Thingsee

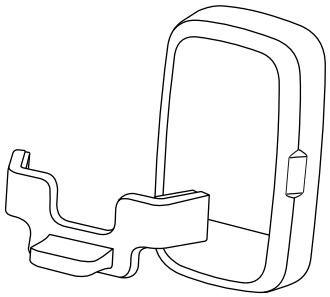
LEAKAGE RUGGED

Quick Guide

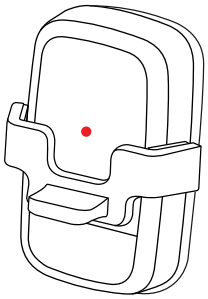
1. Identify the sensor by reading the QR code on the front of the device.

QR code

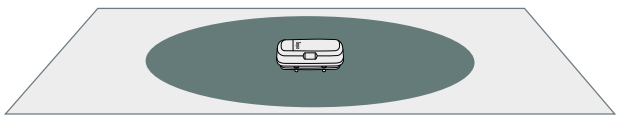
2. Switch the sensor on with Thingsee Sensor Activation Tool by holding it against the sensor as illustrated in the picture.



3. Hold the Sensor Activation Tool against the sensor until the LED indicator starts to blink brightly for one minute. When the LED goes off, the sensor is switched on.



4. Install the sensor on the floor or surface where leakages or flooding is a concern. Place the sensor pins downwards.



Continue to read the detailed installation instructions.

Watch installation video here

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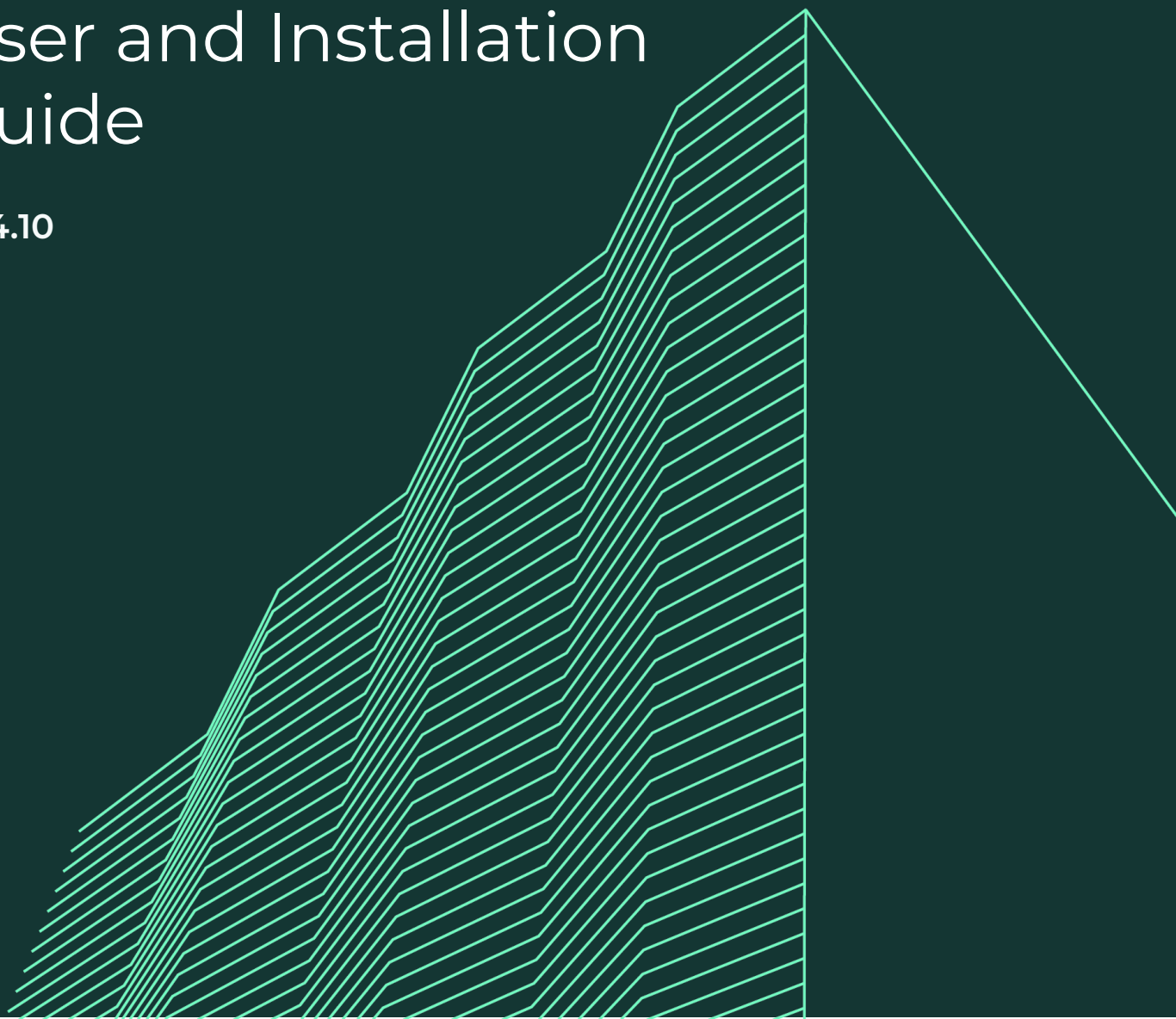
haltian.com

Thingsee LEAKAGE RUGGED

User and Installation Guide

v.24.10



Welcome to using Haltian Thingsee

We at Haltian want to make IoT simple, so we have created a solution that is easy to use, scalable, and secure. I hope it will help you achieve your business goals!

