一、产品概述

GH718 系列是多款专为低功耗物联网设备设计的人体热释电红外（PIR）感应模块。采用高灵敏度红外传感器搭配菲涅尔透镜，可在 3V-20V 宽电压范围内稳定工作，静态功耗低至 30μA（10μA），支持 3-7 米距离切换及触发模式配置，是电池供电智能家居产品的理想选择。

GH718A	GH718C	GH7183	GH7184	GH-186

二、核心特性

参数项	规格值	说明
工作电压	DC 3.7V - 20V	兼容锂电池、USB 5V、12V 电源
静态电流	≤30μA	1000mAh 电池续航可达 3 年
感应距离	7 米-3 米（可调）	通过跳线/焊盘切换
感应角度	110°锥形	安装高度 2.4 米时覆盖半径约 5 米
输出信号	3V TTL 电平	高电平 3V/低电平 0V，可直接驱动 MCU

三、接口定义

+VCC	OUT	GND
红线	黄线	黑线

引脚	名称	功能说明
VCC	电源正	DC 3.3V - 20V 输入
OUT	信号输出	有人体移动时输出 3V 高电平
GND	电源负	接地

四、工作模式配置

模式一：不可重复触发（默认模式）

- **行为**：感应到人体后输出高电平，延时结束后自动关闭。在延时期间再次感应**不会**重新计时。
- **适用场景**：安防报警、门禁系统、防抖动触发

模式二：可重复触发

- **行为**：感应到人体后输出高电平，若持续检测到活动则**一直保持高电平**，直到人离开后再延时关闭。
- **适用场景**：智能照明（人来灯亮，人走灯灭）、风扇控制

配置方法：通过模块背面跳线或焊盘短接切换（详见丝印标识）。

五、物联网设备集成指南

5.1 硬件接口：

- GH718 模块 → IoT 主控（如 ESP32/8266）：
- VCC → 3.3V/5V/12V 电源
- GND → 系统地
- OUT → GPIO 输入（建议内部下拉）

5.2 软件逻辑示例（Arduino）：

GH-718_1.0

```
#define GH718_PIN 5 //定义GH718数字引脚

#define LED1 15 //定义LED1数字引脚

void setup() {
  Serial.begin(9600); //初始化串口通讯
  pinMode(GH718_PIN, INPUT); //设置GH718为输入模式

  pinMode(LED1, OUTPUT); //设置LED1为输出模式

  digitalWrite(LED1, LOW); //控制LED1输出低电平 0
}
void loop() {
  if (digitalRead(GH718_PIN) == HIGH) {
    Serial.println("GH718 Sensor OUTPUT: ON"); //检测到人体，输出提示信息

     digitalWrite(LED1, HIGH);//控制LED1输出高电平 1
  }
  else {
    Serial.println("GH718 Sensor OUTPUT: OFF");//未检测到人体，输出提示信息

     digitalWrite(LED1, LOW);//控制LED1输出低电平 0

     // 夜间触发
    // 执行联动：开灯/上报云端/录像
   // 执行联动：上报MQTT、开灯、推通知等

  }
  delay(1000);//延时1000ms，循环检测
}
```

5.3 功耗优化建议：

- **供电**：优先使用 3.7V 锂电池，效率最高
- **休眠**：MCU 可深度睡眠，通过 OUT 引脚电平变化唤醒
- **占空比**：无需持续扫描，中断触发即可

5.4 距离切换方法

- **7 米模式**：用于走廊、客厅等大空间（默认）
- **3 米模式**：用于床头柜、衣柜、卫生间等小空间
- **切换**：断开电源后，短接背面"DIST"焊盘，重新上电生效

