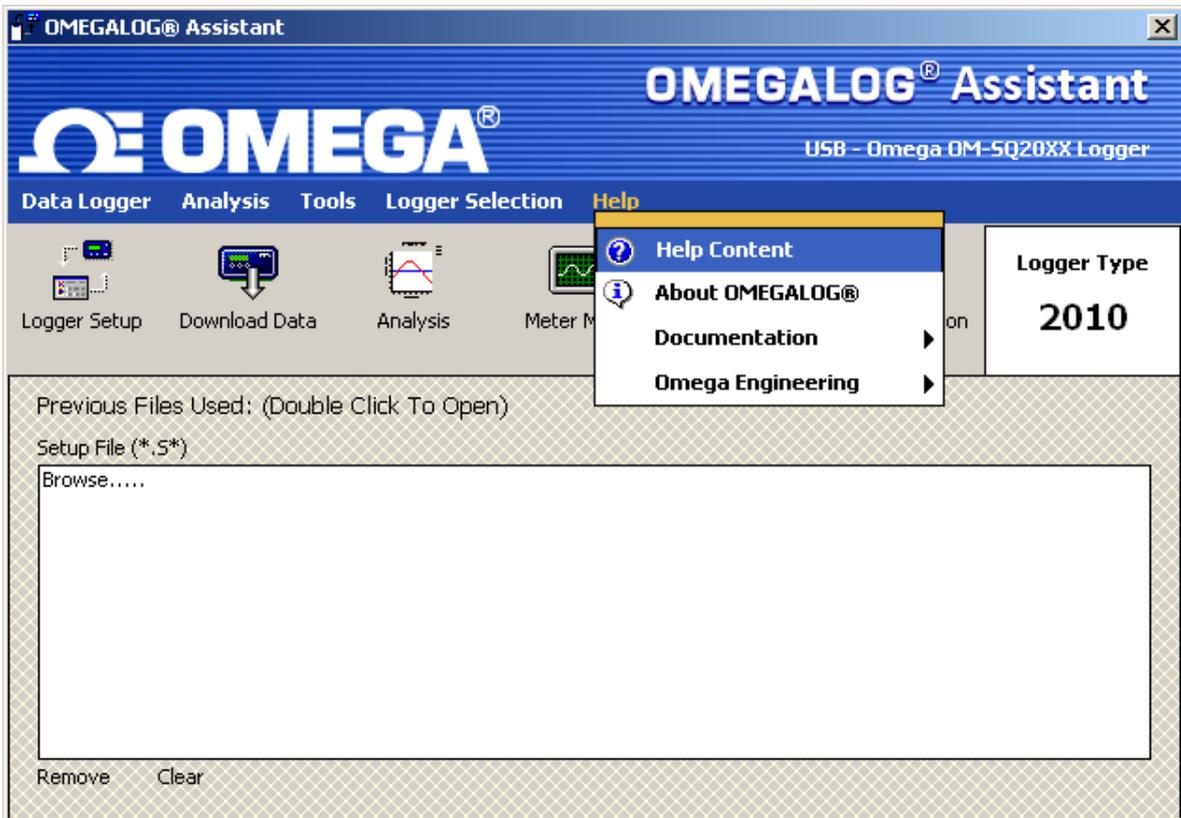


How to use the OMEGALOG[®] software with the OM-SQ2010/SQ2020/SQ2040 Data Loggers.

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OMEGALOG® Help

Note: There is an extensive Help file within OMEGALOG® for information on using the software and logger.



Connecting Your Data Logger

First you need to select the correct logger model



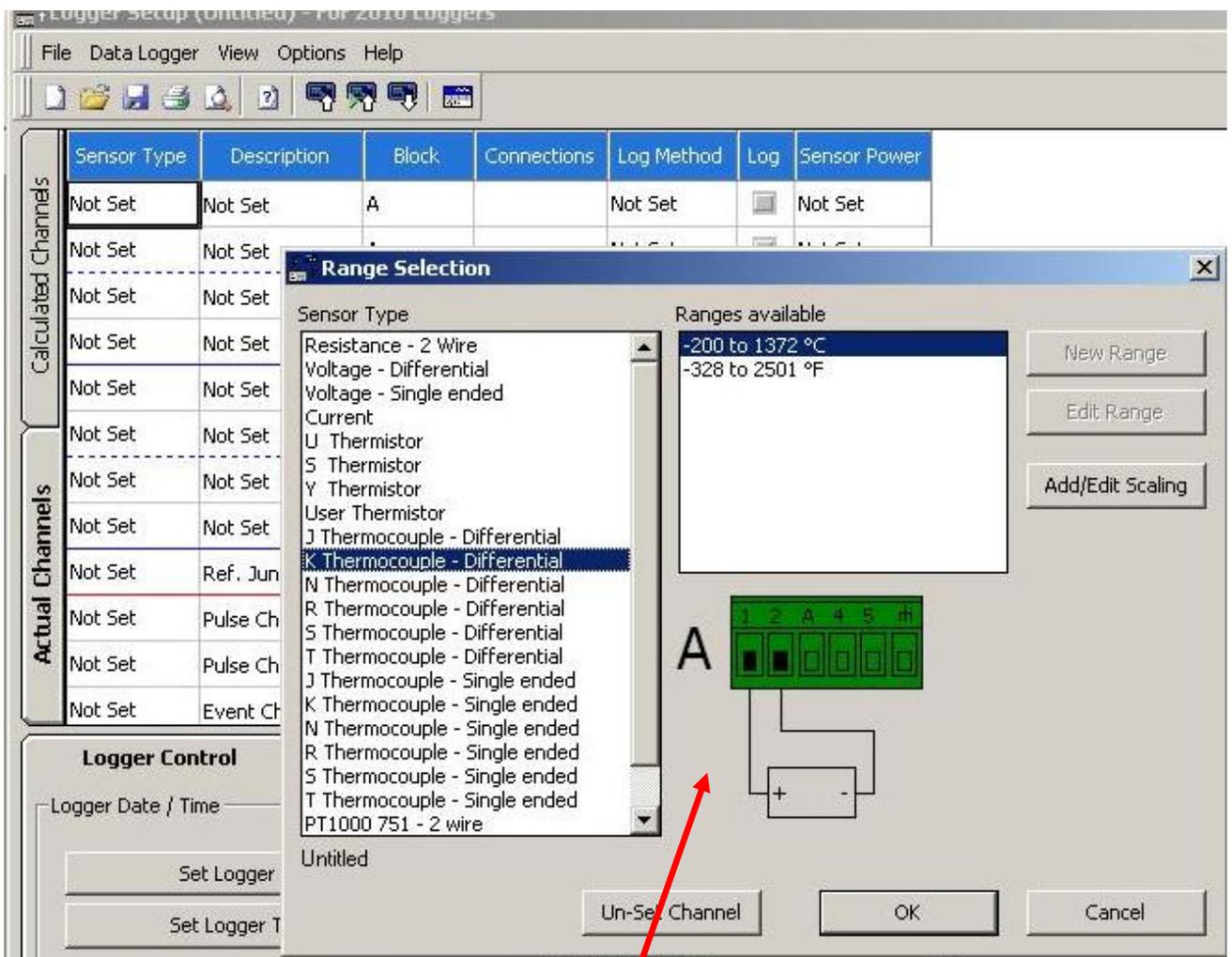
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Logger Set-up

To start setting up the channels of the data logger click on the *Logger Setup* button.



Choose your sensor input from the selection range.



Connect the sensor as shown in the diagram.



- OM-SQ series Loggers use the "Screw Terminal", (ST) 5.0 mm pitch plug and header connector system.
- Sensors are connected to screw terminal plug-in terminal blocks. Blocks of 3, 4 or 6 with cable strain relief

You will need to give the sensor input a description..

A dialog box titled "Channel Description" with a blue header. The main area contains the text "Please enter a description for this channel" and an "OK" button. Below this is a text input field containing the text "Temperature 1".

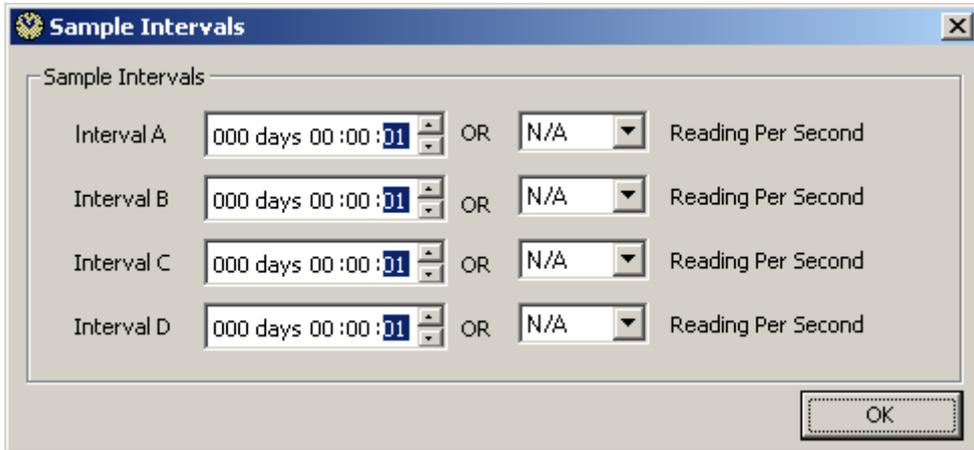
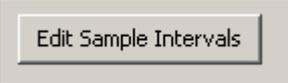
Select logging method and interval required (channels can be at different speeds).

The screenshot shows the "Logger Setup (Untitled) - For 2010 Loggers" application window. It features a menu bar (File, Data Logger, View, Options, Help) and a toolbar. The main area is divided into several sections:

- Channels:** A table with columns: Sensor Type, Description, Block, Connections, and Sample Interval. The first row shows "K Thermocouple - Differential : -200 to 1372 °C", "Temperature 1", "A", "1(+ve) to 2(-ve)", and "Sample Interval: A (00:00:01)".
- Logging Method:** A dialog box with four radio button options:
 - Interval:** Readings are stored every logging interval. (Selected)
 - Maximum:** Readings are taken every sample interval and the maximum (or minimum) of these are stored every logging interval.
 - Average:** Readings are taken every sample interval and the average of these are stored every logging interval.
 - Sum:** Readings are taken every sample interval, summed and the sum is stored every logging interval.
 - Sample only:** Reading are not logged.
- Samples:** A section with a description: "The sample interval determines how often the readings are taken and to check for alarms and triggers." It includes a "Sample Interval" dropdown menu set to "Sample Interval A: 00:00:01" and an "Edit Sample Intervals" button. Below it, "The sample count is used to determine when readings are stored in the logger. The logging interval is worked out from this setting." It includes a "Sample Count" input field set to "1".
- Logging Interval:** A section with a description: "The logging interval determines how often readings are stored in the logger:". It shows "Logging Interval = 00:00:01" and the formula " = Sample Interval x Sample Count".
- Logger Control:** A section with "Logger Date / Time", "Set Logger", "Set Logger", "PC Time 05/09/2010", and "Sensor Power Timers" with a dropdown set to "A (Supply)" and a value of "00:00".

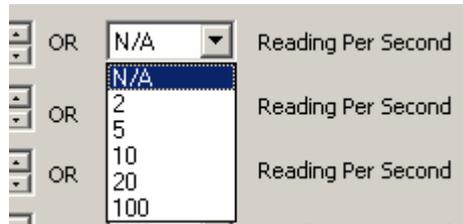
At the bottom, there are "OK" and "Cancel" buttons.

To alter the sample intervals select the Edit Sample Intervals button



There is an option to run at sub second intervals.

Note: Only 10 readings per Second on the OM-SQ2010 Loggers



To send the setup to the logger and start logging go to logger and Send Setup to logger and Arm.



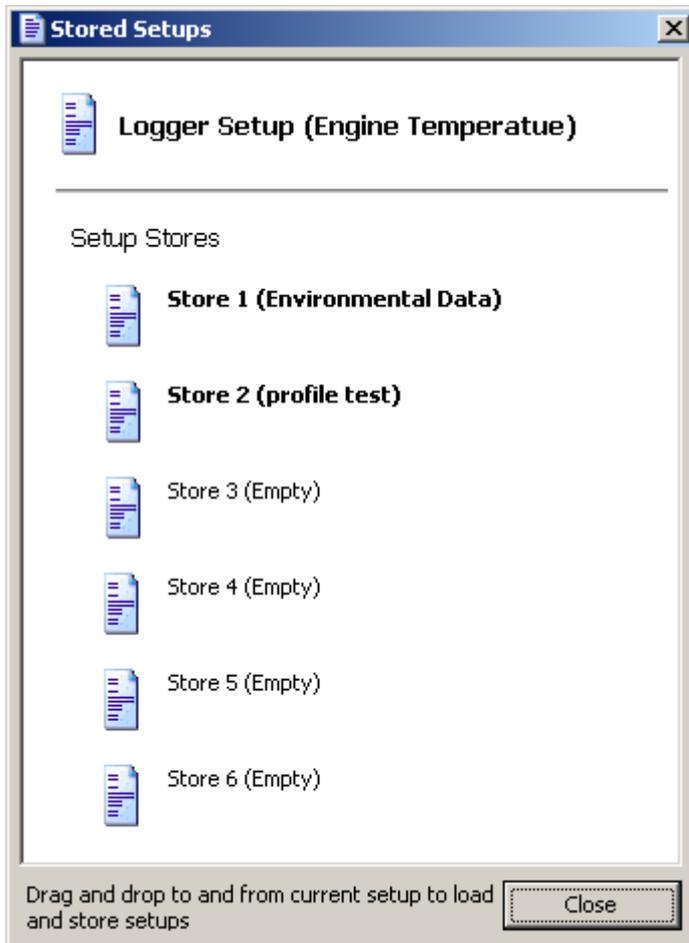
The Setup can be saved on your PC by:



And click *Stored Setups* to store in the logger:



The logger can hold up to six different setups.



Even more setups can be stored on removable MMC card.

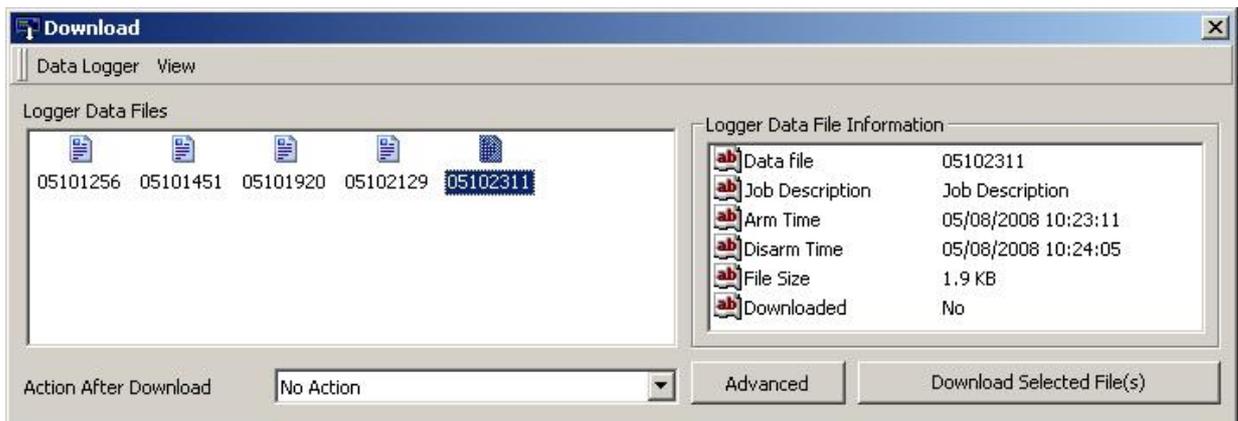
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Download Data

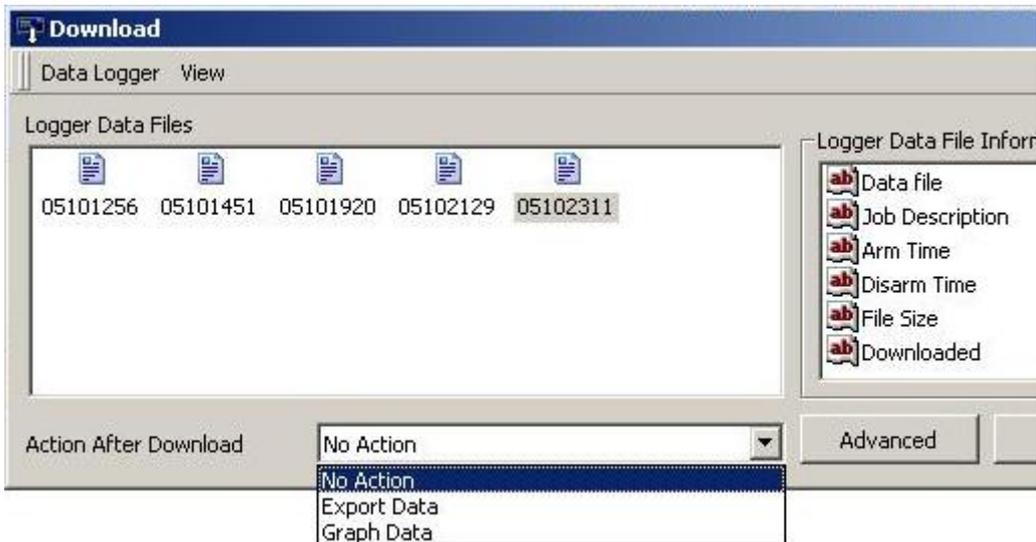
To start the download of data click *Download Data* button



