Diligence WiFi))

Hints & Tips

Contents

Ensure that you have the following:

| WiFi Data logger | Micro USB Cable | Router or Access Point | PC or Laptop *(running XP, Vista, Windows 7 or Windows 8)* |

System Set-Up

1 You will need the SSID and the password for the wireless network. The password is sometimes referred to as the passphrase or passkey and often found on the rear of the wireless router.

2 Download and install the free Diligence WiFi software from www.comarkinstruments.com/software or www.comarkusa.com/software.

3 Make sure you 'allow' any security access highlighted by your Firewall or Antivirus program. Your system may automatically request this.

4 When you have installed the software an icon will be placed on your desktop
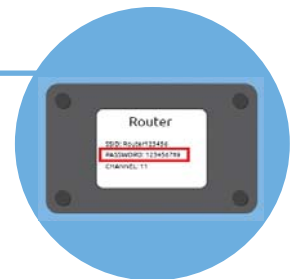
Diligence WiFi

Data Storage Choices

There are two data storage choices for your Diligence WiFi monitoring system: locally on a PC or on the Cloud.
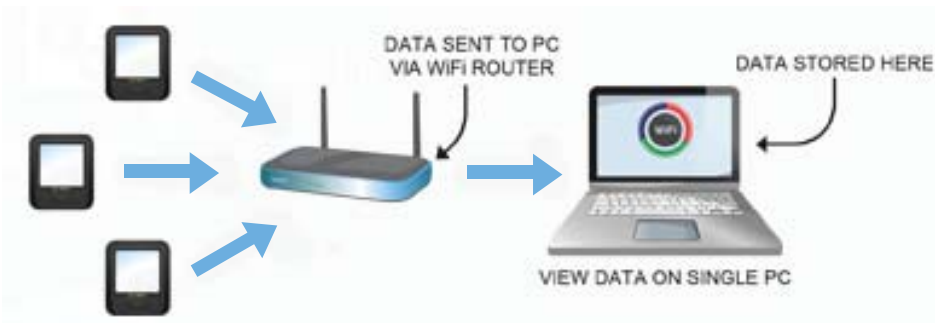
PC Data Storage

With PC data storage all your data is stored locally on your PC and is kept within your local network. No internet connection is required.
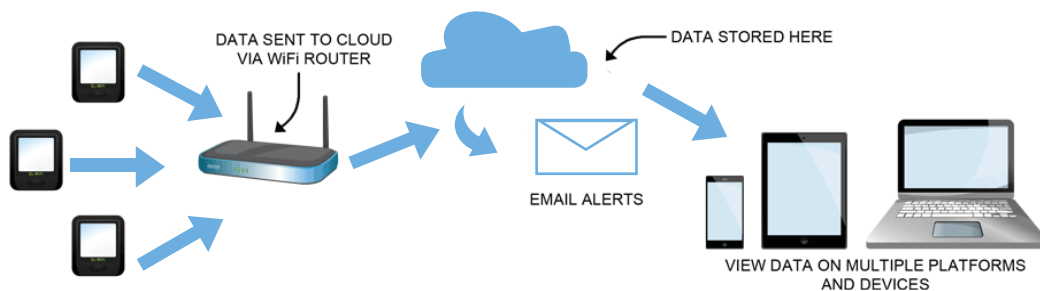

To store data from data loggers on a PC please click 'On This PC' during the set-up process. Please turn to Section 2.0 for detailed instructions for setting up your data loggers for PC storage.

Cloud Data Storage

With Cloud data storage all your data is stored remotely on our secure servers. Data is transfered to our servers through the internet and is then accessible from anywhere via a web browser on any internet enabled device.

To store data from your data loggers on the Cloud please click 'On The Cloud' during the set-up process. Please turn to Section 6.0 for detailed instructions for setting up your data loggers on the Cloud.

Section 2.0 Data Logger and Network Set-Up

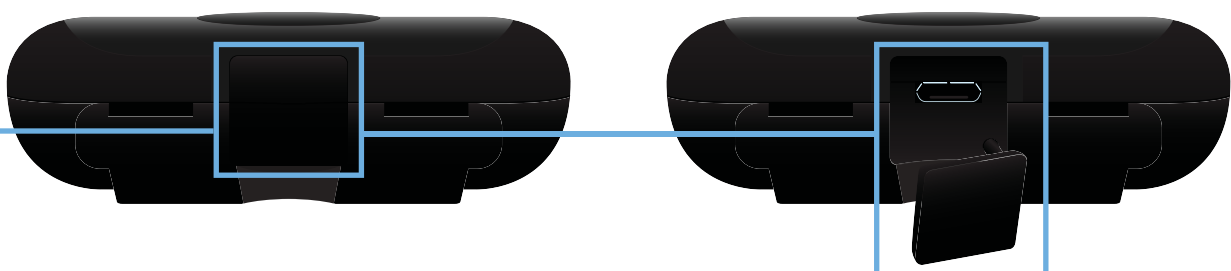**This section is for PC Users.**

1 Start the Diligence WiFi software by double clicking the desktop icon.

Diligence WiFi

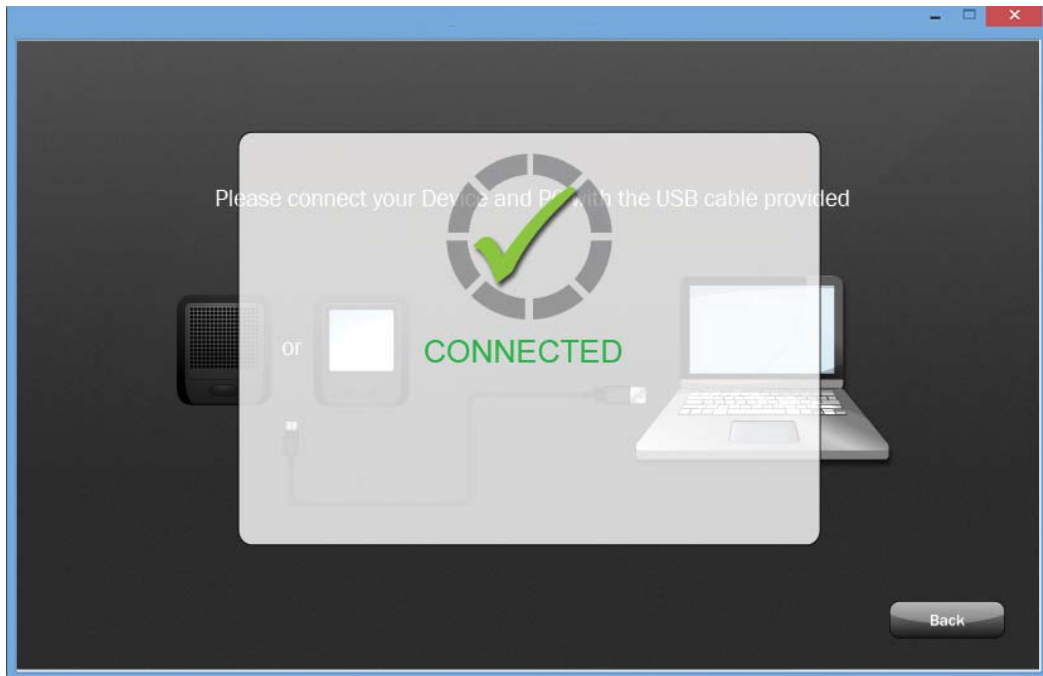**2** Click 'Set-Up Device' button and choose 'On This PC'.

3 Connect the data logger to your PC using the USB cable provided. The USB socket on the data logger is protected by a rubber bung. Remove this to gain access to the socket.

Note: **If the data logger connects successfully you will see the following screen. If it fails, check the cable is fully connected to the data logger and PC. The software will automatically try again.**

4 **Scanning**

When the message 'scanning' appears the data logger is listening for wireless networks that are currently in range. Once scanning has completed a list of available networks will be displayed. If the list is blank press the 'refresh connections' button on the top right.

5 Select the network you wish to connect to.

6 If you use a hidden network simply scroll to the bottom of the list and select 'Join Other Network' and then fill in your network details.

7 Enter the password. Press 'Connect'. After the router has successfully connected press 'Next'.

Note: If the data logger fails to connect to your wireless router the following screen will appear. Follow the on screen instructions and check the four points below.

1) Check your password

2) Click on the software refresh button

3) Re-orientate the position of your data logger

4) Ensure your WiFi router is turned on and within range of the data logger

Section 2.1   Advanced Network Configuration

If you need to configure additional network settings such as a static IP address, tick the Enter Advanced Network Options box before clicking 'Next'.
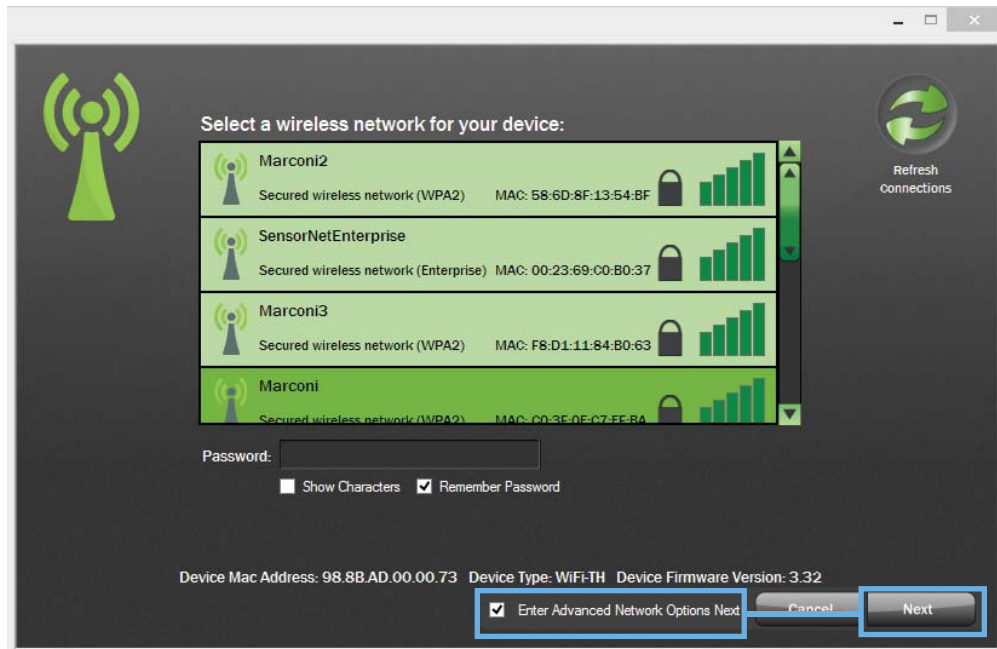
Enter the IP address to configure the data logger along with the Subnet Mask and Default Gateway.

It is also possible to lock the data logger so that it will only connect to one Wireless Access Point. This may be necessary if you have multiple Access Points with the same SSID. Enter the MAC Address of the Access Point.
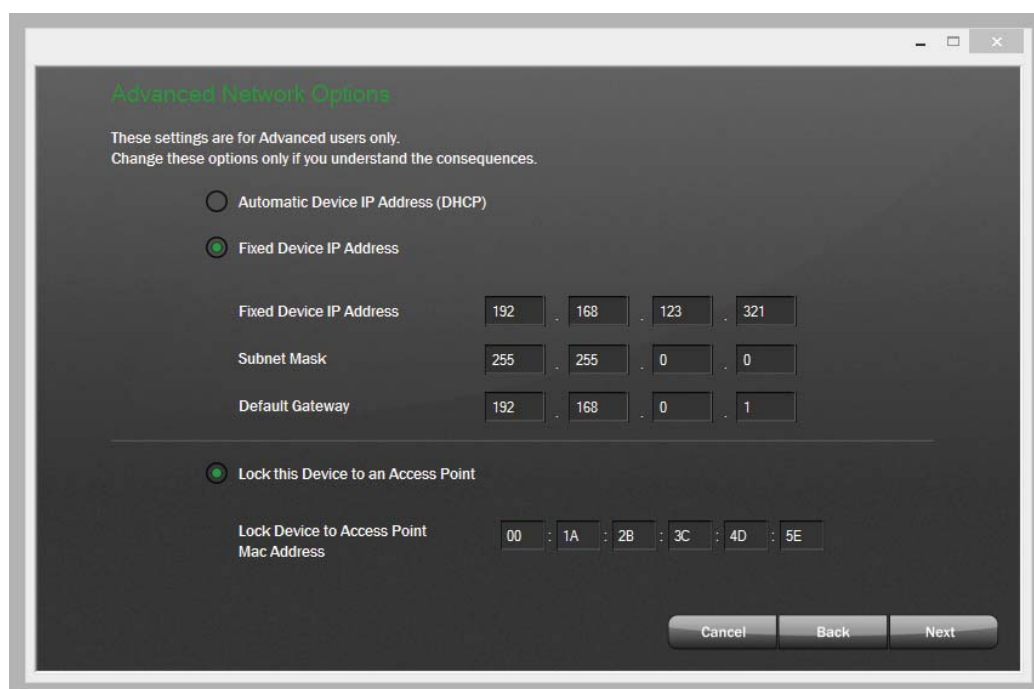
General Settings

① Enter a name for the data logger, the scale, the sample rate and transmission rate.

Sample rate
This sets how often the data logger takes a reading.
*Note: This is not how quickly the data logger transmits the data.*

Frequency of sample transmission
This sets how often the data logger transmits the information back to the PC.

In the example above the data logger takes a reading every 1 minute and logs this information on-board the data logger. Every 5 minutes, the data logger will transmit the readings to the PC.

2 Temperature Alarm set-up.
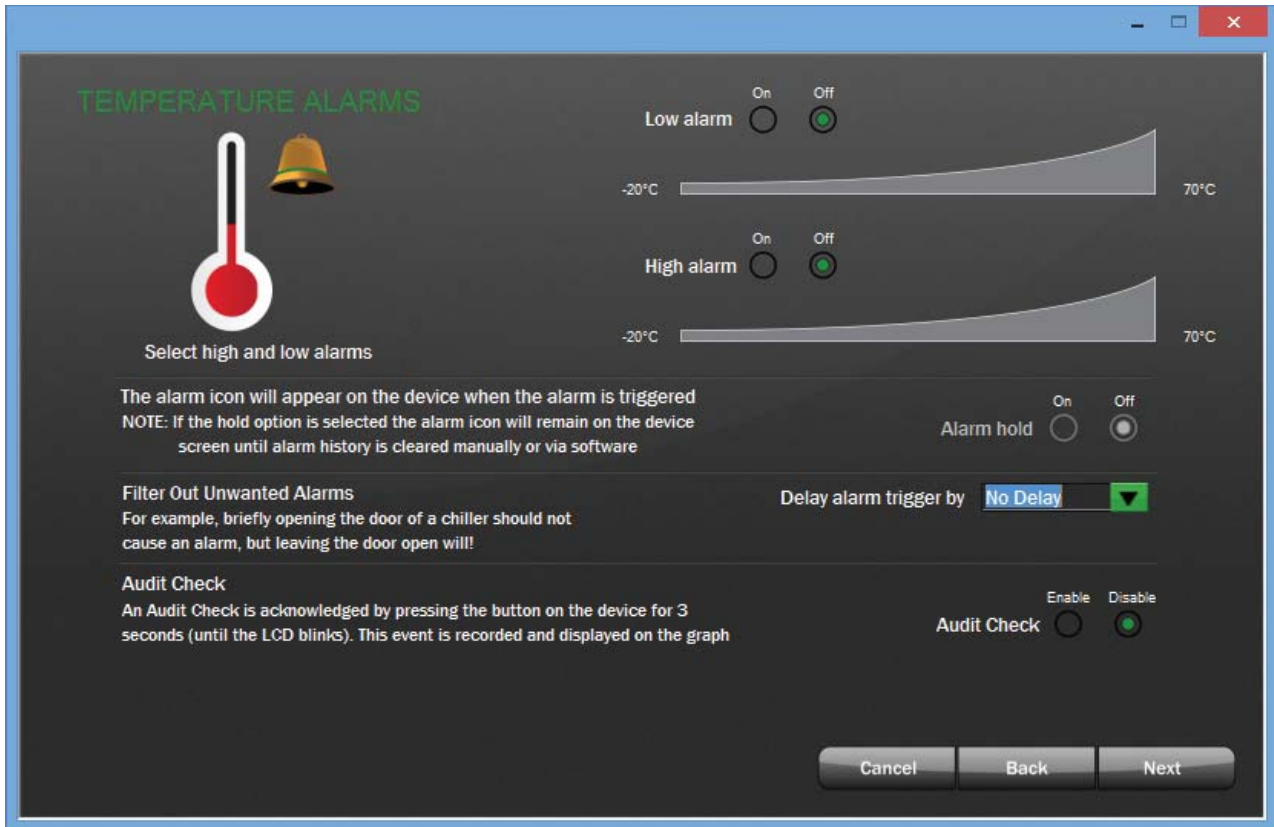
Low / High Alarms
You can set an alarm to be triggered once a data logger exceeds a high or low temperature.

Note: If you try to set the low alarm higher than the high alarm (and vice versa) you will get an error message.

Alarm Hold
This will hold the data logger in its alarm state even when the temperature has returned to an acceptable range.

For example if the 'High Alarm' is set to 42°C and the data logger rises to 46°C it will trigger an alarm. If the data logger then drops down to 41°C and 'Alarm Hold' is switched on, the data logger will remain in an alarmed state. If 'Alarm Hold' is switched off then the data logger would revert back to its normal state. In this situation you can check missed alarms by reviewing the graph.

