



The **HC-08** is a Bluetooth module that can be used with Arduino for wireless communication. It operates on **Bluetooth 4.0 (BLE - Bluetooth Low Energy)** and is an alternative to modules like the **HC-05** (Classic Bluetooth) and **HM-10** (another BLE module).

### HC-08 Bluetooth Module Pinout

| Pin   | Function                     | Connection to Arduino                                 |
|-------|------------------------------|-------------------------------------------------------|
| VCC   | Power (3.3V)                 | 3.3V (Do not use 5V!)                                 |
| GND   | Ground                       | GND                                                   |
| TXD   | Transmit Data                | Connect to <b>RX</b> pin (SoftwareSerial recommended) |
| RXD   | Receive Data                 | Connect to <b>TX</b> pin (SoftwareSerial recommended) |
| STATE | Connection Status (Optional) | Can be read to check BT connection                    |

**⚠ Warning:** The HC-08 is a **3.3V module**, so do not connect it directly to 5V Arduino pins. Use a **voltage divider** for the RX line if needed.

### Arduino HC-08 Wiring Example

#### Setting Up HC-08

1. **Default Baud Rate:** Usually **9600** (check datasheet).
2. **AT Commands** (Configure HC-08):
  - Enter **AT mode** by sending AT (should return OK).
  - Common commands:
    - AT+NAME? → Check current name.
    - AT+NAME=MyHC08 → Change device name.
    - AT+BAUD? → Check baud rate.



- AT+BAUD4 → Set baud rate to 9600 (4 = 9600).
- AT+PIN1234 → Set PIN to "1234".

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### Connecting via Smartphone

#### 1. Pairing:

- Enable Bluetooth on your phone.
- Scan for **HC-08** (default name may be HC-08 or similar).
- Enter the **default PIN** (often 1234 or 0000).

#### 2. Using a Bluetooth Terminal App:

- Install an app like **Serial Bluetooth Terminal** (Android).
- Send data from the app → Arduino receives it via `BTserial.read()`.

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### Troubleshooting

- **No response from HC-08?**
  - Check wiring (TX→RX, RX→TX).
  - Ensure **3.3V power** (not 5V).
  - Try different baud rates (9600, 57600, 115200).
- **AT commands not working?**
  - Some HC-08 modules require AT+ prefix (e.g., AT+NAME?).

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### HC-08 vs HC-05 vs HM-10

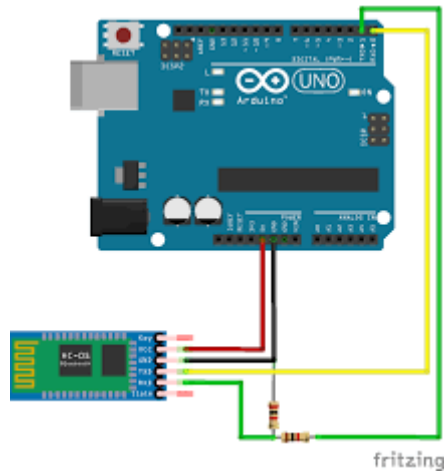
| Feature   | HC-08 (BLE) | HC-05 (Classic) | HM-10 (BLE) |
|-----------|-------------|-----------------|-------------|
| Bluetooth | 4.0 BLE     | 2.0 (Classic)   | 4.0 BLE     |



| Feature     | HC-08 (BLE)  | HC-05 (Classic) | HM-10 (BLE)  |
|-------------|--------------|-----------------|--------------|
| Power Usage | Low          | Higher          | Low          |
| Range       | ~30m         | ~10m            | ~30m         |
| Baud Rate   | Up to 115200 | Up to 1382400   | Up to 115200 |

### Applications

- Wireless sensor data transmission.
  - Remote control of Arduino robots.
  - IoT projects (BLE for low power).
- ```
• cpp
• Copy
• Download
• #include <SoftwareSerial.h>
•
• SoftwareSerial BTserial(2, 3); // RX, TX (Arduino pins)
•
• void setup() {
•   Serial.begin(9600); // Serial Monitor
•   BTserial.begin(9600); // HC-08 default baud rate
•   Serial.println("HC-08 Bluetooth Module Ready");
• }
•
• void loop() {
•   if (BTserial.available()) {
•     char data = BTserial.read();
•     Serial.print("Received: ");
•     Serial.println(data);
•   }
•
•   if (Serial.available()) {
•     char data = Serial.read();
•     BTserial.write(data); // Send to HC-08
•   }
• }
```



EQV.

