SurfGate User Manual

(NTD83X/Gateway)

NTD83X-UserQ

SyncWave Inc.

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1. Safety Instructions

This chapter describes safety precautions.

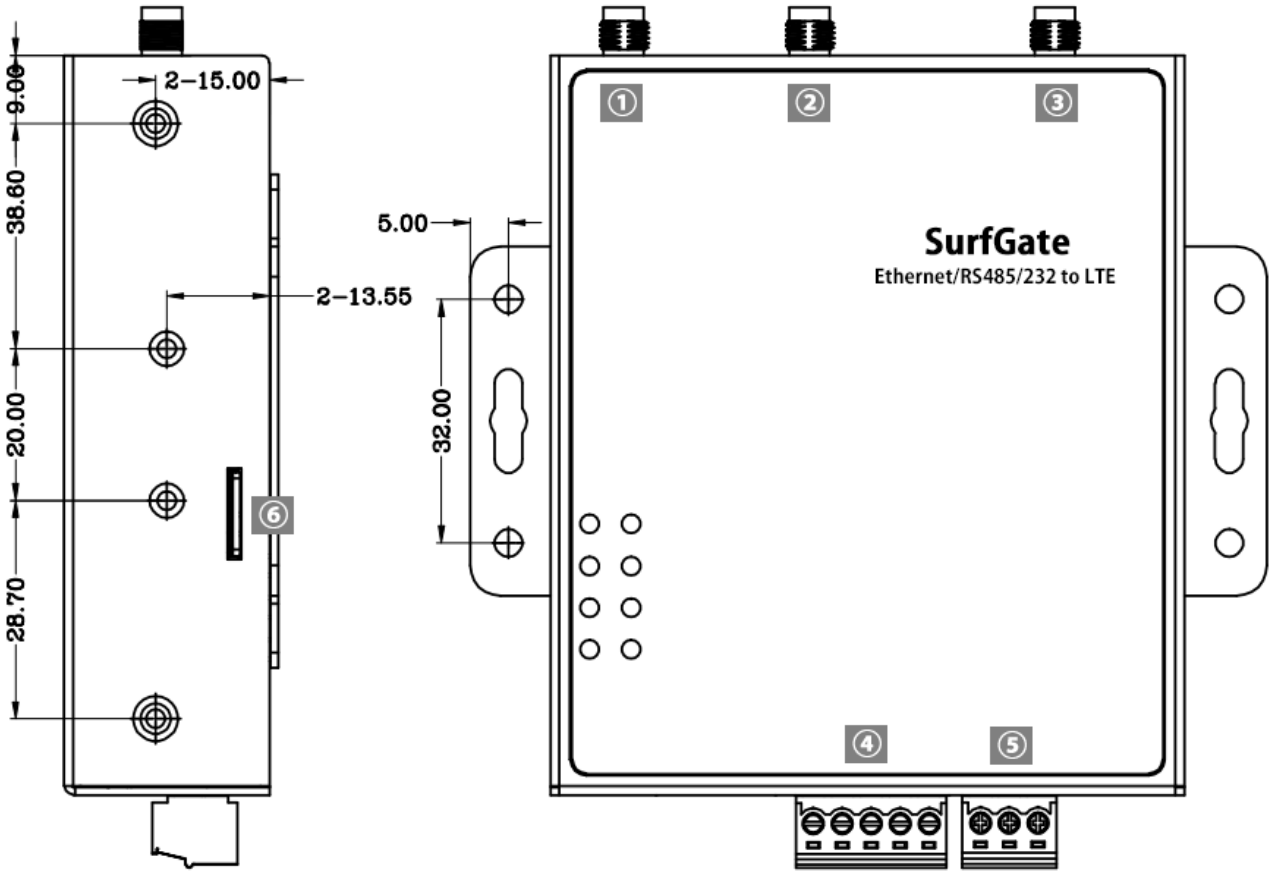
To use this product safely, please follow instructions below:

- Please adhere to the guidelines provided in this user manual when using the product.
- Do not store, install, or use the product in the following environments:
  - Areas highly affected by vibration and shock.
  - Unstable locations.
  - Places exposed to outdoor elements such as direct sunlight, wind, rain, and water.
  - Environments with temperatures and humidity levels outside the specified range.
  - Locations where humidity fluctuates drastically, leading to condensation or freezing risks.
  - Areas influenced by electric and magnetic fields.
  - Sites prone to strong high-frequency noise, surges, corrosive gases, and dissolved liquids.
- Ensure that the area around the product is not blocked to allow for proper heat dissipation.
- Avoid installing the product near heat-generating equipment.
- Never throw the product into a fire or expose it to excessive heat.
- Do not attempt to disassemble, modify, or repair the product.
- When mounting the product on a DIN rail, ensure that all screws are securely tightened.
- Cease using the product immediately if you notice any abnormal noise, odor, smoke, or excessive heat generation.
- Use caution when installing or removing SIM cards or SD cards; apply only the necessary force.
- Dispose of the device appropriately following local government regulations.

2. Device Instructions

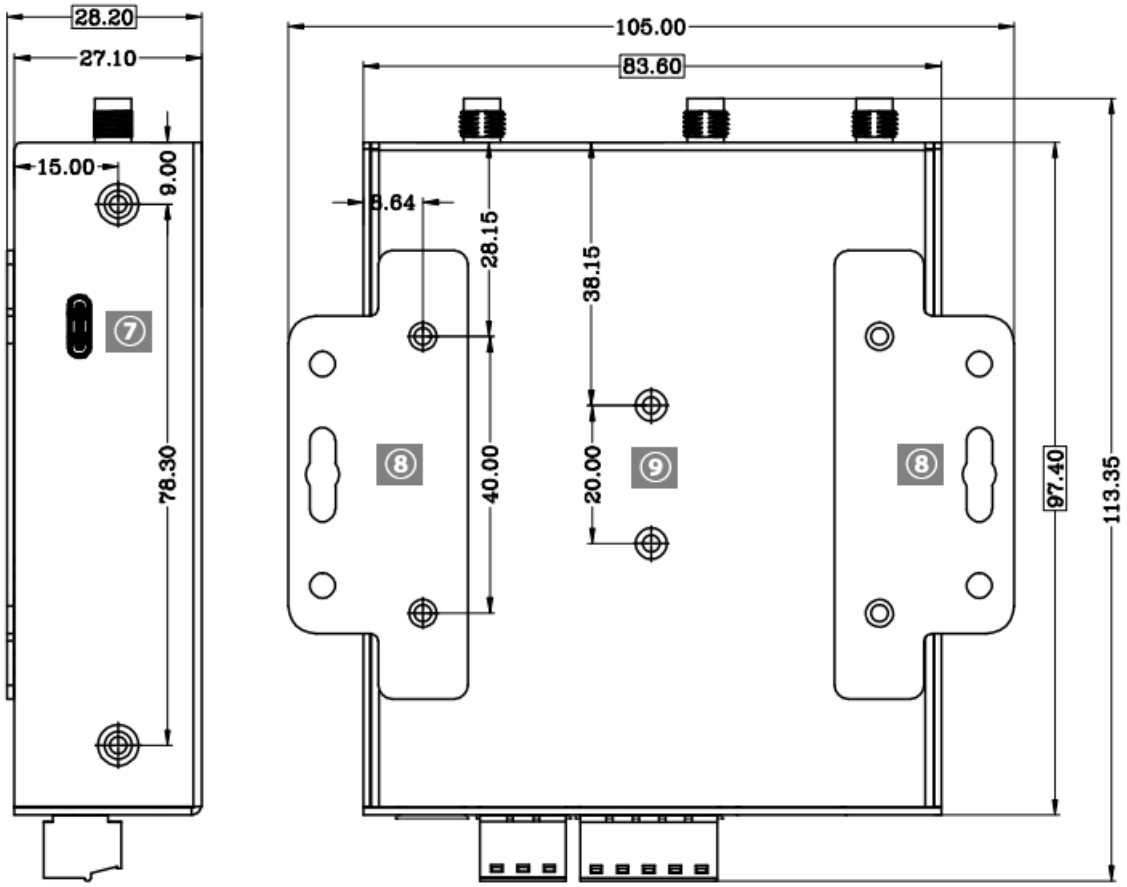
This chapter describes the names and roles of each part.

< Right side / Front >



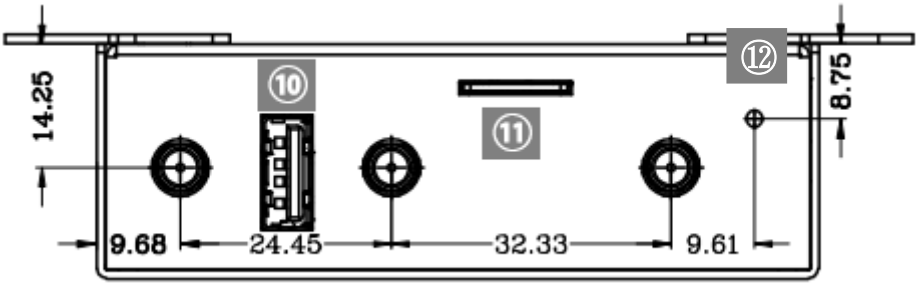
① LTE antenna port	Connection terminals for LTE antennas
② WIFI Antenna Port	Connection terminals for wireless LAN antennas
③ Shared Antenna Ports	Connection terminals for LTE (sub) and EnOcean antennas, etc.
④ RS232/RS485 port	Connection terminals for RS232 and RS485
⑤ DC power port	Connection terminals for DC power cables
⑥ SD Card slot	Slot to insert Micro SD Card

< Left side / Back side >



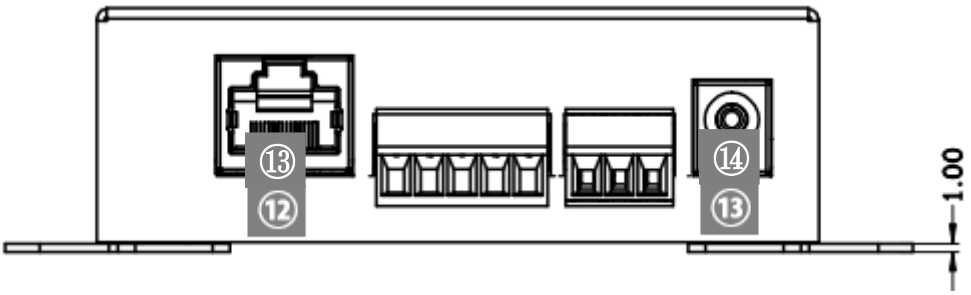
⑦ USB-C port	Terminal for connecting USB-Type-C
⑧ Mounting bracket	Metal fittings for attaching to a wall, etc. (removable)
⑨ DIN rail bracket	Metal fittings for mounting on the DIN rail (removable)

< Top >



⑩ USB-A port	Terminal for connecting a USB device (for Debug)
⑪ SIM Slot	Slot to insert Micro SIM (3FF)
⑫ Reset button	Reset factory default button (press 10 seconds)

< Bottom >



⑬ Ethernet port	Terminals for connecting 100BASE-TX Ethernet cables
⑭ DC power port	Terminal for connecting the included AC adapter (12V standard)

< Attached Antenna >

⑮ General-purpose antenna	Antennas for LTE, WIFI
⑯ Sub-GHz Antenna	Sub-GHz band (920 MHz) antennas such as EnOcean receiver

3. Device Specifications

This chapter describes the product specifications.

Basic Hardware

item	criterion
CPU	Dual Core; ARM Cortex-A7 up to 1.2GHz; ARM Cortex-R5
RAM	128MB DDR2
Flash	256MB Nandflash

Cellular Interface

item	criterion
4G	LTE Category 4
Number of antennas	2
Connector	SMA
SIM	Micro SIM ×1
LTE Frequencies	1,3,8,18,19,41

Serial Interface

item	criterion
Type	RS485×1 or RS232 ×1
Connector	5-pin Data+ (A), Data- (B), TXD, RXD, GND; 3.5mm terminal block 3-pin VCC GND PE
ESD protection	Class 4
Baud rate	2400 bps to 115200 bps

Ethernet Interface

item	criterion
Number of ports	10/100/the 1000 Mbps ×1, LAN or WAN
Magnet isolation protection	1.5KV

Wireless Interface

item	criterion
Number of antennas	1
Connector	SMA
Standards	802.11 b/g/n, 1 x 1 MIMO, supports AP and Client modes
Frequency bands	2.412 – 2.484 GHz

EnOcean Interface (Optional)

item	criterion
Number of antennas	1
Standards	928MHz (Japan); 868Mhz (Europe)
Connector	SMA
Sensitivity	-95 dBm
Modulation	FSK
Data rate	125Kbps
MAX Registrable Sensors	100
MAX Monitorable Sensors	24

Others

item	criterion
SD	Micro SD (Max 128GB)
Reset button	1
USB	USB 2.0 (host) × 1, Type A, 5V 500mA
LED indicators	left: power, Ethernet, WIFI, Link-K (socket connected) right: signal strength
Watchdog	built-in hardware watchdog

Software

item	criterion
OS	Linux OpenWRT
Network Protocols	PPP, PPPoE, TCP, UDP, MQTT(s), DHCP, ICMP, NAT, HTTP(s), DNS, NTP, SMTP, ARP, NTP, SMTP, Telnet, DDNS, etc.
Industrial Protocols	Modbus RTU, Modbus TCP, BACnet IP※
VPN	OpenVPN, SSTP, IPsec
Firewall	DMZ, anti-DoS, Filtering (IP/Domain name/MAC address), Port Mapping, Access Control
Remote management	SurfView remote management system, WebUI, SSH

Cloud Connection

item	criterion
Cloud	AWS; Azure; Cumulocity

Power Supply and Consumption

item	criterion
12V Adaptor Supply	DC-Jack; 3-pin terminator
Wired Power Supply	3-pin terminator (+、－、GND)
Input Voltage Range	9 ~ 36V DC

Power consumption	Idle: 1W Data link: 5W (peak)

Physical Characteristics

item	criterion
Dimensions	97×83×27mm
Weight	298g
Housing	Metal
Installations	Desktop, wall mounting and 35mm DIN rail mounting
Operating temperature	-20 ~ +70 °C
Storage temperature	-20 ~ +80 °C

Certification

item	criterion
Europe	CE
Japan	Telec/Jate
Environment	RoHs

Regulatory

item	criterion
EMI	EN55032 CE, Class B
EMS	IEC61000-4-2 ESD, Level 4 IEC61000-4-4 EFT, Class B IEC61000-4-5 SURGE, Level 4 IEC61000-4-6 CS, Class A IEC61000-4-11 DIP, Class C298g
Vibration	IEC60068-2-6
Shock	IEC60068-2-27

4. Pre-Boot Preparation

This chapter describes the preparations before startup.

- Install the Antenna

  When using the wireless function, attach an antenna to each port corresponding to the intended function. Ensure that the antenna is firmly attached to prevent any rotation, as this can affect antenna sensitivity.

- Insert SIM card

  Insert the SIM card following the orientation indicated on the product label. Pay close attention to the direction in which the SIM is inserted. Inserting it forcibly may result in difficulty removing it. Ensure the device is powered off before inserting the SIM; otherwise, it will not be recognized. If you do not intend to use the cellular network, there's no need to insert the SIM card.
  Insert the SIM card in the orientation indicated on the product label.

- Insert SD card

  Insert the SD card following the orientation indicated on the product label. Take care to align the insertion direction properly. Forcing the SD card may make it difficult to remove. Ensure the device is powered off before inserting the SD card to prevent recognition issues. If you do not plan to use an SD card, there's no need to insert it.

- Plug the AC adapter

  Plug the included AC adapter to the power terminal of this product and plug it into an electrical outlet.

  - When plugged into an outlet, the power is turned on automatically.
  - Remember to unplug the adapter from the outlet when finished to turn off the power.
  - Please note that as a countermeasure against power outages, the product may continue to run for a short while after the power is turned off.

5. Initial Setup (WebUI Login)

This chapter describes the procedure for logging in to the WebUI.

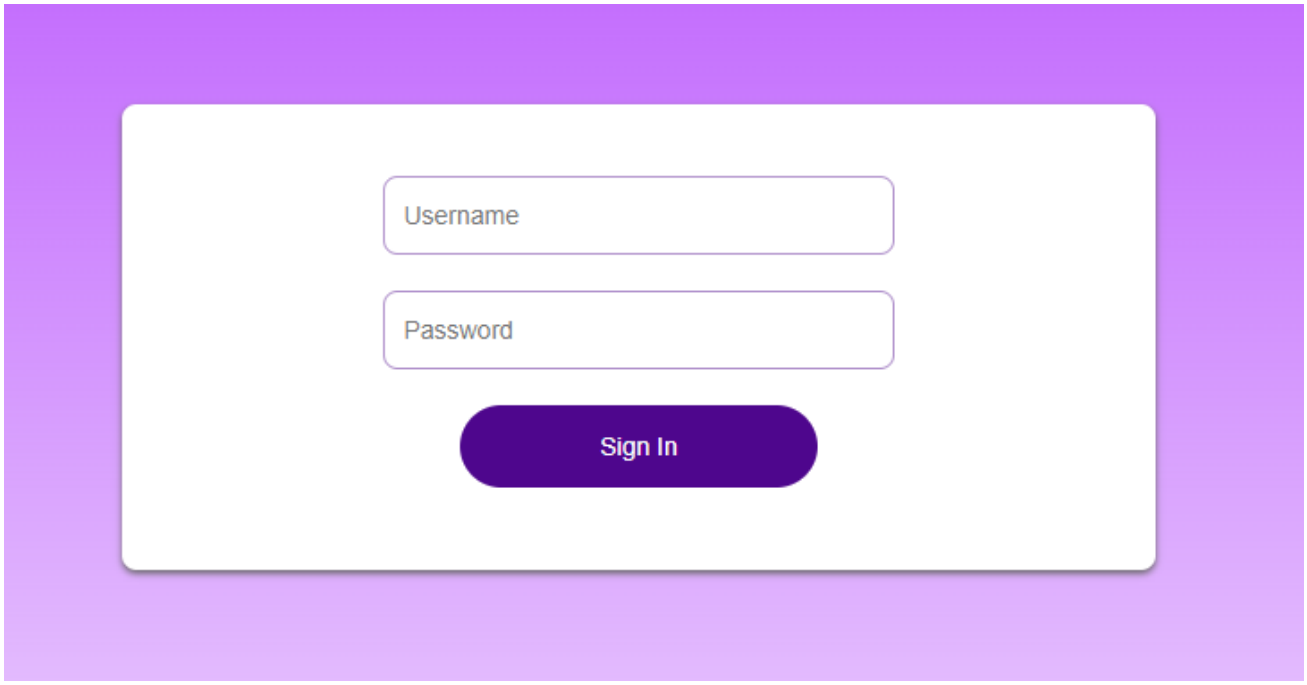
1. Insert SIM Card.

