AERMEC
air conditioning

Quick Guide

Supervision and monitoring system

AERNET

Web Application

UK

AERNET-Quick Guide_02

WARNING: The pages with the " " symbol at the bottom of the page indicate the new functions of the updated AerNet portal. These pages should be interpreted as a "parenthesis" in the manual, for a purely informational purpose. The entire manual remains valid and it is recommended to follow the order indicated in the table of contents.

Illustration of the new AerNet portal functionalities (https://aernet.aermec.com)

This document presents the additions/changes made to the web interface of the Plant Monitoring Web Application (https://aernet.aermec.com).

0) First access to the new portal

When accessing the updated AerNet portal for the first time, the following screen appears, allowing you to download the document summarising the variants that have been introduced (i.e. the document you are now reading):

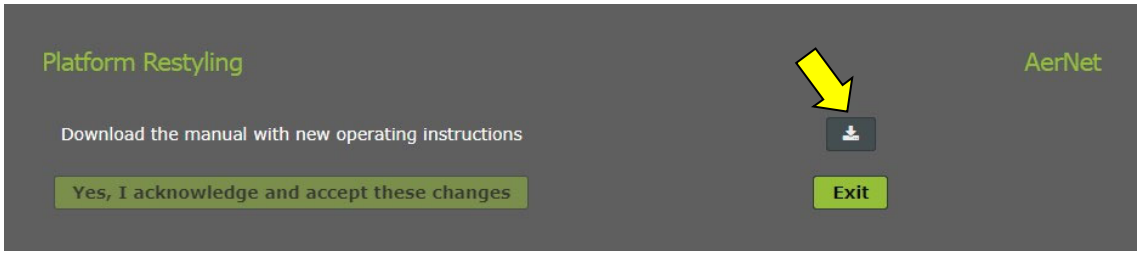


Figure 1: downloading the new instructions

1) General interface elements

Some general elements of the interface have been repositioned, in particular the menu for accessing functions has been developed horizontally at the top of the screen, in order to leave more space in the central part and thus make it easier to use certain functions, described below.

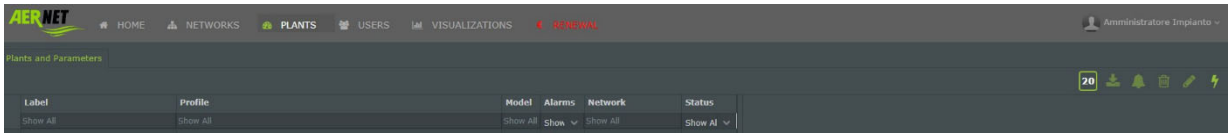


Figure 2: new access menu layout

2) Functionality of networks, systems and users

When creating a new user, the new "Visualizations" functionality is available:

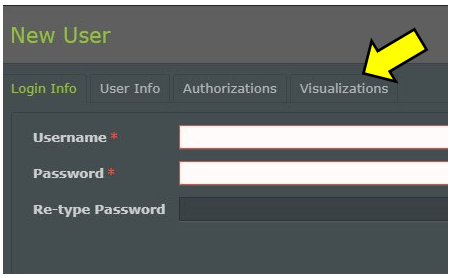


Figure 3 - New "Visualization" functionality

In fact, in this new version of the AerNet portal, any "user" or "superuser" who is created **has access by default to all views of all networks owned by the administrator**. Via the new "Visualization" tab, the administrator will have the option of removing access to any particular view:

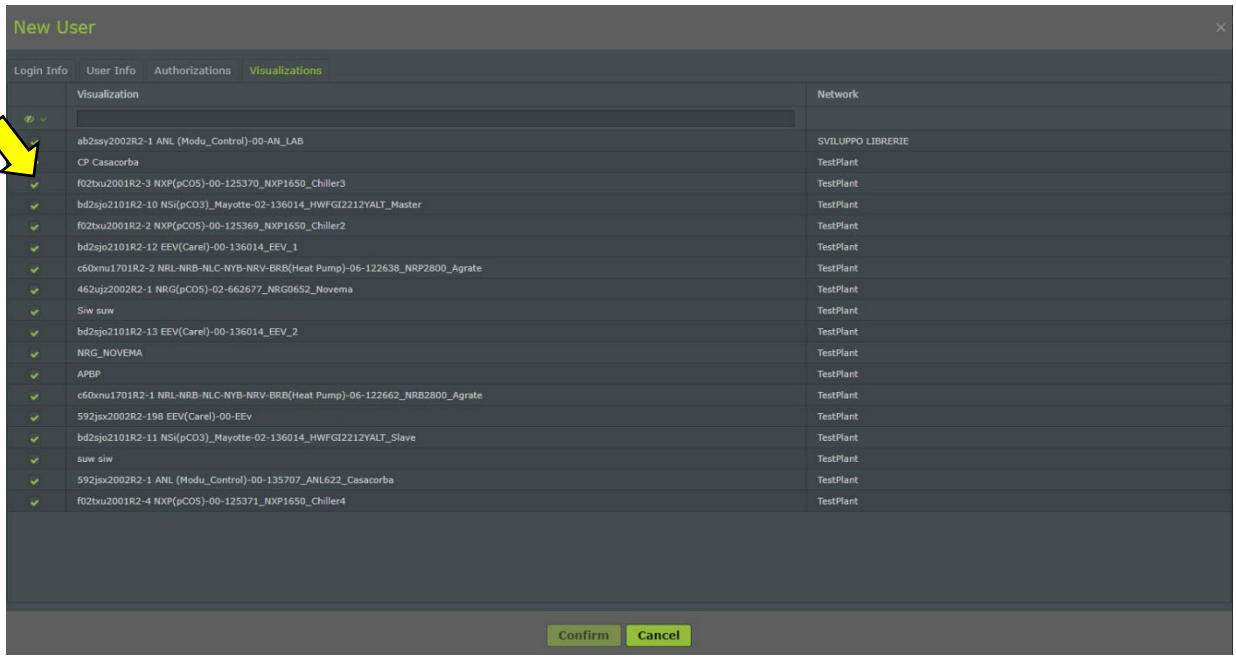


Figure 4: Display enabling

It should be borne in mind that once one or more slaves have been deleted, the corresponding displays will also be deleted.

3) Sending alarms

In this release, the possibility is given to set up additional e-mail addresses to which alarms can be sent. **These recipients will not be visible in the list of users and will not be able to log in, but will only receive e-mail alerts**.

To add these new recipients, proceed as follows:

- select the slave you want
- click on the 'Modify' button in the top right-hand corner
- then select the “Alarms” tab and then the “Alarm Notification” button . The classic alarm notification window opens, with a new icon in the centre

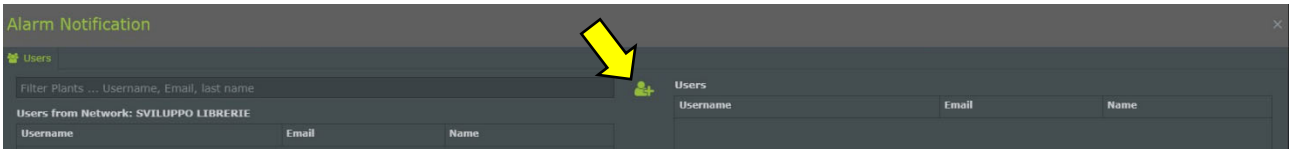


Figure 5: New icon for entering additional e-mail addresses

- Clicking on the new icon opens a window where you can enter a new e-mail address

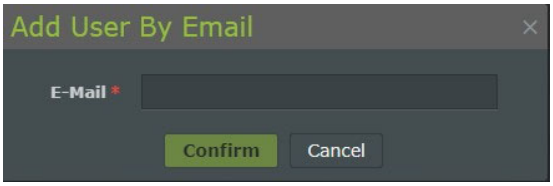


Figure 6: Email compilation

By clicking on confirm, the recipient is added. It is of course always possible to remove it at any time.

4) Manage Profiles

In this version, several changes have been made to the “Manage Profiles” area to improve the usability of the “Aernet Pro” interface. Let's see in detail.

Manage Templates

The interface is very similar to the previous one; the available templates are listed, with the revision and source file indicated:

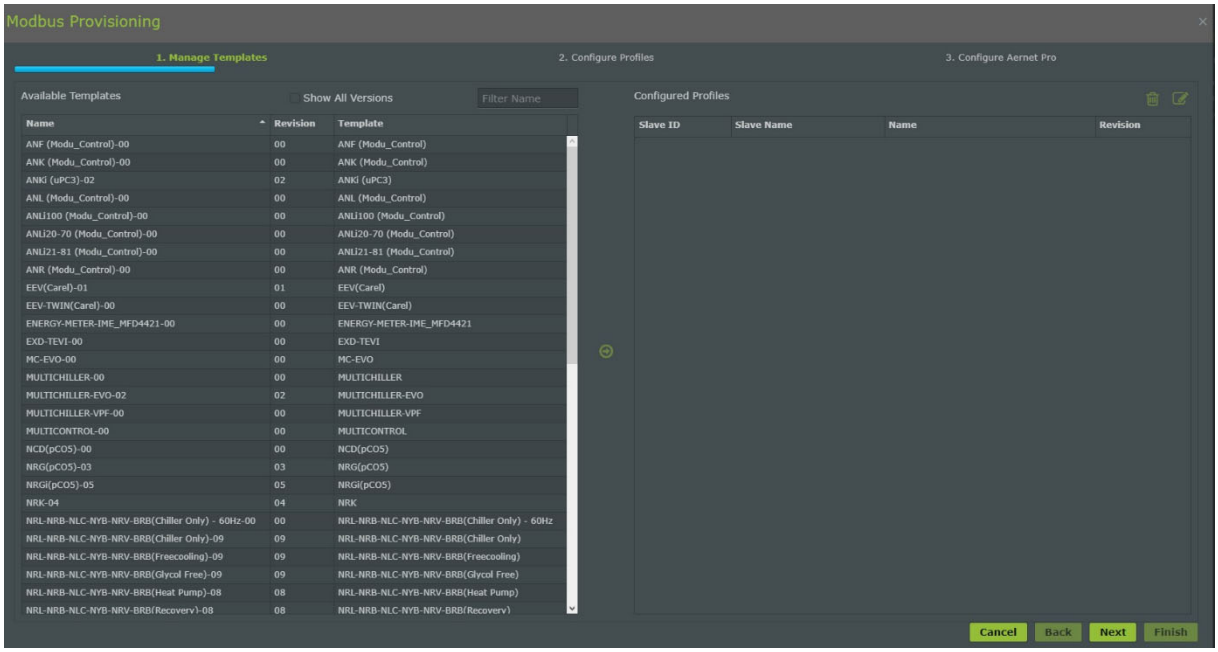


Figure 7: “Manage templates” screen

Once the template (or templates) to be imported has been chosen and the various required parameters (name, modbus address, etc.) have been set, two new icons are active:

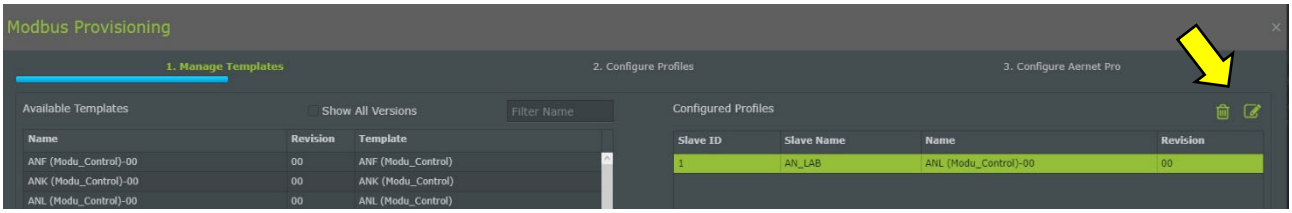


Figure 8: Manage Templates, Additional functionalities

The icon allows the newly imported (or already present) modbus slave to be deleted: please note that once one or more slaves have been deleted, the corresponding displays will also be deleted.
The icon allows all settings of the slave that has been created to be changed, including the modbus address.
Continuing the procedure leads to the next step, **Configure Profiles**.

Configure profiles

The interface is identical to that of the previous version, except for the presence of the “Copy” icon:

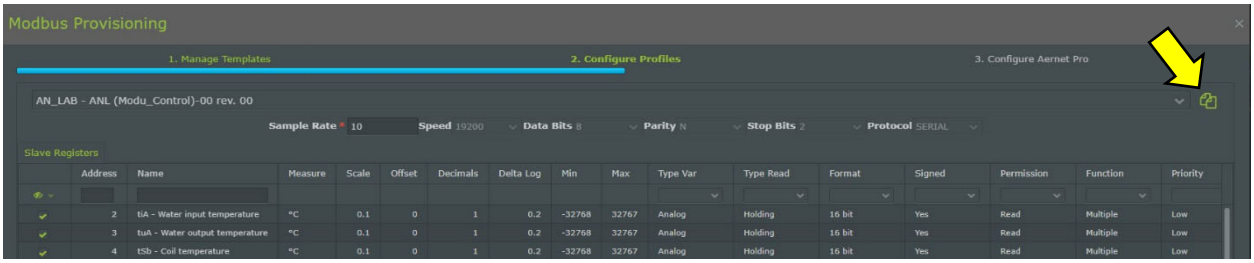


Figure 9: Configure Profiles, Copy icon

By clicking on the icon, it is possible to copy all settings of the current slave profile, including the enabled registers, to a second slave profile (of the same template) provided it was previously loaded with the "Manage Template" functionality:

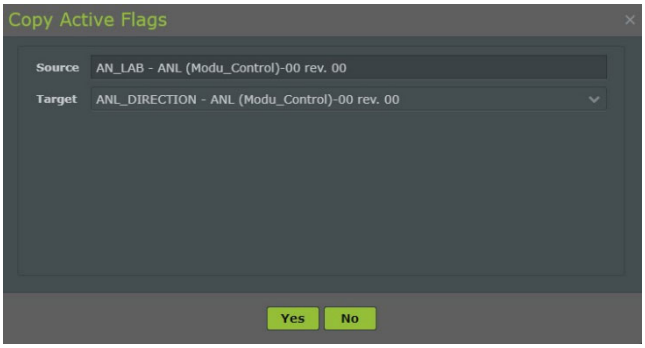


Figure 10: Copy Family functionality

Copying takes place from the "Source" family to the "Target" family. By pressing **Yes** the two slave profiles will be exactly identical, except for the address.
Continuing the procedure takes you to the next step, **Configure AerNet Pro**

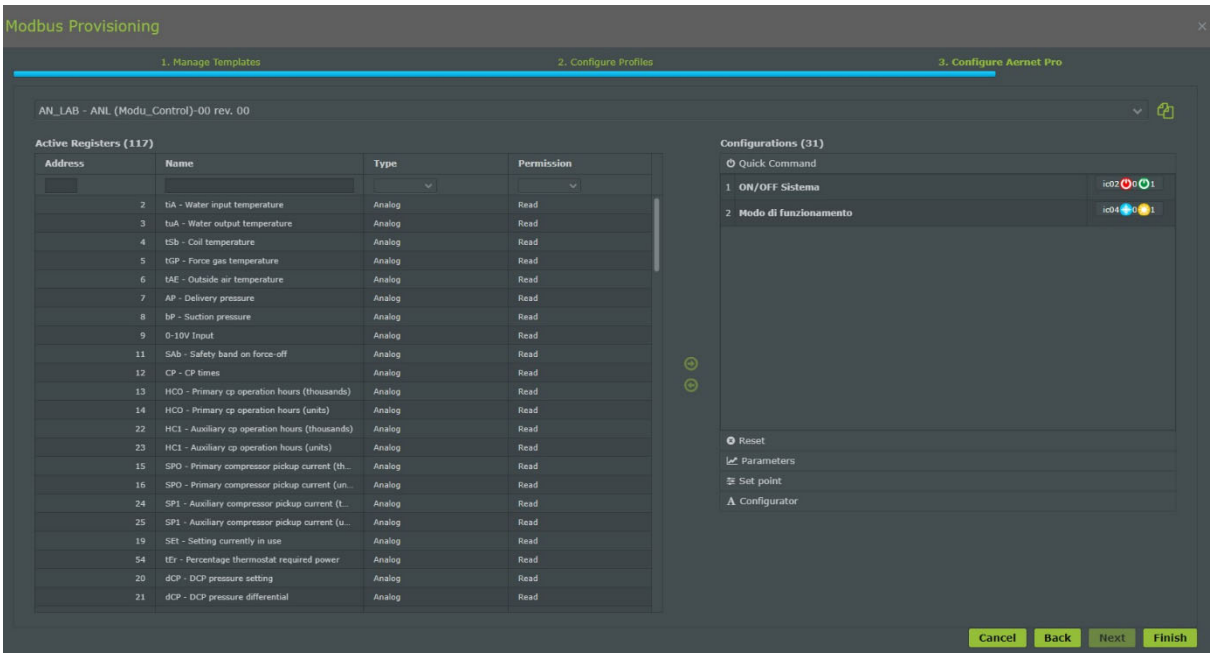


Figure 11: Interface Configure Aernet Pro

Configura Aernet Pro

The areas Quick Command, Reset, Setpoint and Configurator remained unchanged.
The Status and Series areas were merged into "Parameters".
"Histogram" has been removed

When creating the Aernet Pro interface, there is the possibility to choose up to 20 parameters in “read” or “read/write” to be presented on the Aernet Pro summary window. When they are chosen and brought to the right, it is possible to choose whether or not to graph them, MAXIMUM 10 PARAMETERS, by means of the appropriate flag. Please note that some of them will normally be present on both the summary and the graph, because they are already preset. They can of course be removed and/or modified.
Also in this step, you can use the 'Copy' function .

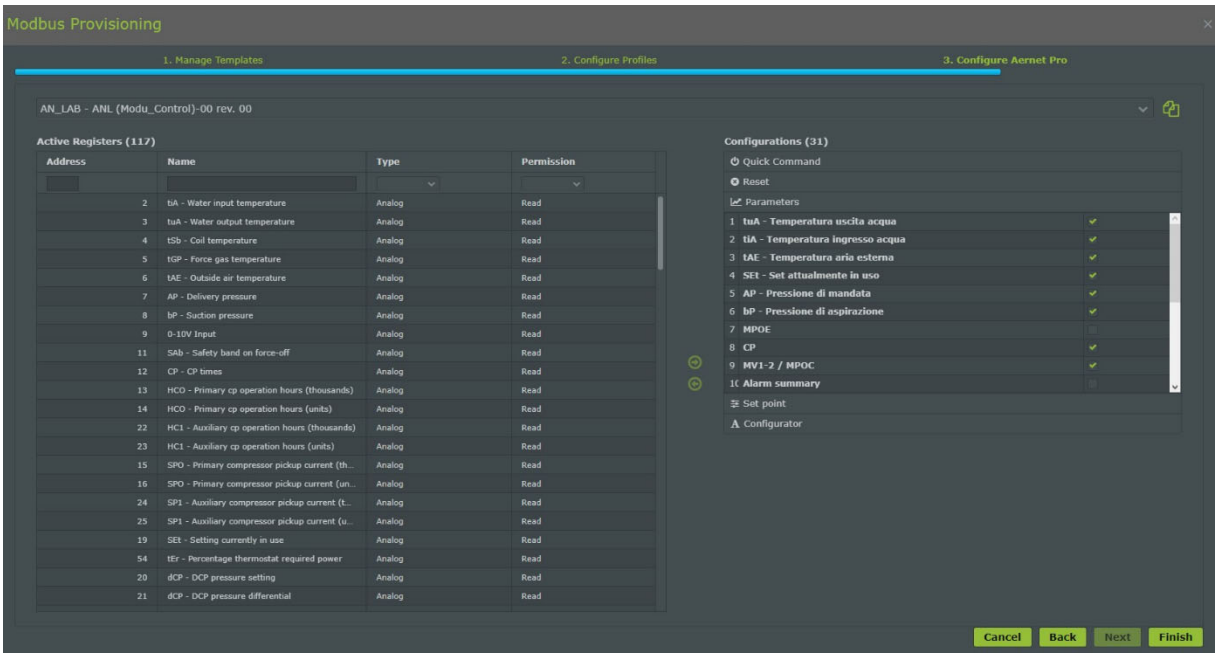


Figure 12: Configure Aernet Pro, parameter assignment to display

Once this step has been completed, pressing the **Finish** button returns you to the Plants e Parameters window, from which you can choose the standard Aernet Pro view, which will appear as follows:

Figure 13: new AerNet Pro interface display

Below is an explanation of the new AerNet Pro interface.

