



Smart Connect

Mobile Application for Using Smart-Vue Pro Duo/Quatro Data Loggers via Bluetooth

User Guide

331676H06 • Revision A • 5/26/2020

IMPORTANT Read this instruction manual. Failure to follow the instructions in this manual 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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Notices and Safety

Safety Instructions

IMPORTANT NOTE: Do not use the product for protection or as part of an automated emergency system or for any other application which involves protecting people and/or property. Customers and users of Thermo Scientific products are responsible to ensure that the product is fit for the intended use.

Getting Started

Smart Connect is available on iOS and android operating systems. The application provides you an easy way to manage and monitor Smart-Vue Pro Duo/Quatro data loggers via bluetooth.

The solution is limited to support a single temperature sensor. You may use one of these options:

- External temperature sensor is plugged to “channel 0” on the Smart-Vue Pro data logger as shown in the following figure.



Figure 1. Smart-Vue Pro Data Logger Connection

- Smart-Tracker (2nd generation) bluetooth wireless sensor paired with the Smart-Vue Pro data logger.

About iOS and Android Versions

This user guide describes the Smart Connect application for both iOS® and android® platforms. All software features are identical regardless of the operating system. Icon design and minor graphical aspects may vary slightly from one platform to another without any effect on functionality.

Requirements, Related Products and Documentation

The document describes the software aspects related to Smart Connect and assumes that you have access to the following:

- One or more compatible Smart-Vue Pro Duo/Quatro data loggers.

- Smart Connect mobile application running on a supported mobile device.



CAUTION: To access your Smart Vue Pro data logger via bluetooth by using Smart Connect, you must deactivate LoRaWAN connectivity on the data logger.

Supported Mobile Platforms

Smart Connect is designed to use the latest android and iOS operating system versions. We try to keep the software updated with current market releases. However, as the mobile platforms are fast-moving and have a vast variety of different mobile platforms and variations in bluetooth® connectivity implementations from one manufacturer to another, we cannot guarantee that Smart Connect will function correctly on all devices and on all android or iOS operating systems.

Our Quality Assurance/Validation team has created the following document as a guideline for known supported platforms. Refer to **Appendix 3 - List of Compatible Devices** for details.

Note: Landscape feature is disabled for all Smart Connect application hosting device.

Solution Overview

Summary Diagram

The following diagram summarizes overall solution operation:

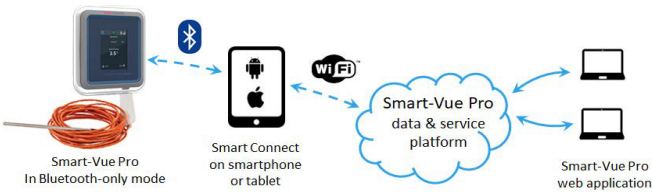


Figure 2. Solution Overview Diagram

This process can be summarized as follows:

1. The Smart-Vue Pro data logger is equipped with one external temperature sensor plugged into the left-hand connector. Additional sensors will be supported in an upcoming release of the mobile application.
2. Smart Connect runs on a smart-phone or tablet. Enables you to configure data logging and monitors your data loggers.
3. When used in conjunction with the Smart-Vue Pro web application (subscription sold separately), Smart Connect can push one temperature sensor readings and data logger information to the cloud for access via the Smart-Vue Pro web application.

Smart Connect Features

Standard Functionality

- Uses your iOS or Android device’s bluetooth Smart (Bluetooth Low Energy) connectivity with a wireless range up to about 50 meters (approximately 160 feet).
- Enables you to program high/low temperature limits, read intervals and alarm delays.
- Exports data in .CSV file format to send by e-mail.
- Monitors data in real-time using “Watch Mode”.

Optional features while using Smart Connect with Smart-Vue Pro web application

- Replicates data logger readings and information on secure cloud for viewing and managing with the Smart-Vue Pro web application (requires cloud access subscription).
- Generates PDF and excel reports (requires cloud access subscription).

Installing Smart Connect on your Smart-phone or Tablet

You may download and upgrade Smart Connect using your iOS or android smart-phone or tablet directly.

Access Online Stores Directly

iOS	Android
For iOS devices, tap the App Store icon on your device:	For Android devices, tap the Play Store icon on your device:
	

1. Search for Thermo Scientific “Smart Connect” on your mobile device’s store page.
2. Select the application to proceed with installation.
3. Login to your account (or create one) and follow the installation instructions.
4. Tap the Smart Connect icon on your smart-phone or tablet when installation is completed. You may now use the application.



Figure 3. Smart Connect Launch Icon

Permission

A message pops-up to grant permission to access GPS (location service) while installing the application. This means that the application can access GPS (location) capabilities or information of your smart-phone or tablet. You must allow it to complete the installation.

Using Smart Connect

Overview

Once you have installed Smart Connect and are ready to start the application, the following home screen opens. The start screen consists of the following elements:

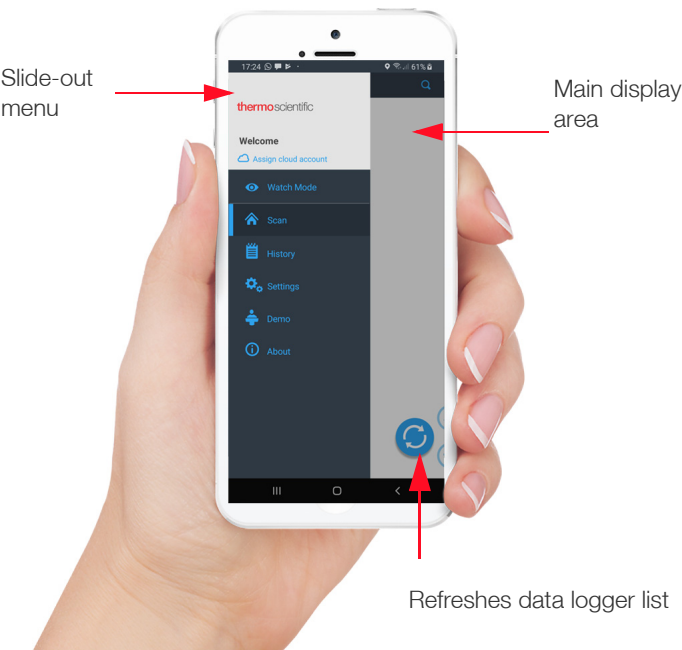


Figure 4. Overview of Smart Connect

Main Menu

The main menu of Smart Connect is located on the left-hand side of the screen.

This menu is hidden by default but is displayed when you swipe the left edge of the screen towards the right.

This opens the main menu for direct access to the main Smart Connect features.

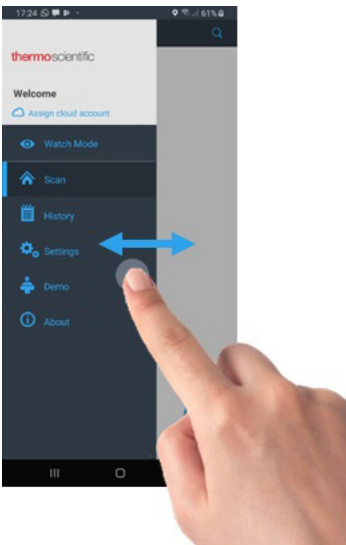








Figure 5. Swiping the screen to show the main menu

Tap the left side menu links to access Smart Connect features:

Table 1. Menu to access Smart Connect features

Icons	Description
	Watch mode monitors nearby data loggers in real-time.
	Scan screen scans for Smart-Vue Pro data loggers within range, configures data loggers and accesses details about a current data logging session.
	History screen shows readings, events and graphs for up-to five data logging sessions saved locally.
	Settings for the Smart Connect application.
	Demonstration mode enables you to see how the application works without connecting to any data loggers. Few application features are available out of all the applications.
	About provides access to the Smart Connect user guide and Thermo Scientific website.

The menu auto-hides after a few seconds or you may swipe the menu towards the left to hide it manually.

Navigation

Some Smart Connect screens have a tab bar across the top of the display **(1)**. This shows you which tab you are on (highlighted) as well as the other available tabs.

Touch the screen and swipe towards the left or right **(2)** to navigate between tabs or tap the tab name. The tabs are visible based on the size of the screen.

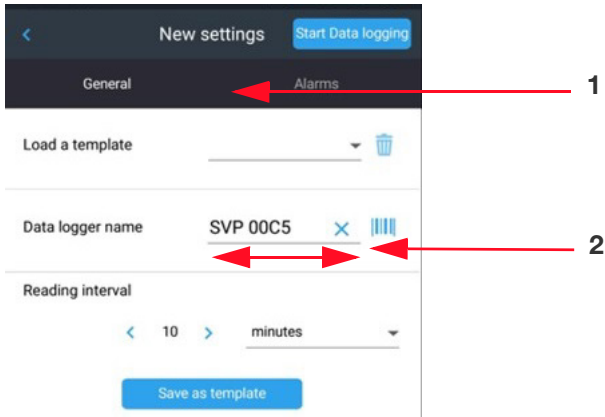



Figure 6. Swipe the screen right⇌left to change tabs

Demonstration Mode

You may run the application in demonstration mode without connecting to any data logger. This enables you to explore most Smart Connect features.

1. On the main menu, tap **Demo** to enter demonstration mode.
2. To return to the main menu, tap the menu icon  in the top left-hand corner of the screen or swipe your finger across the screen from left to right.

Scanning for Nearby Smart-Vue Pro Duo/Quatro Data Loggers

On the main menu, tap **Scan** to discover and list the Smart-Vue Pro Duo/Quatro data loggers within bluetooth wireless range. Bluetooth must be activated on your mobile. If bluetooth is not activated, you will be prompted to turn it on.



CAUTION: GPS location must be activated on your mobile every time you scan for the data loggers.

By default, data loggers are sorted and organized into four separate categories:

- **Data logging Not Defined:** Data loggers which are not currently programmed or whose status is unknown.
- **Limit Alarms:** Programmed data loggers on which one or more alarms have been detected during the current data logging session.
- **Technical Alarms:** Programmed data loggers on which a technical alarm (sensor fail or low battery) is detected.
- **Started (No Alarms):** Programmed data logger with data logging started but currently not in an alarm state.

