

OPERATING MANUAL

SENSECA PWS INTERFACE SOFTWARE

EN



[INTENTIONALLY BLANK]

Contents

1	INSTALLATION	4
1.1	Upgrading the software	4
1.2	Removing existing versions of the software	4
1.3	Installing the software.....	4
2	PORT SETTINGS	5
3	TERMINAL WINDOW	6
4	DATA CAPTURE.....	9
5	SENSOR SETTINGS	11
6	OPTIONS MENU	13
7	TEST OPTION	14
8	ALS OPTION	17
9	RS485 OPTION.....	18
10	TEMPERATURE CAL OPTION.....	19
11	TROUBLESHOOTING.....	21

1 INSTALLATION

1.1 Upgrading the software

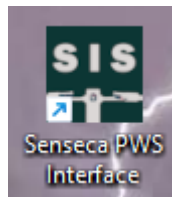
If the Senseca PWS Interface Software is already installed on the PC it must be removed prior to installing an upgrade.

1.2 Removing existing versions of the software

1. Go to Control Panel and choose Programs and Features
2. Wait for list of programs to update and then select Senseca PWS Interface from the list.
3. Choose to uninstall the program – follow the instructions and wait until the program has uninstalled.

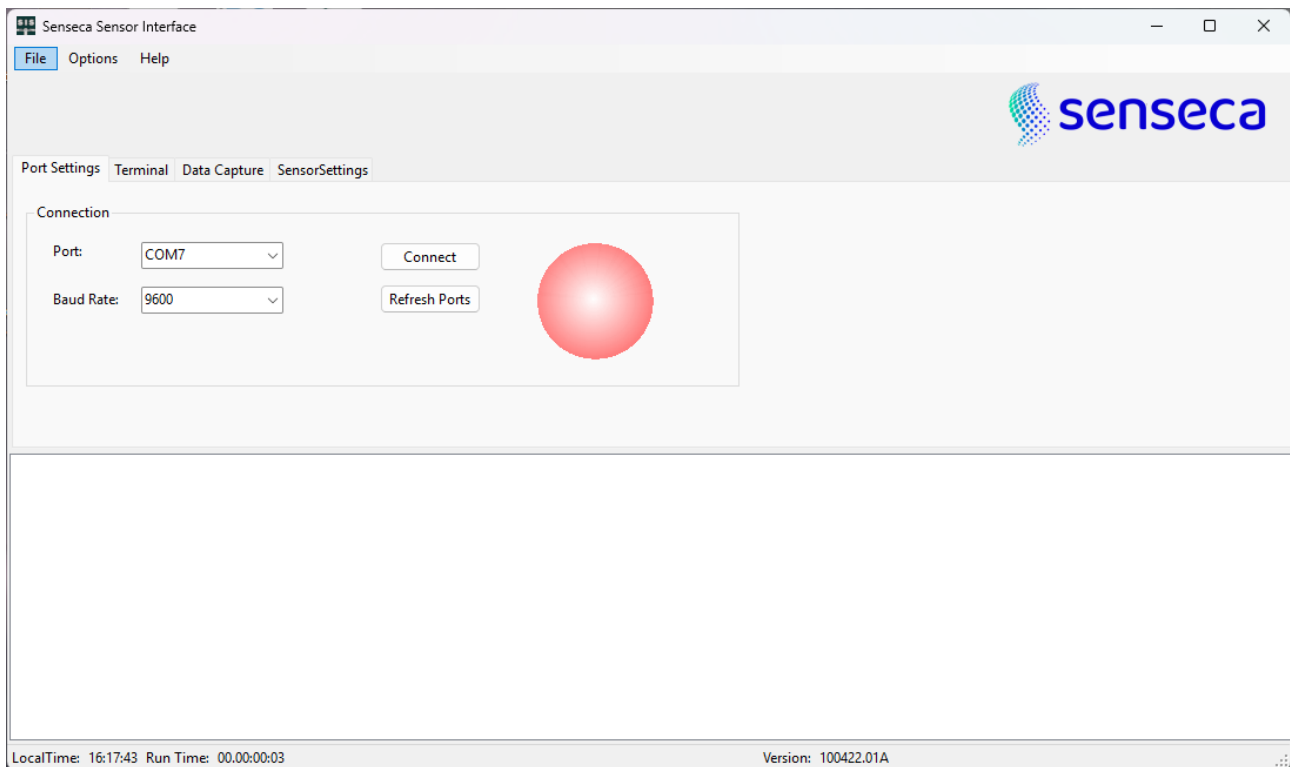
1.3 Installing the software

1. Extract the contents of the file Senseca PWS Interface Software.zip.
2. Run the program Senseca PWS Interface Installer.exe, this will install the software onto the PC.
3. After installation, the shortcut icon will be placed on the desktop.



4. Double click on the icon to run the software. On start-up the Port Settings Tab will be displayed.

2 PORT SETTINGS

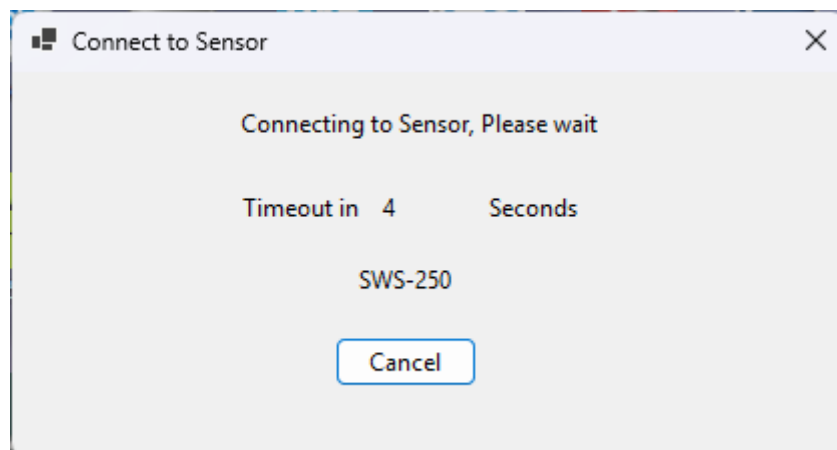


Before you can communicate with your sensor the correct port settings must be configured:

Baud Rate: Select the Baud rate applicable for your sensor

Com Port: The COM Port box will show the first available port - select the port you require using the drop-down arrow.

