

**OMRON introduces Next-generation Proximity Sensors
to enable the World's longest-distance^{※1} Detection**

- *Enhance the facility operation rate at automobile and automobile parts factories*

Kyoto, Japan / New Delhi, November 7, 2017: OMRON Corporation (HQ: Shimogyo-Ku, Kyoto. CEO: Yoshihito Yamada) has recently introduced E2E-NEXT Next-generation Proximity Sensors which enable the world's longest sensing distance and "e-jig" Mounting Sleeves for further enhancement of facility operation rate at automobile and automobile parts factories.

The newly released E2E-NEXT has nearly double^{※2} the sensing distance of Omron's previous models, thus reducing the occurrence of facility stoppages due to malfunctions and failures caused by collisions with sensing objects down to one-third at automobile and automobile parts factories. Also, "e-jig" sharply reduces the time required to replace a proximity sensor after failures: from approximately ten minutes to 10 seconds. The recovery time is an average of approximately 60 minutes after facility stoppages because of a series of works such as checking failure parts, dismantling equipment partially, in addition to replacing, wiring, and checking operation of the sensors. With "e-jig", one can reduce this down to approximately 50 minutes.

Through the introduction of these users can reduce the unexpected facility stoppages by approximately 173 hours, which is nearly 10% of the unexpected stoppages per year (approximately 1,600 hours). It will also help reduce 240 hours of unexpected facility stoppages a year due to proximity sensors down to approximately 67 hours^{※5}.

Automobile and automobile parts factories are assumed to lose 10 to 60 million yen if facilities stop for an hour. It is a major managerial issue to reduce the frequency and time of facility stoppages. Omron conducted a survey at manufacturing sites of engine parts before E2E-NEXT development. The result shows that unexpected facility stoppages totalled approximately 1,600 hours, 240 hours^{※3} of which (15%) were caused by malfunctions and collisions between proximity sensors and sensing objects. Increasing the sensing distance of proximity sensors enables to reduce malfunctions and collisions caused by wear and vibrations due to facility's aged deterioration. It was difficult with the existing technology, however, because the changes in ambient temperature greatly affect the stability of detection.

OMRON has also independently developed "Thermal Distance Control" technology and "Analog Digital Hybrid IC^{※4}" that enables temperature compensation. These were used for E2E-NEXT to minimize the effect due to temperature changes and achieve stable long sensing distance.

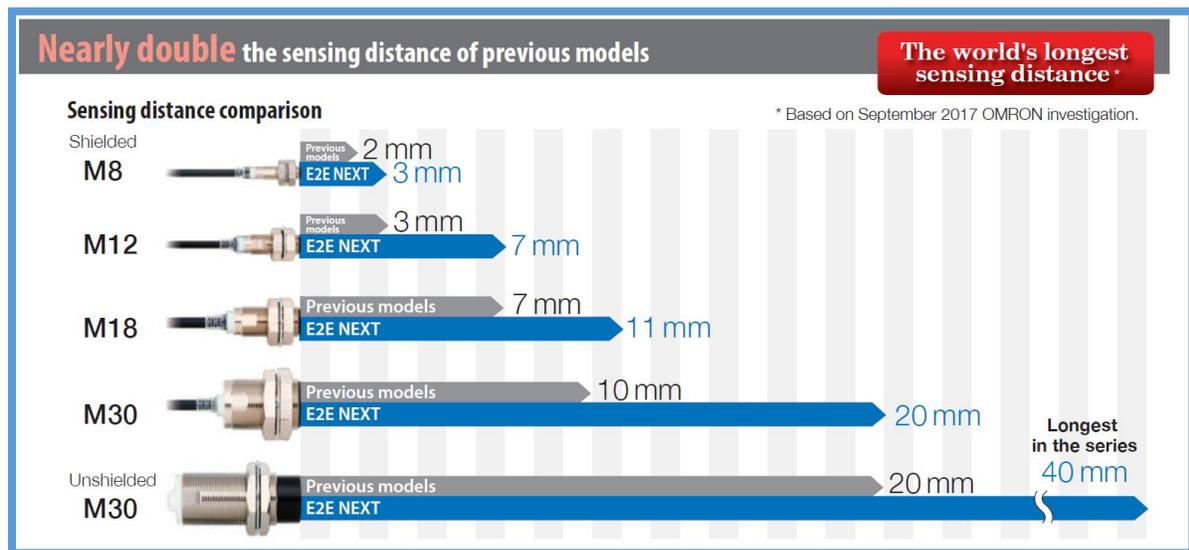
OMRON will continue to work for the innovation of manufacturing to achieve long and stable facility operation by working on various problems at manufacturing sites.

