Intelligent ambient light detection, infrared proximity sensing and remote control sensor (three in one)
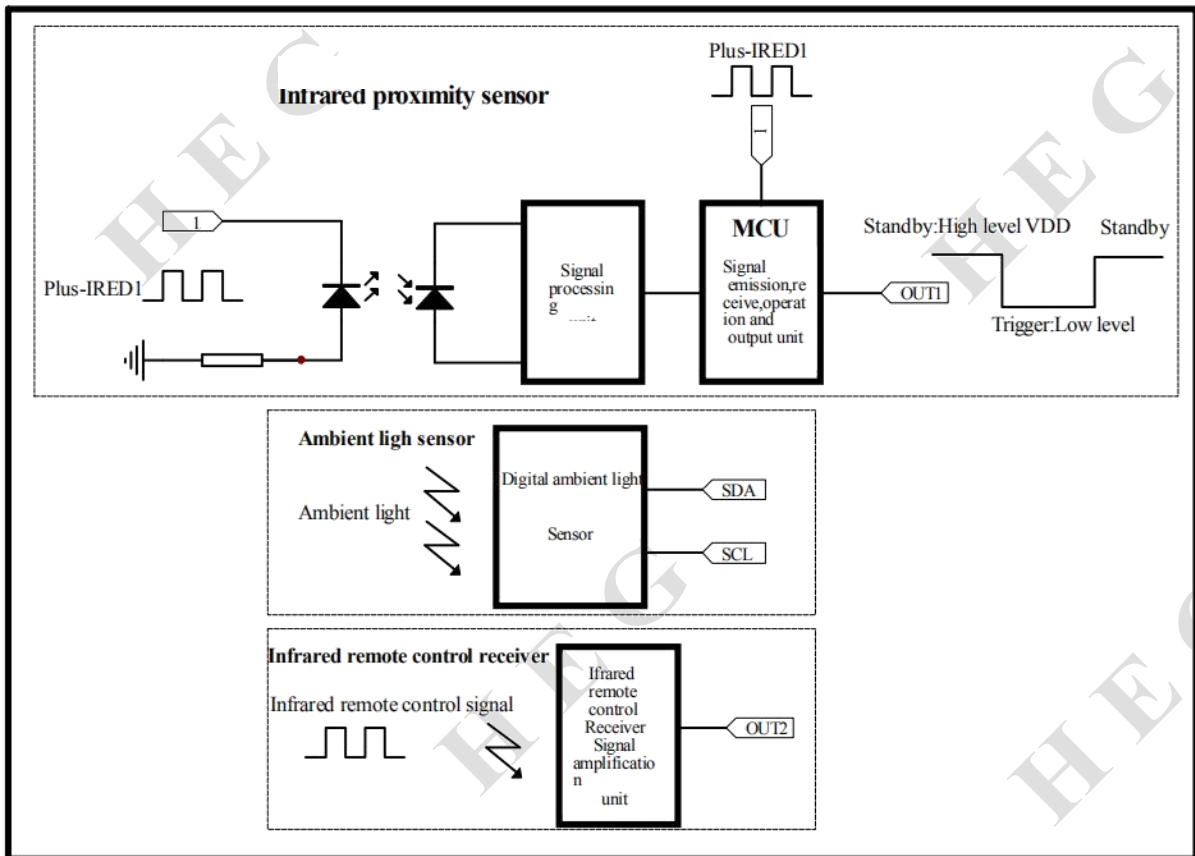
Brief Introduction

