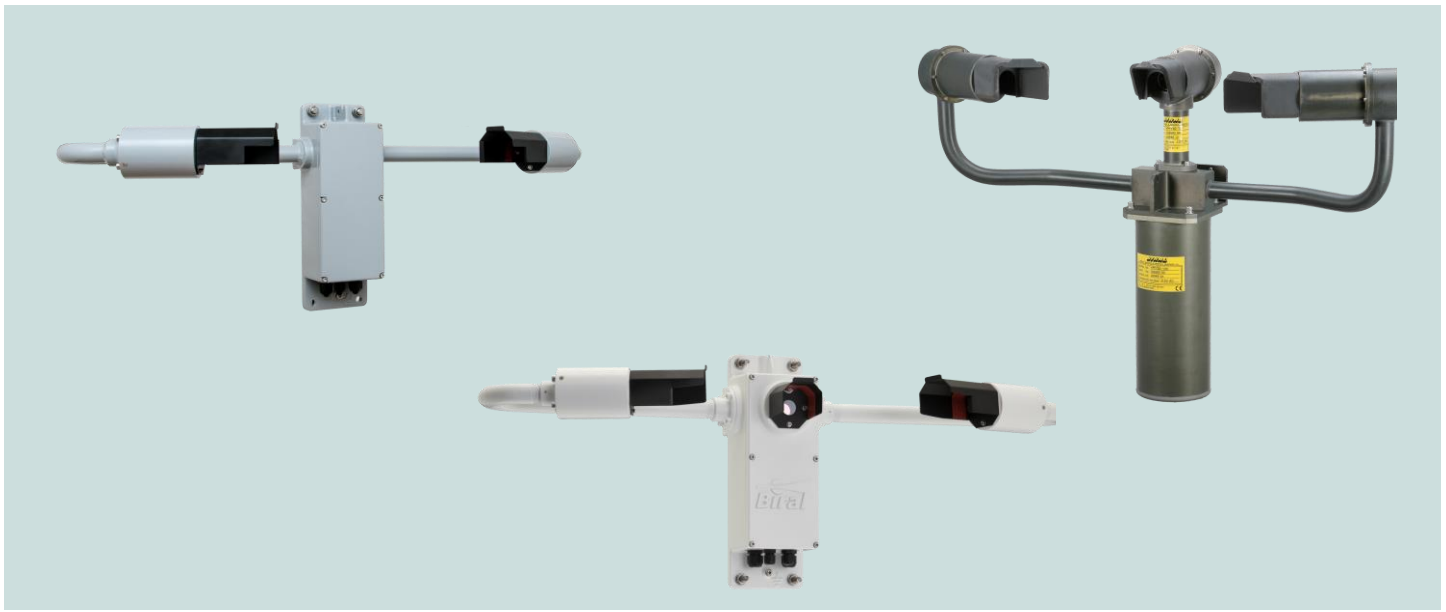
Biral
Visibly Better

Visibility & Present Weather Sensors

SENSOR INTERFACE SOFTWARE

INSTALLATION - OPERATION



RWS Series
SWS Series
VPF Series

Contents

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Biral Sensor Interface Software Manual
Software SI100242 Version 06A

1. Installation

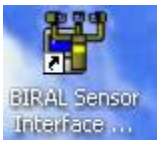
Upgrading the software
If the Biral Sensor Interface Software is already installed on the PC it must be removed prior to installing the upgrade.

Removing existing versions of the software

1. Go to Control Panel and choose Add or Remove Programs
2. Wait for list of programs to update and then select BIRAL Sensor Interface Software from the list.
3. Choose to uninstall the program – follow the instructions and wait until the program has uninstalled.

