Infrared sensor instruction manual

XKC-001A-T

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1st. Overview

XKC-001A-T   is an intelligent non-contact switch, infrared sensor with high and low level or NPN drive output. The sensor uses the principle of diffuse reflection of infrared light on objects: when people or objects enter the sensor set In the sensing area, the sensor outputs a signal; the sensor turns off the output after a person or object leaves the sensing area。

2nd.Product Features

1. Strong anti-interference ability.
2. Intelligent induction non-contact switch, safe and sanitary.
3. The sensing angle is small and close to a straight line.
4. Small size, easy to install.
5. A variety of output methods, easy to use.

3rd.Product Applications

1. Intelligent induction sanitary ware.
2. Home security.
3. Intelligent detection, intelligent control.
4. Robot obstacle recognition.
5. Faucet sensor, automatic flushing of toilet and toilet, automatic hand dryer, anti-theft device, automatic doorbell, stairway sensor, TV close-up TV reminder, automatic door, advertising light box, automatic trash can.

4th.output method

Serial number	model	output method		Enter the induction zone	Leave sensor
1	XKC-001A-T-Z5	High level and low level Signal output	Forward output	Output high level 5V	Output low level 0V
2	XKC-001A-T-F5		Reverse output	Output low level 0V	Output high level 5V
3	XKC-001A-T-Z12		Forward output	Output high level 5V VCC	Output low level 0V
4	XKC-001A-T-F12		Reverse output	Output low level 0V	Output high level 5V vcc
5	XKC-001A-NO	NPN open drain Output	Normally open	Load work	Load not working
6	XKC-001A-NC		Normally closed	Load not working	Load work

Note: The output mode is that one sensor can only have one output mode.

High and low level signal output: Only one high and low level signal is provided, which is suitable for small current control high current, control external circuit, MCU signal identification judgment, etc.

Switch output: The signal sent by the switch sensor is a contact signal, which has two states of open and closed. For example, an infrared sensor switch is a common switch sensor. When an object enters the sensing area set by the sensor, the infrared sensor switch is opened (or closed); when the object leaves the sensor set sensing area, the switch is closed (or opened).

NPN output: NPN output is one of the three-wire switch output. When the sensor output is isconnected, it is in a no-voltage floating state and can be connected to the VCC input voltage through a pull-up resistor. When the sensor output is closed, the voltage is 0V, which means it is turned on to 0V (negative power supply). NPN output can directly control the current within 300mA

5th.Technical Parameters

Project name	Parameters
Operating Voltage	DC 5V ～ 12V
Sensing distance	0cm ～ 100cm, adjustable distance (sensing distance and obstacle color have a certain error, light color is far, dark color is close)
Sensing distance adjustment method	Automatically calibrate the sensing distance by pressing the button
Sensing angle	10 ～ 15 ℃cone angle
Induction method	Proactive approach
Quiescent Current	<3.5 mA
No-load working current	5 ～ 50mA(The greater the sensing distance, the greater the working current)
High level output current	≤1.2mA sourcecurrent①
Low-level output current	≤300mA sinkcurrent ①
NPN disconnect output current	0mA
NPN closed output current	≤300mA sinkcurrent ①
output method	High and low level signal output / switch value NPN output
Indicator light	Red light is on
working environment	Illumination: sunlight 10000Lx, incandescent lamp 3000Lx (Can work normally under direct sunlight 1 meter away from 1000W energy saving lamp)
Load current	<100mA
Working temperature	-20 ～ 85℃
storage temperature	-20 ～ 85℃
Line length	20cm （±10MM） (Bulk can be customized)
Material	PC-V0 fireproof material
Waterproof performance	IP55
Safety standard certification	CE
Environmental certification	ROHS-2.0

