



## How to use the SquirrelView software with the SQ2010/SQ2020/SQ2040 Data Loggers.

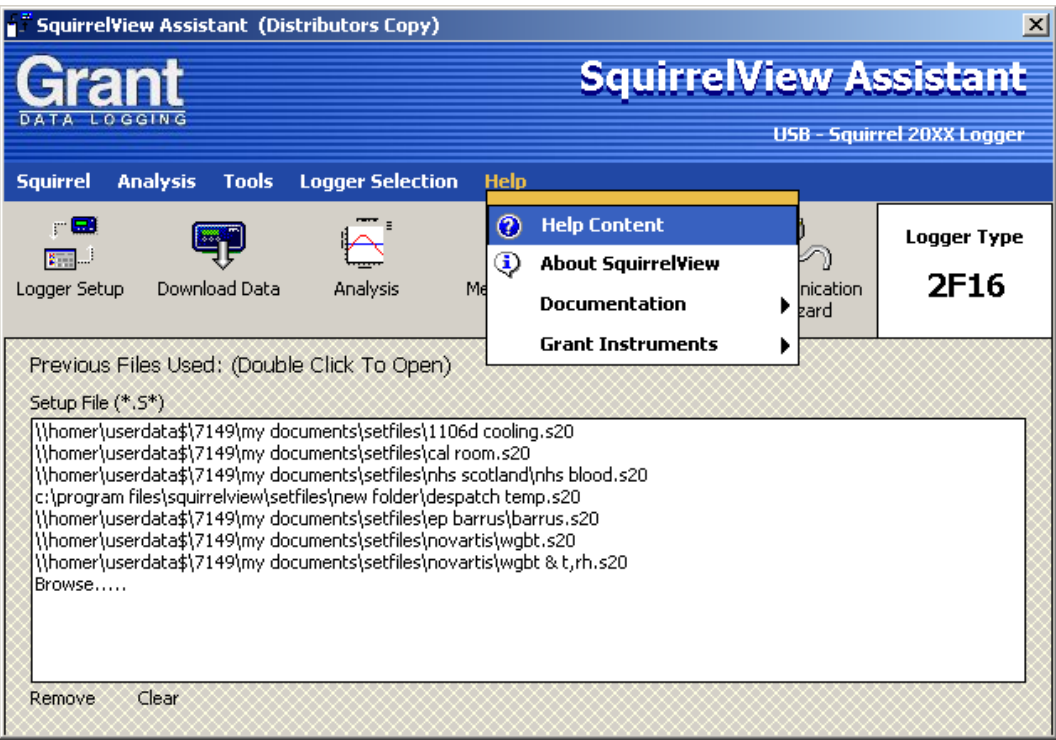
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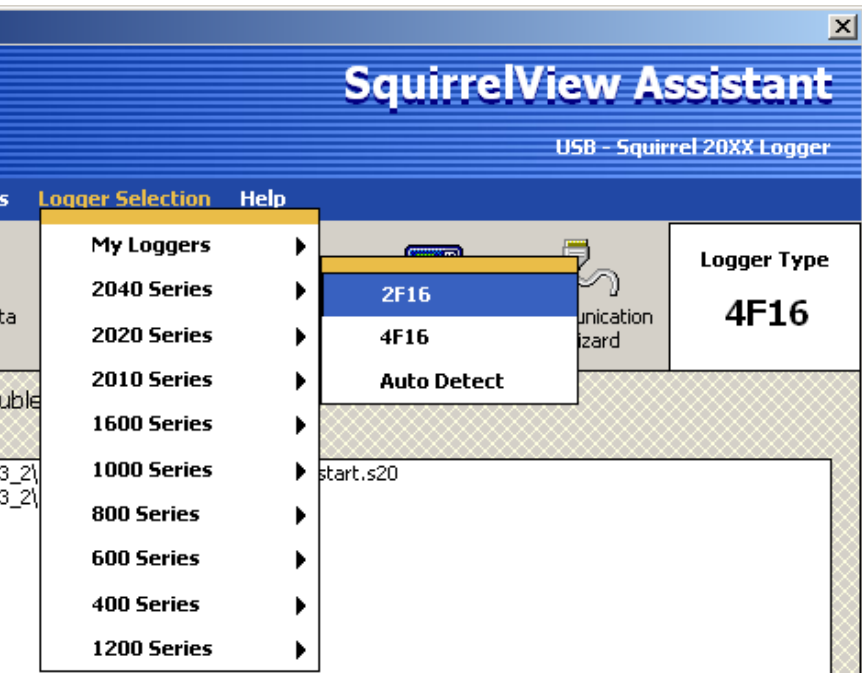
Squirrelview Help

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



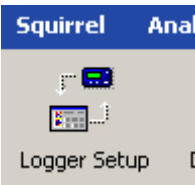
Connecting Your Squirrel Data Logger

First you need to select the correct logger model

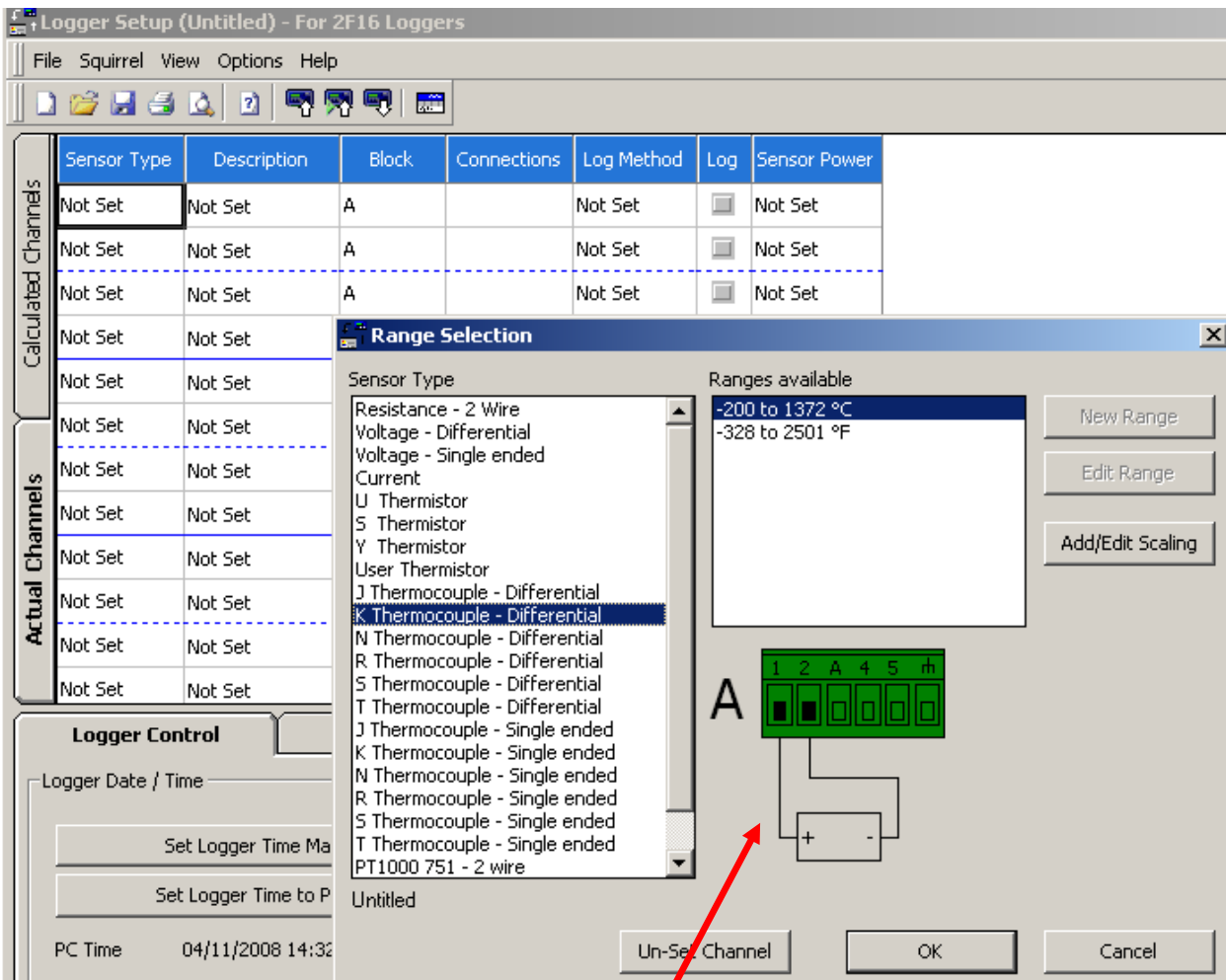


Logger Set-up

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.

# DATA ACQUISITION

## Hints and Tips



- Squirrels 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 2F16 Loggers

File Squirrel View Options Help

Calculated Channels

Actual Channels

Sensor Type	Description	Block	Connections	Log Method
K Thermocouple - Differential : -200 to 1372 °C	Temperature1	A	1(+ve) to 2(-ve)	Sample Interval: A (00:00:01) Logging Interval: (00:00:01)
Not Set				
Not Set				
Not Set				
Not Set				
Not Set				
Not Set				
Not Set				
Not Set				
Not Set				
Not Set				
Not Set				
Not Set				

Logger Control

Actions

Actions:

Actions

Equation Space Used 0 bytes

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 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

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

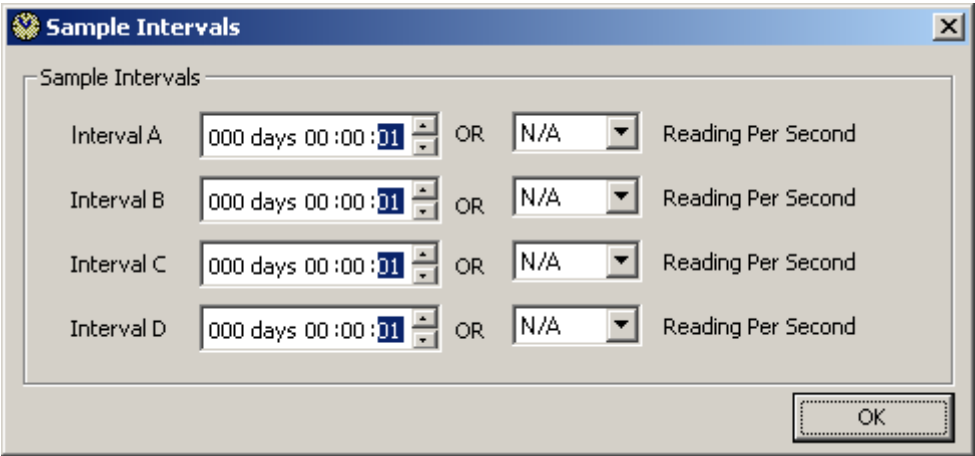
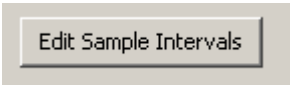
= Sample Interval x Sample Count

OK Cancel

# DATA ACQUISITION

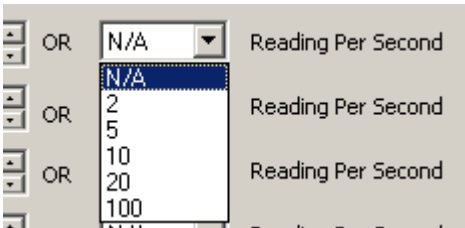
## Hints and Tips

To alter the sample intervals select the Edit Sample Intervals button

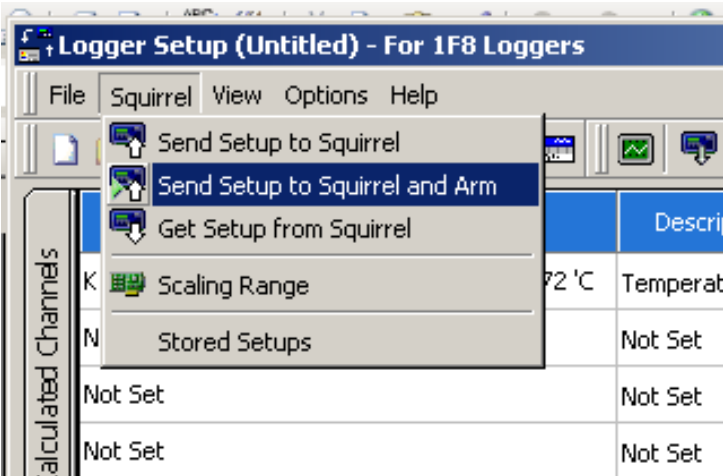


There is an option to run at sub second intervals.

**Note:** Only 10 readings per Second on the SQ2010 Loggers



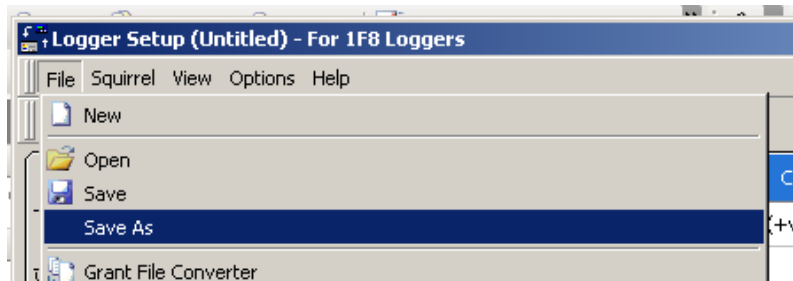
To send the setup to the logger and start logging go to Squirrel and Send Setup to Squirrel and Arm.



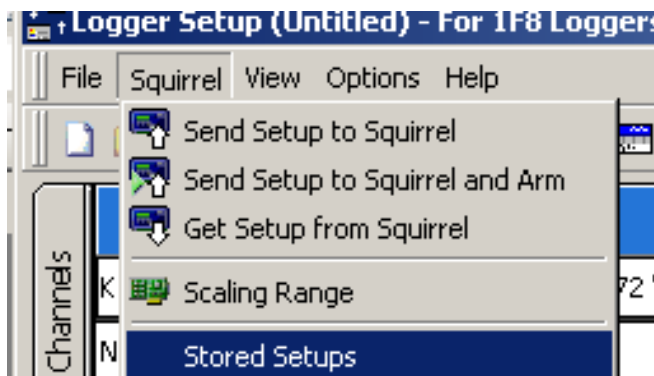
# DATA ACQUISITION

## Hints and Tips

The Setup can be saved on your PC by:



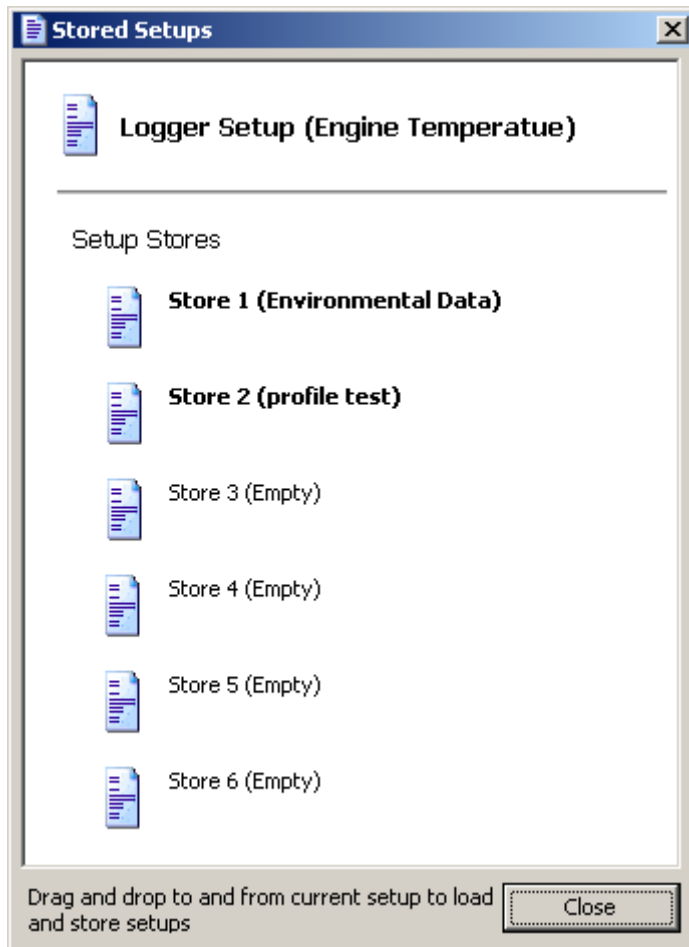
And click *Stored Setups* to store in the logger:



# DATA ACQUISITION

## Hints and Tips

The logger can hold up to six different setups.



Even more setups can be stored on removable MMC card.