Select the required Data file

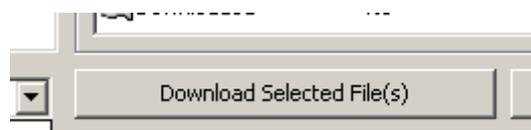


Select the Action after Download

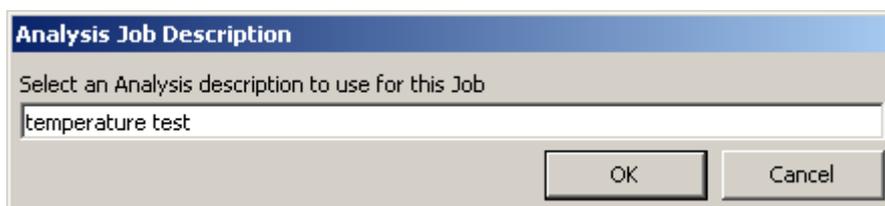
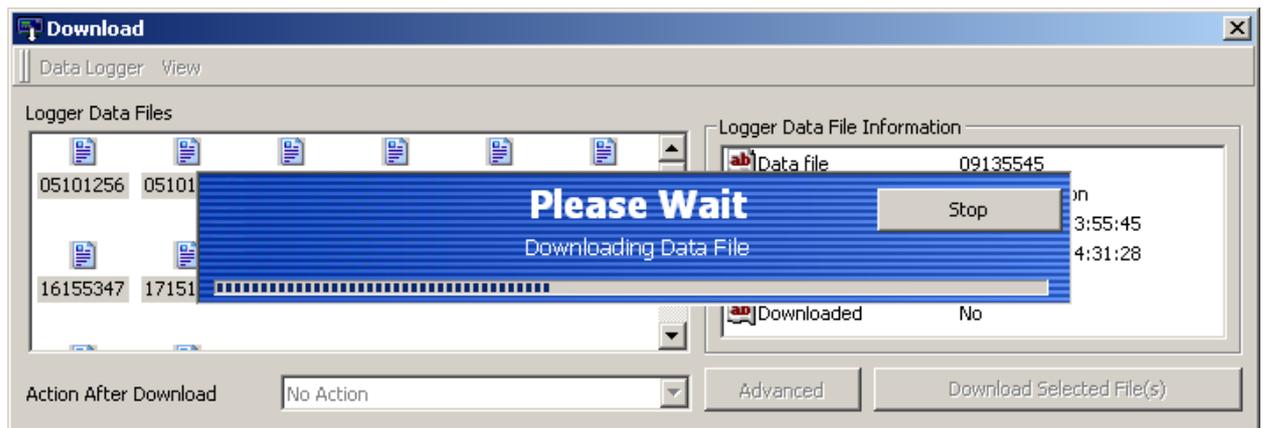
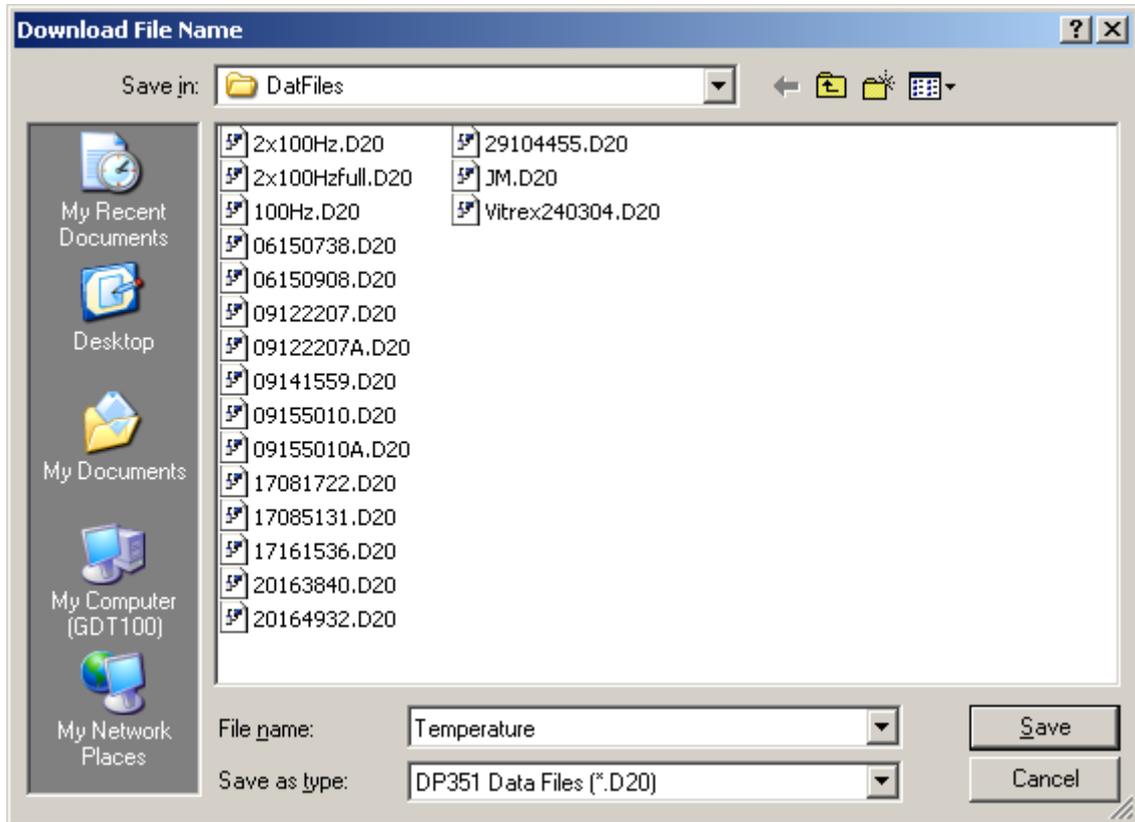


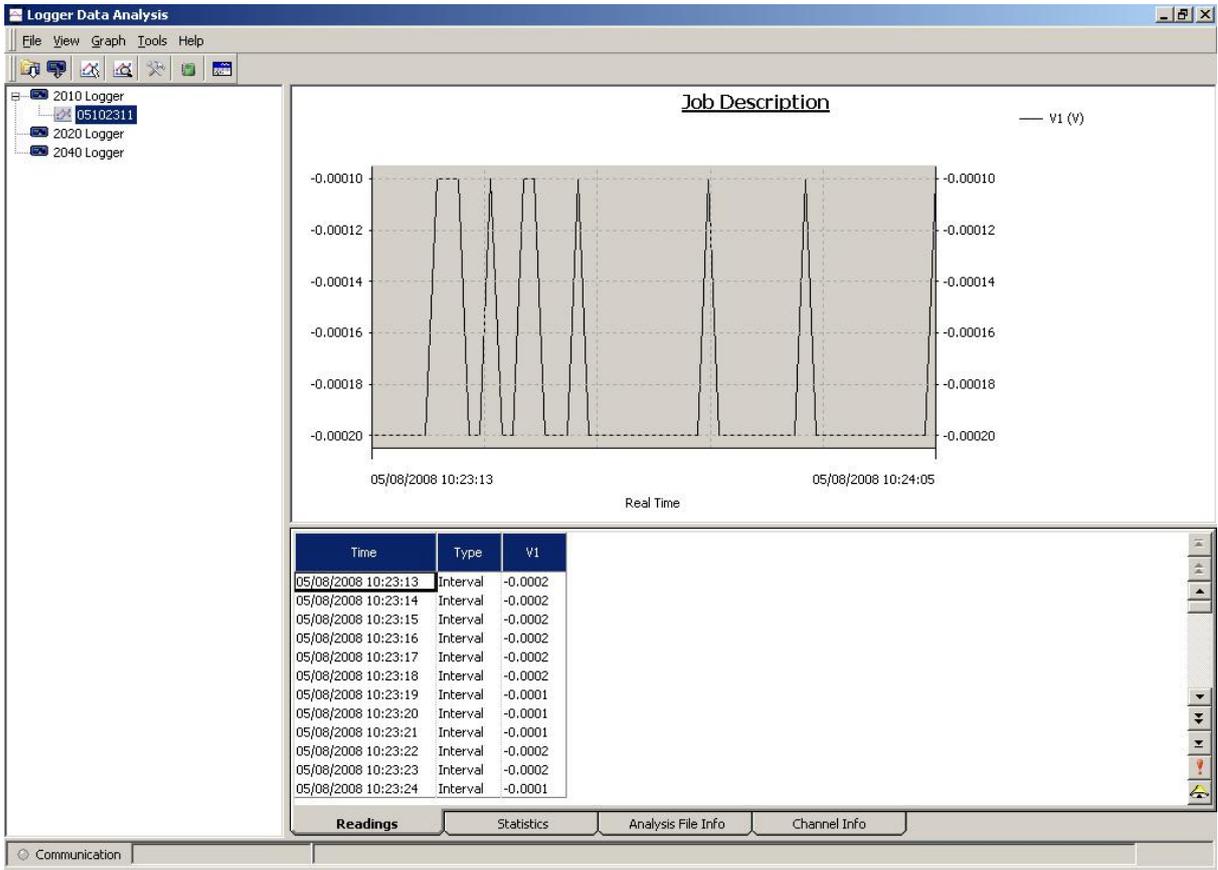
(**Note** this action can be set as default in Tools / Download Settings).

Select the *Download Selected File(s)*



Give the File a name and Save.

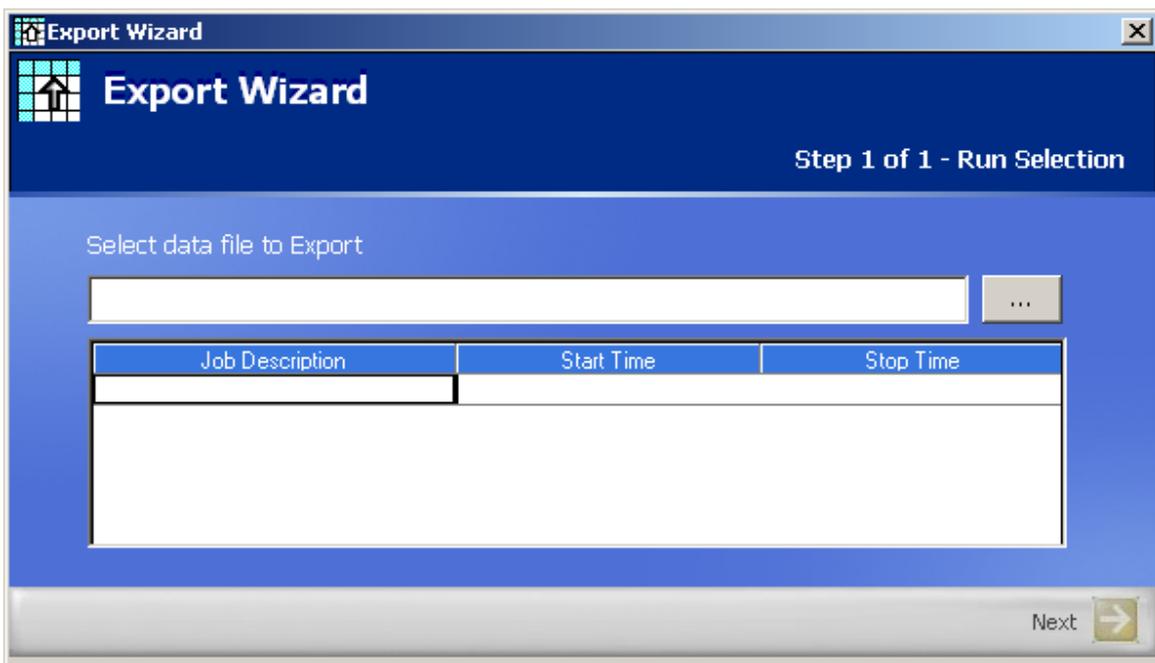
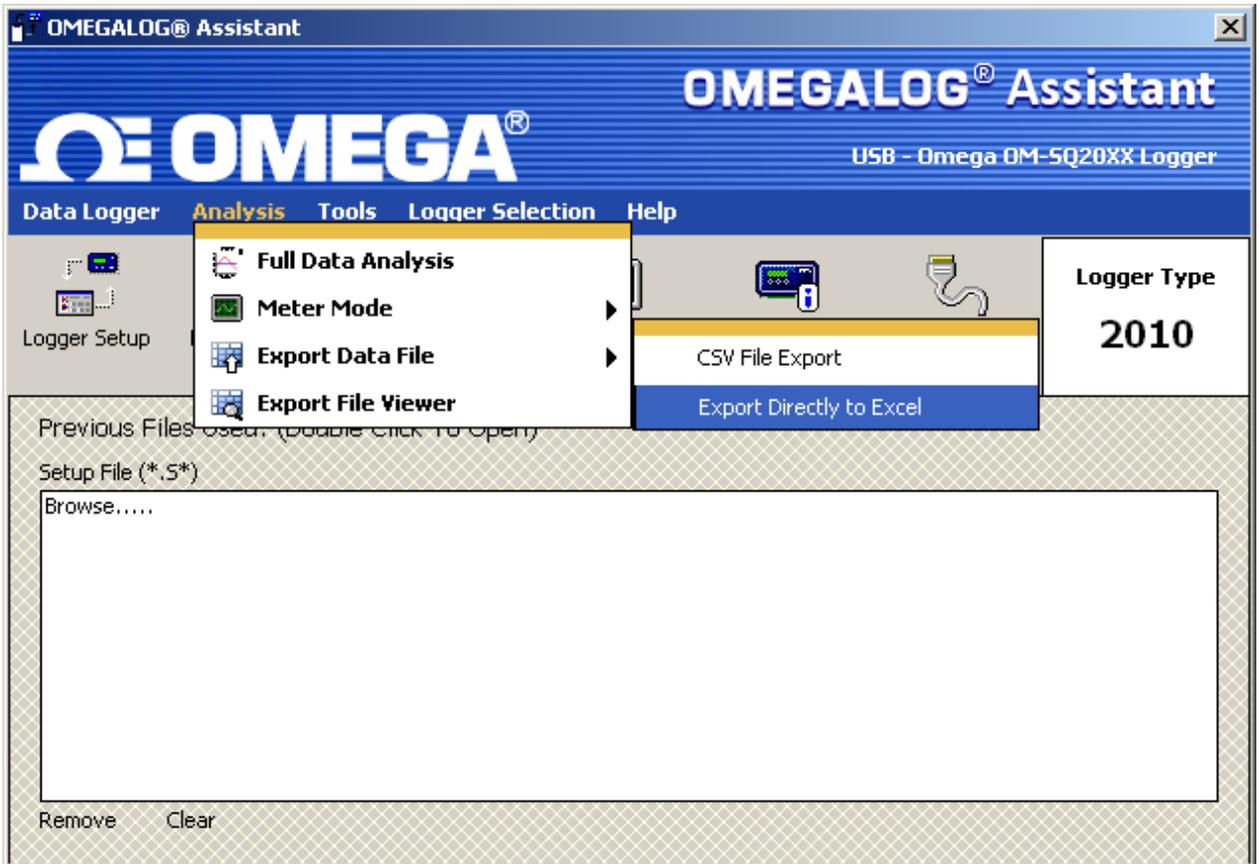




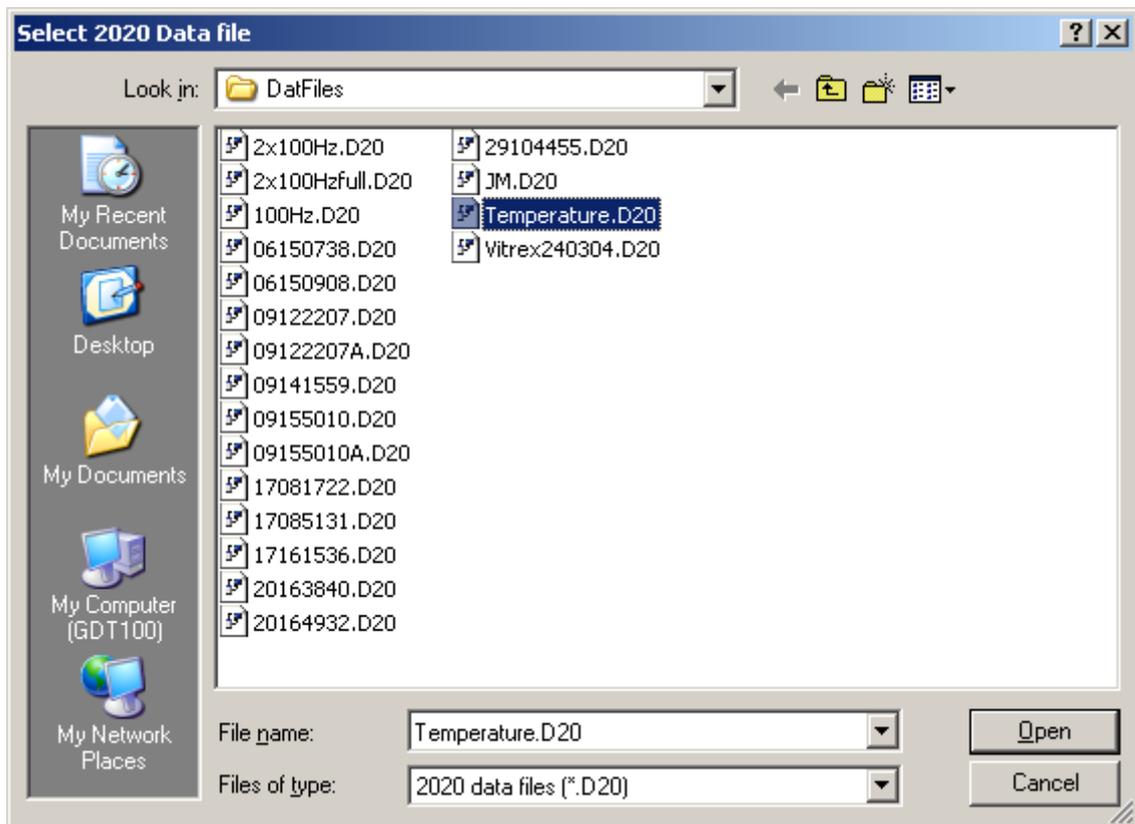
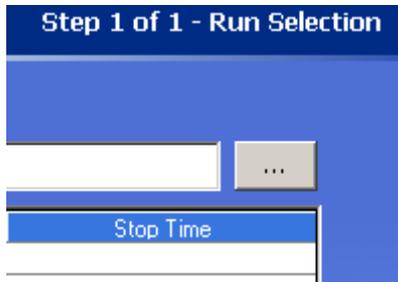
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Export Data

