



## Field Installation Guide & Plan Overview

REV 5

September 13<sup>th</sup>, 2017

## Introduction

The SENSIT vehicle detection system facilitates accurate measurement on occupancy of individual parking spaces in car parks, and on-street parking spaces. This information can be used to guide traffic to free parking spaces but can also be used for on-street parking enforcement and overstay detection. For on-street enforcement the number of occupied parking spaces can be compared with the number of payments realized by the pay station. For overstay detection the system alerts instantly a parking officer to the presence of nearby overstaying vehicles. Based on this information you can exactly determine which space to enforce.

All the SENSIT vehicle detection sensors are featured with detection and communicate wireless, creating their own network. The SENSIT sensors do not require power wiring, in contrast to conventional systems that require wiring throughout the car park and mounting onto the ceiling.

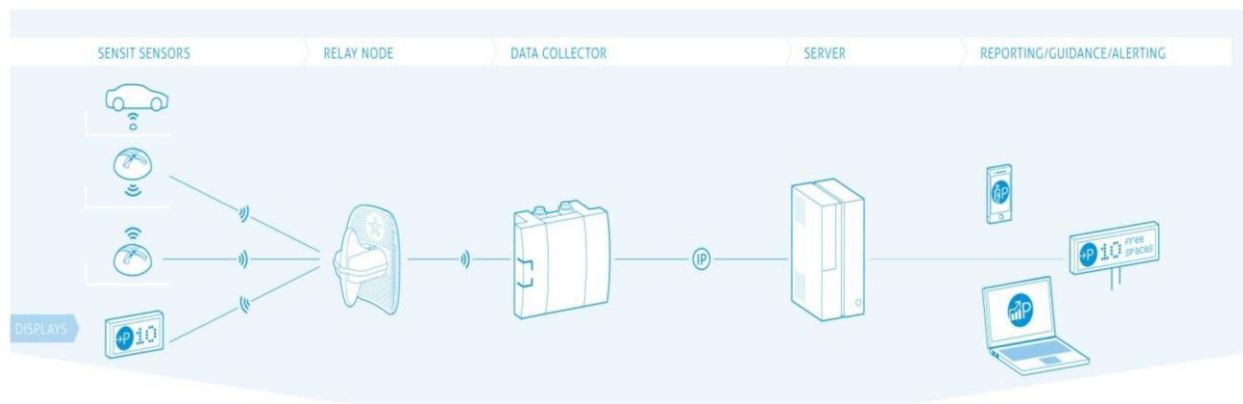
Easy installation of the sensors is guaranteed. Once installed no maintenance is required for years. The actual status (occupancy) of the sensor is transmitted to the Relay Node, which is part of the wireless mesh network.

Different types of ruggedly designed sensors are available to accommodate installation in indoor car parks, on-street spaces and road surfaces.

## Sensit System

### Architecture

The actual status (occupancy) of the SENSIT sensors is finally collected by one or more Data Collector. The SENSIT sensors transmit their status via one or more Relay Nodes to the Data Collector. The Data Collector is the interface between the wireless sensors network and the SENSIT Interface Software running on the server. The Data Collector transmits status information about the sensors to the server using TCP/IP via Ethernet or GPRS communication.



## Wireless Vehicle Detection Sensors

### SENSIT

#### Key Features

- Self-healing network
- Extreme accurate detection
- Dual detection technology
- Easy installation into any parking space
- Vandal resistant installation
- Resistant to snow ploughs

Nedap's wireless vehicle detection sensors efficiently measure occupancy of individual parking spaces without complex or time consuming installation.

The wireless vehicle detection sensors are installed in each parking space. The system is based on self-healing wireless mesh network of vehicle detection sensors designed to detect vehicle presence in individual parking spaces.

#### Wireless Detection and Communication

The unique feature of the sensors is its capacity to communicate wireless with each other. Easy installation of the wireless space count sensors is guaranteed. Once installed no maintenance is required for years. The actual status (occupancy) of the sensor is transmitted to the Relay Node, which is part of the wireless mesh network.



#### Earth Magnetic Field and Resistant Detection

The SENSIT sensors features earth magnetic field and infrared detection. The combined detection effectively detects vehicles using a sophisticated algorithm to ensure detection is invulnerable to snow, dirt and leafs.

Different types of ruggedly designed sensors are available to accommodate installation off-street parking, on-street spaces and road surfaces.

#### Applications

The system facilitates accurate measurement on occupancy of individual parking spaces. This information can be used to guide traffic to available parking spaces but can also be used for on-street parking enforcement and overstay detection.

## SENSIT IR

*Vehicle detection sensor featured with dual-detection technology allowing for vandal resistant installation into a parking space*

- Dual detection technology
- Vandal resistant mounting



TECHNICAL INFORMATION	SENSIT IR
OPERATION FREQUENCY	902 – 928 MHz (FHSS)
DETECTION	Magnetic and Infrared
MOUNTING	Into the ground
LOAD RESISTANCE	Heavy traffic
MOUNTING DIMENSIONS	3.07 in, 2.16 in into ground, 0.79 in above ground
WEIGHT	365 gram – 12.87 oz.
PROTECTION	IP67, completely sealed Housing PE
COLOR	Default black (optional yellow)
OPERATING TEMPERATURE	-40... +185 F
DETECTION HEIGHT	0... 35.5 in
POWER SUPPLY	Built in lithium battery

