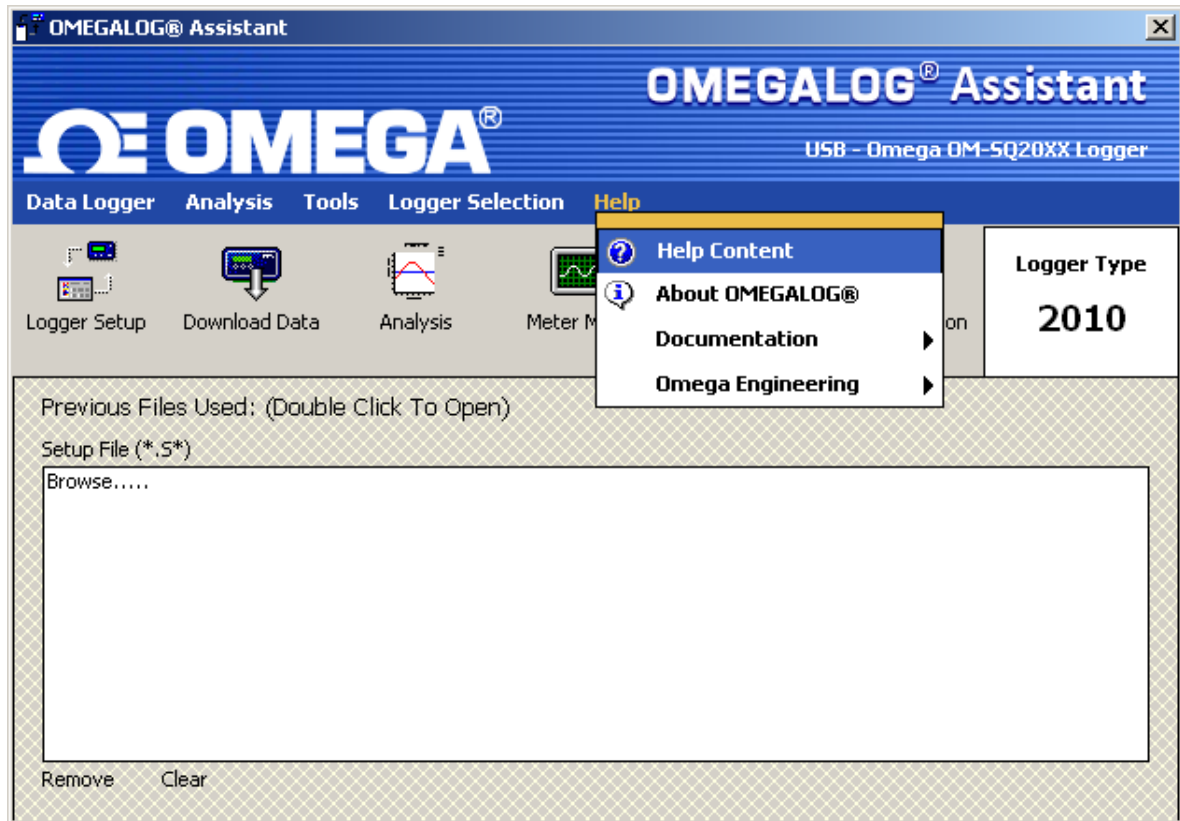


How to use the OMEGALOG[®] software with the OM-SQ2010/SQ2020/SQ2040 Data Loggers.

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<u>Connecting Your Data Logger</u>	Page 2
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<u>Setting a Start and Stop Logging Action</u>	Page 18
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<u>Meter Mode</u>	Page 31
<u>Online Metering Direct to Excel</u>	Page 36
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<u>Sensor Power Supply</u>	Page 45
<u>Setting up a Inbuilt Ethernet Connection</u>	Page 46

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



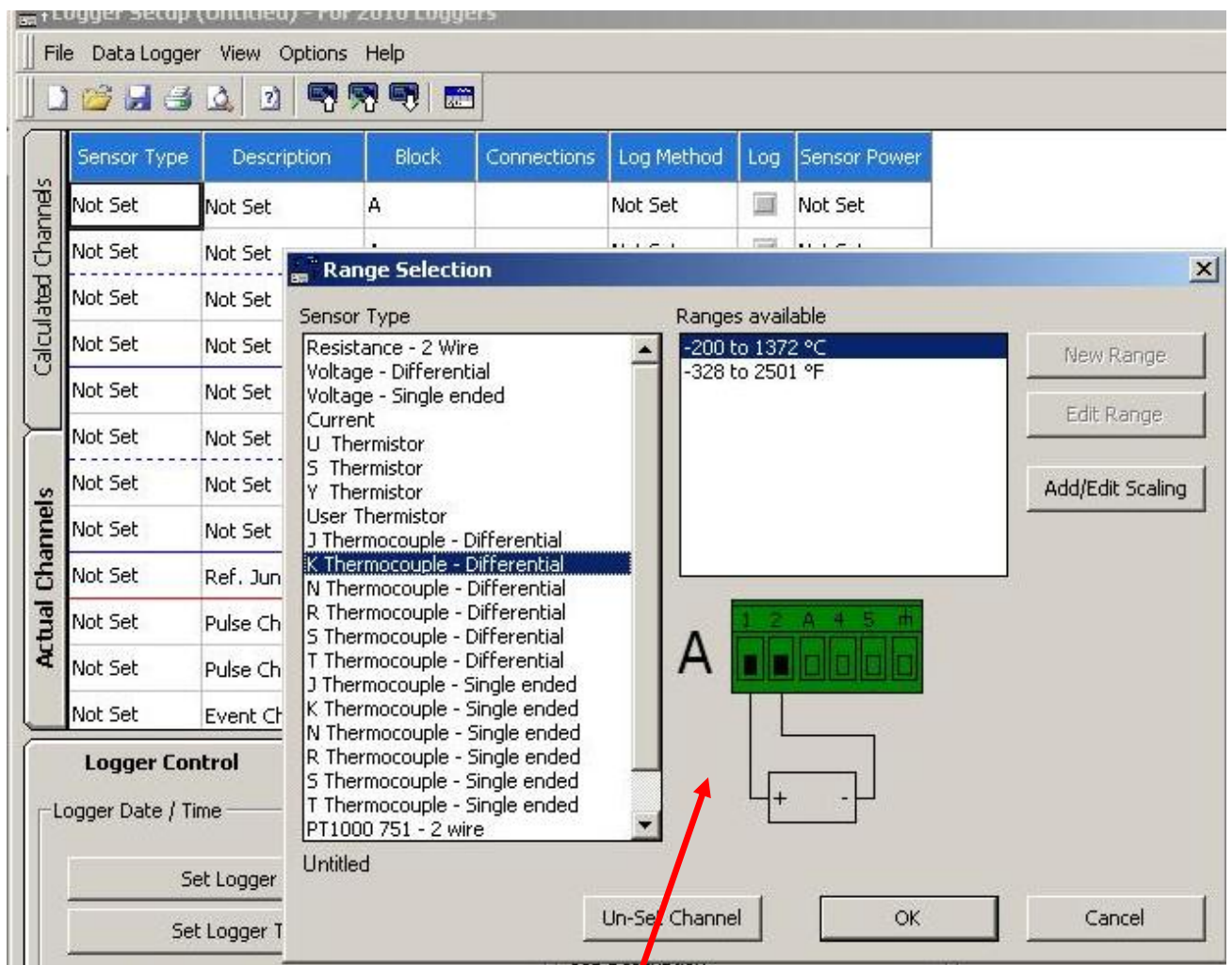
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Logger Set-up

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..

Channel Description

Please enter a description for this channel

OK

Temperature 1

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

Logger Setup (Untitled) - For 2010 Loggers

File Data Logger View Options Help

Sensor Type	Description	Block	Connections	
K Thermocouple - Differential : -200 to 1372 °C	Temperature 1	A	1(+ve) to 2(-ve)	Sample Interval: A (00:00:01)
Not Set				
Not Set				
Not Set				
Not Set				
Not Set				
Not Set				
Not Set				
Reference Junction :				
Not Set				
Not Set				

Logging Method

Logging Method

☒ **Interval**
Readings are stored every logging interval.

☐ **Maximum**
Readings are taken every sample interval and the maximum (or minimum) of these are stored every logging interval.

☐ **Minimum**
Readings are taken every sample interval and the minimum (or maximum) 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

The sample interval determines how often the readings are taken and to check for alarms and triggers.

Sample Interval: Sample Interval A: 00:00:01 Edit Sample Intervals

The sample count is used to determine when readings are stored in the logger. The logging interval is worked out from this setting.

Sample Count: 1

Logging Interval

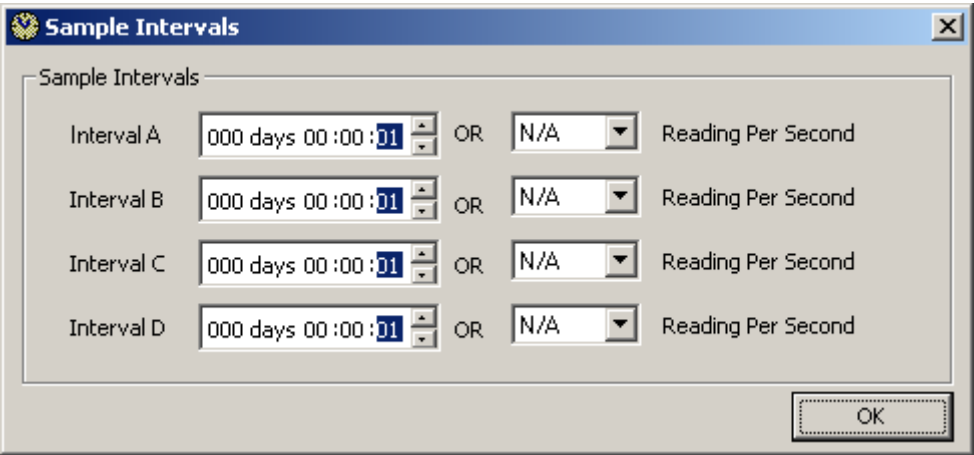
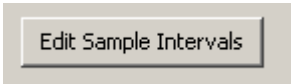
The logging interval determines how often readings are stored in the logger:

Logging Interval = 00:00:01

= Sample Interval x Sample Count

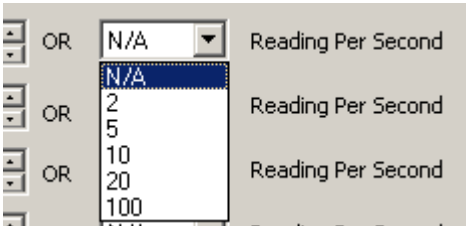
OK Cancel

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.



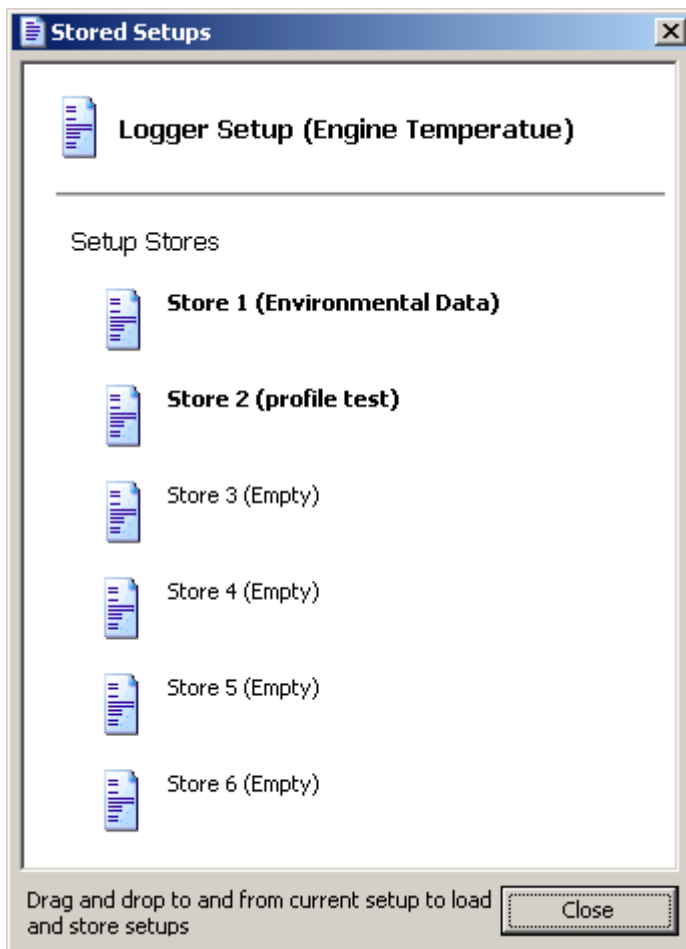
The Setup can be saved on your PC by:



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.

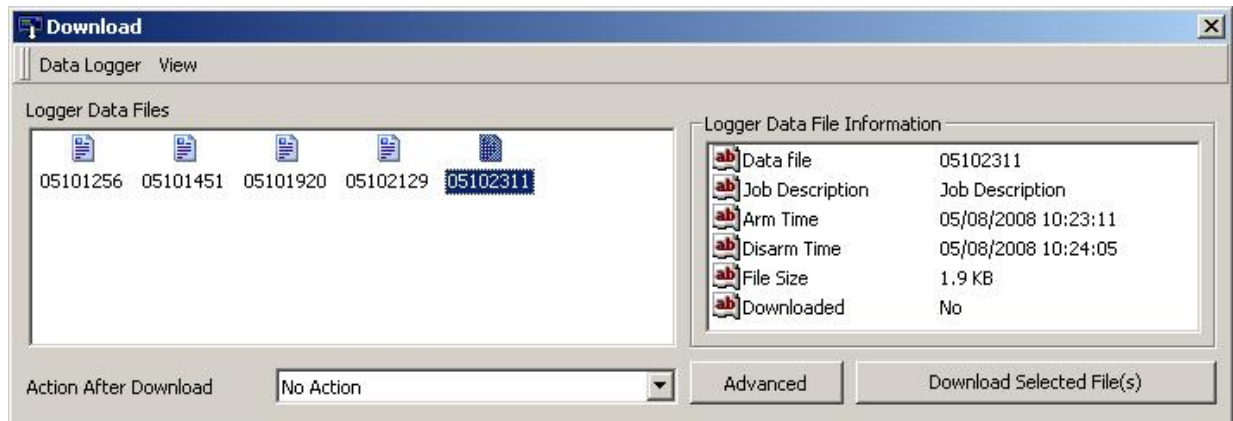
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Download Data

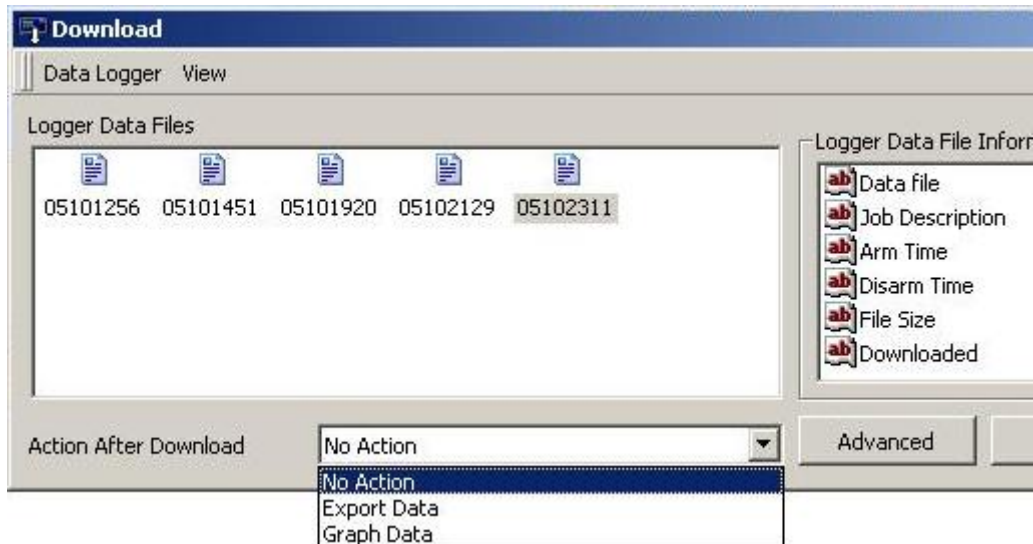
To start the download of data click *Download Data* button



