

## Long-distance Model with a Sensing distance of 50 mm.



**⚠** Be sure to read *Safety Precautions* on page 3.

### Ordering Information

Appearance	Sensing distance	Output configuration	Model
Column type (flat-surface mounting)	50 mm	3-wire DC (normally open)	TL-LP50
		2-wire AC (normally open)	TL-LY50

Note: Models with different frequencies are available. The model numbers are TL-L□50B.

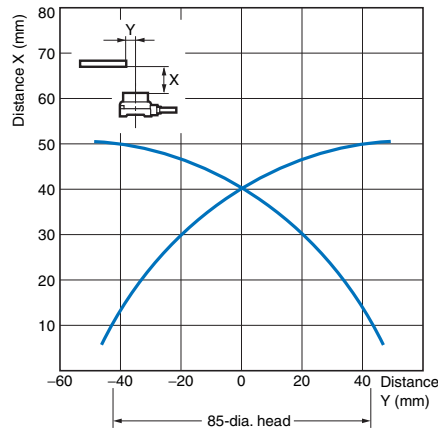
### Ratings and Specifications

Item		Model	TL-LP50	TL-LY50
Sensing distance			50 mm±10%	
Set distance			0 to 40 mm	
Differential travel			10% max. of sensing distance	
Sensing object			Ferrous metals (The sensing distance decreases with non-ferrous metal. Refer to <i>Engineering Data</i> on the next page.)	
Standard sensing object			Iron, 100 × 100 × 1 mm	
Response time			15 ms max.	25 ms max.
Power supply voltage (operating voltage range *)			12 to 24 VDC (10 to 30 VDC), ripple (p-p) 10% max.	100 to 220 VAC (90 to 250 VAC), 50/60 Hz
Current consumption			10 mA max. (with no load)	---
Leakage current			---	Refer to <i>Engineering Data</i> on the next page.
Control output	Switching capacity		NPN open collector with a maximum current of 200 mA at 30 VDC	10 to 200 mA
	Residual voltage		3 V max. under a load current of 200 mA and a cable length of 2 m	Refer to <i>Engineering Data</i> on the next page.
Indicators			Operation indicator (red)	
Operation mode (with sensing object approaching)			NO. Refer to the timing charts under <i>I/O Circuit Diagrams</i> on page 3 for details.	
Ambient temperature			Operating/Storage: -25 to 70°C (with no icing or condensation)	
Ambient humidity			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% max. of sensing distance within a range of ±10% of rated power supply voltage	
Insulation resistance			50 MΩ 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	2,000 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)			1,000m/s <sup>2</sup> 10 times each in X, Y, and Z directions	
Degree of protection			IEC IP67	
Connection method			Pre-wired Models (Standard cable length: 1 m)	
Weight (packed state)			Approx. 1.4 kg	
Materials	Case		Die-cast aluminum	
	Sensing surface		Polyester	
Accessories			Instruction sheet	

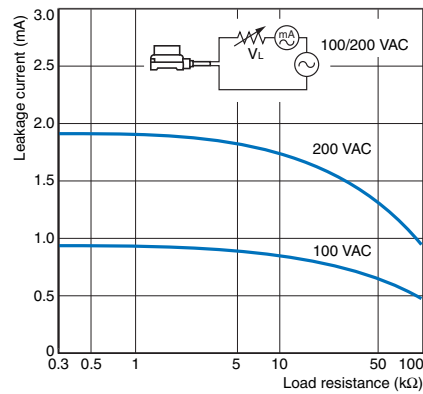
\* Full-wave rectified power supplies with a mean output of 24 VDC ±10% are available for the TL-LP50.

Engineering Data (Reference Value)

