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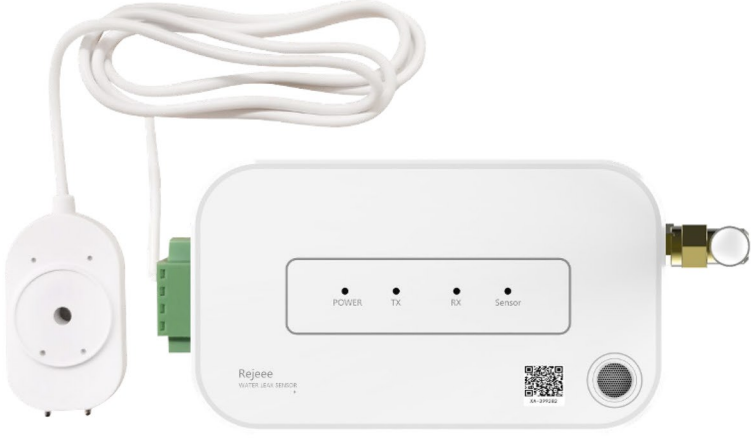
OFFICIAL SOUTH AFRICAN DISTRIBUTOR

SL200 Water Leak Sensor

Spec for SL200

LoRaWAN Water Leak Sensor



1. General Information

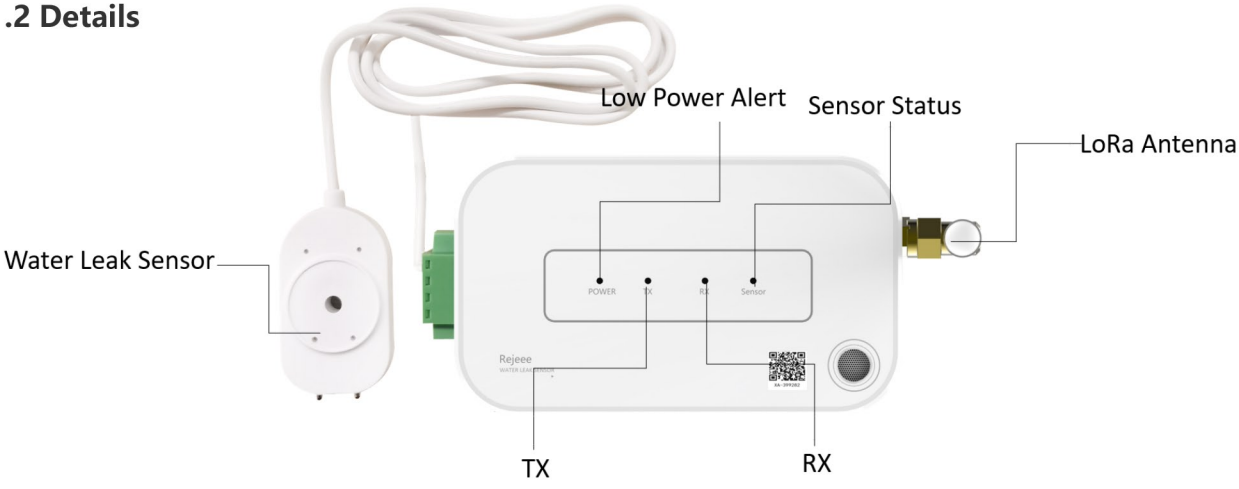
SL200 is long range low power water leak sensor based on Semtech SX1262/SX1268, which is standard LoRaWAN Class A compatible and is widely adopted in environment monitoring.

