

# Multi-vendor Network DeviceNet

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# **DeviceNet** Today More Than Ever, DeviceNet Continues



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



### Support for open network

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

\* Supported for the MX2 series Ver.1.1 or higher. Not Supported for the RX series without V1 type.

## 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



RX series V1 type DeviceNet Communication Unit 3G3AX-RX-DRT-E

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

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Peripheral Devices

Overview

Network Introducing Specifications DeviceNet Products

Master Units

DRT2-series Smart Slaves

SmartSlice GRT1 Series

MULTIPLE I/O TERMINAL Series

Intelligent Slaves

Configurator CIP Safety on and Software DeviceNet System

Ordering Information

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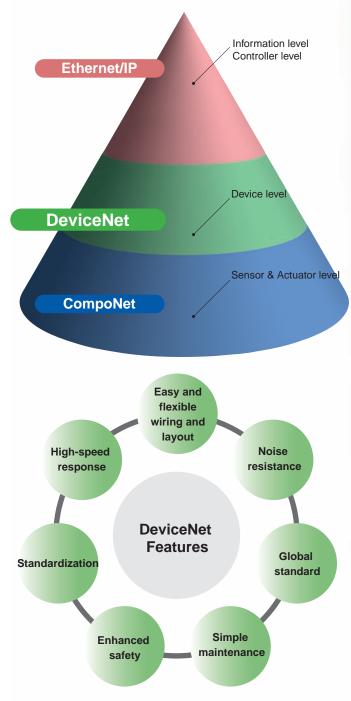
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# Linking the World. A Global Open Network Greater Wiring Reduction, Standardization, on a Global Scale.

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# What Is DeviceNet?

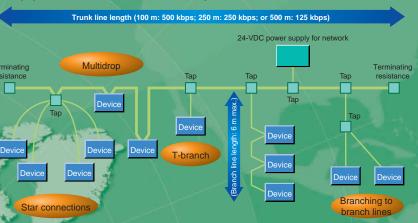
DeviceNet is a field network that easily performs mutual connections between control devices, such as PLCs, computers, and sensors, as well as data devices, such as barcode readers and RFID Systems. DeviceNet is a standardized network that enables intelligent control of field devices and improves system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



# Used Worldwide. and IT Technology at Manufacturing Sites

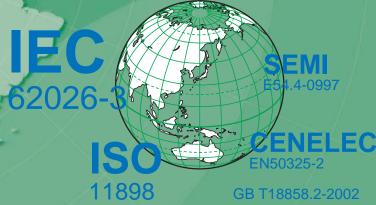
# Superior installation performance enables easy and flexible wiring and layout.

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.



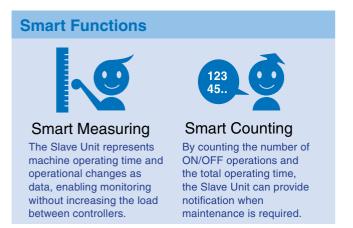
# Support for Creating Maintenance and Safety Systems

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

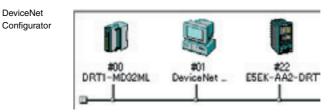
# DRT2-series Smart Slaves are Intelligent for Your Networks from Installation

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



# Easy-to-view Display



Operating time, contact operation counter

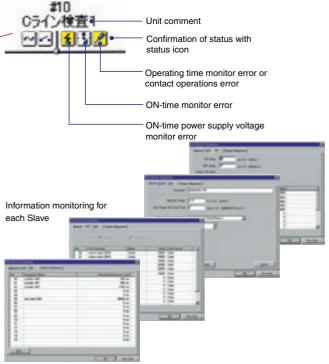


# Improve Maintenance Efficiency

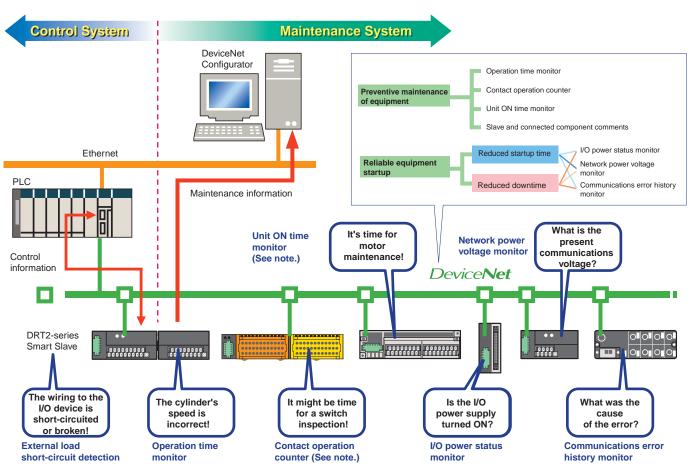
The Slave can hold comments, allowing quick identification of fault locations and faulty devices.

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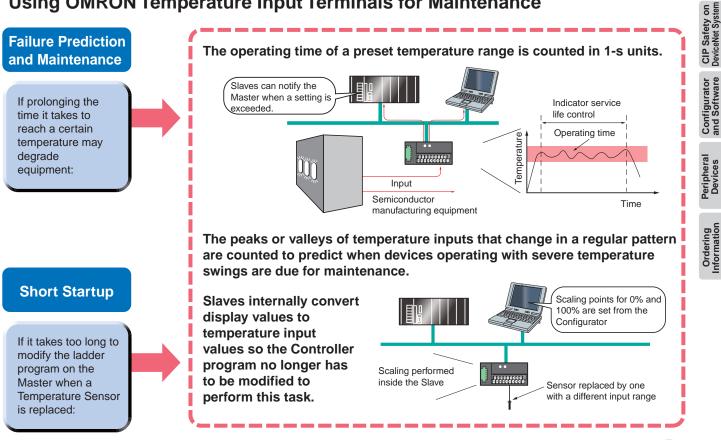


# Slaves with Powerful Support to Maintenance **Device**Net



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

# Using OMRON Temperature Input Terminals for Maintenance



Overview

Network Introducing Specifications DeviceNet Products

Master Units

DRT2-series Smart Slaves

SmartSlice GRT1 Series

MULTIPLE I/O TERMINAL Series

Intelligent Slaves

# **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, will not lead to loss of the machine's **Programmable** safety functions.

# **Compatible with DeviceNet Open Network**

**Coordination with** standard controls is easy through **DeviceNet** 

**CIP Safety**<sup>™</sup>

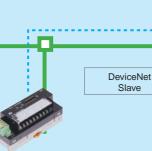
**More efficient** designing and modification

Machine Control

Slave

Programmable Terminal NSJ Series

**Safety Circuits** 

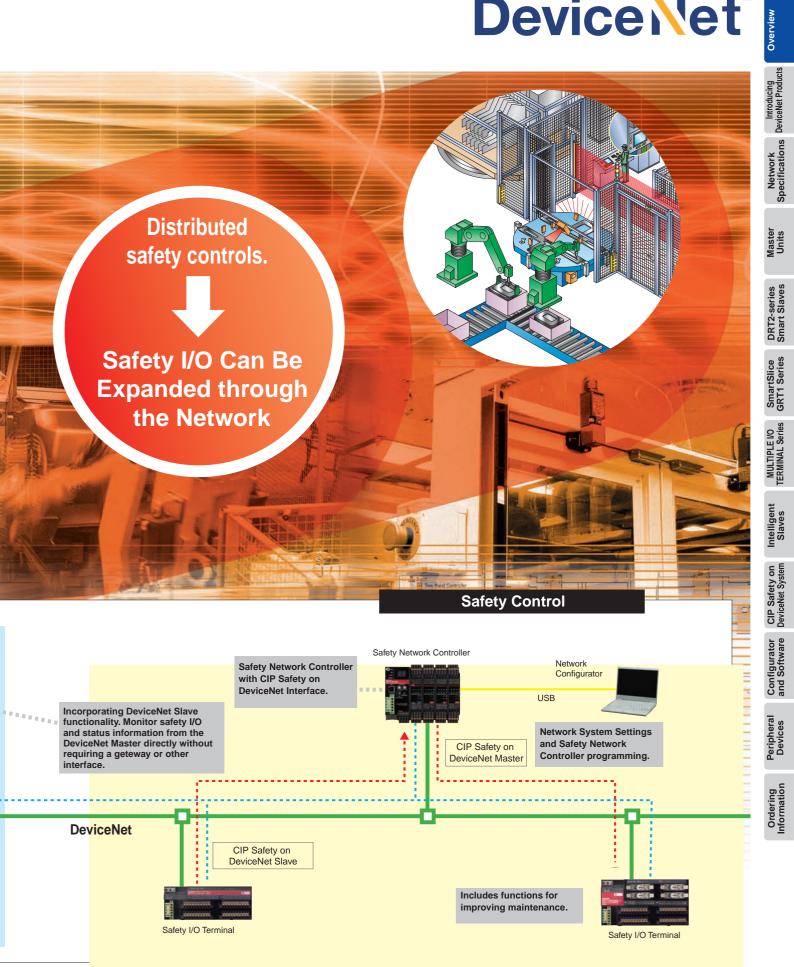


Analog I/O Terminal

Remote I/O Terminal

e World

# **Device**Net



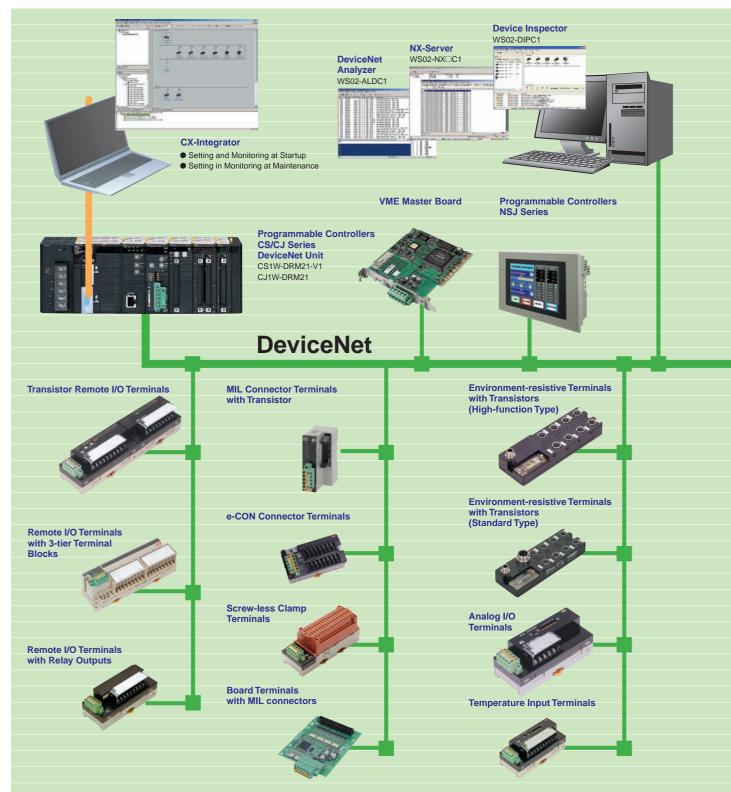
# Through Our High Reliability and Application OMRON Provides a Wide Range of DeviceNet Selection for Your Worksite.

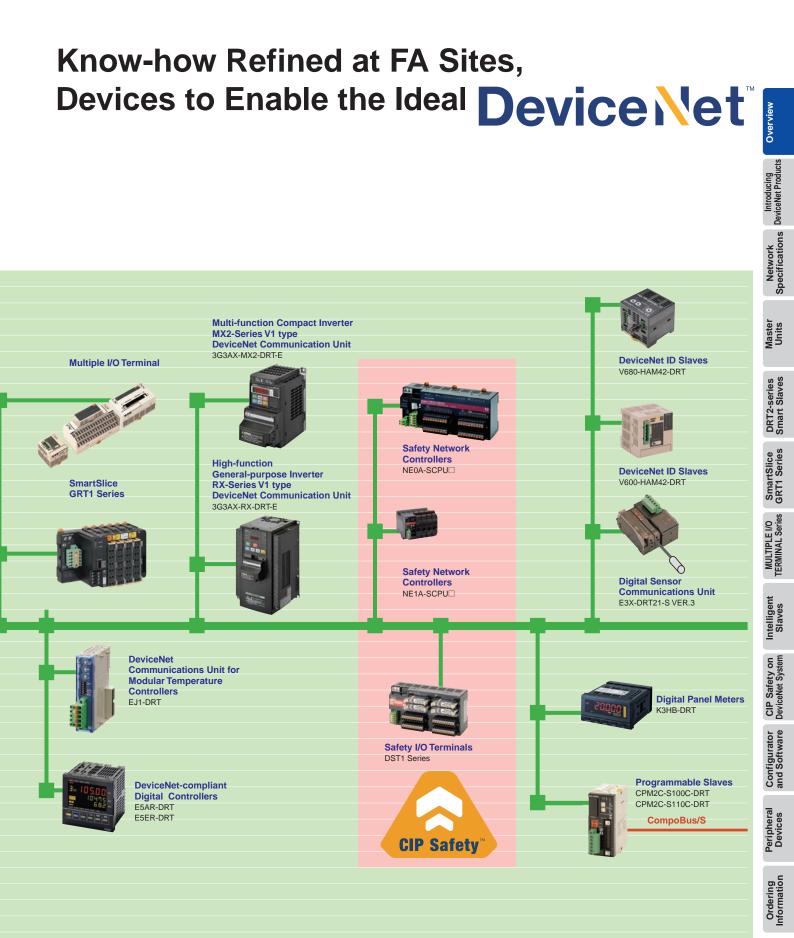
DeviceNet is a global open multi-vendor network that is spreading worldwide.

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.





# Device Net Product Lineup

### Masters





CJ1W-DRM21

#### ■ VME Master Board



DeviceNet Unit for CS Series





CS1W-DRM21-V1

Programmable Controllers NSJ Series





NSJ -T 1(B)-G5D

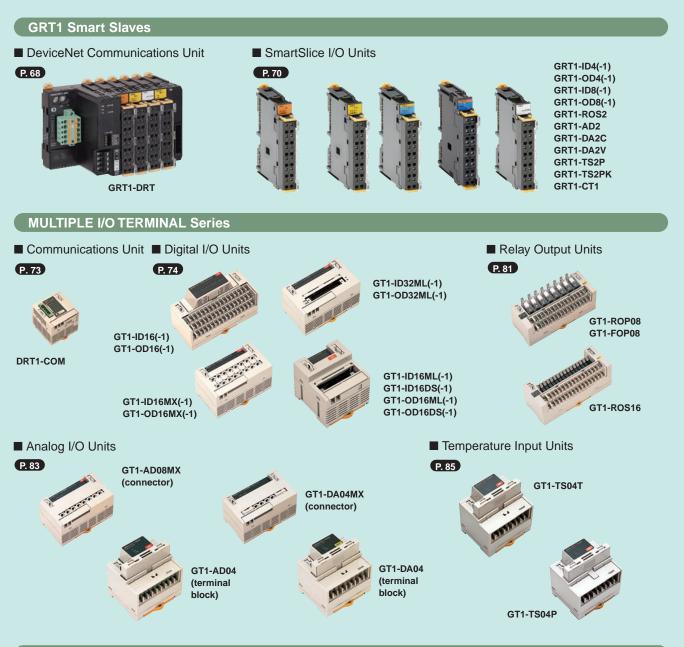
#### Slaves



Overview

# **DeviceNet** Product Lineup





**PLC Intelligent Slaves** 

Programmable Slaves

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CPM2C-S100C-DRT CPM2C-S110C-DRT

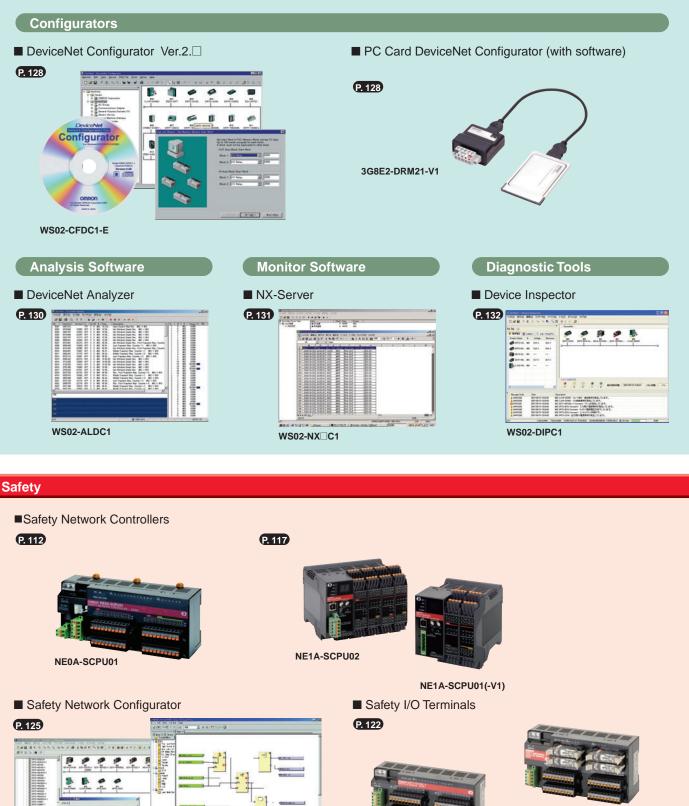
#### Slaves

Intelligent Slaves Digital Sensor DeviceNet DeviceNet **Communications Unit ID** Slave **ID** Slave P. 92 P. 94 P. 95 E3X-DRT21-S VER.3 V600-HAM42-DRT V680-HAM42-DRT DeviceNet-compliant DeviceNet Communications Unit for DeviceNet-compliant **Digital Indicator** Modular Temperature Controllers **Digital Controllers** P. 96 P. 104 P. 100 K3HB-D-DRT EJ1-DRT E5AR-DRT ■ High-function General-purpose Multi-function Compact Inverter MX2-Series V1 type Inverter RX-Series V1 type DeviceNet Communication Unit DeviceNet Communication Unit P. 107 P. 108 3G3AX-MX2-DRT-E 3G3AX-RX-DRT-E

E5ER-DRT

# DeviceNet Product Lineup

#### **Configurators and Software**



DST1-ID12SL-1 DST1-MD16SL-1 DST1-XD0808SL-1 DST1-MRD08SL



WS02-CFSC1-E

Billion Comments

#### **Peripheral Devices** Standard Cables P. 134 T-branch Taps Connectors Parallel Connector Multi-branch Parallel Parallel Parallel Orthogonal with Screws **Connector with Screws** Connectors Connectors Connectors with Screws with Screws XW4B-05C1-H1-D XW4B-05C4-TF-D with Screws DCN1-1C DCN1-2C DCN1-2R a a a Parallel Parallel Orthogonal Connectors Connectors Connectors Multi-branch Parallel **Orthogonal Connector** with Screws with Screws with Screws **Connector without Screws** with Screws DCN1-3C DCN1-4C DCN1-4R XW4B-05C4-T-D XW4B-05C1-V1R-D Parallel Parallel Connectors Connectors with Clamps with Clamps Parallel Connector with Multi-branch Parallel DCN1-1NC DCN1-3NC Screw-less Clamps Connector with Screw-less Clamps XW4G-05C1-H1-D XW4G-05C4-TF-D Power Supply Tap Terminal-block Terminator DeviceNet Standard Cables DRS1-T Thin Cable Thick Cable DCA1-5C10(-B) DCA2-5C10(-B) DCN1-1P

Overview

Network Specifications

Master Units

DRT2-series Smart Slaves

SmartSlice GRT1 Series

MULTIPLE I/O TERMINAL Series

Intelligent Slaves

CIP Safety on DeviceNet System

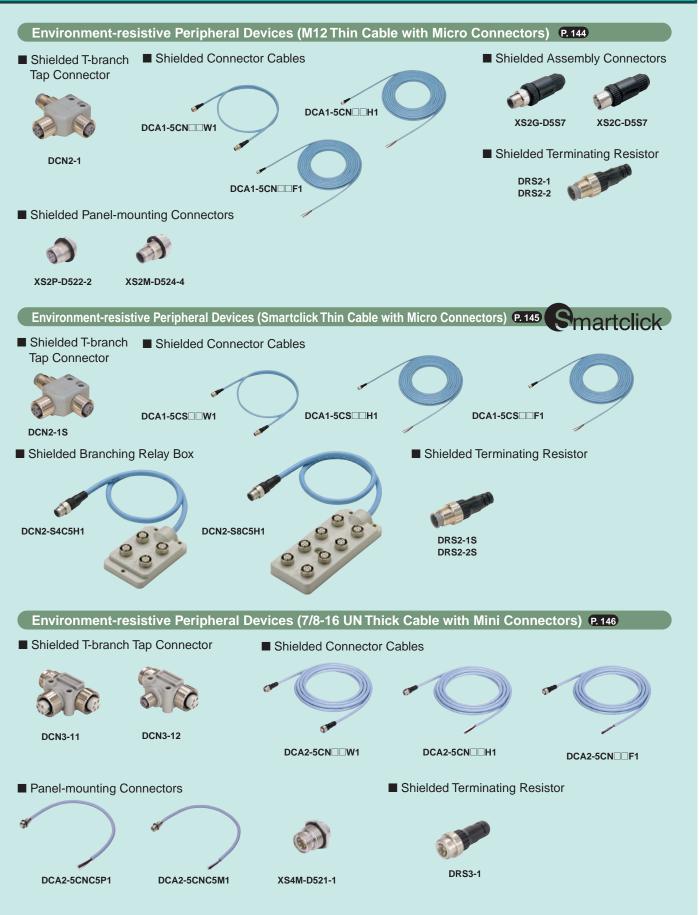
Configurator and Software

Peripheral Devices

Ordering Information

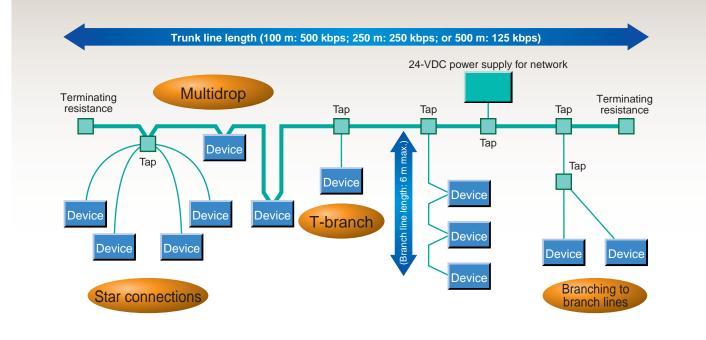
# **Device**Net<sup>™</sup> Product Lineup

#### **Peripheral Devices**



# **Device Network** Specifications

**DeviceNet Network Specifications** 



### **Communications Specifications**

Item	Specification	Specification								
Communication protocol	DeviceNet	•								
Connection method (See note1.)	Multidrop and T-	branch connections can	be combined (for tru	nk 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.						
	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	265 m max.	6 m max.	135 m max.						
Communications power supply	24 VDC (extern	al)								
Max. number of connectable nodes	64 Units (includ	ing Master Units, Slave U	Inits 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.

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### MEMO

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# Master Unit

CJ-series DeviceNet Unit CJ1W-DRM21	2
CS-series DeviceNet Unit	3
Programmable Controllers NSJ Series	4
NSJD-TDD1(B)-G5D DeviceNet Board (PCI Board)	7

# omroi

# **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				No. of unit	Current cons	sumption (A)	
classification	Product name	Specifications	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				11 to 25 VDC *1
Current consumption	je	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	lana	When used as a master	2,048 points
Max. number of I/O points	Fixed alloca	10115	When used as a slave	32 points
		Using allocated	When used as a master	16,000 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			64 input and 64 output words Software switch/status area: 25 words
				1 input word, 1 output word *3
		Using allocated	When used as a master	500 input and 500 output words Software switch/status area: 25 words
Number of allocated words	User-set	DM Area 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	je length		542 bytes *4
Max. number of Units mountable to	Fixed allocat	ions		3
PLC	User-set allo	cations		16
Weight				118 g

Refer to the DeviceNet Operation Manual (W267) for the communications power supply specifications. \*1.

The Device Unit uses a node, and so connection is possible to 63 slaves only. \*2.

\*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)

# omroi

# **CS-series DeviceNet Unit W-DRM21-V1**

# 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							
classification	name	Communications Cable	Communications	Redundant communications	Max. No. of Units mounted to 1 CPU Unit	numbers allocated	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,	63 *2		
	Fixed allocat	tions	When used as a master	2,048 points
Maximum I/O points	Tixed alloca		When used as a slave	32 points
		Using allocated	When used as a master	16,000 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			64 input and 64 output words Software switch/status area: 25 words
				input word, 1 output word *3
	User-set	Using allocated	When used as a master	500 input and 500 output words Software switch/status area: 25 words
Number of allocated words		DM Area 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 allocat	tions		3
PLC	User-set allo	ocations		16
Weight				169 g

Refer to the DeviceNet Operation Manual (W267) for the communications power supply specifications. \*1.

The Device Unit uses a node, and so connection is possible to 63 slaves only. \*2.

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. \*3. \*4.

## **General Specifications**

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

### Dimensions

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

# Programmable Controllers NSJ Series NSJ -T 1(B)-G5D

# 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	woder ক
	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:	8.4-inch color TFT LCD	640 X 490 (V(CA)	10/100Base-T	NSJ8-TV01(B)-G5D
	128K words (DM: 32K words,	10.4-inch color TFT LCD	640 X 480 (VGA)		NSJ10-TV01(B)-G5D
EM: 32K w	EM: 32K words x 3 banks)	12.1-inch color TFT LCD	800 X 600 (SVGA)		NSJ12-TS01(B)-G5D

\* (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
Ontions	Memory Cards (for both Controller Section and Display Section)	Flash memory: 256 MB	HMC-EF283
Options		Flash memory: 512 MB	HMC-EF583
		Memory Card Adapter	HMC-AP001

#### ■ Support Software

	Specifications				
Product name		Number of licenses	Media	Model	Standards
CX-One FA Integrated Tool Package Ver. 4.⊡	The CX-One is a package that integrates the Support Software for OMRON PLCs and components. CX-One runs on the following OS. Windows XP (Service Pack 3 or higher, 32-bit version) / Windows Vista (32-bit/64-bit version) / Windows 7 (32-bit/64-bit version) / Windows 8 (32-bit/64-bit version) / Windows 8.1 (32-bit/64-bit version) <b>Note:</b> Except for Windows XP 64-bit version. CX-One Ver.4. includes CX-Designer Ver.3. For details, refer to the CX-One catalog (Cat. No. R134).	1 licence *	DVD	CXONE-AL01D-V4	

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

# **Specifications**

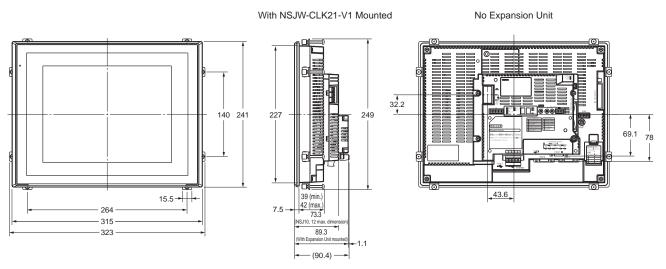
		Bui	Display Section						
Model	USB port (Slave: For Support Software)	RS-232C port	DeviceNet port	Ethernet port	USB port (Host: For printer)	Display color	Field of view	Language	Standard screen data capacity
NSJ5-TQ11-G5D					Neze		Right/left: ±70°,	-	
NSJ5-TQ11B-G5D		3 ports		10/100Base-T	None		Top: 70°, Bottom: 50°		
NSJ8-TV01-G5D						256 colors (BMP/JPEG, 32,768 colors for images)	Right/left: ±65°,		
NSJ8-TV01B-G5D	1 port	<ul> <li>Display Section:</li> </ul>					Top: 50°, Bottom: 60° Eight		CO MR
NSJ10-TV01-G5D	1 port	Serial ports A, B • Controller Section:	1 port				Right/left: ±60°,	- languages * -	60 MB
NSJ10-TV01B-G5D		Serial port			1 port		Top: 35°, Bottom: 65°		
NSJ12-TS01-G5D NSJ12-TS01B-G5D							Right/left: ±60°, Top: 45°, Bottom: 75°		

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

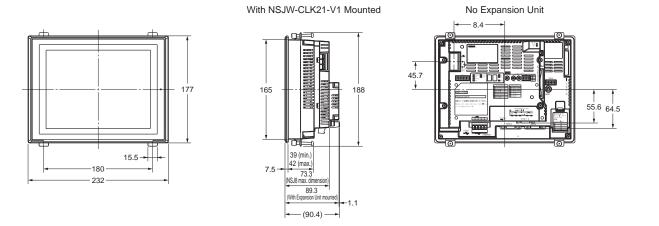
(Unit: mm)

### Dimensions

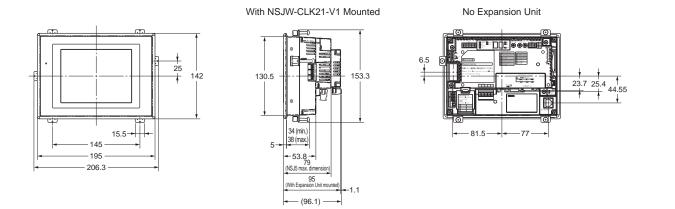
#### NSJ12-TS01(B)-G5D NSJ10-TV01(B)-G5D



### NSJ8-TV01(B)-G5D



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



# DeviceNet Board (PCI Board) 3G8F7-DRM21-E

# 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**

lt	em	Product			
Master Specifications	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)			
	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	Max. I/O points	IN : 200 bytes (1,600 points) OUT : 200 bytes (1,600 points)			
Specifications	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.

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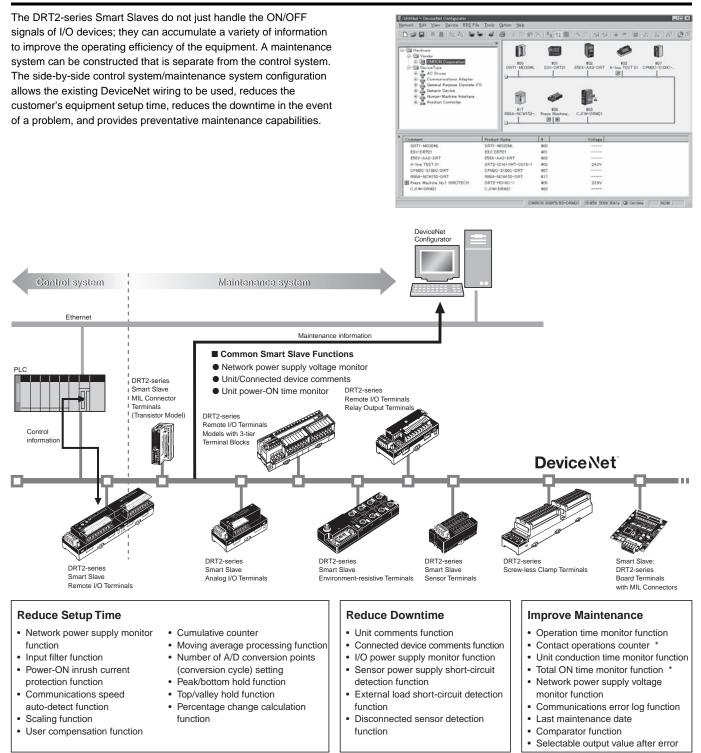
# **Smart Slaves DRT2 Series**

Creart Clause DDT2 Carias	~
Smart Slaves DRT2 Series 10	J
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	3
DRT2-□D08(-1)/□D16(-1)	
Expansion Units	2
XWT-ID08(-1)/OD08(-1)/ID16(-1)/OD16(-1)	
Remote I/O Terminal with Relay Outputs	6
DRT2-ROS16	
Transistor Remote I/O Terminals with 3-tier Terminal Blocks 28	8
DRT2-□D16TA(-1)	
e-CON Connector Terminals 31	1
DRT2-□D16S(-1)	
MIL Connector Terminals with Transistors	4
DRT2-□D32ML(-1)/□D16ML(-1)	
Board Terminals with MIL Connector	9
DRT2-□D32B(-1)/□D32BV(-1)	
Screw-less Clamp Terminals with Transistors	3
DRT2-□D16SL(H)(-1)/□D32SLH(-1)	
Environment-resistive Terminals with Transistors (High-function Type) 48	3
DRT2-□D08C(-1)/□D16C(-1)	
Environment-resistive Terminals with Transistors (Standard Type) 51	1
DRT2-□D04CL(-1)/□D08CL(-1)/□D16CL(-1)	
Analog I/O Terminals	7
DRT2-AD04(H)/DA02	
Temperature Input Terminals	C
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**

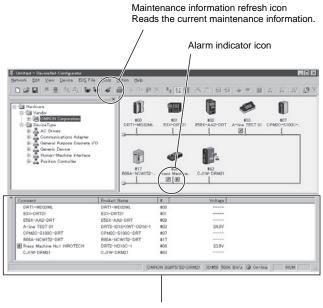


\* The number of contact operations monitor function and the cumulative ON time monitor function cannot be used simultaneously for the same contact.

