

AireGuard™ User Manual

Providing remote monitoring and diagnostic via the cloud

- Cloud-based data storage
- Simple plug-and-play Ethernet connection to customer LAN
- Clients communicate only with cloud for robust security
- Allows for optional remote startup to reduce cost
- Alarm notification via e-mail or SMS





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1. Introduction

1.1 AireGuard™ Overview

AireGuard™ is Desert Aire's platform for remote monitoring of the complete line of Desert Aire equipment. AireGuard™ data is available anywhere an internet connection is available. AireGuard™ provides owners/operators as well as Desert Aire's in-house service team with real time data on unit operation. Having immediate access to the unit's performance is a huge benefit that contributes to both lower maintenance and operating costs. In addition to continuous monitoring of a unit's operation, the AireGuard™ system allows for adjustment of multiple set points without having to be at the unit. The AireGuard™ system can also provide notifications of alarms through both emails and text messages. AireGuard™ also archives data to allow for historical trending to aid in system tuning or troubleshooting. This valuable information is also available to the in-house service team to assist with any troubleshooting.

The following instructions assume that the user is familiar with the icons and software buttons used on this site. A list of icon and software button definitions is included in the Appendix. A review of this list may be worthwhile to read first, or referred to as a guide when reading this manual.

Note: the date may be in the DD/MM/YYYY format throughout the AireGuard™ system instead of the MM/DD/YYYY format normally used in North America.

1.2 Hardware Requirements

There are three main items required to enable the service:

- The Desert Aire unit equipped with AireGuard[™] hardware
- An Ethernet network with access to the Internet connected to the Desert Aire unit(s)
- A user device capable of running a web browser that has access to the Internet

At the time of order the Desert Aire units need to be equipped with a controller enabled with the AireGuard™ hardware imbedded or a separate AireGuard™ device. Some models are equipped with the hardware imbedded as a standard feature. The hardware is an option on other Desert Aire models. If you have questions regarding the configuration of your specific equipment, contact your contractor or Desert Aire Representative. It may be noted that if the hardware is not imbedded the unit controller, a separate hardware device can connect up to 10 Desert Aire units.

An Ethernet network connection is required to access the unit remotely. This is connected either directly to the unit controls or to the separate hardware interface. The Ethernet network must be connected to the Internet for the data to communicate with the servers for data storage and access. This is typically done by connecting the unit to a router via

Ethernet cable. See your IT professional if there are questions concerning the network required.

The AireGuard™ user interface is a web page that can be accessed through any device running a web browser. This is optimized for Google Chrome and works best on a desktop computer. It is possible to access the system with a phone or tablet, but additional features such as graph zooming may not be available and some display issues may occur. When using a mobile device, the site works best in landscape mode for most features.

1.3 Sign-On

The AireGuard[™] remote monitoring system comes from the factory pre-configured. No set up is required during installation other than a connection to your computer network.

AireGuard™ can be accessed at https://desert-aire.teraportal.com/ All major browsers can be used for access, however, the AireGuard™ system is optimized to work with Google Chrome. When bookmarking this site, ensure that the exact text shown in Figure 1 is what the bookmark is saving to access the site. If this is not the text you saved by your bookmark, an edit of the text is required.



Figure 1 - Website Address

Login to AireGuard™ using your unique username and password provided at the time of ordering. To locate this information, review your order paperwork or the "Welcome Letter" you may have received. If you do not have login credentials, please contact the Desert Aire Service Assistant at 262-946-7400. The service assistant will help you by either setting up a new account or resetting your password.

2. Home Screen - Toolbar

2.1 Home Page

The Home Page screen consists of the top black tool bar that includes a search feature; the listings of Plants in the main body; and,a page count with navigation at the bottom of the screen. A Plant is defined as the site where one or more units are installed. A Plant can include multiple units installed at the site.

The top right of the main body shows the number of Plants your username has access to, along with the number of unacknowledged alarms at the Plant. For example, in Figure 2, the 1 – 20 / 31 indicates that the first 20 of 31 total Plants are being shown on this page. The 3 and 4 indicate that (3) Plants have life-test alarms active (Purple – No Internet Connection Available) and (4) Plants have an Offline alarm (Red – No Power to the Unit). Also note that the Yellow alarm indicates an alarm triggered by the unit.