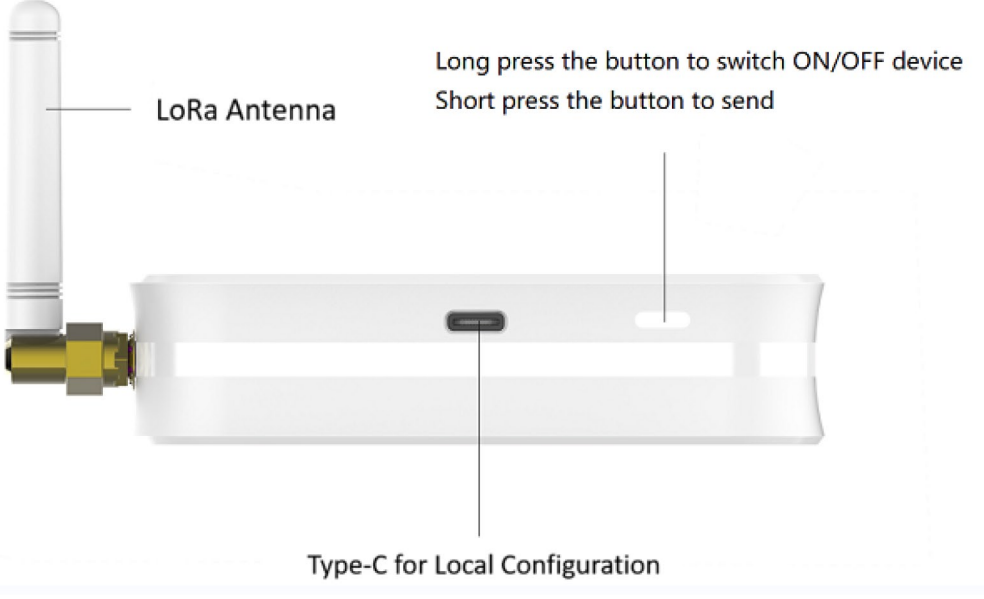
Sensor Type	Product Number
Water Leak Sensor	SL200CN, SL200EU,SL200US,SL200AS

1.1 Main features

- High sensitivity water leak sensor
- Type-C for Local Configuration
- Internal Battery Up to 10 Years
- LoRa SX1262/SX1268, Long Range Low Power
- LoRaWAN Class A Compatible

1.2 Details

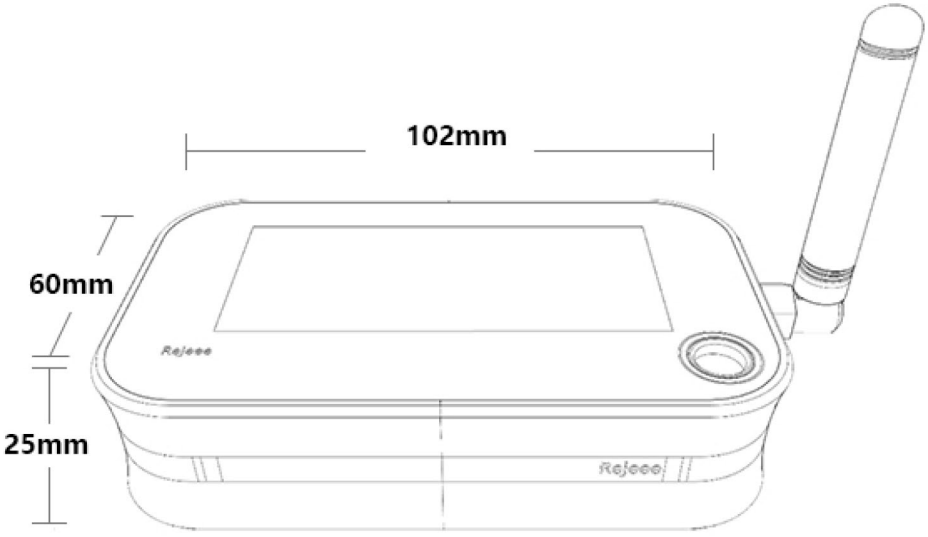




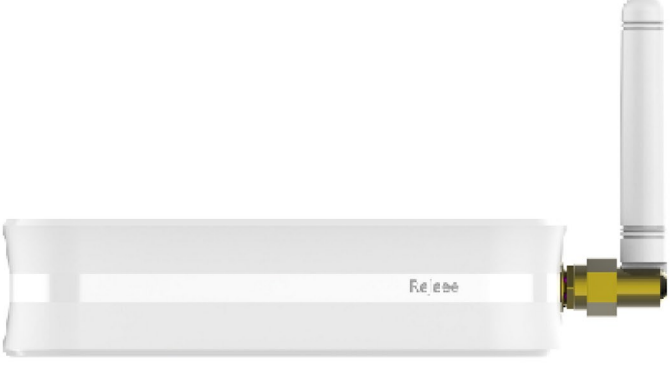
Parameters	Feature
CPU	STM32L151
Wireless	LoRaWAN(SX1262/SX1268)
Encryption	AES128
Power	Built-in Li-battery (Changeable, and No Recharge)
Battery Capacity	5400mAh
Communication	Half duplex
Lifespan	Up to 5 Years, Data Uploading for Every 10 mins
Data Speed	300bps-62.5k bps

