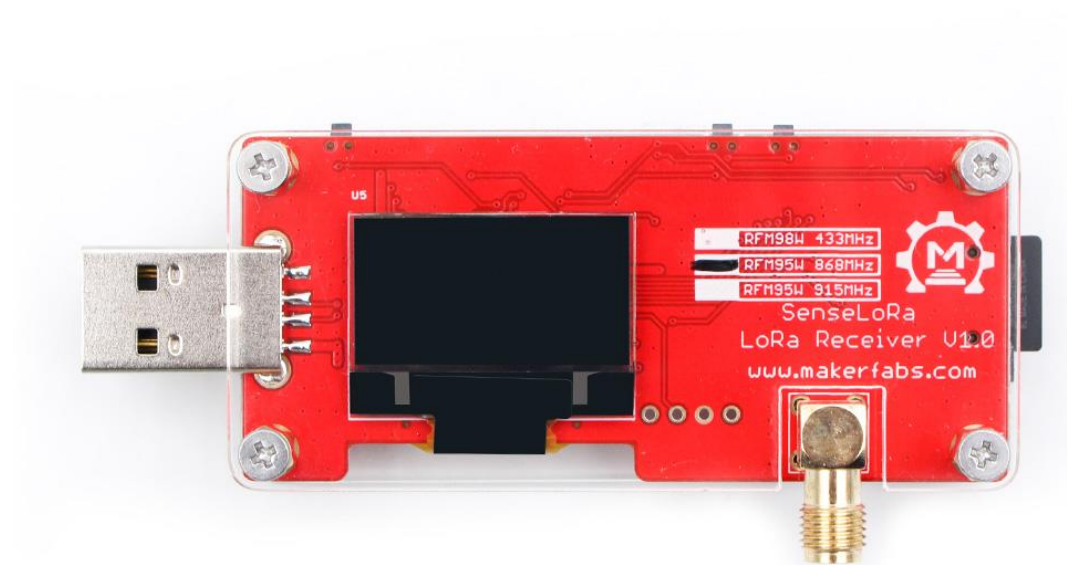




SenseLoRa LoRa Receiver



Version: V1.0
Data: 2023-09-26
Author: Peter

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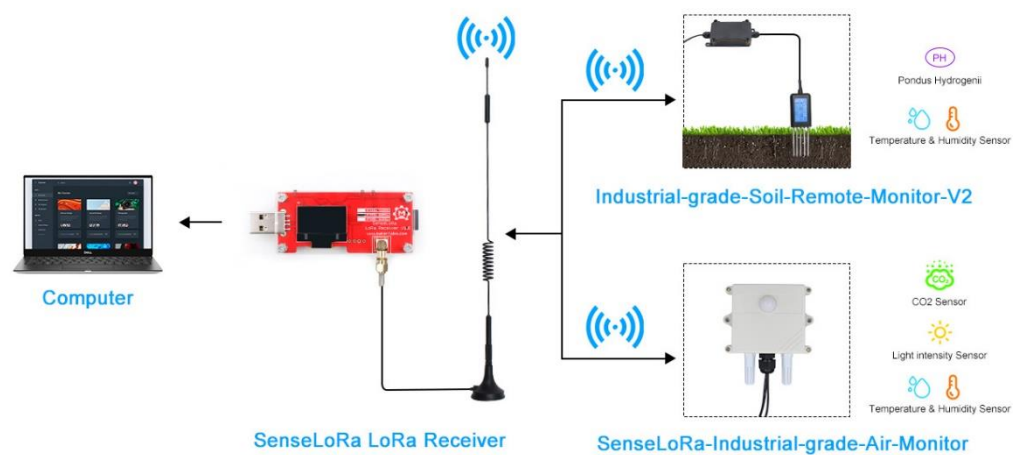
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1. Introduction

