straightpoint

USER GUIDE

SW-MWLC100
Multiple Wireless Loadcell Controller Software

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Software Version:	
Media:	USB memory stick ❑ Download ❑
Date of Purchase:	

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Marks & Symbols

The following symbols may be used within this user guide.

	Indicates a note or where attention is required
IMPORTANT	Indicates an important step, instruction or information necessary for the proper functioning of the software or loadcell monitoring.
CAUTION	Indicates a potentially hazardous situation that if not followed or avoided may result in personal injury or damage to property.

Straightpoint (UK) Ltd

Unit 9, Dakota Park, Downley Road
Havant, Hampshire, PO9 2NJ UK
Tel: 02392 484491
Fax: 02392 472211
straightpoint.com · sales@straightpoint.com

Straightpoint Inc.

1221 Avenida Acaso, Suite E
Camarillo, CA 93012, USA
Tel: (844) 806-7665 · Office (805) 246-1462
Fax: (805) 262-6445
straightpoint.com · sales@straightpoint.com

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1. Introduction

Intended Use

The Straightpoint Multiple Wireless Loadcell Controller Software (SW-MWLC100) is intended to be used by professionals in the heavy lifting and weighing industry for simultaneous wireless monitoring and data logging of Straightpoint wireless loadcell load measurements.

The software and required drivers is available as a download, or provided on a USB memory stick.

The software licence is free.

Additional Required Items & Documents

- Straightpoint SW-USBBSE Transceiver;
- Any Straightpoint wireless Loadcells (maximum 100);
- Loadcell User Guides (for relevant loadcells being used);
- Desktop computer/laptop/tablet/other Windows® device.

Computer System Requirements

- Intel® Core™ i3 processor with minimum 2 GB RAM;
- Windows® XP, Windows® Vista, Windows® 7, Windows® 8, Windows® 9 or Windows® 10 (must have English language option selected);
- Spare USB port (not hub).

Caution

Ensure Straightpoint wireless loadcells are handled and used in accordance with the safety instructions within the appropriate Loadcell User Guide. This is supplied with the loadcell.

Other equipment used in conjunction with Straightpoint loadcells, such as jacks, hydraulic cylinders, chains, strops, lifting frames, and other material handling equipment, must be inspected, checked, handled and used in accordance the appropriate manufacturer/supplier information and/or with all pertinent regulatory requirements and Industry Standards/Codes of Practice.

2. System Overview

General

The Straightpoint Multiple Wireless Load Cell Controller (SW-MWLC) software package is a wireless loadcell control, display and data logging tool that provides simultaneous wireless communication between Straightpoint wireless load cells and Windows PCs/devices. A resizable window displays a table of up to 100 wireless load cell channels of live data. Channels can be setup with user defined mathematical functions that can be used to calculate a multitude of results.

For example, a display can show the value from a single load cell or the sum of multiple load cells. Visual display and audio alarms can indicate under and over range as well as loss in communications, low battery and error reports. SW-MWLC can log on demand, at pre-set intervals, on entering and leaving a pre-set overload and during an overload. Data is logged to a CSV file which can be opened for analysis by software programs such as Microsoft Excel. JSON format data is also available on demand via the built in web server.

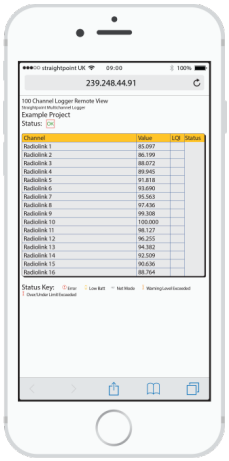
For more complex applications graphical pages can be built showing the data in a variety of formats including digital display or bar graphs. Up to eight pages can be defined and the pages easily navigated between. A variety of image formats can be imported, including JPG, GIF, PDF and DXF.

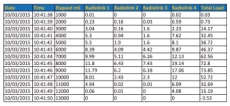
Custom applications including branding and colour scheme are available.

