C5000 Master AdBlue Dispenser Installation Manual
Version 1.0.4

Model: C5000 Controlled AdBlue Dispensers
Date: 30th July 2020

Conditions of Use

- Read this manual completely before working on, or making adjustments to, the Compac equipment
- Compac Industries Limited accepts no liability for personal injury or property damage resulting from working on or adjusting the equipment incorrectly or without authorization.
- Along with any warnings, instructions, and procedures in this manual, you should also observe any other common sense procedures that are generally applicable to equipment of this type.
- Failure to comply with any warnings, instructions, procedures, or any other common sense procedures may result in injury, equipment damage, property damage, or poor performance of the Compac equipment
- The major hazard involved with operating the Compac C5000 processor is electrical shock. This hazard can be avoided if you adhere to the procedures in this manual and exercise all due care.
- Compac Industries Limited accepts no liability for direct, indirect, incidental, special, or consequential damages resulting from failure to follow any warnings, instructions, and procedures in this manual, or any other common sense procedures generally applicable to equipment of this type. The foregoing limitation extends to damages to person or property caused by the Compac C5000 processor, or damages resulting from the inability to use the Compac C5000 processor, including loss of profits, loss of products, loss of power supply, the cost of arranging an alternative power supply, and loss of time, whether incurred by the user or their employees, the installer, the commissioner, a service technician, or any third party.
- Compac Industries Limited reserves the right to change the specifications of its products or the information in this manual without necessarily notifying its users.
- Variations in installation and operating conditions may affect the Compac C5000 processor's performance. Compac Industries Limited has no control over each installation's unique operating environment. Hence, Compac Industries Limited makes no representations or warranties concerning the performance of the Compac C5000 processor under the actual operating conditions prevailing at the installation. A technical expert of your choosing should validate all operating parameters for each application.
- Compac Industries Limited has made every effort to explain all servicing procedures, warnings, and safety precautions as clearly and completely as possible. However, due to the range of operating environments, it is not possible to anticipate every issue that may arise. This manual is intended to provide general guidance. For specific guidance and technical support, contact your authorised Compac supplier, using the contact details in the Product Identification section.
- Only parts supplied by or approved by Compac may be used and no unauthorised modifications to the hardware of software may be made. The use of non-approved parts or modifications will void all warranties and approvals. The use of non-approved parts or modifications may also constitute a safety hazard.
- Information in this manual shall not be deemed a warranty, representation, or guarantee. For warranty provisions applicable to the Compac C5000 processor, please refer to the warranty provided by the supplier.
- Unless otherwise noted, references to brand names, product names, or trademarks constitute the intellectual property of the owner thereof. Subject to your right to use the Compac C5000 processor, Compac does not convey any right, title, or interest in its intellectual property, including and without limitation, its patents, copyrights, and know-how.
- Every effort has been made to ensure the accuracy of this document. However, it may contain technical inaccuracies or typographical errors. Compac Industries Limited assumes no responsibility for and disclaims all liability of such inaccuracies, errors, or omissions in this publication.

SYSTEM CERTIFICATION
ISO 9001
SGS

Product Identification

Specifications

Models Covered	This manual applies to all C5000 controlled AdBlue dispensers. ***NOTE:*** *Do not use this manual for earlier models. Contact Compac for archived manuals if required.*

Validity

Compac Industries Limited reserves the right to revise or change product specifications at any time. This publication describes the state of the product at the time of publication and may not reflect the product at all times in the past or in the future.

Manufactured By:

The Compac AdBlue dispenser is designed and manufactured by Compac Industries Limited
52 Walls Road, Penrose, Auckland 1061, New Zealand
P.O. Box 12-417, Penrose, Auckland 1641, New Zealand
Phone: + 64 9 579 2094
Fax: + 64 9 579 0635
Email: techsupport@compac.co.nz
www.compac.biz
Copyright ©2015 Compac Industries Limited, All Rights Reserved

Document Control

Document Control

Document Information	
Manual Title	C5000 Master AdBlue Dispenser Installation Manual
Current Revision Author(s)	V Amarakoon
Original Publication Date	4/11/2019
Authorised By	W Zheng

Revision History			
Version	**Date**	**Author(s)**	**Revision Notes**
1.0.0	4/11/2019	S Laycock	New manual
1.0.1	21/11/2019	V Amarakoon	Updated Footprints
1.0.2	16/01/2020	V Amarakoon	Renamed manual title. Updated footprints
1.0.3	02/06/2020	V Amarakoon	Updated Installation
1.0.4	30/07/2020	V Amarakoon	Updated the COMMS board

Contents

Introduction 1
- Product Identification 1
- Static Electricity Precautions 2
- Pre-installation Check 2
- Pump Specifications 2

Footprints 3
- MA30S AdBlue (DEF) Dispenser 3
- MMA30S AdBlue (DEF) Dispenser 4
- MMA30-160S AdBlue (DEF) Dispenser 5
- MMA30-80S AdBlue (DEF) Dispenser 6
- MMA30-80P AdBlue (DEF)Dispenser 7

Installation 8
- Precautions when Using Generator Power 9
- Dispensing Hoses and Nozzles 10
- Electrical Installation 10
  - Electrical Requirements 10
  - Incoming Mains 11
  - Comms Connections 12
  - Terminal Board Connections 13

Installation Tests 14
- Electrical Commissioning 14
- Mechanical Commissioning 14

Calibration 16
- Using the Dispenser Menus 17
- Density Calibration 17
- K-Factor Calibration 18
- Changing the Solenoid Delay 18

Dispenser Set-up 19
- Setting the Pump Number 20
- Setting the Price 20
- Changing the Pump Settings 21
  - Standard Mode 22
  - Purge Mode 22
  - Preset Options 22
- Configuring the Slave Display 23
- Configurating Custom Display 24
- How to View Last Sale 24
- How to View Electronic Totes 25

AdBlue Instructions 26
- Cleaning the AdBlue Nozzle 26
- ZVA AdBlue Nozzle 26

LED Diagnostics 27
- Processor Board 27
- K-Factor Board 28

Error Messages 29

Introduction

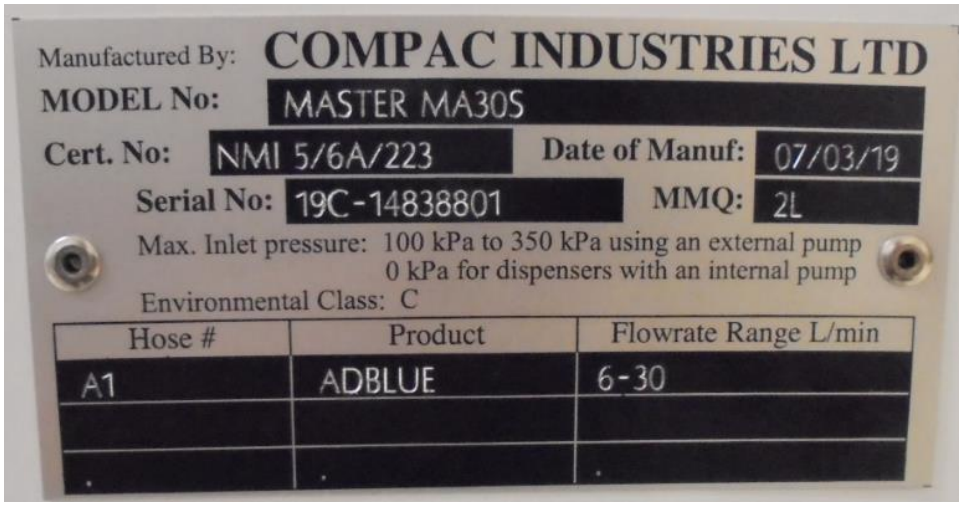
This manual contains specific instructions relating to the installation of AdBlue dispensers. For the servicing and other information relating to non-AdBlue specific components, or further customisation options, refer to the Service Manual.

Product Identification

Ensure you are using the correct installation instructions and footprint drawing before commencing site work or installation.

The identification plate is fastened to the bottom of the right-hand side panel when facing side marked “Front”.

The model number is on the first line of the identification plate.



Understanding the Model Number:

The model number for Master dispensers is split into: Chassis style, hose configuration, pump or dispenser and specific application.

Use the table below to help identify the unit.

