Cylindrical Proximity Sensor

E2K-X

General-purpose Threaded Sensor That Detects Metals and Non-metals Alike

- Detects both metallic and nonmetallic objects (water, oil, glass, plastic, etc.).
- Three choices of threaded cylinder sizes for easy installation: M12, M18, and M30.
- Fixed sensing distance requires no sensitivity adjustment.

⚠ Be sure to read *Safety Precautions* on page 5.

Ordering Information

Sensors

Appearance		Sensing distance	Output configuration	Model	
				Operation mode	
				NO	NC
Unshielded 	M12	4 mm	DC 3-wire, NPN	**E2K-X4ME1**	**E2K-X4ME2**
			AC 2-wire	**E2K-X4MY1**	**E2K-X4MY2**
	M18	8 mm	DC 3-wire, NPN	**E2K-X8ME1**	**E2K-X8ME2**
			AC 2-wire	**E2K-X8MY1**	**E2K-X8MY2**
	M30	15 mm	DC 3-wire, NPN	**E2K-X15ME1**	**E2K-X15ME2**
			AC 2-wire	**E2K-X15MY1**	**E2K-X15MY2**

Accessories (Order Separately)

Mounting Brackets

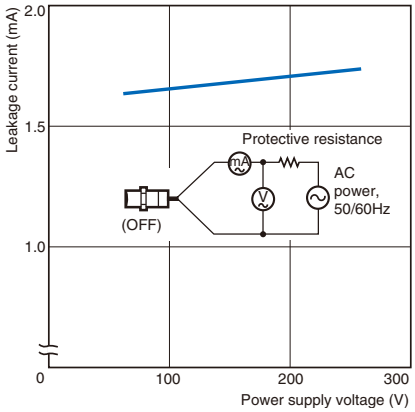
Ratings and Specifications

Item / Model		E2K-X4ME□, E2K-X4MY□	E2K-X8ME□, E2K-X8MY□	E2K-X15ME□, E2K-X15MY□
Sensing distance		4mm ±10%	8 mm ±10%	15 mm ±10%
Set distance *1		0 to 2.8 mm	0 to 5.6 mm	0 to 10 mm
Differential travel		4% to 20% of sensing distance		
Detectable object		Conductors and dielectrics		
Standard sensing object		Grounded metal plate: 50 × 50 × 1 mm		
Response frequency		E Models: 100 Hz, Y Models: 10 Hz		
Power supply voltage*2 (operating voltage range)		E Models: 12 to 24 VDC (10 to 30 VDC) Y Models: 100 to 220 VAC (90 to 250 VAC)		
Current consumption		E Models: 15 mA max.		
Leakage current		Y Models: 2.2 mA max. (Refer to page 4.)		
Control output	Load current	E Models: 200 mA max.*2, Y Models: 10 to 200 mA		
	Residual voltage	E Models: 1 V max. (Load current: 200 mA, Cable length: 2 m), Y Models: Refer to *Engineering Data* on page 4.		
Indicators		E Models: Detection indicator (red), Y Models: Operation indicator (red)		
Operation mode (with sensing object approaching)		E1/Y1 Models: NO E2/Y2 Models: NC Refer to the timing charts under *I/O Circuit Diagrams* on page 4 for details.		
Protection circuits		E Models: Reverse polarity protection, Surge suppressor, Y Models: Surge suppressor		
Ambient temperature range		Operating/Storage: –25 to 70°C (with no icing or condensation)		Operating/Storage: –10 to 55°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 operating temperature range		
Voltage influence		E Models: ±2% max. of sensing distance at rated voltage at rated voltage ±20% Y Models: ±2% max. of sensing distance at rated voltage at rated voltage ±10%		
Insulation resistance		50 MΩ min. (at 500 VDC) between current-carrying parts and case		
Dielectric strength		E Models: 1,000 VAC, 50/60 Hz for 1 min between current-carrying parts and case Y Models: 2,000 VAC, 50/60 Hz for 1 min 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/s² 3 times each in X, Y, and Z directions		
Degree of protection		IP66 (IEC), in-house standards: oil-resistant		
Connection method		Pre-wired Models (Standard cable length: 2 m)		
Weight (packed state)		Approx. 65 g	Approx. 145 g	Approx. 205 g
Materials	Case	Heat-resistant ABS		
	Sensing surface			
	Clamping nuts	Polyacetal		
Accessories		Tightening tool, Instruction Manual	Instruction manual	

*1. The above values are sensing distances for the standard sensing object. Refer to *Engineering Data* on page 3 for other materials.
*2. E Models (DC switching models): A full-wave rectification power supply of 24 VDC ±20% (average value) can be used.

