Ruukki® Roof Sensor Gateway Setup Instructions

Gateway makes Roof Sensor service compatible with other networks and viewable from other networks.

It is not possible to change Roof Sensor settings remotely through Gateway for security reasons. Setup and calibration changes are made at Roof Sensor local network by logging in as administrator.
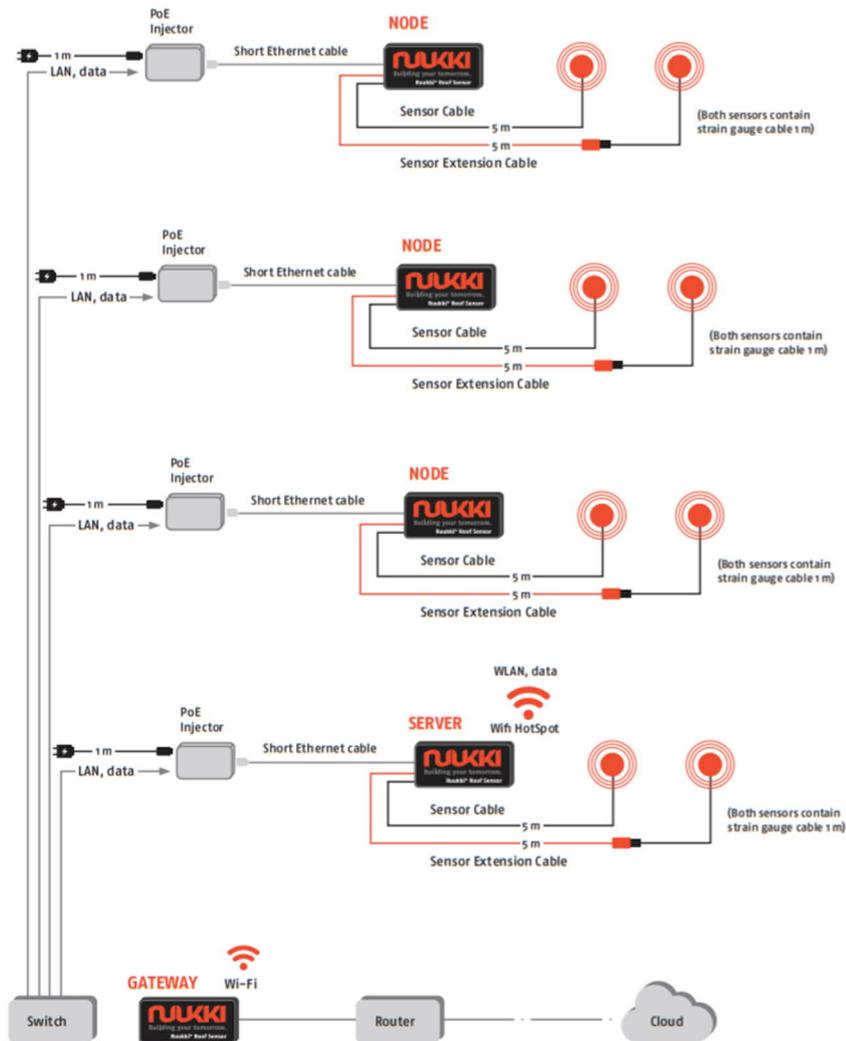

Figure1. Ruukki® Roof sensor and Gateway system layout

Gateway is exchanging information with Roof Sensor server through Wi-Fi HotSpot as seen in Figure1. In order to operate and exchange information Gateway is connected to house Router or BAS Router with Ethernet cable.

Setup Instructions

1. Connect Gateway´s Ethernet port to available house Router or BAS router
    (a short Ethernet cable is provided with Gateway)
2. Connect electricity to Gateway
    (Power supply unit is provided with Gateway)

Operation:
Preconfigured Gateway will automatically boot up and checks if there is active Ruukki®
Roof Sensor server available through Wi-Fi hotspot.
Gateway replicates Roof Sensor user interface and measurement information.

Gateway is now accessible at address `https://roofsensorgateway.local/`
or with its local IP address provided by house Router or BAS router.

Gateway provides comprehensive Application Programming Interfaces (APIs) to query
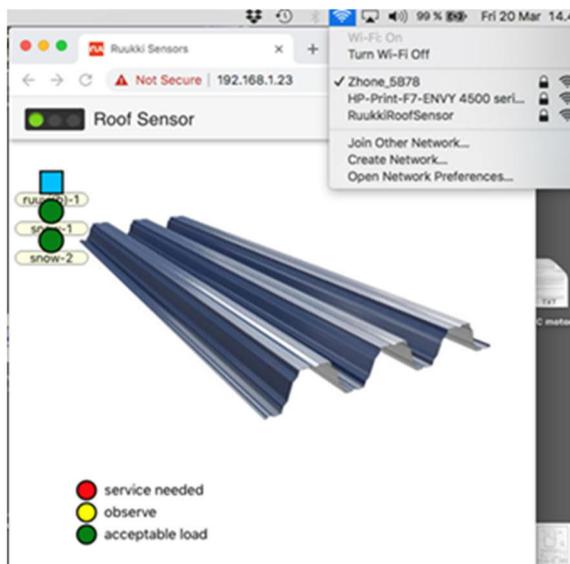Roof Sensor values via REST or MQTT/Websocket.

