

SENTINEL TRACE

State of-the-art Datalogger

Sentinel Trace Features

- Connected sensor, interacting with an Android/iOS app via bluetooth
- Ability to set independent upper and lower alarm on each probe
- Stores up to 10 alarms events retrieved on the app.
- Alarms can be downloaded via bluetooth into a csv file format directly through the app
- Possibility to log up to 129000 datapoints
- Data can be downloaded via bluetooth into a csv file format directly through the app
- Sampling period settable in a range of 2/min to 1/day
- Compatible with several kind of probes (see specification sheet)
- Firmware update possible via the app, allowing to constantly improve device functionalities

Now that you've received your Sentinel Trace Bluetooth sensor let's get started!

Go to the Google Play store and download and install the Sentinel Trace app.

Activating the Sensor

1. Press the small circular button on the left side of the sensor. The LED under the WiFi symbol will flash green 3 times, and the touch screen display will turn on. The touch screen display will go dark after a few seconds. Tap the screen to reactivate as needed.
2. Connect the probe that came with your sensor to the port in the right side of the unit. You will see the temperature displayed with the Min and Max values below it, as in figure 1.
3. To forward data to the Sentinel Trace app, make sure that Bluetooth is turned on.
 - a. Tap the 3 horizontal bars in the top left corner of the display to open the menu.
 - b. The third item in the menu is Bluetooth. It will show as OFF or Broad. to indicate that the module is active.
 - c. "Bluetooth Broad." must be visible as seen in figure 2 for Bluetooth transmission to be active.

Congratulations! Your sensor is all set to start monitoring.



Figure 1: Display with Probe connected

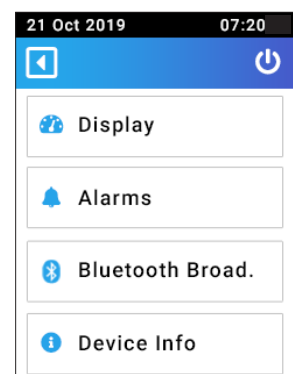



Figure 2: Bluetooth setting

Turning the unit OFF

1. Tap the three bars in the upper left corner of the display to show the menu.
2. In the upper right corner of the display is the power symbol  tap this once to turn the sensor off. The LED under the WiFi symbol will flash red 3 times, and the touchscreen display and sensor will turn off.

Or: Press and hold the on/off button on the left side of the device for more than 3 seconds.

Probe Specifications

Type of Probe	RTD	Pro
Temperature Range	-50°C to +70°C (-58°F to +158°F)	-30°C to +70°C (-22°F to +158°F)
Temperature Accuracy	±0.25°C in the full range	±0.75°C in the full range
Temperature Resolution	0.01°C or °F	0.01°C or °F

See user manual for a more detailed description of the Sentinel Trace and its functions.

Main screen

When the device is turned on, the touch screen will display the live measurement screen. The current measurement is displayed, as well as the minimum (in blue) and maximum (in red) measurements monitored since the sensor was powered on. The display will automatically detect the probe type, and adapt the display whether the user has plugged in a single or dual probe. (see Figure 1 and 2)

Label	Description
(1)	Current date and UTC time
(2)	Main Menu Button
(3)	Detected probe type
(4)	Min (blue) and max (red) values
(5)	Current measurement

Note: The current date and time (label (1)) will synchronize only once after the sensor has been connected to the Sentinel Trace app via bluetooth. If this operation has not been performed, this area remains black.

Main Menu

The main menu screen displays the different menu available on the Sentinel Trace device. Each of them will be described in the following chapters.

