Proximity Sensor with All-stainless Housing

E2FM

CSM_E2FM_DS_E_3_1

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.

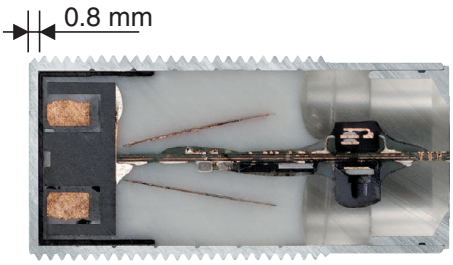
Note: Models with a fluororesin coating also use vinyl chloride for the cable material and require separate protection.

* Excluding DC 3-wire M8 pre-wired models (E2FM-X1R5B□/-X1R5C□).

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

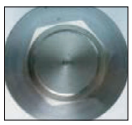
E2EQ
(Spatter-resistant)

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

Continuous Impact Test

E2ES

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



E2FM

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

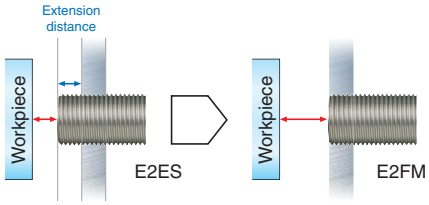
Any many others

Note: Cannot be used for explosion-proof applications.

Built-in Chip Immunity

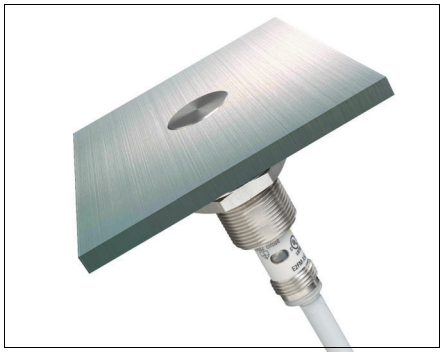
Chip immunity performance has been provided to greatly reduce false signals caused by spatter accumulation and other causes, almost eliminating the needs for cleaning, e.g., with metal brushes.

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 04 06
D-40551 Düsseldorf

certifies that for

OMRON

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

material resistance tests

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

The material resistance of the tested series

Inductive Proximity Sensor E2FM

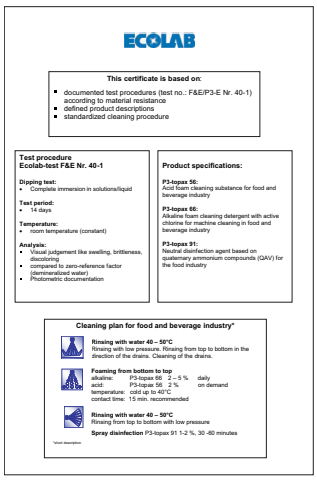
to the P3 products used in the test can be considered to be positive according to the cleaning procedure mentioned overleaf.

Düsseldorf, 14th February 2006

Ecolab GmbH & Co. OHG

i.V. **Thomas Tyborski**

i.V. **Reimund Laaff**



ECOLAB

This certificate is based on:

- documented test procedures (test no.: F&E/P3-E Nr. 40-1) according to material resistance
- defined product descriptions
- standardized cleaning procedure

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

Dipping test:
- Complete immersion in solutions/liquid

Test period:
- 14 days

Temperature:
- room temperature (constant)

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

Product specifications:

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

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

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

Cleaning plan for food and beverage industry*

Rinsing with water 40 – 50°C
Rinsing with low pressure. Rinsing from top to bottom in the direction of the drains. Cleaning of the drains.

Foaming from bottom to top
alkaline: P3-topax 66 2 – 5 % daily
acid: P3-topax 56 2 % on demand
temperature: cold up to 40°C
contact time: 15 min. recommended

Rinsing with water 40 – 50°C
Rinsing from top to bottom with low pressure

Spray disinfection P3-topax 91 1-2 %, 30 -60 minutes

*short description

E2FM

Ordering Information

Sensors **[Refer to *Dimensions* on page 10.]**

DC 2-Wire, Pre-wired Models

Size		Sensing distance	Output	Operation mode	Model
Shielded 	M8	1.5 mm	DC 2-Wire (polarity)	NO	**E2FM-X1R5D1 2M** *
	M12	2 mm			**E2FM-X2D1 2M** *
	M18	5 mm			**E2FM-X5D1 2M** *
	M30	10 mm			**E2FM-X10D1 2M** *

* Fluororesin-coated models are also available. The model numbers are E2FM-QX□D. The cable material, however, is vinyl chloride and requires separate protection.

