CJ-series DeviceNet Unit

CJ1W-DRM21

CSM_CJ1W-DRM21_DS_E_5_2

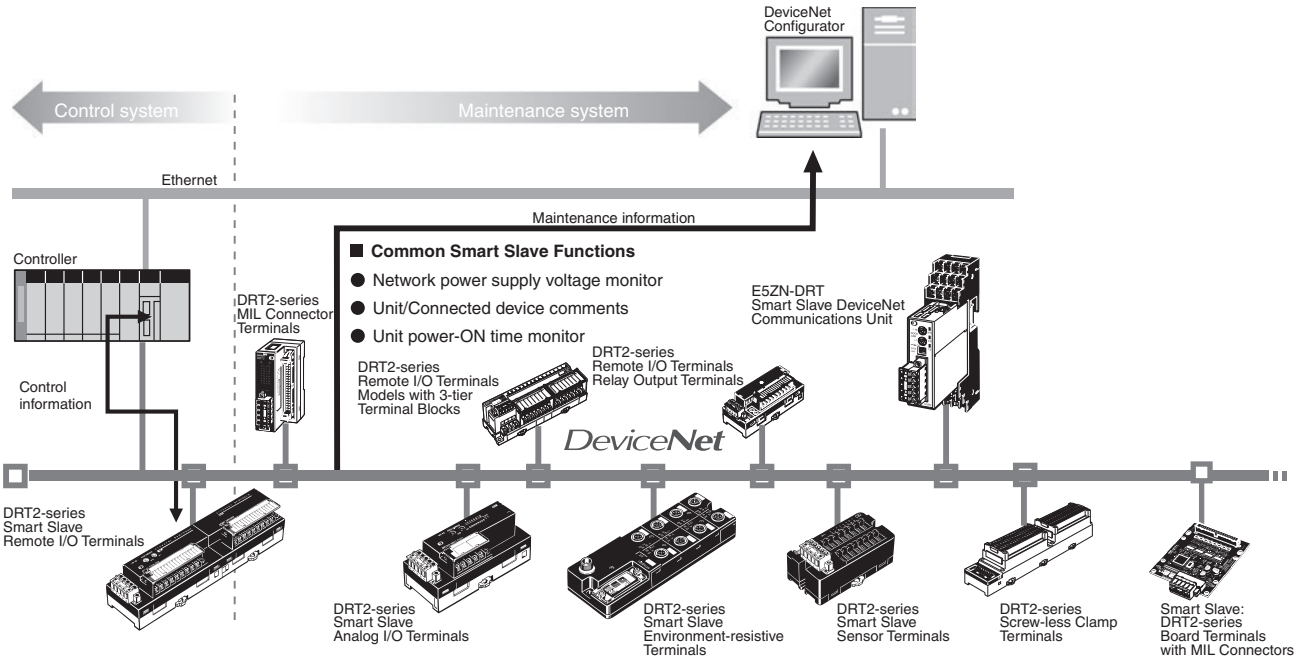
Smallest in the Industry! A DeviceNet Unit for the CJ Series that Boasts Industry-leading Performance and Functions

CJ1W-DRM21

Features

- 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.

System Configuration



Reduce Setup Time

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

Reduce Downtime

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

Improve Maintenance

- Operation time monitor function
- Contact operations counter (See note.)
- Unit conduction time monitor function
- Total ON time monitor function (See note.)
- Network power supply voltage monitor function
- Communications error log function
- Last maintenance date
- Comparator function
- Selectable output value after error

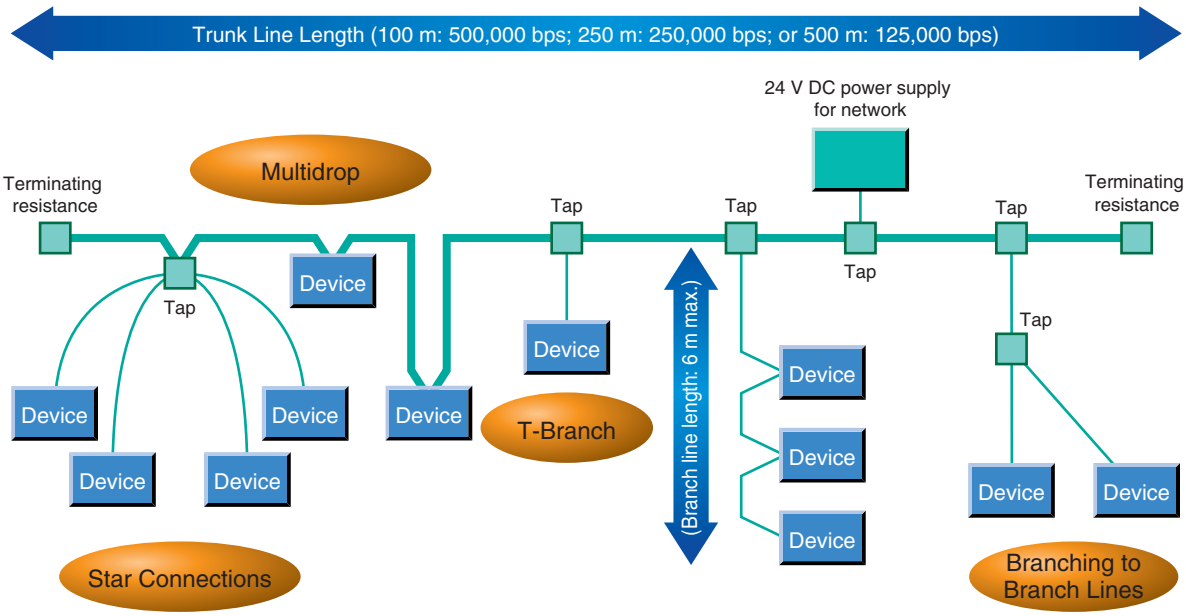
Note: The number of contact operations monitor function and the cumulative ON time monitor function cannot be used simultaneously for the same contact.