Label	Description
(6)	Back button
(7)	Deep sleep button

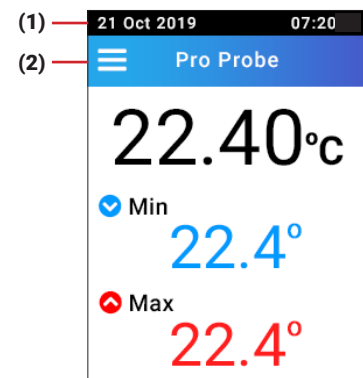


Fig. 1 Single Probe

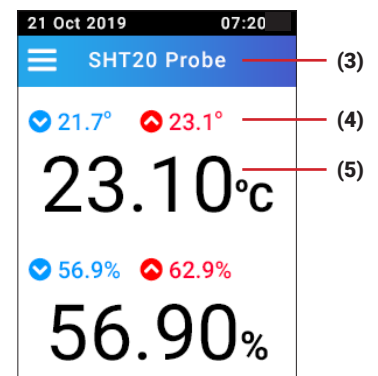
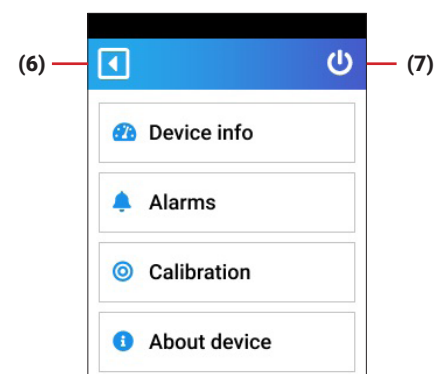


Fig.2 Dual Probe

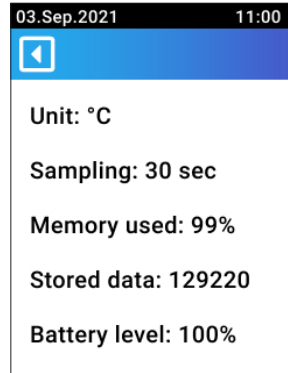


Device info Menu

The display menu shows data related to the settings of the device and memory state:

- The temperature unit (°C or °F) used for displaying the measurements
- The sampling rate at which the measured data are stored
- The percentage of used memory
- The actual number of data points saved
- And the Battery level

Note: This screen only acts as an informative screen. No settings are possible directly from the device, but needs to be performed via the Sentinel Trace App.



Alarm Menu

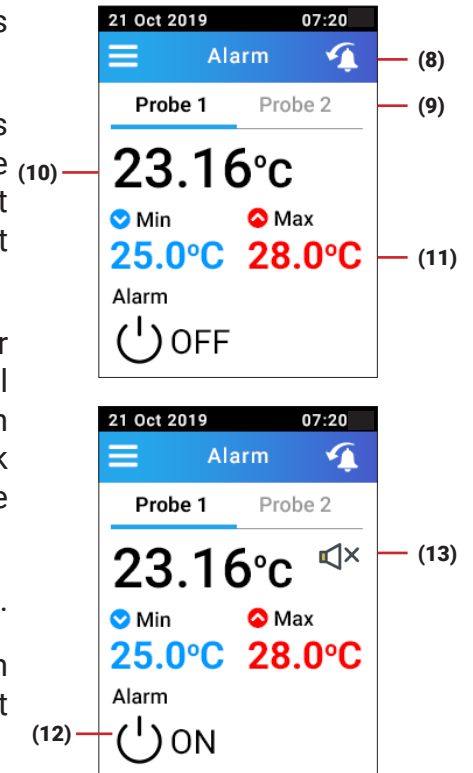
The alarm menu displays the current measurement (label (10)) as well as the min and max alarm level (label (11)) set by the user.

To be able to trigger an alarm, the alarm button (label(12)) needs to be switched to "ON". In this case, if an alarm level is set, and the next current measurement stands out of range, the device will start buzzing, the LED starts blinking in red, and the set alarm level that triggered the alarm starts blinking as well.

If an alarm has been triggered, the clear alarm button will appear (label(13)). By pressing on this button, the buzzer will stop, and all blinking elements as well. The alarm button (label(12)) will remain ON, and will trigger a new alarm only if the measured data goes back in range and out again. If the alarm button is turned off, then the alarm is cleared, and no other alarm might be triggered.

It is possible to set the alarm independently on probe 1 and probe 2.

If the screen displays data from probe 1, and an alarm has been triggered on the probe 2, the "Probe 2" label (label (9)) will start blinking.