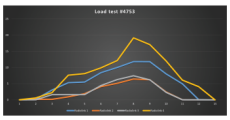
SW-MWLC100 Software

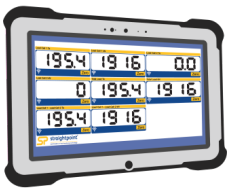
Features;

- User friendly interface;
- Displays and logs data from up to 100 Straightpoint wireless load cells;
- Mapping/graphical capabilities;
- Webserver offers remote viewing on iPads/tablets/smart phones and also supplies JSON data on demand;
- Logging at timed intervals, manual or on overload/underload;
- Visual and audible alarms indicates overload, low battery and communications error;
- Zoom in to channel to see data trends and history;
- Export and log data in CSV format;









3. Installation & Set Up

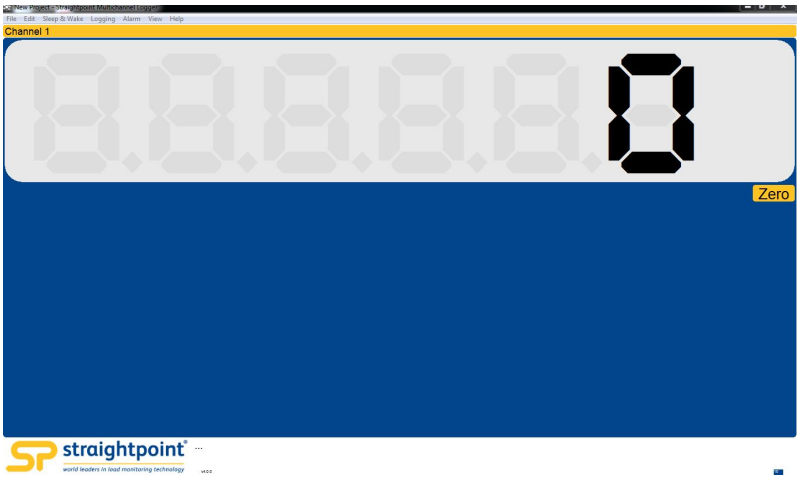
Installation

1. Insert the USB key in to a spare USB port on your computer/laptop/tablet/device (do not use a hub) and follow the on-screen instructions to install the software.
2. Remove the USB Key.
3. Insert the SW-USBBS Transceiver into the USB port, and let the drivers install.

Important

To ensure optimum reception of the signal transmitted from the loadcell(s), see the end of this section 3 for mounting and alignment guidance.

4. Run the software from the desktop or start menu icon and you will be presented with the screen below.



Set Up

The following steps are an example of how to configure the software.

Important

Substitute the data tags that correspond to your own loadcells.

The data tag is pre-set during manufacture and is set up as the last four digits of the serial number engraved on each Straightpoint loadcell. It is also detailed on the calibration and the supplied Calibration Certificate.

The example configuration uses four 50t wireless load cells that are to be display the load from each cell plus the total load.

Their serial numbers are;

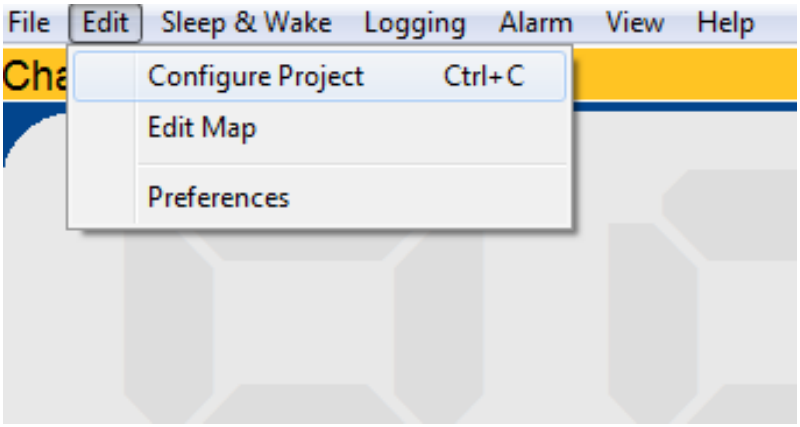
13567
19745
35424
16876

Which means their corresponding data tags are:

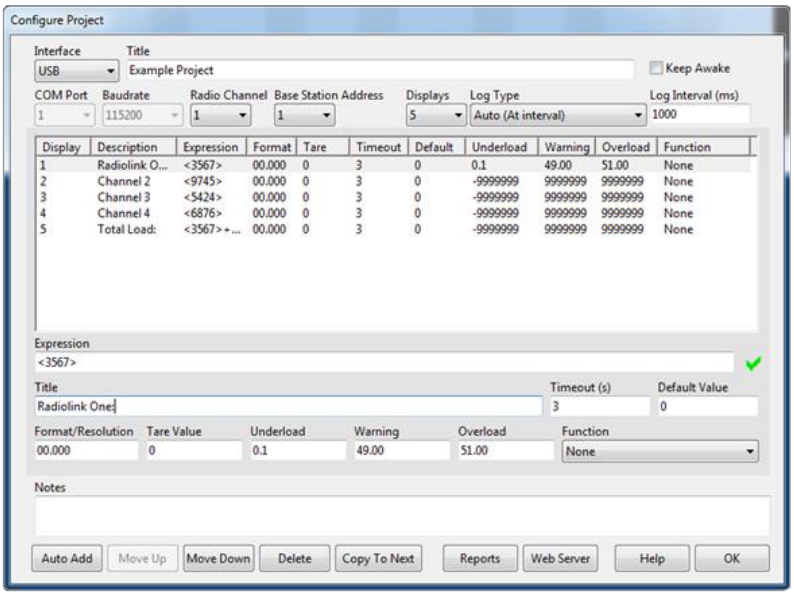
<3567>
<9745>
<5424>
<6876>

To configure a new project; From the main screen menu bar:

1. Click on Edit – Configure Project.



This will reveal the following screen.



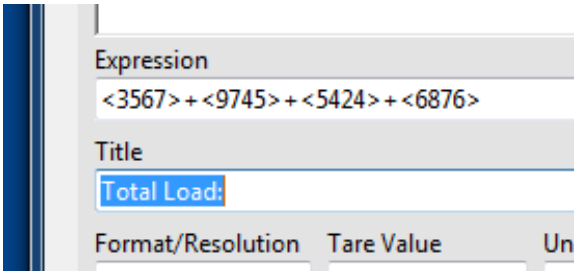
2. Set the Displays button to '5'.

3. Enter the description and the data tags for each loadcell using the 'Description' and 'Expression' fields for the displays 1 to 4 respectively. Ensure that the triangular brackets are typed in to enclose the four numerical digits of the data tag.

   A number of mathematical functions are available to carry out calculations and display the results.

   For example, to calculate the total load across the five loadcells:

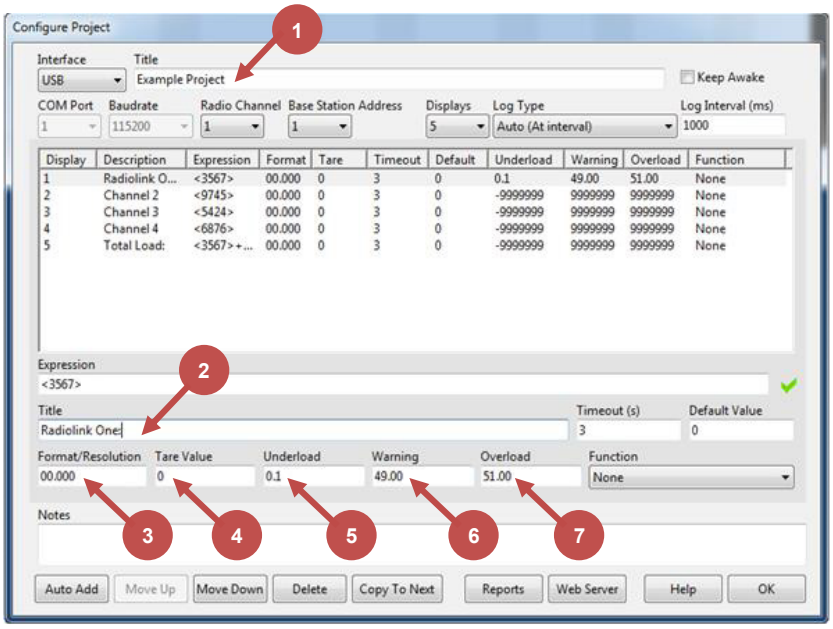
   - Add a new description 'Total Load' for display 5
   - In the 'Expression' field, enter the mathematical function <3567>+<9745>+<5424>+<6876> as below:



Display number 5 will now show the sum of the loads measured by each of the four loadcells.

For other available mathematical functions, click on the 'Help' button on the menu bar on the main screen.

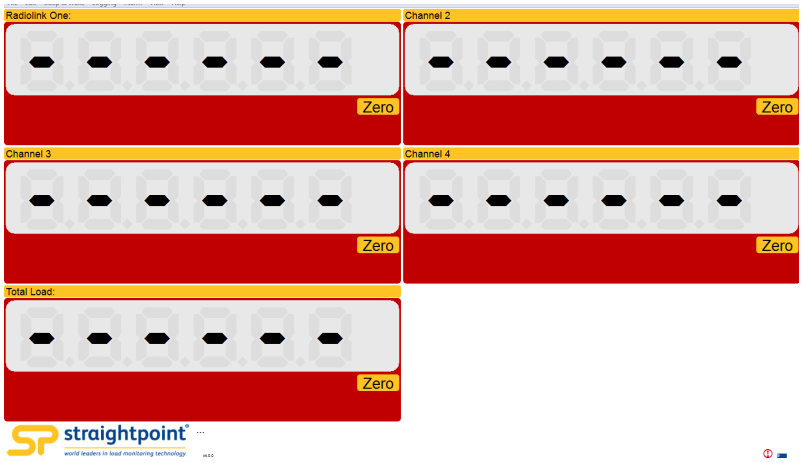
Other parameters can also be set up on the Configure screen:



1. Project Title
2. Loadcell title/description
3. Format/Resolution of loadcell. This is displayed on each loadcell, e.g. MAX: 50t x 0.01t. For this example, set 00.01.
4. Tare value – if known, a tare can be entered for the weights of such things as shackles or slings.
5. Underload alarm value.
6. Warning alarm level.
7. Overload alarm value.

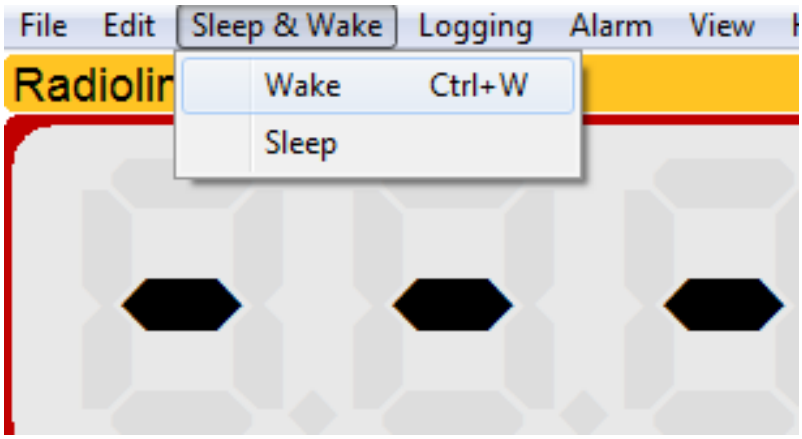
4. When all of the set up parameters have been entered, click on the ‘OK’ button in the bottom right hand of the screen.