   * Pay attention to the direction when inserting the SIM card.

   * Ensure the power is off before inserting the SIM card, as it will not be recognized if inserted while the power is on.

   * If you do not intend to use the cellular network, there's no need to insert the SIM card.

2. Plug the AC adapter that came with this product into an electrical outlet.
3. Start your computer.
4. Connect the USB-C port of this product to the USB port of the computer with a USB cable.
5. Launch a web browser on your computer.
6. Enter the following URL in the address bar.
   192.168.1.1
7. When the login screen is displayed, enter the following login information.



>Username: admin

>Password: admin

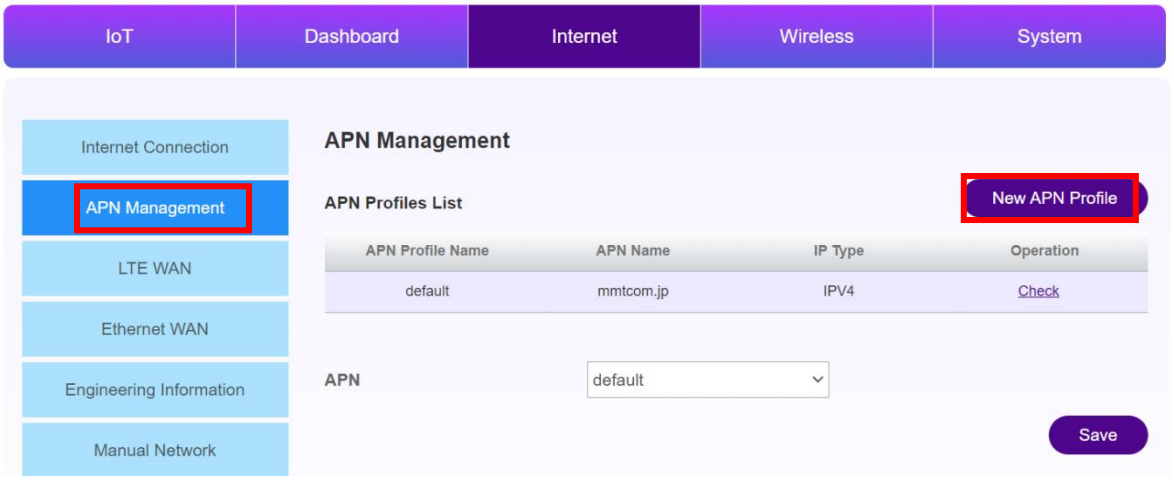
*It may take some time to display immediately after starting this product, so if you cannot connect, wait for a while and then connect again.

8. The login is completed and the dashboard is displayed.

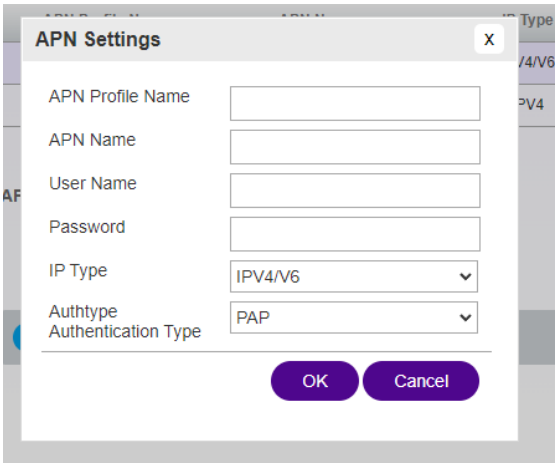
6. LTE (Cellular Network)

This chapter describes the LTE connection procedure.

1. Select [Internet] from the main menu.
2. Select [APN Management] from the side menu.



3. Click [New APN Profile] to set the APN information of the inserted SIM.



4. Select [OK].
5. Select the APN Profile you created from the APN drop-down menu .

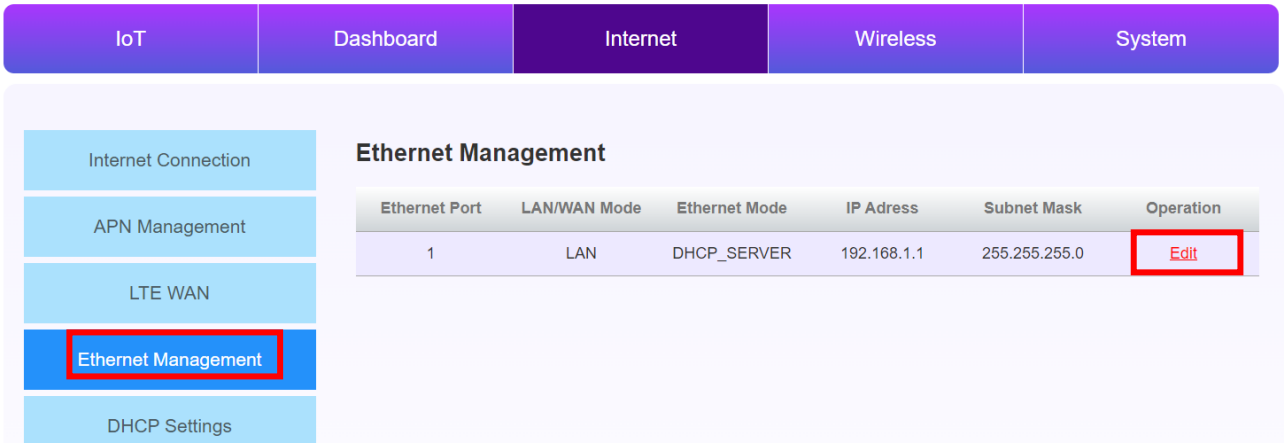
6. Click [Save].

7. Ethernet Management

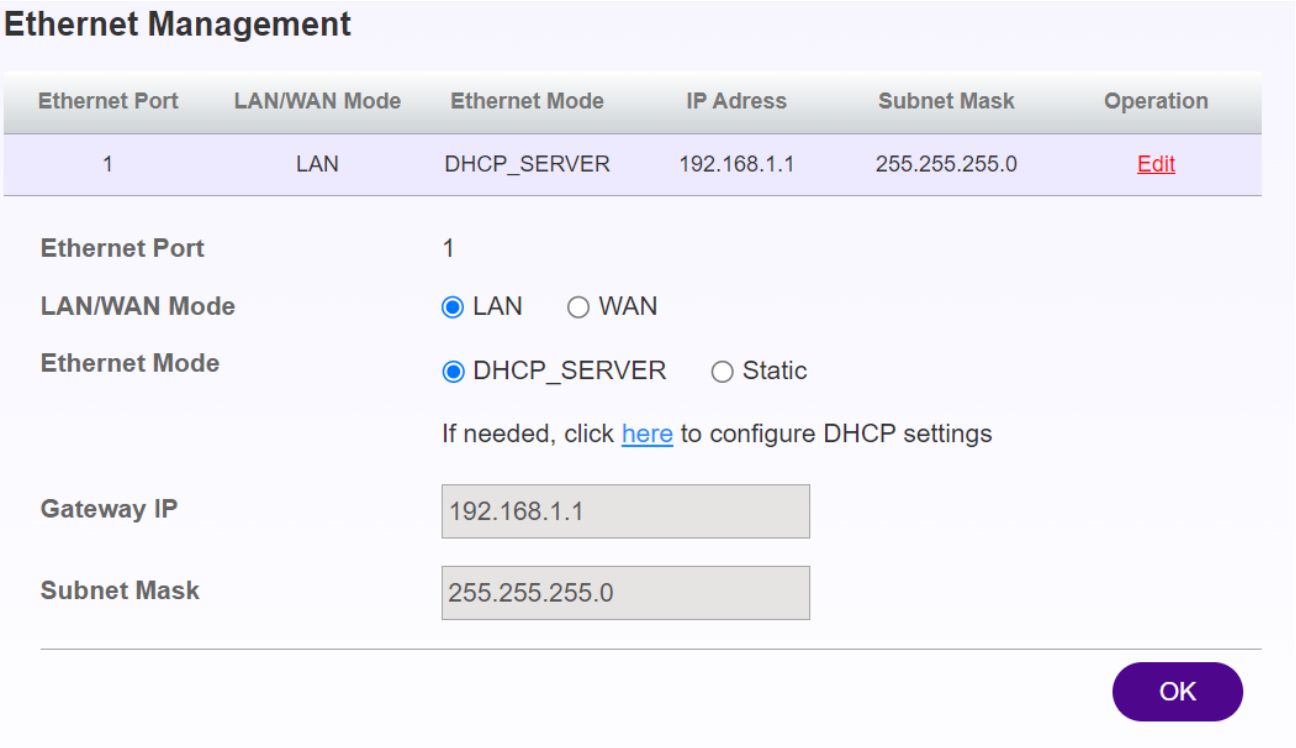
This chapter describes the Ethernet Management procedure.

1. When using Ethernet as LAN

1. Select [Internet] from the main menu.
2. Select [Ethernet Management] from the side menu.
3. Click [Edit] from the Ethernet Management.



4. Enter the following from the Ethernet Management.



-LAN/WAN Mode: In the case of LAN

-Ethernet Mode: DHCP_SERVER

The connected device is automatically assigned an IP address by DHCP.

-Gateway IP : DHCP Default Gateway in Setting IP (cannot be changed)

-Subnet Mask: Subnet Mask of DHCP Setting (cannot be changed)

-Ethernet Mode: Static case

Any IP address and subnet mask can be assigned to the Ethernet port. It is not possible to assign the same settings as the segments assigned by DHCP Settings.

-LAN IP: Any IP address

- Subnet Mask: Arbitrary Subnet Mask

5. Click the OK button.

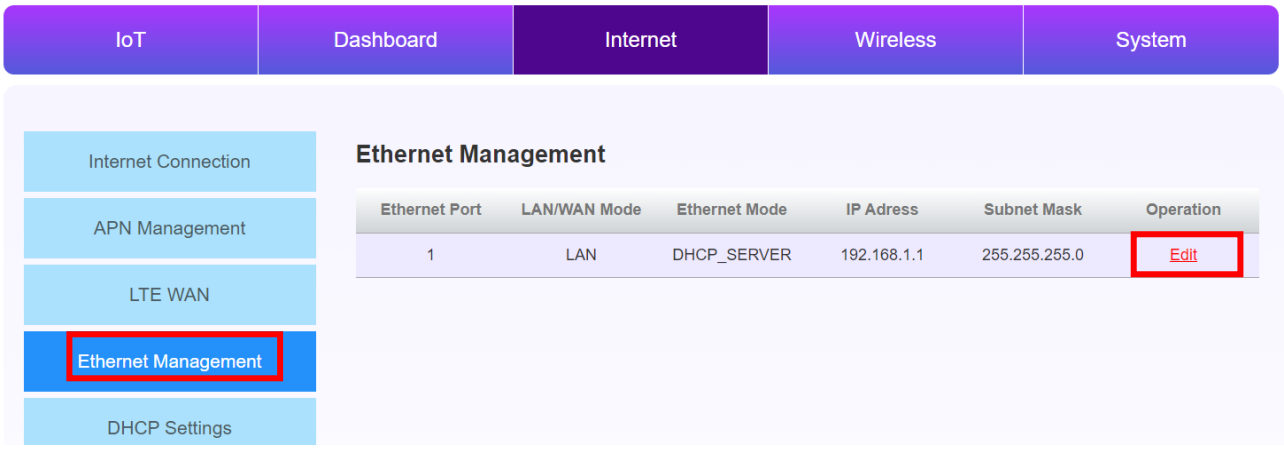
*For more information about interfaces, see chapter 17 Network Interface.

2. When using Ethernet as WAN

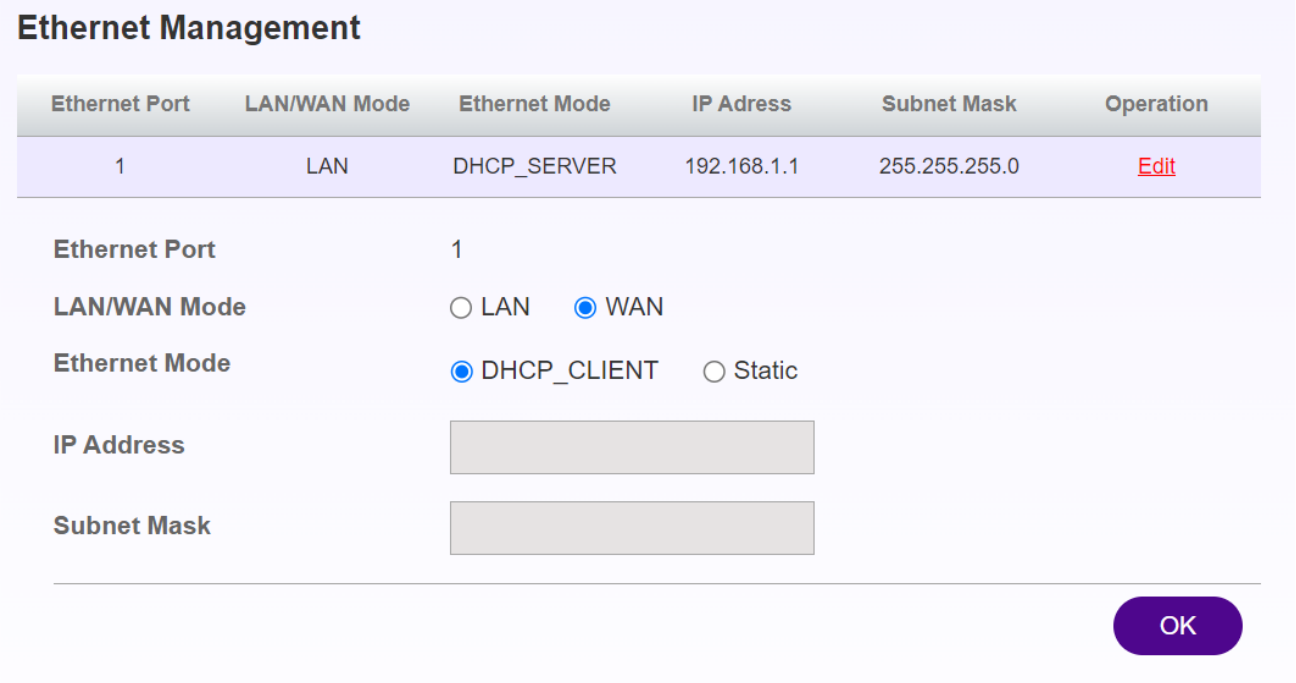
1. Select [Internet] from the main menu.

2.Select [Ethernet Management] from the side menu.

3. Click [Edit] from the Ethernet Management.



4. Enter the following from the Ethernet Management.



-LAN/WAN Mode: In the case of WAN

-Ethernet Mode : DHCP_CLIENT

An IP address can be automatically assigned by DHCP from the opposing device.

-IP Address: Auto-assigned/cannot be changed

-Subnet Mask: Auto-assigned/cannot be changed

-Ethernet Mode：Static

Assign an arbitrary IP address and Subnet Mask to the Ethernet port.

-WAN IP: Any IP address

-Subnet Mask: Any Subnet Mask

-Gateway IP: Gateway IP address of the network to be connected

-DNS1 (optional): Any DNS server address (primary)

-DNS2 (optional): Any DNS server address (secondary)

5. Click the OK button.

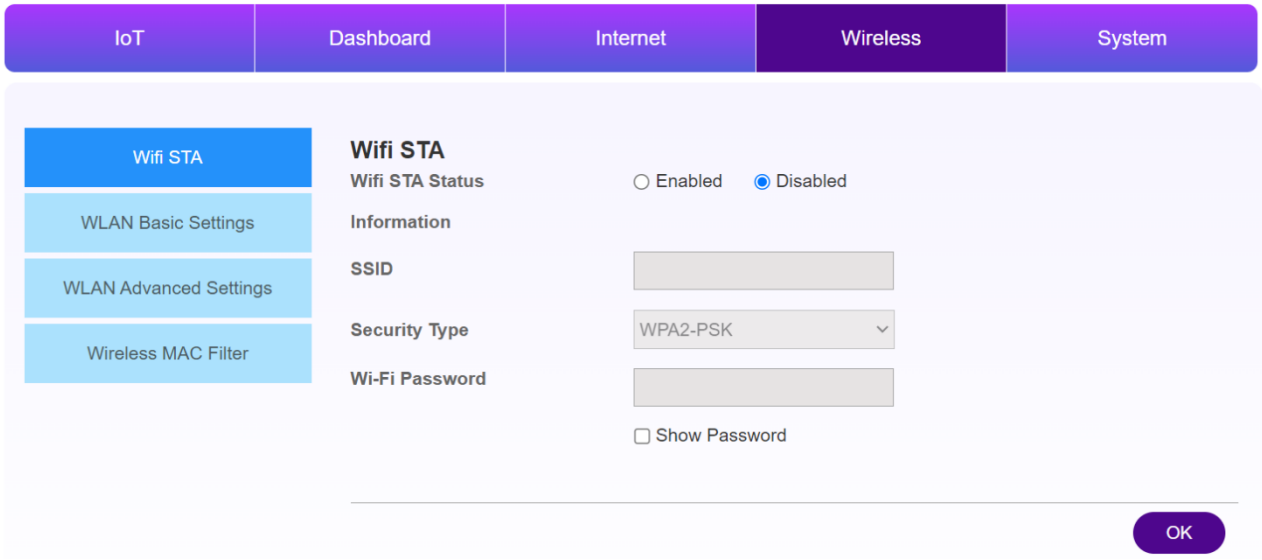
*For more information about interfaces, see chapter 17 Network Interface.

8. Wireless LAN

This chapter describes the procedure for setting up a wireless LAN.

1. Wifi STA (Wireless Client Mode)

1. Log in to the WebUI and select [Wireless] from the main menu.
2. Select [Wifi STA] from the side menu.
3. Enter the following from the Wifi STA.