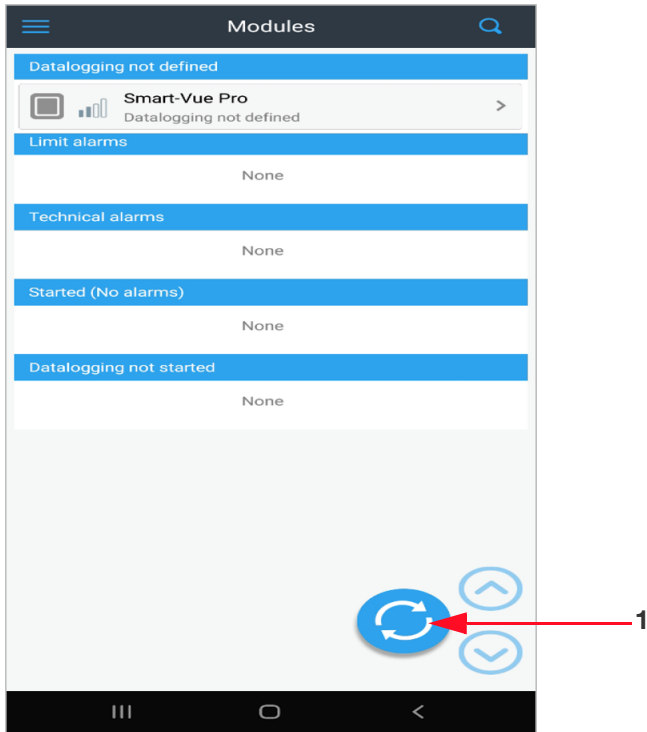


Figure 7. Data logger list after scanning

Detected data loggers are automatically sorted according to their status. As soon as a data logger's status changes, the data logger moves to the corresponding category.

At any time, you can change the appearance of data loggers in the **Scan** view. If you want to view data loggers in a list, tap Settings → Sort data logger list (See **Application Settings**).

Tap the refresh icon **(1)** shown in **Figure 7** to discover and list Thermo Scientific data loggers within a range. You may slide this icon to the left and use the up/down icons to switch between categories (a useful feature when many data loggers are detected).

The icons in the scan list are displayed in different colors to indicate their current status.

Table 2. Icon color correspondence

Icon	Description
	Programmed and not currently in alarm state.
	Programmed and currently in alarm state (limit or technical).
	Gray, idle data logger (not currently programmed or ready).

Note: To avoid trying to connect to data loggers with a weak bluetooth wireless signal which might not communicate reliably, the Settings → Enable data loggers with weak signal option is disabled by default. Consequently, data loggers with low signal strength are grayed out in scan view and you will not be able to select them. For more information, see **Application Settings**.

Searching the List for a Specific Data Logger

To make it easier to find a specific data logger, you may sort the list according to the following i.e.,

- Serial number
- Data logger name

Press the magnifying glass icon **(1)** in the upper right-hand corner of the screen to open the search screen as shown in the following figure.

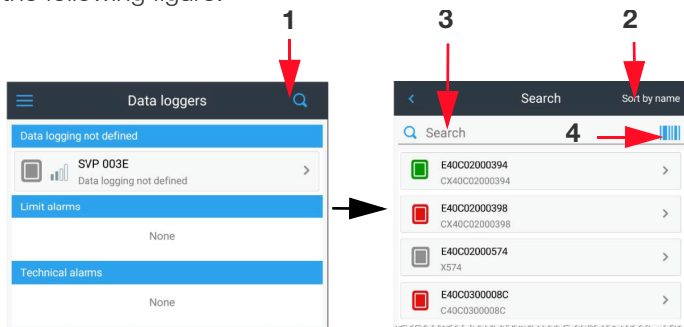


Figure 8. Using the Search screen

Searching for a Data Logger by Entering its Name or Serial Number

- Tap the toggle button **(2)** to switch between sort by name or sort by S/N (serial number).
- Tap the input field **(3)** to open the device's keyboard, then enter the serial number or the name of the data logging session or data logger you are searching for. While you type numbers or letters in the search field, the data logger's list adjusts automatically on-the-fly.

Searching for a Data Logger Using a Bar Code

Ensure that the bar-code is large enough (4-5 cm/1.5 to 2 inches wide) to be scanned successfully by your device.

1. Press the bar code icon **(4)** to begin scanning.
2. A rectangular scanning area appears on your smart-phone's screen.

Note: The flashlight may turn on automatically on some android devices. On iOS devices, the flashlight switches on depending on the ambient light level.

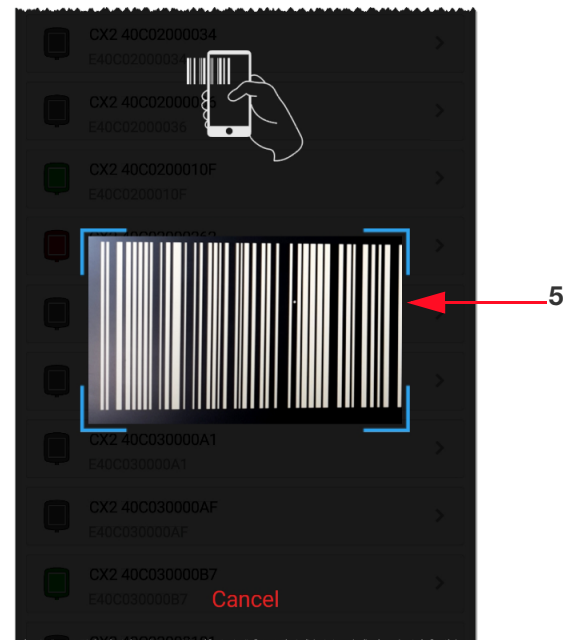


Figure 9. Scanning a Bar Code

3. Point your smart-phone's camera at the bar-code you want to scan. It is important for the bar-code to fit entirely within the scanning rectangle on screen **(5)**.
4. Wait for your smart-phone to focus on the bar-code. When the bar-code number is decoded, the scanning area closes and the **Search** field is filled-in automatically. You may edit the information as necessary.

You may also click **Cancel** at any time to cancel the operation.

Note: If your android device switches to sleep mode when scanning the bar-code, the scan area will close automatically and you must start the process again.

Data Logger Management Options

On the scan screen listing nearby data loggers, tap to select data logger and to access further details or configure a new data logging session.

The options mentioned here are described in detail in the following sections of this user guide.

The available actions on this screen depends on the data logging status and cloud connectivity.

Press the Back button **(1)** to return to the previous screen.

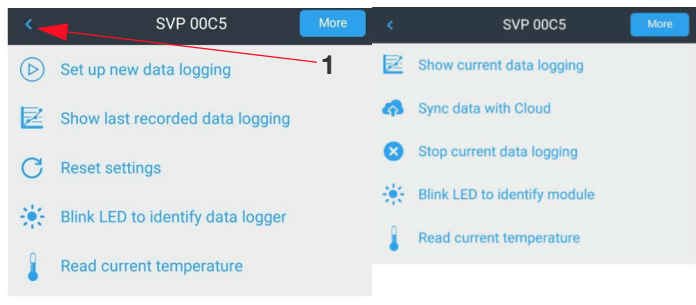


Figure 10. Data logger menu options depending on whether data logging is currently running on the data logger

Menu Items for Unconfigured Data Loggers

- Set up new data logging** Enters the configuration screens to set up a new data logging session.
- Show last recorded data logging** Shows data from the last data logging session recorded in data logger memory.
- Reset Settings** Resets data logging and offers you the possibility of sending data to the cloud.

Menu Items for Configured Data Loggers

- Show current data logging** Shows details of current data logging settings and status.
- Sync data logging with cloud** This feature appears in the menu when the selected data logger is logging data and linked to the cloud (if the **use cloud for this data logging session** option was activated for the session). Tap to push data logger data to the cloud.
- Stop current data logging** Stops current data logging session.
Note: If the session is configured to push data to the cloud, only the user who set up data logging is authorized to stop it.

Options Present in Both the Menus

- The following options are present in the data logger management menu all the time:
- Blink LED to identify data logger** Blinks the data logger LED. This is useful for identifying a specific data logger if there are several data loggers present. The LED blinks in color according to the data logger’s status.
 - Read current temperature** Displays the current sensor reading.

Configuring Smart-Vue Pro Data Logging

To use your Smart-Vue Pro data logger for data logging, you must activate data logging using the Smart Connect application.

What is Data Logging?

Data logging refers to the collection of sensor readings over time. Data logging is comprised of a set of configuration options that are used to manage your data logger, including:

1. Name of the data logger.
2. Frequency of the temperature readings.
3. High and low alarm limits.
4. If data should be pushed to the cloud.
5. Set a password to prevent unwanted stopping or reprogramming.

Setting Up Smart-Vue Pro Cloud Access

How does it work?

If you have subscription to use the Smart-Vue Pro web application, data and other information, it can be pushed by a smart-phone or tablet to the cloud platform using your regular internet connection (i.e. cellular or Wi-Fi). The data can be accessed anywhere via the Smart-Vue Pro web application.

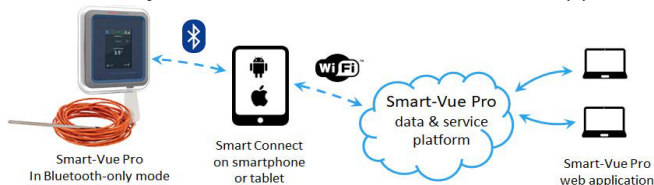


Figure 11. Data can be pushed to the cloud by your smart-phone or tablet



CAUTION: To access your data on the cloud, you must connect to the Smart-Vue Pro web application which enables you to create your company account and associated user accounts. The Smart-Vue Pro web application is accessible free-of-charge on thermo.oceaview.com.

For Smart-Vue Pro Duo/Quattro data loggers, you must enter a voucher number (activation key) authorizing a specific number of data loggers for a specific period of time.

Contact your sales representative for more information on Smart-Vue Pro access.

Before you begin:

- **Connect Cloud ID to Push Data**

For data logging information to be pushed to Smart-Vue Pro cloud, provide a cloud user account name in Smart Connect on the smart-phone or tablet used to program the data logger (see **Assigning your Smart-Vue Pro Cloud Account in Smart Connect**.) The user account must be valid for your company account.

- **Stop Cloud-Enabled Data Logging**

Only mobile devices configured with a user account linked to your company account are allowed to stop data logging which is configured to push data to Smart-Vue Pro web app. It does not have to be the same user but that user must be set up in the same company.

Assigning your Smart-Vue Pro Cloud Account in Smart Connect

If you want to push data logging information to the cloud, assign the Smart-Vue Pro cloud account to your mobile device (one account per device) as follows:

1. When you open the application or open the main menu bar, you may tap the **Assign cloud account (1)** link or on **Settings (2) → Cloud account**.

