Mansol Technologies

FUEL-TIMER 2.0

R4.4

Take your racing to the next level

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OUR EXPERT TEAM

Over 30 years' experience in electrical and electronic industry, 30 years in the software industry and a further 20 years in the motorsport industry.

Our Mission Statement

To provide industry leading technology to the motorsport and industrial sector whilst supporting our customers in gaining a leading edge on their competitors.

We love to hear feedback about our products and any recommendations or updates you would like us to make.
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PRODUCT FEATURES

- 180 litre tank capacity.
- 4.3” capacitive touch colour display.
- 1000/100/10 networking interface.
- 2.4ghz and 5ghz wireless support.
- 60hz telemetry recording on all sensors.
- Web based interface with responsive desktop and mobile UI.
- Live link with our Fuel Bowser for filling up and draining down.
- Count up for full fills and count down for precise transactions.
- UDP device discovery for frequently changing networks.
- API integration using HTTP and JSON protocols.

All New Technology

The new version 2 Fuel-Timer has been rebuilt using new dedicated hardware.

Multiple Screen Support

Connect two screens, allowing for independent Dead-man and Fuel-man times to be sent simultaneously.

Sentronics Rig-Flow

Direct integration with the Sentronics Rig-Flow sensor for real-time fuel flow information.

Digital Cloud Integration

Synchronise everything to our cloud servers, settings, transactions, and telemetry data.

Setup Ahead of Time

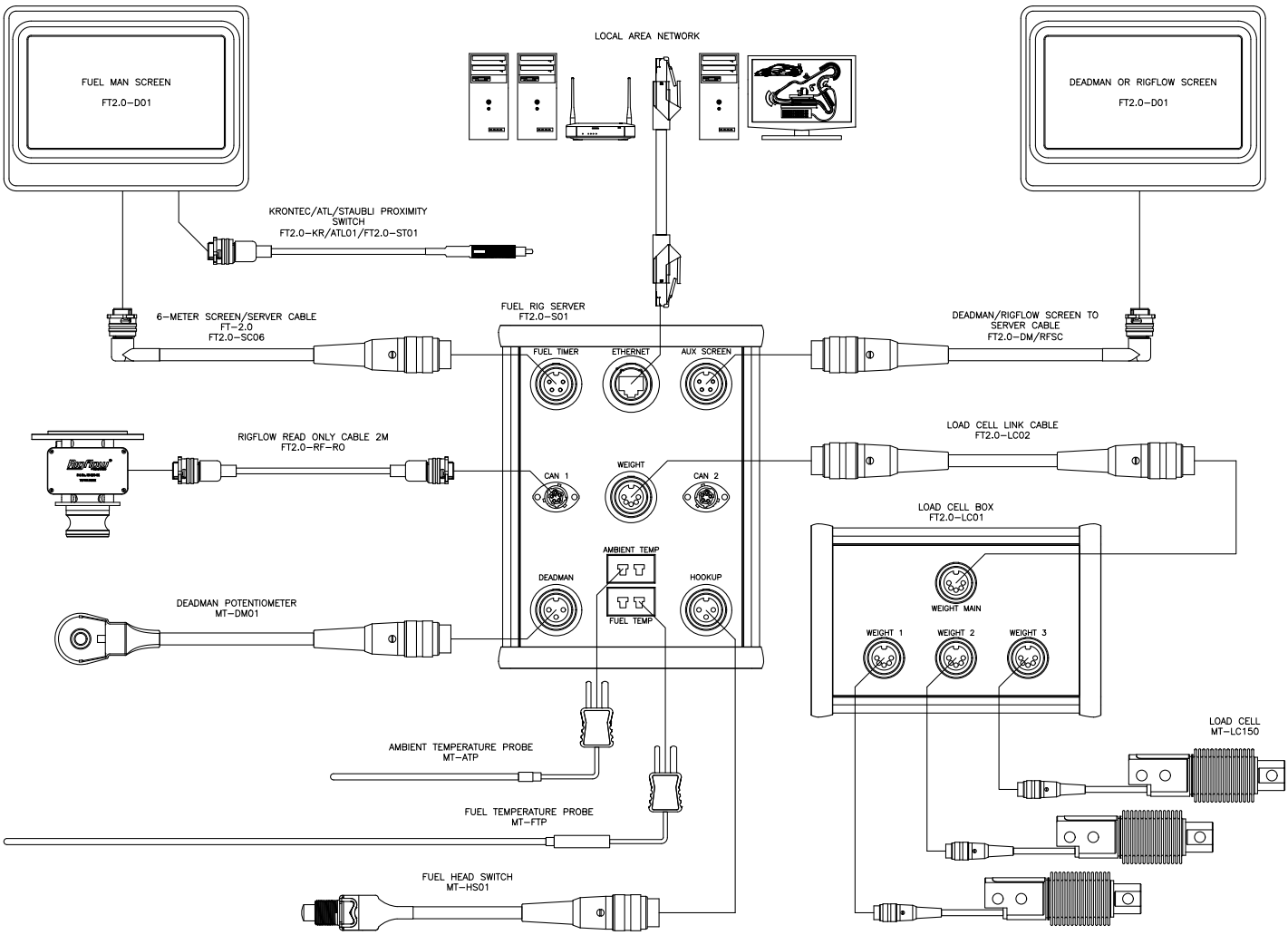
Connect to your cloud account and review past fuel fills and prepare for the next race.

API Integration

Directly interface with the Fuel-Timer using API’s. Working with Excel, Web, or your own custom control.

> **You can now connect to your Fuel-Timer cloud account using a web browser and make amendments whilst your Fuel-Timer is being transported to the next event.**

ELECTRICAL CONNECTIONS



SCREEN: MAIN PAGE

This is the main screen, showing the status of the fuel tank and temperatures.