## SENSIT Surface Mount

*Vehicle detection sensor designed for car parks where drilling is not allowed or non-permanent mounting is required.*

*The unit is suitable for indoor car parks and rooftop parking's. The sensor can easily be glued onto the surface. Replacement can be achieved by removing the sensor installed in the mounting ring.*

*The SENSIT Surface Mount is featured with dual detection technology (infrared and earth-magnetic field).*



TECHNICAL INFORMATION	SENSIT Surface Mount
OPERATION FREQUENCY	902 – 928 MHz
DETECTION	Magnetic and Infrared
MOUNTING	Glued onto the ground
SNOWPLOUGH RESISTANT	Partial (rubber blade only)
LOAD RESISTANCE	Regular traffic
MOUNTING DIMENSIONS	Mounting ring: 9.45 in Sensor: 6.57 in and 1.38 in height
WEIGHT	16.05 oz.
PROTECTION	IP67, completely sealed Housing PE
COLOR	Sensor black Mounting ring yellow (optional black)
OPERATING TEMPERATURE	-40... +185 F
DETECTION HEIGHT	0... 35.5 in
POWER SUPPLY	Built in lithium battery

## SENSIT Flush Mount

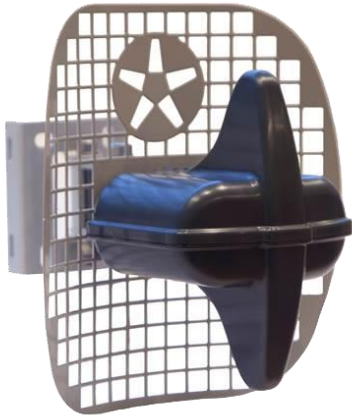
*Vehicle detection sensor for flush mount installation in the road surface. The sensor is resistant to snow ploughs and offers vandal resistant installation. The SENSIT Flush Mount is featured with earth-magnetic field detection.*

- Earth magnetic detection
- Snow plough resistant
- Vandal resistant mounting



TECHNICAL INFORMATION	SENSIT Flush Mount
OPERATION FREQUENCY	902 – 928 MHz
DETECTION	Magnetic
MOUNTING	Into the ground, flush with the surface
SNOWPLOUGH RESISTANT	Yes
LOAD RESISTANCE	Heavy traffic
MOUNTING DIMENSIONS	3.07 in and 2.09 into the ground fully flush with the road surface
WEIGHT	12.35 oz.
PROTECTION	IP67, completely sealed Housing PE
COLOR	Black
OPERATING TEMPERATURE	-40... +185 F
DETECTION HEIGHT	0... 35.5 in
POWER SUPPLY	Built in lithium battery

## Relay Node 2G



### Key Features

- Fast communication network
- Self-healing network
- Easy mounting onto a pole
- No wiring required

Relay Node 2G allows for communication increase and ensures a robust and reliable communication network. It ensures fast transmission of event messages from the vehicle detection sensors to the Gateway.

### Wireless Communication

Relay Node 2G is a fully wireless unit, ensuring easy installation onto lampposts. Once installed, no maintenance is required for years.

### Self-Healing Network

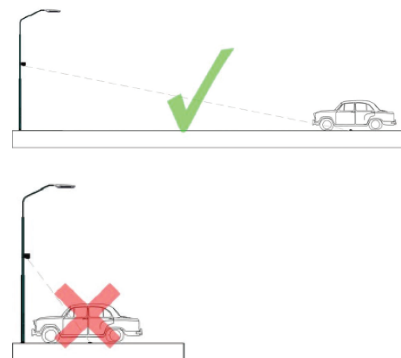
The SENSIT sensors follow multiple communication paths ensuring a self-healing network.

### Mounting Instructions

The Relay Node mounting bracket fits any pole. It can also be mounted onto a wall.

### Installation

Relay Node 2G should be mounted preferable at about 10-20 ft. from the floor (e.g. onto a lamppost) to allow for visible view of the sensors. The Relay Node shall visually see the sensors at an angle.





## SPECIFICATIONS

TECHNICAL INFORMATION	Relay Node 2G
OPERATING FREQUENCY	902-928 MHz
WEIGHT	12.87 oz.
PROTECTION	IP65
MOUNTING	Onto a pole, lamppost or wall, mounting bracket included
SUGGESTED MOUNTING HEIGHT	10-20 ft. from the ground onto a lamppost or pole
POLE DIMENSIONS	Min. 1.57 in Max. 6 in
WALL MOUNTING	With bracket using 4 screws
OPERATING TEMPERATURE	-40... +185 F
POWER SUPPLY	Replaceable lithium batteries

# SENSIT Gateway

## *Key Features:*

- Interface between wireless SENSIT network and IPsens Software.
- Bidirectional communication with all components of the wireless mesh network.
- 3G, Ethernet and GPRS Communication
- Event buffering



The SENSIT Gateway is the interface between the SENSIT sensors, the Relay Node and the SENSIT Software. The Gateway collects real-time status data from the individual sensors via the Relay Node through the wireless mesh network.

### **Automated Data Collection**

The SENSIT Gateway offers 3G, GPRS and Ethernet communication. It automatically inserts all the collected data via the Cloud Host into the IPsens Software.

### **Bidirectional communication**

The Gateway allows operation, maintenance and configuration the SENSIT equipment in the wireless mesh network using bidirectional communication with the systems components.

