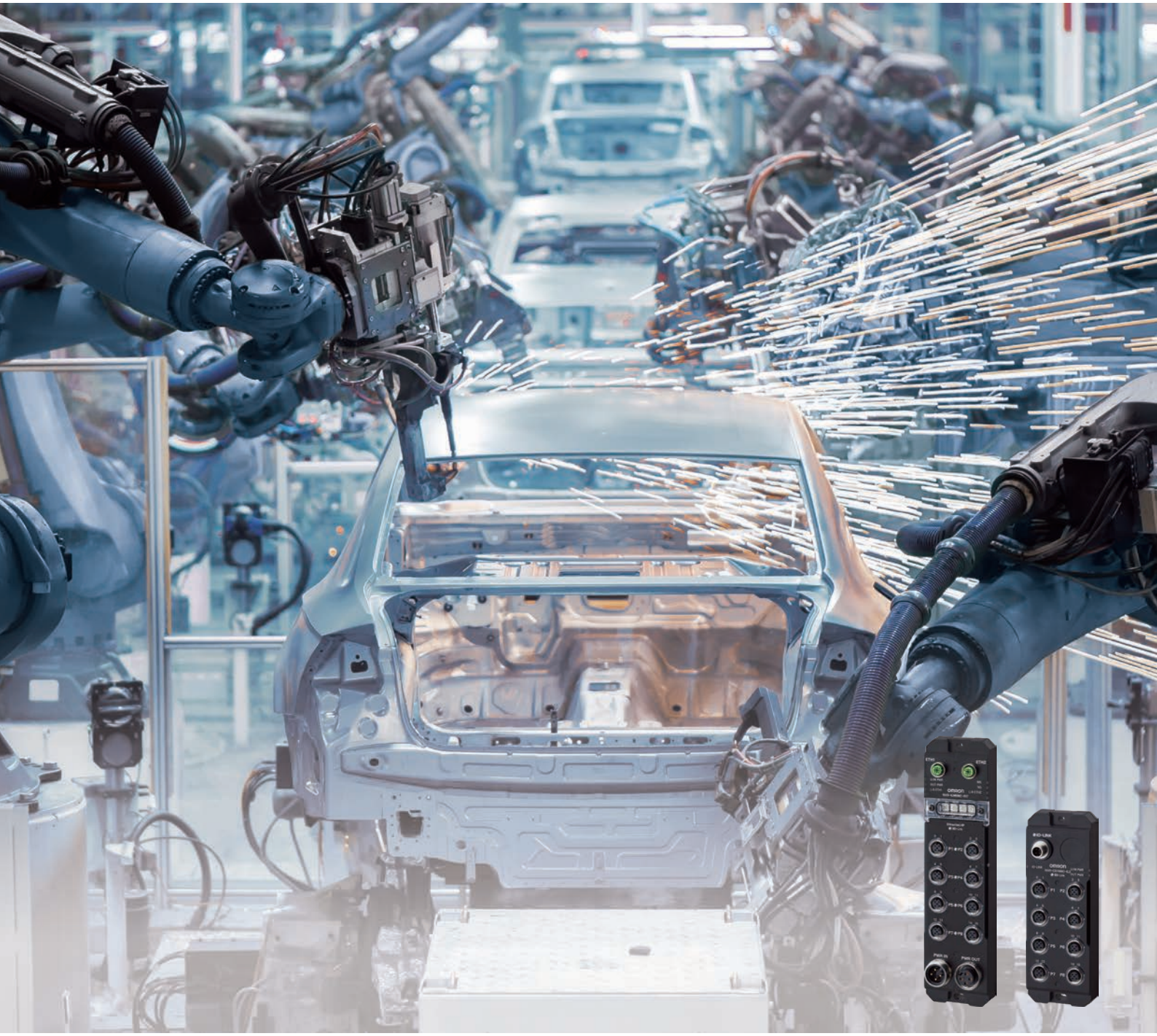
Environment-resistive Remote Terminal NXR Series
IO-Link Master Unit for EtherNet/IP™ or EtherCAT®

