Ratings and Specifications

PREMIUM Model

E2EW Series (Quadruple/Triple distance model)
E2EW-Q Series (Spatter-resistant Quadruple/Triple distance model)

DC 3-wire

Item	Model	Type	Quadruple distance model/ Spatter-resistant Double distance model			Triple distance model/ Spatter-resistant Triple distance model		
		Size	M12	M18	M30	M12	M18	M30
			E2EW-(Q)X7□12	E2EW-(Q)X12□18	E2EW-(Q)X22□30	E2EW-(Q)X6□12	E2EW-(Q)X10□18	E2EW-(Q)X20□30
Sensing distance			7 mm ±10%	12 mm ±10%	22 mm ±10%	6 mm ±10%	10 mm ±10%	20 mm ±10%
Setting distance			0 to 4.9 mm	0 to 8.4 mm	0 to 15.4 mm	0 to 4.2 mm	0 to 7.0 mm	0 to 14 mm
Differential travel			15% max. of sensing distance					
Detectable object			Ferrous metals and non-ferrous metals (The sensing distance depends on the material of the sensing object. Refer to *Engineering Data* on page 27.)					
Standard sensing object (Iron)			21 × 21 × 1 mm	36 × 36 × 1 mm	66 × 66 × 1 mm	18 × 18 × 1 mm	30 × 30 × 1 mm	60 × 60 × 1 mm
Response frequency *1			2 Hz (Equipped with a function, which effectively cancels pulse noise of current magnetic field.)					
Power supply voltage			10 to 30 VDC (including 10% ripple (p-p)), Class 2					
Current consumption			720 mW max. (Current consumption: 30 mA max. at power supply voltage of 24 V)					
Output configuration			B□ Models: PNP open collector, C□ Models: NPN open collector					
Operation mode			1-output models (B1, C1): NO (Normally open), 1-output models (B2, C2): NC (Normally closed), 2-output models (B3, C3): NO+NC (Normally open, Normally closed)					
Control output	Load current		1-output models (B1,B2,C1,C2): 10 to 30 VDC, Class 2, 200 mA max. 2-output models (B3, C3): 10 to 30 VDC, Class 2, 100 mA max.					
	Residual voltage		1-output models (B1,B2,C1,C2): 2 V max. (Load current: 200 mA, Cable length: 2 m) 2-output models (B3, C3): 2 V max. (Load current: 100 mA, Cable length: 2 m)					
Indicator			In the Standard I/O mode (SIO mode): Operation indicator (orange, lit) and communication indicator (green, not lit) In the IO-Link communication mode (COM mode): Operation indicator (orange, lit) and communication indicator (green, blinking at 1 s intervals)					
Protection circuits			Power supply reverse polarity protection, Surge suppressor, Output short-circuit protection, Output reverse polarity protection					
Ambient temperature range			Operating: 0 to 85 °C, Storage: -15 to 85 °C (with no icing or condensation) *3					
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 0 to 85 °C					
Voltage influence			±1.5% 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-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)			1,000 m/s^2 10 times each in X, Y, and Z directions					
Degree of protection			IEC 60529: IP67					
Connection method			Pre-wired Models (Standard cable length: 2 m), Pre-wired Connector Models (Standard cable length: 0.3 m), M12 Connector Models					
Weight (packed state)	Pre-wired		Approx. 140 g	Approx. 165 g	Approx. 225 g	Approx. 140 g	Approx. 165 g	Approx. 225 g
	M12 Pre-wired Smartclick Connector		Approx. 70 g	Approx. 100 g	Approx. 160 g	Approx. 70 g	Approx. 100 g	Approx. 160 g
	M12 Connector		Approx. 60 g	Approx. 75 g	Approx. 135 g	Approx. 60 g	Approx. 75 g	Approx. 135 g
Materials	Case		E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))					
	Sensing surface		E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))					
	Sensing surface (Thickness)		0.4 mm	0.4 mm	0.5 mm	0.4 mm	0.4 mm	0.5 mm
	Clamping nuts		E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))					
	Toothed washers		Zinc-plated iron					
	Cable		Vinyl chloride (PVC)					
Main IO-Link functions *2			Operation mode switching between NO and NC, self diagnosis enabling, excessive proximity judgment distance selecting, timer function of the control output and timer time selecting, instability output (IO-Link mode) ON delay timer time selecting function, monitor output, operating hours read-out, readout of the sensor internal temperature, and initial reset					
IO-Link Communication specifications *2	IO-Link specification		Ver.1.1					
	Baud rate		E2EW(-Q) X□B□T□: COM3 (230.4 kbps), E2EW(-Q) X□B□D□: COM2 (38.4 kbps)					
	Data length		PD size: 2 bytes, OD size: 1 byte (M-sequence type: TYPE_2_2)					
	Minimum cycle time		COM2: 2.3 ms, COM3: 1.0 ms					
MTTFd (Year)			679	681	681	679	681	681
Accessories			Instruction manual, Clamping nuts, Toothed washer					

*1. The response frequency is an average value. Factory setting: (timer function: ONOFF delay)
*2. IO-Link is not supported for NC-type PNP outputs or all types of NPN outputs.
*3. UL temperature rating is between 0 °C to 60 °C.

