

IN SENSUS PROJECT

User Manual

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Introduction

In-Sensus Project is an advanced web-tool specifically designed for sensor management, data collection and data analysis. Its hardware is based on LoRaWAN® communications, a new wireless long -range radio protocol that ensures network stability, reduced energy consumption and fewer device maintenance.

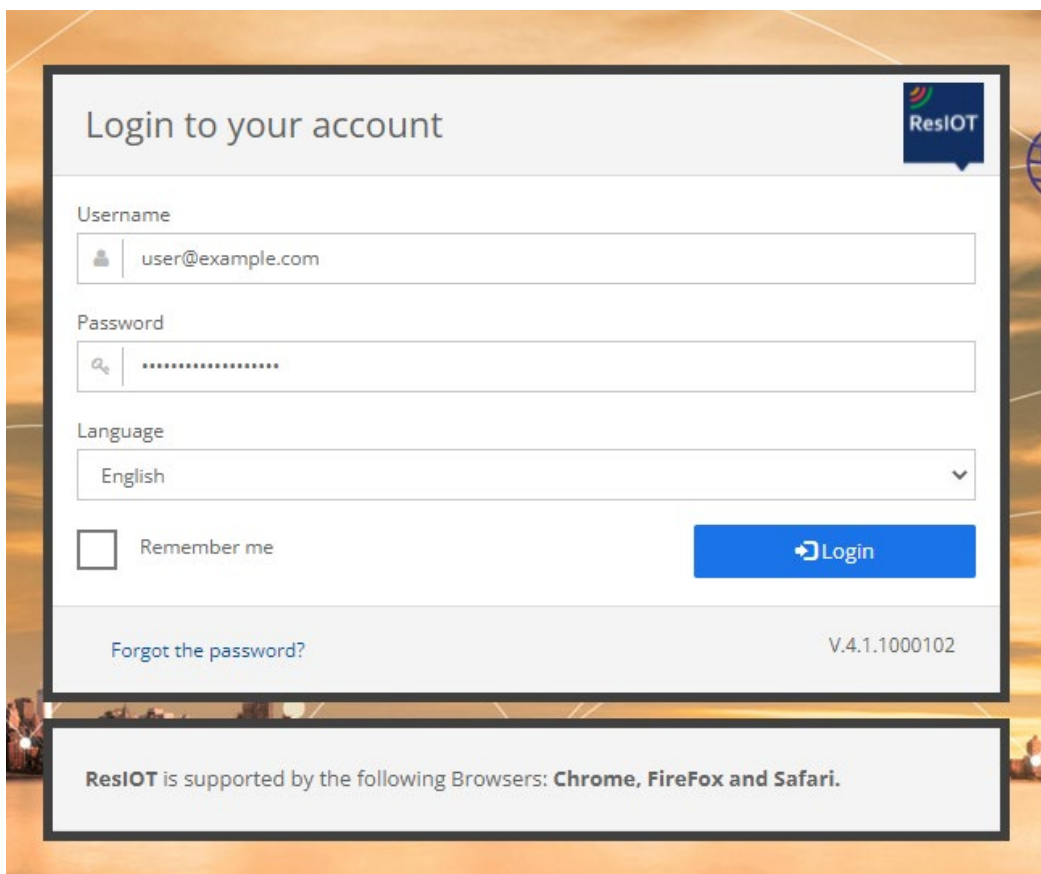
This user manual will explain how to properly use the In -Sensus Console for both standard users and advanced users. It will show basic features for standard platform usage regarding the dashboard structure, sensors data and charts, data manipulation and alerts.

Platform user login

The first thing to do in order to access the platform is the user login. No data is public and every action needs a logged user. To perform the user login please visit the following link with your browser

[https://console.in -sensus-project.com/](https://console.in-sensus-project.com/)

After that you will see the user credentials box. Fill -in both the requested fields with your username and password that you received from your organization as in the example below



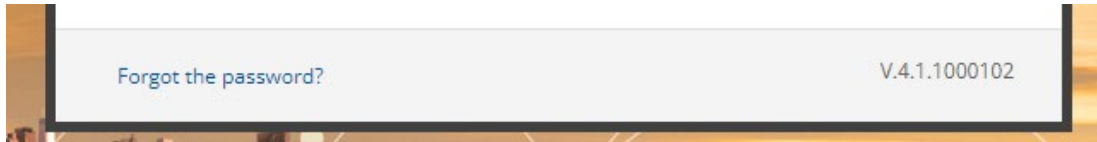
The image shows a login form for ResIoT. The form is titled "Login to your account" and features the ResIoT logo in the top right corner. It contains the following fields and elements:

- Username:** A text input field containing "user@example.com".
- Password:** A text input field with masked characters (dots).
- Language:** A dropdown menu currently set to "English".
- Remember me:** A checkbox that is currently unchecked.
- Login Button:** A blue button with a right-pointing arrow and the text "Login".
- Forgot the password?:** A link located at the bottom left of the form.
- Version:** The text "V.4.1.1000102" is located at the bottom right of the form.

Below the login form, there is a footer box that states: "ResIoT is supported by the following Browsers: Chrome, FireFox and Safari."

Password reset

In case you forgot your password you can use the '*Forgot the password*' link at the bottom of the user login box and follow the instruction to reset your credentials.



User registration

The In - Sensus console does NOT allow any user registration. All the new users are created by the organizations that possess the platform administration permissions. For this reason you can't register on your own into the console but you have to receive your credentials from your organization

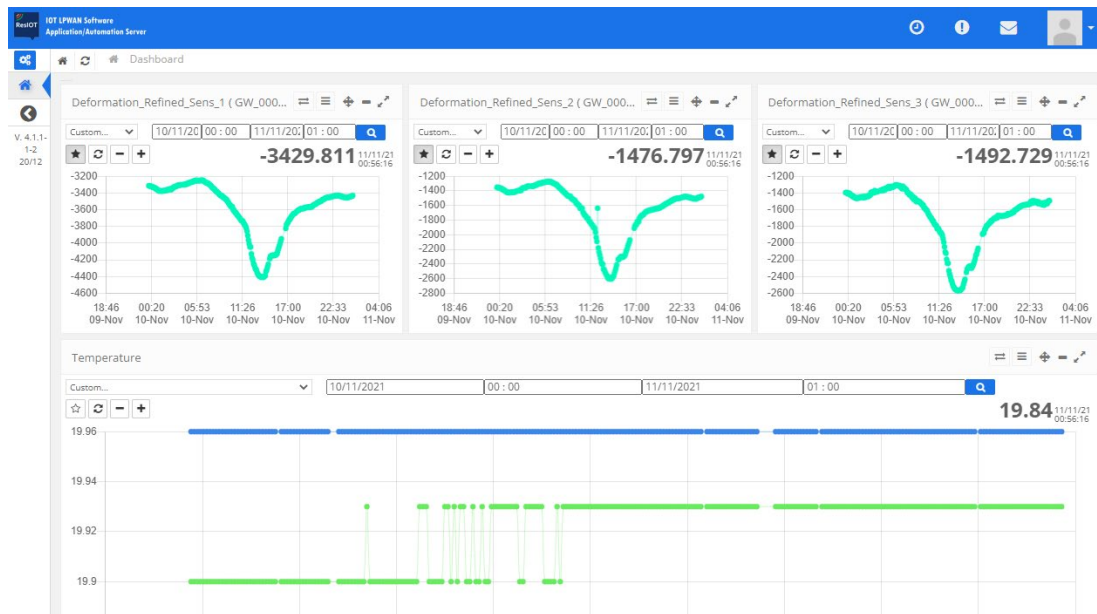
Supported browsers

The console is supported by the most commonly used browsers, such as Chrome, Firefox and Safari



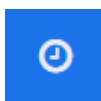
Dashboard

After the login you will be redirected to the platform dashboard. The first dashboard you will see is the default one that your organization has setup for your account and it can appear like this

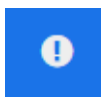


Navigation bar

The navigation bar is the blue bar you can find at the top of the page. It contains the following elements



The clock, that shows the current platform time



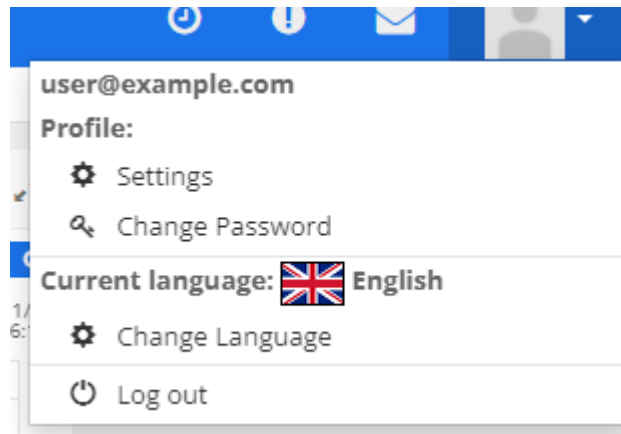
The '*important message*' box, where there will be displayed the message that your user received from other users or from the platform