Each Plant is shown in a rectangle consisting of the Plant name and logo, the alarm and event indicator and Graph icon. Clicking the Graph icon will allow the Plant to be examined in detail. The alarm and event indicators show the number of active alarms or unexamined events associated with the Plant.

NOTE: Users with multiple plants assigned to their login will see a Home Page view similar to Figure 2. If you only have one plant assigned to your login, your Home Page view will look like Figure 6. Whenever you want to get back to this screen, click the Home button in the top left corner of the black tool bar.

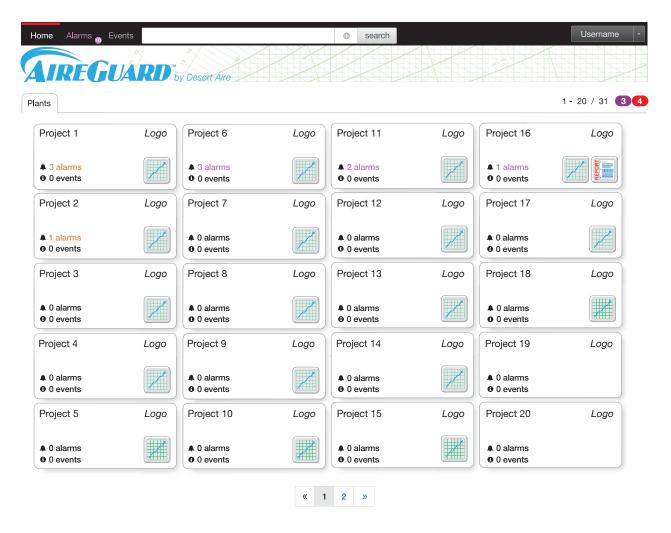


Figure 2 - Home Page

The Home button is on the top black toolbar of Figure 2, and will display a list of Plants that are available for accessing linked to your username. Clicking on the Home button will return to the screen shown in either Figure 2 or 6 at any time during your use of the AireGuard™ system.

2.2 Alarms Button

The Alarms button in the top black toolbar, shown in Figure 2, to the right of the Home button, provides access to a quick check of any of your devices in an alarm mode. The color of the Alarms text will indicate the severity of the active alarm.

- Red indicates a Very High Severity alarm and is normally an Offline indication of loss of power to the unit.
- Orange indicates a High Severity and is produced by the unit itself.
- Purple is a technical alarm and is normally an indication that no internet connection is available at the unit.

Clicking on the Alarms button will display either of the screens shown in Figure 3 or Figure 4. Clicking on the list button, directly to the right of "Alarms", will show a detailed list of alarms active, Figure 3. The Plant button, directly to the right of the list button, will show the Plants with alarms active, Figure 4. The green severity indicators (Top right of screen) can be used to sort the severity of the alarms that are active. Medium and Low Alarms are not used.

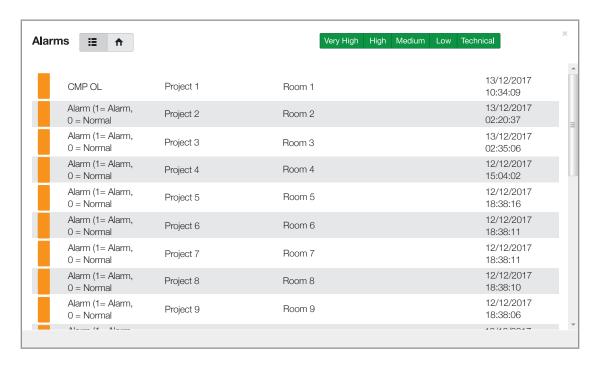


Figure 3 - Alarms

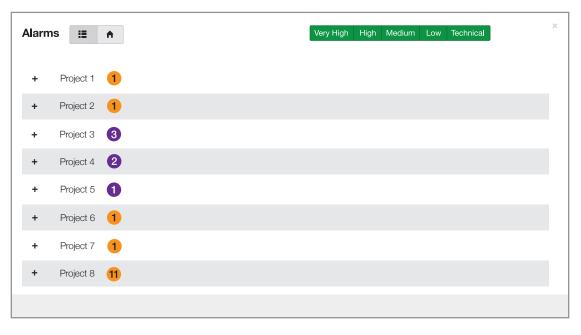


Figure 4 - Alarms

2.3 Events Button

Events for the Plants are shown in this tab. Normal activity is tracked as to when and what devices have been added, updated or removed from the listing of available Plants. Checking the event check box and then clicking the button will acknowledge the event and remove it from this list.

