode	DRT2-ID16S(-1)	DRT2-MD16S(-1)
Ambient operating humidity	25 to 85% (with no con	densation)
Ambient storage temperature	-25°C to 65°C	
Weight	90 g max.	95 g max.

## **Output Specifications**

## ● Terminals with 8 Inputs and 8 Outputs

Item Model	DRT2-MD16S	DRT2-MD16S-1	
Internal I/O common	NPN	PNP	
I/O points	8 outputs		
Rated output current	0.3 A/point, 2.4 A/common	0.3 A/point, 1.6 A/common	
Residual voltage	1.2 VDC max. (0.3 A DC between output and G terminal)	1.2 VDC max. (0.3 A DC between output and V terminal)	
Leakage current	0.1 mA max.		
ON delay time	1.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	8 per common		
Load short-circuit detection current	2.4 A min./common	1.6 A min./common	

## **Input Specifications**

#### ● Terminals with 16 Inputs

Item Model	DRT2-ID16S	DRT2-ID16S-1	
Internal I/O common	NPN	PNP	
I/O points	16 inputs		
ON voltage	9 VDC min. (between each input terminal and V)	9 VDC min. (between each input terminal and G)	
OFF voltage	5 VDC max. (between each input terminal and V)	5 VDC max. (between each input terminal and G)	
OFF current	1 mA max.		
Input current	11 mA max./point (at 24 VDC) 3.0 mA min./point (at 11 VDC)		
ON delay time	1.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	16 per common		
Sensor short-circuit detection current	The total current for all of the following input points is monitored to detect sensor short-circuits. IN0/IN1, IN2/IN3, IN4/IN5, IN6/IN7, IN8/IN9, IN10/IN11, IN12/IN13, IN14/IN15		

## ● Terminal with 8 Inputs/8 Outputs

Item Model	DRT2-MD16S	DRT2-MD16S-1	
Internal I/O common	NPN	PNP	
I/O points	8 inputs		
ON voltage	9 VDC min. (between each input terminal and V)	9 VDC min. (between each input terminal and G)	
OFF voltage	5 VDC max. (between each input terminal and V)	5 VDC max. (between each input terminal and G)	
OFF current	1 mA max.		
Input current	11 mA max./point (at 24 VDC) 3.0 mA min./point (at 11 VDC)		
ON delay time	1.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	8 per common		
Sensor short-circuit detection current	The total current for all of the following input points is monitored to detect sensor short-circuits. INO/IN1, IN2/IN3, IN4/IN5, IN6/IN7		

## **Applicable Connectors (sold separately)**

#### **OMRON** Connectors

Model	Specifications	Compatible wire size
XN2A-1470	Spring-clamp style	Stranded wire 28 to 20 AWG (0.08 to 0.5 mm²) wire, 1.5 mm max. outer diameter including insulation

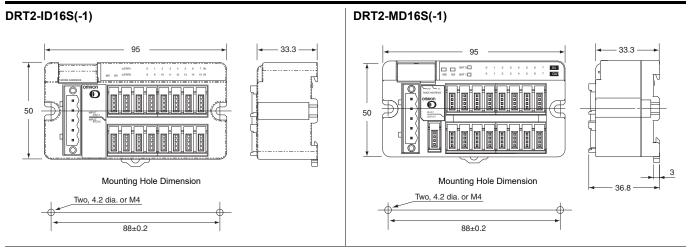
## ● Tyco Electronics Connectors

Model	Color of housing	Compatible wire size	
3-1473562-4	Orange	0.6 to 0.9 mm max. outer diameter including insulation	
1-1473562-4	Red	0.9 to 1.0 mm max. outer diameter including insulation	
1473562-4	Yellow	1.0 to 1.15 mm max. outer diameter including insulation	Wire size: 0.08 to 0.5 mm <sup>2</sup>
2-1473562-4	Blue	1.15 to 1.35 mm max. outer diameter including insulation	
4-1473562-4	Green	1.35 to 1.60 mm max. outer diameter including insulation	

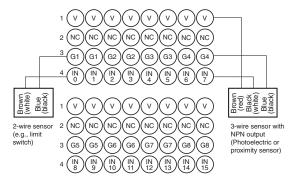
## ● Sumitomo 3M Connectors

Model	Specifications/color of housing	Compatible wire size
37104-3101-000FL	Red	26 to 24 AWG (0.14 to 0.2 mm²) wire, 0.8 to 1.0 mm max. outer diameter including insulation
37104-3122-000FL	Yellow	26 to 24 AWG (0.14 to 0.2 mm²) wire, 1.0 to 1.2 mm max. outer diameter including insulation
37104-3163-000FL	Orange	26 to 24 AWG (0.14 to 0.2 mm²) wire, 1.2 to 1.6 mm max. outer diameter including insulation
37104-2124-000FL	Green	22 to 20 AWG (0.3 to 0.5 mm²) wire, 1.0 to 1.2 mm max. outer diameter including insulation
37104-2165-000FL	Blue	22 to 20 AWG (0.3 to 0.5 mm²) wire, 1.2 to 1.6 mm max. outer diameter including insulation
37104-2206-000FL	Gray	22 to 20 AWG (0.3 to 0.5 mm²) wire, 1.6 to 2.0 mm max. outer diameter including insulation

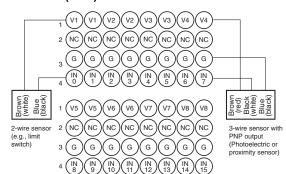
**Dimensions** (Unit: mm)



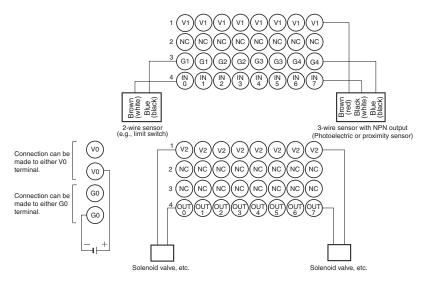
#### DRT2-ID16S (NPN)



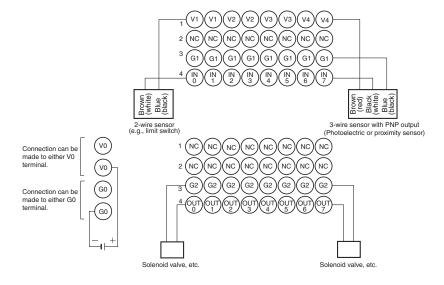
#### DRT2-ID16S-1 (PNP)



#### DRT2-MD16S (NPN)



#### DRT2-MD16S-1 (PNP)



## **MIL Connector Terminals with Transistors**

## DRT2- $\square$ D32ML(-1)/ $\square$ D16ML(-1)

## Very Compact 16-/32-point Remote **Terminals**

- Used in combination with Interface Conversion Boards (e.g., D-Sub) to connect to a wide range of interfaces.
- 35 x 60 x 80 mm (W x D x H)



#### **Smart Slave Functions**

Unit conduction time monitor Operation time monitor Contact operation counter Total ON time monitor Unit comments Connected device comments Network power supply voltage monitor Communications error log function I/O power supply monitor function Input filter (input or I/O only) Power-ON inrush current protection (input or I/O only) Communications speed auto-detection No need to wire Unit power supply Last maintenance date

## Ordering Information

	Specifications		I/O connections	Rated internal circuit power supply voltage	Rated I/O power supply voltage	Model	
Innuta	NPN (+ common)					DRT2-ID32ML	
Inputs	PNP (- common)	22 nainta			24VDC	DRT2-ID32ML-1	
Outputo	NPN (- common)	- 32 points	MIL connector			DRT2-OD32ML	
Outputs	PNP (+ common)		WIL Connector			DRT2-OD32ML-1	
I/O	NPN (input: + common, output: - common)	16 inputs/		Supplied from the		DRT2-MD32ML	
1/0	PNP (input: - common, output: + common)	16 outputs				DRT2-MD32ML-1	
la a cota	NPN (+ common)	_				DRT2-ID16ML	
Inputs	PNP (- common)		MIL co	MIL connector	communications connector	24 VDC	DRT2-ID16ML-1
Outenate	NPN (- common)						DRT2-OD16ML
Outputs	PNP (+ common)	10	16 points			DRT2-OD16ML-1	
la a cota	NPN (+ common)	To points				DRT2-ID16MLX	
Inputs	PNP (- common)	(Conn	MIL connector (Connector with 10-cm cable)				DRT2-ID16MLX-1
Outenate	NPN (- common)						DRT2-OD16MLX
Outputs	PNP (+ common)		,			DRT2-OD16MLX-1	
Mounting Bra	cket			!		SRT2-ATT02	

## **General Specifications**

Communications power supply voltage	11 to 25 VDC (Supplied from the communications connector.)	
Communications power supply current consumption	DRT2-ID16ML(-1) : 40 mA max. (24 VDC), 60 mA max. (11 VDC) DRT2-ID16MLX(-1) : 40 mA max. (24 VDC), 60 mA max. (11 VDC) DRT2-OD16ML(-1) : 45 mA max. (24 VDC), 75 mA max. (11 VDC) DRT2-ID32ML(-1) : 55 mA max. (24 VDC), 75 mA max. (11 VDC) DRT2-DD32ML(-1) : 70 mA max. (24 VDC), 120 mA max. (11 VDC) DRT2-MD32ML(-1) : 60 mA max. (24 VDC), 110 mA max. (11 VDC)	
Noise immunity	Conforms to IEC61000-4-4, 2 kV (power line)	
Vibration resistance	10 to 60 Hz, 0.7-mm double amplitude, 60 to 150 Hz, 50 m/s <sup>2</sup>	
Shock resistance	150m/s <sup>2</sup>	
Dielectric strength	500 VAC (between isolated circuits)	
Insulation resistance	20 MΩ min.	
Ambient operating temperature	-10°C to 55°C	
Ambient operating humidity	25% to 85% (with no condensation)	
Ambient operating atmosphere	No corrosive gases	
Ambient storage temperature	-25°C to 65°C	
Mounting method	DIN 35 mm-track mounting	
Weight	120 g max. *	

<sup>\*</sup> The Connector Cable provided with the DRT2-ID16MLX(-1) and DRT2-OD16MLX(-1) is 10 g max.

## **Input Specifications**

## ●32-point Inputs Terminals with Connectors

Item Model	DRT2-ID32ML	DRT2-ID32ML-1
Internal I/O common	NPN	PNP
I/O points	32 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)	5 VDC max. (between each input terminal and G)
OFF current	1.0 mA max.	
Input current	24 VDC: 6.0 mA max./point 17 VDC: 3.0 mA max./point	
ON delay time	1.5 ms max.	
OFF delay time	1.5 ms max.	
Number of circuits per common	32 per common	

## ●16-point Inputs/16-point Outputs Terminals with Connectors

## ●16-point Inputs Terminals with Connectors

Model Item	DRT2-MD32ML DRT2-ID16ML DRT2-ID16MLX	DRT2-MD32ML-1 DRT2-ID16ML-1 DRT2-ID16MLX-1	
Internal I/O common	NPN	PNP	
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)	5 VDC max. (between each input terminal and G)	
OFF current	1.0 mA max.		
Input current	24 VDC: 6.0 mA max./point 17 VDC: 3.0 mA max./point		
ON delay time	1.5 ms max.		
OFF delay time	1.5 ms max.		
Number of simultaneously inputs	16		
Number of circuits per common	16 per common		

## **Output Specifications**

#### ●32-point Outputs Terminals with Connectors

Item Model	DRT2-OD32ML	DRT2-OD32ML-1	
Internal I/O common	NPN	PNP	
I/O points	32 outputs		
Rated output current	0.3 A/point, 4 A/common *		
Residual voltage	1.2 VDC max. (0.3 A DC between output and G terminal)	1.2 VDC max. (0.3 A DC between output and V terminal)	
Leakage current	0.1 mA max.		
ON delay time	0.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	32 per common		

<sup>\*</sup> The maximum total load current is 4 A. The maximum current for the V and G terminals is 1 A per terminal.

## ●16-point Inputs/16-point Outputs Terminals with Connectors

#### ●16-point Outputs Terminals with Connectors

Model	DRT2-MD32ML DRT2-OD16ML DRT2-OD16MLX	DRT2-MD32ML-1 DRT2-OD16ML-1 DRT2-OD16MLX-1	
Internal I/O common	NPN	PNP	
I/O points	16 outputs		
Rated output current	0.3 A/point, 4 A/common *		
Residual voltage	1.2 VDC max. (0.3 A DC between output and G terminal)	1.2 VDC max. (0.3 A DC between output and V terminal)	
Leakage current	0.1 mA max.		
ON delay time	0.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	16 per common		

The maximum total load current is 2 A. The maximum current for the V and G terminals is 1 A per terminal.

## **Applicable Connectors**

#### ●32-point Models

Pro	duct	Model	Remarks
Flat Cable, crim	p terminals	XG4M-4030-T	
		XG5M-4032-N	For AWG24 wire
Stranded-wire cable, crimp	Socket	XG5M-4035-N	For AWG26 to AWG28 wire
terminals	Partial Cover	XG5S-2001	
	Hood Cover *	XG5S-4022	

<sup>\*</sup> DeviceNet connectors for multi-drop wiring cannot be used with the Hood Cover.

#### ●16-point Models

Pro	duct	Model	Remarks
Flat Cable, crim	p terminals	XG4M-2030-T	
		XG5M-2032-N	For AWG24 wire
Stranded-wire cable, crimp	Socket	XG5M-2035-N	For AWG26 to AWG28 wire
terminals	Partial Cover	XG5S-1001	
	Hood Cover *	XG5S-2012	

## Applicable Cables

#### **● Cables for Connector Terminal Conversion Units** (16 Points)

## **Cables with Connectors (1-to-1 Connection)**

Model	Applicable cable	Connectable model	Remarks
DRT2-ID16ML DRT2-ID16ML-1 DRT2-OD16ML DRT2-OD16ML-1	XW2Z-RO□C	XW2K-20G-T XW2D-20G6 XW2R-E20GD-T	Connector Terminal Conversion Unit

## ● Cables for I/O Relay Terminals (16 Points) **Cables with Connectors (1-to-1 Connection)**

Model	Applicable cable	Connectable model	Remarks
DRT2-ID16ML	XW2Z-RI□C	G7TC-ID16 G7TC-IA16	For I/O Relay Terminal inputs
DRT2-ID16ML-1			(No applicable model)
DRT2-OD16ML	XW2Z-RO□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	XW2Z-RI□C	G7TC-OC16-1	For I/O Relay Terminal outputs
DIXI 2-OD TOWIE-1	XW2Z-RO□C	G70D-SOC16-1 G70D-FOM16-1 * G70A-Z0C16-4	For I/O Relay Terminal outputs

<sup>\*</sup> Product no longer available to order.

#### Cables for Connector Terminal Conversion Units (32 Points)

#### **Cables with Connectors (1-to-1 Connection)**

Model	Applicable cable	Connectable model	Remarks
DRT2-ID32ML DRT2-ID32ML-1 DRT2-OD32ML DRT2-OD32ML-1 DRT2-MD32ML DRT2-MD32ML-1	XW2Z-□□□K	XW2K-40G-T XW2D-40G6 XW2R-E40GD-T	Connector Terminal Conversion Unit (40 pins)

## ● Cables for I/O Relay Terminals (32 Points) **Cables with Connectors (1-to-2 Connection)**

	Annliach!		
Model	Applicable cable	Connectable model	Remarks
DRT2-ID32ML	XW2Z-RI□-□-D1	G7TC-ID16 G7TC-IA16	For I/O Relay Terminal inputs
DRT2-ID32ML-1			(No applicable model)
DRT2-OD32ML	XW2Z-RO□-□-D1	G7TC-OC16/OC08 G70D-SOC16/VSOC16 G70D-FOM16/VFOM16 G70A-ZOC16-3 G70D-SOC08 G70R-SOC08 *	For I/O Relay Terminal outputs
	XW2Z-RI□-□-D1	G7TC-OC16-1	
DRT2-OD32ML-1	XW2Z-RO□-□-D1	G70D-SOC16-1 G70D-FOM16-1 * G70A-ZOC16-4	For I/O Relay Terminal outputs
DRT2-MD32ML	XW2Z-RM□-□-D1	[For input] G7TC-ID16 G7TC-IA16 [For output] G7TC-OC16/OC08 G70D-SOC16/VSOC16 G70D-FOM16/VFOM16 G70A-ZOC16-3 G70D-SOC08 G70R-SOC08	For I/O Relay Terminal inputs For I/O Relay Terminal outputs
DRT2-MD32ML-1	XW2Z-RM□-□-D1	[For input] [For output] G70D-SOC16-1 G70D-FOM16-1 * G70A-ZOC16-4	For I/O Relay Terminal inputs For I/O Relay Terminal outputs

<sup>\*</sup> Product no longer available to order.

#### Stranded-wire Cables with Crimp Terminals

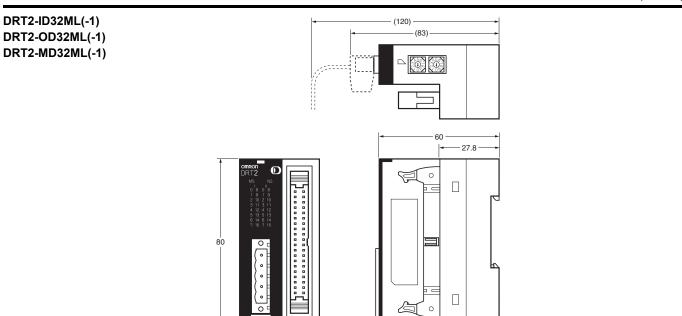
Model	Applicable cable	Remarks
DRT2-ID16ML (-1) DRT2-OD16ML (-1)	XW2Z-RY□C	20-pin connector
DRT2-ID16ML (-1) DRT2-OD16ML (-1) DRT2-MD16ML (-1)	XW2Z-RY□C-D1	40-pin connector

#### Stranded-wire Cables

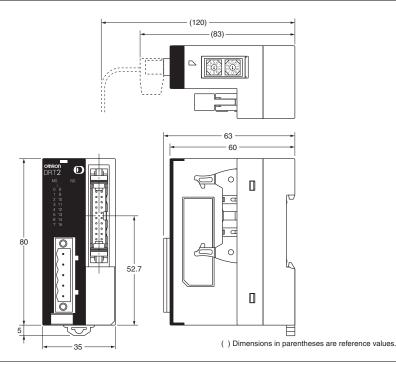
Model	Applicable cable	Remarks
DRT2-ID16ML (-1) DRT2-OD16ML (-1)	XW2Z-RA□C	20-pin connector
DRT2-ID16ML (-1) DRT2-OD16ML (-1) DRT2-MD16ML (-1)	XW2Z-RA□C-D1	40-pin connector



**Dimensions** (Unit: mm)

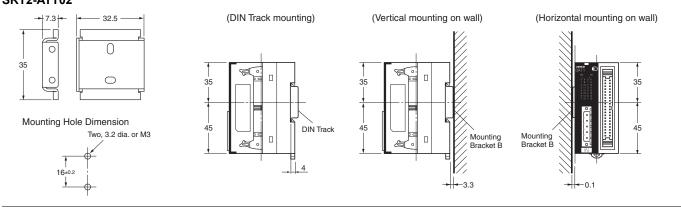


DRT2-ID16ML(-1)
DRT2-OD16ML(-1)
DRT2-ID16MLX(-1)
DRT2-OD16MLX(-1)

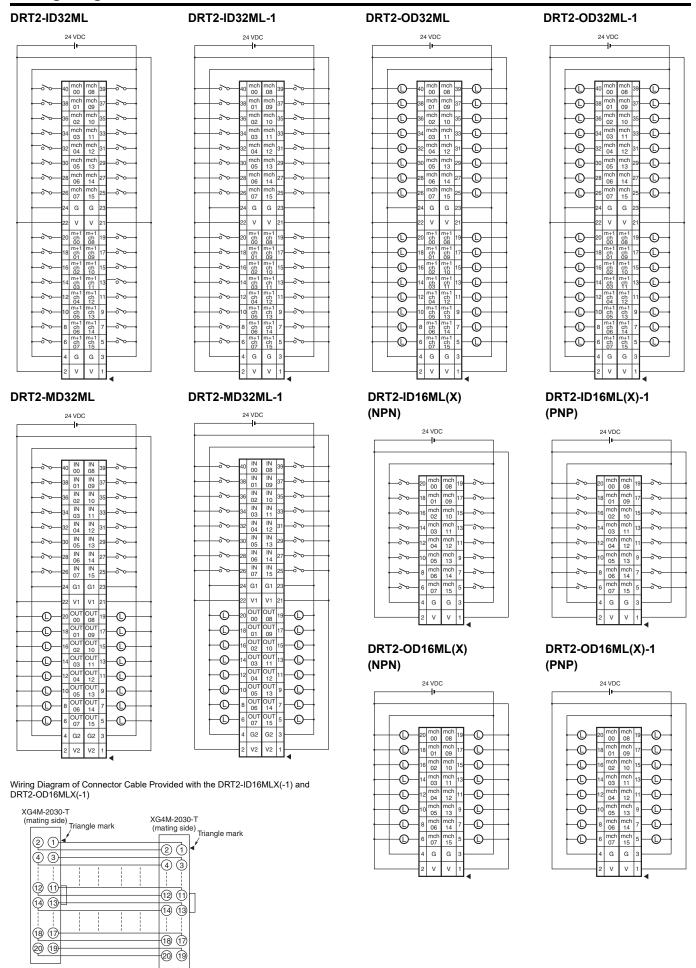


( ) Dimensions in parentheses are reference values.

## ● Mounting Bracket B (Accessory) SRT2-ATT02



## **Wiring Diagrams**

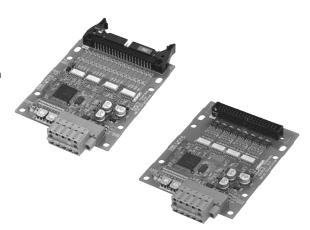


**Board Terminals with MIL Connector** 

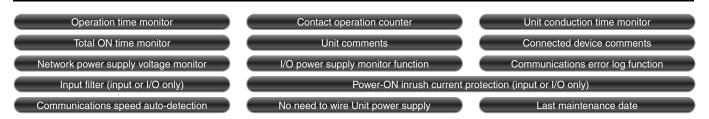
## DRT2-\( \Box\) D32B(-1)/\( \Box\) D32BV(-1)

## First Board-type Terminals for **Smart Slaves!**

- Easily modified to handle an array of I/O interfaces and eliminates much
- User boards attach easily to the DRT2- D32BV(-1) using screws.



## **Smart Slave Functions**



## **Ordering Information**

#### ●Parallel Mounting MIL Connector

Specifications			I/O connections	Rated internal circuit power supply voltage	Rated I/O power supply voltage	Model
Inputs	NPN (+ common)	32 inputs	MIL connector	Supplied from communications connector.	24 VDC	DRT2-ID32B
inputs	PNP (- common)	32 iliputs				DRT2-ID32B-1
Outputs	NPN (- common)	32 outputs				DRT2-OD32B
Outputs	PNP (+ common)					DRT2-OD32B-1
I/O	NPN (input: + common, output: - common)					DRT2-MD32B
1/0	PNP (input: - common, output: + common)	16 outputs				DRT2-MD32B-1

#### Perpendicular Mounting MIL Connector

Specifications			I/O connections	Rated internal circuit power supply voltage	Rated I/O power supply voltage	Model
Inputs	NPN (+ common)	32 inputs				DRT2-ID32BV
inputs	PNP (- common)	32 iriputs	MIL	Supplied from communications	24 VDC	DRT2-ID32BV-1
Outputs	NPN (- common)	22				DRT2-OD32BV
Outputs	PNP (+ common) 32 outputs	connector	connector.	24 VDC	DRT2-OD32BV-1	
1/0	NPN (input: + common, output: - common)	16 inputs/	1			DRT2-MD32BV
1/0	PNP (input: - common, output: + common)	16 outputs				DRT2-MD32BV-1

## **General Specifications**

Communications power supply voltage	11 to 25 VDC (Supplied from the communications connector.)			
Communications power supply current consumption	DRT2-ID32B(-1) : 45 mA max. (24 VDC), 100 mA max. (11 VDC) DRT2-OD32B(-1) : 55 mA max. (24 VDC), 120 mA max. (11 VDC) DRT2-MD32B(-1) : 50 mA max. (24 VDC), 110 mA max. (11 VDC) DRT2-ID32BV(-1) : 45 mA max. (24 VDC), 100 mA max. (11 VDC) DRT2-MD32BV(-1) : 55 mA max. (24 VDC), 120 mA max. (11 VDC) DRT2-MD32BV(-1) : 50 mA max. (24 VDC), 110 mA max. (11 VDC)			
Noise immunity	Conforms to IEC61000-4-4, 2 kV (power line)			
Vibration resistance	10 to 60 Hz, 0.7-mm double amplitude, 60 to 150 Hz, 50 m/s² for 80 min each in the X, Y, and Z directions			
Shock resistance	150m/s², 6 directions, 3 times each			
Dielectric strength	500 VAC (between isolated circuits)			
Insulation resistance	20 MΩ min. (between isolated circuits)			
Ambient operating temperature	-10°C to 55°C			
Ambient operating humidity	25% to 85% (with no condensation)			
Ambient operating atmosphere	No corrosive gases			
Ambient storage temperature	-25°C to 65°C			
Mounting method	M4 screw mounting			
Weight	50 g max.			

## **Input Specifications**

## ●32-point Inputs Terminals with Connectors

Model Item	DRT2-ID32B DRT2-ID32BV	DRT2-ID32B-1 DRT2-ID32BV-1		
Internal I/O common	NPN	PNP		
I/O points	32 inputs			
ON voltage	17 VDC min. (between each input (between each input terminal and V) terminal and G)			
OFF voltage	5 VDC max. (between each input terminal and V)	5 VDC max. (between each input terminal and G)		
OFF current	1.0 mA max.			
Input current	24 VDC: 6.0 mA max./point 17 VDC: 3.0 mA max./point			
ON delay time	1.5 ms max.			
OFF delay time	1.5 ms max.			
Number of circuits per common	32 per common			

## ●16-point Inputs/16-point Outputs Terminals with Connectors

Model Item	DRT2-MD32B DRT2-MD32BV	DRT2-MD32B-1 DRT2-MD32BV-1		
Internal I/O common	NPN	PNP		
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)	5 VDC max. (between each input terminal and G)		
OFF current	1.0 mA max.			
Input current	24 VDC: 6.0 mA max./point 17 VDC: 3.0 mA max./point			
ON delay time	1.5 ms max.			
OFF delay time	1.5 ms max.			
Number of simultaneously inputs	16			
Number of circuits per common	16 per common			

## **Output Specifications**

## ●32-point Outputs Terminals with Connectors

Model Item	DRT2-OD32B DRT2-OD32BV	DRT2-OD32B-1 DRT2-OD32BV-1	
Internal I/O common	NPN	PNP	
I/O points	32 outputs		
Rated output current	0.3 A/point, 4 A/common *		
Residual voltage	1.2 VDC max. (0.3 A DC between output and G terminal)	1.2 VDC max. (0.3 A DC between output and V terminal)	
Leakage current	0.1 mA max.		
ON delay time	0.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	32 per common		

The maximum total load current is 4 A.

## ●16-point Inputs/16-point Outputs Terminals with Connectors

Model Item	DRT2-MD32B DRT2-MD32BV	DRT2-MD32B-1 DRT2-MD32BV-1	
Internal I/O common	NPN	PNP	
I/O points	16 outputs	<u> </u>	
Rated output current	0.3 A/point, 2 A/common *		
Residual voltage	1.2 VDC max. (0.3 A DC between output and G terminal)	1.2 VDC max. (0.3 A DC between output and V terminal)	
Leakage current	0.1 mA max.		
ON delay time	0.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	16 per common		

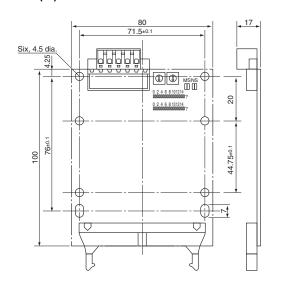
The maximum current for the V and G terminals is 1 A per terminal. Do not exceed these values.

The maximum total load current is 2 A.
The maximum current for the V and G terminals is 1 A per terminal. Do not exceed

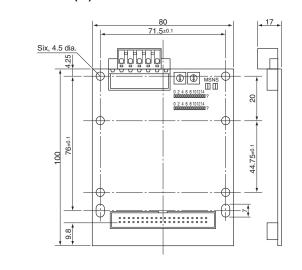


**Dimensions** (Unit: mm)

DRT2-ID32B(-1) DRT2-OD32B(-1) DRT2-MD32B(-1)

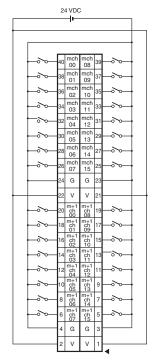


DRT2-ID32BV(-1) DRT2-OD32BV(-1) DRT2-MD32BV(-1)

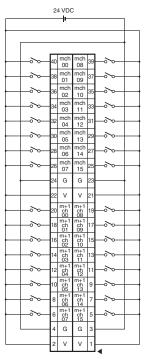


## **Wiring Diagrams**

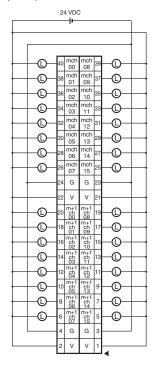
DRT2-ID32B DRT2-ID32BV (NPN)



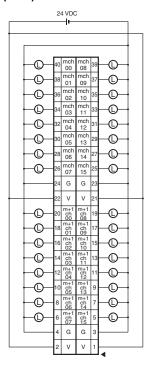
DRT2-ID32B-1 DRT2-ID32BV-1 (PNP)



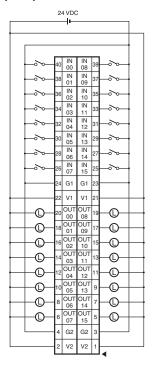
DRT2-OD32B DRT2-OD32BV (NPN)



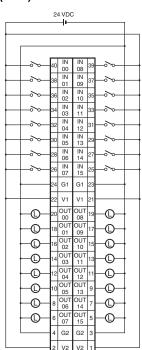
**DRT2-OD32B-1** DRT2-OD32BV-1 (PNP)



DRT2-MD32B DRT2-MD32BV (NPN)



**DRT2-MD32B-1** DRT2-MD32BV-1 (PNP)

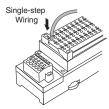


**Screw-less Clamp Terminals with Transistors** 

## DRT2-□D16SL(H)(-1)/□D32SLH(-1)

## Reduced Wiring and Labor on **Factory Sites with Screw-less Terminal Wiring**

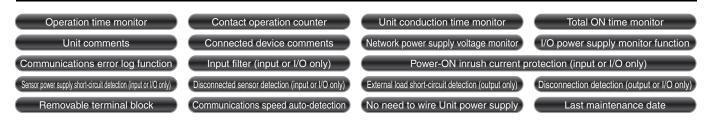
- Screw-less structure eliminates tightening work.
- Detachable terminal blocks for easier maintenance.
- · Single-step wiring by simply inserting pole terminals.



 Applicable wire sizes range from AWG24 to AWG16 (0.2 to 1.25 mm<sup>2</sup> dia.)



## Smart Slave Functions



## **Ordering Information**

Short/disconnection detection		Specifications			Rated internal circuit power supply voltage	Rated I/O power supply voltage	Model
	Innuto	NPN (+ common)			Supplied from communications connector.		DRT2-ID16SLH
Cupported	Inputs	PNP (- common)					DRT2-ID16SLH-1
Supported	Outrot	NPN (- common)					DRT2-OD16SLH
	Outputs	PNP (+ common)	40 =======			24 VDC	DRT2-OD16SLH-1
	Inputs	NPN (+ common)	16 points	Clamp terminals			DRT2-ID16SL
Not come estad		PNP (- common)					DRT2-ID16SL-1
Not supported	Outputs	NPN (- common)					DRT2-OD16SL
		PNP (+ common)					DRT2-OD16SL-1
	Inputs	NPN (+ common)	32 points				DRT2-ID32SLH
		PNP (- common)					DRT2-ID32SLH-1
0	0.44.	NPN (- common)					DRT2-OD32SLH
Supported	Outputs	PNP (+ common)					DRT2-OD32SLH-1
	I/O	NPN (input: + common, output: - common)	10 mpats/				DRT2-MD32SLH
		PNP (input: - common, output: + common)					DRT2-MD32SLH-1

## **General Specifications**

Communications power supply voltage	11 to 25 VDC (Supplied from the communications connector.)		
Communications power supply current consumption	DRT2-ID16SL(-1) : 30 mA max. (24 VDC), 55 mA max. (11 VDC) DRT2-OD16SL(-1) : 35 mA max. (24 VDC), 65 mA max. (11 VDC) DRT2-ID16SLH(-1) : 35 mA max. (24 VDC), 65 mA max. (11 VDC) DRT2-ID16SLH(-1) : 35 mA max. (24 VDC), 70 mA max. (11 VDC) DRT2-ID32SL : 55 mA max. (24 VDC), 100 mA max. (11 VDC) DRT2-ID32SL : 55 mA max. (24 VDC), 90 mA max. (11 VDC) DRT2-ID32SL : 55 mA max. (24 VDC), 90 mA max. (11 VDC) DRT2-OD32SL : 50 mA max. (24 VDC), 80 mA max. (11 VDC) DRT2-OD32SL-1 : 50 mA max. (24 VDC), 75 mA max. (11 VDC) DRT2-ID32SLH : 65 mA max. (24 VDC), 80 mA max. (11 VDC) DRT2-ID32SLH : 65 mA max. (24 VDC), 100 mA max. (11 VDC) DRT2-ID32SLH : 65 mA max. (24 VDC), 105 mA max. (11 VDC) DRT2-ID32SLH : 55 mA max. (24 VDC), 80 mA max. (11 VDC) DRT2-OD32SLH : 55 mA max. (24 VDC), 80 mA max. (11 VDC) DRT2-OD32SLH : 55 mA max. (24 VDC), 85 mA max. (11 VDC) DRT2-MD32SLH-1 : 55 mA max. (24 VDC), 90 mA max. (11 VDC)		
Noise immunity	Conforms to IEC61000-4-4, 2 kV (power line)		
Vibration resistance	10 to 60 Hz, 0.7-mm double amplitude, 60 to 150 Hz, 50 m/s² for 80 min each in the X, Y, and Z directions		
Shock resistance	150m/s², 6 directions, 3 times each		
Dielectric strength	500 VAC (between isolated circuits)		
Insulation resistance	20 MΩ min. (between isolated circuits)		
Ambient operating temperature	-10°C to 55°C		
Ambient operating humidity	25% to 85% (with no condensation)		
Ambient operating atmosphere	No corrosive gases		
Ambient storage temperature	-20°C to 65°C		
Mounting method	DIN 35 mm-track mounting		
Weight	480 g max.		

## I/O Specifications

## ●16-point Inputs Terminals with Transistors (Input Specifications)

Item Model	DRT2-ID16SL	DRT2-ID16SL-1	DRT2-ID16SLH	DRT2-ID16SLH-1	
Internal I/O common	NPN	PNP	NPN	PNP	
Input points	16 inputs				
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+	10%)			
Input current	24 VDC: 6.0 mA max./point 17 VDC: 3.0 mA max./point				
Input resistance	4 kΩ				
ON delay time	1.5 ms max.				
OFF delay time	1.5 ms max.				
ON voltage	15 VDC min. (between each input terminal and V)	15 VDC min. (between each input terminal and G)	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 max. (between each input terminal and G)	5 VDC max. (between each input terminal and V)	5 VDC max. (between each input terminal and G)	
ON current	3.0 mA max.				
OFF current	1.0 mA max.				
Number of circuits per common	16 per common				
Power short-circuit protection	tion Operates at 50 mA/point min.				
Disconnection detection			Operates at 0.3 mA/point max.		
Input power supply current	100 mA per point	50 mA per point			

## ●32-point Inputs Terminals with Transistors (Input Specifications)

Item Mode	DRT2-ID32SLH	DRT2-ID32SLH-1			
Internal I/O common	NPN	PNP			
Input points	32 inputs				
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)				
Input current	6.0 mA6.0 mA max. per point at 24 VDC 3.0 mA max. per point at 17 VDC				
Input resistance	4 kΩ				
ON delay time	1.5 ms max.				
OFF delay time	1.5 ms max.				
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 max. (between each input terminal and G)			
ON current	3 mA min.				
OFF current	1.0 mA max.				
Number of circuits per common	on 16 per common				
Power short-circuit protection	Operates at 50 mA/point min.				
Disconnection detection	Operates at 0.3 mA/point max.				

#### ●16-point Outputs Terminals with Transistors (Output Specifications)

Item Model	DRT2-OD16SL	DRT2-OD16SL-1	DRT2-OD16SLH	DRT2-OD16SLH-1		
Internal I/O common	NPN	PNP	NPN	PNP		
I/O points	16 outputs					
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+	10%)				
Output current	0.5 A per point, 4 A per common					
Residual voltage	1.2 V max.	1.2 V max.				
Leakage current	0.1 mA max. (See Note: 1.)					
ON delay time	0.5 ms max.					
OFF delay time	1.5 ms max.					
Disconnection detection	(See Note: 2.)					
Output power supply current	rent 100 mA per point					
Output for errors	According to hold/clear setting for errors (default: clear)					

Note 1: To enable detection of external load disconnections, a current of 0.1 mA or less is output to the load even when the output is OFF. Make sure that the load will not operate

#### ●32-point Outputs Terminals with Transistors (Output Specifications)

Item Model	DRT2-OD32SLH	DRT2-OD32SLH-1	
Internal I/O common	NPN	PNP	
I/O points	32 outputs		
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)		
Output current	0.5 A per point, 4 A per common		
Residual voltage	1.2 V max.		
Leakage current	0.1 mA max. (See Note: 1.)		
ON delay time	0.5 ms max.		
OFF delay time	1.5 ms max.		
Disconnection detection	(See Note: 2.)		
Output for errors	According to hold/clear setting for errors (default: clear)		

Note 1: To enable detection of external load disconnections, a current of 0.1 mA or less is output to the load even when the output is OFF. Make sure that the load will not operate

#### ●16-point Inputs/16-point Outputs Terminals with Transistors (Input Specifications)

Item Model	DRT2-MD32SLH	DRT2-MD32SLH-1		
Internal I/O common	NPN	PNP		
Input points	16 inputs			
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)			
Input current	6.0 mA max. per point at 24 VDC 3.0 mA max. per point at 17 VDC			
Input resistance	4 kΩ			
ON delay time	1.5 ms max.			
OFF delay time	1.5 ms max.			
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 max. (between each input terminal and G)		
ON current	3 mA min.			
OFF current	1.0 mA max.			
Number of circuits per common	16 per common			
Power short-circuit protection	Operates at 50 mA/point min.			
Disconnection detection	Operates at 0.3 mA/point max			

#### ●16-point Inputs/16-point Outputs Terminals with Transistors (Output Specifications)

Item Model	DRT2-MD32SLH	DRT2-MD32SLH-1		
Internal I/O common	NPN	PNP		
I/O points	16 outputs			
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)			
Output current	0.5 A per point, 4 A per common			
Residual voltage	1.2 V max.			
Leakage current	0.1 mA max. (See Note: 1.)			
ON delay time	0.5 ms max.			
OFF delay time	1.5 ms max.			
Disconnection detection	(See Note: 2.)			
Output for errors	According to hold/clear setting for errors (default: clear)			

Note 1: To enable detection of external load disconnections, a current of 0.1 mA or less is output to the load even when the output is OFF. Make sure that the load will not operate for this current

Note 2: Disconnection detection can be used when the load current is 3 mA or higher. If the load current is less than 3 mA, disconnections may be falsely detected.

for this current.

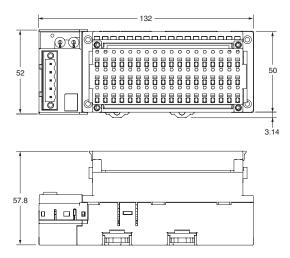
Note 2: Disconnection can be used when the load current is 3 mA or higher. If the load current is less than 3 mA, disconnections may be falsely detected.

Note 2: Disconnection detection can be used when the load current is 3 mA or higher. If the load current is less than 3 mA, disconnections may be falsely detected.

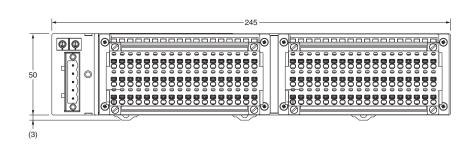


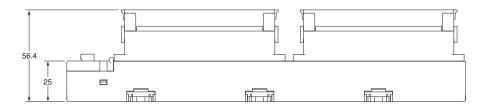
**Dimensions** (Unit: mm)

DRT2-ID16SLH(-1) DRT2-OD16SLH(-1) DRT2-ID16SL(-1) DRT2-OD16SL(-1)



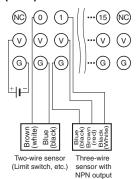
DRT2-ID32SLH(-1) DRT2-OD32SLH(-1) DRT2-MD32SLH(-1)





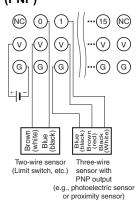
## Wiring Diagrams



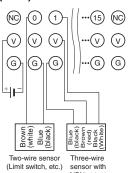


(e.g., photoelectric sensor or proximity sensor)

## DRT2-ID16SL-1 (PNP)

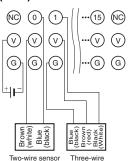


DRT2-ID16SLH (NPN)

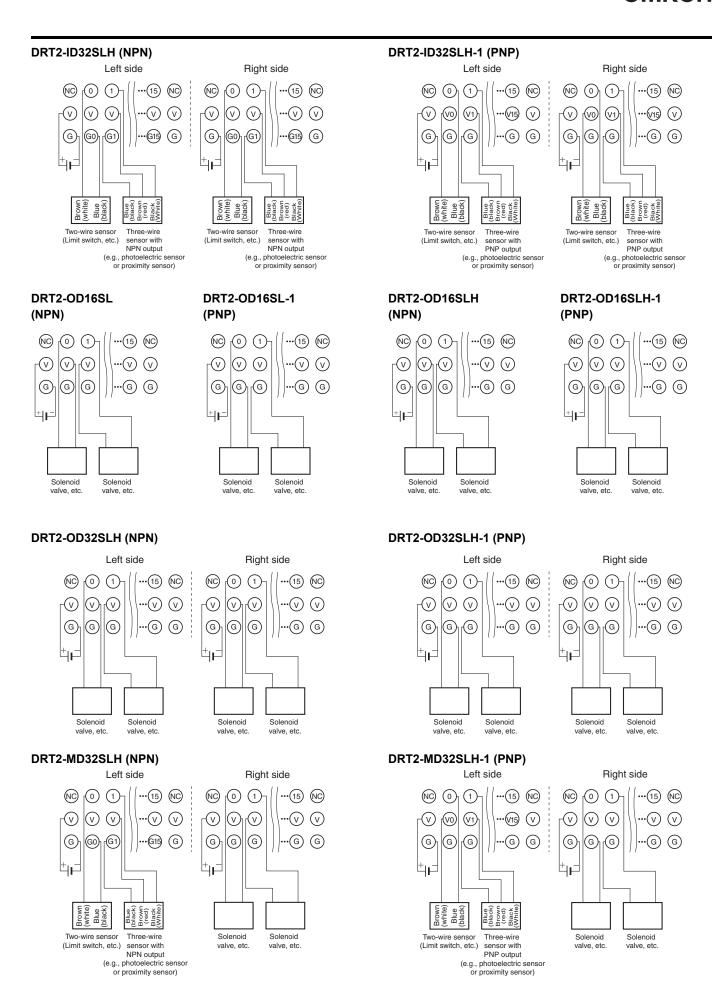


sensor with NPN output (e.g., photoelectric sensor or proximity sensor)

## DRT2-ID16SLH-1 (PNP)



sensor with PNP output (e.g., photoelectric sensor or proximity sensor)



**Environment-resistive Terminals with Transistors (High-function Type)** 

## DRT2-□D08C(-1)/

## **Environment-resistive (IP67) I/O Terminals with Troubleshooting Functions such as Sensor Power Supply Short-circuit Detection**

- Equipped with the standard Smart Slave functions that provide powerful preventative maintenance and troubleshooting capabilities.
- High degree of environmental resistance with dust-proof and drip-proof construction.
- · Power supply wiring is not required for input devices.
- Connect heavy-load devices (up to 1.5 A).
- Power supply wiring is not required for input devices such as sensors. (Power supply wiring is required for output devices.)
- Detects ground faults or disconnects and notifies the Master.