Audit Check
This function will allow a user to record on the graph when a data logger is physically checked. This is acknowledged by pressing and holding the data logger button for three seconds.

3 Humidity Alarm set-up.

Low / High Alarms
You can set an alarm to be triggered once a data logger exceeds a high or low humidity level.

Note: If you try to set the low alarm higher than the high alarm (and vice versa) you will get an error message.

Alarm Hold
This will hold the data logger in its alarm state even when the humidity has returned to an acceptable range.

For example, if the 'High Alarm' is set to 42%RH and the humidity rises to 46%RH it will trigger an alarm. If the reading then drops down to 41%RH and 'Alarm Hold' is switched on, the data logger will remain in an alarmed state. If 'Alarm Hold' is switched off then the data logger would revert back to its normal state. In this situation you can check missed alarms by reviewing the graph.
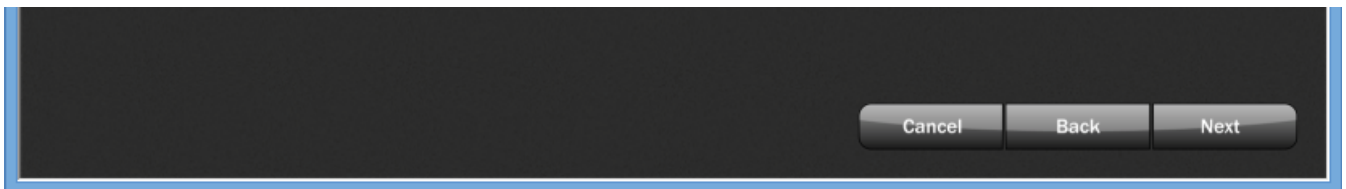
Select Probe Type
You can set the type of probe you will be using by selecting the probe number or letter from the dropdown box.

4a **TC Probe Selection**

You can set the type of thermocouple probe you will be using by selecting the probe type from the dropdown box: K, J, N and T.

TEMPERATURE ALARMS   Probe Type: K ▼

4b **TP Probe Selection**

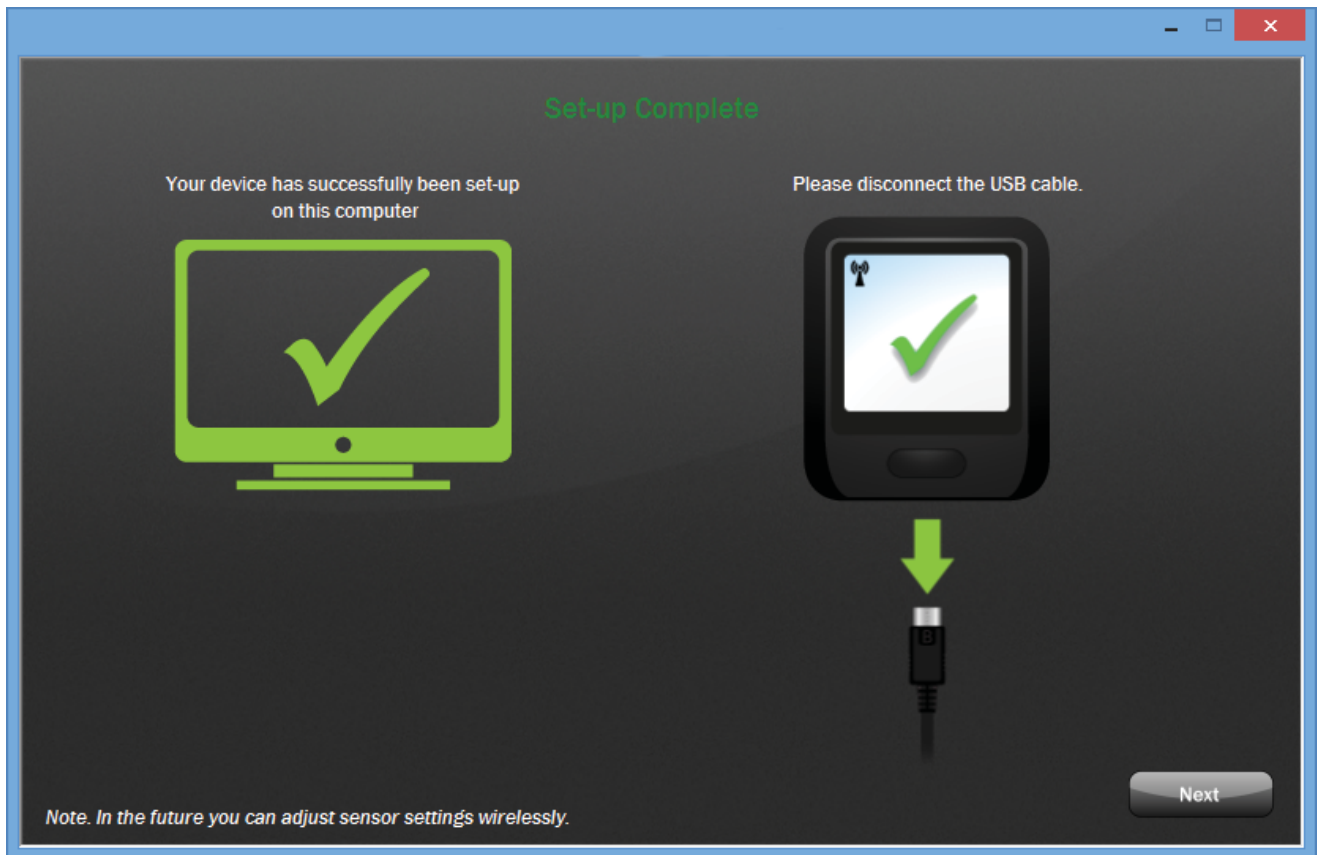Cancel   Back   Next

Note: i) The probe number can be located on the label attached to the probe cable.

ii) Selecting an incorrect probe type will cause measurement inaccuracies.

1

Once set-up has completed successfully you will see the following screen.

Click 'Next' to return to the starting screen.

Go to Section 3.0 - Viewing Data Loggers on the PC

Section 3.0 Viewing Data Loggers on the PC

**1** Click on the second button to view the data loggers ('View Devices')

Set-Up Device

View Devices

On This PC   OR   On The Cloud
What's the difference?

View Saved Data

Not Signed In

2 Notice the icons in the top right hand corner. Click on these to change the way the information is presented.

Select All

Existing devices

Tims TH 00-28-2C   WiFi Sensor

TH   TH
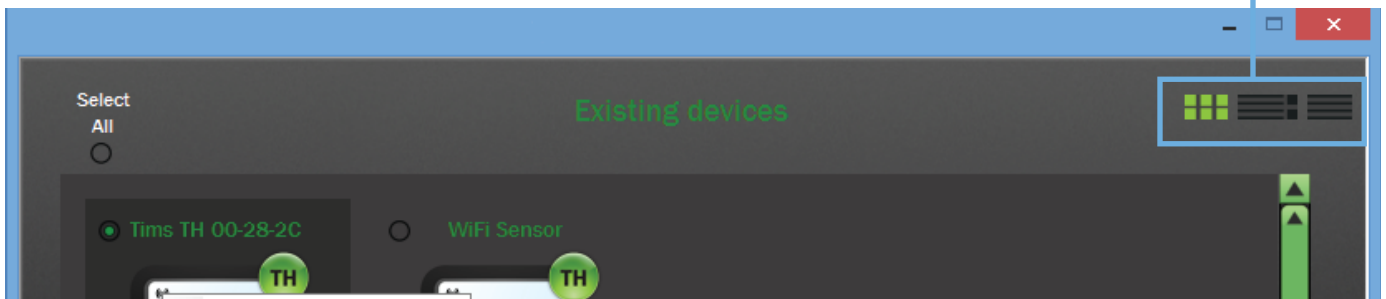
3 In some screens, clicking on a sensor icon will display an enlarged view.
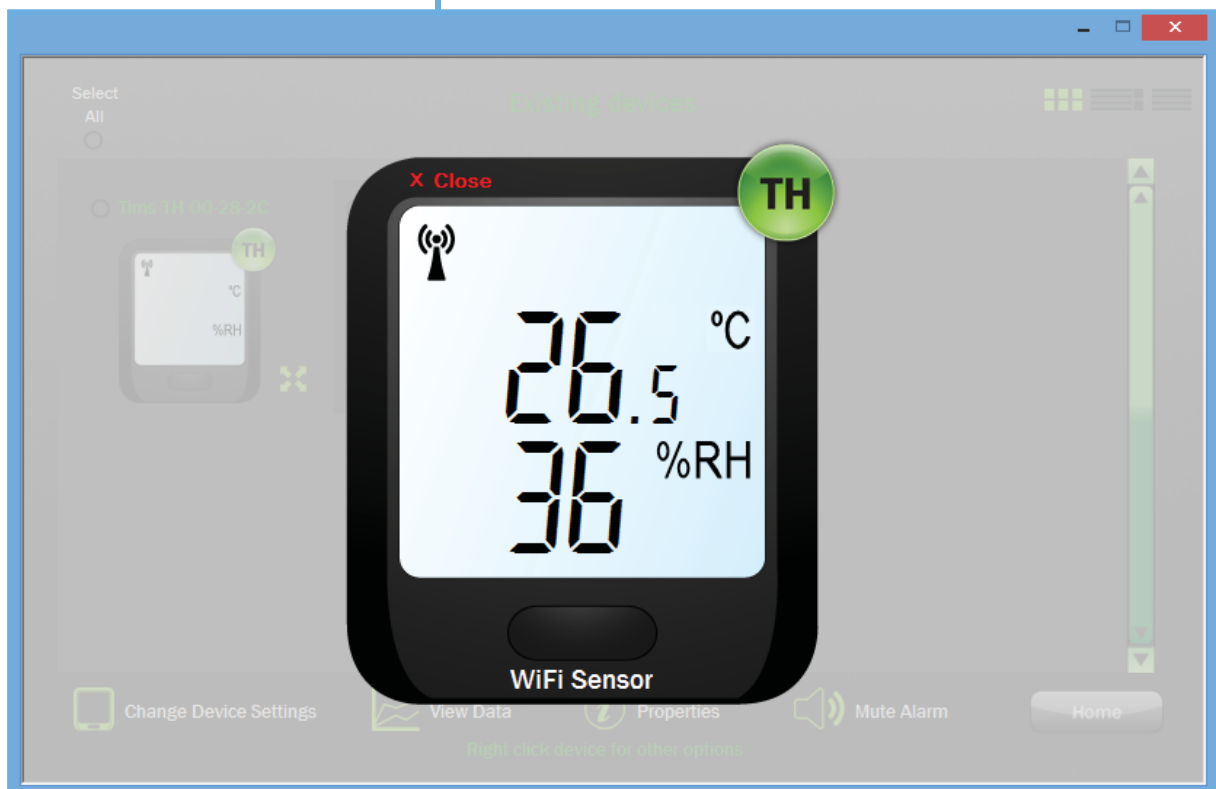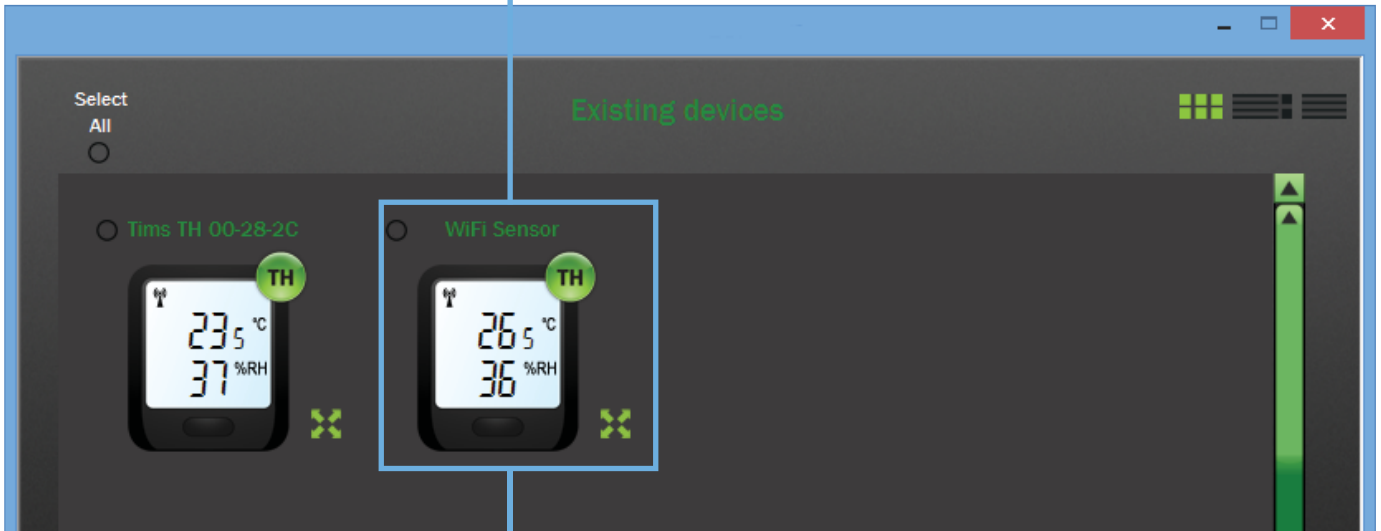
Data Storage System (Automatic)

The PC gathers data into sessions.

**1** **Sessions** *(in more detail)*

The data is split into what are called 'sessions'.

New sessions are started by:

a   change in sample rate

b   change of data logger name

c   change in alarm settings

For example a new session will begin when you change the name of the data logger. You may wish to move the data logger from 'Storage One' to 'Chiller One'. The data splits into two separate sessions. The resulting graphs will now be titled correctly.
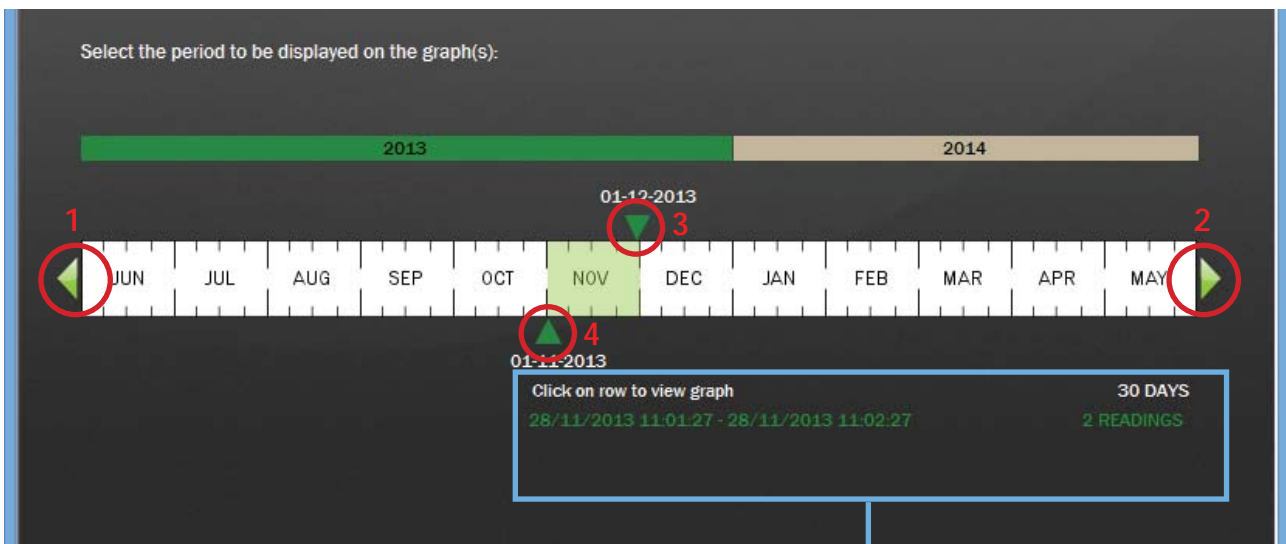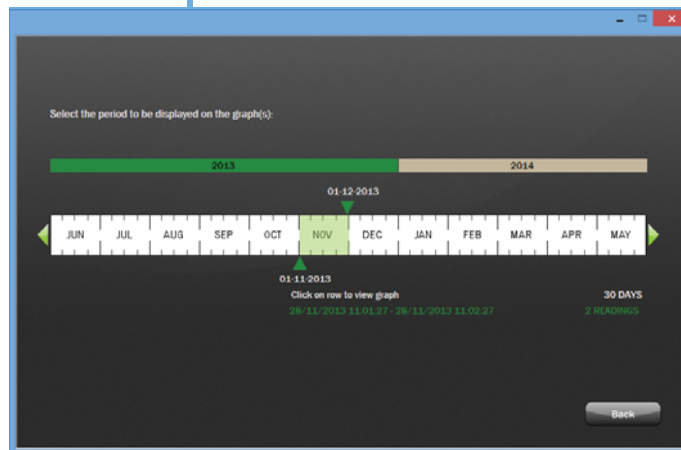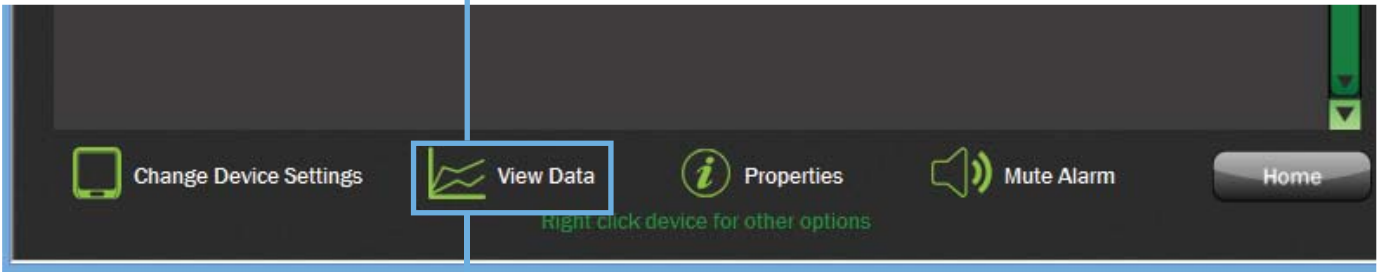
2 To view a session, select the data logger that you wish to see in greater detail.
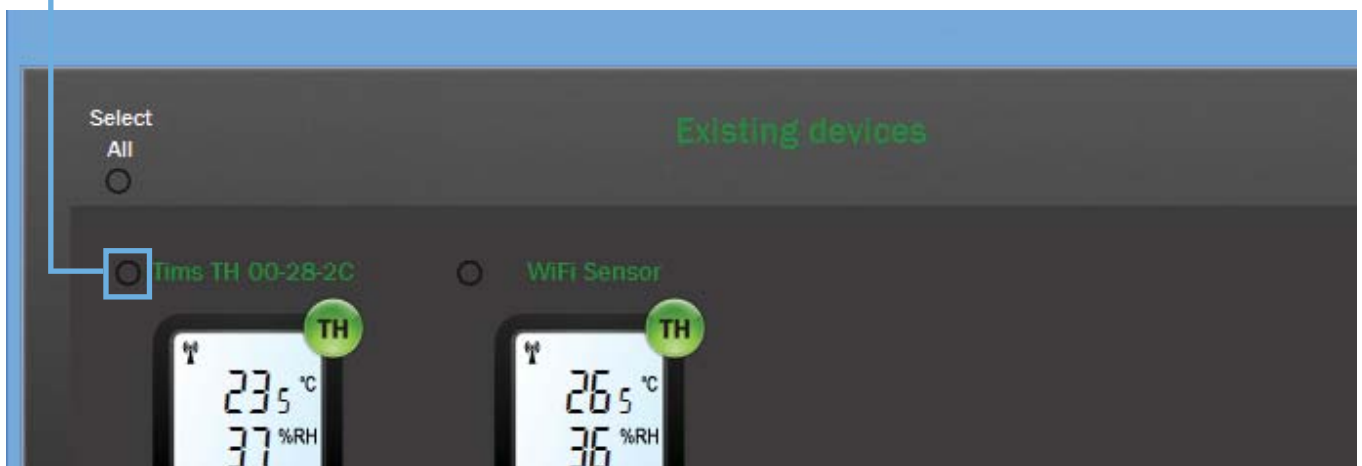
3 Click on the 'View Data' icon located at the bottom of the screen and this will display the 'Graphing Sessions' screen.

