LoRa-Modbus Application Server Installation Guide

The LoRa-Modbus Application Server is used to connect LoRaWAN devices on the private LoRaWAN network (no network licensing) to the Building Management Systems. The LoRa-Modbus Application Server gateway has ready made library of device templatest allowing fast and easy way connection of various LoRaWAN devices. The LoRa-Modbus Application Server translates the LoRaWAN payload messages to Modbus Holding registers. The Modbus Holding registers are then available over the Modbus TCP/IP network to the Modbus TCP/IP master such and BMS and Main Plant Controller.

Manufacturer information

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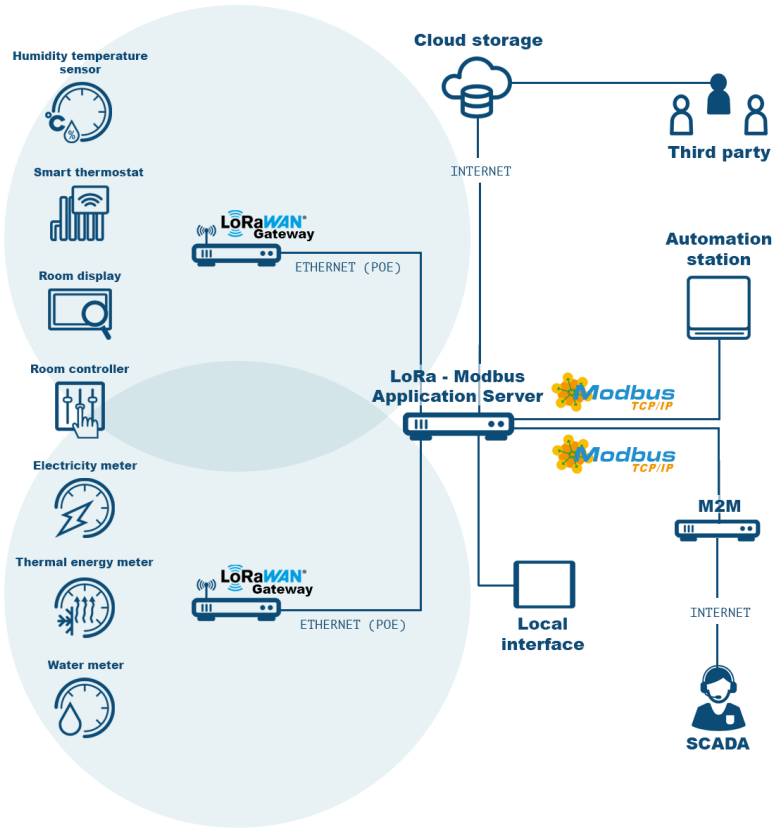
Features and advantages

- Fast and Efficient way of creating Private LoRaWAN network various LoRaWAN devices
- LoRaWAN devices added easily and fast from web interface using device templates
- Creates automatically Modbus Holding registers for each device parameter from the template
- Provides Modbus TCP/IP Integration into most Energy Management and Building Management Systems
- Dashboard for the LoRaWAN device management
- Local LoRaWAN network continues to function during internet connection failures
- End-to-end encryption. Only one connection out of the local network to third parties
- Works with all regions and frequencies (separate LoRa Gateway provides network connection)
- Licensed by device count, basic model up to 100 devices
- Comprehensive support and templates for various LoRaWAN devices



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Technical specifications

Power Supply	5Vdc 2A, 100-240Vac External Power Adapter (5.5x2.1mm power socket)
Physical Interfaces	1 x Ethernet and 1 x USB
Ethernet	LoRaWAN Messages to LoRaWAN Gateway Modbus TCP/IP port 502 to BMS
Dimensions	W50 x H60 x D50mm
Enclosure	Metal
Weight	180g
Mounting	DIN rail
Operating temperature	0..50°C
Operating humidity	5%~90% - no condensation

What do you need before starting?

- LoRa-Modbus Application Server
- LoRa Gateway (POE Support)
- Ethernet Switch
- POE injector (optional)
- Ethernet cables

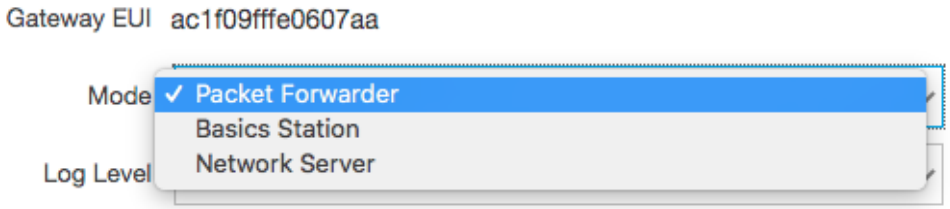
Hardware installation

1. Connect the LoRa-Modbus Application Server and the LoRa Gateway (at least one) to the ethernet switch with ethernet cables.
2. Connect the LoRa Gateways to the power supply if an external power supply is needed
3. Connect the LoRa-Modbus Application Server to the power supply.

Gateway IP-configuration

1. Place the LoRa Gateways in the same address space as the LoRa-Modbus Application Server. The default IP address of LoRa-Modbus Application Server is **192.168.1.100**.