#### Smart Slave Functions



## **Ordering Information**

Specifications		I/O connections	Rated internal circuit power supply voltage	Rated I/O power supply voltage	Model														
lanut	NPN (+ common)				Supplied from the	DRT2-ID08C													
Input	PNP (- common)	0			communications connector	DRT2-ID08C-1													
Output	NPN (- common)	8 points	Sensor I/O connector co	Sensor I/O	Sensor I/O	Sensor I/O	Sensor I/O	Sensor I/O	Sensor I/O	Sensor I/O		Sensor I/O	Supplied from the	24 VDC	DRT2-OD08C				
Output	PNP (+ common)			communications connector	24 VDC	DRT2-OD08C-1													
la act	NPN (+ common)	40			Supplied from the	DRT2-HD16C													
Input	PNP (- common)	16 points			communications connector	DRT2-HD16C-1													

## **General Specifications**

Item Model	DRT2-ID08C(-1)	DRT2-HD16C(-1)	DRT2-OD08C(-1)	
Communications power supply voltage	11 to 25 VDC (Supplied from the communications connector)			
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)			
Noise immunity	Conforms to IEC 61000-4-4	2 kV (power line)		
Communications power supply current consumption	115mA max. (24 VDC) 90mA max. (11 VDC)	200mA max. (24 VDC) 130mA max. (11 VDC)	35mA max. (24 VDC) 60mA max. (11 VDC)	
Vibration resistance	10 to 60 Hz, 0.7-mm double Y, and Z directions	amplitude, 60 to 150 Hz, 50 n	n/s² for 80 min each in the X,	
Shock resistance	150 m/s <sup>2</sup> , 6 directions, 3 time	es each		
Dielectric strength	500 VAC between isolated c	ircuits		
Insulation resistance	20 MΩ min. (between isolated circuits)			
Ambient operating temperature	-10°C to 55°C			
Ambient operating humidity	25% to 85% (with no condensation)			
Ambient operating atmosphere	No corrosive gases			
Ambient storage temperature	-20°C to 65°C			
Degree of protection	IP67			
Mounting method	M5 screw mounting (front an	nd back)		
Mounting strength	100 N			
Connector strength	30 N			
Screw tightening torque	Round connectors (communications, supply voltage, and I/O): 0.39 to 0.49 N m M5 (Unit mounting from front): 1.47 to 1.96 N m			
Weight	340 g max.		390 g max.	
I/O power supply connector	7/8-16UN			
Communications connector	M12			

## **Input Specifications**

#### ●8-point Inputs Terminals with Transistors

Item Model	DRT2-ID08C	DRT2-ID08C-1	
Internal I/O common	NPN	PNP	
I/O points	8 inputs		
ON voltage	9 VDC min. (between input and V terminal)	9 VDC min. (between input and G terminal)	
OFF voltage	5 VDC max. (between input and V terminal)	5 VDC max. (between input and G terminal)	
OFF current	1.0 mA max.		
Input current	3.0 mA min./point (at 11 VDC) 11.0 mA max./point (at 24 VDC)		
Power supply voltage for sensor	Communications power supply voltage +0 V max. Communications power supply voltage -1.5 V min.		
ON delay time	1.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	8 per common		

#### ●16-point Inputs Terminals with Transistors

Item Model	DRT2-HD16C	DRT2-HD16C-1	
Internal I/O common	NPN	PNP	
I/O points	16 inputs		
ON voltage	9 VDC min. (between input and V terminal)	9 VDC min. (between input and G terminal)	
OFF voltage	5 VDC max. (between input and V terminal)	5 VDC max. (between input and G terminal)	
OFF current	1.0 mA max.		
Input current	3.0 mA min./point (at 17 VD 11.0 mA max./point (at 24 V		
Power supply voltage for sensor	Communications power supply voltage +0 V max. Communications power supply voltage -1.5 V min.		
ON delay time	1.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	16 per common		

## **Output Specifications**

## ●8-point Outputs Terminals with Transistors

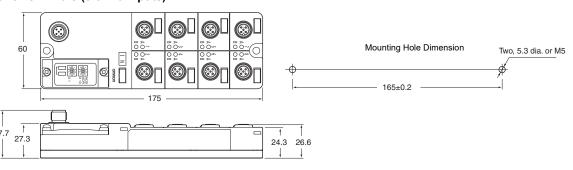
Item Model	DRT2-OD08C	DRT2-OD08C-1	
Internal I/O common	NPN	PNP	
I/O points	8 inputs		
Rated output current	1.5 A per point, 8.0 A per co	ommon	
Residual voltage	1.2 V max. (1.5 A DC between each output terminal and G)	1.2 V max. (1.5 A DC between each output terminal and V)	
Leakage current	0.1 mA max.		
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)		
ON delay time	0.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	8 per common		

Note: Refer to Peripheral Devices on page 169 for information on applicable connectors.

**Dimensions** (Unit: mm)

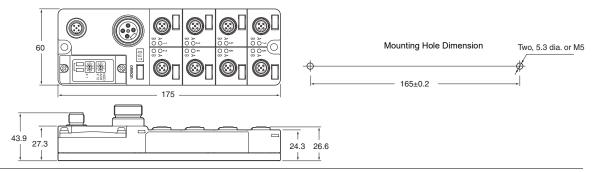
## ● Environment-resistive Terminals (8 or 16 Inputs)

DRT2-ID08C DRT2-ID08C-1 DRT2-HD16C DRT2-HD16C-1



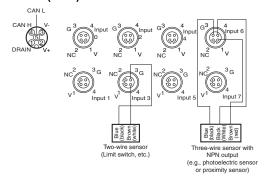
#### ● Environment-resistive Terminals (8 Outputs)

DRT2-OD08C DRT2-OD08C-1

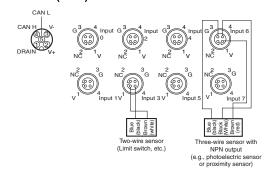


## **Wiring Diagrams**

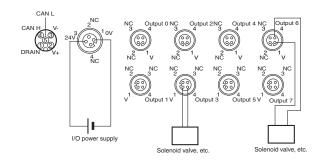
## DRT2-ID08C (NPN)



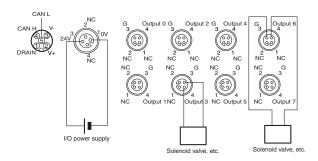
## DRT2-ID08C-1 (PNP)



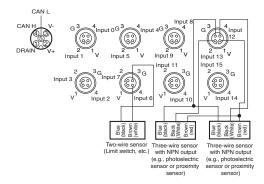
## DRT2-OD08C (NPN)



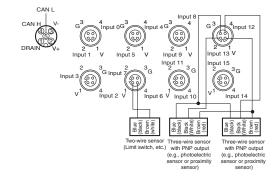
## DRT2-OD08C-1 (PNP)



## DRT2-HD16C (NPN)



## DRT2-HD16C-1 (PNP)



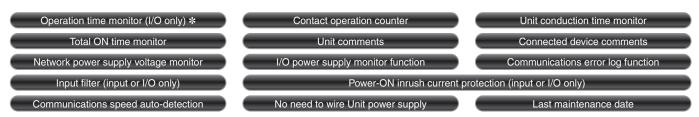
**Environment-resistive Terminals with Transistors (Standard Type)** 

## Remote I/O Terminals with High **Degree of Environmental Resistance** (IP67) in Product Lineup Including **Economical Input, Output, and Mixed** I/O Models

- Common Smart Slave functionality provides strong support for equipment operation status monitoring and effective maintenance.
- High degree of environmental resistance with dust-proof and drip-proof construction. (IP67)
- · Models with one connector for two outputs are available to make easier connection with hydraulic valve devices. (Models with 16 outputs and models with 16 mixed I/O)



#### **Smart Slave Functions**



The operation time monitor can be used with the DRT2-□D04CL(-1).

## Ordering Information

Specifications		I/O connections	Rated internal circuit power supply voltage	Rated I/O power supply voltage	Model				
Inputs	NPN (+ common)					DRT2-ID04CL			
inputs	PNP (- common)	4 points				DRT2-ID04CL-1			
Outputa	NPN (- common)	4 points				DRT2-OD04CL			
Outputs	PNP (+ common)					DRT2-OD04CL-1			
Innuta	NPN (+ common)					DRT2-ID08CL			
Inputs	PNP (- common)	0				DRT2-ID08CL-1			
Outrute	NPN (- common)	8 points	o points	o points	Sensor I/O	Supplied from the	24.VDC	DRT2-OD08CL	
Outputs	PNP (+ common)			connector	communications connector	24 VDC	DRT2-OD08CL-1		
Innuta	NPN (+ common)					DRT2-HD16CL			
Inputs	PNP (- common)	16 points	ļ			DRT2-HD16CL-1			
Out-ut-	NPN (- common)					DRT2-WD16CL			
Outputs	PNP (+ common)	1			ļ				DRT2-WD16CL-1
I/O	NPN (input: + common, output: - common)	8 inputs/	1			DRT2-MD16CL			
1/0	PNP (input: - common, output: + common)	8 outputs				DRT2-MD16CL-1			

## **General Specifications**

Item Model	DRT2-ID04CL(-1)	DRT2-OD04CL(-1)	DRT2-ID08CL(-1)	DRT2-OD08CL(-1)	DRT2-HD16CL(-1)	DRT2-WD16CL(-1)	DRT2-MD16CL(-1)
Communications power supply voltage	11 to 25 VDC (Supplied from the communications connector)						
I/O power supply voltage	20.4 to 26.4 VDC (2	24 VDC -15%/+10%)					
Noise immunity	Conforms to IEC 61	000-4-4 2 kV (power	r line)				
Communications power supply current consumption		35mA max. (24 VDC) 35mA max. (24 VDC) (24 VDC) (24 VDC) (24 VDC) (24 VDC) 55mA max. (11 VDC) 55mA max. (11 VDC) (11 VDC) (11 VDC) (11 VDC)					(24 VDC) 55mA max.
Vibration resistance	10 to 60 Hz with do	uble-amplitude of 0.7	7 mm, 60 to 150 Hz a	nd 50 m/s² in X, Y, ar	nd Z directions for 80	) min each	
Shock resistance	150m/s <sup>2</sup> , 6 direction	s, 3 times each					
Dielectric strength	500 VAC between is	solated circuits					
Insulation resistance	20 M $Ω$ min. (betwee	en isolated circuits)					
Ambient operating temperature	-10°C to 55°C						
Ambient operating humidity	25% to 85% (with no	o condensation)					
Ambient operating atmosphere	No corrosive gases						
Ambient storage temperature	-20°C to 65°C	-20°C to 65°C					
Degree of protection	IP67						
Mounting method	M5 screw mounting	(front and back)					
Mounting strength	100 N	100 N					
Connector strength	30 N						
Screw tightening torque	Round connectors (communications, supply voltage, and I/O): 0.39 to 0.49 N m M5 (Unit mounting from front): 1.47 to 1.96 N m						
Weight	275 g max. 390 g max.						
I/O power supply connector	7/8-16UN						
Communications connector	M12						

## **Input Specifications**

## ●4-input Models

• i input incuoio						
Item Model	DRT2-ID04CL	DRT2-ID04CL-1				
Internal I/O common	NPN	PNP				
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 max. (between each input terminal and G)				
OFF current	1.0 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%/+10%)					
ON delay time	1.5 ms max.					
OFF delay time	1.5 ms max.					
Number of circuits per common	4 per common					

## ●8-input Models

Item Model	DRT2-ID08CL	DRT2-ID08CL-1	
Internal I/O common	NPN	PNP	
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 max. (between each input terminal and G)	
OFF current	1.0 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%/+10%)		
ON delay time	1.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	8 per common		

## ●16-input Models

Item Model	DRT2-HD16CL	DRT2-HD16CL-1
Internal I/O common	NPN	PNP
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)	5 VDC max. (between each input terminal and G)
OFF current	1.0 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%/+10%)	
ON delay time	1.5 ms max.	
OFF delay time	1.5 ms max.	
Number of circuits per common	16 per common	

## ●8-input/8-output Models

Item Model	DRT2-MD16CL	DRT2-MD16CL-1
Internal I/O common	NPN	PNP
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 max. (between each input terminal and G)
OFF current	1.0 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%/+10%)	
ON delay time	1.5 ms max.	
OFF delay time	1.5 ms max.	
Number of circuits per common	8 per common	

# **Output Specifications**

# ●4-output Models

Item Model	DRT2-OD04CL	DRT2-OD04CL-1	
Internal I/O common	NPN	PNP	
I/O points	4 outputs		
Rated output current	0.5 A per point, 2.0 A per co	ommon	
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%/+10%)		
ON delay time	0.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	4 per common		

# ●8-output Models

Item Model	DRT2-OD08CL	DRT2-OD08CL-1
Internal I/O common	NPN	PNP
I/O points	8 outputs	
Rated output current	0.5 A per point, 4 A per con	nmon
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)	
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%/+10%)	
ON delay time	0.5 ms max.	
OFF delay time	1.5 ms max.	
Number of circuits per common	8 per common	

#### ●16-output Models

Item Model	DRT2-WD16CL	DRT2-WD16CL-1
Internal I/O common	NPN	PNP
I/O points	16 outputs	
Rated output current	0.5 A per point, 4 A per com	nmon
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)	
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%/+10%)	
ON delay time	0.5 ms max.	
OFF delay time	1.5 ms max.	
Number of circuits per common	16 per common	

# ●8-input/8-output Models

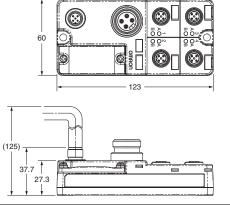
Item Model	DRT2-MD16CL	DRT2-MD16CL-1
Internal I/O common	NPN PNP	
I/O points	8 outputs	
Rated output current	0.5 A per point, 4 A per com	nmon
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)	
Residual voltage	1.2 V max. (0.5 A DC between each output terminal and G)	1.2 V max. (0.5 A DC between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

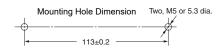
**Note:** Refer to Peripheral Devices on page 169 for information on applicable connectors.

(Unit: mm)

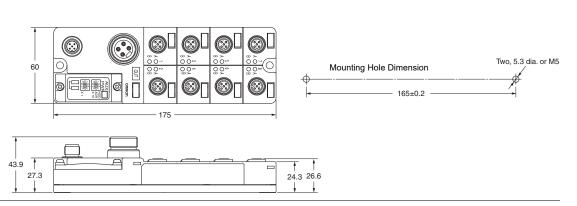
# Dimensions DRT2-ID04CL(-1)

DRT2-OD04CL(-1)



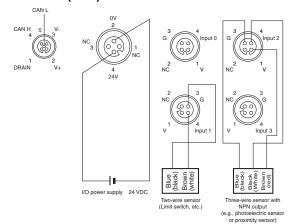


DRT2-ID08CL(-1)
DRT2-OD08CL(-1)
DRT2-HD16CL(-1)
DRT2-WD16CL(-1)
DRT2-MD16CL(-1)

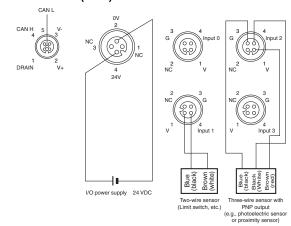


# **Wiring Diagrams**

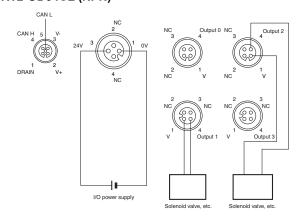
# DRT2-ID04CL (NPN)



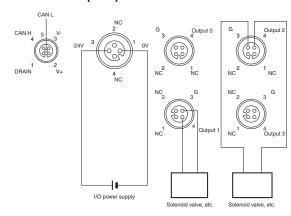
# DRT2-ID04CL-1 (PNP)



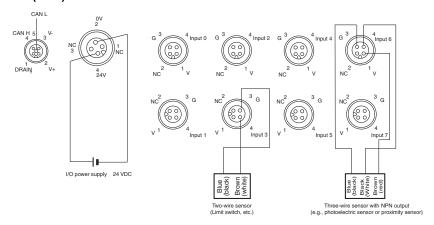
# DRT2-OD04CL (NPN)



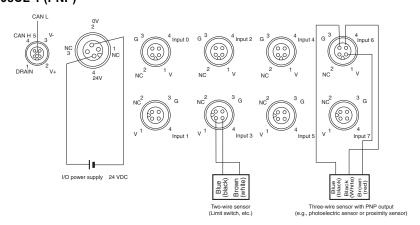
# DRT2-OD04CL-1 (PNP)



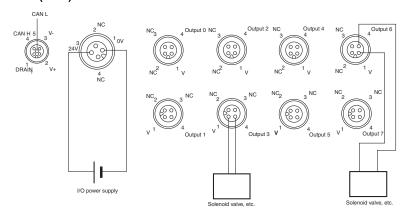
# DRT2-ID08CL (NPN)



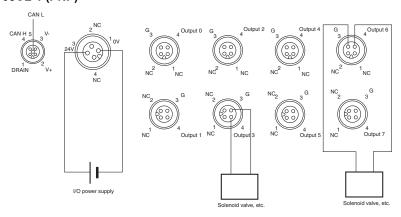
# DRT2-ID08CL-1 (PNP)



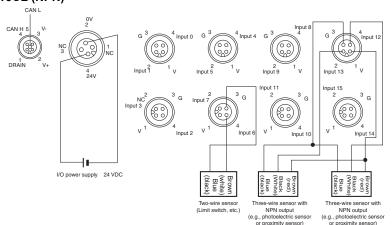
# DRT2-OD08CL (NPN)



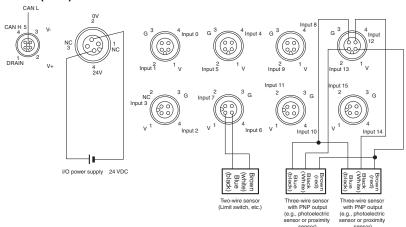
# DRT2-OD08CL-1 (PNP)



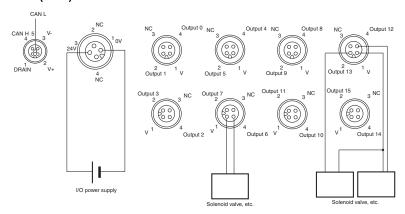
# DRT2-HD16CL (NPN)



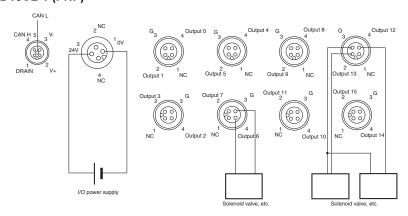
# DRT2-HD16CL-1 (PNP)



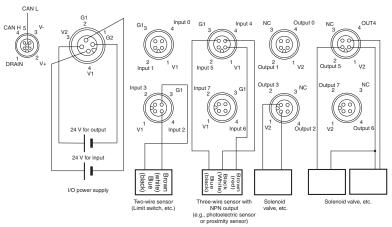
# DRT2-WD16CL (NPN)



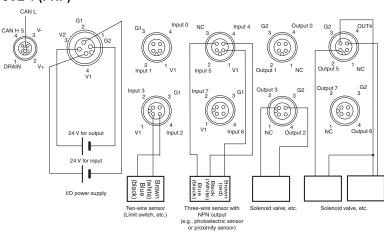
# DRT2-WD16CL-1 (PNP)



# DRT2-MD16CL (NPN)



# DRT2-MD16CL-1 (PNP)



# **Analog I/O Terminals**

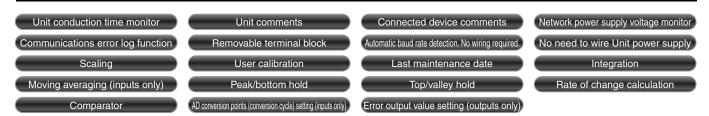
# **DRT2-AD04(H)/DA02**

# Performs Calculations on Analog Values within the Slave Itself. Also Provides High Resolution at 1/30,000 (Full Scale) and Support for a Wide Variety of Data Sampling.

- Equipped with the standard Smart Slave functions that provide powerful preventative maintenance and troubleshooting capabilities.
- Sampling data can be analyzed internally to provide a low-cost scheduler function.
- Equipped with functions such as the scaling function, peak/bottom hold; top/valley hold; comparator function, cumulative counter, and derivative calculation function.
- Two I/O points can be allocated to any two of the following values: analog input, peak/bottom, top, valley, or rate-of-change. Values without an allocated I/O point can be read with message communications.



# Smart Slave Functions



# Ordering Information

Classification	I/O points	Model
Analog input	4 inputs (Resolution: 6, 000)	DRT2-AD04 *1
Analog input	4 inputs (Resolution: 30, 000)	DRT2-AD04H
Analog output	2 outputs	DRT2-DA02 *1

<sup>\*1.</sup> Product no longer available to order.

# **General Specifications**

Item Model	DRT2-AD04 DRT2-AD04H DRT2-DA02		
Communications power supply voltage	11 to 25 VDC (Supplied from the communications connector)		
Current consumption	90 mA max. (24 VDC)		
Noise immunity	Conforms to IEC61000-4-	4, 2 kV (power line)	
Vibration resistance	10 to 150 Hz, 0.7-mm dou	ıble amplitude	
Shock resistance	150 m/s <sup>2</sup>		
Dielectric strength	500 VAC for 1 min between the communications circuit and analog circuit (1 mA sensing current)		
Ambient operating temperature	-10°C to 55°C (with no icing or condensation)		
Ambient operating humidity	25% to 85%		
Ambient operating atmosphere	No corrosive gases		
Ambient storage temperature	-20°C to 65°C		
Mounting method	DIN 35 mm-track mounting		
Mounting strength	50 N 10 N (in the DIN Track direction)		
Screw tightening torque	M3 (power, I/O terminal): 0.5 N m		
Weight	170 g max. 160 g max. 150 g max.		

# **Input Specifications**

	Model	DRT2-AD04		DRT2-AD04H	
Item Specifications		Voltage input	Current input	Voltage input	Current input
Input points		4 points (inputs 0 to 3)			•
Input type		0 to 5 V 1 to 5 V 0 to 10 V -10 to +10 V	0 to 20 mA 4 to 20 mA	0 to 5 V 1 to 5 V 0 to 10 V	0 to 20 mA 4 to 20 mA
Input range se	etting method		red by inputs 0 and 1, shared by inp sible to set inputs 0 to 3 independe		
Maximum sign	nal input	±15 V	±30 mA	±15 V	±30 mA
Input impedar	ice	1 M $\Omega$ min.	Approx. 250 $\Omega$	1 MΩ min.	Approx. 250 Ω
Resolution		1/6,000 (FS)		1/30,000 FS (full scale)	
Overall	25°C	±0.3% FS	±0.4% FS	±0.3% FS	±0.4% FS
accuracy	-10°C to 55°C ±0.6% FS ±		±0.8% FS	±0.6% FS	±0.8% FS
Conversion ti	4 ms max. for 4 inputs  Note: When calculation functions are not used and the DeviceNet communications cycle is 4 ms.  250 ms max. for 4 inputs 250 ms max. for 4 inputs				
Converted data  Input ranges other than -10 to 10 V: Full scale is 0000 to 1770 hexadecimal (0 to 6,000) Full scale is F448 to 0BB8 hexadecimal (-3,000 to 3,000) A/D conversion range: ±5% FS  Full scale is 0000 to 7530 hexadecimal A/D conversion range: ±5% FS		cimal			
Insulation me	thod	Photocoupler isolation between input (There is no isolation between input		Photocoupler isolation (between inputs and communications lines and between temperature input signals)	
I/O connection	ns	Terminal block			
Accessories		Four shorting bars for use with current inputs.			

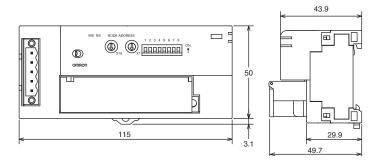
# **Output Specifications**

	Model	DRT2-DA02		
Item	Specifications	Voltage output	Current output	
Output points		2 points (output 0 and1)		
Output type		0 to 5 V 1 to 5 V 0 to 10 V -10 to 10 V	0 to 20 mA 4 to 20 mA	
Input range set	ting method	Set using DIP switches: Indepen     Set using the Configurator: Indepen	dent for outputs 0 and 1 dent for outputs 0 and 1	
Allowable outp	ut load	1 KΩ min. 600 Ω max.		
Resolution		1/6,000 (FS)		
Overall 25°C		±0.4% full scale		
accuracy -10°C to 55°C		±0.8% full scale		
Conversion tim	е	2 ms/2 points		
Converted data		Output ranges other than -10 to 10 V: Full scale is 0000 to 1770 hexadecin (0 to 6,000) -10 to 10 V output range: Full scale is F448 to 0BB8 hexadecin (-3,000 to 3,000) D/A conversion range: ±5% FS		
Insulation meth	od	Photocoupler isolation between outputs and communications lines (There is no isolation between output signals)		
I/O connections	3	Terminal block		
Accessories		None		

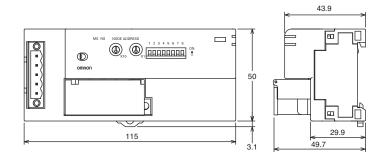


**Dimensions** (Unit: mm)

# DRT2-AD04 DRT2-AD04H

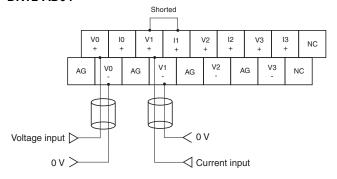


#### DRT2-DA02



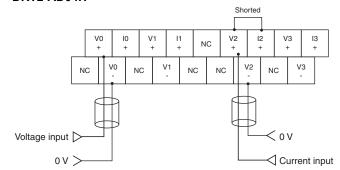
# **Wiring Diagrams**

#### DRT2-AD04



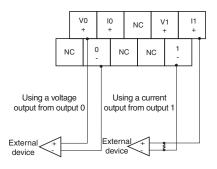
Note: With using a current input, always short the V+ and I+ terminals. (Use the shorting bar provided with the Unit.)

#### DRT2-AD04H



Note: With using a current input, always short the V+ and I+ terminals. (Use the shorting bar provided with the Unit.)

# DRT2-DA02



**Note:** The voltage and current output ranges (signals) are set with either the DIP switch or the Configurator settings.

# **Temperature Input Terminals**

# DRT2-TS04

# **Temperature Input Terminal with Smart Functionality**

- The Temperature Input Terminal can be used with almost the same functionality as a Analog Input Terminal, such as with scaling and comparator functions.
- Enhanced performance is provided with functionality specific to the Temperature Input Terminal, such as the recording the operating time in a preset temperature range and temperature difference detection between input channels.



# **Smart Slave Functions**



# **Ordering Information**

Input type	I/O points	Model
Thermocouple input	A inpute allocated A input words at the Master I Init	DRT2-TS04T
Platinum-resistance thermometer input	4 inputs allocated 4 input words at the Master Unit (8 input words allocated when 1/100 display mode is selected).	DRT2-TS04P

# **General Specifications**

Item	Model	DRT2-TS04T	DRT2-TS04P	
Input type		Thermocouple input	Platinum-resistance thermometer input	
I/O points		4 inputs allocated 4 input words at the Master Unit (8 input words allocated when 1/100 display mode is selected)		
Communications power supply voltage	er	11 to 25 VDC (Supplied from the comm	nunications connector)	
Current consumption		70 mA max. (24 VDC), 110 mA max. (1	1 VDC)	
Noise immunity		Conforms to IEC61000-4-4, 2.0 kV		
Vibration resistance		10 to 150 Hz, 0.7-mm single amplitude		
Shock resistance		150 m/s <sup>2</sup>		
Dielectric strength		500 VAC (between isolated circuits)		
Insulation resistance		20 MΩ min. (initial value) at 100 VDC		
Ambient operating temperature		-10°C to 55°C (with no icing or condensation)		
Ambient operating hun	nidity	25% to 85%		
Ambient operating atmosphere		No corrosive gases		
Ambient storage tempe	erature	-25°C to 65°C		
Mounting method		DIN 35 mm-track mounting		
Mounting strength		50 N 10 N (in the DIN Track direction)		
Screw tightening torqu	ie	M3: 0.5 N · m		
Terminal strength		No damage when 50 N pull load was applied.		
Weight		160 g max.		

# **Performance Specifications**

Item Model	DRT2	2-TS04T	DRT2-TS04P *1		
Input types	When set with Configurator: Input types can be set individually for each input.		Switchable between PT, JPT, PT2, and JPT2 When set with Configurator: Input types can be set individually for each input. When set with DIP switch: The same input type setting applies to all 4 inputs.		
	(±0.3% of indication value or ±1°C,	whichever is larger) ±1 digit max. *2			
	Input type	Input accuracy			
	K1, K2, T, and N below -100°C	±2°C ±1 digit max.			
	U, L1, and L2	±2°C ±1 digit max.	-200 to 850°C input range:		
Indicator accuracy	R and S below 200°C	±3°C ±1 digit max.	(±0.3% of indication value or ±0.8°C, whichever is larger) ±1 digit max.		
,	B below 400°C	Not specified.	-200 to 200°C input range: (±0.3% of indication value or ±0.5°C, whichever is larger) ±1 digit max.		
	w	±0.3% of indication value or ±3°C (whichever is larger) ±1 digit max.	(		
	Di ii	±0.3% of indication value or ±2°C (whichever is larger) ±1 digit max.			
Conversion cycle	250 ms/4 points				
Temperature conversion data	Binary data (4-digit hexadecimal when normal display mode is selected or 8-digit hexadecimal when 1/100 display mode is selected.)				
Insulation method	Between input and communication lines: Photocoupler insulation Between temperature input signals: Photocoupler insulation				

#### ●Indicator accuracy when only the Unit or the Terminal Block is replaced

In the DRT2-TS04T, a cold junction compensator is included in the Terminal Block. The indicator accuracy will be reduced depending on the mounting direction if only the Terminal Unit is replaced and the Lot No. and serial No. of the Terminal Block and Terminal Unit do not match. The Lot No. and serial No. of the Terminal Block and Terminal Unit can be found on the labels affixed to the products as shown

# **Terminal Unit Label**

Remove the terminal block. The label is affixed to the top of the unit.

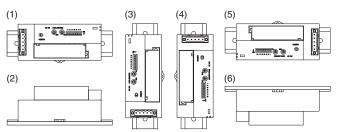


# **Terminal Block Label**

The label is affixed to the left side of the terminal block.

SER No. 0001 LOT No. 11540 If the Lot No. and serial No. of the terminal block and Unit are the same, basic performance specifications apply regardless of the mounting direction. If the numbers are different, the following indication accuracies apply.

Mounting direction	Indication accuracies		
Mounted normally (1)	As specified in the Performance Specifications.		
	(±0.3% of indication value ±1 digit max.	e or ±2°C, whichever is greater)	
	Input type	Indication accuracies	
	K1, K2, T, and N below -100°C	±3°C ±1 digit max.	
Manusta d in ann	U, L1, and L2	±3°C ±1 digit max.	
Mounted in any other direction other	R and S below 200°C	±4°C ±1 digit max.	
than (1)	B below 400°C	Not specified.	
	w	±0.3% of indication value or ±4°C (whichever is larger) ±1 digit max.	
	PLII	±0.3% of indication value or ±3°C (whichever is larger) ±1 digit max.	

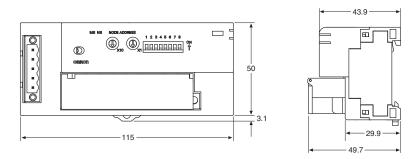


A current of 0.35 mA flows to sensors connected to the DRT2-TS04P. The indicator accuracy specifications differ depending on the mounting direction. Refer to the above table for details.



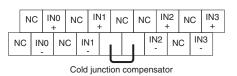
**Dimensions** (Unit: mm)

DRT2-TS04T DRT2-TS04P



# **Terminal Arrangement**

# DRT2-TS04T



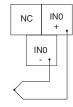
Do not touch or remove the cold junction compensator. Otherwise temperature data will not display properly.

# DRT2-TS04P

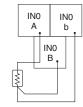


# **Wiring Diagrams**

# **DRT2-TS04T (Thermocouple input)**



# **DRT2-TS04P** (Platinum resistance thermometer input)



# SmartSlice GRT1 Series

SmartSlice GRT1 Series	64
■ What Is the SmartSlice GRT1 Series	
■ System Configuration	
■ Internal Circuit Configuration	
DeviceNet Communications Unit	68
GRT1-DRT	
SmartSlice I/O Units	70

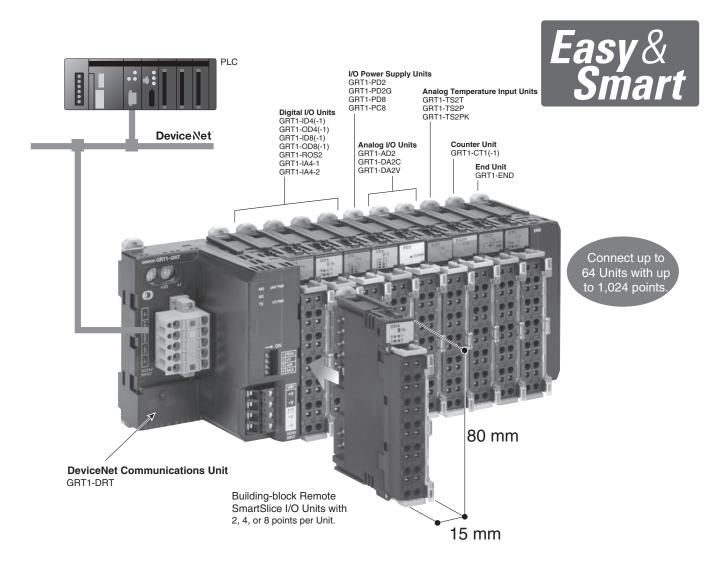
Final order entry date: The end of March, 2024

# **SmartSlice GRT1 Series**

# DeviceNet-compliant Building-block I/O Terminals to Save Space, Cut Costs, and Reduce Work.

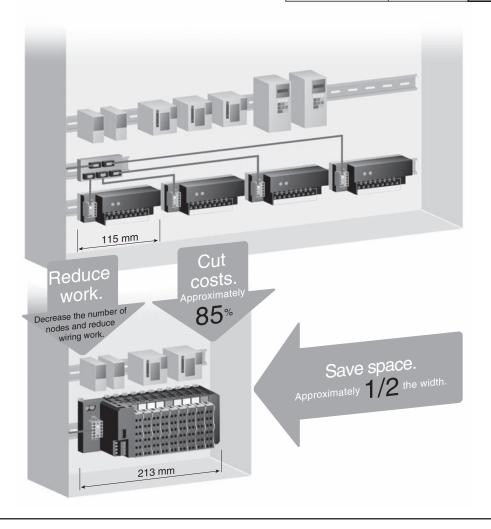
# What Is the SmartSlice GRT1 Series?

This SmartSlice GRT1 Series consists of building-block I/O Terminals that enable building flexible systems to match the customer's applications with features such as I/O expansion using small numbers of points.

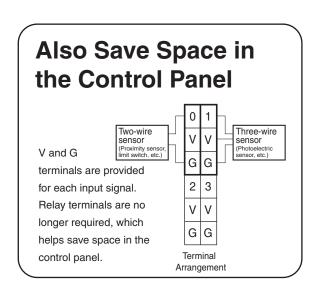


# Easily save space and reduce costs.

Required number of points		Number of redundant points			
		Previous slaves	SmartSlice		
Inputs 20		12	0		
Outputs	10	6	2		
Analog inputs	2	2	0		
Number of nodes		4	1		



# One-touch Wiring The terminal block with screwless clamp terminals greatly reduces work. Also, additional tightening is not required because vibration does not cause loosening. Reduction in Work Time Actual wiring: 1/5 Total: 2/3 Actual wiring Wire stripping Work Time Comparison



# **Set Only the Node Addresses**

Automatic baud rate detection and automatic I/O allocations enable immediate use with no Support Software.

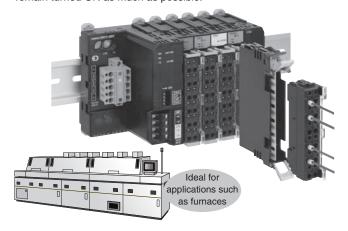


# Online replacement makes maintenance easy

The terminal block, main block, and power supply block of the I/O Unit are detachable.

Replacement can be performed online without changing the I/O wiring and while maintaining communications for the remaining Units.

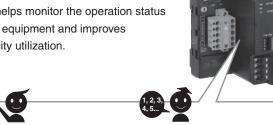
This is ideal for applications such as furnaces, where heaters must be remain turned ON as much as possible.



# **Equipped with Smart Functions**

The highly acclaimed Smart Functions of the DRT2 Series are used.

This helps monitor the operation status of the equipment and improves capacity utilization.



# **Smart Timing**

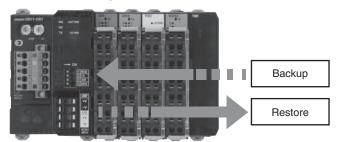
The Slave Unit stores the equipment operating time and amount of change in operation as data to enable monitoring without increasing the load between Controllers

# Smart Counting

The number of ON/OFF operations of the equipment and the total operating time are counted by the Slave Unit to provide notification when maintenance is required.

# **Recover Unit Parameters** without Support Software

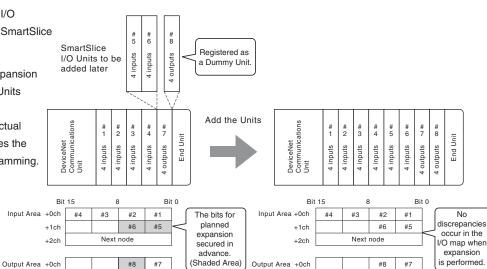
Unit data can be backed up by manipulating a DIP switch. Automatically restoring data after Unit replacement improves maintenance efficiency.



# I/O Allocation Software Settings

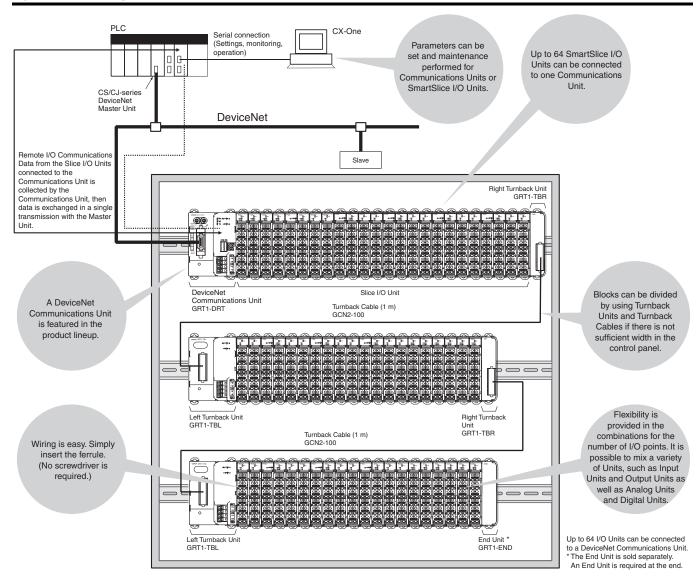


- This function enables registering the I/O configuration data of a non-mounted SmartSlice I/O Unit as a dummy.
- Securing the required capacity for expansion in the I/O map in advance when I/O Units must be added in the future prevents discrepancies in the I/O map when actual expansion is performed and eliminates the need for significant changes in programming.

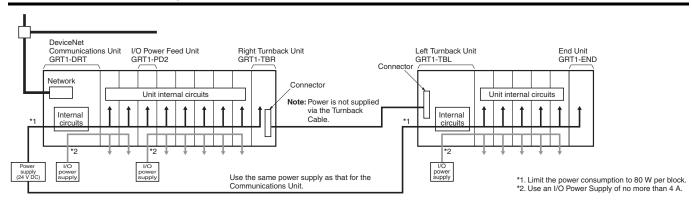


Support for flexible I/O configurations to match the application help downsize the control panel, cut costs, and decrease wiring work.

# **System Configuration**



# **Internal Circuit Configuration**



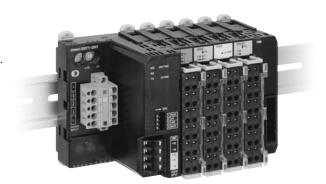
# **DeviceNet Communications Unit**

Final order entry date: The end of March, 2024

# **GRT1-DRT**

# DeviceNet-compliant Interface Unit with up to 1,024 I/O Points at One Node

- Connect up to 64 SmartSlice I/O Units.
- Consolidate a large capacity of I/O points into one Slave (up to 1,024 I/O points).
- Save space by configuring different I/O types using one Slave Unit.
- Easily get the system started simply by setting the node addresses.
- Replace SmartSlice I/O Units online while maintaining communications. This helps minimize equipment downtime.
- Smart functions for monitoring equipment operating status. This helps improve preventive maintenance and the utilization rate.
- Registering SmartSlice I/O for planned future expansion decreases design work when changes are made. (Supported for unit version 2.0 or higher.)



