

# User Guide

## **TxWireless EDGE IG20** Industrial IoT Gateway and software platform

# TxWireless EDGE IG20

Industrial IoT Gateway  
and software platform

## User Guide

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<b>1. INTRODUCTION</b>	<b>3</b>
WHAT'S INCLUDED?	3
SUPPORT	3
<b>2. ACCOUNT SET UP</b>	<b>4</b>
ACCOUNT SETUP	4
ACTIVATING YOUR DEVICE	5
<b>3. USING THE TAOGLAS EDGE IG20</b>	<b>7</b>
DEVICE OVERVIEW	7
<b>4. USING TXWIRELESS INSIGHTS</b>	<b>8</b>
INSIGHTS NAVIGATION	8
ORGANISATION UNITS	9
ADD NEW USERS	9
DEVICE MANAGEMENT	10
DASHBOARD	12
SENSOR NOTIFICATION RULES	13
<b>5. APPENDIX</b>	<b>16</b>
USER ROLES	16
SECURITY	16
SAFETY AND REGULATORY REQUIREMENTS	16

# 1. Introduction

The **TxWireless EDGE IG20** enables real time insights and intelligence to help your enterprise save costs, increase revenue, and enhance compliance. It is a next-generation IoT device with cellular, Bluetooth, and on-board sensor capabilities with a cloud-based connectivity and device management platform.

## What's included?

On receipt of your **TxWireless EDGE Insights Solution** the following items should be included in the pack:

1. A **TxWireless EDGE IG20** industrial gateway
2. Along with the IG20 Series Gateway box you will receive a separate package with the **Taoglas MA114 antenna** that corresponds to your kit.



For **IG20 Installation Guide** please see **TxWireless EDGE IG20 Install Guide**

For **MA114 Installation Instructions** support please see **Taoglas MA114 Installation Guide**

For **MA114 antenna datasheet** please see <https://www.taoglas.com/datasheets/MA114.pdf>

## Support

For technical support please contact [support@txwireless.com](mailto:support@txwireless.com)

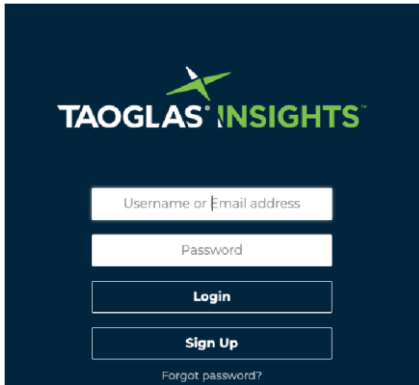
1. Go to <https://www.txwireless.com/service/edge-ig20/> to access.
  - a. Datasheet
  - b. User Guides

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## 2. Account Set up

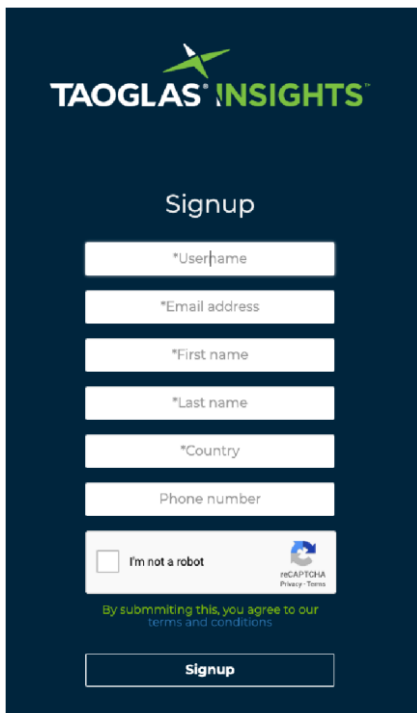
### Account Setup

1. To create an EDGE Insights account for your EDGE Connect devices, navigate to **industrial.taoglas.com** and click on **'Sign Up'**.



The screenshot shows the login page for Taoglas Insights. At the top is the Taoglas Insights logo. Below it are two input fields: "Username or Email address" and "Password". There are two buttons: "Login" and "Sign Up". At the bottom, there is a link for "Forgot password?".

2. Create a **username** and enter your details.



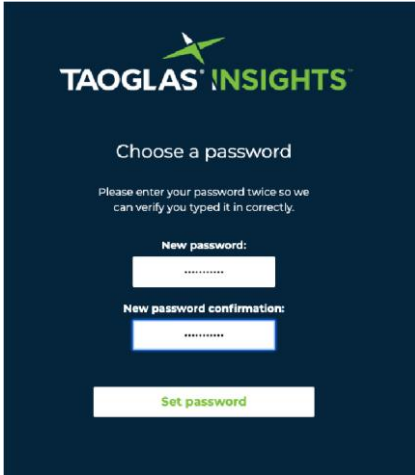
The screenshot shows the signup page for Taoglas Insights. At the top is the Taoglas Insights logo. Below it is the heading "Signup". There are several input fields: "\*Username", "\*Email address", "\*First name", "\*Last name", "\*Country", and "Phone number". There is a checkbox for "I'm not a robot" with a CAPTCHA icon and "Privacy Terms" link. Below the fields is a line of text: "By submitting this, you agree to our terms and conditions". At the bottom is a "Signup" button.

3. Once your information has been submitted, you will need to confirm your registration by clicking the link sent to the email address provided.



