Using IoT to Bring Innovation to Manufacturing Sites.

OMRON

IO-Link Series

Everything from the Sensors to the Equipment is Made Visible with IO-Link

New Safety Light Curtains Prevent Unplanned Stoppages by Outputting Light Intensity Data for Monitoring

Using IoT to enhance the value of manufacturing

- "Condition monitoring" for predictive maintenance
- "Abnormality detection" for shortest recovery
- "Individual identification" for reduction of man hours

IO-Link

Toward the Factory of the Future with **Onsite IoT**

Today's manufacturing industry is facing the need for high-mix low-volume production and advanced manufacturing. On the other hand, with the technology of digital fields, ICT and analysis technology are advancing by leaps and bounds.
We aim to achieve the Factory of the Future through the use of the IoT (Internet of Things) in order to respond to such changes in the environment.

What we are aiming for is
the Factory of the Future in which human intention and equipment converge

Using the IoT to connect things at the manufacturing site with each other and with people from equipment down to the individual components makes it possible to detect signs that may indicate problems before the equipment stops and for the equipment to handle this autonomously and analyze the causes of defects.
This allows personnel to concentrate on higher added-value work without the need for emergency maintenance or for going back over work already completed.
Attaining this Factory of the Future means onsite IoT.

Onsite IoT from OMRON

Automation in Manufacturing with Intelligence

With OMRON, you can collect a wide variety of data at the manufacturing site level simply and
without omission or excess effort.
The implicit knowledge of proficient skills and manufacturing know-how is turned into
explicit knowledge and fed back to the manufacturing site to improve productivity.
We are aiming to further use data for automation in manufacturing with intelligent equipment,
including achieving production lines that do not stop and equipment that learns and evolves.

The Strength of the Manufacturing Site Developed by OMRON

Three Forms of Know-how Moving IoT Forward

At OMRON, we have the product know-how of a manufacturer who has produced control components
for decades, the manufacturing know-how of a user who uses these control components
on its own lines, and the know-how to handle open network environments.
With these three types of know-how, nurtured with the strength of manufacturing sites as
only OMRON can, the customer's application is achieved and onsite IoT is moved forward powerfully.

Attaining the Factory of the Future Makes

Manufacturing More Enjoyable

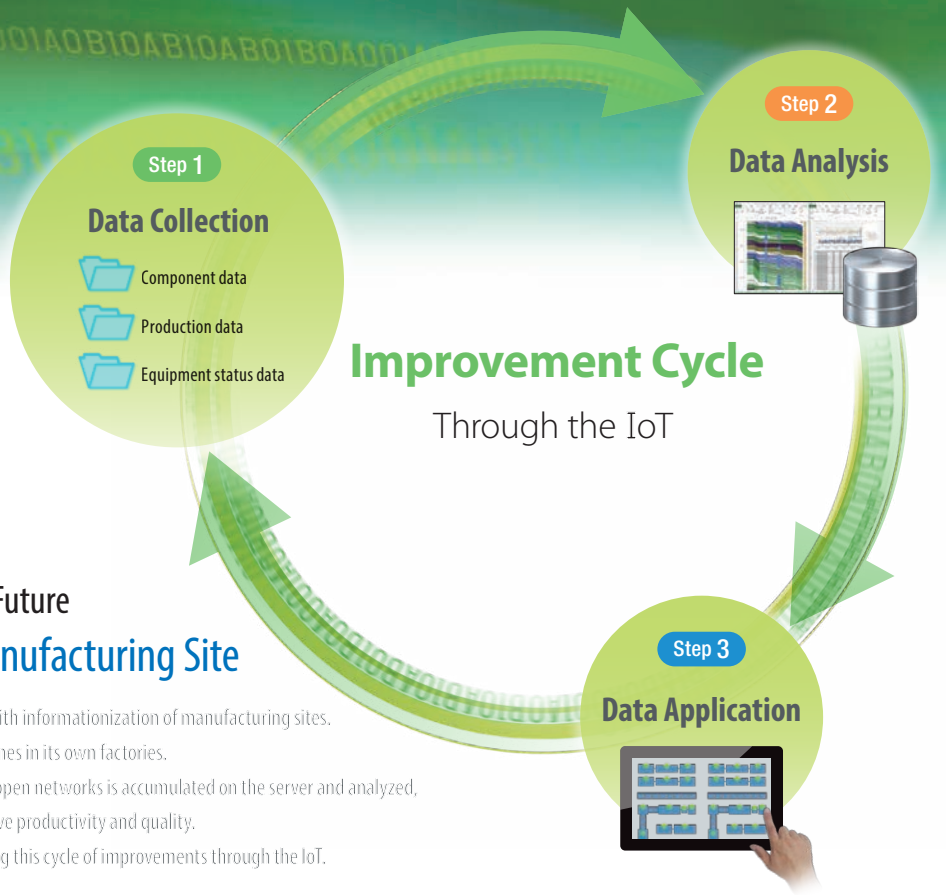|	
Maintenance	**From emergency maintenance to planned maintenance, which generates improvements**
Production Technology	**Predictive control of the production line as a whole**
Development	**Concentrating on work that creates innovative products**

Step 1

Data Collection

Component data

Production data

Equipment status data

Step 2

Data Analysis

Improvement Cycle
Through the IoT

Step 3

Data Application

The First Step to the Factory of the Future
Informationization of the Manufacturing Site

Attaining the Factory of the Future through the IoT starts with informationization of manufacturing sites.
OMRON itself started with visualization of the production lines in its own factories.
Data collected through EtherNet/IP™, EtherCAT, and other open networks is accumulated on the server and analyzed,
and the results are used at the manufacturing site to improve productivity and quality.
We have already achieved major improvements by repeating this cycle of improvements through the IoT.

The Cycle of Improvements Through the IoT Has Been Verified in OMRON's Own Factories

We provide our customers with the know-how to achieve this and the results.

Productivity Improvement
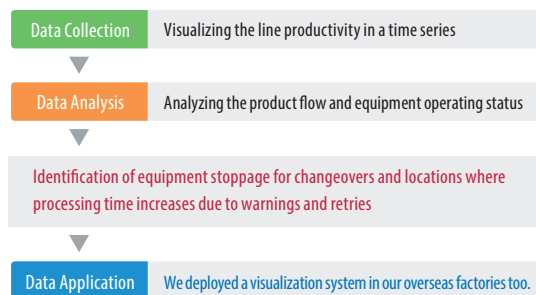Examples from Kusatsu Factory and Shanghai Factory

Through High-Speed Collection of Big Data

Improved Operating Rates

Improvement Results

· Time to identify areas for improvement reduced to 1/6 or less*
· Productivity improved by 30%*

*In-house comparison.

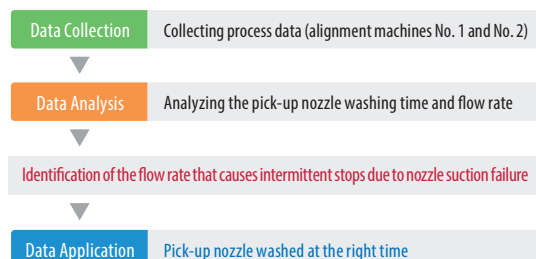|	
Data Collection	Visualizing the line productivity in a time series
Data Analysis	Analyzing the product flow and equipment operating status
Identification of equipment stoppage for changeovers and locations where processing time increases due to warnings and retries	
Data Application	We deployed a visualization system in our overseas factories too.

Predictive Maintenance
Example from Ayabe Factory

Through Application of Big Data

Improved Equipment Maintenance with Less Waste

Improvement Results

· Productivity improved by avoiding intermittent stops
· Costs reduced through accurate parts replacement

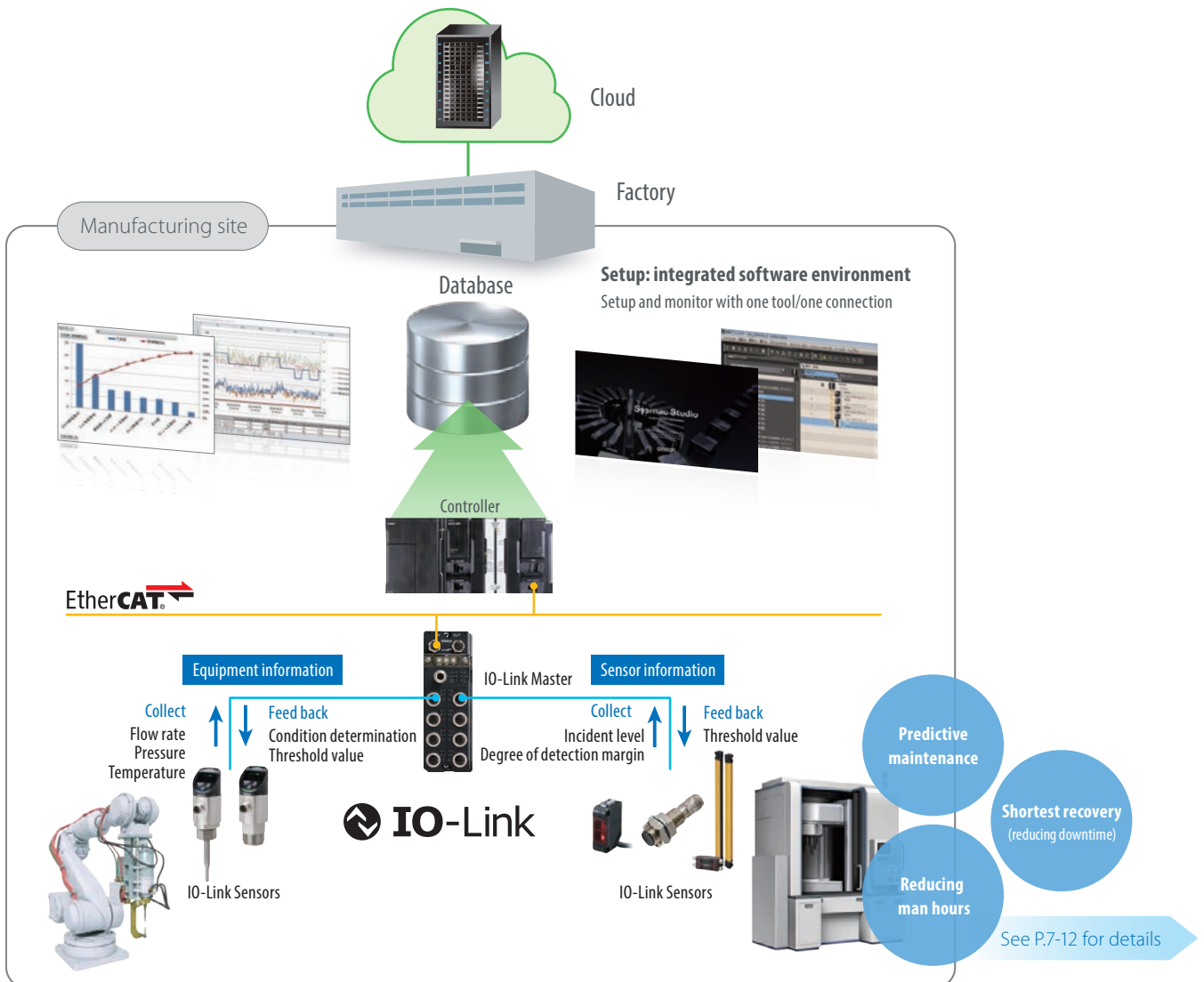|	
Data Collection	Collecting process data (alignment machines No. 1 and No. 2)
Data Analysis	Analyzing the pick-up nozzle washing time and flow rate
Identification of the flow rate that causes intermittent stops due to nozzle suction failure	
Data Application	Pick-up nozzle washed at the right time

The IoT at the Component Level Is Necessary for Manufacturing Site Informationization

At many manufacturing sites, the adoption of the IoT is being promoted at the controller and HMI levels through EtherNet/IP or EtherCAT, but not at the component level.
Therefore, at OMRON, we early on created a lineup of devices for IO-Link, which is a sensor-level open network to promote sensor-level informationization.

Everything from the Sensors to the Equipment is Made Visible with IO-Link

By connecting Sensors and Controllers to an IO-Link Master, not only ON/OFF signals but also information required for stable operation, such as incident light levels and flow rate, are made visible.
We are making it possible to monitor the condition and detect any abnormalities of sensors and equipment, contributing to shorter recovery time, predictive maintenance, and a reduction of man-hours for commissioning.

Cloud

Factory

Manufacturing site

Database

Setup: integrated software environment
Setup and monitor with one tool/one connection

Controller

EtherCAT

Equipment information

IO-Link Master

Sensor information

Collect
Flow rate
Pressure
Temperature

Feed back
Condition determination
Threshold value

Collect
Incident level
Degree of detection margin

Feed back
Threshold value

IO-Link

IO-Link Sensors

IO-Link Sensors

Predictive maintenance

Shortest recovery (reducing downtime)

Reducing man hours
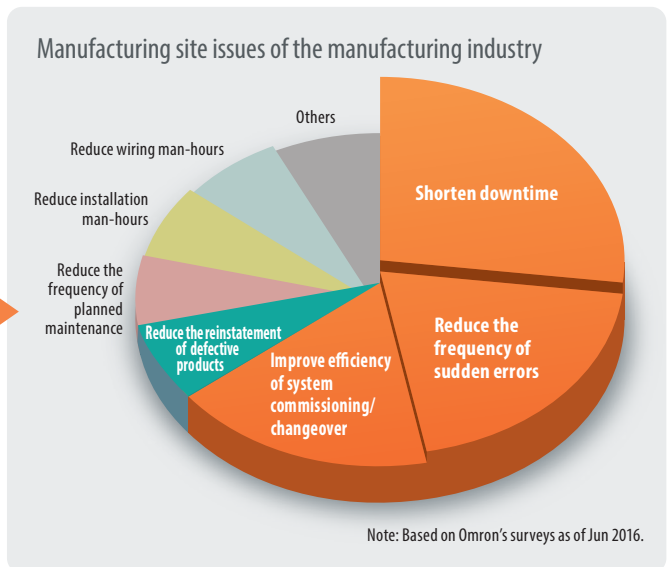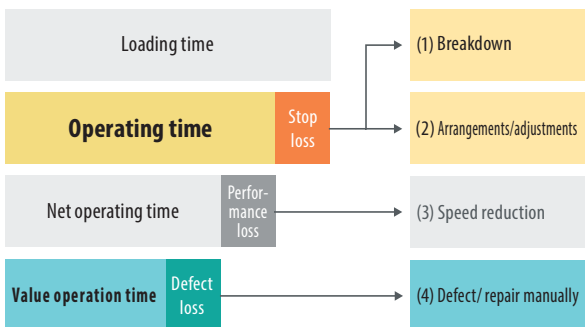
Value Provided by IO-Link

Supporting Solutions to Management Issues in the Manufacturing Industry Through Abnormality Detection/Condition Monitoring/Individual Identification

"Improving an equipment operation rate" is a universal management issue at manufacturing sites. As the calculation formula below shows, an overall equipment operation rate is determined by how stops, drops in speed and defects are avoided.

Overall Equipment Effectiveness[1] = Availability (stop loss) × speed performance (performance loss) × quality (defect loss)

*1. OEE: overall equipment effectiveness. An index that stratifies the effectiveness of production equipment developed and advocated by the Japan Institute of Plant Maintenance.

