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Smart-Vue Pro Monitoring Solution

Web Application for
Smart-Vue Pro Duo / Quatro Data Loggers

User Guide

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ThermoFisher
S C I E N T I F I C

IMPORTANT Read this user guide. Failure to follow the instructions in this user guide can result in damage to the unit, injury to operating personnel and poor equipment performance.

CAUTION All internal adjustments and maintenance must be performed by qualified service personnel.

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Safety Instructions

IMPORTANT NOTE: Do not use this product for protection or as part of an automated emergency system or as for any other application that involves protecting people and/or property. This product is designed for use in environments where children are not likely to be present. Customers and users of Thermo Scientific products are responsible for ensuring that the product is fit for the intended usage. Do not open the product casing and do not disassemble or modify internal components in any manner. Thermo Scientific products do not contain any internal components that require user intervention or repair. If the device shows signs of improper operation, disconnect it immediately from its power source or remove the battery and contact Thermo Scientific technical services.

Introduction

This user guide describes how to use the Smart-Vue Pro web application to manage and monitor Smart-Vue Pro data logger featuring LoRaWAN™ long-range wireless connectivity.
Smart-Vue Pro data loggers collect data automatically from connected sensors and transmit the data to the Cloud. These data loggers are part of Thermo Scientific's latest generation of wireless IoT (Internet of Things) devices.

About this Manual

This user guide describes how to use the features offered by the Smart-Vue Pro application. Before using Smart-Vue Pro, LoRaWAN™ connectivity for your devices must be configured to use a private (on-premises) network with a Thermo Scientific LoRaWAN™ receiver. LoRaWAN is supported by Smart-Vue Pro Duo / Quatro data loggers. See Thermo Scientific LoRaWAN receiver user guide for more details.

Table 1. Terminology used in this document

Terminology	Description
Alarm	An alarm occurs when the system observes a sensor reading that is out-of-bounds, such as a temperature reading or humidity level or 4-20 mA / 0-5 V reading that is too high or too low with respect to programmed range limits. The system can notify users when alarms occur by sending alerts.
Alert	An alert is a notification sent by the system to users when the system observes an alarm condition or potential problem. Alerts can be sent by e-mail, SMS or voice calls.
Equipment	The material or space that you are monitoring with a data logger.
Bluetooth®	Bluetooth Low Energy, also known as Bluetooth Smart® or BLE, offers point-to-point wireless connectivity with a practical range of up to about 30 meters (about 100 feet).

Table 1. Terminology used in this document

| Terminology	Description
Data logger	Refers to Smart-Vue Pro Duo / Quatro and/or other Thermo Scientific wireless data logger devices.
LoRaWAN	Very-long-range wireless communication protocol available with public or private network connectivity. Free-field wireless range can reach up to nearly 10 miles (about 15 km).
Cloud	Internet-based platform on which data from data loggers is stored and accessed via the Smart-Vue Pro application.
Organization	Refers to your company and its organizational structure based on sites and departments created within the solution.
Profile	In Smart-Vue Pro web application, the term "profile" refers explicitly to Application Manager and User profiles. Every account is assigned one of these two profiles. Accounts with an Application Manager profile can control every aspect of the system; accounts with a User profile start with view-only permissions, and additional application-wide permissions can be added to their individual account as well as to a "role" (see below) assigned within the organizational structure.
Role	The "role" is a very customizable feature that grants further permissions so users can perform a variety of day-to-day tasks at their organizational level.

Overview of Smart-Vue Pro

The concept of Smart-Vue Pro is based on managing sensors that are assigned to entities called "equipment".
Equipment refers to any assets (such as refrigerators and freezers), rooms or locations in/on which sensors may be placed.

The overall process of using Smart-Vue Pro Web is divided into the following steps:

1. You must first order a license key to cover the number of sensors you will be using. Contact the Thermo Scientific sales representative for more information.

2. Then, use Smart-Vue Pro web app to create your company account, add users and set up your equipment.

The process for configuring Smart-Vue Pro is shown in the following figure:
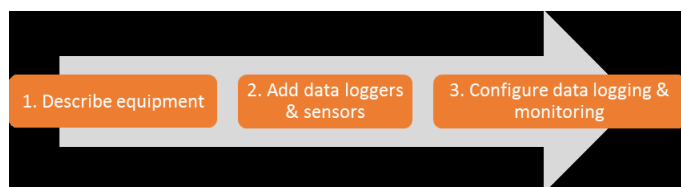
Figure 1. Process Overview

1. **Describe equipment:** The notion of equipment is the central principle for sensor monitoring with Smart-Vue Pro. This approach is based on the idea that you are more likely concerned about the assets you are monitoring than the tool used to accomplish the task.
For example, you monitor equipment such as a cold room, refrigerator, deep freezer or incubator.
You therefore must add this equipment to your system.

2. **Add data loggers and sensors:** Equipment is monitored by one or more data loggers with sensors that record temperature or humidity or 4-20 mA/0-5 V etc. at regular intervals. Sensors are added automatically when the data logger to which they are attached is added to the system.

3. **Configure data logging and monitoring:** As different pieces or equipment may have different needs in terms of monitoring, sensors must be configured to monitor different ranges at different reading frequencies with different alert strategies, etc.

Intended Use

The Smart-Vue Pro Duo / Quatro data logger (module) is intended to monitor and record a range of physical parameters such as temperature, humidity, 4-20mA depending on the sensors connected to it. The data logger supports digital and PT100 sensors, 4-20mA sensors. The information collected using the sensors can then be transmitted to a database server or cloud using a very-long-range or short-range wireless communication protocols like LoRaWAN or Bluetooth wireless connectivity respectively. The data can be accessed via a mobile application (Smart Connect) or via a web application (Smart-Vue Pro), additionally, Smart Connect permits the user to push the data to the cloud. The Smart-Vue Pro Duo / Quatro data logger and the Smart-Vue Pro Web application enables the user to manage the entire Smart-Vue Pro Solutions. The system can also support audio and visual signaling devices such as Smart Remote Contact (module) and Smart Siren (module). Refer to the user guides of these modules for more information.

The Smart-Vue Pro Solutions is intended to monitor and record critical physical parameters in life science, pharmaceutical and agri-food sectors and perfect for monitoring several pieces of equipment simultaneously that are used in a typical laboratory or in a storage facility. These products should only be used by authorized and adequately trained personnel. It is not considered as a medical device or accessory to a medical device and has therefore not been registered with a medical device regulatory agency.

The Smart-Vue Pro Solutions is 21 CFR Part 11 compatible system and can be used as a document management system in a regulated environment, when the entire solution is controlled through the web application (Smart-Vue Pro). It is the user's responsibility to develop verification and validation protocol based on the record keeping requirements.

Smart-Vue Pro Feature Highlights

Smart-Vue Pro enables you to visualize your Smart-Vue Pro data logger's sensor status and data with a management interface for configuration and system administration.

Key application features include:

User and License Management

- Creating company and user accounts.
- Managing users, roles and access rights.
- Managing activation keys (license voucher).
- Managing your company's different sites and departments.
- Compatibility with FDA 21 CFR Part 11 requirements.
    - Readings and settings stored in secure database
    - Password protection

Data

- Configuring sensors, receivers and infrastructure elements.
- Viewing data recorded by Thermo Scientific data loggers.
- Monitoring equipment and associated sensors.
- Managing data transmitted by Thermo Scientific Smart-Vue Pro data loggers.
- Viewing detailed sensor readings, history and more.
- Managing sensor calibrations and calibration reminders.
- Importing / exporting sensor calibration information.
- Detailed audit trail.

Alarms

- Configuring and sending alerts when alarms are detected.
- Managing alarms: high and low limits, technical alarms (sensor or communication problems), alert devices, and more.
- Setting up flexible scheduling for days, nights, and weekends according to user level and desired contact methods.
- Receiving notification by e-mail by default; SMS/text message and voice call with optional Smart-Vue Alert subscription.
- Schedule alarm reports.

Sensor Reading

- Viewing detailed sensor readings, history, and graphs.
- Generating reports for all key parameters, including configuration, status, events, and alarms.

Prerequisites

Smart-Vue Pro is a web application designed to work with standard web browsers.

The minimum system requirements are as follows:

- Personal computer
- Internet connection
- Screen resolution 1280 x 900 pixels minimum
- Recommended browsers: Web browser applications evolve quickly, and we do our best to keep the Smart-Vue Pro web application compatible with the latest releases. The following were used to test the current version:
    - Google Chrome v87
    - Mozilla Firefox v84
    - Microsoft Edge version v44
    - Opera v73

Note: The Smart-Vue Pro web application does not support Internet Explorer.

Cloud Access Requirements

When using Smart-Vue Pro in Cloud mode, the following ports must be open:

Table 2. Ports

Purpose	URL	Ports	Protocol
For users: Smart-Vue Pro web application	smart-vuepro.thermoscientific.com	443	https
For infrastructure: LoRaWAN receiver connection	smartvueconnect.com	1700	UDP

These ports are used for two-way communication between the Smart-Vue Pro web application running in your browser and the server platform.

Getting Started

This section describes how to:

1. Create an account on the Smart-Vue Pro web application.

2. Login to Smart-Vue Pro.

⚠️ **CAUTION:** This section assumes that you have purchased a license key that is available. Contact the Thermo Scientific sales representative for more information.

Smart-Vue Pro Login

You must connect to the Smart-Vue Pro web platform to use the software.

1. Launch your internet browser application.

2. Enter smart-vuepro.thermoscientific.com. in the address bar.

The application detects your browser language automatically and displays the login window either in English, French, German, Italian, Spanish or Portuguese. For all other languages, English is used:

thermoscientific

Smart-Vue Pro

Username* ⓘ

Password*

Forgot password
New company?

Log in

Figure 2. Authentication window (login)

Login Authentication

Smart-Vue Pro supports several authentication methods depending on the type of solutions used. The application can either use its own integrated user management platform or it can connect to an external authorization platform (on-premises solutions only).

To use the integrated Smart-Vue Pro authentication:

1. Enter your assigned user-name and password.

2. Click **Log in** to enter the application.

Passwords are case sensitive and encrypted. If you forget your password, click **Forgot password**.

As a security measure, the account will be locked if you enter an incorrect password three consecutive times. The only way to unlock the account is to reset the password. Proceed with the **Forgot password** procedure or contact an Application Manager to have them initiate the reset (which you must then complete in order to actually change the password).

To use an external authorization platform (such as LDAP) for Smart-Vue Pro Server (on-premise server) solution:

1. Enter your credentials in the form "authentication_mode/username" and enter the password.

2. Click **Log in** to enter the application.

⚠️ **CAUTION:** For specific information on Authentication modes, see **Authentication Modes**. For more information on how to create user accounts, see **Users**.

Changing the Display Language:

The initial language used for Smart-Vue Pro depends on your browser configuration.

Once the Smart-Vue Pro is connected, you can change the application to a supported language at any time:

1. Click your user account image (avatar) at the top right-hand corner of the screen.

2. Click **My account ➔ Options(3 vertical dots)➔ Edit localization settings**.

3. Click the **Language** and select the desired language from the list. For the language change to be effective, you must logout and log back into the system.

Automatic System Logout after Inactivity

By default, the user session will disconnect from Smart-Vue Pro automatically after one hour of inactivity. To reconnect to the platform, enter the login credentials in the authentication screen.

⚠️ **CAUTION:** The Smart-Vue Pro application version is shown at the bottom of the login window. Move your mouse cursor over the version number for more information.
This information may be requested from the technical support team.

Creating your Smart-Vue Pro Company Account

You must create a Smart Vue Pro account to interact and manage Smart-Vue Pro data loggers. You may add users to an existing account at any time (see **Authentication Modes** for details).

⚠️ **CAUTION:** When you first create your company account in Smart-Vue Pro, you also create the first user. The user has Application Manager rights and can create additional users.
See **Users** for more information.

To create your company account and the first Application Manager user:

1. Enter smart-vuepro.thermoscientific.com in the address bar of your web browser.

2. Click **New company?** as shown in **Figure 3**.
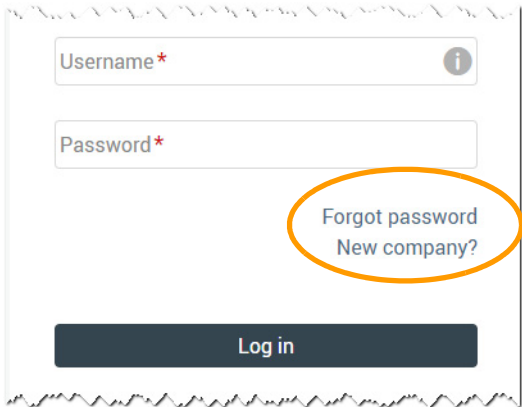
Figure 3. Authentication Window (login)

Company Information

Smart-Vue Pro includes a 2-step setup process for creating your company account and a first user account. That account has Application Manager rights and can configure the entire system and add other user accounts. The fields marked with * are required.

Figure 4. Filling in the company information

Fill the required fields (marked with *) as appropriate.
You can change or update this information later if necessary:

Company name: Enter the name of your company.
This name cannot be changed later.

Platform: This unique company identifier is filled in automatically based on the company name you enter.

Company address: City, Postal code, Country, International phone number: enter the relevant information for your company.

⚠️ **CAUTION:** Make sure you enter the telephone number in international format, with the prefix "+[country code]", such as: +14153817894.
Do not include any extra digits or leading zeros.

The following settings apply as a default for your system. They can be overridden by each individual's settings for local operation and display purposes, but this information is used as a common reference for the company in case people have conflicting profile settings for shared actions.

Example: If you have e-mail alerts sent to people in different regions, English could be the default company language for the same alert message.

Language: Choose the desired default language for your company. You are free to choose your personal preference at any time.

Time zone: Select the time zone based on the primary geographical area for the company.

Date format: Choose the date format to be displayed in the application.

Hour format: Choose the time format to be displayed in the application. Readings can be displayed in the **12-hour (AM/PM)** or **24-hour** format.

Unit: Choose the unit of temperature (**degree Celsius (°C)** or **Fahrenheit (°F)**).

Decimal separator: Select the character to use as a decimal separator in numerical values.

License key: Enter your license key in this field. Based on the number of measurement points (sensors) in your system, this key is provided when you subscribe to Smart-Vue Pro.

License management is discussed in further detail in **Updating Company Information**.

After completing all the company information, you must click the check box to accept the **Subscription Terms**, then click **Next** to fill in your user information as described in the next section.

User Information

Continue with the setup process by entering basic information for the first Application Manager user (with permissions to control the entire solution).

⚠ **CAUTION:** The e-mail address you enter here is the only information that you cannot change subsequently for your company account. We recommend using an e-mail address that is not strictly tied to a single person, such as "smart-vuepro@your_company.name".

Figure 5. Entering user information

Fill in the required fields (marked with *) as appropriate:

First name / Last name: Enter the first name and last name.

Email: Enter the e-mail address that is used to login to the system. The e-mail alerts and confirmations by the system are sent to this email address. The e-mail address may only be used once into the system and may not be edited once entered. A message is displayed if the e-mail address is already in use.

Job title: Enter the user's job function within the company.

After completing the information, select the checkbox "**I accept the Terms of Use and the Privacy Policy Terms**" at the bottom of the screen (you may click Terms of Use and/or Privacy Policy Terms to see the detailed text) and then click **Proceed**.
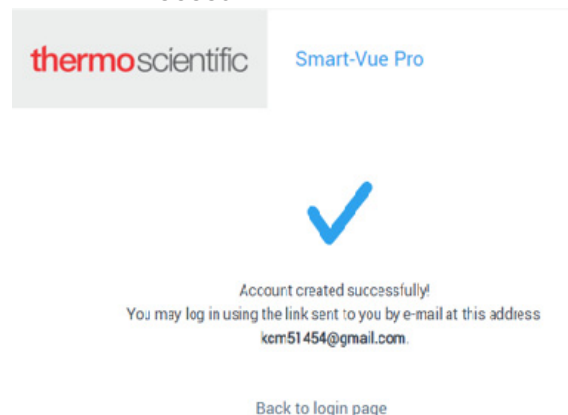

Figure 6. Smart-Vue Pro confirmation of account creation

Your account is created and a confirmation e-mail is sent to the address entered. Click the link in the e-mail to activate the account.

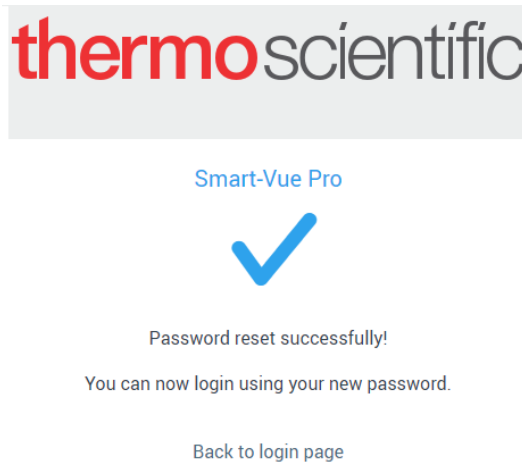# First Connection to the Application

> ⚠️ **CAUTION:** This section applies to systems using Smart-Vue Pro's integrated authentication (based on the user-name and password). For external authentication platforms, notably LDAP, use your regular corporate login credentials.

If your system uses Smart-Vue Pro's integrated authentication mode, you can change the initial password the first time you login to the application.

1. Check the confirmation e-mail in your inbox and click the link provided. If you do not see the e-mail, check the spam or junk e-mail folders in case your application filtered it automatically.

2. After you click the link, the following window opens to set your password:

Figure 7. Changing a password upon first connection

3. Enter a new password. Passwords must be at least 8 characters long and contain a combination of upper- and lower-case letters with at least one number and one special character.

4. Confirm the new password by re-typing in the field below.

5. Click **OK**. The password is reset successfully.

Figure 8. Successful password change

6. Click **Back to login page** to connect to the application using your e-mail address and the password you created.

Forgot your Password?
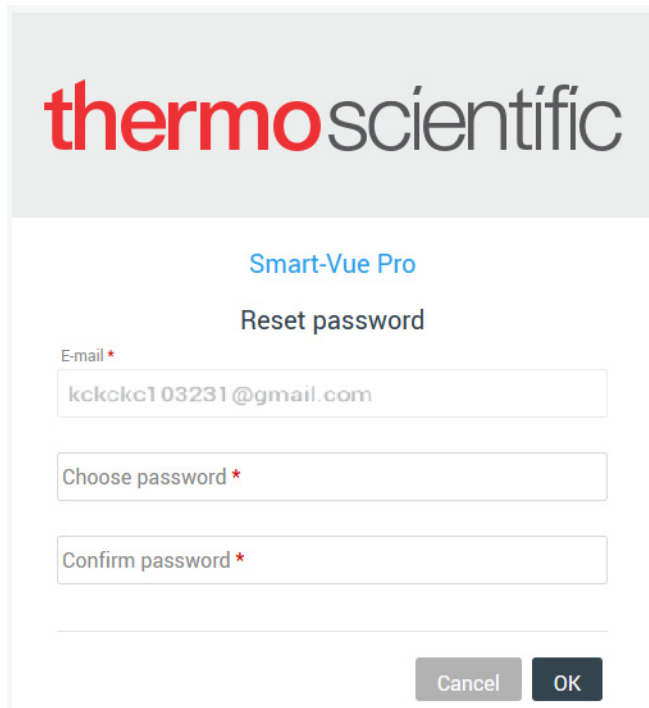
> ⚠️ **CAUTION:** This section describes password recovery for systems using Smart-Vue Pro's integrated authentication (based on the user's e-mail address and password). For external authentication platforms, notably LDAP, check with your system administrator to recover or reset a forgotten password.

If you are unable to access Smart-Vue Pro or if you cannot remember your user-name or password, the system can send password reset instructions to you by e-mail. Follow these instructions if you must reset your Smart-Vue Pro password:

1. Use your browser to open the address: smart-vuepro.thermoscientific.com

2. Click **Forgot password** on the login screen.

3. Enter your Smart-Vue Pro account email address and click **OK**.

Figure 9. Entering an e-mail address to receive a new password

4. Check your e-mail in-box and click the link in the email you received to set a new password.
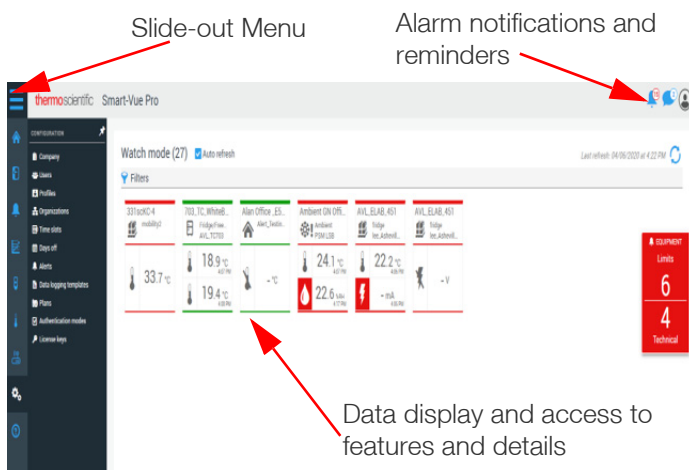

Figure 10. Resetting a new password

5. Enter the new password in the first field, then retype it in the second field to confirm.

6. Click OK to change your password, or on Cancel to keep your old password.

Using Smart-Vue Pro

Presentation of the User Interface

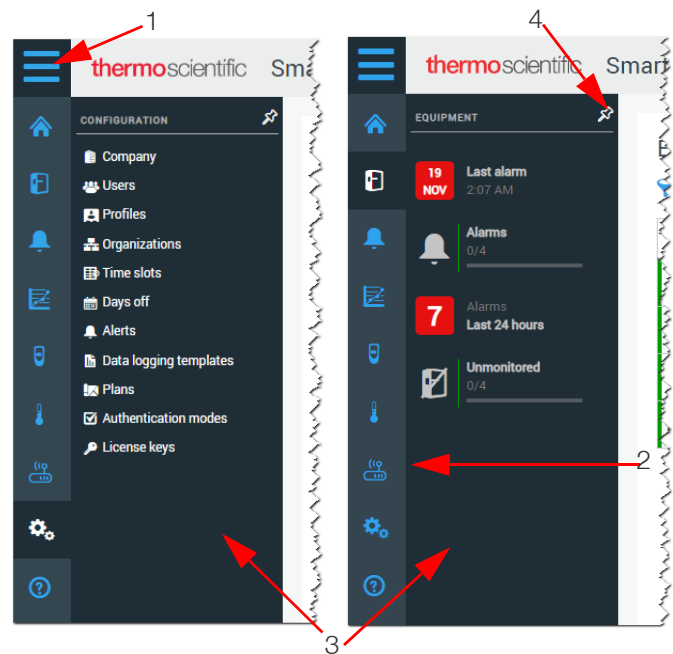The Smart-Vue Pro interface consists of the following main zones:

Slide-out Menu

Alarm notifications and reminders

Data display and access to features and details

Figure 11. Overview of Smart-Vue Pro User Interface

The watch mode screen shown above provides direct access to key features in your monitoring system.

Main Menu

The main menu is located on the left-hand side of the screen that slides open or close when you hover the mouse on the menu icon ▤. Click Menu to access Smart-Vue Pro features. Depending on the context, the menu item displays a statistics pane or a sub-menu with additional features or information (See **Figure 12**):

Figure 12. General layout of Smart-Vue Pro Main Menu

Table 3. Main menu features

S.No	Description
1	Menu slide open
2	Navigation menu: 🏠 Home 🚪 Equipment 🔔 Alarms 📝 Reports 📱 Data Logger 🌡 Sensors 📡 Infrastructure ⚙ Configuration ❓ Help
3	Sub-menu of additional features or Statistics pane depending on the context.
4	Toggle the thumb tack to **Pin** or **Unpin** the menu (keep it open or allow it to slide back automatically).

The background color changes as you move your mouse over each feature and when you select a feature.

Sub-Menu Indicators

Your system constantly monitors the health of all its components to take an action if necessary. As you slide the main menu on the left-hand side of the screen, sub-menus with key indicators are displayed. Some icon colors vary according to status, such as (Alarms) To acknowledge, which turn from green to red when alarms need your attention.

Equipment: This information pertains specifically to the status of your equipment.

Date and time last alarm occurred on monitored equipment
Number of pieces of equipment with alarms

Number of alarms on all equipments within the past 24 hours
Number of pieces of equipment currently not monitored
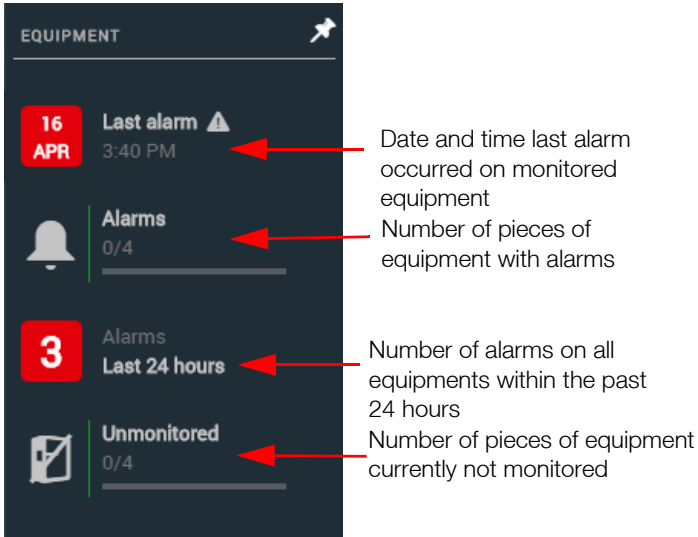
Figure 13. Equipment

Alarms: This information pertains specifically to alarms detected by the system.
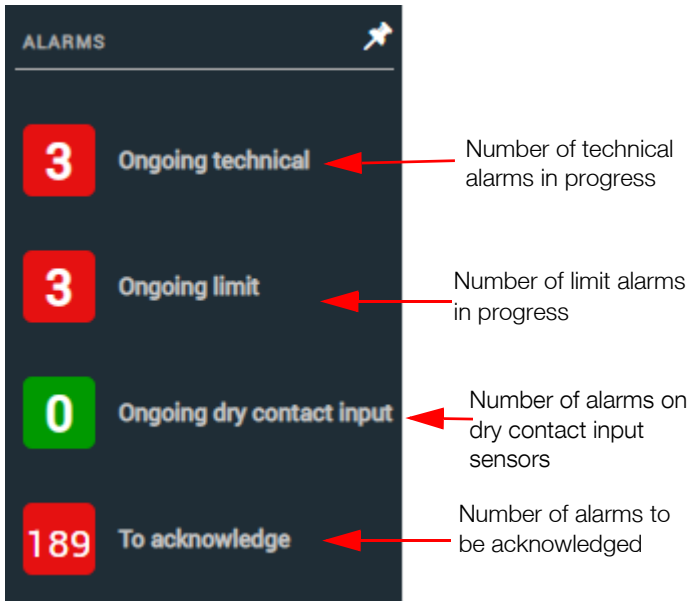
Figure 14. Alarms sub-menu indicators

Number of technical alarms in progress

Number of limit alarms in progress

Number of alarms on dry contact input sensors

Number of alarms to be acknowledged

Data loggers: This information pertains specifically to the status of your data loggers (i.e. not their sensors or equipment to which they are assigned).
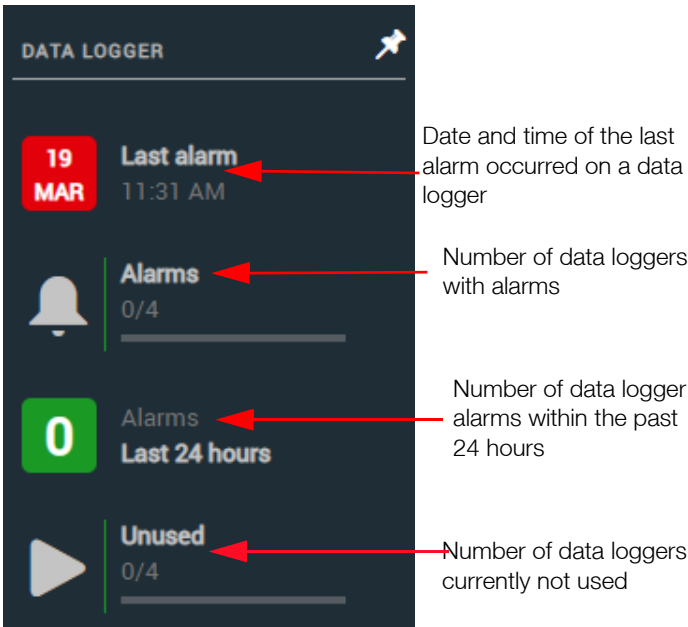

Date and time of the last alarm occurred on a data logger

Number of data loggers with alarms

Number of data logger alarms within the past 24 hours

Number of data loggers currently not used

Figure 15. Data logger sub-menu indicators

Sensors: This information pertains specifically to the status of the sensors on your data loggers.

