



iSens

User Manual

Sensotran

More than 50 years of
experience in gas detection

READ THE MANUAL BEFORE USING

This manual should be carefully read by those who have or will have responsibility for use, maintenance, or repair of the product.

This product will perform properly only if used, maintained, and repaired in accordance with the manufacturer's instructions.

WARNING

Calibration of all new unit should be checked by exposing the sensors to a known gas concentration before putting the instrument into service. For maximum safety, the accuracy of reading of the iSens should be checked every three months.

Contents

1. INTRODUCTION.....	2
1.1 TECHNICAL SPECIFICATIONS.....	3
2 OPERATION.....	3
2.1 Physical Description.....	4
3. INSTALATION.....	5
4. STARTING UP THE UNIT	6
5. APP.....	6
6. CALIBRATION.....	8
I - Zero Calibration.....	9
II - Span calibration	9
7. TROUBLESHOOTING	10
8. VERSION LOG.....	11

1. INTRODUCTION

iSens uses an electrochemical sensor to detect oxygen and toxic gases and it is powered by 2 x 3,6 V lithium batteries. The sensor reading is sent via LoRa to the control panel.

LoRa provides long-range communications: up to one kilometre in urban areas, 5 in industrial area and up to 14 kilometres in open areas (line of sight).

The iSens sends data to the control panel approximately every 30 minutes when reading is stable. In the event of a small variation, the new reading will be transmitted approximately every 10 seconds.

Other than the gas reading, temperature, humidity, and remaining battery are also sent.

It is estimated that under normal conditions the battery can last longer than 2 years.

1.1 TECHNICAL SPECIFICATIONS

Size	150 mm x 110 mm x 40 mm
Weight	460 gr
Sensor	Electrochemical
Calibration	2 points (zero & span)
IP	IP-66
Power supply	2 lithium batteries 3,6 V
Modem	LoRa 868 MHz
User interface	NFC with external device (mobile phone)
Temperature	-40 a 60°C
Humidity	0-95% RH (non-condensing)
Pressure	0.9 – 1.1 Atm

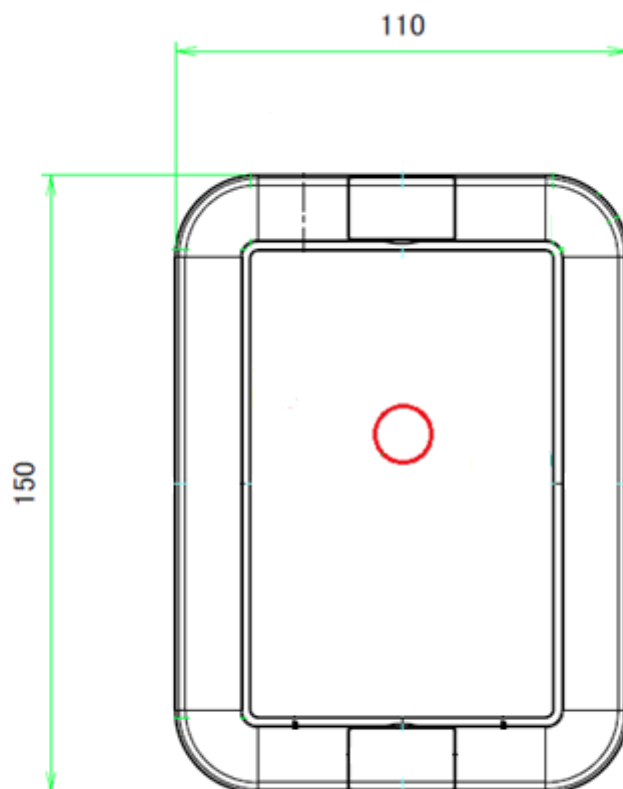
2 OPERATION

Before shipment, iSens instruments are calibrated with Standard gas. However, the user should check the proper operation before first use. Once the unit has been installed, leave it running for 24 hours and do a bump test with standard gas to check that there are no components in the atmosphere which might contaminate the sensor.

For maximum safety, accuracy iSens should be checked by exposing the sensor to a known concentration of gas over a period. Sensotran recommend doing it at least, every six months.

2.1 Physical Description

The design of iSens makes it easy to place and connect at a fixed location to monitor gas.

