≪ MODULE ≫

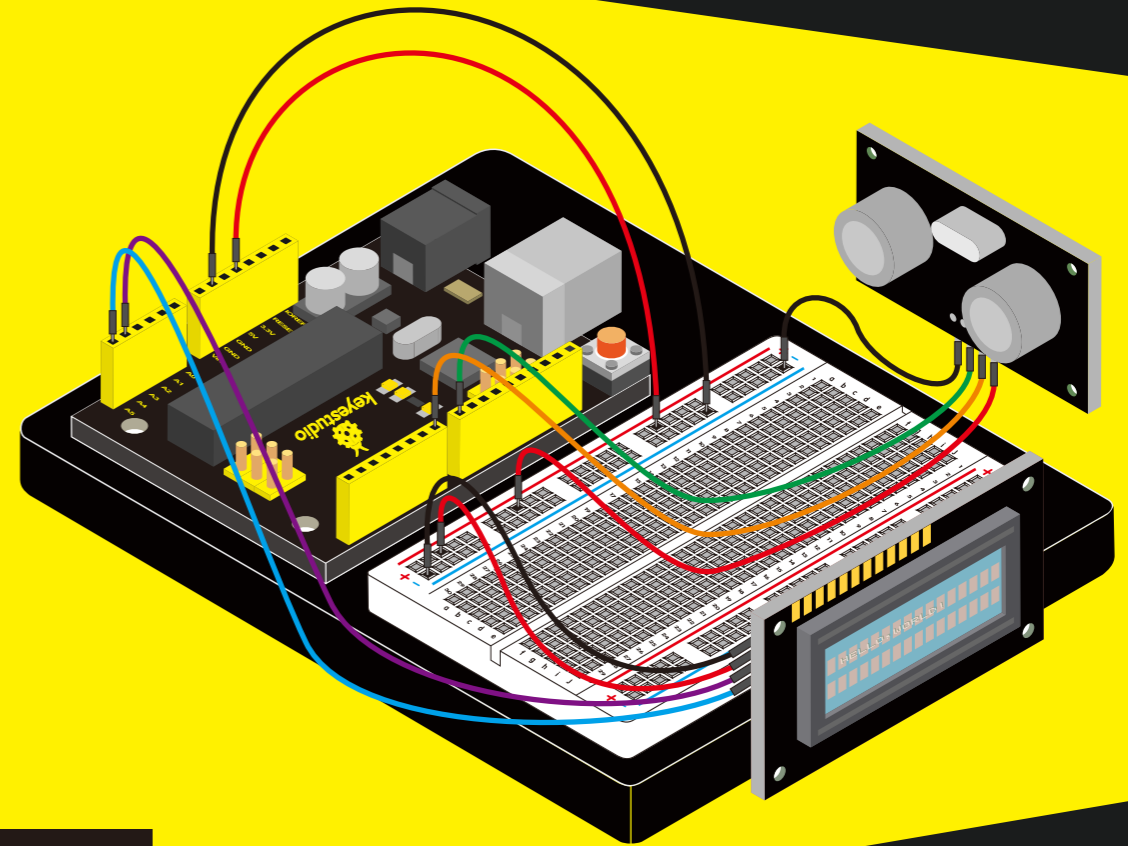**KS0206**

SR01 Ultrasonic Sensor Module

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. This simple project will use the Keyestudio SR01 Ultrasonic Sensor and an Arduino with programming sketch to show interactive distance value on LCD.

Specification

Working Voltage: DC 5V
Working Current: 15mA
Working Frequency: 40KHz
Max Range: 3--5m; Min Range: 2cm
Measuring Angle: 15 degree
Trigger Input Signal: 10μS TTL pulse
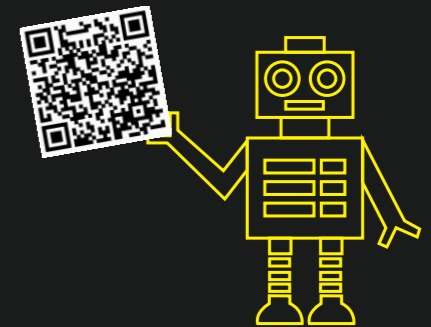
keyestudio Power Amplifier Module

