USER GUIDE FOR ICONNECTOR WIFI

STHC-ISGWF-WS433-CL-04	DEC-2021

This document is applied for the following products

SKU	STHC	**HW Ver.**	1.1	**FW Ver.**	w1.5_17101
Item Code	STHC-ISGWF-WS433-CL-04	iConnector WIFI, RS485/MODBUSRTU with built-in wireless co-ordinator			

1. Functions Change Log

HW Ver.	FW Ver.	Release Date	Functions Change
1.1	w1.5_17101	DEC-2021	

2. Introduction

STHC is a Smart IoT Gateway, aka iConnector, a main component in any IoT application. iConnector has a role to connect the real World's things like sensors, meters, ,machines...to server system for data logging, data analytics, monitoring & controls...iConnector support multiple Industrial Fieldbus like Modbus, EthernetIP, Profinet, CClink, Wireless sensor network...It connects to server system via LAN/WAN as Ethernet, WiFi or Cellular.



3. Specification

Host Communication	802.11b/g/n, 2.4Ghz, internal Wifi antenna, integrated wireless co-ordinator
Host communication supports	TCP/IP, UDP/IP, FTP, HTTPS, SNMP...
Fieldbus communcation	ModbusRTU x 01 port, 31 slaves, max 19.2 kpbs
Vietnam Type Approval Cerification	QCVN 54:2011/BTTTT, QCVN 15:2015/BTTTT (DAVITEQ B00122019)
Power supply	7..48VDC, avg 200mA, peak 1.5A
On-board memory & sensors	2MB Flash, PCB temperature sensor
Electrical connectors	M12, 4-pin, coding A or 9mm Power Plug and USB port
Buzzer	Internal buzzer
Antenna	Internal Wifi antenna, standard external antenna 0 dbi, option 3dbi, 6dbi, 9dbi.
RF frequency band	Free license ISM 433.92Mhz (for others 868, 915, 920Mhz, refer related datasheets)
Security Standard	AES-128
Data speed	Up to 50kbps
Operating Temperature/Humidity	-20 .. + 60 degC / 95%RH, non-condensing
Housing/Protection	Aluminum+Polycarbonate. All version is IP67 protection
Dimension	H130xW90xD40 for Ethernet/WiFi versions
Net weight	350 grams Ethernet/WiFi versions

4. Operation principle

4.1 LED meaning

4.1.1 LED status

Status	**Meaning**
Fixed ON	iConnector has been supplied with external power
Blinking (4 seconds blink 1 time)	Without external power, iConnector is using battery.
Blinking (2 seconds blink 1 time)	Low battery warning (Used for type D battery version)

4.1.2 LED modbus

Status	**Meaning**
Fixed ON	Modbus connected
Blinking (1 seconds blink 2 time)	Connection errors (wrong configuration of baudrate, noise, ...)
OFF	No modbus connection

4.1.3 LED network

Status	**Meaning**
Fixed ON	Connecting with Globiots

Blinking (1s change state)	Initializing wifi generator, waiting for configuration via phone or modbus tool (For iConnector wifi)
OFF	No connection with Globiots

4.2 Memory Map

Address	Size (bytes)	Memory type	Read/Write	Description
0-0x1FFF	8096	FLASH	R/W	Save active configuration, do not allow log, realtime.
0x2000-0x22FF	768	RAM	R	Save data read from modbus slaves.
0x2300-0x24FF	512	RAM	R	The intrinsic data of iConnector
0x3000-0x30FF	256	RAM	R/W	
0x5000-0x50FF	256	FLASH	R/W	
0x6000-0x6FFF	4096	RAM	R	Save data read from modbus slaves

- **Data address area:** 0x2000-0x22FF (768 bytes), and 0x6000-0x6FFF (4096 bytes).
- **Controller address area:** 0x3000-0x30FF (256 bytes, without flash storage), and 0x5000-0x50FF (256 bytes, with flash storage).

Address area 0x5000-0x50FF

- 256 bytes;
- Save in flash (when power is lost, will keep the same value);
- Allows reading, and writing from **Globiots**;
- Allow log (realtime);
- Allows Modbus write to Slaves;
- It is not allowed to store data read from Modbus Slaves.

> **NOTE:**
>
> Flash recorded about 100,000 times will be damaged so do not use this area to contain the value is changed several times.

4.3 Logged data

- Up to 20 different log cycles;
- 320 log parameters maximum for all log cycles.
- Up to 120 log parameters per log cycle.

