

SenseLive7400D

Din-rail 4G CAT1 DTU

Configuration Datasheet

**RS485 to 4G Modbus RTU to 4G
Modbus TCP RS485 to MQTT DLT-
645/RTU to Cloud/to platform JSON**



Catalogue

- 1. Introduction
- 2. Technical Parameters.....
- 3. Software Installation
- 4. Hardware Connection
- 5. Parameter Configuration
- 6. MQTT Communication Settings
- 7. JSON creation.....
- 8. Check parameter in configuration tool.....
- 9. Output on MQTT Explore.....

1. Introduction:-

SL7400D: The SL7400D is a compact and cost-effective CAT1 4G DTU , supporting RS485-to-4G transmission with speeds up to 10Mbps. It features guideway installation, wide voltage input (9–24V), and a fire-retardant shell for industrial use. The SL7400DN adds P2P and M2M cloud forwarding, enabling remote monitoring without a dedicated server. Both models support MQTT, Modbus RTU to JSON, HTTP, and edge computing, allowing seamless data collection, remote management, and cloud integration for industrial automation and IoT applications.

2. Technical parameters:-

Outside Interface	
Serial interface	RS485: 3.5mm terminal
Serial port	ONE, RS485 (485A、485B、GND)
Power supply	3.5mm terminal
Reset	Push-button one-button reset factory Settings
Signal light	SYS, WORK, 4G LINK, TCP LINK, TXD, RXD
SIM card	Voltage: 3V, 1.8V; Size Micro SIM (none Nano SIM): Size is 12x15mm×0.8mm
Antenna interface	50Ω/SMA Female stick antenna or suction cup antenna (default suction cup)
Size:	L x W x H: 37.6 x 83.6 x 89.2mm
Equipment:	35mm Din rail mounted
Communication Interface	
Wireless mode:	4G CAT1 supports modes: B3 (1800 MHz) – Airtel, Jio, Vi, BSNL B5 (850 MHz) – Jio, BSNL B8 (900 MHz) – Vi, BSNL B40 (2300 MHz) – Jio, Airtel, Vi B41 (2500 MHz) – Airtel (Limited areas)

Serial port parameter			
Baud rate	300~921.6Kbps , customized baud rate	Check bit:	None, odd check, even check
Digit bit	5~8 bits	Stop bit:	1~2 bits
Software			
Working mode	TCP Client side、 UDP		
Transformer protocol	Modbus TCP、 MQTT、 JSON		
Modbus gateway	Modbus TCP to RTU		
JSON gateway	Device side support Modbus RTU、 DLT-645; Server support HTTP POST/GET、 MQTT		
SSL	Support SSL encryption		
Off-line storage	256K		
Address resolution:	Support DNS resolution		
Configuration	Vircom tool、 serial port AT instruction configuration		
Hardware			
input voltage	9~24V DC		
input current	Dial up /4G communication 50mA@12V, idle 25mA@12V		
Environment			
operating temperature, humidity	-40~85℃ 5~95% RH		
storage temperature, humidity:	-45~100℃ 5~95% RH		