Pasi Leipälä
CEO, Haltian Oy

Thingsee LEAKAGE RUGGED

Thingsee LEAKAGE RUGGED is a wireless IoT sensor for detecting even the smallest leakages. The product has been validated to meet the IP67 rating, and it can be used to identify water leakages and measure other environmental factors in extreme conditions such as factories and even outdoors.

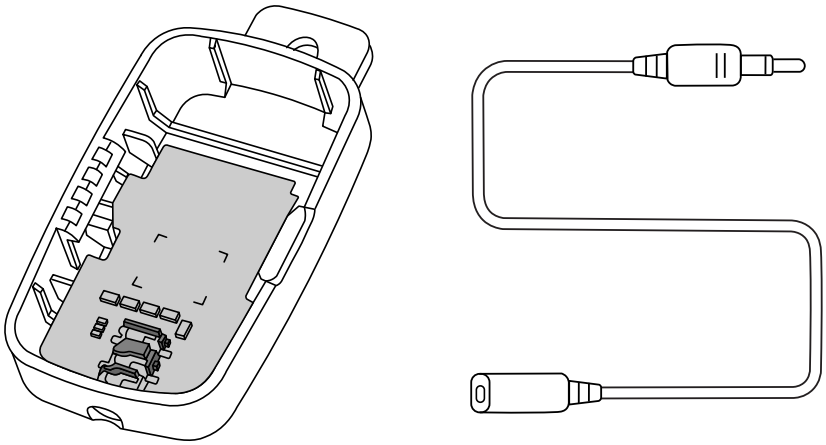
Thingsee LEAKAGE RUGGED is a part of the Haltian Thingsee IoT solution and product family.

Sales package content

- Up to 20x Thingsee LEAKAGE RUGGED sensors
- Thingsee Sensor Activation tool to switch device on
- 2 x AAA batteries for each sensor (pre-installed, non-changeable)

Accessories

- Detection Rope and Base for Thingsee LEAKAGE

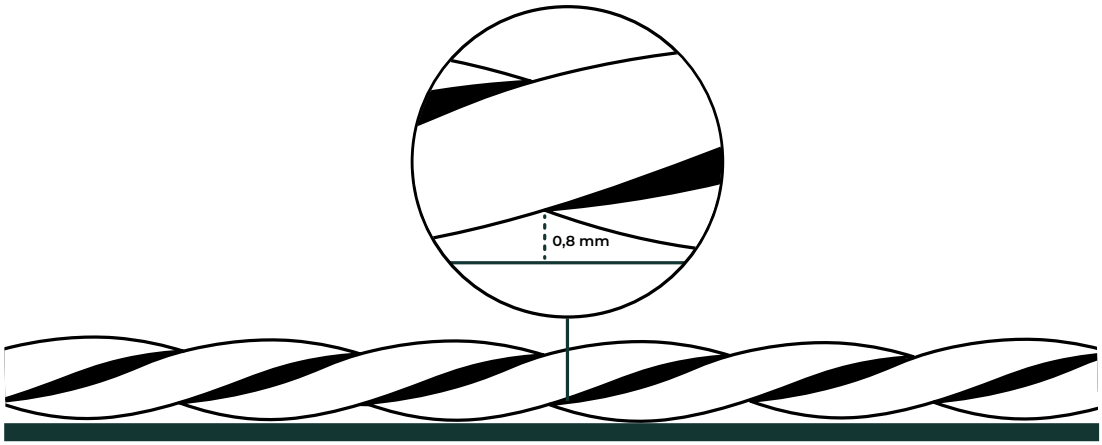


Base for Thingsee LEAKAGE is an accessory for the Thingsee LEAKAGE sensor device. Base is used to attach the Detection Rope to Thingsee LEAKAGE accessory to allow leakage detection in a larger area.

The Detection Rope detects a possible leakage through its entire length.

Detection Rope for Thingsee LEAKAGE has a female 3.5 mm AV-type connector at one end and a male connector at the other end. You can further expand the coverage area by connecting two Detection Rope cables together. The standard length of the Detection Rope is 1m. (Other lengths can be made available on request).

The Detection Rope features a spiral structure composed of two conductive detection lines pressed around the central axis. When the Rope is fixed on the installation surface, there's a gap of 0.8mm between the detection line and the detection level as illustrated in the picture below.



Using Thingsee LEAKAGE RUGGED sensor

Overview:

Thingsee LEAKAGE RUGGED is designed to detect the presence of water beneath the device. It activates when water covers the two detection pins located at the bottom of the sensor (effective in water layers wider than 2.4 cm).

Placement:

For optimal results, position the sensor pins down in areas prone to water collection or where leaks are likely to occur first. For larger areas, consider using multiple sensors to ensure comprehensive coverage.

Applications:

This sensor is suitable for:

- Spaces where only small detection probes fit, such as narrow or corner areas.
- Locations such as drain pans, floor drains, and pits.
- Areas where water is likely to accumulate initially.

Operation:

Thingsee LEAKAGE RUGGED must contact a sufficient amount of water to trigger an alarm. Always verify that water flows to the sensor's location either visually or through testing before installation.

Functionality:

The sensor employs event-based messaging. It is set to report changes in water presence immediately, and stable conditions are reported hourly.

