

Proximity Sensors

DC 2-Wire and 3-Wire Models

E2E NEXT Series

9mm

M12 DC 3-wire

Four times the range of
a standard M12 sensor

OMRON

Exceptional sensing range

Reduce sensor failures
and increase productivity

NEW

IO-Link is standard for NO/PNP 3-wire models

 **IO-Link**



OMRON

E2E NEXT Inductive Sensors
Offer up to four times the range of
standard sensors

9mm

E2E NEXT

Magnetic flux strength

2mm

Previous models * for M12

E2E NEXT

Previous models

E2E NEXT long range sensors:

- Reduce downtime associated with replacing damaged sensors. The cost of the sensor is minimal compared to the cost of lost production.
- Increase flexibility in mounting design by using smaller diameter sensors in place of larger diameter sensors.
- Solve difficult applications with additional sensing range. The increased range of the E2E NEXT offers a solution to applications that couldn't be solved before due to lack of sensing range.

E2E NEXT Sensors include a full range of 1x, 2x, 3x, and 4x sensors to meet the needs of any application.

Features:

- Up to four times the sensing range of standard inductive sensors
- DC 2-wire and DC 3-wire versions
- Shielded and unshielded versions
PNP or NPN units (3-wire versions)

Performance and Functionality:

- Up to four times the sensing range of standard inductive sensors
- 360° visible output indicator
- DC 2-wire and DC 3-wire versions
- Shielded and Unshielded versions
- PNP or NPN Units
- Short and long body housing options
- Available with spatter resistance coating
- UL, CSA, CE Certifications

Environmental Resistance:

- -25°C to 70°C operating temperature
- Pre-wired and pre-wired connector models: IP67; IP67G; IP69K
- Connector models: IP67; IP69K

Connection Options:

- Pre-wire PVC
- Pre-wire Robot PVC
- PVC pigtail
- Robot PVC Pigtail
- M8 3 pin
- M8 4 pin
- M12 4 pin

Long distance detection reduces failures and improves design flexibility

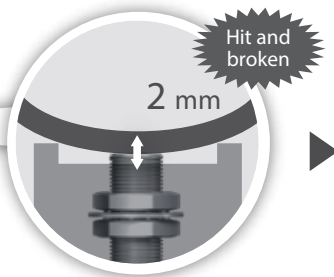
Reduce sensor damage



Metal plate position confirmation

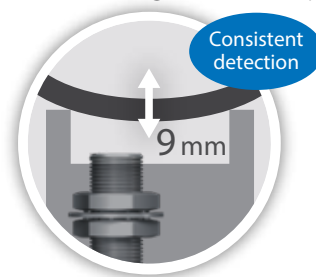
Previous models

Sliding targets collide with sensors causing failures and equipment downtime.



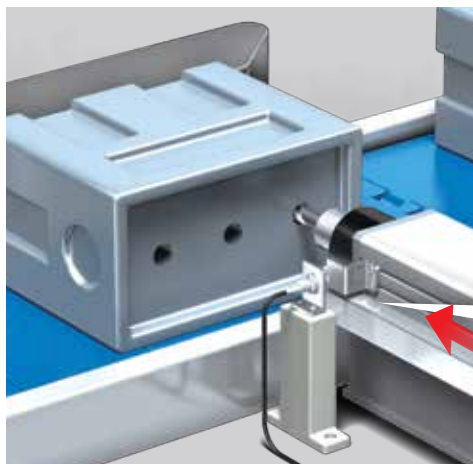
E2E NEXT

Long-distance detection maintains sufficient target distance from sensor, reducing the risk of impacting the sensor.



* M12

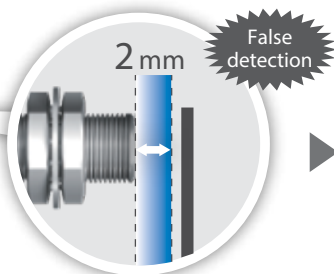
Accommodate changing conditions



Spindle presence detection

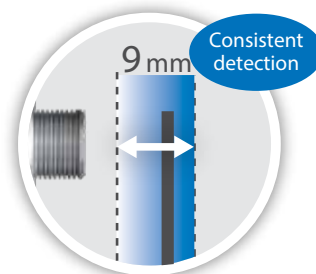
Previous models

Equipment vibration widens the distance between target and sensor causing false detection and equipment shutdown.



E2E NEXT

Long-distance detection enhances the degree of the detection margin resulting in consistent detection even when the target moves further away from the sensor.



* M12

Increase mounting flexibility

The long sensing distance allows smaller sensors to be used for the same tasks, creating more space for additional functionality.