-Wifi STA Status: Enabled / Disabled

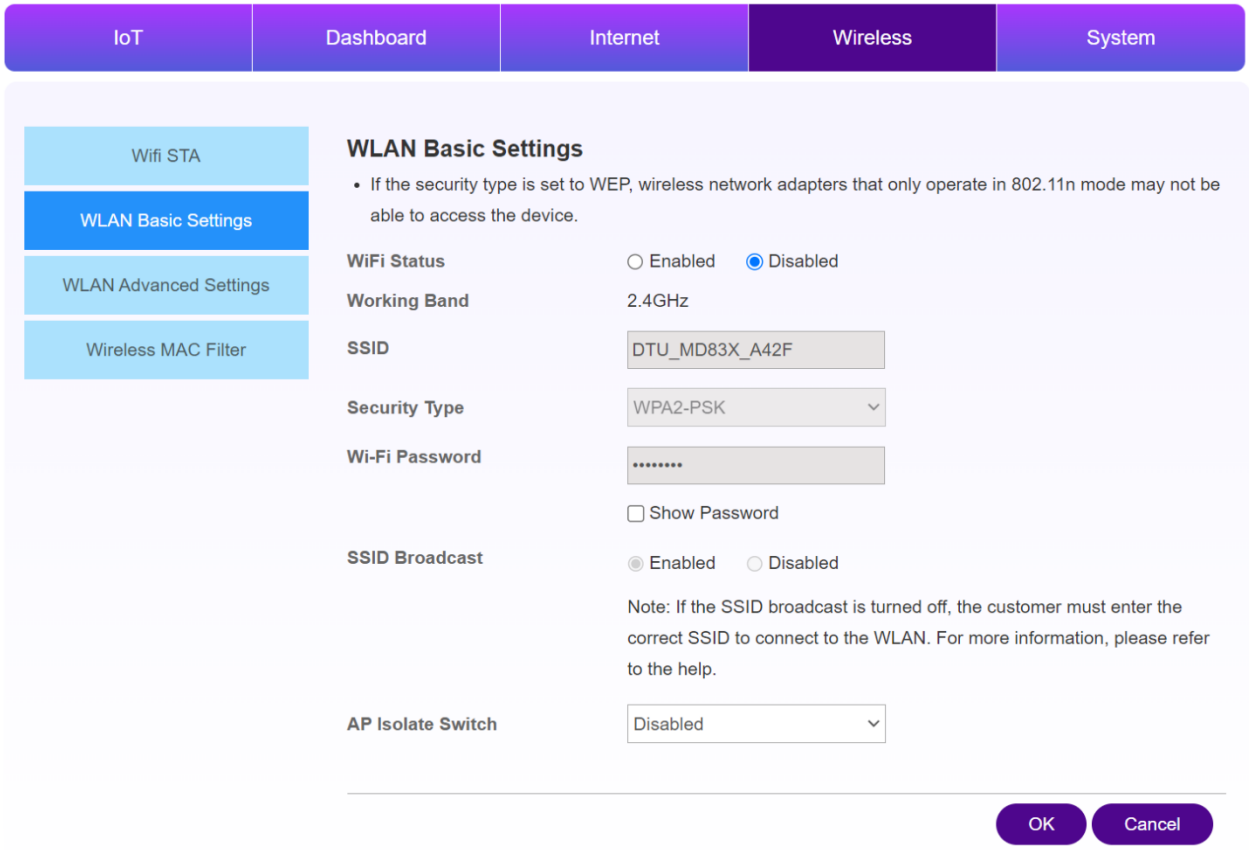
-SSID: SSID of the connection destination

- Security Type: Security Type of the connection destination - Wi-Fi Password: Wi-Fi Password of the connected Access Point

4. Select [OK].

2. WLAN Basic Settings (Access Point Mode)

1. Log in to the WebUI and select [Wireless] from the main menu.
2. Select WLAN Basic Settings from the side menu.
3. Enter the following from the WLAN Basic Settings.



-Wi-Fi Status: Enabled / Disabled

-SSID: Any Name

-Security Type: Any Security Type

-Wi-Fi Password: Any Wi-Fi

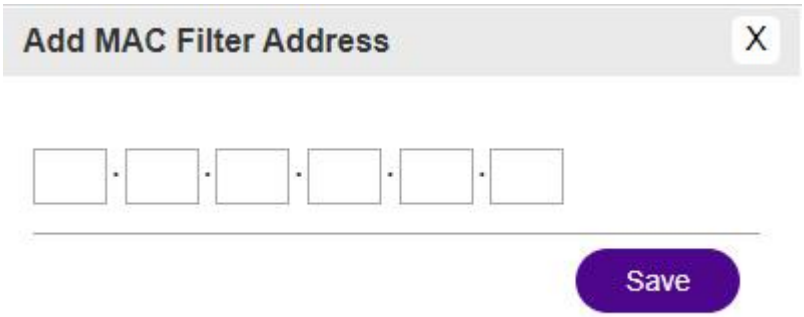
Password-SSID Broadcast: Enabled (If you want to publish the SSID) / Disabled (if you do not want to expose the SSID)

- AP Isolate Switch: Disabled (do not block communication between wireless clients) / Enabled (block communication between wireless clients)

4. Select [OK].

3. Wireless MAC Filter

1. Log in to the WebUI and select [Wireless] from the main menu.
2. Select [Wireless MAC Filter] from the side menu.
3. Select the following mode from MAC Filtering Mode, and then select [Save].
   -Disable: To disable
   -Allow: Specify the MAC address of the device to be allowed
   -Deny: Specify the MAC address of the device that is not allowed
4. Select the [Add] button.
5. On the Add MAC Filter Address screen, enter the MAC address of the device and select [Save].

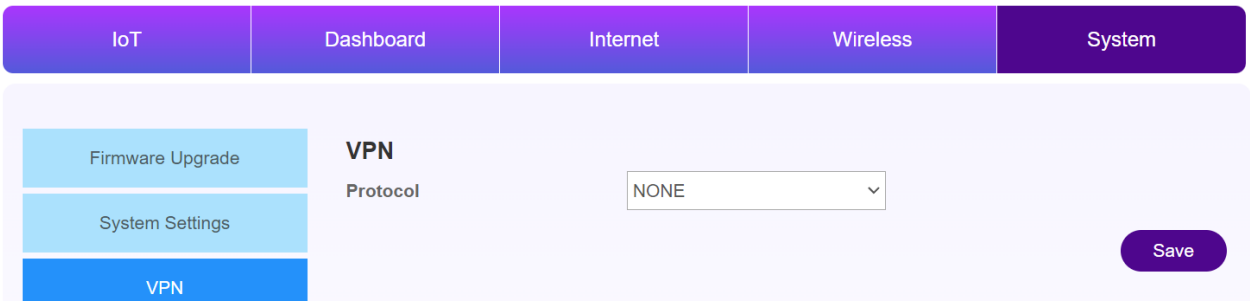


9. VPN

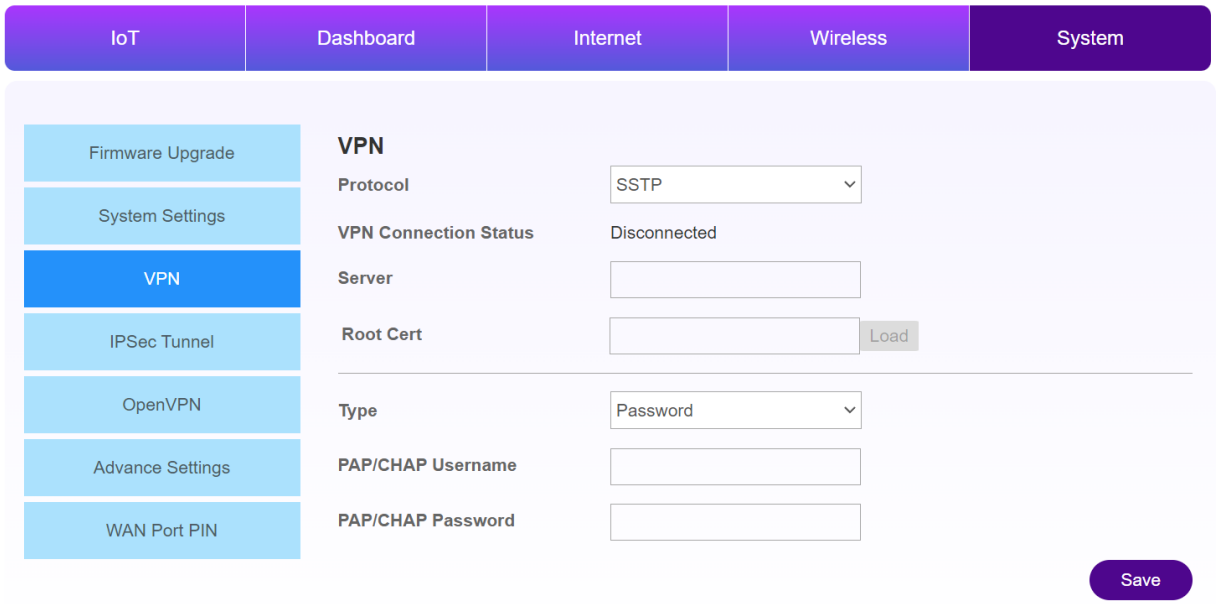
This chapter describes the procedure for setting up a VPN.

1. SSTP

1. Log in to the WebUI and select [System] from the main menu.
2. Select SSTP from the Protocol pull-down menu.



3. Select SSTP from the Protocol pull-down menu.
4. Set the following:



-Server: VPN server address to connect to

-Root Cert: Set the certificate of the VPN you want to connect to, and press [Load].

-Type:

- Password: Password method
- Certificates(TLS): Certificate method

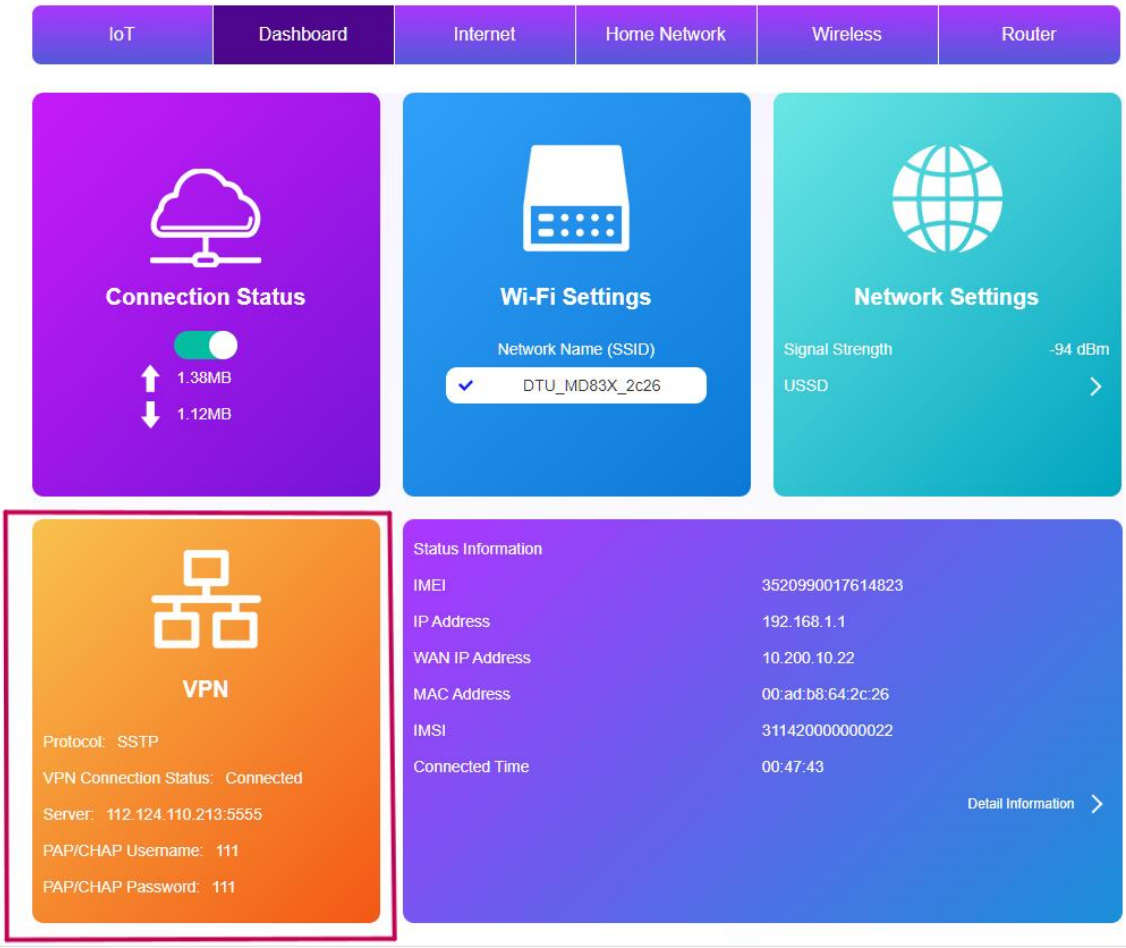
-Enter the PAP/CHAP Username: (password method) username

-Enter the PAP/CHAP Password: (password method) password

-User certificate :(certificate method) Set the certificate and press [Load].

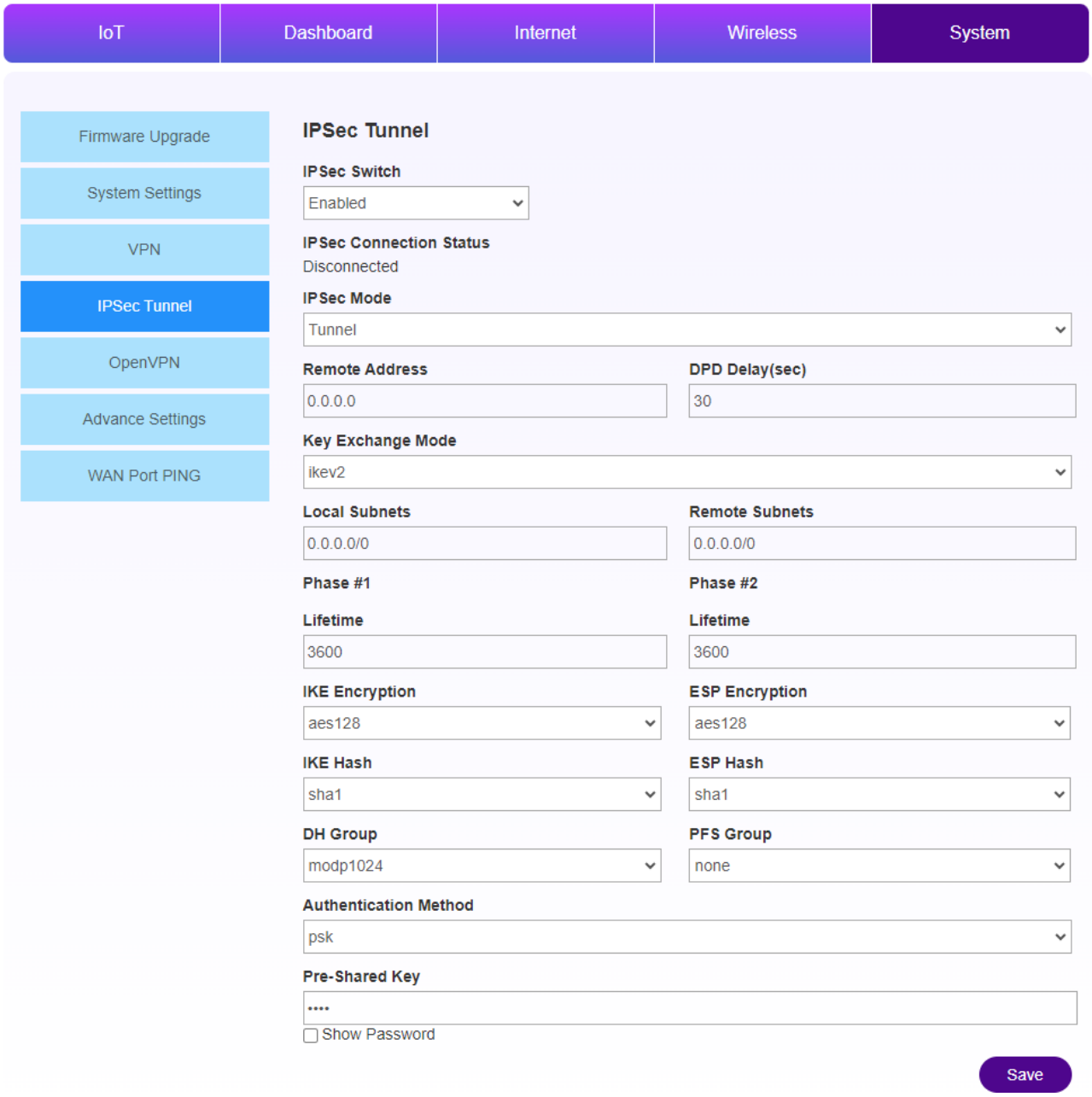
-User private key: (Certificate method) Select Private Key and press [Load].

5. Click the [Save] button.
6. When the VPN Connection Status becomes Connected, the connection is complete.
7. Select [Dashboard] from the menu of WebUI.
8. The VPN information is displayed in the VPN section.



2. IPSec

1. Log in to the WebUI and select [System] from the main menu.
2. Select the IPSec Tunnel menu.
3. Set the following:



-IPSec Switch: Enabled/Disabled VPN server address

-IPSec Connection Status - Displays the status of the connection with the IPSec server

-IPSec Mode: Select from Tunnel/Transport

-Remote Address: Enter the address of the IPSec server.

-DPD Delay (sec): DPD (Dead Peer Detection), IPsec tunnel communication interruption in real time

Set the time period to be detected (same effect as Heartbeat)

-Key Exchange Mode: Select from ikev1 / ikev2
-Local Subnets: Enter the addresses of local subnets protected by IPsec
-Remote Subnets: Enter the addresses of remote subnets protected by IPsec

Phase ＃1（Security Association Phase1）
-Lifetime: Enter the survivable time of Phase 1
- IKE Encryption: Select encryption algorithm from aes128 / aes192 / aes256 / 3des
- IKE Hash: Select authentication algorithm from sha1 / sha256 / sha384 / sha512 / md5
-DH Group: Select DH Group.

Phase ＃2（Security Association Phase2）
-Lifetime: Enter the survivable time of Phase 2
- ESP Encryption: Select encryption algorithm from aes128 / aes192 / aes256 / 3des
- ESP Hash: Select authentication algorithm from sha1 / sha256 / sha384 / sha512 / md5
-PFS Group: Select PFS Group.