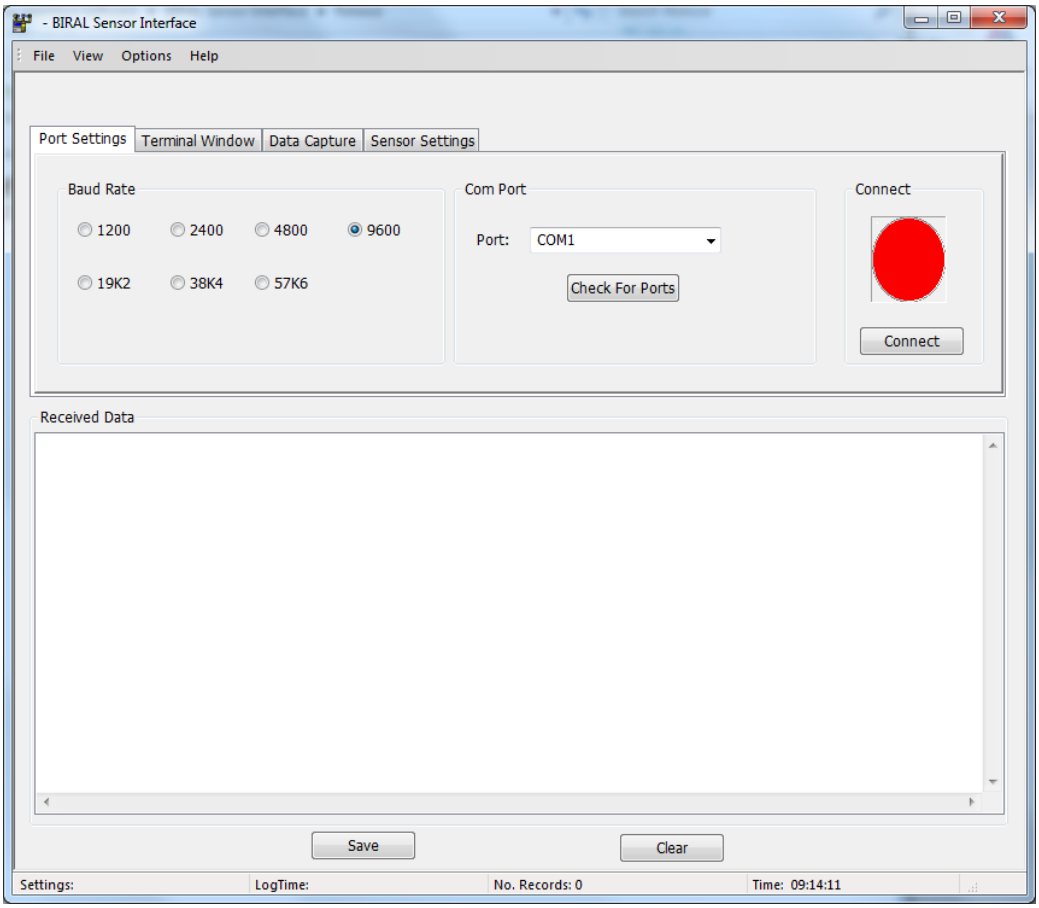
Installing the software

1. Extract the contents of the file Interface Software.zip.
2. Run the program setup.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

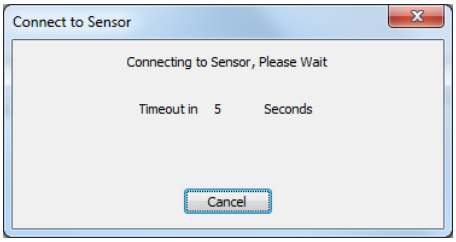


Before you can communicate with your sensor the correct port settings must be configured:

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.

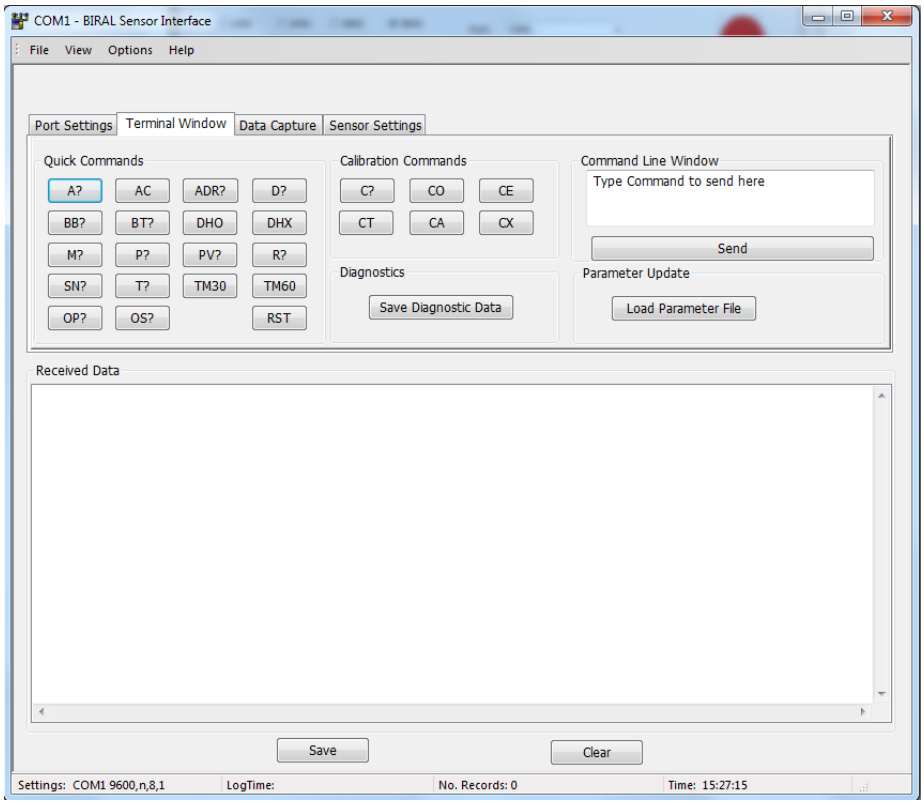
Connect: Click on the connect button – the connect dialog box will be displayed while the software attempts to connect to the sensor:



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 11 - Troubleshooting.

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.