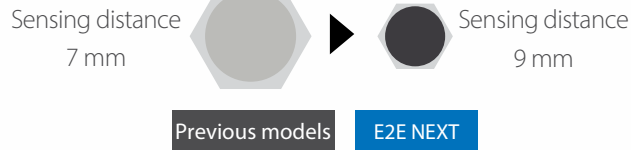
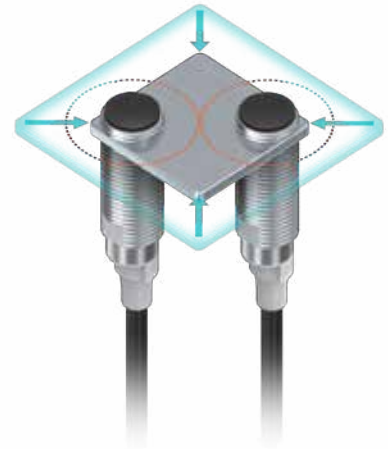
For a 50 mm × 50 mm space

Previous models The number of sensors is limited due to mutual interference.



E2E NEXT Space-saving Reduce to 30 mm × 30 mm

M12

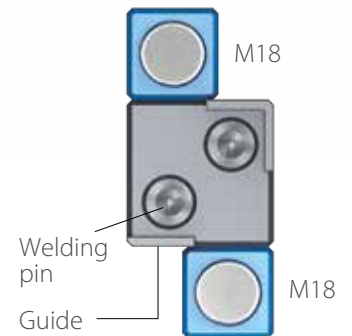


Facilitate installation in tight spaces



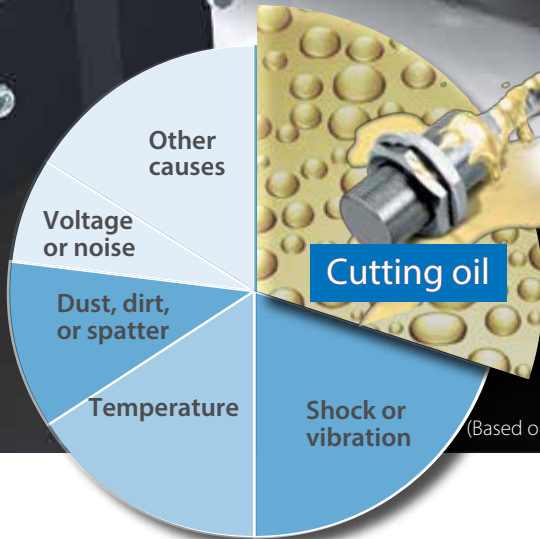
Previous models Due to the guide surrounding the welding pin, it is difficult to install a sensor near the pin to check the sitting position.

E2E NEXT Reduced mutual interference allows compact installation in welding jigs.



Note: Make sure to factor the influence of surrounding metal into your designs. (Refer to • Influence of Surrounding Metal upon Design in the data sheets for details.)

Unexpected component failures:
Approx. 30% are caused by cutting oil.



Environmental Causes of Component Failures
 (Based on June 2016 Omron investigation.)

2 year oil resistant*¹ components reduce unexpected equipment shutdowns

Previous models

Cable deterioration due to cutting oil



PUR cables crack in environments where water-soluble cutting oil is used.

Oil resistance: 2 years*¹

IP67G	
Oil type	N3 (water-insoluble cutting oil)
Evaluation time	48 hours
Evaluation temperature	Room temperature
Dilution concentration	Undiluted
Criteria	Appearance and performance

E2E NEXT

Verification of 2-year oil resistance*¹ based on IP67G and Omron's oil-resistant component evaluation standards



Omron's E2E NEXT series Proximity Sensor use PVC cables with enhanced oil resistance.

OMRON's Oil-resistant Component Evaluation Standards

Oil type	A1 (water-soluble cutting oil)
Evaluation time	1,000 hours of machining
Evaluation temperature	55 °C
Dilution concentration	Undiluted
Criteria	Appearance, performance, and no label text loss

*1. Refer to Ratings and Specifications in the datasheet for details.

Thermal Distance Control × IoT: technologies for stable long-distance detection

- E2E Next Series Proximity Sensors solve temperature effects on sensing distance with Thermal Distance control (TDC) technology for stable long-distance detection and analog digital hybrid ICs.

DC 2-wire triple distance models (TDC)

- Temperature correction values are written into the analog digital hybrid IC (PROX2) to minimize the influence of temperature changes on sensing distances.