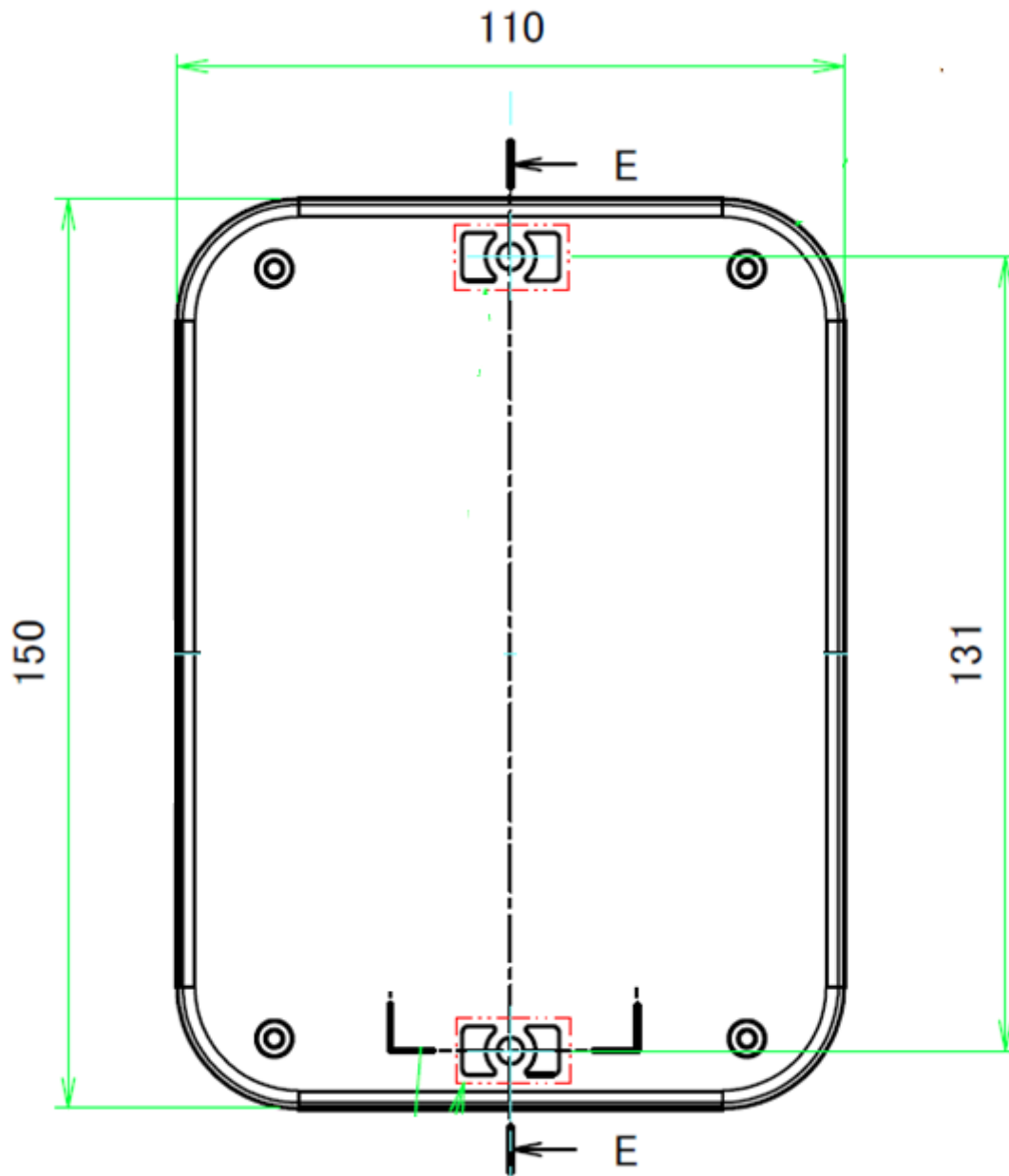


ATTENTION

**To prevent ignition in explosive atmospheres,
instrument cannot be installed on hazardous area.**

3. INSTALATION

The design of the iSens allows it to be mounted on a wall or on a pipe clamp. In a wall, make 2 holes 131 mm apart.



4. STARTING UP THE UNIT

iSens is supplied with all the configuration as per your request and do not need any configuration for operation. However, if you need to change any internal parameters you can access them through the iSens APP. There are 2 factory pre-set parameters that are involved on the data transmission to the control panel:

- The PAN: Personal Area Network.
- ID: Sensor identification.

Both parameters can be modified if necessary.