KS0374

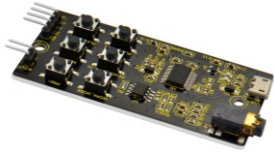### Introduction
The keyestudio power amplifier module integrates an adjustable potentiometer, a speaker, an audio amplifier 8002B chip and a 3pin header interface.It can amplify the small audio signal output, about 8.5 times magnification, and can play it out via a small power speaker.

keyestudio YX5200-24SS MP3 Module

KS0387

Introduction
Keyestudio YX5200-24SS MP3 module is specially designed for music playing. It uses YX5200-24SS as core, perfectly integrated MP3、WAV、WMA hardware interface. It supports TF card driver, easy-to-use,stable and reliable.

keyestudio ESP8266 WiFi Module

KS0389

Introduction
This keyestudio ESP8266 WI-FI development board is based on the ESP8266 -12FWIFI module developed by Ai-Thinker.
This development board is a standalone network controller, which can add networking function to those existing devices. When using, power the board and upload the program via a Micro USB port, and the current supply should be 2A.

keyestudio 8x8 LED Matrix Module Address Select

KS0396
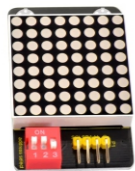
Introduction
This module uses HT16K33 chip to drive an 8x8 dot matrix. Just need to use the I2C communication port of microcontroller to control the dot matrix, which can save more port resources of microcontroller.The matrix module comes with a 4Pin header of 2.54mm pin pitch.
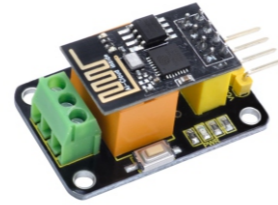
keyestudio BMP280 Module

KS0405

Introduction
The keyestudio BMP280 module mainly uses the BMP280 sensor, a temperature and air pressure sensor, which is an absolute air pressure sensor designed for mobile applications. The module has two modes: I2C communication and SPI communication mode.

keyestudio ESP-01 Relay Module

KS0408

Introduction
For wireless control, we specially designed this relay module. The module is equipped with an ESP8266-01.
It can be connected to the wireless network, and then can send commands to the module in the remote or LAN host computer. After receiving the command, the module can close or disconnect the relay.

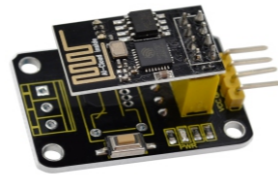## keyestudio DHT11 Temperature and Humidity Module

KS0409

Introduction
The keyestudio ESP-01 DHT11 module uses ESP8266-01 as master control, integrated with a DHT11 temperature and humidity sensor, supports DC 3V-3.3V power supply. It can be used as a temperature and humidity acquisition node for smart home or IOT projects.

keyestudio ESP-01 DS18B20 Temperature Module

KS0410

Introduction
The keyestudio ESP-01 DS18B20 module uses ESP8266-01 as master control, integrated with a DS18B20 temperature sensor.
The module supports DC 3V-3.3V power supply.
It can be used as a temperature acquisition node for smart home or IOT projects.

keyestudio Joystick Module

KS0008

Introduction
By simply connecting to two analog inputs, the robot is at your commands with X, Y control. It also has a switch that is connected to a digital pin. This joystick module can be easily connected to Arduino by IO Shield.

keyestudio Photo Interrupter Module

KS0009

Introduction
Upright part of this sensor is an infrared emitter and on the other side, it's a shielded infrared detector.
By emitting a beam of infrared light from one end to other end, the sensor can detect an object when it passes through the beam.
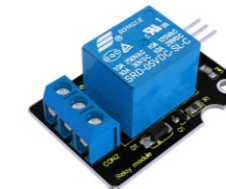
keyestudio 3W LED Module

KS0010

Introduction
This LED module is of high brightness because the lamp beads it carries is 3w. We can apply this module to arduino projects. For example, intelligent robots can use this module for illumination purpose.
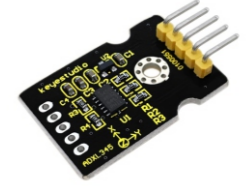
keyestudio 5V Relay Module

KS0011

Introduction
This single relay module can be used in interactive projects. This module uses SONGLE 5v high-quality relay. It can also be used to control lighting, electrical and other equipment.

