LifeMon
User Manual

Contents

1 Introduction

LifeMon is the live stream monitoring tool.

Due to continuous development, some features may change and the manual will update periodically. Please ensure you have the latest version dated on the cover page of this document.

Menu Shortcuts

Life Racing applications are intended for quick operation without the use of a mouse for improved usability in the pit lane. All menu buttons can therefore be reached using keyboard shortcuts. Each option has an underlined letter, identifying its shortcut key or the shortcut displayed to the left. Dialogue boxes can be navigated with the arrow keys. The <Spacebar> can be used to select while <Enter> and <Esc> are used as OK and CANCEL respectively.

Select *File, New* to prepare a layout before a device is connected. Select the correct software level to ensure the monitoring item list is complete.
Select *Device, AutoConnect* to begin searching and connect to the next available device or *Device, Connect* to manually connect to a device.
Select *Device, Disconnect* to disconnect from a device but keep the current display or *File, Close* to clear the display and disconnect from the device.
Status is displayed in the top right hand corner.
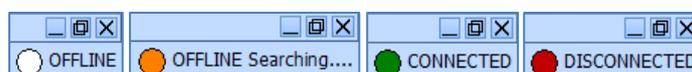
2 Monitoring Screen

Any number of gauges can be added to the monitoring screen. If the screen is filled, it will be extended width ways. Gauges can be moved around by dragging with the mouse. Select multiple gauges by drawing a box around them. Further visual options can be accessed by right clicking a gauge.

Pressing the spacebar will freeze all gauges at their current value. When gauges are frozen, the item menu will appear blue. When frozen, the mouse may be used to look at trace values at any visible point.

2.1 Layout

To save a layout select *Gauge, New Layout*. This will place the named layout in the same menu where it can be reloaded at any time. Select *Overwrite Layout* to replace an existing layout. Use *Set Default Layout* to select a layout to use on start-up. Layouts can be deleted by highlighting and using the DELETE key.

Layouts can be switched between by selecting *Gauge* and the corresponding number (1 to 9) or by selecting the corresponding tab. Tab visibility can be toggled with *Gauge, enable/disable Tabbed layout*.

Gauge layouts can also be saved and loaded as separate .LRG files to allow transfer to another machine with the *Export Disk Layout* and *Import Disk Layout* options.

2.2 Gauge

A gauge can be added by either selecting the desired item in the item menu displayed on the left (toggle hide with F1, toggle tree view with TAB) or by selecting *Gauge, Add* and choosing from the list. Begin typing an abbreviation to shorten the list. Select the gauge type and frequency at which the item should be monitored.
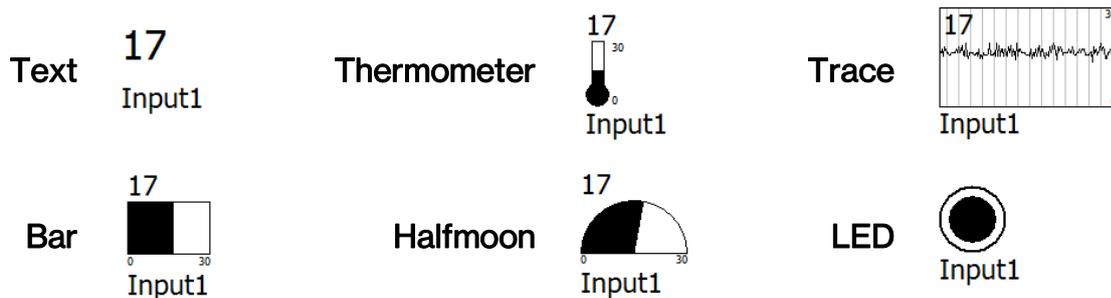
A Text gauge can also display state items. The LED gauge will 'light up' with any non-zero value.

Remove a single gauge with *Gauge, Remove* or clear the entire screen with *Gauge, Remove All (X)*.

