

APG Explorer Cloud Based Management System Instruction Manual

Contents

- [1 APG Explorer Cloud Based Management System](#)
- [2 INTRODUCTION](#)
 - [2.1 ORGANIZATION & NAVIGATION](#)
- [3 USING EXPLORER](#)
 - [3.1 INVITATIONS & PHANTOM USERS](#)
 - [3.2 GATEWAYS](#)
 - [3.3 ALARMS](#)
 - [3.4 ATTRIBUTES](#)
 - [3.5 CHART](#)
- [4 TROUBLESHOOTING & SUPPORT](#)
- [5 ABOUT COMPANY](#)
- [6 Documents / Resources](#)
 - [6.1 References](#)
- [7 Related Posts](#)



APG Explorer Cloud Based Management System

INTRODUCTION

OVERVIEW

- The purpose of this Explorer Manual is to provide users with guidance on how to use the features of Explorer.
- Key features include:
 - Sensor data delivery to user
 - Sensor alarm notifications
 - Two-way communication between user and sensors
 - User controlled sensor and gateway configuration
- This introductory section will instruct users on how to register, log in/out, and basic navigation of the website.
- The “Using Explorer” section will cover the main features of Explorer and show step-by-step instructions on how to use them.
- If a user is having trouble or receiving error messages, the “Troubleshooting & Support section will instruct users on how to best resolve their issues.

REGISTRATION

To use Explorer a user must be registered at explorer.apgsensors.com.

- To get to the Registration page, click on the “Sign Up” icon in the top right of the Login page.



Sign Up Icon

- Fill in the requested information and click the “Sign Up” button.
- A verification email will be sent to the provided email address, and once verification has been completed the user will be registered.

A dark gray registration form with a white user icon at the top. Below the icon are five input fields labeled "Username", "First Name", "Last Name", "Email", and "Password". At the bottom is a "Sign Up" button.

Registration

LOG IN

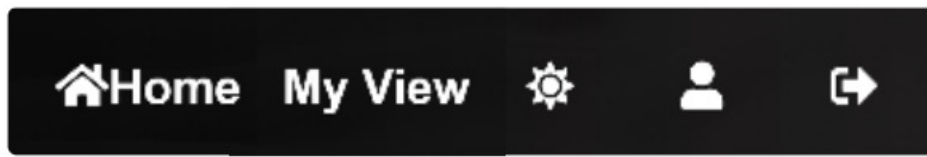
- Users will need to input their username and password to log into Explorer.
- If a user has forgotten their password, they can click the “Forgot Password” button to create a new password.

A dark gray login form with two input fields labeled "Username" and "Password". Below the fields are two buttons: "Login" and "Forgot Password".

Log In

ORGANIZATION & NAVIGATION

From left to right:



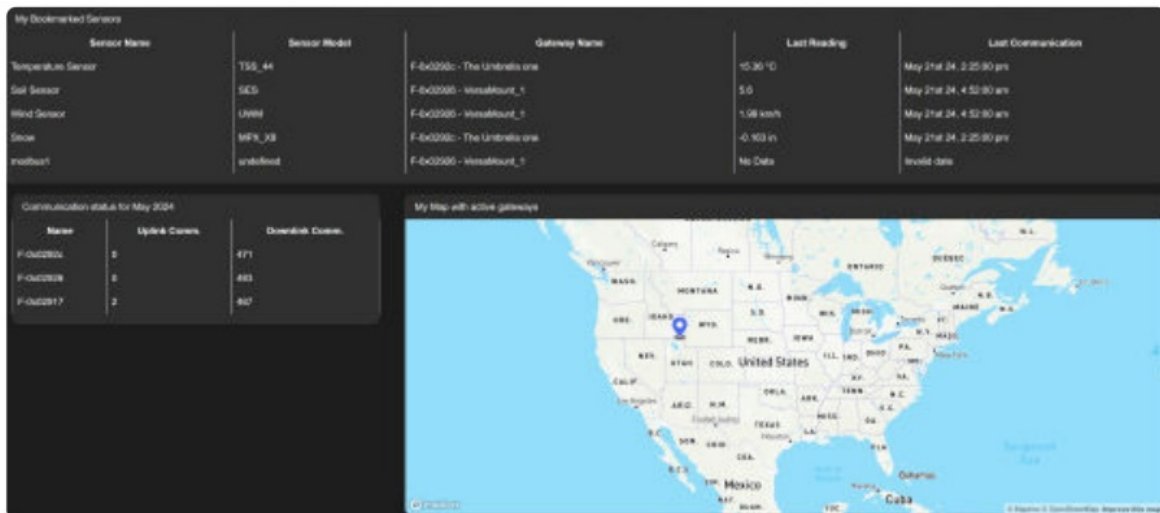
Basic Navigation Icons

- “Home”
- My View
- Dark/Light Mode Toggle
- Profile
- Log Out

HOME PAGE

The “Home” page has three displays: most recent communications, monthly communications, and a map of active gateways. It is designed to give users a brief overview of their gateways.

- The most recent communications displays the five most recent communications from the current gateways.
- The monthly communications display keeps track of uplink and downlink communications for the current months for each of the current user’s gateways.
- The map of active gateways shows where the gateways are located based on telemetry data. This will only show if the current user has access to the gateway’s GPS telemetry.



Home Page

MY VIEW

The My View page is the principle page for viewing details and changing configurations on the current user’s gateways and sensors.

Displayed from left to right:

- **“My Sensors”** Controls which information is displayed, and which configurations are to be changed. This is a tree structure with the trunk being groups and leaves are sensors: Group >> Gateway >> Sensor.
- **“Overview”** Displays Gateway and Sensor information on device health, telemetry, and current configurations.
- **Tabbed Layout** The details of each tab will be covered in Section 3 of this manual.



My View Page

LOG OUT

Clicking on the Log Out icon will immediately log out the current user and direct the current user to the Log In page.