## keyestudio ADXL345 Three Axis Acceleration Module

KS0012

Introduction
The ADXL345 is a small, thin, low power, 3-axis MEMS accelerometer with high resolution (13-bit) measurement at up to +-16 g. Digital output data is formatted as 16-bit twos complement and is accessible through either a SPI (3- or 4-wire) or I2C digital interface.

keyestudio Rotary Encoder Module

KS0013
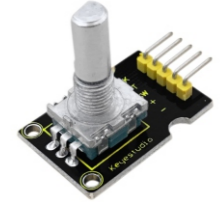
Introduction
The rotary encoder can count the pulse outputting times during the process of its rotation in positive and reverse direction by rotating. This rotating counting is unlimited, not like potential counting. It can be restored to initial status to count from 0.

keyestudio Piranha LED Light Module

KS0016

Introduction
This is a special LED module. When you connect it to ARDUINO development board, after programming, it can emit beautiful light. Of course, you can also control it using PWM. It looks like fireflies at night.

keyestudio Digital Buzzer Module

KS0018

Introduction
Here is the simplest sound making module-digital buzzer module. You can use high/low level to drive it. Changing the frequency it buzzes can produce different sound. This module is widely used on your daily appliance, like PC, refrigerator, phones etc.

keyestudio Passive Buzzer module

KS0019

Introduction
The buzzer we introduced here is a passive buzzer. It cannot be actuated by itself, but by external pulse frequencies. Different frequencies produce different sounds. We can use Arduino to code the melody of a song, which is actually quite fun and simple.

keyestudio Reed Switch Module

KS0038

Introduction
Reed Switch is a special switch and a main component for reed relay and proximity switch. Reed switch is usually comprised of two soft magnetic material and metal reed contacts which will disconnect itself when there is no magnetic.
Reed switch can be used as sensor for count, limit and other purposes.

keyestudio DS3231 Clock Module

KS0039

Introduction
DS3231 is equipped with integrated TCXO and crystal, which makes it a cost-effective I2C real time clock with high precision. The device carries a battery input, so if you disconnect the main power supply, it can still maintain accurate timing.

keyestudio Bluetooth Module

KS0055

Introduction
This Bluetooth module can easily achieve serial wireless data transmission. Its operating frequency is among the most popular 2.4GHz ISM frequency band (i.e. Industrial, scientific and medical).
This module is set with serial interface, which is easy-to-use and simplifying overall design/development cycle.

keyestudio 1.3" 128x64 OLED Graphic Display

KS0056

Introduction
OLED is short for organic light emitting diode. On the microscopic level, an OLED display is a matrix of organic LEDs that light up when they emit energy. The new OLED technology only uses electricity per pixel. Because each pixel creates its own light, only the pixels that are on use electricity.

keyestudio Dual Relay Module

KS0057

Introduction
Arduino Relay Shield employs high quality SONGLE relay with two-channel input and output. It can be connected to 250V/10A AC element or 24V/10A DC element to the maximum, therefore, it can be used to control lights, motors and etc.

keyestudio 4-channel Relay Module

KS0058

Introduction
keyestudio Relay Shield employs high quality relay with four channels input and four channels output. It can be connected to 250V/10A AC element or 24V/10A DC element to the maximum, therefore, it can be used to control lights, motors and etc.
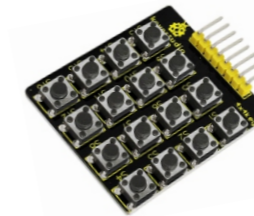
keyestudio 8-channel 5V Relay Module

KS0059

Introduction
Arduino Relay Shield employs high quality relay with eight channels input and eight channels output. It can be connected to 250V/10A AC element or 24V/10A DC element to the maximum, therefore, it can be used to control lights, motors and etc.
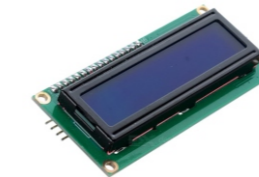
keyestudio Large Button 4*4 Matrix Keypad

KS0060

Introduction
4*4 matrix keypad is the most applied keypad form. We need to master its keypad identification technology as entry to microcontroller world.
The key layout is in matrix form, so with only eight I/O ports, we can identify 16 buttons, saving lots of I/O port resources.

