

E2FM

Highly Durable Proximity Sensor for Tough Environments



- Completely stainless-steel housing
- Aluminum chip immunity
- Embedding installation to metal (steel) fittings
- Chemical resistance certified by Ecolab Europe
- Lineup includes pre-wire models and DC 3-wire NPN output models with fluororesin coating.



Be sure to read *Safety Precautions* on page 9.

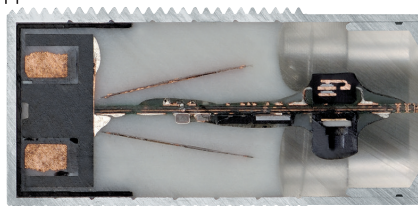
Note: Models with a fluororesin coating also use vinyl chloride for the cable material and require separate protection.

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

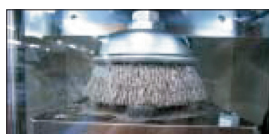
Features

One-piece completely stainless-steel housing with a face thickness of 0.8 mm

The face thickness is approximately 4 times that of previous models (E2ES) to enable sensing in even more severe conditions than ever.



Brush Test



After 3 Minutes



E2FM

E2EQ
(Spatter-resistant)

The stainless-steel head means almost no wear when cleaned with a metal brush.

Continuous Impact Test



E2ES

E2FM

The E2ES with a top wall thickness of 0.2 mm was **penetrated** after 10,000 impacts.

The E2FM was not **penetrated** after 250,000 impacts (depth: 0.26 mm).

More than 20 times the durability of the E2ES!

Chemical and Detergent Proof

The one-piece completely stainless-steel housing of the sensing section withstands the following chemicals better.

- Sodium chloride
- Gasoline
- Dilute sodium hydroxide
- Dilute hydrochloric acid
- Mineral oil
- Barium hydroxide
- Any many others

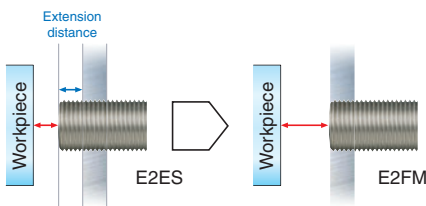
Note: Cannot be used for explosion-proof applications.

Built-in Chip Immunity

Chip immunity performance has been provided to greatly reduce false signals caused by spatter accumulation and other causes, almost eliminating the needs for cleaning, e.g., with metal brushes.



Flush Mounting



Not influenced by surrounding installation environment.

Note: When mounted in steel.



Main Performance Comparison to Previous OMRON Products

Face thickness

	E2FM	E2ES
M8	0.4 mm	---
M12	0.8 mm	---
M18	0.8 mm	0.2 mm
M30	0.8 mm	0.2 mm

Sensing distance

	E2FM	E2ES
M8	1.5 mm	---
M12	2.0 mm	---
M18	5.0 mm	4.0 mm
M30	10.0 mm	8.0 mm

Response frequency

	E2FM	E2ES
M8	200 Hz	---
M12	100 Hz	---
M18	100 Hz	12 Hz
M30	50 Hz	8 Hz

Ambient operating temperature

E2FM	E2ES
-25 to 70°C	0 to 50°C

The chemical resistance has been certified by Ecolab Europe

ECOLAB

Ecolab GmbH & Co. OHG
P.O. Box 13 94 96
D-40551 Düsseldorf
certifies that for

OMRON
OMRON Manufacturing of Germany GmbH
Carl-Benz-Strasse 4
71154 Nuttingen

material resistance tests

were performed with cleaning substances P3-Aopax 56, P3-Aopax 66, P3-Aopax 91 and demineralized water as a zero reference factor.

The material resistance of the tested series
Inductive Proximity Sensor E2FM

to the P3 products used in the test can be considered to be positive according to the cleaning procedures mentioned overleaf.

Düsseldorf, 14th February 2006

Ecolab GmbH & Co. OHG
L.V. *Thomas Tyborski*
L.V. *Reinhold Lauff*

ECOLAB

This certificate is based on:

- documented test procedures (test no.: FAEP3-E Nr. 40-1) according to material resistance
- defined product descriptions
- standardized cleaning procedure

Test procedure
Ecolab test P&E Nr. 40-1

Dyeing test:

- Complete immersion in solution/liquid

Test period:

- 15 days

Temperature:

- room temperature (constant)

Analysis:

- Visual judgement like swelling, brittleness, discoloring
- compared to zero-reference factor (demineralized water)
- Photometric documentation

Product specifications:

P3-Aopax 56:
Acid foam cleaning substance for food and beverage industry

P3-Aopax 66:
Alkaline foam cleaning detergent with active chlorine for machine cleaning in food and beverage industry

P3-Aopax 91:
Neutral disinfectant agent based on quaternary ammonium compounds (QAV) for the food industry

Cleaning plan for food and beverage industry*

- Rinsing with water 48 – 50°C**
Rinsing with the pressure. Rinsing from top to bottom in the direction of the drains. Cleaning of the drains.
- Foaming from bottom to top**
Alkaline: P3-Aopax 66 2 – 3 % daily
acid: P3-Aopax 56 2 % on demand
temperature: cold up to 40°C
contact time: 15 min. recommended
- Rinsing with water 48 – 50°C**
Rinsing from top to bottom with the pressure

Spray disinfection P3-Aopax 91 1-2 %, 30-40 minutes

*not mandatory