# **Ordering Information**

Name	Specifications	Model
DeviceNet Communications Unit	Up to 64 Slice I/O Units can be connected. (1,024 I/O points max.)	GRT1-DRT

# **General Specifications**

Item Model	GRT1-DRT			
Network power supply voltage	11 to 25 V DC (Supplied from the communications connector)			
Unit power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)			
I/O power supply voltage	20.4 to 26.4 VDC * (24 V +10%/-15%)			
Noise immunity	Conforms to IEC 61000-4-4, 2 kV (power line)			
Vibration resistance	0 to 60 Hz, 0.7-mm double amplitude 60 to 150 Hz: 50 m/s <sup>2</sup>			
Shock resistance	50 m/s <sup>2</sup>			
Dielectric strength	500 V AC between isolated circuits			
Insulation resistance	20 MΩ min. between isolated circuits			
Ambient operating temperature	-10°C to 55°C (with no icing or condensation)			
Ambient operating humidity	25% to 85%			
Ambient operating atmosphere	No corrosive gases			
Ambient storage temperature	-25°C to 65°C (with no icing or condensation)			
Mounting method	DIN 35 mm-track mounting			

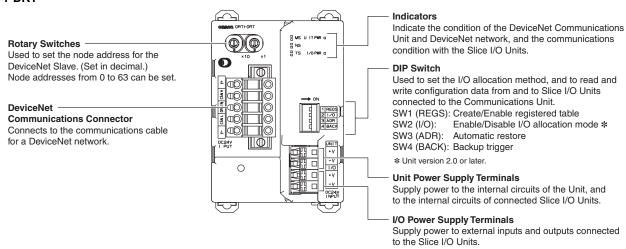
<sup>\*</sup> For power supply input to the Slice I/O Units.

# **DeviceNet Communications Unit Specifications**

Item Model	GRT1-DRT	
I/O points	1,024 max. (128 bytes), including inputs and outputs	
Connectable Slice I/O Units	64 max.	
Communications with Slice I/O Units	64 Units max. in a horizontal connection configuration (for an extension of approx. 2 m max.)  Power consumption is limited to 80 W per block, and the extension must be done using Turnback Cables (two 1-m cables max., for a distance of 2 m max.)	
Slice I/O Unit data capacity	(1) 0, 2, or 4 bits (2) 0 to 16 words (in word increments)	
Status flags	One word is allocated (Communications Unit Status Flags)	
Parameter back-up and restore functions	2 KB of data can be backed up and restored per Unit	
Message communications function Supported		
Automatic baud rate detection	Supported	
Connector	1 DeviceNet open connector with screws Connectable with multi-drop connector	
Terminals	2 terminals for I/O power supply, 2 terminals for Unit power supply	
Power supply per 1 block	80 W max. (Unit power supply)	
I/O power supply consumption current	4 A max.	
Weight	137 g	

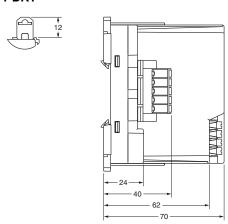
# **Nomenclature and Functions**

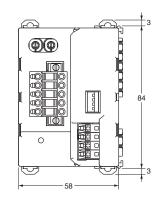
# **GRT1-DRT**

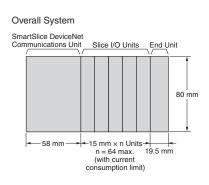


**Dimensions** (Unit: mm)

# **GRT1-DRT**







# **Ordering Information**

	Name	Appearance	Specifications	Model
DeviceNet	Communications Unit		Up to 64 SmartSlice I/O Units can be connected (1,024 I/O points).	GRT1-DRT
		- 44	4 inputs, NPN	GRT1-ID4
			4 inputs, PNP	GRT1-ID4-1
			4 outputs, NPN	GRT1-OD4
			4 outputs, PNP	GRT1-OD4-1
			8 inputs, NPN	GRT1-ID8
	Digital I/O Units	1,16	8 inputs, PNP	GRT1-ID8-1
			8 outputs, NPN	GRT1-OD8
		-	8 outputs, PNP	GRT1-OD8-1
			2 relay outputs	GRT1-ROS2
			4 AC inputs	GRT1-IA4-1
SmartSlice			4 AC IIIputs	GRT1-IA4-2
/O Units		-	2 inputs (current or voltage)	GRT1-AD2
	Analog I/O Units		2 outputs (current)	GRT1-DA2C
			2 outputs (voltage)	GRT1-DA2V
		100	2 temperature inputs (Pt100 resistance thermometer)	GRT1-TS2P
	Temperature Input Unit (resistance thermometer)		2 temperature inputs (Pt1000 resistance thermometer)	GRT1-TS2PK
			2 thermocouple inputs	GRT1-TS2T
Counter Units	Country Units		1 counter input, 1 external output, NPN	GRT1-CT1
		1 counter input, 1 external output, PNP	GRT1-CT1-1	
			For right-side turnback (Used to divide a SmartSlice I/O Terminal into blocks)	GRT1-TBR
	Turnback Units		For left-side turnback (Used to divide a SmartSlice I/O Terminal into blocks)	GRT1-TBL
	Turnback Cable		Length: 1 m	GCN2-100
System Jnits				GRT1-PD2
J.111W			Used if the total current consumption of the I/O Power Supply exceeds	GRT1-PD2G
	I/O Power Feed Unit		4 A or to use a separate I/O power supply.	GRT1-PD8
	I/O Power Feed Unit			GRT1-PD8-1
			Used to add V and G terminals for the I/O power supply.	GRT1-PC8
			ossa to add v and o terminals for the 1/O power suppry.	GRT1-PC8-1
	End Unit *1		Required at the end of SmartSlice I/O Terminals.	GRT1-END
Option	Terminal blocks	-	Terminal blocks (5 blocks)	GRT1-BT1-5

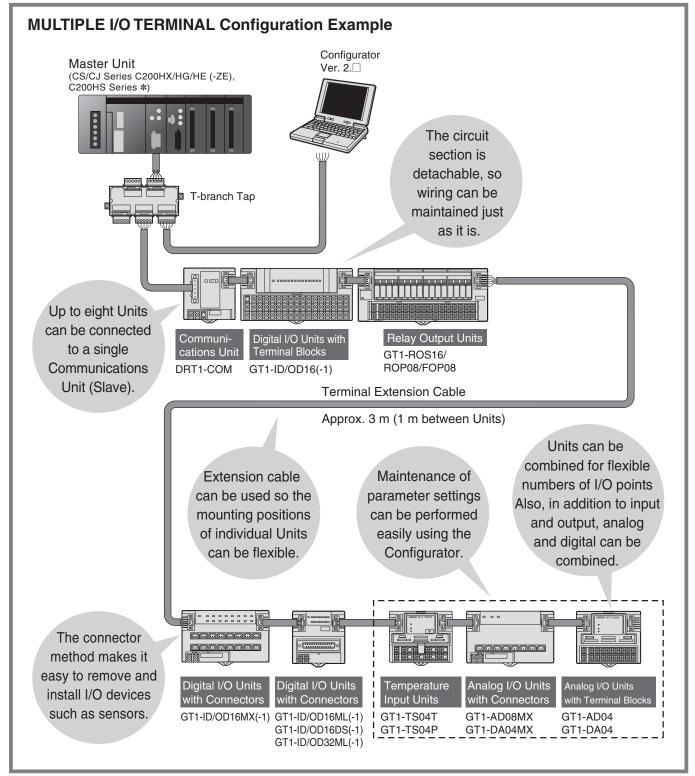
<sup>\*1.</sup> The End Unit is sold separately. (End Units are not included with Communications Units.)
\*2. Use the GCN2-100 as a set with the GRT1-TBR and GRT1-TBL.

# MULTIPLE I/O TERMINAL Series

MULTIPLE I/O TERMINAL Series	72
■ MULTIPLE I/O TERMINAL Configuration Example	
Communications Unit	73
DRT1-COM	
Digital I/O Units	74
GT1-\( D16(-1)/\( D16MX(-1)/\( D16ML(-1)/\( D32ML(-1)/\( D16DS(-1)	
Relay Output Units	81
GT1-ROS16/ROP08/FOP08	
Analog I/O Units	83
GT1-AD/DA	
Temperature Input Units	85
GT1-TS04□	

# **MULTIPLE I/O TERMINAL Series**

A MULTIPLE I/O TERMINAL with a flexible combination of numerous versatile I/O Units handles digital I/O, analog I/O, counter inputs, or relay outputs and boosts on-site productivity higher than ever. Using a MULTIPLE I/O TERMINAL, one Slave (Communications Unit) can connect to a maximum of eight I/O Units to achieve control of a maximum of 1,024 I/O points. (see Note below.)



<sup>\*</sup> By using the DeviceNet Configurator (sold separately), control can be performed for up to 32,000 points for CJ1W-DRM21 and CS1W-DRM21-V1 DeviceNet Units, and 4,800 points for C200HX/HG/HE Master Units.

Note: The number of I/O points under control may be restricted by the application. Refer to the DeviceNet MULTIPLE I/O TERMINAL Operation Manual (W348) for details.

# **Communications Unit**

# DRT1-COM

# Connects to a Total Maximum of Eight Digital I/O, Analog I/O, and Relay Output Units Compatible with MULTIPLE I/O TERMINAL.

- Allows flexible combinations of I/O points.
- Covering a total cable length of 3 m.
- · DIN track mounting.



# **Ordering Information**

Power supply voltage	Model	
24 VDC	DRT1-COM	

# **General Specifications**

Communications power supply voltage	11 to 25 VDC (supplied from the communications connector)		
Internal power supply voltage	20.4 to 26.4 VDC		
I/O power supply voltage	(24 VDC +10%/-15%)		
Current consumption	Communications: 30 mA max. Internal circuit: 0.6 A at 24 VDC (with max. I/O load)		
Dielectric strength	500 VAC		
Noise immunity	Conforms to IEC61000-4-4, 2 kV (Power line)		
Vibration resistance	10 to 150 Hz, 1.0-mm double amplitude or 70 m/s <sup>2</sup>		
Shock resistance	200 m/s <sup>2</sup>		
Mounting strength	No damage when 100 N pull load was applied in all directions (10 N min. in the DIN track direction)		
Terminal strength	No damage when 100 N pull load was applied		
Screw tightening torque	0.3 to 0.5 N m Phoenix connector: 0.25 to 0.3 N m		
Ambient operating temperature	-10°C to 55°C (with no icing or condensation)		
Ambient operating humidity	25% to 85%		
Ambient storage temperature	-25°C to 65°C (with no icing or condensation)		
Accessories	End connector (one)		

# **Specifications**

Connectable Units		8
Unit I/O points		1,024 max. (including inputs and outputs)
Communications Total extension		3 m max.
distance	Between Units	1 m max. (40 mm max. with the standard cable provided with the Unit) *
Dielectric strength		500 VAC for 1 min.
Mounting method		DIN 35 mm-track mounting
Unit output power supply		0.4 A max. (see Note.)

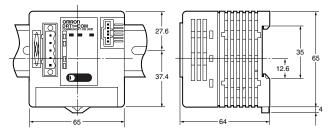
\* One cable is provided with each I/O Unit.

Note: The total current consumption for I/O Unit interfaces must not exceed 0.4 A.

# **Dimensions**

(Unit: mm)

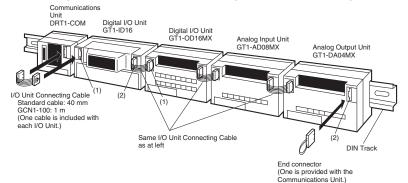
# DRT1-COM



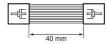
Note: The Unit is shown with the end connector mounted in the above diagram.

# **Mounting and Connecting Units**

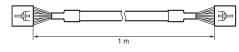
# ● Mounting to DIN Track and Connecting I/O Unit Connecting Cable



**Note:** The connecting cable for the I/O Unit is shown below. Accessory Cable



GCN1-100 (Sold Separately)



# Digital I/O Units

# $\overline{GT1}-\overline{\Box}D16(-1)/\overline{\Box}D16MX(-1)/\overline{\Box}D16ML(-1)/\overline{\Box}D32ML(-1)/\overline{\Box}D16DS(-1)$

# Digital I/O Units Compatible with MULTIPLE I/O TERMINAL

- Terminal block, connector, and high-density connector models are available.
- The circuit block of the terminal block model can be mounted or dismounted for ease of maintenance without disconnecting the wires.
- DIN track mounting.



# **Ordering Information**

Unit	I/O classification	Internal I/O common	I/O points	I/O connections	Power supply voltage	I/O specification	Model
	Digital input	NPN (+ common)		M3 terminal board		DC/transistor	GT1-ID16
Terminal block model	Digital Input	PNP (- common)					GT1-ID16-1
reminal block model	Digital autout	NPN (- common)				0.5.4. DO//	GT1-OD16
	Digital output	PNP (+ common)				0.5 A, DC/transistor	GT1-OD16-1
	Digital input	NPN (+ common)				DC/transistor	GT1-ID16MX
	Digital input	PNP (- common)		Molex connector		DC/transistor -	GT1-ID16MX-1
	District autout	NPN (- common)		Molex connector	24 VDC	0.5 A, DC/transistor –	GT1-OD16MX
	Digital output	PNP (+ common)	1				GT1-OD16MX-1
	Digital input	NPN (+ common)	16	Fujitsu/OTAX connector		DC/transistor	GT1-ID16ML
Connector model		PNP (- common)					GT1-ID16ML-1
Connector model	Digital autout	NPN (- common)				0.5 A, DC/transistor	GT1-OD16ML
	Digital output	PNP (+ common)					GT1-OD16ML-1
	Dinital innut	NPN (+ common)		D-sub 25-pin connector		DC/transistor	GT1-ID16DS
	Digital input	PNP (- common)					GT1-ID16DS-1
	District suctour	NPN (- common)				0.5 A, DC/transistor -	GT1-OD16DS
	Digital output	PNP (+ common)					GT1-OD16DS-1
	Dinital innut	NPN (+ common)				DC/transistor	GT1-ID32ML
High-density connector	Digital input	PNP (- common)	32	Fujitsu connector			GT1-ID32ML-1
model	Digital output	NPN (- common)				0.5 A, DC/transistor	GT1-OD32ML
		PNP (+ common)					GT1-OD32ML-1

# **General Specifications**

I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)				
	Model	I/O Interface	Internal circuit		
	GT1-ID16(-1) 35 mA max.				
	GT1-OD16(-1) 35 mA max.		9 mA max.		
	GT1-ID16MX(-1) 35 mA max.				
	GT1-OD16MX(-1) 35 mA max.		9 mA max.		
Current consumption *	GT1-ID16ML(-1)	35 mA max.			
	GT1-OD16ML(-1)	35 mA max.	9 mA max.		
	GT1-ID16DS(-1)	35 mA max.			
	GT1-OD16DS(-1)	35 mA max.	9 mA max.		
	GT1-ID32ML(-1)	55 mA max.			
	GT1-OD32ML(-1)	65 mA max.	11 mA max.		
Dielectric strength	500 VAC				
Noise immunity	Conforms to IEC61000-4-4 2	2 kV (power line)			
Vibration resistance	10 to 150 Hz, 1.0-mm double	e amplitude or 70 m/s²			
Shock resistance	200 m/s <sup>2</sup>				
Mounting method	DIN 35 mm-track mounting				
Mounting strength	No damage when 100 N pull load was applied in all directions (10 N min. in the DIN track direction)				
Terminal strength	No damage when 100 N pull load was applied				
Screw tightening torque	0.3 to 0.5 N m				
Ambient operating temperature	-10°C to 55°C (with no icing or condensation)				
Ambient operating humidity	25% to 85% (with no icing or condensation)				
Ambient storage temperature	-25°C to 65°C				
Accessories	I/O Unit Connecting Cable (40 mm)				

<sup>\*</sup> The above current consumption is a value with all 16 and 32 points turned ON excluding the current consumption of the external sensor connected to the Input Unit and the current consumption of the load connected to the Output Unit.

# **Applicable Connectors**

Note: Refer to page 144 for Peripheral Devices.

# **Input Specifications**

Item Model	GT1-ID□□
ON delay	1.5 ms max.
OFF delay	1.5 ms max.
ON voltage	15 V min. (between each input terminal and V or G)
OFF voltage	5 V max. (between each input terminal and V or G)
OFF current	1 mA max.
Insulation method	Photocoupler
Input indicators	LED (yellow)

# **Output Specifications**

Item Model	GT1-OD□□	
Rated output current	0.5 A/point *	
ON delay	0.5 ms max.	
OFF delay	1.0 ms max.	
Residual voltage	1.2 V max.	
Leakage current	0.1 mA max.	
Insulation method	Photocoupler	
Output indicators	LED (yellow)	

Ensure that the total external load current does not exceed the values given in the following table.

Model	Total external load current
GT1-OD16/16MX/32ML(-1)	4 A
GT1-OD16ML/16DS(-1)	2.5 A

# Cables for I/O Connector

# **Cables for Connector Terminal Conversion Units (16 Points)**

I/O classification	Model	Applicable cable	Connectable model	Connector Products (Connector-Terminal Block Conversion Units) Connecting method
			XW2K-20G-T	Push-In Plus
Digital input (16 points)	GT1-ID16ML(-1)	. XW2Z-□□□A	XW2D-20G6	Phillips screw M3
			XW2R-E20GD-T	Slotted screw M3
			XW2K-20G-T	Push-In Plus
Digital output (16 points)	GT1-OD16ML(-1)		XW2D-20G6	Phillips screw M3
			XW2R-E20GD-T	Slotted screw M3

# **Cables for Connector Terminal Conversion Units (32 Points)**

I/O classification	Model	Applicable cable	Connectable model	Connector Products (Connector-Terminal Block Conversion Units) Connecting method
			XW2K-40G-T	Push-In Plus
Digital input (32 points)		XW2Z-□□□B	XW2D-40G6	Phillips screw M3
			XW2R-E40GD-T	Slotted screw M3
			XW2K-40G-T	Push-In Plus
Digital output (32 points)			XW2D-40G6	Phillips screw M3
			XW2R-E40GD-T	Slotted screw M3

# Cables for I/O Blocks (16 Points)

I/O classification	Model	Applicable cable	Connectable model	Remarks
Digital input (16 points) NPN	GT1-ID16ML		G7TC-ID16 G7TC-IA16	For I/O Block input
Digital input (16 points) PNP	GT1-ID16ML-1		G7TC-ID16-1 G7TC-IA16-1	For I/O Block output
Digital output (16 points) NPN	GT1-OD16ML	XW2Z-R⊟C	G7TC-OC16 G7TC-OC08 G70D-SOC16 G70D-FOM16 G70D-VSOC16 G70D-VFOM16 G70A-ZOC16-3	For I/O Block output
			M7E Series *1	Digital Display Unit
Digital output (16 points) PNP	GT1-OD16ML-1		G7TC-OC16-1 G70D-SOC16-1 G70A-ZOC16-4	For I/O Block output
			M7E-01MB□-□□ *1	Digital Display Unit

# Cables for I/O Blocks (32 Points)

I/O classification	Model	Applicable cable	Connectable model	Remarks
Digital input (32 points) NPN	GT1-ID32ML	XW2Z-RI□C-□	G7TC-ID16 G7TC-IA16	For I/O Block input
Digital input (32 points) PNP	GT1-ID32ML-1	AWZZ-RILIC-LI	G7TC-ID16-1 G7TC-IA16-1	For I/O Block input
Digital output (32 points) NPN	GT1-OD32ML	XW2Z-RO□C-□	G7TC-OC16 G7TC-OC08 G70D-SOC16 G70D-FOM16 G70D-VSOC16 G70D-VFOM16 G70A-ZOC16-3	For I/O Block output
Digital output (32 points) PNP	GT1-OD32ML-1		G7TC-OC16-1 G70D-SOC16-1 G70D-FOM16-1 *1 G70A-ZOC16-4	For I/O Block output

Note 1: For details of applicable cables and connectors, refer to Peripheral Devices. \*1. Product no longer available to order.

**Dimensions** (Unit: mm)

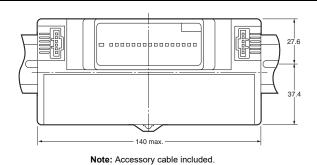
# ●Terminal Block Model

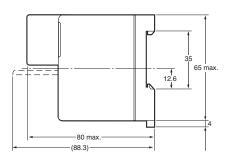
GT1-ID16

GT1-ID16-1

GT1-OD16

GT1-OD16-1





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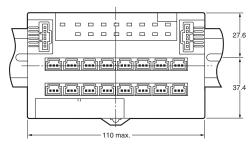
# **●**Connector Model

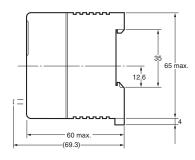
GT1-ID16MX

GT1-ID16MX-1

GT1-OD16MX

GT1-OD16MX-1





Note: Accessory cable included.

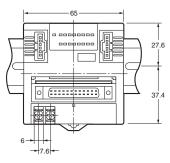
# **●**Connector Model

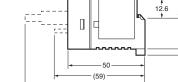
GT1-ID16ML

GT1-ID16ML-1

GT1-OD16ML

GT1-OD16ML-1





Note: Accessory cable included.

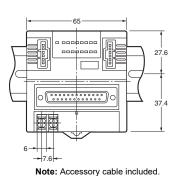
# **●**Connector Model

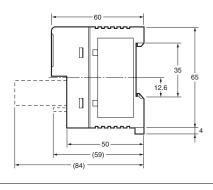
GT1-ID16DS

GT1-ID16DS-1

GT1-OD16DS

GT1-OD16DS-1





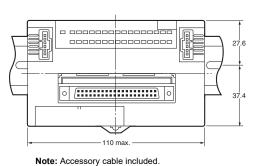
# High-density Connector Model

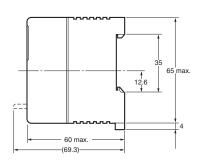
GT1-ID32ML

GT1-ID32ML-1

GT1-OD32ML

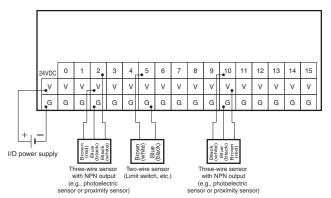
GT1-OD32ML-1



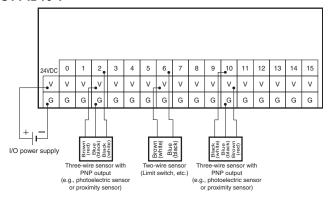


# **Wiring Diagrams**

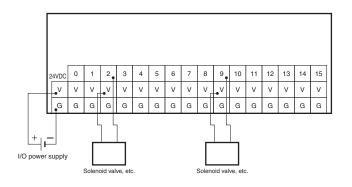
#### **GT1-ID16**



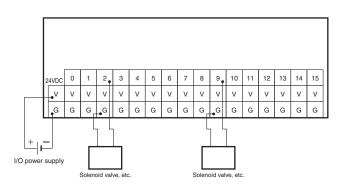
#### GT1-ID16-1



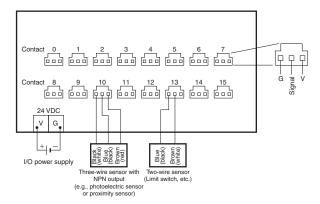
# GT1-OD16



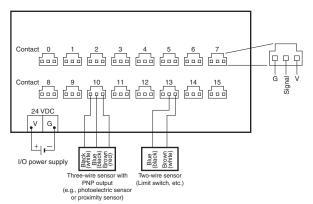
#### GT1-OD16-1



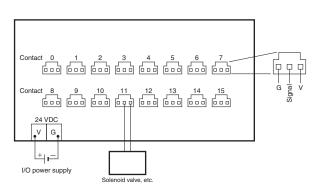
#### GT1-ID16MX



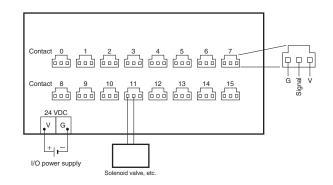
#### GT1-ID16MX-1



# GT1-OD16MX



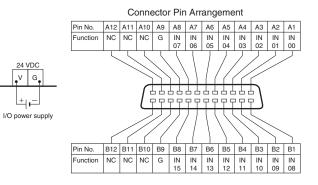
# GT1-OD16MX-1



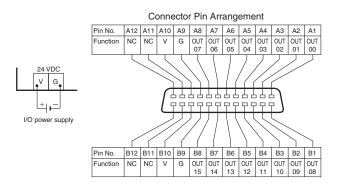
#### GT1-ID16ML

# | Pin No. | A12 | A11 | A10 | A9 | A8 | A7 | A6 | A5 | A4 | A3 | A2 | A1 | A10 | A9 | A8 | A7 | A6 | A5 | A4 | A3 | A2 | A1 | A10 | A9 | A8 | A7 | A6 | A5 | A4 | A3 | A2 | A1 | A10 | A9 | A8 | A7 | A6 | A5 | A4 | A3 | A2 | A1 | A10 | A9 | A8 | A7 | A6 | A5 | A4 | A3 | A2 | A1 | A10 | A10

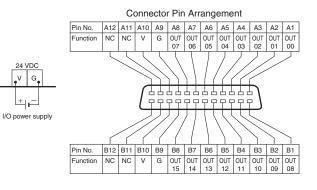
# GT1-ID16ML-1



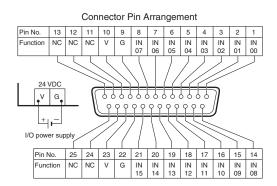
#### GT1-OD16ML



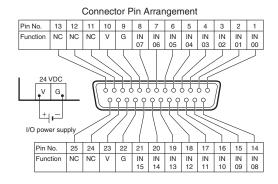
#### GT1-OD16ML-1



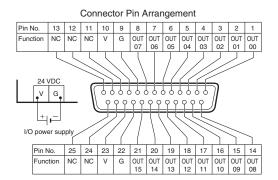
#### GT1-ID16DS



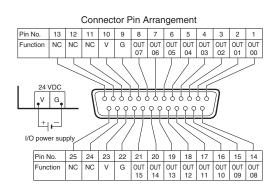
# GT1-ID16DS-1



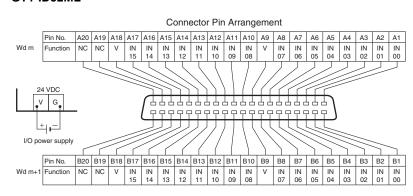
#### GT1-OD16DS



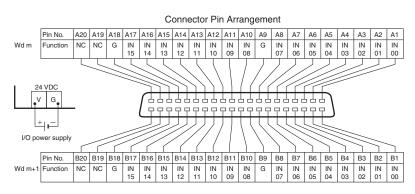
# GT1-OD16DS-1



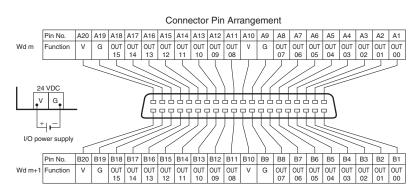
#### GT1-ID32ML



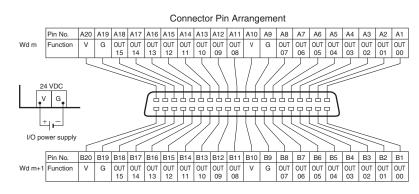
#### GT1-ID32ML-1



#### GT1-OD32ML



#### GT1-OD32ML-1



# **Relay Output Units**

# GT1-ROS16/ROP08/FOP08

# Relay Output Unit Compatible with MULTIPLE I/O TERMINAL

- 8- and 16-point relay output models are available.
- Equipped with 8-point SSRs.
- · DIN track mounting.





# **Ordering Information**

I/O classification	I/O points	I/O connections	Power supply voltage	I/O specification	Model
Dolov output	16			2 A, SPST-NO	GT1-ROS16
Relay output	8	M3 terminal block	M3 terminal block 24 VDC	5 A, SPST-NO	GT1-ROP08
SSR	8				GT1-FOP08

# **General Specifications**

I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)				
	I/O Unit	interface	I/O power supply		
	GT1-ROP08	40 mA max.	GT1-ROP08	250 4	
Current consumption *	GT1-FOP08	40 mA max.	GT1-FOP08	350 mA max.	
	GT1-ROS16	50 mA max.	GT1-ROS16	250 mA max.	
Connectable Units	8				
Dielectric strength	500 VAC (between	isolated circuits)			
Noise immunity	Conforms to IEC 6	1000-4-4, 2 kV (pov	ver line)		
Vibration resistance	10 to 55 Hz, 1.0-mm double amplitude or 70 m/s <sup>2</sup>				
Shock resistance	200 m/s <sup>2</sup>				
Mounting method	DIN 35 mm-track mounting				
Mounting strength	No damage when 100 N pull load was applied in all directions				
Terminal strength	No damage when 100 N pull load was applied				
Screw tightening torque	0.3 to 0.5 N m				
Ambient operating temperature	-10°C to 55°C				
Ambient operating humidity	25% to 85% (with no icing or condensation)				
Ambient storage temperature	-25°C to 65°C				
Accessories	I/O Unit Connecting Cable (40 mm)				

<sup>\*</sup> The above current consumption is a value with all the points turned ON including the current consumption of the relay coils.

# **Relay Output Specifications**

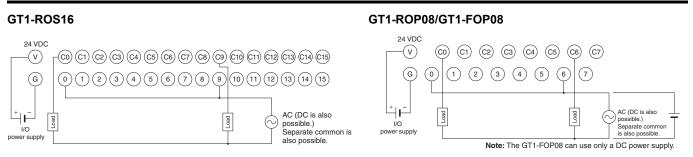
Item Mode	GT1-ROS16	GT1-ROP08	GT1-FOP08	
Relay model	G6D-1A-ASI (24 VDC)	G2R-1-SN (24 VDC)	G3R-ODX02SH-UTU (5 to 24 VDC)	
Maximum contact current	2 A	5 A	0.01 to 1.5 A	
Minimum applicable load (reference values)	5 VDC, 10 mA	5 VDC, 100 mA	4 to 48 VDC	
Electrical life expectancy	100,000 operations min. with switching freque (at ambient temperature of 23°C with rated load			
Mechanical life expectancy		0,000,000 operations min. with switching frequency of 18,000 operations per hour at ambient temperature of 23°C with rated load)		

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# **Internal Circuit Configuration**

# GT1-ROS16 GT1-ROP08 O V 24 VDC **⊚** G 0, 1, etc. G6D-1A-ASI **O** 0 ⑻ \* Internal $\otimes$ : Photocoupler O C0, C1, etc. circuit © C0 - ♥ V 24 VDC **-**⊚ G Internal GT1-FOP08 circuit G6D-1A-ASI Photocoupler (X)0, 1, etc. - © C1 SSR Internal Photocoupler © C0, C1, etc. circuit ∇ 24 VDC -@ G **Dimensions** (Unit: mm) GT1-ROS16 60 Note: Accessory cable included. GT1-ROP08 GT1-FOP08 12.6

# **Wiring Diagrams**



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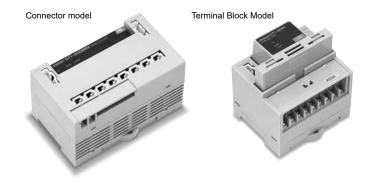
Note: Accessory cable included.

# **Analog I/O Units**

# GT1-AD/DA

# Analog Input/Output Units Compatible with MULTIPLE I/O TERMINAL

- Input block incorporates connectors that can be easily mounted or dismounted. (GT1-AD08MX, GT1-DA04MX)
- 8 or 4 inputs.
- 4 outputs.
- High resolution of 1/6,000.
- High conversion speed of 8 ms/8 points or 4 ms/4 points.
- · DIN track mounting.



# **Ordering Information**

I/O classification	I/O points	I/O connections	Power supply voltage	I/O specification	Model
Analog input	8	Molex connector	24 VDC	4 to 20 mA, 0 to 20 mA, 0 to 5 V, 1 to 5 V,	GT1-AD08MX
Analog input	4	Terminal block	24 VDC	0 to 10 V, -10 to 10 V	GT1-AD04
Analog output	4	Molex connector	24.VDC	0 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V	GT1-DA04MX
Analog output 4	Terminal block	24 VDC	0 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V, 4 to 20 mA	GT1-DA04	

# **General Specifications**

I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%) *			
	I/O Unit interface	Internal circuitry power supply		
Current consumption	50 mA max.	GT1-AD08MX: 100 mA max. GT1-AD04: 100 mA max. GT1-DA04MX: 100 mA max. GT1-DA04: 150 mA max.		
Noise immunity	Conforms to IEC 61	000-4-4, 2 kV (power line)		
Vibration resistance	10 to 150 Hz, 1.0-m	m double amplitude or 70 m/s <sup>2</sup>		
Shock resistance	200 m/s <sup>2</sup>			
Dielectric strength	500 VAC			
Mounting method	DIN 35 mm-track mounting			
Mounting strength		00 N pull load was applied in all . in the DIN track direction)		
Terminal strength	No damage when 100 N pull load was applied			
Ambient operating temperature	-10°C to 55°C			
Ambient operating humidity	25% to 85% (with no condensation)			
Ambient storage temperature	-25°C to 65°C			
Accessories	I/O Unit Connecting	Cable (40 mm)		

<sup>\*</sup> Power for analog I/O is provided from the internal power supply.

# **Applicable Connector**

Note: Refer to page 144 for Peripheral Devices.

# **Input Specifications**

Item Specifications		Voltage input	Current input	
Input type		0 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V	0 to 20 mA, 4 to 20 mA	
Maximum signal input		± 15V	± 30 mA	
Input impedance		1MΩ min.	Approx. 250 Ω	
Resolution		1/6,000 (FS)		
Overall accuracy	25°C	±0.3% FS	±0.4% FS	
	-10°C to 55°C	±0.6% FS	±0.8% FS	
Conversion speed		8 ms/8 points, 4 ms/4 points		
Conversion output data		Binary data -10 to 10-V range: F448 to 0BB8 full scale Other signal ranges: 0000 to 1770 full scale		
Insulation method		Transistor or photocoupler insulation between inputs and power lines.		

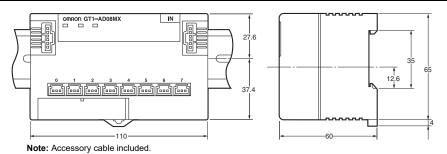
# **Output Specifications**

Item	Specifications	Voltage output	Current output	
Output type		0 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V	4 to 20 mA	
Output permissible load resistance		5kΩ min.	600 Ω max.	
Output impedance		0.5Ω max.		
Resolution		1/6,000 (FS)		
Overall	25°C	±0.4% FS		
accuracy	-10°C to 55°C	±0.8% FS		
Conversion speed		4 ms/4 points		
DA output data		Binary data -10 to 10 V range: F448 to 0BB8 full scale Other signal ranges: 0000 to 1770 full scale		
Insulation method		Transistor or photocoupler insulation between outputs and power lines.		

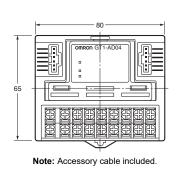


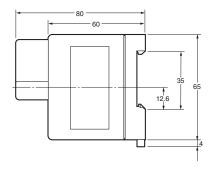
**Dimensions** (Unit: mm)





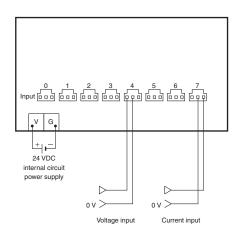
GT1-AD04 GT1-DA04 (Terminal Block Models)



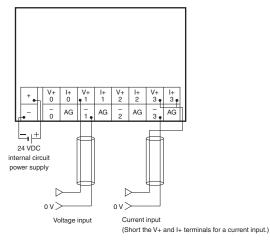


# **Wiring Diagrams**

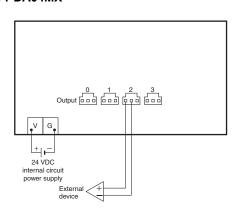
# GT1-AD08MX



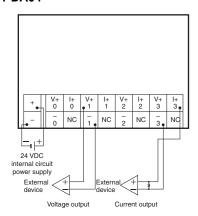
#### GT1-AD04



# GT1-DA04MX



GT1-DA04



# **Temperature Input Units**

# **1-TS04**□

# Temperature Input Units for use with MULTIPLE I/O TERMINAL

- · Four inputs.
- Thermocouples and platinum resistance thermometer models
- Conversion time is only 250 ms for 4 inputs.
- The Configurator can be used to calibrate temperatures.
- · The circuit section can be removed, so rewiring isn't required during maintenance.
- · DIN track mounting.



# **Ordering Information**

I/O classification	I/O points	I/O connections	Power supply voltage	Input specification	Model
Temperature inputs 4 inputs Ter				Thermocouple	GT1-TS04T
	Terminal Block 24 VDC	Platinum resistance thermometer	GT1-TS04P		

# **General Specifications**

	T		
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)		
Current consumption	I/O Unit interface	Internal power supply	
Current consumption	50 mA max.	80 mA max.	
Vibration resistance	10 to 150 Hz, 0.7-mm amplitude or 50 m/s <sup>2</sup>		
Shock resistance	150 m/s <sup>2</sup>		
Dielectric strength	500 VAC		
Mounting method	DIN 35 mm-track mounting		
Ambient operating temperature	e -10°C to 55°C		
Ambient operating humidity	25% to 85% (with no condensation)		
Ambient storage temperature	-25°C to 65°C		
Accessories	I/O Unit Connecting Cable (40 mm)		

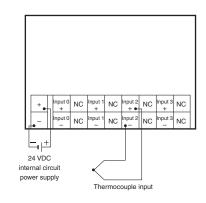
# **Input Specifications**

Item Model	GT1-TS04T	GT1-TS04P		
Input type	R, S, K, J, T, L, or B selectable	Pt100 or Jpt100 selectable		
Indicator accuracy	(±0.3% of indication value or ±1°C, whichever is larger) ±1 digit max. *	-200.0 to 650.0°C input range: (±0.3% of indication value or ±0.8°C, whichever is larger) ±1 digit max. -200 to 200°C input range: (±0.3% of indication value or ±0.5°C, whichever is larger) ±1 digit max.		
Conversion cycle	ersion cycle 250 ms/4 points			
Temperature conversion data	Binary data			
Insulation method	Between input and communication lines: Photocoupler insulation Between temperature input signals: Photocoupler insulation			

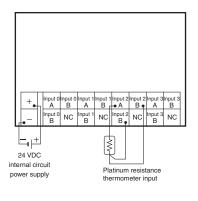
K or T below -100°C: +2°C ±1 digit max. L: ±2°C ±1 digit max. R or S below 200°C: ±3°C ±1 digit max. B below 400°C: No standard set

# **Wiring Diagrams**

# GT1-TS04T



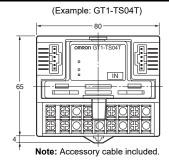
# GT1-TS04P

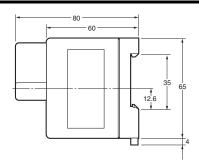


#### **Dimensions**

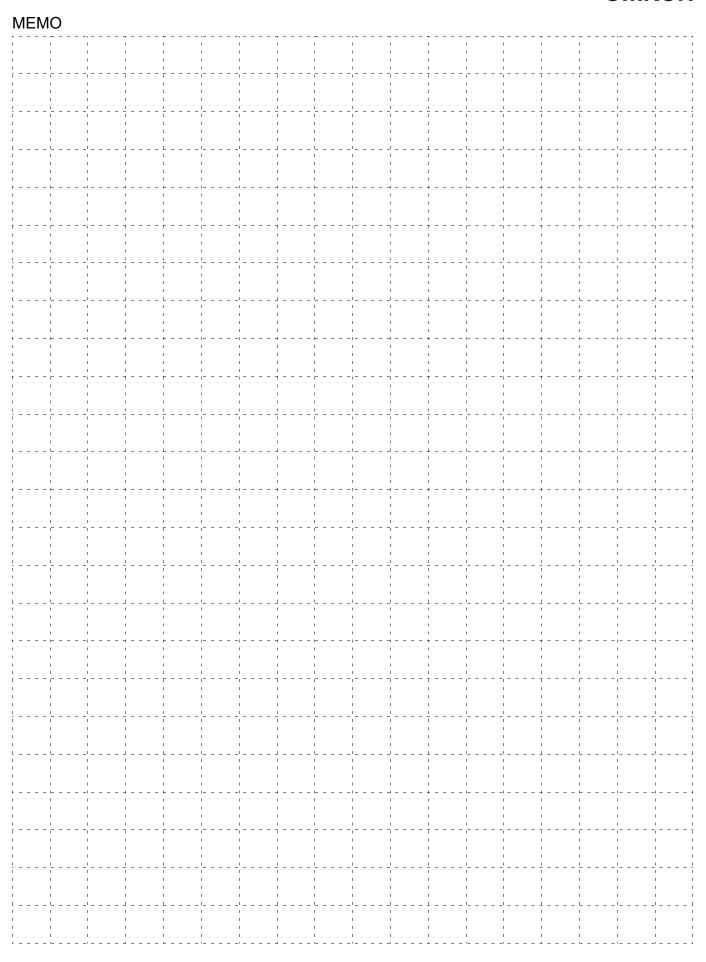
(Unit: mm)

GT1-TS04T GT1-TS04P





# OMRON



# Intelligent Slaves (PLC Units)

Programmable Slaves	88
CPM2C-S1□0C-DRT	

**Programmable Slaves** 

Final order entry date: The end of August, 2022

# PM2C-S10C-DR

# Slaves with the Complex Functionality Needed for Distributed Blocks

Programmable Slaves combine devices, such as sensors and actuators, into one functional unit that is treated as a DeviceNet slave.

Programmable Slaves greatly facilitate device distribution and functional organization.

They help standardize programming between units and reduce the amount of programming required at the master.

I/O and operational checks can be performed for each functional unit, rather than waiting for final system assembly, as with conventional distributed I/O systems.

- A Programmable Slave can be programmed from a CX-Programmer up to 3 network levels away. (Includes the DeviceNet network itself. Possible only with CX-Programmer Ver. 2.1 or later and a Programmable Slave Ver. 1.04 or later.)
- DeviceNet Slave Functions
- Multiword I/O links and explicit messages are used to control slaves from the master. Log data for communications can be sent in one operation whenever necessary using explicit messages.
- CompoBus/S Master Functions
  - Less wiring is required for terminal block expansions, connections to remote devices (such as signal lights or pushbutton switches), and connections to pneumatic valves and other non-OMRON products. Connect using VCTF cable or Special Flat Cable, which allows easy branching.
- RS-232C Communications
- Connected to bar code readers, Programmable Terminals, and other devices, the Programmable Slave processes data locally to reduce the load on the master.
- Expansion Units (3 max.)
- Just one Unit is required for each distributed block, reducing the number of interfaces for multipoint communications to, in turn, reduce

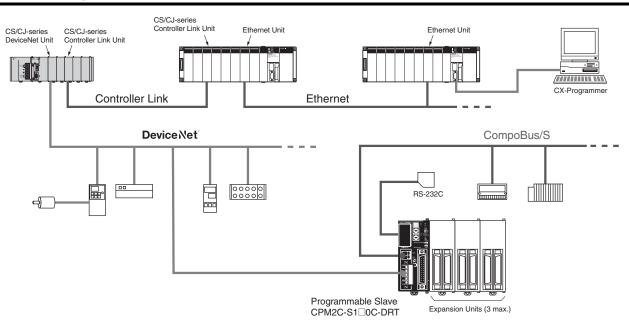
# Ordering Information

Unit type		Input	Output	Clock	Model
10 I/O points 6 inputs; 4 outputs Connector	Connector	6 points: 24 VDC	4 points: transistor (sinking)	Yes	CPM2C-S100C-DRT
	Connector 6 points, 24 VDC	o points. 24 VDC	4 points: transistor (sourcing)	Yes	CPM2C-S110C-DRT

Note 1: For details on CPM2C PLCs, refer to the CPM2A/CPM2C Catalog (P049).

