



Light Sensor

(Model: ZL-940-V3C)

# Manual

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Zhengzhou Winsen Electronic Technology Co., Ltd

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## Light Sensor

### Product Description

The sunlight sensor is developed based on the principle of semiconductor photoelectric effect, and can be used to detect changes in external ambient light. The sunlight sensor contains a photosensitive device that can convert light signals into electrical signals. When the ambient light is too strong or too weak, the microcontroller inside the sensor determines whether the conditions for turning on/off the lights are met, and communicates with the vehicle computer to control the lights. The sensor integrates modules such as light collection, signal processing, communication output, and algorithms. It has the advantages of small size, fast response, and low power consumption.



Fig 1. Product picture

### Features

1. Fast response speed and high stability:  
the response time is in the order of ms, and it can maintain high stability in a wide temperature range.
2. Wide detection range: the detection illumination range is between 0 and 7000 Lux;
3. Anti-reverse connection protection: The sensor has reverse connection protection, and the reverse connection of the power supply will not damage the sensor;
4. Small size and low energy consumption.

### Main Applications

1. Applied to exterior light intensity detection;
2. Automatic lighting control system;
3. Atmosphere monitoring;
4. Display backlight control.

Technical Indicators

Table 1: Technical Indicators

Item	Specification	Parameter
Electrical Characteristics	Supply Voltage	DC (9~16) V
	Rated Voltage	DC 12V
	Output Signal	LIN2.0
	Working Temperature	(-40~85)°C
	Storage Temperature	(-40~95)°C
	Working Current	≤70mA
	Output signal time	Sunlight changes from weak light to strong light—delay is greater than 5s and less than 300s Sunlight changes from strong light to weak light—delay is less than 2s
Light	Light intensity detection range	(0~7000)Lux
	Photosensitive band	(350~1100)nm
Structure	Fixed Position	The center of the instrument panel is close to the windshield
	Fixed Form	Buckle fixed
	Dimensions (L*W*H)	40mm*40mm*25mm

Product Appearance Dimensional Drawing (Unit: mm)