Log Out

USING EXPLORER

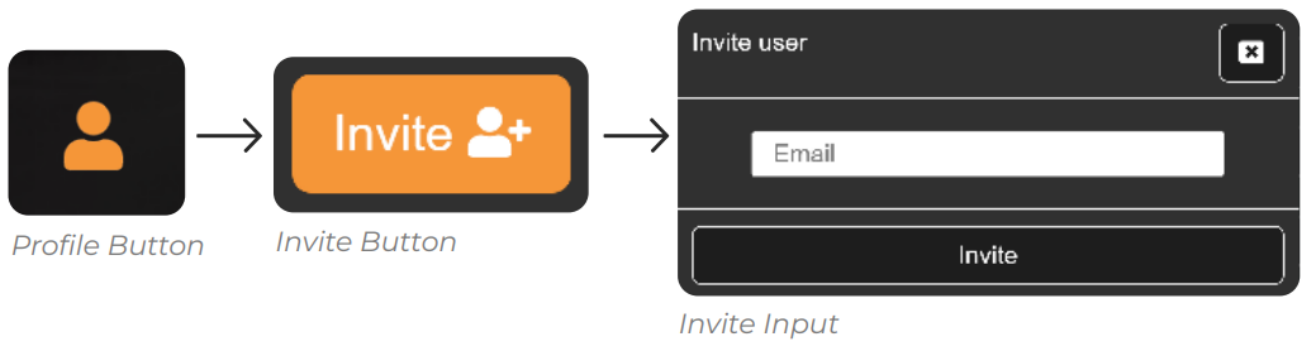
The following sub-sections provide detailed, step-by-step instructions on how to use the various functions or features of Explorer.

INVITATIONS & PHANTOM USERS

- Invitations can be sent to email addresses from the Profile page.
- Once an invitation has been sent, a “Phantom” user is created with the inviter’s current configuration and access attributes. These Phantom users can then be added to groups and have access attributes modified.
- When the invitee registers, the Phantom user becomes a regular user.

HOW TO INVITE OTHER USERS

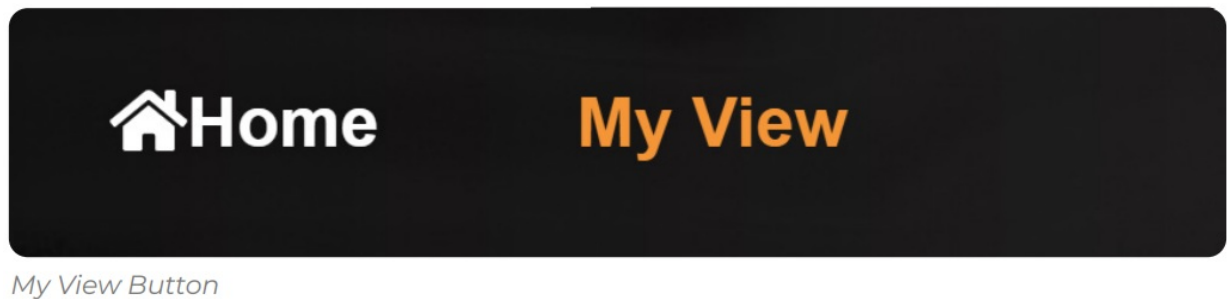
- **Step 1** Click the Profile Button in the upper right-hand corner.
- **Step 2** Click the Invite Button.
- **Step 3** Input the invitee’s email address, click “Invite”.



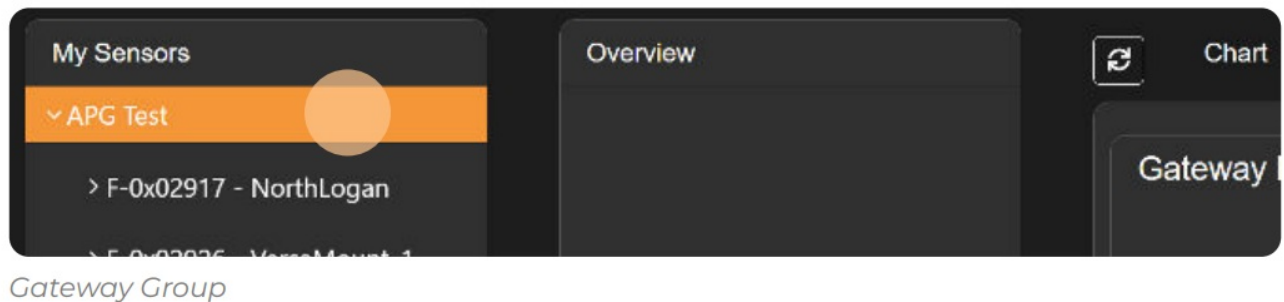
GATEWAYS

Gateways are a piece of the Nomad system that communicates between the sensors and the website. All users can control the communication frequencies as well as the request register readings from the “Gateway Control” tab:

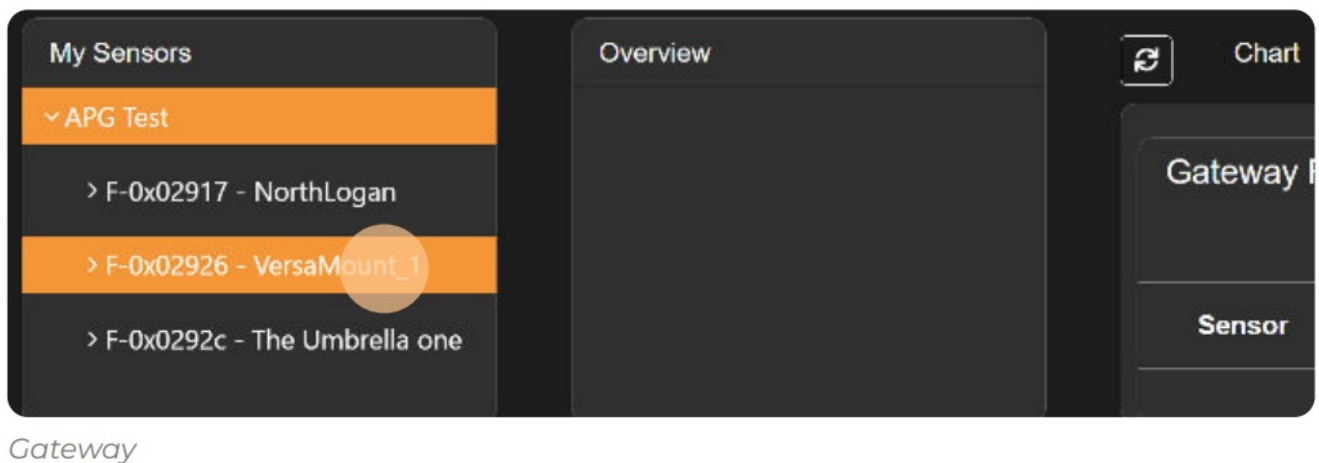
- **Step 1** Click “My View”.