### **Event Buffering and Security**

To prevent data loss, event buffering is provided by the Gateway. It ensures data reliability in all circumstances. All communication between the SENSIT Gateway and the Cloud Host is encrypted (SSL).

### **Back-up Battery**

Optionally, a SENSIT Back-up Battery is available to ensure the wireless SENSIT network remains operational even in case of power failure. This battery pack can be connected directly to the Gateway. This

Enables the Gateway to connect to a lamppost.

## SPECIFICATIONS



TECHNICAL INFORMATION	GATEWAY
OPERATING FREQUENCY	902-928 MHZ
DIMENSIONS HOUSING	9.9 x 3.5 x 9.9 in
WEIGHT	65 oz.
PROTECTION	IP65
OPERATING TEMPERATURE	-40 F... + 149 F
STORAGE TEMPERATURE	-40 F...+ 149 F
COLOR	Aluminum & dark blue side covers RAL5011
COMMUNICATION RANGE	<i>The nearest Relay Node should be positioned within 82 ft of the Gateway. It is possible to install multiple Gateways in one parking facility</i>
COMMUNICATION INTERFACES	3G/GPRS (SIM card provided). Ethernet
POWER INPUT	100-240Vac, 50-60 Hz, 15 VAC
ANTENNA CONNECTION	Antenna included

## How to Install the Sensit System in 3 Steps

### 1. Preparation

- Identify in a scaled map parking spaces and street inventory. Including any light pole or other posts which could be used for mounting Relay Nodes and Gateways. Architectural scale plans are preferred
- In case of an availability system with signage. Identify in scale map location for signage and all entry/egress access points. Architectural scale plans are preferred
- Lay-out plan for preferred zones and individually numbered spaces on architectural plans and provided to IPsens
- IPsens will lay-out a final plan for placement of Relay Nodes and Gateway locations for system network coverage
- IPsens will provide final Bill of Material quotation to replace any initial pricing estimates

### 2. Gateway & Relay Node Installation

- Install and power up the Gateway according the plan
- Activate and install the Relay Nodes according the plan
- Write the ID numbers of the Gateway and Relay Nodes at the right location in the site plans/map
- Confirm with IPsens that all Gateway and Relay Nodes are online

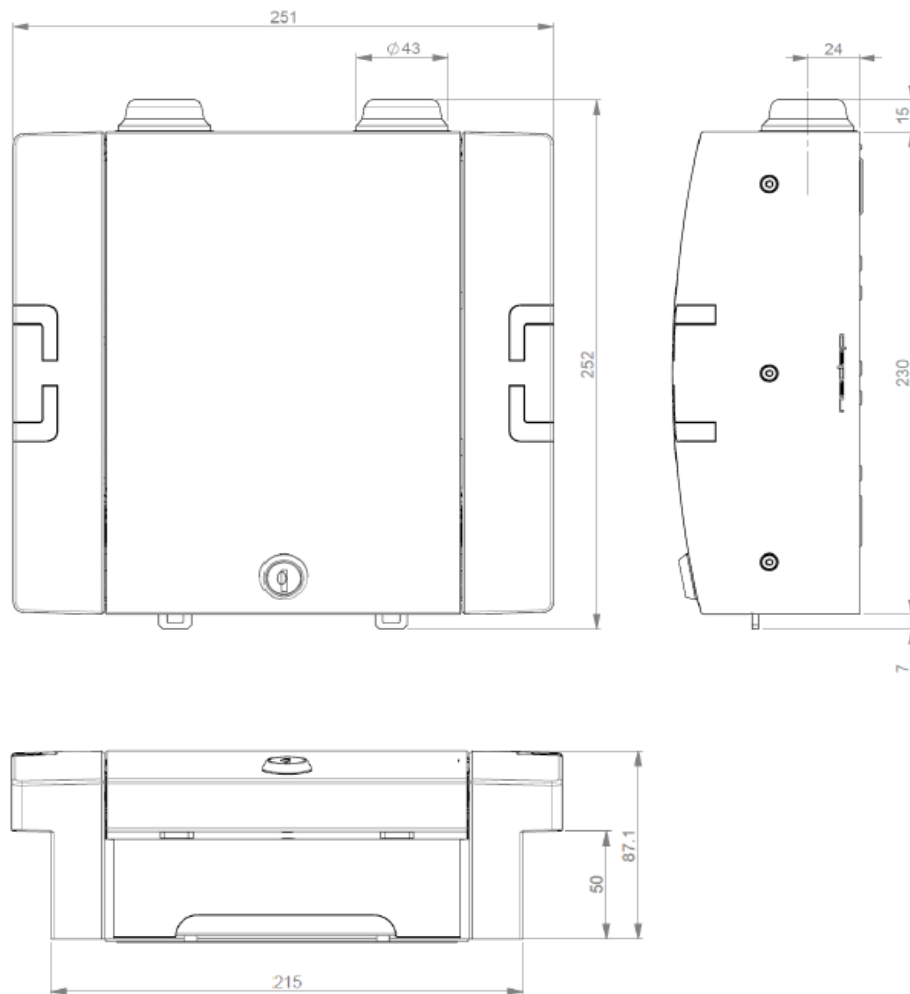
### 3. Sensit Installation

- Clear the parking area from all vehicles
- Mark the right location at the road surface with a piece of chalk or paint
- Distribute sensors at the site, to be installed and activate with Sensit Magnet
- Make a list of the correct ID numbers and space number
- Verify with IPsens if all the Sensit sensors are online
- Drill the holes and glue the sensors
- Calibrate the Sensit sensors without cars or metal tools in the neighborhood of the Sensit

