

Ratings and Specifications

Note: DC 2-Wire Models have been integrated into the E2E NEXT Series at the end of October 2022. Refer to the catalog (Cat. No. D120) for details.

E2E-X□D□ DC 2-Wire Models

Size Shielded Model		M8		M12		M18		M30	
		Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
Item		E2E-X2D□	E2E-X4MD□	E2E-X3D□	E2E-X8MD□	E2E-X7D□	E2E-X14MD□	E2E-X10D□	E2E-X20MD□
Sensing distance		2 mm ±10%	4 mm ±10%	3 mm ±10%	8 mm ±10%	7 mm ±10%	14 mm ±10%	10 mm ±10%	20 mm ±10%
Set distance *1		0 to 1.6 mm	0 to 3.2 mm	0 to 2.4 mm	0 to 6.4 mm	0 to 5.6 mm	0 to 11.2 mm	0 to 8 mm	0 to 16 mm
Differential travel		15% max. of sensing distance		10% max. of sensing distance					
Detectable object		Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to <i>Engineering Data</i> on pages 11 and 12.							
Standard sensing object		Iron, 8 × 8 × 1 mm	Iron, 20 × 20 × 1 mm	Iron, 12 × 12 × 1 mm	Iron, 30 × 30 × 1 mm	Iron, 18 × 18 × 1 mm	Iron, 30 × 30 × 1 mm		Iron, 54 × 54 × 1 mm
Response frequency *2		1.5 kHz	1 kHz		0.8 kHz	0.5 kHz	0.4 kHz		0.1 kHz
Power supply voltage (operating voltage range)		Standard Models: 12 to 24 VDC, ripple (p-p): 10% max. (10 to 30 VDC) US Models and Connector Models Used as UL-certified Models: 12 to 24 VDC, ripple (p-p): 10% max. (The operating voltage range is also the same.) *3							
Leakage current		0.8 mA max.							
Control output	Load current	3 to 100 mA, Diagnostic output: 50 mA for -D1(5)S Models							
	Residual voltage *4	3 V max. (Load current: 100 mA, Cable length: 2 m, M1J-T Models only: 5 V max.)							
Indicators		D1 Models: Operation indicator (red) and setting indicator (green) D2 Models: Operation indicator (red)							
Operation mode (with sensing object approaching)		D1 Models: NO Refer to the timing charts under <i>I/O Circuit Diagrams</i> on page 13 for details. D2 Models: NC							
Diagnostic output delay		0.3 to 1 s							
Protection circuits		Surge suppressor, Load short-circuit protection (for control and diagnostic output)							
Ambient temperature range		Operating: −25 to 70°C, Storage: −40 to 85°C (with no icing or condensation)							
Ambient humidity range		Operating/storage: 35% to 95% (with no condensation)							
Temperature influence		±15% max. of sensing distance at 23°C in the temperature range of −25 to 70°C		±10% 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							
Insulation resistance		50 MΩ min. (at 500 VDC) between current-carrying parts and case							
Dielectric strength		1000 VAC, 50/60 Hz for 1 minute between current carry 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		Pre-wired Models: IEC 60529 IP67, in-house standards: oil-resistant Connector Models: IEC 60529 IP67							
Connection method		Pre-wired Models (Standard cable length: 2 m), Connector Models, or Pre-wired Connector Models (Standard cable length: 0.3 m)							
Weight (packed state)	Pre-wired Models	Approx. 60 g		Approx. 70 g		Approx. 130 g		Approx. 175 g	
	Pre-wired Connector Models	---		Approx. 40 g		Approx. 70 g		Approx. 110 g	
	Connector Models	Approx. 15 g		Approx. 25 g		Approx. 40 g		Approx. 90 g	
Materials	Case	Stainless steel (SUS303)		Nickel-plated brass					
	Sensing surface	PBT							
	Clamping nuts	Nickel-plated brass							
	Toothed washer	Zinc-plated iron							
Accessories		Instruction manual							

*1. Use the E2E within the range in which the setting indicator (green LED) is ON (except D2 Models).