Style	L/min per hose	Pump style	Options
MA = single hose	MA30 = one hose @ 30 l/min	P = pump	Blank = Standard
MMA = multi hose	MMA30 = two hoses @ 30 l/min	S = dispenser	Avi = Aviation
	MMA30-160 = side A 30 l/min (AdBlue), side B 160 l/min diesel		Marine = Marine

For example: MMA-30-80S is a two hose unit. Hose side A is 30 l/min AdBlue, side B is 80 l/min diesel and the unit is a dispenser (with external pumps).

NOTE: *Make sure you use the footprint that relates exactly to your model.*

Static Electricity Precautions

Electronic components used are sensitive to static. Please take anti-static precautions.

An anti-static wrist strap should be worn and connected correctly when working on any electronic equipment. If an anti-static wrist strap is unavailable, or in an emergency, hold onto an earthed part of the pump/dispenser frame whilst working on the equipment. This is not a recommended alternative to wearing an anti-static wrist strap.

NOTE: *Compac Industries Limited reserves the right to refuse to accept any circuit boards returned, if proper anti-static precautions have not been taken.*

Pre-installation Check

Once the pump is received on site, check that no damage has occurred while in transit – in particular, damage to electronics due to vibration or jarring. All terminals and plugs should be checked, including IC chips to ensure they are securely in place.

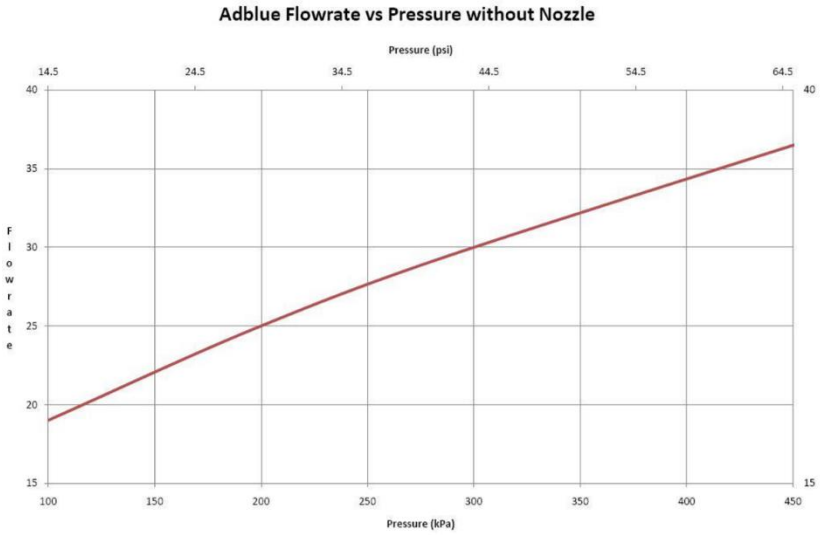
Pump Specifications

The AdBlue supply pump must be AdBlue compatible. It must either have flooded suction or be fitted with an air separation device to eliminate air prior to the dispenser.

Ensure the supply pump pressure does not exceed the rated pressure of the nozzle.

NOTE: *Ensure pumps are rated for AdBlue.*

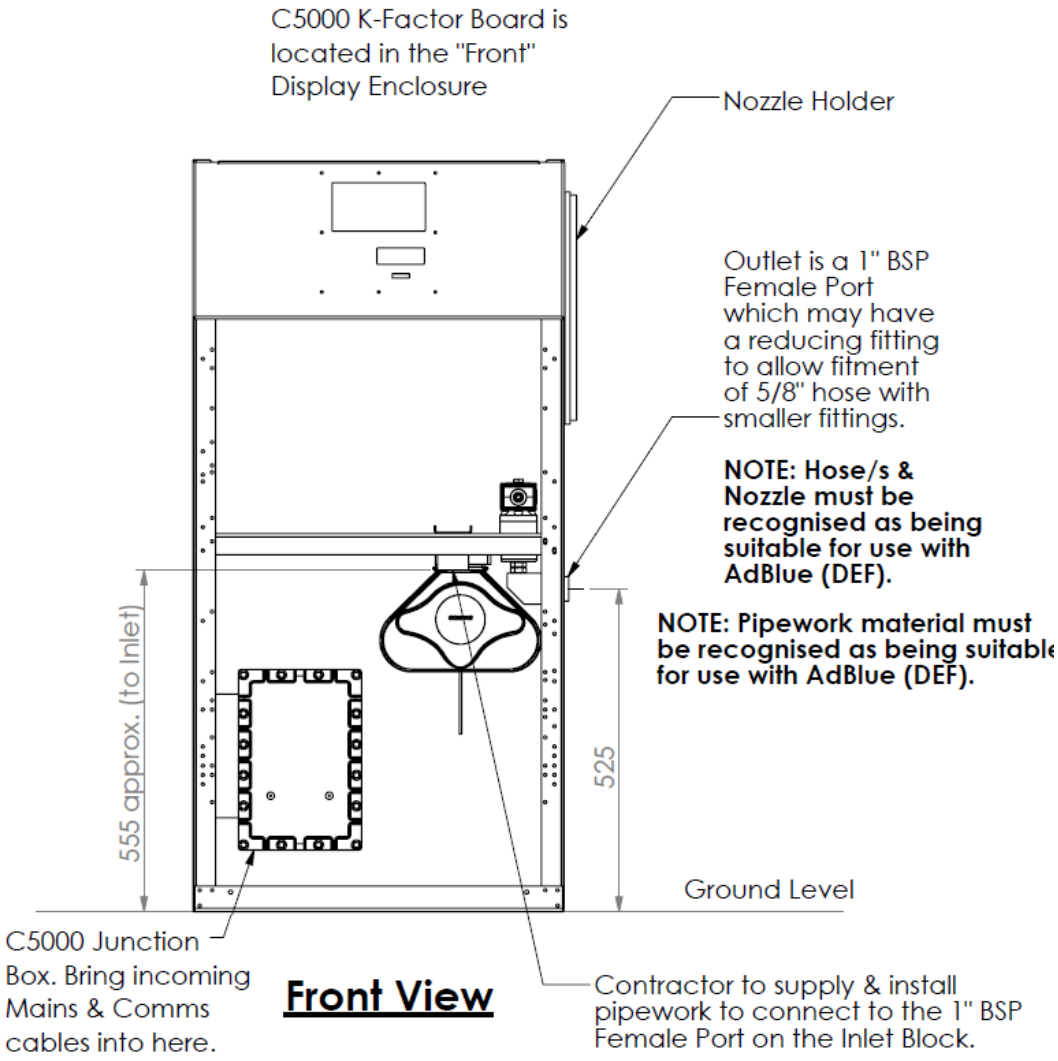
Refer to the diagram below:



Footprints

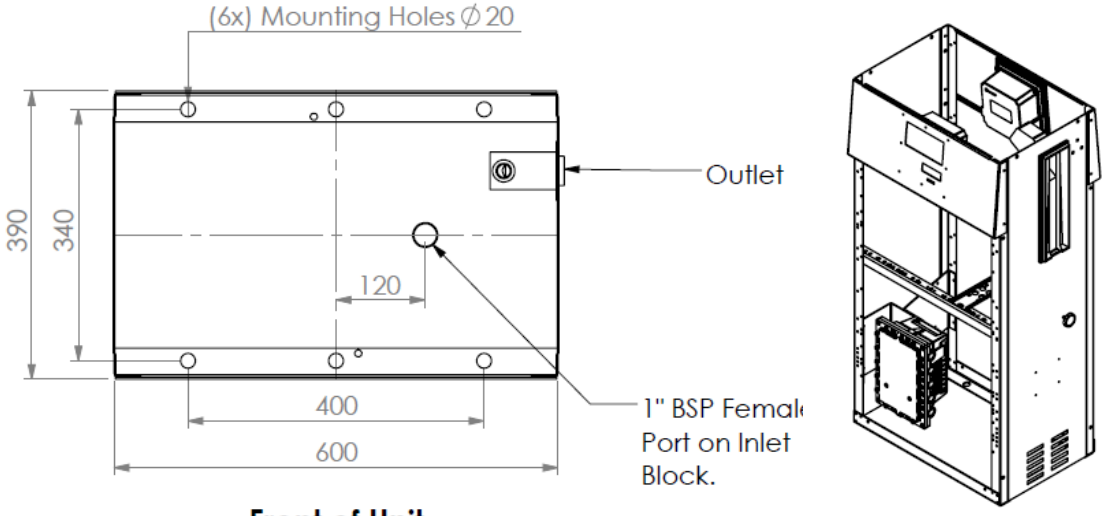
MA30S AdBlue (DEF) Dispenser

* **NOTE**: *The footprint will be rotated 180 on a unit that has the Hoses "reversed"*