-Authentication Method: Authentication method, fixed by psk (Pre-shared Key)
-Enter the Pre-Shared Key: psk password

4. Click the [Save] button.
5. When the IPSec Connection Status becomes Connected, the connection is complete.

10. RS485/232

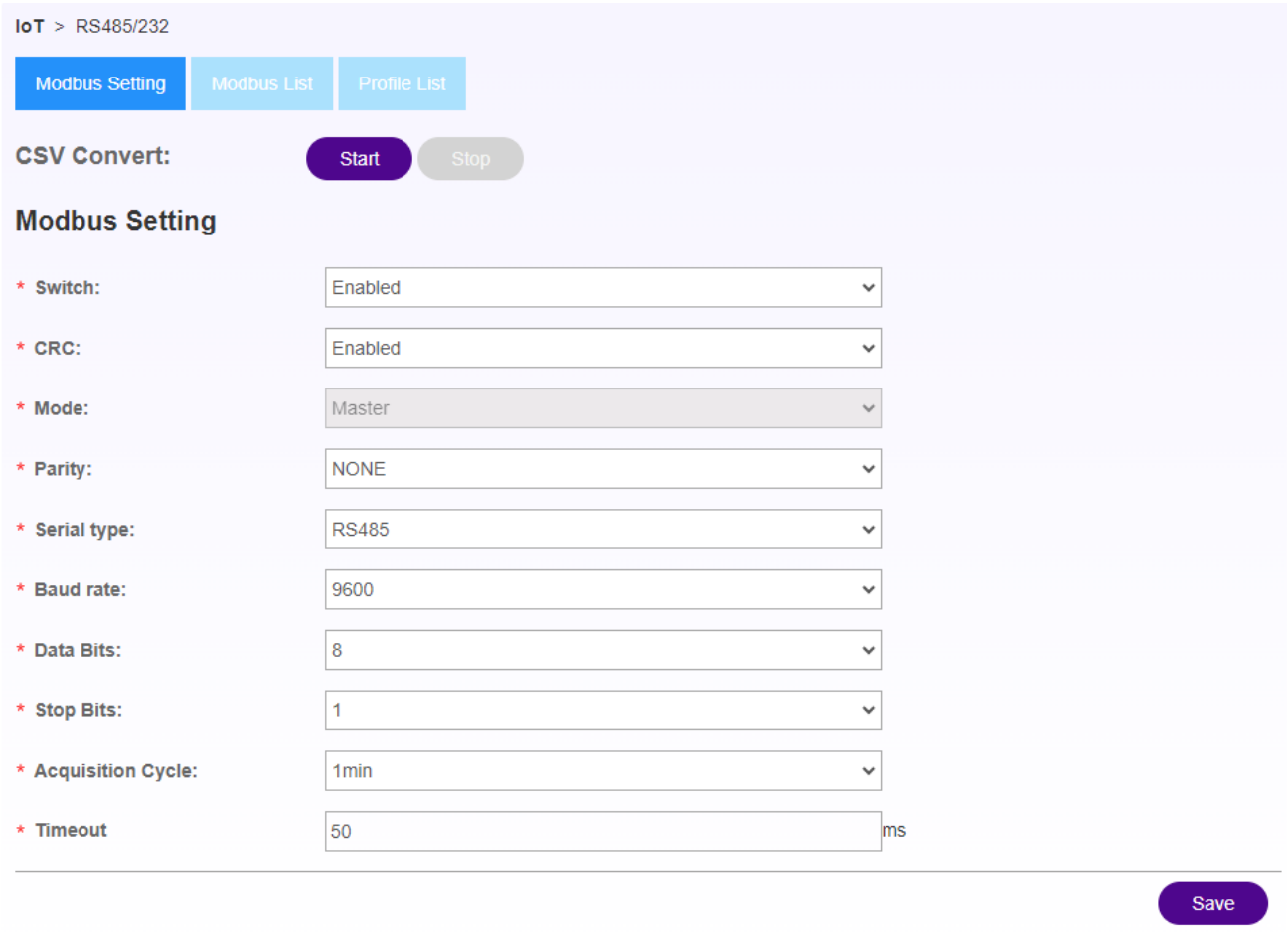
This chapter describes the procedures related to RS485/232.

1. Modbus RTU connection

1.Connect the target device to this product via RS485 and RS232.

2. Log in to the WebUI and select [IoT] from the main menu.

3. Select [RS485/232] from the menu. 4. Use Modbus Setting to set the communication according to the target device.



-CSV Convert Select: Stop/Start (leave it as Stop in the procedure)

-Switch: Enabled/Select Disabled (Select Enabled when using RTU)

-CRC: Enabled/Select Disabled (If you want to use CRC, select Enabled.)

-Mode: Master fixed (cannot be changed / Slave will be supported in the future)

-Parity: Select according to the settings of the target device

-Serial Type: RS485/Select RS232

-Baud rate: Select according to the settings of the target device

-Stop Bits: Select according to the settings of the target device

-Acquisition Cycle: Select the data acquisition interval

-Timeout: maximum acquisition time

5. Press the [Seve] button.

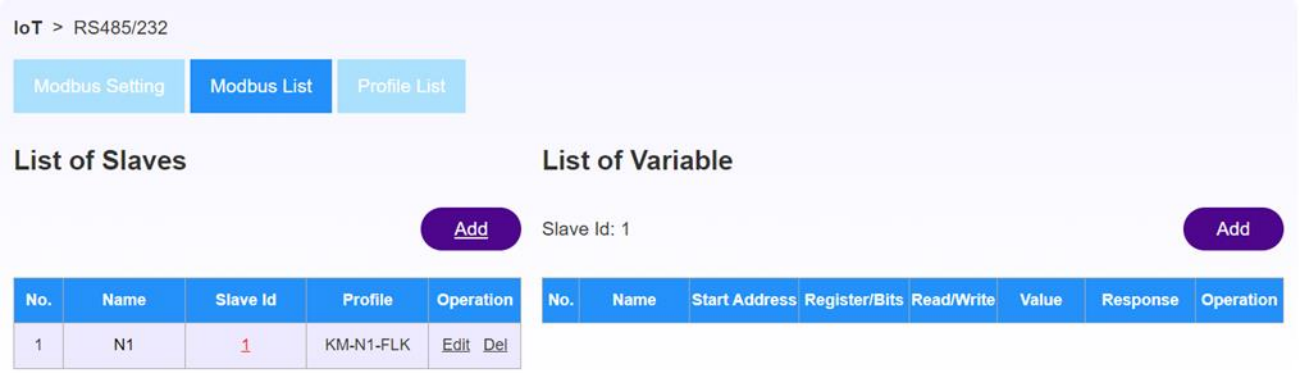
2. Connectivity Device Settings (Pre-installed Devices)

2-1. Pre-installed device settings

1.Select [Modbus List] from the menu.

2. Click [Add].

3. Register the target device.



-Name: Enter the name

-Salve Id: Enter the slave ID of the target device.

-Profile: Specify the profile of the target device (Default if there is none)

4.[Click OK.

2-2. List of Pre-installed Devices

By selecting a pre-installed device, you do not need to set up details.

brand	name	Model No.
OMRON	Power Usage Logger	Model KM-N1-FLK

2-3. Check data of pre-installed devices

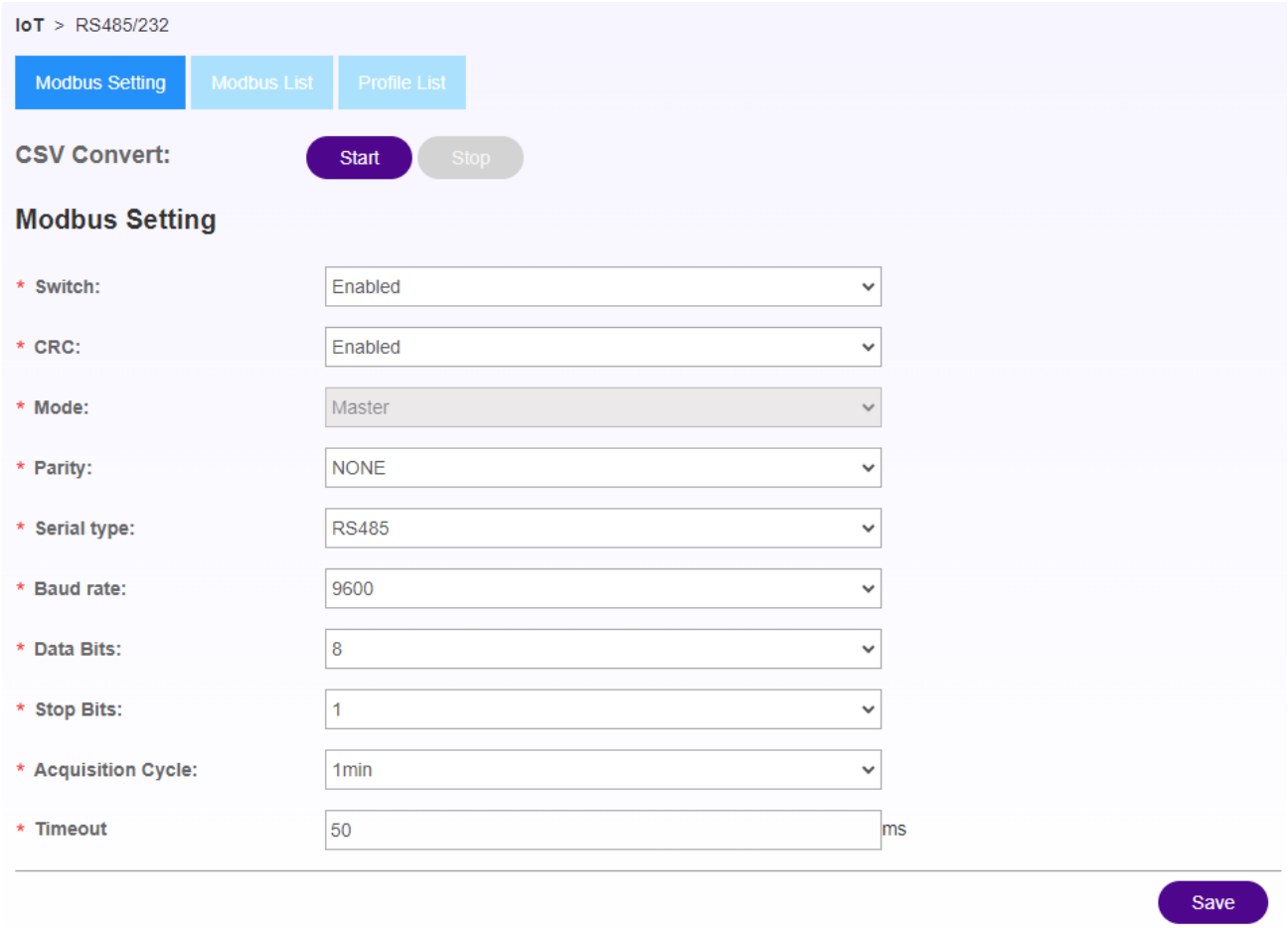
For pre-installed devices, you can check the values on the WebUI.

1. Select [Profile List] from the menu.
2. Select the target device from Select Profile.
3. It is possible to check the acquired data.

2-4.CSV output for pre-installed devices

For pre-installed devices, CSV output of acquired data is possible.

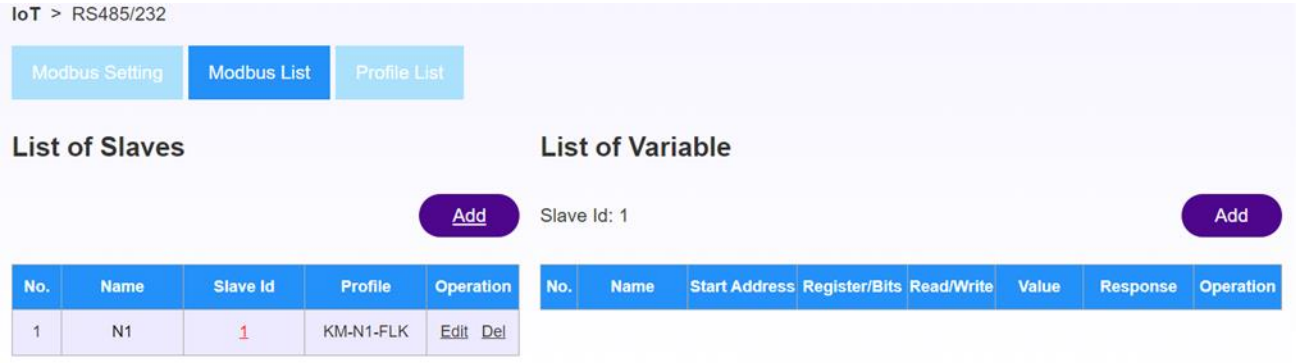
1. After the settings of the pre-installed device are completed
2. Select [Modbus Setting] from the menu.
3. Select Start from CSV Convert
4. Click [OK].
5. CSV output is completed.



3.Connectivity Device Settings (Non Pre-installed Devices)

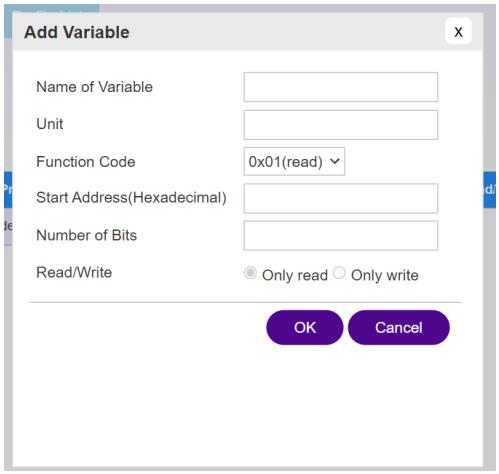
For devices that not in pre-installed devices list, please do settings manually.

1. Click on the Slave Id link



2.Click the [Add] button from the List of Variable screen on the right.

3.Configure the settings from Add Variable window.



-Name of Variable: Enter the name

-Unit: Enter the unit

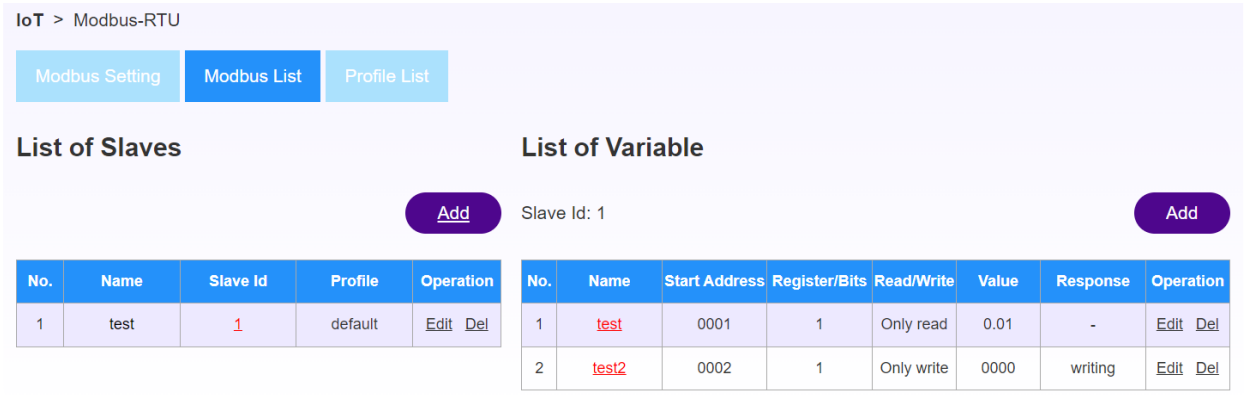
-Function Code: Select function code

-Start Address (Hexadecimal): Enter the start address

-Number of Bits: Number of bits

-Read/Write: Select only Read or only Write

4.Click [OK].



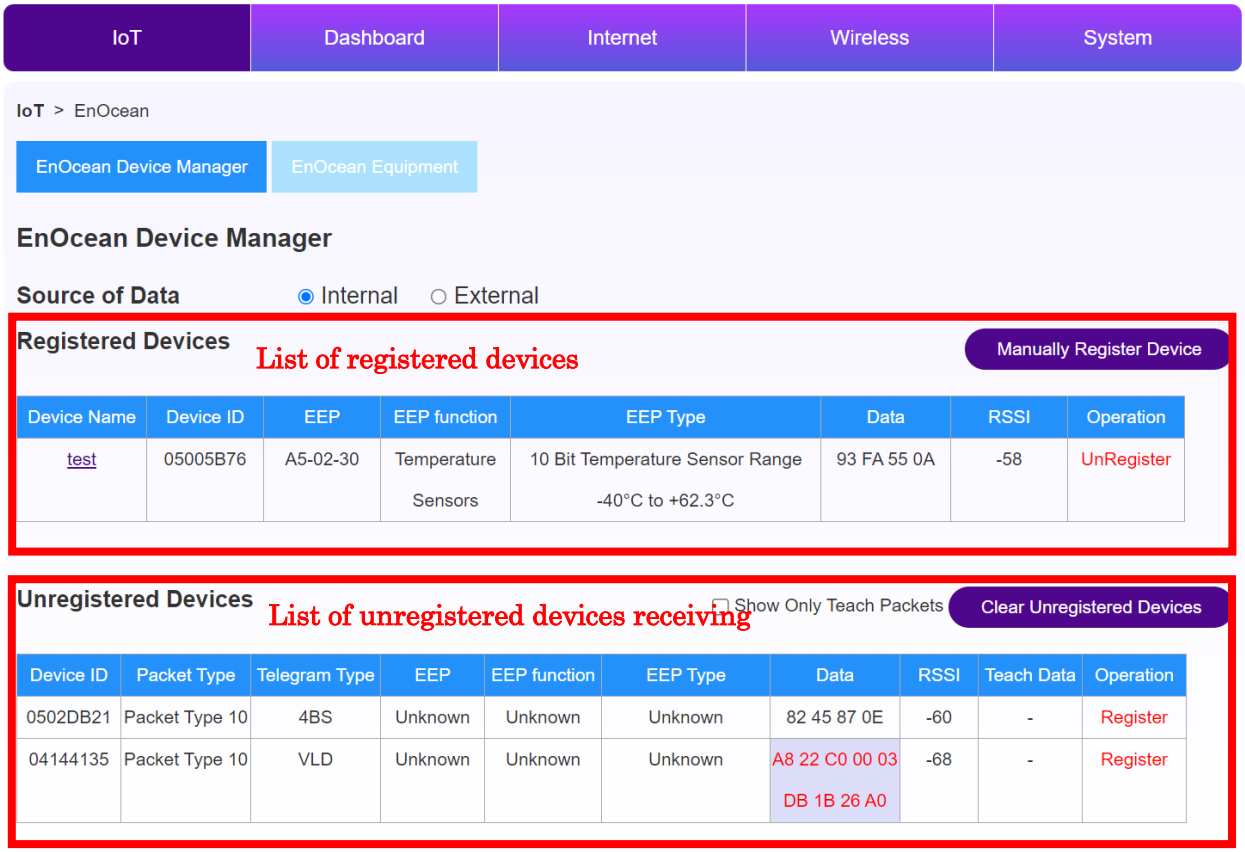
The acquired data is displayed in the Value field.

11. EnOcean

This chapter describes the procedures related to EnOcean.