This product integrates digital ambient light detection sensor, infrared proximity sensor and infrared remote control receiving sensor. It is controlled by microprocessor (MCU) and can be programmed online to meet the application requirements and use scenarios of different customers. This product has strong photoelectric interference resistance, safe and reliable performance, small size, and module size can be customized according to customer requirements. It is suitable for consumer products such as switch control of various household appliances, backlight brightness and switch control of display screen, infrared remote control, object proximity monitoring, intelligent lock and other induction control scenes. The proximity sensing distance of this product can be customized according to customer requirements.
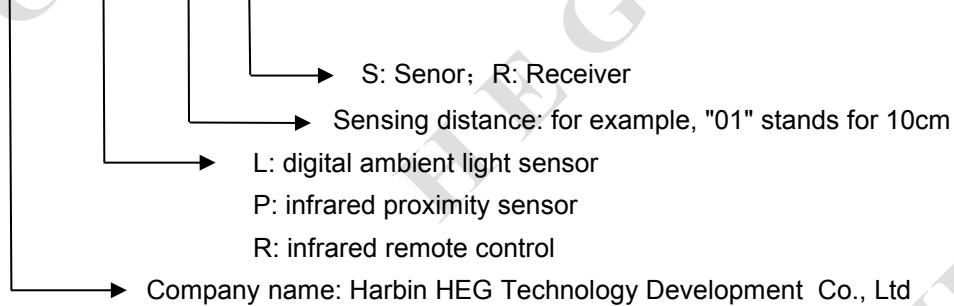
Working Principle：

A digital ambient light detection sensor can detect the intensity of current ambient light, convert analog optical signals into digital electrical signals, and send data to users through I2C bus interface; Infrared proximity sensor, the infrared transmitting tube 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 sent to the user through the signal line; The infrared remote control receiving sensor can receive infrared remote control signals, convert them into digital electrical signals, and send them to users through signal lines. Output signals of the above sensors are connected with MCU IO ports or other control interfaces of customer products through signal line interfaces, and peripheral control or other applications can be realized by detecting signal lines.
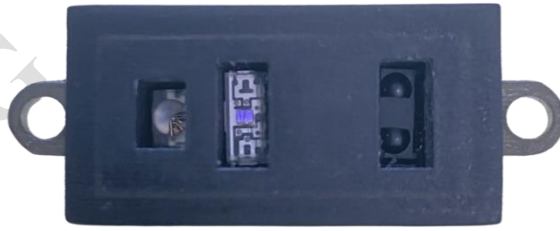
Functional Block Diagram

Model naming rules

HEG-LPR-XX-X

→ S: Senor；R: Receiver

→ Sensing distance: for example, "01" stands for 10cm

→ L: digital ambient light sensor

P: infrared proximity sensor

R: infrared remote control

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

Product Features

1、Small size: 39.9mm×15mm×9.7mm

2、Low power consumption: average working current≤10mA

3、Sensing distance: 5-200cm, please refer to VI for test method

4、Light immunity: strong immunity to ambient light

Product appearance Drawing

HEG-LPR-XX-R

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
Average working current	≤10.0	mA	Test conditions:VDD=3.3V
Signal output mode	Digital ambient light detection sensor: digital signal Infrared proximity sensor: level signal Infrared remote control receiving sensor: digital signal	/	Infrared proximity sensor: During standby: the pin signal is high level VDD When triggered, the pin signal changes from high level VDD to low level signal 0V
Output drive current	≤10.0	mA	Test conditions:VDD=3.3V
Outline dimension	L*W*H 39.9*15*9.7	mm	/
Port	6P*1	mm	6P Horizontal patch socket
Inductive distance	d=5-200	cm	Test conditions:VDD=3.3V See 6 for test methods; When transparent glass or infrared transparent panel is set in front of the sensor, the distance between the sample and the panel≤1mm； Test conditions:VDD=3.3V
Sensing angle	30	degree	/

