Atom User's Manual

Power Monitors, Inc.

The Atom Environmental Sensor monitors Temperature, Humidity (%), Pressure (mbar) and Irradiance (W/m²) and can also detect movement and door closures.

The Atom sensor can be paired to an iOS device or paired to a PMI Tensor or Seeker recorder.

Data is viewed on the PQ Canvass website using standard web browsers.
A PQ Canvass login is required.

Contents

Help us improve our manual. Your comments and suggestions are important to us.
Please contact us at the email powerquality@powermonitors.com

1/11/2024

Introduction

Power Monitors Incorporated (PMI) was founded to provide state-of-the-art, easy-to-use, and affordable electronic test equipment to the power industry. PMI products have been developed by working directly with electric utilities to determine their specific needs. The Atom has also been developed by following these same principles.

If you have any questions about its operation, ideas for new features, or ideas for additional products please contact PMI. We want you to be happy with this product and would appreciate any input that could help us develop products to meet your future needs.

Getting Started with the Atom

The Atom, at time of purchase, will be added to your PQ Canvass account.

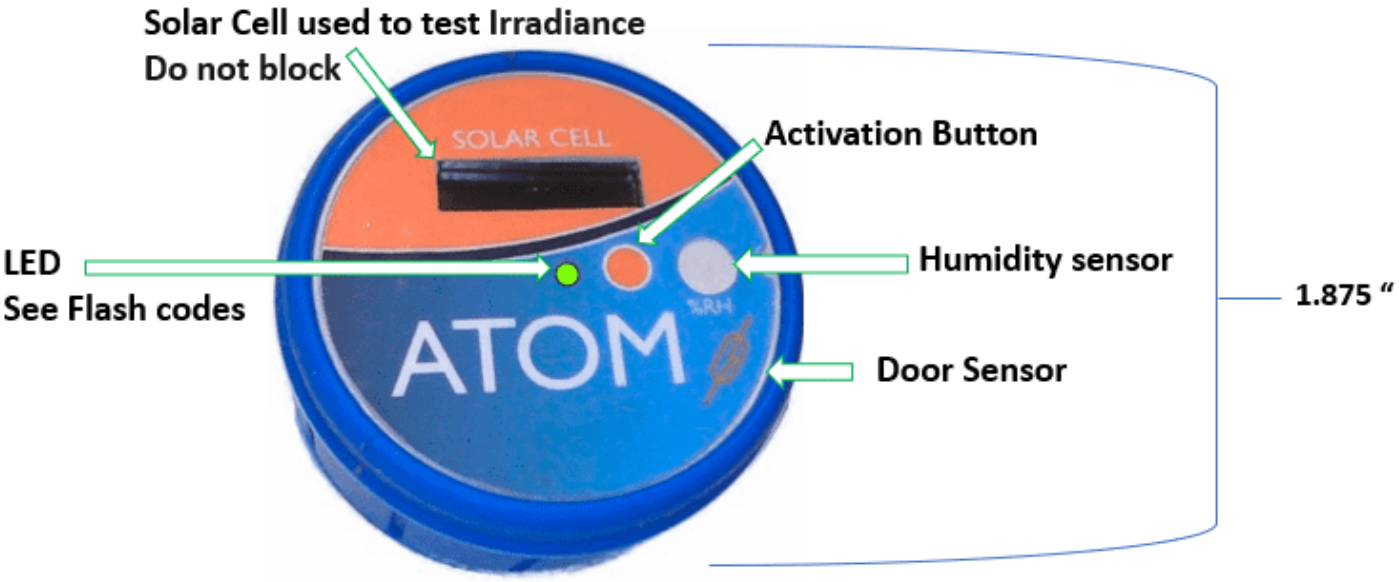
Your Atom can be associated to a PMI recorder. The data is sent through the recorder to the PMI PQ Canvass cloud for viewing using a web browser, or you can connect the Atom to an iOS device using the Atom application (app) and view live data as well as upload data to the PQ Canvass cloud.

You will need to be an administrative user in PQ Canvass to manage the Atom.

If you do not have administrative access, call the PMI Tech Support team at (800)296-4120.

Note: The Atom can only be associated with a single recorder, but a recorder can have multiple Atoms associated to it.

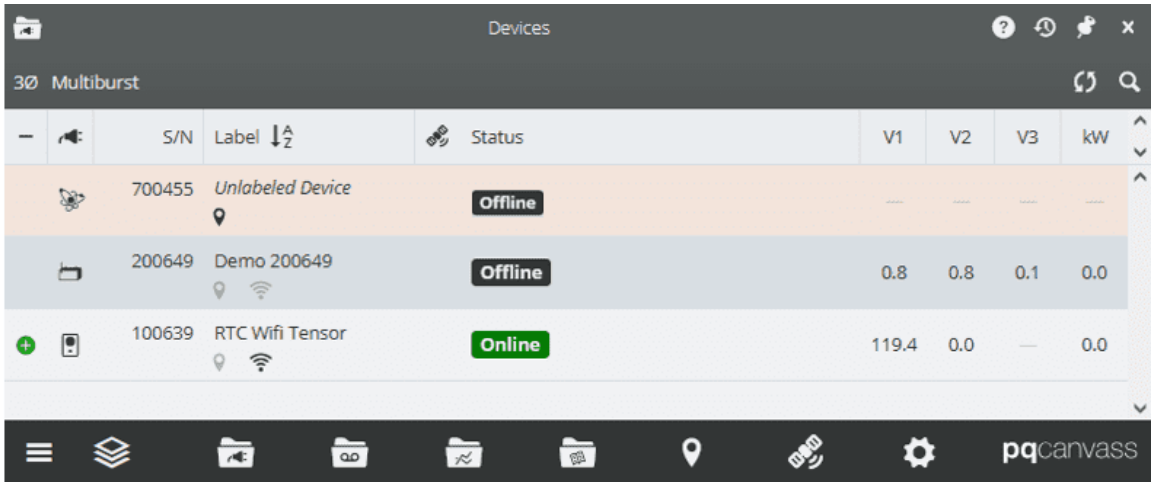
About the Atom



Connecting the Atom to PQ Canvass

Note: See the PQ Canvass User Guide for more information on viewing data
Log into your PQ Canvass account https://pqcanvass.powermonitors.com
Select the Device icon at the bottom of the page . Verify your cellular or Wi-Fi Tensor or cellular Seeker is online in PQ Canvass. Also verify your Atom is listed.

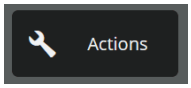
All recorders and Atoms will be listed on the PQ Canvass Devices page . Unassociated Atoms are listed separately. Paired Atoms are listed under the associated recorder.



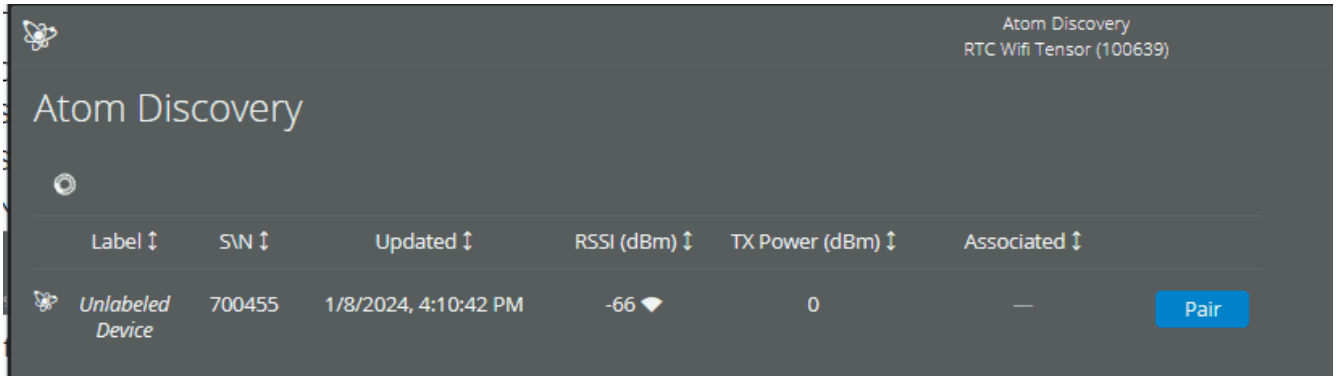
Place the Atom close to the Tensor or Seeker recorder that it will be paired to:

Press the Activation button and hold the button for 8 -12 seconds to ‘wake up’ the Atom. You will see the Atom’s LED flash white 3 times. Press and release the Activation button 5 times. You will see 2 white flashes and then the LED will blink blue indicating it is searching for a Bluetooth® connection. This action is normally performed once when first receiving the Atom. The Bluetooth® will periodically turn on to sync to the paired device. Pressing the Activation button once will force the Bluetooth® on.

To add an Atom to a Tensor or a Seeker, in PQ Canvass, click on the Seeker or Tensor you want to pair the Atom to.

Select the Actions icon 

Then select the Atom Discovery icon 

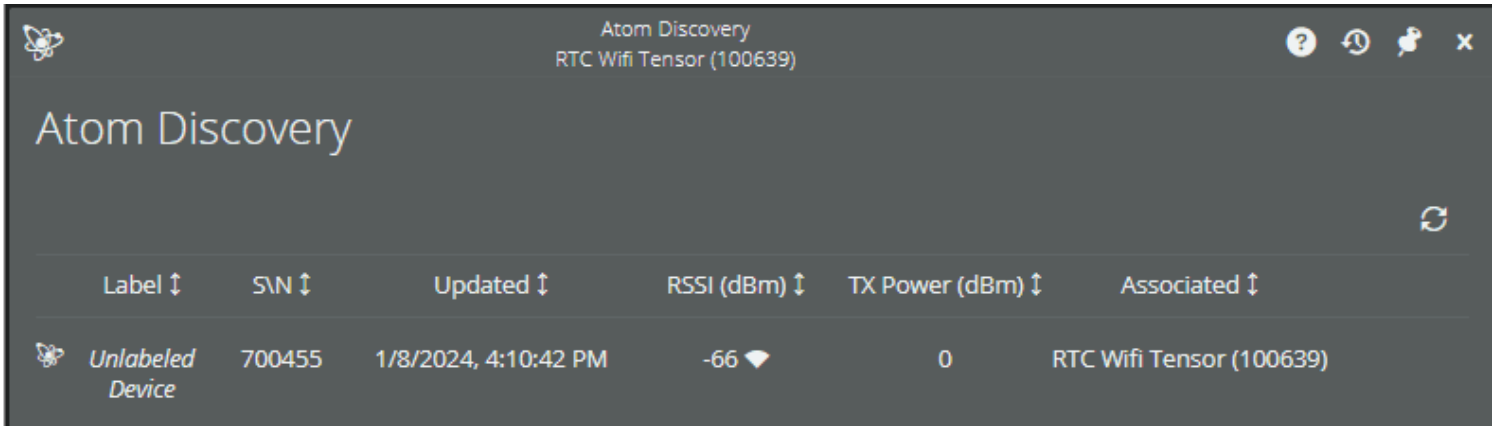


The serial number of the Atoms available to pair are listed

Find the correct Atom and select ‘Pair’

