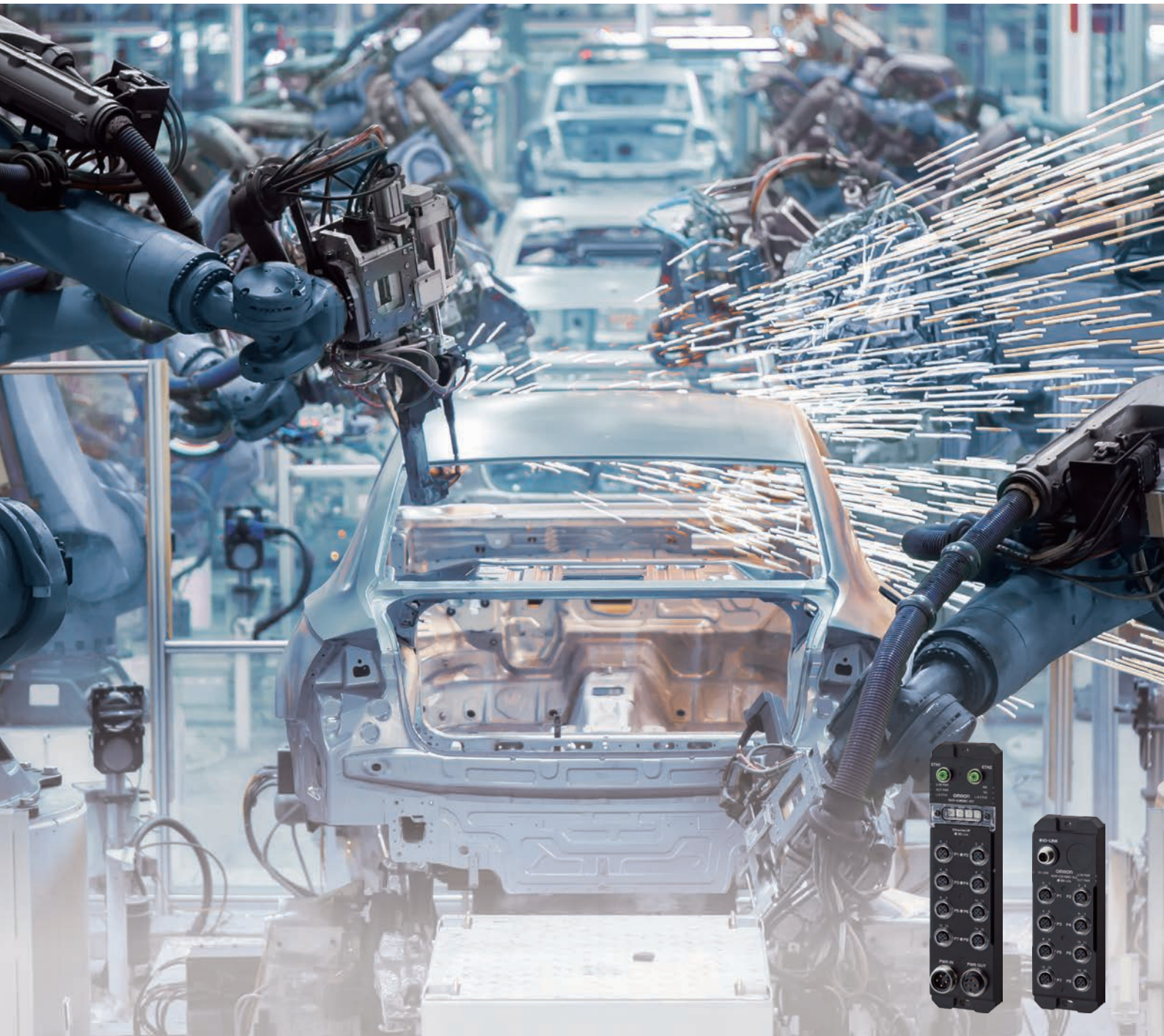


Environment-resistive Remote Terminal NXR Series
IO-Link Master Unit for EtherNet/IP™ or EtherCAT®

