

Available soon.

Preliminary Version

N E W

Proximity Sensors

DC 2-Wire Models

E2E NEXT Series

OMRON



7 <M12>
mm

Previous models: 3 mm

The World's Longest-distance* Detection

Reduces Malfunctions and Collisions

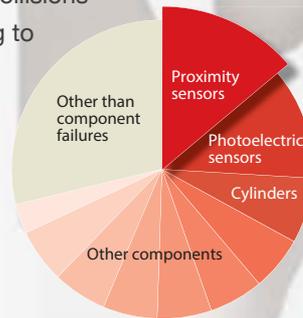
* Based on July 2017 OMRON investigation.

**Unexpected Production Facility Stoppages:
70 % Are Caused by Component Failures.**

Proximity sensors account for the most.

Many proximity sensors are used for production facilities due to its environment resistance. The short sensing distance, however, causes collisions with sensing objects, leading to a major cause of facility stoppages.

■ Causes of unexpected
production facility stoppages



* Based on July 2017 OMRON investigation.

With New Proximity Sensors,

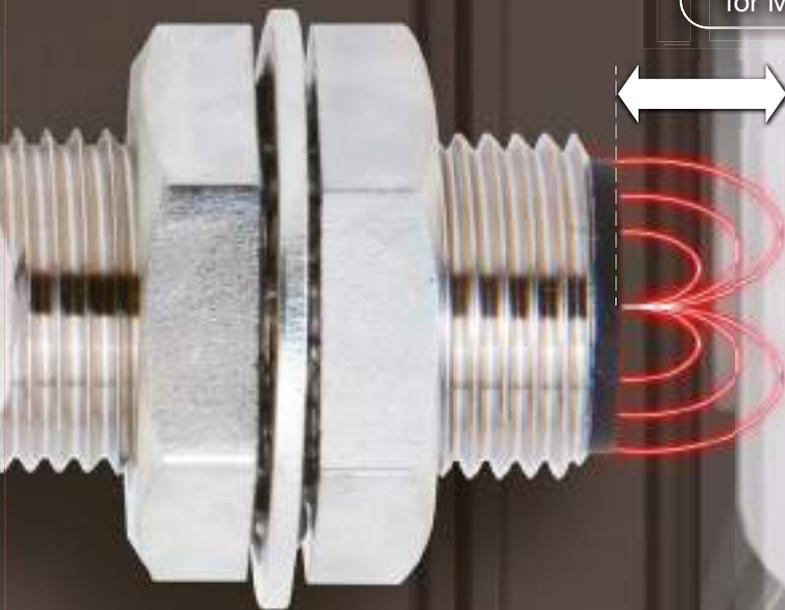
**The world's longest*
sensing distance**

NEW

7 mm

for M12

* Based on July 2017 OMRON investigation.



Even when the distance from a sensing object changes due to equipment deterioration and vibration,

**a Proximity Sensor
does not hit equipment
and facilities work stably!**

Contributes to **Better Facility "Operation Rates"**.



Stable operation

Long-distance detection

p.4



Quick recovery

Enhanced usability

p.6



Less failures

Oil resistance:
2 years

p.8

Also Contributes to **Facility's Greater "Design Flexibility"**.



Greater Flexibility

Downsizing

p.10



Long-distance Detection Prevents Unexpected Facility Stoppages

New Proximity Sensors reduce unexpected facility stoppages due to false detection, failures, and damage caused by previous proximity sensors.

