

# Component List

## 1) ESP32 38Pin Development Board



ESP-WROOM-32 ESP32. The ESP32 is integrated with Antenna switches, RF Balun, power amplifiers, low-noise amplifiers, filters, and management modules, and the entire solution occupies the least area of PCB. 2.4 GHz Wi-Fi plus Bluetooth dual-mode chip, with TSMC Ultra-low power consumption 40nm technology, power dissipation performance, and RF performance is the best, safe and reliable, easy to extend to a variety of applications.

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### Features:

1. High performance-price ratio
2. Small volume, easily embedded to other products
3. Strong function with support LWIP protocol, Freertos
4. Supporting three modes: AP, STA, and AP+STA
5. Supporting Lua program, easily to develop

## 2) Hi-Link HLK 5M05 5V/5W Switch Power Supply Module



Hi-Link HLK 5M05 Switch Power Supply Module It can supply 5V DC from 120V AC – 230V AC and has a power rating of 5 Watt. This power supply module replaces lots of parts from the traditional power supply like diodes, voltage regulator and transformers. Therefore there are many advantages for these modules, such as low-temperature rise, low power, high efficiency, high reliability, high-security isolation etc. It is designed to be mounted on the PCB and is the ideal solution to power pads that you take. It is widely used in a smart home, automation and control, c

### **Features:**

1. Meet UL, CE requirements,
2. Ultra-thin, ultra-small
3. All voltage input (AC: 90 ~ 264V)
4. Low ripple and low noise
5. Output overload and short circuit protection
6. High efficiency, high power density
7. The product is designed to meet the requirements of EMC and Safety Test
8. Low power consumption, environmental protection, no-load loss <0.1W

### **Environmental conditions:**

1. Technical indicators: Single bit
2. Working temperature: – 20-60 +degree
3. Storage temperature: + 80-40 -degree
4. Relative humidity: 5-95%
5. The cooling way: Natural cooling
6. The atmospheric pressure: 80-106Kpa
7. The altitude: 2000M or less.

### 3) DHT11 Temperature And Humidity Sensor Module with Cable



The DHT11 Humidity & Temperature Sensor Module is a basic, low-cost digital temperature and humidity sensor. It uses a capacitive humidity sensor and a thermistor to measure the surrounding air and outputs a digital signal on the data pin (no analog input pins needed). Its very simple to use, and libraries and sample codes are available for Arduino and Raspberry Pi.

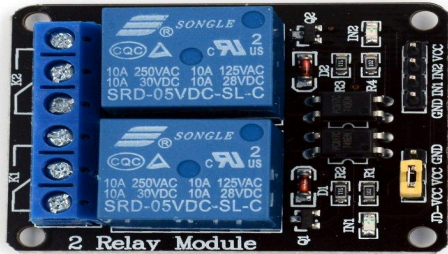
This DHT11 Humidity & Temperature Sensor Module makes is easy to connect to an Arduino or microcontroller as it includes the pull-up resistor required to use the sensor. Only three connections are required to be made to use the sensor – Vcc, Gnd, and Output. We have also included the cables required to connect the DHT11 to a microcontroller.

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#### **Features:**

1. Low-cost Module.
2. 5V power and I/O.
3. 2.5mA max current use during conversion (while requesting data).
4. Good for 20-80% humidity readings with 5% accuracy.
5. Good for 0-50°C temperature readings  $\pm 2^\circ\text{C}$  accuracy.
6. No more than 1 Hz sampling rate (once every second).
7. It comes with cables to make connections to a microcontroller.

#### 4) 5V 2 Channel Relay Module



This is a 5V 2 Channel Relay Module, be able to control various appliances, and other equipment with large current. It can be controlled directly by Microcontroller (8051, AVR, PIC, DSP, ARM, ARM, MSP430, TTL logic). 5V 2-Channel Relay interface board and each one needs 15-20mA Driver Current. Equipped with high-current relay, AC250V 10A; DC30V 10A Standard interface that can be controlled directly by microcontroller (8051, AVR, PIC, DSP, ARM, ARM, MSP430, TTL logic) Indication LED's for Relay output status.

