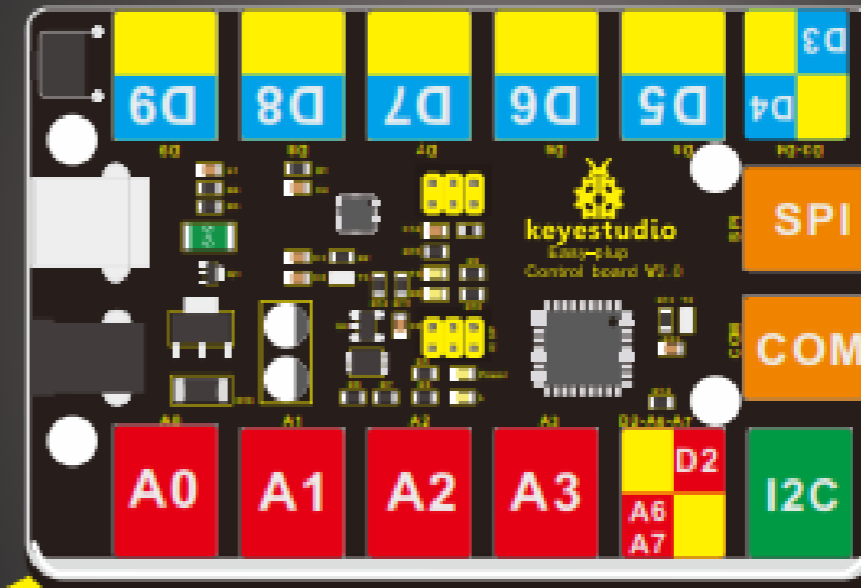# Easy Plug

KS0240

EASY Plug V2.0 Control Board

➤ Introduction

The processor of this EASY Plug control board V2.0 is ATmega328.
Development board IO port with crystal head leads, and couples with power supply interface can allow you to connect external sensors and modules, which let you don't worry that the wrong wiring will damage the external components.
The development board leads to five digital ports input/output (including three PWM outputs), four analog input interfaces, one dual-digital interface, one SPI communication interface, one serial communication interface, one IIC communication interface and a joystick module interface.

➤ Specification

Microcontroller core: ATmega328P-PU
Working voltage: +5V
External input voltage：+7V～+12V（recommended）
External input voltage (extremum): +6V ≤ Vin ≤ +20V
Digital signal I/O interface: 5 (of which three for PWM output)
Analog signal input interface: 4
DCI/O interface current: 20mA
FlashMemory: 32KB (ATmega328) of which 0.5 KB used by bootloader
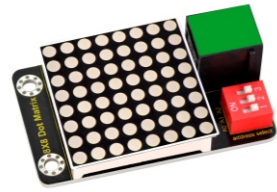SRAM static storage capacity:2KB
EEPROM storage capacity: 1KB
Clock frequency： 16MHZ

keyestudio EASY plug 8x8 LED Matrix Module Address Select

KS0395

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.

keyestudio EASY plug GP2Y1014AU PM2 Dust Sensor Module

KS0394

Introduction
EASY plug GP2Y1014AU PM2.5 Dust sensor is particularly effective in detecting very fine particles, such as cigarette smoke, and is commonly used in air purifier system.

keyestudio EASY plug WIFI and Bluetooth Shield

KS0393

Introduction
This shield is designed for the ESP-01S WiFi module and HC-06 Bluetooth module. Onboard comes with interfaces for module.
It is very easy to connect the shield to EASY Plug control board for communication using only an RJ11 cable.

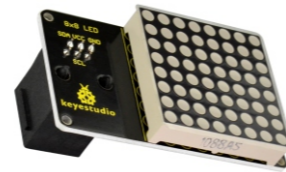## keyestudio EASY plug I2C 1602 LCD Module-180° Interface

KS0381

Introduction
This is a basic 16 character by 2 line LCD display module.The LCD module displays white text on blue background, and comes with I2C communication interface. On the back comes with a potentiometer, which can be used to adjust the backlight, with default address 0x27.