Once added, gauges can be dragged around the screen into position. When a layout is finished, the page can be locked to avoid accidental changes with *Gauge, toggle Lock*. A lock will be displayed by the status icon when this is active.

2.3 Math

Gauges can also use math items. Math can provide a wide range of data manipulation varying from simple unit scaling to complex, multi-function expressions. Choose a new or existing maths expression from the *Math* menu to open the Math Window. The math window allows the editing and adding of maths expressions as gauges. Delete a maths expression by highlighting it and pressing the delete key on the keyboard.
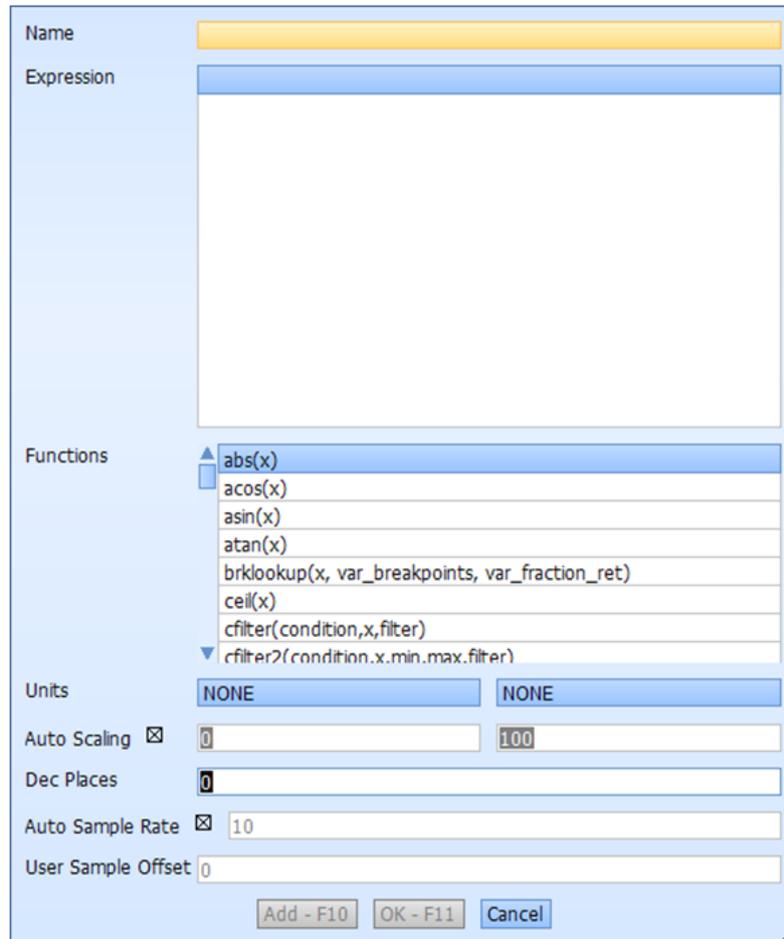
Name

Create a channel name for your maths channel. Cannot be the same as an existing item and must not contain these characters:

Full Stop	.	Less than	<
Forward slash	/	More than	>
Back slash	\	Vertical bar	|
Colon	:	Quotation marks	"

Expression

Type your maths expression here. Expressions can include any monitoring item or other maths channel. Take care when adding channels as they are case sensitive. Suggested functions or variables will be displayed as you type. Use the <Enter> key to select the highlighted suggestion. Error hints will appear when the expression is invalid. Right click this box to cut, copy or paste.

Functions

This list contains all functions available in alphabetical order. Highlighting a function will display an explanation. Double clicking or using the <Space> bar will paste the function into your expression. When typing a function, it will automatically be highlighted in this list so the format it expects is visible.

The full list of functions and details on how they are used can be found in the Math Manual, available for download from *www.liferacing.com* under Support, User Manuals/Datasheets.