2.4 Search Box

The search box is used to identify the individual unit of interest using some sort of filtering. The filtering will be most useful when the number of Plants shown is large. The order number or the name of the unit can be entered here and the corresponding device or devices will be filtered. By clicking the "+" button, an advanced search can be performed by Plant, Device, Application, Location, and Communities.

2.5 Username Button (Drop Down)

The top right section of the black toolbar will display your name, as shown in Figure 5. Click the drop down button next to your name, . You can now change your profile, view your event log or sign out. If you have been setup as the site administrator, an extra "Administration" selection will also be shown. See the Appendix for information detailing the Administration selection.



Figure 5 - Username

2.5.1 Profile

If your password has been assigned to you by Desert Aire, you should update your password as soon as possible for security purposes. Also note that an email address may be added to your profile. Multiple email addresses can be added by clicking the "+ add" button. The email addresses can be used to notify you to an abnormal condition of your unit. If notifications are required in the form of a text message, an additional email address should be added to your profile. This email address must be in the format as specified by your cellular provider. As an example, Verizon uses the format that includes your phone number

i.e. <u>5551231234@vtext.com</u>. Entering this as another email address will allow the AireGuard™ portal to send text notices to the phone number saved and an email to your email address. Notifications will be sent to an email address listed in your profile. To set up an alarm notification, see Section 5.

2.5.2 Events log

The Events log will display the history of your last actions on the site (logins and log outs). This can be used to verify when you have last logged in or out, or modified a set point.

2.5.3 Sign Out

Selecting Sign Out will sign you out of the AireGuard™ portal. Note, the site will log you off after a period of inactivity.

3. Home Screen - Plant(s) Selection

3.1 Selecting a Plant

A Plant is the site or facility that the unit is located in. A Community is a logical grouping of Plants. Each Plant can be its own Community or multiple Plants can be added to a single Community. The Communities can then be assigned to multiple individual users. In this way, an individual user will be able to view only the sites that the user is responsible for. The Communities are setup at the time of ordering AireGuard™. If a Community of Plants is required, it is important to provide that specific information on the order form.

Once the appropriate Plant has been identified, click the icon associated with the Plant. The screen will now display the devices in that Plant.

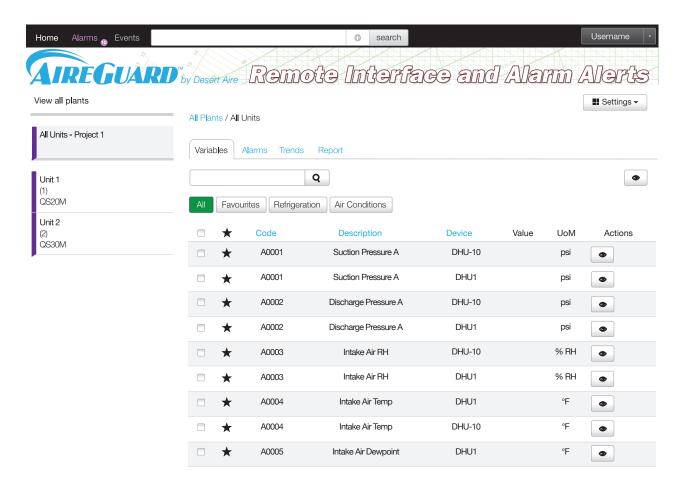


Figure 6 - Plant View

3.2 All Units

When the "All Units" is highlighted on the left section of this display, every variable on the site is available for viewing. To limit the variables to a specific unit, select the tag number of that unit, DHU1, DHU2 etc. from the list on the left of the screen. Selecting the topmost "All units" will again list every variable in the Plant. Units in an alarm state will be marked with a color bar to the left of the tag number, corresponding to the severity of the alarm triggered.

- Purple No Internet Connection
- Red No Power to the Unit
- · Orange Alarm Triggered by the Unit

Selecting the "View All Plants" link displays a graphic of the alarms for the units in that plant. The main display window will show tabs allowing for different functions to be used. These tabs include Variables, Alarms, Trends and Reports. For units using the imbedded hardware controller, a tab labeled "pGD" (graphic display) will also be shown when that individual unit is selected. The search box underneath the tabs will allow for common or grouped variables to be shown. For example, "suction" could be used to view all variables with the word "suction" in them.