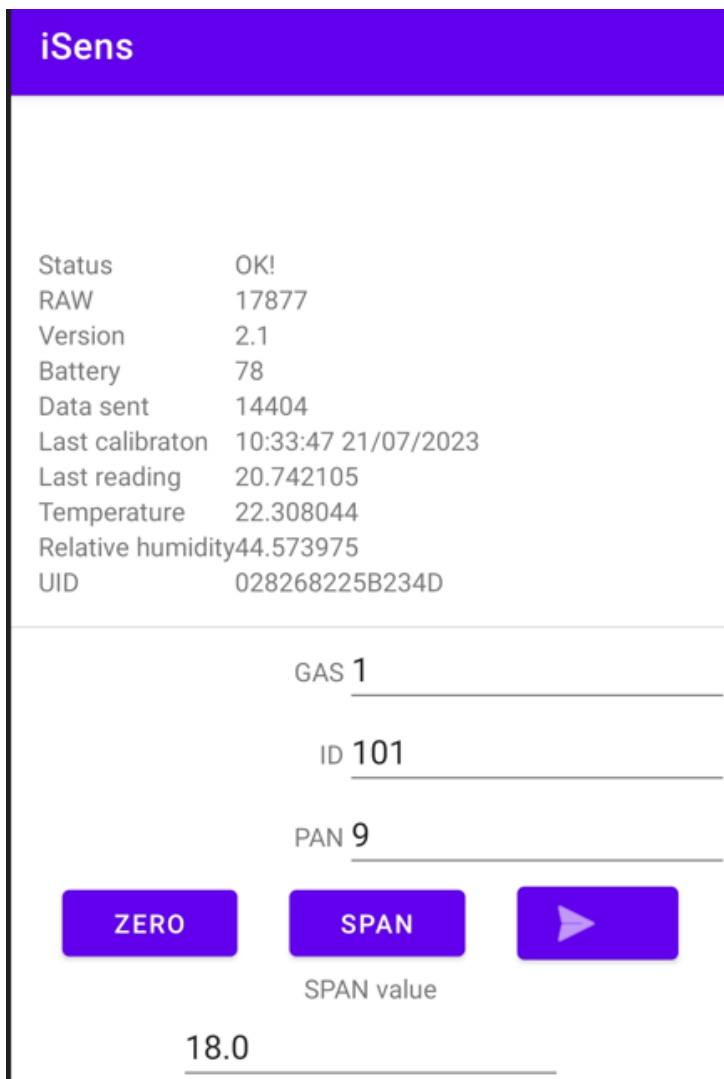
5. APP

With the iSens APP it is possible to have access to some internal parameters as well as to configuration. Ask your Sensotran distributor to send you the APP. After installing the APP into an Android Smartphone, open the APP and put the device NFC on the upper part of the iSens, between the sensor hole and the one over the iSens text serigraphy. Move the smartphone slowly to locate the place where it properly reads the iSens NFC. When that happens, the smartphone will have a small noise/vibration and data will be actualized with current iSens configuration.

The following information will be shown:


- Status: iSens Status.
- RAW: Internal sensor counts (useful for technical diagnostics).
- Version: iSens firmware version.

- Battery: Percentage of remaining battery.
- Last calibration: Last calibration date.
- Last reading: Last sensor reading transmitted.
- Temperature: Temperature in °Celsius.
- Relative humidity: Relative humidity in percentage.
- UID: Unique identifier.



The configuration:

- GAS: Must match with the sensor installed. The three figures on the middle of the iSens PN# reflects that number. Oxygen must be 1 (PN#IS-001-02), CO must be 2 (PN# IS-002-02), Cl2 must be 6 (PN#IS-006-02), ...
- ID: Channel identifier. Each iSens must have a different ID in the same PAN. That ID should be the same than the one configured on the GasVisor channel configuration.
- PAN: Personal area network. PAN should be the same than the one configured on the GasVisor.

NOTE: If any parameter is modified, it is necessary to send the new configuration by pressing the  button and then approaching the mobile phone to the iSens.

6. CALIBRATION

ATTENTION

The calibration of all unit purchased from Sensotran should be tested by exposing the sensor to a known concentration of gas before putting the instrument into service. For maximum safety, the accuracy of iSens should be checked by exposing the sensor to a known concentration of gas over a period of time

A mobile phone with NFC and iSensAPP installed is required for calibration.

iSens units are calibrated using a two-point calibration process. First, use the "Zero calibration", then the "SPAN calibration" exposing the sensor to a reference gas concentration to establish the second calibration point.

Note: "Zero calibration" must be carried out before "Span Calibration".

The calibration requires a fresh air or nitrogen cylinder, a Standard gas cylinder and a calibration adapter.

I - Zero Calibration

1. Ensure that there are no flammable gases or gases that might interfere with the sensor reading in the area where the detector is located. If you may suspect that the atmosphere is not clean, use a zero gas such fresh air or Nitrogen 5.0.
2. Open the iSensAPP, press the "ZERO" button and approach the phone to the iSens until the transmission is executed.
3. The ZERO button on the APP displays the time remaining to perform the zero calibration.

II - Span calibration

1. Connect the Standard calibration gas to the iSens sensor using the calibration adapter and open the valve to let gas flow.

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2. Open the iSensAPP (if not opened), press the “SPAN” button and approach the phone to the iSens until the transmission is executed.
 3. The SPAN button on the APP displays the time remaining to perform the span calibration.
 4. When countdown is completed the new data calibration is saved if the sensor has sensitivity enough for being calibrated.
 5. Close the gas valve.

Note: You can read the iSens data by approaching the mobile phone close to the iSens and if the calibration date has been updated it means that the calibration has been successful.

7. TROUBLESHOOTING

- The controller panel does not read data: Check that ID and PAN are properly configured.
- The mobile phone does not read data: Check that the NFC is ON and move the phone slowly in the upper area of the iSens.

8. VERSION LOG

Rev.	Description of the changes	Data
1	Initial release	17/04/2024

Sensotran

Bergueda 1 2nd Floor Office A3
Mas Blau Industrial Area
El Prat de Llobregat
BARCELONA – SPAIN
Tel. +34 93 478 5842
[**sensotran@sensotran.com**](mailto:sensotran@sensotran.com)