- **Step 2** Select the group the gateway is a member of.



- **Step 3** Select the gateway.



GATEWAY READING CONTROL (GRC)

Gateway Reading Control allows the user to determine how a Nomad device communicates with its sensors.

Sensor	Address To Read	Length	Power Line	Function	Fct. Desc.	
1	1	1	1	03	Request to Nomad to read modbus holding reg (MD F3)	X

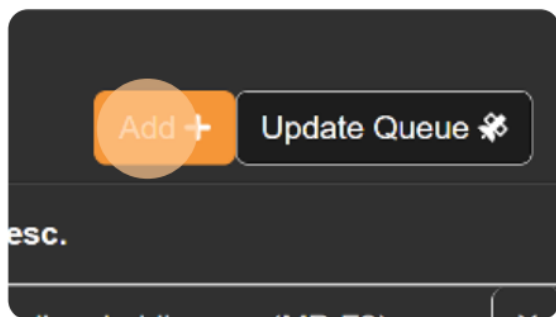
Gateway Reading Control

Displayed from left to right

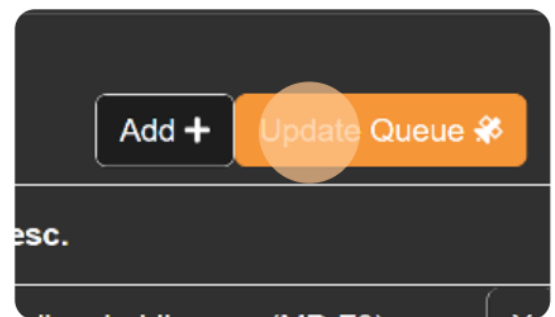
- **Sensors** Modbus Sensor ID.
- **Address To Read** The register address to read.
- **Length** The length of the read starting at “Address To Read” Value.
- **Power Line** The power line associated with the selected sensor.
- **Function** The function to apply to the read.
- **Fct. Desc.** Description of the selected function.

HOW TO CREATE A NEW GATEWAY READING CONTROL

- **Step 1** Click “Add”.
- **Step 2** Click “Update Queue”.



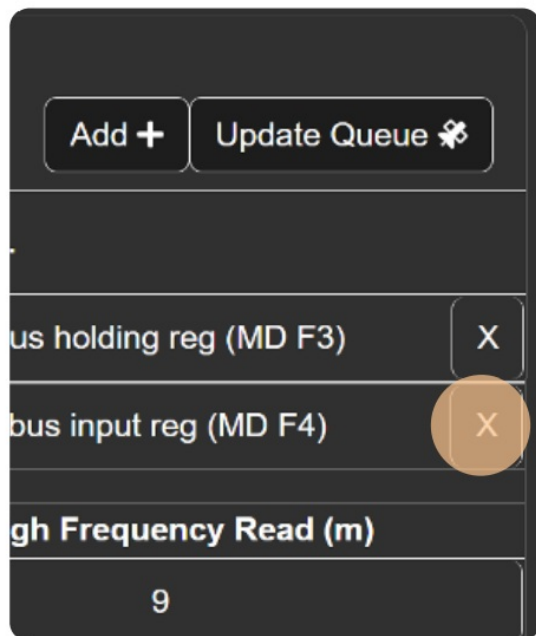
GRC Add Button



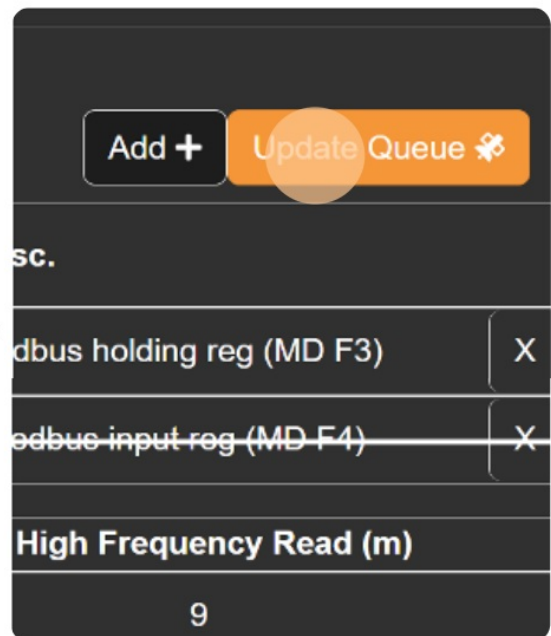
GRC Update Queue Button

HOW TO DELETE A GATEWAY READING CONTROL

- **Step 1** Click “X”.
- **Step 2** Click “Update Queue”.



GRC X Button



GRC Update Queue Button

GATEWAY COMMUNICATION & READING SETTINGS

Users can adjust gateway sensor reading and communication settings according to their need. See Section 2.2.1 for a description of the configuration settings.

Bootup Timeout (s)	Send Communication Every (m)	High Frequency Read (m)
60	60	9

My View Gateway Configuration

- **Step 1** Click “Gateway Control”.



Gateway Control Menu Options

- **Step 2** Adjust communications settings.



Communication Settings Adjustment

- **Step 3** Select “Update Queue”.