Parameters	Feature
Size	102mm*60mm*25mm
TX Power	22dBm Max
RX Sensitivity	-140 dBm
Frequency	SX1268: CN470 SX1262: EU868 / US915 / AS923

1.3 Size: 102mm*60mm*25mm



1.4 Installation



Lay the product flat on the table

Hang on the wall

2. User Guide

Make sure antenna is installed before turn on the device.

2.1 Turn on/off the device

When you get the device, it is off. Just press the button for 3 seconds and you can turn on the device. When you turn on the device, there are 4 led on the top, all led will twinkle from left to right. If you turn off the device, press the button for 3 seconds and all led will twinkle from right to left, after turn off the device, no data collecting and uploading.

2.2 Data uploading by press the button

When turn on the device, normally the sensor will read data and upload every 10 mins, if you want to send data immediately, you can just press the button for short time, less than 1 second, and sensor will read and upload data. While press the button, 4 led will be green at the beginning, and then TX led on the device will be green

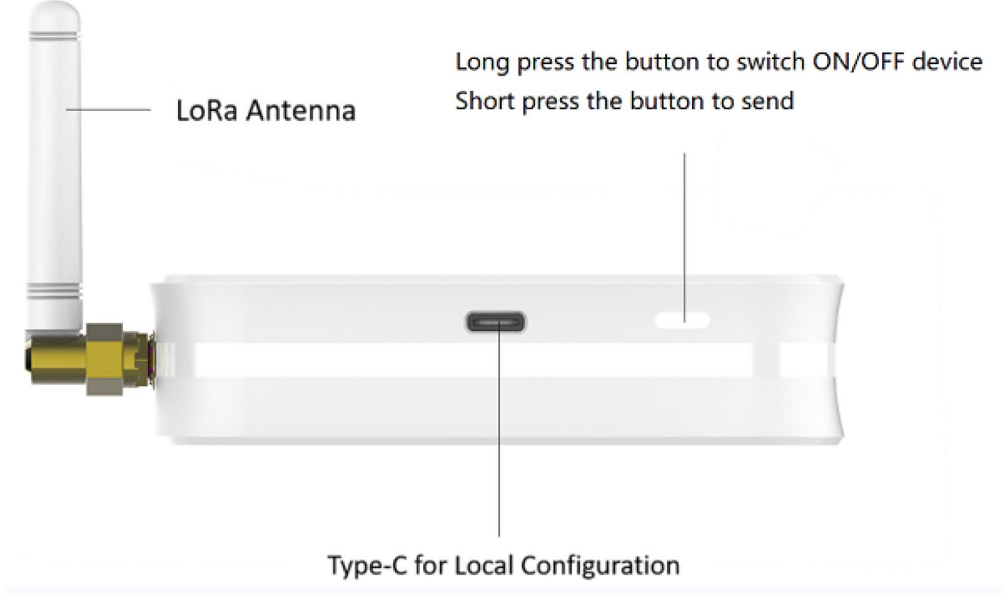
while sending data as below:

2.3 Led display on the device 4 led on top of the device, and they are POWER/TX/RX and SENSOR from left to right

as below. POWER is the battery level, normally when you turn on the device, 4 led lights will be green which means the battery level is 100%. If only 3 led are green which means the battery is 75% left. There is low battery alert and POWER will be red while low battery level.
TX and RX means sensor is sending or receiving data.
Sensor is green means sensor is reading and uploading data, if sensor is red, that means sensor is not working, please kindly check if the sensor is will connected.