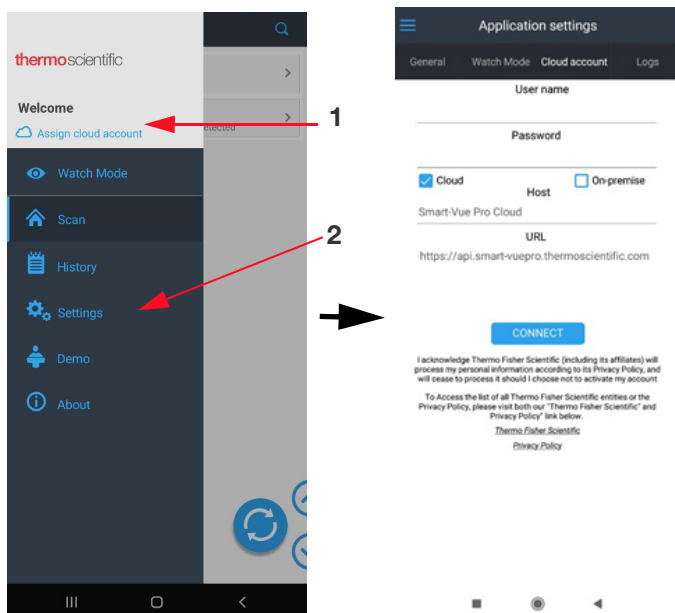


Figure 12. Assigning your Smart-Vue Pro Cloud account

2. Enter the same user name (Smart Vue pro web application user name) and password used for your Smart-Vue Pro cloud account.
3. For **Cloud-Hosted Solutions**:
 - Tap the check-box ☒ next to cloud.

For **On-Premise Solutions (For Future)** with the Smart-Vue Pro web platform installed locally:

- Tap the check-box ☒ next to on-premise.
- Enter the name of your Smart-Vue Pro host service in the host field.
- Enter the exact URL used to access the Smart-Vue Pro host in the URL field.
- Enter the customer key provided with your on-premises installation package in the key field.

4. Tap **Connect**.

The application connects with the server to confirm the account and confirms that the user account is assigned if the specified user name and password are valid.

Note: The connect button changes to disconnect to unassign the user if necessary.

Tap the back arrow at the bottom of the screen or use the slide-out menu to return to the home screen.

Proceed with data logging configuration (starting on the next page in this guide).

This step allows you to configure data logging sessions for which data can be uploaded to the cloud.

Creating Data Logger in Smart-Vue Pro Web Application/For On-Premises Solution (For Future)

If you intend to push data from a Smart-Vue Pro data logger to the web application, you must first add the data logger to your system. This process is described in detail in the Smart-Vue Pro web application user guide.

To summarize:



1. Log in to the Smart-Vue Pro web application.
2. Select Data loggers → Add.

Figure 13. Adding the data logger to your account in the web application

The trigger alarm options are not applicable when using bluetooth connectivity.

3. After you start data logging, the data logger will be displayed as “Equipment” in the Equipment list and on the Watch Mode dashboard. Information in the Smart-Vue Pro web application as per configuration are updated each time you push data using your mobile device.

General: Defining General Data Logging Settings

In the **Scan** screen, tap the refresh icon  at the bottom of the screen to update the list of visible data loggers. You may define and start data logging for data loggers with a gray icon . The other color icons indicate data loggers with data logging already active.

1. Tap the list to select the data logger you want to configure → **Set up new data logging**.
2. Fill or assign the necessary information on the **General tab (1)**.

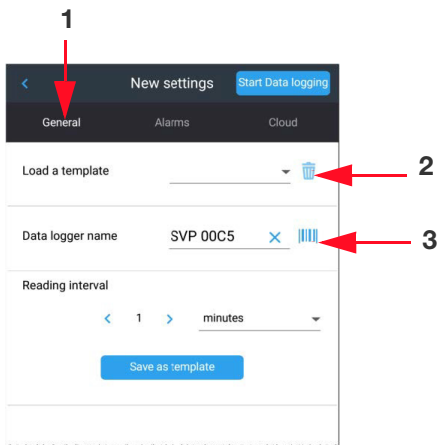




Figure 14. General Data Logging Settings

You may load a previously saved data logging template (if there are any) by tapping in the **Load** a template field and choosing a name from the drop-down list. To delete a template choose one from the list and then tap the  button (2).

3. Enter a name (up to 18 characters) in the **Data Logger name** field. This name is displayed throughout the application while referring to the data logger.

You can also enter information using the bar-code scanning feature of your mobile device.

- Tap the  button (3) to the right of the **Data logger name** field. A rectangular scanning area appears on your screen.
- Point your smart-phone's camera at the bar-code. The bar-code must fit entirely within the scanning rectangle on the screen to be successfully scanned. When the bar-code is decoded, the scanning area closes and the data logger name field is filled-in automatically. You may edit the name if you want.
- You may also click **Cancel** at any time to cancel the operation.

4. In the **Reading Interval** field, set the frequency which the data logger reads and records temperature from its sensor. Choose values in minutes or seconds by tapping the minutes or seconds field. Up to 4,000 readings can be stored in data logger memory. When the limit is reached, the oldest readings are overwritten by new readings.

Note: To activate **Low/High delays** in the **Alarms** tab, **Reading Interval** must be set in minutes (see below).

5. After adjusting settings, you may tap **Save as template** at the bottom of the screen if you want to save the current configuration as a template for future use. You may also come back to this option after adjusting settings on the other tabs before starting data logging.

Alarms Tab: Setting High and Low limits

You may set high and low limits in the **Alarms** tab (1) to ensure the temperature in the monitored environment remains within a specific range.

Tap the **Alarms** tab to adjust alarms before starting data logging.

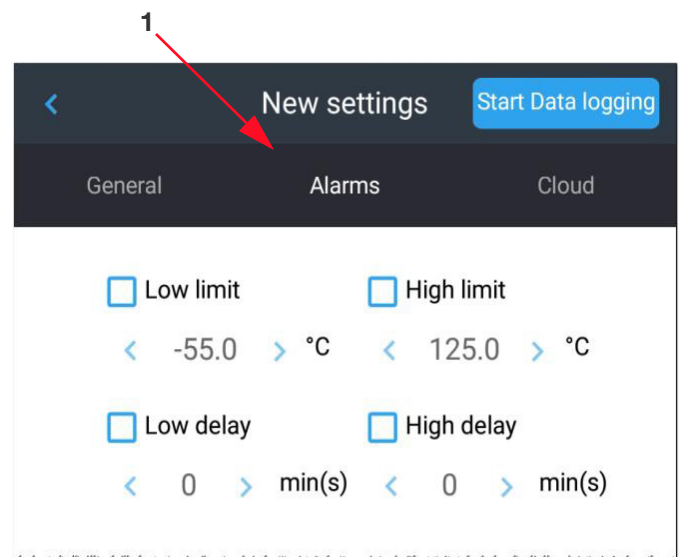


Figure 15. High and Low Temperature Range Limits

The default values indicated beneath check-boxes show the data logger's available temperature range.

Tap the check-boxes to enable options and in the fields to adjust settings.

Low limit:	Lowest acceptable temperature reading.
High limit:	Highest acceptable temperature reading.
Low delay:	The duration of the reading to be lower than the low limit before triggering an alarm (must be a multiple of the reading interval, in minutes only).
High delay:	The duration of the reading to be higher than the high limit before triggering an alarm (must be a multiple of the reading interval, in minutes only).

If an alarm occurs at any point after data logging starts, the data logger icon changes color to show an alarm in the **Data logger's** list (until Watch Mode is activated, see **Monitoring Data Loggers with Watch Mode**)

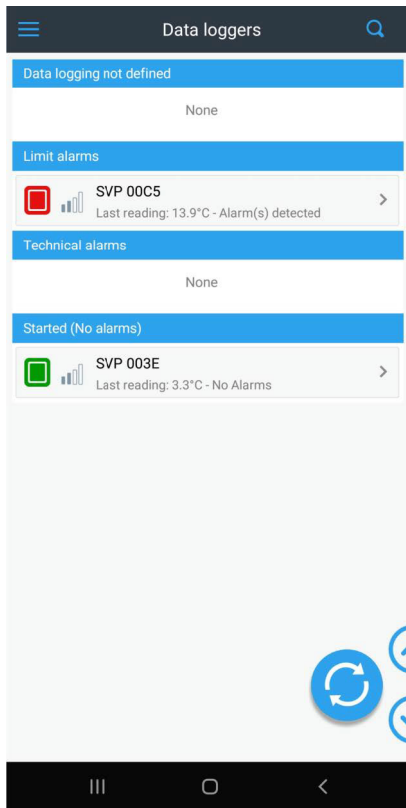


Figure 16. Alarm Condition Indicated by Red Icon

Cloud Tab: Pushing Data to Smart-Vue Pro Web Application

To push data logger data to the Smart-Vue Pro web application during a data logging session, you must do the following:

1. Assign your Smart-Vue Pro web application user name and password in Settings → Cloud account tab, as described earlier in **Assigning your Smart-Vue Pro Cloud Account in Smart Connect**.
2. Create the data logger in the Smart-Vue Pro web application (Data loggers → Add).
3. Select **Use Cloud for this data logging session** as described below.

To push data to Smart-Vue Pro cloud for this data logging session or any session programmed using this session as a template via your smart-phone or tablet:

1. Tap the **Cloud account** tab.
2. Select **Use Cloud for this data logging session**.

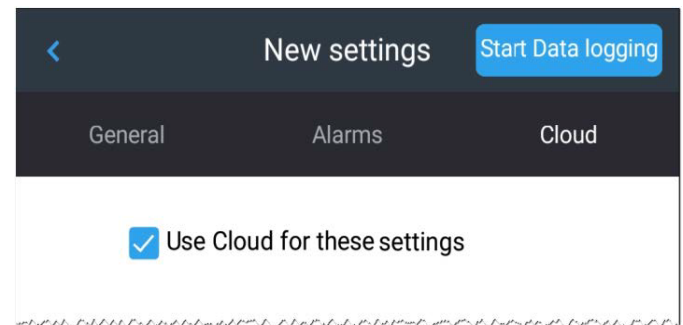


Figure 17. Option to send data to the cloud platform for online access

Data is pushed by your mobile device at several points during data logging, when the:

- Data logger is programmed and logging begins.
- Data logger is read while data logging is active.
- Data logging is stopped.

Starting Data Logging

Tap **Start data logging (1)** to transmit your settings and begin data logging while also updating the data logger status in the Smart-Vue Pro web application. The **Start data logging** button is present on the **General**, **Alarms** and **Cloud** tabs.