OMRON

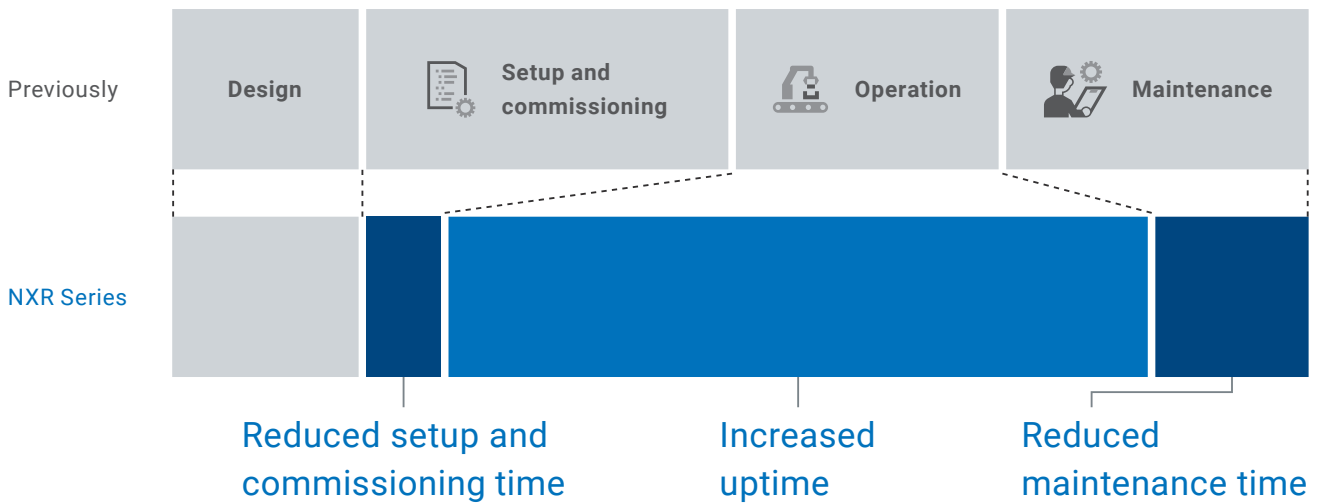
Easy way to adopt IoT for production equipment IP67 Remote Terminal



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

Network

- NXR-ILM08C-EIT
- EtherNet/IP™
- NXR-ILM08C-ECT
- EtherCAT®
- NEW

I/O connector

- NXR-ID166C-IL2
- NXR-CD166C-IL2
- LED indicator: Color universal design
- Enlarged view of I/O connector

Power supply connector

- IO-Link Master Unit
- IO-Link I/O Hub

IO-Link

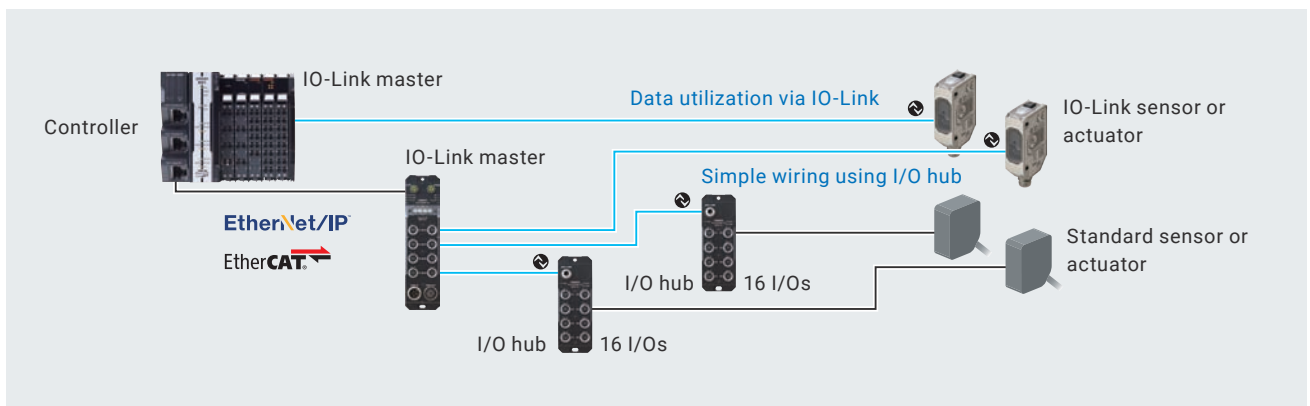
- Selectable by setting
- 8 IO-Link ports
- 16 digital inputs/outputs
- 16 digital inputs or
- 16 digital inputs/outputs