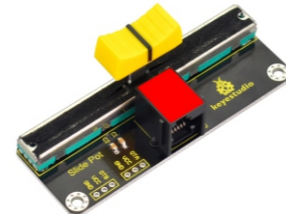## keyestudio EASY plug 8x8 LED Matrix Module -180° Interface

KS0380

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 four pin of this module is integrated into a crystal plug, with direction 180°.

keyestudio EASY plug Slide Potentiometer

KS0373

Introduction
The EASY plug slide potentiometer uses high-quality sliding appliances for stable and reliable performance. It is a dual analog output that outputs a 0-VCC analog voltage signal.The module pins are extended into Registered jack, so you can easily connect it to EASY Plug control board using a RJ11 cable.

keyestudio EASY plug Servo Module +Micro Servo

KS0372

Introduction
The EASY plug Servo module is extended into Registered Jack, so you can connect it to EASY PLUG control board using only a RJ11 cable.The Servo module also comes with 3pins of 2.54mm pin pitch, fully compatible with servo pins.

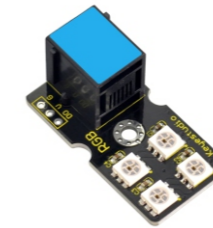## keyestudio EASY plug Thin-film Pressure Sensor

KS0371

Introduction
This EASY plug pressure sensor adopts the flexible Nano pressure-sensitive material with an ultra-thin film pad. It has the functions of water-proof and pressure detection. The force sensors are ultra-thin and flexible printed circuits, which can be easily integrated into force measurement applications.

keyestudio EASY plug 2812 2x2 Full Color RGB Module

KS0370

Introduction
EASY plug 2812 2x2 full color RGB module is a smart external control LED light source that integrates control circuit and lighting circuit.
LED has advantages of low voltage drive, environmental protection and energy saving, high brightness, wide scattering angle, good consistency, ultra low power, long life and so on.

keyestudio EASY plug 4-Digit LED Display

KS0369

Introduction
This is a 4-digit 0.36" Common Anode LED display module, a 12-pin display module with score points. The driver chip used in the matrices is TM1637, using only two signal cables to make the microcontroller control the 4-digit LED display.

keyestudio EASY plug Steam Sensor

KS0246

Introduction
Keyestudio steam sensor is an analog sensor and can make a simple rainwater detector and liquid level switch. When humidity on the surface of the sensor goes up, the output voltage will increase.

keyestudio EASY plug Joystick Module

KS0245

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 connect to EASY PLUG control board with only one cable.

keyestudio EASY plug TEMT6000 Ambient Light Sensor

KS0244

Introduction
A light sensor measures the level of light in a room or ambient light in a space. This EASY plug TEMT6000 light sensor uses a special ambient light detector (TEMT6000) with spectral response that closely emulates the human eye.

keyestudio EASY plug W5100 Ethernet Module

KS0243

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 EASY plug SR01 Ultrasonic Module

KS0242

Introduction
This EASY Plug SR01 Ultrasonic integrates ultrasonic transmitter, receiver and corresponding control circuit.It should be connected to the double digital interface with only one line, which is very easy to use and convenient for connection.

keyestudio EASY plug L9110 Fire Extinguishing Module

KS0241

Introduction
The fan motor module uses the L9110 driver to control the forward and reverse rotation of propeller. It should be connected to the double digital port with only one line, pretty convenient. It can easily blow out the fire of a lighter 20cm away. This module is commonly used for STEM class.

