

Unit-Reflective IR

SKU:U175



Description

Reflective IR Unit is an infrared sensing unit that can efficiently and accurately detect the reflected infrared light from target objects. It is suitable for applications such as object detection, tracking, distance measurement, and automation systems.

It generates a corresponding voltage value based on the intensity of infrared signals reflected by obstacles. At the same time, Reflective IR Unit also integrates the design of LM393 comparator, which can convert analog signals into reliable digital signals for processing and interpretation in digital systems. This dual output of analog and digital signals provides users with diversified choices and application scenarios.

When using the Reflective IR Unit, the LED indicator can play an important role. By digitally controlling the LED indicator, it can intuitively display the sensing state of the sensor, allowing users to quickly understand the operating status of the system. Whether in the laboratory or engineering projects, this intuitive feedback mechanism can help users find problems and make adjustments in a timely manner.

Reflective IR Unit is also equipped with a 10k adjustable potentiometer. Users can optimize the sensor performance by adjusting the sensitivity and threshold to adapt to different environments and application requirements. This flexibility makes the Reflective IR Unit a multifunctional and adaptable sensing unit that can meet the needs of various scenarios.

Features

- Infrared sensing technology: The use of advanced infrared technology can efficiently and accurately detect the reflected infrared light of the target object.
- Analog signal output: Through the infrared receiving tube and 10k resistor voltage division, the corresponding voltage value is generated according to the intensity of the infrared signal reflected by the obstacle.
- Digital signal output: Integrated LM393 comparator converts analog signals into reliable digital signals for easy processing and interpretation in digital systems.
- LED indicator: digital signal control LED indicator, intuitive display sensor detection status, users can quickly understand the system operation.
- Adjustable potentiometer: Equipped with 10k adjustable potentiometer, users can optimize sensor performance by adjusting sensitivity and threshold to adapt to different environments and application needs.
- Programming platform: Arduino, UIFlow, etc

Includes

- 1x Reflective IR Unit
- 1x HY2.0-4P Cable (20cm)
- 1x Potentiometer Screwdriver

Applications

- Object detection
- Range measurement
- Automatic system
- Security and protection system
- Line Fllowing