OMRON

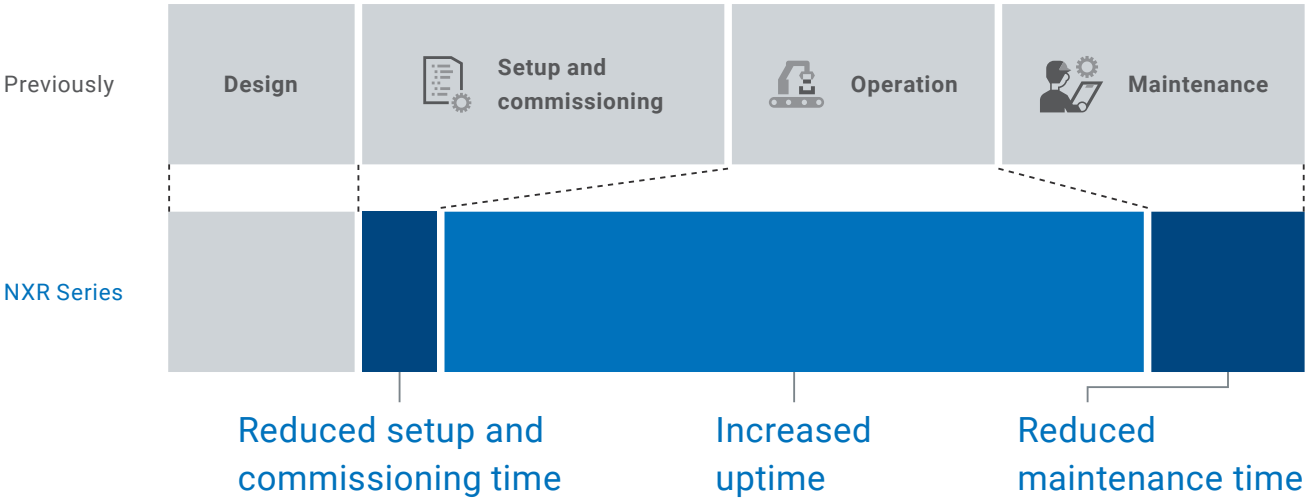
Easy way to adopt IoT for production equipment IP67 Remote Terminal



IO-Link EtherNet/IP EtherCAT®

Streamline commissioning and maintenance efforts and stabilize operation

Since conventional commissioning and maintenance methods via field networks are insufficient for modern manufacturing sites, some problems, such as increase in MTTR and commissioning time, are arising.
As a solution to these problems, OMRON analyzed unnecessary and inefficient work in production processes, and developed NXR Series that comes equipped with various functions to save time and ensure uninterrupted operation.



Setup and commissioning

Simple and quick setup and commissioning P.4

Operation

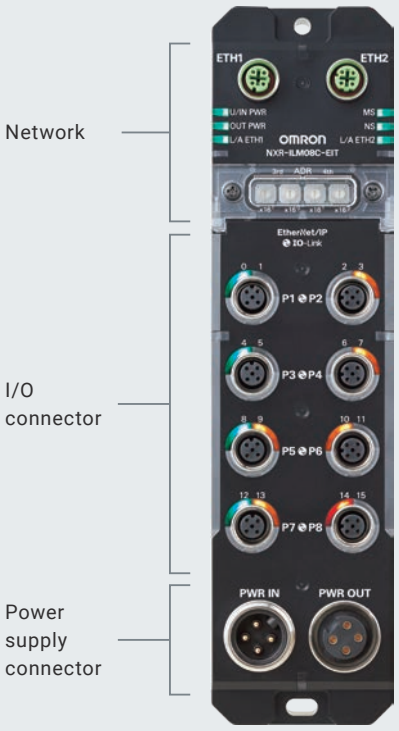
Stable operation by visualizing communication quality P.6