   This will reveal the screen shown below:

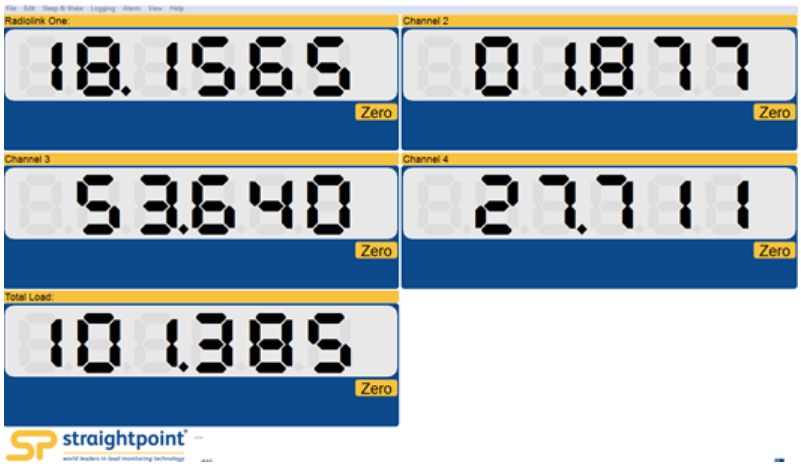


No values will be seen in the displays as the loadcells are in ’sleep mode’ and need to be woken up.

5. To wake the loadcells, click on the Sleep & Wake button on the menu bar.



This will reveal the screen shown below:



The loadcells are now awake with the displays 1 to 4 showing the loads on each loadcell, and the total load as previously set up, showing on display 5.

Transceiver Alignment

To achieve optimum reception of transmitted microwave signals from the loadcell(s), consideration should be given to the operating environment and alignment of the USBBE receiving module.

The following guidelines and tips will ensure best possible reception and range.

To achieve the best possible signal reception, the USBBE should be mounted with the long side of the module vertical, and the top face pointing towards the loadcell(s). (Fig.1 and Fig. 2)

Try to ensure there is line-of-sight between the loadcell(s) and the USBBE receiver with no obstructions in the path, as these will reduce the range and may possibly degrade performance of radio link due to reflected indirect signals reaching the USBBE receiver. Obstructions can, in the worst case, result in complete loss of the radio link. (Fig. 3)

Wherever practicable, try to avoid having structures or objects in the immediate vicinity of the transmitter and receiver antenna fields as these may distort the field patterns and adversely affect the range and quality of the radio link. Ideally, objects and structures should be at least one metre away from the antennae.

Fig. 1
Vertical mounting of USBBE
for optimum signal reception.

Fig. 2
Antenna receiving field

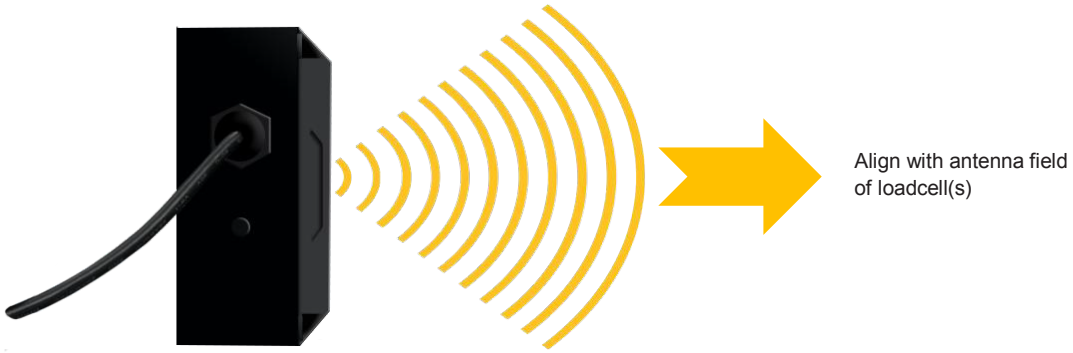
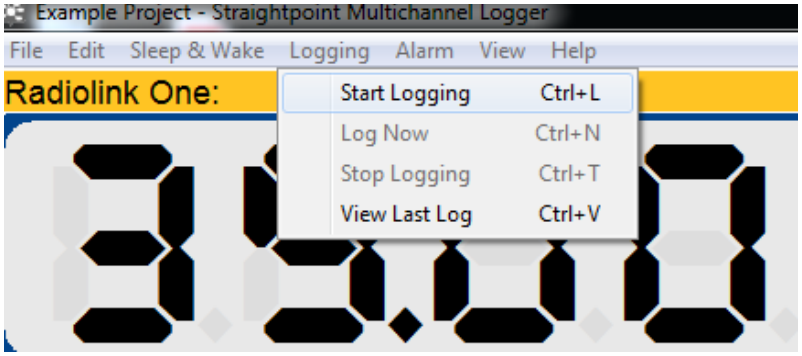


