Fuel Bowser

Smart WiFi Fuel Management System

Capacity	100 & 200 Litre models	**Discovery**	Fully automatic	**Link-Up**	Fuel Rig and EASI
Controls	10.1" Colour touch display	**Ethernet**	100Mbps	**Flow Rate**	1.2ltrs/second max
Power	24v Portable	**Wireless**	2.4Ghz and 5Ghz	**Safety**	Temp and Pressure

IMPORTANT NOTES BEFORE USE:

· When you first receive your bowser, the battery will need charging.

· Plug in the charger cable (located underneath, on the front of the bowser for the 100 litre models and inside the left door on the 200 litre models) and turn dial switch to charge (located on the main switch panel).

· You will also need to prime the system to make sure the system is accurate. To prime the system you will need to pump into the fuel bowser at least 10kgs of fuel and then pump out at least 5kgs. This will be enough to prime the system and make sure there is no air in the pipework.

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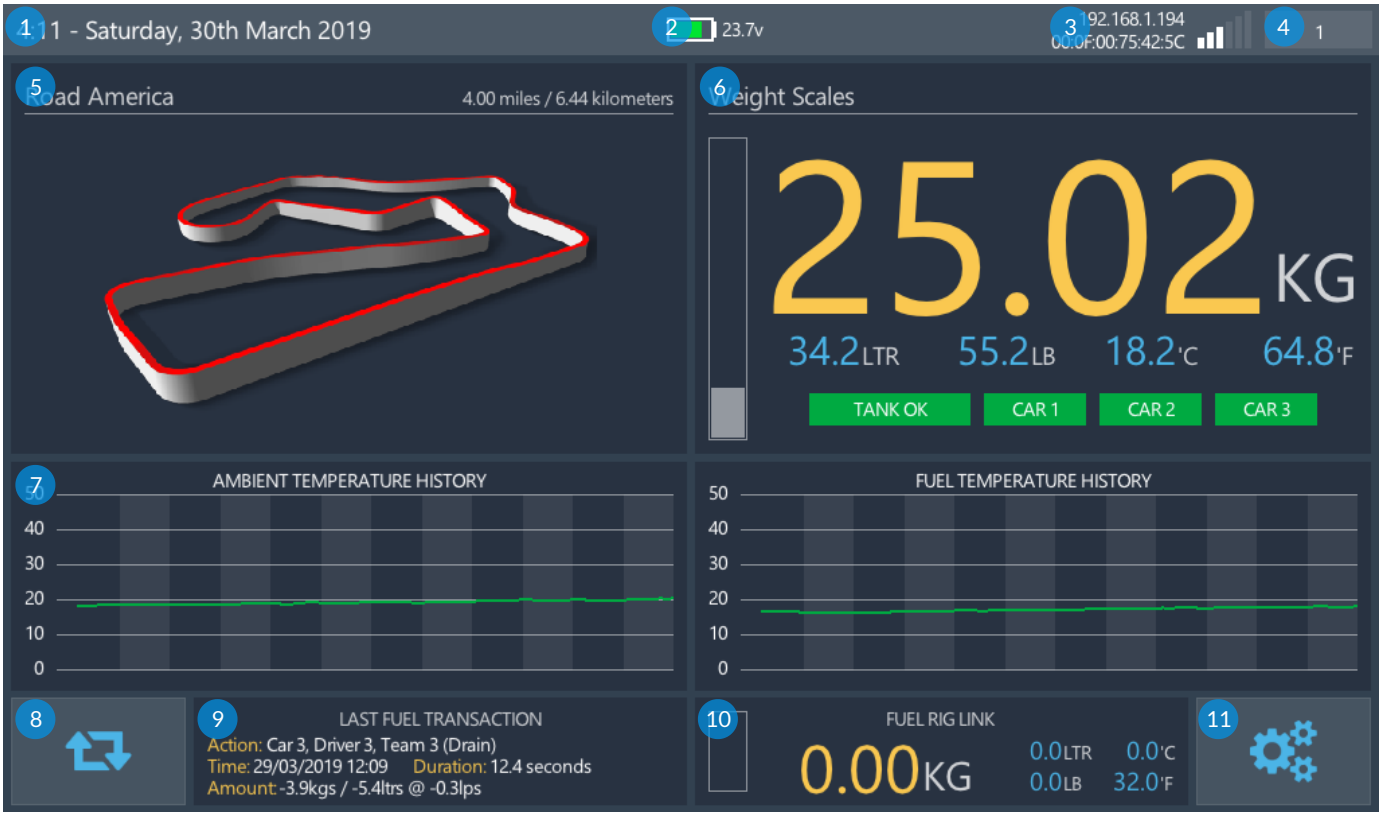
Main Screen



The main fuel bowser screen shows an overview of the key information, such as the amount of fuel in the fuel bowser and whether that amount is sufficient for fully fueling the cars that have been setup, temperature history, race event circuit as well as a quick overview on the previous fuel transaction.