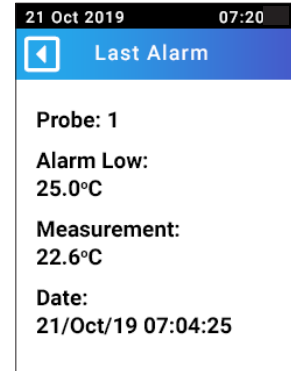


Label	Description
(8)	Last Alarm Button
(9)	Probe switch button: switch the display with the data from one probe to the other. Only possible when dual probe plugged in.
(10)	Current measurement
(11)	Upper and lower alarm level set by the user
(12)	Alarm button: activate/deactivate the alarm detection
(13)	Clear alarm: allows the user to mute the alarm.

Quick Start Guide

In order to visualize the last alarm triggered on probe 1, the user needs to press on the last alarm button (label (8)) while the screen displays data from probe 1 (“Probe 1” in bold on the probe switch button (label (9)). To get the last alarm info from probe 2, simply switch to probe 2 display and then press last alarm button.

Note: The Edit alarm button is an informative button reminding the user that the alarm level setting has to be done by bluetooth via the Sentinel Trace App.



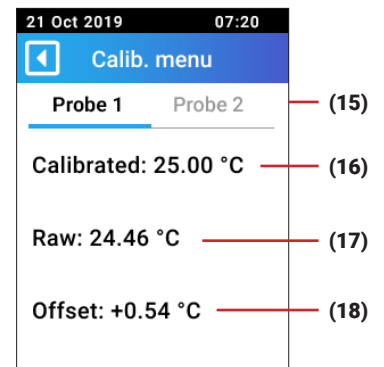
Calibration Menu

The calibration menu gives useful information regarding the calibration environment.

The “calibrated” value (15) refers to a known and controlled environment at which the calibration is done. The “Raw” (17) value indicates the measured data at the time of calibration. Finally we have the “Offset” (18) value corresponding to the value added to the raw data to reach the reference value.

If no calibration has been performed, empty fields will be visible.

The calibration is performed directly via the Trace app, and the offset can be reset at any time.

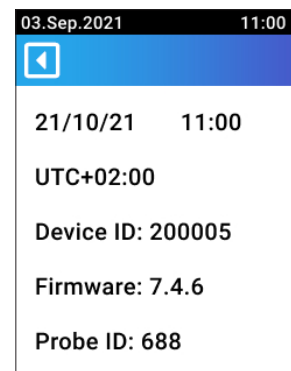


Label	Description
(15)	Probe switch button: switch the display with the data from one probe to the other. Only possible when dual probe plugged in.
(16)	Calibration value
(17)	Value at the time of calibration
(18)	Applied offset to match calibration value

About Device Menu

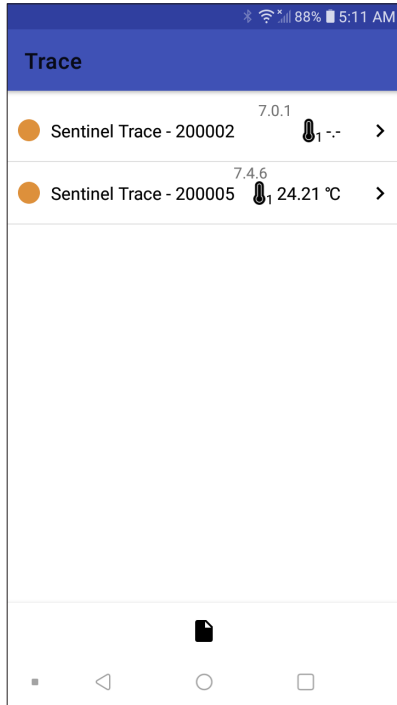
This menu is an informative screen displaying the:

- The date and time
- The UTC offset set by the user
- The device ID
- The Firmware version
- The connected probe ID



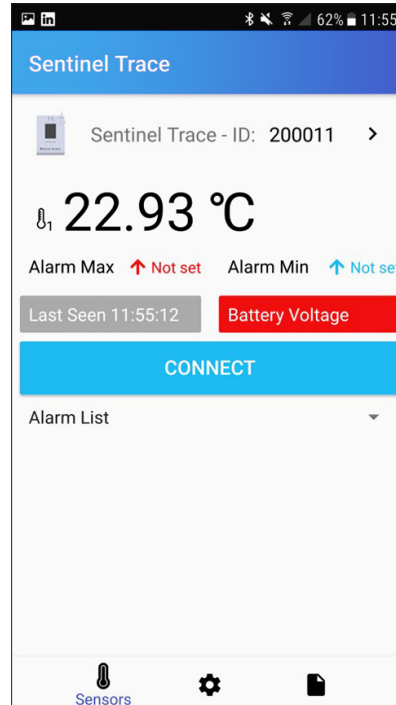
Bluetooth Pairing process

Open the Sentinel Trace app, and follow the steps illustrated below with the different screenshots:



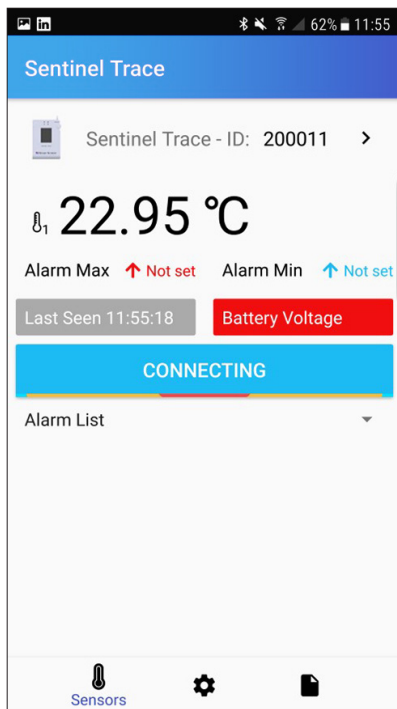
Step 0

Main page, before sensor detection. When the bluetooth status indicates **OFF**



Step 1

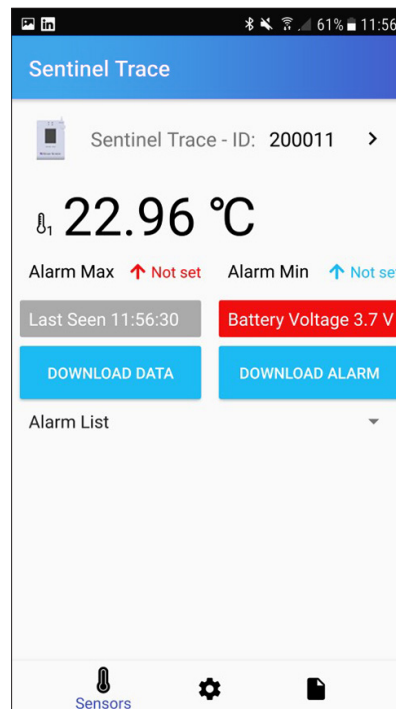
Main page, with sensor broadcasting. Bluetooth status indicates Broad. The layout will adapt depending on the detection of a single or dual probe



Step 2

Once the broadcasted data are available, the user shall press the "CONNECT" blue button in the middle of the screen.

The button status switches to "CONNECTING" while establishing the pairing



Step 3

When the pairing is done, the Central blue button splits in two separate button "DOWNLOAD DATA" and "DOWNLOAD ALARM".

The battery voltage data is also read from the sensor and displayed on the red field

The sensor is now connected to the app and ready to communicate with the device

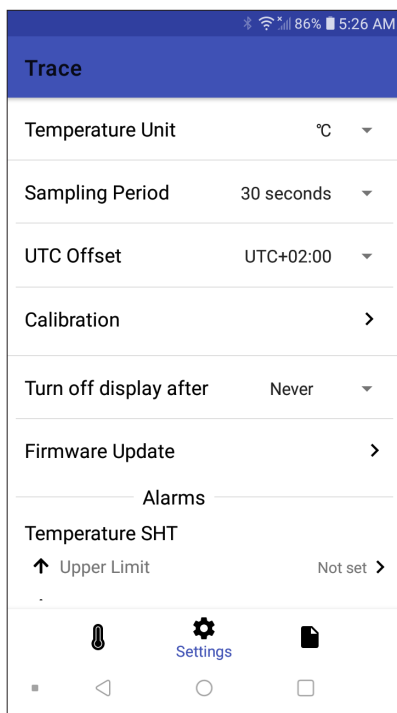
Setting parameters

In order to set/edit the settings of the Sentinel Trace device, the user needs to connect it to the Sentinel Trace app via bluetooth and establish a connection.