[E2E-NEXT Product pictures]



Main features

Nearly double the sensing distance of previous models



Less facility stoppage risk with longer sensing distance

[Example: avoid collisions with sensing objects by longer sensing distance]

Presence detection of spindles

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

3 mm False detection

7 mm Stable detection

Previous models E2E NEXT * for M12

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

Technology that supports long sensing distance

"Thermal Distance Control" Technology and Analog Digital Hybrid IC "PROX2"

"Thermal Distance Control" with "PROX2" writes temperature correction values externally when shipped and minimize the sensing distance changes due to temperature changes, which could not be done by the conventional analog IC. It is industry's first for 2-wire proximity sensors to use analog digital hybrid IC "PROX2".

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

Previously Error when the sensing distance is extended to 7 mm.

E2E NEXT Error when the sensing distance is 7 mm.

Patent Pending

"Thermal Distance Control" technology suppresses the error.

Sensing object

Sensing object

Sensing distance fluctuation due to ambient temperature

Graph showing Error vs Ambient temperature (-25 °C to 70 °C). The 'Previously' line shows a significant error range, while the 'E2E NEXT' line shows a much smaller error range, indicating that the new technology suppresses error.

Shorter time to replace a sensor reduces the time required to recover

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.

1. Fasten the Sensor temporarily.

2. Check the detection status with the workpiece.

3. Loosen the nut and adjust the distance.

4. Fix the nut and complete.

Repeat the step 1 to 3 until the detection gets stable.

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.

1. Insert the Sensor into an e-jig.

2. Then just fix the Sensor.

O-ring

Patent Pending

The O-ring blocks the ingress of foreign matter, including cutting oil, into the e-jig and ensures positioning precision (IP67G).

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

※¹ With DC 2-wire models as of September 28, 2017.

※² The sensing distance of the most representative M12 models increased from 3 mm (previous models) to 7 mm (new products).

※³ The number of times of facility stoppages is approximately 240 times and it is approximately 60 minutes per facility stoppage.

※⁴ Industry's first for 2-wire proximity sensors.

※⁵ The number of times of facility stoppages is approximately 80 times and it is approximately 50 minutes per facility stoppage.

About OMRON Automation:

Headquartered in Kyoto, Japan, OMRON Corporation is a multi-billion-dollar, diversified company with business units producing industrial automation products, electronic components, and healthcare equipment and ticketing systems. OMRON Industrial Automation is a global leader providing complete automation solutions for industrial applications. It brings innovation to manufacturing sites through automation with "Integrated", "intelligent" and "interactive" concepts with one of the world's most sophisticated Input-Logic-Output-Robotics + Safety (ILOR+S) technology including the proprietary sensing technology.

OMRON Automation - India, now more than two decades old in the country, caters to over 7 industrial applications encompassing the wide requirements of packaging, automotive, material handling, solar, food & beverages, textile and panel building applications. The company is focusing on the solution business, including Robotics and IIoT, providing "One Stop" solutions, to improve the overall efficiency on diverse production sites. Focusing on the themes of quality, safety and the environment, they support manufacturing innovation worldwide with their unique sensing & controlling technologies. OMRON is rapidly expanding its operations with focus on all major cities making its presence felt across the country with a strong network of offices, automation centre, training centres, sales & marketing force, application teams, resident engineers and channel partners to address the ever challenging requirements of the customers. A major factor in OMRON's progress globally & locally has been the strong commitment towards its customers keeping 'Quality First'.

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For media queries, please contact:

Ankur Bhat, Corporate Communications, OMRON, +91 9899819904, ankurb@ap.omron.com

JaskaranGautam, Corporate Communications, OMRON, +91 7838491307, jaskarang@ap.omron.com

Richa Shrotriya, Weber Shandwick, +91 9560144115, rshrotriya@webershandwick.com

Seemanti Ghatak, Weber Shandwick, +91 8527855264, sghatak@webershandwick.com