Maintenance

Short MTTR by easy replacement and quick recovery P.6

Features of NXR Environment-resistive Remote Terminal

No control panel required thanks to IP67 protection



NXR-ILM08C-EIT

EtherNet/IP

NXR-ILM08C-ECT

EtherCAT

IO-Link

Selectable by setting

- 8 IO-Link ports
- 16 digital inputs/outputs

7/8-inch connector

- I/O power supply, unit power supply
- Through-wiring

IO-Link Master Unit

NXR-ID166C-IL2
NXR-CD166C-IL2

LED indicator:
Color universal design

Enlarged view of I/O connector

IO-Link

- 16 digital inputs

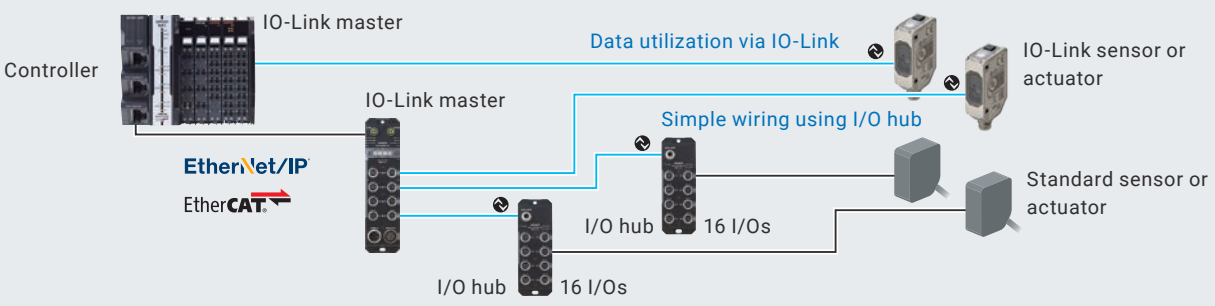
or

- 16 digital inputs/outputs

IO-Link I/O Hub

Data utilization with reduced wiring

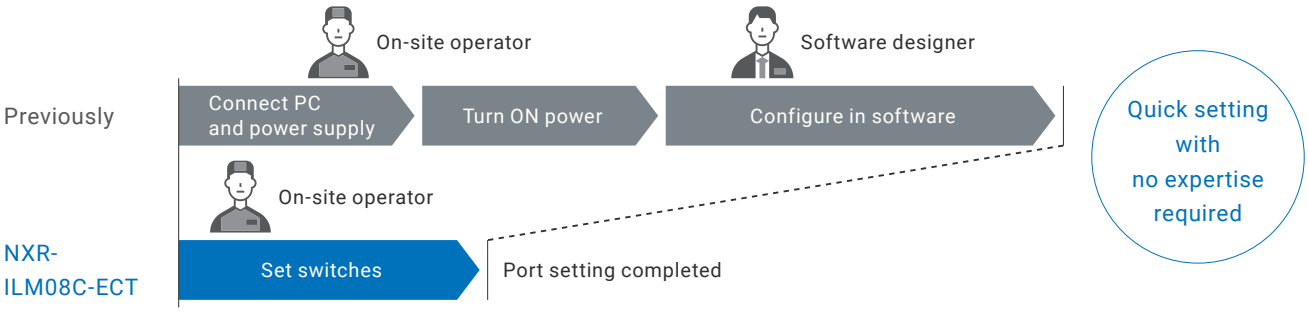
Adding the IO-Link I/O hub simplifies wiring while providing the capability of data utilization.



Simple and quick setup and commissioning

Setup without software designer intervention EtherCAT

On-site operators can make port settings for the IO-Link master unit simply by setting the rotary switches to a pre-set pattern, reducing setup time and software designers' workload.



Previously

Connected to PC

Setting each port in software

IO-Link, digital input, or digital output is set for each port individually in software.

NXR-ILM08C-ECT

I/O port quick settings

Port setting is completed by setting the switches to a pattern pre-set for each port.

Port setting table of NXR-ILM08C-ECT

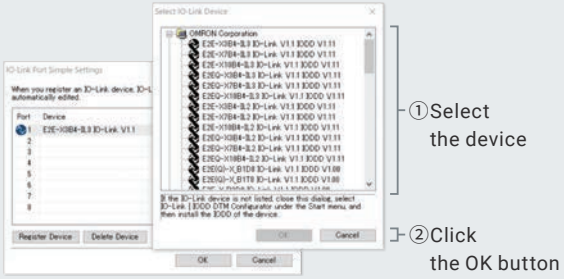
Port	Pin No.	Set switches														
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1	4																
	2																
2	4																
	2																
3	4																
	2																
4	4																
	2																
5	4																
	2																
6	4																
	2																
7	4																
	2																
8	4																
	2																

Digital input | Digital output | IO-Link | Set using software

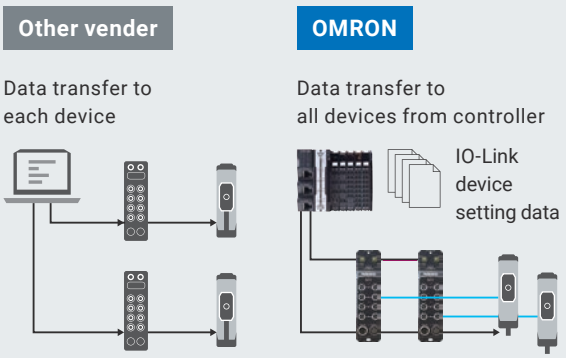
Batch device setting using CX-ConfiguratorFDT

Automatic setting of IO-Link parameters on the configuration tool and transfer of remote terminal and IO-Link device settings from the controller significantly reduce setup time by 90%[*1].