These three loss occurrence factors are divided into the following (1) to (4). Of these, the causes of stop loss are the three major issues at the manufacturing sites (shown in orange on the right diagram) and the defect loss is the fourth issue (shown in green on the chart on the right).

Loading time			(1) Breakdown
Operating time	Stop loss		(2) Arrangements/adjustments
Net operating time	Performance loss		(3) Speed reduction
Value operation time	Defect loss		(4) Defect/ repair manually

Manufacturing site issues of the manufacturing industry

- Others
- Reduce wiring man-hours
- Reduce installation man-hours
- Reduce the frequency of planned maintenance
- Reduce the reinstatement of defective products
- Improve efficiency of system commissioning/ changeover
- Shorten downtime
- Reduce the frequency of sudden errors

Note: Based on Omron's surveys as of Jun 2016.

Omron's IO-Link Compliant Components Solve "Stop Loss" "Defect Loss" Issues and Improve Equipment Operation Rate
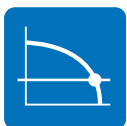
What makes **the reduction of the frequency of sudden errors and reinstatement of defective products** possible is...
"Condition monitoring" for predictive maintenance   P. 7

What makes **the shortening of downtime** possible is...
"Abnormality detection" for the shortest recovery   P. 11

What makes **the improvement of changeover efficiency** possible is...
"Individual identification" for the reduction of man-hours   P. 12

"Condition monitoring" for predictive maintenance

Predictive maintenance

Reduction of Sudden Stops by Grasping the Flow Rate Simultaneously with the Temperature of Cooling Water and Hydraulic Oil Circulating in Equipment

Existing problems

While the presence or absence of cooling water is checked by means of the ON/OFF-based pressure sensor, it is unable to detect any drop in the flow rate of the cooling water or any rise in the cooling water temperature. For that reason,

· The transformer is not cooled, and gets overheated, potentially leading to sudden stops of the equipment and the entire line.

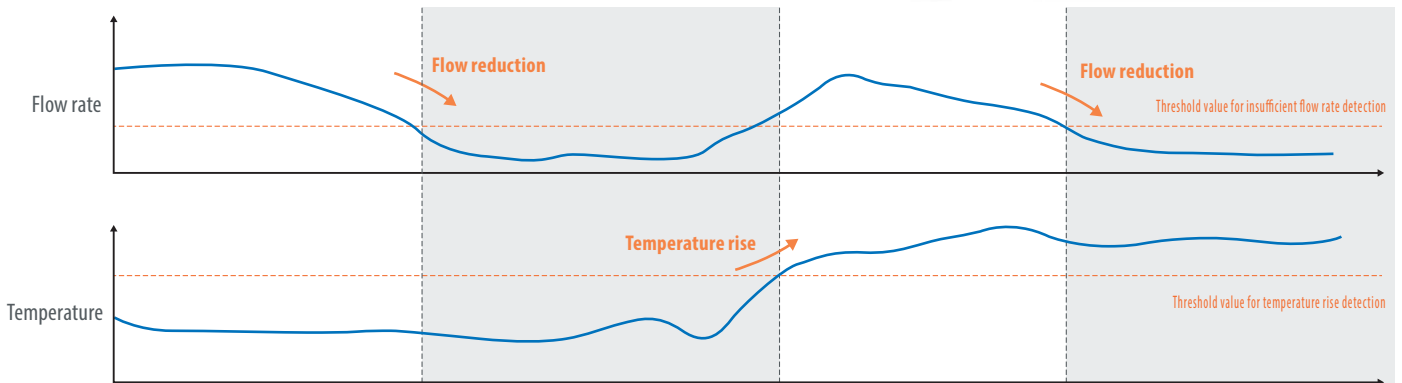· The tip may be deformed, causing defective products.

Sudden Stop

General pressure gauge
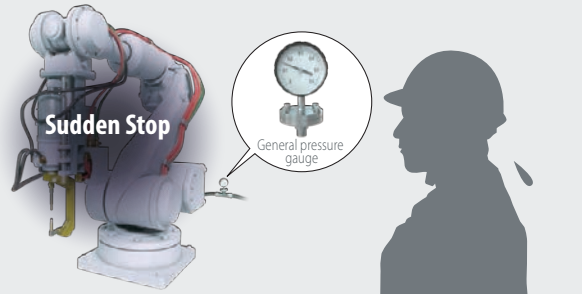
With an IO-Link IoT Flow Sensor

The flow rate and simultaneously the temperature of the circulation system are measured, substantially reducing sudden error.

Simultaneous monitoring of the flow rate and temperature changes, and informing of those changes, enable you to carry out predictive maintenance and reduce defective products.

Flow Sensor E8FC

Cooling system of a welding machine

Flow rate

Flow reduction

Flow reduction

Threshold value for insufficient flow rate detection

Temperature

Temperature rise

Threshold value for temperature rise detection

Normal cooling performance	**Flow reduction**	**Temperature rise**	**Flow reduction×Temperature rise**
2.5	1.5	35.3	39.7
The equipment looks to be performing smoothly.	There may be a leak in the pipe or the motor malfunctioning.	The piping may be clogged or the chiller may be malfunctioning.	Performance has dropped! Check for any deformation of tip and/or overheating of the transformer!

To those in charge of maintenance

"Condition monitoring" for predictive maintenance

The Proximity Sensor Indicates an Excessive Proximity to the Sensing Object.
Understand the Changes in Equipment Condition in Advance and Reduce Sudden Stops
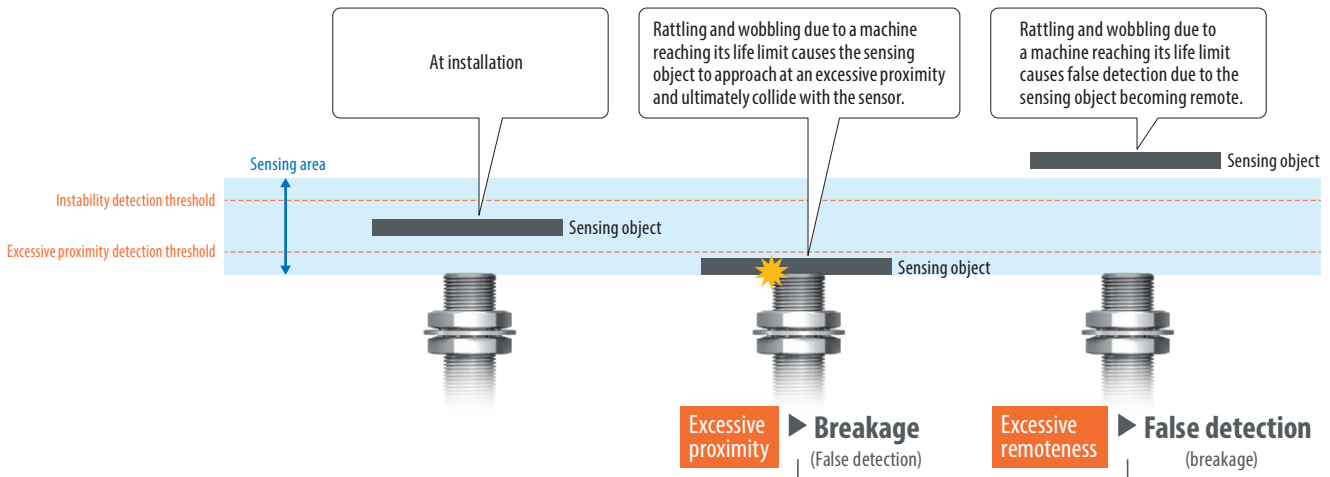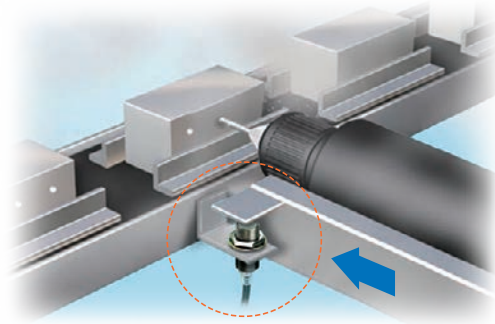
Predictive maintenance

Existing problems

The detection position changes due to wear and vibration in the equipment's mechanical parts and as a result, false detection and collision with the sensor have a negative impact on the equipment...

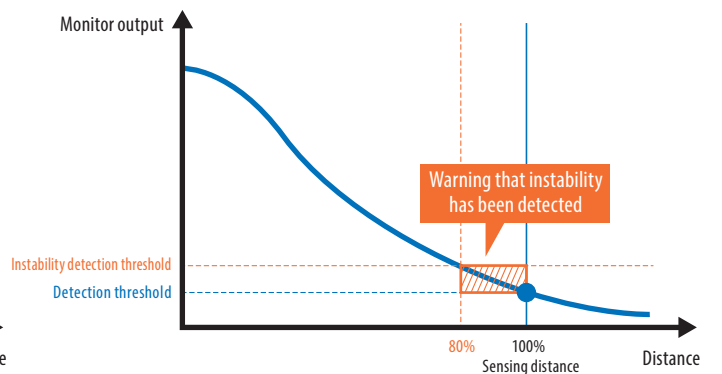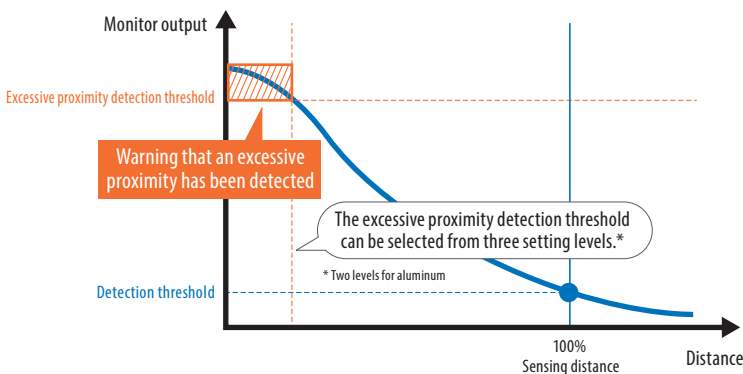With an IO-Link Proximity Sensor

You are notified of excessive remoteness or proximity, and the occurrence of sudden defects is greatly reduced

Constantly monitoring the position of the sensing object and notifying of excessive remoteness or proximity can be used for predictive maintenance of the equipment.

At installation

Rattling and wobbling due to a machine reaching its life limit causes the sensing object to approach at an excessive proximity and ultimately collide with the sensor.

Rattling and wobbling due to a machine reaching its life limit causes false detection due to the sensing object becoming remote.

Sensing area

Instability detection threshold

Excessive proximity detection threshold

Sensing object

Sensing object

Sensing object

Excessive proximity ▶ **Breakage** (False detection)

Excessive remoteness ▶ **False detection** (breakage)

Sensing object becomes excessively proximate

Monitor output

Excessive proximity detection threshold

Warning that an excessive proximity has been detected

The excessive proximity detection threshold can be selected from three setting levels.*

* Two levels for aluminum

Detection threshold

100%
Sensing distance

Distance

Sensing object becomes excessively remote

Monitor output

Warning that instability has been detected

Instability detection threshold

Detection threshold

80%   100%
Sensing distance

Distance

Note: The instability detection threshold is fixed at 80%.

"Condition monitoring" for predictive maintenance

Predictive maintenance

Understand Unstable Situations in the Incident Level of the Photoelectric Sensor in Advance and Reduce Sudden Stops

Existing problems

· In a conveyance process operating for 24 hours, dust or dirt accumulated on the detection surface of the photoelectric sensor, leading to a decline in the light incident level that causes the sensor to make false detection and the equipment to stop...

· Water drops stick to the sensing surface of the reflective sensor causing reflected light to enter...
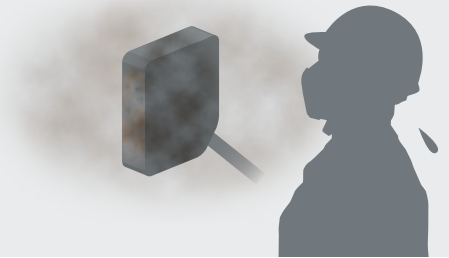
With an IO-Link Photoelectric Sensor

A light incident level monitor prevents false detection

With a response time of 1 ms, Photoelectric Sensor's light incident level is output for monitoring. It is output when the light incident level exceeds the instability detection threshold, so you can check the site before false detection occurs and perform predictive maintenance.
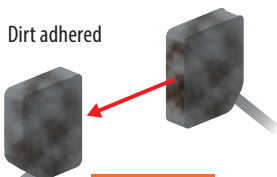
Debris and dust accumulate on the sensing surface
(Through-beam)
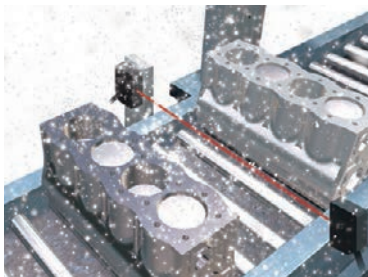
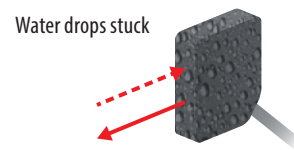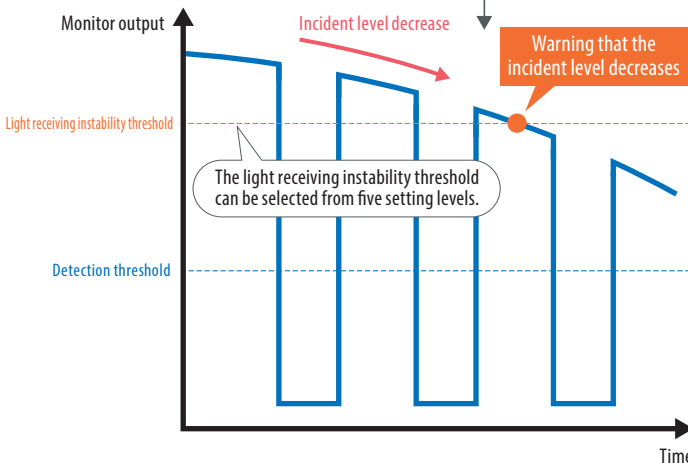Paint adhered to the sensing surface
(Through-beam)
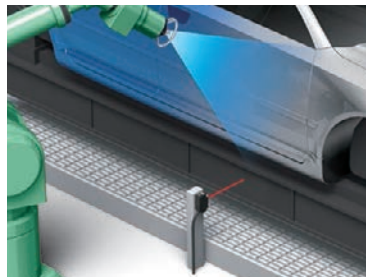
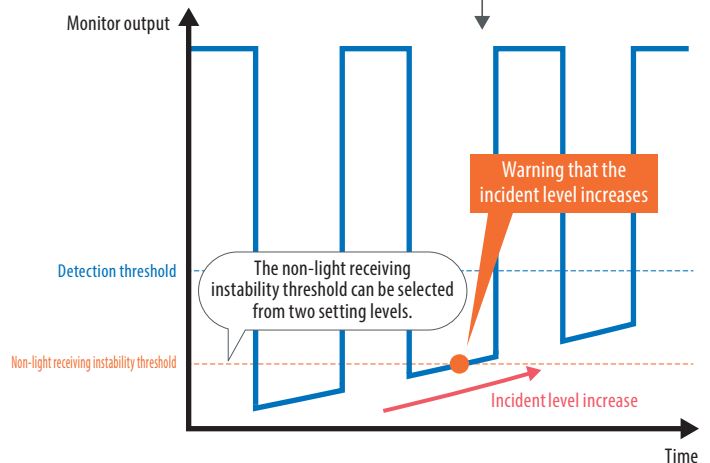Water drops adhered to the sensing surface
(Through-beam)

Dirt adhered

Water drops stuck

Incident level decrease when the level is higher than the detection threshold

Incident level reduces ▶ **False detection**

Incident level increase when the level is lower than the detection threshold

Incident level increases ▶ **False detection**

Monitor output

Incident level decrease

Warning that the incident level decreases

Light receiving instability threshold

The light receiving instability threshold can be selected from five setting levels.

