



GATEWAY LAN

User and Installation Guide

v.22.04

Welcome to using Thingsee

Congratulations on choosing Haltian Thingsee as your IoT solution. We at Haltian want to make IoT easy and accessible for everyone, so we have created a solution platform that is easy to use, scalable and secure. I hope our solution will help you achieve your business goals!

Pasi Leipälä
CEO, Haltian Oy

Thingsee GATEWAY LAN



Thingsee GATEWAY LAN is a plug & play IoT gateway device for large scale IoT solutions. The main role of the Thingsee GATEWAY LAN is to ensure that data flows in and out from the sensors to a Thingsee Operations Cloud.

Thingsee GATEWAY LAN connects a mesh of a few to hundreds of wireless sensor devices to Thingsee Operations Cloud. It exchanges data with the mesh network and sends data to cloud backends. It is connected to the internet over an Ethernet connection and therefore works globally.

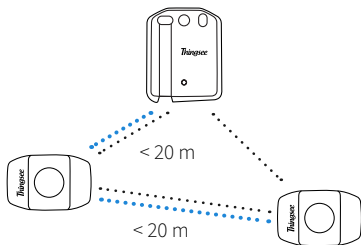
Sales package content

- Thingsee GATEWAY LAN
- Power supply unit (5C USB-C)

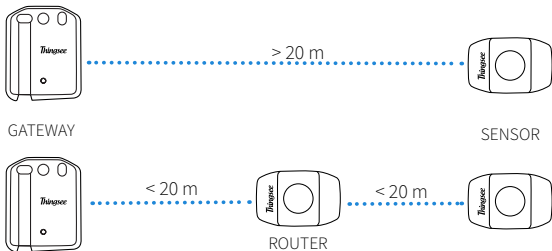
Note before installation

Install the gateway to a secure location. In public places, install the gateway behind locked doors.

To ensure strong enough signal strength for data delivery, keep the maximum distance between mesh network devices under 20 m.



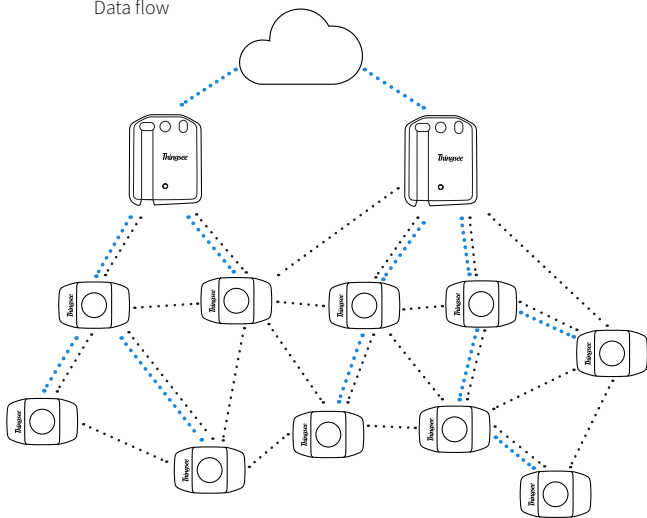
If the distance between a measuring sensor and the gateway is > 20 m or if the sensors are separated by a fire door or other thick building materials, use extra sensors as routers.



Thingsee installation network structure

Thingsee devices build a network automatically. Devices communicate all the time to adjust the network structure for effective data delivery. Sensors create subnetworks for data delivery by choosing the best possible route based on signal strength. The subnetwork chooses the strongest possible gateway connection for data delivery to the cloud. The customer network is closed and secure. It cannot be harmed by third party connections.

- Network communication
- Data flow



The amount of sensors per one gateway varies depending on the sensors' reporting time: the longer the reporting time, the more sensors can be connected to one gateway. The usual amount is from 50-100 sensors per gateway to even up to 200 sensors.

To ensure mesh network data flow, a second gateway can be installed on the other side of the installation site.

