IO-Link Master Unit
GD Series

OMRON

Empowering engineers by simplifying sensor communication

IO-Link

Connect sensors and PLCs — across manufacturers

Easily connect sensor data with PLCs from different manufacturers

EtherNet/IP
CC-Link IE TSN
Modbus
CC-Link IE Field
EtherCAT *1
CC-Link IE Field Basic
PROFINET *1

IO-Link Master Unit GD Series

IO-Link

Automatically connect to IO-Link devices from over 100 manufacturers

Flow sensor

Pressure sensor

Third-party devices

A/D converter

OMRON devices

Liquid flow sensor

Displacement sensor

Fiber sensor

Proximity sensor

Photoelectric sensor

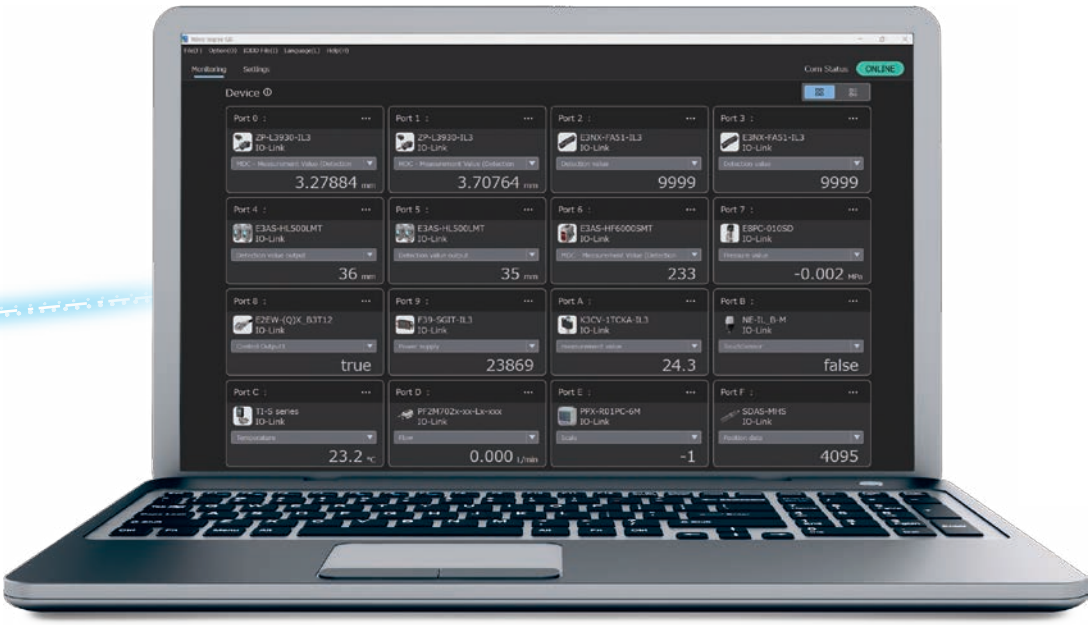
*1.These will be supported in a future version upgrade.

Discover OMRON IO-Link
in 3 Minutes

Plug and play

Instantly see sensor status

Configure easily from your PC



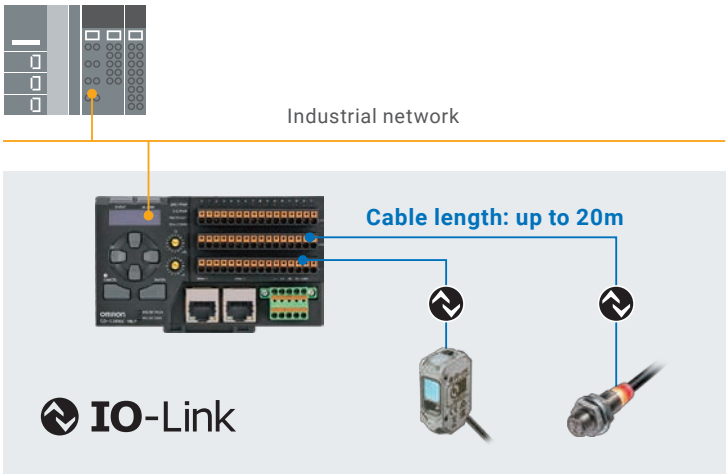
Support Software Wave Inspire Hub

Download site

https://www.ia.omron.com/gd_tool/

What is IO-Link?

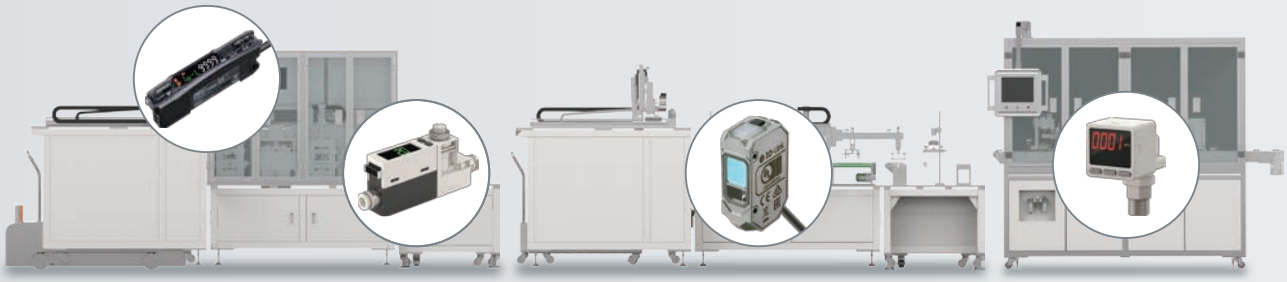
IO-Link is an open digital communication standard defined by IEC 61131-9. It is designed for devices used in manufacturing sites, such as sensors and actuators, enabling the exchange of sensor status and configuration data with upper-level systems like PLCs.
The master unit and sensors can be connected using standard sensor cables.



Engineers are busy.
Sensors shouldn’t slow them down.

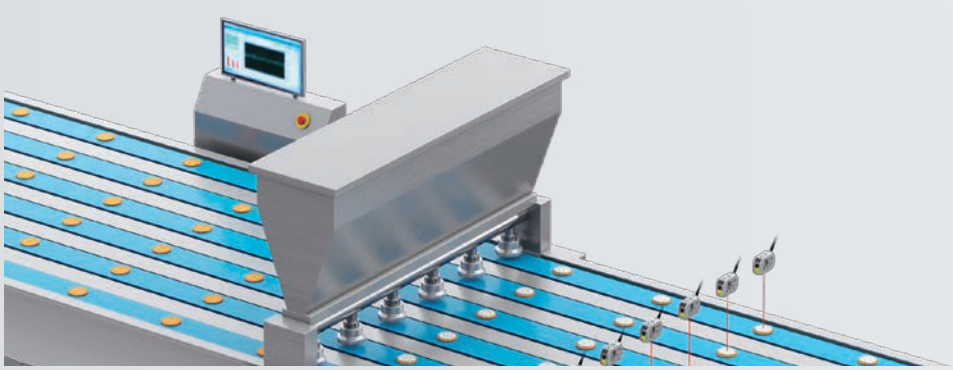
Designers

Integrating sensors from multiple manufacturers is time-consuming.



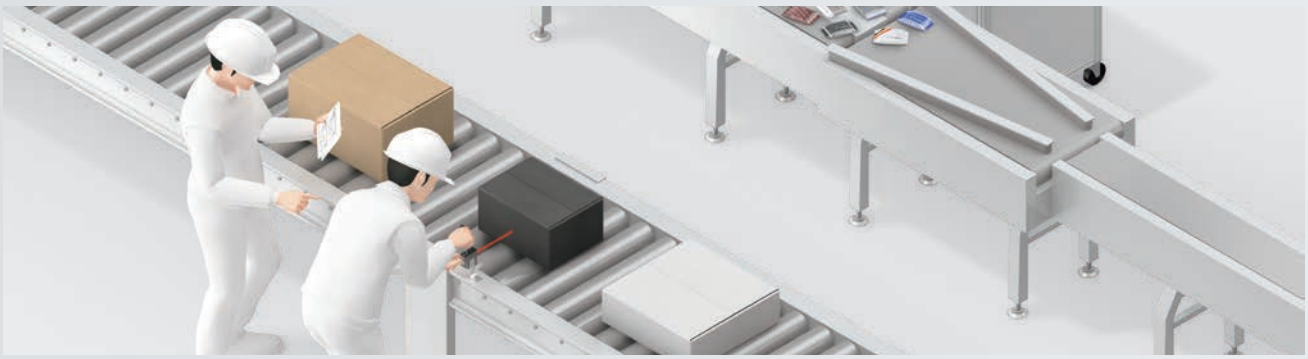
Startup engineers

Manually repeating the same settings across sensors is time-consuming and error-prone.



Maintenance engineers

Recovering and managing settings across multiple vendors is challenging.



With OMRON's GD Series, time spent on sensor-related tasks during design, startup, and maintenance is significantly reduced.

Making design easy

Auto-connect to devices from over 100 manufacturers
Instantly usable sensor data

▶ P.6

Making startup easy

No manual configuration required
Quickly duplicate settings across multiple sensors

▶ P.8

Making maintenance easy

Quick recovery in the event of trouble
Prevent issues in advance by leveraging data

▶ P.10

Making design easy

Auto-connect to devices from over 100 manufacturers
Instantly usable sensor data

Just wire and power on to instantly monitor the status of various sensors.

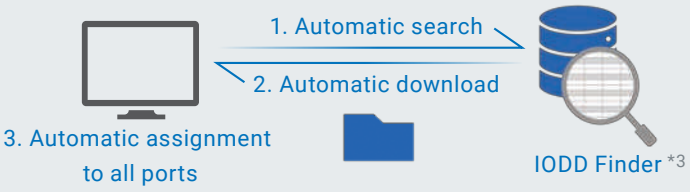
Patent pending *1

Monitoring starts in as little as 30 seconds. *2

Just connect

OMRON's unique easy connection function

Automatically searches, downloads, and assigns IODD files from over 100 manufacturers.



*Note: Easy automatic connection requires an internet-connected PC and powered devices.

Discover how easy automatic connection is.

In such cases...

Want to start designing even though the IO-Link master unit or devices are not yet available

You can do it even without actual devices. Please see the video for detailed instructions.

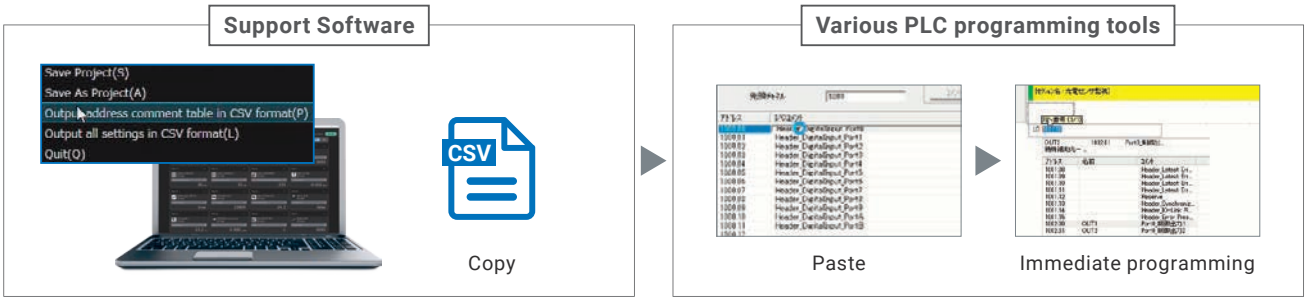
Unable to connect the PC to the internet during on-site commissioning

If you download the IODD files in advance to a specified folder on your PC, you can connect without any issues. Please see the video for detailed instructions.

*1. "Patent pending" and "Patented" refer to patent status in Japan (as of January 2026).
*2. Estimated time under OMRON-specified conditions. Actual time may vary depending on the number of connected devices and internet environment.
*3. This service is provided by the IO-Link Community.