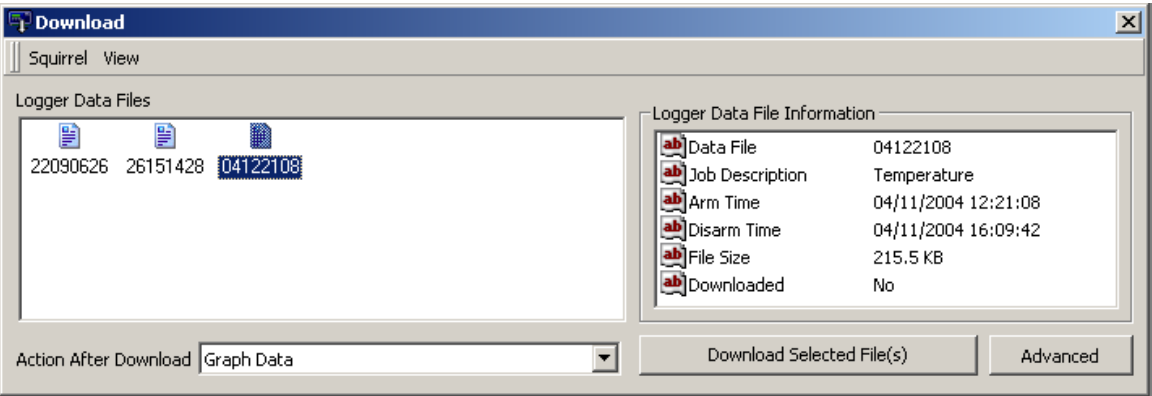
[Return To Index](#)

Download Data

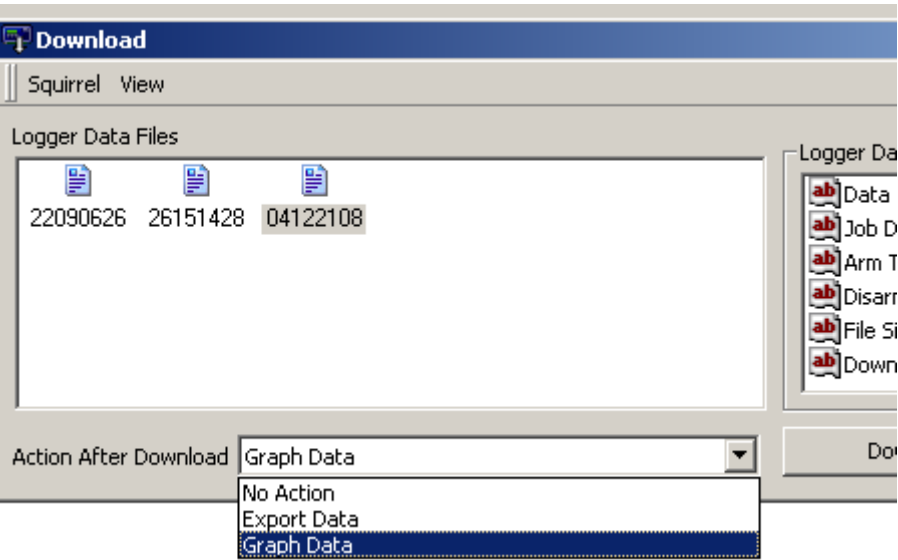
To start the download of data click *Download Data* button



Select the required Data file

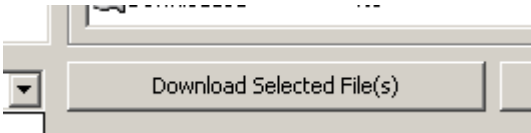


Select the Action after Download



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

Select the *Download Selected File(s)*

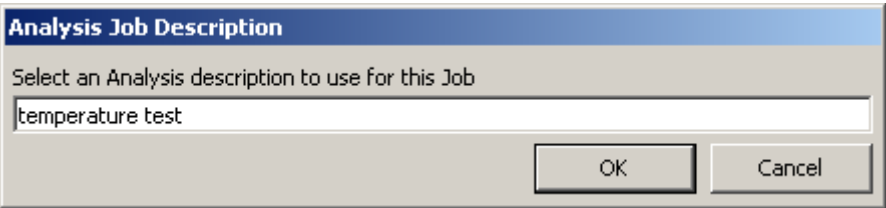
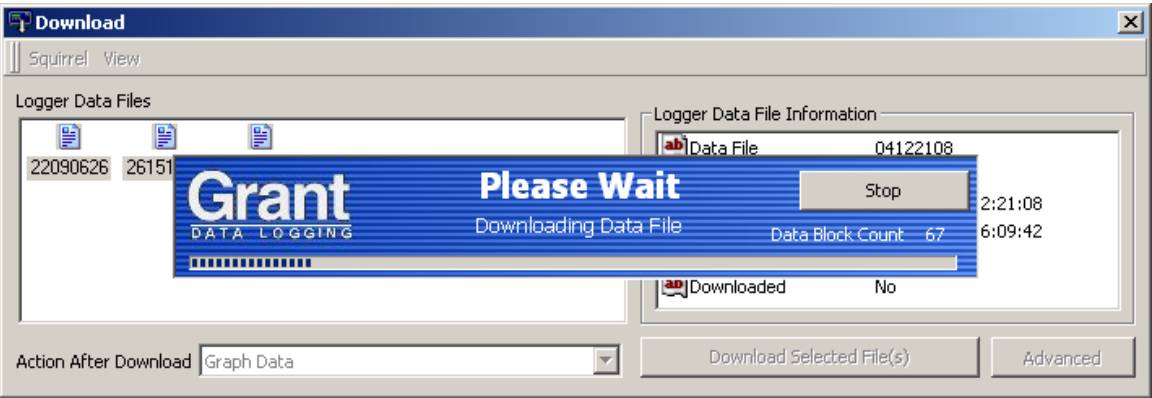
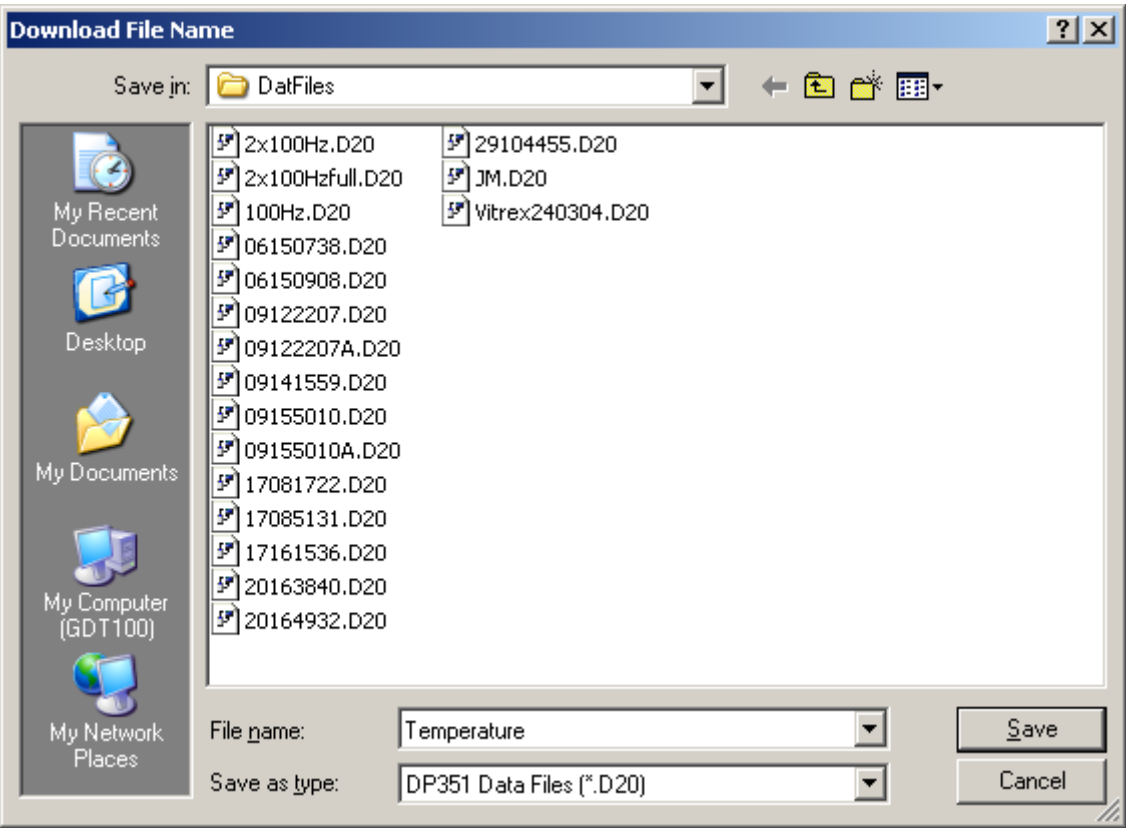




# DATA ACQUISITION

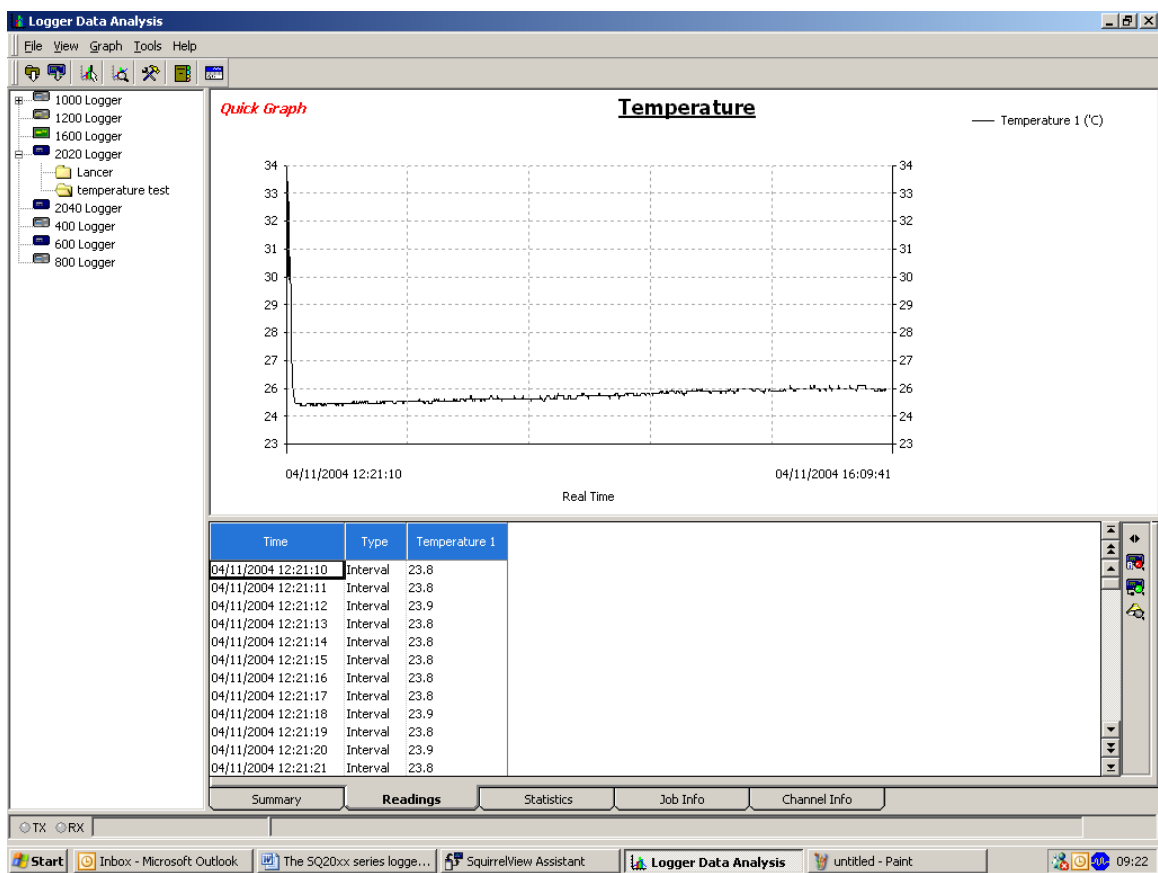
## Hints and Tips

Give the File a name and Save.



# DATA ACQUISITION

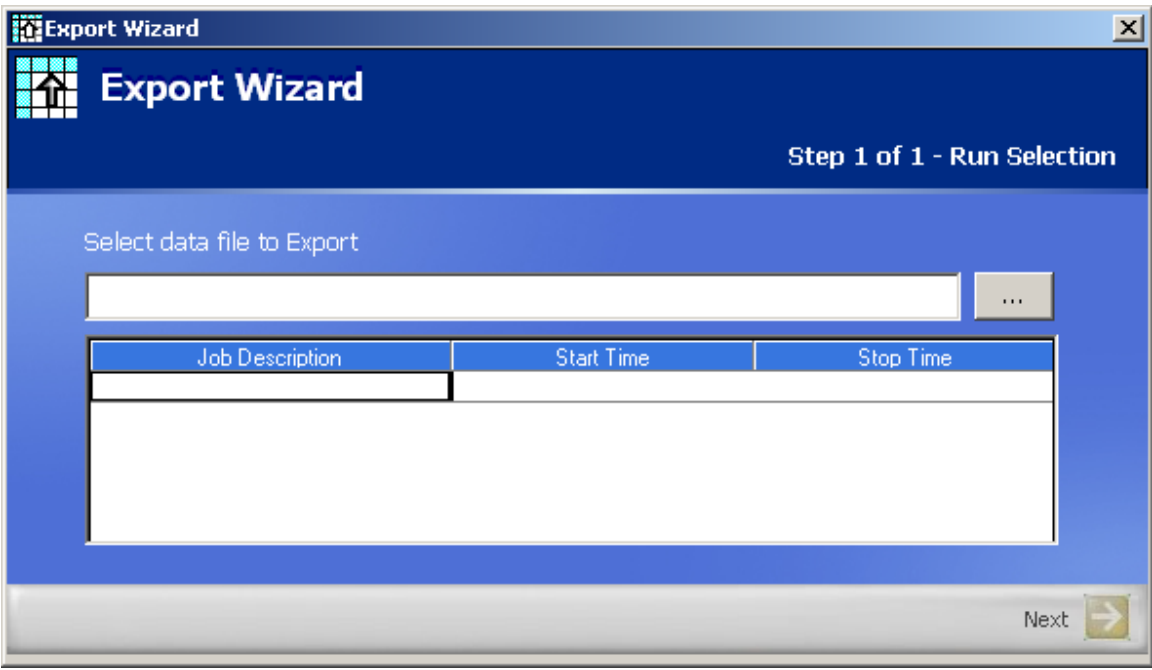
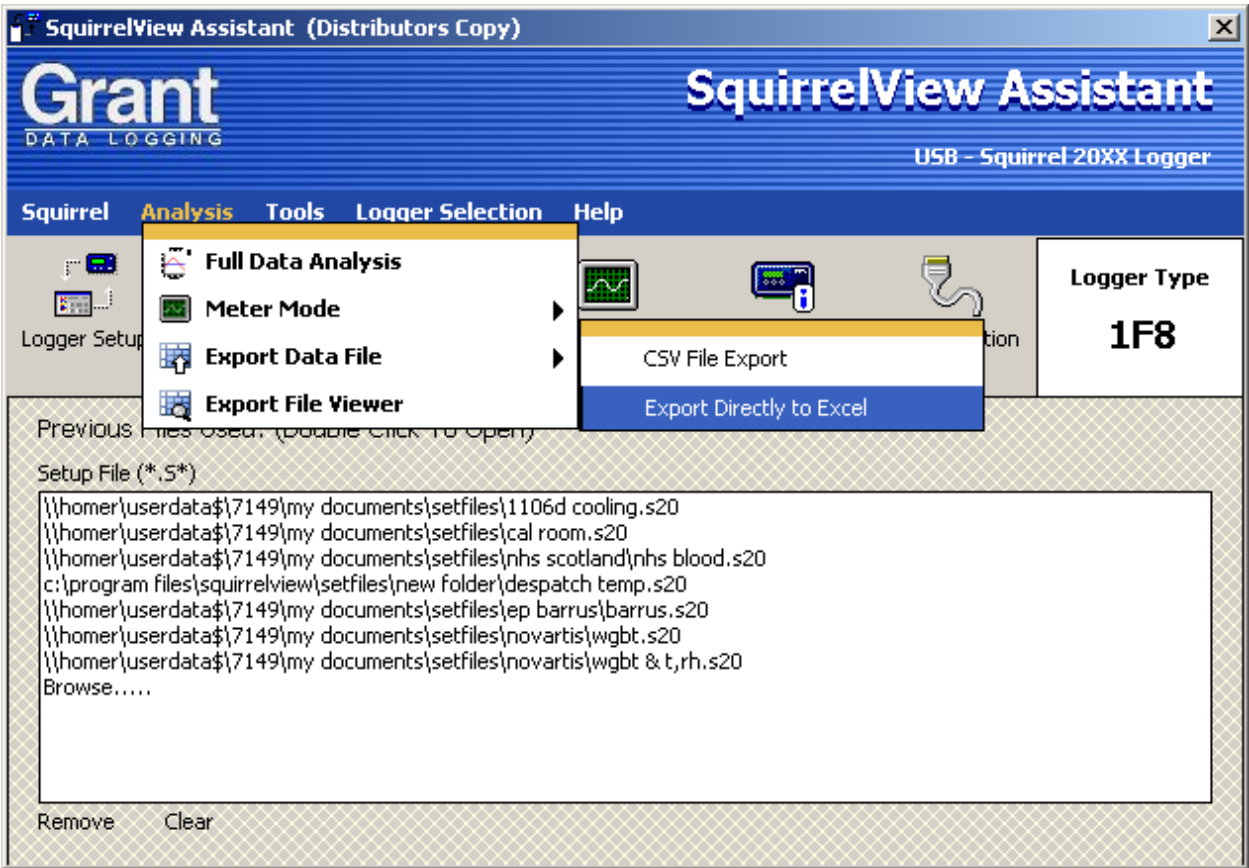
## Hints and Tips



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Export Data

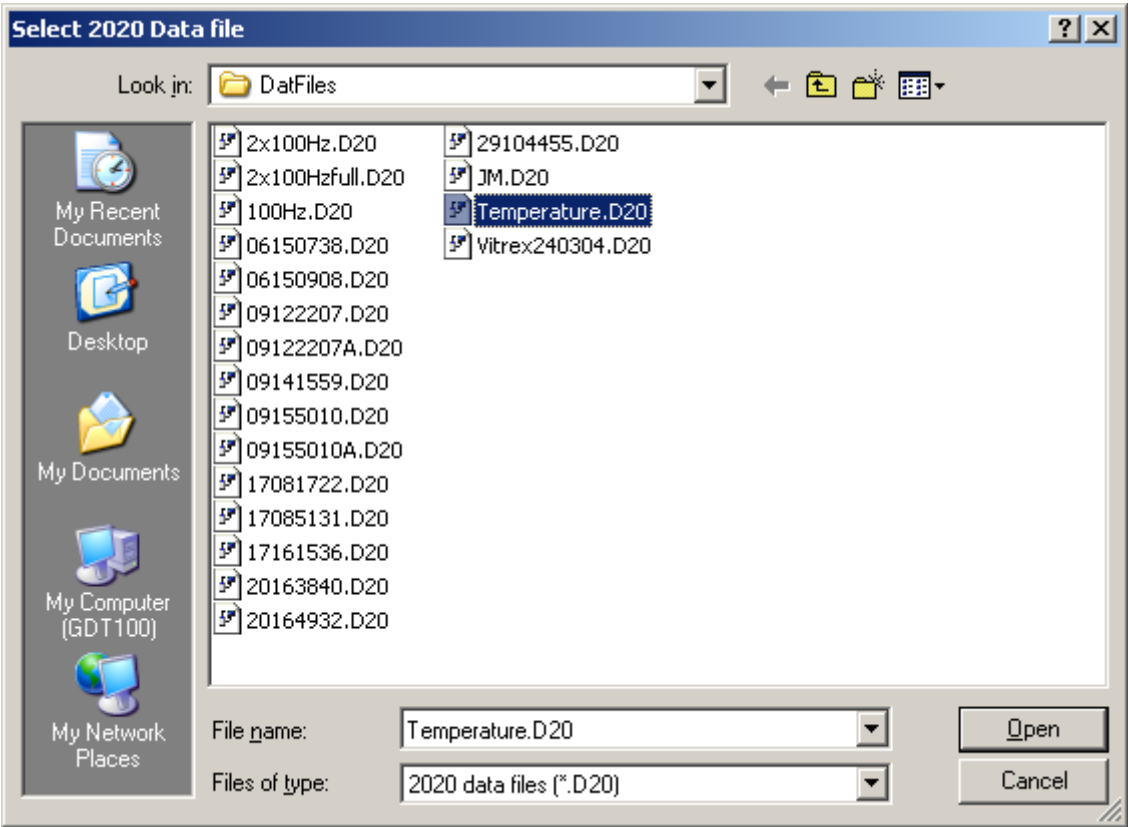
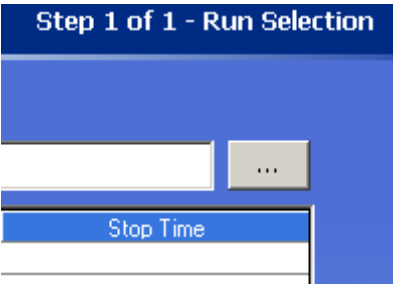
To export you data into excel