1 Current Date & Time

This is the current date and time which will be recorded against transactions.

2 Battery Level

Current battery level, a low warning will indicate at 21v prompting to put the bowser on charge.

3 Networking

Fuel Bowsers IP/Mac address and wireless signal strength.

4 External Connections

This is the number of external devices currently connected to the fuel bowser.

5 Race Circuit

Map of the race circuit the fuel bowser is set to.

6 Fuel Tank Capacity

Amount of fuel in the fuel bowser shown in different volumes and minimum levels.

7 Temperature History

History of temperature for ambient and fuel over a three hour period.

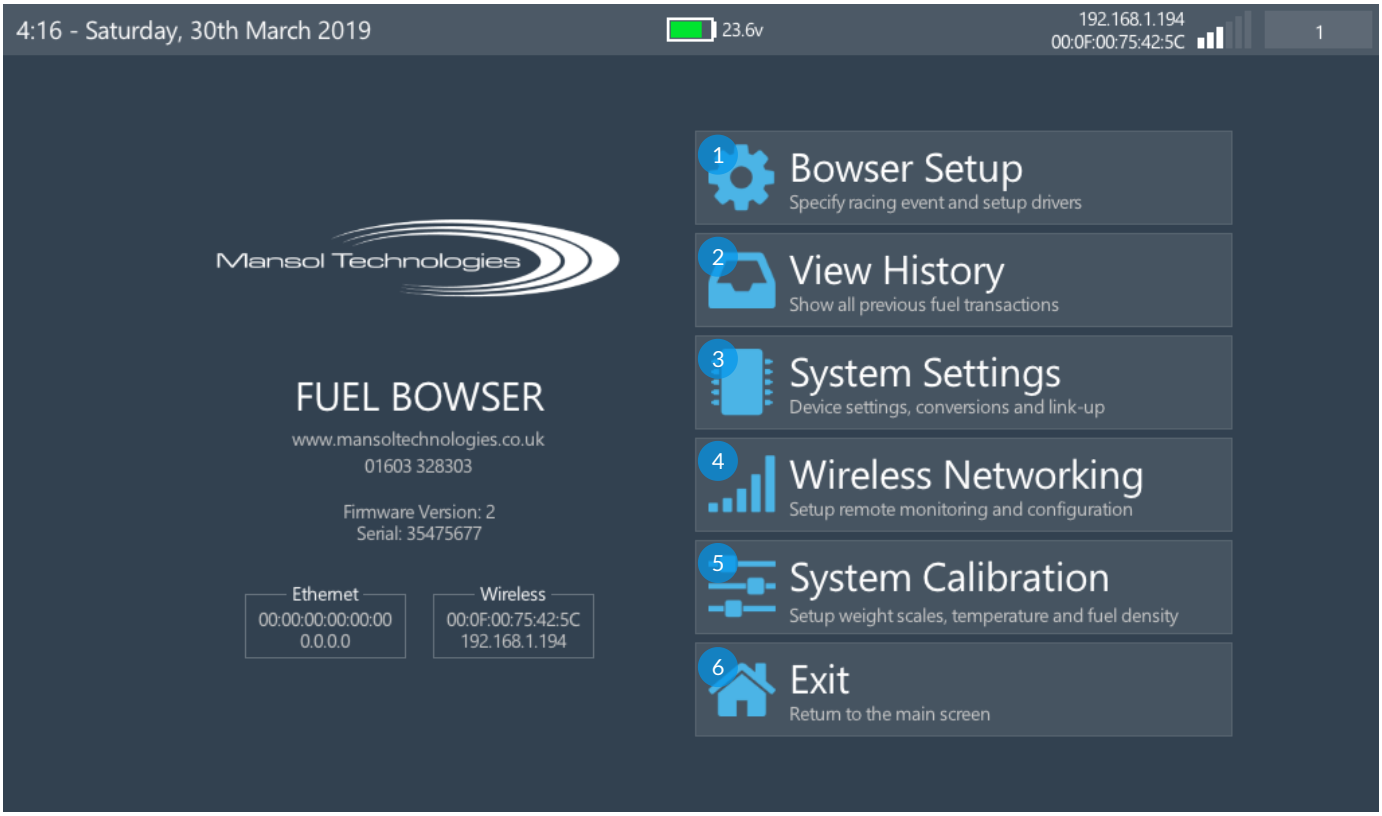
8 **Fuel Transaction**
Navigation button to perform a fuel transaction.