Figure2: Screen shot from the browser Gateway replicating Roof Sensor information available from home network router "Zhone_5B78"

Gateway serves as a bridge between Ruukki® Roof Sensor and other local building networks, in a way that Ruukki® Roof Sensor interface and information is accessible via other networks of building.

If the domain name address ´roofsensorgateway.local´ is unrecognized by your browser,
alternatively please use its IP address (provided by your local building network).
This IP address is visible in Roof Sensor Configuration page (SSID: RuukkiRoofSensor at
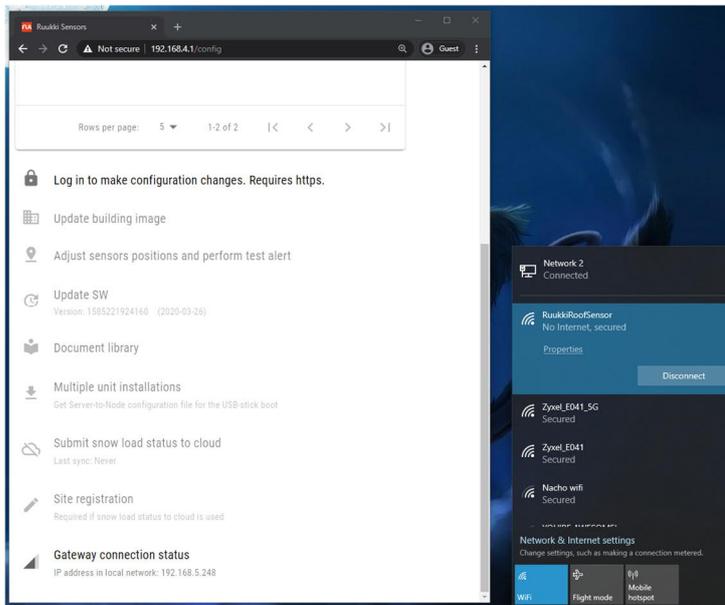address https://192.168.4.1/config).

Figure 3. Gateway IP address in local building network can be seen on Ruukki® Roof Sensor Configuration page at "Gateway connection status" tab (192.168.5.248)

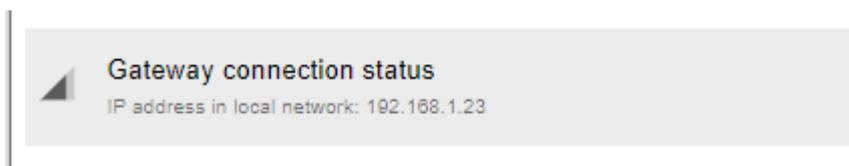*Note that your Gateway IP address is likely different than in these examples.*

Figure 4. Gateway connection status showing Gateway IP address provided connected network (in this example it was 192.168.1.23 given from another test Router)

Gateway connection status in Roof Sensor is useful also for testing and troubleshooting:
-It shows if Gateway is not connected with Wi-Fi (like out of electricity or out of range).
-It may show physical address a short time if new IP is not available from the network services.

With Gateway IP address information it is possible to route and arrange remote access with ways available - if available. Local IT people may help further as they know and manage network environment and available possibilities.

Following page of this instruction presents provided methods for developers/engineers in order to integrate Roof Sensor measurements to other information systems.

- REST API
- MQTT/WebSocket API

There are two connectors available for accessing Ruukki® Roof Sensor real-time measurement data from Gateway through following APIs:

1. REST communication is based on request-response method with HTTP/HTTPS protocol, users can request for raw data measurement by using browsing URL:

   ```
   https://roofsensorgateway/api/data
   or
   https://{ip address of Gateway}/api/data
   ```

2. MQTT/WebSocket are ideal to stream raw measurement data. They are very lightweight and ready to use with following instruction:

   - With WebSocket Secure (wss), please subscribe to endpoint

   `wss://roofsensorgateway/mqtt` with topic `/device/data`

   - With MQTT API, please subscribe to server `roofsensorgateway` using port 1883 with topic `/device/data`

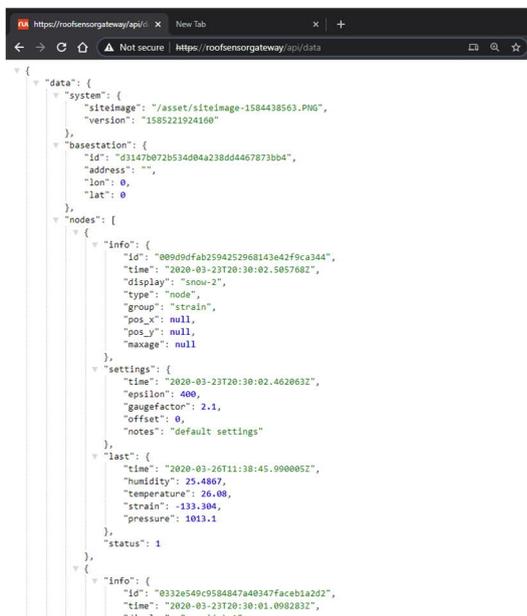| Figure5: Example of raw data in JSON format retrieved from REST API	Figure6: Example of receiving raw data via WebSocket Secure (wss) API

Figure5: Example of raw data in JSON format retrieved from REST API

Figure6: Example of receiving raw data via WebSocket Secure (wss) API