The '*alert*' box, where you receive alerts from your monitor routines, broken thresholds and notifications you setup on the platform

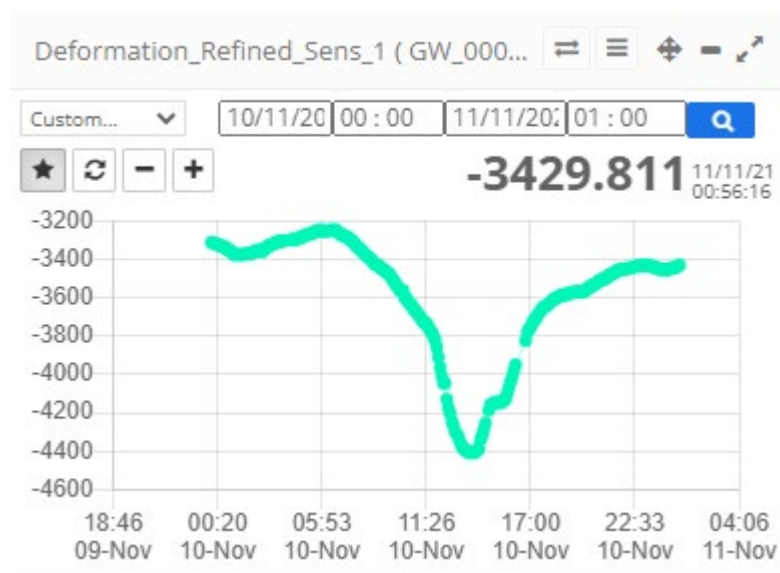


The '*user settings*' box, where you can find your user configuration such as main settings, password change, language switcher and Logout button



Charts

The most characteristic part of the dashboard is represented by the charts. These are live - updated charts, and for that reason, by default, they auto refresh themselves periodically without any user action.



Data Interval

You can choose your preferred data interval from the top left selector. There are both preset time intervals and a custom data selector as in the picture below

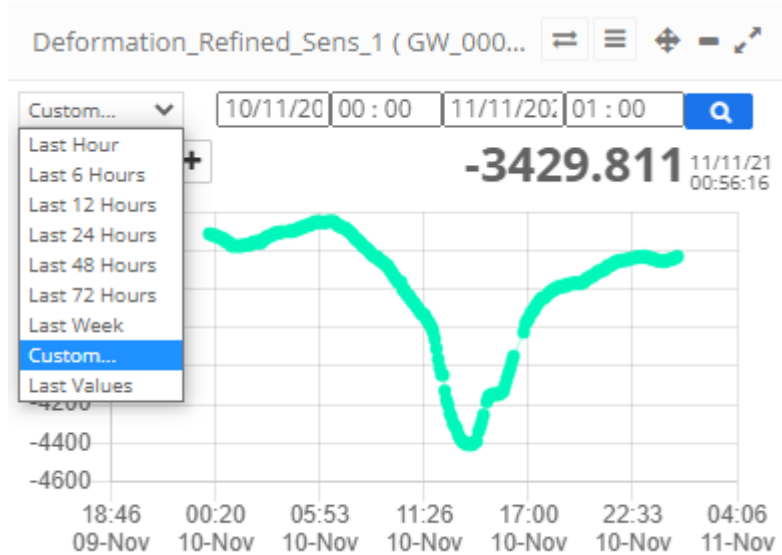






Chart main bar buttons

At the top of every chart there is a dark bar containing (in order from left to right)



- the name of the data displayed
- the *switch* button (), to change the chart type from *line chart* style to *last value* mode
- the *settings* button (), that hosts the *export* button (it will be explained later)
- the *unpin* button (), to move your chart through the dashboard
- the *minimize* and *full screen* buttons (), to change the size of your chart