DC 2-wire Pre-wired Smartclick Connector Models

Size		Sensing distance	Output	Operation mode	Model
Shielded 	M8	1.5 mm	Polarity Pin allocations: 1-4	NO	**E2FM-X1R5D1-M1TGJ 0.3M**
	M12	2 mm	Polarity Pin allocations: 1-4		**E2FM-X2D1-M1TGJ 0.3M**
			No polarity Pin allocations: 3-4		**E2FM-X2D1-M1TGJ-T 0.3M**
	M18	5 mm	Polarity Pin allocations: 1-4		**E2FM-X5D1-M1TGJ 0.3M**
			No polarity Pin allocations: 3-4		**E2FM-X5D1-M1TGJ-T 0.3M**
	M30	10 mm	Polarity Pin allocations: 1-4		**E2FM-X10D1-M1TGJ 0.3M**
			No polarity Pin allocations: 3-4		**E2FM-X10D1-M1TGJ-T 0.3M**

DC 2-Wire, Pre-wired Connector Models

Size		Sensing distance	Output	Operation mode	Model
Shielded 	M8	1.5 mm	Polarity Pin allocations: 1-4	NO	**E2FM-X1R5D1-M1GJ 0.3M** *
	M12	2 mm	Polarity Pin allocations: 1-4		**E2FM-X2D1-M1GJ 0.3M** *
			No polarity Pin allocations: 3-4		**E2FM-X2D1-M1GJ-T 0.3M** *
	M18	5 mm	Polarity Pin allocations: 1-4		**E2FM-X5D1-M1GJ 0.3M** *
			No polarity Pin allocations: 3-4		**E2FM-X5D1-M1GJ-T 0.3M** *
	M30	10 mm	Polarity Pin allocations: 1-4		**E2FM-X10D1-M1GJ 0.3M** *
			No polarity Pin allocations: 3-4		**E2FM-X10D1-M1GJ-T 0.3M** *

* Fluororesin-coated models are also available. The model numbers are E2FM-QX□D1-M1GJ□. The cable material, however, is vinyl chloride and requires separate protection.

DC 3-Wire, Pre-wired Models

Size		Sensing distance	Model	
			Output configuration: NPN NO	Output configuration: PNP NO
Shielded 	M8	1.5 mm	**E2FM-X1R5C1 2M**	**E2FM-X1R5B1 2M**
	M12	2 mm	**E2FM-X2C1 2M**	**E2FM-X2B1 2M**
	M18	5 mm	**E2FM-X5C1 2M**	**E2FM-X5B1 2M**
	M30	10 mm	**E2FM-X10C1 2M**	**E2FM-X10B1 2M**

DC 3-Wire, M12 Connector Models

Size		Sensing distance	Model	
			Output configuration: NPN NO	Output configuration: PNP NO
Shielded 	M8	1.5 mm	**E2FM-X1R5C1-M1**	**E2FM-X1R5B1-M1** *
	M12	2 mm	**E2FM-X2C1-M1**	**E2FM-X2B1-M1** *
	M18	5 mm	**E2FM-X5C1-M1**	**E2FM-X5B1-M1** *
	M30	10 mm	**E2FM-X10C1-M1**	**E2FM-X10B1-M1** *

* Fluororesin-coated models are also available. The model numbers are E2FM-QX□B1-M1. The cable material, however, is vinyl chloride and requires separate protection.

Accessories (Order Separately)

Sensor I/O Connectors [Refer to *XS2*.]

Appearance	Cable length	Sensor I/O Connector model number	Applicable Proximity Sensor model number
Straight 	2m	**XS2F-D421-DD0**	E2FM-X□D1-M1GJ-T
	5m	**XS2F-D421-GD0**	
L-shape 	2m	**XS2F-D422-DD0**	
	5m	**XS2F-D422-GD0**	
Straight 	2m	**XS2F-D421-DA0-A**	E2FM-X□D1-M1GJ
	5m	**XS2F-D421-GA0-A**	
L-shape 	2m	**XS2F-D422-DA0-A**	
	5m	**XS2F-D422-GA0-A**	
Straight 	2m	**XS2F-D421-DC0-A**	E2FM-X□C1-M1 E2FM-X□B1-M1
	5m	**XS2F-D421-GC0-A**	
L-shape 	2m	**XS2F-D422-DC0-A**	
	5m	**XS2F-D422-GC0-A**	

Note: Refer to *Introduction to Sensor I/O Connectors* for details.

Ratings and Specifications

DC 2-Wire (E2FM-X□D□)

