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 *3	TL-W5MD2 2M *3

DC 3-Wire Models

Appearance	Sensing distance	Output configuration	Model	
			Operation mode	
			NO	NC
Unshielded	1.5 mm	DC 3-wire, NPN	TL-W1R5MC1 2M *1 *2 *3	---
	3 mm		TL-W3MC1 2M *1 *2 *3	TL-W3MC2 2M *1 *2 *3
	5 mm		TL-W5MC1 2M *1 *2 *3	TL-W5MC2 2M *2
	20 mm		TL-W20ME1 2M *1 *2 *3	TL-W20ME2 2M *1
Shielded	5 mm	DC 3-wire, NPN	TL-W5E1 2M	TL-W5E2 2M
		DC 3-wire, 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 with PNP outputs are also available. Ask your OMRON representative for details.
*3. 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 ±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 *Engineering Data* 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.
Control 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 D2 Models: NC Refer to the timing charts under *I/O Circuit Diagrams* on page 6 for details.
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		±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 ±15% range
Insulation resistance		50 MΩ 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.