Date and time of the last alarm occurred on a sensor

Number of sensors with alarms

Number of sensor alarms within the past 24 hours

Number of sensors used for data logging out of the total configured

Number of sensors to calibrate within the next 3 months

Number of sensors currently used with respect to licenses allowance
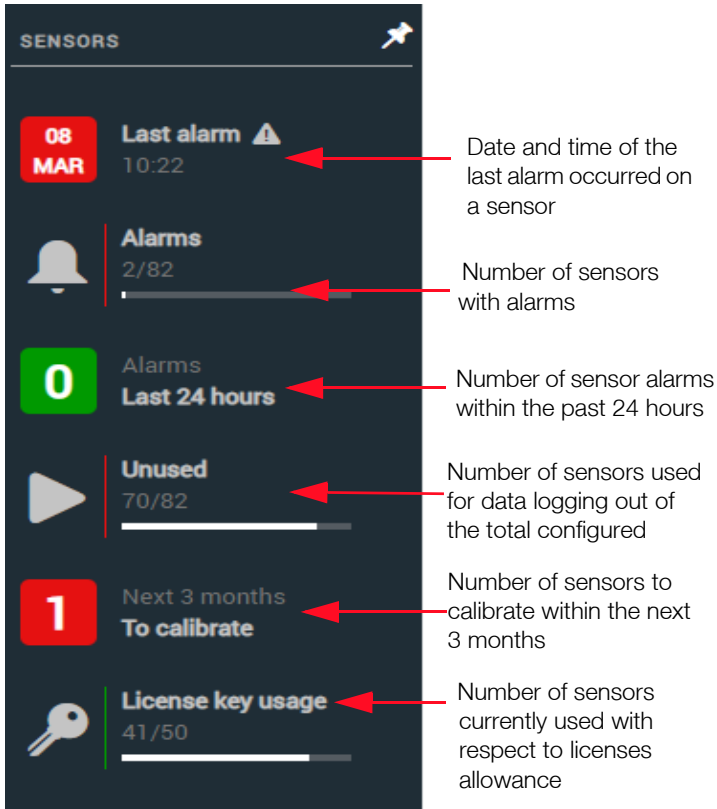
Figure 16. Sensor sub-menu indicators

Infrastructure: This information pertains specifically to the status of your infrastructure devices, such as receivers and smart remote contact or siren alert devices.

Number of infrastructure alarms within the past 3 months

Number of infrastructure devices with an alarm
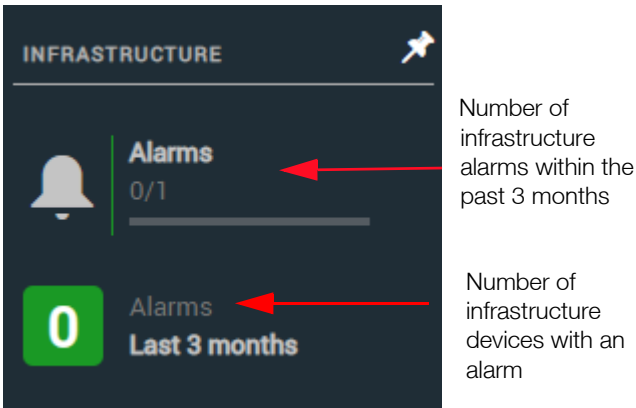
Figure 17. Infrastructure

CAUTION: If you pin these side-bars open and make changes in the main screen, such as acknowledging an alarm or updating a license, you must refresh the page (press the F5 or 🔄) for the changes to be reflected by the various indicators

Using Filters

Many Smart-Vue Pro screens include a **Filters** option at the top of the display. You may use various fields and search criteria to adapt lists displayed on screen or sort data in different ways. Filters can be very useful for finding specific information quickly or limiting long lists.

The **Filters** feature always works as described depending on the context.

To use **Filters**:

1. Click **Filters** (**1**) and use the drop-down menu to choose the information you want to display. The following examples show the filters options on the **Equipment** and **Sensors** screens:

Figure 18. Filters

2. You may filter by entering text in the **Search** field.

3. Apply the filters by clicking the search icon (**Q**). The list only displays items related to the criteria you specified.

4. To clear the active filter(s), simply uncheck the selected options and click the search icon (**Q**).

Home Screen Overview

The Smart-Vue Pro home screen contains the equipment monitoring dashboard which provides quick access to information about the system. The home screen features two display modes:

Plan View: Displays an image of the facility's floor plan to place the equipment you are monitoring according to its physical location (see **Placing Equipment on the Plan**).

Watch mode: Allows you to visually check the status of all the equipment and information such as the last recorded reading, sensor status, alarm status and more.

You may choose your default view using the "**Favorites**" bookmark, as shown below.

To pin your preferred view to your home screen, click the desired bookmark (1) as shown:
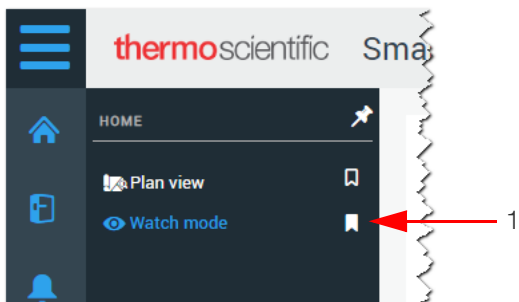
Figure 19. Customizing Smart-Vue Pro home screen

The selected view is opened automatically the next time you login to Smart-Vue Pro.

Plan View

Smart-Vue Pro enables you to load a floor plan for a quick visual indication of where your equipment and devices are located. The following is an example showing equipment at various locations on the floor plan (1). For more details, see **Adding Plan Images**.
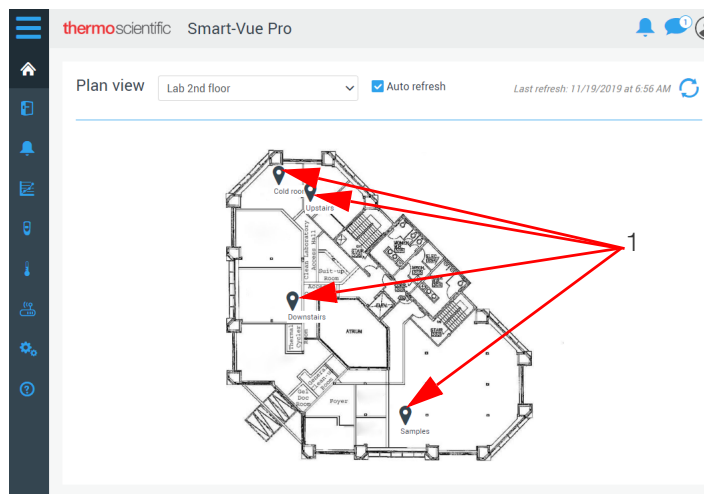
Figure 20. Viewing your sensors on a floor plan of

Watch Mode

The **Watch Mode** screen shows the status of all the equipments your profile allows you to view. The thumbnails on the dashboard provide an instant view of your equipment as well as the physical parameters recorded by your data loggers. Enable **Auto refresh** (1) to update the data on your dashboard automatically every five minutes.
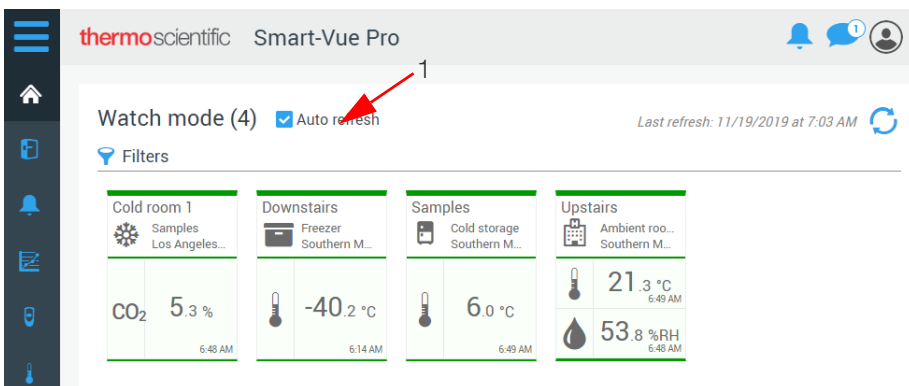
Figure 21. Overview of the Watch Mode

⚠️ **CAUTION:** Actions and updates with respect to remote data loggers may not always be visible instantaneously. For example, data transfer is based on the configured transfer interval. You may observe a reading on a Smart-Vue Pro data logger screen that has not yet been transferred to the system.

The color of the thumbnail reflects sensor status:

- **Green:** Equipment with sensors enabled and functioning within programmed high and low alarm limits (if configured).

- **Red**: All alarms are indicated in red. This includes low limit alarms, high limit alarms, faulty sensors, and technical alarms (low battery or wireless transmission issues).

- Sensors that are not currently logging data are shown with a hyphen in place of the sensor value.

Each piece of equipment is represented as a tile showing the key details at a glance:
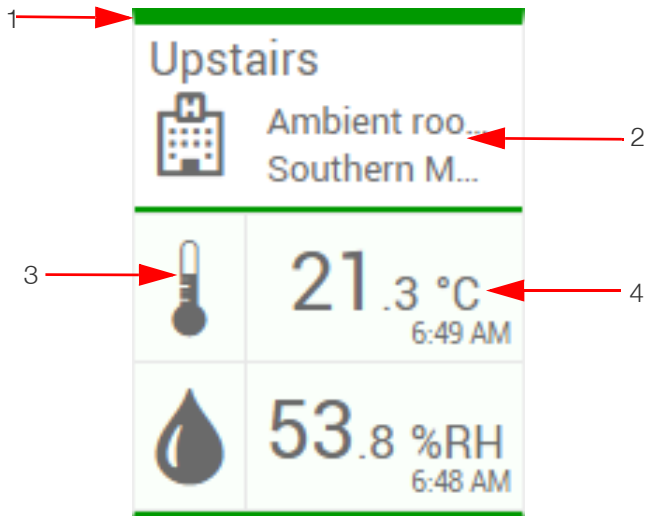
Figure 22. Equipment tile with key details

1. The color coding reflects the status of the overall equipment. Green indicates that there are no alarms; red indicates an alarm state.

2. Equipment name, type and associated organizational structure.

3. Measurement icon displayed in color according to the sensor status.

4. Latest reading with the color indicating sensor status.

    - The time of the latest reading is indicated if within the past 24 hours. Otherwise, click the tile for more details.

    - A "–" is shown in place of a value if the sensor could not be read.

The same color-coding is also used in the detailed pop-up pane described below. Click a tile to open equipment details or sensor details:
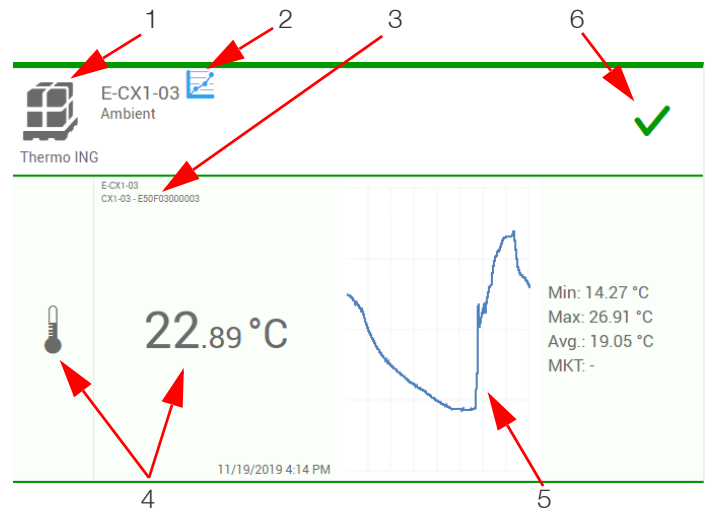
Figure 23. Summary display of selected equipment

Table 4. Equipment Details

S.No	Description
1	Equipment name, type and associated organizational structure.
2	Click the graph icon to view readings recorded by the sensor(s) associated with this equipment (measurements and events) or to download the report in PDF, CSV or Excel format (see **Viewing Sensor Data**).
3	The first line (top) indicates data logging name and second line (bottom) indicates data logger name.
4	Visual indicator of the connected sensor and latest reading displayed in color according to status (with or without an alarm). The date and time of the latest reading are displayed as well as the date and time of the alarm (if present).
5	Displays the detailed sensor graph or download reading reports in PDF, Excel or Word format (see **Viewing Sensor Data**).
6	If there are no alarms, a green ✔ is displayed. Otherwise, the number of alarms is shown in red (low limit, high limit, technical alarm): 🔔1 The number increments with the number of detected alarms. Click the alarm counter to get more information, acknowledge one or more alarms, or generate an alarm report. This leads you directly to the alarm management page (see **Alarms & Alerts**).

Click the detailed equipment pane to close the equipment window.

If the system detects an alarm while you are checking your dashboard, an alarm panel appears on the right-hand side of the screen (1), with counters to indicate the number of pieces of equipment with alarms. This feature alerts if there are any critical incidents. Click the alarm panel to open the alarm management window (see **Acknowledging Alarms**):
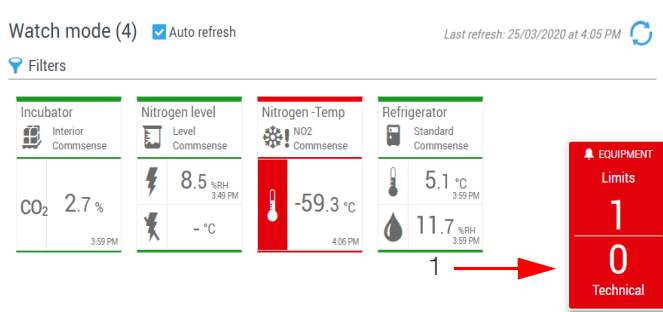
Figure 24. Pop-up for alarm notification

Sensor Tile Display for Dry Contact Input Sensors (Smart-Vue Pro Duo / Quatro Only)

In Watch Mode, dry contact input sensor tiles shows an icon indicating the current configuration (as defined on the Smart-Vue Pro Quatro data logger) with alarm colors depending on the open-close state. Normal and triggered states both show the icon corresponding to the "normal" configuration.

If the dry contact input sensor is defined as "normally closed":
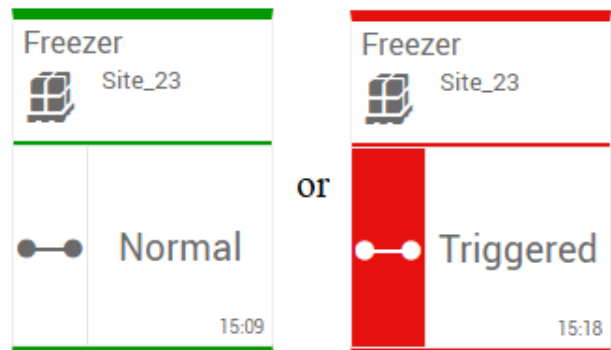
Figure 25. Normally closed

If the dry contact sensor is defined as "normally open":
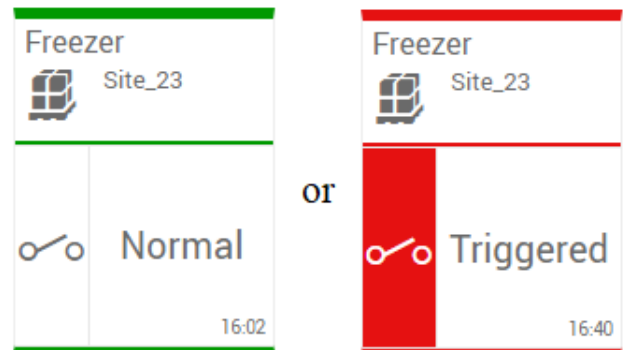
Figure 26. Normally open

Dry contact sensor configuration is covered in more detail in **Using the Smart-Vue Pro Dry Contact Input Sensor**.

Users

Smart-Vue Pro includes a complete user management interface. When you create your company account in Smart-Vue Pro (described in **Creating your Smart-Vue Pro Company Account**), you also create the first user account. That account has an "Application Manager" profile and is thus allowed to control every aspect of the system, its organization, and other user accounts.
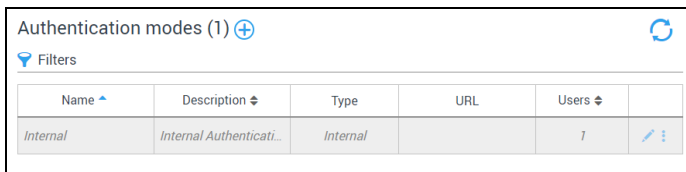
Authentication Modes

Smart-Vue Pro supports several user authentication modes:

- Smart-Vue Pro's own **integrated user authentication platform** identifies users by their user-name and password.

- An **external authorization platform, namely LDAP** (Lightweight Directory Access Protocol) identifies users by their corporate, network or system login name and password. Generally used by large organizations, this option provides consistent and non-redundant user management while offering a broader range of user permissions and password control within corporate IT tools.

Default User Authentication with Integrated Platform

In a default system, only the Smart-Vue Pro internal authentication platform is used. To see the authentication mode(s) used by your system, click **Configuration** ⚙ ➔ **Authentication modes**:

Figure 27. Default Smart-Vue Pro authentication platform
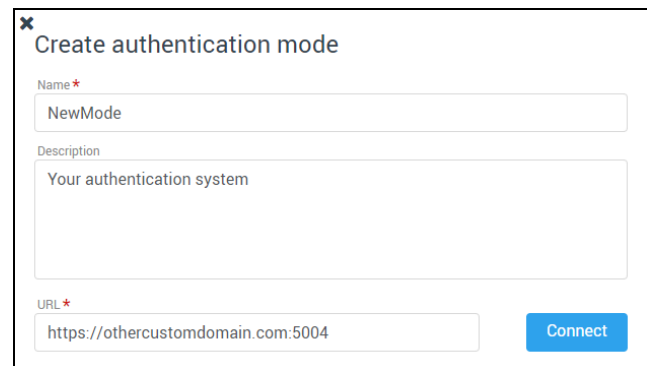
⚠ **CAUTION:** The internal authentication mode may not be disabled or edited in any way.

Adding an External Authentication Platform: LDAP

For your system to access an external LDAP authentication platform, you must add a new authentication mode to Smart-Vue Pro and configure it as described:

1. In the main menu, click **Configuration** ⚙ ➔ **Authentication modes**:

2. Click ⊕ **(Add mode)** and the following screen is displayed:

Figure 28. Adding an external authentication platform

Name: Assign a name for the authentication mode. This name is used as a reference by Smart-Vue Pro only and must be unique within your entire Smart-Vue Pro system. If the name is already in use, you will receive an error message.

Description: Enter optional information in this field.

URL: Enter the exact URL for connecting to your platform's LDAP authentication agent.

3. Click **Connect**. If the URL is correct and connection to the LDAP authentication agent was established, additional information is displayed:

Figure 29. Automatic options with LDAP

In this example, the authentication agent was identified as LDAP, which has the following two options:

Auto-create users: When users who do not exist in the system try to login for the first time, the system creates them automatically. They can login to Smart-Vue Pro and continue with their regular credentials. Their user profile then shows which authentication mode is being used (i.e. the name assigned above in step (2)).

Auto-update users: With this option, information from user profiles is automatically updated based on information in the external directory.

⚠️ **CAUTION:** The user's e-mail address must be:

1. Entered into the LDAP directory, otherwise the user will not be imported.

2. Unique in the system (the same address cannot be used more than once).

Editing an External Authentication Platform: LDAP

You may edit an authentication mode that you have added to the system (but not Smart-Vue Pro's native authentication):

1. Click **Configuration** ⚙️ ➔ **Authentication modes.**

2. To change information, click the Edit button (✏️) on the line containing the authentication mode you want to edit.

Figure 30. Editing an external authentication platform

If you change the URL to the authentication agent, the system checks to make sure that the new URL corresponds to the same agent as before. If not, an error message informs you that the changes will not be taken into account.

Options for External Authentication Platforms

Several options are available when you have configured one or more external authentication platforms.

⚠️ **CAUTION:** You cannot edit or delete the system's internal authentication mechanism.

To access options for external authentication platforms (LDAP):

1. Click **Configuration** ⚙️ ➔ **Authentication modes**.

Figure 31. Editing an external authentication platform

2. Click the vertical dots (⋮) (1) to access options:

Synchronize: This option connects to your LDAP agent and fetches all the users configured as Users or Application Managers for Smart-Vue Pro and creates them automatically. This allows you to include users in alert rule definitions even if they have not yet connected to Smart-Vue Pro (which would create those users upon their first login if you enable the Auto-create option described previously). A message is displayed to confirm the operation, informs you if any required information is missing from any LDAP profile, or if the connection could not be established.
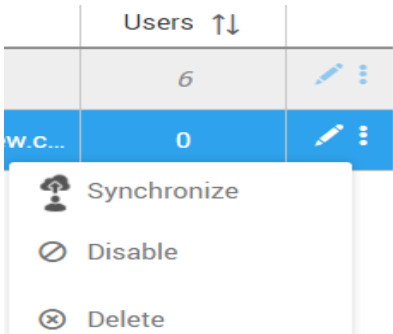
Figure 32. Synchronize

Note: If, **Auto-create user** and **Auto-update users** are not selected (see **Figure 29**), the synchronize button only updates the status of already-existing users (Enabled, Disabled, Expired).

Disable: Prevents associated users from connecting to the system.

Delete: You may only delete an existing authentication mode if there are no associated users.

User Accounts

Creating a New Account

To add a new user account, login to Smart-Vue Pro with your Application Manager account, or as a user whose application permissions include Manage other users, and follow these steps:
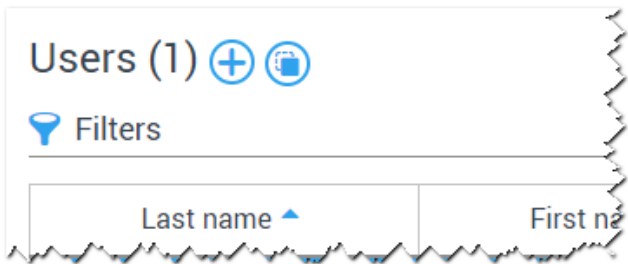
Figure 33. Add new user

1. In the main menu, click **Configuration** ⚙ ➔ **Users**.

   You may either: Click ⊕ (Add user) or click a user-name in the list and then 🗐 (Create from selected) to use an existing user as a template for creating a new one.

2. The Create user window opens as shown below, with fields either empty or already containing information, depending on your choice in step 1:

Figure 34. User details

3. Enter information to identify the user. The fields marked with a red asterisk (*****):

   First name / Last name: Enter the first and last names.

   E-mail: The user's e-mail address, which is used to login to the system and receive e-mail alerts and confirmations sent by the system. Email id must be unique as per 21 CFR.

   User-name: If you are using Smart-Vue Pro's integrated authentication, the user-name can either be the same as the e-mail address or it may be a name that you enter here.

   ⚠️ **CAUTION:** When logging in, you must use the information in the **User-name** field.

   If you are using an LDAP authentication agent, the user-name is your regular corporate system user-name (in the format: authentication_mode /username).

   Authentication mode: This field enables you to choose whether to use Smart-Vue Pro's internal authentication (based on user-name and a password) or an external LDAP platform using the regular corporate system credentials. The option specified when creating the company account is displayed here by default.

   When you select LDAP, a confirmation button is displayed to test access directly from this screen.

   Job title: Enter the role within the company.

International phone: Enter the telephone number in international format, with the prefix "+[country code]", such as: +14153817894. Do not include any extra digits or leading zeros.

Expiration date: When using Smart-Vue Pro's integrated authentication mode, you may set a date at which this user account will expire. For external authentication platforms, you may not change the expiration date here.

Expired accounts are indicated by this icon in the user list 👤⏱:

Profile: Two profiles form the foundation for defining user control in the Smart-Vue Pro system:

- **Application manager:** Can control all aspects of the entire system for your entire organization.

- **User:** This profile is assigned to all other accounts. Most accounts in your system will be User accounts. Additional control abilities are then assigned by an Application manager or other authorized user on an as-needed basis by activating system-wide application permissions and/or creating organization specific roles in sites and departments. (See **Organization with Sites and Departments**), offering flexibility.

⚠️ **CAUTION:** When using external authentication platforms, you may not change the role directly via Smart-Vue Pro.

Authorize PIN code: This option allows you to determine whether the user is allowed to perform actions that require a PIN code:

- Acknowledging alarms via the Smart-Vue Pro data logger screen.

- Acknowledging telephone alerts.

- Accessing advanced settings menus on the Smart-Vue Pro data logger screen.

[Yes ⬤] Indicates that you can have a PIN code.

[⬤ No] Indicates that you will not have a PIN code.

PIN code: If you are authorized to have a PIN code, enter 4 digits into this field. For additional security, the system will complete the PIN code with 2 additional random digits after you close the window.

⚠️ **CAUTION:** To see the full 6-digit code, open your account and select **PIN code ➜ Show**. Only the account holder can see their own full 6-digit code in their account. No other system users, including Application Managers, can see another user's full PIN code.

Language: You may change the application language at any time. Select your default language from the **Language** pull-down menu.

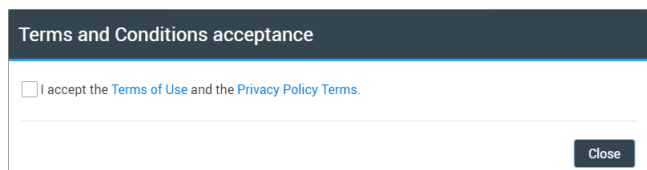**Time zone:** Select the time zone based on the geographical area when first logged in.

Date format: Choose the date format to be displayed in the application.

Time format: Choose the time format to be displayed in the application. Readings can be displayed in 12-hour (AM/PM) or 24-hour format.

Unit: Choose the unit of temperature to be displayed in degrees Celsius (°C) or Fahrenheit (°F).

Decimal separator: Select the character (period or comma) to use as a decimal separator in numerical values in the Smart-Vue Pro display.

4. Click **Save** to create the user account or **Cancel** to return to the previous screen.

5. The new user will receive an e-mail with a link to create their new password. Upon their first login, they must accept the Terms of Use and Privacy Policy Terms to continue.

Terms and Conditions acceptance
☐ I accept the Terms of Use and the Privacy Policy Terms.
Close

Figure 35. Terms and Conditions acceptance

Summary of Profiles, Permissions and Roles

The table below summarizes system access according to account profiles, as well as functionality that can be granted using roles and individual permissions.

Table 5. Access differences between Application Manager and User profiles

Main-menu	Sub-menu	Profiles			
			User		
		Application Manager	Default	Can be added by permissions	Can be added by roles
Home	Plan view	☑	☑	n/a	n/a
	Watch view	☑	☑	n/a	n/a
Equipment		☑	n/a	n/a	☑
Alarms		☑	☑	n/a	n/a
Reports	Operations	☑	Not Implemented		
	Audit trail	☑	☑	n/a	n/a
	Report Subscriptions	☑	n/a	n/a	n/a
Data Loggers		☑	n/a	☑	n/a
Sensors		☑	☑	n/a	n/a
Infrastructure		☑	n/a	☑	n/a

Table 5. Access differences between Application Manager and User profiles

Main-menu	Sub-menu	Application Manager	Default	Can be added by permissions	Can be added by roles
			User		
Configuration	Company	☑	n/a	n/a	n/a
	Users	☑	n/a	☑	n/a
	Roles	☑	n/a	n/a	n/a
	Organizations	☑	n/a	n/a	☑
	Time slots	☑	n/a	n/a	☑
	Days off	☑	n/a	n/a	☑
	Alerts	☑	n/a	☑	☑
	Data logging templates	☑	Not Implemented		
	Plans	☑	n/a	☑	n/a
	Authentication modes	☑	n/a	n/a	n/a
	License keys	☑	n/a	n/a	n/a
Help	Online help	☑	☑	n/a	n/a
	About	☑	☑	n/a	n/a
	Release notes	☑	☑	n/a	n/a
	Legal	☑	☑	n/a	n/a

Users may have view-only access to certain menu options without being able to perform actions related to them.

Editing an Account

To edit any information in your Smart-Vue Pro system:

1. Click **Configuration** ⚙ ➔ **Users.**

2. Click a line in the table to open the account.

3. The user identification window is displayed:
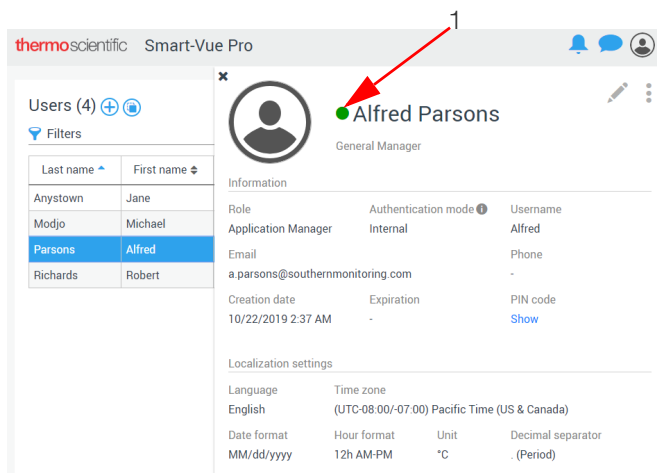
Figure 36. Details for selected user

4. The account status is indicated next to the name (1): Indicates green if the status is OK; red if the account is expired or blocked; or grey if the account is deactivated.

