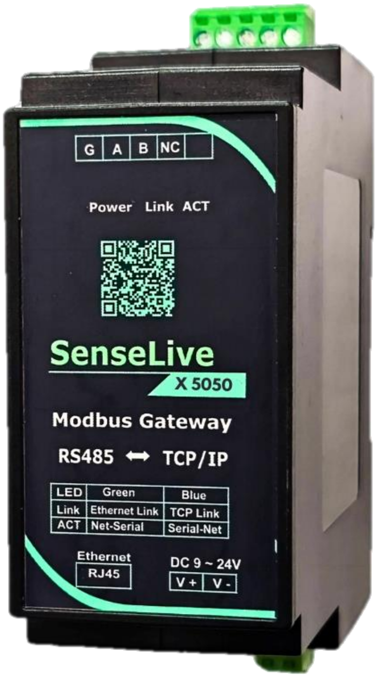
SenseLiveX5050
Modbus Gateway
Configuration Datasheet
RS485⟷TCP/IP



Catalogue

1. Introduction:-

SLX5050: The SLX5050 is a compact RS485-to-Ethernet IoT gateway for industrial data collection. It supports Modbus TCP to RTU, MQTT, JSON, and HTTP for cloud integration. With RJ45 and RS485 interfaces, 9–24V input, and P2P support (SLX5050N model), it enables seamless industrial sensor connectivity.

2. Technical Parameters:-

Figure			
Interface:	485: Terminal		
Power Supply:	terminal		
Size:	L x W x H =8.7cm×3.6cm×5.9cm		
Communicate Interface			
Ethernet:	RJ45 interface, 2KV surge protection		
Serial	RS485×1: RXD, TXD, GND		
Serial Parameters			
Baud rate:	1200~115200bps	Parity:	None, odd check, even check, mark, space
Data bits:	5～9	Flow control:	None
Software			
protocol:	ETHERNET, IP, TCP, UDP, HTTP, ARP, ICMP, DHCP, DNS		
Setting method :	VirCom, WEB browser, device management library		
Net communication method:	TCP/IP direct communicate, Virtual serial		
Work Mode			
TCP server, TCP client, UDP, Real Com Driver			
Power Requirement			
9～24V DC			
Environment			
Running temperature:	-40~85℃		