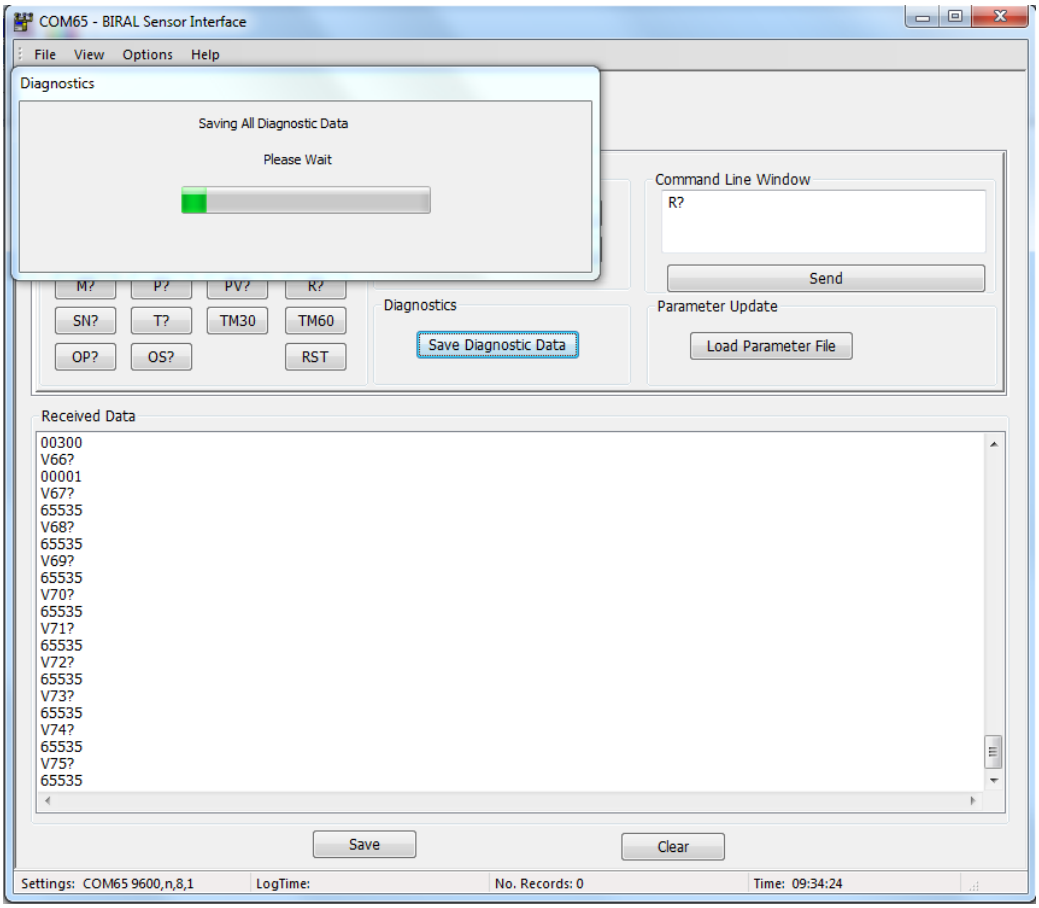
Received Data: The commands sent to and the data received from the sensor will be displayed in the Received Data window.

Save Button: Save all data in the Received Data window to a text file.
Clear Button: Clear all data in the Received Data window (double clicking in the received data area has the same function).

Diagnostics: Save Diagnostic Data button

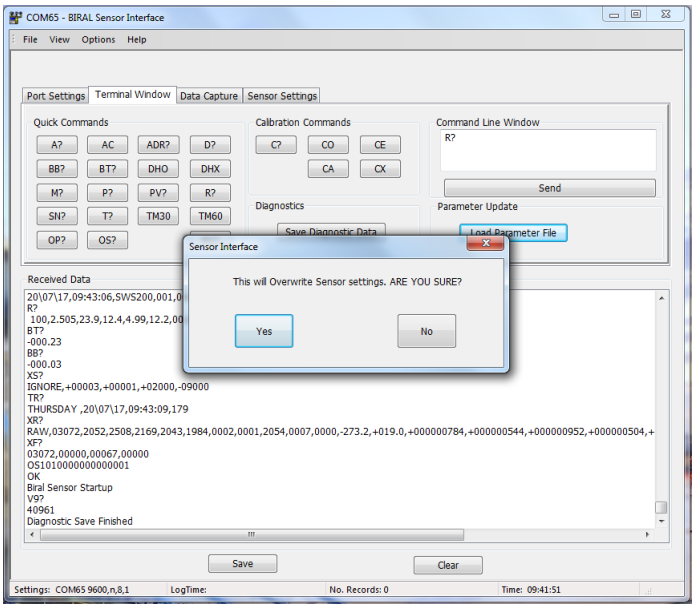
In the case of a sensor fault or unusual symptoms we recommend saving the diagnostic data and sending the file to BIRAL. This will assist the service team in diagnosing the fault quickly and efficiently.

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 "Diagnostic Save Finished" is displayed in the received data area.



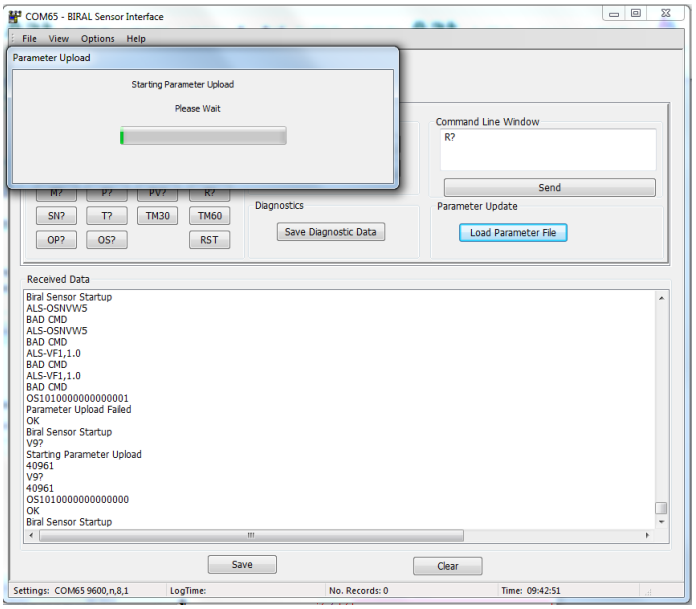
Parameter Update: Load Parameter File

Occasionally BIRAL 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 display a warning message as below.