Note 2: For details on Programmable Slave specifications, refer to the Programmable Slave Catalog (R071).

# System Configuration





## **General Specifications and Performance Specifications**

	Item	Specifications
Control method		Stored program method
I/O control method		Cyclic scan method (Immediate refreshing can be performed with IORF instruction.)
Programming language		Ladder diagram
Instruction length		1 step per instruction, 1 to 5 words per instruction
Basic instructions		14 instructions
Instructions	Special instructions	105 instructions, 185 variations
Execution	Basic instructions	0.64 µs (LD instruction)
time	Special instructions	7.8 μs (MOV instruction)
Program capaci	'	4.096 words
Maximum I/O po	•	CPU Unit only: 10 points Expansion I/O: 96 points (32-point Expansion I/O Unit × 3) CompoBus/S: 256 points (362 in total)
Input bits		IR 00000 to IR 00915 (Bits not used for input bits can be used for work bits.)
Output bits		IR 01000 to IR 01915 (Bits not used for output bits can be used for work bits.)
CompoBus/S in	put bits	128 bits: IR 02000 to IR 02715 (Words IR 020 to IR 027)
CompoBus/S or	utput bits	128 bits: IR 03000 to IR 03715 (Words IR 030 to IR 037)
Work bits		672 bits: IR 02800 to IR 02915 (Words IR 028 to IR 029) IR 03800 to IR 03915 (Words IR 038 to IR 039) IR 04000 to IR 04915 (Words IR 040 to IR 049) IR 20000 to IR 22715 (Words IR 200 to IR 227)
Special bits (SR	R area)	440 bits: SR 22800 to SR 25507 (Words IR 228 to IR 225)
Temporary bits	(TR area)	8 bits (TR0 to TR7)
Holding bits (HI	R area)	320 bits: HR 0000 to HR 1915 (Words HR 00 to HR19)
Auxiliary bits (A	AR area)	384 bits: AR 0000 to AR 2315 (Words AR 00 to AR23) These include the CompoBus/S slave status flags (AR 04 to 07).
Link bits (LR ar	ea)	256 points: LR 0000 to LR 1515 (Words LR 00 to LR 15)
Timers/Counters		256 timers/counters: TIM/CNT 000 to TIM/CNT 255 1-ms timers: TIMH 10-ms timers: TIMH 100-ms timers: TIM 100-s timers: TIML Decrementing counters: CNT Reversible counters: CNTR
Data mamani	Read/Write	2,048 words (DM 0000 to DM 2047) The Error Log is contained in DM 2000 to DM 2021.
Data memory	Read-only	456 words (DM 6144 to DM 6599)
	PC Setup	56 words (DM 6600 to DM 6655)
DeviceNet slave	e functions	DeviceNet Remote I/O Link  • Use up to 1,024 I/O points in the I/O Link.  Explicit Message Communications  • Any PC data area can be accessed from the master.
Basic	Interrupt inputs	2 interrupts (Used for both counter mode interrupt inputs and quick-response inputs.)
interrupt functions	Scheduled interrupts	1 interrupt
	High-speed counters	1 counter (20 kHz single-phase or 5 kHz 2-phase)
High-speed	Counter interrupts	1 interrupt (set value comparison or set-value range comparison)
counter functions	Interrupt inputs (counter mode)	2 interrupts (Used for both external interrupt inputs and quick-response inputs.)
	Count-up interrupts	2 interrupts (Used for both external interrupt inputs and quick-response inputs.)
Quick-response inputs		2 inputs (Used for both external interrupt inputs and counter mode interrupt inputs.) Min. input pulse width: 50 s max.
Pulse output		2 points without acceleration/deceleration, 10 Hz to 10 kHz each, and no direction control; 1 point with trapezoid acceleration/deceleration, 10 Hz to 10 kHz, and direction control; 2 points with variable duty-ratio outputs
Synchronized pulse control		1 point
Input time constant (ON response time = OFF response time)		Can be set for CPU inputs and Expansion Unit inputs only. (1 ms, 2 ms, 3 ms, 5 ms, 10 ms, 20 ms, 40 ms, or 80 ms)
Clock		Equipped with clock (built-in RTC)
Communications functions		Peripheral port: Supports Host Link, peripheral bus, no-protocol, or Programming Console connections. RS-232C port: Supports Host Link, no-protocol, 1:1 Link, or 1:1 NT Link connections.
Memory protection		HR area, AR area, program contents, DM area contents, and counter values maintained during power interruptions.
Memory backup		Non-volatile (flash) memory: Program, read-only DM area, and PC Setup  Memory backup (lithium battery; 2-year lifetime): DM area, HR area, AR area, and counter values
Self-diagnostic	functions	CPU errors (watchdog timer), memory errors, communications errors, setting errors, battery errors, and expansion I/O bus errors
Program checks		No END instruction, programming errors (checked when operation is started)
Programming	Programming Console	C200H-PRO27
Devices	CX-Programmer	Windows edition
	Cable (CDM2C CN1111 CC1	

<sup>\*</sup> A Connecting Cable (CPM2C-CN111, CS1W-CN114, or CS1W-CN118) is required to connect to the communications (peripheral/RS-232C) port.

## **Communications Specifications**

#### DeviceNet

Item	Specifications			
Communications protocol	Conforms to DeviceNet			
Connection form *1		Combination of multi-drop method and T-branch connections (for trunk and drop lines)		
Baud rate	500, 250, or 1	25 kbps		
Communications media	Special 5-wire cable (2 signal lines, 2 power supply lines, 1 shield line) 4-wire Special Flat Cable (2 signal lines and 2 power lines)			
	Using speci	ial 5-wire Flat Cabl	е	
	Baud rate	Network length (max.)	Branch line length	Total branch line length
	500 kbps	100 m max. *2	6 m max.	39 m max.
	250 kbps	250 m max. *2	6 m max.	78 m max.
Communications	125 kbps	500 m max. *2	6 m max.	156 m max.
distance	Using special 4-wire Flat Cable			
	Baud rate	Network length (max.)	Branch line length	Total branch line length
	500 kbps	75 m max.	6 m max.	35 m max.
	250 kbps	150 m max.	6 m max.	48 m max.
	125 kbps	265 m max.	6 m max.	135 m max.
Communications power supply	24 VDC is supplied externally.			
Maximum number of nodes	64 (including Masters, Slaves, and the Configurator)			

- Terminating resistance is required at both ends of the trunk line. This value applies when using Thick Cable for the trunk line. If Thin Cable is used, the value will be 100 m max.

#### ●CompoBus/S

	ipobusi				
ı	tem	Specifications			
Communications protocol		Special CompoBus/S protocol			
Coding	method	Manchester coding			
Connec	tion form	Multi-drop method a	and T-branch o	onnections *	<b>*</b> 1
Baud ra	ate	High-speed Commu Long-distance Com			ops <b>*</b> 2
High- speed Commu- nications muni- Mode		0.5 ms (with 8 input and 8 output slaves connected) 0.8 ms (with 16 input and 16 output slaves connected)			
cations cycle time	Long-dis- tance Commu- nications Mode	4.0 ms (with 8 input and 8 output slaves connected) 6.0 ms (with 16 input and 16 output slaves connected)			
Commu	Communications 2-wire cable (VCTF 0.75 x 2), 4-wire cable (VCTF 0.75 x 4), or Special Flat Cable			able	
		2-wire VCTF cable			
		Communications mode	Main line length	Branch line length	Total branch line length
		High-speed Communications Mode	100 m max.	3 m max.	50 m max.
Commu	unications	Long-distance Communications Mode	500 m max.	6 m max.	120 m max.
distanc	e	4-wire VCTF cable or Special Flat Cable			
		Communications mode	Main line length	Branch line length	Total branch line length
		High-speed Communications Mode *3	30 m max.	3 m max.	30 m max.
		Long-distance Communications Mode *4	Free branching (up to a total cable length of 200 m)		200 m)
Maximu of node	m number s	32			
Error co		Manchester code check, frame length check, and parity check			

- Connect external terminating resistance.
- Switched using DM area setting. (Default setting: 750 kbps.) If the number of slaves connected is 16 or less, the maximum main line length will be 100 m max., and the maximum total branch line length will be 50 m max.
- There are no restrictions on the branching configuration, main line length, branch line length, or total branch line length. Connect external terminating resistance to the node farthest from the master.

#### Cables for I/O Connector

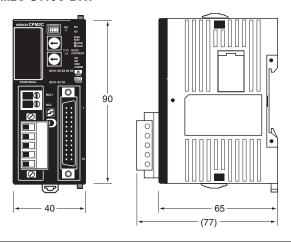
#### **● Cables for Connector - Terminal Conversion Units**

Cable	Connected product	Connector Products (Connector- Terminal Block Conversion Units) Connecting method
	XW2K-20G-T	Push-In Plus
XW2Z-□□□A	XW2D-20G6	Phillips screw M3
	XW2R-E20GD-T	Slotted screw M3

#### **Dimensions**

(Unit: mm)

#### CPM2C-S100C-DRT CPM2C-S110C-DRT



# Intelligent Slaves

Digital Sensor Communications Unit92
•
E3X-DRT21-S VER.3
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E5AR-DRT/E5ER-DRT
DeviceNet Communications Unit for Modular Temperature Controller 104
EJ1-DRT
Multi-function Compact Inverter MX2-Series V1 type DeviceNet Communication Unit 107
3G3AX-MX2-DRT-E
High-function General-purpose Inverters RX-Series V1 type DeviceNet Communication Unit $108$
3G3AX-RX-DRT-E



CE

## **Digital Sensor Communications Unit**

## E3X-DRT21-S VER.3 Final order entry date: The end of September, 2024

## The DeviceNet Communication Unit That Simplifies Managing Sensor Settings

- ON/OFF signals and incident light levels can be sent to the host PLC without any need for programming (DeviceNet communications slave functionality).
- Threshold values and function settings can be read, written, or taught (using the Message Communications function).
- Simply connect the communication cables and slide the Amplifiers from the side for wire-saving.
- Up to 16 Sensor Amplifiers can be connected.



#### **Ordering Information**

#### Digital Sensor Communications Unit

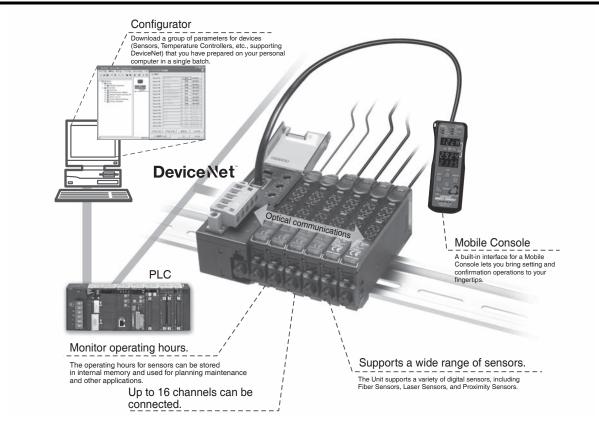
	Name	Model
1	Digital Sensor Communications Unit	E3X-DRT21-S VER.3

#### Wire-saving Connector

Туре	Model
Cordless Slave Connector	E3X-CN02

Note: Order as many Connectors as the number of Sensors.

## **System Configuration**



## **Ratings and Specifications**

Item		Description		
Communications method		DeviceNet communications		
Remote I/O Communications Slave function		Monitors ON/OFF output, status, incident light level (digital display data)		
Communications functions	Message Communications function	Sets parameters using Explicit messages		
	Configurator	Edits slave device parameters, enables device monitor functions		
Mobile Console co	nnection	E3X-MC11-SV2 can be connected		
Power supply		Supplied from the DeviceNet communications connector (power is also supplied to all connected Sensors through Wire-reducing Connectors.)		
Maximum connectable Sensors (See note 1.)		For remote I/O communications 1-CH mode (See note 2.): For remote I/O communications 2-CH mode (See note 3.) or for remote I/O communications 2-CH mode + detection level monitoring mode (See note 4.):	13 16	
Connectable Sensors (See note 5.)		E3X-DA-S Series or E3X-MDA Series Digital Fiber Sensor (See note 7.) E3C-LDA Series Laser Photoelectric Sensor with Separate Digital Amplifier (See note 7.) E2C-EDA High-resolution Digital Proximity Sensor with Separate Amplifier (use connector-type Amplifier Units and the E3X-CN02 Cordless Slave Connector)		
Power supply volt	age	11 to 25 VDC		
Current consumption (See note 6.)		70 mA max.		
Ambient operating temperature		-20°C to 55°C		
Ambient operating humidity		35% to 85% (with no condensation)		
Ambient storage temperature		-30°C to 70°C		
Dimensions (mm)		30 x 34.6 x71.3 (W x H x D)		
Weight (packed state)		Approx. 150 g		

- Note 1: When any of the following Sensors is connected, two words are allocated per Sensor and each Sensor is counted as two Sensors for the number of connected Sensors.

  E3X-DA\_S (: 7/9), E3X-DA\_TW-S (: 6/8), E3X-MDA\_ (: 6/8), E3C-LDA\_ (: 6/8), E2C-EDA\_ (: 6/8)

  E3X-DA\_S (: 7/9), E3X-DA\_TW-S (: 6/8) have been discontinued at the end of March 2017.

  2: Communications is possible for the ON/OFF output data from 13 Units. One word is allocated as the input area in the Master.

  3: Communications is possible for the ON/OFF output data from 16 Units and the number of connected Sensors. Two words are allocated as the output area in the Master.

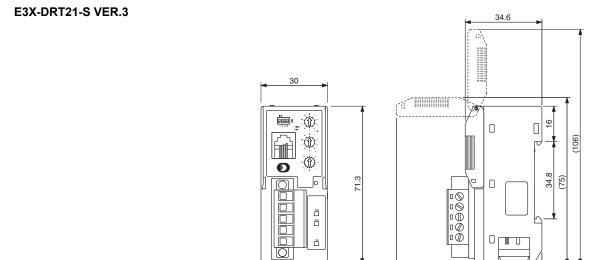
  4: Communications is possible for the ON/OFF output data from 16 Units and the number of connected Sensors, and the detection levels for the connected Sensors.

  Two words are allocated as the input area and one word is allocated for the number of connected Sensors in the Master.

  - Two words are allocated as the input area and one word is allocated for the number of connected Sensors in the Master.
  - 5: Connection cannot be performed if the response speed of the Sensor is set to super-high-speed mode.
  - 6: This does not include the current sup 7: Product no longer available to order. This does not include the current supplied to the Sensor.

#### **Dimensions**

(Unit: mm) Tolerance class IT16 applies to dimensions in this data sheet unless otherwise specified.



## **DeviceNet ID Slave**

## V600-HAM42-DRT Final order entry date: The end of September, 2024

## **Electromagnetic-coupling ID System Conforms to DeviceNet and Saves Wiring Effort**

- The world's first Intelligent Flag III with support for DeviceNet.
- Responds flexibly to applications with data reading up to 24 bits.
- Switch writing between units of 8 bits and 16 bits.
- · Address to access can be set from master.



#### **Ordering Information**

Name	Model
Intelligent Flag III	V600-HAM42-DRT

### **General Specifications**

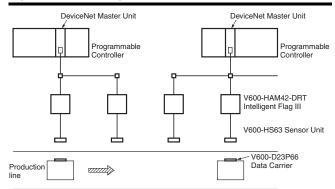
Item Model	V600-HAM42-DRT
Communications power supply voltage	11 to 25 VDC
Internal circuit power supply voltage	18 to 26.4 VDC (24 VDC -25%/+10%)
Internal current consumption current	Communications power supply: 40 mA max. Internal circuitry power supply: 150 mA max.
Number of words allocated to Master	Inputs: 2 words, Outputs: 2 words
Noise immunity	Internal circuitry power supply normal: ±600 V Internal circuitry power supply common: ±1.5 kV
Vibration resistance	10 to 55 Hz, 1.5-mm double amplitude
Shock resistance	Malfunction: 200 m/s <sup>2</sup> Destruction: 300 m/s <sup>2</sup>
Dielectric strength	500 VAC for 1 min between insulated circuits
Ambient operating temperature	0°C to 55°C
Ambient operating humidity	35% to 85% (with no condensation)
Ambient operating atmosphere	With no corrosive gas
Ambient storage temperature	-25°C to 65°C
Dimensions	65 x 65 x 60 mm
Construction	Panel-mounting

Item Mod	el V600-HAM42-DRT
Mounting method	DIN track mounting or M4 screw mounting with provided brackets.
Weight	150 g max.

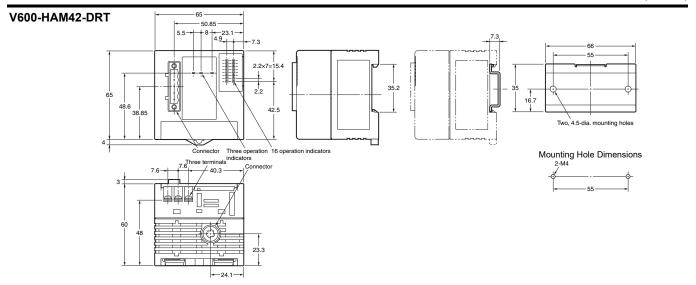
#### **Performance Specifications**

Item	Specifications
Number of sensor connections	One channel
Applicable sensors	V600-HS51, V600-HS61, V600-HS53, V600-HS67
Data Carrier communications range	Read: 24 bits of data from the set address Write: 16 bits of data from the set address

### **System Configuration**



**Dimensions** (Unit: mm)



## **DeviceNet ID Slave**

## V680-HAM42-DRT

## **DeviceNet-compliant ID System for Reduced Wiring**

- · Read and write up to 58 bytes.
- · Addresses to access can be set from the Master.



### **Ordering Information**

Name	Model
DeviceNet ID Slave	V680-HAM42-DRT

### **General Specifications**

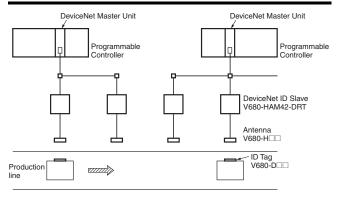
Item Model	V680-HAM42-DRT
Power supply voltage	24 VDC (-15% to 10%) including 10% ripple (p-p)
Power consumption	4 W max. (Current consumption of 200 mA max. at power supply voltage of 24 VDC)
Ambient operating temperature	-10°C to 55°C (with no icing)
Ambient storage temperature	25°C to 65°C (with no icing)
Ambient operating humidity	25% to 85% (with no condensation; ambient operating temperature is 40°C max. at humidity of 85%)
Insulation resistance	$20~\text{M}\Omega$ min. (at 500 VDC) between all terminals excluding the ground terminal and the case
Dielectric strength	1,000 VAC (50/60 Hz) for 1 minute between all terminals excluding the ground terminal and the case
Vibration resistance	10 to 150 Hz, 0.2-mm double amplitude at 15 m/s² acceleration with 10 sweeps in X, Y and Z directions for 8 minutes each
Shock resistance	150 m/s² in X, Y, and Z directions 3 times each (18 times in total)
Dimensions	65 x 65 x 65 mm (excluding protrusions)
Degree of protection	IP20 (IEC 60529)

Item M	lodel	V680-HAM42-DRT
Materials		Polycarbonate (PC) resin, ABS resin
Weight		Approx. 150 g
Mounting method		DIN track mounting

#### **Performance Specifications**

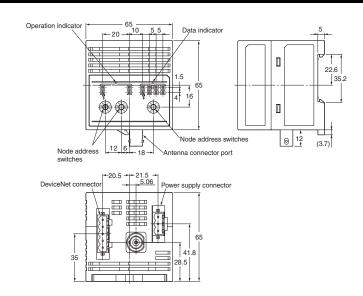
Item	Specifications
No. of connectable antennas	One channel
Connectable Antennas	V680-HS51,V680-HS52, V680-HS63, V680-HS65

## **System Configuration**



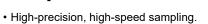
**Dimensions** (Unit: mm)

#### V680-HAM42-DRT



## **DeviceNet-compliant Digital Indicators**

**Digital Indicators Ideal for Measurement Displays and Judgment of Analog Levels, Such as** Voltage Signals, Current Signals, and **Temperatures** 



- Measurement resolution of 0.01°C and sampling of 50 times per second.
- High-visibility negative-transmissive LCD with bright backlight.
- Present values and deviations are displayed using a bar graph.
- Compliant with CE and UL standards as well as RoHS.



### Ordering Information

Name	Appearance	Specifications	Model										
			K3HB-XVD-A-DRT1										
		Process Indicator	K3HB-XAD-A-DRT1										
		Process Indicator	K3HB-XVA-DRT1										
			K3HB-XAA-DRT1										
	a committee to	M/-:	K3HB-VLC-B-DRT1										
DeviceNet-compliant Digital Indicators	- 1234c 1	Weighing Indicator	K3HB-VLC-E-DRT1										
	TOTAL B	Temperature Indicator	K3HB-HTA-DRT1										
											111	Linear Sensor Indicators	K3HB-SSD-A-DRT1
											Rotary Pulse Indicator	K3HB-RNB-A-DRT1	
		Timer Interval Indicator	K3HB-PNB-A-DRT1										
		Up/Down Counting Pulse Indicator	K3HB-CNB-A-DRT1										

## Ratings

#### ●K3HB-X/V/H/S

OKSUD-Y\\IU\2		100 to 240 VAC Models				
Power supply voltage		100 to 240 VAC (50/60 Hz) DeviceNet power supply: 24 VDC				
Allowable power supply voltage range		85% to 110% of the rated power supply voltage				
Power consumption		100 to 240 VAC Models: 18 VA max., 24 VAC/VDC Models: 11 VA, 7 W max.				
		0 to 5V	±10V			
		1 to 5V	±10V			
	S Model	±5 V	±10V			
		±10 V 0 to 20 mA	±14.5V			
		4 to 20 mA	31 mA			
		±199.99 V	Allowable instantaneous overload (30 s): ±400 V			
		±19.999 V	Allowable instantaneous overload (30 s): ±200 V			
	XVD Model	±1.9999 V	Allowable instantaneous overload (30 s): ±200 V			
		1.0000 to 5.0000V	Allowable instantaneous overload (30 s): ±200 V			
		0.0 to 400.0 V	Allowable instantaneous overload (30 s): 700 V			
	MA Madal	0.00 to 199.99 V	Allowable instantaneous overload (30 s): 700 V			
Absolute maximum	XVA Model	0.000 to 19.999 V	Allowable instantaneous overload (30 s): 400 V			
rated input		0.0000 to 1.9999 V	Allowable instantaneous overload (30 s): 400 V			
		±199.99 mA	Allowable instantaneous overload (30 s): ±400 V			
	XAD Model	±19.999 mA	Allowable instantaneous overload (30 s): ±200 V			
	AAD Wodel	±1.9999 mA	Allowable instantaneous overload (30 s): ±200 V			
		4.000 to 20.000 mA	Allowable instantaneous overload (30 s): ±200 V			
		0.000 to 10.000 A	Allowable instantaneous overload (30 s): 20 A			
	XAA Model	0.0000 to 1.9999 A	Allowable instantaneous overload (30 s): 20 A			
	70 0 1 1110 0001	0.00 to 199.99 mA	Allowable instantaneous overload (30 s): 2 A			
		0.000 to 19.999 mA	Allowable instantaneous overload (30 s): 2 A			
		0.00 to 199.99 mV	Allowable instantaneous overload (30 s): ±200 V			
	V Model	0.000 to 19.999 mV	Allowable instantaneous overload (30 s): ±200 V			
		±100.00 mV	Allowable instantaneous overload (30 s): ±200 V			
		±199.99 mV	Allowable instantaneous overload (30 s): ±200 V			
External power supply		12 VDC ±10%, 80 mA (only for models with external power supplies) 10 VDC ±5%, 100 mA (only for models with external power supplies) 5 VDC ±5%, 100 mA (only for models with external power supplies)				
	S Model	DC voltages or currents (0 to 20 mA, 4 to 20 mA, 0 to 5 V, 1 to 5 V, ±5 V, ±10 V), 2 channels				
Input range (measurement range)	X Model (measurement category II)	DC voltage: ±199.99 V, ±19.999 V, ±1.999 V, 1.000 to 5.000 V DC current: ±199.99 mA, ±19.999 mA, ±1.999 mA, 4.000 to 20.000 mA  AC voltage: 0.0 to 400.0 V, 0.00 to 199.99 V, 0.000 to 19.999 V, 0.000 to 1.9999 V  AC current: 0.000 to 10.000 A, 0.0000 to 1.9999 A, 0.00 to 199.99 mA, 0.000 to 19.999 mA				
	V Model	Load cell: 0.00 to 199.99 mV, 0.000 to 19.999 mV, ±100.00 mV, ±199.99 mV				
	S Model	Current range: 120 $\Omega$ max., Voltage range: 1 M $\Omega$ max.				
Input impedance	X Model	DC voltage (±199.99 V): 10 MΩ min./DC voltage (other ranges): 1 MΩ min. DC current (±199.99 mA): 1 $\Omega$ max./(±19.999 mA and 4 to 20 mA): 10 $\Omega$ max./(±1.9999 mA): 33 $\Omega$ max. AC voltage: 1 M $\Omega$ min., DC current (0 to 10 A and 0 to 1.9999 A): 0.5 VAC/(0 to 199.99 mA): 1 $\Omega$ max./(0 to 19.999 mA): 10 $\Omega$ max.				
	V Model	Load cell: 1 MΩ min.				
	Timing input	NPN open collector or no-voltage contact s ON residual voltage: 3 V max. ON current at 0 Ω: 17 mA max. Max. applied voltage: 30 VDC max. OFF leakage current: 1.5 mA max.	ignal			
Event inputs	Startup compensation timer input	NPN open collector or no-voltage contact s	ignal			
	Hold input	ON residual voltage: 2 V max.	ngilai			
	Reset input	ON current at 0 Ω: 4 mA max.				
	Forced-zero input	Max. applied voltage: 30 VDC max. OFF leakage current: 0.1 mA max.				
	Bank input					
A/D conversion	S Model	Sequential comparison system				
method	H/X/V Model	Digital-sigma method				
	Relay output	250 VAC, 30 VDC, 5 A (resistive load) Mechanical life expectancy: 5,000,000 ope	rations, Electrical life expectancy: 100,000 operations			
	Transistor output	Maximum load voltage: 24 VDC, Maximum	load current: 50 mA, Leakage current: 100 μA max.			
Cutput ratings         Linear output 0 to 20 mA DC, 4 to 20 mA:           Load: $500 \Omega$ max, Resolution: Approx. 10,000, Output error: $\pm 0.5\%$ FS           Linear output         0 to 5 VDC, 1 to 5 VDC, 0 to 10 VDC:           Load: $5 \log \infty$ max, Resolution: Approx. 10,000, Output error: $\pm 0.5\%$ FS           (1 V or less: $\pm 0.15$ V; not output for 0 V or less)						
Display method		Negative LCD (backlit LED) display, 7-segmed), SV: 4.9 mm (green))	nent digital display (character heights: PV: 14.2 mm (switches between green an			
Ambient operating ter	mperature	-10°C to 55°C (with no icing or condensation	on)			
Ambient operating hu		25% to 85%				
Storage temperature		-25°C to 65°C (with no icing or condensation	on)			
orago tomperature						
Altitude		2,000 m max.				

<sup>\*</sup> DeviceNet only.

#### ●K3HB-R/P/C

Power supply voltage		100 to 240 VAC Models 24 VAC/VDC Models DeviceNet power supply: 24 VDC		
Allowable pov	ver supply voltage range	85% to 110% of the rated power supply voltage, DeviceNet power supply: 11 to 25 VDC		
•	nption (under maximum load) *1	100 to 240 VAC: 18 VA max 24 VAC/VDC: 11 VA/7 W max.		
Current consu	' '	DeviceNet power supply: 50 mA max. (24 VDC)		
Inputs	•	No-voltage contact, voltage pulse, and open collector		
External power	er supply	12 VDC ±10%, 80 mA (only for models with external power supplies) 10 VDC ±5%, 100 mA (only for models with external power supplies)		
	Startup compensation timer input	NPN open collector or no-voltage contact signal		
Event inputs	Hold input	ON residual voltage: 2 V max. ON current at 0 Ω: 4 mA max.		
*2, *4	Reset input	Max. applied voltage: 30 VDC max.		
	Compensation input	OFF leakage current: 0.15 mA max.		
	Bank input			
	Relay output	250 VAC, 30 VDC, 5 A (resistive load) Mechanical life expectancy: 5,000,000 operations, Electrical life expectancy: 100,000 operations		
	Transistor output	Maximum load voltage: 24 VDC, Maximum load current: 50 mA, Leakage current: 100 µA max.		
Outputs *4 Linear output		Linear output 0 to 20 mA DC, 4 to 20 mA: Load: $500 \Omega$ max, Resolution: Approx. $10,000$ , Output error: $\pm 0.5\%$ FS Linear output 0 to 5 VDC, 1 to 5 VDC, 0 to 10 VDC: Load: $5 k\Omega$ max, Resolution: Approx. $10,000$ , Output error: $\pm 0.5\%$ FS (1 V or less: $\pm 0.15$ V; not output for 0 V or less)		
Display metho	od	Negative LCD (backlit LED) display, 7-segment digital display (character heights: PV: 14.2 mm (switches between green and red), SV: 4.9 mm (green))		
Main functions *4		Scaling, measurement operation selection, averaging, previous average value comparison, output hysteresis, output ON delay, output test, teaching, display selection, display color switching, key protection, bank selection, display refresh period, maximum/minimum hold, and reset		
Ambient operating temperature		-10°C to 55°C (with no icing or condensation)		
Ambient oper	ating humidity	25% to 85%		
Storage temp	erature	-25°C to 65°C (with no icing or condensation)		
Altitude		2,000 m max.		
Accessories		Watertight packing, 2 fixtures, terminal cover, unit stickers, instruction manual. DeviceNet models also include a DeviceNet connector (Hirose HR31-5.08P-5SC(01)) and crimp terminals (Hirose HR31-SC-121) *3		

- DC power supply models require a control power supply capacity of approximately 1 A per Unit when power is turned ON. Particular attention is required when using two or more DC power supply models. The OMRON S8VS-series DC Power Supply Unit is recommended.
  PNP input types are also available.
  For K3HB-series DeviceNet models, use only the DeviceNet Connector included with the product. The crimp terminals provided are for Thin Cables.
  Depends on the model.
- **\*2**.

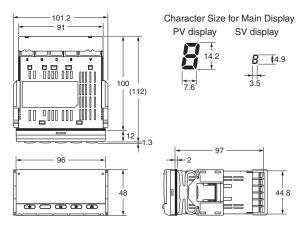
## **DeviceNet Communications Specifications**

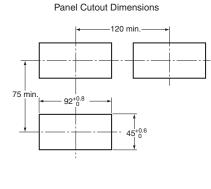
Communications pr	otocol	Conforms to DeviceNet				
	Remote I/O communications	Master-Slave connection (polling, bit-strobe, COS, cyclic)     Conforms to DeviceNet communications standards.				
Supported communications  I/O allocations  - Allocate any I/O data using the Configurator Allocate any data, such as DeviceNet-specific parameters and variable area for Digital Indicators Input area: 2 blocks, 100 words max Output area: 1 block, 100 words max. (The first word in the area is always allocated for the Output Execut Flags.)						
	Message communications	Explicit message communication     CompoWay/F communication	nications ations commands can be executed	(using explicit message com	munications)	
Connection form		Combination of multi-drop m	nethod and T-branch connections (f	or trunk and drop lines)		
Baud rate		DeviceNet: 500, 250, or 125	kbps (automatic follow-up)			
Communications me	edia	Special 5-wire cable (2 signal	al lines, 2 power supply lines, 1 shie	eld line)		
		Baud rate	Network length (max.)	Branch line length	Total branch line length	
		500 kbps	100 m max. (100 m max.)	6 m max.	39 m max.	
Communications dis	stance	250 kbps	250 m max. (100 m max.)	6 m max.	78 m max.	
		125 kbps	500 m max. (100 m max.)	6 m max.	156 m max.	
		The values in parentheses are for Thin Cable.				
Power supply voltage	je	24-VDC DeviceNet power s	upply			
Allowable power su	pply voltage range	11 to 25-VDC DeviceNet po	wer supply			
Current consumption	n	50 mA max. (24 VDC)				
Maximum number o	f nodes	64 (DeviceNet Configurator	is counted as one node when conn	ected)		
Maximum number o	f slaves	63				
Error control checks CRC errors						
DeviceNet power supply Supplied from DeviceNet communications connector						
Current consumption	Current consumption 50 mA max. (24 VDC)					
Maximum I/O points	Maximum I/O points Maximum number of slaves: 63					

**Dimensions** (Unit: mm)

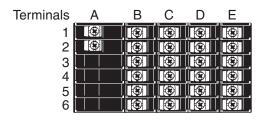
#### **К3НВ**

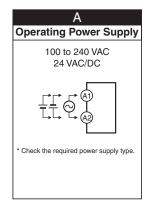


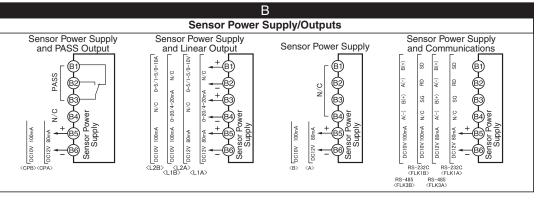


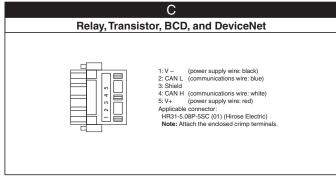


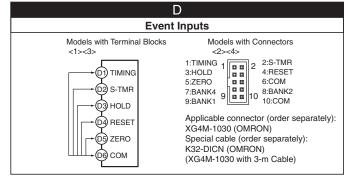
#### **Terminal Arrangement**

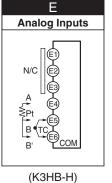


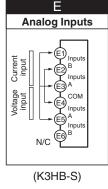


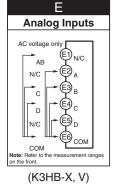












**W**us ( **E** 

**DeviceNet-compliant Digital Controllers** 

Final order entry date: The end of March, 2021

## R-DRT/E5ER-I

## **General-purpose Digital Controllers with High Speed and** High Accuracy. Three, 5-digit Easy-to-read Tall LCD Displays.

- High-speed sampling cycle (50 ms) for applications requiring high-speed response.
- Three backlit, negative LCD displays for simultaneous display of PV, SV, and MV.
- · Multipoint control, cascade control, and proportional control all possible with a single Controller.
- · Data processing functions provided as standard features: Square root extraction, linear approximation, and more.
- · DeviceNet communications for data setting and monitoring without special programming.





### **Ordering Information**

#### **■** Digital Controllers

#### ● E5AR DeviceNet-compliant Models

					Optional fea	tures	
Size	Туре	Control modes	No. of outputs (control/transfer)	No. of auxiliary outputs (SUB)	No. of event inputs	Communications	Model
			2 (pulse voltage + pulse voltage/ current outputs)		2	DeviceNet	E5AR-Q4B-DRT
	Basic Type	Standard control	2 (2 current outputs)	4			E5AR-C4B-DRT
	(1 input)	Heating/cooling control	4 (1 pulse voltage + 1 pulse voltage/current + 2 current outputs)	·			E5AR-QC4B-DRT
96 x 96 mm	2-input Type	2-channel standard control 2-channel heating/cooling control 1-channel cascade control 1-channel control with remote SP 1-channel ratio control	4 (2 pulse voltage + 2 pulse voltage/current)	4	None	DeviceNet	E5AR-QQ4W-DRT
	4-input Type	4-channel standard control 2-channel heating/cooling control	4 (4 current outputs)	4	None	DeviceNet	E5AR-CC4WW-DRT
	Control Valve	Control Type (1 input) 1-channel position proportional control *	Relay outputs (1 open and 1 closed)	4	None	DeviceNet	E5AR-PR4F-DRT
	(1 input)		Relay outputs (1 open and 1 closed) + 1 current (transfer)		None	Devicemen	E5AR-PRQ4F-DRT

Note: When ordering, specify the power supply. Different models are used for 100 to 240 VAC and 24 VDC/AC.

Control can be switched between closed control and floating control.

#### ●E5ER DeviceNet-compliant Models

				Optional fea		tures	
Size	Туре	Control modes	No. of outputs (control/transfer)	No. of auxiliary outputs (SUB)	No. of event inputs	Communications	Model
	Basic Type (1 input)	Standard control Heating/cooling control	2 (pulse voltage + pulse voltage/ current outputs)	2 *1	2	DeviceNet	E5ER-QTB-DRT
			2 (2 current outputs)				E5ER-CTB-DRT
48 x 96 mm	2-input Type	2-channel standard control 1-channel heating/cooling control 1-channel cascade control	2 (pulse voltage + pulse voltage/ current outputs)	2 *1	None	DeviceNet	E5ER-QTW-DRT
	1-channel control with remote 1-channel ratio control	1-channel control with remote SP 1-channel ratio control	2 (2 current outputs)				E5ER-CTW-DRT
	Control Valve Control Type (1 input)	1-channel position proportional control *2	Relay outputs (1 open and 1 closed)	2 *1	None	DeviceNet	E5ER-PRTF-DRT

Note: When ordering, specify the power supply. Different models are used for 100 to 240 VAC and 24 VDC/AC.

#### Inspection Results

Order using the following model number together with the model number of the Digital Controller to obtain inspection results.

#### Inspection Results (Sold Separately)

Model	
E5AR-K	
E5ER-K	

#### ■ Optional Accessories (Sold separately)

#### ● Terminal Cover

Digital Controller	Model
E5AR	E53-COV14
E5ER	E53-COV15

## **Specifications**

#### ●E5AR

Item *1 Power supply voltage		100 to 240 VAC, 50/60 Hz	24 VAC, 50/60 Hz or 24 VDC			
Allowed voltage variance range		85% to 110% of power supply voltage				
Power con	sumption	22 VA max. (under maximum load)	15 VA/10 W max. (under maximum load)			
Sensor input *2		Thermocouples: K, J, T, E, L, U, N, R, S, B, W Platinum resistance temperature input sensors: Pt100 Current inputs: 4 to 20 mA DC, 0 to 20 mA DC (including remote SP input) Voltage inputs: 1 to 5 VDC, 0 to 5 VDC, 0 to 10 VDC (including remote SP input) (Input impedance: 150 $\Omega$ using current input, approx. 1 M $\Omega$ using voltage input)				
	Voltage (pulse) output	12 V DC, 40 mA max., with short-circuit protection circuit				
Control output	Current output	0 to 20 mA DC/4 to 20 mA DC, 500 $\Omega$ load max. (including transfer (Resolution: Approx. 54,000 at 0 to 20 mA DC, approx. 43,000 at 4				
·	Relay output	Position proportional control type (open, closed) NO-SPST 250 VAC 1 A (including inrush current)				
Auxiliary o	output	NO-SPST 250 V AC 1 A (resistive load)				
Potentiom	eter input	100 Ω to 2.5 kΩ				
	Contact	Input ON: 1 kΩ max., OFF: 100 kΩ max.				
Event input Non-contact		Input ON: Residual voltage 1.5 V max., OFF: Leakage current 0.1 mA max.				
		Short-circuit current: Approx. 4 mA				
Remote SI	P input	See Sensor inputs.				
Transfer o	utput	See Control outputs.				
Control me	ethod	Advanced PID or ON/OFF				
Setting me	ethod	Digital setting by front panel keys, setting by serial communications				
Indication method		7-segment digital display and LED indicators Character heights: PV 12.8 mm, SV 7.7 mm, MV 7.7 mm				
Other fund	ctions	Varies by model				
Ambient o	perating temperature	-10°C to 55°C (no condensation or icing), 3 year warranty: -10°C to 55°C (no condensation or icing)				
Ambient o	perating humidity	25% to 85%				
Storage te	mperature	-25°C to 65°C (no condensation or icing)				

Transistor outputs.
Control can be switched between closed control and floating control.

Note: Do not use the output from an Inverter for the power supply.

\*1. When ordering, specify the power supply. Different models are used for 100 to 240 VAC and 24 VDC/AC.

\*2. Multi-input. Switch between temperature and analog input using the input type switch.

Basic insulation is provided between the power supply and input terminals and between the power supply and output terminals.

#### ●E5ER

Item *1 Power supply voltage		100 to 240 VAC, 50/60 Hz	24 VAC, 50/60 Hz or 24 VDC			
Allowed v	oltage variance range	85% to 110% of power supply voltage				
Power co	nsumption	17 VA max. (under maximum load)	11 VA/7 W max. (under maximum load)			
Sensor in	put *2	Thermocouples: K, J, T, E, L, U, N, R, S, B, W Platinum resistance temperature input sensors: Pt100 Current inputs: 4 to 20 mA DC, 0 to 20 mA DC (including remote SP input) Voltage inputs: 1 to 5 VDC, 0 to 5 VDC, 0 to 10 VDC (including remote SP input) (Input impedance: 150 Ω using current input, approx. 1 MΩ using voltage input)				
	Voltage (pulse) output	12 V DC, 40 mA max., with short-circuit protection circuit				
Control output	Current output	0 to 20 mA DC/4 to 20 mA DC, 500 $\Omega$ load max. (including transfer (Resolution: Approx. 54,000 at 0 to 20 mA DC, approx. 43,000 at 4				
	Relay output	Position proportional control type (open, closed) NO-SPST 250 VAC 1 A (including inrush current)				
Auxiliary	output	Transistor outputs, Maximum load voltage: 30 VDC, maximum load current: 50 mA Residual voltage: 1.5 V max., leakage current: 0.4 mA max.				
Potention	neter input	100 Ω to 2.5 kΩ				
Contact		Input ON: 1 k $\Omega$ max., OFF: 100 k $\Omega$ max.				
Event input Non-contact		Input ON: Residual voltage 1.5 V max., OFF: Leakage current 0.1 mA max.				
•		Short-circuit current: Approx. 4 mA				
Remote S	P input	See Sensor inputs.				
Transfer of	output	See Control outputs.				
Control m	nethod	Control method Advanced PID or ON/OFF				
Setting m	ethod	Digital setting by front panel keys, setting by communications				
Indication method		7-segment digital display and LED indicators Character heights: PV 9.5 mm, SV 7.2 mm, MV 7.2 mm				
Other fun	ctions	Varies by model				
Ambient of	operating temperature	-10°C to 55°C (no condensation or icing), 3 year warranty: -10°C to 50°C (no condensation or icing)				
Ambient o	operating humidity	25% to 85%				
Storage to	emperature	-25°C to 65°C (no condensation or icing)				

Note: Do not use the output from an Inverter for the power supply.

\*1. When ordering, specify the power supply. Different models are used for 100 to 240 VAC and 24 VDC/AC.

\*2. Multi-input. Switch between temperature and analog input using the input type switch.

Basic insulation is provided between the power supply and input terminals and between the power supply and output terminals.