keyestudio 1602 I2C Module

KS0061

Introduction
keyestudio 1602 I2C module is a 16 character by 2 line LCD display with Blue background and White backlight. ours is built with Arduino IIC/I2C interface, saving you 5 IO ports. This LCD is ready-to-use because it is compatible with the Arduino Liquid Crystal Library.

keyestudio I2C LCD2004 Module

KS0062

Introduction
keyestudio 2004 I2C Module is a 20 character by 4 line LCD display with Blue background and White backlight. The original 2004 LCD needs 7 IO ports to be up and running, ours is built with Arduino IIC/I2C interface, saving you 5 IO ports. This LCD is ready-to-use because it is compatible with the Arduino Liquid Crystal Library.

keyestudio L298N Motor Driver Board Module

KS0063
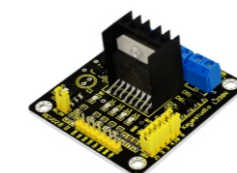
Introduction
Using L298N made by ST Company as the control chip, the module has characteristics of strong driving ability, low calorific value and strong anti-interference ability.

keyestudio I2C 8x8 LED Matrix HT16K33

KS0064

Introduction
The matrices use the constant-current drivers for ultra-bright, consistent color, 1/16 step display dimming, all via a simple I2C interface. These 1.2" matrix backpacks come with three address-selection jumpers so you can connect up to eight 1.2" 8x8's together.

keyestudio 16-channel 12-bit PWM/Servo Driver - I2C Interface

KS0065
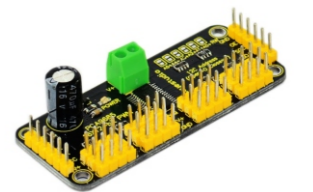
Introduction
It's an i2c-controlled PWM driver with a built in clock.
It is 5V compliant, which means you can control it from a 3.3V microcontroller and still safely drive up to 6V outputs (this is good for when you want to control white or blue LEDs with 3.4+ forward voltages)

keyestudio TB6612FNG Motor Driver

KS0066

Introduction
The TB6612FNG motor driver can control up to two DC motors at a constant current of 1.2A (3.2A peak). Two input signals (IN1 and IN2) can be used to control the motor in one of four function modes - CW, CCW, short-brake, and stop. The two motor outputs (A and B) can be separately controlled, the speed of each motor is controlled via a PWM input signal with a frequency up to 100kHz.

keyestudio RC522 RFID Module for Arduino

KS0067

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 Bluetooth Transmission Module for Arduino with Bottom HC-05 Master and Slave

KS0097

Introduction
Bluetooth transmission module can enable you to get rid of using cable for a serial port device and realize wireless serial communication within 10 meters. Using the module doesn't require knowing the complex bluetooth bottom protocol. A few simple steps can get you to enjoy the convenience of wireless communication.

keyestudio 5V Stepper Motor

KS0140

Introduction
A stepper motor is an electromechanical device which converts electrical pulses into discrete mechanical movements. One of the most significant advantages of a stepper motor is its ability to be accurately controlled in an open loop system.

keyestudio XBee Bluetooth Wireless Module HC-05

KS0143

Introduction
Keyestudio XBee Bluetooth wireless module HC-05 adopts XBEE design. It has features of compact size, compatible with XBEE shield, and suitable for various 3.3V MCU systems. The module can use AT command to set baud rate and master/slave mode, user info etc.

keyestudio XBee Bluetooth Wireless Module HC-06

KS0144

Introduction
Keyestudio XBee Bluetooth wireless module HC-06 adopts XBEE design. It has features of compact size, compatible with XBEE shield, and suitable for various 3.3V MCU systems. The module can use AT command to set baud rate and master/slave mode.

keyestudio W5100

KS0148

Introduction
W5100 is a multi-purpose single internet interface chip, integrated 10/100 ethernet controller inside,and applied to embedded system which is high integration, high stability, high performance and low cost. It can be connected to Internet without operating system and compatible with IEEE802.3 10BASE-T and 802.3u 100BASE-TX.

keyestudio Robotale Scratch

KS0165
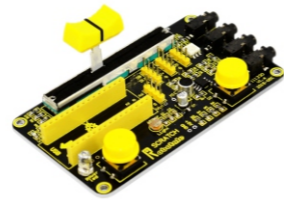
Introduction
keyestudio Robotale Scratch incorporates a light sensor, sound sensor, a button and a slider, as well as 4 additional inputs that can sense electrical resistance via cables.
Using the Scratch programming language, you can easily create simple interactive programs with Arduino or create programs based on the input of Arduino from sensors.