Item \ Size	M8	M12	M18	M30	M12	M18	M30
Shielded	Shielded						
Model	E2FM-X1R5D1-□	E2FM-X2D1-□	E2FM-X5D1-□	E2FM-X10D1-□	E2FM-X2D1 -M1GJ-T	E2FM-X5D1 -M1GJ-T	E2FM-X10D1 -M1GJ-T
Sensing distance	1.5 mm±10%	2 mm±10%	5 mm±10%	10 mm±10%	2 mm±10%	5 mm±10%	10 mm±10%
Set distance	0 to 1.05 mm	0 to 1.4 mm	0 to 3.5 mm	0 to 7 mm	0 to 1.4 mm	0 to 3.5 mm	0 to 7 mm
Differential travel	15% max. of sensing distance						
Sensing object	Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to *Engineering Data* on page 7.)						
Standard sensing object	Iron, 8 × 8 × 1 mm	Iron, 12 × 12 × 1 mm	Iron, 30 × 30 × 1 mm	Iron, 54 × 54 × 1 mm	Iron, 12 × 12 × 1 mm	Iron, 30 × 30 × 1 mm	Iron, 54 × 54 × 1 mm
Response frequency *1	200 Hz	100 Hz	100 Hz	50 Hz	100 Hz	100 Hz	50 Hz
Power supply voltage (operating voltage range)	12 to 24 VDC (10 to 30 VDC), ripple (p-p): 10% max.						
Leakage current	0.8 mA max.						
Output configuration	With polarity				Without polarity		
Control output Switching capacity	3 to 100 mA						
Control output Residual voltage	3 V max. (Load current: 100 mA max., Cable length: 2 m)				5 V max. (Load current: 100 mA max., Cable length: 2 m)		
Indicators	Operation indicator (red LED), Setting/Operation indicator (green LED)						
Operation mode (with sensing object approaching)	NO *2						
Protection circuits	Surge suppressor, Load short-circuit protection						
Ambient temperature range	Operating/Storage: –25 to 70°C (with no icing or condensation)						
Ambient humidity range	Operating/Storage: 35% to 95% (with no condensation)						
Temperature influence	±20% max. of sensing distance at 23°C in the temperature range of –25 to 70°C.						
Voltage influence	±1% max. of sensing distance at rated voltage in the rated voltage ±15% range						

Item		Size	M8	M12	M18	M30	M12	M18	M30
		Shielded	Shielded						
		Model	E2FM-X1R5D1-□	E2FM-X2D1-□	E2FM-X5D1-□	E2FM-X10D1-□	E2FM-X2D1 -M1GJ-T	E2FM-X5D1 -M1GJ-T	E2FM-X10D1 -M1GJ-T
Insulation resistance			50 MΩ min. (at 500 VDC) between current-carrying parts and case						
Dielectric strength			1,000 VAC, 50/60 Hz for 1 minute between current-carrying parts and case						
Vibration resistance			Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions						
Shock resistance			Destruction: 500 m/s^2 10 times each in X, Y, and Z directions	Destruction: 1,000 m/s^2 10 times each in X, Y, and Z directions					
Degree of protection			IEC 60529 IP67						
Connection method			Unmarked: Pre-wired Models (Standard cable length: 2 m) Models ending with -M1GJ-□: Pre-wired Connector Models (Standard cable length: 300 mm)						
Weight (packed state)	Pre-wired Models (2 m)		Approx. 105 g	Approx. 190 g	Approx. 215 g	Approx. 295 g	---	---	---
	Pre-wired Connector Models		Approx. 65 g	Approx. 85 g	Approx. 110 g	Approx. 190 g	Approx. 85 g	Approx. 110 g	Approx. 190 g
Materials	Case		Stainless steel (SUS303)						
	Sensing surface		Stainless steel (SUS303)						
	(thickness)		(0.4 mm)	(0.8 mm)			(0.8 mm)		
	Clamping nuts		Stainless steel (SUS303)						
	Cable		PVC (flame retardant)						
	Toothed washer		Zinc-plated iron						
Accessories			Instruction manual						

*1. The response frequency of the DC switching section is an average value. Measurement conditions are as follows: standard sensing object, a distance of twice the standard sensing object, and a set distance of half the sensing distance.
*2. NC (normally closed) models are also available. Contact your OMRON representative.

DC 3-Wire (E2FM-X□C□, E2FM-X□B□)