To export you data into excel

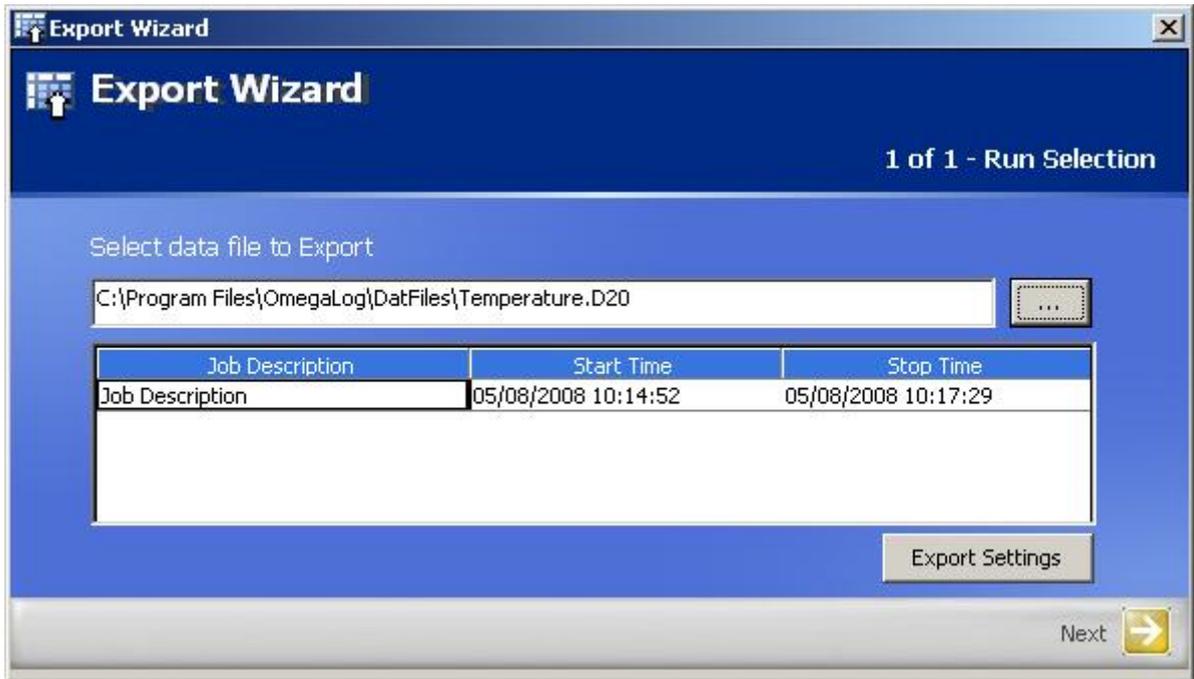


Browse for File

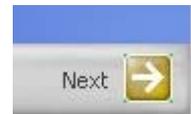


Choose the particular data file you wish to export and click.





Follow through the steps, and click the *Next* and *OK* buttons as required.



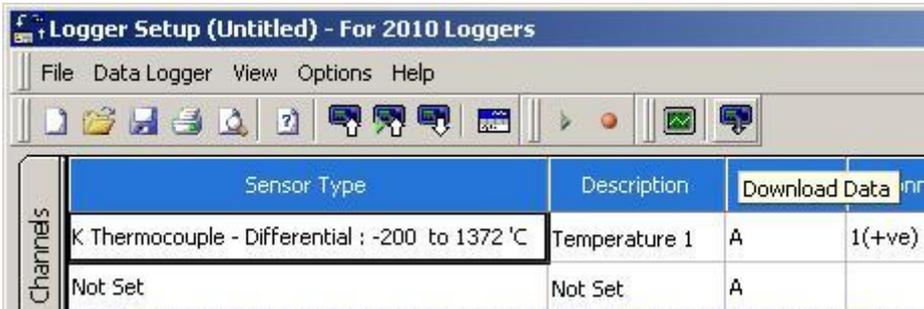
The following spreadsheet will be displayed.

Logger Details:												
1	Logger Details:											
2	Logger Type	2010										
3	Serial Number	KP0648002										
4	Controller Firmware	99.3										
5	Acquisition Firmware	4.3										
6	Logger ID	Logger ID										
7												
8	Job Details											
9	Number of Analogue Channels	9										
10	Number of Digital Channels	0										
11	Total Number of Channels Used	9										
12												
13	Arm Time	09/03/2008 14:17										
14	Disarm Time	09/04/2008 10:58										
15	Duration	20:40:24										
16	Job Description	Job Description										
17	Channel Info											
18	Description		1 (°C)	2 (°C)	3 (°C)	4 (°C)	5 (°C)	6 (°C)	7 (°C)	8 (°C)	Ref. Junction 1 (°C)	
19	Sample Interval		00:00:01	00:00:01	00:00:01	00:00:01	00:00:01	00:00:01	00:00:01	00:00:01	00:00:01	Not Logged
20	Logging Interval		00:00:01	00:00:01	00:00:01	00:00:01	00:00:01	00:00:01	00:00:01	00:00:01	00:00:01	Not Logged
21												
22												
23	Date/Time	Type	1 (°C)	2 (°C)	3 (°C)	4 (°C)	5 (°C)	6 (°C)	7 (°C)	8 (°C)		
24	03/09/2008 14:17:48	Interval	25.4	25.3	25.3	25.6	25.6	25.6	25.6	25.6	25.6	
25	03/09/2008 14:17:49	Interval	25.4	25.3	25.2	25.6	25.7	25.6	25.6	25.6	25.6	
26	03/09/2008 14:17:50	Interval	25.5	25.3	25.3	25.6	25.6	25.6	25.6	25.6	25.6	
27	03/09/2008 14:17:51	Interval	25.5	25.3	25.3	25.6	25.6	25.6	25.6	25.6	25.6	
28	03/09/2008 14:17:52	Interval	25.5	25.3	25.3	25.6	25.6	25.6	25.6	25.6	25.6	
29	03/09/2008 14:17:53	Interval	25.4	25.3	25.3	25.6	25.6	25.6	25.6	25.6	25.6	
30	03/09/2008 14:17:54	Interval	25.5	25.2	25.3	25.6	25.6	25.6	25.6	25.6	25.6	
31	03/09/2008 14:17:55	Interval	25.4	25.2	25.3	25.6	25.6	25.6	25.6	25.6	25.6	
32	03/09/2008 14:17:56	Interval	25.5	25.3	25.2	25.6	25.6	25.6	25.6	25.6	25.6	

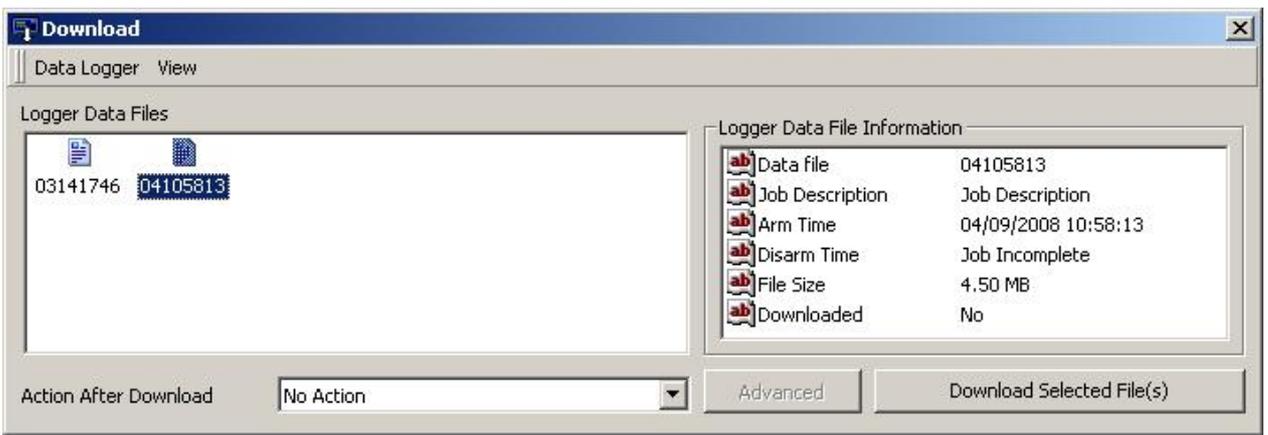
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Downloading Alarm data

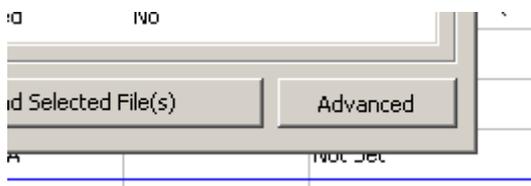
To download the alarm data select the *Download Data* button.

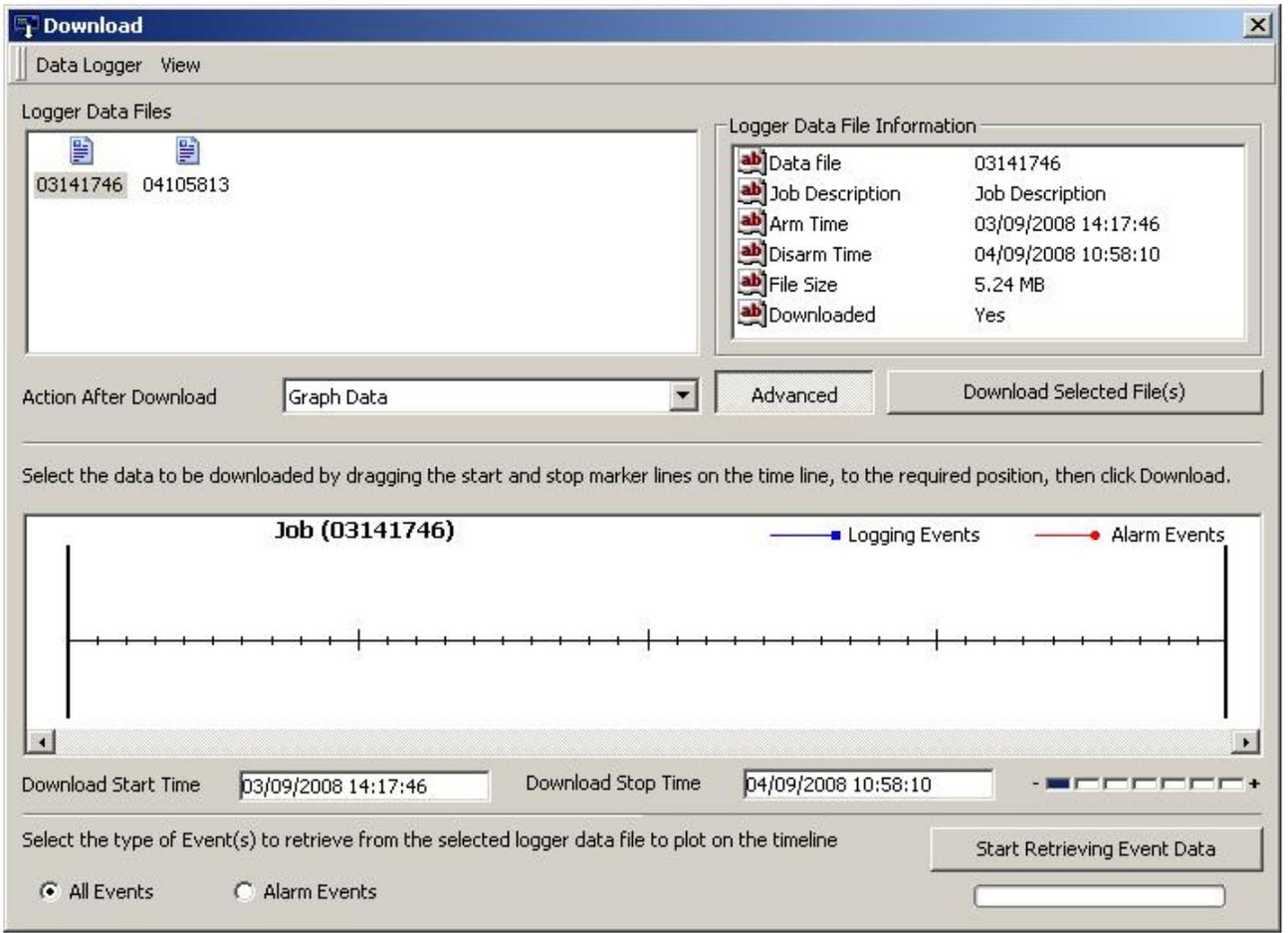


Select the required Data File.

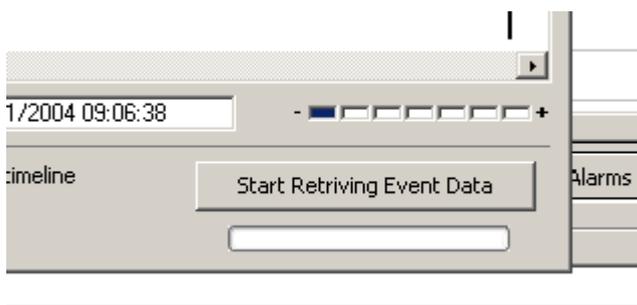


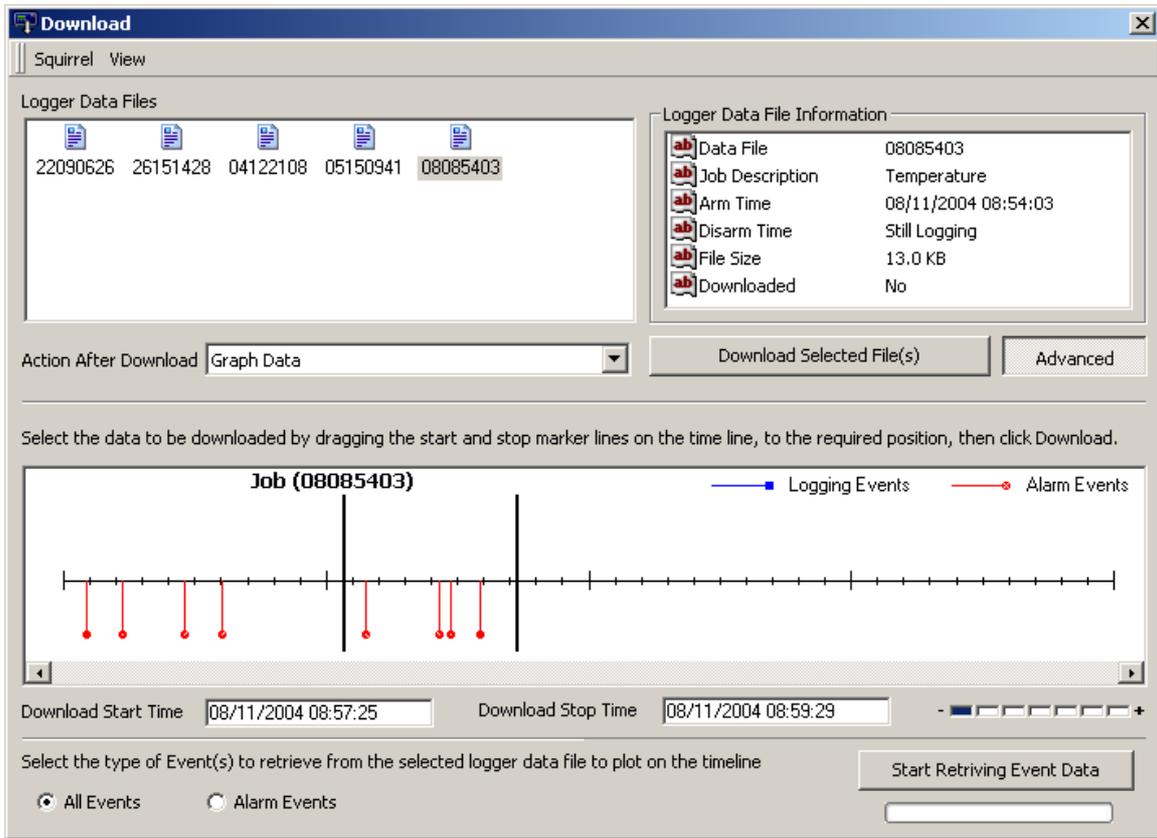
Click on the *Advanced* button.



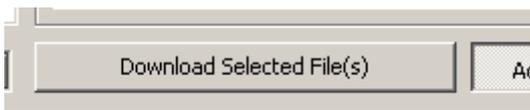


Click on the *Start Retrieving Event Data* button.





The two side vertical lines can be dragged to section that you want to download
Click the *Download Selected File(s)* button.



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Setting a Start and Stop logging action

This example uses the event input to start and stop logging on an action.

In Setup Screen Click on the *Actions & Triggers* tab

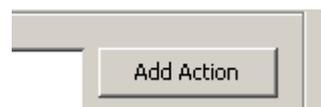
The screenshot shows the 'Logger Setup (Untitled) - For 2010 Loggers' application. The main window contains a table of channels and a control panel at the bottom.

