Bluetooth Module (HC-05)

Bluetooth Serial Communication Module



The HC-05 is a Bluetooth module that adds wireless serial communication to Arduino and other microcontroller projects. It is commonly used for wireless control, data transfer, robotics and mobile-phone communication.

TOP USES

- Wireless Arduino control
- Robot control from a phone
- Serial data transmission
- Home automation projects

KEY FEATURES

- Bluetooth 2.0 communication
- UART serial interface
- Typical range up to 10 m
- Easy Arduino integration
- AT command configuration

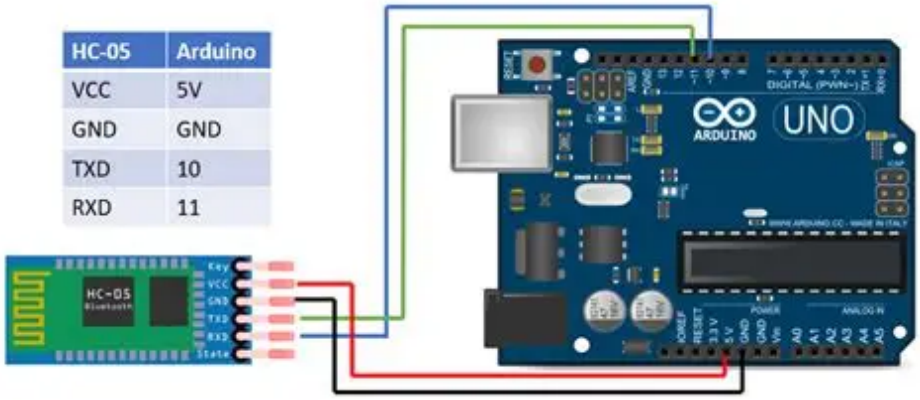
Technical Specifications

Bluetooth Module (HC-05)

Parameter	Value
Module	HC-05
Bluetooth	Bluetooth 2.0
Interface	UART / Serial
Logic	3.3 V
Supply	5 V module input
Range	Up to 10 m
Baud Rate	9600 bps typical
Frequency	2.4 GHz

Pinout

Bluetooth Module (HC-05)



PIN FUNCTIONS

Pin	Function	Notes
VCC	Arduino 5V	Power
GND	Arduino GND	Common ground
TXD	Arduino RX	Bluetooth data to Arduino
RXD	Arduino TX	Arduino data to Bluetooth
KEY / EN	Optional	Used for AT command mode
STATE	Optional	Bluetooth connection status

WIRING NOTES

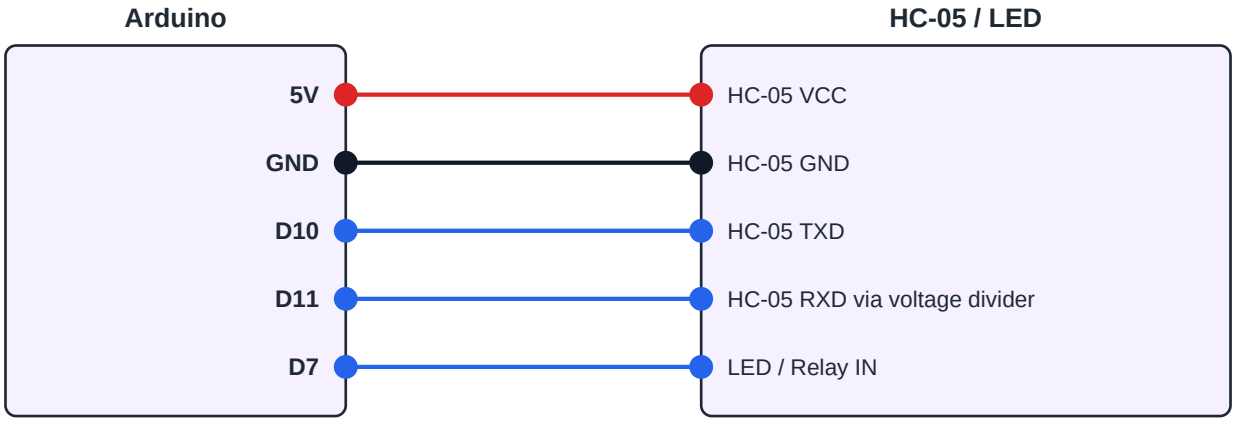
- Connect the HC-05 GND to the Arduino GND.
- TXD sends data to the Arduino RX pin.
- For RXD, use a voltage divider when connecting directly to a 5 V Arduino TX pin.
- The module can communicate with Arduino using the Serial interface.

Example Project

Bluetooth LED Control

Control an LED connected to the Arduino using Bluetooth commands from a smartphone.

CIRCUIT



EXAMPLE CODE

```
#include <SoftwareSerial.h>

SoftwareSerial BT(10, 11);
const int OUTPUT_PIN = 7;

void setup() {
  pinMode(OUTPUT_PIN, OUTPUT);
  BT.begin(9600);
}

void loop() {
  if (BT.available()) {
    char command = BT.read();

    if (command == '1') {
      digitalWrite(OUTPUT_PIN, HIGH);
      BT.println("ON");
    }

    if (command == '0') {
      digitalWrite(OUTPUT_PIN, LOW);
      BT.println("OFF");
    }
  }
}
```

EXPECTED RESULT

- Send 1 from the phone to turn the output ON.
- Send 0 to turn the output OFF.
- The HC-05 provides wireless serial communication with the Arduino.

Useful Links

Bluetooth Module (HC-05)

Resource	Link
Arduino Software	https://www.arduino.cc/en/software
Arduino Language Reference	https://www.arduino.cc/reference/en/

COMPATIBLE COMPONENTS

- Arduino UNO
- Arduino Nano
- Arduino Mega
- Arduino Pro Mini
- Relay Module
- LED Module
- Smartphone

Need this component?

Buy Bluetooth Module HC-05 >>

https://techzoneegypt.com/p/bluetooth-module-hc-05