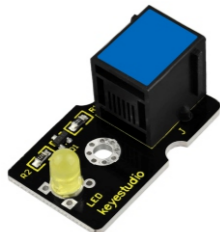## keyestudio EASY plug Digital Blue LED Module

KS0227

Introduction
This is a special EASY plug blue LED module. When connecting to ARDUINO, after programming, it can emit blue light. For easy use, the module's 3pin are brought out as a crystal head socket. The socket is compatible with EASY plug Control board V2.0

keyestudio Bluetooth 4.0 Expansion Shield

KS0226

Introduction
This is a special EASY plug yellow LED module. When connecting to ARDUINO, after programming, it can emit yellow light. For easy use, the module's 3pin are brought out as a crystal head socket. The socket is compatible with EASY plug Control board V2.0

keyestudio LCD1602 Expansion Shield

KS0225

Introduction
This is a special EASY plug green LED module. When connecting to ARDUINO, after programming, it can emit green light. For easy use, the module's 3pin are brought out as a crystal head socket. The socket is compatible with EASY plug Control board V2.0

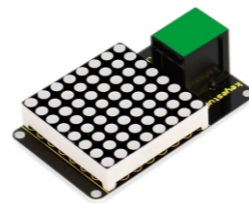## keyestudio 2.8 Inch TFT LCD Shield

KS0224

Introduction
This is a special EASY plug red LED module. When connecting to ARDUINO, after programming, it can emit red light. For easy use, the module's 3pin are brought out as a crystal head socket. The socket is compatible with EASY plug Control board V2.0

keyestudio EASY plug I2C 8x8 LED Matrix

KS0139

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.

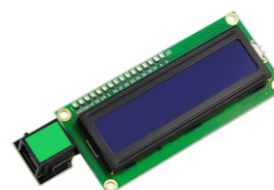## keyestudio EASY plug I2C 2004 LCD

KS0138

Introduction
This module is a 20 character by 4 line LCD display with Blue background and White backlight. This LCD is ready-to-use because it is compatible with the Arduino Liquid Crystal Library. It comes with EASY Plug connector, you can use one line for simple connection.

keyestudio EASY plug 1602 I2C Module

KS0137

Introduction
This is a basic 16 character by 2 line LCD display with white text on blue background. On the back comes with a potentiometer to adjust the screen contrast. You can use only one line for simple connection.

keyestudio EASY plug OLED Module

KS0136

Introduction
An OLED display works without a backlight. Thus, it can display deep black levels and can be thinner and lighter than a liquid crystal display (LCD). In low ambient light conditions such as a dark room an OLED screen can achieve a higher contrast ratio than an LCD.
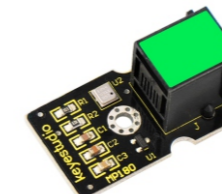
keyestudio EASY plug Bluetooth Module

KS0135

Introduction
Keyestudio Bluetooth 2.0 module can easily achieve serial wireless data transmission. The operating frequency is among the most popular 2.4GHz ISM frequency band (i.e. Industrial, scientific and medical).
It adopts Bluetooth 2.1+EDR standard.

keyestudio EASY plug BMP180 Barometric Pressure Sensor

KS0134

Introduction
BMP180 is a pressure sensor with high precision, compact design and low power consumption. Minimum absolute accuracy reaches 0.03hpa with only 3uA power consumption.
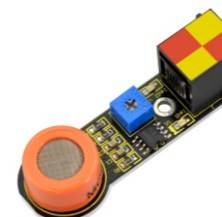
keyestudio EASY plug MQ135 Air Quality Sensor

KS0133

Introduction
MQ135 sensor uses SnO2 sensitive material because SnO2 has low electrical conductivity in the clean air. You can rotate the potentiometer on the sensor to adjust the sensitivity. MQ135 has a high sensitivity to ammonia, sulfide, benzene vapor, smoke and other harmful gases.