The editable settings are the following:

- Temperature unit: Either degree Celsius or Fahrenheit
- Sampling period: from 30 sec to 12 hours
- Setting alarm levels: Possibility to set the min and max alarm levels for each probe.
- UTC offset: Options to choose the offset based on the time zone
- Calibration: menu to perform calibration
- Turn off display after: Time before the displays turns off
- Firmware update: Menu to perform the firmware upgrade

On the Sentinel Trace app, the user will be able to perform the following screens:

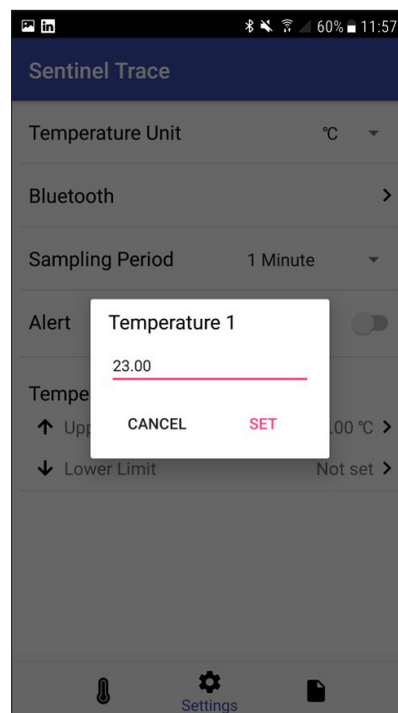


Step 4

By pressing on the setting button (Gear Icon at the bottom), the user have access to the parameter setting page.

Initially the default parameters for the Temperature unit and for the sampling period are displayed.

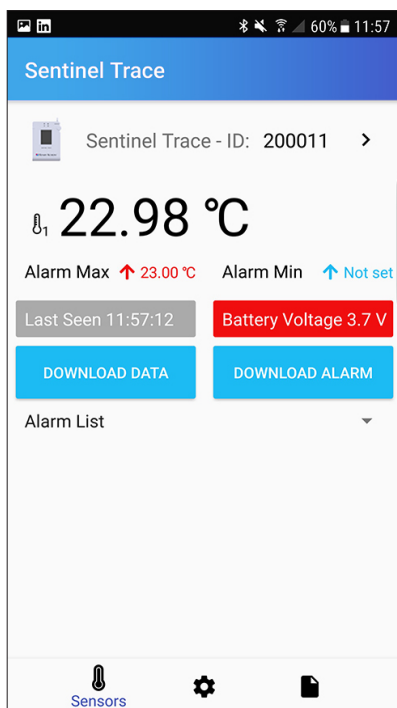
Changing the parameters on this setting page will automatically update the settings of the device. *



Step 5

To set the upper/lower alarm levels, the users needs to press on corresponding right side arrow button in the "Alarms" section.

After entering the value, press "SET"



Step 6

Going back to the "Sensors" screen (Thermometer Icon on the bottom left), it is showing now the updated information regarding the set alarm level. **

* You can verify at any moment if the setting has been updated on the device by going to the "Device info" menu.

** Once the sensor is configured, the settings will be memorized. They will only go back to default parameter after powering off the device.

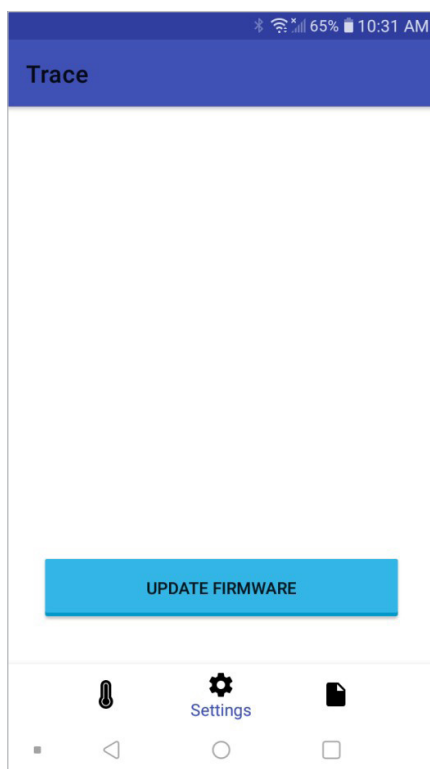
Firmware Update

On a regular basis, firmware upgrades will be available to add or improve existing features. In order to proceed to the update, the user needs to connect the device to the sensor via bluetooth.

