FUEL® Lite Online

FLUIDS MANAGEMENT

User & Technical Guide V.1.11

FUEL
REFUELLING SOLUTIONS

Terminal Serial Number

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Installed by (Company):

....

Customer Name:

....

Site Name:

....

User & Technical Guide

Contents

User & Technical Guide

Contents continued...

Section 1:
User Guide

Please read this User Guide to get the best use of your terminal.
If you have any further questions or comments, please contact
the company that has installed this equipment for you.

Purpose:

The terminal serves a two-fold purpose:

- To control access to a fuel pump by means of contactless tags and Virtual Tags (Pin Only Access).
- To register dispensed fuel for individual vehicles and/or drivers, and get an overview of the vehicles' economy.

In order to achieve this, the terminal is hooked up to the pump, controlling it and measuring the volume of the dispensed fuel. Each fuel transaction is saved in the terminal's memory. A batch of transactions can be transferred to a USB stick, then uploaded to the **iFUEL** website for presentation and further processing.

Tags and V-Tags:

Access to the fuel pump via the terminal is gained by means of a contactless tag. These are high security RFID tags, where only the tag's ID is read. Only tags provided by **iFUEL** may be used. Each tag can be set up on the **iFUEL** website with a PIN code and prompts for odometer, vehicle number and/or driver number.

However, access can also be gained without the use of a physical tag, but by means of PIN alone. In that case a 'virtual' tag (V-Tag) is assigned to the user together with a PIN code. Both physical and virtual tags can be set up together on the same terminal. All the V-Tags must have different PIN codes, since the tag is only identified by its PIN, but a physical tag can have any PIN code, even the same as another tag's PIN, physical or virtual. See the section 'Using **iFUEL** To Set Up **iFUEL** Lite Terminal' for further details.

Cleaning:

- Only use a damp cloth when cleaning the terminal.
- Only use detergent with a middle pH value.
- Do not use high pressure wash on the terminal.

Fuelling:

Please note that in the following example the display shows two pumps - the **iFUEL** Lite may only have one pump setup. In case two pumps are set up, these can run at the same time independently of each other.

1. When the terminal is ready for drawing fuel, the first line of the display shows 'Read tag', 'Enter PIN:' or 'Enter PIN / Read tag', depending on the presence of physical and/or virtual tags in the tag list. The second line shows the dispensed fuel volume for the current or last fuelling on the pumps:

```
Read tag
1:0.00 Lit     2:0:00 Lit
```

Or...

```
Enter PIN:
1:0.00 Lit     2:0:00 Lit
```

Or...

```
Enter PIN / Read tag
1:0.00 Lit     2:0:00 Lit
```

2. In the case of using a virtual tag, simply start by entering the PIN code. In the case of using a physical tag, place the tag close to the wireless reader on the terminal 📶. The tag number will be shown on the second line, and on the first line, you will be prompted for information, depending on how the tag is set up.

3. In this example, user is prompted for all possible information (pin, odometer, vehicle and driver). First, enter the PIN code, followed by Enter:

```
Enter PIN:_
Tag: 1627033822
```

4. Enter the vehicle's odometer, followed by Enter:

```
Enter odometer:_
Tag:1627033822
```

5. Enter the vehicle number (e.g. it's registration number), followed by Enter:

```
Enter vehicle:_
Tag:1627033822
```

6. Enter the driver's name, followed by Enter:

```
Enter driver:_
Tag:1627033822
```

7. Finally, if two pumps are available, choose pump number, followed by Enter:

```
Choose pump (1,2):_
Tag:1627033822
```

8. The pump is now ready for fueling. The display will show this text for 5 seconds, but fuelling can commence straight away:

```
Pump ready:1
Tag:1627033822
```

9. When the nozzle for the chosen pump is lifted, the fuel pump motor will start, the pump number chosen will flash on the display, and the fuelled volume will be shown as fuel is dispensed:

```
Read tag
1:1.20 Lit   2:0:00 Lit
```

When the nozzle is returned, the fuel pump motor stops, and a resulting transaction of type F (for Fuel) will be saved in the internal datastore in the current transaction batch. The transaction contains all the relevant information about the fuelling: Date and time, transaction number and type, tag number, pump number, product code, volume in 1/100 units, volume unit, odometer, vehicle number and driver name. On the display the pump number stops flashing and the volume shown is the actual volume of the saved transaction.

Note: In case the power to the terminal is cut during fuelling, the last registered volume is saved temporarily in the datastore. When power is restored to the terminal, the registered volume is also restored, the fuelling is terminated and the resulting transaction is saved in the datastore as per normal. Hence, no fuel goes unregistered because of a power cut.

Error Messages:

When the tag is read, the following error situations could occur, and the text is shown on the first line of the display:

1. The tag list contains errors or is not sorted.

```
Tag list error
Tag:1627033822
```

2. The tag is not found in the tag list:

```
Tag not allowed!
Tag:1627033822
```

3. The tag is barred for a time due to entering the wrong PIN 3 times in a row.

```
Tag is barred!
Tag:1627033822
```

4. All pumps are busy.

```
No pumps available!
Tag:1627033822
```

5. Error in the PIN setup for the tag:

```
Wrong PIN setup!
Tag:1627033822
```

6. No more space in the current transaction batch (max. 2000 transactions):

```
Data store full
Tag:1627033822
```

7. Internal error in the datastore. No fuelling is allowed till the data store has been re-formatted:

```
Data store error
Tag:1627033822
```

8. The internal real time clock is faulty. No fuelling is allowed till it's fixed.

```
Real time clock error
Tag:1627033822
```

9. Too many zero-volume transactions in succession. This number is settable. A power-cycle will get the terminal out of this state:

```
Zero-stop!
Tag:1627033822
```

During the pin entry, the following errors can occur:

1. Enter is pressed before 4 digits have been entered.

```
Too few digits!
Tag:1627033822
```

2. The PIN is wrong.

```
Wrong PIN!
Tag:1627033822
```

3. The tag is barred for x minutes after the wrong PIN has been entered 3 times in a row. This timeout can be set up via the website.

```
Tag is barred for x min
Tag:1627033822
```

Transferring data with USB:

The **iFUEL** USB stick is used to transfer data between the **iFUEL** Lite terminal, and an internet connected PC. Please note that only a USB stick supplied from **iFUEL** will work. The data transferred are typically transactions, receipts, tag information and terminal setup.

Data is stored on the terminal until it has received a read-receipt from the **iFUEL** website. This ensures that no transactions are lost in the synchronization process, even if the USB is damaged.

Transactions etc. ➡

Receipts, tag information and terminal setup ⬅

Placing USB stick on PC:

- Insert the USB stick into your internet connected Windows computer.
- Then start the synchronization program placed on the USB stick.
- Click the "Synchronize data" button to start synchronizing.
- Transactions from the USB stick are now transferred to **iFUEL** and a receipt for successful upload is written back to the USB stick, along with tag information and any changes in setup of terminal.