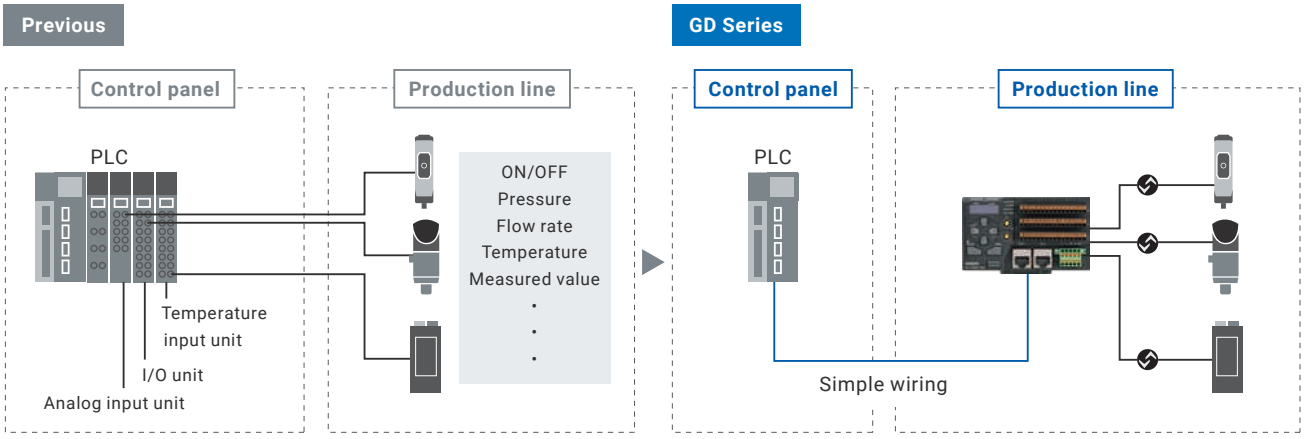
Automated Generation of "Address Comment Tables" for easy PLC Communication

Replace hours of manual reading and debugging with simple copy-and-paste.
You can easily see which IO-Link device's process data is assigned to each address.



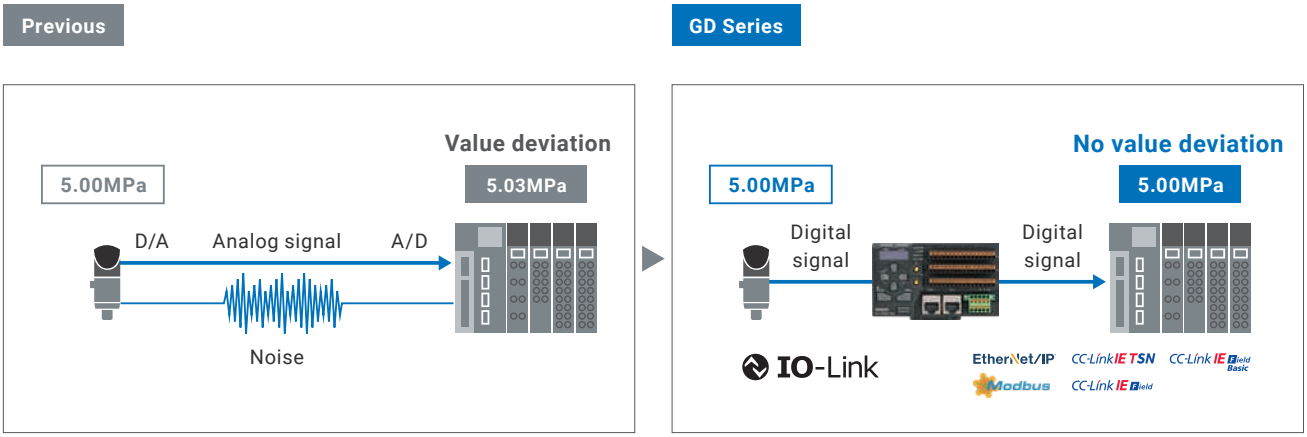
Simple wiring without input units

Previously, ON/OFF signals and analog signals were transmitted using separate wiring and I/O units. Now, they can be consolidated into a single communication master unit. This simplified wiring reduces both design and wiring time.



Easily obtain accurate data

Digital data transmission eliminates A/D and D/A conversion errors, removing the need for noise countermeasures and scaling. Data can be easily collected.

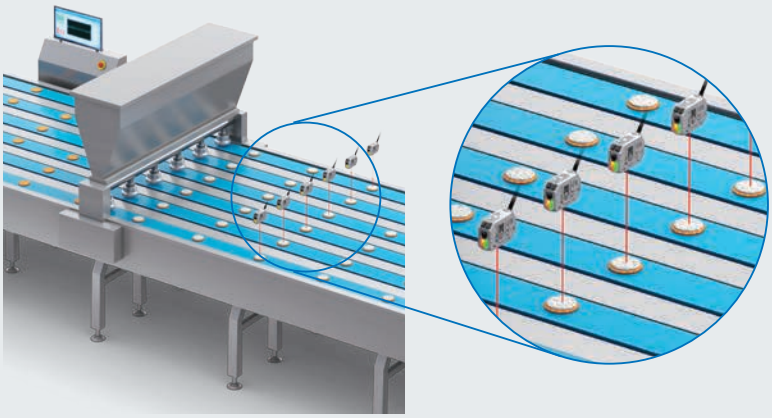


Making startup easy

No manual configuration required
Quickly duplicate settings across multiple sensors

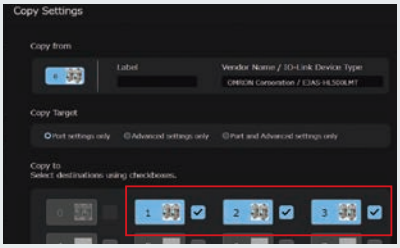
Copy the sensor settings with one click

Discover how easy the settings are.

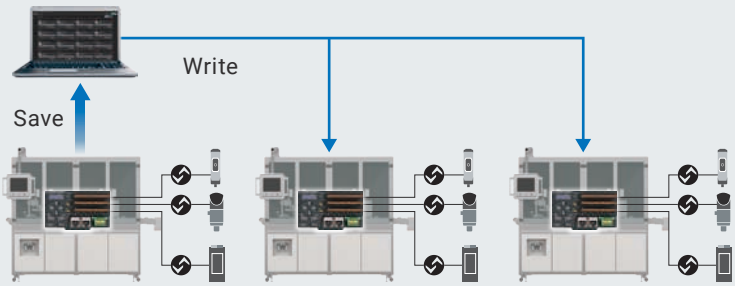


Multi-row conveyor lines

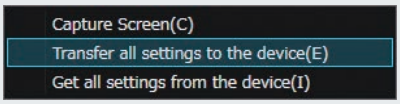
Just check the destination for duplication
in the support software.



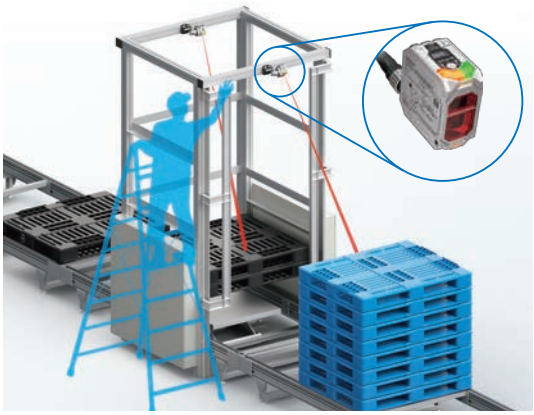
One-click transfer of sensor and master unit settings



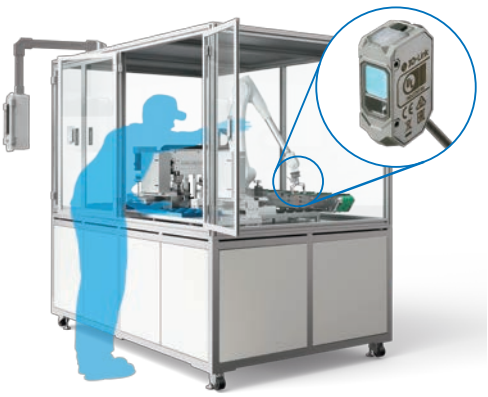
Just transfer the settings saved
in the support software.



Even sensors in hard-to-reach places can be configured from the support software



Sensors installed in high places



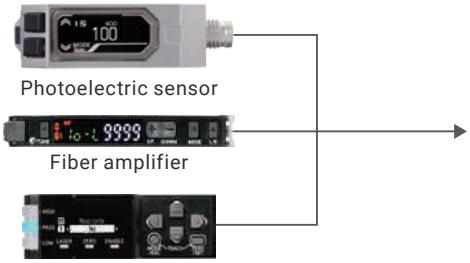
Sensors installed inside equipment

Easy-to-use, unified setting menu

Previously, you had to remember the menu hierarchy and button layout for each sensor, but now you can operate all sensors with the same interface, regardless of sensor type or manufacturer.

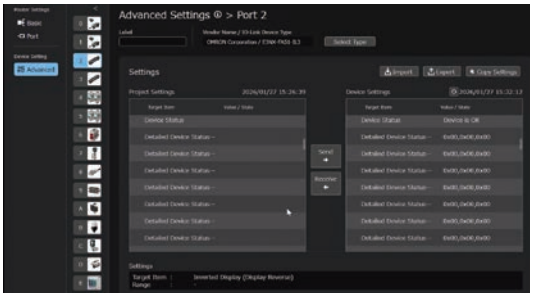
Previous

Had to learn different operations for each sensor



GD Series

Same operability regardless of sensor type or manufacturer



Automatic output of setting reports

The configured data can be output as a report. This makes it easy to compare and verify detection parameters and manage evidence at shipment, which previously required handwritten notes or Excel input.

Previous

Previously, comparison and verification of detection parameters and evidence management at shipment were done by handwritten notes or Excel input.

GD Series

Output the settings as a report (CSV) with one click.

Set thresholds while viewing graphs. *1

Measurement values can be displayed as a time trend graph, allowing you to set thresholds while viewing the graph.

List of connected devices

You can switch target devices with one click.

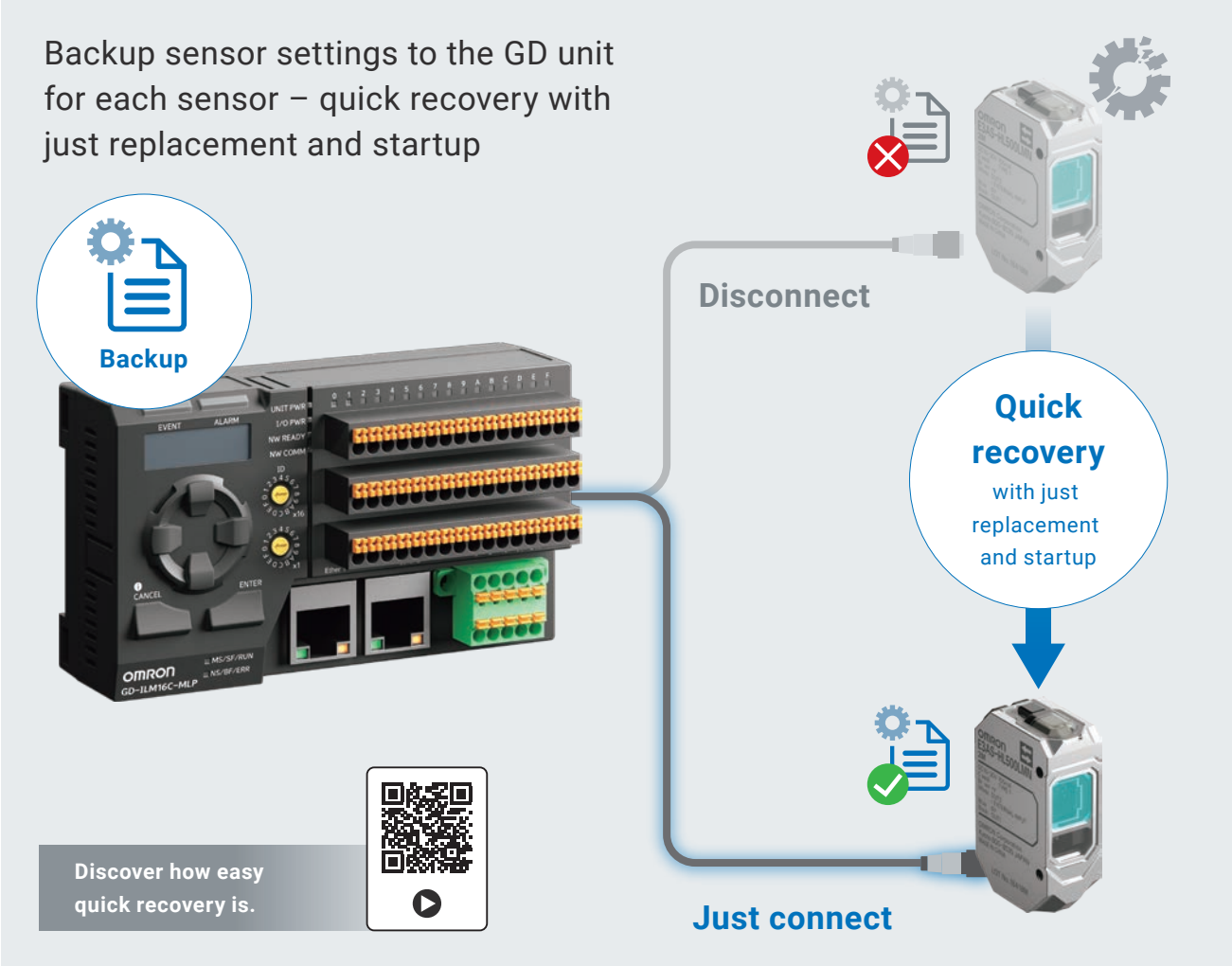
Threshold

If the device supports threshold setting, you can adjust the threshold while checking the margin on the graph.

