



GATEWAY GLOBAL

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 GLOBAL



Thingsee GATEWAY GLOBAL is a plug & play IoT gateway device for large scale IoT solutions. It can be connected anywhere in the world with its LTE Cat M1/NB-IoT and 2G cellular support. The main role of Thingsee GATEWAY GLOBAL is to ensure that data flows continuously, reliably and safely from the sensors to the cloud.

Thingsee GATEWAY GLOBAL 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.

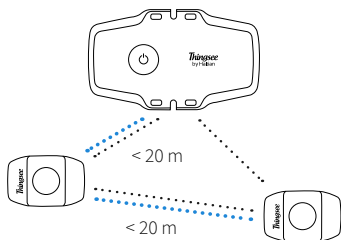
Sales package content

- Thingsee GATEWAY GLOBAL
- Includes SIM card and managed SIM subscription
- Power supply unit (micro-USB)

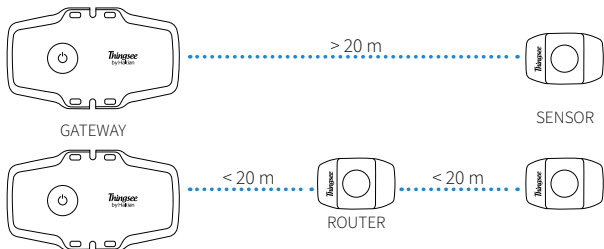
Note before installation

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.

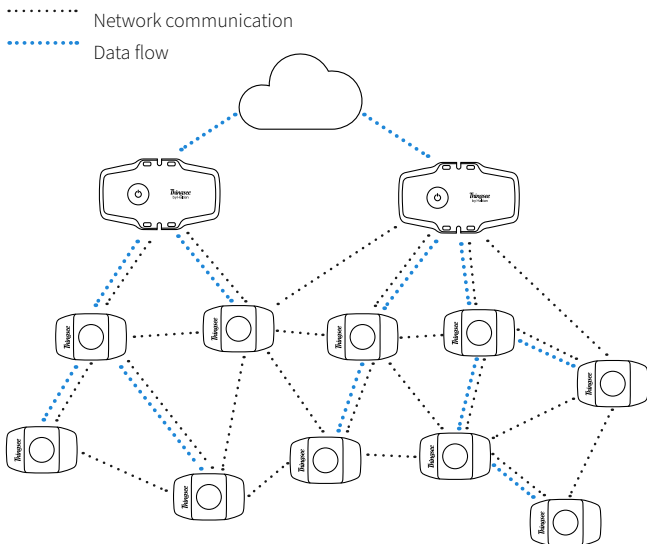


If the distance between a measuring sensor and the gateway is > 20m or if the sensors are separated by a fire door or other thick building materials, use extra sensors as routers.



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.



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.

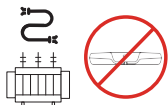
Things to avoid in installation

Avoid installing the Thingsee products near the following:

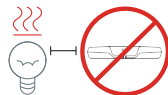
Escalators



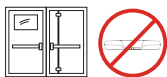
Electrical transformers or thick electrical wires



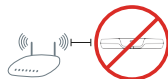
Nearby halogen lamps, fluorescent lamps or similar lamps with hot surface



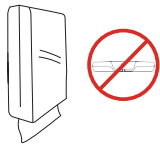
Thick concrete structures or thick fire doors



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

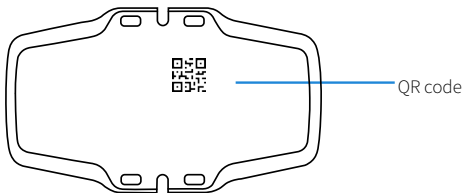
Make sure that data integration has been properly setup prior to the installation process. See link <https://support.haltian.com/howto/aws/> Thingsee data can be pulled (subscribed) from the Thingsee Cloud live data stream, or the data can be pushed to your defined end point (e.g. Azure IoT Hub before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

Installation

Please make sure the Thingsee GATEWAY GLOBAL 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.