Pressing No will stop the process. Pressing Yes will bring up the Windows Open File dialog to allow the user to select the parameter file.

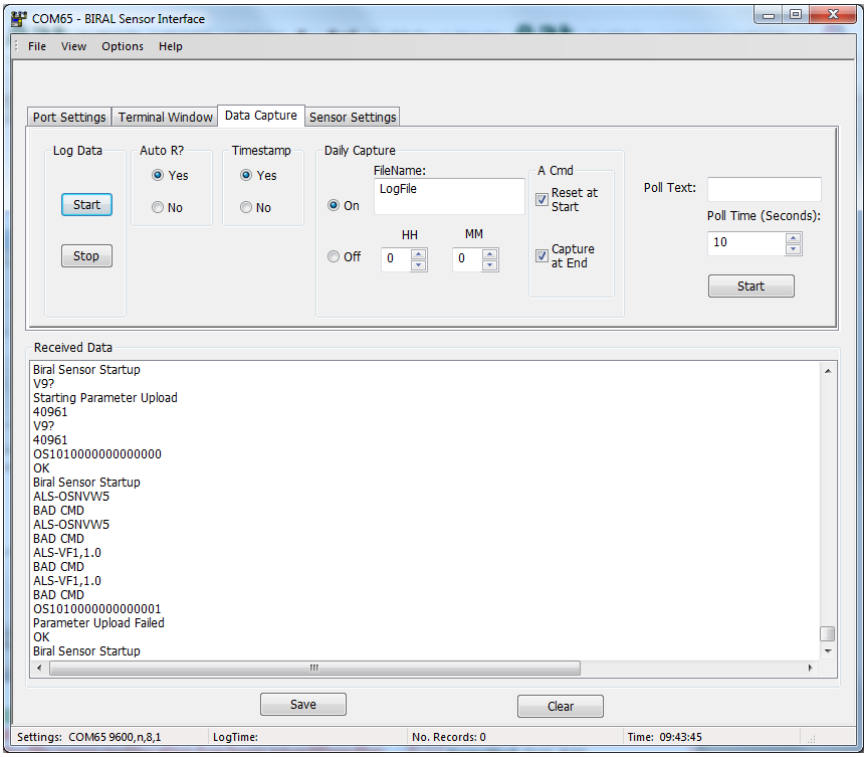
When the file is opened, the new parameters will be transmitted to the sensor as a series of commands and a message box will be displayed showing the progress of the update:



On completion of the upload, the message box will close and the text "Parameter Upload Finished" will be displayed on the received data screen.

If the update fails, the text "Parameter Upload Failed" will be displayed on the received data screen. In the case of an update failure, try repeating the process. If the upload continues to fail please contact Biral.

4. Data Capture



Log Data: The Data Capture screen allows the sensor data to be logged to a text file.

Start - Pressing Start in the Log Data area will ask the user to select a location to store the data and display the log file name. When the file name and location has been saved then the logging will start.

Stop - Pressing the stop button will close the log file and stop logging.

The following options are available:

Auto R?: Interface software sends an R? command to the sensor whenever it receives a data message.

Timestamp: Append the computer date and time to all messages received from the sensor.

Daily Capture: Enables the generation of daily data files.

On: Data files will be generated with names in the form "Logfile ddmmmyyyy hh.mm.log.

Off: Data will be logged continuously to a file.

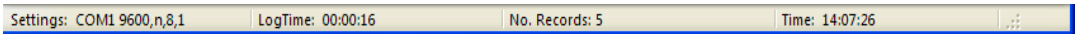
HH/MM: The HH MM boxes are used to define when the data files will be switched (default 00:00 or midnight)

The filename is the file prefix to use (default = Logfile)

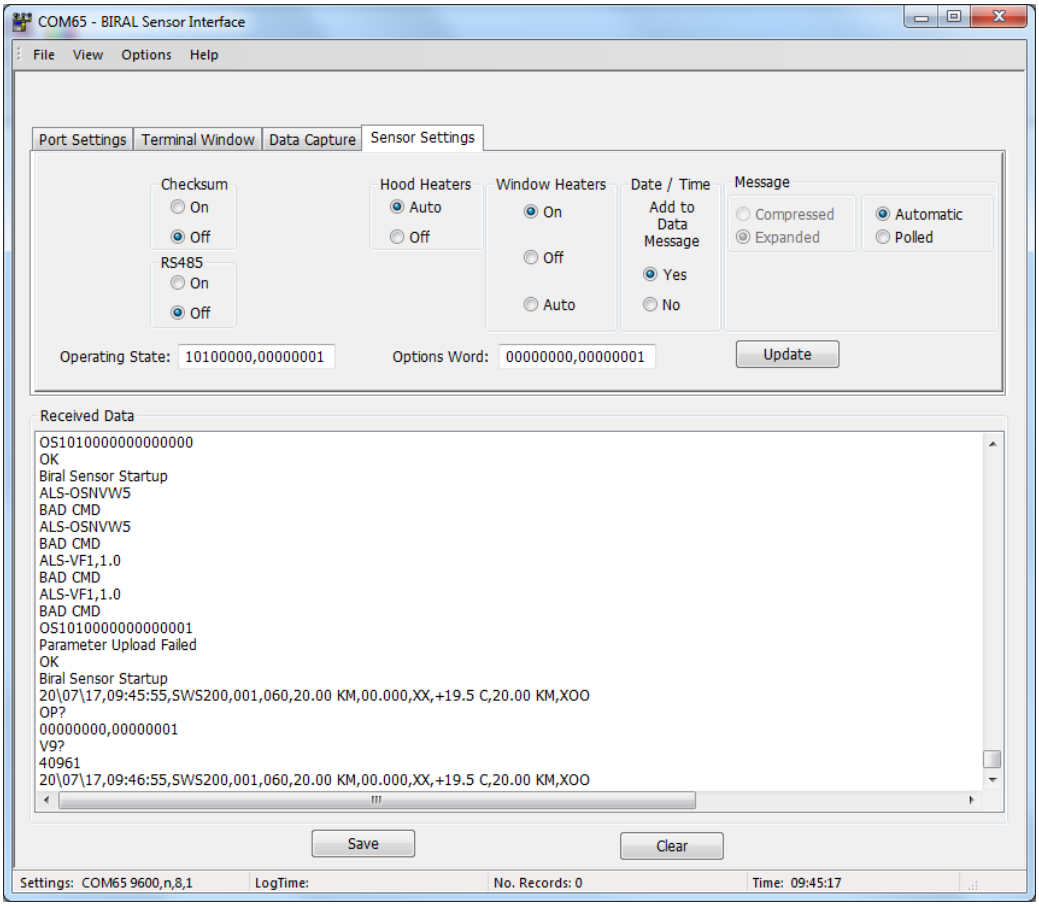
A Cmd: these boxes will send the A? to get the accumulated rainfall when the file is to be closed and the AC command to clear the accumulated rainfall when a new file is created.