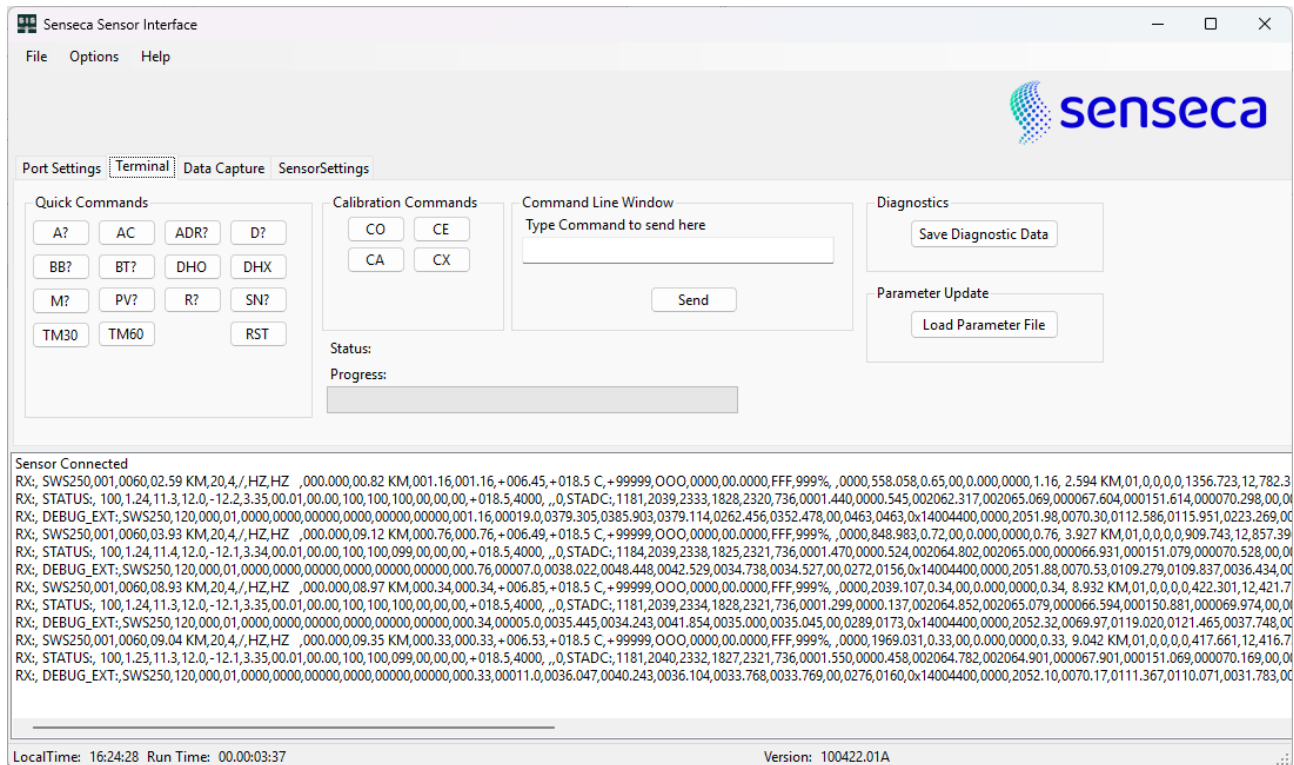
Connect: Click on the connect button – the connect dialog box will be displayed while the software attempts to connect to the sensor:



If successful the dialog will close, the Received Data display will contain the message “Connected to Sensor” and the connect button will turn green once connected.

If the connection fails, the dialog will close and the Received Data display will contain the message “Failed to connect to sensor, check Port and baud rate”. In this instance the connect button will stay Red and the sensor will not be connected. For common connection problems see Section

3 TERMINAL WINDOW



Quick Commands: A selection of the more commonly used commands - click on a button to send the command (see sensor manual for detailed descriptions for each command).

Calibration Commands: Commands used for calibrating the sensor - click on a button to send the command (see sensor manual for detailed descriptions for each command).

Command Line Window: Type any command into the command line window and press the send button.

Received Data: The commands sent to and the data received from the sensor will be displayed in the Received Data window.

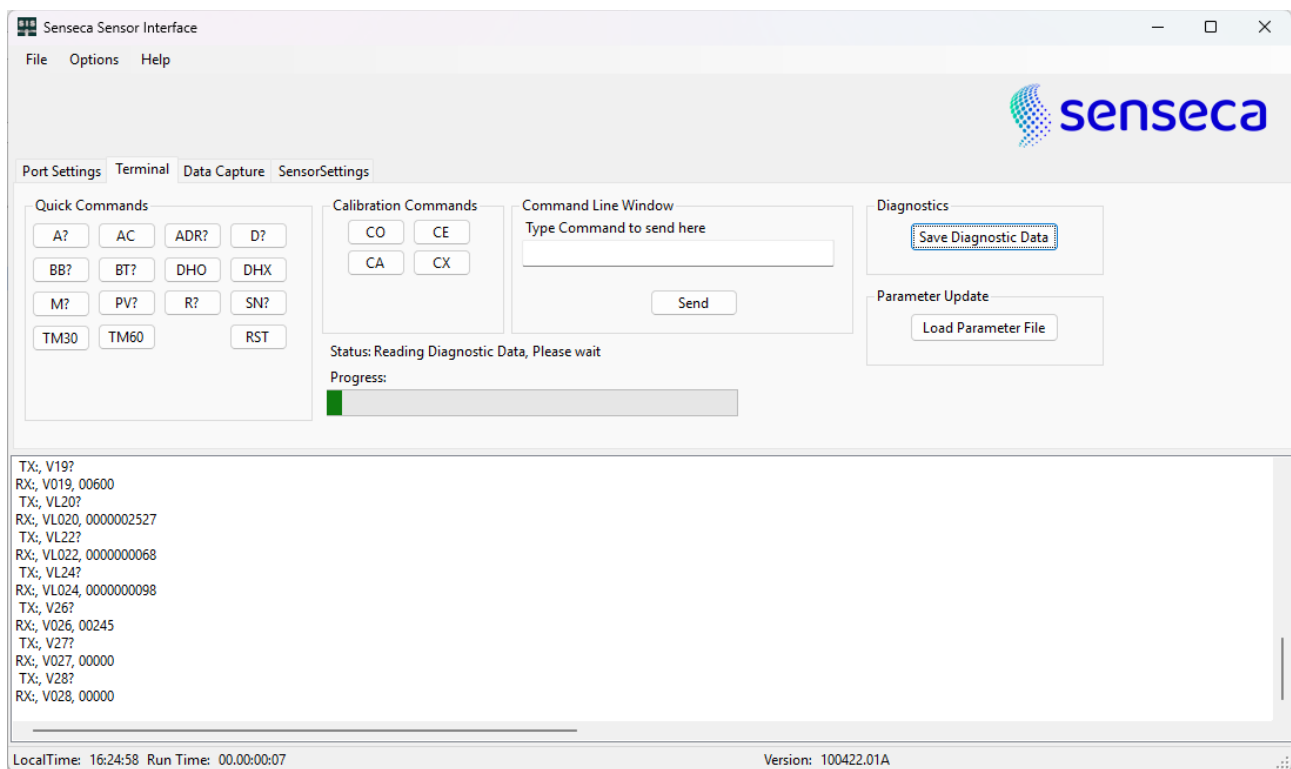
To Clear all data in the Received Data window - double click in the received data area

Diagnostics: Save Diagnostic Data button

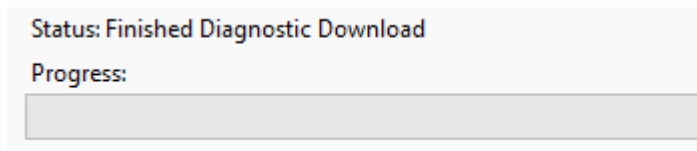
In the case of a sensor fault or unusual symptoms we recommend saving the diagnostic data and sending the file to Senseca. This will assist the service team in diagnosing the fault quickly and efficiently.