4 List of recorded 'sessions'. Click on a row to view the graph.

5 If necessary, drag the date sliders to view sessions within a date range.
Note: Arrows 1 and 2 allow you to scroll through the years. Arrows 3 and 4 allow you to select a time period of which to view sessions from.

1 To view a graph, select the session by clicking on the relevant row.
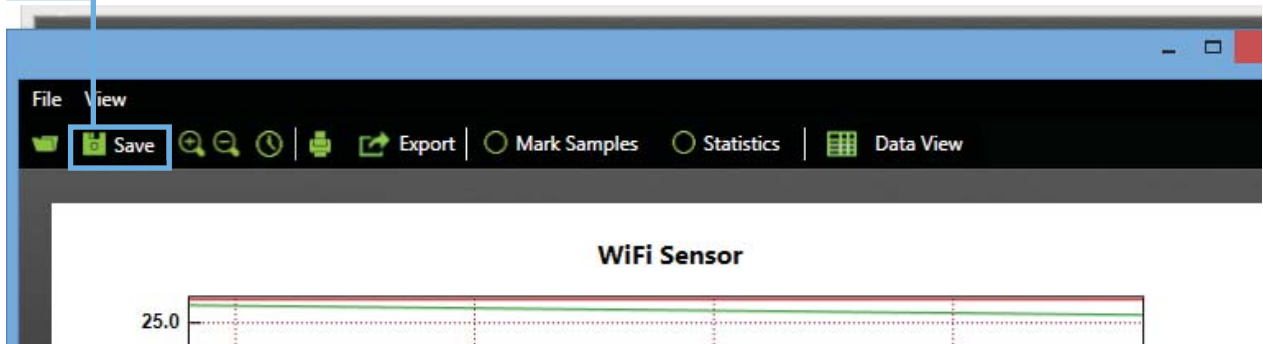

2 You can alter the information you wish to view by clicking on the tick boxes below the graph.

① Additional Saving Method (Manual)

If you wish to capture a particular event and save this information as a separate file you can do this by opening the graph and selecting 'Save'.

Note: The system will ask you for a file name. Give the file a unique name.

Saving and Zoom

Using zoom within a graph, you can zoom in on an event and save this as a separate file. Be aware the graphing program always optimises the view for you, data is not affected, only the way the data set is displayed.
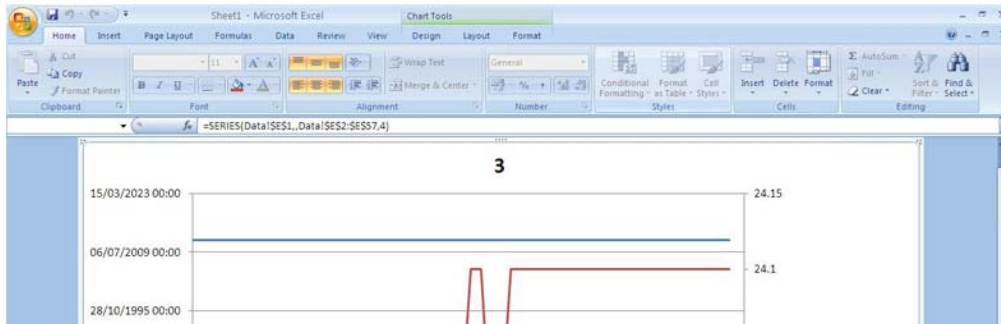
② In a graph screen press the 'Export' button and select the required format.
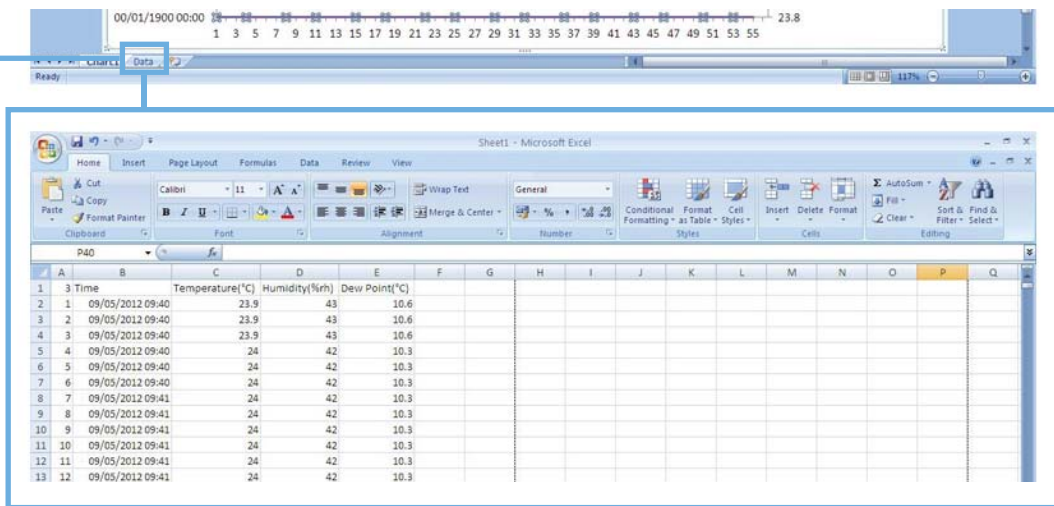*Note: Bottom option will only work if you have Excel installed*
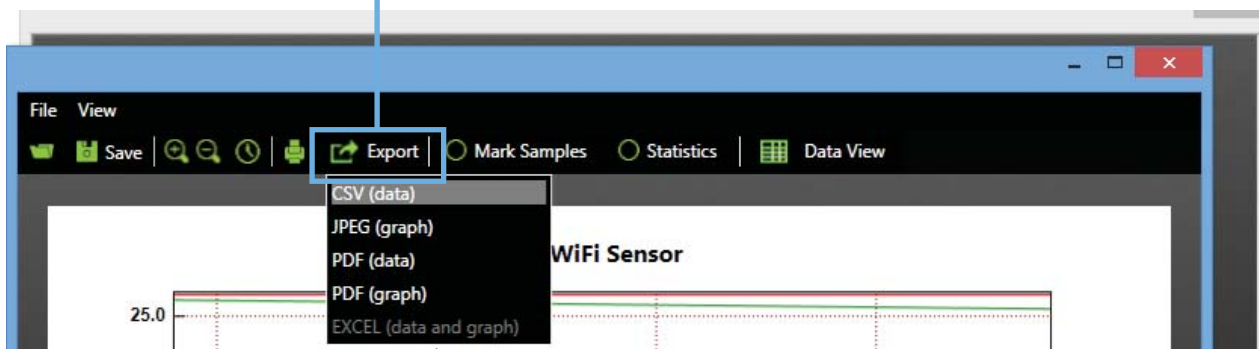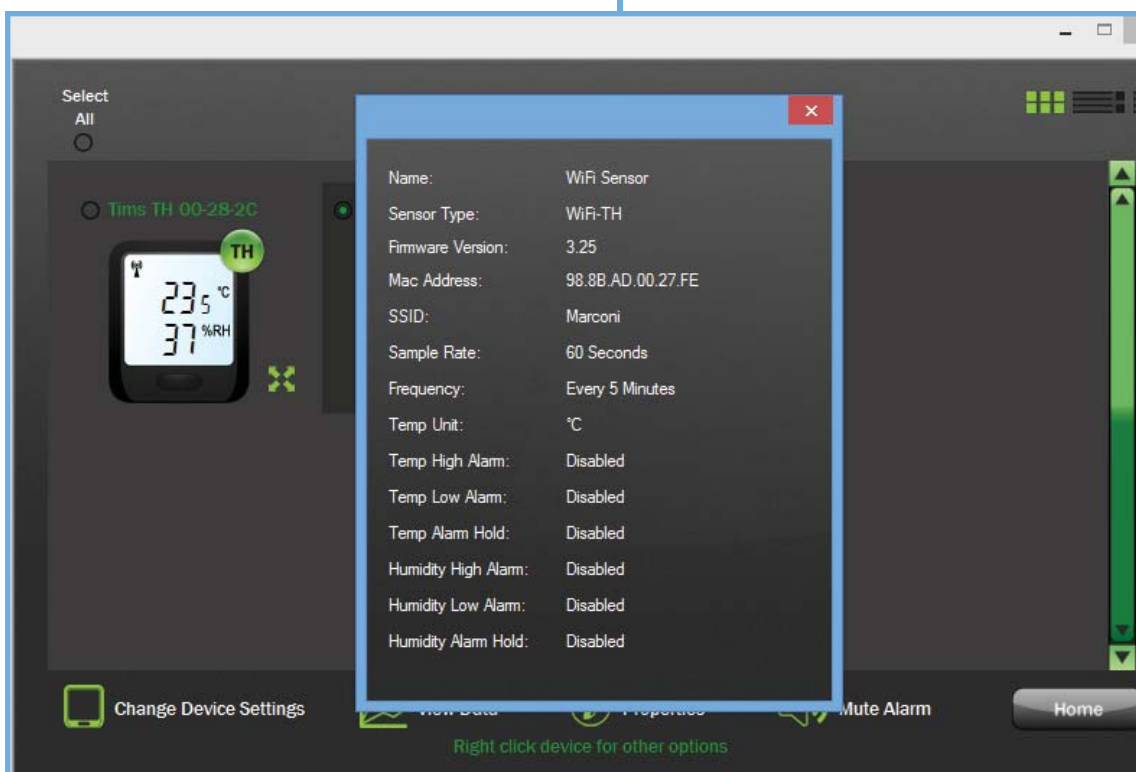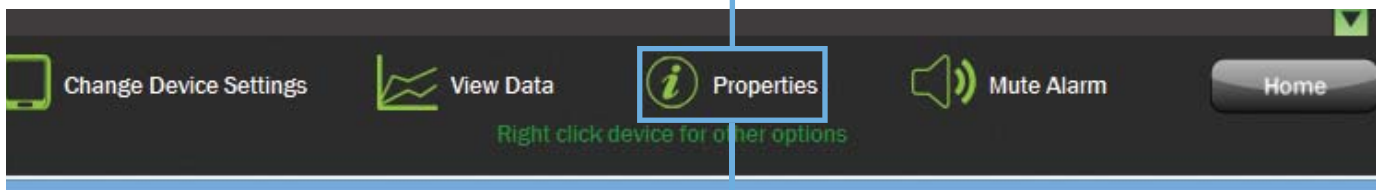
3 Excel will automatically run and import data.

4 You can access the raw data through the second tab in the Excel spread sheets.

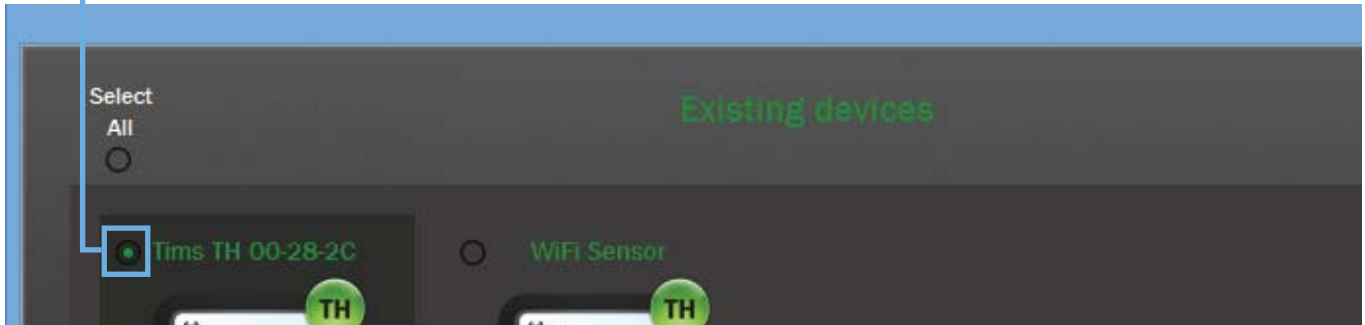# Section 4.0 Data Logger Management

Device properties gives you a summary of all your data logger settings.

1 Select a data logger.

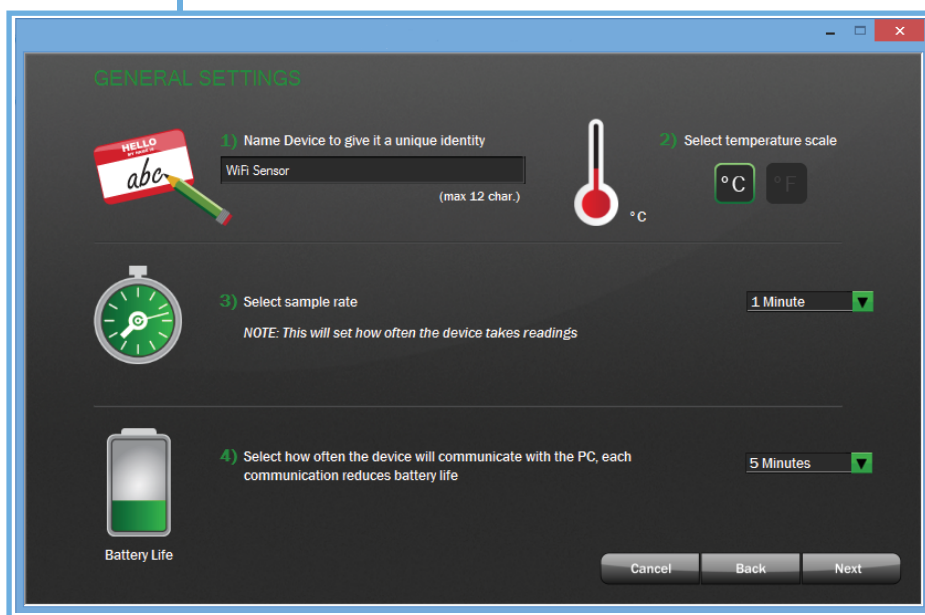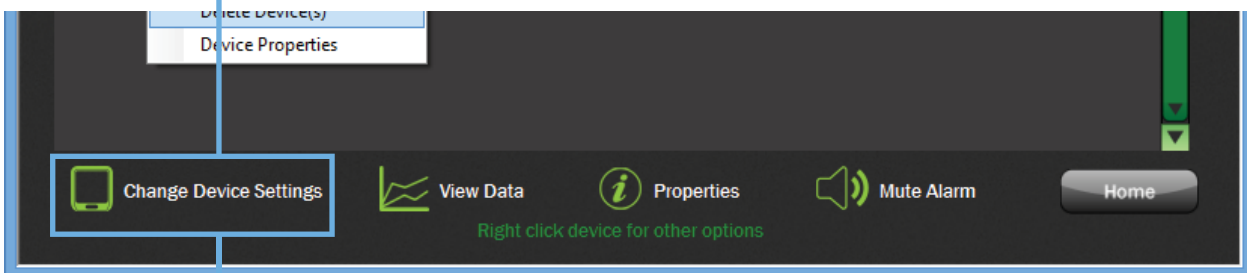**2** Click on the 'Properties' icon at the bottom of the screen.