- The table you see with the 20 parameters under “Summary” is dynamic, i.e. it updates every 30 seconds.
- Data in the table that are not graphed appear in white, while those that are graphed appear in the colour of the corresponding series in the graph.
- Using the tick marks, it is possible to remove/add parameters (maximum 10), which are then updated on the graph by pressing the  button.
- The labels below the graph are retained, allowing the series to be quickly removed or put back in or highlighted.
- The graph is dynamic, by default it shows the last hour of operation and allows zooming using the mouse, as with the graphs constructed in the “Visualizations” menu. It remains possible to manage display intervals, as usual.
- If one of the parameters is of the Digital or Coil type, the graph adjusts to a dual display, with the analogue tracks at the top and the digital tracks at the bottom, similar to the “Tandem chart” display.
- The three “Toggle” type buttons remain, allowing you to execute some quick commands (e.g. machine On/Off, season change and alarm reset)
- Setpoints are available in the dedicated “Set Points” form:

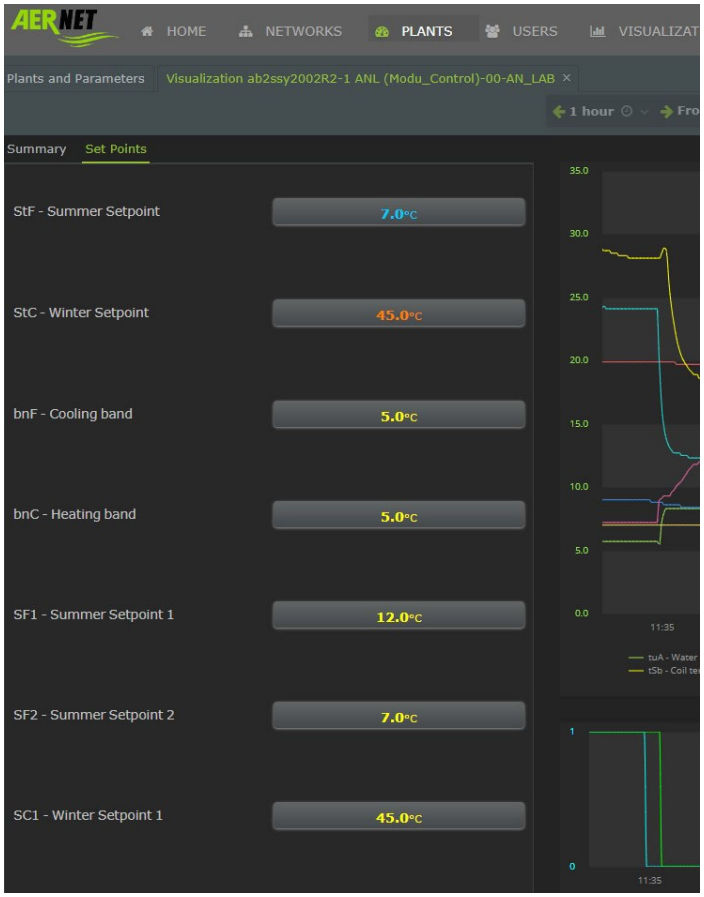


Figure 14: Set Points edit window

5) Data retention

In order to make AerNet's data cloud platform more efficient, while saving a little money during subscription renewal, the new AerNet platform provides the following time windows for the retention of recorded data:

- The retention time of averaged data (an average data every hour) **is reduced to 3 months** (previously it was one year)
- The retention time for point data, i.e. data recorded at the highest possible resolution, remains unchanged, one week.

AerNet Web Application – Quick Guide

1 Introduction

This document describes the basic AerNet configuration procedure in order to connect one or more remote control slaves.

The following operations should be performed after successfully installing AerNet in mechanical/electrical terms and connected to internet (via Ethernet / 3G; refer to the installation manual provided in the kit).

Bear in mind that, for the complete description of all AerNet platform functions, you should consult the *"AerNet Web Application – Full Guide"* manual which is also available on the Aermec website. This Quick Guide will help you commission the product but it is obviously not exhaustive.

2 What is needed?

The user must have a **Personal Computer** or **Tablet** with Internet access in order to complete AerNet activation on the cloud portal. Make sure that the sheet with the **AerNet activation codes** supplied inside the Kit is close at hand.

3 Before starting ...

There follows an example for creating a base system comprising a single Aermec chiller. Before proceeding, it would be useful to summarise a number of basic concepts referred to in the document that are part of the AerNet platform.

- ***AerNet***: the physical device connected to the machines being monitored via the RS485 serial connection
- ***Plants***: the physical, individual AerNet systems registered on the Cloud AERNET platform, connected to the individual modbus slaves (each Aermec device has a RS485 port)
- ***Networks***: A "Network" is a logical combination of one or more plant systems. This combination can be used to group plant systems on a geographical basis (all plant in Lombardy are listed in the "Lombardy" Network) or in accordance with another classification suitable for managing the equipment pool. Each network can be associated with a geographical map that identifies the location of plant systems.
- ***Users***: the people who use the AerNet service. There are different types of user:
  - Administrator: the owner of AerNet who can administrate all the functions of the platform. The administrator owns one or more networks and can configure and set individual plant systems, create displays, create users associated with networks and enable specific views for users. Other "SuperUser" and "User" can also be created.
  - SuperUser: A SuperUser has access in the network concerned to a number of Administrator functions. Entered by default as the person receiving all alarm notifications
  - User: may only access displays for the network / plant system in question for which the Administrator has associated with the user. Only receives notification of those alarms for which the Administrator has enabled in the list of basic role notifications
- ***Visualizations***: The various views whereby users have access to the data collected by the platform are called "Visualizzazioni". AERNET offers many kinds of "Graphic Widget " (graphic, multi-value graphic,

tables, histograms, etc..). A display may contain on or more Widget. It is important to bear in mind that for each plant installed a display is created by default called "**AerNet Pro**": it is a synoptic panel used to display the current status of the plant, implement commands and make certain set-points.

4 Launch Web Application

4.1 Initial Check

Make sure that AerNet is powered up: if everything is OK, the "ON" LED must be ON and, if correctly visible in Internet, also the "US1" LED.

4.2 Launch Web Application AERNET

From any PC or Tablet connected to Internet, open any Browser and type in the address: "aernet.aermec.com". The following page opens:

Figure 1: Login page

If you are already registered, enter your User Name and Password. Otherwise complete the registration procedure by clicking on "Sign up here!". The following window opens:

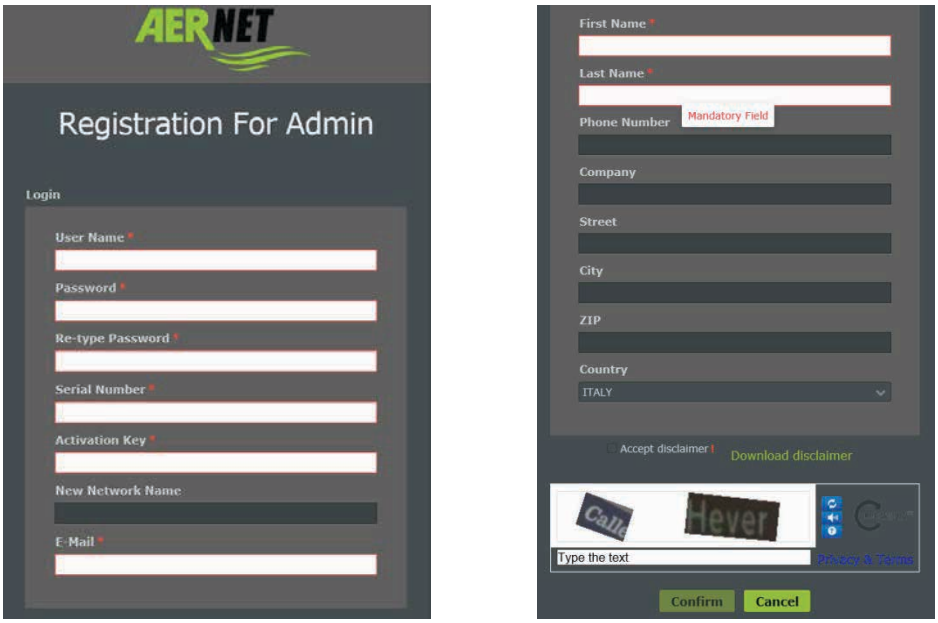


Figure 2: registration pages

Fill out all the compulsory fields (those marked with an asterisk). Filling out the remaining fields is discretionary. Some technical notes:

- **The user name and password must have at least 8 characters**
- The perform registration, the Administrator must enter the two 12-character codes provided in the (Serial Key, Activation Key) sheet, upper/lower case must be observed. The first code refers to the serial code of the AERNET Router indicated on the label affixed to the side of the apparatus. The second code is a unique key for the apparatus that enables activation.
- The conditions of use must be accepted by ticking the relative box (they can be downloaded by clicking on the link "Download disclaimer")
- You must enter the reCAPTCHA codes displayed

Once everything has been correctly compiled, the following window appears:

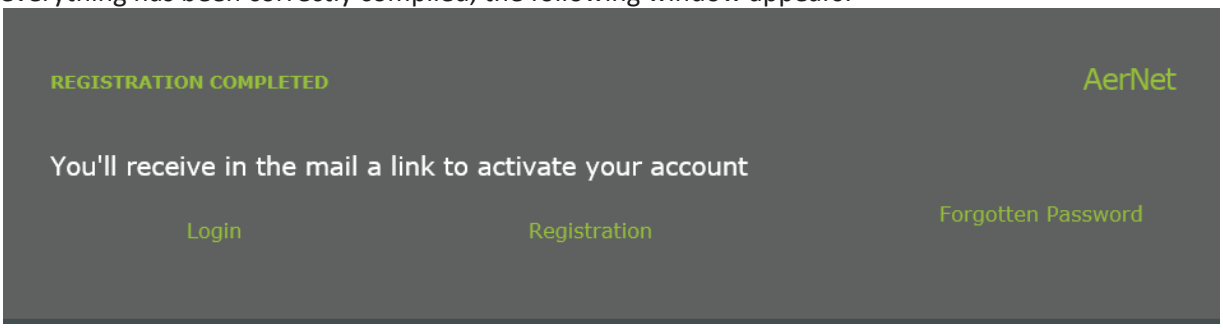


Figure 3: registration page

indicating the procedure has been completed correctly. Check your email box to see if the service activation confirmation email has been received: activate the registration by clicking on the specific link. The following window opens:

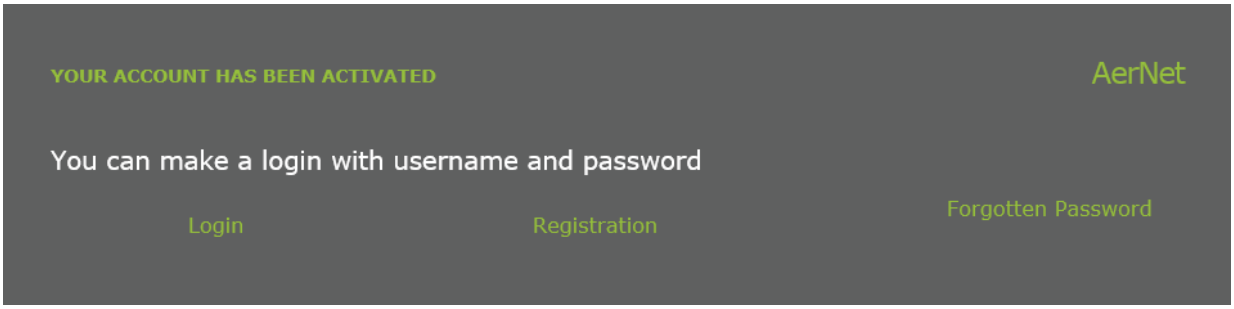


Figure 4: activation completed

It is now possible to proceed with login. The following window appears:

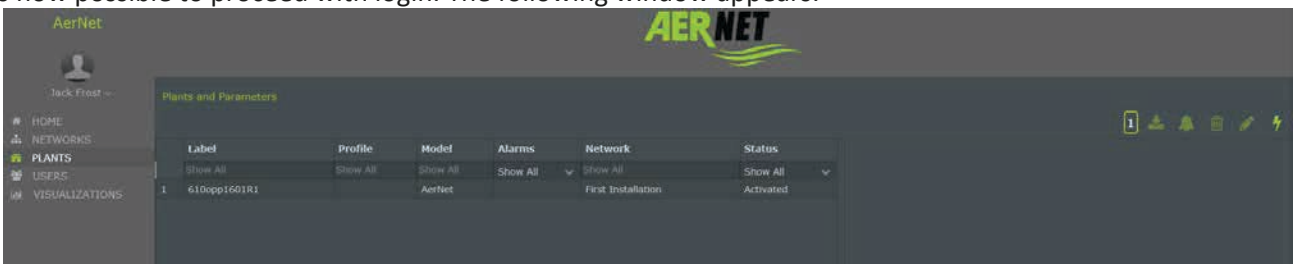


Figure 5: "Plants" page

It depicts the plant created by the current Administrator user which, at the time, only match the AerNet Router.

4.3 Creating Plant

Click on the line to highlight it. This button then appears bottom right 

. Click on it and the following window opens:

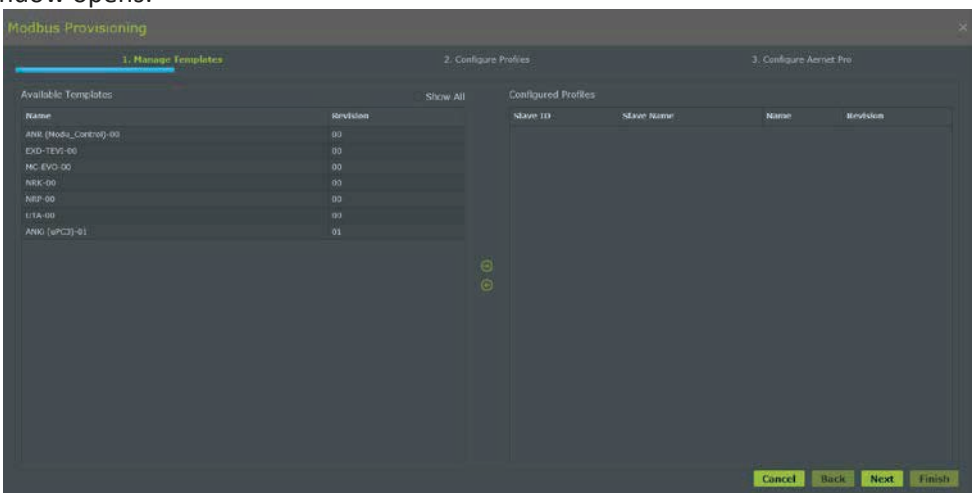


Figure 6: assigning family

This window enables the Administrator to add and configure one or more modbus slaves on the AERNET Router selected, using a wizard to guide the configuration procedure for an actual plant installation.
The steps in the wizard are as follows:
1. **Manage templates**: it is used to configure new effective plant connected to the AERNET Router (by configuring a new modbus slave) selecting the related Product Family and/or removing an Effective Plant (by eliminating the relative modbus slave).
2. **Configure profiles**: it is used to disenable/enable, for a configured plant, some of the parameters envisaged in the mapping of the Modbus parameters for the Product Family used.
3. **Congigure Aernet Pro**: it is used to configure or modify the parameters associated with the various sections of the AerNet Pro display and the icons used.
Steps 2) and 3) can therefore be used for the initial configuration of an Effective plant as a slave for an AERNET Router as well as at a second stage for an already activated plant.

Bear in mind that all the operations performed over the various steps of the "Manage profiles" wizard are only applied when the "Finish" button is clicked in the third step. If you do not wish to apply a modification, simply leave the wizard by clicking on the "Cancel" button.

Now select, from the list on the left, the family matching the machine to be monitored and link it to the plant installation using the right arrow  . The following window appears:

- **Slave Name**: compulsory field. enter an ID for the machine (for example NRK0700)
- **Slave ID**: compulsory numeric field. The ModBus address of the card to be monitored.
- **Sample Rate**: compulsory field. The period (in seconds) while the AERNET Router reads the slave's parameters. This data is pre-set for each family of parameters and is normally assured. If several slaves are added to the same network, AerNet may ask for it to be increased to ensure correct reading.
- The other 4 parameters (Speed, Data bits, Parity and Stop Bits) are pre-set and refer to the library; they normally do not require modification.

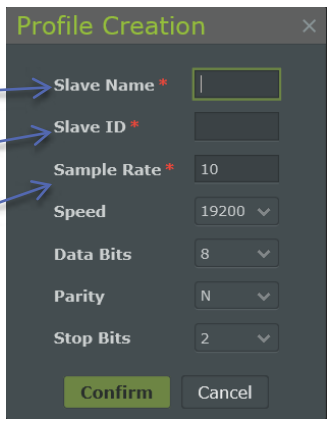


Figure 7: Profile creation

Press “Confirm” and then “Next”. The following window opens:

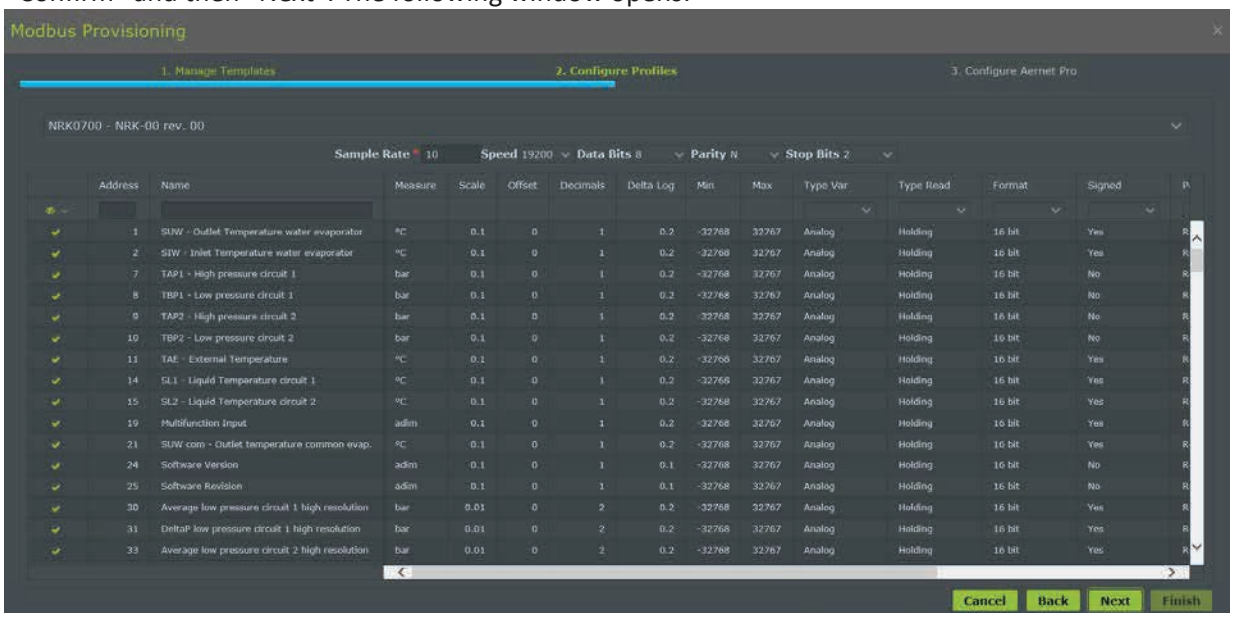


Figure 8: Configure profile

All parameters are listed in table form for the Product Family linked with the slave. The family as such includes all available parameters.

On this page, it is possible to select only those parameters effectively managed for the plant by ticking them on or off (✔) in the first column of the table. This eliminates all data not required by the type of plant in question so that data acquisition is more streamlined and effective. Click on the 👁 icon to operate on the parameters selected.