Note: ①Since the output of the digital circuit has only two levels of high and low (0, 1), when the output is high, the output terminal generally provides current to the load, and the value of the current provided is called "source current"; In normal output, the output terminal is generally to absorb the current of the load, and the value of the absorbed current is called "sink (in) current".
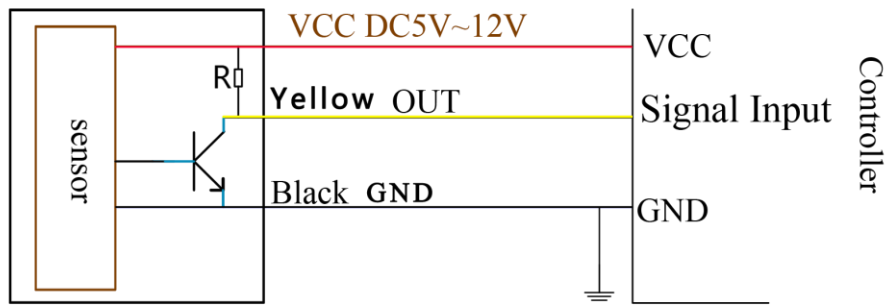
6th. wiring diagram of various models

Wiring description: The brown wire is connected to the positive pole, the blue wire is connected to the negative pole, and the black wire is signal output.
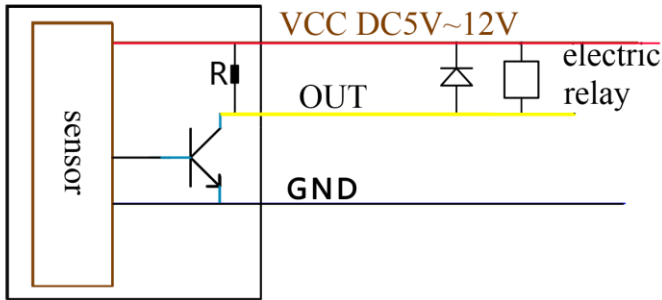
### XKC- 001A-T -NPN (switch quantity type) principle and wiring method
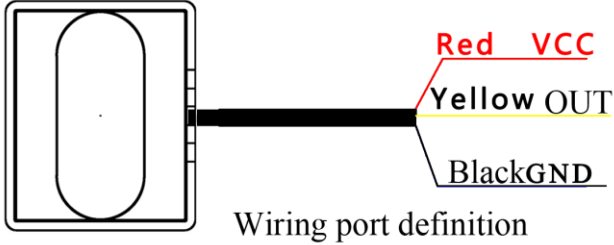
Red VCC
Yellow OUT
Black GND

Wiring port definition

1. Power supply positive Red
2. Signal output line Yellow
3. Power negative pole black

Terminal wiring sequence

VCC DC5V~12V

sensor

R

Yellow OUT

Black GND

VCC

Signal Input

GND

Controller

NPN signal output: wiring method to connect to controller or MCU
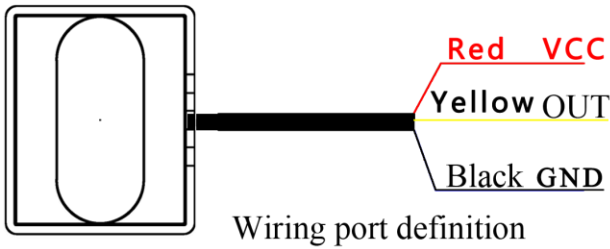
VCC DC5V~12V