Suitability:

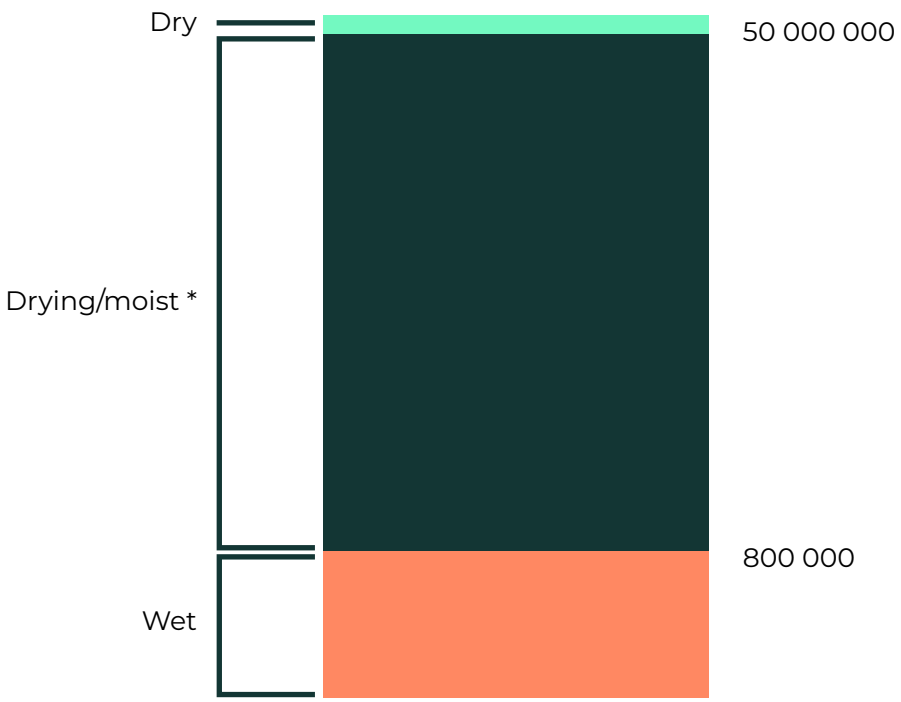
The Thingsee LEAKAGE RUGGED is specifically engineered for water leak detection. It should not be used with hazardous chemicals, solvents, oil, fuel, strong acids, or other corrosive substances. Performance may vary with different liquids; for instance, responses differ between tap water and seawater. Regular checks are recommended if a significant drop in measurement values is observed.

Data Interpretation:

In dry conditions, the Thingsee LEAKAGE typically reports a value of 50,000,000. Adjustments to the baseline and alert levels may be necessary depending on the specific installation environment.

Refer to the included illustration showing various values reported by the Thingsee LEAKAGE under different conditions without the Base and Detection Rope.

Thingsee LEAKAGE (without Rope & Base):



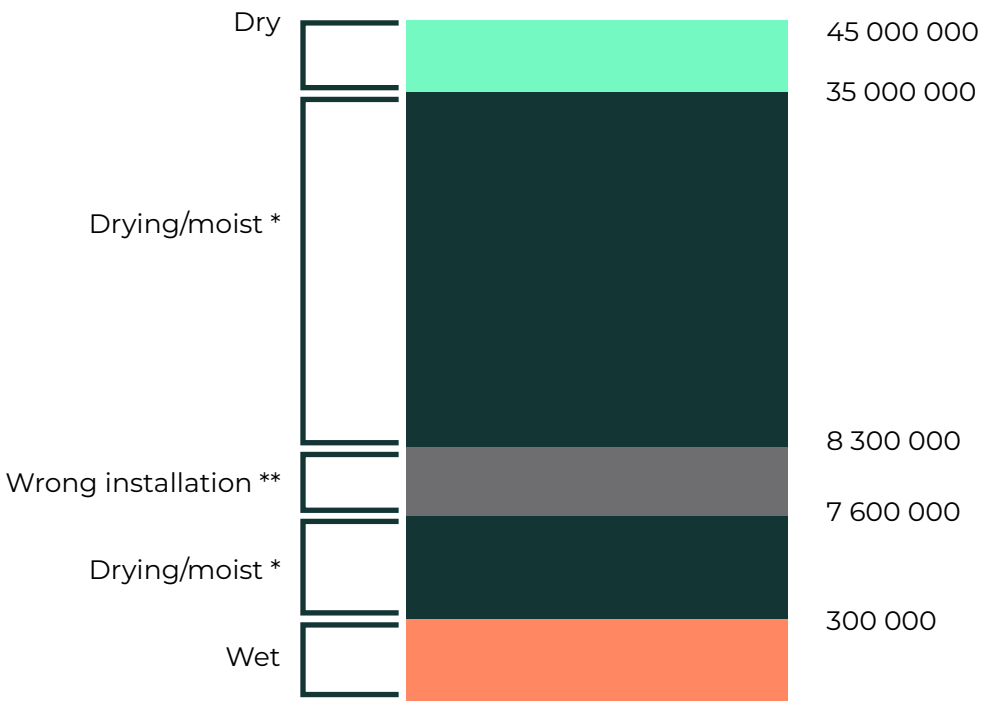
* When the sensor's surface is wet and beginning to dry, you can expect to see values ranging from 800,000 to 50,000,000. Similar readings may also occur if the sensor's pins are in direct contact with a conductive surface, such as metal or moisture-laden concrete with conductive additives.

To avoid false readings, it's crucial to use the included tape to slightly elevate the pins above the mounting surface. This ensures more accurate detection and helps prevent direct contact with conductive materials.