Detection threshold

Time

Monitor output

Warning that the incident level increases

Detection threshold

The non-light receiving instability threshold can be selected from two setting levels.

Non-light receiving instability threshold

Incident level increase

Time

To those in charge of maintenance   "Condition monitoring" for predictive maintenance

Incident Light Level Monitoring Minimizes Machine Downtime

Existing problems

When a light curtain is installed in a harsh environment,
its optical surface gets dirt easily.
It is hard to notice the light intensity drop until the machine stops...

With an IO-Link Safety Light Curtain
Incident light levels are monitored to warn of low light intensity

Incident light levels of light curtains are monitored to provide advance warning of light intensity drops due to dirt
or other factors, preventing false detection by light curtains.

Monitor changes in light intensity on HMI

The HMI shows the light curtain with low light intensity,
helping quickly locate errors at production sites.

HMI

Note: The Screen is a conceptual illustration.

Take actions on site

Area Beam Indicators of the light curtain allow an at-a-glance check of
areas where light intensity is low.

Stable state
Green : Safety outputs ON
The beams are unblocked.

Low light intensity
Orange : Safety outputs ON
Adjust beams or check
if the light curtain is dirty.

Beams blocked
Red : Safety outputs OFF*
The beams
in the area are blocked.

* The indicator of an unblocked area is OFF.
Note : Factory default setting.

🔆 Use for scan monitoring

Monitoring incident light levels of all beams of the light
curtain enables workpiece shapes to be detected, which
helps identify workpieces.

Identified as
Workpiece A!

HMI

Ⓐ   Ⓑ   Ⓒ

* The screen is a conceptual illustration.

Workpiece C

Workpiece B

Workpiece A
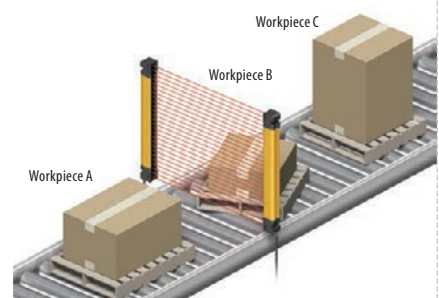
To those in charge of maintenance "Abnormality detection" for the shortest recovery

Shortest Recovery

Detects Wiring Cable Disconnections and Errors and Improves Equipment Operation Rate Through Quick Maintenance

Existing problems

· An abnormality was displayed on the abnormality display screen, but upon going to look at the equipment, no external error was detected and the cause of the stop was not understood...

· Those responsible for maintenance investigated the cause of the abnormality from the activity of the stopped equipment, but because the maintenance person relied on the skill he or she has to identify the abnormality and replace the failed sensor, stoppages from 2 hours to several days occur...
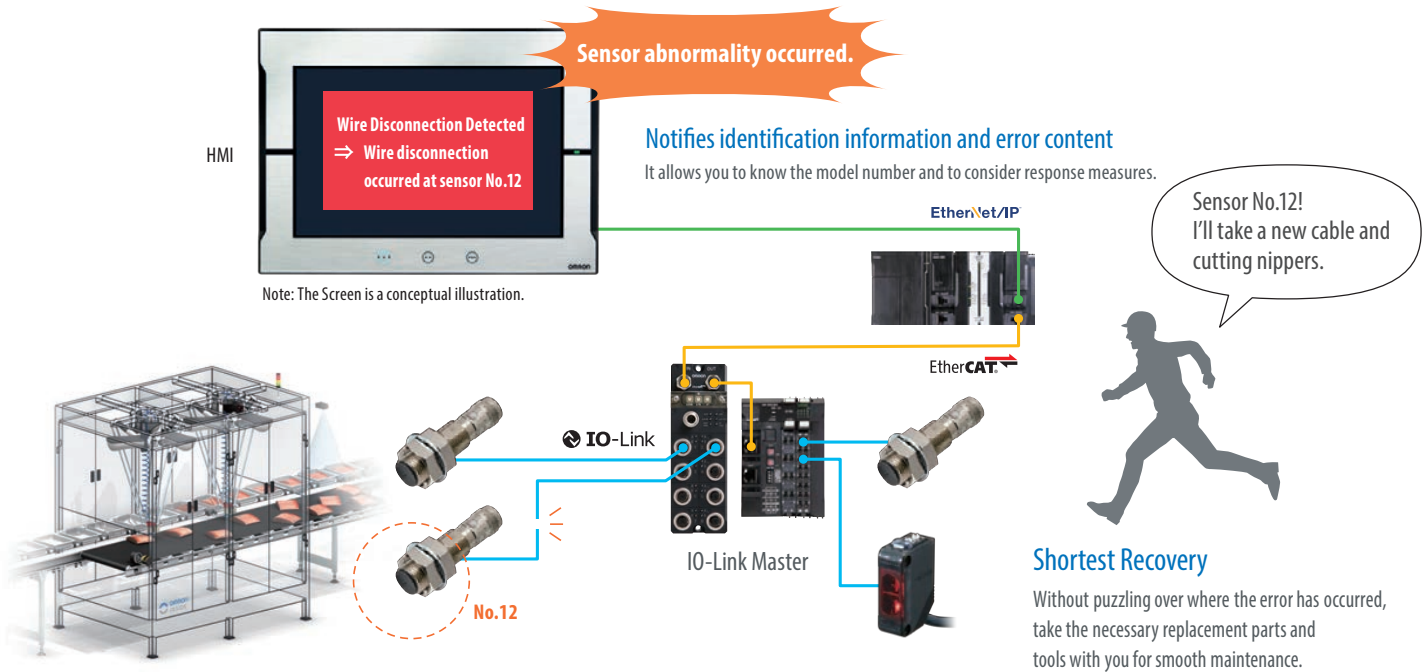
With an IO-Link Sensor

Abnormal area and phenomenon of sensors are reported in real time

When an abnormality occurs in a sensor, because you can see where the abnormality occurred and the factors estimated for it, you can go to where the abnormality occurred and recover the equipment in the shortest amount of time.
Also with wire disconnection detection, not only output wires, but also power lines can be detected unconditionally.

Sensor abnormality occurred.

HMI

Wire Disconnection Detected
⇒ **Wire disconnection occurred at sensor No.12**

Note: The Screen is a conceptual illustration.

Notifies identification information and error content
It allows you to know the model number and to consider response measures.

EtherNet/IP

EtherCAT

Sensor No.12!
I'll take a new cable and cutting nippers.

IO-Link

No.12

IO-Link Master

Shortest Recovery
Without puzzling over where the error has occurred, take the necessary replacement parts and tools with you for smooth maintenance.

Easy replacement of IO-Link sensors with Non-IO-Link sensors

You need a quick recovery but you have only Non-IO-Link sensors with no IO-Link sensors in stock. You probably think in such a case, the control program needs modifications, and requires additional time for the recovery.
With IO-Link Master, since the IO-Link ON/OFF data and the data for Non-IO-Link sensors are located in the same memory, replacement with Non-IO-Link sensors can be carried out without any modification of the control program, resulting in a reduction of the equipment downtime.

Digital input data

Bit position							
07	06	05	04	03	02	01	00
*8	*7	*6	*5	*4	*3	*2	*1

Both are in the same memory

IO-Link Sensor

Non-IO-Link Sensor
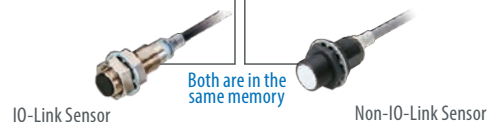
To those in charge of production engineering   "Individual identification" for the reduction of man-hours

Reducing Man-hours

Improving System Commissioning and Changeover Efficiency by Checking Identifications in Batches
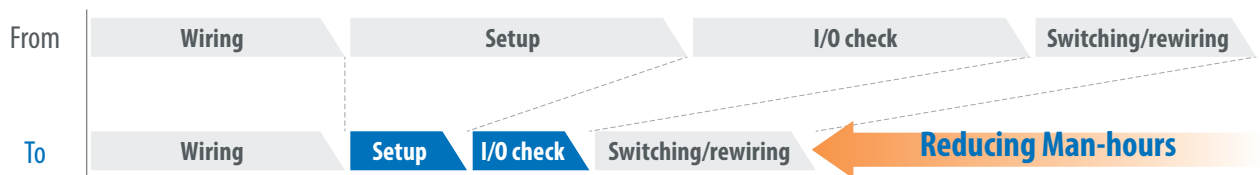
Existing problems

· During system start-up or changeover, operators had to perform the I/O check for each of the thousands of sensors installed on the line, and it took an enormous amount of time...

· When a sensor is installed wrong or an error occurs, wasteful work occurred that would normally be unnecessary...

With an IO-Link Sensor
Without going to the site, you can check individual sensor identifications in batches, resulting in a sharp reduction of commissioning time

By checking the sensor identification (manufacturer/sensor type/model number), you can easily check mistakes such as misconnected or unconnected sensors and installation mistakes. Also, because it is possible to program multiple sensors at once using the command language used only for the controller, it is also possible to reduce commissioning time sharply.

From	Wiring	Setup	I/O check	Switching/rewiring

To	Wiring	Setup	I/O check	Switching/rewiring	Reducing Man-hours

Note: The graph above is a conceptual illustration.

Setup

### Setting all sensors from a host device at the same time
Program all at once to reduce commissioning time and inconsistent settings

Sysmac Studio

Unit ID

Controller

EtherCAT

Setup

IO-Link Masters

IO-Link
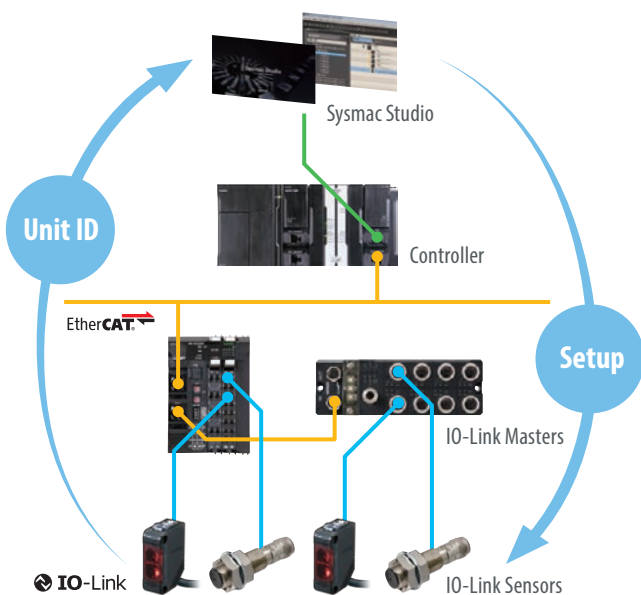
IO-Link Sensors

I/O check

Use identification checks with HMI to prevent installation mistakes
Makes it possible to check for sensor installation mistakes before commissioning

An incorrect sensor is installed for No.5!
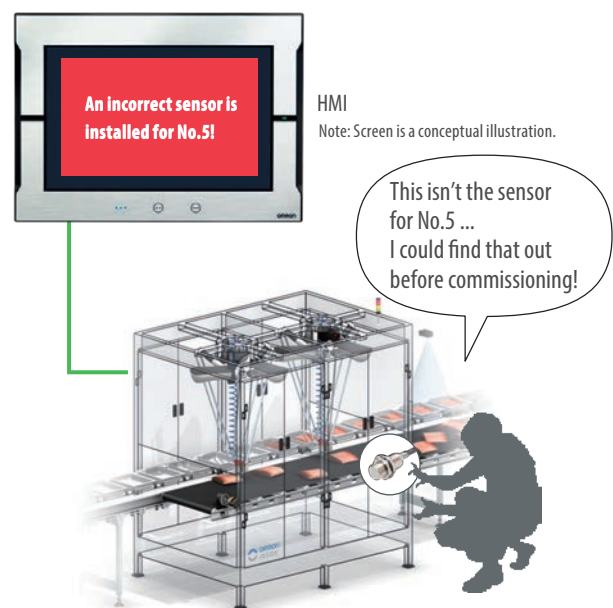
HMI
Note: Screen is a conceptual illustration.

This isn't the sensor for No.5 ...
I could find that out before commissioning!

Note: Setting of the IO-Link master or programming for the PLC is required.

Reducing Man-hours

Reduce Time to Design, Set up, and Maintain IO-Link Systems

Existing problems

· IO-Link increases possibilities, but it takes time to make many settings and check that all settings are made correctly.
  It takes a great deal of effort to enter settings while reading the manual or instruction sheet.
· Time-consuming system changes don't lead to improvement in uptime.

With Omron's IO-Link

Automatic parameter setting and automatic device variable generation reduce configuration time

Just select and place a device on the integrated development environment Sysmac Studio to automatically set all parameters at once and automatically generate device variables on the I/O map.
This reduces configuration time by 90% or more compared to our conventional IO-Link systems and also reduces omission of setting.

Select and place an IO-Link device by just dragging and dropping it on the Sysmac Studio

Sysmac Studio

IO-Link Master

EtherCAT

IO-Link Master

IO-Link Master
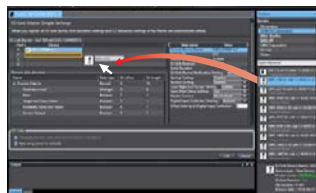
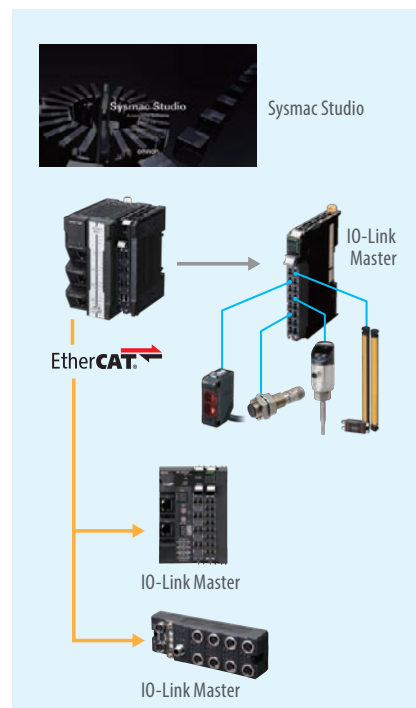**No need** to enter related setting parameters. Automatic update

No need for programming. Automatic generation of device variables according to process data

90% reduction in time and effort *

* In-house comparison.

No need to enter

IO-Link Is

# Communication Technology That Realizes the Informationization of Sensor Levels

IO-Link

IO-Link, which is specified as international standard IEC 61131-9,
is an open information technology (interface technology) between the Sensor/Actuator and the I/O Terminal.
It collects information held by the sensor/actuator through the IO-Link Master and via a fieldbus network into the host controller.
The IO-Link enables communication within the whole system and reduce time required for commissioning and maintenance.