    Blocked account: If the account is blocked because the user entered an incorrect password three times, a padlock is also displayed next to the user's name in the user list:

Figure 37. Account blocked after three failed password attempts

    You must reset the password to reactivate a blocked account.

    Expired account: If an account's expiration date has been reached, an icon is displayed next to the user's name and they will no longer be able login.
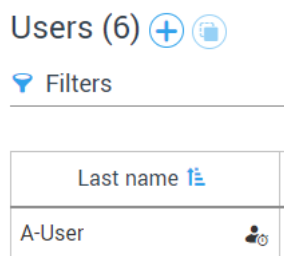
Figure 38. Expired user account

To set a new expiration date for this user, you must login with an Application Manager account, or as a user with Application Permissions to manage other users, then Edit the account.

5. To edit any information, click the button ✏ in the top right-hand corner of the window and edit the fields as needed.

6. Click **Save** to save your changes or **Cancel** to exit this screen without saving changes.

⚠️ **CAUTION:** Changes made to an existing user:

1. The user's e-mail address cannot be changed, as it serves as a unique identifier for this user in the system.

2. If an external authentic mode (LDAP) is being used by the system, and the option "Auto-update users" is activated, then some user information presented here may not be modified. If you change the Authentication mode, test the user's account validity by clicking on the test button: 🔌.

3. Changes take effect the next time the user logs in to the system.

4. An account cannot be deleted, it can only be disabled (and then hidden). For traceability reasons, it is not possible to delete a user account from the system.

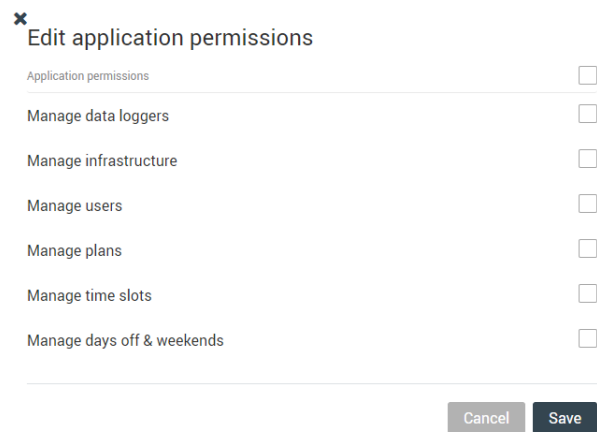# Assigning Application Permissions to "User" Profile Accounts

"Application permissions" enable people with User profile accounts to perform a variety of different application-wide actions that apply to the entire system. These permissions may be assigned by an Application Manager to a limited group of people within an organization, as they enable significant changes to be made regarding global operation. Application permissions are therefore assigned at the individual account level and generally only on an as-needed basis.

⚠️ **CAUTION:** People who do not require these global application-wide permissions can be granted rights to perform many other "day-today" actions within their site or department within the organization (described in **Adding User Roles**).

To assign application permissions to an account with a User profile:

1. Login with an Application Manager profile.

2. Click Configuration ➔ Users.

3. Click a line in the list open a user's account.

4. Click Options ➔ Edit application permissions.

Figure 39. Editing application permissions for a user account

You can assign the following application permissions:

Manage data loggers: Adding, deleting and modifying data loggers.

Manage infrastructure: Adding, deleting, and modifying infrastructure devices such as receivers/gateways, wireless sirens, and wireless dry contact controllers.

Manage users: Adding, deleting, and modifying user accounts, including contact information and password reset.

Manage plans: Adding, deleting, and modifying floor plan images used to identify equipment locations.

Manage time slots: Adding, deleting, and modifying the time slots used in alert rules.

Manage days off & weekends: Adding, deleting, and modifying workdays and other days used in alert rules.

Note Regarding Notifications Related to Account Permissions

The above permissions grant application functionality on a system-wide level to a specific user. Smart-Vue Pro web application displays a warning message if that user makes changes that represent a potential conflict with current configuration elsewhere in the system. Nonetheless, the system does allow the user to make the change.

For example:

- A team in your California laboratory uses a plan image to identify data logger location at their site.

- A user in Sweden with "Manage plans" permissions can delete that plan image from the system, but a warning message is displayed.

The same principle applies to the other application permissions, which could enable users to impact current configurations elsewhere in the system.

The benefit of this feature is that it enables the main Application Manager(s) to grant limited administrative roles to some user accounts. As with any computer system, these permissions must be granted only on an as-needed basis to qualified people.

Updating Contact Details

CAUTION: If you want the user to receive alert notifications by e-mail and/or SMS, you must first assign the user to a Call Group as described in **Alert Rules with Users**.

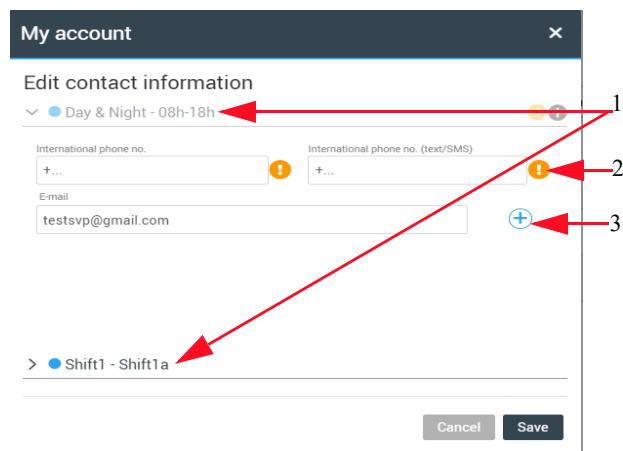To edit contact details for a user associated with an alert rule:

1. Click **Configuration** ⚙ ➔ **Users.**

2. Click a line in the table to edit that user's account.

3. The user details appear at the right of the screen.

4. Click **Options** ⋮ ➔**Edit contact information**.
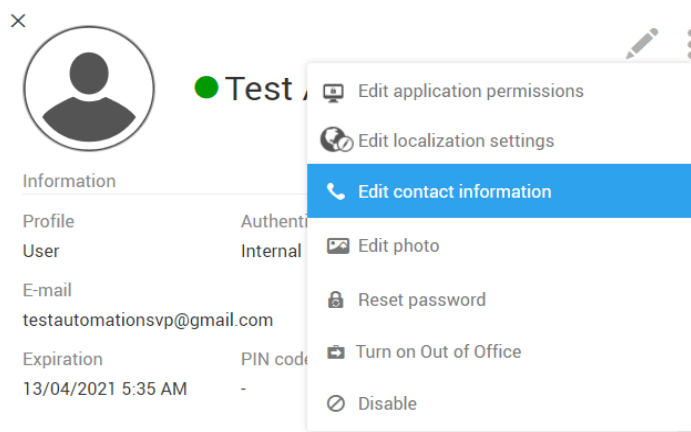
Figure 40. Accessing contact information

Enter the telephone numbers and/or e-mail addresses for the different types of alerts you have configured, as described in **Configuring Alert Rules**.

Figure 41. Editing contact information

Table 6. Editing Contact Information

SI. No	Description
1	All time slots used in alert rules for this user are displayed. In the above example, there are three time slots.
2	An icon ⚠ is displayed wherever required information is missing. The user in the above screen is associated with an alert rule for voice and SMS/text message, so that information must be entered here. Telephone numbers must be entered in international format using the "+" sign and country code prefix.
3	You may add up to 3 email addresses for each time slot by clicking on Add (⊕).

1. Smart-Vue Pro Alert notification via voice messaging works with all types of phones in many regions. SMS/text messages are supported on most mobile phones.

2. Remember to enter the "+" sign and country code prefix for both your mobile and land-line phone numbers.

3. You cannot disable a user account if that user is associated with an alert rule.

⚠ **CAUTION:** These fields are independent from any external authentication (LDAP) platform information.

Changing your Own Password (with Integrated Authentication)

⚠ **CAUTION:** This section does not apply to users in systems using external authentication (LDAP). The audit trail is updated to reflect a password change, unless the new password and existing password are identical.

Users can change their own passwords.

To change your own password:

1. Click your user profile in the upper right-hand corner of the screen then click **My Account**.

2. Your account window opens directly.

3. Click **Options** (⋮) in the top right-hand corner of the window and select **Change password**.

4. Enter the new password and re-type it in the second field to confirm.

5. Click **OK** to save your changes or **Cancel** to return to the previous screen.
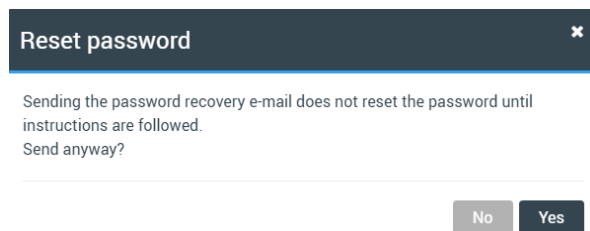
⚠ **CAUTION:** Passwords should be at least 8 characters long and contain a combination of upper-case and lower-case letters with at least one number and one special character.

Resetting Another User's Password (with Integrated Authentication)

Users with Application Manager rights can initiate a password reset for other people but cannot set the password for someone else. In all cases, users must set up their own passwords.
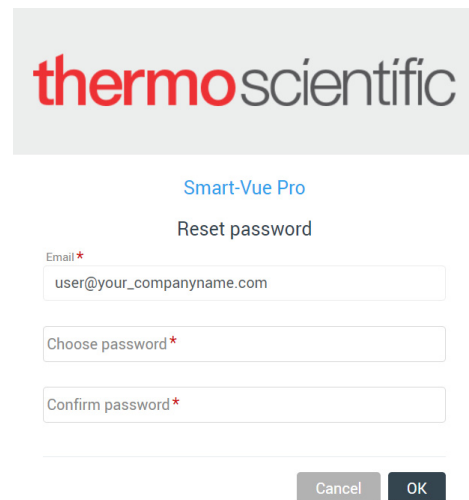
To change a password:

1. Click **Configuration (⚙)** ➔ **Users.**

2. Click the user profile for which you want to reset the password. The user details appear at the right of the screen.

3. Click **Options (⋮)** at the top right of the form and select **Reset password**.

4. In the password reset window, click **Yes** to proceed with the change or **No** to return to the previous screen:

Figure 42. Password reset confirmation

5. The password recovery email is sent to the user with instructions to reset the user password as shown below:

Figure 43. Resetting a user's password

6. The change is taken into account when the user clicks **OK**.

7. The regular login screen is displayed the next time the user logs in and user is prompted to enter the new password. The user cannot login without changing the password.

Note: If the user's account is not locked or expired, it is still possible to connect even if the password has not been reinitialized.

Personalizing an Account Picture

Smart-Vue Pro can personalize your display with a profile picture when you are logged in to the system. The picture is shown in the upper right-hand corner of the screen.

Picture recommendations:

- Maximum size: < 1 MB
- JPG or PNG format

To add a picture:

1. Click your user image (image) in the upper right-hand corner of the screen, then click **MyAccount** to open your profile directly (or click **Users** in the left-hand menu and select your name in the user list).

2. Click **Options** (image) in the top right-hand corner of the window and select **Edit photo**.

3. Click **Choose file**:

Figure 44. Selecting a profile picture

4. Browse your computer to locate the image you want to use and then click **Open**.

5. The image is uploaded and displayed in Smart-Vue Pro.

Figure 45. Deleting a profile picture

6. Click **Send** to save your changes and update your account.

7. To delete the picture linked to the user account, click (image) in the screen shown above.

User Details Overview

To view/edit your general account information:

1. Click your user account image (image) in the upper right-hand corner of the screen, then click **My Account**. The screen contains two main sections:

   Information: This section indicates the status of your account (Active / Inactive), its creation date and expiry date (if entered), your user level, the language selected and the PIN code to be typed on a Smart-Vue Pro data logger screen to acknowledge alarms. You may edit this information by clicking on the **Edit** icon (image).

   Localization settings: Display format for time zone, time format, date format, measurement unit, and decimal separator. You may edit this information by clicking **Options** (image) ➔ **Edit localization settings**.

2. Click **Save** to record your changes, or **Cancel** to return to the previous screen without saving changes.

Adding User Roles

Overview: Role Permissions vs. Application Permissions

As mentioned previously, most user accounts in your system are created with a "User" profile. This account profile starts by giving people view-only access to specific parts of the application. Remember, the "Application manager" profile is generally limited to a few super-users who need complete access to every aspect of the application.

> ⚠️ **CAUTION:** Users with a user profile must be given rights within the organization in order to view and manage configured equipment or data logging information.

For individual users, you may assign application-wide permissions as described in **Assigning Application Permissions to "User" Profile Accounts** in order to give those people more administrative abilities in terms of system set up and management.

Nonetheless, people with a "User" profile account often need to manage a variety of day-to-day tasks, typically within their part of the organization (described in detail in **Your Organization**). Smart-Vue Pro web application therefore enables you to create different roles that can be assigned to those accounts for this purpose.

Role permissions enable you to fine-tune responsibilities and application access within your organization for:

- Managing the organization
- Start and stop data logging
- Acknowledge alarms
- Manage alert rules
- Manage metrology parameters

Creating New Roles

Roles are used to allow people with user-level accounts to perform to a variety of different actions that can be considered as "daily" types of actions. Roles are assigned to people as they are associated with sites and/or departments, and a person may have different roles in different parts of the organization. For example, they could be limited to viewing information in one department and only be allowed to acknowledge alarms in another.

Smart-Vue Pro starts with three default roles: **Manager**, **Acknowledger** and **View only**. Only Application managers can add or customize user roles.

To add a new user role and assign permissions:

1. In the main menu, click **Configuration** ⚙ ➔ **Roles.**

2. Then click ⊕ **(Add Role)**:

Figure 46. Available user roles

3. The **Create Role** window opens as shown here:

Figure 47. Adding a new user role

Fill in the fields as required:

Name: Enter a name for the new user role.

Description: Enter a description for the user role (optional).

Permissions: The permissions listed here define what a user is allowed to do in one or more parts of the organization.

To grant permissions, check the permission(s) you want to assign to the role:

Manage organization: The user can set up and configure the system's organizational structure and include other users as allowed.

Start data logging: The user can start data logging for equipment.

Stop data logging: The user can stop data logging for equipment.

Acknowledge alarms: The user can acknowledge alarms.

Manage metrology parameters: The user can update calibration settings.

Manage alert rules: The user can create, edit, and update alert rules.

To assign all these permissions at once, click the check box above the rights list, which selects all check boxes.

4. Click **Save** to apply your changes or **Cancel** to discard your changes. Here is an example after adding a "Calibration" role.

**Figure 48. Custom role displayed in role list**

Once the role is created, you may use it when assigning users to sites and departments in your organization, as described in **Adding a Site**.

Your Organization

Updating Company Information

You may update all company information at any time, except for the main contact e-mail address.

General Information

To update your company account:
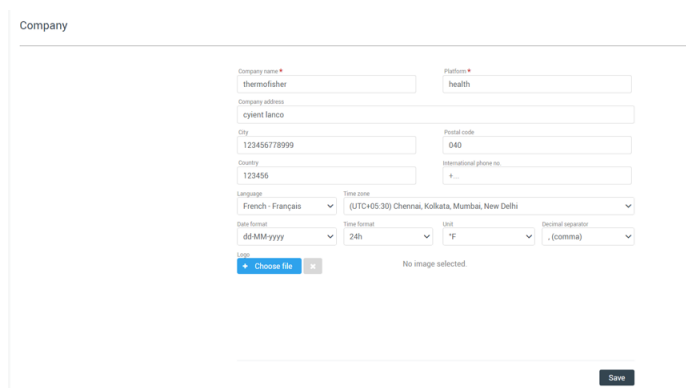
1. Click **Configuration** ⚙ ➔ **Company.**

Figure 49. Company account information

2. Fill in the required fields (marked with *) as appropriate.

Company name: Enter the name of the company.

Platform: This unique company identifier is filled in automatically based on the company name you enter.

Company address: City, Postal code, Country, International phone number: enter the relevant information for your company.

⚠ **CAUTION:** Make sure you enter the telephone number in international format, with the prefix "+[country code]", such as: +14153817894.

Do not include any extra digits or leading zeros.

The following settings apply as a default for your system. They can be overridden by each user's individual settings for local operation and display purposes, but this information is used as a common reference for the company in case users have conflicting profile settings for shared actions.
For example, if you have e-mail alerts sent to user in different regions, English could be the default company language for a same alert message.

Language: Choose the desired default language for your company. Users are free to choose their personal preference at any time.

Time zone: Select the time zone based on the primary geographical area for the company.

Date format: Select how dates are displayed in the application.

Time format: Select how time is displayed in the application. Readings can be displayed in the **12-hour (AM/PM) or 24-hour** format.

Unit: Temperature can be displayed in degrees **Celsius (°C)** or **Fahrenheit (°F)**.

Decimal separator: Select the character to use as a decimal separator in numerical values.

Logo: If you want to add a logo image for your company, click **Choose file** (JPG or PNG format, maximum size 1 MB). This image will be used in a future release to personalize application features.

3. Make the desired changes directly in the form and then click **Save** to save the information.

Managing License Keys

Access to Smart-Vue Pro is based on one or more service subscriptions linked with the number of sensors in your system. The following services require a subscription:

- **Smart-Vue Pro web application** and all integrated features (including 24/7 alerts by e-mail only) for a specified number of measurement points.

- **Smart-Vue Pro Alert notification system**, an additional service that provides 24/7 alert notification by telephone voice call and/or SMS-text message (to a cellular telephone).

> **CAUTION:** Contact an authorized Thermo Scientific representative for more information.

When you sign up for one (or both) of these subscriptions, you will receive the associated voucher number(s) to enter in Smart-Vue Pro.

To view information about your Smart-Vue Pro Solution or add a new license key:

1. Click **Configuration (⚙) ➜ License keys.**

    This page shows information related to your licenses, such as activation key codes and expiration dates. The Thermo Scientific technical support team may ask you to provide this information if you contact them for assistance.

2. To enter a new voucher number, click (⊕) **(Add license key)**.

License keys (1) ⊕

License key	Product	Description	Expiration ⬇
XXXXX-XXXXX-XXXXX-XXXXX-GWDAA-YGSCU	Smart-Vue Pro	20 measurement points	29/01/2022

Figure 50. Adding a new license key

3. Enter your new voucher number in the pop-up window:

Add license key ✕

License key *

Cancel Save

Figure 51. Entering the new license key number

4. Click **Save** to register your license or **Cancel** to discard changes and return to the previous screen.

5. Once the license key is registered, the activation key number is shown in the table along with the license type and expiration date.

License keys (1) ⊕

License key	Product	Description	Expiration ⬇
XXXXX-XXXXX-XXXXX-XXXXX-GWDAA-YGSCU	Smart-Vue Pro	20 measurement points	29/01/2022

Figure 52. Monitoring system's licenses

Renewing or Expanding your Current License

If you need to renew one of your licenses or upgrade your current license (such as to expand the number of authorized measurement points), simply click Add license key and enter the new license number as described earlier in **Managing License Keys**.

License Expiration Email Reminders

As the expiration date for any of your licenses draws closer, a reminder is displayed in the Notifications menu (💬①) as shown here:
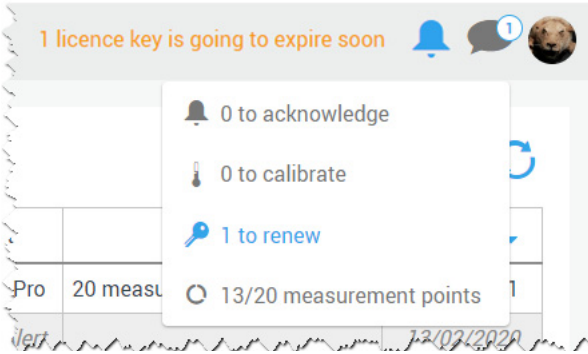

Figure 53. Reminder to renew license

This reminder is displayed, and the first e-mail is sent starting 90 days before the license expiration date.

The e-mail reminders are no longer sent after 7 days following expiration.

Lines containing license keys that have reached their expiration date are shown in Grey with italic text:

Figure 54. Expired licenses indicated in Grey

⚠ **CAUTION:** E-mail reminders are sent regularly up until the expiration date, and slightly after, as follows:

*   90, 60, 30, 21, 14, 7 days before expiration.
*   On the expiration date.
*   Once a day for 7 days after expiration.

Renewing an Expired Smart-Vue Pro License

If your Smart-Vue Pro license expires, you will not be able to connect to the system unless you enter a new license key.

If you attempt to log in to a company account whose license has expired, you will see this screen, prompting you to enter a new license key:

Figure 55. Entering a new license key for an expired company account

To continue, you must enter a new license key. Contact the Smart-Vue Pro representative to obtain a new key. Enter the new key and click Save to login.

Organization with Sites and Departments

The Smart-Vue Pro monitoring system is comprised of one **Organization**, which may be sub-divided into **Sites** and **Departments**. This feature enables you to create a logical hierarchy for managing your system based on geographical, operational or any other criteria that may be useful to you.

For example, you could create a hierarchy as shown in the following figure:
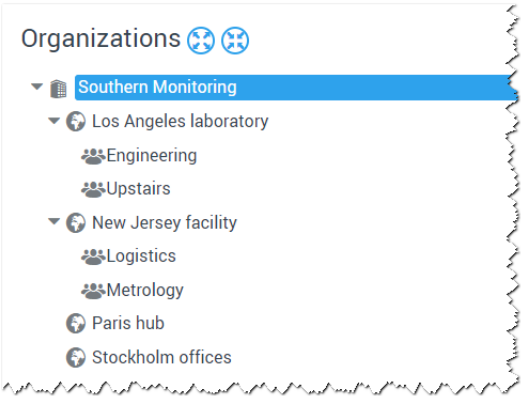

Figure 56. Creating a hierarchy that is appropriate for your organization

Users, equipment and infrastructure devices are assigned to the various entities in the overall organization. Users may even have different roles in different parts of the organization such as someone who is a manager in the Los Angeles laboratory but has view-only rights for the facility in New Jersey.

CAUTION: Equipment and infrastructure devices (such as receivers) can only be assigned to one entity in the hierarchy.

An organization can have from one to three levels (Organization, Site and Department). There is no requirement to create sub-divisions with this feature, though it tends to make management much more intuitive than a "flat" structure. You may associate users at whichever level of the organization works best for you. Here are three examples:
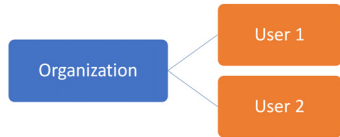

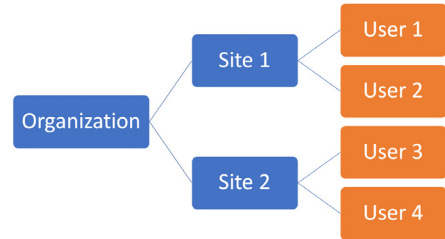**Figure 56a. Sample organizational structures with users assigned at level 1**

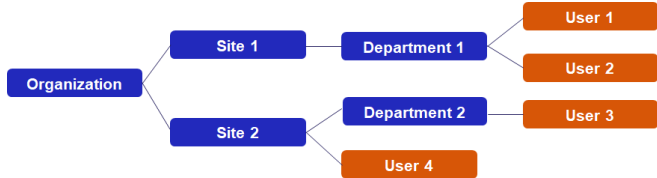**Figure 56b. Sample organizational structures with users assigned at level 2**

Figure 56c. Sample organizational structures with users assigned at level 3

Adding a Site

To add a new site:

1. Click **Configuration (⚙) ➔ Organizations.**

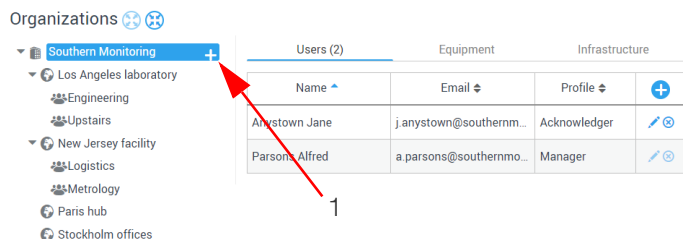2. Click the name of your company account and then click **Add site** (1).

Figure 57. Adding a new site

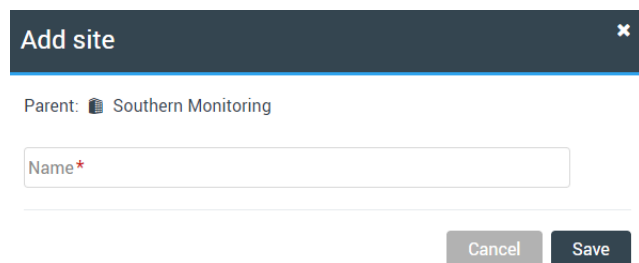3. Enter a name for the new site in the pop-up window and click **Save**.

Figure 58. Entering the new site name

The new site appears in your organization's tree structure. You may click ⊗ ⊗ or the triangles (▼) in the tree to expand and contract the view.

Adding a Department

1. Click **Configuration (⚙) ➔ Organizations.**

2. In the organization's tree structure, click the site and then on Add department (2):
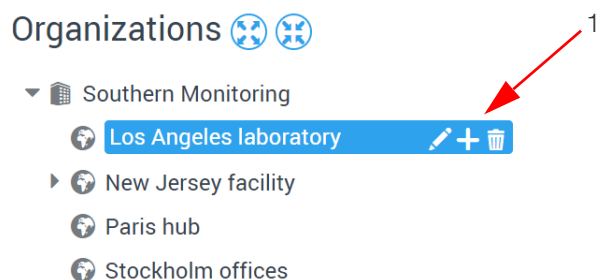

Figure 59. Adding a new department

3. Enter a name in the pop-up window for the new department and click **Save**:
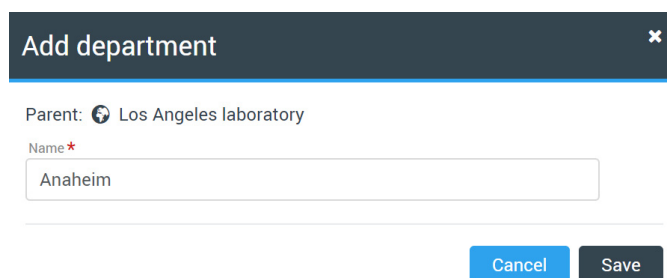

Figure 60. Entering the new department name

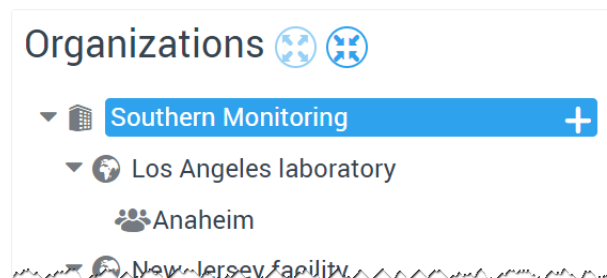The new site is listed in your organization's tree structure:

Figure 61. Organizational structure

Editing / Deleting a Site or Department

To manage different sites and departments, click the desired node in the organizational structure and use the available options:

New To add a new site or department, click 🔲.

Delete To delete a site or department, click 🗑.

Edit To edit a site name, click ✏. Modify or enter a new name and click ✔ to confirm your changes.

Smart-Vue Pro Monitoring Solution

# Assigning an User in your Organization's Hierarchy

When you first start, you have one organization with the Application Manager – the user who created the account – listed as Manager (roles are discussed in the previous chapter). Application managers are associated automatically with all the nodes in the organizational structure. Those users cannot be removed.

Other users must be added here.

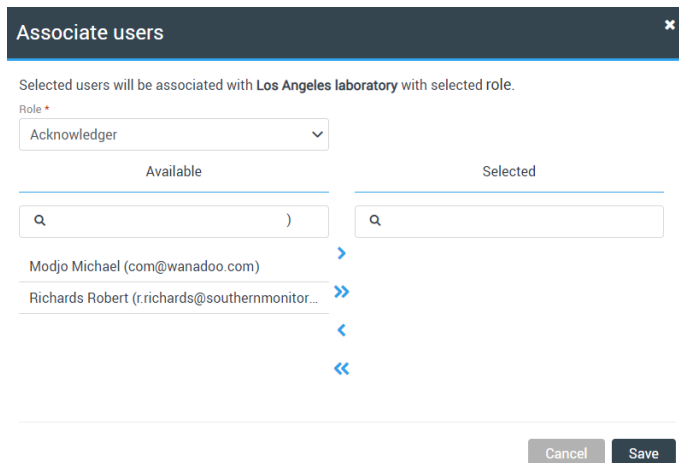You must first create users (see **Users**) in order to add them to your sites and departments.