Communication Specifications

Item	Specifications			
Communications protocol	DeviceNet			
Connection methods	Multi-drop and T-branch connections can be combined (for trunk and branch lines) *1			
Baud rate	500 Kbps, 250 Kbps, or 125 Kbps			
Communications media	Special 5-wire cables (2 signal lines, 2 power lines, 1 shield line) Special 4-wire flat cables (2 signal lines, 2 power lines)			
Communications distances for special 5-wire cables	Baud rate	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. *2	6 m max.	78 m max.
	125 kbps	500 m max. *2	6 m max.	156 m max.
Communications distances for special 4-wire flat cables	Baud rate	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 V DC supplied externally			
Max. number of nodes	64 nodes (including Masters, Slaves, and Configurator)			

*1. Terminators are required at both ends of trunk line.
*2. Indicates the maximum network length when thick cables are used. Reduce the network length to 100 m max. when using thin cables.

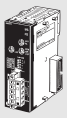
Network Specifications



Ordering Information

International Standards

- 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.
- Contact your OMRON representative for further details and applicable conditions for these standards.

Unit classification	Product name	Specifications	Communications	No. of unit numbers allocated	Current consumption (A)		Model
					5 V	24 V	
CJ1 CPU Bus 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**

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.

Software

How to Select Required Support Software for Your Controller

The required Support Software depends on the Controller to connect. Please check the following table when purchasing the Support Software.

Item	Omron PLC System	Omron Machine Automation Controller System
Controller	CS, CJ, CP, and other series	NJ-series
Software	FA Integrated Tool Package CX-One	Automation Software Sysmac Studio

FA Integrated Tool Package CX-One

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

*1. Multi licenses are available for the CX-One (3, 10, 30, or 50 licenses).
*2. The CX-One is also available on CD (CXONE-AL□□C-V4).

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	Specifications	Number of licenses	Media	Model	Standards
Sysmac Studio Standard Edition Ver.1.□□	The Sysmac Studio provides an integrated development environment to set up, program, debug, and maintain NJ-series Controllers and other Machine Automation Controllers, as well as EtherCAT slaves. Sysmac Studio runs on the following OS. Windows XP (Service Pack 3 or higher, 32-bit version)/ Vista (32-bit version)/7 (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). For details, refer to the Sysmac Integrated Catalogue (P072).	– (Media only)	DVD	**SYSMAC-SE200D**	–
		1 license *	–	**SYSMAC-SE201L**	–

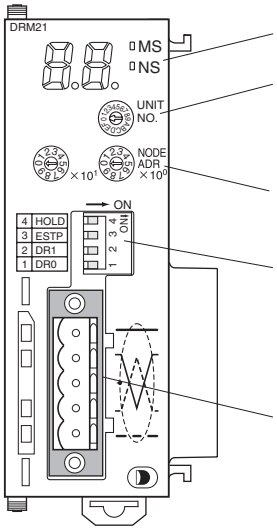
* Multi licenses are available for the Sysmac Studio (3, 10, 30, or 50 licenses).

Specifications

Communications power supply voltage				11 to 25 VDC *1
Current consumption				Communications: 18 mA max. Internal circuit: 290 mA max.
Max. number of connectable slaves	**Remote I/O, explicit message service**			63 *2
Max. number of I/O points	**Fixed allocations**		**When used as a master**	2,048 points
			When used as a slave	32 points
	User-set allocations	**Using allocated DM Area words**	**When used as a master**	16,000 points
			When used as a slave	3,200 points
		Using Configurator	**When used as a master**	32,000 points
			When used as a slave	4,800 points
Number of allocated words	**Fixed allocations**		**When used as a master**	64 input and 64 output words Software switch/status area: 25 words
			When used as a slave	1 input word, 1 output word *3
	User-set allocations	**Using allocated DM Area words**	**When used as a master**	500 input and 500 output words Software switch/status area: 25 words
			When used as a slave	100 input and 100 output words *3 Software switch/status area: 25 words
		Using Configurator	**When used as a master**	500 input words x 2 blocks, 500 output words x 2 blocks Software switch/Status area: 25 words
			When used as a slave	100 input words x 1 blocks, 100 output words x 2 blocks (See note 3.) Software switch/Status area: 25 words
Message communications	**Max. message length**			542 bytes *4
Applicable Controllers				CJ/NJ Series
Max. number of Units mountable to Controller	**Fixed allocations**			3
	User-set allocations			16
Weight				118 g max.