1. EnOcean Device Manager screen description

1. Log in to the WebUI and select [IoT] from the main menu.
2. Select [EnOcean] from the menu.



3. Select Source of Data

-Internal: When receiving a sensor with EnOcean built-in this product (normal use)

-External: When using USB400J receiver

4. Check the screen display

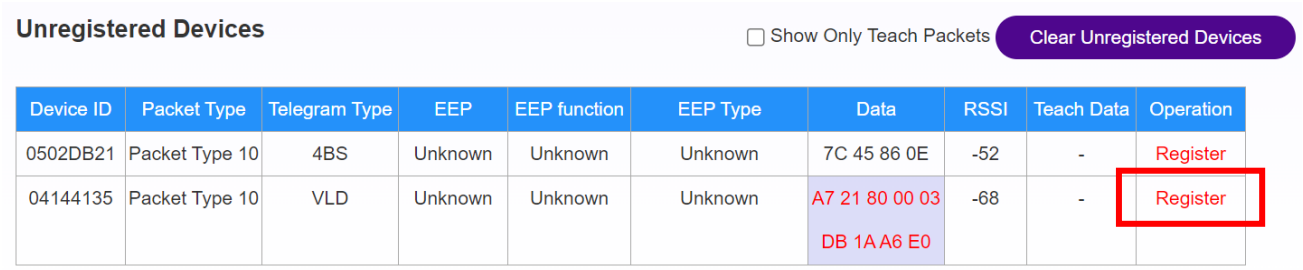
Registered Devices: Registered sensors are displayed

Unregistered Device: Automatically searched sensors are displayed.

2. Register from the Unregistered Device list

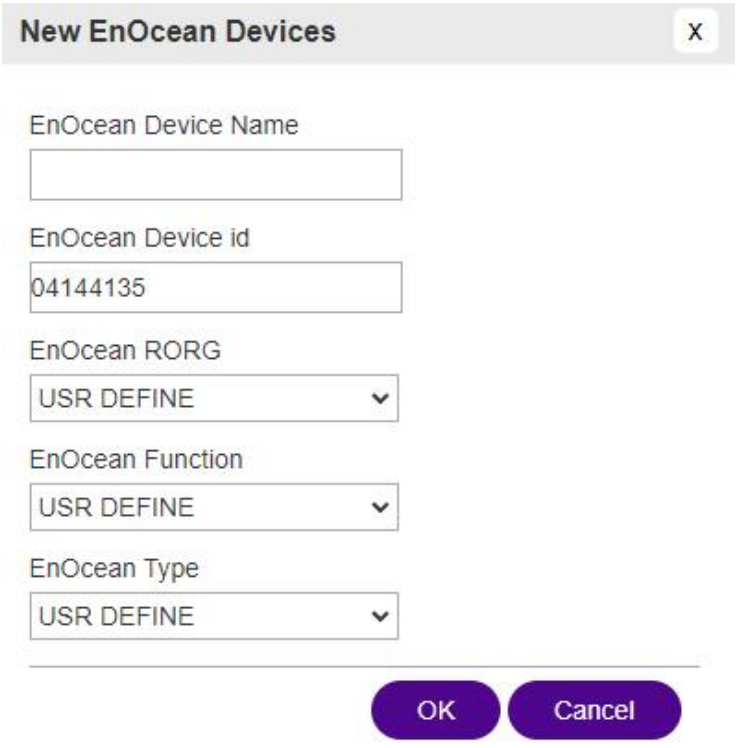
* Register sensors from the auto searched sensor list

1. Click [Register] for the sensor you want to register with this product from the Unregistered Devices list.



Device ID	Packet Type	Telegram Type	EEP	EEP function	EEP Type	Data	RSSI	Teach Data	Operation
0502DB21	Packet Type 10	4BS	Unknown	Unknown	Unknown	7C 45 86 0E	-52	-	Register
04144135	Packet Type 10	VLD	Unknown	Unknown	Unknown	A7 21 80 00 03 DB 1A A6 E0	-68	-	Register

2. Enter the information into New EnOcean Devices window.



- EnOcean Device Name: Enter a name of your choice (up to 16 characters, alphanumeric)
- EnOcean Device id: Corresponding sensor ID (no need to change)
- EnOcean RORG: Select EEP-RORG of the corresponding sensor
- EnOcean Function: Select the EEP-Function of the corresponding sensor

, EnOcean Type: Select the EEP-Type of the corresponding sensor.

3. Click the [OK] button.

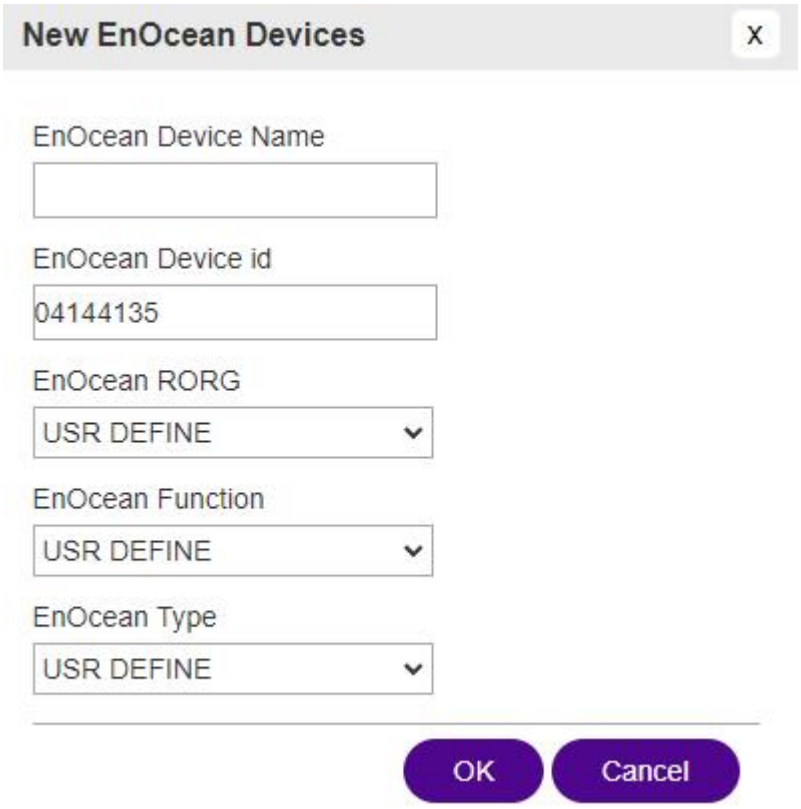
4. Sensor registered into Registered Devices list.

3. Register from Manually Register Device

* Register sensors those are not auto searched

1. Click the [Manually Register Device] button.

2. Enter the information into New EnOcean Devices window.



-EnOcean Device Name: Enter a name of your choice (up to 16 characters, alphanumeric)

-EnOcean Device id: Enter the corresponding sensor ID

-EnOcean RORG: Select the EEP-RORG of the corresponding sensor

-EnOcean Function: Select the EEP-Function of the corresponding sensor

-EnOcean Type: Select the EEP-Type of the corresponding sensor

3. Click the [OK] button.

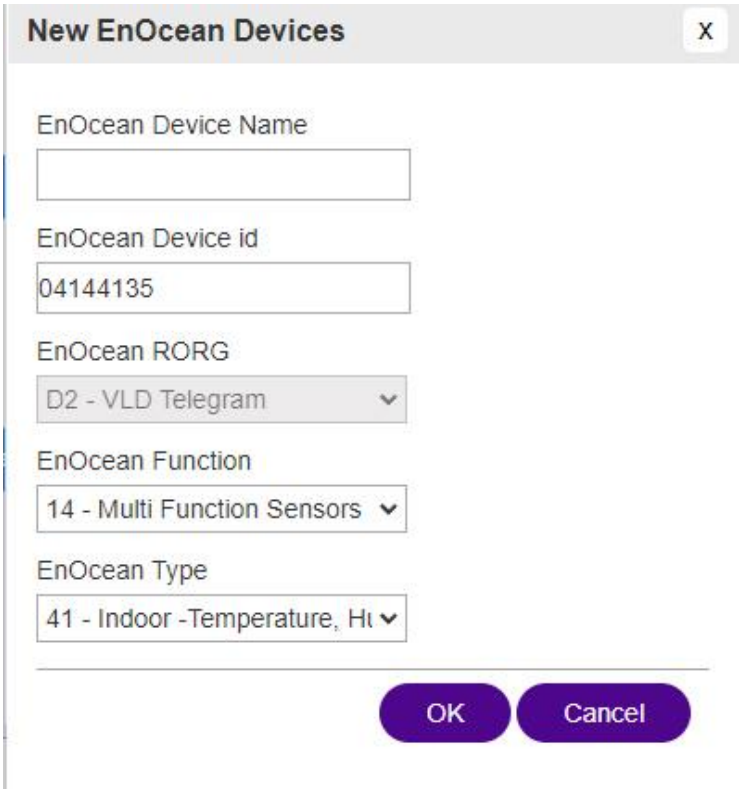
4. Sensor registered into Registered Devices list.

4. Register through Teach-in

*Get your Teach-in information and register

1. Press the LEARN button of the corresponding sensor.
2. When you receive the Teach Data, click [Register].

3. Enter the information into New EnOcean Devices window.



-EnOcean Device Name: Enter a name of your choice (up to 16 characters, alphanumeric)

-EnOcean Device id: Corresponding sensor ID (no need to change)

-EnOcean RORG: EEP-RORG of the corresponding sensor (no change required)

-EnOcean Function: EEP-Function of the corresponding sensor (no change required)

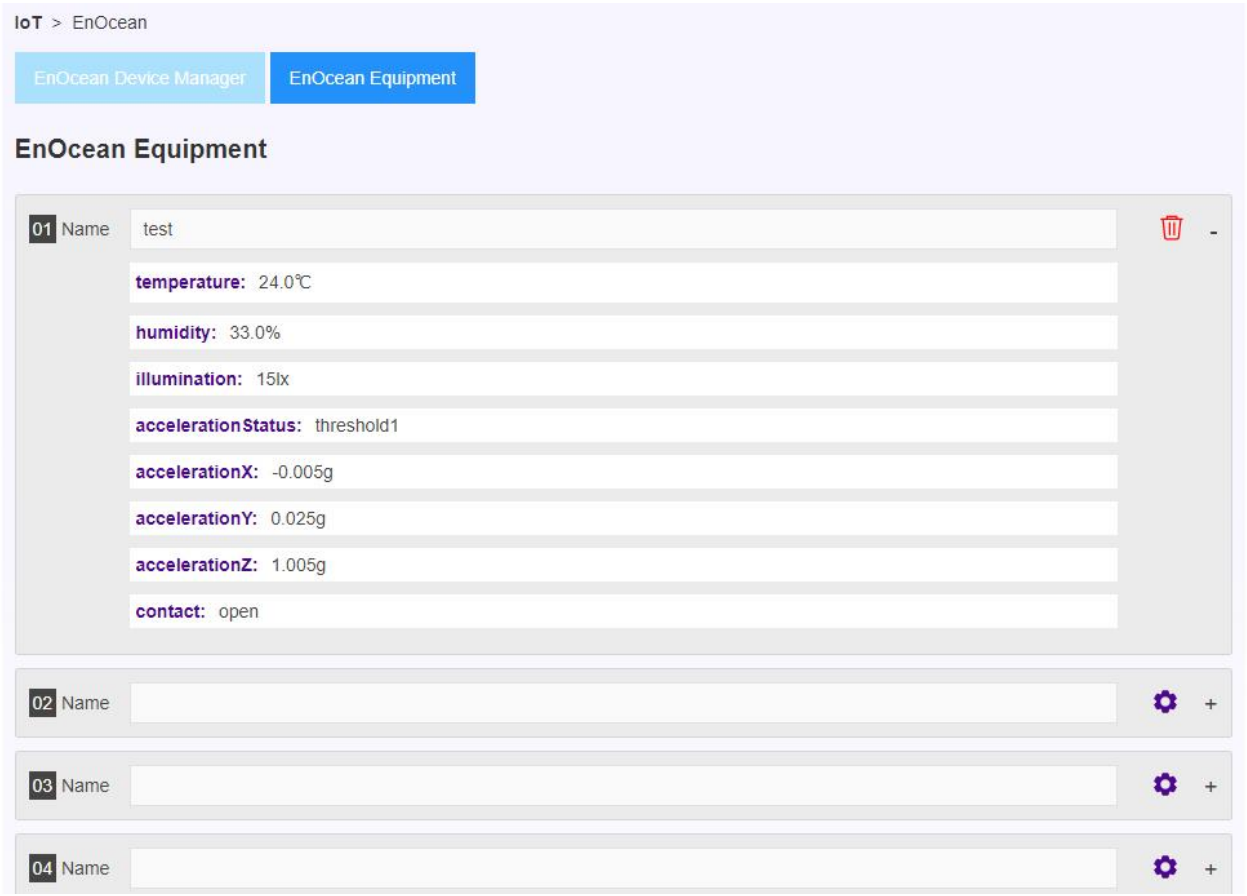
-EnOcean Type: EEP-Type of the corresponding sensor (no change required)

4. Click the OK button.
5. Sensor registered into Registered Devices list.

5. EnOcean Equipment Screen Description

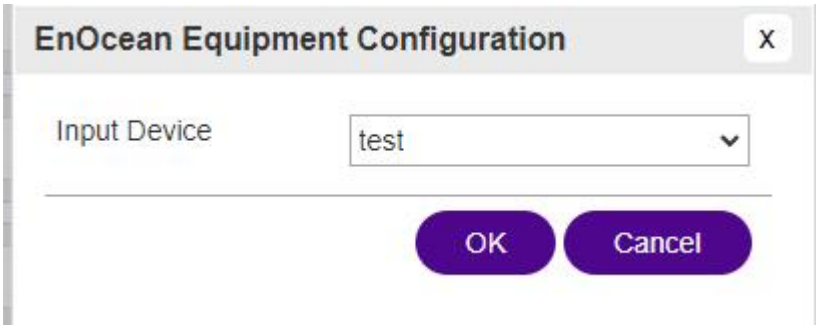
The sensor registered here will be the data sent to Cloud or Modbus TCP.

1. Log in to the WebUI and select [IoT] from the main menu.
2. Select [EnOcean] from the menu.
3. Click [EnOcean Equipment] from the menu.



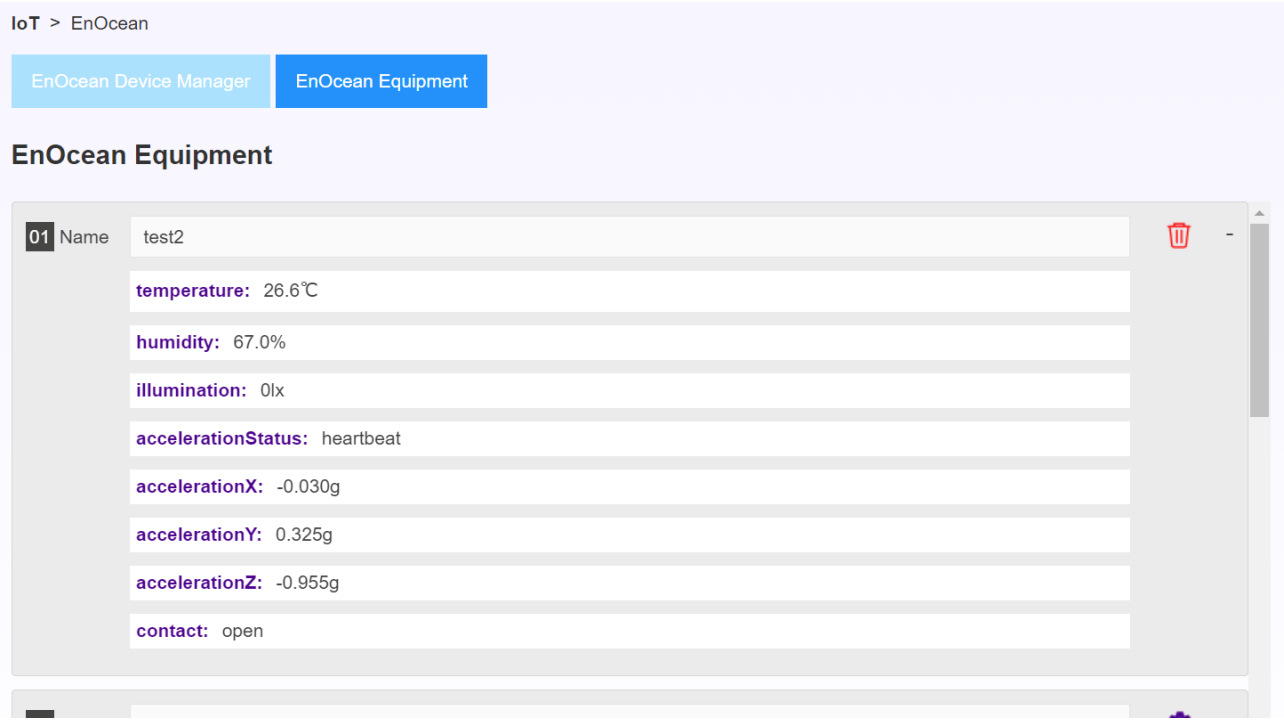
6. Add registered sensor into EnOcean Equipment List

1. Press the [gear icon] on the right side of the number 01.
2. Select the sensor you want to add into EnOcean Equipment List from registered sensors.