*1. Compared with OMRON's NX Series in August 2025.



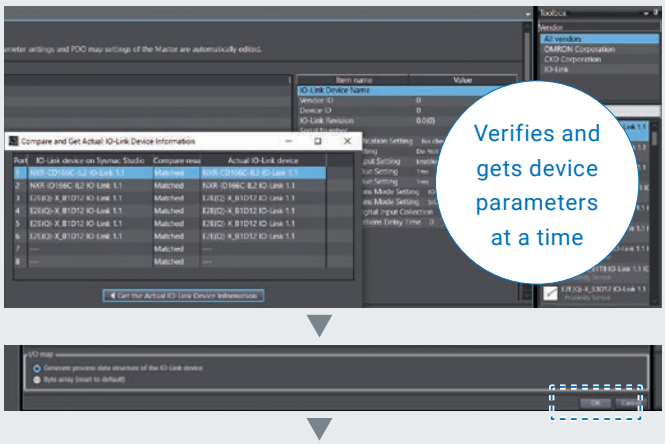
Just select devices to update all parameters at the same time. Simple configuration prevents human errors.

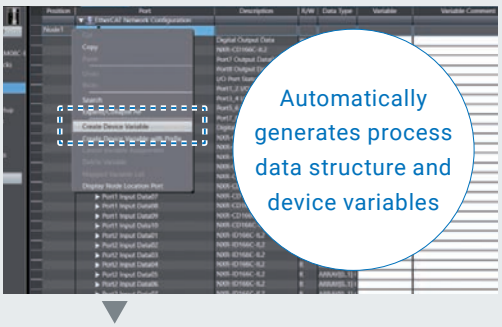


Configuring all devices at once from the controller eliminates the need to configure each device individually, greatly cutting down setup time.

Easy and accurate configuration using Sysmac Studio

Configuration settings of connected actual IO-Link devices can be verified and obtained in Sysmac Studio.
In addition, the process data structure and device variables of the set devices can be generated automatically, reducing programming time. This can save you configuration time while preventing human errors.





Port	Description	R/W	Data Type
▼Port1 Input Data01	E2E(Q)-X_B1D12	R	ARRAY[0..1]
Port1 Monitor Output	Port1 Monitor Output	R	USINT
Port1 Control Output1	Port1 Control Output1	R	BOOL
Port1 Instability Detection Alarm	Port1 Instability Detection /	R	BOOL
Port1 Target too Close Alarm	Port1 Target too Close Alar	R	BOOL
Port1 Warning	Port1 Warning	R	BOOL
Port1 Error	Port1 Error	R	BOOL

I/O port of sensor

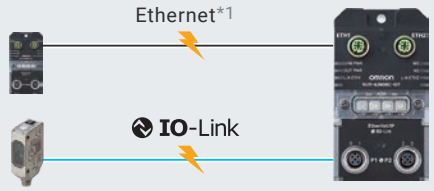
Variable
Port1_Input_Data01
Port1_Monitor_Output
Port1_Control_Output1
Port1_Instability_Detection_Alarm
Port1_Target_too_Close_Alarm
Port1_Warning
Port1_Error

Variables generated by selecting Create Device Variable from menu

Operation

Stable operation by visualizing communication quality EtherNet/IP EtherCAT

Quantified Ethernet and IO-Link communication statuses allow you to find network cabling errors before operation. During operation, the communication statuses can be monitored, making it possible to check the system before it suddenly stops.



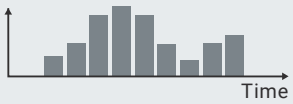
[Case study]

Error count of all devices

	Total communication error count
Terminal A	0
Terminal B	14
Terminal C	0

Error count of terminal B

Communication error count



*1. The NJ/NX CPU Units and NY Industrial PCs support EtherCAT.

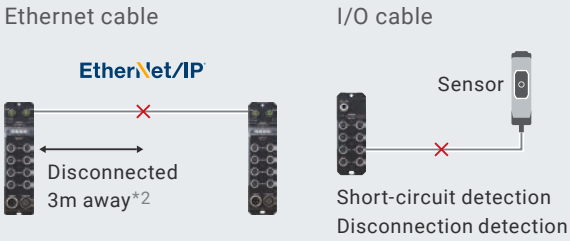
Maintenance

Short MTTR by easy replacement and quick recovery

I/O cable and communication cable diagnostics

EtherNet/IP EtherCAT

The remote terminal reports approximate locations of disconnections or short circuits in Ethernet cables, and detects disconnections or short circuits in I/O cables.