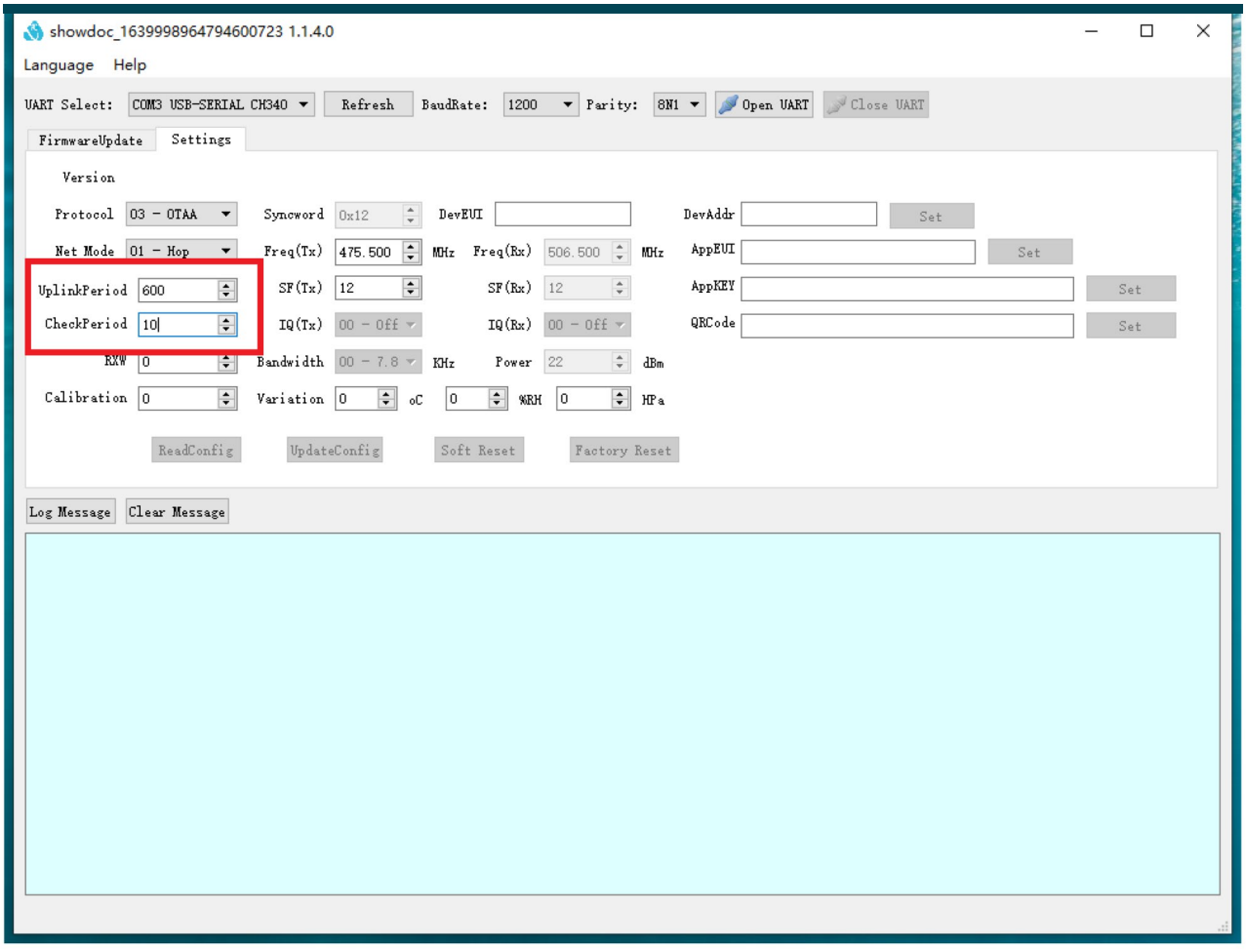
2.4 USB-C Port

There is one USB-C port as below, which is for power on and config, connect device to laptop with a USB-C cable, and you can config the device, make sure to install USB driver and here is the link for driver: Serial Port Driver