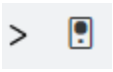
Note: The Seeker or Tensor must be online to associate with an Atom

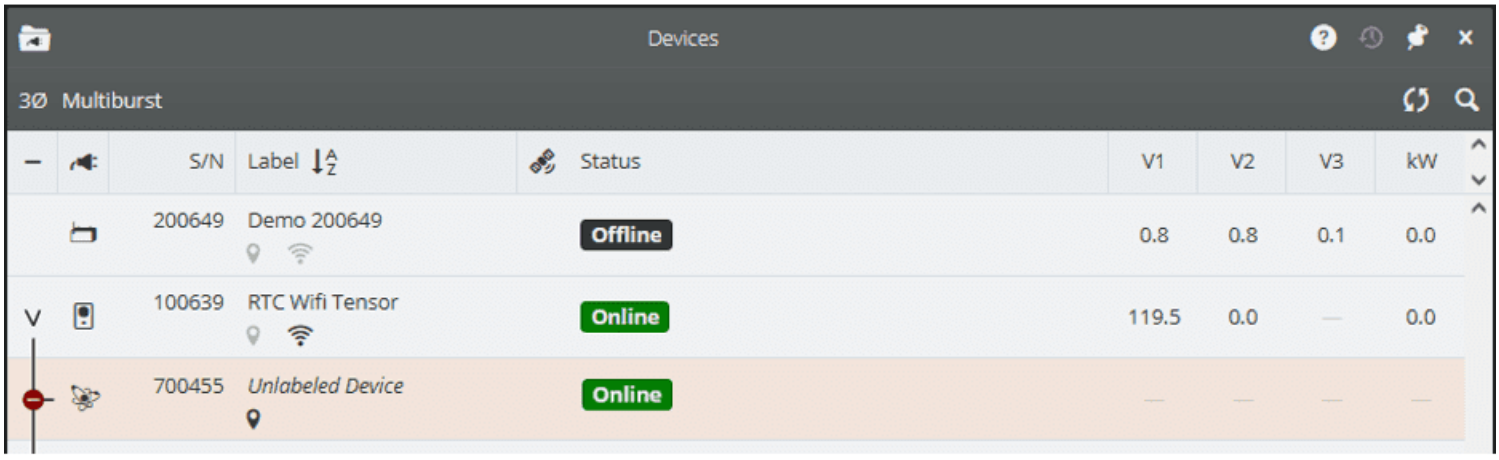
The associated recorder will be listed



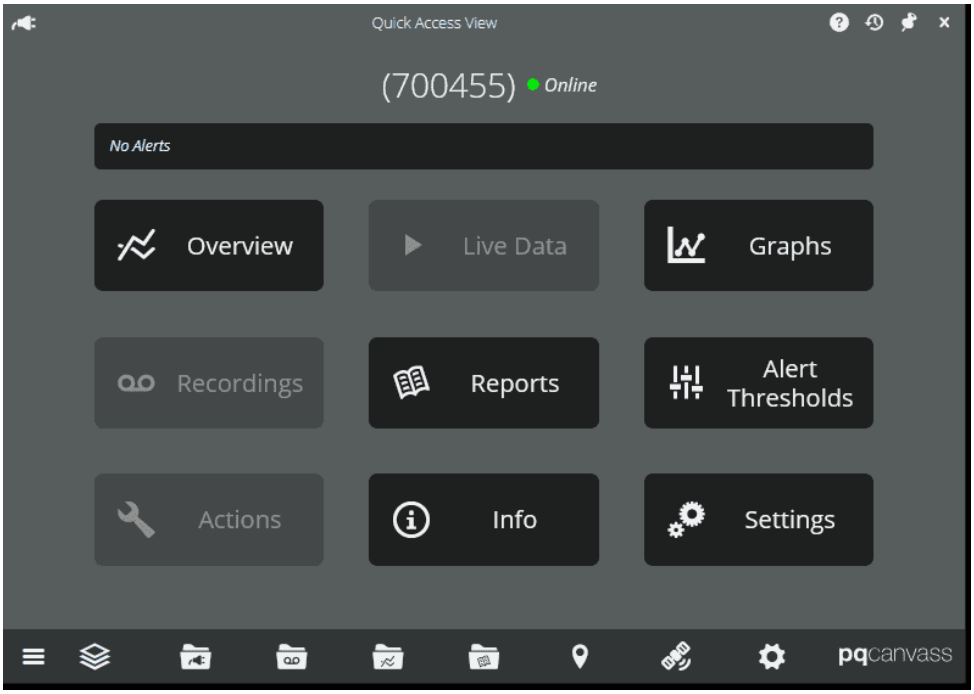
Select the X in the upper right corner to close

Once paired, the Atom is nested directly below the parent Seeker or Tensor

Select the arrow to expand 

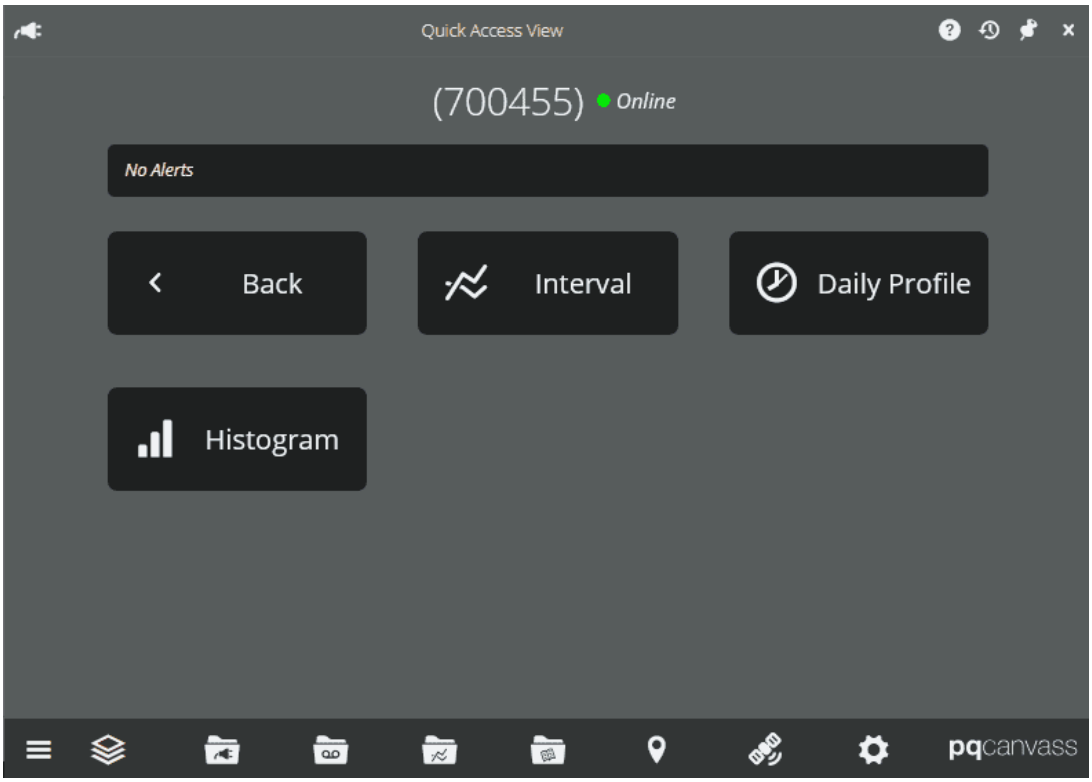


Select the Atom to see the ‘Quick Access View’ page

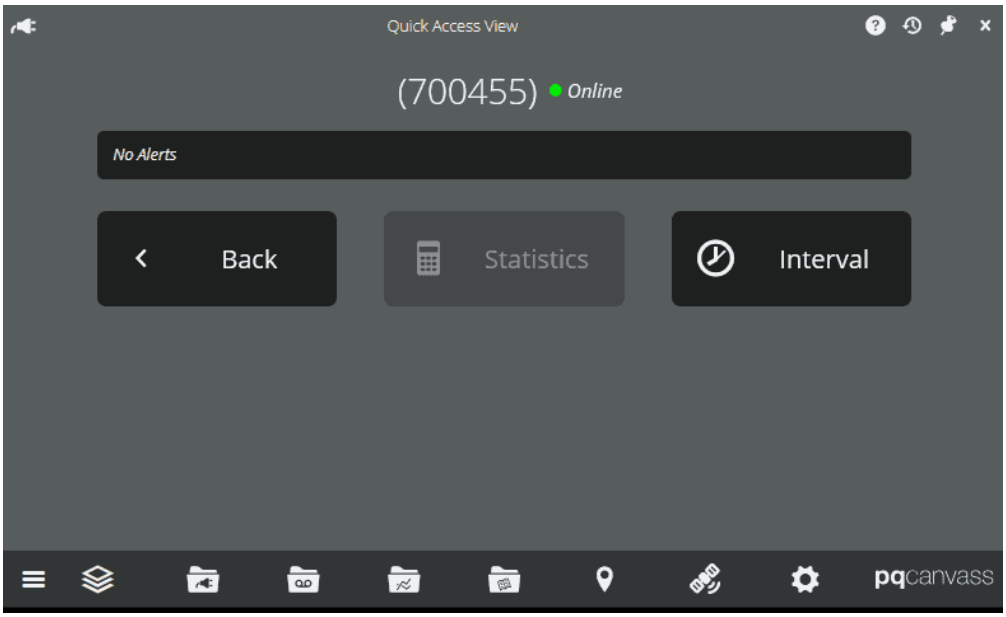


To view data, select the Overview button.
See the PQ Canvass User Manual for complete description of the listed icons

The Graphs button on the ‘Quick Access View’ page, displays additional graph options



Use the Reports button on the ‘Quick Access View’ page to view and save Interval reports