## Gateway - Installation

### Mounting

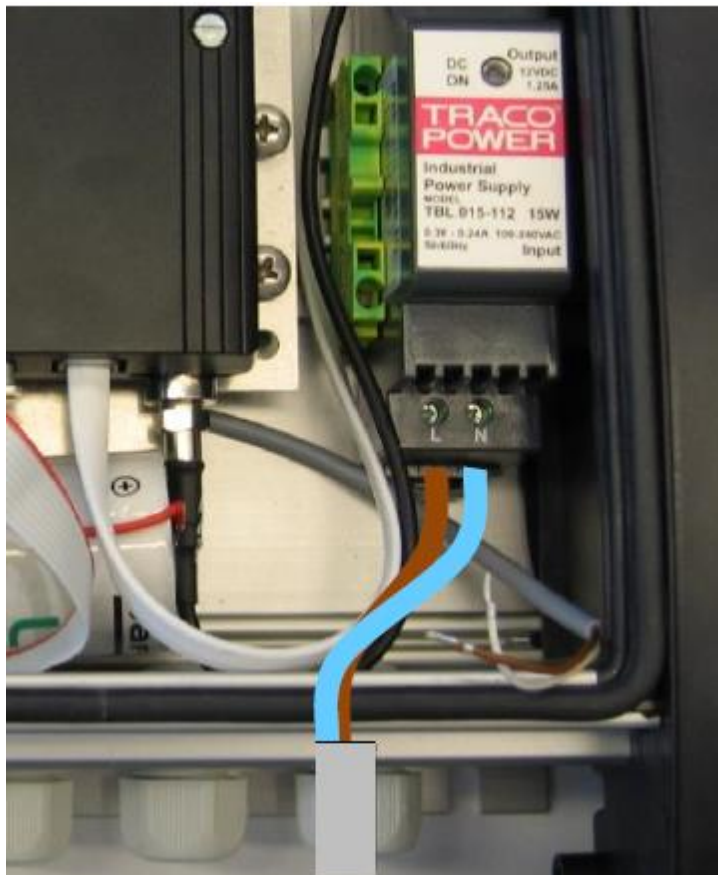
The SENSIT Gateway can be installed virtually anywhere due to its IP65 weatherproof housing and embedded 3G wireless modem. The only requirements are an AC mains power supply and that it should be installed within reach of the SENSIT wireless network.



## AC Power Supply

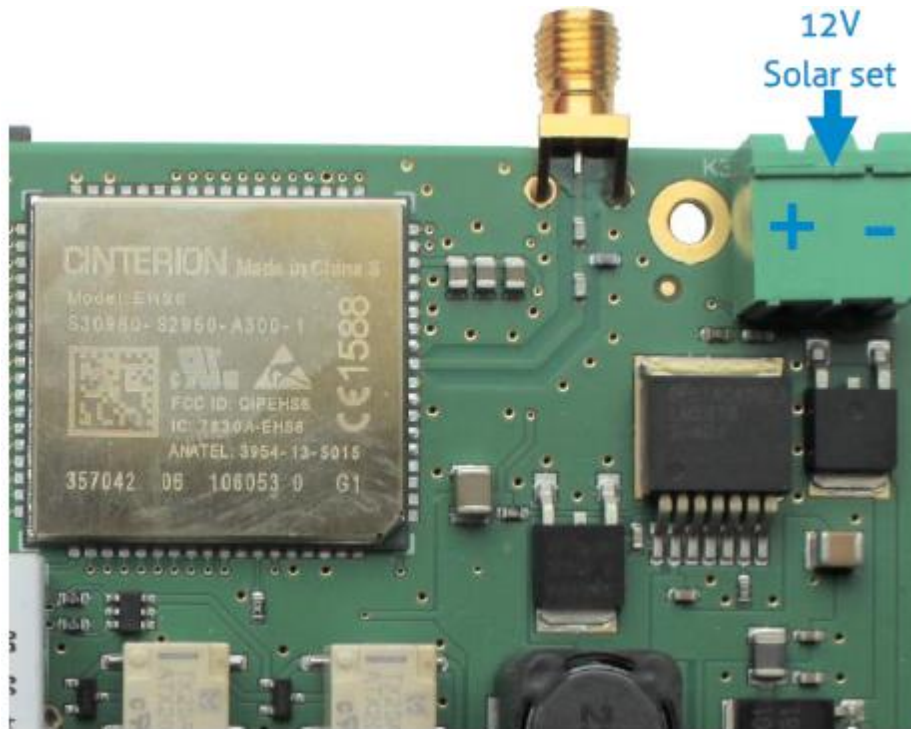
Connect an AC mains power supply to the Gateway. An earth wire isn't needed due to the double isolated (Safety Class II) design of the power supply.

- Input requirements: 100 – 240 VAC 50\*60Hz
- Safety class II, UL 1310 class II, NEC class 2 compliance
- Power supply is UL 508 listed
- Short circuit and overload protection
- DC ok LED indicator
- 6A slow blow circuit breaker is recommended



## External Solar Set

It is also possible to connect an external 12V solar set to the SENSIT Gateway. The external solar set should include beside the solar panel a (solar) battery charger and a 12V battery. The set should be capable to source 120mA at 12VDC (about 1.5W) continuously.