Select the required Data file

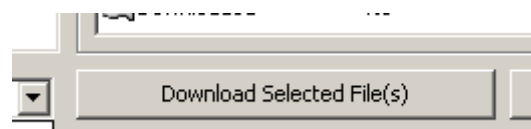


Select the Action after Download

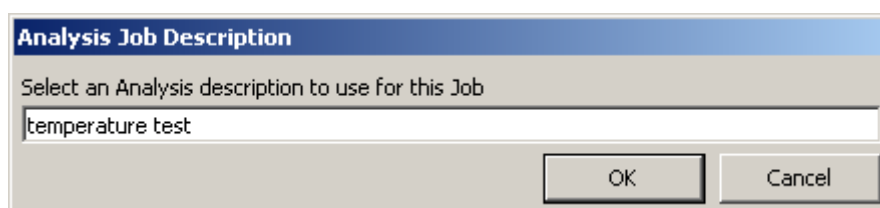
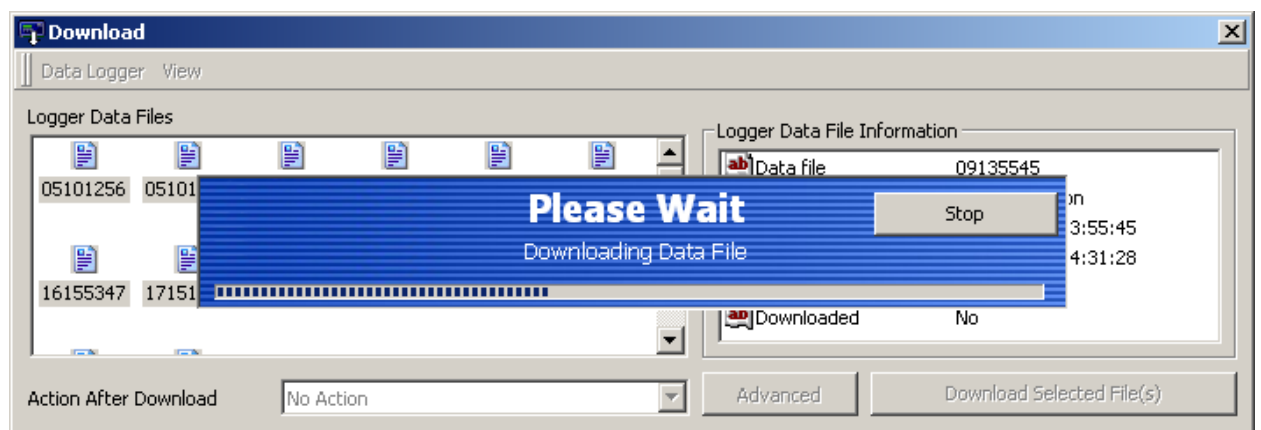
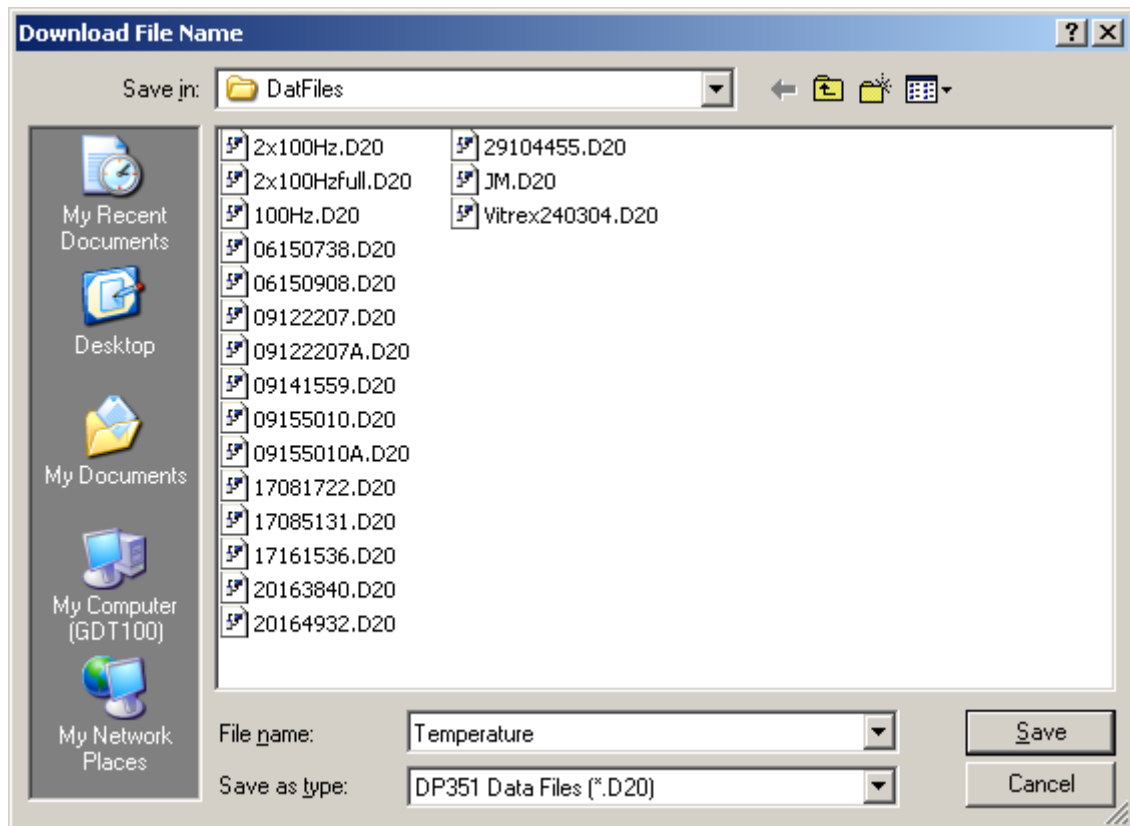


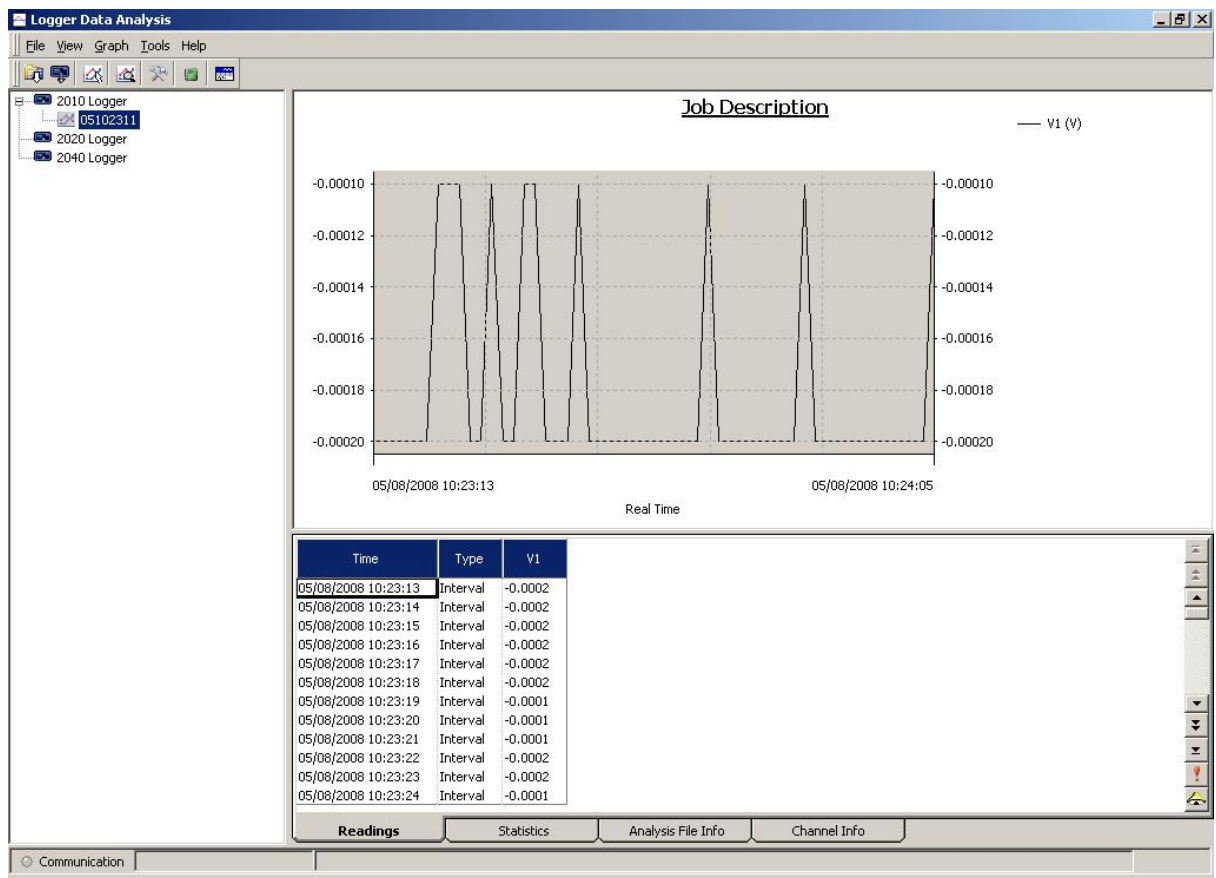
(**Note** this action can be set as default in Tools / Download Settings).

Select the *Download Selected File(s)*



Give the File a name and Save.

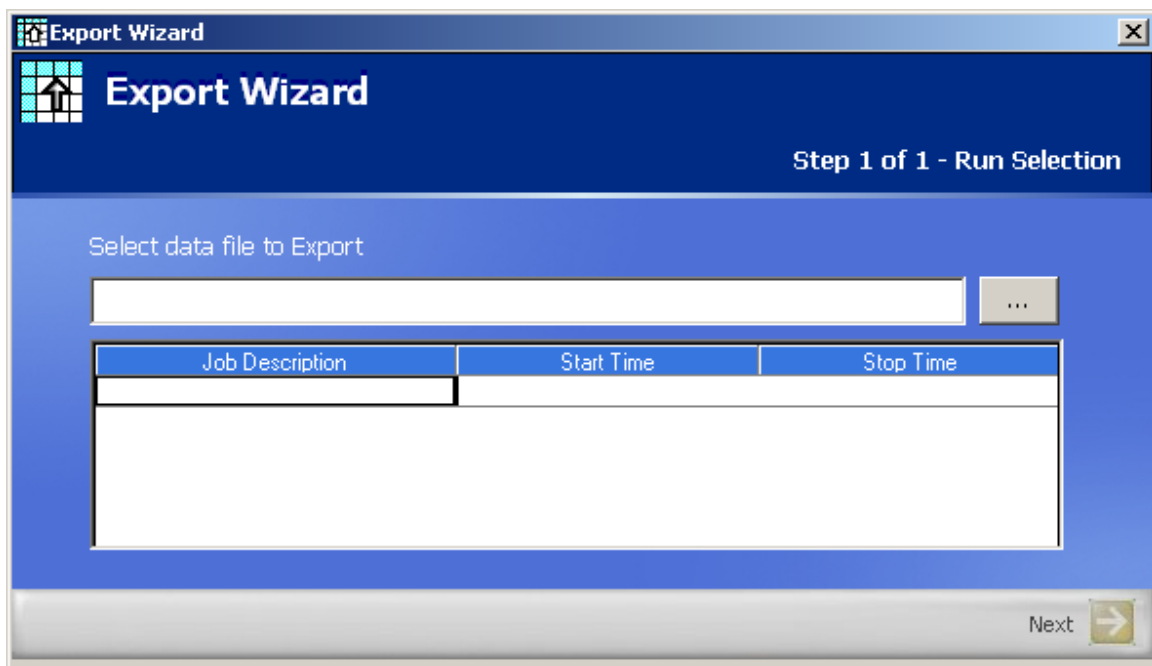
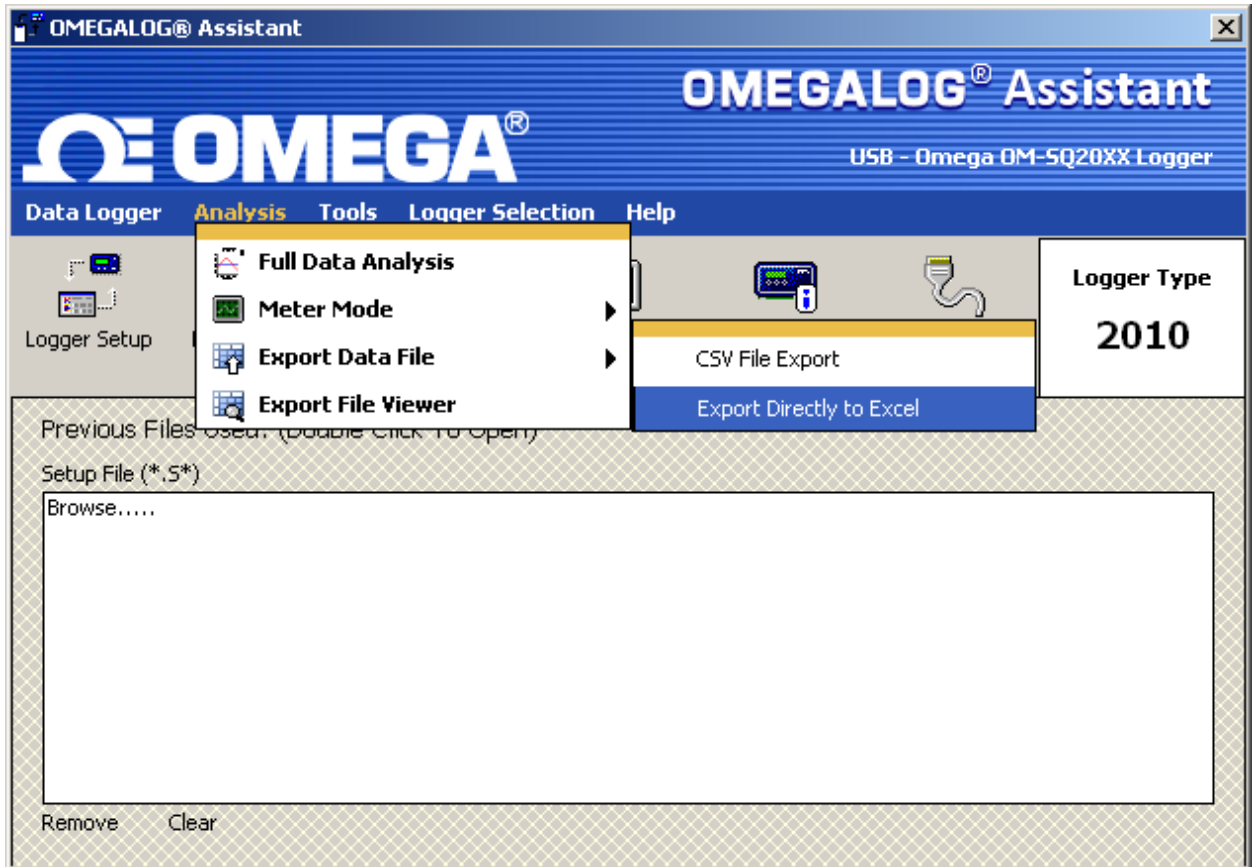




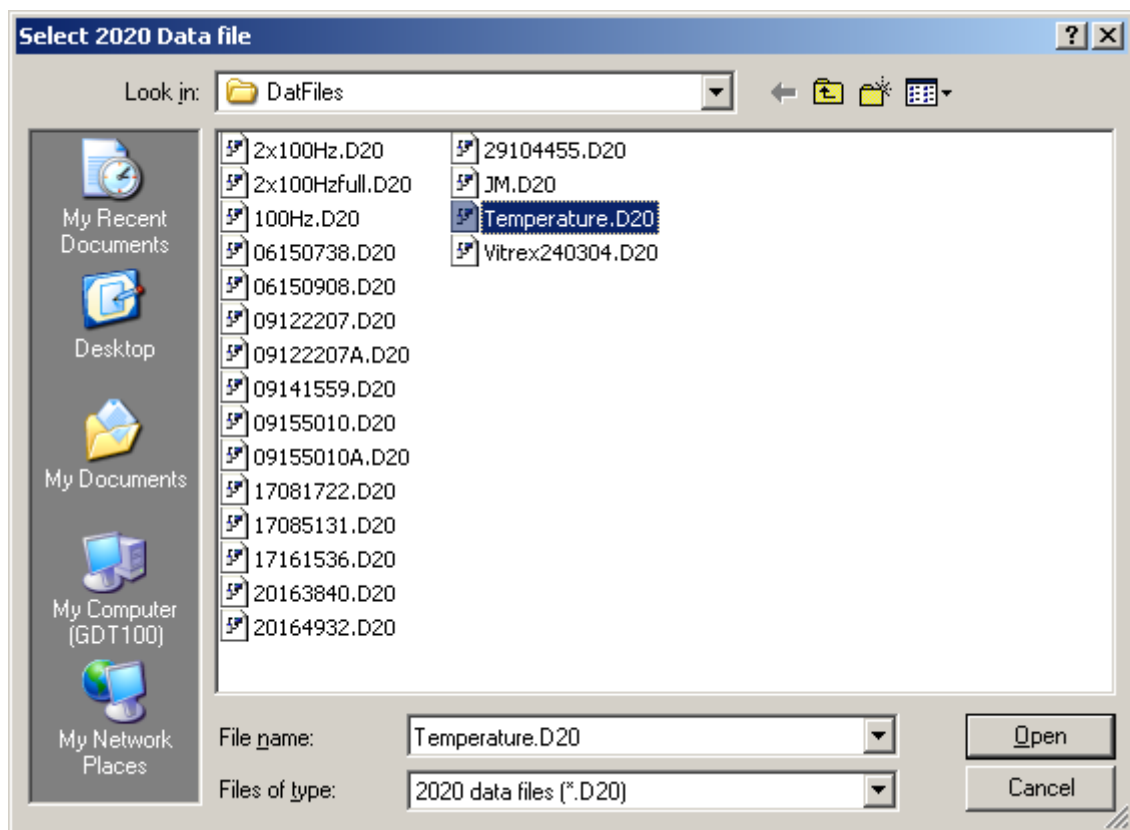
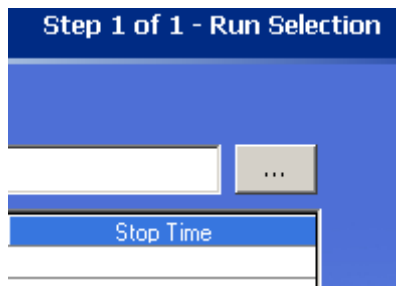
[Return To Index](#)