*1. These will be supported in a future version upgrade.

Making maintenance easy

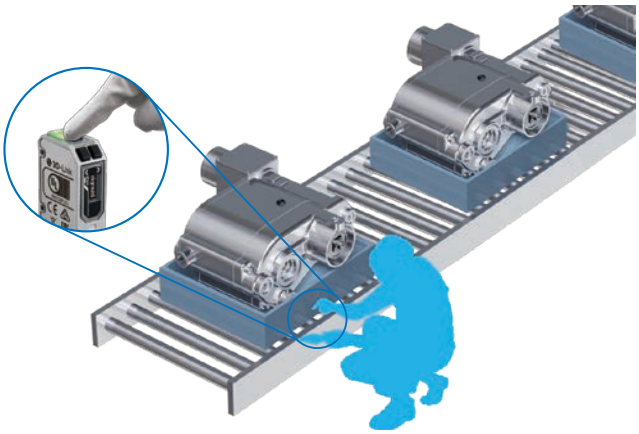
Quick recovery in the event of trouble
Prevent issues in advance by leveraging data



In such cases...

Previously, it took a lot of time to recover from sensor failures.

Unknown settings of the sensor before replacement

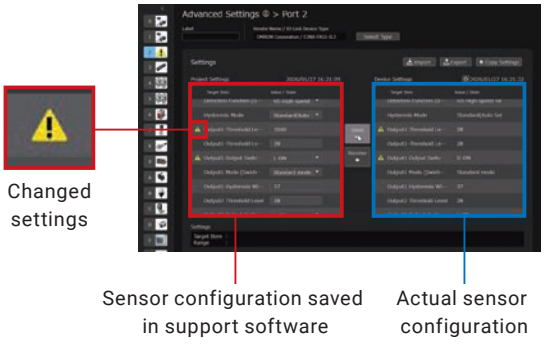


Reconfigure the replaced sensor

Easily identify and restore changed items

Patent pending *1

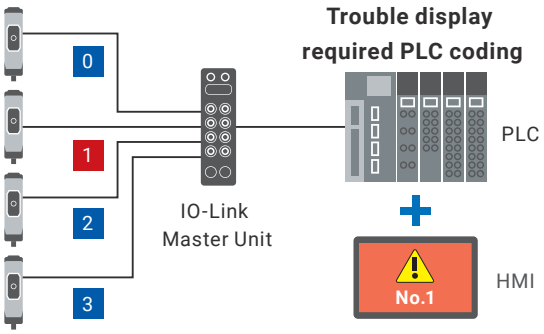
You can compare the initial startup settings saved in the support software with the current sensor settings. Any differences from normal conditions are immediately highlighted. If an unintended setting change is detected, it can be restored with a single click.



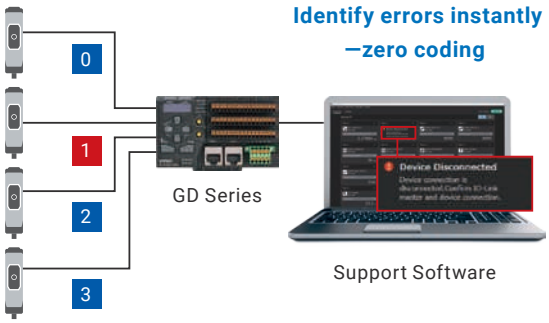
Quickly identify causes during troubles

With the GD series, you can instantly identify errors or faulty sensors. You can immediately start recovery work, greatly reducing downtime.

Previous



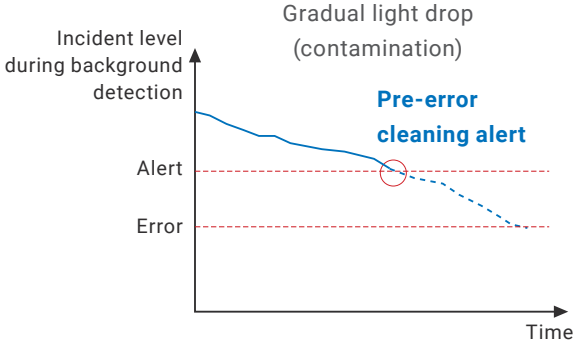
GD Series



Take preventive measures before malfunctions

By managing not only ON/OFF signals but also numerical data such as sensor incident level with the support software, you can detect sensor contamination and build a predictive maintenance system.

Example: Detecting incident level reduces in photoelectric sensors

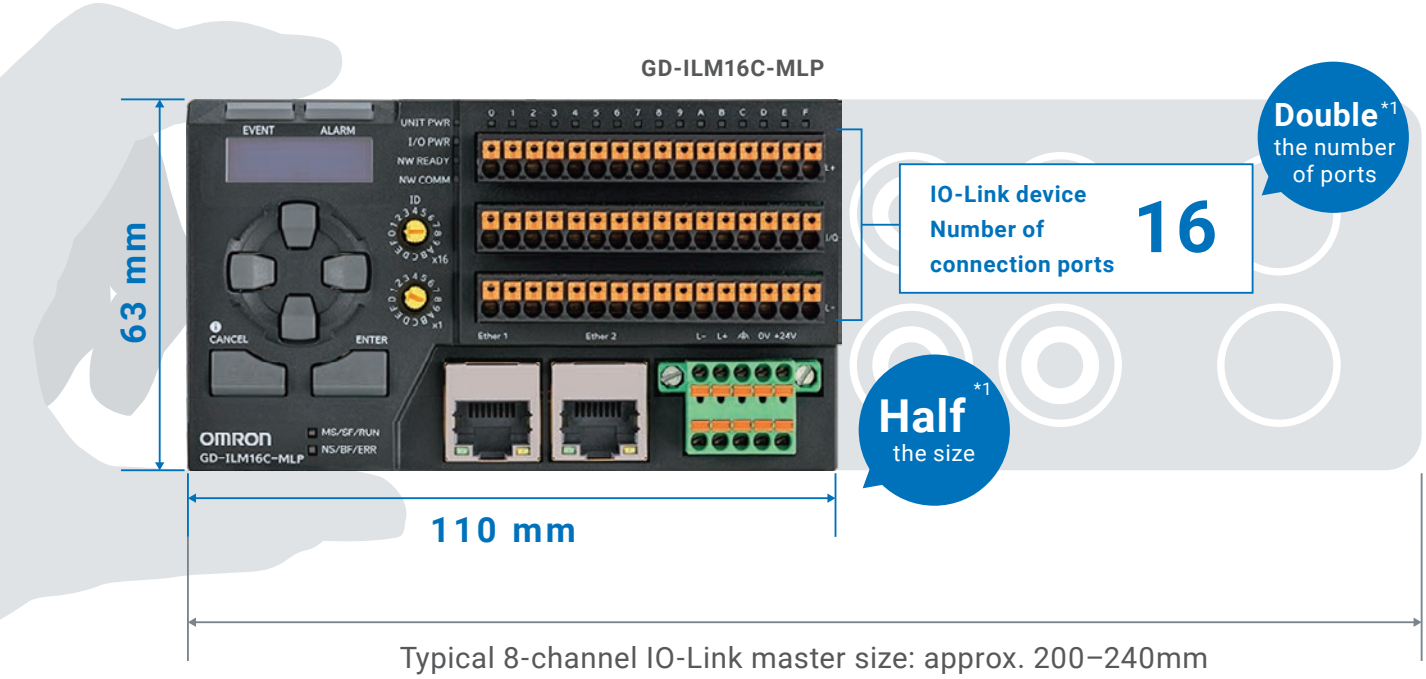


*1. "Patent pending" and "Patented" refer to patent status in Japan (as of January 2026).

Compact design supporting 16-channel connection IO-Link Master Unit GD Series

Smallest in its class Half the space compared to conventional models[*1]

Achieves approximately half the size (W110×D31.4×H63mm) of a typical 8-channel IO-Link master.
Furthermore, with double the number of channels (16ch), it contributes to space saving inside equipment.



*1. Compared to the size of a typical 8-channel IO-Link master (according to OMRON investigation in January 2026).

Compatible with a wide range of field networks, easily connectable to familiar PLCs

IO-Link master unit lineup

Field network	EtherNet/IP, Ethernet & Modbus/TCP, CC-Link IE Field Basic EtherCAT[*2], Profinet[*2]		CC-Link IE Field CC-Link IE TSN	
Device connector	Spring clamp terminal block	e-CON socket	Spring clamp terminal block	e-CON socket
Model	GD-ILM16C-MLP	GD-ILM16E-MLP	GD-ILM16C-CLI	GD-ILM16E-CLI

*2. These will be supported in a future version upgrade.

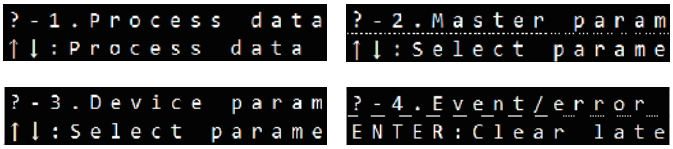
Display and operation panel usable even without a PC

Event/alarm indicator light
Instantly notifies of device events and abnormalities

Station number setting dial
Station number and IP address can be set from the dial

For device I/O and power supply Spring clamp terminal block
Significantly reduces wiring work compared to screw terminal blocks

OLED display/operation buttons
Even without the support software, process data can be displayed and main unit settings can be checked or changed

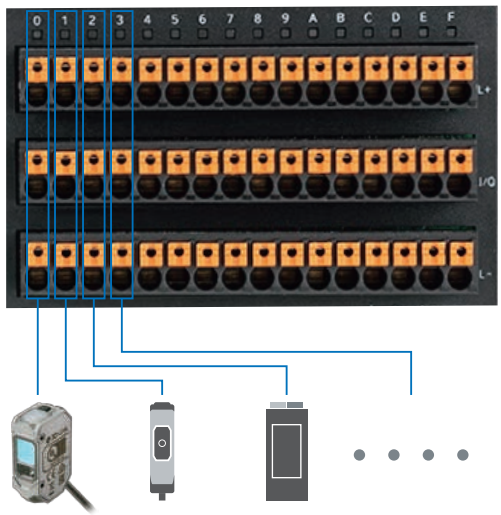


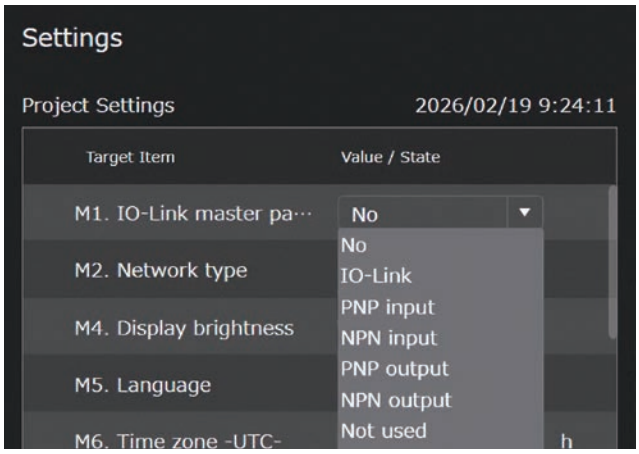
Supports display in 10 languages
Easily switch between 10 languages from the main menu. Designed for global use, so it can be used with confidence even if equipment is relocated overseas.

Japanese	Chinese (Traditional)	Spanish	Italian
English	Chinese (Simplified)	German	
Korean	French	Portuguese	

Not only IO-Link devices, but also mixed connection of NPN/PNP devices is possible

The type of I/O connection can be set for each port, allowing effective use of unused ports.