The screenshot shows an email confirmation message from Taoglas Insights. At the top is the Taoglas Insights logo. Below it is the heading "Your Taoglas Next Gen IoT user account has been created". The email starts with "Hi". It then says "You have been added as a user to [industrial.taoglas.com](http://industrial.taoglas.com)". It continues: "To complete your registration, please follow this link: <http://industrial.taoglas.com/password-set/confirm/MTE9/6ei-6d89ds62d29sc62/>". At the bottom, it says "- Taoglas Next Gen IoT".

4. Upon clicking the link, a browser will open, and you will be requested to create a password.

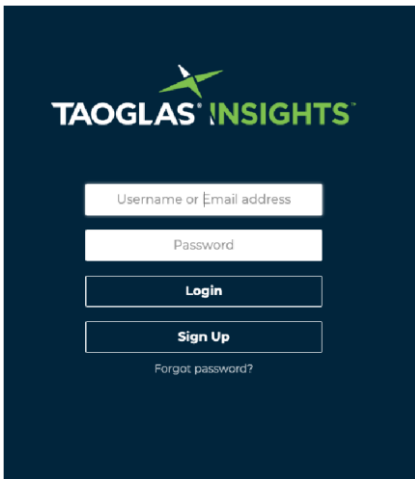


The screenshot shows the 'TAOGLAS INSIGHTS' logo at the top. Below it, the text reads 'Choose a password'. A sub-instruction says 'Please enter your password twice so we can verify you typed it in correctly.' There are two input fields: 'New password:' and 'New password confirmation:'. Both fields contain a series of dots representing masked characters. At the bottom, there is a green button labeled 'Set password'.

5. After entering and confirming your password, registration is now complete, proceed to device activation.

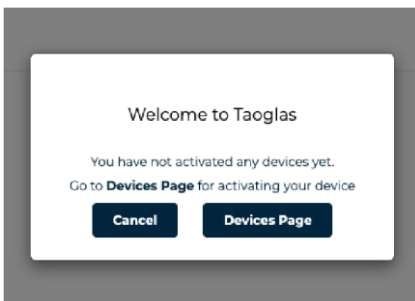
## Activating your Device

1. Using the details registered in the sign-up process, you will be required to login to the Taoglas Insights platform in order to register your TxWireless EDGE IG20.



The screenshot shows the 'TAOGLAS INSIGHTS' logo at the top. Below it, there are two input fields: 'Username or Email address' and 'Password'. There are two buttons: 'Login' and 'Sign Up'. At the bottom, there is a link that says 'Forgot password?'.

2. The first time you log in, you will receive a popup message notifying you that you have not activated any devices. Click on the 'Devices Page' button on the pop up, this will direct you to the device list page.



The screenshot shows a white popup message with a grey border. The text reads 'Welcome to Taoglas'. Below that, it says 'You have not activated any devices yet. Go to **Devices Page** for activating your device'. There are two buttons: 'Cancel' and 'Devices Page'.

- To activate your TxWireless EDGE IG20, click '**Activate New Device**' at the bottom of the page, a popup window will request your TxWireless EDGE IG20 **S/N** and **Activation Code**. After entering these, click '**Submit**' to finish the activation process. The TxWireless EDGE IG20 **S/N** and **Activation Code** can be found on the card included in the box.



- After entering the EDGE IG20 **S/N** and **Activation Code**, click '**Submit**' to activate your EDGE IG20.
- The TxWireless EDGE IG20 will now be listed on the devices page, see an example of this below.

Devices

Filter by **State** ▾ **Device Type** ▾ Sort by: **Date Added** ▾ Order: **Ascending** ▾

Search by Device Name or Serial

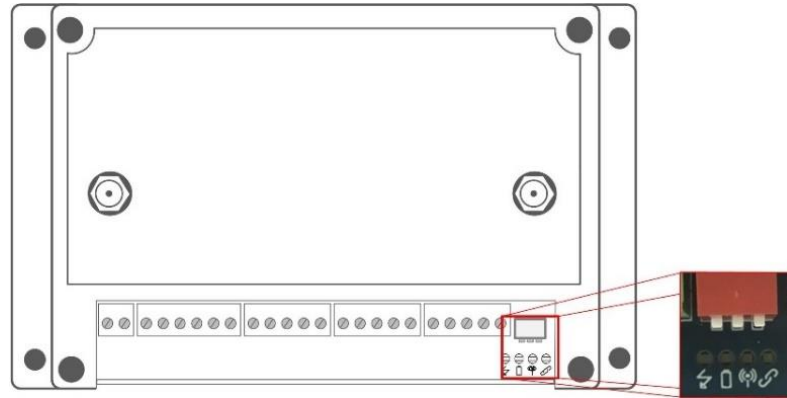
No.	Device	Active	Last Connection	Device Type	Edit	Delete
1	<b>Genset 1</b>	<span style="color: red;">●</span> No	3G  3 29/01/2021, 09:17:31	Taoglas EDGE IG10 Industrial Gateway		
2	<b>Genset 2</b>	<span style="color: green;">●</span> Yes	3G  3 02/03/2021, 16:51:16	Taoglas EDGE IG10 Industrial Gateway		

- If device activation fails, please contact TxWireless support at [support@txwireless.com](mailto:support@txwireless.com)

### 3. Using the Taoglas EDGE IG20





#### Device Overview

Please refer to the **IG20 Installation Guide** for steps on how to install and set up the gateway.



Once it has been installed and powered from a suitable power source, the **Power LED** will remain illuminated to indicate the power source is sufficient and the device will attempt to connect to an Asset controller and to a cellular network.

Each of the four LED indicators have an icon underneath them to show their function. The Table below shows their meaning.

Icon	Function
	External Power Status
	Battery Status
	Cellular Link Status
	Asset Controller Link Status

The Indicator LED can operate in 5 different states.

