Intelligent infrared reflective obstacle detection sensor

Introduction

Intelligent infrared reflective obstacle detection sensor is controlled by MCU. It can be programmed online to meet the application requirements and use scenarios for different customers. This product integrates infrared receiver, transmitter, MCU, signal processing unit and output control unit. It has strong anti-photoelectric interference ability, stable and reliable performance and small size.
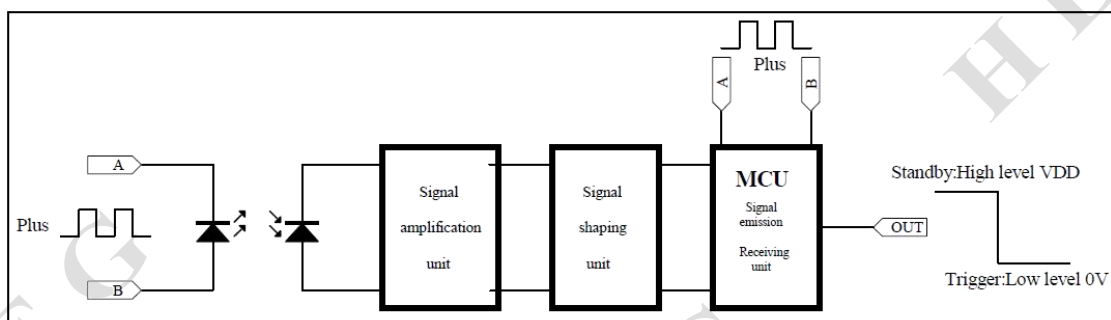
This product is suitable for consumer products such as switch control of various household appliances, backlight control of display screen, Intelligent lock,intelligent bathroom, toys, obstacle avoidance of robots, counting of people/vehicles, counting of assembly line products, monitoring of object proximity, and other induction control scenarios.

The induction distance and overall dimensions of this product can be customized according to customer requirements.
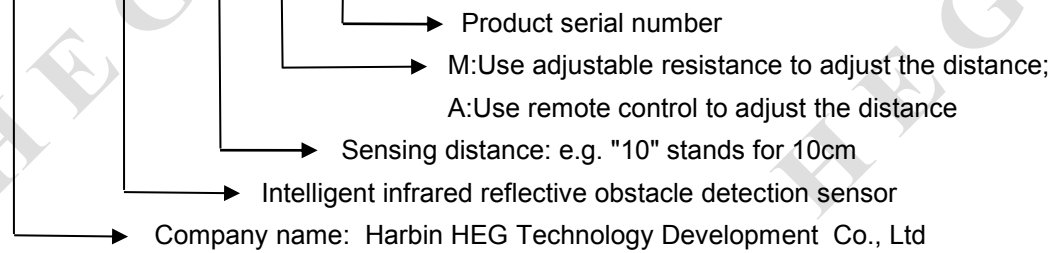
Working Principle

The infrared transmitter emits coded infrared signals. When the detection direction encounters an obstacle (reflecting surface), the reflected infrared light is received by the receiving module, processed by the signal processing unit, and then enters the MCU for calculation and processing. When it is determined that there is an obstacle in front, the output signal line changes from the original high-level signal to the low-level signal, which is connected with the MCU IO port or other control interfaces of the customer product. By detecting the level signal of the signal line, peripheral control or other applications can be realized.

Functional Block Diagram

Model Naming Rules

HEG-IROS-XX-X-XX

→ Product serial number

→ M:Use adjustable resistance to adjust the distance;

A:Use remote control to adjust the distance

→ Sensing distance: e.g. "10" stands for 10cm

→ Intelligent infrared reflective obstacle detection sensor

→ Company name: Harbin HEG Technology Development Co., Ltd

Product Features

1、Volume：24.4mm×16mm×10.1mm;

2、Low power consumption: standby current is less than 2mA, and average working current is less than 4mA;

3、Sensing distance: 3-30cm, see test method for details;

4、Light immunity: strong immunity to ambient light.

Product Appearance Picture

HEG-IROS-XX-X-02

Main Technical Parameters of Products

Main Parameter	Numerical Value	Unit	Remarks
Operating Voltage (DC)	3.0-5.5	V	Recommend: VDD=3.3V-5.0V
Standby Current	≤2.0	mA	Test condition: VDD=5.0V
Average Working Current	≤4.0	mA	Test condition: VDD=5.0V
Infrared Wavelength	940	nm	IF=20mA
Signal Output Mode	GPIO	/	During standby: the pin signal is high level VDD; When triggered: the pin signal is changed from high level VDD Change to low level signal 0V

Output Drive Current	≤10.0	mA	Test condition: VDD=5.0V
Outline Dimension	L*W*H 24.4*16*10.1	mm	/
Port	3P*1.0	mm	3P Horizontal SMT socket
Inductive Distance	d=3-30	cm	Test conditions: VDD=5V ; Panel transmittance ≥ 80%; See test method for details; When transparent glass or infrared panel is set in front of the sensor, the distance between the sample and the panel is ≤ 1 mm
Sensing Angle	<30	degree	/

Test Method

IRED   IR Receiver
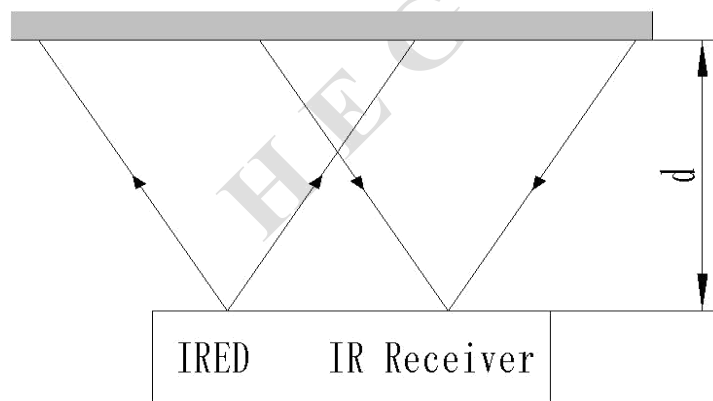
HEG-IROS-XX-X-02

Instructions for Product Use

The interface socket of this module contains three pins: "-","+"and "O".

"-": Negative pole of DC power supply;

"+": The DC power supply is connected to the positive pole, with 3.0-5.5V;

"O": The trigger signal output end, when the product detects the obstruction, the pin signal changes from high level to low level, and whether there is obstruction can be judged by detecting the level signal transformation;

Note: Do not connect the positive pole and negative pole upside down to avoid burning the module.

Overall Dimension Drawing (unit: mm)

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