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 button under the Poll time will start the polling. When pressed, the button text will change to "Stop", pressing again will stop the polling.

During logging the status bar at the bottom of the screen will update with the number of records currently logged and the elapsed log time:



5. Sensor Settings



This page allows the user to see how the sensor is set up and provides an easy to use interface for changing those settings. Selecting the sensor settings tab will request the current settings from the sensor and display them as shown above.

Update: Changing the settings is achieved by selecting the required parameters and then pressing the Update button. Pressing the Update 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 Biral.

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.

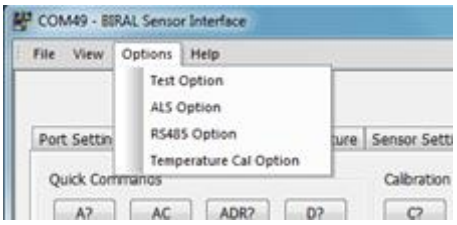
Window Heaters:

On: Window heaters permanently on (recommended).
Off: Window heaters permanently off.
Auto: Window heaters switch on with high window contamination levels

Date/Time Add to data message yes/no: Add a date/timestamp to each data message.
Message:

Compressed/Expanded: Output expanded or compressed data message (see manual for full details) – This applies to VPF sensors only, for SWS sensors this option will be disabled.
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

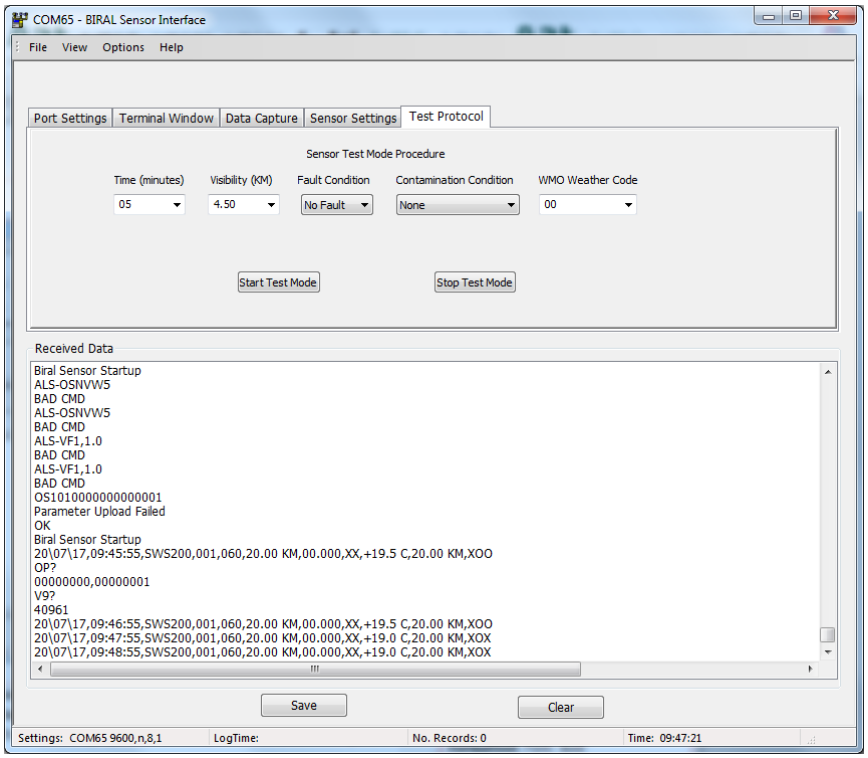


There are several options available with Biral sensors. To keep the interface as simple as possible, the control windows for these options are hidden by default. The Options Menu allows you to unhide the following options:

- **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 Biral 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.
- **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



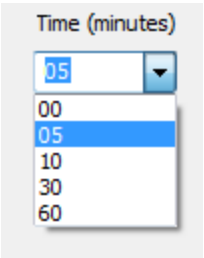
The test protocol is used to allow the user to set the sensor into a TEST mode whereby a set visibility will be output from the sensor for a fixed time period. This is to allow users to integrate and test the function of other equipment, such as warning lights and relays with the sensor.

