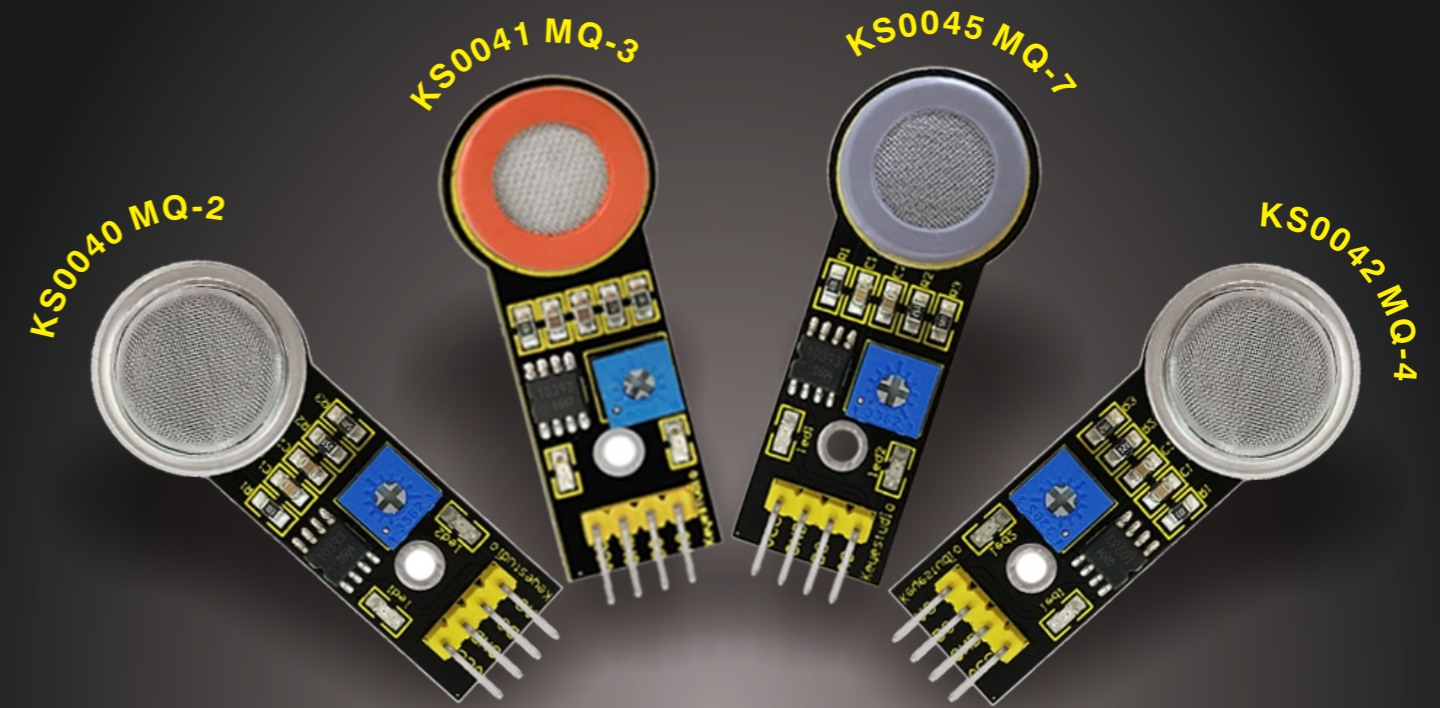


# SENSOR



## Analog Gas Sensor

KS0040  
MQ-2



### Introduction

This analog gas sensor - MQ2 is used in gas leakage detecting equipment in consumer electronics and industrial markets.

This sensor is suitable for detecting LPG, I-butane, propane, methane, alcohol, Hydrogen and smoke. It has high sensitivity and quick response. In addition, the sensitivity can be adjusted by the potentiometer.

## Analog Alcohol Sensor

KS0041  
MQ-3



### Introduction

This analog gas sensor - MQ3 is suitable for detecting alcohol. It can be used in a Breath analyzer. It has good sensitivity to alcohol and lower sensitivity to Benzine. The sensitivity can be adjusted by a potentiometer.