## keyestudio DS3234 High Precision Real Time Clock Module

KS0166
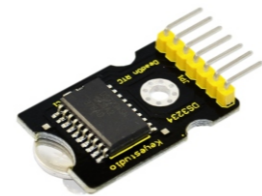
Introduction
The DS3234 is a low-cost, extremely accurate SPI™ bus real-time clock (RTC) with an integrated temperature-compensated crystal oscillator (TCXO) and crystal. The DS3234 incorporates a precision, temperature-compensated voltage reference and comparator circuit to monitor VCC.

## keyestudio HX711 Load Cell Pressure Sensor Module

KS0167
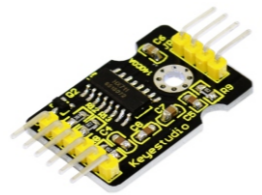
Introduction
keyestudio HX711 module adopts hx711 24-bit high precision A/D converter chip which is specially designed for high precision electronic scale. It has two analog input channel. Internal is integrated with 128 times programmable gain amplifier. Input circuit can be configured to bridge type (such as pressure, weighing) sensor mode.

keyestudio L9110 fan control module

KS0168
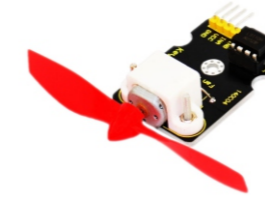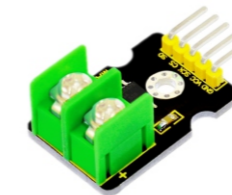
Introduction
keyestudio L9110 fan control module adopts L9110 motor control chip. The module is of high efficiency, with the high quality fan, it can easily blow out flame of a light in 20cm distance. It's an essential part in fire fighting robot development.

## keyestudio MAX6675 K-Thermocouple-to-Digital Converter Module

KS0169

Introduction
keyestudio MAX6675 K-Thermocouple-to-Digital Converter module can independently perform functions of signal amplification, cold-junction compensation, linearization, A/D conversion and digital SPI Serial output. MAX6675 is integrated with cold-junction compensation circuit, with simple 3-bit SPI-Compatible Serial Interface, digitalizing the signal from a type-K thermocouple and output in a 12-bit resolution.

keyestudio MPU6050 Gyroscope and Accelerometer Module

KS0170
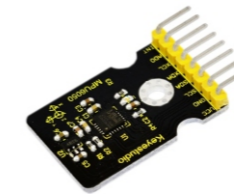
Introduction
The MPU-6050 is the world's first integrated 9-axis MotionTracking device that combines a 3-axis MEMS gyroscope, 3-axis MEMS accelerometer, and a Digital Motion Processor (DMP). With its dedicated I2C sensor bus, it directly accepts inputs from an external 3-axis compass to provide a complete 9-axis output.

keyestudio XD-58C Pulse Sensor Module

KS0171

Introduction
keyestudio XD-58C pulse sensor module is used to measure heart rates. It's widely applied for students, artists, athletes, inventors, games or mobile terminal developers to develop heart rate related interactive works.

keyestudio HM-10 Bluetooth-4.0 V2

KS0174

Introduction
keyestudio HM-10 Bluetooth-4.0 V2 adopts TI CC2541 chip and configuration space of 256Kb. It supports AT command. Users can modify working mode (master/slave), baud rate, device name, paring password etc.

keyestudio Micro Servo

KS0194

Introduction
Servomotor is a position control rotary actuator. It mainly consists of housing, circuit board, core-less motor, gear and position sensor. Included with your servo motor you will find a variety of white motor mounts that connect to the shaft of your servo. You may choose to attach any mount you wish for the circuit. It will serve as a visual aid, making it easier to see the servo spin.

keyestudio GP2Y1014AU PM2.5 Dust Sensor Module

KS0196

Introduction
It has an IR LED and photoeletric transistor. Arranging them with across corners can detect the reflected light of dust in the air. Ultra-low power consumption (max at 20mA, typical at 11mA), analog voltage output is liner with dust density. It can be equipped with sensors up to 7V DC. The sensitivity is 0.5V/(0.1mg/m3).