Section 4.1   Adjusting Data Logger Settings

1 To adjust data logger settings over the WiFi, select the data logger that you wish to change.

2 Click on the 'Change Device Settings' icon located at the bottom of the screen and this will take you to the General Settings screen.

3 Follow steps as before in section 2.2.

Note: The updates will take effect only when the data logger next transmits.

For example In the above example the data logger will communicate every five minutes so it could take a minute for the data logger to update.

To save power a user may decide to transmit readings once every 30 minutes. In this case it will take at least 30 minutes for the data logger to update settings.
If the senor settings need updating earlier, i.e. before the next regular transmission there is the ability to 'Force a transmission'.

Force Transmission

To force transmissions press the data logger button 3 times until the RSSI (Received Signal Strength Indication) screen is displayed. The data logger always transmits and receives when this screen is displayed.
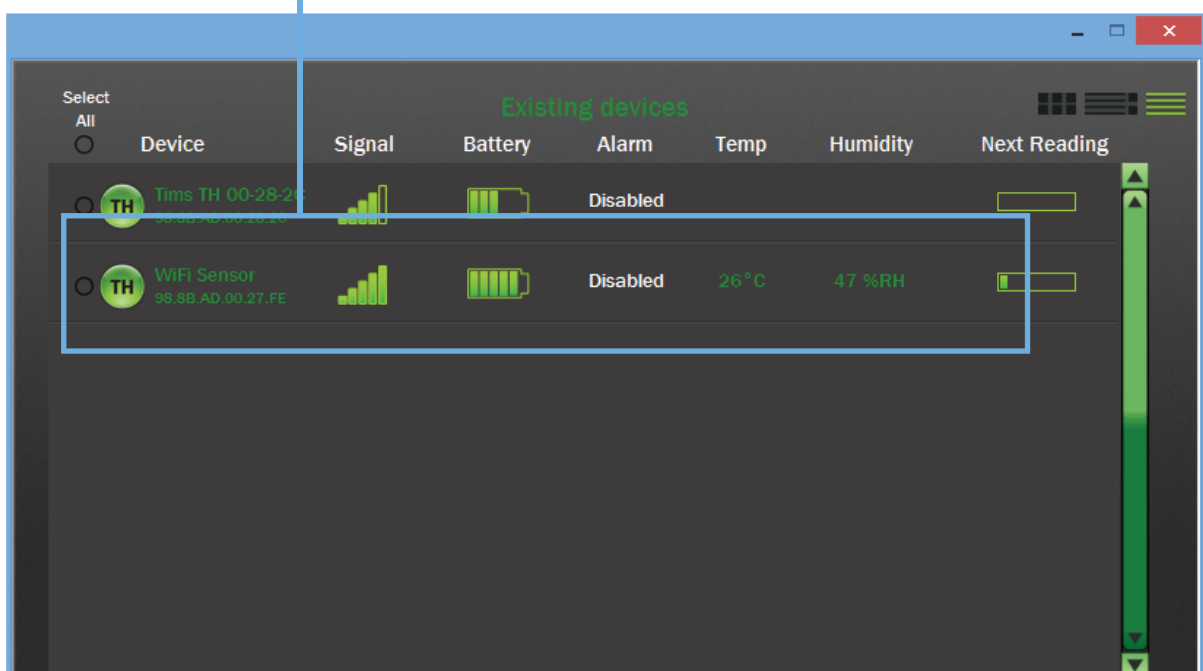
1 To mute alarms generated by the PC software, click on the 'Mute Alarm' icon located at the bottom of the screen.
Note: This will mute all sounding alarms, there is no need to individually select them.
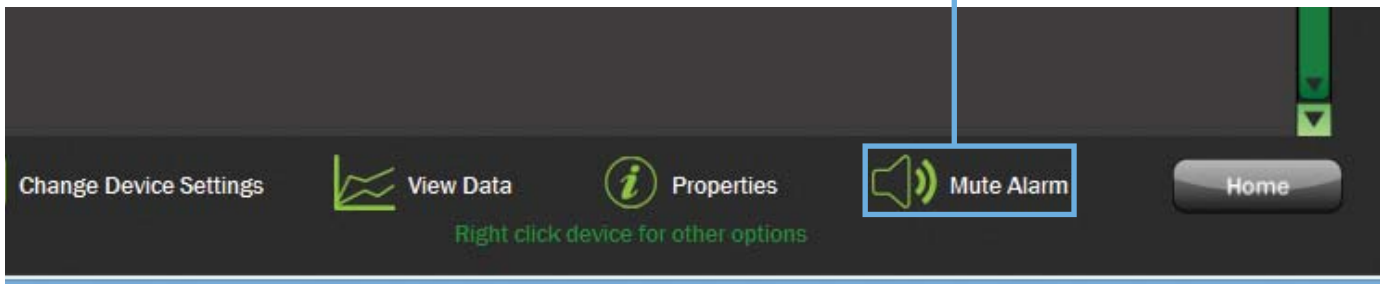
When the data logger reading has returned to an acceptable range, the alarm can be reset in one of two ways.

1 At the data logger, by briefly pressing the button.

2 In the software, by selecting the 'Reset Alarm' option from the drop-down list. The alarm will be reset when the data logger next transmits.
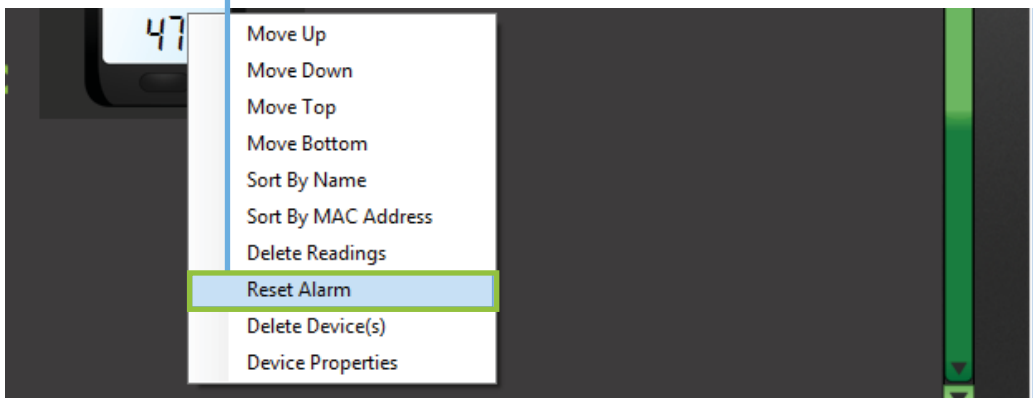
You can delete data logger. This will delete the data logger from the PC program including all 'sessions'. *('sessions' are detailed more in section 3.4.2, Saving Data.)* It will not delete any files you have specifically 'saved' from the graph.

**1** Select a data logger from a view and right click.

2 From the options select 'Delete Device(s)'.
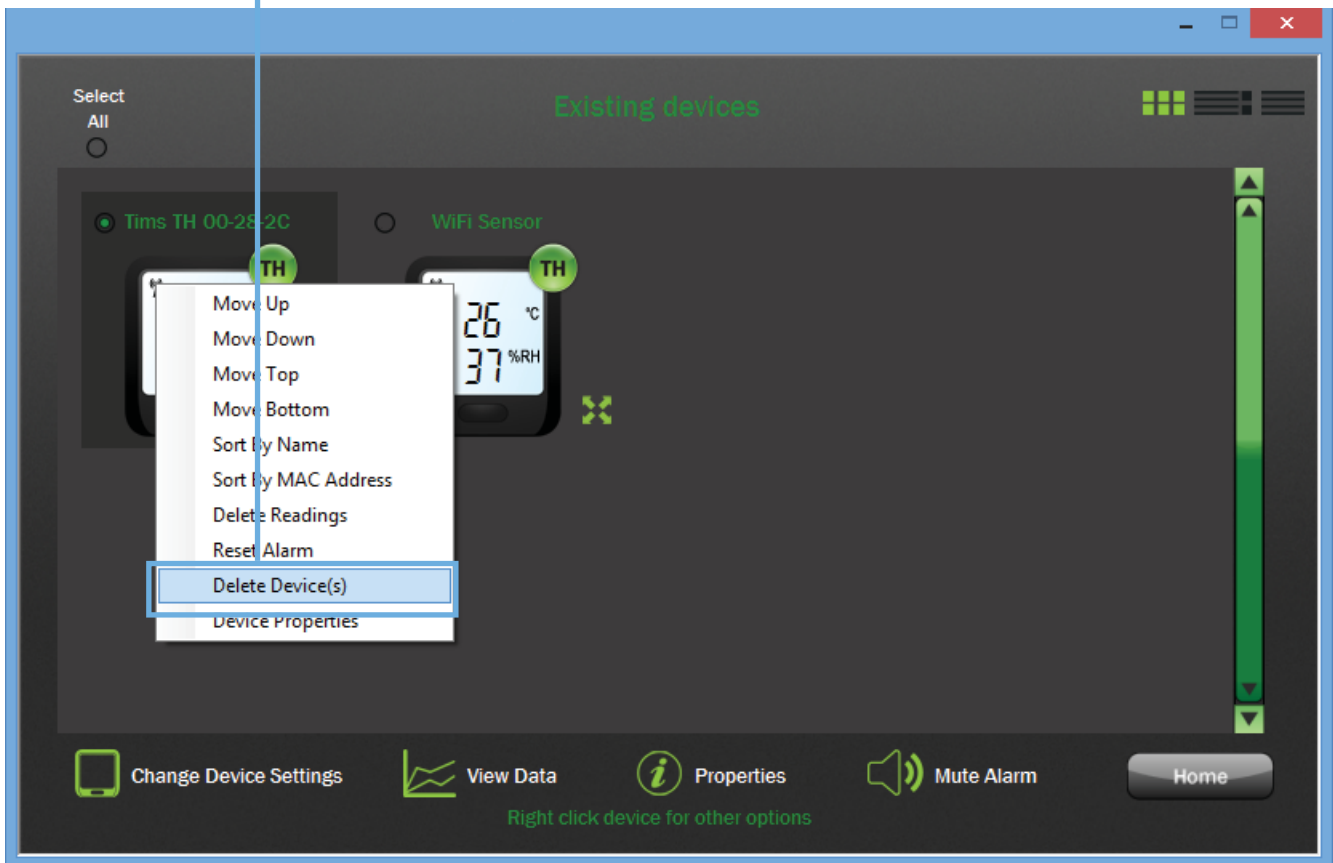
Note: If you have multiple data loggers selected, then all those selected will be deleted.

You will then be given the option to archive the logger data. This will save all the data logger sessions as .txt files locally to your PC which can be viewed at a later date.

1 Click on the third button to view previously saved data.
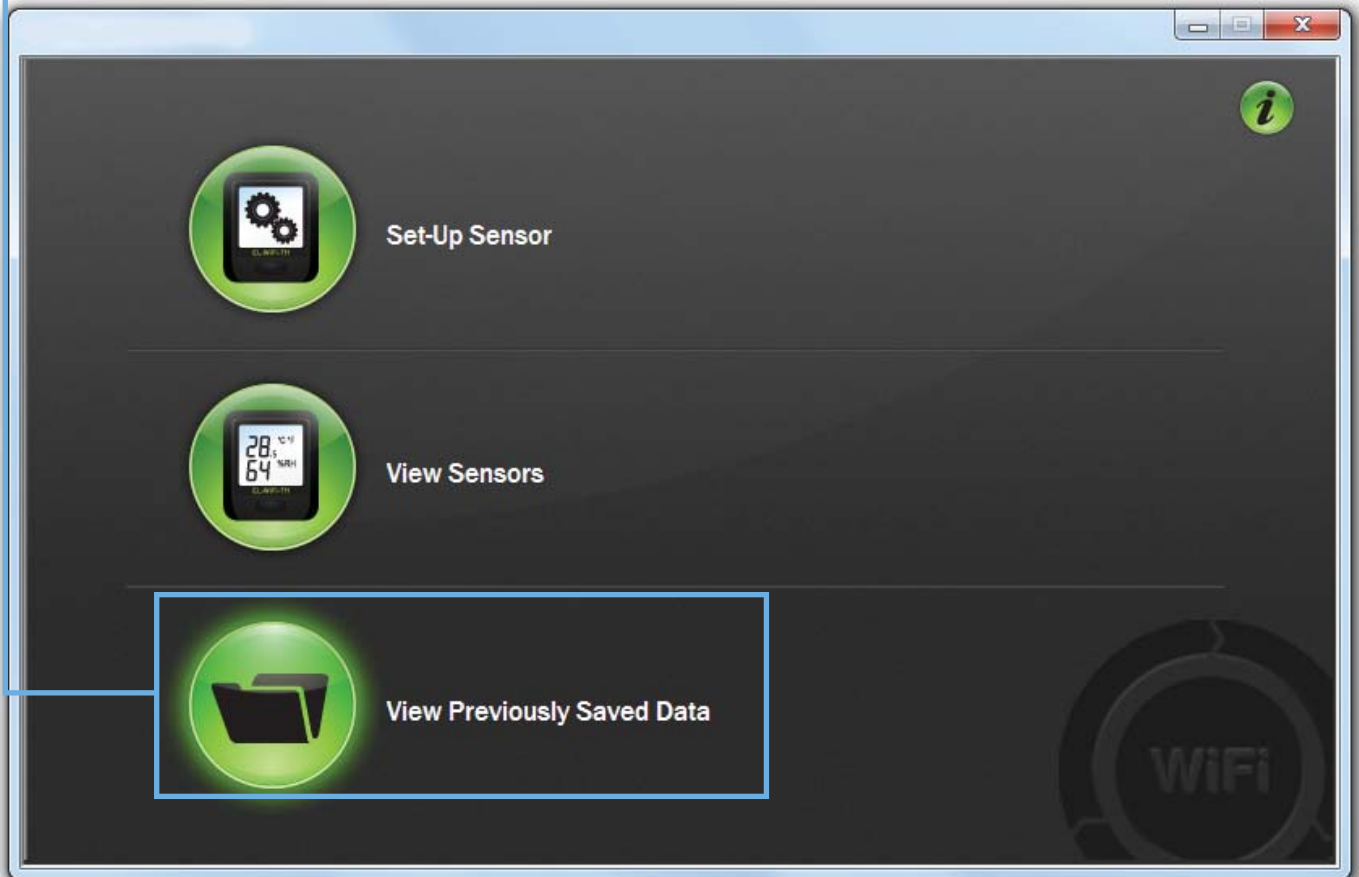
This allows you to view any files you have saved from the graph.
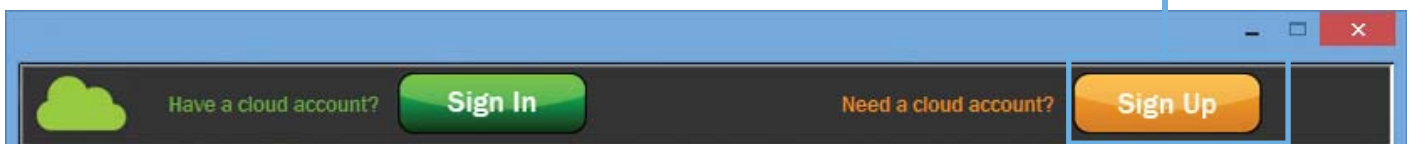(see section 3.4 - Saving Data)

This section is for Cloud users.

1 Start the Diligence WiFi software by double clicking on the desktop icon.

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2 If you don't have a Cloud Account, click the orange 'Sign Up' button. If you do have a Cloud Account please proceed to Step 4.

3 Upon clicking the 'Sign Up' button you will be taken to the Cloud webpage, at which point you will be lead through the sign up process. Once completed please continue to Step 4.