Export Data

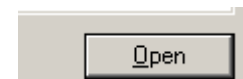
To export you data into excel

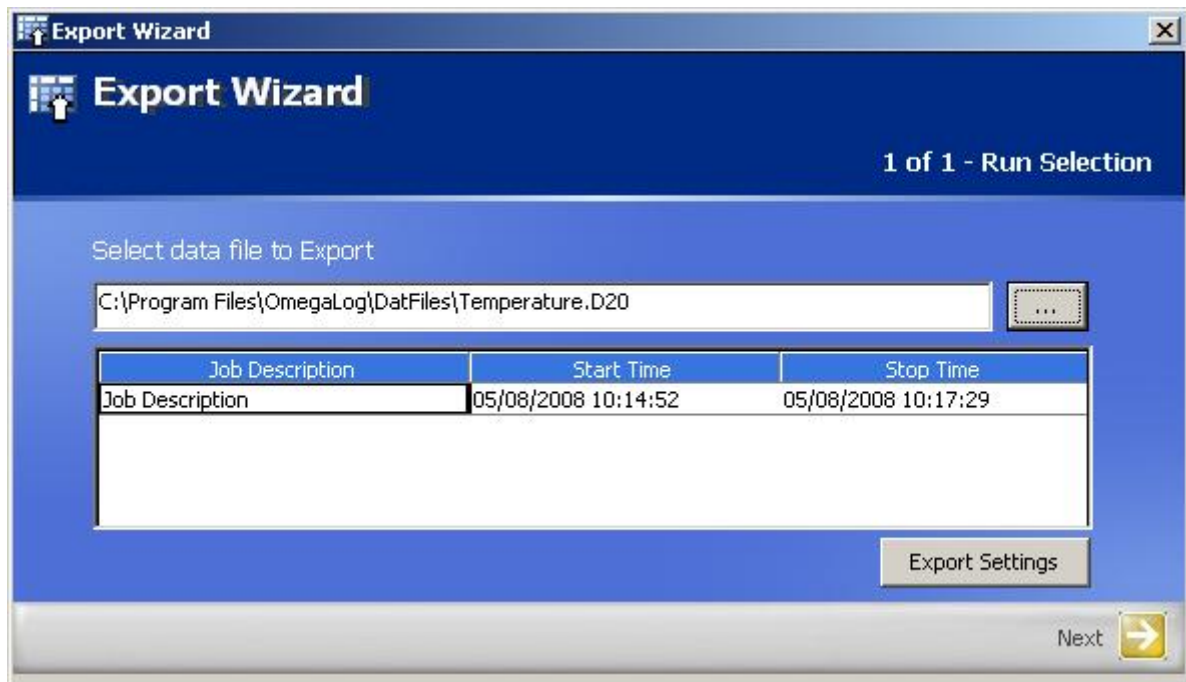


Browse for File

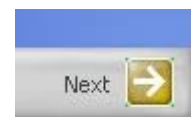


Choose the particular data file you wish to export and click.





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



The following spreadsheet will be displayed.

OMEGALOG Export - Book1

File Edit View Insert Format Tools Data Window Help

Type a question for help

Reply with Changes... End Review...

Arial 10 B I U

A1 Logger Details:

	A	B	C	D	E	F	G	H	I	J	K	L	M
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	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	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	03/09/2008 14:17:49	Interval	25.4	25.3	25.2	25.6	25.7	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			
27	03/09/2008 14:17:51	Interval	25.5	25.3	25.3	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			
29	03/09/2008 14:17:53	Interval	25.4	25.3	25.3	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			
31	03/09/2008 14:17:55	Interval	25.4	25.2	25.3	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			

Job Description / Job Description#2 / Job Description#3 / Job Description#4 / Job Description#5

Ready NUM

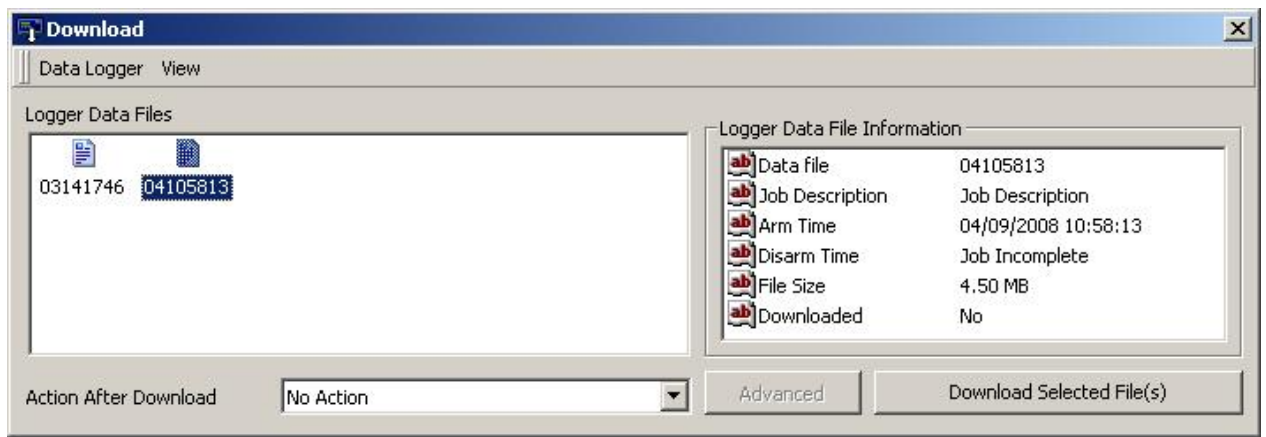
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Downloading Alarm data

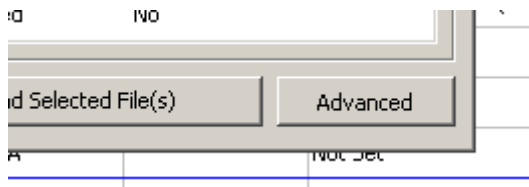
To download the alarm data select the *Download Data* button.



Select the required Data File.



Click on the *Advanced* button.



Download

Data Logger
View

03141746
04105813

ab
Data file
03141746

ab
Job Description
Job Description

ab
Arm Time
03/09/2008 14:17:46

ab
Disarm Time
04/09/2008 10:58:10

ab
File Size
5.24 MB

ab
Downloaded
Yes

Action After Download
Graph Data

Advanced

Download Selected File(s)

Select the data to be downloaded by dragging the start and stop marker lines on the time line, to the required position, then click Download.

Job (03141746)

Logging Events
Alarm Events

Download Start Time
03/09/2008 14:17:46
Download Stop Time
04/09/2008 10:58:10

Select the type of Event(s) to retrieve from the selected logger data file to plot on the timeline

☒ All Events
☐ Alarm Events

Start Retrieving Event Data

Click on the *Start Retrieving Event Data* button.

1/2004 09:06:38

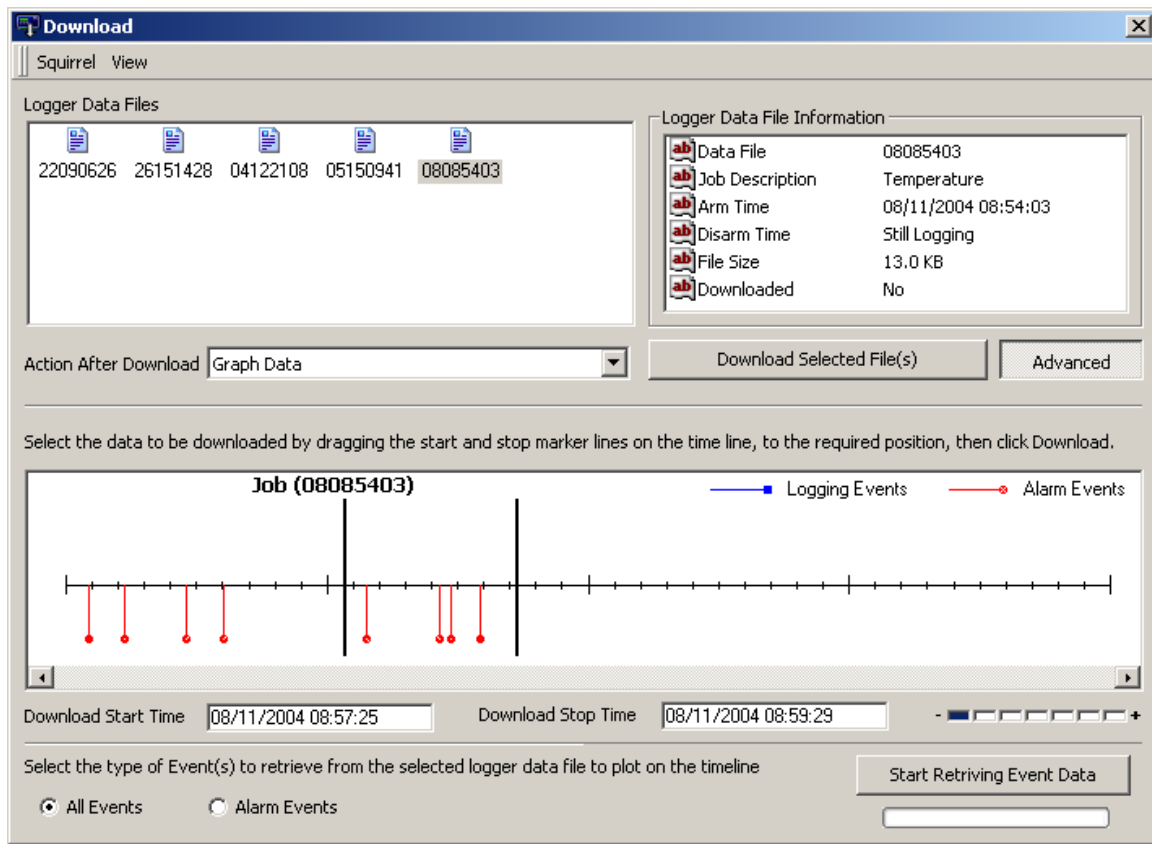
-
+

Timeline

Start Retriving Event Data

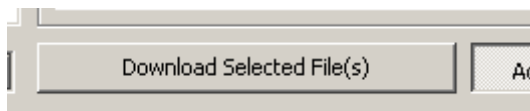
Alarms

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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' window. The top section is a table with columns: Sensor Type, Description, Block, Connections, and Log Method. The table is divided into 'Calculated Channels' and 'Actual Channels'. The 'Actual Channels' section includes a 'Reference Junction' and two 'Pulse Channels'. The bottom section is the 'Logger Control' panel, which includes tabs for 'Logger Control', 'Actions & Triggers', 'Configuration', 'Digital/State', and 'Alarms'. The 'Logger Control' tab is active, showing fields for 'Logger Date / Time', 'Logger Identification', 'Job Description', 'Memory Mode', 'Delayed Start', and 'Sensor Power Timers'.

Sensor Type	Description	Block	Connections	Log Method
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
Not Set	Not Set	B		Not Set
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

Logger Control | Actions & Triggers | Configuration | Digital/State | Alarms

Logger Date / Time
Set Logger Time Manually
Set Logger Time to PC Time
PC Time 09/09/2008 10:15:55

Logger Identification
Logger ID
(This text is used to identify the logger)
Job Description
Job Description

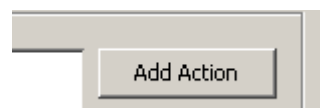
Memory Mode
Memory Mode Stop when full
Max Memory Allocated to this Job All Free Mem

Delayed Start
☐ Enable ☒ Real Time ☐ Elapsed
Start Logging At 09/09/2008 10:15:33

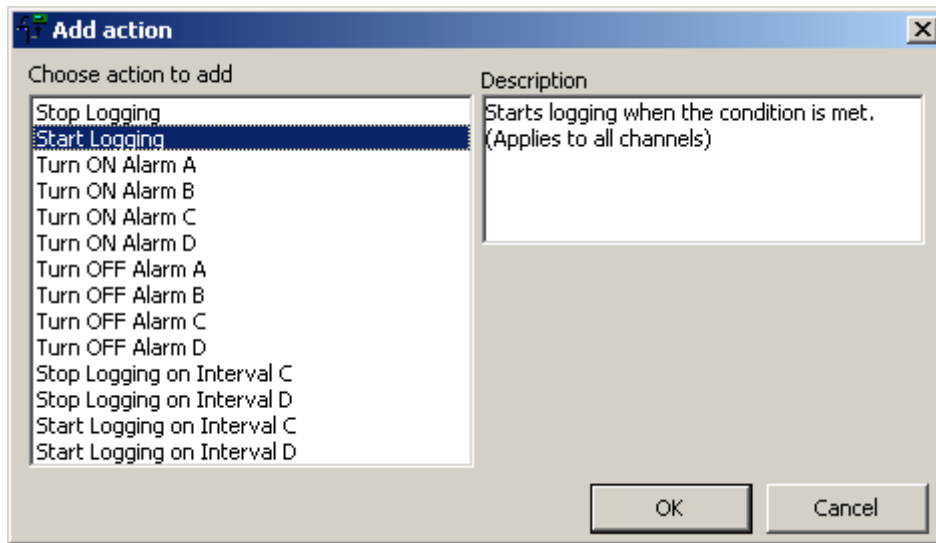
Sensor Power Timers
A (Supply) 00:00:00 ☐ Continuous B (5V) 00:00:00 ☐ Continuous

Communication

Click on the *Add Action* button.



To add the start action, select the Start Logging action

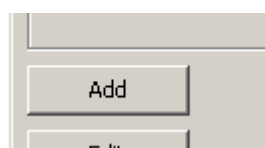


Click on the *OK* button.

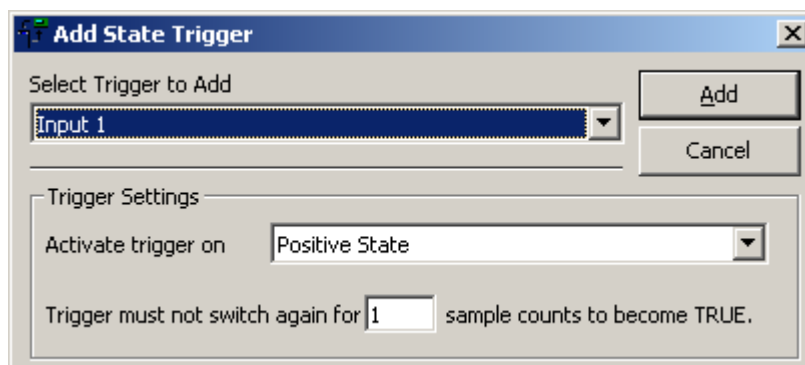
Select the State tab



And click on the *Add* button.