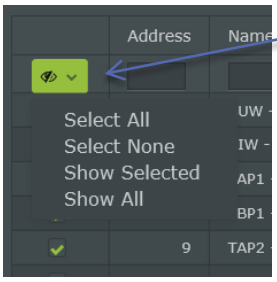


Figure 9: Selection Form

After selecting the required list of parameters, proceed by pressing the “Next” button.

The following window appears:

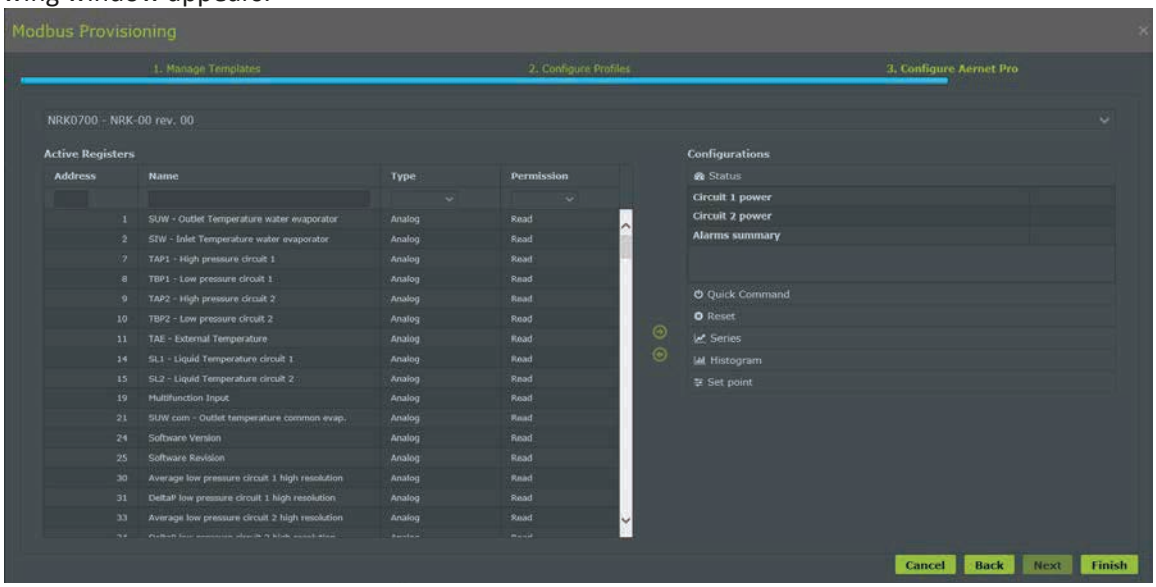
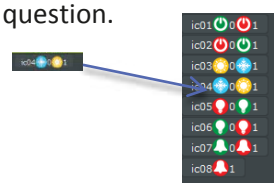


Figure 10: Configure Aernet Pro

On the third page of the wizard it is possible to configure the details of the parameters shown in the "**AerNet Pro**" display for the plant. AerNet Pro is a default summary configuration **with pre-set parameters for each type of machine (family) available on the AerNet portal**. If necessary, they can be modified.
The sections available in the widget Aernet Pro are as follows:

- **Status**: **3** parameters indicating plant status.
- **Command**: **2** digital read/write parameters linked to buttons that perform commands (toggles).
- **Reset**: **1** digital Reset parameter
- **Series**: **6** parameters in graphic form in a multi-track report and listed in a table
- **Histogram**: **1** parameter depicted by a histogram
- **Setpoint**: **8** settable Setpoint parameters (Read/Write)

The **Command** and **Reset** sections are linked to default icons that can be swapped as required with others available that can be selected by clicking on the icon in question.



The "Active registers" column on the left is used to select from list the parameters managed for the plant in question and, using the central arrows ( ) assign them to the various sections of the "Aernet Pro" display.
The "Configuration" column on the right is used to select the parameters linked with the various sections of the "Aernet Pro" display in order to remove them from the section ( ).
It is also possible to configure the icons associated with certain commands.

If the choices made are complete, simply click on the "Finish" button. All the operations performed using the wizard are then applied, i.e. the configuration of a new plant or the modifications made to an existing plant. **Everything is then sent to the AERNET Router that re-confirms them with the system**. After a few seconds, if everything is OK, led US2 comes ON on AerNet, which then begins to request ModBus data from the slave (the Tx and Rx LEDs begin to flash in alternation).
A window similar to the one below appears:

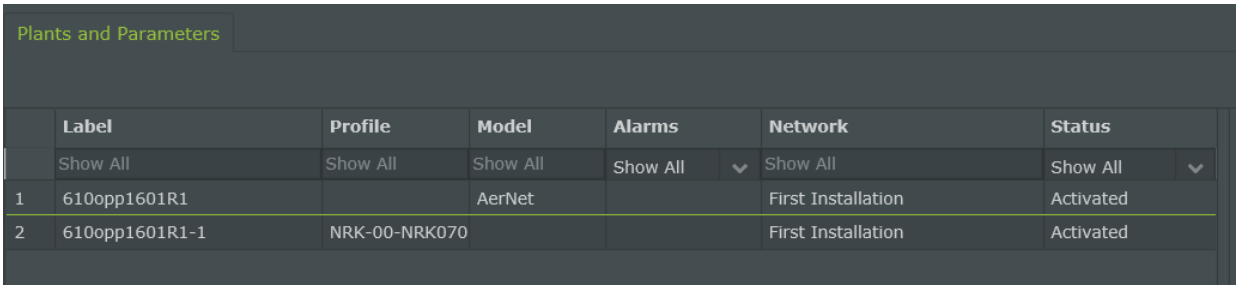


Figure 11: Plant activated

4.4 Plant view

On selecting the effective plant just created in the "Plants" section, a window similar to the one below appears:

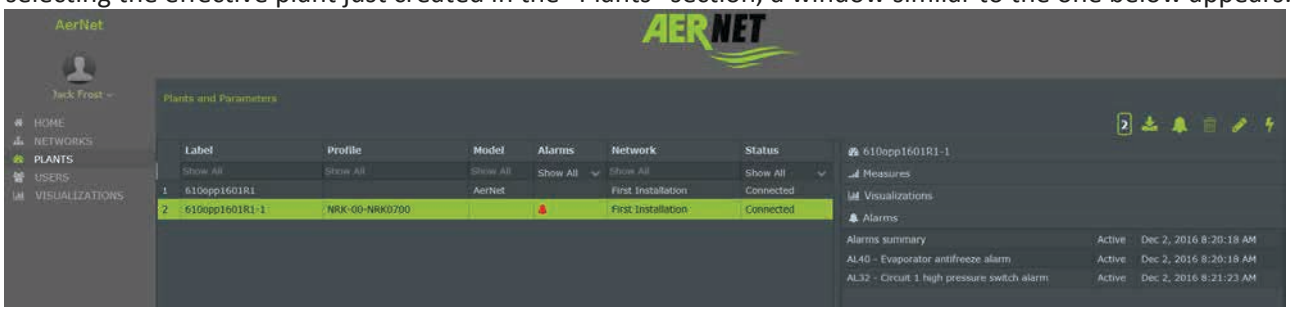


Figure 12: Plant selected

The right hand part of the display has the following fields:

- Code serial key: this is the serial key for AerNet, to which the suffix matching the serial address of the slave is added.
- Measures: see below
- Visualization: see below
- Alarms: if any alarms are active in the plant, they are listed here with the date and time.

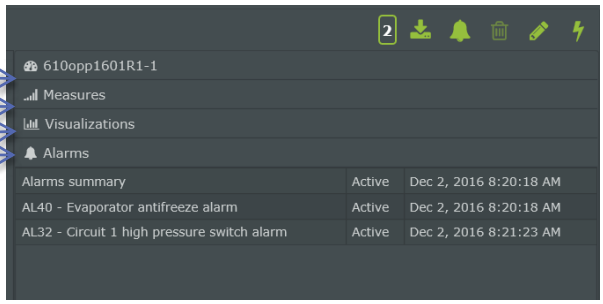


Figure 13: Plant selected

4.4.1 Measures

Click on "Measures" to open a list of values: they match the sizes of the **AERNET Pro** display, as shown in the figure below:

Figure 14: display of measures

bear in mind that this data is a snapshot of the last reading taken, i.e. they are not dynamic.

4.4.2 Visualizations – AerNet Pro

Click on "Visualizations" to open a list of the possible displays available for the plant. Each new plant has a default AerNet Pro display available. Numerous other displays can also be created (consult the complete manual).

Click on the visualization available to open the default "AerNet Pro" page, as show in figure 16 below:

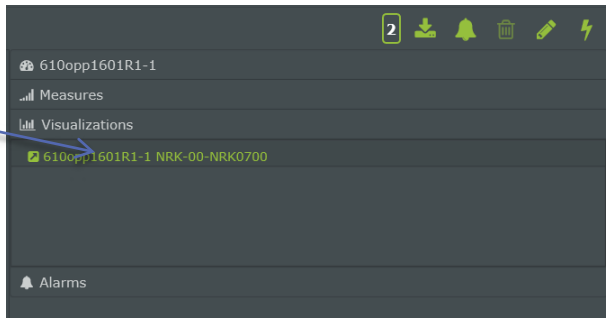


Figure 15: list of available visualizations

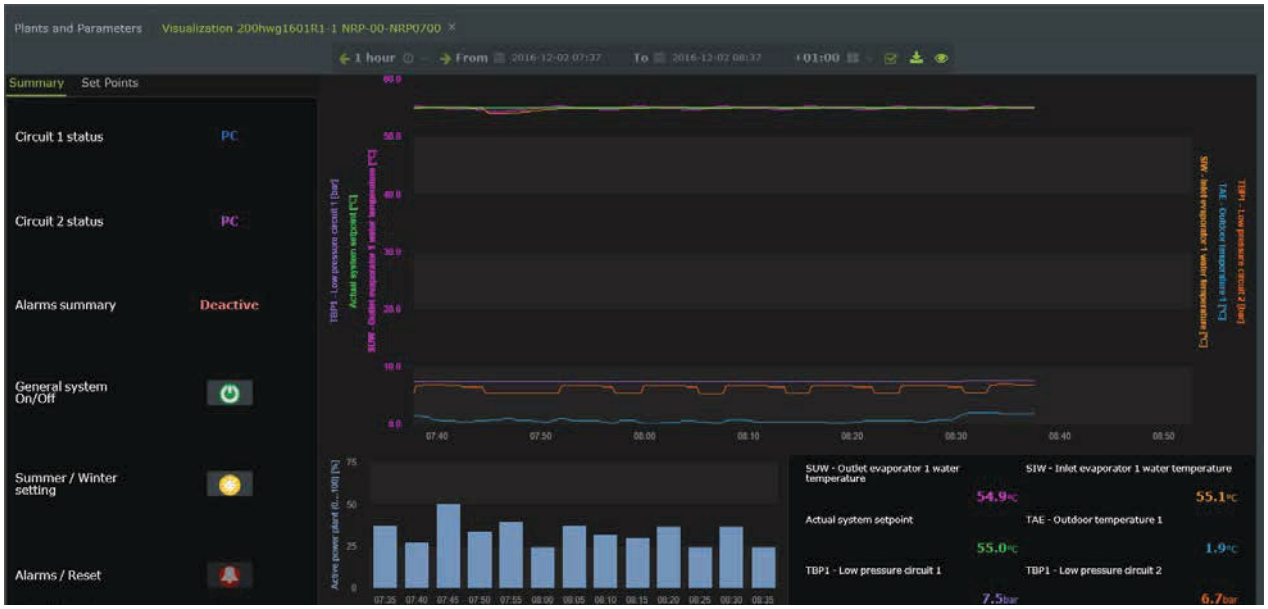


Figure 16: Visualization - AerNet Pro

This is the "**AerNet Pro**" display summarising the plant created automatically on assignment of **each** plant to AerNet. Its functions are briefly outlined below.

4.4.2.1 AerNet Pro: "Summary" section

- **Status**: **3** parameters indicating plant status
- **Command**: 2 digital read/write parameters linked to buttons that perform commands (toggles). These are normally two **ON/OFF** and **Change Season** commands. A green symbol indicates that the machine is ON; a red symbol indicates that the machine is OFF. The SUN symbol indicates that the machine is operating as a heat pump, while the ICICLE symbol indicates cooling operation
- **Alarms / Reset**: if one or more alarms are presents, the bell can be activated; click on it to open a pop-up summarising the active alarms and reset them after the warning message.

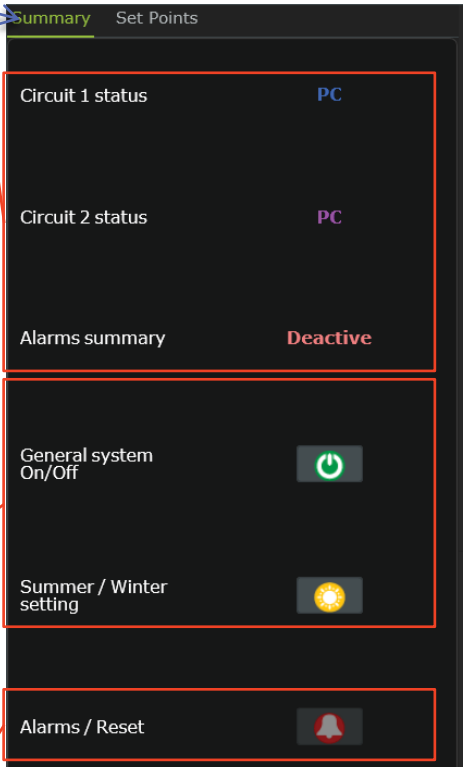


Figure 17: Summary

4.4.2.2 AerNet Pro: "Set Points" section

8 modifiable fields are available for 8 setpoints on the machine. If they are not present, the "N.A." appears and the field cannot be edited.

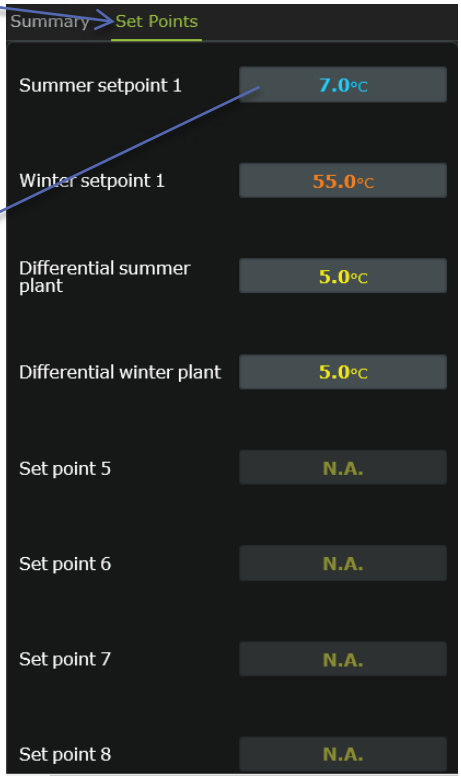


Figure 18: Set Points

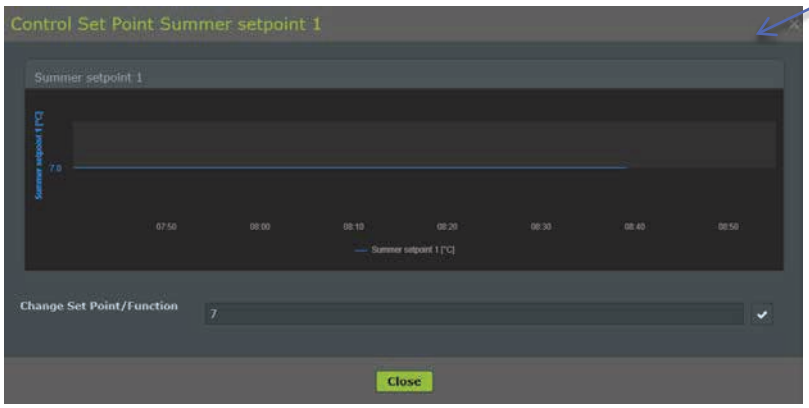


Figure 19: Modification Set Point

4.4.2.3 AerNet Pro: "Chart" section

The "Chart" section essentially comprises three sectors: the first is a multi-track graphic that may contain no more than 6 sizes; the same sizes are then indicated in the form of instant values in the table bottom right. The section bottom left shows a histogram for a single size depicting its average value based on the set time.

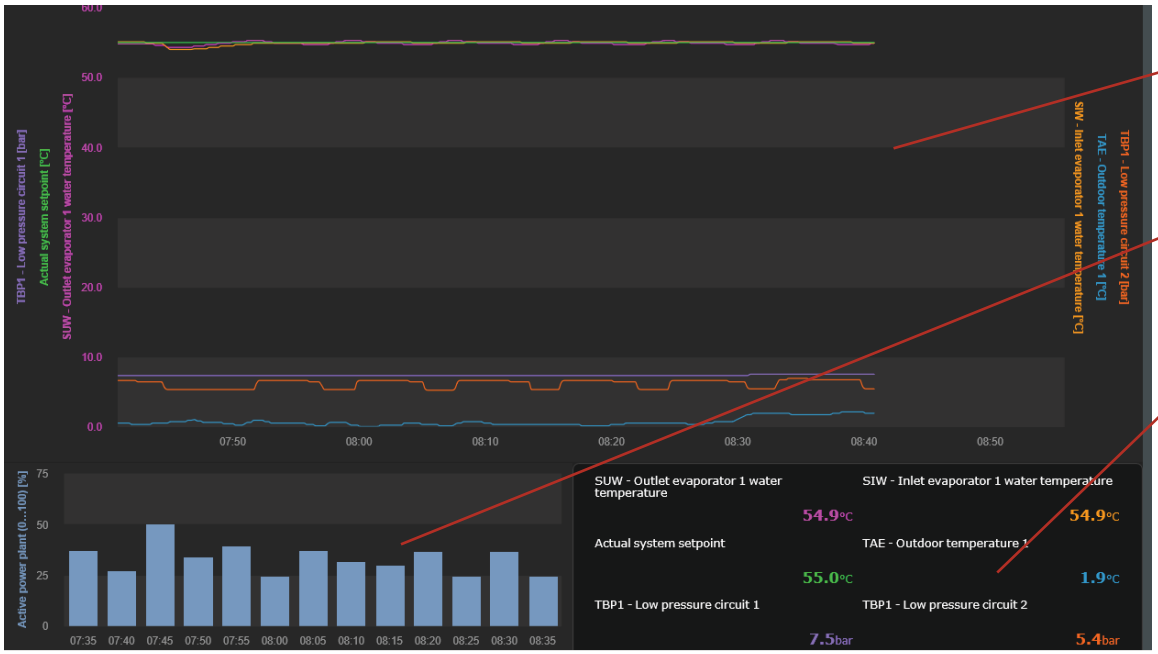


Figure 18: AerNet Pro Chart

Some details:

- The section of the graphic shows the last hour of operating function **and is dynamic** since it is updated every 30 seconds.
- The time bar at the top can be used to manage displays as required. Click on the eye symbol to interrupt the dynamic display and set specific or pre-set time intervals (6 hours, 24 hours, 1 week, etc…) or set the precise interval required.

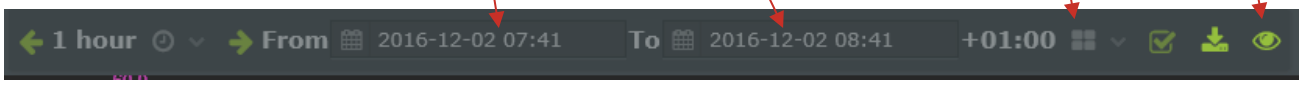


Figure 19: Time settings

Click on the eye symbol again to return to the dynamic display of the last hour.