Front View

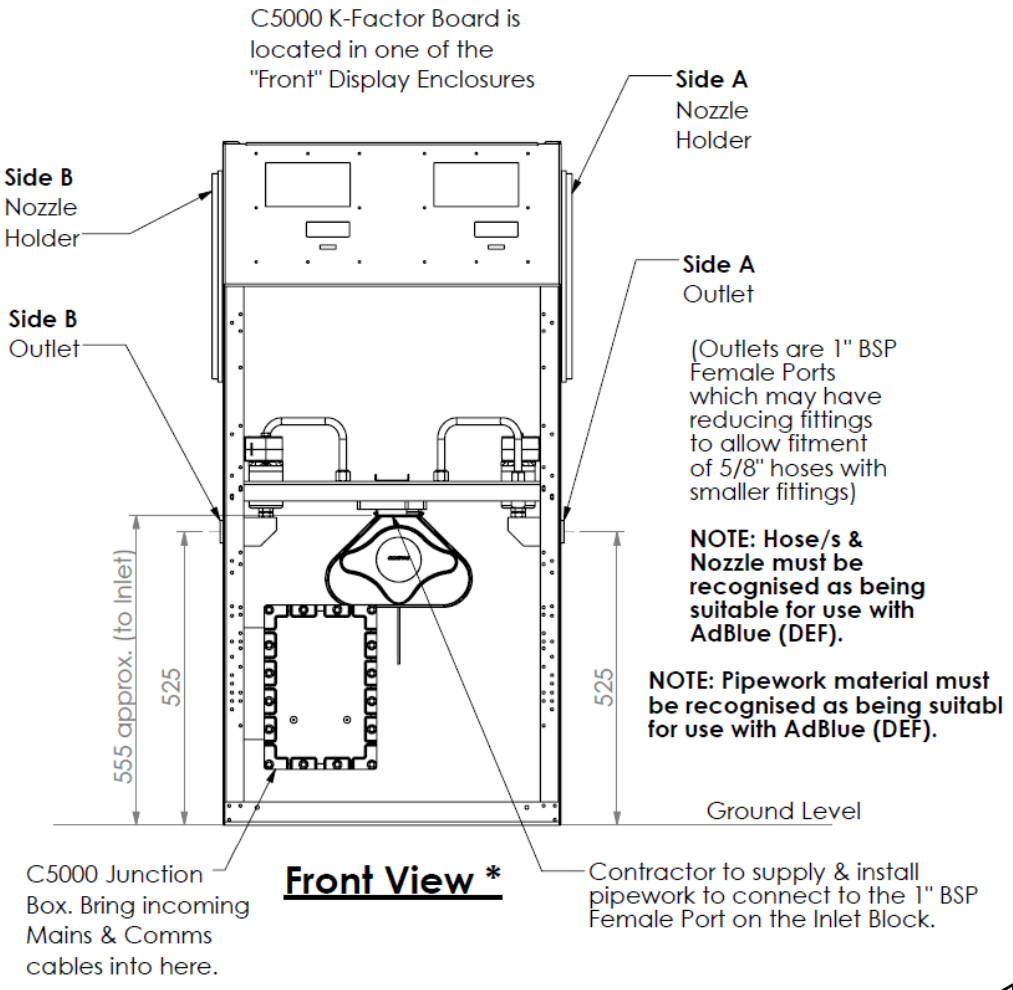
Rear of Unit

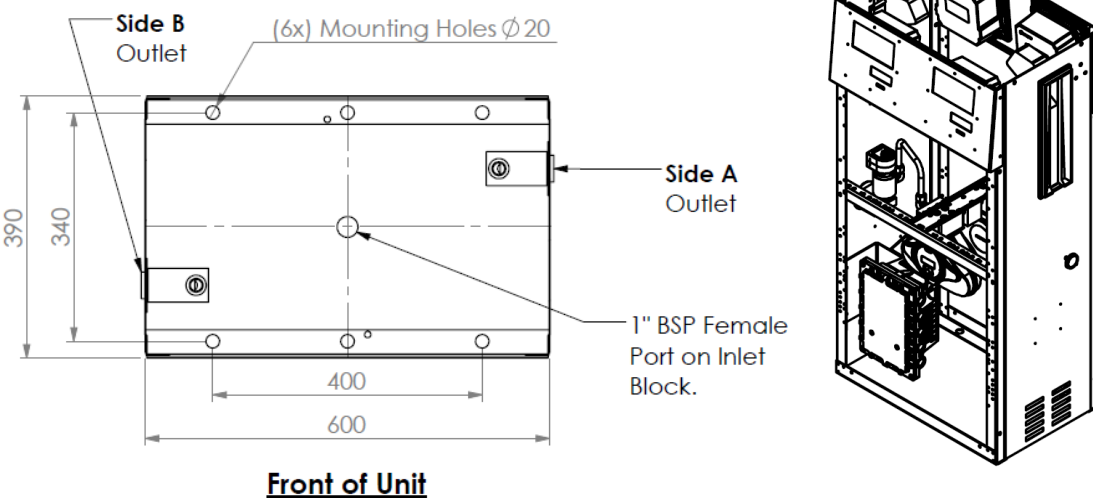


Front of Unit

Footprint Plan View

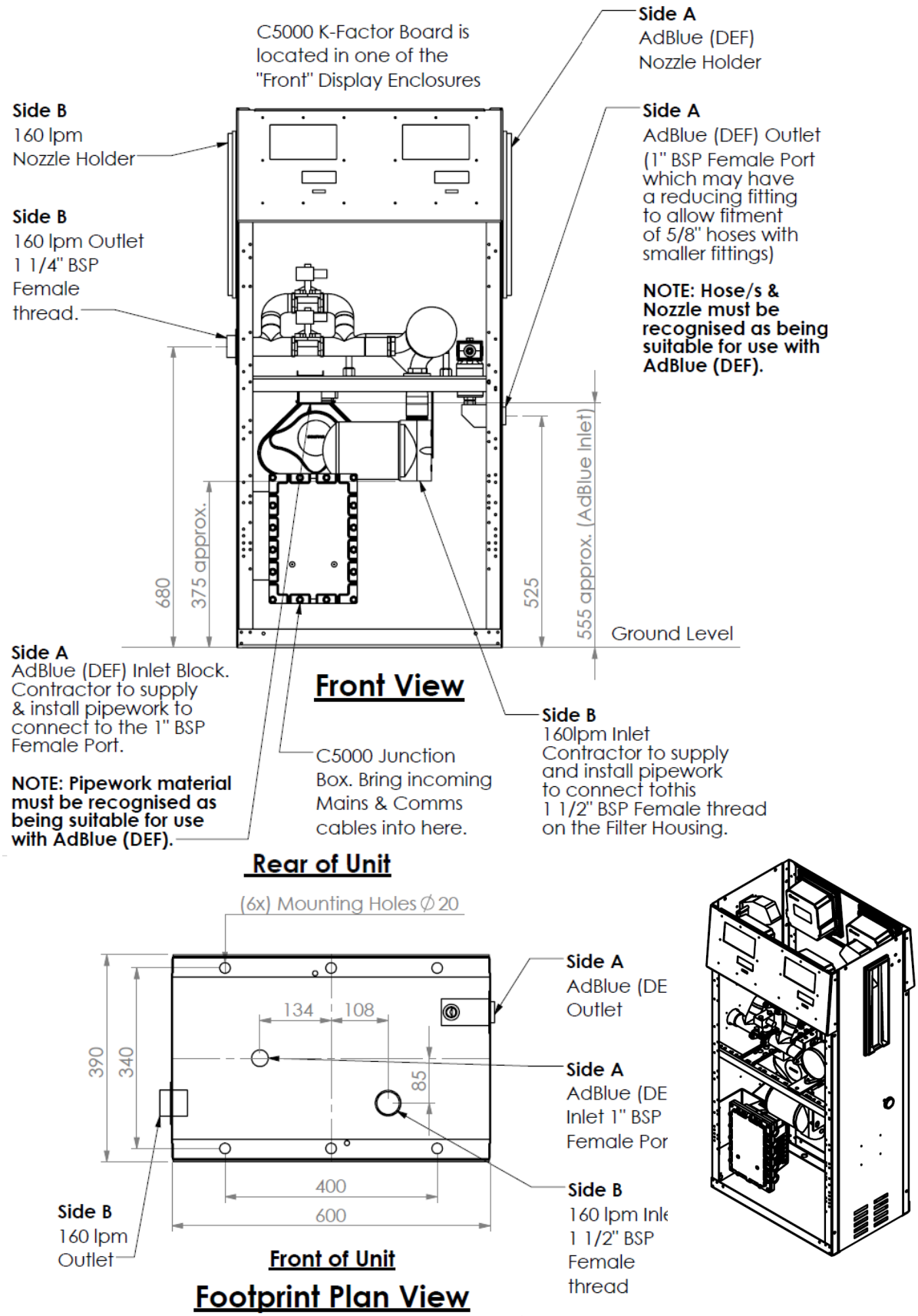
MMA30S AdBlue (DEF) Dispenser





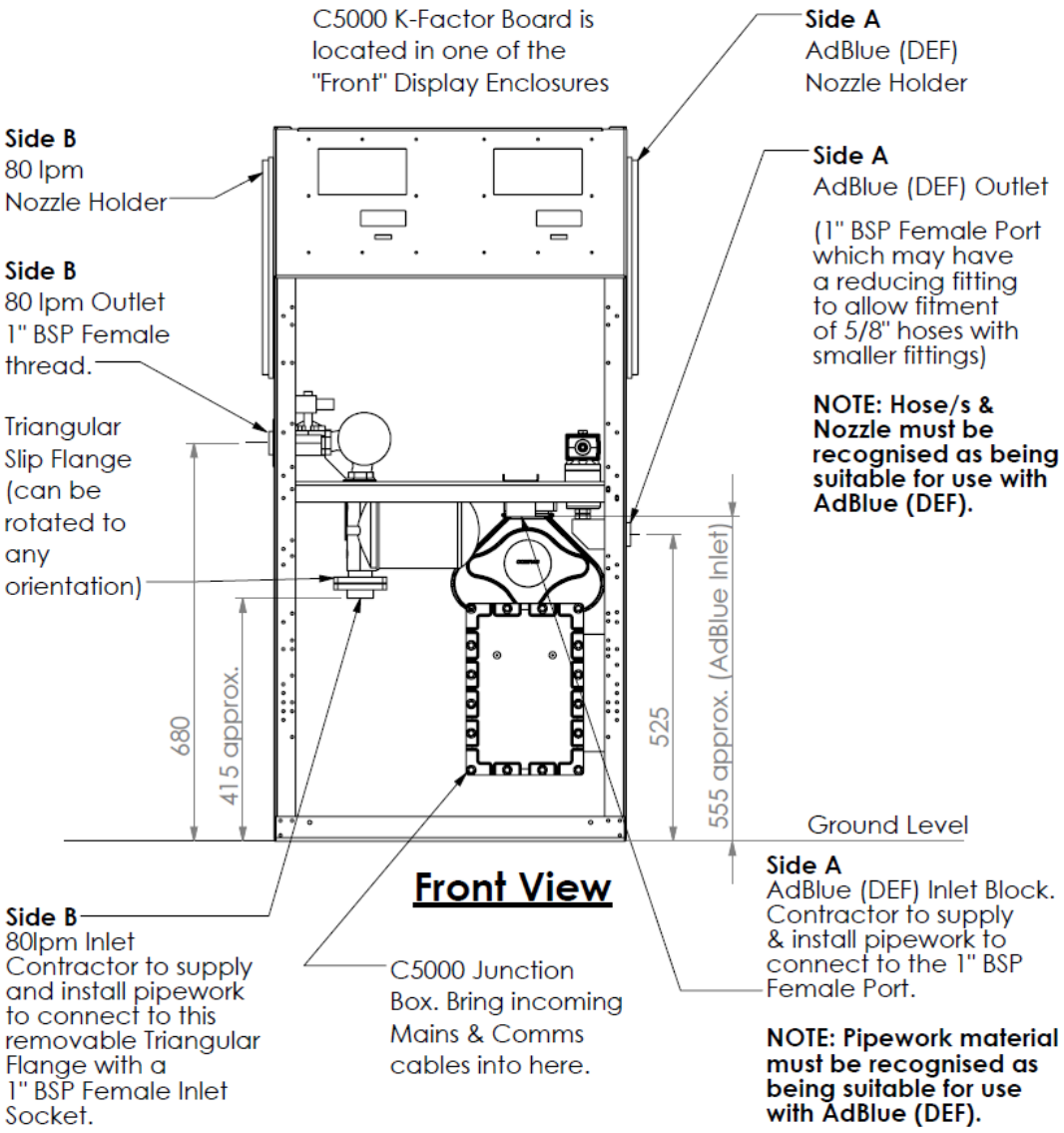
MMA30-160S AdBlue (DEF) Dispenser

*** NOTE**: *The footprint will be rotated 180 on a unit that has the Hoses "reversed"*

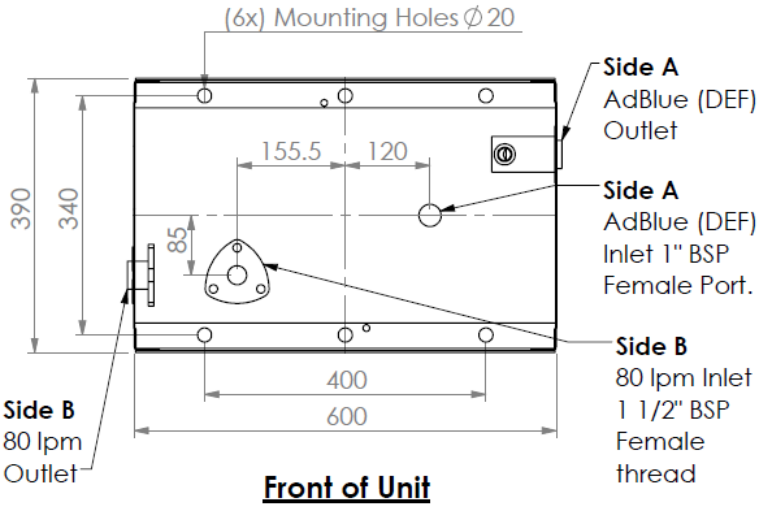


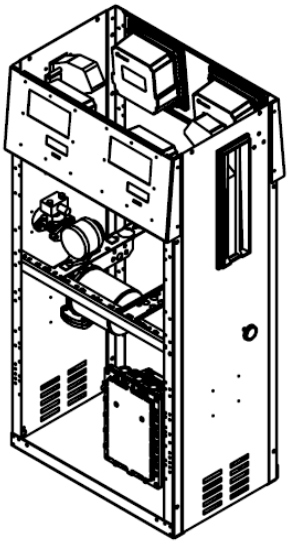
MMA30-80S AdBlue (DEF) Dispenser

*** NOTE**: *The footprint will be rotated 180 on a unit that has the Hoses "reversed"*



Rear of Unit



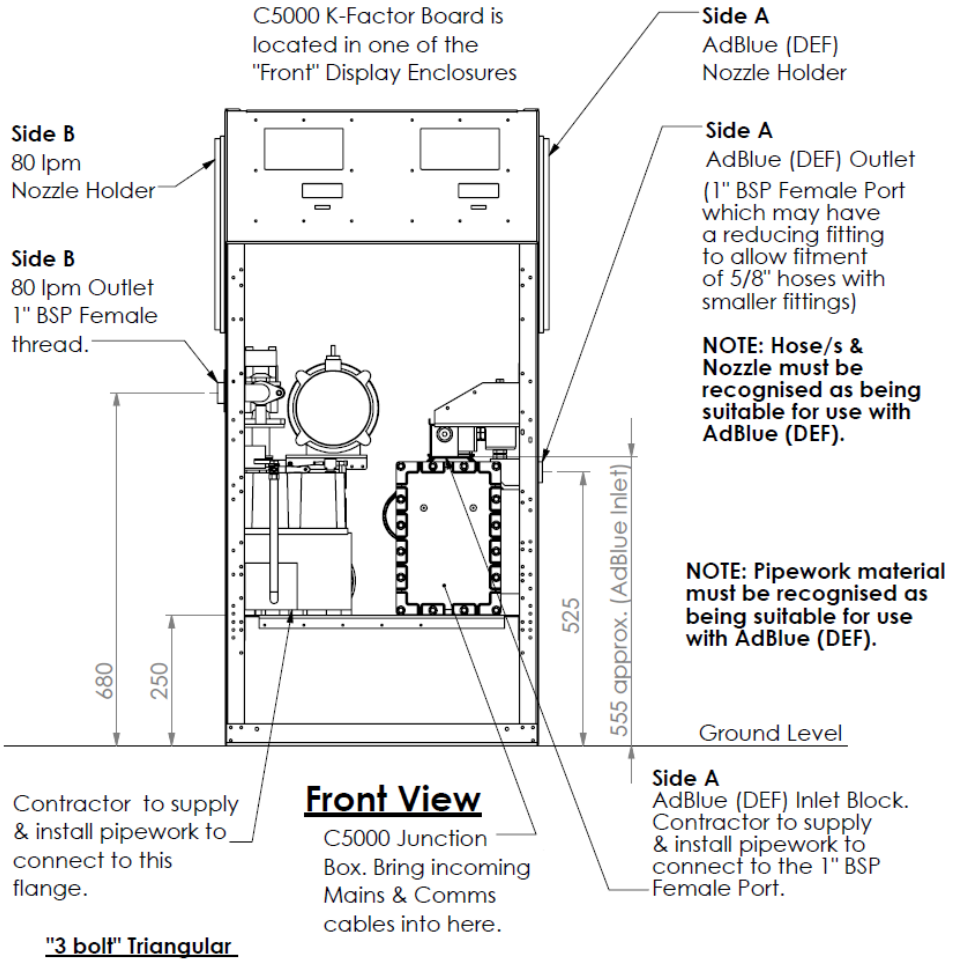


Front of Unit

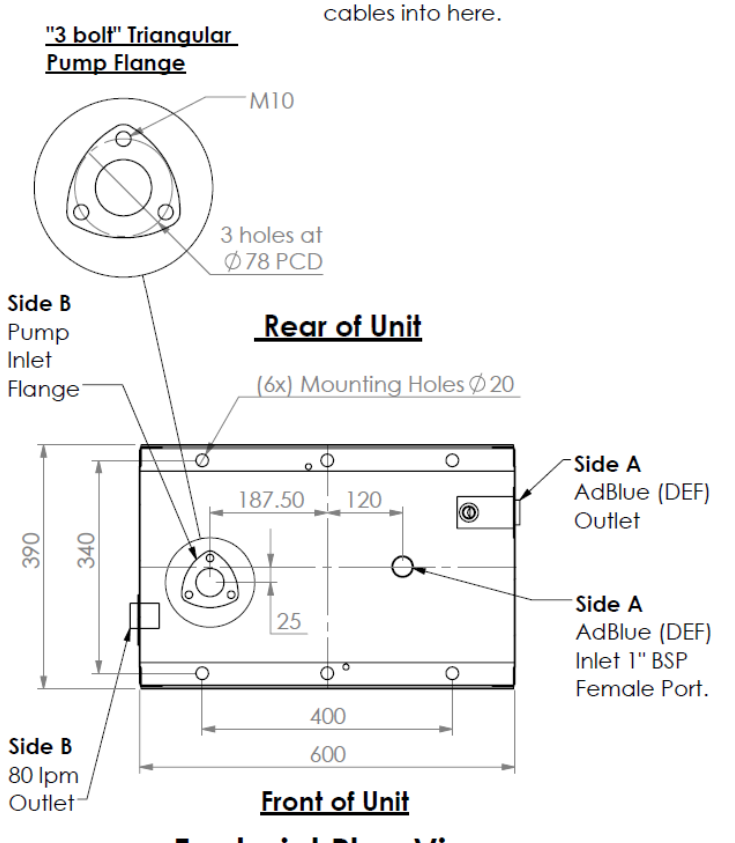
Footprint Plan View

MMA30-80P AdBlue (DEF)Dispenser

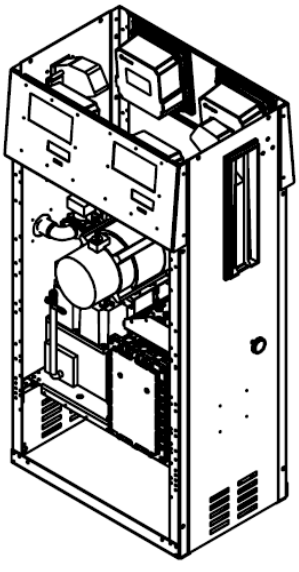
*** NOTE**: *The footprint will be rotated 180 on a unit that has the Hoses "reversed"*



Front View



Footprint Plan View



Installation

Installation should be in accordance with local regulations.

The dispensing equipment shall be installed to prevent the delivery hose from contacting the ground when not in use.

Dispensers should be mounted on a solid, level surface and secured using the fastening holes as shown in the footprint drawings. It is up to the installer to select appropriate fastenings for the application.

Where local regulations for flammable substances require a sump to be fitted:

Sumps must be provided at all dispenser installations with secondary containment pipework and at all new installations; and

At all sites with sumps, dispensers must be installed with a liquid level detection device fitted in the sump that will raise an alarm if liquid is detected in the base of the sump.