Item		Size	M8	M12	M18	M30
		Shielded	Shielded			
		Model	E2FM-X1R5□	E2FM-X2□	E2FM-X5□	E2FM-X10□
Sensing distance			1.5 mm±10%	2 mm±10%	5 mm±10%	10 mm±10%
Set distance			0 to 1.05 mm	0 to 1.4 mm	0 to 3.5 mm	0 to 7 mm
Differential travel			15% max. of sensing distance			
Sensing object			Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to *Engineering Data* on page 7.)			
Standard sensing object			Iron, 8 × 8 × 1 mm	Iron, 12 × 12 × 1 mm	Iron, 30 × 30 × 1 mm	Iron, 54 × 54 × 1 mm
Response frequency *1			200 Hz	100 Hz	100 Hz	50 Hz
Power supply voltage (operating voltage range)			12 to 24 VDC (10 to 30 VDC), ripple (p-p): 10% max.			
Current consumption			10 mA max.			
Output configuration			PNP open collector output			
Control output	Switching capacity		200 mA max.			
	Residual voltage		2 V max. (Load current: 200 mA, Cable length: 2 m)			
Indicators			Operation indicator (yellow LED)			
Operation mode (with sensing object approaching)			C1 Models: NPN open collector, NO (normally open) *2 B1 Models: PNP open collector, NO (normally open) *2			
Protection circuits			Reversed power supply polarity protection, Surge suppressor, Load short-circuit protection, and Reversed output polarity protection (except the E2FM-X1R5B1-M1)			
Ambient temperature range			Operating/Storage: –25 to 70°C (with no icing or condensation)			
Ambient humidity range			Operating/Storage: 35% to 95% (with no condensation)			
Temperature influence			±20% max. of sensing distance at 23°C in the temperature range of –25 to 70°C.			
Voltage influence			±1% max. of sensing distance in the rated voltage ±15% range (using the sensing distance at the rated voltage as standard)			
Insulation resistance			50 MΩ min. (at 500 VDC) between current-carrying parts and case			
Dielectric strength			1,000 VAC, 50/60 Hz for 1 minute between current-carrying parts and case			
Vibration resistance			Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions			
Shock resistance			Destruction: 500 m/s^2 10 times each in X, Y, and Z directions	Destruction: 1,000 m/s^2 10 times each in X, Y, and Z directions		
Degree of protection			IEC 60529 IP67			
Connection method			Unmarked: Pre-wired Models (Standard cable length: 2 m) Models ending with -M1: Connector Models			
Weight (packed state)	Pre-wired Models (2 m)		---	Approx. 170 g	Approx. 190 g	Approx. 275 g
	Pre-wired Connector Models		Approx. 45 g	Approx. 55 g	Approx. 75 g	Approx. 160 g
Materials	Case		Stainless steel (SUS303)			
	Sensing surface		Stainless steel (SUS303)			
	(thickness)		(0.4 mm)	(0.8 mm)		
	Clamping nuts		Stainless steel (SUS303)			
	Toothed washer		Zinc-plated iron			
Accessories			Instruction manual			

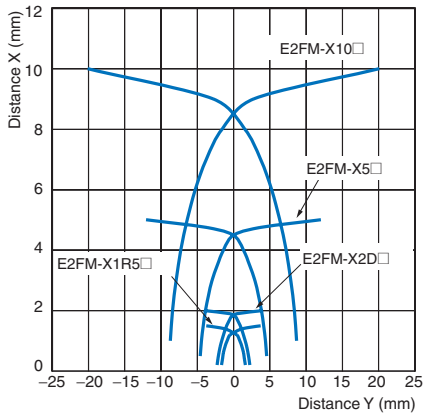
*1. The response frequency of the DC switching section is an average value. Measurement conditions are as follows: standard sensing object, a distance of twice the standard sensing object, and a set distance of half the sensing distance.
*2. NC (normally closed) models are also available. Contact your OMRON representative.

E2FM

Engineering Data (Typical)