Placing USB stick on **iFUEL** Lite Terminal:

- Insert the USB stick into the **iFUEL** Lite terminal and the synchronization will happen automatically.
- If possible, the open batch is closed and transferred to the USB stick, unless it is already on the USB stick. Please note that only one batch is synchronized at a time, so always synchronize on the PC after synchronization on the terminal.
- In case a newer version of the software is available, the terminal will ask if it is ok to upgrade this.

Override Transactions

The **iFUEL** Lite can be set up for override transactions.

When override transactions are enabled, the pumps are authorized all the time, ready to draw fuel, without using a tag.

Any fuelling done in override transactions mode will be saved under tag number 0000000000 and type 'O' (for Override). To enable the override mode the switch inside the terminal must be set in the "up" position (see right image) and the feature must be enabled within the **iFUEL** website, this can be found on the Site Page just below the status box (see image below).
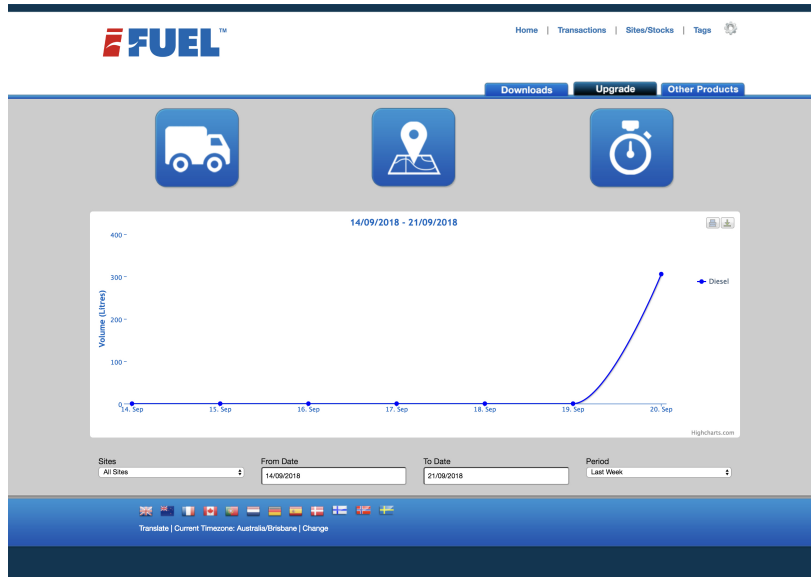
Note: When the override is enabled on the terminal the display will show "Manual Override" on the first line. To disable, move the switch to "down" position.

Switch in 'Up' position
Override is now enabled.
Display text: "Manual Override"

Switch in 'Down' position
Override is now disabled.
Display text: "Read tag"

iFUEL Website Overview

The following pages summarise common usage of the **iFUEL** system
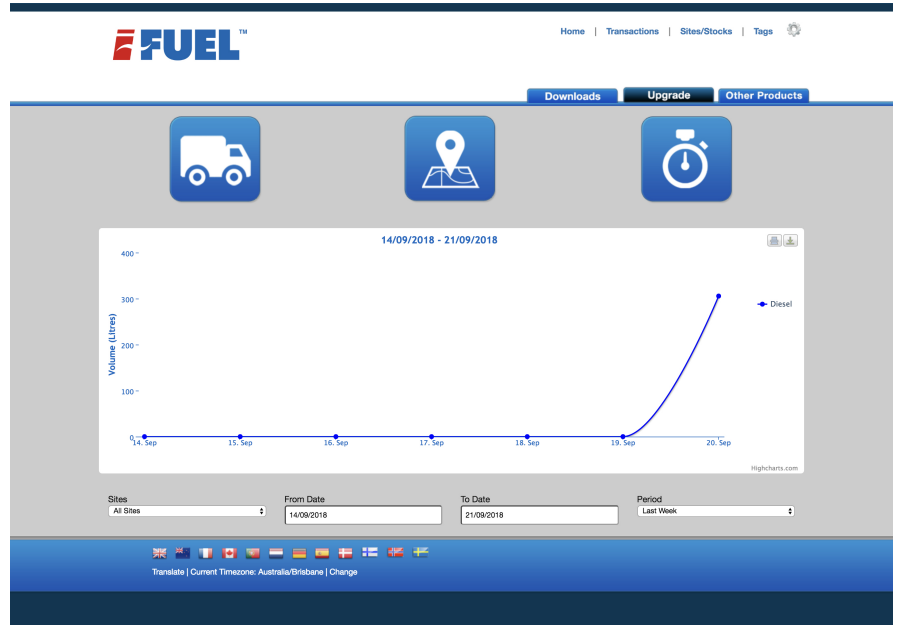
iFUEL Website Overview:

Home page:

The first page when logging on to the **iFUEL** website is the "Home" page. A graphical presentation of transactions over time is shown here. This can be filtered by product and date.

Graphical data may be printed or exported by using the buttons located in the upper right of the graph frame.

Click the downloads tab to download user guides and specification sheets

View other products in the **iFUEL** range by clicking on the 'Other Products' button.

iFUEL Website Overview:

Tags page:

The Tags page shows all tags and V-Tags (V-Tags require only the specified pin to be entered by the user to access fuelling). Changing details like Tag Name, Vehicle, Pin code etc. is simply done by editing the data in the overview.

Deactivate a tag or multiple tags (or Vtags) by unclicking the status box within the status column.

When creating or changing pin numbers they can be any combination of 4 digits, except for V-Tags (Virtual Tags) where pin number must be unique.

The list of tags is available to download as an excel spreadsheet via the download button.

Note: Tags assigned to a customer are not site-specific i.e. all tags can be used on all sites the customer has set up, and are not restricted to just one site.

iFUEL Website Overview:

Site List page:

The Site List page shows all sites and the details on them, like when they were last synced.

A basic stock level report showing the calculated stock figure, can be generated from the bottom of the page.

By clicking the 'Get Stock Levels' button this will generate a stock reconciliation spreadsheet that highlights issues such as stock losses etc.

This spreadsheet will be generated using your manual dip reads for calculated stock or if the system has a tank gauge installed, readings for actual stock.

iFUEL Website Overview:

Site Page:

When choosing a site, the Site page shows the details for a specific site, including stock information like current estimated level, dip reads and deliveries.

By clicking the 'Add Dip' or 'Add Delivery' buttons located next to the Tank Estimated Level Gauge, you can Easily enter dip readings and delivery amounts against specific dates/times.

Deliveries, dip readings and transactions can be edited or amended in the lower part of the site page by clicking on the pencil icon in the relevant row.

Note: As mentioned on page 09, the manual override is set from the site page.

Last Transaction	20 Sep 2018, 10:59 p.m.
Last Sync	20 Sep 2018, 10:59 p.m.
Override Enabled	✕ Disabled Enable override

iFUEL Website Overview:

Transactions Page:

The transaction page shows transactions based on the filters below the grid.