Then tap **Start Data Logging (1)** to transmit your settings to the data logger. Data logging begins immediately. The Start Data Logging button is present on the **General, Alarms** and **Cloud** tabs.

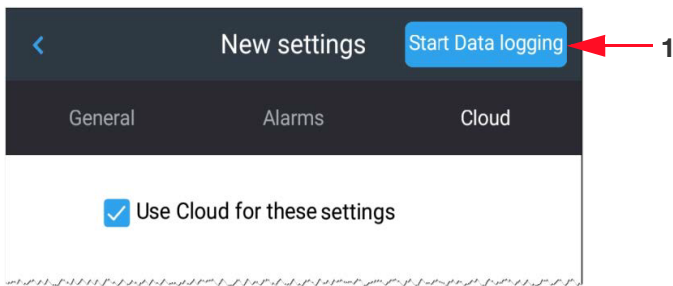




Figure 18. Start Data Logging

A confirmation message is displayed in Smart Connect and the data logger is displayed on the home screen with a green icon  if everything is OK; red icon  if the data logger already has an alarm.

Note: If you remove both batteries from a data logger while data logging is running and the data logger is not plugged in to its external power source, the data logging session stops. The latest readings are still stored in the data logger's internal memory. Once power is restored, the data is pushed to the Smart-Vue Pro web application using Smart Connect.

However, those readings are erased without any prior warning if you start another data logging session with Smart Connect.

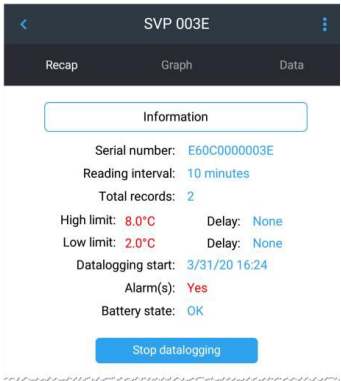

Viewing Current Data Logging

Recap Tab (General Information)

When a data logger is activated and configured for data logging, you may view various details, save reports or send information by e-mail or store information on Smart-Vue Pro cloud.

1. On the **Scan** screen, tap the **Data logger name** → **Show current data logging**.
2. General information about data logging is displayed on the **Recap** screen which contains two parts (you may need to scroll vertically to see all information).

Table 3. Smart-Vue Pro Data Logger Data

Recap Section	Description
	<p>Data logging information:</p> <p>Includes general data logger and configuration information: The serial number, configured sensor reading interval, the number of readings recorded, high/low limits and alarm delays, when data logging began, whether any alarms have occurred and battery status.</p> <p>Note: You may use the Stop data logging button to terminate data logging, if required.</p>
	<p>Conditions:</p> <p>Includes information based on sensor readings: minimum/maximum observed values and when they occurred as well as mean value, standard deviation, mean kinetic temperature and activation energy.</p> <p>Note: This information applies only during the period (From to) indicated at the top of the screen.</p>

Data Logging Graph and Readings

Graph

Tap the **Graph** tab to see a summary graph of the readings in the current data logging session. Zoom in and out by “pinching” with your fingers. The display zooms in as your fingers move apart. It zooms out when you do the reverse. Other controls on the **Graph** screen:



Displays details about a given reading at the top of the screen. The reading is indicated by a vertical bar.



This icon appears when you have zoomed in on the graph. Tap to restore the graph to its original size.

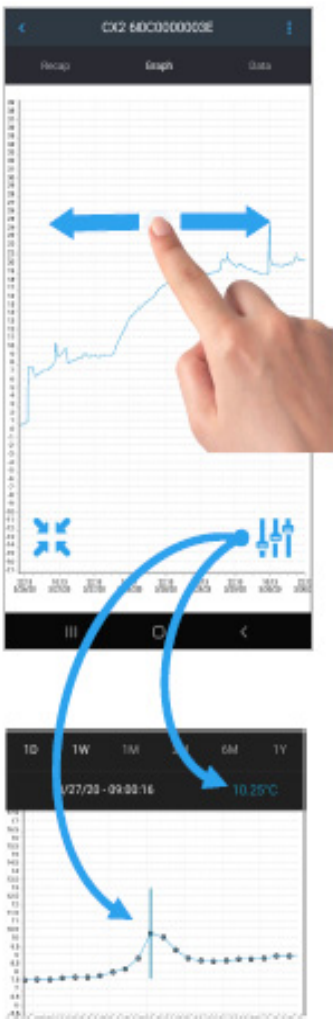


Figure 19. Viewing Data Graph

Smart-Vue Pro

Recap

Graph

Data

Date and time

☒ Readings

☒ Evts/Alarms

7/8/19 10:43:27	Datalogging started
7/8/19 10:43:27	Datalogging programmed
7/8/19 10:44:31	Mission update:Name /
9/1/19 22:20:27	29.00°C
9/1/19 22:21:27	29.00°C
9/1/19 22:22:27	29.00°C
9/1/19 22:23:27	29.00°C
9/1/19 22:24:27	28.94°C
9/1/19 22:25:27	29.00°C

Figure 20. Viewing Readings Data

For a list of all the readings, events and alarms related to the data logging session, tap **Data**.

You may choose to list Readings and/or Events-Alarms by selecting the check boxes **(1)**.

Saving and Sending Data from the Current Data Logging Session

You may save or store data at any time during a data logging session by tapping the 3-dot icon **(1)** in the upper right-hand corner of the screen.

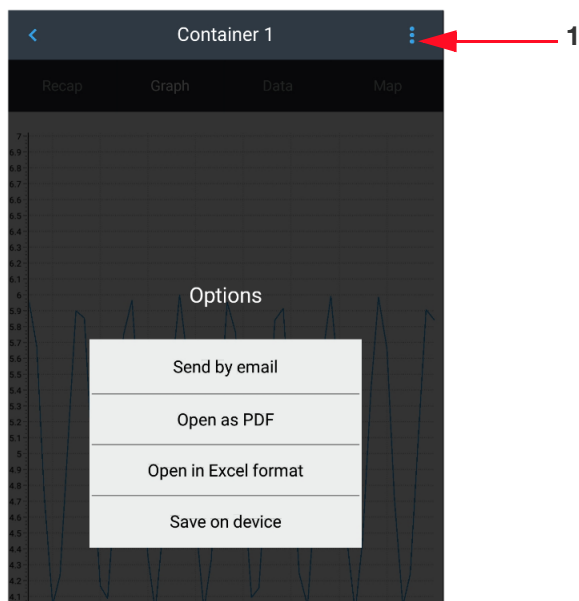


Figure 21. Saving and Sending Data from the Current Mission

Save on Device:

Saves up to five data logging sessions in your mobile device's memory which you may access via the **History** tab. If you save the current data logging session more than once, it is saved as a new file each time.

Send by Email:

Sends all stored readings in .CSV format along with a separate JPG image of graph from the current data logging session to an email address that you specify. This action requires your email functionality and internet (cellular or Wi-Fi) access to be operational on your mobile device.

Open in Excel Format:

Note: The Cloud server generates the .XLS file, so data logging must be Cloud-enabled for this feature to work and you must be connected to the Internet. Also, a compatible spreadsheet application must be installed on your mobile device so that you can open the Excel file.

Tap **Open in Excel format** to view data logging information and data in MS Excel® format using your mobile device's spreadsheet. You may use the app's native features to save, send, print or otherwise share this file.

Open as PDF:

Note: The cloud server generates the PDF file. The data logging must be cloud-enabled for this feature to work and you must be connected to the Internet. A PDF reader application must be installed on your mobile device to open the PDF file.

Tap **Open as PDF** to view data logging information and data in PDF format using your mobile device's PDF viewer. You may use the viewer's native features to save, send, print or otherwise share this PDF file.

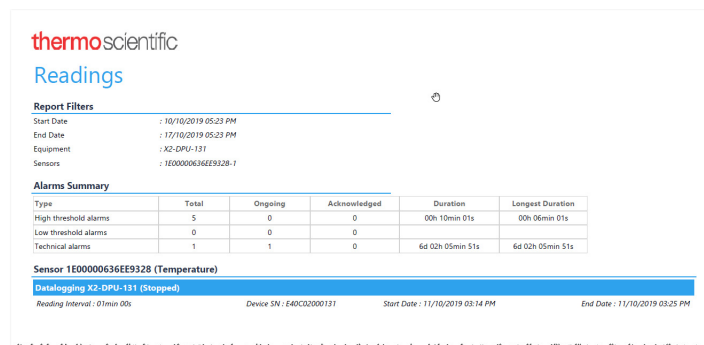


Figure 22. Viewing data logging session as PDF

Reports are generated by the cloud service and includes all the data that is transferred since data logging was started and not just the data recently downloaded from the data logger. Internet connection is required for this function.



CAUTION: As reports are generated by the cloud platform, they use temperature unit preference set on the cloud and not on the mobile application.

Looking Up and Sending Data from Previous Sessions

On the main menu, tap **History** to see stored information from Smart-Vue Pro data logger data logging sessions. Tap the desired session to see complete details.



The Cloud icon indicates that the data logging was cloud-enabled (data synchronization with the cloud).



The mobile device icon indicates that the data logging was not cloud-enabled.

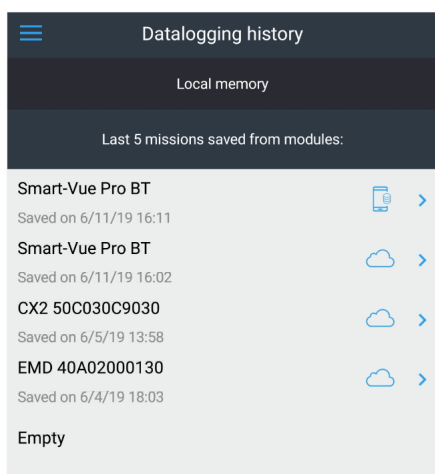


Figure 23. Displaying data from previous sessions

After tapping on a data logger in this list to open a saved data logging session, you may tap data logging details. **Tap on options icon** ⋮ (in the upper right-hand corner) to:

Send by Email:

Sends all stored readings in .CSV format along with a separate JPG image of graph from the current data logging session to the email address that you specify. This action requires your mobile device's email functionality and internet (cellular or Wi-Fi) access to be operational on your mobile device.

Push to Cloud:

If data logging was cloud-enabled when it was programmed, this option pushes the stored readings to cloud. It is not displayed if the data logging session was not cloud-enabled when the data was saved.