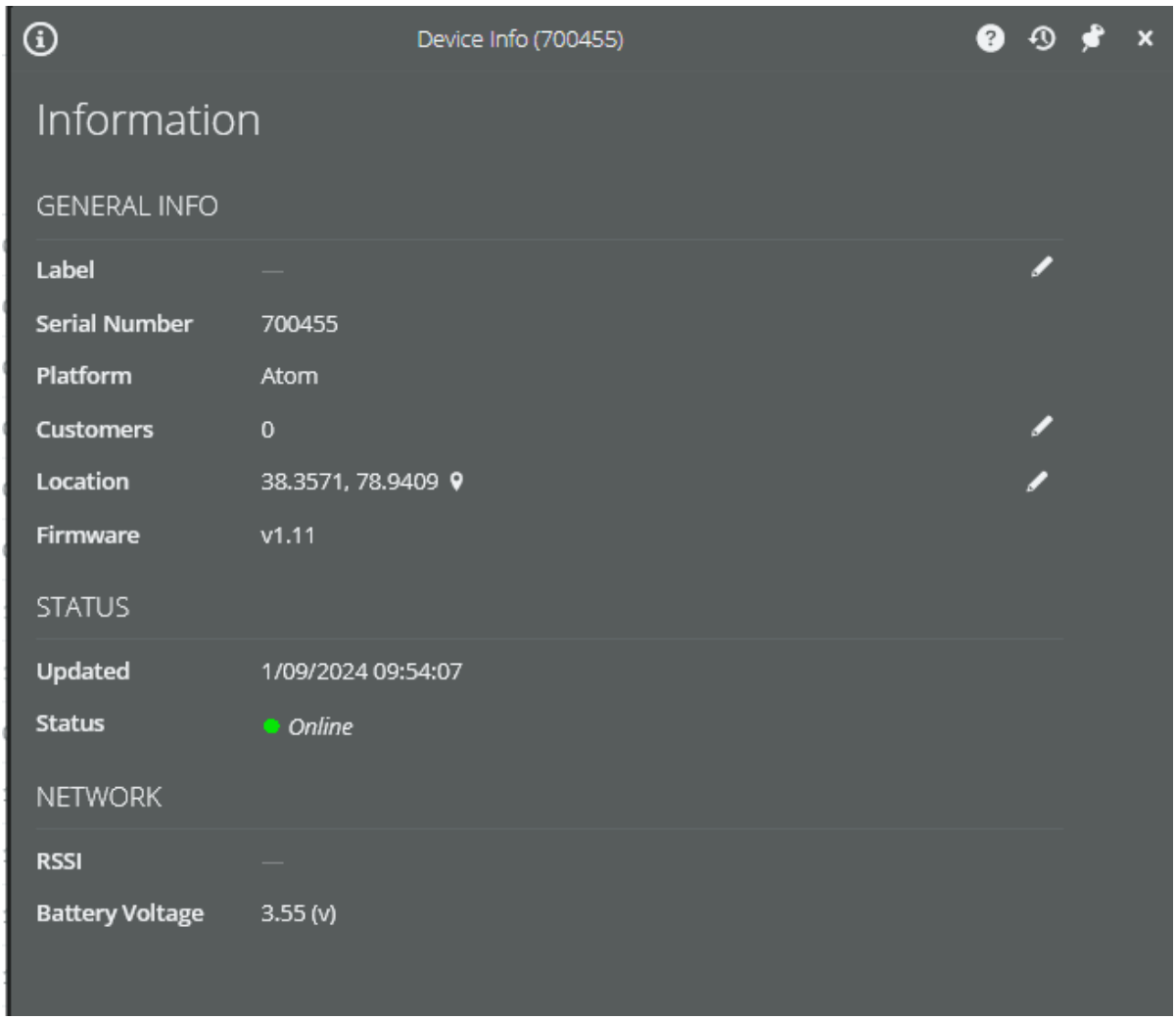


Use the Alert Thresholds button on the ‘Quick Access View’ page to view or change alert settings.

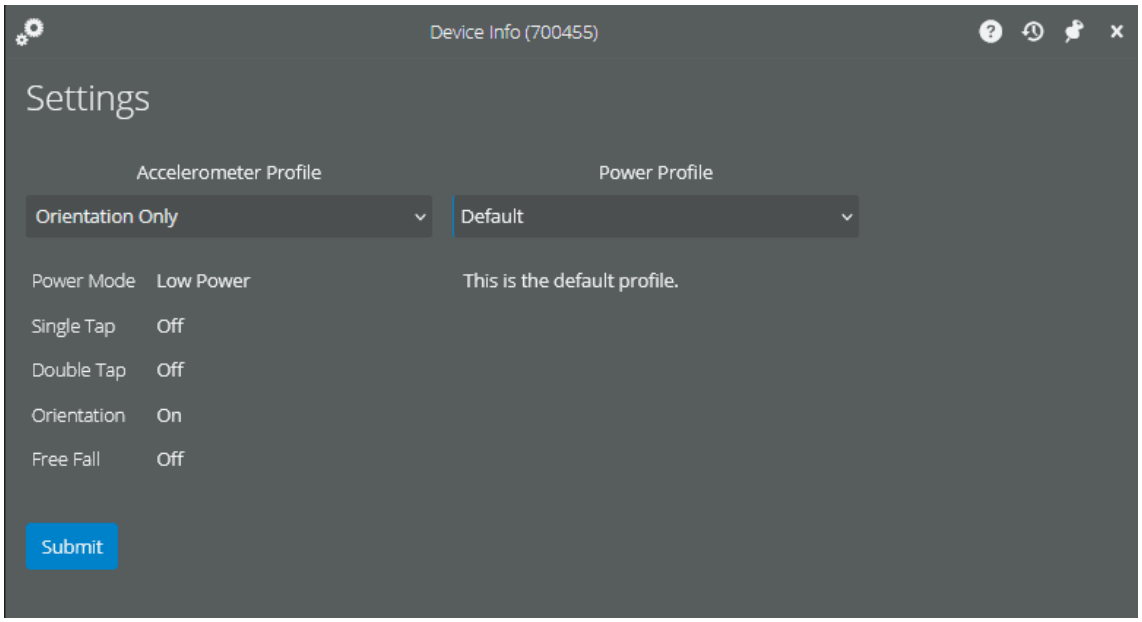
Alerts are sent to the user’s email, see setting Alerts later in this manual.

Reed Switch and Accelerometer configurations are set here with additional settings on the Quick Access View Settings page (see below).

The Info button on the ‘Quick Access View’ page displays the Atom’s information

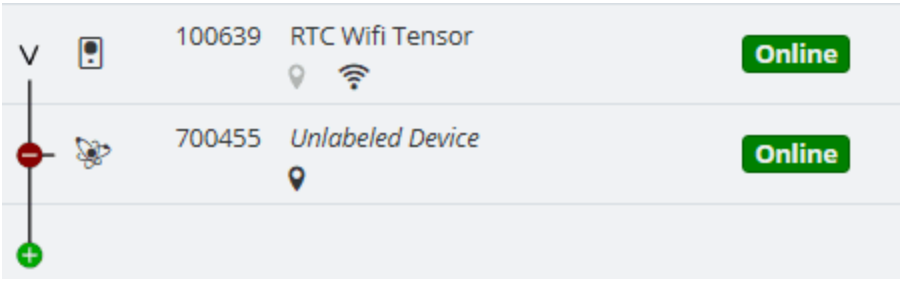


The Settings button on the ‘Quick Access View’ page can be used to view or edit select settings. The accelerometer setting determines how the Magnetic Reed switch responds to the Alert settings. If using this setting also set the Alert Thresholds

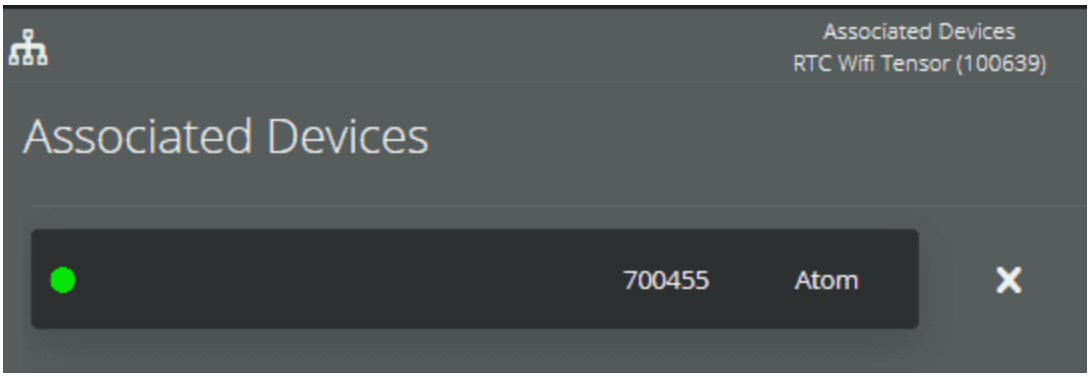


Remove Associated Device

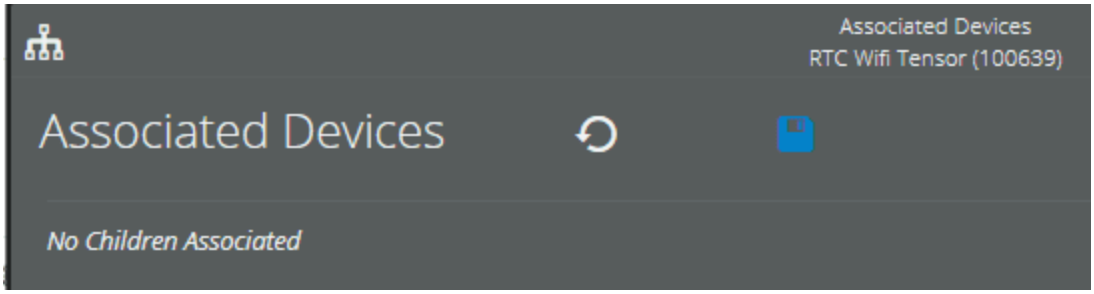
To remove the Atom from the associated Seeker or Tensor, click the -  shown on the right of the Atom and press OK to remove. The Atom can now be associated to another recorder or paired to an iOS device such as an iPhone or iPad.