The light blue bar tells us how much fuel is in the rig in terms of percentage full, the constraints of the tank can be set from the calibration page. (see Screen: Calibration) This bar also indicates the stability of the fuel in the tank, movement/sloshing etc. will trigger this bar to turn a dark blue colour until the weight has become stable again. Weight recorded against transactions are only taken when this bar is light blue in colour. This stability threshold can be configured in the calibration page. (see Screen: Calibration)

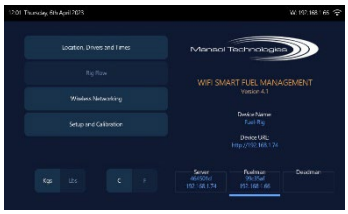
The **"Tank OK"** indicator tells us the amount of fuel in the tank is greater than the current settings for tank low and empty.

The **"Overflow Clear"** indicator tells us the vent hose has been emptied from the previous transaction and does not need to be cleared. This indicator will flash orange after a fuel transaction and can be cleared from the transaction screen. (see Screen: Clearing Overflow)

The temperature graphs show changes to the temperatures of both the Fuel and Ambient over a period of three hours. This graph is cleared when the Fuel-Timer is de-powered.

The summary section at the bottom of the page gives status information on rig, who is the currently selected driver, the maximum capacity of the fuel tank. Fill to full tells you the amount of fuel required to top the tank back up to full capacity. The **"Car Ready"** indicator shows if there is enough fuel in the fuel rig to satisfy the capacity of the car fuel tank.

SCREEN: MENU



The menu screen allows for navigation to the main setup and calibration pages of the Fuel-Timer. In addition, we can see the URLs and network identifying addresses.

For Location, Drivers and Times see Screen: Driver Setup.
For Rig Flow see Screen: Rig Flow. (only available if the Rig-Flow is connected)
For Wireless Networking see Screen: Wireless Setup.
For Setup and Calibration see Screen: Calibration.

The toggle switches at the bottom of the menu allow the user to change unit of measures between Kilograms and Pounds, and Centigrade and Fahrenheit. (A small delay may occur when switching these settings)

SCREEN: DRIVER SETUP

This screen allows you to configure the driver and timing setups for the Fuel-Timer.

The Event and Session are recorded against transactions and allows the analysis of fuel transactions to be grouped and evaluated against each other in the countries they occurred in.

The Fuel-Timer allow for up to three drivers to be specified and three cars also. Giving a possible back-up solution for teams where multiple cars and Fuel-Timers are in use (Providing regulations permit it). The car capacity is used when determining if there is enough fuel in the tank to satisfy a full fill.

The times section configures the quick select buttons on the transaction screen (see Screen: Transaction) to select commonly occurring fill amounts.

SCREEN: RIG FLOW

The Rig-Flow screen is only available once a Sentronics Rig-Flow sensor is attached to the Fuel-Timer and the canbus device id has been configured.

The screen shows the sensor information coming from the Rig-Flow in real time, showing the amount of fuel that is going through the sensor and the amount that has flown through since manufacture.

Calculating the starting cumulative and ending cumulative amount we can calculate the amount of fuel delivered in a transaction and cross-reference this amount with the weight scales - giving us two points of fuel delivery information.

In some race championships, this independent fuel monitoring is mandatory – this system allows you to see what is being sent to the governing body.

This screen also shows us the current transaction details, the current car/driver and the progress of the fuelling that is about to, or has been done.

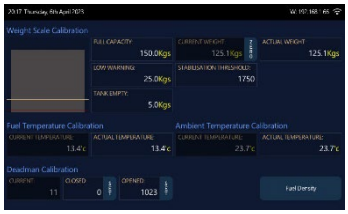
SCREEN: WIRELESS SETUP

The Fuel-Timer can be connected to the wireless network, giving access to all the features provided by the EASI interface and the APIs.

2.4ghz and 5ghz networks are supported, once your network is displayed in the list, simply press on your network and a popup keyboard will prompt you for the password. A delay will occur whilst it is connecting.

We recommend using an ethernet connection when the Fuel-Timer is used in the pit lane as typically there are a lot of wireless networks occurring and sometimes it can cause issues with connection reliability.

SCREEN: CALIBRATION



This screen sets up and configures all the Fuel-Timers sensors. Your Fuel-Timer will come calibrated and only need a zero tare. However sometimes with heavy movements this can change the load cells holding the tank and a recalibration can be needed.

Step 1: Zerotare

Ensuring the tank is completely empty and clear of all obstructions, including the hose being off the ground, click the Zero button to change the zero offset to make the tank read empty.

Step 2: Known weight

Using accurate known weights (to two decimal places), place them on top of the fuel tank as evenly spaced as possible, being careful not to damage the vent pipes and thermocouple.

Once the tank has settled, enter the Actual Weight, accepting the “are you sure” prompt. The weight will now read as the known weight.

You can now remove the weights and the tank will read zero once again.

Step 3: Tank constraints

The maximum weight is 150kg but may be different depending on the race series regulations. To set the maximum capacity of the fuel tank, enter the amount in kilograms and click the set button. (If your fuel-timer is set to use pounds instead of kilograms, enter the value in pounds.)

The low and empty weights are for warning prompts on the screen, showing a flashing alert when the amount of fuel in the tank is below these values. As with the maximum weight, enter the amount in kilograms and click the corresponding set button.

The stabilisation value is a raw number based on the sensor information and is the tolerance in which the weight is allowed to change or fuel to slosh in the tank before the software reads the weight as being stable. On the screen and on the diagnostics page this stable value can be seen. The higher the number the larger the tolerance and the lower the number the smaller the tolerance.