4.4 Modbus

- Support modbus RTU.
- Address slave 1... 247.
- It is not allowed to set address slave = 0.
- Baudrate 4800/9600/19200.
- Parity none / odd / even.
- Up to 100 modbus instructions.
- The address area for storing read data: 0x2000-0x22FF (768 bytes), and 0x6000-0x6FFF (4096 bytes).
- Controller address area: 0x3000-0x30FF (256 bytes, without flash storage), and 0x5000-0x50FF (256 bytes, with flash storage).

4.5 Realtime

- Read up to 200 parameters.
- If all parameters are float (4 bytes) then read up to 140 parameters.
- The fastest realtime sending frequency is 1 second.

4.6 Alarm

- Up to 28 alarms.
- Supported data types:

PrmType	Description	# Byte	Range
1	BYTE	1	0 to 255
2	UINT16	2	0 to 65,535
3	UINT32	4	0 to 4,294,967,295
4	FLOAT	4	-/+3.40282347 * (10^+38)
5	INT16	2	-32,768 to 32,767
6	INT32	4	-2,147,483,648 to 2,147,483,647

4.7 Event

- The event table is 1024 bytes.
- The number of events depends on the short length of the event configured.
- Supported data types:

PrmType	Description	# Byte	Range
1	BYTE	1	0 to 255
2	UINT16	2	0 to 65,535
3	UINT32	4	0 to 4,294,967,295
4	FLOAT	4	-/+3.40282347 * (10^+38)
5	INT16	2	-32,768 to 32,767
6	INT32	4	-2,147,483,648 to 2,147,483,647

4.8 Health data

- Every 15 seconds send health pack 1 time.

5. Configure using the iConfig app on the phone

> After supplying power the iConnector via M12 connector, only configure using the iConfig app within the first 5 minutes.
> Use app on android phone then configure the Wifi Name and Password that iConnector Wifi will connect to.

Please refer to how to configure using iConfig app with the following link:

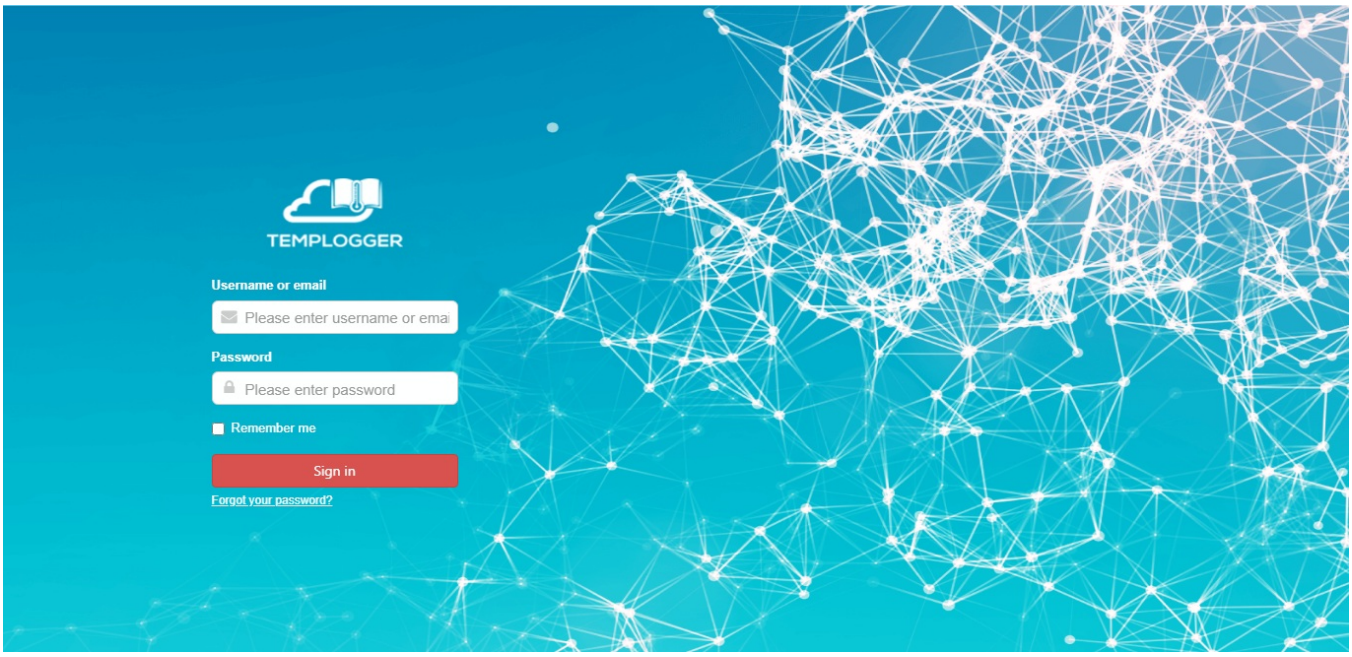
iConfig Mobile app for Android

6. Connect iConnector to Templogger Pro Server System

6.1 Login

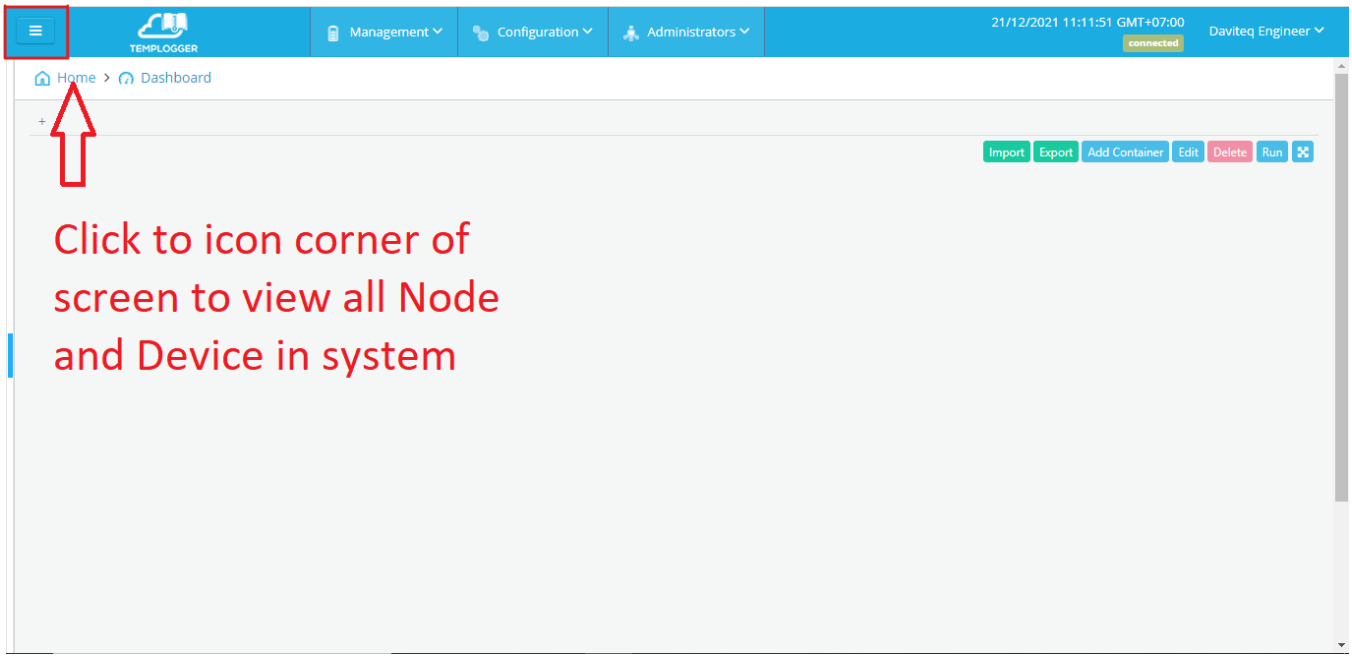
Please visit the link to the login page: **Templogger Pro - Login**

If you do not have an account on the Templogger Pro Server System, please contact the Templogger Pro technical staff for assistance.



