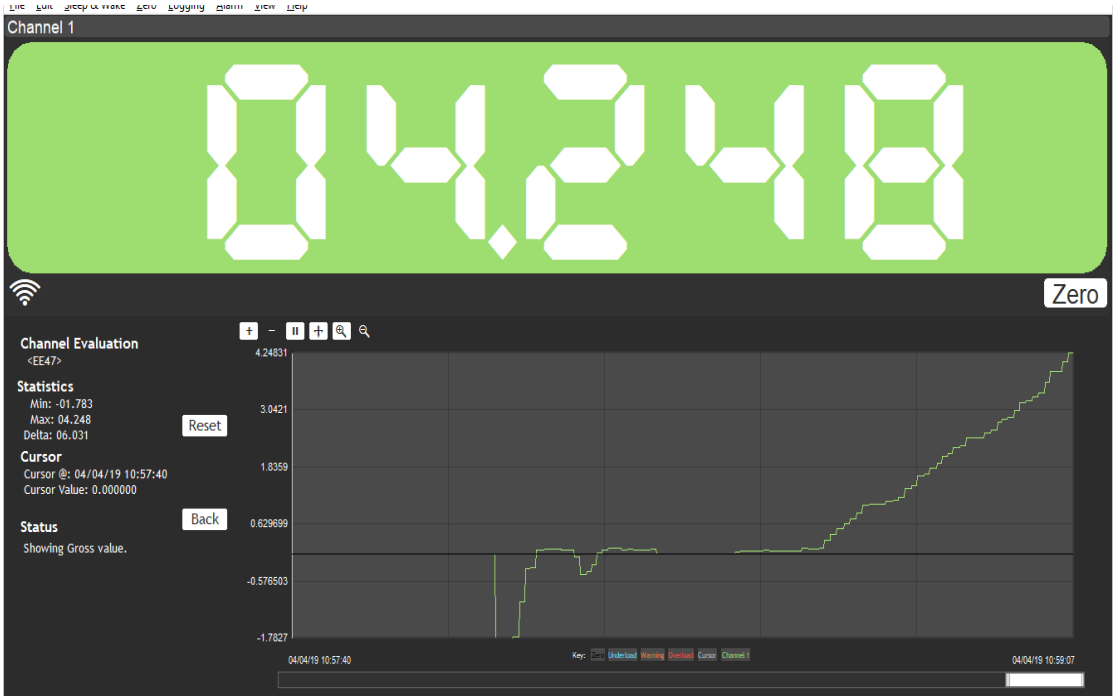
Load Logging User Instruction manual

IP67 Divacell

Wireless Load Cells

T24 log100 for Load Equipment

User Guide



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Equipment

	Laptop PC – used to capture data to file – When being used ALL the loadcells will be required to be on in order to zero any of the units Using the software) any number of loadcells can be used. The software can switch all the units off or on simultaneously. T24 log software is used for the data capturing.
	T24 Base station – plugged into the PC, the device can receive the signals for the T24 Log software to process

Software Summary

The T24 Log Software is designed to log readings from various units simultaneously and record these onto an Excel based file for charting/reviewing later. Depending on your Application you will have received a copy of Log 100. Apart from the screen colours being different, the layout and features are the same for this manual.

This software can operate with a minimum of 1 loadcell and will be programmed with each channel per cell to suit the job application. (2 channels are shown on the examples given).

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SKIP THIS PAGE IF SUPPLIED ALREADY INSTALLED

Installation
(only done if software supplied new)

There are two software programs supplied with the unit.

1. Log 100 setup-Installer

- Switch the PC on and ensure windows has loaded up,
- Plug in the T24 Base station device and wait around 10 seconds (windows will configure drivers)
- Copy the two files from the USB stick to the desktop for now.
- RUN the Log100 Setup file.
- (wait for install to happen)
- When prompted – you may run the software.

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Quick Start for activating

Typical usage (once the program and setup have been installed)

- Switch on the PC Laptop and enter any log on details (printed on the Keyboard) - wait for windows to load.
- Plug the Base station into any USB socket on the Laptop this can be done before switch windows on without issue.
- Double click the 

icon to launch the program.

The display screen will appear with the loads if the RLMS are plugged or dashes if not.

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Click Edit and select **Configure Project**

