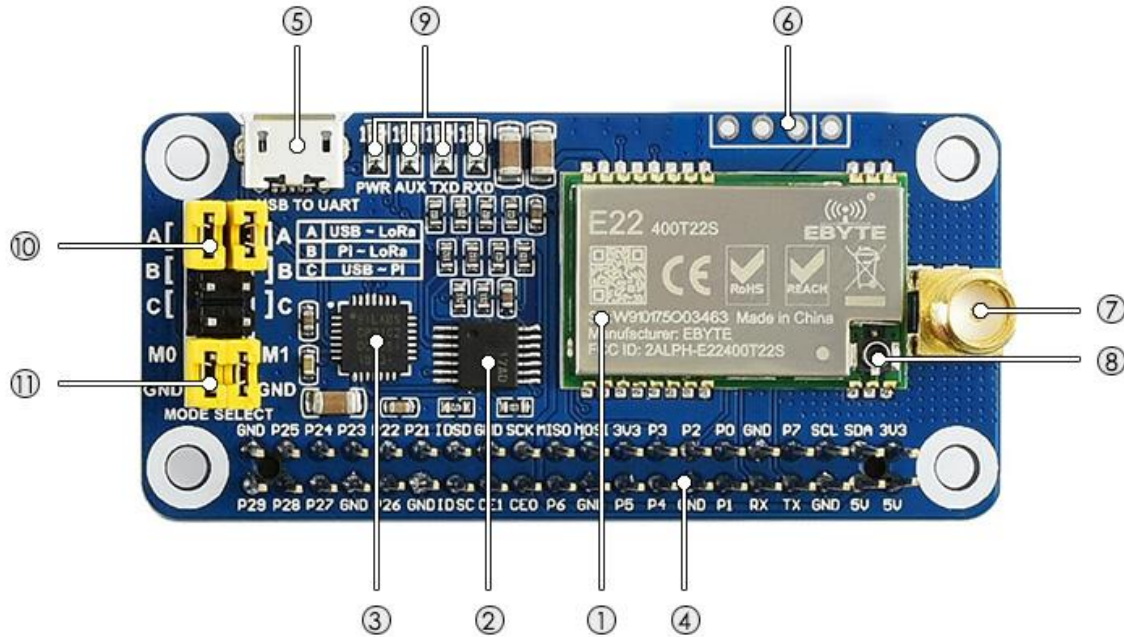


Wireshark LoRa Hat (E-22 chip, not SX1262)

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January 4, 2023



Configuration in Windows Operating System (required only once after unpackaging)

1. Google-search “**silicon labs (SiLabs) USB To UART driver for Windows**” (This driver is currently called CP210X). Download the latest driver and install in Windows.
2. Jumpers on LoRa-hat: Two set of jumpers on the hat with printed labels on PCB
 1. **One Top jumper: shorts either A-B or B-C or C-** (dual jumpers, either both be removed, or both be put back when required)
 2. **Two bottom jumpers: M1 and M0**
3. For configuration, change jumper setting: **Top jumper** in A-B, **M0 jumper** kept, **M1 jumper** removed
4. Connect LoRa-hat with Windows PC via USB
5. Go to Waveshare LoRa-Hat (E-22) product’s wiki page (https://www.waveshare.com/wiki/SX1262_915M_LoRa_HAT) and Search for link to download SSCOM software
6. Start the SSCON (config software) by running its exe file
 1. Click “English” button to view the dashboard in English instead of Chinese
 2. Select a port (COM3, COM4) etc., then Click “Open” button beside it, then click “Get” button
 3. SSCON dashboard will show existing parameters.
 4. Go to the next page/slide of this document and input the parameters shown there
 5. After all the input, click “Set Param” button and then click “close”
 6. Lora –hat is now fully configured.
 7. Put back M1 jumper
 8. For RPI-hat operation (press carefully on top RPI’s 40-pin header), keep top jumper in **B-C**, for USB operation, keep in **A-B**
 9. LoRa-hat is now ready for operation

SSCON configuration dashboard

Model: E22
Version: 1.9
FrequencyStr: 915.125MHz
Parameter: 0xc0 0x00 0x09 0x00 0x00 0x00 0x62 0x20 0x41 0x83 0x00 0x00

COM4

Close

Get

Set Param

Param Reset

中文

English

Modules

Local Configuration

Remote Configuration

Write param succeed ! ! !