BASIC Model

E2EW Series (Double distance mode/Single distance model)
E2EW-Q Series (Spatter-resistant Double distance model/Spatter-resistant Single distance model)

DC 3-wire

Item		Type	Double distance model/ Spatter-resistant Double distance model			Single distance model/ Spatter-resistant Single distance model			
		Size	M12	M18	M30	M8	M12	M18	M30
		Model	E2EW-(Q)X3□12	E2EW-(Q)X7□18	E2EW-(Q)X12□30	E2EW-(Q)X1R5□8	E2EW-(Q)X2□12	E2EW-(Q)X5□18	E2EW-(Q)X10□30
Sensing distance			3 mm ±10%	7 mm ±10%	12 mm ±10%	1.5 mm ±10%	2 mm ±10%	5 mm ±10%	10 mm ±10%
Setting distance			0 to 2.1 mm	0 to 4.9 mm	0 to 8.4 mm	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			15% max. of sensing distance	10% max. of sensing distance		
Detectable object			Ferrous metals and non-ferrous metals (The sensing distance depends on the material of the sensing object. Refer to *Engineering Data* on page 27.)						
Standard sensing object (Iron)			21 × 21 × 1 mm	30 × 30 × 1 mm	54 × 54 × 1 mm	8 × 8 × 1 mm	12 × 12 × 1 mm	18 × 18 × 1 mm	30 × 30 × 1 mm
Response frequency *1			80 Hz	90 Hz	50 Hz	100 Hz	100 Hz	80 Hz	40 Hz
Power supply voltage			10 to 30 VDC (including 10% ripple (p-p)), Class 2						
Current consumption			M8 Size: 10 mA max. M12/M18/M30 Size 1-output models (B1, B2, C1, C2): 16 mA max. 2-output models (B3, C3): 20 mA max.						
Output configuration			B□ Models: PNP open collector, C□ Models: NPN open collector						
Operation mode			1-output models (B1, C1): NO (Normally open), 1-output models (B2, C2): NC (Normally closed), 2-output models (B3, C3): NO+NC (Normally open, Normally closed)						
Control output	Load current		1-output models (B1, B2, C1, C2): 10 to 30 VDC, Class 2, 200 mA max. 2-output models (B3, C3): 10 to 30 VDC, Class 2, 100 mA max.						
	Residual voltage		1-output models (B1, B2, C1, C2): 2 V max. (Load current: 200 mA, Cable length: 2 m) 2-output models (B3, C3): 2 V max. (Load current: 100 mA, Cable length: 2 m)						
Indicator			Operation indicator (orange LED, lit)						
Protection circuits			Power supply reverse polarity protection, Surge suppressor, Output short-circuit protection, Output reverse polarity protection						
Ambient temperature range			M8 Size Operating: -25 to 70°C, Storage: -25 to 70°C (with no icing or condensation) *2 M12/M18/M30 Size Operating: 0 to 85°C, Storage: -15 to 85°C (with no icing or condensation) *2						
Ambient humidity range			Operating/Storage: 35% to 95% (with no condensation)						
Temperature influence			M8 Size ±20% max. of sensing distance at 23°C in the temperature range of -25 to 70°C M12/M18/M30 Size ±20% max. of sensing distance at 23°C in the temperature range of 0 to 85°C						
Voltage influence			±1.5% 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-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)			M8 Size 500 m/s^2 10 times each in X, Y, and Z directions M12/M18/M30 Size 1,000 m/s^2 10 times each in X, Y, and Z directions						
Degree of protection			IEC 60529: IP67						
Connection method			Pre-wired Models (Standard cable length: 2 m), Pre-wired Connector Models (Standard cable length: 0.3 m), M12 Connector Models *3						
Weight (packed state)	Pre-wired		Approx. 140 g	Approx. 165 g	Approx. 225 g	Approx. 105 g	Approx. 140 g	Approx. 160 g	Approx. 225 g
	M12 Pre-wired Smartclick Connector		Approx. 70 g	Approx. 100 g	Approx. 160 g	---	Approx. 70 g	Approx. 95 g	Approx. 160 g
	M12 Connector		---	---	---	Approx. 43 g	Approx. 60 g	Approx. 75 g	Approx. 135 g
Materials	Case		E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))						
	Sensing surface		E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))						
	Sensing surface (Thickness)		0.4 mm	0.4 mm	0.5 mm	0.4 mm	0.8 mm	0.8 mm	0.8 mm
	Clamping nuts		E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))						
	Toothed washers		Zinc-plated iron						
	Cable		Vinyl chloride (PVC)						
MTTFd (Year)			2,013	1,199	1,013	3,427	2,013	1,199	1,013
Accessories			Instruction manual, Clamping nuts, Toothed washer						

*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. UL temperature rating is between 0 °C to 60 °C.
*3. Only the Single distance model and the Spatter-resistant Single distance model (M8 size) are available.