Base for Thingsee LEAKAGE detects if the Detection Rope is missing, alerting users to improper installations; the Base must never be used without the Rope attached. When the Base and Detection Rope are attached to Thingsee LEAKAGE, the value this device combination reports is between 35 000 000 and 45 000 000 in dry conditions.

The illustration below shows the different values reported by Thingsee LEAKAGE when using the Base and Detection Rope.

Thingsee LEAKAGE with Rope & Base:



* Expect values between 300,000 and 35,000,000 when surfaces are drying. However, readings between 7,600,000 and 8,300,000 suggest an incorrect installation.

** Thingsee Leakage with base but no rope attached.

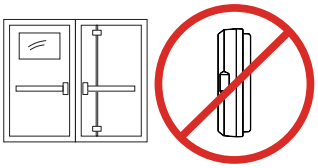
To avoid false readings, make sure the installation surface is clean and free from debris, dirt, sticky residues, water spots, or other impurities that may be conductive and cause false positive values.

Installation

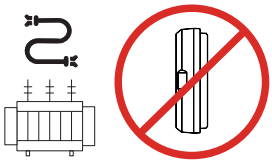
Things to avoid in installation

Avoid installing Thingsee products near the following:

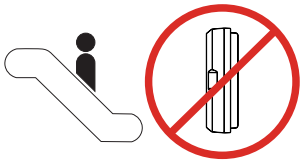
1. Thick concrete structures or thick fire doors.



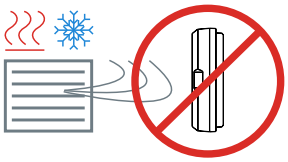
2. Electrical transformers or high power or voltage cables.



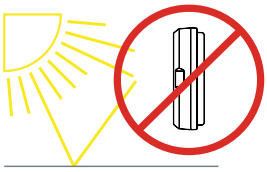
3. Escalators.



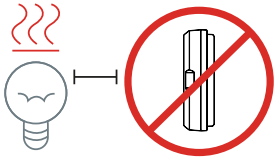
4. Nearby heating or cooling devices and/or vents.



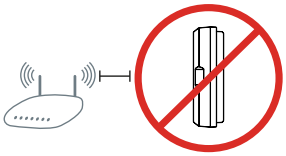
5. Direct sun light.



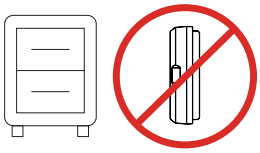
6. Nearby halogen lamps, fluorescent lamps or similar lamps with hot surface.



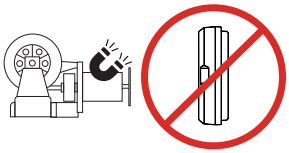
7. Nearby radio equipment like WiFi routers or any other similar high power RF transmitters.



8. Inside or underneath a metal cabinet or box.



9. Near elevator motors or similar targets causing a strong magnetic field.



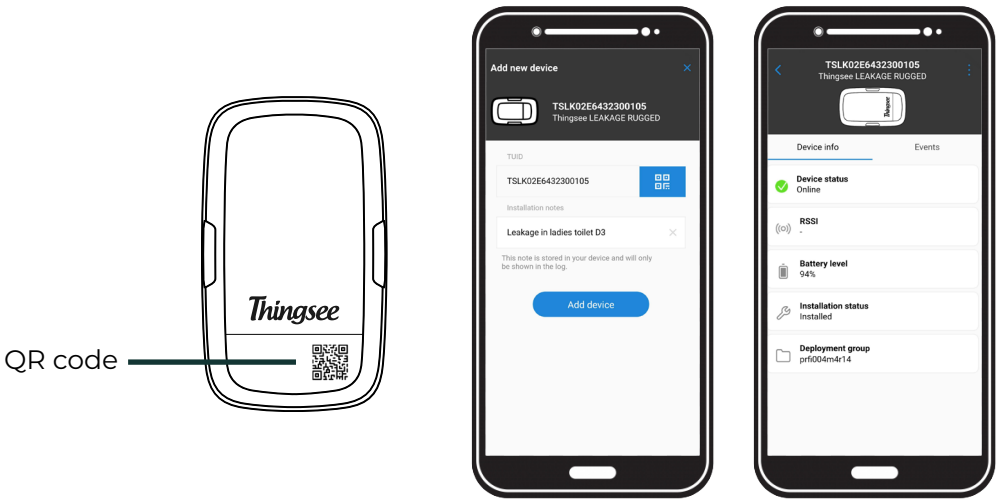
Note before installation

Before installing the sensors, make sure the Thingsee gateway device is installed and connected to a mobile network (LED blinking green).

Preparing the Sensor for installation:

Identifying the Sensor:

Scan the QR code on the front of the device using a QR code reader or the Thingsee Toolbox app on your mobile device. While this step is optional, it assists in managing your IoT setup and facilitates support from Haltian should issues arise.