Pressing the Save Diagnostic Data button will open a dialog box asking the user to enter a file name to save the data to. Input the desired file name and click okay. The software will send a series of commands to the sensor to request the diagnostic data.

This process takes approximately 10 minutes. During the process a display is shown indicating the progress of the procedure (see below).



On completion, the message “Finished Diagnostic Download” is displayed in the status area and the Progress bar clears.

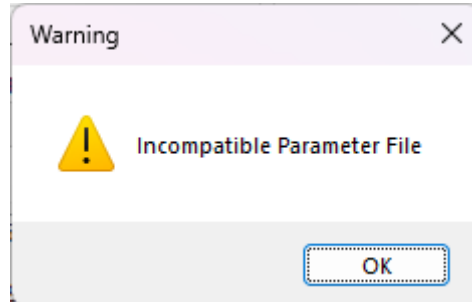


Parameter Update: Load Parameter File

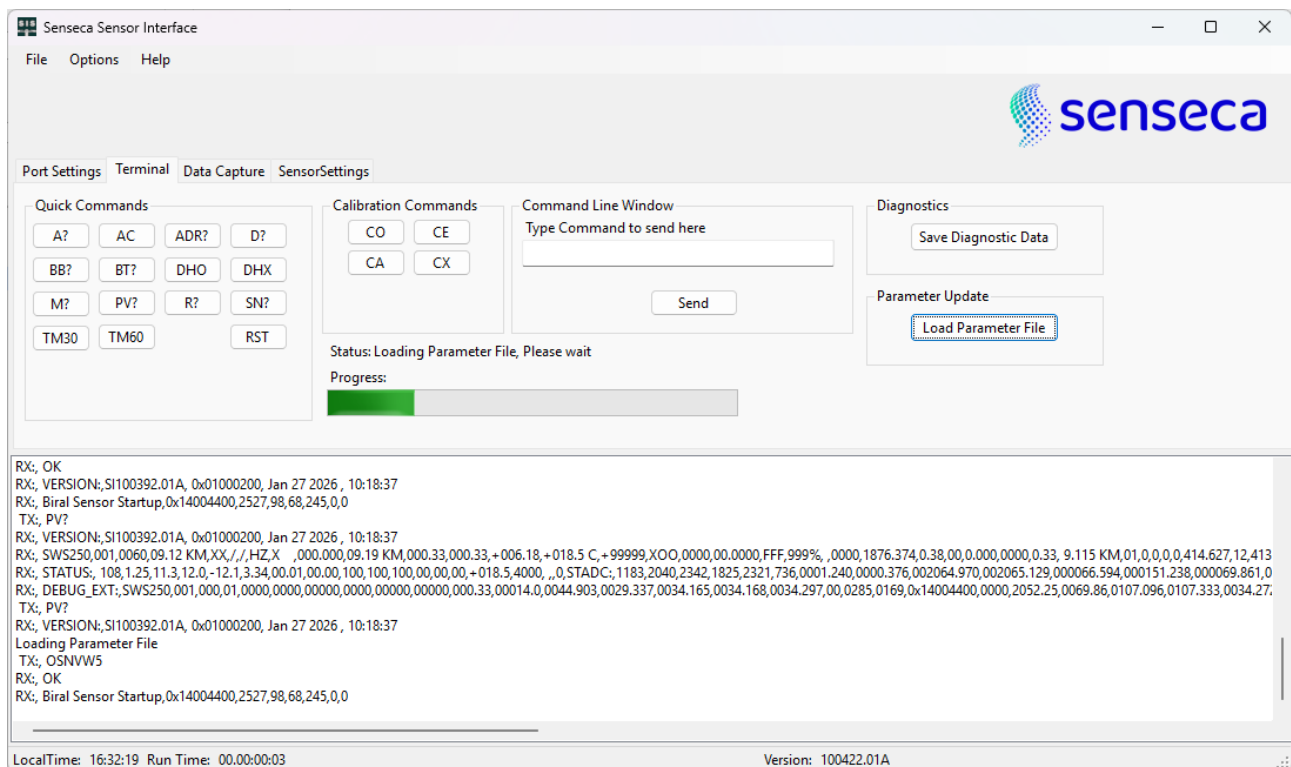
Occasionally SENSECA may send files to update the sensor settings, e.g. to set new country definition parameters. The Load Parameter File button will allow the user to upload these files to the sensor safely. Pressing this button will bring up the Windows Open File dialog to allow the user to select the parameter file.

When the file is opened, the parameter file will be checked to see if it compatible with the sensor. (MK1 and Mk2 Sensors have different parameter locations so the parameter files have different formats).

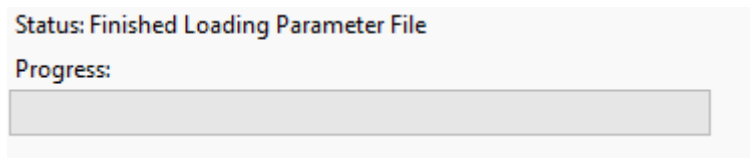
If the parameter file is incompatible the following Message will be displayed:



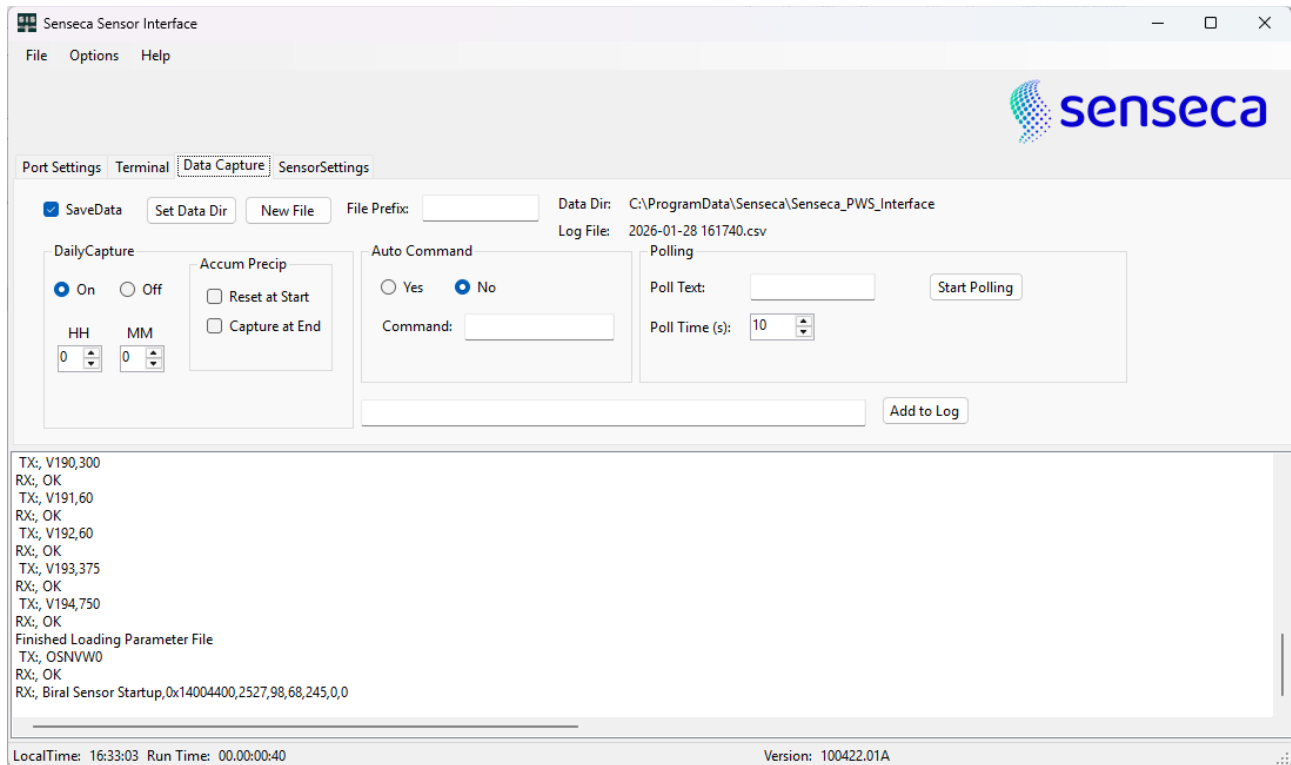
When a compatible file is opened, the new parameters will be transmitted to the sensor as a series of commands and the progress bar will be updated with the progress of the update:



On completion of the upload, the progress bar will clear and the text “Finished Loading Parameter File” will be displayed in the status area.



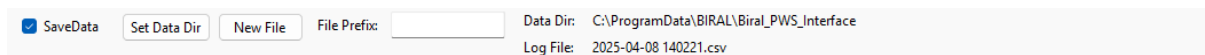
4 DATA CAPTURE



By default, the data will always be saved and stored in the C:\ProgramData\Senseca\Senseca_PWS_Interface folder.

All data will be timestamped with the PC's system time.

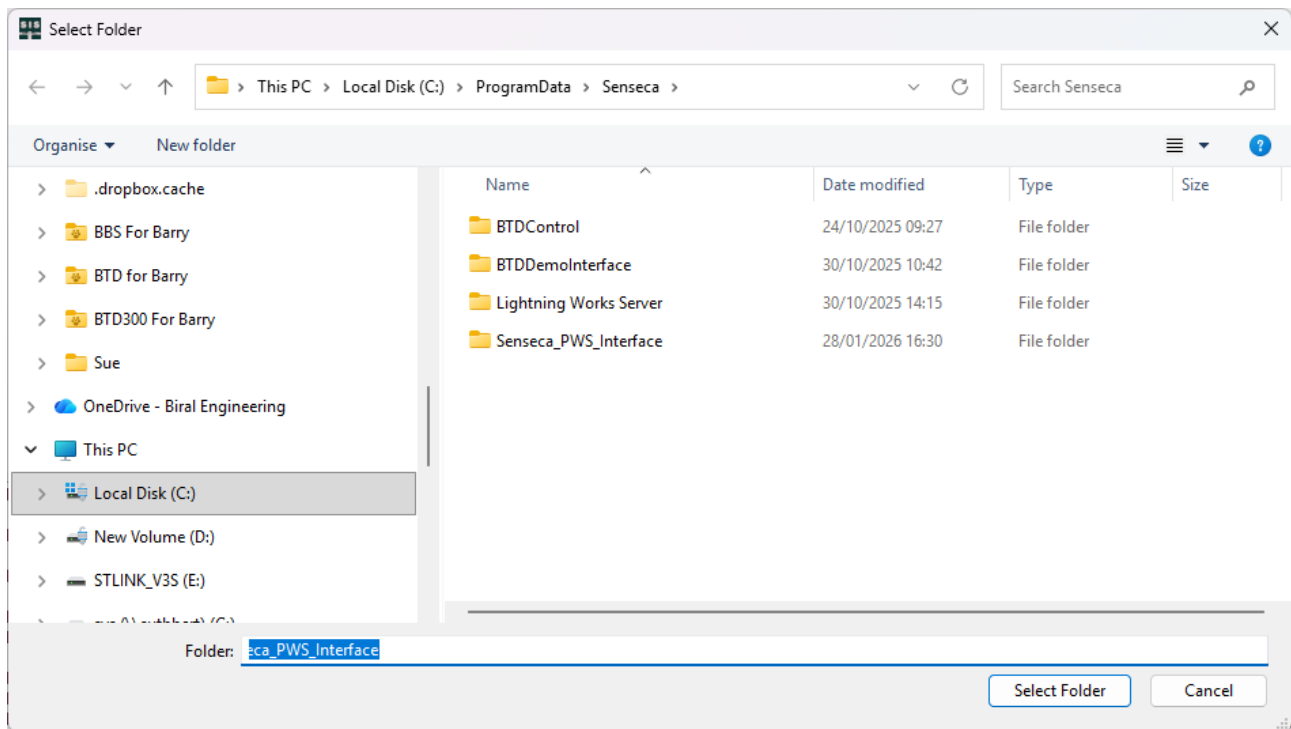
The SaveData Checkbox is ticked by default. Clear this if you do not want to save the data.



The log files are created with the file names in the form "yyyy-mm-dd hhmmss.csv"

The Data Directory can be changed by Pressing the Set Data Dir button.

This will bring up a Select Folder window – see below.

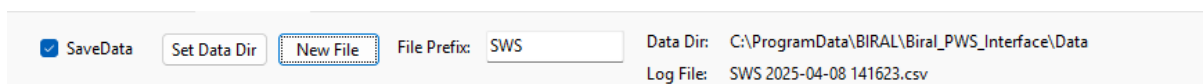


A new folder can be chosen. This will take effect when the “New File” button is pressed.

Users can select a unique file Prefix for the data files by entering text in the File Prefix field.

This will take effect when the “New File” button is pressed.

E.G.



The following options are available:

Daily Capture: Enables the generation of daily data files.

On: New Data files will be created at a set time each day.

Off: Data will be logged continuously to a file.

HH/MM: The HH MM boxes are used to define when the data files will be switched (default 00:00 or midnight)

Accum Precip

Reset at Start / Capture at End these boxes will send the A? to get the accumulated rainfall when the file is to be closed and the AC command to clear the accumulated rainfall when a new file is created.

