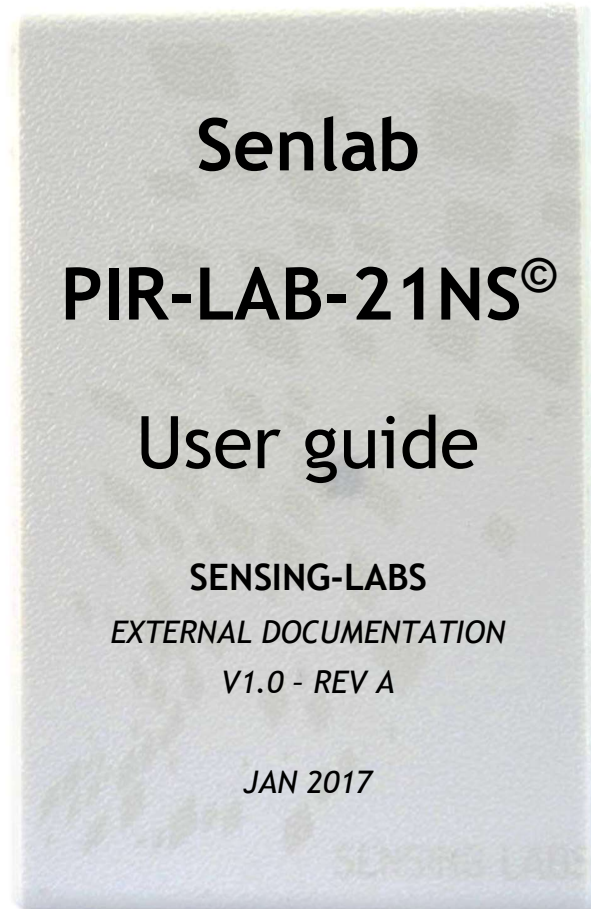


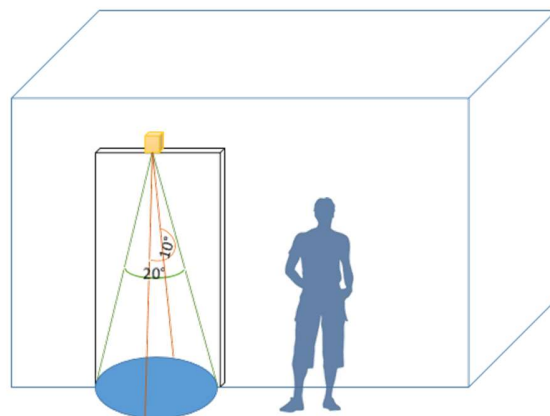


Thank you for your choosing our Senlab product !
We hope you will find the instructions on this user manual clear and easy to follow.

General overview

The Senlab PIR product is equipped with a **passive infrared sensor**, enabling human detection and has to be placed above the central axis of a door, with the sensor pointing downwards.

It allows to detect and count the passage of people through a door and is used to collect and send frequenting statistics on a regular period (typically 30mn or 1 hour).



Please note that the Senlab PIR Sensor is not convenient for applications where passage counting has to be calculated at the nearest unit¹ and more dedicated to work with a good precision within a range around 100 passages/hour.

The Senlab PIR product is notably used to:

- Develop usage-based cleaning services program
- Frequenting statistics

¹ Due to the operating mode inherent to Infra-Red technology, all passages events detected during the same 5 secondes slot will be considered as the same event and counted as 1 event. Thus, one person or 3 people entering in the same time in the monitored room will be count as 1 passage.

This document describes how to make your Senlab fully operational by following those 3 steps:

- ☞ Provisioning of the product
- ☞ Start-up and On-site installation
- ☞ Activation of the product

Device provisioning

In the case of the public LoRa Network Operator-based architecture, you have to make sure that the product has been registered (provisioning) correctly by your network operator.

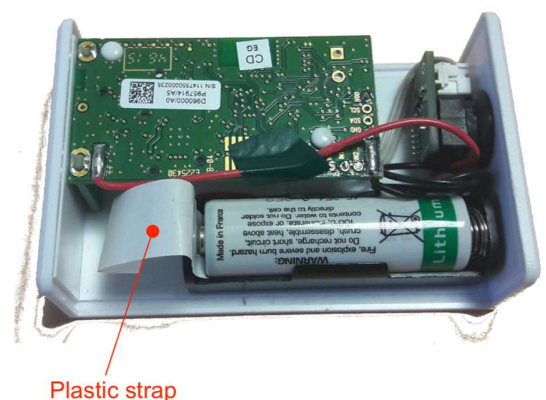
In the case of a use of the Senlab within a local network, make sure priory that your Senlab sensor has been provisioned within the Gateway.

 **Warning, don't unprovision device from you system before stopping it (refer application features to stop the application via RF)**

Device start-up & positioning



At the first use and before installation, open the product and take the small plastic strap out of the batteries location to start the Senlab



The Senlab PIR product is designed to be installed above a door with the sensor pointing downwards.