To associate a user with the organization or a site or department:

1. In the **Configuration ➜ Organizations** menu, click **Associate users (➕)** (1).
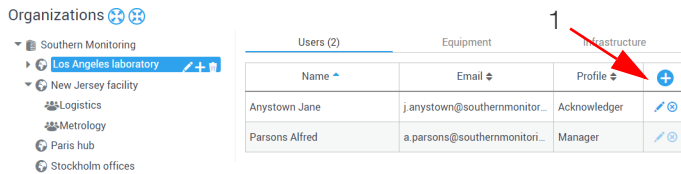
Figure 62. Adding a user to a department

The **Associate user** window opens as shown here:

Figure 63. Associate user window

2. Depending on the department to which the user is assigned, select the role you want to assign to them using the **Roles** drop-down list. A role determines the actions that the user can perform and the objects that they can manage in Smart-Vue Pro.

There are three user roles by default:

- **Acknowledger:** This user profile allows you to acknowledge alarms issued by the system for the sensors they are monitoring. You may also disable those sensors, if necessary.

- **Manager:** A Manager can access all application features and manage other users.

- **View only:** User rights are limited to viewing only. These users do not have access to management and configuration windows.
  Other roles may be added, as described in **Adding User Roles**.

3. Add users to your organization:

    Available: Select a user from the list of Available users. Then click ❯ to move the user to the list of Selected users on the right-hand side.

    To select multiple users at a time, press and hold the Ctrl key and click each of the users you want to select. Click ❯ to add them to the list of Selected users. To select all available users, click ❯❯.

    Selected: To remove an user from your organization, click that user in the list of Selected users and then click ❮ to move the user to the list of Available users on the left-hand side.

    To remove multiple users, press and hold the Ctrl key and, while holding down the key, click each of the other users you want to remove. Click ❮ to move them to the list of Available users on the left.
    To remove all users, click ❮❮.

4. Click **Save** to save your changes or **Cancel** to exit this screen without saving changes.

Viewing Equipment and Infrastructure in your Organization

The table on the Organizations screen also contains tabs (1) that you can use to list Equipment and Infrastructure assigned to sites and departments.

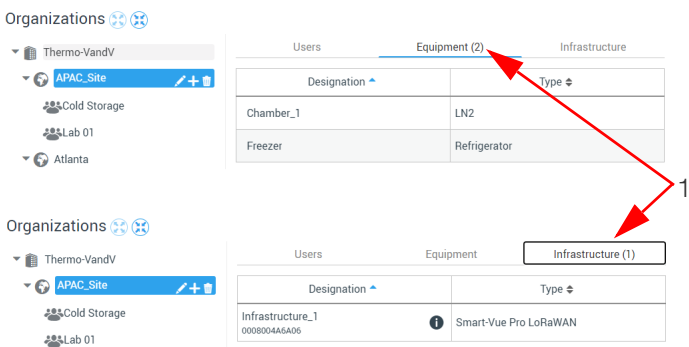The example below shows the equipment and infrastructure elements assigned to the "APAC_Site" site:

Figure 64. Listing the equipment and infrastructure in your organization

Site Plan Images

Smart-Vue Pro allows you to visually place your equipment on floor plan representing the layout of your organization. Plans are useful for identifying the locations of the sensors associated with the equipment you are monitoring. You may add as many plans as required.

To add a plan:

1. In the main menu, click **Configuration** ⚙ ➔ **Plans.**

2. Click **Add plan** (⊕) to import a plan image.

Figure 65. Managing plans

The create plan window opens as shown here:

Figure 66. Adding a new floor plan

3. Enter a name for the floor plan in the **Name** field.

4. You may add a description in the **Description** field (optional).

5. Click **Choose file** and select the desired image of your premises (JPG, PNG or GIF format up to 1 MB maximum size). A preview image is displayed after you load the floor plan:
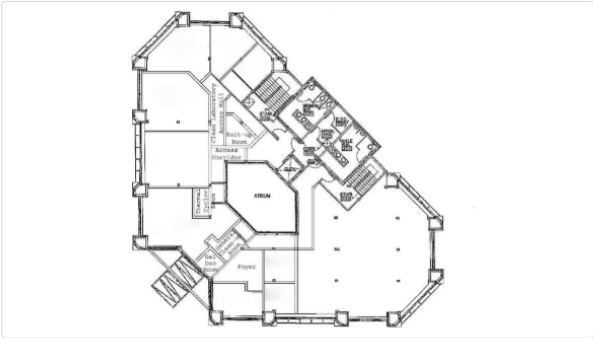

Figure 67. Adding a new floor plan

6. You may click the thumbnail image to open the enlarged floor plan.

7. Click Save to add the floor plan to your system, or Cancel to close this window and discard your changes. You may add as many floor plans as required.

Editing or Deleting a Plan

You may edit (replace) or delete plan images from your system by clicking on the icons on the right-hand side of the screen:

Figure 68. Editing or deleting an existing plan

Edit: Allows you to change the name, description, or plan image as described in the previous section.

Delete: Allows you to delete the plan from your system.

Placing Equipment on the Plan

Once you have loaded one or more floor plan images, place the equipment on the image according to its physical location.

To place equipment on the plan:

1. In the main menu, click **Equipment** ( ).

2. Select the equipment you want to place on the plan. The equipment details are shown on the right-hand side of the screen.

3. Click **Options** ( ) in the upper right-hand corner of the equipment window and then click **Edit location**.

4. Select the desired floor plan using the **Plan** drop-down list to display a larger image.

5. Place your equipment by clicking the desired location on the image. The blue location pin ( ) moves to show the new position (1). The grey pin represents the previous equipment position, which disappears after you save the new equipment location.
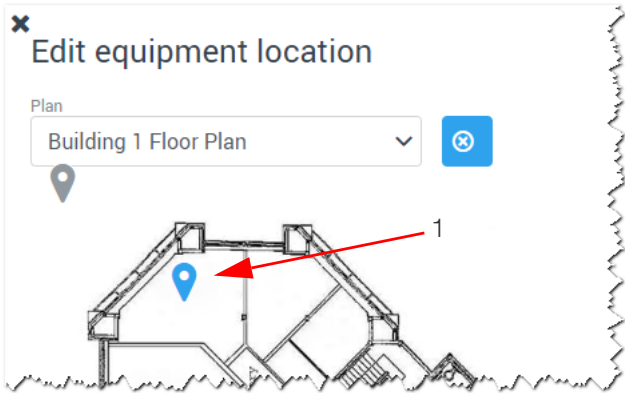

Figure 69. Placing an equipment on the plan

If you want to remove the equipment from the image, you may click the Remove association button ( ).

6. Click **Save** to save the equipment location (or removal) or click **Cancel** to return to the previous screen without saving the changes.
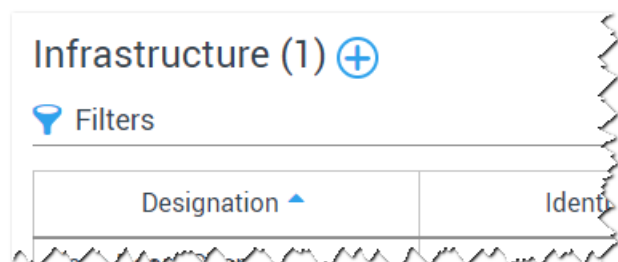
Infrastructure Devices

This section allows you to add different infrastructure components that comprise your monitoring system such as a LoRaWAN receiver, Smart Siren (alert device) and Smart Remote Contact (alert device), etc,.

Your LoRaWAN™ receiver connection must be up and running in order to interact with data loggers and other infrastructure devices. That is, your receiver must be installed and configured to communicate with your Smart-Vue Pro system as described in the appropriate user guide.
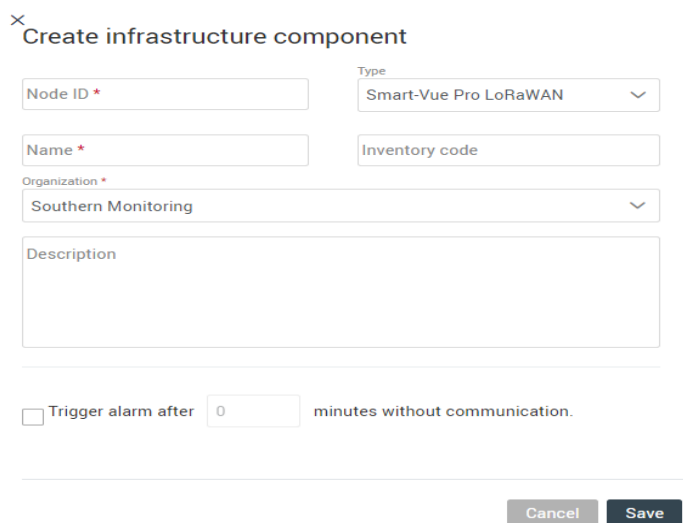
Adding Infrastructure

Follow these steps to add a new component to the system manually:

1. Click **Infrastructure** in the main menu and then click ⊕:

Figure 70. Click to add infrastructure

The **Create infrastructure** window opens as shown here:

Figure 71. Adding infrastructure details

2. Enter the details of the infrastructure element. Fields marked with a red asterisk (*****) are required:

Serial number/Node ID: Enter the serial number on the back of your infrastructure element (device).

The system identifies the element based on its serial number. If you enter an incorrect serial number, a red exclamation mark is shown in front of the corresponding field. Check the serial number and try again. If the problem persists, contact technical support.

Type: For infrastructure elements, the Type is selected manually. It is therefore essential to enter the correct identifier (e.g. serial number, node ID). If the type does not correspond to the entered identifier, the application cannot communicate with the device.

⚠️ **CAUTION:** If you enter an incorrect serial number, the system automatically changes the selected Type as needed upon the first connection.

Name: Enter a name for the infrastructure component. This name is used as the reference in all lists.

Inventory code: (Optional) Enter the inventory code of the infrastructure element for information purposes.

Organization: Use the drop-down list to select the department to which the infrastructure element is associated. It may be helpful to associate topology with an infrastructure element to target precise alert management and alarm acknowledgment rights.

Note: To add other departments, follow the procedure described in **Organization with Sites and Departments**.

Description: (Optional) You may enter a description of the component for information purposes.

Trigger alarm after: Check this option and enter the delay (in minutes) after which the system will trigger an alarm if the infrastructure component is not responding. This mechanism ensures early notification in case of problems or a communication error.

3. Click **Save** to save your infrastructure component, or **Cancel** to close this window without saving changes.

Editing Infrastructure

To manage existing infrastructure, use the following options:

1. In the main menu, click **Infrastructure**.
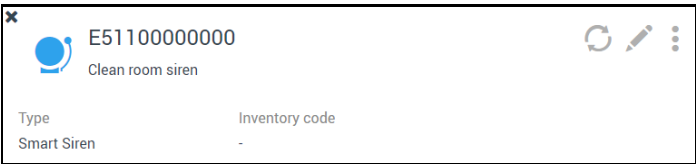2. Click a line in the table to view or edit the desired device.

Figure 72. Editing infrastructure details

3. Click **Edit ( )** on the right-hand side of the screen and edit information directly as necessary.

4. Several other functions are available under **Options ( )**:

Options	Category	Description
Options ( )	⏱ **Alarm history**	Click to disable the siren's functionality (in the Infrastructure list, a filter enables you to display or hide disabled infrastructure).
	🔔 **Simulate an alarm**	You may use this function to simulate an alarm as described in the previous section
	⊘ **Disable**	Opens the Alarm list to see any alarms involving this device (a filter is applied to show "Infrastructure" with the siren's serial number)
	⊗ **Remove**	Click to remove the siren from your system. The siren is marked as "removed" in the Infrastructure list. If you wish to restore the same siren, you must create it again by entering the serial number.
	( ) **Refresh**	Refreshes the infrastructure information window.

5. Click **Save** to keep your changes or **Cancel** to return to the previous screen without saving changes.

Adding a LoRaWAN Receiver as Infrastructure

LoRaWAN wireless technology is a key feature of the Smart-Vue Pro system.

In terms of configuration, the LoRaWAN receiver is entirely configured on the receiver itself, as described in the Smart-Vue Pro LoRaWAN Receiver User Guide, which you may access online via the **Help** menu of the Smart-Vue Pro web application. That is, the receiver contains its own configuration interface, which includes information on sending data to your Smart-Vue Pro system.

You are not required to configure the receiver via the Smart-Vue Pro web application. However, if you do not add the receiver to your Smart-Vue Pro infrastructure via the web application, then you will not receive alerts in case a technical problem arises.

⚠ **CAUTION:** Even if it is not technically required to add your LoRaWAN receiver as infrastructure via the Smart-Vue Pro web application, we recommend that you include it along with your other infrastructure devices in order to receive technical alerts in case of any problems.
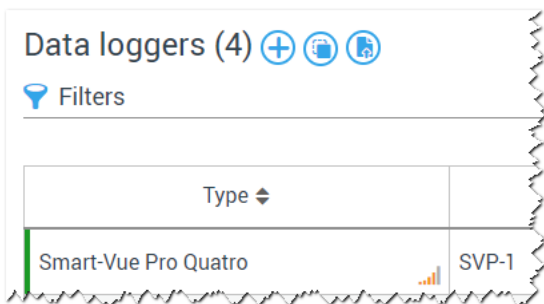
Data Loggers

The features described in this section are reserved for application managers.

Adding Data Loggers

Adding a Data Logger Manually

Follow these steps to add a Smart-Vue Pro data logger to the system manually:

1. In the main menu, click Data Loggers ( ) and click ( ) to enter all the details for a new data logger, or ( ) to use the selected data logger as a template for the new one (1):

Figure 73. Data logger management window

The **Create data logger** window opens as shown here:

Figure 74. Data logger management window before entering the serial number

2. As you type in the data logger serial number, additional fields are displayed:

Figure 75. Adding a new data logger

3. Fill the data logger details as required. Options are displayed according to the type of data logger. The fields marked with a red asterisk (*****) are required.

    Serial number: Enter the serial number from the from top of data logger / from the information screen of data logger. If you enter an incorrect serial number, a red exclamation mark is shown in front of the corresponding field. Check the serial number and try again. Contact technical support if the problem persists.

    Type: This information is assigned automatically by the system based on the serial number you enter.

    Name: Enter a name for the data logger. This name is used as the reference in all lists.

    Inventory code: (Optional) You may enter an inventory code for the data logger for information purposes.

    Organizations: Data loggers must be assigned to one or more nodes in your site organization. If you assign them to the root of your organization, all users can see them. If you assign them to a specific node, only the users assigned to that node will see them. This helps keeps individual people's dashboards relevant for their daily work. Site organization is described in **Organization with Sites and Departments.**

Description: (Optional) You may enter a description of the data logger for information purposes.

Trigger alarm after: These settings help ensure early notification in case of communication errors or power failure:

[##] minutes without communication: This option determines how long the system waits before triggering an alarm if the data logger is not communicating.

[##] minutes on battery mode: This additional checkbox is displayed if the type device you are creating also runs on battery power. The alarm is triggered after the specified number of minutes after the device switches to battery power (i.e., due to a power failure).

> ⚠ **CAUTION:** Alarms are always sent in real-time, without waiting for the programmed transfer interval.

> ⚠ **CAUTION:** It is a general practice to allow 3 communication failures before triggering an alarm. You may then control how to handle notification for communication problems as described in **Alert Notifications**.

4. Click **Save** to save the data logger in the database.

Before any communication takes place, the data logger is shown as follows, without any sensors:
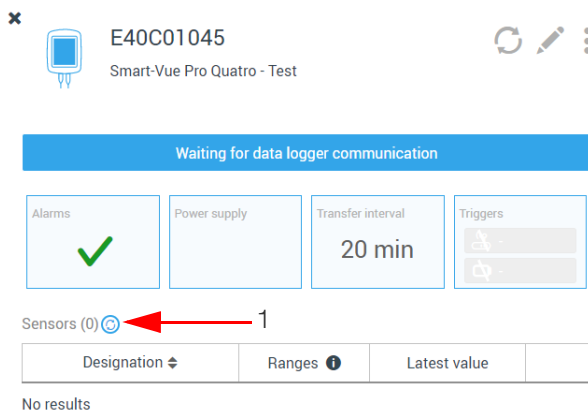

Figure 76. Freshly added data logger

5. On your Smart-Vue Pro data logger: Tap the screen to open the menu and click **Sensors ➜ Refresh** sensors to detect physically connected sensors and ensure that the data logger is up-to-date internally before continuing.

6. In the Smart-Vue Pro web application: Click **Refresh sensors on device** ⟳ icon (1) (above) to communicate with the data logger and update the screen with the latest information.
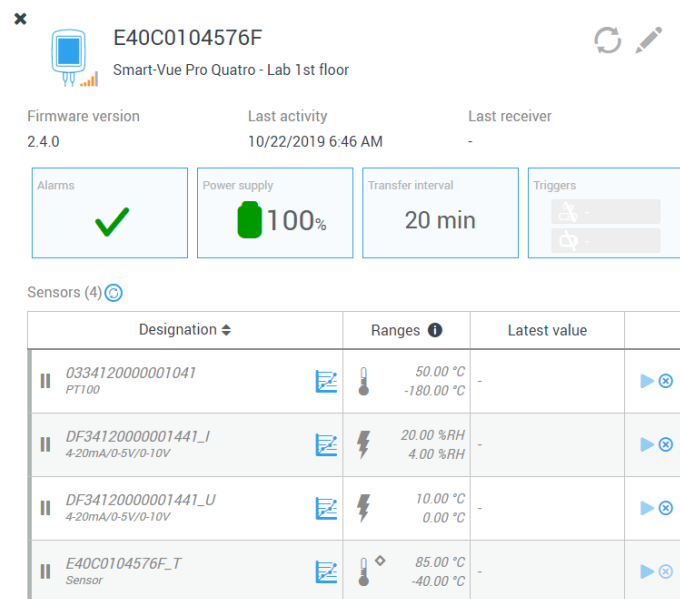
Figure 77. Example of data logger information after refresh

Adding a Data Logger with the Same Settings as an Existing One

If you are setting up a data logger with settings that are already configured, you can save time by clicking the icon to use the selected device as a template for the new one.

Importing a Batch of Data Loggers

If you would like to set up several data loggers at once, you may import a TXT or .CSV text file with values separated by a semi-colon character (;). You must include at least the device serial number and name, as shown in the following figure:

Figure 78. Sample .CSV import file with data logger serial numbers and names

You may also include the inventory code and data logger description as shown here:

Figure 79. Sample .CSV file with additional information

1. Click to import a batch file.

2. Browse to locate the.TXT or .CSV file on your computer.

3. Click **Open** to import the list.

Viewing the Data Logger List

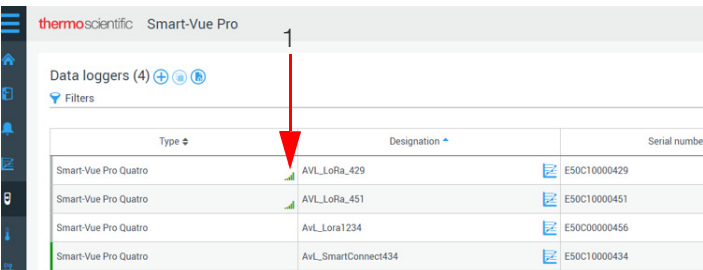All the data loggers you add to the system are shown in the **Data loggers** screen:

Figure 80. List of data loggers stored in Smart-Vue Pro

This screen displays all data loggers in the system, with columns containing the information below. The data logger's status is indicated by red-green color coding on left-hand edge of the table (1) (this does not indicate alarms related to readings, just the data logger itself).

Smart-Vue Pro Quatro	Grey indicates that the data logger is not yet configured.
Smart-Vue Pro Quatro	Green indicates that the data logger is configured and operating correctly.
Smart-Vue Pro Quatro	Red indicates a technical issue, such as a sensor failure, low battery, or communication problem.

You may click the up/down arrows (⬍) in the column headers to change the list for ascending/descending order.

Type: Type of data logger

Designation: A name you assign to the data logger. You may click the graph icon (📈) to see a data graph and other sensor information.

Serial number: Data logger serial number.

Version: Version of Firmware running on data logger.

Sensors: Number of sensors connected to the data logger.

Last activity: Date and time of last communication with the data logger.

Power status: Plugged into AC adapter ( ) or battery level
( ).

> ⚠️ **CAUTION:** The number of sensors that you may use in your system is determined by your license. You can only use the allowed number of sensors simultaneously.

Viewing Data Logger Details

Regardless of your Smart-Vue Pro user level, you may always check the data for the data loggers you are authorized to view.

To view the graph for a given data logger:

1. Click **Data loggers** in the main menu.

2. Select a data logger.

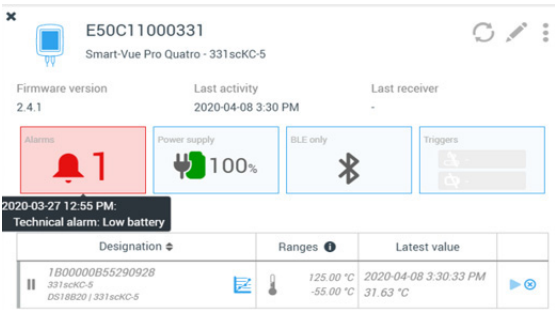The data logger details are shown on the right-hand side of the screen, with several sections:

Figure 81. Data logger details

Table 7. Data Logger Details

| SNo.	Description
1	Data logger's serial number, name, and inventory code (if present). The LoRaWAN wireless signal quality is shown next to the data logger icon.
2	Alarm counter indicating data logger status (sensor related alarm and unexpected stop indication are not shown in data logger alarm status). In case of alarm, the icon changes color and shows the number of alarms, for example: **Figure 82. Alarm counter in data logger details** Hover over the alarm counter with your mouse to view alarm details. If there are no alarms, the indicator ✓ is shown. Click the alarm counter to get more information, acknowledge one or more alarms, or generate an alarm report. You will be directed to the alarm management screen (see **Alarms & Alerts**).
3	Indicator showing the power source being used and estimated remaining battery level.

Table 7. Data Logger Details

SNo.	Description
4	For LoRaWAN communications, the Transfer interval indicates the frequency with which data is transmitted by the data logger to the Smart-Vue Pro system. That information is not relevant for Bluetooth communications, in which case BLE only is displayed instead: BLE only ✳
5	Alarm triggering and repeat rules, as defined when adding the data logger. Hover over the alarm counter with your mouse to view alarm details.
6	Number of sensors associated with the data logger. The active icon (⟳) indicates sensors with data logging in progress. Sensors not yet programmed are greyed out, as indicated by the inactive icon (❚❚).
7	Click the graph icon to view readings of sensor over time (measurements and associated events.) or download the report in PDF, Excel or Word format (see **Viewing Sensor Data**).
8	Sensor operating range.
9	Latest values read by sensors with data logging active. The field is empty if data logging is not active.
10	Icons to start (▶), stop (■) data logging, or remove a sensor from the data logger.

Data Logger Actions

You may use the options available in the data logger details screen to manage your data loggers.

1. Click **Data loggers (▯)** in the main menu and select a data logger in the list.

2. Click **Options (⋮)** (1) in the upper right-hand corner to access available options:
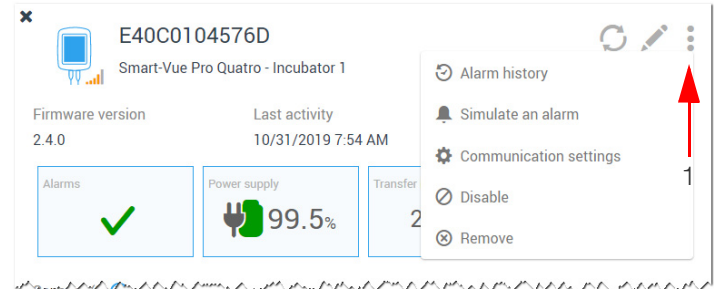
Figure 83. Data logger options menu

Alarm history: Opens the alarm page for the selected data logger (see **Viewing Alarm Details**).

Simulate an alarm: Allows you to simulate the occurrence of an alarm on this data logger for testing purposes. The simulation generates a Technical alarm (Communication lost, Device mismatch, Lost power supply, Low Battery) that is listed in the Audit Trail as an "Alarm simulation".

Communication settings: This menu provides technical information regarding data logger communications. Reserved for qualified technicians. Incorrect use of data logger settings could cause your system to malfunction. Contact Thermo Scientific technical support for more information.

Disable: Enables you to effectively turn this device off and stop data logging.

Hard reset: This function completely resets the data logger, if necessary. Data logging and any current alarms are stopped, regardless of the current status; sensors are refreshed; and the data logger configuration is updated. Non-transmitted data is cleared.

Remove: Enables you to completely remove this data logger from your system and stops data logging. You may need to do this in the event of a data logger swap or hardware problem. If you choose this option, you must enter your password to confirm the operation.

⚠️ **CAUTION:** You may remove a data logger even if data logging is active. We recommend doing this only if there is a problem with the data logger and you cannot stop data logging via Smart-Vue Pro web application. The action is tracked in the Audit Trail.

Click Save to keep your changes, or Cancel to return to the previous screen without saving changes.

Editing Data Logger Details

Follow these steps if you need to modify the information or default values for your data logger:

1. Click **Data loggers** (⊟) in the main menu and select a data logger in the list.

2. Click **Edit** (✎) icon. This opens a window identical to that described in **Adding Data Loggers**.

Note: You may not edit the serial number or data logger type fields.

3. When editing a data logger, there is some information present that was not displayed earlier:

Figure 84. Editing data logger details

4. Firmware version: Indicates the data logger firmware version number (not editable).

5. Last activity: Indicates the last time the data logger communicated with the server (not editable).

6. **Transfer interval:** For LoRaWAN communications, you may specify how often the data logger should transmit its data via the LoRaWAN network.
The minimum duration is 10 minutes for all Smart-Vue Pro Duo / Quatro data loggers.

7. **Retransfer interval:** For LoRaWAN communications, you may specify how long the data logger should wait to try again in case data was not transferred successfully.
The minimum duration is 5 minutes for all Smart-Vue Pro Duo / Quatro data loggers.

8. Click **Save** to keep your changes or, **Cancel** to return to the previous screen without saving changes.

Sensors

Sensors that are connected physically or wirelessly to your Smart-Vue Pro data loggers are added to the Smart-Vue Pro web application automatically.

For Smart-Vue Pro to recognize the sensor(s) that are physically connected to a Smart-Vue Pro data logger, click **Refresh Sensor** and **Synchronize** in the data logger's **Sensors** menu. Once detected, these sensors are shown in the sensor management window. From the sensor management window, you may:
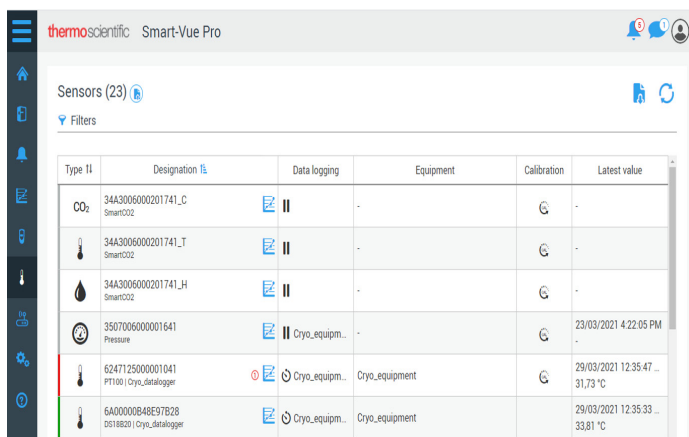
- Access detailed information about the sensor.

- Display readings in a graph, along with various other information about the selected sensor.

- Manage calibration parameters.

Viewing the Sensor List

Sensors connected to the Smart-Vue Pro data loggers are listed in the Sensors screen (🌡):

Figure 85. Sensor list in Smart-Vue Pro

This screen displays all sensors with the following information:

Type: Visual indication of sensor type.

Designation: Sensor serial number, sensor type and associated data logger.

Data logging: Data logging status: running (⟳) or idle (‖). Move your mouse over the icon to see data logging settings.

Equipment: The equipment associated with the sensor.

Calibration: Hover your mouse over the field to see calibration parameters or click to open the calibration management window.

Latest value: Date and value of the most recently recorded reading.

Individual Sensor Details

Regardless of your user level in Smart-Vue Pro, you may always check the data for sensors you are authorized to view.