Auto Command: The software can automatically send a command whenever it receives a data message. Enable by selecting the Yes radio button and entering the command in the test box

Polling

Poll Text: The software can send a command at regular intervals to the sensor. The poll Text is the command to send and the poll time is the frequency in seconds with which to send the command. Pressing the Start Polling button start the polling. When pressed, the button text will change to “Stop Polling”, pressing again will stop the polling.

Add to Log – This button will add text from the text box to the left of the button into the log file.

5 SENSOR SETTINGS

The screenshot shows the 'Senseca Sensor Interface' window. The 'SensorSettings' tab is active, displaying five configuration sections:

- Checksum:** Radio buttons for 'On' and 'Off' (selected).
- RS485:** Radio buttons for 'On' and 'Off' (selected).
- Hood Heaters:** Radio buttons for 'Auto' (selected), 'On', and 'Off'.
- Window Heaters:** Radio buttons for 'On' (selected), 'Off', and 'Auto'.
- Data Message:** Radio buttons for 'Automatic' (selected) and 'Polled'.

Below these settings are two buttons: 'Read Settings' and 'Update Settings'. The bottom section of the window contains a log of sensor data and status messages, including 'RX: OK', 'Finished Loading Parameter File', and various sensor readings like 'Biral Sensor Startup' and 'SWS250' status. The status bar at the bottom indicates 'LocalTime: 16:36:19 Run Time: 00:00:03:56' and 'Version: 100422.01A'.

This page allows the user to see how the sensor is set up and provides an easy-to-use interface for changing those settings.

Read Settings: Pressing this button will request the current settings from the sensor and display them as shown above.

Update Settings: Changing the settings is achieved by selecting the required parameters and then pressing the Update Settings button. Pressing the Update Settings button will send the new settings to the sensor and cause the sensor to perform a reset.

Please see next page for details of these settings.

WARNING:

Changing the sensor settings will affect how the sensor operates. Please use with care.

More details on how the settings will affect the operation of the sensor may be found in the manual supplied with your sensor. Alternatively, contact Senseca.

Checksum on/off: Include a checksum character at the end of the data message (see manual for full details).

RS485 on/off: Set sensor to addressable mode (normally used with RS485 comms - see manual for full details).

Hood Heaters:

Auto: Hood heaters will automatically switch on as the air temperature drops and off as the air temperature rises.

Off: Hood heaters permanently off.

Window Heaters:

On: Window heaters permanently on (recommended).

Off: Window heaters permanently off.

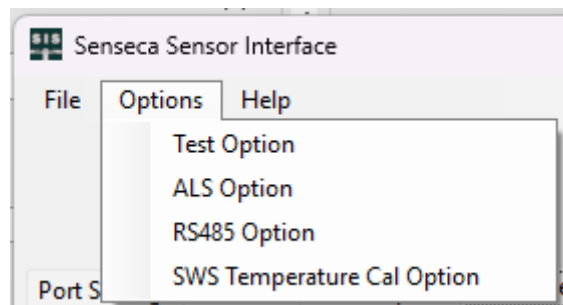
Auto: Window heaters switch on with high window contamination levels

Message:

Automatic: Automatic output of data (frequency of output is dependent on the setting of the time period (TM command)).

Polled: Polled mode – sensor will only send data message on request.

6 OPTIONS MENU

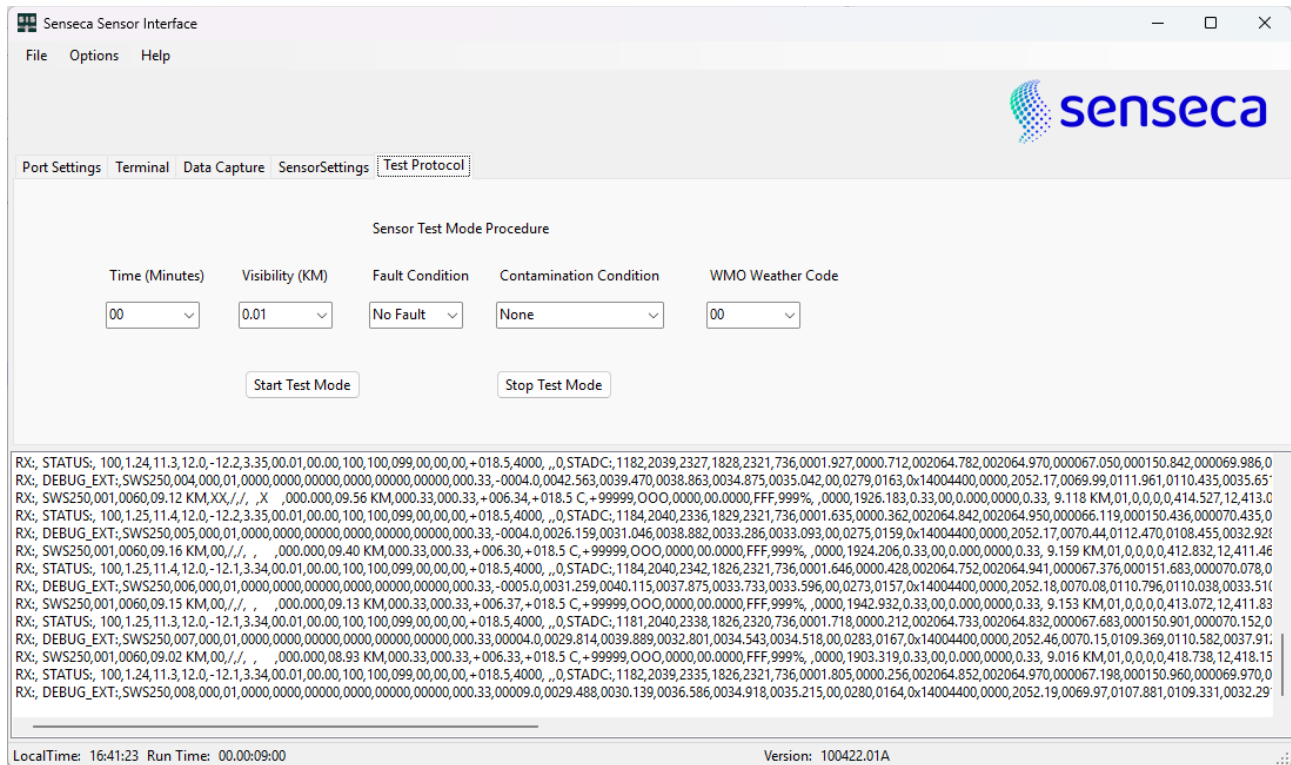


There are several options available with Senseca sensors. To keep the interface as simple as possible, the control windows for these options are hidden by default. The Options Menu allows you to unhide the following options:

- **Test Option:** Displays the Test tab to allow easy configuration of test mode. This function is new and may not be available on your sensor. If you feel it would be useful for you, please contact Senseca UK to discuss options.
- **ALS Option:** Displays the ALS tab to allow for interaction with an optional ALS sensor.
- **RS485 Option:** Displays the Sensor address and RS485 Enabled checkbox to enable easy RS485 communications.
- **SWS Temperature Cal Option:** Displays the Temperature Calibration tab to allow the user to calibrate the internal temperature sensor. This function is only available for SWS and RWS sensors.