Set the connection type
for each port using the support software

OMRON IO-Link device

Easy setting adjustment

CMOS Laser Displacement Sensor with Separate Amplifier
ZP-L

▶ P.16

Fiber Amplifier
E3NX-FA

▶ P.17

CMOS Laser Sensor with Built-in Amplifier
E3AS-HL

▶ P.18

TOF Laser Sensor with Built-in Amplifier
E3AS-HF

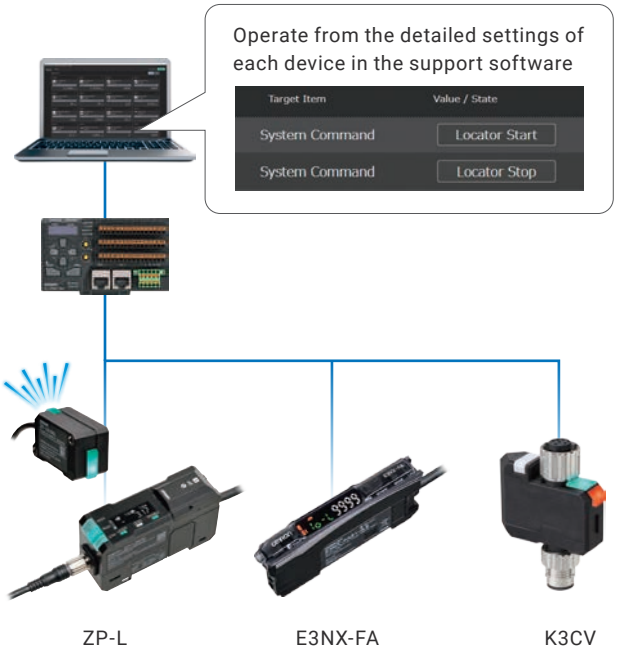
▶ P.19

Three features for safe and secure use

Locator function to identify pairing

ZP-L | E3NX-FA | K3CV

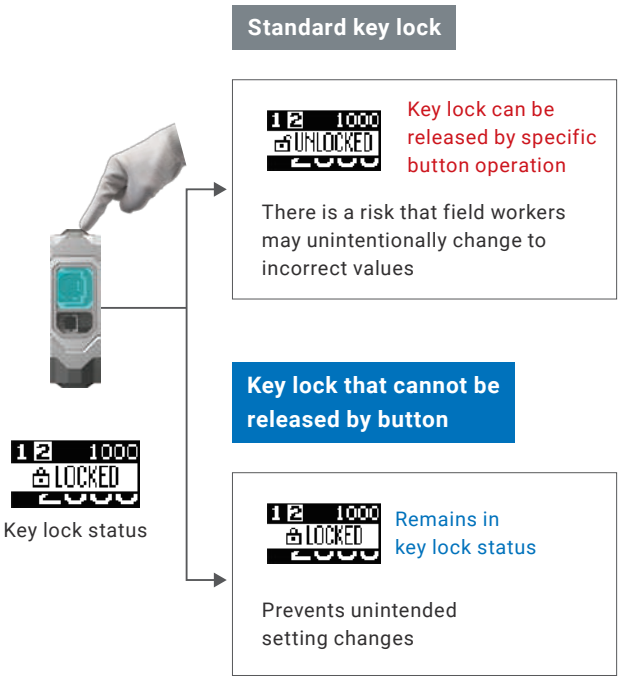
When a command is sent from the support software, the indicator light on the connected device blinks, making it easy to identify which device is connected at a glance.



Key lock function that cannot be released by button operation

ZP-L | E3NX-FA | E3AS-HF

Key lock can be enabled via IO-Link command, making it impossible to release by button operation.



Make your usual sensors more convenient

Analog and temperature as well

Liquid Flow and Pressure Sensor E8FC/E8PC

▶ P.20

Proximity Sensor
Long-distance model E2E NEXT | **Full metal model E2EW**

▶ P.21

IO-Link Photoelectric Sensor E3Z-IL

▶ P.24

Analog/ Temperature Converter K3CV

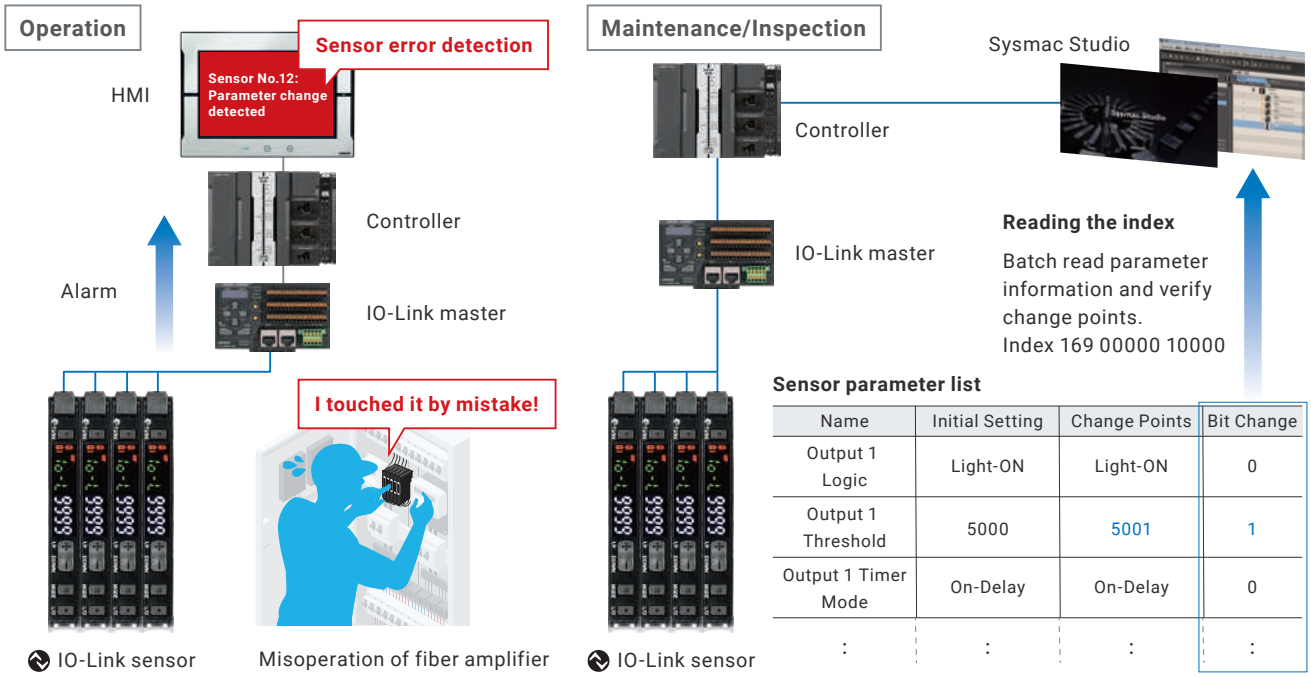
▶ P.22

Smart verify function that notifies the PLC of setting changes

Patent pending *1

ZP-L **E3NX-FA**

The sensor outputs alarms for parameter changes and unintended setting modifications, enabling immediate detection of abnormalities.



Sensor parameter list

Name	Initial Setting	Change Points	Bit Change
Output 1 Logic	Light-ON	Light-ON	0
Output 1 Threshold	5000	5001	1
Output 1 Timer Mode	On-Delay	On-Delay	0
:	:	:	:

*1. "Patent pending" and "Patented" refer to patent status in Japan (as of January 2026).

IO-Link device

CMOS Laser Displacement Sensor
with Separate Amplifier

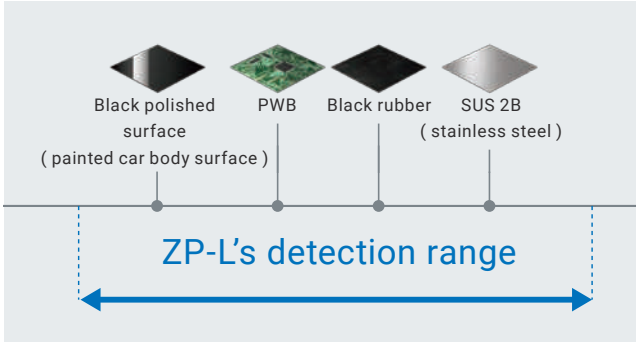
ZP-L Series

Laser displacement sensor with ultimate stability and usability

- Measurement distance: 20–1000 mm
- Detection resolution: 10 µm–1 mm for detection/inspection

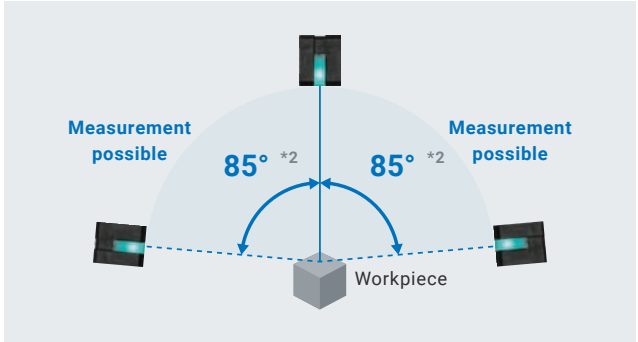
Sensing performance delivering stable detection with initial configuration left intact

ZP-L delivers a wide dynamic range[*1] that delivers stable detection of a wide range of workpieces, from black polished workpieces (such as the painted surface of a car body), which reflect little light, to metal workpieces, which reflect a lot of light.



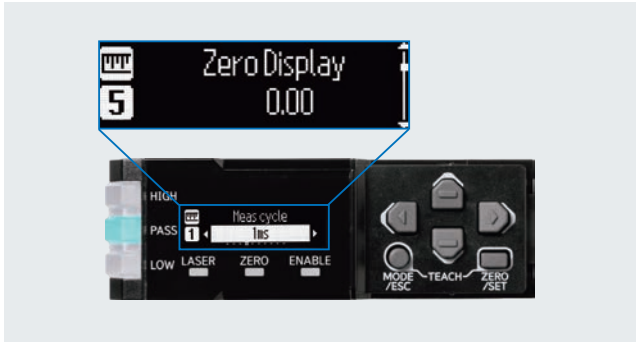
Wide angle characteristic enables flexible installation

ZP-L has a wide angle characteristic, powered by its wide dynamic range and OMRON's unique sensing algorithms. It can measure an area of up to approximately 85°,[*2] allowing for flexible installation. For example, in cases where sensors cannot be installed directly above the target workpiece, ZP-L can be positioned diagonally and still deliver reliable measurement.



User interface requiring no manuals for easy understanding

ZP-L features a highly expressive OLED display. The intuitive menu display eliminates the need to search for pages in the manual.



*1. "Dynamic range" is a metric that indicates the range of detectable workpiece types, expressed as the ratio between the reflectance of the most reflective detectable workpiece and that of the least reflective detectable workpiece.
*2. Representative example for workpieces with metal surfaces. Shape or material of measured object may impact measurement. Please check in advance using actual devices.

Fiber Amplifier

E3NX-FA Series

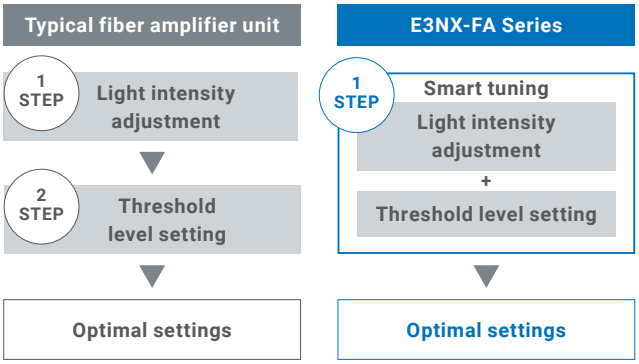
Easily detects a wide range of applications

With smart tuning
- No variation in settings between operators
- Automatically adjusts to optimal light intensity for everything from transparent to black workpieces

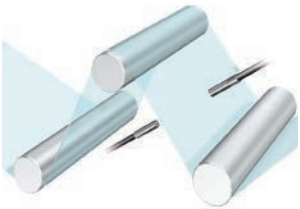
Easy tuning for everything from transparent objects to black rubber

Simply perform tuning to automatically optimize light intensity and sensitivity. No need for retuning due to insufficient or saturated light.

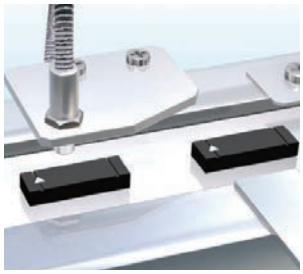
Fewer setting steps



Optimal settings for saturated and low incident level



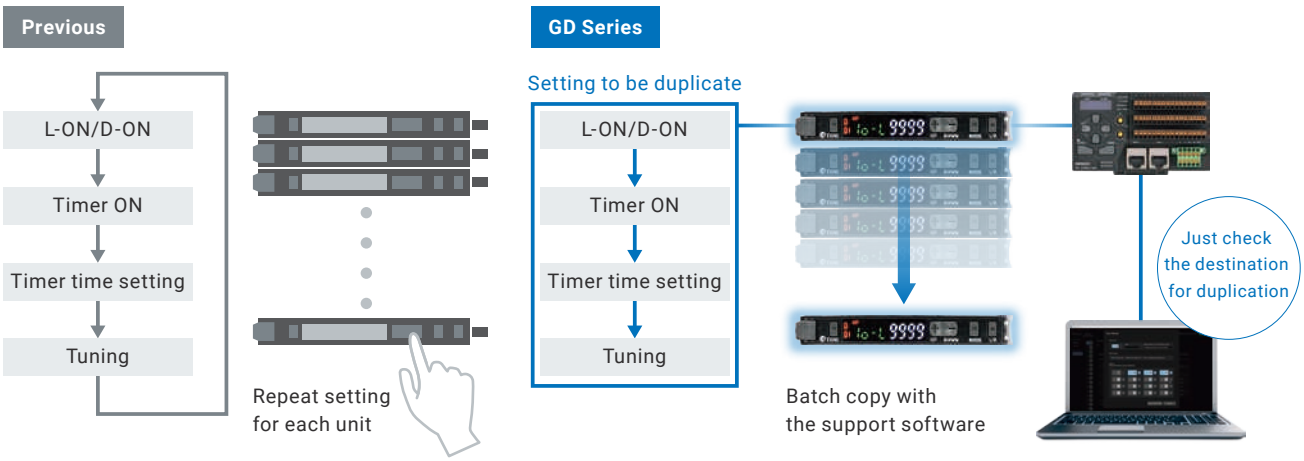
Example: Transparent sheet
(Saturated incident level)



Example: Black rubber
(Low incident level)

No amplifier operation required
Batch parameter setting via IO-Link

By combining OMRON's GD series with support software, parameters that were previously set manually can now be batch-set from the support software, reducing workload.