Temperature Calibration

If the temperatures are reading incorrect, possibly due to damage, an offset can be applied to correct the reading. Using an external temperature sensor, ensure the sensors are next to each other. For fuel, the external sensor will need to be placed inside the fuel tank. Allow 30 minutes for the temperatures to stabilise. Enter the difference in temperature into the offset box

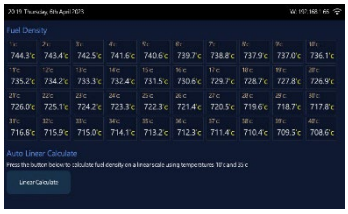
and accept the confirmation prompt.

Dead-man Calibration

The Dead-man potentiometer can be at different positions on different Dead-man valves and the sweep can change.

To calibrate these differences, release the Dead-man handle to be in its closed position and click Set. Now open the Dead-man to its fully opened position and click Set.

SCREEN: FUEL DENSITY



The conversion of weight to volume is governed by the density of the fuel in the Fuel-Timer. It is important to have the correct density information for the fuel in order to have accurate fuel transactions.

On the fuel density page, enter the density value of your fuel for both the 10˚c and at 35˚c. You can now click the Linear Calculate button to auto fill in the remaining densities for the other temperatures.

The density tables should be available from your fuel supplier.

SCREEN: FUELING / COUNTDOWN

The fuel countdown/transaction page appears once the fuel hose has been picked up from the cradle when the screen is on the main page.

To set the driver receiving the fuel transaction, click one of the car buttons at the top of the page, the driver will change to show the name of the person in that car.

The five times underneath show the quick fill times set from the driver setup page. (see Screen: Driver Setup) Selecting one of these times will set the timer on the screen to match the fill duration.

To manually change the time on the screen, press and hold time until it turns yellow in colour. Now swipe left or right to decrease or increase the time respectively. Releasing the time for five seconds will set the new time and the value will change back to white.

Fuel-man

Once the fuel nozzle is connected to the car, the timer will begin to countdown for any time that has been set which is greater than 0.1 seconds and count up if the time has been set to zero. A percentage bar will appear behind the time to indicate visually the duration of fill complete and flash red when the Fuel-man needs to end fuelling.

Once fuelling is complete, hang the nozzle up on to its cradle for fuel stabilisation to occur and the transaction details to be recorded.

The Fuel Hose indicator shows the nozzle is connected to the car and the Dead-man indication shows the percent the Dead-man is open.

After a fill-to-fill fuel transaction is complete, it is advised to pick the nozzle up again and press the clear overflow to drain any excess fuel in the overflow vent.

Dead-man

Once the Dead-man valve is opened more than 30 percent, the timer will begin to countdown for any time that has been set which is greater than 0.1 seconds and count up if the time has been set to zero.

SCREEN: CLEARING OVERFLOW

To clear the fuel overflow, remove the nozzle from the hook up and tap the clear overflow button, this will take you to the clear overflow page. Simply push the nozzle on to the overflow container to drain any fuel caught in the vent hose – a timer on the screen will count down from 5 seconds to ensure the hose is adequately drained.

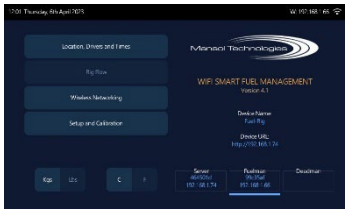
Once finished, hang the fuel nozzle up to return to the main display screen. The clear overflow warning indicator will be green, and the fuel rig is ready for the next fuel transaction.

Using this clear overflow method will prevent small transactions from appearing in the transaction history.

EASI

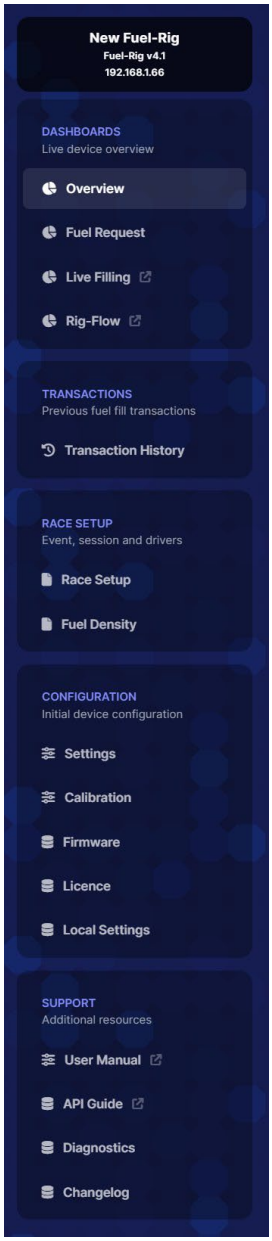
The EASI software allows you to connect to the Fuel-Timer from any web-based browser such as Google Chrome or Microsoft Edge. You can also connect to EASI using your mobile phone or tablet.

To find the web address for the Fuel-Timer, ensure you have connected an ethernet cable to your network and click the menu button.



At the top of the EASI page we can see the name of the Fuel-Timer we are connected too, this name can be changed in the EASI: Settings page. We can also see the firmware version and the IP address for the device.

The ethernet IP address will always take priority over the WiFi IP address, but both can be used all of the time.