7 mm

E2E NEXT

■ Magnetic flux strength



E2E NEXT

Previous models

(Illustration)

3 mm

Previous models

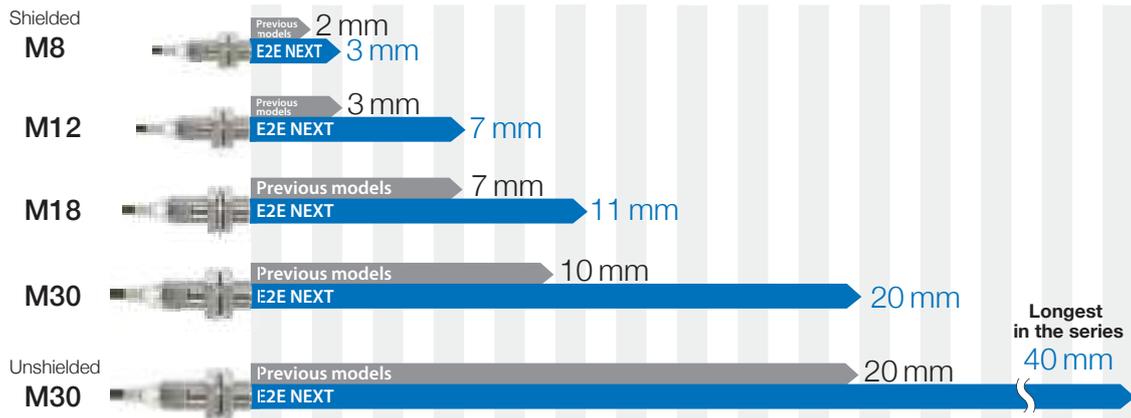
* for M12

Nearly double the sensing distance of previous models

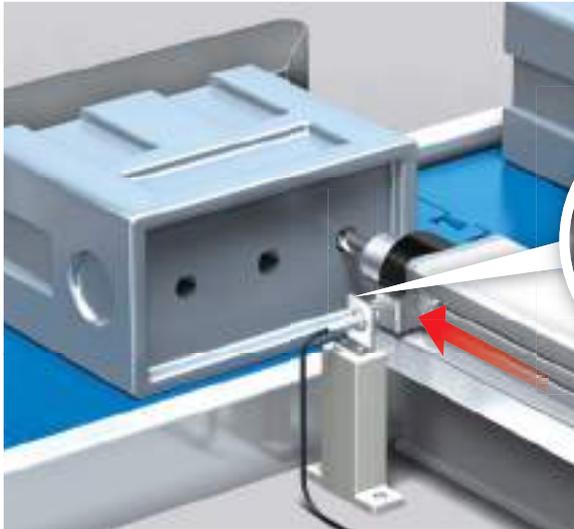
The world's longest sensing distance*

* Based on July 2017 OMRON investigation.

Sensing distance comparison

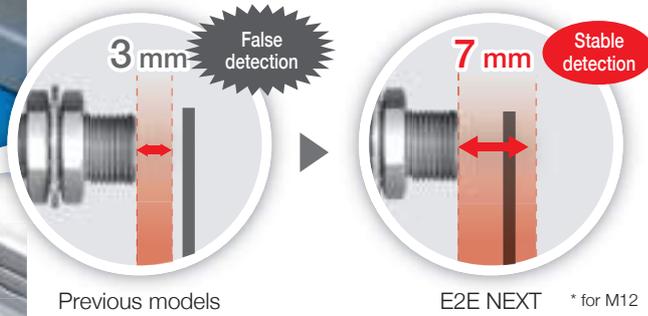


Less False Detection Even When a Stationary Gets Away From the Sensor Due to Equipment Vibration.



Presence detection of spindles

Previously The equipment vibration widens the distance between a stationary and a sensor to cause false detection and facility stoppages.



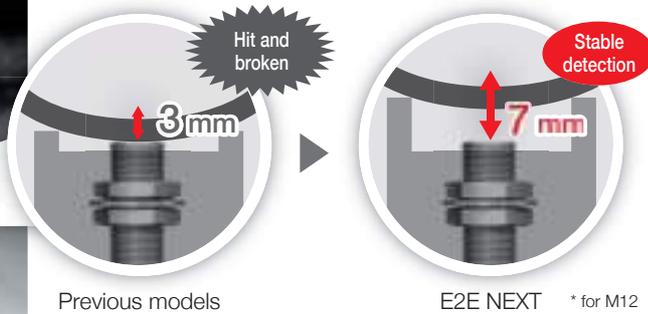
E2E NEXT Long-distance detection enhances the degree of the detection margin. **Stable detection even when a stationary gets away.**

When Workpiece Sitting Position Varies or It Has Deflection, Collisions Are Unlikely to Happen.