sensor

R

OUT

GND

electric relay

NPN signal output:
Wiring method of connecting electric relay

VCC DC5V~12V

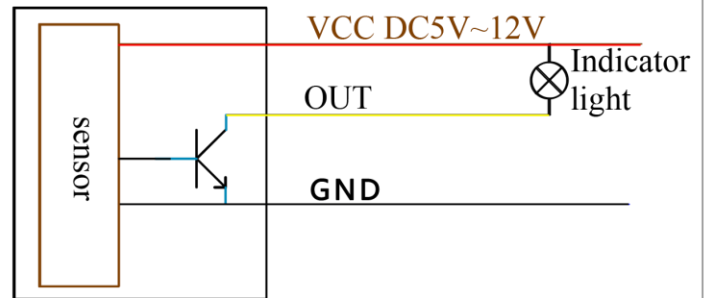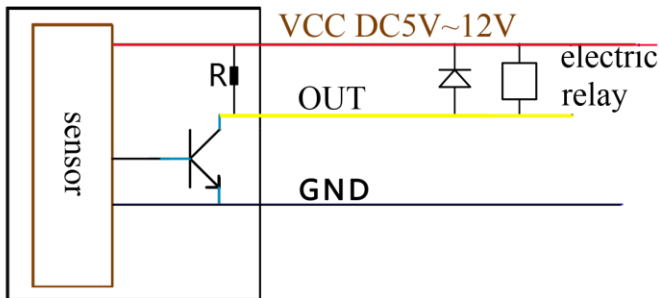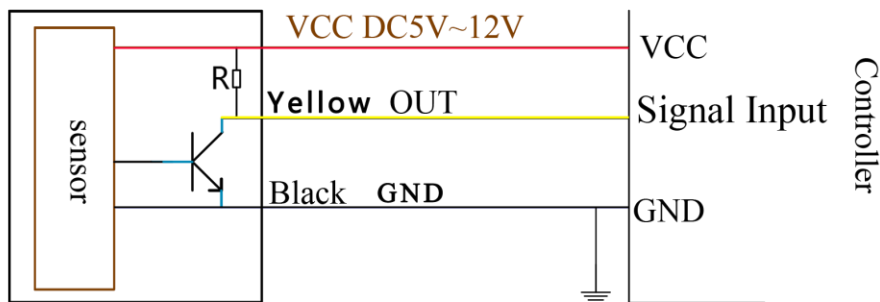sensor