Units

Select the unit group and unit that the result will be outputted in. This will display on the y axis label.

Auto Scaling

Tick box to enable auto scaling or type custom min max values for y axis. Auto scale will use the max and min values of results as the scale max and min.

Dec Places

Type the number of decimal places to be displayed in results. This is a visual option only and does not affect calculation accuracy.

Auto Sample Rate

Tick box for automatic sample rate. This will use the highest sample rate of the items used in the expression. It will also follow burst logging rates. For custom sample rate, type in the box how many times a sample should be taken in a second.

User Sample Offset

Maths channels can create delays when referencing multiple points. Sample offset allows the shifting of data by the typed number of samples. Number of samples must be less than sample rate.

2.4 Gauge menu

Right click a gauge to bring up further customisation options.

Duplicate

Create an identical gauge with the same item and visual characteristics.

Remove

Delete the selected gauge.

Edit Math Function

Open the Math window to allow math edits (only available when gauge is displaying a math item).

Change Item
Change which item the gauge is displaying.

Add Item
Overlay a second item on the same gauge. Compatible with trace, halfmoon, bar and thermometer gauges
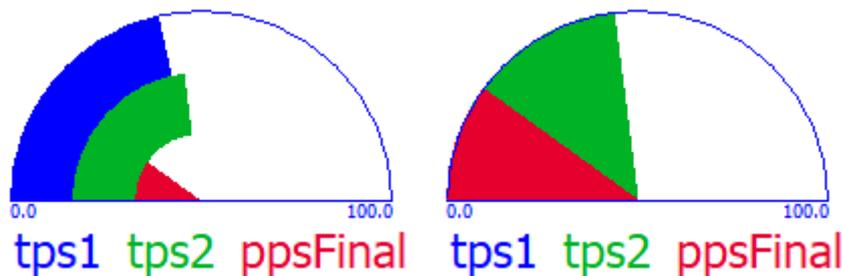
Remove Item
Remove an overlaid item from a multi item gauge.

Order Items
Change the display order of items in a multi item gauge.

Overlay Items toggle
Toggle a halfmoon multi item gauge between separated arcs and full sized overlay.

Change Type
Change the type of gauge.

Change Frequency (#Hz)
Change the frequency at which the item is monitored. For math items, this also changes the sample rate. The number in brackets is the current rate.

Change Scale
Change the minimum and maximum values on graphical displays.

Change Alarm
Change the value limits at which the gauge will flash red if exceeded. Individual alarms can be set for each item in a multi item gauge.

Change Colour
Change the base colour of the gauge graphic and text.

Change Units
Change the units for the item unit group. Units are universal across files and applications.

<u>Naming Scrolling/Normal</u>
With naming scrolling active, the gauge will remain at its default size and any text that exceeds its boundaries will continuously scroll. If naming is normal, the gauge size we be adjusted to accommodate the text.

<u>si</u><u>Z</u>e Compact/Normal
Toggle between small and normal fixed sizes.

<u>Make Resizable (1)</u>
Set a custom size for the graphic. Does not affect text size.