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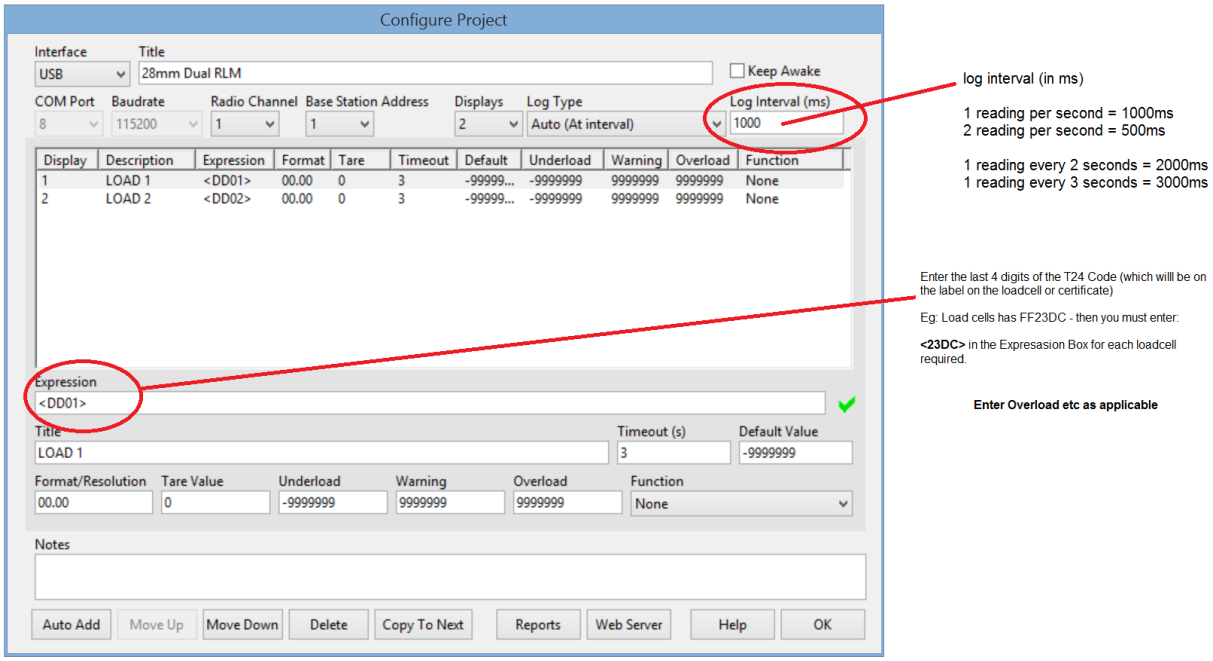

log interval (in ms)

1 reading per second = 1000ms
2 reading per second = 500ms

1 reading every 2 seconds = 2000ms
1 reading every 3 seconds = 3000ms

Enter the last 4 digits of the T24 Code (which will be on the label on the loadcell or certificate)

Eg: Load cells has FF23DC - then you must enter:

<23DC> in the Expresasion Box for each loadcell required.

Enter Overload etc as applicable

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ADJUSTING THE LOGGING RATE

(*Default 1 reading every second*)

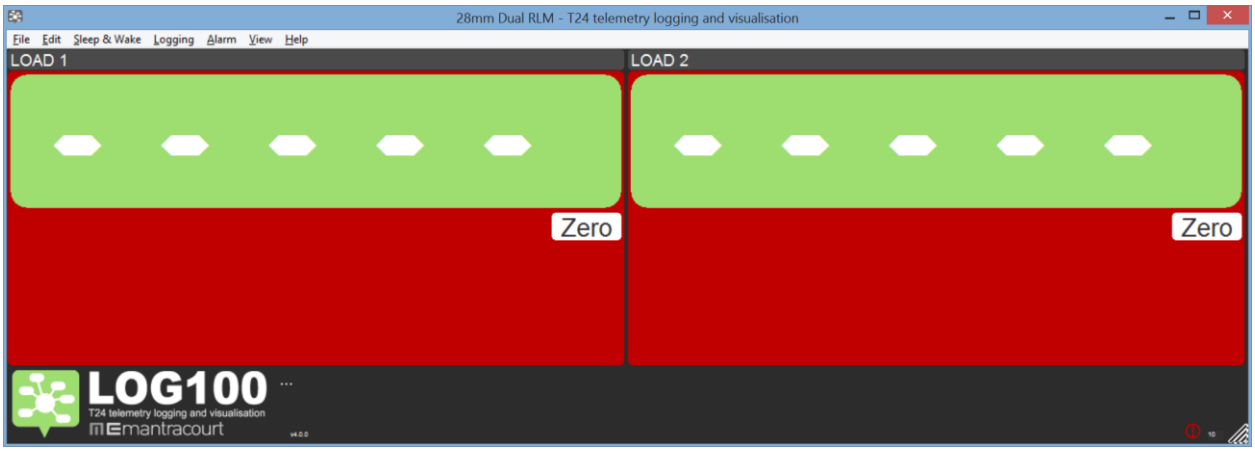
The logging rate can now be adjusted by changing the log interval as appropriate. Please note that generally the transmit rate is 1 per second and increasing this on this screen will not increase the TX rate (Quicker than 2 per second).

Please do not adjust any other parameter than the logging rate as this may cause the logging aspect to fail if a parameter is not correct on this setup.

Getting Started

Please refer to the separate manual for hooking up the Load cell and ensure the unit is switched on.

The logging screen with no transmission will look like this:



A screen with transmission will show the loads similar to this:

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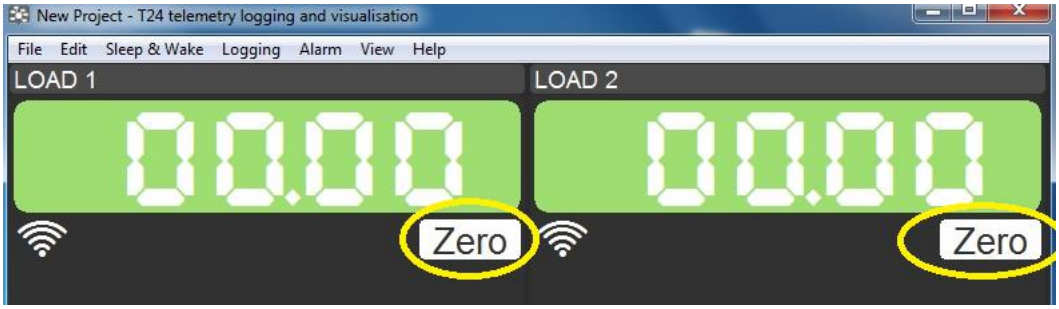
ZERO/TARE of rope

Prior to Pulling load – the Handset will require to be zeroed (please familiarize yourself with this as per the display handset manual).