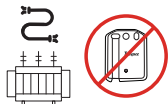
Things to avoid in installation

Avoid installing the Thingsee products near the following:

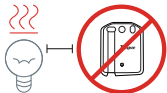
Escalators



Electrical transformers or thick electrical wires



Nearby halogen lamps, fluorescent lamps or similar lamps with hot surface



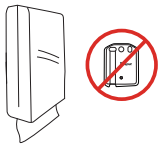
Thick concrete structures or thick fire doors



Nearby radio equipment like WiFi routers or any other similar high power RF transmitters



Inside metal box or covered with a metal plate



Inside or underneath a metal cabinet or box



Near elevator motors or similar targets causing a strong magnetic field



Data integration

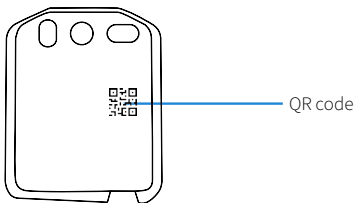
Make sure that data integration has been properly setup prior to the installation process. See link <https://support.haltian.com/howto/aws/> Thingsee data can be pulled (subscribed) from the Thingsee Cloud live data stream, or the data can be pushed to your defined end point (e.g. Azure IoT Hub before you install the sensors.)

Installation

Please make sure the Thingsee GATEWAY LAN is installed before you install the sensors.

To identify the gateway, read the QR code on the backside of the device with a QR code reader or Thingsee installation application on your mobile device.

Identifying the device is not necessary, but it will help you keep track of your IoT installation and help Haltian support to solve possible issues.

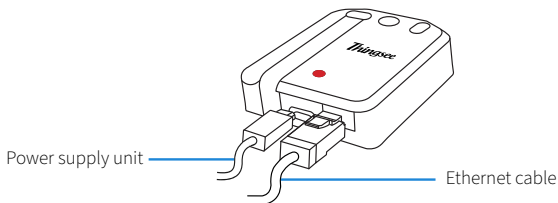


To identify the device over Thingsee API, please check:
<https://support.haltian.com/api/open-services-api/api-sequences/>

Connect the power source to the gateway and plug it into a wall socket with 24/7 power.

Note: Always use the power source included in the sales package.

Connect the ethernet cable to the device.







Note: The socket-outlet for the power source should be installed near the equipment and should be easily accessible.

Thingsee GATEWAY LAN is always ethernet connected:
LED indication is used to provide gateway status information.

The LED on top of the device starts to blink:



- RED blink – Searching or cannot find Ethernet connectivity

- Simultaneous RED and GREEN blink – Ethernet connection working, but no cloud connection

- GREEN blink – Normal operation, connected to LAN network

- Changing Green and Red blink – Firmware update


To close the device unplug the device.

Network requirements

Network services

Thingsee GATEWAY LAN requires following services from the network.

- IP address allocated by DHCP

Port configuration

The gateway requires that the following ports are open in the network firewall. The ports must be open for outbound connections. Thingsee GATEWAY LAN doesn't run any services and acts only as a client for the services below. A port-forwarding is not required.

Service	Protocol	Port	Description
DNS	UDP	53	Domain Name Service
NTP	UDP	123	Network Time Protocol
HTTPS	TCP	443	Secure communication
MQTT	TCP	8883	Secure communication, AWS IoT

Device info

Recommended operating temperature: 0 °C ... +40 °C

Operating humidity: 8 % ... 90 % RH non-condensing

Storage temperature: 0°C ... +25 °C

Storage humidity: 5 % ... 95 % RH non-condensing

IP rating grade: IP40

Indoor office use only

Certifications: CE, FCC, ISED, RoHS, RCM and MIC compliant

USB-C powered

BT with Wirepas mesh network support

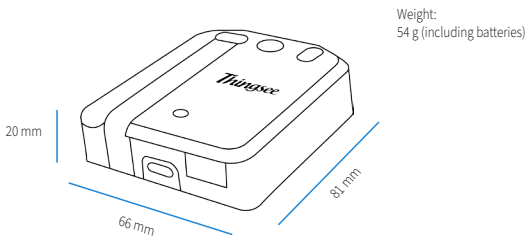
Radio sensitivity: -95 dBm BTLE

Wireless Range 5-25 m indoor, up to 100 m Line of Sight

Ethernet cable connection

LED indication for device status

Device measurements



CERTIFICATION INFORMATION
EU DECLARATION OF CONFORMITY

Hereby, Haltian Oy declares that the radio equipment type Thingsee GATEWAY LAN is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.haltian.com

Haltian Oy vakuuttaa, että radiolaitetyyppi Thingsee GATEWAY LAN on direktiivin 2014/53/EU mukainen. EU-vaatimustenmukaisuusvakuutuksen täysimittainen teksti on saatavilla seuraavassa internetosoitteessa: www.haltian.com

Thingsee GATEWAY LAN operates at Bluetooth® 2.4 GHz frequency band. Maximum radio-frequency power transmitted is +4.0 dBm.