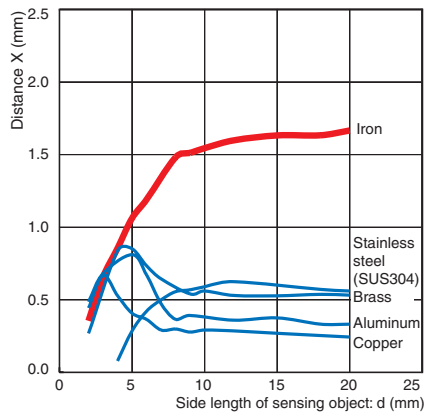
Sensing Area

E2FM-X□

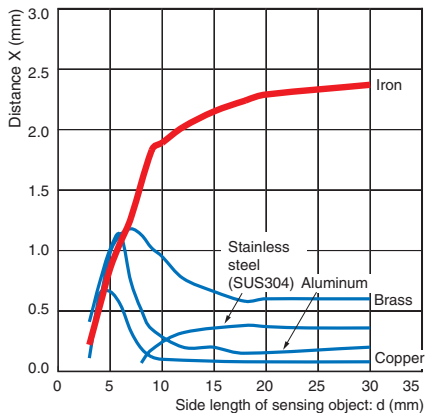


Influence of Sensing Object Size and Material

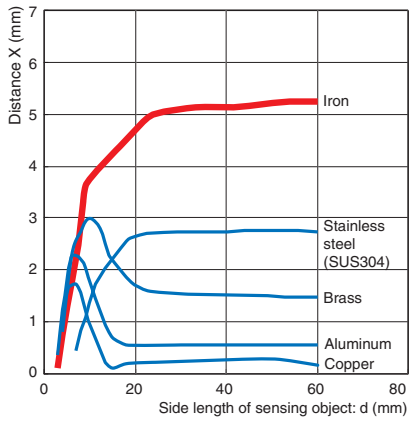
E2FM-X1R5□



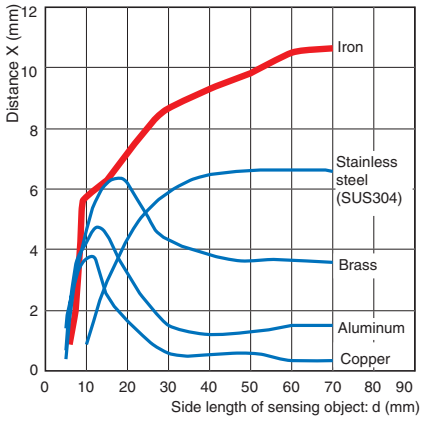
E2FM-X2□



E2FM-X5□

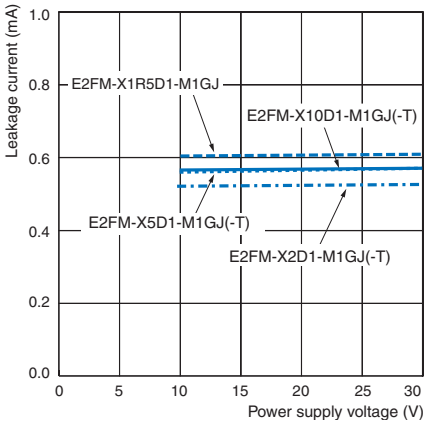


E2FM-X10□



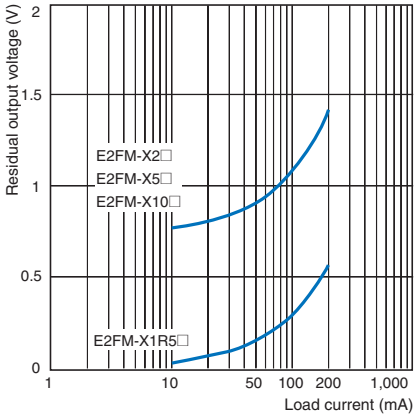
Leakage Current

E2FM-X□D1-M1GJ(-T)

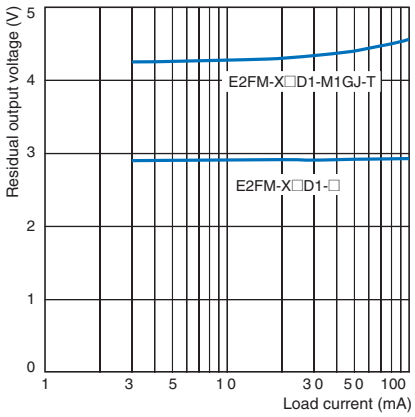


Residual Output Voltage

E2FM-X□C□/B□

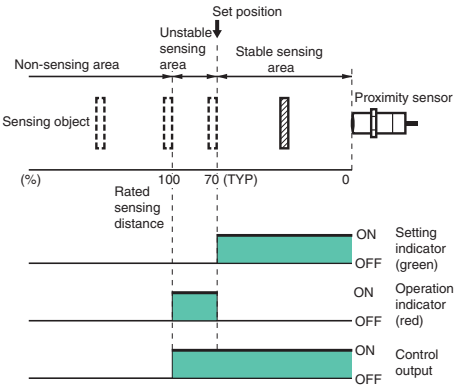
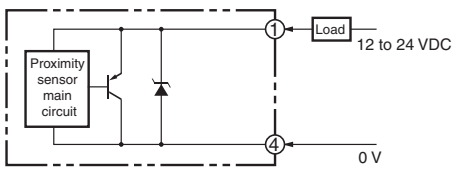
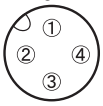
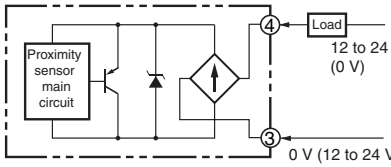
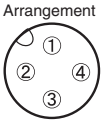


E2FM-X□D1-M1GJ(-T)

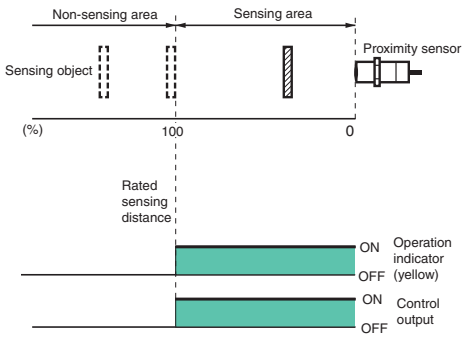
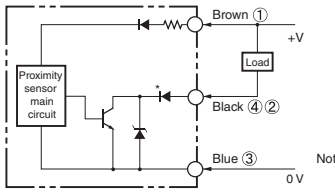
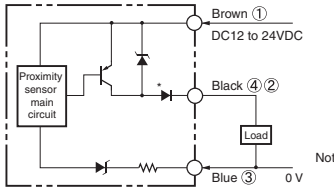
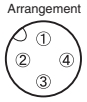


I/O Circuit Diagrams

DC 2-Wire Models

Operation mode	Model	Timing chart	Output circuit
NO	E2FM-X□D1-□		 Note: The load can be connected to either the +V or 0 V side. Connector Pin Arrangement  Note: Pins 2 and 3 are not used.
	E2FM-X□D1-M1GJ-T		 Connector Pin Arrangement  Note: Pins 1 and 2 are not used. Note 1. The load can be connected to either the +V or 0 V side. 2. The E2FM-X□□1-M1GJ-T has no polarity. There is no need to be concerned about the polarity of pins 3 and 4.