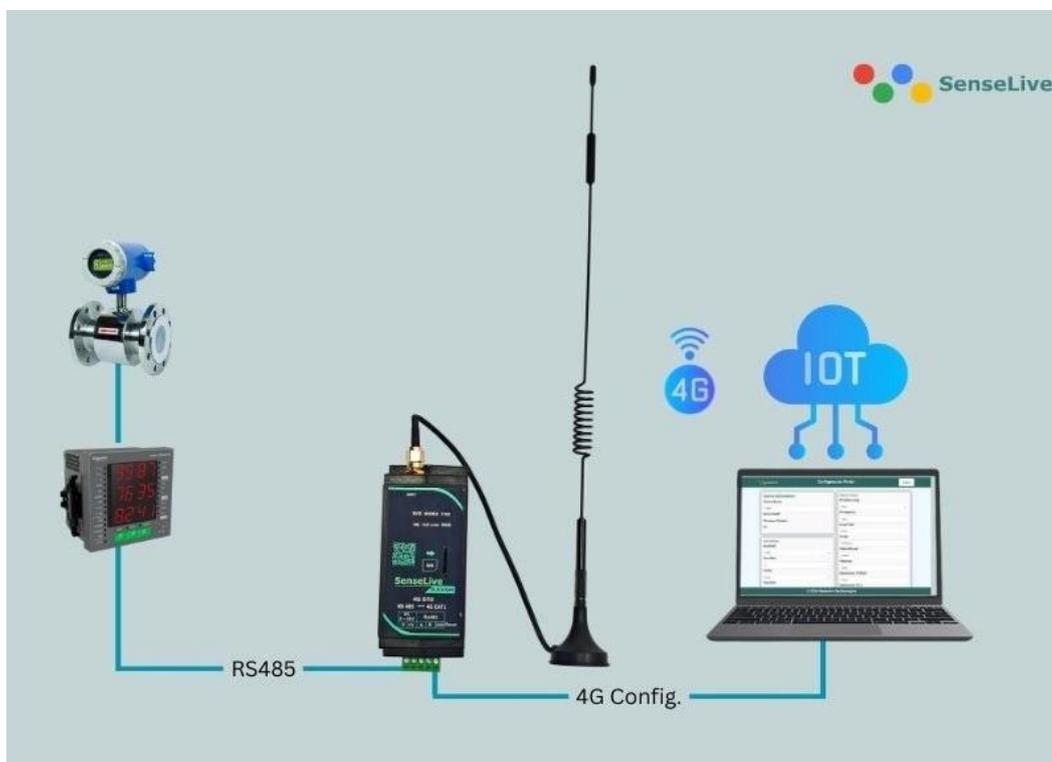
3. Software Installation:-

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.



5. Parameter Configuration

1. After installing Vircom, connecting the hardware, running the software, and clicking on "Device Management," proceed with the necessary configurations.

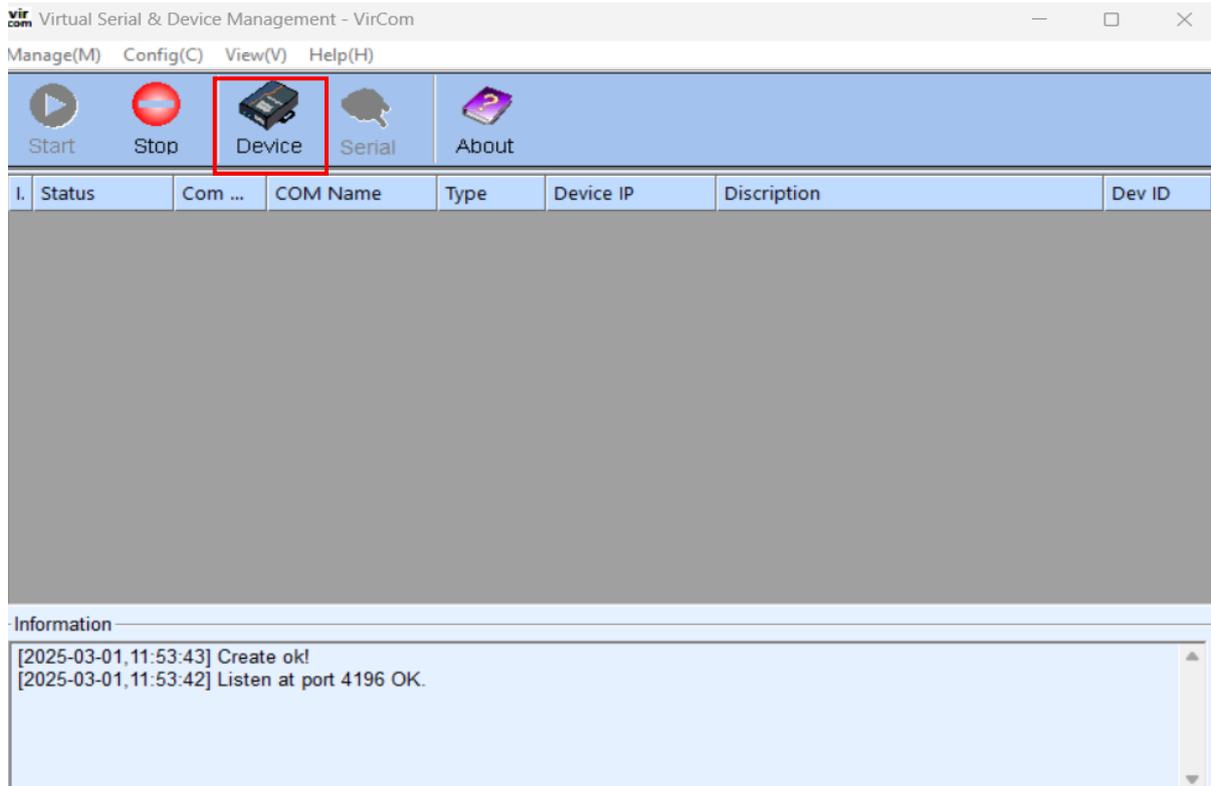


Fig.1 Device management

2. In the Device Management interface, click on "Search Serial" as shown in the figure 2. Then, select a baud rate and COM port. After that, click on "Search," and the device will be connected.