Storage temp:	-45~165℃
Humidity:	5~95%RH

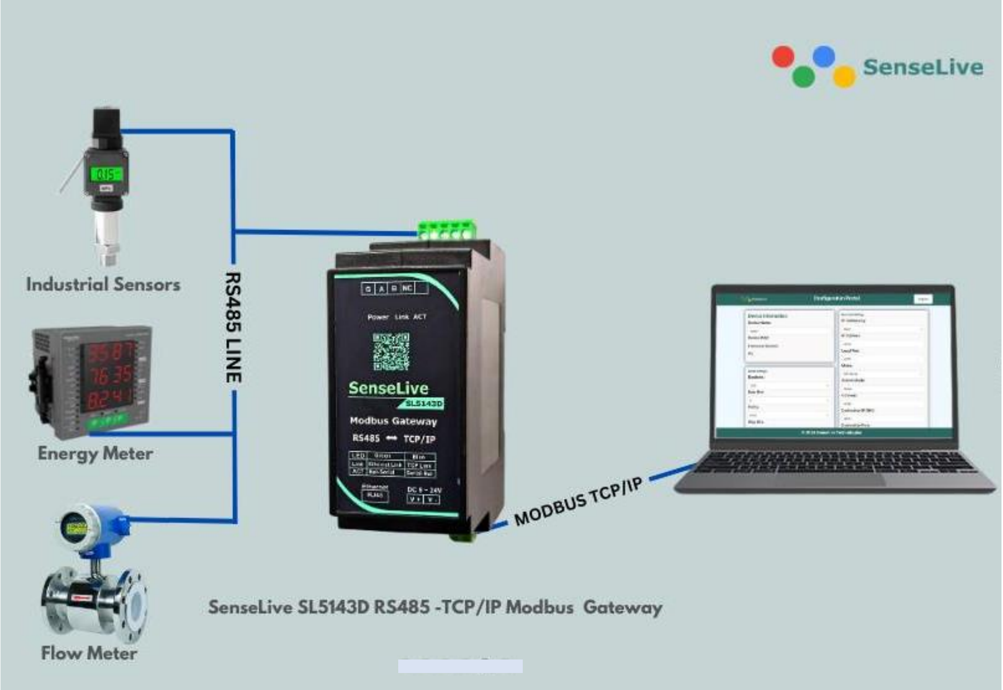
3. Software Installation:-

To download Vicrom software just click on the below link

http://senselive.io/download/software/SLVirCom.zip

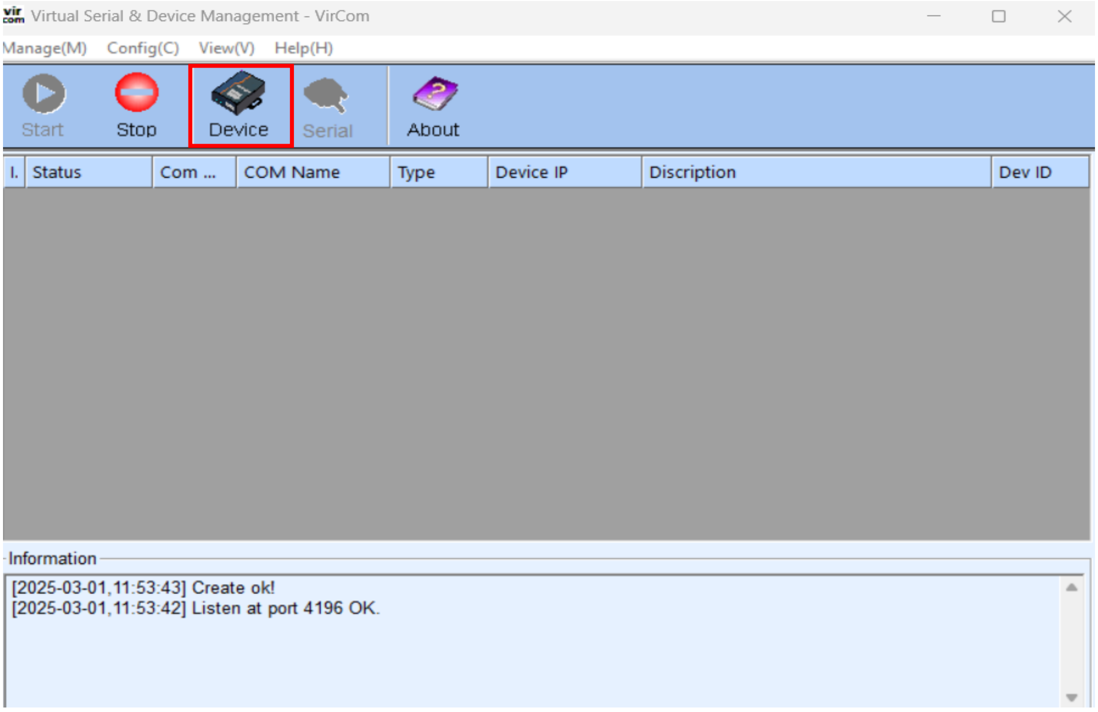
4. Hardware Connection:-

- **Power Supply:** Connect on-site 2-wire power to positive and negative terminals.
- **Serial Port:** Connect based on user device. For the first 485 port, connect 485+ to 1A and 485- to 1B.
- **Network:** Use a standard network cable to connect directly to a computer or through a switch.



5. Parameter Configuration:-

1. After installing Vircom and connecting the hardware, run the software and click on "Device Management."

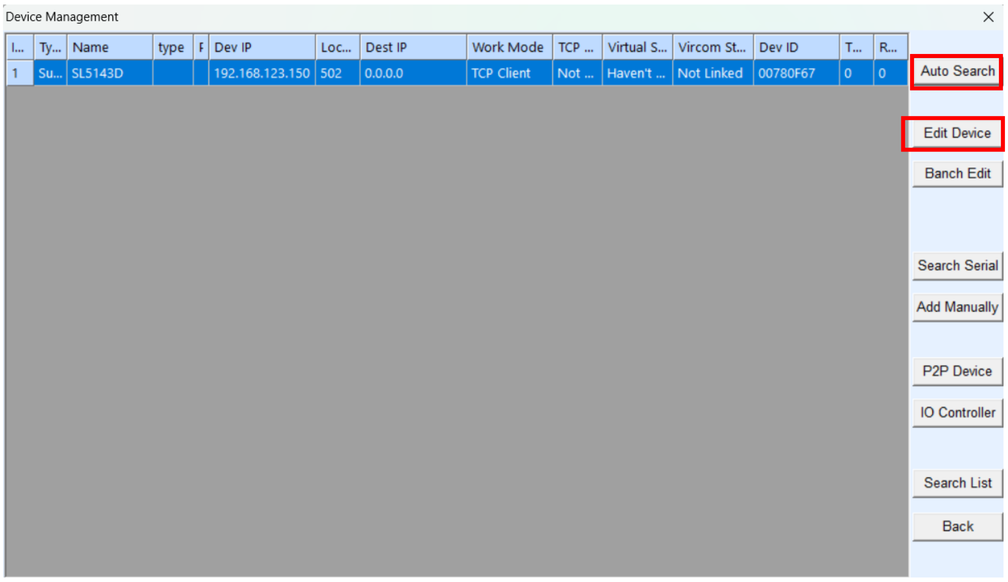


I.	Status	Com ...	COM Name	Type	Device IP	Discription	Dev ID

```
[2025-03-01,11:53:43] Create ok!
[2025-03-01,11:53:42] Listen at port 4196 OK.
```

Fig. 1 Vircom Main Interface

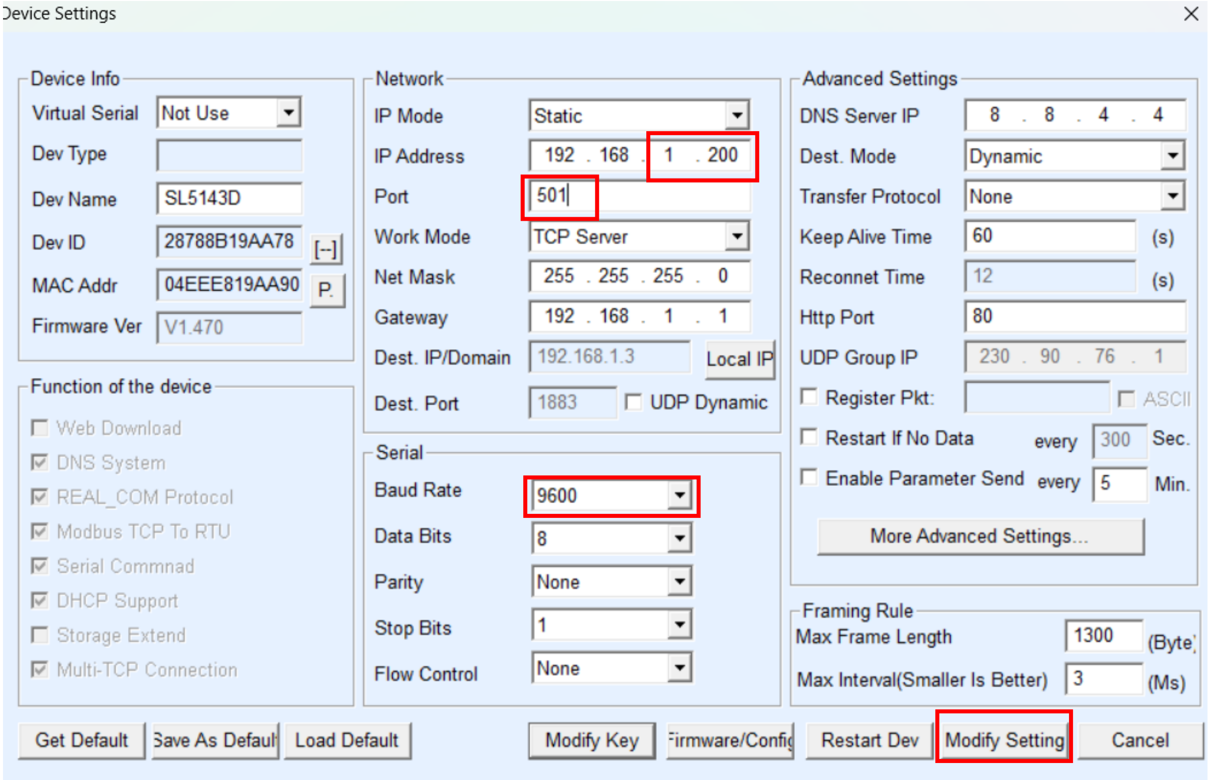
2. In device interface click on “Auto search”. As you can see, the connected device is visible in the Device Manager, as shown in Figure 2.
3. Click “Edit Device” to set the parameters.