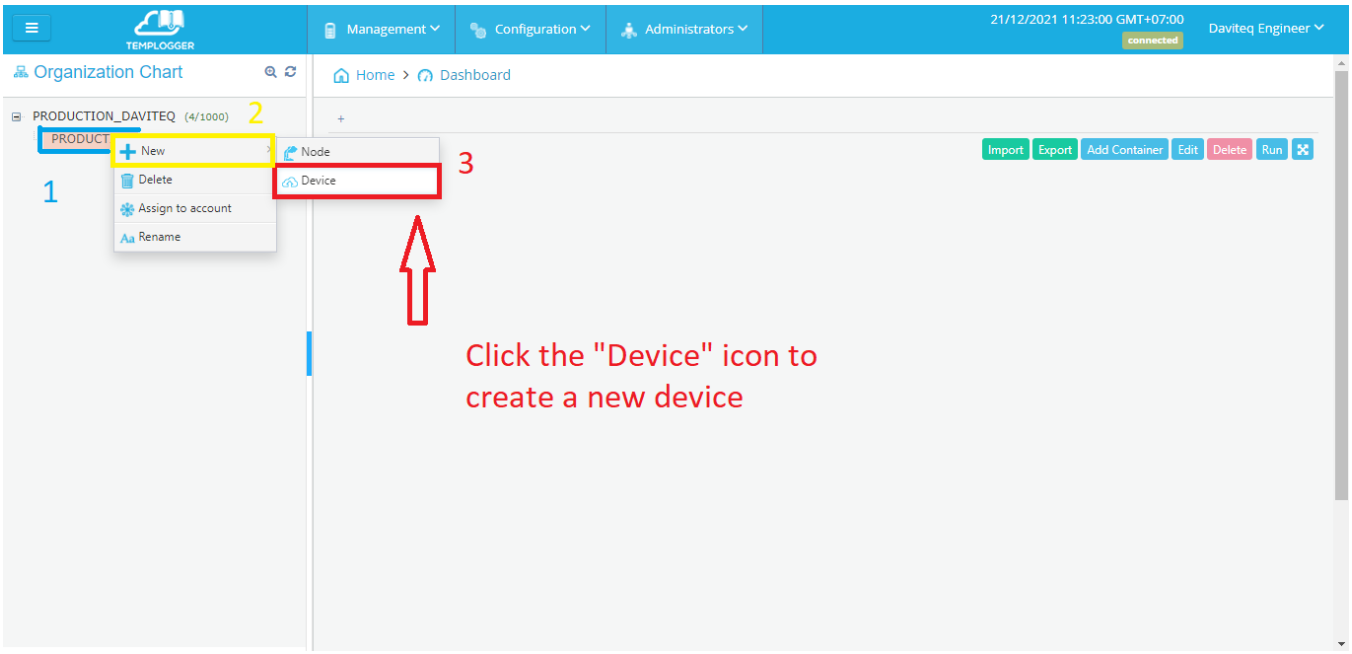
6.2 Add iConnector STHC to Templogger Pro Server System

To close or open “Organization Chart” panel, you can click on left corner of screen
Organization Chart page includes all Node and Device in system:

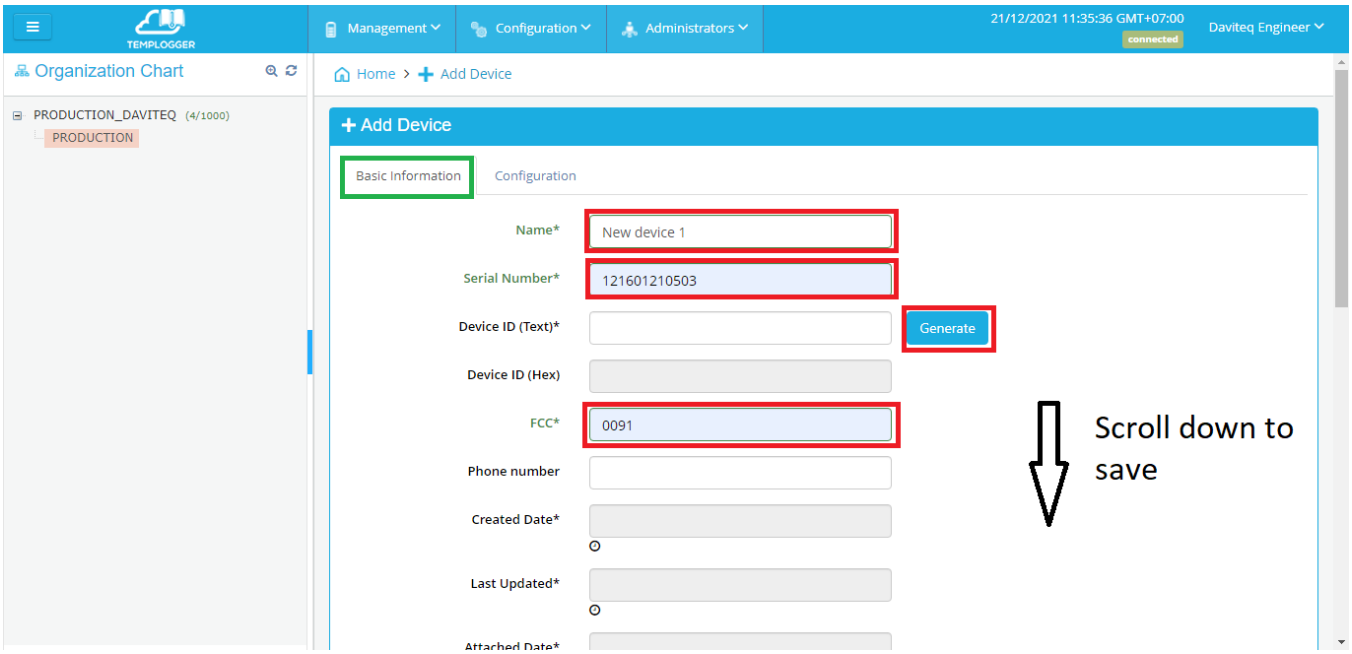


Right click on Node name, menu of Node displays:
- New: Create new Node, Device
- Delete: Delete Node
- Assign to account: Assign Node and sub-Node to account
- Rename: Change name of Node