3.3 pGD Tab (Only Available with Imbedded Hardware Controllers)

The pGD tab will allow any imbedded hardware controller connected to the AireGuard™ system to display the operator interface screen, as shown in Figure 7. This will correspond directly with the display either on the front of the controller or the remote mounted display attached to your unit. The three keys on the left and three keys on the right can be activated with your mouse. A slight delay will be seen when using the AireGuard™ pGD. This data processing speed is affected by numerous variables so this delay may vary. Refer to the Desert Aire unit's controller manual for complete directions on using the pGD.

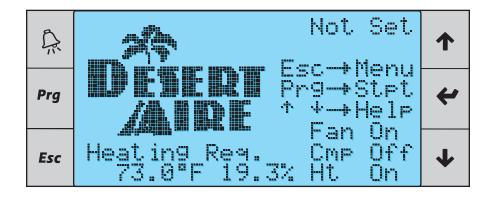


Figure 7 - pGD View

3.4 Variables Tab

The Variables tab allows for data in real time, as shown below in Figure 8. To check the status of one variable, click on the button under the Actions column. To check more than one variable at a time, select those variables by checking the box to the left. The top check box will select all variables on that page. The button to the right of the search box will display the current state of all the checked variables.

The variables can be sorted and saved as Favourites. This is done by selecting the star associated with the variable. Then clicking the Favourites button will display only those variables.

Other Category buttons may also be shown. These include the "All" button and the "General" button but may include groupings such as "Setpoints" or "Tuning Parameters". These categories can make setup of the unit easier. Once in these categories, only those variables in that group will be shown. If variables are not shown that have been defined, use the "All" button to show every variable and try filtering again.

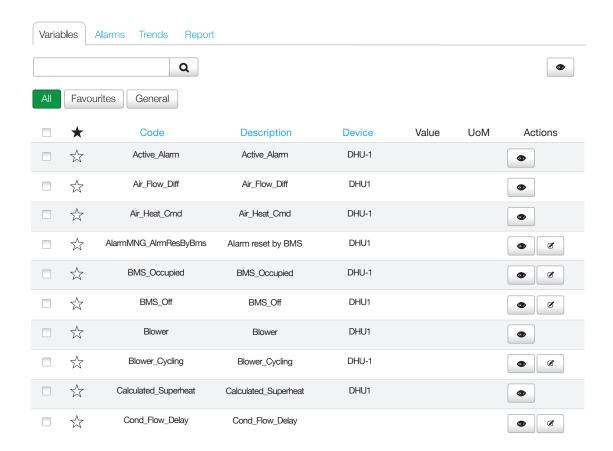


Figure 8 – Variables Tab

3.5 Alarms Tab

The Alarms tab will display an Active alarm as shown in Figure 9. This is an indication that the unit "DHU-3B" is in an alarm state. Appropriate action should be taken to clear this alarm on the unit itself. Once that is done, click the
button to acknowledge the alarm and the button to reset the AireGuard™ site. Please note that clicking the button on the AireGuard™ site does not reset the unit, only the alarm notification. If the alarm is of a type that requires a unit reset, the variable for reset must be written to "1". It is highly recommended that a physical insection of the unit occur if a lockout occurred, but it is possible to write this variable in the "Variables" tab.

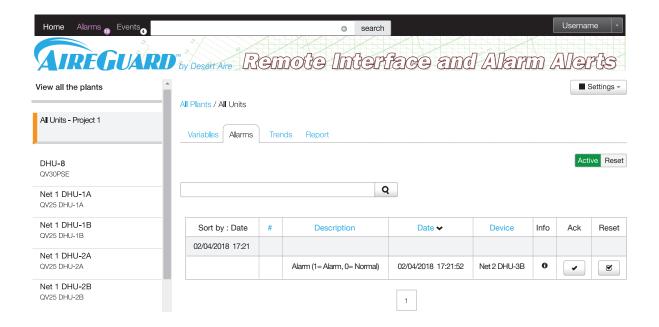


Figure 9 - Alarms Tab

To view past alarms for the unit, select the "Reset" button to the right of the green "Active" button on the top right of the main display. Note that dates are in DD/MM/YYYY format. The alarms are shown for that month. Use the date field to view alarms older than a month.

