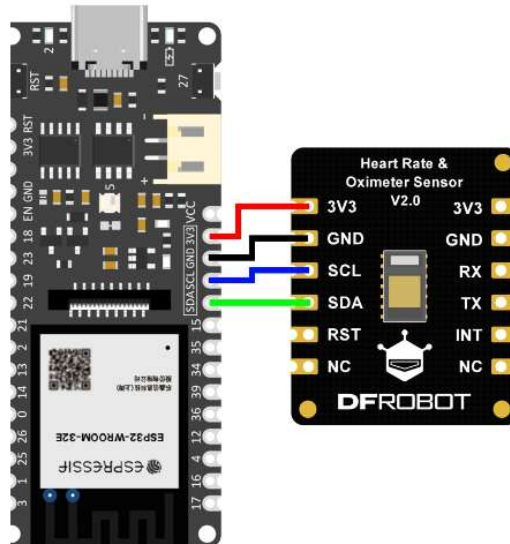


## 1. 测试 Sensor\_MAX30102.ino

将 MAX30102 传感器参考如下连线图连接至 ESP32 的 I2C 接口，并且上传当前文件夹中的 Sensor\_MAX30102.ino 至 ESP32



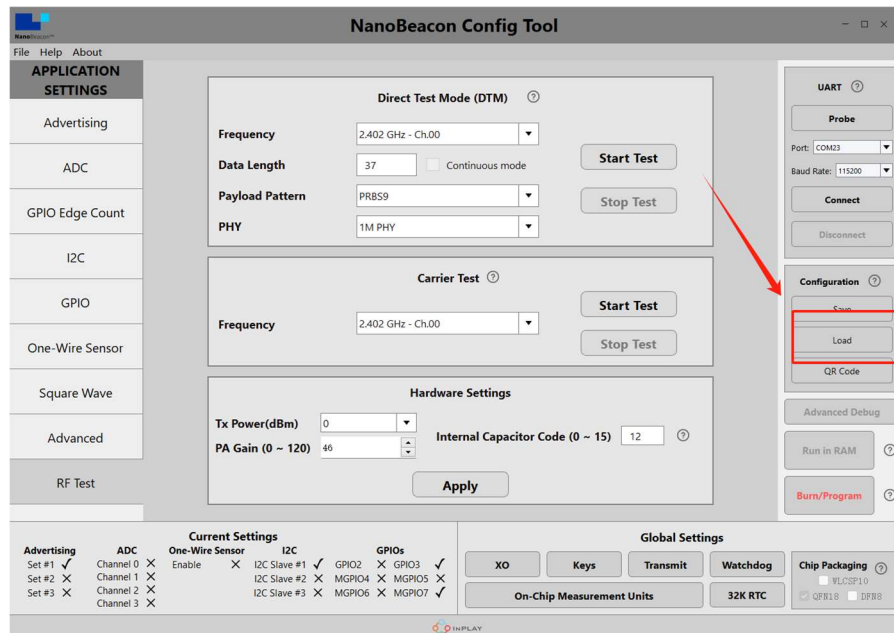
当串口监视器中正常读数，说明传感器正常。传感器可以被连接至 Beacon 测试。

```
Arduino Uno
Sensor_MAX30102.ino
24
25 void setup()
26 {
27   Serial.begin(115200);
28   Wire.begin();
29
30   // 这里为简化配置，不过多解释寄存器详细配置位，感兴趣
31   // 开启测量辅助灯
32   Wire.beginTransmission(MODULE_I2C_ADDRESS);
33   Wire.write(0x20);
34   Wire.write(0x00);
35   Wire.write(0x01);
36   Wire.endTransmission();
37   Serial.println("Success to initialize the sensor")
38 }
39
40 void loop()
41 {
42   uint8_t val = 0, rbuf[4] = { 0 }, tempBuf[2] = {0}
43   int SPO2 = -1, heartbeat = -1;
44   float temperature = 0.0;
45   readReg(0x0C, &val, 1);
46   if (val != 0) {
47     SPO2 = val;
48   }
49
50   Output Serial Monitor x
51
52   Message (Enter to send message to 'Arduino Uno' on 'COM4')
53
54   :temperature value of the board is : 36.09 °C
55   SPO2 is : 99%
56   heart rate is : 87Times/min
57   Temperature value of the board is : 36.09 °C
58   SPO2 is : 99%
59   heart rate is : 83Times/min
60   Temperature value of the board is : 36.11 °C
61   SPO2 is : 99%
62   heart rate is : 83Times/min
63   Temperature value of the board is : 37.03 °C
64   SPO2 is : 99%
65   heart rate is : 85Times/min
66   Temperature value of the board is : 37.05 °C
```