## 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 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.

	j /	urrent main		
Innance Information			N .	
eneral OUT IN Operation 1	ine Error History			
Comment	A-line TEST 01			
Last Maintenance Date :	1972/01/01			
Unit Conduction Time :	5 Hours			
Network Power Voltage :	24.0 V			
Network Power Voltage (Peak) :	240 V			
Network Power Voltage (Bottom) :	23.8 V			
E Der Martenaren	P Output Pow	er Supply Error		
Connected Component Mainten	~~~			
E Contration Time Cont.				
Irout Power Supply Error				
Lipdate	(	Save Maintenance Count		

Refreshes the current Slave's 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 when the power is turned OFF.

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.

Méntenance Information           General         OUT         IN         Operation Time   Envir History             VID         IVD Operation         VID Operation	Mainter of Country	Depending on the maintenance information
00 ARM11A 01 ARM11B	8760 Times 8760 Times	that has been generated,
(R) 02 KBA-05D	3 54400 Times	more details can be
COJ FAPE-8-5	8760 Times	
N STPW Green	268 Seconds	viewed by clicking the
6 STPW RED 6 STPW ORANGE	512 Seconda 324 Seconda	OUT tab, IN tab, or
7 STPW YELLOW	190 Seconds	OOT (ab, IN (ab, 0)
1	- Commenter	Operation Time tab.
- P	0 Seconds	oporation mile tab.
1	0 Seconda 0 Seconda	\
	0 Seconds	\
T.	0 Seconds	\
10	0 Seconda	$\langle \rangle$
10	0 Seconds	\
	Multitude Monaton           Operation II (0017)         Top Departure II           00         E20-0bd           01         E20-0bd           020         E20-0bd           030         E20-0bd           040         E20-0bd           050         E20-0bd           061         E20-0bd           070         E20-0bd           080         E20-0bd           091         E20-0bd           091         E20-0bd	Image Heatway         Image He
An alarm indicator will	07 E3X-DA6	1209804 - 2010 - 100
oppoor whorever the	08	0 Seconda 0 Seconda
appear wherever the	10	0 Seconds 0 Seconds
present value exceeds	11	0 Seconds
	12	0 Seconda
the monitor value, so	13	0 Seconds
	14	0 Seconds 0 Seconds
locations requiring	10	U Seconda
maintenance can be		
identified immediately.		Close

# **Functions Supported by Smart Slaves**

				General Slaves			
<b>F</b> was then			R	emote I/O Termina	ls		
Function	Transistors			Relays	Transisto	ors with 3-tier term	ninal block
	Input	Output	I/O	Output	Input	Output	I/O
Operation time monitor		OK (Input+Ou	utput only) *1	·		OK	
Contact operation counter				ОК			
Unit conduction time monitor				ОК			
Total ON time monitor				ОК			
Unit comments				ОК			
Connected device comments				ОК			
Network power supply voltage monitor				ОК			
I/O power supply monitor		OK				OK	
Communications error log monitor				ОК			
Input filter	OK		ОК		ОК		OK
Power-ON inrush current protection	OK		ОК		ОК		OK
Sensor power supply short-circuit detection							
Disconnected sensor detection							
External load short-circuit detection							
Disconnected sensor detection							
Removable terminal block				ОК			
Communications speed auto-detect				ОК			
No need to wire Unit power supply				ОК			
No need to wire input device power supply							
Expansion via Expansion I/O Units		OK	*2				
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							

\*1. 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).

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 supporte		
			General Slaves				
Function			Connector Terminals				
Tunction	e-CON Con	nector	Board Terminals with MIL Connector				
	Input	I/O	Input	Output	I/O		
Operation time monitor		OK		OK			
Contact operation counter			ОК				
Unit conduction time monitor			ОК				
Total ON time monitor			ОК				
Unit comments			ОК				
Connected device comments			ОК				
Network power supply voltage monitor			ОК				
I/O power supply monitor				OK			
Communications error log monitor			ОК				
Input filter	OK		ОК		OK		
Power-ON inrush current protection	OK		ОК		OK		
Sensor power supply short-circuit detection	ОК						
External load disconnection detection							
External load short-circuit detection		OK					
Disconnected sensor detection							
Removable terminal block							
Communications speed auto-detect			ОК				
No need to wire Unit power supply			ОК				
No need to wire input device power supply	ОК						
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							
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.

	OK: Function supported,: Function not supported General Slaves									
	Screw-less clamp terminals									
Function	DRT2-□D16SLH (Detection function)			□D16SL on function)	DRT2-□D32SLH (Detection function)					
	Input	Output	Input	Output	Input	Output	I/O			
Operation time monitor				OK			ľ			
Contact operation counter				OK						
Unit conduction time monitor				OK						
Total ON time monitor		ОК								
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		ОК		ОК		ОК			
Power-ON inrush current protection	OK		ОК		ОК		ОК			
Sensor power supply short-circuit detection	ОК				ОК		ОК			
External load disconnection detection	OK				ОК		ОК			
External load short-circuit detection		ОК				OK (See Note.)	OK (See Note.)			
Disconnected sensor detection		ОК				OK	ОК			
Removable terminal block		1	1	OK	L	- 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.

						(	DK: Function supp	oorted,: Func	tion not supported.
Function	Environment-resistive Slaves					Analog Slaves			
						Analog I/O Terminals			Temperature
	Advance	ed Model	Standard Model			DRT2-AD04	DRT2-AD04H	DRT2-DA02	Input Terminals
	Input	Output	Input	Output	I/O	In	put	Output	Input
Operation time monitor	* OK								
Contact operation counter	ОК								
Unit conduction time monitor	ОК				ОК			ОК	
Total ON time monitor	ОК								
Unit comments	ОК				ОК			ОК	
Connected device comments	ОК					ОК			ОК
Network power supply voltage monitor	ОК					ОК			ОК
I/O power supply monitor		OK	ОК						
Communications error log		ОК	ОК			ОК			ОК
Input filter	OK		OK		ОК				
Power-ON inrush current protection	OK		ОК		OK				
Sensor power supply short-circuit detection	ОК								
External load disconnection detection	OK								
External load short-circuit detection		OK							
Disconnected sensor detection									
Removable terminal block						ОК			OK
Communications speed auto-detect	ОК				ОК			OK	
No need to wire Unit power supply	ОК				ОК			OK	
No need to wire input device power supply	ОК								
Expansion via Expansion I/O Units									
Scaling						ОК			ОК
User compensation					ОК			ОК	
Last maintenance date	OK				ОК			ОК	
Cumulative counter					ОК			OK	
Moving average processing					ОК	ОК		ОК	
Number of A/D conversion points (conversion cycle) setting					ОК				
Peak/bottom hold					OK	OK		ОК	
Top/valley hold					OK	OK		ОК	
Percentage change calculation					OK	OK		ОК	
Comparator					OK	OK		ОК	
Selectable output value after error								ОК	
Top/valley count									ОК
Operating time in preset temperature									
Temperature difference detection between input channels									ОК

\* 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**

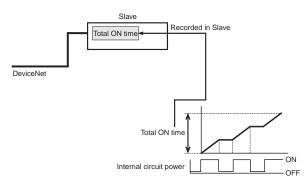
#### Network Power Voltage Monitor

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

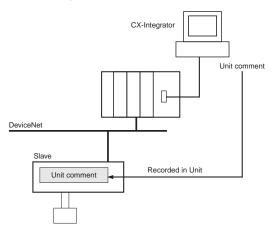
The total ON time of the Slave's internal circuit power can be calculated and recorded. (The CX-Integrator or explicit messages can be used to read the information.)

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.



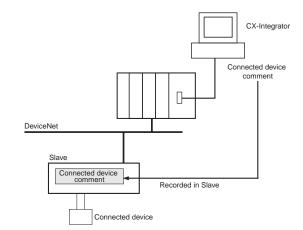
#### Unit Comment Function

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



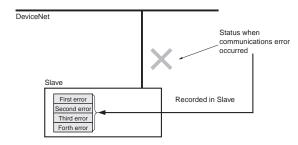
#### Connected Device Comment Function

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.

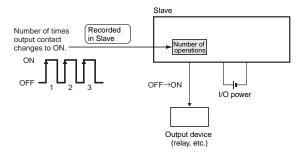
#### Contact Operation Count Monitor Function

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)
   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.)

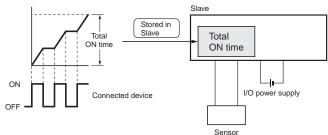
The monitor value can be set in the Slave, and when the set total time is reached, a bit in the Status Area in the Unit will be turned ON. (The CX-Integrator or explicit messages can be used to read the details of the notification.)

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

(stored data: 0000 0000 to FFFF FFFF hex)

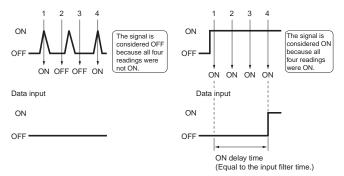
- · Counting unit: One second
- Note 1: The Contact Operation Counter and Total ON Time Monitor cannot be used at the same time for the same contact. Select the function to be used under the Detection Mode heading.
  - 2: The Total ON Time Monitor operates only when the I/O power is ON.
  - The Total 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

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)

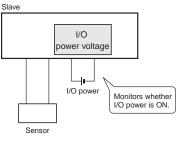
The I/O power supply can be monitored to stop any input when the I/O power is OFF and for 100 ms after it is turned ON. This function reduces incorrect inputs caused by inrush current for 100ms after the I/O power is turned ON.

#### 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.



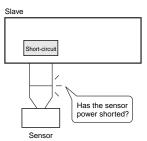
### Sensor Power Short-circuit Detection Function (input only)

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  $\geq$  (Total network current + Short-circuit detection current) x (=100 mA) x (DeviceNet network voltage)



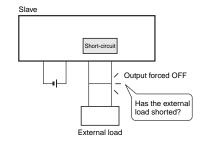
#### • External Load Short-circuit Detection Function (output only)

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 Power 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.



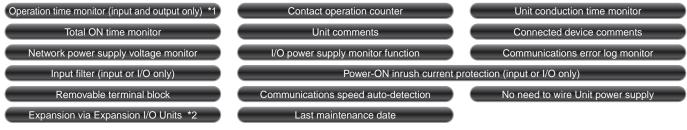
# Transistor Remote I/O Terminals DRT2-D08(-1)/D16(-1)

### 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**





\*1. 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).

### **Ordering Information**

Specifications			I/O connections	Rated internal circuit power supply voltage	Rated I/O power supply voltage	Model	
Innuto	NPN (+ common)					DRT2-ID16	
Inputs	PNP (- common)					-	DRT2-ID16-1
Outroute	NPN (- common)	16 points			-		DRT2-OD16
Outputs	PNP (+ common)					DRT2-OD16-1	
I/O	NPN (input: + common, output: - common)	Input: 8 points/	M3	Supplied from the	supply voltage		DRT2-MD16
1/0	PNP (input: - common, output: + common)	Output: 8 points	Screw terminals	communications connector		DRT2-MD16-1	
la nuta	NPN (+ common)	0 a ciata				DRT2-ID08	
Inputs	PNP (- common)	8 points				DRT2-ID08-1	
Outroute	NPN (- common)	0 a ciata	1			DRT2-OD08	
Outputs	PNP (+ common)	8 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		
1 117 0			
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         DRT2-ID08(-1)         : 40 mA max. (24 VDC), 70 mA m DRT2-OD08         : 40 mA max. (24 VDC), 60 mA m DRT2-OD08-1         : 35 mA max. (24 VDC), 60 mA m DRT2-ID16(-1)           DRT2-ID16(-1)         : 40 mA max. (24 VDC), 65 mA m DRT2-OD16(-1)         : 40 mA max. (24 VDC), 65 mA m DRT2-ID16(-1)           DRT2-OD16(-1)         : 35 mA max. (24 VDC), 60 mA m DRT2-ID16(-1)         : 35 mA max. (24 VDC), 65 mA m DRT2-ID16(-1)			
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/s <sup>2</sup> , 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 c	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 3.0 mA max. per point			
ON delay time	1.5 ms max.	1.5 ms max.		
OFF delay time	1.5 ms max.	1.5 ms max.		
Number of points per common	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 per common		
Residual voltage		1.2 V max. (0.5 A DC between each output terminal and G)	1.2 V max. (0.5 A DC between each output terminal and V)	
Leakage current		0.1 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		

### • 16-point Outputs Terminals with Transistors

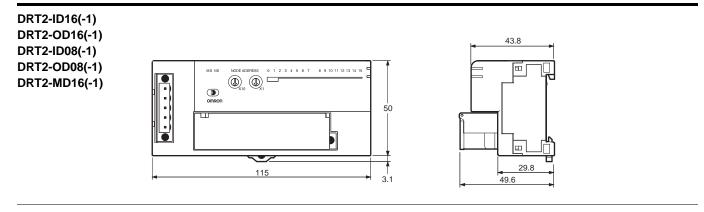
Item N	lodel	DRT2-OD16	DRT2-OD16-1	
Internal I/O common		NPN	PNP	
Number of I/O points		16 outputs		
Rated output current		0.5 A per point, 4 A per common		
Residual voltage		1.2 V max. (0.5 A DC between each output terminal and G)	1.2 V max. (0.5 A DC between each output terminal and V)	
Leakage current		0.1 ms max.		
ON delay time		0.5 ms max.		
OFF delay time		1.5 ms max.		
Number of points per cor	nmon	16 per common		

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

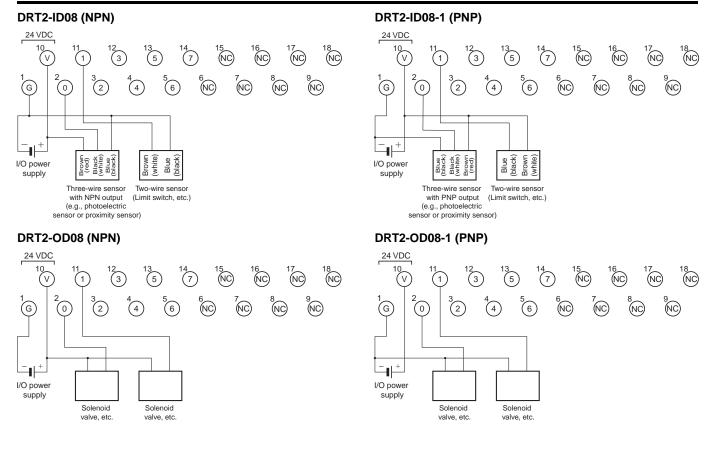
Item	Model	DRT2-MD16	DRT2-MD16-1	
Internal I/O common		NPN	PNP	
Number of I/O points		8 outputs		
Rated output current		0.5 A per point, 4 A per common		
Residual voltage		1.2 V max. (0.5 A DC between each output terminal and G)	1.2 V max. (0.5 A DC between each output terminal and V)	
Leakage current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

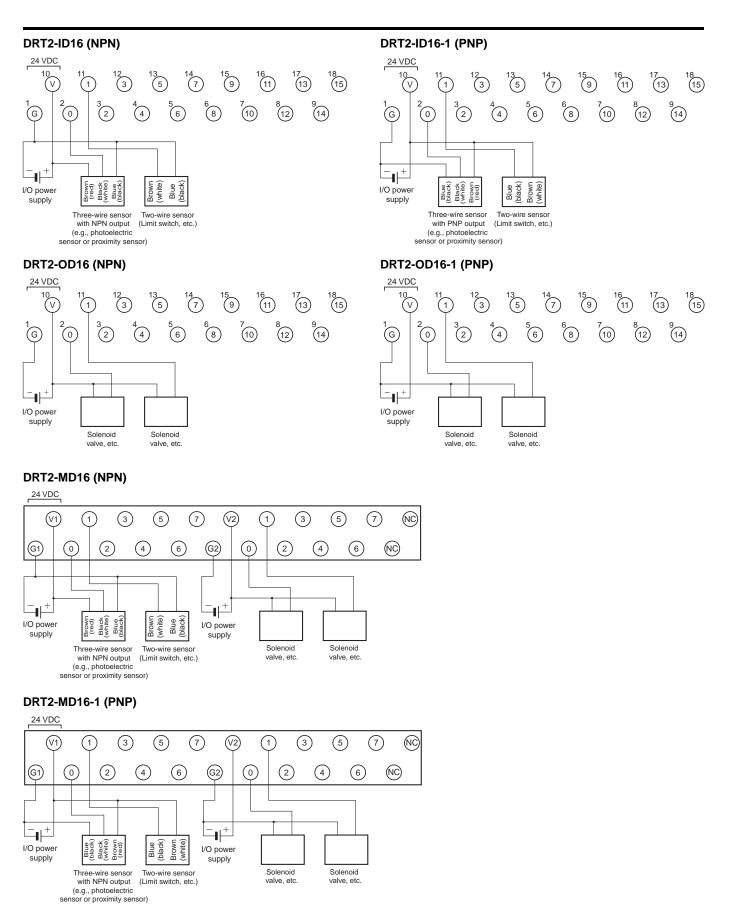
(Unit: mm)

Dimensions



### Wiring Diagrams





# Expansion Units 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		
	land to		NPN		XWT-ID08
	Inputs	8 points	PNP		XWT-ID08-1
	Inits Outputs NPN One Expansion Unit can b DRT2-ID16(-1)/-OD16(-1) Perpete I/O Terminal	*	XWT-OD08		
Expansion Units		[	PNP	One Expansion Unit can be mounted per DRT2-ID16(-1)/-OD16(-1) or DRT2-ROS16 Remote I/O Terminal.	XWT-OD08-1
Expansion Units		4.4	NPN		XWT-ID16
	Inputs	16 points	PNP		XWT-ID16-1
	Outputs PNP		XWT-OD16		
			PNP		XWT-OD16-1

### **General Specifications**

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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/s² in X, Y, and Z directions for 80 min each			
Shock resistance	150 m/s <sup>2</sup> (3 times each in 6 directions on 3 axes)			
Dielectric strength	500 VAC (between isolated circuits)			
Insulation resistance	20 M $\Omega$ 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		8 per common		16 per common			
Communications power supply current consumption 5 mA max. (24 VDC), 5 mA r		5 mA max. (24 VDC), 5 mA max.	(11 VDC)	10 mA max. (24 VDC), 15 mA m	ax. (11 VDC)		
Weight 80 g max.		80 g max.		120 g max.			

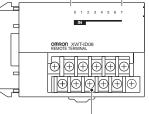
### **Output Specifications**

Item	Model	XWT-OD08	XWT-OD08-1	XWT-OD16	XWT-OD16-1	
Internal I/O common	n	NPN	PNP	NPN	PNP	
I/O points		8 outputs		16 outputs		
Rated output currer	nt	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		0.1 mA max.	0.1 mA max.			
ON delay time		0.5 ms max.	0.5 ms max.			
OFF delay time		1.5 ms max.				
Number of circuits	per common	8 per common		16 per common		
Communications po 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.		

### **Nomenclature and Functions**

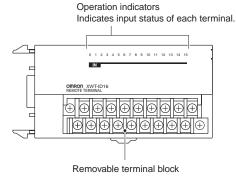
### XWT-ID08/XWT-ID08-1





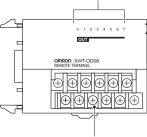
Removable terminal block

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



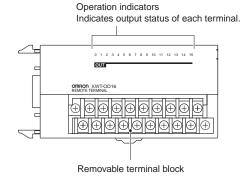
### XWT-OD08/XWT-OD08-1

Operation indicators Indicates output status of each terminal.



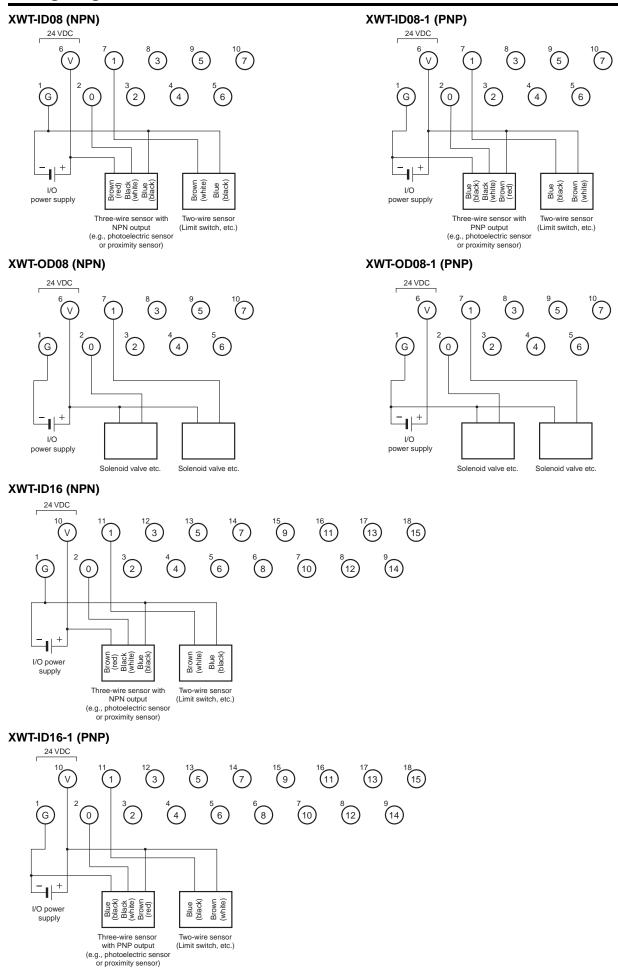
Removable terminal block

### XWT-OD16/XWT-OD16-1

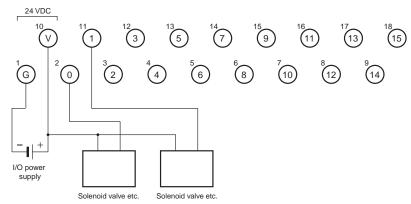


### Wiring Diagrams

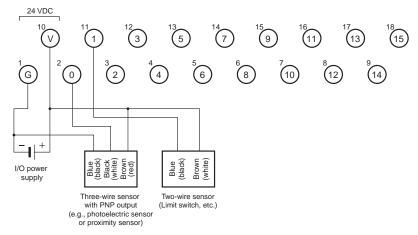
24



### XWT-OD16 (NPN)

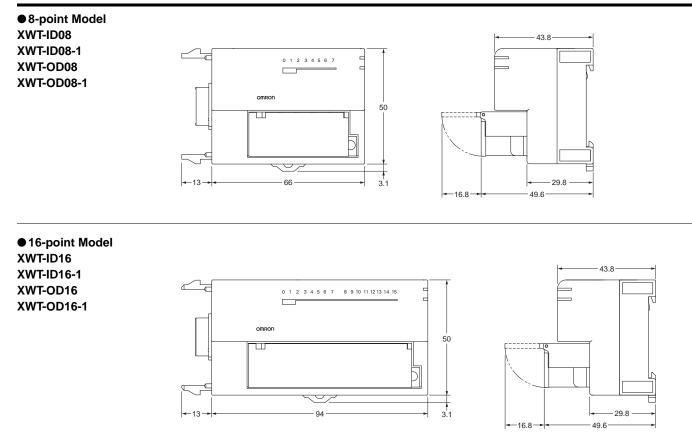


#### XWT-OD16-1 (PNP)



### Dimensions

(Unit: mm)

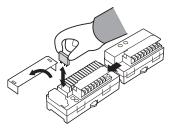


# Remote I/O Terminal with Relay Outputs DRT2-ROS16

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

• Capable of handling large-capacity output devices (3 A max.)

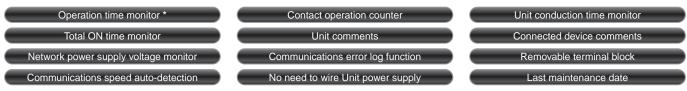
• Easy relay replacement.





 I/O expansion possible to transistor I/O devices with terminal blocks (XWT Series).

### **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 <b>*</b> 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  $45^{\circ}$ C max.

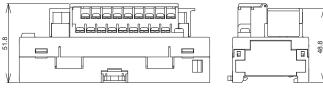
#### **Expansion Units**

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.

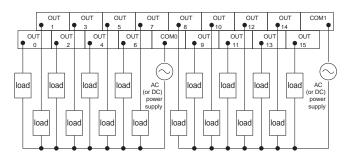
Model	Number of I/O points	
XWT-ID08	8-point inputs (NPN)	
XWT-ID08-1	8-point inputs (PNP)	
XWT-OD08	8-point outputs (NPN)	
XWT-OD08-1	8-point outputs (PNP)	
XWT-ID16	16-point inputs (NPN)	
XWT-ID16-1	16-point inputs (PNP)	
XWT-OD16	16-point outputs (NPN)	
XWT-OD16-1	16-point outputs (PNP)	

### Dimensions

DRT2-ROS16



### Wiring Diagrams



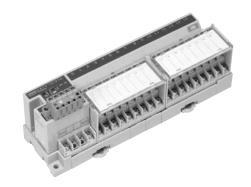
(Unit: mm)

# 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
Inpute	NPN (+ common)	PNP (- common) 16 points				DRT2-ID16TA
Inputs	PNP (- common)				DRT2-ID16TA-1	
Quitauta	NPN (- common)		МЗ	Supplied from	24 VDC -	DRT2-OD16TA
Outputs	PNP (+ common)		screw terminals	Basic Unit.		DRT2-OD16TA-1
1/0	NPN (input: + common, output: - common) Input: 8 points/	_			DRT2-MD16TA	
I/O	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/s <sup>2</sup> (3 times each in 6 directions on 3 axes)
Dielectric strength	500 VAC (between isolated circuits)
Insulation resistance	20 M $\Omega$ 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		

### **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	er 8 per common			

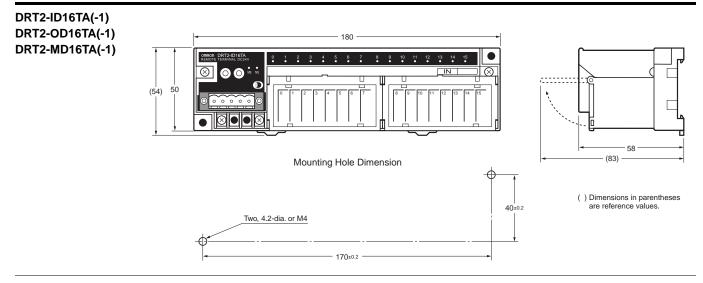
#### 8-point Inputs/8-point Outputs Terminals with Transistors

Item Model	DRT2-MD16TA	DRT2-MD16TA-1	
Internal I/O common	NPN	PNP	
I/O points	8 inputs		
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 Mode	DRT2-MD16TA	DRT2-MD16TA-1			
Internal I/O common	NPN	PNP			
I/O points	8 outputs	8 outputs			
Rated output current	ated 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	kage current 0.1 mA max.				
ON delay time	ON delay time 0.5 ms max.				
OFF delay time	1.5 ms max.				
Number of circuits per common	8 per common				

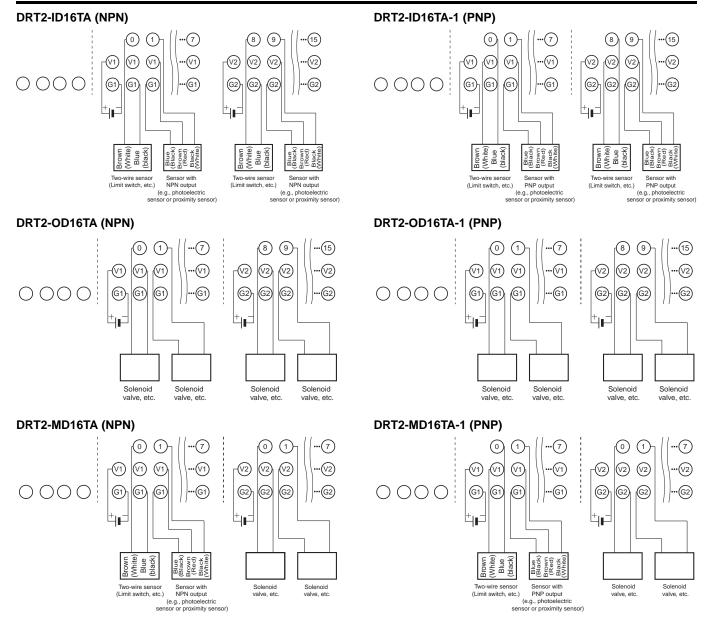
### Dimensions



(Unit: mm)

### Wiring Diagrams

30

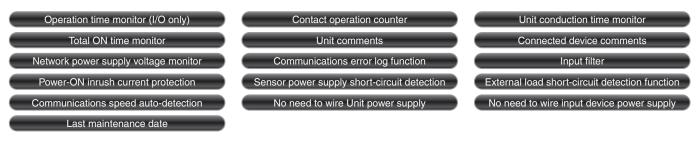


# e-CON Connector Terminals DRT2-D16S(-1)

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**



### **Ordering Information**

Specifications		I/O connections	Rated internal circuit power supply voltage	Rated I/O power supply voltage	Model	
Inputs	NPN (+ common)	- 16 inputs	6 inputs Sensor	Supplied from the communications	Supplied from the communications connector	DRT2-ID16S
Inputs	PNP (- common)					DRT2-ID16S-1
I/O	NPN (input: + common, output: - common)	8 inputs/ 8 outputs	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/s <sup>2</sup> 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 <sup>•</sup> m M4 (unit mounting): 0.6 to 0.98 N <sup>•</sup> m		
Ambient operating temperature	-10°C to 55°C		

Item Model	DRT2-ID16S(-1)	DRT2-MD16S(-1)	
Ambient operating humidity	25 to 85% (with no condensation)		
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	



(Unit: mm)

### **Input Specifications**

### • Terminals with 16 Inputs

Item I	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 circ per common	uits	16 per common		
Sensor short-c detection curre		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		

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. IN0/IN1, IN2/IN3, IN4/IN5, IN6/IN7		

• Terminal with 8 Inputs/8 Outputs

### 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 mm <sup>2</sup> ) wire, 1.5 mm max. outer diameter including insulation

### Tyco Electronics Connectors

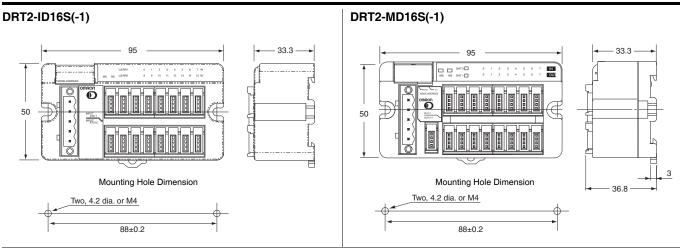
Model	Color of housing	Compatible wire size	
3-1473562-4	Orange	0.6 to 0.9 mm max. outer diameter including insulation	
1-1473562-4	Red	0.9 to 1.0 mm max. outer diameter including insulation	
1473562-4	Yellow	1.0 to 1.15 mm max. outer diameter including insulation	Wire size: 0.08 to 0.5 mm <sup>2</sup>
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 mm <sup>2</sup> ) 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 mm <sup>2</sup> ) 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 mm <sup>2</sup> ) 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 mm <sup>2</sup> ) 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 mm <sup>2</sup> ) 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 mm <sup>2</sup> ) wire, 1.6 to 2.0 mm max. outer diameter including insulation