Data Logger History Logs

Your Smart-Vue Pro data logger keeps complete track of all events. To see the event log:

1. To enable, select Settings→Logs→Show logs in **History** tab is enabled.
2. Tap History → Logs.

The buttons in the top right-hand corner of the screen **(1)** allows you to send the list of logs by email or copy the list of events and use the information later in an email or in a document.

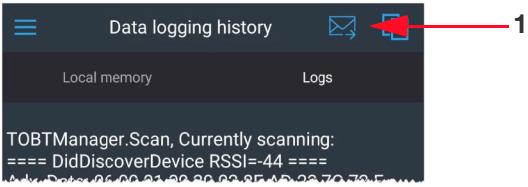


Figure 24. Data logging history logs

Application Settings

To access application parameters, tap **Settings** in the main menu. The settings view contains various options for configuring Smart Connect behavior, as described here.

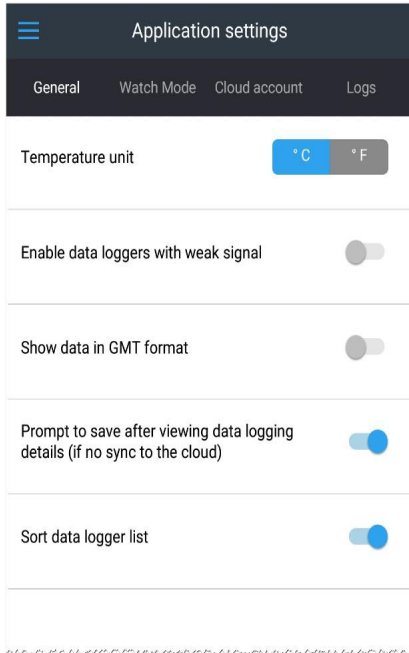


Figure 25. Configuring Smart Connect Settings

Temperature Unit: Choose to display values in Celsius (°C) or Fahrenheit (°F).

Note: Units of temperature in exported files is as per cloud selection during configuration.

Enable Data Logger with Weak Signal: Disabled by default, this feature prevents your smart-phone or tablet from connecting to Smart-Vue Pro Duo/Quattro data loggers whose signal strength is too weak to ensure reliable transmission. Data loggers with low signal strength are greyed out in the **Scan** view and cannot be selected.

Enabled: Data loggers with low signal strength will be accessible in the **Scan** view and you can select them. You may need to move yourself closer to establish a good wireless connection.

Show Data in GMT Format: This option lets you display the data with GMT time or the mobile device's current local time.

Prompt to save after viewing data logging details:

When viewing data logging details (tap data logger in scan screen → **Show current data logging** → **Data logging details**), current data is downloaded temporarily to your mobile device. This option asks if you want to save data when you exit the **data logging details** screen. If data is pushed to

the cloud, you will not be asked to save data when you exit the **Data logging details** screen.

Sort data logger list: Group data loggers by category in the **Scan** view. Enabled by default, this option allows you to find your data loggers quickly and easily according to their statuses. Slide the button to the left to disable this feature and list data loggers in the order in which they are discovered.

Monitoring Data Loggers with Watch Mode

Smart Connect's Watch Mode enables you to visually monitor Smart-Vue Pro Duo/Quattro data loggers on an ongoing basis. This feature also uploads live data to Smart-Vue Pro cloud in real-time. Users may then log into their account on the Smart-Vue Pro web application to view this information. The web platform can also send alert notification in case of alarms.



CAUTION: Watch Mode involves constant monitoring of nearby Smart-Vue Pro data loggers and (optionally) uploading data to the cloud. We therefore recommend that you plug your smart-phone or tablet into its charger to keep the battery from draining during prolonged operation.

When activated on your smart-phone or tablet, **Watch Mode** captures bluetooth advertising frames that contains key Smart-Vue Mobile Pro data logger information and displays the latest reading and status either for selected data loggers (Stationary) or for all data loggers that come within wireless range (Mobile) as described in the next section.

You can easily monitor whether limits are exceeded and access further details for any given data logger. You can view and download reports from your smart-phone or tablet.

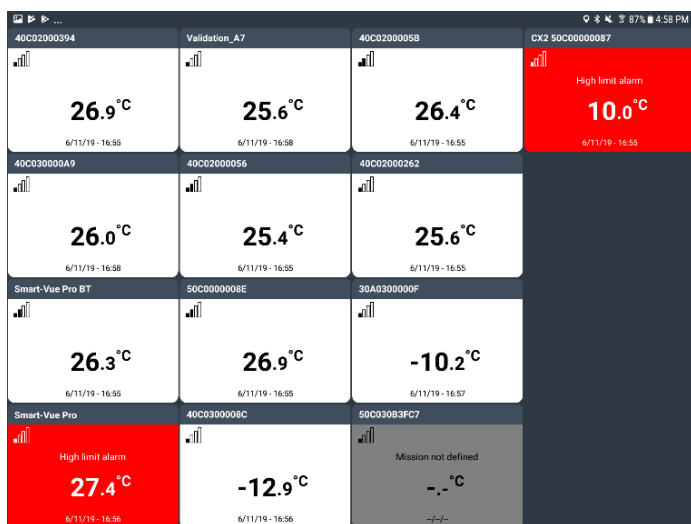


Figure 26. Watch Mode Enabled on Tablet

Prerequisite for Using Watch Mode

When using Watch Mode, the Smart Connect application must remain in the foreground on your smart phone or tablet (it must be the active application). As the application remains on, it is recommended to connect your device to its power source for extended periods of use.

Watch Mode Settings

On the main menu, tap **Settings** → **Watch Mode** to adjust the following options as necessary:

Monitoring environment:

Tap the radio button to select the type of environment to be monitored:

- **Stationary:** You may choose which data loggers to monitor from a list of data loggers within wireless range.
- **Mobile:** All programmed Thermo Scientific data loggers that come within wireless range are picked up automatically by watch mode monitoring. After the data loggers are discovered, Smart Connect shows a report with the number of data loggers currently data logging and in alarm state (limits exceeded and low battery). This feature requires the show report message at startup option to be enabled. The option is displayed when you select mobile as the monitoring environment in the following screen.

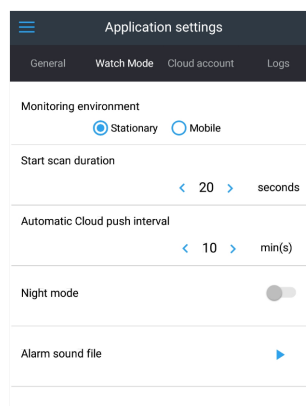


Figure 27. Watch Mode Settings

Start scan duration:

Enter the duration of which the Smart Connect will scan for data loggers within a range when starting Watch Mode. Default values are from 10 to 120 seconds. You may adjust this value depending on the number of data loggers in your environment.

Show report message at startup:

Additional option displayed for mobile monitoring environments. Smart Connect shows a report with the number of data loggers currently data logging and in alarm state (limits exceeded and low battery) while it is enabled after scan is complete ("**Mobile**" monitoring environment only).

Automatic Cloud push interval:

This option sets the frequency (in minutes) with which live alarm status and temperature readings are pushed to the cloud.

Night mode:

Slide the button to the right to activate "Night mode". This option changes the background of the tiles to a darker color palette if enabled. This display adapts Watch Mode to make it easier to use Smart Connect in a dark environment.



Figure 28. Default Color Contrast

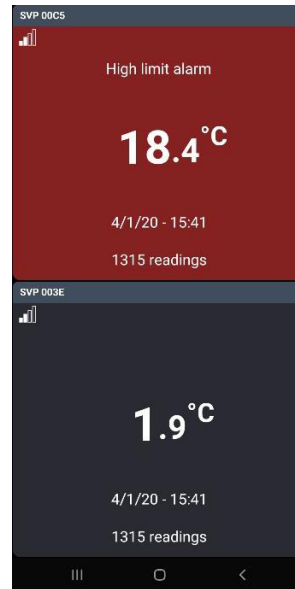


Figure 29. Night Mode

Alarm sound file:

You may test the volume of the alarm by tapping the ► icon. The alarm rings for approximately 8 seconds, enabling you to adjust volume as desired.

Activating Watch Mode

Watch Mode is a feature that allows you to monitor selected data loggers or all your data loggers as tiles on your device's screen.

The watch mode allows you to enable Smart-Connect to push data to the Smart-View Pro web application at regular intervals and thus access data remotely and receive alerts in case an alarm is detected.

Watch Mode is not the default operating mode. To activate the feature, tap Watch Mode in the main menu.

When Watch Mode is enabled, you may access a different set of commands from the slide-out menu on the left-hand side of the screen.

You may swipe the screen from left to right to reveal the slide-out menu at any time. Commands are context-sensitive and vary depending on the screen.

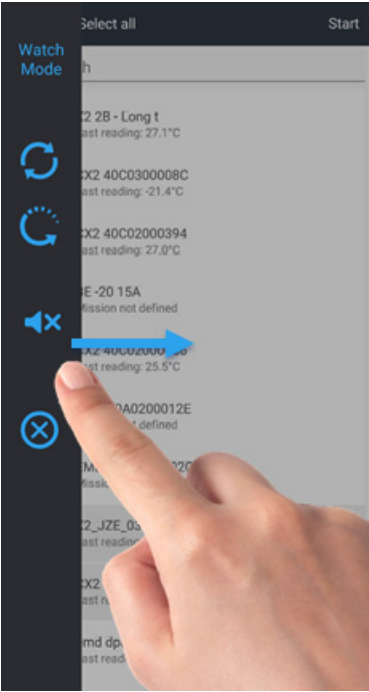








Figure 30. Watch Mode Menu

Command description:

-  Refreshes the current list of data loggers and starts scanning to discover additional data loggers within range.
-  Resets the current Watch Mode session. This feature clears the data logger list and acknowledged alarms and then scans to discover nearby Smart-Vue Pro data loggers for the time you specified in the Start scan duration option in Watch Mode settings. This feature can be useful, for example, if you move data loggers around your site or add new data loggers.
-  Alarm sound is active. When a data logger is in an alarm state, Smart Connect emits an audio alarm for a few seconds every minute. Tap the speaker icon to temporarily mute the alarm sound for 1 hour. After that time, alarm sound will automatically turn back on.
-  Alarm sound is in silent mode. You may tap this icon to turn on audio alarms at any time.
-  Exits the Watch Mode monitoring screen and returns to the data logger selection screen (in **Stationary mode** only).
-  Exits Watch Mode and returns to the scan screen.

Discovering Data Loggers

When starting Watch Mode, Smart Connect runs a bluetooth scan to discover and list the Thermo Scientific data loggers within range.