Fig. 3
Establishing an obstacle free line-of-sight path between the USBBE receiver and the loadcell transmitter will provide best quality radio link and greatest range.

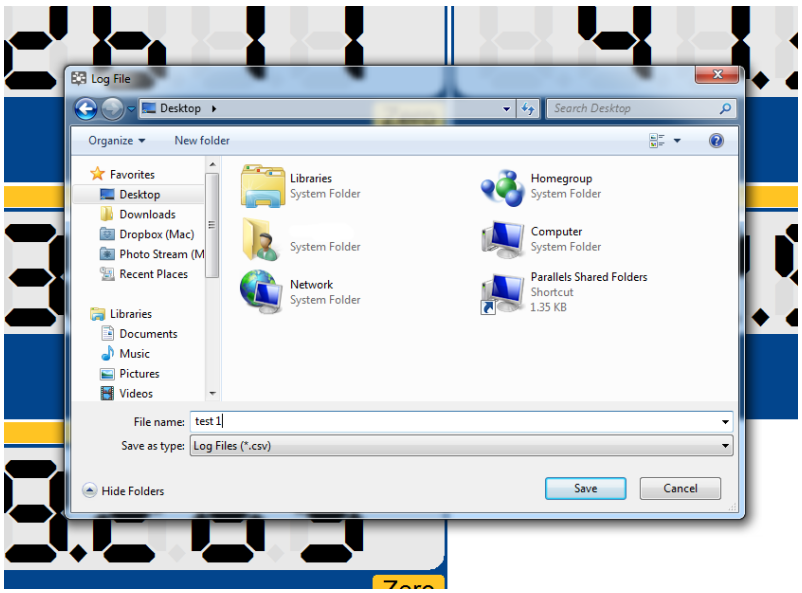
4. Data Logging

Data from the multiple loadcells can be logged and imported into an Excel into spreadsheet. To do this:

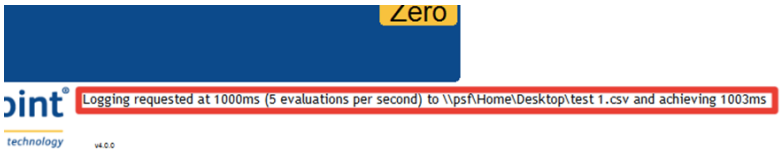
1. Click on ‘Logging’ on the main screen menu bar and select ‘Start Logging’ from the drop-down menu.