Sitting position confirmation of metal plates to weld

Previously Workpiece slides and gets closer to the Sensor to cause failures and damage due to collisions, and facility stoppages.

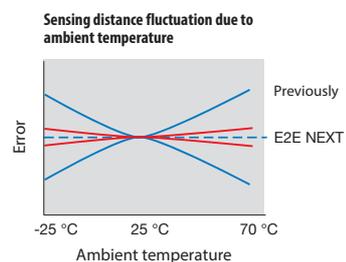
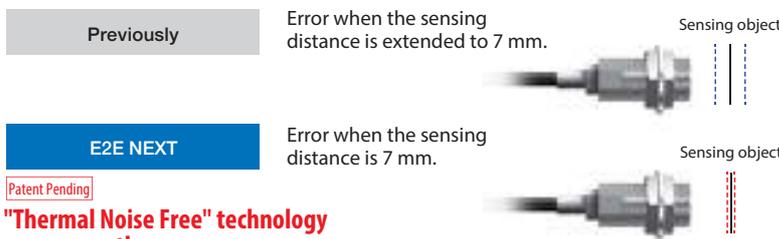


E2E NEXT Long-distance detection keeps enough space from the workpiece. **Less collision risks.**

"Thermal Noise Free" Technology that Enables Long-distance Detection

When you tried to increase the sensing distance of proximity sensors by conventional technologies, the change of ambient temperature greatly influenced and it was impossible to use those sensors at actual production sites. The newly developed technology by OMRON, "Thermal Noise Free" technology, minimizes the characteristics change due to temperature by high-precision compensation and enables long-distance detection.

When compared with M12 at the ambient temperature of 50 °C.



Stable operation

Quick recovery

Less failures

Enhanced Usability Enables Facilities that Can Recover in a Short Time Without Skill Requirements

Less time required from failure to recovery (MTTR: Mean Time To Recovery).



Indicator can be installed without regard to the orientation.

Previously

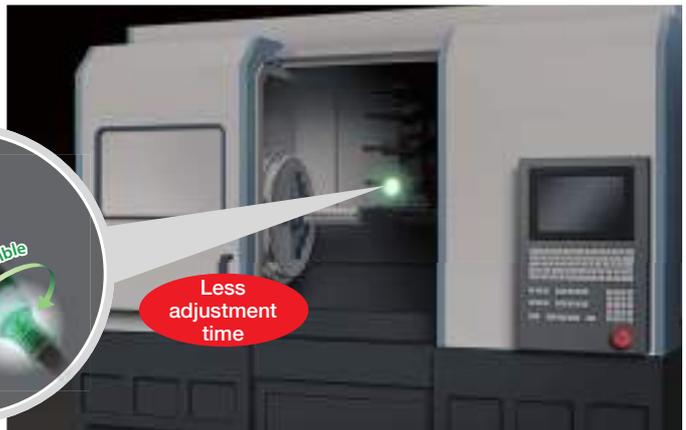
Indicators are invisible depending on the rotation stop position when installing. When it is installed at the back of the facility, confirming accurate detection is difficult.