keyestudio ULN2003 Stepper Motor Driver

KS0208

Introduction
A stepper motor is an electromechanical device which converts electrical pulses into discrete mechanical movements. One of the most significant advantages of a stepper motor is its ability to be accurately controlled in an open loop system.

keyestudio Sim800c Shield

KS0209

Introduction
This keyestudio micro servo motor comes with 90 degrees. Included with your servo motor you will find a variety of white motor mounts that connect to the shaft of your servo. You may choose to attach any mount you wish for the circuit. It will serve as a visual aid, making it easier to see the servo spin.

keyestudio Red LED Module

KS0232

Introduction
This is a red LED module. The main function is to control a plugin LED on and off. When connecting to ARDUINO, after programming, it will emit red light color.The pin pitch of 3Pin is 2.54mm.

keyestudio Green LED Module

KS0233

Introduction
This is a green LED module. The main function is to control a plugin LED on and off. When connecting to ARDUINO, after programming, it will emit green light color.The pin pitch of 3Pin is 2.54mm.

keyestudio Yellow LED Module

KS0234

Introduction
This is a yellow LED module. The main function is to control a plugin LED on and off. When connecting to ARDUINO, after programming, it will emit yellow light color.The pin pitch of 3Pin is 2.54mm.

keyestudio Blue LED Module

KS0235

Introduction
This is a blue LED module. The main function is to control a plugin LED on and off. When connecting to ARDUINO, after programming, it will emit blue light color.The pin pitch of 3Pin is 2.54mm.

## keyestudio PAD8232 ECG Measurement Heart Monitor Sensor Module

KS0261

Introduction
The AD8232 is an integrated front end for signal conditioning of cardiac bioelectrical signals to monitor heart rate. This is a low-power, single-lead and heart rate monitor front end for all types of vital signs.

keyestudio LED Dot Matrix Display Module 1616 Infinite Cascade

KS0262
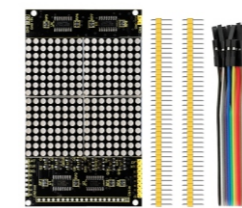
Introduction
Keyestudio LED dot matrix display module connects four 8 * 8 dot matrix. Line selection is chosen by 4-16 decoder which consists of two 74HC138, and as for the strobe line, LED anode will be connected. Column output consists of two 74HC595 cascades, which can convert serial data into parallel data through the SPI signal.
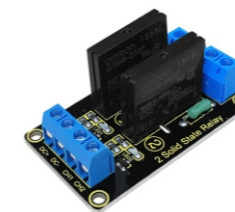
keyestudio Single Solid State Relay Module

KS0263

Introduction
Solid State Relay is a new kind of contactless switching device which is composed of all solid state electronic components. Compared with the electromagnetic relay, its reliability is more higher, with the features of non-contact, long service life, fast and less outside interference.

keyestudio Two-channel Solid State Relay Module

KS0264

Introduction
Solid State Relay is a new kind of contactless switching device which is composed of all solid state electronic components. Compared with the electromagnetic relay, its reliability is more higher, with the features of non-contact, long service life, fast and less outside interference.

## keyestudio Four-channel Solid State Relay Module

KS0265

Introduction
Keyestudio four-channel solid state relay is a high level effective solid state relay, that is to say, the input control signals is the low level (0-2.5 V), the relay is off; while the input control signal is high level (3.3-5 V), the relay is on. Solid State Relay is a new kind of contactless switching device which is composed of all solid state electronic components.

## keyestudio Eight-channel Solid State Relay Module

KS0266
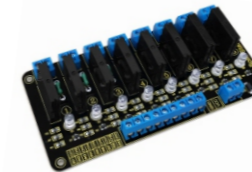
Introduction
Solid State Relay is a new kind of contactless switching device which is composed of all solid state electronic components. The output control terminal of the keyestudio solid-state relay must be connected to the circuit, and its working current needs to be bigger than 50mA, so that the solid state relay can be disconnected normally.

keyestudio APDS-9930 Attitude Sensor Module

KS0267
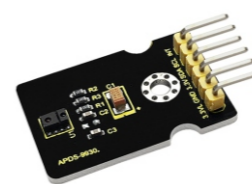
Introduction
Keyestudio APDS-9930 attitude sensor module mainly uses APDS-9930 chip. APDS-9930 in a single 8 pin package can provide the ambient light sensor which is compatible with I2C interface and the infrared LED proximity sensor.