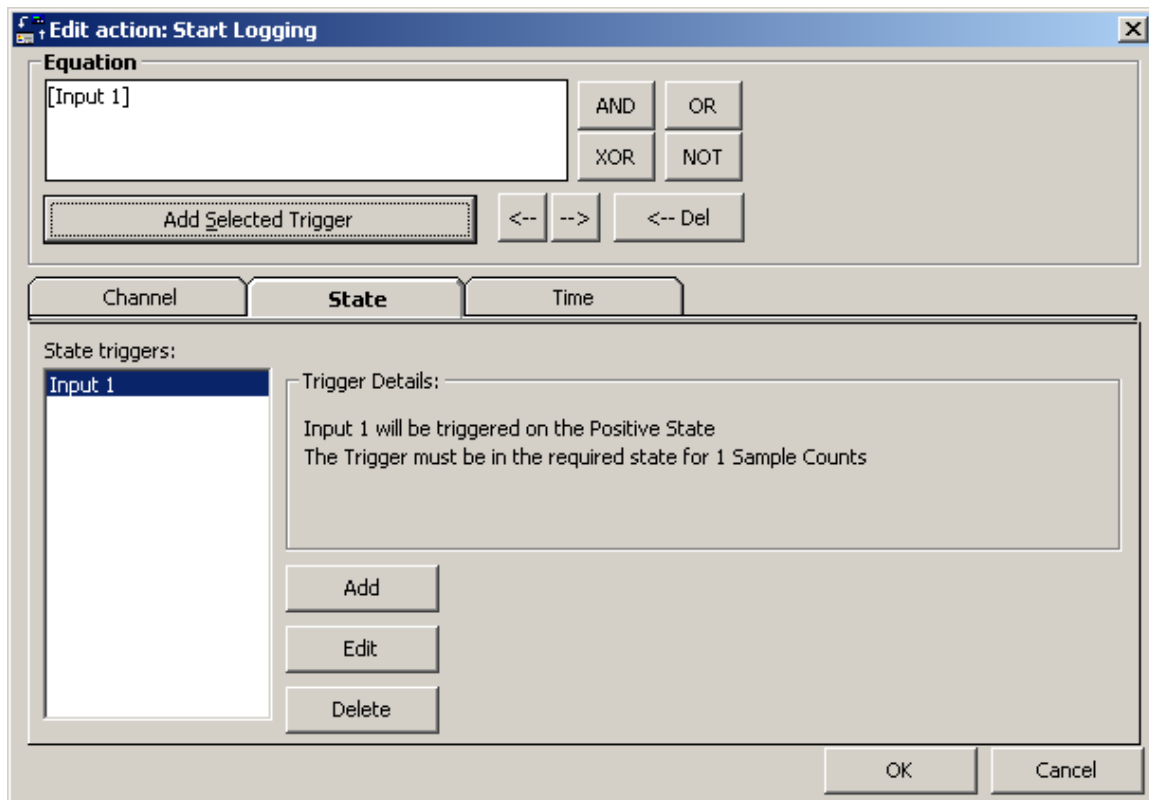
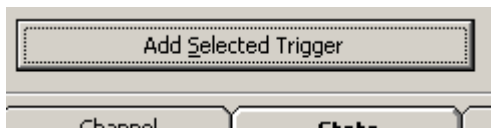


Select input 1

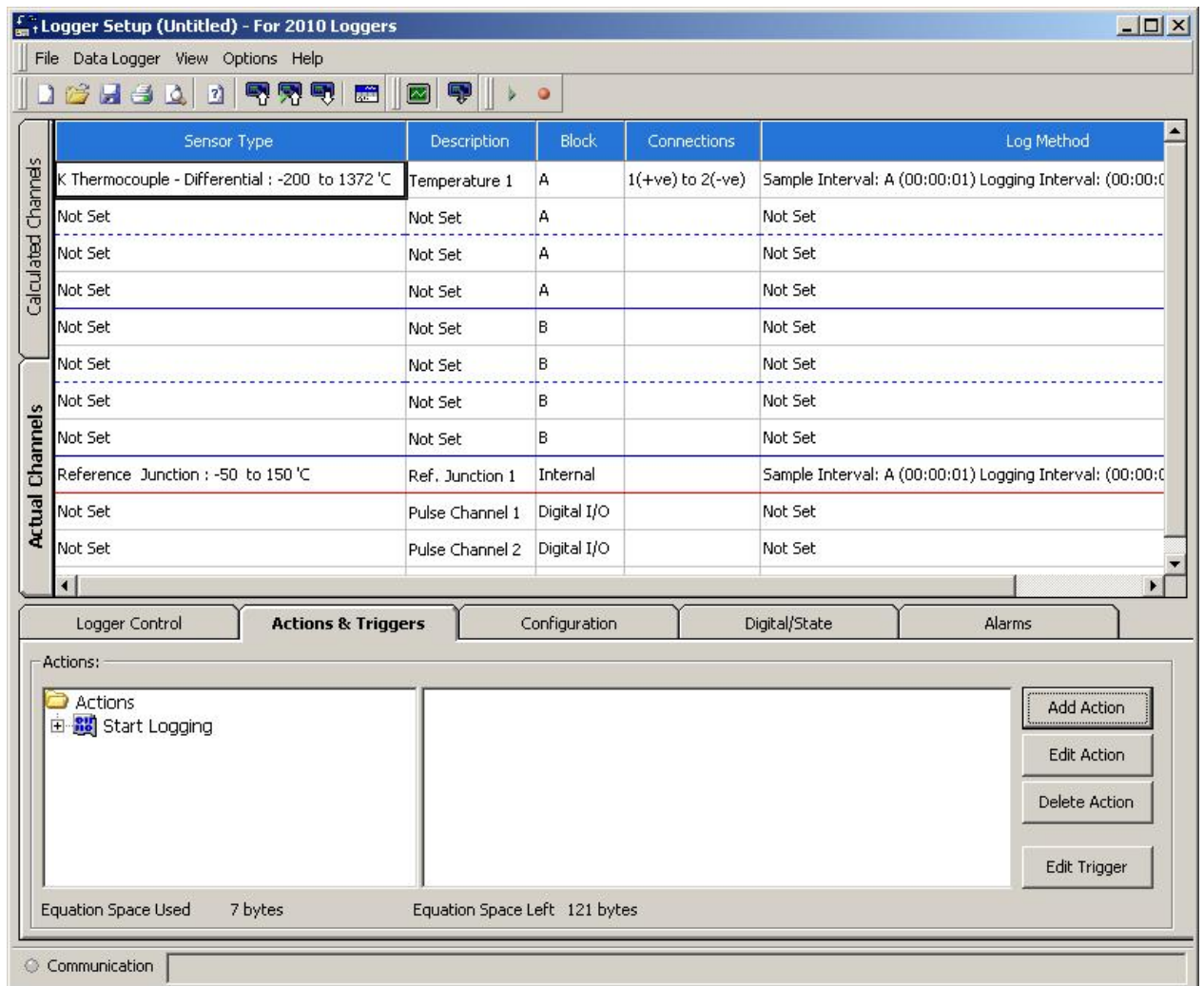


Then click on the *Add* button.

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



Click on the *OK* button.

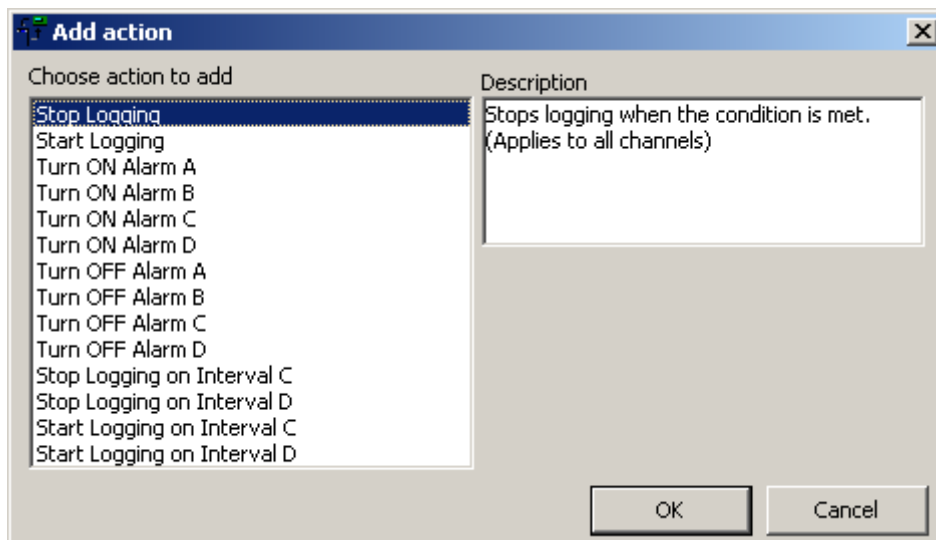


Now you need to add the stop logging action.

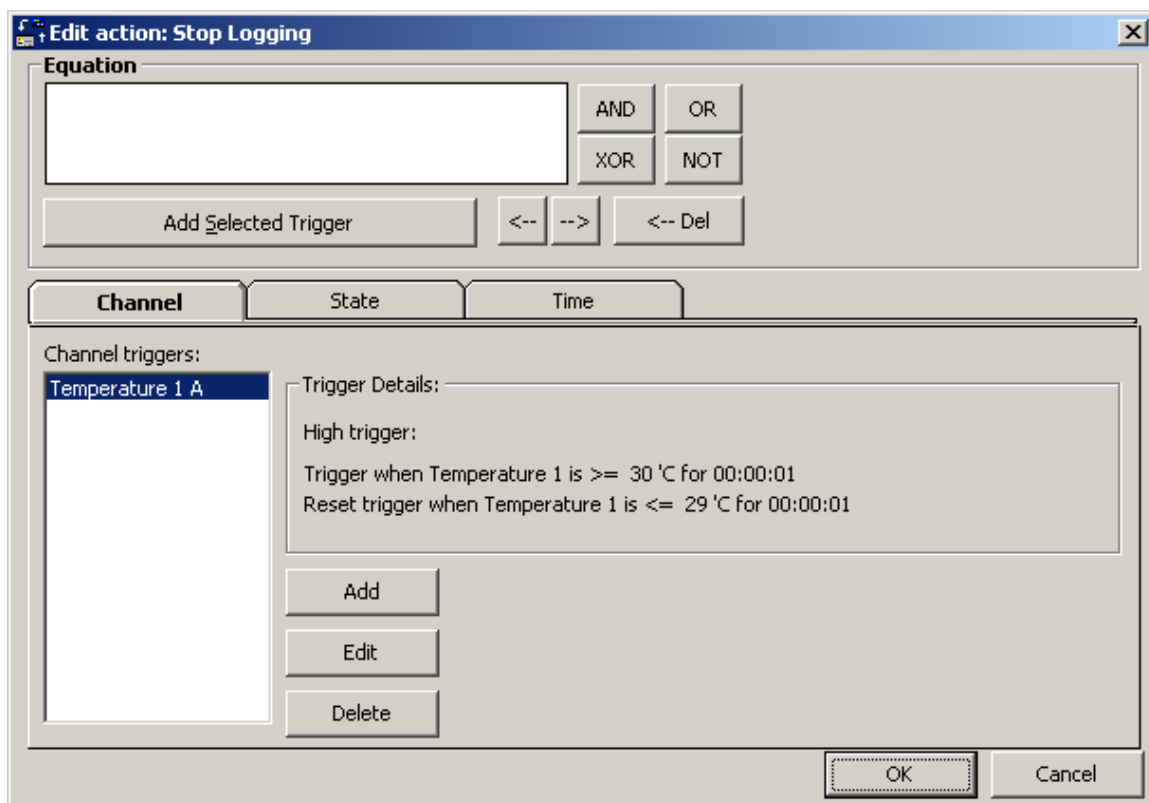
Click on the *Add Action* button.



Select the Stop Logging action.



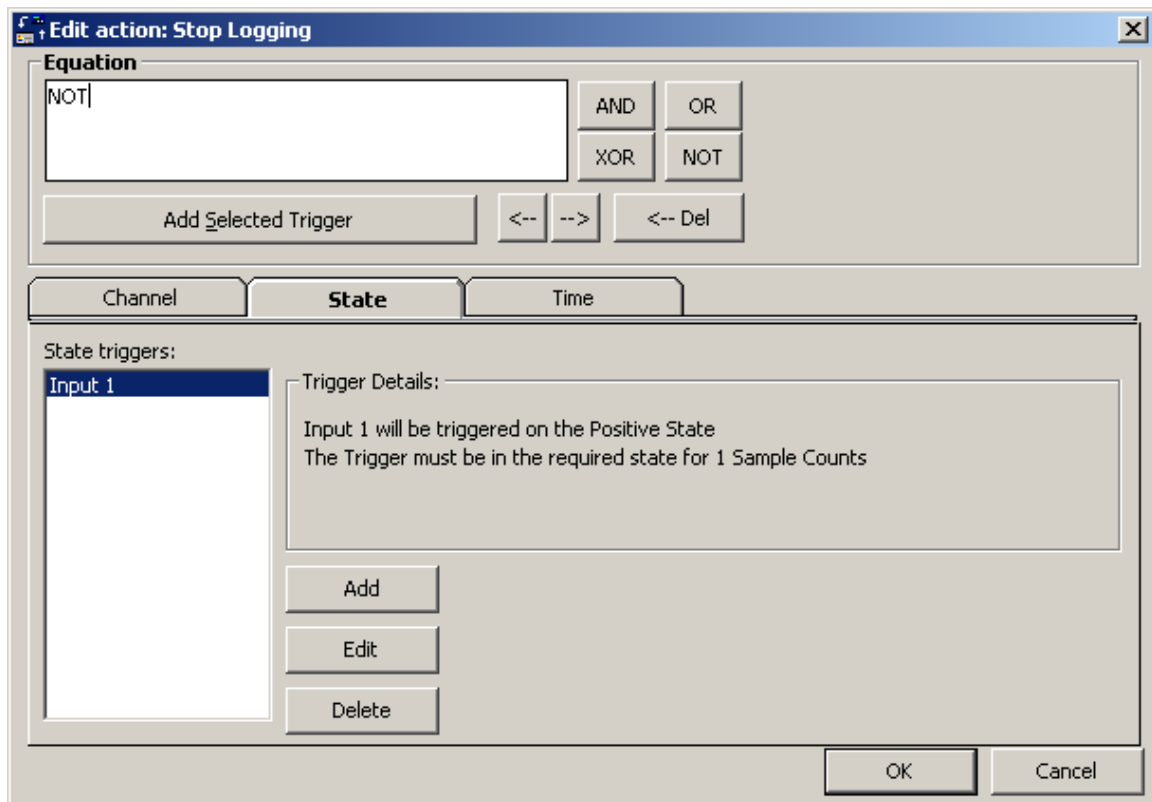
Click on the *OK* button.



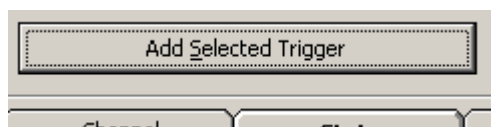
Select the State tab.

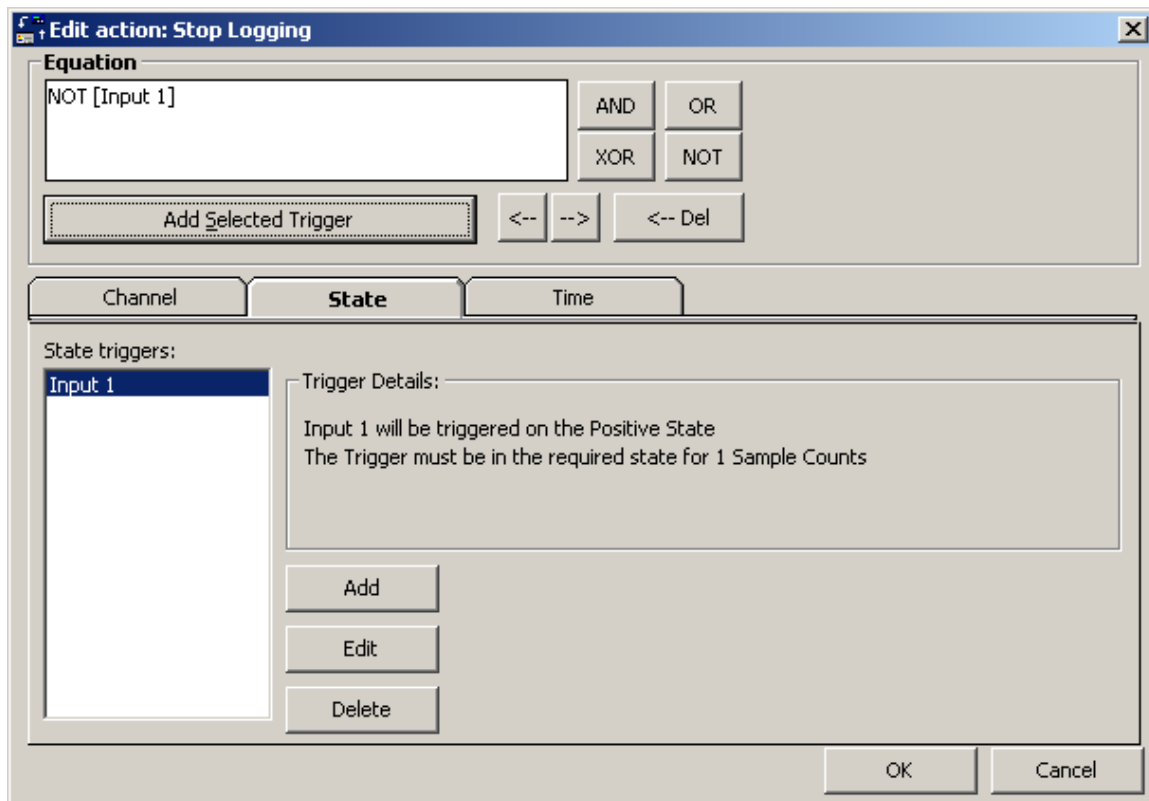


And click on the *NOT* button.