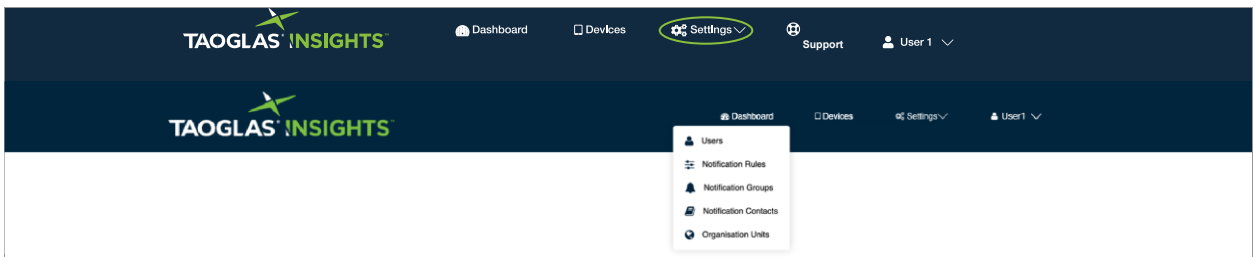
- Off
- On
- Flashing at one flash per second.
- Flashing at one flash every 2 seconds.
- Flashing at one flash every 5 seconds.

Refer to **IG20 Installation Guide** to get more information.

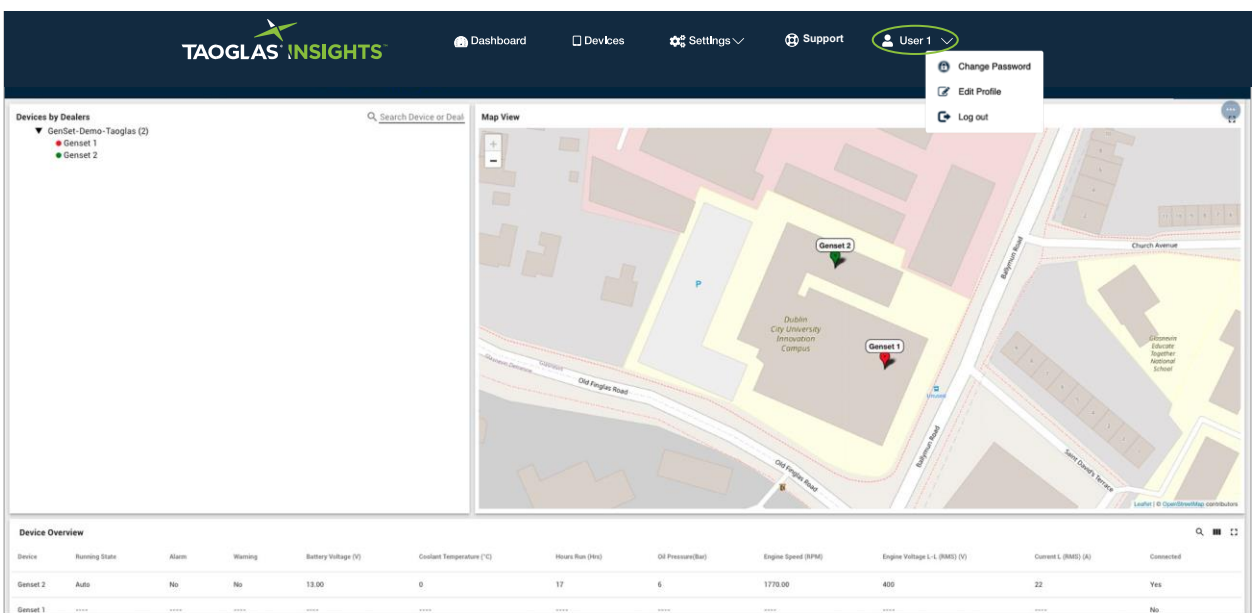
## 4. Using TxWireless Insights

### Insights Navigation

1. When you login to your account, you will land on the **Dashboard** page.
2. You can use the links on the top of TxWireless Insights to navigate between your dashboard and account management pages, depending on the role associated with your user you may also be able to see the device list page.
  - a. **Dashboard** will bring you to your dashboard where you can see all the sensor data uploaded by your TxWireless EDGE IG20.
  - b. **Devices** will bring you to your device list page, from here you can manage each of the devices you have activated on your account.
  - c. Clicking on **'Settings'** will display a dropdown with various account management options, including:
    - i. Add/edit Users
    - ii. Edit Device Notification Rules
    - iii. Device Notification Groups
    - iv. Edit Device Notification Contacts
    - v. Add/edit Organisation Units



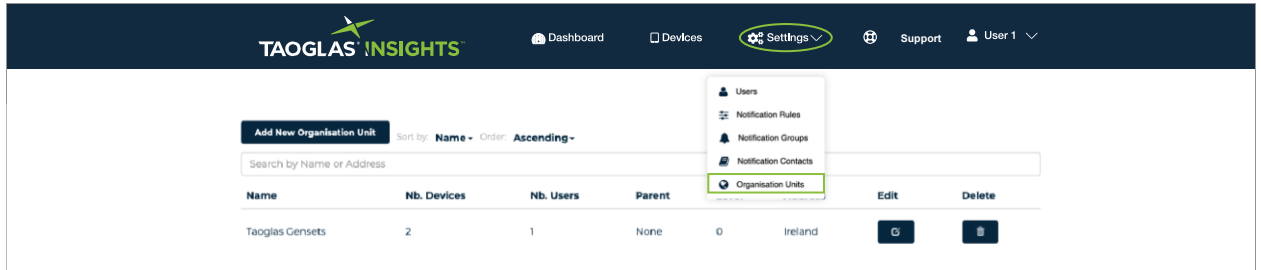
- d. Clicking on **'Username'** will display a dropdown with various account management options, including:
  - i. Changing your password
  - ii. Editing your account details
  - iii. Deleting your account
  - iv. Logging out of your account