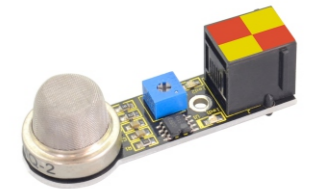## keyestudio EASY plug Analog Alcohol Sensor

KS0132

Introduction
This analog gas sensor - MQ3 is suitable for detecting alcohol. It can be used in a Breath analyzer. Also it has high sensitivity to alcohol and low sensitivity to Benzine. The sensitivity can be adjusted by a blue potentiometer on the sensor.

keyestudio EASY plug Analog Gas Sensor

KS0131

Introduction
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.
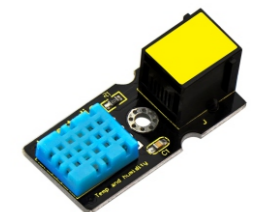
keyestudio EASY plug DS3231 Clock Module

KS0130

Introduction
The DS3231 is a low-cost, extremely accurate I2C real-time clock (RTC) with an integrated temperature-compensated crystal oscillator (TCXO) and crystal. It integrated with a battery input, which can maintain accurate timekeeping when power off. The integrated crystal resonator ensures the accuracy of clock.

keyestudio EASY plug DHT11 Temperature and Humidity Sensor

KS0129

Introduction
The DHT11 is a basic, ultra low-cost digital temperature and humidity sensor. It uses a capacitive humidity sensor and a thermistor to measure the surrounding air, and provides a pre-calibrated digital signal output.

keyestudio EASY plug ADXL345 Three Axis Acceleration Module

KS0128

Introduction
The ADXL345 module is a low power, 3-axis MEMS accelerometer with high resolution (13-bit) and measurement at up to ±16g (gravitational force). Is well suited to measures the static acceleration of gravity in tilt-sensing applications, as well as dynamic acceleration resulting from motion or shock.

keyestudio EASY plug Single Relay Module

KS0127

Introduction
This EASY Plug relay module integrates a high-quality relay. The Relay output state by a light-emitting diode, observing the relay ON and OFF status.
It can be controlled through the digital IO port, such as lamps, motors and other high current or high voltage devices.

keyestudio EASY plug IR Transmitter Module

KS0126

Introduction
An infrared transmitter is simply a Light Emitting Diode which generates IR light (invisible IR light).
This IR transmitter module is designed for IR communication when paired with IR receiver module.

keyestudio EASY plug IR Receiver Module

KS0125

Introduction
Infrared receiver is a component with functions of reception, amplification, and demodulation. The internal IC has already been demodulated so that can directly output digital signal.
Well, it will be also easy to make your own IR controller using IR transmitter.

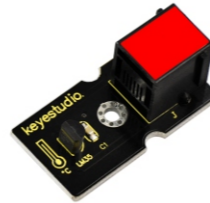## keyestudio EASY plug DS18B20 Temperature Sensor

KS0124

Introduction
The usable temperature ranges from -55°C to +125°C. It also supports multi-point mesh networking, the DS18B20 temperature sensor is the best choice in applications which require high accuracy and high reliability.

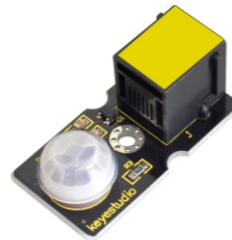## keyestudio EASY plug LM35 Temperature Sensor Module

KS0123

Introduction
It is based on semiconductor LM35 temperature sensor, the output voltage is proportional to the temperature.
It is effective in the range between 0 degree Celsius and 100 degree Celsius.
Sensitivity is 10mV per degree Celsius.
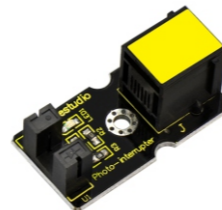
keyestudio EASY plug PIR Motion Sensor

KS0122

Introduction
The PIR sensor can detect infrared signals from a moving person or moving animal, outputting switching signals. it can work with voltages of both 3.3V and 5V. The device has a detection range of 7 meters and a detection angle of 100º.

keyestudio EASY plug Photo Interrupter Module

KS0121

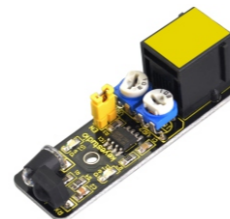### Introduction
The upright part on the module combines an infrared light emitting diode and shielded infrared detector. Useful for many applications such as optical limit switches, pellet dispensing, general object detection, etc.