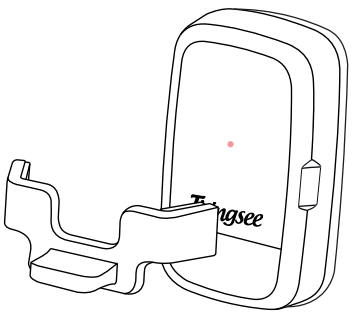


Initial state:

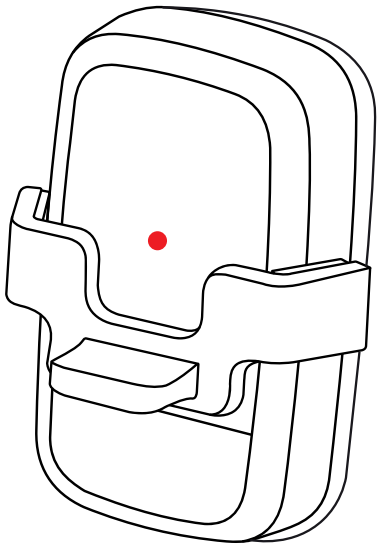
Before installation, the sensor is in low power mode, indicated by a dimly blinking LED every second.

Activating the Sensor:

Use the Thingsee Sensor Activation Tool by holding it against the sensor's magnetic switch. Keep it in place until the LED indicator blinks brightly for one minute.



The sensor is ready once the bright blinking stops and the LED turns off, indicating that the sensor is switched on and fully operational.



Installing the sensor on the floor

1. **Choose the Right Location:**

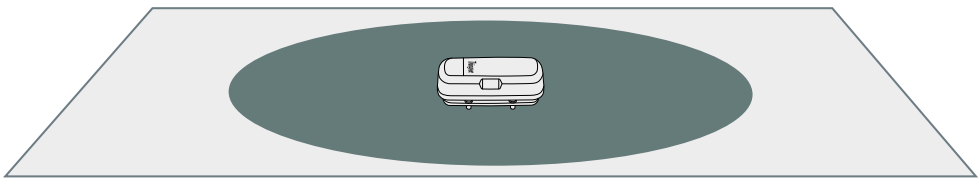
Place the sensor on the floor or any surface where leakages, moisture, or flooding may occur.

2. **Prepare the Surface:**

Ensure the installation area is clean and free from debris, dirt, sticky residues, water spots, or other impurities.

3. **Secure the Sensor:**

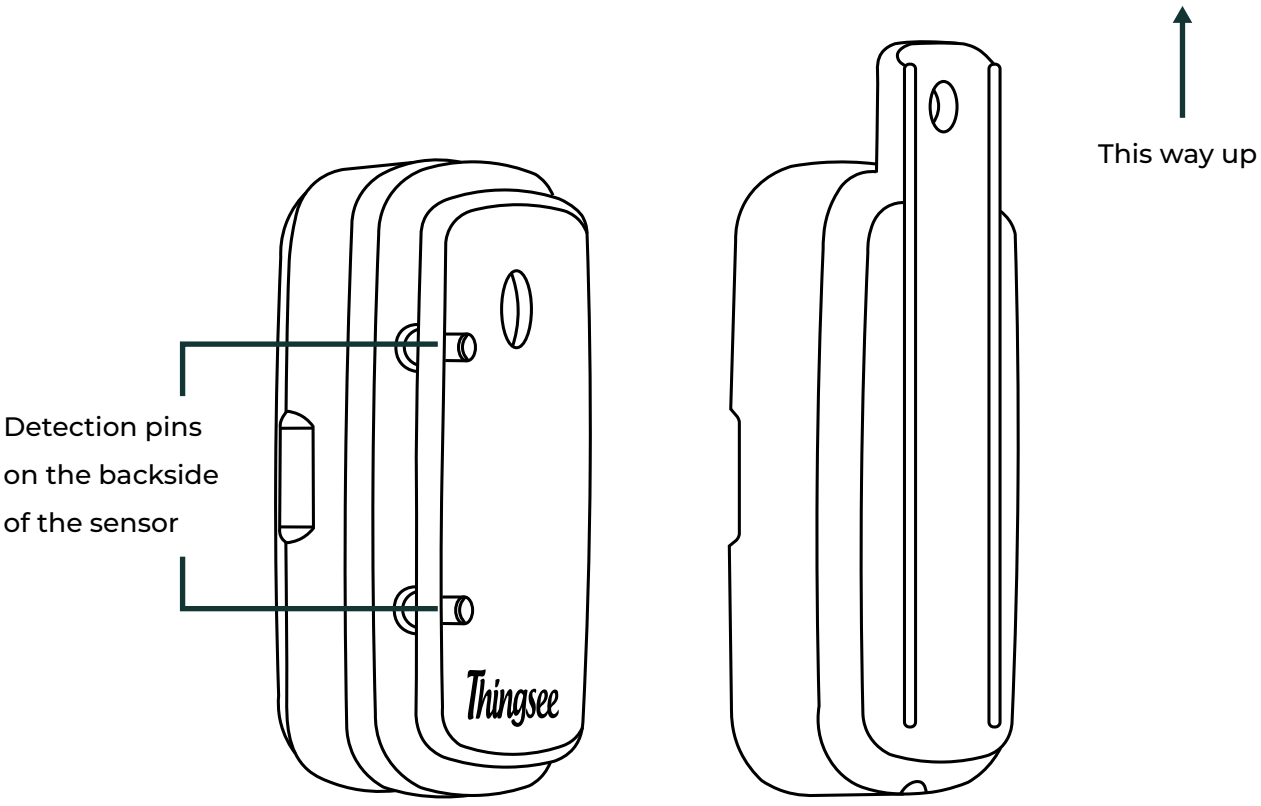
Use the provided adhesive tape to attach to the bottom of the device. This helps elevate the sensing pins above the monitored surface for accurate detection.



