Charged TOF100 laser photocell

Reflective (single-sided) time-of-flight laser photocell. Applications: up-and-over doors, revolving doors, sliding doors, fence security, window and balcony security, warehouse security, car parks and other outdoor security uses.

Technical specification

Item	Value
Input voltage	AC 9–24 V (50/60 Hz) · DC 9–30 V
Working current	⊠ 80 mA at 12 V (Imax = 150 mA); power consumption ⊠ 0.96 W
Sensing distance	0.3 m to 8 m at 10%–90% reflectivity
Reaction time	⊠ 100 ms
Ambient light resistance	Up to 70 klux
Emitter	VCSEL, centre wavelength 850 nm, laser safety Class 1 (IEC 60825)
Signal reception angle	2°
Output interface	GND/AC, VCC/AC, NO/NC, COM
Output type	Relay dry contact, NO or NC selected by the jumper on the unit
Output load	AC 0.3 A / 120 VAC · DC 0.8 A / 30 VDC
Operating / storage temperature	-10 °C to +60 °C / -20 °C to +75 °C
Size (L × W × H) / weight	100 × 40 × 35 mm / 61 g (bare metal unit)
Supplied	One photocell sensor, one manual, one cover (hood)

LED indication

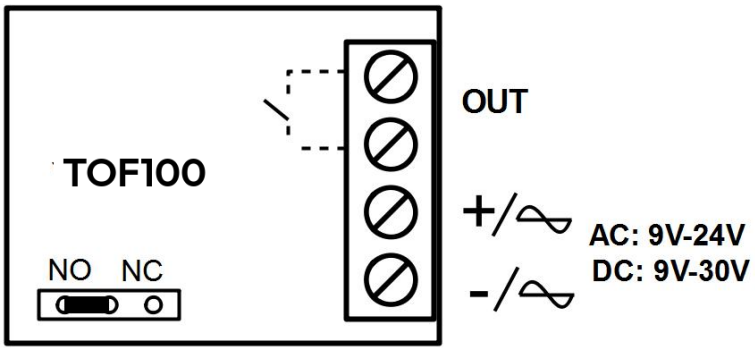
LED	Meaning
Green	Power-on status; also shows distance-setting mode and operating mode switching.
Yellow	Working status: off when there is an obstacle, on when there is no obstacle.

Important: read before first use

- Before using the product for the first time, set the sensing distance to suit your application.
- The sensing distance must be more than 0.3 m.
- Do not power up the sensor until all electrical wiring to it is complete.

Electrical interface

Four-way terminal block: the relay output (OUT) and the supply (+/~ and -/~, AC 9–24 V or DC 9–30 V). The NO/NC jumper selects the relay contact type.

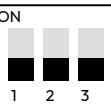
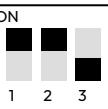
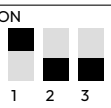


Operating instructions

- Power on. The power and status indicators flash 3 times, then the power indicator stays on, the status indicator goes off and the buzzer gives a short beep. This confirms start-up is complete.
- Set the sensing distance by one of the two methods below. The default detection distance is 7.5 m.

Method 1: fixed distance (DIP switches)

Set the distance with the DIP switches. Each time you change the switches, the power indicator blinks quickly 3 times and then stays on to confirm the setting. In the pictures, a black block at the top of a switch (next to ON) means that switch is ON.

Distance	DIP switch setting	Distance	DIP switch setting
Arbitrary distance		5 m	
2 m		6 m	
3 m		7 m	
4 m		7.5 m	

Method 2: arbitrary distance

1. Enter distance-setting mode: power up and wait for start-up to finish. Within 10 seconds, wave a shield (your hand or a board) in front of the unit (within 0.5 m) back and forth 5 times, until the buzzer gives "beep-beep-beep".
2. The power light now flashes quickly and continuously: the unit is detecting obstacles.
3. Position the unit so it covers the detection distance you need. The buzzer helps you judge the distance to the obstacle: slow beeps mean 1 m per beep, fast beeps mean 0.5 m per beep.
4. When you hear a long beep, the green power light flashes slowly 3 times and then stays on. The distance is set and the unit leaves distance-setting mode.
5. To set a new distance, power the unit off and on again and repeat the steps.

Notes on distance setting

- The default detection distance is 7.5 m. On first use, set the maximum detection distance for your site.
- If the buzzer beeps repeatedly ("beep, beep, beep..."), the set distance is beyond the unit's maximum (no more than 8 m). Adjust the distance again.
- The set distance is saved when the power is switched off. You do not need to set it again after a power cut.

Installation and precautions

Installation

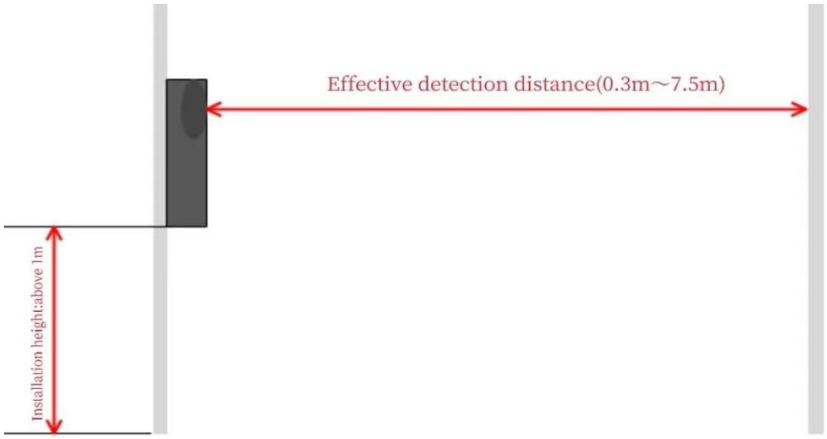
- When commissioning and installing, make sure there are no obstacles within the set sensing distance.
- Avoid direct sunlight on the unit.
- Minimum mounting height is 1 m. More than 1 m is recommended.
- The set sensing distance must be more than 0.3 m.
- Do not power up the sensor until all electrical wiring is complete.

Product notes

- On first use, set the sensing distance for your application before installing.
- The surface of the object being sensed must have a reflectivity of 10% to 90%.
- The sensing distance corresponds to the size of the sensed surface. Theoretical reference values:

Sensing distance	1 m	2 m	3 m	4 m	5 m	6 m	7 m	8 m
Object surface (L × W)	4×4 cm	7×7 cm	11×11 cm	14×14 cm	18×18 cm	21×21 cm	25×25 cm	28×28 cm

Installation diagram



Effective detection distance 0.3 m to 7.5 m (default setting). Mount at least 1 m above the ground.

Special warning: risk of failure

- Highly reflective objects (above 90% reflectivity), such as mirrors, smooth floor tiles and calm liquid surfaces, may cause failure.
- Very dark objects (below 10% reflectivity), such as deep black surfaces, may cause failure.
- Dirt on the transmitting and receiving window may cause failure. Keep the window clean.
- Severe weather such as storms, dense fog and haze may cause failure.
- Do not use the product outside -10 °C to +60 °C. Do not store it outside -20 °C to +75 °C.

Support

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