3 Tools

3.1 Device Tools
Found under the *Device* menu.

Errors
Any errors will be indicated with a flashing red device menu. Select *Device*, *Errors* to view the list. Errors will be shown in red and described below the failed item. A number will display how many times the error has occurred. Warnings are displayed in yellow and can be cleared with the *Clear* button. Use the 'Show' buttons to change what items are visible. Use *Refresh* to recheck error status and *Dismiss* to close.
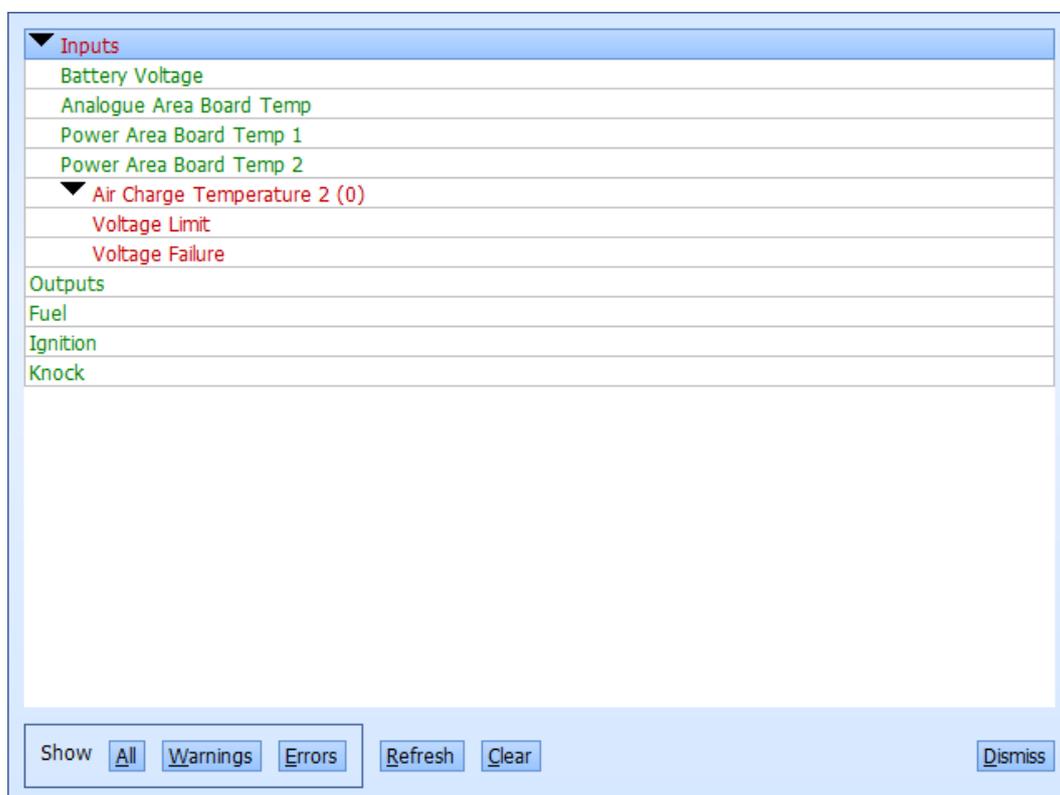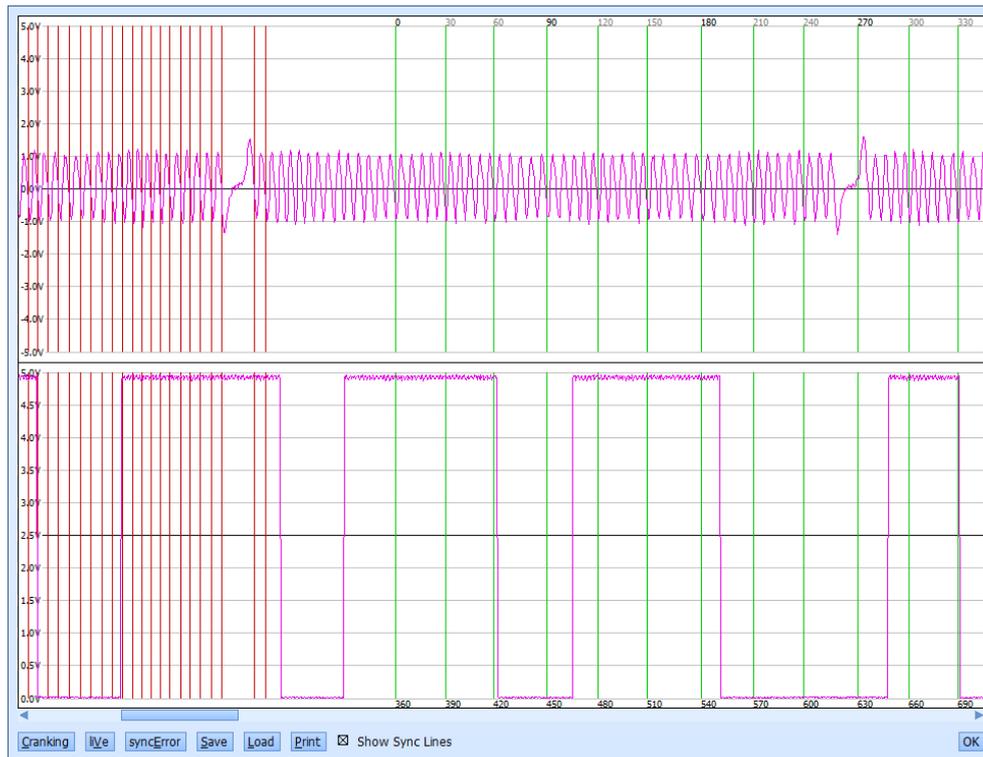
Sensor Zeroing