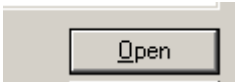
# DATA ACQUISITION

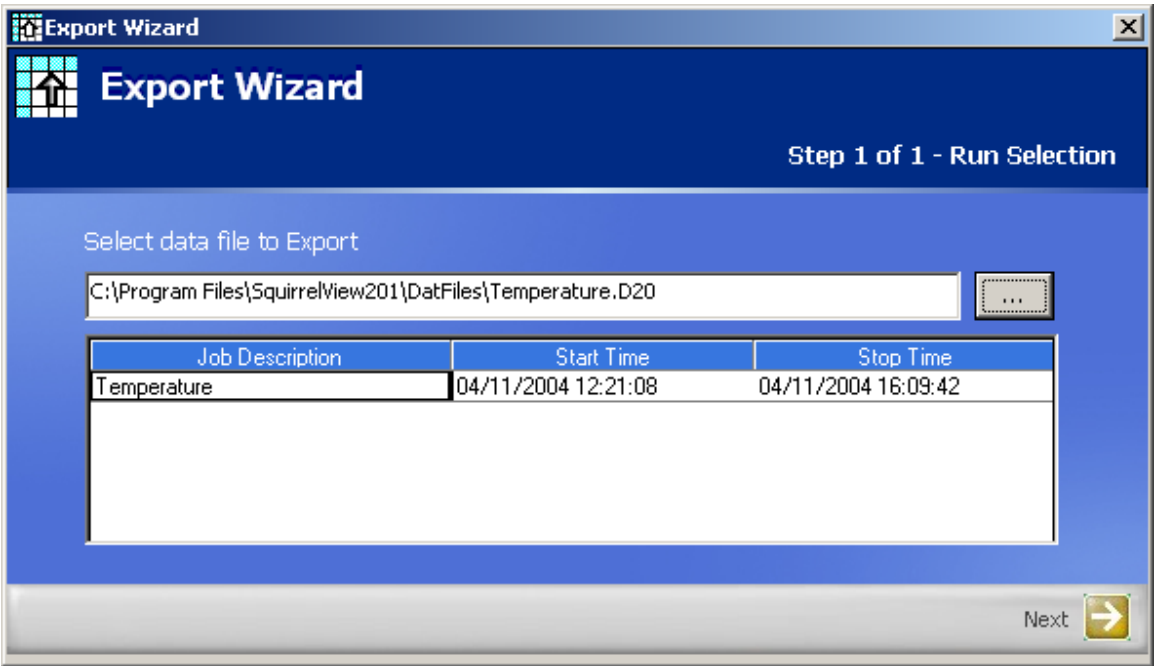
## Hints and Tips

### Browse for File

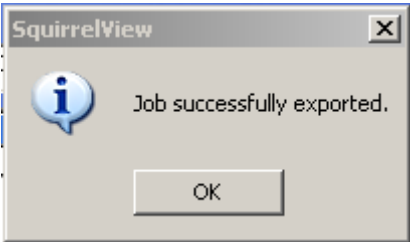


Choose the particular data file you wish to export and click.





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



# DATA ACQUISITION

## Hints and Tips

The following spreadsheet will be displayed.

The screenshot shows a Microsoft Excel spreadsheet titled "SquirrelView Export - Book1". The spreadsheet is divided into two main sections: "Logger Details" and "Channel Details".

**Logger Details:**

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Logger Details:												
2	Logger Type	2F8											
3	Serial Number	KS0345001											
4	Controller Firmware		2										
5	Acquisition Firmware		2										
6	Logger ID	Logger ID											
7													
8	Job Details												
9	Number of Analogue Channels		2										
10	Number of Digital Channels		0										
11	Total Number of Channels Used		2										
12													
13	Arm Time	11/04/2004 12:21											
14	Disarm Time	11/04/2004 16:09											
15	Duration	03:48:34											
16	Job Description	Temperature											
17	Readings per Channel	13712											
18													
19													
20	Channel Details												
21	Description		Temperatu Ref. Junction 1 (°C)										
22	Sample Interval		00:00:01 Not Logged										
23	Logging Interval		00:00:01 Not Logged										
24													
25													
26	Date/Time	Type	Temperature 1 (°C)										
27	04/11/2004 12:21:10	Interval	23.8										
28	04/11/2004 12:21:11	Interval	23.8										
29	04/11/2004 12:21:12	Interval	23.9										
30	04/11/2004 12:21:13	Interval	23.8										
31	04/11/2004 12:21:14	Interval	23.8										
32	04/11/2004 12:21:15	Interval	23.8										
33	04/11/2004 12:21:16	Interval	23.8										
34	04/11/2004 12:21:17	Interval	23.8										

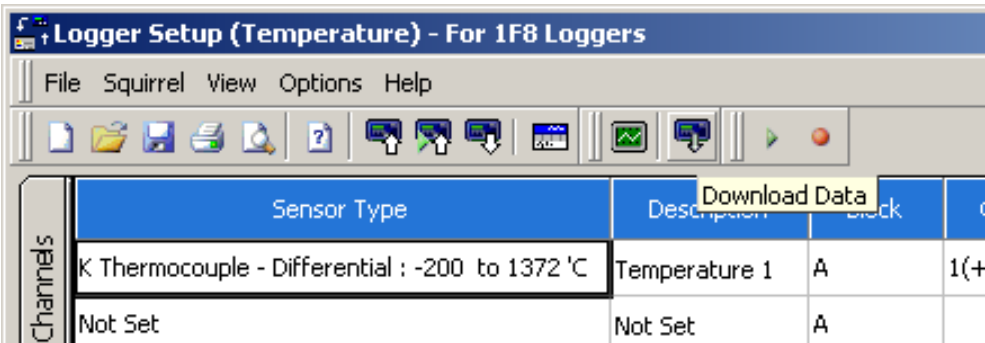
**Channel Details:**

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Channel Details												
2	Description		Temperatu Ref. Junction 1 (°C)										
3	Sample Interval		00:00:01 Not Logged										
4	Logging Interval		00:00:01 Not Logged										
5													
6													
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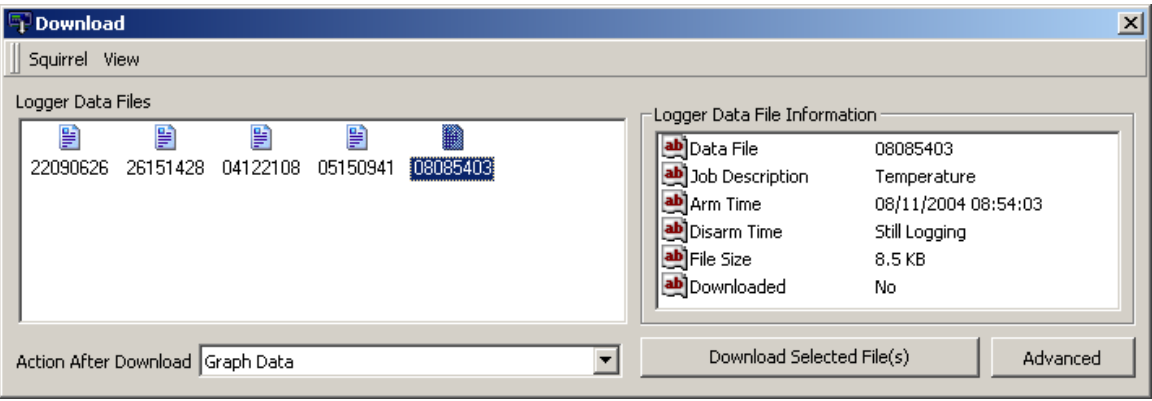
[Return To Index](#)

Downloading Alarm data

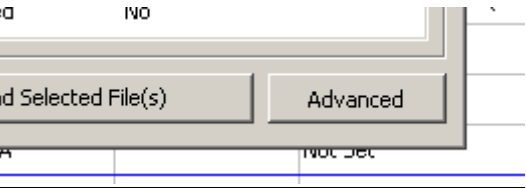
To download the alarm data select the *Download Data* button.



Select the required Data File.

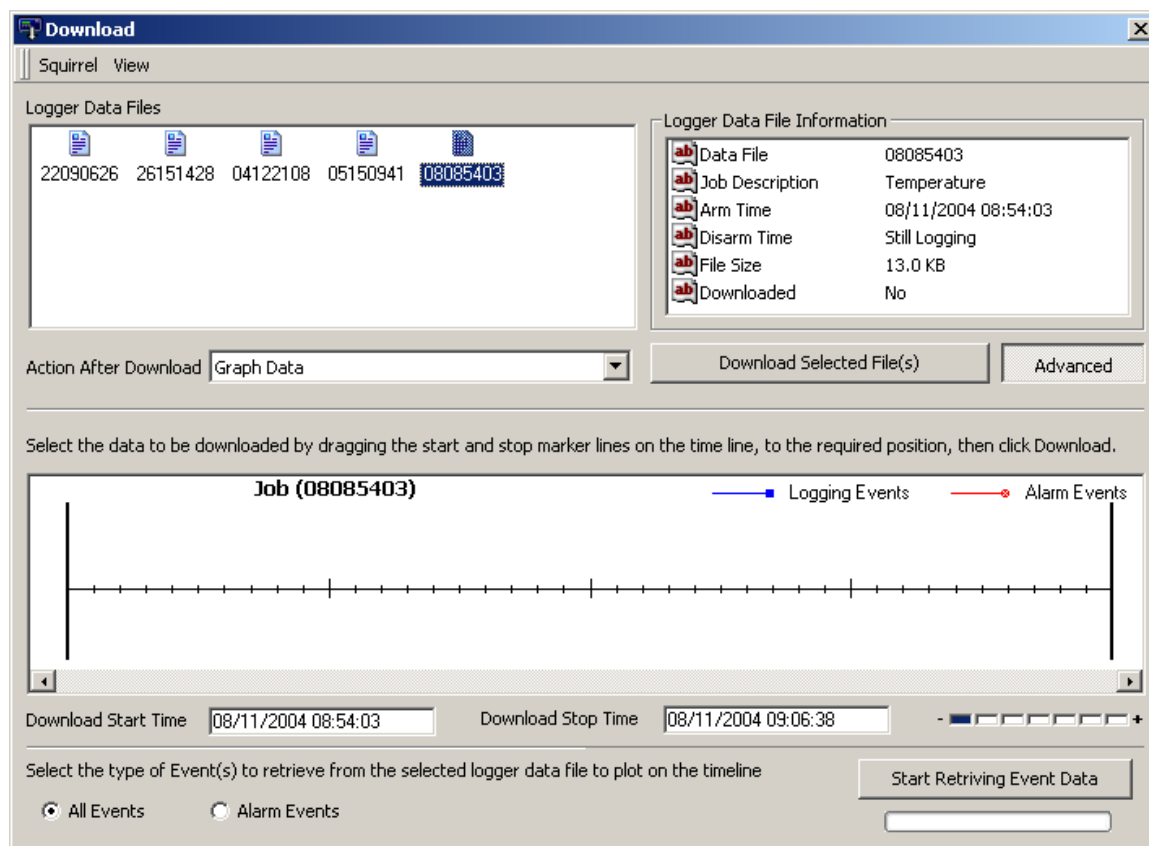


Click on the *Advanced* button.

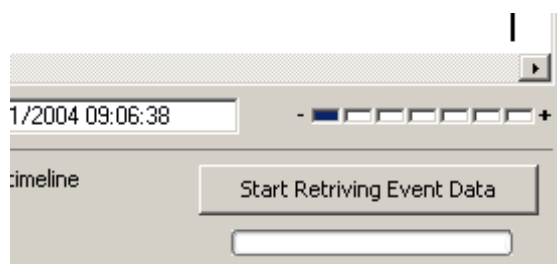


# DATA ACQUISITION

## Hints and Tips



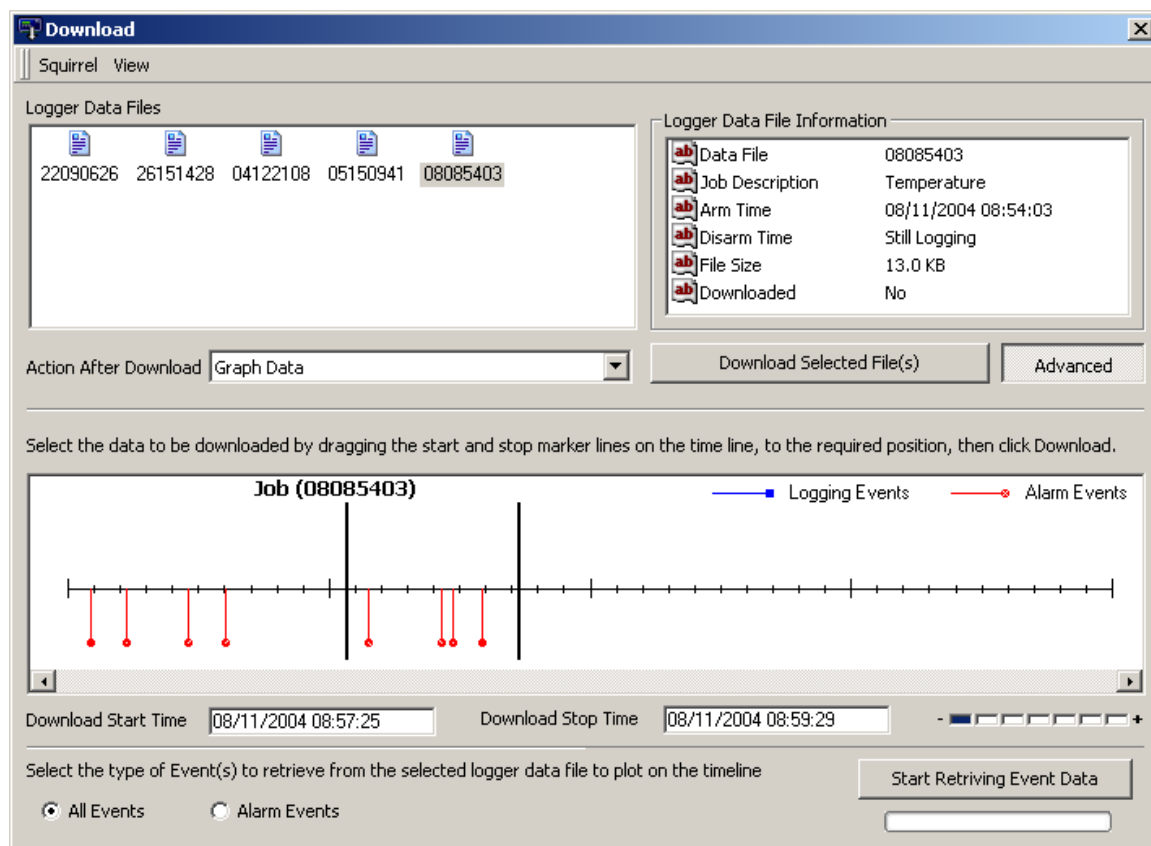
Click on the *Start Retrieving Event Data* button.





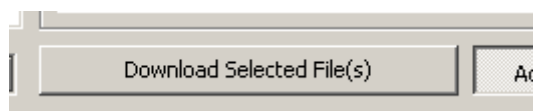
# DATA ACQUISITION

## Hints and Tips



The two side vertical lines can be dragged to section that you want to download

Click the *Download Selected File(s)* button.

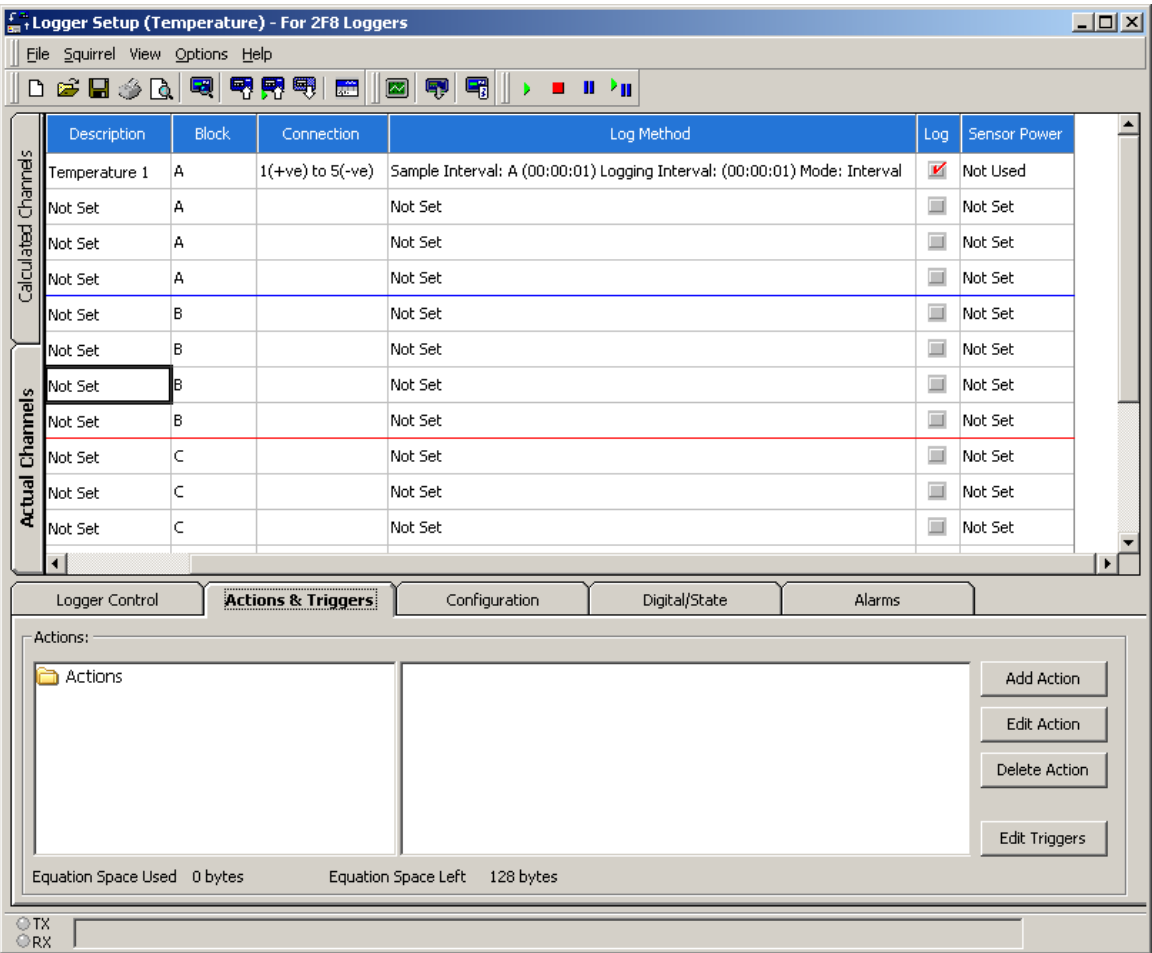


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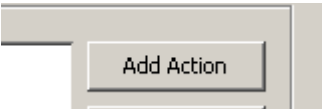
Setting a Start and Stop logging action

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

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



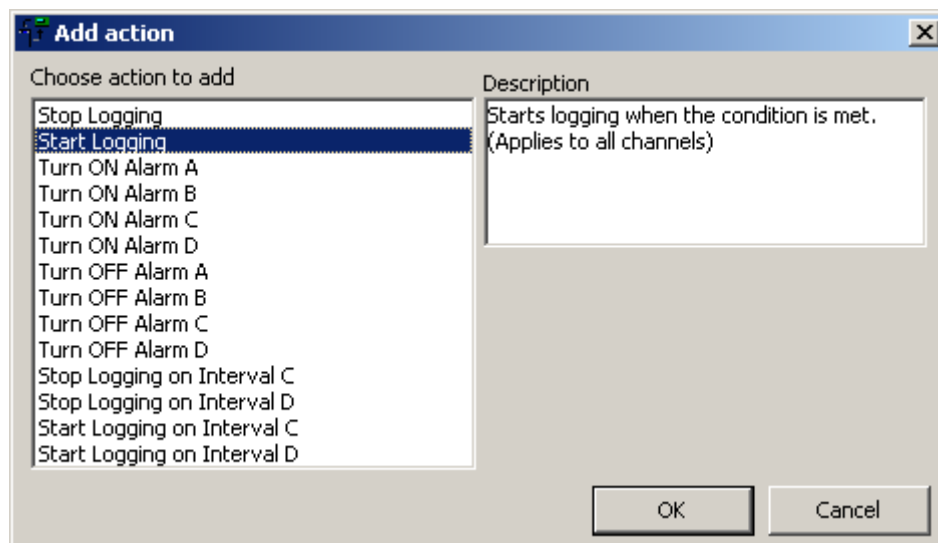
Click on the *Add Action* button.