An Open International Standard

As of December 2015, over 100 companies,
including major sensor manufacturers, have joined the IO-Link Consortium.

Responding to Global Development

All IO-Link Sensors have an IODD (IO Data Description) file
that lists what kind of instrument they are and what parameters
need to be set for them. IODD files are globally common, so
IO-Link Sensors can be used in the same way with any manufacturer.

Controller

IODD

IODD

Company A   Company B

IO-Link Master
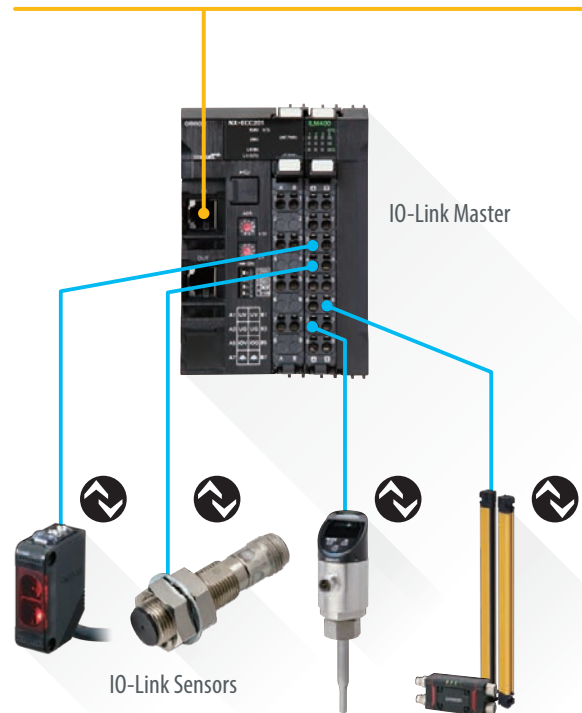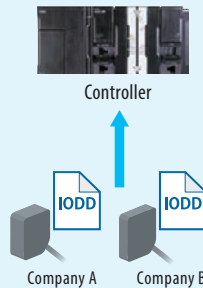
IO-Link Sensors

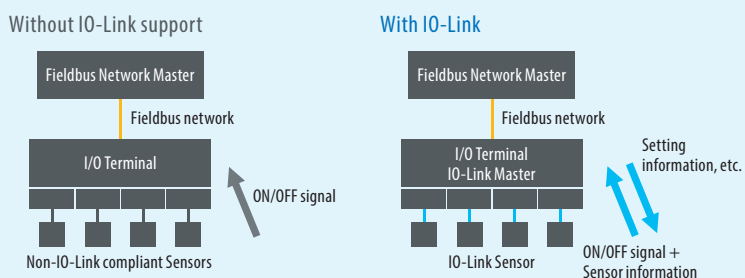## Communications of the ON/OFF Signals and Sensor Information

IO-Link can send and receive in both directions not just ON/OFF signals but also sensor information.
The IO-Link baud rates[1] of COM 1, 2, and 3 are specified in the IO-Link specifications.
Omron's IO-Link components are compatible with COM 2 and COM 3, and are capable of high speed communications.

Condition Monitoring/Batch Data Input is Available

The IO-Link master has multiple ports and
an IO-Link Sensor is connected to each port.
Unlike a fieldbus network, communication is one-to-one.

Without IO-Link support

Fieldbus Network Master

Fieldbus network

I/O Terminal

ON/OFF signal

Non-IO-Link compliant Sensors

With IO-Link

Fieldbus Network Master

Fieldbus network

I/O Terminal
IO-Link Master

Setting
information, etc.

IO-Link Sensor

ON/OFF signal +
Sensor information

*1. Baud rates are as follows. COM 1: 4.8 kbps, COM 2: 38.4 kbps, COM 3: 230.4 kbps

PC

HMI

Computer network

Controller

Fieldbus network

IO-Link Master

IO-Link Sensors
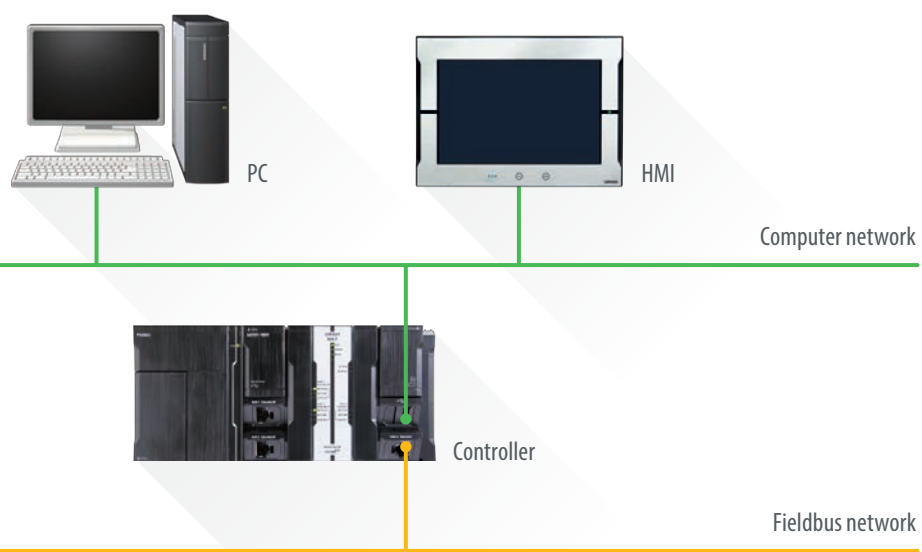
Uses 3-wire Unshielded Cable

No dedicated communication cable required. A communication system that can be used both as an ON/OFF line and a communication line.
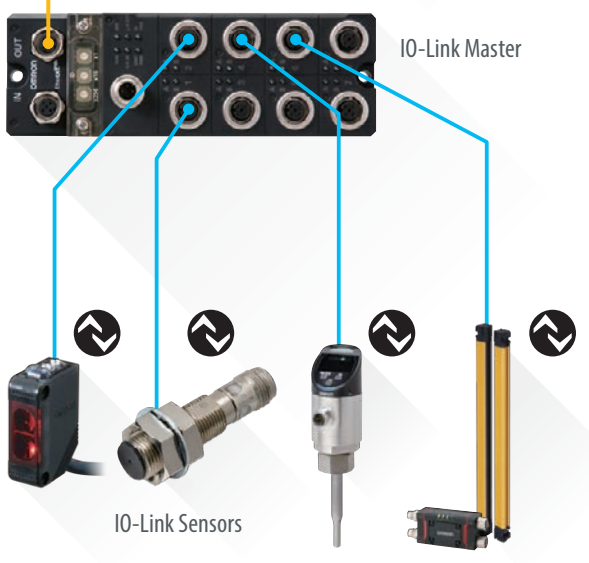
Can Be Used with a Conventional 3-wire Unshielded Cable or Integrated I/F Connector

3-wire unshielded cable

Maximum length 20 m

A dedicated communication cable is unnecessary and a conventional 3-wire unshielded cable can be used for the IO-Link, because the IO-Link has both an IO-Link Mode which performs a digital communication and Standard I/O (SIO) Mode which uses conventional contact input/output.

L+

1
2   4
3

C/Q

L-

IO-Link Mode (process data)

Standard I/O (SIO) Mode (ON/OFF data)

Capable of Intermixing IO-Link Sensors and Sensors That Are Not Compliant with IO-Link

You can connect an IO-Link Sensor and a Sensor/Actuator that is not compliant with IO-Link to a single IO-Link Master.

A Part of the Existing Equipment Can Be Replaced with the IO-Link

Controller

IO-Link Master

In situations where you want to improve only one part of your existing equipment, such as when "errors often occur" or "I want to import sensor information," IO-Link Sensors can be mixed with non-supported sensors.

IO-Link Photoelectric Sensor

Non-IO-Link Proximity Sensor

Non-IO-Link Photoelectric Sensor

Non-IO-Link Proximity Sensor

Omron's IO-Link Compliant Equipment

Masters and Sensors Can Be Chosen to Match Your Situation

For the connection of IO-Link Sensors and IO-Link Masters, two types are available: a screw-less clamp terminal block and an M12 connector. In addition, NX-ILM400 IO-Link Master with screw-less clamp terminal block is connectable not only to EtherCAT, but also to EtherNet/IP communication coupler units, and you can choose between them according to the system configuration.

Value Design for Panel

Corresponding to our shared **Value Design for Panel** concept for the specifications of products.

IO-Link Masters

EtherCAT
EtherNet/IP

EtherCAT Coupler
EtherNet/IP Coupler

The Unit with Screw-less Clamp Terminal Blocks Allows Wiring Man-hours to be Reduced

NX-series IO-Link Master Unit
NX-ILM400
4-port/screw-less clamp terminal block

▶▶ P33   Note: Four sensors can be connected to one unit.

IO-Link Sensors

| Flow sensor / Pressure Sensor | Photoelectric Sensor |

IoT Flow Sensor
E8FC-25□
M12 Connector Models
▶▶ P18

IoT Flow Sensor
E8PC-□
M12 Connector Models
▶▶ P18

Photoelectric Sensor
E3Z-□-IL□
Pre-wired Models
M8 Connector Models
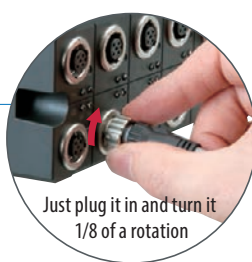M12 Pre-wired Connector Models
▶▶ P19-20

Color Mark Photoelectric Sensor
E3S-DCP21-IL-□
M12 Connector Models
▶▶ P20

Smartclick
Note: Smartclick is a registered trademark of Omron.

EtherCAT®

Just plug it in and turn it 1/8 of a rotation

The Unit for M12 Smartclick Connector Can Be Used in Watery, and Dusty Environments

Environment-resistant Unit IP67 Type
GX-ILM08C
8-port/M12 Smartclick connector

▶▶ P33   Note: Eight sensors can be connected to one device.

Proximity Sensor

Safety Light Curtain

Proximity Sensor
E2E/E2EQ NEXT
Pre-wired Models
M8 Connector Models
M12 Connector Models
M12 Pre-wired Connector Models   ▶▶ P21-29

Safety Light Curtain
F3SG-SR/PG*
Connector Models

▶▶ P30-32   *F3SG-PG : Coming soon

Overview of IO-Link Compliant Devices

IO-Link Sensors

IoT Flow Sensor
E8FC

Detect Signs of Abnormalities in Cooling Water by Simultaneous Measurement of "Flow Rate + Temperature"

- Multi-sensing of "Flow rate + temperature" for preventing a sudden stops or manufacturing defects.
- Various lineup of replacement adapters to enable easy replacement of your current pressure gauges and flow meters.
- Analog current output function in addition to the IO-Link communications function that can perform self-diagnosis of abnormalities in the sensor itself.

Appearance	Applicable fluid *	Control output	Communication method	IO-Link baud rate	Model
	Liquid	PNP	IO-Link Analog	COM2 (38.4 kbps)	**E8FC-25D**
				COM3 (230.4 kbps)	**E8FC-25T**

* The applicable fluid is a liquid that does not erode the wetted part materials (for example, water or a fluid whose conductivity is equivalent to that of water).

For details, refer to E8FC/E8PC Series Catalog (No. E472).

IoT Pressure Sensor
E8PC

Detect Signs of Abnormalities in Cooling Water and Hydraulic Oil by Simultaneous Measurement of "Pressure + Temperature"

- Multi-sensing of "Pressure + temperature" for preventing a sudden stops or manufacturing defects.
- Various lineup of replacement adapters to enable easy replacement of your current pressure gauges and flow meters.
- Analog current output function in addition to the IO-Link communications function that can perform self-diagnosis of abnormalities in the sensor itself.

Appearance	Applicable fluid *	Rated pressure range	Control output	Communication method	IO-Link baud rate	Model
	Liquid and gas	-0.1 to 1 MPa	PNP	IO-Link Analog	COM2 (38.4 kbps)	**E8PC-010D-E**
					COM3 (230.4 kbps)	**E8PC-010T-E**
	Liquid	0 to 10 MPa	PNP	IO-Link Analog	COM2 (38.4 kbps)	**E8PC-100D-E**
					COM3 (230.4 kbps)	**E8PC-100T-E**
		0 to 40 MPa	PNP	IO-Link Analog	COM2 (38.4 kbps)	**E8PC-400D-E**
					COM3 (230.4 kbps)	**E8PC-400T-E**

* The applicable fluid is a liquid that do not erode the liquid contact part materials (such as water, glycol solution, and oil).

For details, refer to E8FC/E8PC Series Catalog (No. E472).

Note: Please contact your OMRON sales representative regarding the IO-Link setup file (IODD file).

Photoelectric Sensor
E3Z-□-IL□

CE

IO-Link Makes Sensor Level Information Visible and Solves the Three Major Issues at Manufacturing Sites! Standard Photoelectric Sensor.

- Downtime can be reduced.
  Notifies you of faulty parts and such phenomena in the Sensor in real time.
- The frequency of sudden failure can be decreased.
  The light incident level monitor prevents false detection before it happens.
- The efficiency of changeover can be improved.
  The batch check for individual sensor IDs significantly decreases commissioning time.
- Three types of sensing methods and three types of connection methods are available.

Red light   Infrared light

Sensing method	Appearance	Connection method	Sensing distance	IO-Link baud rate	Model
					PNP
Through-beam (Emitter + Receiver) *3		Pre-wired (2 m)	15 m	COM2 (38.4 kbps)	**E3Z-T81-IL2 2M** Emitter E3Z-T81-L-IL2 2M Receiver E3Z-T81-D-IL2 2M
		Pre-wired M12 connector			**E3Z-T81-M1TJ-IL2 0.3M** Emitter E3Z-T81-L-M1TJ-IL2 0.3M Receiver E3Z-T81-D-M1TJ-IL2 0.3M
		Standard M8 connector			**E3Z-T86-IL2** Emitter E3Z-T86-L-IL2 Receiver E3Z-T86-D-IL2
		Pre-wired (2 m)		COM3 (230.4 kbps)	**E3Z-T81-IL3 2M** Emitter E3Z-T81-L-IL3 2M Receiver E3Z-T81-D-IL3 2M
		Pre-wired M12 connector			**E3Z-T81-M1TJ-IL3 0.3M** Emitter E3Z-T81-L-M1TJ-IL3 0.3M Receiver E3Z-T81-D-M1TJ-IL3 0.3M
		Standard M8 connector			**E3Z-T86-IL3** Emitter E3Z-T86-L-IL3 Receiver E3Z-T86-D-IL3
Retro-reflective with MSR function	*1	Pre-wired (2 m)	4 m (100 mm) (When using E39-R1S) *2	COM2 (38.4 kbps)	**E3Z-R81-IL2 2M**
		Pre-wired M12 connector			**E3Z-R81-M1TJ-IL2 0.3M**
		Standard M8 connector			**E3Z-R86-IL2**
		Pre-wired (2 m)		COM3 (230.4 kbps)	**E3Z-R81-IL3 2M**
		Pre-wired M12 connector			**E3Z-R81-M1TJ-IL3 0.3M**
		Standard M8 connector			**E3Z-R86-IL3**

*1. The Reflector is sold separately. Select the Reflector model most suited to the application.
*2. The sensing distance specified is possible when the E39-R1S is used. Values in parentheses indicate the minimum required distance between the Sensor and Reflector.
*3. Through-beam Sensors are normally sold in sets that include both the Emitter and Receiver.