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

External Interface



Indicators

Unit No. switch

This switch sets the unit number of the DeviceNet Unit as a one-digit hexadecimal value.

Node address switches

These switches set the node address as a two-digit decimal value.

DIP switch

The pins have the following functions:
Pins 1 and 2: Baud rate
Pin 3: Continue/Stop communications for error (when used as a Master)
Pin 4: Hold/clear I/O for communications error (when used as a Slave)

Communications connector

Connect the Network communications cable to this connector. The communications power for this Unit is also supplied through this connector. A parallel connector with screws (XW4B-O5C1-H1-D) is provided for node connection.

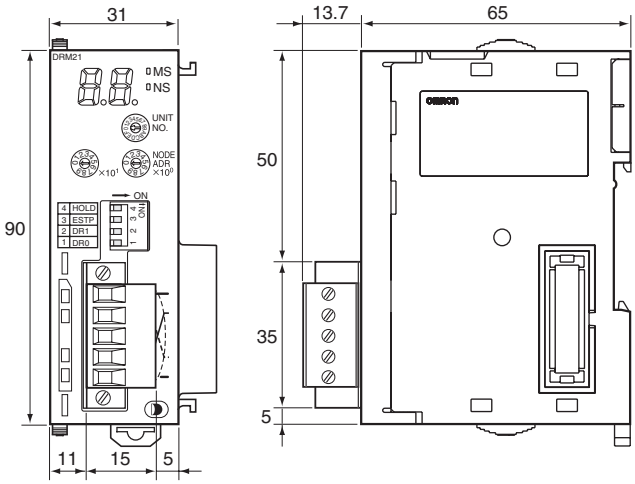
Communications Connectors

Color stickers that match communications cable colors are attached to the communications connectors. Match the colors when connecting communications cables to the connectors. These colors are given in the following table

Color	Signal
Black	Power line, negative voltage (V–)
Blue	Communications line, low (CAN L)
–	Shield
White	Communications line, high (CAN H)
Red	Power line, positive voltage (V+)

Dimensions

(Unit: mm)



Related Manuals

Manual name	Cat. No.	Model numbers	Application	Description
CS/CJ Series DeviceNet Unit Operation Manual	W380	CS1W-DRM21(-V1) CJ1W-DRM21	Learning about the functions and operating procedure for CS/CJ Series DeviceNet Units.	The functions and operating procedures when the CS/CJ Series DeviceNet Unit is used in CS/CJ series system configuration are described.
CJ-series DeviceNet Units Operation Manual for NJ-series CPU Unit	W497	CJ1W-DRM21	Learning about the functions and operating procedures when the CJ-series DeviceNet Unit is used in an NJ-series system configuration.	The functions and operating procedures when the CJ-series DeviceNet Unit is used in an NJ-series system configuration are described.
DeviceNet Configurator Ver. 2. □ Operation Manual	W382	–	Learning about the operating procedures for DeviceNet Configurator.	The operating procedures for DeviceNet Configurator are described in details.
DeviceNet Operation Manual	W267	–	Learning about the communications specifications and wiring methods common among the DeviceNet communications networks.	The communications specifications and wiring methods common among the DeviceNet communications networks are described. Please read this manual and familiarize yourself with the functions and characteristics of the DeviceNet before use.
DRT2 Series DeviceNet Slaves Operation Manual	W404	DRT2-ID/OD/ MD32SL(H)(-1) DRT2-MD16S DRT2 Series	Learning about the DRT2 Series DeviceNet Slaves.	The types of DRT2 DeviceNet Slaves, the functions, specifications, and operating procedures are described in details.
GT1 Series DeviceNet Multiple I/O Terminal Operation Manual	W348	DRT1-COM GT1 Series	Learning about the Multiple I/O Terminal, which is a type of DeviceNet Slave.	The types of Multiple I/O Terminal, which are kinds of DeviceNet Slaves, are provided. Also, their functions, specifications, and operating procedures are described in details.
CX-Integrator Ver.2. □ Operation Manual	W464	–	Learning about the CX-Integrator that is used to set up the DeviceNet networks and to make settings.	The operating procedures for CX-Integrator are described.

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Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

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