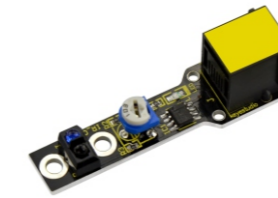## keyestudio EASY plug Infrared Obstacle Avoidance Sensor

KS0120

Introduction
This sensor has strong adaptability to ambient light and is of high precision. It has a pair of infrared transmitting and receiving tube. You can adjust the detection distance by rotating the potentiometer knob, the effective distance range of 2~40cm.
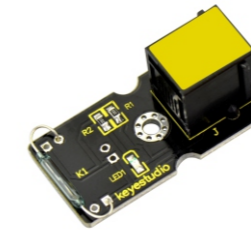
keyestudio EASY plug Line Tracking Sensor

KS0119

Introduction
The Line Tracking Sensor can tell white from in black or black from white accurately. The working principle is simple, using infrared light's different reflectivity for different color, and converting the strength of the reflected signal into current signal.
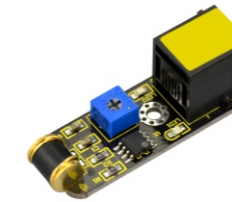
keyestudio EASY plug Reed Switch Module

KS0118

Introduction
This is a small device called a reed switch on the module. You can mount reed switch on the door for alarming purpose or as switches.

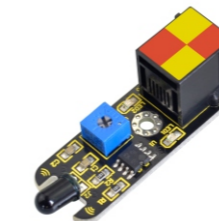## keyestudio EASY plug Vibration Sensor Module

KS0117

Introduction
You can directly connect it to our EASY Plug control board with only one cable. Just vibrate this sensor, Arduino can receive a digital signal. It is easy to count and program in Arduino.It also comes with a potentiometer for you to adjust the sensitivity.
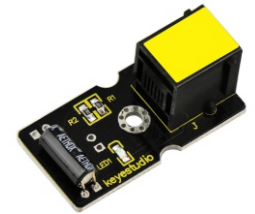
keyestudio EASY plug Flame Sensor Module

KS0116

Introduction
The flame sensor can be used to detect fire or other wavelength at 760nm ~1100nm light.
The potentiometer on the flame sensor can be used to adjust the sensitivity.

keyestudio EASY plug Digital Tilt Sensor Module

KS0115

Introduction
The tilt-switch twig is the equivalent of a button, and is used as a digital input. Inside the tilt switch is a ball that make contact with the pins when the case is upright. Tilt the case over and the balls don't touch, thus not making a connection.
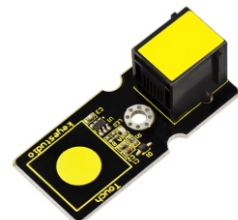
keyestudio EASY plug Knock Sensor

KS0114

Introduction
The knock sensor is mainly composed of SW-280 vibration switch, which is an inductive proximity switch. It is an electronic switch that transmits the sensing result to the circuit device and induces the circuit to start working when the vibration force is induced.

keyestudio EASY plug Capacitive Touch Sensor

KS0113

Introduction
This little sensor can "feel" people and metal touch and feedback a high/low voltage level. Even isolated by some cloth and paper, it can still feel the touch. The sensitivity will decrease as the isolation getting thick.
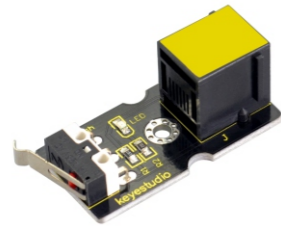
keyestudio EASY plug Digital Push Button

KS0112

Introduction
The EASY Plug Push-button module is a tidy little design that lets you control a DC power source using an everyday tactile button. When the button is pressed, it outputs HIGH level signal; if release the button, it outputs LOW level signal.
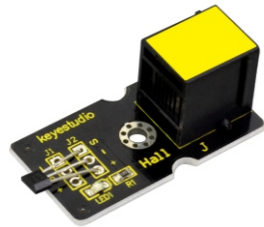
keyestudio Sim800c Shield