### Dimensions

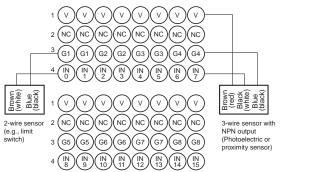
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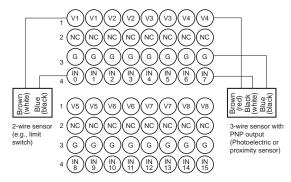


### Wiring Diagrams

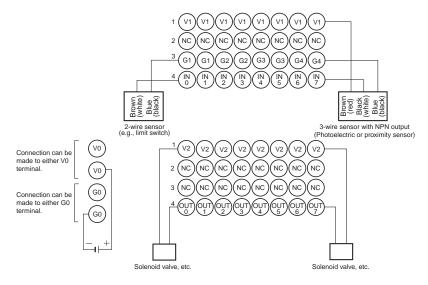
### DRT2-ID16S (NPN)

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

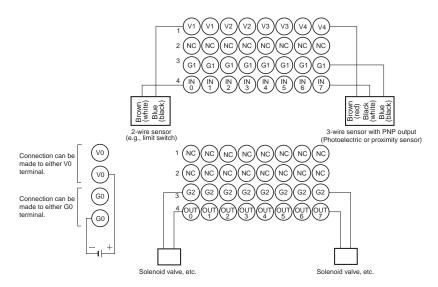




#### DRT2-MD16S (NPN)



### DRT2-MD16S-1 (PNP)



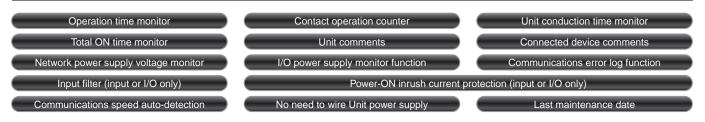
## MIL Connector Terminals with Transistors DRT2-D32NL(-1)/D16NL(-1)

# 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**



### **Ordering Information**

	Specifications		I/O connections	Rated internal circuit power supply voltage	Rated I/O power supply voltage	Model							
Innuto	NPN (+ common)					DRT2-ID32ML							
Inputs	PNP (- common)	00 a sists				DRT2-ID32ML-1							
0	NPN (- common)	32 points	Mall and a star			DRT2-OD32ML							
Outputs	PNP (+ common)		MIL connector	Supplied from the		DRT2-OD32ML-1							
1/0	NPN (input: + common, output: - common)	16 inputs/ 16 outputs	_			DRT2-MD32ML							
I/O	PNP (input: - common, output: + common)					DRT2-MD32ML-1							
Locate	NPN (+ common)	16 points MIL connector (Connector	MIL connector			DRT2-ID16ML							
Inputs	PNP (- common)			N 411	communications connector	24 VDC	DRT2-ID16ML-1						
0.1.1.1	NPN (- common)					-	MIL connector			DRT2-OD16ML			
Outputs	PNP (+ common)							10					
Laurate	NPN (+ common)					DRT2-ID16MLX							
Inputs	PNP (- common)		-	MIL connector			DRT2-ID16MLX-1						
0.1.1.1	NPN (- common)			(Connector with 10-cm cable)			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-OD16MLX(-1)         : 45 mA max. (24 VDC), 75 mA max. (11 VDC)           DRT2-OD16MLX(-1)         : 45 mA max. (24 VDC), 75 mA max. (11 VDC)           DRT2-ID32ML(-1)         : 55 mA max. (24 VDC), 100 mA max. (11 VDC)           DRT2-OD32ML(-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. *		

\* 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	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	

\* 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, crimp terminals		XG4M-4030-T	
Stranded-wire cable, crimp terminals Hood Cover *		XG5M-4032-N	For AWG24 wire
	Socket	XG5M-4035-N	For AWG26 to AWG28 wire
	Partial Cover	XG5S-2001	
	Hood Cover *	XG5S-4022	

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

### Applicable Cables

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

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

Model	Model Applicable cable Connectable model		Remarks
DRT2-ID16ML	XW2Z-RO⊟C	XW2R-J20G-T	Connector
DRT2-ID16ML-1		XW2R-E20G-T	Terminal
DRT2-OD16ML		XW2R-P20G-T	Conversion
DRT2-OD16ML-1		XW2C-20G6-IO16	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
	XW2Z-RI⊡C	G7TC-OC16-1	For I/O Relay Terminal outputs
DRT2-OD16ML-1	XW2Z-RO⊡C	G70D-SOC16-1 G70D-FOM16-1 G70A-Z0C16-4	For I/O Relay Terminal outputs

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

#### Cables with Connectors (1-to-2 Connection)

Model	Applicable cable	Connectable model	Remarks
DRT2-ID32ML DRT2-ID32ML-1 DRT2-OD32ML DRT2-OD32ML-1 DRT2-MD32ML DRT2-MD32ML	XW2Z-□□□N	XW2R-J20G-T (two units) XW2R-E20G-T (two units) XW2R-P20G-T (two units) XW2C-20G6-I016 (two units)	Connector Terminal Conversion Unit (20 pins)

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

36

Model	Applicable Connectable model		Remarks
DRT2-ID32ML DRT2-ID32ML-1 DRT2-OD32ML DRT2-OD32ML-1 DRT2-MD32ML DRT2-MD32ML-1	XW2Z-□□□K	XW2R-J40G-T XW2R-E40G-T XW2R-P40G-T	Connector Terminal Conversion Unit (40 pins)

#### 16-point Models

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

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

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	G70D-SOC16-1 G70D-FOM16-1 G70A-ZOC16-4	For I/O Relay Terminal outputs	
DRT2-MD32ML	[Fc G7 G7 [F		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	

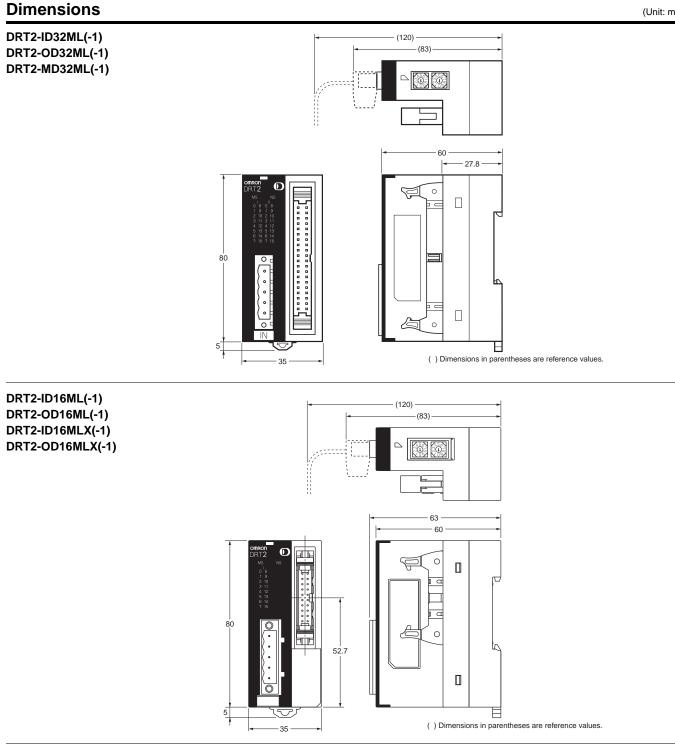
#### • Stranded-wire Cables with Crimp Terminals

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

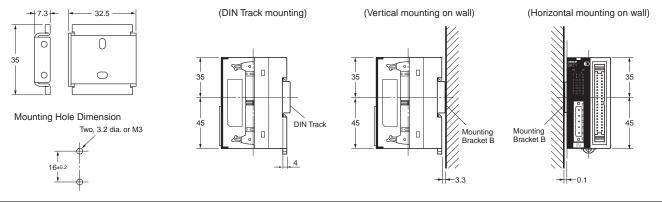
#### • Stranded-wire Cables

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

(Unit: mm)

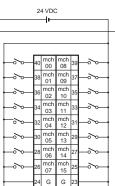


### Mounting Bracket B (Accessory) SRT2-ATT02



### Wiring Diagrams

### DRT2-ID32ML



V V

n+1 ch 00 n+1 ch 01

m+ ch 02

m+ ch 03 m+1 ch 11

) m+ ch 05

m+1 ch 06

m+1 ch 07 m+1 ch 15

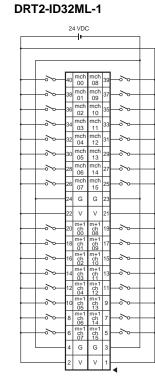
G

٧ V

m+1 ch 08 m+1 ch 09 m+1 ch 09 m+1 ch 10

11 m+1 ch 12 m+1 ch 13 m+1 ch 13 m+1 ch 14 m+1 2 m+ 2 ch 04

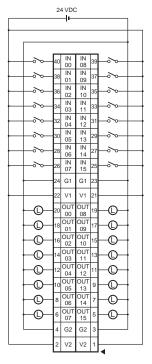
G



#### DRT2-MD32ML

	:	24 VD0	2			
		-1				
	_					
	~ 4	0 IN 00	IN 08	39	<u> </u>	
	<b>∽</b> _3	8 IN 01	IN 09	37	<u>~~</u>	
-	<u>∽_</u> 3	6 IN 02	IN 10	35	<u>~~</u>	
	~_3	INI	IN 11	33	_~~_	
	~ 3	IN	IN	31	_~~_	
	~3	04	12 IN	29		
	2	05	13 IN	27		
	- F	06	14 IN	$\square$		
	2	6 07	15	25		
	2	4 G1	G1	23		
	2	2 V1	V1	21		ł
	D-2	0UT	OUT 08	19	-0	ł
	D-1	8 OUT	OUT 09	17	-0	ŀ
		OUT	OUT 10	15		ļ
		OUT	OUT	13	-0	ļ
		03 20UT	11 OUT	11		
	- F	04	12 OUT	$\vdash$		
1 1		05	13 OUT	9		Ī
	D-la	06 00	14 0UT	7		t
	D-le	001	15	5		t
	4	G2	G2	3		
	2	2 V2	V2	1	4	]

DRT2-MD32ML-1



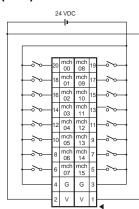
Wiring Diagram of Connector Cable Provided with the DRT2-ID16MLX(-1) and DRT2-OD16MLX(-1)

XG4M-2030-T (mating side) XG4M-2030-T XG4M-2030-(mating side) Triangle mark Triangle mark 21 21 (4) (3) 43 12 11 12 11 14 13 -14 (13 18 17 18 (17) Q (1) -20 (19

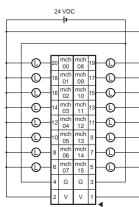
#### 24 VDC -0 O 00 08 mch 09 mch 10 0 mch 01 -0 0 -0-02 mch 11 0 -0-03 mch 12 Ð 0 04 mch 13 0 -D 05 mch 14 -Dmch 06 -D mch 15 Ð mch 07 0 G G v v 0 0 m+ ch 00 0 -D ch 01 0 -0 ch 02 0 -0 m+1 ch 03 0 -0 ch 04 0 10 m+1 ch 05 -0 -0 -Dm+1 ch 06 -D-6 m+1 ch 07 0 G G V V

DRT2-OD32ML

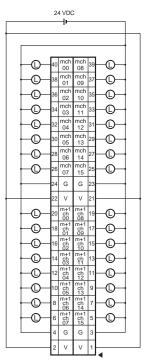
### DRT2-ID16ML(X) (NPN)



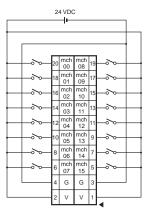
### DRT2-OD16ML(X) (NPN)



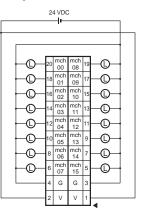
### DRT2-OD32ML-1



DRT2-ID16ML(X)-1 (PNP)



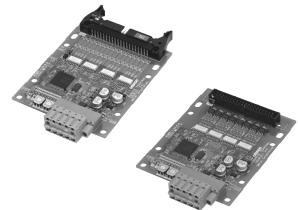
DRT2-OD16ML(X)-1 (PNP)



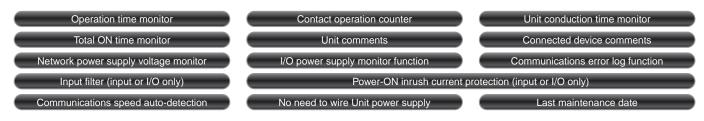
## Board Terminals with MIL Connector DRT2-D32B(-1)/D32BV(-1)

# First Board-type Terminals for Smart Slaves!

- Easily modified to handle an array of I/O interfaces and eliminates much on-site wiring.
- 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 Supplied from communications	24 VDC	DRT2-ID32B
inputs	PNP (- common)	32 inputs	MIL			DRT2-ID32B-1
Outputs	NPN (- common)	20. autauta				DRT2-OD32B
Outputs	PNP (+ common)	32 outputs	connector	connector.	24 VDC	DRT2-OD32B-1
I/O	NPN (input: + common, output: - common)	16 inputs/				DRT2-MD32B
1/0	PNP (input: - common, output: + common)	16 outputs				DRT2-MD32B-1

### Perpendicular Mounting MIL Connector

	Specifications			Rated internal circuit power supply voltage	Rated I/O power supply voltage	Model
Inputs	NPN (+ common)	- 32 inputs		Supplied from communications connector.	24 VDC	DRT2-ID32BV
inputs	PNP (- common)	32 inputs				DRT2-ID32BV-1
Outputo	NPN (- common)	- 32 outputs 16 inputs/	MIL			DRT2-OD32BV
Outputs	PNP (+ common)		connector			DRT2-OD32BV-1
I/O	NPN (input: + common, output: - common)					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-ID32B(-1)         : 50 mA max. (24 VDC), 100 mA max. (11 VDC)           DRT2-ID32B(-1)         : 55 mA max. (24 VDC), 100 mA max. (11 VDC)           DRT2-OD32BV(-1)         : 55 mA max. (24 VDC), 120 mA max. (11 VDC)           DRT2-MD32BV(-1)         : 50 mA max. (24 VDC), 110 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/s <sup>2</sup> , 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 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

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. \*

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

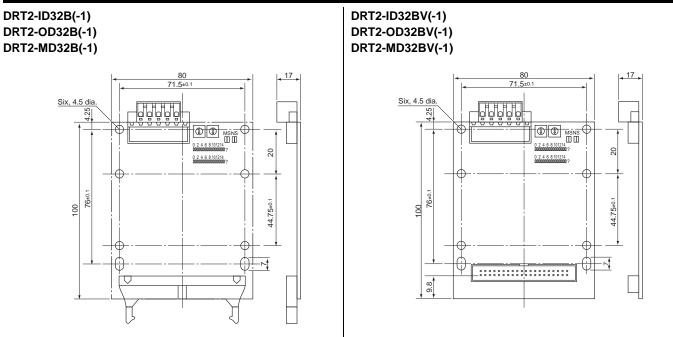
### ● 16-point Inputs/16-point Outputs Terminals with Connectors

<b>NA</b> - 1-1			
Model Item	DRT2-MD32B DRT2-MD32BV	DRT2-MD32B-1 DRT2-MD32BV-1	
Internal I/O common	NPN	PNP	
I/O points	16 outputs		
Rated output current	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 total load current is 2 A. The maximum current for the V and G terminals is 1 A per terminal. Do not exceed these values.

### Dimensions

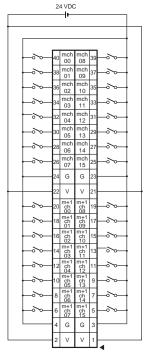


(Unit: mm)

### Wiring Diagrams

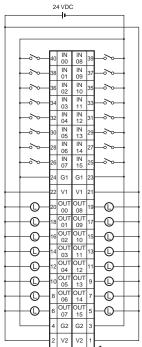
### DRT2-ID32B DRT2-ID32BV (NPN)

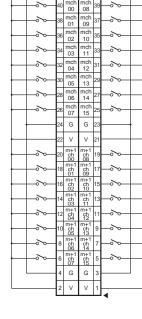
### DRT2-ID32B-1 DRT2-ID32BV-1 (PNP)



### DRT2-MD32B DRT2-MD32BV (NPN)

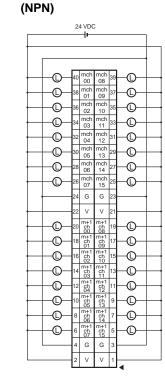
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24 VDC

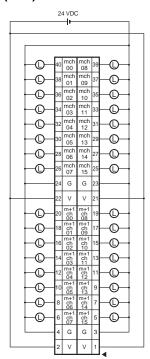
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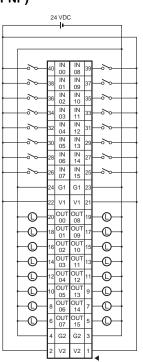
DRT2-OD32B

DRT2-OD32BV

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



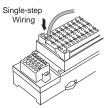
### DRT2-MD32B-1 DRT2-MD32BV-1 (PNP)



# 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**

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

### **Ordering Information**

Short/disconnection detection	Specifications		I/O connections	Rated internal circuit power supply voltage	Rated I/O power supply voltage	Model	
	Inputs	NPN (+ common)		Clamp terminals			DRT2-ID16SLH
Supported	inputs	PNP (- common)					DRT2-ID16SLH-1
Supported	Outouto	NPN (- common)			Supplied from communications connector.	24 VDC	DRT2-OD16SLH
	Outputs	PNP (+ common)	<b>1</b> C <b>n n</b> <sup>1</sup> <b>n</b> to				DRT2-OD16SLH-1
	Inputs	NPN (+ common)	— 16 points — —				DRT2-ID16SL
		PNP (- common)					DRT2-ID16SL-1
Not supported	Outputs	NPN (- common)					DRT2-OD16SL
		PNP (+ common)					DRT2-OD16SL-1
	L	NPN (+ common)	- 32 points				DRT2-ID32SLH
	Inputs	PNP (- common)					DRT2-ID32SLH-1
0 mm to 1	Outputs	NPN (- common)					DRT2-OD32SLH
Supported		PNP (+ common)		_			DRT2-OD32SLH-1
	I/O	NPN (input: + common, output: - common)	10 mputo/				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-1         : 55 mA max. (24 VDC), 90 mA max. (11 VDC)           DRT2-ID32SL-1         : 55 mA max. (24 VDC), 80 mA max. (11 VDC)           DRT2-OD32SL         : 50 mA max. (24 VDC), 80 mA max. (11 VDC)           DRT2-OD32SL-1         : 50 mA max. (24 VDC), 80 mA max. (11 VDC)           DRT2-ID32SL-1         : 50 mA max. (24 VDC), 80 mA max. (11 VDC)           DRT2-ID32SL-1         : 50 mA max. (24 VDC), 80 mA max. (11 VDC)           DRT2-ID32SLH         : 65 mA max. (24 VDC), 100 mA max. (11 VDC)           DRT2-ID32SLH-1         : 65 mA max. (24 VDC), 100 mA max. (11 VDC)           DRT2-OD32SLH         : 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), 80 mA max. (11 VDC)           DRT2-MD32SLH(-1)         : 55 mA max. (24 VDC), 90 mA max. (11 VDC)           DRT2-MD32SLH(-1)         : 60 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/s <sup>2</sup> , 6 directions, 3 times each		
Dielectric strength	500 VAC (between isolated circuits)		
Insulation resistance	$20 \text{ M}\Omega$ 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	Power short-circuit protection			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 Model	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 κΩ		
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.		

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

Item	Model	DRT2-OD16SL	DRT2-OD16SL-1	DRT2-OD16SLH	DRT2-OD16SLH-1	
Internal I/O commo	n	NPN	PNP	NPN	PNP	
I/O points		16 outputs				
I/O power supply v	oltage	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.		0.1 mA max. (See Note: 1.)		
ON delay time		0.5 ms max.				
OFF delay time		1.5 ms max.				
Disconnection dete	ection			(See Note: 2.)		
Output power supp	ly current	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 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.

#### 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%)	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.

#### ●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)

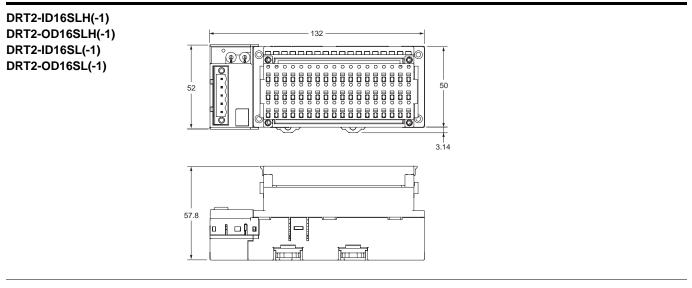
Item Model	DRT2-MD32SLH DRT2-MD32SLH-1			
Internal I/O common	NPN	PNP		
I/O points	16 outputs			
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)			
Output current	0.5 A per point, 4 A per common			
Residual voltage	1.2 V max.			
Leakage current	0.1 mA max. (See Note: 1.)			
ON delay time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

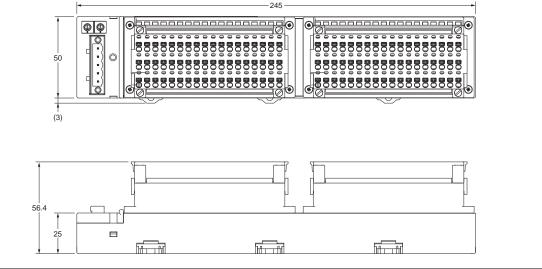
Note 2: Disconnection detection can be used when the load current is 3 mA or higher. If the load current is less than 3 mA, disconnections may be falsely detected.

### Dimensions

(Unit: mm)

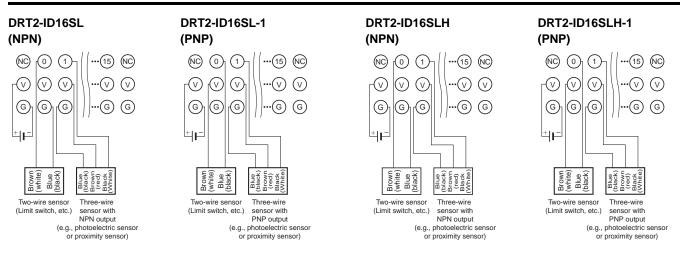


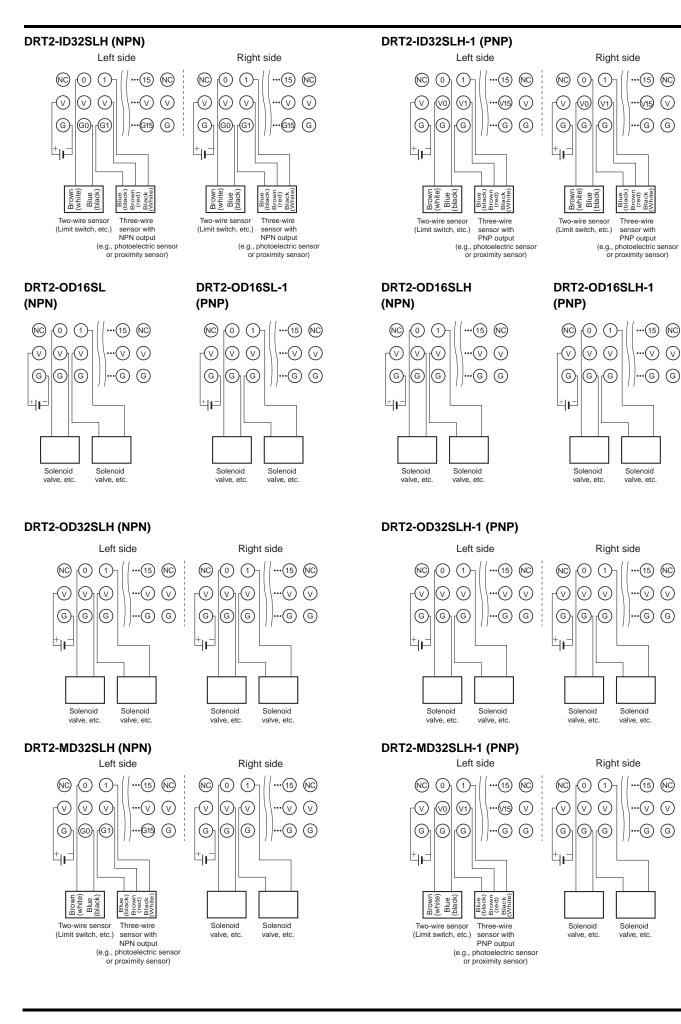
### DRT2-ID32SLH(-1) DRT2-OD32SLH(-1) DRT2-MD32SLH(-1)



### Wiring Diagrams

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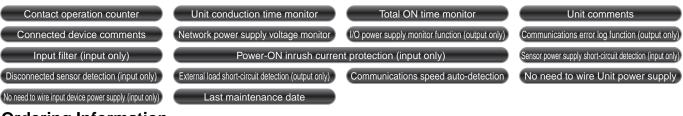


# Environment-resistive Terminals with Transistors (High-function Type) DRT2-D08C(-1)/D16C(-1)

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
NPN (+ common)					Supplied from the	DRT2-ID08C
Input	PNP (- common)	0			communications connector	DRT2-ID08C-1
0.1	NPN (- common)	8 points	Sensor I/O		24 VDC	DRT2-OD08C
Output	PNP (+ common)		connector		24 VDC	DRT2-OD08C-1
	NPN (+ common)	10			Supplied from the	DRT2-HD16C
Input	PNP (- common)	16 points			communications connector	DRT2-HD16C-1

### **General Specifications**

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Item Model		DRT2-HD16C(-1)			
	DRT2-ID08C(-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 m	n/s <sup>2</sup> 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 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				
Degree of protection	IP67				
Mounting method	M5 screw mounting (front an	id 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 sup Communications power sup		
ON delay time	1.5 ms max.		
OFF delay time	1.5 ms max.		
Number of circuits per common	8 per common		

### **Output Specifications**

### • 8-point Outputs Terminals with Transistors

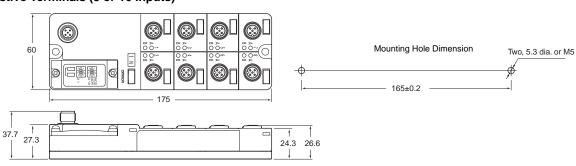
Item Model	DRT2-OD08C	DRT2-OD08C-1	
Internal I/O common	NPN	PNP	
I/O points	8 inputs		
Rated output current	1.5 A per point, 8.0 A per co	ommon	
Residual voltage	1.2 V max. (1.5 A DC between each output terminal and G)	1.2 V max. (1.5 A DC between each output terminal and V)	
Leakage current	0.1 mA max.		
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.

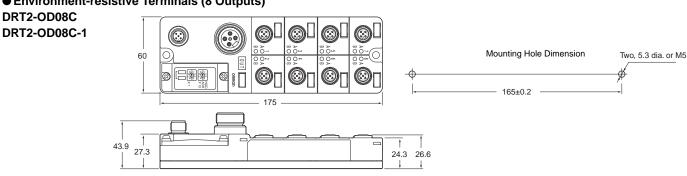
### Dimensions



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



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



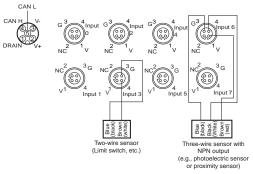
#### • 16-point Inputs Terminals with Transistors

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 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	16 per common			

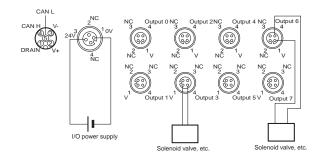
(Unit: mm)

### Wiring Diagrams

### DRT2-ID08C (NPN)

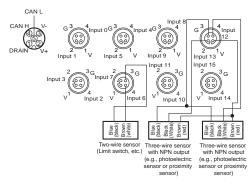


### DRT2-OD08C (NPN)

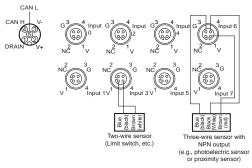


### DRT2-HD16C (NPN)

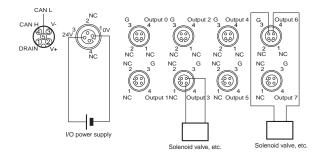
50



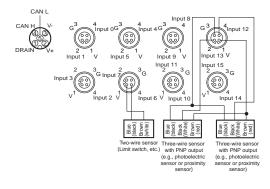
### DRT2-ID08C-1 (PNP)



### DRT2-OD08C-1 (PNP)



### DRT2-HD16C-1 (PNP)



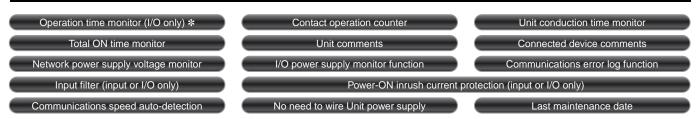
# Environment-resistive Terminals with Transistors (Standard Type) DRT2-D04CL(-1)/D08CL(-1)/D16CL(-1)

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
Innuto	NPN (+ common)					DRT2-ID04CL
Inputs	PNP (- common)	4			-	DRT2-ID04CL-1
Outeute	NPN (- common)	4 points			-	DRT2-OD04CL
Outputs	PNP (+ common)			Supplied from the communications connector	24 VDC	DRT2-OD04CL-1
lumite	NPN (+ common)		-			DRT2-ID08CL
Inputs	PNP (- common)	- 8 points	Sensor I/O connector			DRT2-ID08CL-1
Outputs	NPN (- common)					DRT2-OD08CL
	PNP (+ common)					DRT2-OD08CL-1
lanuta	NPN (+ common)		-		-	DRT2-HD16CL
Inputs	PNP (- common)	40 mainta			-	DRT2-HD16CL-1
Outroute	NPN (- common)	16 points			-	DRT2-WD16CL
Outputs	PNP (+ common)					DRT2-WD16CL-1
	NPN (input: + common, output: - common)	8 inputs/	1		-	DRT2-MD16CL
I/O	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 (Supp	1 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)         (				40mA max. (24 VDC) 55mA max. (11 VDC)			
Vibration resistance	10 to 60 Hz with dou	uble-amplitude of 0.7	′ mm, 60 to 150 Hz a	nd 50 m/s² in X, Y, a	nd Z directions for 80	) min each		
Shock resistance	150m/s <sup>2</sup> , 6 direction	ns, 3 times each						
Dielectric strength	500 VAC between is	solated circuits						
Insulation resistance	20 M $\Omega$ min. (betwee	20 MΩ min. (between isolated circuits)						
Ambient operating temperature	-10°C to 55°C	-10°C to 55°C						
Ambient operating humidity	25% to 85% (with no	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 and back)						
Mounting strength	100 N							
Connector strength	30 N	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	7/8-16UN						
Communications connector	M12							

### **Input Specifications**

#### • 4-input Models

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 com	mon	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	у	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 circu common	its per	8 per common	

#### **Output Specifications**

#### • 4-output Models

Item Mode	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 common		
Residual voltage	ge 1.2 V max. (0.5 A DC between each output terminal and G) 1.2 V max. (0.5 A I		
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 common		
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 co	mmon	NPN PNP			
I/O points		16 outputs			
Rated output	current	0.5 A per point, 4 A per com	nmon		
I/O power sup voltage	ply	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 curr	ent	0.1 mA max.			
I/O power sup voltage	ply	20.4 to 26.4 VDC (24 VDC -15%/+10%)			
ON delay time	9	0.5 ms max.			
OFF delay tim	ne	1.5 ms max.			
Number of cir common	cuits per	16 per common			