Once the connection is established, go to the Settings page. And press the “Firmware update” button. The firmware upgrade menu will open.

Press the “UPDATE FIRMWARE” button to start the process. The button will turn into a progress bar, and at the end of the procedure, the bar should appear green with the “COMPLETE” label.

Turn off the App at the end of the process before using it again.

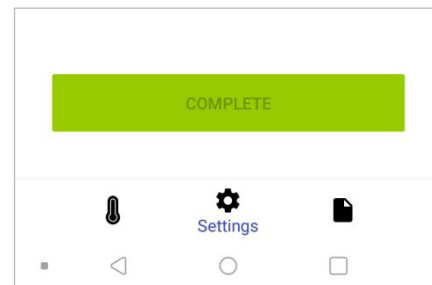
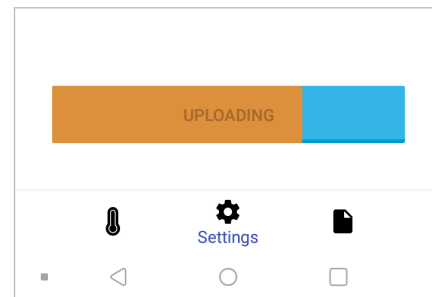


Step 1

Press the UPDATE FIRMWARE button to start the process.

Step 2

The button will turn into an orange progress bar, turning green at the end of the successful process.



Calibration process

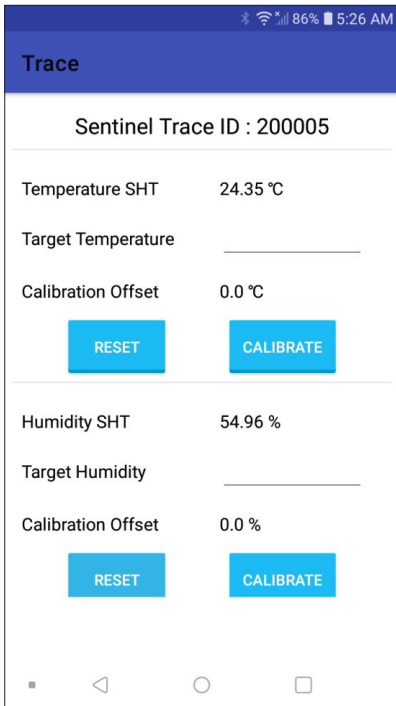
Depending on the application, a calibration might be requested, to add an offset to the measured data.

To proceed to the calibration, the user needs to connect the device to the sensor via bluetooth. Once the connection is established, go to the Settings page and press the “calibration” button. The calibration menu will open, and the number of calibration windows will depend on the probe type used.

To start the calibration, enter the reference value under the “Target” field, and press the “CALIBRATE” button to send the command to the device. This value will be stored in the device memory, and an offset will be calculated and used for all measurements.

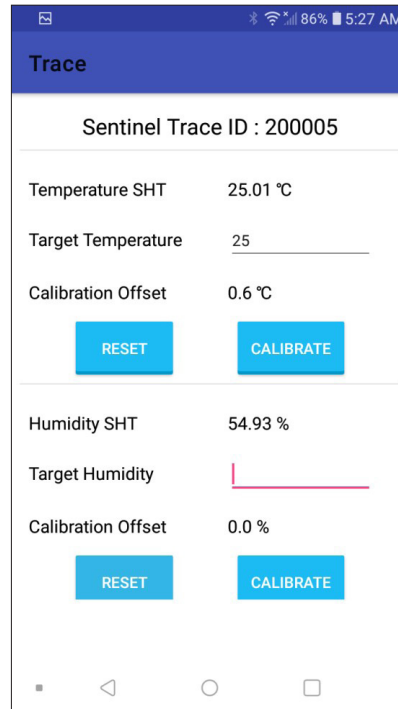
If a calibration data is already stored (along with the offset value), it will appear by default into the “Target” and “Calibration offset” fields. They can be modified by repeating the steps above, or reset by pressing the “RESET” button.