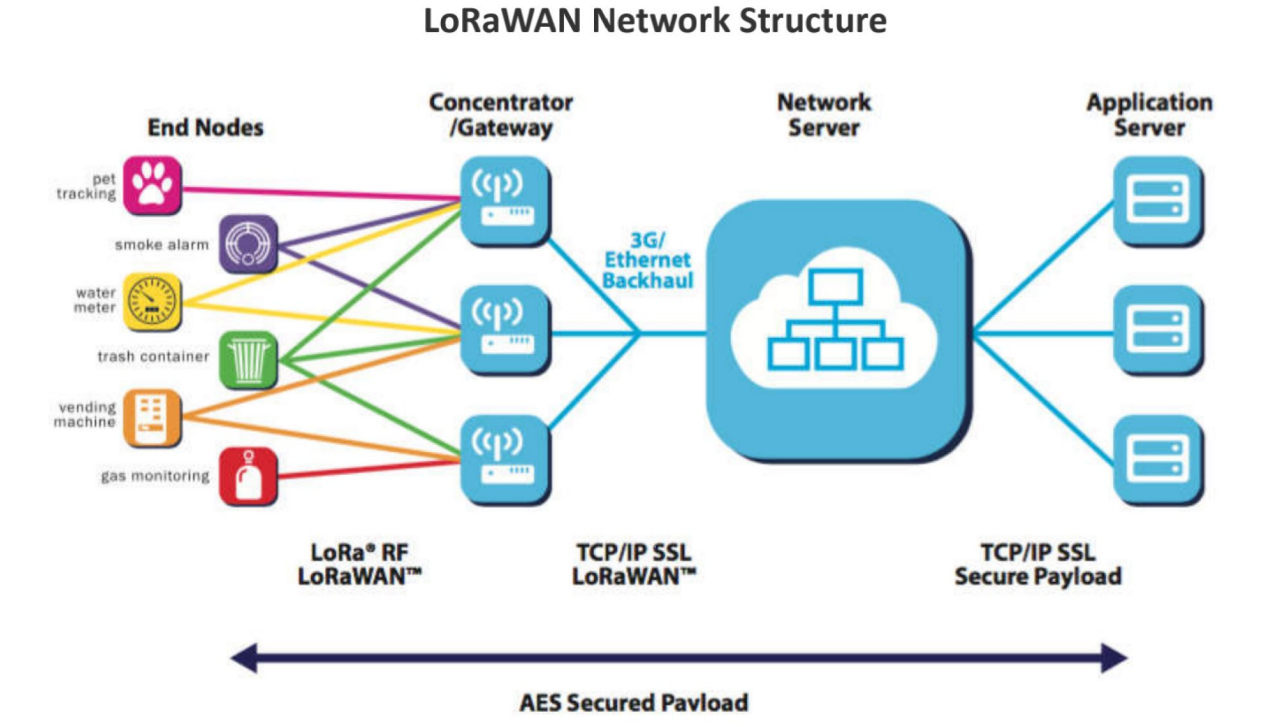


3. Data Uploading

When turn on the device, it will send data immediately, also you can press the button for 1 seconds, then the device will also send data. Normally when you get the device from factory, the reset time for data sending is every 10 mins, and if you want to change the time, you can connect the device to computer for config, here there is instruction about the time configuration.SensorTool Manual.