I...	Ty...	Name	type	F	Dev IP	Loc...	Dest IP	Work Mode	TCP ...	Virtual S...	Vircom St...	Dev ID	T...	R...
1	Su...	SL5143D			192.168.123.150	502	0.0.0.0	TCP Client	Not ...	Haven't ...	Not Linked	00780F67	0	0

Fig. 2 Device List

4. IN network setting you have to change IP address, port and baud rate and then click “modify setting”.



Device Settings

Device Info
Virtual Serial: Not Use
Dev Type:
Dev Name: SL5143D
Dev ID: 28788B19AA78
MAC Addr: 04EEE819AA90
Firmware Ver: V1.470

Function of the device
□ Web Download
☑ DNS System
☑ REAL_COM Protocol
☑ Modbus TCP To RTU
☑ Serial Commnad
☑ DHCP Support
□ Storage Extend
☑ Multi-TCP Connection

Network
IP Mode: Static
IP Address: 192 . 168 . 1 . 200
Port: 501
Work Mode: TCP Server
Net Mask: 255 . 255 . 255 . 0
Gateway: 192 . 168 . 1 . 1
Dest. IP/Domain: 192.168.1.3
Dest. Port: 1883 □ UDP Dynamic

Serial
Baud Rate: 9600
Data Bits: 8
Parity: None
Stop Bits: 1
Flow Control: None

Advanced Settings
DNS Server IP: 8 . 8 . 4 . 4
Dest. Mode: Dynamic
Transfer Protocol: None
Keep Alive Time: 60 (s)
Reconnet Time: 12 (s)
Http Port: 80
UDP Group IP: 230 . 90 . 76 . 1
□ Register Pkt: □ ASCII
□ Restart If No Data every 300 Sec.
□ Enable Parameter Send every 5 Min.

Framing Rule
Max Frame Length: 1300 (Byte)
Max Interval(Smaller Is Better): 3 (Ms)

Fig. 3 Device setting

6. Control Panel Setting:-

Open the control panel→ Click Network and Internet → Click Network and Sharing Center → Click Change adapter settings→ Open IPv4 Properties, Right-click on your active network connection (Ethernet/Wi-Fi) → Click Properties.

To Connect to a Network (LAN or Internet)

Add the network credential, it need to be same as your device but last two digit should be different.

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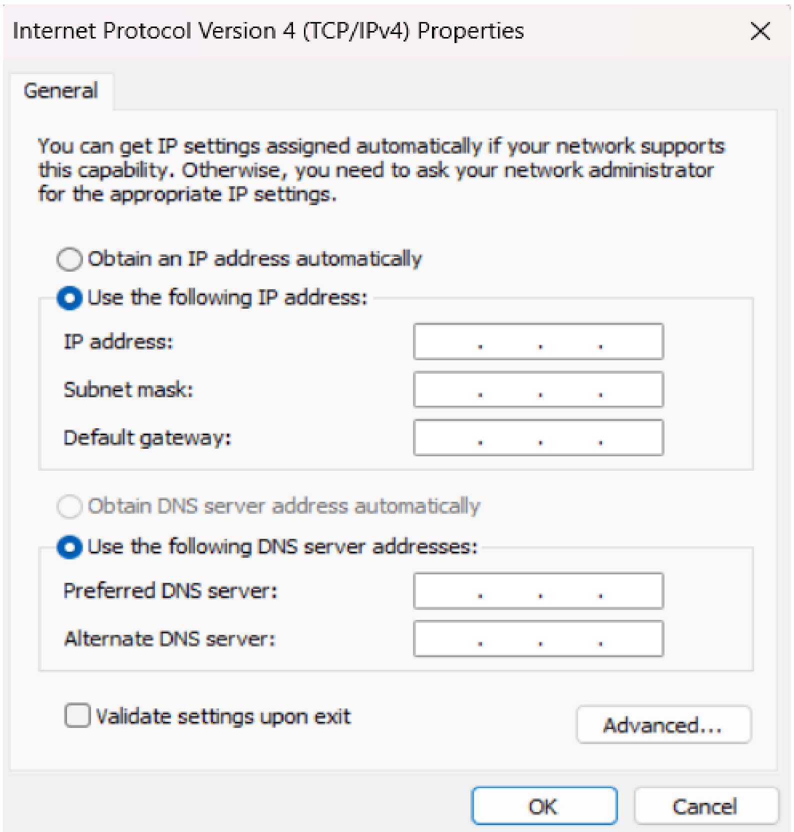


Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically

● Use the following IP address:

IP address: . . .

Subnet mask: . . .

Default gateway: . . .

○ Obtain DNS server address automatically

● Use the following DNS server addresses:

Preferred DNS server: . . .

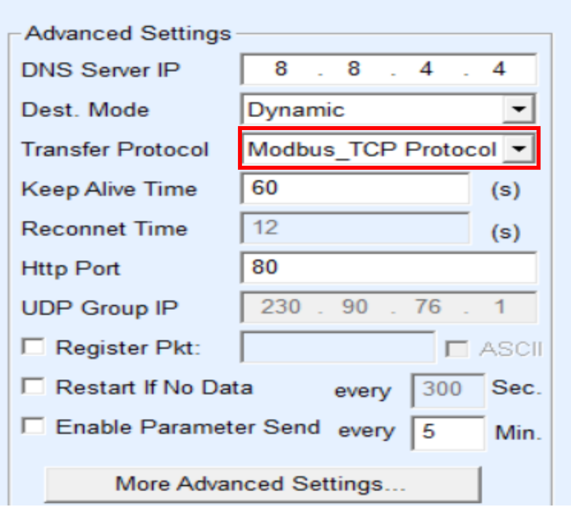
Alternate DNS server: . . .