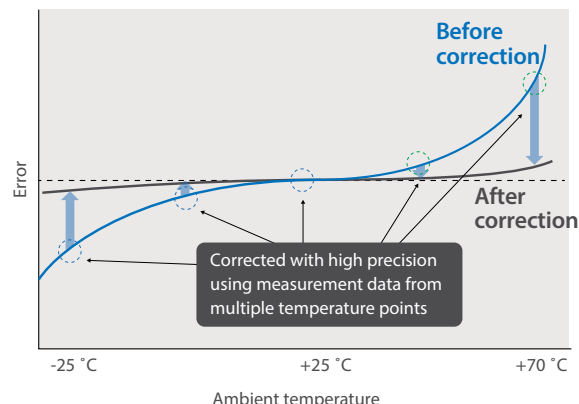
NEW

Patent Pending

DC 3-wire quadruple models (TDC × IoT)

- In-line measurements of each sensor's temperature characteristics are possible in IoT-enabled production processes. Optimal correction values then minimize the influence of temperature change on sensing distances.

Sensing distance fluctuation due to ambient temperature



User friendly design reduces equipment downtime

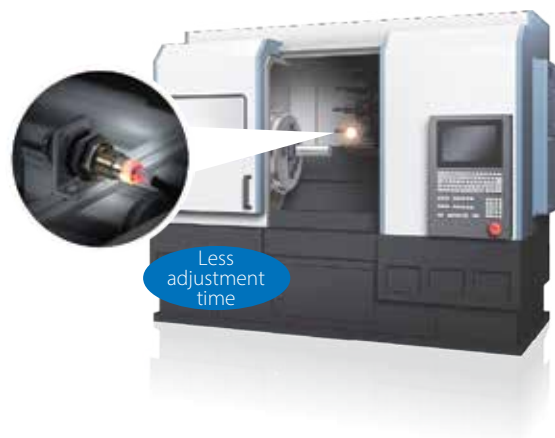
Indicator can be seen regardless of orientation

Previous models

Detection validation during installation can be difficult based on the location of the detector on the equipment.

E2E NEXT

With high-brightness LED, the indicator has 360° visibility making detection validation easy.



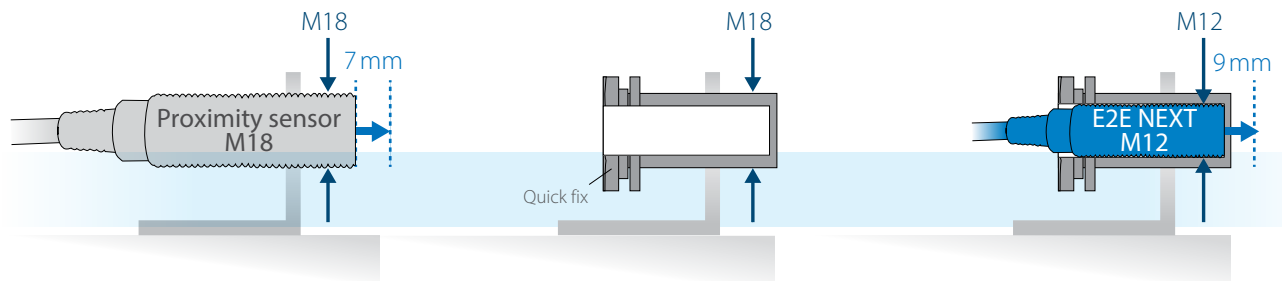
Easily upgrade existing equipment with 10-second proximity sensor replacements

The sensing distance of E2E-NEXT is approximately twice that of previous models. For example, the sensing distance of the M12 models is 9 mm, which is about the same as conventional M18 models. Using these sensors together with Quick fix allows easy upgrades to existing equipment in just 10 seconds.*

1. Dismount the M18 proximity sensor from the existing facility.

2. Mount an M18-sized Quick fix.

3. Insert an E2E NEXT Series M12 Proximity Sensor into the Quick fix.



Note: All sensing distances are for 2-wire models.

* Time required to adjust the distance when installing a sensor. Based on OMRON investigation.

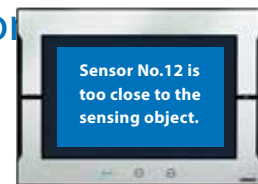
IO-Link 3-wire models

allow early identification of sensor failures



Monitors real-time sensor failure from a single location

By using the IO-Link Master to connect proximity sensors and controllers, HMI's can be used for early detection of location and nature of sensor failures.



* Screen is a conceptual illustration.

HMI

Predictive maintenance through condition monitoring.

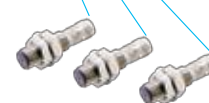
- Facilitate real time condition monitoring and predictive maintenance with IO-Link
- Identify trends and patterns of failure to improve equipment uptime
- Increase productivity through data collection and analysis



Controller



IO-Link Master



IO-Link