Any units that are currently in an alarm state will be marked with the color corresponding to the alarm severity and listed on the left side of the page, as shown in Figure 10.

- Purple No Internet Connection
- Red No Power to the Unit
- Orange Alarm Triggered by the Unit

Selecting the "View All Plants" link displays a graphic of the alarms for all the units in that plant.

View all plants All Units - Project 1 Description 1 Unit 1 (1) 000A5C4034BC-LC_3_0_0_1.00

Figure 10 - All Plants View

3.6 Trends Tab

The Trends tab allows for historical data to be seen for tuning and troubleshooting purposes. Select the Trends tab and if no data is in the graph window, select Configure Graph on the bottom right of the page. Select the data points, then select the date of interest and the period. Click the "Refresh" button and the data will populate the graph. See Figure 11.

Data is, by default, accessed in log mode, showing the charts of logging data. The logged data can be displayed over a daily, weekly or monthly period starting from a chosen date; the current day is shown by default. To select a specific period, use the start time and period fields and click the "Update" button.

To zoom in, click and drag the red line in the graph to a highlighted area of interest. Note that the left axis will auto scale the variables. Also note that digital points will appear below the graph window. To zoom out, click the magnifying glass button next to the 2 arrows button. The data viewed will not be updated on the graph while viewing. To update the data, click the Update data button.

To view live data, click the "Live" button. Configure the points of interest and click the Play button. This requires more portal resources than retrieving the logged data, so use this feature sparingly.

Live mode will sample data every 5 seconds and populate the graph with the "Play" button. If more than one hour is used, the plant will start to display data in 30 second increments. This mode is data intensive and should be turned off with the "Stop" button when not used. Click the icon to clear the chart.

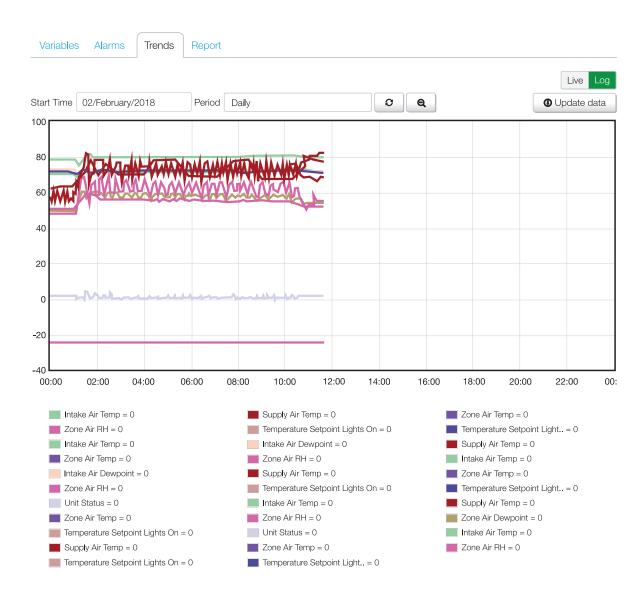


Figure 11 - Trends

3.7 Report Tab

Selecting the Report tab from AireGuard™ allows for the generation of an Excel spreadsheet report of selected variables. The variables, time period frequency and start date need to be defined. Clicking the "Generate" button, creates the report in Excel spreadsheet format.

Only logged variables can be included in the report. The following table shows the possible combinations:

Report Limits

Report Period	Available Frequencies	Number of Variables
Daily	5, 30, 60, 180, 300, 600, 900	10 (5 sec frequency = 2)
Weekly	300, 600, 900	10
Monthly	900	10

Figure 12

4 Administration

4.1 Administration Section from Profile

If a user has been given administrator rights, "Administration" will appear in that user's username drop down list. The administration feature allows modifications to the User of that site, an Addressbook and a Communities section.

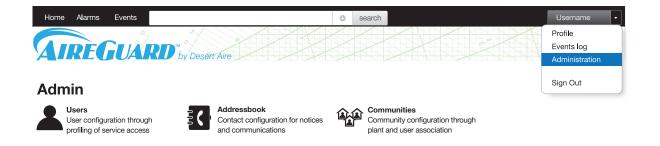


Figure 13 - Administration Section

4.1.1 Users

The user section allows the site administrator to edit the site user's password, name, community and Read and Write Variable Access. To edit a user, select the blue edit button in the row with the user's name. To delete an individual user, select the red trash can button. To delete multiple users at once, click the check box next to their name, then click the red trash can button on the top right of the page.