4 To sign into your Cloud Account on the Diligence WiFi software, click the green 'Sign In' button then enter your account details into the fields that appear. Finally click 'Sign In' to log into your account.
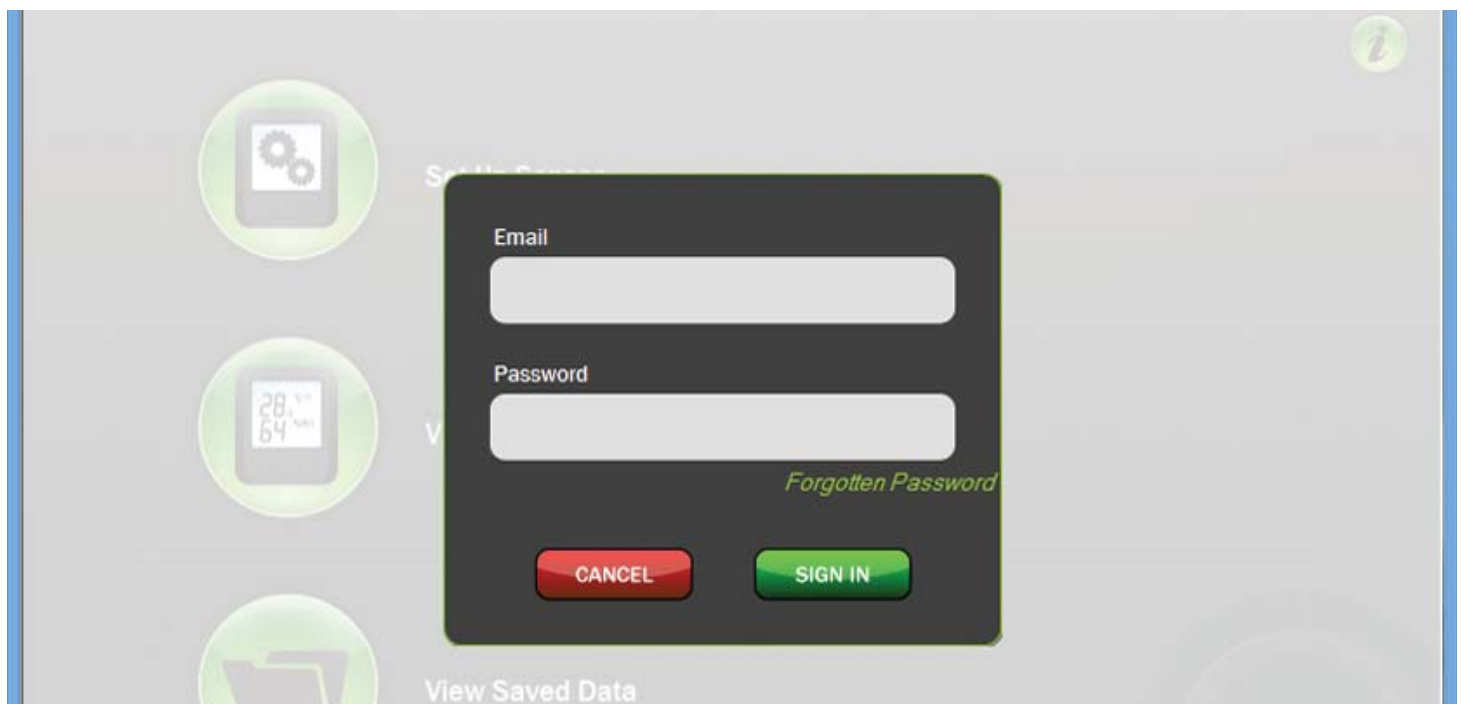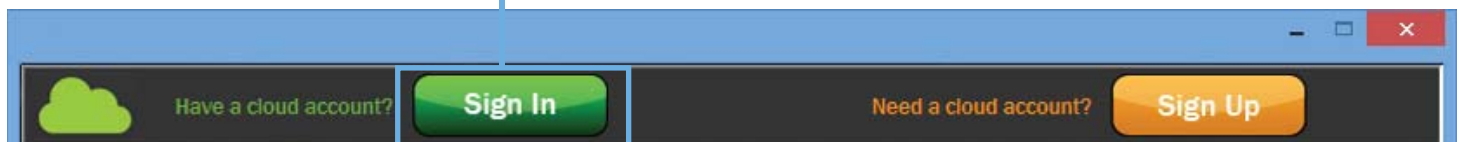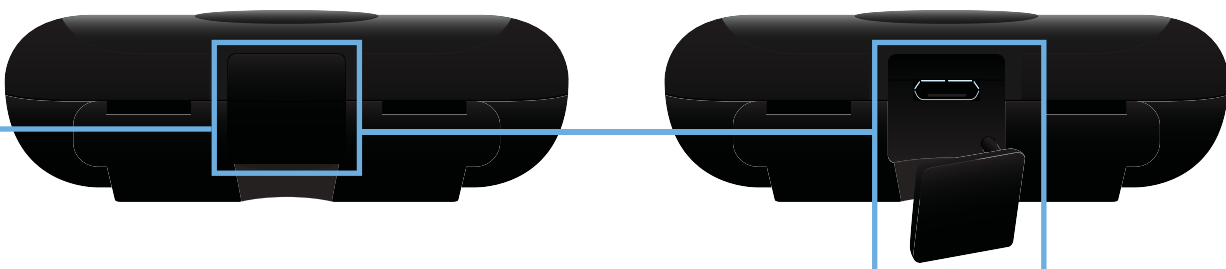
Section 7.0   Data Logger and Cloud Set-Up

1 Start the Diligence WiFi software by double clicking the desktop icon.

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2 Click 'Set-Up Device' button and choose 'On The Cloud'. (If a firmware upgrade message appears on the screen at this stage, refer to section 8.4 Firmware Updates.)
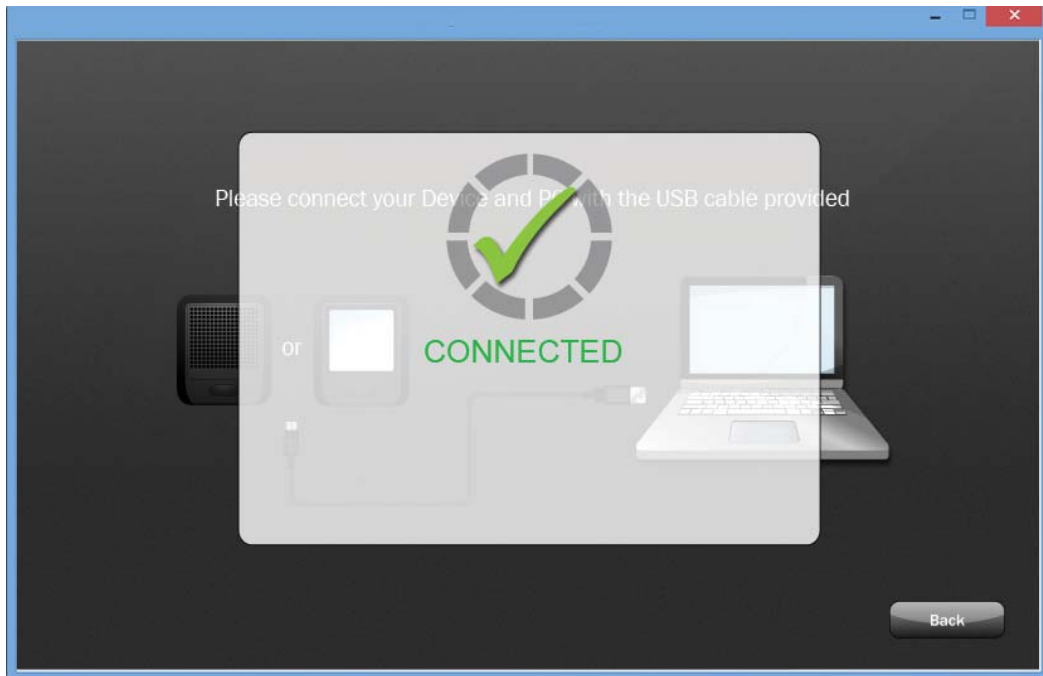

3 Connect the data logger to your PC using the USB cable provided. The USB socket on the data logger is protected by a rubber bung. Remove this to gain access to the socket.
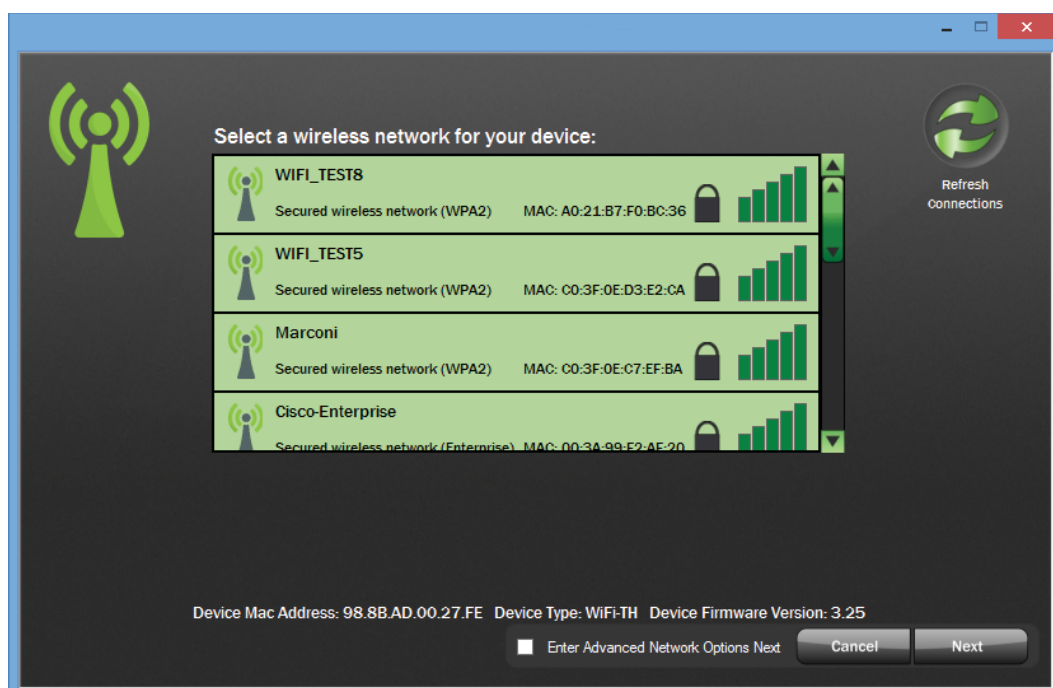
Note: If the data logger connects successfully you will see the following screen. If it fails, check the cable is fully connected to the data logger and PC. The software will automatically try again.

4 **Scanning**

When the message 'scanning' appears the data logger is listening for wireless networks that are currently in range. Once scanning has completed a list of available networks will be displayed. If the list is blank press the 'refresh connections' button on the top right.

5 Select the network you wish to connect to.

6 If you use a hidden network simply scroll to the bottom of the list and select 'Join Other Network' and then fill in your network details.

7 Enter the password. Press 'Connect'. After the router has successfully connected press 'Next'.

Note: If the data logger fails to connect to your wireless router the following screen will appear. Follow the on screen instructions and check the four points below.


1) Check your password

2) Click on the software refresh button

3) Re-orientate the position of your data logger

4) Ensure your WiFi router is turned on and within range of the data logger

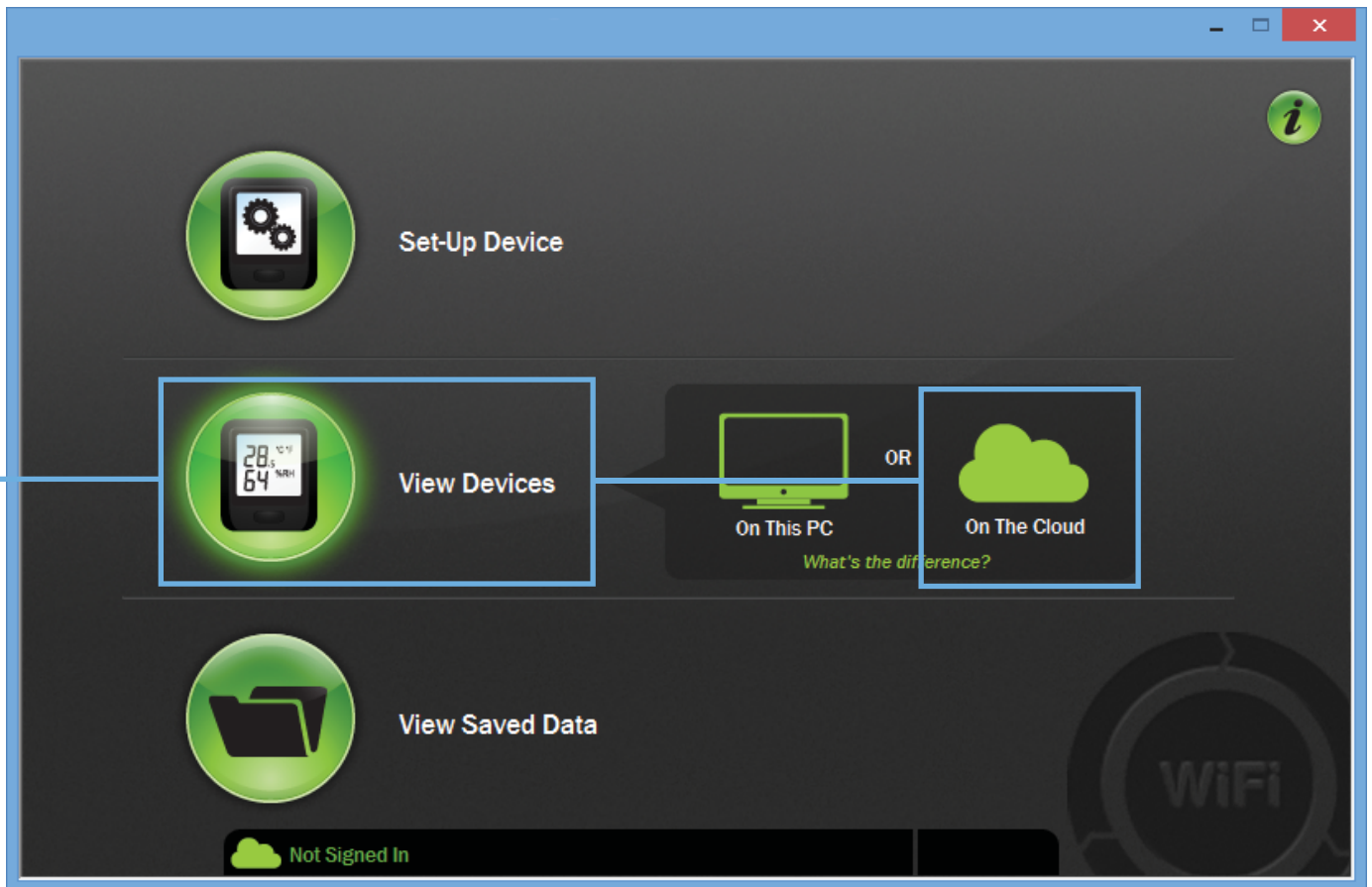# Section 7.1   General Settings for Cloud Set-Up