9 **Last Transaction**
Details of the last fuel transaction that happened.

10 **Fuel Rig Link**
Fuel capacity and monitoring of an optionally connected Fuel Rig.

11 **Bowser Config Menu**
Navigation button to the main bowser configuration.

Config Menu



The main navigation menu provides access to setting to various features the fuel bowser provides, as well as recalling information on past fuel transactions.

1 Bowser Setup

This takes you to the setup page for defining the information to be recorded a fuel transaction - such as event, session and driver.

2 View History

You can view all fuel transactions 'in-to' and 'out-from' the bowser on this history page.

3 System Settings

The system settings page gives access to settings that typically don't change very often, such as the units of measure, link-up to a fuel rig.

4 Wireless Networking

The wireless networking page allows the device to be connected to either a 2.4Ghz and/or a 5Ghz wireless network for remote connectivity.

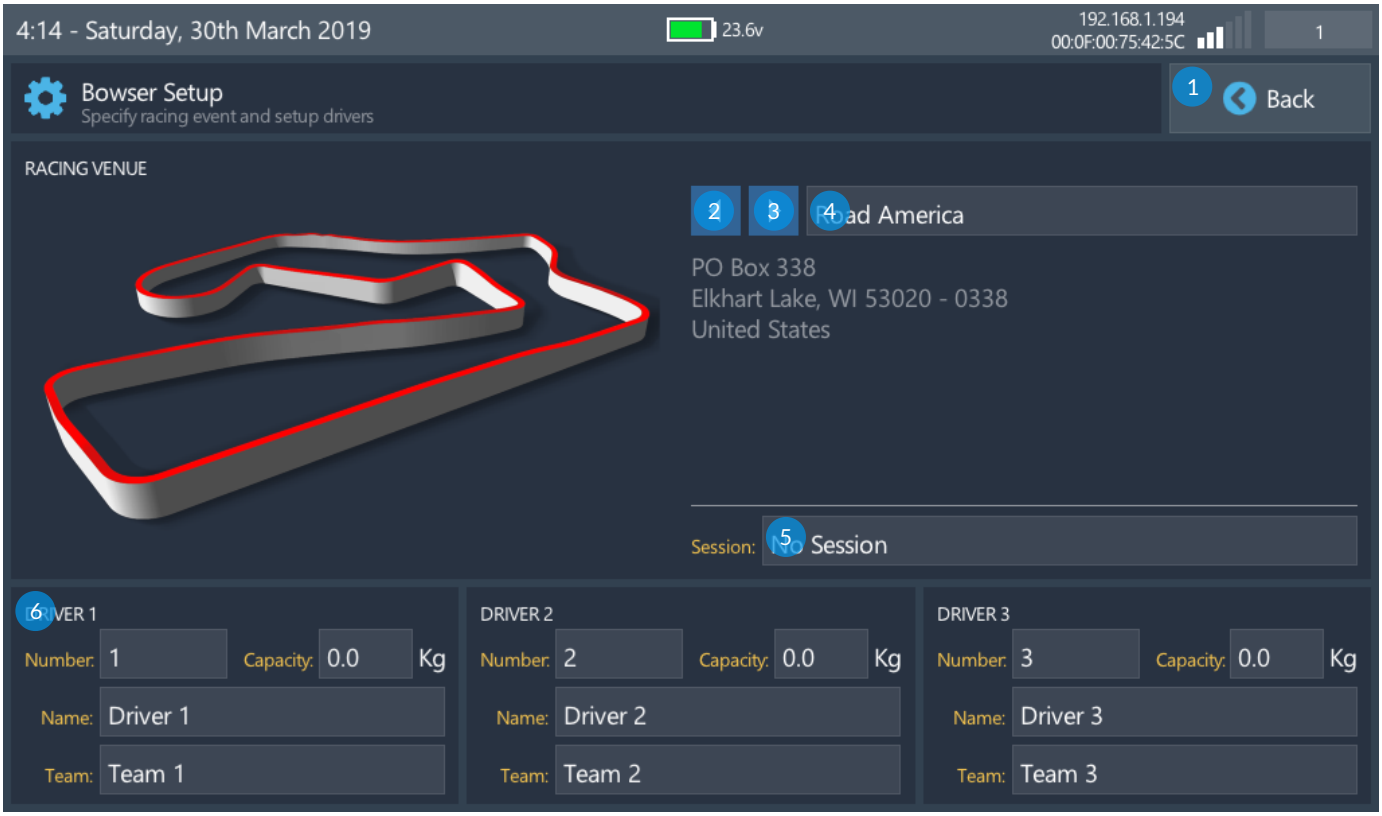
5 System Calibration

This page is reserved for engineer use, it provides settings to tune the weight calibration and fuel density as well as temperature. *(Pin code is required)*

6 Exit

This option will return you back to the main screen.