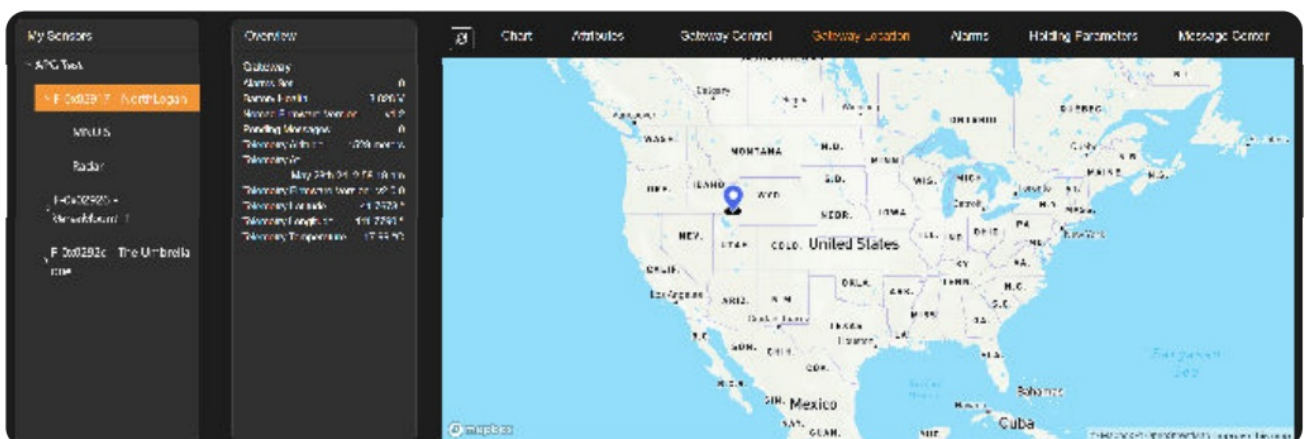
Gateway Control Update Queue

Table 1. Gateway Configuration

Setting	Description	Default
High Frequency Read (minutes)	How often the gateway will read sensor values without sending (used for alarm detection).	10
Send Comm. Every (minutes)	How often the gateway will read and send sensor values.	60
Boot-up Timeout (seconds)	The time between gateway boot-up and sensor reading.	10

GATEWAY LOCATION

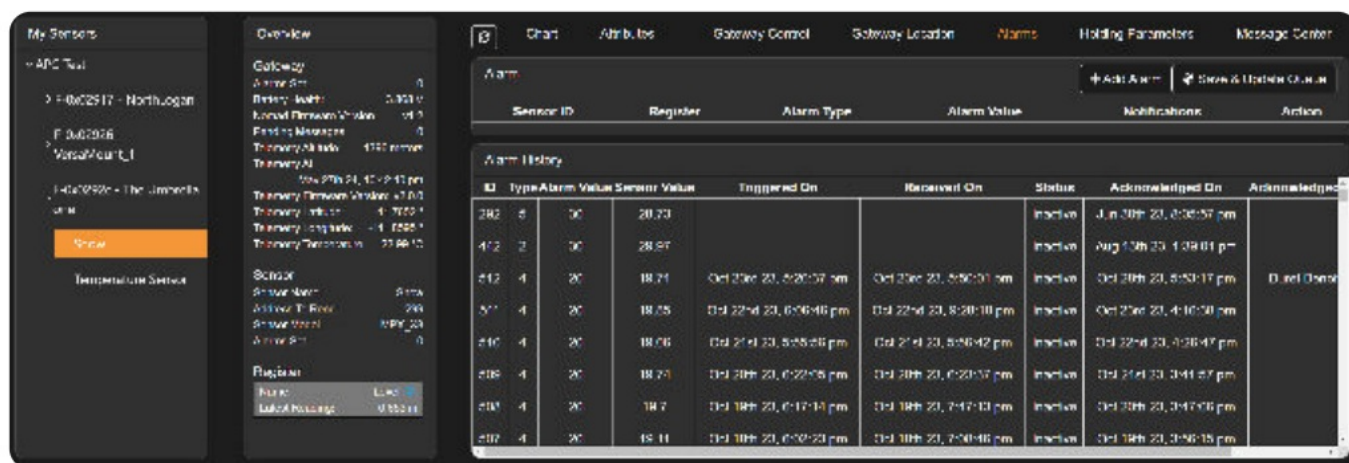
- If a user has access to GPS data, then they will see a “Gateway Location” tab in My View that shows the gateway’s recorded location.
- This feature requires gateway telemetry data that may not always be available.



Gateway Location

ALARMS

Alarms are handled at the gateway level but are defined at the sensor level. When a user selects the Alarm tab in My View they will see all sensors’ set alarms and alarm history for the gateway.



My View Alarms

ALARM TYPES

Table 2. Gateway Configuration

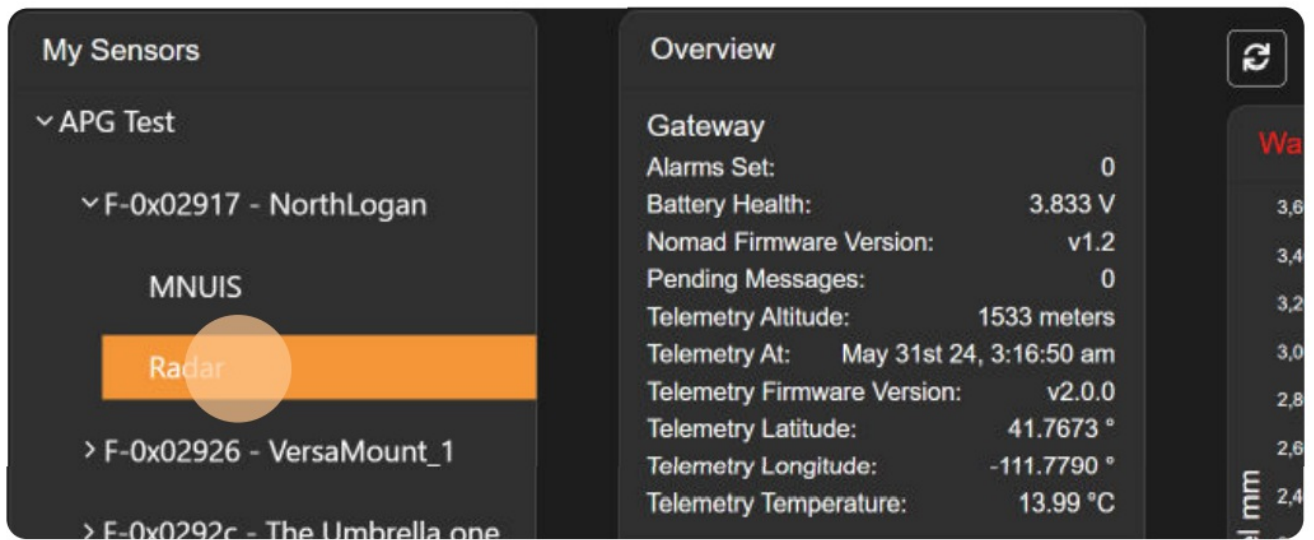
Type ID	Type	Alarm Triggers
1	Under	Sensor reading goes below the set value.
2	Over	Sensor reading goes above the set value.
3	Abrupt	The absolute difference between two consecutive sensor readings is larger than the set value.
4	Hysteresis Near	If the value of the sensor, for the specified register, is under the set-point, turn on the alarm. To turn off the alarm, the value of the sensor needs to be out of the hysteresis window.
5	Hysteresis Far	If the value of the sensor, for the specified register, is over the set-point, turn on the alarm To turn off the alarm, the value of the sensor needs to be out of the hysteresis window.