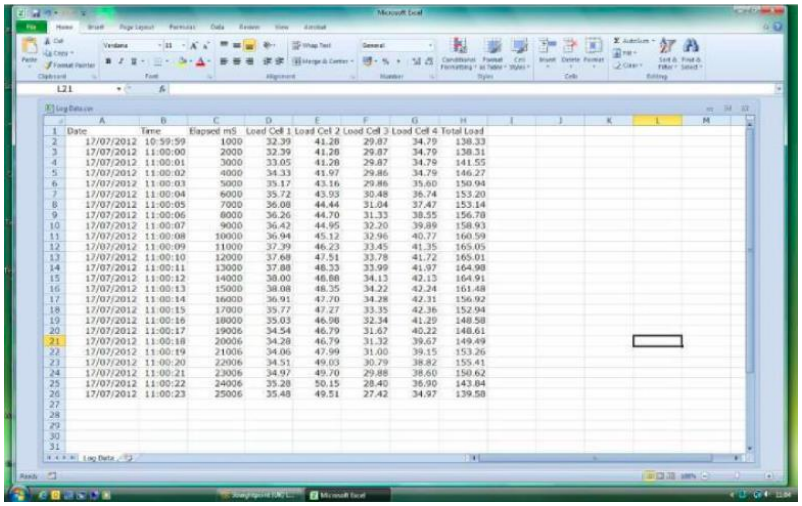
This will cause a pop-up screen to appear as shown below.



2. Enter file name and destination where the data is to be filed. The system will automatically start logging and saving data to the chosen destination.



3. To stop logging, re-select ‘Logging’ from the main menu bar and select ‘Stop Loggng’ from the drop-down menu. The spread sheet will then automatically open.



Date	Time	Elapsed mS	Load Cell 1	Load Cell 2	Load Cell 3	Load Cell 4	Total Load
17/07/2012	10:59:59	1000	32.39	41.28	29.87	34.79	138.33
17/07/2012	11:00:00	2000	32.39	41.28	29.87	34.79	138.31
17/07/2012	11:00:01	3000	33.05	41.28	29.87	34.79	141.55
17/07/2012	11:00:02	4000	34.33	41.97	29.86	34.79	146.27
17/07/2012	11:00:03	5000	35.17	43.16	29.86	35.60	150.94
17/07/2012	11:00:04	6000	35.72	43.93	30.48	36.74	153.20
17/07/2012	11:00:05	7000	36.08	44.44	31.04	37.47	153.14
17/07/2012	11:00:06	8000	36.26	44.70	31.33	38.55	156.78
17/07/2012	11:00:07	9000	36.42	44.95	32.20	39.89	158.93
17/07/2012	11:00:08	10000	36.94	45.12	32.96	40.77	160.59
17/07/2012	11:00:09	11000	37.39	46.23	33.45	41.35	165.05
17/07/2012	11:00:10	12000	37.68	47.51	33.78	41.72	165.01
17/07/2012	11:00:11	13000	37.88	48.33	33.99	41.97	164.98
17/07/2012	11:00:12	14000	38.00	48.88	34.13	42.13	164.91
17/07/2012	11:00:13	15000	38.08	48.35	34.22	42.24	161.48
17/07/2012	11:00:14	16000	36.91	47.70	34.28	42.31	156.92
17/07/2012	11:00:15	17000	35.77	47.27	33.35	42.36	152.94
17/07/2012	11:00:16	18000	35.03	46.98	32.34	41.29	148.58
17/07/2012	11:00:17	19006	34.54	46.79	31.67	40.22	148.61
17/07/2012	11:00:18	20006	34.28	46.79	31.32	39.67	149.49
17/07/2012	11:00:19	21006	34.06	47.99	31.00	39.15	153.26
17/07/2012	11:00:20	22006	34.51	49.03	30.79	38.82	155.41
17/07/2012	11:00:21	23006	34.97	49.70	29.88	38.60	150.62
17/07/2012	11:00:22	24006	35.28	50.15	28.40	36.90	143.84
17/07/2012	11:00:23	25006	35.48	49.51	27.42	34.97	139.58

From here data can be analysed and manipulated to produce graphs and other graphical representations for reports etc.

5. Advanced Features

The SW-MWLC100 software is a powerful package that offers many other advanced features not covered in this simple guide. Features include:

- Html report designer
- Webserver for remote access with other devises such as a smart phone
- Mapping – this allows you to lay out custom screens, display and graphics

Full instructions for using these features may be found via the software help menus, accessible from the main screen menu bar.