Transactions can be downloaded as XLS and CSV files, or simply be printed out using the Print Report button.

The default report can be set to the last download. This will automatically show the latest transactions downloaded from the usb when you enter the transactions screen.

Downloads | Upgrade | Other Products

Transactions

Displaying 1 to 3 of 3

Date/Time	Site No.	Site Name	Tag No.	Tag Name	Vehicle/Driver	Product	Vehicle No.	Odometer	Driver No.	Pump	Tank	Vol.	Edit
20 Sep 2018, 6:37 p.m.	1	Royal CDS Hemmant	3267580487	958XDH	958XDH	Diesel	958XDH	42361	None	1	1	49.88	✎
20 Sep 2018, 5:16 p.m.	1	Royal CDS Hemmant	2993640007	383KNJ	383KNJ	Diesel	383KNJ	64870	None	1	1	0.15	✎
20 Sep 2018, 3:13 p.m.	1	Royal CDS Hemmant	1118851655	673VMV	673VMV	Diesel	673VMV	169735	None	1	1	88.23	✎

Product	Count	Volume
Diesel	3	138.26

⬇ Download XLS   ⬇ Download CSV   🖨 Print Report

Emergency Sync

Period	**Default Report**	**From Date**	**To Date**
Last Download	Last Download		
Site	**Product**	**Vehicle Number**	**Driver Number**
All Sites	All Products		
Tag Number	**Tag Name**	**Vehicle / Driver Name**	**Tag Type**
All Tags	All Tags	All Tags	All Tags

🔄 Update Search

Translate | Current Timezone: Australia/Brisbane | Change

16

Edit Transaction Table Columns

Active Fields

- Date/Time
- Site No.
- Site Name
- Tag No.
- Tag Name
- Vehicle/Driver
- Product
- Vehicle No.
- Odometer
- Driver No.
- Pump
- Tank
- Vol.

Hidden Fields

Transaction Datetime Length

Site Name Length

Card Name Length

Product Length

Odometer Length

Pump Length

Volume Length

Site No title
Site No.

Card Number title
Tag No.

Card Owner Name title
Vehicle/Driver

Vehicle No title
Vehicle No.

Driver No title
Driver No.

Tank title
Tank

Site Number Length

Card Number Length

Card Owner Name Length

Vehicle Number Length

Driver Number Length

Tank Length

Transaction Datetime title
Date/Time

Site Name title
Site Name

Card Name title
Tag Name

Product title
Product

Odometer title
Odometer

Pump title
Pump

Volume title
Vol.

Save

Translate | Current Timezone: Australia/Brisbane | Change

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iFUEL Website Overview:

Edit Transaction Display:

When clicking the Cogwheel menu on upper right side of the page, the Edit Transaction Display is available. This page changes what columns show in the transaction page, what the columns are called, and how long the fields are when exporting to CSV .

The drag and drop facility can be used to re-order the columns.

The lower part of this screen also allows for column names and field lengths to be edited to create fully customised csv and printable reports specific to the users requirements.

Note: Dependant on user level there will be other options in the 'cog-wheel dropdown menu: Edit users (available on managers logins) and 'Change Password' (available to all users).

iFUEL Website Overview:

Managing users:

Users can be added, edited and disabled, also from the Cogwheel menu from the upper right side.
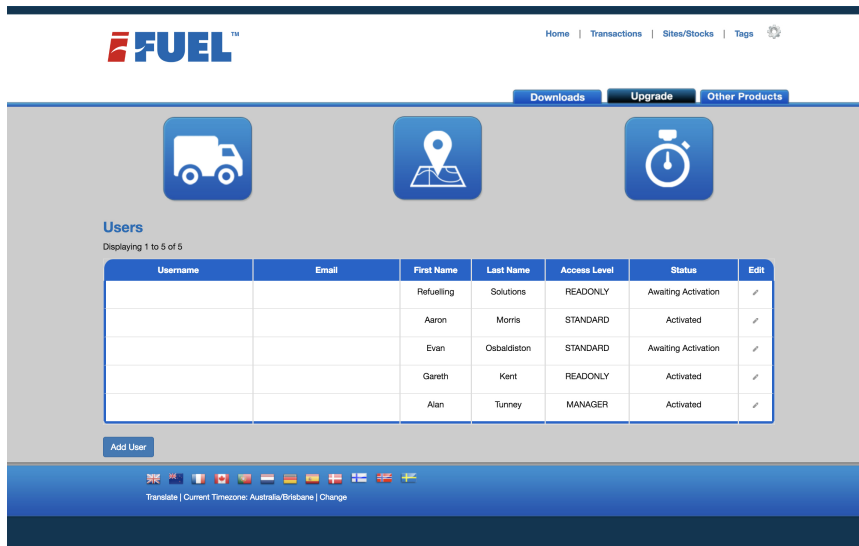
When a user is added, **iFUEL** sends out an email. From this email the new user can activate the login

Please note the edit user function is available at the manager account level only.

The option to change a users password is available at all levels/accounts.

Non activated users:

Accounts of non-activated users (that appear within the user table) can be activated via 'edit user' (cog wheel or pencil icon). Within the page a url link is provided in red which can be copied and sent to the user. The user can then copy and paste the url into their browser leading to the password creation page. Once a password is created the users account is live.

Users

Displaying 1 to 5 of 5

Username	Email	First Name	Last Name	Access Level	Status	Edit
		Refuelling	Solutions	READONLY	Awaiting Activation	✎
		Aaron	Morris	STANDARD	Activated	✎
		Evan	Osbaldiston	STANDARD	Awaiting Activation	✎
		Gareth	Kent	READONLY	Activated	✎
		Alan	Tunney	MANAGER	Activated	✎

Add User

Translate | Current Timezone: Australia/Brisbane | Change

Frequently asked questions:

Why is my tag not working?

If the tag is read and shown on the display, the tag may not be in the tag list on the terminal. Check that the tag is set as Active on **iFUEL**, synchronise the USB stick on **iFUEL**, then on the terminal.

If the terminal is in Manual Override mode, no tags can be read.

If other tags can be read, the tag could simply be faulty and a new tag should be issued.

If no tags can be read, replace the tag reader.

How do I get a new tag?

Extra tags should be ordered through the company who have installed your **iFUEL** Lite.

Why does the assigned USB-stick not work?

If the display says 'USB read error!', the stick could be faulty or the contacts on the reader and /or on the stick could be dirty.

If the display says 'USB-stick volume error!', the stick has an internal error. Please order a new one.

Why does my own USB-stick not work?

As a security measure, to prevent other people from tampering with your **iFUEL** Lite terminal, only USB sticks supplied from **iFUEL** and assigned to the terminal will work on it.

How do I get a new USB-stick?

Extra USB-sticks should be ordered through the company who have installed your **iFUEL** Lite.

I don't understand the error message on the terminal!

Please look through the list of error messages in this user guide. If that does not help you, contact the company who has installed your **iFUEL** Lite.