Dashboards

Overview

The dashboard overview gives you a polled update on the status of the Fuel-Timer, showing live data on the amount of fuel in the tank, temperatures over a 3 hour period and details on the last transaction that occurred. (see EASI: Overview)

Fuel Request

Send a fuel request to the Fuel-Timer for both the Fuel-man and the Dead-man. Default fills can able to set, ready for subsequent fuel fills. (see EASI: Fuel Request)

Live Filling

This is a popout window allowing you to display information in a fast polled state about the current fuel transaction that is happening. (see EASI: Live Filling)

Rig-Flow

This is a popout window showing a fast polled update on the connected Rig-Flow from Sentronics, displaying information on the fuel that has flowed and/or is flowing though the hose. (see EASI: Rig Flow)

Transactions

Transaction History

See all the transactions that have been done on the Fuel-Timer along with downloading to CSV files for further analysis in Microsoft Excel. (see EASI: Transaction History)

Race Setup

Race Setup

Setup the Fuel-Timer ready for the current race. (see EASI: Race Setup)

Fuel Density

Setup the fuel characteristics being used for the current race. (see EASI: Fuel Density)

Configuration

Settings

Overall settings for the Fuel-Timer. (see EASI: Settings)

Calibration

Setup the Fuel-Timer sensors and calibrating them to the current Fuel-Timer setup. (see EASI: Calibration)

Firmware
Check and install the latest firmware. (see EASI: Firmware)

Licence
View the status of your Fuel-Timer licence and manage your online account. (see EASI: Licence)

Local Settings
Setup the local settings for use with the EASI interface. (see EASI: Local Settings)

Support

User Manual
A popout link to the user manual corresponding to the software firmware.

API Guide
A popout link to the API guide detailing how to use the software's advanced programming interface.

Diagnostics
Debug information showing most key software values to aid in identifying potential issues. (see EASI: Diagnostics)

Changelog
Details on changes to the Fuel-Timer in the current and throughout previous versions.

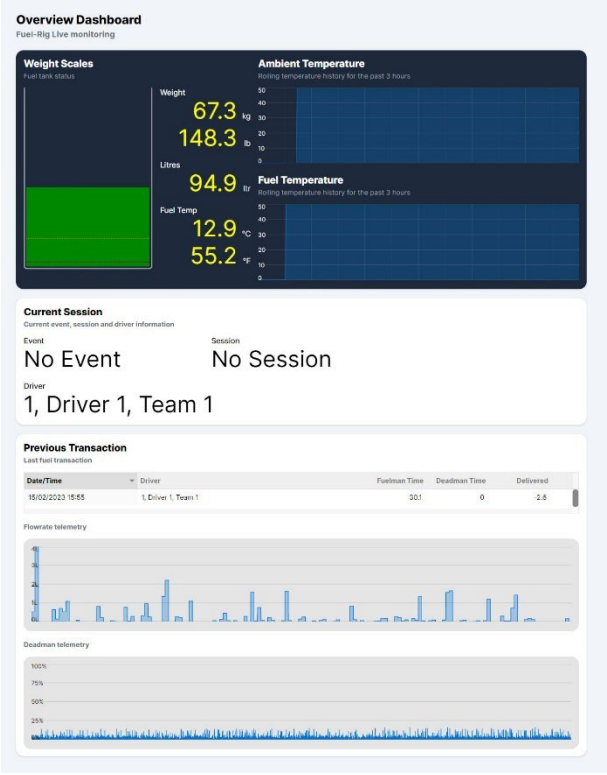
EASI: OVERVIEW

The overview dashboard gives a graphical view of the Fuel-Timer. Showing the current weight of the fuel in the tank and a trend of both ambient air and fuel temperatures over a 3-hour period since the Fuel-Timer has been powered on.

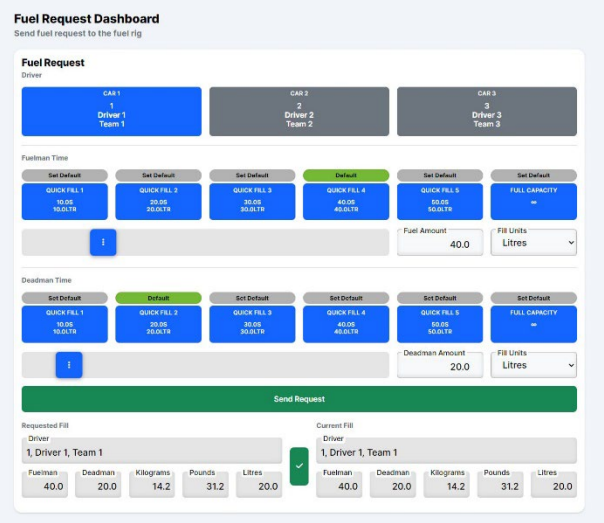
Under the "Current Session" tab, you can see information such as the event details, which session is currently live, and car number, driver, and team name.

The previous transaction tab shows the details for the last transaction that occurred, as well as a graphical view of the telemetry for the fuel flow and the Dead-man valve position.

Further information on the previous transaction, including download options can be found in the transaction history page. (see EASI: Transaction History)



EASI: FUEL REQUEST



The fuel request dashboard allows you to control the times displayed on both the Fuel-man and Dead-man screens. The settings on this page are driven by the settings defined on the page EASI: Race Setup.

Driver

Select the car which is to be fuelled by clicking on of the three buttons, Car 1, Car 2 or Car 3. The selected car will be highlighted in blue.

Fuel-man Time

There are six quick fuel buttons, giving quick response to commonly used fuel requests. The default, highlighted in green is the value the Fuel-man screen will default too when the Fuel-Timer is powered on and when the Fuel-man hangs up the filling nozzle after a fuel transaction. Clicking a grey **"Default"** button will set the corresponding time to become the new default time used.

Full capacity sets the timer to zero and once started will count up in seconds, instead of counting down when the aim to deliver a set amount.

For amounts not defined on one of the quick select buttons, the slider can be adjusted up or down to set a new time. Using the left mouse button to drag the slider will change the time in increments of one second, using the right mouse button to drag will change the time in increments of 0.1 seconds.

The **"Fuel Amount"** indicates the amount of fuel to be requested, you can also edit this box directly and enter a new value.

The **"Fill Units"** changes the conversion of fuel amount into seconds, ready to be sent to the Fuel-man. The default units are Litres and can be changed to Seconds, Kilograms and Pounds.

Values in red indicate the values are not the same as currently on the Fuel-Timer, these will synchronise when the Send Request button has been pressed.