	Sensor Type	Description	Block	Connections	Log Method
Calculated Channels	K Thermocouple - Differential : -200 to 1372 °C	Temperature 1	A	1(+ve) to 2(-ve)	Sample Interval: A (00:00:01) Logging Interval: (00:00:01)
	Not Set	Not Set	A		Not Set
	Not Set	Not Set	A		Not Set
	Not Set	Not Set	A		Not Set
	Not Set	Not Set	B		Not Set
Actual Channels	Not Set	Not Set	B		Not Set
	Not Set	Not Set	B		Not Set
	Reference Junction : -50 to 150 °C	Ref. Junction 1	Internal		Sample Interval: A (00:00:01) Logging Interval: (00:00:01)
	Not Set	Pulse Channel 1	Digital I/O		Not Set
	Not Set	Pulse Channel 2	Digital I/O		Not Set

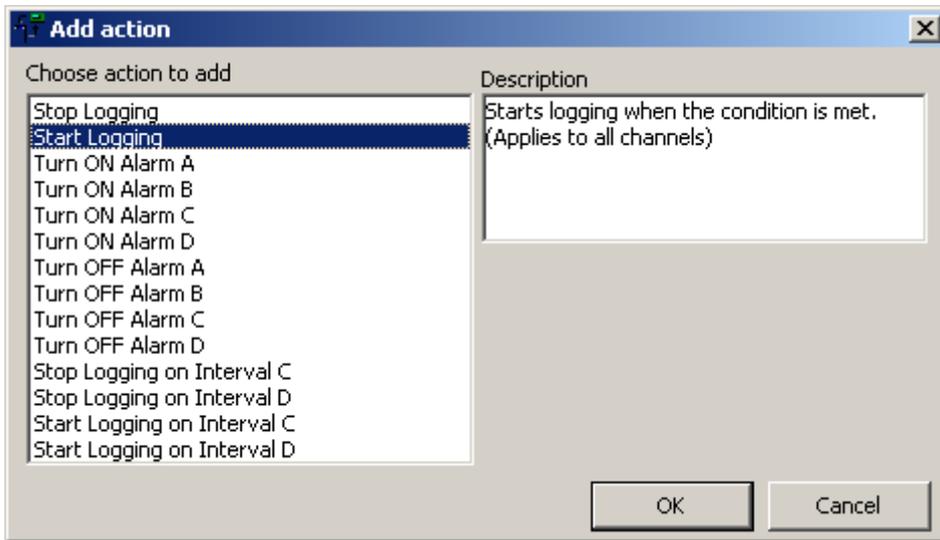
The control panel at the bottom has the following sections:

- Logger Control:** Includes buttons for 'Set Logger Time Manually' and 'Set Logger Time to PC Time'. The PC Time is shown as 09/09/2008 10:15:55.
- Logger Identification:** Includes fields for 'Logger ID' (with a note: '(This text is used to identify the logger)') and 'Job Description'.
- Memory Mode:** Includes a 'Memory Mode' dropdown set to 'Stop when full' and a 'Max Memory Allocated to this Job' dropdown set to 'All Free Memc'.
- Delayed Start:** Includes an 'Enable' checkbox (unchecked), radio buttons for 'Real Time' (selected) and 'Elapsed', and a 'Start Logging At' field set to 09/09/2008 10:15:33.
- Sensor Power Timers:** Includes settings for 'A (Supply)' and 'B (5V)', each with a time dropdown (set to 00:00:00) and a 'Continuous' checkbox (unchecked).

Click on the *Add Action* button.



To add the start action, select the Start Logging action

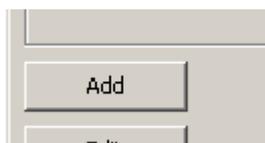


Click on the *OK* button.

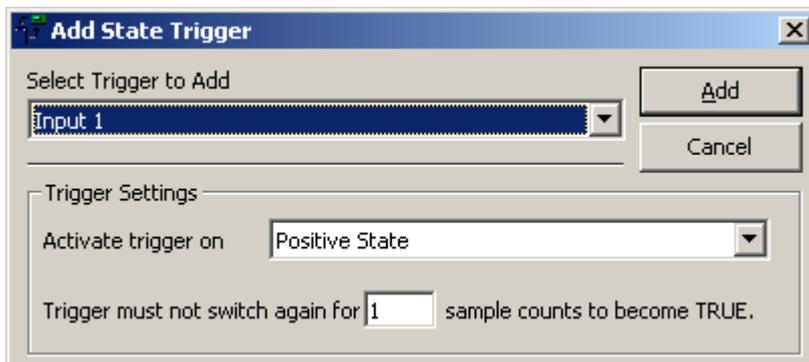
Select the State tab



And click on the *Add* button.

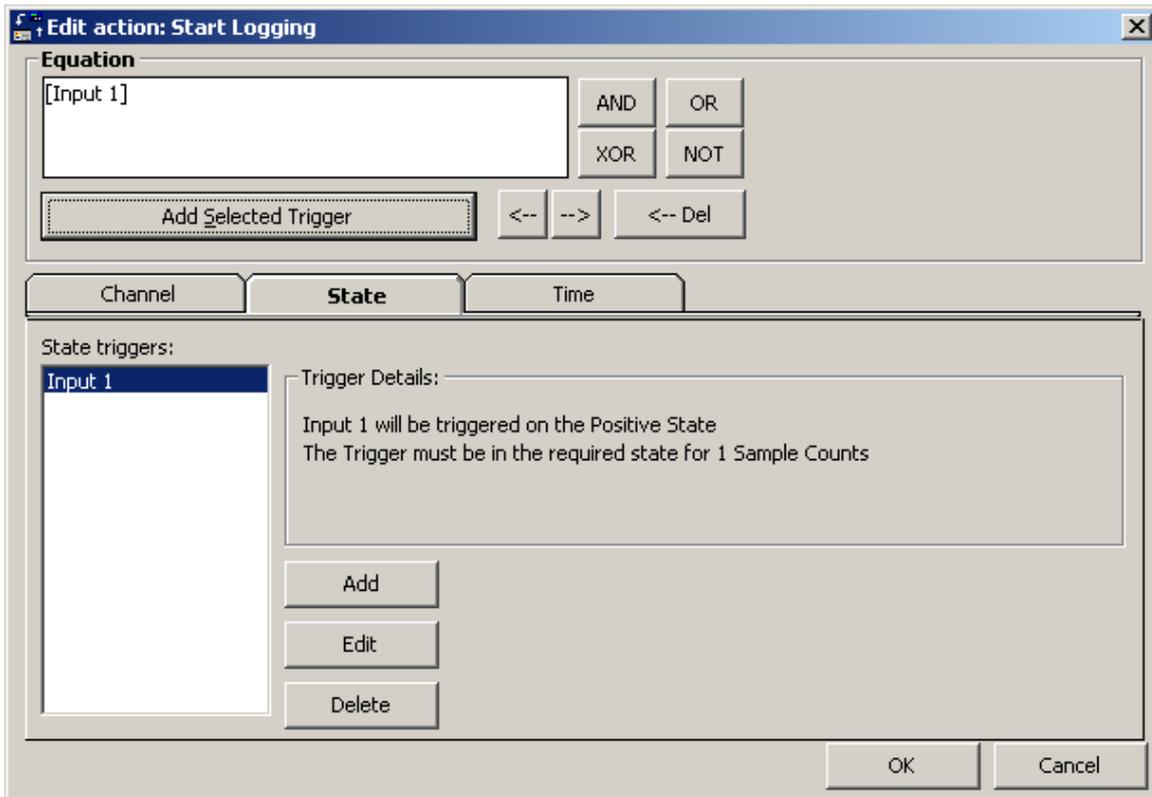


Select input 1

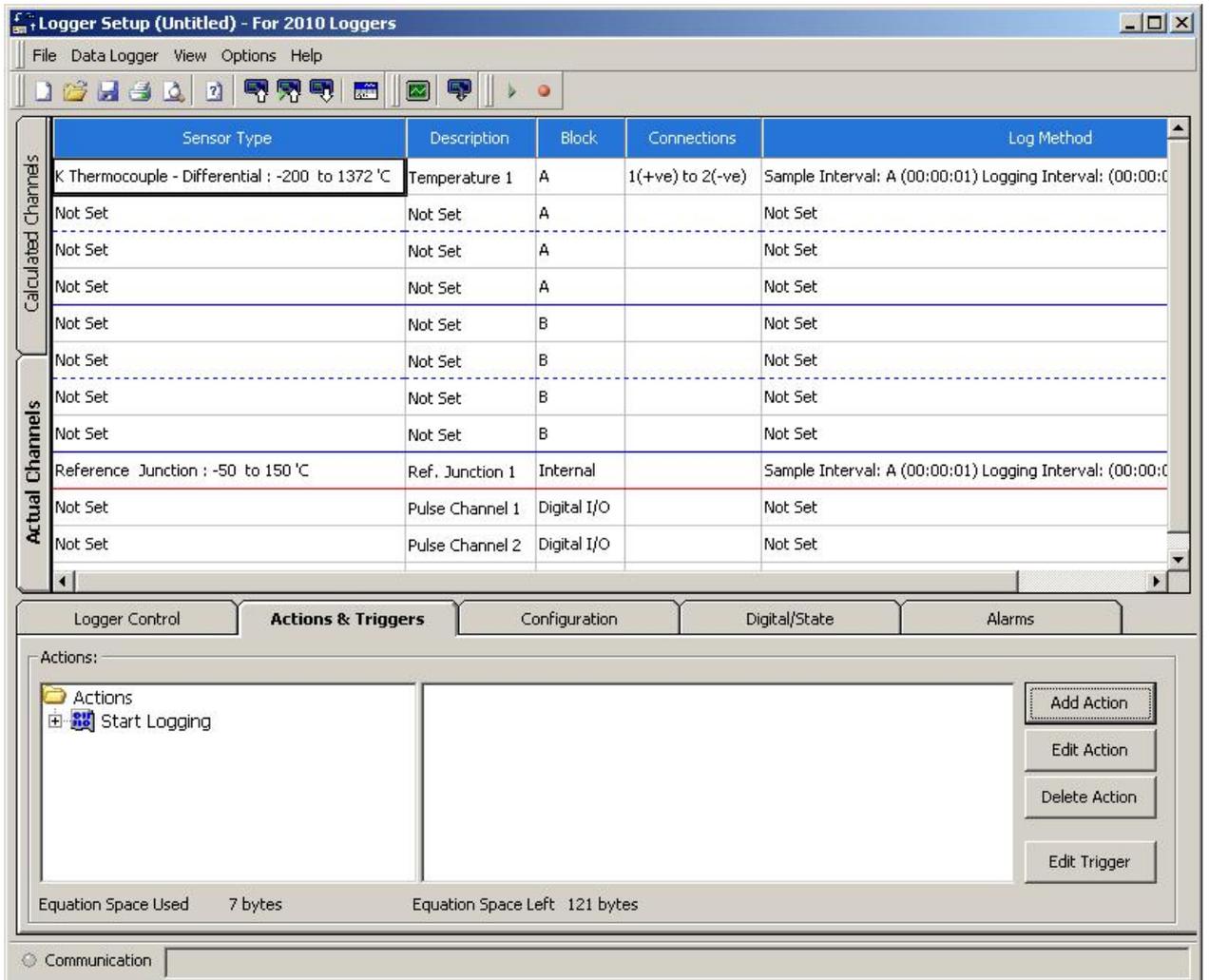


Then click on the *Add* button.

To add the action, click on the *Add Selected Trigger* button.



Click on the *OK* button.

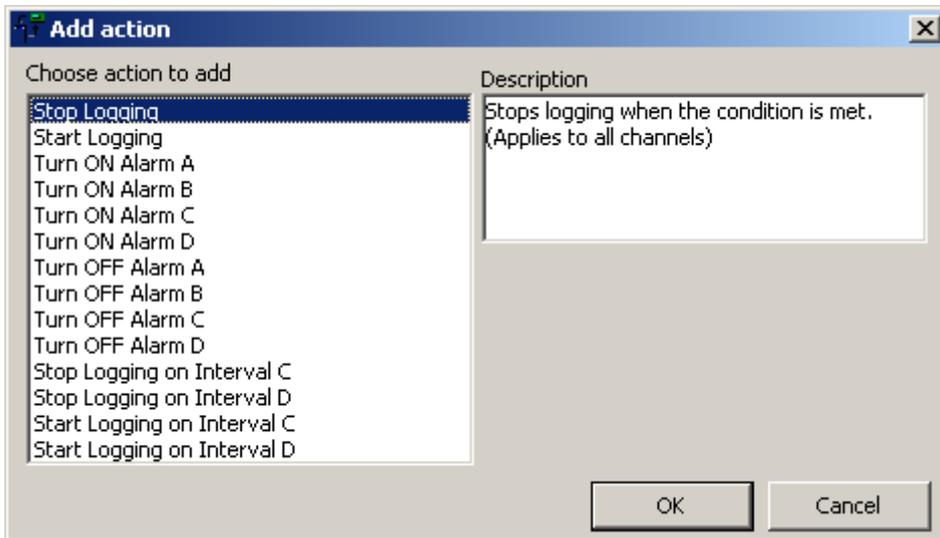


Now you need to add the stop logging action.

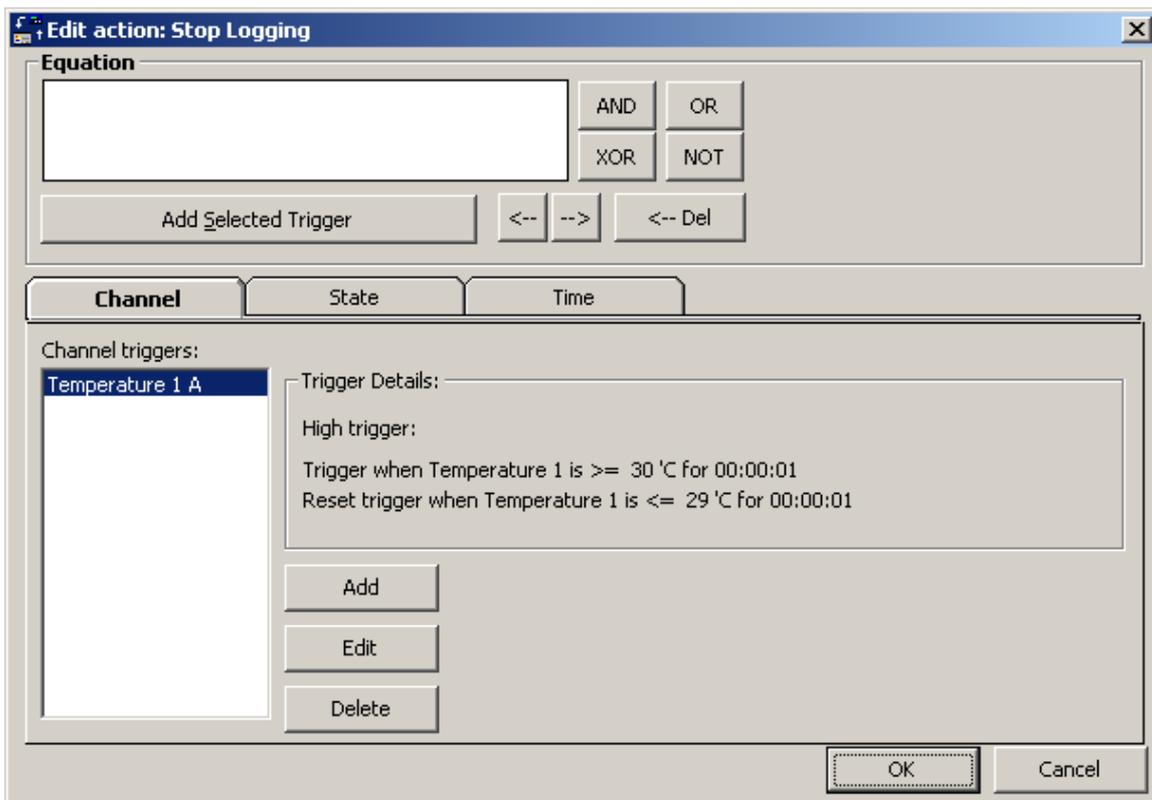
Click on the *Add Action* button.



Select the Stop Logging action.



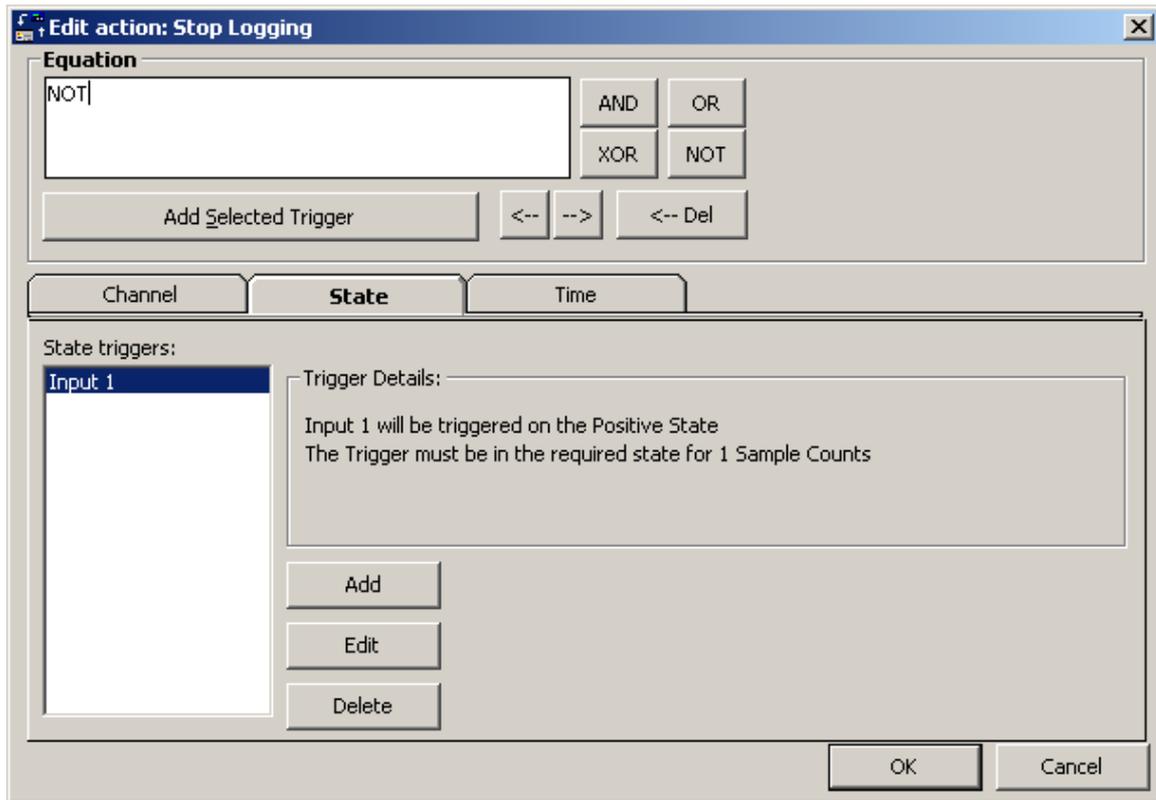
Click on the *OK* button.