These options are detailed over the next few pages.

7 TEST OPTION



The test protocol is used to allow the user to set the sensor into a TEST mode whereby a set visibility will be output from the sensor for a fixed time period. This is to allow users to integrate and test the function of other equipment, such as warning lights and relays with the sensor.

The variables are:

Time: The length of time to run the test for (in minutes).

Visibility: The MOR in km to output.

Fault Condition: Set a particular fault condition.

Contamination Condition: Mimic window contamination.

WMO Weather Code: Set a specific weather code (present weather sensors only)

Time drop down box

The Time drop down box is used to set the length of time for the test. The user can select one of the default times or type their own time in the box in the range 0 – 60 minutes. A time of zero will stop the test.

Time (Minutes)

00

00

02

05

10

30

60

Visibility drop down box

The Visibility drop down box is used to set the visibility. The user can select one of the default visibilities or type in their own visibility in the range 0.01km to the maximum MOR range of the sensor.

Visibility (KM)

0.01

0.01

0.50

1.50

2.50

3.50

4.50

5.50

6.50

7.50

8.50

9.50

10.50

Fault drop down box

The fault drop down box is used to select the fault condition. This can only be either Fault or No Fault.

Fault Condition

No Fault

No Fault

Fault

Contamination drop down box

The contamination drop down box is used to select the contamination condition. This can only be either None, Warning or Fault.

Contamination Condition

None

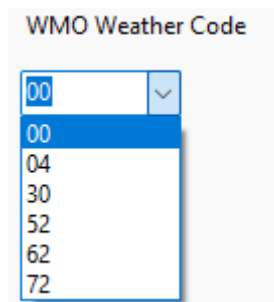
None

Warning

Fault

WMO Weather Code Drop down box

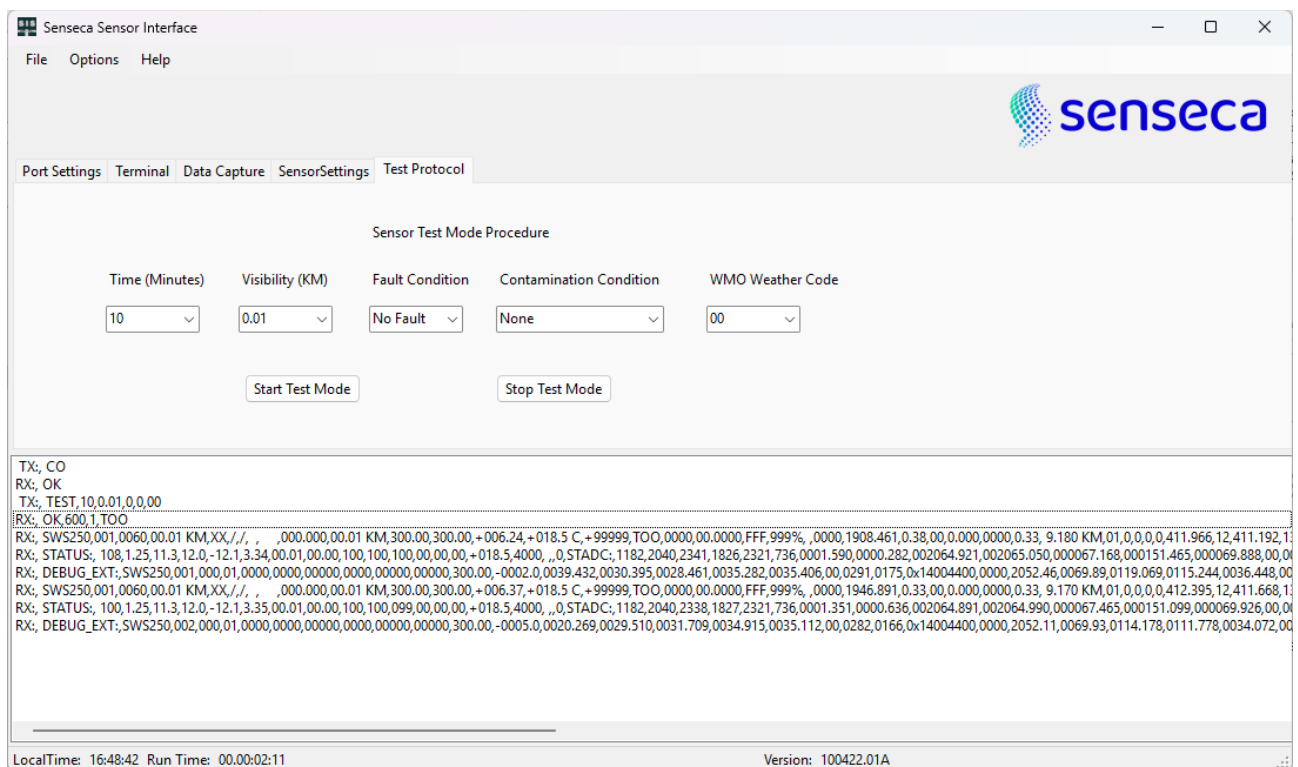
For present weather sensors the user can select a WMO code to output in the data string. The user can either select one of the default values or enter their own in the range 0 – 89. The code entered must be in the WMO 4680 code table for it to be of use.



Start Test Mode: Pressing the Start Test Mode button will transmit the test command to the sensor – if the sensor responds with OK then the test will start.