For details, refer to E3Z-□-IL□ Data sheet.

Red light ▭ Infrared light

Sensing method	Appearance	Connection method	Sensing distance	IO-Link baud rate	Model PNP
Diffuse-reflective		Pre-wired (2 m)	1 m	COM2 (38.4 kbps)	E3Z-D82-IL2 2M
		Pre-wired M12 connector			E3Z-D82-M1TJ-IL2 0.3M
		Standard M8 connector			E3Z-D87-IL2
		Pre-wired (2 m)		COM3 (230.4 kbps)	E3Z-D82-IL3 2M
		Pre-wired M12 connector			E3Z-D82-M1TJ-IL3 0.3M
		Standard M8 connector			E3Z-D87-IL3
		Pre-wired (2 m)	90 mm (narrow beam)	COM2 (38.4 kbps)	E3Z-L81-IL2 2M
		Pre-wired M12 connector			E3Z-L81-M1TJ-IL2 0.3M
		Standard M8 connector			E3Z-L86-IL2
		Pre-wired (2 m)		COM3 (230.4 kbps)	E3Z-L81-IL3 2M
		Pre-wired M12 connector			E3Z-L81-M1TJ-IL3 0.3M
		Standard M8 connector			E3Z-L86-IL3

For details, refer to E3Z-☐-IL☐ Data sheet.

Color Mark Photoelectric Sensor
E3S-DCP21-IL☐

Color Mark Detection on Any Type of Packaging.
Narrow Beam and Large Lens for Stable Detection of Workpieces Tilted at Various Angles.

- **Detects subtle color differences.**
  High luminance, three-element (RGB) LED light source for greater light intensity. Highly efficient optics technology provides high power and enables stable detection even of subtle color differences.
- **Handles glossy workpieces.**
  Thorough noise reduction.
  High dynamic range covers everything from black to mirror surfaces.
- **IoT compatible.**
  Sends RGB information to host with high-speed IO-Link communications.
  Optimum threshold set to reduce false detection.

CE UL CERTIFIED

Red light, Green light, Blue light

Sensing method	Appearance	Connection method	Sensing distance	Output	IO-Link baud rate	Model
Diffuse-reflective (mark detection)		M12 connector	10±3mm	Push-pull	COM2 (38.4 kbps)	E3S-DCP21-IL2
					COM3 (230.4 kbps)	E3S-DCP21-IL3

For details, refer to E3S-DC/E3NX-CA Series Catalog (No. Y216).

Note: Please contact your OMRON sales representative regarding the IO-Link setup file (IODD file).

Proximity Sensor
E2E/E2EQ NEXT Series

Enables easier and standardized designs previously not possible

- **The world's longest sensing distance**[1]
  Nearly double the sensing distance of previous
- **With high-brightness LED, the indicator is visible anywhere from 360°.**
- **Only 10 Seconds**[2] **to Replace a Proximity Sensor with the "e-jig"**
  (Mounting Sleeve).
- **Cables with enhanced oil resistance enabled 2-year oil resistance**[3].
- **IP69K compliant for water resistance and wash resistance**[4]
- **Comes in a wide variation to make sensor selection easy**
- **UL certification (UL60947-5-2)**[5] **and CSA certification**
  (CSA C22.2 UL60947-5-2-14)

CE UL CERTIFIED

*1. Based on December 2018 OMRON investigation.
*2. Time required to adjust the distance when installing a Sensor. Based on OMRON investigation.
*3. Refer to *Ratings and Specifications* of E2E/E2EQ Series Catalog (No. D121) for details.
   However, E2E Connector Models and E2EQ series is excluded.
*4. E2EQ series is excluded.
*5. M8 (4-pin) Connector Models are not UL certified.

PREMIUM Model
E2E NEXT Series (Quadruple distance model)
Shielded

Size (Sensing distance)	Connection method	Body size	Operation mode	Model	
				IO-Link baud rate COM2	IO-Link baud rate COM3
M8 (4 mm)	Pre-wired (2 m) *1	38 mm *2	NO	E2E-X4B1D8 2M	E2E-X4B1T8 2M
		48 mm		E2E-X4B1DL8 2M	E2E-X4B1TL8 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	38 mm *3		E2E-X4B1D8-M1TJ 0.3M	E2E-X4B1T8-M1TJ 0.3M
		48 mm		E2E-X4B1DL8-M1TJ 0.3M	E2E-X4B1TL8-M1TJ 0.3M
	M12 Connector	43 mm		E2E-X4B1D8-M1	E2E-X4B1T8-M1
		53 mm		E2E-X4B1DL8-M1	E2E-X4B1TL8-M1
	M8 Connector (4-pin)	39 mm		E2E-X4B1D8-M3	E2E-X4B1T8-M3
		49 mm		E2E-X4B1DL8-M3	E2E-X4B1TL8-M3
	M8 Connector (3-pin)	39 mm		E2E-X4B1D8-M5	E2E-X4B1T8-M5
		49 mm		E2E-X4B1DL8-M5	E2E-X4B1TL8-M5
M12 (9 mm)	Pre-wired (2 m) *1	47 mm *2		E2E-X9B1D12 2M	E2E-X9B1T12 2M
		69 mm		E2E-X9B1DL12 2M	E2E-X9B1TL12 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	47 mm *3		E2E-X9B1D12-M1TJ 0.3M	E2E-X9B1T12-M1TJ 0.3M
		69 mm		E2E-X9B1DL12-M1TJ 0.3M	E2E-X9B1TL12-M1TJ 0.3M
	M12 Connector	48 mm		E2E-X9B1D12-M1	E2E-X9B1T12-M1
		70 mm		E2E-X9B1DL12-M1	E2E-X9B1TL12-M1
M18 (14 mm)	Pre-wired (2 m) *1	55 mm *2		E2E-X14B1D18 2M	E2E-X14B1T18 2M
		77 mm		E2E-X14B1DL18 2M	E2E-X14B1TL18 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	55 mm *3		E2E-X14B1D18-M1TJ 0.3M	E2E-X14B1T18-M1TJ 0.3M
		77 mm		E2E-X14B1DL18-M1TJ 0.3M	E2E-X14B1TL18-M1TJ 0.3M
	M12 Connector	53 mm		E2E-X14B1D18-M1	E2E-X14B1T18-M1
		75 mm		E2E-X14B1DL18-M1	E2E-X14B1TL18-M1
M30 (23 mm)	Pre-wired (2 m) *1	60 mm *2		E2E-X23B1D30 2M	E2E-X23B1T30 2M
		82 mm		E2E-X23B1DL30 2M	E2E-X23B1TL30 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	60 mm *3		E2E-X23B1D30-M1TJ 0.3M	E2E-X23B1T30-M1TJ 0.3M
		82 mm		E2E-X23B1DL30-M1TJ 0.3M	E2E-X23B1TL30-M1TJ 0.3M
	M12 Connector	58 mm		E2E-X23B1D30-M1	E2E-X23B1T30-M1
		80 mm		E2E-X23B1DL30-M1	E2E-X23B1TL30-M1

*1. Models with 5-m cable length are also available with "5M" suffix. (Example: E2E-X9B1D12 5M)
*2. Models with 2-m and 5-m robot (bending-resistant) cables are also available with "-R" in the model number. (Example: E2E-X9B1D12-R 2M/E2E-X9B1D12-R 5M)
*3. Models with M12 Smartclick connector model robot (bending-resistant) cables are also available with "R" in the model number. (Example: E2E-X9B1D12-M1TJR 0.3M)

For details, refer to E2E/E2EQ Series Catalog (No. D121).

PREMIUM Model
E2E NEXT Series (Quadruple distance model)
Unshielded

Size (Sensing distance)	Connection method	Body size	Operation mode	Model	
				IO-Link baud rate COM2	IO-Link baud rate COM3
M8 (8 mm)	Pre-wired (2 m) *1	38 mm *2	NO	E2E-X8MB1D8 2M	E2E-X8MB1T8 2M
		48 mm		E2E-X8MB1DL8 2M	E2E-X8MB1TL8 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	38 mm *3		E2E-X8MB1D8-M1TJ 0.3M	E2E-X8MB1T8-M1TJ 0.3M
		48 mm		E2E-X8MB1DL8-M1TJ 0.3M	E2E-X8MB1TL8-M1TJ 0.3M
	M12 Connector	43 mm		E2E-X8MB1D8-M1	E2E-X8MB1T8-M1
		53 mm		E2E-X8MB1DL8-M1	E2E-X8MB1TL8-M1
	M8 Connector (4-pin)	39 mm		E2E-X8MB1D8-M3	E2E-X8MB1T8-M3
		49 mm		E2E-X8MB1DL8-M3	E2E-X8MB1TL8-M3
	M8 Connector (3-pin)	39 mm		E2E-X8MB1D8-M5	E2E-X8MB1T8-M5
		49 mm		E2E-X8MB1DL8-M5	E2E-X8MB1TL8-M5
M12 (16 mm)	Pre-wired (2 m) *1	47 mm *2		E2E-X16MB1D12 2M	E2E-X16MB1T12 2M
		69 mm		E2E-X16MB1DL12 2M	E2E-X16MB1TL12 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	47 mm *3		E2E-X16MB1D12-M1TJ 0.3M	E2E-X16MB1T12-M1TJ 0.3M
		69 mm		E2E-X16MB1DL12-M1TJ 0.3M	E2E-X16MB1TL12-M1TJ 0.3M
	M12 Connector	48 mm		E2E-X16MB1D12-M1	E2E-X16MB1T12-M1
		70 mm		E2E-X16MB1DL12-M1	E2E-X16MB1TL12-M1
M18 (30 mm)	Pre-wired (2 m) *1	77 mm *2		E2E-X30MB1DL18 2M	E2E-X30MB1TL18 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	77 mm *3		E2E-X30MB1DL18-M1TJ 0.3M	E2E-X30MB1TL18-M1TJ 0.3M
	M12 Connector	75 mm		E2E-X30MB1DL18-M1	E2E-X30MB1TL18-M1
M30 (50 mm)	Pre-wired (2 m) *1	97 mm *2		E2E-X50MB1DL30 2M	E2E-X50MB1TL30 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	97 mm *3		E2E-X50MB1DL30-M1TJ 0.3M	E2E-X50MB1TL30-M1TJ 0.3M
	M12 Connector	95 mm		E2E-X50MB1DL30-M1	E2E-X50MB1TL30-M1

*1. Models with 5-m cable length are also available (Example: E2E-X16MB1D12 5M)
*2. Models with 2-m and 5-m robot (bending-resistant) cables are also available with "-R" in the model number. (Example: E2E-X16MB1D12-R 2M/E2E-X16MB1D12-R 5M)
*3. Models with M12 Smartclick connector model robot (bending-resistant) cables are also available with "R" in the model number. (Example: E2E-X16MB1D12-M1TJR 0.3M)

For details, refer to E2E/E2EQ Series Catalog (No. D121).

Note: Please contact your OMRON sales representative regarding the IO-Link setup file (IODD file).

PREMIUM Model
E2E NEXT Series (Triple distance model)
Shielded

Size (Sensing distance)	Connection method	Body size	Operation mode	Model	
				IO-Link baud rate COM2	IO-Link baud rate COM3
M8 (3 mm)	Pre-wired (2 m) *1	38 mm *2	NO	E2E-X3B1D8 2M	E2E-X3B1T8 2M
		48 mm		E2E-X3B1DL8 2M	E2E-X3B1TL8 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	38 mm *3		E2E-X3B1D8-M1TJ 0.3M	E2E-X3B1T8-M1TJ 0.3M
		48 mm		E2E-X3B1DL8-M1TJ 0.3M	E2E-X3B1TL8-M1TJ 0.3M
	M12 Connector	43 mm		E2E-X3B1D8-M1	E2E-X3B1T8-M1
		53 mm		E2E-X3B1DL8-M1	E2E-X3B1TL8-M1
	M8 Connector (4-pin)	39 mm		E2E-X3B1D8-M3	E2E-X3B1T8-M3
		49 mm		E2E-X3B1DL8-M3	E2E-X3B1TL8-M3
	M8 Connector (3-pin)	39 mm		E2E-X3B1D8-M5	E2E-X3B1T8-M5
		49 mm		E2E-X3B1DL8-M5	E2E-X3B1TL8-M5
M12 (6 mm)	Pre-wired (2 m) *1	47 mm *2	NO	E2E-X6B1D12 2M	E2E-X6B1T12 2M
			NO+NC	E2E-X6B3D12 2M	---
		69 mm	NO	E2E-X6B1DL12 2M	E2E-X6B1TL12 2M
			NO+NC	E2E-X6B3DL12 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	47 mm *3	NO	E2E-X6B1D12-M1TJ 0.3M	E2E-X6B1T12-M1TJ 0.3M
			NO+NC	E2E-X6B3D12-M1TJ 0.3M	---
		69 mm	NO	E2E-X6B1DL12-M1TJ 0.3M	E2E-X6B1TL12-M1TJ 0.3M
			NO+NC	E2E-X6B3DL12-M1TJ 0.3M	---
	M12 Connector	48 mm	NO	E2E-X6B1D12-M1	E2E-X6B1T12-M1
			NO+NC	E2E-X6B3D12-M1	---
		70 mm	NO	E2E-X6B1DL12-M1	E2E-X6B1TL12-M1
			NO+NC	E2E-X6B3DL12-M1	---
M18 (12 mm)	Pre-wired (2 m) *1	55 mm *2	NO	E2E-X12B1D18 2M	E2E-X12B1T18 2M
			NO+NC	E2E-X12B3D18 2M	---
		77 mm	NO	E2E-X12B1DL18 2M	E2E-X12B1TL18 2M
			NO+NC	E2E-X12B3DL18 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	55 mm *3	NO	E2E-X12B1D18-M1TJ 0.3M	E2E-X12B1T18-M1TJ 0.3M
			NO+NC	E2E-X12B3D18-M1TJ 0.3M	---
		77 mm	NO	E2E-X12B1DL18-M1TJ 0.3M	E2E-X12B1TL18-M1TJ 0.3M
			NO+NC	E2E-X12B3DL18-M1TJ 0.3M	---
	M12 Connector	53 mm	NO	E2E-X12B1D18-M1	E2E-X12B1T18-M1
			NO+NC	E2E-X12B3D18-M1	---
		75 mm	NO	E2E-X12B1DL18-M1	E2E-X12B1TL18-M1
			NO+NC	E2E-X12B3DL18-M1	---
M30 (22 mm)	Pre-wired (2 m) *1	60 mm *2	NO	E2E-X22B1D30 2M	E2E-X22B1T30 2M
			NO+NC	E2E-X22B3D30 2M	---
		82 mm	NO	E2E-X22B1DL30 2M	E2E-X22B1TL30 2M
			NO+NC	E2E-X22B3DL30 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	60 mm *3	NO	E2E-X22B1D30-M1TJ 0.3M	E2E-X22B1T30-M1TJ 0.3M
			NO+NC	E2E-X22B3D30-M1TJ 0.3M	---
		82 mm	NO	E2E-X22B1DL30-M1TJ 0.3M	E2E-X22B1TL30-M1TJ 0.3M
			NO+NC	E2E-X22B3DL30-M1TJ 0.3M	---
	M12 Connector	58 mm	NO	E2E-X22B1D30-M1	E2E-X22B1T30-M1
			NO+NC	E2E-X22B3D30-M1	---
		80 mm	NO	E2E-X22B1DL30-M1	E2E-X22B1TL30-M1
			NO+NC	E2E-X22B3DL30-M1	---

*1. Models with 5-m cable length are also available (Example: E2E-X6B1D12 5M)
*2. Models with 2-m and 5-m robot (bending-resistant) cables are also available with "-R" in the model number. (Example: E2E-X6B1D12-R 2M/E2E-X6B1D12-R 5M)
*3. Models with M12 Smartclick connector model robot (bending-resistant) cables are also available with "R" in the model number. (Example: E2E-X6B1D12-M1TJR 0.3M)

For details, refer to E2E/E2EQ Series Catalog (No. D121).

