

Flat Inductive Proximity Sensor

TL-W5MC1 2M

Unshielded, Square type, DC Three-wires models, Sensing distance 5 mm $\pm 10\%$, NO, NPN open collector, Pre-wired models



Image

Sensing head size	18 mm x 10 mm x 30.5 mm
Type	Square type, Unshielded
Power source	DC Three-wires models
Sensing distance	5 mm $\pm 10\%$
Setting distance	0 to 4 mm
Operation mode	NO

Ratings/Performance

As of October 5, 2020

Sensing head size	18 mm x 10 mm x 30.5 mm
Type	Square type, Unshielded
Power source	DC Three-wires models
Sensing distance	5 mm $\pm 10\%$
Setting distance	0 to 4 mm
Differential distance	10% max. of sensing distance
Sensing object	Ferrous metal (Sensitivity lowers with non-ferrous metals.)
Standard sensing object	Iron 18 x 18 x 1 mm
Response frequency	500 Hz (Average value)
Power supply voltage	12 to 24 VDC ripple (p-p) 10% max.
Operating voltage range	10 to 30 VDC
Current consumption	10 mA max.
Control output (Output type)	NPN open collector
Control output (Switching capacity)	at 12 VDC: 50 mA max. (30 VDC max.) at 24 VDC: 100 mA max. (30 VDC max.)
Control output (Residual voltage)	1 V max. (Load current 100 mA with cable length of 2 m)
Indicator	Detection indicator (red)
Operation mode	NO
Protective circuit	Reverse polarity protection Surge suppressor
Ambient temperature (Operating)	-25 to 70 °C
Ambient temperature (Storage)	-25 to 70 °C
Ambient humidity (Operating)	35 to 95% RH

Ambient humidity (Storage)	35 to 95% RH
Temperature influence	±10% max. of sensing distance at 23 °C in the temperature range of -25 to 70 °C
Voltage influence	±2.5% max. of sensing distance at rated voltage in the rated voltage ±20% range
Insulation resistance	Between charged parts and the case: 5 MΩ min. at 500 VDC
Dielectric strength	Between charged parts and the case: 1,000 VAC 50/60 Hz 1 min
Vibration resistance	Destruction: 10 to 55 Hz, 1.5 mm double amplitude each in X, Y, and Z directions for 2 h
Shock resistance	Destruction: 500 m/s ² 3 times each in X, Y and Z directions
Degree of protection	IEC: IP67 Company standard: Oil-proof
Connection method	Pre-wired models (2 m)
Weight	Package: Approx. 80 g
Material	Case: Heat-resistant ABS resin Sensing surface: Heat-resistant ABS resin
Accessories	Instruction manual

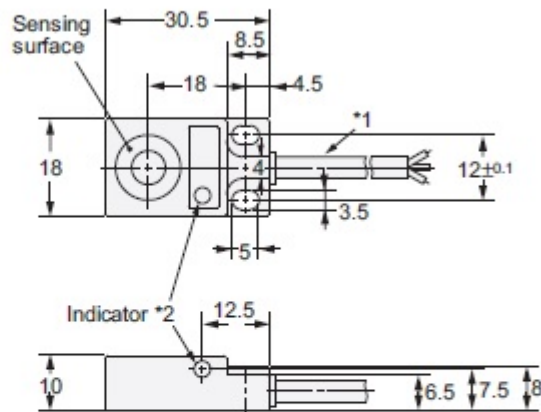
As of October 5, 2020

Dimensions

As of October 5, 2020

Dimensions

TL-W5MB□
TL-W5MC□
TL-W5MD□



*1. TL-W5MB□/TL-W5MC□

4-dia. vinyl-insulated round cable with 3
conductors (Conductor cross section: 0.2 mm²,
Insulator diameter: 1.2 mm), Standard length: 2 m
TL-W5MD□

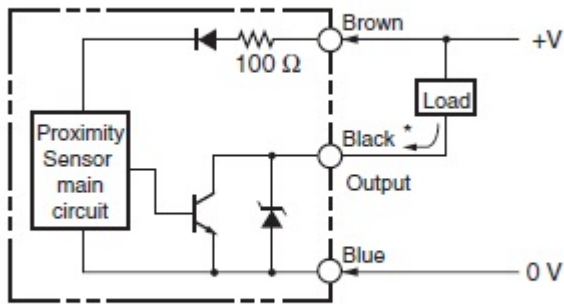
4-dia. vinyl-insulated round cable with 2
conductors (Conductor cross section: 0.3 mm²,
Insulation diameter: 1.3 mm), Standard length: 2 m

*2. B/C Models: Detection indicator (red)

D Models: Operation indicator (red),
Setting indicator (green)







Output circuit

Output circuit



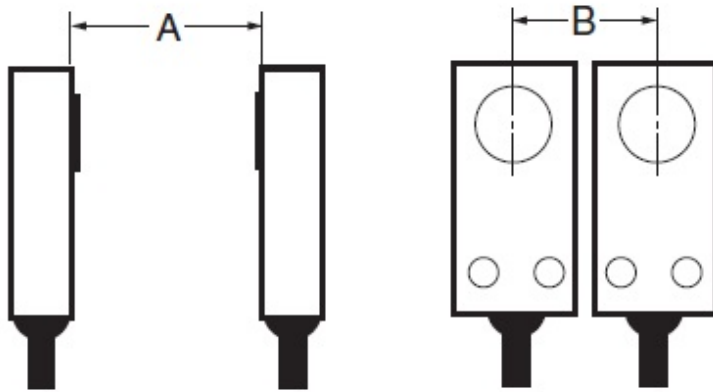
* Load current: 100 mA max.