Dead-man Time

This section only applies to Fuel-Timer's that have an auxiliary screen and a Dead-man setup fitted. The setup is the same as the Fuel-man but sends independent times to that auxiliary screen instead. This is used in race series where the Fuel-man must put in virtual energy into the car and must stay connected, but the fuel amount delivered is controlled by the Dead-man valve.

Requested Fill vs Current Fill

This section shows the differences between which is currently being requested and what is currently in use on the Fuel-Timer itself, indicated with red. To synchronise these values on screen, click the Send Request button.

EASI: LIVE FILLING

The Live-Filling page opens in a new popout window and is designed to be placed on a standalone screen or snap-paired to the Fuel Request page to build a command centre to see all aspects of the Fuel-Timer.

This popout uses a faster polling time of 200ms to display details on the current fuel fill as it is happening. Showing the times for both Fuel-man and Dead-man along with their targets. Underneath show percent bars for visual indication on how close to 100% both parties are to their targets.

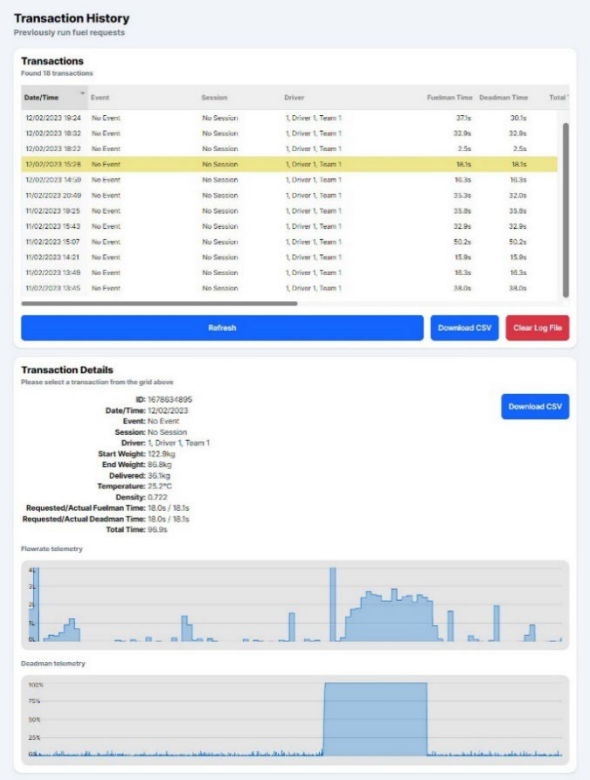
EASI: RIG FLOW

The Rig-Flow page opens in a new popout window and is designed to be placed on a standalone screen or snap-paired to the Fuel Request page to build a command centre to see all aspects of the Fuel-Timer.

The information on this screen is only applicable when a Sentronics Rig-Flow sensor is connected to the Fuel-Timer.

This popout uses a faster polling time of 200ms and shows fuel details directly from the Rig-Flow sensors - Instantaneous flow rates and cumulative amounts to aid with check and balances on delivery amounts against the Fuel-Timer.

EASI: TRANSACTION HISTORY



Transactions

The transaction history page shows all the transactions that have taken place on the Fuel-Timer. By default, the newest transactions are shown at the top of the data grid. Changing the sort order column or sort by column will remember the settings in your local storage account within the browser.

Clicking on a transaction row will load the Transaction Details section with the full details of the transaction, along with the telemetry data.

A count of transactions can be found under the sub heading Transactions.

The Refresh button will get the latest list of transactions from the Fuel-Timer, or by clicking on the menu link.

Download CSV will download the list of transactions with all of the details to a file which can be opened in Microsoft Excel.

Clear Log File, after a confirmation prompt, will clear ALL transactions and telemetry data.

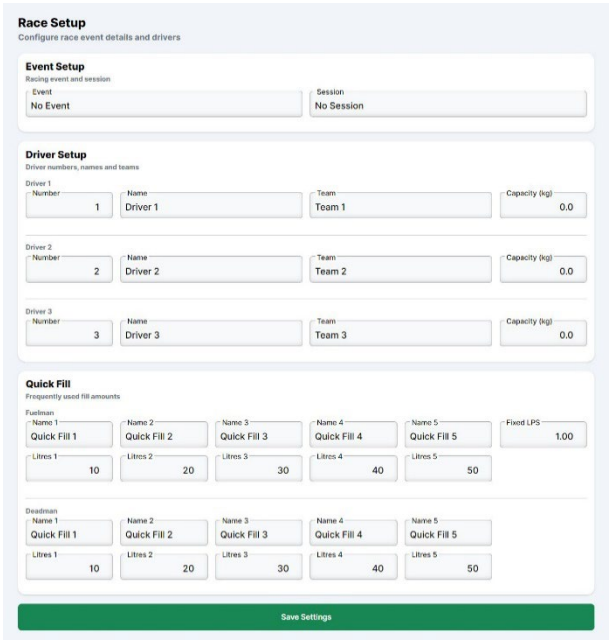
Transaction Details

This section shows all the details for a fuel transaction, along with the telemetry data recorded.

The transaction record and all the telemetry data can be downloaded by clicking the Download CSV button, this file can be opened in Microsoft Excel and contains the sensor data recorded during the fuel transfer at 60hz.

EASI: RACE SETUP

This page allows you to configure the race event details and driver information.



Event Setup

The race event holds the place name of where the race is taking place, such as Sebring, Portimão, Le Mans, Barhain etc. This is a free text field.

The session records the race type, whether it is practising, qualifying, race or testing etc. This is a free text field.

Driver Setup

The Fuel-Timer allows for up to three driver details to be setup and used at any time for a fuel request. This allows for events such as the 24 hours of Le Mans where multiple drivers for one car are required.