Installing the Thingsee LEAKAGE Sensor with Base and Detection Rope accessories

Attach the Base Accessory:

- Begin by snapping the Base accessory onto the Thingsee LEAKAGE sensor. Start from the side opposite the detection pins and then snap on the pins' side. Press firmly until you hear a click.
- Ensure the Base is correctly oriented: the 'Thingsee' logo should be upright, with the screw attachment pointing upwards, as illustrated.



Thingsee LEAKAGE Sensor Thingsee LEAKAGE Base

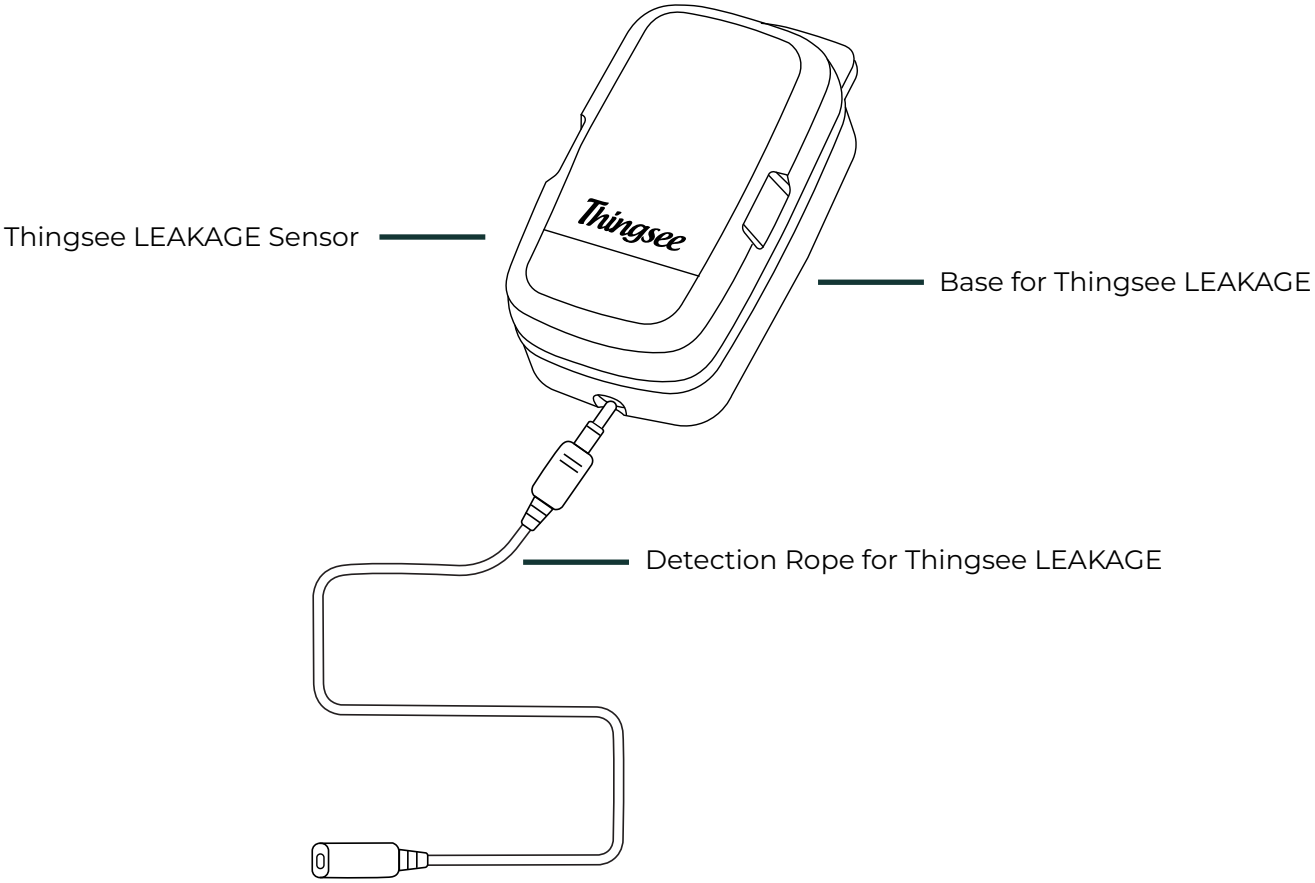
Connect the Detection Rope:

- Insert the Detection Rope into the designated port on the Base accessory.

Position the Device:

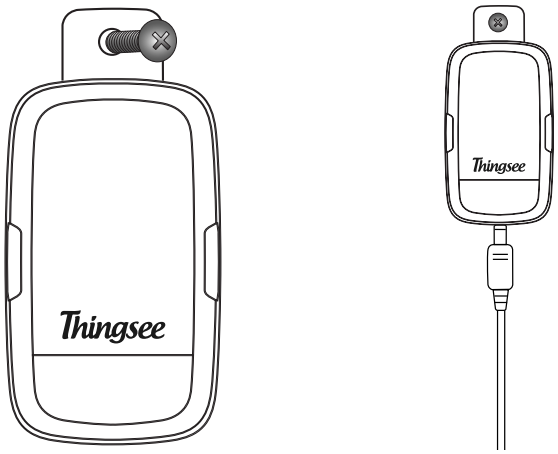
- Choose a location for the sensor setup where you anticipate potential leakages. Secure the device using screws or zip ties.

Note: Install the Base at a height to avoid direct water contact, as it is not waterproof. The Detection Rope should be laid directly on the monitoring surface. Ensure there is some slack in the Detection Rope to allow for proper laying.