DC 3-Wire Models

Operation mode	Output configuration	Model	Timing chart	Output circuit
NO	NPN open-collector model	E2FM-X1R5C□ E2FM-X2C□ E2FM-X5C□ E2FM-X10C□		 * There is no reversed output polarity protection diode. Connector Pin Arrangement  Note: For Connector Models, the connection between pins 1, 4 and 3 uses an NO contact, and the connection between pins 1, 2 and 3 uses an NC contact.
	PNP open-collector model	E2FM-X1R5B□ E2FM-X2B□ E2FM-X5B□ E2FM-X10B□		 * There is no reversed output polarity protection diode. Connector Pin Arrangement  Note: For Connector Models, the connection between pins 1, 4 and 3 uses an NO contact, and the connection between pins 1, 2 and 3 uses an NC contact.

Safety Precautions

⚠ WARNING

This product is not designed or rated for ensuring safety of persons. Do not use it for such purposes.

Never use this product with an AC power supply. Otherwise, explosion may result.

Precautions for Safe Use

The following precautions must be observed to ensure safe operation.

1. Do not use the Sensor in an environment where inflammable or explosive gas is present.
2. Do not attempt to disassemble, repair, or modify any Sensors.
3. Power Supply Voltage
   Do not use a voltage that exceeds the rated operating voltage range. Applying a voltage that is higher than the operating voltage range may result in explosion or fire.
4. Incorrect Wiring
   Be sure that the power supply polarity and other wiring is correct. Incorrect wiring may cause explosion or fire.
5. Connection without a Load
   If the power supply is connected directly without a load, the internal elements may explode or burn. Be sure to insert a load when connecting the power supply.

Precautions for Correct Use

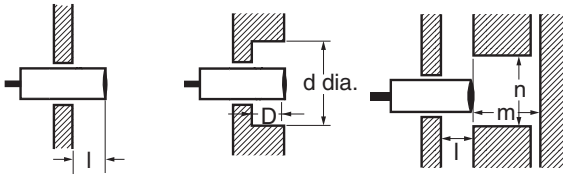
Do not use the Sensor under ambient conditions that exceed the ratings.

1. Do not use the Sensor in the following locations.
   (1) Outdoor locations directly subject to sunlight, rain, snow, or water droplets
   (2) Locations subject to atmospheres with chemical vapors, in particular solvents and acids
   (3) Locations subject to corrosive gas
2. The Sensor may malfunction if used near ultrasonic cleaning equipment, high-frequency equipment, transceivers, cellular phones, inverters, or other devices that generate a high-frequency electric field. Refer to the *Technical Guide Photoelectric Sensors* for typical measures.
3. Laying the Sensor wiring in the same conduit or duct as high-voltage wires or power lines may result in incorrect operation and damage due to induction. Wire the Sensor using a separate conduit or independent conduit.
4. Cleaning
   Never use thinner or other solvents. Otherwise, the Sensor surface may be dissolved.

● Design

Influence of Surrounding Metal

When the Proximity Sensor is embedded in metal, make sure that the clearances given in the following table are maintained. The values depend on the type of nuts used for mounting. Be sure to use the supplied nuts (SUS303).



(Unit: mm)

Model	Item / Embedding material	l	d	D	m	n
E2FM-X1R5□	Iron	0	8	0	4.5	30
	Aluminum	10	50	10	4.5	50
E2FM-X2□	Iron	0	12	0	8	40
	Aluminum	16	70	16	8	70
E2FM-X5□	Iron	0	18	0	20	60
	Aluminum	16	80	16	20	80
E2FM-X10□	Iron	0	30	0	40	100
	Aluminum	24	120	24	40	120

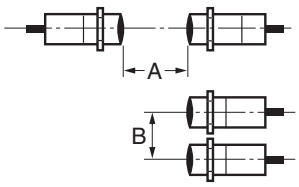
Note: The influence from other non-magnetic surrounding metals is nearly the same as that from aluminum.

Mutual Interference

When installing two or more Sensors face-to-face or side-by-side, ensure that the minimum distances given in the following table are maintained.

(Unit: mm)

Model / Item	A	B
E2FM-X1R5□	35	30
E2FM-X2□	40	35
E2FM-X5□	65	60
E2FM-X10□	110	100

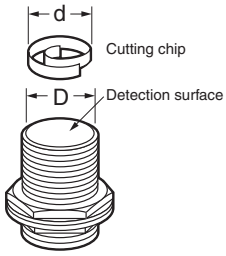


Chips from Cutting Aluminum

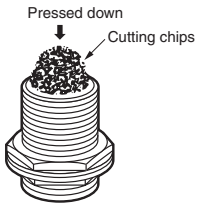
Normally, chips from cutting aluminum or cast iron will not cause a detection signal to be output even if it adheres to or accumulates on the detection surface. In the following cases, however, a detection signal may be output. Remove the cutting chips in these cases.