All Compac Master dispensers at automotive sites must have a safe break device installed in the delivery hose.

External pump systems required to have an automatic emergency shut-off device installed at the base of each dispenser and it must be activated if the dispenser is knocked over or pulled from its mount.

Care must be taken when installing pipework to make sure no oil or other contaminants enter the AdBlue lines. Do not use lubricant or thread sealing compounds on AdBlue fittings unless approved for use with AdBlue.

AdBlue is corrosive to aluminium and mild steel. All pipework and fittings that carry AdBlue must be approved for use with it.

While AdBlue is considered non-toxic, it is slightly alkaline. Protect skin and eyes from contact. Flush with water if exposed. Refer to the AdBlue MSDS for further information.

Precautions when Using Generator Power

The power output from onsite generators can cause power spikes that may damage electrical components within the cabinet. When connecting to sites powered by generators, please take the following precautions:

1. Install a power conditioner. Although generators are fitted with power regulators, most are not filtered sufficiently for powering sensitive electrical components. We recommend installing a commercial power conditioner and/or UPS between the generator and the unit.
2. Before starting a generator, make sure the power to the unit is turned off.
3. Start the generator, let the generator reach stable operating speed and wait 30 seconds before reconnecting the power to the unit.
4. For units where the generator starts and stops on demand, install a delay timer or PLC to automatically isolate the unit until the operating speed and consistent power output is achieved.
5. Isolate the unit before shutting down the generator.

Dispensing Hoses and Nozzles

The unit may or may not be supplied with dispensing hose and nozzle assemblies.

If customer supplied hose assemblies, pylons, reels, safe breaks and nozzles are used they must comply with the requirements outlined in AS/NZS 2229.

All dispenser nozzles must trip shut when returned to the nozzle holder.

All hoses, nozzles and fittings that come in contact with AdBlue must be compatible with it.

Breakaways

For all dispensers fitted with breakaways, ensure the breakaway is installed between the nozzle and the high-mast or pylon (if fitted). Any breakaways that have been subject to a break-away situation should be inspected and refitted or replaced in accordance with the original manufacturer's instructions.

Electrical Installation

Electrical Requirements

Power cable: 3 Core Steel Wire Armour Cable 2.5mm^2

Core 1: 230 Volt Supply (Active). **Core 2:** Neutral. **Core 3:** Earth.

Dispenser power requirements: 220 - 240 Volts. 50 Hz, +/-10%

Current draw: 25W Idle, 200W with all solenoids active.

Communications cable: 2 Core Steel Wire Armour Cable 1.5 mm^2. Maximum cable length 100 m. 12V current loop. For connecting to controller or other dispensers (option).

Submersible pump(s): Suitable cable for 230V solenoid switching current. 300mA maximum load. Do not wire submersible pumps directly to C5000 power supply.

Prior to pump installation, ensure that there is at least a two-metre tail on all cables.