1.1 Function

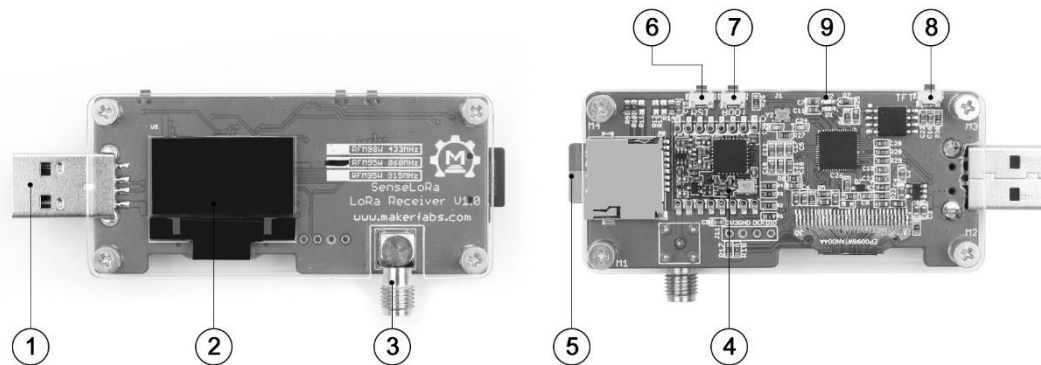
LoRa Receiver is a data receiver based on LoRa P2P protocol. It can receive data sent by multiple sensor products around and forward to computer so the data can be displayed/recorded and analysis via the PC.

LoRa Receiver is connected to the computer via USB. The received real-time data can be displayed real time on the PC , and also on the screen of the product, while the backup is saved to the SD card.



User can also view the sensor data received through the serial port of the computer, and can also analyze the data saved in EXCEL.

1.2 General description



- ① USB-A interface
- ② Display
- ③ Antenna
- ④ LoRa
- ⑤ SD card
- ⑥ Reset button
- ⑦ Burn button
- ⑧ Display rotation button
- ⑨ Power LED

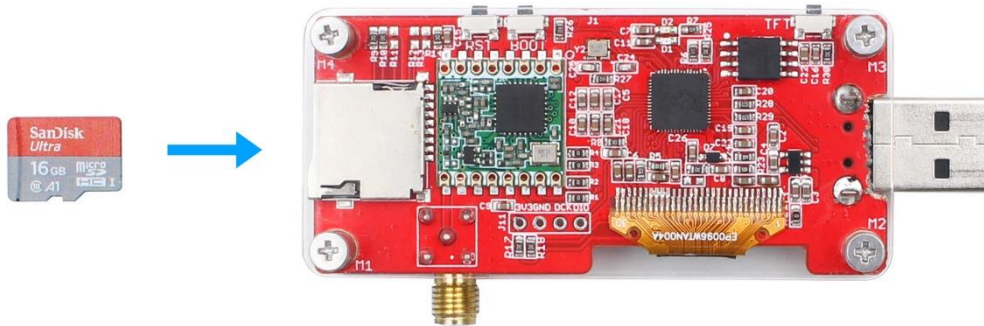
2. Installation

2.1 Part List

Description	Specification	PCS
Receiver	88mm*34mm*18mm	1
Antenna	5000mm	1
Micro SD card	16GB	1

2.2 SD card Installation

Take out the SD card and place it in the SD card slot.



2.3 Antenna Installation

The antenna is 5m long, can be installed outside, to ensure the best LoRa communication range.

Working with Makerfabs SenseLoRa nodes, the LoRa communication range can be up to 4~5 KM.



2.4 Power Supply

The product connects to the computer via USB to work.

3. Data Management

The product is installed and receives sensor data. Users can save and process data in several ways.

3.1 Serial port

Open the serial port tool on the PC, the parameters are set as follows:

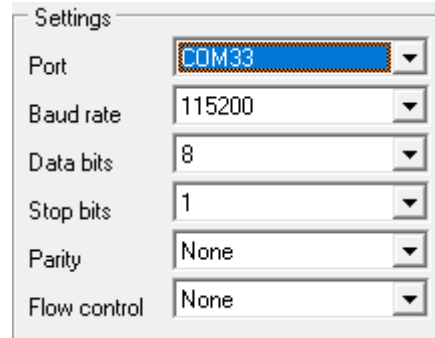
Baud rate : 115200

Data bits : 8

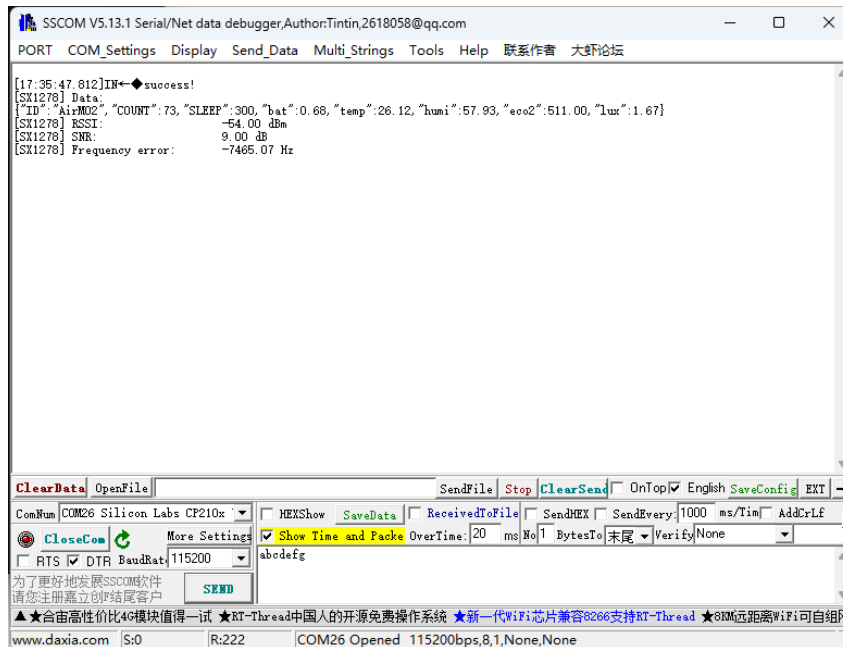
Stop bits : 1

Parity :None

Flow control : None



Select the product port and open it, the received sensor data will be displayed in real time.

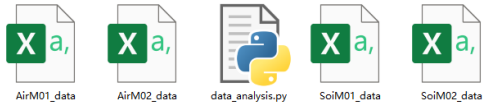


3.2 Python Application

The URL: https://github.com/Makerfabs/SenseLoRa-LoRa-Receiver/tree/main/data_analysis

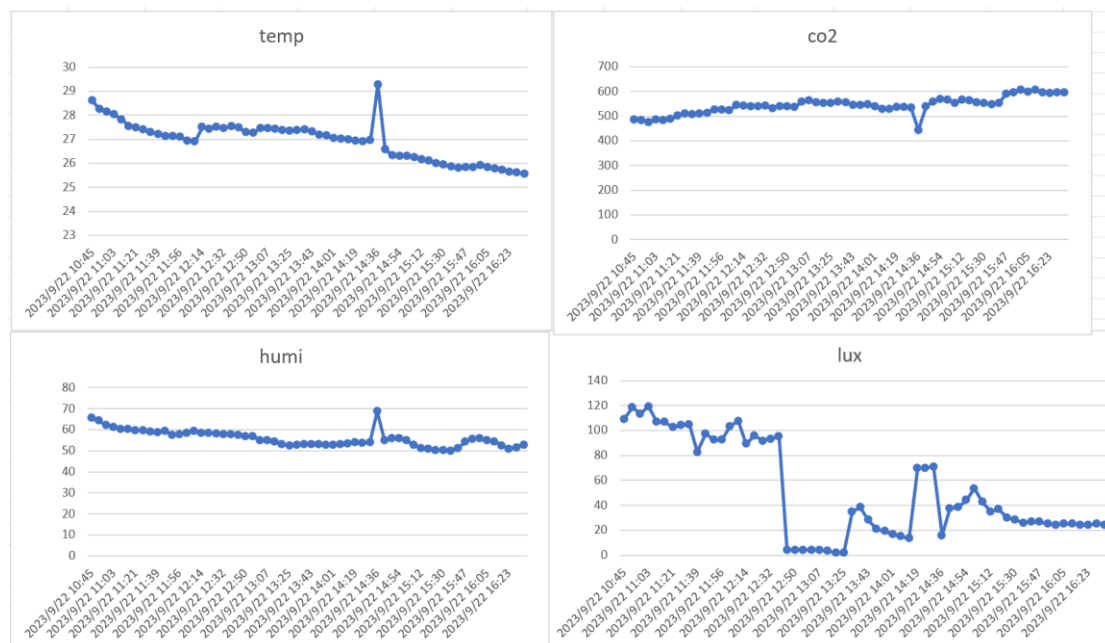
Windows

- ① Install Python3.11 on the PC
- ② Open terminal
- ③ Enter the following command to install PySerial : "pip install pyserial"
"pip3 install pyserial"
- ④ Wait for installation
- ⑤ Open the application " **data_analysis_win.py**"
- ⑥ The application generates an Excel file and saves the received data
- ⑦ Open Excel and select the corresponding data to generate a line chart