KS0111

Introduction
Crash sensor, also known as snap-action switch, is an electric switch that is actuated by very little physical force. It is a digital on-off input module necessary for elementary electronic.
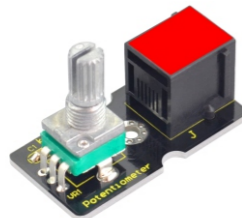
keyestudio EASY plug Hall Magnetic Sensor

KS0110

Introduction
This sensor uses the SFE Reed Switch - Magnetic Field Sensor. It can sense the magnetic materials within a detection range up to 75px. The detection range and the strength of magnetic field are proportional.

keyestudio EASY plug Analog Rotation Sensor

KS0109

Introduction
The sensor is based on a potentiometer. It is a perfect demonstration of a variable voltage divider circuit. Its voltage can be subdivided into 1023, easy to be connected to Arduino with our sensor shield.
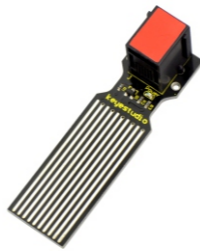
keyestudio EASY plug Soil Humidity Sensor

KS0108

Introduction
This soil moisture sensor uses the two probes to pass current through the soil, and then it reads that resistance to get the moisture level. More water makes the soil conduct electricity more easily (less resistance), while dry soil conducts electricity poorly (more resistance).

keyestudio EASY plug Water Sensor

KS0107

Introduction
This sensor is easy-to-use, portable and particularly designed to identify and detect water level and water drop. It can measure the volume of water drop and water quantity through an array of traces of exposed parallel line.

keyestudio EASY plug Photocell Sensor

KS0106

Introduction
keyestudio EASY Plug photocell sensor is a semiconductor, integrated with a photoresistor, easy to use and very convenient for wiring. It has features of high sensitivity, quick response, spectral characteristic and R-value consistence.

keyestudio EASY plug Analog Sound Sensor

KS0105

Introduction
This sound sensor is typically used in detecting the loudness in ambient environment.You can use it to make interactive circuits such as a voice -operated switch.The sound sensitivity can be adjusted by the potentiometer.

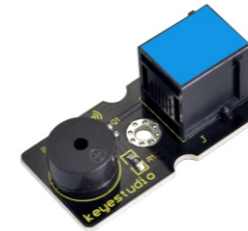## keyestudio EASY plug Analog Temperature Sensor

KS0104

Introduction
It can measure temperature change in the surroundings and send the data to Arduino analog IO. Just need to convert the output data to degrees Celsius temperature by simple programming.

keyestudio EASY plug Passive Buzzer Module

KS0103

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

keyestudio EASY plug Active Buzzer Module

KS0102

Introduction
Here is the simplest sound making module. You can use high/low level to drive it. Just change the frequency it buzzes, you can hear different sound. This module is widely used on your daily appliance, like PC, refrigerator, phones, etc.

keyestudio EASY plug Piranha LED Module

KS0100

Introduction
This is an expansion board for the ESP-01S WiFi module. After power-on, the module is in BOOT flash mode. The AT command can be directly tested through the serial port on the shield.

keyestudio EASY plug SR01 Ultrasonic Module V2

KS0376

Introduction
This is an EASY plug IIC interface conversion shield, compatible with both EASY plug interface and 2.54mm pitch header interface.
The I2C shield breaks out the I2C communication port with both 4pin header of 2.54mm pitch and the EASY plug interface.

keyestudio EASY plug I2C Interface Conversion Shield

KS0390

Introduction
This is an EASY plug IIC interface conversion shield, compatible with both EASY plug interface and 2.54mm pitch header interface.
The I2C shield breaks out the I2C communication port with both 4pin header of 2.54mm pitch and the EASY plug interface.