7/8-inch connector

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

Data utilization with reduced wiring

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

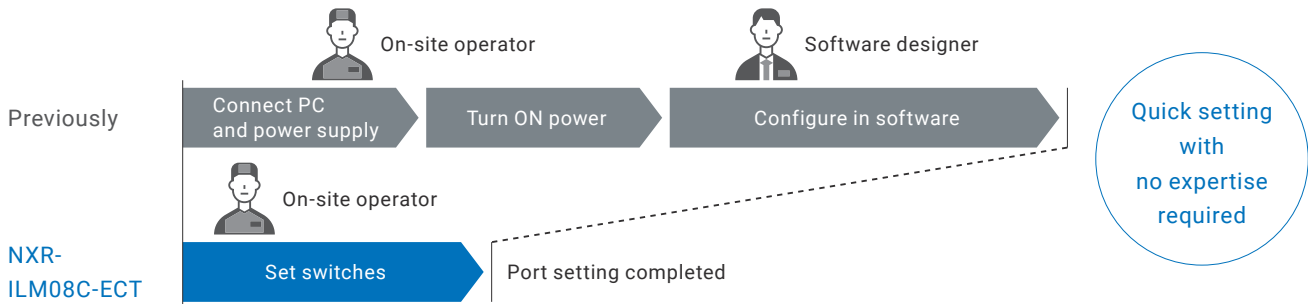




Simple and quick setup and commissioning

Setup without software designer intervention NEW 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

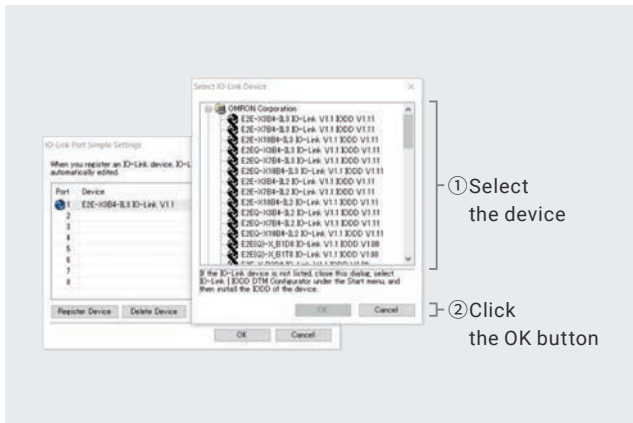
| Port | Pin No. | Set switches | | | | | | | | | | | | | | | |
|------|---------|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 1 | 4 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |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

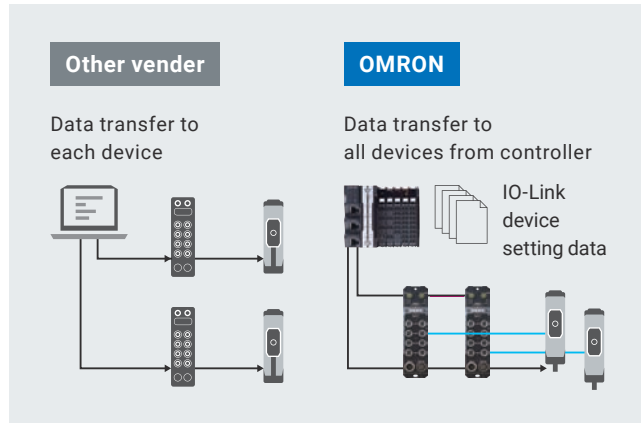
Batch device setting using CX-Configurator FDT

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 May 2020.