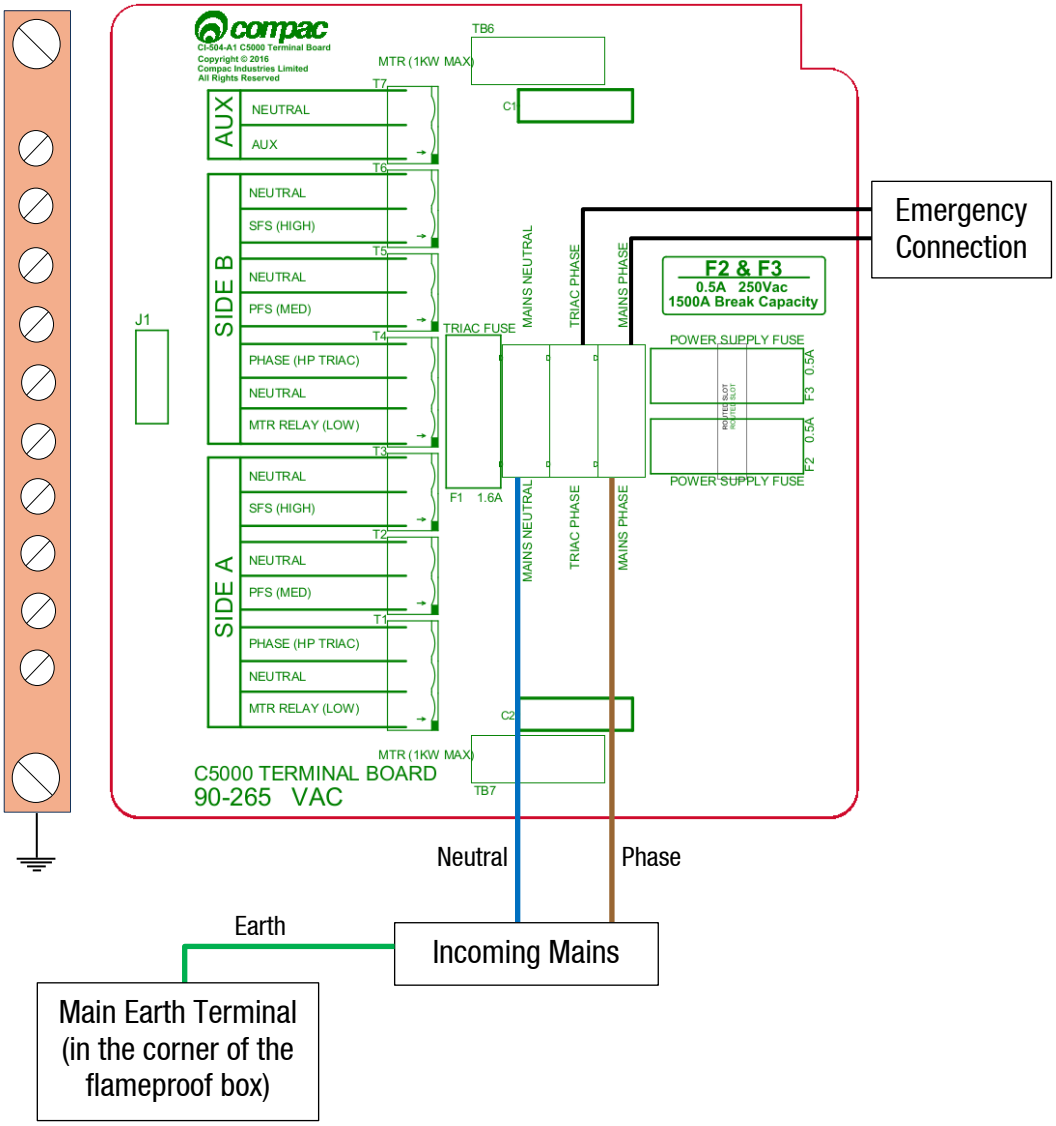
Incoming Mains

Incoming mains connections should be brought in to the terminal board.

If an emergency stop button was ordered with the dispenser it will be factory wired into the terminal board, shown below. This will be in place of the normal loop between the triac and main phases.

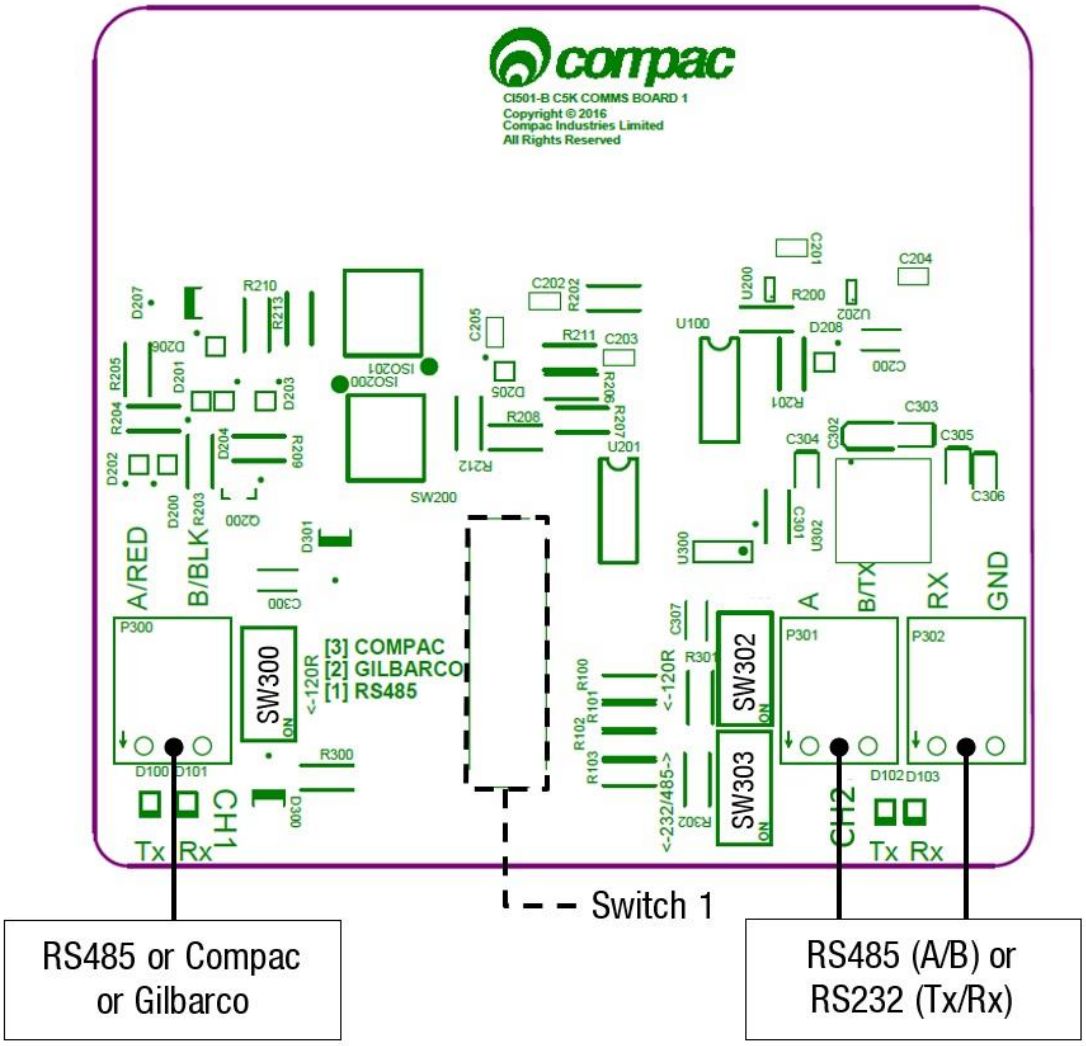
Wires have standard colours which are shown. In case these colours are unclear, they are as follows:

- Incoming mains phase: Brown
- Incoming mains neutral: Blue
- Incoming mains earth: Green/Yellow



Comms Connections

The comms I/O is controlled by the connections to the Comms board. Refer to the following diagram for connecting RS485, RS232, Compac or Gilbarco pumps. The shown switch should be set to the desired setting.