E2E NEXT

The indicator with high-brightness LED is visible anywhere from 360° and **it is easy to confirm the detection status.**



All around visible

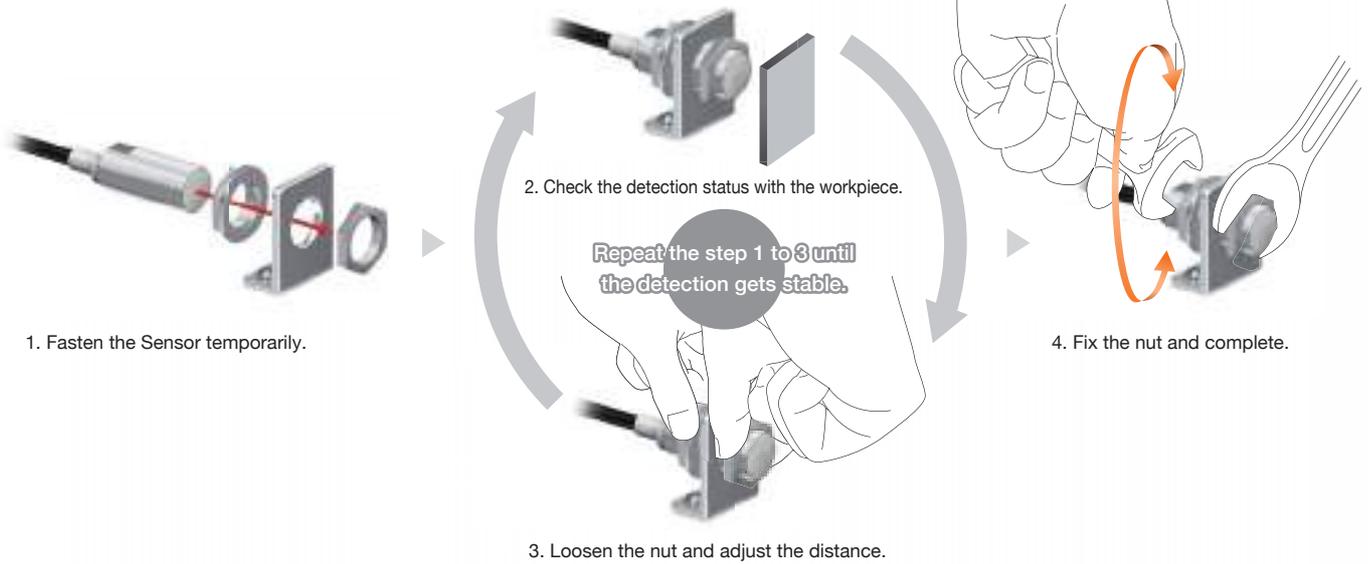


Less adjustment time

Only 10 Seconds* to Replace a Proximity Sensor with "e-jig".

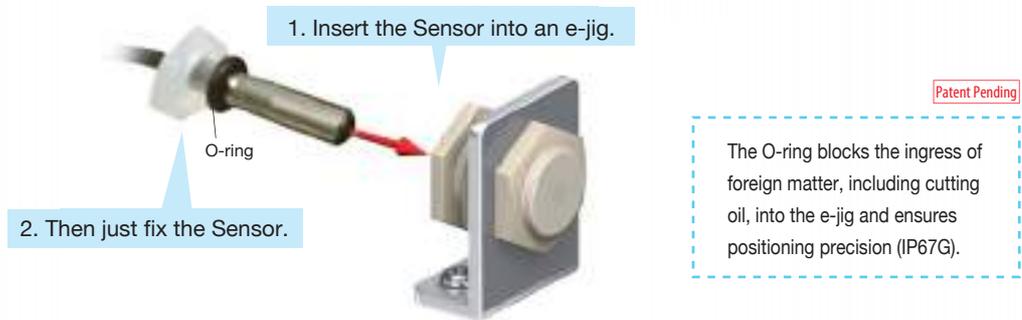
Previously

A lot of time required to adjust to the optimum distance.
Adjustment position varies depending on the worker's skill and makes detection unstable.



E2E NEXT

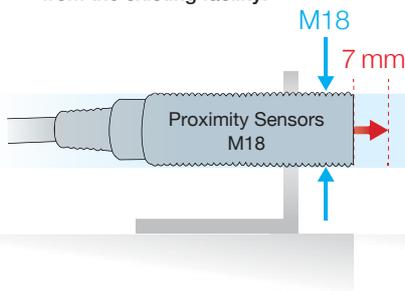
Reducing the replacement time significantly down to **approx. 10 sec.***
Eliminating the need for adjustment allows for installation in the same position by any worker.