□ Validate settings upon exit

Fig.4 To Connect to a Network (LAN or Internet)

7. Modbus Communication Settings :-

1. In advance setting, set transfer protocol as Modbus_TCP protocol.



Advanced Settings

DNS Server IP: 8 . 8 . 4 . 4

Dest. Mode: Dynamic

Transfer Protocol: Modbus_TCP Protocol

Keep Alive Time: 60 (s)

Reconnet Time: 12 (s)

Http Port: 80

UDP Group IP: 230 . 90 . 76 . 1

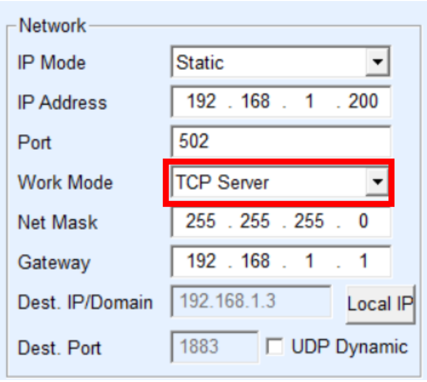
□ Register Pkt: □ ASCII

□ Restart If No Data every 300 Sec.

□ Enable Parameter Send every 5 Min.

Fig.5 Enable Modbus TCP Function

2. In network setting, set work mode as TCP server and then click on “modify setting”.



Network

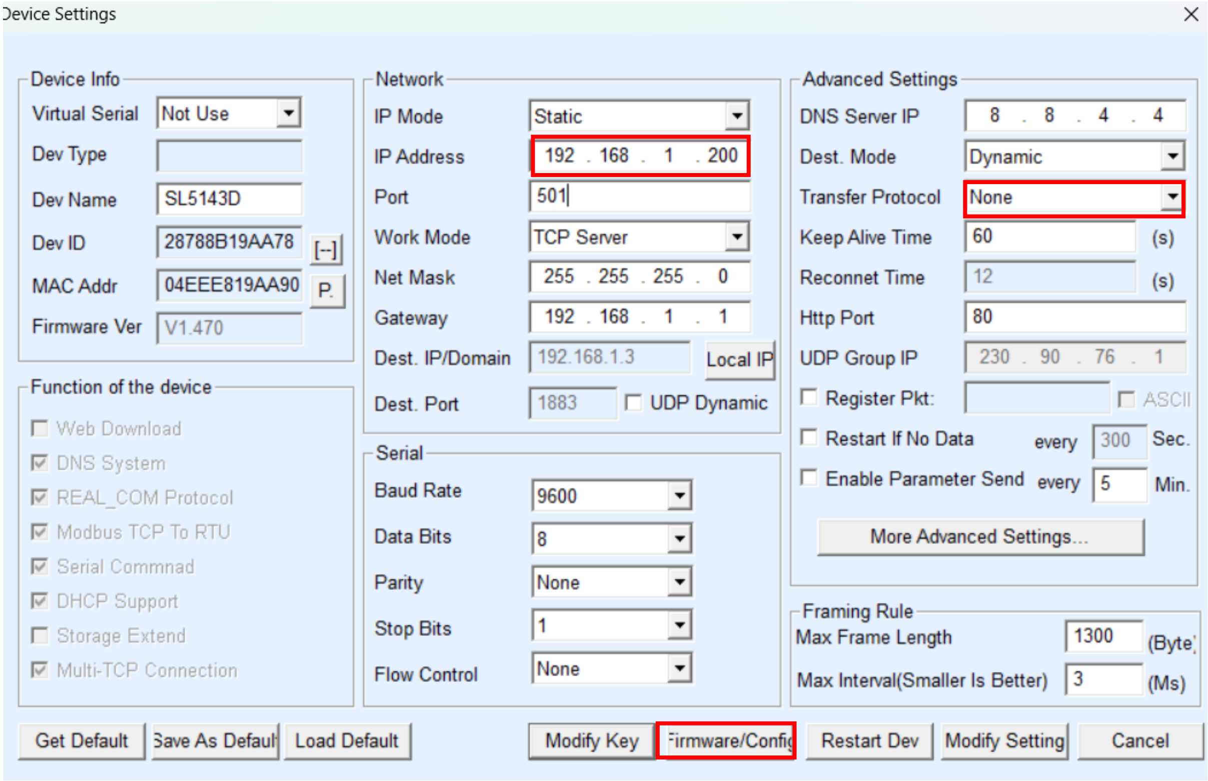
IP Mode	Static
IP Address	192 . 168 . 1 . 200
Port	502
Work Mode	TCP Server
Net Mask	255 . 255 . 255 . 0
Gateway	192 . 168 . 1 . 1
Dest. IP/Domain	192.168.1.3
Dest. Port	1883

□ UDP Dynamic

Fig.6 Modbus TCP as client.

8. MQTT Communication setting :-

1. For MQTT communication, the transfer protocol should be set to "None," and the work mode should be "TCP Client," as shown in Fig.7.



Device Settings

Device Info

Virtual Serial	Not Use
Dev Type	
Dev Name	SL5143D
Dev ID	28788B19AA78
MAC Addr	04EEE819AA90
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Function of the device

□ Web Download
☑ DNS System
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☑ Serial Commnad
☑ DHCP Support
□ Storage Extend
☑ Multi-TCP Connection

Network

IP Mode	Static
IP Address	192 . 168 . 1 . 200
Port	501
Work Mode	TCP Server
Net Mask	255 . 255 . 255 . 0
Gateway	192 . 168 . 1 . 1
Dest. IP/Domain	192.168.1.3
Dest. Port	1883

□ UDP Dynamic

Serial

Baud Rate	9600
Data Bits	8
Parity	None
Stop Bits	1
Flow Control	None

Advanced Settings

DNS Server IP	8 . 8 . 4 . 4	
Dest. Mode	Dynamic	
Transfer Protocol	None	
Keep Alive Time	60	(s)
Reconnet Time	12	(s)
Http Port	80	
UDP Group IP	230 . 90 . 76 . 1	

□ Register Pkt: □ ASCII
□ Restart If No Data every 300 Sec.
□ Enable Parameter Send every 5 Min.