# DATA ACQUISITION

## Hints and Tips

To add the start action select the Start Logging action

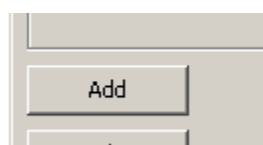


Click on the *OK* button.

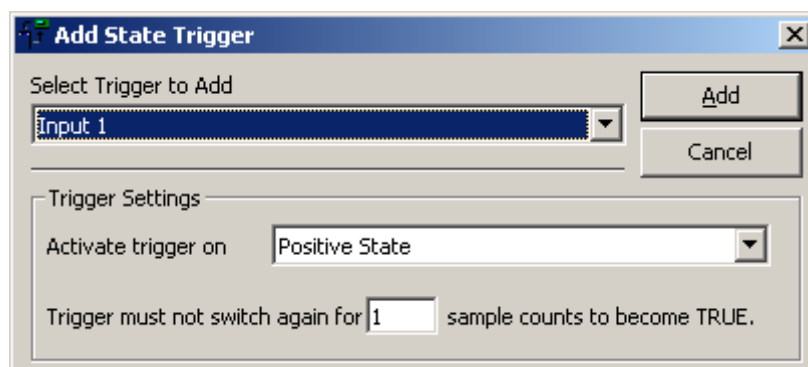
Select the State tab



And click on the *Add* button.



Select input 1

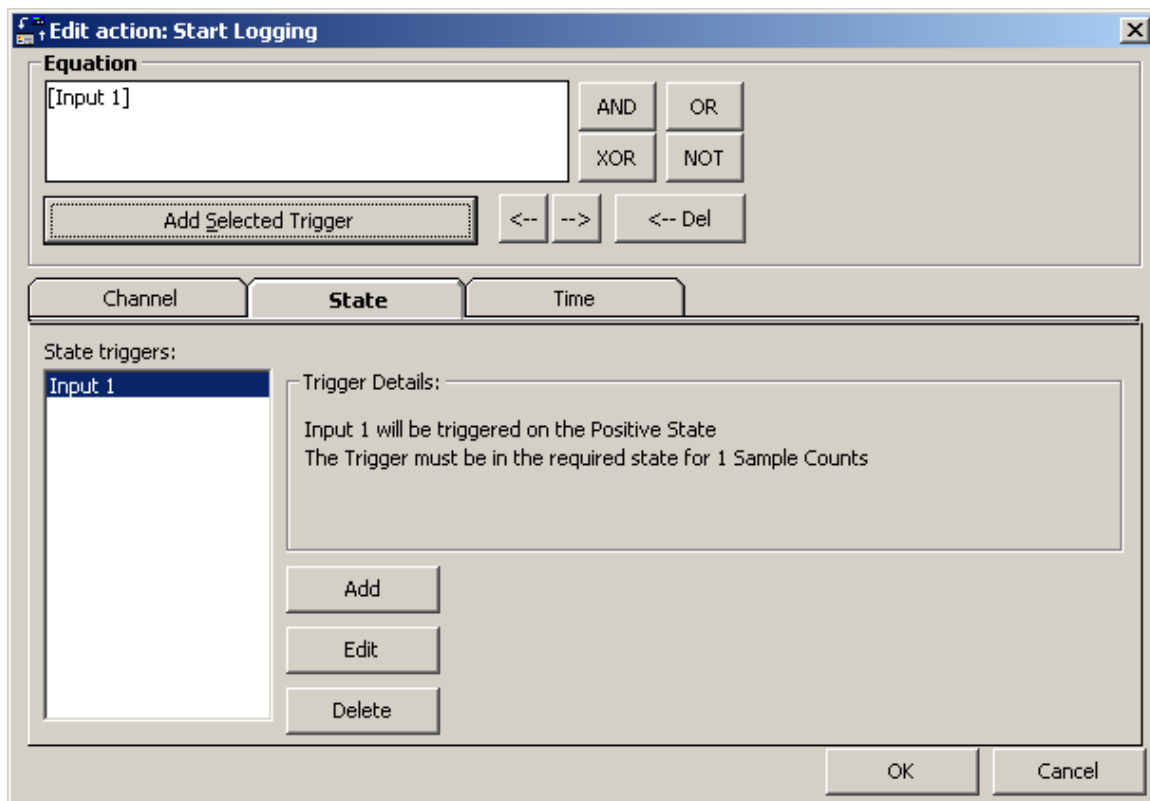
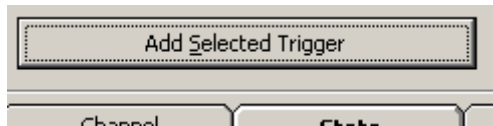


Then click on the *Add* button.

# DATA ACQUISITION

## Hints and Tips

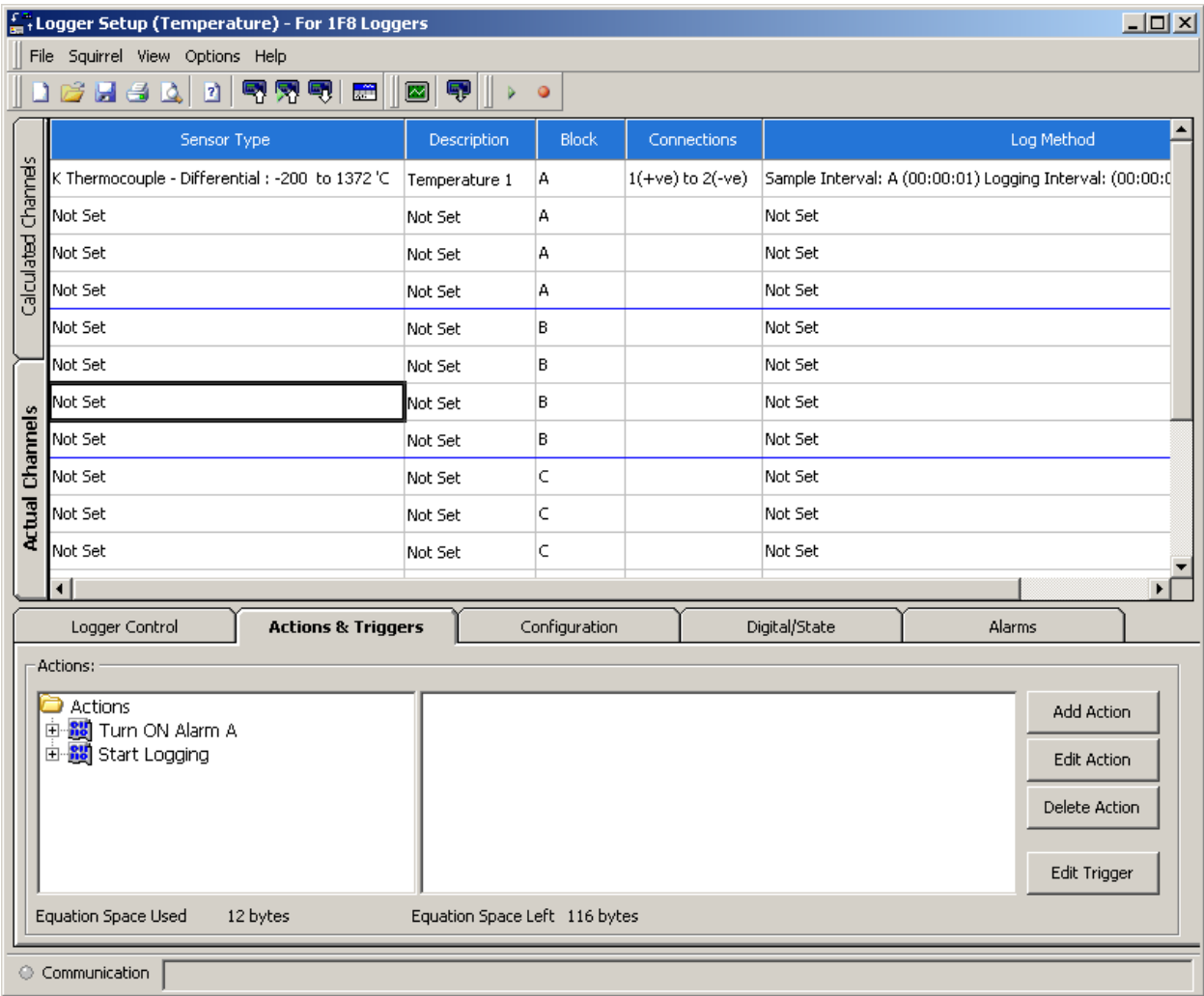
To add the action, click on the *Add Selected Trigger* button.



Click on the *OK* button.

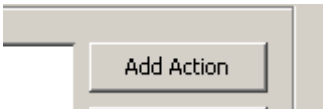
# DATA ACQUISITION

## Hints and Tips

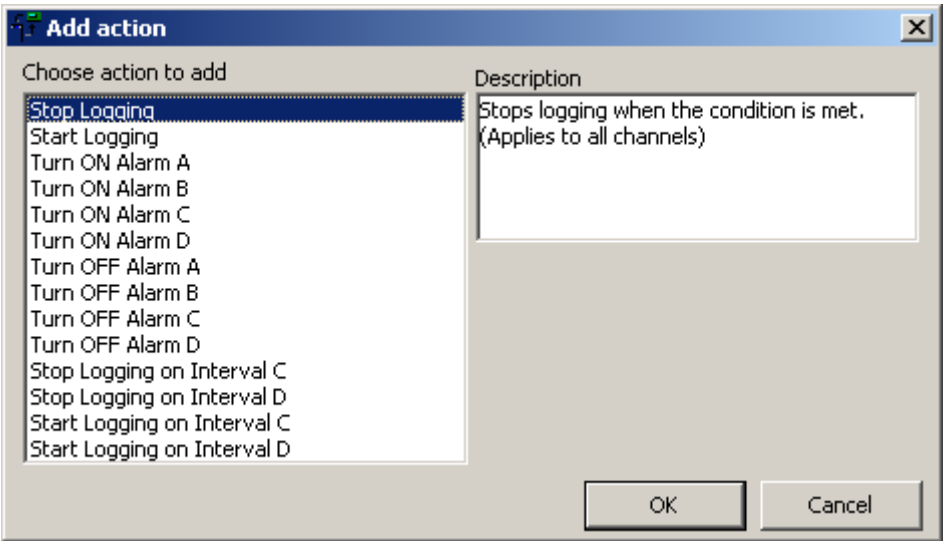


Now you need to add the stop logging action.

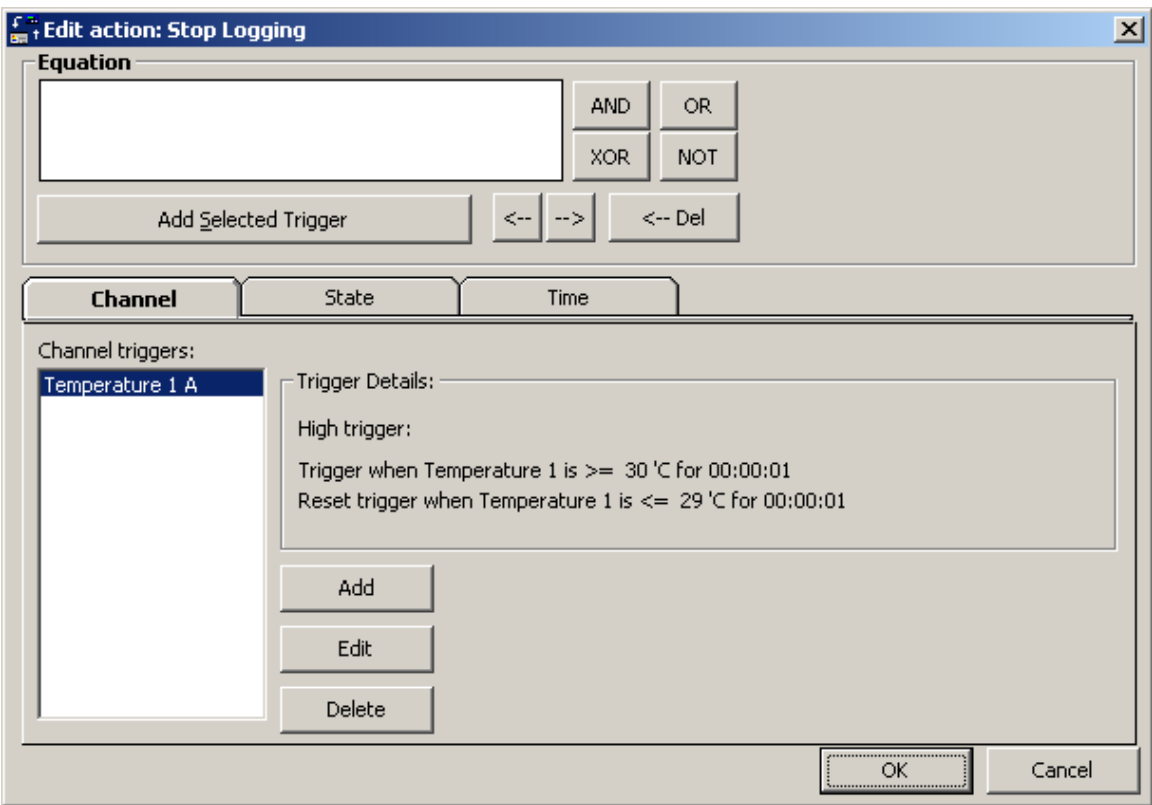
Click on the *Add Action* button.



Select the Stop Logging action.



Click on the OK button.



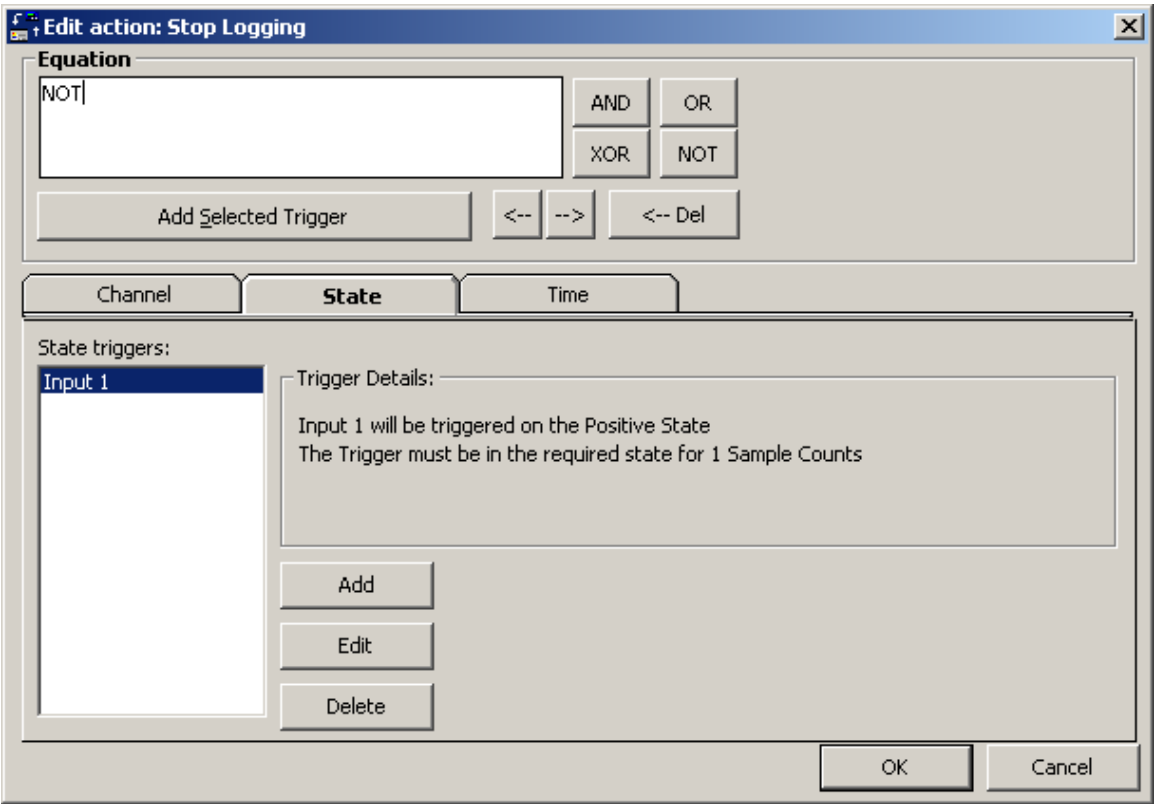
Select the State tab.