4.5 Functionality

Over and above the details given in the previous paragraph, selecting a line matching a plant activates the various icons top right, thereby enabling the following functions:

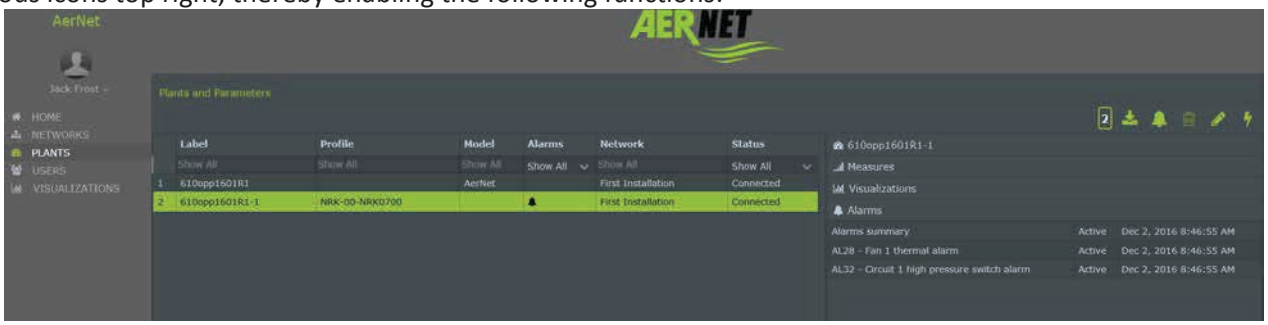


Figure 20: Plant selected

- **Export**
- **Alarms**
- **Modify plants**
- **Activate plant**

4.5.1 Export

Click on the “Export” button to open a pop-up where it is possible to download the last seven days of data collected for **all** plant parameters.

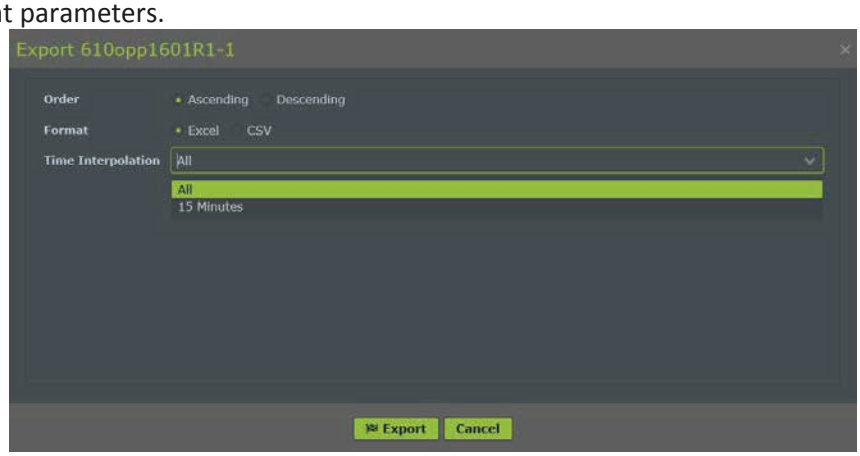


Figure 21: Export page

The following features can be set:

• **Order**: set the time order for samples (Up, Down)

• **Format**: set the format of the export file (Excel, CSV - Comma Separated Values)

• **Time interpolation**: Sets the timing for exports of samples. Click on the field to open a combo list where various options can be selected:

  • **All**: the parameters are depicted as collected from the System (raw data), indicatively in accordance with the Modbus readout frequency set on the slave

  • **15 Minutes**: samples are merged into a single data every 15 minutes

  • **1 Hour**: samples are merged into a single data every hour

  • **1 Day**: samples are merged into a single data every Day

Click on the “Export” button to perform the operation. A file is created that can be used at a later stage. The “Export” function is performed as a "batch operation”, i.e. the user can continue to work on the interface. When

the result is ready, the user is notified by an "Export Finished" pop-up containing the name of the file exported. Click on the name of the file to download it to the user's PC:

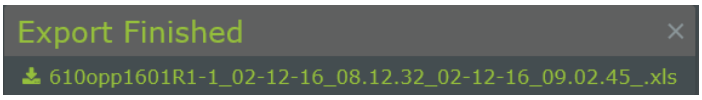


Figure 22: Download data

Warnings:

- The "Export" function makes high demands on the System. It is advisable not to use it too often. An export request may not be completed until the previous one is terminated.
- The times between the download request and the availability of the result depend on many factors (number of plant parameters, frequency of Modbus readout, Time Setting chosen) and may range from one minute to several dozen minutes.
- Export files may ben be several dozen MBs in size and times for download to PC may also depend on the network.
- Exporting raw data (Time interpolation chosen = All), given the dimensions, is divided into a file per day, that are then grouped and compressed in "*.zip" file.

4.5.2 Alarms

Click on the "Alarms" button to open a "Alarms" pop-up listing notified plant alarms. The last 30 notified events are listed (divided between alarm event and alarm reset).

4.5.3 Modify plant

Click on the "Modify plant" button to open a pop-up displaying the configuration of the plant where certain values can be set.

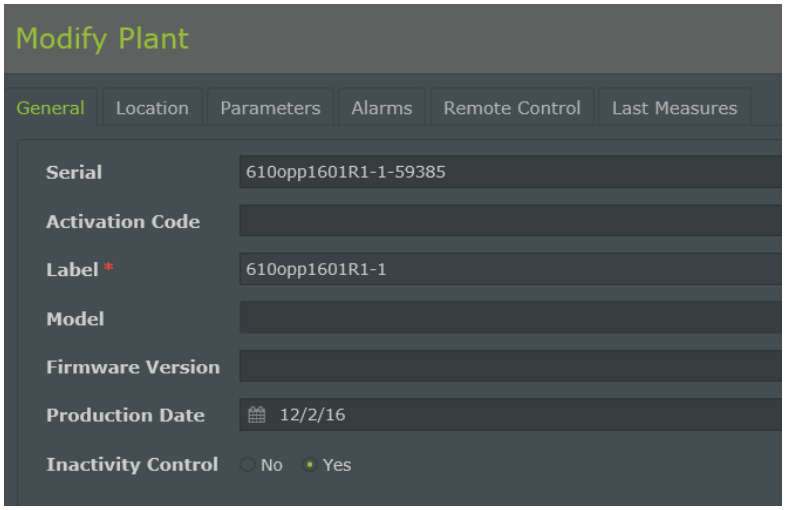


Figure 23: Modify plant

Various cards are available; this manual will focus on the following cards:

Card - "General"

The "General" card lists plant database information. In this form, values are given to the following data:

- **Serial**: serial number of the Effective Plant. It starts with the Serial N° of the AERNET Router where it is configured, followed by the number of the modbus slave and a number generated automatically by the System. It is the key used by the System to manage plant information.
- **Label**: Compulsory field, can be modified. It is possible to assign a plant label (code).

- **Production date**: date when the AERNET Router slave connected to the effective plant was created using the "Manage profile" function.
- **Inactivity control**: If set to "Yes", inactivity control is activated for the plant. When the plant no longer communicates with the system for more than 15 minutes, for various reasons such as communication or operating problems, this is signalled on the interface by an "OFF_LINE" alarm →

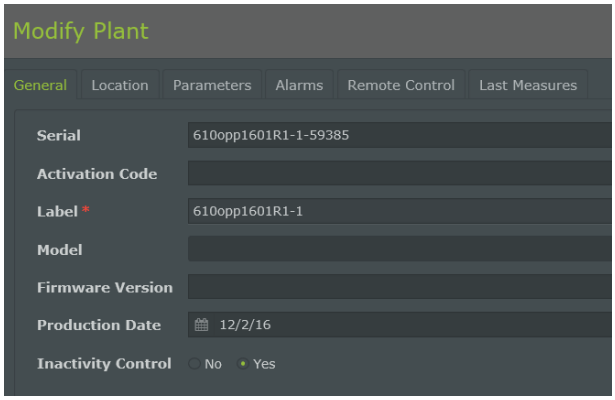


Figure 24: Modify plant**, General card**

"Location Card"

The "Location" card lists plant geolocation information. In this form, the following data is available:

- **Address**: descriptive field.
- **Latitude / Longitude**: contains the latitude & longitude coordinates that can be set using this form or by positioning the plant bookmark on the geographical map (→ para 4.6)
- **Elevation**: can be set.

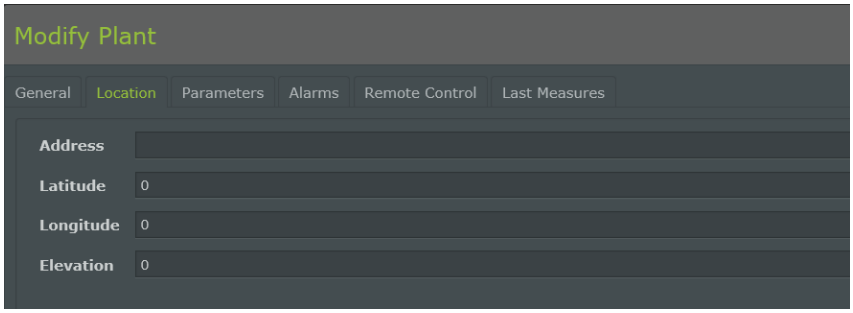


Figure 25: Modify plant, location card

"Alarms Card"

The "Alarm" card lists the Alarm parameters that can be set for the plant

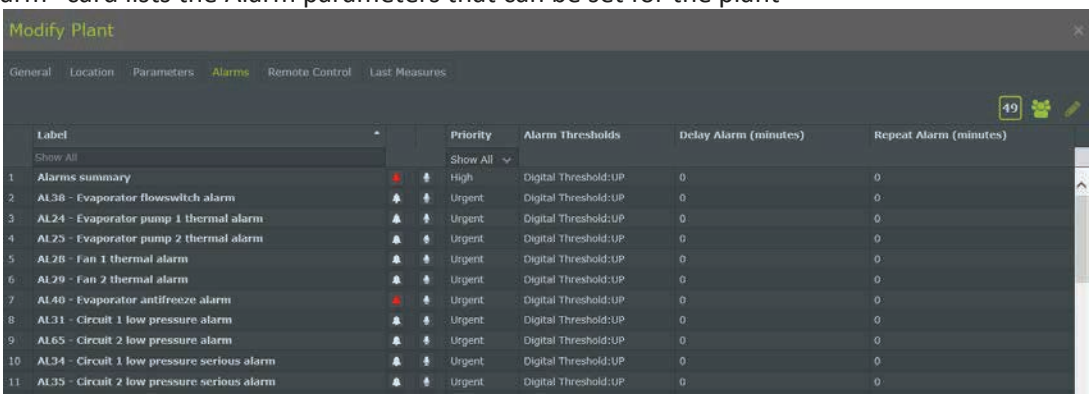


Figure 26: Modify plant, Alarm card

Click on the bell, for each alarm, to disenable readout (i.e. the alarm is ignored →) , or only prevent its notification (i.e. the alarm is read and considered but notifications via e-mail are not sent). By default, all alarms are considered and notified.