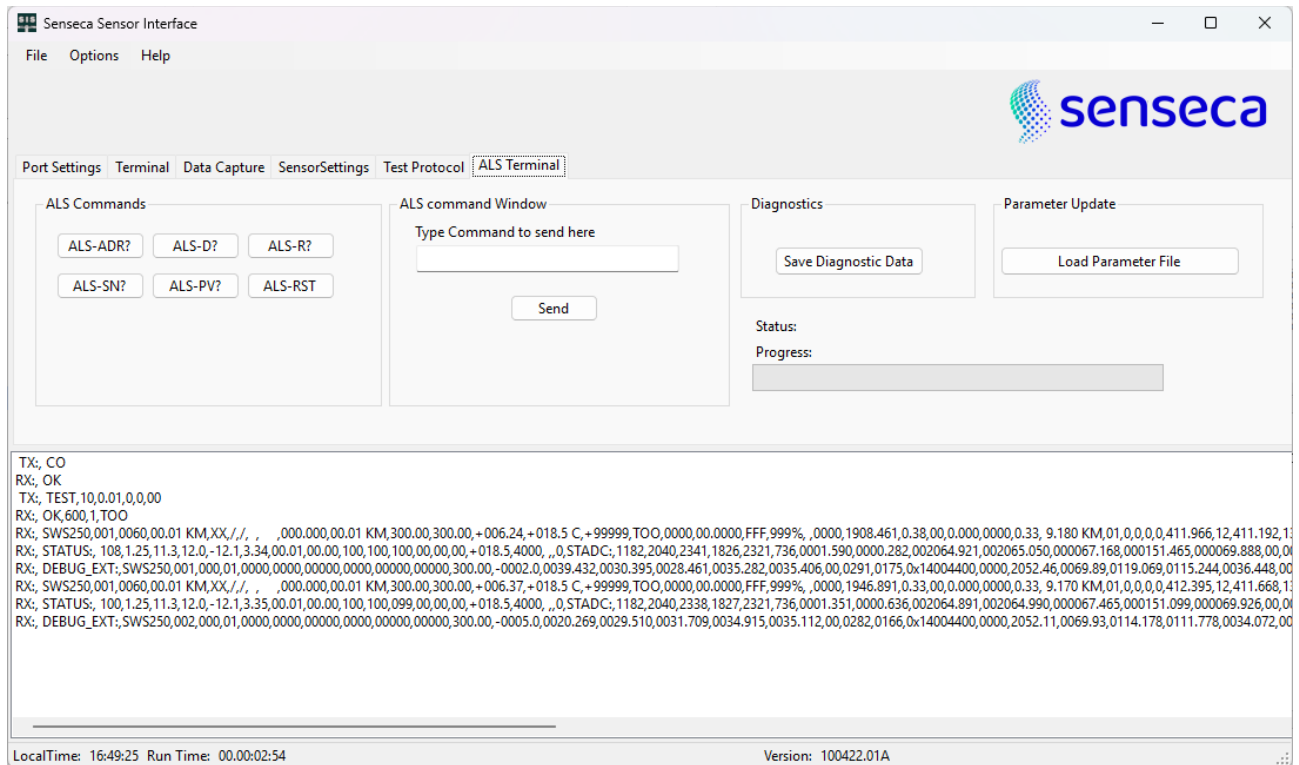
The sensor will output a data string with the test options in until the test time has elapsed. The Test mode is identified in the data string by a 'T' in the first character of the self-test flags (e.g. **TOO** in the example below).

When the test has completed the sensor will reset.



Stop Test Mode: Pressing the Stop Test Mode button will stop the test mode and reset the sensor. The sensor will now transmit the standard data message.

8 ALS OPTION



This tab is only for use with a SENSECA ALS-2 sensor which can be either attached to a visibility/present weather sensor or standalone.

ALS Commands: A selection of the more commonly used commands - click on a button to send the command (see sensor manual for detailed descriptions for each command).

ALS Command Window: Type any command into the command line window and press the send button.

The user can send commands to the ALS-2 using either the quick commands buttons or by typing the command into the command line window and pressing the send button. The commands sent to and received from the sensor will be displayed in the Received Data window.

Diagnostics and Load Parameters File: The Save Diagnostic Data and Load Parameter File buttons work in the same way as those in the Terminal Window.

9 RS485 OPTION

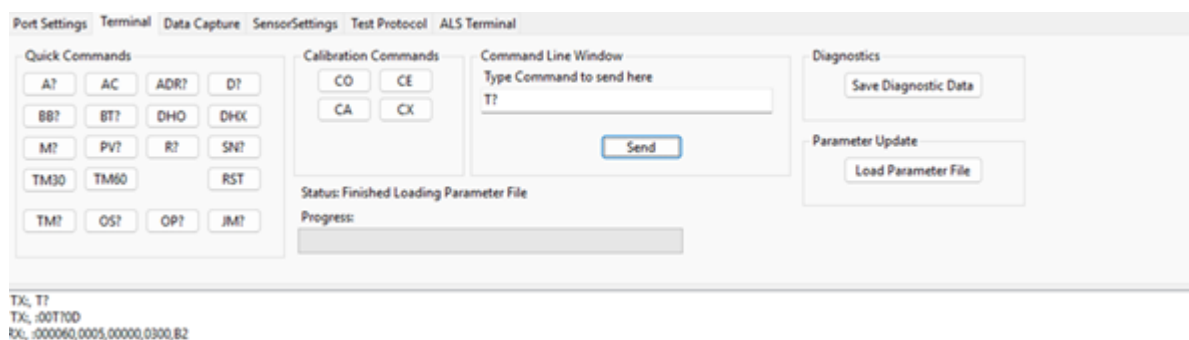
When enabling the RS485 option the following controls are visible at the top of the interface software window:

Sensor Address: ☐ RS485 Enabled

The software initially assumes that the RS485 has not been enabled and the sensor address is not set.

If the sensor has had the RS485 enabled, then the quick commands will elicit no response from the sensor. To tell the interface software that the sensor has RS485 enabled, enter the sensor address (default is 00), click on the RS485 Enabled check box and resend the command.

e.g. In the example below, the first T? command was ignored by the sensor. After selecting RS485 Enabled, (as shown by a tick in the check box) and resending the command, the sensor address and checksum is appended to the message and the response sent by the sensor is displayed.



10 TEMPERATURE CAL OPTION

Note: This feature is only available for the SWS and RWS series of sensors.

Selecting the Temperature Cal Option menu item will display the Temperature Calibration tab and allow the user to calibrate the internal temperature sensor of the sensor.

Clicking on the Temperature Calibration tab will bring up this display:

The screenshot shows the 'Senseca Sensor Interface' window with the 'SWS Temperature Calibration' tab selected. The window includes a menu bar (File, Options, Help), a 'Sensor Address' field, and an 'RS485 Enabled' checkbox. The main area is titled 'SWS Temperature Calibration Procedure' and contains the following fields and buttons:

- Temperature Offset(°C):** A text input field.
- Sensor Temperature (°C):** A text input field with a 'Read Values' button next to it.
- Reference Temperature (°C):** A text input field with a 'Calibrate' button next to it.
- Enter Reference Temperature and Press the Calibrate Button**: A text label.
- Temperature Stability Delay:** A text input field.

The status bar at the bottom shows 'LocalTime: 08:48:25 Run Time: 00:15:51:37' and 'Version: 100422.01A'.

Read Values: Pressing the Read Values button will request the temperature settings from the sensor and populate the display. (see below)