Wait until the scanning phase is complete. A time counter at the bottom of the pop-up window indicates the scan progress for the period of time you specified in the **Start scan** duration option, in the **Watch Mode** settings screen (See **Application Settings**).

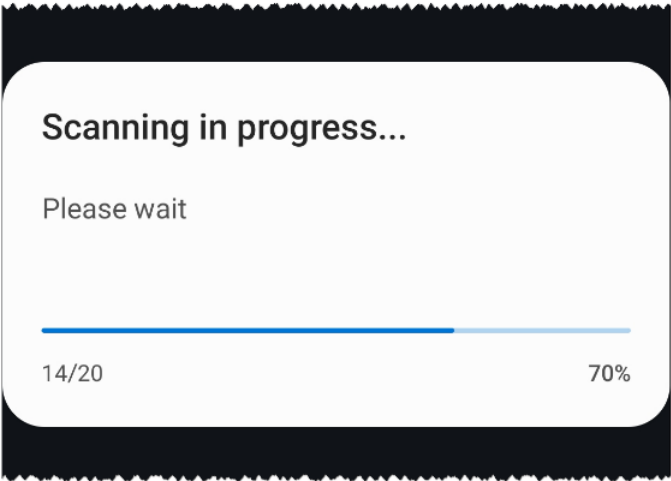


Figure 31. Data logger discovery in progress

“Stationary” monitoring environment

With this mode, the data logger list appears on screen and you may use the **Search** function to filter the data logger list according to specific criteria such as a data logger’s serial number, data logger name or data logging session name, bar-code.

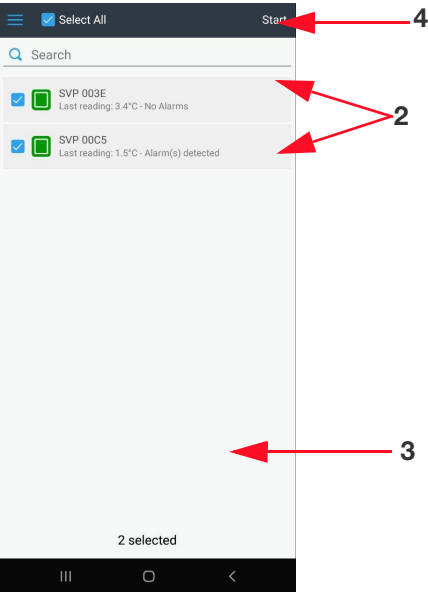


Figure 32. Selecting Data Loggers for Watch Mode

1. Tap to select the data loggers you wish to assign to Watch Mode **(2)**.
2. A counter in the lower part of the screen shows the number of selected data loggers **(3)**.
3. Tap **Start** in the upper right-hand corner to activate Watch Mode **(4)**.

“Mobile” Monitoring Environment

With this mode, all data loggers within range are automatically shown in Watch Mode. This includes data loggers that are within range when Watch Mode is started as well as data loggers that come within range while it is running

After data loggers are discovered when Watch Mode is started, Smart Connect shows a summary report with the number of data loggers with data logging in progress and those in an alarm state (limits exceeded and low battery).

Note: The **Show report message at startup** option must be enabled for this feature to work.

Tap **OK** to continue.

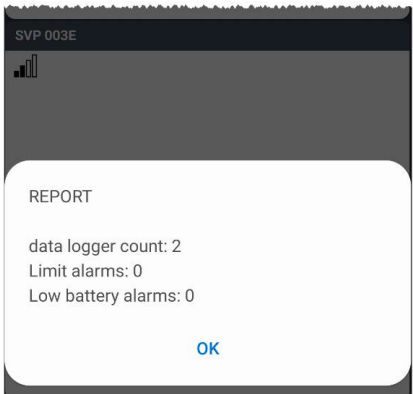


Figure 33. Summary of data loggers within range when starting Watch Mode with mobile profile

Depending on the monitoring environment option you selected in the Watch Mode settings screen (**Stationary** or **Mobile**), data is presented as a thumbnail **(5)** or as a list **(6)** if more than 8 data loggers are selected (on smart-phones only)

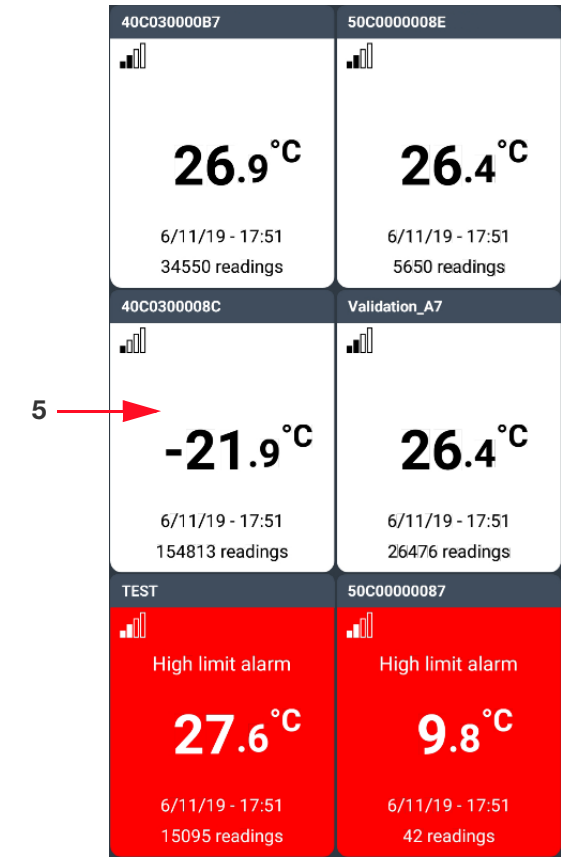


Figure 34. Data logger thumbnails (up to 8 data loggers)

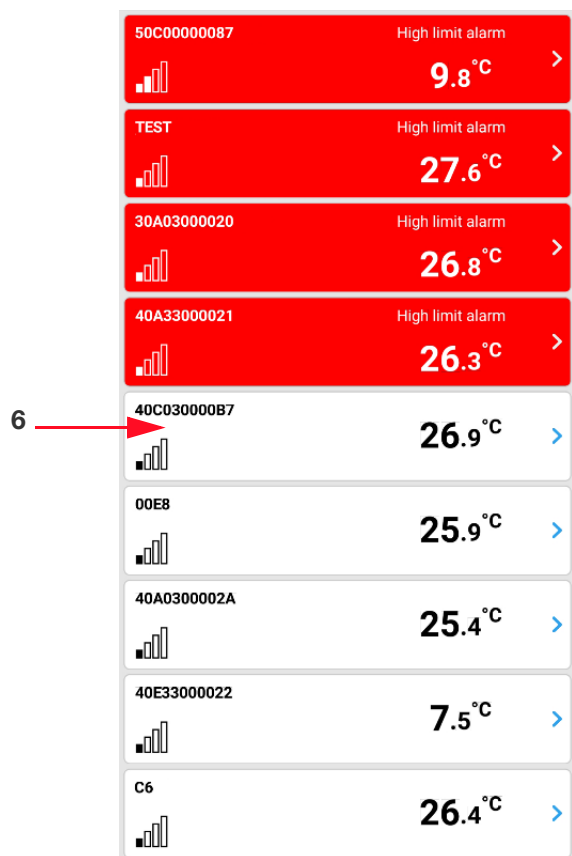


Figure 35. Data logger list (more than 8 data loggers)

When watch mode is activated, the colored icons on the Scan tab are described as follows:

- **White** indicates a programmed data logger, status of the data logging, if its last read value exceeded the limit value (currently not in an alarm state).
- **Red** indicates a programmed data logger, currently in an alarm state. (Limit alarms-High, Low and Technical Alarms- Low battery, Sensor Fail, Invalid Sensor). Smart Connect plays an alarm once a minute for several seconds if the latest reading on one or more data loggers has exceeded an alarm limit.

Also, Red is indicated for wireless transmission issues. The data logger signal is not being received (connection is not possible).

- **Grey** indicates either a non-programmed data logger or one on which there was an error reading the sensor (i.e. the current reading is not available). The text below the data logger name shows the status "data logging not defined".

Each data logger shows the latest reading (color coded) and various other information:

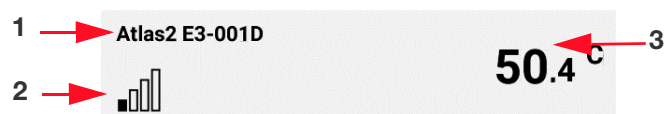


Figure 36. Data logger information (list mode)

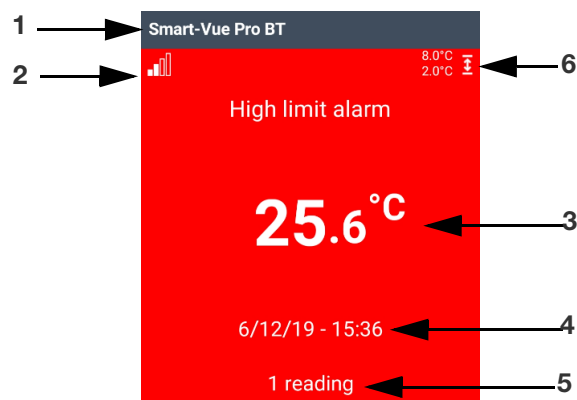


Figure 37. Data logger Information (thumbnail)

1. Data logger name
2. Status icons:

- Wireless signal strength from 0 to 4
- No wireless signal
- Low battery
- Silenced alarm

3. Latest reading with color coding showing the sensor status.
4. Date and time of latest reading.
5. Number of readings since data logging started.
6. High and low alarm limits.



If configured, upper and lower limit values appear on the data logger thumbnail after you have connected to the data logger one time. If high and low alarm limits are not shown, ensure they are defined in the **Alarms** tab of your data logging configuration.

Data Logger Details

You may click a tile to access more information about a particular data logger. The data logger is displayed as a thumbnail in the foreground of your screen **(1)**.

This thumbnail closes automatically after about 8 seconds of inactivity.

You may tap **Details (2)** to connect to the data logger and access further details. Standby until the process is complete.

General data logger information is displayed as described in **Viewing Current Data Logging, Recap Tab (General Information), Data Logging Graph and Readings**.

If the data logger for which you wish to see data is not programmed, you will get access to the last data logging session recorded in data logger memory.