Select the State tab.

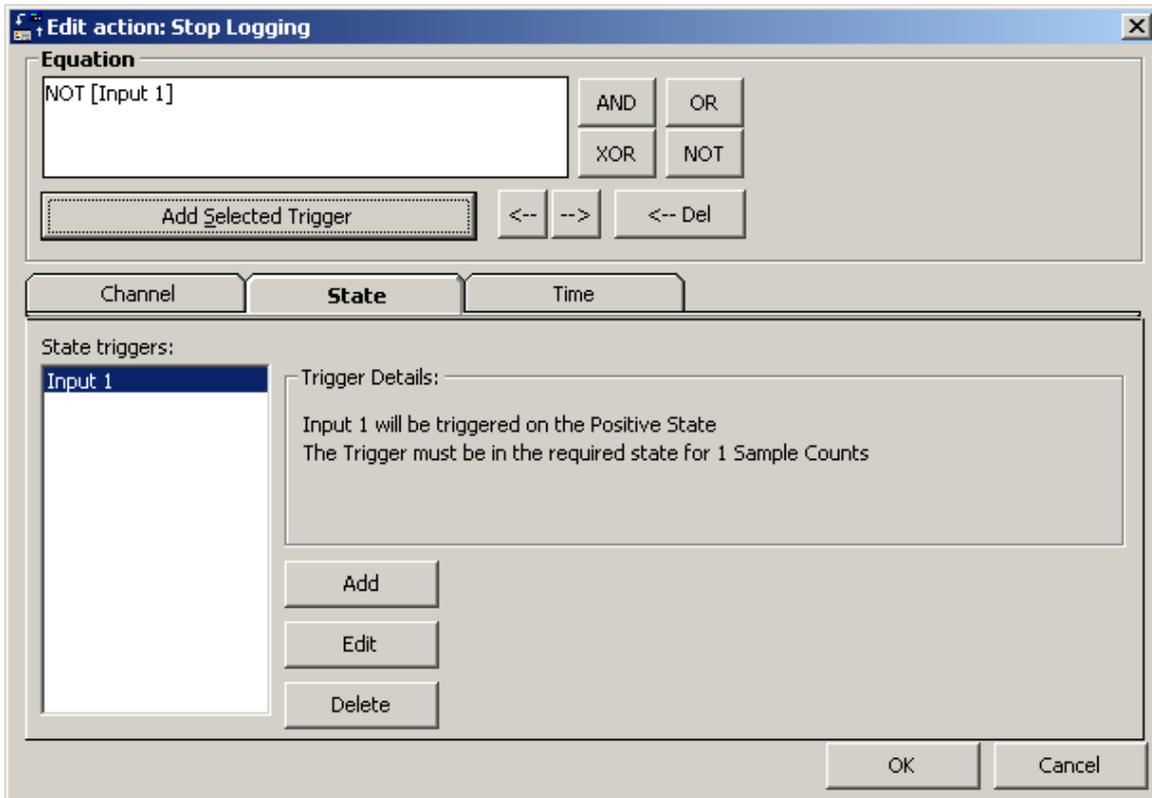


And click on the *NOT* button.



Click on the *Add Selected Trigger* button.





The logger will stop logging when the event is not activated
Click on the **OK** button.



Save the Set-up
Then send the setup the logger and start logging.

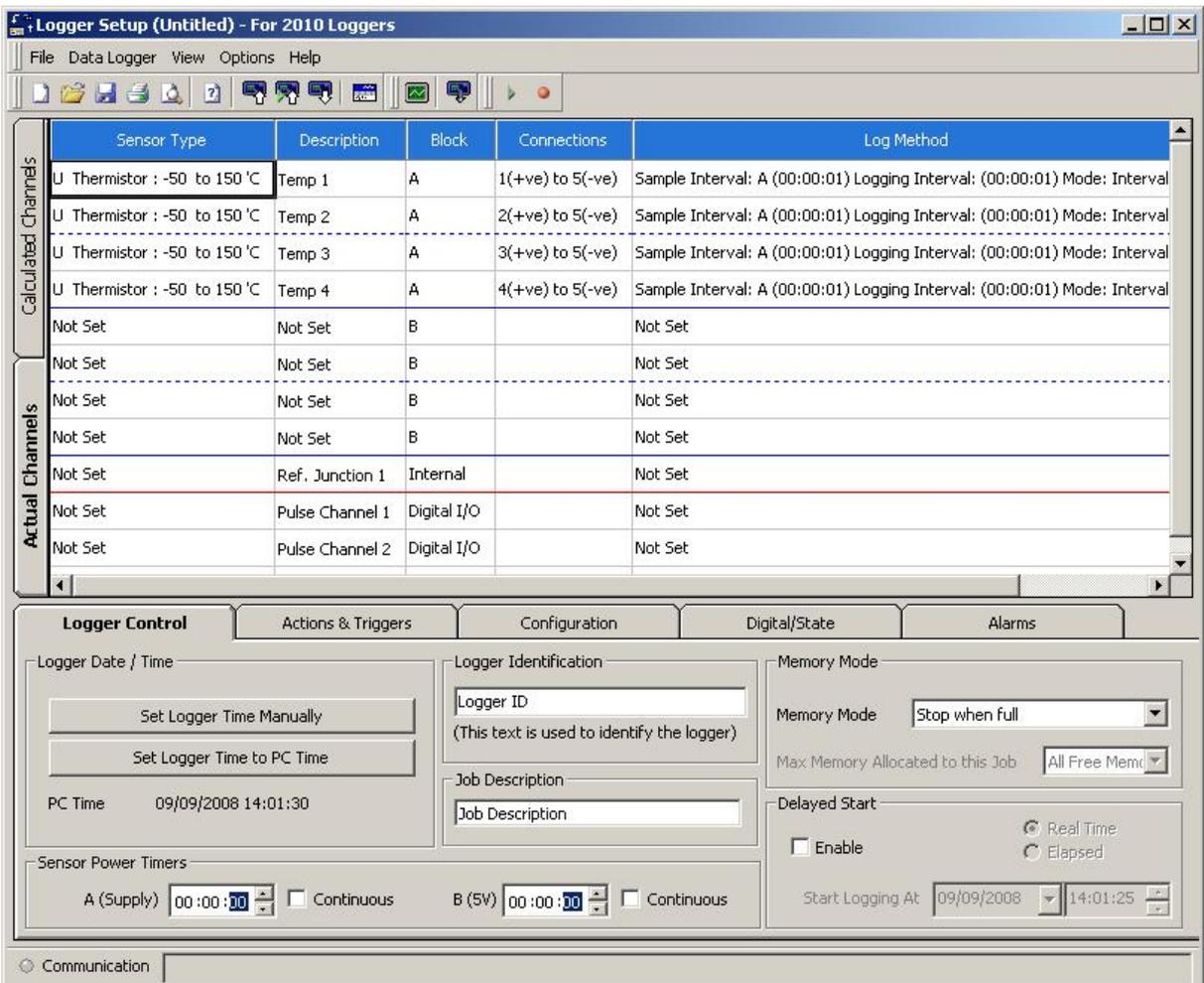


Setting an Alarm Action

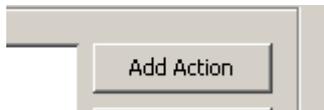
In Logger Setup Screen Get Setup from Logger.



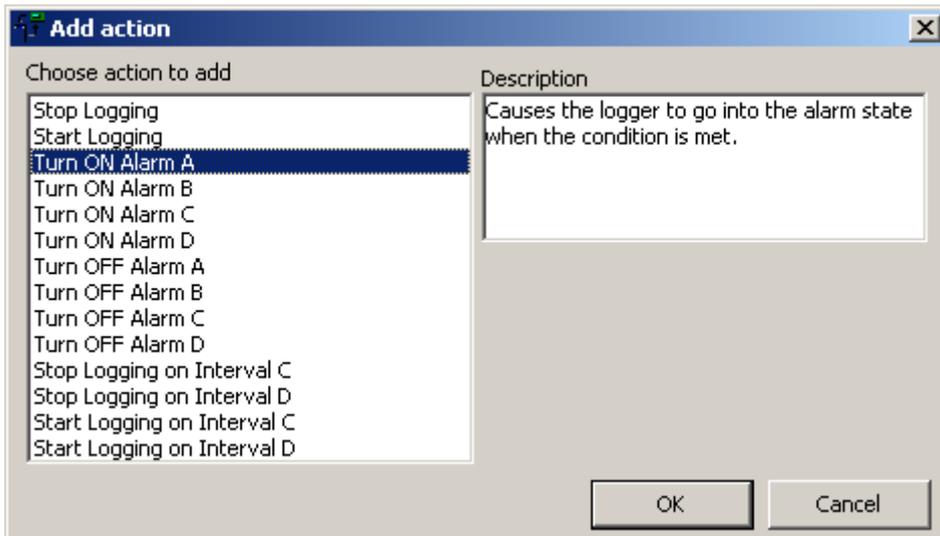
Click on Actions & Triggers tab



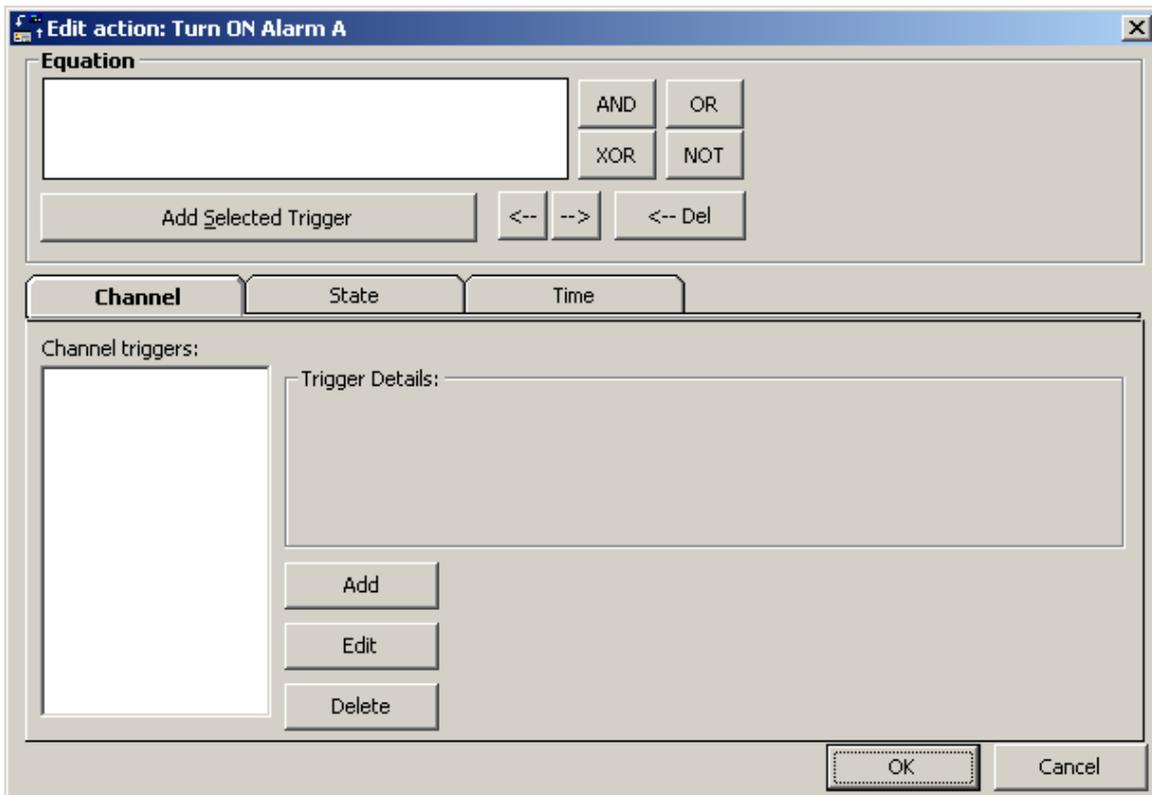
Click on the *Add Action* Button



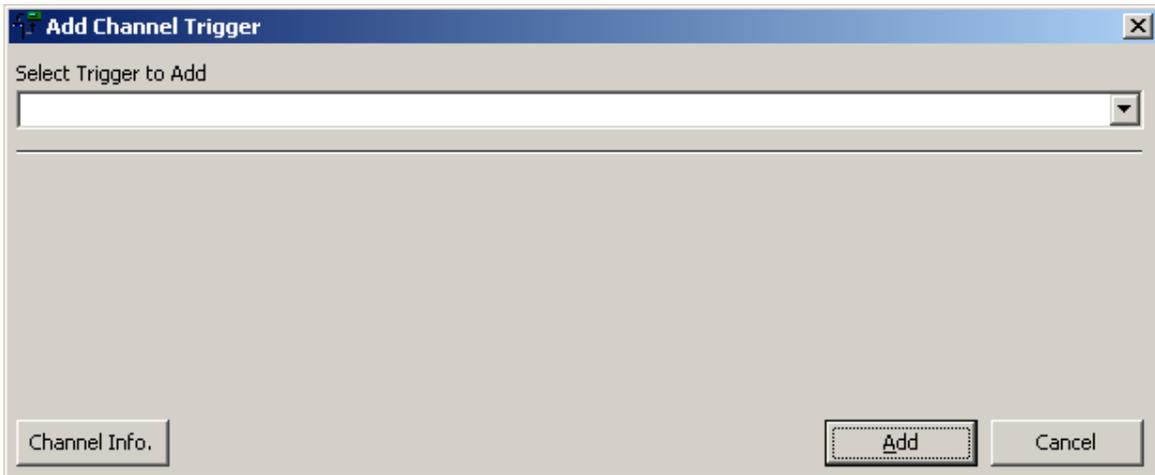
Select an alarm to turn on and Click on the *OK* button



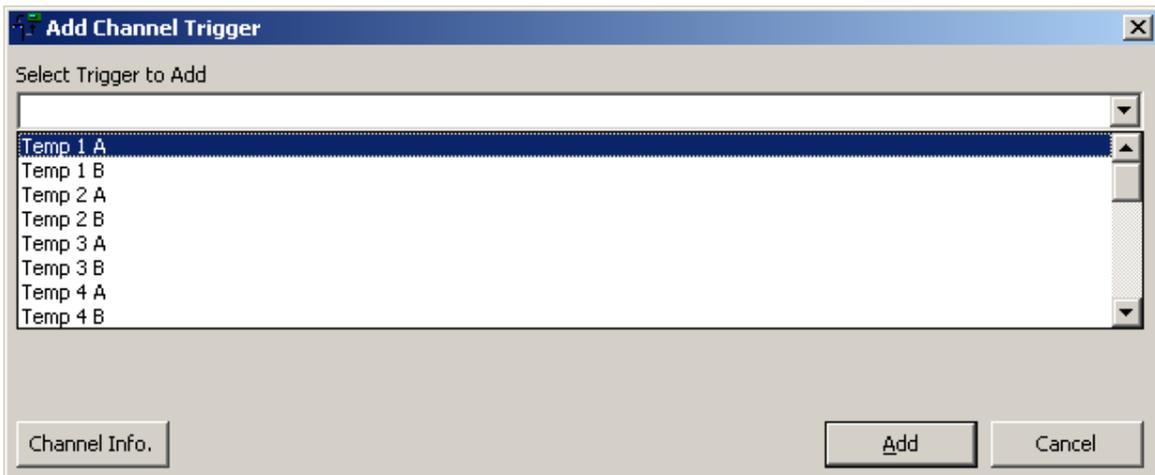
Click on the *Add* button



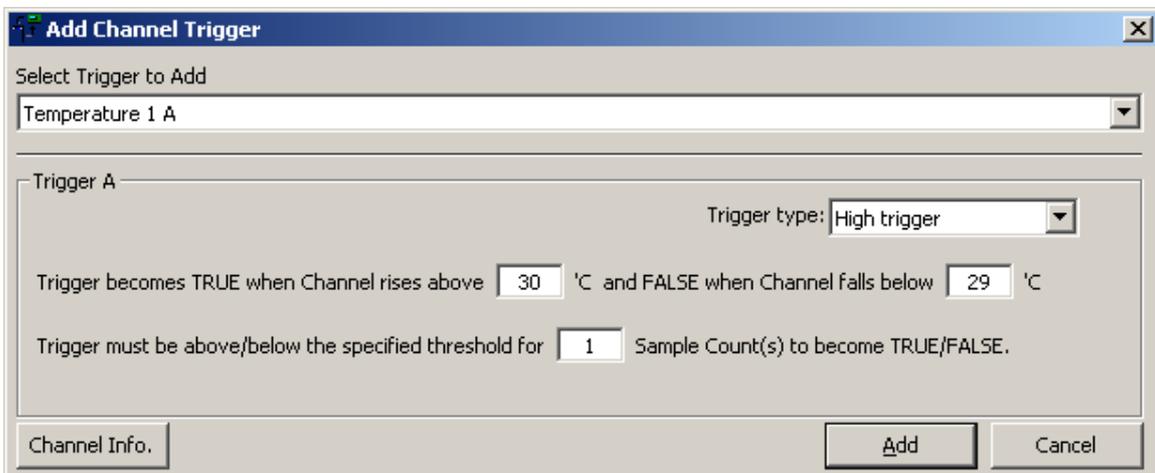
Enter the drop down box



Choose the trigger channel you want the alarm to apply too.