## **DeviceNet Communications Specifications**

Communicat	ions protocol	Conforms to DeviceNet
	Remote I/O communications	Master-Slave connection (polling, bit-strobe, COS, cyclic)     Conforms to DeviceNet communications standards.
Communi- cations functions	I/O allocations	Allocate any I/O data using the Configurator.     Allocate any data, such parameters specific to the DeviceNet and the Digital Indicator variable area.     Input area: 2 blocks, 100 words max.     Output area: 1 block, 100 words max.     (The first word in the area is always allocated for the Output Execution Enabled Flags.)
	Message Communi- cations function	Explicit message communications     CompoWay/F communications commands can be sent (commands are sent as explicit messages).
Connection f	orm	Combination of multi-drop method and T-branch connections (for trunk and drop lines)
Baud rate		DeviceNet: 500, 250, or 125 kbps (automatic follow-up)
Communicat	ions media	Special 5-wire cable (2 signal lines, 2 power supply lines, 1 shield line)

	Baud rate	Network length (max.)	Branch line length	Total branch line length	
Communications	500 kbps	100 m max. (100 m max.)	6 m max.	39 m max.	
Communications distance	250 kbps	250 m max. (100 m max.)	6 m max.	78 m max.	
	125 kbps	500 m max. (100 m max.)	6 m max.	156 m max.	
	The values in	parentheses are	for Thin Cable		
Power supply voltage	DeviceNet power supply: 24 VDC (internal circuit)				
Allowable power supply voltage range	DeviceNet power supply: 11 to 25 VDC				
Current consumption	50 mA max. (24 VDC)				
Maximum number of nodes	64 (DeviceNet Configurator is counted as one node when connected)				
Maximum number of slaves	63				
Error control checks	CRC errors				
DeviceNet power supply	Supplied from DeviceNet communications connector				

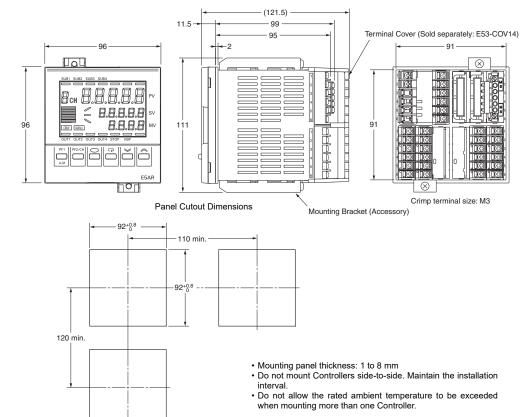


**Dimensions** (Unit: mm)

## **■**Digital Controllers

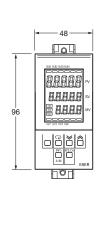
#### E5AR

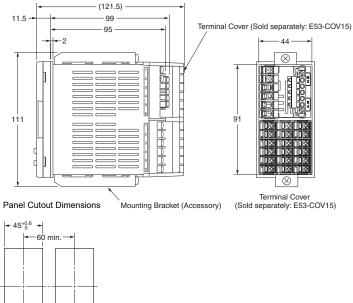


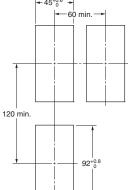


#### E5ER









- Mounting panel thickness: 1 to 8 mm
   Do not mount Controllers side-to-side. Maintain the installation interval.
- Do not allow the rated ambient temperature to be exceeded when mounting more than one Controller.

## **DeviceNet Communications Unit for Modular Temperature Controller**

Final order entry date: The end of March, 2023

## **Easily Perform Temperature Control** for Multiple Channels.

- Up to 16 Temperature Controllers can be connected to a single DeviceNet Communications Unit.
- Sharing target values and present values using remote I/O communications without special programming reduces development work for communications.
- · Flexibly allocate I/O memory using either fixed allocation addresses for simple allocations or user-set allocations from the Configurator.
- The EJ1 parameters can be backed up for easy resetting of parameters when the EJ1 is replaced.
- Explicit messages be sent from the PLC to easily read or write any parameter.



Note: EJ1N-HFUB-DRT and EJ1N-HFU□-NFL□ in this catalog have been discontinued at the end of March 2023.

### **Ordering Information**

#### DeviceNet Communications Unit

Name	Specifications	Model	Safety standards
HFU (DeviceNet communications) *1	External input power supply voltage: 24 VDC	EJ1N-HFUB-DRT *2	UC, CE

#### Modular Temperature Controller

	Power	No. of	Control	Control		Funct	ions															
Unit Name	supply	control points		outputs 3 and 4	Auxiliary output	Heater burnout alarm	Event inputs	Communications functions	Input type	Terminal	Model											
				Transistor						M3 terminal	EJ1N-TC2A-QNHB											
		2	Voltage output:	output: 2 points (sinking)		2 *4	2	0074	Thermocouple, platinum	Screw-less clamp	EJ1N-TC2B-QNHB											
Basic Unit			2 points (for SSR drive)	Voltage output:				G3ZA connection port: RS-485	resistance	M3 terminal	EJ1N-TC4A-QQ											
(temperature control) *1		4		2 points (for SSR drive) *3	ve) None		None			thermometer, analog voltage, and analog	Screw-less clamp	EJ1N-TC4B-QQ										
			2 output:	Transistor output: 2 points (sinking)				110-403	current selectable for each channel.	M3 terminal	EJ1N-TC2A-CNB											
	24 VDC supplied from the	2				2			Screw-less clamp	EJ1N-TC2B-CNB												
	End Unit		End Unit  None None				output: points					Port C: RS-485 or RS-232C selectable.		M3 terminal *2	EJ1N-HFUA-NFLK							
HFU with Programless Communications	ss output: 4 points (sinking)	None			output:	sistor it:						None	None	None	None	None			From End Unit: Port A: RS-485		Screw-less clamp *2	EJ1N-HFUB-NFLK
*1				ne None None	(sir								Port C: RS-422 From End Unit:	No input	M3 terminal *2	EJ1N-HFUA-NFL2						
				Port A: RS-485		Screw-less clamp *2	EJ1N-HFUB-NFL2															
					Transistor			Port A or B:		M3 terminal	EJ1C-EDUA-NFLK											
End Unit *1	24 VDC				output: 2 points (sinking)		None	RS-485 Connector: Port A		Detachable connector	EJ1C-EDUC-NFLK											

An End Unit is always required for connection to a Basic Unit or an HFU. An HFU cannot operate without a Basic Unit. External communications cannot be performed when using a Basic Unit only.

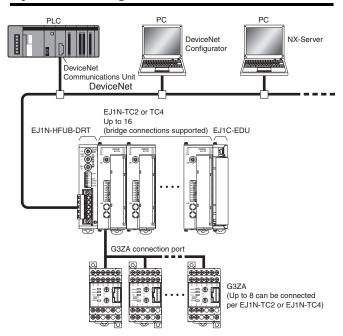
Product no longer available to order.

For heating/cooling control applications, control outputs 3 and 4 on the 2-point models are used for the cooling or heating control outputs.

On the 4-point models, heating/cooling control is performed for the two input points. When using the heater burnout alarm, purchase a Current Transformer (E54-CT1 or E54-CT3) separately.



## **System Configuration**



## **Specifications**

Power supply	DeviceNet power supply	24 VDC (for internal circuits)		
voltage	EDU power supply	24 VDC (for RS-485 communications circuits and Temperature Controllers)		
Allowable voltage	DeviceNet power supply	11 to 25 VDC		
range	EDU power supply	20.4 to 26.4 VDC		
Power con (under max	sumption kimum load)	1 W max.		
Insulation	resistance	20 MΩ min. (at 500 VDC)		
Dielectric s	strength	600 VAC, 50/60 Hz for 1 min		
Vibration re	esistance	10 to 55 Hz, 10 m/s² for 2 hours each in X, Y, and Z directions		
Shock resi	stance	150m/s² max., 6 directions, 3 times each		
Weight		70 g max.		
Degree of	protection	IP20		
Main funct	ions	Remote I/O communications, explicit message communications, CompoWay/F command feed-through function, parameter backup function, and configuration registration		
Ambient operating temperature		Operating: -10°C to 55°C Storage: -25°C to 65°C (with no icing or condensation) 3 year warranty: -10°C to 50°C (with no icing or condensation)		
Ambient of humidity	perating	Operating: 25% to 85% (with no condensation)		
Memory pr	otection	EEPROM, 100,000 write operations (backup data)		
Dimension	s	20 x 90 x 65 mm (W x H x D)		

## **DeviceNet Communications Specifications**

ŀ	tem	Specifications					
Communica	tions protocol	Conforms to DeviceNet					
	Remote I/O communications	COS, cy	s to DeviceNe				
	Simple I/O allocations	<ul> <li>Allocation of input and output data using only switch settings and not the Configurator.</li> <li>Allocation of only basic data, such as Temperature Controller status, present values, target values, and alarm output status.</li> <li>Input area: 1 block, 86 words max. (up to the highest Communications Unit number)</li> <li>Output area: 1 block, 74 words max. (up to the highest Communications Unit number)</li> </ul>					
Communi- cations functions	I/O allocations using the Configurator	Allocate any I/O data using the Configurator. Allocation of user-set data, parameters speci DeviceNet Communications Units, and Temperature Controller variable area data. Input area: 2 blocks, 100 words max. *1 Output area: 1 block, 100 words max. (The first word is always the Output Executic Enabled Flags.) *2					
	Message Communica- tions function	Explicit message communications     CompoWay/F communications commands can be sent (commands are sent in explicit message format).					
	Setting, monitoring, and manipulating from the Configurator	Functions Supported by the DeviceNet Configurator (Using parameter editing or device monitoring for DeviceNet Communications Units and Temperature Controllers)  • Setting and monitoring DeviceNet Communications Units.  • Registering connection configurations, making initial settings *3, changing settings, and monitoring for Temperature Controllers.  • Making allocations to the Master.  • Allocating data in input areas and output areas.  • Executing operation commands for Temperature Controllers.					
Connection	form		on of multi-drop s (for trunk an		I T-branch		
Baud rate		DeviceNet: (automatic	500, 250, or 1 follow-up)	25 kbps			
Communica	itions media	Special 5-wire cable (2 signal lines, 2 power supply lines, 1 shield line)					
		Baud rate	Network length (max.)	Branch line length	Total branch line length		
Communica	itions distance	500 kbps 250 kbps 125	100 m max. (100 m max.) 250 m max. (100 m max.)	6 m max.	39 m max.		
		kbps	(100 m max.)	6 m max.	156 m max.		
Communica	itions power	The values in parentheses are for Thin Cable.  11 to 25 VDC					
Maximum n	umber of	64 (DeviceNet Configurator is counted as one node when connected)					
Maximum nu	ımber of slaves	63					
Error contro	ol checks	CRC errors					
DeviceNet p	ower supply	Supplied from DeviceNet communications connector (DeviceNet communications power and internal circuit power for DeviceNet Communications Unit)					
Applicable Controllers	Temperature	EJ1 Series TC4: EJ1N-TC4A-QQ and EJ1N-TC4B-QQ TC2: EJ1N-TC2A-QNHB, EJ1N-TC2B-QNHB, EJ1N-TC2A-CNB, and EJ1N-TC2B-CNB					
that can be	e Controllers	connection distributed	aximum is 15, l s. The 16th Ur placement.)	nit is an End I	Jnit for		

- Two blocks can be used (i.e., connections can be set) only when a CS/CJ-series DeviceNet Unit is used as a Master.

  When a C200HX/HG/HE DeviceNet Master Unit is used, the input area will be one block with up to 100 words (200 bytes) (poll connections only).

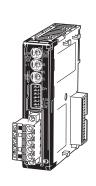
  When a C200HX/HG/HE DeviceNet Master Unit is used, a maximum of 32 words can be allocated per node.

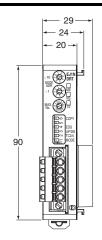
  Batch settings can be made for target values, alarm set values, PID constants, and other parameters for Temperature Controllers.

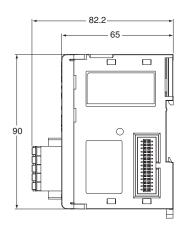


**Dimensions** (Unit: mm)

### EJ1N-HFUB-DRT







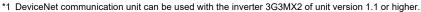


Multi-function Compact Inverter MX2-Series V1 type DeviceNet Communication Unit

## X-MX2-DRT

## Support for open network with **DeviceNet Communications Unit**

- Reduced wiring of Multi-function compact inverter MX2 series \*1
- 8 types of remote I/O functions The Explicit Message functions in addition to remote I/O functions
- Parameter edit via DeviceNet by using support tool CX-Drive \*2



\*2 CX-Drive can be used with version 2.6 or higher.

Note. Inverters MX2-series V1 type in this catalog have been discontinued.



#### **Ordering Information**

Name	Mountable Inverter	Model	
DeviceNet communication unit	MX2-series V1 type	3G3AX-MX2-DRT-E	

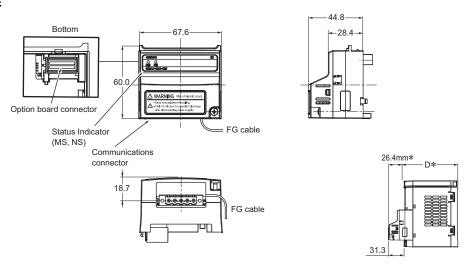
#### **Performance Specifications**

Power supply	Supplied from the inverter
Protective structure	IP20
Ambient Operating Temperature	-10 to 55°C (with no condensation)
Ambient Storage Temperature	-20 to 65°C (with no condensation)
Ambient Operating Humidity	20 to 90%RH
Vibration Resistance	5.9m/s <sup>2</sup> (0.6G) , 10 to 55Hz
Application Environment	At a maximum altitude of 1,000 m; indoors (without corrosive gases or dust)
Insulation Resistance	500VAC (between isolated circuits)
Weight	Approx.170g
Number of Words allocated	Initial setting IN:2CH/OUT:2CH (At maximum setting IN:10CH/OUT:10CH)

Note. For detail, refer to the MX2-series V1 type Catalog (Cat. No.1920).

**Dimensions** (Unit: mm)

#### 3G3AX-MX2-DRT-E



After the DeviceNet Communication Unit is installed, dimension D of the inverter increases by 26.4 mm (Dimension D of the inverter varies depending on the capacity. Refer to the MX2-series USER'S MANUAL (Cat.No.I585)) High-function General-purpose Inverters RX-Series V1 type DeviceNet Communication Unit

## X-RX-DRT-E

## Support for open network with **DeviceNet Communications Unit**

- Reduced wiring of Multi-function compact inverter RX series \*1
- 8 types of remote I/O functions The Explicit Message functions in addition to remote I/O functions
- Parameter edit via DeviceNet by using support tool CX-Drive \*2
- \*1 DeviceNet communication unit can be used with the inverter 3G3MX2 of unit version 1.1 or higher.
- \*2 CX-Drive can be used with version 2.6 or higher.

Note. Inverters RX-Series V1 type in this catalog have been discontinued.



#### **Ordering Information**

Name	Mountable Inverter	Model
DeviceNet communication unit	RX-series V1 type	3G3AX-RX-DRT-E

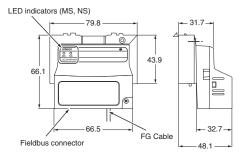
#### **Performance Specifications**

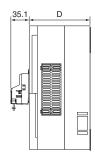
Power supply	Supplied from the inverter
Protective structure	IP20
Ambient Operating Temperature	-10 to 55°C (with no condensation)
Ambient Storage Temperature	-20 to 65°C (with no condensation)
Ambient Operating Humidity	20 to 90%RH
Vibration Resistance	5.9m/s <sup>2</sup> (0.6G) , 10 to 55Hz
Application Environment	At a maximum altitude of 1,000 m; indoors (without corrosive gases or dust)
Insulation Resistance	500VAC (between isolated circuits)
Weight	Approx.170g
Number of Words allocated	Initial setting IN:2CH/OUT:2CH (At maximum setting IN:10CH/OUT:10CH)

Note. For detail, refer to the RX-Series V1 type Catalog (Cat. No. 1919).

**Dimensions** (Unit: mm)

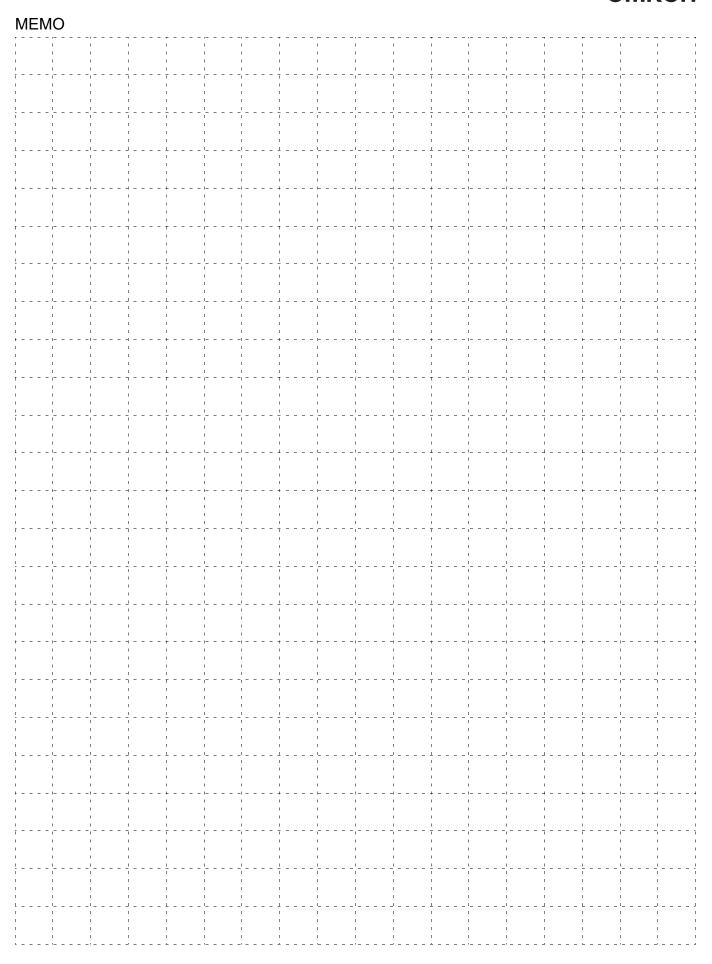
#### 3G3AX-RX-DRT-E



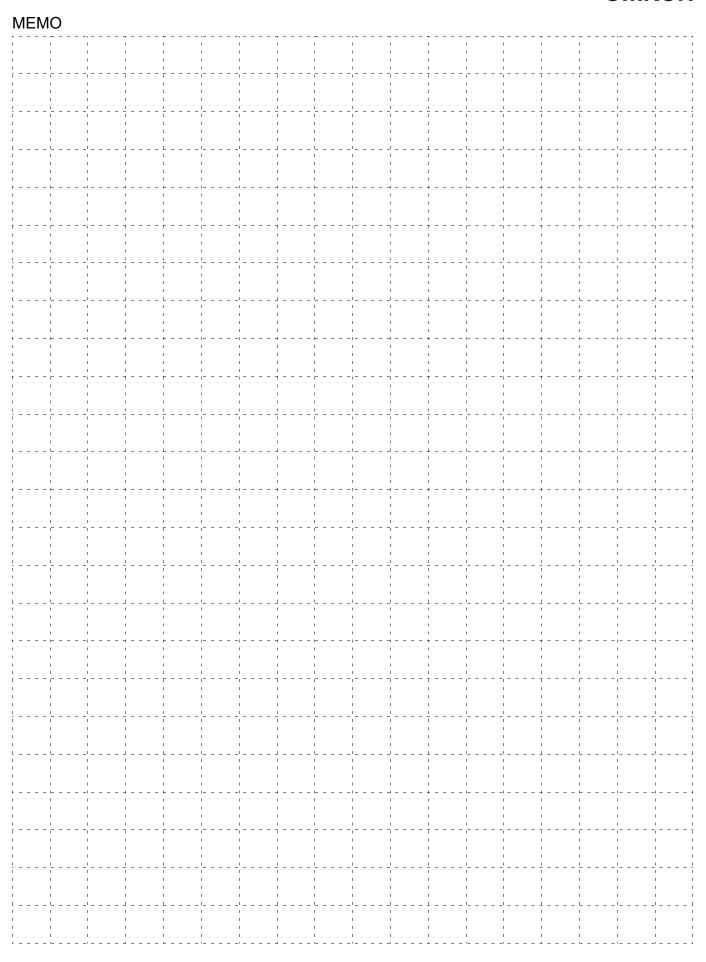


Note: After the DeviceNet™ Communication Unit is installed, dimension D of the inverter increases by 35.1 mm. (Dimension D of the inverter varies depending on the capacity. Refer to the RX-series V1 type USER'S MANUAL (Cat.No.I578))

## OMRON



## OMRON



## CIP Safety on DeviceNet System

Safety Network Controller	112
NE0A-SCPU01	
Safety Network Controller	117
NE1A-SCPU Series	
Safety I/O Terminals	122
DST1 Series	
Network Configurator	125
WS02-CESC1-E	

## **Safety Network Controller**

## NE0A-SCPU01

## **New Lineup for Safety Applications with Up to 12 Inputs**

- · Circuits for the required safety category are easy to build.
- The safety circuits you create can be registered as templates and reused, for easy standardization.
- TÜV-certified templates is also available.
- The NE0A operating conditions can be monitored from a standard DeviceNet Master.
- Network distribution is possible by combining with an NE1A Safety Controller.
- ISO13849-1 (PLe) and IEC 61508 SIL3 certification.











### Ordering Information

Name	I/O points			Model	Unit version
Name	Safety inputs	Test outputs	Safety outputs	Model Offic versio	
Safety Network Controllers	12 *	2	6	NE0A-SCPU01	Ver. 1.0

Note 1: The standard NEOA Safety Network Controller is equipped with spring-cage terminal blocks, but screw terminal blocks are available if desired, e.g., to replace previous

Note 2: Network Configurator version 2.1□ or higher must be used when using a NE0A-SCPU01 Safety Network Controller.

#### **Specifications**

#### **Certified Standards**

Certification body	Standard
TÜV Rheinland	EN ISO 13849-1 EN ISO 13849-2 IEC 61508 EN 62061 EN 61131-2 IEC 61326-3-1
UL	UL508 ISA12.12.01 UL1998 IEC 61508-3

#### **General Specifications**

nmunications power	11 to 25 VDC (supplied from the communications connector)
power supply	20.4 to 26.4 VDC
oly voltage (V1, V2)	(24 VDC -15%/+10%)
Communications power supply	24 VDC, 15 mA
Internal circuit power supply	24 VDC, 110 mA
I/O power supply *2	24VDC, 80mA(Input) 80mA(Output)
ategory	II
у	Conforms to IEC61131-2.
tance	10 to 57 Hz: 0.35 mm, 57 to 150 Hz: 50 m/s <sup>2</sup>
nce	150 m/s <sup>2</sup> : 11 ms
nod	DIN track mounting (IEC 60715 TH35-7.5/TH35-15)
ting temperature	-10°C to 55°C
iting humidity	10% to 95% (with no condensation)
ge temperature	-40°C to 70°C
ection	IP20
9	USB version 1.1
	440 g max.
	power supply 1 Communications power supply Internal circuit power supply I/O power supply  I/O power supply *2 ategory y tance nod ting temperature ting humidity ge temperature ection

V0-G0: Internal control circuit V1-G1 (G): For external input device, test output

V2-G2 (G): For external output device

\*2. Not including power consumption for external devices.

When using the NEOA-SCPU01 as a standalone Controller, one input each is required for the feedback input and manual restart.

#### **Safety Input Specifications**

Input type	Sinking inputs (PNP)	
ON voltage	11 VDC min. between each terminal and G1	
OFF voltage	5 VDC min. between each terminal and G1	
OFF current	1 mA max.	
Input current	4.5 mA	

## **Test Output Specifications**

Output type	Sourcing outputs (PNP)	
Rated output current	60 mA	
ON residual voltage	1.2 V max. between each output terminal and V1	
Leakage current	0.1 mA max.	

## **Safety Output Specifications**

Output type	Sourcing outputs (PNP)	
Rated output current	0.5 A max./output	
ON residual voltage	1.2 V max. between each output terminal and V2	
Leakage current	0.1 mA max.	

## **DeviceNet Communications Specifications**

Communications protocol	Conforms to DeviceNet				
Connection form	Multi-drop system and T-branch system can be combined (for trunk line and branch lines)				
Baud rate	500/250/125 kbps				
Communications media	Special cable, 5 conductors (2 for co	mmunications, 2 for power supply, 1 for sh	hielding)		
	Baud rate	Network length (max.)	Branch line length	Total branch line length	
	500 kbps	100 m max. (100 m max.)	_	39 m max.	
Communications distance	250 kbps	250 m max. (100 m max.)	6 m max.	78 m max.	
	125 kbps	500 m max. (100 m max.)		156 m max.	
	The values in parentheses are for 1	hin Cable.			
Communications power supply	11 to 25 VDC				
Maximum number of nodes	63				
Safety I/O communications	Safety Master function  • Max. no. of connections: 2 (one each for inputs and outputs)  Multi-cast inputs can be used to enable communications with up to 15 Safety Masters.  • Connection type: Single-cast, multi-cast				
Standard I/O communications	Standard Slave function  • Max. no. of connections: 2  • Connection type: Poll, bit-strobe, COS, cyclic				
Message communications	Max. message length: 502 bytes				

#### **Functions**

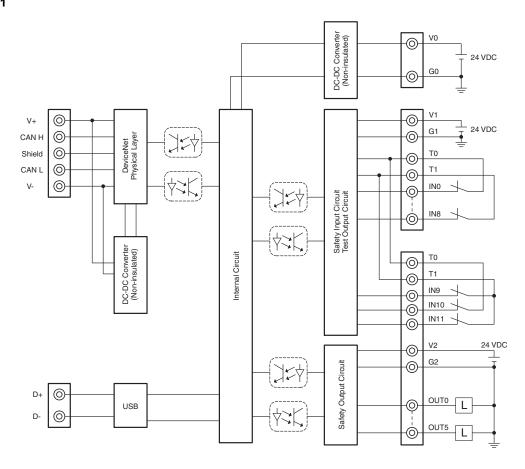
The following function blocks are available for designing safety circuits with the NE0A-SCPU01.

These function blocks can be selected and assembled using the interactive wizard format to efficiently design safety applications.

Classification of function block for safety circuit designs	Application					
	The following six parts can be selected for use as safety input devices. For Category 3 or 4 compliance, the filter monitoring time between signals can also be adjusted with redundant wiring for the necessary safety devices.					
	Emergency Stop Switches					
Function blocks for safety input devices and setting input filter	Safety Door Switches					
times		Limit Switches				
		Safety Light Curtains				
		Enabling Switches				
		Mode Selectors				
	Select a	Safety Light Curtain as the sa	afety input device, and select a muting function when required.			
Logic function blocks for input conditions		No setting	Uses the ON/OFF status from the safety input device exactly as it is.			
		OR operation				
		AND/OR operations	For switching maintenance areas with a Mode Selector.			
		AND operation	For applications such as a Safety Light Curtain muting function.			
		OR/AND operations				
Function blocks for resets	Selects manual or auto reset.					
	For applications such as stopping all outputs for multiple safety devices.					
Logic function blocks for output		No setting	Uses the ON/OFF status of the safety signal exactly as it is.			
conditions		AND operation	Selects the interlock conditions for the safety signal.			
		OR/AND operations	- Selects the interiock conditions for the safety signal.			
	Used to check the safety condition of an output device.					
Function blocks for setting the welded contact check		No setting	No checking of the output device (used for Category 2 or lower).			
		EDM	Used to check for contact welding in a Relay or Contactor. Also used to change the setting for monitoring time.			
Function blocks for safety output devices and setting output delay times	For setti	ng an auxiliary output (to outp	ut an error condition) and for setting the output delay.			

Note: There is a possibility that safety cannot be maintained when an OR part or an AND/OR part is selected for input logic, or an OR/AND part is selected for output logic. Sufficiently confirm safety prior to use.

#### NE0A-SCPU01

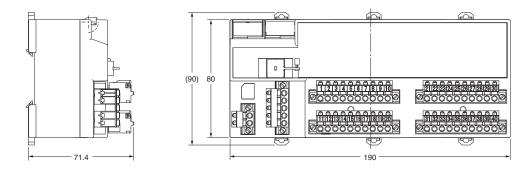


Terminal No.	Terminal name	Description	
	V0	Power supply terminal for internal circuit (24 VDC)	
	G0	Fower supply terminal for internal circuit (24 VDC)	
1	V1	Power supply terminal for external input device and test output (24 VDC)	
11	G1	Fower supply terminal for external input device and test output (24 VDC)	
24	V2	Power supply terminal for external output device (24 VDC)	
34	G2	Power supply terminal for external output device (24 VDC)	
2 to 10	IN0 to IN8	Safety input terminal Terminals IN10 and IN11 are used only for connecting a reset switch or EDM feedback.	
21 to 23	IN9 to IN11		
12 to 20 31 to 33	T0 to T1	Test output terminal Connected to IN0 to IN11 safety inputs. T0 and T1 output test pulses with different patterns. The T0 terminals are internally connected and the T1 terminals are internally connected.	
25 to 30	OUT0 to OUT5	Safety output terminals	
35 to 40	G2	Common terminal Terminals 34 to 40 are internally connected.	



**Dimensions** (Unit: mm)

NE0A-SCPU01



## **Safety Precautions**

• Be sure to read the following operation manual for precautions and other details required for correct use of the Safety Network Controller. CIP Safety on DeviceNet Safety Network Controller NE0A Series Operation Manual (Cat. No. Z916)

## **Safety Network Controller**

# **A-SCPU** Series

## **Achieve Safety Control through** Programming.

- · Compact Safety Controller.
- The NE1A-SCPU01-V1 provides 16 built-in safety inputs and 8 builtin safety outputs.
- The NE1A-SCPU02 provides 40 built-in safety inputs and 8 built-in safety outputs.
- Reduced wiring with safety networks. Connect up to 32 Safety
- · Monitor the safety system from Standard Controllers across the network.
- ISO13849-1 (PLe) and IEC 61508 SIL3 certification.





#### Ordering Information

Name	I/O points			Model Unit version	
Name	Safety inputs	Test outputs	Safety outputs	Wodel	Onit version
Safety Network Controllers	16	4	8	NE1A-SCPU01-V1	Ver. 2.0
Galety Network Controllers	40	8	8	NE1A-SCPU02	Ver. 2.0

Note: The standard NE1A Controllers are equipped with spring-cage terminal blocks, but other screw terminal blocks are available if desired, e.g., to replace previous terminals. Refer to Accessories.

#### **Specifications**

#### **Certified Standards**

Certification body	Standard
TÜV Rheinland	EN ISO 13849-1, EN ISO 13849-2, IEC 61508, EN 62061, EN 61131-2, IEC 61326-3-1
UL	UL508, ISA12.12.01, UL1998, IEC 61508-3

#### **General Specifications**

Item Model NE1A-SCPU01-V1 NE1A-SCPU			NE1A-SCPU02		
DeviceNet Communications power		11 to 25 VDC (supplied from the			
supply voltage		communications c	onnector)		
	oower supply voltage (V0) *1	20.4 to 26.4 VDC			
I/O power sup	ply voltage (V1, V2) *1	(24 VDC -15%/+10	0%)		
Communications power supply		24 VDC, 15 mA			
Current consumption	Internal circuit power supply	24 VDC, 230 mA	24 VDC, 280 mA		
Concamption		24 VDC,	24 VDC,		
	I/O power supply *2	40 mA (Input)	80 mA (Input)		
		120 mA (Output)	150 mA (Output)		
Overvoltage c	-	II			
Noise immunity		Conforms to IEC61131-2.			
Vibration resistance		10 to 57 Hz: 0.35 mm, 57 to 150 Hz: 50 m/s <sup>2</sup>			
Shock resistance		150 m/s <sup>2</sup> : 11ms			
Mounting met	had	DIN Track			
Woulding med	ilou	(IEC 60715 TH35-7.5/TH35-15)			
Ambient operating temperature		-10°C to 55°C			
Ambient operating humidity		10% to 95% (with no condensation)			
Ambient storage temperature		-40°C to 70°C			
Degree of protection		IP20			
Serial interfac	Serial interface		USB Ver1.1		
Weight	<b>Weight</b> 460 g max. 690 g max.		690 g max.		

V0-G0: Internal control circuit

V1-G1 (G): For external input device, test output

V2-G2 (G): For external output device
The two ground terminals on the NE1A-SCPU02 are internally connected.

Not including power consumption for external devices.

#### Safety Input Specifications

Input type	Sinking inputs (PNP)	
ON voltage	11 VDC min. between each terminal and ground	
OFF voltage	5 VDC min. between each terminal and ground	
OFF current	1 mA max.	
Input current	4.5 mA	

#### Safety Output Specifications

Output type	Sourcing outputs (PNP)
Rated output current	0.5 A max./output
ON residual voltage	1.2 V max. between each output terminal and V2
Leakage current	0.1 mA max.

#### **Test Output Specifications**

Output type	Sourcing outputs (PNP)
Rated output current	0.7 A max./output *
ON residual voltage	1.2 V max. between each output terminal and V1
Leakage current	0.1 mA max.

The maximum current for simultaneously ON outputs is 1.4 A. (T0 to T3: NE1A-SCPU01-V1, T0 to T7: NE1A-SCPU02) A 15 to 400-mA, 24-VDC external indicator can be connected to T3 and T7.

#### **DeviceNet Communications Specifications**

Communications protocol	Conforms to DeviceNet				
Connection form	Multi-drop system and T-branch system can be combined (for trunk line and branch lines)				
Baud rate	500/250/125 kbps				
Communications media	Special 5-wire cable (2 signal lines, 2 power supply lines, 1 shield line)				
	Baud rate	Network length (max.)	Branch line length	Total branch line length	
	500 kbps	100 m max. (100 m max.)		39 m max.	
Communications distance	250 kbps	250 m max. (100 m max.)	6 m max.	78 m max.	
	125 kbps	500 m max. (100 m max.)		156 m max.	
	The values in parentheses are for Th	in Cable.			
Communications power supply	11 to 25 VDC				
Maximum number of nodes	63				
Safety I/O communications (Pre-Ver. 1.0)	Safety Master function  • Max. no. of connections: 16  • Max. data size: Input 16 bytes or output 16 bytes (per connection)  • Connection type: Single-cast, multi-cast Safety Slave function  • Max. no. of connections: 4  • Max. data size: Input 16 bytes or output 16 bytes (per connection)  • Connection type: Single-cast, multi-cast				
Safety I/O communications (unit version 1.0 or later)	Safety Master function  • Max. no. of connections: 32  • Max. data size: Input 16 bytes or output 16 bytes (per connection)  • Connection type: Single-cast, multi-cast Safety Slave function  • Max. no. of connections: 4  • Max. data size: Input 16 bytes or output 16 bytes (per connection)  • Connection type: Single-cast, multi-cast				
Standard I/O communications (all unit versions)	Standard Slave function  • Max. no. of connections: 2  • Max. data size: Input 16 bytes or output 16 bytes (per connection)  • Connection type: Poll, bit-strobe, COS, cyclic				
Message communications	Max. message length: 552 bytes				

## **Functions**

#### **Function Blocks**

NE1A-SCPU-series Controller support the following logic functions and function blocks. Support depends on the unit version.

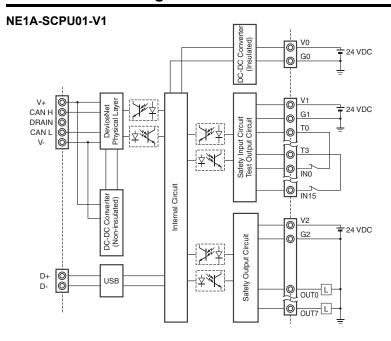
#### ●Logic Functions

Name	Name Function list entry	
NOT	NOT	
AND	AND	
OR	OR	All
Exclusive OR	EXOR	
Exclusive NOR	EXNOR	
RS Flip-flop	RS-FF	1.0 or later
Comparator	Comparator	1.0 of later

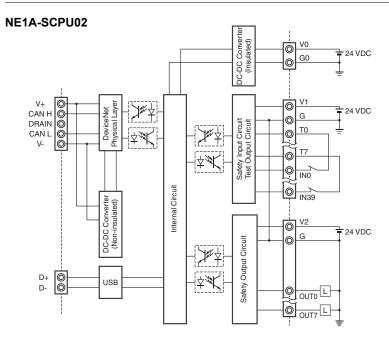
#### Function Blocks

Name	Function list entry	Supporting unit versions
Reset	Reset	
Restart	Restart	
Emergency Stop Monitoring	E-STOP	
Light Curtain Monitoring	Light Curtain Monitoring	
Safety Gate Monitoring	Safety Gate Monitoring	
Two-hand Controller	Two Hand Controller	All
Off-Delay Timer	Off-Delay Timer	
On-Delay Timer	On-Delay Timer	
User Mode Switch Monitoring	User Mode Switch	
External Device Monitoring	EDM	
Routing	Routing	
Muting	Muting	
Enable Switch Monitoring	Enable Switch	
Pulse Generator	Pulse Generator	1.0 or later
Counter	Counter	
Multiconnector	Multi Connector	

## **Internal Circuit Diagrams**



Terminal name	Description
V0	Power supply terminal for internal circuit The two V0 terminals are internally connected.
G0	Power supply terminal for internal circuit The two G0 terminals are internally connected.
V1	Power supply terminal for external input device and test output
G1	Power supply terminal for external input device and test output
V2	Power supply terminal for external output device
G2	Power supply terminal for external output device
IN0 to IN15	Safety input terminal
T0 to T3	Test output terminal Connected to IN0 to IN15 safety inputs. Each test output terminal outputs a different test pulse pattern. Terminal T3 also supports a current monitoring function for the output signal. Example: Muting lamp
OUT0 to OUT7	Safety output terminals

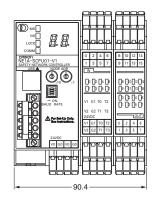


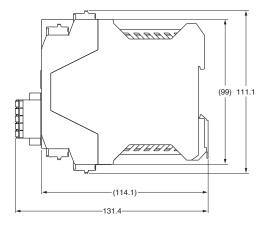
Terminal name	Description
V0	Power supply terminal for internal circuit The two V0 terminals are internally connected.
G0	Power supply terminal for internal circuit The two G0 terminals are internally connected.
V1	Power supply terminal for external input device and test output
G	Power supply terminal for external input device and test output
V2	Power supply terminal for external output device
G	Power supply terminal for external output device
IN0 to IN39	Safety input terminal
T0 to T3	Connected to IN0 to IN19 safety inputs. Each test output terminal outputs a different test pulse pattern. Terminal T3 also supports a current monitoring function for the output signal. Example: Muting lamp
T4 to T7	Test output terminal Connected to IN20 to IN39 safety inputs. Each test output terminal outputs a different test pulse pattern. Terminal T7 also supports a current monitoring function for the output signal. Example: Muting lamp
OUT0 to OUT7	Safety output terminals



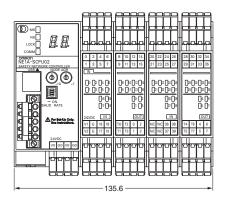
**Dimensions** (Unit: mm)

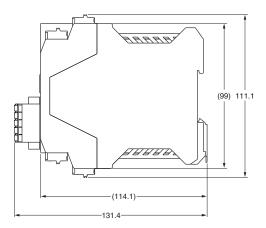
#### NE1A-SCPU01-V1





#### NE1A-SCPU02





## **Safety Precautions**

●Be sure to read the following operation manual for precautions and other details required for correct use of the Safety Network Controller. CIP Safety on DeviceNet Safety Network Controller Operation Manual (Cat. No. Z906)

#### **Functions Supported According to Unit Version**

O: Supported, ---: Not supported

	Model	NE1A-SCPU01	NE1A-SCPU01-V1	NE1A-SCPU02
Function	Unit version	Pre-Ver. 1.0	Unit version 1.0/2.0	Unit version 1.0/2.0
	Maximum program size (total number of function blocks)	128	254	254
Logic processing functions	New Function Blocks  RS flip-flop  Multiconnector  Muting  Enable Switch Monitoring  Pulse Generator  Counter  Comparator		O	0
	Selecting a rising edge as the reset condition for Reset and Restart function blocks		0	0
	Using local I/O status in logic programming		0	0
	Using overall Unit status in logic programming		0	0
	Program execution wait functions		O (Unit version 2.0 or higher)	O (Unit version 2.0 or higher)
I/O control functions	Monitoring contact operation counter		0	О
I/O control functions	Mounting total ON time monitor		0	0
DeviceNet communications	Number of safety I/O connections for Safety Master	16	32	32
	Selecting operating mode for safety I/O communications when communications errors occur		0	0
	Attaching local output data to send data during slave operation		0	0
functions	Attaching local I/O monitor data to send data during slave operation		0	0
	Functions to communicate with devices existing on other networks (Off-Link connection)		O (Unit version 2.0 or higher)	O (Unit version 2.0 or higher)
System startup and error	Storing log of nonfatal errors in nonvolatile memory		0	0
recovery functions	Adding function block errors to error log		0	0
EtherNet/IP	I/O communications			
communications functions	Message communications			
	Read/write of target I/O area			
Routing between	I/O routing			
DeviceNet and EtherNet/IP	Message routing			
UDP/IP message communications functions	Message communications by UDP/IP			

#### Unit Versions and Network Configurator Versions

Network Configurator version 2.0□ or higher must be used when using a NE1A-SCPU01-V1 or NE1A-SCPU02 Safety Logic Controller with unit version 2.0.

O: Supported, ---: Not supported

Model	Network Configurator					
Wiodei	Ver. 1.3□	Ver. 1.5□	Ver. 1.6□	Ver. 2.0□/2.1□	Ver.2.2□	Ver.3.3□
NE1A-SCPU01 Pre-Ver. 1.0	0	0	0	0	0	0
NE1A-SCPU01-V1 Unit version 1.0	×	×	0	0	0	0
NE1A-SCPU02 Unit version 1.0	×	×	0	0	0	0
NE1A-SCPU01-V1 Unit version 2.0	×	×	O ( <b>*</b> 1)	0	0	О
NE1A-SCPU02 Unit version 2.0	×	×	O ( <b>*</b> 1)	0	0	0

It can be used as unit version 1.0.

Note 1: Users who use Network Configurator version 1.5□ or earlier can upgrade to version 1.6□ at no charge.

Note 2: When using Network Configurator version 1.6□, there are no operational differences in the NE1A-SCPU01-V1 and NE1A-SCPU02.

#### Version Upgrade

If you have purchased Ver.1. \( \subseteq \), you will need to buy the upgrade CD-ROM. (Refer to page 127.)

## **Safety I/O Terminals**

# DST1 Series

## **Distributed Safety Terminals** That Reduce Wiring.

- · Lineup includes four models to accommodate various I/O types and number of I/O points.
- · Monitor the safety system from Standard Controllers across the network.
- EN954-1 (Cat.4), ISO13849-1 (PLe), and IEC 61508 SIL3 certification.
- The DST1-XD0808SL-1 also supports logic operation functions for high-speed processing in applications requiring partial stopping of the safety system.