六、安装与调试

6.1 最佳安装位置：

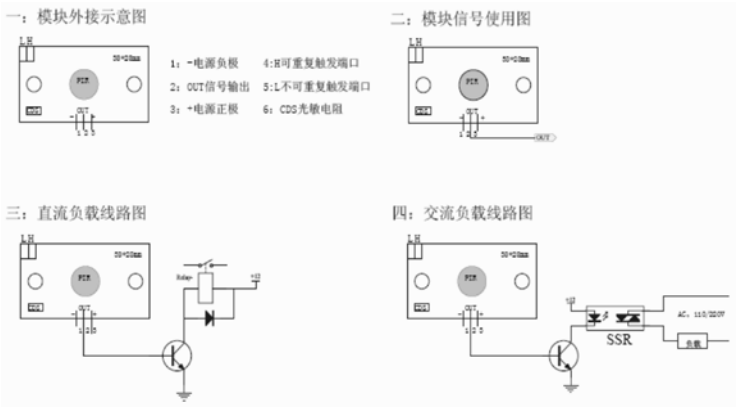
- **高度**：2.0 - 2.5 米
- **角度**：透镜向下倾斜 15-30°
- **避开**：空调出风口、阳光直射窗、宠物活动区

6.2 灵敏度测试：

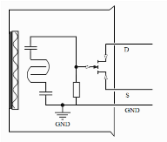
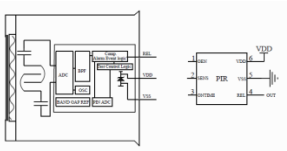
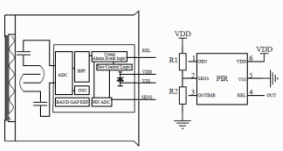
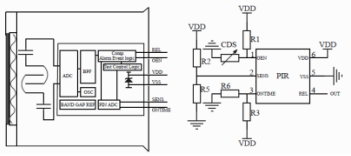
- 上电后等待 30 秒预热
- 在感应区内缓慢走动，观察 OUT 引脚电压变化
- 如误触发频繁，检查是否有热源干扰或降低安装高度

七、典型应用场景电路

7.1 使用电路图：



7.1 传感器内部等效及典型应用电路：

GH718A/C	GH7183	GH7184	GH7186
			

7.2 电池供电智能灯：

- 电池(3.7V) → VCC
- OUT → MOSFET 栅极 → LED 灯带负极
- GND → 电池负极

特点：无需 MCU，纯硬件实现感应开关

7.3 物联网上报方案：

- OUT → ESP32 GPIO
- VCC → 5V/3.3V
- GND → GND
- ESP32 → 通过 Wi-Fi 上报 MQTT → 云端/手机 App

特点：全链路低功耗，支持远程监控

八、注意事项

安装禁忌

- 严禁将模块正对阳光直射的玻璃窗
- 远离冷热源（空调、电暖器、加湿器）
- 避免安装在振动强烈的表面

□□ 电气安全

- 电源电压严禁超过 20V
- OUT 引脚驱动能力≤5mA，需驱动大负载时请外接 MOS 管
- 首次通电需 30 秒初始化时间

□□ 环境限制

- 检测的是移动的人体，静止或缓慢移动可能无法触发
- 夏季高温环境感应距离会略微缩短
- 宠物可能触发感应，建议安装在宠物无法到达的高度

九、订购与定制

型号	尺寸/封装	重量	包装	推荐场景
GH718A	45×37×13mm	6g	静电袋+纸盒	工业、安防
GH718C	35×30×14mm	5g	静电袋+纸盒	消费类 IoT 设备
GH7183	TO-5 金属外壳	1.2g	静电袋+纸盒	安防、IoT 设备
GH7184	TO-5 金属外壳	1.2g	静电袋+纸盒	工业、IoT 设备
GH7186	TO-5 金属外壳	1.3g	静电袋+纸盒	消费类 IoT 设备

供货周期：现货库存，批量 5000PCS 交期 2 周

标准型号：GH718（默认 7 米距离、不可重复触发）

定制选项：

- 延时时间：3 秒 - 10 分钟可定制
- 感应距离：最远可定制 12 米
- 输出方式：PWM 调光、继电器驱动等

开发支持：提供 ESP32/Arduino/STM32 示例代码、3D 外壳模型、MQTT 协议参考

售后服务：一年质保，免费技术支持

制造商信息：

杰华智感（深圳）科技有限公司

地址：深圳市龙华区观澜街道观光路 1301 号

电话：+86-755-28168358

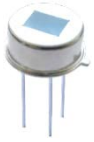
传真：+86-755-28168293

网址：http://www.szgeha.com

邮箱：support@szgeha.com

1、 Product Overview

The GH718 series is a series of human body pyroelectric infrared (PIR) sensing modules designed specifically for low-power IoT devices. By using a high-sensitivity infrared sensor paired with a Fresnel lens, it can operate stably within a wide voltage range of 3V-20V, with static power consumption as low as 30 μ A (10 μ A). It supports 3-7 meter distance switching and trigger mode configuration, making it an ideal choice for battery powered smart home products.