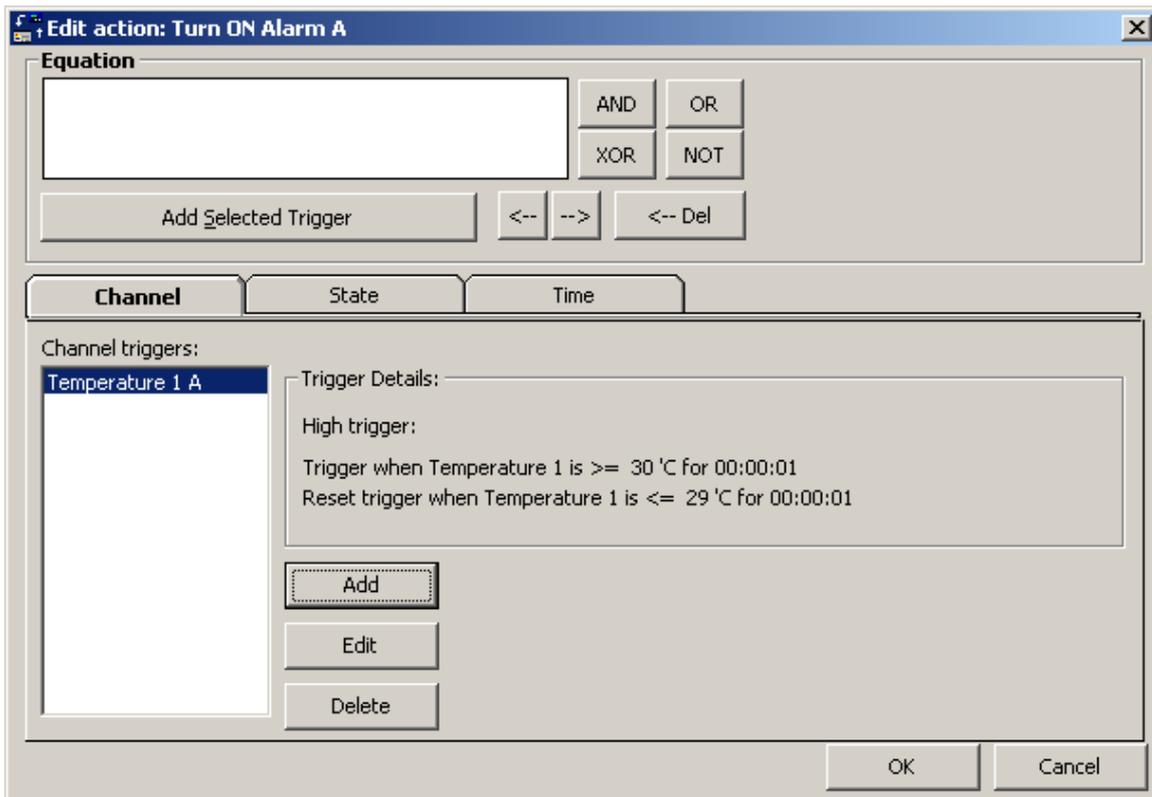
Choose the Trigger Type and enter the values required for the alarm



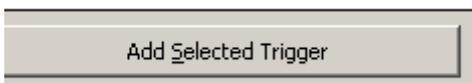
Click on the *Add* button

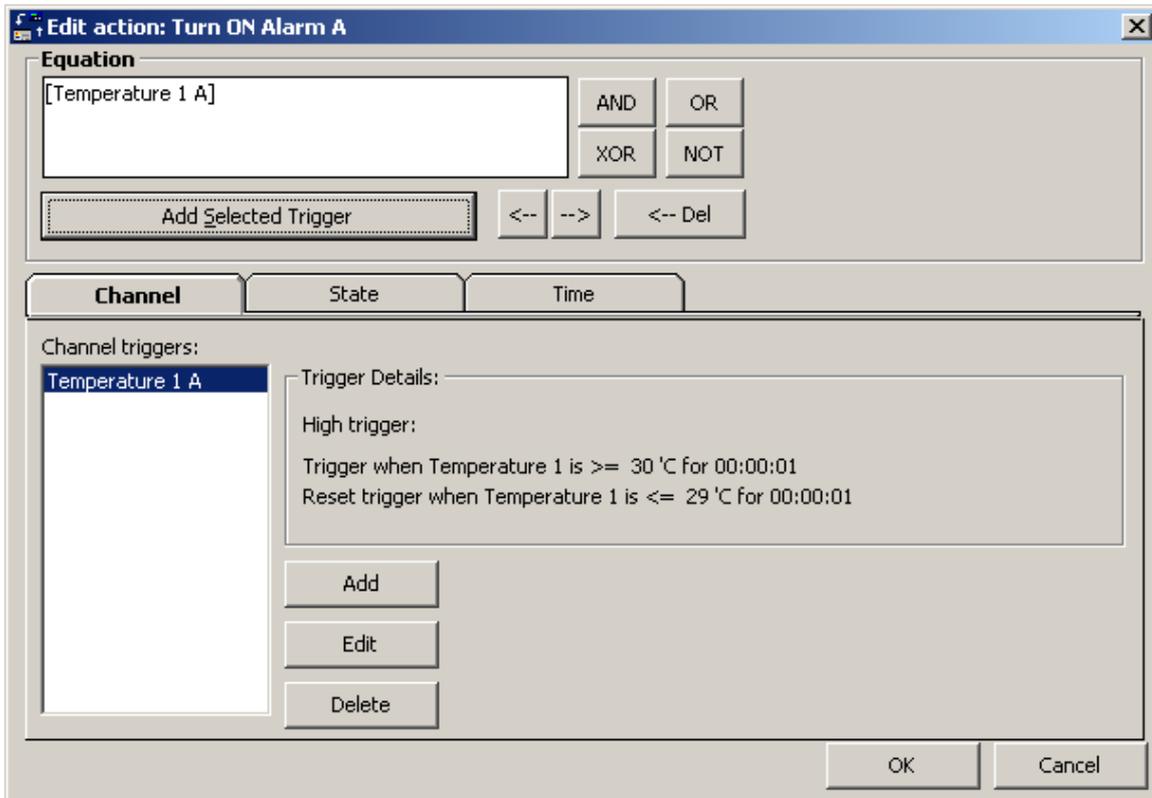


Highlight the Channel trigger to be added to the equation



Click on the *Add Selected Trigger* button





Click on the *OK* button

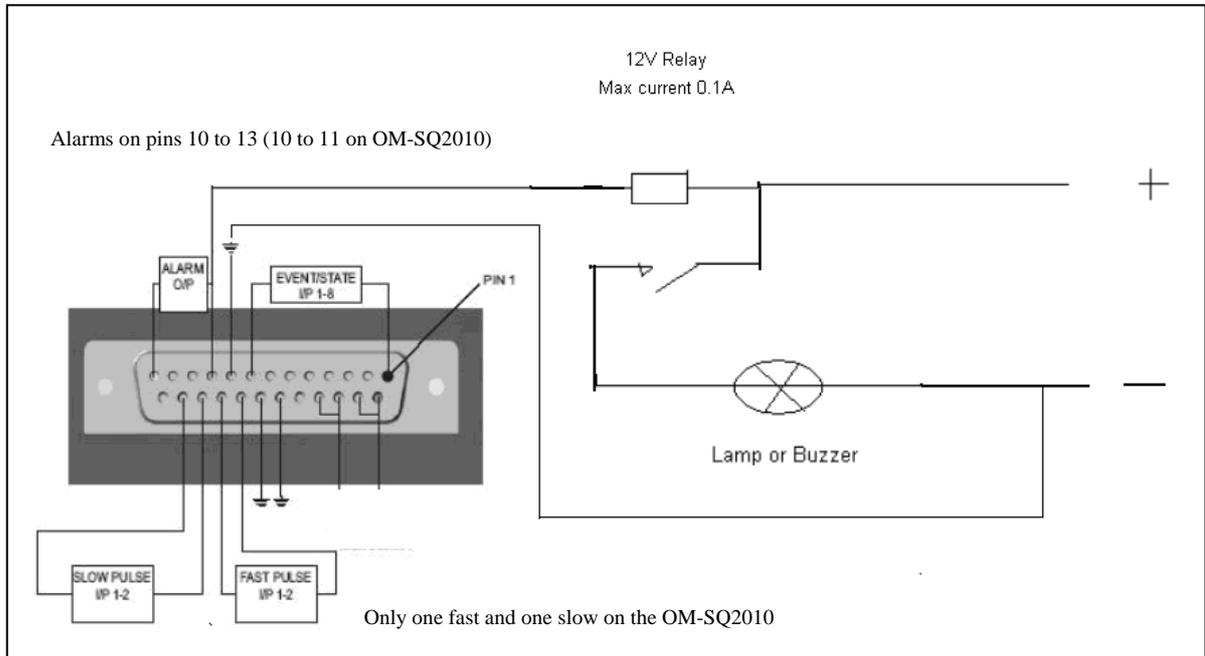


Action will appear as below in the Logger Setup window.



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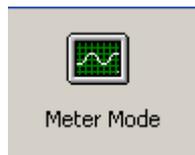
Sample Alarm Circuit



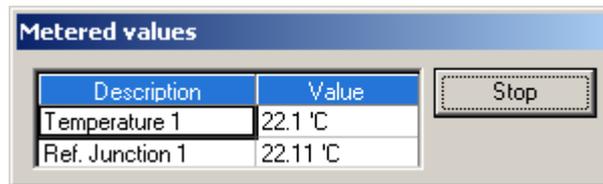
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Meter Mode

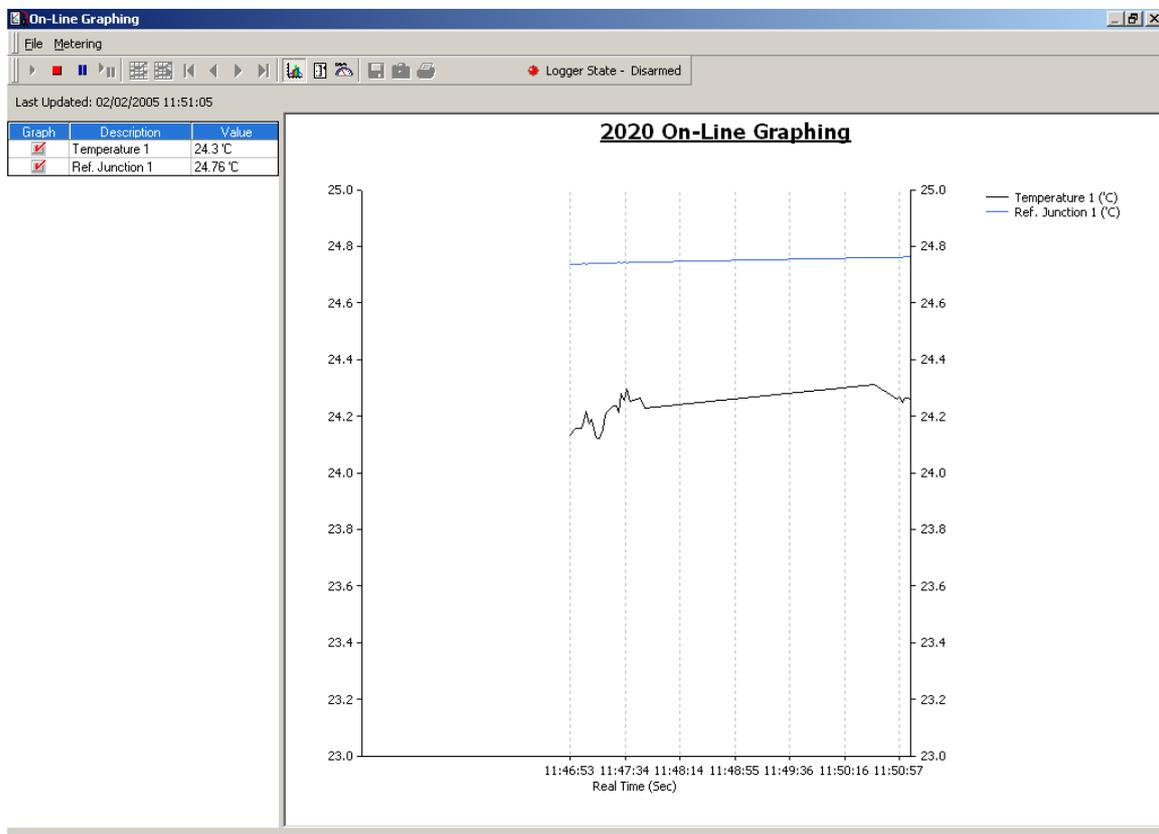
Once the channels have been set and the set file sent to the logger, click on the *Meter Mode* button on the front screen of the OMEGALOG[®] Assistant.



The Basic OMEGALOG[®] will display readings from the logger at approximately 1 Hz from all the channels that have been setup.

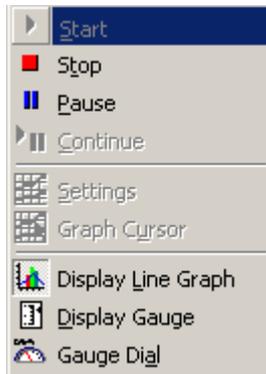


To see Online graphing, OMEGALOG[®] Plus software is required

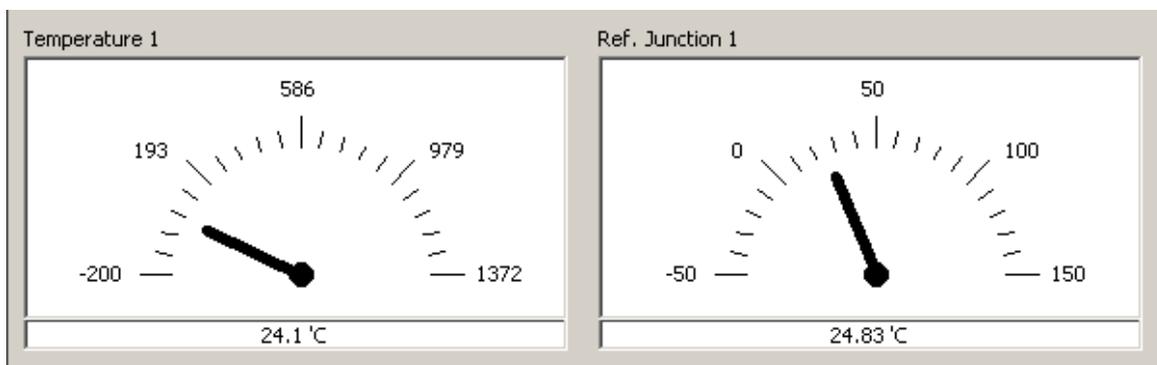
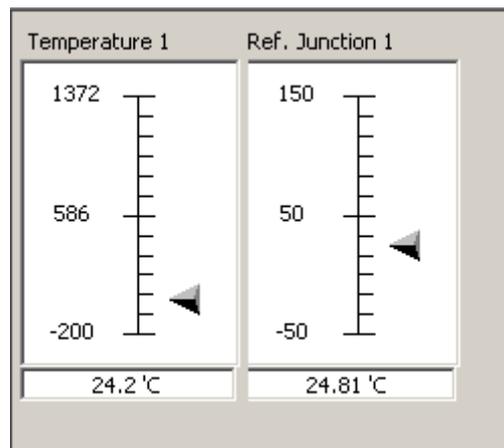


The graph is displayed with automatic scaling.

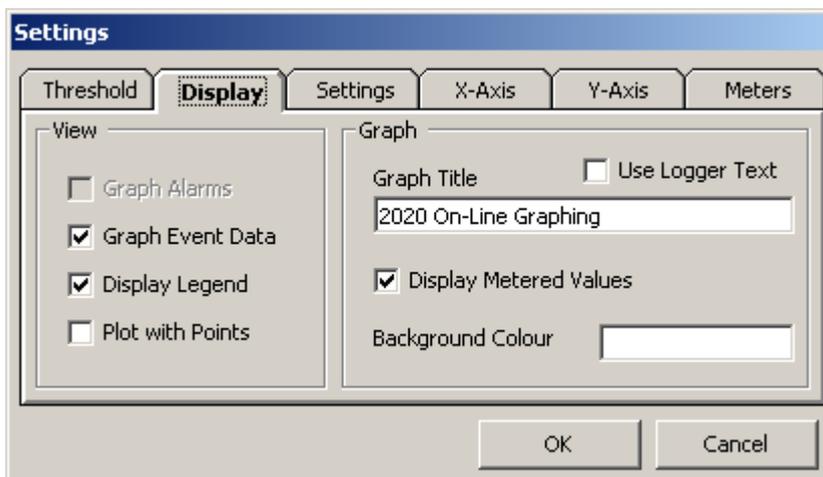
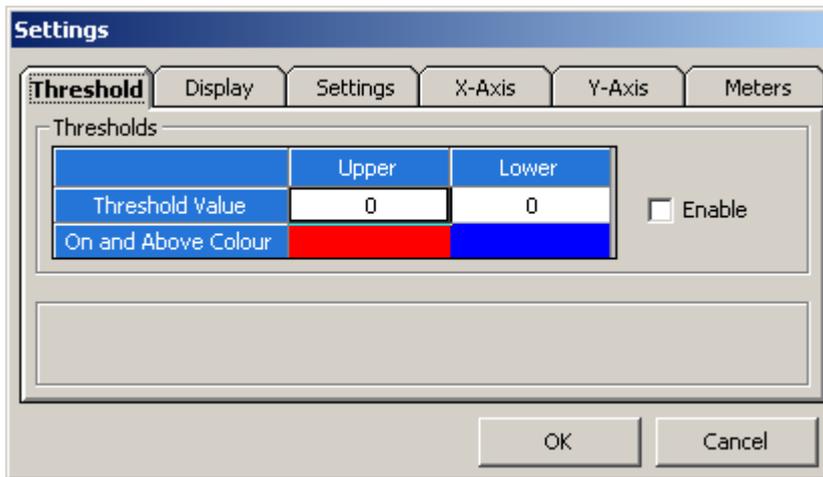
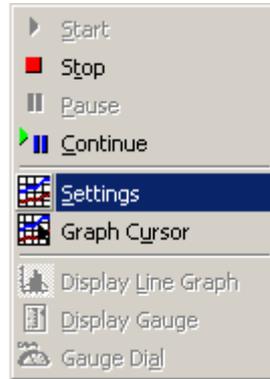
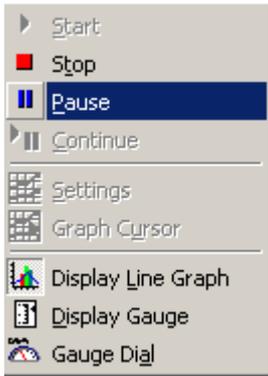
Right click on the graph to change display type



As well as a line graph a display gauge and a Dial gauge can be chosen.