PREMIUM Model
E2E NEXT Series (Triple distance model)
Unshielded

Size (Sensing distance)	Connection method	Body size	Operation mode	Model	
				IO-Link baud rate COM2	IO-Link baud rate COM3
M8 (6 mm)	Pre-wired (2 m) *1	38 mm *2	NO	E2E-X6MB1D8 2M	E2E-X6MB1T8 2M
		48 mm		E2E-X6MB1DL8 2M	E2E-X6MB1TL8 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	38 mm *3		E2E-X6MB1D8-M1TJ 0.3M	E2E-X6MB1T8-M1TJ 0.3M
		48 mm		E2E-X6MB1DL8-M1TJ 0.3M	E2E-X6MB1TL8-M1TJ 0.3M
	M12 Connector	43 mm		E2E-X6MB1D8-M1	E2E-X6MB1T8-M1
		53 mm		E2E-X6MB1DL8-M1	E2E-X6MB1TL8-M1
	M8 Connector (4-pin)	39 mm		E2E-X6MB1D8-M3	E2E-X6MB1T8-M3
		49 mm		E2E-X6MB1DL8-M3	E2E-X6MB1TL8-M3
	M8 Connector (3-pin)	39 mm		E2E-X6MB1D8-M5	E2E-X6MB1T8-M5
		49 mm		E2E-X6MB1DL8-M5	E2E-X6MB1TL8-M5
M12 (10 mm)	Pre-wired (2 m) *1	47 mm *2	NO	E2E-X10MB1D12 2M	E2E-X10MB1T12 2M
			NO+NC	E2E-X10MB3D12 2M	---
		69 mm	NO	E2E-X10MB1DL12 2M	E2E-X10MB1TL12 2M
			NO+NC	E2E-X10MB3DL12 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	47 mm *3	NO	E2E-X10MB1D12-M1TJ 0.3M	E2E-X10MB1T12-M1TJ 0.3M
			NO+NC	E2E-X10MB3D12-M1TJ 0.3M	---
		69 mm	NO	E2E-X10MB1DL12-M1TJ 0.3M	E2E-X10MB1TL12-M1TJ 0.3M
			NO+NC	E2E-X10MB3DL12-M1TJ 0.3M	---
	M12 Connector	48 mm	NO	E2E-X10MB1D12-M1	E2E-X10MB1T12-M1
			NO+NC	E2E-X10MB3D12-M1	---
		70 mm	NO	E2E-X10MB1DL12-M1	E2E-X10MB1TL12-M1
			NO+NC	E2E-X10MB3DL12-M1	---
M18 (20 mm)	Pre-wired (2 m) *1	77 mm *2	NO	E2E-X20MB1DL18 2M	E2E-X20MB1TL18 2M
			NO+NC	E2E-X20MB3DL18 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	77 mm *3	NO	E2E-X20MB1DL18-M1TJ 0.3M	E2E-X20MB1TL18-M1TJ 0.3M
			NO+NC	E2E-X20MB3DL18-M1TJ 0.3M	---
	M12 Connector	75 mm	NO	E2E-X20MB1DL18-M1	E2E-X20MB1TL18-M1
			NO+NC	E2E-X20MB3DL18-M1	---
M30 (40 mm)	Pre-wired (2 m) *1	82 mm *2	NO	E2E-X40MB1DL30 2M	E2E-X40MB1TL30 2M
			NO+NC	E2E-X40MB3DL30 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	82 mm *3	NO	E2E-X40MB1DL30-M1TJ 0.3M	E2E-X40MB1TL30-M1TJ 0.3M
			NO+NC	E2E-X40MB3DL30-M1TJ 0.3M	---
	M12 Connector	80 mm	NO	E2E-X40MB1DL30-M1	E2E-X40MB1TL30-M1
			NO+NC	E2E-X40MB3DL30-M1	---

*1. Models with 5-m cable length are also available (Example: E2E-X10MB1D12 5M)
*2. Models with 2-m and 5-m robot (bending-resistant) cables are also available with "-R" in the model number. (Example: E2E-X10MB1D12-R 2M/E2E-X10MB1D12-R 5M)
*3. Models with M12 Smartclick connector model robot (bending-resistant) cables are also available with "R" in the model number. (Example: E2E-X10MB1D12-M1TJR 0.3M)

PREMIUM Model
E2EQ NEXT Series (Spatter-resistant Triple distance model)
Shielded

Size (Sensing distance)	Connection method	Body size	Operation mode	Model	
				IO-Link baud rate COM2	IO-Link baud rate COM3
M8 (3 mm)	Pre-wired (2 m) *	38 mm	NO	E2EQ-X3B1D8 2M	E2EQ-X3B1T8 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	38 mm		E2EQ-X3B1D8-M1TJ 0.3M	E2EQ-X3B1T8-M1TJ 0.3M
	M12 Connector	43 mm		E2EQ-X3B1D8-M1	E2EQ-X3B1T8-M1
M12 (6 mm)	Pre-wired (2 m) *	47 mm	NO	E2EQ-X6B1D12 2M	E2EQ-X6B1T12 2M
			NO+NC	E2EQ-X6B3D12 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	47 mm	NO	E2EQ-X6B1D12-M1TJ 0.3M	E2EQ-X6B1T12-M1TJ 0.3M
			NO+NC	E2EQ-X6B3D12-M1TJ 0.3M	---
	M12 Connector	48 mm	NO	E2EQ-X6B1D12-M1	E2EQ-X6B1T12-M1
			NO+NC	E2EQ-X6B3D12-M1	---
M18 (12 mm)	Pre-wired (2 m) *	55 mm	NO	E2EQ-X12B1D18 2M	E2EQ-X12B1T18 2M
			NO+NC	E2EQ-X12B3D18 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	55 mm	NO	E2EQ-X12B1D18-M1TJ 0.3M	E2EQ-X12B1T18-M1TJ 0.3M
			NO+NC	E2EQ-X12B3D18-M1TJ 0.3M	---
	M12 Connector	53 mm	NO	E2EQ-X12B1D18-M1	E2EQ-X12B1T18-M1
			NO+NC	E2EQ-X12B3D18-M1	---
M30 (22 mm)	Pre-wired (2 m) *	60 mm	NO	E2EQ-X22B1D30 2M	E2EQ-X22B1T30 2M
			NO+NC	E2EQ-X22B3D30 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	60 mm	NO	E2EQ-X22B1D30-M1TJ 0.3M	E2EQ-X22B1T30-M1TJ 0.3M
			NO+NC	E2EQ-X22B3D30-M1TJ 0.3M	---
	M12 Connector	58 mm	NO	E2EQ-X22B1D30-M1	E2EQ-X22B1T30-M1
			NO+NC	E2EQ-X22B3D30-M1	---

* Models with 5-m cable length are also available (Example: E2EQ-X6B1D12 5M)

For details, refer to E2E/E2EQ Series Catalog (No. D121).

Note: Please contact your OMRON sales representative regarding the IO-Link setup file (IODD file).

BASIC Model
E2E NEXT Series (Double distance model)
Shielded

Size (Sensing distance)	Connection method	Body size	Operation mode	Model	
				IO-Link baud rate COM2	IO-Link baud rate COM3
M8 (2 mm)	Pre-wired (2 m) *1	38 mm *2	NO	E2E-X2B1D8 2M	E2E-X2B1T8 2M
		48 mm		E2E-X2B1DL8 2M	E2E-X2B1TL8 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	38 mm *3		E2E-X2B1D8-M1TJ 0.3M	E2E-X2B1T8-M1TJ 0.3M
		48 mm		E2E-X2B1DL8-M1TJ 0.3M	E2E-X2B1TL8-M1TJ 0.3M
	M12 Connector	43 mm		E2E-X2B1D8-M1	E2E-X2B1T8-M1
		53 mm		E2E-X2B1DL8-M1	E2E-X2B1TL8-M1
			NO+NC	E2E-X2B3DL8-M1	---
	M8 Connector (4-pin)	39 mm	NO	E2E-X2B1D8-M3	E2E-X2B1T8-M3
		49 mm		E2E-X2B1DL8-M3	E2E-X2B1TL8-M3
	M8 Connector (3-pin)	39 mm		E2E-X2B1D8-M5	E2E-X2B1T8-M5
		49 mm		E2E-X2B1DL8-M5	E2E-X2B1TL8-M5
M12 (4 mm)	Pre-wired (2 m) *1	47 mm *2	NO	E2E-X4B1D12 2M	E2E-X4B1T12 2M
			NO+NC	E2E-X4B3D12 2M	---
		69 mm	NO	E2E-X4B1DL12 2M	E2E-X4B1TL12 2M
			NO+NC	E2E-X4B3DL12 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	47 mm *3	NO	E2E-X4B1D12-M1TJ 0.3M	E2E-X4B1T12-M1TJ 0.3M
			NO+NC	E2E-X4B3D12-M1TJ 0.3M	---
		69 mm	NO	E2E-X4B1DL12-M1TJ 0.3M	E2E-X4B1TL12-M1TJ 0.3M
			NO+NC	E2E-X4B3DL12-M1TJ 0.3M	---
	M12 Connector	48 mm	NO	E2E-X4B1D12-M1	E2E-X4B1T12-M1
			NO+NC	E2E-X4B3D12-M1	---
		70 mm	NO	E2E-X4B1DL12-M1	E2E-X4B1TL12-M1
			NO+NC	E2E-X4B3DL12-M1	---
M18 (8 mm)	Pre-wired (2 m) *1	55 mm *2	NO	E2E-X8B1D18 2M	E2E-X8B1T18 2M
			NO+NC	E2E-X8B3D18 2M	---
		77 mm	NO	E2E-X8B1DL18 2M	E2E-X8B1TL18 2M
			NO+NC	E2E-X8B3DL18 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	55 mm *3	NO	E2E-X8B1D18-M1TJ 0.3M	E2E-X8B1T18-M1TJ 0.3M
			NO+NC	E2E-X8B3D18-M1TJ 0.3M	---
		77 mm	NO	E2E-X8B1DL18-M1TJ 0.3M	E2E-X8B1TL18-M1TJ 0.3M
			NO+NC	E2E-X8B3DL18-M1TJ 0.3M	---
	M12 Connector	53 mm	NO	E2E-X8B1D18-M1	E2E-X8B1T18-M1
			NO+NC	E2E-X8B3D18-M1	---
		75 mm	NO	E2E-X8B1DL18-M1	E2E-X8B1TL18-M1
			NO+NC	E2E-X8B3DL18-M1	---
M30 (15 mm)	Pre-wired (2 m) *1	60 mm *2	NO	E2E-X15B1D30 2M	E2E-X15B1T30 2M
			NO+NC	E2E-X15B3D30 2M	---
		82 mm	NO	E2E-X15B1DL30 2M	E2E-X15B1TL30 2M
			NO+NC	E2E-X15B3DL30 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	60 mm *3	NO	E2E-X15B1D30-M1TJ 0.3M	E2E-X15B1T30-M1TJ 0.3M
			NO+NC	E2E-X15B3D30-M1TJ 0.3M	---
		82 mm	NO	E2E-X15B1DL30-M1TJ 0.3M	E2E-X15B1TL30-M1TJ 0.3M
			NO+NC	E2E-X15B3DL30-M1TJ 0.3M	---
	M12 Connector	58 mm	NO	E2E-X15B1D30-M1	E2E-X15B1T30-M1
			NO+NC	E2E-X15B3D30-M1	---
		80 mm	NO	E2E-X15B1DL30-M1	E2E-X15B1TL30-M1
			NO+NC	E2E-X15B3DL30-M1	---

*1. Models with 5-m cable length are also available (Example: E2E-X2B1D8 5M)
*2. Models with 2-m and 5-m robot (bending-resistant) cables are also available with "-R" in the model number. (Example: E2E-X2B1D8-R 2M/E2E-X2B1D8-R 5M)
*3. Models with M12 Smartclick connector model robot (bending-resistant) cables are also available with "R" in the model number. (Example: E2E-X4B1T12-M1TJR 0.3M)

For details, refer to E2E/E2EQ Series Catalog (No. D121).

BASIC Model
E2E NEXT Series (Double distance model)
Unshielded

Size (Sensing distance)	Connection method	Body size	Operation mode	Model	
				IO-Link baud rate COM2	IO-Link baud rate COM3
M8 (4 mm)	Pre-wired (2 m) *1	38 mm *2	NO	E2E-X4MB1D8 2M	E2E-X4MB1T8 2M
		48 mm		E2E-X4MB1DL8 2M	E2E-X4MB1TL8 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	38 mm *3		E2E-X4MB1D8-M1TJ 0.3M	E2E-X4MB1T8-M1TJ 0.3M
		48 mm		E2E-X4MB1DL8-M1TJ 0.3M	E2E-X4MB1TL8-M1TJ 0.3M
	M12 Connector	43 mm		E2E-X4MB1D8-M1	E2E-X4MB1T8-M1
		53 mm		E2E-X4MB1DL8-M1	E2E-X4MB1TL8-M1
			NO+NC	E2E-X4MB3DL8-M1	----
	M8 Connector (4-pin)	39 mm	NO	E2E-X4MB1D8-M3	E2E-X4MB1T8-M3
		49 mm		E2E-X4MB1DL8-M3	E2E-X4MB1TL8-M3
	M8 Connector (3-pin)	39 mm		E2E-X4MB1D8-M5	E2E-X4MB1T8-M5
		49 mm		E2E-X4MB1DL8-M5	E2E-X4MB1TL8-M5
M12 (8 mm)	Pre-wired (2 m) *1	47 mm *2	NO	E2E-X8MB1D12 2M	E2E-X8MB1T12 2M
			NO+NC	E2E-X8MB3D12 2M	----
		69 mm	NO	E2E-X8MB1DL12 2M	E2E-X8MB1TL12 2M
			NO+NC	E2E-X8MB3DL12 2M	----
	M12 Pre-wired Smartclick Connector (0.3 m)	47 mm *3	NO	E2E-X8MB1D12-M1TJ 0.3M	E2E-X8MB1T12-M1TJ 0.3M
			NO+NC	E2E-X8MB3D12-M1TJ 0.3M	----
		69 mm	NO	E2E-X8MB1DL12-M1TJ 0.3M	E2E-X8MB1TL12-M1TJ 0.3M
			NO+NC	E2E-X8MB3DL12-M1TJ 0.3M	----
	M12 Connector	48 mm	NO	E2E-X8MB1D12-M1	E2E-X8MB1T12-M1
			NO+NC	E2E-X8MB3D12-M1	----
		70 mm	NO	E2E-X8MB1DL12-M1	E2E-X8MB1TL12-M1
			NO+NC	E2E-X8MB3DL12-M1	----
M18 (16 mm)	Pre-wired (2 m) *1	55 mm *2	NO	E2E-X16MB1D18 2M	E2E-X16MB1T18 2M
			NO+NC	E2E-X16MB3D18 2M	----
		77 mm	NO	E2E-X16MB1DL18 2M	E2E-X16MB1TL18 2M
			NO+NC	E2E-X16MB3DL18 2M	----
	M12 Pre-wired Smartclick Connector (0.3 m)	55 mm *3	NO	E2E-X16MB1D18-M1TJ 0.3M	E2E-X16MB1T18-M1TJ 0.3M
			NO+NC	E2E-X16MB3D18-M1TJ 0.3M	----
		77 mm	NO	E2E-X16MB1DL18-M1TJ 0.3M	E2E-X16MB1TL18-M1TJ 0.3M
			NO+NC	E2E-X16MB3DL18-M1TJ 0.3M	----
	M12 Connector	53 mm	NO	E2E-X16MB1D18-M1	E2E-X16MB1T18-M1
			NO+NC	E2E-X16MB3D18-M1	----
		75 mm	NO	E2E-X16MB1DL18-M1	E2E-X16MB1TL18-M1
			NO+NC	E2E-X16MB3DL18-M1	----
M30 (30 mm)	Pre-wired (2 m) *1	82 mm *2	NO	E2E-X30MB1DL30 2M	E2E-X30MB1TL30 2M
			NO+NC	E2E-X30MB3DL30 2M	----
	M12 Pre-wired Smartclick Connector (0.3 m)	82 mm *3	NO	E2E-X30MB1DL30-M1TJ 0.3M	E2E-X30MB1TL30-M1TJ 0.3M
			NO+NC	E2E-X30MB3DL30-M1TJ 0.3M	----
	M12 Connector	80 mm	NO	E2E-X30MB1DL30-M1	E2E-X30MB1TL30-M1
			NO+NC	E2E-X30MB3DL30-M1	----