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.

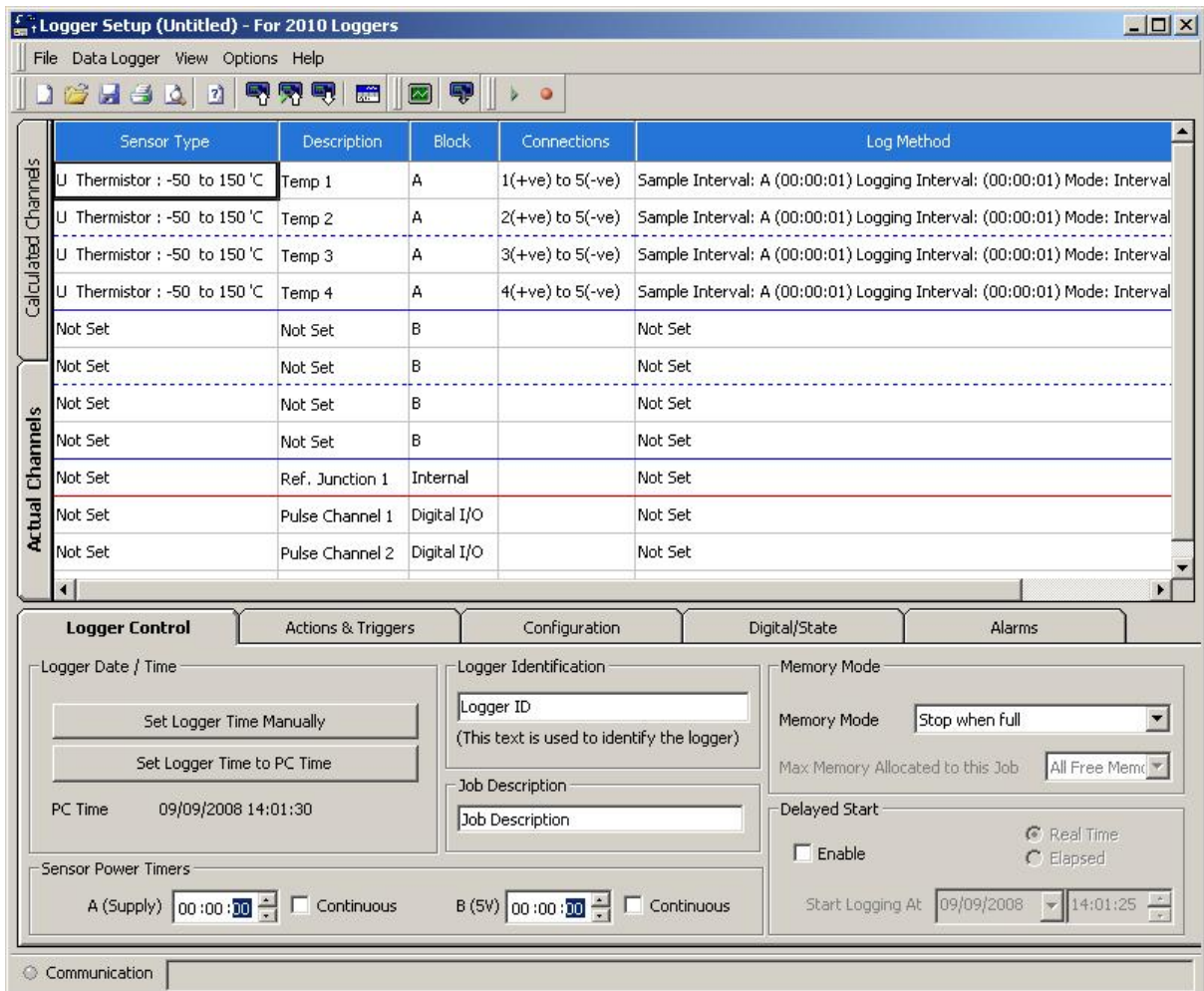


Setting an Alarm Action

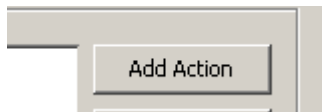
In Logger Setup Screen Get Setup from Logger.



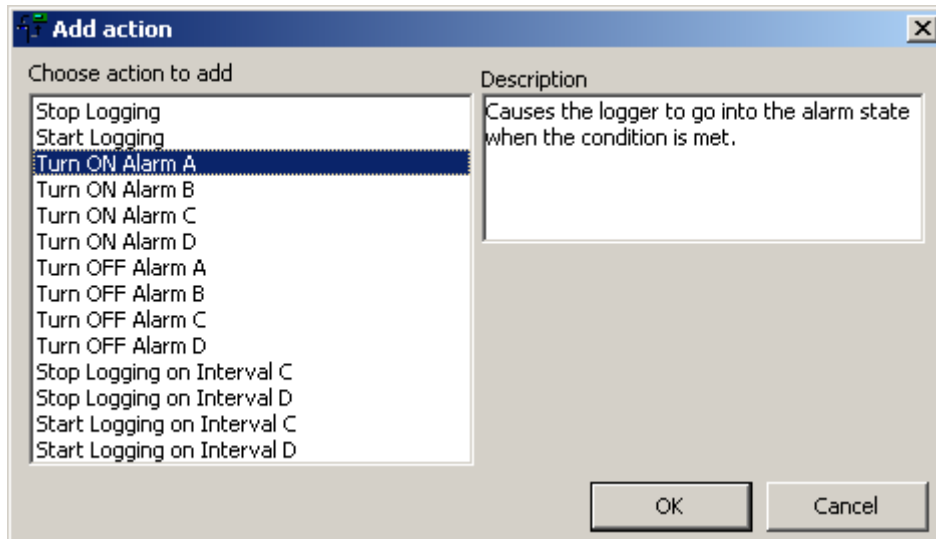
Click on Actions & Triggers tab



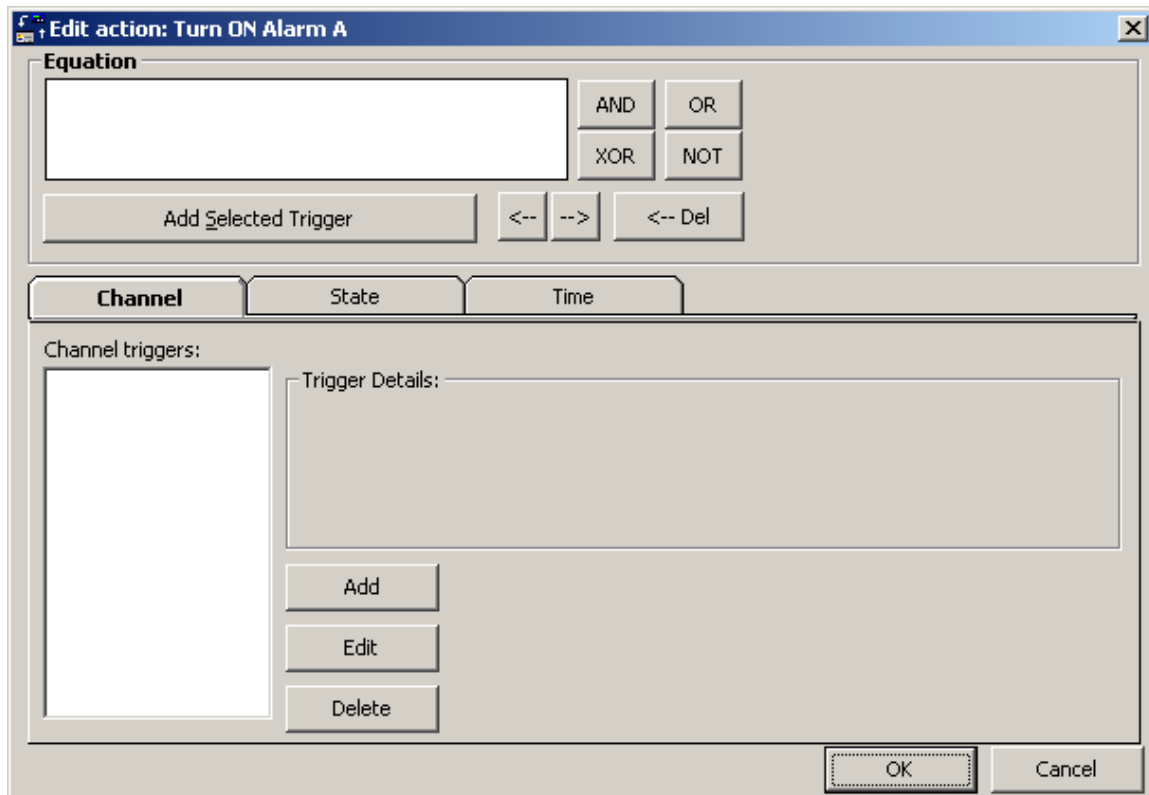
Click on the *Add Action* Button



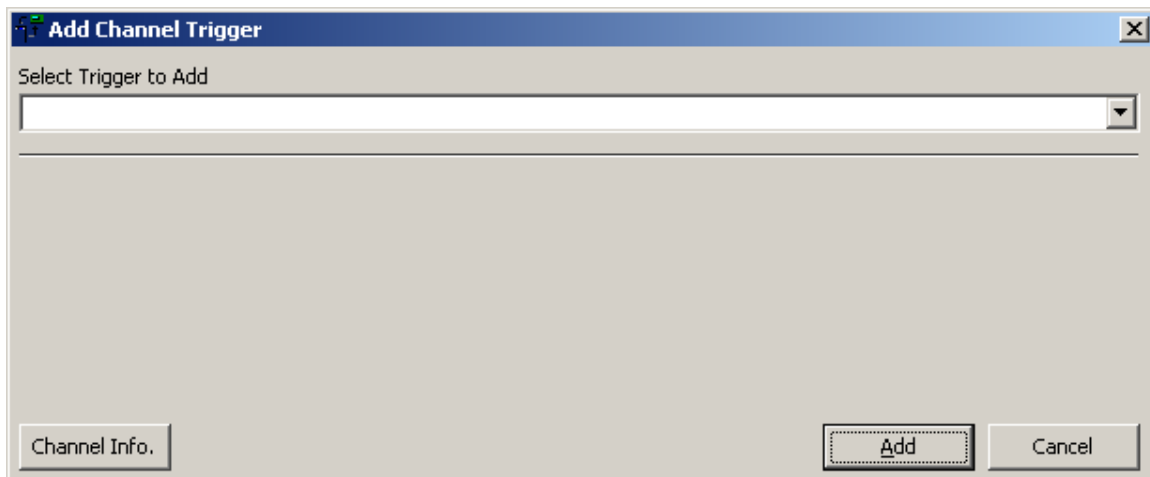
Select an alarm to turn on and Click on the *OK* button



Click on the *Add* button

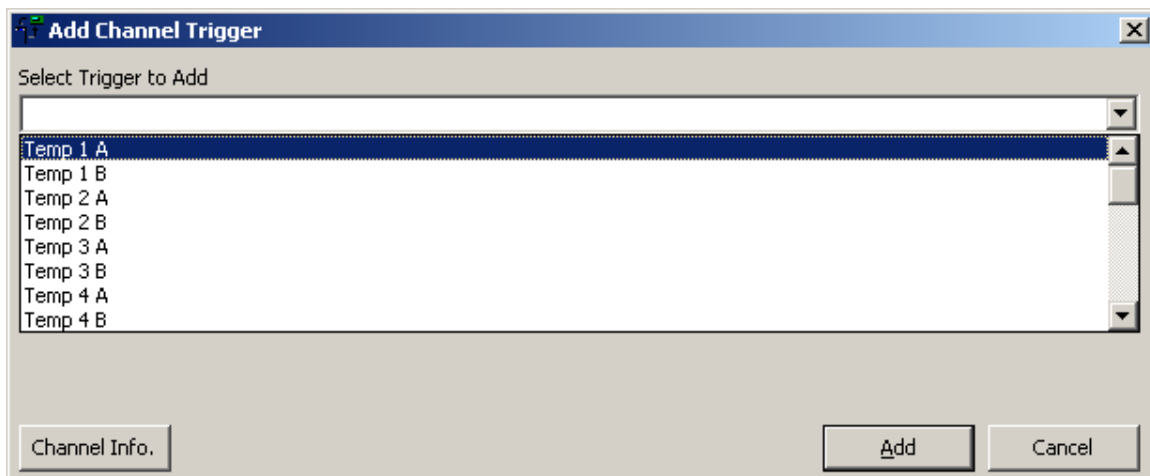


Enter the drop down box



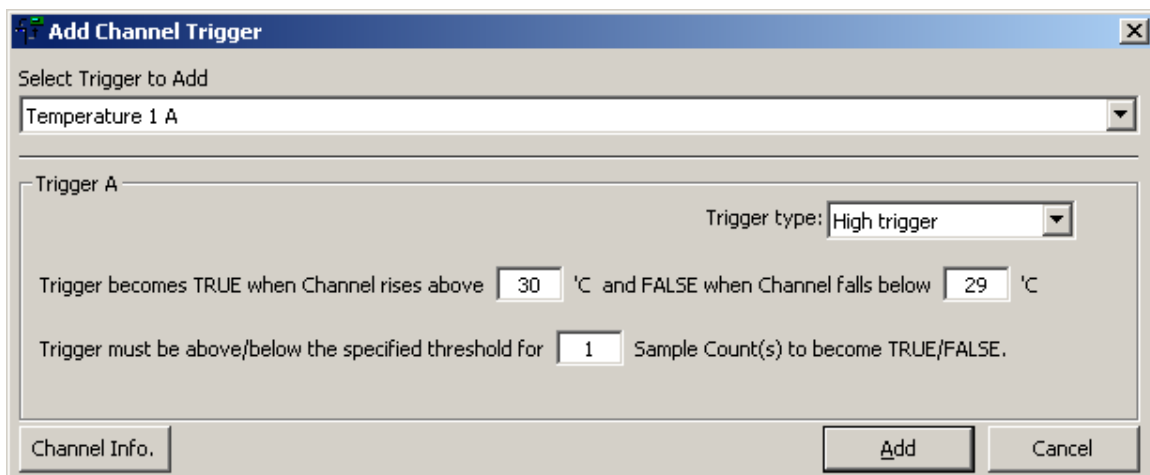
The 'Add Channel Trigger' dialog box is shown. It has a title bar with a close button. Below the title bar is a label 'Select Trigger to Add' and a dropdown menu. The dropdown menu is currently empty. At the bottom of the dialog, there are three buttons: 'Channel Info.', 'Add', and 'Cancel'.

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



The 'Add Channel Trigger' dialog box is shown. The dropdown menu is now populated with a list of channels: 'Temp 1 A', 'Temp 1 B', 'Temp 2 A', 'Temp 2 B', 'Temp 3 A', 'Temp 3 B', 'Temp 4 A', and 'Temp 4 B'. 'Temp 1 A' is selected and highlighted. The 'Add' button is now enabled.