3. Click [OK].

4.01 If you press [+] on the right side, you can check the details of the value received from the sensor.



7. Delete registered sensor

1. Click the [Trash can icon] on the right side of EnOcean Equipment page.

2. Click [UnRegister] on the right side of the EnOcean Device Manager page.

3. The registered sensor is deleted.

8. List of supported EEPs

*List of EEPs that can be decoded

ROR G	ROR G	FUN C	FUNC NAME	TYP E	TYPE NAME	EEP Number
F6	RPS	02	Rocker Switch, 2 Rocker	04	Light and blind control ERP2	F60204
D5	1BS	00	Contacts and Switches	01	Single Input Contact	D50001
A5	4BS	02	Temperature Sensors	05	Temperature Sensor Range 0° C to +40° C	A50205
A5	4BS	02	Temperature Sensors	14	Temperature Sensor Range -20° C to +60° C	A50214
A5	4BS	02	Temperature Sensors	17	Temperature Sensor Range +10° C to +90° C	A50217
A5	4BS	02	Temperature Sensors	30	10 Bit Temperature Sensor Range -40° C to +62.3° C	A50230
A5	4BS	04	Temperature and Humidity Sensor	01	Range 0° C to +40° C and 0% to 100%	A50401
A5	4BS	04	Temperature and Humidity Sensor	02	Range -20° C to +60° C and 0% to 100%	A50402
A5	4BS	04	Temperature and Humidity Sensor	03	Range -20° C to +60° C 10bit-measurement and 0% to 100%	A50403
A5	4BS	06	Light Sensor	01	Range 300lx to 60.000lx	A50601
A5	4BS	06	Light Sensor	02	Range 0lx to 1.020lx	A50602
A5	4BS	06	Light Sensor	03	10-bit measurement (1-Lux resolution) with range 0lx to 1000lx	A50603
A5	4BS	07	Occupancy Sensor	01	Occupancy with Supply voltage monitor	A50701
A5	4BS	07	Occupancy Sensor	02	Occupancy with Supply voltage monitor	A50702
A5	4BS	07	Occupancy Sensor	03	Occupancy with Supply voltage monitor and 10-bit illumination measurement	A50703
A5	4BS	08	Light, Temperature and Occupancy Sensor	01	Range 0lx to 510lx, 0° C to +51° C and Occupancy Button	A50801
A5	4BS	08	Light, Temperature and Occupancy Sensor	02	Range 0lx to 1020lx, 0° C to +51° C and Occupancy Button	A50802

A5	4BS	08	Light, Temperature and Occupancy Sensor	03	Range 0lx to 1530lx, −30° C to +50° C and Occupancy Button	A50803
A5	4BS	09	Gas Sensor	04	CO2 Sensor	A50904
A5	4BS	10	Room Operating Panel	01	Temperature Sensor, Set Point, Fan Speed and Occupancy Control	A51001
A5	4BS	10	Room Operating Panel	03	Temperature Sensor, Set Point Control	A51003
A5	4BS	10	Room Operating Panel	04	Temperature Sensor, Set Point and Fan Speed Control	A51004
A5	4BS	10	Room Operating Panel	05	Temperature Sensor, Set Point and Occupancy Control	A51005
A5	4BS	10	Room Operating Panel	07	Temperature Sensor, Fan Speed Control	A51007
A5	4BS	10	Room Operating Panel	08	Temperature Sensor, Fan Speed and Occupancy Control	A51008
A5	4BS	10	Room Operating Panel	0C	Temperature Sensor and Occupancy Control	A5100C
A5	4BS	10	Room Operating Panel	10	Temperature and Humidity Sensor, Set Point and Occupancy Control	A51010
A5	4BS	10	Room Operating Panel	12	Temperature and Humidity Sensor and Set Point	A51012
A5	4BS	10	Room Operating Panel	13	Temperature and Humidity Sensor, Occupancy Control	A51013
A5	4BS	10	Room Operating Panel	19	Humidity, Temperature Set Point, Temperature Sensor, Fan Speed and Occupancy Control	A51019
A5	4BS	14	Multi-Func Sensor	05	Vibration/Tilt, Supply voltage monitor	A51405
A5	4BS	30	Digital Input	02	Single Input Contact	A53002
A5	4BS	30	Digital Input	05	Single Input Contact, Retransmission, Battery Monitor	A53005
D2	VLD	14	Multi Function Sensors	40	Indoor –Temperature, Humidity XYZ Acceleration, Illumination Sensor	D21440
D2	VLD	14	Multi Function Sensors	41	Indoor –Temperature, Humidity XYZ Acceleration, Illumination Sensor	D21441

9. List of Supported GPs

*List of GPs that can be decoded

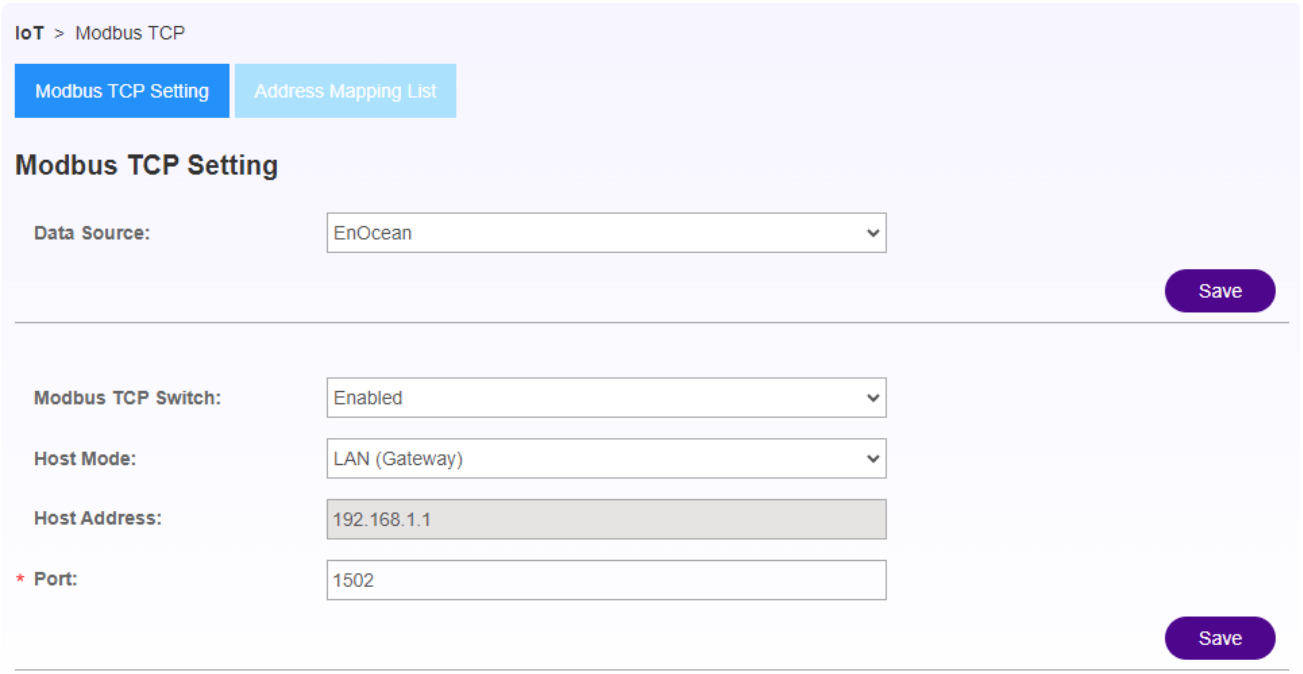
Maker	Sensor Type	GP Number
Watty Inc.	2Wireless temperature sensor	HYHQ
	4 Wireless Temperature Sensors	HYHQ-FF
	Electronic Wet Bulb Black Bulb Temperature Wireless Sensor	WBGT_7500_E

12. Modbus TCP

This chapter describes the procedures related to Modbus TCP.

1. Modbus TCP connection

1. Log in to the WebUI and select [IoT] from the main menu.
2. Select [Modbus TCP] from the menu.
3.Enter the following from [Modbus TCP Setting].



-Data Source:

EnOcean / Modbus RTU

-Modbus TCP Switch: Enabled (to enable) / Disabled (to disable)

-Host Mode / Host Address

LAN(Gateway) / default gateway address

LAN(Static) / Ethernet static address

WAN(LTE) / cellular address

WAN (Wi-fi STA) / Wi-fi allocated address

WAN(DHCP/Static) / wired WAN address

-Port: 1502～1562

4. Select Save.

2. Modus Address Map (EnOcean)

*When EnOcean is selected as data source

1. Log in to the WebUI and select [IoT] from the main menu.

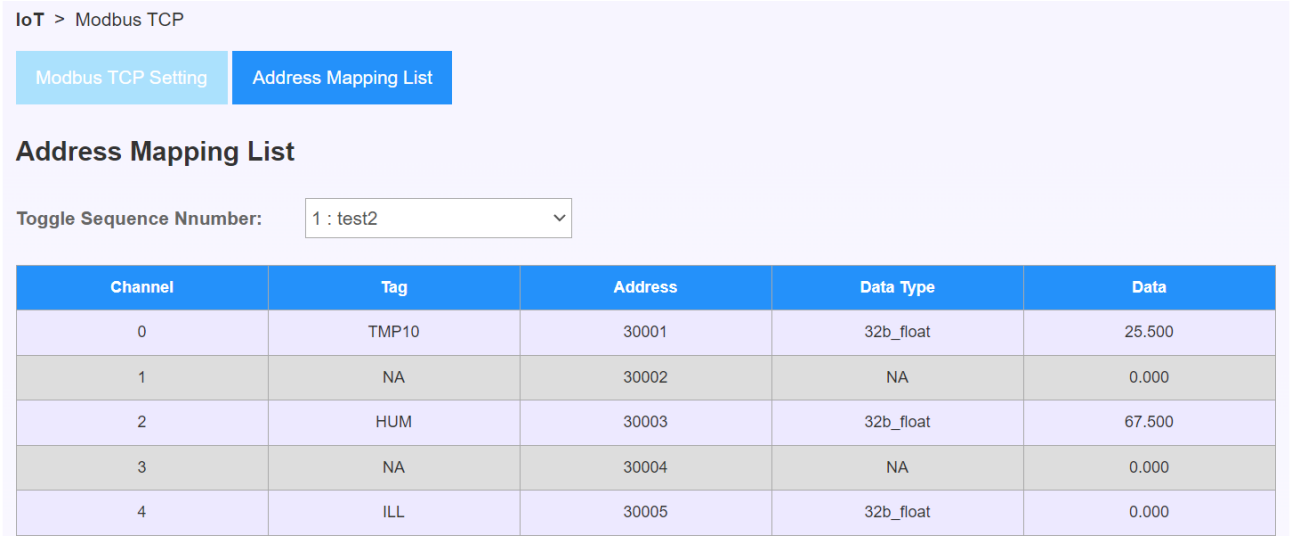
2. Select [Modbus TCP] from the menu.

3.Select Address Mapping List.

Data Source	Address	Data	Equipment No	Channel	R/W
EnOcean	30001～30959	32bit float	1～24	1～20	R

4. Check the address map on the WebUI and make a request to the address specified by this product from the Modbus tool or server

. Example) Humidity data can be obtained by requesting TCP Address 30003.



Channel	Tag	Address	Data Type	Data
0	TMP10	30001	32b_float	25.500
1	NA	30002	NA	0.000
2	HUM	30003	32b_float	67.500
3	NA	30004	NA	0.000
4	ILL	30005	32b_float	0.000

3. Modus Address Map (Modbus RTU)

*If Modbus RTU is selected in the data source

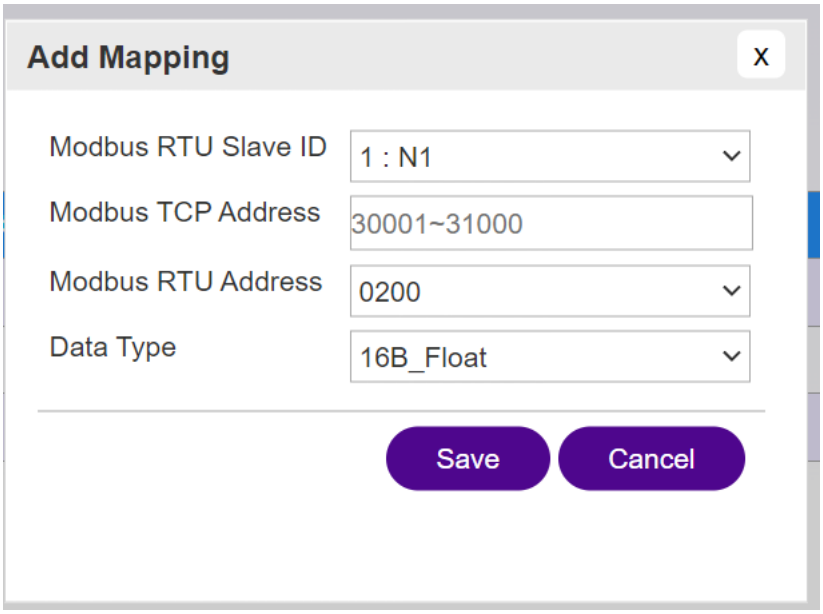
1. Log in to the WebUI and select [IoT] from the main menu.

2. Select [Modbus TCP] from the menu.

3.Select Address Mapping List.

Data Source	Address	Data	R/W
Modbus RTU	30001～31000	16bit float	R

4.Click the [Add] button.



*Modbus RTU equipment must be set up in advance.

4. Select the following

-Modbus RTU Slave ID: Modbus RTU Select the device set in

-Modbus TCP Address: Modbus TCP Select from address 30001~31000

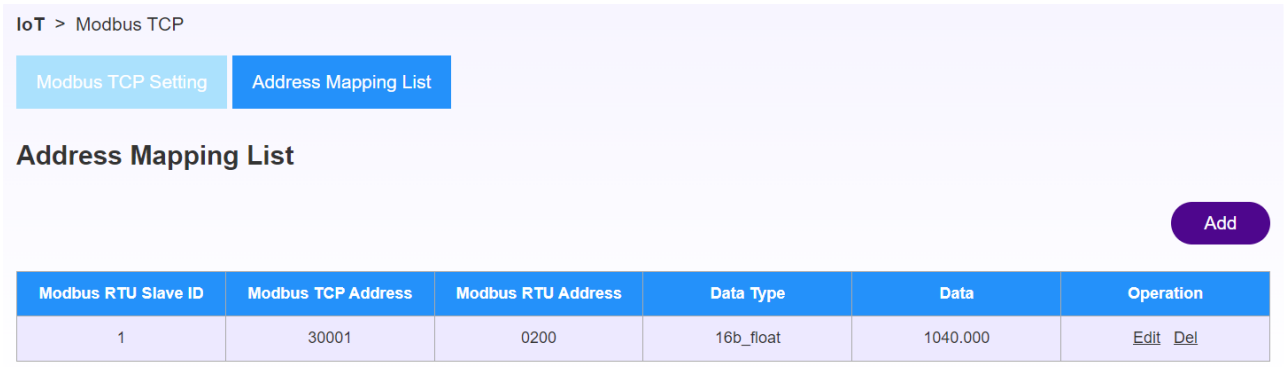
-Modbus RTU Address: Select the address map of the device connected to Modbus RTU.

-Data Type: Select the data type

5. Click the [Save] button.

6. Check the address map on the WebUI and make a request to the address specified by the product from the Modbus tool or server.

Example) If you request TCP Address30001, you can get RTU Address0200 data.



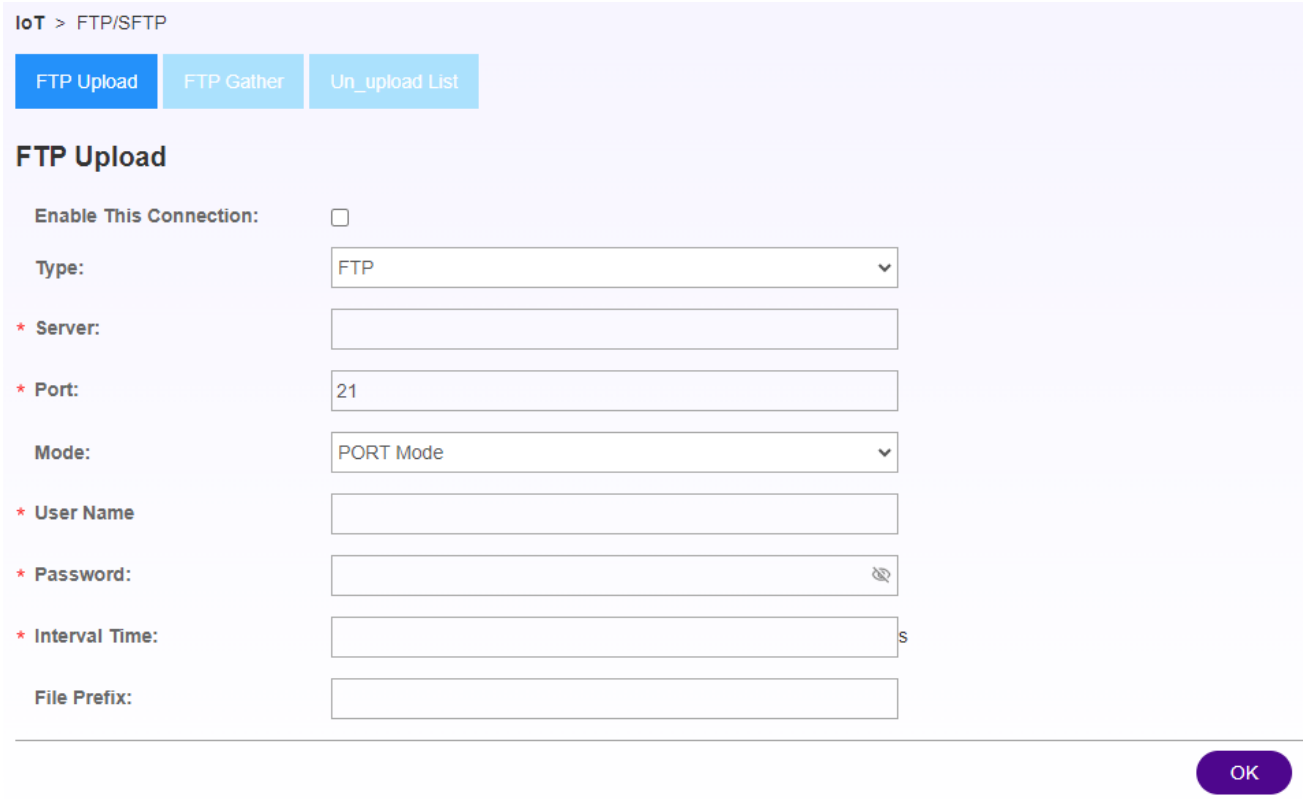
13. FTP/SFTP

This chapter describes FTP/SFTP-related procedures.

1. FTP Upload

* Upload CSV file converted from RS485/232.
* Compatible devices: OMRON's KM-N1-FLK

1. Log in to the WebUI and select [IoT] from the main menu.
2. Select [FTP/SFTP] from the menu.
3. Select [FTP Upload].
4. Configure the following settings.



Enable This Connection: Check if you want to use it.

-Type: Select FTP/SFTP

-Server: Enter the IP address of the upload destination.