### Ordering Information

Name	I/O points	Model
Safety I/O Terminals	Safety inputs: 12, test outputs: 4	DST1-ID12SL-1
	Safety inputs: 8, safety outputs (semiconductor): 8, test outputs: 4	DST1-MD16SL-1
	Safety inputs: 8, safety outputs (semiconductor): 8, test outputs: 4	DST1-XD0808SL-1 *
	Safety inputs: 4, safety outputs (relay): 4, test outputs: 4	DST1-MRD08SL-1

Note: The standard DS1T Safety I/O Terminals are equipped with spring-cage terminal blocks, but screw terminal blocks are available if desired, e.g., to replace previous terminals. Refer to CIP Safety on DeviceNet Accessories.

Use the Safety Network Configurator Ver. 2.0 or later to make DST1-XD0808SL-1 settings

#### **Specifications**

#### **Certified Standards**

Certification body	Standard
TÜV Rheinland	EN ISO 13849-1, EN ISO 13849-2, IEC 61508, EN 62061, EN 61131-2, IEC 61326-3-1
UL	UL508, ISA12.12.01 (excluding the DST1-MRD08SL-1), UL1998, IEC 61508-3

#### **General Specifications**

Item	Model	DST1- ID12SL-1	DST1- MD16SL-1	DST1- MRD08SL-1	DST1- XD0808SL-1	
DeviceNet Communications power supply voltage		11 to 25 VDC (supplied from the communications connector)				
I/O power supply voltage		20.4 to 26.4 VDC (24 VDC -15%/+10%)				
Current	Commu- nications power supply	24 VDC, 100 mA	24 VDC, 110 mA	24 VDC, 100 mA	24 VDC, 110 mA	
con- sumption	I/O power supply *	24 VDC 70 mA	24 VDC 50 mA (Input) 130 mA (Output)	24 VDC 80 mA (Input) 130 mA (Output)	24 VDC 50 mA (Input) 130 mA (Output)	
Overvoltage category		Ш				
Noise immunity		Conforms to IEC61131-2				
Vibration resistance		10 to 57 Hz: 0.35-mm single amplitude, 57 to 150 Hz: 50 m/s <sup>2</sup>				
Shock resistance 150m/s <sup>2</sup> 11ms				100m/s <sup>2</sup> 11ms	150m/s <sup>2</sup> 11ms	
Mounting	Mounting method		DIN track mounting (DIN 35 mm)			
Ambient operating temperature		-10°C to 55°C				
Ambient operating humidity		10% to 95% (with no condensation)		10% to 85% (with no condensation)	10% to 95% (with no condensation)	
Ambient stemperatu		-40°C to 70°C				
Degree of	protection	IP20				
Weight	Weight 420 g			600 g	420 g	

Not including power consumption for external devices

#### Safety Input Specifications

(Common with the DST1 Series)

Input type Sinking inputs (PNP)	
ON voltage 11 VDC min.	
OFF voltage 5 VDC max.	
OFF current 1 mA max.	
Input current	6 mA

#### **Safety Output Specifications (Semiconductor** output) (Common with the DST1-MD16SL-1/XD0808SL-1)

Output type	Sourcing outputs (PNP)	
Rated output current 0.5 A max./output		
ON residual voltage 1.2 V max.		
Leakage current 0.1 mA max.		

#### **Test Output Specifications**

(Common with the DST1 Series)

Output type	Sourcing outputs (PNP)	
Rated output current	0.7 A max./output	
ON residual voltage	1.2 V max.	
Leakage current	0.1 mA max.	

#### **Safety Output Specifications (Relay Output)** (DST1-MRD08SL-1)

Applicable relays		G7SA-2A2B, EN50205 Class A	
Failure rate P level * (Reference value)		5 VDC, 1 mA	
Rated load (resistive)		2 A at 240 VAC, 2 A at 30 VDC	
	Mechanical	5,000,000 operations min. (at 7,200 operations/h)	
Durability Electrical		100,000 operations min. (at 1,800 operations/h with a resistive load)	

This value is equivalent to 300 operations/minute.

#### **CIP Safety on DeviceNet Communications**

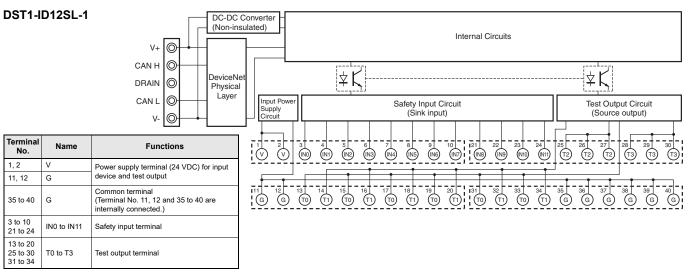
Safety Slave communications Max. 4 connections (Max. 2 connections for the DST1-XD0808SL-1)	5	fety Slave communications		r
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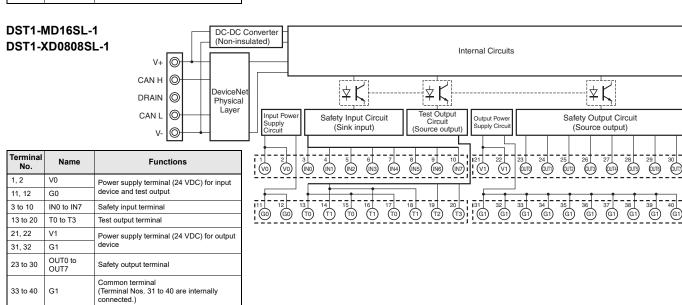
#### **DeviceNet Slave Communications**

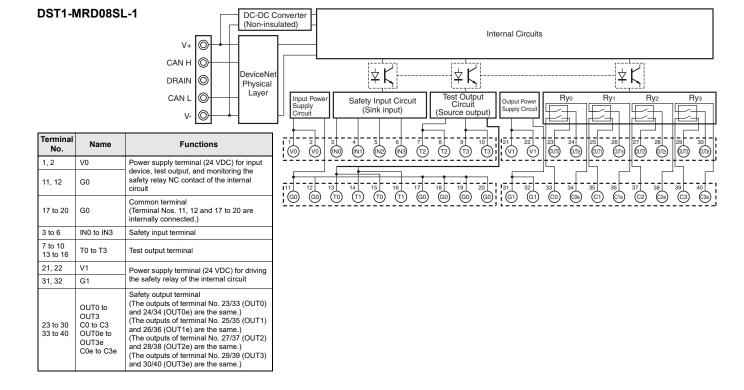
(Common with the DST1 Series)

Standard Slave communications	Max. 2 connections
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#### **Internal Circuit Diagrams**



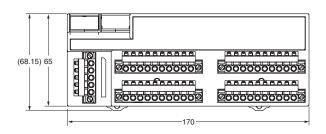


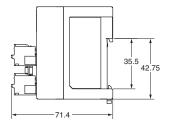




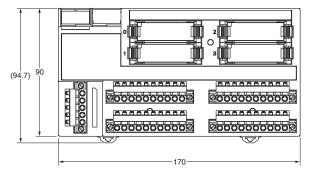
**Dimensions** (Unit: mm)

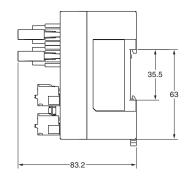
DST1-ID12SL-1 DST1-MD16SL-1 DST1-XD0808SL-1





#### DST1-MRD08SL-1





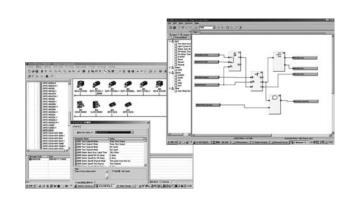
## **Safety Precautions**

■ Be sure to read the following operation manual for precautions and other details required for correct use of the Safety Network Controller. CIP Safety on DeviceNet Safety I/O Terminals Operation Manual (Cat. No. Z904)

# WS02-CFSC1-E

## **Programming Software for Creating Safety Circuits.**

- Performs settings for the Safety Network Controllers and Safety I/O Terminals.
- · Provides safety circuit programming functions.
- Provides monitoring functions for safety circuits.
- · Includes DeviceNet Configurator functions.



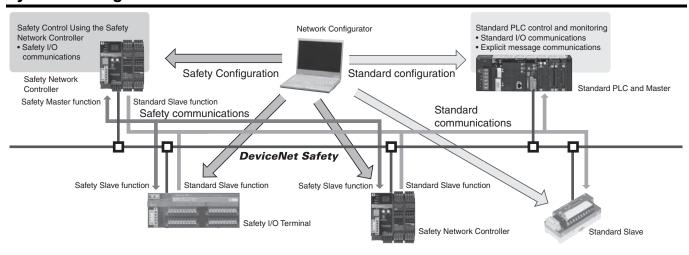
#### **Ordering Information**

Name	Components	Applicable computer	Applicable OS *	Model
	Installation disc (CD-ROM: 1 license)	Windows XP Service Pack 3 (32-bit edition) Windows Vista Service Pack 2 (32-bit edition, 64-bit edition) Windows 7 (32-bit edition, 64-bit edition)		WS02-CFSC1-EV3
Network Configurator	Upgrade disc (CD-ROM: 1 license)	IBM PC/AT or compatible	(32-bit edition) (44-bit edition) Windows 8 (32-bit edition, 64-bit edition) Windows 8.1 (32-bit edition, 64-bit edition) Windows 10 (32-bit edition, 64-bit edition)	WS02-CFSC1-EV3-UP

Note: Consult your OMRON representative for the license not listed above.

\* The applicable OS depends on the version. Refer to general specifications for details.

#### **System Configuration**



#### **General Specifications**

Item	Overview
OS Japanese or English version	■ Ver. 2.2□ or earlier Windows 2000 Professional (Service Pack 4 or later) Windows XP (Service Pack 2 or later, except for 64-bit version) Windows Vista (Service Pack 1 or later, except for 64-bit version)  ■ Ver. 3.30 or later Windows XP (Service Pack 3 or later, except for 64-bit version) Windows Vista (Service Pack 2 or later) Windows Vista (Service Pack 2 or later) Windows 7  ■ Ver. 3.4 or later Windows XP Service Pack 3 (32-bit edition) Windows XP Service Pack 2 (32-bit edition) Windows Vista Service Pack 2 (32-bit edition) Windows 7 (32-bit edition, 64-bit edition) Windows 8 (32-bit edition, 64-bit edition) Windows 8.1 (32-bit edition, 64-bit edition) Windows 10 (32-bit edition, 64-bit edition) Windows 10 (32-bit edition, 64-bit edition) Note: Administrator rights are required for installation.
Main unit	Personal computer with processor recommended by Microsoft
Memory	Memory capacity recommended by Microsoft
Hard disk drive	At least 200 MB of hard disk space
Monitor	SVGA (800 x 600 resolution) or higher with 256 colors minimum
Disk device	CD-ROM drive
Mouse	Windows-supported mouse or other pointing devices
Communications port (Note)	One of the following communications port is required:  • USB port: When using a USB port (USB 1.1) of NE1A-SCPU series or NE0A series to connect online  • Ethernet port: When using Ethernet to connect online  • DeviceNet interface card (3G8F7-DRM21 or 3G8E2-DRM21-V1) *1: When using DeviceNet to connect online

- Note 1: PC cannot be put into a standby state with the NE1A series connected via USB cable.
  - 2: DeviceNet interface card does not conform to 64-bit operating system.
  - 3: One or more USB port is required on a communications port of the maintenance tool.
  - 4: Windows is a registered trademark of Microsoft.
- \*1. Product no longer available to order.

#### Safety Precautions

Be sure to read the following operation manual for precautions and other details required for correct use of the Safety Network

CIP Safety on DeviceNet Safety Network Configurator Operation Manual (Cat. No. Z905)

#### **Unit Versions and Network Configurator Versions**

Network Configurator version 2.0 or higher must be used when using a NE1A-SCPU01-V1 or NE1A-SCPU02 Safety Logic Controller with unit version 2.0. The following table shows the relationship between unit versions and Network Configurator versions.

O: Applicable, X: Not applicable

Model	Network Configurator					
Wiodei	Ver. 1.3□	Ver. 1.5□	Ver. 1.6□	Ver. 2.0□/2.1□	Ver.2.2□	Ver.3.3□
NE1A-SCPU01 Pre-Ver. 1.0	0	0	0	0	0	0
NE1A-SCPU01-V1 Unit version 1.0	×	×	0	0	0	О
NE1A-SCPU02 Unit version 1.0	×	×	0	0	0	0
NE1A-SCPU01-V1 Unit version 2.0	×	×	○ (*1)	0	0	0
NE1A-SCPU02 Unit version 2.0	×	×	○ (*1)	0	0	О

It can be used as unit version 1.0.

Note 1: Users who use Network Configurator version 1.5□ or earlier can upgrade to version 1.6□ at no charge.

2: When using Network Configurator version 1.6□, there are no operational differences in the NE1A-SCPU01-V1 and NE1A-SCPU02 Safety Logic Controllers that derive from the unit version.

## Configurator/Software

DeviceNet Configurator Software Version 2.□1	28
WS02-CFDC1	
DeviceNet Configurator PC Card (Software Included) 1	28
3G8E2-DRM21-V1	
DeviceNet Analyzer 1	30
WS02-ALDC1	
NX-Server1	31
WS02-NX□C1	
Device Inspector1	32
WS02 DIPC1	

**DeviceNet Configurator Software Version 2.**□

WS02-CFDC1

**DeviceNet Configurator PC Card (Software Included)** 

3G8E2-DRM21-V1 Final order entry date: The end of March, 2020

### **Easily Build and Maintain Multi-vendor DeviceNet Networks.**

- Easily build networks using graphical screen operations.
- Make connections from a DeviceNet Card for personal computers or from a serial port.
- · Monitor devices while connected online.
- · Build maintenance systems with Smart Slaves.



#### **Ordering Information**

Name	Applicable OS	Model
DeviceNet Configurator Software	Windows 2000 (Service Pack2 or higher)/XP/Vista/7 (32bit) *1	WS02-CFDC1-E
DeviceNet Configurator PC Card *2	Windows 2000 (Service Pack2 or higher)/XP	3G8E2-DRM21-EV1 *3

- To use the software on Windows Vista or Windows 7, download the version upgrade program from the following OMRON website and apply it: www.fa.omron.co.jp/
- The DeviceNet Configurator Software is included with the 3G8E2-DRM21-V1.
- Final order entry date: The end of March, 2020

Specification	s
Basic Functions	Virtual network management, device settings (I/O allocations, connection settings), device monitoring, device (EDS file) management, and online connections to DeviceNet devices
Created Files	Configurator network configuration files (*.npf) Configurator device parameter files (*.pvf)
Files created by exporting data	I/O comments: CSV-format files (*.csv) NetXServer DDE settings file (*.nxd) NetXServer ONC settings files (*.ini) ONC DRM Unit settings files (*.ini)

#### System Requirements

CPU Processor recommended by Microsoft. os

Windows 2000 (ServicePack2 or higher)/XP/Vista/7 (32bit) \*

\* To use the software on Windows Vista or Windows 7, download the version upgrade program from the following OMRON website and apply it: www.fa.omron.co.jp/

#### **Hardware for Network Connection**

Either of the following software applications is required to connect online to DeviceNet devices

#### **OMRON DeviceNet Board**

• Special PCI Board: 3G8F7-DRM21 • Special PC Card: 3G8E2-DRM21-V1

#### OMRON CS/CJ-series PLC equipped with DeviceNet Unit

- Peripheral port \*1
- Serial communications port or Serial Communications Unit \*1
- Ethernet Unit \*2
- \*1: An RS-232C COM port is required on the computer.
- \*2: An Ethernet port is required on the computer.

#### Supported OS

Name		os		
Name	Name		Vista/7	
DeviceNet Configurator Software		Supported	Supported	
OMRON DeviceNet Board	PCI Board	Supported	Supported (32bit)	
OWINGIN Devicemet Board	PC Card	Supported	Not Supported	

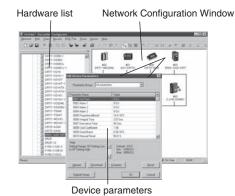
#### **Building and Setting Networks**

#### Easy to Build Networks Using Graphical Screen Operations

You can build a network and make device settings on a computer by dragging and dropping devices selected from the hardware list for virtual networks (equivalent to network configuration files) in the Configurator. Also, configurations can be downloaded to devices online and saved in

#### Setting Device Parameters

You can configure a network and edit device parameters by dragging and dropping device files in the virtual network in the Configurator when it is offline. This improves design efficiency.



#### Creating a Scan List with the Wizard (Conversational Settings)

You can use the wizard to easily allocate I/O and register Slaves to the Master to create a scan list.

And, you can easily check allocations to registered Slaves.



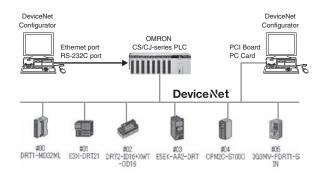
Scan List Wizard

#### **Online Connections**

#### Connection from a DeviceNet Board for PC or Serial Port

Connections can be made online using a DeviceNet Board, DeviceNet Card, or OMRON CS/CJ-series PLC from the computer.

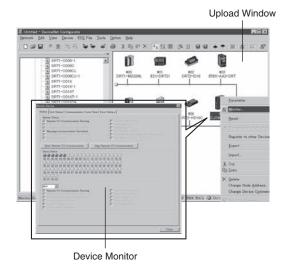
- You can directly connect to DeviceNet devices by using an OMRON PCI Board or PC Card through a DeviceNet Board or DeviceNet Card. (Nodes are allocated to the Board/Card.)
- Computer RS-232C COM Port Connection
   Connections can be made using a peripheral port or a serial port on a
   Serial Communications Board/Unit of an OMRON CS/CJ-series PLC that has a DeviceNet Unit connected to the COM port on a computer.
- Computer Ethernet Port Connection
   Connections can be made using an Ethernet Unit of an OMRON
   CS/CJ-series PLC that has a DeviceNet Unit connected to the Ethernet port on a computer.



#### **Device Management and Monitoring**

#### **Monitor Devices While Connected Online**

- Support for Network Downloading and Monitoring for Devices\*
   The following items can be monitored using an OMRON CS/CJ-series
- · Overall communications status of network
- Status of Masters and Slaves
- Unit status
- · Communications cycle time
- Error history

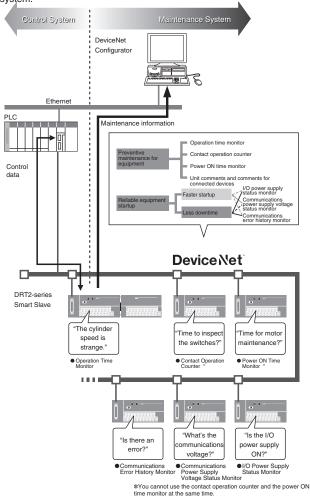


#### **Building Maintenance Systems**

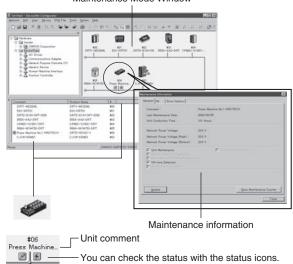
#### **Maintenance Systems Built with Smart Slaves**

Smart Slave Maintenance Information

Maintenance information stored in Smart Slaves can be read and use to build a maintenance system that functions separately from the control system



Maintenance Mode Window



#### **Configurator List**

- Software only: WS02-CFDC1-E
- PC Card with software included: 3G8E2-DRM21-V1 \*1
   (Applicable OS: Windows 2000 (ServicePack2 or higher)/XP)
   \*1. Final order entry date:The end of March, 2020

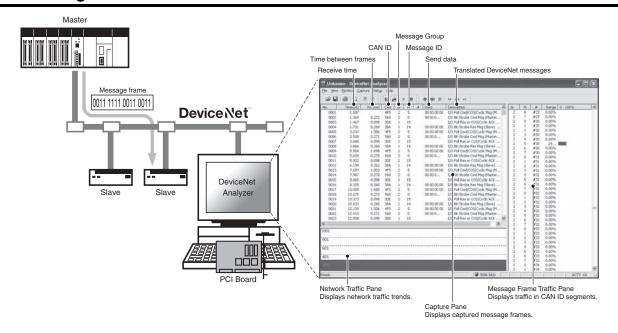
# WS02-ALDC1

Final order entry date: The end of March, 2020

# Perform Diagnosis and Analysis for Networks by Directly Connecting to an OMRON DeviceNet PCI Board. Helps Improve Efficiency of Device Development and System Startup.

- · Capture messages frames flowing on DeviceNet.
- · Translate and display the captured message frames to easily perform diagnosis and analysis.
- Functionality is provided in the capture filter to display only messages that match the specified conditions.
- Set the trigger conditions for starting and stopping capture.
- Combine multiple conditions (e.g., AND, OR, THEN) for the trigger conditions.
- Display the traffic (load percentage) in a trend graph for each time interval (100 ms) to determine changes in the communications cycle time and to help determine system distribution.
- Display the percentage of a specified message frame relative to all message frames.

#### **System Configuration**



#### **Ordering Information**

Name	Applicable OS	Description	Model
DeviceNet Analyzer	Windows 2000 (Service Pack2 or higher)/XP	This software captures the required messages that flow on DeviceNet to diagnose and analyze the network.	WS02-ALDC1-E

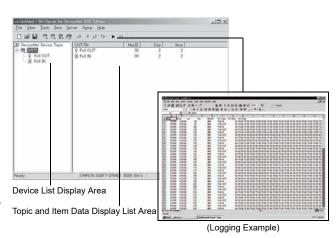
Specifications		System R	equirements
Basic Functions	Translation, capture buffer size settings, capture filter, capture trigger, capture export, frame time measurement, network	CPU	Processor recommended by Microsoft.
	traffic monitor, message frame traffic monitor		Windows 2000 (ServicePack2 or higher)/XP
Created files	NetInspector capture files (*.alz) Contents: Capture data files (saved or loaded), CSV-format of	Compatible Hardware	
	text (.txt) files, capture data export files		viceNet Board Board: 3G8F7-DRM21

## **NX-Server** WS02-NX□C1

Final order entry date: The end of March, 2020

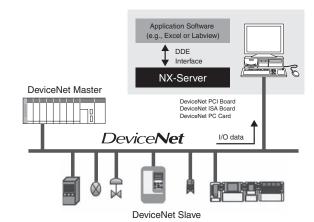
### **Easily Perform Monitoring and** Logging for Various Types of I/O Data on DeviceNet.

- Monitor I/O data flowing on DeviceNet.
- · Log data of specified devices using advanced triggering.
- The NX-Server is equipped with a unique frame analysis engine, and so a node is not allocated to it.
- Collect data without increasing network traffic.
- The product lineup includes a development kit for developing a DDE server and applications as well as software for operating existing user applications.



#### Ordering Information

	Name	Applicable OS	Description	Model
	For DeviceNet DDE Edition		This confirmation with the HO date	
NX-Server	For DeviceNet SDK Edition	Windows 2000 (Service Pack2 or higher)/XP	This software monitors and logs I/O data on DeviceNet lines.	WS02-NXDC1-E
	For DeviceNet RT Edition		Boviosivot iirios.	



#### Logging

Logging can be performed by directly obtaining from the line the commands

communicated between the specified Slaves and

The logging data can be saved in an CSV-format file and analyzed in Excel

- Set triggers to start logging or other processes simply by selecting device topics.
- You can set whether to perform logging for each device and also set the trigger conditions.

#### **Monitor**

Using the NX-Server, you can display in realtime the data of nodes specified in application software on a DDE interface, such as Excel.

- Display the data of all Slaves participating in a DeviceNet network.
- One optional function provided by the NX-Server lets you open a specific file (in this case, a set Excel file) at the same time that the NX-Server starts
- Also, the NX-Server can be incorporated into monitoring software, such as Labview, in addition Excel.

#### **NetXServer Functions**

- Topic names and item names for data can be flexibly set for individual devices to
- Server name of DDE interface for user-disclosed interface: NETXDNET.
- The size and format (bit, byte, or word) of data can be specified.
- Whether to log data for each device and setting the trigger conditions can be performed for each device.
- Logging data can be checked in standard CSV format.
- The NX-Server is equipped with a unique frame analysis engine, and so a MAC ID is not allocated
- Data can be collected without increasing network traffic.

#### **Product Introduction**

- The NX-Server for DeviceNet DDE Edition is a dynamic data exchange (DDE) server that provides software to collect I/O data and perform host monitoring of the collected I/O data
- The NX-Server for DeviceNet SDK Edition is a development kit for developing applications that use core modules of NetXServer for DeviceNet.
- The NX-Server for DeviceNet RT Edition is platform software to operate user applications developed using the SDK Edition.
- The 3G8F7-DRM21 PCI Board or 3G8E2-DRM21-V1 PC Card can be used for the hardware

#### System Requirements for NX-Server for DeviceNet DDE Edition

Pentium 166 MHz or better

os Windows 2000 (ServicePack2 or higher)/XP

**Created Files** 

NetXServer settings files (\*.nxd) Logging data: CSV-format files (\*.csv)

#### Compatible Hardware

OMRON DeviceNet Board or Card Special PCI Board: 3G8F7-DRM21 Special PC Card: 3G8E2-DRM21-V1

 The hardware is included with the Configurator. The applicable OS depends on the hardware. Check the requirements before

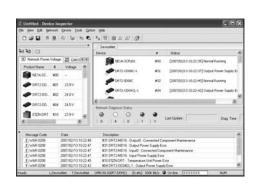
## Device Inspector

## WS02-DIPC1

Final order entry date: The end of March, 2020

# Software for Monitoring the Status of Devices on DeviceNet and Detecting Errors.

- Easily access the status of devices and present error details.
- · View all CAN errors held by devices.
- · Monitor device participation and withdrawal.
- Display error detection data with a time stamp and save the data to a file.
- Use a graph display of the network power supply voltage to monitor changes.

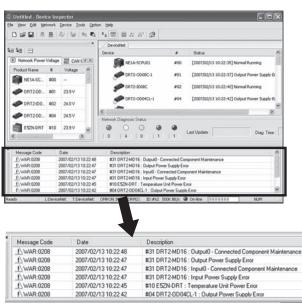


#### **Ordering Information**

Name	Applicable OS		Description	Model
Device Inspector	Device Inspector Windows 2000 (ServicePack2 or higher)/XP	One-license version Media: CD	Software for monitoring the status of devices on a network and detecting errors.	WS02-DIPC1-E
	(Servicer ack2 or higher //AF	Site license	network and detecting ends.	WS02-DIPC1-ELXX

#### **Device Inspector Functions**

Function	Description
Network diagnosis	Reads the status of network devices and monitors errors.
Device monitor	Enables monitoring the status of devices.
Maintenance	Enables displaying maintenance information for DeviceNet.
CAN error monitor	Monitors device CAN error data for DeviceNet.
Network power supply voltage monitor	Monitors device network power supply voltage for DeviceNet.
Message timeout monitor	Records the number of message timeouts for devices.
Error history	Leaves a record of error occurrence and recovery in a log.



Error History Window

CPU	Processo	or recommended by Microsoft.
os	Windows	2000 (ServicePack2 or higher)/XP
Available hard disk space	50 MB m	in.
Memory	256 MB	min.
Disk device	One CD-	ROM drive
Display	SVGA or	higher display
Communications Port	l mant	DC 222C nort
	l port	RS-232C port
Online connection using serial	•	RS-232C port USB port
Communications Port Online connection using serial Online connection using USB Online connection using Ether	port	·
Online connection using serial Online connection using USB	port rnet	USB port

## Peripheral Devices

### General-purpose Peripheral Devices....... 134

#### **Peripheral Devices for DeviceNet Communications**

- General-purpose Models
- Peripheral Devices for Flat Cables

#### I/O Peripheral Devices

- ■I/O Connectors for Connector Terminals
  - MIL Connectors
- ■I/O Connectors for MULTIPLE I/O TERMINALs
- ■I/O Connector for Programmable Slaves

## Peripheral Devices for Environment-resistive Slaves...... 144

#### **Peripheral Devices for DeviceNet Communications**

- Environment-resistive Connection Products (for Thin Cable, M12 Micro Connectors)
- Environment-resistive Models (for Thin Wires and M12 Micro Connectors)
- Environment-resistive Models for Thick Wires with 7/8-16UN Mini Connectors

#### I/O Peripheral Devices

- ■Assembly Connector Plugs for M12 Microconnectors
- Cables with Connector (Socket/Plug) on Both Ends (M12 Microconnectors for Power Supply and I/O)
- ◆ Cables with connector plug on One End (M12 Microconnectors for I/O)
- Plugs and Sockets on Y-shaped Joints (M12 Microconnectors for I/O)
- Connector Cover for M12 Microconnectors

#### **Power Supply Peripheral Devices**

● Power Supply Connectors (7/8-16UN Miniconnectors)

## **Peripheral Devices**

## **General-purpose Peripheral Devices**

#### **Peripheral Devices for DeviceNet Communications**

#### **Ordering Information**

#### ● General-purpose Models

Product	Appearance	Model	Specifications		
		DCN1-1NC	Cable wiring direction: Toward top Cable lock direction: From top Connector screw direction: From top	Provided with 3 parallel connectors with clamps (XW4G-05C1-H1-D), standard terminating resistor	
T-branch Tap for		DCN1-1C	Cable wiring direction: Toward side Cable screw direction: From top Connector screw direction: From side	Provided with 3 parallel connectors with screws	
1 branch line		DCN1-2C	Cable wiring direction: Toward top Cable screw direction: From side Connector screw direction: From top	Connectors with screws (XW4B-05C1-H1-D), standard terminating resistor	
		DCN1-2R	Cable wiring direction: Toward side Cable screw direction: From top Connector screw direction: From top	Provided with 3 orthogonal connectors with screws (XW4B-05C1-V1R-D), standard terminating resistor	
		DCN1-3NC	Cable wiring direction: Toward top Cable lock direction: From top Connector screw direction: From top	Provided with 5 parallel clamp connectors with screws (XW4G-05C1-H1-D), standard terminating resistor	
T-branch Tap for 3 branch lines		DCN1-3C	Cable wiring direction: Toward side Cable screw direction: From top Connector screw direction: From side	Provided with 5 parallel connectors with screws	
		DCN1-4C	Cable wiring direction: Toward top Cable screw direction: From side Connector screw direction: From top	(XW4B-05C1-H1-D), standard terminating resistor	
		DCN1-4R	Cable wiring direction: Toward side Cable screw direction: From top Connector screw direction: From top	Provided with 5 orthogonal clamp connectors with screws (XW4B-05C1-V1R-D), standard terminating resistor	
Power Supply Tap		DCN1-1P	Tap provided with 2 connectors, standard terminating resistor, and fuse		

Produ	ct	Appearance	Model	Specifications
			XW4G-05C1-H1-D	Parallel clamp connector with screws Connector insertion and wiring both performed horizontally.
			XW4G-05C4-TF-D	Parallel multi-branching clamp connector with screws Connector insertion and wiring performed in same direction.
			XW4B-05C1-H1-D	Parallel connector with screws Connector insertion and wiring performed in same direction.
Connectors		90000	XW4B-05C4-T-D	Parallel, screw-less, multi-branching connector Connector insertion and wiring performed in same direction.
	•	00000	XW4B-05C4-TF-D	Parallel, multi-branching connector with screws Connector insertion and wiring performed in same direction.
			Orthogonal connector with screws Connector insertion and wiring performed at a right angle.	
DeviceNet	Thin Cables		DCA1-5C10(-B)	Outer diameter: 7.00 mm Length: 100 m DCA1-5C10-B: Cable color: Blue DCA1-5C10: Cable color: Gray
Standard Cables	Thick Cables		DCA2-5C10(-B)	Outer diameter: 11.6 mm Length: 100 m DCA2-5C10-B: Cable color: Blue DCA2-5C10: Cable color: Gray
Terminal-bloc Terminator	k		DRS1-T	Resistance of 121 $\Omega$

#### ● Peripheral Devices for Flat Cables

Product	Appearance	Model	Specifications
Conversion Connector for Standard Thin Cable and Flat Cable		DCN4-BR4D	Used as a set with a DCN4-TR4 when Thin Cable is branched on a branch line.
Power Supply Terminal Block with Terminating Resistance for Flat Cable		DCN4-TP4D	Can be used to supply communications power from terminals when Flat Cable is used.
Flat Connector Socket		DCN4-TR4	Used as a set with a DCN4-BR4 Flat Connector Plug in the following applications.  • Extending the trunk line  • T-branching the trunk line into branch lines
			Used alone in the following applications.  • Connecting a DCN4-TM4 Terminating Resistor to the trunk line
Flat Connector Plug		DCN4-BR4	Used as a set with a DCN4-TR4 Flat Connector Socket in the following applications.  • Extending the trunk line  • T-branching the trunk line into branch lines
Terminating Resistor		DCN4-TM4	Connector terminating resistor for flat cable. Attached to the DCN4-TR4 Flat Connector Socket at the end of the trunk line.
Flat Cable		DCA4-4F10	Four-core flat cable (UL 2555) Length: 100 m Conductor diameters: 0.75 mm² x 2, 0.5 mm² x 2
Simple Manual Crimp Tool		DWT-A01	This is the crimping tool for the following connectors:  • DCN4-TR4(-1) Flat Connector Socket  • DCN4-BR4 Flat Connector Plug  • DCN4-BR4D Conversion Connector for Standard Thin Cable and Flat Cable

## **Specifications**

### ● General-purpose Models (T-branch Taps)

Rated current	Between main lines: 8 A (power supply line) and 2 A (signal line)	
Kateu current	Between main and branch lines: 3 A (power supply line) and 1 A (signal line)	
Insulation resistance	100 M $\Omega$ min. (at 500 VDC)	
Dielectric strength 500 VAC for 1 min, leakage current: 1 mA max.		
Ambient operating temperature 0°C to 55°C		



**Dimensions** (Unit: mm)

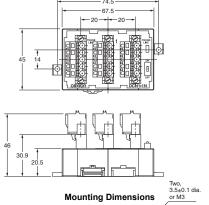
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#### General-purpose Models

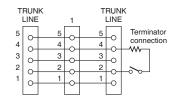
T-branch Tap for 1 branch line DCN1-1NC (With Three Branching Connectors)



Mounting method: DIN track mounting or screw mounting.



#### **Internal Circuit**

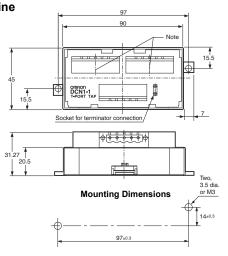


Terminal No.	Name
1	V-
2	CAN L
3	DRAIN
4	CAN H
5	V+

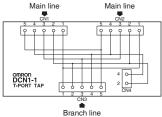
## T-branch Tap for 1 branch line DCN1-1C (With Three Branching Connectors)



Mounting method: DIN track mounting or screw mounting.







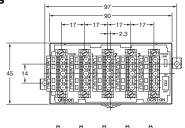
Terminal No.	Name
1	V-
2	CAN L
3	DRAIN
4	CAN H
5	V+

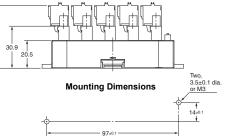
Note: When connecting a branch line to the main line, connect the main line to the connector marked with an asterisk because the resistance between the asterisks is minimal.

#### T-branch Tap for 3 branch lines DCN1-3NC (With Five Branching Connectors)

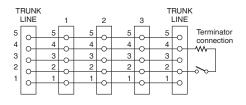


Mounting method: DIN track mounting or screw mounting.

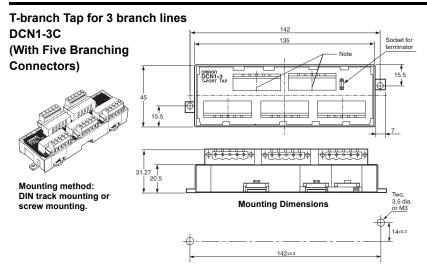




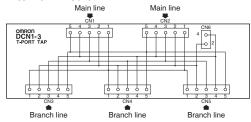
#### **Internal Circuit**



Terminal No.	Name
1	V-
2	CAN L
3	DRAIN
4	CAN H
5	V+



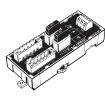
**Internal Circuit** 



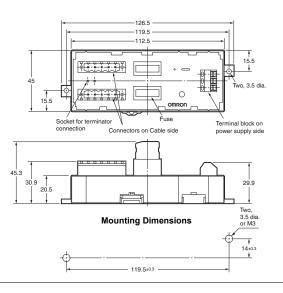
Terminal No.	Name
1	V-
2	CAN L
3	DRAIN
4	CAN H
5	V+

Note: When connecting a branch line to the main line, connect the main line to the connector marked with an asterisk because the resistance between the asterisked portion is minimal.

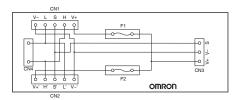
#### Power Supply Tap DCN1-1P (With Two Branching Connectors)



Mounting method: DIN track mounting or screw mounting.



#### **Internal Circuit**

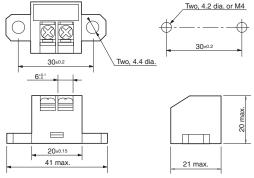


Terminal No.	Name
V-	V-
L	CAN L
S	DRAIN
Н	CAN H
V+	V+

DRS1-T (Terminal-block Terminator)



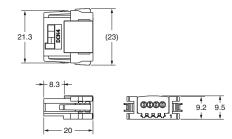
#### Mounting Dimensions



#### ●Flat Cable

## Conversion Connector for Standard Thin Cable and Flat Cable DCN4-BR4D

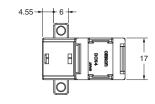


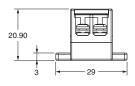


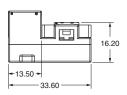
#### Power Supply Terminal Block with Terminating Resistance

for Flat Cable DCN4-TP4D







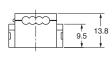


## Flat Connector Socket DCN4-TR4









## Flat Connector Plug DCN4-BR4









#### I/O Peripheral Devices

#### ■I/O Connectors for Connector Terminals

#### MIL Connectors

#### **Applicable Connectors**

Ту	/ре	Model	Remarks
Flat Cable Pressure-v	velded Connectors	XG4M-4030-T	
	Socket	XG5M-4032-N	Corresponding to 24 AWG
Pressure-welded Connectors with		essure-welded	XG5M-4035-N
Loose Wires	Semicover	XG5S-2001	
	Hood Cover *	XG5S-4022	

DeviceNet connectors for multi-drop wiring cannot be used with the Hood Cover.