In some instances, a single Fuel-Timer can be used to manage multiple cars. This setup allows for this and will record the fuelled driver and car on the transaction record.

Quick Fill

Fuel-man

Five quick fill selections can be configured for commonly occurring fuel amounts, each quick fill can be named to appropriately match the amount in litres the fill is designed for.

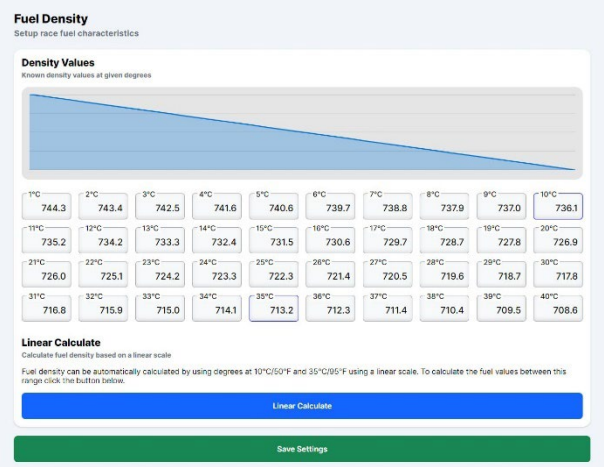
The Fixed LPS aids in the conversion to deliver a given amount of fuel in seconds. This value will change depending on the amount of fuel in the tank, the height above sea level and what restrictors are on the fuel delivery to satisfy any conditions or regulations for a race event. This number is critical to accurate amount of fuel being delivered to the car and it is recommended to do a flow test prior to a race starting.

Dead-man

This section is the same as the Fuel-man, but all the values are used when working with the Dead-man. The LPS is not applicable for a Dead-man.

Once the race setup has been configured, click the Save Settings button to send the settings to the Fuel-Timer.

EASI: FUEL DENSITY



Density Values

The fuel density is different for different manufacturers of race fuel. This screen allows you to enter the density value of fuel at known temperatures.

Typically fuel density is linear so only a few values are needed to calculate the other densities between 1 and 40 degrees centigrade. However, if need too you can enter each degree one by one.

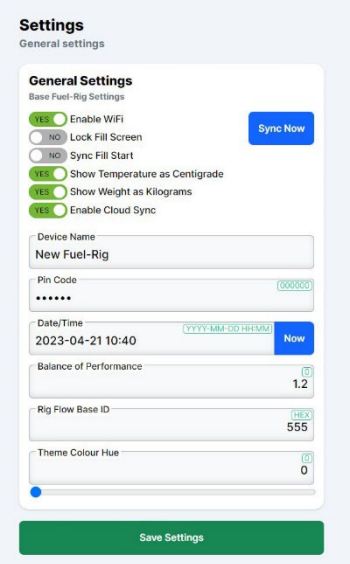
Linear Calculate

Knowing the fuel density values for both 10 degrees and 35 degrees you can get the system to work out the linear scale for you automatically. Enter these values and click the Linear Calculate button.

Once done, click the Save Settings button to send the density values to the Fuel-Timer.

EASI: SETTINGS

General Settings



Enable WiFi

Turns on or off the WiFi capabilities for the devices, ethernet is always enabled.

Lock Fill Screen

This setting prevents the fill screen from being able to change the driver and times. Only allowing updates to come from EASI or the API.

Sync Fill Start

Setting this to **"ON"** will stop the fill timers on the screen from starting until both in use. The Fuel-man must be connected to the car and the Dead-man leaver must be greater than 30 percent opened.

Show Temperatures as Centigrade

This shows all the main temperatures on the Fuel-Timer screen and on EASI to predominantly read as centigrade. In places where both Centigrade and Fahrenheit are shown, Centigrade will show first and Fahrenheit second.

Show Weight as Kilograms

This shows all the main weight on the Fuel-Timer screen and on EASI to predominantly read as kilograms. In places where both Kilograms and Pounds are shown, Kilograms will show first and Pounds second.

Enable Cloud Sync

Upon power up, the server will synchronise its settings, transactions, and telemetry data to the Mansol Technologies cloud services. Additionally, any changes on the cloud account are synchronised back.

This synchronisation also occurs after each transaction or on an hourly period from the last synchronisation.

Device Name

This device name appears in the top left corner of EASI and on UDP broadcasts, providing identification to the end user on which Fuel-Timer they are connected too.

Pin Code

All updates and requests sent to the Fuel-Timer require pin code access. This applies to both the screens, EASI and API calls. This code is a 6-digit numeric code, and the default is 000000.

EASI can remember the pin code for the device you are using by toggling the Remember Pin Code on the popup prompt or by entering the pin code on the local settings page. (see EASI: Local Settings)

Date/Time

The date and time on the Fuel-Timer is set by NTP (Network Time Protocol). It also has an on-board RTC (Real Time Clock) for uses where the network is unavailable, to correct the time enter the current time in the format YYYY-MM-DD HH:MM.

Balance of Performance

This adds an additional time to the Fuel-man timer, first counting down the balance of performance time before counting down the Fuel-man time. This is used for race series where rules apply to various classes, and they must keep the fuel hose connected to the car for a set amount of time.