# DATA ACQUISITION

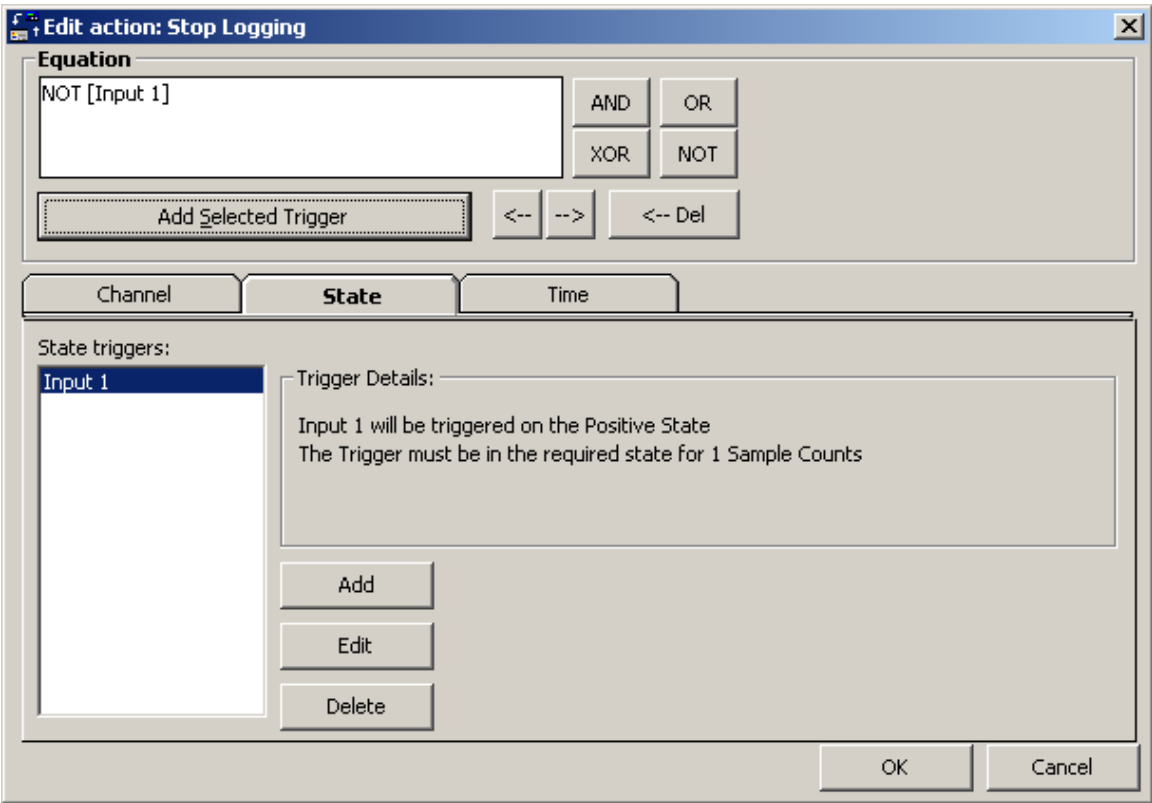
## Hints and Tips

And click on the *NOT* button.

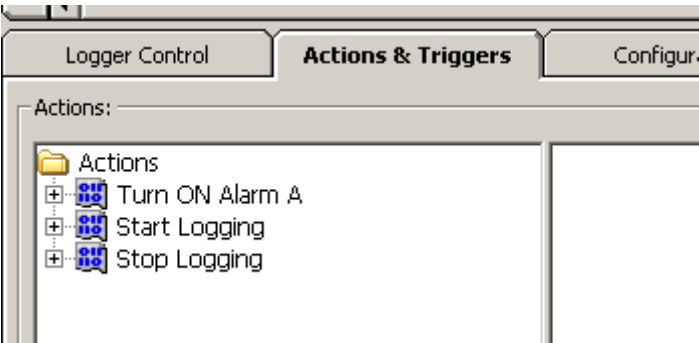


Click on the *Add Selected Trigger* button.

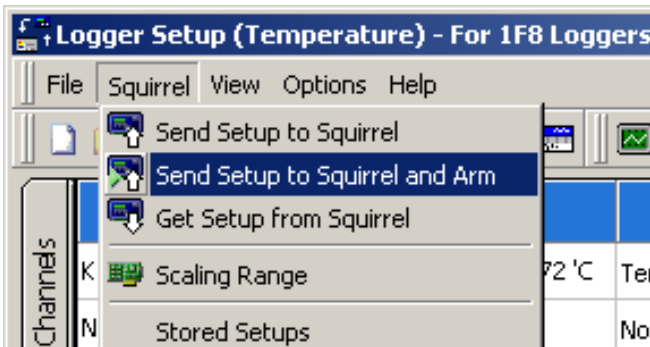




The logger will stop logging when the event is not activated  
Click on the **OK** button.



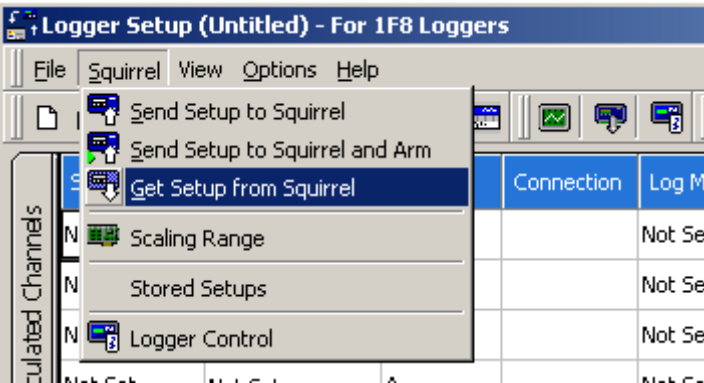
Save the Set-up  
Then send the setup the logger and start logging.



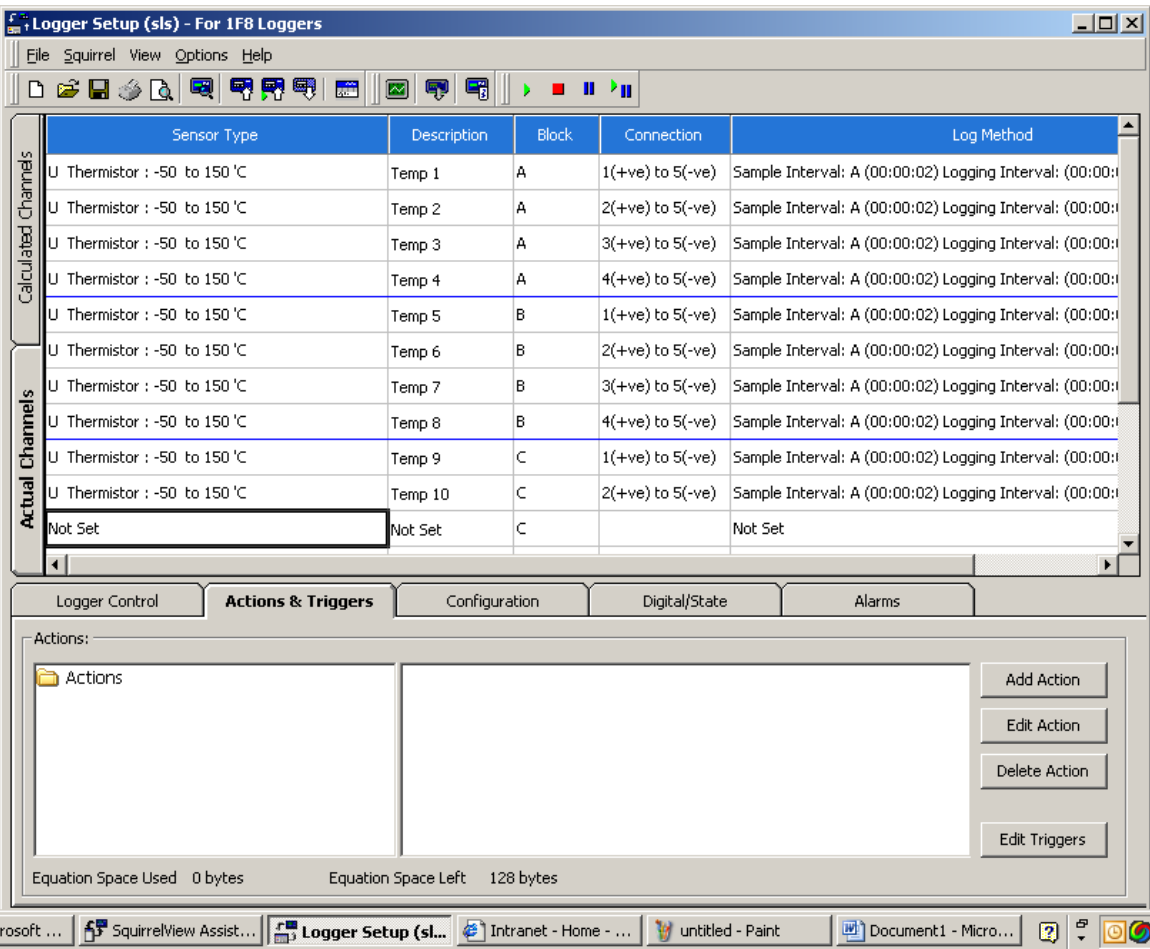


Setting an Alarm Action

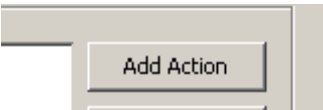
In Logger Setup Screen Get Setup from Squirrel



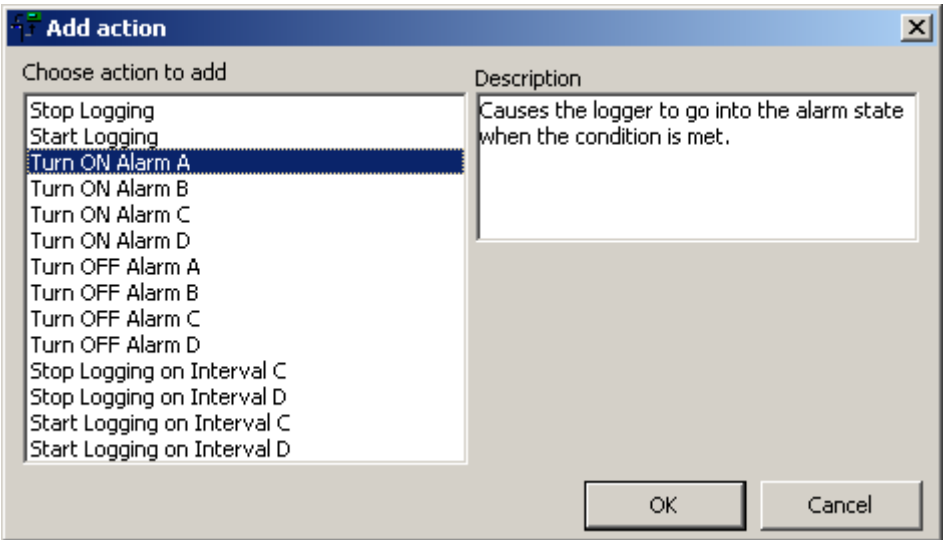
Click on Actions & Triggers tab



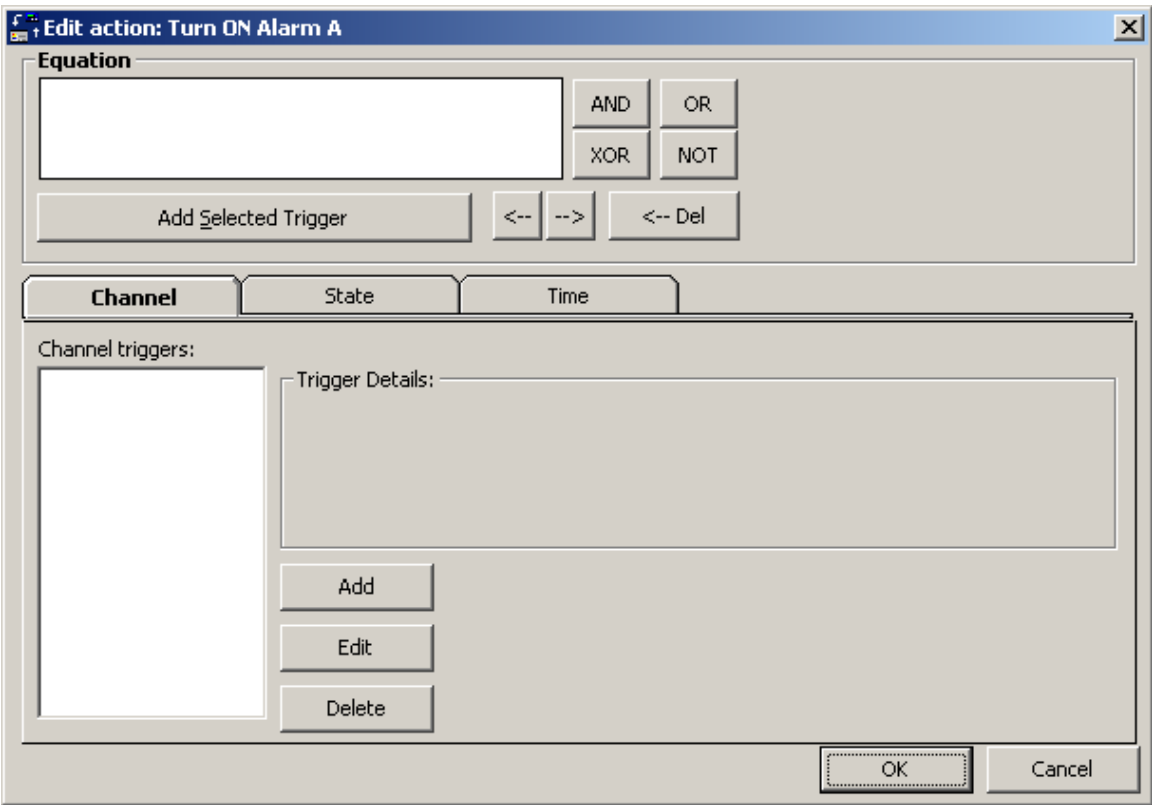
Click on the *Add Action* Button



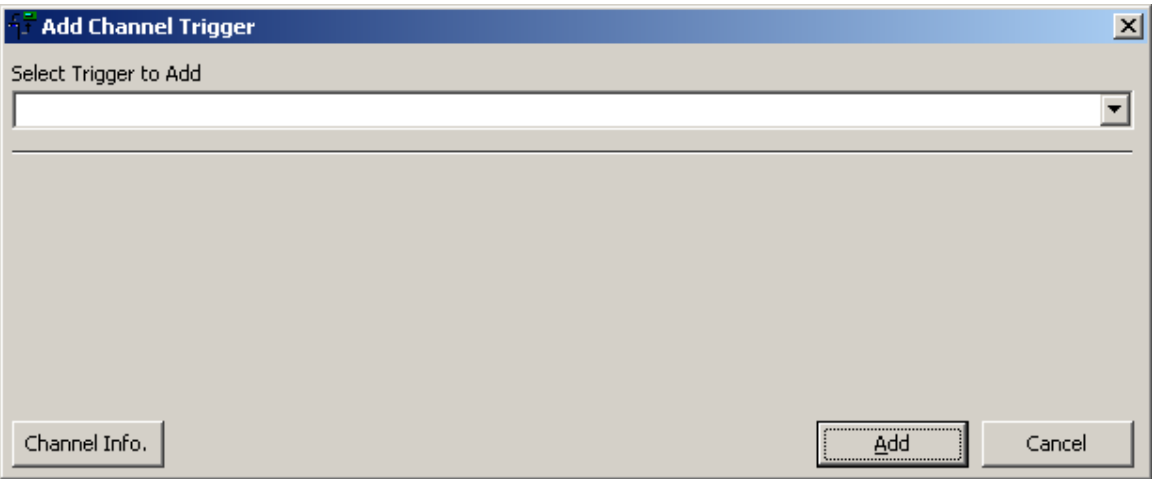
Select an alarm to turn on and Click on the *OK* button



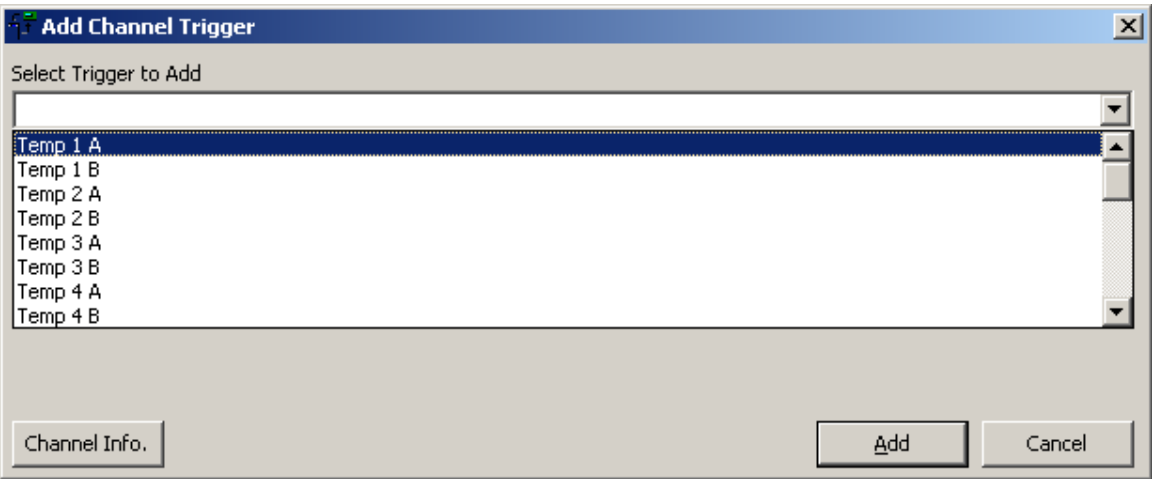
Click on the *Add* button



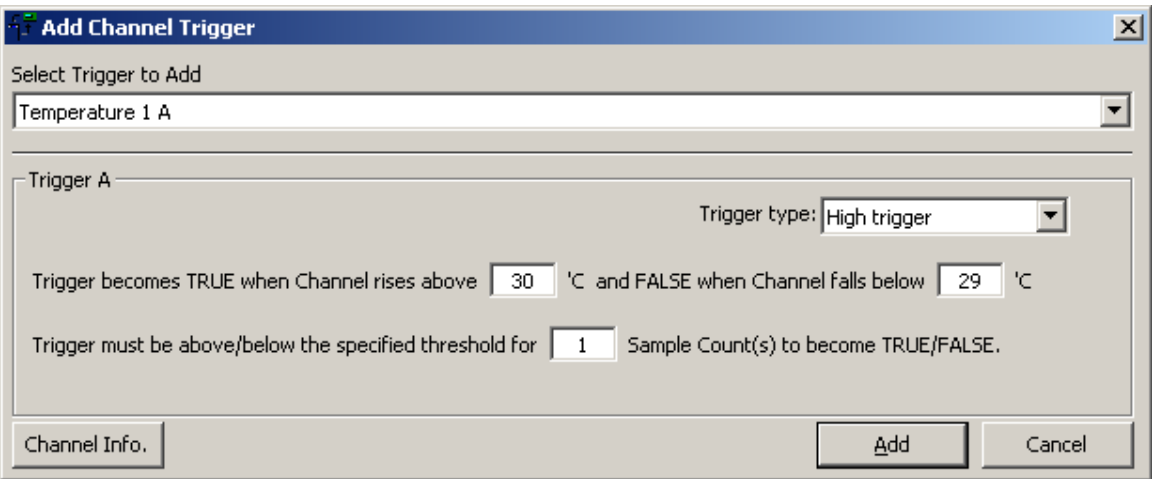
Enter the drop down box



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



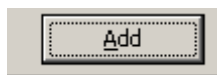
Choose the Trigger Type and enter the values required for the alarm