General Settings

1 Enter a name for the data logger. It is possible to choose the Probe Type at this stage. Refer to section 7.3 for more information on other settings.
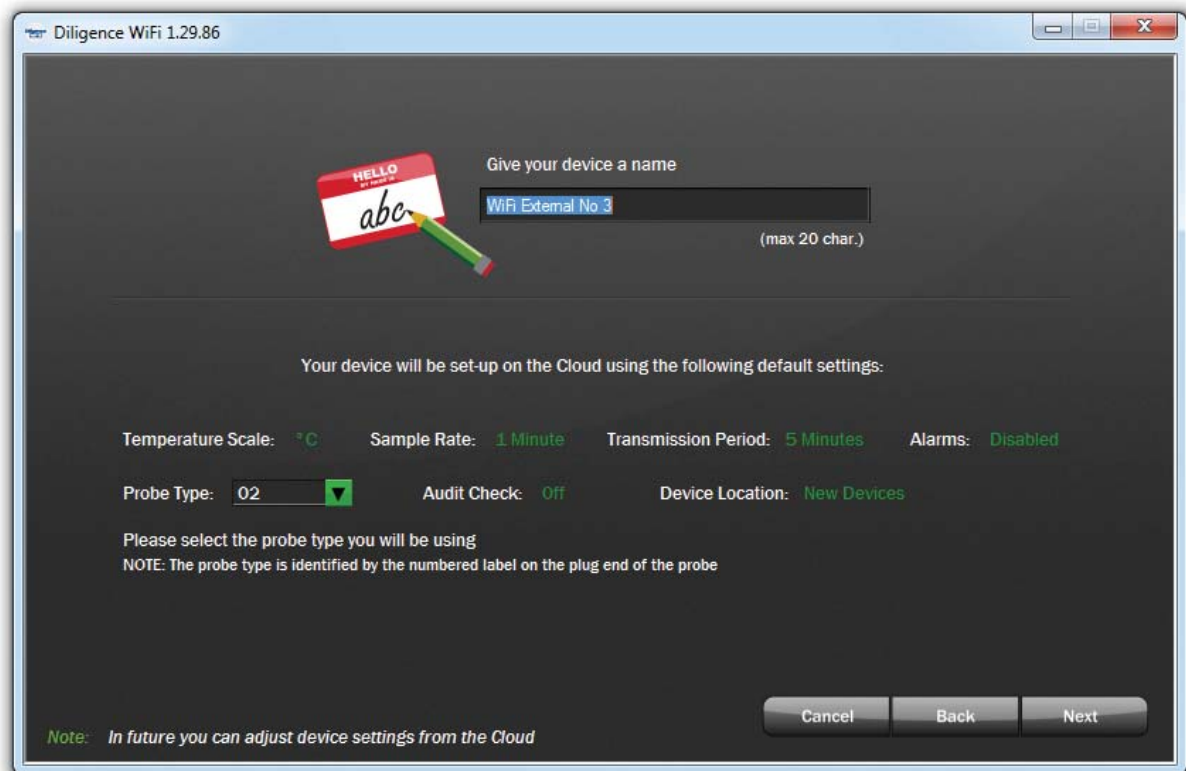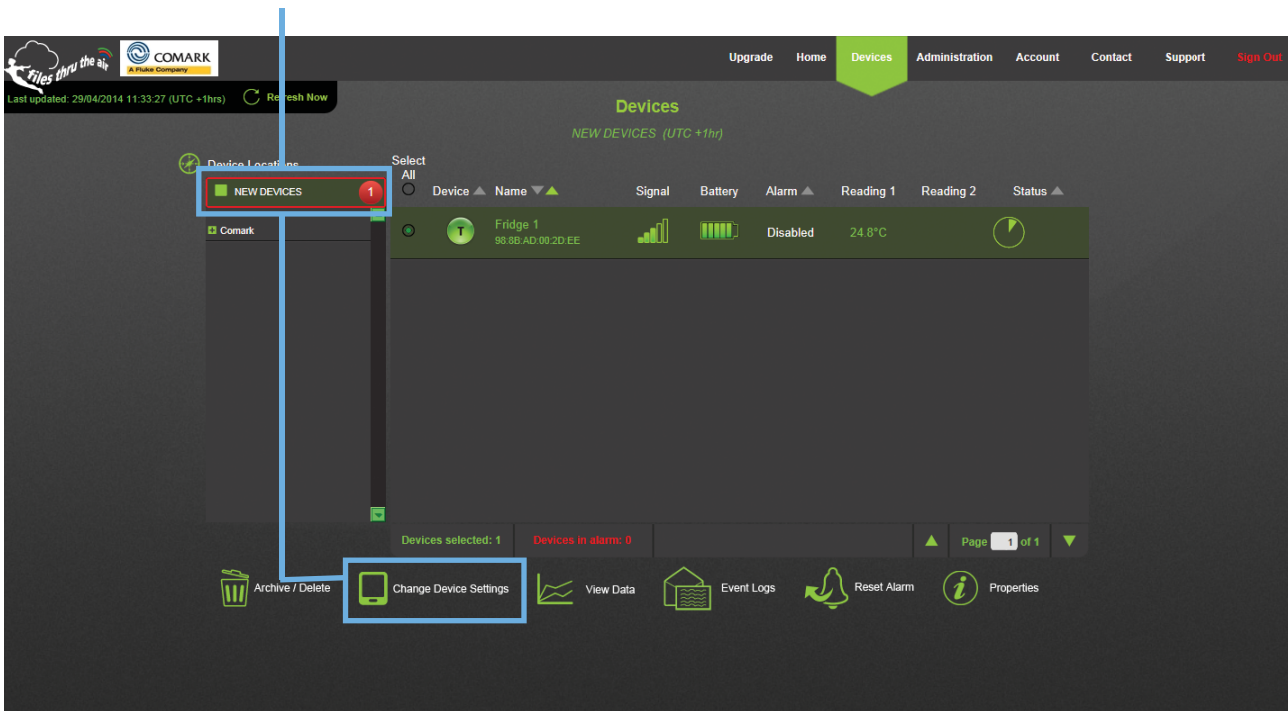
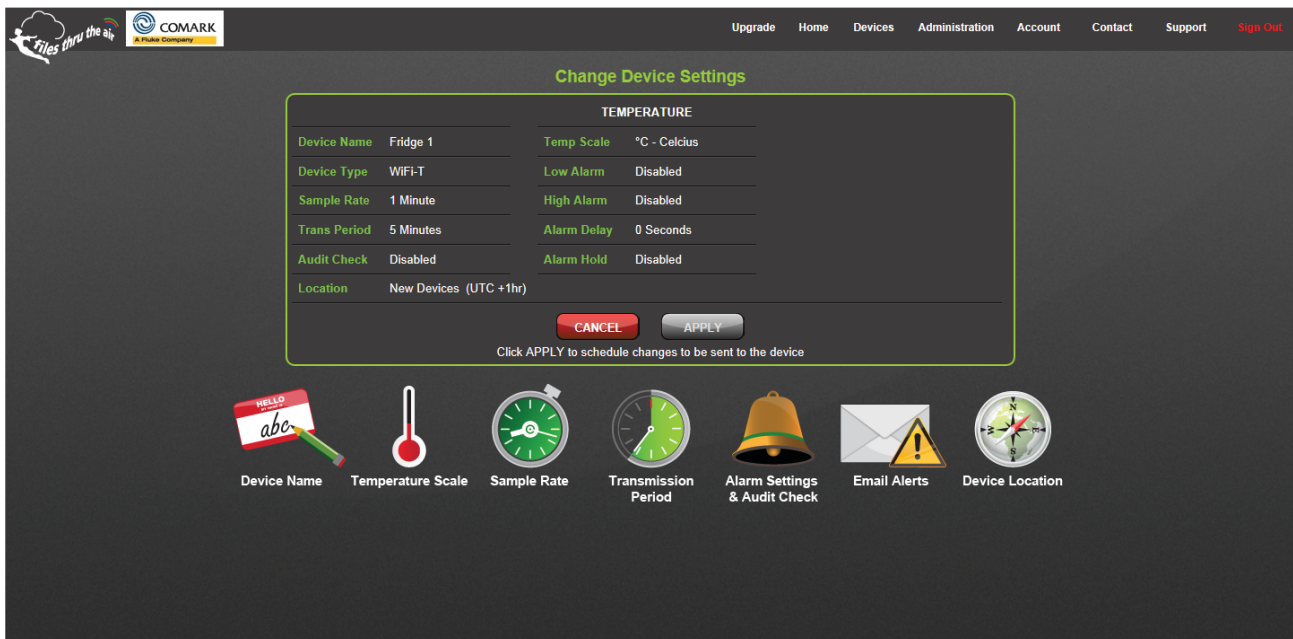1 Click on the second button to view the data loggers ('View Devices')

Section 7.3   Add New Data Logger on Cloud

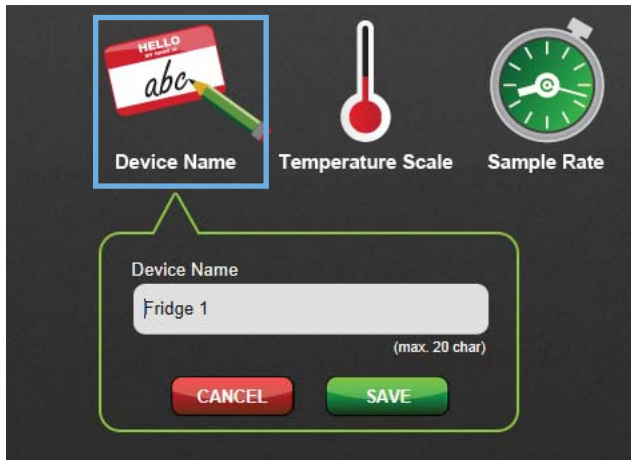**1** Click on 'New Devices' to select the data logger to be set-up. Then select 'Change Device Settings'.

2 From the 'Change Device Settings' screen you can change the name of the data logger, the temperature scale, sample rate, transmission and alarms.
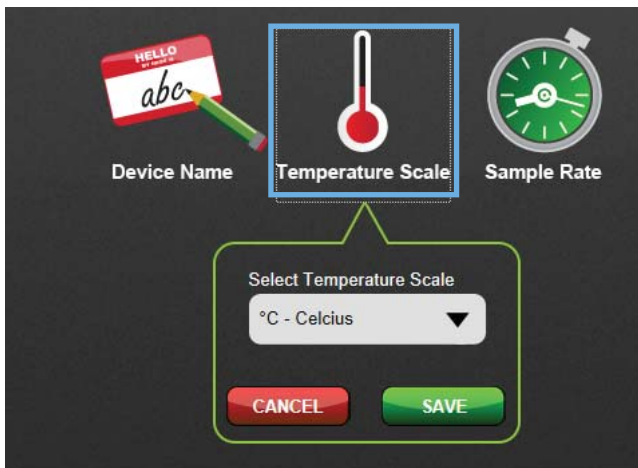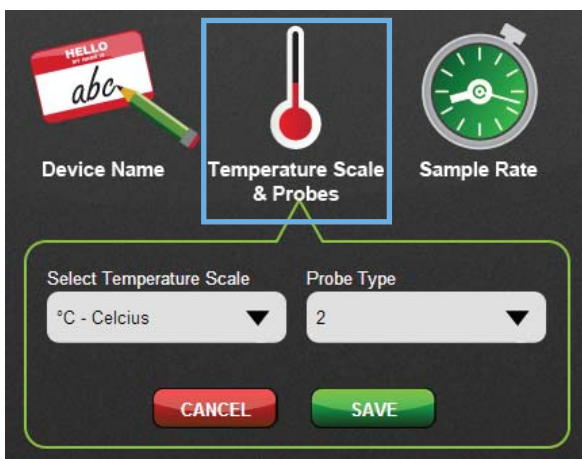
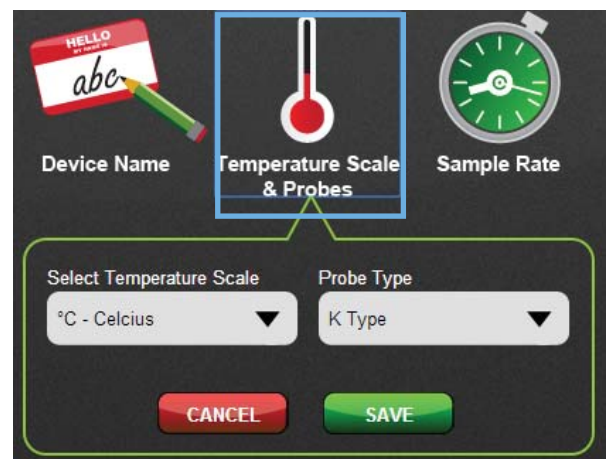**3** Click on 'Device Name' to change the name of a data logger.

4 Click on 'Temperature Scale' to select either Centigrade or Fahrenheit scale.

5 Click on 'Sample Rate' to select the timing between temperature or humidity readings.
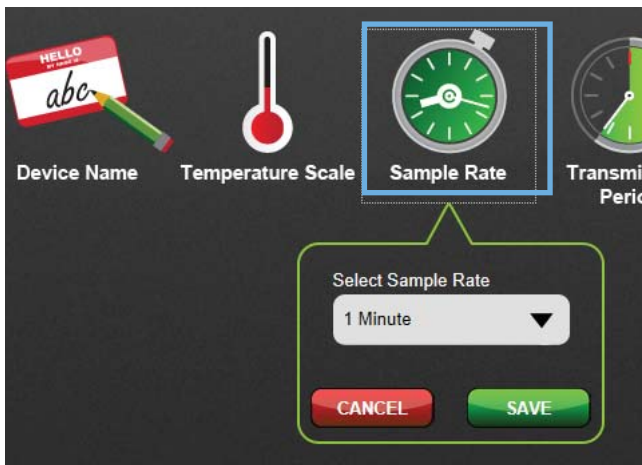

Probe selection for
RF312-TP Data Logger

Probe selection for
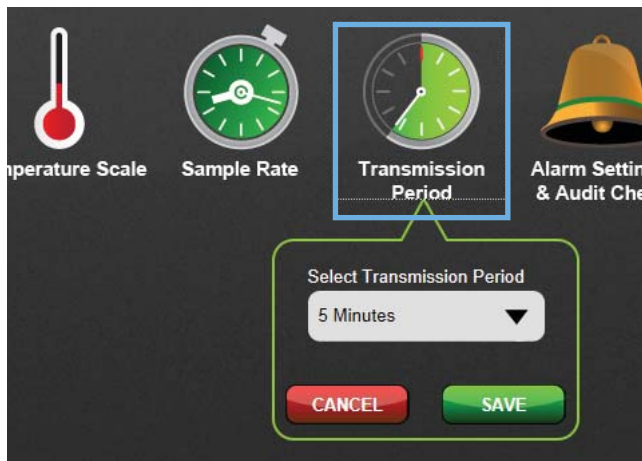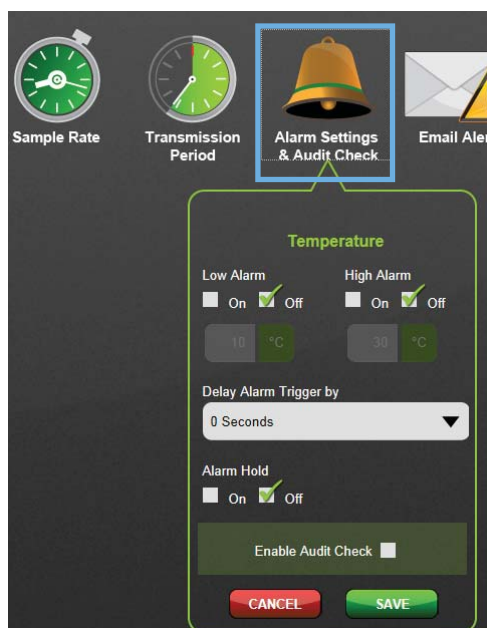RF314-TC Data Logger

6 Click on 'Sample Rate' to select the timing between temperature or humidity readings.

7 Click on 'Transmission period' to adjust the time period between data transmissions to and from the data logger and Diligence WiFi Cloud.
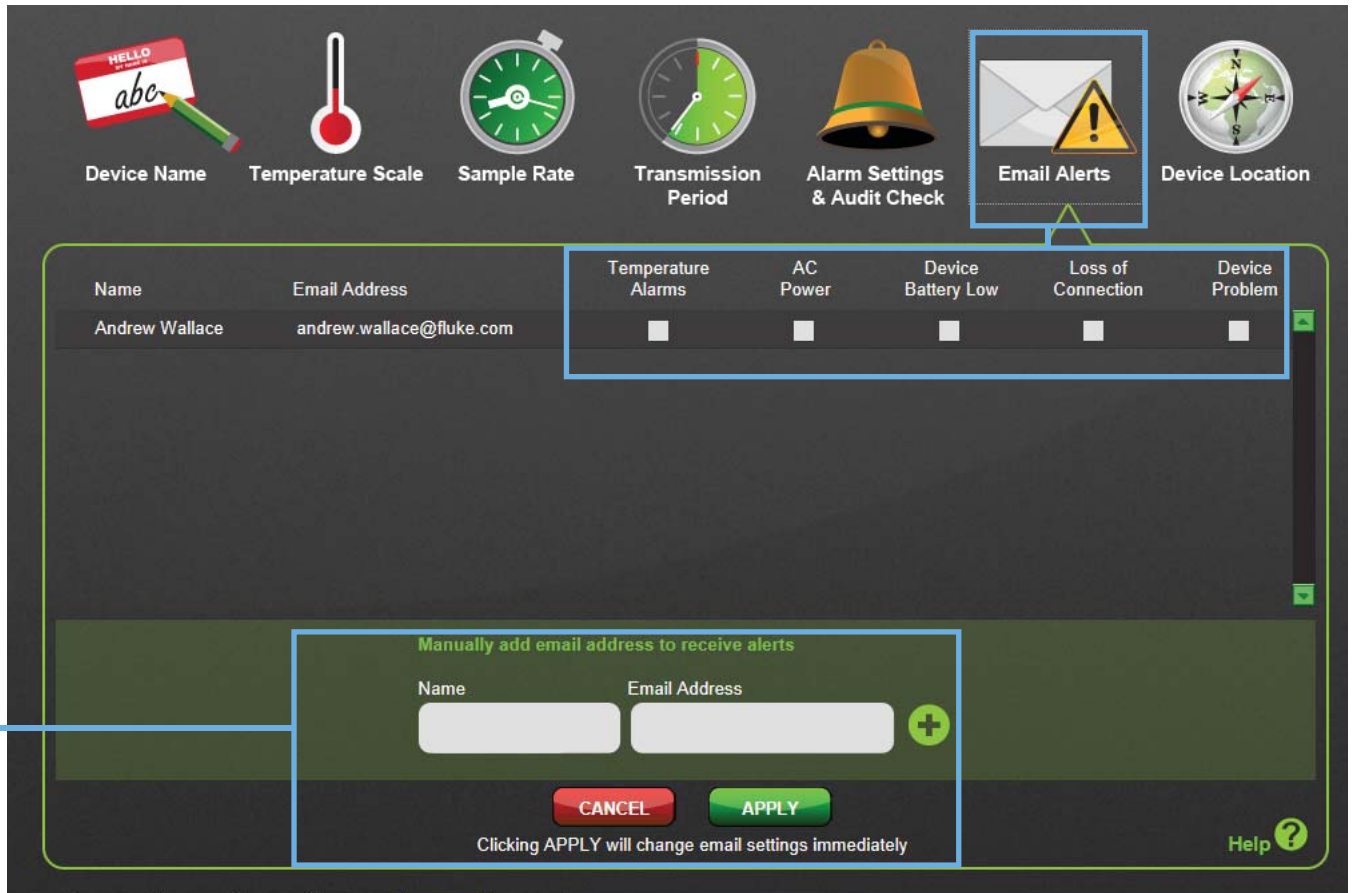

8 Click on 'Alarm Setting and Audit Check' to set low and high alarms, the alarm delay period and to enable an audit check on alarms.

9 Click on 'Email Alerts' to select the parameters for an email alert.

10 The email address of the Account Holder will automatically be shown in the address list above for **Standard Account** users. **Professional Account** users can manually add additional email addresses so further contacts can receive email alerts.