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#### Features:

1. The module using Songle relay control.
2. AC voltage 250V, AC current 10A, maximum DC voltage 30V DC current maximum 10A.
3. Power indicator (green), Two ways of relay status indicator light (red).
4. Using 8550 transistor-driven, strong driving ability.
5. Has the fixed bolt hole and easy installation.

#### 5) 1N4007 1W Diode



1N4007 1W Diode (Pack of 30) is a general-purpose silicon diode. AC adapter in a common household appliance is the most common application.

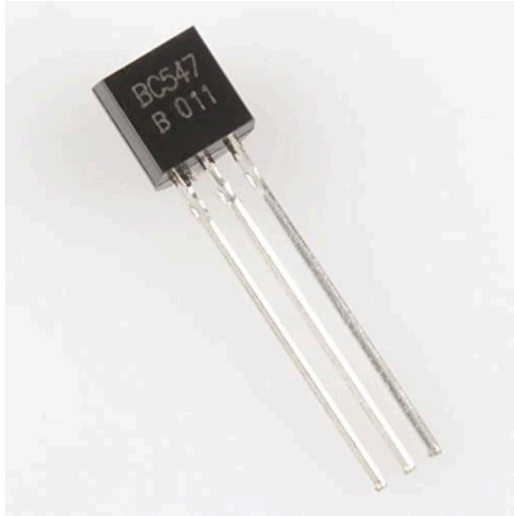
#### 6) 330 Ohm 1W Metal Film Resistor



Power: 1W  
Resistance: 330Ω

we have 330 Ohm 1W Metal Film Resistor (Pack of 40) for through-hole applications. These WMF series Metal Film Resistors are manufactured using the latest Magnetron Vacuum Sputtering System and are insulated with layers of lacquer ensuring a very stable resistive medium having a very low-temperature coefficient.

## 7) BC547 NPN DIP Transistor



The BC547 is a commonly used NPN bipolar junction transistor (BJT) available in a DIP (Dual Inline Package) configuration. Here are some key features and specifications: The BC547 transistor is widely used due to its versatility, affordability, and ease of use in various electronic circuits, especially in hobbyist and educational projects.

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### Features:

1. **Type:** NPN transistor, which means it allows current to flow from the collector to the emitter when a small current is applied to the base.
2. **Package:** DIP package, which is a through-hole package with two parallel rows of pins for easy mounting on a circuit board.
3. **Applications:** Often used in amplification circuits, switching applications, and as general-purpose transistors in various electronic devices.
4. **Maximum Voltage and Current Ratings:** The maximum collector-base voltage ( $V_{cbo}$ ) is typically around 50V, and the maximum collector current ( $I_c$ ) is usually around 100mA.
5. **Gain ( $h_{FE}$ ):** The DC current gain or amplification factor of the BC547 transistor is typically between 110 and 800, depending on the specific model and manufacturer.
6. **Frequency Range:** Capable of operating in the low to moderate frequency range, suitable for audio and general-purpose amplifier circuits.
7. **Polarity:** As an NPN transistor, its pinout consists of the collector (C), base (B), and emitter (E) terminals.

## 8) Capacitive Soil Moisture Sensor



This **Capacitive soil moisture** sensor measures soil moisture levels by capacitive sensing rather than resistive sensing like other sensors on the market. It is made of corrosion-resistant material which gives it excellent service life. Insert it into the soil around your plants and impress your friends with real-time soil moisture data!

This module includes an onboard voltage regulator which gives it an operating voltage range of **3.3 ~ 5.5V**. It is perfect for low-voltage **MCUs**, both **3.3V**, and **5V**. For compatibility with a **Raspberry Pi**, it will need an **ADC converter**.