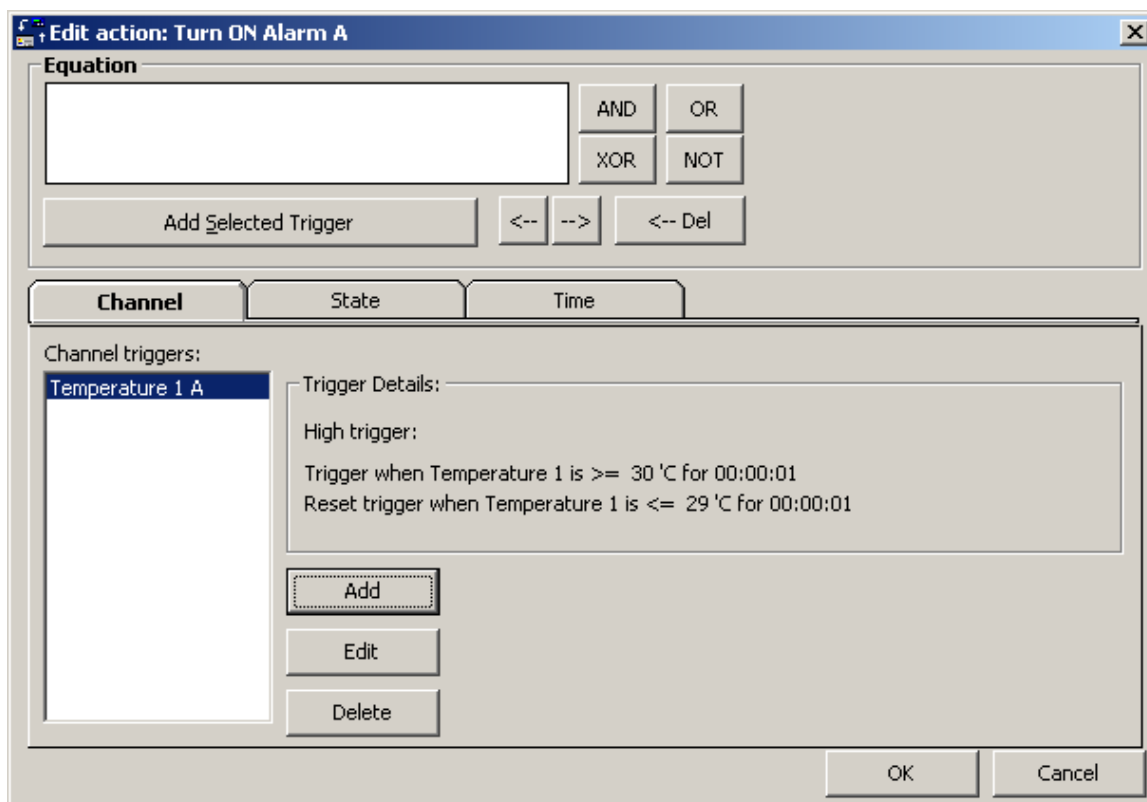
# DATA ACQUISITION

## Hints and Tips

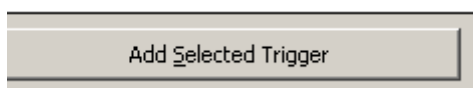
Click on the *Add* button

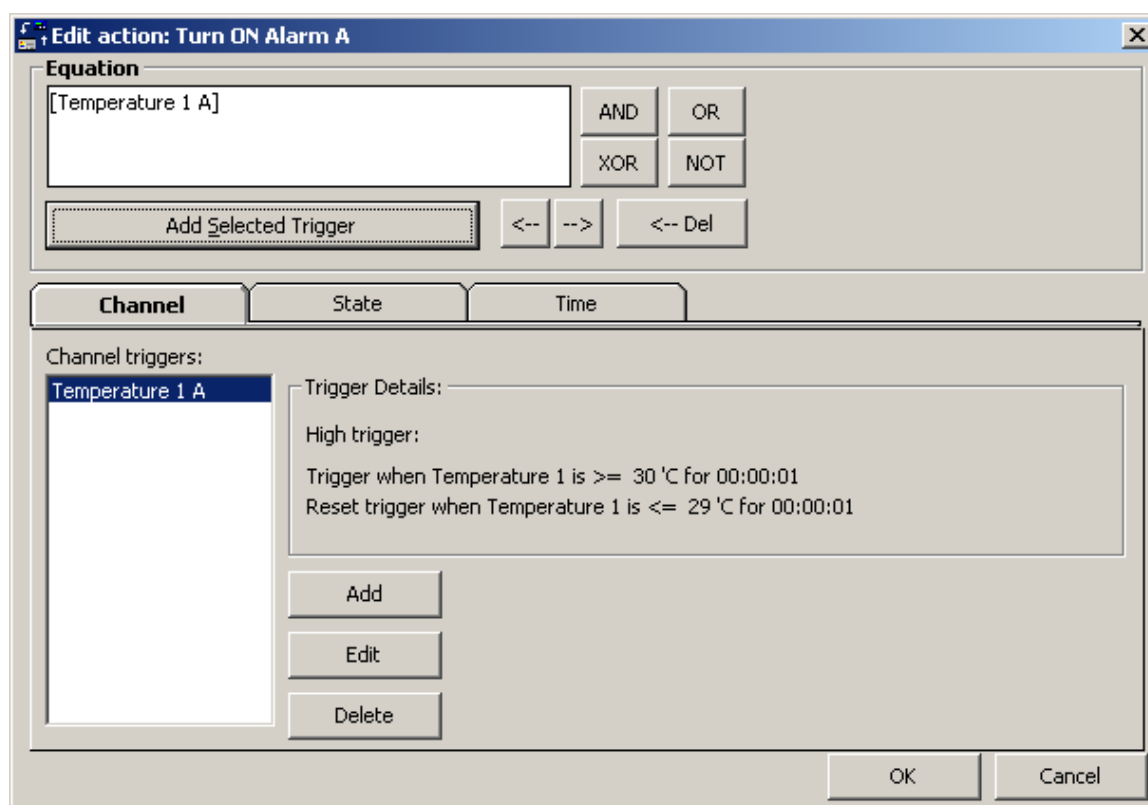


Highlight the Channel trigger to be added to the equation

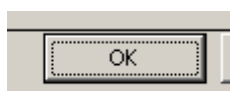


Click on the *Add Selected Trigger* button

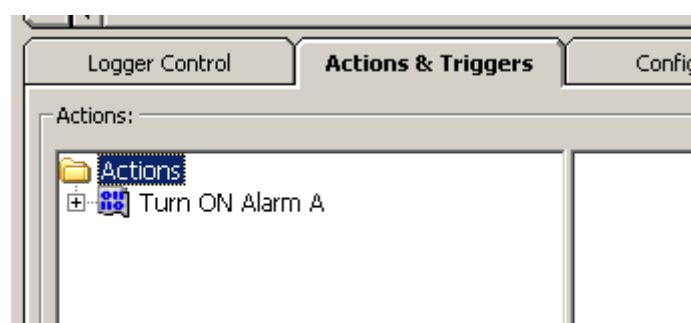




Click on the **OK** button



Action will appear as below in the Logger Setup window.



### Tip for the setting of alarms:

The alarms operate at the logging interval, so if you have a slow logging interval but want to see the alarm as it happens then set a Sample Count Value so the alarm is sampled more often.

**Logging Method**

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

☐ **Average**  
Readings are taken every sample interval and the average of these are stored every logging interval.

☐ **Sample only**  
Reading are not logged

☐ **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, summed and the sum is stored every logging interval.

---

**Samples**

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

Sample Interval:

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:

---

**Logging Interval**

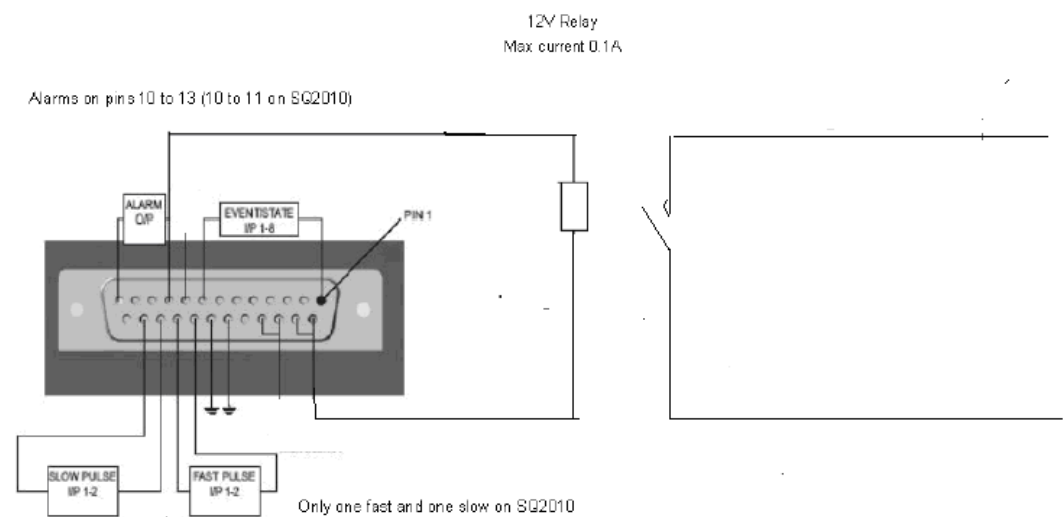
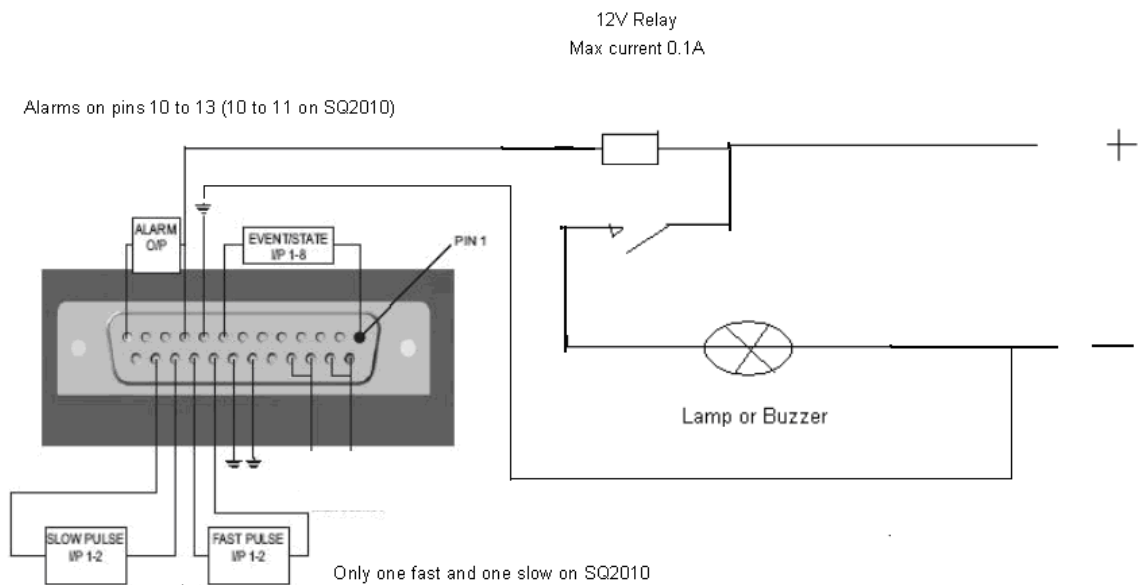
The logging interval determines how often readings are stored in the logger:

Logging Interval = 01:00:00  
= Sample Interval x Sample Count

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Sample Alarm Circuit

Below are a couple of example alarm circuits

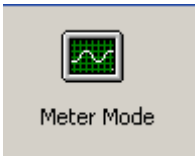


RS relay 211-1269

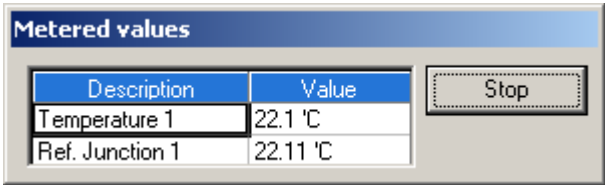
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Meter Mode

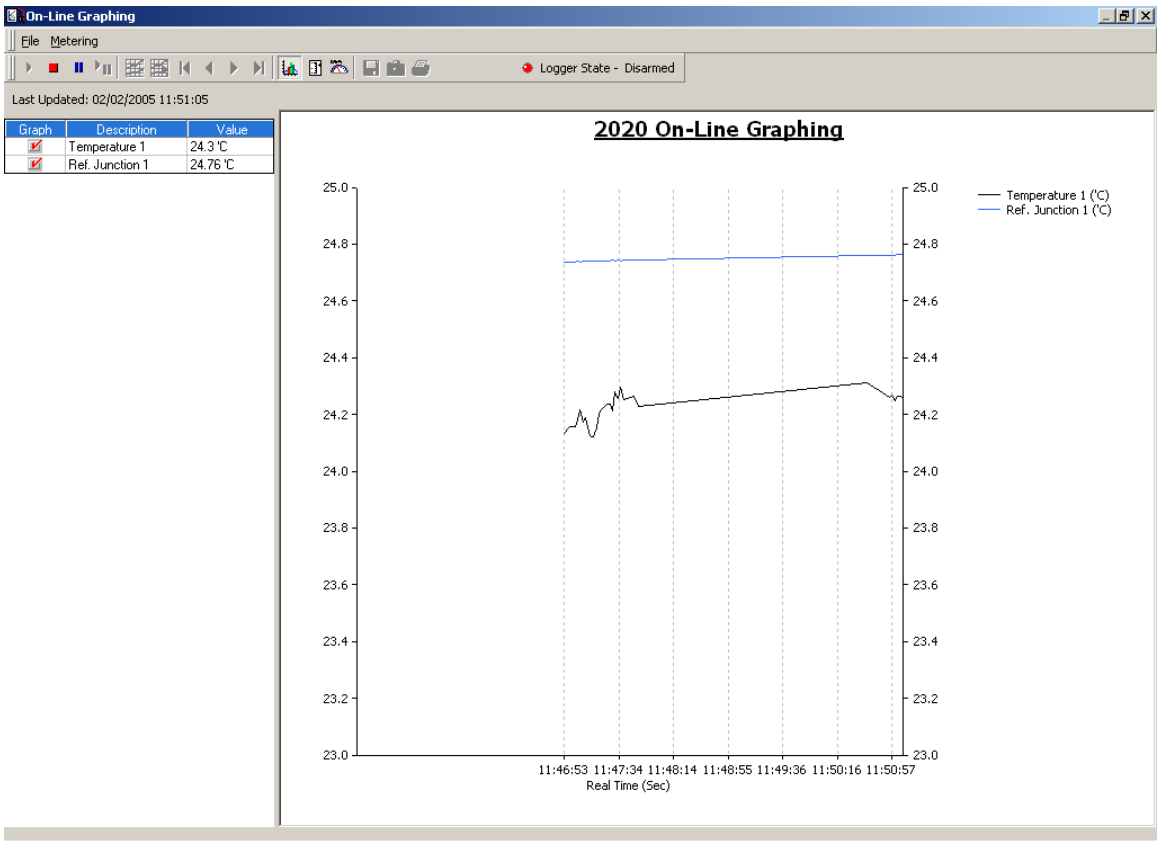
Once the channels have been set and the set file sent to the logger, click on the *Meter Mode* button on the front screen of the SquirrelView Assistant.



The Basic SquirrelView will display readings from the logger at approximately 1 Hz from all the channels that have been setup.



To see Online graphing, SquirrelView Plus software is required



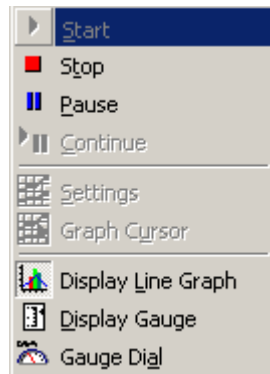
The graph is displayed with automatic scaling.



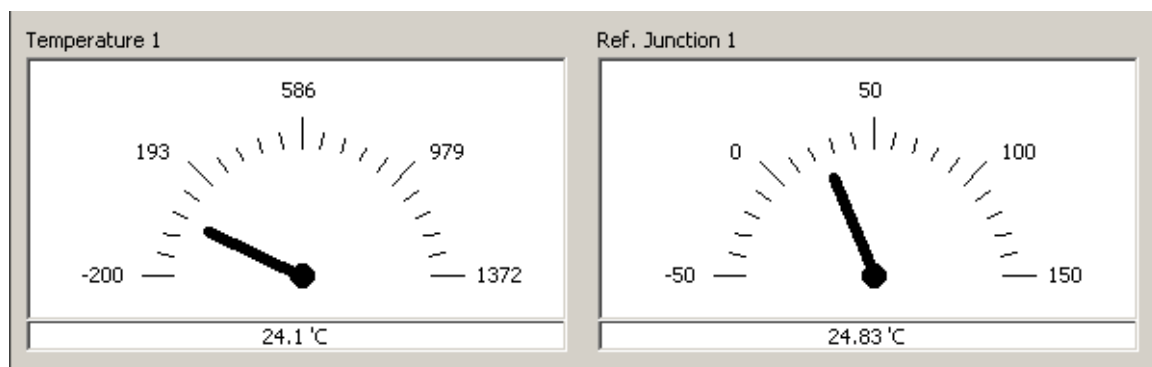
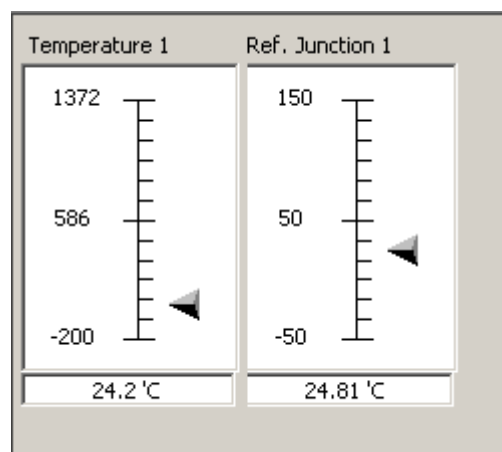
# DATA ACQUISITION