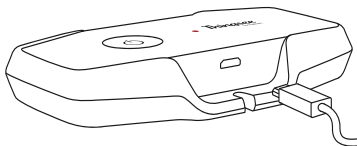
Identifying the device is not necessary, but it will help you keep track of your IoT installation and help Haltian support to solve possible issues.



To identify the device over Thingsee API, please follow the link for further information:
<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.

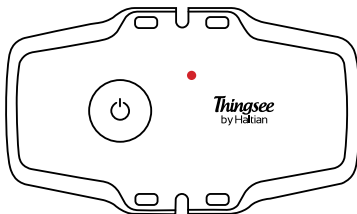
Note: always use the power source included in the sales package.



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

Thingsee GATEWAY GLOBAL is always cellular connected:
LED indication is used to provide gateway status information.

The LED on top of the device starts to blink:



- RED blink – device is connecting to mobile network



- RED/GREEN blink – device is connecting to Thingsee cloud



- GREEN blink – device is connected to the mobile network and Thingsee cloud and is operating correctly



To close the device press the Power button for 3 seconds. When released, the device starts the shutdown process, red LED indication 5 times during a 2 second period. When in shutdown state, no LED indication. To restart the device press the power button once and the LED sequence starts again.

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 and RCM compliant

BT with Wirepas mesh network support

Radio sensitivity: -95 dBm BTLE

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

Cellular networks

- LTE Cat M1/NB-IoT
- GSM 850 MHz
- E-GSM 900 MHz
- DCS 1800 MHz
- PCS 1900 MHz

Micro SIM card slot

- Includes SIM card and managed SIM subscription

LED indication for device status

Power button

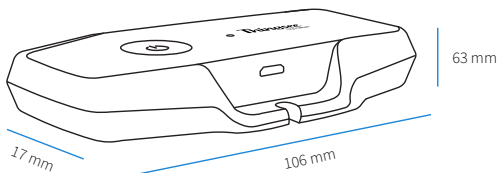
Micro USB powered

Maximum transmit power

Supported radio networks	Operating frequency bands	Max. transmitted radio frequency power
LTE Cat M1	2, 3, 4, 5, 8, 12, 13, 20, 26, 28	+23 dBm
LTE NB-IOT	2, 3, 4, 5, 8, 12, 13, 20, 26, 28	+23 dBm
2G GPRS/EGPRS	850/900 MHz	+33/27 dBm
2G GPRS/EGPRS	1800/1900 MHz	+30/26 dBm
Wirepas mesh	ISM 2.4 GHz	ISM 2.4 GHz

Device measurements

Weight:
43 g (including batteries)



CERTIFICATION INFORMATION EU DECLARATION OF CONFORMITY

Hereby, Haltian Oy declares that the radio equipment type Thingsee GATEWAY 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 on direktiivin 2014/53/EU mukainen. EU-vaatimustenmukaisuusvakuutuksen täysimittainen teksti on saatavilla seuraavassa internetosoitteessa: www.haltian.com

Thingsee GATEWAY operates at Bluetooth® 2.4 GHz frequency, GSM 850/900 MHz, GSM 1800/1900 MHz bands and LTE Cat M1/ NB-IoT 2, 3, 4, 5, 8, 12, 13, 20, 26, 28 bands. Maximum radio-frequency powers transmitted are +4.0 dBm, +33.0 dBm and +30.0 dBm, respectively.

Manufacturer name and address:

Haltian Oy
Yrtyipellontie 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: 2AEU3TSGWGBL

IC: 20236-TSGWGBL

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 whee-lie-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



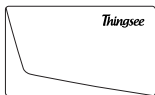
Get to know other Thingsee devices



Thingsee PRESENCE



Thingsee ENVIRONMENT



Thingsee AIR



Thingsee BEAM



Thingsee ENVIRONMENT
RUGGED



Thingsee LEAKAGE
RUGGED



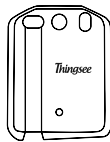
Thingsee ANGLE
RUGGED



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