BASIC Model

E2EW Series (Double distance model/Single distance model)

E2EW-Q Series (Spatter-resistant Double distance model/Spatter-resistant Single distance model)

DC 2-wire

Item	Type	Double distance model/ Spatter-resistant Double distance model				Single distance model/ Spatter-resistant Single distance model			
	Size	M8	M12	M18	M30	M8	M12	M18	M30
	Model	E2EW-(Q)X2D□8	E2EW-(Q)X3D□12	E2EW-(Q)X7D□18	E2EW-(Q)X12D□30	E2EW-(Q)X1R5D□8	E2EW-(Q)X2D□12	E2EW-(Q)X5D□18	E2EW-(Q)X10D□30
Sensing distance		2 mm ±10%	3 mm ±10%	7 mm ±10%	12 mm ±10%	1.5 mm ±10%	2 mm ±10%	5 mm ±10%	10 mm ±10%
Setting distance		0 to 1.4 mm	0 to 2.1 mm	0 to 4.9 mm	0 to 8.4 mm	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				15% max. of sensing distance	10% max. of sensing distance		
Detectable object		Ferrous metals and non-ferrous metals (The sensing distance depends on the material of the sensing object. Refer to *Engineering Data* on page 27.)							
Standard sensing object (Iron)		12 × 12 × 1 mm	21 × 21 × 1 mm	30 × 30 × 1 mm	54 × 54 × 1 mm	8 × 8 × 1 mm	12 × 12 × 1 mm	18 × 18 × 1 mm	30 × 30 × 1 mm
Response frequency *1		100 Hz	80 Hz	90 Hz	50 Hz	100 Hz	100 Hz	80 Hz	40 Hz
Power supply voltage		10 to 30 VDC (including 10% ripple (p-p)), Class 2							
Leakage current		0.8 mA max.							
Output configuration		D□ models: Polarity D1-T models: No polarity							
Operation mode		D1 models: NO (Normally open), D2 models: NC (Normally closed)							
Control output	Load current	3 to 100 mA							
	Residual voltage	Polarity: 3 V max. (Load current: 100 mA, Cable length: 2 m) No polarity: 5 V max. (Load current: 100 mA, Cable length: 2 m)							
Indicator		D1 models: Operation indicator (orange LED, lit) and communication indicator (green LED, not lit) D2 models: Operation indicator (orange LED, lit)							
Protection circuits		Surge suppressor, Output short-circuit protection							
Ambient temperature range		M8 Size Operating: -10 to 70°C, Storage: -25 to 70°C (with no icing or condensation) *2 M12/M18/M30 Size Operating: 0 to 85°C, Storage: -15 to 85°C (with no icing or condensation) *2				M8 Size Operating: -25 to 70°C, Storage: -25 to 70°C (with no icing or condensation) *2 M12/M18/M30 Size Operating: 0 to 85°C, Storage: -15 to 85°C (with no icing or condensation) *2			
Ambient humidity range		Operating/Storage: 35% to 95% (with no condensation)							
Temperature influence		M8 Size ±20% max. of sensing distance at 23°C in the temperature range of -10 to 70°C M12/M18/M30 Size ±20% max. of sensing distance at 23°C in the temperature range of 0 to 85°C				M8 Size ±20% max. of sensing distance at 23°C in the temperature range of -25 to 70°C M12/M18/M30 Size ±20% max. of sensing distance at 23°C in the temperature range of 0 to 85°C			
Voltage influence		±1.5% 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-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)		M8 Size 500 m/s^2 10 times each in X, Y, and Z directions M12/M18/M30 Size 1,000 m/s^2 10 times each in X, Y, and Z directions				M8 Size 500 m/s^2 10 times each in X, Y, and Z directions M12/M18/M30 Size 1,000 m/s^2 10 times each in X, Y, and Z directions			
Degree of protection		IEC 60529: IP67							
Connection method		Pre-wired Models (Standard cable length: 2 m), Pre-wired Connector Models (Standard cable length: 0.3 m)							
Weight (packed state)	Pre-wired	Approx. 105 g	Approx. 140 g	Approx. 165 g	Approx. 225 g	Approx. 105 g	Approx. 140 g	Approx. 160 g	Approx. 225 g
	M12 Pre-wired Smartclick Connector	Approx. 65 g	Approx. 70 g	Approx. 100 g	Approx. 160 g	Approx. 65 g	Approx. 70 g	Approx. 95 g	Approx. 160 g
Materials	Case	E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))							
	Sensing surface	E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))							
	Sensing surface (Thickness)	0.2 mm	0.4 mm	0.4 mm	0.5 mm	0.4 mm	0.8 mm	0.8 mm	0.8 mm
	Clamping nuts	E2EW-X□: Stainless steel (SUS303), E2EW-QX□: Fluororesin coating (Base material: (SUS303))							
	Toothed washers	Zinc-plated iron							
	Cable	Vinyl chloride (PVC)							
MTTFd (Year)		2,041	2,015	1,979	1,979	2,041	2,015	1,979	1,979
Accessories		Instruction manual, Clamping nuts, Toothed washer							

*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. UL temperature rating is between 0 °C to 60 °C.