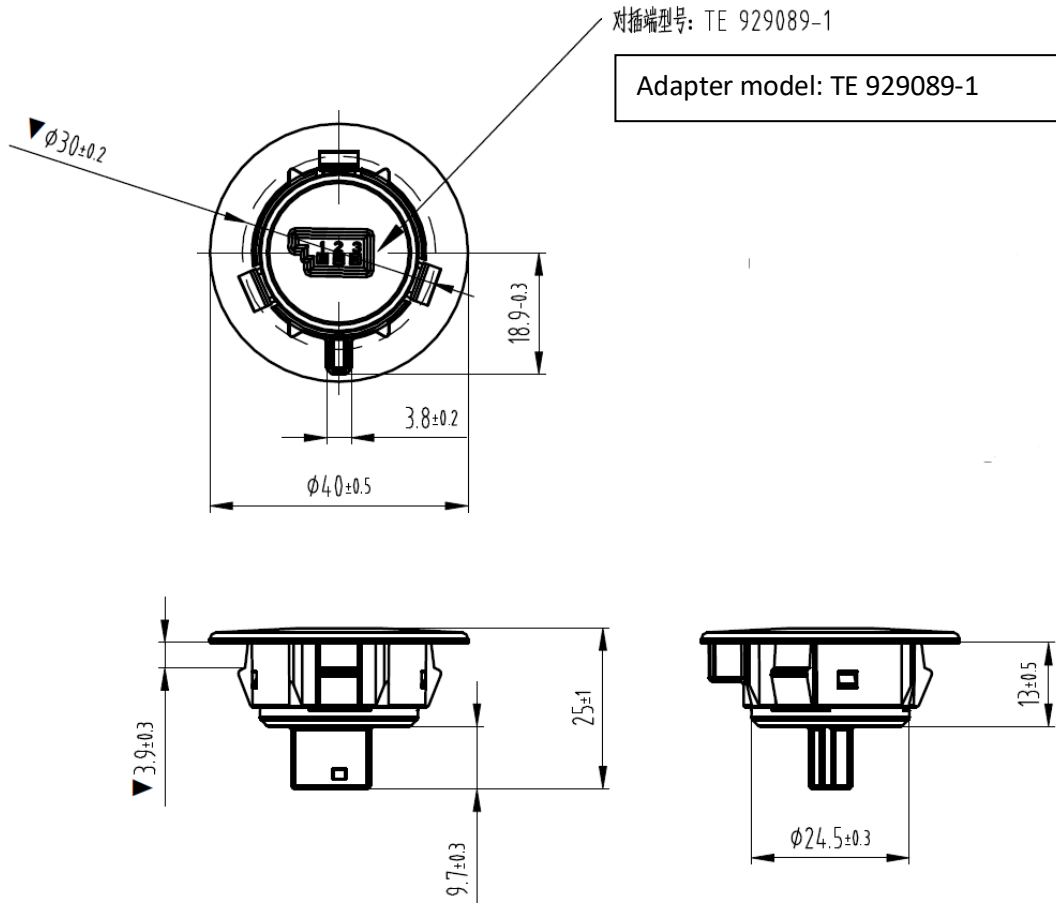


Fig 2: Product structure

Sensor pin definition and function description

Table 2: Pin Definition

Pin	1	2	3
Definition	DC 12V	GND	LIN

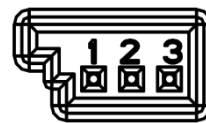


Table 3: Function Description

Light intensity (I, Unit: Lux)	Low beam	Output information	Response time
$I \geq 4000$	Turn Off	Request to turn off the light	More than 5s, no more than 300s
$I < 4000$	Turn On	Request to turn on the light	No more than 2s

When the external light intensity rises from less than 4000Lux to more than 4000Lux, after a delay of

more than 5s and less than 300s, the sensor outputs the message "request to turn off the lights", and the low beam of the vehicle turns off.

When the external light intensity drops from more than 4000Lux to less than 4000Lux, after a delay of less than 2s, the sensor outputs the message "request to turn on the lights", and the low beam of the vehicle turns on.

### Sensor Application

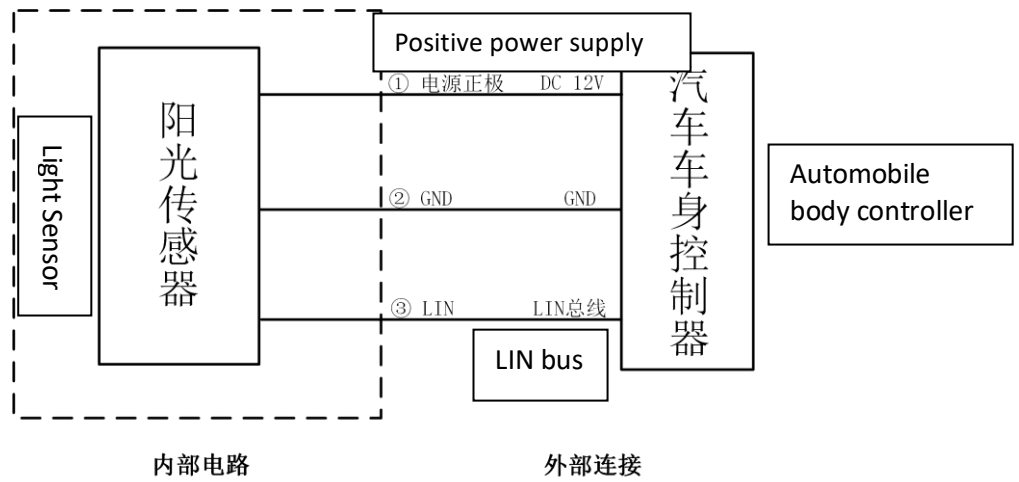


Fig 3: Sensor external connection diagram

### Precautions

- During the connection, installation and use of the sensor, the housing should be prevented from being subjected to any directional pressure;
- If the sensor needs to be placed in a small space, make sure that the light-transmitting cap is not blocked or smeared;
- Do not use the sensor for a long time in a humid or dusty environment;
- To ensure that the sensor can work normally, the power supply voltage must be maintained in the range of 9~16V;
- Please do not disassemble the sensor at will;
- The sensor should avoid contact with organic solvents (including silicone rubber and other adhesives), coatings, chemicals, fuel oils and high-concentration gases;
- Frequent, excessive vibration, strong impact or collision will cause resonance inside the sensor and cause it to break.
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