4.1.2 Addressbook

This page allows the administrator to manage their contacts, including their email, community and mobile number. To create a new contact, select the blue "+ new" on the top of the screen. To edit an existing contact's information, select the "Addresses" button to the right of their name.

4.1.3 Communities

This page allows the administrator to add communities to their site. This allows individual units to be placed in separate communities. Contact Desert Aire's Service Department for this functionality. To add a new community, select the blue "+ new" button on the top right of the screen. To edit a community, select the blue edit button to the right of the community name. To delete an individual community, click the red trash can button. To delete multiple communities, select the check box next to those communities, then click the red "delete" button on the top right of the screen.

5 Alarm

5.1 Setting up Alarm Notification

To setup an alarm notification, navigate to a Plant you have access to and click on the settings button at the top right of the screen, then select Alarm Notification. The screen will show All Alarms Rules for previous notifications that have been set up. An existing notification may be modified or a new notification defined here. Click the blue edit button on the line of the notification to modify. Click the blue "+ new" button to define a new rule.

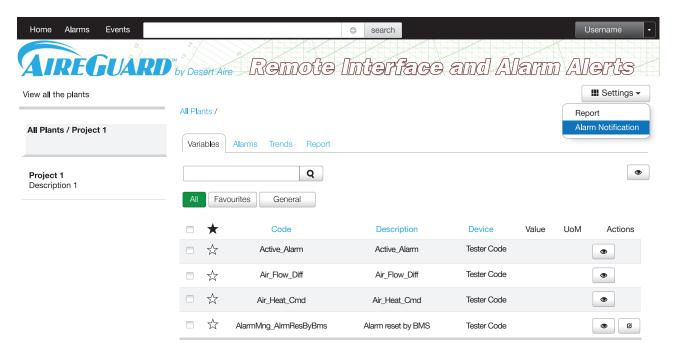


Figure 14 - Alarm Notification

- 1. Select Enabled to activate the rule.
- 2. The Notify Reset check box will send a notification when an alarm is reset on the AireGuard™ site.
- 3. Name the rule.
- 4. Select all priorities by highlighting them.
- 5. Select the Community if any alarm in the Community should send a notification.
- Select the Plant if any alarm in a Plant should send a notification. Select the Community as well.
- 7. Select the Device if any alarm in a specific unit should send a notification. Select the Community and the Plant the device is in as well.
- 8. Select the Contact that should be notified. A notification will be sent to all email addresses defined in that contact.
- 9. Select the Time Band for notification. Selecting the Interval allows different shifts to receive notifications when on call.
- 10. Save the notification when the definition is setup correctly.
- 11. Test the notification by triggering an alarm at the unit.

5.2 When an Alarm is Activated

In most cases, an alarm on the Desert Aire unit will record an alarm on the AireGuard TM portal. Resetting the alarm on the unit; however, does not acknowledge or reset the alarm on the AireGuard TM portal.

To turn the alarm off on the AireGuard[™] portal, refer to the steps below. To turn the alarm off on the unit, refer to the manual for that unit. It may be possible to reset the Desert Aire unit remotely from the AireGuard[™] portal. Enter "RemoteReset" into the search box just below the Variables/Alarms/Trends/Report tabs. **Do not use the search bar on the very top of the screen. Use the search bar within the Variables tab.** If this variable exists in the unit, click on the "Edit" button, and change the value from 0 to 1 by selecting the number 1 button and clicking "SaveChanges". This has the effect of remotely clicking the reset button on the display.



Figure 15 - Remote Reset

5.3 Acknowledge an Alarm

- 1. Navigate to the home screen. Click "Home" on the black toolbar on the top left of the screen.
- 2. Select the plant that is in an alarm. Click on the graph in the plant's name box.
- 3. Select the "Alarms" tab.
- 4. Click the check box in the "Ack" column. This will acknowledge the alarm.

5.4 Reset an Alarm

- 1. Navigate to the home screen. Click "Home" on the black toolbar on the top left of the screen.
- 2. Select the plant that is in an alarm state. Click on the graph in the plant's name box.
- 3. Click on the "Alarms" tab.
- 4. Click the check box in the "Reset" column. This will only reset the alarm on the AireGuard™ portal.