IO-Link device

CMOS Laser Sensor with Built-in Amplifier

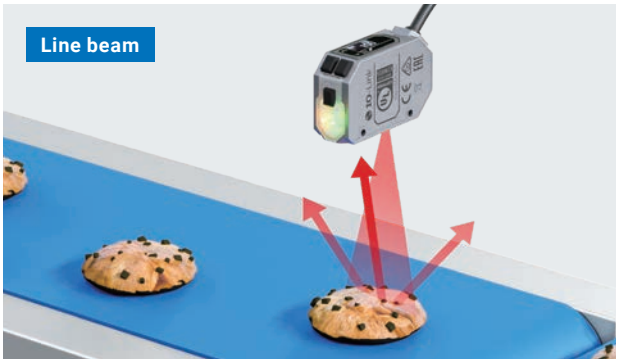
E3AS-HL Series

Stable detection even for glossy surfaces, complex shapes, and low-reflective workpieces

- Detection distance: 35–500 mm
- Minimum standard detection step: 1 mm / Minimum display resolution: 0.1 mm
- Line beam lineup less affected by surface shape or gloss

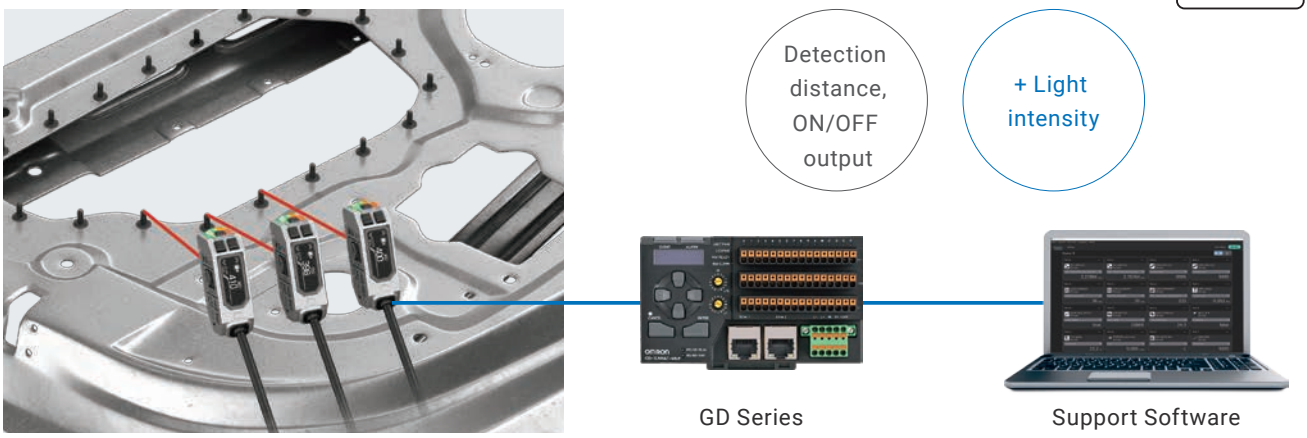
Reliable detection of workpieces with curved or irregular surfaces

With spot beam, detection is unstable since the reflected light does not reach the sensor depending on the profile of the workpiece surface. With the line beam of the E3AS-HL Sensor, detection is less affected by the profile of the surface since the reflected light reaches the sensor from any part of the surface.



Visualizing sensing data for optimal installation

By combining OMRON's GD series with the support software, you can quantitatively check installation conditions based on light intensity data and find the best installation setup.



TOF Laser Sensor with Built-in Amplifier

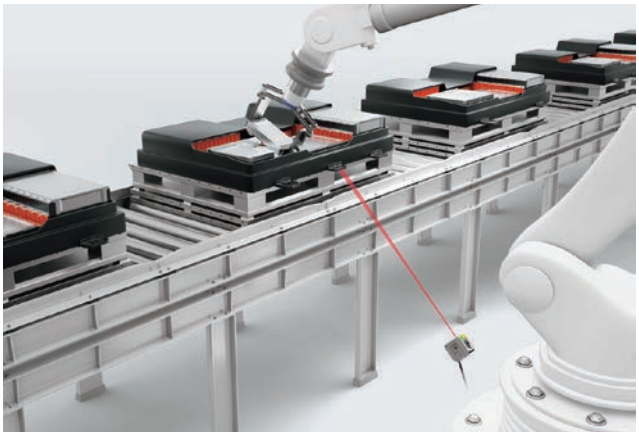
E3AS-HF Series

Installation flexibility and angle characteristics

- Covers a wide detection range from 0.05 to 6,000 mm
- Stable detection even at inclined installation with angle characteristics up to ±85°
- Automatic mutual interference prevention avoids malfunctions

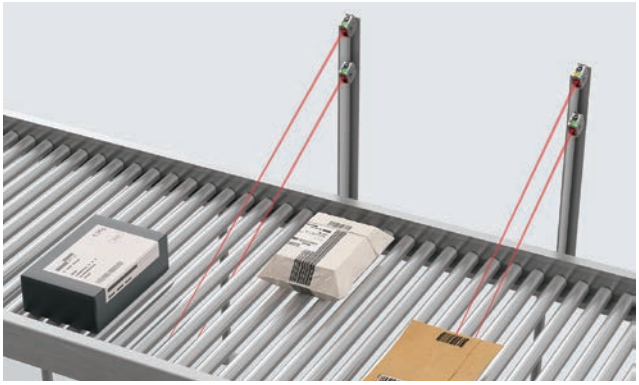
A wide sensing range and excellent angle characteristics supported at the same time

A sensing range of 0.05 to 6 m and angle characteristics of ±85° max.
Place the sensors away from the pathways of people and robots so that the sensors do not obstruct their movement. Thus remove failure risks such as optical axis displacement and cable disconnection due to collision with a workpiece, and ensure stable sensing when the target workpiece is changed or added.



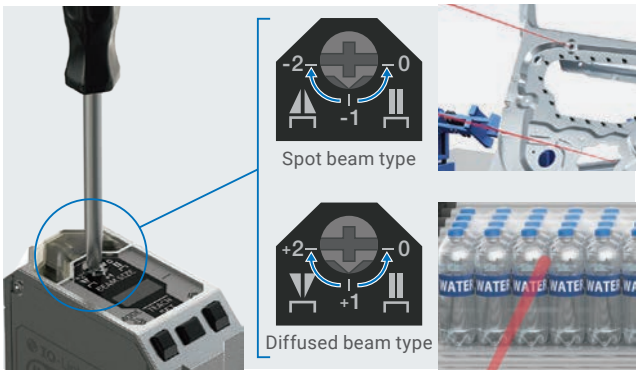
Automatic Mutual Interference Prevention

The technology adopted by E3AS-HF can prevent interference between the sensors without the need for their channel settings. It prevents the sensors are mounted adjacent to each other from causing mutual interference, reducing equipment disruptions.



Spot diameter adjustable for the workpiece

The spot diameter adjustable with the dial on the top of the sensor can be selected from three options according to whether you want to detect a spot on a small workpiece such as a pin or an area on a surface such as a hole.



IO-Link device

Liquid Flow Sensor

E8FC

Simultaneous monitoring of “flow rate + temperature”

- Detects abnormal signs in cooling water, water-soluble coolant, and water-insoluble oil
- Multi-sensing display shows the cause of abnormalities
- Wide variety of replacement adapters for easy replacement of existing pressure and flow meters

Liquid Pressure Sensor

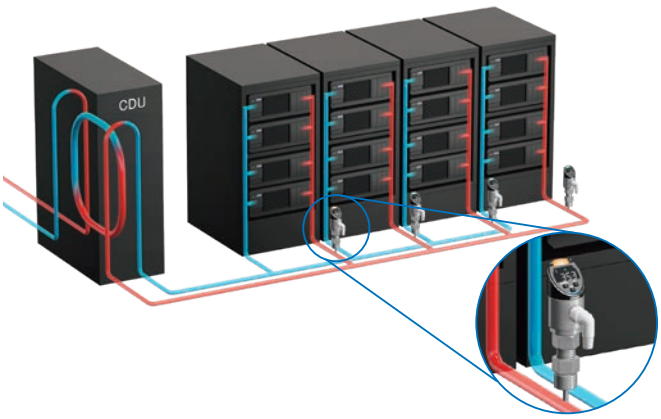
E8PC

Simultaneous monitoring of “pressure + temperature”

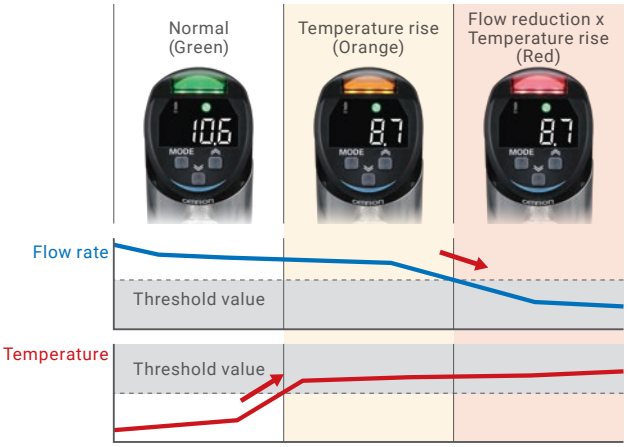
- Detects abnormal signs in hydraulic oil and sealing materials
- Multi-sensing display shows the cause of abnormalities
- Wide variety of replacement adapters for easy replacement of existing pressure and flow meters

Simultaneous monitoring of “flow rate” and “temperature” directly linked to quality

By monitoring the flow rate and temperature of cooling water simultaneously, you can maintain and control the desired cooling performance, suppress abnormal server heating, and ensure stable operation.



Example: Monitoring AI server cooling systems



Example of performance monitoring with liquid flow sensors

Proximity Sensor

Long-distance model

E2E NEXT Series

Super long distance detection with short bodies

- Equipped with high-brightness LED, 360° indicator is visible
- Oil resistance 2 years
- IP69K waterproof and washdown compatible

Full metal model

E2EW Series

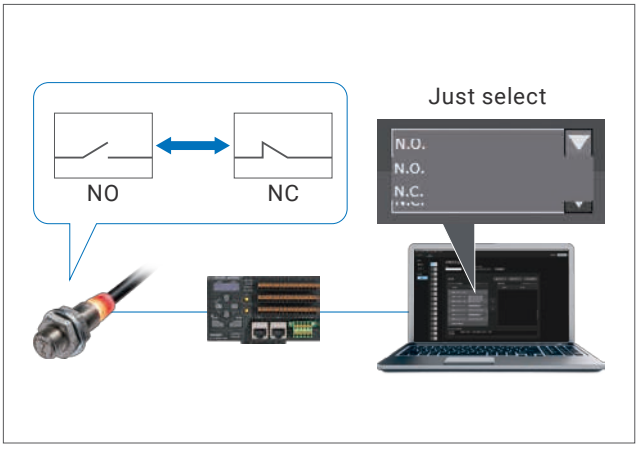
Super robust full-metal body in a short-body form

- Detecting iron and aluminum at the same long distance
- Long-life, spatter-resistant, no replacement needed for 10 years
- Equipped with cancellation function for magnetic field pulse noise

E2EW

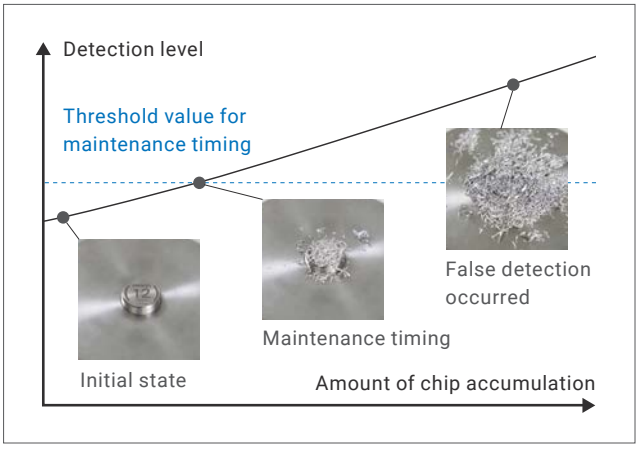
NC/NO switching via IO-Link Unified model inventory

NC/NO switching is possible with OMRON's GD Series and the support software, contributing to unified inventory and reduced ordering errors.