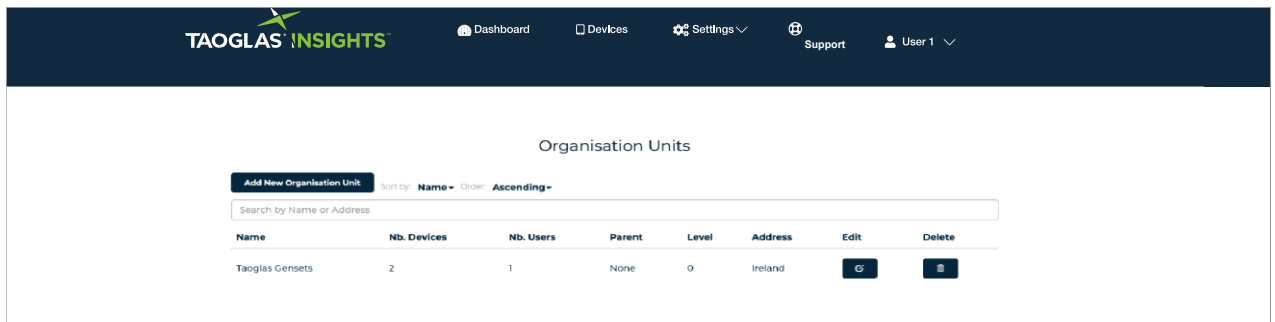


## Organisation Units

1. TxWireless Insights allows users to manage the deployment of IG20 series devices using organisation units, this allows blocks of devices to be assigned to subgroups with different permission levels.
2. To add a new user so that they can view the devices you have activated on your account, click **'Settings'** followed by **'Organisation Units'**.



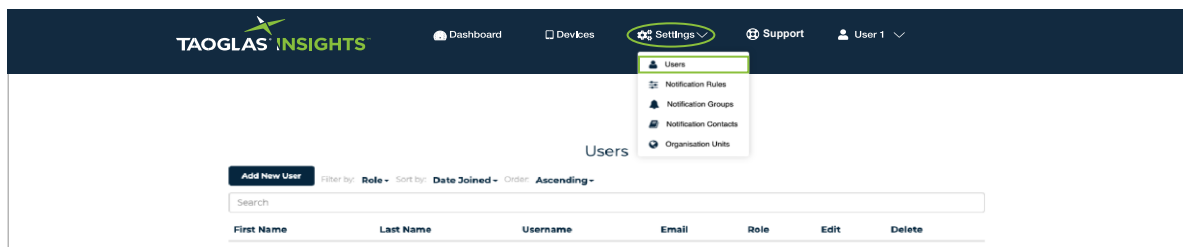
3. The users list page will appear, click **'Add New Organisation Unit'**, which will bring you to a page which allows you to add a new organisation unit.



4. Using this page you can:
  - a. Name the Organisation Unit
  - b. Select the parent organisation unit to which the new organisation unit belongs from the **'Parent Organisation Unit'** drop down.
  - c. Select the devices which belong to this org unit using the **'Devices'** dropdown.
  - d. Select which users should be able to view this org unit using the **'Users'** dropdown.
  - e. Enter the **'Address'** where the organisation unit is based.
  - f. Click **'Submit'** to add the organisation unit.

## Add New Users

1. To add a new user so that they can view the devices you have activated on your account, click **'Settings'** followed by **'Users'**.



2. The users list page will appear, click **'Add New User'**, which will bring you to a page which allows you to add a new user.

The screenshot shows the 'Add New User' form in the TAOGLAS INSIGHTS dashboard. The form is titled 'Add New User' and contains the following fields and controls:

- Email address:** A text input field.
- Username:** A text input field.
- First name:** A text input field.
- Last name:** A text input field.
- Address:** A text input field with the placeholder text 'Enter a location'.
- Role:** A dropdown menu.
- User Enabled:** A toggle switch currently set to 'On'.
- Organisation Units:** A dropdown menu with the placeholder text 'Select a Unit'.

At the bottom right of the form, there are two buttons: 'Cancel' and 'Submit'.

3. On this page enter the:
  - a. Users email address
  - b. Users username
  - c. Users First name
  - d. Users Last name
  - e. Users Address
  - f. The role associated with the user; this controls the permissions associated with the user.
  - g. See **Appendix 5.1** for information on the different permissions for each role.
  - h. The organisation units the user can view.
4. Click 'Submit' to add the user.
5. A new user will be emailed informing them of their new account.

## Device Management

1. Depending on the role assigned to a user they can edit the details for an individual device by clicking the edit icon (✎) on the **devices** page.
2. This will direct you to the **Edit Device** page, from here you can amend the following:
  - a. **Device Name**, here you can enter a customized name for your TxWireless EDGE IG20.
  - b. **Address**, here you can enter your address.
  - c. **Upload Interval**, this is the rate at which the TxWireless EDGE IG20 will upload recorded sensor samples to TxWireless Insights.
  - d. **Upload Retries**, in the event where the TxWireless EDGE IG20 fails to upload samples, this is the number of times it will attempt to upload before backing off.
  - e. Depending on the permissions associated with your users, you may be able to select the following:
    - i. Controller Type
  - f. The sampling intervals for both sleep and real time modes:
    - i. Battery
    - ii. Location
    - iii. Analogue Inputs
    - iv. Digital Inputs
    - v. Modbus/CAN bus
  - g. The external fuel sensors attached to your gateway, the following can be enabled:
    - i. Analog Fuel Gauge (0.5-4.5V)
    - ii. Digital Fuel Switch (High/Low Switch)
    - iii. BLE Fuel Gauge, an accessory available from TxWireless.