Bowser Setup



The bowser setup configures the devices transaction recording, stamping each transaction with identifiable information. The timezone on the device is automatically set when the venue is changed.

1 Back

This takes you back to the previous screen (The config menu).

2 Previous Venue

Goes to the previous venue.

3 Next Venue

Goes to the next venue.

4 Venue Name

The name of the current venue, or you can enter a custom event by clicking and entering a new name.

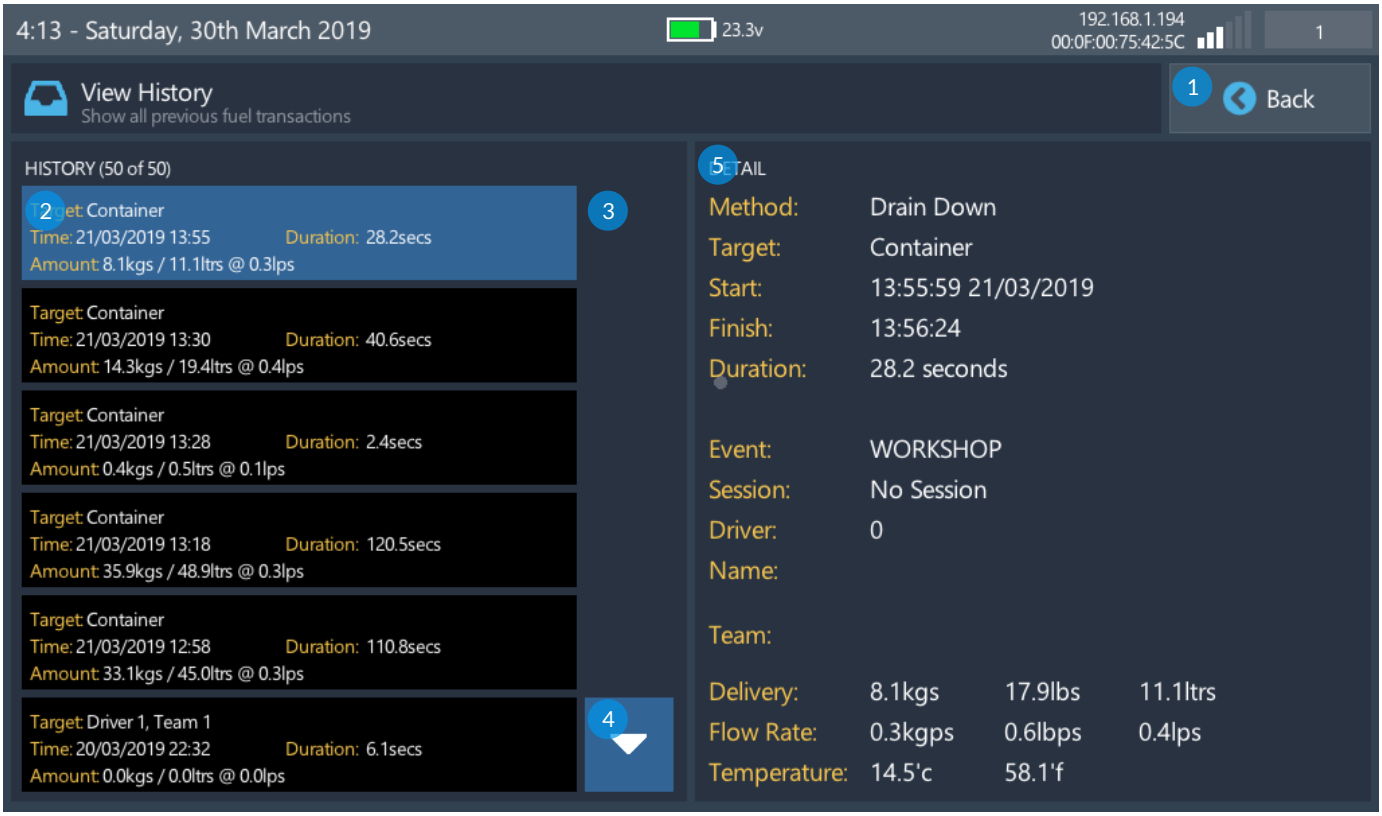
5 Session Type

The current race session, practice, qualify, race etc.

6 Driver Setup

Information on the car and driver, up to 3 drivers can be configured.

Transaction History



The bowser history page shows up to 50 of the last transactions made, newest transactions are shown first. Full details for each transaction can be shown by clicking on the transaction. To see more than 50 transactions, a connection to our EASI software is required.

1 Back

This takes you back to the previous screen (The config menu).