2. Define Gateway mode to "**packet forwarder**".



Adding Gateways to LoRa-Modbus Application Server

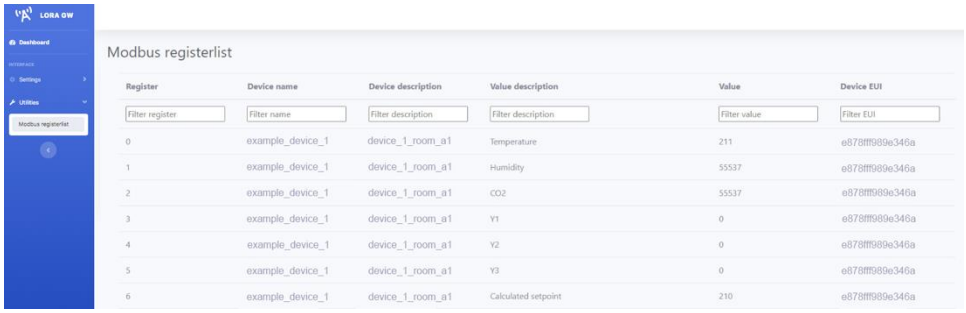
1. Go to **Settings -> Gateways.**
2. Define unique **Gateway id** which you can find in the Gateway IP-configuration view (see above).
3. Define **Getaway name** as you wish.
4. Push green **Add** button.
5. Remember to press the **Save** button after any changes.

Adding sensors to LoRa-Modbus Application Server

1. Go to **Settings** -> **Sensors**.
2. Define unique **Device EUI** and **Device nwkkey** in the cells assigned to them.
3. Select the correct **Device profile** for your device from the drop-down menu.
4. Define **ID number**, **Device name** and **Device description** as you wish.
5. Push green **Add** button.
6. If you delete or edit devices, remember to press **Save changes** button.
7. You can also upload the device list in csv format and download the device list last uploaded to the LoRa-Modbus Application Server.

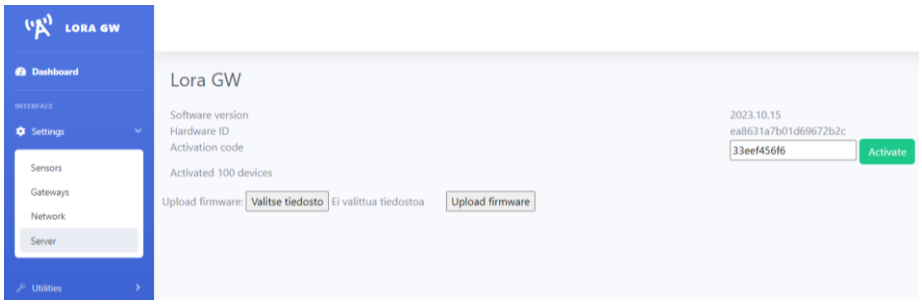
Modbus registerlist

1. Go to **Utilities -> Modbus registerlist.**
2. Each device reserves **20 read Modbus-register slots.** Read registers are logged starting from register slot 0.
3. Each device reserves **20 write Modbus-register slots**. Write registers are logged starting from register slot **30 000**.
4. All registers are holding registers and Modbus port is **502.**
5. You can filter by **register, device name, device description, value description, value** or **device EUI.**



Upgrading device count and updating firmware

The LoRa-Modbus Application Server is licensed by device count, basic model up to 100 devices. Contact your reseller to upgrade the license for more devices or to update the latest firmware. Upgradeable licenses are available for 100, 300, 500 and 1500 devices. In **Settings -> Server** menu you can see current device count software version and hardware ID.

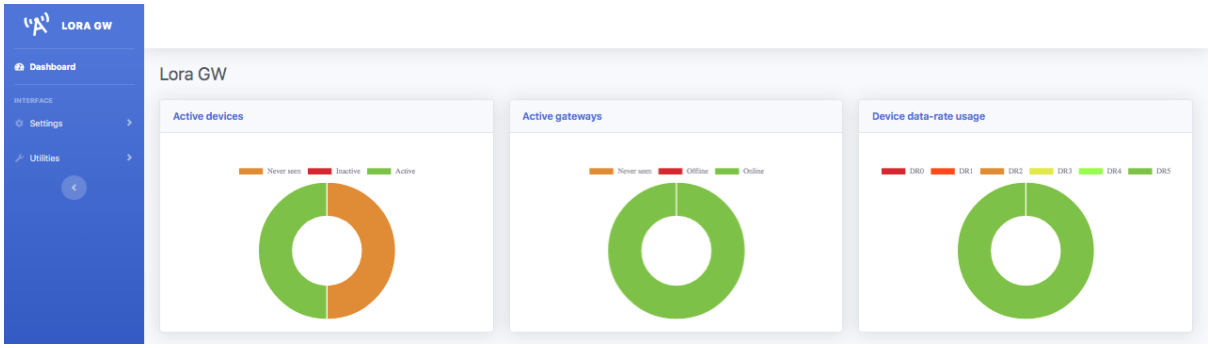


Dashboard

On the dashboard tab you can see an overview of devices and gateways. Hover your mouse over the donut chart to see how many added devices or gateways are active, inactive or "never seen"

- **Active** status implies that the connection is currently active.
- **Inactive** status implies that a connection to the device has been established before, but it is currently inactive.
- **Never seen** status implies that the device has never been connected.

Device data-rate usage donut chart shows the strength of the connections.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