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

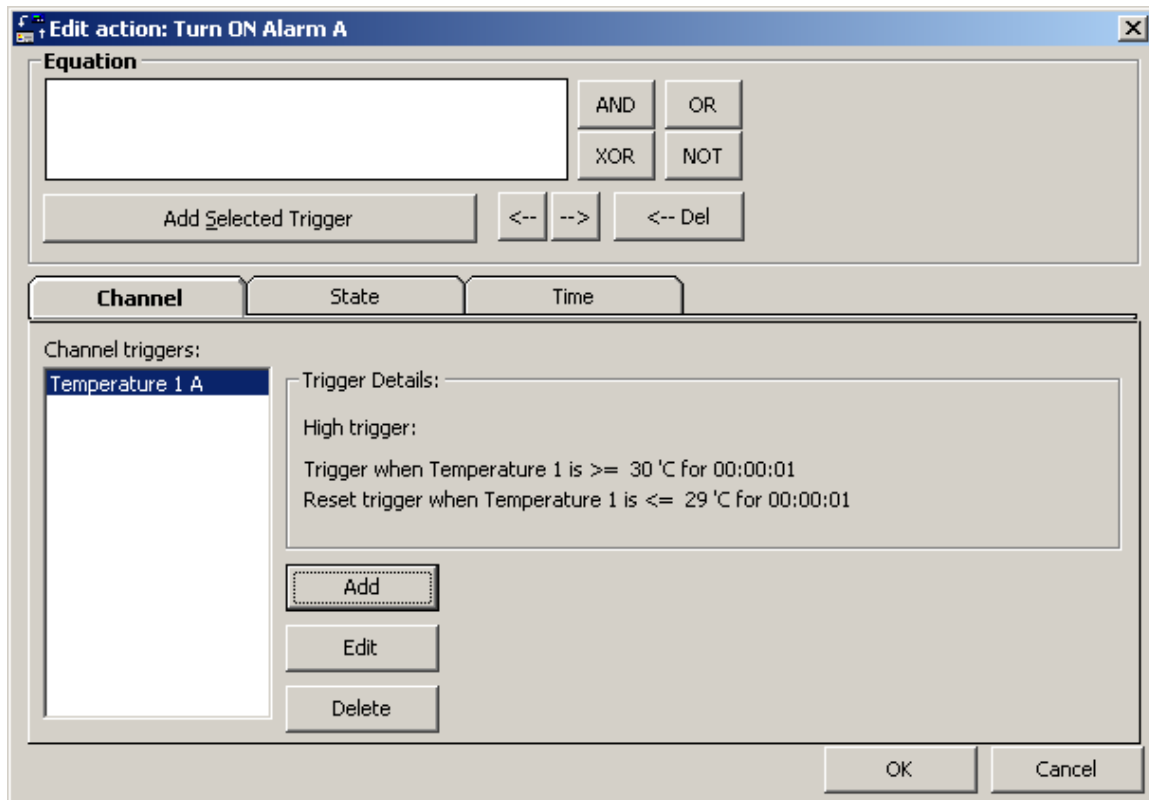


The 'Add Channel Trigger' dialog box is shown. The dropdown menu now shows 'Temperature 1 A'. Below the dropdown, there is a section titled 'Trigger A'. Inside this section, there is a 'Trigger type:' label and a dropdown menu set to 'High trigger'. Below this, there is a text field for the trigger value, set to '30', followed by '°C' and 'and FALSE when Channel falls below', followed by another text field set to '29', followed by '°C'. Below this, there is a text field for the sample count, set to '1', followed by 'Sample Count(s) to become TRUE/FALSE.'. At the bottom, there are three buttons: 'Channel Info.', 'Add', and 'Cancel'.

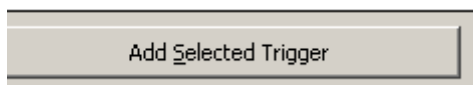
Click on the *Add* button

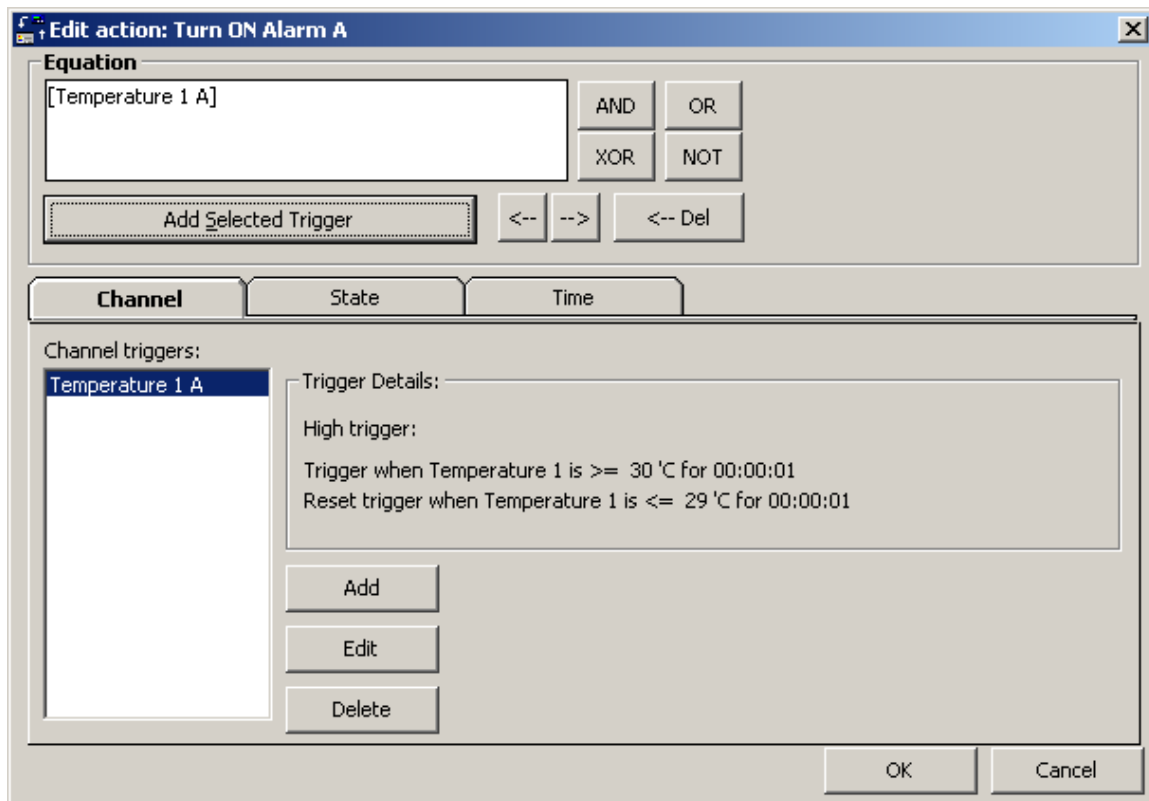


Highlight the Channel trigger to be added to the equation



Click on the *Add Selected Trigger* button

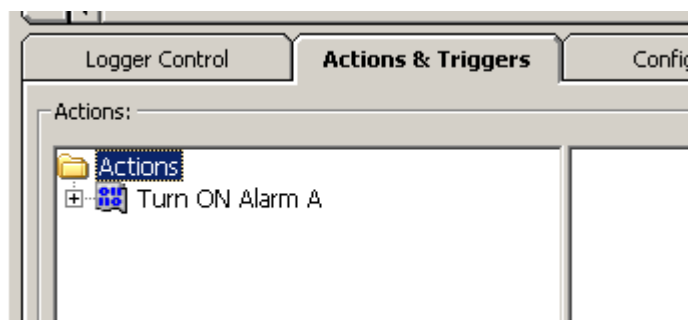




Click on the *OK* button

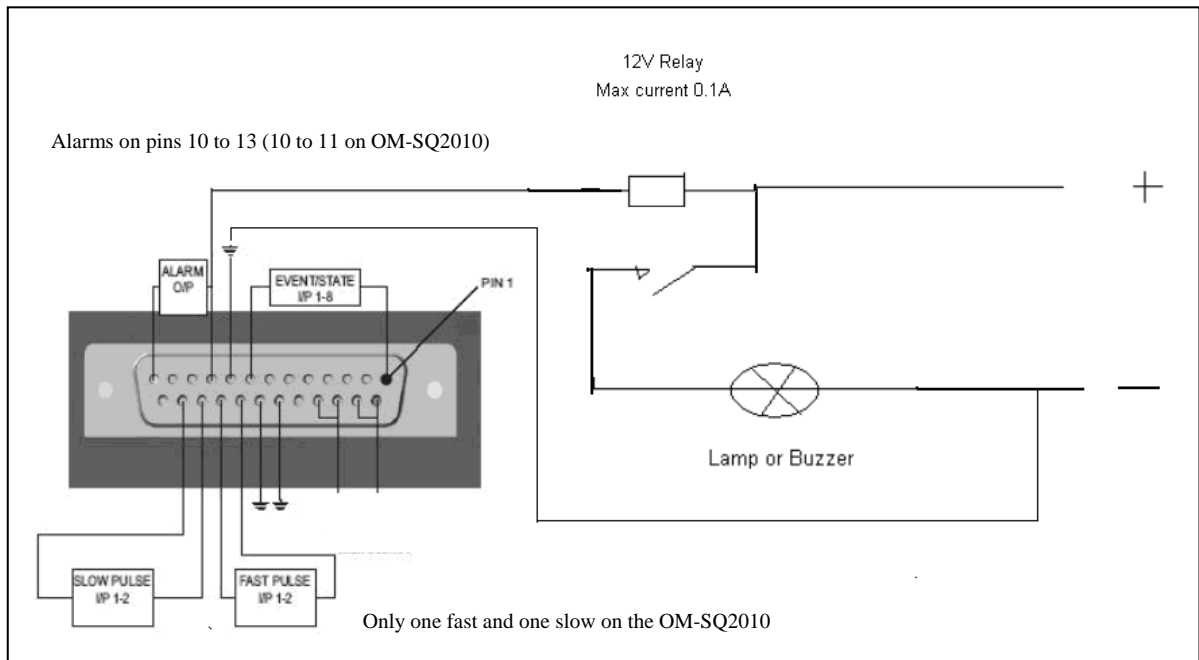


Action will appear as below in the Logger Setup window.



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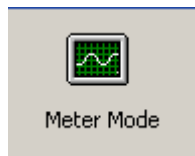
Sample Alarm Circuit



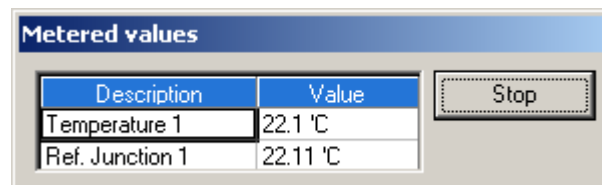
[Return To Index](#)

Meter Mode

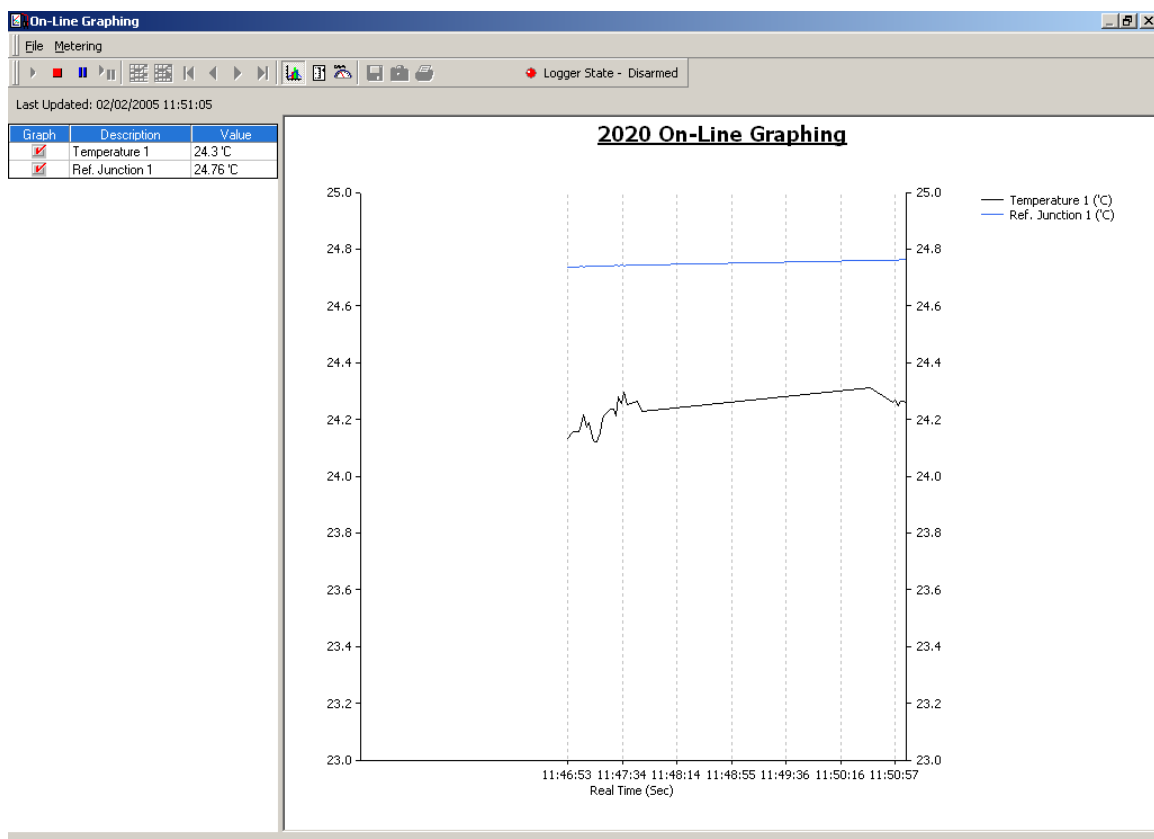
Once the channels have been set and the set file sent to the logger, click on the *Meter Mode* button on the front screen of the OMEGALOG[®] Assistant.



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

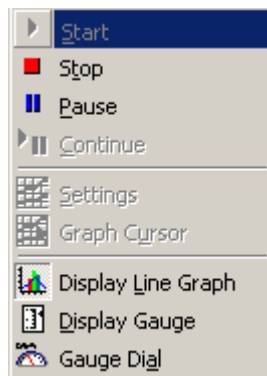


To see Online graphing, OMEGALOG[®] Plus software is required

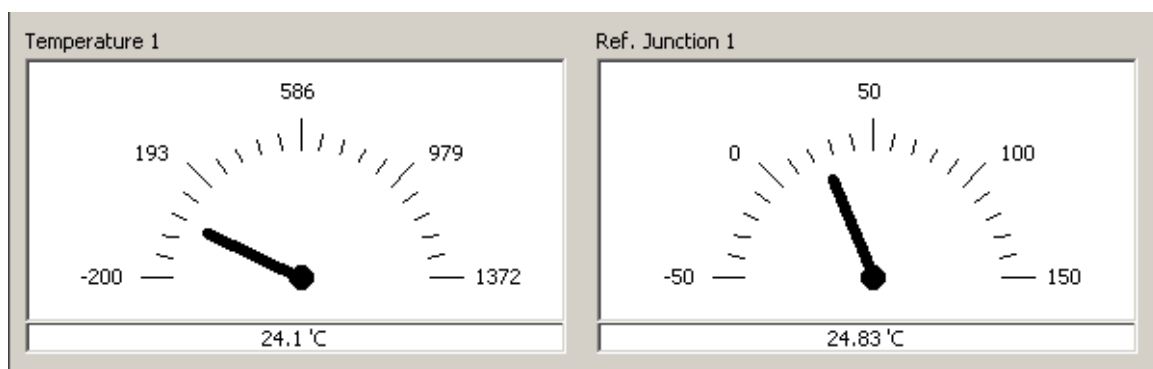
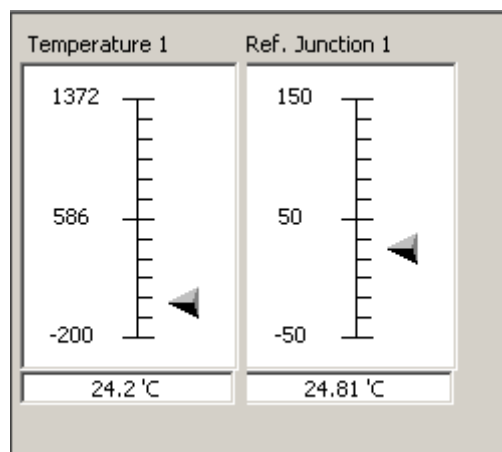


The graph is displayed with automatic scaling.