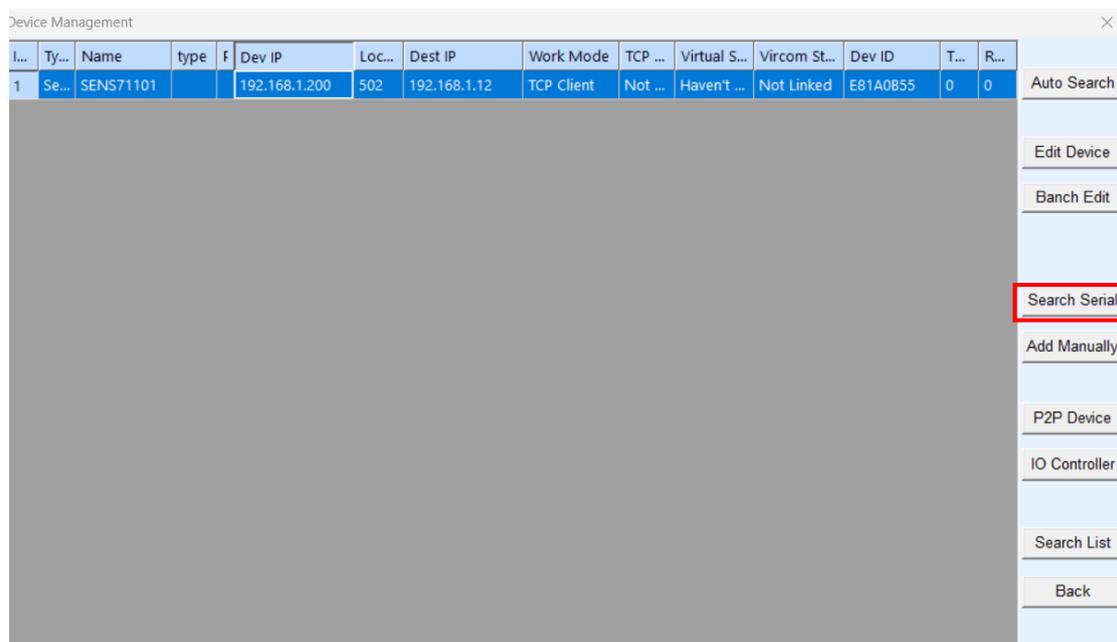


Fig.2 Device management

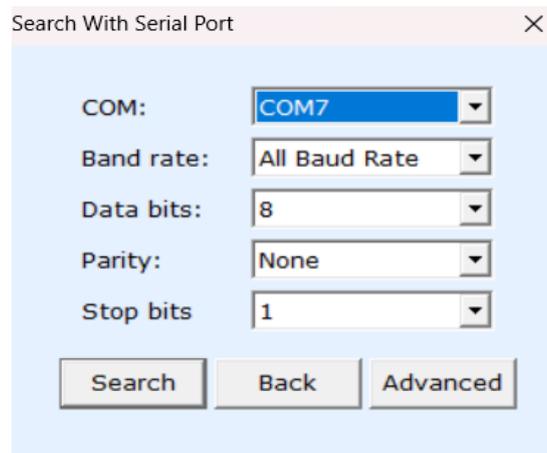


Fig.3 Search serial

3. After the serial port search, the configuration tool interface open as you see in fig 4.

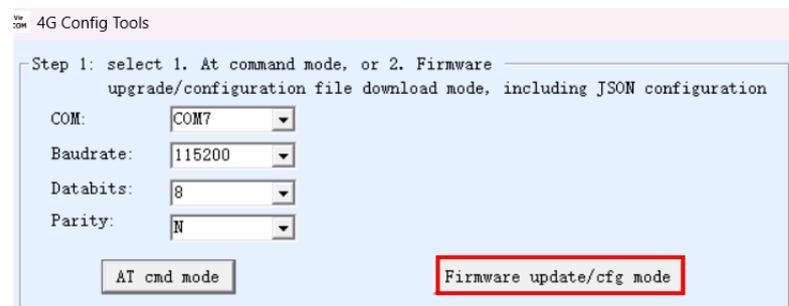


Fig.4 Configuration tool

6. MQTT Communication settings:-

1. Before MQTT communication make a folder on your PC, name as device.
2. In 4G configuration tool interface click on firmware configuration as show in fig 4.
3. In configuration save location select folder which is created on your PC, as show in fig 5.
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

Modbus cfg. **MQTT cfg.** **JSON cfg.** Reg packet Cmd change HTTP cfg. Param file Clear local dir.