The variables are:

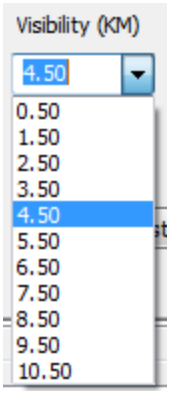
Time: The length of time to run the test for (in minutes).
Visibility: The MOR in km to output.
Fault Condition: Set a particular fault condition.
Contamination Condition: Mimic window contamination.
WMO Weather Code: Set a specific weather code (present weather sensors only)

Time drop down box

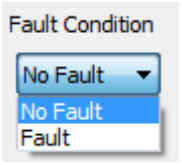
The Time drop down box is used to set the length of time for the test. The user can select one of the default times or type their own time in the box in the range 0 – 60 minutes. A time of zero will stop the test.



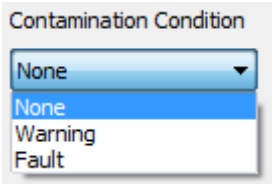
Visibility drop down box
The Visibility drop down box is used to set the visibility. The user can select one of the default visibilities or type in their own visibility in the range 0.01km to the maximum MOR range of the sensor.



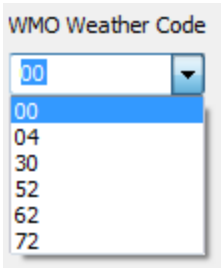
Fault drop down box
The fault drop down box is used to select the fault condition. This can only be either Fault or No Fault.



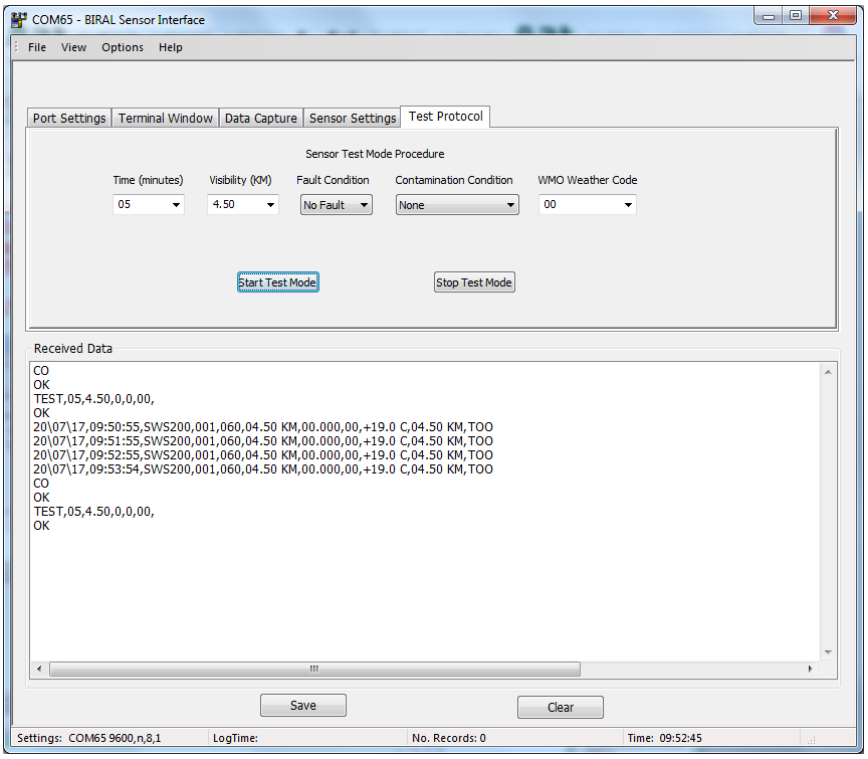
Contamination drop down box
The contamination drop down box is used to select the contamination condition. This can only be either None, Warning or Fault.



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.