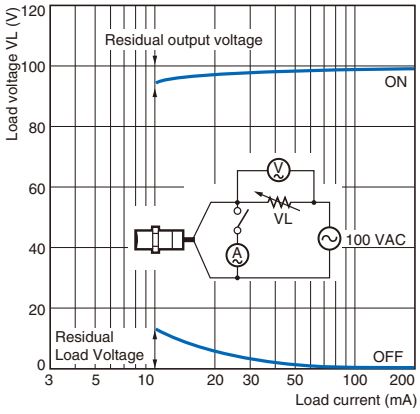
Leakage Current

E2K-X□MY

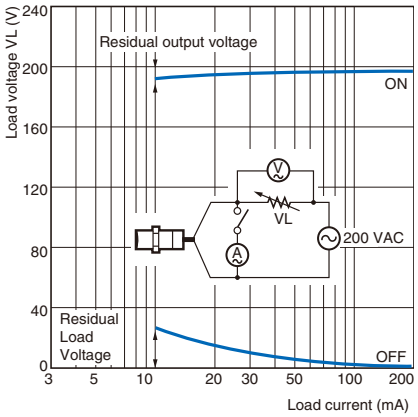


Residual Output Voltage

E2K-X□MY□ at 100 VAC

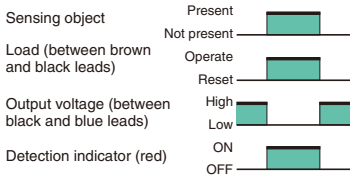
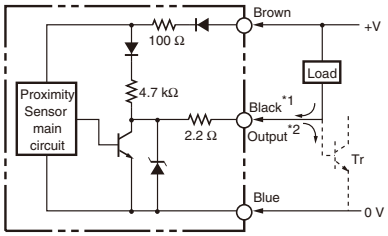
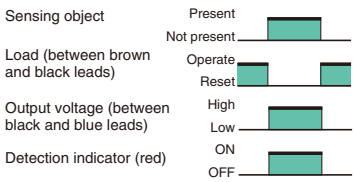


E2K-X□MY□ at 200 VAC

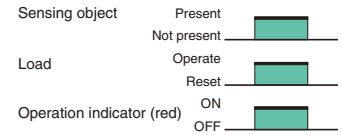
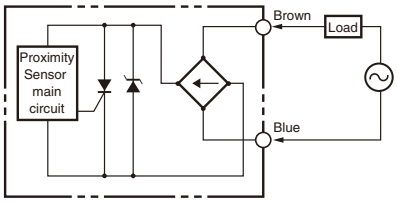
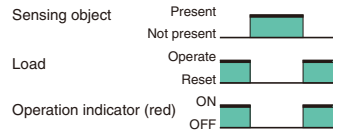


I/O Circuit Diagrams

DC 3-Wire Models

Operation mode	Model	Timing chart	Output circuit
NO	E2K-X4ME1 E2K-X8ME1 E2K-X15ME1		 *1. Load current: 200 mA max. *2. When a transistor is connected.
NC	E2K-X4ME2 E2K-X8ME2 E2K-X15ME2		

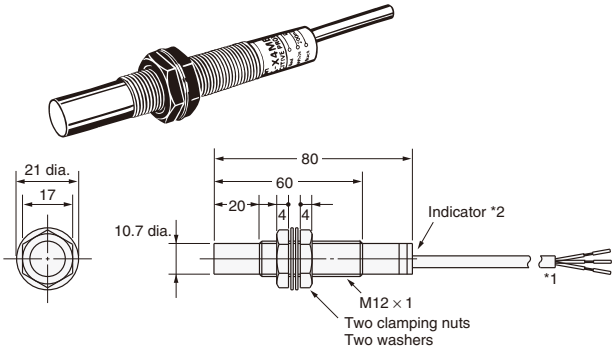
AC 2-Wire Models

Operation mode	Model	Timing chart	Output circuit
NO	E2K-X4MY1 E2K-X8MY1 E2K-X15MY1		
NC	E2K-X4MY2 E2K-X8MY2 E2K-X15MY2		