You may need to zero the pc on screen – do this by pressing the ZERO icons as shown here:



Ready to record

- Click LOGGING at the top then select START LOGGING

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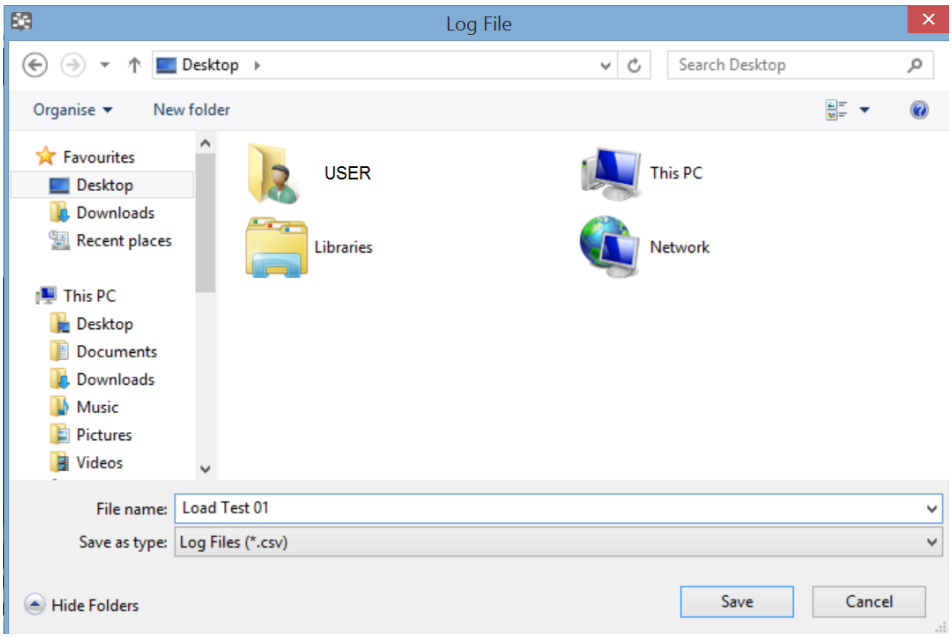
A screen will appear (this is asking you where you want the readings to stream to)



Locate the desktop from the screen and save the file as something suitable for the test.

<u>ONCE SAVE IS PRESSED THE LOGGING WILL START</u>

Testing can commence.

To STOP the test, press LOGGING at the top of the screen and then STOP LOGGING.

The program will not do anything other than stop, you can now load the csv file into excel for viewing.

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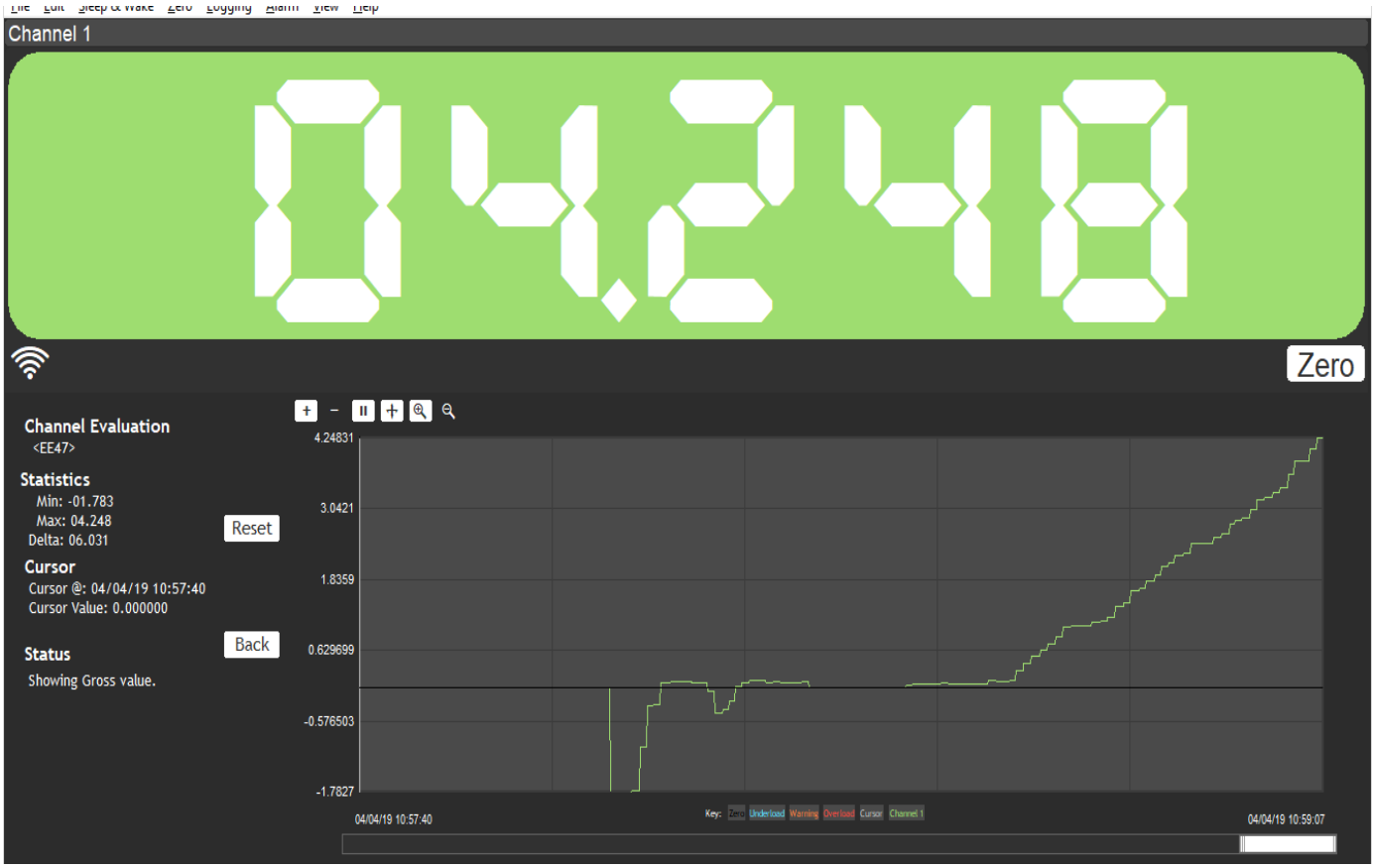
If you double click the figure on screen – you can bring up the live graph also:



Stats live will also show:

Min reading

Max Reading

Peak reading (delta)

The values can be reset also.

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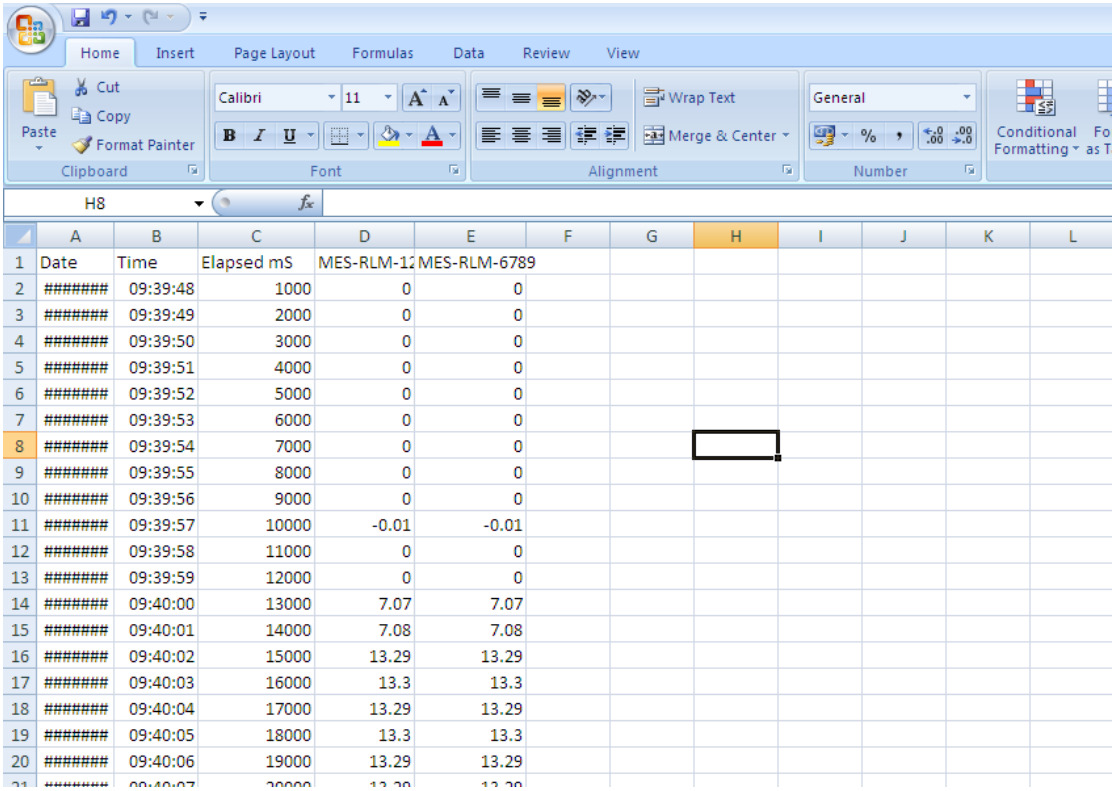
Viewing the readings

Double click the CSV file on the desktop which you wish to view (or open excel and locate this manually).