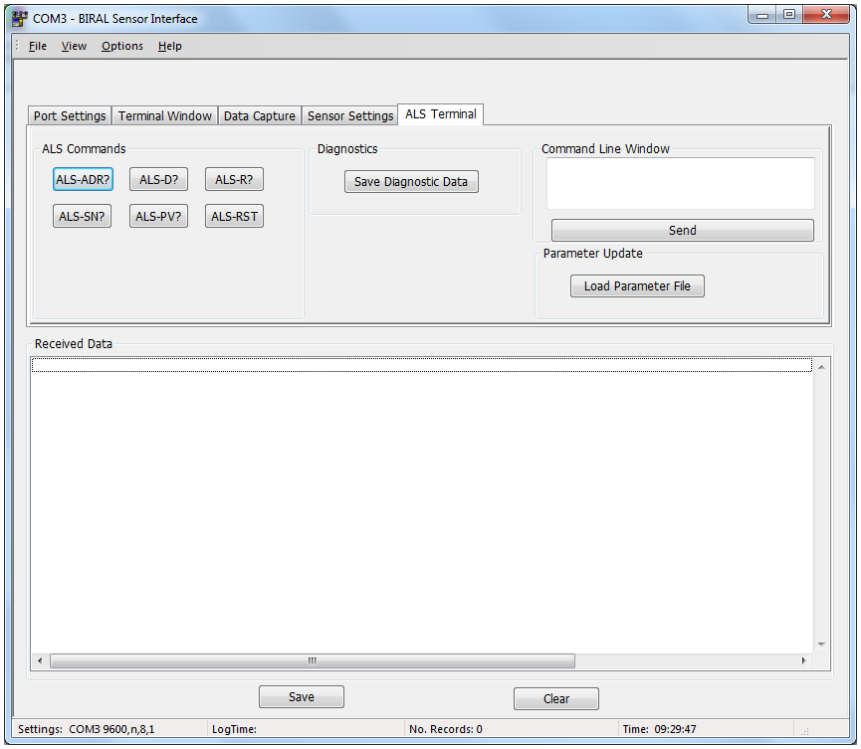


Start Test Mode: Pressing the Start Test Mode button will transmit the test command to the sensor – if the sensor responds with OK then the test will start.
The sensor will output a data string with the test options in until the test time has elapsed. The Test mode is identified in the data string by a 'T' in the first character of the self-test flags (e.g. **TOO** in the 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 BIRAL 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).

Command Line 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.

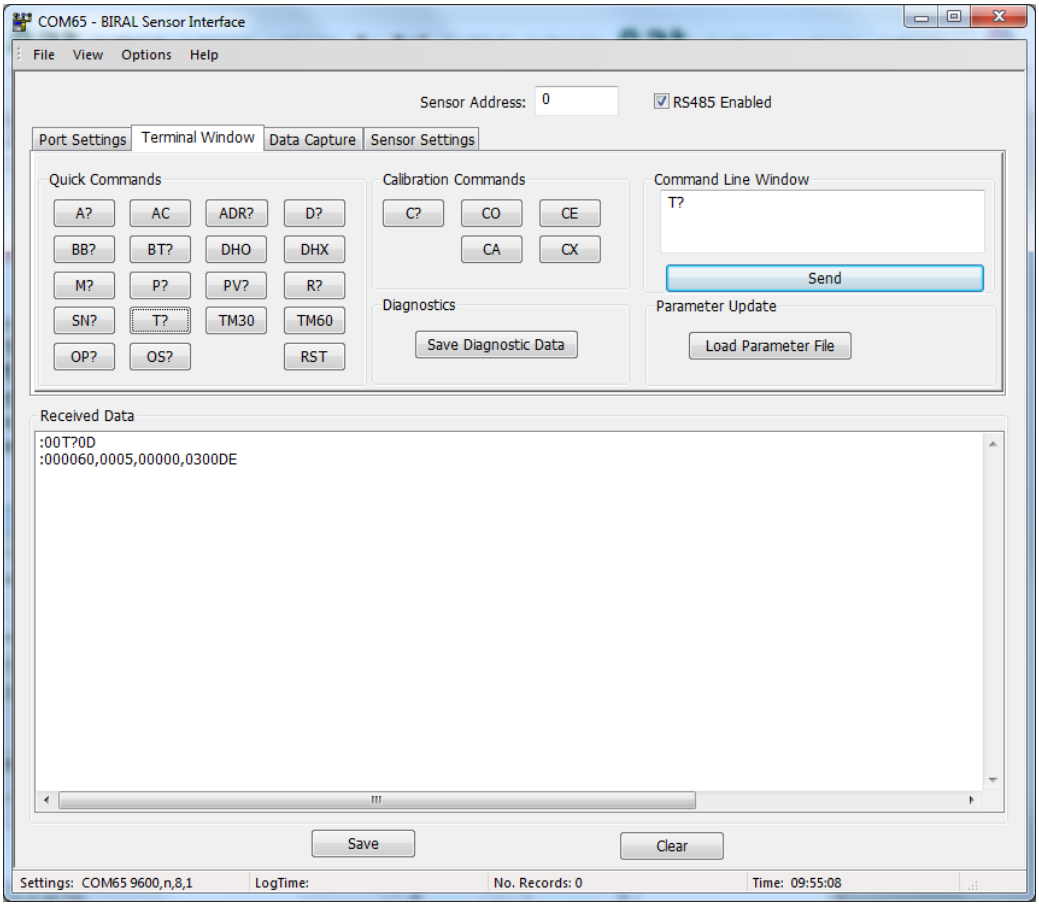
Diagnostics and Load Parameters File: The Save Diagnostic Data and Load Parameter File buttons work in the same way as those in the Terminal Window.

9. RS485 Option

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

The software initially assumes that the RS485 has not been enabled and the sensor address is set to zero (default setting).