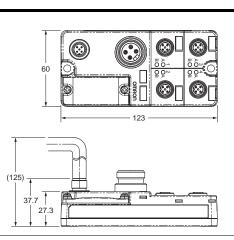
#### • 8-input/8-output Models

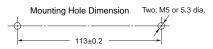
Item Model	DRT2-MD16CL	DRT2-MD16CL-1		
Internal I/O common	NPN PNP			
I/O points	8 outputs			
Rated output current	0.5 A per point, 4 A per common			
I/O power supply voltage	20.4 to 26.4 VDC (24 VDC -15%/+10%)			
Residual voltage	1.2 V max. (0.5 A DC between each output terminal and G)	1.2 V max. (0.5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

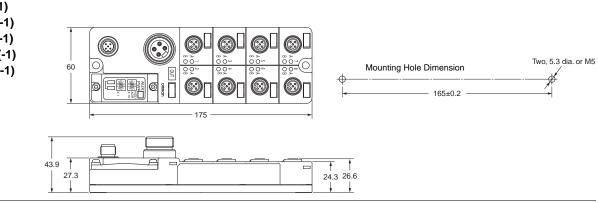
#### Dimensions

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



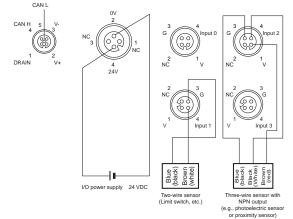


DRT2-ID08CL(-1) DRT2-OD08CL(-1) DRT2-HD16CL(-1) DRT2-WD16CL(-1) DRT2-MD16CL(-1)

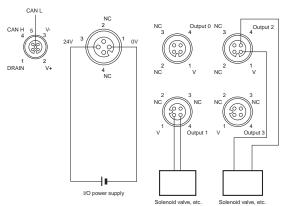


#### Wiring Diagrams

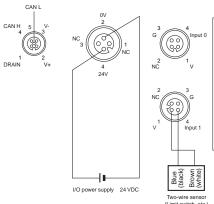
#### DRT2-ID04CL (NPN)



#### DRT2-OD04CL (NPN)



#### DRT2-ID04CL-1 (PNP)

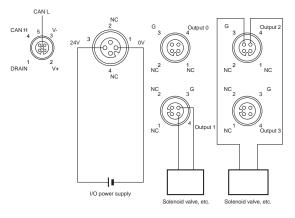




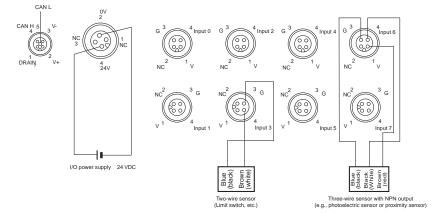
80

Input 3

#### DRT2-OD04CL-1 (PNP)

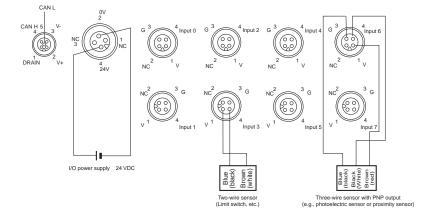


#### DRT2-ID08CL (NPN)



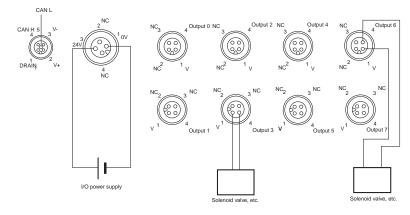
#### DRT2-ID08CL-1 (PNP)

54

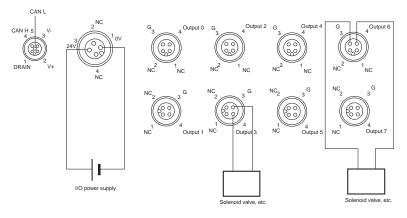


55

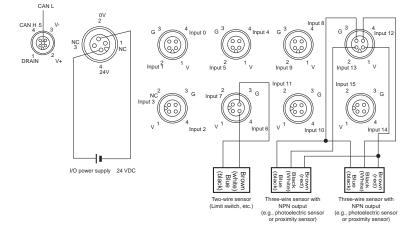
#### DRT2-OD08CL (NPN)



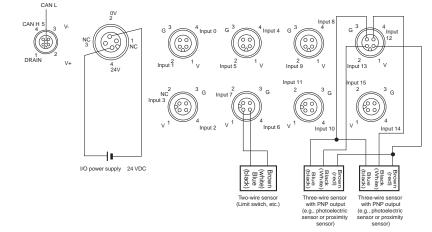
#### DRT2-OD08CL-1 (PNP)



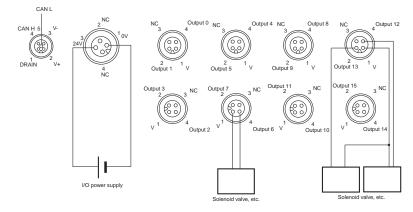
#### DRT2-HD16CL (NPN)



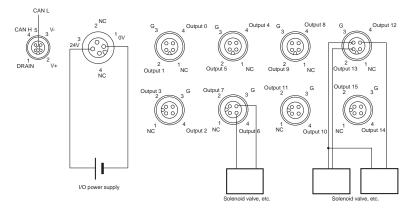
#### DRT2-HD16CL-1 (PNP)



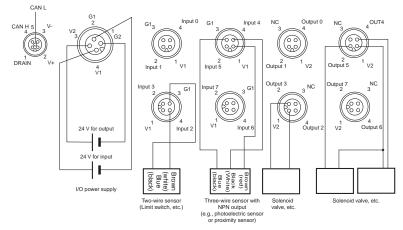
#### DRT2-WD16CL (NPN)



#### DRT2-WD16CL-1 (PNP)

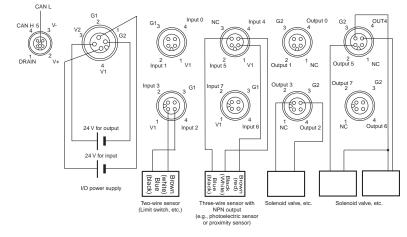


#### DRT2-MD16CL (NPN)



#### DRT2-MD16CL-1 (PNP)

56



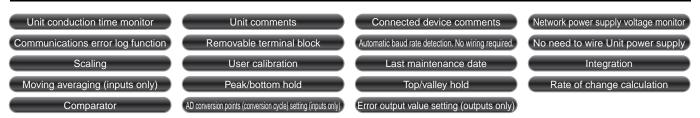
# Analog I/O Terminals DRT2-AD04(H)/DA02

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
Apolog ipput	4 inputs (Resolution: 6, 000)	DRT2-AD04
Analog input	4 inputs (Resolution: 30, 000)	DRT2-AD04H
Analog output	2 outputs	DRT2-DA02

#### **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) 150 mA max. (11V DC)	70 mA max. (24 VDC) 110 mA max. (11 VDC)	120 mA max. (24 VDC) 220 mA max. (11 VDC)
Noise immunity	Conforms to IEC61000-4-	4, 2 kV (power line)	
Vibration resistance	10 to 150 Hz, 0.7-mm dou	uble 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 mountin	ıg	
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.		

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### **Input Specifications**

Model		DRT2-AD04		DR	T2-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 s	setting method		ired by inputs 0 and 1, shared by in sible to set inputs 0 to 3 independent		
Maximum sig	gnal input	±15 V	±30 mA	±15 V	±30 mA
Input impeda	ance	1 MΩ min.	Approx. 250 Ω	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 time		4 ms max. for 4 inputs <b>Note:</b> When calculation functions are not used and the DeviceNet communications cycle is 4 ms.		250 ms max. for 4 inputs	
Converted data -10 to 10 V input range: Full scale is F		hexadecimal (0 to 6,000) Full scale is F448 to 0BB8 hexadecimal (-3,000 to 3,000)	Full scale is 0000 to 7530 hexa A/D conversion range: ±5% FS		
Insulation mo	ethod	Photocoupler isolation between inputs and communications lines (There is no isolation between input signals)		es Photocoupler isolation (between inputs and communications lines and between temperature input signals)	
I/O connection	D connections Terminal block				
Accessories		Four shorting bars for use with cur	use with current inputs.		

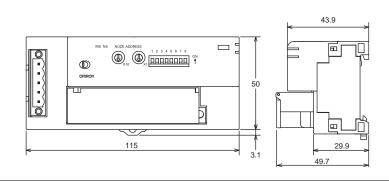
### **Output Specifications**

	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: Independent for outputs 0 and 1     Set using the Configurator: Independent for outputs 0 and 1		
Allowable outport	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	e	2 ms/2 points		
Converted data		-10 to 10 V output range:	Full scale is 0000 to 1770 hexadecimal (0 to 6,000) Full scale is F448 to 0BB8 hexadecimal (-3,000 to 3,000) ±5% FS	
Insulation meth	od	Photocoupler isolation between outputs and communications lines (There is no isolation between output signals)		
I/O connections	Terminal block			
Accessories		None		

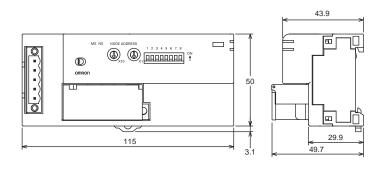
#### (Unit: mm)

#### Dimensions

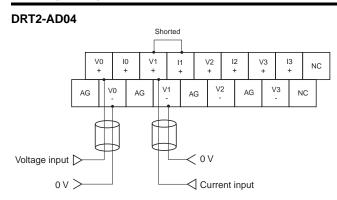
#### DRT2-AD04 DRT2-AD04H



#### DRT2-DA02

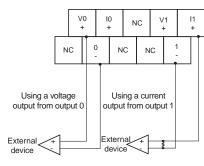


#### **Wiring Diagrams**



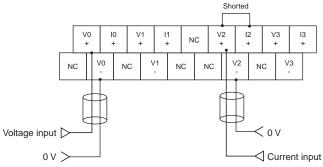
Note: With using a current input, always short the V+ and I+ terminals. (Use the shorting bar provided with the Unit.)

#### DRT2-DA02



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

#### DRT2-AD04H



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

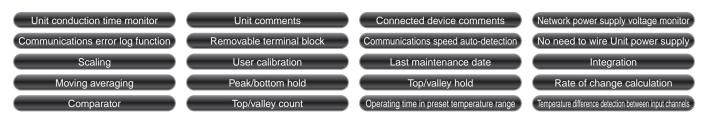
# Temperature Input Terminals DRT2-TS04

## 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		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**

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Item Model	DRT2-TS04T	DRT2-TS04P	
Input type	Thermocouple input Platinum-resistance thermomer 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	11 to 25 VDC (Supplied from the communications 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 M $\Omega$ min. (initial value) at 100 VDC		
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		
Mounting method	DIN 35 mm-track mounting		
Mounting strength	50 N 10 N (in the DIN Track direction)		
Screw tightening torque	M3: 0.5 N•m		
Terminal strength	No damage when 50 N pull load was applied.		
Weight	160 g max.		

#### **Performance Specifications**

Item I	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 accurac	v	R and S below 200°C	±3°C ±1 digit max.	$(\pm 0.3\%$ of indication value or $\pm 0.8$ °C, whichever is larger) $\pm 1$ 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.		
		PLII	±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	d	Between input and communication lines: Photocoupler insulation Between temperature input signals: Photocoupler insulation			

**\*1.** A current of 0.35 mA flows to sensors connected to the DRT2-TS04P.

\*2. The indicator accuracy specifications differ depending on the mounting direction. Refer to the above table for details.

#### 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 below.

#### **Terminal Unit Label**

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



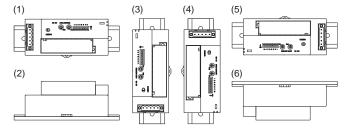
#### **Terminal Block Label**

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



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.

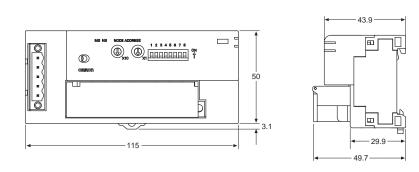
Mounting direction	Indication accuracies		
Mounted normally (1)	As specified in the Performance Specifications.		
	(±0.3% of indication value ±1 digit max.	e or ±2°C, whichever is greater)	
	Input type	Indication accuracies	
	K1, K2, T, and N below -100°C	±3°C ±1 digit max.	
Manutad in anu	U, L1, and 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.	
		·	



#### (Unit: mm)

#### Dimensions

DRT2-TS04T DRT2-TS04P



DRT2-TS04P

IN0

IN0 B

AbAb

NC

INO IN1 IN1 NC

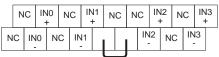
NC

IN1 B

NC NC

#### **Terminal Arrangement**

#### DRT2-TS04T

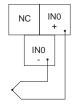


Cold junction compensator

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

#### **Wiring Diagrams**

#### DRT2-TS04T (Thermocouple input)



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

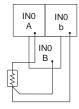
IN2 A

> IN2 B

IN2 IN3 IN3 b A b

NC

IN3 B



# SmartSlice GRT1 Series

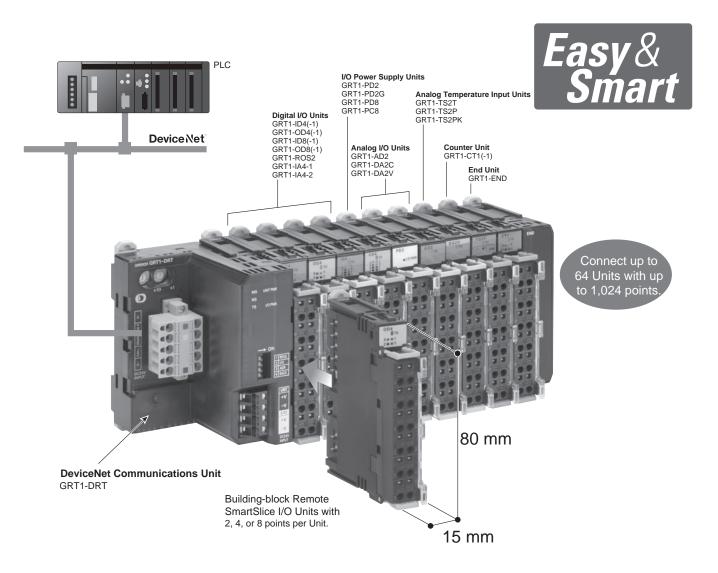
SmartSlice GRT1 Series 6	54
What Is the SmartSlice GRT1 Series	
■ System Configuration	
Internal Circuit Configuration	
DeviceNet Communications Unit 6	8
GRT1-DRT	
SmartSlice I/O Units	0

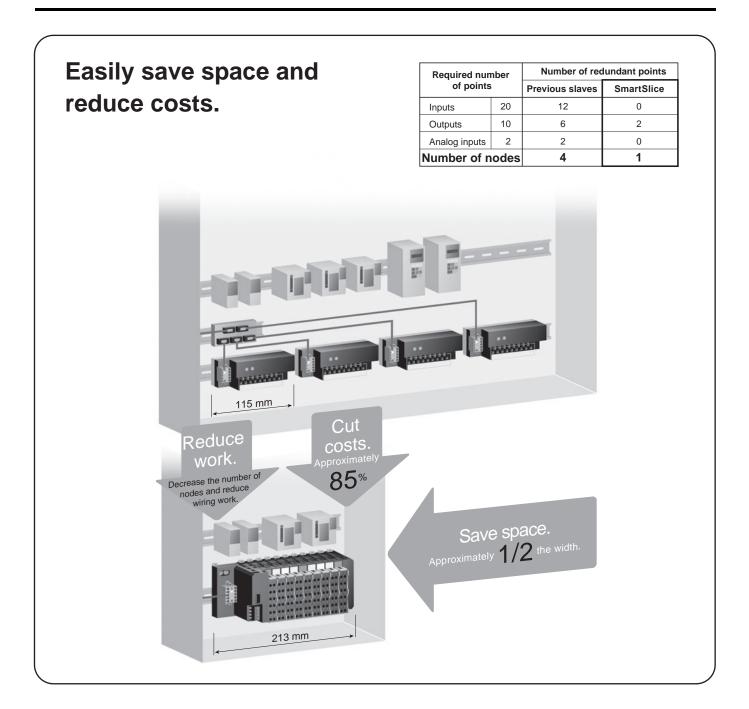
# **SmartSlice GRT1 Series**

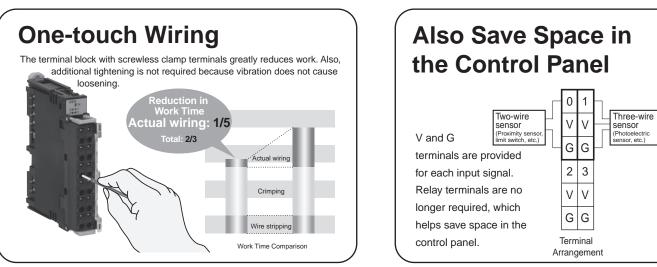
# DeviceNet-compliant Building-block I/O Terminals to Save Space, Cut Costs, and Reduce Work.

#### 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.







### Set Only the Node Addresses

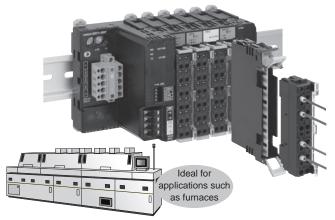
Automatic baud rate detection and automatic I/O allocations enable immediate use with no Support Software.



### **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

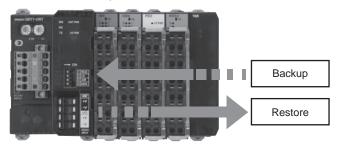
The Slave Unit stores the equipment operating time and amount of change in operation as data to enable monitoring without increasing the load between Controllers

#### 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.

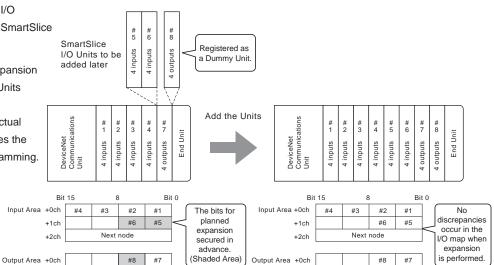
## **Recover Unit Parameters** without Support Software

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



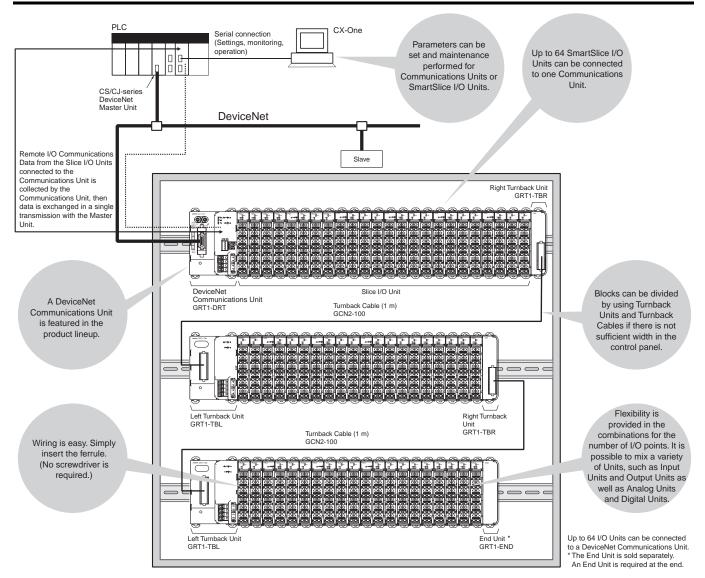
#### New Function I/O Allocation Software Settings

- 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.

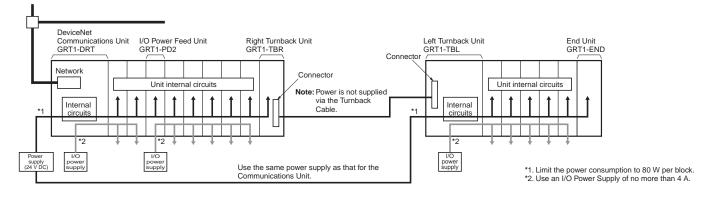


# Support for flexible I/O configurations to match the application help downsize the control panel, cut costs, and decrease wiring work.

#### **System Configuration**



#### **Internal Circuit Configuration**



# DeviceNet Communications Unit

# 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	lodel 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 <b>*</b> (24 V +10%/-15%)	
Noise immunity	Conforms to IEC 61000-4-4, 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	) 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	

\* 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	e 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	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**

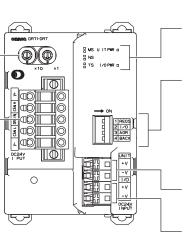
#### GRT1-DRT

Rotary Switches Used to set the node address for the DeviceNet Slave. (Set in decimal.) Node addresses from 0 to 63 can be set.

#### DeviceNet

**Communications Connector** Connects to the communications cable for a DeviceNet network.

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#### Indicators

Indicate the condition of the DeviceNet Communications Unit and DeviceNet network, and the communications condition with the Slice I/O Units.

#### DIP Switch

Used to set the I/O allocation method, and to read and write configuration data from and to Slice I/O Units connected to the Communications Unit. SW1 (REGS): Create/Enable registered table SW2 (I/O): Enable/Disable I/O allocation mode **\*** SW3 (ADR): Automatic restore SW4 (BACK): Backup trigger **\*** Unit version 2.0 or later.

#### Unit Power Supply Terminals

Supply power to the internal circuits of the Unit, and to the internal circuits of connected Slice I/O Units.

#### I/O Power Supply Terminals

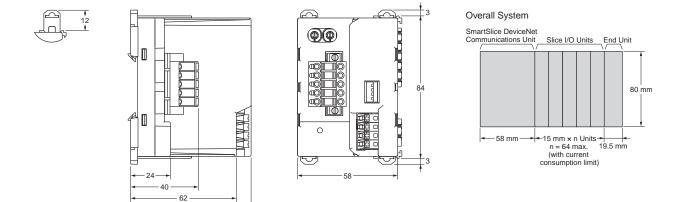
Supply power to external inputs and outputs connected to the Slice I/O Units.

(Unit: mm)

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#### Dimensions

#### 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
			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		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				GRT1-IA4-2
I/O Units			2 inputs (current or voltage)	GRT1-AD2
	Analog I/O Units		2 outputs (current)	GRT1-DA2C
			2 outputs (voltage)	GRT1-DA2V
			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		1 counter input, 1 external output, NPN	GRT1-CT1
			1 counter input, 1 external output, PNP	GRT1-CT1-1
	Turaka da Unita		For right-side turnback (Used to divide a SmartSlice I/O Terminal into blocks)	GRT1-TBR
	Tumback 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				GRT1-PD2
Units			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 U				GRT1-PD8-1
			Used to add V and G terminals for the I/O power supply.	GRT1-PC8
				GRT1-PC8-1
	End Unit <b>*</b> 1		Required at the end of SmartSlice I/O Terminals.	GRT1-END
	Terminal blocks	-	Terminal blocks (5 blocks)	GRT1-BT1-5

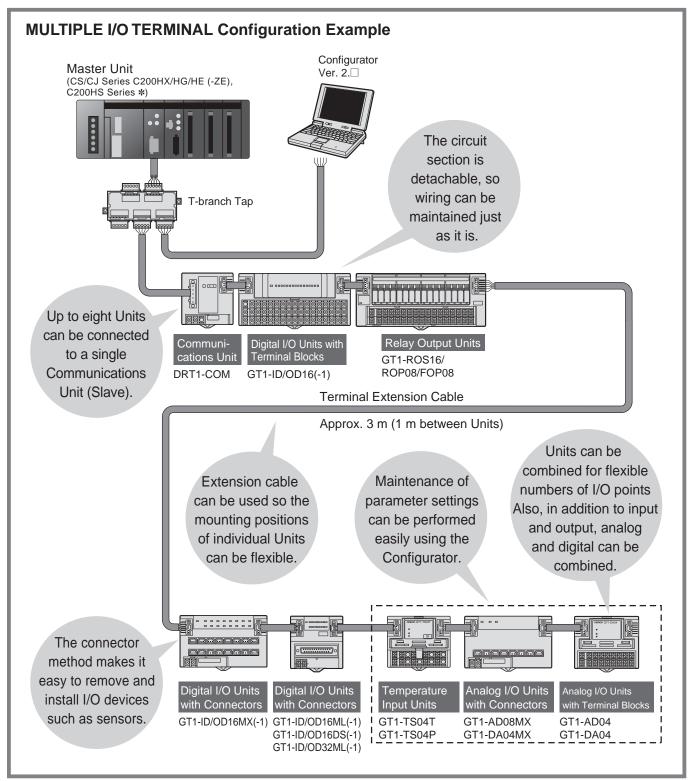
\*1. The End Unit is sold separately. (End Units are not included with Communications Units.)
\*2. Use the GCN2-100 as a set with the GRT1-TBR and GRT1-TBL.

# 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.)



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.

(Unit: mm)

# Communications Unit

## 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	11 to 25 VDC (supplied from the communications		
supply voltage	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 $^2$		
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)		

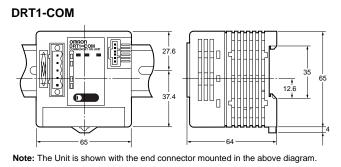
#### Specifications

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.

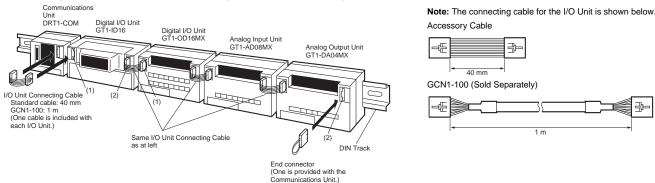
Note: The total current consumption for I/O Unit interfaces must not exceed 0.4 A.

#### Dimensions



#### Mounting and Connecting Units

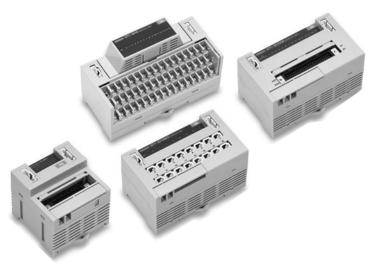
#### • Mounting to DIN Track and Connecting I/O Unit Connecting Cable



# Digital I/O Units GT1-D16(-1)/D16MX(-1)/D16ML(-1)/D32ML(-1)/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
	Disital issue	NPN (+ common)		M3 terminal board	DC/transistor	GT1-ID16	
Terminal block model	Digital input	PNP (- common)	_			DC/transistor	GT1-ID16-1
Terminal block model	Disital systemat	NPN (- common)					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
	Digital output	NPN (- common)		Molex connector	24 VDC	0.5 A, DC/transistor	GT1-OD16MX
	Digital output	PNP (+ common)					GT1-OD16MX-1
	Digital input	NPN (+ common)	_ 16 	Fujitsu connector		DC/transistor	GT1-ID16ML
Connector model	Digital input	PNP (- common)					GT1-ID16ML-1
Connector model	Digital output	NPN (- common)				0.5 A, DC/transistor -	GT1-OD16ML
	Digital output	PNP (+ common)					GT1-OD16ML-1
	Digital input	NPN (+ common)		D sub 25 sis sussesses		DC/transistor	GT1-ID16DS
	Digital Input	PNP (- common)					GT1-ID16DS-1
	Digital output	NPN (- common)		D-sub 25-pin connector		0.5 A, DC/transistor	GT1-OD16DS
	Digital output	PNP (+ common)					GT1-OD16DS-1
	Digital input	NPN (+ common)		32 Fujitsu connector		DC/transistor	GT1-ID32ML
High-density connector	Digital input	PNP (- common)					GT1-ID32ML-1
model		NPN (- common)	- 32				GT1-OD32ML
		1			0.5 A, DC/transistor	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	Conforms to IEC61000-4-4 2 kV (power line)		
Vibration resistance	10 to 150 Hz, 1.0-mm doubl	e 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 (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)			

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 \star
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
			XW2R-J20G-T	Phillips screw M3
Digital input (16 points) GT1-ID16ML(		16ML(-1) XW2Z-□□□A	XW2R-E20G-T	Slotted screw M3
	GT1-ID16ML(-1)		XW2R-P20G-T	Push-in spring
			XW2E-20G5-IN16	Phillips screw Common terminal (3-tier input type) M3.5
			XW2R-J20G-T	Phillips screw M3
Digital output (16 points)	GT1-OD16ML(-1)		XW2R-E20G-T	Slotted screw M3
			XW2R-P20G-T	Push-in spring

#### 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
Digital input (32 points)	GT1-ID32ML(-1)		XW2R-J40G-T	Phillips screw M3
Digital autout (22 painta)		XW2Z-🗆 🗆 🛛 🛛 🛛 🛛 🗠	XW2R-E40G-T	Slotted screw M3
Digital output (32 points)	GT1-OD32ML(-1)		XW2R-P40G-T	Push-in spring

#### Cables for I/O Blocks (16 Points)

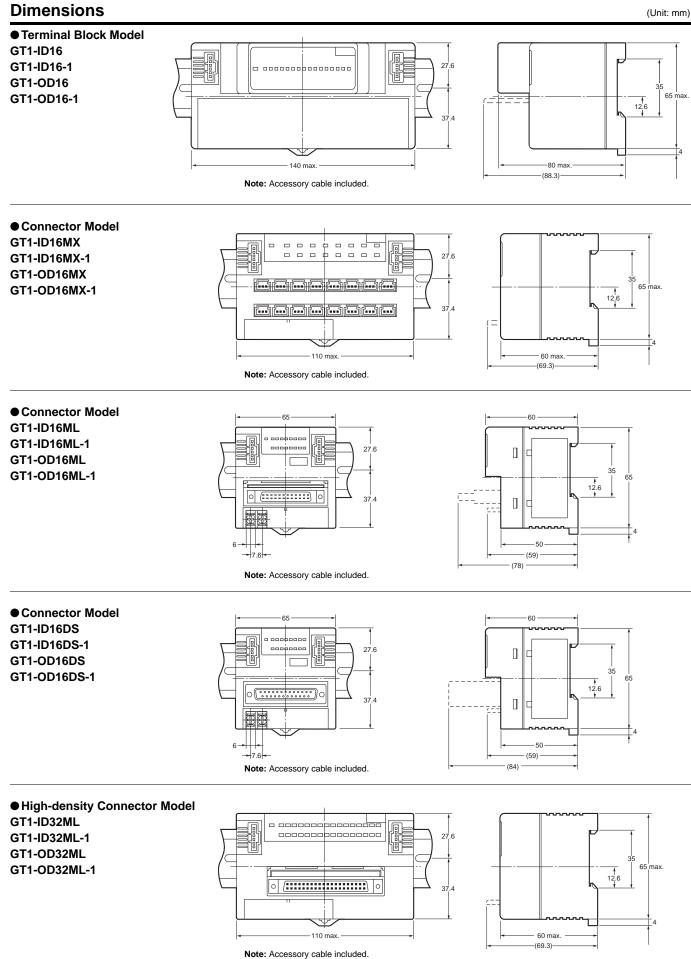
I/O classification	Model	Applicable cable	Connectable model	Remarks
Digital input (16 points) NPN	GT1-ID16ML		G7TC-ID16 G7TC-IA16	For I/O Block input
Digital input (16 points) PNP	GT1-ID16ML-1		G7TC-ID16-1 G7TC-IA16-1	For I/O Block output
Digital output (16 points) NPN	GT1-OD16ML	XW2Z-R⊟C	G7TC-OC16 G7TC-OC08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

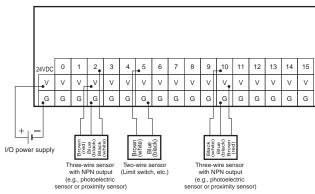
Note: For details of applicable cables and connectors, refer to Peripheral Devices.