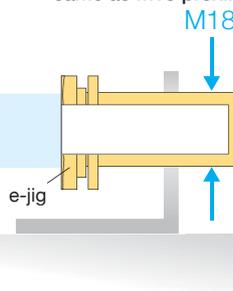
Easily upgrade existing facilities to the one that needs "only 10 seconds* to replace" a proximity sensor

The sensing distance of E2E-NEXT is nearly double the conventional one. The sensing distance of the M12 models is 7 mm, which is same as conventional M18 models. When you use an e-jig together, you can easily upgrade existing facilities to the ones that need only 10 seconds* to replace a proximity sensor.

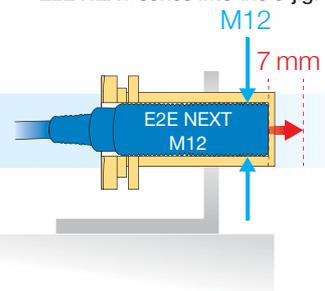
1. Dismount the M18 proximity sensor from the existing facility.



2. Mount an e-jig whose size is same as M18 proximity sensor.



3. Insert an M12 model of E2E NEXT series into the e-jig.



* Based on OMRON investigation.

Stable operation

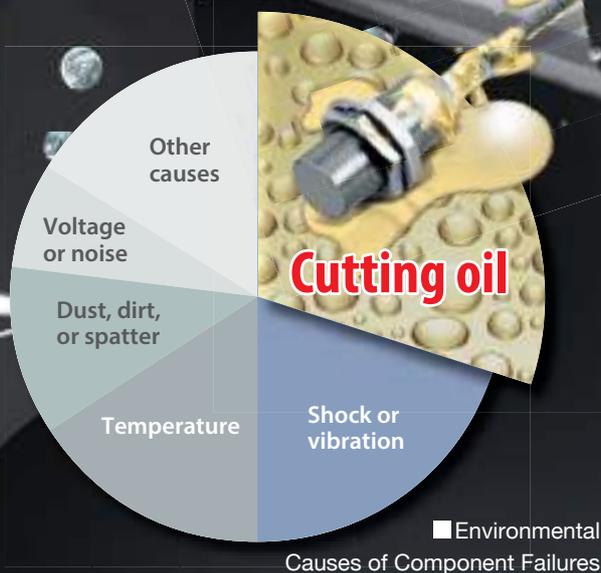
Quick recovery

Less failures

Components that **Shut Out Cutting Oil** for 2 years Further Reduce Unexpected Facility Stoppages

The Sensor reduces further unexpected failures in environments requiring oil resistance in addition to damage caused by collisions.

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

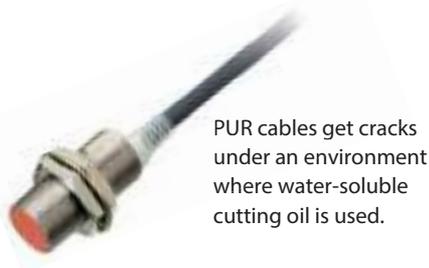


* Based on June 2016 OMRON investigation.

Cables with enhanced oil resistance shut out cutting oil for 2 years*1.

Previously

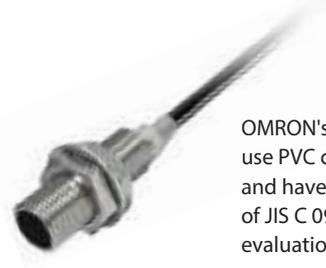
Cable deterioration due to cutting oil



PUR cables get cracks under an environment where water-soluble cutting oil is used.

E2E NEXT

Verification of 2-Year Oil Resistance*1 Based on IP67G*2 and OMRON's Oil-resistant Component Evaluation Standards.