#### **Cable Models**

Туре	Model	Connected device	Applicable models
	XW2Z-RI□□-□□-D1		DRT2-ID32ML
	XW2Z-RM□□-□□-D1		DRT2-MD32ML
Cable with Connectors (1:2)	XW2Z-RO□□-□□-D1	G7TC/G70D/G70A	DRT2-OD32ML/DRT1-OD32ML-1
	XW2Z-RI□□-□□-D2		DRT2-ID32ML-1
	XW2Z-RM□□-□□-D2		DRT2-MD32ML-1
Cable with Connector (1:1)	XW2Z-C□□K		
Cable with Loose Wires with Crimp Terminals	ble with Loose Wires with Crimp Terminals XW2Z-RY□00C-D1		All models
Cable with Loose Wires	XW2Z-RA□00C-D1		

#### **Applicable Cables with Connectors**

#### ● Cables with Connectors (1-to-2 Connection)/XW2Z-R□□-□-D□

Appearance	Cable length (mm)			Model
Appearance		A	B	Wodel
	<b> </b>	500	250	XW2Z-RI50-25-D1
		750	500	XW2Z-RI75-50-D1
		500	250	XW2Z-RO50-25-D1
		750	500	XW2Z-RO75-50-D1
		500	250	XW2Z-RM50-25-D1
	(120)	750	500	XW2Z-RM75-50-D1
		500	250	XW2Z-RI50-25-D2
	Length without any bending	750	500	XW2Z-RI75-50-D2

#### ● Cables with Connectors (1-to-1 Connection)/XW2Z-C□□K

Appearance	Cable length (mm)	Model	
		250	XW2Z-C25K
		500	XW2Z-C50K

#### ● Cables with Crimp Terminals (at the End of Loose Wires)/XW2Z-RY□C-D1

Appearance	Cable length (mm)	Model	
to	Terminal A Terminal B	1,000	XW2Z-RY100C-D1
	Connected to device	2,000	XW2Z-RY200C-D1
	300	5,000	XW2Z-RY500C-D1

#### ● Cables with Loose Wires/XW2Z-RA□C

Appearance	Cable length (mm)	Model	
	Terminal A Terminal B	2,000	XW2Z-RA200C-D1
18	to device L	5,000	XW2Z-RA500C-D1

### ■I/O Connectors for MULTIPLE I/O TERMINALs

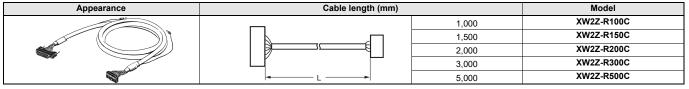
#### **Applicable Connectors**

	Туре		Model	Remark	Connectable model
		Housing	50-57-9403		
		Chain terminal	16-02-0069	Corresponding to 24 to 30 AWG	Digital I/O Units
	0	Chain terminal	16-02-0086	Corresponding to 22 to 24 AWG	GT1-ID16MX(-1)/GT1-OD16MX(-1)
Molex connector	Crimped terminals	Loose terminal	16-02-0096	Corresponding to 24 to 30 AWG	
	torrinido	Loose terminal	16-02-0102	Corresponding to 22 to 24 AWG	Analog I/O Units GT1-AD08MX/GT1-DA04MX
		Press-fit tool	57036-5000	Corresponding to 22 to 26 AWG	GTT-AD08WX/GTT-DA04WX
		Press-III (00)	57037-5000	Corresponding to 24to 30 AWG	
	Soldered termi	inals	Fujitsu FCN361J024-AU		
Fujitsu/OTAX connector	Pressure-weld	ad tarminals	Fujitsu FCN367J024-AU/F		
(16 points)	Fressule-weld	eu terriiriais	OTAX N367J024AUF		
. ,	Crimped termin	nals	Fujitsu FCN363J024-AU		
Fujitsu connector (32 points)	Soldered termi	inals	FCN361J040-AU		Di-it-LUO LI-it-
	Pressure-weld	ed terminals	FCN367J040-AU/F		Digital I/O Units GT1-ID32ML(-1)/GT1-OD32ML(-1)
	Crimped termin	nals	FCN363J040-AU		3 : ::3522( 1)/31
OMRON	Pulg		XM3A-2521		Digital I/O Units
D-sub connector	Hood		XM2S-2513	#4-40UNC inch screws	GT1-ID16DS(-1)/GT1-OD16DS(-1)

#### Applicable Cables with Connectors (Fujitsu/OTAX Connectors)

I/O classification	Model	Connectable model
Digital input 16 points	XW2Z-□□□A	Digital I/O Units
Digital input, 16 points	XW2Z-R□C	GT1-ID16ML(-1)
Digital output, 16 points	XW2Z-□□□A	Digital I/O Units
	XW2Z-R□C	GT1-OD16ML(-1)
Digital input, 32 points	XW2Z-□□□B	Digital I/O Units
	XW2Z-RI□C□	GT1-ID32ML(-1)
Digital output, 32 points	XW2Z-□□□B	Digital I/O Units
	XW2Z-RO□C□	GT1-OD32ML(-1)

## ● Cables with Connectors (1-to1 Connection)/XW2Z-R□C For Digital Input/Output (16 Points)



## ● Cables with Connectors (1-to-2 Connection)/XW2Z-RO□C-□, XW2Z-RI□C-□ For Digital Input/Output (32 Points)

Annogranae	Cable length (mm)			Model	
Appearance		A	B	Input	Output
	(A)	1,000	750	XW2Z-RI100C-75	XW2Z-RO100C-75
		1,500	1,250	XW2Z-RI150C-125	XW2Z-RO150C-125
		2,000	1,750	XW2Z-RI200C-175	XW2Z-RO200C-175
		3,000	2,750	XW2Z-RI300C-275	XW2Z-RO300C-275
	Length without any bending	5,000	4,750	XW2Z-RI500C-475	XW2Z-RO500C-475

#### For Digital Input/Output (16 Points)

Appearance	Cable length (mm)	Model	
		500	XW2Z-050A
		1,000	XW2Z-100A
		1,500	XW2Z-150A
		2,000	XW2Z-200A
		3,000	XW2Z-300A
		5,000	XW2Z-500A

#### For Digital Input/Output (32 Points)

Cable length (mm)	Model	
	500	XW2Z-050B
	1,000	XW2Z-100B
	1,500	XW2Z-150B
	2,000	XW2Z-200B
	3,000	XW2Z-300B
_ ' _ '	5,000	XW2Z-500B
	Cable length (mm)	500 1,000 1,500 2,000 3,000

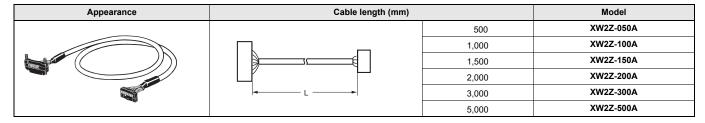
### ■I/O Connector for Programmable Slaves

### **Applicable Connector Terminal Conversion Units**

Applicable cable	Connected product	Connector Products (Connector-Terminal Block Conversion Units) Connecting method
	XW2K-20G-T	Push-in Plus
XW2Z-□□□A	XW2D-20G6	Phillips screw M3
	XW2R-E20GD-T	Slotted screw M3

#### **Applicable Cables with Connectors**

#### ● Cables with Connectors/XW2Z For Digital Input/Output (16 Points)



## Peripheral Devices for Environment-resistive Slaves

## **Peripheral Devices for DeviceNet Communications**

#### **Ordering Information**

#### ● Environment-resistive Connection Products (for Thin Cable, M12 Micro Connectors)

Product	Appea	arance	Model	Specifications		
Sealed Assembling-type Connector (male)	60		XS2G-D5S7	For communications (plu	lg)	
Sealed Assembling-type Connector (female)			XS2C-D5S7	For communications (so	cket)	
Sealed T-branch Connector			DCN2-1	For 1 branch line		
Sealed Connector with			DRS2-1	Plug		
Terminating Resistor			DRS2-2	Socket		
			DCA1-5CNC5W1	Length (L): 0.5 m		
			DCA1-5CN01W1	Length (L): 1 m		
			DCA1-5CN02W1	Length (L): 2 m	Cable with connectors on both ends	
		L	DCA1-5CN03W1	Length (L): 3 m	Cable with connectors on both ends	
			DCA1-5CN05W1	Length (L): 5 m		
			DCA1-5CN10W1	Length (L): 10 m		
			DCA1-5CNC5F1	Length (L): 0.5 m		
			DCA1-5CN01F1	Length (L): 1 m		
Cables with Sealed			DCA1-5CN02F1	Length (L): 2 m	Cabla with a surrent and (a alook)	
Connectors *		← L → 50 mm	DCA1-5CN03F1	Length (L): 3 m	Cable with connector on one end (socket)	
			DCA1-5CN05F1	Length (L): 5 m		
			DCA1-5CN10F1	Length (L): 10 m		
			DCA1-5CNC5H1	Length (L): 0.5 m		
	L So mm	DCA1-5CN01H1	Length (L): 1 m			
				DCA1-5CN02H1	Length (L): 2 m	1
			DCA1-5CN03H1	Length (L): 3 m	Cable with connector on one end (plug)	
			DCA1-5CN05H1	Length (L): 5 m		
			DCA1-5CN10H1	Length (L): 10 m		
Shielded Panel-mounting Connectors (female)			DCA1-5CNC5P1	Panel-mounting connect	or (socket) with 0.5-m cable	
			XS2P-D522-2	Panel-mounting connector socket		
Shielded Panel-mounting Connectors (male)		DCA1-5CNC5M1	Panel-mounting connector (plug) with 0.5-m cable			
			XS2M-D524-4	Panel-mounting connector (plug) with solder-cup terminals		
Waterproof cover (for socket)			XS2Z-22	Used to cover an unused connector section		
Dust cover (for socket)			XS2Z-15			

<sup>\*</sup> Robot cable type connectors with shielded cables (DCA1-5CN are also available. Contact your OMRON sales representative for details.

### Environment-resistive Models (for Thin Wires and M12 Micro Connectors) Smartclick

Product	Appearance		Model		Specifications
Sealed T-branch Connector			DCN2-1S	For 1 branch line	
Sealed Assembling type			DRS2-1S	Plug	
Connector (female)			DRS2-2S	Socket	
			DCA1-5CSC5W1	Length (L): 0.5 m	
			DCA1-5CS01W1	Length (L): 1 m	
			DCA1-5CS02W1	Length (L): 2 m	Cable with connectors on both ends
		L	DCA1-5CS03W1	Length (L): 3 m	Cable with connectors on both chas
	6 F		DCA1-5CS05W1	Length (L): 5 m	
			DCA1-5CS10W1	Length (L): 10 m	
		L — so mm	DCA1-5CSC5F1	Length (L): 0.5 m	
			DCA1-5CS01F1	Length (L): 1 m	
Connectors with Shielded			DCA1-5CS02F1	Length (L): 2 m	Cable with connector on one end (socket)
Cables *	<b>•</b>		DCA1-5CS03F1	Length (L): 3 m	Cable with connector on one end (socker)
			DCA1-5CS05F1	Length (L): 5 m	
			DCA1-5CS10F1	Length (L): 10 m	
		Lso mm	DCA1-5CSC5H1	Length (L): 0.5 m	
			DCA1-5CS01H1	Length (L): 1 m	
			DCA1-5CS02H1	Length (L): 2 m	Cable with connector on one end (plug)
	<b>-</b> L		DCA1-5CS03H1	Length (L): 3 m	Cable with connector on one end (plug)
			DCA1-5CS05H1	Length (L): 5 m	
			DCA1-5CS10H1	Length (L): 10 m	
Shielded Branch Relay Box	<b>6</b> 1.		DCN2-S4C5H1	4 ports, 0.5-m cable	
			DCN2-S8C5H1	8 ports, 0.5-m cable	

<sup>\*</sup> Robot cable type connectors with shielded cables (DCA1-5CN are also available. Contact your OMRON sales representative for details.

#### ● Environment-resistive Models for Thick Wires with 7/8-16UN Mini Connectors

Product	Appea	arance	Model		Specifications
Sealed T-branch Connector			DCN3-11	T-branch Connector	
Sealed 1-Dialicit Conflector			DCN3-12	T-branch Connector (	Branch connector is M12.)
Sealed Connector with Terminating Resistor			DRS3-1	Plug	
			DCA2-5CN01W1	Length (L): 1 m	
	<b>1</b>		DCA2-5CN02W1	Length (L): 2 m	Cable with connectors on both ends
			DCA2-5CN05W1	Length (L): 5 m	Cable with connectors on both ends
	<b>3</b>		DCA2-5CN10W1	Length (L): 10 m	
			DCA2-5CN01F1	Length (L): 1 m	
	<b>6</b> 10 10 10 10 10 10 10 10 10 10 10 10 10	50	DCA2-5CN02F1	Length (L): 2 m	Cable with connector on one end (socket)
		L —   50 mm	DCA2-5CN05F1	Length (L): 5 m	Cable with connector on one end (socket)
Cables with Sealed			DCA2-5CN10F1	Length (L): 10 m	
Connectors			DCA2-5CN01H1	Length (L): 1 m	
		50	DCA2-5CN02H1	Length (L): 2 m	Cable with connector on one and (plus)
		L —   50 mm	DCA2-5CN05H1	Length (L): 5 m	Cable with connector on one end (plug)
			DCA2-5CN10H1	Length (L): 10 m	
			DCA1-5CN01W5	Length (L): 1 m	
	<b>537</b>		DCA1-5CN02W5	Length (L): 2 m	Cable with connectors on both ends Thin cable
		L —	DCA1-5CN05W5	Length (L): 5 m	M12 socket
	<b>●</b> Mr		DCA1-5CN10W5	Length (L): 10 m	
Panel-mounting Connector (female)			DCA2-5CNC5P1	Panel-mounting conn	ector (socket) with 0.5-m cable
Panel-mounting Connector (male)			DCA2-5CNC5M1	Panel-mounting conn	ector (plug) with 0.5-m cable
Panel-mounting Connector (male)			XS4M-D521-1	Panel-mounting conn DIP terminals	ector (plug)
Waterproof Cap (for Plug)		-	XS4Z-11		
Waterproof Cap (for Socket)		-	XS4Z-12	Used to cover an unu	sed connector section.

#### **Specifications**

#### ● Environment-resistive Connection Products (for Thin Cable, M12 Micro Connectors)

Type	Connectors with Cables DCA1-5CN□□□1	T-branch Connector DCN2-1	Assembling-type Connector XS2□-D5S7	Connectors with Terminating Resistor DRS2-□	
Rated current	3A				
Rated voltage	125 VDC	25 VDC			
Contact resistance (connector)	40 m $\Omega$ max. (at 20 mVDC max. and	0 mΩ max. (at 20 mVDC max. and 100 mA max.)			
Insulation resistance	1,000 MΩ min. (at 500 VDC)	000 MΩ min. (at 500 VDC)			
Dielectric strength (connector)	1,500 VAC for 60 seconds (leakage current: 1 mA max.)				
Ambient operating temperature	20°C to 65°C *				
Storage temperature range	-25°C to 70°C				
Degree of protection	IEC IP67				
Insertion durability	200 times	200 times			
Cable strength	98 N for 15 s	98 N for 15 s			
Vibration resistance	No current interruptions of more than 1 μs while performing simple vibrations at either 10 to 500 Hz with 1.52-mm full amplitude or at acceleration 100 m/s², whichever is smaller				

<sup>\*</sup> Use the robot cable within a temperature range between 0°C and 65°C to prevent the wires inside the cable from being broken when bending it.

#### ● Environment-resistive Models (for Thin Wires and M12 Micro Connectors)

Type	Connectors with Cables DCA1-5CS□□□1	T-branch Connector DCN2-1S	Connectors with Terminating Resistor DRS2-⊟S	Branch Relay Box DCN2-S⊟C5H		
Rated current	3 A					
Rated voltage	125 VDC	25 VDC				
Contact resistance (connector)	40 m $\Omega$ max. (at 20 mVDC max. and	) mΩ max. (at 20 mVDC max. and 100 mA max.)				
Insulation resistance	1,000 MΩ min. (at 500 VDC)					
Dielectric strength (connector)	1,500 VAC for 60 seconds (leakage of	,500 VAC for 60 seconds (leakage current: 1 mA max.) 1,000 VAC for 60 seconds				
Ambient operating temperature	-20°C to 65°C *					
Storage temperature range	-25°C to 70°C					
Degree of protection	EC IP67					
Insertion durability	200 times					
Cable strength	98 N for 15 s	98 N for 15 s				
Vibration resistance	No current interruptions of more than 1 µs while performing simple vibrations at either 10 to 500 Hz with 1.52-mm full amplitude or at acceleration 100 m/s², whichever is smaller					
Lock strength	Pulling: 100 N/15 s, Rotating: 1 N·m/	115 s				
Lock force	0.1 to 0.25 N·m					

<sup>\*</sup> Use the robot cable within a temperature range between 0°C and 65°C to prevent the wires inside the cable from being broken when bending it.

#### ● Environment-resistive Models for Thick Wires with 7/8-16UN Mini Connectors

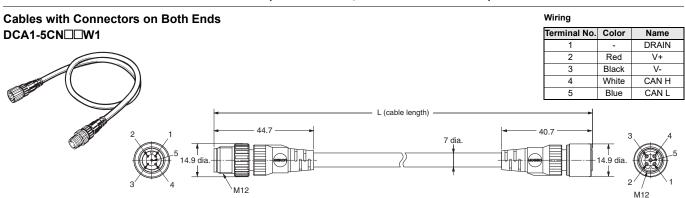
Type	Connectors with Thick Cables DCA2-5CN□□□1	Connectors with Thin Cables DCA1-5CN□□W5	T-branch Connector DCN3-11	T-branch Connector DCN3-12	Connectors with Terminating Resistor DRS3-1	Panel Mounting Connector DCA2-5CNC5P1	Panel Mounting Connector XS4M-D521-1
Rated current	8 A	3 A	8 A	3 A <b>*1</b>	8 A		
Rated voltage	125 VDC	25 VDC					
Contact resistance (connector)	30 mΩ max. (at 20 mVDC max. and 100 mA max.)						
Insulation resistance	1,000 MΩ min. (at 500 VDC)						
Dielectric strength (connector)	1,500 VAC for 60 seconds (leakage current: 1 mA max.)						
Ambient operating temperature	-20°C to 65°C *2						
Storage temperature range	-25°C to 70°C						
Degree of protection	IEC IP67						
Insertion durability	200 times						
Cable strength	98 N for 15 s					98 N for 15 s	
Vibration resistance	No current interruptions of more than 1 µs while performing simple vibrations at either 10 to 500 Hz with 1.52-mm full amplitude or at acceleration 100 m/s², whichever is smaller						

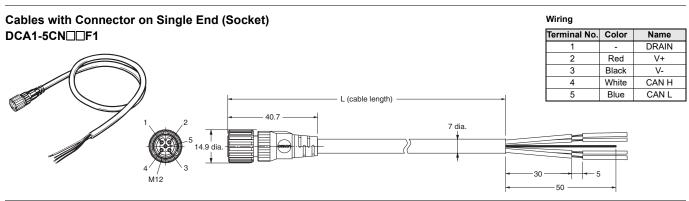
<sup>\*1.</sup> The rated current between thick wires is 8 A.

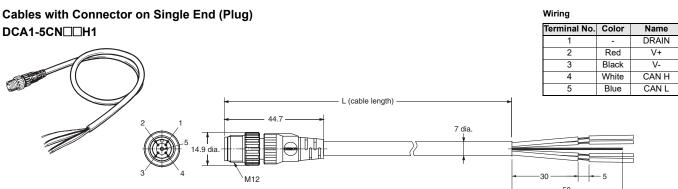
<sup>\*2.</sup> Use the robot cable within a temperature range between 0 °C and 65 °C to prevent the wires inside the cable from being broken when bending it.

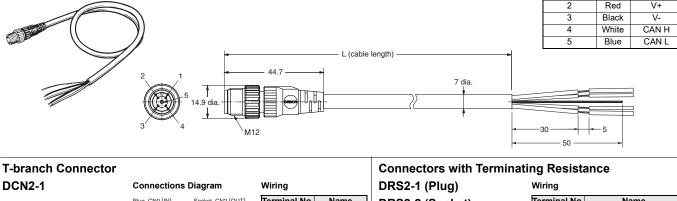
#### **Dimensions**

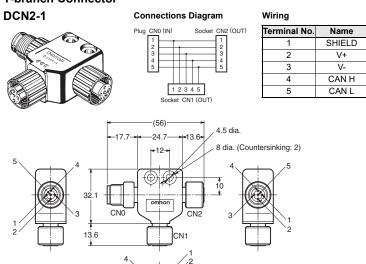
#### ● Environment-resistive Connection Products (for Thin Cable, M12 Micro Connectors)









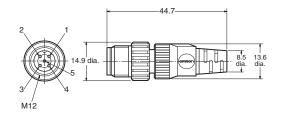


DRS2-2 (Socket)



ierminai No.		Name
1	DRAIN	: NC
2	V+	: NC
3	V-	: NC
4	CAN H	: → 121 Ω
5	CAN L	: ' '

Note: Terminating resistance (121  $\Omega$ ) is connected between terminals 4 and 5.



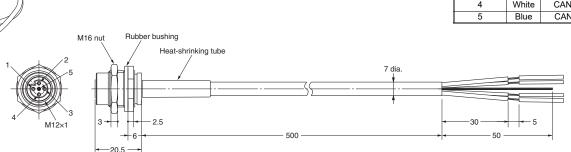
Note: The diagram shows the DRS2-1 (plug).

#### Panel-mounting Connector (Socket) with 0.5 m Cable DCA1-5CNC5P1

#### Wiring

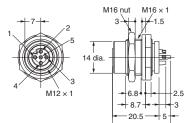
Terminal No.	Color	Name
1	-	DRAIN
2	Red	V+
3	Black	V-
4	White	CAN H
5	Blue	CAN L

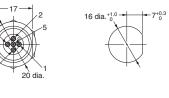




#### Panel-mounting Connector (Socket), Solder-cup Terminals XS2P-D522-2



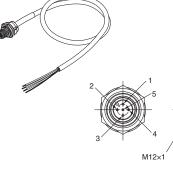


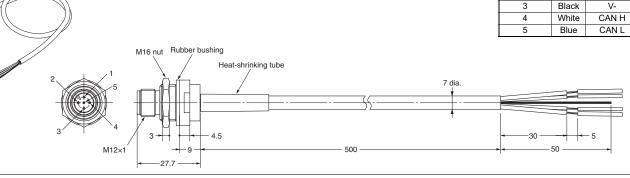


#### Panel-mounting Connector (Plug) with 0.5 m Cable DCA1-5CNC5M1

#### Wiring

Terminal No.	Color	Name
1	-	DRAIN
2	Red	V+
3	Black	V-
4	White	CAN H
5	Blue	CAN L

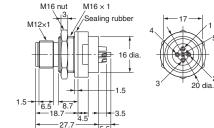




#### Panel-mounting Connector (Socket), Solder-cup Terminals XS2M-D524-4







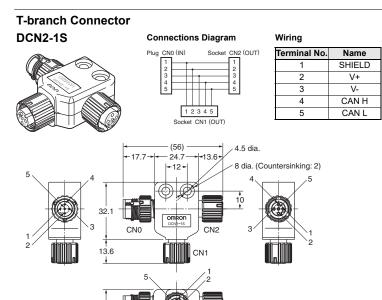


#### ● Environment-resistive Models (for Thin Wires and M12 Micro Connectors)

#### **Cables with Connectors on Both Ends** Wiring Terminal No. Color DCA1-5CS□□W1 Name DRAIN Red V+ Black V-White CAN H CAN L Blue L (cable length) 40.7

#### Cables with Connector on Single End (Socket) Wiring DCA1-5CS□□F1 Terminal No. Color Name DRAIN Red V+ 3 Black V-White CAN H CAN L Blue L (cable length) 50

#### Wiring Cables with Connector on Single End (Plug) Terminal No. DCA1-5CS□□H1 Name DRAIN Red V+ Black ٧/\_ White CAN H Blue CAN L L (cable length)



#### **Connectors with Terminating Resistance**

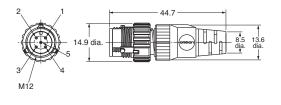
DRS2-1S (Plug)

DRS2-2S (Socket)



Terminal No.		Name
1	DRAIN	: NC
2	V+	: NC
3	V-	: NC
4	CAN H	: → 121 Ω
5	CAN L	: - 2 12132

Note: Terminating resistance (121  $\Omega$ ) is connected between terminals 4 and 5.



Note: The diagram shows the DRS2-1 (plug).

Red

Black

White

Blue

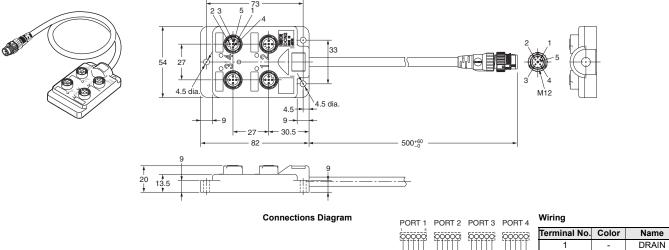
V+

V-

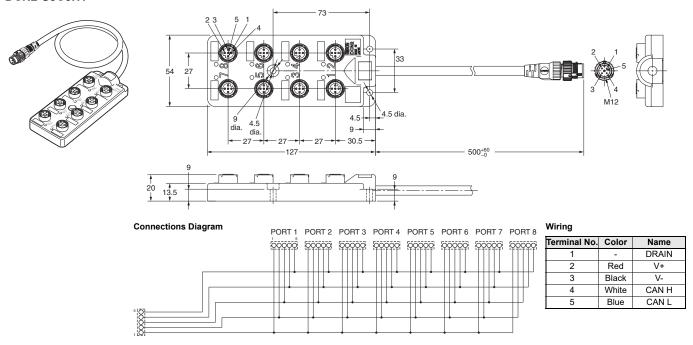
CAN H

CAN L

## Shielded Branch Relay Box with Four Ports DCN2-S4C5H1



## Shielded Branch Relay Box with Eight Ports DCN2-S8C5H1



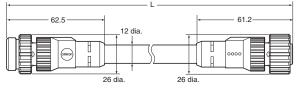


#### ● Environment-resistive Models for Thick Wires with 7/8-16UN Mini Connectors

## Thick Cable with Connectors on Both Ends (5 Conductors for Communications) DCA2-5CN□□W1





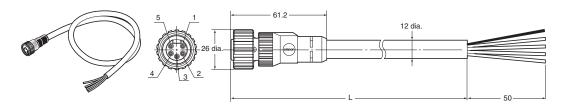




#### Wiring

Terminal No.	Color	Name
1	-	DRAIN
2	Red	V+
3	Black	V-
4	White	CAN H
5	Blue	CAN L

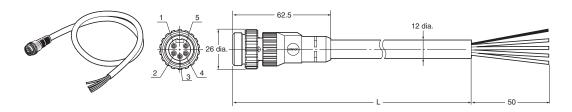
## Thick Cable with Connector Socket on One End (5 Conductors for Communications) DCA2-5CN□□F1



#### Wiring

Terminal No.	Color	Name
1	-	DRAIN
2	Red	V+
3	Black	V-
4	White	CAN H
5	Blue	CAN L

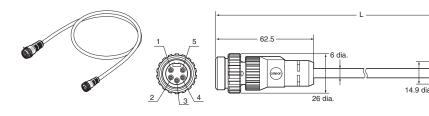
## Thick Cable with Connector Plug on One End (5 Conductors for Communications) DCA2-5CN□□H1



#### Wiring

Terminal No.	Color	Name
1	-	DRAIN
2	Red	V+
3	Black	V-
4	White	CAN H
5	Blue	CAN L

## Thin Cable with Connectors on Both Ends (5 Conductors for Communications) DCA1-5CN□□W5





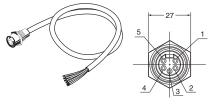
40.7

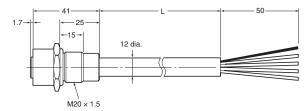
#### Wiring

Terminal No.	Color	Name
1	-	DRAIN
2	Red	V+
3	Black	V-
4	White	CAN H
5	Blue	CAN L

## Thin Cable with Panel-mounting Connector Socket on One End (5 Conductors for Communications)

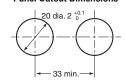
#### DCA2-5CNC5P1





Note: A rubber seal and nut for panel mounting are included.

#### Panel Cutout Dimensions

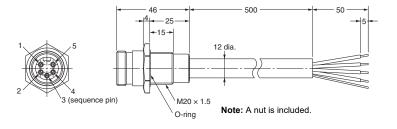


#### Wiring

Terminal No.	Color	Name
1	-	DRAIN
2	Red	V+
3	Black	V-
4	White	CAN H
5	Blue	CAN L

## Panel-mounting Connector (Plug) with 0.5 m Cable DCA2-5CNC5M1



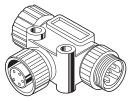


#### Wiring

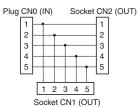
Terminal No.	Color	Name
1	-	DRAIN
2	Red	V+
3	Black	V-
4	White	CAN H
5	Blue	CAN L

## T-branch Connector (5 Conductors for Communications, Thick Wire Branch Line)

DCN3-11

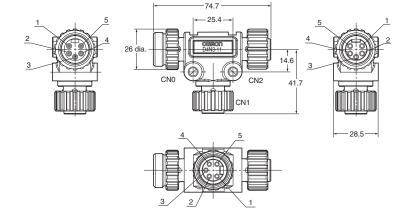


**Connections Diagram** 



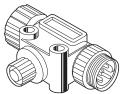
Wiring

Terminal No.	Name
1	DRAIN
2	V+
3	V-
4	CAN H
5	CAN L

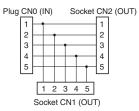


## T-branch Connector (5 Conductors for Communications, Thin Wire Branch Line)

#### DCN3-12

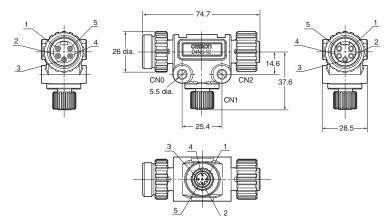


**Connections Diagram** 



Wiring

-	
Terminal No.	Name
1	DRAIN
2	V+
3	V-
4	CAN H
5	CAN L



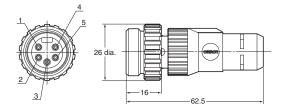
## Connector (Plug) with Terminating Resistance DRS3-1



#### Wiring

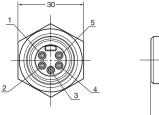
Terminal No.		Name
1	DRAIN	: NC
2	V+	: NC
3	V-	: NC
4	CAN H	:≩ 121 Ω
5	CAN L	: : :

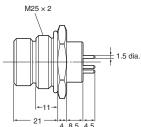
Note: Terminating resistance (121  $\Omega$ ) is connected between terminals 4 and 5.



## Panel-mounting Connector (5 Pins for Communications) XS4M-D521-1

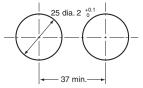






**Panel Cutout Dimensions** 

PCB Processing Dimensions
9.1 dia.





Note: A rubber seal and nut for panel mounting are included.

### I/O Peripheral Devices

#### **Applicable Connectors**

#### ● Assembly Connector Plugs for M12 Microconnectors

	Applicable cable	Applicable cable Cable direction	Number of		Connection method		
	diameter (mm)	Cable direction	poles	Crimping	Soldering	Screws	
	For 6 dia.	Straight		XS2G-D4C1	XS2G-D421	XS2G-D4S1	
	(5 to 6 dia.)	L-shaped			XS2G-D422	XS2G-D4S2	
	For 4 dia.	Straight	4	XS2G-D4C3	XS2G-D423	XS2G-D4S3	
	(4 to 5 dia.)	L-shaped		4	-	XS2G-D424	XS2G-D4S4
	For 3 dia.	Straight			XS2G-D4C5	XS2G-D425	XS2G-D4S5
	(3 to 4 dia.)	L-shaped		-	XS2G-D426	XS2G-D4S6	
	For 7 dia. (6 to 7 dia.)	o 7 dia.)				XS2G-D4S9	
	For 8 dia. (7 to 8 dia.)	Straight				XS2G-D4S7	

#### ● Smart click Assembly Connector Plugs for M12 Microconnectors

Appearance	Applicable cable	Cable direction	Number of	of Connection method			
Appearance	diameter (mm)	Cable direction	poles	Crimping	Soldering	Screws	
	For 6 dia.	Straight		XS5G-D4C1	XS5G-D421	XS5G-D4S1	
	(5 to 6 dia.)	L-shaped			XS5G-D422	XS5G-D4S2	
	For 4 dia.	Straight	shaped raight 4	XS5G-D4C3	XS5G-D423	XS5G-D4S3	
	(4 to 5 dia.)	L-shaped		4		XS5G-D424	XS5G-D4S4
	For 3 dia.	Straight			XS5G-D4C5	XS5G-D425	XS5G-D4S5
	(3 to 4 dia.)	L-shaped			XS5G-D426	XS5G-D4S6	
	For 7 dia. (6 to 7 dia.)	Ctraight				XS5G-D4S9	
	For 8 dia. (7 to 8 dia.)	Suaigni		<del></del>		XS5G-D4S7	

### **Applicable Cables with Connectors**

#### ● Cables with Connector (Socket/Plug) on Both Ends (M12 Microconnectors for Power Supply and I/O)

Appearance	Cable direction	Number of core wires	Cable length (m)	Screw-type Connectors	Smart click Connectors		
			1	XS2W-D421-C81-F	XS5W-D421-C81-F		
	Straight/Straight		2	XS2W-D421-D81-F	XS5W-D421-D81-F		
			5	XS2W-D421-G81-F	XS5W-D421-G81-F		
		] [	2	XS2W-D422-D81-F	XS5W-D422-D81-F		
	L-shaped/L-shaped	4	5	XS2W-D422-G81-F	XS5W-D422-G81-F		
	Straight/L-shaped	Straight/L-shaped	Otro-Solutification and		2	XS2W-D423-D81-F	XS5W-D423-D81-F
				5	XS2W-D423-G81-F	XS5W-D423-G81-F	
	l share al/Ohnsimbé		2	XS2W-D424-D81-F	XS5W-D424-D81-F		
	L-shaped/Straight		5	XS2W-D424-G81-F	XS5W-D424-G81-F		

#### ● Cables with connector plug on One End (M12 Microconnectors for I/O)

Appearance	Cable direction	Number of core wires	Cable length (m)	Screw-type Connectors	Smart click Connectors
		3	0.0	XS2H-D421-AC0-F	XS5H-D421-AC0-F
	Straight	3 0.3	0.3	XS2H-D421-A80-F	XS5H-D421-A80-F
	Guaigin		1	XS2H-D421-CC0-F	XS5H-D421-CC0-F
		4	l	XS2H-D421-C80-F	XS5H-D421-C80-F



#### ● Plugs and Sockets on Y-shaped Joints (M12 Microconnectors for I/O)

Appearance	Cable	Connector		DC models	
Appearance	Cable	Connector	Cable length (m)	Screw-type Connectors	Smart click Connectors
			0.5	XS2R-D426-B11-F	XS5R-D426-B11-F
		Connectors on both ends With cable	1	XS2R-D426-C11-F	XS5R-D426-C11-F
	_		2	XS2R-D426-D11-F	XS5R-D426-D11-F
	with cable		3	XS2R-D426-E11-F	XS5R-D426-E11-F
		Connector on one end	2	XS2R-D426-D10-F	XS5R-D426-D10-F
			Connector on one end	5	XS2R-D426-G10-F
	Without cable	Connectors on both ends		XS2R-D426-1	XS5R-D426-1

Note 1: Use is supported only for Environment-resistive Terminals (DRT2-□D16C(L)(-1)).

Note 2: Connecting two XS2G assembly connectors (screw-type) side by side to the Y-branch connectors (CN1 and CN2) of a Y-shaped joint is not possible. Use crimped terminals or soldered terminals.

#### ● Connector Cover for M12 Microconnectors

Appearance	Product	Model	Application
	Waterproof cover (socket)	XS2Z-22	For covering unused I/O connectors

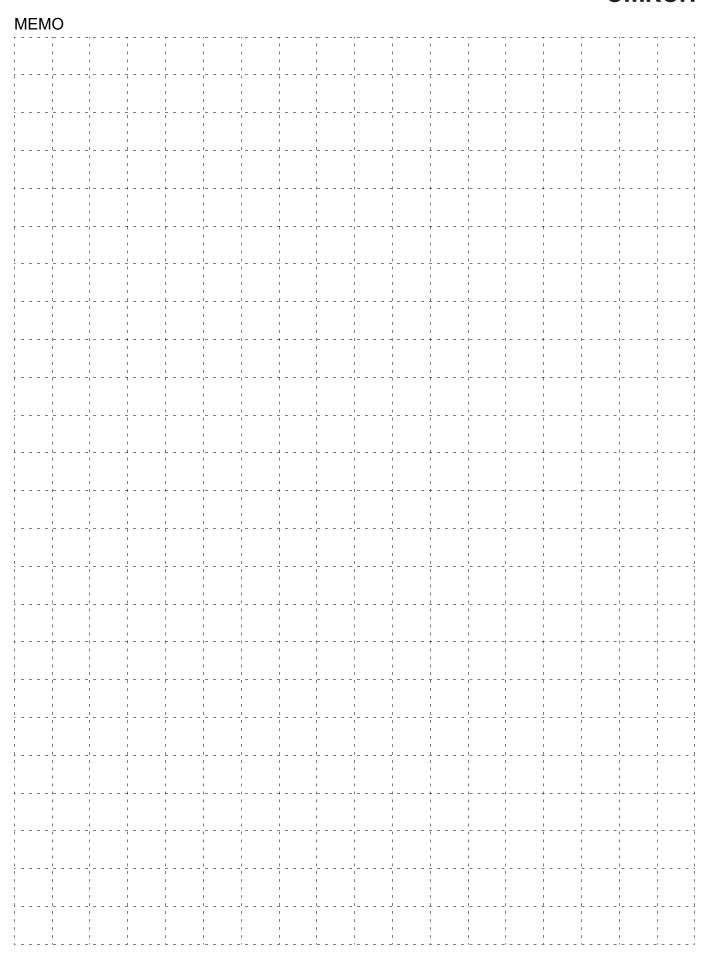
### **Power Supply Peripheral Devices**

#### **Applicable Cables with Connectors**

#### ● Power Supply Connectors (7/8-16UN Miniconnectors)

Appearance	rance Product Cable length L (m)		Model	
		1	XS4W-D421-101-A	
		2	XS4W-D421-102-A	
	L	5	XS4W-D421-105-A	
O The		10	XS4W-D421-110-A	
		1	XS4F-D421-101-A	
		2	XS4F-D421-102-A	
	L 50 mm	5	XS4F-D421-105-A	
		10	XS4F-D421-110-A	
		1	XS4H-D421-101-A	
		2	XS4H-D421-102-A	
	L → 50 mm	5	XS4H-D421-105-A	
		10	XS4H-D421-110-A	
	T-branch Connector		XS4R-D424-5	
	Panel mounting connector socket Cable: 50 cm		XS4P-D421-1C5-A	
	Panel mounting connector plug DIP terminals		XS4M-D421-1	
-	Waterproofing Cap for Plug		XS4Z-11	
-	Waterproofing Cap for Socket		XS4Z-12	

## OMRON



## **Ordering Information**

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#### Ordering Information

#### International Standards

- The standards indicated in the "Standard" column are those current for UL, CSA, cULus, cUL, NK, and Lloyd standards and EC Directives as of the end of March 2009. (U: The standards are abbreviated as follows: U: UL, U1: UL Class I Division 2 Products for Hazardous Locations, C: CSA, UC: cULus, UC1: cULus Class I division 2 Products for Hazardous Locations, CU: cUL, N: NK, L: Lloyd, CE: EC Directives, KC: KC Registration, and UK: UKCA.
   Ask your OMRON representative for the conditions
- Ask your OMRON representative for the conditions under which the standards were met.

#### EC Directives

The EC Directives applicable to PLCs include the EMC Directives and the Low Voltage Directive. OMRON complies with these directives as described below

#### ● EMC Directives

Applicable Standards EMI: EN61000-6-4
EMS: EN61131-2 and
EN61000-6-2 (See note.)
manufacturing installations. OMRON PLCs conform to
the related EMC standards so that the devices and
machines into which they are built can more easily
conform to EMC standards. The actual PLCs have been
checked for conformity to EMC standards. Whether these
standards are satisfied for the actual system, however,
must be checked by the customer.
EMC-related performance will vary depending on the
configuration, wiring, and other conditions of the
equipment or control panel in which the PLC is installed.
The customer must, therefore, perform final checks to
confirm that the overall machine or device conforms to

EMC standards.

Note: The applicable EMS standard depends on the product

#### ● Low Voltage Directive

Applicable Standard: EN61131-2 Devices that operate at voltages from 50 to 1,000 VAC or 75 to 150 VDC must satisfy the appropriate safety requirements. With PLCs, this applies to Power Supply Units and I/O Units that operate in these voltage ranges. These Units have been designed to conform to EN61131-2, which is the applicable standard for PLCs.

## **List of Models**

#### **Masters**

Product	Appearance	Specifications	Model	Standards	
DeviceNet Unit		Model for CJ Series. Equipped with Master and Slave functionality. Control for up to 32,000 points per Master.	CJ1W-DRM21	UC1, N, L, CE	
	E-2 Comm	Model for CS Series. Equipped with Master and Slave functionality. Control for up to 32,000 points per Master.	CS1W-DRM21-V1 *		

Note: Refer to the CJ1 Catalog (Cat. No. P052) for details on the CJ1.

Refer to the CS1 Catalog (Cat. No. P047) for details on the CS1.

Product no longer available to order.

Product Appearance	Controller specifications	Display specifications		Ethernet port	Model	Standards	
	Appearance	Controller specifications	Display device	Resolution	Ethernet port	Wodel	Standards
NSJ-series Programmable Controller *		5.7-inch color High-luminance TFT LCD	320 x 240 (QVGA)	10/100Base-T	NSJ5-TQ11(B)-G5D	UC1, CE, UL Type4	
	22	128K words	8.4-inch color TFT LCD	640 x 480 (VGA)	10/100Base-T	NSJ8-TV01(B)-G5D	UC1, CE
	2 2 2		10.4-inch color TFT LCD		10/100Base-T	NSJ10-TV01(B)-G5D	UC1, CE, UL
			12.1-inch color TFT LCD	800 x 600 (SVGA)	10/100Base-T	NSJ12-TS01(B)-G5D	Type4

<sup>\*</sup> Product no longer available to order.

Product	Appearance	Specifications	Model	Standards
DeviceNet Board *		PCI Board I/O allocation space: 25,200 bytes Equipped with Master and Slave functionality	3G8F7-DRM21 3G8F7-DRM21-E1	U, C, CE, KC

Note: For information on the CJ1, refer to the CJ1 PLC Catalog (Cat. No. P052) and CJ2 PLC Catalog (Cat. No. P059). Refer to the CS1 Catalog (Cat. No. P047) for details on the CS1. Refer to the C200HX/HG/HE Catalog (Cat. No. P036) for details on the C200HX/HG/HE.

<sup>\*</sup> Product no longer available to order.

## **Slaves**

### ● Smart Slaves DRT2 Series

Product	Appearance	Specifications	Model	Standards	
		16 inputs NPN (+ common)	DRT2-ID16	UC1, N, CE	
		16 inputs PNP (- common)	DRT2-ID16-1	, , •=	
		16 outputs NPN (- common)	DRT2-OD16	UC1, N, CE,	
		16 outputs PNP (+ common)	DRT2-OD16-1	UK	
Remote I/O Terminals with		8 inputs NPN (+ common)	DRT2-ID08		
Transistors	<b>1</b> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8 inputs PNP (- common)	DRT2-ID08-1		
	$\checkmark$	8 outputs NPN (- common)	DRT2-OD08	UC1, CE	
		8 outputs PNP (+ common)	DRT2-OD08-1	UC1, CE	
		8 inputs/8 outputs NPN (+ common for inputs and - common for outputs)	DRT2-MD16		
		8 inputs/8 outputs PNP (- common for inputs and + common for outputs)	DRT2-MD16-1		
		8 inputs NPN (+ common)	XWT-ID08	UC, UC1, N,	
		8 inputs PNP (- common)	XWT-ID08-1	CE	
		8 outputs NPN (- common)	XWT-OD08	UC, UC1, N,	
Remote I/O Terminal Expansion Units with	Supplied .	8 outputs PNP (+ common)	XWT-OD08-1	CE, UK	
Transistors		16 inputs NPN (+ common)	XWT-ID16	UC, UC1, N,	
		16 inputs PNP (- common)	XWT-ID16-1	CE	
		16 outputs NPN (- common)	XWT-OD16	UC, UC1, N,	
		16 outputs PNP (+ common)	XWT-OD16-1	CE, UK	
Remote I/O Terminal with Relays		16 outputs	DRT2-ROS16	UC1, N, CE	
		16 inputs NPN (+ common)	DRT2-ID16TA		
Damasta I/O Tamasin ala with		16 inputs PNP (- common)	DRT2-ID16TA-1		
Remote I/O Terminals with 3-tier		16 outputs NPN (- common)	DRT2-OD16TA	UC1, CE	
Terminal Blocks and		16 outputs PNP (+ common)	DRT2-OD16TA-1		
Transistors		8 inputs/8 outputs NPN (+ common for inputs and - common for outputs)	DRT2-MD16TA		
		8 inputs/8 outputs PNP (- common for inputs and + common for outputs)	DRT2-MD16TA-1	-	
	_	16 inputs NPN (+ common)	DRT2-ID16S		
		16 inputs PNP (- common)	DRT2-ID16S-1	UC1, CE	
e-CON Connector Terminals		8 inputs/8 outputs NPN (+ common for inputs and - common for outputs)	DRT2-MD16S		
		8 inputs/8 outputs PNP (- common for inputs and + common for outputs)	DRT2-MD16S-1	CE	
		32 inputs NPN (+ common)	DRT2-ID32ML		
		32 inputs PNP (- common)	DRT2-ID32ML-1		
		32 outputs NPN (- common)	DRT2-OD32ML	-	
		32 outputs PNP (+ common)	DRT2-OD32ML-1	UC1, N, CE	
		16 inputs/16 outputs NPN (+ common for inputs and - common for outputs)	DRT2-MD32ML		
		16 inputs/16 outputs PNP (- common for inputs and + common for outputs)	DRT2-MD32ML-1		
MIL Connector Terminals		16 inputs NPN (+ common)	DRT2-ID16ML		
(MIL Connector Terminals		16 inputs PNP (- common)	DRT2-ID16ML-1	-	
with Transistors)		16 outputs NPN (- common)	DRT2-ID16ML	1	
		16 outputs PNP (+ common)	DRT2-OD16ML-1	-	
		16 inputs NPN (+ common)	DRT2-ID16MLX	UC1, CE	
		16 inputs PNP (- common)	DRT2-ID16MLX-1	1	
		16 outputs NPN (- common)	DRT2-OD16MLX	+	
		16 outputs NPN (+ common)	DRT2-OD16MLX-1	-	
		32 inputs NPN (+ common)	DRT2-ID32B		
		32 inputs PNP (+ common)	DRT2-ID32B	-	
Board Terminals with MIL				-	
Connectors	100	32 outputs NPN (- common)	DRT2-OD32B	UC1, CE	
(Parallel Mounting)		32 outputs PNP (+ common)  16 inputs/16 outputs NPN (+ common for inputs and - common for outputs)	DRT2-OD32B-1		
			DRT2-MD32B		
		16 inputs/16 outputs PNP (- common for inputs and + common for outputs)	DRT2-MD32B-1		
		32 inputs NPN (+ common)	DRT2-ID32BV	UC1, CE	
Board Terminals with MIL	A	32 inputs PNP (- common)	DRT2-ID32BV-1		
Connector	0.00	32 outputs NPN (- common)	DRT2-OD32BV		
Perpendicular Mounting)		32 outputs PNP (+ common)	DRT2-OD32BV-1		
	A Second	16 inputs/16 outputs NPN (+ common for inputs and - common for outputs)	DRT2-MD32BV		
		16 inputs/16 outputs PNP (- common for inputs and + common for outputs)	DRT2-MD32BV-1	1	

## **OMRON**

Product	Appearance	Speci	fications	Model	Standards
		16 inputs NPN (+ common)	Detection functions	DRT2-ID16SLH	
		16 inputs PNP (- common)	Detection functions	DRT2-ID16SLH-1	
		16 outputs NPN (- common)	Detection functions	DRT2-OD16SLH	
		16 outputs PNP (+ common)	Detection functions	DRT2-OD16SLH-1	11 1104 05
		16 inputs NPN (+ common)	No Detection functions	DRT2-ID16SL	U, UC1, CE
		16 inputs PNP (- common)	No Detection functions	DRT2-ID16SL-1	
		16 outputs NPN (- common)	No Detection functions	DRT2-OD16SL	
Screw-less Clamp Terminals		16 outputs PNP (+ common)	No Detection functions	DRT2-OD16SL-1	
with Transistors		32 inputs NPN (+ common)	Detection functions	DRT2-ID32SLH	
		32 inputs PNP (- common)	Detection functions	DRT2-ID32SLH-1	
	Ť	32 outputs NPN (- common)	Detection functions	DRT2-OD32SLH	
		32 outputs PNP (+ common)	Detection functions	DRT2-OD32SLH-1	UC1, CE
		16 inputs/16 outputs NPN (+ commo	on for inputs and - common for outputs)	DRT2-MD32SLH	
		16 inputs/16 outputs PNP (- commo Detection functions	n for inputs and + common for outputs)	DRT2-MD32SLH-1	
		8 inputs NPN (+ common)		DRT2-ID08C	UC, N, CE
		8 inputs PNP (- common)		DRT2-ID08C-1	UC1, N, CE
Advanced Environment-		8 outputs NPN (- common)		DRT2-OD08C	UC, N, CE
resistive Terminals with Transistors		8 outputs PNP (+ common)		DRT2-OD08C-1	UC1, N, CE
		16 inputs NPN (+ common)		DRT2-HD16C	LIC N OF
		16 inputs PNP (- common)		DRT2-HD16C-1	UC, N, CE
	dea	4 inputs NPN (+ common)		DRT2-ID04CL	
	<b>©</b>	4 inputs PNP (- common)		DRT2-ID04CL-1	
	(3) B	4 outputs NPN (- common)		DRT2-OD04CL	
	and the same of th	4 outputs PNP (+ common)	DRT2-OD04CL-1		
		8 inputs NPN (+ common)		DRT2-ID08CL	
		8 inputs PNP (- common)		DRT2-ID08CL-1	
Standard Environment-		8 outputs NPN (- common)		DRT2-OD08CL	1104 05
resistive Terminals with Transistors		8 outputs PNP (+ common)		DRT2-OD08CL-1	UC1, CE
	(B) (S)	16 inputs NPN (+ common)		DRT2-HD16CL	
		16 inputs PNP (- common)		DRT2-HD16CL-1	
		16 outputs NPN (- common)		DRT2-WD16CL	
		16 outputs PNP (+ common)		DRT2-WD16CL-1	
		8 inputs/8 outputs NPN (+ common	for inputs and - common for outputs)	DRT2-MD16CL	
		8 inputs/8 outputs PNP (- common f	or inputs and + common for outputs)	DRT2-MD16CL-1	
Analog Input Tii	_	4 inputs (resolution: 6,000)		DRT2-AD04 *1	
nalog Input Terminals		4 inputs (resolution: 30,000)		DRT2-AD04H	UC1, CE
Analog Output Terminal		2 outputs		DRT2-DA02 *1	001, 02
Temperature Input Terminals with Thermocouple Inputs	4 inputs			DRT2-TS04T	
Temperature Input Terminals with Platinum-resistance Thermometer Inputs		4 inputs		DRT2-TS04P	UC1, CE

<sup>\*1.</sup> Product no longer available to order.