Test method

Test reflector

Provided by the customer
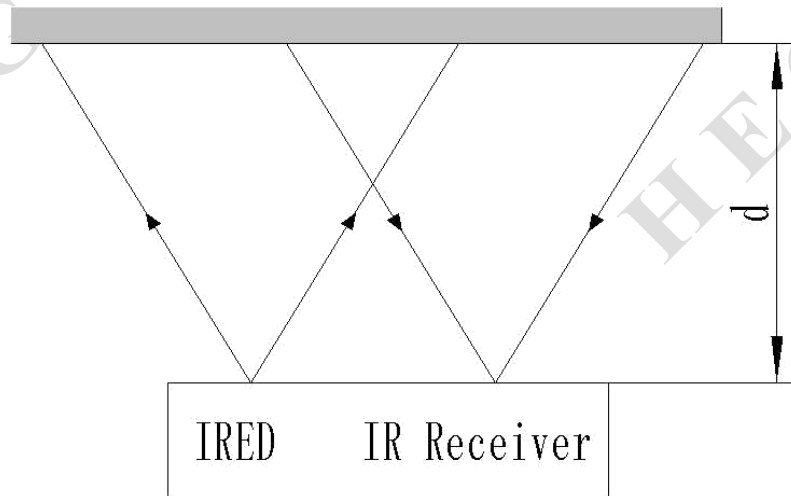
HEG-LPR-XX-R

Instructions for product use

The interface socket of this module contains six pins: "G", "S", "R", "C", "D" and "V".

G: negative GND；of DC power supply;

S: trigger signal output line of infrared proximity sensor. When the product detects the obstruction, the pin signal changes from high level to low level, and whether there is obstruction is judged by detecting the level signal transformation;

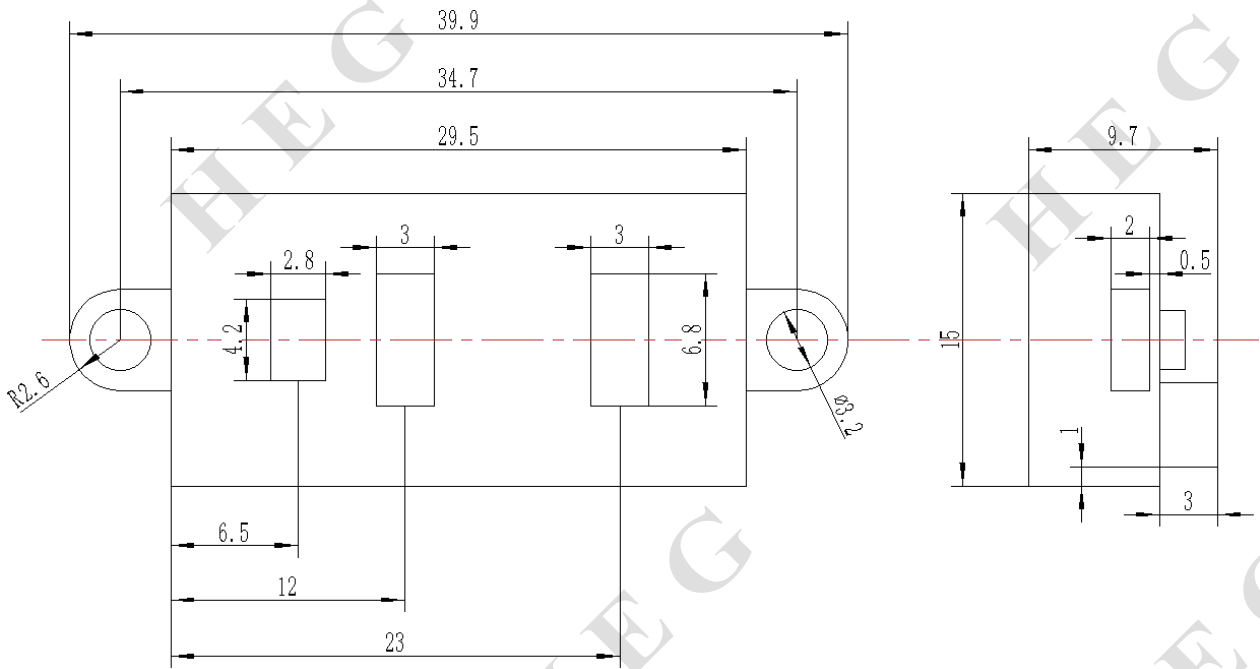R: output signal line of infrared remote control receiving sensor;

C: digital ambient light sensor I2C bus clock line SCL；

D: digital ambient light sensor I2C bus data line SDA；；

V: the DC power supply is connected to the anode VDD, 3.0-5.5V；

Note: Do not connect the anode and cathode upside down to avoid burning the module.

Overall dimension drawing (unit: mm)

HEG-LPR-XX-R