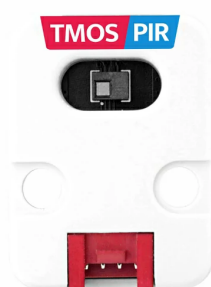


Unit TMOS PIR

SKU: U185



Description

Unit TMOS PIR is a high-sensitivity infrared sensor unit for presence and motion detection, utilizing the STHS34PF80 chip solution. It communicates with M5 devices via I2C (default address: 0x5A). The working principle is based on the blackbody radiation principle described by Planck's law, which not only monitors ambient temperature but also detects human presence and motion. The sensor can distinguish between stationary and moving objects, with an 80-degree field of view, providing a wide detection range. Additionally, it supports adjustable sampling frequency and gain modes to meet the needs of different application scenarios. It is suitable for various applications such as alarm systems, smart lighting, and occupancy detection.

Notes

1. Setting the TMOS gain mode:

Default gain mode: High sensitivity, but prone to sensor saturation. Saturation can cause delays in updating the motion/presence detection flags;

Wide mode: Shorter detection range, but avoids sensor saturation.

2. Sensitivity to temperature differences: The output signal of the TMOS sensor is highly sensitive to the temperature

difference between the sensor's ambient temperature and the room temperature being measured. This temperature difference may affect sensor measurements.

3. Power-down mode setting: When the device is in power-down mode, the register will revert to its default value each time

the device is started or restarted. The calibration temperature needs to be reset. Therefore, if the application requires a wide operating temperature range and a temperature difference between the room temperature and the sensor's thermal coupling environment, the user needs to set the wide mode upon device startup.

Features

- High-sensitivity infrared detection
- Wide field of view
- Presence and motion detection
- I2C communication (0x5A)
- Programmable output data rate

Includes

- 1 x Unit TMOS PIR
- 1 x HY2.0-4P Grove cable (20cm)

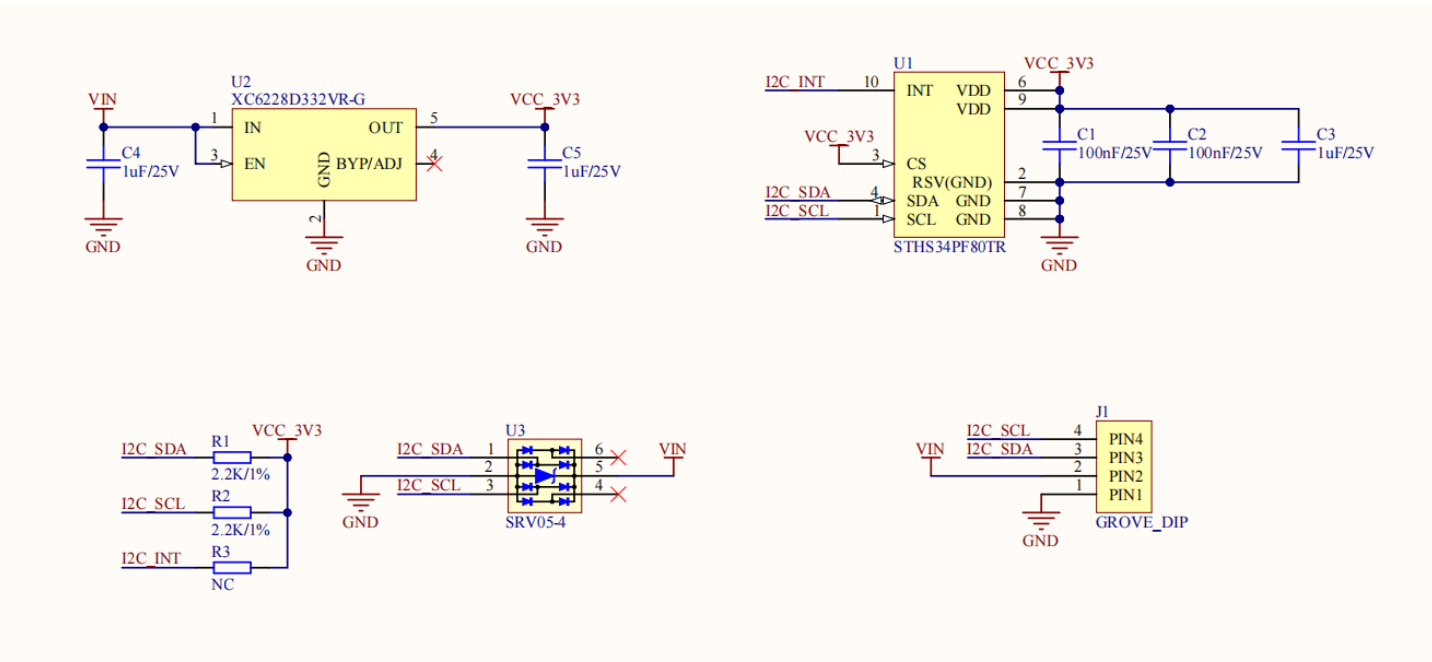
Applications

- Presence and proximity sensing
- Alarm/security systems
- Furniture automation
- Smart lighting
- IoT
- Smart lockers

Specifications

Specification	Parameter
Sensor	STHS34PF80
Communication Interface	I2C Communication @0x5A
Measurement range	Over 2 meters
Minimum detectable size	70 x 25 cm ²
Field of view	80°
Programmable output data rate	0.25 Hz to 30 Hz
Infrared wavelength	Infrared light in the 5 to 20μm range
Infrared sensitivity	2000 LSB/°C
Sensor accuracy	±0.3°C
Gain mode	Default gain mode, wide mode
Product Size	32.0 x 24.0 x 5.2mm
Product Weight	4.5g
Package Size	138.0 x 93.0 x 6.2mm
Gross Weight	10.0g