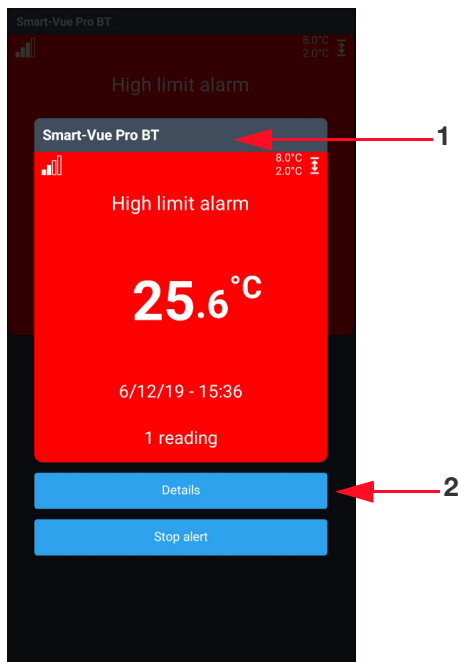


Figure 38. Data Logger Details

Tap the Recap, Graph or Data tabs to see complete details regarding data logging

To return to the previous page, tap the < icon in the upper left-hand corner of the screen.

Note: Tap the Back button on your android device to view the Watch Mode slide-out menu to prevent you from exiting watch mode.

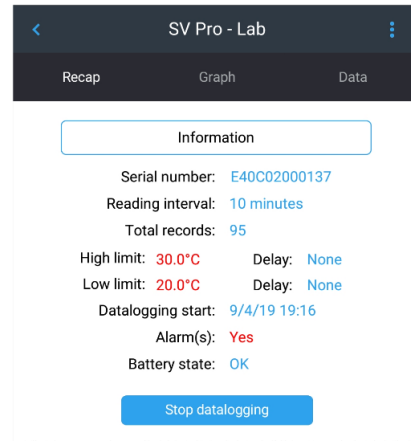


Figure 39. Viewing Mission Data

Silencing Individual Alarms

When a data logger has an alarm, you may turn off the audio alarm by tapping the blue **Stop alert (3)** button in the data logger thumbnail.

You are prompted to confirm whether you want to turn the alarm silent. Click **Yes** to silence alarm or **No** for no change.

The speaker icon **(4)** on the data logger thumbnail and the grayed-out **Stop alert (5)** indicate that the alarm is turned off for the data logger.

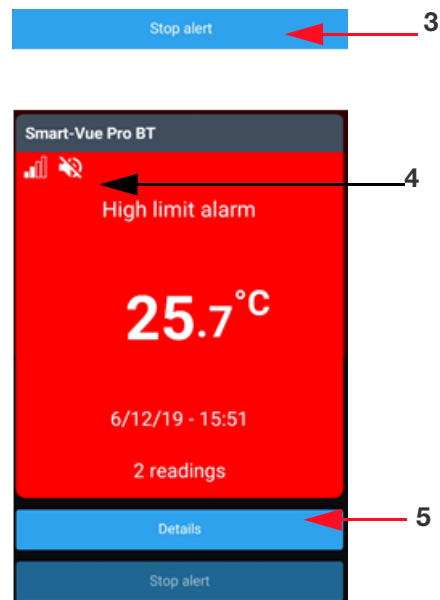


Figure 40. Acknowledged Alarm




The audio alarm remains disabled for the duration of the current watch mode session.

Note: Silencing the alarm in Smart Connect does not actually fix any physical or technical problem encountered by the data logger and the data logger could still be in an alarm state.

Exiting Watch Mode

To exit Watch Mode and return to the data logger selection screen, tap your mobile device's **Back** button or pull out the side menu.

Tap the **Exit** icon  to return to the data logger list, then on  to exit Watch Mode.

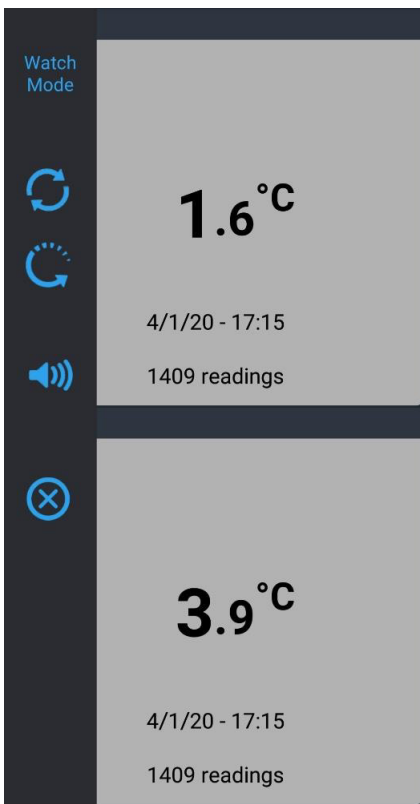


Figure 41. Exiting Watch Mode

Opening a .CSV File with Excel

As mentioned earlier, Smart Connect can send reports in a .CSV format for use in MS Excel or other compatible spreadsheet software. The instructions provided here are valid for the latest version of MS Excel. The exact behavior of your software may vary.

Opening the File

Tap a data logger in the scan screen → Show current data logging → Send by e-mail. An email with a .csv file is sent to your email address. On your computer, you double-click the .CSV file. The file opens directly.

Depending on your spreadsheet software, may need to use the import function to display data fields correctly.

File Contents

The .CSV file exported by Smart Connect is a “tab-delimited” format in which data is separated by the “tab” character. This should enable most softwares to open and view the file.

Region-Dependent Values

Several values contained in the .CSV file are dependent on your regional settings. The current settings on your mobile device are used for the following:

- Decimal value (i.e. 24.5 or 24,5)
- Date format

File Name

The following diagram shows the composition of the exported file name:

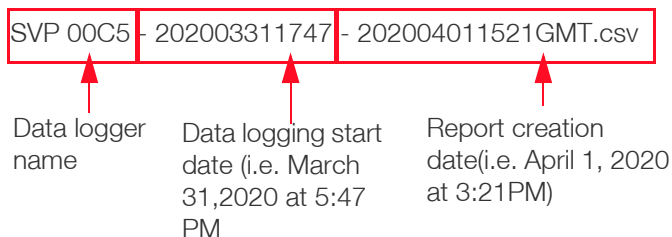


Figure 42. File Name

File Contents

When opened in MS Excel®, the report looks like this:

	A	B	C	D	E
1		All dates are displayed in GMT format +02:00			
2	E	Datalogging programmed	3/31/20 17:47:14		
3	E	Datalogging started	3/31/20 17:47:14		
4	E	Module connected	04-01-20 17:17		
5	A	High limit alarm (end)	04-01-20 17:10		
6	A	High limit alarm (start)	04-01-20 16:53		
7	A	High limit alarm (end)	04-01-20 16:48		
8	A	High limit alarm (start)	04-01-20 16:03		
9	A	High limit alarm (end)	04-01-20 15:46		
10	A	High limit alarm (start)	04-01-20 15:38		
11	R	Readings	3/31/20 17:47:14	4.63	°C
12	R	Readings	3/31/20 17:48:14	4.63	°C
13	R	Readings	3/31/20 17:49:14	4.63	°C
14	R	Readings	3/31/20 17:50:14	4.63	°C
15	R	Readings	3/31/20 17:51:14	4.63	°C
16	R	Readings	3/31/20 17:52:14	4.63	°C
17	R	Readings	3/31/20 17:53:14	4.63	°C
18	R	Readings	3/31/20 17:54:14	4.63	°C
19	R	Readings	3/31/20 17:55:14	4.69	°C
20	R	Readings	3/31/20 17:56:14	4.69	°C
21	R	Readings	3/31/20 17:57:14	4.63	°C
22	R	Readings	3/31/20 17:58:14	4.69	°C
23	R	Readings	3/31/20 17:59:14	4.69	°C
24	R	Readings	3/31/20 18:00:14	4.69	°C

Figure 43. MS Excel Report

The columns in this file are:

- A** E: Events
- A: Alarms
- R: Readings
- B** Description
- C** Date/ Time
- D** Value
- E** Units

Note: “NAN” indicates that no value is available or is not applicable to a specific case.

Appendix 1 – Advanced Data Logger Settings

The More option on the data logger detail screen provides several advanced options.

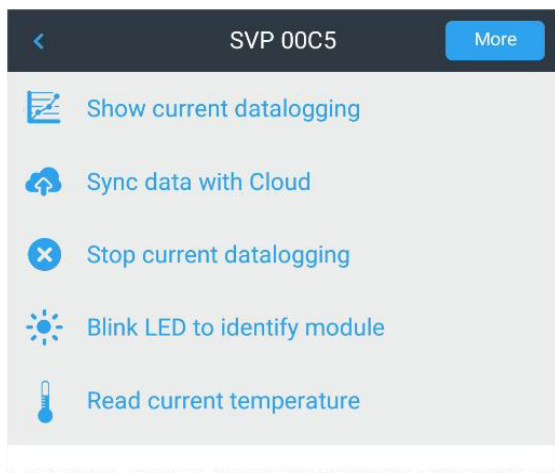


Figure 44. Advanced Data Logger Settings

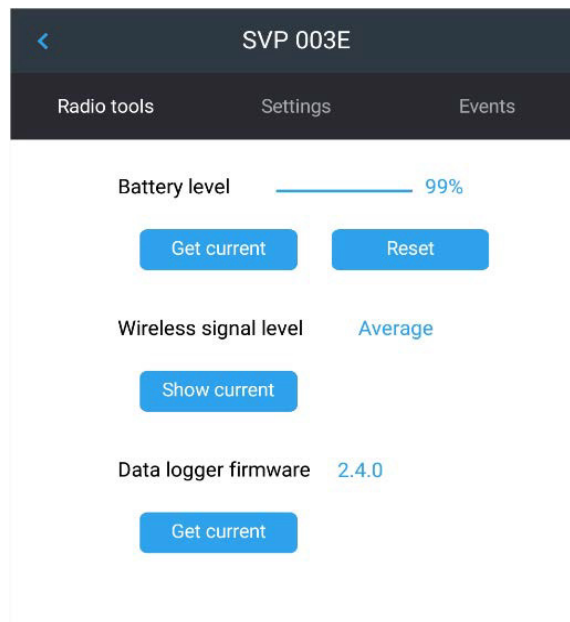


Figure 45. Radio Tools

Radio Tools

- Tap Get current to see the data logger's battery level.
- Tap Reset to reset the counter to 100% (only after replacing the battery in the data logger with a new one).
- Do not reset the battery counter without installing a fresh battery.
- Tap **Get Current** buttons to see wireless signal strength or the data logger's firmware version.
- If a more recent firmware version is available for your data logger, an option to update is offered on this screen after you press **Get current** for **Data logger firmware**.