Quick Start Guide



Calibration window for a temperature/humidity probe.

No calibration value nor offset currently stored

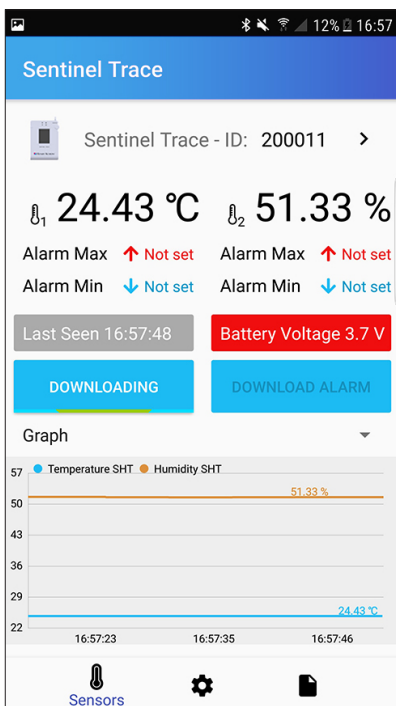


Calibration window for a temperature/humidity probe.

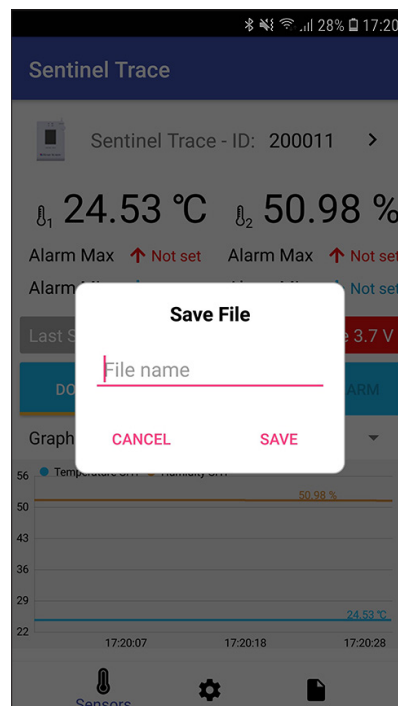
Calibration value and offset stored in device memory for temperature measurement.

Data download

In order to proceed to the data download, the user needs to connect the device to the sensor via bluetooth. If the sensor is not connected, repeat the step 1 to step 3 (from § Setting parameters). Once the connection is established, press on the **“DOWNLOAD DATA”** button. While the data are downloading the button status changes to **“DOWNLOADING”** until the end of the download.



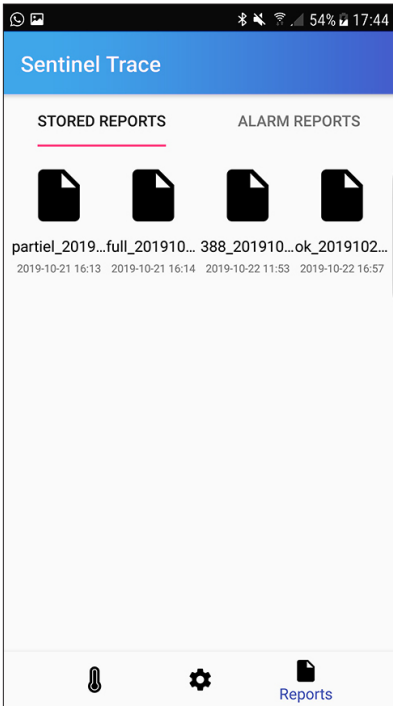
The Download button switches to **DOWNLOADING** while downloading the stored data from the device



At the end of the download, a save file prompt appears with the possibility to name and save the data in a csv file.

Note: If “cancel” is pressed, a confirmation prompt will appear and protect from an unintentional loss of data.