## ● SmartSlice GRT1 Series (No longer available to order)

	Product	Appearance	Specifications	Model	Standards	
DeviceNet	Communications Unit		Up to 64 SmartSlice I/O Units can be connected (1,024 I/O points).	GRT1-DRT	UC1, CE, L	
			4 inputs, NPN	GRT1-ID4		
			4 inputs, PNP	GRT1-ID4-1	1104 05 1	
			4 outputs, NPN	GRT1-OD4	UC1, CE, L	
		_	4 outputs, PNP	GRT1-OD4-1		
			8 inputs, NPN	GRT1-ID8		
	Digital I/O Units		8 inputs, PNP	GRT1-ID8-1	UC, CE, L	
			8 outputs, NPN	GRT1-OD8	00, CE, L	
			8 outputs, PNP	GRT1-OD8-1		
			2 relay outputs	GRT1-ROS2	UC1, CE, L	
			4 AC inputs	GRT1-IA4-1	UC1, CE, L	
SmartSlice			1.15.14	GRT1-IA4-2		
I/O Units			2 inputs (current/voltage)	GRT1-AD2		
	Analog I/O Units	1.1	2 outputs (current)	GRT1-DA2C	UC1, CE, L	
			2 outputs (voltage)	GRT1-DA2V		
	Temperature input (resistance thermometer)	_		2 temperature inputs (PT100 resistance thermometer)	GRT1-TS2P	
		resistance 2 tempe	2 temperature inputs (PT1000 resistance thermometer)	GRT1-TS2PK	UC1, CE, L	
			2 thermocouple inputs	GRT1-TS2T	UC, CE, L	
		er Units	1 counter input, 1 external output, NPN	GRT1-CT1		
	Counter Units		1 counter input, 1 external output, PNP	GRT1-CT1-1	UC, CE, L	
		Right Turnback (Used to divide a SmartSlice I/O Terminal into blocks.)	GRT1-TBR	V24 05 1		
	Turnback Units –	Turnback Units	Left Turnback (Used to divide a SmartSlice I/O Terminal into blocks.)	GRT1-TBL	UC1, CE, L	
	Turnback Cable		Length: 1 m	GCN2-100	UC1 *2, CE, L	
System				GRT1-PD2	UC1, CE, L	
Units			Used if the total current consumption of the I/O power supply	GRT1-PD2G		
	I/O Power Supply	5	exceeds 4 A or to provide an I/O power supply on a separate system.	GRT1-PD8		
Units				GRT1-PD8-1	UC, CE, L	
			Lload to add the V and C terminals for the I/O newer supply	GRT1-PC8		
			Used to add the V and G terminals for the I/O power supply.	GRT1-PC8-1		
	End Unit *1		Required at the end of SmartSlice I/O Terminals.	GRT1-END	UC1, CE, L	
Options	Terminal Block		Terminal block (5 blocks)	GRT1-BT1-5		

<sup>\*1.</sup> The End Unit is sold separately. (End Units are not included with Communications Units.)\*2. Use the GCN2-100 as a set with the GRT1-TBR and GRT1-TBL.

## ● MULTIPLE I/O TERMINALS

	Product	Appearance	I/O points	Specifications	Model	Standards		
Communi	cations Unit			Slave I/O points 1,024 max. (inputs and outputs)	DRT1-COM	U, C, CE		
					16 inputs	NPN (+ common)	GT1-ID16	
	Terminal block			16 inputs	PNP (- common)	GT1-ID16-1	1	
	models		16 outputs	NPN (- common)	GT1-OD16			
		A Company of the Comp	16 outputs	PNP (+ common)	GT1-OD16-1			
			16 inputs	NPN (+ common)	GT1-ID16MX			
	Molex connector		16 inputs	PNP (- common)	GT1-ID16MX-1			
	models		16 outputs	NPN (- common)	GT1-OD16MX			
			16 outputs	PNP (+ common)	GT1-OD16MX-1			
			16 inputs	NPN (+ common)	GT1-ID16ML			
Digital	Fujitsu/OTAX connector		16 inputs	PNP (- common)	GT1-ID16ML-1	U, C, CE		
I/O Units	models		16 outputs	NPN (- common)	GT1-OD16ML	U, C, CE		
			16 outputs	PNP (+ common)	GT1-OD16ML-1			
			16 inputs	NPN (+ common)	GT1-ID16DS			
	D-sub, 25-pin		16 inputs	PNP (- common)	GT1-ID16DS-1			
	connector		16 outputs	NPN (- common)	GT1-OD16DS			
			16 outputs	PNP (+ common)	GT1-OD16DS-1			
	F. Sterre		32 inputs	NPN (+ common)	GT1-ID32ML			
	Fujitsu high-density		32 inputs	PNP (- common)	GT1-ID32ML-1			
	connector		32 outputs	NPN (- common)	GT1-OD32ML			
	models		32 outputs	PNP (+ common)	GT1-OD32ML-1			
			16 outputs	Relay Output Unit with 16 points, 2 A, SPST-NO terminal block	GT1-ROS16	U, C, CE		
Relay Out	tput Unit	Carried State of the Control of the	8 outputs	Relay Output Unit with 8 points, 5 A, SPST-NO terminal block	GT1-ROP08			
			8 outputs	SSR Output Unit with 8 points, 1.5 A, SPSTNO terminal block	GT1-FOP08			
A = a   a =   l = a	and Haite		8 inputs	Molex connector	GT1-AD08MX	U, C, CE		
Analog In	put Onits		4 inputs	Terminal block	GT1-AD04	0, 0, 02		
A			4 outputs	Molex connector	GT1-DA04MX	U, C, CE		
Analog Ol	utput Units	ATTITUDE.	4 outputs	Terminal block	GT1-DA04	J, J, OL		
			4 inputs	Thermocouple input	GT1-TS04T	II C CE		
iemperati	ure Input Units	Market	4 inputs	Platinum-resistance thermometer input	GT1-TS04P	U, C, CE		
				1 m	GCN1-100			
I/O Unit C	Connecting Cable			30 cm	GCN1-030			
ŭ				60 cm	GCN1-060			

## ● Intelligent Slaves (PLC Units) (No longer available to order)

Product	Appearance	Specifications		Model	Standards
Programmable Slaves	Slave equipped with CPM2C CPU Unit functions	4 transistor outputs (sinking) CPM2C-S100C-DRT		U. C. CE	
Frogrammable Slaves		1,024 points max. for Remote I/O Links Includes CompoBus/s Master.	4 transistor	CPM2C-S110C-DRT	U, U, UE

## ●Intelligent Slaves

Product	Appearance	Specifications			Model	Standards
		Up to 16 E3X-DA-S, E3X Amplifiers can be connect	-MDA, E3X-LDA, and E2C-E sted.	DA Fiber	E3X-DRT21-S VER.3 *1	
					E3X-DA7-S *1	_
			Advanced models	NPN PNP	E3X-DA9-S *1	-
				NPN	E3X-DA6-S *1	
			Standard models	PNP	E3X-DA8-S *1	-
			Mark-detecting models	NPN	E3X-DAB6-S *1	-
			(Blue LED)	PNP	E3X-DAB8-S *1	
			Mark-detecting models	NPN	E3X-DAG6-S *1	
		E2	(Green LED)	PNP	E3X-DAG8-S *1	
		Fiber Amplifier Unit	Mark-detecting models	NPN	E3X-DAH6-S *1	
			(Infrared LED)	PNP	E3X-DAH8-S *1	
Digital Sensor Communications			Advanced Twin-output	NPN	E3X-DA6TW-S *1	CE
Unit			models	PNP	E3X-DA8TW-S *1	
			Advanced External input	NPN	E3X-DA6RM-S *1	
			models	PNP	E3X-DA8RM-S *1	
			2-channel models	NPN	E3X-MDA6 *1	
			Z-criariner moders	PNP	E3X-MDA8 *1	
		La completa de la chia	Twin-output models	NPN	E3C-LDA6 *1	
		Laser Photoelectric Sensor with Separate	Twin-output models	PNP	E3C-LDA8 *1	
		Amplifier	External input models	NPN	E3C-LDA7 *1	
			External input modelo	PNP	E3C-LDA9 *1	
		Proximity Sensor with Separate Amplifier	Twin-output models  External input models	NPN	E2C-EDA6	
				PNP	E2C-EDA8	
				NPN	E2C-EDA7	
				PNP	E2C-EDA9	
		Wire-Saving Connector			E3X-CN02 *2	
Intelligent Flag III			e status of certification for rac		V600-HAM42-DRT *1	CE
DeviceNet ID Slave	7	www.ia.omron.com.	untries, visit the OMRON web	osite at	V680-HAM42-DRT	UC, CE, RCM
		DeviceNet-compliant Pro	cess Indicator		K3HB-XVD-A-DRT1	
		DeviceNet-compliant We	ighing Indicator		K3HB-VLC-B-DRT1	]
	www.millillo	DeviceNet-compliant Ter	nperature Indicator		K3HB-HTA-DRT1	
DeviceNet-compliant Indicators	- 12345	DeviceNet-compliant Line			K3HB-SSD-A-DRT1	UC, CE
	1006tt .m	DeviceNet-compliant Ro	ary Pulse Indicator		K3HB-RNB-A-DRT1	]
		DeviceNet-compliant Tim			K3HB-PNB-A-DRT1	
		DeviceNet-compliant Up/	Down Counting Pulse Indicat	tor	K3HB-CNB-A-DRT1	
					E5AR-Q4B-DRT *1	1
		Basic Type (1 input)			E5AR-C4B-DRT *1	1
	9.8886a M				E5AR-QC4B-DRT *1	_
	88888	2-input Type			E5AR-QQ4W-DRT *1	_
DeviceNet-compliant Digital	00000	4-input Type			E5AR-CC4WW-DRT *1	_
		Control Valve Control Typ	pe (1 input)		E5AR-PR4F-DRT *1	UC, CE
Controllers		,	· · ·		E5AR-PRQ4F-DRT *1	- 00, CE
		Basic Type (1 input)			E5ER-QTB-DRT *1	
	100.00	, ,			E5ER-CTB-DRT *1	
	88886	2-input Type	2-input Type		E5ER-QTW-DRT *1 E5ER-CTW-DRT *1	
	***	0				-
	7	Control Valve Control Typ	pe (1 input)		E5ER-PRTF-DRT *1	

<sup>\*1.</sup> Product no longer available to order.\*2. Order as many Connectors as the number of Sensors.



Р	roduct	Appearance		Specifications		Model	Standards
	CPU Bus Unit with DeviceNet Communications			ternal input power supply voltage: 24 VDC plicable model: EJ1		EJ1N-HFUB-DRT *1	
				No. of control outputs: 2	M3 terminals	EJ1N-TC2A-QNHB	
				Control outputs 1 and 2: 2 voltage outputs (for SSR drive) Control outputs 3 and 4: 2 transistor outputs (sinking)	Screw-less clamp terminals	EJ1N-TC2B-QNHB	
	Basic Units for		24 VDC	No. of control outputs: 4	M3 terminals	EJ1N-TC4A-QQ	UC. CE
Modular Temperature Controller	Temperature Control		supplied from the End Unit.	Control outputs 1 and 2: 2 voltage outputs (for SSR drive) Control outputs 3 and 4: 2 voltage outputs (for SSR drive)	Screw-less clamp terminals	EJ1N-TC4B-QQ	00,02
Controller			(	No. of control outputs: 2	M3 terminals	EJ1N-TC2A-CNB	
					Screw-less clamp terminals	EJ1N-TC2B-CNB	
				Auxiliary outputs: 4 transistor outputs (sinking)  Pod draw  Auxiliary outputs: 4 transistor outputs (sinking)	M3 terminals	EJ1N-HFUA-NFLK *1	
	CPU Bus Units with Programless		24 VDC		Screw-less clamp terminals	EJ1N-HFUB-NFLK *1	
	Connection		the End Unit.		M3 terminals	EJ1N-HFUA-NFL2 *1	
					Screw-less clamp terminals	EJ1N-HFUB-NFL2 *1	UC, CE, KC
				Auxiliary outputs: 2 transistor outputs	M3 terminals	EJ1C-EDUA-NFLK	UC, CE
	End Units		24 VDC	(sinking)	Connector terminals	EJ1C-EDUC-NFLK	UC, CE, KC
Multi-function *2	Multi-function Compact Inverter *2 MX2-Series V1 type DeviceNet Communication Unit		3G3AX-MX2-DRT-E	CU, CE			
High-function General-purpose Inverter *2  RX-Series V1 type DeviceNet Communication Unit		3G3AX-RX-DRT-E	CU, CE				

<sup>\*1.</sup> Product no longer available to order.\*2. Inverters in this catalog have been discontinued.

## **CIP Safety on DeviceNet System**

Product	Appearance	Specifications	Model	Standards
		Safety inputs: 12, Test outputs: 12, Safety outputs: 6 Unit version: 1.0	NE0A-SCPU01	CE, UC
Safety Network Controllers		Safety inputs: 16, Test outputs: 4, Safety outputs: 8 Unit version: 2.0	NE1A-SCPU01-V1	CE, UC
		Safety inputs: 40, Test outputs: 8, Safety outputs: 8 Unit version: 2.0	NE1A-SCPU02	— CE, UC
	al.	Safety inputs: 12, Test outputs: 4	DST1-ID12SL-1	
O of the MO Township of	The last	Safety inputs: 8, Safety outputs (semiconductor): 8, Test outputs: 4	DST1-MD16SL-1	05.110
Safety I/O Terminals		Safety inputs: 8, Safety outputs (semiconductor): 8, Test outputs: 4	DST1-XD0808SL-1 *	
		Safety inputs: 4, Safety outputs (relay): 4, Test outputs: 4	DST1-MRD08SL-1	
Network Configurator		Components: Installation Disk (CD-ROM: 1 license) Computer: IBM PC/AT or compatible Applicable OS: Windows XP Service Pack 3 (32-bit edition) Windows Vista Service Pack 2 (32-bit edition, 64-bit edition) Windows 7 (32-bit edition, 64-bit edition) Windows 8 (32-bit edition, 64-bit edition) Windows 8.1 (32-bit edition, 64-bit edition) Windows 10 (32-bit edition, 64-bit edition)	WS02-CFSC1-E	
		Components: Upgrade Disk (CD-ROM: 1 license) Computer: IBM PC/AT or compatible Applicable OS: Windows XP Service Pack 3 (32-bit edition) Windows Vista Service Pack 2 (32-bit edition, 64-bit edition) Windows 7 (32-bit edition, 64-bit edition) Windows 8 (32-bit edition, 64-bit edition) Windows 8.1 (32-bit edition, 64-bit edition) Windows 10 (32-bit edition, 64-bit edition)	WS02-CFSC1-E-UP	

Note: Spring terminal blocks are mounted on the Unit as a standard feature. Separate terminals are available as required, such as for replacement. For details, refer to the CIP Safety on DeviceNet System Catalog (Cat. No. Z907).
 To make setting for the DST1-XD0808SL-1, use Network Configurator version 2.0 or higher.

## Configurator

Product	Appearance	Specifications	Model	Standards
DeviceNet Configurator		DeviceNet Configurator Software OS: Windows 2000 (Service Pack2 or higher)/XP/Vista/7 (32bit) *1	WS02-CFDC1-E	
		PC Card OS: Windows 2000 (Service Pack2 or higher)/XP	3G8E2-DRM21-EV1 <b>★2</b>	-

<sup>\*1.</sup> To use the software on Windows Vista or Windows 7, download the version upgrade program from the following OMRON website and apply it: www.fa.omron.co.jp/ \*2. Final order entry date: The end of March, 2020

## **Software**

## **How to Select Required Support Software for Your Controller**

The required Support Software depends on the Controller to connect. Please check the following table when purchasing the Support Software.

Item	Omron PLC System	Omron Machine Automation Controller System		
Controller	CS, CJ, CP, and other series	NJ-series		
Software	FA Integrated Tool Package CX-One	Automation Software Sysmac Studio		

## **FA Integrated Tool Package CX-One**

Product name	Specifications	Number of licenses	Media	Model	Standards
FA Integrated Tool Package CX-One Ver.4.□	The CX-One is a comprehensive software package that integrates Support Software for OMRON PLCs and components.	1 license <b>*1</b>	DVD	CXONE-AL01D-V4	-
Ver.4.	CX-One Version 4. ☐ includes CX-Integrator Ver.2. ☐.				

## **Automation Software Sysmac Studio**

The Sysmac Studio is the software that provides an integrated environment for setting, programming, debugging and maintenance of machine automation controllers including the NJ/NX-series CPU Units, NY-series Industrial PC, EtherCAT Slave, and the HMI.

For details, refer to your local OMRON website and Sysmac Studio Catalog (Cat. No. P138).

Product	Appearance	Specifications		Model	Standards
DeviceNet Analyzer *1		Software OS: Windows 2000 (Service Pack2 or higher)/XP		WS02-ALDC1-E	
NX-Server <b>*</b> 1		DDE Edition OS: Windows 2000 (Service Pack2 or higher)/XP		WS02-NXDC1-E	
		Software	One-license version Media: DVD	WS02-DIPC1-E	
Device Inspector *1	The Charge	OS: Windows 2000 (ServicePack2 or higher)/XP	Site license	WS02-DIPC1-ELXX	

<sup>\*1.</sup> Final order entry date: The end of March, 2020

Note: For details, refer to the CX-One Catalog (Cat. No. R134), visit your local OMRON website.

\*1. Multi licenses (3, 10, 30, or 50 licenses) and DVD media without licenses are also available for the CX-One.

## **Peripheral Devices**

## Models for Standard Cables

Product	Appearance	Specification	ons	Model	
		Cable wiring direction: Toward top Cable lock direction: From top Connector screw direction: From top	Provided with 3 parallel clamp connectors with screws (XW4G-05C1-H1-D), standard terminating resistor	DCN1-1NC	
T-branch Tap for		Cable wiring direction: Toward side Cable screw direction: From top Connector screw direction: From side	3 parallel connectors with screws (XW4B-05C1-H1-D), standard	DCN1-1C	
1 branch line		Cable wiring direction: Toward top Cable screw direction: From side Connector screw direction: From top	terminating resistor	DCN1-2C	
		Cable wiring direction: From side Cable screw direction: From top Connector screw direction: From top	3 vertical-type connectors with screws (XW4B-05C1-V1R-D), standard terminating resistor	DCN1-2R	
		Cable wiring direction: Toward top Cable lock direction: From top Connector screw direction: From top	Provided with 5 parallel clamp connectors with screws (XW4G-05C1-H1-D), standard terminating resistor	DCN1-3NC	
T-branch Tap for	THE THE PARTY OF T	Cable wiring direction: Toward side Cable screw direction: From top Connector screw direction: From side	5 parallel connectors with screws (XW4B-05C1-H1-D), standard	DCN1-3C	
3 branch lines		Cable wiring direction: Toward top Cable screw direction: From side Connector screw direction: From top	terminating resistor	DCN1-4C	
		Cable wiring direction: Toward side Cable screw direction: From top Connector screw direction: From top	5 vertical-type connectors with screws (XW4B-05C1-V1R-D), standard terminating resistor	DCN1-4R	
Power Supply Tap	8	2 connectors, standard terminating resistor, fus	2 connectors, standard terminating resistor, fuse		
		Parallel clamp connector with screws (Connector insertion and wiring performed in the	XW4G-05C1-H1-D		
		Parallel multi-branching clamp connector with s (Connector insertion and wiring performed in s	XW4G-05C4-TF-D		
		Parallel connector with screws (Connector insertion and wiring performed in the	Parallel connector with screws (Connector insertion and wiring performed in the same direction)		
Connector	00000	Parallel connector with screws (Connector insertion and wiring performed in the	XW4B-05C4-T-D		
	65666	Parallel, multi-branching connector with screws (Connector insertion and wiring performed in the same direction)		XW4B-05C4-TF-D	
		Orthogonal connector with screws (Connector insertion and wiring performed at a	XW4B-05C1-V1R-D		
Special Cables		Thin cable Length: 100 m DCA1-5C10-B: Cable color: Blue DCA1-5C10: Cable color: Grey		DCA1-5C10(-B)	
		Thick cable Length: 100 m DCA2-5C10-B: Cable color: Blue DCA2-5C10: Cable color: Grey		DCA2-5C10(-B)	
Terminal-block Terminator		Resistance of 121 $\Omega$		DRS1-T	

### ● Models for Flat Cables

Product	Appearance	Specifications	Model	Standards
Conversion Connector for Standard Thin Cable and Flat Cable		Used as a set with the DCN4-TR4 when Thin Cable is branched on a branch line.	DCN4-BR4D	UC pending
Power Supply Terminal Block with Terminating Resistor for Flat Cable		Can be used to supply communications power from terminals when flat cable is used.	DCN4-TP4D	UC pending
Flat Connector Socket		Used as a set with a DCN4-BR4 Flat Connector Plug in the following applications.  • Extending the trunk line  • T-branching the trunk line into branch lines	DCN4-TR4	UC pending
		Used alone in the following applications.  • Connecting a DCN4-TM4 Terminating Resistor to the trunk line	the trunk	
Flat Connector Plug		Used as a set with a DCN4-TR4 Flat Connector Socket in the following applications.  • Extending the trunk line  • T-branching the trunk line into branch lines	DCN4-BR4	UC
Flat Conflector Flug		Used alone in the following applications.  Connecting the communications cable to the Unit  Connecting the communications cable to a DCN4-MD4 Multi-drop Connector	DCN4-DR4	
Terminating Resistor		Connector terminating resistor for flat cable. Attached to the DCN4-TR4 Flat Connector Socket at the ends of the trunk line.	DCN4-TM4	UC
Flat Cable	Four-core flat cable (UL 2555) Length: 100 m Conductor diameters: 0.75 mm² x 2, 0.5 mm² x 2		DCA4-4F10	UC
Special Crimping Tool		This is the crimping tool for the following connectors:  • DCN4-TR4(-1) Flat Connector Socket  • DCN4-BR4 Flat Connector Plug  • DCN4-BR4D Conversion Connector for Standard Thin Cable and Flat Cable	DWT-A01	-

<sup>\*</sup> Delivered in units of ten. Order in a multiple of ten.

## ● Environment-resistive Models for Thin Wires with M12 Microconnectors

Product	Appearance	Specifications		Model
Sealed Assembling-type Connector (male)		For communications (plug)		XS2G-D5S7
Sealed Assembling-type Connector (female)		For communications (socket)		XS2C-D5S7
Sealed T-branch Connector		For 1 branch line		DCN2-1
Sealed Connector with Terminating		Plug		DRS2-1
Resistor		Socket		DRS2-2
			Length: 0.5 m	DCA1-5CNC5W1
			Length: 1 m	DCA1-5CN01W1
		Cable with connectors on both ends	Length: 2 m	DCA1-5CN02W1
		Cable with connectors on both ends	Length: 3 m	DCA1-5CN03W1
			Length: 5 m	DCA1-5CN05W1
			Length: 10 m	DCA1-5CN10W1
		Cable with connector on one end (socket)	Length: 0.5 m	DCA1-5CNC5F1
			Length: 1 m	DCA1-5CN01F1
Cables with Sealed Connectors *			Length: 2 m	DCA1-5CN02F1
Cables with Sealed Connectors *			Length: 3 m	DCA1-5CN03F1
			Length: 5 m	DCA1-5CN05F1
			Length: 10 m	DCA1-5CN10F1
		Cable with connector on one end (plug)	Length: 0.5 m	DCA1-5CNC5H1
			Length: 1 m	DCA1-5CN01H1
			Length: 2 m	DCA1-5CN02H1
			Length: 3 m	DCA1-5CN03H1
			Length: 5 m	DCA1-5CN05H1
			Length: 10 m	DCA1-5CN10H1
Shielded Panel-mounting Connectors (female)		Panel-mounting connector (socket)	Length: 0.5 m	DCA1-5CNC5P1
		Panel-mounting connector (socket)	Solder-cup terminals	XS2P-D522-2
Shielded Panel-mounting Connectors (male)		Panel-mounting connector (plug)	Length: 0.5 m	DCA1-5CNC5M1
,,,,,,		Panel-mounting connector (plug)	Solder-cup terminals	XS2M-D524-4

<sup>\*</sup> Robot cable type connectors with shielded cables (DCA1-5CN are also available. Contact your OMRON sales representative for details.

## ● Environment-resistive Models for Thick Wires with 7/8-16UN Miniconnectors

Product	Appearance	Specification	ı	Model
Shielded T-branch Connector		T-branch Connector		DCN3-11
Shielded 1-branch Connector		T-branch Connector (Branch connector is M	M12)	DCN3-12
Shielded Terminating Resistor		Plug Connector		DRS3-1
			Length: 1 m	DCA2-5CN01W1
			Length: 2 m	DCA2-5CN02W1
		Cables with connectors at both ends	Length: 5 m	DCA2-5CN05W1
	O IN		Length: 10 m	DCA2-5CN10W1
			Length: 1 m	DCA2-5CN01F1
			Length: 2 m	DCA2-5CN02F1
		Cables with connector socket at one end	Length: 5 m	DCA2-5CN05F1
Connectors with Shielded Cables			Length: 10 m	DCA2-5CN10F1
		Cables with connector plug at one end	Length: 1 m	DCA2-5CN01H1
			Length: 2 m	DCA2-5CN02H1
			Length: 5 m	DCA2-5CN05H1
			Length: 10 m	DCA2-5CN10H1
	SW SW		Length: 1 m	DCA1-5CN01W5
		Cables with connectors at both ends	Length: 2 m	DCA1-5CN02W5
		Thin cable M12 socket	Length: 5 m	DCA1-5CN05W5
			Length: 10 m	DCA1-5CN10W5
Panel-mounting Connectors (Female)		Panel-mounting Connector Sockets with 0.5-m cable		DCA2-5CNC5P1
Panel-mounting Connectors (Male)		Panel-mounting Connector Plugs with 0.5-m cable		DCA2-5CNC5M1
Panel-mounting Connectors (Male)		Panel-mounting Connector Plugs DIP terminals		XS4M-D521-1

## ● Environment-resistive Models for Thin Wires with M12 Smart Click Microconnectors



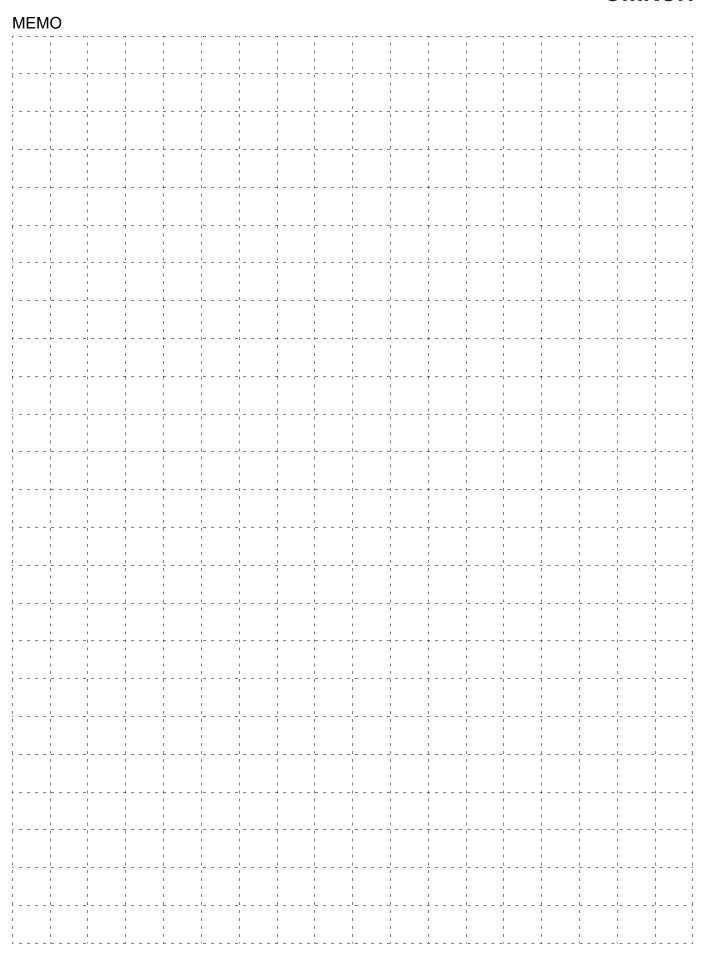
Product	Appearance	Specifications		Model
Sealed T-branch Connector		For 1 branch line		DCN2-1S
Sealed Connector with Terminating		Plug		DRS2-1S
Resistor		Socket		DRS2-2S
	-		Length: 0.5 m	DCA1-5CSC5W1
			Length: 1 m	DCA1-5CS01W1
		O. I.I. with a second of the second	Length: 2 m	DCA1-5CS02W1
	• •	Cable with connectors on both ends	Length: 3 m	DCA1-5CS03W1
			Length: 5 m	DCA1-5CS05W1
	•		Length: 10 m	DCA1-5CS10W1
	637	Cable with connector socket on one end (socket)	Length: 0.5 m	DCA1-5CSC5F1
			Length: 1 m	DCA1-5CS01F1
Cables with Sealed Connectors *			Length: 2 m	DCA1-5CS02F1
Cables with Sealed Connectors *			Length: 3 m	DCA1-5CS03F1
			Length: 5 m	DCA1-5CS05F1
			Length: 10 m	DCA1-5CS10F1
		Cable with connector socket on one end (plug)	Length: 0.5 m	DCA1-5CSC5H
			Length: 1 m	DCA1-5CS01H1
			Length: 2 m	DCA1-5CS02H1
			Length: 3 m	DCA1-5CS03H1
			Length: 5 m	DCA1-5CS05H1
	**		Length: 10 m	DCA1-5CS10H1
	<b>6</b> 1 (1)	4 ports	0.5-m cable	DCN2-S4C5H1
Shielded Branch Relay Box		8 ports	0.5-m cable	DCN2-S8C5H1

<sup>\*</sup> Robot cable type connectors with shielded cables (DCA1-5CN are also available. Contact your OMRON sales representative for details.

# ● Cables with Connectors Compatible with MULTIPLE I/O TERMINAL Connectors Models with Fujitsu/OTAX Connectors

Produc	t	Appearance	Cable length L (mm)	Model	
			A: 1,000, B: 750	XW2Z-RI100C-75	
			A: 1,500, B: 1,250	XW2Z-RI150C-125	
	32 inputs		A: 2,000, B: 1,750	XW2Z-RI200C-175	
			A: 3,000, B: 2,750	XW2Z-RI300C-275	
			A: 5,000, B: 4,750	XW2Z-RI500C-475	
			A: 1,000, B: 750	XW2Z-RO100C-75	
		A	A: 1,500, B: 1,250	XW2Z-RO150C-125	
Cable with Connectors	32 outputs		A: 2,000, B: 1,750	XW2Z-RO200C-175	
XW2Z-R□C			A: 3,000, B: 2,750	XW2Z-RO300C-275	
			A: 5,000, B: 4,750	XW2Z-RO500C-475	
			1,000	XW2Z-R100C	
	16 I/O points		1,500	XW2Z-R150C	
			2,000	XW2Z-R200C	
			3,000	XW2Z-R300C	
			5,000	XW2Z-R500C	
			500	XW2Z-050A	
			1,000	XW2Z-100A	
	16 I/O points		1,500	XW2Z-150A	
	10 1/O politis		2,000	XW2Z-200A	
			3,000	XW2Z-300A	
Cable with Connectors			5,000	XW2Z-500A	
XW2Z			500	XW2Z-050B	
			1,000	XW2Z-100B	
	32 I/O points		1,500	XW2Z-150B	
	02 1/O politio		2,000	XW2Z-200B	
			3,000	XW2Z-300B	
			5,000	XW2Z-500B	

# OMRON



# Information

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## **Related Manuals**

## **Manuals**

Cat.No.	Product Group	Models	Name	Туре
W267	-	-	DeviceNet	Operation Manual
W497	Master	CJ1W-DRM21	DeviceNet Units for NJ-Series CPU Units	Operation Manual
W380	Master	CS1W-DRM21(-V1),CJ1W-DRM21	DeviceNet Units	Operation Manual
W452	Master	NSJ	NSJ Controllers	Operation Manual
W381	Master	3G8F7-DRM21-E	DeviceNet PCI Board	Operation Manual
W404	Smart Slaves	DRT2 Series	DRT2 Series DeviceNet Slaves	Operation Manual
W454	SmartSlice	GRT1-DRT	DeviceNet Communications Unit	Operation Manual
W455	SmartSlice	GRT1	Slice I/O Units	Operation Manual
W348	Multiple I/O Terminals	DRT1-COM GT1 Series	DeviceNet Multiple I/O Terminal	Operation Manual
W353	Intelligent Slaves (PLC Units)	CPM2C-S1□0C-DRT	CPM1/CPM1A/CPM2A/CPM2C/SRM1(-V2) Programmable Controllers	Programming Manual
Z129	Intelligent Slaves	V680-HAM42-DRT	V600-HAM42-DRT Intelligent Flag III	Operation Manual
Z249	Intelligent Slaves	V680	ID Controller	User's Manual
N136	Intelligent Slaves	K3HB-R/-P/-C	Digital Indicators	User's Manual
N129	Intelligent Slaves	K3HB-DRT	Digital Indicators Communications	User's Manual
Z182	Intelligent Slaves	E5AR/E5ER	Digital Controller	User's Manual
H124	Intelligent Slaves	E5AR/E5ER	Digital Controller DeviceNet Communications	User's Manual
H142	Intelligent Slaves	EJ1	Modular Temperature Controller	User's Manual
H155	Intelligent Slaves	EJ1	DeviceNet Communications Unit for EJ1 Temperature Controllers	Operation Manual
1581	Intelligent Slaves	3G3AX-MX2-DRT-E 3G3AX-RX-DRT-E	MX2 series/RX series V1 type DeviceNet Communication Unit	User's Manual
Z905	CIP Safety on DeviceNet	WS02-CFSC1-E	CIP Safety on DeviceNet System	Configuration Manual
Z906	CIP Safety on DeviceNet	NE1A Series	CIP Safety on DeviceNet Safety Network Controller	Operation Manual
Z916	CIP Safety on DeviceNet	NE0A Series	CIP Safety on DeviceNet Safety Network Controller NE0A Series	Operation Manual
Z904	CIP Safety on DeviceNet	DST1 Series	CIP Safety on DeviceNet Safety I/O Terminals	Operation Manual
W382	Configurator	WS02-CFDC1-E,3G8F5-DRM21-E,3G8E2-DRM21-EV1	DeviceNet Configurator	Operation Manual
W504	Software	SYSMAC-SE2	Sysmac Studio	Operation Manual

## **Introduction of the Switch Mode Power Supply**

OMRON Switch Mode Power Supplies support a wide range of applications.



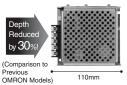
## This power supply shows status, maintenance time, and other information



- Notifies you when the power supply needs maintenance, allowing maintenance at the optimum time. Helps reduce maintenance costs.
- Display monitor function makes it easy to check equipment startup.
- \* Only on types with an indication monitor



## Simple power supply with a short body and easy installation: the ultimate in ease-of-use



makes it easy to design smaller and slimmer panels and devices.

One of the shortest bodies in the industry

- Front, top, DIN rail, and other installation types match the application and reduce installation man-hours.
- Fan-less up to 300 W, maintenance not necessary

Model	Model S8VS Model S8JX-G *4		Model S8JX-P *4				
Appearance							THE T
Features		Compact power si     Indication monitor     models also availa     Economy type ser	and maintenance	forecast mo	nitor	Power supply with short depth for convenient installation     Installation fittings included (front-mounted model)     Simple and low cost     DC input model available	• With harmonic current cuppression
Lineup Power rating output voltage	je (DC)	Standard model	With indication monitor	monitor b	dication ut without output		
	1500W : 600W 480W	480W • 24V	480W <b>2</b> 4V			600W 5V, 12V, 24V, 48V	600W <b>5</b> V, 12V, 24V, 48V
	300W 240W 180W 150W	240W 24V 180W 24V	240W 24V 180W 24V	240W (	24V	300W  5V, 12V, 24V, 48V	300W \$\int 5\V, 12\V, 24\V, 48\V\$  150W \$\int 5\V, 12\V, 24\V, 48\V\$
120W 100W 90W 75W		90W 24V	120W 24V	120W (		100W 5V, 12V, 24V, 48V	100W 5V, 12V, 24V, 48V
	60W 50W 30W 25W 15W 10W	60W © 24V 30W © 5V,12V,24V 15W © 5V,12V,24V	60W <b>2</b> 4V			50W 5V, 12V, 24V, 48V 35W 5V, 12V, 15V, 24V, 48V 15W 5V, 12V, 15V, 24V, 48V	50W 5V, 12V, 24V, 48V
	7.5W 3W						
Input voltage		AC 100 - 240 V (DC 80 - 370 V) *3		15 W - 150 W model : AC 100 - 240 V (DC 80 - 370 V) *2, 300 W, 600 W model : AC 100 - 120 V / AC 200 - 240 V switching	*3 AC 100 - 240 V (DC 80 - 370 V) *3		
Installation	DIN rail Yes		Yes (DIN rail mounting model only)  * Excluding 600 W model	Yes (DIN rail mounting model only)			
	Direct connection	Yes (Optional installation fitting required)  * The 480 W type cannot be connected directly.				Yes	Yes
Harmonic current suppression function		Yes				No	Yes
Added	Parallel operation	No				Yes (300 W and 600 W models only	Yes (300 W and 600 W models only)
functions	Serial operation	Yes (24V type only E	external diode requ	iired.)		Yes (External diode required.)	Yes (External diode required.)
Approvals *1		UL, CE				UL, CE	UL, CE
Catalogue number T026-E1				T041-E1	T041-E1		

- For details on approvals, visit our Web site (www.ia.omron.com/).

  Model S8JX-G15005 only, AC 100 120 V / AC 200 240 V marked number (DC input not available).

  The scope of application of EC directives and various safety standards (UL, EN, etc.) is AC 100 V to 240 V (AC 85 to 264 V).
- All S8JX-N products and 50/100/150W S8JX-P products are no longer available to order.

### Read and Understand this Catalog

Please read and understand this catalog before purchasing the product. Please consult your OMRON representative if you have any questions or comments.

## Warranty and Limitations of Liability

### WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

### LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

## **Application Considerations**

#### SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of the product in the customer's application or use of the product.

At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this document.
- Nuclear 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.
- Systems, machines, and equipment that could present a risk to life or property.
   Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

### **PROGRAMMABLE PRODUCTS**

OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

### **Disclaimers**

### **CHANGE IN SPECIFICATIONS**

Product specifications and accessories may be changed at any time based on improvements and other reasons. Consult with your OMRON representative at any time to confirm actual specifications of purchased product.

### **DIMENSIONS AND WEIGHTS**

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

### **PERFORMANCE DATA**

Performance data given in this catalog 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 users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

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

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CSM\_20\_37

Cat. No. Q102-E1-39 0525 (0715)