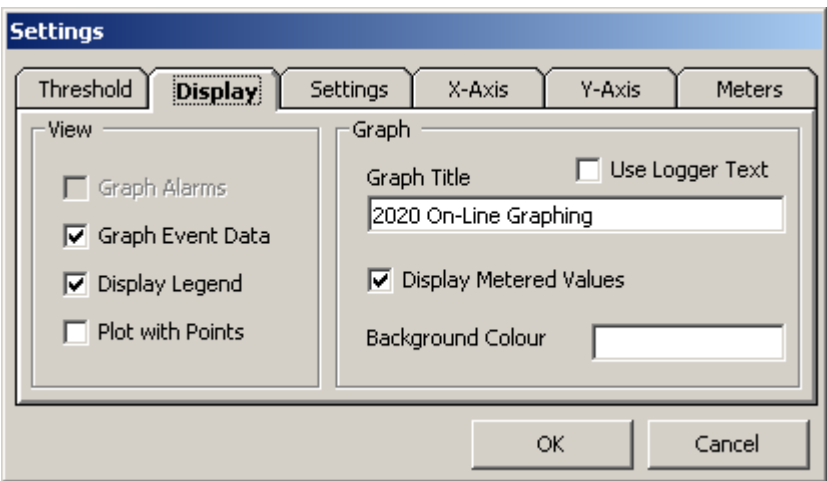
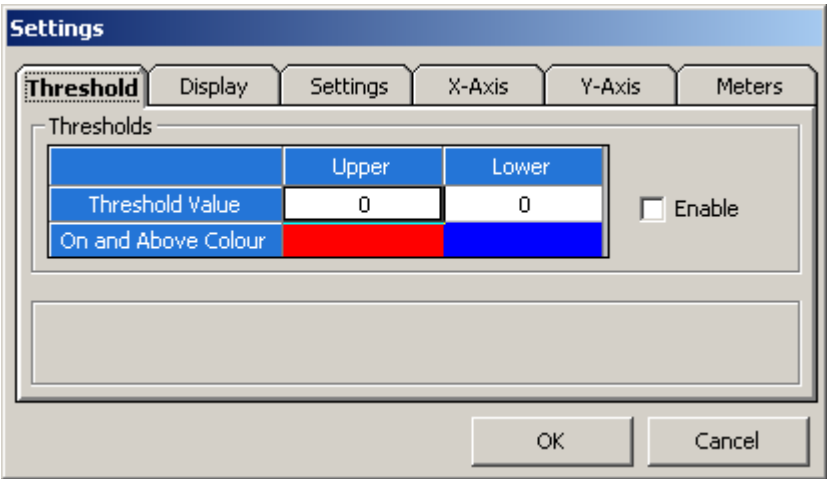
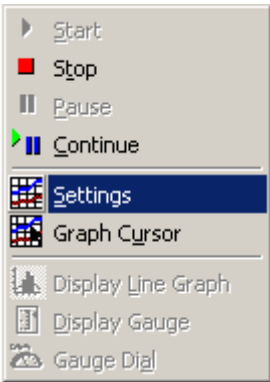
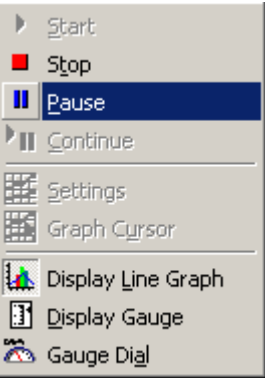
Right click on the graph to change display type



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 0

Minimum 0

Series

Channel Temperature 1

Line Width 1 Pixels

Line Style Solid

Line Colour

OK Cancel

Settings

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

Meters Scaling

Channel Temperature 1 ▼

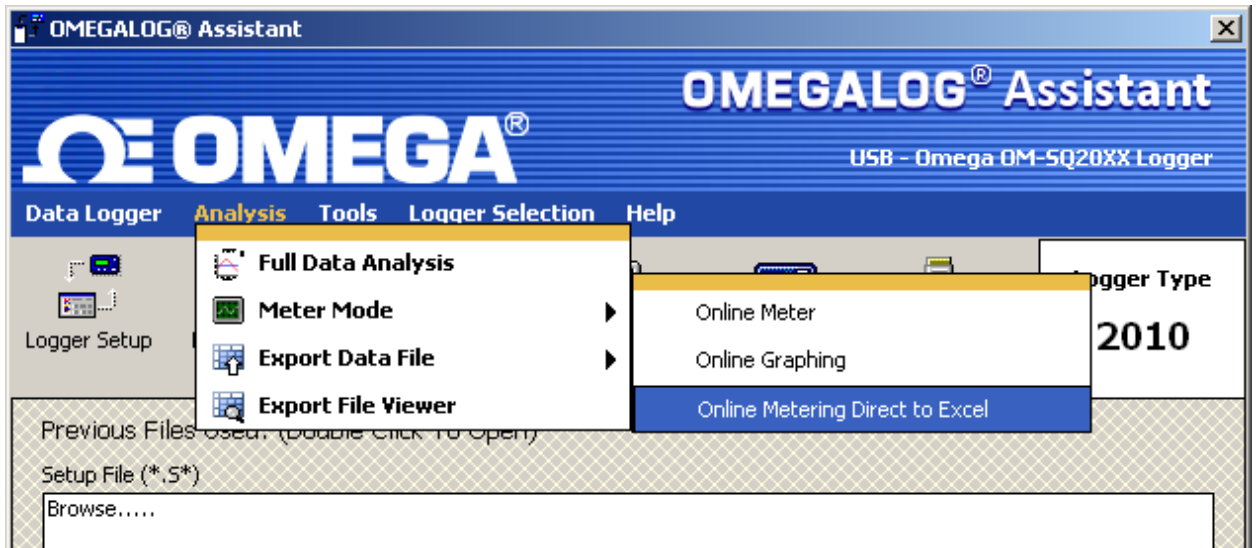
Upper Limit 1372

Lower Limit -200

OK Cancel

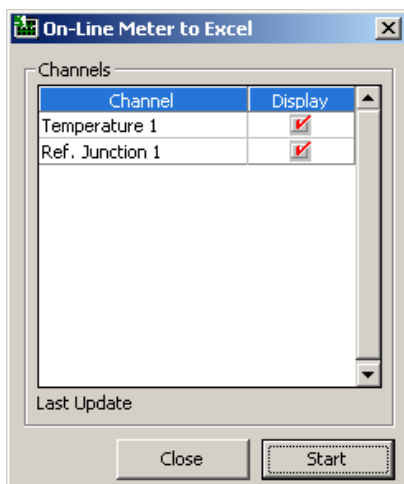
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Online Metering Direct to Excel



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.

OMEGALOG Real-Time Monitor - Sheet1

File Edit View Insert Format Tools Data Window Help

Arial 10 B I U

A1 Elapsed Time

	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				

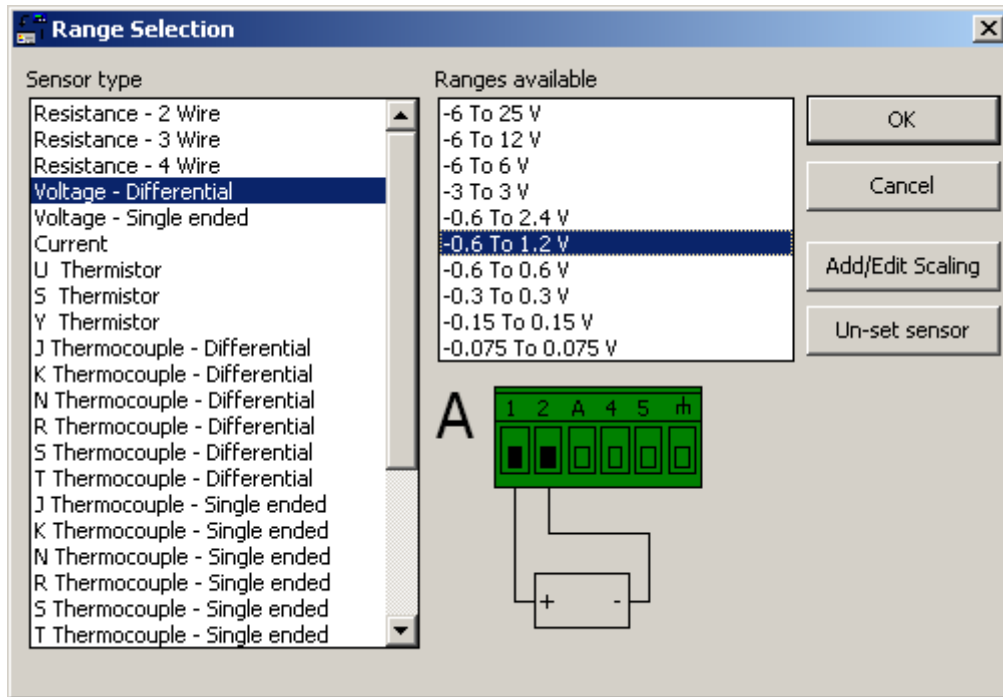
Note: It is requested not to edit or change any of the spreadsheets settings until metering has stopped and exited. Any modification to the spreadsheet whilst metering could lead to corruption of the data.

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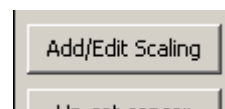
Engineering Units

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.

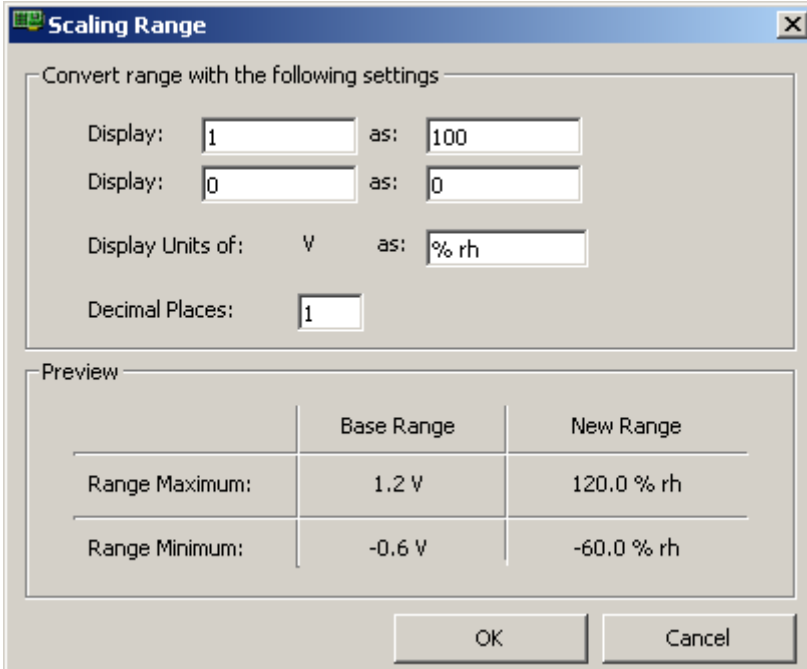


Click on the *Add/Edit Scaling* button.



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

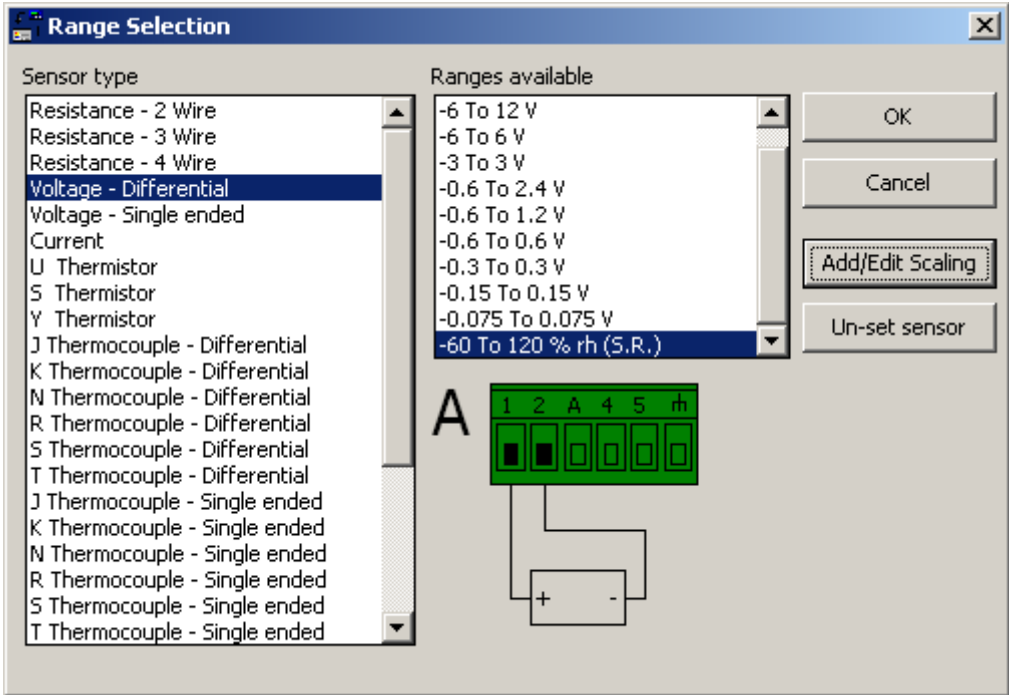


The **Scaling Range** dialog box is shown. It has a title bar with a close button. The main area is titled "Convert range with the following settings". It contains four input fields: "Display: 1" with "as: 100", "Display: 0" with "as: 0", "Display Units of: V" with "as: % rh", and "Decimal Places: 1". Below this is a "Preview" section with a table showing the mapping from the base range to the new range.

	Base Range	New Range
Range Maximum:	1.2 V	120.0 % rh
Range Minimum:	-0.6 V	-60.0 % rh

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

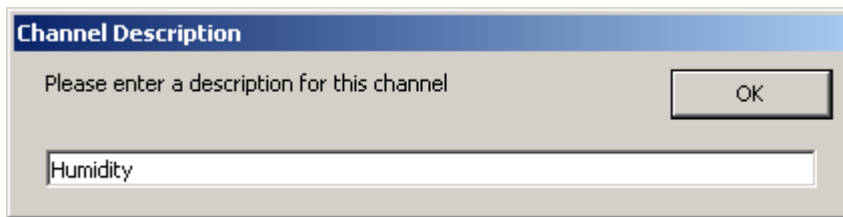
Click on the **OK** button.



The **Range Selection** dialog box is shown. It has a title bar with a close button. On the left is a list of "Sensor type" options, with "Voltage - Differential" selected. On the right is a list of "Ranges available", with "-60 To 120 % rh (S.R.)" selected. Below the lists is a diagram of a sensor connector labeled "A" with pins 1, 2, A, 4, 5, and rh. Wires connect pins 1 and 2 to a positive terminal (+) and pins 4 and 5 to a negative terminal (-). On the far right are buttons for "OK", "Cancel", "Add/Edit Scaling", and "Un-set sensor".

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

Enter a description for the channel.



Save the setup



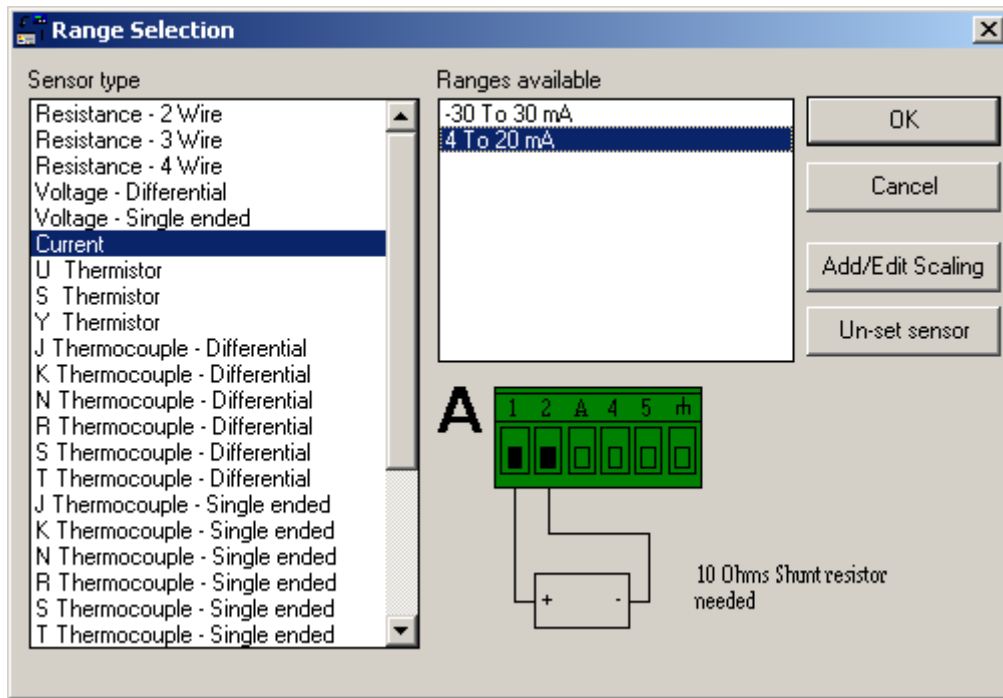
Send the setup to logger and Arm if required



