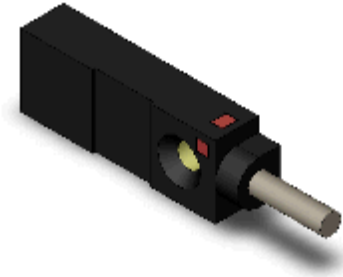


Flat Inductive Proximity Sensor

## TL-W3MC1 2M

Unshielded, Square type, DC Three-wires models, Sensing distance 3 mm  $\pm 10\%$ , NO, NPN open collector, Pre-wired models



Image

<b>Sensing head size</b>	10 mm x 6 mm x 27 mm
<b>Type</b>	Square type, Unshielded
<b>Power source</b>	DC Three-wires models
<b>Sensing distance</b>	3 mm $\pm 10\%$
<b>Setting distance</b>	0 to 2.4 mm
<b>Operation mode</b>	NO

### Ratings/Performance

As of October 5, 2020

<b>Sensing head size</b>	10 mm x 6 mm x 27 mm
<b>Type</b>	Square type, Unshielded
<b>Power source</b>	DC Three-wires models
<b>Sensing distance</b>	3 mm $\pm 10\%$
<b>Setting distance</b>	0 to 2.4 mm
<b>Differential distance</b>	10% max. of sensing distance
<b>Sensing object</b>	Ferrous metal (Sensitivity lowers with non-ferrous metals.)
<b>Standard sensing object</b>	Iron 12 x 12 x 1 mm
<b>Response frequency</b>	600 Hz (Average value)
<b>Power supply voltage</b>	12 to 24 VDC ripple (p-p) 10% max.
<b>Operating voltage range</b>	10 to 30 VDC
<b>Current consumption</b>	at 24 VDC, no load: 15 mA max.
<b>Control output (Output type)</b>	NPN open collector
<b>Control output (Switching capacity)</b>	100 mA max. (30 VDC max.)
<b>Control output (Residual voltage)</b>	1 V max. (Load current 100 mA with cable length of 2 m)
<b>Indicator</b>	Detection indicator (red)
<b>Operation mode</b>	NO
<b>Protective circuit</b>	Reverse polarity protection Surge suppressor
<b>Ambient temperature (Operating)</b>	-25 to 70 °C
<b>Ambient temperature (Storage)</b>	-25 to 70 °C
<b>Ambient humidity (Operating)</b>	35 to 95% RH
<b>Ambient humidity (Storage)</b>	35 to 95% RH
<b>Temperature influence</b>	$\pm 10\%$ max. of sensing distance at 23 °C in the temperature range of -25 to 70 °C

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

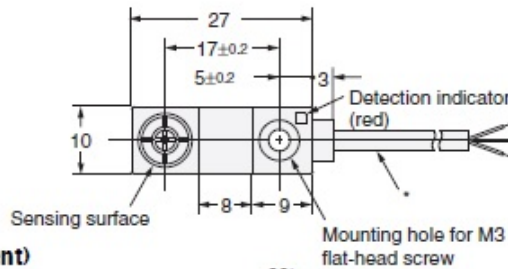
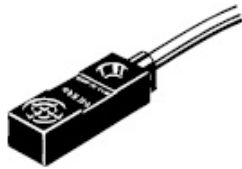
As of October 5, 2020

Dimensions

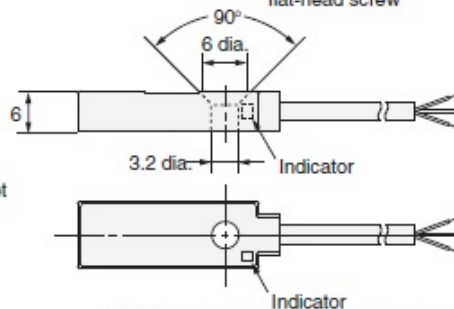
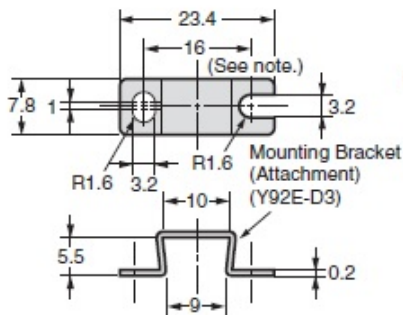
As of October 5, 2020