2 Transaction History

Previous recorded transactions (newest first). Clicking on a transaction will show the full details in the right hand pane.

3 Previous Transaction

Goes to the previous transaction.

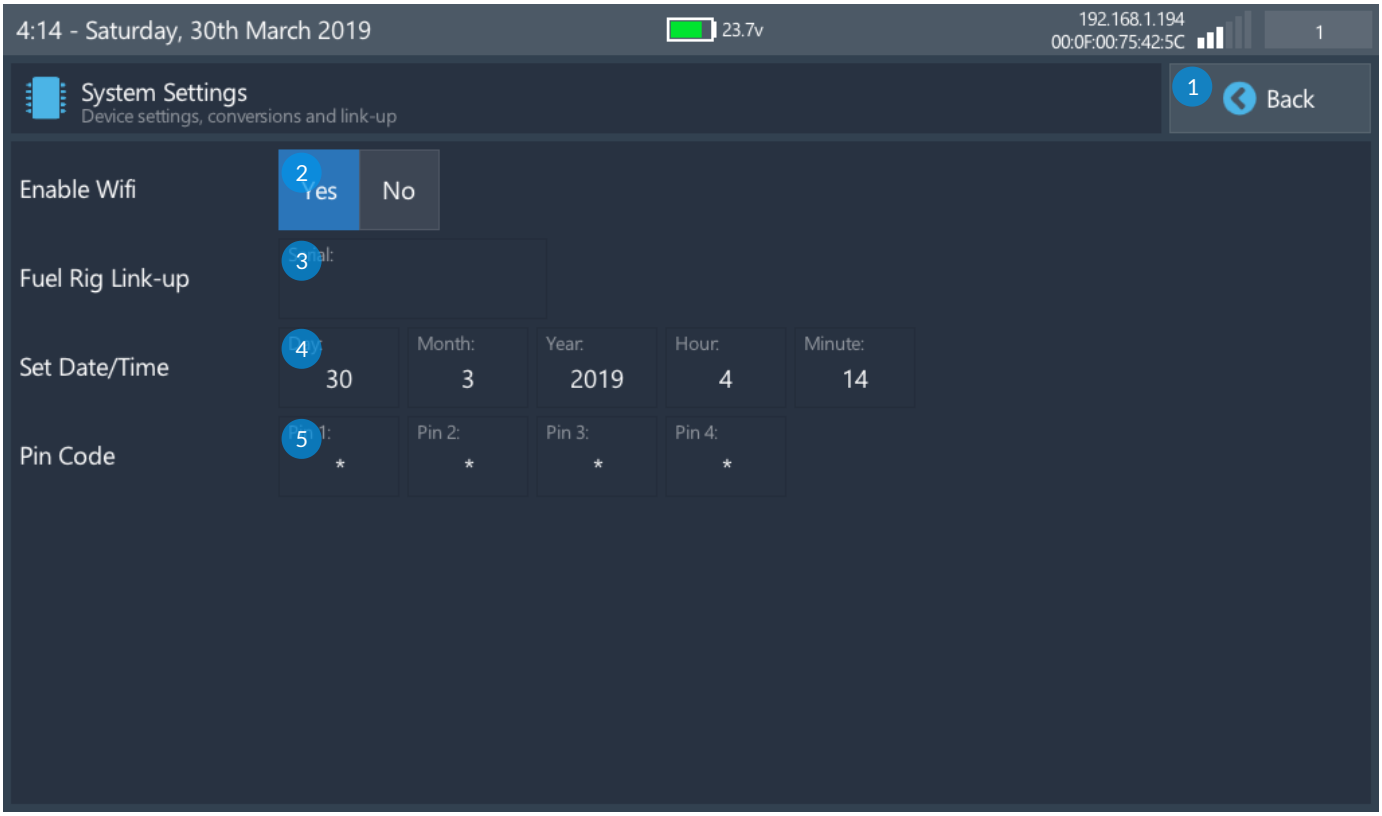
4 Next Transaction

Goes to the next transaction.

5 Transaction Details

A full breakdown of the transaction detail.

System Settings



The system settings configure the underlying basics of the fuel bowser. Wifi, fuel-rig link-up, date/time and security can be configured from this screen.

1 Back

This takes you back to the previous screen (The config menu).

2 Enable Wifi

Enables the wireless network so the device can be administered from the local area network.

3 Fuel Rig Link-Up

Serial number from a Fuel-Rig in our device range to enable remote weight monitoring.