Framing Rule

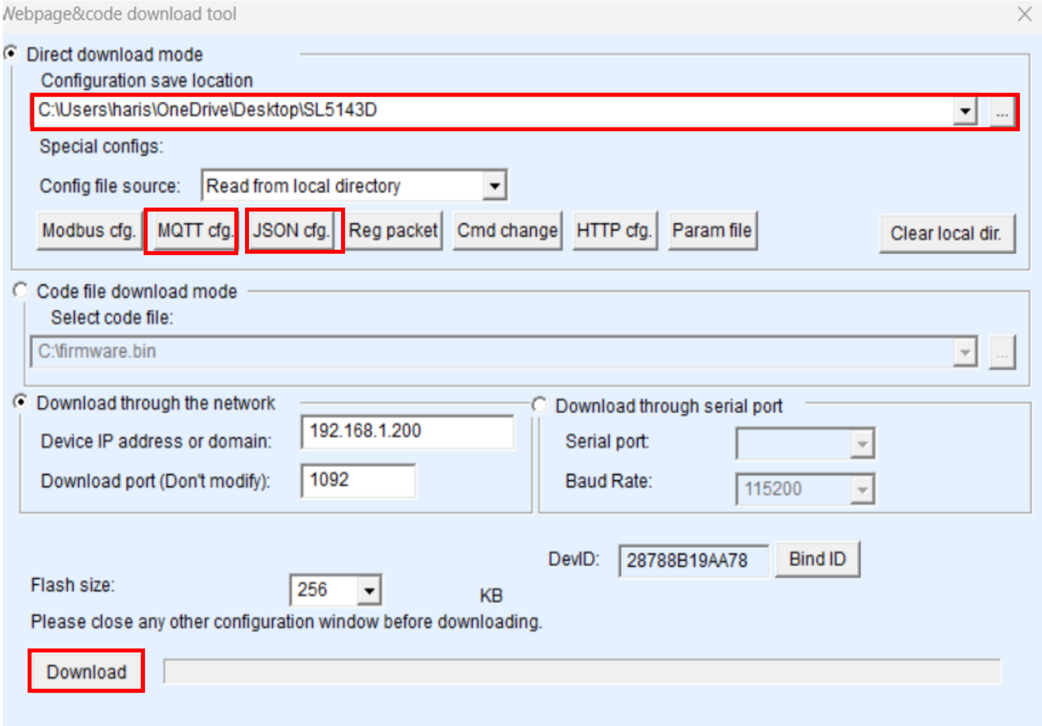
Max Frame Length	1300	(Byte)
Max Interval(Smaller Is Better)	3	(Ms)

Fig.7 Device Setting

2. In device setting interface click on firmware configuration as show in fig 7.

3. In configuration save location select folder which is created on your PC, as show in fig 8.

4. Then click on MQTT configuration.



Webpage&code download tool

● Direct download mode

Configuration save location: C:\Users\haris\OneDrive\Desktop\SL5143D

Special configs:

Config file source: Read from local directory

○ Code file download mode

Select code file: C:\firmware.bin

● Download through the network

Device IP address or domain: 192.168.1.200

Download port (Don't modify): 1092

○ Download through serial port

Serial port:

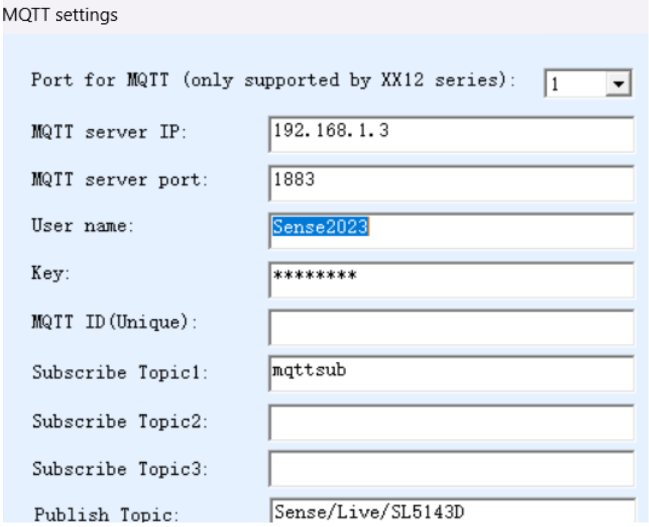
Baud Rate: 115200

DevID: 28788B19AA78

Flash size: 256 KB

Please close any other configuration window before downloading.

Fig.8 firmware configuration



MQTT settings

Port for MQTT (only supported by XX12 series): 1

MQTT server IP: 192.168.1.3

MQTT server port: 1883

User name: Sense2023

Key: ********

MQTT ID(Unique):

Subscribe Topic1: mqttsub

Subscribe Topic2:

Subscribe Topic3:

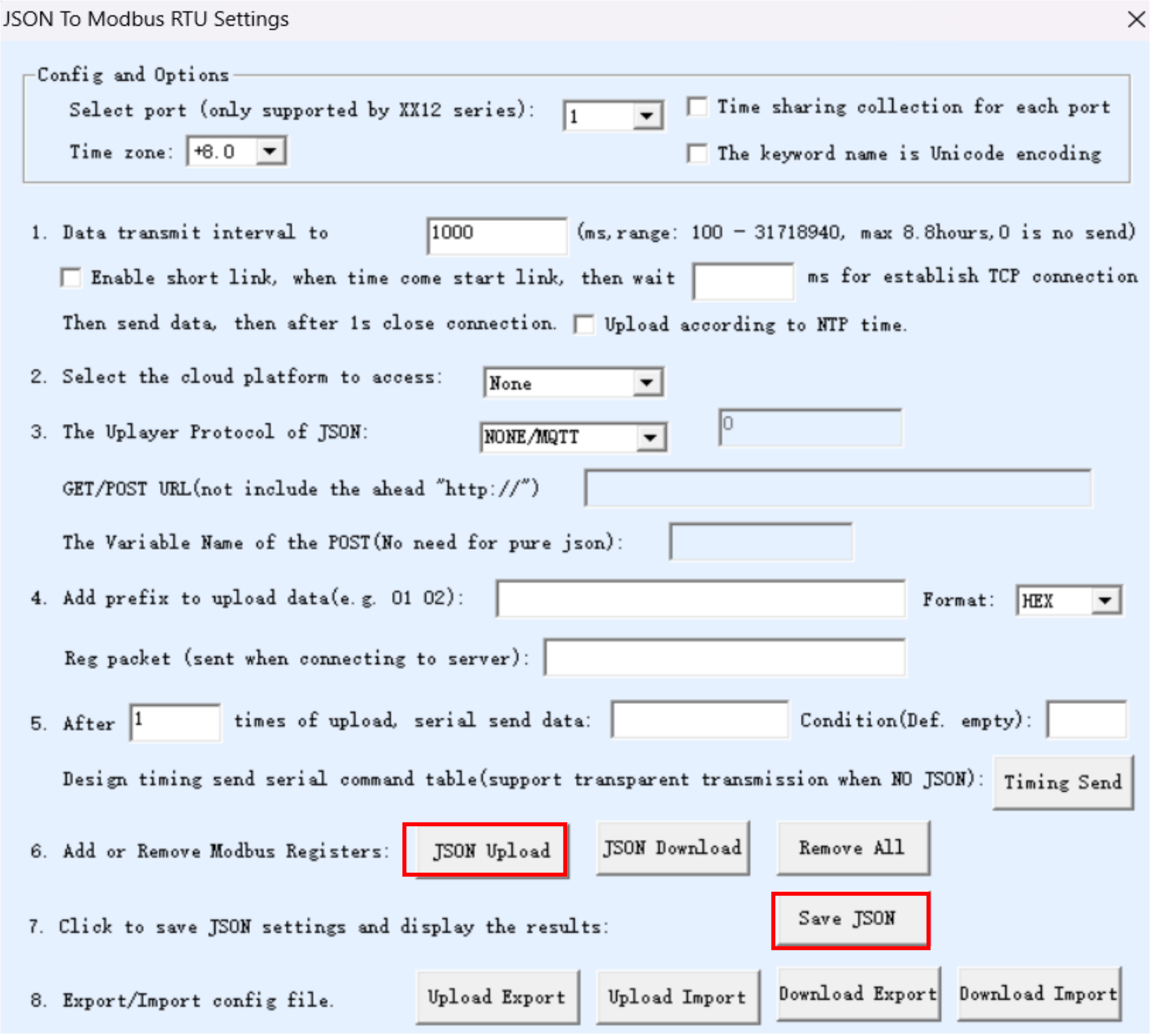
Publish Topic: Sense/Live/SL5143D

Fig.9 MQTT Setting

5. Configure the MQTT Broker, MQTT server IP, port, username, password, subscribe topic, publish topic and save it, then click on ”Download” as you see in fig 8 .

9. JSON Configuration:-

1. After configuring MQTT, return to the firmware configuration interface and click on the JSON configuration, as shown in Figure 8, Download JSON.



JSON To Modbus RTU Settings

Config and Options

Select port (only supported by XX12 series): 1

□ Time sharing collection for each port

Time zone: +8.0

□ The keyword name is Unicode encoding

1. Data transmit interval to 1000 (ms, range: 100 - 31718940, max 8.8hours, 0 is no send)

□ Enable short link, when time come start link, then wait ms for establish TCP connection

Then send data, then after 1s close connection. □ Upload according to NTP time.

2. Select the cloud platform to access: None

3. The Uplayer Protocol of JSON: NONE/MQTT 0

GET/POST URL(not include the ahead "http://")

The Variable Name of the POST(No need for pure json):

4. Add prefix to upload data(e.g. 01 02): Format: HEX

Reg packet (sent when connecting to server):

5. After 1 times of upload, serial send data: Condition(Def. empty):

Design timing send serial command table(support transparent transmission when NO JSON):

6. Add or Remove Modbus Registers:

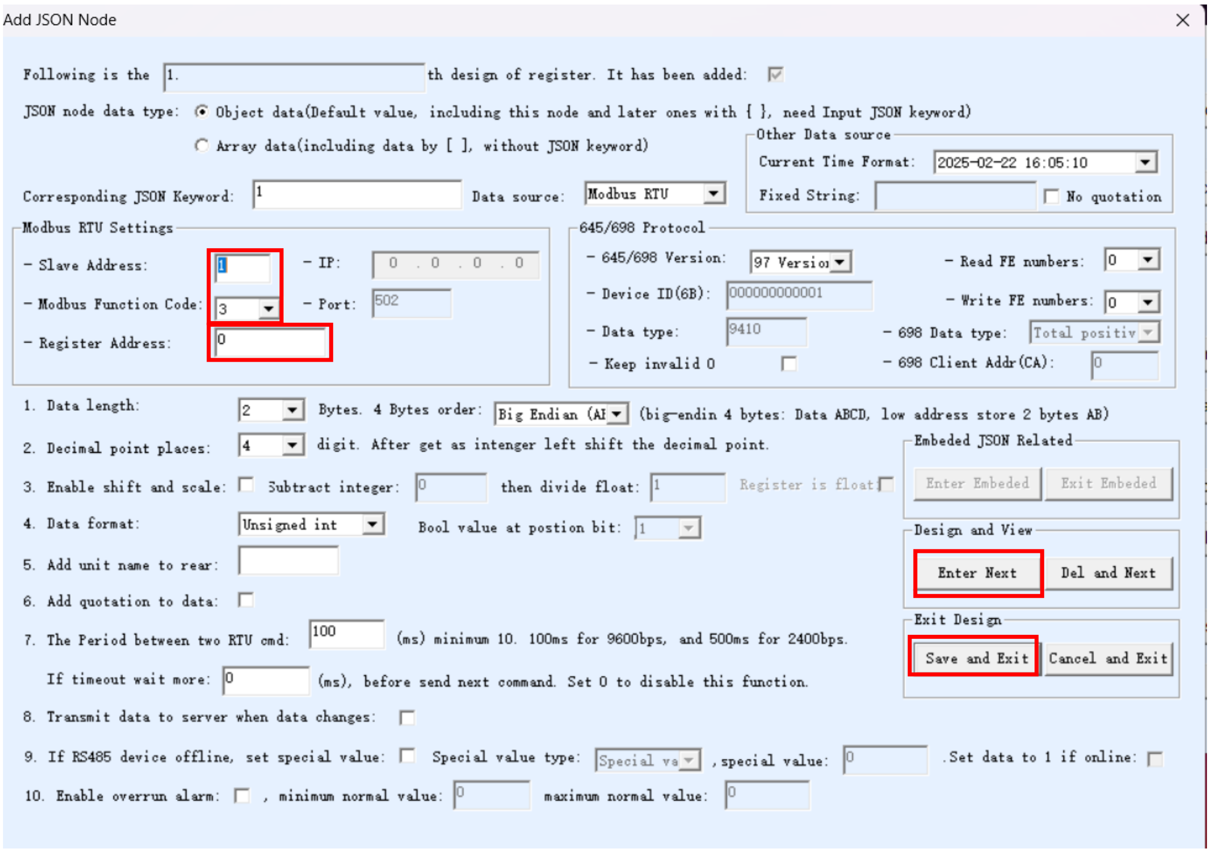
7. Click to save JSON settings and display the results:

8. Export/Import config file.

Fig.10 MQTT Setting

1. To set (water, energy) meters parameter, Click on the “JSON upload”.
2. Add slave address.
3. Add the corresponding JSON keyword to store multiple readings of the energy meter. This keyword can be a number or a character, depending on the energy meter.
4. Add the Modbus function code so that you know which number corresponds to which function.
5. Add register address as per energy meter.

6. Then, click on “Enter Next.” The register address will increase by 1, and you must assign the corresponding JSON keyword one by one after every click.
7. Click on “Save and Exit.” The saved JSON parameters will be visible. Then, go back to firmware configuration interface and click on “Download as show in fig 8.”



Add JSON Node

Following is the 1. th design of register. It has been added: ☑

JSON node data type: ● Object data(Default value, including this node and later ones with { }, need Input JSON keyword)
○ Array data(including data by [ ], without JSON keyword)

Other Data source
Current Time Format: 2025-02-22 16:05:10
Fixed String: □ No quotation

Corresponding JSON Keyword: 1 Data source: Modbus RTU

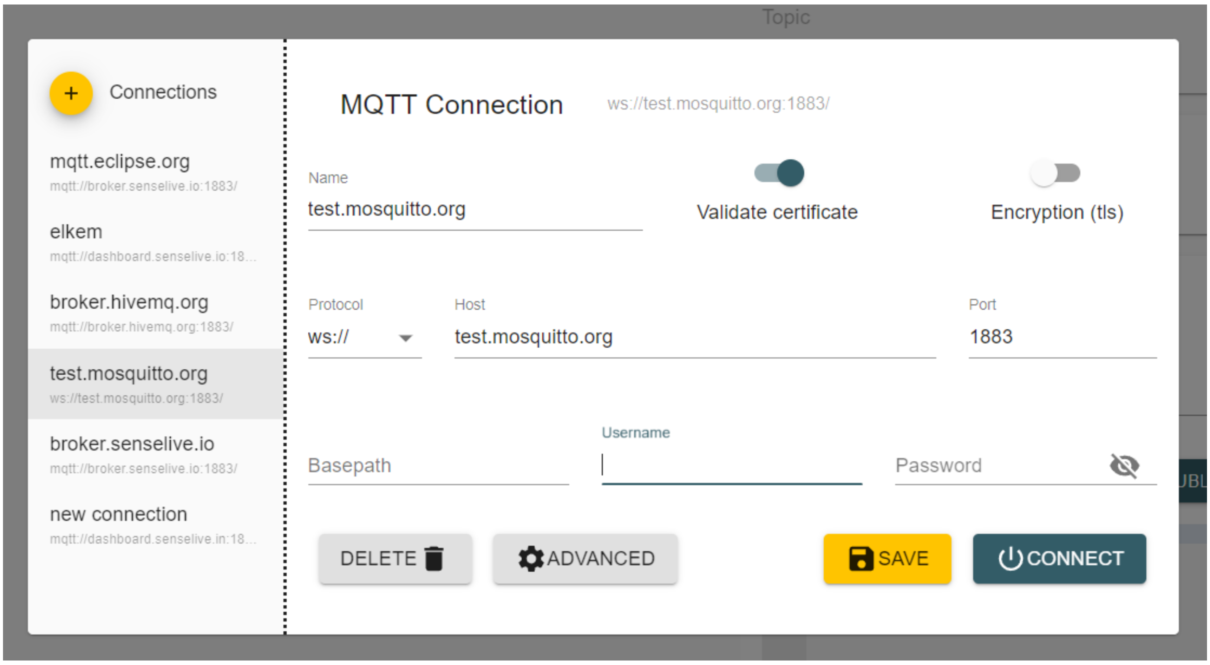
Modbus RTU Settings
- Slave Address: 1
- Modbus Function Code: 3
- Register Address: 0
- IP: 0 . 0 . 0 . 0
- Port: 502

645/698 Protocol
- 645/698 Version: 97 Versio
- Device ID(6B): 000000000001
- Data type: 9410
- Keep invalid 0 □
- Read FE numbers: 0
- Write FE numbers: 0
- 698 Data type: Total positiv
- 698 Client Addr(CA): 0