You will then see a display similar to this:



	A	B	C	D	E	F	G	H	I	J	K	L
1	Date	Time	Elapsed mS	MES-RLM-12	MES-RLM-6789							
2	########	09:39:48	1000	0	0							
3	########	09:39:49	2000	0	0							
4	########	09:39:50	3000	0	0							
5	########	09:39:51	4000	0	0							
6	########	09:39:52	5000	0	0							
7	########	09:39:53	6000	0	0							
8	########	09:39:54	7000	0	0							
9	########	09:39:55	8000	0	0							
10	########	09:39:56	9000	0	0							
11	########	09:39:57	10000	-0.01	-0.01							
12	########	09:39:58	11000	0	0							
13	########	09:39:59	12000	0	0							
14	########	09:40:00	13000	7.07	7.07							
15	########	09:40:01	14000	7.08	7.08							
16	########	09:40:02	15000	13.29	13.29							
17	########	09:40:03	16000	13.3	13.3							
18	########	09:40:04	17000	13.29	13.29							
19	########	09:40:05	18000	13.3	13.3							
20	########	09:40:06	19000	13.29	13.29							

Depending on your version of excel/windows etc, you may have to stretch the columns out a little so the date appears.

In the example above the column is too small for the displayed text. Just stretch a column to sort this. You may also wish to open out some of the other ones also to suit.

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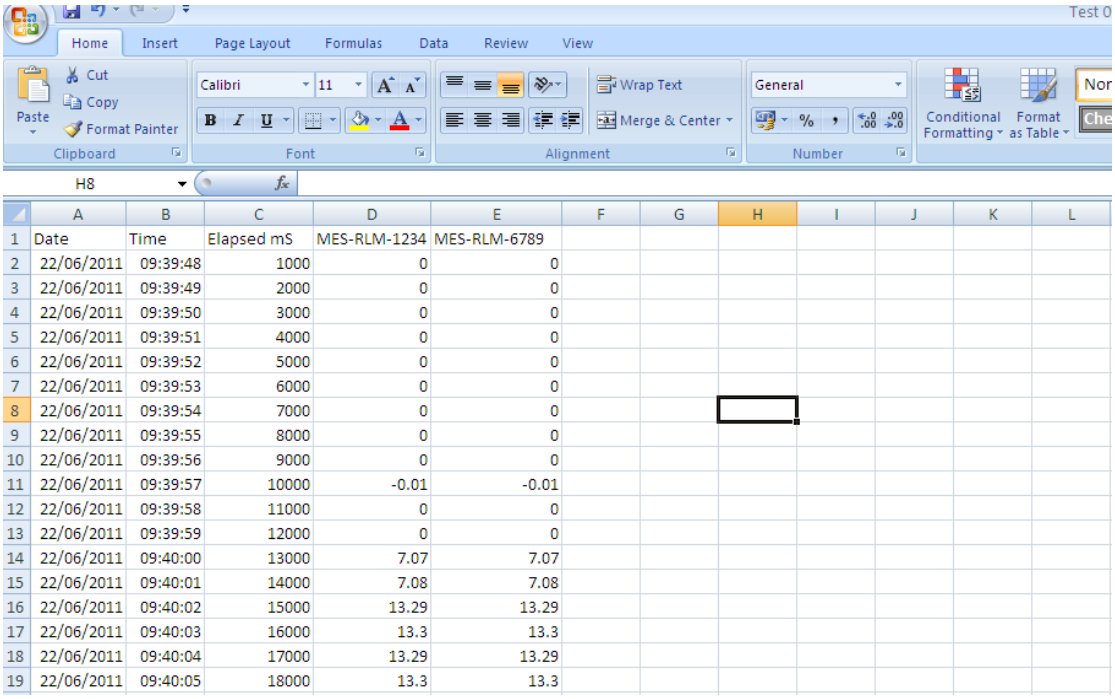

	A	B	C	D	E	F	G	H	I	J	K	L
1	Date	Time	Elapsed mS	MES-RLM-1234	MES-RLM-6789							
2	22/06/2011	09:39:48	1000	0	0							
3	22/06/2011	09:39:49	2000	0	0							
4	22/06/2011	09:39:50	3000	0	0							
5	22/06/2011	09:39:51	4000	0	0							
6	22/06/2011	09:39:52	5000	0	0							
7	22/06/2011	09:39:53	6000	0	0							
8	22/06/2011	09:39:54	7000	0	0							
9	22/06/2011	09:39:55	8000	0	0							
10	22/06/2011	09:39:56	9000	0	0							
11	22/06/2011	09:39:57	10000	-0.01	-0.01							
12	22/06/2011	09:39:58	11000	0	0							
13	22/06/2011	09:39:59	12000	0	0							
14	22/06/2011	09:40:00	13000	7.07	7.07							
15	22/06/2011	09:40:01	14000	7.08	7.08							
16	22/06/2011	09:40:02	15000	13.29	13.29							
17	22/06/2011	09:40:03	16000	13.3	13.3							
18	22/06/2011	09:40:04	17000	13.29	13.29							
19	22/06/2011	09:40:05	18000	13.3	13.3							

You may use the graph wizard or manual features of Excel to present this to a client or for your own presentations as desired.

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Changing Style of logging:

Log Types

You can define the logging type for each project.

- **Auto (At Interval)** - The entire set of display values are logged at the interval specified.
- **Manual (On Demand)** - The entire set of display values are logged only when the user selects Log Now from the menu or uses Ctrl+N from the keyboard.
- **While Overload/Underload** - When any display value is below the underload limit or above the overload limit the entire set of display values is logged at the chosen log interval. When all displays are within the limits the logging is paused. See Alarms.
- **At Overload/Underload** - The entire set of display values are logged when any display value exceeds the limits or returns within limits. This allows the minimum amount of data to be logged while showing the context of all displays while any display is passing through the **in limit** / **out of limit** threshhold. See Alarms.