Table 3. Gateway Configuration

Action ID	Action	Description
1	Turn P1 ON	Gateway will turn Digital Output 1 ON
2	Turn P1 OFF	Gateway will turn Digital Output 1 OFF
3	Turn P2 ON	Gateway will turn Digital Output 2 ON
4	Turn P2 OFF	Gateway will turn Digital Output 2 OFF
5	Nothing	Gateway will do nothing (Alarm notifications will be sent out)

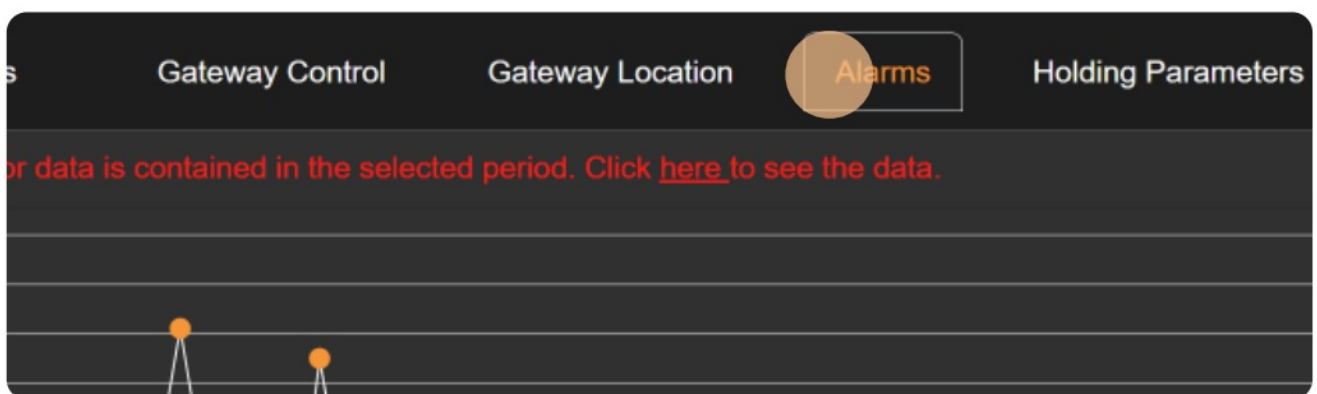
HOW TO ADD AN ALARM

- **Step 1** Select sensor.



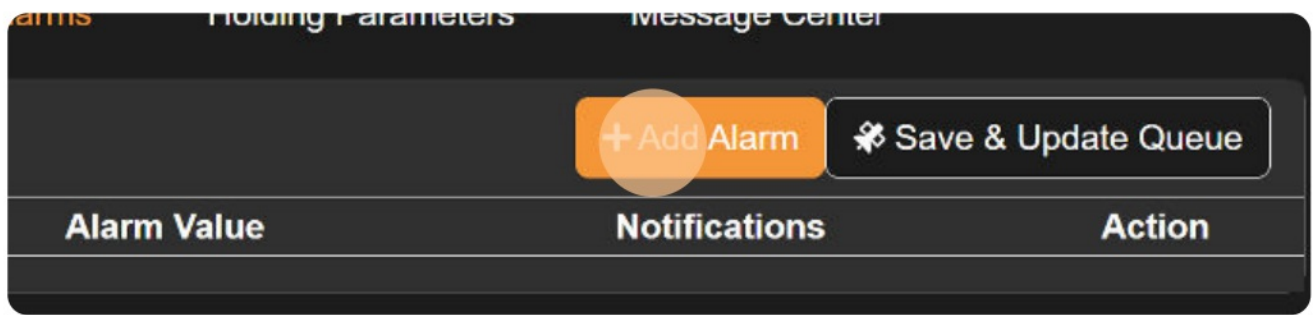
Sensor Selection

- **Step 2** Click “Alarms”.



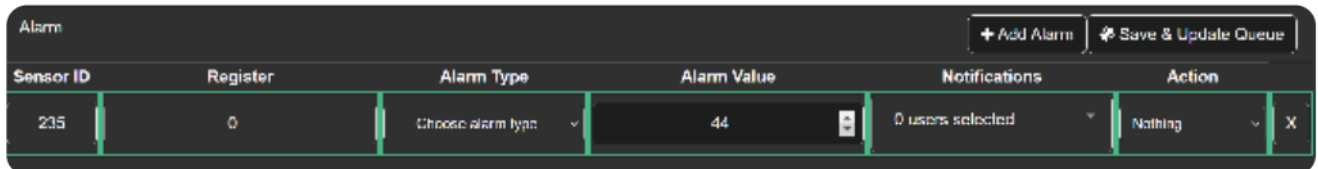
Alarm Menu Options

- **Step 3** Click “Add Alarms”.