To create a new Device:
(1) Select Node
(2) Right click and select “New”
(3) Click “Device” to create a new Device



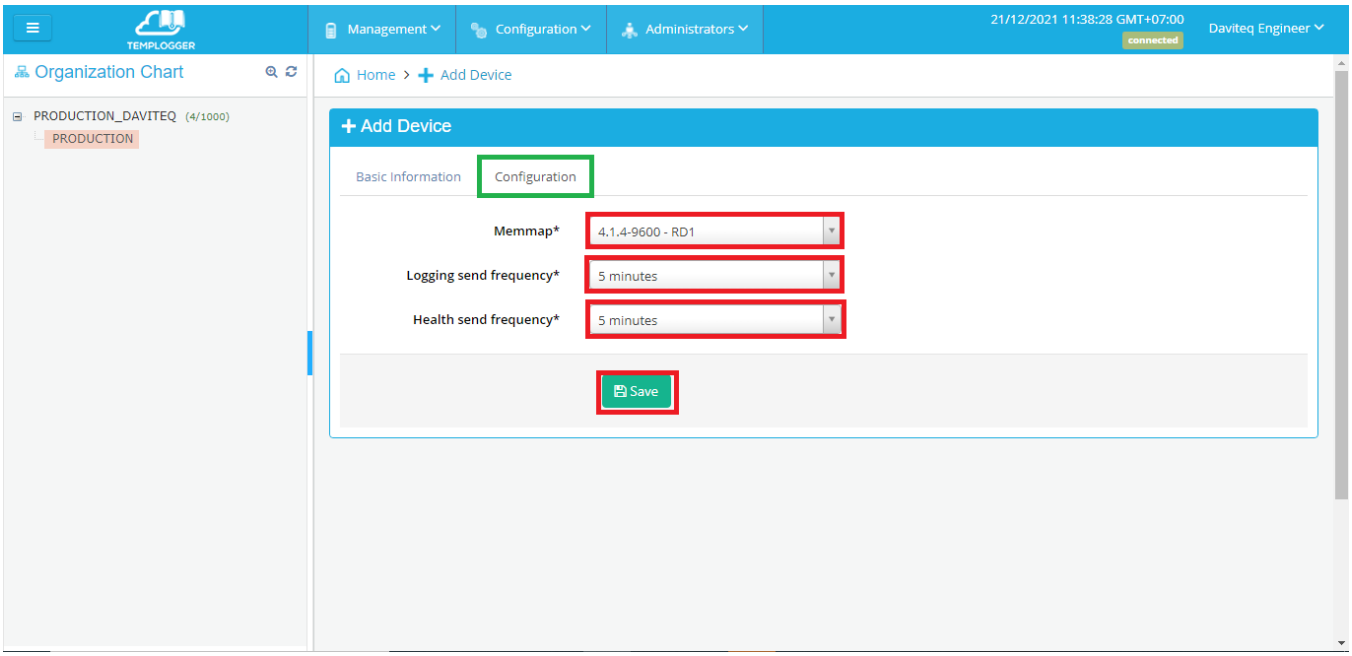
(4) A box appears:



- Enter parameters of Device:
- Name: Name of Device (require 12 characters)
- Serial Number: provided by manufacturer (require 12 characters)
- Click “Generate” button to create Device ID or enter ID directly
- FCC: provided by manufacturer (require 4 characters)
- Click “Save” button to continue. A box appears:

Serial Number , FCC : Please contact the Templogger Pro technical staff for assistance.

(5) A box appears after save:

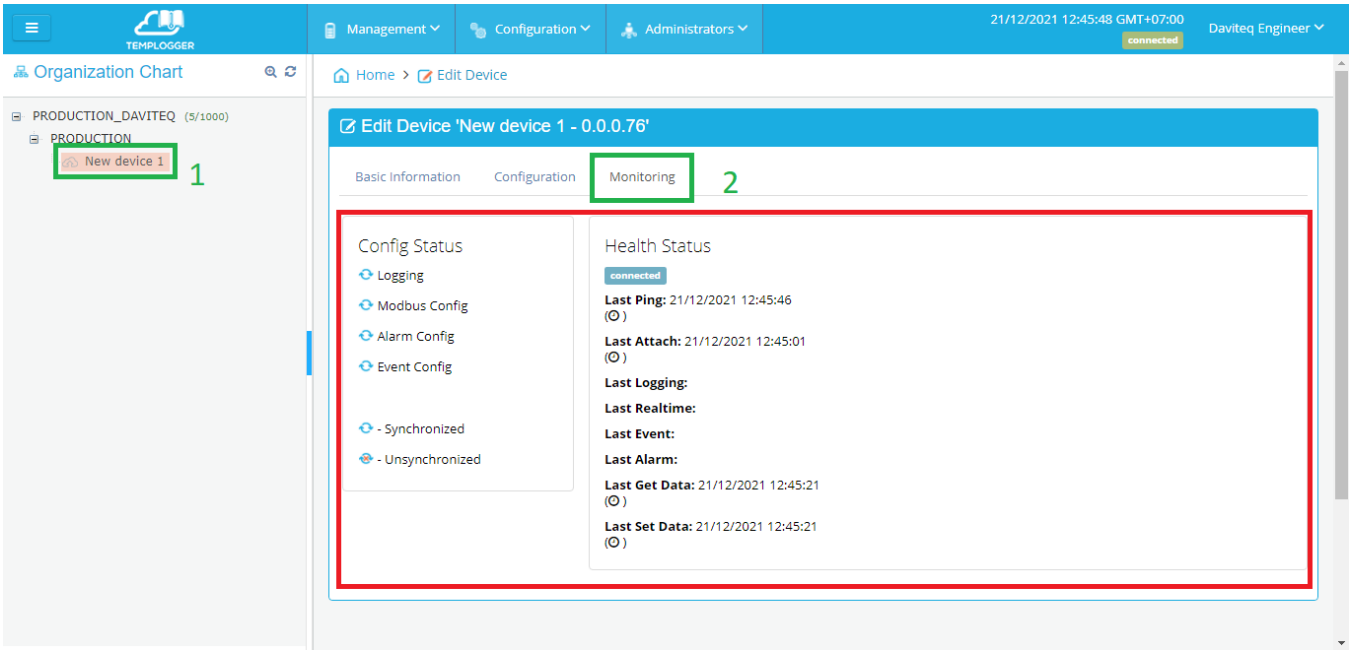


Select the same image and save. After save again at tab "Basic information".

Confirm the request and enter the account to create a new device.

6.3 Check health a new Device

To check health a new Device:
(1) Select Node.
(2) Select Monitoring Tab.
• Health Status: display Connection status between iConnector and server (Connected/Waiting for connect/Disconnected)
• Config Status: display synchronization status (Synchronized or Unsynchronized)



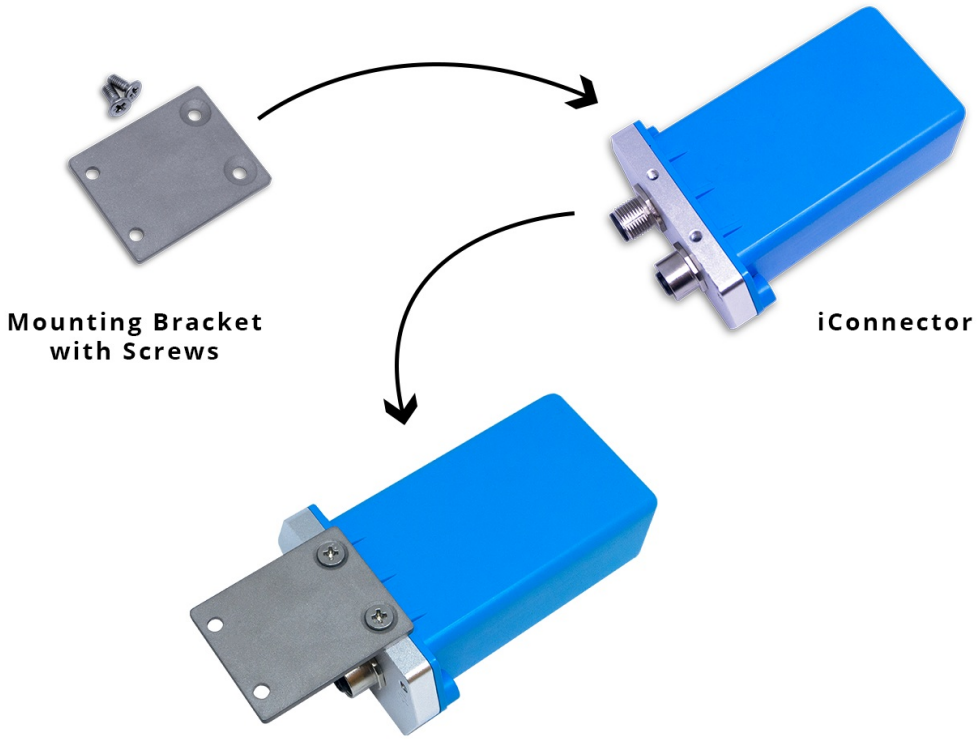
7. Installation

7.1 Installation location

Installed on a wall or in non-metal box. The bracket will be fixed on the wall or material with a planar surface with 2 x M4 screws;

ATTENTION:

DO NOT install the iConnector inside a completed **metallic** box or housing, because the RF signal can not pass through the metallic wall. The housing is made from Non-metallic materials like plastic, glass, wood, leather, concrete, cement…is acceptable.