OMRON's E2E NEXT series Proximity Sensors use PVC cables with enhanced oil resistance, and have been evaluated according to IP67G*2 of JIS C 0920 as well as according to the strict evaluation standard for OMRON's oil-resistant components.

Oil resistance: **2 years**

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



(Illustration)

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



(Illustration)

Eight representative types of oil which had oil resistance testing

Test oil type	Oil	JIS classification	Kinetic viscosity (mm ² /s, 40 °C)	pH ³
Water-soluble cutting oil	Yushiroken EC50T-3 (YUSHIRO CHEMICAL INDUSTRY CO., LTD.)	A1	—	10.2
	Yushiroken FGE366 (YUSHIRO CHEMICAL INDUSTRY CO., LTD.)	A1	—	9.3
	Yushiroken FX90 (YUSHIRO CHEMICAL INDUSTRY CO., LTD.)	A1	—	9.6
	Yushiroken FGM427 (YUSHIRO CHEMICAL INDUSTRY CO., LTD.)	A2	—	10.2
	Yushiroken FGS700 (YUSHIRO CHEMICAL INDUSTRY CO., LTD.)	A2	—	9.8
	Yushiroken FGC950PR (YUSHIRO CHEMICAL INDUSTRY CO., LTD.)	A3	—	10.1
Water-insoluble cutting oil	Yushiron Cut Abas BZ224K (YUSHIRO CHEMICAL INDUSTRY CO., LTD.)	N3	10	—
	Yushiron Cut Abas KZ440 (YUSHIRO CHEMICAL INDUSTRY CO., LTD.)	N4	19	—

For machining processes where the amount of splashing cutting oil is large,
Oil-resistant Proximity Sensors E2ER/E2ERZ

Oil Resistance:
4 years



Cat. No. Y215

*1. Applicable oil types: specified in JIS K 2241:2000

2-year oil resistance indicates the median value of the product design and the oil-resistance performance criterion result (=Typical value).

Products to be shipped will have around 2 years of oil resistance, but will vary depending on the product.

2-year oil resistance is verified by Pre-wired models (2 m/5 m).

*2. The IP67G is the degree of protection which is defined according to the JIS (Japanese Industrial Standards).

The IP67 indicates the same level of protection as defined by the IEC, and the G indicates that a device has resistance to oil.

*3. pH values recommended by the cutting oil manufacturer are listed.

Greater Flexibility

Downsized Sensor Enhances Flexibility in Facility Design

Longer sensing distance enables one size smaller sensor with the same sensing distance, so we can add more sensors to an empty space and save space for the installation.

For the space of 50 mm × 50 mm

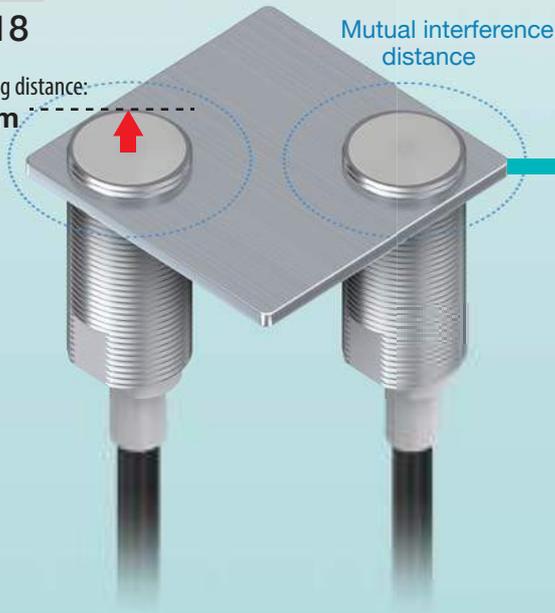
Previously

The number of sensors is limited due to mutual interference.