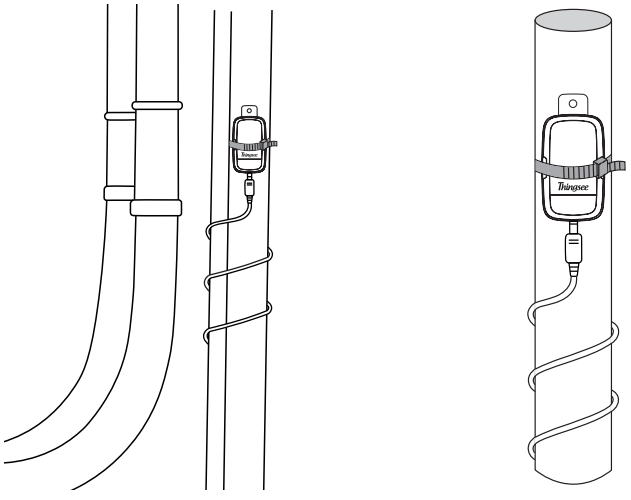
Using the Sensor with Detection Rope:

- **Flexible Placement:** The sensor setup can be coiled around pipes, laid alongside walls, or positioned on the ground.
- **Surface Preparation:** Ensure the installation area is clean and free from dirt, sticky residues, and other impurities. These substances may be conductive, potentially causing false-positive alerts if they bridge the gap between the detection line and the installation surface.
- Ensure the Detection Rope is thoroughly dried out after a leak has occurred.
- **Secure Mounting:** For added stability, mount the device on a wall using screws. Attach the Detection Rope extensively to monitor a larger area.



Dos and Don’ts for Detection Rope Usage:

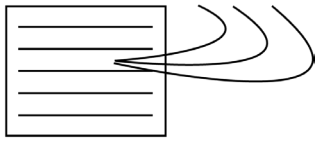
- **Pipe Installation:** You can secure the device to a pipe using cable ties and then circle the Detection Rope around the pipe below it to detect leaks.



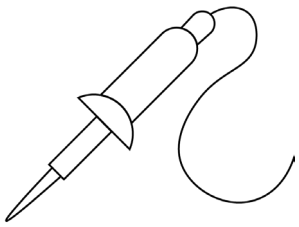
- **Do Not** install in high-traffic areas, near sharp objects, or under heavy items.

- **Do Not** paint the device.

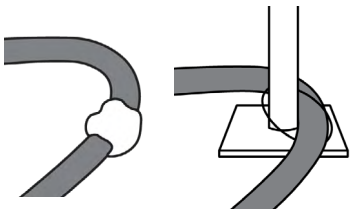
- **Positioning:** Avoid placing near air-conditioning vents or overly damp areas to prevent false alarms.



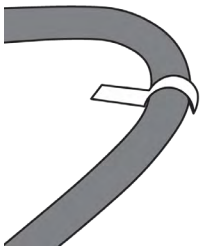
- **Avoid:** Soldering, or welding near the device.



- **Avoid:** Using glue, adhesive tapes, or metal clips that may interfere with detection sensitivity.



- **Installation Aids:** Use self-adhesive or screw-type U clips to secure the Detection Rope to the mounting surface.



- **Maintenance:** Inspect the Detection Rope regularly, at least every 12 months. It should be free of dust and contaminants and thoroughly dried after any leak detection.

Further Support:

- For additional installation aids like fixing clips, contact Haltian for purchases and confirm the appropriate type of fixing needed for your setup.

Detection capability

- Electrical resistance values between 10 000 – 50 000 000 units
- The operation temperature range is -20 °C to +50 °C. Below 0°C battery life time is reduced. The temperature measurement accuracy is ±0,3 °C.
- Accelerometer reports orientation or vibration count in machine usage monitoring mode from 128 mG - 16 G. Note that Thingsee devices are not meant to withstand continuous, high vibration.
- Magnetic sensor to start device from initial sleep mode.

Default measurement and reporting

- Event based reporting
  - Measure the following values every 30 seconds:
  - Resistance
  - Temperature
  - 3-axis acceleration
- Reports values when either
  - Resistance decreases or increases by 10000 units
  - Temperature has changed more than 0,5 Celsius degrees
  - Accelerometer when orientation changes more than approx. 5 degrees
  - Event-based messaging is always triggered by comparison to the previous reported value
- Time based reporting
  - Adjustable, by default reports all the measured values every 1 hour

Other default settings

- Battery reporting interval 6 hours

Device info

Operating temperature -20 °C ... +50 °C when using Thingsee LEAKAGE RUGGED only
Operating temperature 0 °C ... +50 °C when using with Base and Detection Rope accessories
Operating humidity 0 % ... 100 % RH non-condensing
Storage temperature +5 °C ... +25 °C
Storage humidity 45 % ... 85 % RH non-condensing
IP rating for Thingsee LEAKAGE RUGGED device: IP67
Certifications: CE, UKCA, FCC, ISED, RoHS and NOM + NYCE, IFT compliant
Battery type: 2 x AAA, alkaline, non-changeable
Expected battery life:

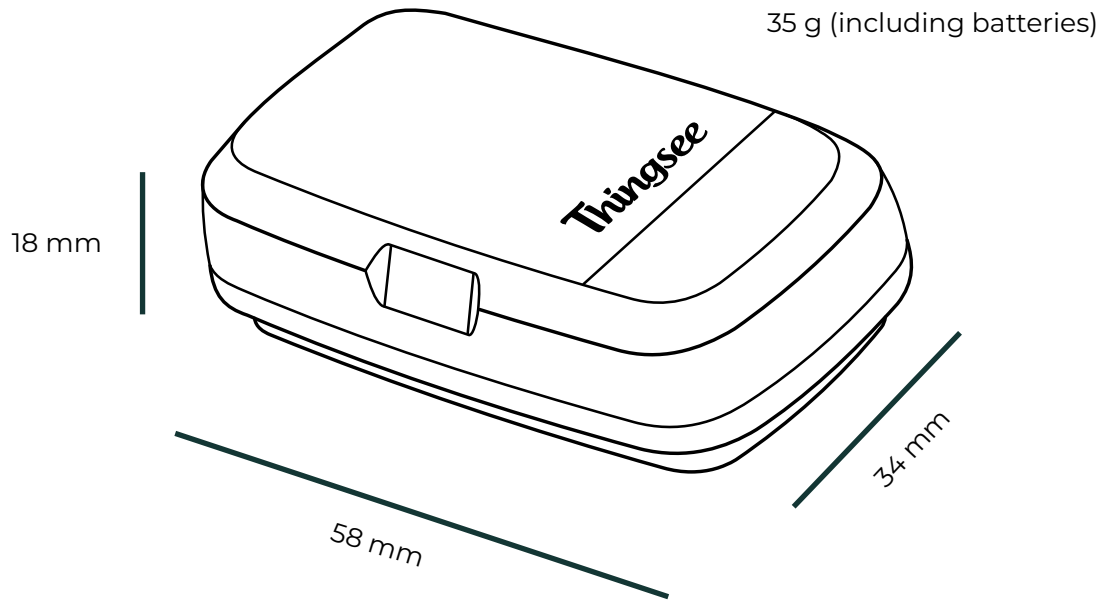
- Up to 3 years with default functionality (30sec measurement interval)
- Up to 4 years with 5 min measurement interval
- Up to 5 years with 15 min measurement interval

Radio sensitivity: -95 dBm (BTLE)

More device info can be found at support.haltian.com

Device dimensions

Weight:
35 g (including batteries)



CERTIFICATION INFORMATION
EU DECLARATION OF CONFORMITY

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

Haltian Oy vakuuttaa, etta radiolaitetyyppi Thingsee LEAKAGE RUGGED on direktiivin 2014/53/EU mukainen. EU-vaatimustenmukaisuusvakuutuksen täysimittainen teksti on saatavilla seuraavassa internetosoitteessa: support.haltian.com

Hereby, Haltian Oy declares that the radio equipment type LEAK is in compliance with the UK relevant statutory requirements (Radio Equipment Regulations 2017 (SI 2017 No. 1206)). The full text of the declaration of conformity is available at the following internet address: support.haltian.com

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

Manufacturer name and address:
Haltian Oy Yrttipellontie 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 and 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 nor me CNR-247 d'Innovation, Sciences et Développent 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 220 cm entre le radiateur et votre corps. FCC ID: 2AEU3TSLEAK

IC ID: 20236-TSLEAK

Modelo: ANATEL: 04473-24-16620
Para maiores informações, consulte o site da ANATEL www.gov.br/anatel/pt-br
Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados. Este produto não é apropriado para uso em ambientes domésticos, pois poderá causar interferências eletromagnéticas que obrigam o usuário a tomar medidas necessárias para minimizar estas interferências.

La operación de este equipo está sujeta a las siguientes dos condiciones: (1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2) este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.
No se recomienda el uso de este producto a una distancia menor a 20cm del cuerpo humano.

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 www.haltian.com

Usage
Do not cover the device as it prevents the device from operating properly.
- This product is intended for for both in- and outdoor use.
  - Do not modify the device. Unauthorized modifications may damage the device and violate regulations governing radio devices.
- Do not store the device in wet or humid conditions.
  - The device should be stored in a dry place and at room temperature. Avoid large temperature changes and direct sunlight. At higher temperature the electrical performance of the batteries may be reduced.

Care and maintenance
Handle your device with care. The following suggestions help you keep your device operational.
- Do not open the device.
- Unauthorized modifications may damage the device and violate regulations governing radio devices.
- 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.

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.

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 wheelie-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.

Sensor de Fugas (Thingsee LEAKAGE RUGGED)
Marca: Thingsee
Modelo: LEAK
Fabricante: Haltian Oy
2 pilas alcalinas AAA
Hecho en Finlandia
IFT CETHLE24-27072

Innovation, Science and Economic Development Canada
Innovation, Sciences et Développement économique Canada

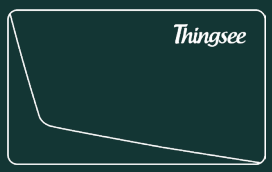
Get to know all our Haltian devices

Thingsee
PRESENCE

Thingsee
ENVIRONMENT

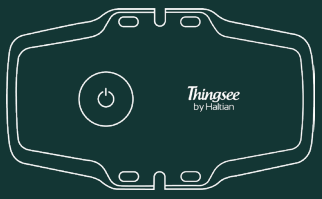
Thingsee ENVIRONMENT
RUGGED

Thingsee LEAKAGE
RUGGED

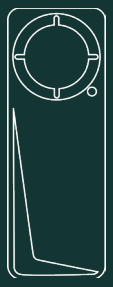


Thingsee
AIR

Thingsee
BEAM



Thingsee GATEWAY
GLOBAL



Haltian
RADAR

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