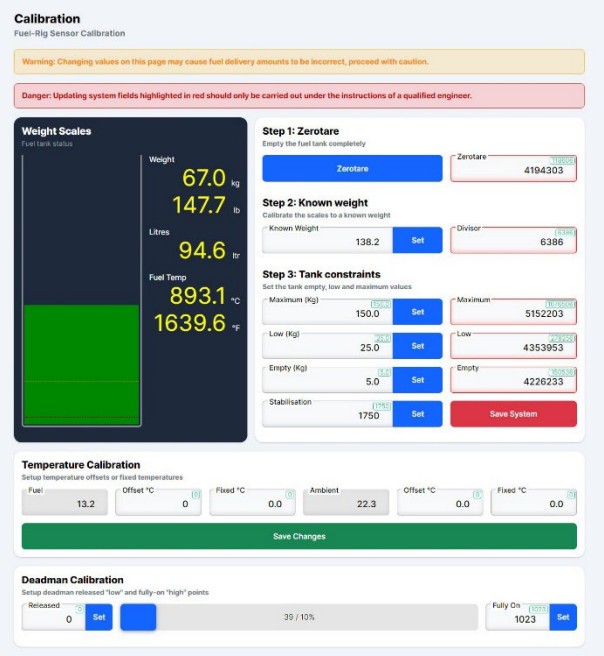
Rig Flow Base ID

This is the Rig-Flow base ID from Sentronics, this number is different on each sensor – to find this number, contact your Sentronics support or account manager.

Theme Colour Hue

The side bar in EASI can cycle through a red, green, and blue hue to aid in differentiating the Fuel-Timer when multiple rigs are being used at the same time.

EASI: CALIBRATION



The calibration page allows you to set the sensor settings on the Fuel-Timer. Incorrectly setting these settings will result in the amount of fuel in the tank and the conversions to litres to be reported incorrectly.

Weight Calibration

Step 1: Zerotare

Ensuring the tank is completely empty and clear of all obstructions, including the hose being off the ground, click the Zerotare button to change the zero offset to make the tank read empty.

Step 2: Known weight

Using accurate known weights, place them on top of the fuel tank as evenly spaced as possible, being careful not to damage the vent pipes and thermocouple.

Once the tank has settled, enter the known weight and click the set button, accepting the “are you sure” prompt. The weight will now read as the known weight.

You can now remove the weights and the tank will read zero once again.

Step 3: Tank constraints

The maximum weight is 150kg but may be different depending on the race series regulations. To set the maximum capacity of the fuel tank, enter the amount in kilograms and click the set button.

The low and empty weights are for warning prompts on the screen, showing a flashing alert when the amount of fuel in the tank is below these values. As with the maximum weight, enter the amount in kilograms and click the corresponding set button.

The stabilisation value is a raw number based on the sensor information and is the tolerance in which the weight is allowed to change or fuel to slosh in the tank before the software reads the weight as being stable. On the screen and on the diagnostics page this stable value can be seen. The higher the number, the more slosh is tolerated and the lower the number, the less slosh.

Values in red are system values, the raw numbers correlating to the actual set values. These numbers should not need to be changed unless under the instructions of a qualified engineer.

Temperature Calibration

If the temperatures are reading incorrect, possibly due to damage, an offset can be applied to correct the reading. Using an external temperature sensor, ensure the sensor are next to each other. For fuel, the external sensor will need to be placed inside the fuel tank. Allow 30 minutes for the temperatures to stabilise. Enter the difference in temperature into the offset box and click Save Changes.

In the event the temperature probes have become broken and no longer read, a fixed temperature can be entered into the Fixed box, click Save Changes.

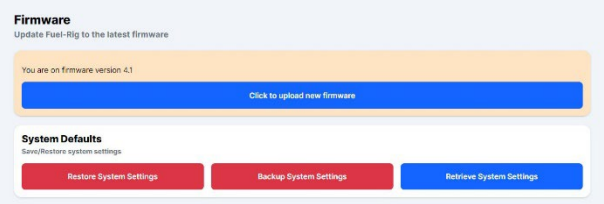
Dead-man Calibration

The Dead-man potentiometer can be at different positions on different Dead-man valves and the sweep can change.

To calibrate these differences, release the Dead-man value to be in its closed position, enter left value (next to the percentage) into the Released box and click Set.

Open the Dead-man to its fully opened position and enter the left value into the Fully On box and click Set.

EASI: FIRMWARE



As new upgrades and firmware's become available, you can apply these to your Fuel-Timer at a convenient time.

Simply click to upload a new firmware and select the new Fuel-Timer firmware file.

For the latest firmware visit us at Mansol Technologies.

System Defaults

This stores or restores the current sensor settings for your Fuel-Timer in a separate reference file. If your calibration settings have gone haywire, you can restore them to a good known setup without losing your race setup data.

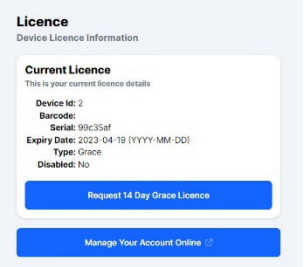
These backup settings are referenced in EASI as the green tags on the right-hand side of the input boxes on the calibration page.

EASI: LICENCE

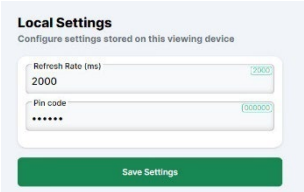
The Fuel-Timer is a licenced product, and a valid licence must be held to use the device.

In the event of your licence expiring at the time of an event, a 14-day grace licence can be applied, giving you time to renew your licence later.

To update your licence, click the Manage Your Account Online button, this will open a new window taking you to the Mansol Technologies cloud account page.



EASI: LOCAL SETTINGS



These settings are stored locally on your browser using local storage.

