



## Differential Coil Sensor for Long-distance Detecting (100 mm) for both Ferrous and Non-ferrous Substances

- Models also available for use under water.



 Be sure to read *Safety Precautions* on page 4.

### Ordering Information

Appearance	Sensing distance	Output configuration	Model
Cylindrical (flat surface installation)	 100 mm	Current output	<b>TL-L100-7 1M</b>

Note: The TL-L100-10 is also available for use under water (JIS0920: Withstand pressure of 0.39 MPa).

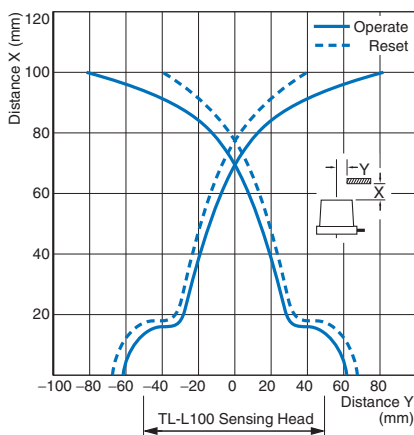
## Ratings and Specifications

Item	Output specifications	Current output
	TL-L100-7	
Sensing distance	100 mm $\pm$ 10%	
Set distance	0 to 80 mm	
Differential travel	15% max. of sensing distance	
Detectable object	Ferrous metal and non-ferrous metal	
Standard sensing object	Iron, 200 $\times$ 200 $\times$ 1 mm	
Response time	100 ms max.	
Power supply voltage (operating voltage range)	10 to 30 VDC including 10% ripple (p-p)	
Current consumption	40 mA DC max.	
Control output	200 mA DC max. (residual voltage: 1 V max.)	
Indicators	Operation indicator (red)	
Operation mode (with sensing object approaching)	NO; For details, refer to the timing charts under <i>I/O Circuit Diagrams</i> on page 3.	
Protection circuits	Reverse polarity protection, Surge suppressor	
Ambient temperature range	Operating/Storage: $-25$ to $55^{\circ}\text{C}$ (with no icing or condensation)	
Ambient humidity range	Operating/Storage: 35% to 95% (with no condensation)	
Temperature influence	$\pm$ 30% max. of sensing distance at $20^{\circ}\text{C}$ in the temperature range of $-10$ to $40^{\circ}\text{C}$	
Voltage influence	$\pm$ 5% max. of sensing distance at rated voltage in rated voltage $\pm$ 10% range	
Insulation resistance	5 M $\Omega$ min. (at 500 VDC) between current-carrying parts and case	
Dielectric strength	500 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: 200 m/s <sup>2</sup> 10 times each in X, Y, and Z directions	
Degree of protection	IP66 (IEC)	
Connection method	Pre-wired Models (Standard cable length: 1m)	
Weight (packed state)	Approx. 1.5 kg	
Materials	Case: Aluminum die-cast, Sensing surface: Epoxy resin	
Accessories	Instruction manual	

## Engineering Data (Typical)

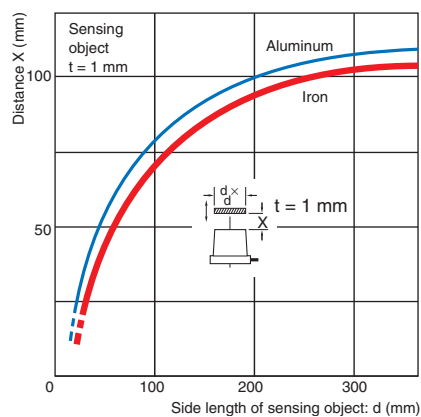
### Sensing Area

TL-L100-7









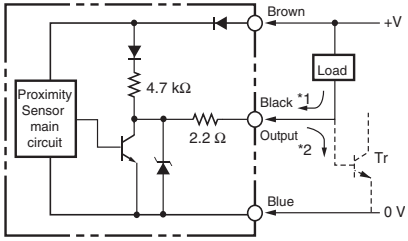


### Influence of Sensing Object Size and Material

TL-L100-7

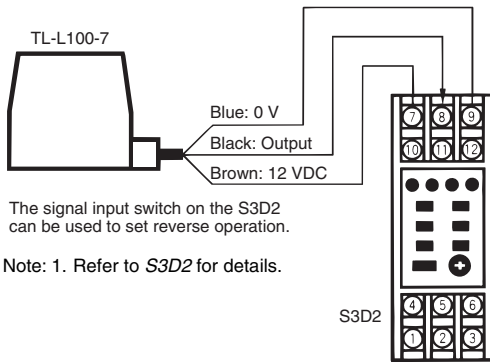


## I/O Circuit Diagrams

Output configuration	Model	Timing chart	Output circuit
Current output NO	TL-L100-7	<p>Sensing object</p> <p>Present </p> <p>None </p> <p>Load (between brown and black leads)</p> <p>Operate </p> <p>Reset </p> <p>Output voltage (between black and blue leads)</p> <p>High </p> <p>Low </p> <p>Operation indicator (red)</p> <p>ON </p> <p>OFF </p>	 <p>*1. Load current: 200 mA max. *2. When a transistor is connected.</p>

## Connections

### Connection to the S3D2 Sensor Controller



## Safety Precautions

Refer to *Warranty and Limitations of Liability*.

**⚠ WARNING**

This product is not designed or rated for ensuring safety of persons either directly or indirectly. Do not use it for such purposes.



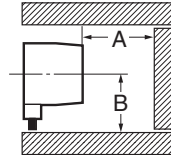
### Precautions for Correct Use

Do not use this product under ambient conditions that exceed the ratings.

● **Design**

**Influence of Surrounding Metal**

Separate the Sensor from surrounding metal as shown below.

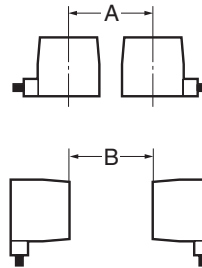


**Influence of Surrounding Metal**

Item	Dimension (mm)
A	250
B	

**Mutual Interference**

When mounting more than one Sensor face-to-face or side-by-side, separate them as shown below.



**Mutual Interference**

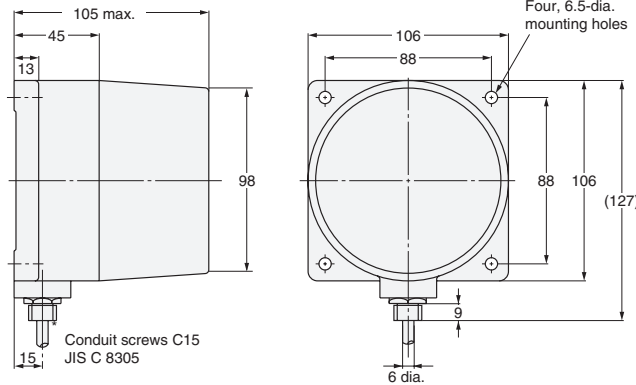
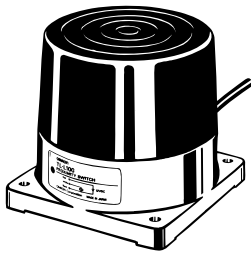
Item	Dimension (mm)
A	300
B	

## Dimensions

(Unit: mm)

Tolerance class IT16 applies to dimensions in this data sheet unless otherwise specified.

TL-L100-7



\* 6-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.3 mm<sup>2</sup>, Insulator diameter: 1.85 mm), Standard length: 1 m

## Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

## Warranty and Limitations of Liability

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2008.11

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#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.