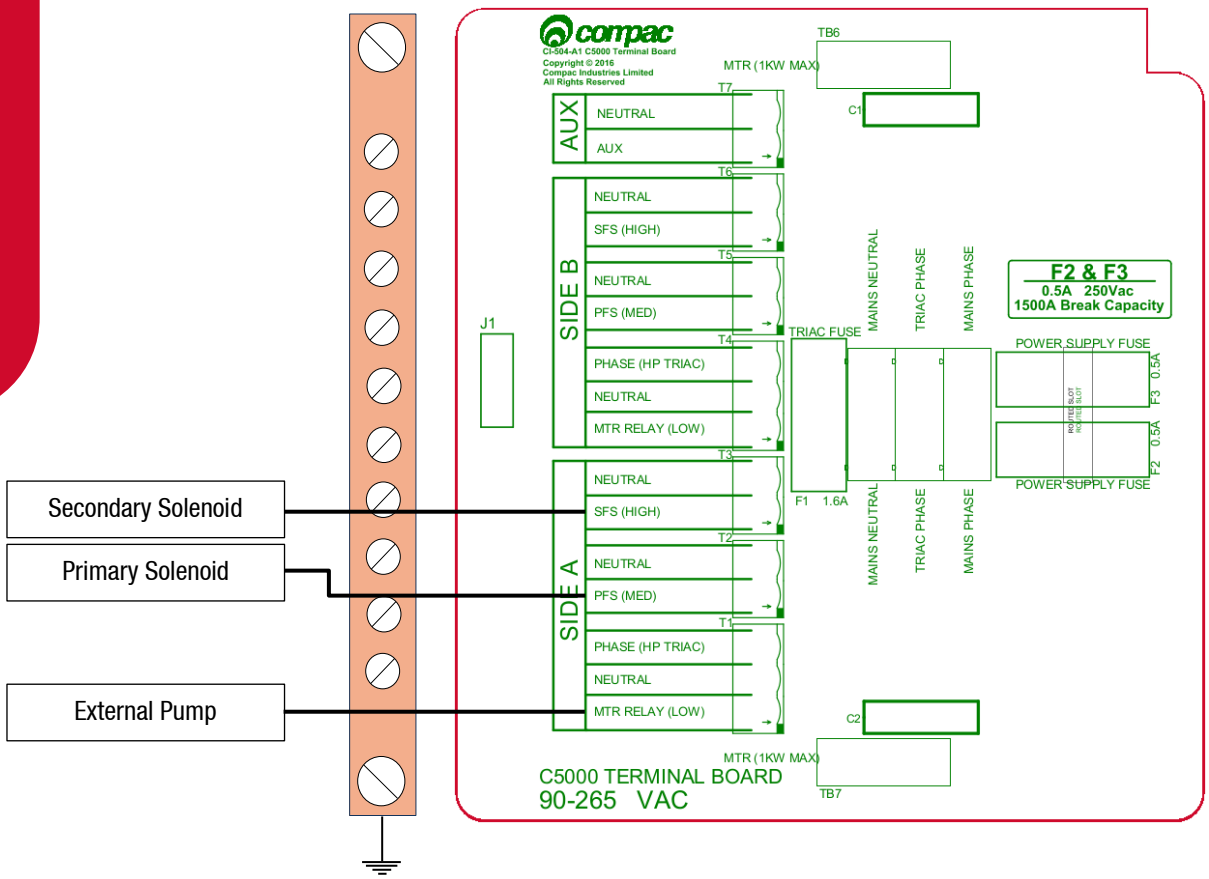
Switches 300, 302, and 303 are for RS485/RS232 Terminator application. Use the following table to configure these switches. Switch 300 is for channel 1, and switches 302 and 303 are for channel 2.

	SW300	SW302	SW303
RS485 (Channel 1)	ON	-	-
RS485 (Channel 2)	-	ON	OFF
RS232 (Channel 2)	-	OFF	ON

Terminal Board Connections

When using the C5000 electronics for dispenser application, as well as connecting the incoming mains, the external pump contactors will have to be connected to the terminal board.

Solenoids for side A are factory wired as shown below.



Installation Tests

Electrical Commissioning

This procedure outlines how to perform an electrical operational test, making sure that the dispenser is functioning correctly. Check for any damage that may have occurred in transit. Check all terminals, plugs, and chips to make sure that they are securely in place.

NOTE: *Damage to electronics occurs most commonly from vibration and jarring.*

Before beginning this test, check that fuel has **not** been applied to the dispenser. The factory set-up information should be programmed into the dispenser.

For the location of LEDs, required for this operations test, see page 28.

To perform an electrical operational test:

1. Make sure that the inlet shut-off valves are closed (these are the valves in the inlet lines at the base of the dispenser, but they are not part of the dispenser).
2. Turn on the power supply to the dispenser. The dispenser may be in purge mode. This is okay for the purpose of this test.
3. With the dispenser in a **ready state**, check that the C5000 processor board Power LED is turned on.

NOTE: *If the dispenser is receiving information, RD LED on the K-Factor board will be on. If the dispenser responds to polls for its respective pump number/s, TD LED will also be on.*

4. Lift the nozzle. The display will show PurGE and the solenoids will energise, starting the pump motor. Check that three output LEDs (T1-7) turn on, indicating a signal is being sent to the triacs to open the solenoid valves. The LEDs that will turn on vary depending on the application.
5. The diagnostic LED (K-factor board) flashes quickly when the start button is pushed, or the nozzle removed from the holster to initiate a fill. When the button is released or the nozzle returned to the holster it will return to the normal state and flash slowly.

Verify solenoid operation by listening for a click, or by using a screwdriver tip or some other metallic tool to check for a magnetic field present on the solenoid coils.

Mechanical Commissioning

Make sure that the electrical commissioning tests have been carried out and the solenoid operation has been verified before carrying out the following tests.

Slowly open the supply valves to the dispenser, checking for any leaks.

Turn on the power supply to the dispenser.

The dispenser should be in purge mode when it arrives onsite. If it is not, use the Parameter button to put the dispenser into purge mode by changing the b setting to *** 1. Retail

dispensers will display Purge in the Dollars display. The temperature and measured density will toggle in the $/L display. Wait for the C5000 to time out and return to the normal display.

Lift the nozzle.

The display will show PurGE and the solenoids will energise, starting the pump motor. Check that three output LEDs (T1-7) turn on, indicating a signal is being sent to the triacs to open the solenoid valves. The LEDs that will turn on vary depending on the variant and side being tested.

In Purge mode the dispenser will only operate for 60 seconds at a time before shutting down. If the dispenser shuts down, hang up the nozzle and start again.

Check all the dispenser fittings, solenoids and pipework for leaks.

Slowly dispense AdBlue from the dispenser, being careful to shield yourself from splashes as there may be air in the fuel causing it to spray from the nozzle. If the dispenser stops, hang up the nozzle then remove the nozzle to start dispensing again.

Continue until the AdBlue flows without any air being present, then hang up the nozzle.

Put the dispenser back into normal mode by changing the b setting back to ***0.

Lift the nozzle and slowly dispense AdBlue from the dispenser. The display and tote should increment when fuel is flowing. If the dispenser stops and the error message AIR displays, go back and purge the hose again.

The dispenser can now be calibrated.

Once the pump is connected on site, the final setup check and calibration to complete the installation must be carried out, using the Parameter Switch and Calibration (K-Factor) Switches on the C5000 K-Factor board.

Calibration

After the unit has undergone commissioning it **must be calibrated**, which can be done using the K-Factor switch located on the K-Factor boards. A number of settings are available on this switch, however, only the settings required for calibration are detailed in this manual. For further customisation, refer to the AdBlue service manual.

IMPORTANT NOTE: Calibration is essential for accurate transactions. Ensure this is done during installation.

The following settings will appear when pressing the K-Factor switch. Most of these will not need to be changed during installation and can be ignored.

Setting	Information	Price & Litres display
Dispenser settings	This will be factory set and should not need to be changed.	c-A or c-b *******
Meter ID	This should match the 6-digit ID number on the V50 meter. It should not need to be changed unless the V50 meter is changed.	id-A or id-b ******
Temperature calibration	Temperature calibration does not affect AdBlue installation and can be ignored.	E-A or E-b ***
Density calibration	Can be used to calibrate the density of the product.	d 15-A or d 15-b ****
Maximum flow	Used to calculate the high and low flow cut offs.	9A **** or 9b ****
K-Factor	This is required for calibration. Ensure this is set otherwise an error will be returned.	FA or Fb *******
Configuration code	This will be factory set and should not need to be changed.	c *******
Solenoid delay	Time between the motor starting and the solenoids opening. This should be increased if density errors are being returned as AdBlue can vaporise in the hose.	SdA *** or Sdb ***
Preset cutoff	This is available if a secondary solenoid is wired in.	PcA *** or Pcb ***
Preset rounding	The dispensed amount of fuel can be rounded to the preset.	PrLA*** or PrLb*** PrHA*** or PrHb***
Flow time out	Time taken for the transaction to time out after flow stops, if the nozzle is not hung up.	n-A *** or n-b ***

Using the Dispenser Menus

When changing settings on the dispenser, pressing the K-Factor switch in quick succession cycles between the options available. Each press of the button will cycle between the digits. When going through the menus, each menu will cycle through the digits twice for ease of operation.

