

## 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 1M
		2-wire AC (normally open)	TL-LY50 1M

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

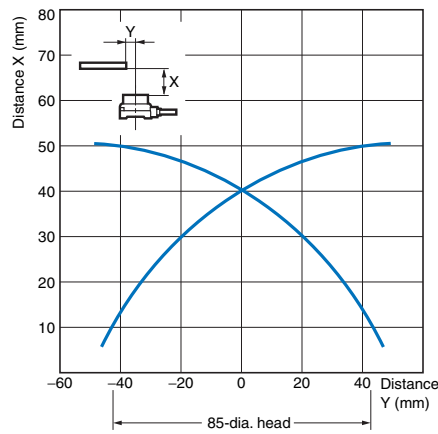
### Ratings and Specifications

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	

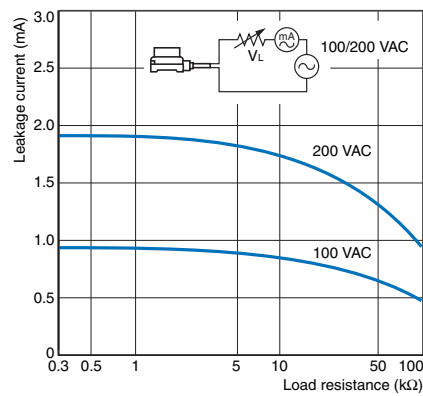
\* Full-wave rectified power supplies with a mean output of 24 VDC ±10% are available for the TL-LP50.

Engineering Data (Reference Value)

Sensing Area  
TL-LP/LY

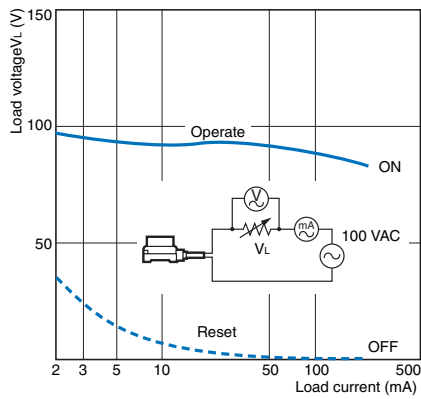


Leakage Current  
TL-LY50

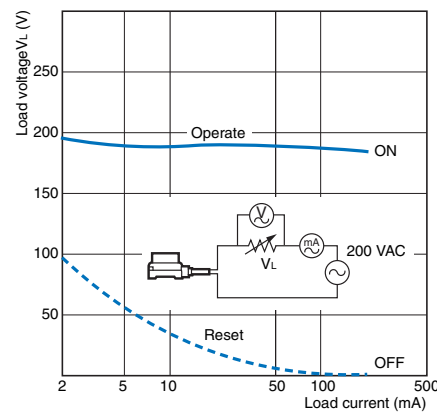


Residual Voltage

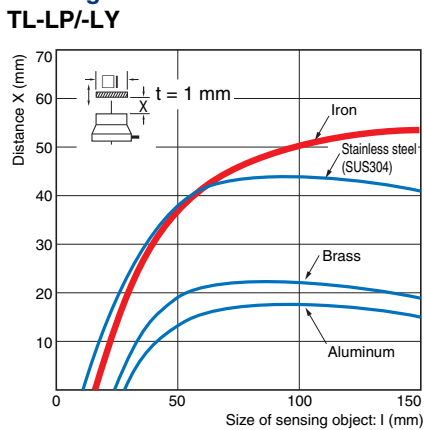
TL-LY50 at 100 VAC



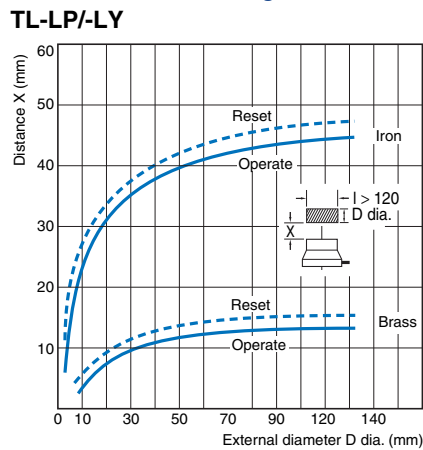
TL-LY50 at 200 VAC



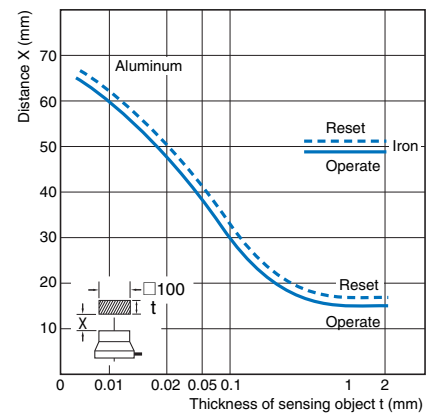
Sensing Object Size and Material vs. Sensing Distance  
TL-LP/LY



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.



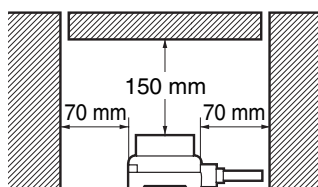
### Precautions for Correct Use

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

#### ● Design

#### Effects of Surrounding Metal

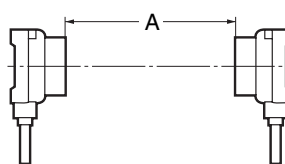
Be sure to separate the Sensor from surrounding metal objects as shown in the following illustration.



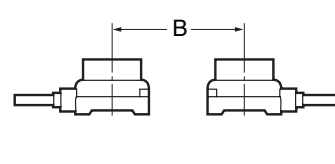
#### Mutual Interference

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)

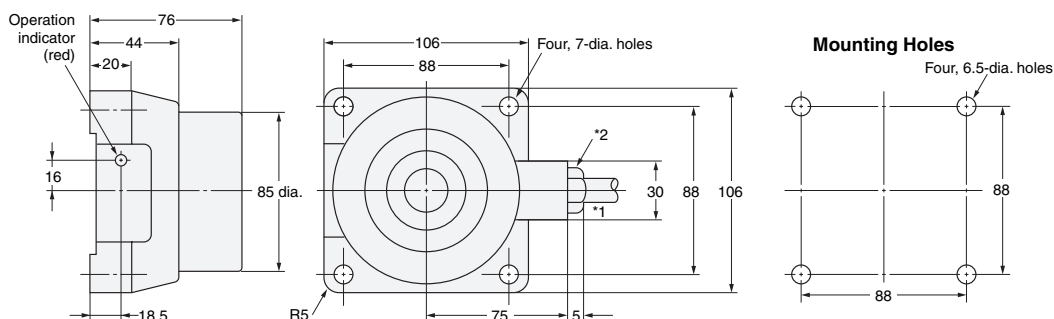
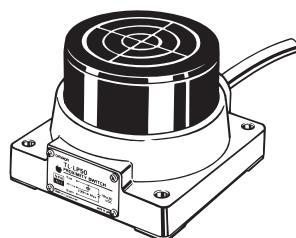
Note: Figures in parentheses will apply if the Sensors in use are different from each other in response frequency.

## 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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