## Carbon Monoxide Gas Sensor

KS0045  
MQ-7



### Introduction

The gas sensitive material used in MQ-7 gas sensor is SnO<sub>2</sub>, which is of lower electrical conductivity in clean air. MQ-7 gas sensor to carbon monoxide is quite high, so it can be used to detect various gas containing carbon monoxide. It is a low-cost sensor, suitable for a variety of applications.

## Methane/Natural Gas Sensor

KS0042  
MQ-4



### Introduction

MQ-4 can be used in household and industrial gas leakage detection device to detect natural gas and methane. It is featured with wide detection range, high sensitivity, fast response and recovery time, with excellent stability, long service life and simple drive circuit. Applicable gas: natural gas, methane.

### keyestudio KEYBOT Programmable Robot 3-way Line Tracking Sensor

KS0352

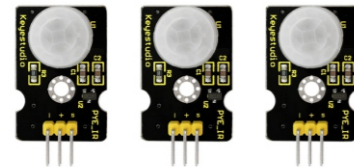


#### Introduction

This Keyestudio three-way tracking sensor needs to be used together with the EASY plug Control board V2.0. The module is connected to the SPI interface with only one wire, which is very convenient and simple.

### keyestudio PIR Motion Sensor 3PCS

KS0335



#### Introduction

this new pyroelectric infrared motion sensor, specially designed for Arduino. This sensor integrates an integrated digital pyroelectric infrared sensor, and the connection pins. It features higher reliability, lower power consumption and simpler peripheral circuit.

### keyestudio TCS34725 Color Sensor

KS0407

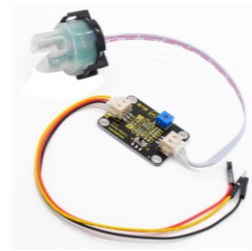


#### Introduction

The keyestudio TCS34725 sensor mainly uses TCS34725 color sensor chip. It can communicate with other controllers using I2C communication interface. The TCS34725 color sensor chip provides red, green, blue (RGB) and light-sensitive digital return values.

### keyestudio Turbidity Sensor V1.0

KS0414



#### Introduction

This sensor is mainly used to test the water's turbidity. The principle is to convert the current signal into the voltage output through the circuit. Its detection range is 0%-3.5% (0-4550NTU), with an error range of  $\pm 0.5\%F \cdot S$ . Note: the sensor is not water-proof; can only place the transparent part into water.

### keyestudio ESP32 Core Board

KS0413

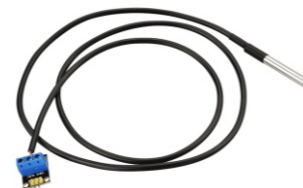


#### Introduction

The processor core of the keyestudio ESP32 board is the ESP32-WROOM-32 module. The ESP32-WROOM-32 is a universal Wi-Fi+BT+BLE MCU module, with powerful functions; can be used in low power sensor networks. The core of this module is the ESP32-D0WDQ6 chip, which is scalable and adaptive. The two CPU cores can be individually controlled.

### keyestudio DS18B20 Temperature Detector Sensor

KS0316



#### Introduction

Keyestudio DS18B20 temperature detector probe adopts the brand-new original DS18B20 temperature sensor chip. Each pin of chip is separated by heat shrinking tube to prevent the short circuit, and sealed inside for waterproof and damp-proof.

### keyestudio Thin-film Pressure Sensor

KS0309

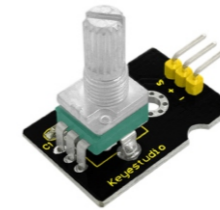


#### Introduction

This sensor adopts the flexible nano pressure-sensitive material with an ultra-thin film pad. It has the functions of water-proof and pressure detection. When the sensor detects the outside pressure, the resistance of sensor will make a change.

### keyestudio Analog Rotation Sensor

KS0014

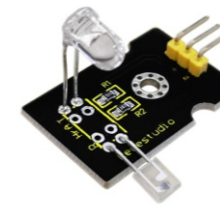


#### Introduction

This analog rotation sensor is compatible with arduino. It is based on a potentiometer. Its voltage can be subdivided into 1024, easy to be connected to Arduino with our sensor shield.