TAOGLAS INSIGHTS Dashboard Devices Settings Report User 1

### Edit Device rolover overview

## Devices

Filter by: **State** • **Device Type** • Sort by: **Date Added** • Order: **Ascending**

Search by Device Name or Serial

No.	Device	Active	Last Connection	Device Type	
1	Genset 1	No	3G  3 29/01/2021, 09:17:31	Taoglas EDGE IG10 Industrial Gateway	
2	Genset 2	Yes	3G  3 02/03/2021, 11:30:11	Taoglas EDGE IG10 Industrial Gateway	

**Edit Device**

Battery Life 3 Days  
Data Cost: 3.8MBYTE/Month

**Taoglas**

Battery Sleep 01:00:00  
Location Sleep 00:15:00  
Analogue Input 1 01:00:00  
Analogue Input 2 01:00:00  
Analogue Input 1 Sleep 01:00:00  
Analogue Input 2 Sleep 01:00:00

**Sensors with Modbus:**

Modbus 00:00:05  
Location 00:15:00  
Battery 00:15:00

**External Fuel Configuration Options:**

Analogue Fuel Gauge Enabled **False**  
Fuel Switch Enabled **False**  
BLE Fuel Gauge Enabled **True**

Edit Device

## Edit Device

Device Name: <input type="text" value="Genset 2"/>	Device IMEI: <input type="text" value="8676880631864183"/>
Device S/N: <input type="text" value="20145935905"/>	BLE Name: <input type="text" value="IG.10L-8DA0"/>
Address: <input type="text" value="Dublin, Ireland"/>	

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Upload Interval: <input type="text" value="01:00:00"/>	Upload Retries: <input type="text" value="3"/>
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Controller Type: <input type="text" value="DSE 7420 MKII"/>	J1939 Type: <input type="text" value=""/>
BLE Sensor: <input type="text" value="E1EAF8BC8AE0"/>	

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Notification Rules:

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**Device Parameters**

**Taoglas**

**Battery Sleep** - Interval between battery detections

**Location Sleep** - Interval between location detections

**Analogue Input 1** - Analogue Input 1 value

**Analogue Input 2** - Analogue Input 2 value

**Analogue Input 1 Sleep** - Analogue Input 1 value sleep mode

**Analogue Input 2 Sleep** - Analogue Input 2 value sleep mode

**Sensors with Modbus**

**Modbus** - Modbus reading interval

**Location** - Location Sense Interval

**Battery** - Battery Sense Interval

**External Fuel Configuration Options**

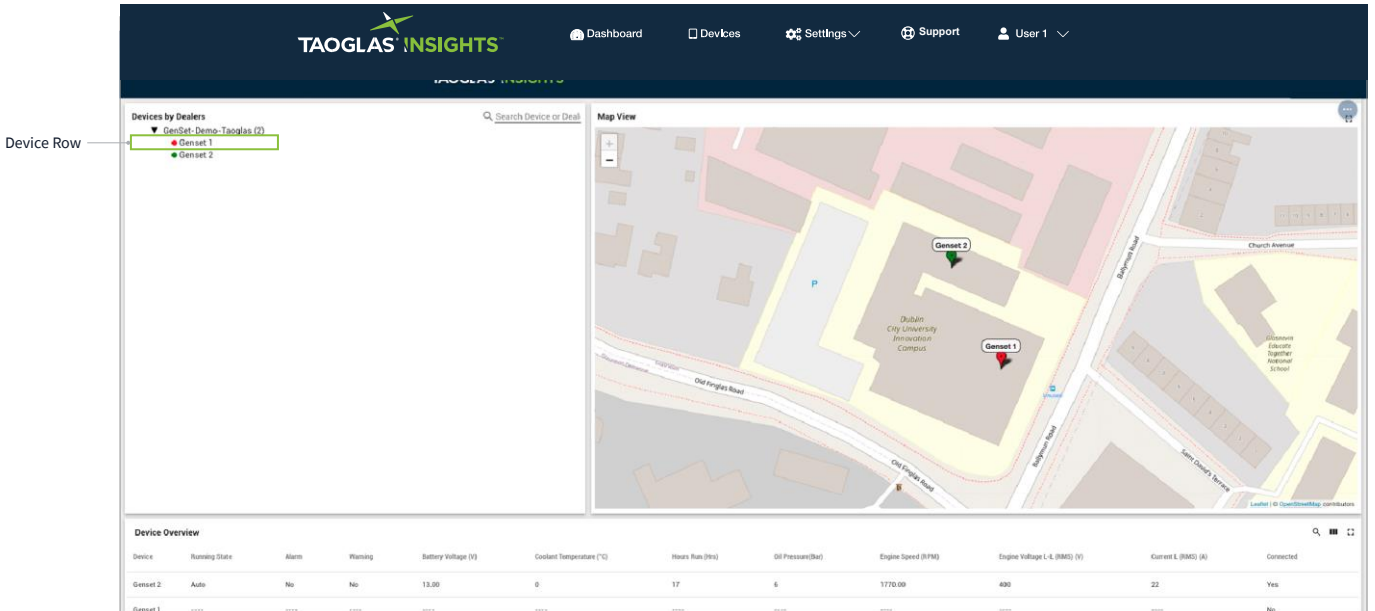
**Analogue Fuel Gauge Enabled** - Used to indicate whether or not a gateway has an analogue fuel gauge connected.