You can either:

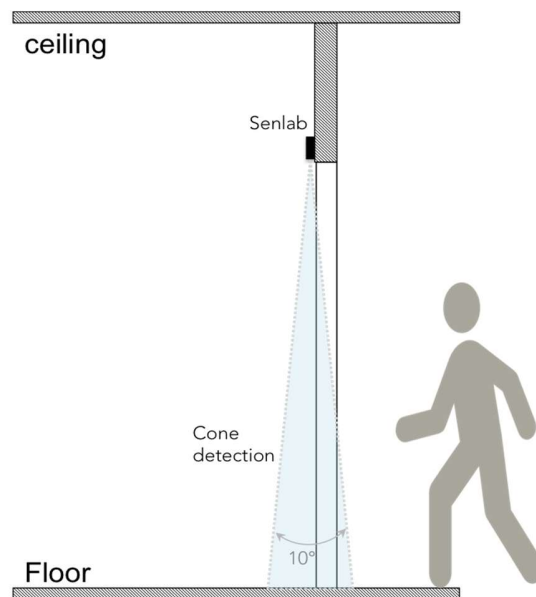
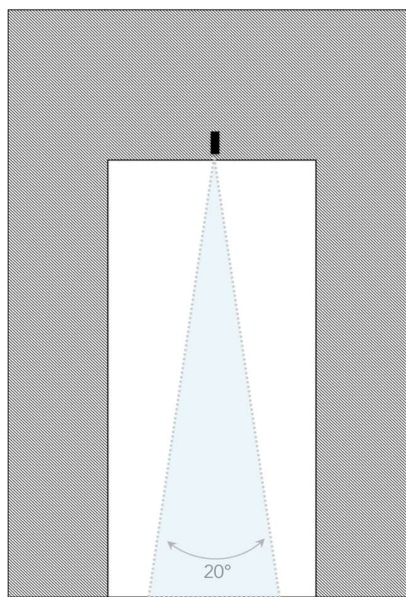
- stick the product to the wall with a double-sided adhesive tape or

- screw the rear side of the product to the wall with countersunk screws (make sure the screw heads don't exceed from the plastic side once installed).



For best radio performance, avoid positioning the Senlab against a metallic element and

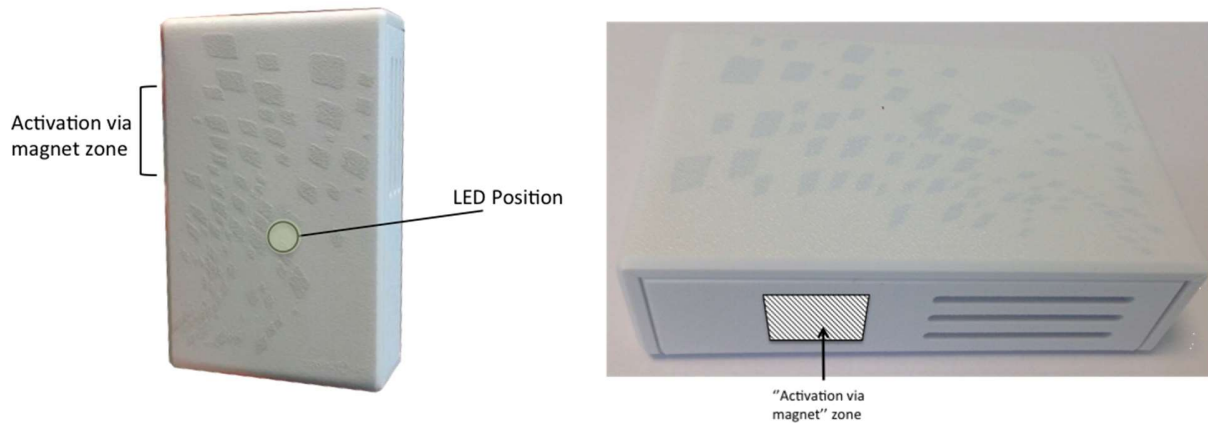
Make sure to leave the area between the sensor and the ground clear and not obstructed by the door frame notably.



Device activation

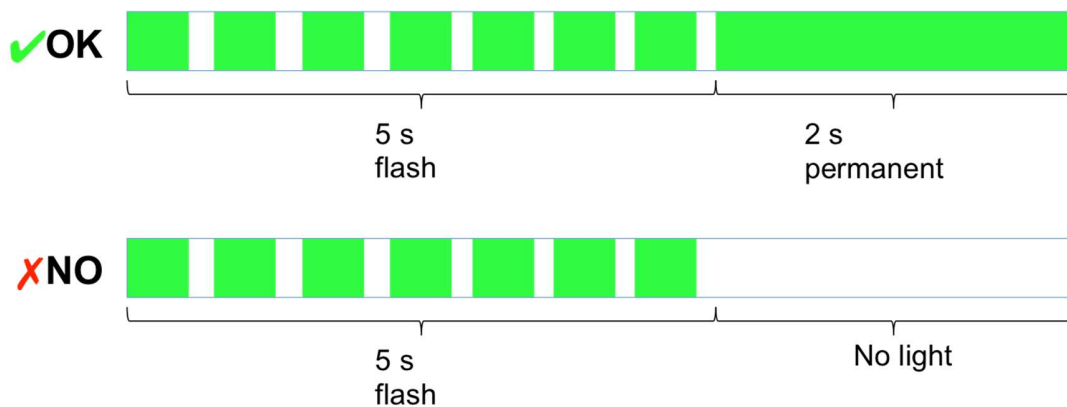
To activate the product (in order to start counting functionality as well as radio connection to the public or local radio network):

1. Put the magnet on the side of the product (as outlined in the pictures below) during 1 to 2 seconds



2. The green LED of the product will flash during 5 seconds ('search network' process), then will confirm that the network activation is successful with a 2 seconds permanent light.