1. If $d \geq \frac{2}{3}D$ at the center of the detection surface where d is the cutting chip size and D is the detection surface size

Model / Dimension (mm)	D
E2FM-X1R5□	6
E2FM-X2□	10
E2FM-X5□	16
E2FM-X10□	28



2. If the cutting chips are pressed down



● Mounting

Do not tighten the nut with excessive force. A washer must be used with the nut. Do not use tightening force that exceeds the values in the following table.

Model	Torque
E2FM-X1R5□	9 N·m
E2FM-X2□	30 N·m
E2FM-X5□	70 N·m
E2FM-X10□	180 N·m

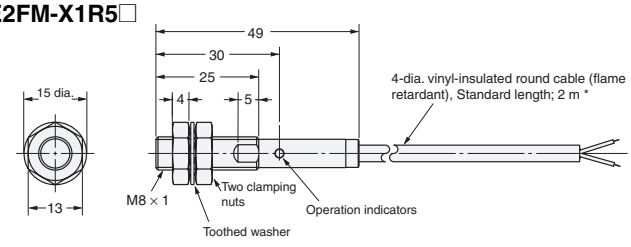
Dimensions

(Unit: mm)
Tolerance class IT16 applies to dimensions in this data sheet unless otherwise specified.

Sensors

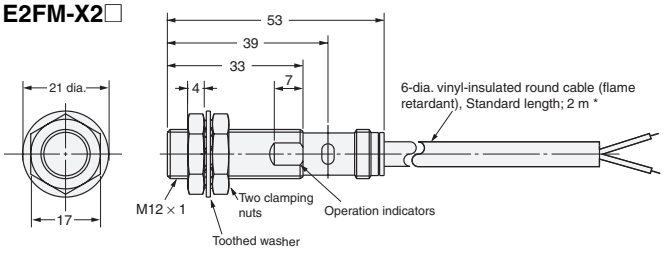
Pre-wired Models

E2FM-X1R5□



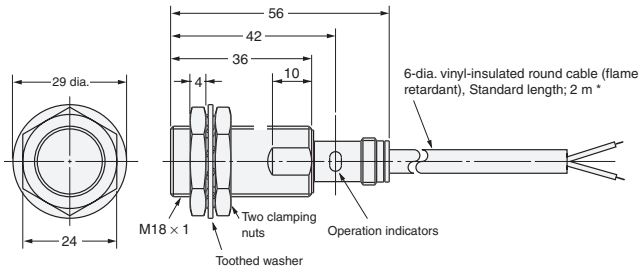
* 4-dia. vinyl-insulated round cable with 2 conductors
(Conductor cross section: 0.2 mm², Insulator diameter: 1.4 mm)
4-dia. vinyl-insulated round cable with 3 conductors
(Conductor cross section: 0.2 mm², Insulator diameter: 1.2 mm)

E2FM-X2□



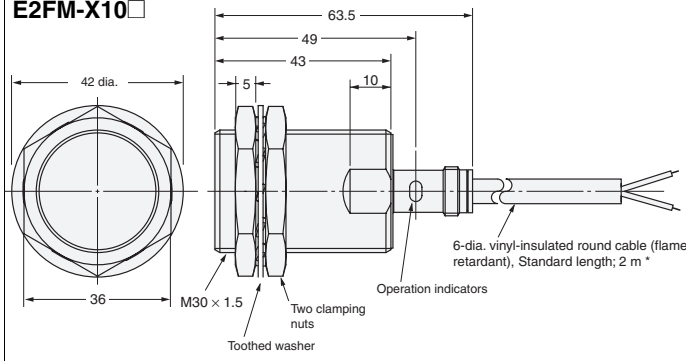
* 6-dia. vinyl-insulated round cable with 2 conductors
(Conductor cross section: 0.5 mm², Insulator diameter: 1.75 mm)
6-dia. vinyl-insulated round cable with 3 conductors
(Conductor cross section: 0.5 mm², Insulator diameter: 1.75 mm)

E2FM-X5□



* 6-dia. vinyl-insulated round cable with 2 conductors
(Conductor cross section: 0.5 mm², Insulator diameter: 1.75 mm)
6-dia. vinyl-insulated round cable with 3 conductors
(Conductor cross section: 0.5 mm², Insulator diameter: 1.75 mm)

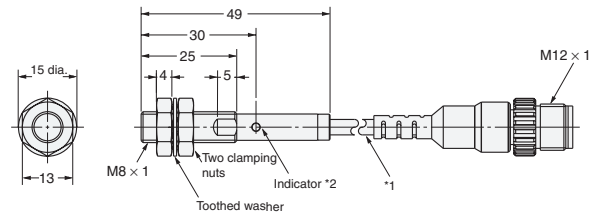
E2FM-X10□



* 6-dia. vinyl-insulated round cable with 2 conductors
(Conductor cross section: 0.5 mm², Insulator diameter: 1.75 mm)
6-dia. vinyl-insulated round cable with 3 conductors
(Conductor cross section: 0.5 mm², Insulator diameter: 1.75 mm)