## Antenna

The SENSIT Gateway is feature with two antennas. One for communication with the SENSIT nodes and the other is the mobile 3G antenna.

# RELAY NODE 2G – Installation

## INSTALLATION CONDITIONS

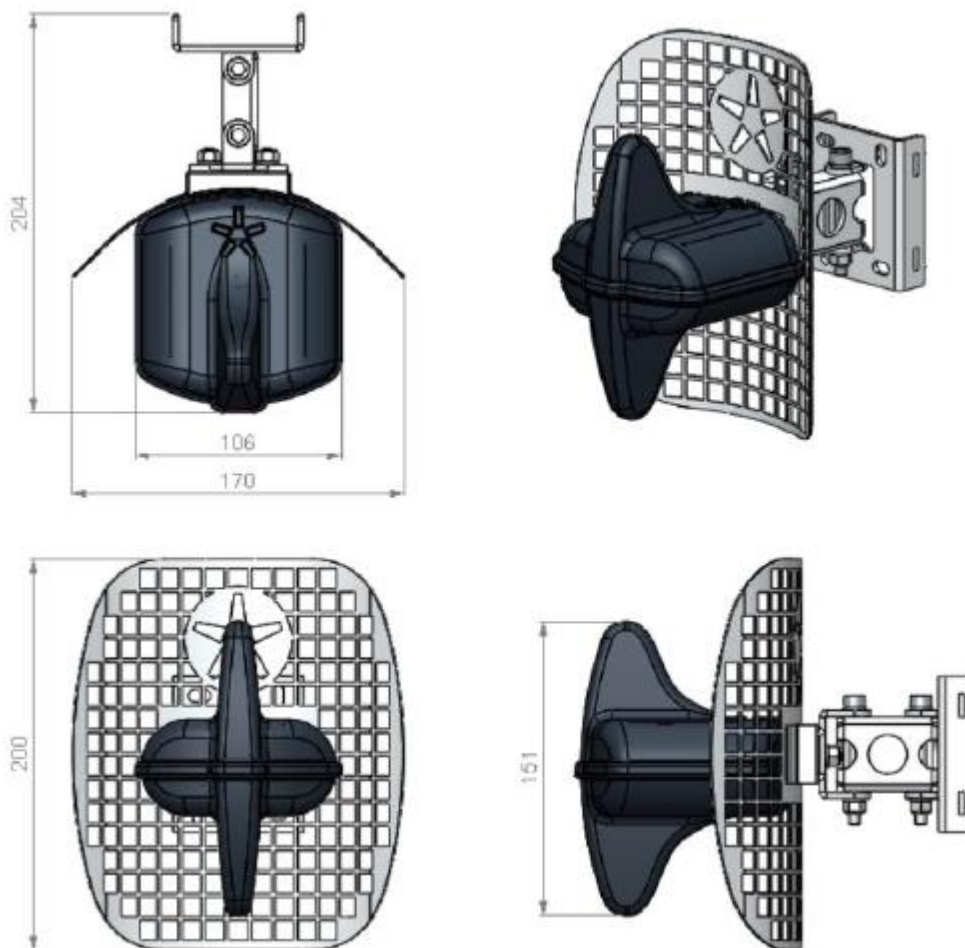
The installation recommendation is based on the following environmental conditions;

- Dry weather conditions.

## REQUIRED INSTALLATION MATERIALS

The following would be required for mounting of the SENSIT Relay Node 2G.

- Special Equipment: Ladder, Bucket-truck or an aerial platform
- TORX screw driver: T20
- Allen key: no. 5
- Wrench: size 10





## Installation Procedure

STEP: 1 MOUNTING	Mount the reflector and top of the housing on the pole or wall. With the asterisk at the top. The Relay Node 2G can also be mounted without the reflector for an Omni-directional radiation pattern.
STEP:2 POWER THE RELAY NODE	Remove the isolation tabs, to power up the Relay Node.
STEP: 3 VERIFY START-UP	Green LED starts blinking fast (duration: 15 sec.), indicating that battery power has been connected correctly.
STEP: 4 WSN SEARCH	Red LED starts to blink slowly. This indicates that the Relay Node didn't find an active WSN (wireless SENSIT Network) yet. It is searching for a WSN.
STEP: 5 WSN FOUND	Green LED starts slow blinking and red LED is turned off. This indicates that a WSN has been found.
STEP: 6 FINAL INSTALLATION	Now the Relay Node electronics can be installed at the pole or wall with a TORX (T20) screw driver.