*1. Models with 5-m cable length are also available (Example: E2E-X8MB1D12 5M)
*2. Models with 2-m and 5-m robot (bending-resistant) cables are also available with "-R" in the model number. (Example: E2E-X8MB1D12-R 2M/E2E-X8MB1D12-R 5M)
*3. Models with M12 Smartclick connector model robot (bending-resistant) cables are also available with "R" in the model number. (Example: E2E-X8MB1D12-M1TJR 0.3M)

For details, refer to E2E/E2EQ Series Catalog (No. D121).

Note: Please contact your OMRON sales representative regarding the IO-Link setup file (IODD file).

BASIC Model
E2E NEXT Series (Single distance model)
Shielded

Size (Sensing distance)	Connection method	Body size	Operation mode	Model IO-Link baud rate COM2	Model IO-Link baud rate COM3
M8 (1.5 mm)	Pre-wired (2 m) *1	38 mm *2	NO	E2E-X1R5B1D8 2M	E2E-X1R5B1T8 2M
		48 mm	NO	E2E-X1R5B1DL8 2M	E2E-X1R5B1TL8 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	38 mm *3	NO	E2E-X1R5B1D8-M1TJ 0.3M	E2E-X1R5B1T8-M1TJ 0.3M
		48 mm	NO	E2E-X1R5B1DL8-M1TJ 0.3M	E2E-X1R5B1TL8-M1TJ 0.3M
	M12 Connector	43 mm	NO	E2E-X1R5B1D8-M1	E2E-X1R5B1T8-M1
		53 mm	NO	E2E-X1R5B1DL8-M1	E2E-X1R5B1TL8-M1
		53 mm	NO+NC	E2E-X1R5B3DL8-M1	---
	M8 Connector (4-pin)	39 mm	NO	E2E-X1R5B1D8-M3	E2E-X1R5B1T8-M3
		49 mm	NO	E2E-X1R5B1DL8-M3	E2E-X1R5B1TL8-M3
	M8 Connector (3-pin)	39 mm	NO	E2E-X1R5B1D8-M5	E2E-X1R5B1T8-M5
		49 mm	NO	E2E-X1R5B1DL8-M5	E2E-X1R5B1TL8-M5
M12 (2 mm)	Pre-wired (2 m) *1	47 mm *2	NO	E2E-X2B1D12 2M	E2E-X2B1T12 2M
		47 mm *2	NO+NC	E2E-X2B3D12 2M	---
		69 mm	NO	E2E-X2B1DL12 2M	E2E-X2B1TL12 2M
		69 mm	NO+NC	E2E-X2B3DL12 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	47 mm *3	NO	E2E-X2B1D12-M1TJ 0.3M	E2E-X2B1T12-M1TJ 0.3M
		47 mm *3	NO+NC	E2E-X2B3D12-M1TJ 0.3M	---
		69 mm	NO	E2E-X2B1DL12-M1TJ 0.3M	E2E-X2B1TL12-M1TJ 0.3M
		69 mm	NO+NC	E2E-X2B3DL12-M1TJ 0.3M	---
	M12 Connector	48 mm	NO	E2E-X2B1D12-M1	E2E-X2B1T12-M1
		48 mm	NO+NC	E2E-X2B3D12-M1	---
		70 mm	NO	E2E-X2B1DL12-M1	E2E-X2B1TL12-M1
		70 mm	NO+NC	E2E-X2B3DL12-M1	---
M18 (5 mm)	Pre-wired (2 m) *1	55 mm *2	NO	E2E-X5B1D18 2M	E2E-X5B1T18 2M
		55 mm *2	NO+NC	E2E-X5B3D18 2M	---
		77 mm	NO	E2E-X5B1DL18 2M	E2E-X5B1TL18 2M
		77 mm	NO+NC	E2E-X5B3DL18 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	55 mm *3	NO	E2E-X5B1D18-M1TJ 0.3M	E2E-X5B1T18-M1TJ 0.3M
		55 mm *3	NO+NC	E2E-X5B3D18-M1TJ 0.3M	---
		77 mm	NO	E2E-X5B1DL18-M1TJ 0.3M	E2E-X5B1TL18-M1TJ 0.3M
		77 mm	NO+NC	E2E-X5B3DL18-M1TJ 0.3M	---
	M12 Connector	53 mm	NO	E2E-X5B1D18-M1	E2E-X5B1T18-M1
		53 mm	NO+NC	E2E-X5B3D18-M1	---
		75 mm	NO	E2E-X5B1DL18-M1	E2E-X5B1TL18-M1
		75 mm	NO+NC	E2E-X5B3DL18-M1	---
M30 (10 mm)	Pre-wired (2 m) *1	60 mm *2	NO	E2E-X10B1D30 2M	E2E-X10B1T30 2M
		60 mm *2	NO+NC	E2E-X10B3D30 2M	---
		82 mm	NO	E2E-X10B1DL30 2M	E2E-X10B1TL30 2M
		82 mm	NO+NC	E2E-X10B3DL30 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	60 mm *3	NO	E2E-X10B1D30-M1TJ 0.3M	E2E-X10B1T30-M1TJ 0.3M
		60 mm *3	NO+NC	E2E-X10B3D30-M1TJ 0.3M	---
		82 mm	NO	E2E-X10B1DL30-M1TJ 0.3M	E2E-X10B1TL30-M1TJ 0.3M
		82 mm	NO+NC	E2E-X10B3DL30-M1TJ 0.3M	---
	M12 Connector	58 mm	NO	E2E-X10B1D30-M1	E2E-X10B1T30-M1
		58 mm	NO+NC	E2E-X10B3D30-M1	---
		80 mm	NO	E2E-X10B1DL30-M1	E2E-X10B1TL30-M1
		80 mm	NO+NC	E2E-X10B3DL30-M1	---

*1. Models with 5-m cable length are also available (Example: E2E-X2B1D12 5M)
*2. Models with 2-m and 5-m robot (bending-resistant) cables are also available with "-R" in the model number. (Example: E2E-X2B1D12-R 2M/E2E-X2B1D12-R 5M)
*3. Models with M12 Smartclick connector model robot (bending-resistant) cables are also available with "R" in the model number. (Example: E2E-X2B1D12-M1TJR 0.3M)

For details, refer to E2E/E2EQ Series Catalog (No. D121).

BASIC Model
E2E NEXT Series (Single distance model)
Unshielded

Size (Sensing distance)	Connection method	Body size	Operation mode	Model	
				IO-Link baud rate COM2	IO-Link baud rate COM3
M8 (2 mm)	Pre-wired (2 m) *1	38 mm *2	NO	E2E-X2MB1D8 2M	E2E-X2MB1T8 2M
		48 mm		E2E-X2MB1DL8 2M	E2E-X2MB1TL8 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	38 mm *3		E2E-X2MB1D8-M1TJ 0.3M	E2E-X2MB1T8-M1TJ 0.3M
		48 mm		E2E-X2MB1DL8-M1TJ 0.3M	E2E-X2MB1TL8-M1TJ 0.3M
	M12 Connector	43 mm		E2E-X2MB1D8-M1	E2E-X2MB1T8-M1
		53 mm		E2E-X2MB1DL8-M1	E2E-X2MB1TL8-M1
			NO+NC	E2E-X2MB3DL8-M1	---
	M8 Connector (4-pin)	39 mm	NO	E2E-X2MB1D8-M3	E2E-X2MB1T8-M3
		49 mm		E2E-X2MB1DL8-M3	E2E-X2MB1TL8-M3
	M8 Connector (3-pin)	39 mm		E2E-X2MB1D8-M5	E2E-X2MB1T8-M5
		49 mm		E2E-X2MB1DL8-M5	E2E-X2MB1TL8-M5
M12 (5 mm)	Pre-wired (2 m) *1	47 mm *2	NO	E2E-X5MB1D12 2M	E2E-X5MB1T12 2M
			NO+NC	E2E-X5MB3D12 2M	---
		69 mm	NO	E2E-X5MB1DL12 2M	E2E-X5MB1TL12 2M
			NO+NC	E2E-X5MB3DL12 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	47 mm *3	NO	E2E-X5MB1D12-M1TJ 0.3M	E2E-X5MB1T12-M1TJ 0.3M
			NO+NC	E2E-X5MB3D12-M1TJ 0.3M	---
		69 mm	NO	E2E-X5MB1DL12-M1TJ 0.3M	E2E-X5MB1TL12-M1TJ 0.3M
			NO+NC	E2E-X5MB3DL12-M1TJ 0.3M	---
	M12 Connector	48 mm	NO	E2E-X5MB1D12-M1	E2E-X5MB1T12-M1
			NO+NC	E2E-X5MB3D12-M1	---
		70 mm	NO	E2E-X5MB1DL12-M1	E2E-X5MB1TL12-M1
			NO+NC	E2E-X5MB3DL12-M1	---
M18 (10 mm)	Pre-wired (2 m) *1	55 mm *2	NO	E2E-X10MB1D18 2M	E2E-X10MB1T18 2M
			NO+NC	E2E-X10MB3D18 2M	---
		77 mm	NO	E2E-X10MB1DL18 2M	E2E-X10MB1TL18 2M
			NO+NC	E2E-X10MB3DL18 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	55 mm *3	NO	E2E-X10MB1D18-M1TJ 0.3M	E2E-X10MB1T18-M1TJ 0.3M
			NO+NC	E2E-X10MB3D18-M1TJ 0.3M	---
		77 mm	NO	E2E-X10MB1DL18-M1TJ 0.3M	E2E-X10MB1TL18-M1TJ 0.3M
			NO+NC	E2E-X10MB3DL18-M1TJ 0.3M	---
	M12 Connector	53 mm	NO	E2E-X10MB1D18-M1	E2E-X10MB1T18-M1
			NO+NC	E2E-X10MB3D18-M1	---
		75 mm	NO	E2E-X10MB1DL18-M1	E2E-X10MB1TL18-M1
			NO+NC	E2E-X10MB3DL18-M1	---
M30 (18 mm)	Pre-wired (2 m) *1	60 mm *2	NO	E2E-X18MB1D30 2M	E2E-X18MB1T30 2M
			NO+NC	E2E-X18MB3D30 2M	---
		82 mm	NO	E2E-X18MB1DL30 2M	E2E-X18MB1TL30 2M
			NO+NC	E2E-X18MB3DL30 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	60 mm *3	NO	E2E-X18MB1D30-M1TJ 0.3M	E2E-X18MB1T30-M1TJ 0.3M
			NO+NC	E2E-X18MB3D30-M1TJ 0.3M	---
		82 mm	NO	E2E-X18MB1DL30-M1TJ 0.3M	E2E-X18MB1TL30-M1TJ 0.3M
			NO+NC	E2E-X18MB3DL30-M1TJ 0.3M	---
	M12 Connector	58 mm	NO	E2E-X18MB1D30-M1	E2E-X18MB1T30-M1
			NO+NC	E2E-X18MB3D30-M1	---
		80 mm	NO	E2E-X18MB1DL30-M1	E2E-X18MB1TL30-M1
			NO+NC	E2E-X18MB3DL30-M1	---

*1. Models with 5-m cable length are also available (Example: E2E-X5MB1D12 5M)
*2. Models with 2-m and 5-m robot (bending-resistant) cables are also available with "-R" in the model number. (Example: E2E-X5MB1D12-R 2M/E2E-X5MB1D12-R 5M)
*3. Models with M12 Smartclick connector model robot (bending-resistant) cables are also available with "R" in the model number. (Example: E2E-X5MB1D12-M1TJR 2M)

For details, refer to E2E/E2EQ Series Catalog (No. D121).

Note: Please contact your OMRON sales representative regarding the IO-Link setup file (IODD file).