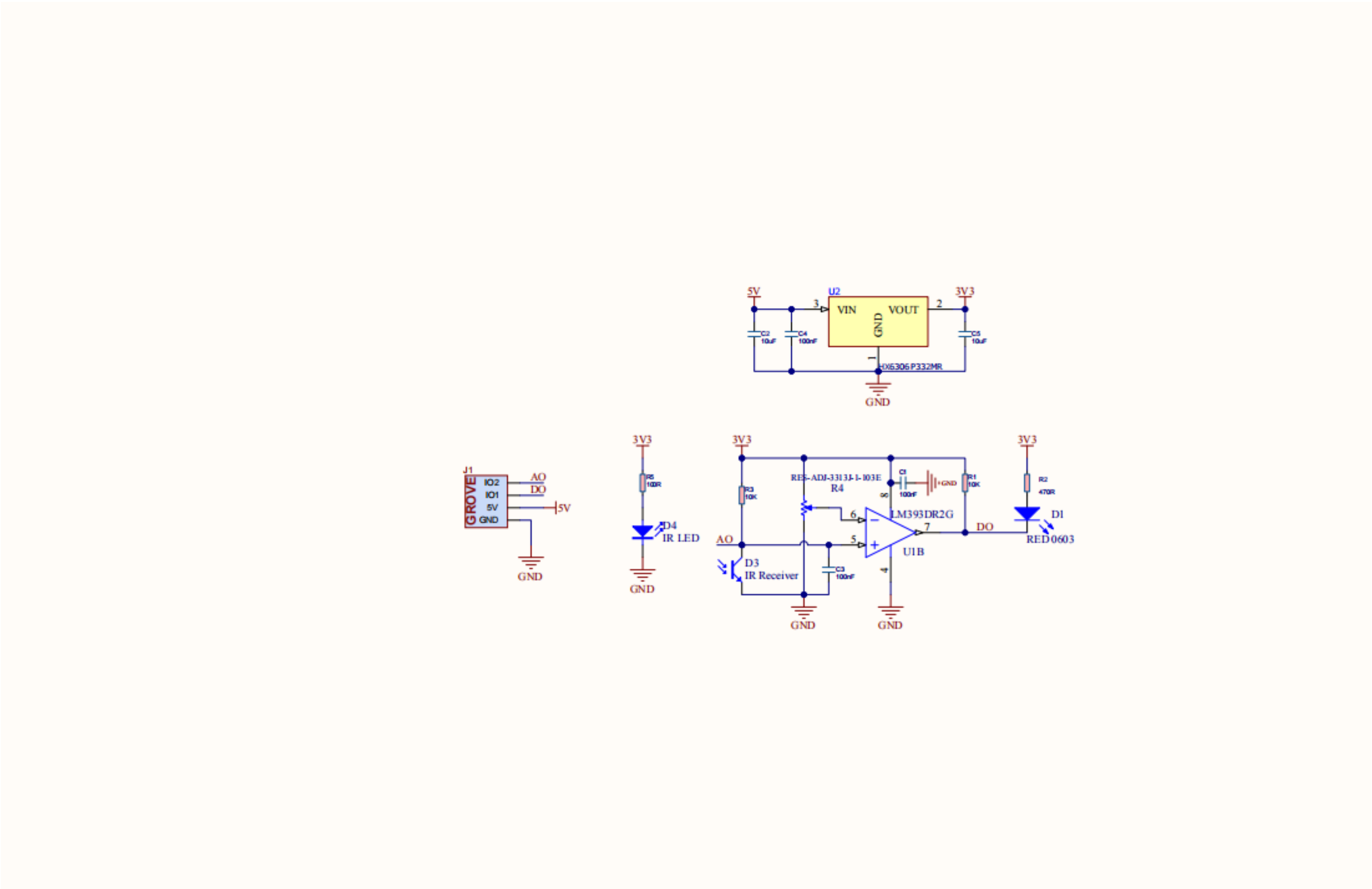
Specification

Resources	Parameters
Analog signal output range	0-4096 (ESP32@12bit)

Digital signals output	TTL
Operating voltage	5V
Operating temperature	0-40℃
Product Size	32*24*8mm
Package Size	136* 92*20mm
Product Weight	5.2g
Package Weight	10.4g