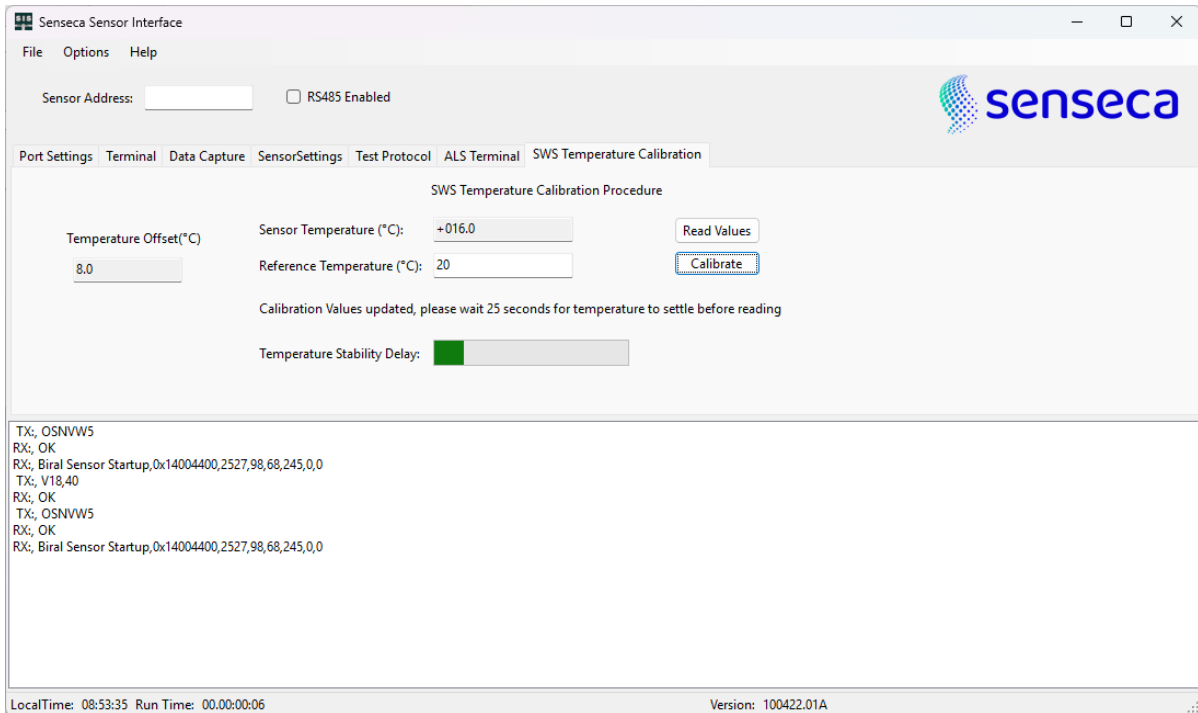
This screenshot shows the same 'Senseca Sensor Interface' window, but after the 'Read Values' button has been pressed. The 'Sensor Temperature (°C)' field now displays '+016.0'. The 'Temperature Offset(°C)' field now displays '8.0'. The 'Reference Temperature (°C)' field remains empty. The status bar at the bottom shows 'LocalTime: 08:49:07 Run Time: 00:15:52:19' and 'Version: 100422.01A'.

Below the main calibration area, a terminal window displays the following data:

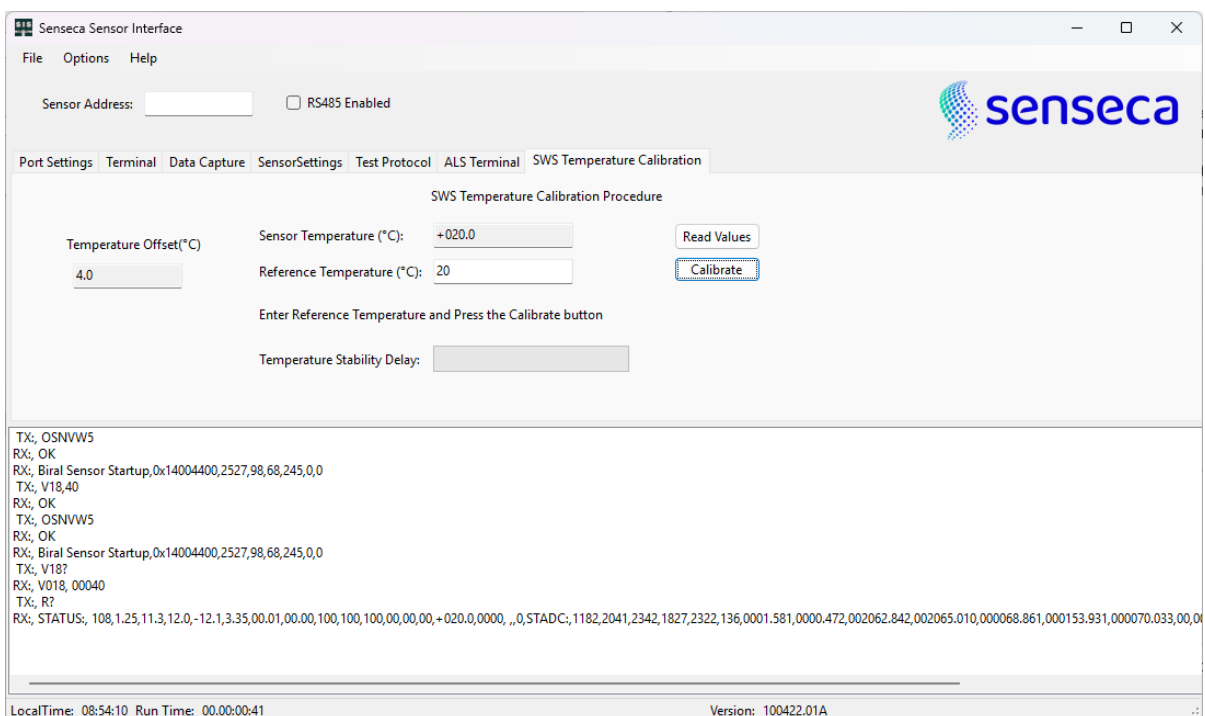
```
TX: V18?
RX: V018, 00080
TX: R?
RX: STATUS; 100,1.25,11.3,12.0,-12.1,3.34,00.01,00.00,100,100,099,00,00,00,+016.0,4000,,0,STADC; 1182,2040,2342,1826,2321,640,0001.723,0000.316,002062.752,002065.010,000069.277,000154.386,000070.140,00,00
```

To calibrate the sensor temperature reading:

1. Enter the reference temperature (°C) from an external temperature sensor in the display
2. Press the Calibrate button - the program will calibrate the temperature and update the Senseca sensor to reflect the new settings.
3. After updating the sensor, the display will change to inform the user that the system needs to wait for 25 seconds to allow the temperature sensor to settle after recalibrating.



4. Once the 25 seconds has elapsed the software will request the new temperature values and update the display as follows:



11 TROUBLESHOOTING

Connection Problems

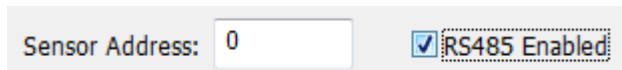
When the software attempts to connect to the sensor a command is transmitted and the software waits for the expected reply. If the sensor is set up in RS485 addressable mode then this initial attempt will fail.

In order to connect to a sensor set up in RS485 addressable mode, perform the following steps **before** trying to connect:

Select the RS485 Option from the Options Menu

Enter the Sensor Address of the sensor

Click on the RS485 enabled check box (see below)



The screenshot shows a software interface with a light gray background. On the left, the text 'Sensor Address:' is followed by a white text input box containing the number '0'. To the right of the input box is a checked checkbox (with a blue checkmark) followed by the text 'RS485 Enabled'.

Now Press the Connect button.

senseca.com



Senseca UK Ltd.
Unit 8 Harbour Road Trading Estate
Portishead, Bristol
BS20 7BL
UK
info.bristol@senseca.com