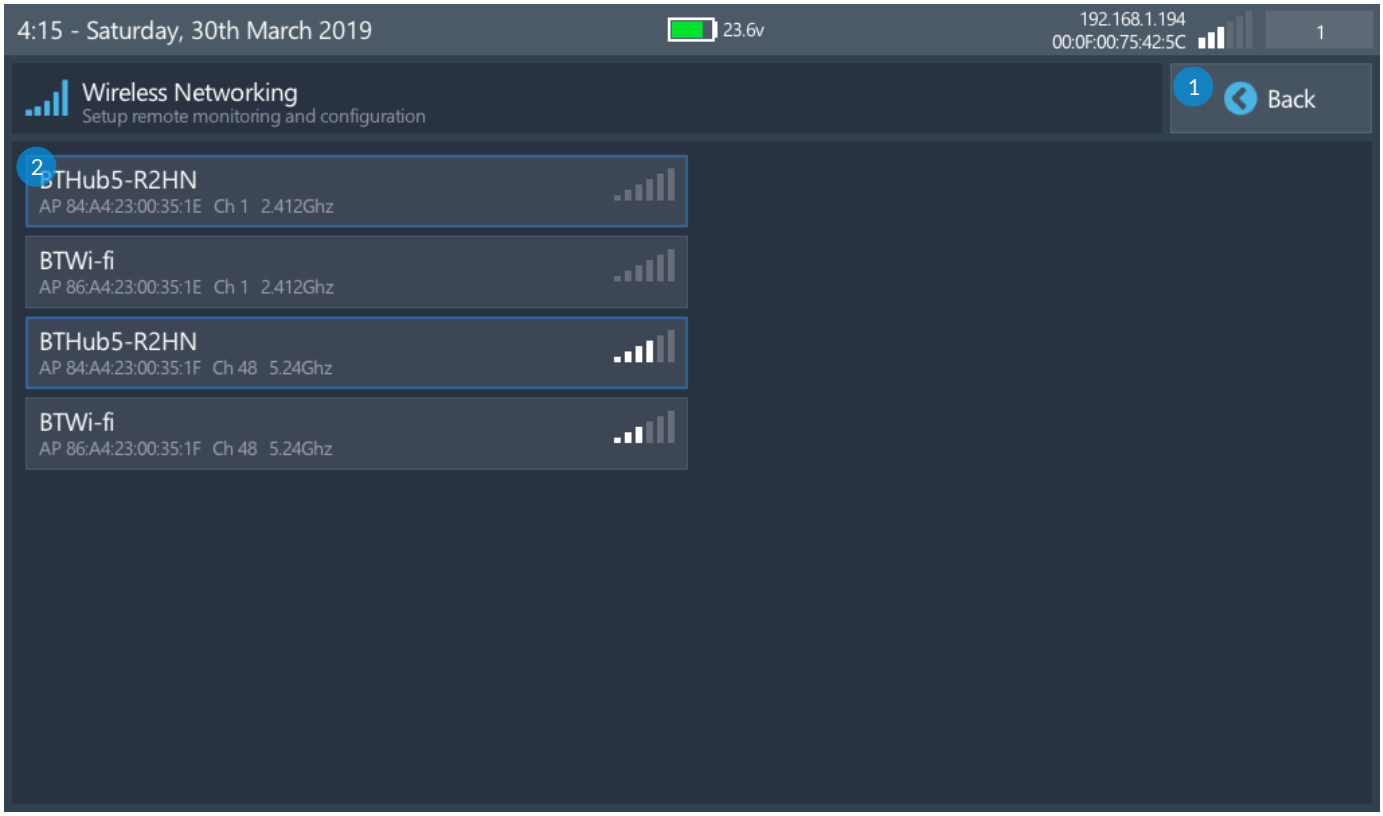
4 Set Date/Time

Sets the devices date and time.

5 Pin Code

4 digit pin code to access the system calibration menu.

Wireless Networking



The bowser has full 2.4ghz and 5ghz wireless networking capabilities. To connect to your network, simply click on the wireless network button, followed by entering your network password. Networks with a blue outline indicate which network you are currently connected too.

1 Back

This takes you back to the previous screen (The config menu).

2 Wireless Network

Displays wireless networks found.

System Calibration

The bowser system calibration should be only be carried out by trained personnel. The various offsets, multipliers and tweaks to the running of the fuel bowser are setup on this page, an incorrect setting will result in transaction logs reporting incorrect details.

The device will be delivered pre-calibrated and this screen should not need to be altered.