This soil moisture sensor is compatible with our **3-pin "Gravity"** interface, which we can connect to the **Gravity I/O expansion shield**.

### **Applications:**

1. Garden plants
2. Moisture detection
3. Intelligent agriculture

### **Features:**

1. Supports 3-Pin Gravity Sensor interface
2. Analog output

### 9) DC 3-6 V Mini Micro Submersible Water Pump



You might be searching for a pump that operates on 3-6 V and gives an output of above 70 L/H then this could be the best choice for your project.

This DC 3-6 V Mini Micro Submersible Water Pump is a low-cost, small-size Submersible Pump Motor that can be operated from a **2.5 ~ 6V** power supply. It can take up to **120 liters per hour** with a very low current consumption of **220mA**. Just connect the tube pipe to the motor outlet, submerge it in water, and power it.

1. Make sure that the water level is always higher than the motor. The dry run may damage the motor due to heating and it will also produce noise.
2. This product is available in two different colors like Black and White, which will be shipped randomly so please note you will get anyone out of both colors.

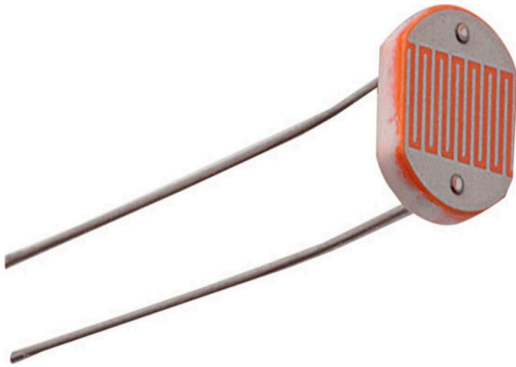
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#### Features :

1. DC 3v to 6v submersible pump
2. micro mini submersible water pump 3v to 6v
3. DC water pump for DIY
4. DC pump for HOBBY kit.



#### 10) 5mm LDR Sensor Photoresistor Photo Cell 100-200K – GL5549



A photoresistor is a resistance made of a semiconductor material whose conductivity changes with the change of illuminance. This feature is used to make photoresistors of different shapes and light-receiving areas. Photoresistors are widely used in toys, lamps, cameras, and other industries.

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#### **Feature:**

1. Epoxy encapsulation
2. Good reliability
3. Small size
4. High sensitivity
5. Fast response
6. Good spectral characteristics

## 11) MQ-5 Methane LPG Liquid Propane Gas Sensor Module



This MQ-5 Methane LPG Liquid Propane Gas Sensor Module is widely used in gas leakage detecting pieces of equipment in family and industry, are suitable for **detecting LPG, natural gas, town gas, avoid the noise of alcohol and cooking fumes and cigarette smoke**

The MQ5 ( MQ-5 ) is used in gas leakage detecting equipment in consumer and industry applications, this sensor is suitable for detecting LPG, natural gas, coal gas. Avoid the noise of alcohol, cooking fumes, and cigarette smoke. The sensitivity can be adjusted by the potentiometer.

The sensitive material of the MQ-5 gas sensor is tin Oxide ( $\text{SnO}_2$ ), which with lower conductivity in clean air. When the target combustible gas exists, The sensor's conductivity is higher along with the gas concentration rising. Please use a simple electro circuit, Convert the change of conductivity to the corresponding output signal of gas concentration. MQ-5 gas sensor has a high sensitivity to Methane, Propane, and Butane, and could be used to detect both Methane and Propane. The sensor could be used to detect different combustible gas especially Methane, it is with low cost and suitable for different application

### Connections

**VCC** ↔ 2.5V ~ 5.0V

**GND** ↔ ground

**Aout** ↔ MCU.IO (analog output)

**Dout** ↔ MCU.IO (digital output)

### Features :

1. High sensitivity to LPG, natural gas, town gas.
2. Small sensitivity to alcohol, smoke.
3. Stable and long life.
4. Simple drive circuit.
5. Fast response.