GH718A	GH718C	GH7183	GH7184	GH-7186
				

2、 Core Features

parameter item	specification value	Instructions
working Voltage	DC 3.7V - 20V	Compatible with lithium battery, USB 5V, 12V power supply
quiescent current	≤30μA	1000mAh battery can last up to 3 years
sensing distance	7m-3m（adjustable）	switch via jumper/pad
induction angle	110 ° conical shape	When installed at a height of 2.4m, it covers a radius of approximately 5m
output signal	3V TTL level	High level 3V/low level 0V, can directly drive MCU

3、 Interface definition

+VCC	OUT	GND

Red line, yellow line, black line

pin	name	Functional Description
VCC	power +	DC 3.3V -20V input
OUT	OUT signal output	Output 3V
GND	power -	grounding

4、 Working mode configuration

●Mode 1: Cannot be triggered repeatedly (default mode)

● Behavior: After sensing the human body, output a high level, and automatically turn off after the delay ends. Sensing again during the delay period will not reset the timer.

● Applicable scenarios: security alarm, access control system, anti shake trigger

Mode 2: Repeatable Trigger

● **Behavior:** After sensing the human body, output a high level. If activity is continuously detected, maintain the high level until the person leaves before delaying the shutdown.

● **Applicable scenarios:** intelligent lighting (lights on when people come, lights off when people leave), fan control

Configuration method: Switch by short circuiting the jumper or solder pad on the back of the module (see silk screen label for details).

5、 IoT Device Integration Guide

5.1 Hardware interface:

●GH718 module → IoT controller (such as ESP32/8266):

●VCC → 3.3V/5V/12V power supply

●GND → System Ground

●OUT → GPIO input (internal pull-down recommended)

5.2 Software Logic Example (Arduino):

GH-718_1.0

```
#define GH718_PIN 5 //定义GH718数字引脚

#define LED1 15 //定义LED1数字引脚

void setup() {
  Serial.begin(9600); //初始化串口通讯
  pinMode(GH718_PIN, INPUT); //设置GH718为输入模式

  pinMode(LED1, OUTPUT); //设置LED1为输出模式

  digitalWrite(LED1, LOW); //控制LED1输出低电平 0
}
void loop() {
  if (digitalRead(GH718_PIN) == HIGH) {
    Serial.println("GH718 Sensor OUTPUT: ON"); //检测到人体，输出提示信息

     digitalWrite(LED1, HIGH);//控制LED1输出高电平 1
  }
  else {
    Serial.println("GH718 Sensor OUTPUT: OFF");//未检测到人体，输出提示信息

     digitalWrite(LED1, LOW);//控制LED1输出低电平 0

     // 夜间触发
    // 执行联动：开灯/上报云端/录像
   // 执行联动：上报MQTT、开灯、推通知等

  }
  delay(1000);//延时1000ms，循环检测
}
```

5.3 Power consumption optimization suggestions:

- Power supply: Prioritize the use of 3.7V lithium batteries for the highest efficiency
- Sleep: MCU can deeply sleep and wake up through changes in OUT pin level
- Duty cycle: No need for continuous scanning, interrupt triggering is sufficient

5.4 Distance switching method

- 7m mode: used for large spaces such as corridors and living rooms (default)
- 3m mode: used for small spaces such as bedside tables, wardrobes, bathrooms, etc
- Switching: After disconnecting the power, short-circuit the "DIST" pad on the back and turn it back on to take effect