Schematic



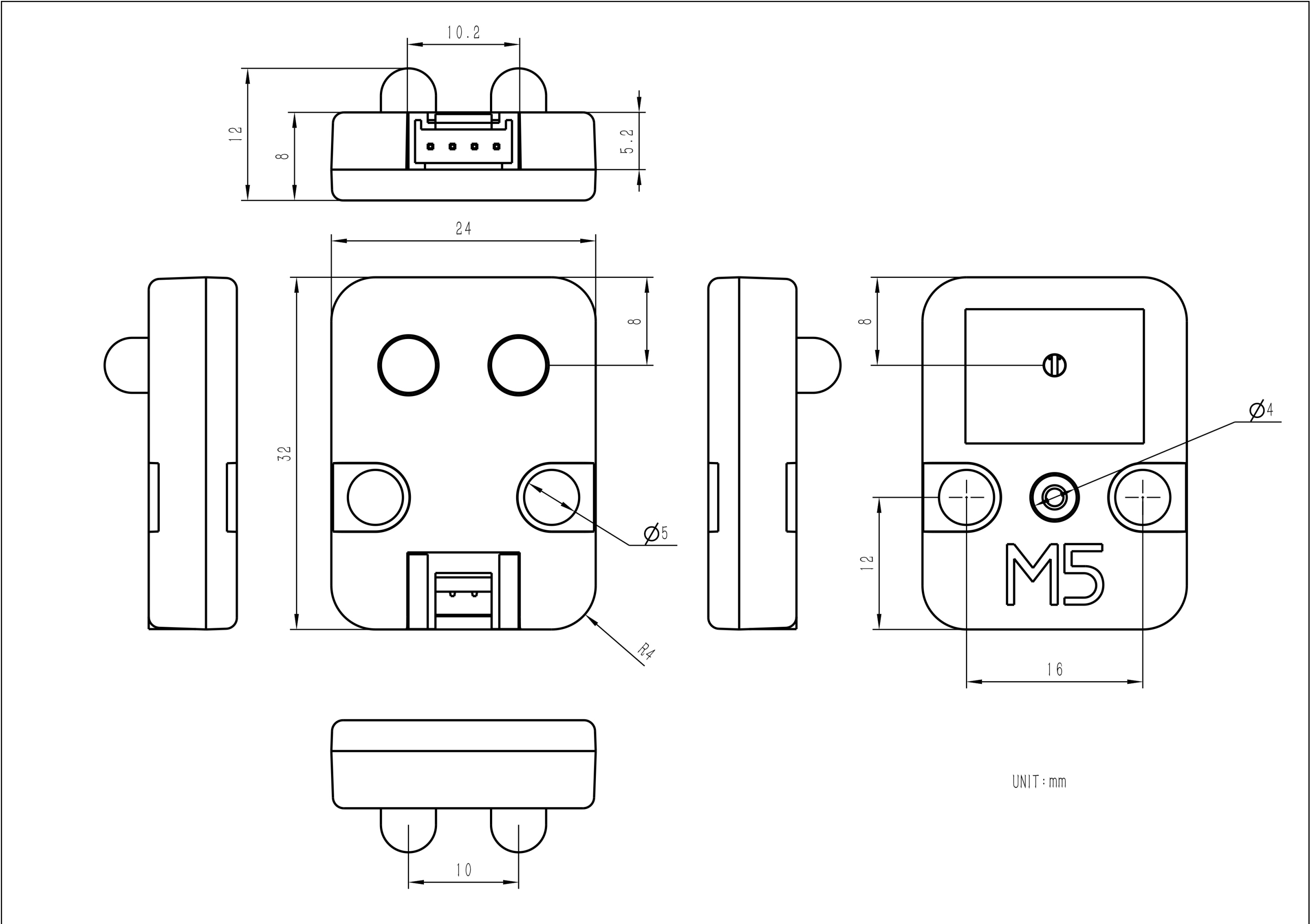
Detection Range

	Threshold comparison voltage: 1.65V (factory default potentiometer is adjusted to the middle)	Threshold comparison voltage: 2.15V
Threshold comparison voltage: 2.15V	0CM(Test object: 100% black print A4 paper)	6.5CM(test object: 100% black printed A4 paper)
Detect the farthest distance of white obstacles	13CM (test object: white A4 paper)	28CM (test object: white A4 paper)
Detect the farthest distance of colored obstacles	14CM (Test object: magazine cover blue, green and yellow color)	25.5CM (Test object: magazine cover blue, green and yellow color)
Detect the farthest distance of gloss obstacles	31CM (Test object: glossy metal steel mesh)	43CM (Test object: glossy metal steel mesh)

PinMap

PORT B(Black)	Analog OUT	Digital OUT	VCC	GND
Core(Basic)	G36	G26	5V	GND
Core2	G36	G26	5V	GND
CoreS3	G8	G9	5V	GND

Module Size



Examples

Arduino

- [Reflective IR Unit Library](#)

Video

- [Unit-Reflective IR Demo](#)

Sensor Difference(IR UNIT AND Reflective IR UNIT)

UNIT	SKU	NOTE
IR Unit	U002	Decodable and encodable
Reflective IR Unit	U175	Self-transmitting, not encoding, decoding