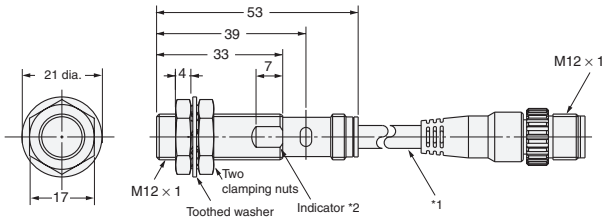
Pre-wired Connector Models

E2FM-X1R5D□-M1GJ-□



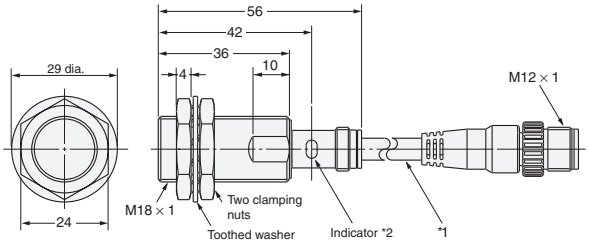
*1. 4-dia. vinyl-insulated round cable (flame retardant), Standard length; 300 mm
*2. Operation indicator (red/green)
Setting indicator (green)

E2FM-X2D□-M1GJ-□



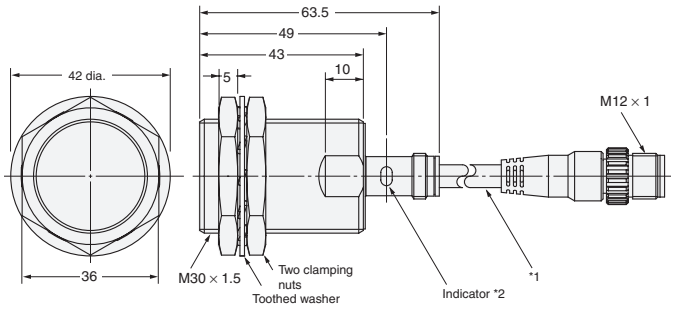
*1. 6-dia. vinyl-insulated round cable (flame retardant), Standard length; 300 mm
*2. Operation indicator (red/green)
Setting indicator (green)

E2FM-X5D□-M1GJ-□



*1. 6-dia. vinyl-insulated round cable (flame retardant), Standard length; 300 mm
*2. Operation indicator (red/green)
Setting indicator (green)

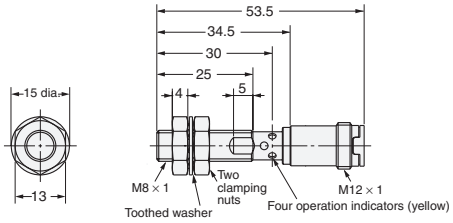
E2FM-X10D□-M1GJ-□



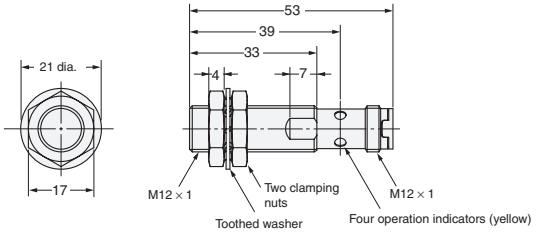
*1. 6-dia. vinyl-insulated round cable (flame retardant), Standard length; 300 mm
*2. Operation indicator (red/green)
Setting indicator (green)

M12 Connector Models

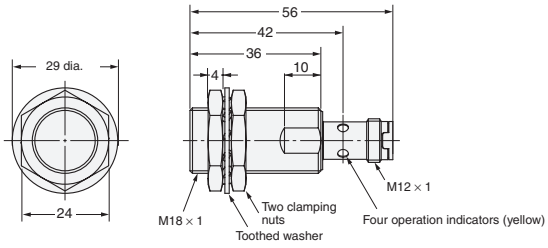
E2FM-X1R5□□-M1



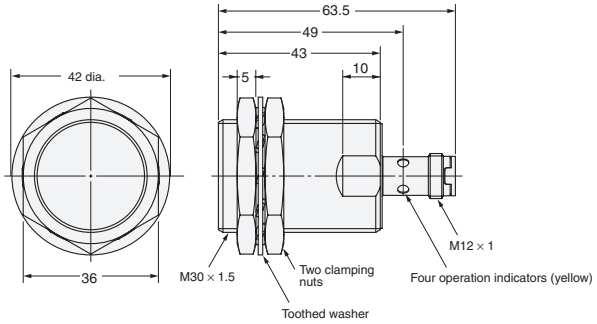
E2FM-X2□□-M1



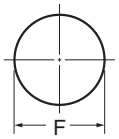
E2FM-X5□□-M1



E2FM-X10□□-M1



Mounting Hole Dimensions



Dimension	M8	M12	M18	M30
F (mm)	$8.5^{+0.5}_{0}$ dia.	$12.5^{+0.5}_{0}$ dia.	$18.5^{+0.5}_{0}$ dia.	$30.5^{+0.5}_{0}$ dia.

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2008.11

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