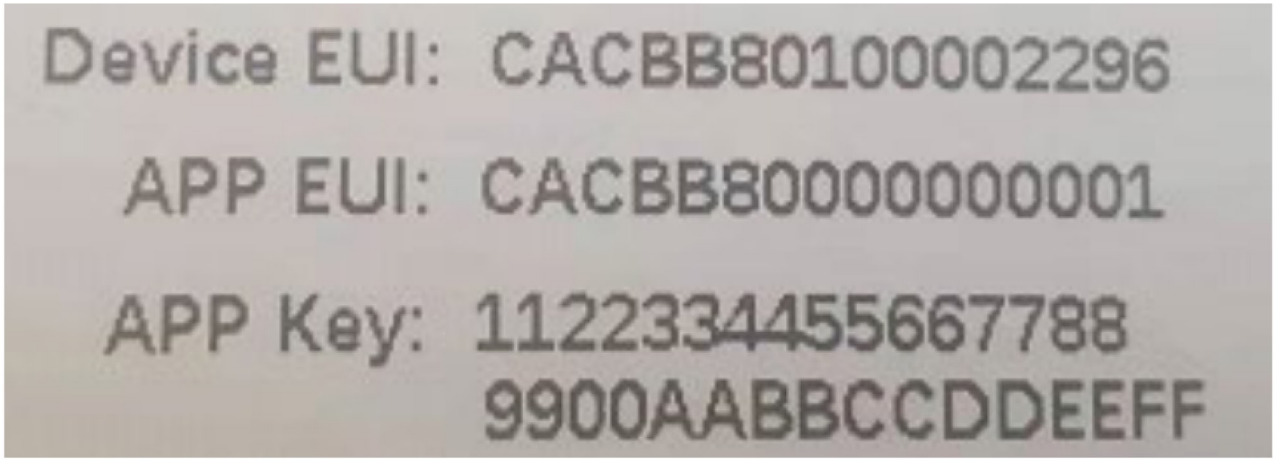


4. Connect to LoRaWAN Network



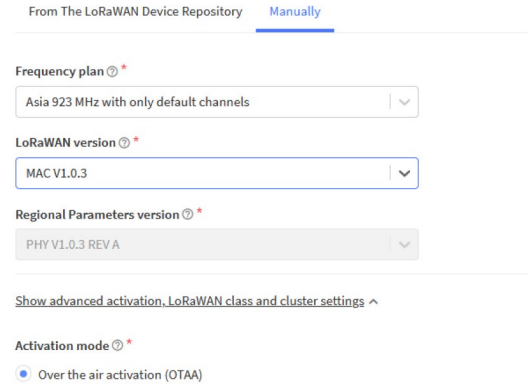
SL200 water leak sensor is based on standard LoRaWAN Class A, so you can connect to any LoRaWAN network through OTAA.

On the back of device, you can find information as below, with this information, you can connect to any LoRaWAN server.