Dimensions

TL-W3MB□  
TL-W3MC□



Mounting Bracket (Attachment)



Note: Mounting hole dimension: 17 ±0.20.  
Material: Stainless steel (SUS304)

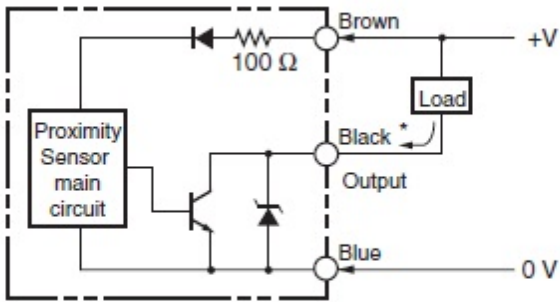
\* 2.9-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.14 mm<sup>2</sup>, Insulator diameter: 0.9 mm), Standard length: 2 m

As of October 5, 2020

Output circuit

As of October 5, 2020

Output circuit



\* Load current: 100 mA max.

Timing chart

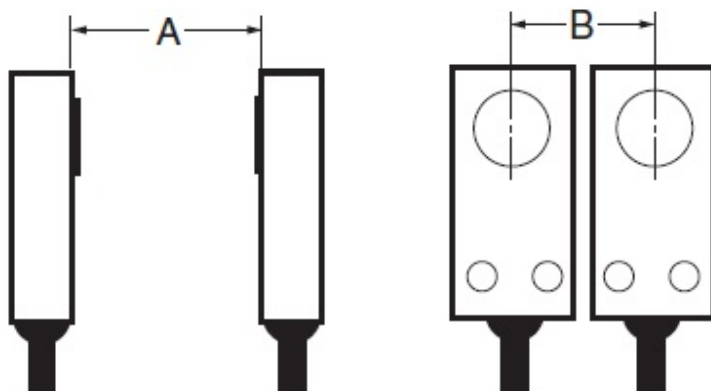
Operation mode	Timing Chart																		
<b>NO</b>	<table border="0"> <tr> <td style="padding-right: 10px;">Sensing object</td> <td style="padding-right: 10px;"><b>Yes</b></td> <td></td> </tr> <tr> <td></td> <td style="padding-right: 10px;"><b>No</b></td> <td></td> </tr> <tr> <td style="padding-right: 10px;">Output transistor (Load)</td> <td style="padding-right: 10px;"><b>ON</b></td> <td></td> </tr> <tr> <td></td> <td style="padding-right: 10px;"><b>OFF</b></td> <td></td> </tr> <tr> <td></td> <td style="padding-right: 10px;"><b>ON</b></td> <td></td> </tr> <tr> <td></td> <td style="padding-right: 10px;"><b>OFF</b></td> <td></td> </tr> </table>	Sensing object	<b>Yes</b>			<b>No</b>		Output transistor (Load)	<b>ON</b>			<b>OFF</b>			<b>ON</b>			<b>OFF</b>	
	Sensing object	<b>Yes</b>																	
		<b>No</b>																	
	Output transistor (Load)	<b>ON</b>																	
	<b>OFF</b>																		
	<b>ON</b>																		
	<b>OFF</b>																		

As of October 5, 2020

Mutual interference

As of October 5, 2020

Mutual interference



A: 90 mm min., B: 30 mm min.

Different frequency

A: 60 mm min., B: 10 mm min.