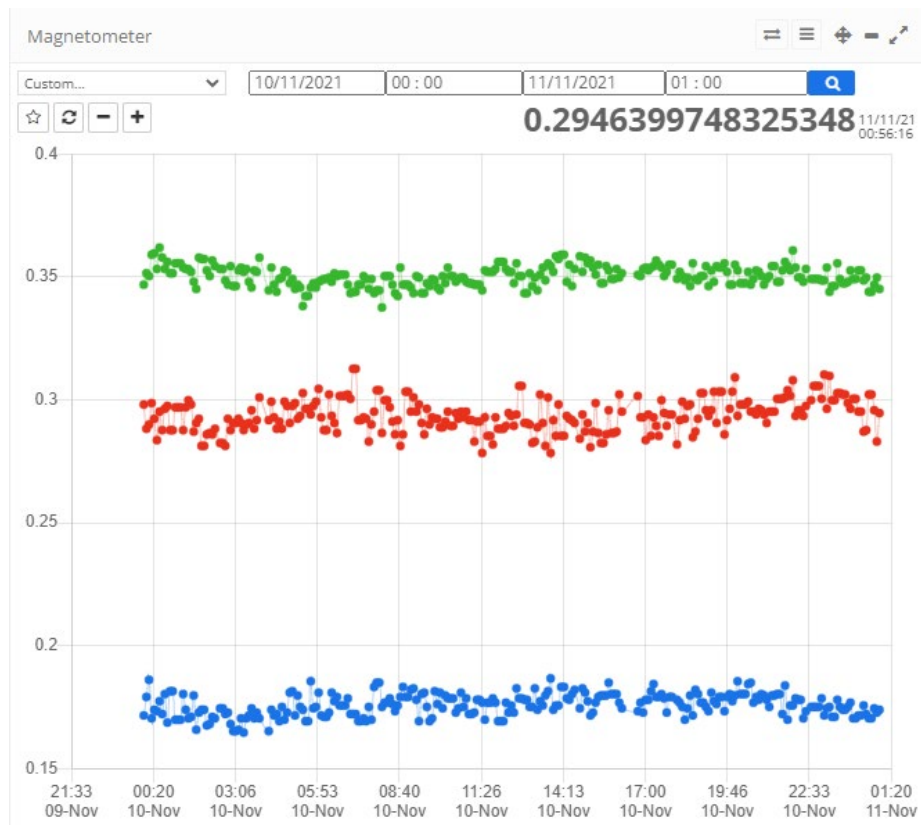
Just below the time interval selector, you can find few others buttons that affect the current displayed chart (from left to right)



- the *auto refresh* button (☆), usually already selected
- the *manual refresh* button (↻)
- the *zoom out* (-) and *zoom in* (+) buttons
- the last value stored inside the selected time interval
- the last value date

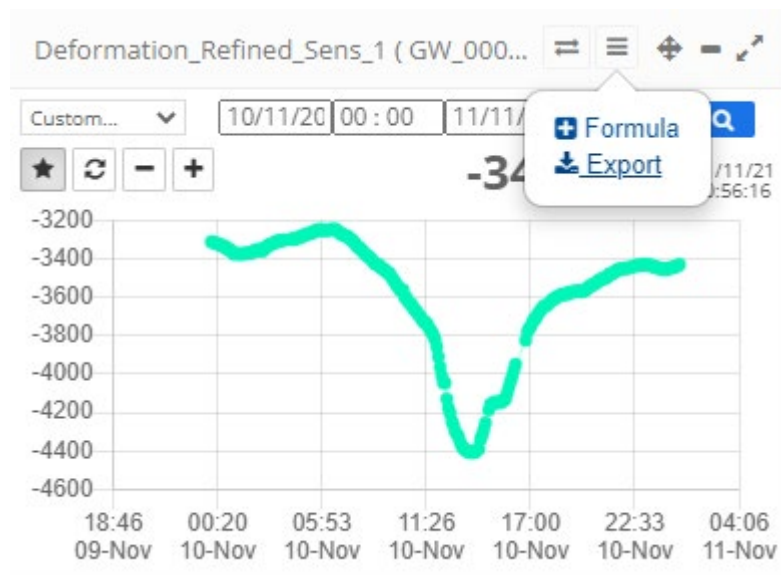
Multiple sensor charts

Inside your dashboard you can also find multiple sensor charts. This special type of charts can show more sensors values at the same time into the same chart board



How to export data

Directly from the box of the chart you want to export data, click on the settings button, and then on the export button. After that, a new CSV file will be created containing the data displayed on the chart and it will be downloaded on your device. The data export also works on the multiple sensor charts, where multiple columns will be created.