### keyestudio Pulse Rate Monitor

KS0015

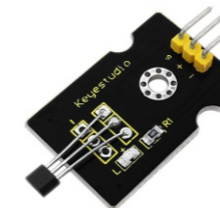


#### Introduction

This module uses a ultra-bright infrared LED and a phototransistor to detect the pulse of your finger. The red LED then flashes in time with your pulse. Working Principle: Shine the bright LED onto one side of your finger while the phototransistor on the other side of your finger picks up the amount of transmitted light.

### keyestudio Hall Magnetic Sensor

KS0020



#### Introduction

This is a Magnetic Induction Sensor. It can sense the magnetic materials within a detection range up to 3cm. The detection range and the strength of the magnetic field are proportional. The output is digital on/off. This sensor uses the SFE Reed Switch - Magnetic Field Sensor.

### keyestudio Collision Sensor

KS0021



#### Introduction

Collision sensor, also known as electronic switch, is a digital on-off input module necessary for elementary electronic learning. By programming, it can realize control over light, sound device, key choice function of LCD display etc.

### keyestudio LM35 Linear Temperature Sensor

KS0022



#### Introduction

LM35 Linear Temperature Sensor is based on semiconductor LM35 temperature sensor. It can be used to detect ambient air temperature. This sensor offers a functional range among 0 degree Celsius to 100 degree Celsius. Sensitivity is 10mV per degree Celsius. The output voltage is proportional to the temperature.

### keyestudio 18B20 Temperature Sensor

KS0023



#### Introduction

DS18B20 is a digital temperature sensor. It can be used for quantify environmental temperature testing. The temperature range is from -55 to +125 °C, inherent temperature resolution 0.5 °C. It also support multi-point mesh networking.

### keyestudio Knock Sensor Module

KS0024

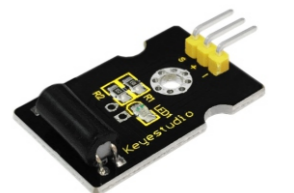


#### Introduction

This module is a knock sensor. When you knock it, it can send a momentary signal. You can combine it with Arduino to make some interesting experiments, e.g. electronic drum.

### keyestudio Digital Tilt Sensor

KS0025



#### Introduction

Tilt Sensor is a digital tilt switch, which can be used as a simple tilt sensor. Simply plug it to our IO/Sensor shield, it can be used to make amazing interactive projects. With dedicated sensor shield and Arduino, you can achieve interesting and interactive work.

### keyestudio Digital IR Receiver Module

KS0026



#### Introduction

IR is widely used in remote control. With this IR receiver, Arduino project is able to receive command from any IR remoter controllers if you have the right decoder. Well, it will be also easy to make your own IR controller using IR transmitter.

### keyestudio Digital IR Transmitter Module

KS0027



#### Introduction

IR Transmitter Module is designed for IR communication which is widely used for operating the television device from a short line-of-sight distance. The remote control is usually contracted to remote.

### keyestudio Photocell Sensor

KS0028



#### Introduction

Photocell is a semiconductor. It has features of high sensitivity, quick response, spectral characteristic, and R-value consistence, maintaining high stability and reliability in environment extremely such as high temperature and high humidity.

### keyestudio Digital Push Button

KS0029



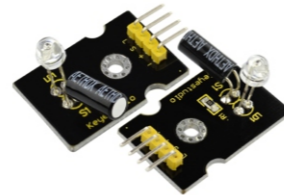
#### Introduction

This is a basic application module. You can simply plug it into an IO shield to have your first try of Arduino.

- \*Immersion gold surface
- \*Standard assembling structure
- \*High quality connector
- \*Icons illustrate sensor function clearly
- \*Wide voltage range from 3.3V to 5V
- \*Easily recognizable interfaces of sensors

### keyestudio Magical Light Cup Module

KS0030

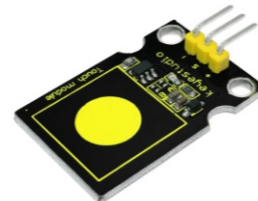


#### Introduction

Magic light cup module developed by KEYES is able to interact with ARDUINO. It is based on the principle of PWM dimming; The brightness of two modules change. The mercury switch provides a digital signal and trigger PWM regulation, and you can see the effect like changing two sets of cup full of light through the program design.