11 As changes are made to the settings of a data logger, they show in red on the 'Change Device Settings' screen. Once required changes have been made, click 'Apply' to action. The settings will transmit from the Cloud to the data logger at the next transmission period.
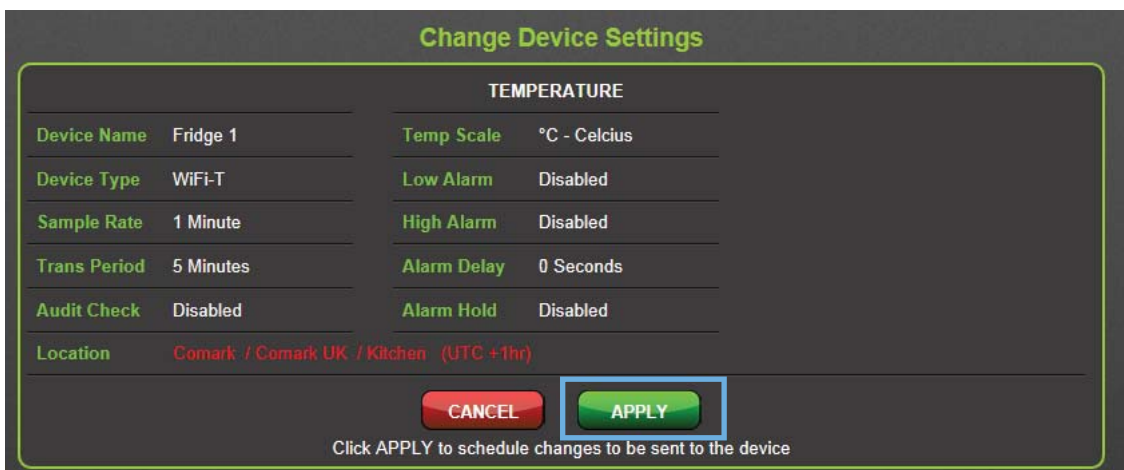
1 From the home screen, click the Devices Tab, select the data logger you wish to view, then click 'View Data'.
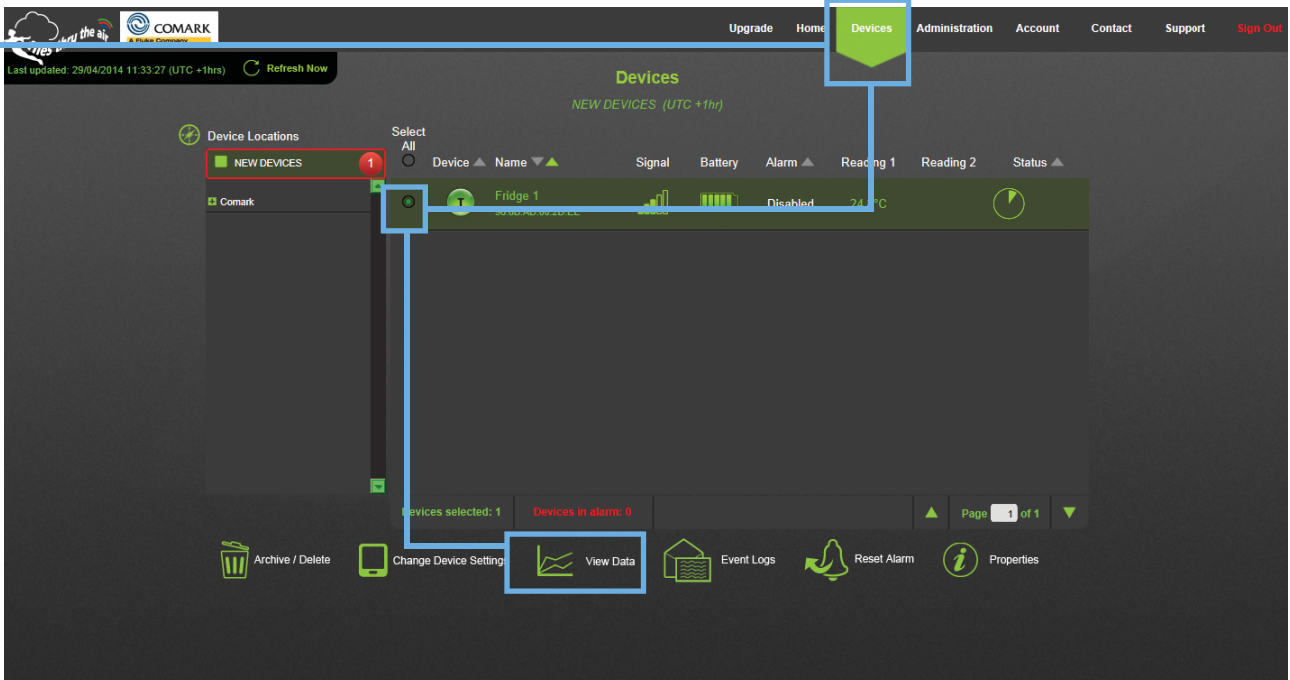
2 The graph is shown on the screen. Use the zoom function to select the period visible in the graph. If the mouse is hovered over the graph, the temperature, date and time at that point are shown in an information box.

3 Click the 'Display Options' to select the parameters to be included in the graph.
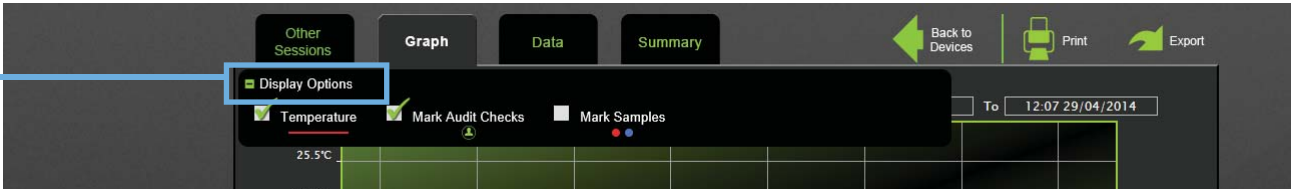
4 Click the icons to print or export the graphs. Graphs exported from this screen are in PDF format.
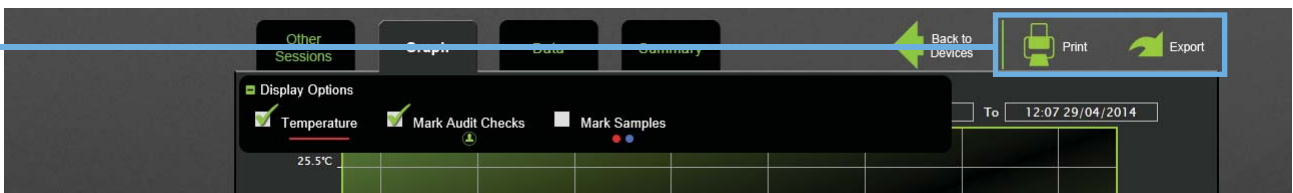
5 Click the 'Data' tab to view information in tabular format. Click on the 'Export' icon to export the data list to a CSV file.
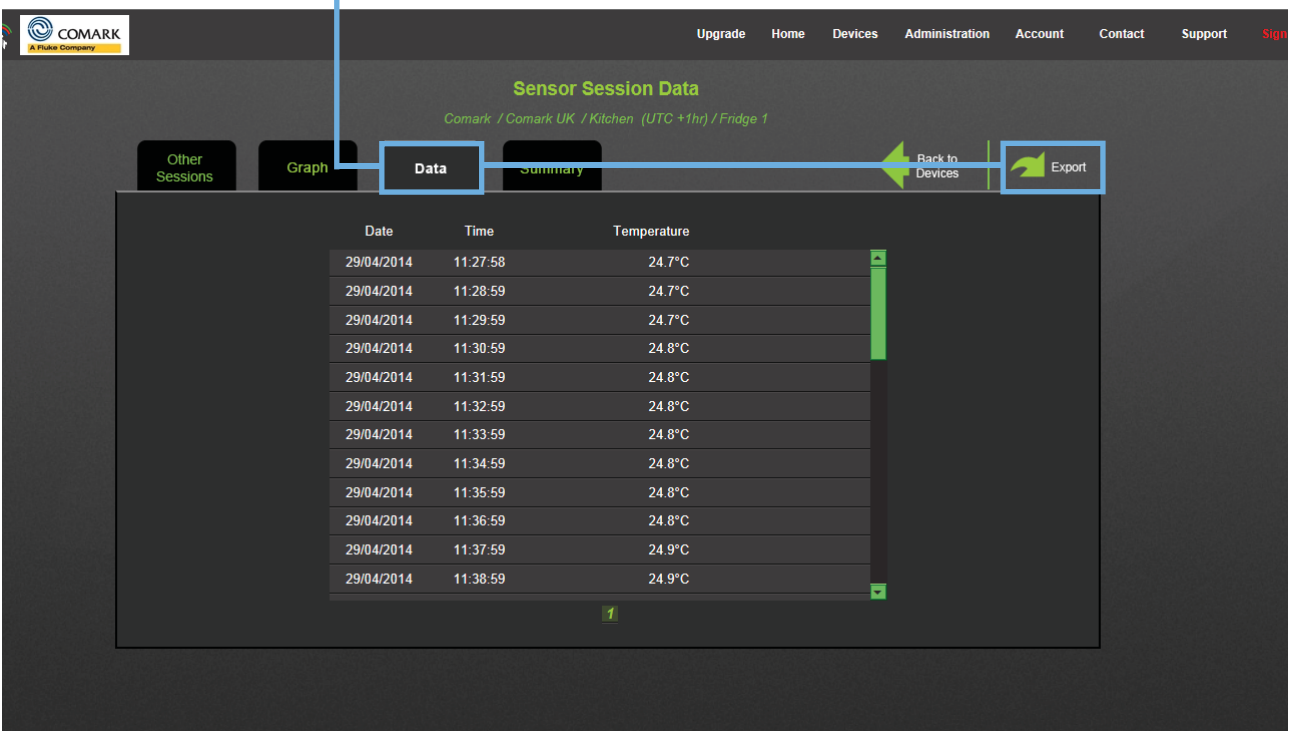
6 Click the 'Other Sessions' tab to view a summary of data sessions. From this screen a 'Session Audit' shows why new data sessions were started. Click on the 'Export' icon to export an Audit in PDF format.
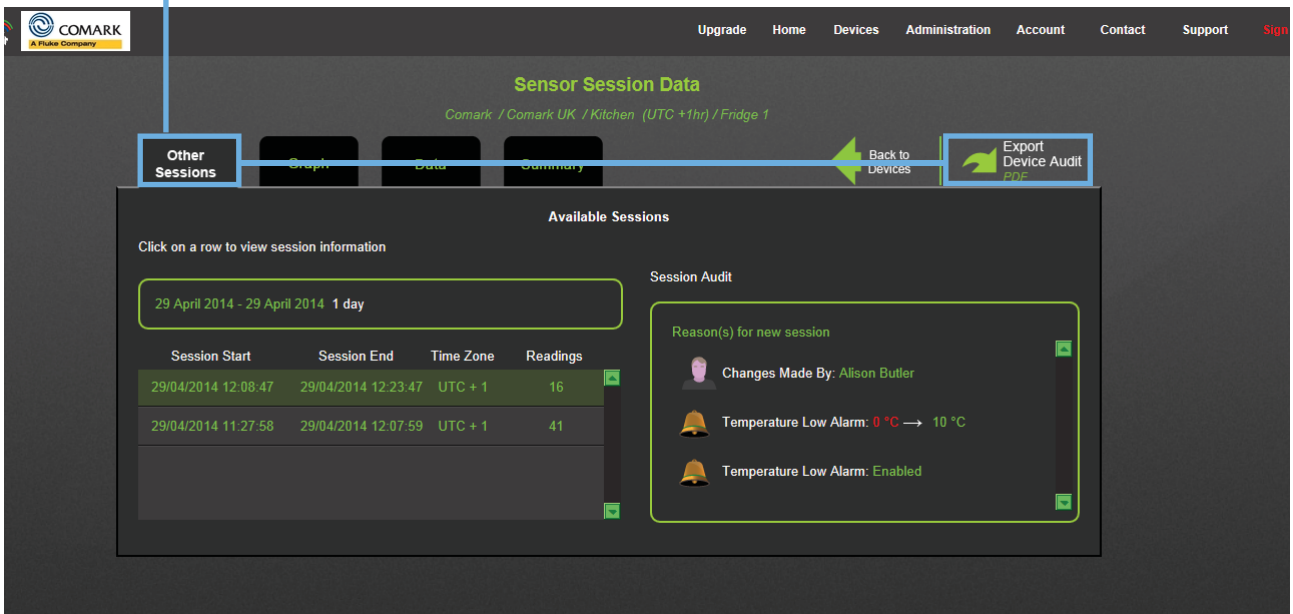
7 Click the 'Summary' tab to view a summary of information for the data logger (device), measurement statistics and settings.
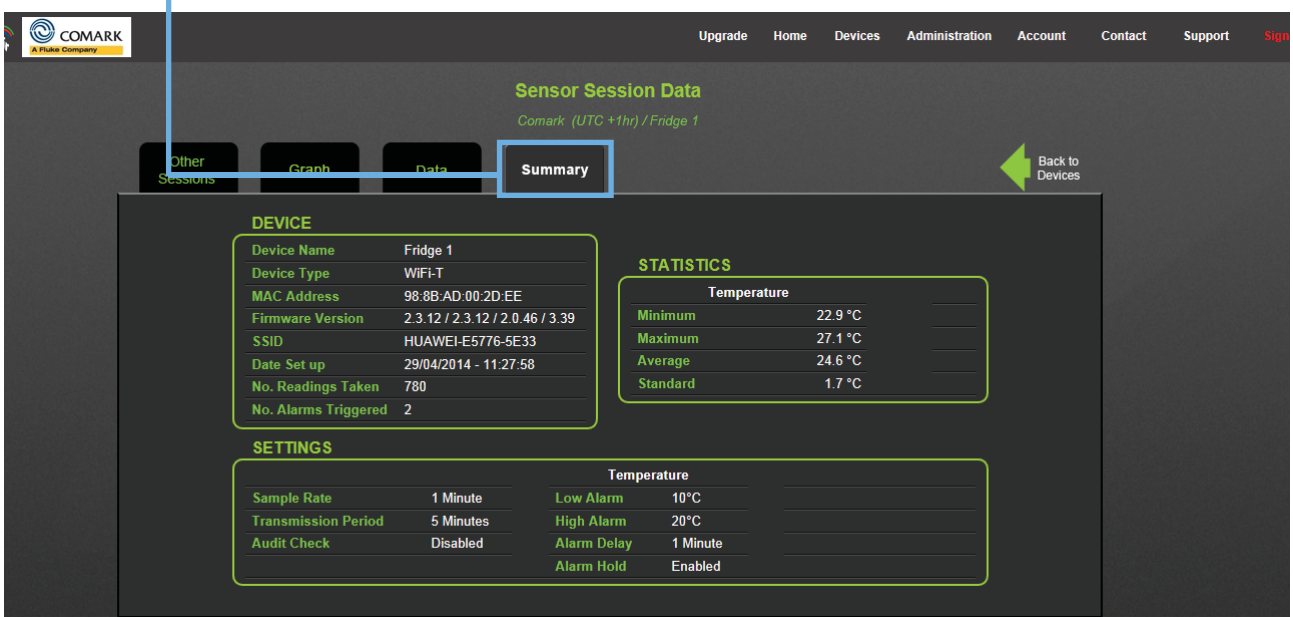
1 From the home screen, click the Devices Tab, select the data logger you wish to view, then click 'Event Logs'.
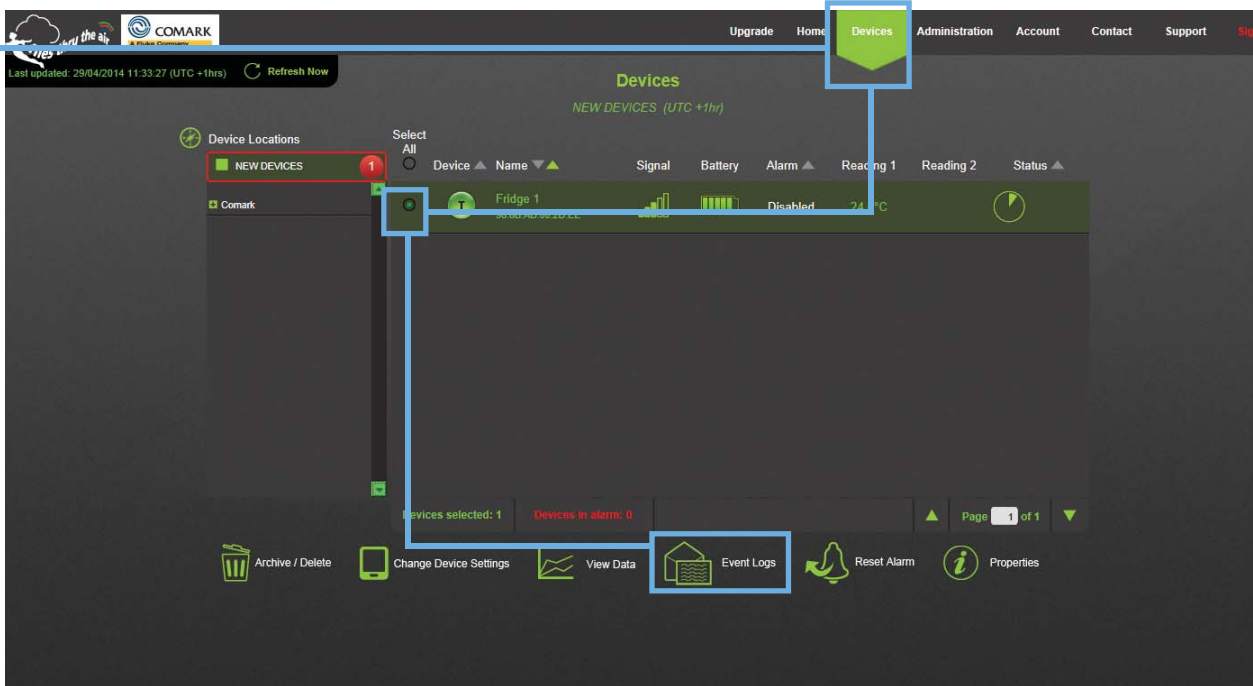
2 Once your data logger is set-up on your Cloud Account you will get this confirmation screen.