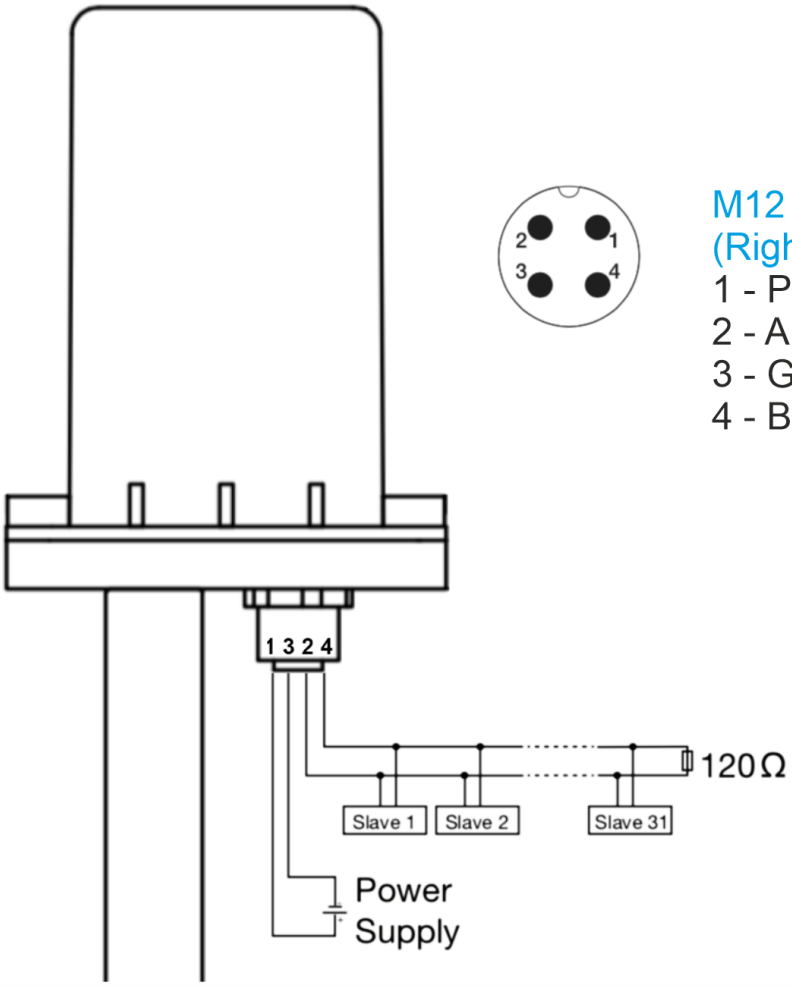


7.2 IO Wiring

7.2.1 Connect Power Supply and Modbus

- Connect **PWR+** and **PWR-** to **7..48VDC** power supply via M12 Male connector
- Connect **A** and **B** to **RS485** connection.