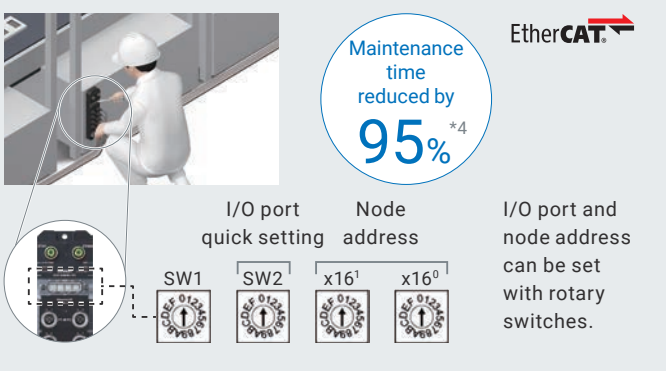


*2. The NXR-ILM08C-EIT IO-Link Master Unit for EtherNet/IP can report approximate locations of problems in Ethernet cables.

Reduced maintenance time during replacements

When an IO-Link master unit fails, replacement can be completed simply by an operator adjusting the switches*3, eliminating the need for software during replacements. The port settings for the NXR-ILM08C-ECT model can be restored in significantly less time, with a 95% reduction*4 compared to using a PC.

IO-Link device parameters can be backed up to the NXR manually or via the controller. Broken sensor parameters are automatically restored when replaced with a new one.



*3. The setting range of I/O port quick setting is the device parameter of NXR-ILM08C-ECT. When replacing an IO-link device with settings other than the default, set the IO-Link device parameters using CX-ConfiguratorFDT.

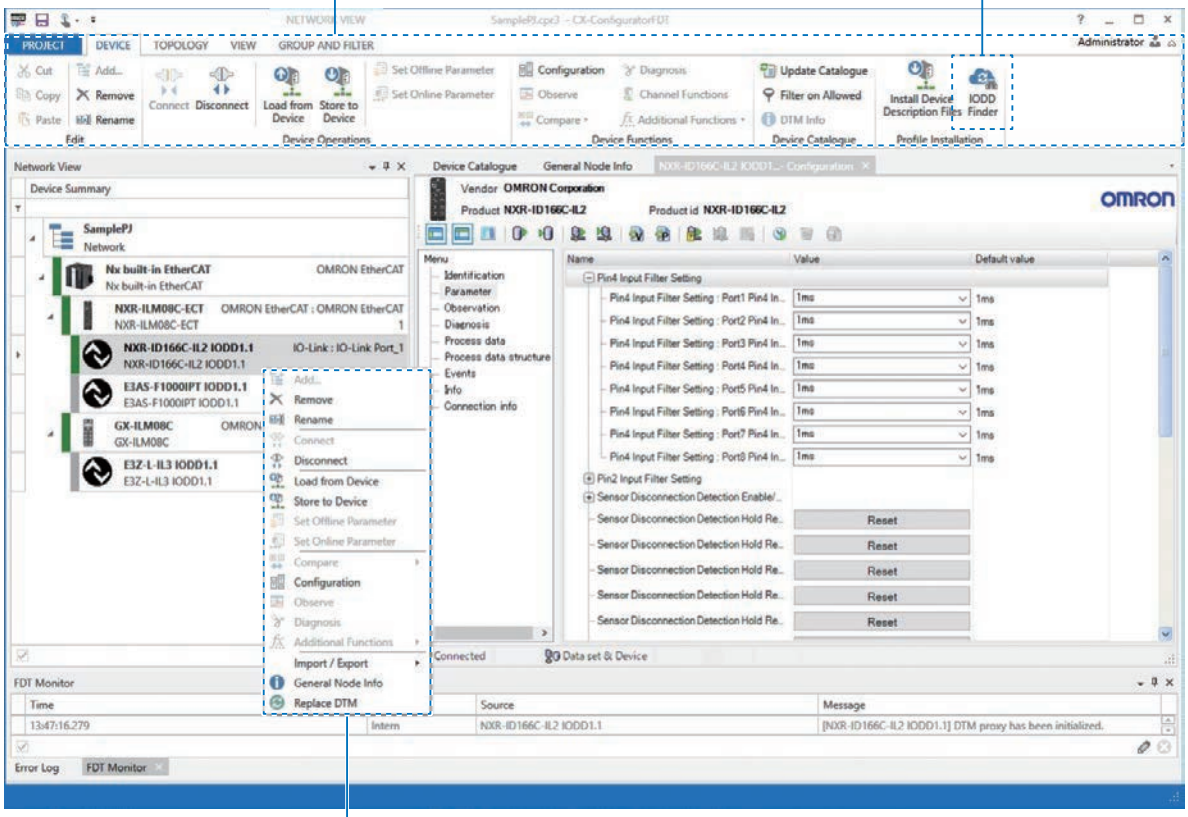
*4. Calculated under our specified conditions in November 2023.