### keyestudio Capacitive Touch Sensor

KS0031

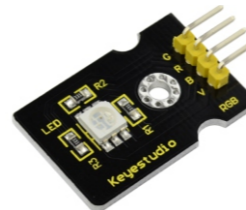


#### Introduction

This little sensor can sense the touch of body and metal with feedback of a high/low voltage level. Even isolated by some cloth and papers, it can still feel the touch. But its sensitivity will decrease as isolation layer gets thicker.

### keyestudio RGB LED Module

KS0032



#### Introduction

This is a full-color LED module, where contains 3 basic colors—red, green and blue. They can be regarded as separate three LED lights. After programming, you can turn them on and off by sequence. And you can also use PWM analog output to mix these three colors to generate different colors.

### keyestudio Analog Temperature Sensor

KS0033



#### Introduction

This module is based on the working principle of a thermistor (resistance varies from temperature change in the environment). It can sense the temperature change in its surrounding and send the data to the analog IO in the Arduino board.

### keyestudio DHT11 Temperature and Humidity Sensor

KS0034



#### Introduction

The DHT11 Temperature and Humidity Sensor features calibrated digital signal output with the temperature and humidity sensor complex. This sensor includes a resistive element and a sense of wet NTC temperature measuring devices. It has advantages of excellent quality, fast response, anti-interference ability and high cost performance.

### keyestudio Analog Sound Sensor

KS0035

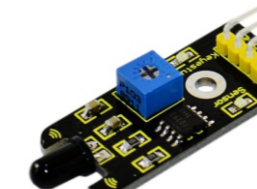


#### Introduction

Analog Sound Sensor is typically used in detecting the loudness in ambient environment. The Arduino can collect its output signal by imitating the input interface. You can use it to make some interesting interactive works such as a voice operated switch.

### keyestudio Flame Sensor

KS0036



#### Introduction

This flame sensor can be used to detect fire or other lights whose wavelength stands at 760 nm ~ 1100 nm. In the fire-fighting robot game, the flame plays an important role in the probe, which can be used as the robot's eyes to find fire source.

### keyestudio Vibration Sensor

KS0037



#### Introduction

You can directly plug it on our sensor Shield V5, vibrate this sensor, and Arduino can receive a digital signal, making it easy to make computation and programs in Arduino. Despite its simplicity, you can make full use of it with creative thinking, step counting, and crash warning light etc.

### keyestudio MQ-5 Gas Sensor

KS0043



#### Introduction

The gas sensitive material used in MQ-5 gas sensor is SnO<sub>2</sub>, which is of lower electrical conductivity in clean air. The sensitivity of MQ-5 gas sensor to propane, propane and methane is quite high, and the methane and propane can be well detected.

### keyestudio MQ-6 Gas Sensor

KS0044



#### Introduction

The gas sensitive material used in MQ-6 gas sensor is SnO<sub>2</sub>, which is of lower electrical conductivity in clean air. The sensitivity of MQ-6 gas sensor to propane, butane and liquefied petroleum gas is quite high, and the natural gas can also be well detected.

### keyestudio MQ-8 Hydrogen Gas Sensor

KS0046



#### Introduction

The gas sensitive material used in MQ-8 gas sensor is SnO<sub>2</sub>, which is of lower electrical conductivity in clean air. The sensitivity of MQ-8 gas sensor to hydrogen is quite high, it can also detects a variety of other gases containing hydrogen.

### keyestudio MQ135 Air Quality Sensor

KS0047

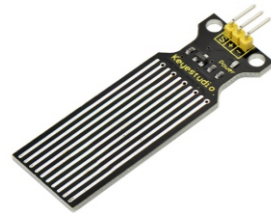


#### Introduction

MQ135 adopts SnO<sub>2</sub> as its gas sensitive material because SnO<sub>2</sub> has low electrical conductivity in the clean air. MQ135 has a high sensitivity to Ammonia, sulfide, benzene vapor, smoke and other harmful gas. It can detect various harmful gases, making it a cost-effective choice suitable for multiple applications.

### keyestudio Water Sensor

KS0048



#### Introduction

Our water sensor is easy-to-use, portable and cost-effective, designed to identify and detect water level and water drop. This sensor measures the volume of water drop and water quantity through an array of traces of exposed parallel wires.