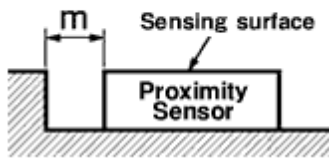
As of October 5, 2020

Effects of surrounding metals

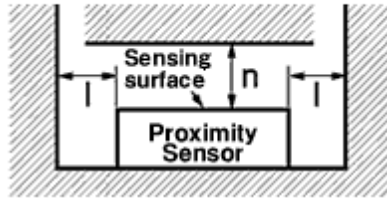
As of October 5, 2020

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**



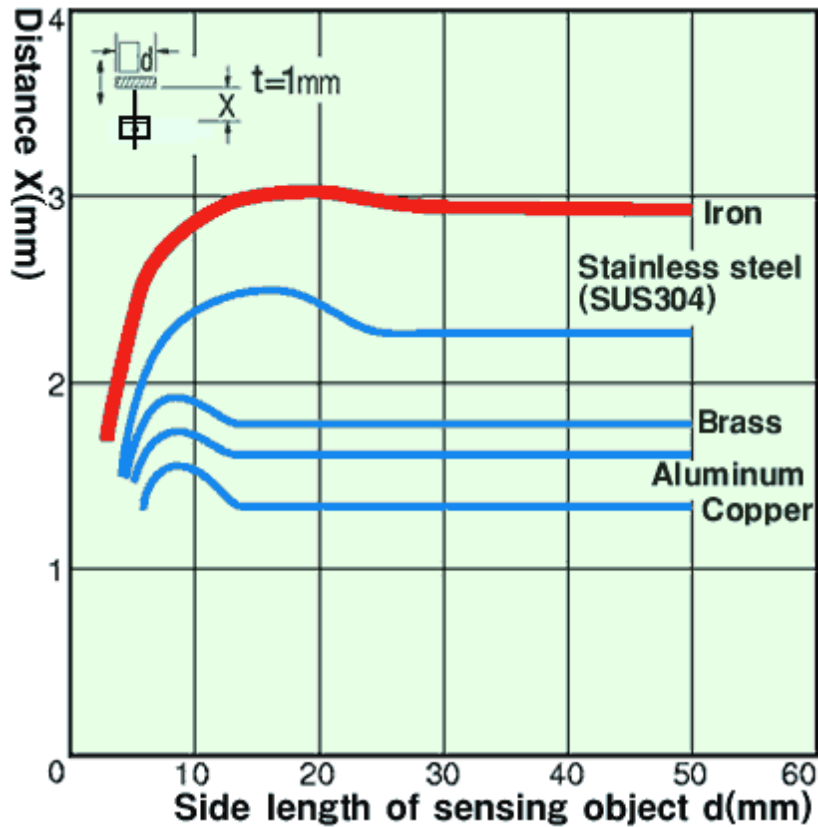
l: 3 mm min., m: 0 mm min., n: 12 mm min.

As of October 5, 2020

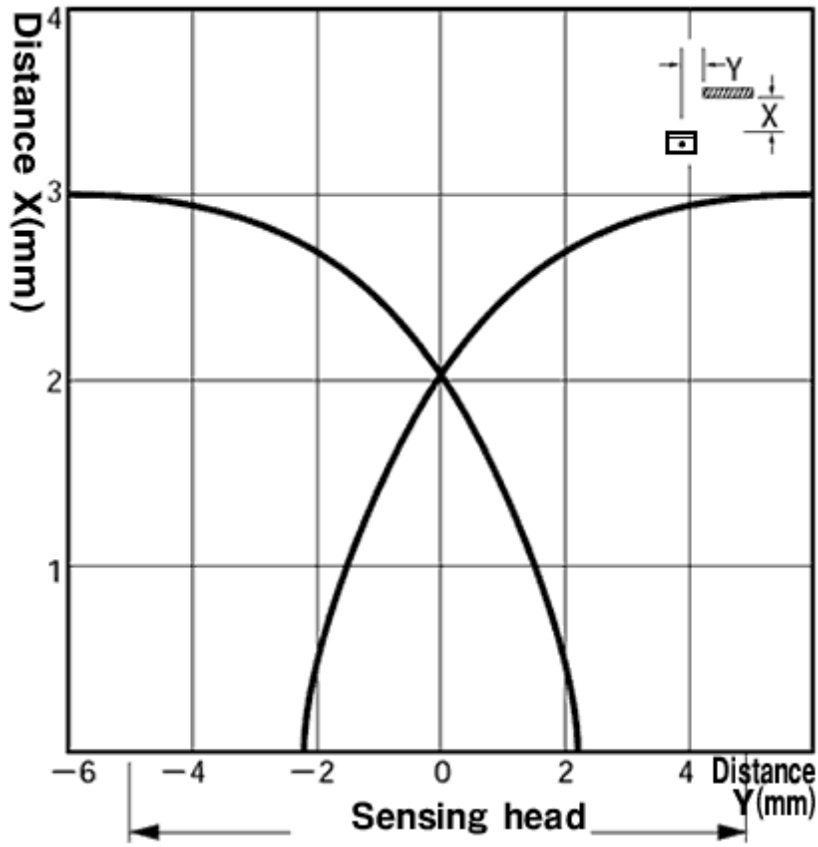
Characteristic chart

As of October 5, 2020

Sensing distance vs. size and material of sensing object



Sensing range



As of October 5, 2020