3 Click on 'Filter Events' to show or hide events such as alarms, low battery, AC Power, loss of connection etc.
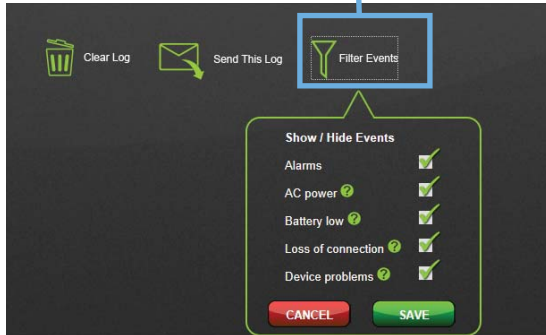
3 Click on 'Send This Log' to email the log data. Users can be selected from a drop down of registered system users.

4 Click on 'Clear Log' to remove the logged data from the list. Note: Once cleared from the list the log data cannot be recovered.
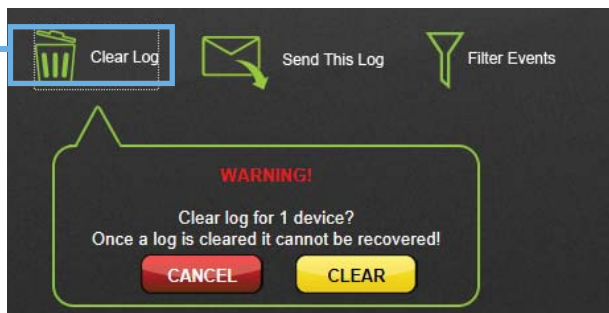
1 From the home screen, click the Devices Tab, select the data logger you wish to view, then click 'Reset Alarm'.
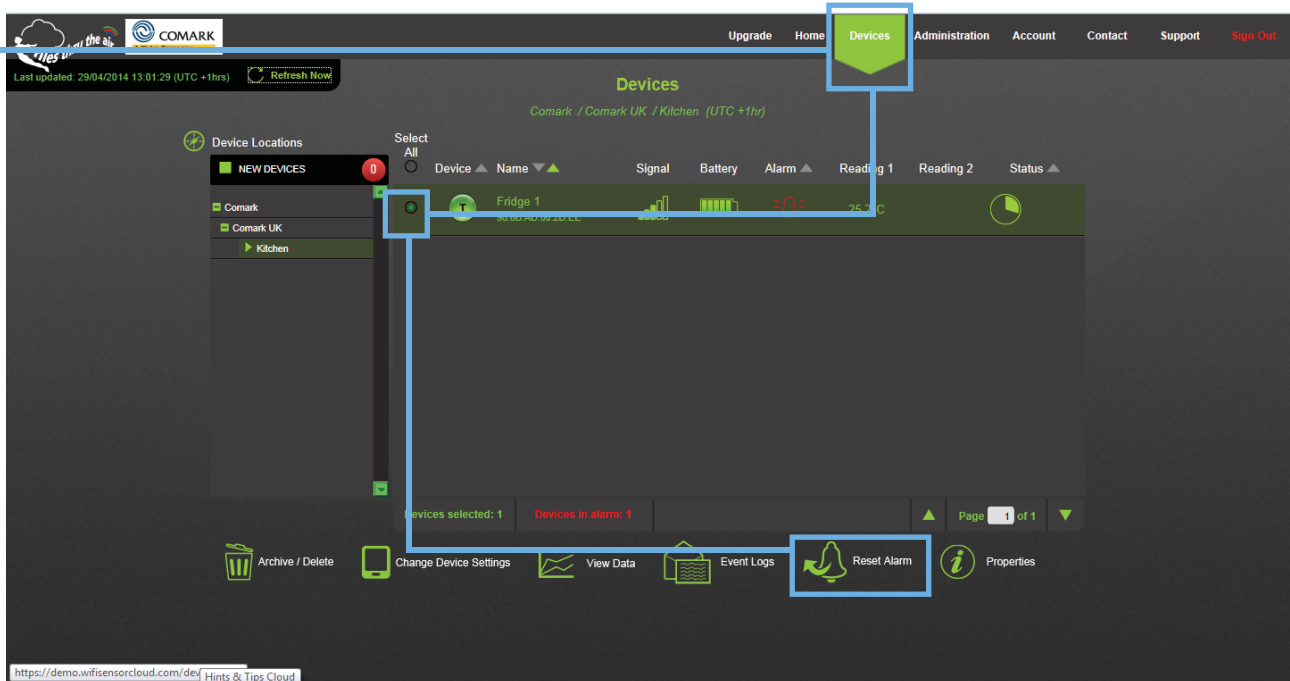
Note: Once 'Reset Alarm' is selected, the data logger will no longer show the alarm in the Devices List or locally on the data logger screen. It should be noted that without remedial action the conditions that triggered the alarm will remain.

1 **LCD Icons**

Signal Icon

(Not Displayed)
Not connected to a network

(Solid)
Communications with PC OK

(Flashing)
Lost communications with PC

Battery Icon

(Not Displayed)
Battery OK

(Solid)
Charging

(Flashing)
Battery Low - Recharge

Alarm Icon

(Not Displayed)
No Alarms

(Flashing)
Alarm threshold triggered

Max Icon

The Maximum recorded value is being displayed.

Min Icon

The Minimum recorded value is being displayed.

⚠ **CONNECT PROBE**   Probe has been disconnected from the data logger and it can no longer record data.

2   **Data Logger LCD Screens**

Use the button on the data logger to cycle through the display screens.

Home Screen

Max Screen

Home Screen displays current readings

Max Screen displays Maximum recorded value since last reset.

While Max is displayed press and hold the button for three seconds, to reset the Max values.

RSSI Screen

Min Screen

RSSI (Received Signal Strength Indication) Screen displays current Signal Strength

Min Screen displays Minimum recorded value since last reset.

While Min is displayed press and hold the button for three seconds, to reset the Min values.

Optimising battery performance:

The data loggers can be powered in one of two ways:

1. Internal Battery Power

2. USB/Mains Power

Battery Power

These data loggers contain rechargeable batteries. It is good practice to optimise your system to avoid excessive recharging cycles.

To do this be aware of the following;

1. Transmitting uses a lot of battery power. By increasing the time between transmissions the batteries will last longer.
   For example; for a short battery life transmit every minute, for a medium battery life transmit every 10 minutes and for a long battery life transmit every 1 hour.

2. The data logger has an automatic sleep mode. The data logger detects when your PC is turned off or the software is closed, and enters a power-saving mode. In this mode the data logger wakes-up less frequently to test communications, but continues to gather data ensuring that no information is lost.

3. When you turn your PC back on, it can take up to 30 minutes for the data logger to synchronize. This saves a lot of power. Under normal circumstances the data logger will synchronize within 15 minutes. If the data logger is mains powered, synchronization will complete within 5 minutes. Once communication is re-established the data logger returns to its normal transmission rate.

USB/Mains Power

If you have a critical process or do not wish to recharge data loggers, you can opt to have the USB charger plugged in continuously.

Reset / Restore Data Logger

1 **Reset Data Logger**

Warning: The data logger will retain all settings but will lose any data that has not been transferred to the PC.

The data logger can be reset by holding the button for 10 seconds. Release the button when LOW is flashing in the top right hand corner of the display.

2 **Restore Factory Settings**

Warning: Only use restore when all other methods have failed.

A factory reset can also be performed, hold the button for 20 seconds $FArS$ until appears on screen. Doing this will return the data logger to the factory state deleting all settings and clearing all previously recorded data.

Data Logger Firmware Updater

A Firmware Updater is installed with all versions of the Diligence WiFi Software and is accessible via the Start menu.

If you are running a Cloud version of Diligence WiFi and a firmware update is required the following information message appears on screen.


Note: Before starting the upgrade process, the latest Diligence WiFi firmware upgrade will need to be downloaded from the Comark website software page - www.comarkinstruments.com/software.

Any data logger already monitoring on a Diligence WiFi PC or Cloud system will need to be removed from the software before updating as the firmware update will reset and delete any data. You will be prompted to archive data when the logger is removed from the software so your temperature and humidity records are not lost. Any settings will be retained.

If there are multiple loggers to upgrade it saves time removing them all, then running the firmware upgrade.

Upgrade Procedure

1   On your PC, Click the 'Start' icon, then select 'All Programs'. Open the 'Wireless Setup' folder and click on the 'Firmware Updater' icon.
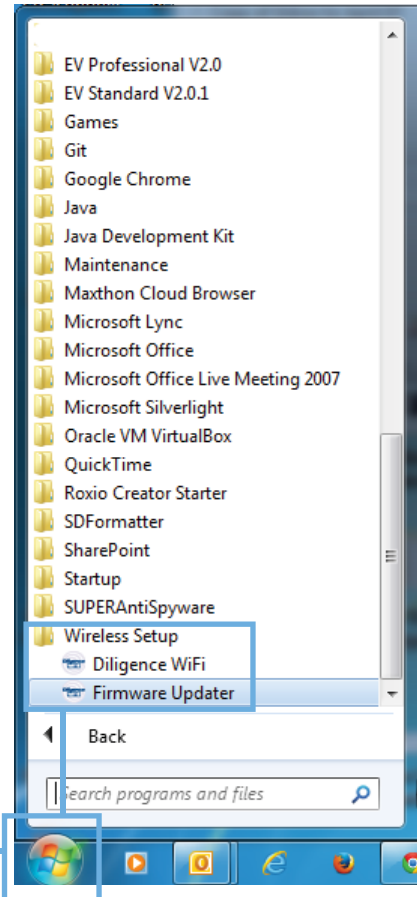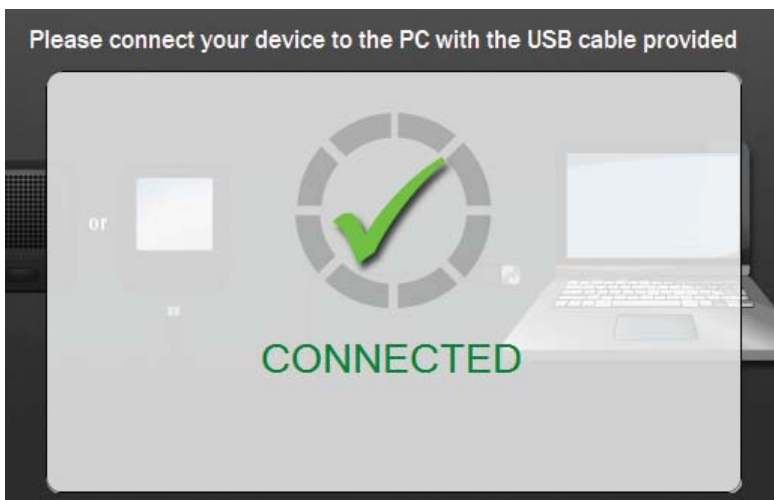

2   After archiving data and deleting existing data loggers from the system, connect the data logger to the PC via the USB cable provided. Click OK to proceed.
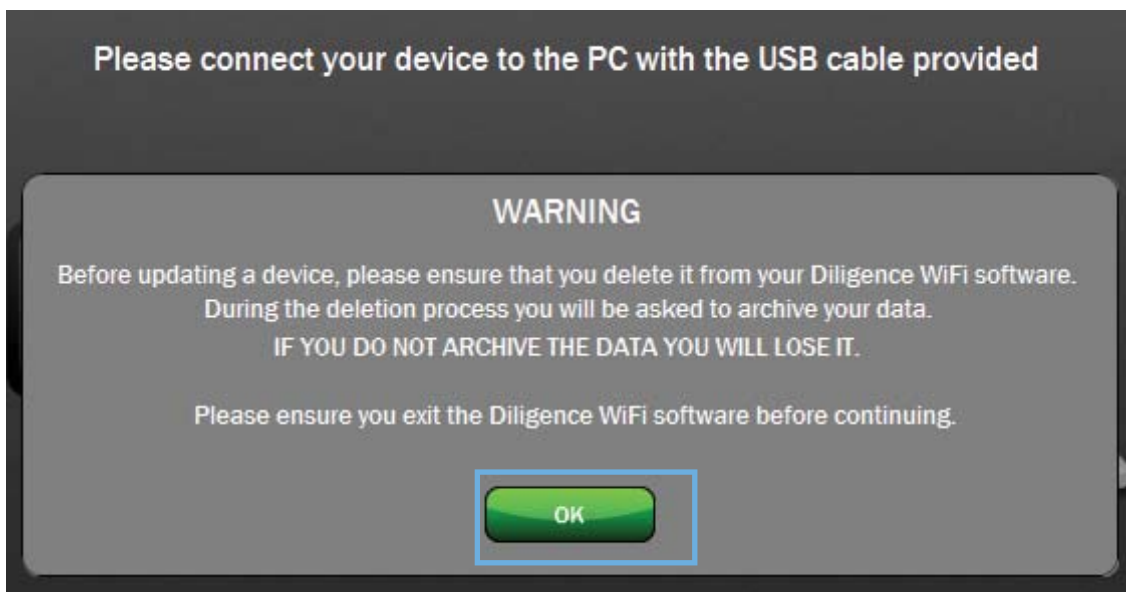
3 The screen will show the software connecting with the data logger.

4 Then it will show when successfully connected.

5 After a few seconds, the firmware update page will open.


Browse to locate the firmware file for your data logger model on your PC. It can be downloaded from Comark Instruments Software page. (www.comarkinstruments.com/software). Click 'Upload' to begin and follow the on-screen instructions to run.

6 A successful update will be shown on screen. Click 'OK' to complete the process. The software will close automatically. It is now safe to remove the data logger from the PC and re-add the data logger to the software to continue to monitor temperature and/or humidity.
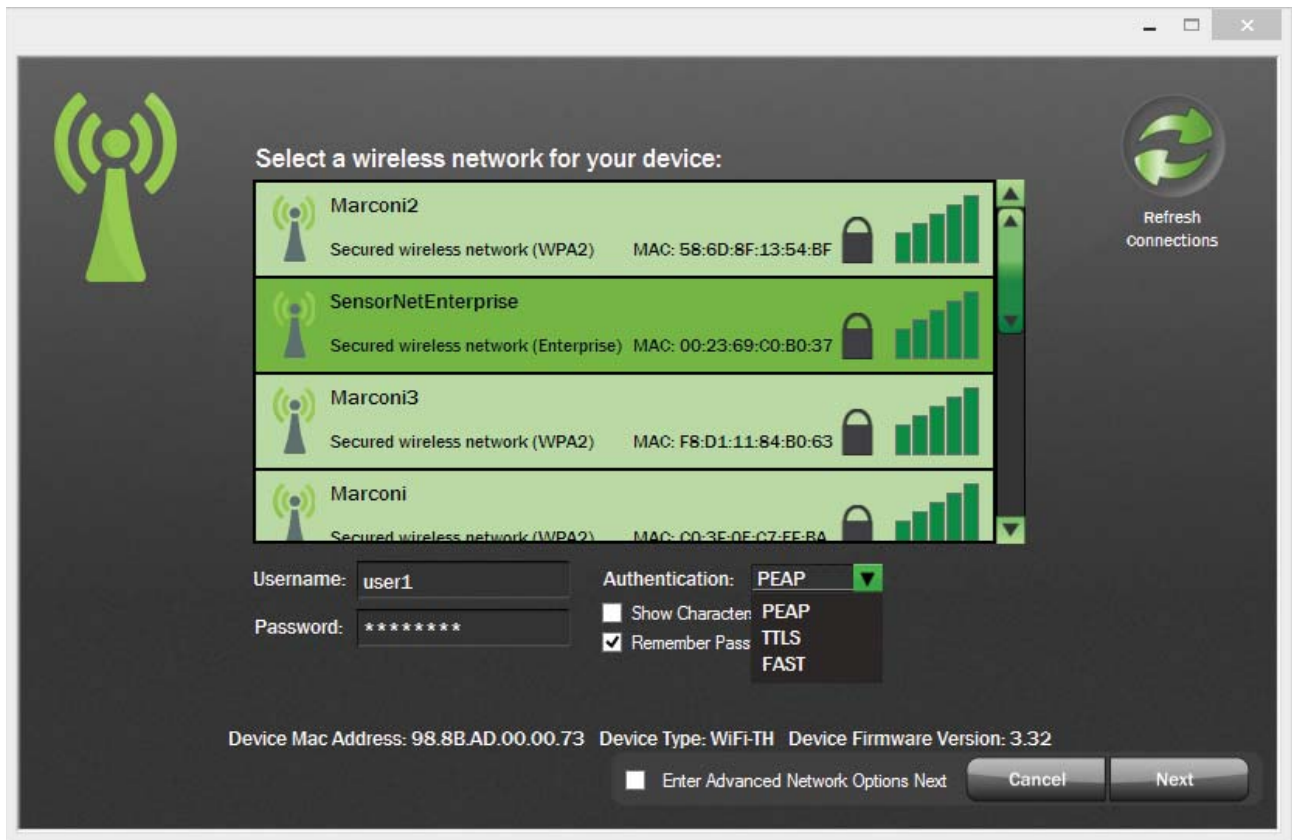
To configure an Enterprise network, enter your username and password. You will also need to select the Authentication type. If you do not know which one to use, please consult your IT administrator.