Prevent malfunctions and false detections with IO-Link

Overdetection and unstable detection can be detected, enabling predictive maintenance without programming.



IO-Link device

IO-Link A/D Converter

K3CV Series

Analog signals are converted to digital signals with high precision and output via IO-Link communication.
Improves signal accuracy and reliability while simplifying wiring to reduce costs.

Selecting/Setting

- Select input type by model name
- Can be used without tools

Usability

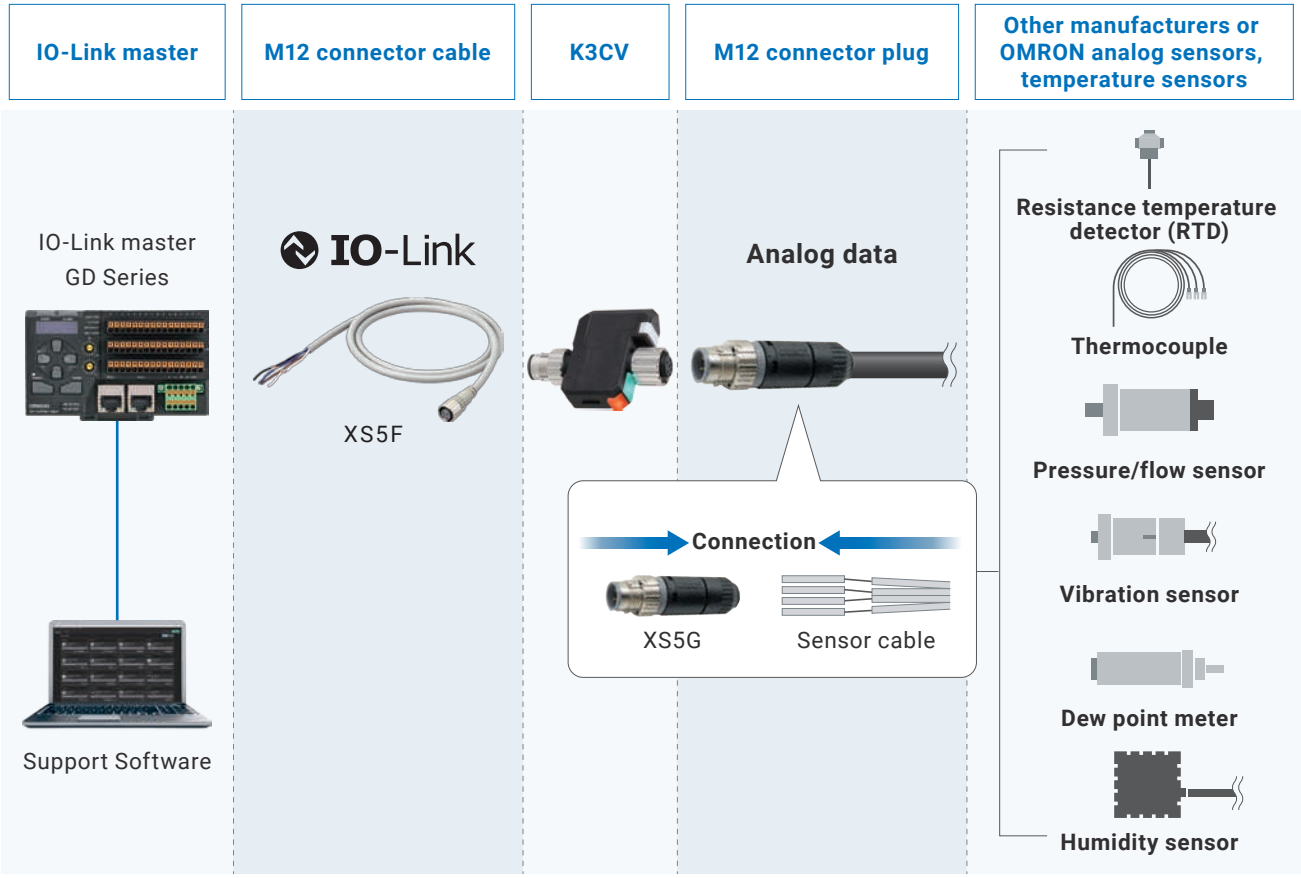
- Easy connection with Smartclick
- Slim body for improved connectivity

User Interface

- Indicator indicates operating status
- Nameplates simplify equipment management

Convert analog sensors in use to IO-Link

With IP67, conversion is possible near the sensor. Highly reliable input information is output via IO-Link communication.



Lineup

Input type	Input type details	Model
Analog input	Analog input 4 to 20 mA	K3CV-1ADIA-IL3
	Analog input 0 to 20 mA	K3CV-1ADIB-IL3
	Analog input 0 to 10 V	K3CV-1ADVA-IL3
	Analog input: -10 to 10 V	K3CV-1ADVB-IL3
Thermocouple	K Thermocouple -20.0 to 500.0°C	K3CV-1TCKA-IL3
Resistance temperature detector (RTD)	Resistance temperature detector: -200.0 to 500.0°C	K3CV-1PTPA-IL3

Main specifications

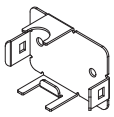
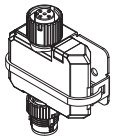
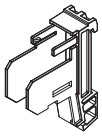
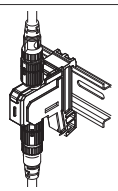
General specifications

Item	Rated input voltage
Operating voltage range	24 VDC
External power supply (Analog input type)	Maximum load current 100 mA
Current consumption	8 mA (maximum 108 mA when powered externally: analog input type)
Ambient operating temperature	-40 to 70°C (with no condensation or freezing)

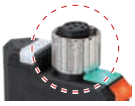
IO-Link Specifications

Item	Rated input voltage
Baud rate	COM3: 230.4 kbps (Fixed)
ADC resolution	16 bit
Control output	Switchable between physical quantity (default) and count value

Optional Products

Appearance	Installation image	Type	Model
		Mounting Bracket	K3CV -F-1
		DIN Track Mounting Adapter	K3CV -F-3

Connector cable compatibility table

K3CV connection connector	Connected equipment	Recommended connectors and connector cables	
Sensor input side 	Analog current Analog voltage Resistance temperature detector	Connector plug XS5G-D4□□	
	K thermocouple	Connector plug XS5G-D423 XS5G-D424	Compensation lead wire WCAG-N Series
IO-Link communication side	IO-Link Master Unit GD Series	Connector cable XS5F-D421-□80-F	

IO-Link device

IO-Link Photoelectric Sensor

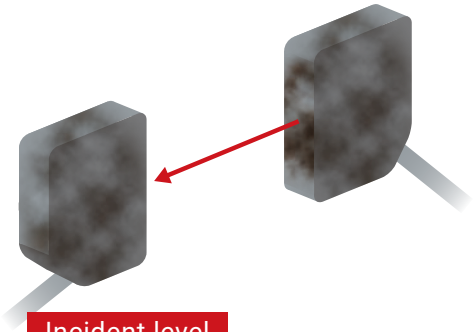
E3Z-□-IL□

Proven track record, 3 million units shipped annually

The standard for photoelectric sensors with IO-Link
- Lineup includes through-beam, retro-reflective, and diffuse-reflective types
- Unstable detection alarm prevents false detections

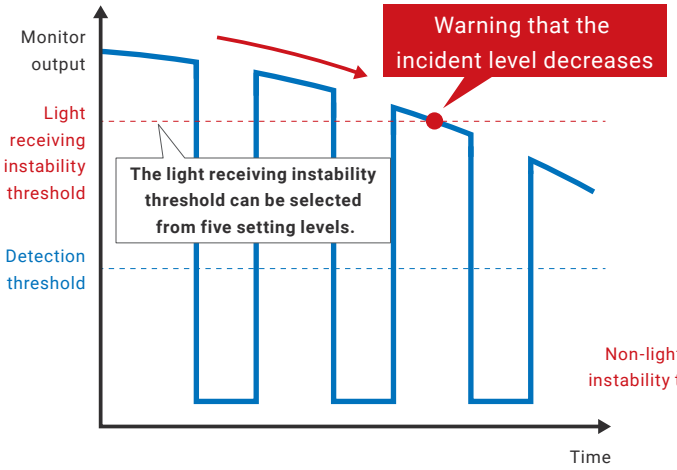
Monitor received light via IO-Link to check operation and prevent false detections

Dirt adhered

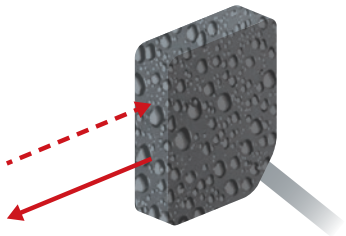


Incident level reduces ▶ **False detection**

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

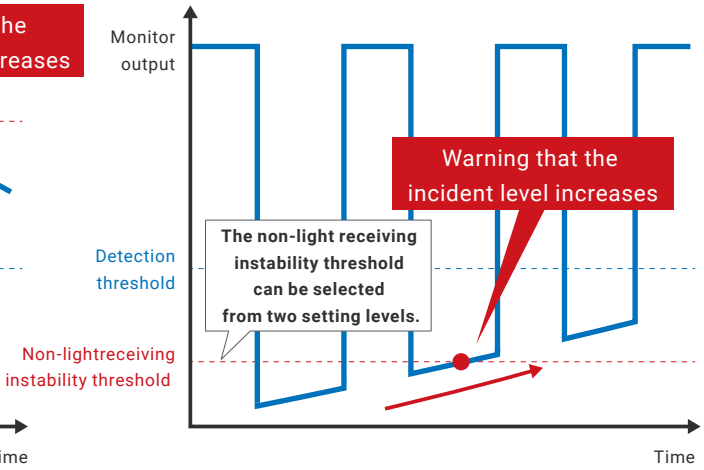


Water drops stuck



Incident level increases ▶ **False detection**

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



MEMO

IO-Link Master Unit
GD Series

Empowering engineers by simplifying sensor communication

- Making design easy
  Auto-connect to devices from over 100 manufacturers
- Making startup easy
  No manual configuration required
- Making maintenance easy
  Quick recovery in the event of trouble

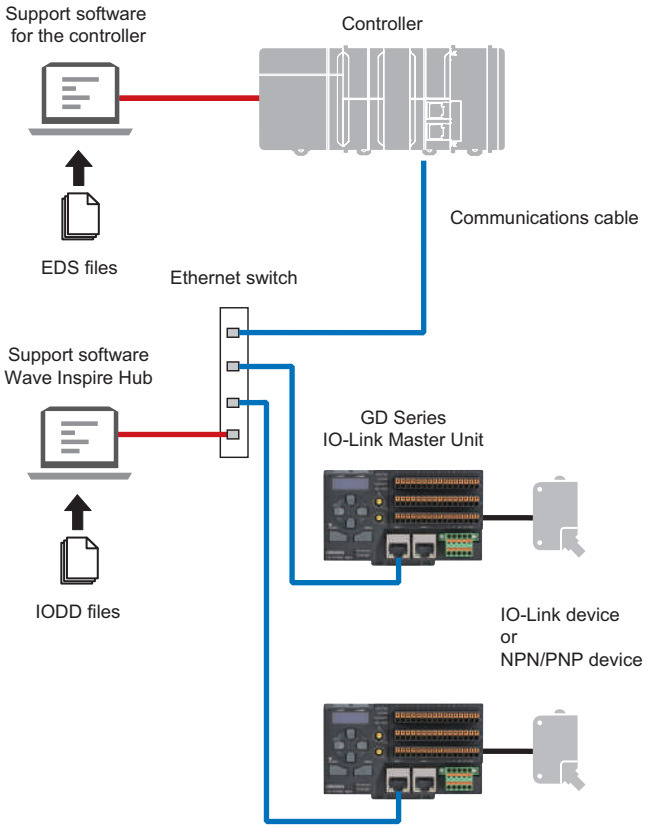
For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

System configuration example

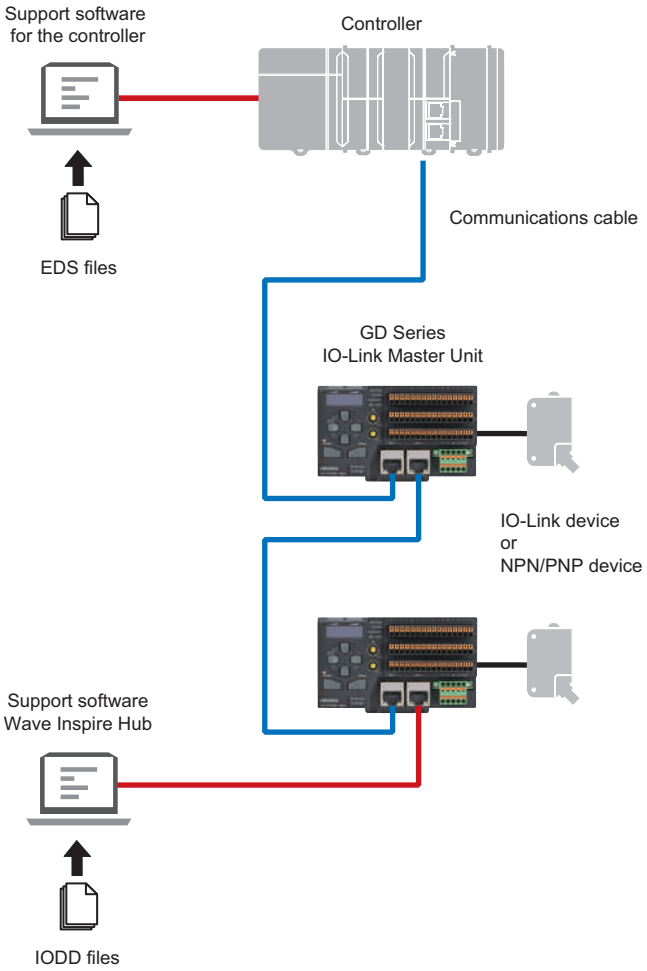
When connecting via EtherNet/IP

Below are typical system configuration examples. For other connection types, please refer to the manual.