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.

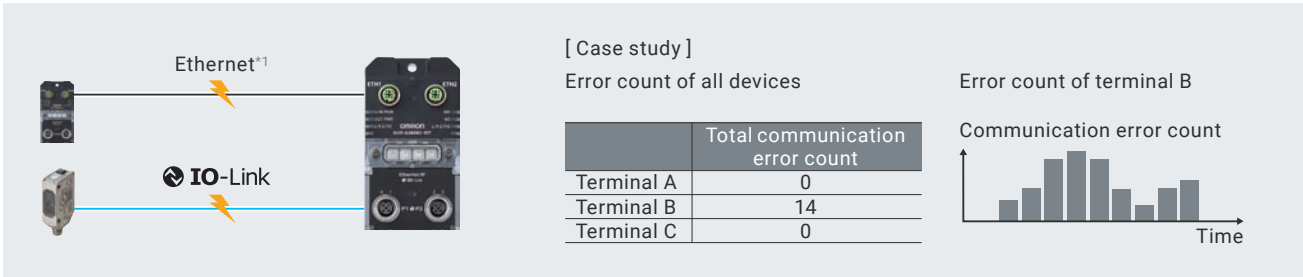
| Port | Description | R/W | Data Type | Variable |
|-----------------------------------|-----------------------------|-----|-------------|---------------------------------------|
| Port1 Input Data01 | E2E(Q)-X_B1D12 | R | ARRAY[0..1] | 001_Port1_Input_Data01 |
| Port1 Monitor Output | Port1 Monitor Output | R | USINT | 001_Port1_Monitor_Output |
| Port1 Control Output1 | Port1 Control Output1 | R | BOOL | 001_Port1_Control_Output1 |
| Port1 Instability Detection Alarm | Port1 Instability Detection | R | BOOL | 001_Port1_Instability_Detection_Alarm |
| Port1 Target too Close Alarm | Port1 Target too Close Alar | R | BOOL | 001_Port1_Target_too_Close_Alarm |
| Port1 Warning | Port1 Warning | R | BOOL | 001_Port1_Warning |
| Port1 Error | Port1 Error | R | BOOL | 001_Port1_Error |

I/O port of sensor

Variables generated by selecting Create Device Variable from menu

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.



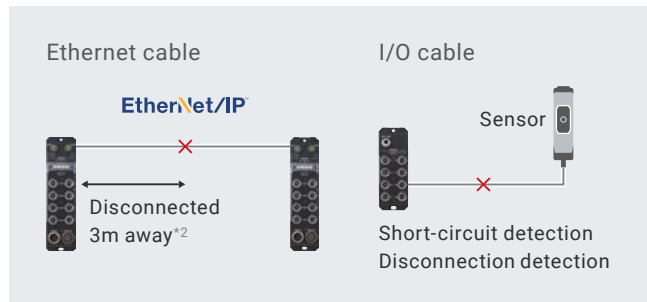
*1. The NJ/NX CPU Units and NY Industrial PCs support EtherCAT.

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.



Replacement and setting without software **NEW** **EtherCAT**

When a failure occurs, the operator can restore the IO-Link Master Unit by setting the rotary switches, without using a PC.^{*3} The software designer doesn't need to visit the site. As for port setting for the NXR-ILM08C-ECT IO-Link Master Unit for EtherCAT, the time required for recovery is shortened by 95% compared with setting on a PC^{*4}.

| PREVIOUSLY | NXR-ILM08C-ECT |
|---|---|
| Skilled software designer reconfigures settings using configuration tool. | Even operator can complete configuration just by setting switches to specified positions. |
|  |  |

I/O port quick setting Node address

SW1 SW2 x16¹ x16⁰



I/O port and node address can be set with rotary switches.