Pause to change settings



Settings

Threshold Display **Settings** X-Axis Y-Axis Meters

Type

- Line Graph
- Scatter Graph
- Bar Graph

Note: Bar Graph will only show current readings

Grid

- None
- X-Axis
- Y-Axis
- Both

Style: Dot

Colour:

OK Cancel

Settings

Threshold Display Settings **X-Axis** Y-Axis Meters

X-Axis

Title: Real Time (Sec)

Minor divisions between major divisions: 5 Interval (Secs): 50

(e.g. 5 = [|||||])

OK Cancel

Settings

Threshold Display Settings X-Axis **Y-Axis** Meters

Y-Axis

- Metering Readings
- Manual

Maximum:

Minimum:

Series

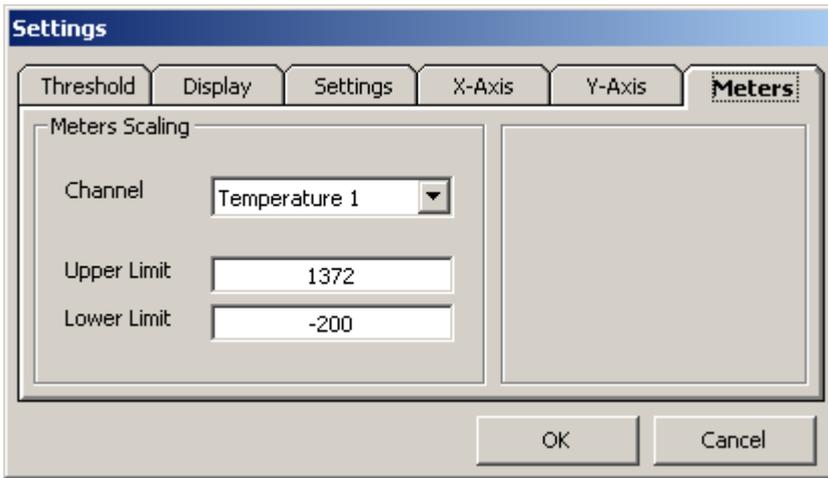
Channel: Temperature 1

Line Width: 1 Pixels

Line Style: Solid

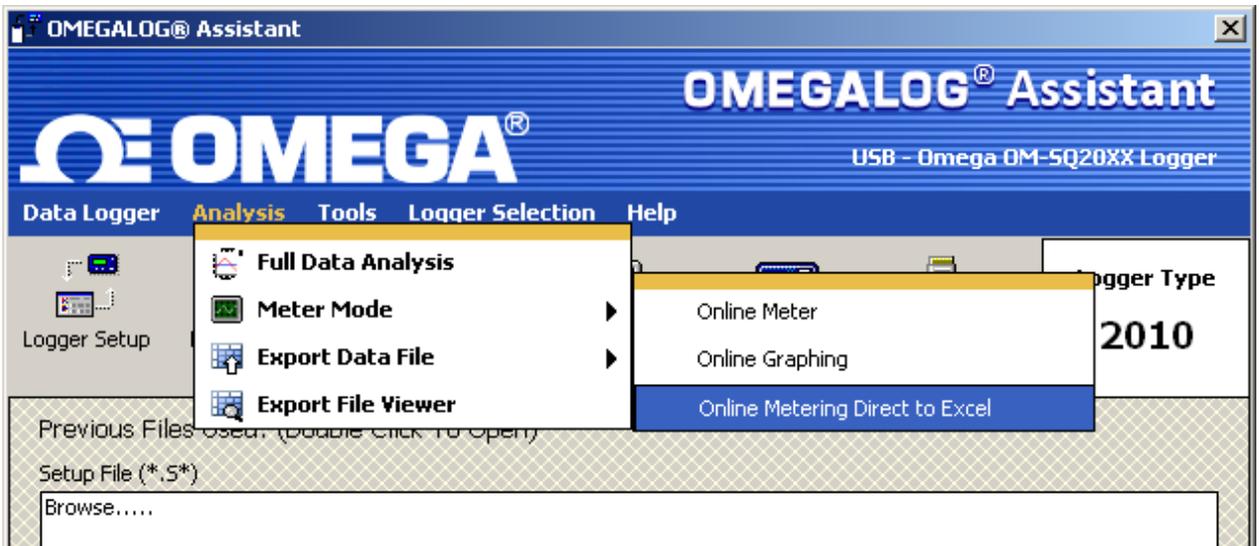
Line Colour:

OK Cancel



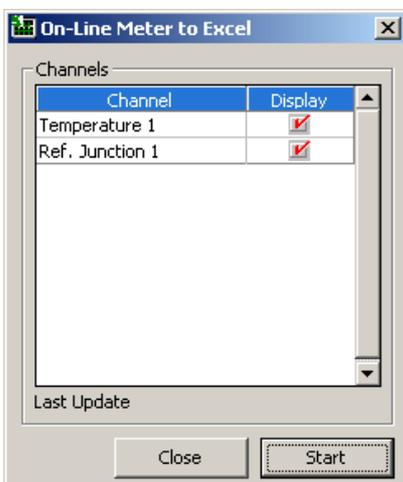
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Online Metering Direct to Excel



This metering function collects data values from selected setup channels in the logger, and places them into an Excel spreadsheet.

When this feature is activated the OMEGALOG[®] Assistant window will disappear and the below screen displayed.



Select the required channels and click the *Start* button, If you need to change which channels are being metered you will have to restart the metering process.

An Excel application spreadsheet will then be automatically created and configured with the channels select metering to this spreadsheet.

The screenshot shows a Microsoft Excel spreadsheet titled "OMEGALOG Real-Time Monitor - Sheet1". The spreadsheet contains a table with the following data:

	A	B	C	D
1	Elapsed Time	Temperature 1	Ref. Junction 1	
2	00:00:04.500	25.8	26.54	
3	00:00:07.500	25.7	26.54	
4	00:00:10.500	25.7	26.54	
5	00:00:13.500	25.7	26.54	
6	00:00:16.500	25.7	26.54	
7	00:00:19.500	25.7	26.54	
8	00:00:22.500	25.6	26.54	
9				
10				

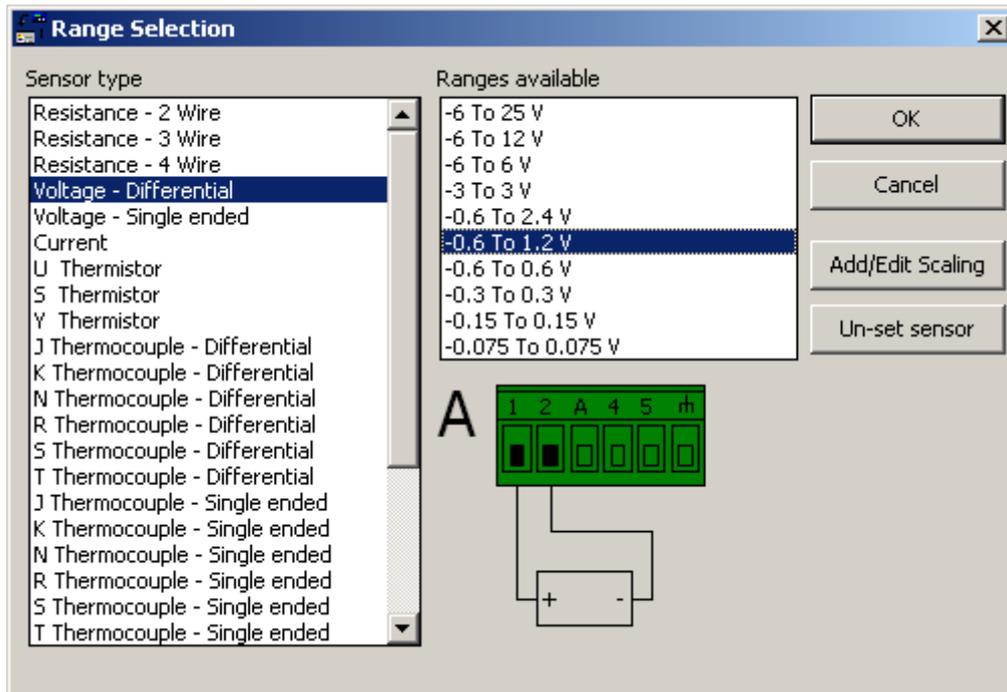
Note: It is requested not to edit or change any of the spreadsheets settings until metering has stopped and exited. Any modification to the spreadsheet whilst metering could lead to corruption of the data.

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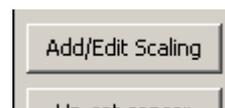
Engineering Units

To setup engineering units the following example shows a voltage input of 0 to 1 V which is equal to 0 to 100% rh

Select appropriate input and range in this case.

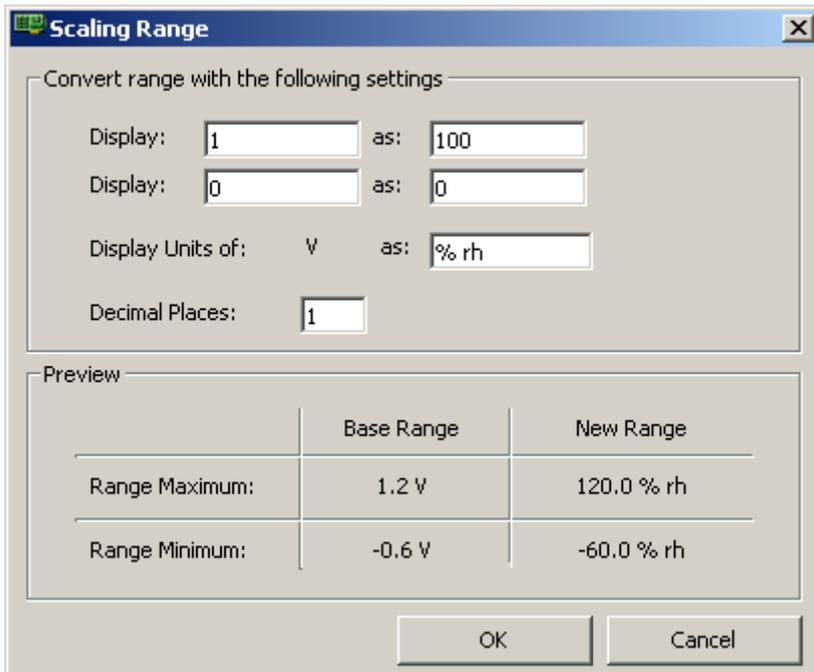


Click on the *Add/Edit Scaling* button.

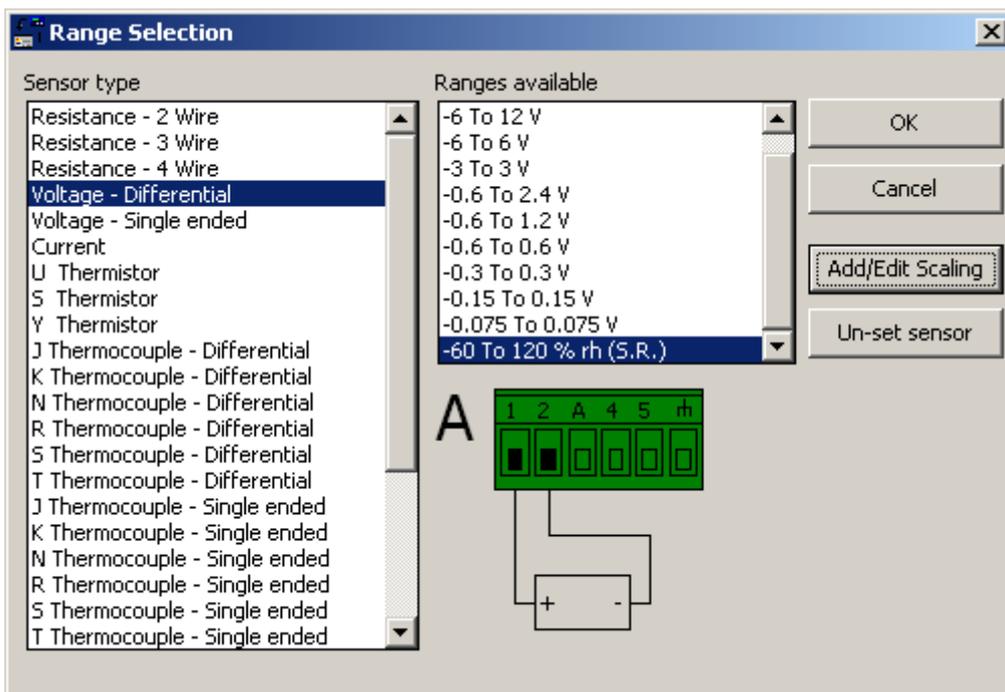


Set display 1 as: 100 and 0 as: 0
 Units as %rh
 Realistic number of decimal places

The logger will scale the whole range which is shown below



Click on the *OK* button.



Select scaled range (SR) and click on the *OK* button.

Enter a description for the channel.



Save the setup



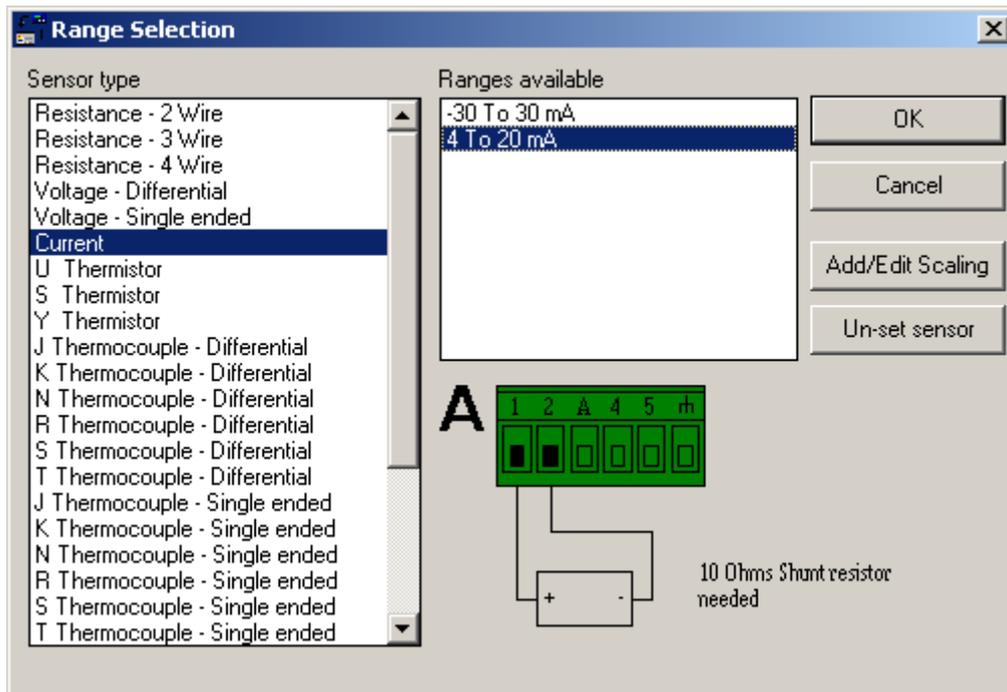
Send the setup to logger and Arm if required



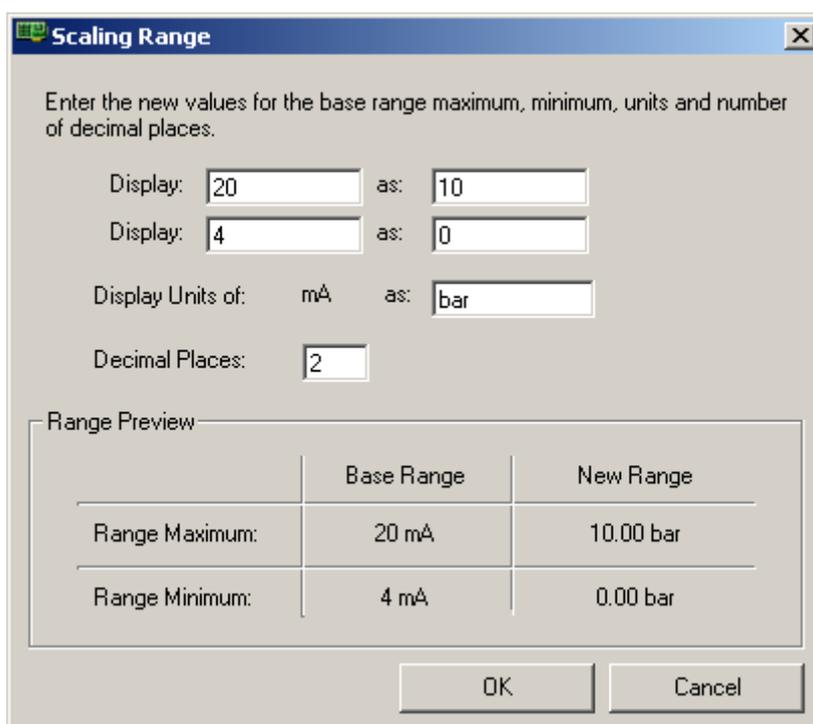
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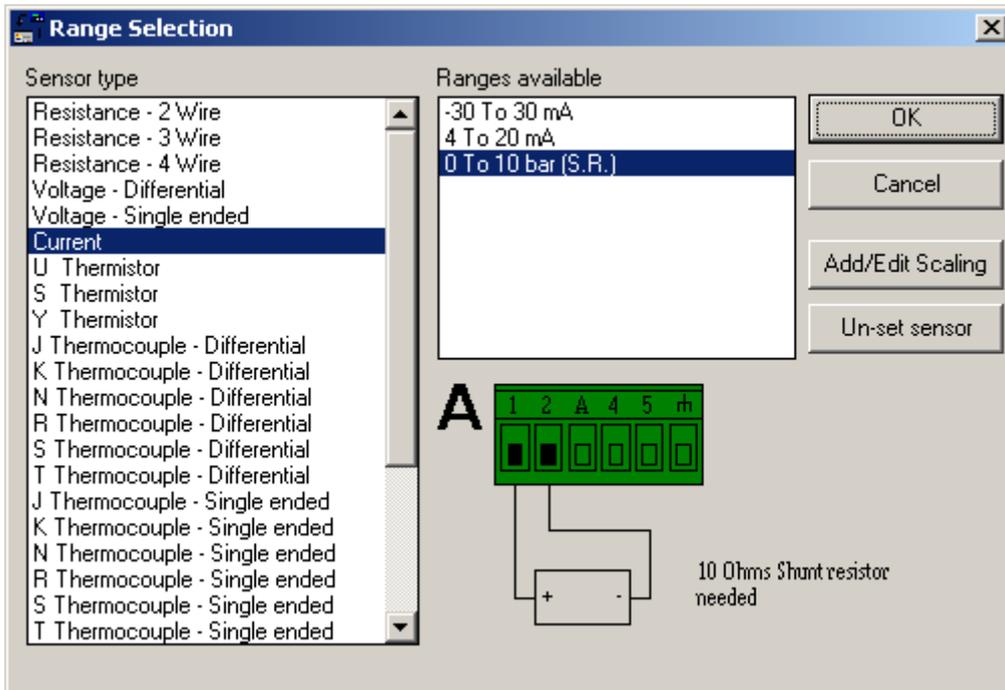
4 to 20 mA Connections

In logger Setup screen double click in Sensor Type column of input channel required (Block A is shown) but can be A, B, C or D input block. Select the range as below then click on the *OK* button.