For **Auto** and **While Overload/Underload** logging types you specify the log interval. Assuming this rate can be attained then at each interval the data for **all** channels is recorded to the log file.

The program logs data to a file with a **.csv** extension. This is a comma separated value file which is most commonly opened with Microfoft Excel.

The columns/fields are

Date, Time, Elapsed mS, Channel1, Channel2...

Where:

Date - Always formatted as operating system **Short Date** format.

Time - Always formatted as operating system **Long Time** format.

Elapsed mS - Indicated the elapsed milliseconds from the start of the log. This provides an easy X axis for creating charted data.

Channelx - There follows a variable number of columns depending on the number of display channels configured in the project. This will be formatted as specified by the project.

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Example:

Date,Time,Elapsed mS,Channel 1,Channel 2,Channel 3,Channel 4
02/06/2010,13:30:47,4742,0,0,0,0

02/06/2010,13:30:48,4842,0,0,0,0

NOTE: When the software detects that a period '.' is not use as the decimal separator then a semicolon will be used as the delimiter in the CSV file.

Automatic Resume of Logging

If a log is in progress when the software is shut down, the user is offered a choice of whether to stop logging or for the software to automatically resume logging the next time it starts.
If the user chooses to continue then the new data is appended to the current log file and the original data will not be overwritten.

If, while logging, the software shuts down without the user explicitly closing the software (Such as in a power failure) then the software will automatically resume logging once restarted.

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Changing Date and Time Formats

The system data and time formats can be changed from the Control Panel.

In Windows XP launch the **Regional and Language Options** item. The time settings can be found in the Advanced tab.

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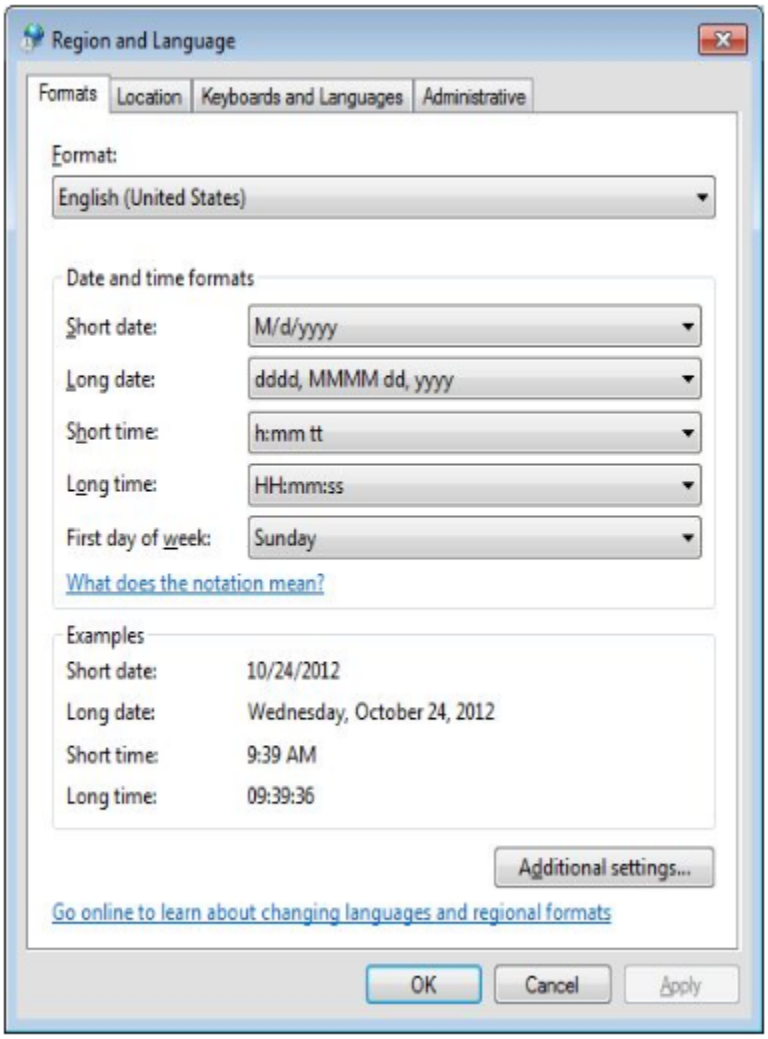
In Windows 7 launch the **Region and Language** item from the Control Panel



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JSON streaming to web portal

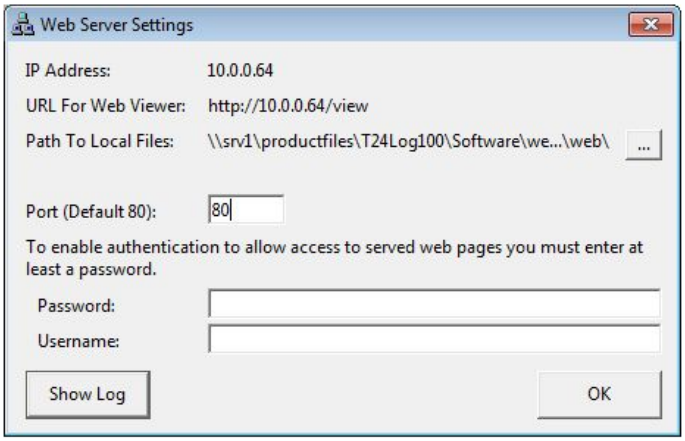
Web Server

The web server allows other devices such as computers, tablets, smartphone and iPads etc to view a summary of the channel data using a simple web browser. The device must have access to the same network via ethernet or Wi-Fi. The software will serve either a built in viewer web page, custom web pages or a JSON object (JavaScript Object Notation) from a built in web server.