## Battery Replacement

When the battery life of the Relay Node 2G fails after specified lifetime, the batteries can be changed. Make sure you use the right batteries:

D-cell Lithium Thionyl Chloride batteries (Li-SOCl<sub>2</sub>) 3.6V, recommended types are:

- SAFT | LS 33600
- XENO | XL-205F

<b>STEP: 1</b> <b>OPENING THE HOUSING</b>	Open the Relay Node 2G housing by unscrewing the TORX, T20 screw.
<b>STEP: 2</b> <b>REPLACE THE BATTERIES</b>	Remove the old batteries and dispose them in the correct manner. Place the new 3.6V Lithium (Li-SOCl <sub>2</sub> ) batteries (see suggested types above) and make sure the polarity is correct.
<b>STEP: 3</b> <b>VERIFY START-UP</b>	Green LED starts blinking fast (duration: 15 sec.), indicating that battery power has been connected correctly. Note: The Green and Red feedback LED's are located in the yellow circle.
<b>STEP: 4</b> <b>WSN SEARCH</b>	Red LED starts to blink slowly. This indicates that the Relay Node didn't found an active WSN (wireless SENSIT Network) yet. It is searching for a WSN. Note: After 15 minutes LED feedback is turned off, to save battery power.
<b>STEP: 5</b> <b>WSN FOUND</b>	Green LED starts slow blinking and red LED is turned off. This indicates that a WSN has been found. Note: After 1 minute the LED feedback is turned off, to save battery power
<b>STEP: 6</b> <b>FINAL INSTALLATION</b>	Now the Relay Node electronics can be installed at the pole or wall with a TORX (T20) screw driver.

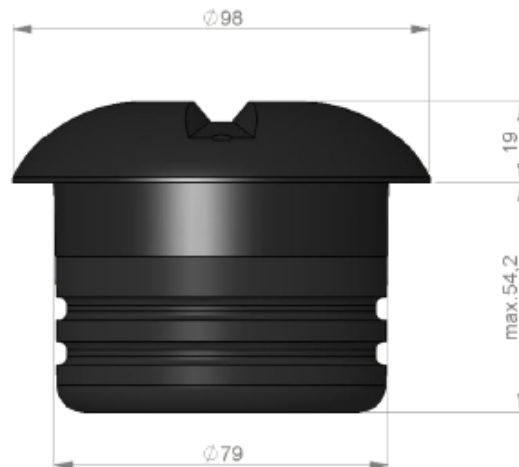


# SENSIT IR – Installation

## Installation Conditions

The installation recommendation is based on the following environmental conditions:

- Ambient temperature between 41 to 104 °F
- Dry weather conditions
- Surface based on concrete, asphalt or pavement



## Required Installation Materials

The following would be required for mounting of the SENSIT IR.

- Equipment: Automatic core drill
- Drill size: Dimensions 3.35 in
- Drill depth: 2.16 in
- Filler material: Liquid rapid mortar\*
- Required amount per sensor: Approx. 100 ml

\*We have good results with the rapid mortar TM 5R.

# Installation Procedure

STEP: 1 PREPARATION	Indicate on the closed parking lot where SENSIT sensor should be mounted. Distribute the SENSIT sensors over the parking lot and write down correct ID numbers on the plan.
STEP: 2 DRILLING	Drill a hole of 3.35 in and at least 2.16 deep into the center of the parking space.
STEP: 3 GLUING	Apply the right amount of filler and pour into the hole.
STEP: 4 MOUNTING	Double-check the node ID number and the parking space on the installation plan provided by IPsens and place the SENSIT sensor into the hole.
STEP: 5 ACTIVATING	All Sensit sensors are set into transport/stock mode during shipment. After installation, all mounted SENSIT sensors must be swept with the reset magnet.
STEP: 6 CALIBRATING	After installation the SENSIT sensor must be calibrated. Ensure that the parking space is empty and that there is no car parked on top of the sensor or on neighboring parking spaces.
STEP: 7 GLUE CURING	Leave the filler harden for 8 hours before vehicles are allowed in the parking space again.



## Replacement

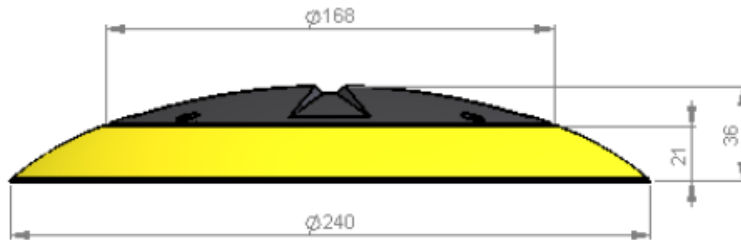
When the battery life of the SENSIT IR fails after specified lifetime, we advise to replace the unit completely. The SENSIT IR is fully sealed and for outdoor use, therefore batteries cannot be replaced.

Drill out the old SENSIT IR and complete the mounting procedure as describe in the table.

Ensure to note the node ID number of the SENSIT IR to the parking space on your plans.

## SENSIT Surface Mount – Installation

The SENSIT Surface Mount is designed for installations where the sensors cannot be drilled into the parking space e.g. garages and rooftops.



The SENSIT Surface Mount can easily be glued onto the surface of a parking space. The unit consists of two components;

- Sensor core; the black core is the vehicle detection sensor. This unit can be replaced after end of battery life.
- Mounting ring; the mounting ring allows easy installation onto the surface of a parking space.

The top of the SENSIT Surface Mount is laser engraved with the node ID number.

### REQUIRED INSTALLATION MATERIALS

The following would be required for mounting of the Sensit Flush Mount.