Select an alarm and click on the pencil to open the corresponding settings page, where it is also possible to change the alarm send priority, reverse the threshold (**do not use**) and set any repeats and delays.

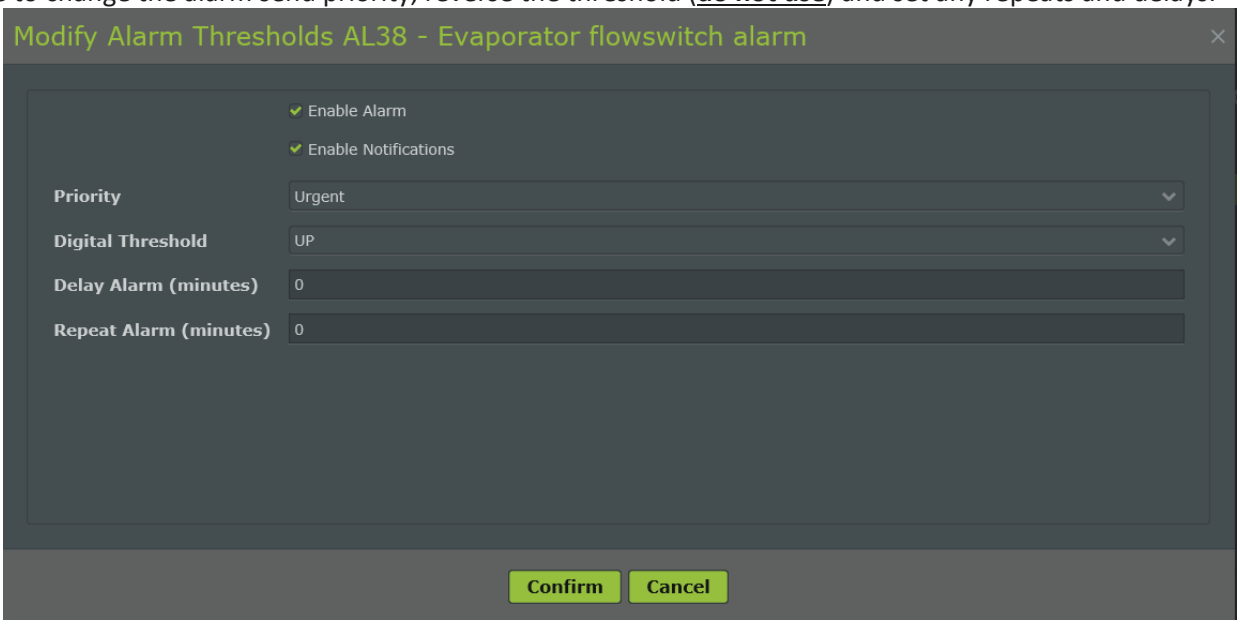


Figure 27: Alarm settings

Select an alarm and click on "Alarm notification" to open the corresponding settings page, where it is also possible to define which users will receive an alarm notification by e-mail.

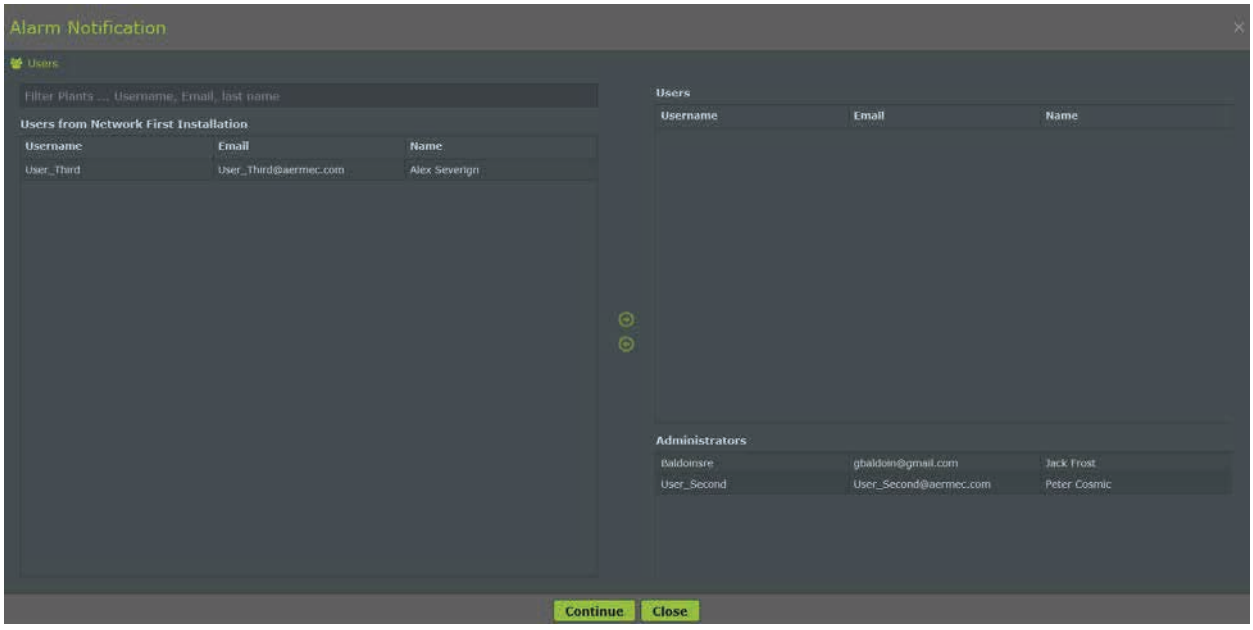


Figure 280: Alarm Notification

For the "Add Users" procedure, please see the complete manual (AerNet Web Application – FULL GUIDE).

The "Users" column on the left lists the user-base not associated with the alarm notification. The "Users" column on the right lists the user-base associated with the alarm notification.
Click on the list on the left to select a user and use the central arrow ( ) to associate this user with the alarm notification.
Click on the list on the right to select a user and use the central arrow ( ) to de-select this user for alarm notification.
The bottom part of the "Administrators" column on the right lists the network administrator and the list of network users and super-users. By default, alarm notifications are sent to the Administrator and all network "super-users".
The events notified are:

- Occurrence of an alarm
- Re-entry of an alarm
- Reset of an alarm
- Occurrence of an inactivity alarm
- Re-entry of an inactivity alarm

"Remote control Card"

The "Remote control" card displays all the parameters that may be written remotely that correspond to Write o Read/Write parameters (setpoints, commands, reset, etc.)

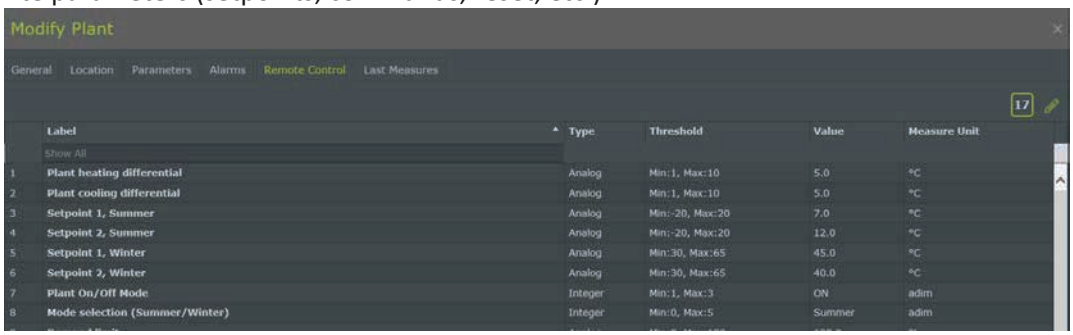


Figure 291: Modify plant, remote control card

Select a parameter and click on the modify icon ( ) to open a pop-up enabling the user to modify the parameter's setting value.

Figure 302: modifying a parameter

The pop-up shows a graphic of the real time trend for the parameter over the last 15 minutes. It is thereby possible to change the parameter's setting value. If default values were set for the parameter, the pop-up displays a combo box with the list of values. If no values have been set for the parameter, the user can set a value as required within the min-max limits defined for the parameter. Once the value has been set, click the tick on the

right (✔) and the modification is applied. The graphic allows real time verification that the modification made has effectively been applied.

4.6 Networks and Geolocation

The Networks section lists all the networks owned by the user. Click on the icon : the currently enabled networks are displayed, at this stage corresponding only to the network created during device registration. Select a network from the list and the buttons on the right of the interface are enabled.

Figure 313: Networks available

Click on the “Modify map” icon. A window opens showing the current coordinates proposed for the actual plant, that by default are set to the ROME location.

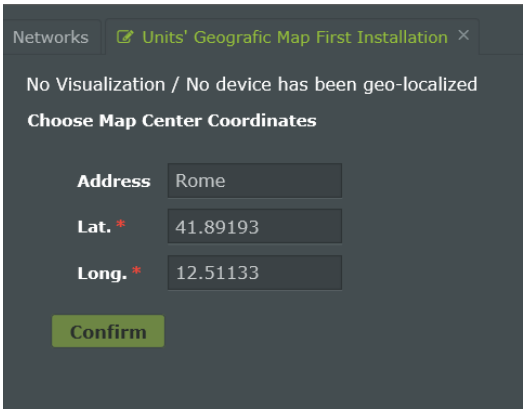


Figure 324: Default coordinates

Now, if the precise plant coordinates are known, you can enter them in the corresponding spaces, otherwise click on “**Confirm**”: the plant takes the coordinates present as valid and displays the geographical map with the position taken. It is now possible to drag the bookmark to the actual location of the plant. After identifying the position, click on the disc top-right to save the settings: the location of the plant has now been defined.

5 CONTENTS

AERMEC S.p.A.
37040 Bevilacqua (VR) Italy–Via Roma, 996
Tel. (+39) 0442 633111
Telefax (+39) 0442 93577
www.aermec.com

Carta reciclata
Recycled paper
Papier recyclé
Recycled papier