*2. The response frequency 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.

*3. For the information on UL-certified connector models, refer to your OMRON website.

*4. The residual voltage of each M1J-T Model is 5 V. When connecting to a device, make sure that the device can withstand the residual voltage. (Refer to page 19 for details.)

Note: DC 3-Wire Models have been discontinued at the end of March 2022.
Refer to the catalog (Cat. No. D120) for details.

E2E-X□E□/F□ DC 3-Wire Models

Size Shielded		M8		M12		M18		M30	
		Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
Item	Model	E2E -X1R5E□/F□	E2E -X2ME□/F□	E2E -X2E□/F□	E2E -X5ME□/F□	E2E -X5E□/F□	E2E -X10ME□/F□	E2E-X10E□/ F□	E2E -X18ME□/F□
Sensing distance		1.5 mm ±10%	2 mm ±10%		5 mm ±10%		10 mm ±10%		18 mm ±10%
Set distance		0 to 1.2 mm	0 to 1.6 mm		0 to 4 mm		0 to 8 mm		0 to 14 mm
Differential travel		10% max. of sensing distance							
Detectable object		Ferrous metal (The sensing distance decreases with non-ferrous metal. Refer to <i>Engineering Data</i> on page 12.)							
Standard sensing object		Iron, 8 × 8 × 1 mm	Iron, 12 × 12 × 1 mm		Iron, 15 × 15 × 1 mm	Iron, 18 × 18 × 1 mm	Iron, 30 × 30 × 1 mm		Iron, 54 × 54 × 1 mm
Response frequency *1		2 kHz	0.8 kHz	1.5 kHz	0.4 kHz	0.6 kHz	0.2 kHz	0.4 kHz	0.1 kHz
Power supply voltage (operating voltage range) *2		12 to 24 VDC, ripple(p-p): 10% max. (10 to 30 VDC) Connector Models Used as UL-certified Models: 12 to 24 VDC, ripple (p-p): 10% max. (The operating voltage range is also the same.) *3							
Current consumption		13 mA max.							
Control output	Load current *2	200 mA max.							
	Residual voltage	2 V max. (Load current: 200 mA, Cable length: 2 m)							
Indicators		Operation indicator (red)							
Operation mode (with sensing object approaching)		E1/F1 Models: NO E2/F2 Models: NC Refer to the timing charts under <i>/O Circuit Diagrams</i> on page 14 for details.							
Protection circuits		Load short-circuit protection, Surge suppressor, Reverse polarity protection							
Ambient temperature range *2		Operating/Storage: −40 to 85°C (with no icing or condensation)							
Ambient humidity range		Operating/Storage: 35% to 95% (with no condensation)							
Temperature influence		±15% max. of sensing distance at 23°C in the temperature range of −40 to 85°C ±10% 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							
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 carry 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		Pre-wired Models : IEC 60529 IP67, in-house standards: oil-resistant Connector Models : IEC 60529 IP67							
Connection method		Pre-wired Models (Standard cable length: 2 m) and Connector Models							
Weight (packed state)	Pre-wired Models	Approx. 65 g		Approx. 75 g		Approx. 150 g		Approx. 195 g	
	Connector Models	Approx. 15 g		Approx. 25 g		Approx. 40 g		Approx. 90 g	
Materials	Case	Stainless steel (SUS303)		Nickel-plated brass					
	Sensing surface	PBT							
	Clamp-ing nuts	Nickel-plated brass							
	Toothed washer	Zinc-plated iron							
Accessories		Instruction manual							

^{*1} The response frequency 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} When using an M8 Model at an ambient temperature between 70 and 85°C, supply 10 to 30 VDC to the Sensor and make sure that the Sensor has a control output of 100 mA maximum.

^{*3} For the information on UL-certified connector models, refer to your OMRON website.