OK

Baud Rate

9600bps

WOR Role

Translate

Relay

Disable

Address

0

Parity

8N1

Wor Cycle

2000ms

LBT

Disable

Channel

65

Air Rate

2.4Kbps

Power

22dBm

Packet RSSI

Enable

NET ID

0

Packet Size

240 Bytes

Tran Mode

Normal

Channel RSSI

Enable

Key

0

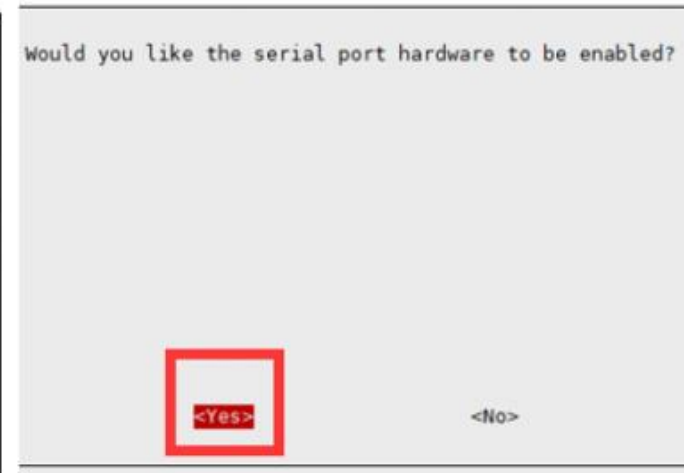
Address zero for all LoRa nodes to enable continuous monitoring

Subtract 850 for target frequency, i.e. for 915MH, the number is 65 = 915-850

Mode 'Normal' for all LoRa nodes to enable continuous monitoring

RPI preparation (Below steps required only once for each RPI)

- Enable serial port for LoRa hat operation *(Can be done either modifying files in RPI's SD card in PC or via ssh to the RPI or in RPI's visual desktop)*
 1. In /boot/cmdline.txt file, remove "**console=serial0,115200**" only and keep the rest of the line intact
 2. In /boot/config.txt, add the following text in a new line at the end of file
 3. **dtoverlay=disable-bt**
 4. In RPI's command line: **sudo systemctl disable hciuart.service**
 5. In RPI's command line : **sudo raspi-config** and select "serial" and then for login-shell: **<No>** and for enable serial port: **<Yes>** (see below)



6. Then restart RPI with the LoRa-hat attached via 40-pin header
7. The above will disable RPI's Bluetooth and release the required serial port for LoRa-hat

Running Test programs

- Copy three files to a folder in 2 RPIs and run `recv_test.py` in one RPI and `send_test.py` in another RPI
 - In RPI A : `sudo python3 recv_test.py /dev/ttyAMA0`
 - In RPI B: `sudo python3 send_test.py /dev/ttyAMA0`
 - Note that “/dev/ttyAMA0” (zero not letter o) is the serial port number for RPI
- You’ll see output in the receiver program (see screenshot below)
- For Windows PC connection, set the top jumper to A-B position (for RPI it should be B-C position) and connect via USB
- Find the port number from windows device manager under the tab “Ports (COM & LPT)” and replace “/dev/tty/AMA0” with COM3 (or whatever serial port showing) in the above python command

The Receiver Program will show received packet number plus Hello

```
PS C:\Users\mdsra\PycharmProjects\lora_test> python .\recv_test.py COM4
debug: serial_port_timeout_sec: 0.1
=====recv-test===== (press CTRL+C to terminate program)
0 Hello
1 Hello
2 Hello
3 Hello
4 Hello
5 Hello
6 Hello
7 Hello
8 Hello
9 Hello
10 Hello
11 Hello
12 Hello
```