## Hints and Tips

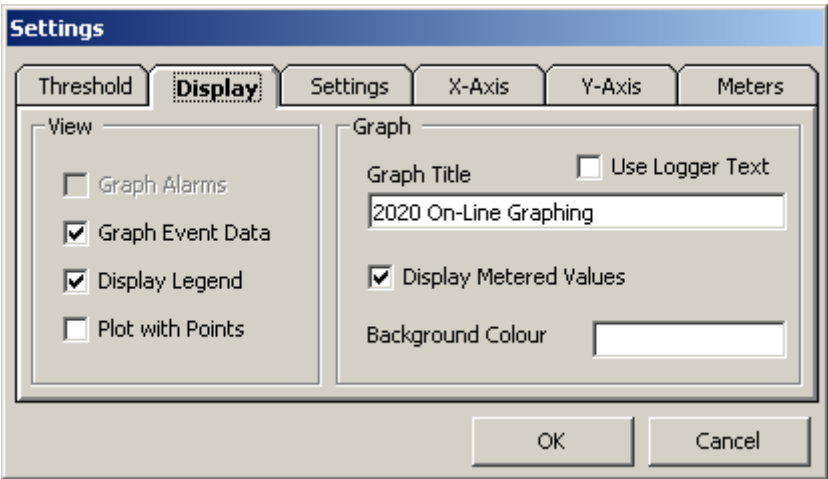
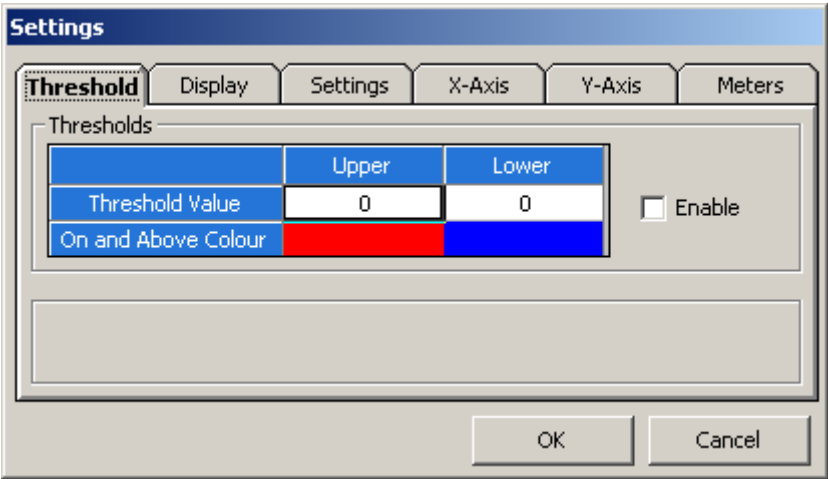
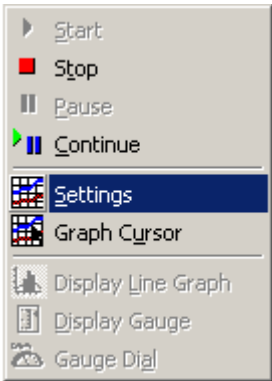
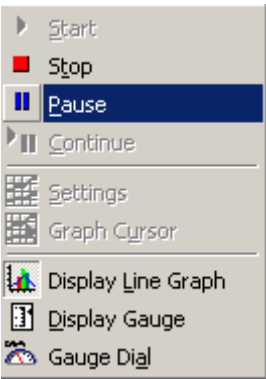
Right click on the graph to change display type



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: [Black]

OK Cancel

# DATA ACQUISITION

## Hints and Tips

**Settings**

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

Meters Scaling

Channel   Temperature 1 ▼

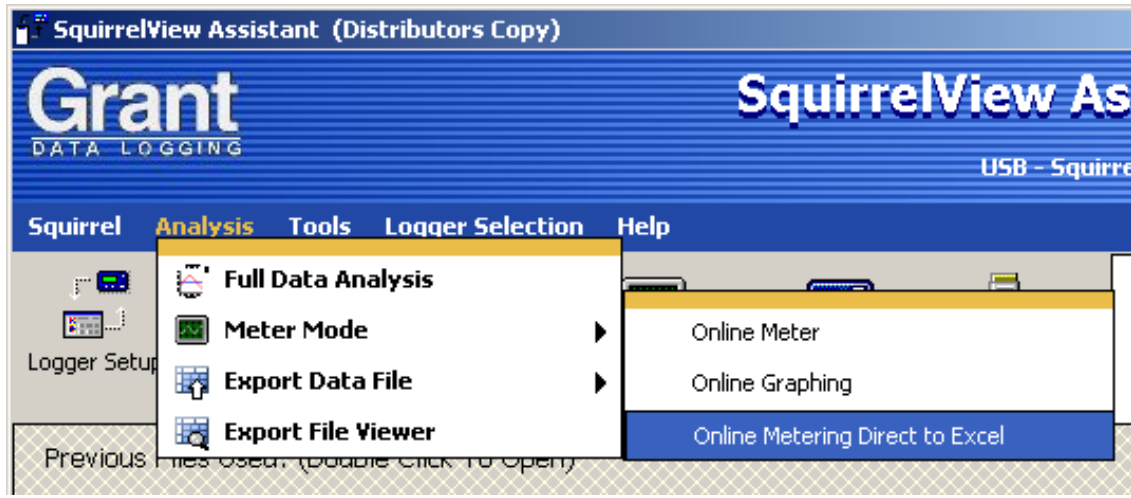
Upper Limit   1372

Lower Limit   -200

OK   Cancel

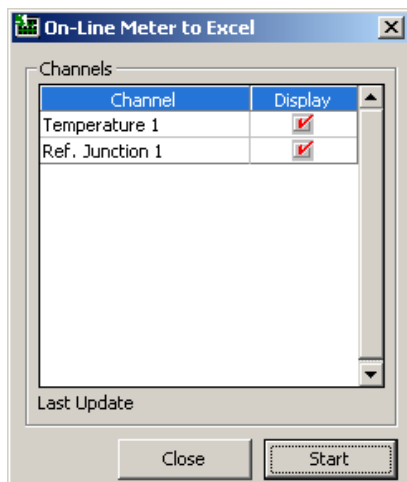
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### Online Metering Direct to Excel



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 SquirrelView 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, configured with the channels select metering to this spreadsheet.

SquirrelView Real-Time Meter - Sheet1

File Edit View Insert Format Tools Data Window Help

Elapsed Time

	A	B	C	D
1	Elapsed Time	Temperature 1	Ref. Junction 1	
2	00:00:04.056	24.5	24.69	
3	00:00:07.060	24.4	24.69	
4	00:00:10.044	24.4	24.69	
5	00:00:13.059	24.5	24.69	
6	00:00:16.043	24.5	24.69	
7	00:00:19.047	24.5	24.7	
8	00:00:22.051	24.5	24.69	
9	00:00:25.056	24.4	24.7	
10				

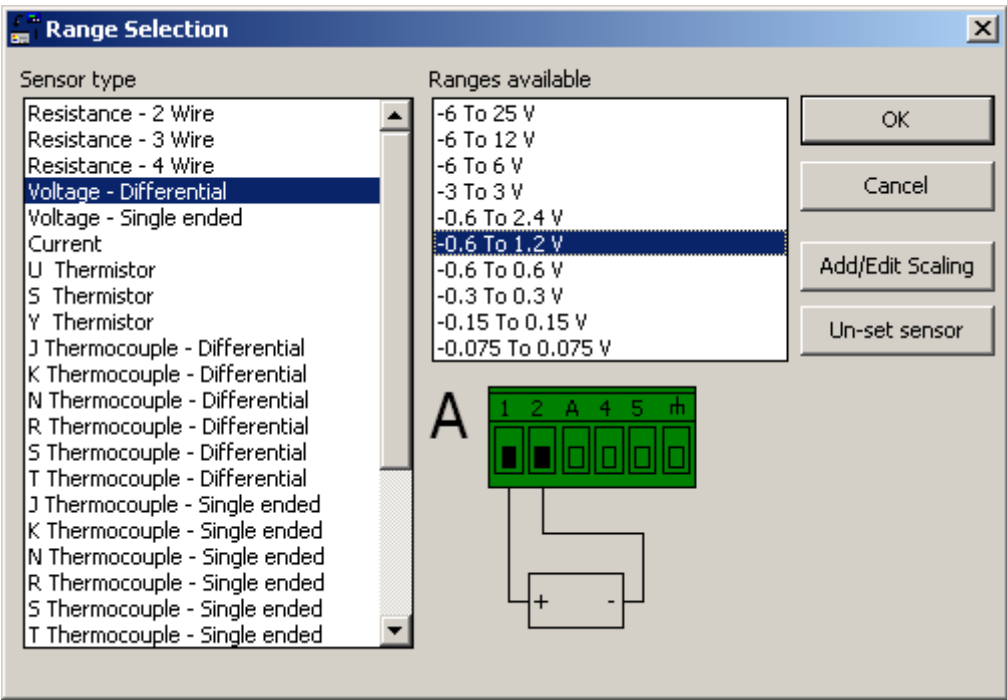
**Note:** It is requested not to edit or change any of the spreadsheets settings until metering has stopped and exited. Any modification to the spreadsheet whilst metering could lead to corruption of the data.

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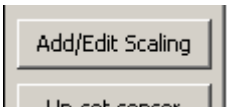
Engineering Units

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.

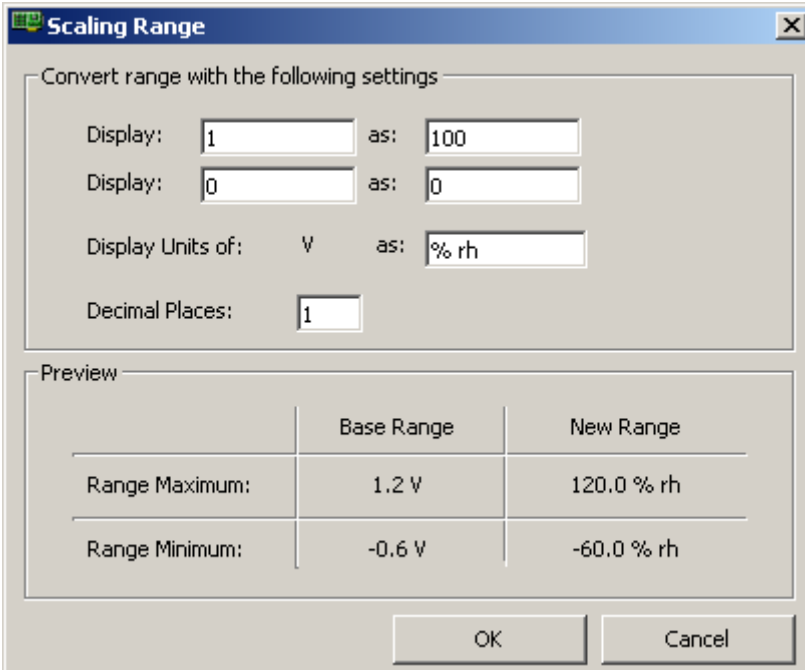


# DATA ACQUISITION

## Hints and Tips

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 used to convert a range from one unit to another. It contains the following fields:

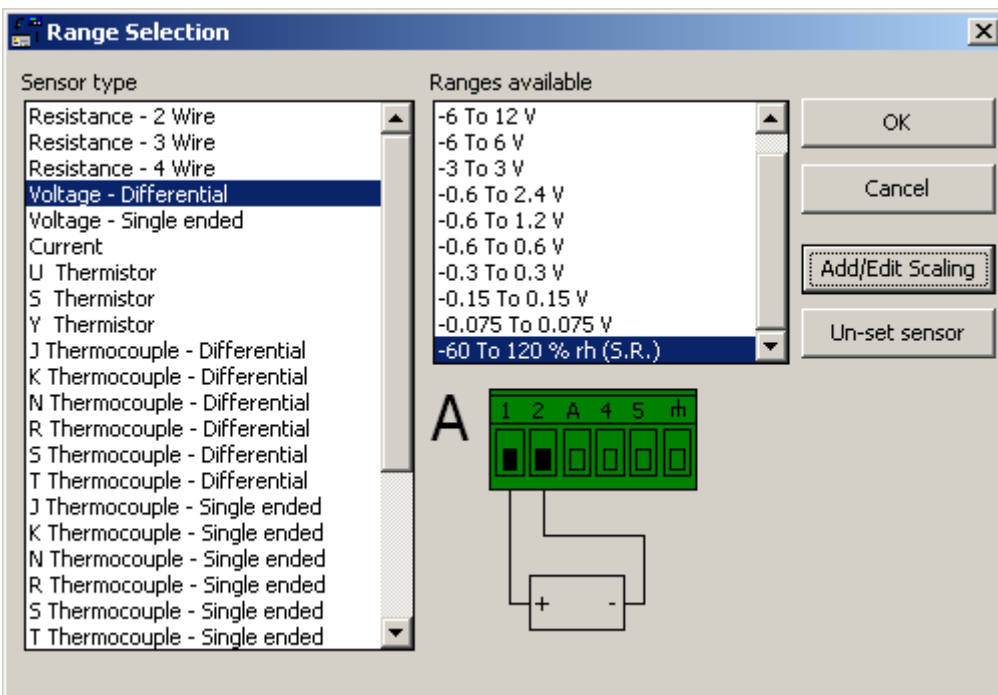
- Convert range with the following settings**
- Display:** 1 **as:** 100
- Display:** 0 **as:** 0
- Display Units of:** V **as:** % rh
- Decimal Places:** 1

**Preview**

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

Buttons: OK, Cancel

Click on the **OK** button.



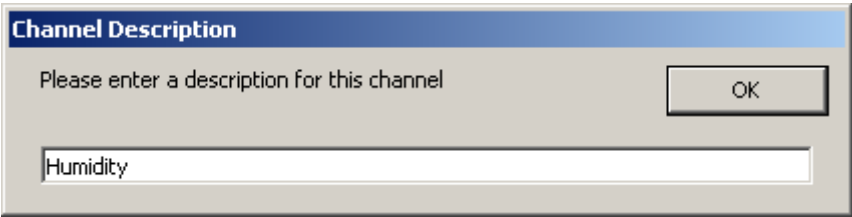
The **Range Selection** dialog box allows you to select a sensor type and a range. It contains the following elements:

- Sensor type** (List box): Resistance - 2 Wire, Resistance - 3 Wire, Resistance - 4 Wire, **Voltage - Differential** (selected), Voltage - Single ended, Current, U Thermistor, S Thermistor, Y Thermistor, J Thermocouple - Differential, K Thermocouple - Differential, N Thermocouple - Differential, R Thermocouple - Differential, S Thermocouple - Differential, T Thermocouple - Differential, J Thermocouple - Single ended, K Thermocouple - Single ended, N Thermocouple - Single ended, R Thermocouple - Single ended, S Thermocouple - Single ended, T Thermocouple - Single ended.
- Ranges available** (List box): -6 To 12 V, -6 To 6 V, -3 To 3 V, -0.6 To 2.4 V, -0.6 To 1.2 V, -0.6 To 0.6 V, -0.3 To 0.3 V, -0.15 To 0.15 V, -0.075 To 0.075 V, **-60 To 120 % rh (S.R.)** (selected).
- Buttons:** OK, Cancel, Add/Edit Scaling, Un-set sensor.
- Diagram:** A diagram showing a green terminal block with pins 1, 2, A, 4, 5, and rh. Wires are connected from pins 1 and 2 to a positive (+) terminal, and from pins A and 4 to a negative (-) terminal.

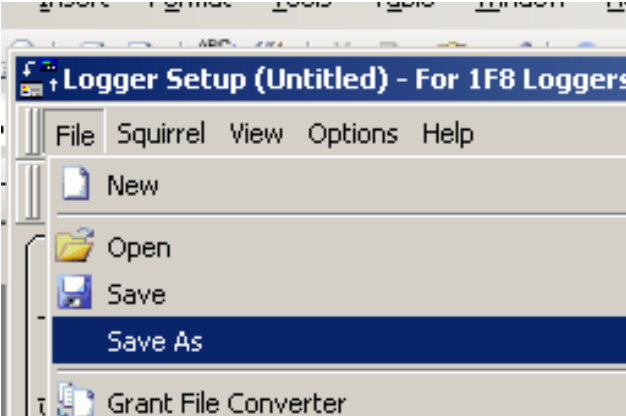
Select scaled range (SR) and click on the **OK** button.



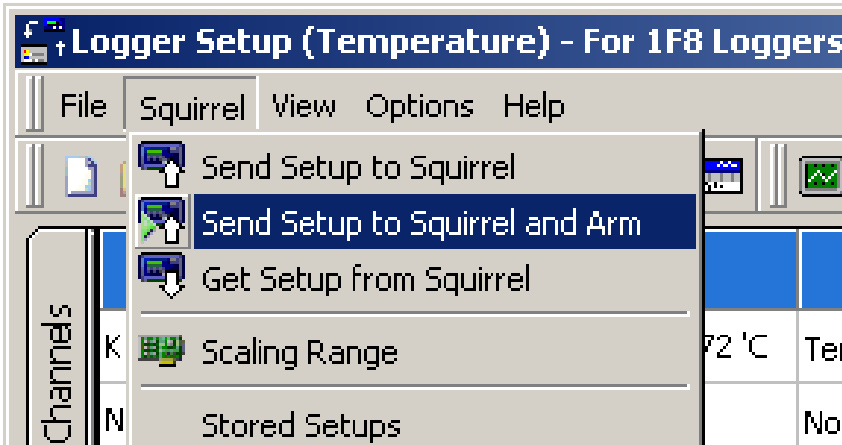
Enter a description for the channel.



Save the setup



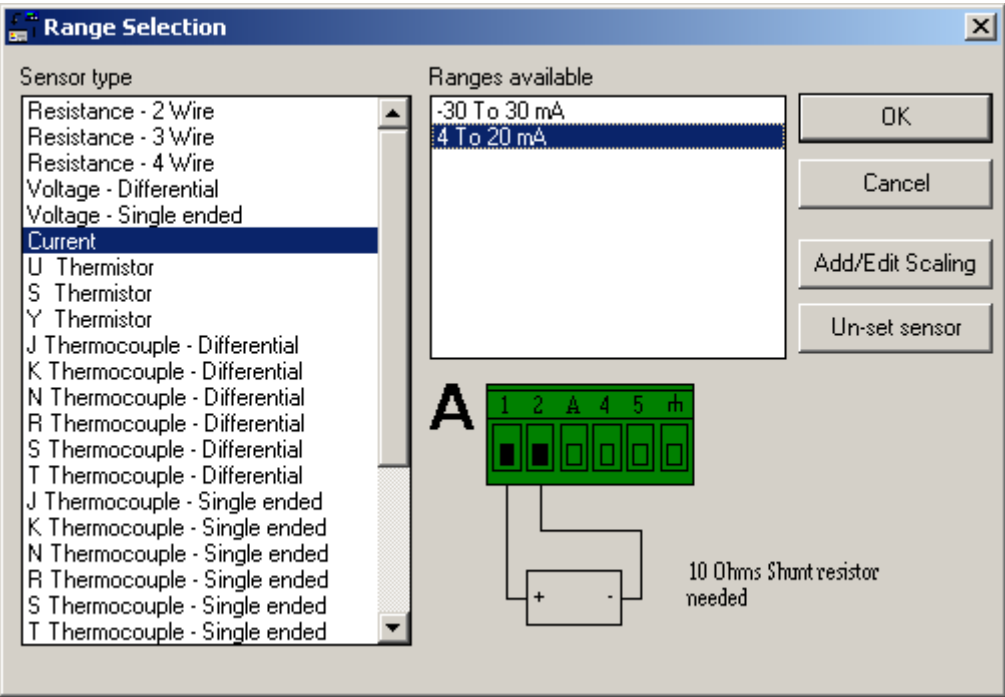
Send the setup to logger and Arm if required



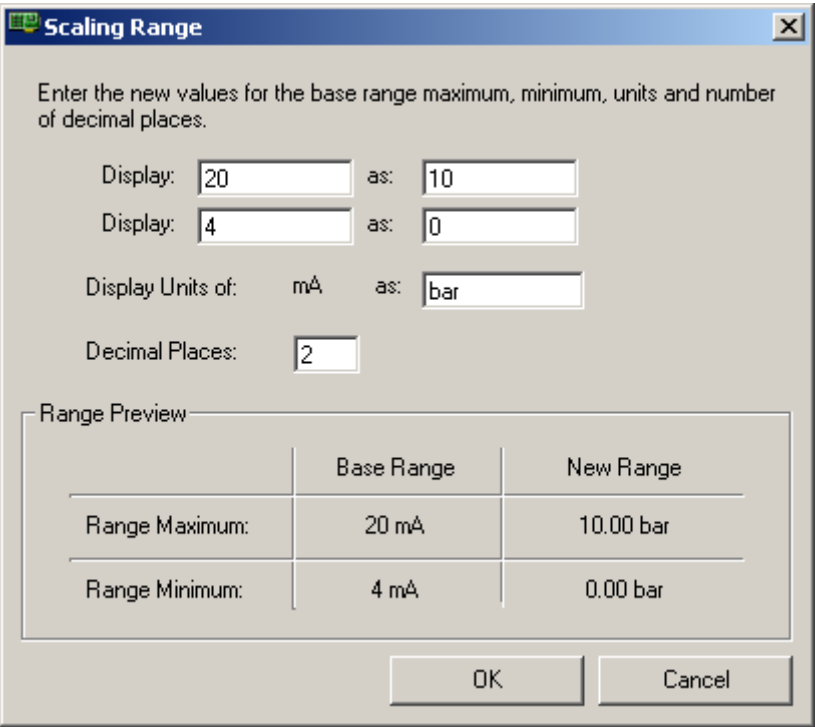
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4 to 20 mA Connections

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.