OUT

GND
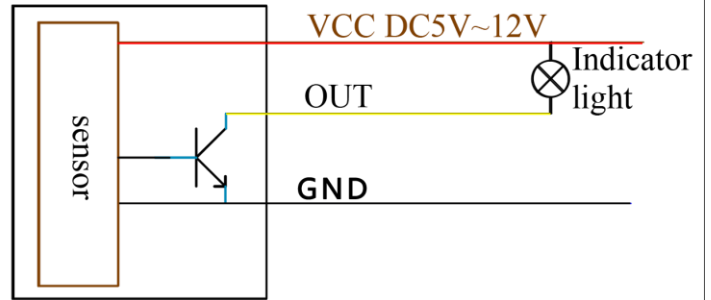
Indicator light

NPN signal output:
Wiring method of connecting indicator light

XKC-001A-T-High and low level signal output principle and wiring method

Red VCC
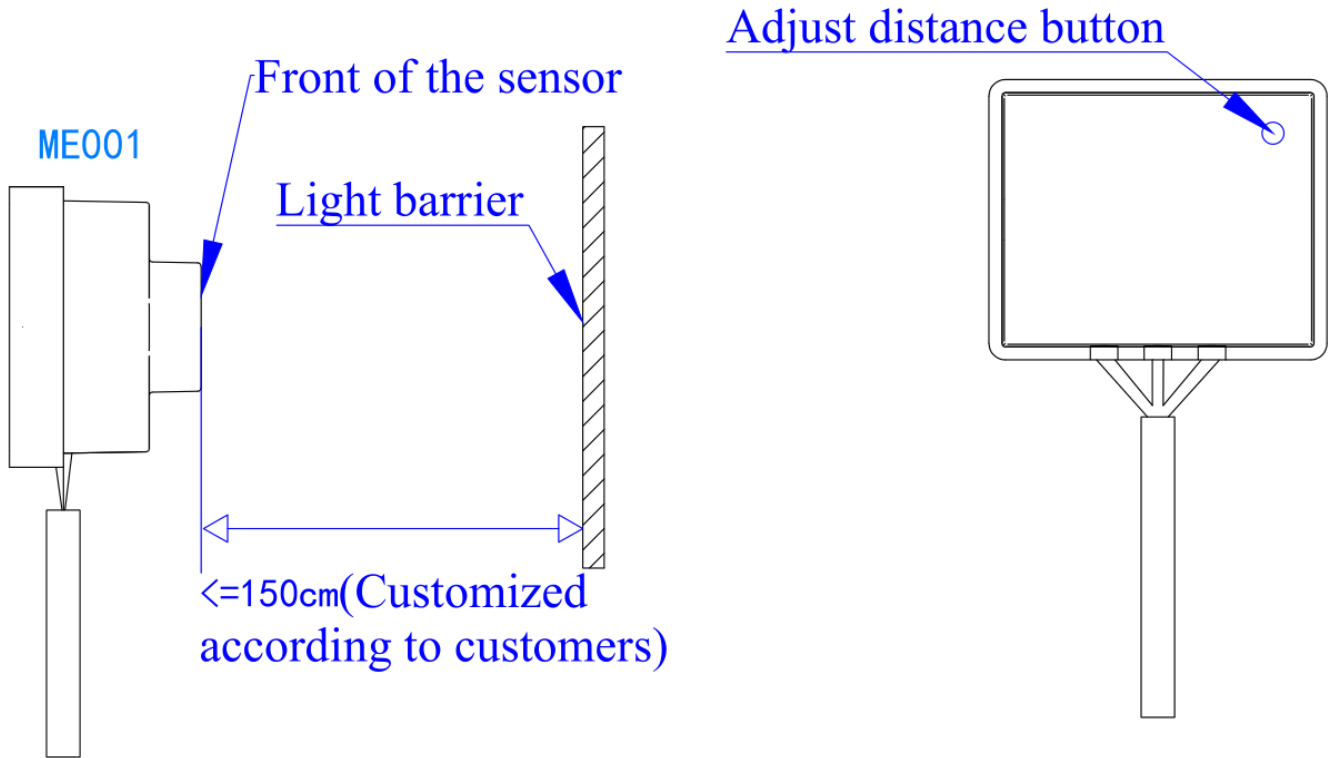Yellow OUT
Black GND

Wiring port definition

1. Power supply positive Red
2. Signal output line Yellow
3. Power negative pole black

Terminal wiring sequence

VCC DC5V~12V
sensor
R
Yellow OUT
Black GND

Controller
VCC
Signal Input
GND

High and low level signal output: wiring method to connect to controller or MCU

VCC DC5V~12V
sensor
R
OUT
GND
electric relay

High and low level signal output:
Wiring method of connecting electric relay

VCC DC5V~12V
sensor
R
OUT
GND
Indicator light

High and low level signal output:
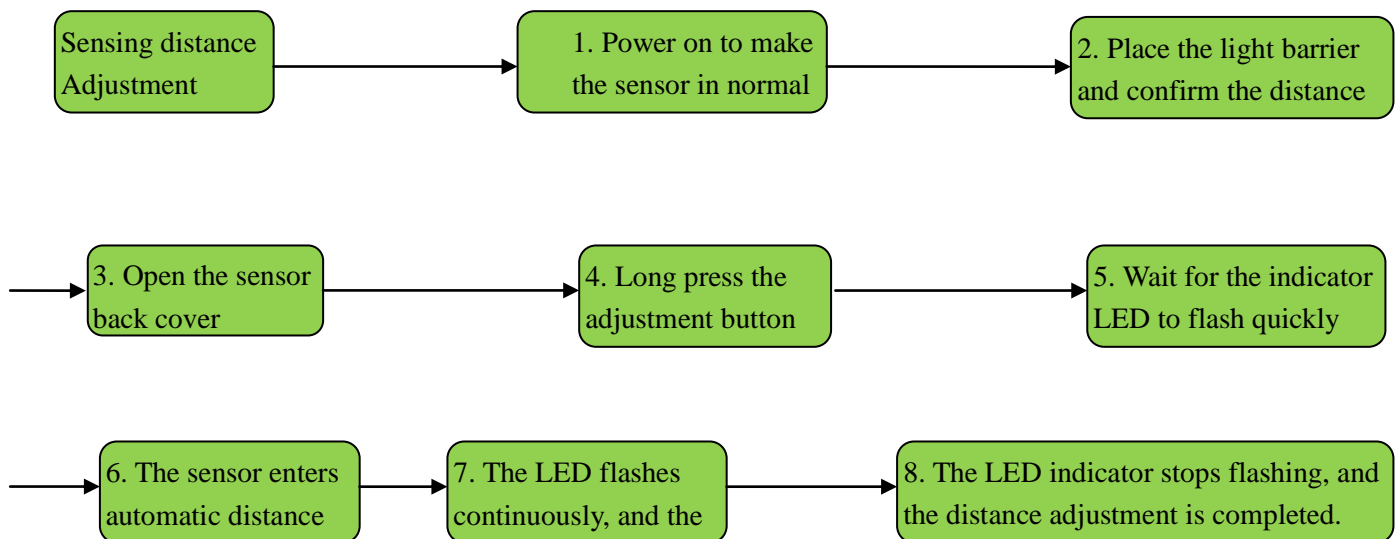Wiring method for connecting indicator light
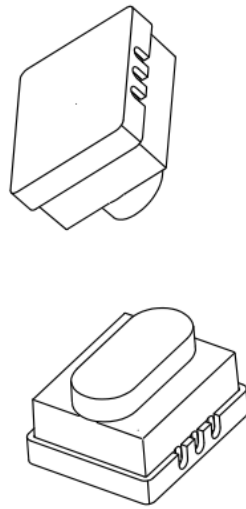
7th. Sensing distance adjustment