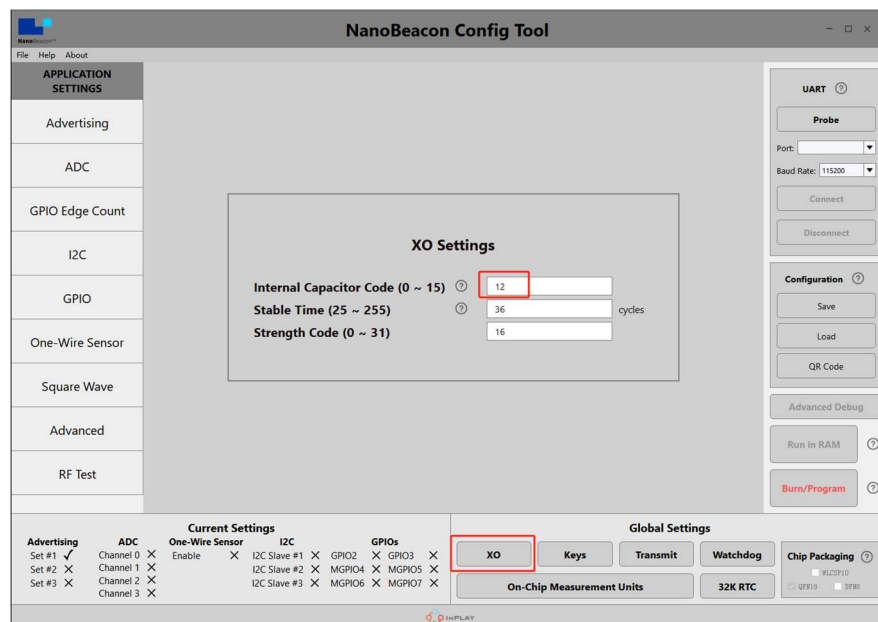
## 2. 烧录 Beacon 并且连接传感器

请您使用 USB-TTL 转换器将.cfg 文件烧录进 Beacon。

NanoBeacon Config Tool 中可以 Load 本文件夹中的 MAX30102.cfg 文件。



检查 XO 电容配置是否为 12

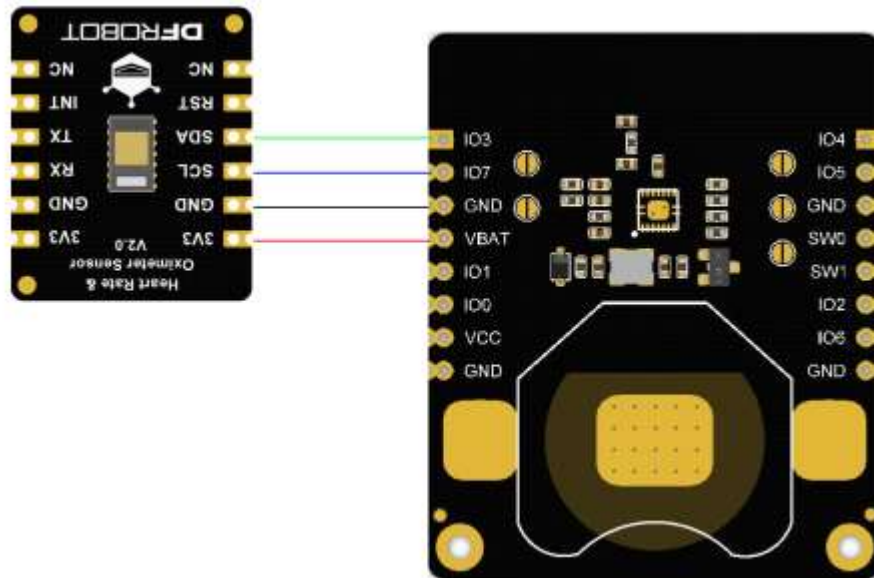


烧录流程请参考 Beacon 的 wiki:

[https://wiki.dfrobot.com.cn/\\_SKU\\_TEL0168\\_Fermion\\_BLE\\_%E4%BC%A0%E6%84%9F%E5%99%A8%E4%BF%A1%E6%A0%87#target\\_4](https://wiki.dfrobot.com.cn/_SKU_TEL0168_Fermion_BLE_%E4%BC%A0%E6%84%9F%E5%99%A8%E4%BF%A1%E6%A0%87#target_4)