CX-ConfiguratorFDT with improved user interface*5

The updated CX-ConfiguratorFDT provides a familiar user interface in Office 365 and Windows 10.
With enhanced usability, this tool enables you to search for and download profiles online using the IODDfinder.

Modern ribbon-based UI design and usability

IODDfinder: Online profile search and download (IO-Link)



Inherited function to generate variables by selecting Create Device Variable from menu

*5. The CX-ConfiguratorFDT is support software used for parameter setting of IO-Link devices.

Ordering Information

Product name	Number of IO-Link ports	Degree of protection	Port connection	Model
IO-Link Master Unit for EtherNet/IP	8	IP67	M12 connector (A-coding, female)	NXR-ILM08C-EIT
IO-Link Master Unit for EtherCAT				NXR-ILM08C-ECT

Product name	Number of inputs/outputs	Degree of protection	I/O connector	Model
IO-Link I/O Hub	16 inputs	IP67	8 M12 connectors (A-coding, female)	NXR-ID166C-IL2
	16 inputs/outputs			NXR-CD166C-IL2

Specifications

Product name	Item		Specification
IO-Link Master Unit for EtherNet/IP	EtherNet/IP communications	Baud rate, Ethernet physical layer	10Mbps/100Mbps, 100BASE-TX/10BASE-T
		Ethernet switch	Layer 2 Ethernet switch
		Functions	Communication cable diagnostics, Network statistical information acquisition, QuickConnect, DLR (Device Level Ring)
	IO-Link port	Connector, number of ports	Class A, 8 ports
		Baud rate	COM1:4.8kbps, COM2:38.4kbps, COM3:230.4kbps
	Digital inputs in SIO (DI) Mode	Number of inputs	16
		Short-circuit protection, short-circuit detection	Provided
	Digital outputs in SIO (DO) Mode	Number of outputs	16
		Short-circuit protection, short-circuit detection	Provided

Product name	Item		Specification
IO-Link Master Unit for EtherCAT	EtherCAT communications	Baud rate, Ethernet physical layer	100 Mbps/100BASE-TX
	IO-Link port	Connector, number of ports	Class A, 8 ports
		Baud rate	COM1: 4.8 kbps, COM2: 38.4 kbps, COM3: 230.4 kbps
	Functions		I/O port quick settings, Ring topology(EtherCAT)
	Digital inputs in SIO(DI) Mode	Number of inputs	16
		Short-circuit protection, short-circuit detection	Provided
	Digital inputs in SIO(DO) Mode	Number of outputs	16
		Short-circuit protection, short-circuit detection	Provided

Product name	Item		Specification
IO-Link I/O Hub	IO-Link	Baud rate	COM2:38.4kbps
	Digital inputs	Number of inputs	16 (digital input hub), 0 to 16 (digital input/output hub)
		Short-circuit protection, short-circuit detection, disconnection detection	Provided
	Digital outputs	Number of outputs	0 to 16 (digital input/output hub)
		Short-circuit protection, short-circuit detection, disconnection detection	Provided

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

OMRON Corporation **Industrial Automation Company**

Kyoto, JAPAN **Contact : www.ia.omron.com**

Regional Headquarters

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

OMRON ELECTRONICS LLC
2895 Greenspoint Parkway, Suite 200
Hoffman Estates, IL 60169 U.S.A.
Tel: (1) 847-843-7900 Fax: (1) 847-843-7787

OMRON ASIA PACIFIC PTE. LTD.
438B Alexandra Road, #08-01/02 Alexandra
Technopark, Singapore 119968
Tel: (65) 6835-3011 Fax: (65) 6835-3011

OMRON (CHINA) CO., LTD.
Room 2211, Bank of China Tower,
200 Yin Cheng Zhong Road,
PuDong New Area, Shanghai, 200120, China
Tel: (86) 21-6023-0333 Fax: (86) 21-5037-2388

Authorized Distributor:

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