Connection type: star configuration



Connection type: linear bus configuration



Ordering Information

IO-Link Master Unit

Appearance	Field network	Device connector	Model
	EtherNet/IP Modbus/TCP CC-Link IE Field Basic	Spring clamp terminal block	**GD-ILM16C-MLP**
	EtherNet/IP Modbus/TCP CC-Link IE Field Basic	e-CON socket	**GD-ILM16E-MLP**
	CC-Link IE Field ✻ CC-Link IE TSN	Spring clamp terminal block	**GD-ILM16C-CLI**
	CC-Link IE Field ✻ CC-Link IE TSN	e-CON socket	**GD-ILM16E-CLI**

✻When using CC-Link IE Field, the support software cannot be connected. To connect the e support software, please switch to CC-Link IE TSN. For details, please refer to the manual.

Spare Parts

Appearance	Name	Applicable Unit	Model
	Power Connector	GD-ILM16□-□□□	**GD-ILM16-XV**
	IO Connector	GD-ILM16C-□□□	**GD-ILM16C-XP**

To use support software Wave Inspire Hub connect the IO-Link master unit to your PC.
Wave Inspire Hub can be downloaded for free from the URL below.
https://www.ia.omron.com/gd_tool/

Wave Inspire Hub is a setup support tool. Please note the following before use.
(1) OMRON assumes no responsibility for damage caused by any malfunctioning of this software, whether directly or indirectly, or caused by the effects of such malfunctioning.
(2) OMRON assumes no responsibility for any damage incurred by the customer due to use of this software.

How-to Video

Wiring & Initial Setup

IP Address Setting/
Support Software Connection

Recommended EtherNet/IP Communications Cables

For EtherNet/IP, required specification for the communications cables varies depending on the baud rate. For 100BASE-TX/10BASE-T, use a straight or cross STP (shielded twisted-pair) cable of category 5 or higher.

Cable with Connectors

Item		Recommended manufacturer	Cable length (m)	Model
Wire gauge and number of pairs: AWG26, 4-pair cable Cable sheath material: PUR	Cable with Connectors on Both Ends (RJ45/RJ45) Standard RJ45 plugs ✻1 Cable color: Yellow ✻2 EtherNet/IP (10BASE/100BASE) 	OMRON	0.3	**XS6W-6PUR8SS30CM-YF**
			0.5	**XS6W-6PUR8SS50CM-YF**
			1	**XS6W-6PUR8SS100CM-YF**
			2	**XS6W-6PUR8SS200CM-YF**
			3	**XS6W-6PUR8SS300CM-YF**
			5	**XS6W-6PUR8SS500CM-YF**
	Cable with Connectors on Both Ends (RJ45/RJ45) Rugged RJ45 plugs ✻1 Cable color: Light blue EtherNet/IP (10BASE/100BASE) 		0.3	**XS5W-T421-AMD-K**
			0.5	**XS5W-T421-BMD-K**
			1	**XS5W-T421-CMD-K**
			2	**XS5W-T421-DMD-K**
			5	**XS5W-T421-GMD-K**
			10	**XS5W-T421-JMD-K**

✻1. Cables with standard RJ45 plugs are available in the following lengths: 0.2 m, 0.3 m, 0.5 m, 1 m, 1.5 m, 2 m, 3 m, 5 m, 7.5 m, 10 m, 15 m, 20 m.
Cables with rugged RJ45 plugs are available in the following lengths: 0.3 m, 0.5 m, 1 m, 2 m, 3 m, 5 m, 10 m, 15 m.
For details, refer to the *Industrial Ethernet Connectors Catalog* (Cat. No. G019).
✻2. Cable colors are available in yellow, green, and blue.

Cables/Connectors

Item			Recommended manufacturer	Model
Products for EtherNet/IP (100BASE-TX/ 10BASE-T)	Wire gauge and number of pairs: AWG22, 2-pair cable	Cable	Kuramo Electric Co.	**KETH-PSB-OMR ✻1**
			JMACS Japan Co., Ltd.	**PNET/B ✻1**
		RJ45 Assembly Connector 	OMRON	**XS6G-T421-1 ✻1**

✻1. We recommend you to use the above Cable and RJ45 Assembly Connector together.

Ratings and Performance

IO-Link Master Unit
GD-ILM16C-MLP/GD-ILM16E-MLP

General specifications

Item		GD-ILM16C-MLP	GD-ILM16E-MLP
Number of ports		16	
Power supply voltage		24 VDC ±15% (SELV and LIM power supplies, or UL 1310 Class 2 power supplies)	
Current consumption (Only Master Unit)		195 mA or less	
Maximum current of the port		0.2 A or less per 1 port, 2.5 A or less per 16 port	
Maximum power current		8 A (Total of unit power supply and I/O power supply)	
Insulation resistance		20 MΩ or more (between external power supply and unit power supply at 500 VDC)	
Connectors	Field network	2×RJ45 Socket	
	Power supply	Spring-clamp terminal block, 5-pole, 2-row	
	Input/output	3×16-channel spring-clamp terminal blocks	16×e-CON sockets, 4 poles
Indicators		POWER LED (blue green), EVENT LED (yellow), ALARM LED (red), I/O LED (orange)	
Display		OLED (Display language: English, Japanese, Simplified Chinese, Traditional Chinese, Korean, French, Spanish, German, Portuguese, Italian)	
Field network		• EtherNet/IP • Ethernet & Modbus/TCP • CC-Link IE Field Basic (Switch in settings)	
I/O assignment		Switchable in the following 6 modes by setting for each port: • Unused (default) • IO-Link communication mode • SIO (PNP input) mode • SIO (NPN input) mode • SIO (PNP output) mode • SIO (NPN output) mode	
IO-Link Communication Specifications	IO-Link revision	1.1	
	Communication speed	COM1 (4,800 bps)/COM2 (38,400 bps)/COM3 (230.4 kbps)	
	Physical layer	IO-Link-compliant	
	Minimum cycle time	0.3 ms	
	Data	Periodic: Process data, Status Aperiodic: Devices data, Event	
Input Specifications	Rated input voltage	24 VDC ±20% (SELV and LIM power supplies, or UL 1310 Class 2 power supplies) ✻1	
	Voltage and current at ON	PNP: 15 VDC or more, 5.5 mA or more NPN: Power supply voltage -13 VDC or less, 3.0 mA or more	
	Voltage and current at OFF	PNP: 10 VDC or less, 2.0 mA or less NPN: Power supply voltage -8 VDC or more, 2.0 mA or less	
	Input resistance	PNP: 5.5 mA rated current circuit load, NPN: 4.7 kΩ	
	Input filter time	0 ms (default), 0.1 ms, 1 ms, 5 ms, 10 ms, 20 ms	
Output Specifications	Rated load voltage	10.8 to 26.4 VDC (SELV and LIM power supplies, or UL 1310 Class 2 power supplies) ✻1	
	Maximum output load current	0.2 A per 1 port, 2.5 A per 16 port	
	Overcurrent protection current	Current limiting (0.5 A) by Overcurrent protection function	
	OFF output leakage current	PNP: 0.1 mA or less NPN: 0.2 mA or less	
	Residual Voltage	PNP: 1.8 V or less, NPN: 1.6 V or less	
	Output response time	0.1 ms or less	

Item		GD-ILM16C-MLP	GD-ILM16E-MLP
Environmental resistance	Operating/ Storage temperature	Operating: 0 to 55°C Storage: -25 to +75°C (no freezing or condensation)	
	Operating/ Storage humidity	Operating/Storage: 5 to 95% RH (no condensation)	
	Vibration resistance	IEC 61131-2 compliant Vibration frequency: 5 to 8.4 Hz, single amplitude: 3.5 mm Vibration frequency: 8.4 to 150 Hz, acceleration: 10 m/s^2 (1.0 G) Number of sweeps: 10 times each in 3 directions along X, Y, and Z axes	
	Shock resistance	IEC 61131-2 compliant Peak acceleration: 150 m/s^2 (15 G), 3 times each in 3 directions along X, Y, and Z axes (total of 18 times)	
	Operating environment	No corrosive gas	
	Operating altitude	0 to 2,000 m	
	Installation location	In door use	
	Degree of protection	IP20	
Overvoltage category		Ⅱ or less	
Pollution degree		2 or less	
Equipment class		Class I	
Material		Case: PC, keys/DIN rail mounting hook: POM, terminal block: PA	
Weight		Approx. 195 g (including terminal blocks, when not wired)	
Included accessories		Instruction manual, compliance sheet, power terminal block, 2×RJ45 connector protective cap (attached to unit)	
		3×device terminal block	---

✻1. Use a Class 2 power supply or a power supply compliant with SELV (Safety Extra-Low Voltage) circuit and LIM (Limited Energy Circuit) circuit standards.

Field network communication specifications

EtherNet/IP Communication Specifications

Item	GD-ILM16□-MLP
Host Network Communication Protocol	EtherNet/IP
Applicable version	EtherNet/IP adapter
Authentication version	CT21
Conforming standard	IEEE802.3u
Transmission speed	10 Mbps (10BASE-T), 100 Mbps (100BASE-TX)
Cable	Twisted pair cable (STP) Category 5/5e or higher
Ethernet Connection Type	Star configuration, linear bus configuration, device level ring configuration
Distance between nodes	Within 100 m
IP address configuration	Static IP address only
Cyclic Communication (Implicit Message)	Class 1 service
Acyclic Communication (Explicit Message)	• Class 3 message • UCMM
Support objects	• Identity object • Message Router object • Assembly object • Connection Manager object • DLR object • QoS object • TCP/IP Interface object • Ethernet Link object • This unit's object • IO-Link device object connected to this unit
Reset service	• Type0 • Type1
Maximum no. of connections	Class 1: 5, Class 3: 8, UCMM: 8
Packet interval (RPI)	1 to 3,200 ms
Unit Allowable Communications Band Width	1,000 pps
EtherNet/IP Product Internal Response Time	0.6 ms or less
Extended access function	This function uses cyclic communication to read and write settings for this product and IO-Link devices. Host master side programs can be simplified.
Other functions	• ACD (Address Conflict Detection) • DLR (Device Level Ring) • Auto Negotiation • Auto MDIX • Quick Connect

Ethernet & Modbus/TCP Communication Specifications

Item		GD-ILM16□-MLP
Host network communication protocol		Modbus TCP/UDP communication or Ethernet socket communication
Conforming standard		IEEE802.3u
Transmission speed		10 Mbps (10BASE-T), 100 Mbps (100BASE-TX)
Cable		Twisted pair cable (STP) Category 5, 5e and above
Ethernet connection type		Star configuration, linear bus configuration
Modbus communication	**Master (client)/Server**	Operates as a Modbus server
	Transport layer protocol	TCP or UDP
	Port number	502 (common to TCP/IP and UDP/IP)
	Corresponding function code	3, 6, 16, 23
	Register number	400001 to 465536
	Distance between nodes	Within 100 m
	IP address setting	Static IP address only
	Number of connectable units	Number of units that can be connected from one Modbus/TCP master: It depends on the specifications of the Modbus/TCP master
	Number of simultaneous connections	Modbus/TCP: 2 Modbus/UDP: 4
Socket communication	**Transport layer protocol**	TCP or UDP
	Port number	2001 (common to TCP/IP and UDP/IP)
	IP address setting	Static IP address only
	Number of simultaneous connections	TCP/IP: 2 UDP/IP: 4