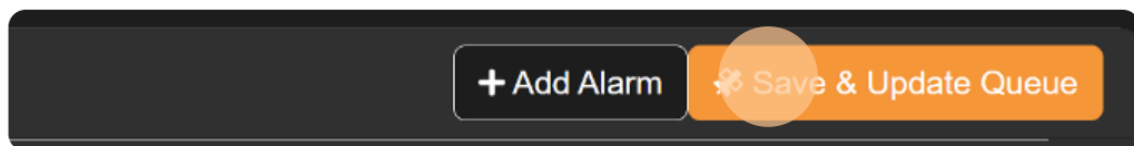
Add Alarm

- **Step 4** Set the alarm configuration.



Alarm Configuration

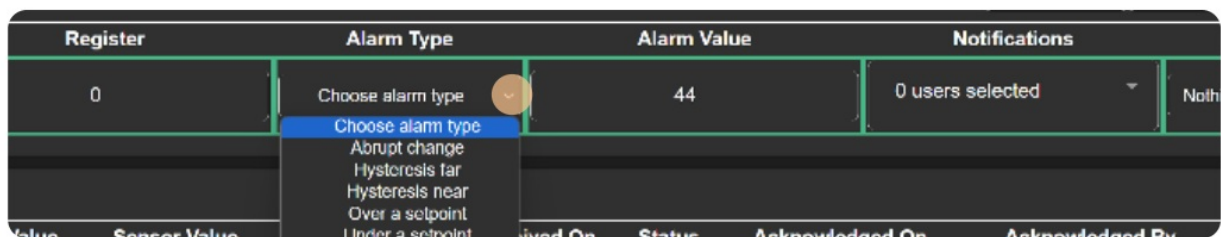
- **Step 5** Click "Save & Update Queue".



Save & Update Queue Button

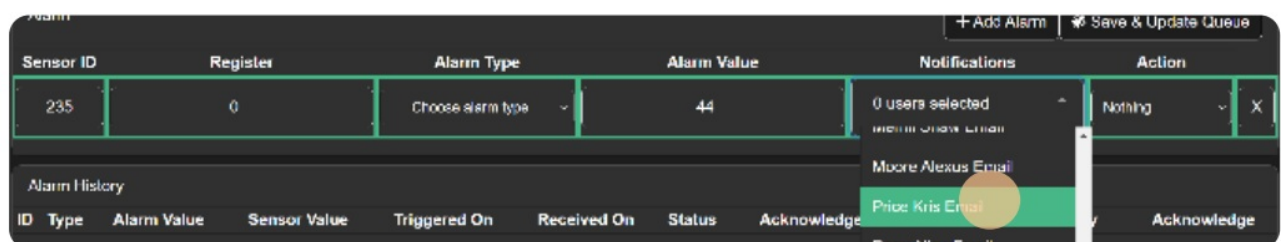
HOW TO EDIT AN ALARM

- **Step 1** Configure alarm type.



Alarm Type Selection

- **Step 2** Configure alarm notification.



Alarm Notification Selection

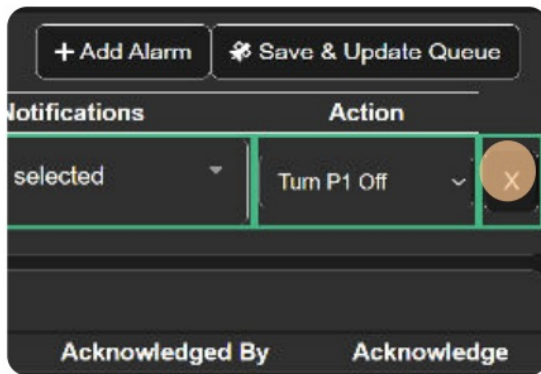
- **Step 3** Click "Save & Update Queue".



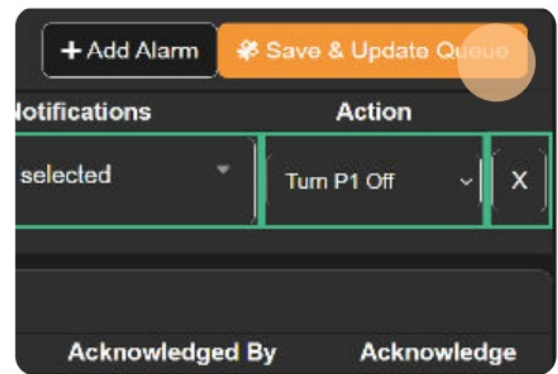
Save & Update Queue Button

HOW TO DELETE AN ALARM

- **Step 1** Click "X".
- **Step 2** Click "Save & Update Queue".



Alarm Delete Button



Save & Update Queue Button

ALARM HISTORY

The "Alarm History" table will show all previously triggered alarms as well as all actively triggered alarms. Nomad will clear its own alarms if the sensor value returns to a 'safe' reading.

NOTE: Using satellite communications can cause some messages to become unordered. It is possible for Explorer to receive an alarm cleared message before receiving an alarm triggered message. To better inform the user, the Alarm History table includes the "Triggered On", "Received On", and "Acknowledged On" timestamp columns.

ATTRIBUTES

Attributes Page

SENSOR ATTRIBUTES

The user can configure the sensor configuration by changing the values in the Sensor Attributes list. Any changes to these values will automatically be saved to the database.

Table 4. Sensor Attributes

Name	Action
Sensor Model	The model of the sensor.
Address to Read	The address of the register holding the sensor value.
Sensor Name	User defined alias for the sensor.
Power Line	Which power line the sensor is using.

REGISTER ATTRIBUTES

The register attributes let Explorer know how to format the register values for display to the user.