**Fuel Switch Enabled** - Used to indicate whether or no a gateway has a fuel level switch connected.

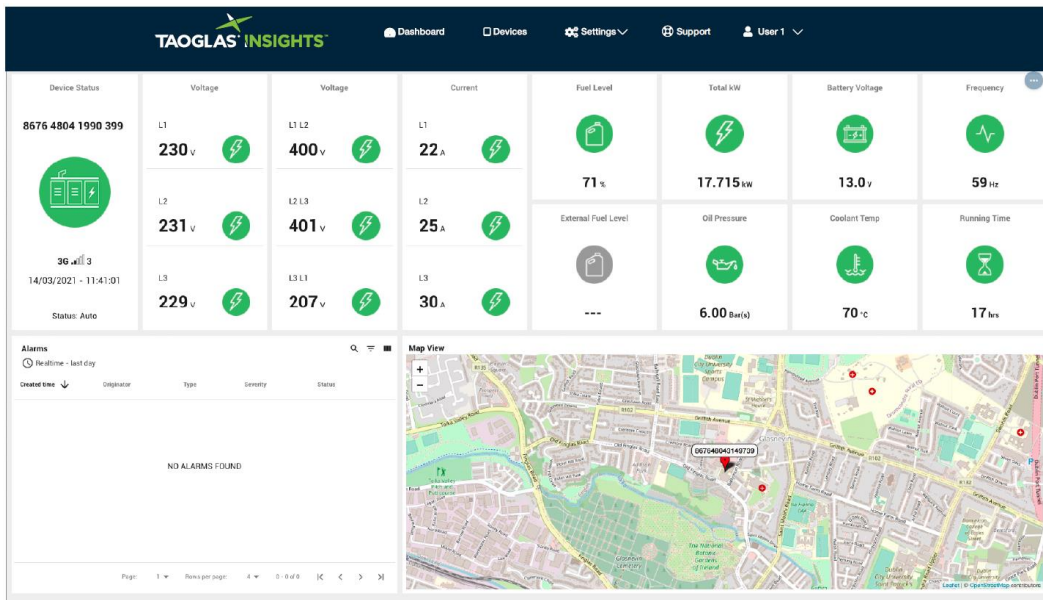
**BLE Fuel Gauge Enabled** - Used to indicate whether or not a gateway is connected to an external BLE fuel Gauge.

# Dashboard

1. When the dashboard view loads initially, you are presented with an overview of all of your devices.
  - a. The top left shows each device your user role allows you to view, broken down by organisation unit.
  - b. The right shows a map of each device your user role allows you to view.
  - c. The bottom of the page shows an overview of table for important parameters on your devices.



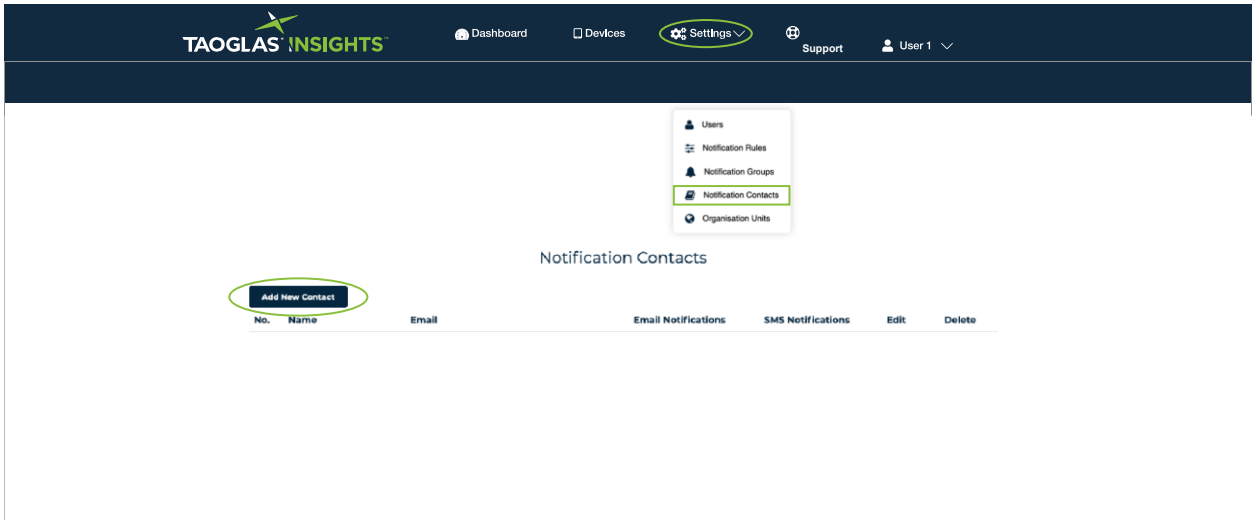
2. To get more detail for a particular device, you can click on either the device in the panel on the top left or on the device overview table at the bottom of the screen. You will be presented with the following dashboard page.