CC-Link IE Field Basic Communication Specifications

Item		GD-ILM16□-MLP
Host network communication protocol		CC-Link IE Field Basic communication, socket communication (UDP/IP, TCP/IP), or Modbus/TCP
Conforming standard		IEEE802.3u
Transmission speed		100 Mbps (100BASE-TX)
Cable		Twisted pair cable (STP) Category 5, 5e or higher
Ethernet connection type		Star configuration, linear bus configuration
Cyclic communication	**Method**	CC-Link IE Field Basic cyclic transmission
	By station type	Slave station
	Number of occupied stations	1 station
	Distance between nodes	Within 100 m
	IP address setting	Static IP address
	Product standard response time	0.6 ms
	Extended access function	This function uses cyclic communication to read and write settings for this product and IO-Link devices. Host master side programs can be simplified.
	Port number	• Cyclic data transmission: 61450 (UDP) • Node connection: 61451 (UDP)
Acyclic communication	**Method**	Socket communication (UDP/IP or TCP/IP) or Modbus/TCP communication
	Access target	Both socket communication and Modbus/TCP: Reading and writing of setting values is possible, as well as reading of process data (writing to process data is not applicable). **Note:** Socket communication setting values background access mode is possible.
	Number of simultaneous connections	• Socket communication (UDP/IP: 4, TCP/IP: 1) • Modbus/TCP communication: 2
	IP address setting	Static IP address
	Port number	• Socket communication: 2001 (both TCP and UDP) • Modbus/TCP communication: 502

GD-ILM16C-CLI/GD-ILM16E-CLI

General specifications

Item		GD-ILM16C-CLI	GD-ILM16E-CLI
Number of ports		16	
Power supply voltage		24 VDC ±15% (SELV and LIM power supplies, or UL 1310 Class 2 power supplies)	
Current consumption (Only Master Unit)		220 mA or less	
Maximum current of the port		0.2 A or less per 1 port, 2.5 A or less per 16 port	
Maximum power current		8 A (Total of unit power supply and I/O power supply)	
Insulation resistance		20 MΩ or more (between external power supply and unit power supply at 500 VDC)	
Connectors	Field network	2×RJ45 Socket	
	Power supply	Spring-clamp terminal block, 5-pole, 2-row	
	Input/output	3×16-channel spring-clamp terminal blocks	16×e-CON sockets, 4 poles
Indicators		POWER LED (blue green), EVENT LED (yellow), ALARM LED (red), I/O LED (orange)	
Display		OLED (Display language: English, Japanese, Simplified Chinese, Traditional Chinese, Korean, French, Spanish, German, Portuguese, Italian)	
Field network		• CC-Link IE Field • CC-Link IE TSN (Switch in settings)	
I/O assignment		Switchable in the following 6 modes by setting for each port: • Unused (default) • IO-Link communication mode • SIO (PNP input) mode • SIO (NPN input) mode • SIO (PNP output) mode • SIO (NPN output) mode	
IO-Link Communication Specifications	IO-Link revision	1.1	
	Communication speed	COM1 (4,800 bps)/COM2 (38,400 bps)/COM3 (230.4 kbps)	
	Physical layer	IO-Link-compliant	
	Minimum cycle time	0.3 ms	
	Data	Periodic: Process data, Status Aperiodic: Devices data, Event	
Input Specifications	Rated input voltage	24 VDC ±20% (SELV and LIM power supplies, or UL 1310 Class 2 power supplies) ✻1	
	Voltage and current at ON	PNP: 15 VDC or more, 5.5 mA or more NPN: Power supply voltage -13 VDC or less, 3.0 mA or more	
	Voltage and current at OFF	PNP: 10 VDC or less, 2.0 mA or less NPN: Power supply voltage -8 VDC or more, 2.0 mA or less	
	Input resistance	PNP: 5.5 mA rated current circuit load, NPN: 4.7 kΩ	
	Input filter time	0 ms (default), 0.1 ms, 1 ms, 5 ms, 10 ms, 20 ms	
Output Specifications	Rated load voltage	10.8 to 26.4 VDC (SELV and LIM power supplies, or UL 1310 Class 2 power supplies) ✻1	
	Maximum output load current	0.2 A per 1 port, 2.5 A per 16 port	
	Overcurrent protection current	Current limiting (0.5 A) by Overcurrent protection function	
	OFF output leakage current	PNP: 0.1 mA or less NPN: 0.2 mA or less	
	Residual Voltage	PNP: 1.8 V or less, NPN: 1.6 V or less	
	Output response time	0.1 ms or less	

Item		GD-ILM16C-CLI	GD-ILM16E-CLI
Environmental resistance	Operating/ Storage temperature	Operating: 0 to 55°C Storage: -25 to +75°C (no freezing or condensation)	
	Operating/ Storage humidity	Operating/Storage: 5 to 95% RH (no condensation)	
	Vibration resistance	IEC 61131-2 compliant Vibration frequency: 5 to 8.4 Hz, single amplitude: 3.5 mm Vibration frequency: 8.4 to 150 Hz, acceleration: 10 m/s^2 (1.0 G) Number of sweeps: 10 times each in 3 directions along X, Y, and Z axes	
	Shock resistance	IEC 61131-2 compliant Peak acceleration: 150 m/s^2 (15 G), 3 times each in 3 directions along X, Y, and Z axes (total of 18 times)	
	Operating environment	No corrosive gas	
	Operating altitude	0 to 2,000 m	
	Installation location	In door use	
	Degree of protection	IP20	
Overvoltage category		Ⅱ or less	
Pollution degree		2 or less	
Equipment class		Class I	
Material		Case: PC, keys/DIN rail mounting hook: POM, terminal block: PA	
Weight		Approx. 195 g (including terminal blocks, when not wired)	
Included accessories		Instruction manual, compliance sheet, power terminal block, 2×RJ45 connector protective cap (attached to unit)	
		3×device terminal block	---

✻1. Use a Class 2 power supply or a power supply compliant with SELV (Safety Extra-Low Voltage) circuit and LIM (Limited Energy Circuit) circuit standards.

Field network communication specifications

CC-Link IE Field Communication Specifications

Item	GD-ILM16□-CLI
Host network communication protocol	CC-Link IE Field
Station type	Remote device station or Intelligent devices station
Transmission speed	1 Gbps
Total cable extension	Between Field Network master station and this product: 100 m Between this product (IO-Link master) and IO-Link devices: 20 m
Station number setting	1 to 120
Internal response time	0.6 ms or less

CC-Link IE TSN Communication Specifications

Item	GD-ILM16□-CLI
Host network communication protocol	CC-Link IE TSN
Station type	Remote station
Transmission speed	1 Gbps or 100 Mbps ✻1
Total cable extension	Between Field Network master station and this product: 100 m Between this product (IO-Link master) and IO-Link devices: 20 m
Station number setting	1 to 254
Internal response time	0.6 ms or less
Authentication Class	Class B or Class A (Switchable)

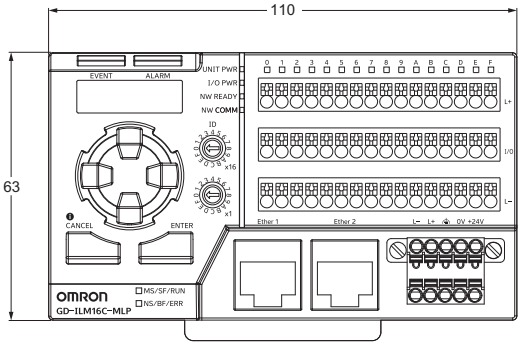
✻1. It is specified in the master setting value “M83.IE TSN Class Setting”. Additionally, 100 Mbps is supported only for Class A.

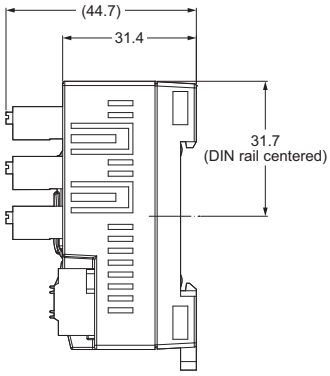
Dimensions

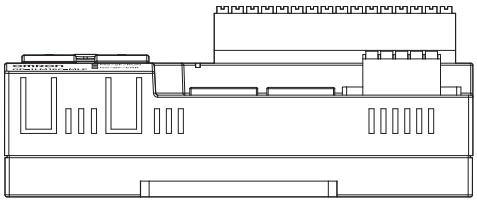
(Unit: mm)

IO-Link Master Unit

GD-ILM16C-MLP







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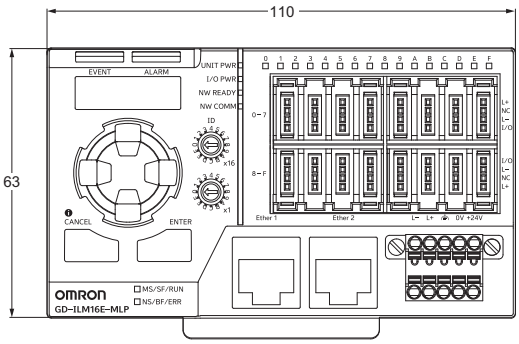

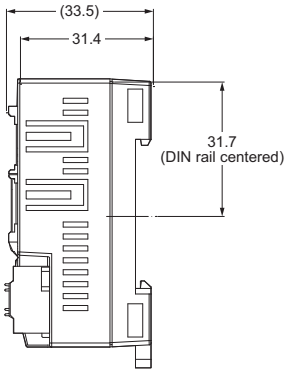

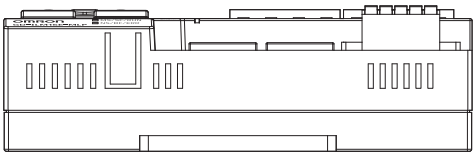

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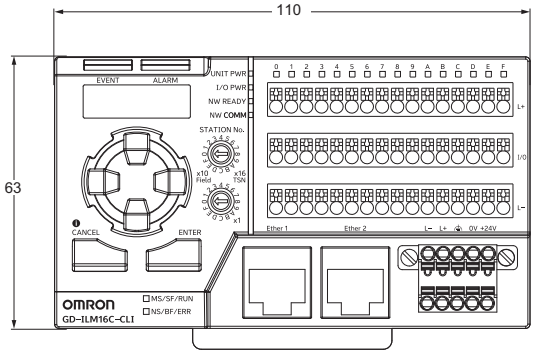

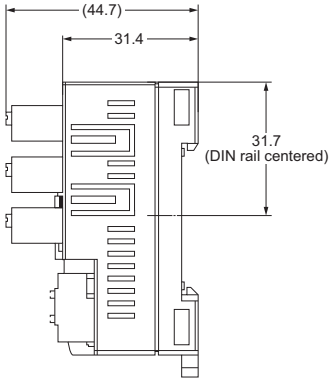

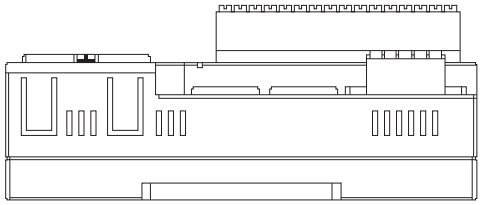

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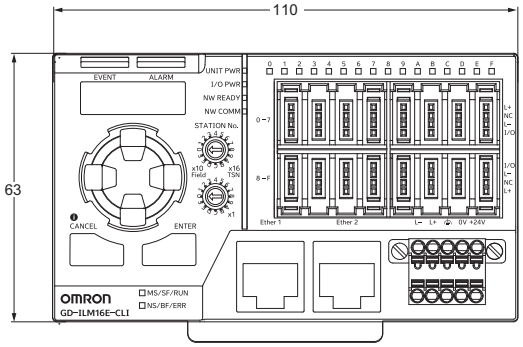

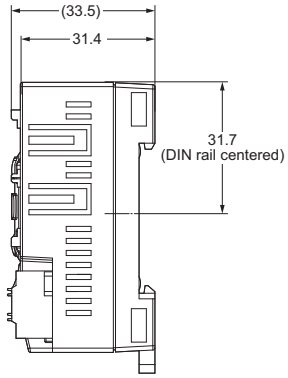

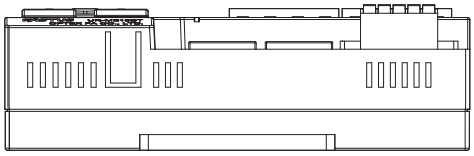

Related Manuals

Man.No.	Model	Manual
Z512	GD-ILM□□□-MLP	GD Series IO-Link Master Unit (Multi-Network Compatible) User's Manual Common Edition
Z513	GD-ILM16□-CLI	GD Series IO-Link Master Unit (CC-Link IE Field/TSN Compatible) User’s Manual
Z514	GD-ILM□□□-MLP	GD Series IO-Link Master Unit (Multi-Network Compatible) User's Manual EtherNet/IP™ Edition
Z516	GD-ILM□□□-MLP	GD Series IO-Link Master Unit (Multi-Network Compatible) User's Manual Ethernet & Modbus/TCP Edition
Z517	GD-ILM□□□-MLP	GD Series IO-Link Master Unit (Multi-Network Compatible) User's Manual CC-Link IE Field Basic Edition
Z518	GD	GD Series Wave Inspire Hub Operation Manual

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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

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