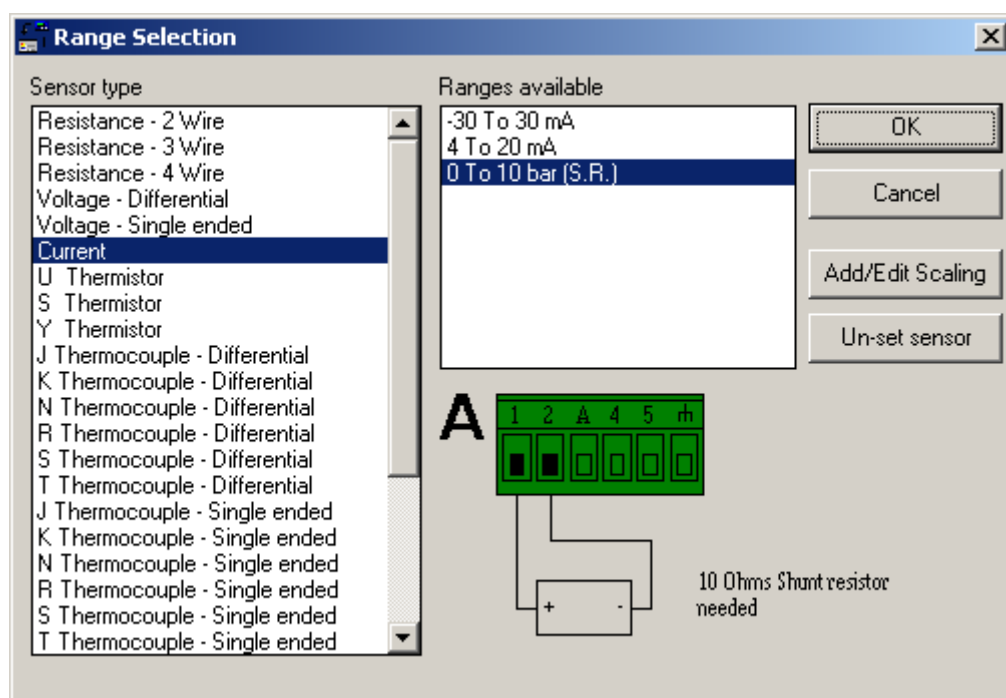


If engineering units are required click on Add/Edit Scaling button  
The example below shows input scaled to log as 0 to 10 bar pressure

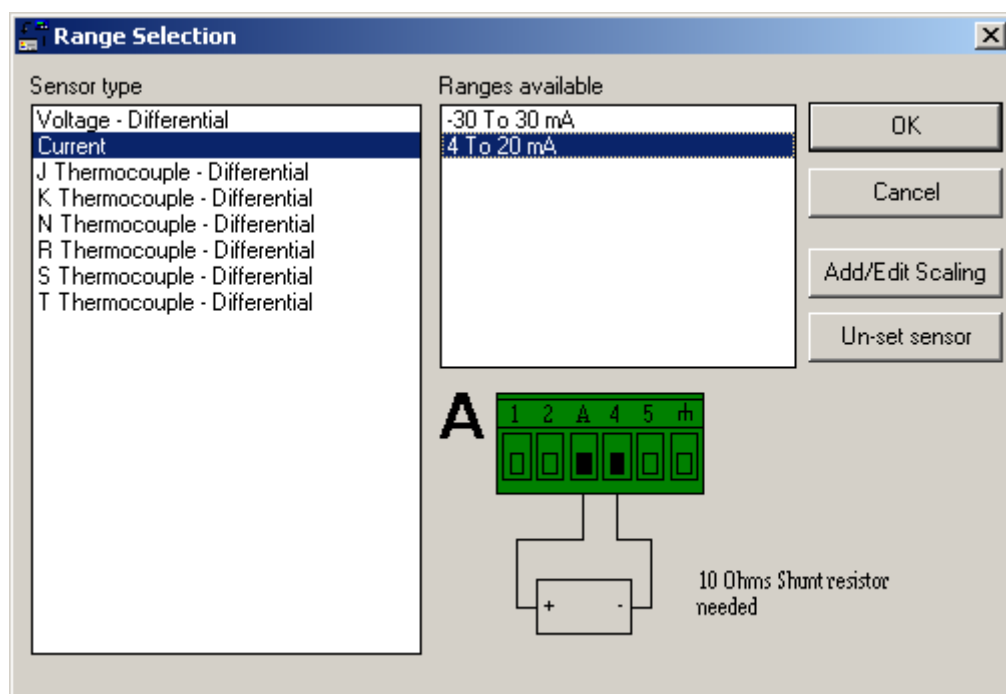


# DATA ACQUISITION

## Hints and Tips



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

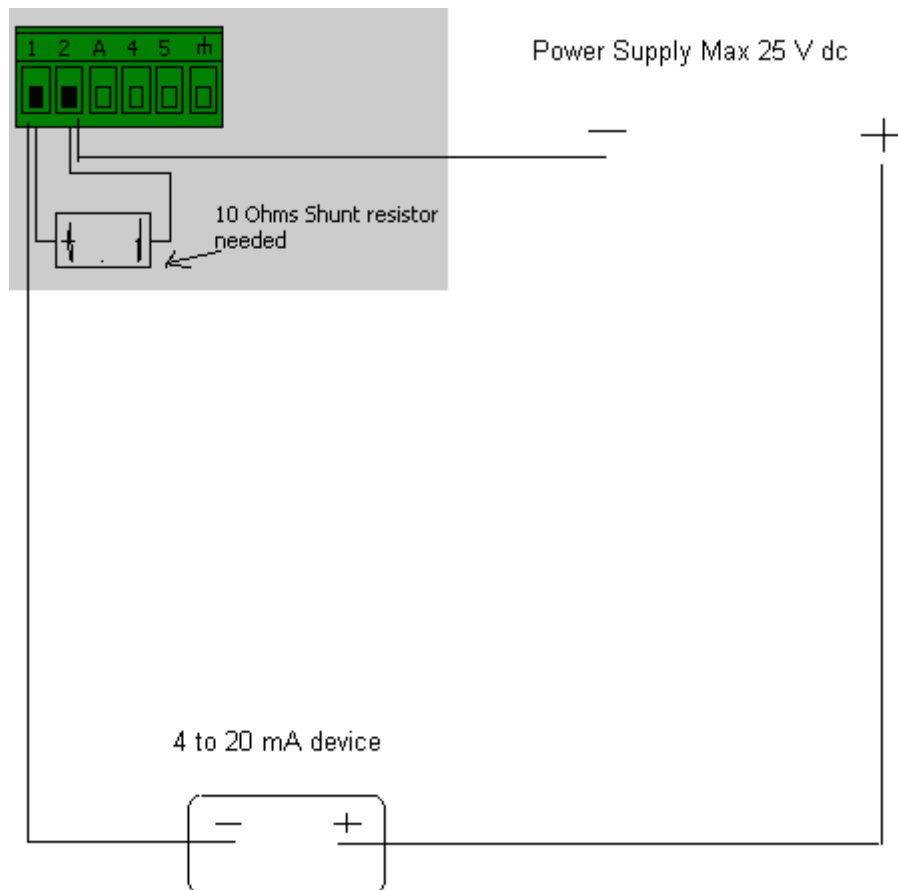
# DATA ACQUISITION

## Hints and Tips

### Connect sensor wires as follows

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

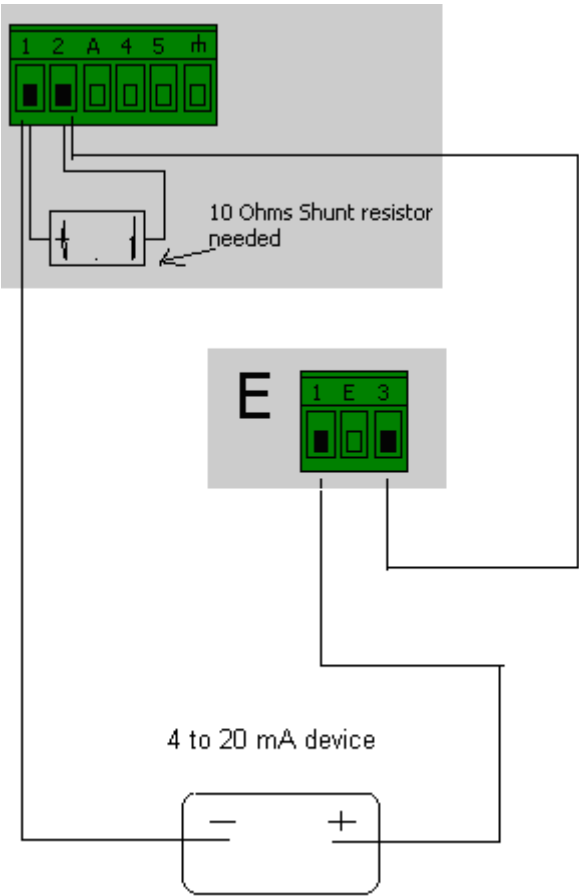
Connect probes with precision 10 Ohm resistor (pack of four grant part CS202 supplied with logger) across terminals as shown below



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

# DATA ACQUISITION

## Hints and Tips



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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' window with the 'Configuration' tab selected. Under 'Sensor Power Timers', there are two sections: 'A (Supply)' and 'B (5V)'. Each section has a time input field (currently '00:00:00') and a checkbox for 'Continuous'. The 'Continuous' checkboxes are currently unchecked.

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 has 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 of the options is a diagram of a 3-pin connector labeled 'E' with pins 1, E, and 3. Below the connector is a power symbol with '+' and '-' terminals.

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### Setting up a Inbuilt Ethernet Connection

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

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

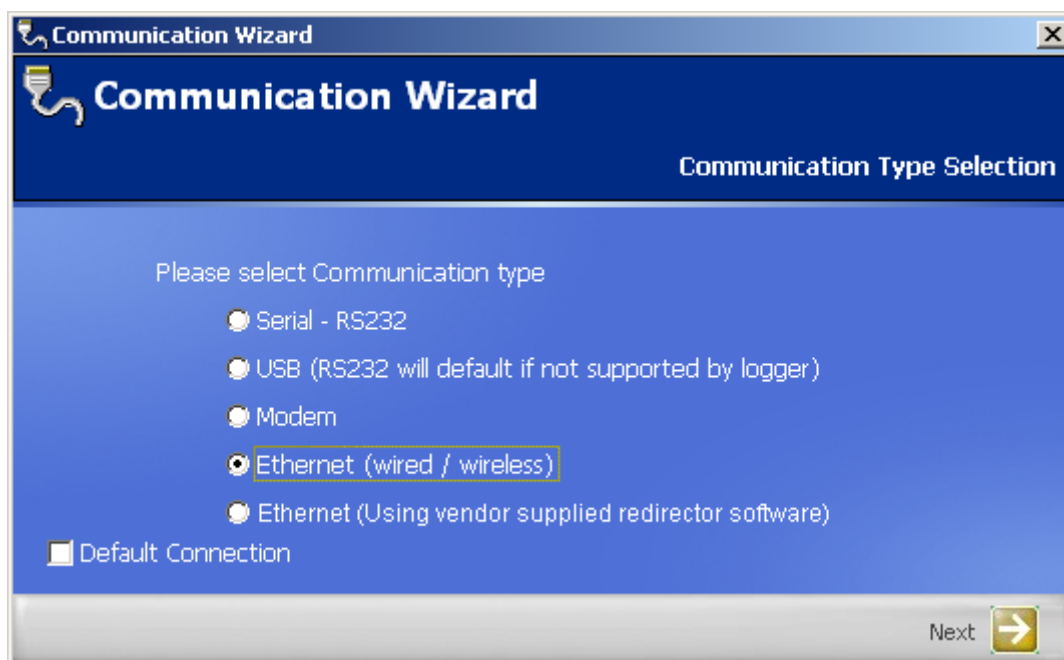
Refer to the Configuring the 20xx Inbuilt Ethernet Device manual which can be found on the Resource CD, In Squirrelview help under manuals or on the website at the following link: [Configuring Inbuilt Ethernet](#)

Once the SQ20xx Ethernet has been setup the IP address needs to be set in the Squirrelview software.

In the Squirrelview Assistant click on *Communications Wizard*



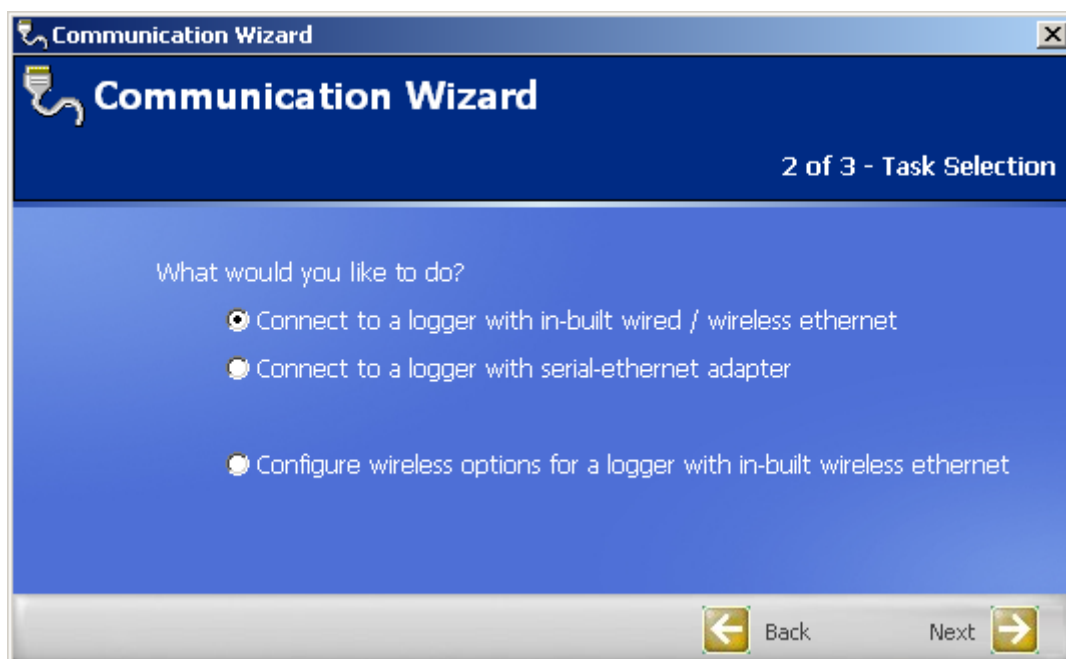
Click on the *Ethernet* communication type and then click the *Next* arrow



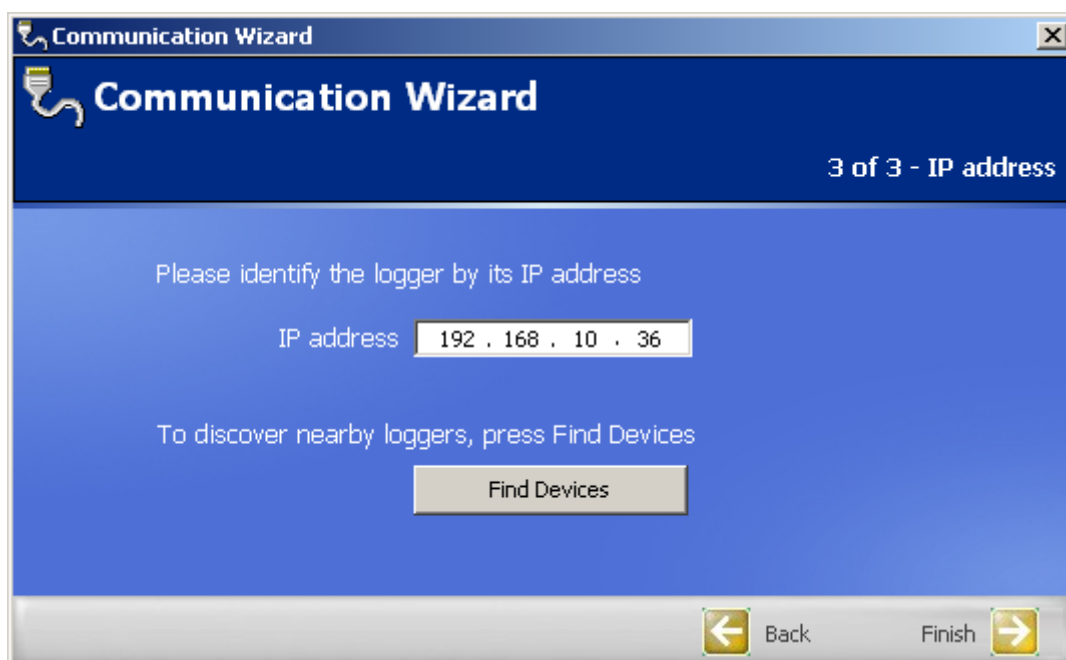
# DATA ACQUISITION

## Hints and Tips

Then choose *Connect to a logger with in-built wired/wireless Ethernet* and click on the *Next* arrow



Then enter the IP address that has been entered into the SQ20xx Datalogger when the inbuilt Ethernet was configured in the *Ethernet Device IP Address* box. Click on the *Finish* arrow.



Squirrelview can now communicate with the logger via the Ethernet.

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