Notes:

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Section 2:
Technical Guide

Please note that this section is intended
for distributors and resellers only.

![iFUEL REFUELLING SOLUTIONS logo]

Agent Quick Guide:

How to setup an iFUEL Lite:

1 Login to www.ifuelcloud.com.au

2 Add Site (See page 22 "Using **iFUEL** To Set Up **iFUEL** Lite

Terminal - Add Site")

This assigns the terminal to a site for a new or existing customer.

Make sure you select the terminal with the correct serial number.

3 Assign USB stick to site (See page 23 "Assign Tags/ V-Tags/ USB")

4 Assign Tags to customer (See page 23 "Assign Tags/ V-Tags/ USB")

5 Set up terminal (See page 25 "Menu System")

Make sure that:
a. Terminal no matches what is on **iFUEL** under the site
b. Product numbers on pumps matches what is on **iFUEL** under the site.

6 Use The USB stick to transfer Tags to terminal by (See page 8 "Transferring data with USB")
a. Plug USB into PC and sync with **iFUEL**
b. Plug USB into iFUEL Lite

Note: If at this stage the display says 'Conf err! (L:1,F:X)', the most likely explanation is that the terminal ID in the terminal doesn't match that on **iFUEL**.

7 Now terminal is set up, and tags should work - Carry out a test transaction.

8 Use The USB stick to transfer transactions to **iFUEL** by: (See page 8 "Transferring data with USB")
a. Plug USB into iFUEL Lite
b. Plug USB into PC and sync with **iFUEL**

Note: If you encounter the error 'Cannot Find Product' or 'Cannot Parse Payload', the most likely cause is that transactions on the terminal have been made on a product code or a pump number that doesn't exist in **iFUEL**. Installers sometimes make the mistake of doing a few test transactions and then change the product code to the one set up on **iFUEL**, but then the test transactions won't be accepted. Contact the installer for advice.

9 Check that the transactions are now showing correctly on **iFUEL** for the customer (See page 15 "Transactions Page")

10 Add a customer login (See page 17 "Managing Users")

Please note that once the USB stick starts to sync back and forth between the iFUEL Lite and **iFUEL** website it will contain a number of files. We are working on hiding these files from the user to make it more user friendly. Use the "Start" shortcut with this icon to launch the sync program.

Agent Quick Guide:

How to resell a iFUEL Lite:

1 Login to www.ifuecloud.com.au.

In the top right corner you can click the cog menu, the subsequent menu will offer a number of options:

iFUEL can create your resellers in **iFUEL**, so you can forward items from your stock to the resellers stock.

The main steps needed to assign items are:

2 "Assign Terminals"
This moves the terminal(s) from your stock to your resellers stock.

3 "Assign Tags"
This moves the Tag(s) from your stock to your resellers stock.

4 "Assign USB"
This moves the USB(s) from your stock to your resellers stock.

Once Terminals, Tags and USBs are in resellers stock, the reseller can set everything up independent of you as an individual agent.

In addition to the 3 main operating components (Terminals, Tags & USB) stock upgrades for additional functionality can now be assigned to your resellers. These upgrades include V-Tags for pin only access (See pg 23), Pump upgrades and Tank Gauging (See pg 37-40).

Assigning upgrades to a reseller is carried out via the cogwheel.

See below the interface for reassigning pump upgrades - in this instance the user is assigning 1 pump upgrade to the 'Test iFUEL Reseller'.

Using **iFUEL**
To Set Up iFUEL Lite Terminal

Add site:

When setting up a iFUEL Lite the first thing that should be done is adding a site. This is achieved via the Cogwheel menu in the top right corner of the screen.

The steps involved when setting up a site is:

- Select the terminal
- Select existing customer or add new
- Input site details
- Choose upgrades if wanted (pump upgrade for two pumps, tank gauge upgrade)
- Setup tanks and "products"

![iFUEL Refuelling Solutions logo]

Using **iFUEL**
To Set Up iFUEL Lite Terminal

Assign Tags/ V-Tags/ USB:

Assigning a tag, V-Tag or USB from items in stock is simply a question of finding a the desired medium (tag, Vtag or USB) in stock, clicking or dragging it over in the "To Assign" box, choose the customer (and site if USB) and click the assign button. Items may also be assigned to a reseller if they are setup and available in the drop-down box.

When assigning tags or V-Tags from large lists of stock, click the 'Contactless tags only' or 'V-Tags Only' button to display media relevant to that selection only.

V-Tags in the stock list are denoted by a 'V' prior to the item number.

Note: To support the use of V-Tags the iFUEL Lite terminal must be V-Tag enabled. A terminal upgrade can be purchased to allow the use of V-Tags alongside standard tags.
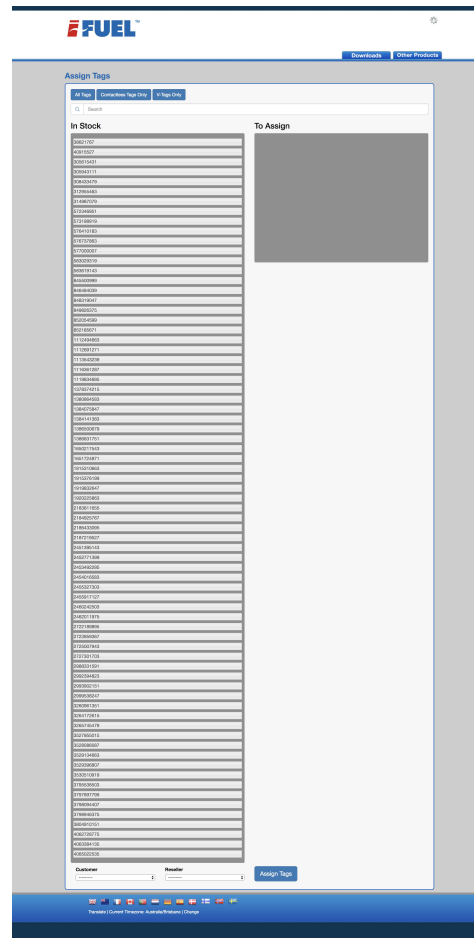
Overview of Components
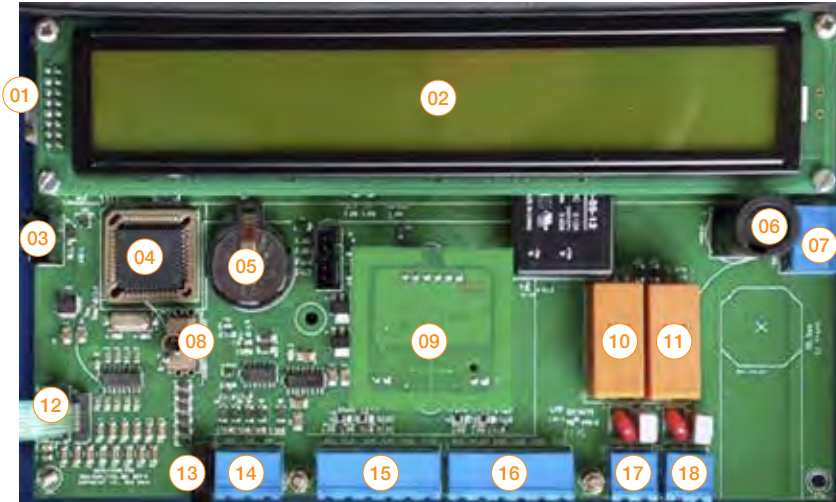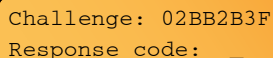
Parts with (R) in list below are replaceable parts:

1. Display contrast adjuster
    Display automatically adjusts contrasts according to temperature
2. Display *(R)*
3. Input connector for USB
4. CPU / Program Flash
5. Battery for realtime clock *(R)*
6. Fuse *(R)*
7. Mains input
8. Manual transaction override switch
9. TAG reader *(R)*
10. Relay to control pump 1
11. Relay to control pump 2
12. Input connector for keyboard
13. Extension port
14. Serial port for Tank Gauge
15. Inputs for pump 1 + 12V optional output for pulser
16. Inputs for pump 2 + 12V optional output for pulser
17. Outputs for pump 1 motor
18. Outputs for pump 2 motor

Menu System:

To enter the iFUEL Lite menu system, hold down the "Clear" button for five seconds. Now a challenge code comes up. Agents will posess a response code generator, alternatively call your agent for a response code to enter.

```
Challenge: 02BB2B3F
Response code:  _
```

Once the correct response code is entered, access is granted to the following sub-menus. See the sections to follow for more information about each menu item:

Set clock	Setting of the internal real time clock
Set auto DST	Setting of auto daylight savings time (DST) adjustment
Set language	Setting of the display language. Available are English and Danish
Set mem warning	Setting of transaction memory low warning
Set tag barred min	Setting of how long time a tag is barred after too many wrong PINs
Terminal ID	Setting of terminal ID
Pump A setup	Settings for pump A
Pump B setup	Settings for pump B
Tank setup	Settings for the attached tank gauge
Format datastore	Formatting of the internal datastore
	(Warning: All settings will be cleared and set to default values!)

Pressing clear again, makes it possible to clear the challenge code:

```
Clear challenge (Y/N):
```

Doing this locks the terminal, so another challenge / response code is necessary in order to enter the menu again. If the challenge code is NOT cleared, access to the menu is granted without any code, as long as it's done within 15 minutes, after which the current challenge code expires.

Setting the Clock:

The display will show the current date and time in the first line and the day of the week and the DST adjustment in the second line:

```
Clk: 15/03-2016 16:26:56
Tuesday, standard time
```

Press Enter:

```
    (YYYYMMDDHHMMSS)
Set: _
```

Now enter the date and time as indicated (year, month, date, hours, minutes, seconds) and press Enter:

```
    (YYYYMMDDHHMMSS)
Set: 20160315162656
```

The date and time is now set.

Setting auto Daylight Savings Time (DST):

The terminal can adjust for DST automatically. Although there are some strange times in the world when DST is adjusted for, the terminal assumes it takes place between 2 and 3 am on a Sunday morning. This setting sets up in which month and on which Sunday the DST starts and ends.

The first setting adjusts the start month. Use arrows left and right to adjust the value:

```
➡Start DST month  3
  Start DST Sunday 5
```

Press arrow down to adjust the start Sunday. If DST should start on the 1st Sunday, choose 1, on the 2nd, choose 2, and so on. If DST should start on the last Sunday of the month, always choose 5, regardless of whether the last Sunday is actually the 5th. Adjust the value:

```
  Start DST month  3
➡Start DST Sunday 5
```

Press arrow down to adjust when DST should end:

```
  Start DST Sunday 5
➡End DST month    10
```

```
  End DST month    10
➡End DST Sunday    5
```

Scroll up and down to see if the settings are correct.
Press Enter and answer Yes to have the changes saved.

Setting the language:

The display will show the current language. Use arrows right and left to adjust the language, then press Enter:

```
Set language: English
```

Three settings are available: English, Danish (or Swedish) and File.

In case File is chosen, the terminal must be loaded with a valid text file beforehand, containing all the texts the terminal can display. Such a text file can be ordered from iFUEL. This means that the terminal can display any language using the Latin alphabet, but it also means that certain texts in the default languages could be altered, if so desired. For example, the text 'Enter odometer:' could be changed to 'Enter hours:'.

Setting the time in which a tag is barred:

The tag barred minutes expresses the time in which a tag is barred or blocked after the wrong PIN code has been entered too many times.

The display shows the current setting. Press Clear to clear the value and enter another value. Press Enter:

```
Tag barred min: 10_
```

Setting the memory warning:

The low memory warning expresses how many transactions there are still room for in the datastore, before a memory warning is issued, when a tag is read for fuelling.

The display shows the current setting. Press Clear to clear the value and enter another value. Press Enter:

```
Low mem. warning: 60_
```

Setting the terminal ID:

The terminal ID is a very important setting. It IDs the terminal against the USB stick. If the ID doesn't match, no synchronization with the USB stick can take place. (The error message 'Conf err! (L:1,F:X)' will appear on the terminal if thi si the case).

The display shows the current setting. Press Clear to clear the value and enter another value. Press Enter:

```
Terminal ID: 11_
```

Pump settings:

The pump settings are crucial to the correct functioning of the terminal. Settings for Pump A and B can be adjusted. In the following, only settings for one pump is shown. The adjusting of the various settings are done by scrolling up and down with the arrow up and down buttons, then adjusting the chosen setting with the arrow right and left buttons. Holding down the buttons will make the values change progressively faster.

Pump number: The first setting adjusts the pump number. Use arrows left and right to adjust the value:

```
➡ Pump number      1
   Product number   5
```

Product number: The product number must be the same as the number chosen on **iFUEL** for the pump. If not, any batch containing transactions with an unknown product number will be rejected. Use arrows left and right to adjust the value:

```
   Pump number      1
➡ Product number   5
```

Product Unit: The product unit must match the unit set up on **iFUEL**. The range of available characters is [A..Z]. Choose L for litres. Use arrows left and right to adjust the value:

```
   Product number   5
➡ Product unit      L
```

Display Unit: The display unit is the unit of the dispensed fuel shown on the display. Up to 10 characters can be entered, but in case the terminal runs two pumps, the unit will be truncated to only 3 characters per pump.