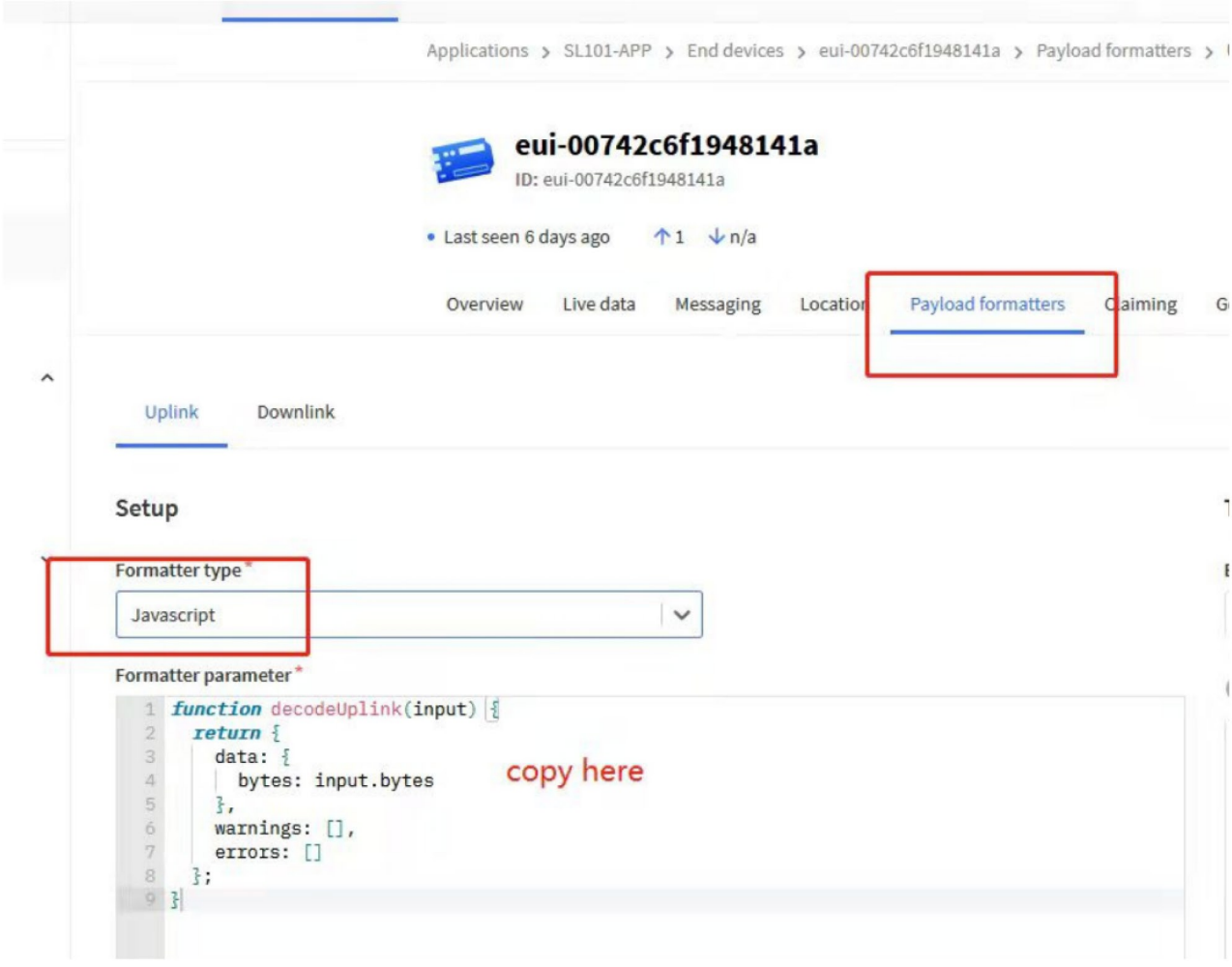


Here below take TTN as an example about how to connect the device to TTN server:

Sensor	LoRaWAN
SL200CN	From The LoRaWAN Device Repository / Manually Frequency plan * : China 470-510 MHz, FSB 11 LoRaWAN version * : MAC V1.0.3 Regional Parameters version * : PHY V1.0.3 REV A Show advanced activation, LoRaWAN class and cluster settings Activation mode * : Over the air activation (OTAA)
SL200EU	Frequency plan * : Europe 863-870 MHz (SF12 for RX2) LoRaWAN version * : MAC V1.0.3 Regional Parameters version * : PHY V1.0.3 REV A Show advanced activation, LoRaWAN class and cluster settings Activation mode * : Over the air activation (OTAA)
SL200US	From The LoRaWAN Device Repository / Manually Frequency plan * : United States 902-928 MHz, FSB 2 (used by TTN) LoRaWAN version * : MAC V1.0.3 Regional Parameters version * : PHY V1.0.3 REV A Show advanced activation, LoRaWAN class and cluster settings Activation mode * : Over the air activation (OTAA)

Sensor	LoRaWAN
SL200AS	

And this (http://doc.rejeee.com/web/#/29?page_id=212) is the data decoder for TTN platform, just copy the information as below:



5. Wireless LoraWAN Sensor Data Format

Picture as below, FRMPayload is sensor data.

PHYPayload:

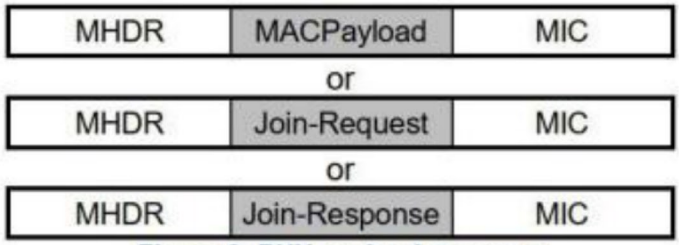


Figure 6: PHY payload structure

MACPayload:

Figure 7: MAC payload structure

MHDR	FHDR	FPort	FRMPayload=Sensor Data(Message)			MIC
			Data 1	...	Data N	4 Bytes
			Type+Value N Bytes	Type+Value N Bytes	Type+Value N Bytes	

6. Sensor Data Definition

6.1 Device Information(0x00)

Type	Value	Value	Value
1 Byte	3 bit	5bit	1 Byte
0x00	Version	Battery Level	Reserve

6.1 Water leak sensor(0x09)

Type 1 Byte	Value 1 Byte	Comment
0x09	switch state	1-byte unsinged integer. The sepecific meaning depends on the item. Gennerally, a single bit represents one channel of switching value(0 is OFF or 1 is ON)， and 8 switch value Max

For Example:

FRMPayload(hexadecimal string) is 00 3F 24 09 00

0x00 is device information

0x3F (binary is 0011 1111b) version 1 and level 31

0x24 is reserve, generally is MCU voltage

0x09 is water leak sensor

0x00 is no water, 0x01 is there is water

7. Local Configuration:

Note: Factory reset data uploading is every 10 mins, customers can change data uploading frequency as below: Connect sensor with a USB-C cable to computer for local configuration, through local configuration, you can change the packet frequency. Refer SensorTool Manual.

Parameters interpretation
LFT: Data uplink period
LCP: Sensor sample period

8. Shipping list

LoRaWAN water leak sensor*1
Mounting brackets*1
LoRaWAN antenna*1