M18

Sensing distance:
7 mm

Mutual interference
distance

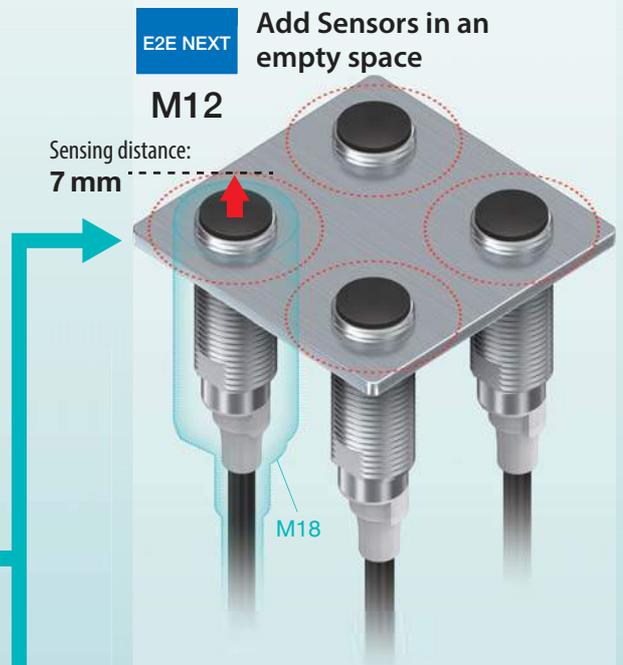


E2E NEXT

Add Sensors in an
empty space

M12

Sensing distance:
7 mm



E2E NEXT

Space-saving
Reduce to 30 mm × 30 mm

M12

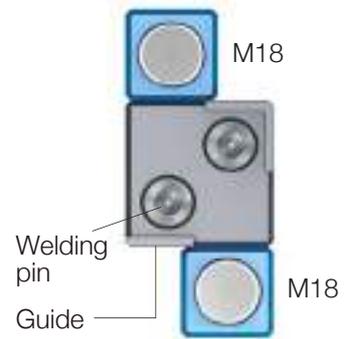


Easy to install in a welding jig



Previously

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

Proximity sensor **can be installed in a small space around the welding pin.**

With the shorter mutual interference distance, you can install a proximity sensor near the welding pin.



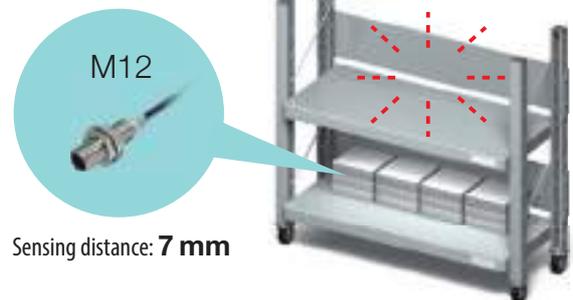
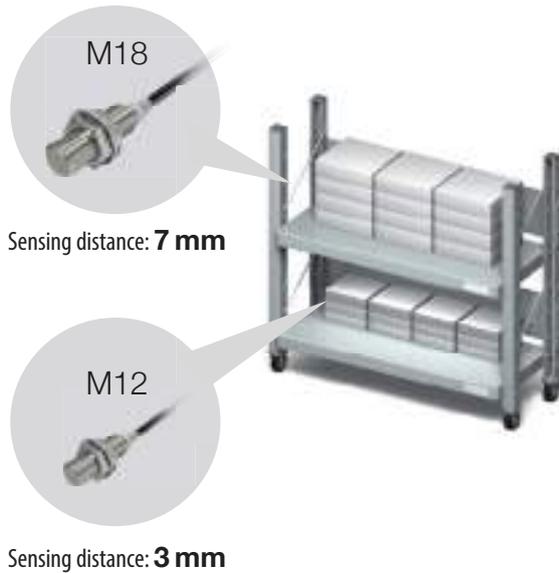
Integrating the number of model types to unify models kept in stock.

Previously

Two types of M12 and M18 models are kept in stock.

E2E NEXT

M12 models can cover the conventional M18 models and **unify the stock into one model type.**



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