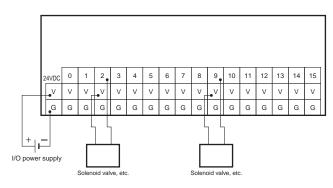


#### Wiring Diagrams

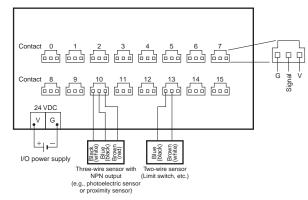
#### GT1-ID16



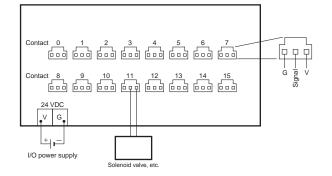
#### GT1-OD16



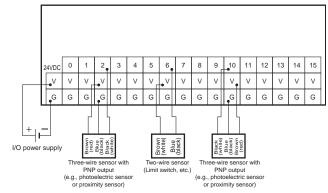
#### GT1-ID16MX



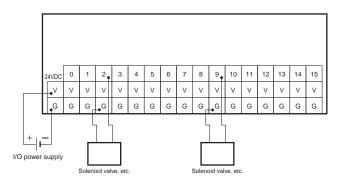
#### GT1-OD16MX



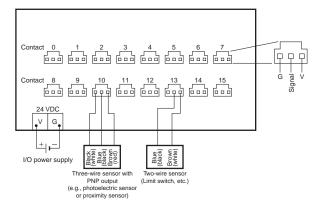
#### GT1-ID16-1



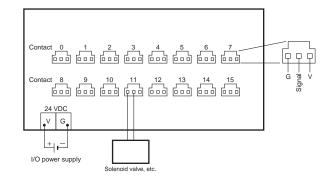
#### GT1-OD16-1



#### GT1-ID16MX-1

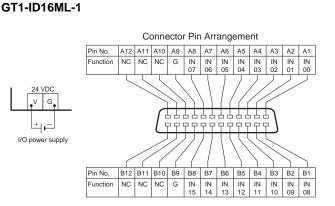


#### GT1-OD16MX-1

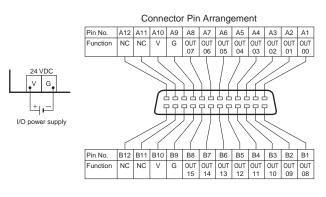


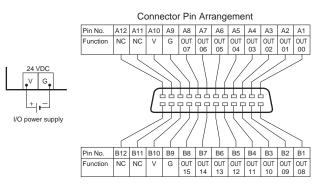
#### GT1-ID16ML

#### Connector Pin Arrangement Pin No. A12 A11 A10 A9 A8 A7 A6 A5 A4 A3 A2 A1 IN< Function NC NC NC V 24 VDC V G ╘┤┍═ I/O power supply B12 B11 B10 B9 B8 B7 B6 B5 B4 B3 B2 B1 Pin No. IN 15 IN 14 IN IN 13 12 IN 11 IN IN 10 09 IN 08 Function NC NC NC V



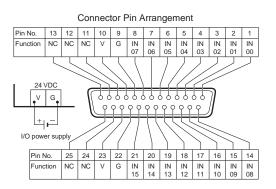
#### GT1-OD16ML



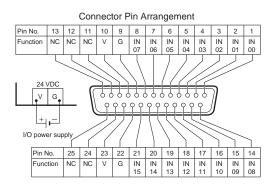


GT1-OD16ML-1

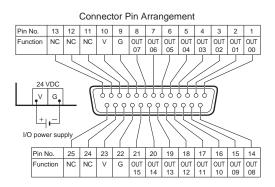
#### GT1-ID16DS



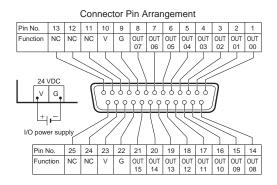
#### GT1-ID16DS-1



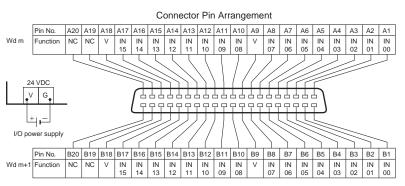
#### GT1-OD16DS



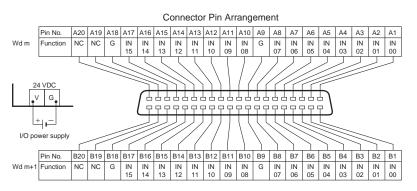
#### GT1-OD16DS-1



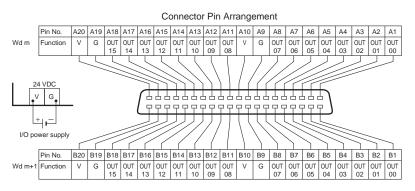




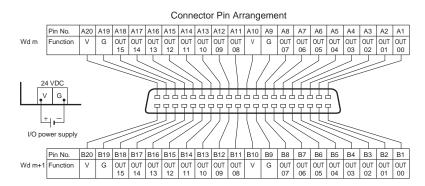
#### GT1-ID32ML-1



#### 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
Bolov output	16		M3 terminal block 24 VDC	2 A, SPST-NO	GT1-ROS16
Relay output	8	M3 terminal block		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			
Current concurration dt	GT1-ROP08	40 mA max.	GT1-ROP08	350 mA max.		
Current consumption *	GT1-FOP08	40 IIIA IIIax.	GT1-FOP08	550 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 61000-4-4, 2 kV (power 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)					

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

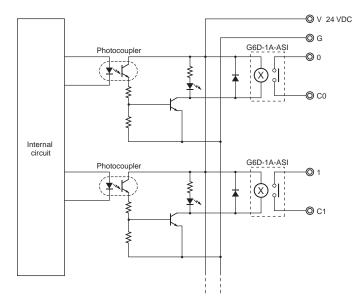
#### **Relay Output Specifications**

Item Mod	el 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 frequency of 1,800 operations per hour (at ambient temperature of 23°C with rated load)		
Mechanical life expectancy		20,000,000 operations min. with switching frequency of 18,000 operations per hour at ambient temperature of 23°C with rated load)		

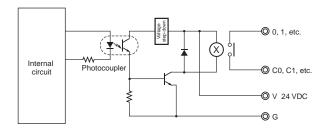
(Unit: mm)

#### **Internal Circuit Configuration**

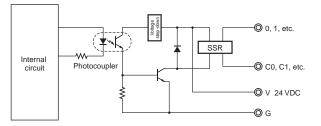
#### GT1-ROS16



#### GT1-ROP08

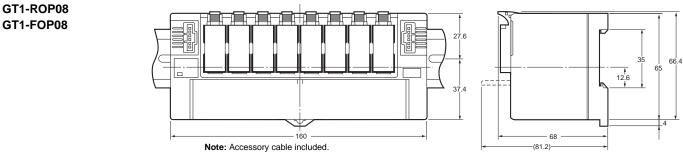




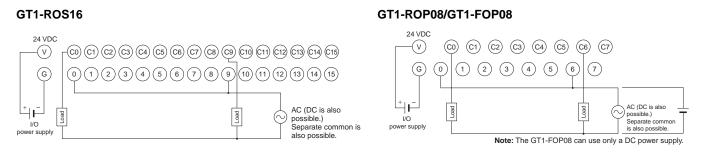


#### Dimensions

GT1-ROS16 0 0 0 0 0 0 27.6 12.6 37.4 160 60 Note: Accessory cable included. (81.2) T 1 d 27.6



#### Wiring Diagrams



# 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
	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	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			
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)			

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

#### **Applicable Connector**

Note: Refer to page 144 for Peripheral Devices.

#### **Input Specifications**

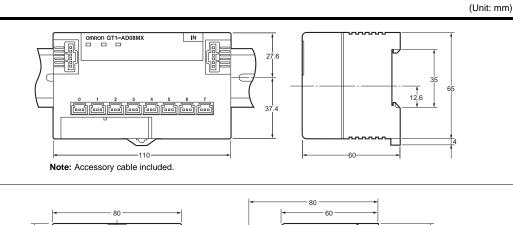
Item	Specifications Voltage input		Current input
Input type		0 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V	0 to 20 mA, 4 to 20 mA
Maximum	signal input	± 15V	± 30 mA
Input impe	edance	$1M\Omega$ min.	Approx. 250 Ω
Resolution	า	1/6,000 (FS)	
Overall	25°C	±0.3% FS	±0.4% FS
accuracy	-10°C to 55°C	±0.6% FS	±0.8% FS
Conversio	n 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**

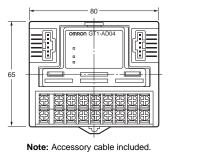
Item	Specifications	Voltage output	Current output		
Output type		0 to 5 V, 1 to 5 V, 0 to 10 V, -10 to 10 V	4 to 20 mA		
Output permissible load resistance		5k $\Omega$ min.	600 Ω max.		
Output impedance		0.5Ω max.			
Resolution		1/6,000 (FS)			
Overall	25°C	±0.4% FS			
accuracy	-10°C to 55°C	±0.8% FS			
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.			

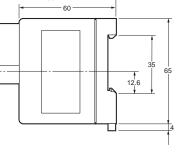
#### Dimensions

GT1-AD08MX GT1-DA04MX (Molex Connector Models)



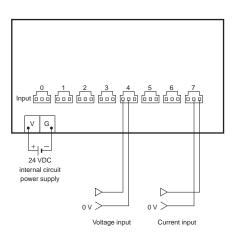
#### GT1-AD04 GT1-DA04 (Terminal Block Models)



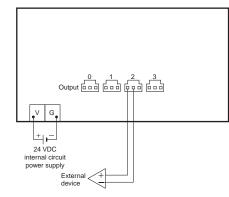


#### **Wiring Diagrams**

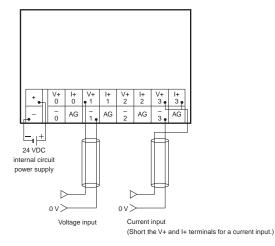
#### GT1-AD08MX



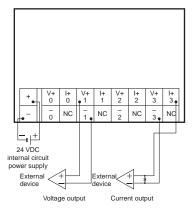
#### GT1-DA04MX



GT1-AD04



#### GT1-DA04



# **Temperature Input Units ⁻1-TS04**□

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

Input specification

Thermocouple

Platinum resistance

thermometer

- · Four inputs.
- Thermocouples and platinum resistance thermometer models are available.
- 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.

I/O

connections

Terminal Block

I/O Unit interface

DIN 35 mm-track mounting

25% to 85% (with no condensation)

I/O Unit Connecting Cable (40 mm)

50 mA max.

150 m/s<sup>2</sup>

500 VAC

-10°C to 55°C

-25°C to 65°C

Power supply

voltage

24 VDC

Internal power supply

80 mA max.

20.4 to 26.4 VDC (24 VDC -15%/+10%)

10 to 150 Hz, 0.7-mm amplitude or 50 m/s<sup>2</sup>

· DIN track mounting.

I/O classification

Temperature inputs

I/O power supply voltage

**Current consumption** 

Vibration resistance

Shock resistance

**Dielectric strength** 

Mounting method

Accessories

Ambient operating temperature

Ambient operating humidity

Ambient storage temperature

Ordering Information

I/O points

4 inputs

General Specifications

Model

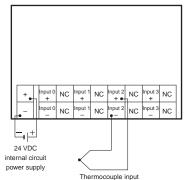
GT1-TS04T

GT1-TS04P

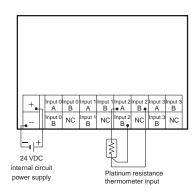


#### Wiring Diagrams

#### GT1-TS04T



#### GT1-TS04P



Input Specifications

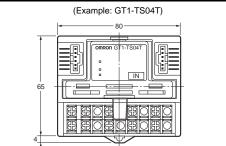
Item Model	GT1-TS04T	GT1-TS04P		
Input type	R, S, K, J, T, L, or B selectable	Pt100 or Jpt100 selectable		
-200 to 200°C input range:		(±0.3% of indication value or ±0.8°C, whichever is larger) ±1 digit max.		
Conversion cycle	250 ms/4 points			
Temperature conversion data	Binary data			
Insulation method	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

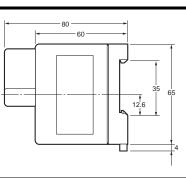
Dimensions

GT1-TS04T

GT1-TS04P



Note: Accessory cable included



Temperature Input Units GT1-TS04

(Unit: mm)

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# Intelligent Slaves (PLC Units)

# Programmable Slaves CPM2C-S1D0C-DRT

# 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.)

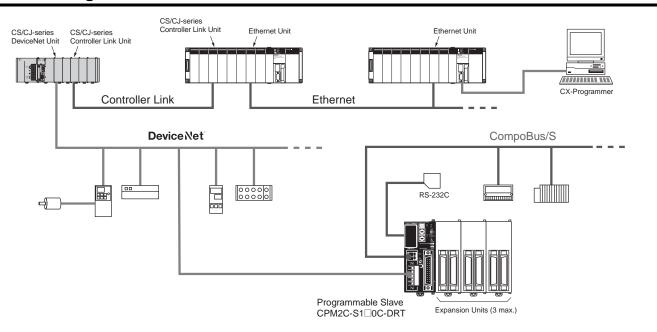
Just one Unit is required for each distributed block, reducing the number of interfaces for multipoint communications to, in turn, reduce costs.

### Ordering Information

Unit type		Input	Output	Clock	Model
10 I/O points 6 inputs; 4 outputs	Connector	6 points: 24 VDC	4 points: transistor (sinking)	Yes	CPM2C-S100C-DRT
			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 x 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	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 (HF	R area)	320 bits: HR 0000 to HR 1915 (Words HR 00 to HR19)	
Auxiliary bits (A	IR 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: TIMHH 10-ms timers: TIMH 100-ms timers: TIM 1-s/10-s timers: TIML Decrementing counters: CNT Reversible counters: CNTR	
Data moment	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	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)	
High-speed 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	· · ·	2 interrupts (Used for both external interrupt inputs and 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 with variable duty-ratio outputs 2 points with variable duty-ratio outputs	
Synchronized pulse control		1 point	
Input time constant		Can be set for CPU inputs and Expansion Unit inputs only.	
(ON response time = OFF response time)		(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	
		W-CN114, or CS1W-CN118) is required to connect to the communications (peripheral/RS-232C) port.	

\* 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		Specifica	tions		
Communications protocol	Conforms to E	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 special 5-wire Flat Cable				
	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. \*1. This value applies when using Thick Cable for the trunk line. If Thin Cable is used, the value will be 100 m max. \*2.

# **Cables for I/O Connector**

#### • Cables for Connector - Terminal Conversion Units

Cable	Connected product	Connector Products (Connector- Terminal Block Conversion Units) Connecting method
	XW2R-J20G-T	Phillips screw M3
XW2Z-□□□A	XW2R-E20G-T	Slotted screw M3
	XW2R-P20G-T	Push-in spring

#### ● CompoBus/S

CompoBus/S						
Item		Specifications				
Communications protocol		:	Special CompoBus/S protocol			
Coding	method	1	Manchester coding			
Connec	tion form	1	Multi-drop method a	nd T-branch c	onnections *	:1
Baud rate			High-speed Commu Long-distance Com			ops <b>*</b> 2
Com- muni- Mode		0.5 ms (with 8 input and 8 output slaves connected) 0.8 ms (with 16 input and 16 output slaves connected)				
			4.0 ms (with 8 input and 8 output slaves connected) 6.0 ms (with 16 input and 16 output slaves connected)			
Communications media		2-wire cable (VCTF 0.75 x 2), 4-wire cable (VCTF 0.75 x 4), or Special Flat Cable				
		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.
Communications			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 <b>*</b> 3	30 m max.	3 m max.	30 m max.
			Long-distance Communications Mode <b>*</b> 4	Free branching (up to a total cable length of 200 m)		
Maximu of node	m number s	:	32			
Error co			Manchester code ch	neck, frame ler	ngth check, ar	nd parity check
*1 Connect external terminating resistance						

\*1. Connect external terminating resistance.

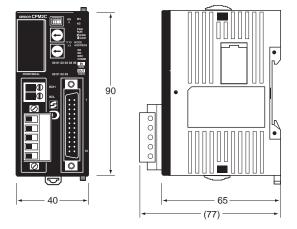
\*2. \*3.

- 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. \*4.
- 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.

(Unit: mm)

# **Dimensions**

# CPM2C-S100C-DRT CPM2C-S110C-DRT



# **Intelligent Slaves**

Digital Sensor Communications Unit
E3X-DRT21-S VER.3
DeviceNet ID Slave
V600-HAM42-DRT
DeviceNet ID Slave
V680-HAM42-DRT
DeviceNet-compliant Digital Indicators
K3HB-D-DRT
DeviceNet-compliant Digital Controllers 100
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

# 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**

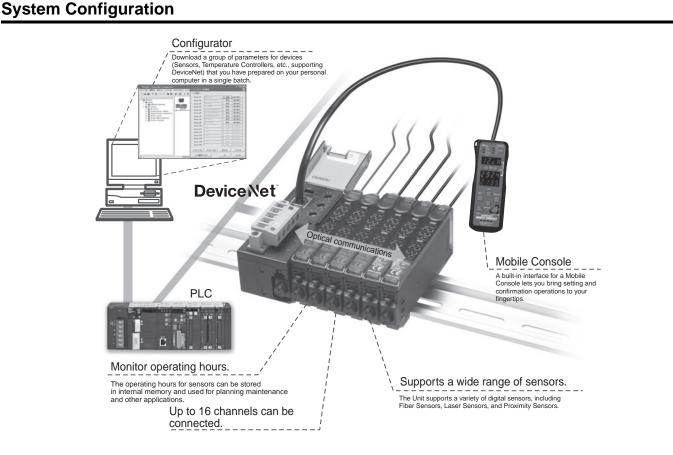
#### Digital Sensor Communications Unit

Name	Model
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.



# omroi

# **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	onnection	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 E3C-LDA Series Laser Photoelectric Sensor with Separate Digital Amplifier 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 consumpt	ion (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, the number of connected Sensors, and the detection levels for the connected Sensors. Two words are allocated as the output area 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.

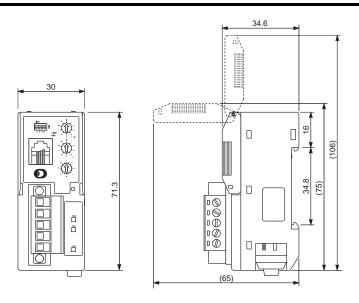
5: Connection cannot be performed if the response speed of the Sensor is set to super-high-speed mode.

6: This does not include the current supplied to the Sensor.

# Dimensions

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

E3X-DRT21-S VER.3



# DeviceNet ID Slave

# 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
	V600-HAM42-DR1
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

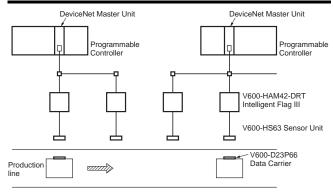


Item Mode	V600-HAM42-DRT
Mounting method	DIN track mounting or M4 screw mounting with provided brackets.
Weight	150 g max.

# **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

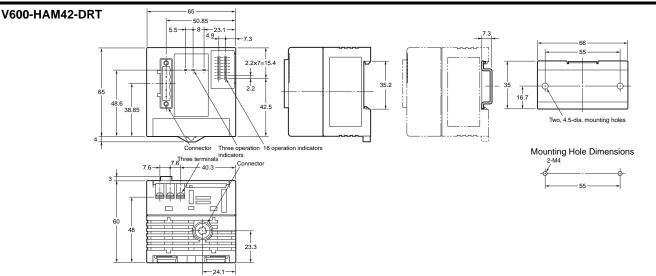
# **System Configuration**



(Unit: mm)

# Dimensions

94



# 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/s <sup>2</sup> acceleration with 10 sweeps in X, Y and Z directions for 8 minutes each
Shock resistance	150 m/s <sup>2</sup> 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)

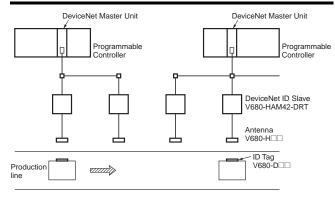
Item Model	V680-HAM42-DRT
Materials	Polycarbonate (PC) resin, ABS resin
Weight	Approx. 150 g
Mounting method	DIN track mounting

# **Performance Specifications**

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

# **System Configuration**

35 :



Dimensions

# 

# DeviceNet-compliant Digital Indicators

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

- High-precision, high-speed sampling.
- 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
		Deserves la disetter	K3HB-XAD-A-DRT1
		Process Indicator	K3HB-XVA-DRT1
DeviceNet-compliant Digital Indicators			K3HB-XAA-DRT1
		Weighing Indicator	K3HB-VLC-B-DRT1
			K3HB-VLC-E-DRT1
		Temperature Indicator	K3HB-HTA-DRT1
		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

• K3HB-X/V/H/S Power supply voltage	3	100 to 240 VAC Models 100 to 240 VAC (50/60 Hz) DeviceNet power supply: 24 VDC				
Allowable power supp	ply voltage range	85% to 110% of the rated power supply voltag	e			
Power consumption		100 to 240 VAC Models: 18 VA max., 24 VAC/				
		0 to 5V ±10V				
		1 to 5V	±10V			
		±5 V	±10V			
	S Model	±10 V	±14.5V			
		0 to 20 mA	31 mA			
		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			
		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			
		±19.999 mA	Allowable instantaneous overload (30 s): ±400 V			
	XAD Model	±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				
		0.000 to 10.000 A	Allowable instantaneous overload (30 s): 20 A Allowable instantaneous overload (30 s): 20 A			
	XAA Model					
		0.00 to 199.99 mA	Allowable instantaneous overload (30 s): 2 A			
		0.000 to 19.999 mA 0.00 to 199.99 mV	Allowable instantaneous overload (30 s): 2 A 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 10		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				
Innut rongo	X Model	DC voltage: ±199.99 V, ±19.999 V, ±1.999 V,	.000 to 5.000 V			
Input range (measurement	(measurement category	DC current: ±199.99 mA, ±19.999 mA, ±1.999 mA, 4.000 to 20.000 mA				
range)	II)	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 M $\Omega$ min./DC voltage (other ranges): 1 M $\Omega$ 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.				
		NPN open collector or no-voltage contact sign	al			
	Timin a in mut	ON residual voltage: 3 V max.				
	Timing input	ON current at 0 Ω: 17 mA max. Max. applied voltage: 30 VDC max.				
		OFF leakage current: 1.5 mA max.				
Event insute	Startup compensation					
Event inputs	timer input	NPN open collector or no-voltage contact sign	al			
	Hold input	ON residual voltage: 2 V max.				
	Reset input	ON current at 0 $\Omega$ : 4 mA max. Max. applied voltage: 30 VDC max.				
	Forced-zero input	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 operations, Electrical life expectancy: 100,000 operations				
	Transistor output	Maximum load voltage: 24 VDC, Maximum loa	id current: 50 mA, Leakage current: 100 µA max.			
Output ratings		Linear output 0 to 20 mA DC, 4 to 20 mA:				
	Linear output	Load: 500 Ω max, Resolution: Approx. 10,000, Output error: ±0.5% FS Linear output 0 to 5 VDC, 1 to 5 VDC, 0 to 10 VDC: Load: 5 kΩ max, Resolution: Approx. 10,000, Output error: ±0.5% FS (1 V or less: ±0.15 V; not output for 0 V or less)				
Display method		Negative LCD (backlit LED) display, 7-segmen red), SV: 4.9 mm (green))	t digital display (character heights: PV: 14.2 mm (switches between green and			
Ambient operating te	mperature	-10°C to 55°C (with no icing or condensation)				
Ambient operating hu	-	25% to 85%				
Storage temperature		-25°C to 65°C (with no icing or condensation)				
Altitude		2,000 m max.				
			tertight packing, terminal cover, DeviceNet connector * and crimp terminals			
Accessories		(Hirose HR31-SC-121) *	•. · · · · · · · · · · · · · · · · ·			
DeviceNet only.		· ·				

\* DeviceNet only.

#### • K3HB-R/P/C

	.,•				
Power supply	voltage	100 to 240 VAC Models 24 VAC/VDC Models DeviceNet power supply: 24 VDC			
Allowable pow	ver supply voltage range	85% to 110% of the rated power supply voltage, DeviceNet power supply: 11 to 25 VDC			
Power consur	nption (under maximum load) *1	100 to 240 VAC: 18 VA max., 24 VAC/VDC: 11 VA/7 W max.			
Current consu	Imption	DeviceNet power supply: 50 mA max. (24 VDC)			
Inputs		No-voltage contact, voltage pulse, and open collector			
External powe	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.			
*2, *4	Reset input	ON current at 0 Ω: 4 mA max. 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 0 to 20 mA DC, 4 to 20 mA: Load: 500 Ω max, Resolution: Approx. 10,000, Output error: ±0.5% FS Linear output 0 to 5 VDC, 1 to 5 VDC, 0 to 10 VDC: Load: 5 kΩ max, Resolution: Approx. 10,000, Output error: ±0.5% FS (1 V or less: ±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 oper	ating 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) <b>*3</b>			

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. \*1.

\*2.

\*3. \*4.

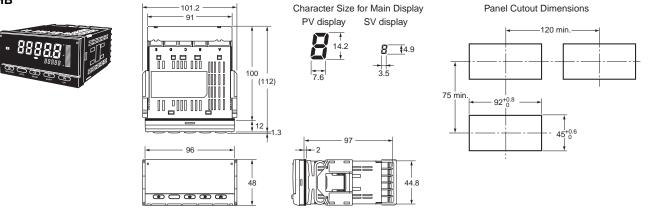
# **DeviceNet Communications Specifications**

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	<ul> <li>Allocate any I/O data using the Configurator.</li> <li>Allocate any data, such as DeviceNet-specific parameters and variable area for Digital Indicators.</li> <li>Input area: 2 blocks, 100 words max.</li> <li>Output area: 1 block, 100 words max. (The first word in the area is always allocated for the Output Execution Enabled Flags.)</li> </ul>				
	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 (fe	or trunk and drop lines)		
Baud rate		DeviceNet: 500, 250, or 125	kbps (automatic follow-up)			
Communications me	munications 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.)	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 a	are for Thin Cable.			
Power supply voltage	e	24-VDC DeviceNet power s	upply			
Allowable power su	oply voltage range	11 to 25-VDC DeviceNet po	wer supply			
Current consumptio	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	fslaves	63				
Error control checks	5	CRC errors				
DeviceNet power supply Supplied from DeviceNet communications connector						
Current consumptio	n	50 mA max. (24 VDC)				
Maximum I/O points	aximum I/O points Maximum number of slaves: 63					

(Unit: mm)

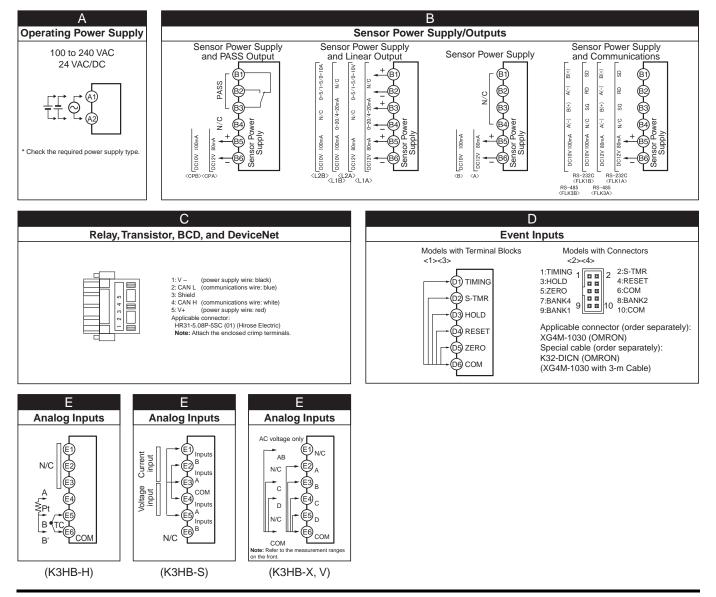
# Dimensions

КЗНВ



# **Terminal Arrangement**

Terminals	А	В	С	D	Е
1					
2	0				
3					
4					
5					
6					



# DeviceNet-compliant Digital Controllers E5AR-DRT/E5ER-DRT

# 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.
- $\bullet$  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 features				
Size	Size Type 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	
		1-channel position proportional	Relay outputs (1 open and 1 closed)	- 4	None	DeviceNet	E5AR-PR4F-DRT	
			Relay outputs (1 open and 1 closed) + 1 current (transfer)		none	Deviceinet	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 features					
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 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.

\*1.

Transistor outputs. Control can be switched between closed control and floating control. \*2.

#### 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

ltem	*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 con	nsumption	22 VA max. (under maximum load)	15 VA/10 W max. (under maximum load)					
Sensor input <b>*</b> 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	uxiliary output NO-SPST 250 V AC 1 A (resistive load)							
Potentiom	neter input	100 $\Omega$ to 2.5 k $\Omega$						
_	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 SP input See Sensor inputs.		See Sensor inputs.						
Transfer o	output	See Control outputs.						
Control m	ethod	Advanced PID or ON/OFF						
Setting m	ethod	Digital setting by front panel keys, setting by serial communications	3					
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 c	operating temperature	-10°C to 55°C (no condensation or icing), 3 year warranty: -10°C to 55°C (no condensation or icing)						
Ambient c	operating humidity	25% to 85%						
Storage te	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.

#### • 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 con	nsumption	17 VA max. (under maximum load)	11 VA/7 W max. (under maximum load)			
Sensor input <b>*</b> 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	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.		l current: 50 mA			
Potention	neter 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 S	P input	See Sensor inputs.				
Transfer o	output	See Control outputs.				
Control m	ethod	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 fund	ctions	Varies by model				
Ambient o	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 te	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**

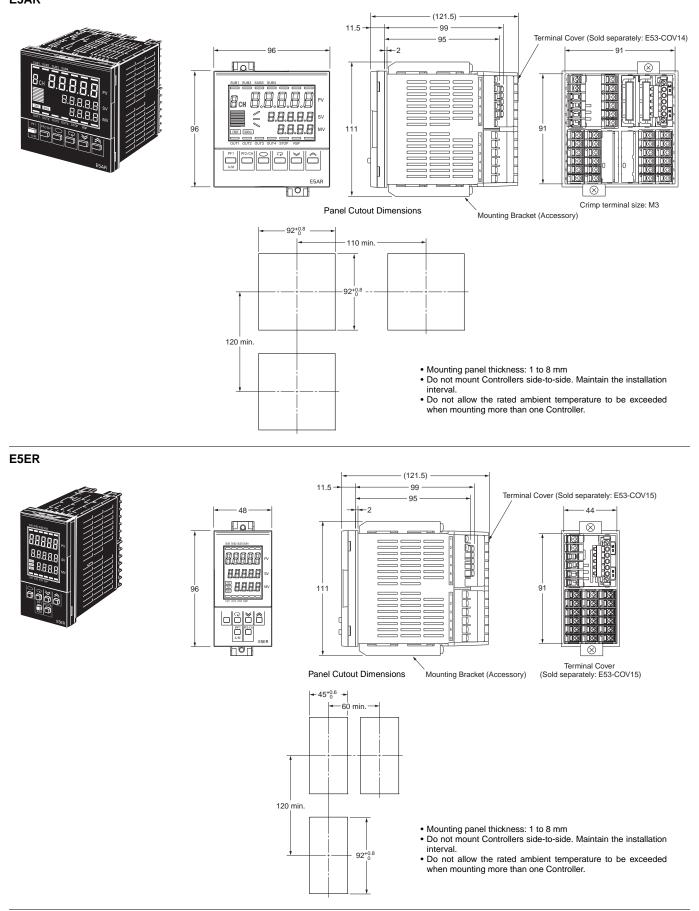
Communicati	ions protocol	Conforms to DeviceNet	
	Remote I/O communi- cations	<ul> <li>Master-Slave connection (polling, bit-strobe, COS, cyclic)</li> <li>Conforms to DeviceNet communications standards.</li> </ul>	
Communi- cations functions	I/O allocations	<ul> <li>Allocate any I/O data using the Configurator.</li> <li>Allocate any data, such parameters specific to the DeviceNet and the Digital Indicator variable area.</li> <li>Input area: 2 blocks, 100 words max.</li> <li>Output area: 1 block, 100 words max.</li> <li>(The first word in the area is always allocated for the Output Execution Enabled Flags.)</li> </ul>	
	Message Communi- cations function	<ul> <li>Explicit message communications</li> <li>CompoWay/F communications commands can be sent (commands are sent as explicit messages).</li> </ul>	
Connection form		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)	
Communicati	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.	
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				

(Unit: mm)

# Dimensions

# Digital Controllers E5AR



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

# EJ1-DRT

# **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.



# **Ordering Information**

#### DeviceNet Communications Unit

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

#### Modular Temperature Controller

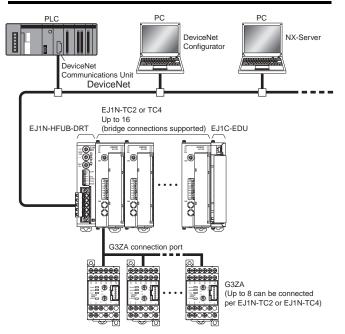
	Power	No. of	Control	Control		Funct	ions																	
Unit Name		control points	outputs 1 and 2	outputs 3 and 4	Auxiliary output	Heater burnout alarm	ournout Event function		Input type	Terminal	Model													
				Transistor						M3 terminal	EJ1N-TC2A-QNHB													
		2 Voltage output:	output:	output: 2 points (sinking)		2 *3	2		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			*2		None		None	From End Unit: Port A or port B: RS-485	and analog current selectable for each channel.	Screw-less clamp	EJ1N-TC4B-QQ													
	24 VDC		Current	urrent Transistor						M3 terminal	EJ1N-TC2A-CNB													
	supplied from the	2	output: 2 points	output: 2 points (sinking)		2	2			Screw-less clamp	EJ1N-TC2B-CNB													
	End Unit	End Unit	End Unit	End Unit					None	one RS-232C selectable.			M3 terminal	EJ1N-HFUA-NFLK										
HFU with Programless Communications						Transistor output: 4 points					From End Unit: Port		Screw-less clamp	EJ1N-HFUB-NFLK										
*1		None	None	None	(sinking)	1				Port C: RS-422	No input	M3 terminal	EJ1N-HFUA-NFL2											
											1										From End Unit: Port A: RS-485		Screw-less clamp	EJ1N-HFUB-NFL2
					Transistor	Ī		Port A or B:	1	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 \*1. using a Basic Unit only.