Appendix A

Home Home - Takes the current user back to the home page where the plants are displayed. Alarms Alarms - Displays any units that have an active alarm. Alarms View All - Displays all the current alarms and relevant information. Alarms Group by Plant - Displays all the plants that currently have units in an alarm state. Clicking on a plant will allow the user to view the alarm information. **Events** Events - Displays any current events of device, model or unit information. search Search Bar – Allows the user to search for a specific Plant, Device, Application, Location or Community. Username Username Drop Down - Displays the Profile, Event Log, and Sign Off Buttons. Also displays Administration button if the User is set up as an Administrator. Profile Profile - Edits the user's information, such as username, password, First and Last Name, language, and email addresses. Events log Events Log - Displays Event Type, Date, and Message for all past events for all units the User has access to.

Sign Out

Sign Out - Signs the user out of AireGuard™

Administration

Administration - May not be visible. Allows the user to manage other users, their addressbook and Communities. This will only be available if the current user has Administrator privileges granted.

Plants

Plants - Displays all the current plants that the user has access to.

1 - 4 / 4 Total Plants - On the top right across from "Plants", the number of plants and the total number of Plants the user has access to is displayed. If the number of Plants the user has access to is greater than 20, page numbers at the bottom of the screen will allow access to the Plants not displayed. The Plants are shown in alphabetical order, with the exception of Plants with an active alarm showing up first, by date of the alarm. The number of Plants in an alarm state will be shown after the total number of Plants, with the most severe alarm color active.



Graph - Click this button to display the devices in the Plant.

View all plants

View all Plants – Displays all the Plants the user has access to, along with a count of alarms for that Plant.



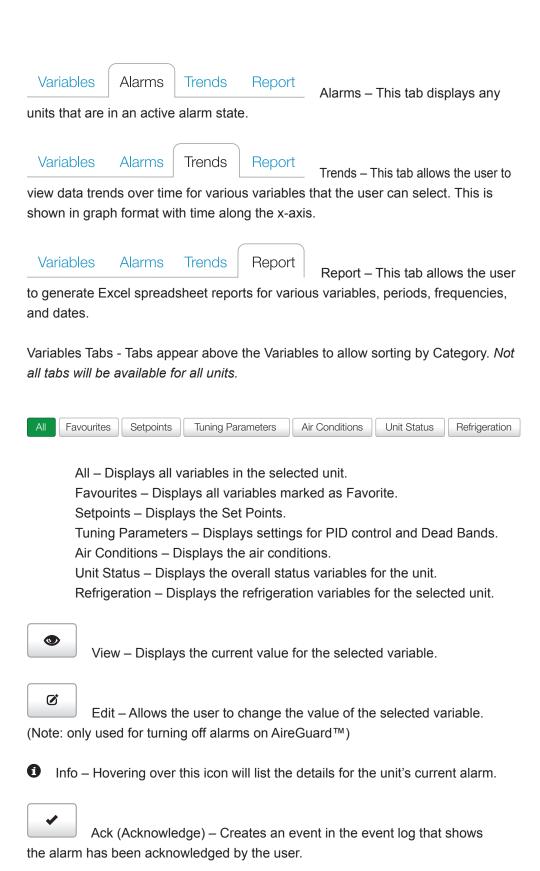
Alarm Notifications.

Settings - This allows the user to setup Reports or

All Plants / Project 1 Displays information for all units at the selected plant. Beneath this, individual units, typically identified by a tag number, can be selected.

Variables Alarms Trends Report Variables - This tab displays all variables available, either for All Units or for the device that is selected.

Set points, tuning parameters and other points that are not logged are displayed here.



 \odot Reset – Resets the alarm on AireGuard $^{\text{TM}}$. However, it does not turn the alarm off on the unit. C Refresh – Applies the changes made to the start time and period. Q Reset Zoom – Returns the graph display to the standard zoom. Update data Update data – Updates the data. Live Log Live / Log – Shows data for the user's selected variables updating in real time. Live Log Live / Log – Shows logged data for the user's selected variables. ✓ Generate Generate – Select this button to generate a report.

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OPTIMIZING SOLUTIONS THROUGH SUPERIOR DEHUMIDIFICATION TECHNOLOGY

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