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

Flash size: 256 KB

DevID: 28788B19AA78 Bind ID

Please close any other configuration window before downloading.

Download

Fig.5 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.6 MQTT Setting

- 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 5.

7. JSON Configuration:-

- After configuring MQTT, return to the firmware configuration and click on the JSON configuration, as shown in Figure 5.

Fig.7 MQTT Setting

2. To set (water, energy) meters parameters ,Click on the “JSON upload”.
3. Add slave address.
4. 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.
5. Add the Modbus function code so that you know which number corresponds to which function.
6. Add register address as per energy meter.
7. 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.
8. 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 7.”

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 - IP: 0 . 0 . 0 . 0
 - Modbus Function Code: 3 - Port: 502
 - Register Address: 0

645/698 Protocol

- 645/698 Version: 97 Version - Read FE numbers: 0
 - Device ID(6B): 000000000001 - Write FE numbers: 0
 - Data type: 9410 - 698 Data type: Total positiv
 - Keep invalid 0 - 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 integer 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 position 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 vs , special value: 0 .Set data to 1 if online:

10. Enable overrun alarm: , minimum normal value: 0 maximum normal value: 0

Embedded JSON Related
 Enter Embedded Exit Embedded

Design and View
 Enter Next Del and Next

Exit Design
 Save and Exit Cancel and Exit

Fig.8 Add JSON node

8. Check parameter in configuration tool:-

- 1 Go back to the device management interface, click on Serial Search, and the Configuration Tool interface will open.
2. Click on "AT cmd mode." On right side information box show the data.
3. Click on "Login."
4. The default login key is 666666.
5. After logging in, you can change the baud rate and other parameters by clicking on "Advance parameters".

4G Config Tools

Step 1: select 1. At command mode, or 2. Firmware upgrade/configuration file download mode, including JSON configuration

COM: COM7
 Baudrate: 115200
 Databits: 8
 Parity: N

AT cmd mode Firmware update/cfg mode

Fig.9 Configuration tool

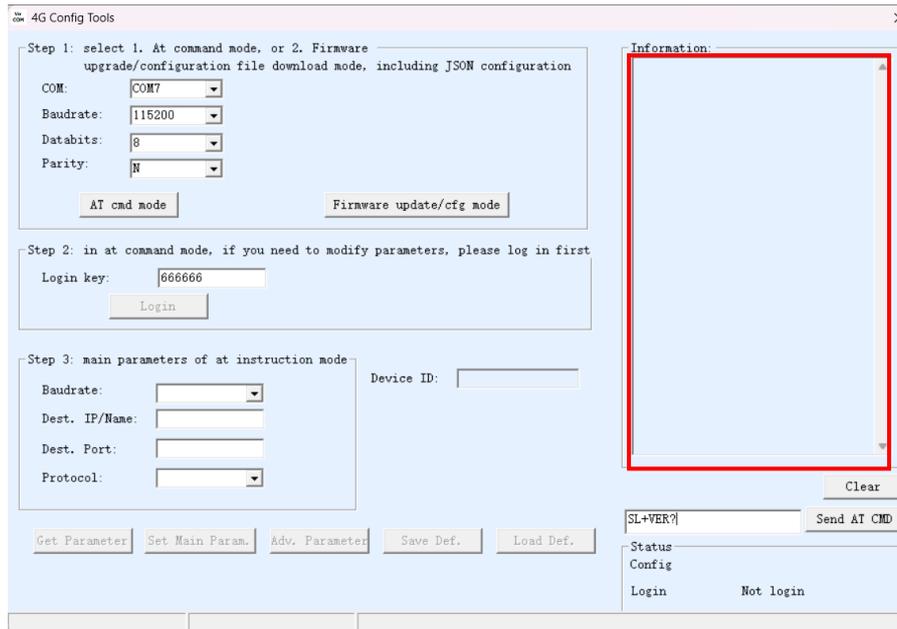


Fig.10 Configuration tool (information box)