	A	B	C	D	E	F	G	H	I
1	ID	COUNT	SLEEP	bat	temp	humi	eco2	lux	Time
2	AirM02	247	300	4.1	28.62	65.66	486	109.17	2023/9/22 10:45
3	AirM02	248	300	4.1	28.24	64.35	483	118.33	2023/9/22 10:51
4	AirM02	249	300	4.1	28.15	62.14	475	113.33	2023/9/22 10:57
5	AirM02	250	300	4.1	28.02	61.35	485	119.17	2023/9/22 11:03
6	AirM02	251	300	4.1	27.82	60.49	482	106.67	2023/9/22 11:09
7	AirM02	252	300	4.1	27.54	60.32	487	106.67	2023/9/22 11:15
8	AirM02	253	300	4.1	27.48	59.77	502	102.5	2023/9/22 11:21
9	AirM02	254	300	4.1	27.39	59.57	509	104.17	2023/9/22 11:27
10	AirM02	255	300	4.1	27.3	59.04	506	105	2023/9/22 11:33
11	AirM02	256	300	4.1	27.21	58.75	510	82.5	2023/9/22 11:39
12	AirM02	257	300	4.1	27.13	59.43	513	97.5	2023/9/22 11:45
13	AirM02	258	300	4.1	27.12	57.56	526	92.5	2023/9/22 11:51
14	AirM02	259	300	4.1	27.09	57.96	525	92.5	2023/9/22 11:56
15	AirM02	260	300	4.1	26.94	58.45	522	103.33	2023/9/22 12:02
16	AirM02	261	300	4.1	26.9	59.25	543	107.5	2023/9/22 12:08
17	AirM02	262	300	4.1	27.5	58.55	541	89.17	2023/9/22 12:14
18	AirM02	263	300	4.1	27.44	58.5	539	95.83	2023/9/22 12:20
19	AirM02	264	300	4.1	27.52	58	540	91.67	2023/9/22 12:26
20	AirM02	265	300	4.1	27.46	57.87	541	93.33	2023/9/22 12:32
21	AirM02	266	300	4.1	27.53	57.83	531	95	2023/9/22 12:38
22	AirM02	267	300	4.1	27.47	57.38	539	4.17	2023/9/22 12:44
23	AirM02	268	300	4.1	27.3	56.89	540	4.17	2023/9/22 12:50
24	AirM02	269	300	4.1	27.27	56.91	536	4.17	2023/9/22 12:56
25	AirM02	270	300	4.1	27.45	55.13	558	4.17	2023/9/22 13:02
26	AirM02	271	300	4.1	27.46	54.88	562	4.17	2023/9/22 13:07
27	AirM02	272	300	4.1	27.44	54.26	554	3.33	2023/9/22 13:13
28	AirM02	273	300	4.1	27.36	53.05	551	1.67	2023/9/22 13:19
29	AirM02	274	300	4.1	27.35	52.57	551	1.67	2023/9/22 13:25
30	AirM02	275	300	4.1	27.37	52.85	557	35	2023/9/22 13:31
31	AirM02	276	300	4.1	27.41	53.25	555	38.33	2023/9/22 13:37
32	AirM02	277	300	4.1	27.33	53.23	543	28.33	2023/9/22 13:43
33	AirM02	278	300	4.1	27.19	53.15	543	20.83	2023/9/22 13:49

Then the data can be analyzed by Excel tools:



Mac OS x

- ① Install Python3.11 on the PC
- ② Open terminal
- ③ Enter the following command to install PIP : "python -m ensurepip"
- ④ Enter the following command to install PySerial : "pip install pyserial" or
"pip3 install pyserial"
- ⑤ Wait for installation
- ⑥ Open the application " **data_analysis_mac.py**"
- ⑦ The application generates an Excel file and saves the received data
- ⑧ Data analysis as above

3.3 SD card

All LoRa data are also been stored in the SD card, can be a back up for long time monitoring in application.

4. Specifications

Model	SenseLoRa LoRa Receiver
Power supply	5V / 0.5W
Frequency Bands	EU868/ US915
Physical characteristics	
Dimensions (height x width x Depth)	88 x 34 x 18mm
Weight main unit	65g
Antenna length	5000mm
Operating conditions	
Temperature	-40°C to +80°C
Relative humidity	15% to 90% (no condensation)
Storage conditions	
Temperature	-20°C to +50°C
Relative humidity	15% to 90% (no condensation)