

Standard Flat Sensors in Many Different Variations

- Only 6 mm thick yet provides a sensing distance of 3 mm (TL-W3MC1).
- Aluminum die-cast models also available.



Be sure to read *Safety Precautions* on page 7.

For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Ordering Information

Sensors [Refer to *Dimensions* on page 8.]

DC 2-Wire Models

Appearance	Sensing distance	Model	
		Operation mode	
		NO	NC
Unshielded 	5 mm 	TL-W5MD1 2M *1 *2	TL-W5MD2 2M *2

DC 3-Wire Models

Appearance	Sensing distance	Output configuration	Model	
			Operation mode	
			NO	NC
Unshielded 	1.5 mm 	NPN	TL-W1R5MC1 2M *1 *2	---
		PNP	TL-W1R5MB1 2M	---
	3 mm 	NPN	TL-W3MC1 2M *1 *2	TL-W3MC2 2M *1 *2
		PNP	TL-W3MB1 2M *2	TL-W3MB2 2M *2
	5 mm 	NPN	TL-W5MC1 2M *1 *2	TL-W5MC2 2M
		PNP	TL-W5MB1 2M	TL-W5MB2 2M
Shielded 	20 mm 	NPN	TL-W20ME1 2M *1	TL-W20ME2 2M *1
	5 mm 	NPN	TL-W5E1 2M	TL-W5E2 2M
		PNP	TL-W5F1 2M	TL-W5F2 2M

*1. Models with a different frequency are also available to prevent mutual interference. The model numbers are TL-W□M□□5 (e.g., TL-W5MD15).

*2. Models are also available with robotics (bend resistant) cables. Add "-R" to the model number. (e.g., TL-W5MC1-R 2M)

Ratings and Specifications

DC 2-Wire Models

Item		Model	TL-W5MD□
Sensing distance			5 mm $\pm$ 10%
Set distance			0 to 4 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 5.)
Standard sensing object			Iron, 18 × 18 × 1 mm
Response frequency *1			500 Hz
Power supply voltage (operating voltage range)			12 to 24 VDC (10 to 30 VDC), ripple (p-p): 10% max.
Leakage current			0.8 mA max.
Con- trol output	Load current		3 to 100 mA
	Residual voltage		3.3 V max. (under load current of 100 mA with cable length of 2 m)
Indicators			D1 Models: Operation indicator (red), 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 5 for details. D2 Models: NC
Protection circuits			Load short-circuit protection, Surge suppressor
Ambient temperature range			Operating/Storage: -25 to 70°C (with no icing or condensation) *2
Ambient humidity range			Operating/Storage: 35% to 95% (with no condensation)
Temperature influence			$\pm$ 10% max. of sensing distance at 23°C in the temperature range of -25 to 70°C
Voltage influence			$\pm$ 2.5% max. of sensing distance at rated voltage in the rated voltage $\pm$ 15% range
Insulation resistance			50 M Ω min. (at 500 VDC) between current-carrying parts and case
Dielectric strength			1,000 VAC 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/s ² 3 times each in X, Y, and Z directions
Degree of protection			IEC 60529 IP67, in-house standards: oil-resistant *2
Connection method			Pre-wired Models (Standard cable length: 2 m)
Weight (packed state)			Approx. 80 g
Materials	Case		Heat-resistant ABS
	Sensing surface		
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. For environments that require oil resistance, the upper limit of the ambient operating temperature range is 40°C.