-Port: Fixed value by selecting Type (no change required)

-User Name: Enter the user name of the upload destination

-Password: Enter the password of the upload destination

-Interval Time: Set the upload interval

-File Prefix: Name of the output folder (initial)

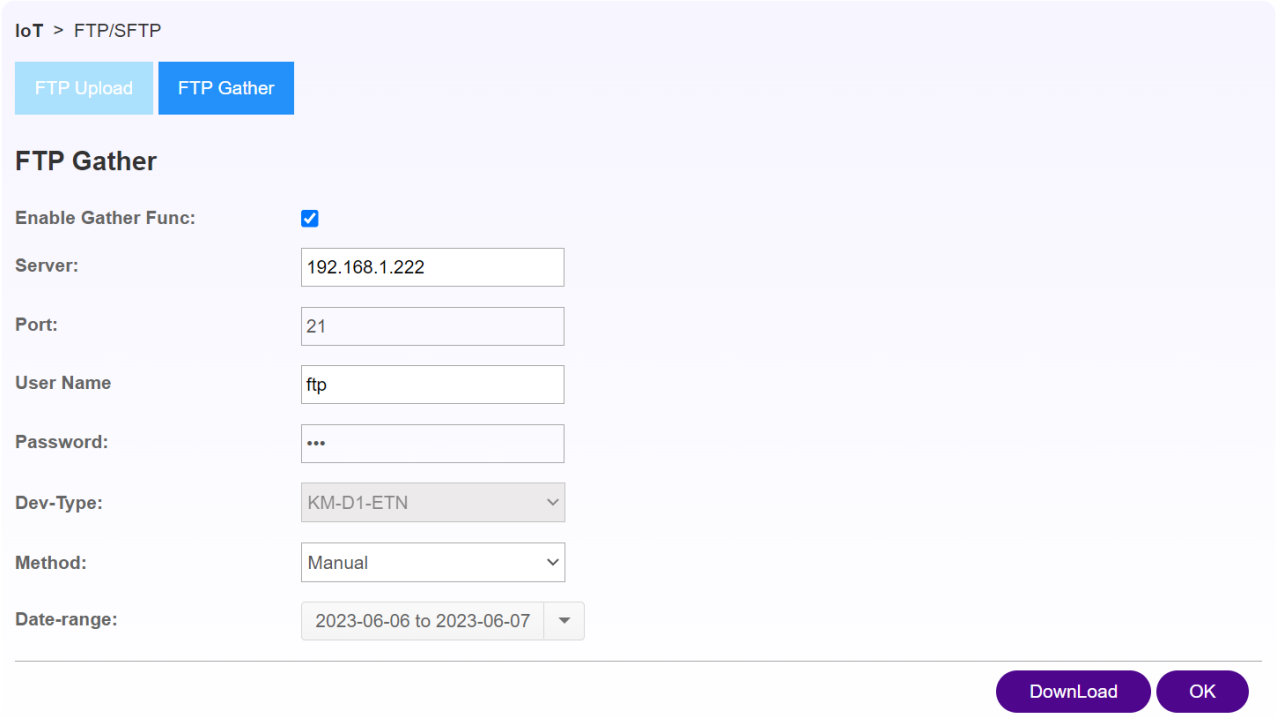
5. Click OK.

2. FTP Gather

* Ability to retrieve files from subordinate devices.

*Compatible devices: OMRON's KM-D1-ETN

1. Log in to the WebUI and select [IoT] from the main menu.
2. Select [FTP/SFTP] from the menu.
3. Select [FTP Gather].
4.Configure the following settings.



-Enable This Connection: Check if you want to use it.

-Server: Enter the IP address of the subordinate, device.

-Port: Specify the port

-User Name: User name of the subordinate device

-Password: Password name of the subordinate device

・Dev-Type: KM-D1-ETN (cannot be changed / other devices will be supported)

・Method: Manual/Auto

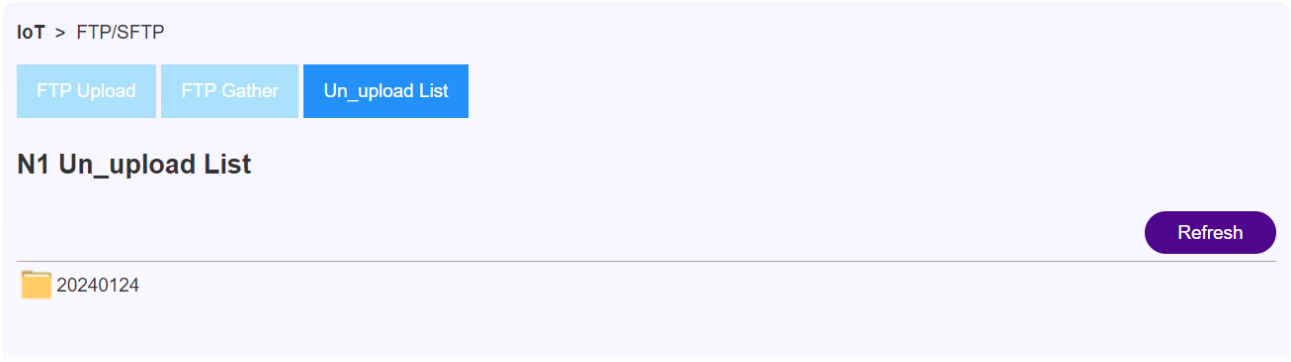
-Data-range: Target period of the CSV you want to obtain

5. Click [Download]
6. CSV for the target period is saved in the product.

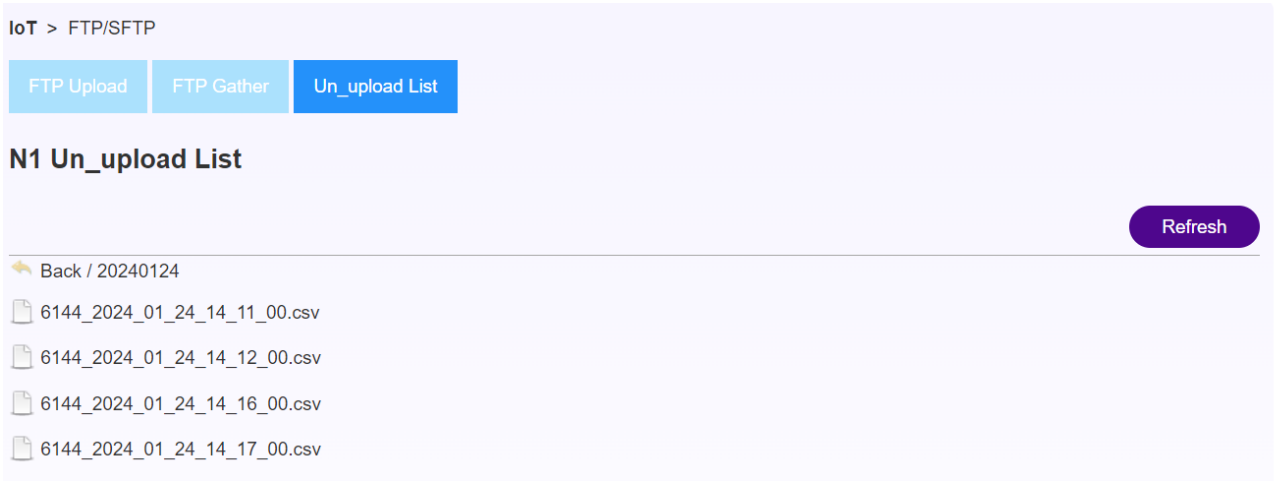
3. Un_upload List

* Function to check the list of CSV files saved in this product.

1. Log in to the WebUI and select [IoT] from the main menu.
2. Select [FTP/SFTP] from the menu.
3. Select [Un_upload List].



4. Select a folder for the date.

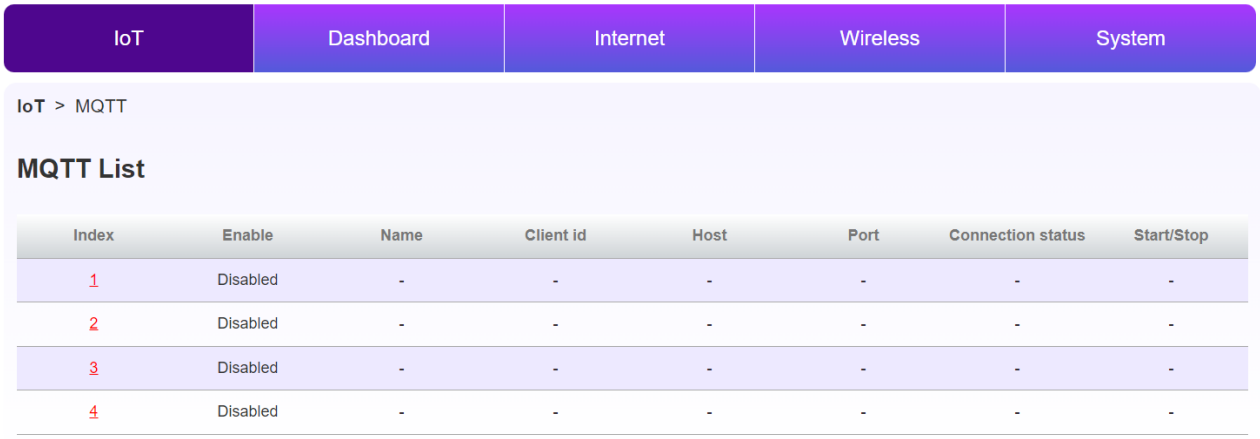


* CSV files are saved by creating folders for each date.
* Files that have been successfully uploaded will be deleted.
* CSV files are stored for up to 7 days and deleted in folders at 23:59 on the 7th day.

14. MQTT

This chapter describes the procedures related to MQTT.

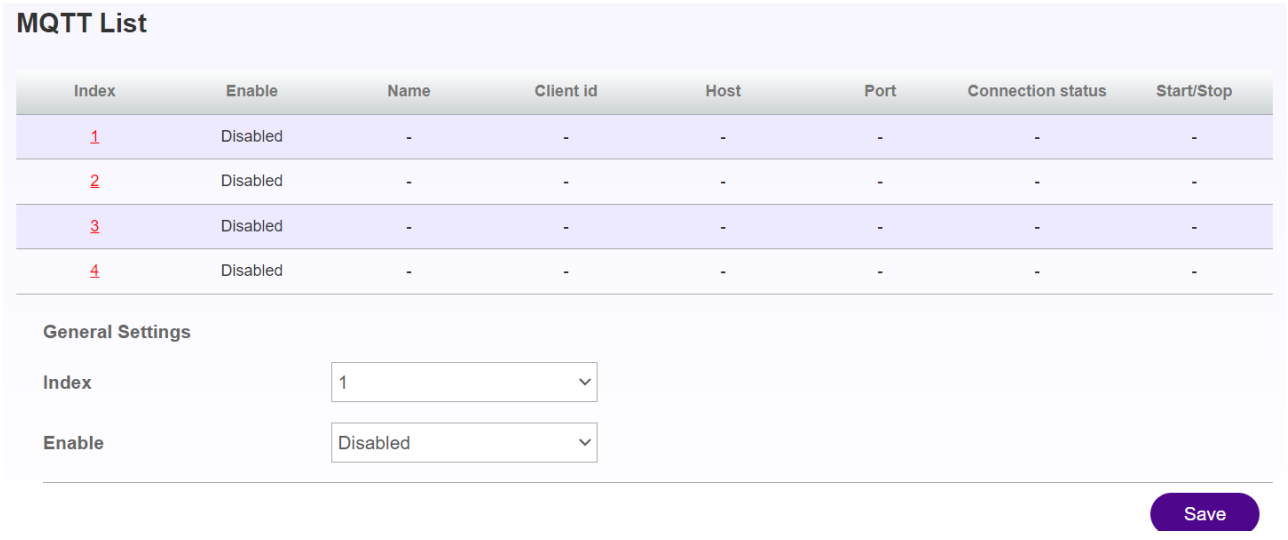
1. Log in to the WebUI and select [IoT] from the main menu.
2. Select [MQTT] from the menu.



3. Select any number in the index.

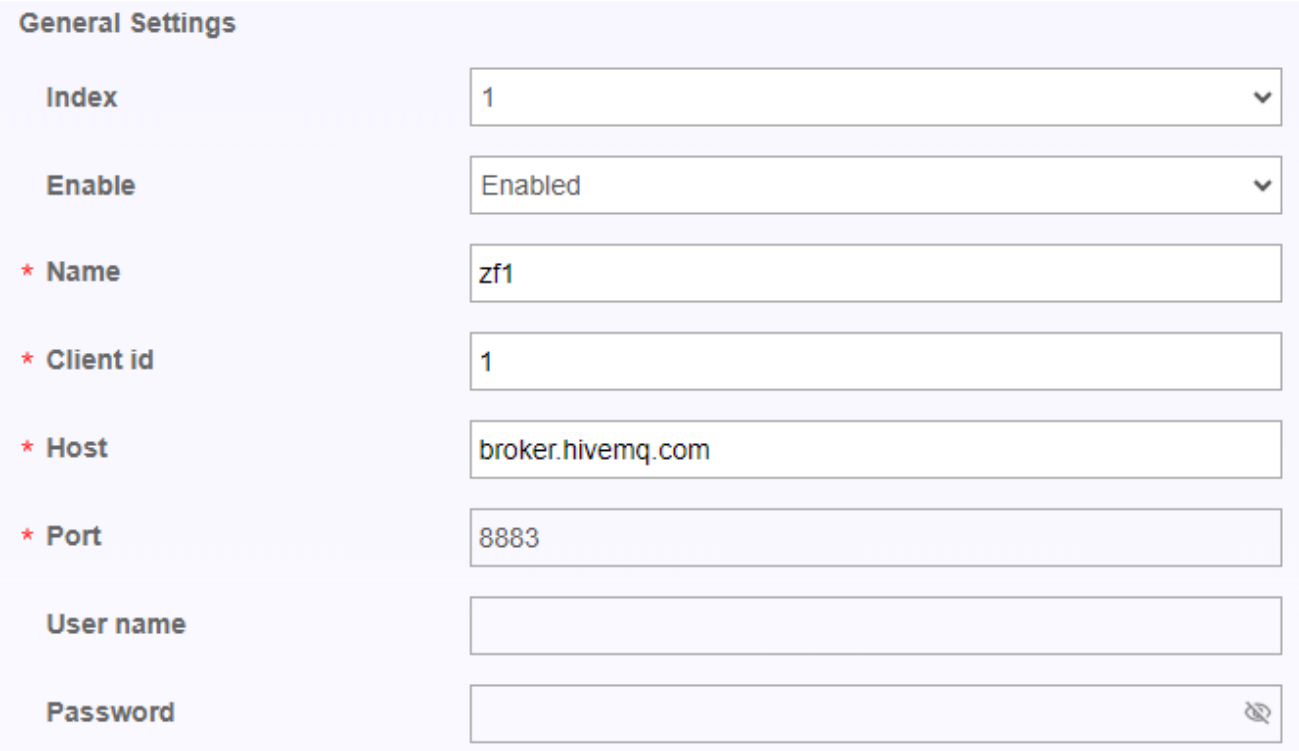
   *4 MQTTs can be used at the same time

4. Select any number in the index.



   -Enabled: Enabled (if enabled)/Disable (If you want to disable it)

5. Click the [OK] button.
6. Enter the following:



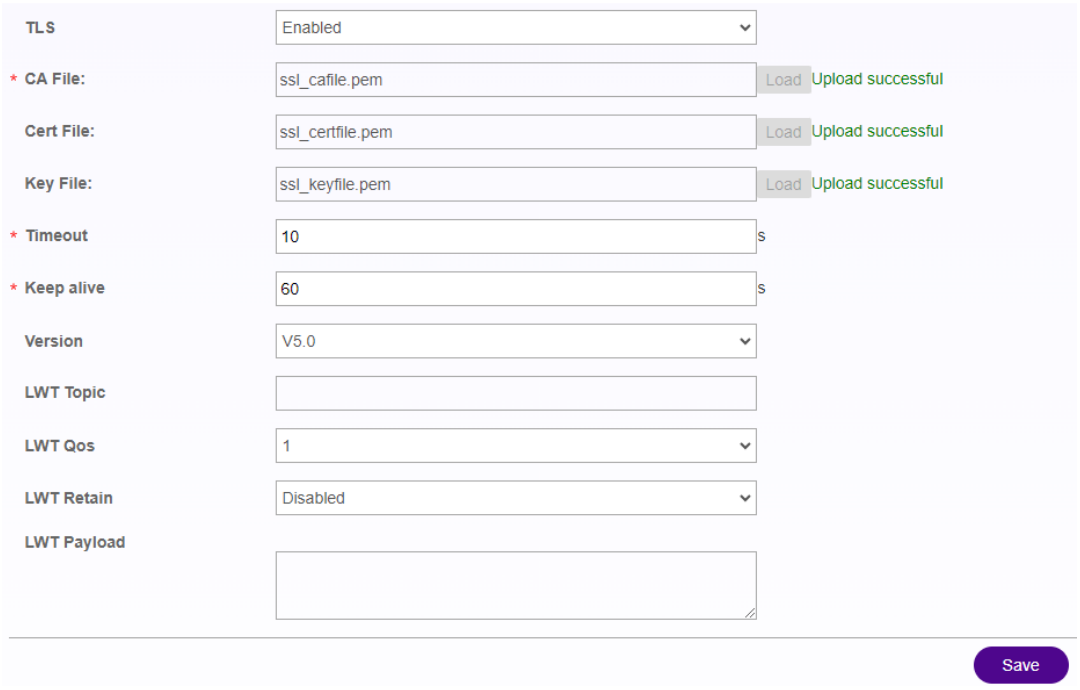
-Name: Arbitrary name

, -Client id: Any ID

-Host: Destination host address

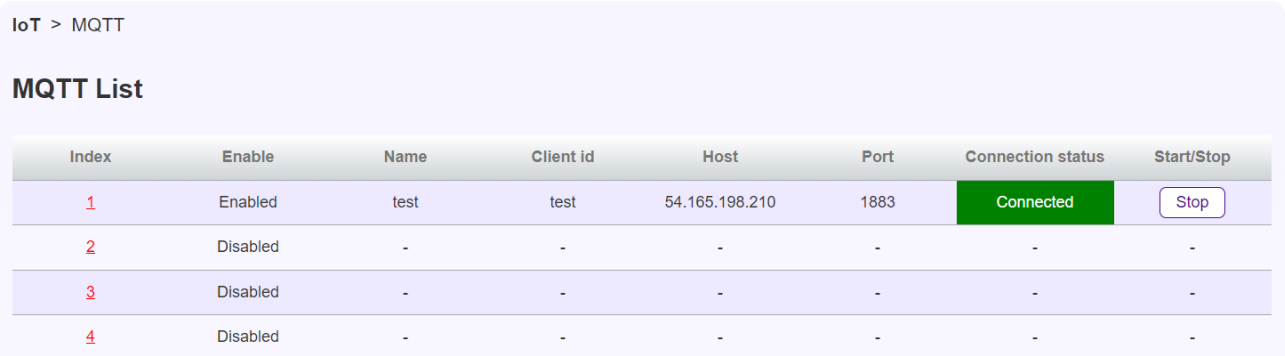
-Port: PORT number (MQTT:1883/MQTTS:8883)

7. If you are using MQTTS, set TLS to Enabled and select a certificate.

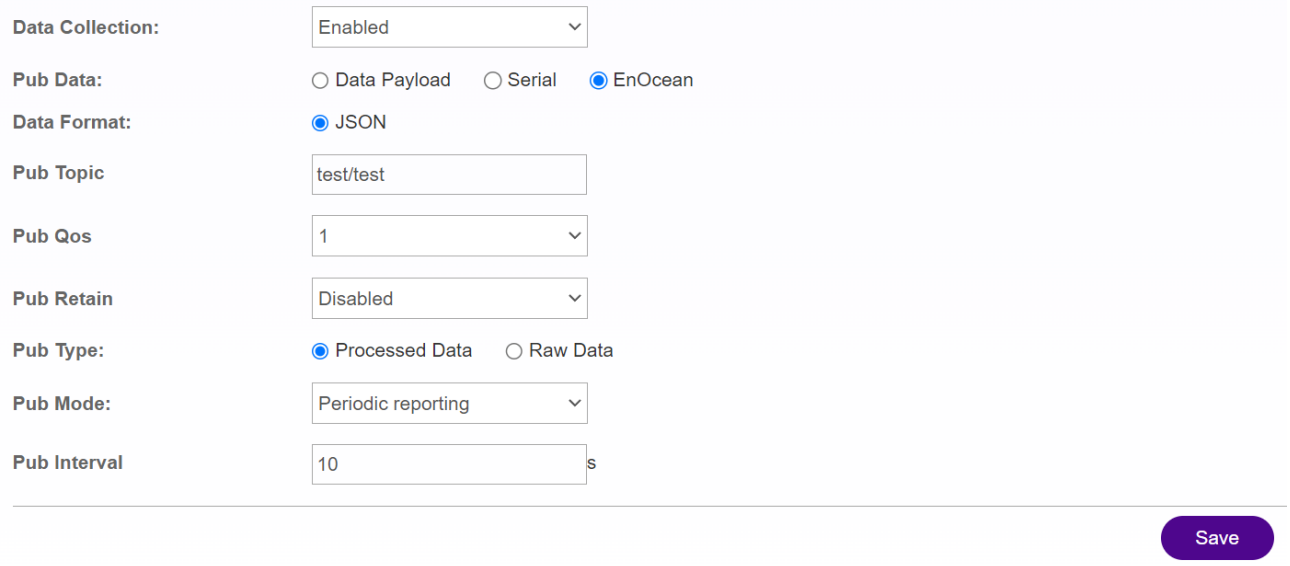


8. Click the [Save] button.

9. Verified that the Connection status is "Connected".



10. Configure the data source and publishing.



-Data Collection : Enabled/Disable

-Pub Data : Data Payload (for verification) / Serial / EnOcean:

-Data Format : JSON

-Pub Topic: Enter the topic name

-Pub QoS: Select the message assurance level.