\*2

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. \*3.

# **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 r	esistance	10 to 55 Hz, 10 m/s² for 2 hours each in X, Y, and Z directions	
Shock resi	stance	150m/s <sup>2</sup> 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**

l	tem		Specif	ications		
Communica	tions protocol	Conforms to DeviceNet				
	Remote I/O communica- tions	COS, c	ns 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 value 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	<ul> <li>Allocate any I/O data using the Configuration of user-set data, parameters specific DeviceNet Communications Units, and Temperature Controller variable area data</li> <li>Input area: 2 blocks, 100 words max. *1</li> <li>Output area: 1 block, 100 words max. (The first word is always the Output Execute Enabled Flags.) *2</li> </ul>				
	Message Communica- tions function	Compo	message comm Nay/F commun ommands are se	ications com		
	Setting, monitoring, and manipulating from the Configurator	<ul> <li>Functions Supported by the DeviceNet Configurator (Using parameter editing or device monitoring for DeviceNet Communications Units and Temperature Controllers)</li> <li>Setting and monitoring DeviceNet Communications Units.</li> <li>Registering connection configurations, making initial settings \$3, changing settings, and monitoring for Temperature Controllers.</li> <li>Making allocations to the Master.</li> <li>Allocating data in input areas and output areas.</li> <li>Executing operation commands for Temperature Controllers.</li> </ul>				
Connection	form		on of multi-drop ns (for trunk and		I T-branch	
Baud rate		DeviceNet: 500, 250, or 125 kbps (automatic follow-up)				
Communica	tions 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	tions distance	500 kbps 250 kbps 125 kbps	100 m max. (100 m max.) 250 m max. (100 m max.) 500 m max. (100 m max.)	6 m max. 6 m max. 6 m max.	39 m max. 78 m max. 156 m max.	
Communica	tions power	The values in parentheses are for Thin Cable.				
supply Maximum n	-	11 to 25 V		or is counted	l as one nodo	
nodes		64 (DeviceNet Configurator is counted as one node when connected)				
	Imber of slaves	63				
	Error control checks DeviceNet power supply		CRC errors Supplied from DeviceNet communications connector (DeviceNet communications power and internal circuit power for DeviceNet Communications Unit)			
Controllers	<b>Femperature</b>	EJ1 Series TC4: EJ1N-TC4A-QQ and EJ1N-TC4B-QQ TC2: EJ1N-TC2A-QNHB, EJ1N-TC2B-QNHB, EJ1N-TC2A-CNB, and EJ1N-TC2B-CNB				
Maximum n Temperatur that can be	e Controllers	connection	aximum is 15, I ns. The 16th Ur I placement.)			

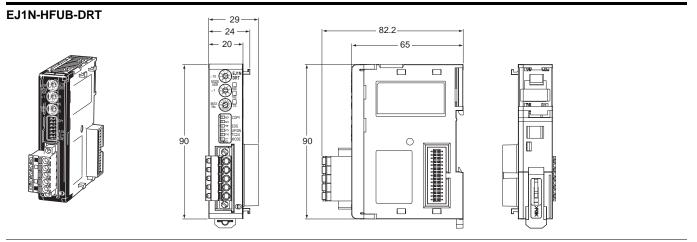
Two blocks can be used (i.e., connections can be set) only when a CS/CJ-series DeviceNet Unit is used as a Master. When a C200HX/HG/HE DeviceNet Master Unit is used, the input area will be one block with up to 100 words (200 bytes) (poll connections only). When a C200HX/HG/HE DeviceNet Master Unit is 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. \*1.

\*2.

\*3. and other parameters for Temperature Controllers.

(Unit: mm)

# Dimensions



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

# X-MX2-DRT $\mathbf{3A}$

# 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

\*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.

# **Ordering Information**

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

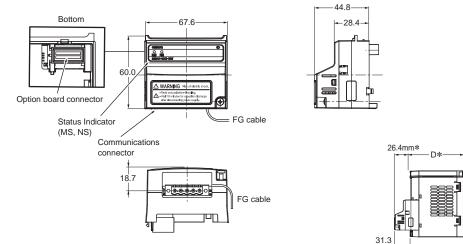
# **Performance Specifications**

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/s² (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)

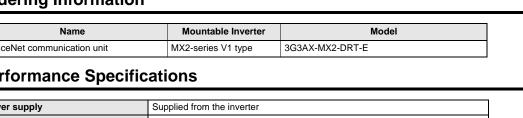
Note. For detail, refer to the MX2-series V1 type Catalog (Cat. No. 1920).

# Dimensions

#### 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))



(Unit: mm)

High-function General-purpose Inverters RX-Series V1 type DeviceNet Communication Unit

# **3G3AX-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.



# **Ordering Information**

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

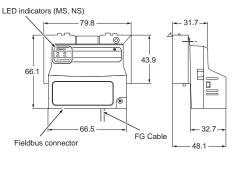
# **Performance Specifications**

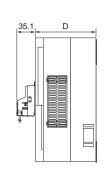
Power supply	Supplied from the inverter
Protective structure	IP20
Ambient Operating Temperature	-10 to 55°C (with no condensation)
Ambient Storage Temperature	-20 to 65°C (with no condensation)
Ambient Operating Humidity	20 to 90%RH
Vibration Resistance	5.9m/s² (0.6G) , 10 to 55Hz
Application Environment	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

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





Note: After the DeviceNet<sup>™</sup> 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.1578))

(Unit: mm)

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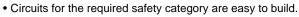
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# CIP Safety on DeviceNet System

Safety Network Controller	112
NE0A-SCPU01	
Safety Network Controller	117
NE1A-SCPU Series	
Safety I/O Terminals	122
DST1 Series	
letwork Configurator	125
WS02-CFSC1-E	

# Safety Network Controller NE0A-SCPU01

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



- 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.



# **Ordering Information**

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

\* When using the NE0A-SCPU01 as a standalone Controller, one input each is required for the feedback input and manual restart. **Note:** 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	NFPA 79-2007 ISO13849-1:1999 IEC61508 part1-7/12.98-05.00 IEC61131-2:2007 EN ISO13849-1:2006 EN ISO13849-2:2003 EN ISO 13850:2006 (EN418:1992) EN61000-6-4:2007 EN61000-6-4:2007 EN61000-6-2:2005 EN60204-1:2006 ANSI RIA15.06-1999 ANSI B11.19-2003
UL	UL508 UL1604 UL1998 NFPA79 IEC61508 CSA22.2 No.142 CSA22.2 No.213

#### **General Specifications**

DeviceNet Cor supply voltage	nmunications power	11 to 25 VDC (supplied from the communications connector)				
Internal circuit voltage (V0) *	t power supply 1	20.4 to 26.4 VDC				
I/O power sup *1	ply voltage (V1, V2)	(24 VDC -15%/+10%)				
	Communications power supply	24 VDC, 15 mA				
Current consumption	Internal circuit power supply	24 VDC, 110 mA				
	I/O power supply *2	24VDC, 80mA(Input) 80mA(Output)				
Overvoltage c	ategory	П				
Noise immunit	ty	Conforms to IEC61131-2.				
Vibration resis	stance	10 to 57 Hz: 0.35 mm, 57 to 150 Hz: 50 m/s <sup>2</sup>				
Shock resistar	nce	150 m/s <sup>2</sup> : 11 ms				
Mounting met	hod	DIN track mounting (IEC 60715 TH35-7.5/TH35-15)				
Ambient opera	ating temperature	-10°C to 55°C				
Ambient opera	ating humidity	10% to 95% (with no condensation)				
Ambient stora	ge temperature	-40°C to 70°C				
Degree of prot	ection	IP20				
Serial interfac	e	USB version 1.1				
Weight		440 g max.				

\*1. 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.

## 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

# **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	Conforms to DeviceNet						
Connection form	Multi-drop system and T-branch sys	Nulti-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 c	Special cable, 5 conductors (2 for communications, 2 for power supply, 1 for shielding)						
	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 Thin 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							

#### **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.		

# **Functions**

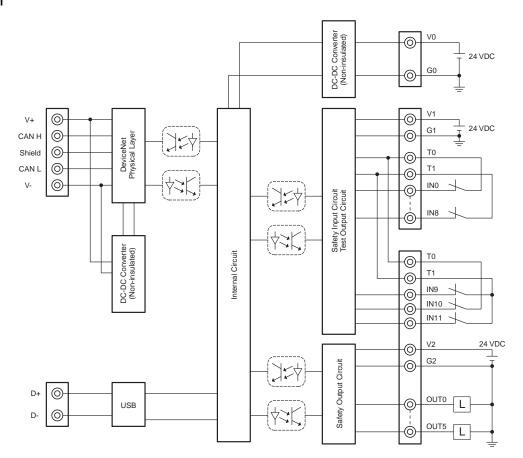
The following function blocks are available for designing safety circuits with the NE0A-SCPU01. These function blocks can be selected and assembled using the interactive wizard format to efficiently design safety applications.

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 safety input device, and select a muting function when required.					
	No setting	Uses the ON/OFF status from the safety input device exactly as it is.					
Logic function blocks for input	OR operation						
conditions	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	Colorite the interlant, and diling for the opticity singel					
	OR/AND operations	Selects the interlock conditions for the safety signal.					
	Used to check the safety condition	on of an output device.					
Function blocks for setting the	No setting	No checking of the output device (used for Category 2 or lower).					
welded contact check	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 setting an auxiliary output (to	For setting an auxiliary output (to output 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.

# **Internal Circuit Diagrams**

# NE0A-SCPU01

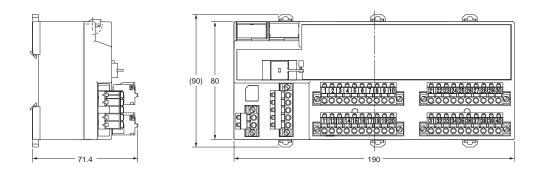


Terminal No.	Terminal name	Description	
	V0	Power supply terminal for internal circuit (24 VDC)	
	G0		
1	V1	Power supply terminal for external input device and test output (24 VDC)	
11	G1		
24	V2	Power supply terminal for external output device (24 VDC)	
34	G2		
2 to 10	IN0 to IN8	Safety input terminal 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.	

(Unit: mm)

## Dimensions

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 NE1A-SCPU Series

# Achieve Safety Control through Programming.



• 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 Terminals.
- 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	Model	Offic version
Safety Network Controllers	16	4	8	NE1A-SCPU01-V1	Ver. 2.0
Salety 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	NFPA 79-2012, EN ISO13849-1: 2008, IEC61508 part 1-7: 2010, IEC61131-2: 2007, EN ISO13849-2: 2012, EN61000- 6-4: 2007, EN61000-6-2: 2005, EN60204-1: 2006, EN ISO13850: 2006(EN418: 1992), ANSI RIA15.06-1999 ANSI B11.19-2010
UL	UL508, ANSI/ISA 12.12.01, UL1998, NFPA79, IEC61508 CSA22.2 No.142, CSA22.2 No.213

#### **General Specifications**

Item	Model	NE1A-SCPU01-V1	NE1A-SCPU02	
DeviceNet Communications power supply voltage		11 to 25 VDC (supplied from the communications connector)		
Internal circuit p	oower supply voltage (V0) *1	20.4 to 26.4 VDC		
I/O power sup	ply voltage (V1, V2) *1	(24 VDC -15%/+10%)		
	Communications power supply	24 VDC, 15 mA	DC, 15 mA	
Current consumption	Internal circuit power supply	24 VDC, 230 mA	24 VDC, 280 mA	
consumption	I/O power supply <b>*</b> 2	24 VDC, 40 mA (Input) 120 mA (Output)	24 VDC, 80 mA (Input) 150 mA (Output)	
Overvoltage c	ategory	11		
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 method		DIN Track (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 prot	ection	IP20		
Serial interfac	e	USB Ver1.1		
Weight		460 g max.	690 g max.	

**\*1.** 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.

**\*2.** 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

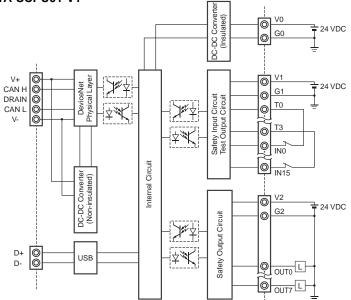
Name	Function list entry	Supporting unit versions
NOT	NOT	
AND	AND	
OR	OR	All
Exclusive OR	EXOR	
Exclusive NOR	EXNOR	
RS Flip-flop	RS-FF	1.0 or later
Comparator	Comparator	

#### • Function Blocks

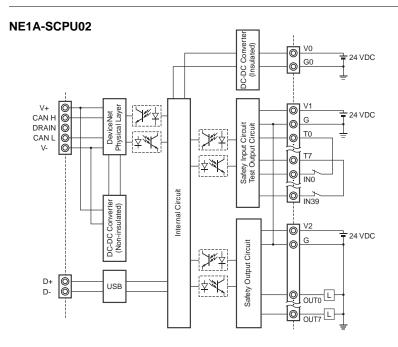
Name	Function list entry	Supporting unit versions
Reset	Reset	
Restart	Restart	
Emergency Stop Monitoring	E-STOP	
Light Curtain Monitoring	Light Curtain Monitoring	
Safety Gate Monitoring	Safety Gate Monitoring	
Two-hand Controller	Two Hand Controller	All
Off-Delay Timer	Off-Delay Timer	
On-Delay Timer	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**

# NE1A-SCPU01-V1



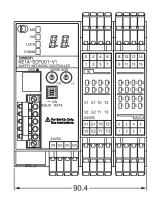
Terminal name	Description
V0	Power supply terminal for internal circuit The two V0 terminals are internally connected.
G0	Power supply terminal for internal circuit The two G0 terminals are internally connected.
V1	Power supply terminal for external input device and test output
G1	Power supply terminal 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

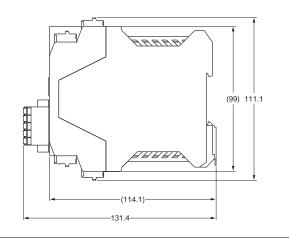


Terminal name	Description
V0	Power supply terminal for internal circuit The two V0 terminals are internally connected.
G0	Power supply terminal for internal circuit The two G0 terminals are internally connected.
V1	Power supply terminal for external input device and test output
G	Power supply terminal 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

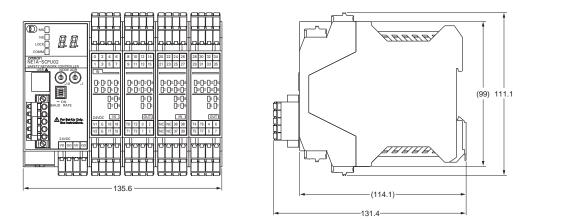
# Dimensions

## 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**

	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		О	О
	Using local I/O status in logic programming		0	О
	Using overall Unit status in logic programming		0	О
	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
1/O control functions	Mounting total ON time monitor		0	О
	Number of safety I/O connections for Safety Master	16	32	32
DeviceNet communications	Selecting operating mode for safety I/O communications when communications errors occur		О	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		О	О
	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		О	О
recovery functions	Adding function block errors to error log		0	О
EtherNet/IP	I/O communications			
communications	Message communications			
functions	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

Madal		Network Configurator						
Model	Ver. 1.3	Ver. 1.5	Ver. 1.6	Ver. 2.00/2.10	Ver.2.2	Ver.3.3		
NE1A-SCPU01 Pre-Ver. 1.0	0	0	О	О	О	0		
NE1A-SCPU01-V1 Jnit version 1.0	×	×	О	О	О	0		
NE1A-SCPU02 Jnit version 1.0	×	×	О	О	О	0		
NE1A-SCPU01-V1 Unit version 2.0	×	×	O ( <b>*</b> 1)	О	О	0		
NE1A-SCPU02 Unit version 2.0	×	×	O ( <b>*</b> 1)	О	О	0		

**\*1.** 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.

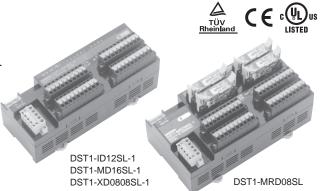
#### Version Upgrade

If you have purchased Ver.1. , 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.

- Four models are available to match the I/O type and number of points.
- · Monitor operation from the DeviceNet Master using the DeviceNet Slave functionality.
- Support for logic processing by the DST1-XD0808SL-1.
- IEC 61508 SIL3 and EN 954-1/ISO13849-1 CAT4 certification.



# **Ordering Information**

Name	I/O points	Model
	Safety inputs: 12, test outputs: 4	DST1-ID12SL-1
Safety I/O Terminals	Safety inputs: 8, safety outputs (semiconductor): 8, test outputs: 4	DST1-MD16SL-1
Salety 1/0 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

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	NFPA 79-2007, IEC61508 part1-7/12.98-05.00, IEC61131-2:2007, EN ISO13849-2:2003, EN954-1:1996 (ISO13849-1:1999), EN61000-6-4:2007, EN61000-6-2:2005, EN60204-1:2006, EN419:1992, ANSI RIA15.06-1999, ANSI B11.19-2003
UL	UL508, UL1604 (excluding the DST1-MRD08SL-1), UL1998, NFPA79, IEC61508, CSA22.2 No.142, CSA22.2 No.213 (excluding DST1-MRD08SL-1)

#### **General Specifications**

Model Item		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 s voltage	supply	20.4 to 26.4	VDC (24 VD	C -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 <b>*</b>	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	DIEC61131-2			
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 I	nethod	DIN track m	ounting (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 storage temperature		-40°C to 70°C				
Degree of	protection	IP20				
Weight		420 g		600 g	420 g	
<ul> <li>Not including power consumption for external devices.</li> </ul>						

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 rat (Reference	e P level <b>*</b> e 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)	
Electrical		100,000 operations min. (at 1,800 operations/h with a resistive load)	
<ul> <li>This value is equivalent to 300 operations/minute.</li> </ul>			

#### CIP Safety on DeviceNet Communications

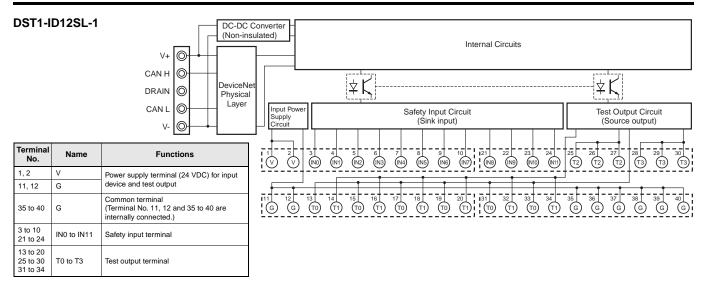
the DST1-XD0808SL-1)
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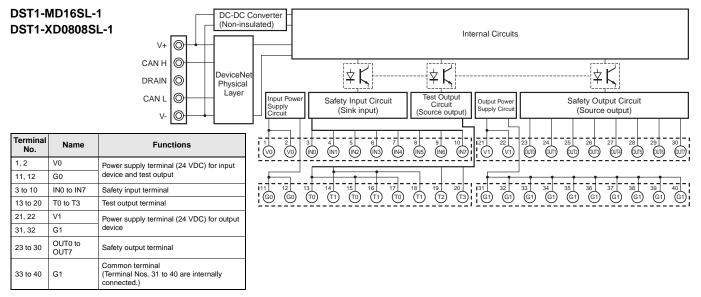
#### **DeviceNet Slave Communications**

(Common with the DST1 Series)

Standard Slave communications Max. 2 connections

# **Internal Circuit Diagrams**





#### DST1-MRD08SL-1

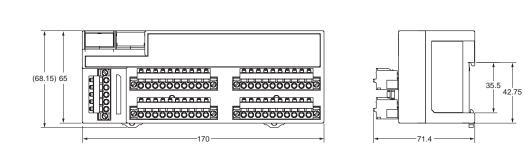
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V+	Ø	┝	_	
CAN H	Ø			
DRAIN	$\odot$			DeviceN Physica Layer
CAN L	Ø			Layer
V-	Ø		_	

Terminal No.	Name	Functions	
1, 2	V0	Power supply terminal (24 VDC) for input	
11, 12	G0	device, test output, and monitoring the safety relay NC contact of the internal circuit	
17 to 20	G0	Common terminal (Terminal Nos. 11, 12 and 17 to 20 are internally connected.)	
3 to 6	IN0 to IN3	Safety input terminal	
7 to 10 13 to 16	T0 to T3	Test output terminal	
21, 22	V1	Power supply terminal (24 VDC) for drivin	
31, 32	G1	the safety relay of the internal circuit	
23 to 30 33 to 40	OUT0 to OUT3 C0 to C3 OUT0e to OUT3e C0e to C3e	Safety output terminal (The outputs of terminal No. 23/33 (OUT0) and 24/34 (OUT0e) are the same.) (The outputs of terminal No. 25/35 (OUT1) and 26/36 (OUT1e) are the same.) (The outputs of terminal No. 27/37 (OUT2) and 28/38 (OUT2e) are the same.) (The outputs of terminal No. 29/39 (OUT3) and 30/40 (OUT3e) are the same.)	

DC-DC C (Non-insi	Converter ulated)	Internal Circuits
eviceNet Physical Layer	t	<u>\$</u>
	Input Power Supply Circuit	Safety Input Circuit (Sink input) Safety Input Circuit (Source output) Suppy Circuit Suppy Circuit
input the		
are		

# Dimensions

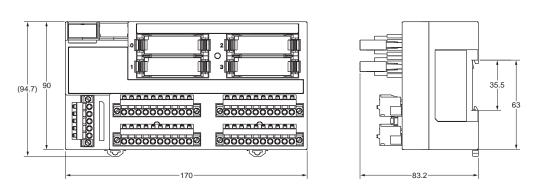
DST1-ID12SL-1 DST1-MD16SL-1 DST1-XD0808SL-1



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(Unit: mm)

### DST1-MRD08SL-1



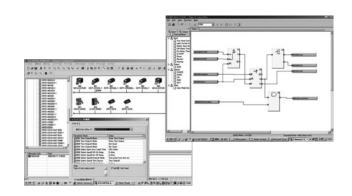
# **Safety Precautions**

• 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)

## Network Configurator 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.

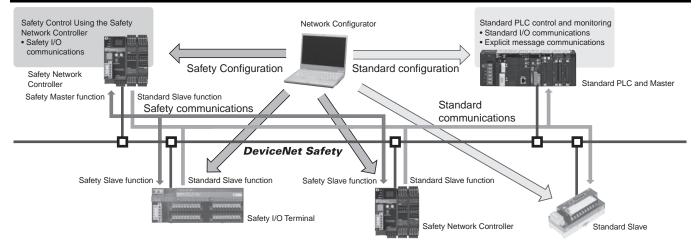


### **Ordering Information**

Name	Components	Applicable computer	Applicable OS *	Model
Network Configurator	Installation disc (CD-ROM: 1 license)	- IBM PC/AT or compatible	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
	Upgrade disc (CD-ROM: 1 license)		ble 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



## OMRC

#### **General Specifications**

Item	Overview
OS Japanese or English version	<ul> <li>Ver. 2.2□ or earlier</li> <li>Windows 2000 Professional (Service Pack 4 or later)</li> <li>Windows XP (Service Pack 2 or later, except for 64-bit version)</li> <li>Windows Vista (Service Pack 1 or later, except for 64-bit version)</li> <li>Ver. 3.30 or later</li> <li>Windows XP (Service Pack 3 or later, except for 64-bit version)</li> <li>Windows XP (Service Pack 3 or later, except for 64-bit version)</li> <li>Windows Vista (Service Pack 3 or later, except for 64-bit version)</li> <li>Windows Vista (Service Pack 2 or later)</li> <li>Windows 7</li> <li>Ver. 3.4 or later</li> <li>Windows Vista Service Pack 3 (32-bit edition)</li> <li>Windows Vista Service Pack 2 (32-bit edition, 64-bit edition)</li> <li>Windows 7 (32-bit edition, 64-bit edition)</li> <li>Windows 8 (32-bit edition, 64-bit edition)</li> <li>Windows 8.1 (32-bit edition, 64-bit edition)</li> <li>Windows 8.1 (32-bit edition, 64-bit edition)</li> <li>Windows 10 (32-bit edition, 64-bit edition)</li> <li>Windows 10 (32-bit edition, 64-bit edition)</li> <li>Windows 10 (32-bit edition, 64-bit edition)</li> <li>Windows 10 (32-bit edition, 64-bit edition)</li> <li>Windows 10 (32-bit edition, 64-bit edition)</li> <li>Windows 10 (32-bit edition, 64-bit edition)</li> <li>Windows 10 (32-bit edition, 64-bit edition)</li> <li>Windows 10 (32-bit edition, 64-bit edition)</li> <li>Windows 10 (32-bit edition, 64-bit edition)</li> <li>Windows 10 (32-bit edition, 64-bit edition)</li> <li>Windows 10 (32-bit edition, 64-bit edition)</li> <li>Windows 10 (32-bit edition, 64-bit edition)</li> </ul>
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): 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.

#### **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 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 C	onfigurator		
Model	Ver. 1.3	Ver. 1.5	Ver. 1.6	Ver. 2.00/2.10	Ver.2.2	Ver.3.3
NE1A-SCPU01 Pre-Ver. 1.0	0	о	О	о	О	0
NE1A-SCPU01-V1 Unit version 1.0	×	×	О	0	О	0
NE1A-SCPU02 Unit version 1.0	×	×	О	0	О	0
NE1A-SCPU01-V1 Unit version 2.0	×	×	O (*1)	0	О	0
NE1A-SCPU02 Unit version 2.0	×	×	O ( <b>*</b> 1)	о	0	О

\*1. 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.	128
WS02-CFDC1	
DeviceNet Configurator PC Card (Software Included)	128
3G8E2-DRM21-V1	
DeviceNet Analyzer	130
WS02-ALDC1	
NX-Server	131
WS02-NX□C1	
Device Inspector	132
WS02-DIPC1	

## omroi

DeviceNet Configurator Software Version 2.□ WS02-CFDC1 DeviceNet Configurator PC Card (Software Included) 3G8E2-DRM21-V1

## **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

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/ \*1. The DeviceNet Configurator Software is included with the 3G8E2-DRM21-V1. \*2.

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 Requ	uirements	
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

- Molex DeviceNet Network Interface Cards
- Part Number: 1120760001 USB Interface Module (Old Part Number: SST-DN4-USB)

#### 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		
		2000/XP	Vista/7	
DeviceNet Configurator Software		Supported	Supported	
OMRON DeviceNet Board	PCI Board	Supported	Supported (32bit)	
OWRON Devicenet board	PC Card	Supported	Not Supported	
Molex DeviceNet Network Interface Cards USB Interface Module		Supported	Supported (32bit)	

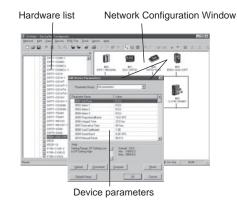
#### **Building and Setting Networks**

#### 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 files.

#### 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.



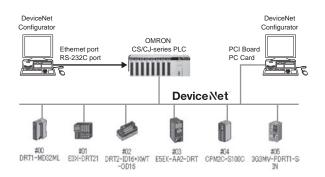
Scan List Wizard

#### **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 PLC.
- · Overall communications status of network
- Status of Masters and Slaves
- Unit status
- Communications cycle time
- Error history
- \* This applies only to devices with the monitor function.

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Upload Window

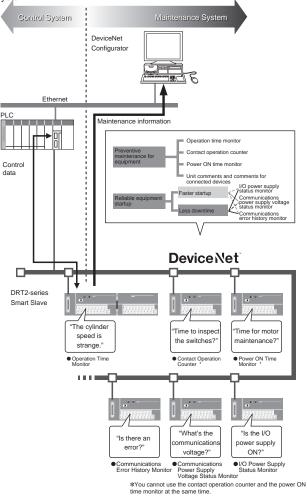
**Device Monitor** 

#### Building Maintenance Systems

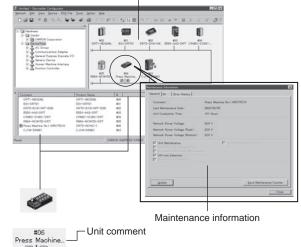
#### Maintenance Systems Built with Smart Slaves

• 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



You can check the status with the status icons.

Configurator List

- Software only: WS02-CFDC1-E
- PC Card with software included: 3G8E2-DRM21-V1

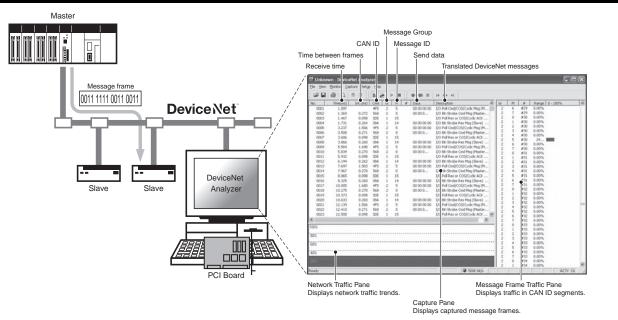
(Applicable OS: Windows 2000 (ServicePack2 or higher)/XP)

# DeviceNet Analyzer WS02-ALDC1

## 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

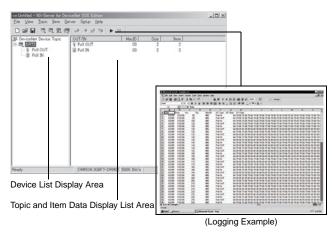
Specifications		System R	equirements
Basic Functions	Translation, capture buffer size settings, capture filter, capture trigger, capture export, frame time measurement, network	CPU	Processor recommended by Microsoft.
	traffic monitor, message frame traffic monitor	os	Windows 2000 (ServicePack2 or higher)/XP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

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## **NX-Server** WS02-NXC1

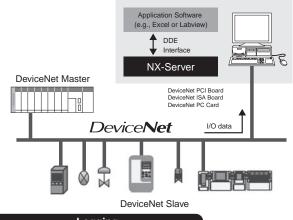
## **Easily Perform Monitoring and** Logging for Various Types of I/O Data on DeviceNet.