在烧录完成后，参考下图连接 Beacon 和传感器。

**注：**我们的.cfg 示例文件默认 SCL->GPIO7, SDA->GPIO3。

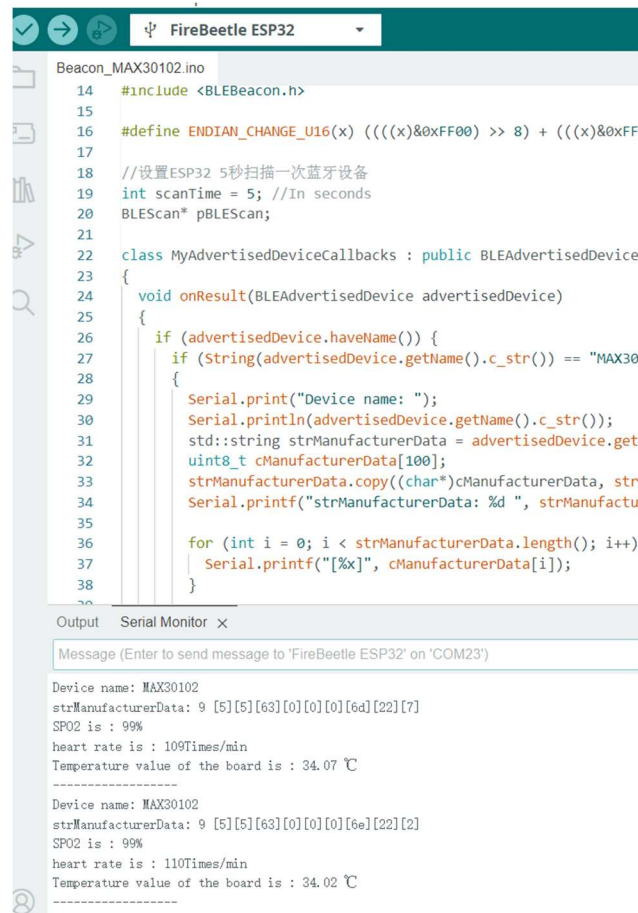


### 3. 上传 ESP32 代码并获取读数

将同目录下的 Beacon\_MAX30102.ino 上传至 ESP32 主板。

并且将 Beacon 和传感器供电，供电方式可选 CR2032 纽扣电池，或者 VCC 和 GND 输入 3.3V。

您将会看到串口监视器中打印相关数据。



The screenshot displays the Arduino IDE interface. The top toolbar shows the 'Upload' button (a right-pointing arrow) and the 'Serial Monitor' button (a magnifying glass). The dropdown menu at the top indicates the board is 'FireBeetle ESP32'. The code editor shows the file 'Beacon\_MAX30102.ino' with the following code:

```
14 #include <BLEBeacon.h>
15
16 #define ENDIAN_CHANGE_U16(x) (((x)&0xFF00) >> 8) + (((x)&0xFF
17
18 //设置ESP32 5秒扫描一次蓝牙设备
19 int scanTime = 5; //In seconds
20 BLEScan* pBLEScan;
21
22 class MyAdvertisedDeviceCallbacks : public BLEAdvertisedDevice
23 {
24     void onResult(BLEAdvertisedDevice advertisedDevice)
25     {
26         if (advertisedDevice.haveName()) {
27             if (String(advertisedDevice.getName().c_str()) == "MAX30
28             {
29                 Serial.print("Device name: ");
30                 Serial.println(advertisedDevice.getName().c_str());
31                 std::string strManufacturerData = advertisedDevice.get
32                 uint8_t cManufacturerData[100];
33                 strManufacturerData.copy((char*)cManufacturerData, str
34                 Serial.printf("strManufacturerData: %d ", strManufac
35
36                 for (int i = 0; i < strManufacturerData.length(); i++)
37                     Serial.printf("[%x]", cManufacturerData[i]);
38             }
39 }
```

The 'Serial Monitor' tab is active, showing the output of the program. The output is as follows:

```
Device name: MAX30102
strManufacturerData: 9 [5][5][63][0][0][0][6d][22][7]
SPO2 is : 99%
heart rate is : 109Times/min
Temperature value of the board is : 34.07 ℃
-----
Device name: MAX30102
strManufacturerData: 9 [5][5][63][0][0][0][6e][22][2]
SPO2 is : 99%
heart rate is : 110Times/min
Temperature value of the board is : 34.02 ℃
-----
```