The configuration of the web server is achieved by clicking the **Web Server** button in the Configure Project Window.

This will open the following dialog window.

Web Server Settings



Information Labels

IP Address - Shows the IP address of the computer the software is installed from.

URL For Web Viewer - This shows the URL to gain access to the built in channel viewer and shows the URL to type into the address bar of a browser.

Path To Local Files - Shows the local path to where the web pages served by the web server must be located. This folder is the root folder so does not form part of the URL. If the path is too long to be displayed hover the mouse over the label to display the full path in the tool tip. Click the elipsis button to the right to open the file folder.

Parameters

Port - Enter the port to listen on for clients. The default is 80 and is the most common port that browsers will operate on without having to specify a port in the URL. If you choose something other than 80 you may need to append a colon and port number to the simple page URL in the browser address bar. The URL label at the top of the window shows the complete URL you would need and includes the port when necessary.
Entering a port of zero will disable the web server.

Password - If you want to protect the web pages served from unauthorised use you can enter a password here. This password (and optionally a username) will have to be entered in the browser when it first navigates to the URL.

Username - Optional username required to view served pages. Only used if a password is specified but can be left blank.

Buttons

Show Log - Opens a log window which may aid in debugging web server issues. Double clicking the text in the resulting window will copy it to the clipboard in case it requires emailing. Note that this window will open behind the Web Server Settings window and will not be accessible until it is closed.

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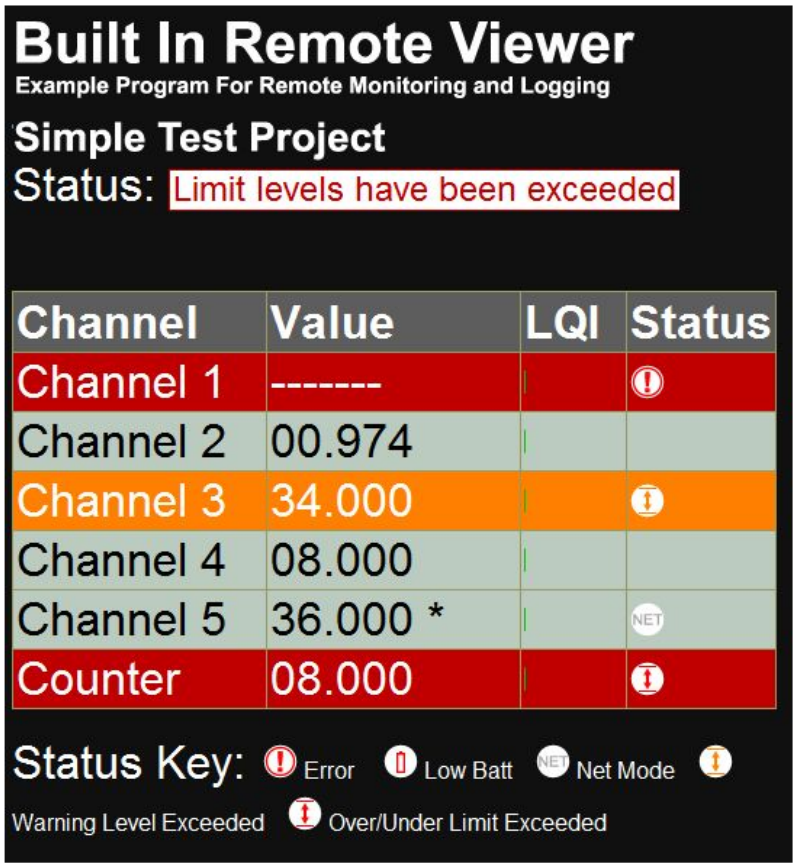
Built In Viewer

Navigating to http://ipaddress/view will open the built in web view page



The page will be displayed in the branded colours of the main logging program.

The text at the top displays the program and project names and the status will show either 'OK' or a summary of the errors.

Next comes the list of channels. The channel name and value are displayed along with a bar representation of the LQI (Link Quality Indicator) level.

The status column shows icons representing the state of the channel. See the key at the bottom of the page for icon explanations.

> Battery low and warning levels are dynamic and are indicated in warning colours (Usually orange).
>
> Error and over/under limit alarms are latching and require a reset from the main software and are indicated in error colours (Usually red).

The data is updated once per second.