You can also disassociate an Atom by selecting the Actions button on the Tensor or Seeker Quick Access View page, then select the Associated Devices button and select the X listed to the right of the Atom



Select the blue diskette icon  to confirm removal



Connecting the Atom to the PMI Atom App

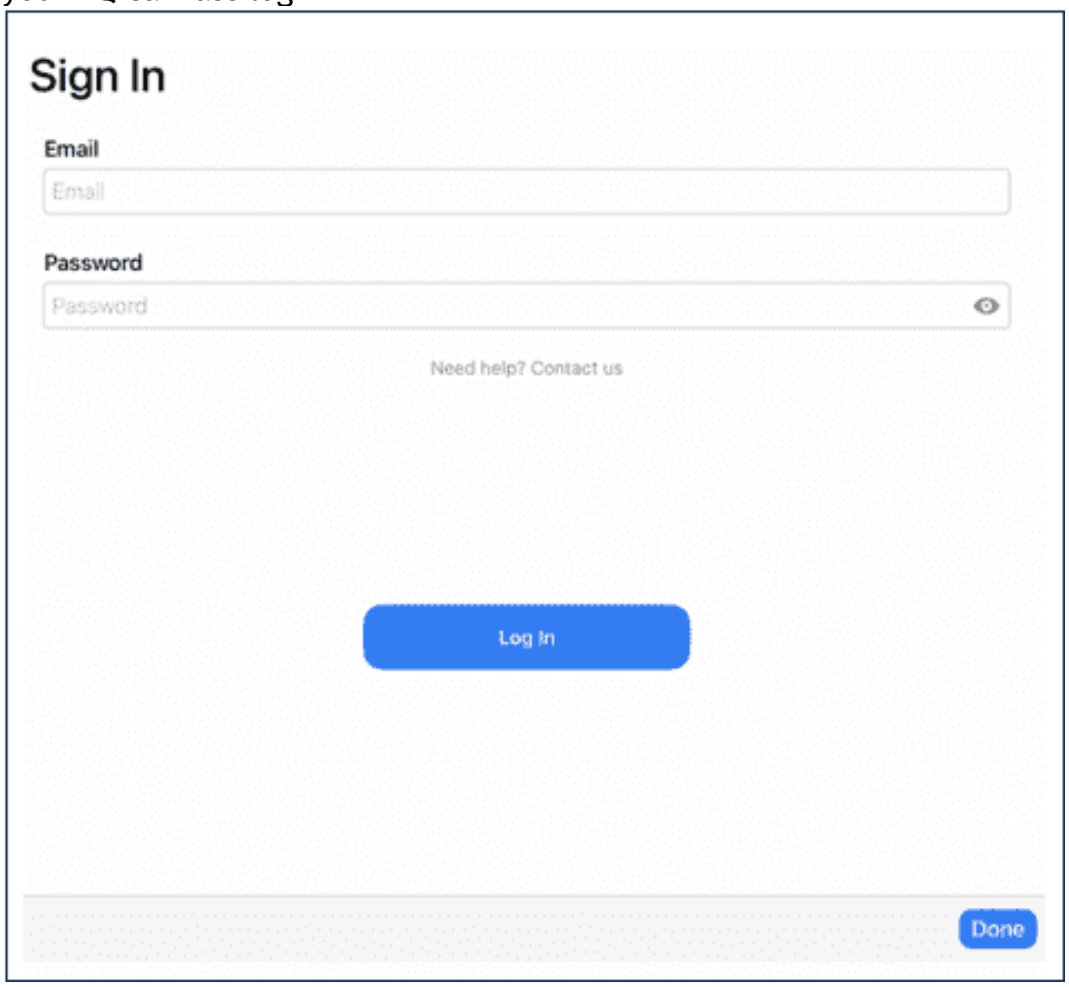
The PMI Atom app is used to access Atom data using an iOS Apple product such as the iPad or iPhone
Verify you have Bluetooth® enabled on your Apple product.

The PMI Atom app can be downloaded from the Apple store.

Use your PMI PQ Canvass account login to enter the Atom app.

Select the icon for the Atom App 

Sign in using your PQ Canvass login



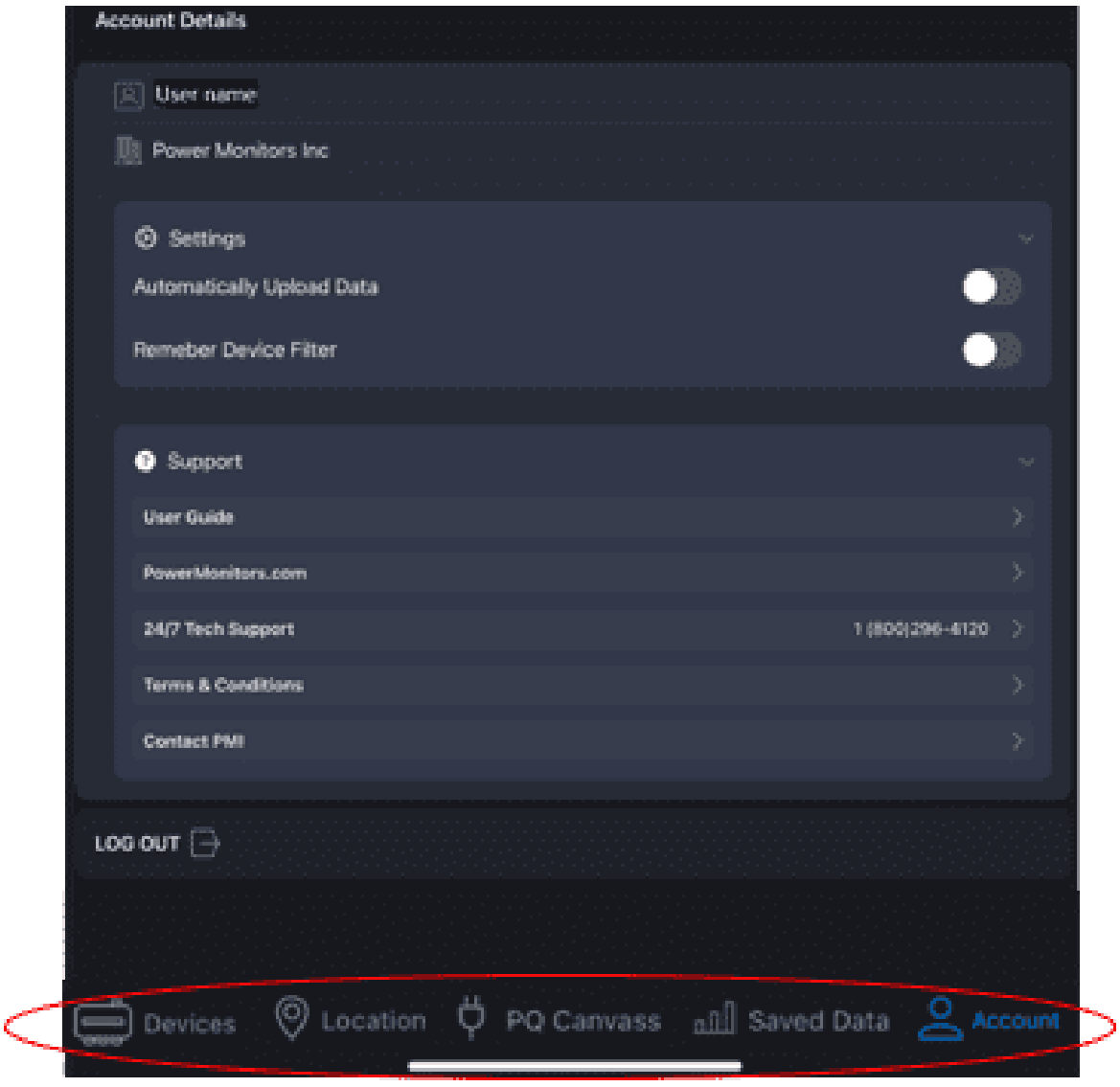
Once logged in, you can select items from the bottom of the page.

Note: If you have multiple PQ Canvass accounts, a screen will show which will allow you to choose a specific account.

The account detail page contains some settings and access to the User Guide. Selecting PQ Canvass will open a browser with the PQ Canvass website.

Location brings up a map with the Devices location if set (the default location is longitude 0 , latitude 0)

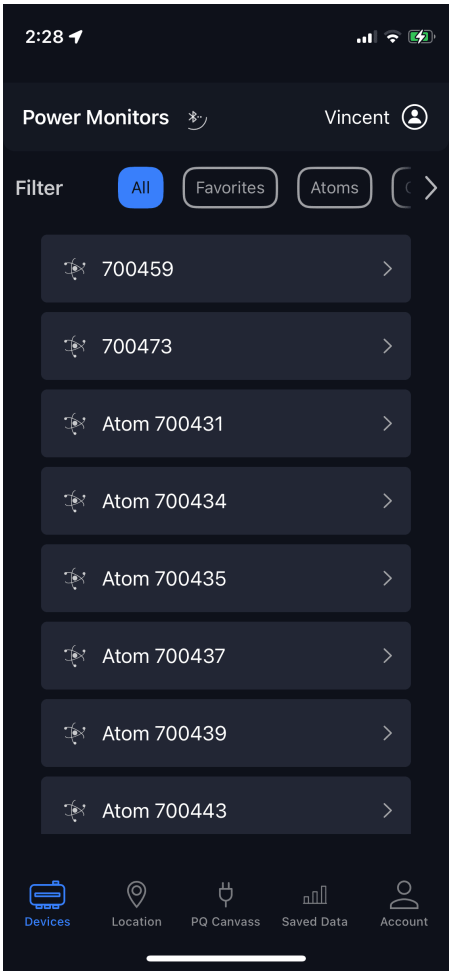
Account Details – expanded



Devices Screen

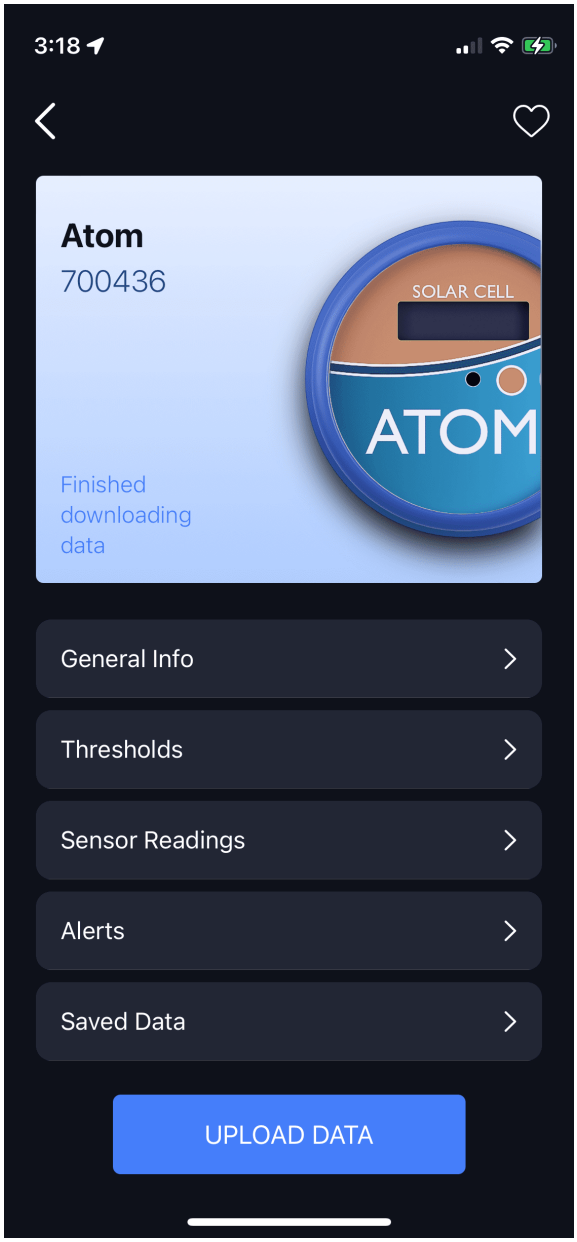
When the Atom App connects to the Atom, the serial number and RSSI (signal strength) will be displayed
Specific filters can be selected.