Dimensions

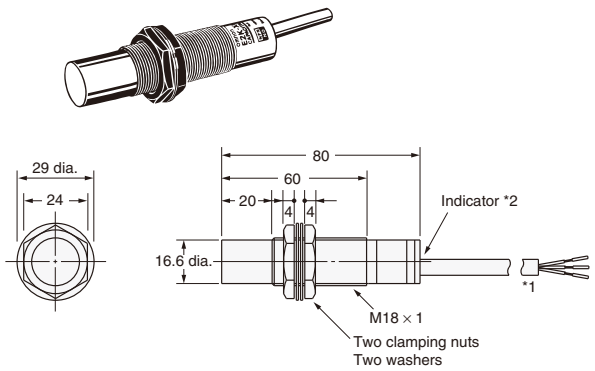
(Unit: mm)

E2K-X4ME□
E2K-X4MY□



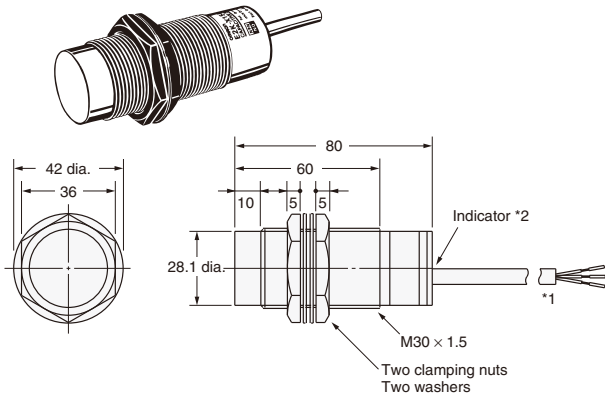
*1. E Models: 4-dia. vinyl-insulated round cable with 3 conductors
(Conductor cross section: 0.2 mm^2, Insulator diameter: 1.2 mm),
Standard length: 2 m
Y Models: 4-dia. vinyl-insulated round cable with 2 conductors
(Conductor cross section: 0.3 mm^2, Insulator diameter: 1.3 mm),
Standard length: 2 m
*2. E Models: Detection indicator (red)
Y Models: Operation indicator (red)

E2K-X8ME□
E2K-X8MY□



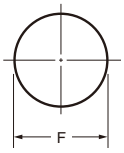
*1. E Models: 6-dia. vinyl-insulated round cable with 3 conductors
(Conductor cross section: 0.5 mm^2, Insulator diameter: 1.9 mm),
Standard length: 2 m
Y Models: 6-dia. vinyl-insulated round cable with 2 conductors
(Conductor cross section: 0.5 mm^2, Insulator diameter: 1.9 mm),
Standard length: 2 m
*2. E Models: Detection indicator (red)
Y Models: Operation indicator (red)

E2K-X15ME□
E2K-X15MY□



*1. E Models: 6-dia. vinyl-insulated round cable with 3 conductors
(Conductor cross section: 0.5 mm^2, Insulator diameter: 1.9 mm),
Standard length: 2 m
Y Models: 6-dia. vinyl-insulated round cable with 2 conductors
(Conductor cross section: 0.5 mm^2, Insulator diameter: 1.9 mm),
Standard length: 2 m
*2. E Models: Detection indicator (red)
Y Models: Operation indicator (red)

Mounting Hole Dimensions



Model	F (mm)
E2K-X4ME□ E2K-X4MY□	12.5 $^{+0.5}_{0}$ dia.
E2K-X8ME□ E2K-X8MY□	18.5 $^{+0.5}_{0}$ dia.
E2K-X15ME□ E2K-X15MY□	30.5 $^{+0.5}_{0}$ dia.