Quick Start Guide

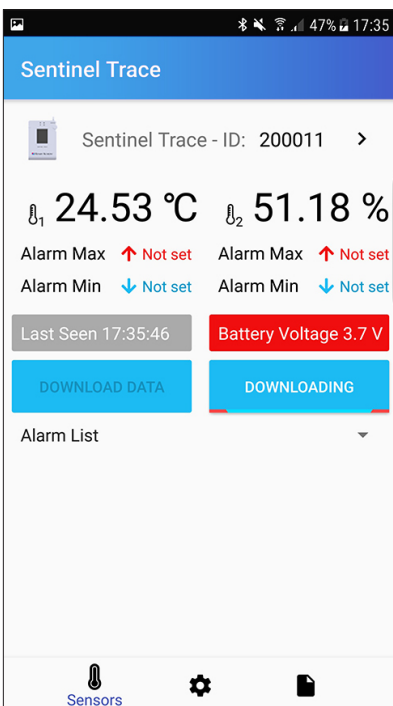


The downloaded .csv file is stored on the smartphone and can be accessed directly through the app in the "reports" section by pressing the "File icon" at the bottom right.

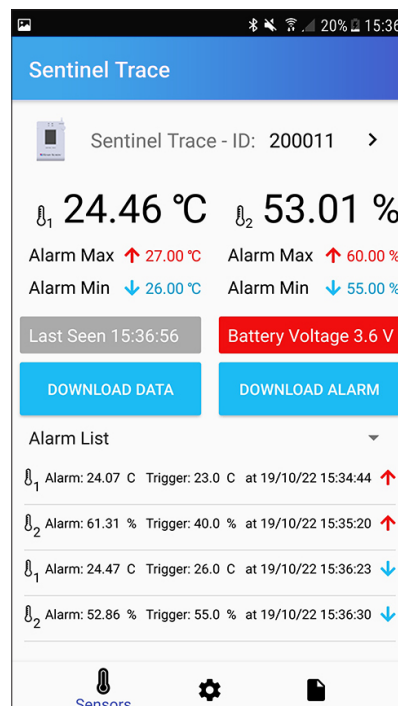
Alarm Data download

Similarly as for the stored data download, in order to get the last 10 alarm events, the user needs to connect the device to the sensor via bluetooth. If the sensor is not connected, repeat the step 1 to step 3 (from Setting parameters).

Once the connection is established, press on the **"DOWNLOAD ALARM"** button. While the alarm events are downloading, the button state goes to DOWNLOADING states. At the end of the download, the user has the possibility to save the alarms in a csv file (not mandatory). The retrieved alarms will anyway be present on the "Alarm List" which is accessible below the Download buttons.



The Download button switches to DOWNLOADING while downloading the last 10 alarm events from the device



After the download, the latest loaded alarms are displayed under the "Alarm List"

Specification sheet

	Aginova Sentinel Trace		
Number of Probe Inputs	Multiple number and types of probes		
Type of Probe	RTD	Pro	Temp/RH
Range	-50°C to +70°C (-58°F to +158°F)	-30°C to +70°C (-22°F to +158°F)	-40°C to +70°C (-40°F to +158°F)
Accuracy	±0.25°C in the full range	±0.75°C in the full range	±0.3°C, ±3%RH typical
Resolution	0.01°C or °F	0.01°C or °F	0.01°C or °F, 0.01%RH
Certifications/Compliance	ISO 17025, A2LA, NIST		
Traceable to NIST for accuracy	Yes		
AC Power	Yes		
Battery power	Yes		
Battery Type	Rechargeable Li-Ion		
Battery Life	Up to 6 months		
Display Type	2.6" 320x240 TFT LCD w/Touch Panel		
Min/max Temperature Display	Yes		
Datalogging Capacity	Up to 129000 data		
Data Download	Through Bluetooth		
Downloaded Data Format	CSV File		
Unique ID for each Thermometer	Yes		
Setting the Time and Date	Via App		
Hi/Lo Alarms and Time/Date Stamps	Yes		
Setting Alarms Thresholds	Via App		
Alarm State Indicators	red LED, Audio Alert, Flashing Display		
Number of Stored Alarms Events	Up to 10		
Stored Measurement Interval	From 2/min to 1/day		
Refresh Rate	5 seconds		
Reports	Yes		
Apps for Data Viewing	iOS and Android		