## keyestudio ALS Infrared LED Optical Proximity Detection Module

KS0269
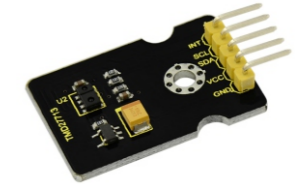
Introduction
It is a triple sensor integrated with ambient light,proximity sensor and infrared LED, which has two functions.
For one thing, it is used to detect the current ambient brightness (ALS).
For another feature we are referred to as proximity sensor function (PROX).

keyestudio OLED Display OLED Module

KS0271
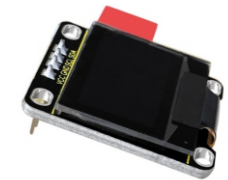
Introduction
OLED is short for organic light emitting diode. On the microscopic level, an OLED display is a matrix of organic LEDs that light up when they emit energy. The new OLED technology only uses electricity per pixel. Because each pixel creates its own light, only the pixels that are on use electricity. This makes OLED technology very efficient.

keyestudio GY-ML8511 Ultraviolet Sensor Module

KS0273

Introduction
The module uses a common ML8511 UV sensor original, which can be used to detect indoor or outdoor UV density. The sensor IC uses a high integrated SOI-CMOS technology, suitable for digital and analog circuits. By the principle of converting the photocurrent to the voltage, it can detect the UV intensity and is well used for external circuits.

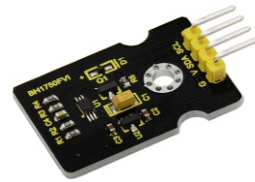## keyestudio FTDI Basic Program Downloader USB to TTLFT232

KS0277

Introduction
It is based on the NEO-6M-0-001 module, and those pins are also compatible with UNO R3 and MEGA 2560 control board. Regular GPS pins (RX, TX) is connected to Arduino D0-D7, and you are able to set the connection pin via the jumper cap.

## keyestudio BH1750FVI Digital Light Intensity Module

KS0278

Introduction
Keyestudio BH1750FVI digital light intensity module is a digital light intensity sensor integrated circuit used for two-wire serial bus interface. It uses the light intensity data collected by module to adjust the brightness of LCD and keyboard backlight. The module resolution can detect a wide range of light intensity changes.

keyestudio Slide Potentiometer Module

KS0279
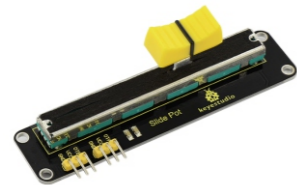
Introduction
Keyestudio slide potentiometer module using high-quality sliding electrical appliance, has the performances of stability and reliability. It is a dual analog output, and outputs 0-VCC analog voltage signal.

keyestudio Breadboard Power Supply Module

KS0280

Introduction
This bread board power supply module is compatible with 5V and 3.3V, applied to MB102 breadboard. The module contains two channels of independent control, powered by the USB all the way. The output voltage is constant for the DC 5V, and another way is powered by DC 6.5-12V, output controlled by the DIP switch, respectively for DC5V and DC3.3V.

keyestudio Reprap Stepper Motor Driver

KS0281
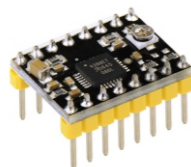
Introduction
This stepper motor driver is powered by A4988, a DMOS microstep driver with converter and overcurrent protection. The A4988 includes a fixed turn-off time current regulator that operates in slow or mixed decay mode. The converter is the key to easy implementation of the A4988.

keyestudio SIM5320E 3G Module

KS0287

Introduction
keyestudio SIM5320E 3G module is a mobile phone module, it can be used for GPRS data transmission, supporting both Mobile and Unicom. This module has the function of GPS positioning, with the features of powerful functions and less external circuits,etc.