1. Place a piece of kraft paper about 80cm * 80cm 70cm in front of the sensor (set according to user needs within the range of 10~150cm).
2. The sensor is powered on.
3. Open the back cover of the sensor and firmly press the small dot button in the upper right corner.
4. After the indicator light is on for about 1 to 2 seconds, release the button to enter the automatic sensing distance mode. Keep the sensor and the cardboard still, and there can be no obstructions between them. Waiting for about 10 seconds, the indicator will stop flashing and automatically save data; automatically return to normal working mode. The pitch adjustment is complete.

ME001

Front of the sensor

Light barrier

Adjust distance button

<=150cm(Customized according to customers)

Sensing distance adjustment process

| Sensing distance Adjustment | → | 1. Power on to make the sensor in normal | → | 2. Place the light barrier and confirm the distance |

| 3. Open the sensor back cover | → | 4. Long press the adjustment button | → | 5. Wait for the indicator LED to flash quickly |

| 6. The sensor enters automatic distance | → | 7. The LED flashes continuously, and the | → | 8. The LED indicator stops flashing, and the distance adjustment is completed. |

8th. Product size and physical map
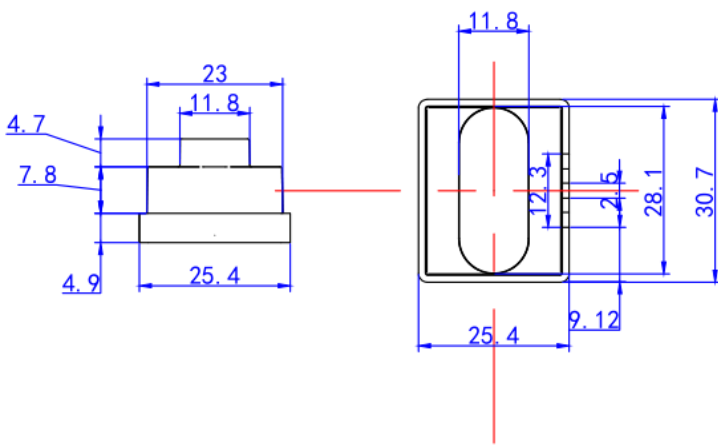
9th.Sensing range and angular displacement
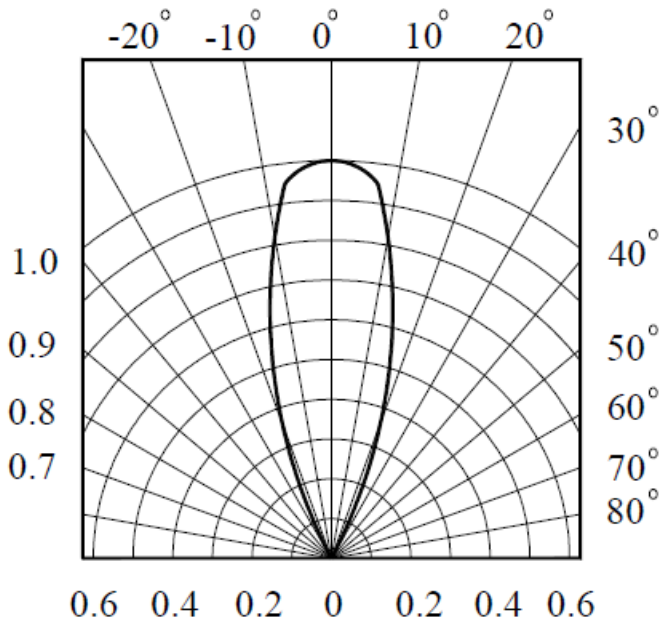
10th.Precautions for use