Table 5. Register Attributes

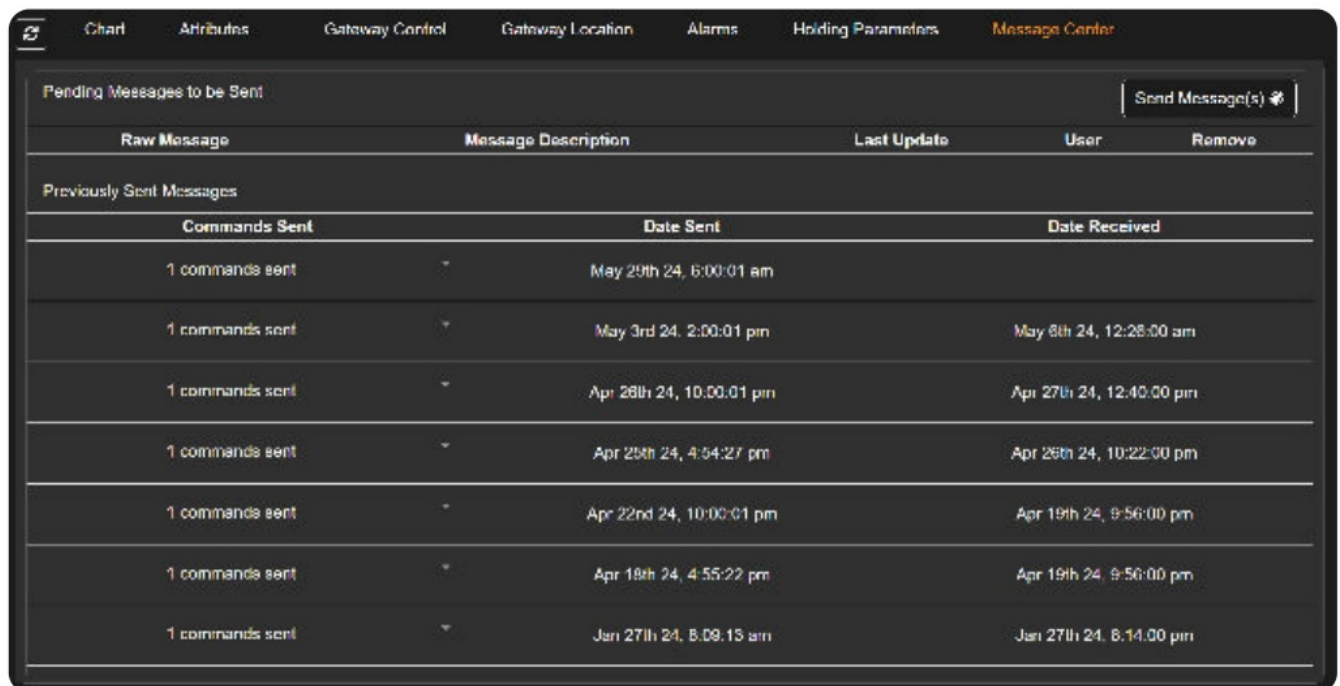
Name	Description	
Register Extra Math	Equation used to convert this register's values.	
Register Type	The data type stored by this register.	

NOTE: Explorer converts to and from the register, meaning this equation must be bijective and should be kept

simple.

MESSAGE CENTER

The “Message Center” is where outgoing messages are queued and sent to Nomad devices.



The screenshot shows a web interface with a top navigation bar containing links: Chart, Attributes, Gateway Control, Gateway Location, Alarms, Holding Parameters, and Message Center (which is highlighted). Below the navigation bar, there are two main sections. The first section, 'Pending Messages to be Sent', has a 'Send Message(s)' button with a plus icon. The second section, 'Previously Sent Messages', contains a table with columns: Raw Message, Message Description, Last Update, User, and Remove. The table lists eight entries, each showing '1 commands sent' in the Raw Message column, a timestamp in the Message Description column, and a timestamp in the Date Received column.

Raw Message	Message Description	Last Update	User	Remove
Previously Sent Messages				
Commands Sent	Date Sent		Date Received	
1 commands sent	May 29th 24, 6:00:01 am			
1 commands sent	May 3rd 24, 2:00:01 pm		May 8th 24, 12:28:00 am	
1 commands sent	Apr 28th 24, 10:00:01 pm		Apr 27th 24, 12:40:00 pm	
1 commands sent	Apr 25th 24, 4:54:27 pm		Apr 26th 24, 10:22:00 pm	
1 commands sent	Apr 22nd 24, 10:00:01 pm		Apr 19th 24, 9:56:00 pm	
1 commands sent	Apr 18th 24, 4:55:22 pm		Apr 19th 24, 9:56:00 pm	
1 commands sent	Jan 27th 24, 8:09:13 am		Jan 27th 24, 8:14:00 pm	

Message Center Page

SENDING MESSAGES

- Configuration changes to a gateway or a sensor are encoded into hexadecimal messages and assembled in the Message Center. Users will see a notification if any pending messages are waiting to be sent.
- To send the messages simply click the “Send Message(s)” button.

MESSAGE HISTORY

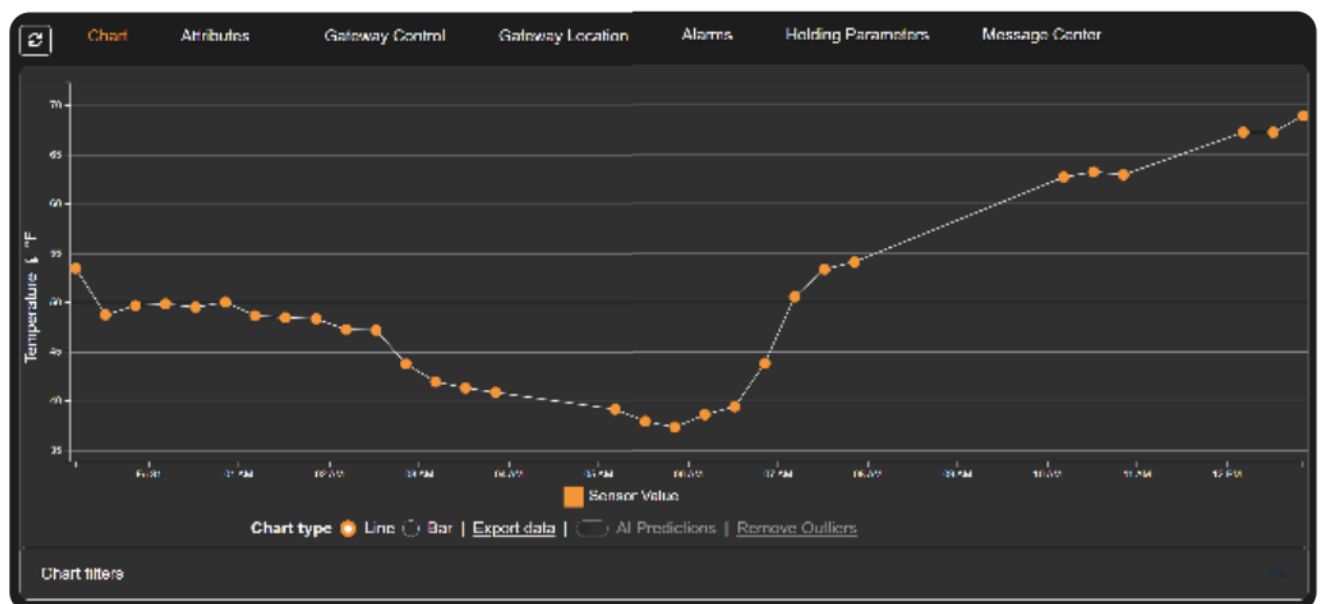
Messages that have been sent are saved and can be viewed in the Message Center. Messages that have been received and acknowledged by the device have a “Date Received” timestamp.