### keyestudio Soil Humidity Sensor

KS0049

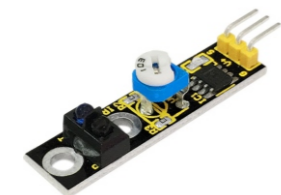


#### Introduction

This is a simple soil humidity sensor aimed to detect the soil humidity. If the soil is in lack of water, the analog value output by the sensor will decrease, otherwise, it will increase. Combine this sensor with Arduino controller can make your plant more comfortable and your garden more smarter.

### keyestudio Line Tracking Sensor

KS0050



#### Introduction

This Line Tracking Sensor can detect white lines in black and black lines in white. The single line-tracking signal provides a stable output signal TTL for a more accurate and more stable line. Multi-channel option can be easily achieved by installing required line-tracking robot sensors.

### keyestudio Infrared Obstacle Avoidance Sensor

KS0051



#### Introduction

This is a keyestudio 2.8 inch TFT LCD shield with touchscreen. This TFT display is driven with ILI9325 chip and has 240x320 pixels with individual RGB pixel control. This display has a resistive touchscreen attached to it already, so you can detect finger presses anywhere on the screen.

### keyestudio PIR Motion Sensor

KS0052



#### Introduction

The Pyroelectric infrared motion sensor can detect infrared signals from a moving person or moving animal, and output switching signals. It can be applied to a variety of occasions to detect the movement of human body.

### keyestudio Color Sensor

KS0053



#### Introduction

TCS3200 programmable color light-to-frequency converter applies to colorimeter measurement such as color printing, medical diagnosis, calibration of PC color monitor as well as process control and color coordination in oil paint, textile, cosmetics and printing material industries.

### keyestudio BMP180 Digital Barometric Pressure Sensor Module for Arduino

KS0054



#### Introduction

keyestudio BMP180 is a pressure sensor with high precision, compact design and low power consumption. It can be used in mobile devices. Minimum absolute accuracy reaches 0.03hpa with only 3uA power consumption.

### keyestudio TMT6000 Ambient Light Sensor

KS0098



#### Introduction

The TMT6000 is supposed to be adapted to the sensitivity of the human eye, but I found it preformed sub-par in low light conditions. It does however work very well reacting to very small changes in a large range of brightnesses. Because it is meant to mimic the human eye, it does not react well to IR or UV light, so just make sure to note that when using it in your project.

### keyestudio ACS712-30A Current Sensor

KS0185



#### Introduction

ACS712-30A Current Sensor is used to measure the intensity of current. It contains ACS712ELC-30A chip, based on Hall Effect. You should protect it from influence of magnetic field when using it.

### keyestudio ACS712-20A Current Sensor

KS0186

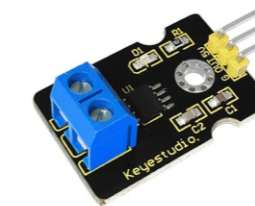


#### Introduction

ACS712-20A Current Sensor is used to measure the intensity of current. It contains ACS712ELC-20A chip, based on Hall Effect. You should protect it from influence of magnetic field when using it.

### keyestudio ACS712-5A Current Sensor

KS0187



#### Introduction

ACS712-5A Current Sensor is used to measure the intensity of current. It contains ACS712ELC-5B chip, based on Hall Effect. You should protect it from influence of magnetic field when using it.

### keyestudio Steam Sensor

KS0203

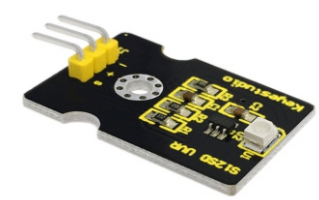


#### Introduction

Steam sensor is an analog sensor and can be made as a simple rainwater detector and liquid level switch. When humidity on the face of this sensor rises, output voltage will increase.

### keyestudio GUVVA-S12SD 3528 Ultraviolet Sensor

KS0204



#### Introduction

keyestudio GUVVA-S12SD ultraviolet sensor is used to detect ultraviolet light. It includes GUVVA-S12SD applied to measure ultraviolet index of intelligent wearable device, such as watches, smart phone and outdoor device with UV index detecting. It can be also used to monitor the intensity of ultraviolet light or used as a UV flame detector when disinfecting things by ultraviolet light.