Schematics

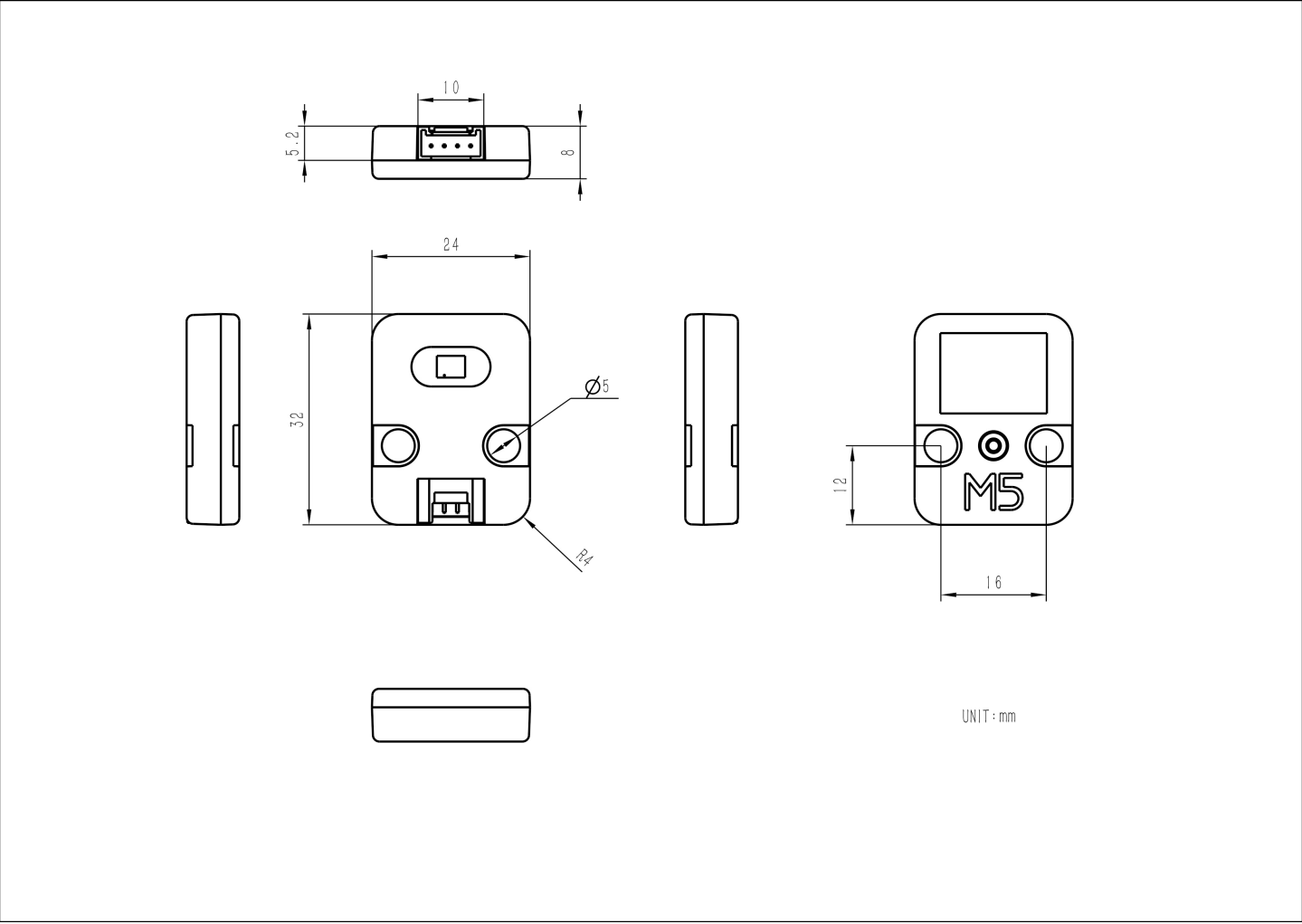


PinMap

Unit TMOS PIR

HY2.0-4P	Black	Red	Yellow	White
PORT.A	GND	5V	SDA	SCL

Model Size



Structure

- [Unit TMOS PIR Structure Files](#)

Datasheets

- [STHS34PF80_Datasheet](#)
- [STHS34PF80_Application_note](#)
- [STHS34PF80_Hardware_Application_note](#)

Softwares

Arduino

- [Unit TMOS PIR Arduino Library](#)

UiFlow2

- [Unit TMOS PIR UiFlow2 Docs](#)

Home Assistant

- [Home Assistant Integration Guide](#)

Video

[U185 TMOS PIR UNIT 视频.mp4](#)

Product Comparison

Product	Chip Solution	Measurement Range	FOV	Communication	Features
TMOS PIR Unit (U185)	STHS34PF8 0	2M	80°	I2C (0x5A)	Thermal radiation presence and motion detection
PIR Unit (U004)	AS312	5M	100°	IO	Thermal radiation motion detection
Thermal2 Unit (U149)	MLX90640	Depends on distance and material reflectivity	110° (32x24 pixels)	I2C (0x52)	Thermal imaging
NCIR2 Unit (U150)	MLX90614	Depends on distance and material reflectivity	90°	I2C (0x5A)	Single-point heat temperature detection