Previously Sent Messages		
Commands Sent	Date Sent	Date Received
1 commands sent		
1 commands sent	May 29th 24, 6:00:01 am	
1 commands sent	May 3rd 24, 2:00:01 pm	May 6th 24, 12:26:00 am
1 commands sent	Apr 26th 24, 10:00:01 pm	Apr 27th 24, 12:40:00 pm
1 commands sent	Apr 25th 24, 4:54:27 pm	Apr 26th 24, 10:22:00 pm
1 commands sent	Apr 22nd 24, 10:00:01 pm	Apr 19th 24, 9:56:00 pm
1 commands sent	Apr 18th 24, 4:55:22 pm	Apr 19th 24, 9:56:00 pm
1 commands sent	Jan 27th 24, 8:09:13 am	Jan 27th 24, 8:14:00 pm

Message History

CHART

The Chat tab will visualize a sensor's register values over time.



Sensor Value Chart

CHART FILTERS

The number of readings can be changed to common choices:

- Last 30 readings
- Last 24 hours
- Last 30 days
- Last 7 days

If none of these options suffice, the user can input a custom date range to visualize.

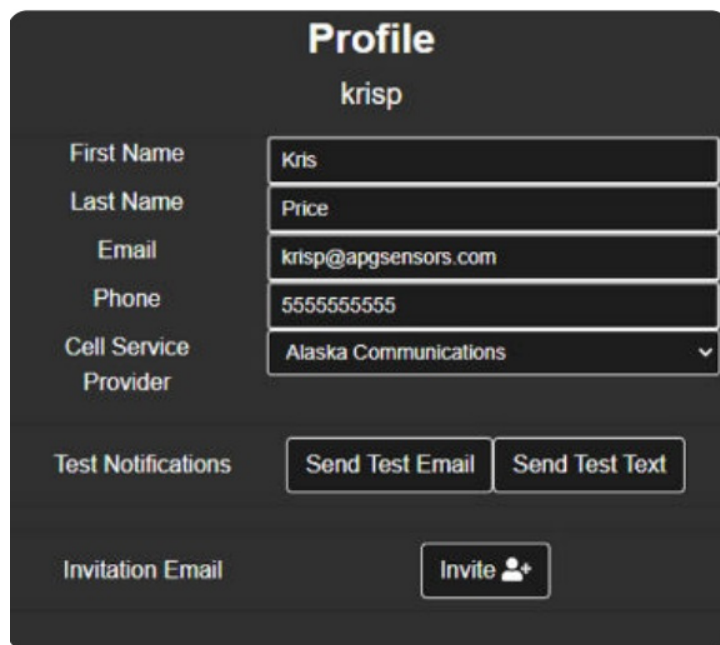
EXPORT DATA

Users can download a CSV file that contains the current chart visualization data. The column headers of this downloaded data are:

- sensor_id
- sensor_type_id
- address
- lastupdate_ts
- last_update_user_id
- sensor_data_id
- sensor_data_value
- receive_date_time
- sensor_address

PROFILE


The Profile page is for users to add or change basic user information, test notifications, and invite other users.



Profile
krisp

First Name	Kris
Last Name	Price
Email	krisp@apgsensors.com
Phone	5555555555
Cell Service Provider	Alaska Communications ▼

Test Notifications Send Test Email Send Test Text

Invitation Email Invite 

Profile Page

USER CONTACT INFORMATION

The user's contact information is used almost exclusively for alarm notifications. Users should keep this information updated and use the test notification to ensure that alarm notifications are delivered.

TROUBLESHOOTING & SUPPORT

ERROR MESSAGES

- The result of Explorer saving information to the database is displayed to the user using pop up notifications (examples below). These notifications will be shown at the bottom right of the website.
- When data was saved successfully the user will see a green notification along with a brief description:



Queued the alarms message! ✕

Example of a Successful Database Interaction

- However, whenever there is a problem saving data, the user will see a red notification.



Unable to queue alarms message. Please try again later. ✕

Example of an Unsuccessful Database Interaction

NOTE: If an error message appears, any changes the user was attempting to make will NOT be saved until the error has been corrected.

TROUBLESHOOTING

The most common reason for a user to run into problems with Explorer is disruption of their Internet connection.

• Step 1

- The first step of troubleshooting should always be to check that the user's device has a connection to the Internet.
- The second most likely reason a user will experience problems is if Explorer's website host is down. Once the user has ensured that they are connected to the Internet, the second step is to wait. This will give the hosting service time to get back online.

• Step 2

- Wait one hour before resuming work on Explorer.
- If user still has problems after these two steps, please see Section 3.3 about getting support.


SUPPORT

- **Organization:** Automation Products Group, Inc.
- **Phone:** +1 [435-753-7300](tel:435-753-7300)
- **Email:** sales@apgsensors.com

ABOUT COMPANY

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- Automation Products Group, Inc.
- 1025 W. 1700 N.
- Logan, UT 84321

Documents / Resources

	<p>APG Explorer Cloud Based Management System [pdf] Instruction Manual</p> <p>Explorer Cloud Based Management System, Cloud Based Management System, Based Management System, Management System</p>
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References

- [User Manual](#)

Manuals+, Privacy Policy

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