6、 Installation and Debugging

6.1 Best installation location:

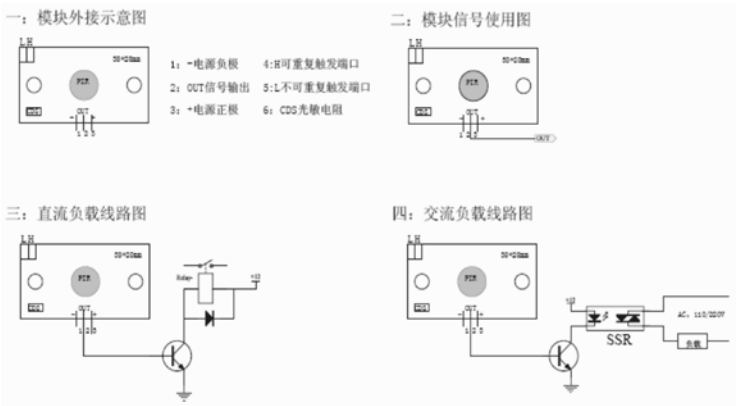
- **Height:** 2.0-2.5 meters
- **Angle:** The lens tilts downwards by 15-30 °
- **Avoid:** air conditioning vents, direct sunlight windows, pet activity areas

6.2 Sensitivity Test:

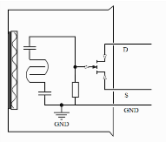
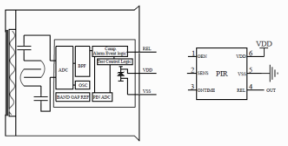
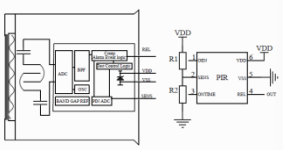
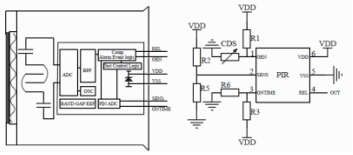
- After powering on, wait for 30s for preheating
- Walk slowly within the sensing area and observe the voltage changes at the OUT pin
- If frequent false triggering occurs, check for heat source interference or reduce installation height

7、 Typical application scenario circuit

7.1 Using circuit diagrams:



7.1 Internal Equivalent and Typical Application Circuits of Sensors:

GH718A/C	GH7183	GH7184	GH7186
			

7.2 Battery powered smart lights:

- Battery (3.6V) → VCC
- OUT → MOSFET gate → LED strip negative pole
- GND → Battery negative pole

Features: No MCU required, pure hardware implementation of induction switch

7.3 IoT Reporting Plan:

- OUT → ESP32 GPIO
- VCC → 5V/3.3V
- GND → GND
- ESP32 → Report MQTT via Wi Fi → Cloud/Mobile App

Features: Low power consumption throughout the entire chain, supporting remote monitoring

8、 Precautions

Nstallation taboos

- It is strictly prohibited to expose the module to glass windows that are directly exposed to sunlight
- Keep away from cold and heat sources (air conditioning, electric heaters, humidifiers)
- Avoid installing on surfaces with strong vibrations

- **Electrical safety**
  - The power supply voltage must not exceed 20V
  - OUT pin driving capability ≤ 5mA, please connect an external MOS transistor when driving large loads
  - The first power on requires an initialization time of 30s
- **Environmental constraints**
  - The detection is for a moving human body, which may not be triggered by stationary or slow movement
  - The sensing distance of high temperature environment in summer will slightly shorten
  - Pets may trigger sensing, it is recommended to install it at a height that pets cannot reach

9、 Ordering and Customization

model	Size/Packaging	weight	packaging	scene
GH718A	45×37×13mm	6g	Static bag+paper box	Industrial and security
GH718C	35×30×14mm	5g	Static bag+paper box	Consumer IoT devices
GH7183	TO-5 metal casing	1.2g	Static bag+paper box	Consumer IoT devices
GH7184	TO-5 metal casing	1.2g	Static bag+paper box	Consumer IoT devices
GH7186	TO-5 metal casing	1.3g	Static bag+paper box	Consumer IoT devices

Supply cycle: In stock inventory, batch of 5000PCS with a lead time of 2 weeks

Standard model: GH718 (default distance of 7 meters, non repeatable trigger)

Customization options:

- Delay time: 3 seconds -10 minutes customizable
- Ensing distance: customizable up to 12 meters
- Output methods: PWM dimming, relay drive, etc

Development support: Provide ESP32/Arduino/STM32 sample code, 3D shell model, MQTT protocol reference

After sales service: one-year warranty, free technical support

Manufacturer information:

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Email: 446135779@qq.com