9. Output on MQTT Explore:-

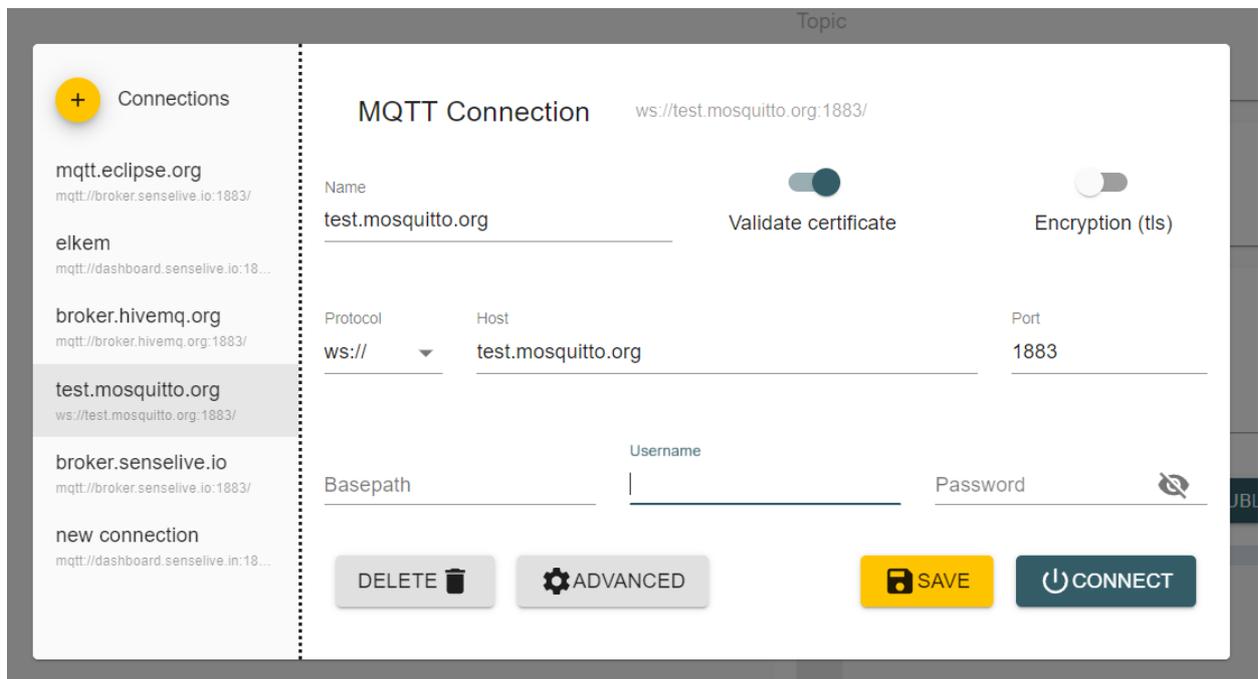


Fig.11 MQTT Explore Application

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

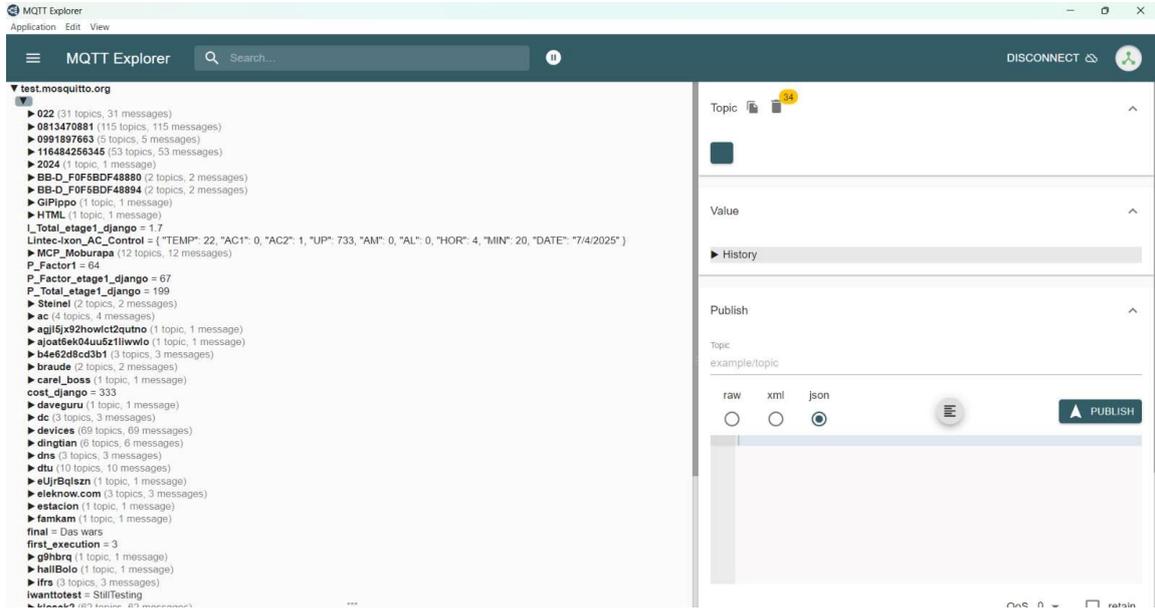


Fig.12 Broker interface