Click on the serial number listed



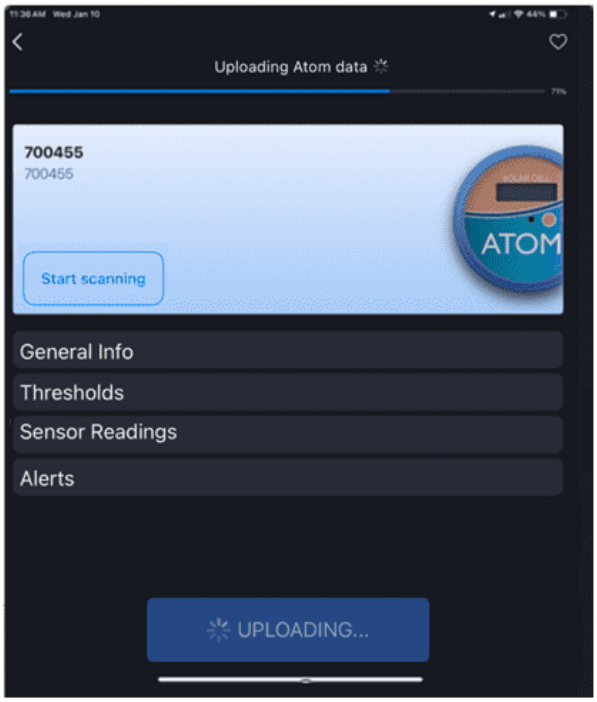
Note: If the Atom has not connected recently, push the Activation button on the Atom one time to ‘wake up’ the Bluetooth® connection. Once the Bluetooth® connection is established the Fetching Data Screen will show for a few seconds.

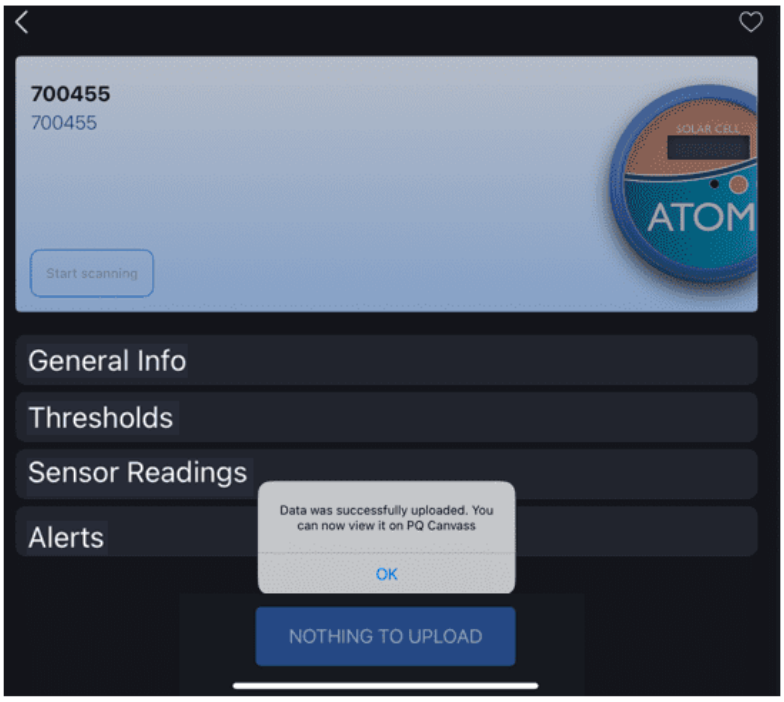
Note: An Atom that is not connected will list only the General Info tab and the Thresholds tab.



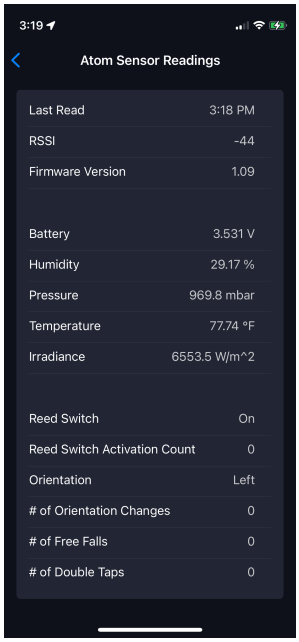
Selecting the Start Scanning button, will retrieve data from the Atom and send it to PQ Canvass (If the iOS device is not connected to the Internet, the data is placed under the ‘Saved Data’ tab on the iOS device to manually send later).

Open the link to PQ Canvass to view the data

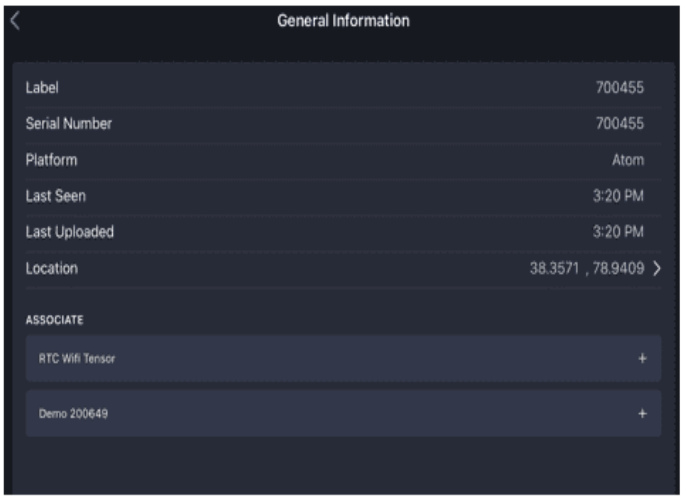


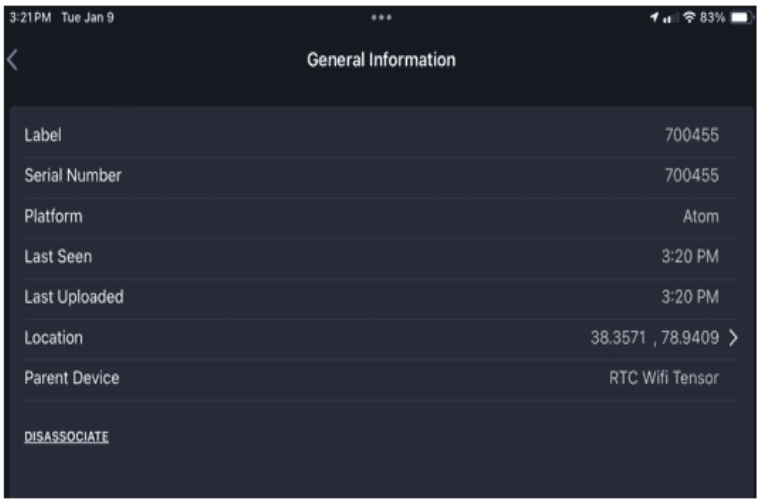


Select Sensor Readings tab to view the latest data.



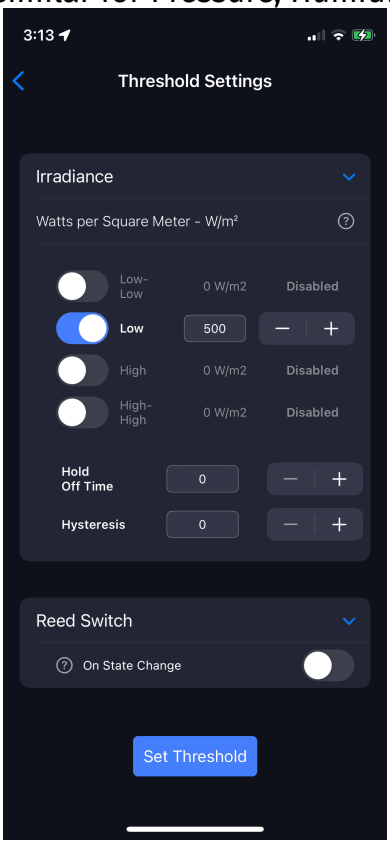
General Information tab can be used to associate the Atom to a PMI recorder and disassociate the Atom from the PMI recorder and change the location of the Atom on the PQ Canvass map.