keyestudio LCD2004 3D Module

KS0289

Introduction
Keyestudio LCD2004 3D module includes a SD card reader, a rotary encoder and a 20 character * 4 line LCD. When this control panel is connected to RAMPS 1.4, you don't need your PC anymore. The smart control panel supplies power for your SD card.
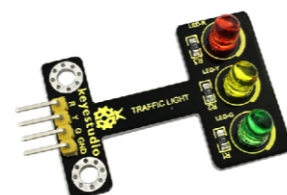
keyestudio LCD1602 3D Module

KS0290

Introduction
Keyestudio LCD1602 3D module includes a SD card reader, a rotary encoder and a 16 character * 2 line LCD. Keyestudio LCD1602 3D module used in 3D printer, an extension accessory of RAMPS. By using this panel, the printer can realize off-line printing function.

keyestudio Traffic Light Module

KS0310

Introduction
Convenient for wiring, we specially design this traffic light module. On the module, it has integrated three LEDs, like LED-R, LED-Y, LED-G. This module is able to make some light-interactive works, fully compatible with Arduino microcontroller and raspberry pi system.

keyestudio Relay Module

KS0317

Introduction
This is a button-controlled relay module. It integrates a 12V relay. Powered on, you can control the relay on and off through a tactile button on the module. Or you can connect up the white connector on the module to replace the tactile button, so as to remotely control the relay on and off.

keyestudio GPS Module

KS0319

Introduction
This GPS module is based on the NEO-7M, can be used for satellite positioning. When using, you can debug the GPS module using the data cable via the micro usb interface. Or through the reserved serial port interface, use USB to serial port modules or external MCU to receive the GPS information.

keyestudio Electromagnet Module

KS0320

Introduction
This module mainly contains an electromagnet. A magnet that generates a magnetic field from an electric current. It uses the principle of electro-magnetic. When using this module, you can control the electromagnet on and off by controlling the High or Low level on its Signal end.

## keyestudio HR-SR04 Blue Ultrasonic Module (3PCS)

KS0328
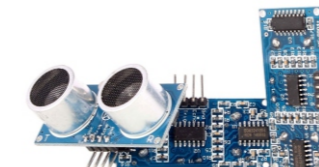
Introduction
This kit includes three HR-SR04 ultrasonic modules. As the ultrasonic has strong directivity, slow energy consumption and far spread distance in the media, so it is commonly used in the measurement of distance, such as range finder and position measuring instrument.

keyestudio 24L01 Wireless Module (4PCS)

KS0338
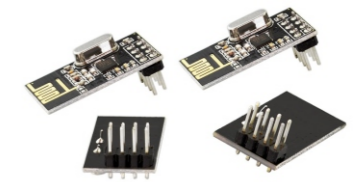
Introduction
This kit includes 4 pcs of NRF24L01 wireless module. The NRF24L01 chip used in the module is a single-chip wireless transceiver chip operating in the 2.4~2.5GHz world-wide ISM band. The output power, channel selection and protocol settings can be set via the SPI interface.

## keyestudio SHT31 Temperature and Humidity Module

KS0348
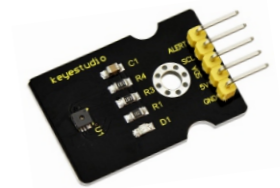
Introduction
This module mainly uses the SHT31 temperature and humidity sensor, which belongs to the SHT3X series temperature and humidity sensor. Compared with the temperature and humidity sensor of SHT2X series, the SHT3X series performs smarter, more reliable, and more accurate.

keyestudio HC-08 Bluetooth Module

KS0355
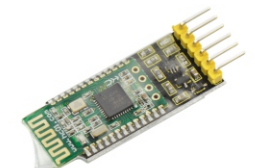
Introduction
Keyestudio HC-08 Bluetooth module is a new digital transmission module, based on the Bluetooth Specification V4.0 BLE Bluetooth protocol.
The module uses the CC2540F256 chip from TI, configured with 256K bytes of space, supporting the AT command.

keyestudio 8x16 LED Matrix Panel

KS0357

Introduction
Keyestudio 8x16 LED matrix panel comes with 128 LEDs andAIP1640 chip welded on the back.
Communicate this matrix with microcontrollers via I2C communication. Through controlling the AIP1640 chip, thus control the 128 LEDs on the panel turn on or off, displaying the images you want to show on the LED matrix.