Timing chart

Operation mode	Timing Chart	
NO	Sensing object	Yes 
		No 
	Output transistor (Load)	ON 
	OFF 	
	Detection indicator (red)	ON 
		OFF 

Mutual interference

Mutual interference



A: 120 mm min., B: 60 mm min.

Different frequency

A: 80 mm min., B: 30 mm min.

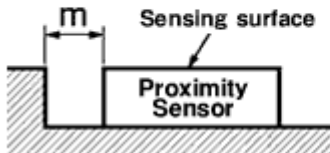
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Effects of surrounding metals

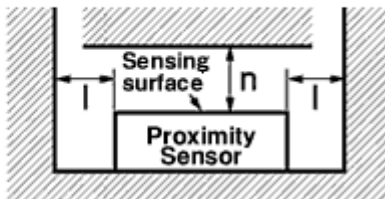
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Effects of surrounding metals

**Metal on a Single Side
(Not exceeding the height
of the Sensor surface)**



**Metals on Both Sides and
in Front of the Sensor**



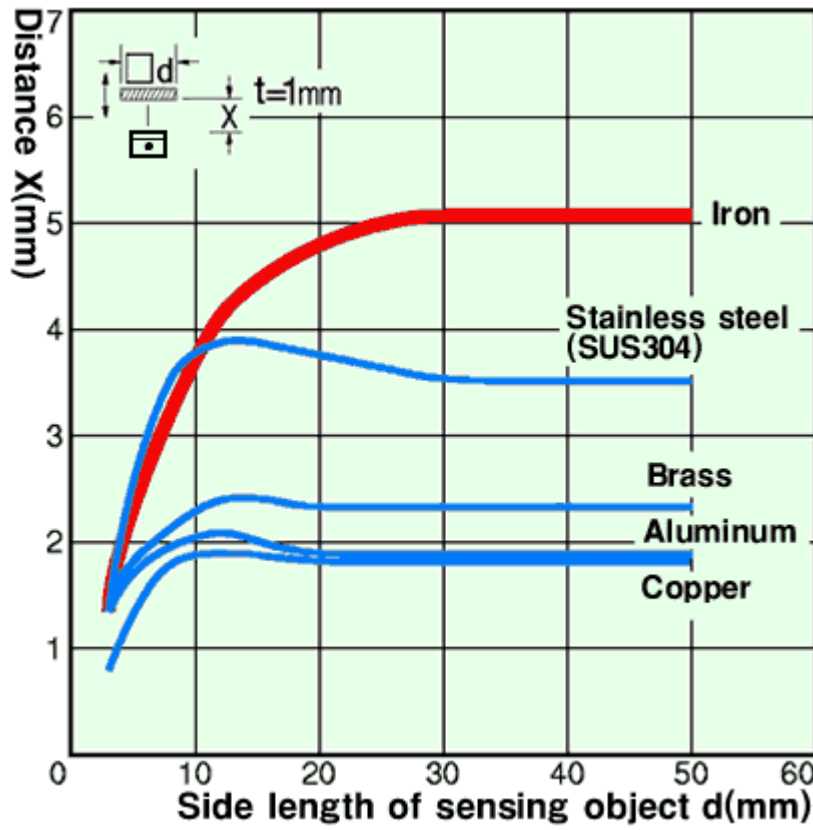
l: 5 mm min., m: 0 mm min., n: 20 mm min.

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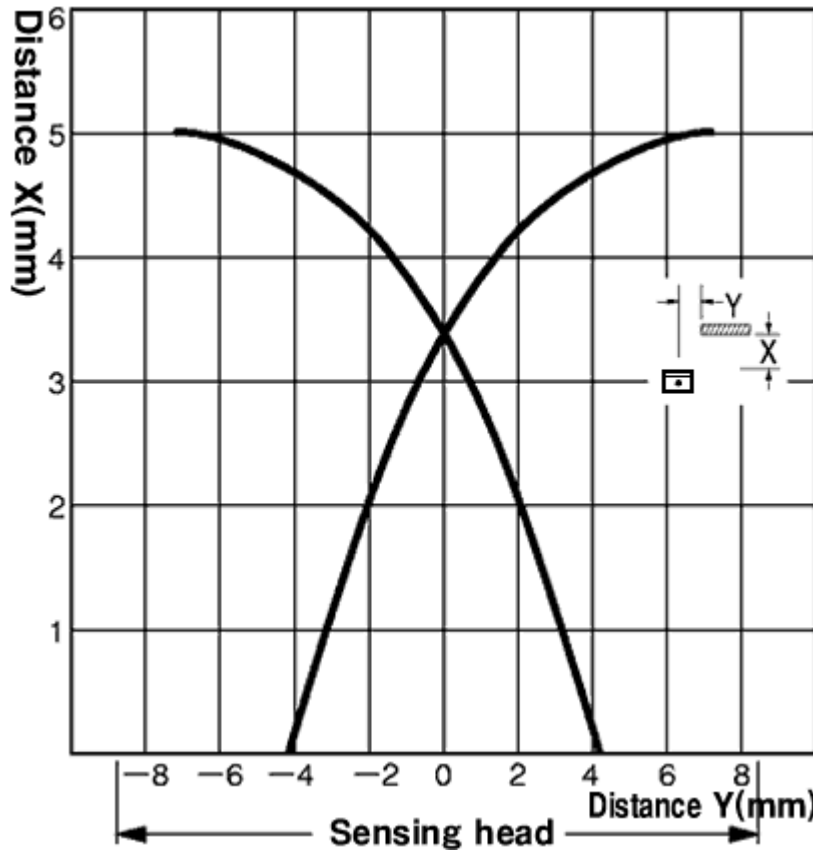
Characteristic chart

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Sensing distance vs. size and material of sensing object



Sensing range



As of October 5, 2020