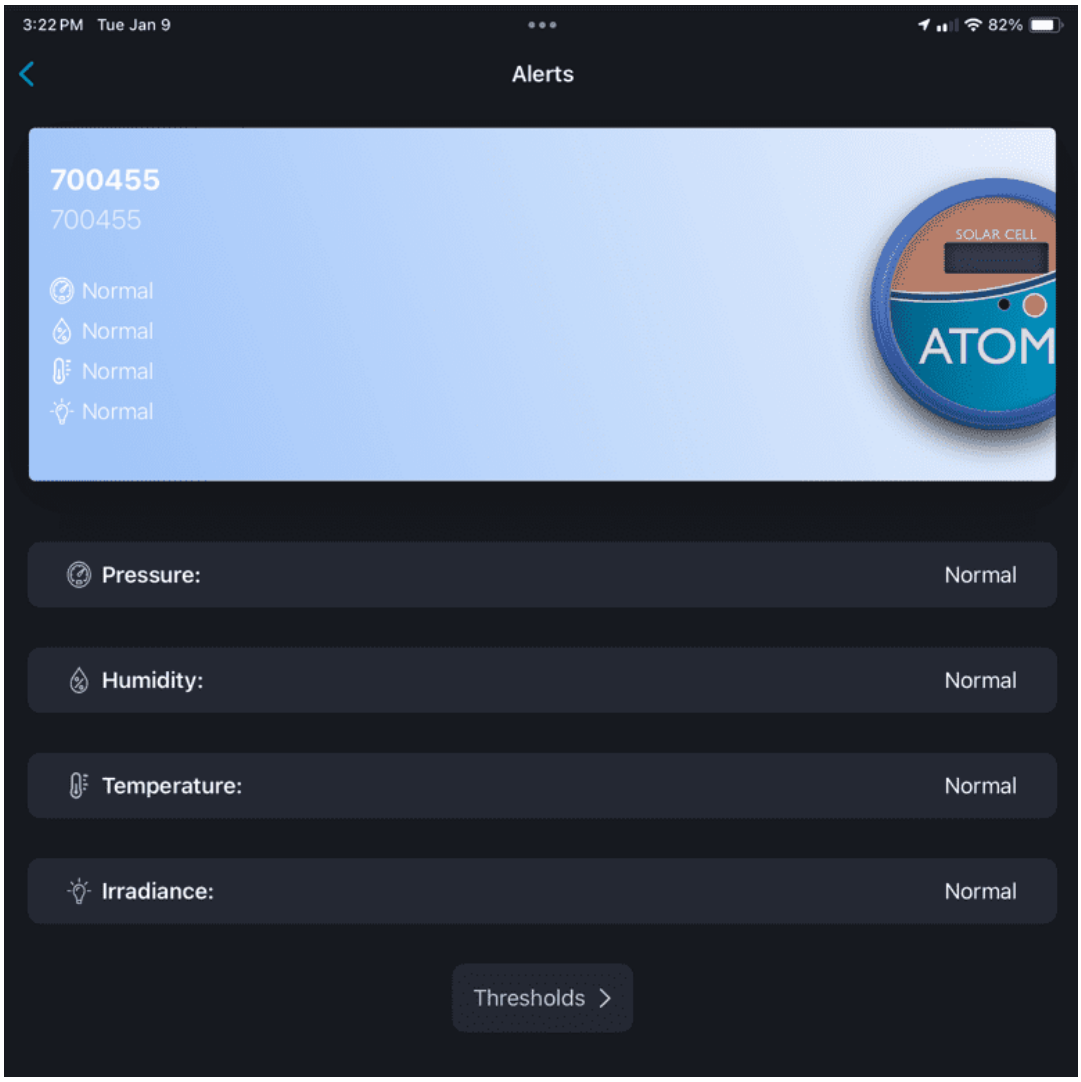
Thresholds tab

Settings are similar for Pressure, Humidity, Temperature (shown) and Irradiance.



Alerts Tab

Displays Atom status based on the Threshold settings



Setting Alerts

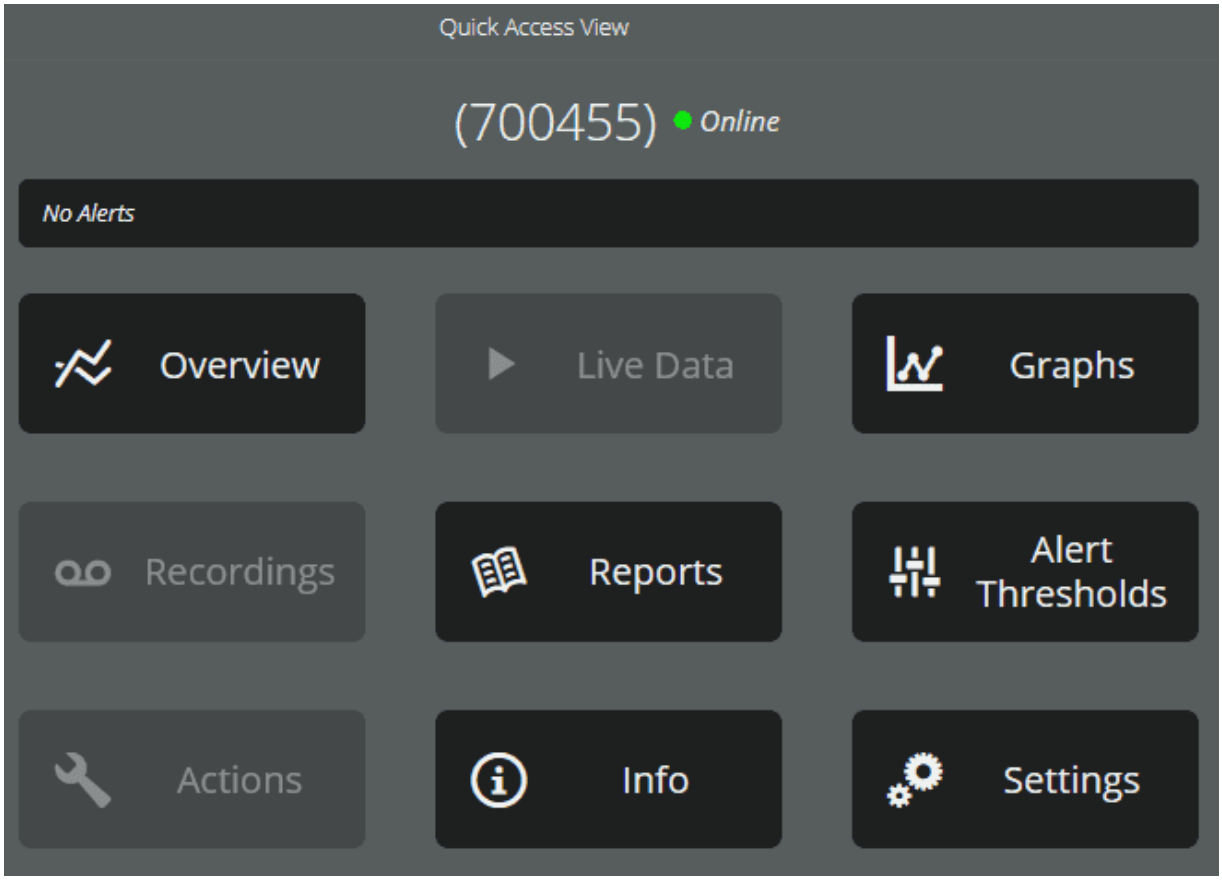
There are two areas that are used to configure alerts; one is the Threshold settings in PQ Canvass or in the iOS Atom app, the other are the Notification settings in PQ Canvass.

Alerts are sent to the PQ Canvass users' email, or to a PQ Canvass account created with an SMS address. Check with your cellular provider (ex: <10-digit-number>@txt.att.net, <10-digit-number>@sprintpaging.com, <10-digit-number>@myvzw.com).

Alerts sent to an email address include the graph of the alert, but PMI Tech Support can set this to Text Only if needed.

Alert Thresholds

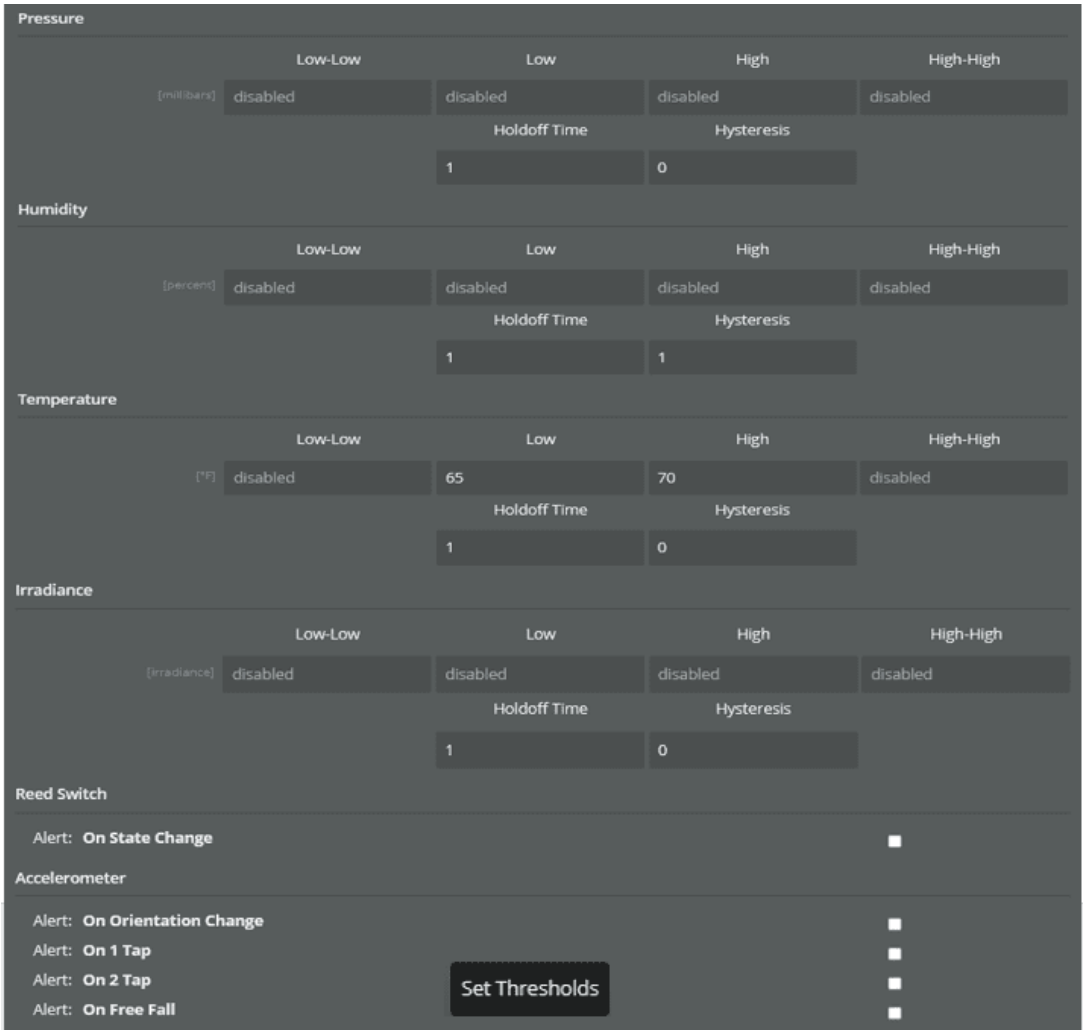
Select Alert Thresholds from the Quick access View page in PQ Canvass



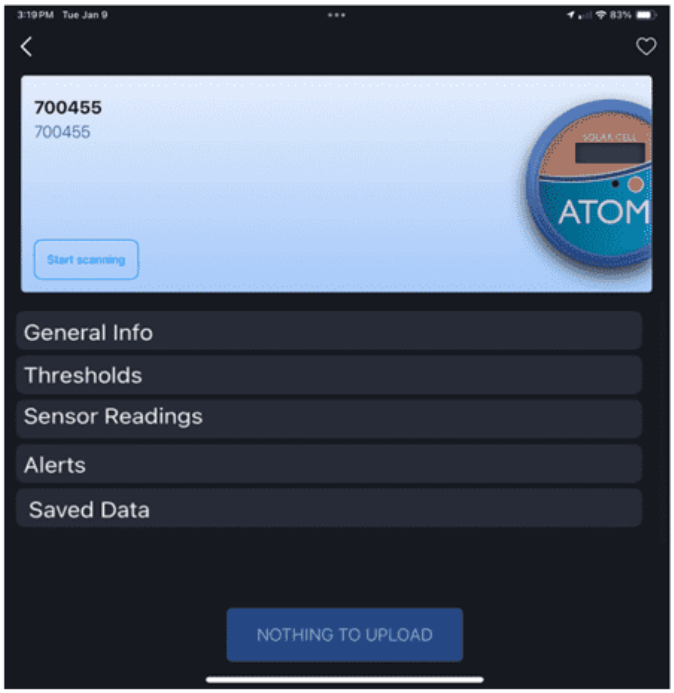
Then select the specific settings you want to monitor. You can select just one of the settings, or the full range of the settings. The Reed Switch and Accelerometer will generate Event notices which do not contain graphs.
Select ‘Set Thresholds’ to save the settings.