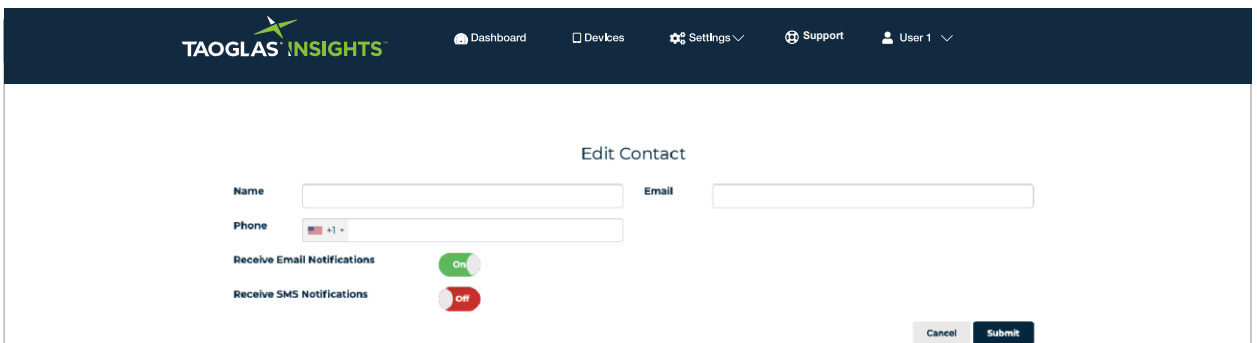
- a. From this page you can see live sensor data from the gateway, the latest cellular network information and the gateways location on a map.
- b. To view the historical information for a device you can click on a widget to view a graph of the last 30 days.
- c. By clicking on the pin on the map you will be given the option to:
  - i. Open the device location on google maps.
  - ii. View the route map of the device View showing its location over a period of time.

## Sensor Notification Rules

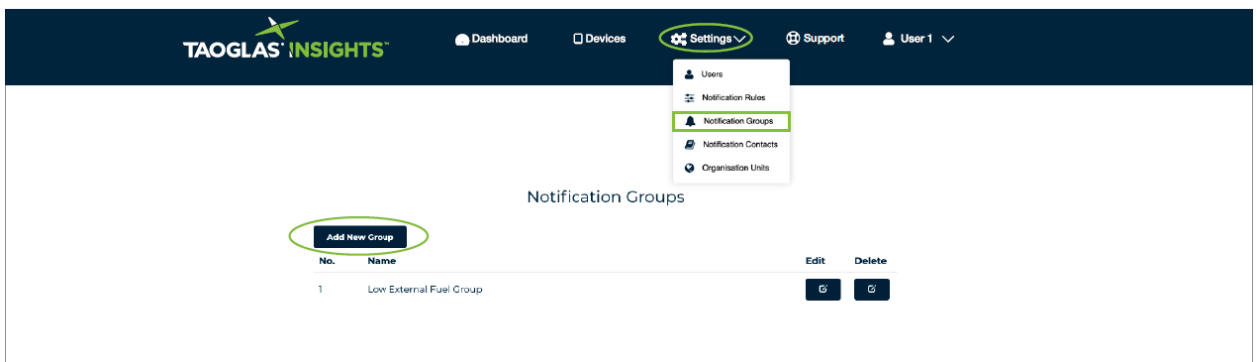
1. TxWireless Insights allows you to notify a group of contacts based on an uploaded sensor value.
2. To do this you will first have to add a contact to Taoglas Insights, click **'Settings'** followed by **'Notification Contacts'** at the top of the screen.
3. A page listing all the contacts associated with your account will appear, this will be empty if no contacts have been added. Click the **'Add New Contact'** button.



4. On the next screen, enter the name and email address of the contact you want to notify, then click **'Submit'**.



5. You repeat steps 3 and 4 multiple times to add multiple contacts, regardless of whether or not they are TxWireless Insights users.
6. After adding all the contacts you wish to notify, click **'Settings'** followed by **'Notification Groups'**. This will display a list of your notification groups, which will be empty initially.



7. Click, **'Add New Group'**, on the screen that follows, please:
  - a. Enter the name you wish to give the notification group.
  - b. Select the contacts you wish to add to the group.

TAOGLAS INSIGHTS

Dashboard Devices Settings Support User 1

### Add New Notification Group

Name

Remind me

Contacts

Cancel Submit

- c. Select the max frequency you wish to notify the group, for example selecting **‘Once a day’**, will only notify the group once in a 24-hour period, regardless of the number of times the rule associated with the notification is triggered.
8. Once you have entered the above information, click **‘Submit’** to create the group.

TAOGLAS INSIGHTS

Dashboard Devices Settings Support User 1

### Add New Notification Group

Name

Remind me

Contacts

Cancel Submit

9. Now that the group has been created, you will be required to add a rule which will trigger the notification. Click, ‘Settings’ followed by ‘Notification Rules’. This will bring you to your list of rules. To add a new rule, click ‘Add new Notification Rules’.

TAOGLAS INSIGHTS

Dashboard Devices Settings Support User 1

Users  
Notification Rules  
Notification Groups  
Notification Contacts  
Organisation Units

### Notification Rules

Add New Notification Rules

No.	Name	Sensor	Operator	Threshold Level	Edit	Delete
-----	------	--------	----------	-----------------	------	--------

10. On the window that appears:
- a. Give the rule a name.
  - b. Select the sensor you wish to base the rule on.
  - c. Select the operator.
  - d. Enter a threshold.
  - e. Select the notification group.


**Edit Notification Rule**

**Name**  **Sensor**

**Operator**  **Threshold Level**

**Notification Group**

The above screenshot will trigger the notification if a temperature sample with a value less than 100 is uploaded to TxWireless Insights.