Settings

Calibration Parameters

This tab enables you to manage the calibration parameters (a.k.a. "correction parameters") for your data logger.

Get current

Displays the A and B calibration parameters currently present on your data logger.

Download

If your data logger was calibrated by Thermo Scientific, A and B parameters are downloaded from the Thermo Scientific calibration database and entered into the A and B fields (without updating the data logger itself). This requires internet connection.

Update

To update the data logger with the parameters contained in the A and B fields, tap **Update**. This enables you to enter your own calibration parameters.

Note: The value of A must be between 0.001 and 2.

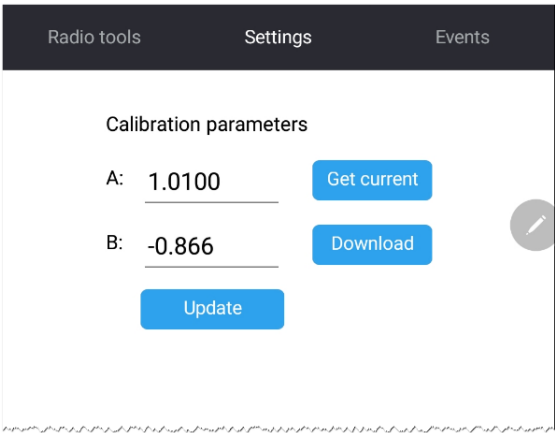


Figure 46. Managing Calibration Parameters

System Events

The **Events** tab shows technical events for the selected data logger. This may be useful for troubleshooting or technical support purposes.

Tap the **Refresh to load permanent events from data logger** button to update the list of events.

Events are displayed in chronological order with the most recent ones listed first.

You may tap **Copy** button in the top right-hand corner of the screen to copy the list of events.

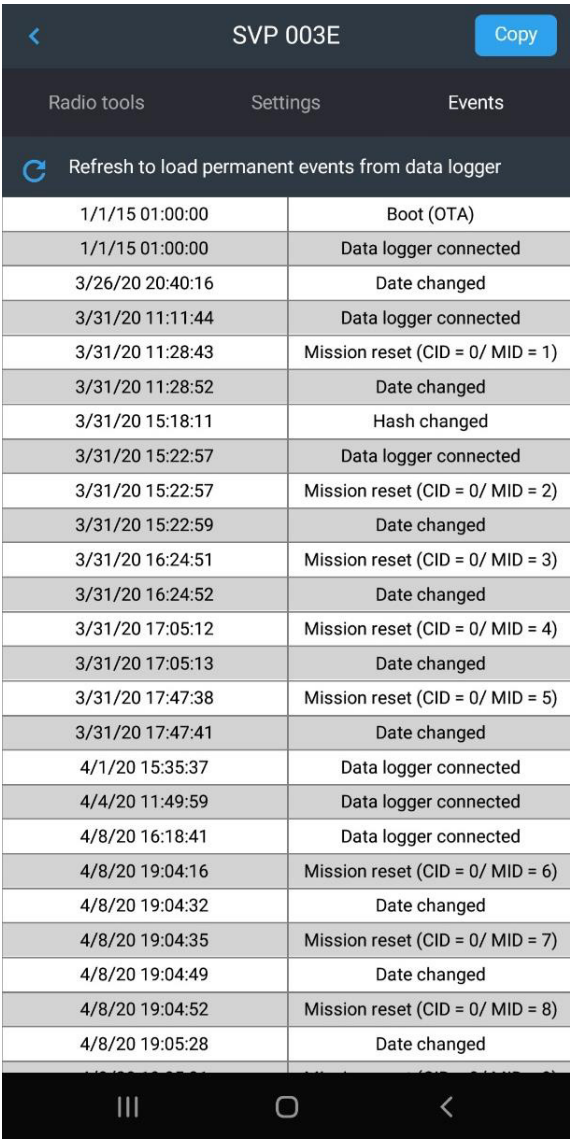


Figure 47. List of Permanent Events

Appendix 2 - Troubleshooting

If you are having difficulties with your configuration, refer to these frequently asked questions before contacting technical support.

I plugged in several sensors into my Smart-Vue Pro data logger, however, only one is visible in the mobile application.

The solution is strictly limited to supporting a single external temperature sensor plugged to “channel 0” on the Smart-Vue Pro data logger as shown here:

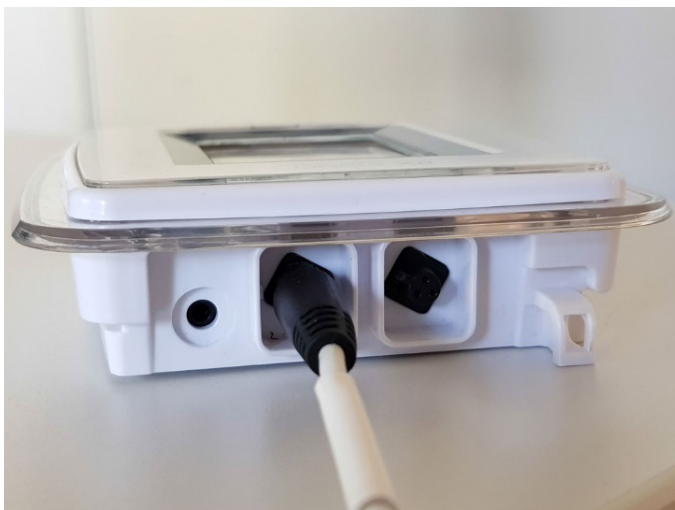


Figure 48. Smart-Vue Pro Data Logger

Where can I find user manuals and technical specifications for my Thermo Scientific data loggers?

Visit to www.thermoscientific.com to view technical specifications and user manuals for the data Thermo Scientific data loggers.

When trying to start data logging, I get the error “Operation failed. This data logger is not linked to your cloud account.” What is wrong?

This error occurs if the data logger is not added to the Smart-Vue Pro web application even though you may have added the user name and password correctly in Smart Connect. See **Creating Data Logger in Smart-Vue Pro/ For On-Premise Solutions (For Future) Web Application** for details.

Appendix 3 - List of Compatible Devices

iOS®

Supported iOS® versions:

- iOS® version 11, 12.4, 13.4.

Compatible Apple® Devices

Compatible with iPhone 5s, iPhone 6, iPhone 6 Plus, iPhone 6s, iPhone 6s Plus, iPhone SE, iPhone 7, iPhone 7 Plus, iPhone 8, iPhone 8 Plus, iPhone X, iPad Air, iPad Air Wi-Fi + Cellular, iPad mini 2, iPad mini 2 Wi-Fi + Cellular, iPad Air 2, iPad Air 2 Wi-Fi + Cellular, iPad mini 3, iPad mini 3 Wi-Fi + Cellular, iPad mini 4, iPad mini 4 Wi-Fi + Cellular, iPad Pro 12.9 inches, iPad Pro 12.9 inches Wi-Fi + Cellular, iPad Pro 9.7 inches, iPad Pro 9.7 inches Wi-Fi + Cellular, iPad (5th generation), iPad Wi-Fi + Cellular (5th generation), iPad Pro 12.9 inches (2nd generation), iPad Pro 12.9 inches Wi-Fi + Cellular (2nd generation), iPad Pro 10.5 inches, iPad Pro 10.5 inches Wi-Fi + Cellular and iPod touch (6th generation).

Android®

Supported Android® versions:

- Android 6 / 7 / 8 / 9 / 10*.

* Expected to be compatible but not fully validated yet. This OS version is not recommended.

Mobile Device Compatibility

Only Android mobile devices powered by an ARM v7 processor with the NEON instruction set are supported.

The following Android® devices are known to **NOT** be supported (non-exhaustive list):

- Galaxy S (GT-I9000)
- Samsung Galaxy Mini (GT-S6500T)
- Samsung Galaxy Ace (GT-S5830D)
- Motorola Droid X2
- Galaxy Tab 7 (P1000)
- Samsung GT-S5690
- Samsung Galaxy Ace (GT-S5830i)
- Samsung Galaxy Tab 10.1 (P7500/7510)
- Samsung Galaxy S Duos (GT-S7562)
- Zenithink AML-MX REF (10 Inch Tablet)
- Samsung Galaxy Tab 3 7inch (SM-T211)
- Samsung Galaxy Pocket Neo
- Motorola Atrix 4G
- Samsung Galaxy Fame GT-S6810
- Samsung Galaxy Tab 3 (GT-P5200, GT-P5210)
- Huawei Ascend P6
- Galaxy tab 3 GT-P5210

WEEE Compliance

WEEE Compliance. This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2012/19/EU. It is marked with the following symbol. Thermo Fisher Scientific has contracted with one or more recycling/disposal companies in each EU Member State, and this product should be disposed of or recycled through them. Further information on our compliance with these Directives, the recyclers in your country, and information on Thermo Scientific products which may assist the detection of substances subject to the RoHS Directive are available at www.thermofisher.com under Services & Support.

WEEE Konformität. Dieses Produkt muss die EU Waste Electrical & Electronic Equipment (WEEE) Richtlinie 2012/19/EU erfüllen. Das Produkt ist durch folgendes Symbol gekennzeichnet. Thermo Fisher Scientific hat Vereinbarungen getroffen mit Verwertungs-/Entsorgungsanlagen in allen EU-Mitgliedstaaten und dieses Produkt muss durch diese Firmen wiederverwertet oder entsorgt werden. Mehr Informationen über die Einhaltung dieser Anweisungen durch Thermo Scientific, die Verwerter und Hinweise die Ihnen nützlich sein können, die Thermo Fisher Scientific Produkte zu identifizieren, die unter diese RoHS-Anweisung fallen, finden Sie unter www.thermofisher.com unter Services & Support.

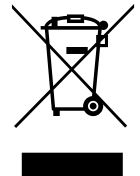
Conformità WEEE. Questo prodotto deve rispondere alla direttiva dell'Unione Europea 2012/19/EU in merito ai Rifiuti degli Apparecchi Elettrici ed Elettronici (WEEE). È marcato col seguente simbolo. Thermo Fisher Scientific ha stipulato contratti con una o diverse società di riciclaggio/smaltimento in ognuno degli Stati Membri Europei. Questo prodotto verrà smaltito o riciclato tramite queste medesime. Ulteriori informazioni sulla conformità di Thermo Fisher Scientific con queste Direttive, l'elenco delle ditte di riciclaggio nel Vostro paese e informazioni sui prodotti Thermo Scientific che possono essere utili alla rilevazione di sostanze soggette alla Direttiva RoHS sono disponibili sul sito www.thermofisher.com in Servizi e Supporto.

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IF YOU NEED ASSISTANCE:

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