To view detailed information about a sensor:

1. In the main menu, click **Sensors**.

2. Select the desired sensor.

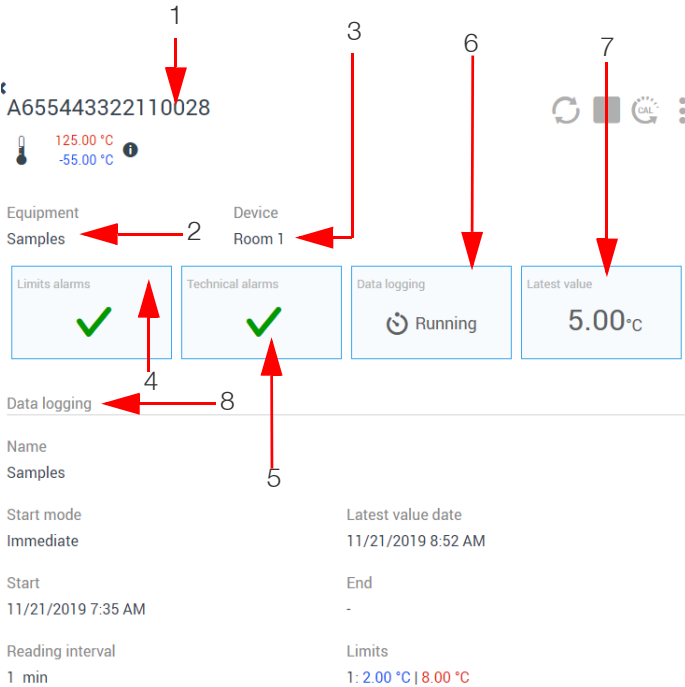3. The sensor details are shown on the right-hand side of the screen, with several sections:

Figure 86. Sensor details

Table 8. Sensor Detail Parts

SNo.	Description
1	Sensor serial number and type.
2	Name of the equipment with which the sensor is associated.
3	Name of the data logger on which the sensor is attached.
4	Limit alarm indicator (excursions with respect to programmed limits). Click this indicator for detailed information or to acknowledge an alarm.
5	Technical alarm indicator for the sensor. Click the indicator for detailed information or to acknowledge an alarm.
6	Data logging status for this sensor: **Running** or **Idle.**

Table 8. Sensor Detail Parts

SNo.	Description
7	Last recorded reading.
8	Data logging configuration parameters.

Calibration Parameters

It is important to calibrate the sensors on your Smart-Vue Pro data loggers to fine-tune the accuracy of readings. The calibration procedure is typically handled by Thermo Scientific's in-house metrology laboratory, which determines precise correction coefficients.

Smart-Vue Pro users are also free to manage calibration according to their own standard operating procedures.

> **CAUTION:** Calibration parameters are stored directly in smart-sensors. This means that all sensor readings are adjusted for maximum accuracy, though you may edit calibration parameters if necessary. However, you may not use Smart-Vue Pro to change calibration parameters on remote (Bluetooth wireless) sensors.

Updating Parameters for Calibrated Sensors

Smart-Vue Pro allows you to correct the parameters and calibration information of your Smart-Vue Pro data loggers from the information provided by sensor calibration certificates.

> **CAUTION:** Calibration parameters may be corrected for your sensor(s) only when data logging is disabled. If data logging is currently running on a data logger, you must first stop data logging before you can change calibration parameters.

To update calibration information:

1. Login to Smart-Vue Pro as an Application manager or with a user account whose role includes "Manage metrology parameters" access (as described in **Adding a New Role**).

2. In the main menu, click **Sensors** and click the sensor you want to update.

3. If calibration information has already been provided, you may click **Calibration** (![CAL]) ➔ **Edit** (✎). Otherwise, click **Add** (➕) to enter and save new information.

✖ Create calibration parameters

Sensor

Serial number	Unit
A655443322110028	°C

Parameters

Coefficient A	Coefficient B	Coefficient C
1.0000	0.000	0.000000

Drift	Uncertainty
0.00	0.00

Certificate

Laboratory	Identifier	Date
Unknown ▾	MMA	11/26/2019 📅

Cancel   Save

Figure 87. Creating or adding data logger calibration parameters

4. Here, you may enter the information provided on the sensor calibration certificate:

Coefficient A, B, C: Enter the correction coefficients in the A, B and C fields. To ensure the accuracy of readings, enter only valid parameters in these fields.

Drift: This value represents the loss of reading accuracy over time. Values may drift lower by a few hundredths per year, which can impact programmed data logging limits. Enter the Drift value provided on calibration certificate.

Uncertainty: Uncertainty is the loss of calibration accuracy with respect to the reference sensor (which has an impact on alarm emission). Enter the value provided on calibration certificate.

Laboratory: Using the drop-down list, select the calibration laboratory that issued the calibration certificate.

Identifier: Enter the certificate reference number.

Date: Click in the Date entry field and choose the date on which the sensor was calibrated from the calendar. The current date is displayed by default.

Note: If calibration certificate information had been entered previously for this sensor, the date you enter here must not be earlier than that of the previous certificate.

Calibration and Reminder Frequency

Once you have added calibration information, you may choose to receive notification as a reminder to recalibrate the sensor by a given date.

In the **calibration** screen, click **Edit** (✎) and enter the number of months after the certificate date at which the system will remind you to recalibrate the sensor:

✖ Calibration parameters   ✎ ➕

Sensor

Serial number	Unit
0334120000001041	°C

Parameters

Coefficient A	Coefficient B	Coefficient C
1.0099	0.009	0.000100

Drift	Uncertainty
0.00	0.00

Certificate

Laboratory	Identifier	Date
2	BABA	02/01/2018

Reminder notification

No reminder notification. ✎ 🗑

Show calibration notification 6 months after certificate date. ✔ ⊗

Figure 88. Sensor calibration parameters

Click **Save** (✎) to update sensor information, **Cancel** (⊗) to undo any changes you may have made, or **Delete** (🗑) to remove notification.

⚠ **CAUTION:** Calibration is not used for dry contact input sensors (on Smart-Vue Pro Duo / Quatro data loggers), as the only two possible sensor values are "open" or "closed", as described in the next section.

Importing CSV File with Calibration Information

You may import calibration information from a CSV format text file. This feature offers a practical way to update batches of sensors without having to manually edit each one.

Note: You must be logged in with an Application Manager account, or as a user whose role includes "Manage metrology parameters". Data logging must not be currently using the sensor(s) to be updated.

Sample text file:

Here is text from a sample CSV file with the required header line and details for one sensor:

ProbeSerialNumber;Number;CalibrationDate;CertificateId; CoefA;CoefB;CoefC;Drift;Uncertainty 8634120000001741;3;2020-12-15;John;1.2;0.1;0;0.25;0.3

Field names must be separated by a semi-colon (;). All the fields below must be present:

Probe Serial Number: The serial number of the sensor to be updated. If a probe has several sensors, its serial number is displayed in Smart-Vue Pro web application with a suffix of "_T", "_H", or "_C" (e.g., 8634120000001741_T).

Do not include the suffix in the CSV file.

Number: Identifies the specific sensor with these numbers, notably for multi-sensor probes:

Single sensor probes: 1

Dual temperature + relative humidity probes:

T° = 1 RH% = 2

Triple CO_2 + temperature + relative humidity probes:

CO_2 = 1 T° = 2 RH% = 3

Calibration Date: The date the calibration was performed. This date must be more recent than the previous calibration date.

The date format is YYYY-MM-DD.

Certificate Id: An identifier to indicate the document (certificate) containing calibration information.

CoefA: Correction coefficient A, using a period (.) as the decimal separator.

CoefB: Correction coefficient B, using a period (.) as the decimal separator.

CoefC: Correction coefficient C, using a period (.) as the decimal separator.

Drift: Drift value

Uncertainty: Uncertainty value.

To import a CSV file with sensor calibration parameters:

1. Login to Smart-Vue Pro web application using an Application manager account, or as with a user account whose role includes "Manage metrology parameters" access (as described in **Adding User Roles**).

2. In the main menu, click Sensors (🌡) and click (📤).

Figure 89. Click to import a CSV file with sensor calibration parameters

3. Browse to locate the CSV file on your computer.

4. Enter your password to import the file.

5. Confirmation is displayed on the screen if no errors are encountered. Each updated sensor has a temporary icon ↻ in the Calibration column to indicate that calibration is pending.

Figure 90. After import but before synchronization with data logger

6. Calibration parameters are updated automatically on the data logger upon the next schedule data transfer interval. For the update to be taken into account right away, you may use the Synchronize function on the data logger.

The normal calibration icon 🔵 is displayed in the Calibration column once the update is complete.

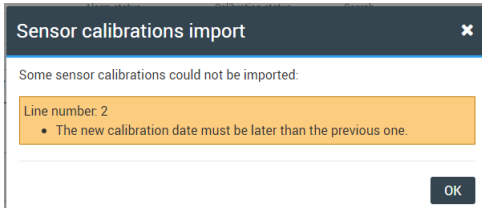**Figure 91. After synchronization with data logger.**

Error Messages when Importing a Calibration CSV File

Errors may occur when you import a CSV file with calibration parameters. In that case, each error is indicated with the corresponding line number in the CSV file, as shown here:

Figure 92. Example of error while importing CSV file

Possible errors are as follows:

Table 9. Possible errors while uploading CSV file with calibration parameters

Message	Description
Access denied. Sensor is not plugged into a data logger.	The sensor must be physically plugged into a connected data logger in your system.
Not allowed. Sensor is currently being used for data logging.	Calibration parameters may not be loaded for a sensor that is currently being used for data logging.
Action not allowed for this probe type.	The probe does not support correction parameter management from Smart-Vue Pro web application.
Sensor not found.	The sensor is not present in your Smart-Vue Pro system.
The new calibration date must be later than the previous date.	The calibration date provided in the CSV file cannot be earlier or the same as the previous date.
Invalid file content	The fields and/or data in the CSV file do not respect the required format.

Table 9. Possible errors while uploading CSV file with calibration parameters

Message	Description
Access denied, sensor is not plugged to a data logger.	The sensor has been removed from operation and is no longer valid.
Action not allowed for this data logger firmware version.	The data logger firmware does not support correction parameter management from Smart-Vue Pro web application.

Exporting Sensor Information

From the sensor list you may export detailed sensor information, including calibration parameters, in CSV file format with values separated by a semi-colon (;).

To export sensor details:

1. In the main menu, click **Sensors**.

2. Click Download in the upper right-hand corner.

Figure 93. Creating a CSV file with complete sensor details.

3. Choose the desired download location on your computer for the CSV file. By default, the file name is presented as follows:

Sensors - 01-12-2021 1235 PM.csv

4. Click Save to download the file.

Using the Smart-Vue Pro Dry Contact Input Sensor

The Smart-Vue Pro dry contact input sensor is used with Smart-Vue Pro Duo / Quatro data loggers to provide fast dry contact loop detection for a variety of situations. Typical uses include door open-close monitoring systems and specialized equipment such as ultra-low-temperature freezers that offer a dry contact output terminal.

The dry contact input sensor is different from sensors that monitor ranges of different readings, such as temperature or humidity. The dry contact sensor simply shows the open-close status of a low-current loop, with the data logger configured to detect either a "normally closed" or "normally open" state to correspond with the device or equipment to be monitored.

Note: For more details on dry contact sensor usage, cabling, and data logger configuration, see the Smart-Vue Pro Quatro User Guide.

In the Sensors, Data loggers and Equipment menus, dry contact sensors are shown as follows (with slight variations depending on the context):
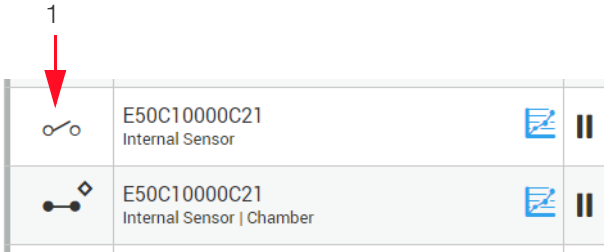
Figure 94. Dry contact sensor display

Note: For each physical dry contact sensor, you will see two sensors listed. This is done to ensure traceability in case you use both configuration options. The sensor with the ◈ icon and "Internal Sensor" label corresponds to the current setting on the Smart-Vue Pro Duo / Quatro data logger. Data logging is described in detail **Data Logging**.

Configuration is indicated by the following icons (1):

•—•	The electric current loop is configured for "normally closed".
○╱○	The electric current loop is configured for "normally open".

4-20 mA, 0-5 V Loop Sensors

The Smart-Vue Pro sensor for 4-20 mA (current) and 0-5 V (voltage), for Smart-Vue Pro Quatro data loggers, is physically the same product. You will therefore see both sensors listed in Smart-Vue Pro and you must choose the right one for your needs.

- The 4-20 mA sensor is indicated by "_I" in the serial number.

- The 0-5 V sensor is indicated by "_U".

Figure 95. Selecting the 4-20 mA / 0-5 V Smart-Sensor.

Description

4-20 mA current and 0-5 V voltage Smart-Sensors can be connected to industry-standard devices that generate appropriate output signal. The signal can be measured to provide status information for a variety of applications, including wind monitors, particle counters, ultra-low-temperature (ULT) freezers and temperature, gas, VOC, and relative humidity devices, and more. Read values are converted into useful information by the Smart-Vue Pro web application, then displayed both in the web application and on the Smart-Vue Pro data logger display.

Figure 96. 4-20 mA / 0-5 V Smart-Sensor

Table 10. Sensor wiring

Black	Common ground
Red	0-5 V input
White	4-20 mA input

Connect the wires according the type of device you want to monitor.

> ⚠️ **CAUTION: Do not connect all three wires**
> A sensor may only monitor one of the two input parameters (red or white wire, but not both).
>
> The maximum voltage on the 4-20 mA input wire is 2 V. Exceeding this value will damage your sensor.

Mapping Values for Meaningful Readings

For sensor readings to be relevant in your context, you must map the low values (0 V or 4 mA) and high values (5 V or 20 mA) to match the limit values produced by your connected device. For example, on a 4-20 mA device, the low 4 value could correspond to a CO_2 level of 0% and the high 20 mA value could correspond to 10% CO_2. In that case, you would map 4 to 0 and 20 to 10 in Smart-Vue Pro. You may use other units to meet your needs.

To do this:

1. Click **Sensors** in the left-hand menu.

2. Select the sensor you wish to modify from the sensor list.

3. Click **Calibration (CAL).**

4. Edit the values in the **Range** zone (1) (below) to meet your needs.

   Low: The lower value output by your device.

   High: The higher value output by your device.

   Unit: The measurement unit you would like to display in Smart-Vue Pro.

5. Click **Save** to save your changes or **Cancel** to close this window without saving changes.

Figure 97. Mapping 4-20 mA / 0-5 V values

The unit you specify here is shown in the Smart-Vue Pro web application as well as on the data logger.

> ⚠️ **CAUTION:** The mapping from 4 to 20 mA or 0 to 5 V is strictly linear.

Simulating a Sensor Alarm for Testing

You may trigger a limit alarm on a sensor for testing purposes to ensure that related alert rules and user contact work properly. To test a sensor alarm:

1. Login to Smart-Vue Pro as an Application manager.

2. In the main menu, click **Sensors** for a list of the sensors in your system.

3. Click the sensor you want to test.

4. Click **Options (⁝)** and select **Simulate an alarm** from the drop-down menu. You will then be able to see the alarm in the Alarm list and Audit trail (indicated as "Simulation" in both places). Any related alert rules for the sensor are triggered, such as, e-mail or telephone alerts.

Removing a Sensor

You may remove sensors from the system, for example if they are no longer used or if they have been replaced on the Smart-Vue Pro data logger. To remove a sensor:

1. Login to Smart-Vue Pro as an Application manager.

2. In the main menu, click **Sensors** for a list of the sensors in your system.

3. Click the sensor you want to remove.

4. Click **Options ( )** and select **Remove** from the drop-down menu. To remove a sensor, data logging must not be running.

> ⚠️ **CAUTION:** Smart-Vue Pro data loggers update sensor information in Smart-Vue Pro automatically based on the physically connected sensor(s). When you plug in a new sensor (or even plug the same one back in if it had been removed accidentally), the sensor(s) will appear again in the Smart-Vue Pro web application.

Disabling / Enabling a Sensor

You may disable a sensor so that it cannot be used for data logging or you can enable a sensor that has been disabled. To do this:

1. Login to Smart-Vue Pro as an Application manager.

2. In the main menu, click **Sensors** from a list of the sensors in your system.

3. Click the sensor you want to disable or enable.

4. Click **Options ( )** and select **Disable** (or **Enable**) from the drop-down menu. To disable a sensor, data logging must not be running.

> ⚠️ **CAUTION:** Disabled sensors are no longer shown in the sensor list. To enable a disabled sensor, use the Filter option in the sensor list and select Display disabled sensors. You may then choose to enable it as described above.

Equipment

This chapter describes managing equipment in the Smart-Vue Pro system and assigning data loggers and sensors to that equipment.

It is important to remember the underlying notion in Smart-Vue Pro web application that your goal is to monitor equipment, rather than just activate data logging using sensors. With that understanding, you must define your equipment and then assign sensors to monitor it.

The "equipment" in Smart-Vue Pro refers to the temperature controlled chambers, cabinets, refrigerators, tanks, enclosures, and other spaces you may choose to monitor with Smart-Vue Pro data loggers.

Adding Equipment

To add equipment:

1. Click **Equipment ( )** in the left-hand menu. There are two options for creating new equipment:

   - Click ( ) to enter details manually

   Or

   - Click to select an existing piece of equipment and click ( ) to use that equipment as a template to create new equipment:
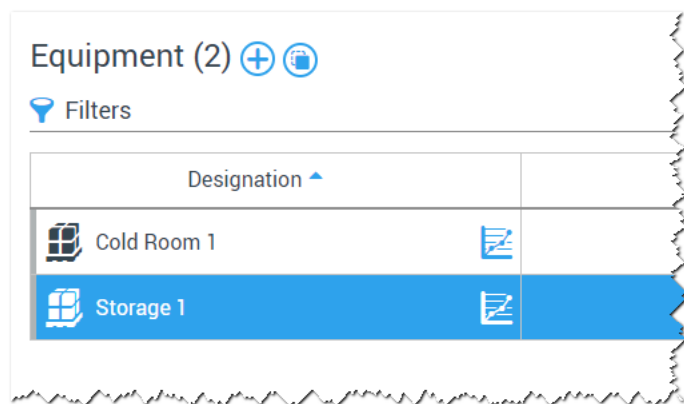
Figure 98. Equipment management window

The **Create equipment** window opens as shown here:

Figure 99. Adding new equipment

2. Fill the equipment details. The fields marked with a red asterisk (*****) are required:

   Name: Enter a name for your equipment. This name is used in all lists.

   Inventory code: (Optional) You may enter an inventory code for the equipment for information purposes.

   Type: Enter a type of equipment in the field.

   Icon: Click the icon and select the most appropriate symbol to visually represent the equipment.

   Organization: Equipment is assigned to sites and departments.

   You must assign an organization to your equipment using the pull-down menu. To add a department to this list, click **Configuration ⚙ Organization** and follow the instructions provided earlier in **Organization with Sites and Departments**.
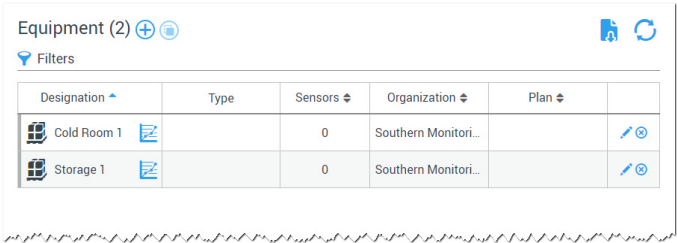
   Critical / Not critical: Determine the criticality level for the equipment by clicking on the appropriate option.

   This information is used to fine-tune the data logging mode and alert rules based on equipment criticality.

   Mobile / Static: Indicate whether the equipment is dedicated to a static environment (refrigerators, freezers, water-baths) or a mobile environment (coolers, packages).

3. Click **Save** to save the equipment or **Cancel** to close this window without saving changes.

The equipment is listed in the equipment management screen:
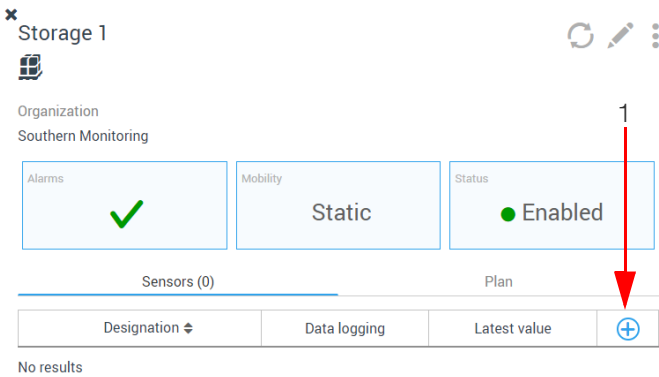
Figure 100. Equipment list in Smart-Vue Pro

Associating Sensors with Equipment

This section describes assigning one or more sensors to monitor equipment.

To associate a sensor with equipment:
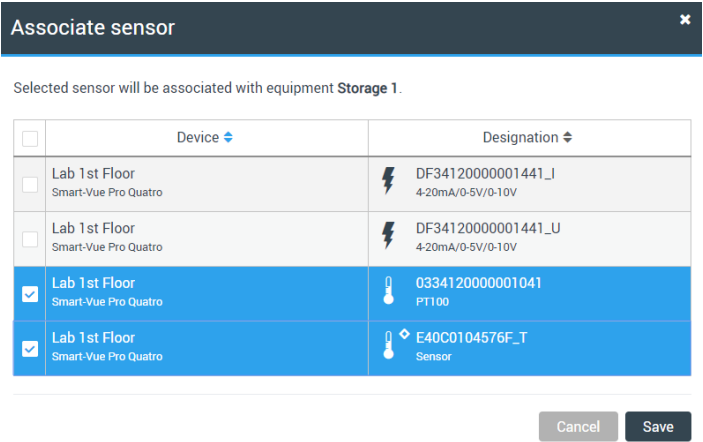
1. Click **Equipment (☐)** on the left-hand side of the menu to see the list of equipments you are allowed to manage.

2. Click the equipment to which you want to add a sensor.

3. Click **Add (⊕)** (1):

Figure 101. Equipment details

4. Tick one or more check boxes to select the corresponding sensor(s):

Figure 102. List of available sensors

5. Click **Save** to complete the association or **Cancel** to exit this screen without saving changes.

Dissociating Sensors from Equipment

CAUTION: You may only dissociate sensors from equipment if they are not being used for data logging. If the sensor is being used for data logging, you must first stop data logging as described in **Stopping Data Logging**, and then dissociate the sensor from the equipment.

To dissociate a sensor from equipment:

1. Click **Equipment (☐)** in the main menu to see the list of equipment you are authorized to manage.

2. Click the equipment from which you want to remove a sensor.

3. Click **Remove association (✕)** (1) next to the sensor you want to remove:
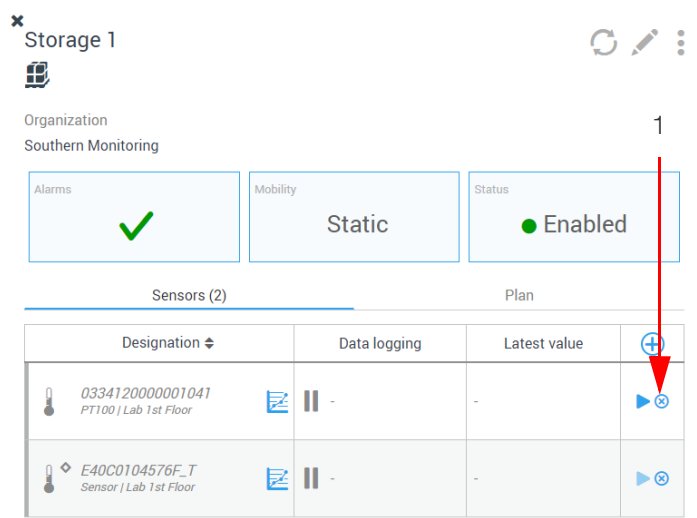
Figure 103. Dissociating a sensor from equipment

4. Click **Yes** and confirm the operation when prompted, or click **No** to return to the previous screen:
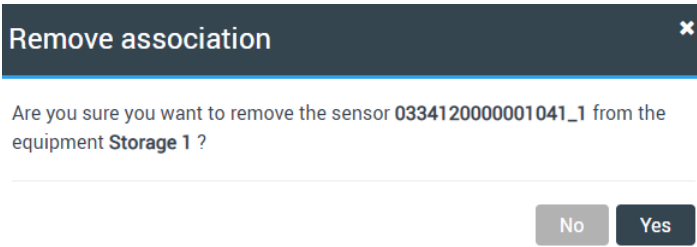
Figure 104. Confirming sensor dissociation

Viewing Equipment Details

Regardless of your user level in Smart-Vue Pro, you may always check the data for the equipment you are authorized to view.

For a complete view of all equipment details, including sensor readings:

1. Click **Equipment (▯)** in the main menu.

2. Select the desired equipment.

3. The equipment details are displayed as shown below:
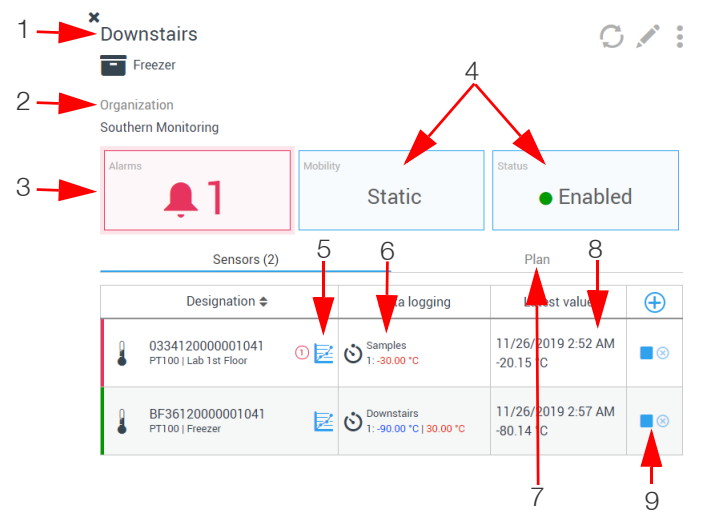
Figure 105. Equipment details

Table 11. Equipment Details

SNo.	Description
1	Equipment name and type.
2	Organization and department (if configured) to which the equipment is associated.
3	Current alarm indicator. An alarm is an "out-of-bounds" state or other error detected on a data logger or sensor. Hover your mouse over the indicator or click it for details or to acknowledge an alarm.
4	Mobility indicator (Mobile or Static) and equipment status (Enabled or Disabled).
5	Opens a graph with all sensor readings.
6	Programmed upper and/or lower limits for the sensor and indication of data logging status.
7	If you have placed the equipment on a plan, click **Plan** to view the exact location of the equipment on the map.
8	Shows most recent values reading for this sensor. A dash (-) is displayed if no readings are available.
9	⊕Click to associate other sensors with the selected equipment. ⊗Click to remove the sensor from its current equipment. ▶Click to set sensor settings and **start data logging** (password required). ◼Click to **stop data logging** (password required).

Smart-Vue Pro Monitoring Solution

Modifying / Managing Equipment

You may use the options available in the equipment details screen to manage the equipment in your Smart-Vue Pro system.

1. Click **Equipment (** ⬜ **)** in the main menu.

2. Select the desired equipment.

3. Click **Options (** ⋮ **)** in the upper right-hand corner of the screen and then click one of the available options:
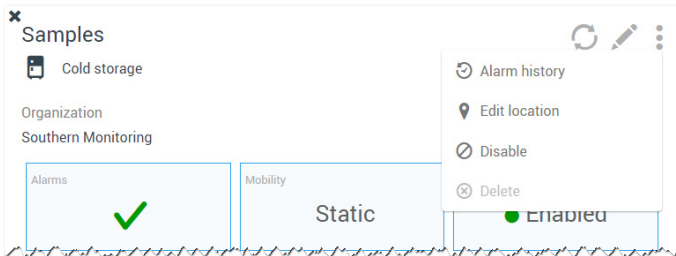
Figure 106. Equipment details

Alarm history: Opens the alarm page for the selected equipment (described in **Viewing Alarm Details**).

Edit location: This option is only available for **"Static"** equipment, allowing you to locate the equipment on a floor plan or change its position on the plan (see **Placing Equipment on the Plan**).

Note: Disable / Enable: Select this option to disable equipment or enable equipment that has been disabled. Disabled equipment is no longer shown in the equipment list or as a tile in the Watch Mode display.

Note: Equipment cannot be disabled if data logging is currently running on one of its sensors. To enable disabled equipment, use the Filter option in the equipment list and select **Display disabled equipment** to enable it.

Delete: Removes the selected equipment from the system.

Edit: To modify the information for existing equipment, click **Edit (** ✏ **)**. Click **Save** to keep your changes, or **Cancel** to return to the previous screen without saving changes.

Refresh: Click **Refresh (** ↻ **)** to update the information in this window.

Deleting Equipment

You may delete equipment only if the following conditions are met:

- The equipment must not be associated with a sensor.

- If one or more sensors are associated with the equipment, you must first unpair the sensor(s) before deleting the equipment. See **Dissociating Sensors from Equipment** for more details on this feature.