Press arrow right and a cursor will appear to the right of the unit text. Press Clear to clear the setting. Enter the unit text. When small letters should be chosen, hold down the letter button, and the letter changes to a small letter. Do that again, and it changes back to a capital letter. Doing this with the numbers, alternate characters will appear: $^1\,^2\,^3$ $ % £ / ° €. For example, if natural gas is dispensed, the unit could be expressed in Normal Cubic Metres or Nm^3. Press Enter when finished:

```
   Product unit      L
➡ Display unit      Lit_
```

Max pump time: This is the maximum time in seconds in which the pump will run for. When the time is up, the transaction terminates and the pump stops. The range is [0..200000]. Use arrows left and right to adjust the value:

```
➡ Display unit      Lit
   Max pump time    900
```

Pump settings:

Chosen Timeout: This is the maximum time in seconds in which the pump can be chosen. That is the time from which the pump is chosen till the nozzle is lifted and the pump is started. When the time is up, the transaction terminates with a volume of 0 litres. The range is [0..255]. Use arrows left and right to adjust the value:

```
 Max pump time    900
➜Chosen timeout    120
```

No flow timeout: This is the maximum time in seconds in which no flow is detected. This is the time during fueling in which there is no flow, for whatever reason. The timeout is only applied after 10 pulses have been counted from the flow meter; before then the Chosen timeout (mentioned above) applies. When the time is up, the transaction terminates and the pump stops. The range is [0..255]. Use arrows left and right to adjust the value:

```
 Chosen timeout    120
➜No flow timeout    120
```

Pulses/unit: This is the number of pulses that must be counted from the flow meter in order to get one unit of fuel (e.g. one litre). This value can have up to 3 decimal places. This is obtained by pressing the P button. For every press, the decimal point rotates to the left up to 3 decimal places and then back to none. The range of the raw value, regardless of the decimal point is [0..16383]. Use arrows left and right to adjust the value:

```
 No flow timeout   120
➜Pulses/unit        10
```

Suspect Pulses: The terminal can be set up to detect pulses from the flow meter, even when a pump has NOT been authorized. So if someone manages to hardwire the power to the pump and steal fuel, at least the volume and the time it occurred can be registered. This is done by setting this value higher than 0. The value then determines the number of pulses the terminal receives before it starts a 'suspect' transaction. See the section 'All supported bowser configurations' for further details. The range for this value is [0..255]. Zero means the feature is disabled. Use arrows left and right to adjust the value:

```
 Pulses/unit        10
➜Suspect pulses     0
```

Pump settings:

Zero Fillings: This is the number of transactions in succession with a volume of 0 that are allowed before the terminal will stop any further pump authorisations. Only a reboot will clear the zero fillings counter. A value of zero disables this feature. The range is [0..255]. Use arrows left and right to adjust the value:

```
  Suspect pulses    0
➜ Zero fillings     10
```

Tank Number: This is the number of the tank attached to the pump. The range is [0..255]. Use arrows left and right to adjust the value:

```
  Zero fillings     10
➜ Tank number       1
```

Current Sensor: When set to Yes, this setting changes the terminal's behaviour of the pump control, to cater for the use of a current sensor nozzle switch. This is a switch that closes when the current through the pump motor exceeds a certain threshold. See the section 'All supported bowser configurations' for further details. When set to No, this feature is disabled. Use arrows left and right to adjust the value:

```
  Tank number       1
➜ Current sensor    No
```

This concludes the setup of pump A
The same procedure applies to the setup of pump B. However, in case no 2-pump upgrade has been purchased for the terminal, the display will reject an attempt to enter the pump B setup with the text:

```
No access!
```

All Supported Bowser Configurations

Should there be no nozzle signal or if in an extreme case the fuel pump is hard-wired in an attempt to steal fuel without authorisation, the fuel volumes can still be registered

The following documentation explains how to connect the bowser to the terminal and how to set it up in the agent's menu, covering all the supported combinations.

Use Tags to Authorise a Pump:

1. Nozzle signal available:

Process: Present tag, PIN, etc., choose pump. The pump relay turns on when the nozzle is lifted, the pump relay turns off and a fuel transaction is saved when the nozzle is returned.

Setup: "Current sensor" = No. The nozzle input is connected to the nozzle switch, the pulse input is connected to the flow meter, and the pump motor relay contact is connected to power in series with the pump motor (default wiring).

Display: Previous volume is shown until the nozzle is lifted, after which the volume is cleared and the pump number flashes. Fuelled volume is shown as the fuel is dispensed. Pump number and volume freeze when the nozzle is returned.

2. Nozzle signal provided via pump motor current sensor:

Process: Similar to no. 1, but when the pump is chosen, the pump relay turns on straight away. The pump relay is still on when the nozzle switch is activated. The pump relay turns off and a fuel transaction is saved when the nozzle is returned.

Setup: "Current sensor" = Yes. The nozzle input is connected to a current sensor contact switch, the pulse input is connected to the flow meter, and the pump motor relay contact is connected to power in series with the pump motor. The pump motor itself has a built-in switch, that disconnects the pump motor when the nozzle is in.

Display: Previous volume shown when the terminal is idle. When the pump is chosen, the volume is cleared and the pump number flashes. No change when the nozzle switch is activated. Fuelled volume is shown as the fuel is dispensed. Pump number and volume freeze when the nozzle is returned.

3. No nozzle signal at all:

Process: Similar to no. 2, but the transaction is completed only after no pulses have been detected for the duration of the 'No flow timeout'.

Setup: Similar to no. 2, but the nozzle input is just shorted to ground all the time.

Display: Previous volume shown when the terminal is idle. When the pump is chosen, the volume is cleared and the pump number flashes. Fuelled volume is shown as the fuel is dispensed. Pump number and volume freeze when 'No flow timeout' occurs.

All Supported Bowser Configurations continued...

Use Tags to Authorise a Pump Continued:

4. Suspect pulse detection in combination with any of the above setups:

Process: Fuel dispensed and thereby pulses detected between authorised transactions are recorded and saved as suspect transactions (S-transactions). An S-transaction ends when 'No flow timeout' occurs. While an S-transaction is in progress, the pump motor relay is NOT activated, and the pump cannot be chosen by the user either.

Setup: In addition, Suspect pulses = number of pulses at which the S-transaction begins.

Display: S-transactions are NOT revealed on the display.

. . . .

Manual Override Mode:

1. Nozzle signal available:

Process: The pump relay turns on when the nozzle is lifted, the pump relay turns off and an Override transaction (O-transaction) is saved when it's returned.

Setup: "Current sensor" = No. The nozzle input is connected to the nozzle switch, the pulse input is connected to the flow meter, and the pump motor relay contact is connected to power in series with the pump motor (default wiring).

Display: Previous volume is shown until the nozzle is lifted, after which the volume is cleared and the pump number flashes. Fuelled volume is shown as the fuel is dispensed. Pump number and volume freeze when the nozzle is returned.

2. Nozzle signal provided via pump motor current sensor: Process:

The pump relay is on all the time. A transaction starts when the nozzle is out and the current sensor switch closes. The transaction completes and an O-transaction is saved when the nozzle is returned and the pump stops.

Setup: "Current sensor" = Yes. The nozzle input is connected to the current sensor contact switch, the pulse input is connected to the flow meter, and the pump motor relay contact is connected to power in series with the pump motor. The pump motor itself has a built-in switch, that disconnects the pump motor when the nozzle is in.