Maintenance time reduced by **95%**^{*3}

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

*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-Configurator-FDT.

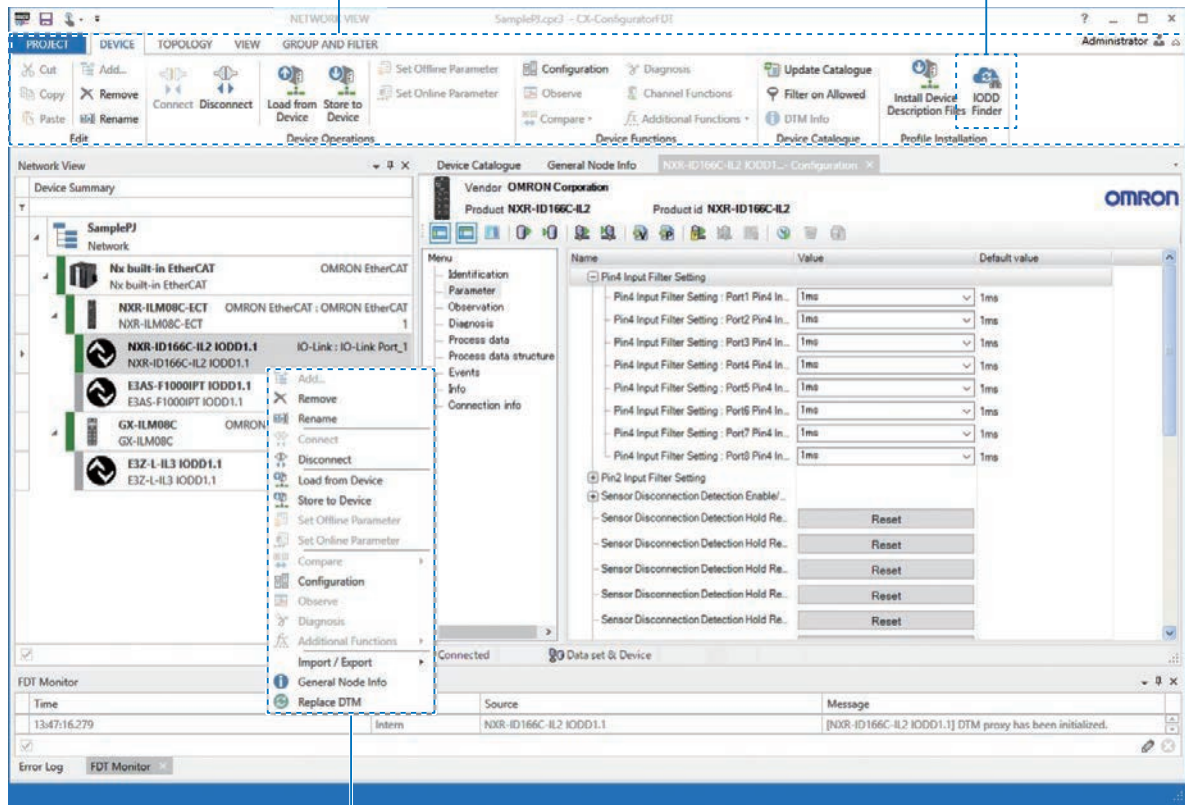
*4. Calculated under our specified conditions in November 2023.

CX-ConfiguratorFDT with improved user interface^{*4}

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

*4. 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 NEW |

| 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 |
| | | Number of inputs | 16 (digital input hub), 0 to 16 (digital input/output hub) |
| | Digital inputs | Short-circuit protection, short-circuit detection, disconnection detection | Provided |
| | | Number of outputs | 0 to 16 (digital input/output hub) |
| | Digital outputs | Short-circuit protection, short-circuit detection, disconnection detection | Provided |

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