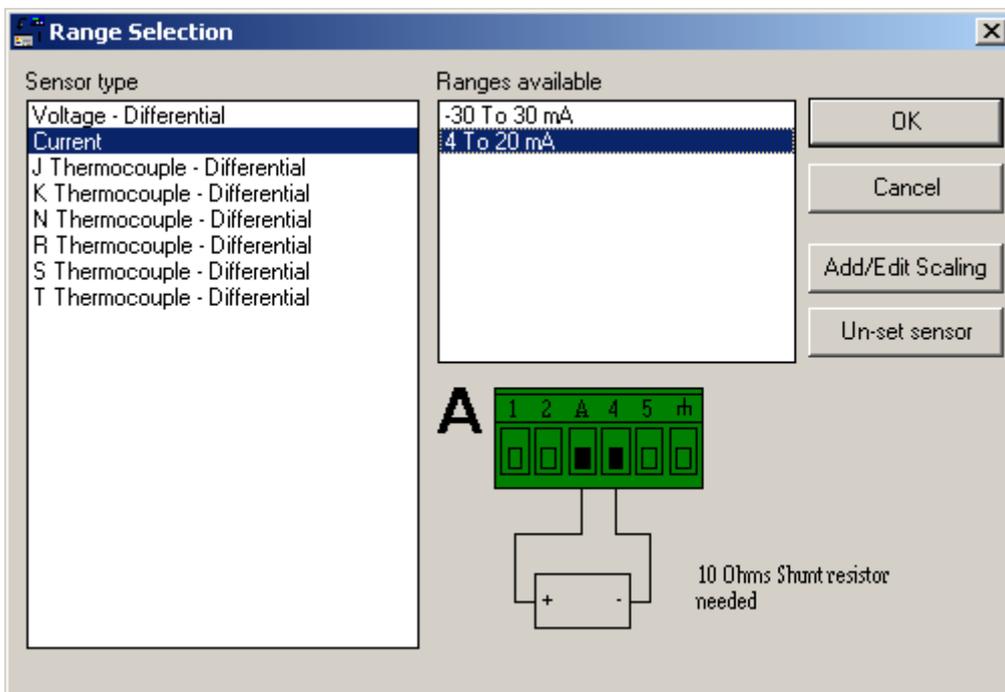


If engineering units are required click on *Add/Edit Scaling* button
The example below shows input scaled to log as 0 to 10 bar pressure





For next sensor (Up to two sensors can be connected to each block)
 Double click in next valid channel sensor type column select range as below add scaling
 if required then click on the *OK* button.

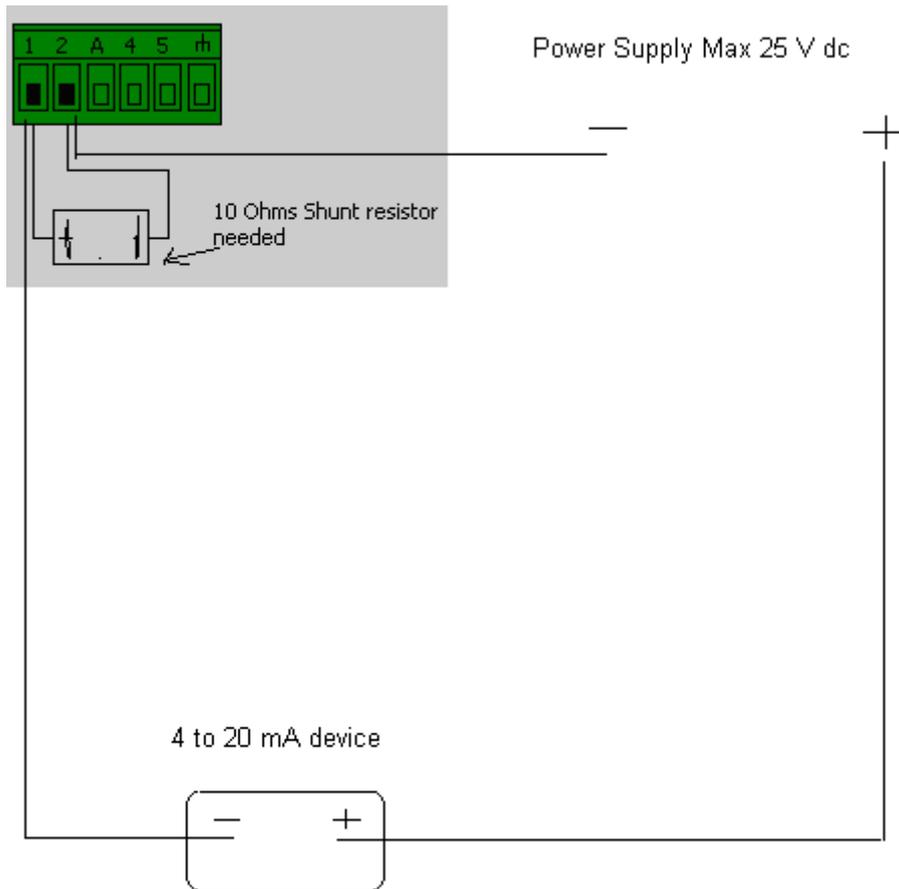


If more sensors are required, repeat above procedure with next channel on the next
 input block
 Save and send set up to logger

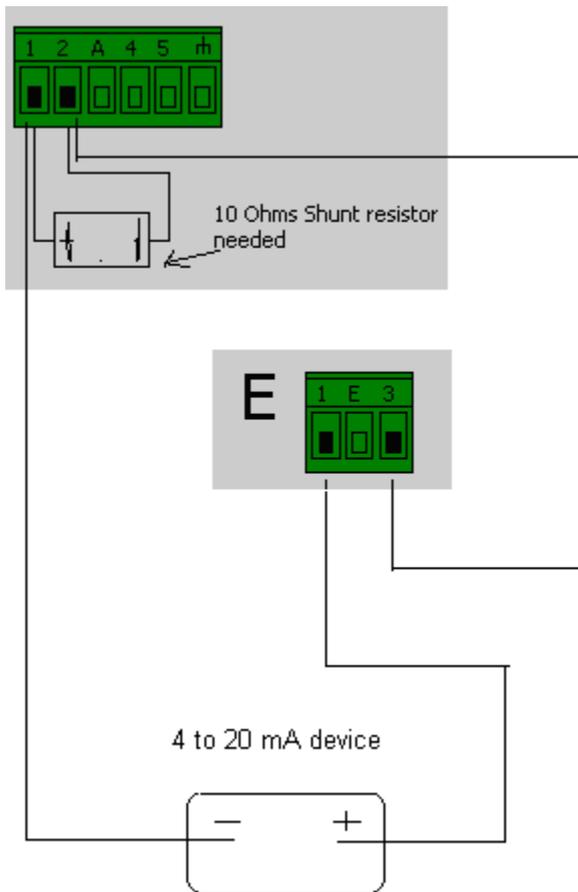
Connect sensor wires as follows

Check colour code for sensors selected to ensure that probes are connected to correct polarity

Connect probes with precision 10 Ohm resistor (pack of four part no.OM-SQ-CS supplied with logger) across terminals as shown below



Sensors can be powered via the OM-SQ2020/SQ2040 data logger if required maximum supply voltage is 18Vdc (supply volts) & total maximum current is 100mA.



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Sensor Power Supply

The choice of power is

A - External Supply (as supplied into the DC power plug, 100mA max)

B - 5V (regulated output from logger, 50mA max)

Each supply can be set to turn on either continuously whilst the logger is Armed or at the required duration before a sensor is sampled (Sensor warm up time)

The screenshot shows the 'Logger Control' software interface. The 'Configuration' tab is active. Under 'Logger Date / Time', there are buttons for 'Set Logger Time Manually' and 'Set Logger Time to PC Time', with the PC Time displayed as 08/02/2005 09:42:39. The 'Logger Identification' section includes fields for 'Logger ID' and 'Job Description'. The 'Sensor Power Timers' section shows two settings: 'A (Supply)' and 'B (5V)'. Both are set to 00:00:00 and have 'Continuous' checkboxes.

To activate Sensor Power Supply double click on "Not Used" in Sensor Power column of the input channel and select the one power supply required

Connection	Log Method	Log	Sensor Power
1(+ve) to 2(-ve)	Sample Interval: A (00:00:01) Logging Interval: (00:00:01) Mode: Interval	<input checked="" type="checkbox"/>	Not Used

The 'Sensor Power' dialog box is shown. It has a title bar with a close button. The 'Sensor Power Supply' section contains three radio button options: 'Not Used', 'Sensor Power Time A: 00:00:00 - (Supply)', and 'Sensor Power Time B: 00:00:00 - (5V)'. The 'Sensor Power Time A' option is selected. To the right, there is a diagram of a 3-pin connector labeled 'E' with a power supply symbol below it. At the bottom, there are 'OK' and 'Cancel' buttons.

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Setting up a Inbuilt Ethernet Connection

This is not available on the OM-SQ2010 and the OM-SQ2020 1F8 Data Loggers

For the OM-SQ2020/SQ2040 to communicate using the Inbuilt Ethernet connection, the logger requires to be powered using an external power supply.

Refer to the Configuring the OM-SQ20XX Inbuilt Ethernet Device manual which can be found on the Software CD, In OMEGALOG[®] help under manuals or on the website at the following link

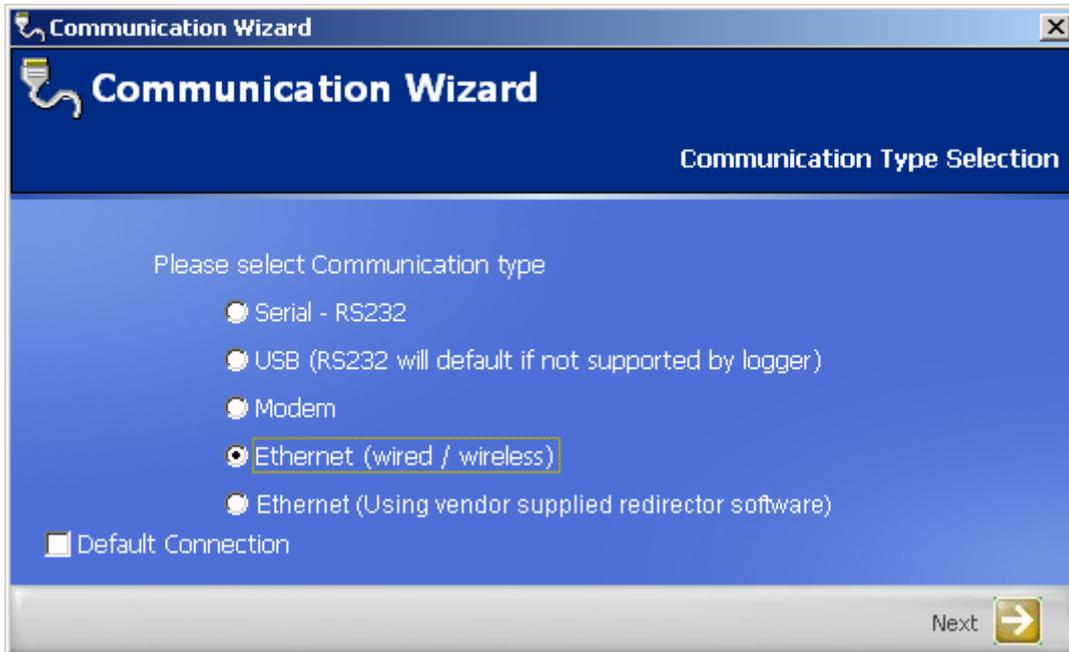
<http://www.omega.com>

Once the OM-SQ20XX Ethernet has been setup the IP address needs to be set in the OMEGALOG[®] software.

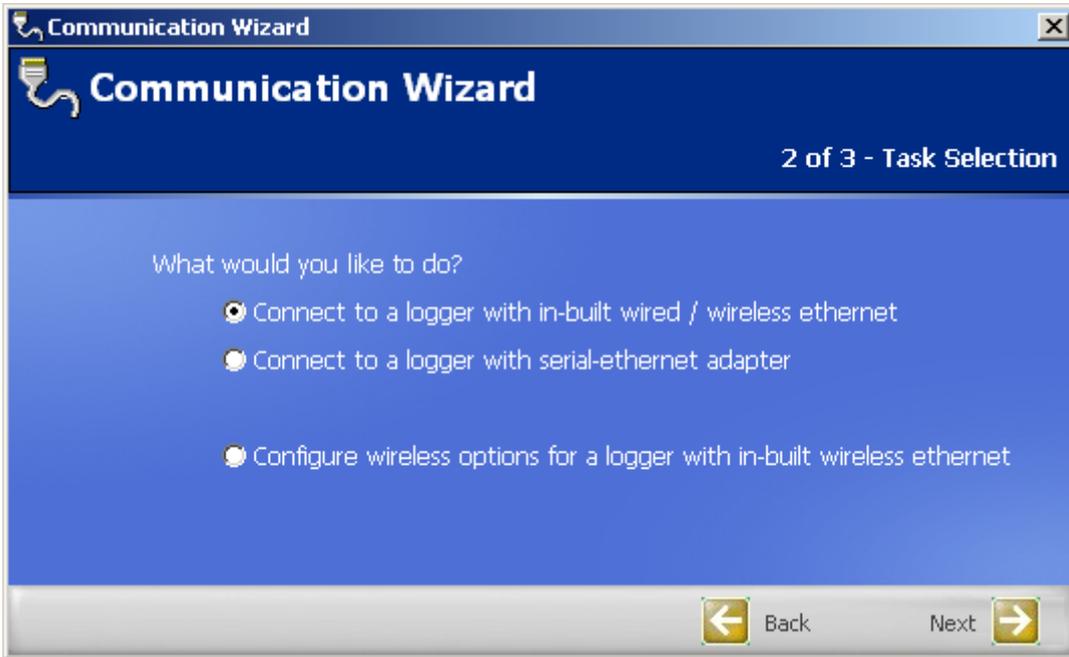
In the OMEGALOG[®] Assistant click on *Communications Wizard*



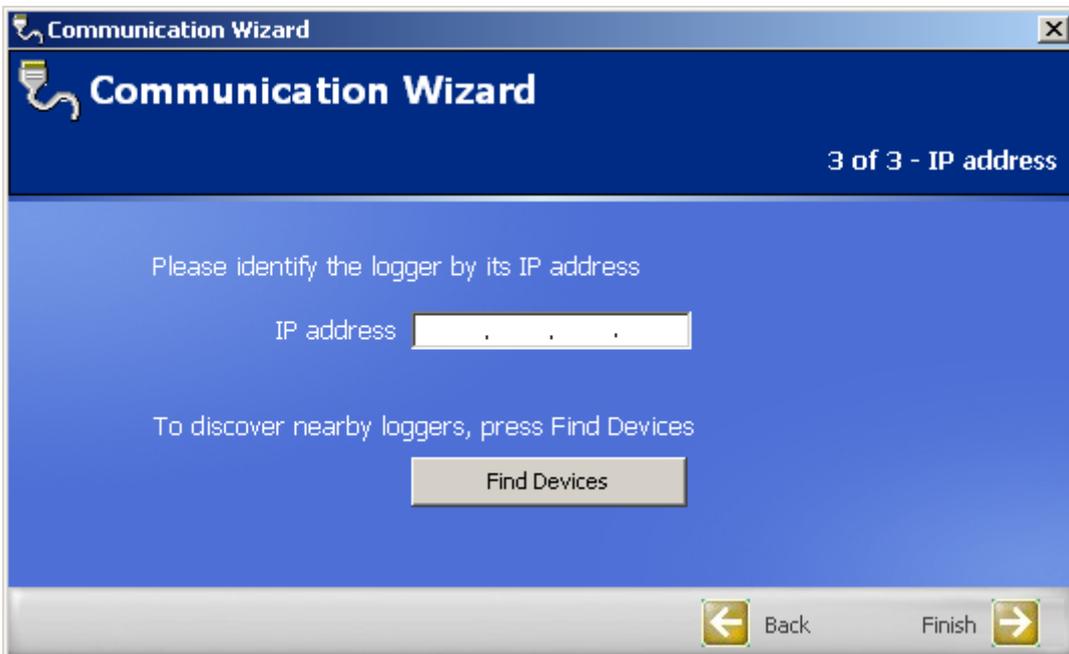
Click on the *Ethernet* communication type and then click the *Next* arrow



Then choose the *OM-SQ20XX Inbuilt (Requires TCP/IP)* and click on the *Next* arrow



Then enter the IP address that has been entered into the OM-SQ20XX Datalogger when the inbuilt Ethernet was configured in the *Ethernet Device IP Address* box. Click on the *Finish* arrow.



OMEGALOG[®] can now communicate with the logger via the Ethernet.

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