Display: Previous volume is shown until the pump is started, then the volume is cleared and the pump number flashes. Fuelled volume is shown as the fuel is dispensed. Pump number and volume freeze when the pump is stopped.

All Supported Bowser Configurations continued...

Manual Override Mode Continued:

3. No nozzle signal at all:

Process: Similar to no. 2, but the transaction starts after detecting 10 pulses and it completes only after no pulses have been detected for the duration of the 'No flow timeout'. After completion the internal pulse counter is cleared, thus making the terminal ready for pulse detection again.

Setup: Similar to no. 2, but the nozzle input is just shorted to ground all the time.

Display: Previous volume is shown until 10 pulses are detected, after which the pump number flashes and the fuelled volume is shown as the fuel is dispensed. Pump number and volume freeze after the transaction completes by means of the 'No flow timeout'.flashes. Fuelled volume is shown as the fuel is dispensed. Pump number and volume freeze when 'No flow timeout' occurs.

4. Suspect pulse detection; logically only works in combination with 1 and 2:

Process: Pulses detected when a transaction is not in progress, are recorded and saved as S-transactions. An S-transaction ends when the 'No flow timeout' occurs or when the nozzle switch changes position. While an S-transaction is in progress, no change to the pump motor relay contact occurs.

Setup: In addition, Suspect pulses = number of pulses at which an S-transaction begins.

Display: S-transactions are NOT revealed on the display.

Technical Specification:

- Size (in mm): H:240, W:270, D:65
- Power requirements: 220-240VAC/ 50 Hz
- Power consumption: max. 15 Watts
- The terminal shall be grounded properly.
- The terminal can be mounted on a pedestal or wall mount or directly on the pump.

The iFUEL Lite terminal does not require any network connection. It only needs connecting to power and pumps.

Connecting Power:
Connector pins for power (85 - 264 VAC):
1. Live
2. Earth
3. Neutral

Connecting pumps:

Whether the terminal software settings support 1 or 2 pumps is managed by iFUEL.

Connection of the pumps is done on the connector pins on the bottom of the board:

Please note the LEDs above the pin connectors, indicating nozzle and pulse input.

Pump A	Pump B	Description
1	7	Nozzle input (when connected to ground, Nozzle is lifted)
2	8	Pulse input (when connected to ground, pulse is coming in)
3	9	Gnd
4	10	Gnd
5	11	Gnd
6	12	+12v for pulser (max 100 mA)
13	14	Output: Relay contacts N/O, max 240V/10A

Connection Example: Simple Pump Bowser to Pump A:

The figure below shows how to connect a simple bowser to iFUEL Lite. The bowser could consist of a mechanical display that shows the fuelled volume, a fuel pump, a nozzle switch and a flow meter.
The flow meter produces a certain amount of pulses per litre.

The nozzle switch must be an NC-type (normally closed), ie. when the nozzle is out, the nozzle switch is closed. Connect the nozzle switch between pin 1 and 3 on CON5. The flow meter can be powered by the terminal on pin 6, provided it can run on 12VDC. Connect the pulse output to pin 2, ground to pin 5 and power to pin 6.

Note: Ground is found on pins 3 - 5, so it doesn't matter which ones are used.

The pump just needs AC power to run, like 230VAC, but it must be controlled by the terminal. So connect the active from the mains to one pin 13, the other pin 13 to the active input on the pump and the neutral from the mains to the neutral on the pump. Also, connect the earth on the pump to earth from the mains.

The terminal itself gets power from the active and neutral from the mains, as shown on the figure. Remember to connect earth as well.
If the bowser should be connected to Pump B's controls, use CON7, pins 7 - 12, and CON6, pins 14, instead.
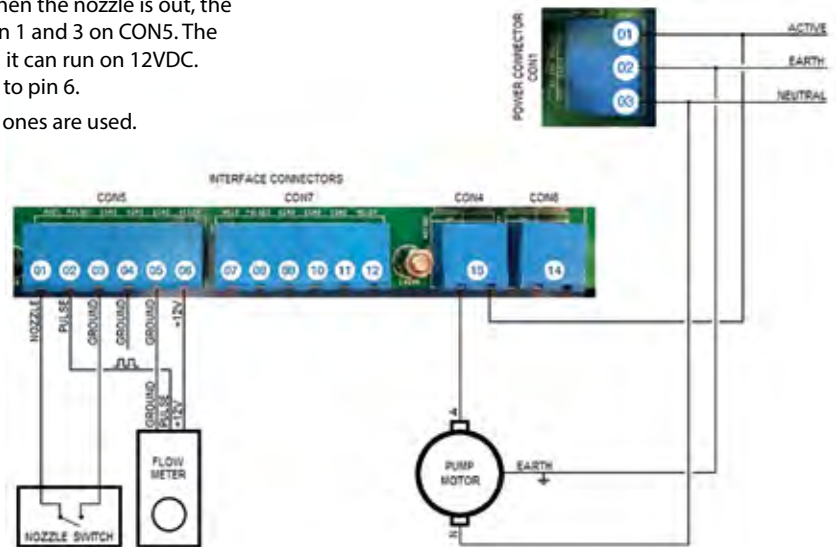
Connection Example: Electronic Bowser to Pump A
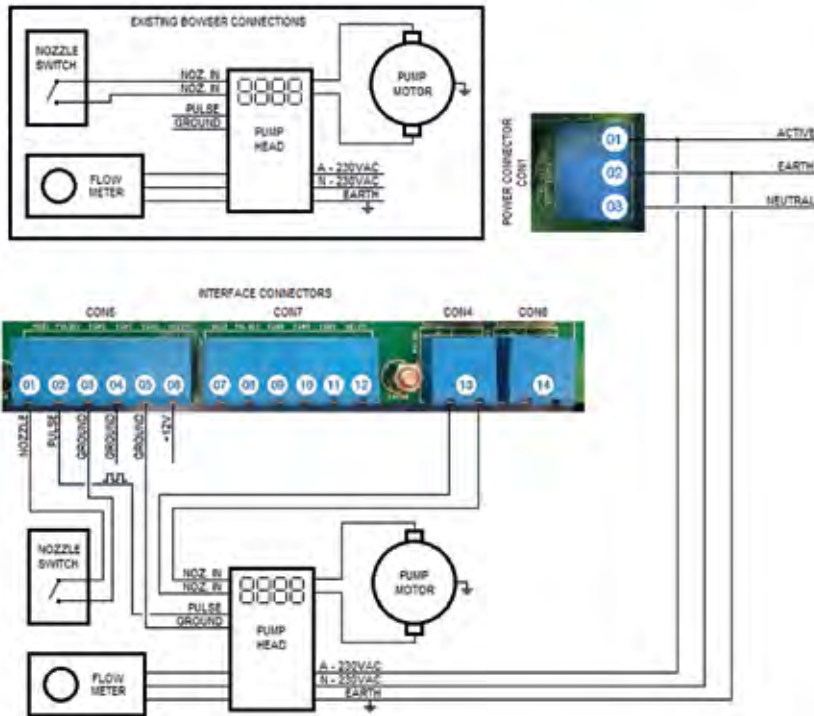
The figure below shows how to connect an electronic bowser to iFUEL Lite. The figure shows how an existing electronic bowser could be wired. The pump head controls the pump and uses as inputs a nozzle switch and a flow meter. The pump head also has a pulse out for counting fuelled volume by an external device. Below is shown how the bowser could be connected to iFUEL Lite.