1 Back
This takes you back to the previous screen (The config menu).

2 Zerotare
Sets the current weight to read as the zero point.

3 Actual
Sets the actual weight of fuel in the bowsers fuel tank.

4 Set Stabilisation
Sets the +/- offset the fuel is allowed to move/slosh by before a weight reading is taken.

5 Set Empty
Sets the minimum weight of the tank before the empty warning is shown and the pump stopped.

6 Set Low
Sets the low fuel warning amount, connected to the low fuel indicator on the main page.

7 Set Full
Sets the maximum fuel weight capacity.

8 Set Temperature
Calibrates the +/- offset between actual temperature and sensor temperature.

9 Set Voltage
Calibrates the actual battery voltage.

10 Fuel Density at 10'c
Fuel density value when fuel temperature is 10'c or 50'f.

11 Fuel Density at 35'c
Fuel density value when fuel temperature is 35'c or 95'f.

To calibrate the fuel bowser weight, first ensure there is no fuel remaining in the fuel tank then press and hold 'Zerotare' for 1 second before releasing. Next add a known weight to the fuel tank by either a known weight of fuel or calibration weights being carefully placed on the fuel tank, press 'Actual' and enter the known weight just added.

To calibrate the fuel temperature, ensure the sensor is submerged in fuel next to an external temperature probe and allow 30 minutes for the temperature to equalise. Press 'Set' and enter the actual fuel temperature.

To calibrate the ambient temperature, place an external temperature probe next to the ambient temperature and allow 10 minutes for the temperature to stabilise. Press 'Set' and enter the actual ambient temperature.

To calibrate the battery voltage, measure the battery voltage with a calibrated multimeter and enter the actual voltage by pressing 'Set'.

To setup fuel density only two values are needed as fuel density is linear. Press the 10'c / 50'f temperature in the density section and enter the correct density, next press the 35'c / 95'f temperature and enter the correct density. The range will automatically recalculate to the numbers entered.

DEFAULTS: The stabilisation threshold for the 100ltr Fuel Bowser is 1750 and for the 200ltr Fuel Bowser it is 1350

Fuel Filling/Draining

1 Back

This takes you back to the previous screen (The main screen).

2 Method

Sets pump direction, fill up (out) or drain down (in).

3 Target

Sets the target being filled up or drained down. (car 1, car 2, car 3, container or fuel rig)

4 Amount of fuel to transfer

Sets amount of fuel to be transferred based on the unit selected.

5 Transfer units

Sets the unit of measure used when transferring fuel. (kgs, lbs, ltrs, seconds, infinate)

6 Transaction details

Shows details of the current transaction and progress made.

7 Fuel bowser weight

Shows the current fuel levels in the fuel bowser.

8 Fuel rig link-up

Shows the current fuel levels in the fuel rig. (if the fuel rig link-up is enabled)

The transfer fuel screen has been designed with an easy step flow in mind.

1. Start by selecting the transfer method you want to perform, Fill Up (removed fuel from the bowser) or Drain Down (add fuel to the bowser)
2. Next select the target type. (car 1, car 2, car, 3, fuel-rig or a container)
3. Enter the amount of fuel to be transferred. (you may need to change unit if infinite is selected)
4. Enter the unit of measure to be used. (infinite, litres, kilograms or seconds)
5. Begin fuel transfer by pressing the green run button on the bowser switch plate.