1. Data length: 2 Bytes. 4 Bytes order: Big Endian (AI (big-endin 4 bytes: Data ABCD, low address store 2 bytes AB)
2. Decimal point places: 4 digit. After get as intenger left shift the decimal point.
3. Enable shift and scale: □ Subtract integer: 0 then divide float: 1 Register is float □
4. Data format: Unsigned int Bool value at postion bit: 1
5. Add unit name to rear:
6. Add quotation to data: □
7. The Period between two RTU cmd: 100 (ms) minimum 10. 100ms for 9600bps, and 500ms for 2400bps.
If timeout wait more: 0 (ms), before send next command. Set 0 to disable this function.
8. Transmit data to server when data changes: □
9. If RS485 device offline, set special value: □ Special value type: Special va , special value: 0 .Set data to 1 if online: □
10. Enable overrun alarm: □ , minimum normal value: 0 maximum normal value: 0

Fig.11 Add JSON node

10. Output on MQTT Explore:-



Connections

mqtt.eclipse.org
mqtt://broker.senselive.io:1883/

elkem
mqtt://dashboard.senselive.io:18...

broker.hivemq.org
mqtt://broker.hivemq.org:1883/

test.mosquitto.org
ws://test.mosquitto.org:1883/

broker.senselive.io
mqtt://broker.senselive.io:1883/

new connection
mqtt://dashboard.senselive.in:18...

MQTT Connection ws://test.mosquitto.org:1883/

Name: test.mosquitto.org

Validate certificate: on

Encryption (tls): off

Protocol: ws://

Host: test.mosquitto.org

Port: 1883

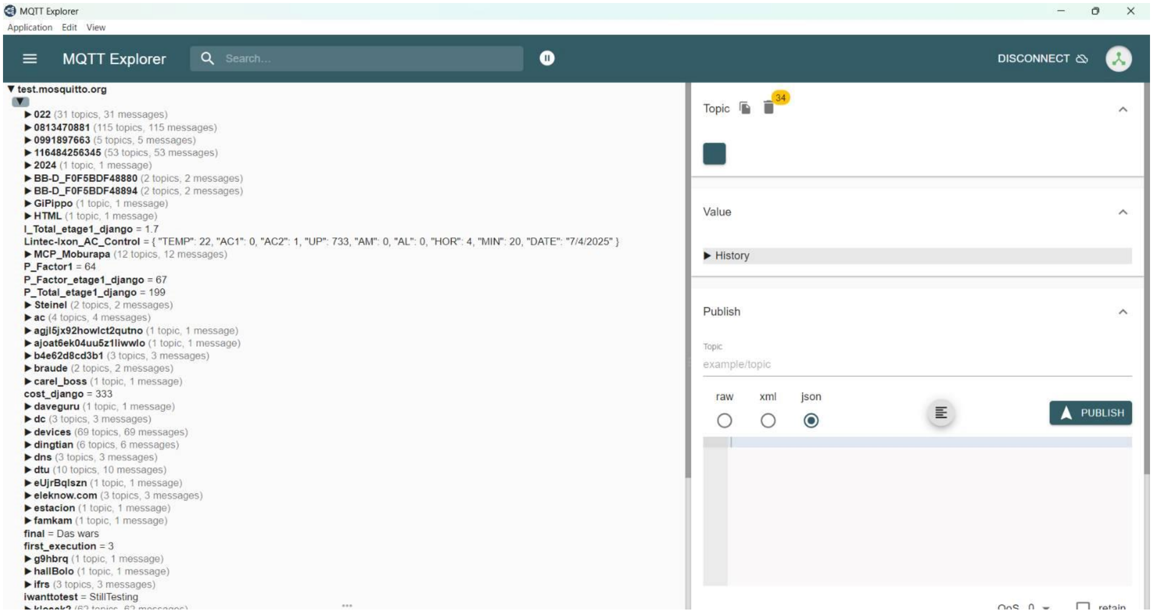
Basepath

Username

Password

Fig.12 MQTT Explore Application

➢ You can search the topic which is configure in device.



```
▼ test.mosquitto.org
  ▼
    ▶ 022 (31 topics, 31 messages)
    ▶ 0813470881 (115 topics, 115 messages)
    ▶ 0991897663 (5 topics, 5 messages)
    ▶ 116484256345 (53 topics, 53 messages)
    ▶ 2024 (1 topic, 1 message)
    ▶ BB-D_F0F5BDF48880 (2 topics, 2 messages)
    ▶ BB-D_F0F5BDF48894 (2 topics, 2 messages)
    ▶ GiPippo (1 topic, 1 message)
    ▶ HTML (1 topic, 1 message)
    I_Total_etage1_django = 1.7
    Lintec-Ixon_AC_Control = { "TEMP": 22, "AC1": 0, "AC2": 1, "UP": 733, "AM": 0, "AL": 0, "HOR": 4, "MIN": 20, "DATE": "7/4/2025" }
    ▶ MCP_Moburapa (12 topics, 12 messages)
    P_Factor1 = 64
    P_Factor_etage1_django = 67
    P_Total_etage1_django = 199
    ▶ Steinel (2 topics, 2 messages)
    ▶ ac (4 topics, 4 messages)
    ▶ agjl5jx92howlct2qutno (1 topic, 1 message)
    ▶ ajoat6ek04uu5z1liwwlo (1 topic, 1 message)
    ▶ b4e62d8cd3b1 (3 topics, 3 messages)
    ▶ braude (2 topics, 2 messages)
    ▶ carel_boss (1 topic, 1 message)
    cost_django = 333
    ▶ daveguru (1 topic, 1 message)
    ▶ dc (3 topics, 3 messages)
    ▶ devices (69 topics, 69 messages)
    ▶ dingtian (6 topics, 6 messages)
    ▶ dns (3 topics, 3 messages)
    ▶ dtu (10 topics, 10 messages)
    ▶ eUjrBqlszn (1 topic, 1 message)
    ▶ eleknow.com (3 topics, 3 messages)
    ▶ estacion (1 topic, 1 message)
    ▶ famkam (1 topic, 1 message)
    final = Das wars
    first_execution = 3
    ▶ g9hbrq (1 topic, 1 message)
    ▶ hallBolo (1 topic, 1 message)
    ▶ ifrs (3 topics, 3 messages)
    iwanttotest = StillTesting
    ▶ klosek2 (62 topics, 62 messages)
```

Fig.13 Broker interface