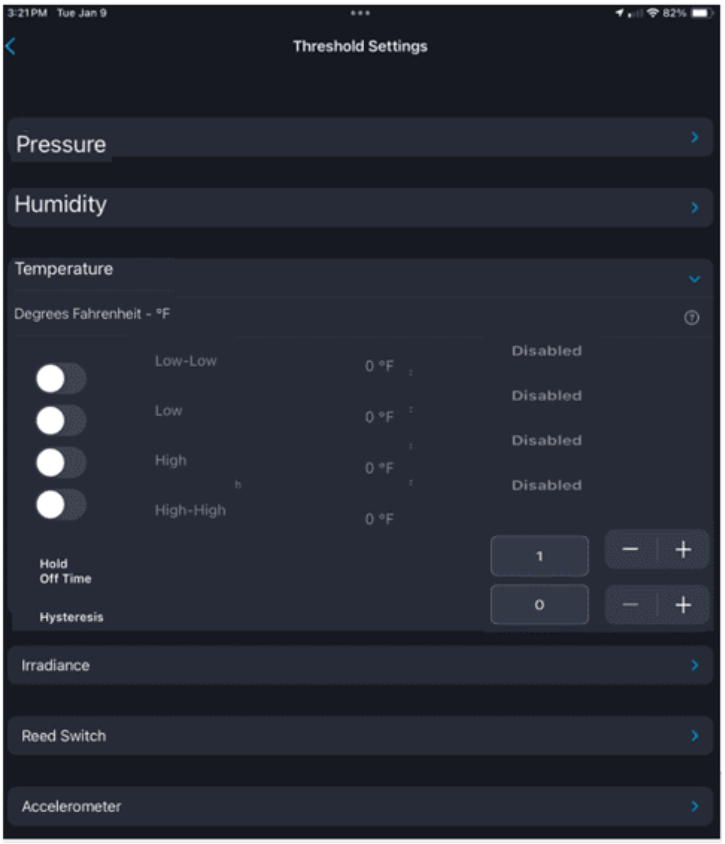
The Hold-off Time can limit the number of alerts sent. An alert will not be sent until the event reaches the specified number of minutes. No alert is sent if the alarm condition returns to normal before the Hold-off value is reached.

Hysteresis is used as a pad value that defines a narrow band above and below each threshold. A measurement must exceed the programmed threshold plus (or minus) the hysteresis value for that measurement to be used for alert triggering.



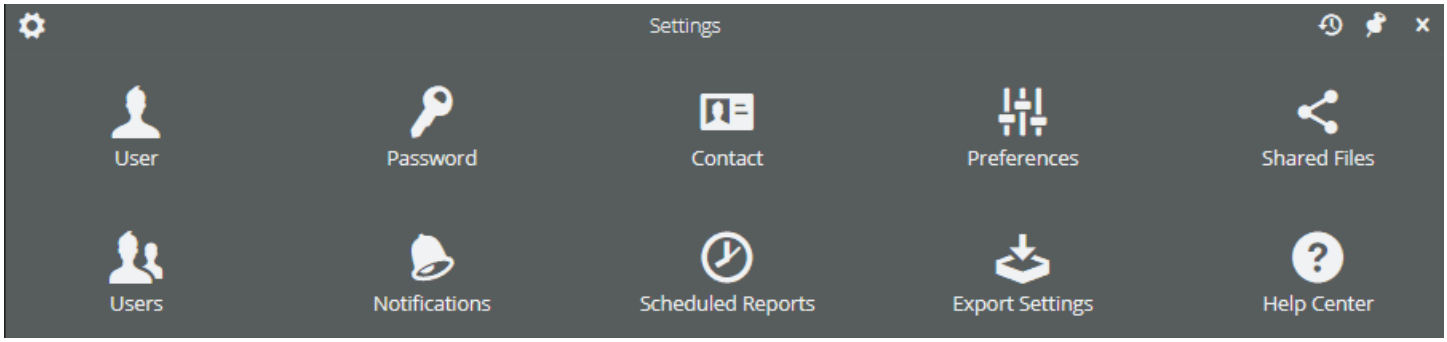
In the iOS Atom app, select Thresholds from the device screen and select one of the settings, or the full range of the settings.



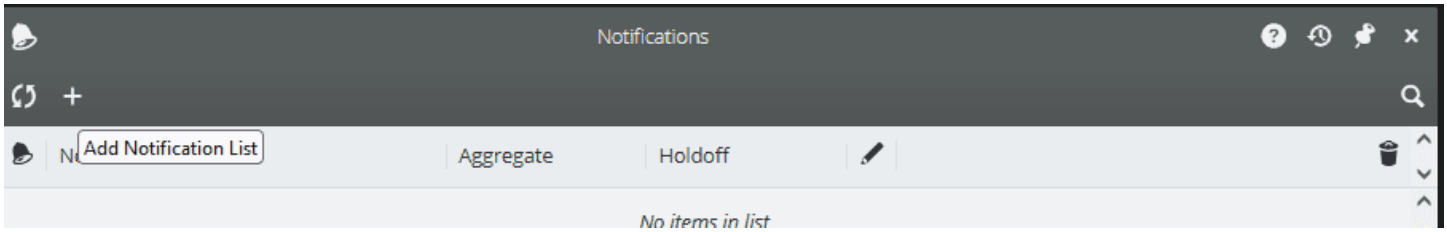


Alert Notifications

To set the Notification, in PQ Canvass select the Tools icon at the bottom of the screen. Then select the Notification settings icon Notifications. If you do not see the Notification icon, contact PMI Tech Support to make you and administrative user.

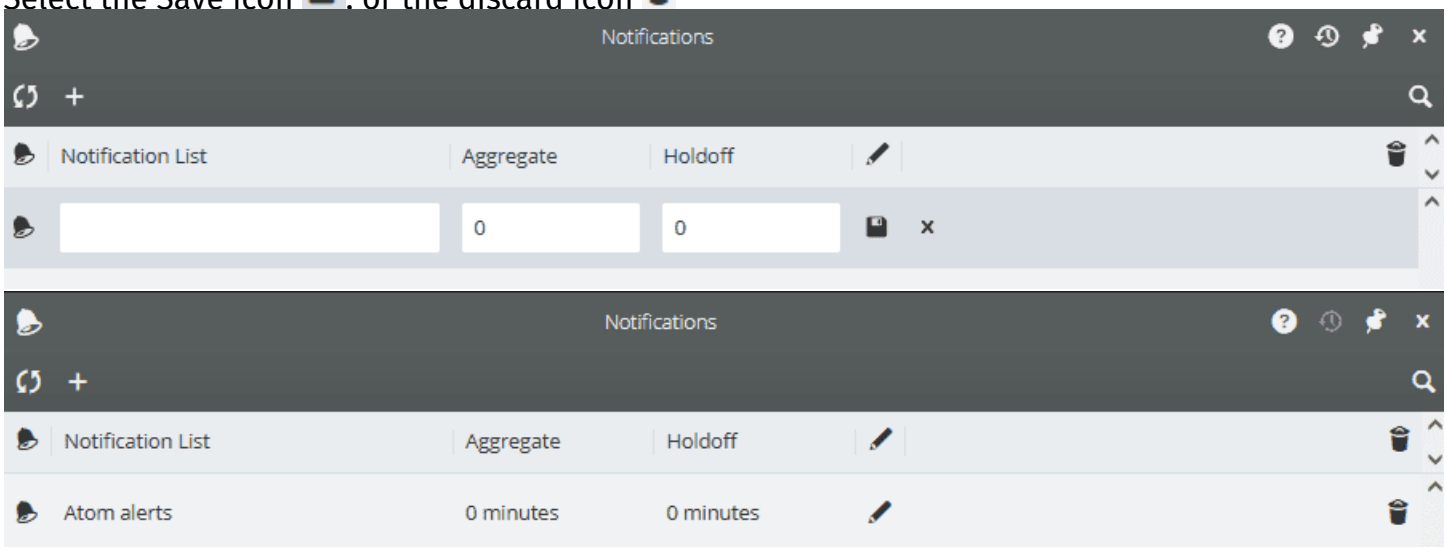


Select the + to add a Notification List



A notification list can be one person getting alerts from one recorder or multiple users getting the same alerts from multiple recorders. Aggregate is the number of minutes to collect all the alerts before the email is sent.
Holdoff is the number of minutes to wait before sending the alert email. Both are used to prevent numerous emails over a short period of time. Both can be adjusted at a later date.

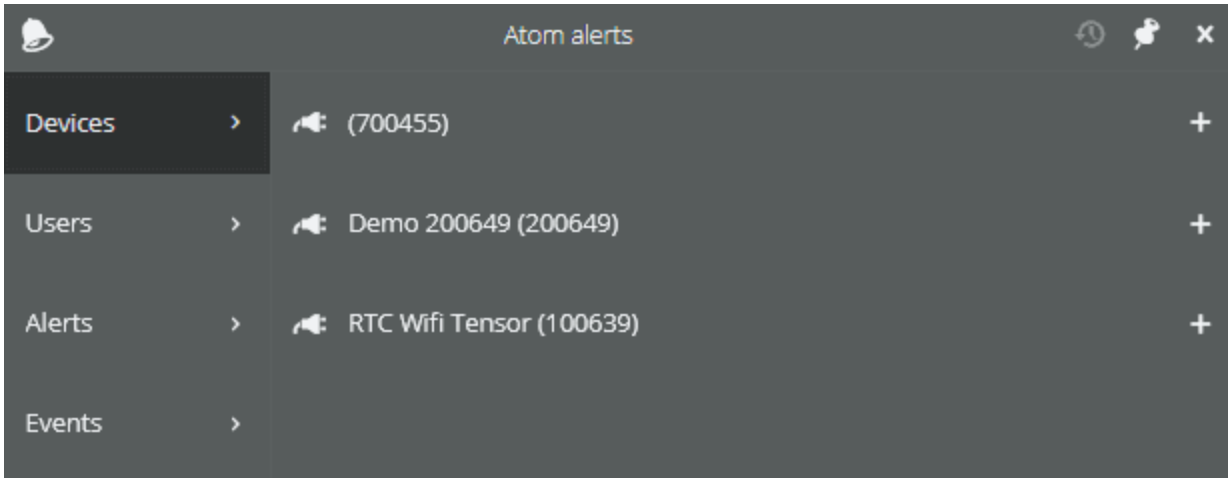
Select the Save icon , or the discard icon



Now that a Notification list is create, set the Devices, Users, Alerts and Events.