The nozzle switch is simply disconnected from the pump head and attached to CON5, pin 1 and 3. In turn, the nozzle inputs on the pump head are simply connected to the two pins 13 on CON4. Hence, when a fuelling is authorised and the nozzle is lifted, the contacts of the pump relay on CON4 will close, thus simulating a nozzle-taken signal to the pump head. The pump head itself takes care of starting the fuel pump.

The pulse output from the pump head is connected to pins 2 and 5 on CON5. There is no need to power the pulse output, so the +12VDC on CON5, pin 6, is not used. The mains power is connected to both the bowser and the terminal power inputs as shown. Remember to connect earth as well.

iFUEL Lite Tank Gauging:

Initial Checks:

The program version for the iFUEL Lite must be 1.10 or higher, and the client program on the stick must be 1.4.0.0 or higher. The upgrades to these versions can be carried out later, once the basics have been setup on **iFUEL** and on the terminal. Please note there will be no tank gauge functionality before this is done.

The terminal version can be displayed on the terminal display by pressing Enter. View the client version by inserting the stick on a PC, go to folder 'client', right-click on slclient.exe, click on Properties, then Details.

Stage 01:

When setting up the terminal on **iFUEL**, remember to carry out the setup of the tank gauge at the same time. The tank gauge that is available in the customers stock is applied in the same way as a 2-pump upgrade.

On the setup page on **iFUEL**, choose the tank gauge driver and submit the changes. Now do a synchronisation of the USB stick on **iFUEL**. This will ensure the config.dat file and the tank gauge driver file (called tg.bin) are both present and correctly set up. Check that both files are in the DATA folder.

Stage 02:

If the terminal is not already set up, make sure this is done by following the instructions in the 'Menu system' section. In particular, make sure the terminal ID and the pump's product number is correct according to **iFUEL**.

Carry out a sync on the terminal with the USB stick. Amongst other items, the tank gauge driver will be copied to the terminal. At this point the terminal display will say: Processing TG, and then in the second line a progress bar will be filled. This process will happen quickly. After the USB has been processed, unplug it and enter the menu again.

The tank gauge settings can now be accessed and adjusted.

Use the up/down arrows to scroll through the list and select the desired item. Right/left arrows will adjust values, hold down the key to adjust faster; the following items can be adjusted:

▲ Piusi enable	Yes
Piusi speed	1200
Piusi product	X
Tank litres	XXXX
Height mm	XXXX
Shape B	Yes/No
▼ Beeps	Yes/No

1. Pump enable: Set to Yes.
2. Puisi speed: Set to 1200 baud (or bit/sec).
3. Puisi product: Set to the product number corresponding to the product in the pump setup for the pump attached to the tank.
4. Tank litres: Set to tank's capacity in litres.

5. Height mm: Set to tank's internal height in millimetres.
6. Shape B: Set to Yes if the tank is round, lying down, otherwise No. (Please see 'Explanation of Shape B' below).
7. Beeps: Set to Yes initially, which results in certain beeps every second if the program can understand the data sent to it from the gauge. When all is working, set to No.

Note: The terminal will only receive data from the gauge when in idle, i.e. when the display says 'Read tag'.

Explanation of Shape B:

The Ocio setup can choose the shape of the tank itself, and shape B is a cylindrical tank lying down. When that is the case, there is not a linear relationship between the fluid's height in the tank and the volume.

Only the height of fluid is sent from the Ocio gauge, this then requires the volume to be calculated. If the tank was a square box or even an upright cylinder, the relationship between the height and the volume is linear. Double the height, double the volume. But when the cylinder is lying down, maths has to be employed to work out the volume from the height, specifically square root and arc sine.

In reality, the program is just using precalculated values in a table. So the shape setting is important.

Stage 03:

The hardware interface employed is a RS485 receiver circuit. This plugs into the serial port on the terminal (CON13) (Future revisions of the iFUEL Lite may use a RS485/RS232 converter board). The connection between the terminal and the Ocio gauge controller consists of only two wires. It is worth noting that if these wires are connected and the controller does not work, simply swap the wires around.

Once operational, you will hear a low and a high beep right after each other (if Beeps have been set to Yes in the menu).

When a batch of transactions is closed and transferred to the USB stick, when making a sync on the terminal; the Ocio gauge has to be connected and working in order for a valid dip read to be included in the batch.

The Ocio gauge will output the height in millimetres once every second, in turn this means a valid dip read is available at every second.

If the gauge is unplugged, the last valid dip read will only be valid for 50 seconds. There is little point in using a dip read that is days old, if there is no valid dip read at the time of sync, **iFUEL** will just not receive a dip read when the transaction batch is transferred. However, if the dip read is valid, a tank gauge reading will appear on the transaction page on **iFUEL** as a dip reading.

How to connect the Ocio Tank Gauge to iFUEL Lite:

The iFUEL Lite terminal needs a hardware interface, item no: 80500221.
In addition, the software in the terminal must be upgraded from the **iFUEL** website via the USB interface.

From the Ocio there is two wires,
+ and - as shown:

The interface in the iFUEL Lite has 4
connections as shown:
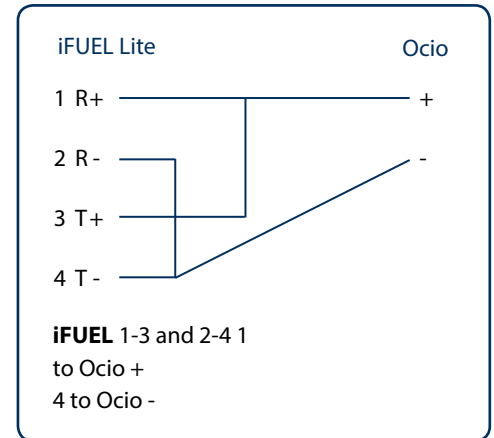
iFUEL Lite   Ocio

1 R+ ————————————————————————————— +

2 R - ———

3 T+ ———

4 T - ———

iFUEL 1-3 and 2-4 1
to Ocio +
4 to Ocio -

FUEL ®
REFUELLING SOLUTIONS

Notes:

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iFUEL
REFUELLING SOLUTIONS

Notes:

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Drill Guide

Drill guide not sat in the pocket on this page?
Download it now at:
www.iFUEL-iFUEL.com/downloads or Contact us
to receive a replacement.