- 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			
NX-Server	For DeviceNet SDK Edition		This software monitors and logs I/O data on DeviceNet lines.	WS02-NXDC1-E
	For DeviceNet RT Edition			



#### Logging

Logging can be performed by directly obtaining from the line the commands communicated between the specified Slaves and

Master

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 monitor or log
- 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

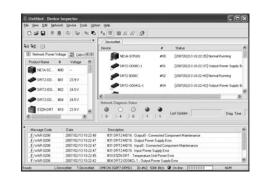
System Requ	irements for NX-Server for DeviceNet DDE Edition
CPU	Pentium 166 MHz or better
os	Windows 2000 (ServicePack2 or higher)/XP
Created Files NetXServer settings files (*.nxd) Logging data: CSV-format files (*.csv)	
Compatible H	ardware
Special PCI Boar	Net Board or Card rd: 3G8F7-DRM21 : 3G8E2-DRM21-V1 *
	is included with the Configurator. OS depends on the hardware. Check the requirements before



## Device Inspector WS02-DIPC1

# 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.

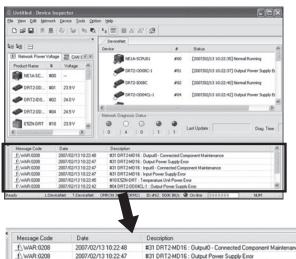


#### **Ordering Information**

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



Message Code	Date	Description
I) WAR:0208	2007/02/13 10:22:48	#31 DRT2-MD16 : Output0 - Connected Component Maintenance
I WAR:0208	2007/02/13 10:22:47	#31 DRT2-MD16 : Output Power Supply Error
I) WAR:0208	2007/02/13 10:22:47	#31 DRT2-MD16 : Input0 - Connected Component Maintenance
I WAR:0208	2007/02/13 10:22:47	#31 DRT2-MD16 : Input Power Supply Error
I) WAR:0208	2007/02/13 10:22:45	#10 E5ZN-DRT : Temperature Unit Power Error
I\WAR:0208	2007/02/13 10:22:42	#04 DRT2-0D04CL-1 : Output Power Supply Error

Error History Window

CPU	Processor recommended by Microsoft.	
os	Windows 2000 (ServicePack2 or higher)/XI	
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		
Online connection using serial	•	RS-232C port
	ort	RS-232C port USB port Ethernet port

The applicable OS depends on the hardware. Check the requirements before operation.

## **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 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		
	and the second s	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	
		DCN1-1C	Cable wiring direction: Toward side Cable screw direction: From top Connector screw direction: From side	Provided with 3 parallel	
T-branch Tap for 1 branch line	and the second sec	DCN1-2C	Cable wiring direction: Toward top Cable screw direction: From side Connector screw direction: From top	(XW4B-05C1-H1-D), standard terminating resistor	
	A CONTRACT OF A	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	Comment of the	DCN1-3C	Cable wiring direction: Toward side Cable screw direction: From top Connector screw direction: From side	Provided with 5 parallel connectors with screws	
3 branch lines	all ar	DCN1-4C	Cable wiring direction: Toward top Cable screw direction: From side Connector screw direction: From top	(XW4B-05C1-H1-D), standard terminating resistor	
	and the second sec	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	North Contraction of the second secon	DCN1-1P	Tap provided with 2 connectors, standar	d 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.	
	Ť		XW4B-05C1-H1-D	Parallel connector with screws Connector insertion and wiring performed in same direction.	
Connectors		66666	XW4B-05C4-T-D	Parallel, screw-less, multi-branching connector Connector insertion and wiring performed in same direction.	
		66666 666666	XW4B-05C4-TF-D	Parallel, multi-branching connector with screws Connector insertion and wiring performed in same direction.	
			XW4B-05C1-V1R-D	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. <ul> <li>Extending the trunk line</li> <li>T-branching the trunk line into branch lines</li> </ul>
			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 mm <sup>2</sup> x 2, 0.5 mm <sup>2</sup> 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)	
Rated Current	Between main and branch lines: 3 A (power supply line) and 1 A (signal line)	
Insulation resistance	100 MΩ min. (at 500 VDC)	
Dielectric strength	500 VAC for 1 min, leakage current: 1 mA max.	
Ambient operating temperature	0°C to 55°C	

Terminator

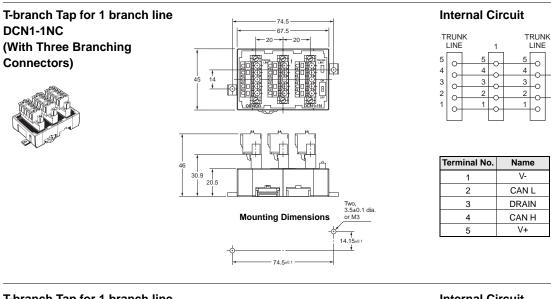
connection

w

#### Dimensions

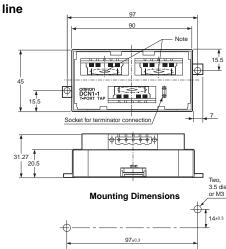
#### • General-purpose Models

(Unit: mm)



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

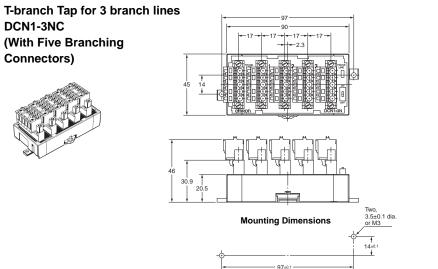




Internal Circuit Main line

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

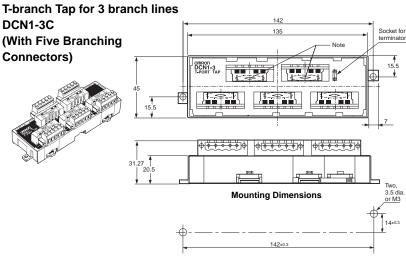
Note: When connecting a branch line to the main line, connect the main line to the connector marked with an asterisk because the resistance between the asterisks is minimal.

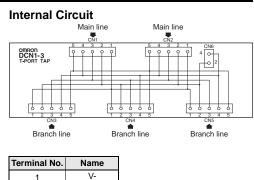


#### Internal Circuit

TRUNK LINE	1	2	3	TRUNI LINE	<
5 0 4 0 3 0 2 0 1 0	5 4 3 0 2 0 1 0	5 4 3 2 0 1 0	5 4 3 0 2 0 1 0	5 4 3 0 2 0 1 0	

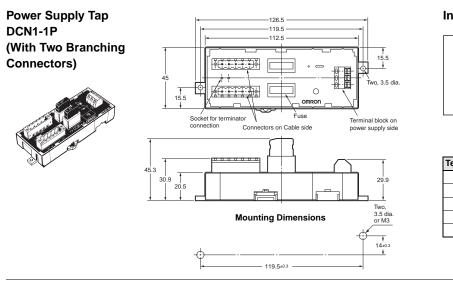
Name
V-
CAN L
DRAIN
CAN H
V+



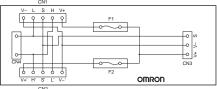


Terminal No.	Name
1	V-
2	CAN L
3	DRAIN
4	CAN H
5	V+

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.



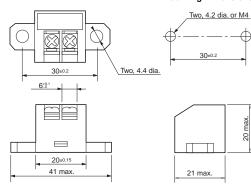
#### Internal Circuit



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

#### DRS1-T (Terminal-block Terminator)





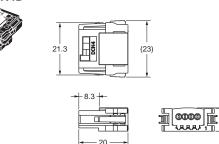
#### Mounting Dimensions

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#### Flat Cable

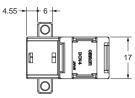
Conversion Connector for Standard Thin Cable and Flat Cable

DCN4-BR4D



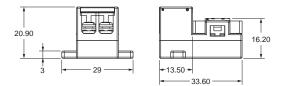
Power Supply Terminal Block with Terminating Resistance for Flat Cable DCN4-TP4D



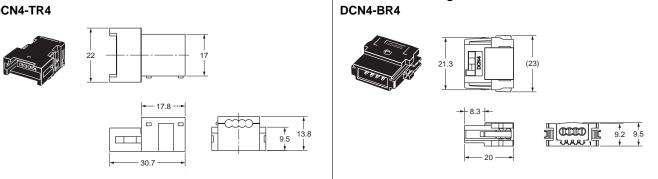


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## Flat Connector Socket DCN4-TR4



Flat Connector Plug

# I/O Connectors for Connector Terminals MIL Connectors Applicable Connectors

Ту	ире	Model	Remarks
Flat Cable Pressure-v	velded Connectors	XG4M-4030-T	
Pressure-welded	Socket	XG5M-4032-N	Corresponding to 24 AWG
		XG5M-4035-N	Corresponding to 28 to 26 AWG
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-RICC-CC-D1		DRT2-ID32ML
	XW2Z-RMDD-DD1		DRT2-MD32ML
Cable with Connectors (1:2)	XW2Z-RODD-DD1	G7TC/G70D/G70A	DRT2-OD32ML/DRT1-OD32ML-1
	XW2Z-RICC-CC-D2		DRT2-ID32ML-1
	XW2Z-RMDD-DD2		DRT2-MD32ML-1
Cable with Connector (1:1)	XW2Z-C⊟⊟K		
Cable with Loose Wires with Crimp Terminals	bose Wires with Crimp Terminals XW2Z-RYD00C-D1		All models
Cable with Loose Wires	XW2Z-RAD00C-D1		

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

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

Appearance	Cable length (mm)			Model
Appearance		A	B	Woder
		500	250	XW2Z-RI50-25-D1
	A	750	500	XW2Z-RI75-50-D1
		500	250	XW2Z-RO50-25-D1
		750	500	XW2Z-R075-50-D1
		500	250	XW2Z-RM50-25-D1
		750	500	XW2Z-RM75-50-D1
a la contraction de la contrac	(120)	500	250	XW2Z-RI50-25-D2
Sector and	<b>∢</b> B▶	750	500	XW2Z-RI75-50-D2
	Length without any bending	500	250	XW2Z-RM50-25-D2
		750	500	XW2Z-RM75-50-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	
	Terminal A Terminal B	1,000	XW2Z-RY100C-D1
	Connected to device	2,000	XW2Z-RY200C-D1
	<mark>→→</mark>  <	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
	to device	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 Lipita
		Chain terminai	16-02-0086	Corresponding to 22 to 24 AWG	— Digital I/O Units GT1-ID16MX(-1)/GT1-OD16MX(-1)
Molex connector	Crimped terminals	Loose terminal	16-02-0096	Corresponding to 24 to 30 AWG	
	torrinidio	LOOSe terminar	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-AD08MA/GTT-DA04MA
		Piess-III 100	57037-5000	Corresponding to 24to 30 AWG	
	Soldered termin	nals	FCN361J024-AU		
Fujitsu connector (16 points)	Pressure-welded terminals		FCN367J024-AU/F		
(To pointo)	Crimped termin	als	FCN363J024-AU		
	Soldered termin	nals	FCN361J040-AU		
Fujitsu connector (32 points) Pressure-welde	d terminals	FCN367J040-AU/F		Digital I/O Units     GT1-ID32ML(-1)/GT1-OD32ML(-1)	
Crimped terminal		als	FCN363J040-AU		
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 Connectors)

I/O classification	Model	Connectable model
Digital input, 16 points	XW2Z-□□□A	Digital I/O Units
Digital input, 10 points	XW2Z-R□C	GT1-ID16ML(-1)
Digital output, 16 points	XW2Z-□□□A	Digital I/O Units
Digital output, 18 points	XW2Z-R□C	GT1-OD16ML(-1)
Digital input, 32 points	XW2Z-□□□B	Digital I/O Units
Digital input, 32 points	XW2Z-RI□C□	GT1-ID32ML(-1)
Digital output, 32 points	XW2Z-	Digital I/O Units
Digital output, 32 points	XW2Z-RO□C□	GT1-OD32ML(-1)

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

Appearance	Cable length (mm)	Model	
		1,000	XW2Z-R100C
		1,500	XW2Z-R150C
		2,000	XW2Z-R200C
		3,000	XW2Z-R300C
and the second sec	L	5,000	XW2Z-R500C

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

Annorrange	Cable length (mm)		Model		
Appearance		A	B	Input	Output
		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
N. A. A. A. A. A. A. A. A. A. A. A. A. A.	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
States -		3,000	XW2Z-300A	
		5,000	XW2Z-500A	

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

Appearance	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

## ■ I/O Connector for Programmable Slaves

### Applicable Connector Terminal Conversion Units

Applicable cable	Connected product	Connector Products (Connector-Terminal Block Conversion Units) Connecting method
	XW2R-J20G-T	Phillips screw M3
XW2Z-🗆 🗆 A	XW2R-E20G-T	Slotted screw M3
	XW2R-P20G-T	Push-in spring

#### Applicable Cables with Connectors

#### • Cables with Connectors/XW2Z 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

## **Peripheral Devices for Environment-resistive Slaves**

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

#### **Ordering Information**

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

Product	Арре	arance	Model		Specifications			
Sealed Assembling-type Connector (male)			XS2G-D5S7	For communications (p	olug)			
Sealed Assembling-type Connector (female)			XS2C-D5S7	For communications (s	socket)			
Sealed T-branch Connector			DCN2-1	For 1 branch line				
Sealed Connector with	<u></u>		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				
		← L	DCA1-5CN03W1	Length (L): 3 m	Cable with connectors on both ends			
	1 Alexandre		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				
Connectors *	× 7		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				
			DCA1-5CN01H1	Length (L): 1 m				
			DCA1-5CN02H1	Length (L): 2 m				
				DCA1-5CN03H1	Length (L): 3 m	Cable with connector on one end (plug)		
								DCA1-5CN05H1
			DCA1-5CN10H1	Length (L): 10 m				
Shielded Panel-mounting Connectors (female)	0		DCA1-5CNC5P1	Panel-mounting conne	ector (socket) with 0.5-m cable			
	6	<b>W</b>	XS2P-D522-2	Panel-mounting conne	ector socket			
Shielded Panel-mounting Connectors (male)			DCA1-5CNC5M1	Panel-mounting conne	ector (plug) with 0.5-m cable			
	6	)) <del>)</del> )	XS2M-D524-4	Panel-mounting conne	ector (plug) with solder-cup terminals			
Waterproof cover (for socket)			XS2Z-22		sed connector section			
Dust cover (for socket)			XS2Z-15					

\* Robot cable type connectors with shielded cables (DCA1-5CN - 1-R) are also available. Contact your OMRON sales representative for details.

Product	Appea	arance	Model		Specifications	
Sealed T-branch Connector			DCN2-1S	For 1 branch line		
Sealed Assembling type			DRS2-1S	Plug		
Connector (female)	61		DRS2-2S	Socket		
			DCA1-5CSC5W1	Length (L): 0.5 m		
			DCA1-5CS01W1	Length (L): 1 m		
			DCA1-5CS02W1	Length (L): 2 m		
		L+	DCA1-5CS03W1	Length (L): 3 m	Cable with connectors on both ends	
	63 <sup>1</sup>		DCA1-5CS05W1	Length (L): 5 m		
			DCA1-5CS10W1	Length (L): 10 m		
			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 *		L>₅0 mm	DCA1-5CS03F1	Length (L): 3 m	Cable with connector on one end (socket)	
			DCA1-5CS05F1	Length (L): 5 m		
			DCA1-5CS10F1	Length (L): 10 m		
			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)
		← L → 50 mm	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		
	<b>\$</b> 21-((		DCN2-S4C5H1	4 ports, 0.5-m cable		
Shielded Branch Relay Box			DCN2-S8C5H1	8 ports, 0.5-m cable		

\* Robot cable type connectors with shielded cables (DCA1-5CN - 1-R) are also available. Contact your OMRON sales representative for details.

Product	Арре	arance	Model		Specifications
Sealed T-branch Connector			DCN3-11	T-branch Connector	
Sealed 1-branch Connector			DCN3-12	T-branch Connector (	Branch connector is M12.)
Sealed Connector with Terminating Resistor			DRS3-1	Plug	
			DCA2-5CN01W1	Length (L): 1 m	
			DCA2-5CN02W1	Length (L): 2 m	
		←	DCA2-5CN05W1	Length (L): 5 m	Cable with connectors on both ends
	Ou		DCA2-5CN10W1	Length (L): 10 m	
	(		DCA2-5CN01F1	Length (L): 1 m	
			DCA2-5CN02F1	Length (L): 2 m	
			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	
			DCA2-5CN02H1	Length (L): 2 m	
		L 50	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	
		DCA1-5CN02W5	Length (L): 2 m	Cable with connectors on both ends	
		← L	DCA1-5CN05W5	Length (L): 5 m	Thin cable M12 socket
	. Dr.		DCA1-5CN10W5	Length (L): 10 m	
Panel-mounting Connector (female)	ar O		DCA2-5CNC5P1	Panel-mounting conn	ector (socket) with 0.5-m cable
Panel-mounting Connector (male)	DCA2-5CNC5M1 Panel-mounting connector (plug)		ector (plug) with 0.5-m cable		
Panel-mounting Connector (male)	<b>C</b>		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.

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

#### **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	3 A						
Rated voltage	125 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)						
Dielectric strength (connector)	1,500 VAC for 60 seconds (leakage of	1,500 VAC for 60 seconds (leakage current: 1 mA max.)					
Ambient operating temperature	-20°C to 65°C *	-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						
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/s <sup>2</sup> , whichever is smaller						

\* 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)

Туре	Connectors with Cables	T-branch Connector	Connectors with Terminating Resistor	Branch Relay Box			
Item	DCA1-5CS	DCN2-1S	DRS2-□S	DCN2-S⊟C5H			
Rated current	3 A						
Rated voltage	125 VDC						
Contact resistance (connector)	40 m $\Omega$ 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 c	1,500 VAC for 60 seconds (leakage current: 1 mA max.) 1,000 VAC for 60 seconds					
Ambient operating temperature	-20°C to 65°C *	-20°C to 65°C *					
Storage temperature range	-25°C to 70°C	-25°C to 70°C					
Degree of protection	IEC IP67						
Insertion durability	200 times						
Cable strength	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/s <sup>2</sup> , whichever is smaller						
Lock strength	Pulling: 100 N/15 s, Rotating: 1 N·m/	Pulling: 100 N/15 s, Rotating: 1 N·m/15 s					
Lock force	0.1 to 0.25 N·m	0.1 to 0.25 N·m					

\* 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

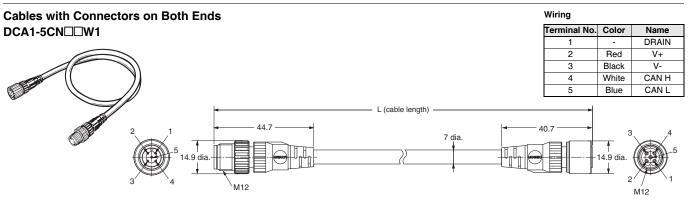
Type	Connectors with Thick Cables DCA2-5CN□□□1	Connectors with Thin Cables DCA1-5CN□□W5	T-branch Connector DCN3-11	T-branch Connector DCN3-12	Connectors with Terminating Resistor DRS3-1	Panel Mounting Connector DCA2-5CNC5P1	Panel Mounting Connector XS4M-D521-1
Rated current	8 A	3 A	8 A	3 A <b>*1</b>	8 A		
Rated voltage	125 VDC		I	1	1		
Contact resistance (connector)	$30\ \text{m}\Omega$ max. (at 20 n	nVDC max. and 100 r	nA max.)				
Insulation resistance	1,000 M $\Omega$ min. (at 50	00 VDC)					
Dielectric strength (connector)	1,500 VAC for 60 sec	1,500 VAC for 60 seconds (leakage current: 1 mA max.)					
Ambient operating temperature	-20°C to 65°C *2	-20°C to 65°C <b>*2</b>					
Storage temperature range	-25°C to 70°C	 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 interruption m/s <sup>2</sup> , whichever is sr		while performing sim	ple vibrations at eithe	er 10 to 500 Hz with 1.52	-mm full amplitude or	at acceleration 100

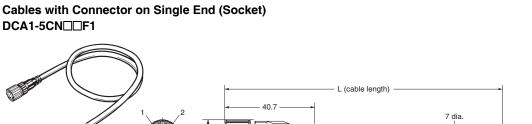
**\*1.** The rated current between thick wires is 8 A.

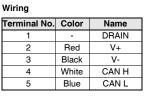
\*2. Use the robot cable within a temperature range between 0 °C and 65 °C to prevent the wires inside the cable from being broken when bending it.

#### **Dimensions**

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







V+

V-

Name

: NC

: NC

≩ 121 Ω

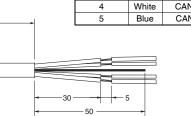
DRAIN : NC

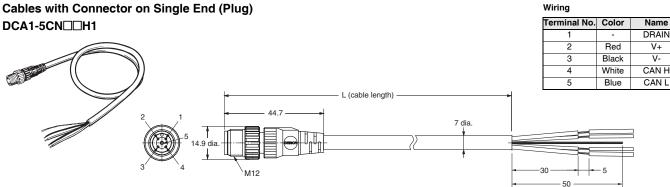
V+

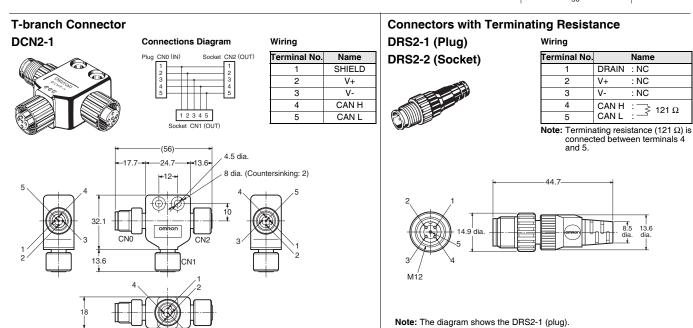
V-

CAN H

CAN L





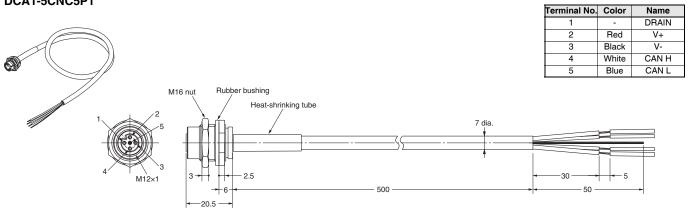


3

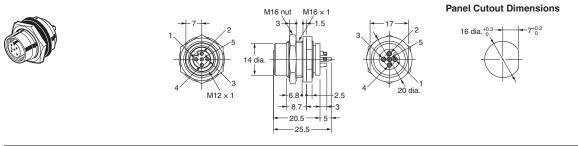
Wiring

Wiring

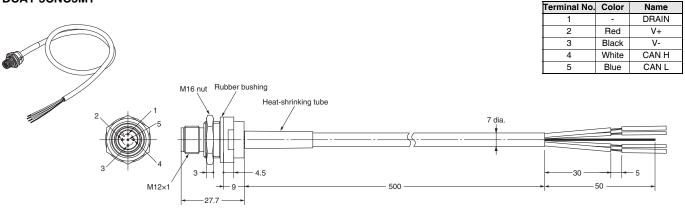
## Panel-mounting Connector (Socket) with 0.5 m Cable DCA1-5CNC5P1



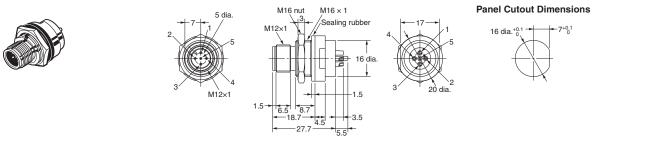
Panel-mounting Connector (Socket), Solder-cup Terminals XS2P-D522-2

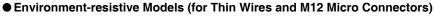


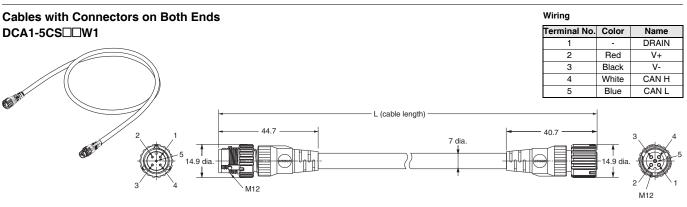
## Panel-mounting Connector (Plug) with 0.5 m Cable DCA1-5CNC5M1

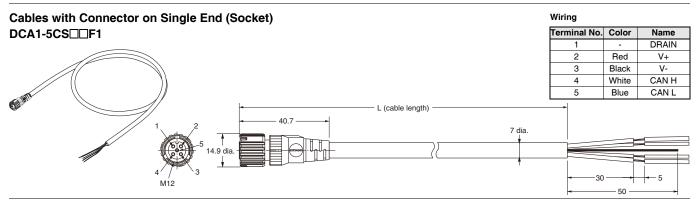


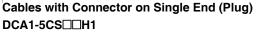
Panel-mounting Connector (Socket), Solder-cup Terminals XS2M-D524-4

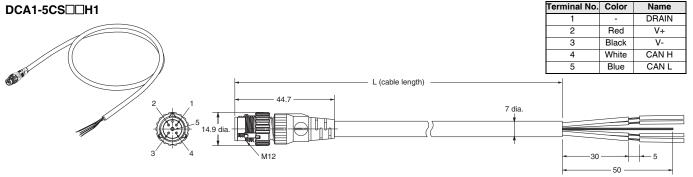


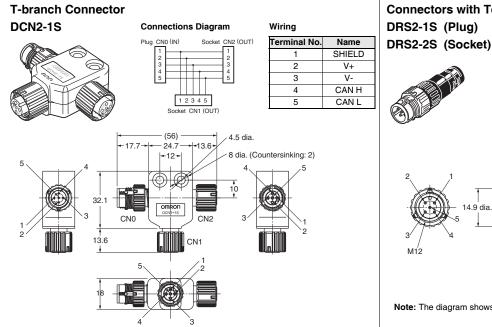












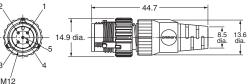
#### **Connectors with Terminating Resistance** DRS2-1S (Plug)



Wiring		
Terminal No.		Name
1	DRAIN	: NC
2	V+	: NC
3	V-	: NC
4	CAN H	:> 121 Ω
5	CANL	

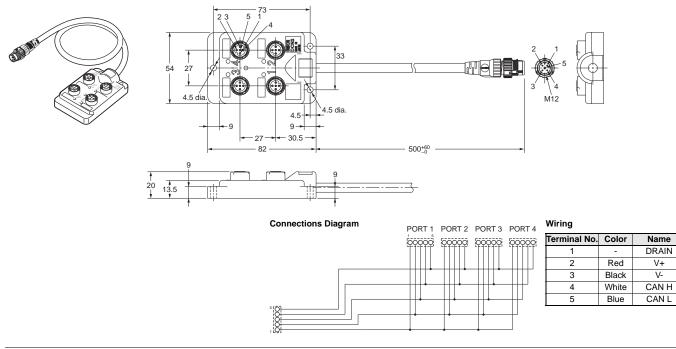
Wiring

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

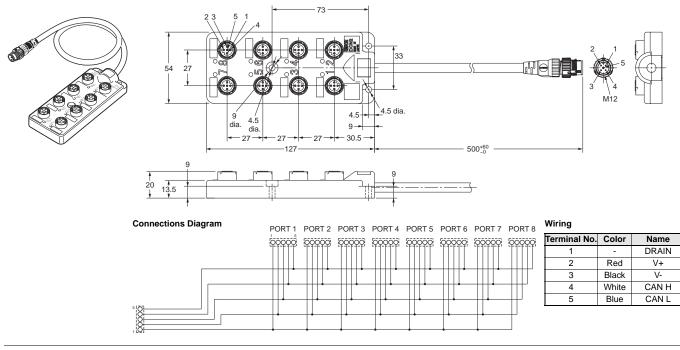


Note: The diagram shows the DRS2-1 (plug).