Use this tool, found under *Device, Sensor Zeroing,* to set sensor reference points in the ECU for the sensors displayed in the subsequent list. This allows zeroing even without calibration access.

Clear Fuel consumption

Clear Fuel consumption information from the ECU by selecting *Device, clear Fuel cons.*

Sync Log

The sync log is used to view cam and crank signals at very high frequencies. It is used to help establish correct settings for engine synchronisation or as a diagnostic tool.
The two pink traces are the crank (top) and cam (bottom) position sensor traces. The vertical lines are "sync lines" displayed in red when un-synced and green when synced. Once synced, the measured angle from cylinder 1 TDC will be displayed along the x-axis.

Select *Cranking* to view the last crank event. When first opened, the sync log displays this by default if an ECU is connected.
Select *liVe* during engine running to view the signal trace at the point of selection.
The ECU automatically stores a sync trace when synchronisation is lost. Select *syncError* to view the last instance of this.
Select *Save* to store the current sample as a text file in the Downloads section of the working directory. This can then be view later with *Load.*
Select *Print* to print the currently visible section of the sync log.
Sync lines can be hidden to improve trace visibility by clearing the Show Sync Lines box.

3.2 Gauge Preferences

Found under *Gauge, Preferences*, this dialogue sets the default options for new gauges.

Name Scrolling

With name scrolling active, the gauge will remain at its default size and any text that exceeds its boundaries will continuously scroll. If not active, the gauge size we be adjusted to accommodate the text.

Compact siZe

Toggle between small and normal fixed sizes.

Panel Scrolling

Panel scrolling is a LifeCal option and has no effect in LifeMon.

3.3 View

Found under the *Options* menu.

Snap to grid

Cause gauges to align with a grid rather than free float. If active, an asterisk (*) will be displayed.

Grid size

Change the size of the grid elements in pixels.

Show Menu

Show the item list on the left of the display. If active, an asterisk (*) will be displayed. This can also be toggled with the F1 key.

3.4 Global Options

Global options affect all applications and can be found under *File, Global Options*.

Black-on-White colour scheme

Toggle the colour scheme of all Life Racing applications between a white background and a black background.

Colour Blind (yellow/green)

Changes fixed yellows to purple for those who confuse yellows and greens.

Reverse Folder Order (in file menu)

Folders are ordered alphabetically in the file menu. Tick this box to reverse this order.

Floating Mouse Focus (in dialogs)

Causes whatever the mouse pointer is hovering over to be highlighted as if it was selected with the keyboard.

4 Document Revision History

2015-08-12	**MH V1.0**	Initial public release	
2015-12-22	**MH V1.1**	Added tabbed layouts, screen lock and status symbol	
2016-02-03	**MH V2.0**	Updated to new format	
		Updated Maths	
2019-05-24	**MH V2.1**	Added multi item gauges	
		Added Sync Log	