To remove equipment:

1. Click **Equipment (** ⬜ **)** in the main menu.

2. Select the desired equipment.

3. Click **Delete (** ✖ **)** (1) to remove the selected equipment:
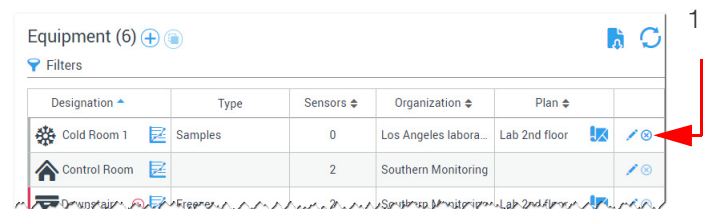
Figure 107. Equipment management window

4. Click **Yes** to confirm the operation when prompted, or click **No** to return to the previous screen:
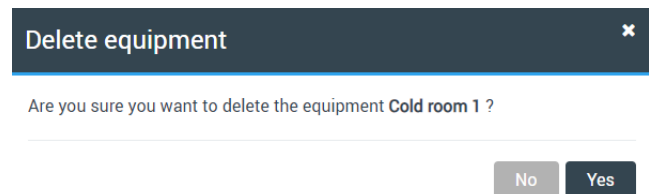
Figure 108. Confirming equipment removal

Data Logging

To use your Smart-Vue Pro data logger, you must first program data logging.

⚠️ **CAUTION:** Data logging is configured at the equipment level. Once you have assigned a sensor to equipment (described in **Associating Sensors with Equipment**), you may set up data logging.

Data logging consists of recording physical parameters (such as temperature and humidity) over time. Sensor readings are recorded based on a set of configuration options that are used to manage your data logger while data logging.

Data logging parameters include:

- The sensor reading frequency.
- High and low alarm limits.

How does it work?

Here is a quick overview of the data logging flow with Smart-Vue Pro:

1. The Smart-Vue Pro data logger equipped with sensors is installed on the equipment to be monitored.
2. Sensor readings are collected by the Smart-Vue Pro data logger, which then sends the data to the Cloud or your server via LoRaWAN wireless connectivity.
3. Smart-Vue Pro enables you to manage every aspect of your system, equipment, users, and data. When limits are exceeded or other anomalies are detected, an alert is displayed on the Smart-Vue Pro data logger. You can receive alerts 24/7 from the Smart-Vue Pro system.
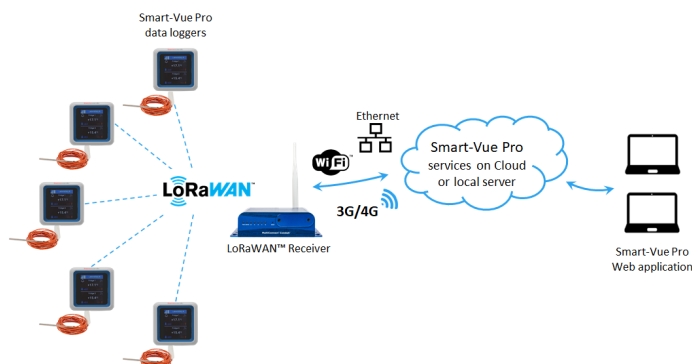
Figure 109. The Smart-Vue Pro data logger communicates with Smart-Vue Pro via an on-premises LoRaWAN receiver

Setting Up Data Logging

⚠️ **CAUTION:** A sensor must be associated with equipment in order to start data logging.

To configure data logging:

1. You can start data logging either via **Equipment (**🔲**)** or **Data Loggers (**🔲**)** in the left-hand menu as long as the sensor is associated with equipment. The instructions below are identical for both cases.
2. Click the name of the equipment (1) (or data logger) for which you want to start data logging:
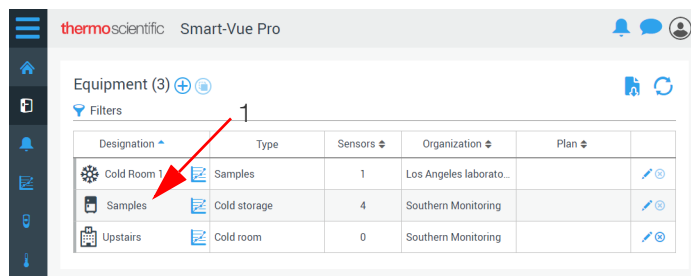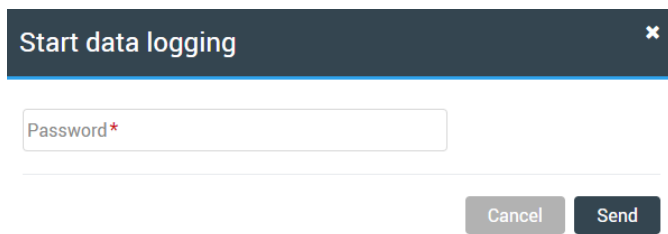
Figure 110. Click a piece of equipment to set up data logging

3. Details and available sensors are shown on the right-hand side of the screen. Click **Start data logging** button (▶) (2) to access sensor settings:
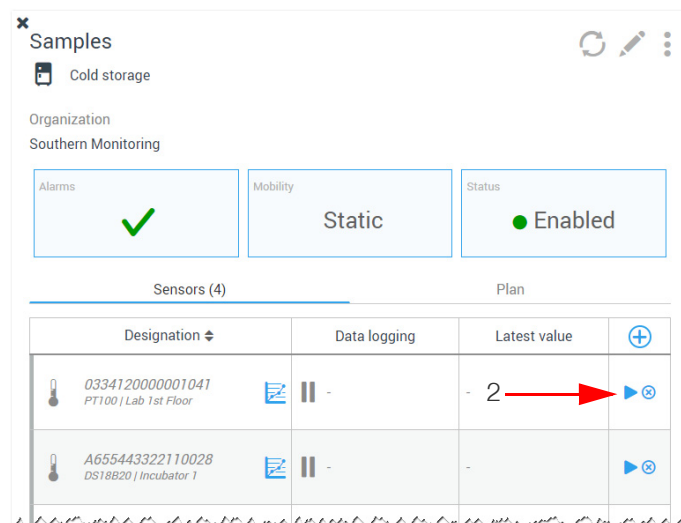
Figure 111. Choosing a sensor for data logging

4. Enter your system password and click **Send** to continue.
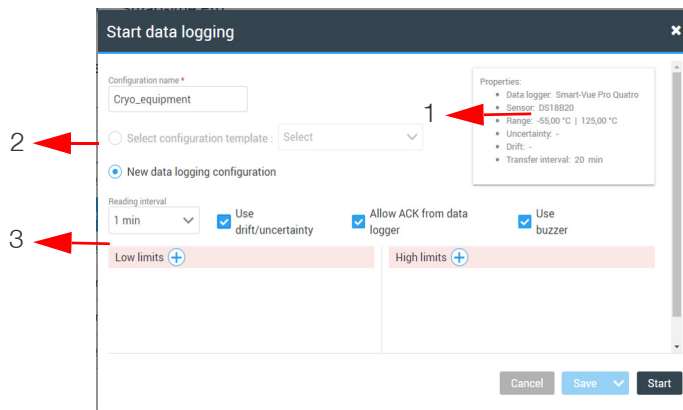
Figure 112. Entering password to enter data logging settings screen

The **Start data logging** window opens, with several zones (in the image below):

- General sensor properties (1).

- Choosing to create a new data logging configuration or selecting an existing configuration (2).

- Entering specific parameters (3) the information in this zone varies according to sensor type.

Figure 113. Defining data logging settings (example with temperature sensor)

5. Define the settings for a new data logging session as described in the next section or select an existing configuration.

The feature to create and load data logging templates will be included in a future release of the application, so new data logging configuration is selected by default.

Previous settings are displayed if the sensor has already been used.

Environmental Sensors (Temperature, Humidity, etc.)

For sensors that take readings across a range of values, such as temperature or humidity, the data logging options in the Start data logging window shown above are as follows:

If there are no templates, the **New data logging configuration** field is selected by default. Previous settings are displayed if the sensor has already been used.

1. Set the following information:

New configuration: This option is selected by default (configuration template feature not yet implemented).

Reading interval: The frequency with which the sensor records a reading. Use the drop-down list to select the value that meets needs.

Use drift/uncertainty: Select this check box if you want to take into account the deviation and uncertainty values provided for the sensor (see **Updating Parameters for Calibrated Sensors**).

These values will diminish read value tolerance: for example, if you set low and high limits at 2°C and 8°C, with drift of 1°C and uncertainty of 1°C, the effective target range is considered by the system as being as the "worst case scenario", or 2°C to 6°C). Drift and uncertainty values can be shown on sensor graphs (described in **Displaying Sensor Graph**)

Allow ACK from data logger: [Smart-Vue Pro Duo / Quatro only] Select this checkbox if you want users to be able to acknowledge alarms via the Smart-Vue Pro Duo / Quatro screen. If you deselect this checkbox, acknowledgment cannot be performed via the data logger screen.

Use buzzer: [Smart-Vue Pro Duo / Quatro only] Select this checkbox if you want the buzzer on your Smart-Vue Pro Duo / Quatro data logger to buzz in case of an alarm. The data logger must be running on AC power for the buzzer to function.

2. You may set low and high limits to ensure that the physical parameter(s) in the monitored environment remain(s) within a specific range of values.

⚠️ **CAUTION:** You may enter up to three high limits and three low limits to benefit from multiple warnings if limit excursions persist. You may enter the limits in any order that you choose. The first one you enter is displayed on the Smart-Vue Pro data logger display.

Low limits: The lowest acceptable sensor reading (lowest temperature, lowest humidity level, etc). Any readings below the limit(s) will trigger an alarm. Click ⊕ to set up additional limits or ⊗ to remove limits you may have added.

Low delay: Indicates how many readings lower than the low limit can be observed before triggering an alarm.
The maximum number for this field is 200 readings.

The corresponding duration in terms of time is simply the number of readings indicated here, multiplied by the read interval. This information is shown in a tooltip that is displayed when you hold your cursor over the icon.

High limits: The highest acceptable sensor reading.
Any readings above the limit(s) will trigger an alarm. Click ⊕ to set up additional limits or ⊗ to remove limits you may have added.

High delay: Indicates how many readings above the high limit can be observed before triggering an alarm.
The maximum number for this field is 200 readings.

The corresponding duration in terms of time is simply the number of readings indicated here, multiplied by the read interval.

The feature to create and load data logging templates will be included in a future release of the application, so New data logging configuration is selected by default.

Previous settings are displayed if the sensor has already been used.

⚠️ **CAUTION:** When configuring delays as described above, you may hold your mouse over the ⓘ icon next to the Delay field to see a tooltip showing the exact duration in terms of time.
The value indicated here is updated to reflect any changes you make for Reading interval or Delay.

Figure 114. Dynamic calculation of time before alarm occurs.

If a reading exceeds these limits when data logging is running (and the delay is reached, if configured), you will be notified of the alarm by a color change on the data logger screen and outer ring, and via the system's alert mechanism.

While the data logger is in an alarm state, the Smart-Vue Pro data logger buzzer will also emit an audio alarm when plugged into AC power.

Dry Contact Input Sensors (Smart-Vue Pro Duo / Quatro Data Logger Only)

To start data logging for a dry contact input sensor on a Smart-Vue Pro Duo / Quatro data logger:

1. Click the desired item in the Data loggers or Equipment menu.

2. Click the Start data logging button (1).
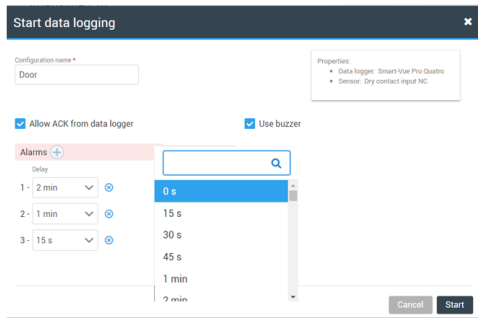
Figure 115. Defining data logging settings for dry contact sensor

3. Enter your system password and click Send to continue.

4. The Start data logging window opens, with several zones (shown below):

• General sensor properties (1), including indication of current sensor configuration (NO = Normally Open; NC = Normally Closed).

• Specific parameters for this data logging session (2).

Figure 116. You may configure up to three alarm delay times

Define the settings as described for the fields as follows:

Configuration name: Assign a name for the data logging session.

Delay(s) before alarm: Choose the desired time from the pull-down list (from 0 seconds to 60 minutes). You may click (+) to add up to three delay levels. Each delay may be assigned to a different alert notification (as described in **Configuring Alert Rules**).
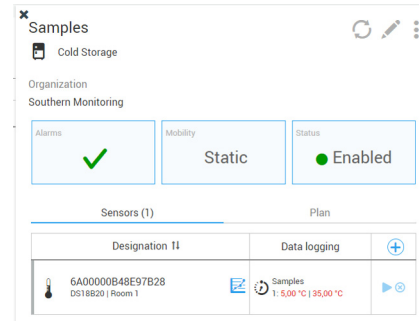
⚠️ **CAUTION:** If you do not set any delay, the sensor never enters an alarm state. The tile in Watch Mode does not turn red when the sensor state changes.

Reading is continuous, with every loop opening and closing action recorded in data logging. That information is sent to the server at the programmed transfer interval.

If the loop remains open for a period of time specified for an alert, then the alert is sent immediately upon detection. For example, if data logging is set with a 1-minute alarm delay, and the loop remains open for 1 minute, then the alarm condition is transmitted right away to Smart-Vue Pro web application and the alert notification is sent by the system as defined by alert rules.
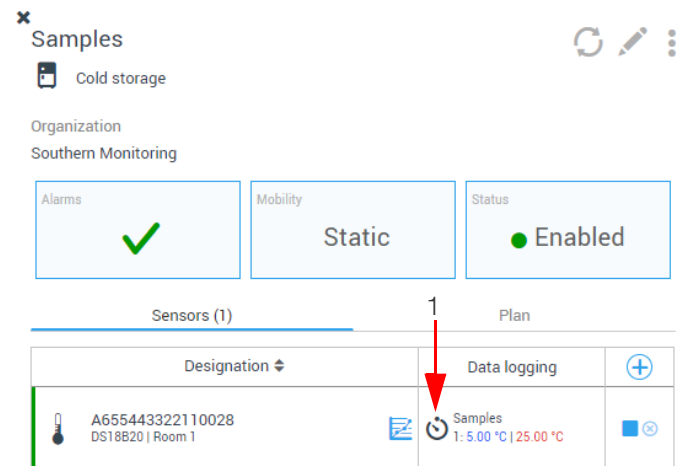
⚠️ **CAUTION:** If you want to change the configuration from "Normally closed" to "Normally open", or vice versa, you must first stop data logging in Smart-Vue Pro web application before making the change on the Smart-Vue Pro data logger.

Starting Data Logging

1. Click Start in the lower right-hand corner of the details screen to begin recording sensor readings. The system sends the command to the data logger and then waits for communication to be established.

Figure 117. Equipment with data logging in the process of starting

2. Data logging begins at the next programmed transfer interval and the information on the screen is updated:

Figure 118. Equipment with data logging started

Data logging in the process of being started is indicated by a timer icon (⏱) in equipment details screen (1). The timer changes to (⏱) when data logging is running.

⚠ **CAUTION:** Once data logging is running, a tooltip with complete details is displayed when you hold your mouse over the data logger name corresponding to the sensor, in several places in the application:

- Sensor list associated with a piece of equipment (⬜).

- Main sensor list (⬜).

- Sensor list in data logger details (⬜).

For example:
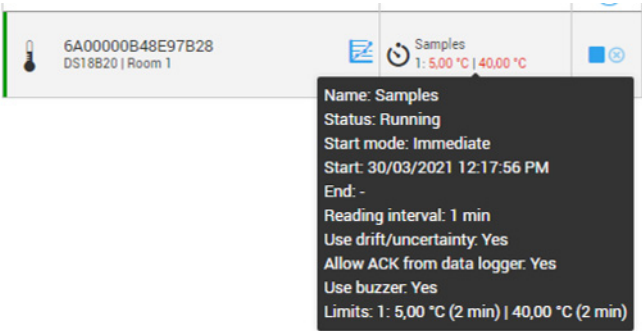
Figure 119. Information shown in pop-up window

Stopping Data Logging

⚠ **CAUTION:** Data logging can be stopped either via the Equipment or Data logger menu.

You may stop data logging that is currently running:

1. In the main menu, click **Equipment (⬜) or Data loggers (icon to be provided)**.

2. Click the name of the equipment for which you want to stop data logging

3. Sensors for which data logging is in progress have a **Stop data logging** button (⬜). Click the button (2) to stop data logging:
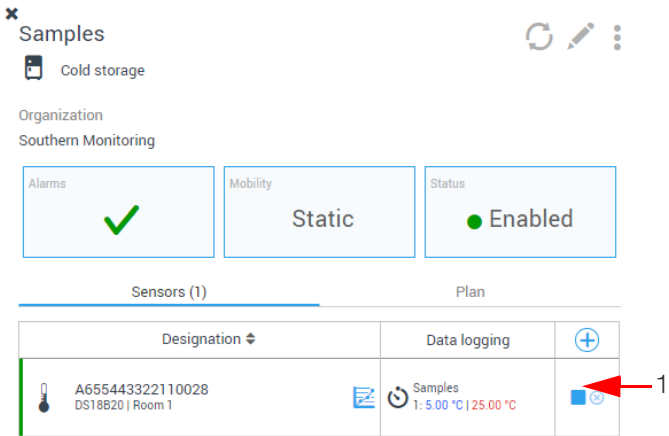
Figure 120. Stopping data logging

4. Confirm your action by entering your password in the pop-up window:
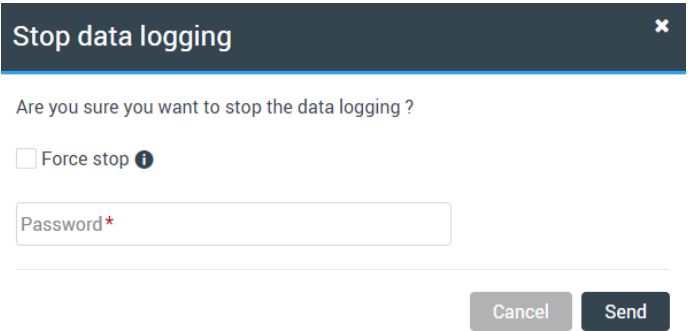
Figure 121. Entering your password to stop data logging

If you select **Force stop,** data logging is stopped at the next programmed transfer interval without retrieving the latest information from the data logger (readings or any other information). Any unretrieved information is lost.

If you do not select **Force stop,** data logging is stopped at the next programmed transfer interval, but all the information is retrieved from the data logger. The operation may take longer with this option.

⚠ **CAUTION:** Do not confuse the data logger's wireless data "transfer" interval, with the sensor "reading" interval configured for each sensor.

5. Click Send to stop data logging, or on Cancel to return to the previous screen without making any changes.

Note Regarding Reading Interval vs Transfer Interval

With LoRaWAN wireless communications, do not confuse the data logger's wireless data "transfer" interval, with the sensor "reading" interval configured for each sensor.

Sensor data is first stored in the data logger's internal memory and then transferred wirelessly to the Smart-Vue Pro web application platform at programmed intervals. To preserve data logger battery life under normal operation, transmission to the server occurs periodically, but not at every reading.
If you modify settings in Smart-Vue Pro web application platform, the values on the data logger screen are updated when the next transfer interval occurs.

The wireless transfer interval refers to the frequency with which the data logger sends its collected information to the server. The reading interval refers to the frequency with which the data logger reads its connected sensors.

For example, the data logger could read its sensors every
5 minutes and then send the data every 20 minutes.

Reading intervals can also depend on the data logger type and transfer interval. Here are some specific cases:

- In Bluetooth (BLE) mode, the minimum sensor reading interval for some sensors on Smart-Vue Pro Duo is 5 seconds (Pt100, 4-20 mA).

- In Bluetooth (BLE) mode, the minimum sensor reading interval on Smart-Vue Pro Quatro is 15 seconds.

- In LoRaWAN mode: the minimum reading time depends on the transfer interval: minimum read time = transfer interval/20 (results are rounded up to the nearest minute). For example, with Smart-Vue Pro Duo / Quatro:

  - A transfer interval of 40 minutes supports a minimum read time of 2 minutes.

  - A transfer interval of 20 minutes (default value) supports a minimum read time of 1 minute.

  - A transfer interval of 15 minutes (the minimum value), the minimum read value is 1 minute, due to rounding.

Note: The minimum transfer interval with LoRaWAN connectivity is 15 minutes.

Viewing Sensor Data

Sensor data is first stored in the data logger's internal memory and then transferred wireless to the Smart-Vue Pro platform at programmed intervals. To preserve data logger battery life under normal operation, transmission to the server occurs periodically, but not at every reading. If you modify settings in Smart-Vue Pro, the values on the Smart-Vue Pro data loggers screen will be updated when the next reading interval occurs.

There are several ways to access data collected by a sensor:

Equipment details: Provides equipment details, including graphs.

Sensor list: Sensor readings displayed in a table with data export options.

To access the list of the readings recorded by a sensor:

1. Click **Readings ( )** in the Equipment, Data Loggers or Sensors screens.

2. A color graph is displayed showing readings recorded by the selected sensor:

Figure 122. Example of a sensor graph

The **Readings** window contains two tabs (1):

Graph: The graph shows readings in a visual format over time. You can display information from several sensors running data logging in a given piece of equipment at the same time:
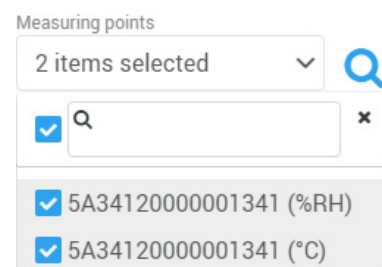
Figure 123. Readings window

Data: A list is displayed showing all data and events that occurred throughout the data logging session (readings, time-stamps, start, stop, limits exceeded, technical alarm, etc,.).

Displaying Sensor Graph

All sensor readings are shown in graph to track variations over the entire data logging cycle:

- The vertical axis shows the reading value.

- The horizontal axis shows the time scale.

- High limits are represented by red horizontal lines.

- Low limits are represented by red horizontal lines.

- Limits can be displayed with Drift and Uncertainty corrections.

- Alarms (high and low limits) and events (technical alarms) are displayed in color. A key describing different colors is shown at the bottom of the graph.

- Minimum, maximum and average readings calculated during the data logging cycle are shown at the bottom right-hand side of the graph.

Displaying Corrected Limits on Graphs

When you launch data logging, you have the option to take Drift and Uncertainty values into account. These values are stored for each sensor via the Calibration function.

Here is an example of a sensor graph for data logging programmed with two high limits and three low limits, indicated by horizontal red and blue lines (2):
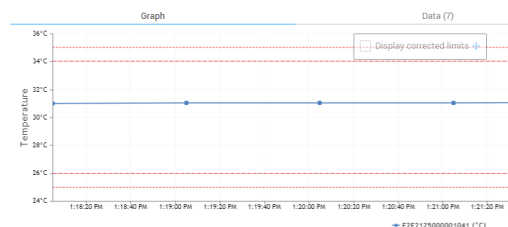
Figure 124. High and low limits shown if programmed

The screen below shows the same data logging session with the high and low limits adjusted to take potential drift and uncertainty into account by clicking Display corrected limits(3):
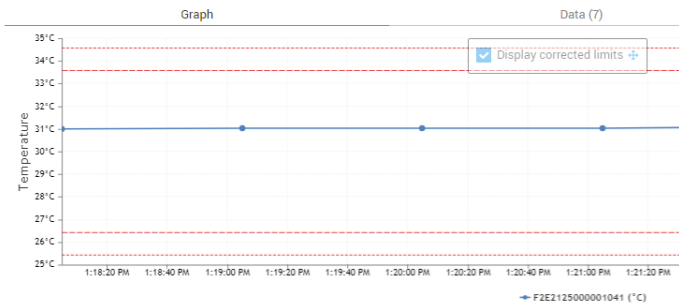
Figure 125. High and low limits corrected for drift and uncertainty

Limit values are adjusted by 2°C, the total of drift plus uncertainty in this example.

Selecting the Display Period

By default, the graph shows readings for the past 7 days.

To adjust the dates for the graph display:

1. Click **Start date** and/or **End date** fields (1) and choose a month, day, and year from the date selection calenders.
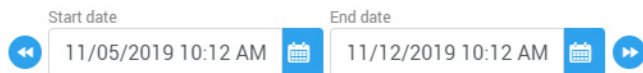
Figure 126. Selecting the display period

2. Click (🔍) to confirm your choice and refresh the graph.

3. The two scroll buttons next to the **Start** and **End** dates (2) are used to change the period for which you would like to display graphs. Click the arrows to move back or forward by one week.

Including Events in Graph Display

You may choose to include events in the graph displays, such as "Data logging started", "Data logging stopped", "Low battery alert", etc,.

To include events, click **Display events** toggle switch at the top of the window to adjust the display:
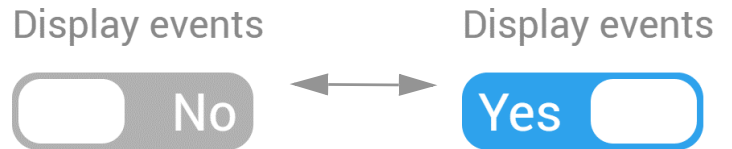
Figure 127. Event display toggle switch

Zoom and Control Tools

When you move the mouse cursor (1) over the graph, a tool-tip displays reading values and timestamps:
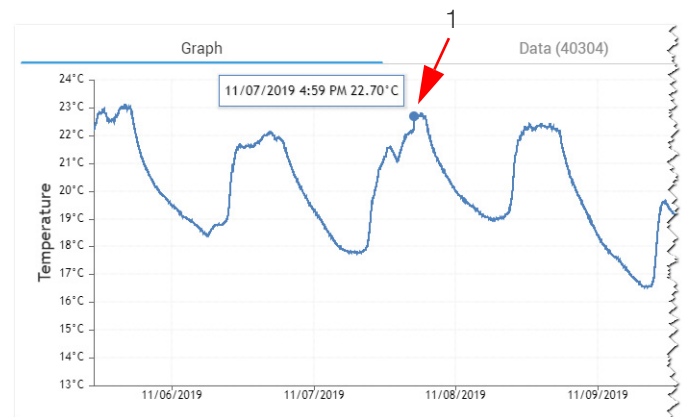
Figure 128. Reading graph with high and low limits

If **Display events** is selected, events are indicated with the appropriate background color on the graph. Move the mouse cursor over the graph to see event details (2):
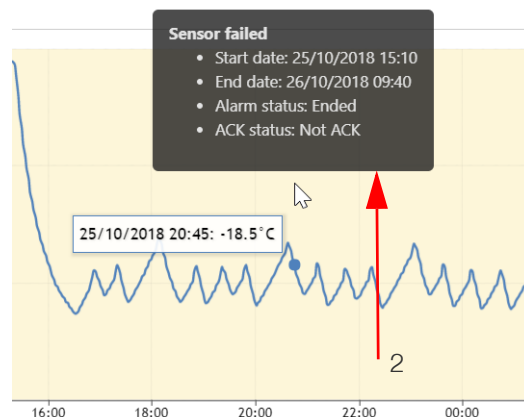
Figure 129. Graph with event details

You may zoom into the graph to examine details more closely:

1. Left-click and hold the mouse button and drag the cursor over the desired location in the graph.

2. Release the mouse button to zoom in on the selected area (3).
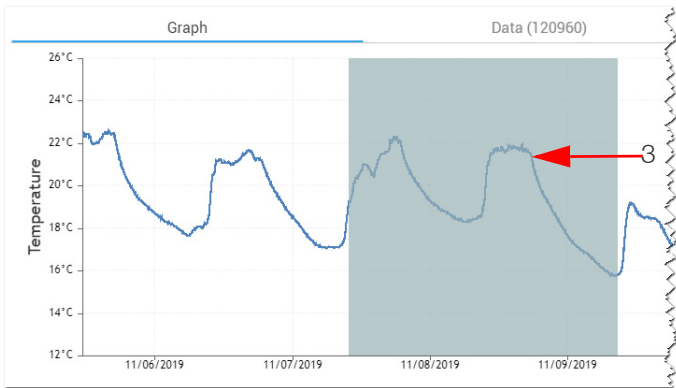
Figure 130. Selecting the zoom area

The selected area is enlarged.

3. Repeat these steps to get a higher zoom level if needed.

As you zoom in on the graph, additional tools are shown in the upper right-hand corner of the graph (4):

Figure 131. Zoom and Control tools

Table 12. Zoom and Control tools

Icon	Description
✛	Enables you to use your mouse to scroll right and left through the graph. When you click this button, the mouse cursor turns into a multi-directional arrow. Then click anywhere on the graph and drag right or left while holding the mouse button to focus on particular areas of the graph.
🔍	Turns off panning mode.
↺	Clears zoom or pan effects and restores the graph to its original scale.

Exporting Data

Click the **Download** button (⬇) at the top of the screen to generate a report based on the filters applied to the graph display. Select the format (PDF, Word or Excel).