- Equipment: Pneumatic kit dispenser
- Filler material: MSP or PU glue
- Required amount per sensor: Approx. 150 ml

## Installation Procedure

STEP: 1 PREPARATION	Indicate on the closed parking lot where SENSIT sensor should be mounted. Clean the location where sensor should be mounted. Distribute the SENSIT sensors over the parking lot and write down correct ID numbers on the plan.
STEP:2 GLUING	Pour the filler into the mounting ring of the SENSIT Surface Mount. A pneumatic kit dispenser makes it easy to apply the glue into the mounting ring. For good fixture with the surface please fill the entire mounting ring.
STEP: 3 MOUNTING	Press firmly and double check the ID number.
STEP:4 CLEANING-UP	After mounting the SENSIT sensors in all parking spaces or a selection of parking spaces. Clean up the parking spaces and remove all (metal) tools and objects.
STEP: 5 ACTIVATING	All Sensit sensors are set into transport/stock mode during shipment. After installation all mounted SENSIT sensors must be swept with the reset magnet.
STEP: 6 CALIBRATING	After installation the SENSIT sensor must be calibrated. Ensure that the parking space is empty and that there is no car parked on top of the sensor or on neighboring parking spaces.
STEP: 7 GLUE CURING	Leave the glue dry at least 4 hours before vehicles are allowed in the parking space again.



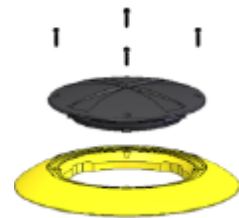
## Replacement

When the battery life of the SENSIT Surface Mount fails after specified lifetime, we advise to replace the core. The core part of the SENSIT Surface Mount is fully sealed and for outdoor use, therefore batteries cannot be replaced.

### SENSIT SURFACE MOUNTED REPLACEMENT PROCEDURE

#### STEP: 1 REMOVE CORE

The mounting ring can remain positioned in the parking space. The core can be unscrewed using a TORX screwdriver. Unscrew the core by opening the 4 screws in the core part of the SENSIT Surface Mount using a T20 size bit screwdriver. Twist the core to lift up.



#### STEP: 2 REPLACE CORE

Place a new core into the mounting ring by aligning the marks on the core part with the marks on mounting ring. Strongly push down the core and secure with 4 screws. Write down the correct ID numbers of the replaced core on your installation plan.



#### STEP: 3 ACTIVATING

#### STEP: 4 CALIBRATING

All SENSIT sensors are set into transport/stock mode during shipment. After installation all mounted SENSIT sensors must be swept with the reset magnet.

After installation the SENSIT sensor must be calibrated. Ensure that the parking space is empty and that there is no car parked on top of the sensor or on neighboring parking space.





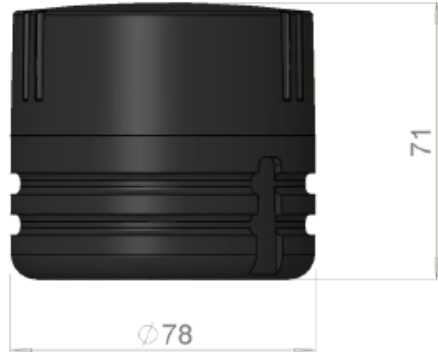
## SENSIT Flush Mount – Installation

MOUNTING INFORMATION	SENSIT Flush Mount
MOUNTING METHOD	Installed into the parking space
EQUIPMENT REQUIRED	Drill
DRILL SIZE	3.35 in
DRILL DEPTH	2.95 in
RECOMMENDED FILLING MATERIAL	Liquid concrete mortar
REQUIRED AMOUNT PER SENSOR	Approx. 100 ml
INSTALLATION CONDITIONS	Underground needs to be dry and clean
TEMPERATURE DURING INSTALLATION	41...104 F

### INSTALLATION CONDITIONS

The installation recommendation is based on the following environmental conditions;

- Ambient temperature between 41 to 104 °F
- Dry weather conditions
- Surface based on concrete, asphalt or pavement



### INSTALLATION MATERIALS

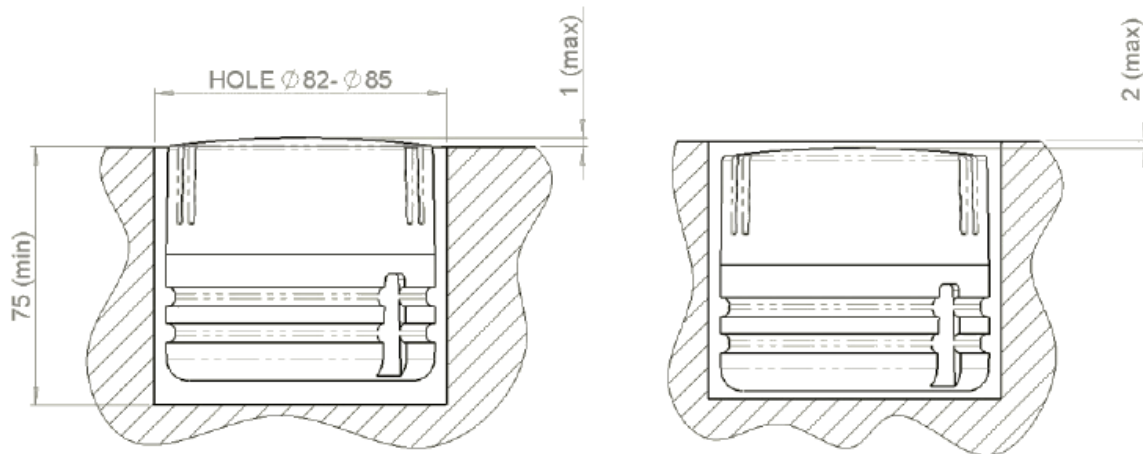
The following would be required for mounting of the SENSIT FLUSH MOUNT.