Manufacturer name and address:

Haltian Oy
Yrtypellontie 1 D
90230 Oulu
Finland

FCC REQUIREMENTS FOR OPERATION IN THE UNITED STATES

FCC Information for the User

This product does not contain any user serviceable components and is to be used with approved, internal antennas only. Any product changes or modifications will invalidate all applicable regulatory certifications and approvals.

FCC Guidelines for human Exposure

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC Radio Frequency Interference Warnings & Instructions

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following methods:

- Increase the separation between the equipment and the receiver.
- Connect the equipment into an electrical outlet on a circuit different from that which the radio receiver is connected
- Consult the dealer or an experienced radio/TV technician for help
- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCC compliance statement:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

INNOVATION, SCIENCE AND ECONOMIC DEVELOPMENT CANADA (ISED) REGULATORY INFORMATION

This device complies with RSS-247 of the Innovation, Science and Economic Development Canada (ISED) Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Ce dispositif est conforme à la norme CNR-247 d'Innovation, Sciences et Développement économique Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Radiation Exposure Statement:

This device complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed and used with a minimum distance of 20 cm between the radiator and your body.

NOTE IMPORTANTE: Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corps.

FCC ID: 2AEU3TSGWLN

IC: 20236-TSGWLN

RCM-approved for Australia and New Zealand.

SAFETY GUIDE

Read these simple guidelines. Not following them may be dangerous or against local laws and regulations. For further information, read the user guide and visit <https://www.haltian.com>

Usage

Do not cover the device as it may prevent the device from operating properly.

Safety distance

Due to radio frequency exposure limits the gateway should be installed and operated with a minimum distance of 20 cm between the device and the body of the user or nearby persons.

Care and maintenance

Handle your device with care. The following suggestions help you keep your device operational.

- Do not open, dismantle or modify the device. Unauthorized modifications may damage the device and violate regulations governing radio devices. If the device is opened by an unauthorized representative, the warranty will be null and void.
- Do not store the device in wet or humid conditions.
- Do not drop, knock, or shake the device. Rough handling can break it.
- Only use a soft, clean, dry cloth to clean the surface of the device. Do not clean the device with solvents, toxic chemicals or strong detergents as they may damage your device and void the warranty.
- Do not paint the device. Paint can prevent proper operation.
- Failure to comply with the instructions may cause damage to the device.

Damage

If the device is damaged contact support@haltian.com. Only qualified personnel may repair this device.

Small children

Your device is not a toy. It may contain small parts. Keep them out of the reach of small children.

Interference with medical devices

The device may emit radio waves, which could affect the operation of nearby electronics, including cardiac pacemakers, hearing aids and defibrillators. If you have a pacemaker or other implanted medical device, do not use the device without first consulting your doctor or the manufacturer of your medical device. Maintain a safe distance between the device and your medical devices and stop using the device if you observe a persistent interference with your medical device.

RECYCLING

Check the local regulations for proper disposal of electronic products. The Directive on Waste Electrical and Electronic Equipment (WEEE), which entered into force as European law on 13th February 2003, resulted in a major change in the treatment of electrical equipment at end-of-life. The purpose of this Directive is, as a first priority, the prevention of WEEE, and in addition, to promote the reuse, recycling and other forms of recovery of such wastes so as to reduce disposal.

The crossed-out wheeie-bin symbol on your product, battery, literature, or packaging reminds you that all electrical and electronic products and batteries must be taken to separate collection at the end of their working life. Do not dispose of these products as unsorted municipal waste: take them for recycling. For info on your nearest recycling point, check with your local waste authority.



Innovation, Science and
Economic Development Canada

Innovation, Sciences et
Développement économique Canada



Get to know other Thingsee devices



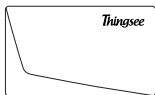
Thingsee PRESENCE



Thingsee ENVIRONMENT



Thingsee DISTANCE



Thingsee AIR



Thingsee BEAM



Thingsee ENVIRONMENT
RUGGED



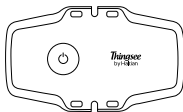
Thingsee LEAKAGE
RUGGED



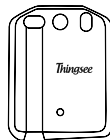
Thingsee ANGLE
RUGGED



Thingsee
COUNT



Thingsee GATEWAY
GLOBAL



Thingsee GATEWAY
LAN

For all devices and more information, visit our website www.haltian.com or contact sales@haltian.com