List of Sensor Readings

To display detailed sensor readings:

1. Click **Readings** icon () via the Equipment, Data Loggers or Sensors menu:

or

or
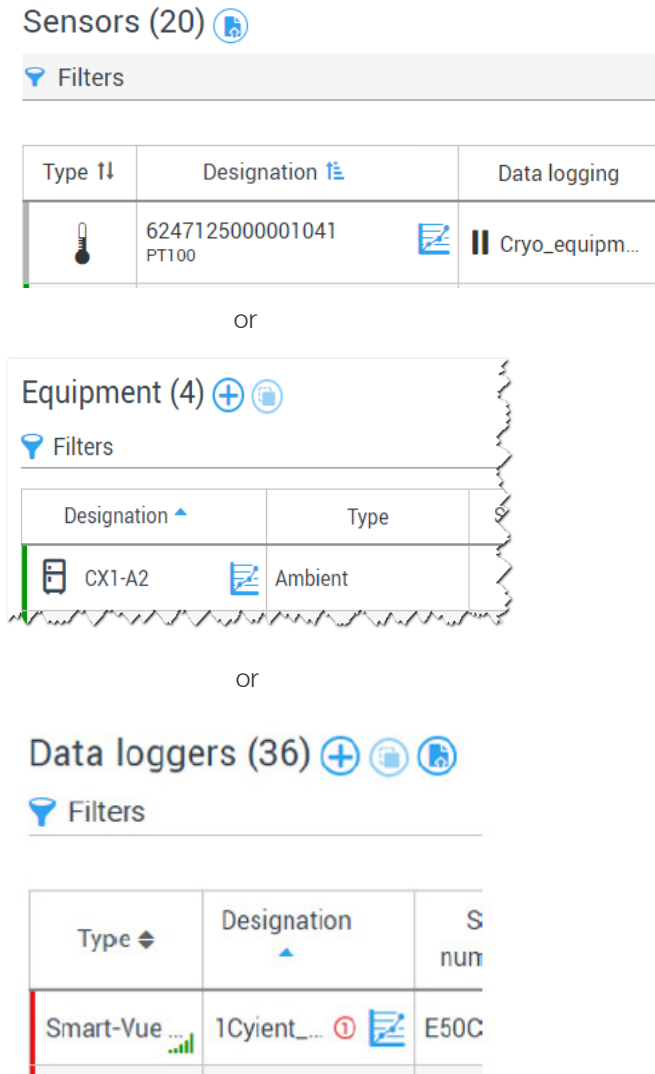
Figure 132. Accessing sensor data

2. Click the Data tab (1):
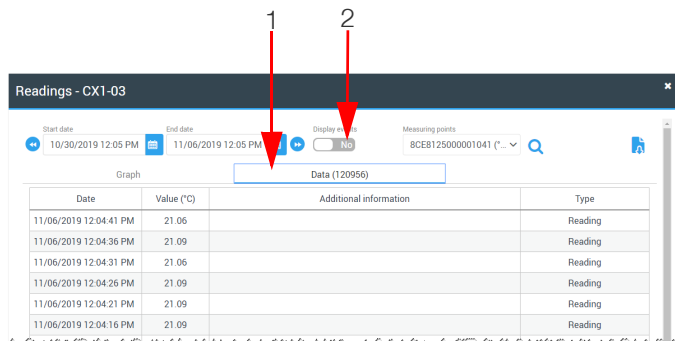
Figure 133. List of readings/events

3. You may include the list of events for the selected sensor using the **Display events (Yes/No)** toggle button (2).

The table includes the following information:

- Event date
- Reading value
- Event details
- Event type

4. You may use the date range selector to adjust the dates for displaying events.

Figure 134. Selecting the date range for displayed data

Use the right and left arrow buttons (and) to move forwards or backwards through the calendar.

Creating Reports

Smart-Vue Pro enables you to export several different reports concerning your equipment.

Lists

Many screens in the application offer a **Download** button (), notably those presenting lists of equipment, sensors, alarms, etc. Several format options are displayed when you click the download button (1).
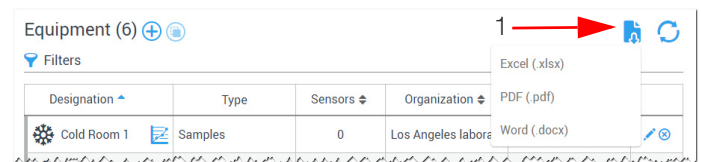
Figure 135. Data export tools

The available options are:

Excel (.xlsx): Creates XLSX format file that you can open with Microsoft Excel.

PDF (.pdf): Creates PDF printout of this table.

Word (.docx): Creates DOCX format file that you can open with Microsoft Word.

Dry Contact Input Sensor Listing

When downloading readings in Excel, PDF, or Word format for dry contact input sensors, the sensor serial number has a suffix of "-1" or "-2".

As indicated below, Normally Open (NO) corresponds to the "-1" suffix, and Normally Closed (NC) corresponds to "-2".

Figure 136. Dry contact input sensor serial number with suffix in report (1of2)

Figure 137. Dry contact input sensor serial number with suffix in report (2of2)

Audit Trail

The audit trail is a key feature for traceability in equipment monitoring solutions, notably with respect to the FDA's CFR Part 11 guidelines. Smart-Vue Pro tracks every system action in a non-modifiable list that provides complete details about system events, such as:

- Alarms
- User login/logout
- Configuration changes
- New equipment/devices/sensors
- Profile updates
- Alert rule creation/modification/testing
- Data logging start/stop
- System messages
- Password changes
- Etc.

To view your system's audit trail:

1. Click **Reports ( )** **Audit trail.**

2. Here you may click:

   (1) to open filter options and refine the display by choosing the types of information you want to see.

   (2) to download an XLSX, PDF or DOCX version of the displayed list.

Figure 138. Audit trail list

3. The header fields show the event date, user, type, and description. You may sort (4) the list by date or user by clicking the headers using your mouse.

4. You may expand any event item by clicking on (3) for details on a particular event, as shown here:

3   4
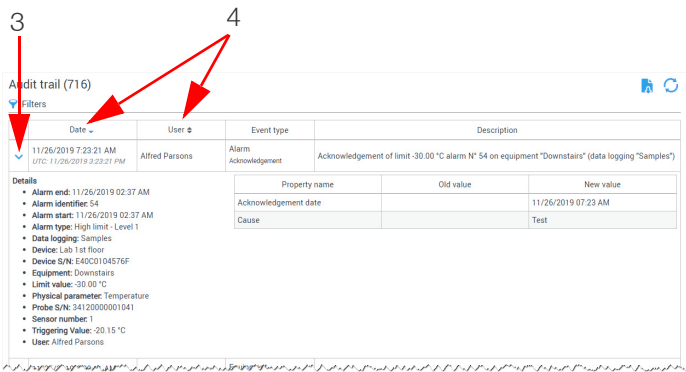
Figure 139. Complete details for a specific event

For some audit trail items, the Old value and New value fields show information that has changed:

Figure 140. Old and new values shown when relevant

Exporting the Audit Trail

As described above in section **Lists**, you may also download audit trail information in XLSX, PDF or DOCX format. The following figure shows a sample first page from a PDF download:
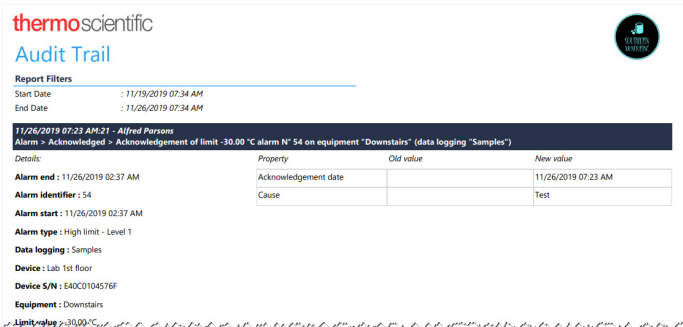
Figure 141. Downloading an audit trail report

Alert Devices

The Smart-Vue Pro system supports several "electronic" alert notification mechanisms, notably:

- E-mail (native to all Smart-Vue Pro systems).
- SMS/Text message (optional via Smart-Vue Pro Alert).
- Automated voice call (optional via Smart-Vue Pro Alert).

In addition, you may use hardware alert devices via LoRaWAN® wireless technology:

Figure 142. Smart Siren (audio & visual alerts)

Figure 143. Smart Remote Contact (triggers an external smart remote contact device connect)

This chapter describes adding the hardware devices to your system.

Smart Siren

WARNING: Audio warning : Siren devices may emit sound levels that could damage hearing. Use caution when using the Smart Siren by turning down the volume and then adjusting as appropriate.

To add a Smart Siren to your system:

1. Click **Infrastructure ( )** in the left-hand menu, then **Add ( )**.

2. In the screen shown below, fill in the fields to create the new Smart Siren:

Figure 144. Adding a Smart Siren to your system

Serial number: Enter the serial number provided on your product.

Type: Select Smart Siren. If you select the incorrect type of device here, it will be adjusted automatically upon the system's first connection.

⚠️ **CAUTION:** We recommend that you test new alert devices by simulating alerts. You may test the siren directly. **Options (⋮) ➜ Simulate an alarm** once the device has been created, and/or in the full context of testing an alert rule by simulating a sensor alarm (see **Simulating a Sensor Alarm for Testing**).

Name: Enter a name to use as a reference in your system.

Inventory code: Enter an inventory code for this device (optional).

Organization: You must assign the device to a branch of your organization. Choose the level that is appropriate for your hierarchy.

Time zone: Enter the time zone in which the device is located in order to make sure that it is activated at the right moment (as defined in Alert rules).

Description: You may enter information here as desired (optional).

Technical alarm: Choose how the siren should react when receiving a technical alarm, such as a low data logger battery:

> **None** = no reaction

> **Buzzer and light** = Audio sound + red siren light

> **Light only** = Red siren light only

Limit alarm: Choose the siren type when receiving a limit alarm, such as a temperature excursion (None, Buzzer and light, Light only).

Dry Contact input alarm: Choose how the siren should react when receiving a dry contact alarm concerning a Smart-Vue Pro data logger (None, Buzzer and light, Light only).

Allow snooze: Enables you to press the snooze button on the siren to turn off the light and/or buzzer until the next alarm occurs.

Trigger alarm after X minutes without communication:

The system checks communication with all devices periodically. If the system fails to communicate with the siren, and then fails again after "X" minutes that you specify, an alarm is triggered (such as an e-mail or text message).

Trigger alarm after X minutes on battery mode:

If the siren switches from AC power to battery mode, an alarm is triggered after the number of minutes you specify here.

The new siren is listed in the Infrastructure list shown here:

Designation ▲	Identifier ⇕	Organization	Version	Last activity ⇕
Control Room Remote Contact Smart Remote Contact	E51100000001	Southern Monitoring		

Figure 145. Siren shown in Infrastructure list

Testing your Smart Siren

We recommend that you test any newly installed alert devices to ensure smooth operation in your context. To test the siren:

1. Click the siren name in the list.

2. Click **Options (⋮) ➜ 🔔 Simulate an alarm.**

Note: This alarm is useful for testing the siren device itself, outside the context of any alert rules.

3. Confirm details in the window that opens:

Figure 146. Details for simulating an alarm

Use the drop-down list to choose one of the available alarm types for the siren: "Technical – Communication lost", "Technical – Lost power supply", or "Technical – Low Battery".

4. Click **Send** to launch the test, or **Cancel** to return to the previous window without taking any action.

Other Smart Siren Functions

Once you have added the siren to your system, you may include it in alert rules to notify users in case of alarms. **Alarms & Alerts** provides details on how to configure alerts. Other functions (1) are available by clicking on the siren in the list, which opens the siren details as shown here:
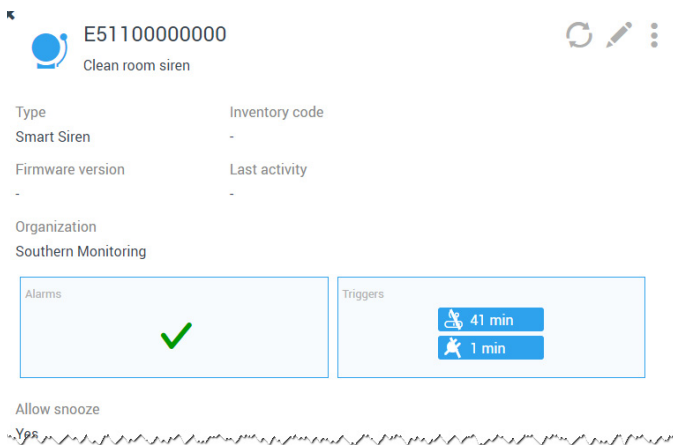
Figure 147. Additional options for Smart Siren management

Options	Category	Description
Options (⋮)	⏱ **Alarm history**	Opens the Alarm list so you can see any alarms involving this device (a filter is applied to show "Infrastructure" with the siren's serial number) .
	🔔 **Simulate an alarm**	You may use this function to simulate an alarm as described in the previous section.
	⊘ **Disable**	Click to disable the siren's functionality (in the Infrastructure list, a filter enables you to display or hide disabled infrastructure).
	⊗ **Remove**	Click to remove the siren from your system. The siren is marked as "removed" in the Infrastructure list. If you wish to restore the same siren, you must create it again by entering the serial number.
	🔄 **Refresh**	Refreshes the siren information window.
	✏ **Edit**	Opens the Edit infrastructure window in which you may modify all the same details you entered when creating the siren.

Smart Remote Contact

To add a Smart Remote Contact device to your system:

1. Click **Infrastructure (** **)** in the left-hand menu, then **Add (** ⊕ **)**.

2. In the screen shown below, enter the fields to create the new Smart Remote Contact:

Figure 148. Adding a Smart Remote Contact device to your system

Serial number: Enter the serial number provided on your product.

Type: Select Smart Remote Contact. If you select the incorrect type of device here, it will be adjusted automatically upon the system's first connection.

⚠ **CAUTION:** We recommend that you test new alert devices by simulating alerts. You may test the siren directly via **Options (⋮)** ➜ **Simulate an alarm** once the device has been created, and/or in the full context of testing an alert rule by simulating a sensor alarm (see **Simulating a Sensor Alarm for Testing**).

Name: Enter a name to use as a reference in your system.

Inventory code: If you have an inventory code for this device, you may enter it here (optional).

Organization: You must assign the device to a branch of your organization. Choose the level that is appropriate for your hierarchy.

Time zone: Enter the time zone in which the device is located in order to make sure that it is activated at the right moment (as defined in Alert rules).

Description: You may enter information here as desired (optional).

Technical alarm: Choose how the remote contact device should react when receiving a technical alarm, such as a low data logger battery:

>   **None** = no reaction
>
>   **Relay 1** = Triggers state change on relay 1 (terminals 1-2-3)
>
>   **Relay 2** = Triggers state change on relay 2 (terminals 4-5-6)
>
>   **Relay 1 & relay 2** = Triggers state change on both relays

Limit alarm: Choose how device reacts when receiving a limit alarm, such as a temperature excursion (None, Relay 1, Relay 2 or Relay 1 & relay 2)

Dry Contact input alarm: Choose how the device should react when receiving a dry contact alarm concerning a Smart-Vue Pro data logger (None, Relay 1, Relay 2, or Relay 1 & relay 2).

Trigger relays when power supply is unplugged:

Determines relay behavior if AC power is lost. You may click **Show connections** to see images of the different wiring options (details on relay open and closed configuration are provided below in section **Terminal Wiring**).

Trigger alarm after X minutes without communication:

The system checks communication with all devices periodically. If the system fails to communicate with the device, and then fails again after "X" minutes that you specify, an alarm is triggered (such as an e-mail or text message).

Trigger alarm after X minutes on battery mode:

If the remote contact device switches from AC power to battery mode, an alarm is triggered after the number of minutes you specify here.

The new remote contact device is listed in the Infrastructure list shown here:

Figure 149. Siren shown in Infrastructure list

Testing your Smart Remote Contact Device

We recommend that you test any newly installed alert devices to ensure proper operation in your context. To test the remote contact device:

1. Click the Smart Remote Contact name in the list.

2. Click **Options ( )➔ Simulate an alarm.**

Note: This alarm is useful for testing the remote contact device itself, outside the context of any alert rules.

3. Confirm details in the window that opens:

Figure 150. Details for simulating an alarm

Use the pull-down list to choose one of the available alarm types for the siren: "Technical – Communication lost", "Technical – Lost power supply" or "Technical – Low Battery".

4. Click **Send** to launch the test, or **Cancel** to return to the previous window without taking any action.

Other Smart Remote Contact Device Functions

Once you have added the remote contact device to your system, you may include it in alert rules to notify users in case of alarms. **Alert Devices** provides details on how to configure alerts. Other functions (1) are available by clicking on the device in the list, which opens details as shown here:
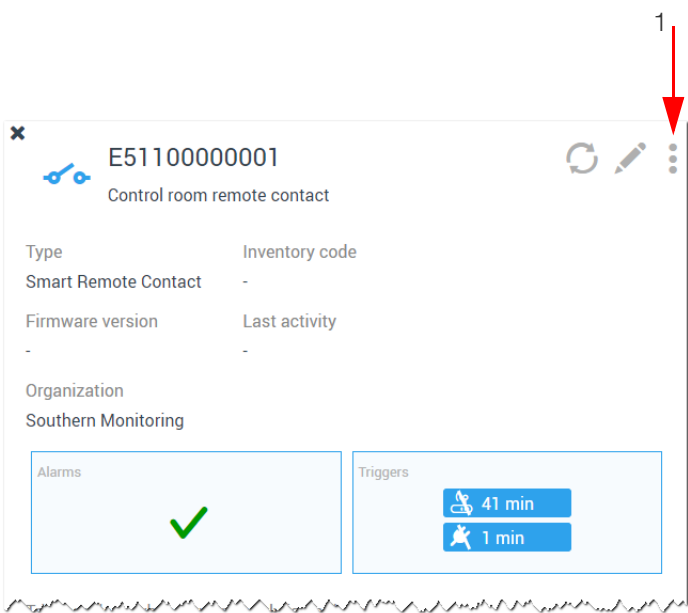
Figure 151. Additional options for Smart Remote Contact management

Table 13. Other functions for Smart Remote Contact

Options	Category	Description
Options (⋮)	🕐 **Alarm history**	Opens the Alarm list so you can see any alarms involving this device (a filter is applied to show "Infrastructure" with the device's serial number)
	🔔 **Simulate an alarm**	You may use this function to simulate an alarm as described in the previous section.
	⊘ **Disable**	Click to disable the device's functionality (in the Infrastructure list, a filter enables you to display or hide disabled infrastructure).
	⊗ **Remove**	Click to remove the remote contact device from your system. The device is marked as "removed" in the Infrastructure list. If you wish to restore the same siren, you must create it again by entering the serial number.
	(↻) **Refresh**	Refreshes the Smart Remote Contact information window.
	(✏) **Edit**	Opens the Edit infrastructure window in which you may modify all the same details you entered when creating the device.

Terminal Wiring

The terminal is wired as shown in the following figure (the images are shown in the Smart-Vue Pro Web application).

When "Trigger relays..." checkbox is not selected.

Default state: Pins 2&3 of relay1 and Pins 5&6 of relay2 are short circuited.

Alarm State: Pins 1&2 of relay1 and Pins 4&5 of relay2 are short circuited.

When "Trigger relays..." checkbox is selected.

Default state: Pins 1&2 of relay1 and Pins 4&5 of relay2 are short circuited.

Alarm State: Pins 2&3 of relay1 and Pins 5&6 of relay2 are short circuited.
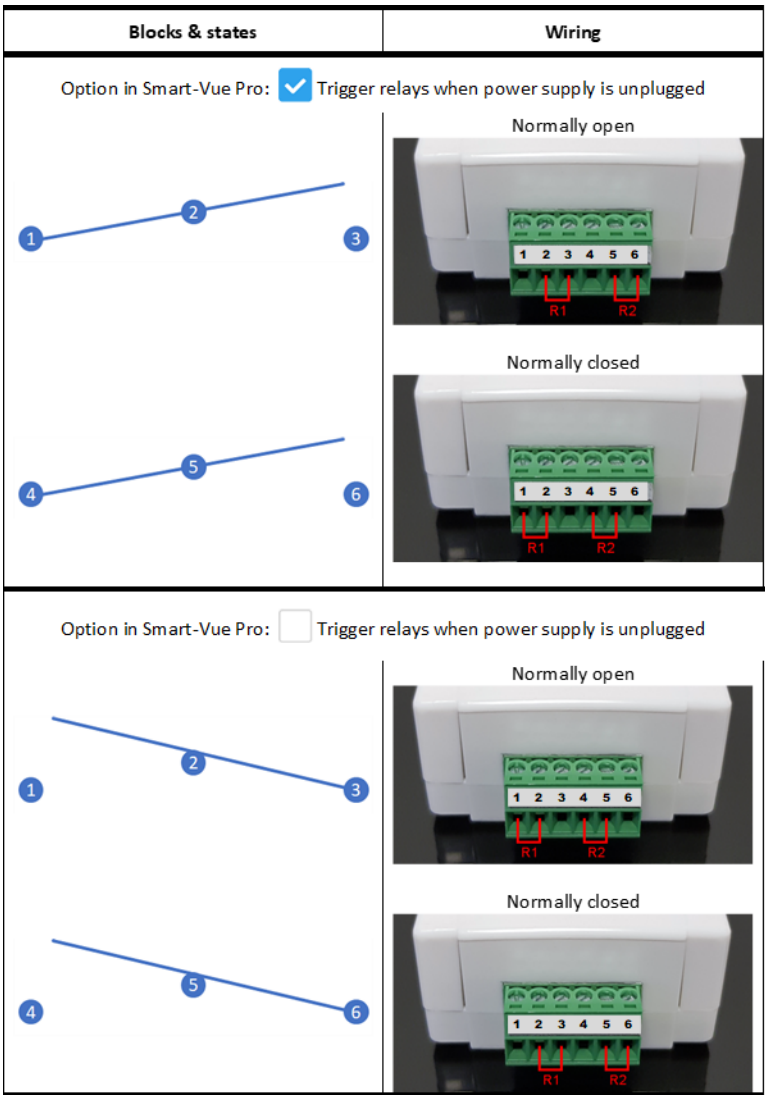
Figure 152. Terminals for open and closed relays

Connect the wires of your external devices to the terminal poles as appropriate for your needs.

⚠️ **CAUTION:** The two blocks (1-2-3 and 4-5-6) may be cabled differently from each other.

For example, with **Trigger relays when power supply is unplugged** selected, 1-2-3 may be cabled for "Normally open" and 4-5-6 may be cabled for "Normally closed".

Alarms & Alerts

The Smart-Vue Pro monitoring system features an alert mechanism that notifies you if the sensors go outside their expected range or if some type of technical error occurs. For example, if a temperature sensor is configured to monitor a cold-storage unit between 2°C and 8°C, and the sensor reads a temperature of 9°C, then an alarm is shown in Smart-Vue Pro. The system can also send an alert to one or more users if an alarm is detected. It is therefore important to understand the distinction between alarms and alerts.

Handling Alarms

Alarms Highlighted in the Dashboard

The first place you will see an alarm visually is in the dashboard, in the **Watch Mode** screen.

When there are no errors, the equipment thumbnail is shown in green and the alarm indicator at the top right of the equipment details page displays a green OK icon (✅).

Here is a "healthy" system dashboard and equipment details window:
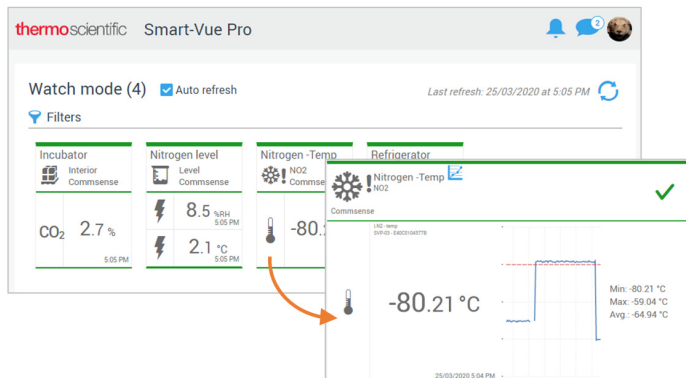
Figure 153. Dashboard and equipment details with no alarms
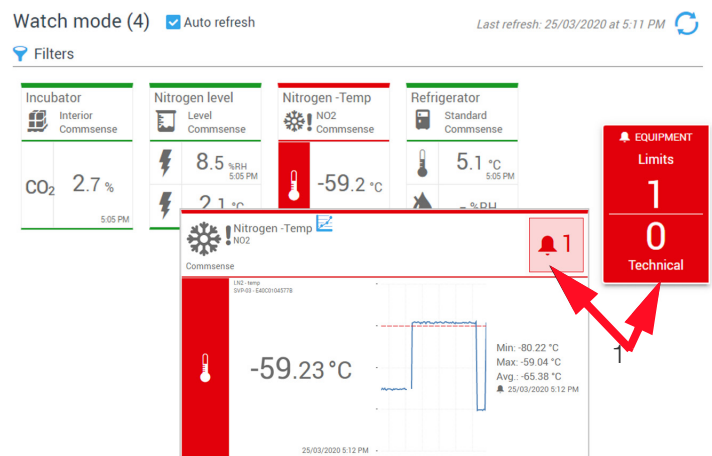
Figure 154. Dashboard and equipment details with an alarm

The alarm counters (1) increment to show:

1. On the main screen, the number of alarms currently on an equipment.

2. On the equipment details screen, the number of alarms currently on the equipment (i.e. on different sensors at the same time).

Viewing Alarm Details

When you see an equipment with errors:

1. Click one of the alarm counters mentioned above (1) or click **Alarm** icon to open the alarm list in the left-hand menu (🔔).

- If you click the counter in the dashboard window or on 🔔 in the menu, you will see all current system alarms.

- If you click the equipment thumbnail, you will access the alarm directly (that is, with filters applied in the Alarm list to show alarm only).

2. The **Alarm** list opens and shows the alarm events for the selected equipment. Unfold alarm details by clicking on the blue arrow (⌄) (2).
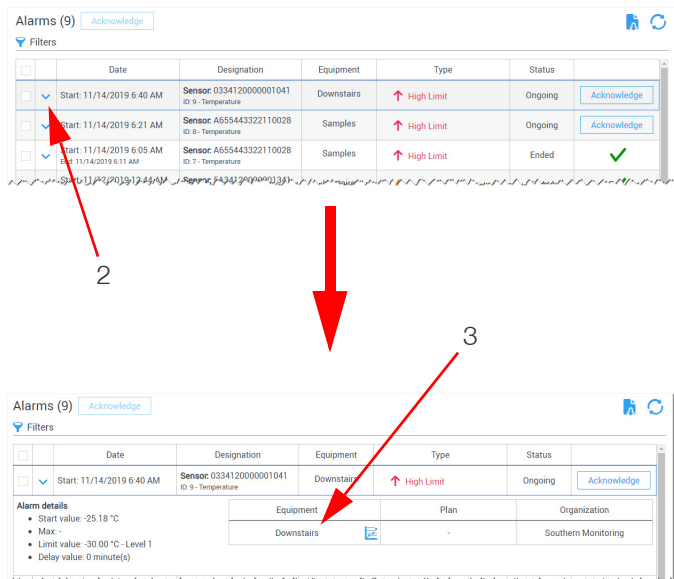
Figure 155. Displaying alarm details

- Click the graph icon (⬚) to open the sensor graph which shows the date/time when the alarm started.

- You may access the equipment directly by clicking on the link in the Equipment column (3).

Alarm Types and Sources in Smart-Vue Pro Web Application

The Smart-Vue Pro web application alarm list presents all the different alarms that have occurred in the system. The Filters feature on the Alarms screen enables you to display alarms according to their source (1) and/or type (2).
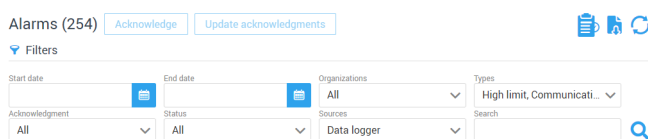
Figure 156. Filtering by alarm type and/or source

You may use the pull-down menus to display any or all of the alarm types described below (All is selected by default when you unfold the Filters function).

The Sources are the devices or equipment in your system that may generate alarms with the following options:

Data logger: Alarms related to data loggers

Equipment: Alarms for equipment you are monitoring

Infrastructure: Alarms concerning various devices in your system, notably:

- Smart Remote Contact (alert controllers)

- Smart-Vue Pro LoRaWAN Gateway (receivers)

- Smart Siren (alert devices)

- **Sensor:** Alarms related to sensors connected to data loggers.

The options under Types are:

Communication lost: This alarm is generated if the server does not receive communication from the data logger or alert device after the period of time defined for "Trigger alarm after X minutes without communication".

Data logger mismatch: This alarm may be generated if you delete a data logger on which data logging is currently running, without stopping data logging, and you then add that data logger back into Smart-Vue Pro web application. On the rare chance that you encounter this error, click Data loggers (▣)➔select the data logger ➔ Options ⋮ ➔ Hard reset. This will clear the data logging and resynchronize the data logger with the system.