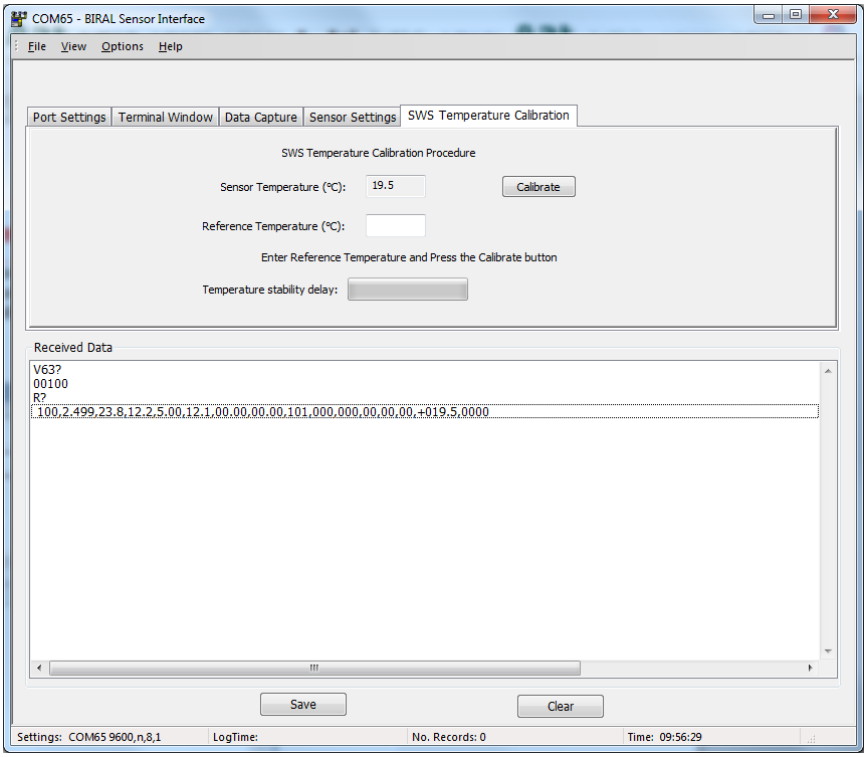
If the sensor has had the RS485 enabled, then the quick commands will elicit no response from the sensor. To tell the interface software that the sensor has RS485 enabled, click on the RS485 Enabled check box and resend the command.
e.g. In the example below, the first T? command was ignored by the sensor. 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

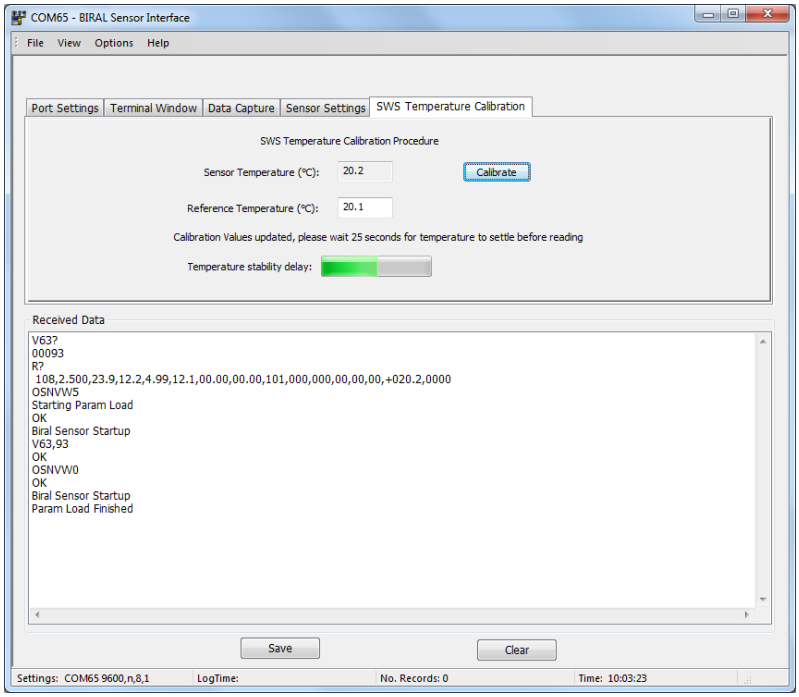
Note: This feature is only available for the SWS and RWS series of sensors.

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 request temperature settings from the sensor and bring up this display:

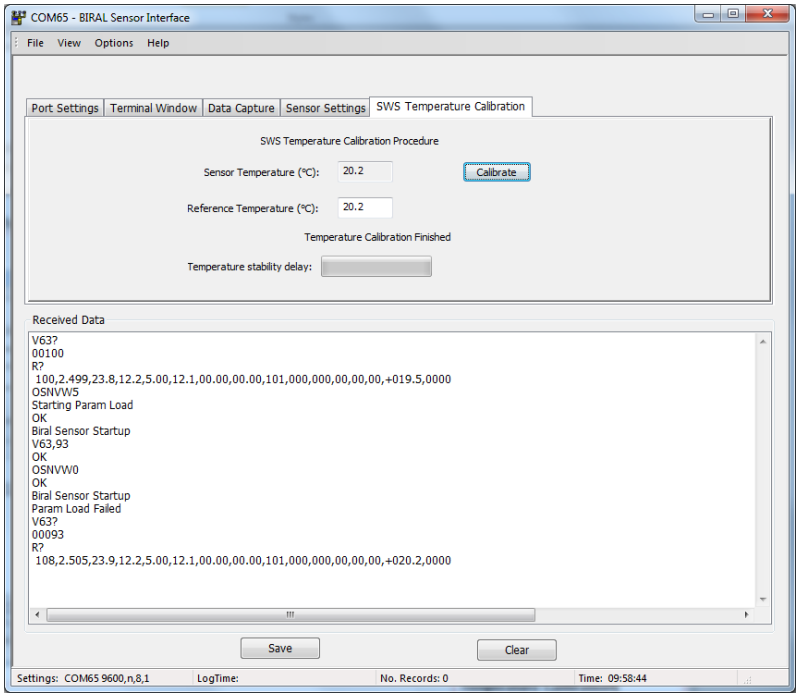


To calibrate the sensor temperature reading:

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 Biral 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.



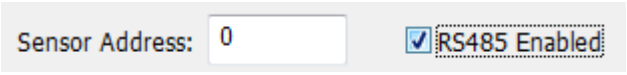
4. Once the 25 seconds has elapsed the software will request the new temperature values and update the display as follows:



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)



Now Press the Connect button.