- Equipment: Automatic core drill
- Drill size: Dimensions 3.35 in
- Drill depth: 2.95 in
- Filler material: Liquid concrete mortar\*
- Required amount per sensor: Approx. 100 ml

\*We have good results with the rapid mortar TM 5R.

## Installation Procedure

Installation process as described in Sensit IR, however with above mentioned drilling depth. See figure below for more details about the mounting depth of the SENSIT Flush Mount, dimensions in mm.



## Replacement

When the battery life of the SENSIT Flush Mount fails after specified life time, we advise to replace the unit completely. The SENSIT Flush Mount is fully sealed, therefore batteries cannot be replaced.

Ensure to note the node ID number of the SENSIT sensor to the parking space. Update the parking space configuration list with IPsens to ensure the new sensor is linked correctly in the system.

## Appendix

### A Rapid Mortar

RAPID MORTAR TM 5R	
100706-06	
<p><b>Product description</b></p> <p>Rapid mortar TM 5R is produced of a cement with a very high reactivity to water, and quartz sand with a maximum aggregate of 0.4 mm. Special synthetic components provide for good adhesion to the surface. Rapid mortar TM 5R exhibits high strength within a very short period of time.</p> <p><b>Application</b></p> <p>Rapid mortar TM 5R is used for repairing concrete and concrete units, which have to be back in operation in a short period of time, i.e.:</p> <ul style="list-style-type: none"><li>- repairs of manhole covers and drains in road construction</li><li>- assembly of parking meters and road signs</li></ul> <p><b>User instructions</b></p> <p>Rapid mortar TM 5R is prepared with water until a plastic mortar is obtained. The water is filled into the mixer first, and then Rapid mortar TM 5R is added. For every 25 kg of Rapid mortar TM 5R about 3.75 litres of water are added. Mixing time is about 3 minutes after which the mortar is applied using appropriate tools. The processing time is about 15 minutes at a temperature of 20°C.</p>	<p><b>Yield</b></p> <p>2 kg SchnellMortar TM 5R prepared with water will yield about 1 litre mortar.</p> <p><b>Technical data</b></p> <ul style="list-style-type: none"><li>- State of aggregation: powder</li><li>- Colour: grey</li><li>- Density (kg/l): n.a.</li><li>- pH-Value: n.a.</li><li>- max. alkali content (% Na<sub>2</sub>O-eq): n.a.</li><li>- max. chloride content (%): n.a.</li><li>- Colour code: n.a.</li><li>- Storage: dry, frost-protected, in closed packaging</li><li>- Shelf-life: when stored correctly at least 6 months after date of production</li></ul> <p><b>Packaging</b></p> <p>Sacks, pallets, big bags.</p>
<p>Preliminary tests for the product's suitability are indispensable</p> <p><b>Article number 5115</b></p>	
Tillman B.V. - Julianaweg 12 - 7078 AR Megchelen Gld.NL - tel. +31(0)315377541 - fax. +31(0)315377577 - info@tillman.nl - www.tillman.nl	

## B Sabatack Fast

### Ultra-fastbonding

#### Description

Sabatack Fast is an ultra-fast-acting 2-component, elastic, humidity-curing, MS polymer-based construction adhesive. Its primary use is bonding with fast hardening, handling after only 2 hours, which makes this product excellent for use in mass production. Sabatack Fast has a medium viscosity and a high modulus elasticity.

#### Field of application

Industrial and hand-made vehicle and coachwork construction, marine, ventilation and air conditions, electro-technology, equipment assembly, metal and tin processing, plastics technology, civil & environmental engineering and building & construction. For the elastic bonding of frames, profiles, plates etc. Also for sealing seams, overlaps, joints and cracks. Suitable for interior and exterior use. Excellent for use in mass production.

#### Advantages

- Fast and controlled curing, high end strength
- Adhesion without primer, fast drying
- Can be painted wet-on-wet, hardly any shrinkage
- No blistering, almost odorless
- Free from solvents, isocyanates and silicones
- UV-stable, high temperature resistance
- Certificates: Wheelmark (164.106/1121/WCL MED0326), ISEGA (in connection with HACCP)

#### Method of use

For instructions for use, repaint ability and pre-treatment, see the relevant info sheets at [www.saba.nl](http://www.saba.nl)

## C Polyurethan

### Permapur 2654 A/B

Universal Polyurethane liquid adhesive

PERMAPUR® 2654 A/B consists of two components A-component (Polyol) and a B-component (Isocyanate). The resin is supplied in a bi-pack. PERMAPUR 2654 A/B is used as an universal polyurethane resin which can be applied by pouring the fluid. The system is insensitive to moist and shows no blistering and is therefore less critical in processing.

Technical details

Color: A-component black fluid

B component dark brown fluid

Color mix: Black

Processing time: 10 min / 20°C

Gel time: 15 min / 20°C

Curing time: 24 h / 20°C

Viscosity: 4.500 mPa.sec/20°C

Hardness: 45° Shore D

Specific gravity: 1,5 g/cm<sup>3</sup>

Specific resistance: 1 x 10<sup>14</sup> W.cm

Breakdown voltage: 20 KV/mm

Max. Temperature: -25°C tot +120°C

Water absorption: <1%

Storage: At room temperature (20 ° C) in tightly closed Verpa Branching 12 months