Dry contact triggered: This alarm indicates that the dry contact input sensor detected a state change for which an alarm was configured.

High limit: This alarm is generated when a reading exceeds programmed high limit alarms levels 1, 2, and/or 3.

Invalid sensor type: This alarm is generated if data logging is running and you swap the sensor with a sensor type that is not identical to the original.

Low battery: A low battery alarm is issued by data loggers if the remaining battery level reaches 10%.

Low limit: This alarm is generated when a reading is below programmed low limit alarms levels 1, 2, and/or 3.

MKT: Reserved for future use.

Power lost: This error occurs if a data logger's AC adapter is no longer receiving power (for example, if electricity in the building goes off or if the adapter is unplugged).

Sensor failure: A sensor failure alarm indicates that a sensor connected to a data logger did not respond when an attempt was made to read the sensor. This could be due to a poor wired connected, out-of range situation for a wireless sensor, or a hardware failure. Check the connection and try swapping the sensor with an identical sensor to see if the problem is resolved.

Unexpected stop: This alarm may be generated if the data logger stops data logging unexpectedly, for example if the batteries were changed in a device (and it completely lost power), and data logging was not restarted in Smart-Vue Pro web application.

Acknowledging Alarms

When alarms are displayed for your equipment, you must acknowledge the alarm in Smart-Vue Pro and troubleshoot the problem so that further alarms do not continue to occur.

> ⚠️ **CAUTION:** It is important to note that the alarm status is still shown in red in the Smart-Vue Pro dashboard until the next reading transmitted by the data logger no longer indicates the alarm condition.
> More importantly, acknowledging the alarm in the software does not actually fix any physical or technical problem encountered by the data logger and the equipment could still be in an alarm state.

Follow these instructions to acknowledge an alarm:

1. Click **Alarms (🔔)** in the main menu, or on the alarm counter in the dashboard or equipment details screens.

2. The alarm management screen displays equipment with alarms:

Figure 157. Alarm management and acknowledgment screen

> ⚠️ To organize the display of unacknowledged alarms, click **Filters** and select **Not ACK** from the **Acknowledgment** drop-down list, or select any other criteria depending on your needs.

3. To acknowledge a single alarm, click [Acknowledge] next to the alarm you want to acknowledge.

4. You may acknowledge several alarms at once by clicking on their check boxes in the first column:

Figure 158. Acknowledging several alarms at the same time

5. Click [Acknowledge] at the top of the screen. If one of the alarms in your selection has already been acknowledged, it will be deselected automatically and thus not affected by the current acknowledgment.

6. The **Alarm acknowledgment** pop-up is shown on the right-hand side of the screen:

Figure 159. Enter the details for acknowledging an alarm

7. To acknowledge the alarm, you must enter an incident cause in the Cause field. The 30 most recent entries in this field are stored and may be reused in the future by clicking the drop-down list (1).

8. The **Corrective action** and **Preventive action** fields are optional and can be used to include further information with the acknowledgment.

9. Click **Save** to save your changes (and confirm by entering your password) or **Cancel** to discard changes and return to the previous screen.

10. Once the alarm has been acknowledged, the green check mark (✅) is shown on the alarm line.
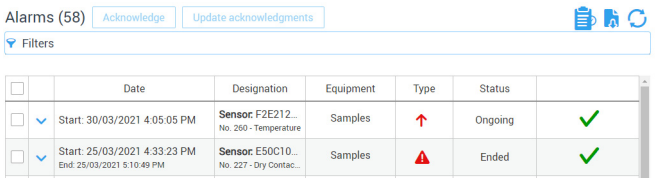
> ⚠️ Remember, acknowledging an alarm does not necessarily eliminate any physical problems at the sensor, data logger or equipment levels.

Smart-Vue Pro Monitoring Solution

Editing Acknowledged Alarms

You may edit alarm acknowledgments even after they have been saved. You may only edit your own acknowledgments, not those of another user.

To edit a single acknowledgment:

1. Click Alarms (🔔) in the main menu, or on the alarm counter in the dashboard or equipment details screens to open the alarm list.

2. Choose an acknowledgment by clicking (✅).
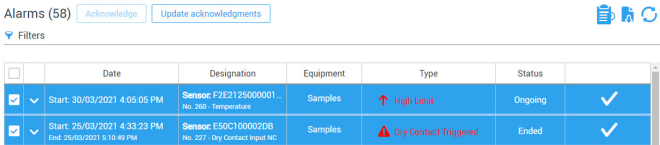
Figure 160. Selecting a single acknowledgment to edit

3. In the Acknowledgment details screen, click Edit, make the desired changes and then click Save to keep the changes or on Cancel to leave the previous information as it was.

To edit several acknowledgments at the same time:

1. Select checkboxes in the left-hand column and then click:

Figure 161. Selecting multiple acknowledgments to edit

2. In the Edit alarm acknowledgments screen, make the desired changes and then click Save to keep the changes or on Cancel to leave the previous information as it was.

Note: When you edit multiple acknowledgments, the new information overwrites the old information contained in all selected acknowledgments.

Alarm Report Subscriptions

Smart-Vue Pro can generate alarm reports automatically and send them at programmed intervals.
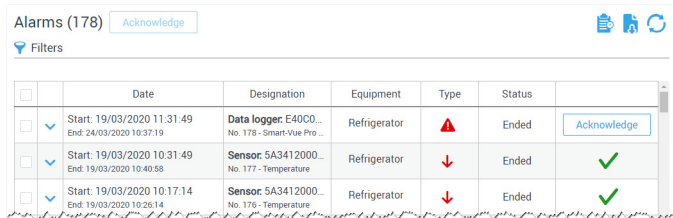
⚠️ Users with Application Manager rights can assign reports to other users, whereas regular users can only create reports for themselves, without being able to assign them to other users.

Scheduling a Report

To schedule a report and assign users:
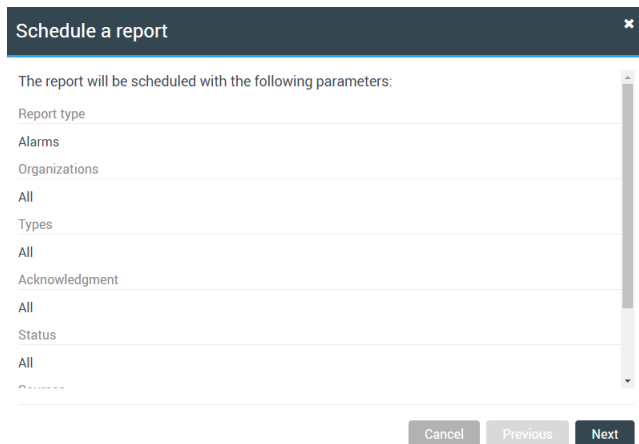
1. Click **Alarms** (🔔) ➜ Schedule a report (📥).

Figure 162. Scheduling an alarm report to send to one or more users

The report is created with default parameters (not editable as of this writing):
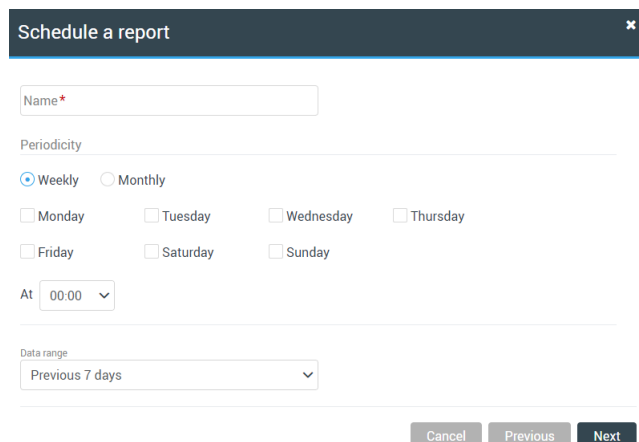
Figure 163. Default report parameters

2. Click **Next** and edit details for the report:

Figure 164. Set up the report to meet your needs

   Name: Enter a name to refer to this report.

   Periodicity: Select whether the report should be produced on a weekly or monthly basis.

Weekly: Select one or more days to generate the report:

Figure 165. Report printed on selected days every week

   Monthly: Select the day of the month to print the report:
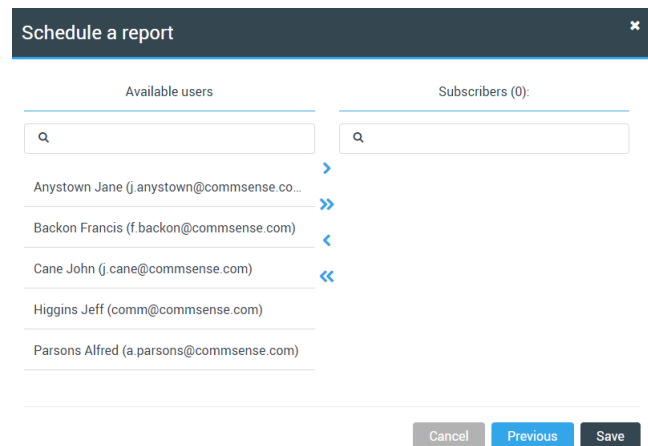
Figure 166. Report printed on the specified day once a month

   At: Indicate the time of the report to be produced.

   Data range: Specify the time period for which you want to include data (from "Previous 7 days" to "Previous month").

3. Users with "User" rights in the system can only create reports for themselves, so they must click **Save** at this point, or on **Previous** to return to the scheduling screen, or **Cancel** to close the window without saving changes.

4. Users with "Application Manager" rights must click **Next** to select the users (including themselves) who will receive the report in PDF format via e-mail:

Figure 167. Include users in report distribution

To add users:

Double-click a user-name or click ❯ move the selected user from **Available** to **Subscribers**.

To select multiple users at a time, press and hold the **Ctrl** key and click each of the users you want to select. Click ❯ to add them to the list of **Subscribers**.

To select all available users, click ⟫.

To remove users:

To remove a user from a report, double-click a user-name in the list of **Subscribers** (on the right-hand side) or click a user and click ‹ to move the user to the list of Available users on the left-hand side.

To remove multiple users, press and hold the **Ctrl** key and, while holding down the key, click each of the other users you want to remove. Then click ‹ to move them to the list of **Available** users on the left.

To remove all users, click ⟪.

5. Click **Save** when done, **Previous** to return to the scheduling screen, or **Cancel** to close the window without saving your changes.

Editing Scheduled Reports and Subscriptions

You may edit and update reports that you have created (as described in the previous section) and reassign users to those reports.

To modify a report:

1. Click **Reports** (📝) ➜ **Report subscriptions.**

Figure 168. Include users in report distribution

⚠️ **CAUTION:** The user who created the reported is indicated as the "Owner". You may change the owner via Options (⋮) as described below.

2. To run the report right now, click (⬇️).
3. To delete the report, click (✕).

4. To access report configuration, click anywhere on the line with the report (1).

Figure 169. Report summary screen

This screen contains several options for managing the report:

Table 14. Options for Managing Report

Options	Category	Description
	(filter icon)	**Filter** – Displays the parameters used to filter data and establish the report. As of this writing, the parameters may not be edited.
	(generate icon)	**Generate the report** – You may click this icon to generate the report at any time.
	(edit icon)	**Edit** – Enables you to change scheduling options for the report. The options here are the same as those used to create the report (as described in the previous section).
	Options – Contains the following items:	
	(person icon)	**Change owner** – The report owner is allowed to manage report details. If the report is assigned to multiple subscribers, ownership may only be assigned to another Application Manager. A regular User cannot be the owner of a report that is sent to other people.
(options icon)	(people icon)	**Edit subscribers** – Allows Application Managers to edit the list of users who receive the report via e-mail.
	(disable icon)	**Disable** – Deactivates automatic generation of the report. You may Enable the report subsequently if you want (to show reports that have been disabled, open Filters at the top of the screen and select "Show inactive")
	(remove icon)	**Remove** – Completely removes the report from the system.

Alert Notifications

Smart-Vue Pro offers several alert notification mechanisms:

- By default, every system provides alert notification via e-mail and every user profile is required to include an e-mail address.

- **Smart-Vue Pro Alert** is an optional web-based solution that adds SMS/text messaging and automated voice call support. You must enter a valid license key in order to use Smart-Vue Pro Alert notification features, as described in **Managing License Keys**.

Smart-Vue Pro can send alerts to one or more users configured in Call Groups. Each user is configured with an e-mail address to be used for this purpose. To implement alerts, you must therefore create one or more Call Groups and create alert rules to determine the equipment and data loggers for which those groups will receive alert e-mails.

Configuring Alert Rules

An alert is a notification sent by the system to users when the system observes an alarm condition or potential problem in the monitored environment.

Alert rules can be configured and assigned to different call groups in order to notify, by telephone and/or e-mail, users designated to handle an alarm category. You may define different criteria for one or more nodes in your organization, or according to the geographical areas you cover or sensor categories. Alert rules are based on "Time slots" and "Weekends and holidays", defined in the system. These entities enable you to handle a variety of different cases, including Day/Night and weekend modes.

Follow these steps to configure an alert rule:

1. Click **Configuration** (gear icon) ➔ **Alerts** ➔ **Add alert rule** ((+) icon).

2. The **Create alert rule** screen is displayed:

Figure 170. Setting up an alert rule (Step 1)

3. Fill the in fields according to your needs. The fields marked with a red asterisk (*****) are required:

    Name: Assign a friendly name to identify the alert rule.

    Description: Enter a description of the alert, for your information.

    Alarm type: Select one or more type of alerts (Limits, Dry Contact (for future) or Technical).

    Limit alerts are the high and low limit values that you may configure for sensor readings.

    Technical alerts concern technical issues with your sensors and receivers, such as low battery and communication errors. A given rule can only apply to one or the other of these types of alerts.

    Dry contact triggered (Level 1, 2, 3) corresponds to the time delays configured when starting data logging for the dry contact sensor on a Smart-Vue Pro Duo / Quatro data logger. See section **Dry Contact Input Sensors (Smart-Vue Pro Duo / Quatro Data Logger Only)** for more details. This enables you to have a different alert notification for each different time delay.

    Items in organizations: Choose the relevant organization(s) and/or department(s).

    Alerts for: Select the type of equipment for which alerts will be sent: Infrastructure, mobile equipment, Shipments, or Static equipment.

    Criticality: Select the criticality level(s) for which the alert rule applies (critical and/or not critical) as configured for equipment.

    Repeat alert if Check this option to set the repeat frequency for this alert if the alarm condition persists and specify the desired time interval.

4. Click Next to set up the users who will be alerted and when, as described below.
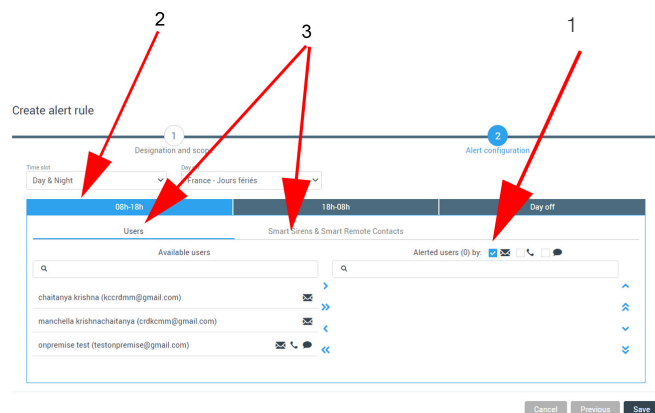
Figure 171. Assigning users to time periods in an alert rule (Step 2)

In the above image, time periods are shown on three tabs (2). Remember to assign users and/or alert devices to each period.

You may configure notifications to be sent to users or devices (3), notably Smart Sirens and/or Smart Remote Contact configured in your system.

5. Select the **Time slot** and **Days off** for the alert:

    Time slot: Use the drop-down menu to select the alarm period from the available options. Other time slots may be added as described in **Time Slots**.

    Days off: Use the drop-down list to select Days off periods (such as weekends and holidays). Other days off may be added as described in **Setting Days off (Weekends and Non-Working Days)**.

Alert Rules with Users

Add or remove users in the **Users** tab (3) of the screen as shown in **Figure 170** and **Figure 171**:

1. Determine how users will be alerted (1): via e-mail (✉) automated voice call (📞) or SMS / Text message (💬). Click the check box ☐ ➔ ✅ to assign one or more alert types.

2. To add users: Double-click a user-name or click ❯ to move the selected user from Available to Alerted.
    To select multiple users at a time, press and hold the Ctrl key and click each of the users you want to select.

    Click ❯ to add them to the list of Selected users.

    To select all available users, click ❯❯.

3. To remove users: To remove a user from a rule, double-click a user-name in the list of Alerted users (on the right-hand side) or click a user and click ❮ to move the user to the list of Available users on the left-hand side. To remove multiple users, press and hold the Ctrl key and while holding down the key, click each of the other users you want to remove. Then click ❮ to move them to the list of Available users on the left. To remove all users, click ❮❮.

4. To change the contact sequence: Users are contacted in the order in which they are listed in the alert rule. The top user is contacted first, etc.
    You may click ⌃ and ⌄ icons to move the selected user up or down one line at a time.You may click \ the ⌃⌃ and ⌄⌄ icons to move the selected user to the very top or bottom, respectively.

5. Click **Save** to save the rule (or add alert devices, as described in the next section), click **Previous** to return to step 1 or click **Cancel** to close this window without saving any changes.

Alert rules with Smart Siren or Smart Remote Contact Devices

To add or remove alert devices, click **Sirens & Smart remote contacts** tab (4) of the alert rule screen:

Figure 172. Assigning alert devices to time periods in an alert rule (Step 2)

1. Select one or more sirens (🔔) or smart remote contact devices (⚬⚬) in the "Available" column.

2. To add devices:

   Double-click a device name or click ❯ to move the selected device from **Available** to **Alerted**.
   To select multiple devices at a time, press and hold the **Ctrl** key and click each of the devices you want to select. Click ❯ to add them to the list of "Triggered" devices. To select all available devices, click ❯❯.

3. To remove devices:
   To remove a device from a rule, double-click a device name in the list of **Triggered** devices (on the right-hand side), or single-click a device name and click ❮ to move the device to the list of **Available** devices on the left-hand side.
   To remove multiple devices, press and hold the **Ctrl** key and, while holding down the key, click each of the other devices you want to remove. Then click ❮ to move them to the list of **Available** devices on the left.

   To remove all devices, click ❮❮.

4. To change the trigger sequence:
   Devices are triggered in the order in which they are listed in the alert rule. The top device is triggered first, etc.
   You may click ⌃ and ⌄ icons to move the selected device up or down one line at a time.

   You may click the ⌃⌃ and ⌄⌄ icons to move the selected device to the very top or bottom, respectively.

5. Click **Save** to save the rule (or add users as described in the **previous** section), on Previous to return to step 1, or on **Cancel** to close this window without saving any changes.

Modifying or Deleting Alert Rules

To disable or change the conditions or recipients of an alert rule, click **Configuration (⚙)**➔ **Alerts**.

The alert rules you defined earlier are shown in the table with the configuration parameters and characteristics of the equipment involved.

1. To modify an alert rule, click Edit (✎) for the rule you wish to modify (1):

Figure 173. List of alert rules saved in the system

2. Make the desired changes (with all the same options as described in the previous sections when creating the rule).

3. Click **Save** to save your changes or **Previous** to return to the previous screen without saving changes.

4. For more options, click **Options (⋮)** for a drop-down menu with the following options:

   Create using as template: This option enables you to create a new alert rule based on the currently selected rule.

   Simulate an alarm: Enables you to validate the alarm scenario by sending a test alert using the selected rule. No alert is listed in the Alarm list, but people are contacted and/or devices are triggered as if an alarm occurred.

Disable: Deactivates the alert rule. You may reactivate it at any time selecting the alert rule and clicking on "Enable" in the drop-down menu.

Delete: Deletes the alert rule from the system.

Time Slots

As described earlier in **Configuring Alert Rules**, you may configure specific time slots during which your system will send alerts to users. These time slots may then be used in the context of one or more alert rules.

To add a time slot:

1. In the main menu, click **Configuration** ⚙ ➔ **Time slots.**

2. Click **Add time slot** (⊕).

Time slots (1) ⊕   ⟳

Name ▲	Description ⬍	
Day & Night	Standard office hours	✎ ⊗

Figure 174. Adding a new time slot

3. The **Create time slot** window opens on the right-hand side of the screen:

✖
Create time slot

Name *

[   ]

Description

[   ]

Slots

| Name * | From 12:00 PM 🕐 | To 12:00 PM 🕐 | ⊕ |

Cancel   **Save**

Figure 175. Time slot details

4. Enter the details of the new time slot. The fields marked with a red asterisk (*****) are required:

Name: Enter a name for the time slot.

Description: Enter a description of the time slot.

Slots: Enter a name for the time slot and then, define the start and end time. These parameters are used by the application to determine the start and end of the alarm period.

⚠ To avoid confusion, all times are indicated in local time of the user who will be receiving the alert or the device to be triggered.

1. Click **Add** (⊕) to add up to a total of three time slots, if needed.

2. Click **Save** to save your changes or **Cancel** to discard changes and return to the previous screen.

Modifying or Deleting Time Slots

To change the time slots of your alert rules:

1. In the main menu, click **Configuration** ⚙ ➔ **Time slots**.

Time slots (2) ⊕   ⟳

Name ▲	Description ⬍	
Day & Night	Standard office hours	✎ ⊗
Weekends	Not at the office	✎ ⊗

Figure 176. Time slot list

2. Click **Edit** (✎) to modify a time slot.

3. Make the necessary changes.

4. Click **Save** to save your changes or **Cancel** to discard changes and return to the previous screen.

5. If you want to delete a time slot, select the time slot and click **Delete** (✖).

Setting Days off (Weekends and Non-Working Days)

Smart-Vue Pro enables you to manage non-working days such as weekends, public holidays and other days off. You may use this feature to fine-tune your system's alert rules.

To add days off:

1. In the main menu, click **Configuration** ⚙ ➔ **Days off.**

Figure 177. Adding days off (non-working days)

2. Click **Add days off** (⊕), which opens the **Create days off** window:

Figure 178. Entering details for days off

3. Fill the fields according as desired. The fields marked with a red asterisk (*****) are required:

   Name: Enter a name as a reference for the day(s) off. You will be able to use this name when you create alert rules.

   Description: (Optional) You may enter a description of the day off for information purposes.

   Weekend configuration: Set the start and end times that are considered as part of the weekend, for example, for on-call staff. These settings are used by the application to determine the start and end of the weekend alarm period.

4. Click **Next** ➔ ⊕ Add days off

Figure 179. Adding days off to be used in alert rules

5. Select dates in the **From** and **To** fields.

6. If the day is to be considered as a day off every year, click the **Yearly** check box.

7. You may remove a day off by clicking on **Remove** (⊖) next to the item to be deleted.

8. Click **Save** to save the day(s) off in the system, **Previous** to return to the previous screen without saving changes or **Cancel** to discard your changes.

Modifying or Deleting Weekends and Days off

To edit a weekend or day off:

1. In the main menu, click **Configuration** ⚙ ➔ **Days off**

Figure 180. List of days off in your system

2. Select the line you want to change, click **Edit** (✏).

3. Make the desired changes.

4. Click **Save** to save your changes or **Cancel** to discard changes and return to the previous screen.

5. If you want to delete a day off configuration, select the desired line and click **Delete** (✕).

Getting Help

User Manuals

User manuals for the Smart-Vue Pro web application and related products are available directly from the application.

Click **Help** ➜ **Online help** to download the latest documents:

Figure 181. Access to Smart-Vue Pro and companion product user guides

Viewing Smart-Vue Pro Version Release Notes

If the Smart-Vue Pro web application has been updated since the last time you logged in, the release notes concerning the new version are displayed on your screen:

Figure 182. Latest release notes

This message is not displayed for new users. You may click **Do not show these notes again** to stop the message from being displayed when you log in again. Click **Close** to close the window and continue with Smart-Vue Pro.

> You may show all Smart-Vue Pro release notes at any time by clicking **Help** ➜ **Release notes.**

Appendix

Alarms

Table 15. Alarm Details

Type	Meaning	Web App alarm color
High Limit Alarm	Sensor input reading is higher than high limit value set.	Red
Low Limit Alarm	Sensor input reading is lower than low limit value set.	Red
Sensor Fail	Input Sensor has failed.	Red
Invalid sensor	When a different sensor is replaced during data logging.	Red
Communication lost	When data logger or infrastructure (LoRaWAN) is not communicating as per the setting in web app i.e., web app triggers an alarm after X minutes without communication with Data logger or Infrastructure.	Red
Power lost	When data logger is not under AC power and communicating on battery power, as per the setting in web app i.e., web app triggers an alarm after X minutes without AC power supply.	Red
Unexpected stop	When you restore power, the data logger is operational but the data logging session is not restarted. Then SmartVue Pro web application triggers the Unexpected Stop alarm to notify you that your equipment is not being monitored.	Red
Low battery	The battery on the SVP Quatro is low.	Red

FAQ

1. **I just installed a new data logger. It seems to be working fine, but no information is updated in the Smart-Vue Pro dashboard.**

   - Information is automatically sent to the system at the end of each programmed "transfer period". The transfer period is generally longer than the sensor reading period, so you may simply need to wait for the cycle to begin in order to have data in the web application.

   - On the Smart-Vue Pro data logger, you may use the **Synchronize** feature to trigger communication between the system and the data logger.

   - You may also refresh the application screen using the **Refresh** button (⟳) that is present throughout Smart-Vue Pro.

2. **I used the Smart-Vue Pro web application to activate data logging on a Smart-Vue Pro data logger. The data logger now displays the temperature and session name as expected, however, I still do not see any readings in the web application. What should I do?**

   If the data logger screen shows information other than "Data logger waiting for configuration", it means that communication from the server was successful. The edges of the tile in the Watch Mode screen (in the web application) should no longer be gray. Just wait until sensor readings are uploaded at the next transfer interval.

3. **My data logger was data logging and lost power (unplugged or batteries removed). However, when the power was restored, the web application showed an "Unexpected Stop alarm". What could be the reason?**

   When you restore power, the data logger is operational but the data logging session is not restarted. The data logger therefore still needs your attention and hence, the Smart-Vue Pro web application triggers the "Unexpected Stop alarm" to notify that the equipment is not being monitored.

4. **Can a data logger be removed which is currently running a data logging session?**

   Yes, you can remove a data logger from your Smart-Vue Pro system even if data logging is running. You should only do this in cases where there is a problem with the data logger, or if a data logger had to be swapped while

still running. In those cases, the Smart-Vue Pro web application can no longer stop the data logging session via software and you may need to remove the data logger from the system.

5. **Where can I find information about using the Smart-Vue web application with my Smart-Vue Pro data loggers running in Bluetooth mode and the Smart Connect mobile application?**

The Smart Connect User Guide provides details about using the mobile application in conjunction with the web application.

6. **Are all features available when using the Smart-Vue Pro web application and the Smart Connect mobile application for my data loggers in Bluetooth-only mode?**

Most viewing and display features are the same, regardless of whether data is collected via a LoRaWAN receiver or pushed by your Bluetooth-enabled device running Smart Connect. Some configuration features are specific for LoRaWAN operation and do not apply when using Smart Connect, such as "Trigger alarm after n minutes without communication."

7. **Why an unexpected stop alarm shows in ongoing state although it is acknowledged?**

Unexpected stop event occurs when the data logging is in progress and battery/power supply is removed.

When the battery (or plug your power supply) is placed, the device reboots. However, all data loggings are stopped so the data logger sends this alarm to notify the customer that your product (ex: vaccine) is no longer monitored.

8. **Why doesn't it show any error while creating a company even if the license key or last digit is changed?**

Validation of license is done when one accepts and tries to create company. To ensure the security, it is a best practice to check the license key on server side and not on front side (javascript). The error is shown in the final page and user won't be able to create a company when last digit of the license key is changed.

9. **Explain the following error "Data logger configuration mismatches server".**

If the physical data logger has a different state than the status on the web app, this alarm is created.
For example, starting a data logging, performing a factory reset and communicating with the server.

10. **What is the significance of system user and support user in Audit Trail records?**

System user: When the action is performed by the application.

Note: It is not a real user (sending an email, etc.)

Support user: When the technical support uses the special account to perform some actions.

11. **What is the significance of setting time interval for communication lost separately in Infrastructure and Data logger pages?**

Infrastructure (gateway) communicates with server in every 10 seconds, however, it updates its activity in every 5 minutes.

A LoRa gateway takes 5 minutes to start. Communication lost alarm is triggered after two missing reading intervals +1 boot duration. Hence, a 15 minutes time interval is defined for communication lost in Infrastructure page.

12. **Why does the time stamp show as 01/01/0001 before starting the data logging in web app watch mode screen?**

Until the first data push to cloud we find the time stamp as 01/01/0001. Once the data is synced to cloud we observe the related time stamp.

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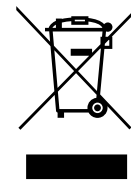
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