-Pub Retain: Enabled for the Retain function/Select Disable.

-Pub Type :

-Processed Data: Telegram parsed data

-Row Data: Unparsed Telegram data

-Pub Mode :

-Periodic reporting: Time interval report

-Real-time reporting: Real time reporting latest data from sensors

-Pub Interval: Enter the transmission interval (Input is available only when Periodic reporting is selected.)

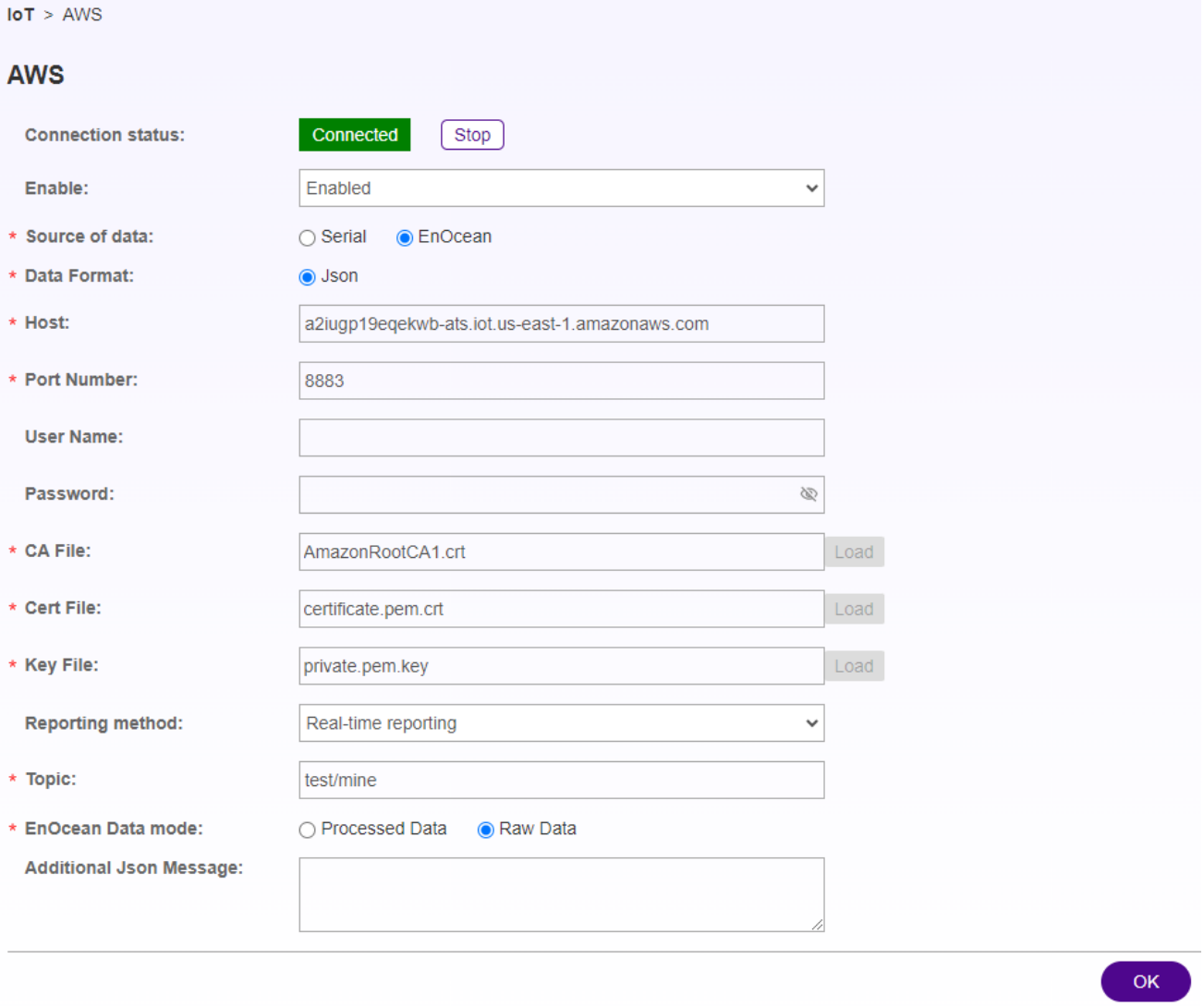
11. Click the [Save] button.

15. Cloud Service

This chapter describes Cloud-related procedures.

1. Connect to AWS

1. Log in to the WebUI and select [IoT] from the main menu.
2. Click [AWS] from the menu.
3. Enter the following:



-Source of data: Select the data sent from EnOcean / Serial.

-Data Format: JSON

-Enable This Connection: Check to start a connection to AWS.

-Host: Enter the AWS endpoint.

-Port Number:8883

-CA File: Select the certificate and press [Load]

-Cert File: Select the certificate file and press [Load]

- Key File: Select the private key file and press [Load]

-Reporting method: Select the communication timing from the following.

-Periodic reporting: Time interval report

-Real-time reporting: Real time reporting latest data from sensors

-Interval Time: Enter the transmission interval (can only be entered if Periodic reporting is selected)

-Topic: Enter the topic name of the MQTT

-EnOcean Data Mode:

-Processed Data: Telegram parsed data

-Row Data: Unparsed Telegram data

-Additional Json Message : Enter if there is a sentence you want to add to the JSON.

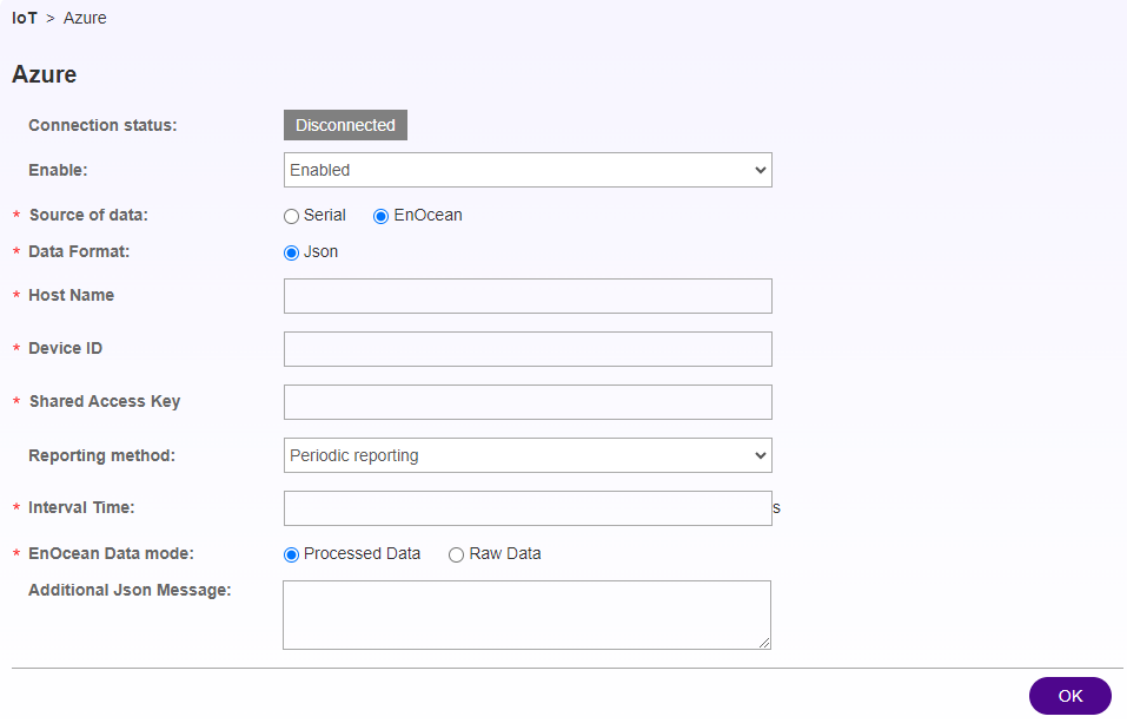
*Example)"reciever_type" : "500J",

*Please enter according to JSON format.

4. Click [OK].

2. Connect to Azure

1. Log in to the WebUI and select [IoT] from the main menu.
2. Click [AWS] from the menu.
3. Enter the following:



-Enable This Connection: Check to start a connection to Azure.

-Host Name:

Enter your Azure host name - Enter your Device ID: Device ID

-Shared Access Key: Set the access key

-Reporting method: Select the communication timing from the following.

-Periodic reporting: Time interval report

-Real-time reporting: Real time reporting latest data from sensors

-Interval Time: Enter the transmission interval (can only be entered if Periodic reporting is selected)

-Topic: Enter the topic name of the MQTT

-EnOcean Data Mode:

-Processed Data: Telegram parsed data

-Row Data: Unparsed Telegram data

-Additional Json Message : Enter if there is a sentence you want to add to the JSON.

*Example)"receiver_type" : "500J",

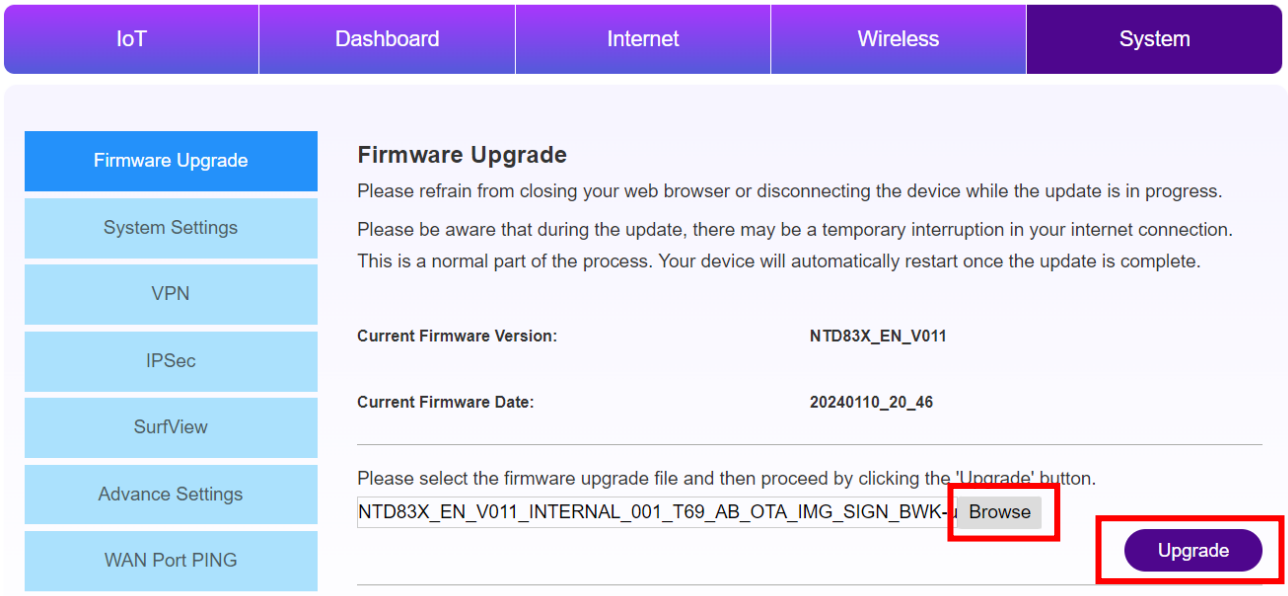
*Please enter according to JSON format.

4. Click [OK].

16. Software Updates

This chapter describes the procedure for updating the software.

1. Log in to the WebUI and select [System] from the main menu.
2. Se lect [Firmware Upgrade] from the side menu.
3. Select [Browse] and select the update file (~.bin) to be provided separately.
4. Select [Upgrade].



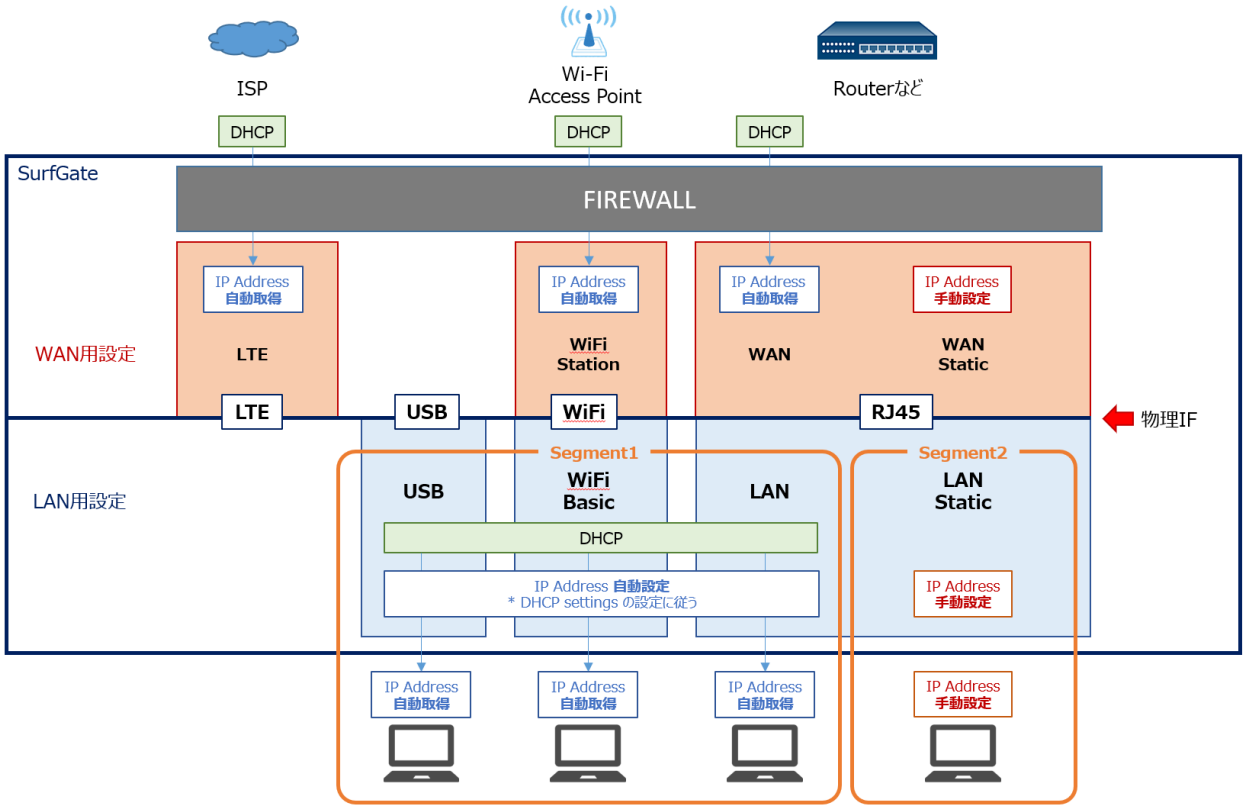
5. A progress bar pop-up is displayed, and the application restarts when the progress reaches 100%.
6. The update is complete.

* Do not unplug the power during the update.

17. Network Interface

This chapter describes the Network Interface.

Interface Details



Each physical interface operates in one of the roles.

・ In the WAN, the FW policy is applied to inbound communication.

LAN (DHCP), wireless LAN, and USB are accepted on the same logical interface.

The WAN interface is registered as the default gateway.

18. Revision History

This chapter provides a history of revisions.

The manual revision symbol is appended to the end of the version number on the front cover.

Version Number: NTD83X -User□

↑ Revision symbol

Revision symbol	Date of revision	Revised page
A	December 2022	first edition
B	January 2023	Correction of USB description and added about power OFF
C	March 2023	Added IoT chapter
D	March 2023	Added Wireless chapter
E	March 2023	Corrected the AWS chapter
F	March 2023	Modify the address in the Modbus Address List
G	April 2023	Addition of device configuration, product specifications, and TBD items
H	June 2023	Add Modbus RTU, FTP/SFTP items
I	July 2023	Adding a Wi-Fi STA item
J	September 2023	Reflect the change in model number Image replacement and procedure change due to WebUI improvement Added Regulatory and Certification items to the Product Specifications chapter Added EEP to EnOcean chapter Modification of RS485/232 chapter, deletion and modification of Modbus Address List Add Azure to the Cloud Service chapter Adding an MQTT ChapterAdding a VPN Chapter
K	October 2023	Added System Log chapter Modified product specification chapter EnOcean
L	October 2023	Added corresponding EEP to EnOcean chapter
M	October 2023	Added MQTTS to the MQTT chapter

N	October 2023	Added IPSec to the VPN chapter
O	November 2023	Added Ethernet Management and Network Interface chapters.
P	January 2024	Removed the System Log chapter, added FTP/SFTP chapter, changed the cover, and changed the information chapter
Q	April 2024	Updated the list of supported EEPs and GPs in the EnOcean chapter.

19. Information

We do not guarantee our products when they are used under conditions or environments not described in this magazine, or when they are used for applications that require particular safety, such as when they are expected to have a significant impact on human life or property, unless there is a special agreement intended by the Company.

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Version number: NTD83X -UserQ as of April, 2024