Sensing Area  
TL-LP/LY

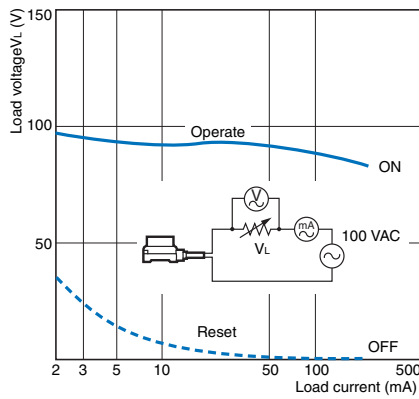


Leakage Current  
TL-LY50

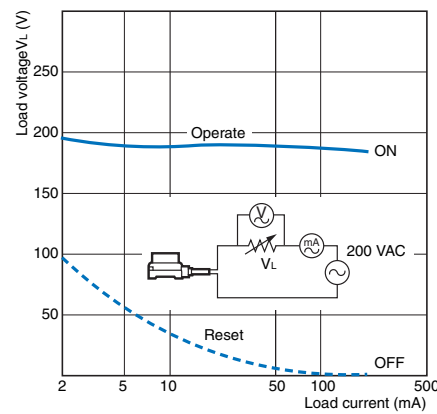


Residual Voltage

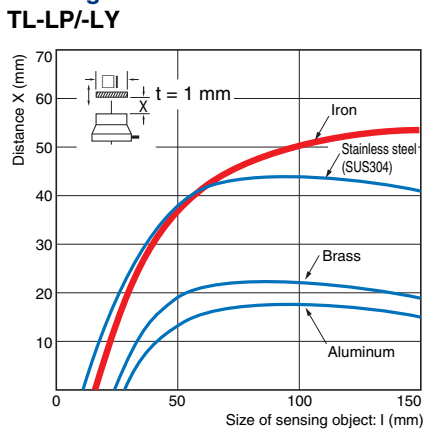
TL-LY50 at 100 VAC



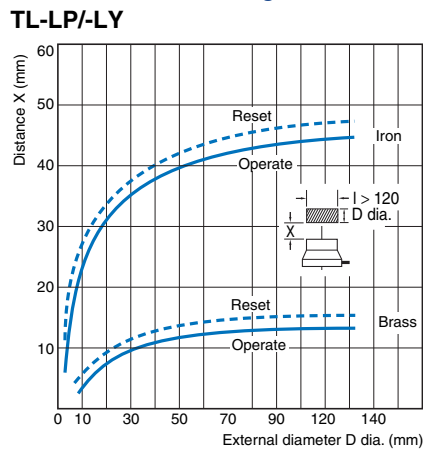
TL-LY50 at 200 VAC



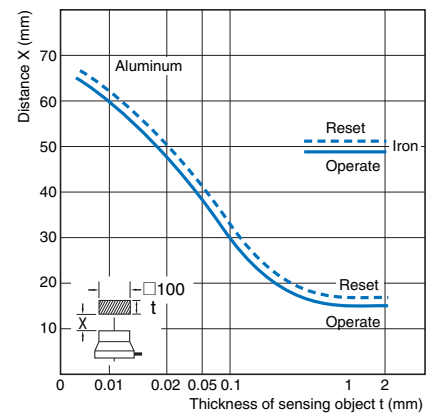
Sensing Object Size and Material vs. Sensing Distance  
TL-LP/LY



Column-type Sensing Object Diameter and Material vs. Sensing Distance  
TL-LP/LY



Sensing Object Thickness and Material vs. Sensing Distance  
TL-LP/LY



I/O Circuit Diagrams

3-wire DC Model

Output configuration	Model	Timing charts	Output circuit
NO	TL-LP50	<p>Sensing object Present (High pulse), Not present (Low)</p> <p>Output transistor (Load) ON (High pulse), OFF (Low)</p> <p>Operation indicator (red) ON (High pulse), OFF (Low)</p>	

2-wire AC Model

Output configuration	Model	Timing charts	Output circuit
NO	TL-LY50	<p>Sensing object Present (High pulse), Not present (Low)</p> <p>Load Operate (High pulse), Reset (Low)</p> <p>Operation indicator (red) ON (High pulse), OFF (Low)</p>	

Safety Precautions

**WARNING**

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

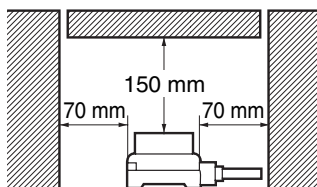
Precautions for Correct Use

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

● Design

Effects of Surrounding Metal

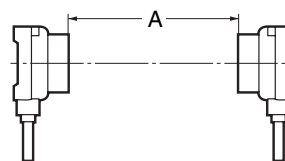
Be sure to separate the Sensor from surrounding metal objects as shown in the following illustration.



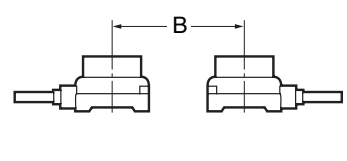
Mutual Interference

When two or more Sensors are mounted face-to-face or side-by-side, separate them as shown below.

Face-to-face Mounting



Parallel Mounting



(Unit: mm)

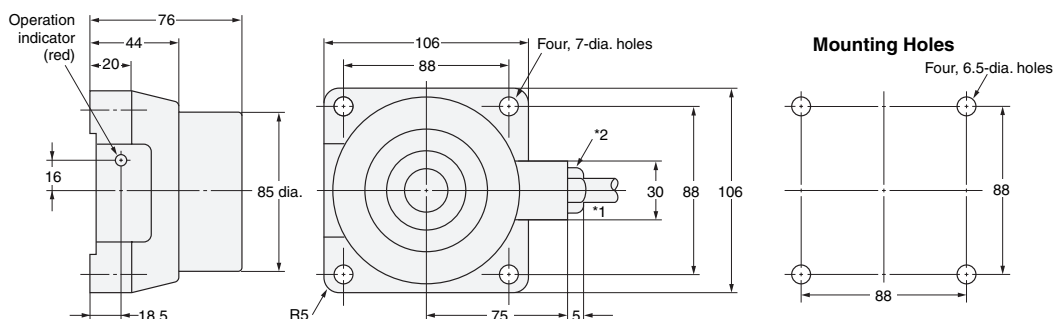
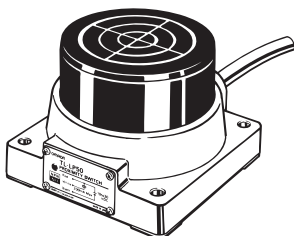
Model	Distance	A	B
TL-L□50		1,000 (500)	700 (176)

Note: Figures in parentheses will apply if the Sensors in use are different from each other in response frequency.

Dimensions

Unless otherwise specified, the tolerance class IT16 is used for dimensions in this data sheet.

TL-LP50  
TL-LY50



\*1. Vinyl cable: TL-LP50: 9.4-dia. vinyl-insulated round cable with 3 conductors (Conductor cross section: 0.75 mm<sup>2</sup>, Insulator diameter: 2.8 mm), Standard length: 1 m  
TL-LY50: 9.0-dia. vinyl-insulated round cable with 2 conductors (Conductor cross section: 0.75 mm<sup>2</sup>, Insulator diameter: 2.8 mm), Standard length: 1 m  
\*2. Remove the hexagon nut if a PF1/2 cable protective tube is applied.

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