Advanced configuration

In this section will be explained the advanced configuration of the platform. Not all the users can access these types of settings. Usually, standard users are 'ReadOnly' users and they just have the permission of reading preset charts, extracting data and raising some types of events. Otherwise, advanced users can edit charts, sensor parameters, and thresholds and alerts.

Sensors and Gateways

There are usually 3 main agents inside the network

- the sensors, that directly collects the data from the environment and are physically installed on the reading spot
- the gateways, that collects the data from the sensors and send them to the server
- the server, that hosts the platform, store all the data and manage the console and the users

Sensors settings

















You can access the sensors list from the ' *Nodes/Devices*' menu at the left side of the console as the first option just below the ' *Dashboard* ' one.

The sensor contains various ' *fields*' and you can create a chart for each of them. Some fields are automatically created during the sensor registration. They are divided in 3 main categories

- sensor readings tags (📖)
- sensor configuration tags (⚙️)
- sensor calculated tags (🧮)

Here is a full list of the preset ones




TAG NAME	TYPE	DESCRIPTION	M.U.
Deformation_Sensor_1	📖	Deformation readings from Datalogger 1	
Deformation_Sensor_2	📖	Deformation readings from Datalogger 2	
Deformation_Sensor_3	📖	Deformation readings from Datalogger 3	
Deformation_Sensor_4	📖	Deformation readings from Datalogger 4	
VoltageBattery	📖	Voltage battery of the sensor	mV
RadioRSSI_dbm	📖	Sensor Radio RSSI	dbm
RadioSN	📖	Sensor Radio SN	
Sensor_1_ADC_Temperature	📖	Temperature readings from Datalogger 1	°C
Sensor_2_ADC_Temperature	📖	Temperature readings from Datalogger 2	°C
Sensor_3_ADC_Temperature	📖	Temperature readings from Datalogger 3	°C
Sensor_4_ADC_Temperature	📖	Temperature readings from Datalogger 4	°C
Accelerator_X	📖	Accelerator_X readings (for	g

		accelerometer)	
Accelerator_Y		Accelerator_Y readings (for accelerometer)	g
Accelerator_Z		Accelerator_Z readings (for accelerometer)	g
Angular_X		Angular_X readings (for gyroscope)	°
Angular_Y		Angular_Y readings (for gyroscope)	°
Angular_Z		Angular_Z readings (for gyroscope)	°
Magnetic_X		Magnetic_X readings (for magnetometer)	gauss
Magnetic_Y		Magnetic_Y readings (for magnetometer)	gauss
Magnetic_Z		Magnetic_Z readings (for magnetometer)	gauss
Sensor_1_Gain_Ampl		Gain configuration for Datalogger 1	
Sensor_2_Gain_Ampl		Gain configuration for Datalogger 2	
Sensor_3_Gain_Ampl		Gain configuration for Datalogger 3	
Sensor_4_Gain_Ampl		Gain configuration for Datalogger 4	
Deformation_Refined_Sens_1		Deformation refined readings from Datalogger 1 (based on gain and temperature)	
Deformation_Refined_Sens_2		Deformation refined readings from Datalogger 2 (based on gain and temperature)	
Deformation_Refined_Sens_3		Deformation refined readings from Datalogger 3 (based on gain and temperature)	
Deformation_Refined_Sens_4		Deformation refined readings from Datalogger 4 (based on gain and temperature)	



Gateway settings

You can access the gateways list from the ' *Nodes/Devices*' menu at the left side of the console as the first option just below the ' *Dashboard* ' one. The gateways can be spotted among the sensors because their name does not contain any suffix (for example *GW_00020002* is a gateway while *GW_00020002_002* and *GW_00020002_003* are sensors related to gateway *GW_00020002*)

As for the sensors, the gateways contain various ' *fields*' and you can create a chart for each of them. Some fields are automatically created during the sensor registration. They are divided in 3 main categories

- sensor readings tags ()
- sensor configuration tags ()
- sensor calculated tags ()

Here is a full list of the preset ones

TAG NAME	TYPE	DESCRIPTION	M.U.
Last_Identif_Date		The datetime of the last gateway successful call to the server	
Def_Read_Interval		Default reading interval for this gateway related sensors	s