11. Once all the information has been completed, click **‘Submit’**.
12. The rule is now available to apply to the devices associated with your account.
13. To do this, navigate to the devices list page by clicking **‘Devices’**.
14. Click the edit icon(  ) on the device you want to add the rule to, this will bring up the device edit page.
15. Select the rule from the **‘Notification Rules’** dropdown as in the screenshot below and click **‘Submit’**.

**Controller Type**  **J1939 Type**

**Ble Sensor**

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**Notification Rules**

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**Device Parameters**

**Taoglas**

**Battery Sleep** - Interval between battery detections

**Location Sleep** - Interval between location detections

**Analogue Input 1** - Analogue Input 1 value

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## 5. Appendix

### User Roles

The following User Roles are available on industrial.taoglas.com:

Admin

Organisation Admin

Basic User View Only

#### 1.1 Admin Permissions

View/Create/Edit/Delete all organisation units

View/Create/Edit/Delete users

Edit device information

Set Modbus Controller Type

View/Create/Edit/Delete notifications

#### 2.1 Organisation Admin Permissions

View/Create/Edit/Delete organisation units

View/Create/Edit/Delete users in their organisation unit

Edit device information

Set Modbus Controller Type

View/Create/Edit/Delete notifications

#### 3.1 Basic User Permissions

Edit device information

View device list

View device edit page

#### 4.1 View Only Permissions

Only allowed to view the devices for the organisation unit of which they are a member of

### Security

The Asset Monitoring Solution device security is provided by four mechanisms:

1. Connection to the Cloud-based components via HTTPS, with the servers public certificates held on the Asset Monitoring Solution device.
2. Authentication of the device by the TxWireless Insights Platform, with the unique and individual private key held securely in a cryptographic coprocessor.
3. Whitelisting of the domains to which the Genset Monitoring Solution APN can connect – TxWireless Insights and TxWireless Insights Platform and NTP servers only.
4. The device periodically reports its configuration hash (security), firmware versions, and certificate bundle version to the TxWireless Insights Platform. A report is sent each time a device is powered up, or when the configuration, certificate, or firmware has changed.

### Safety and Regulatory Requirements

**Warning:** Failure to follow instructions could increase risk to safety and noncompliance with regional laws and regulations.

**Warning: DO NOT SHORT CIRCUIT, DISASSEMBLE, CRUSH, PENETRATE OR INCINERATE.**

**BATTERY MAY LEAK OR EXPLODE IF HEATED ABOVE 100 °C (212 °F).**

**Warning: HAZARDOUS AREA WARNING:** This instrument has not been designed to be intrinsically safe for use in areas classified as hazardous locations. For your safety, DO NOT use it in hazardous (classified) locations.

**Caution:** In the case of an emergency, degraded performance will occur if wireless reception is inhibited.

**Note:** The device has an operating range between -20°C (-4F) to +55°C (131F).

The device can be safely charged in an ambient temperature range of between 0 – 40 degrees Celsius (32-104 degrees

Fahrenheit). The device can be charged with the supplied charger and cable.



**Note:**

- a. Do not disassemble or open crush, bend or deform, puncture or shred.
- b. Do not modify or remanufacture, attempt to insert foreign objects into the battery, immerse or expose to water or other liquids, expose to fire, explosion or other hazard.
- c. Only use the battery for the system for which it is specified.
- d. Only use the battery with a charging system that has been qualified with the system per CTIA Certification Requirements for Battery System Compliance to IEEE 1725. Use of an unqualified battery or charger may present a risk of fire, explosion, leakage, or other hazard.
- e. Do not short circuit a battery or allow metallic conductive objects to contact battery terminals.
- f. Replace the battery only with another battery that has been qualified with the system per this standard, IEEE-Std-1725. Use of an unqualified battery may present a risk of fire, explosion, leakage or other hazard. Only authorized service providers shall replace battery. (If the battery is non-user replaceable).
- g. Promptly dispose of used batteries in accordance with local regulations.
- h. Battery usage by children should be supervised.
- i. Avoid dropping this device or battery. If this device or battery is dropped, especially on a hard surface, and the user suspects damage, take it to a service center for inspection.
- j. Improper battery use may result in a fire, explosion, or other hazard.

**Caution:** Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

**Federal Communication Commission Interference 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.

This device 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 generates, 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 measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**FCC Caution:**

- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

**RF Exposure Information (SAR)**

This device meets the government's requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

The exposure standard for wireless device employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6W/kg. \*Tests for SAR are conducted using standard operating positions accepted by the FCC with the device transmitting at its highest certified power level in all tested frequency bands. Although the SAR is determined at the highest certified power level, the actual SAR level of the device while operating can be well below the maximum value. This is because the device is designed to operate at multiple power levels so as to use only the power required to reach the network. In general, the closer you are to a wireless base station antenna, the lower the power output. The highest SAR value for the model device as reported to the FCC when worn on the body, as described in this user guide, is 1.1 W/Kg (Body-worn measurements differ among device models, depending upon available accessories and FCC requirements).

While there may be differences between the SAR levels of various devices and at various positions, they all meet the government requirement.

The FCC has granted an Equipment Authorization for this model device with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this model device is on file with the FCC and can be found under the Display Grant section of [www.fcc.gov/oet/ea/fccid](http://www.fcc.gov/oet/ea/fccid) after searching on FCC ID: WYPEU0312.

For body worn operation, this device has been tested and meets the FCC RF exposure guidelines for use with an accessory that contains no metal and be positioned a minimum of 1 cm from the body. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