Refresh Rate

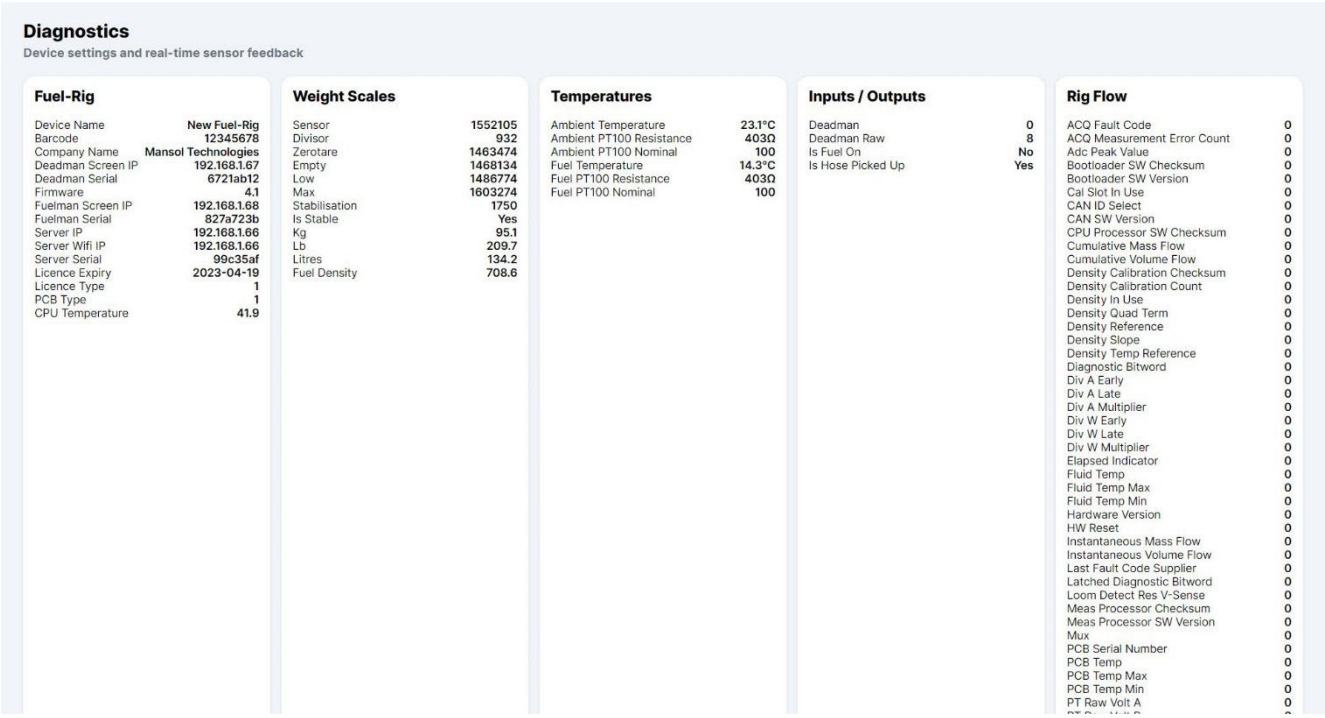
This is the polling frequency which updates the information in EASI in refreshed. The lower the number the faster the updates will occur.

Pin Code

This stores the pin code locally so future updates to the Fuel-Timer will no longer ask for the pin code to be entered.

EASI: DIAGNOSTICS

The diagnostics page gives raw details on important sensors and settings on the Fuel-Timer, this is an engineering page and used for device maintenance and fault finding.



TROUBLESHOOTING

The first port of call in any fault is to check all cables are securely fastened and are connected as per the page Electrical Connections.

Weight is not changing
Ensure the three tank stays are unscrewed underneath the tank.
Check Calibration has been set, the divisor value should be approximately between the values 4500 and 7500.

Fuel litres are reporting incorrect
Check the fuel density values have been set for the fuel type in use.
Check the fuel temperature probe is returning a value.

Fuel tank is not stabilising
Check the tank vent/hockey stick is not being impeded, sometimes this has been seen touching the team canopy.
Check to see if there is an excessive amount to wind hitting the fuel tank, causing it to move.
Try increasing the stabilisation value to a higher value. The default value is 1750. (see EASI: Calibration)

Fuel timer is not starting/counting
Check the proximity switch on the filling nozzle is touching the magnet when the nozzle is engaged to the car.
If you have a Dead-man fitted, check the Dead-man is open at the same time. (see Sync Fill Start) If you do not have a Dead-man fitted, ensure the Sync Fill Start is disabled. (see Sync Fill Start)

Screen stuck on splash screen
Check you have a valid licence; you can do this by vising your account page at https://www.mansoltechnologies.co.uk
Check the cable between the server box and screen is not damaged, if the communication wires have become broke, this will prevent the screen from progressing on from the splash page.

Unable to find EASI
Ensure the Fuel-Timer has either an ethernet cable connected or the device is connected to the wireless network.
Using the screen, go to the menu page and find the Device URL address. If this IP address keeps changing, ask your network administrator to provide a static one.

PARTS LIST

Standard Parts List	
Part Number	Description
FT2.0-P01	9v DC power supply
MT-HS01	Fuel head hook-up switch
FT2.0-SC06	Fuel timer - Server cable (6m)
FT2.0-LC01	Load cell junction box
FT2.0-LC02	Load cell server cable
MT-PE01	Power supply extension lead (3m)
FT2.0-D01	Screen assembly kit
FT2.0-S01	Server box assembly
FT2.0-WA	Wireless antenna (Pin)

Extended Parts List	
Part Number	Description
FT2.0-AUX	Auxiliary screen - Server cable (1.3m)
FT2.0-LC_CASELINER	Caseliner conversion cable
MT-DM01	Dead-man potentiometer
FT2.0-SC05	Fuel timer - Server cable (5m)
FT2.0-SC07	Fuel timer - Server cable (7m)
FT2.0-SC08	Fuel timer - Server cable (8m)
FT2.0-KR/ATL01	Krontec/ATL fuel-on switch
FT2.0-RF-RO	Rig-Flow auxiliary communications cable (2m)
FT2.0-ST01	Staubli fuel-on switch

Complete Kits	
Part Number	Description
FT2.0-AUXKit	Auxiliary screen add-on
FT2.0-KITPRO	Fuel-Timer kit pro
FT2.0-STDKit	Standard Fuel-Timer kit