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

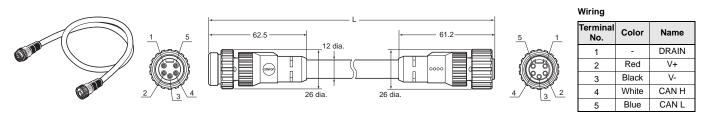


## Shielded Branch Relay Box with Eight Ports DCN2-S8C5H1

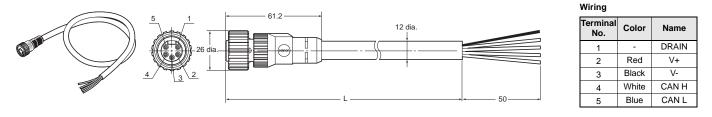


#### • Environment-resistive Models for Thick Wires with 7/8-16UN Mini Connectors

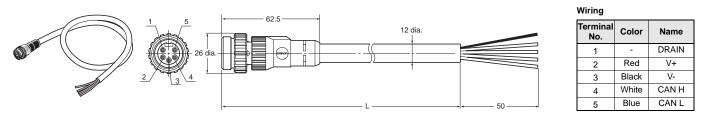
Thick Cable with Connectors on Both Ends (5 Conductors for Communications) DCA2-5CN



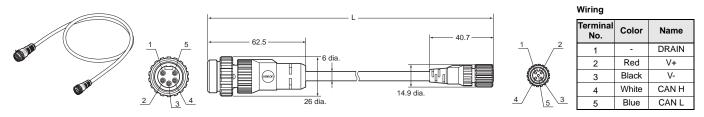
## Thick Cable with Connector Socket on One End (5 Conductors for Communications) DCA2-5CN□□F1



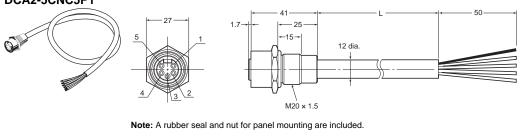
## Thick Cable with Connector Plug on One End (5 Conductors for Communications) DCA2-5CN



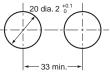
## Thin Cable with Connectors on Both Ends (5 Conductors for Communications) DCA1-5CN



Thin Cable with Panel-mounting Connector Socket on One End (5 Conductors for Communications) DCA2-5CNC5P1



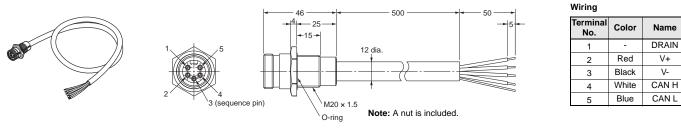




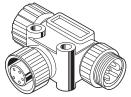




## Panel-mounting Connector (Plug) with 0.5 m Cable DCA2-5CNC5M1



#### T-branch Connector (5 Conductors for Communications, Thick Wire Branch Line) DCN3-11



Connections Diagram

Plug CN0 (IN)	Socket CN2 (OUT)
Socket CN	N1 (OUT)

 Wiring

 Terminal No.
 Name

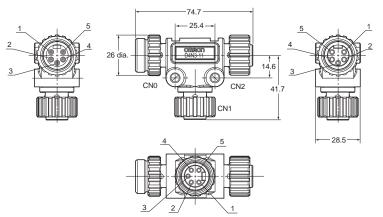
 1
 DRAIN

 2
 V+

 3
 V 

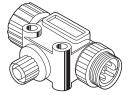
 4
 CAN H

 5
 CAN L



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

DCN3-12

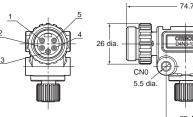


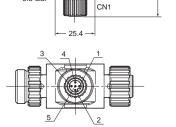
**Connections Diagram** 

	<b>J</b>
Plug CN	0 (IN) Socket CN2 (OUT)
1 2 3 4	
5	
	1 2 3 4 5
	Socket CN1 (OUT)

Wiring	







14.6

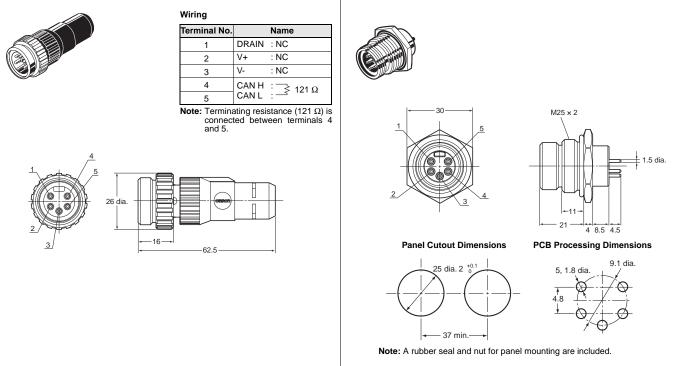
37.6

28.5

CN2

Panel-mounting Connector (5 Pins for Communications)

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



XS4M-D521-1

#### **I/O Peripheral Devices**

#### **Applicable Connectors**

#### Assembly Connector Plugs for M12 Microconnectors

Annorranaa	Applicable cable	Cable direction	Number of		Connection method			
Appearance	diameter (mm)	Cable direction	poles	Crimping	Soldering	Screws		
	For 6 dia.	Straight		XS2G-D4C1	XS2G-D421	XS2G-D4S1		
	(5 to 6 dia.)	L-shaped	Ī		XS2G-D422	XS2G-D4S2		
	For 4 dia.	Straight	Ī	XS2G-D4C3	XS2G-D423	XS2G-D4S3		
	(4 to 5 dia.)	L-shaped	Ī		XS2G-D424	XS2G-D4S4		
Constant and the second s	For 3 dia.	Straight	4	XS2G-D4C5	XS2G-D425	XS2G-D4S5		
	(3 to 4 dia.)	L-shaped	Ī		XS2G-D426	XS2G-D4S6		
	For 7 dia. (6 to 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. (4 to 5 dia.)	Straight	1	XS5G-D4C3	XS5G-D423	XS5G-D4S3		
		L-shaped	4		XS5G-D424	XS5G-D4S4		
E Alered	For 3 dia.	Straight		XS5G-D4C5	XS5G-D425	XS5G-D4S5		
	(3 to 4 dia.)	L-shaped	1		XS5G-D426	XS5G-D4S6		
	For 7 dia. (6 to 7 dia.)	Straight		_		XS5G-D4S9		
	For 8 dia. (7 to 8 dia.)	Sudight		-		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
	L shanad/L shanad	4	2	XS2W-D422-D81-F	XS5W-D422-D81-F
	L-shaped/L-shaped		4	5	XS2W-D422-G81-F
() Bat	Straight/Laborad		2	XS2W-D423-D81-F	XS5W-D423-D81-F
Card a	Straight/L-shaped		5	XS2W-D423-G81-F	XS5W-D423-G81-F
	L shoped/Streight		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		XS2H-D421-AC0-F	XS5H-D421-AC0-F
	Straight	4 0.3 XS2H-D421-A80-F	XS2H-D421-A80-F	XS5H-D421-A80-F	
	Oldight	3	1	XS2H-D421-CC0-F	XS5H-D421-CC0-F
		4	I	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	1	XS2R-D426-C11-F	XS5R-D426-C11-F		
		Connectors on both ends	2	XS2R-D426-D11-F XS5R-D426-D11-F			
	With cable		3	3 XS2R-D426-E11-F XS5R-D			
	_	Consistence and and		XS5R-D426-D10-F			
		Connector on one end	5	XS2R-D426-G10-F	XS5R-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-DD16C(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

Appea	rance	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	Product	Cable length L (mm)	Model
		1	XS4W-D421-101-A
an ()		2	XS4W-D421-102-A
	← L	5	XS4W-D421-105-A
a n		10	XS4W-D421-110-A
		1	XS4F-D421-101-A
an ( )		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
01-0	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

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## **Ordering Information**

Masters
Slaves
Smart Slaves DRT2 Series
SmartSlice GRT1-series
MULTIPLE I/O TERMINALS
<ul> <li>Intelligent Slaves (PLC Units)</li></ul>
Intelligent Slaves
CIP Safety on DeviceNet System 167
Configurator
Software
Peripheral Devices
Models for Standard Cables
Models for Flat Cables
<ul> <li>Environment-resistive Models for Thin Wires with</li> </ul>
M12 Microconnectors
Environment-resistive Models for Thick Wires with
7/8-16UN Miniconnectors
Environment-resistive Models for Thin Wires with
M12 Smart Click Microconnectors173
Cables with Connectors Compatible with
MULTIPLE I/O TERMINAL Connectors

#### **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, and CE: EC Directives

 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, much be deviced whether the current set and action in the current set.

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
		Model for CS Series. Equipped with Master and Slave functionality. Control for up to 32,000 points per Master.	CS1W-DRM21-V1	001, N, L, CE

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.

Display specifications

Product	Appearance	Controller specifications	Display speci	fications	Ethernet port	Model *	Standards	
Floadet	Appearance	controller specifications	Display device	Resolution	Ethernet port	WOUGH &	Standards	
			5.7-inch color High-Iuminance TFT LCD	320 x 240 (QVGA)	10/100Base-T	NSJ5-TQ11(B)-G5D	UC1, CE, UL Type4	
NSJ-series Programmable	NSJ-series Programmable Controller	128K words	8.4-inch color TFT LCD	640 x 480	10/100Base-T	NSJ8-TV01(B)-G5D	UC1, CE	
			10.4-inch color TFT LCD	(VGA)	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	Туре4		

\* (B) in the model number indicates that the color of the Controller frame is black.

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

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.

### Slaves

#### • Smart Slaves DRT2 Series

Product	Appearance	Specifications	Model	Standards		
		16 inputs NPN (+ common)	DRT2-ID16			
		16 inputs PNP (- common)	DRT2-ID16-1			
		16 outputs NPN (- common)	DRT2-OD16	UC1, N, CE		
	•	16 outputs PNP (+ common)	DRT2-OD16-1	-		
Remote I/O Terminals with		8 inputs NPN (+ common)	DRT2-ID08			
Fransistors	Section 2	8 inputs PNP (- common)	DRT2-ID08-1	1		
		8 outputs NPN (- common)	DRT2-OD08	-		
		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			
		8 inputs PNP (- common)	XWT-ID08-1			
		8 outputs NPN (- common)	XWT-OD08			
Remote I/O Terminal	1.13 M					
xpansion Units with	Salar and	8 outputs PNP (+ common)	XWT-OD08-1	UC, UC1, N, CE		
ransistors	and the second sec	16 inputs NPN (+ common)	XWT-ID16			
	(max	16 inputs PNP (- common)	XWT-ID16-1			
		16 outputs NPN (- common)	XWT-OD16			
		16 outputs PNP (+ common)	XWT-OD16-1	L		
Remote I/O Terminal with Relays		16 outputs	DRT2-ROS16	UC1, N, CE		
		16 inputs NPN (+ common)	DRT2-ID16TA			
		16 inputs PNP (- common)	DRT2-ID16TA-1			
Remote I/O Terminals with		16 outputs NPN (- common)	DRT2-OD16TA			
erminal Blocks and	Construction Construction	16 outputs PNP (+ common)	DRT2-OD16TA-1	- UC1, CE		
ransistors	No. of the second secon	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			
				UC1, CE		
-CON Connector Terminals		16 inputs PNP (- common)	DRT2-ID16S-1			
		8 inputs/8 outputs NPN (+ common for inputs and - common for outputs)	DRT2-MD16S	CE		
		8 inputs/8 outputs PNP (- common for inputs and + common for outputs)	DRT2-MD16S-1			
		32 inputs NPN (+ common)	DRT2-ID32ML			
		32 inputs PNP (- common)	DRT2-ID32ML-1	_		
		32 outputs NPN (- common)	DRT2-OD32ML	UC1, N, CE		
		32 outputs PNP (+ common)	DRT2-OD32ML-1			
		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			
ALC Connector Terminals		16 inputs NPN (+ common)	DRT2-ID16ML			
vith Transistors)		16 inputs PNP (- common)	DRT2-ID16ML-1			
		16 outputs NPN (- common)	DRT2-OD16ML			
		16 outputs PNP (+ common)	DRT2-OD16ML-1	1104 05		
		16 inputs NPN (+ common)	DRT2-ID16MLX	UC1, CE		
		16 inputs PNP (- common)	DRT2-ID16MLX-1			
		16 outputs NPN (- common)	DRT2-OD16MLX			
		16 outputs PNP (+ common)	DRT2-OD16MLX-1			
		32 inputs NPN (+ common)	DRT2-ID32B			
	.¢	32 inputs PNP (- common)	DRT2-ID32B-1	1		
oard Terminals with MIL		32 outputs NPN (- common)	DRT2-OD32B	1		
Connectors (Parallel Mounting)	200.5	32 outputs PNP (+ common)	DRT2-0D32B-1	UC1, CE		
		16 inputs/16 outputs NPN (+ common for inputs and - common for outputs)	DRT2-MD32B	-		
	-	16 inputs/16 outputs NPIV (+ common for inputs and + common for outputs)		4		
			DRT2-MD32B-1			
		32 inputs NPN (+ common)	DRT2-ID32BV	-		
Board Terminals with MIL		32 inputs PNP (- common)	DRT2-ID32BV-1	-		
Connector		32 outputs NPN (- common)	DRT2-OD32BV	UC1, CE		
Perpendicular Mounting)		32 outputs PNP (+ common)	DRT2-OD32BV-1			
	<b>AN 1</b>	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	Í.		

Product	Appearance	Specif	ications	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	U, UC1, CE	
		16 inputs NPN (+ common)	No Detection functions	DRT2-ID16SL		
		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	Star Star	32 inputs NPN (+ common)	Detection functions	DRT2-ID32SLH		
		32 inputs PNP (- common)	Detection functions	DRT2-ID32SLH-1	-	
	·	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 Detection functions	n for inputs and - common for outputs)	DRT2-MD32SLH		
		16 inputs/16 outputs PNP (- commor Detection functions	for inputs and + common for outputs)	DRT2-MD32SLH-1		
		8 inputs NPN (+ common)		DRT2-ID08C	UC, N, CE	
	Constant Constant	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		
		16 inputs PNP (- common)		DRT2-HD16C-1	UC, N, CE	
		4 inputs NPN (+ common)		DRT2-ID04CL	-	
		4 inputs PNP (- common)		DRT2-ID04CL-1		
		4 outputs NPN (- common)		DRT2-OD04CL		
		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	-	
esistive Terminals with ransistors		8 outputs PNP (+ common)		DRT2-OD08CL-1	UC1, CE	
1413131013	BOO OF	16 inputs NPN (+ common)		DRT2-HD16CL	-	
	8	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 f	prinputs and - common for outputs)	DRT2-MD16CL	-	
		8 inputs/8 outputs PNP (- common for		DRT2-MD16CL-1	-	
	•	4 inputs (resolution: 6,000)		DRT2-AD04		
Analog Input Terminals		4 inputs (resolution: 30,000)		DRT2-AD04H	UC1, CE	
Analog Output Terminal		2 outputs				
Temperature Input Terminals with Thermocouple Inputs		4 inputs		DRT2-TS04T		
Temperature Input Terminals with Platinum-resistance Thermometer Inputs		4 inputs		DRT2-TS04P	UC1, CE	

#### SmartSlice GRT1 Series

	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	UC1, CE, L
			4 outputs, NPN	GRT1-OD4	
			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	
			8 outputs, PNP	GRT1-OD8-1 GRT1-ROS2	UC1, CE, L
			2 relay outputs	GRT1-IA4-1	001, CE, L
			4 AC inputs	GRT1-IA4-1	UC1, CE, L
SmartSlice O Units		<b>A</b>	2 inputs (current/voltage)	GRT1-AD2	
	Analog I/O Units		2 outputs (current)	GRT1-DA2C	UC1, CE, L
	Analog i/O Onits				
			2 outputs (voltage)	GRT1-DA2V	
	Temperature input	e	2 temperature inputs (PT100 resistance thermometer)	GRT1-TS2P	UC1, CE, L
	(resistance thermometer)		2 temperature inputs (PT1000 resistance thermometer)	GRT1-TS2PK	
	,		2 thermocouple inputs	GRT1-TS2T	UC, CE, L
	Counter Units		1 counter input, 1 external output, NPN	GRT1-CT1	
	Counter Onits	1 counter inpu	1 counter input, 1 external output, PNP	GRT1-CT1-1	UC, CE, L
	Turbed Usia		Right Turnback (Used to divide a SmartSlice I/O Terminal into blocks.)	GRT1-TBR	
	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 <b>*</b> 2, CE,
System Jnits				GRT1-PD2	UC1, CE, L
		<b>*</b>	Used if the total current consumption of the I/O power supply exceeds 4 A or to provide an I/O power supply on a separate	GRT1-PD2G	
I/O Power Suppl Units	I/O Power Supply		system.	GRT1-PD8	
	011113	1		GRT1-PD8-1	UC, CE, L
			Used to add the V and G terminals for the I/O power supply.	GRT1-PC8	
				GRT1-PC8-1	
	End Unit *1		Required at the end of SmartSlice I/O Terminals.	GRT1-END	UC1, CE, L

\*1. 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

F	Product	Appearance	I/O points	Specifications	Model	Standard
Communic	ations Unit	A CONTRACTOR		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	
	models	1 State State State	16 outputs	NPN (- common)	GT1-OD16	
		A statement of the stat	16 outputs	PNP (+ common)	GT1-OD16-1	
			16 inputs	NPN (+ common)	GT1-ID16MX	
	Molex connector	Contraction of the second	16 inputs	PNP (- common)	GT1-ID16MX-1	
	models	and a second	16 outputs	NPN (- common)	GT1-OD16MX	
			16 outputs	PNP (+ common)	GT1-OD16MX-1	
			16 inputs	NPN (+ common)	GT1-ID16ML	
Digital	Fujitsu	A A A A A A A A A A A A A A A A A A A	16 inputs	PNP (- common)	GT1-ID16ML-1	
O Units	connector models		16 outputs	NPN (- common)	GT1-OD16ML	U, C, CE
	modela		16 outputs	PNP (+ common)	GT1-OD16ML-1	
		ector	16 inputs	NPN (+ common)	GT1-ID16DS	
	D-sub, 25-pin		16 inputs	PNP (- common)	GT1-ID16DS-1	-
	connector models		16 outputs	NPN (- common)	GT1-OD16DS	
	modela		16 outputs	PNP (+ common)	GT1-OD16DS-1	
	Fujitsu high-density connector	32 inputs	NPN (+ common)	GT1-ID32ML		
		32 inputs	PNP (- common)	GT1-ID32ML-1		
		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 Outp	out Unit		8 outputs	Relay Output Unit with 8 points, 5 A, SPST-NO terminal block	GT1-ROP08	_
		- Contraction	8 outputs	SSR Output Unit with 8 points, 1.5 A, SPSTNO terminal block	GT1-FOP08	
	ut Lipito		8 inputs	Molex connector	GT1-AD08MX	U, C, CE
Analog Inp	ut Onits		4 inputs	Terminal block	GT1-AD04	0, 0, 0L
			4 outputs	Molex connector	GT1-DA04MX	— U, C, CE
Analog Output Units	and the second	4 outputs	Terminal block	GT1-DA04	0, 0, 0L	
			4 inputs	Thermocouple input	GT1-TS04T	U, C, CE
Temperature Input Units	S Manufacture	4 inputs	Platinum-resistance thermometer input	GT1-TS04P	U, U, UE	
				1 m	GCN1-100	
/O Unit Co	nnecting Cable			30 cm	GCN1-030	
				60 cm	GCN1-060	

### Intelligent Slaves (PLC Units)

Product	Appearance	Specifications	Model	Standards	
Programmable Slaves	Í	Slave equipped with CPM2C CPU Unit functions	4 transistor outputs (sinking)	CPM2C-S100C-DRT	U. C. CE
Programmable Slaves		1,024 points max. for Remote I/O Links Includes CompoBus/s Master.	4 transistor	CPM2C-S110C-DRT	0, 0, 0E

#### Intelligent Slaves

Product	Appearance	5	Specifications		Model	Standards
		Up to 16 E3X-DA-S, E3X Amplifiers can be conner	C-MDA, E3X-LDA, and E2C-E cted.	DA Fiber	E3X-DRT21-S VER.3	
			A.I	NPN	E3X-DA7-S *1	_
			Advanced models	PNP	E3X-DA9-S *1	
			Oten devid me dela	NPN	E3X-DA6-S *1	
			Standard models	PNP	E3X-DA8-S *1	
			Mark-detecting models	NPN	E3X-DAB6-S	
			(Blue LED)	PNP	E3X-DAB8-S	
			Mark-detecting models	NPN	E3X-DAG6-S	
		Fiber Amplifier Unit	(Green LED)	PNP	E3X-DAG8-S	
			Mark-detecting models	NPN	E3X-DAH6-S	
			(Infrared LED)	PNP	E3X-DAH8-S	
Digital Sensor Communications			Advanced Twin-output	NPN	E3X-DA6TW-S *1	CE
			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	_
				PNP	E3X-MDA8	_
		Laser Photoelectric Sensor with Separate Amplifier	Twin-output models	NPN	E3C-LDA6	_
			External input models	PNP NPN	E3C-LDA8 E3C-LDA7	
				PNP	E3C-LDA7	
		Proximity Sensor with	Twin-output models	NPN	E2C-EDA6	_
				PNP	E2C-EDA8	-
		Separate Amplifier		NPN	E2C-EDA0	_
			External input models	PNP		-
		Wire-Saving Connector			E3X-CN02 *2	-
Intelligent Flag III		ID system for DeviceNet For the information on th	e status of certification for rac untries, visit the OMRON web		V600-HAM42-DRT	CE
DeviceNet ID Slave		www.ia.omron.com			V680-HAM42-DRT	UC, CE, RCN
		DeviceNet-compliant Pro	ocess Indicator		K3HB-XVD-A-DRT1	
		DeviceNet-compliant We	ighing Indicator		K3HB-VLC-B-DRT1	7
	to our con millit	DeviceNet-compliant Ter	mperature Indicator		K3HB-HTA-DRT1	7
DeviceNet-compliant Indicators	- 12345 11	DeviceNet-compliant Lin	ear Sensor Indicators		K3HB-SSD-A-DRT1	UC, CE
	- 0000	DeviceNet-compliant Ro	tary Pulse Indicator		K3HB-RNB-A-DRT1	
	and and u	DeviceNet-compliant Tin	ne Interval Indicator		K3HB-PNB-A-DRT1	
		DeviceNet-compliant Up	Down Counting Pulse Indicat	or	K3HB-CNB-A-DRT1	
					E5AR-Q4B-DRT	
	Alter	Basic Type (1 input)			E5AR-C4B-DRT	
	1.400.000				E5AR-QC4B-DRT	
		2-input Type			E5AR-QQ4W-DRT	_
	10000	4-input Type			E5AR-CC4WW-DRT	_
DeviceNet-compliant Digital Controllers	124	Control Valve Control Ty	pe (1 input)		E5AR-PR4F-DRT	UC, CE
			,		E5AR-PRQ4F-DRT	
	<u>Letter</u>	Basic Type (1 input)			E5ER-QTB-DRT	_
					E5ER-CTB-DRT	_
		2-input Type			E5ER-QTW-DRT	_
	9906				E5ER-CTW-DRT	_
		Control Valve Control Ty	pe (1 input)		E5ER-PRTF-DRT	

\*1. E3X-DA7-S, E3X-DA9-S, E3X-DA6-S, E3X-DA6-S, E3X-DA6TW-S, E3X-DA6TW-S, E3X-DA6RM-S, E3X-DA8RM-S have been discontinued at the end of March 2017.
 \*2. Order as many Connectors as the number of Sensors.

List of Models 165

Р	roduct	Appearance		Specifications		Model	Standards
	CPU Bus Unit with DeviceNet Communications			External input power supply voltage: 24 VDC Applicable model: EJ1			
				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	
Modular Temperatur e 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	UC, CE
e Controller				No. of control outputs: 2	M3 terminals	EJ1N-TC2A-CNB	
			Control outputs 1 and 2: 2 current outputs Control outputs 3 and 4: 2 transistor outputs (sinking)	Screw-less clamp terminals	EJ1N-TC2B-CNB		
				Auxiliary outputs: 4 transistor outputs	M3 terminals	EJ1N-HFUA-NFLK	
	CPU Bus Units with Programless		24 VDC supplied from	(sinking)	Screw-less clamp terminals	EJ1N-HFUB-NFLK	
	Connection		the End Unit.	Auxiliary outputs: 4 transistor outputs	M3 terminals	EJ1N-HFUA-NFL2	
				(sinking)	Screw-less clamp terminals	EJ1N-HFUB-NFL2	
				Auxiliary outputs: 2 transistor outputs	M3 terminals	EJ1C-EDUA-NFLK	
	End Units		24 VDC	(sinking)	Connector terminals	EJ1C-EDUC-NFLK	
Multi-function	Compact Inverter		MX2-Series V	1X2-Series V1 type DeviceNet Communication Unit		3G3AX-MX2-DRT-E	CU, CE
High-function Inverter	General-purpose		RX-Series V1	type DeviceNet Communication Unit	3G3AX-RX-DRT-E	CU, CE	

### **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	
	al.	Safety inputs: 12, Test outputs: 4	DST1-ID12SL-1	
	THE P	Safety inputs: 8, Safety outputs (semiconductor): 8, Test outputs: 4	DST1-MD16SL-1	
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) 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) 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. 2907).
 \* 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) <b>★</b>	WS02-CFDC1-E	
	S C	PC Card OS: Windows 2000 (Service Pack2 or higher)/XP	3G8E2-DRM21-EV1	

\* 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/

## OMBOI

### 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

					Standards
Product name	Specifications	Number of licenses	Media	Model	
	The CX-One is a comprehensive software package that integrates Support Software for OMRON PLCs and components.				
FA Integrated Tool Package CX-One Ver.4.⊡	CX-One runs on the following OS. OS: Windows XP (Service Pack 3 or higher, 32-bit version) / Windows Vista (32-bit/64-bit version) / Windows 7 (32-bit/ 64-bit version) / Windows 8 (32-bit/64-bit version) / Windows 8.1 (32-bit/64-bit version) / Windows 10 (32-bit/ 64-bit version)	1 license <b>*1</b>	DVD <b>*2</b>	CXONE-AL01D-V4	
14 M III II	CX-One Version 4. includes CX-Integrator Ver.3. For details, refer to the CX-One catalog (Cat. No. R134)				

Multi licenses (3, 10, 30, or 50 licenses) and DVD media without licenses are also available for the CX-One. The CX-One is also available on CD (CXONE-AL\_C-V4). \*1.

\*2.

### Automation Software Sysmac Studio

Please purchase a DVD and required number of licenses the first time you purchase the Sysmac Studio. DVDs and licenses are available individually. Each model of licenses does not include any DVD.

Product name	Product name Specifications		Media	Model	Standards
	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-serie CPU Units, NY-series Industrial PC, EtherCAT Slave, and the HMI.	 (Media only)	DVD	SYSMAC-SE200D	
Sysmac Studio Standard Edition Ver.1.□□	Sysmac Studio runs on the following OS. OS: Windows 7 (32-bit/64-bit version) / Windows 8 (32-bit/64- bit version) / Windows 8.1 (32-bit/64-bit version) / Windows 10 (32-bit/64-bit version)				
	The Sysmac Studio Standard Edition DVD includes Support Software to set up EtherNet/IP Units, DeviceNet slaves, Serial Communications Units, and Support Software for creating screens on HMIs (CX-Designer). Refer to your OMRON website for details.	1 license *		SYSMAC-SE201L	

\* Multi licenses are available for the Sysmac Studio (3, 10, 30, or 50 licenses).

Product	Appearance	Specifications	Model	Standards	
DeviceNet Analyzer		Software OS: Windows 2000 (Service Pack2 or hig	WS02-ALDC1-E		
NX-Server		DDE Edition OS: Windows 2000 (Service Pack2 or hig	WS02-NXDC1-E		
		Software	One-license version Media: DVD	WS02-DIPC1-E	
Device Inspector		OS: Windows 2000 (ServicePack2 or higher)/XP	Site license	WS02-DIPC1-ELXX	

### **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	and the second s	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	and the second second	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
	Carlina and	Cable wiring direction: Toward side     5 vertical-type connectors with       Cable screw direction: From top     screws (XW4B-05C1-V1R-D),       Connector screw direction: From top     standard terminating resistor		DCN1-4R
Power Supply Tap	A CONTRACT OF A	2 connectors, standard terminating resistor, fus	DCN1-1P	
		Parallel clamp connector with screws (Connector insertion and wiring performed in th	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 th	XW4B-05C1-H1-D	
Connector		Parallel connector with screws (Connector insertion and wiring performed in th	XW4B-05C4-T-D	
		Parallel, multi-branching connector with screws (Connector insertion and wiring performed in th	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		
Flat Connector Plug		Used as a set with a DCN4-TR4 Flat Connector Socket in the following applications. <ul> <li>Extending the trunk line</li> <li>T-branching the trunk line into branch lines</li> </ul>	DCN4-BR4	UC
rial Connector Flug		Used alone in the following applications. <ul> <li>Connecting the communications cable to the Unit</li> <li>Connecting the communications cable to a DCN4-MD4 Multi-drop Connector</li> </ul>	DCN4-BR4	
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 mm <sup>2</sup> x 2, 0.5 mm <sup>2</sup> 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	

\* Delivered in units of ten. Order in a multiple of ten.

Product	Appearance	Specifications	\$	Model		
Sealed Assembling-type Connector (male)		For communications (plug)	For communications (plug)			
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		
	- Br		Length: 5 m	DCA1-5CN05W1		
			Length: 10 m	DCA1-5CN10W1		
			Length: 0.5 m	DCA1-5CNC5F1		
			Length: 1 m	DCA1-5CN01F1		
Cables with Sealed Connectors *		Cable with connector on one end (socket)	Length: 2 m	DCA1-5CN02F1		
Cables with Sealed Connectors *		Cable with connector on one end (socker)	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		
	7		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		

### • Environment-resistive Models for Thin Wires with M12 Microconnectors

\* Robot cable type connectors with shielded cables (DCA1-5CN\_1-R) are also available. Contact your OMRON sales representative for details.

Product	Product Appearance Specification			Model
		T-branch Connector	DCN3-11	
Shielded T-branch Connector	<u>O</u> IO	T-branch Connector (Branch connector is N	/12)	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
	0 m		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
			Length: 1 m	DCA2-5CN01H1
			Length: 2 m	DCA2-5CN02H1
		Cables with connector plug at one end	Length: 5 m	DCA2-5CN05H1
			Length: 10 m	DCA2-5CN10H1
-		Cables with connectors at both ends Thin cable M12 socket	Length: 1 m	DCA1-5CN01W5
			Length: 2 m	DCA1-5CN02W5
			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 Thick Wires with 7/8-16UN Miniconnectors

Product	uct Appearance Specifications			Model
Sealed T-branch Connector		For 1 branch line		DCN2-1S
Sealed Connector with Terminating		Plug		DRS2-1S
Resistor	O Press	Socket		DRS2-2S
			Length: 0.5 m	DCA1-5CSC5W1
			Length: 1 m	DCA1-5CS01W1
			Length: 2 m	DCA1-5CS02W1
		Cable with connectors on both ends	Length: 3 m	DCA1-5CS03W1
	<b>1</b>		Length: 5 m	DCA1-5CS05W1
	6 <b>9</b>		Length: 10 m	DCA1-5CS10W1
			Length: 0.5 m	DCA1-5CSC5F1
	er O		Length: 1 m	DCA1-5CS01F1
ables with Sealed Connectors *		Cable with connector socket on one end	Length: 2 m	DCA1-5CS02F1
ables with Sealed Connectors *		(socket)	Length: 3 m	DCA1-5CS03F1
			Length: 5 m	DCA1-5CS05F1
			Length: 10 m	DCA1-5CS10F1
			Length: 0.5 m	DCA1-5CSC5H
			Length: 1 m	DCA1-5CS01H1
		Cable with connector socket on one end	Length: 2 m	DCA1-5CS02H1
		(plug)	Length: 3 m	DCA1-5CS03H1
			Length: 5 m	DCA1-5CS05H1
			Length: 10 m	DCA1-5CS10H1
	81 O	4 ports	0.5-m cable	DCN2-S4C5H1
hielded Branch Relay Box	AT O	8 ports	0.5-m cable	DCN2-S8C5H1

\* Robot cable type connectors with shielded cables (DCA1-5CN\_1-R) are also available. Contact your OMRON sales representative for details.

### • Cables with Connectors Compatible with MULTIPLE I/O TERMINAL Connectors

### Models with Fujitsu Connectors

Proc	duct	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
	to i/O points		2,000	XW2Z-200A
			3,000	XW2Z-300A
Cable with Connectors			5,000	XW2Z-500A
XW2Z			500	XW2Z-050B
		State -	1,000	XW2Z-100B
	32 1/O points		1,500	XW2Z-150B
	32 I/O points		2,000	XW2Z-200B
			3,000	XW2Z-300B
			5,000	XW2Z-500B

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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

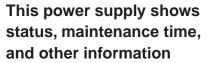
### OMROI

### Introduction of the Switch Mode Power Supply

OMRON Switch Mode Power Supplies support a wide range of applications.



Madal





- 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

Madel COVC



Comparison to

Previous 

OMRON Models)

110mr

Madel CO IV (

### Simple power supply with a short body and easy installation: the ultimate in ease-of-use

- One of the shortest bodies in the industry makes it easy to design smaller and slimmer panels and devices.
- 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	Model S8JX-P	
Appearance							
Features		<ul> <li>Compact power si</li> <li>Indication monitor models also availa</li> <li>Economy type ser</li> </ul>	and maintenance	forecast monitor	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 suppression function     Slim, low noise	
Lineup Power rating output voltag		Standard model	With indication monitor	With indication monitor but without alarm output			
	1500W						
	600W				600W <b>O</b> 5V, 12V, 24V, 48V	600W <b>O</b> 5V, 12V, 24V, 48V	
	480W	480W 🗭 24V	480W 🔍 24V				
	300W			0.40101	300W 🌑 5V, 12V, 24V, 48V	300W • 5V, 12V, 24V, 48V	
	240W 180W	240W • 24V 180W • 24V	240W 24V 180W 24V	240W 24V 180W 24V			
	150W	10000 0 240	18000 240		150W 🛡 5V, 12V, 24V, 48V	150W \$\u00e9 5V, 12V, 24V, 48V	
	120W	120W 🛡 24V	120W 🔷 24V	120W 🔷 24V			
	100W				100W 🌑 5V, 12V, 24V, 48V	100W • 5V, 12V, 24V, 48V	
	90W 75W	90W 🗭 24V	90W 🔴 24V	90W 🔘 24V			
	60W	60W 🗬 24V	60W 🔵 24V				
	50W				50W 🔷 5V, 12V, 24V, 48V	50W 🔘 5V, 12V, 24V, 48V	
	30W	30W 🔍 5V,12V,24V			35W 🌑 5V, 12V, 15V, 24V, 48V		
	25W 15W	15W <b>5</b> V,12V,24V			15W 🔘 5V, 12V, 15V, 24V, 48V		
	10W	1500 0 50, 120,240			1500 50, 120, 150, 240, 480		
	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, *3 300 W, 600 W model : AC 100 - 120 V / AC 200 - 240 V switching	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 installa * The 480 W type	ation fitting require cannot be connect		Yes	Yes	
Harmonic cur 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 nu	imber	T026-E1			T041-E1	T041-E1	

\*2.

For details on approvals, visit our Web site (www.ia.omron.com/). Model S8JX-G15005 O 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). \*3

### 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.

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- 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.

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#### **PROGRAMMABLE PRODUCTS**

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### **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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- Подбор аналогов.
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