*Technical Note: The view html file and images are located in the **\Web\View** folder of the main installation. This viewer page use AJAX technology to request a JSON object from the web server every second and dynamically updates the table so that the whole page does not need manually refreshing. This page can be used as an example of utilizing the JSON object.*

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JSON Object

The web server can supply a JSON object from the URL **http://ipaddress/?JSON** and can be used to build web based systems based on the data from the main program. The JSON object is quite light weight and the web server is capable of supporting approximately 50 clients. The JSON object has the following structure:


```
{"log100": {
"title": "test web colors",
"error": "Limit levels have been exceeded, Error ",
"channelcount": 6,
"channels": [
 { "description":"Channel 1" , "value":"-------" , "net":false , "lqi":0 , "timedout":true , "error":true , "warning":false , "limit":false , "battlow":false },
 { "description":"Channel 2" , "value":"63.468" , "net":false , "lqi":0 , "timedout":false , "error":false , "warning":false , "limit":false , "battlow":false },
 { "description":"Channel 3" , "value":"01.000" , "net":false , "lqi":0 , "timedout":false , "error":false , "warning":false , "limit":false , "battlow":false },
 { "description":"Channel 4" , "value":"01.000" , "net":false , "lqi":0 , "timedout":false , "error":false , "warning":false , "limit":false , "battlow":false },
 { "description":"Channel 5" , "value":"-01.000" , "net":true , "lqi":0 , "timedout":false , "error":false , "warning":false , "limit":false , "battlow":false },
 { "description":"Counter" , "value":"01.000" , "net":false , "lqi":0 , "timedout":false , "error":false , "warning":false , "limit":true , "battlow":false }
 ]
}}
```


The log100 object contains:

title - The project title

error - Summary of any errors

channelcount - The number of channels in the project

channels - an array of objects representing each channel

The channels array objects each contain

description - Description of the channel

value - a string value containing the displayed value of the channel

net - a boolean value indicating whether this channel has been zeroed and is showing the net value

lqi- a numeric value indicating the lowest LQI of any T24 modules contributing to this channel from 0 - 100

timedout - a boolean value indicating whether any T24 modules contributing to this channel have timed out

error - a boolean value indicating whether any T24 modules contributing to this channel have timed out or are reporting an error

warning - a boolean value indicating whether this channel has exceeded the set warning level

limit - a boolean value indicating whether this channel has exceeded either the low or high limits set

battlow - a boolean value indicating whether any T24 modules contributing to this channel are reporting battery low

The JSON object contents do not change faster than every second so there is no advantage to requesting them faster than this.

JSONP Object

The web server can supply a JSONP object (Prefixed or Packed JSON) from the URL **http://ipaddress/?JSONP=functionName** or **http://ipaddress/?callback=functionName** and can be used to build web based systems based on the data from the main program. The JSONP object is a JSON object wrapped in a Javascript function. The returned JSON data will be wrapped in a Javascript function named in the URL. In the example the function name **functionName** is used.


```
functionName({"log100": {
"title": "test web colors",
"error": "Limit levels have been exceeded, Error ",
"channelcount": 6,
"channels": [
 { "description":"Channel 1" , "value":"-------" , "net":false , "lqi":0 , "timedout":true , "error":true , "warning":false , "limit":false , "battlow":false },
 { "description":"Channel 2" , "value":"63.468" , "net":false , "lqi":0 , "timedout":false , "error":false , "warning":false , "limit":false , "battlow":false },
 { "description":"Channel 3" , "value":"01.000" , "net":false , "lqi":0 , "timedout":false , "error":false , "warning":false , "limit":false , "battlow":false },
 { "description":"Channel 4" , "value":"01.000" , "net":false , "lqi":0 , "timedout":false , "error":false , "warning":false , "limit":false , "battlow":false },
 { "description":"Channel 5" , "value":"-01.000" , "net":true , "lqi":0 , "timedout":false , "error":false , "warning":false , "limit":false , "battlow":false },
 { "description":"Counter" , "value":"01.000" , "net":false , "lqi":0 , "timedout":false , "error":false , "warning":false , "limit":true , "battlow":false }
 ]
\\\.
```

Custom Served Pages

Web Page Tokens

Any pages that you place in the **\Web** folder can be served from the web server. The web server also has the useful ability to replace tokens embedded in HTM or HTML pages with values or colours from the main program.

Each page is scanned for tokens before it is served and the tokens are replaced as the page is sent to the browser.

Tokens are embedded into the web page and consist of a code enclosed in double asterisks i.e. **token**

The following tokens can be used:

B0	The brand colour main background in #FFFFFF web format
B1	The brand colour channel display background
B2	The brand colour channel title background
B3	The brand colour channel title foreground
B4	The brand colour channel button background
B5	The brand colour channel button foreground
B6	The brand colour channel button hover
B7	The brand colour channel button pressed
B8	The brand colour channel LED background
B9	The brand colour channel LED off
B10	The brand colour channel LED on
B11	The brand colour channel symbols
B12	The brand colour log text
B13	The brand colour error
B14	The brand colour warning
B15	The brand colour normal
Cn	Current warning or error colour where n is channel 1 to 100
Dn	Channel description where n is channel 1 to 100
Vn	Channel value where n is channel 1 to 100
Nn	Channel net indicator shows an asterisk if channel has been zeroed where n is channel 1 to 100
E	Global error description.
S0	Long name of the logging software.
S1	Short name of the logging software.
P	Project name.
DATE	Date as formatted in the Windows regional settings.
TIME	Time as formatted in the Windows regional settings.

Caching

All files except html pages are served with a cache life of 1 day. HTML pages will always be uncached and requested again from the web server each time the page is displayed in the browser or refreshed.

NOTES

1. The web server will pause its operation while the Configure Project Window is open.
2. The web server can operate over the internet but port forwarding at the router would need to be employed. See your network administrator for information regarding this.