### keyestudio RC522 Sensor

KS0205



#### Introduction

MF522-AN module adopts Philips MFRC522 original reader circuit chip design, easy to use, low cost, suitable for equipment development, development of advanced applications such reader users, the need for RF card terminal design / production of the user.

### keyestudio RS232 to TTL Conversion Shield

KS0206



#### Introduction

The Keyestudio SR01 Ultrasonic Sensor is a very affordable proximity/distance sensor that has been used mainly for object avoidance in various robotics projects. It essentially gives your Arduino eyes / spacial awareness and can prevent your robot from crashing or falling off a table. It has also been used in turret applications, water level sensing, and even as a parking sensor.

### keyestudio TTP229L 16-key Touch Sensor

KS0260

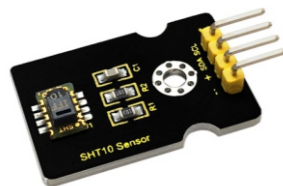


#### Introduction

This is a 16-key digital capacitive touch switch sensor, using the working mode of capacitive sensing trigger. Its communication is I2C communication, with simple and convenient wiring.

### keyestudio SHT10 Digital Temperature Sensor

KS0268

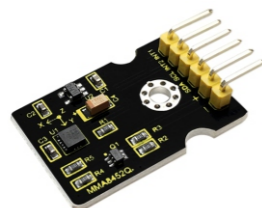


#### Introduction

Keyestudio SHT10 digital temperature sensor is a temperature and humidity composite sensor containing digital signal outputs calibration. It uses patented micromachining technology (CMOSens®) in the process of industrial COMS, which ensure that the product has high reliability and excellent long-term stability, can be applied into various occasions.

### keyestudio MMA8452Q Module Triaxial Digital Acceleration Tilt Sensor

KS0270

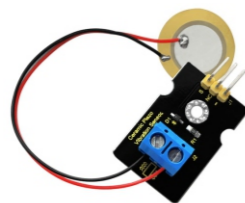


#### Introduction

MMA8452Q is a smart low-power, three-axis, capacitive micromachine acceleration sensor with 12-bit resolution. This acceleration sensor has a rich embedded performance, featured with flexible user programmable options and two interruption pins configuration.

### keyestudio Analog Piezoelectric Ceramic Vibration Sensor

KS0272

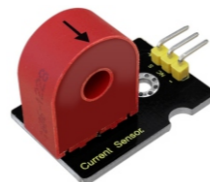


#### Introduction

This vibration sensor is based on piezoelectric ceramic chip analog vibration. It makes use of the anti-conversion process that piezoelectric ceramic vibration will generate the electric signals. When vibrating the piezoelectric ceramic chip, the sensor's signal terminal will generate electrical signals.

### keyestudio Current Sensor Current Detection Sensor

KS0274

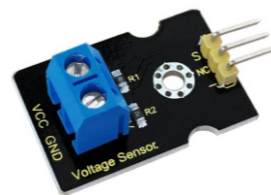


#### Introduction

Keyestudio current detection sensor is mainly composed of a current sensor TA12-200, which can convert large current into a small amplitude of voltage output. This product can be applied to the AC current detection, and its maximum detectable current is up to 5A. Current sensors can be used in a variety of microcontroller controllers

### keyestudio Voltage Detection Module Voltage Sensor

KS0275



#### Introduction

This voltage detection module can achieve to detect the voltage greater than 5 V. When connect this sensor to expansion board using 3Pin wire, it can not only easily detect the magnitude of the voltage power and monitor the electric quantity of battery for interactive media works or robot, but also can combine with IIC LCD1602 LCD module to display the voltage or make a voltage monitor.

### keyestudio MLX90614 Non-contact Infrared Temperature Sensor

KS0276



#### Introduction

Keyestudio MLX90614 non-contact infrared temperature sensor is mainly composed of sensor MLX90614. Due to the integration of low noise amplifier, 17-bit analog digital converter and DSP processing unit, the sensor achieves high precision and high resolution measurement.