1. The infrared receiving device is interfered by strong light (normal indoor light will not be affected, when the light is too strong, the sensitivity will be reduced and the distance will become closer). When installing, try to avoid direct light on the probe to make the sensing distance closer and affect the function.

2. The infrared sensor is based on the principle of diffuse reflection of light, which is easily affected by the color of the reflected object (sensed object). White is the farthest, black is the closest, and the black and white color sensing difference is large; when using the sensor, try not to place white in front of the sensor. Objects to avoid misoperation.

3.When installing, avoid working in an environment with high dust concentration (because high concentration dust is equivalent to sensing objects, which will cause the sensor to malfunction) to avoid misoperation.

11th.Product warranty terms and instructions

(A) .Warranty service

1. Warranty period maintenance: from the date of purchase, the product host has a one-year free warranty. The company has the right to decide to repair or replace the faulty part. If it is replaced, the replacement part may be a new device or a repair product of the same category, function, and quality. The replaced faulty part belongs to the company; the product Resale and repair do not affect the warranty period. Products that have been repaired or replaced continue to enjoy the original remaining warranty period service. If the warranty period is less than three months after the repair, the repaired or replaced part shall be shipped from the date of delivery Warranty for three months; all products of the company are guaranteed for repair.

2. Loss upon arrival (DOA) replacement: From the day of purchase, you can enjoy a free replacement service within 7 days. Products with the following problems are defined as DOA equipment: the packing and packing list do not match after the first unpacking of the product; some or all of the components cannot be used normally after the first unpacking of the product (surface scratches or other things that do not affect the function of the device) Defects are not included); other hardware failures identified by our company's engineers remotely or locally.

(B). Applicable limitations of warranty

For the following situations, the company does not assume warranty responsibility:

1. The product is out of warranty; the surface of the product is fragile and damaged; the appearance of the product is seriously damaged, installation/use in abnormal environment, unauthorized disassembly and repair/modification, external power supply damage and other abnormal damage;

2. Damage caused by incorrect installation and use of the product by the user not following the requirements of the manual;

3. Damage caused by natural disasters and human negligence (fire, lightning, flooding, impact, etc.).

(C) .Accessories and consumables are not covered by the warranty.

(D) .Non-free warranty service

Within two years of product purchase, for non-warranty product (including components) failures and damages, you can choose paid maintenance services (free labor costs), and we will charge the transportation cost of repairing parts and accessories according to the actual situation.

(E). Ways to obtain warranty service

It is recommended that you contact the dealer who purchased this product to obtain the warranty service. For the warranty, please present a valid warranty card (the dealer's stamp is required to take effect) or the purchase invoice/receipt: if you can't show it, the product's free warranty period 12 months from the product shipment date, and the latest DOA application deadline is 7 days from the product shipment date.

(F). Statement

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5. Not all models are available in all countries/regions

Please keep this manual properly. Before using the product, please read this manual carefully. When using the product, please be sure to operate in accordance with this manual. The company is not responsible for injuries and accidents caused by operations that do not follow this manual.

(G).Environmental protection This product meets the design requirements for environmental protection.The storage, use and disposal should comply with relevant national laws and regulations.Seek to proceed.

12th. Manual version

Version	Release date
V16	September 28, 2020