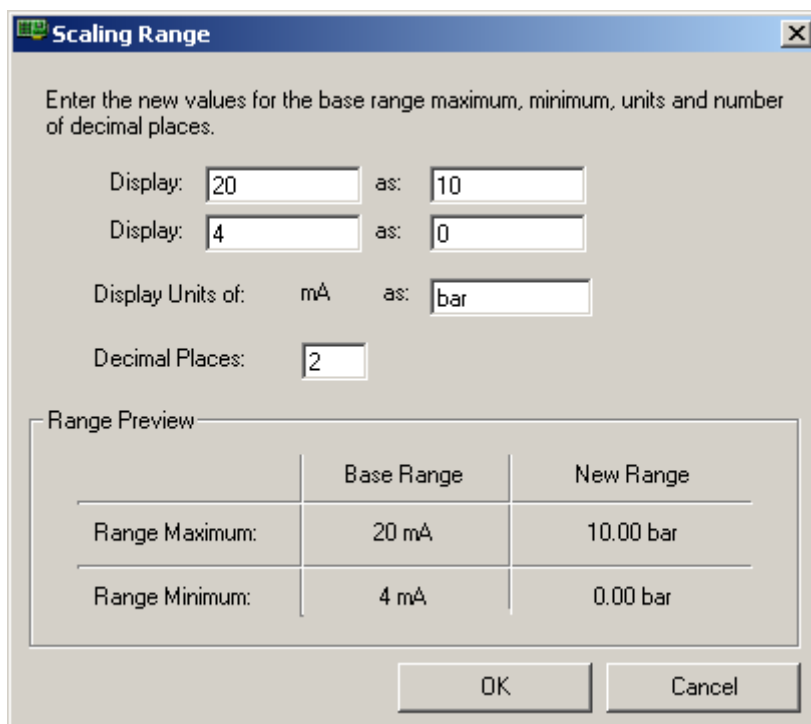
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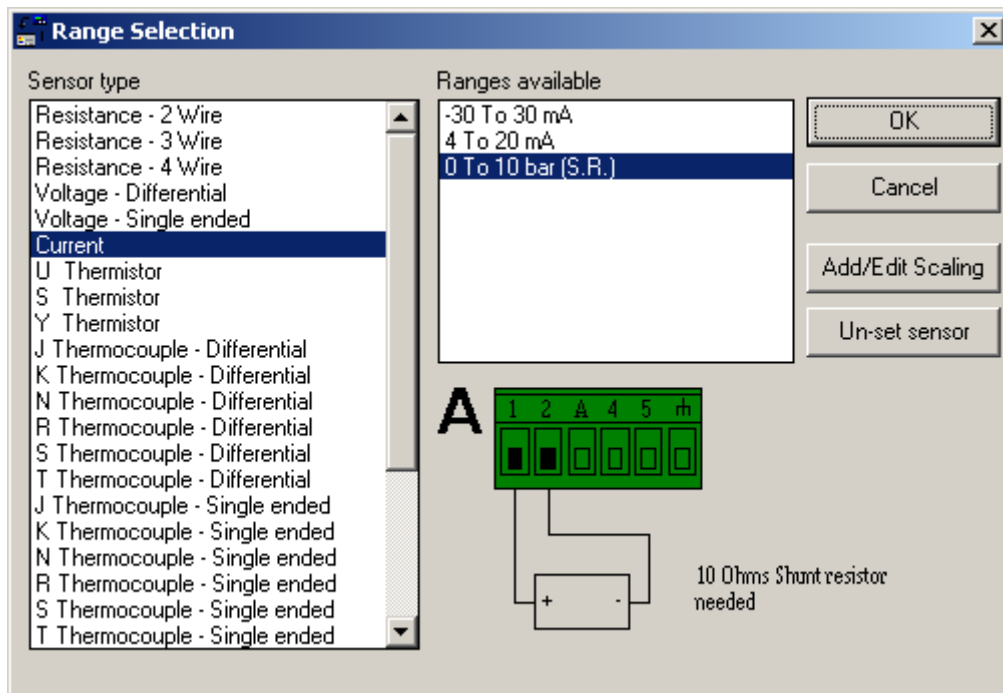
4 to 20 mA Connections

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.

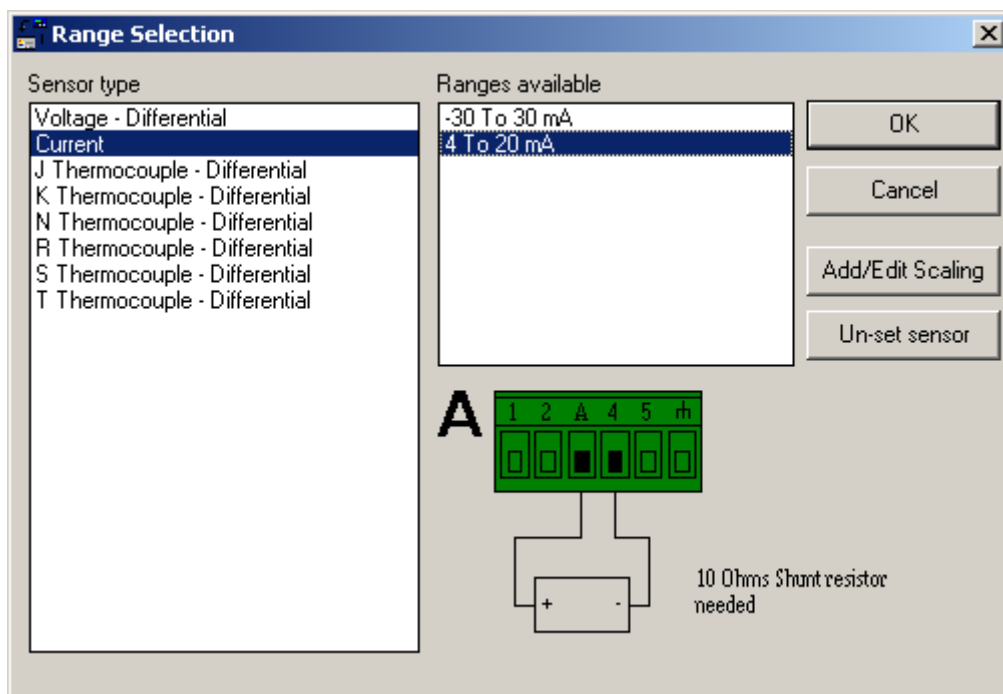


If engineering units are required click on *Add/Edit Scaling* button
The example below shows input scaled to log as 0 to 10 bar pressure





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.

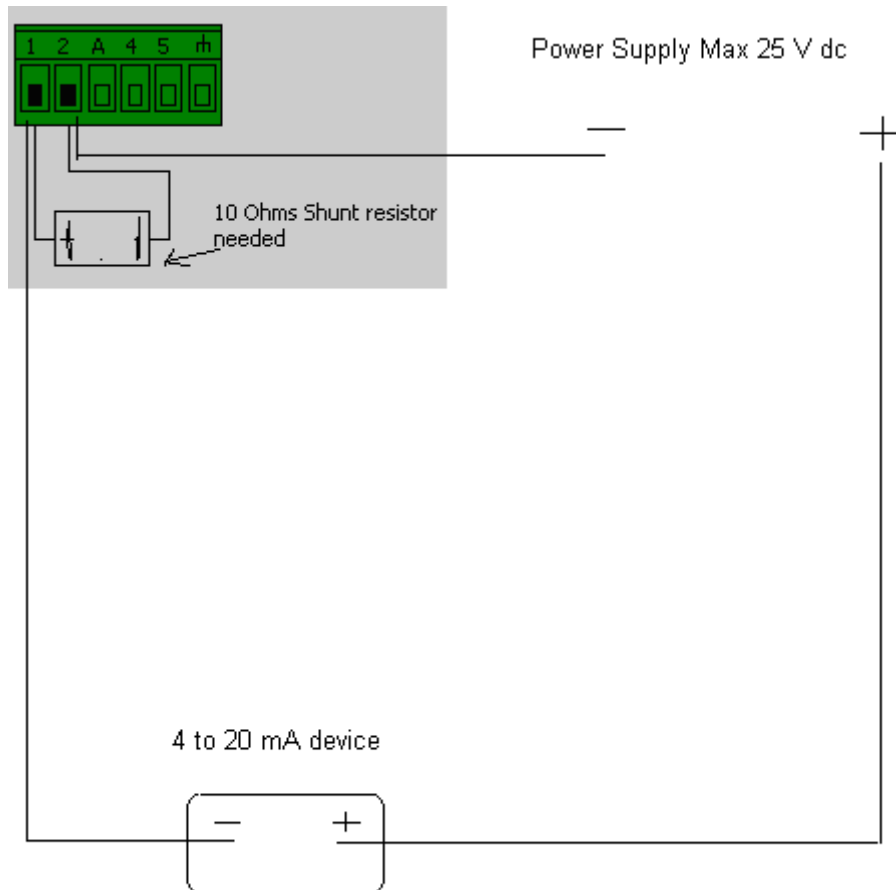


If more sensors are required, repeat above procedure with next channel on the next
 input block
 Save and send set up to logger

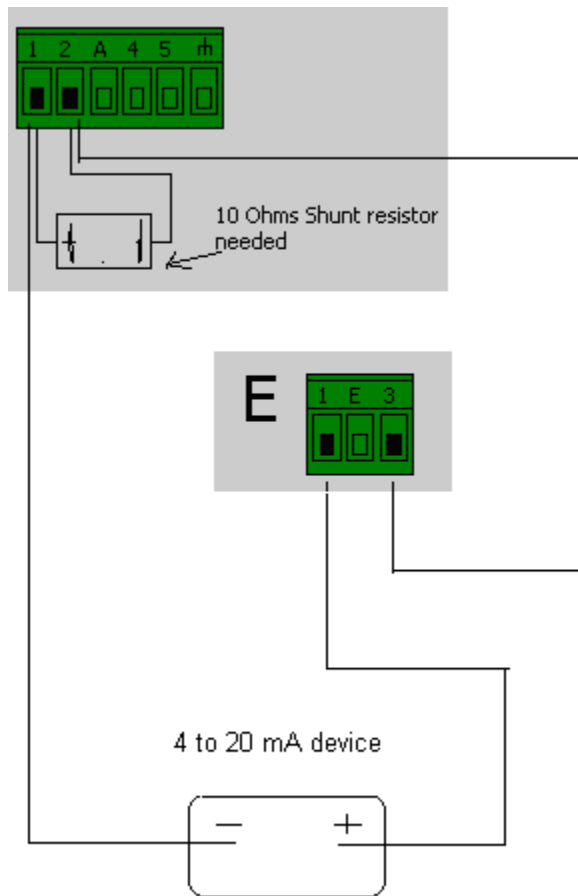
Connect sensor wires as follows

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)

Logger Control

Actions & Triggers

Configuration

Digital/...

Logger Date / Time

Set Logger Time Manually

Set Logger Time to PC Time

PC Time08/02/2005 09:42:39

Logger Identification

Logger ID

(This text is used to identify the logger)

Job Description

Job Description

Sensor Power Timers

A (Supply)00:00:00Continuous

B (5V)00:00:00Continuous

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

Sensor Power

Sensor Power Supply

☐ Not Used

☒ Sensor Power Time A: 00:00:00 - (Supply)

☐ Sensor Power Time B: 00:00:00 - (5V)

E

1E3

+

-

OK

Cancel

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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

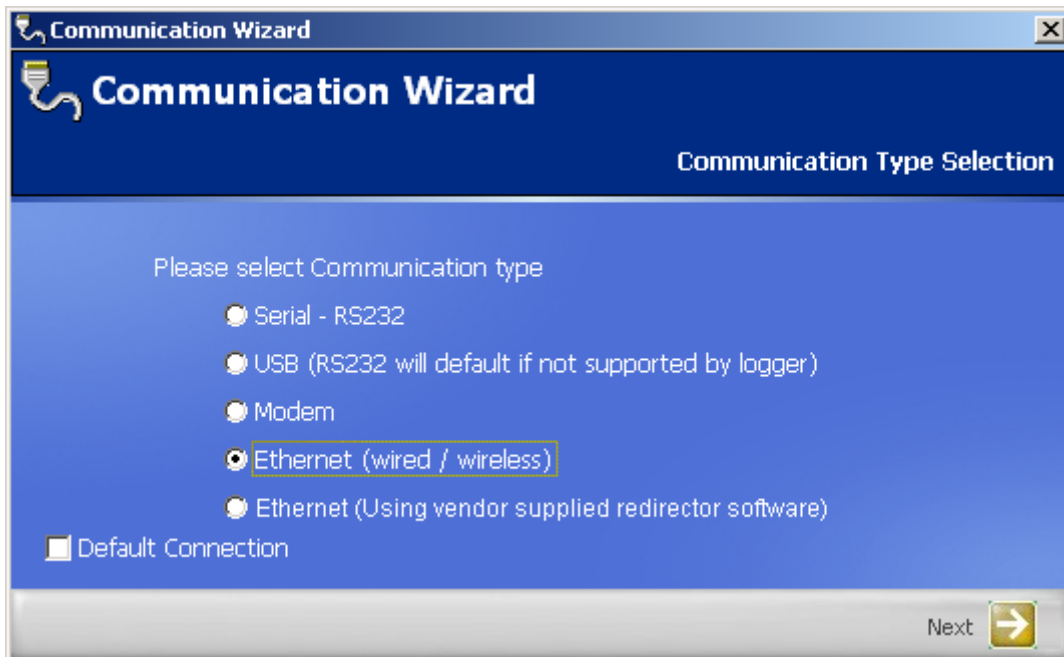
<http://www.omega.com>

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

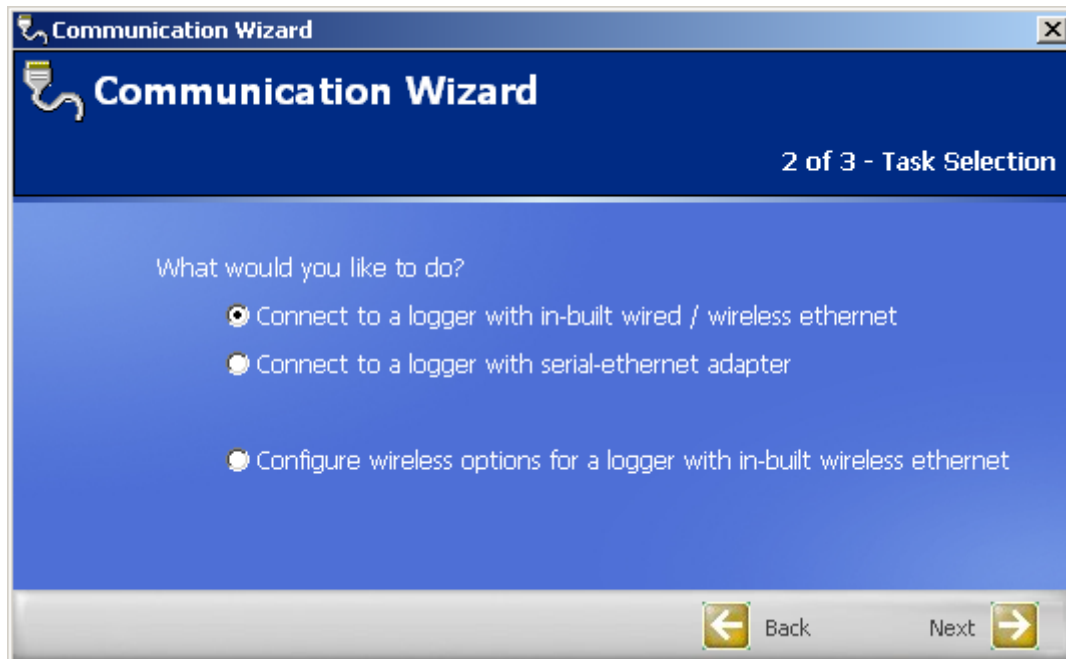
In the OMEGALOG[®] Assistant click on *Communications Wizard*



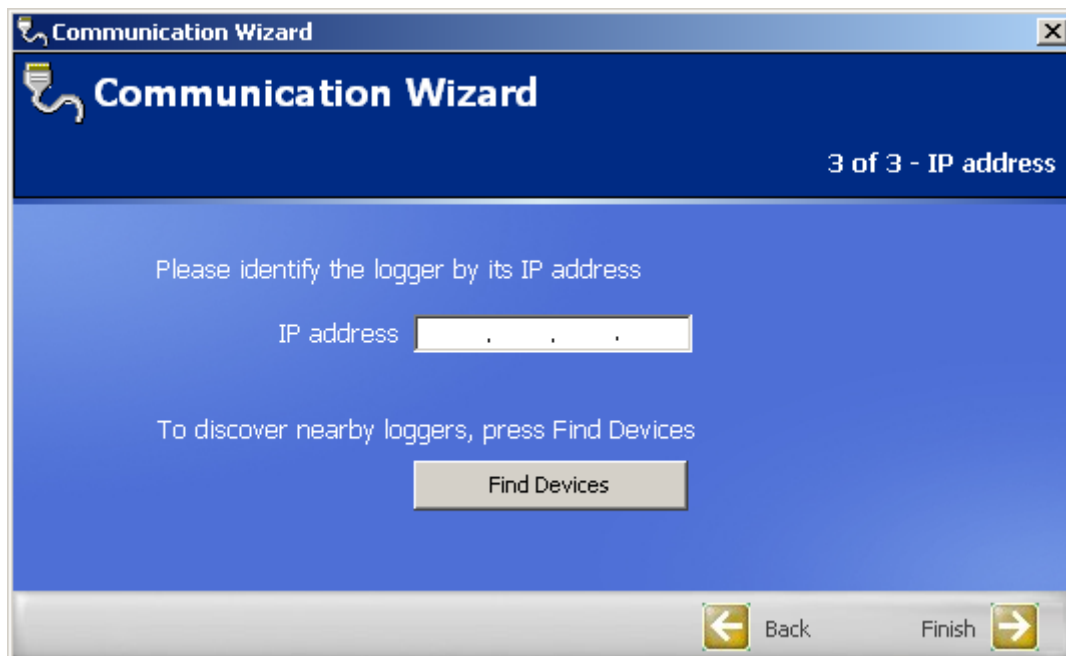
Click on the *Ethernet* communication type and then click the *Next* arrow



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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