PIN ASSIGNMENT & WIRING

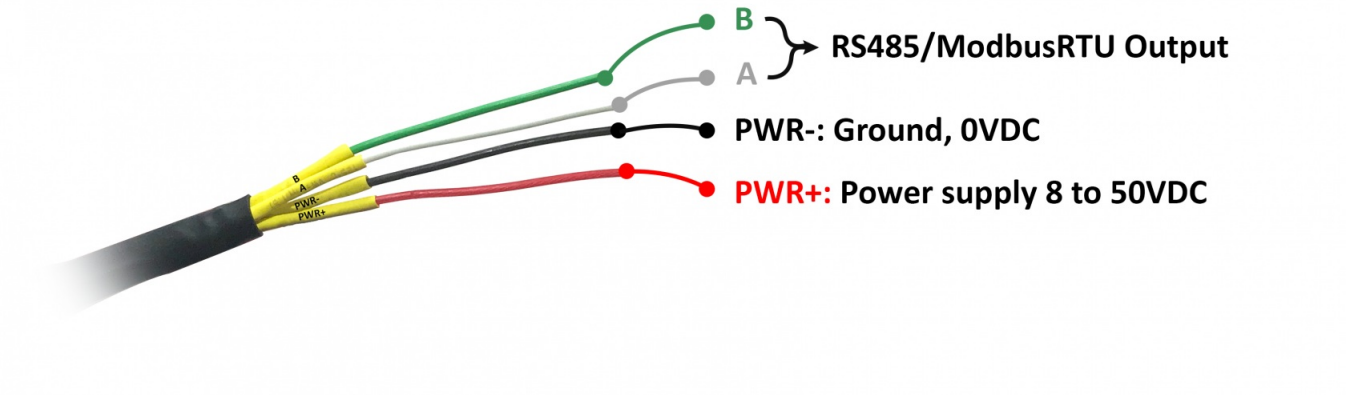


M12 Plug Male Connection
(Right side)
1 - PWR+ (RED)
2 - A (White)
3 - GND (Black)
4 - B (Green)

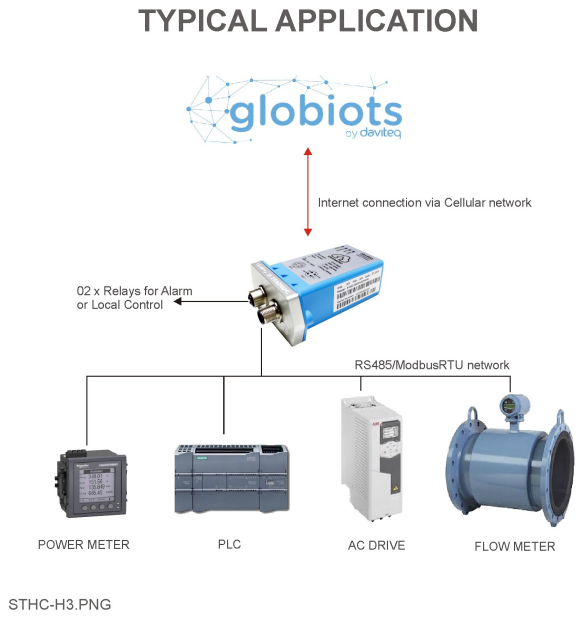
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Use M12 female connection cable to connect to iConnector

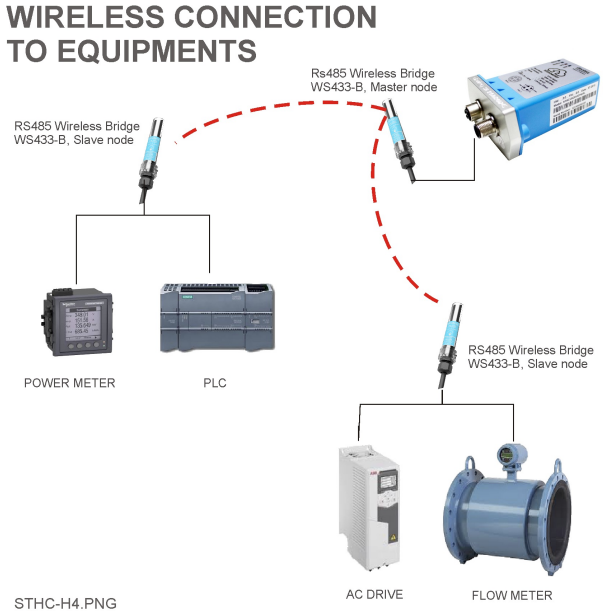




8. Example application



STHC-H3.PNG



STHC-H4.PNG

9. Troubleshooting

No.	Phenomena	Reason	Solutions
1	Data does not go to server, N/A	iConnector lost connection with server	• Check out the iConnector power supply • Check the network coverage of the network in the area where iConnector is installed • Check wifi configure, iP, gateway, internet.
2	• Data sent to server is held • Modbus error = 20 • Led modbus off	• Loss of the modbus connection • The configuration of parameter & modbus command is wrong	• Check for modbus wiring • Check the status of the modbus circuit of iConnector and Slaves • Check the parameter & modbus command configuration on Cloud

3	The data posted on Globiots is wrong, the phenomenon of value is changed abnormally continuously	Configuration parameter & modbus command is wrong	Check and correctly configure parameters & modbus commands
4	• Led status of iconnector not light • Led status 4s flashes once (iConnector is only running on battery)	Lost power iConnector	Check iConnector power supply
5	Led network does not light	• Not yet added iConnector to server or the information is wrong • Sim has run out of data • The device is out of range • Sim is broken	• Check out the information of iConnector add on server • Check the network coverage of the network in the area where iConnector is installed

10. Support contacts

Manufacturer

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