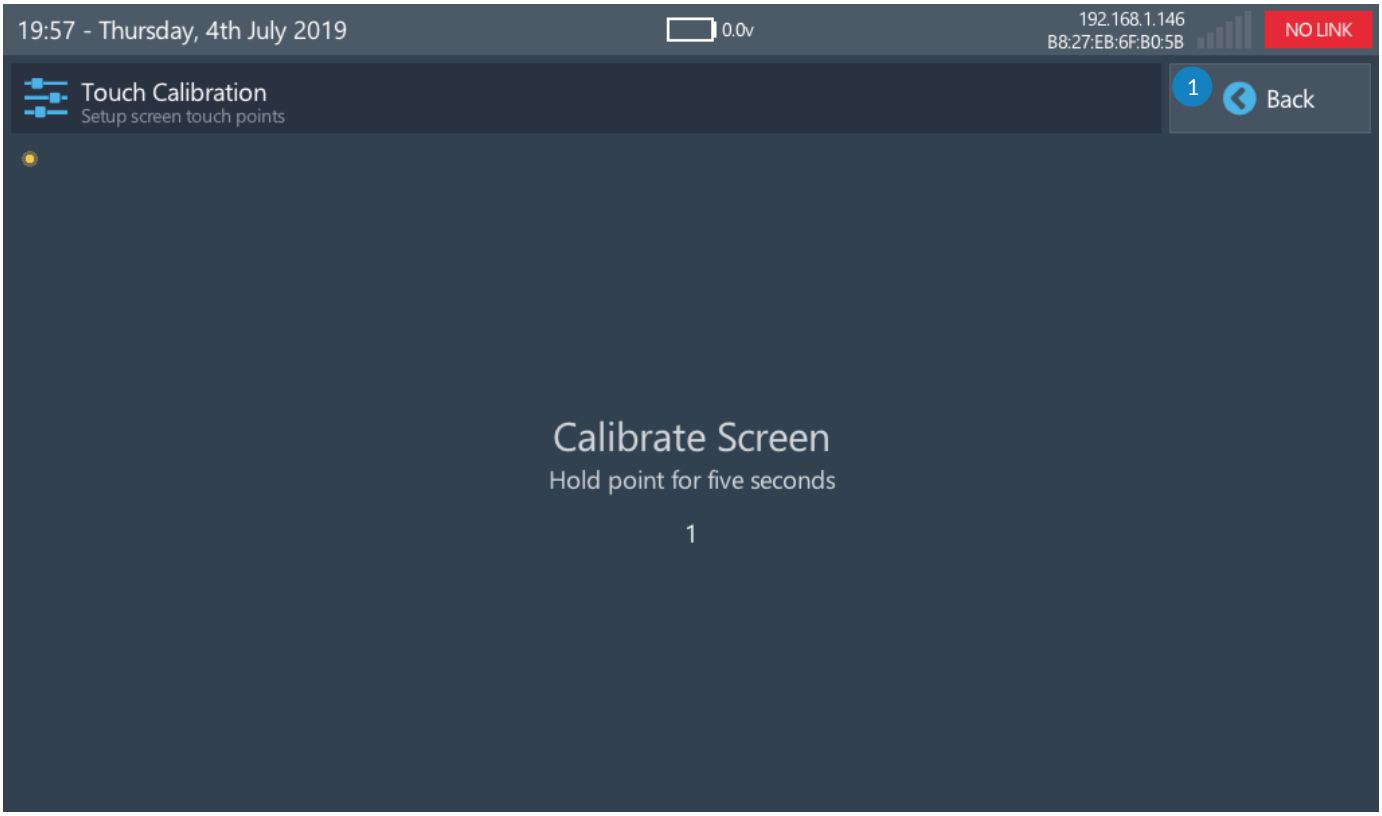
IMPORTANT: Pump speeds are automatically set based on target type, make sure target type is set correctly

The pump will automatically stop:

1. When you release your finger off the green run button.
2. When the desired amount of fuel to transfer has been reached.
3. If the bowser is either empty or full.
4. If pressure is increased in the tank for any reason.
5. If temperature of the motor is too high.

Pressing the back button at the top right of the page will record the fuel transaction in the log file.

Touch Calibration



The touch screens are calibrated at the time of manufacture, but if these settings are lost or its difficult to accurately press the various buttons on the screen, new calibrations settings can be done.

1 Back
This takes you back to the previous screen (The config menu).

To enter the touch calibration page, press the top left of the screen then the top right, top left and then top right again.

Using the pen provided with the fuel rig or a fine plastic pointer, press and hold for 5 seconds the yellow dot at the top left of the screen. Now press the yellow dot at the bottom right of the screen for 5 seconds.

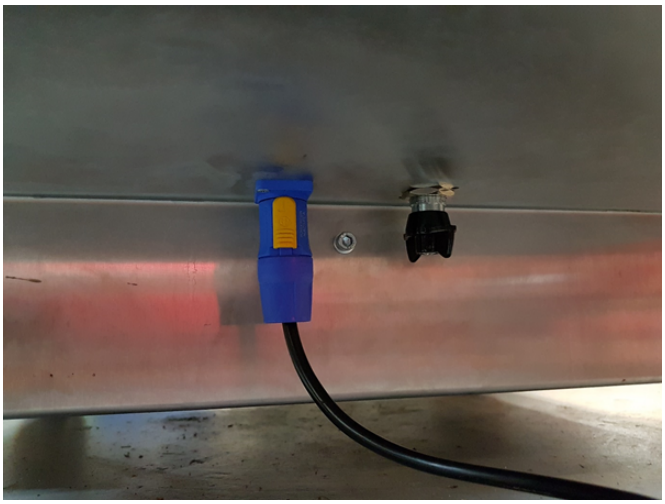
The screen will now read as “touch calibrated”.

If the screen calibration goes wrong or the calibration is far off that the buttons can no longer be pressed, a system touch can be used to restart the calibration procedure. This is done by pressing the top left of the screen, then the bottom right, back to the top left followed by the bottom right.

Charging

The fuel bowser runs on a 24v battery housed at the bottom of the unit. When the voltage in this battery goes below 20v the fuel bowser will prompt you to place the unit on charge.

On the 100 litre model, the charging socket it located underneath the unit next to the main isolator switch.



For the 200 litre model, the charging socket is located just inside the left-hand access door.

After the charging socket has been connected, switch the main switch on the switch plate to the charge position, the light will come on and charging will begin.