Devices will show all the recorders for your account. Click the + to select one, multiple, or all devices.

Users will show every user for your account. Click the + to select one, multiple, or all users.

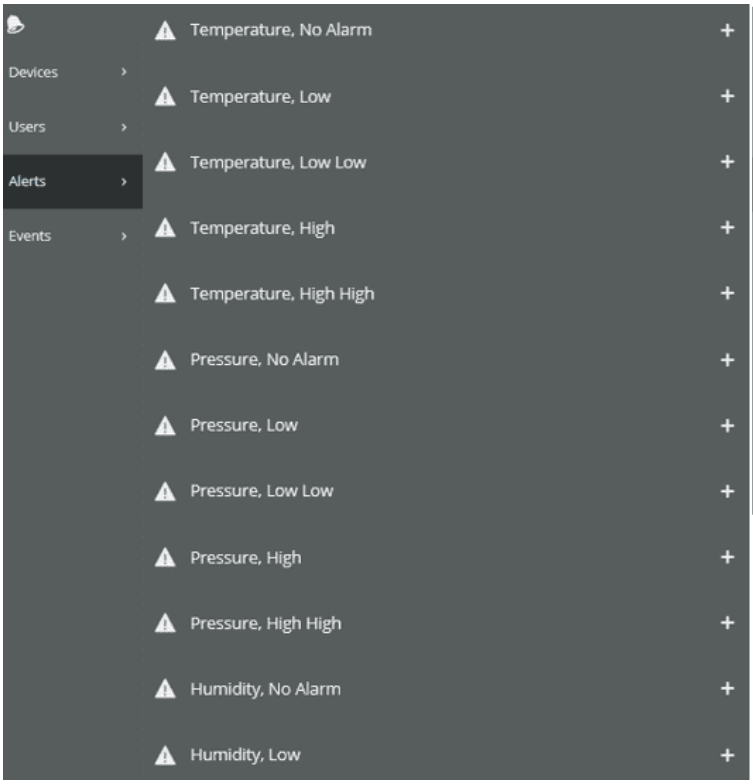


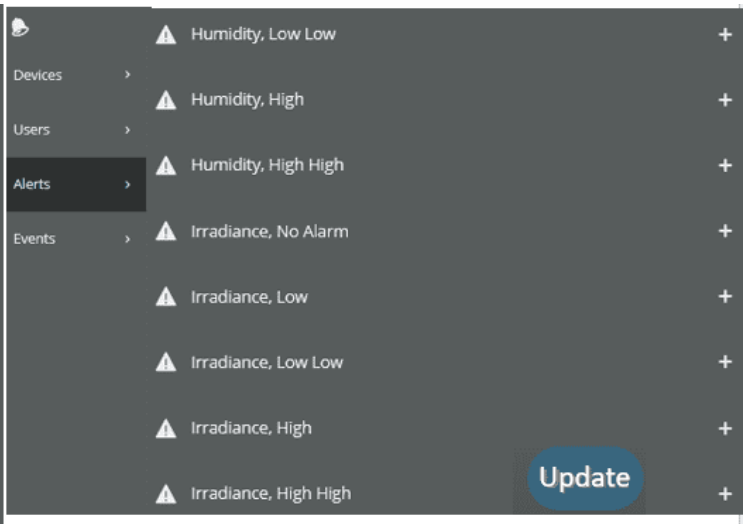
Alerts will have many selections; many are not for the Atom sensor. Click the + to select one or many alerts.

Select ‘Update’ to save settings.

Note: Your selections must match to the Thresholds set earlier.

Atom Alerts:





There are also Event selections that are not used for an Atom sensor. Select the events and then the Update button to save. Events also need to match the Thresholds selections.

Irradiance Alert example:

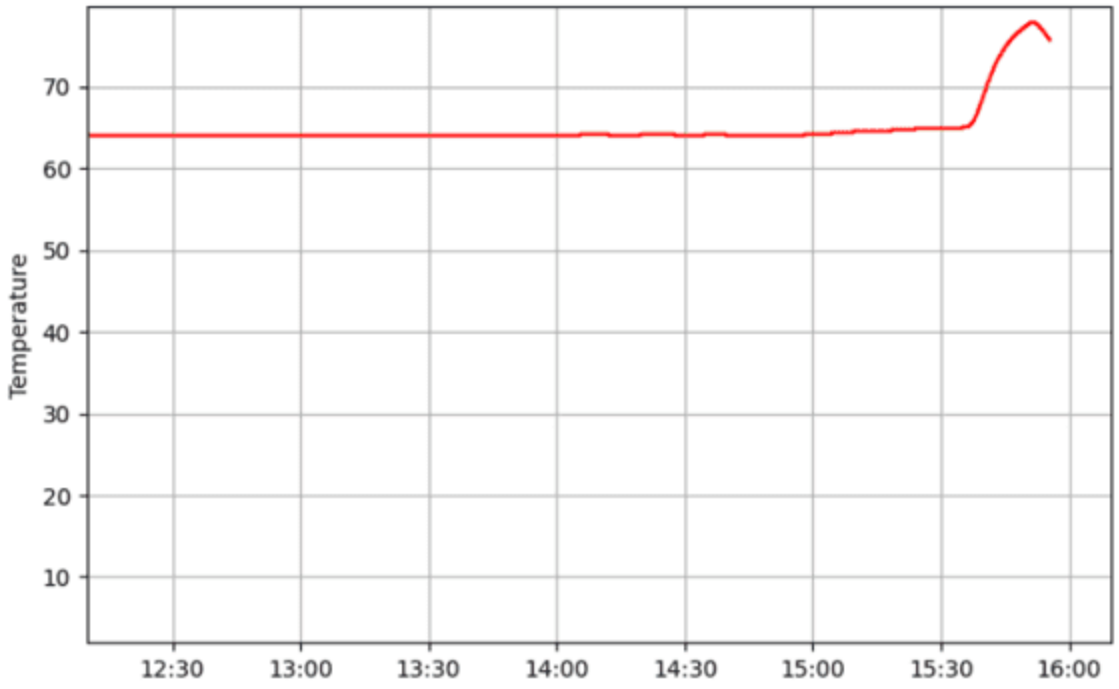
Start Time	01-12-2024 18:29:38 UTC
End Time	01-12-2024 18:38:29 UTC
Device Label	
Device Serial Number	700455
Measure	Irradiance
Distribution List	Atom test

Event orientation message example:

Start Time	01-12-2024 16:22:25 UTC
End Time	01-12-2024 16:29:46 UTC
Orientation	Face Down
Orientation Change Event Count	1
Single-Tap Event Count	0
Double-Tap Event Count	0
Free-fall Event Count	0
Type	Vibration or Orientation Changed

Temperature alert and graph example:

Start Time	01-12-2024 15:57:32 UTC
End Time	01-12-2024 15:59:01 UTC
Device Label	
Device Serial Number	700455
Measure	Temperature
Distribution List	Atom test



Atom LED Codes

Green Blink - Unit is collecting data

Blue Blink - Bluetooth radio turned on, looking for a device to send data to.

Blue Blink (twice) – Tensor/Seeker connected to Atom. Data is being transferred.

Aqua - A Tensor/Seeker has connected recently (within 6 minutes) to the Atom but has not connected since.
Data is waiting to be sent to the Seeker/Tensor

Yellow - Waiting for NTP server to be set (Occurs when the Atom is first turned on and has not yet connected to a Seeker, Tensor or the Atom app)

Technical Specifications

Temperature: -20C to 60C
Pressure: 500 - 1100 hPa
Humidity: 10-95% RH
Solar Flux: 100 - 100,000 lux
Acceleration drop and vibration detection
Magnetic Reed Switch: door closure detection
Environmental Rating: IP68
Communication: Wireless BLE 5.0 Radio
Sensor data read every minute
On-board Memory: 1 Year
Battery Life: 10 years
Weight: 2 ounces

Additional Information

Network Time Protocol (NTP) is synced with the Tensor or Seeker each time the Atom connects

The Atom's battery is currently expected to last 5 to 10 years.

Irradiance is used instead of Solar Flux. Think sunshine instead of a light bulb.

The Atom can only connect to a single recorder, it must then be dissociated and associated to another recorder if needed.

The Atom holds data for up to a year until it can connect to a device to send that data.

Refer to the PQ Canvass User manual for more information on using PQ Canvass

Technical Support

Help is always available if one needs additional assistance. The technical support team at PMI is widely considered to be the best in the industry. Use one of the following methods to obtain technical support:

E-mail Support
Send e-mail to: techsupport@powermonitors.com

Web Support
Submit a support request via the web at https://www.powermonitors.com/support

Telephone Support
Contact us 24 hours a day, 7 days a week for live tech support by calling: (540) 434-4120

Faxes should be sent to: (540) 432-9430

Postal Mail Support
All correspondence by post should be addressed to:
Power Monitors, Inc.
800 North Main Street
Mt. Crawford, VA 22841USA

Appendix 1: Warranty Clause

Power Monitors Inc. (PMI) warrants each new product manufactured and sold to be free from defects in material, workmanship, and construction, and that when used in accordance with this manual will perform to applicable specifications for a period of one year after shipment.

If examination by PMI discloses that the product has been defective, then our obligation is limited to repair or replacement, at our option, of the defective unit or its components. PMI is not responsible for products that have been subject to misuse, alteration, accident, or for repairs not performed by PMI.

The foregoing warranty constitutes PMI's sole liability and is in lieu of any other warranty of merchantability or fitness. PMI shall not be responsible for any incidental or consequential damages arising from any breach of warranty.

Equipment Return

If any PMI product requires repair or is defective, call PMI at (800) 296-4120 before shipping the unit to PMI. If the problem cannot be resolved over the phone, PMI will issue a return authorization number. For prompt service, all shipments to PMI must include:

1. The billing and shipping address for return of equipment
2. The name and telephone number of whom to contact for further information
3. A description of the problem or the work required
4. A list of the enclosed items and serial numbers
5. A return authorization number
6. If possible, a copy of the original invoice

Equipment returned to PMI must be shipped with freight charges prepaid. After repair, PMI will return equipment F.O.B. factory. If equipment is repaired under warranty obligation, freight charges (excluding airfreight or premium services) will be refunded or credited to the customer's account.

Return equipment to:

Power Monitors Inc.
800 North Main Street
Mount Crawford, VA 22841 USA
Attention: Repair Department

Appendix 2: Regulatory Information

U.S. FCC Part 15 and Industry Canada RSS 210 Statements

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.

FCC Warning

Changes or modifications to this product not expressly approved by Power Monitors, Inc. could void the user's authority to operate this equipment.