If the LED ends its 5 seconds blinking without any other lighting. The product will then come back to its stand-by mode and will be ready for a new activation attempt.



Nota : Once activated, if you pass the magnet over the activation zone again, the LED will blink during **2 seconds** to confirm that the activation has been made correctly.

Application features

PIR-LAB-21NS integrates the SenlabM application to expose the number of detected passage.

Datalog mode

This chapter describes the SenlabM application features available in datalog mode (accessible via SL-gateway or SL-codecs)

Measure data

2 data measures are collected

- ✓ Raw_index (Unsigned integer value, Unit pulse), that correspond to the number of detected passage.
- ✓ Battery level (Unsigned integer value, Unit %)

Event data

SenlabM application can notify 1 data events:

- ✓ Restart event detection (happens when device is restarted on the field)

Parameters data

Following parameters can be configured on SenlabM application:

- ✓ Datalog configuration (log period, transmission period, transmission random activation)
 - # The transmission random activation feature maximize device datalog reliability
- ✓ Datalog transmission shift

All these parameters can be send to SenlabM application using one of the following request operations

- ✓ request_write_datalog_cfg - used to configure the Temperature datalog configuration;
 - Log sample period (UINT16 / Minute [1..1440=24h])
 - Logs transmission period (UINT16 / Minute [3..1440=24h])
 - Log trans. random activation (BOOL / optional)

- ✓ request_shift_log_tx – used for shifting the datalog transmission;
 - Log transmission shift (UINT16 / Minute / multiple log period)
 - Log sample period (UINT16 / Minute [1..1440=24h] / ONLY USE TO CHECK THE MULTIPLICITY)
- ✓ request_reset_battery_level – used to reset the current battery level to 100%;
- ✓ request_reset_raw_index – used to reset the current raw_index to 0;
- ✓ request_stop_application – used to stop the application datalog transmission (**version 1.1 only**);

Standard mode

This chapter describes the SenlabM application standard frame formats

Senlab M / Uplink START MESSAGE - FPort 4 - extended with datalog cfg

This frame is sent automatically after a successful network connexion for informing the application layer of its activation.

ID (1B)	DEV_E UI (8B)	APP_TYPE (1B)	Versio n (3B)	Ext ID (1B)	Log Period (2B)	Tx Period (2B)	Max Batt Level (4B)
0x00	LSB first	SenlabM: 0x4D SenlabT: 0x54	Major Minor Revisi on	0x00	0xLLLL	0xTTTT	0xBBBBBBBB

- ✓ 0xLLLL: the log period expressed in 2 seconds units
- ✓ 0xTTTT: the transmit period expressed in 2 seconds units
- ✓ 0xBBBBBBBB: the maximum battery level used for battery life calculation expressed in mAs

Senlab M / Uplink DATALOG - FPort 3. Warning: format valid for one log per transmission only

ID (1B)	BATTERY_LE VEL	Internal data (n bytes)	Log value (Last 4B)
------------	-------------------	----------------------------	------------------------

	(1B)		
0x02	0xBB	Confidential (Length is variable)	0xVVVVVVVV MSB first

- ✓ 0xBB: the battery level expressed in 1/254 %
- ✓ 0xVVVVVVVV: pulse number as a 4 bytes unsigned int

Senlab M / Downlink STOP DATALOG MESSAGE – FPort 2

This operation (request/response) will stop data log transmission. After response confirmation, new activation of device with magnet will be necessary to restart the data log.

Request	ID (1B)	STOP PARAM. (2B)	Response	ID (1B)	STATUS (1B)	STOP PARAM. (2B)
	0x01	0x0700		0x01	0x00 OK 0x01 KO	0x0700

Security

Electrical safety

All circuits are SELV (Safety extra low voltage), including interface circuits which are only used for measurement (signals without power, these circuits are considered LPS).

Battery replacement

Battery can be replaced following these instructions:

- Replacement battery must be a **Lithium 3,6V AA type with 50mA min of supported continuous current**
- Sensing-Labs recommends usage of model **SAFT LS14500**
- After battery replacement, device must be reactivated and `request_reset_battery_level` must be sent to device after its activation.

ATTENTION:

EN: There is a risk of explosion if the battery is replaced by an incorrect type. Dispose of used batteries according to instructions.

FR: Il y a risque d'explosion si la batterie est remplacée par une batterie de type incorrect. Mettre au rebut les batteries usagées conformément aux instructions.

Legals

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