BASIC Model
E2EQ NEXT Series (Spatter-resistant Double distance model)
Shielded

Size (Sensing distance)	Connection method	Body size	Operation mode	Model	
				IO-Link baud rate COM2	IO-Link baud rate COM3
M8 (2 mm)	Pre-wired (2 m) *	38 mm	NO	E2EQ-X2B1D8 2M	E2EQ-X2B1T8 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	38 mm		E2EQ-X2B1D8-M1TJ 0.3M	E2EQ-X2B1T8-M1TJ 0.3M
	M12 Connector	43 mm		E2EQ-X2B1D8-M1	E2EQ-X2B1T8-M1
M12 (4 mm)	Pre-wired (2 m) *	47 mm	NO	E2EQ-X4B1D12 2M	E2EQ-X4B1T12 2M
			NO+NC	E2EQ-X4B3D12 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	47 mm	NO	E2EQ-X4B1D12-M1TJ 0.3M	E2EQ-X4B1T12-M1TJ 0.3M
			NO+NC	E2EQ-X4B3D12-M1TJ 0.3M	---
	M12 Connector	48 mm	NO	E2EQ-X4B1D12-M1	E2EQ-X4B1T12-M1
			NO+NC	E2EQ-X4B3D12-M1	---
M18 (8 mm)	Pre-wired (2 m) *	55 mm	NO	E2EQ-X8B1D18 2M	E2EQ-X8B1T18 2M
			NO+NC	E2EQ-X8B3D18 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	55 mm	NO	E2EQ-X8B1D18-M1TJ 0.3M	E2EQ-X8B1T18-M1TJ 0.3M
			NO+NC	E2EQ-X8B3D18-M1TJ 0.3M	---
	M12 Connector	53 mm	NO	E2EQ-X8B1D18-M1	E2EQ-X8B1T18-M1
			NO+NC	E2EQ-X8B3D18-M1	---
M30 (15 mm)	Pre-wired (2 m) *	60 mm	NO	E2EQ-X15B1D30 2M	E2EQ-X15B1T30 2M
			NO+NC	E2EQ-X15B3D30 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	60 mm	NO	E2EQ-X15B1D30-M1TJ 0.3M	E2EQ-X15B1T30-M1TJ 0.3M
			NO+NC	E2EQ-X15B3D30-M1TJ 0.3M	---
	M12 Connector	58 mm	NO	E2EQ-X15B1D30-M1	E2EQ-X15B1T30-M1
			NO+NC	E2EQ-X15B3D30-M1	---

* Models with 5-m cable length are also available (Example: E2EQ-X6B1D12 5M)

BASIC Model
E2EQ NEXT Series (Spatter-resistant Single distance model)
Shielded

Size (Sensing distance)	Connection method	Body size	Operation mode	Model	
				IO-Link baud rate COM2	IO-Link baud rate COM3
M8 (1.5 mm)	Pre-wired (2 m) *	38 mm	NO	E2EQ-X1R5B1D8 2M	E2EQ-X1R5B1T8 2M
	M12 Pre-wired Smartclick Connector (0.3 m)	38 mm		E2EQ-X1R5B1D8-M1TJ 0.3M	E2EQ-X1R5B1T8-M1TJ 0.3M
	M12 Connector	43 mm		E2EQ-X1R5B1D8-M1	E2EQ-X1R5B1T8-M1
M12 (2 mm)	Pre-wired (2 m) *	47 mm	NO	E2EQ-X2B1D12 2M	E2EQ-X2B1T12 2M
			NO+NC	E2EQ-X2B3D12 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	47 mm	NO	E2EQ-X2B1D12-M1TJ 0.3M	E2EQ-X2B1T12-M1TJ 0.3M
			NO+NC	E2EQ-X2B3D12-M1TJ 0.3M	---
	M12 Connector	48 mm	NO	E2EQ-X2B1D12-M1	E2EQ-X2B1T12-M1
			NO+NC	E2EQ-X2B3D12-M1	---
M18 (5 mm)	Pre-wired (2 m) *	55 mm	NO	E2EQ-X5B1D18 2M	E2EQ-X5B1T18 2M
			NO+NC	E2EQ-X5B3D18 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	55 mm	NO	E2EQ-X5B1D18-M1TJ 0.3M	E2EQ-X5B1T18-M1TJ 0.3M
			NO+NC	E2EQ-X5B3D18-M1TJ 0.3M	---
	M12 Connector	53 mm	NO	E2EQ-X5B1D18-M1	E2EQ-X5B1T18-M1
			NO+NC	E2EQ-X5B3D18-M1	---
M30 (10 mm)	Pre-wired (2 m) *	60 mm	NO	E2EQ-X10B1D30 2M	E2EQ-X10B1T30 2M
			NO+NC	E2EQ-X10B3D30 2M	---
	M12 Pre-wired Smartclick Connector (0.3 m)	60 mm	NO	E2EQ-X10B1D30-M1TJ 0.3M	E2EQ-X10B1T30-M1TJ 0.3M
			NO+NC	E2EQ-X10B3D30-M1TJ 0.3M	---
	M12 Connector	58 mm	NO	E2EQ-X10B1D30-M1	E2EQ-X10B1T30-M1
			NO+NC	E2EQ-X10B3D30-M1	---

* Models with 5-m cable length are also available (Example: E2EQ-X6B1D12 5M)

For details, refer to E2E/E2EQ Series Catalog (No. D121).

Safety Light Curtain / Safety Multi-Light Beam
F3SG-SR/PG

The best ever light curtain

- **Conforms to major international standards**
- **Environmental resistance and rugged structure for use in any environment (IP67, IP67G [*1])**
- **Industry's broadest line-up [*2], from finger protection to body protection**
- **Flexible height model for easy integration into machines and lines**
- **For diverse applications, from simple protection to data utilization**

*1. IEC 60529/JIS C 0920 Annex 1
*2. Based on Omron investigation in June 2018.

▌Safety Light Curtain

Finger protection (Detection capability: 14-mm dia.)

Number of beams	Protective height (mm)	Advanced	Standard
		Model	Model
15	160	**F3SG-4SRA0160-14**	**F3SG-4SRB0160-14**
19	200	**F3SG-4SRA0200-14-F**	**F3SG-4SRB0200-14-F**
23	240	**F3SG-4SRA0240-14**	**F3SG-4SRB0240-14**
27	280	**F3SG-4SRA0280-14-F**	**F3SG-4SRB0280-14-F**
31	320	**F3SG-4SRA0320-14**	**F3SG-4SRB0320-14**
35	360	**F3SG-4SRA0360-14-F**	**F3SG-4SRB0360-14-F**
39	400	**F3SG-4SRA0400-14**	**F3SG-4SRB0400-14**
43	440	**F3SG-4SRA0440-14-F**	**F3SG-4SRB0440-14-F**
47	480	**F3SG-4SRA0480-14**	**F3SG-4SRB0480-14**
51	520	**F3SG-4SRA0520-14-F**	**F3SG-4SRB0520-14-F**
55	560	**F3SG-4SRA0560-14**	**F3SG-4SRB0560-14**
59	600	**F3SG-4SRA0600-14-F**	**F3SG-4SRB0600-14-F**
63	640	**F3SG-4SRA0640-14**	**F3SG-4SRB0640-14**
67	680	**F3SG-4SRA0680-14-F**	**F3SG-4SRB0680-14-F**
71	720	**F3SG-4SRA0720-14-F**	**F3SG-4SRB0720-14-F**
75	760	**F3SG-4SRA0760-14-F**	**F3SG-4SRB0760-14-F**
79	800	**F3SG-4SRA0800-14**	**F3SG-4SRB0800-14**
83	840	**F3SG-4SRA0840-14-F**	**F3SG-4SRB0840-14-F**
87	880	**F3SG-4SRA0880-14-F**	**F3SG-4SRB0880-14-F**
91	920	**F3SG-4SRA0920-14-F**	**F3SG-4SRB0920-14-F**
95	960	**F3SG-4SRA0960-14-F**	**F3SG-4SRB0960-14-F**
99	1,000	**F3SG-4SRA1000-14**	**F3SG-4SRB1000-14**
119	1,200	**F3SG-4SRA1200-14**	**F3SG-4SRB1200-14**
139	1,400	**F3SG-4SRA1400-14**	**F3SG-4SRB1400-14**
159	1,600	**F3SG-4SRA1600-14**	**F3SG-4SRB1600-14**
179	1,800	**F3SG-4SRA1800-14**	**F3SG-4SRB1800-14**
199	2,000	**F3SG-4SRA2000-14**	**F3SG-4SRB2000-14**

Note:1. The side-mount brackets (intermediate brackets) are included with the safety light curtain.
2. Connection cables are not included with the safety light curtain. Order cables sold separately.

For details, refer to F3SG-SR/PG Series Catalog (No. F105).

Note: Please contact your OMRON sales representative regarding the IO-Link setup file (IODD file).

Hand protection (Detection capability: 25-mm dia.)

Number of beams	Protective height (mm)	Advanced	Standard
		Model	Model
8	160	F3SG-4SRA0160-25	F3SG-4SRB0160-25
10	200	F3SG-4SRA0200-25-F	F3SG-4SRB0200-25-F
12	240	F3SG-4SRA0240-25	F3SG-4SRB0240-25
14	280	F3SG-4SRA0280-25-F	F3SG-4SRB0280-25-F
16	320	F3SG-4SRA0320-25	F3SG-4SRB0320-25
18	360	F3SG-4SRA0360-25-F	F3SG-4SRB0360-25-F
20	400	F3SG-4SRA0400-25	F3SG-4SRB0400-25
22	440	F3SG-4SRA0440-25-F	F3SG-4SRB0440-25-F
24	480	F3SG-4SRA0480-25	F3SG-4SRB0480-25
26	520	F3SG-4SRA0520-25-F	F3SG-4SRB0520-25-F
28	560	F3SG-4SRA0560-25	F3SG-4SRB0560-25
30	600	F3SG-4SRA0600-25-F	F3SG-4SRB0600-25-F
32	640	F3SG-4SRA0640-25	F3SG-4SRB0640-25
34	680	F3SG-4SRA0680-25-F	F3SG-4SRB0680-25-F
36	720	F3SG-4SRA0720-25	F3SG-4SRB0720-25
38	760	F3SG-4SRA0760-25-F	F3SG-4SRB0760-25-F
40	800	F3SG-4SRA0800-25	F3SG-4SRB0800-25
42	840	F3SG-4SRA0840-25-F	F3SG-4SRB0840-25-F
44	880	F3SG-4SRA0880-25	F3SG-4SRB0880-25
46	920	F3SG-4SRA0920-25-F	F3SG-4SRB0920-25-F
48	960	F3SG-4SRA0960-25	F3SG-4SRB0960-25
50	1,000	F3SG-4SRA1000-25-F	F3SG-4SRB1000-25-F
52	1,040	F3SG-4SRA1040-25	F3SG-4SRB1040-25
56	1,120	F3SG-4SRA1120-25	F3SG-4SRB1120-25
60	1,200	F3SG-4SRA1200-25	F3SG-4SRB1200-25
64	1,280	F3SG-4SRA1280-25	F3SG-4SRB1280-25
68	1,360	F3SG-4SRA1360-25	F3SG-4SRB1360-25
72	1,440	F3SG-4SRA1440-25	F3SG-4SRB1440-25
76	1,520	F3SG-4SRA1520-25	F3SG-4SRB1520-25
80	1,600	F3SG-4SRA1600-25	F3SG-4SRB1600-25
84	1,680	F3SG-4SRA1680-25	F3SG-4SRB1680-25
88	1,760	F3SG-4SRA1760-25	F3SG-4SRB1760-25
92	1,840	F3SG-4SRA1840-25	F3SG-4SRB1840-25
96	1,920	F3SG-4SRA1920-25	F3SG-4SRB1920-25
104	2,080	F3SG-4SRA2080-25	F3SG-4SRB2080-25
114	2,280	F3SG-4SRA2280-25	F3SG-4SRB2280-25
124	2,480	F3SG-4SRA2480-25	F3SG-4SRB2480-25

Arm/Leg protection (Detection capability: 45-mm dia.)

Number of beams	Protective height (mm)	Advanced	Standard
		Model	Model
6	240	F3SG-4SRA0240-45	F3SG-4SRB0240-45
10	400	F3SG-4SRA0400-45	F3SG-4SRB0400-45
14	560	F3SG-4SRA0560-45	F3SG-4SRB0560-45
18	720	F3SG-4SRA0720-45	F3SG-4SRB0720-45
22	880	F3SG-4SRA0880-45	F3SG-4SRB0880-45
30	1,200	F3SG-4SRA1200-45	F3SG-4SRB1200-45
38	1,520	F3SG-4SRA1520-45	F3SG-4SRB1520-45

Body (Detection capability: 85-mm dia.)

Number of beams	Protective height (mm)	Advanced	Standard
		Model	Model
4	280	F3SG-4SRA0280-85	F3SG-4SRB0280-85
6	440	F3SG-4SRA0440-85	F3SG-4SRB0440-85
8	600	F3SG-4SRA0600-85	F3SG-4SRB0600-85
10	760	F3SG-4SRA0760-85	F3SG-4SRB0760-85
12	920	F3SG-4SRA0920-85	F3SG-4SRB0920-85

Note:1. The side-mount brackets (intermediate brackets) are included with the safety light curtain.
2. Connection cables are not included with the safety light curtain. Order cables sold separately.

For details, refer to F3SG-SR/PG Series Catalog (No. F105).

▌Safety Multi Light Beam

Perimeter access guarding (Beam gap: 300 to 500 mm)

Number of beams	Protective height (mm)	Advanced
		Model
2	580	**F3SG-4PGA0580-2A**
3	880	**F3SG-4PGA0880-3A**
4	980	**F3SG-4PGA0980-4A**
4	1,280	**F3SG-4PGA1280-4A**

Perimeter guarding long range (Beam gap: 300 to 500 mm)

Number of beams	Protective height (mm)	Advanced
		Model
2	580	**F3SG-4PGA0580-2L**
3	880	**F3SG-4PGA0880-3L**
4	980	**F3SG-4PGA0980-4L**
4	1,280	**F3SG-4PGA1280-4L**

Perimeter guarding deflect mirror (Beam gap: 300 to 500 mm)

Number of beams	Protective height (mm)	Advanced
		Model
2	580	**F3SG-4PGA0580-2C**
3	880	**F3SG-4PGA0880-3C**
4	980	**F3SG-4PGA0980-4C**
4	1,280	**F3SG-4PGA1280-4C**

Note:1. The side-mount brackets (intermediate brackets) are included with the safety multi-light beam.
2. Connection cables are not included with the safety multi-light beam. Order cables sold separately.

▌Intelligent Tap

Appearance	Type	Specifications	Model
	Intelligent Tap *	Used to configure the F3SG-SR/PG and connect external devices via IO-Link. The F3SG-SR/PG can be configured on a PC or with the DIP switch on the Intelligent Tap. IP67 and IP67G (JIS C 0920 Annex 1) rated when mated.	**F39-SGIT-IL3**

* Use the F39-SGBT Bluetooth® Communication Unit or a commercially available USB Type-C™ cable to connect to a PC.

For details, refer to F3SG-SR/PG Series Catalog (No. F105).

IO-Link Master Unit

Note: Please contact your OMRON sales representative regarding the IO-Link setup file (IODD file).

NX-ILM400

IO-Link makes sensor level information visible and solves the three major issues at manufacturing sites! The screwless clamping terminal block reduces wiring work.

- Downtime can be reduced.
  Notifies you of faulty parts and such phenomena in the Sensor in real time.
- The frequency of sudden failure can be decreased.
  Condition monitoring of sensors and equipment to prevent troubles.
- The efficiency of changeover can be improved.
  The batch check for individual sensor IDs significantly decreases commissioning time.

Product name	Specification			Model
	Number of IO-Link ports	I/O refreshing method	I/O connection terminals	
NX-series IO-Link Master Unit	4	Free-Run refreshing	Screwless clamping terminal block	**NX-ILM400**

For details, refer to NX-ILM400 Data sheet.

GX-series IO-Link Master Unit
GX-ILM08C

IO-Link makes sensor level information visible and solves the three major issues at manufacturing sites! The unit for M12 Smartclick connector can be used in watery, and dusty environments.

- Downtime can be reduced.
  Notifies you of faulty parts and such phenomena in the Sensor in real time.
- The frequency of sudden failure can be decreased.
  Condition monitoring of sensors and equipment to prevent troubles.
- The efficiency of changeover can be improved.
  The batch check for individual sensor IDs significantly decreases commissioning time.

Product Name	Specification			Model
	Environmental resistance	Number of IO-Link ports	I/O connection terminals	
GX-series IO-Link Master Unit	IP67	8	M12 connector (A-cording, female)	**GX-ILM08C**

For details, refer to GX Series Data sheet.

Software

Product name	Model
Sysmac Studio *	**SYSMAC-SE2□□□**

* CX-ConfiguratorFDT for IO-Link sensor setup is included in Sysmac Studio.

For details, refer to Sysmac Studio Ver.1.□□ Data sheet.

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