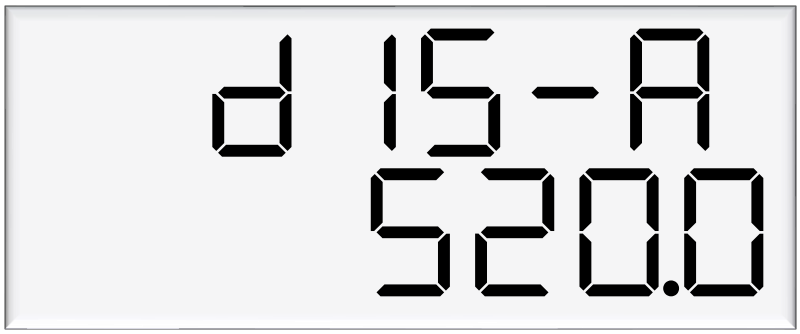
When a digit is flashing, hold down the relevant switch to increment this digit. Release the switch on the desired value.

The system timeout is 10 seconds.

Density Calibration

The density calibration can be used to adjust the density being retrieved from the meter, if this is not the actual density of the product being dispensed. The actual density of AdBlue at 15 °C being dispensed should be entered in this menu. This will be used to adjust new densities returned from the meter.

See Using the Dispenser Menus to edit these settings. Use the procedure for both side A and B.



K-Factor Calibration

The K-Factor is used to calibrate product flow. The K-Factor **must** be calibrated upon installation. To calibrate the pump, dispense fuel into a certified measuring container and compare the display value with the one dispensed.

Example:
Display shows 10.00 True volume 20.00

To calculate the correct K-Factor from the information above; firstly record the existing K-Factor.

$$New\ K\ Factor = Existing\ K\ Factor * \frac{Dispensed\ Amount}{Displayed\ Amount}$$

$$= Existing\ K\ Factor * \frac{20}{10}$$

$$= Existing\ K\ Factor * 2$$

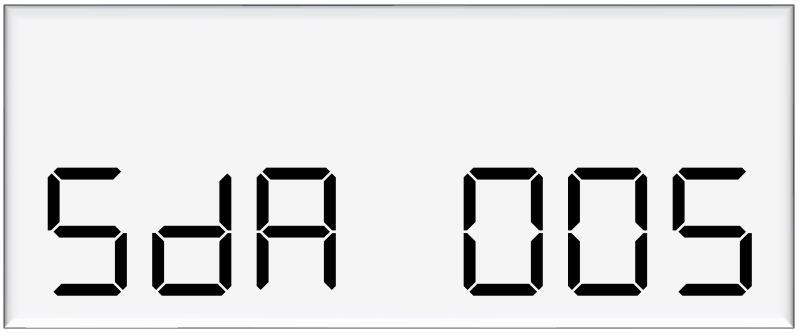
The K-Factor should then be set to this new calculated value.

Changing the Solenoid Delay

Solenoid delay is only applicable if solenoids are wired in. The solenoid delay is the time between when the motor starts, and when the solenoids start at the beginning of a transaction. The value entered is in seconds.

AdBlue can vaporise in the hose. If density errors are occurring, increase the solenoid delay to prevent vaporised AdBlue being dispensed.

See Using the Dispenser Menus to edit these settings.



Dispenser Set-up

The dispenser can be set up with the Parameter switch. This must be done after calibration.

The following table summarises the parameter switch settings. Information on these settings and how to change them can be found on the following pages. Only the settings that need to be set during installation are shown here. For further customisation, refer to the C5000 manual.

NOTE: *The configuration settings must be set before parameter settings can be accessed.*

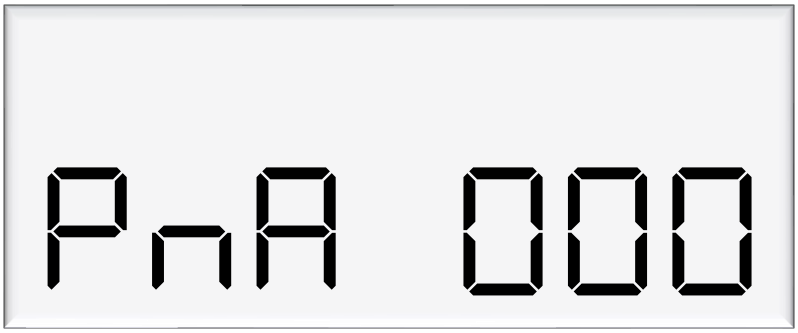
Setting	Price Display	Litres Display
Software Version	This shows the software version installed.	P****** P******
Pump Number	Each pump should be numbered between 1-99.	PnA *** or Pnb ***
Price	The price must be set before the dispenser can be used.	PA***** or Pb*****
Pump Settings	This can be used to put the dispenser into purge, or test mode.	bA **** or bb ****
High-flow cut off	Transactions will end if flow goes above this value.	HFA ***
Low-flow cut off	Transactions will end if flow goes below this value.	LFA ***
b Setting	This can be used to put the dispenser into standalone mode.	b ****
Slave display	This can be used to configure slave displays.	dS ****
Custom display	Rest batch, temperature, density or flowrate can be shown on the unit price display.	dc ****
Last Sale	This shows the last sale made by the dispenser.	**** A **** or b ****
Electronic Totes	Totes count the dispensed litres and dollars. These do not count while in purge mode.	LA **** or dA **** L****** or d******

Setting the Pump Number

If the parameter switch is continually depressed, the following menu to change the pump number will appear. Each side must be numbered between 1-99.

NOTE: *Entering a pump number 0 will disable the pump.*

See Using the Dispenser Menus to edit these settings.



Setting the Price

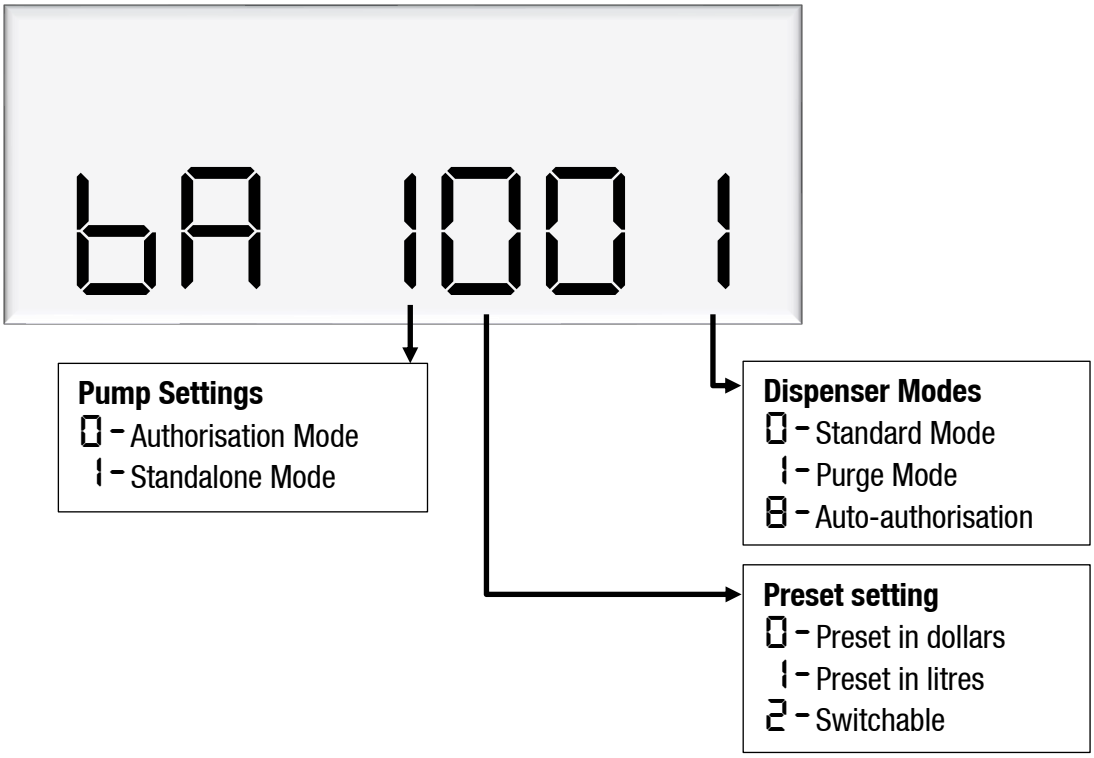
The price must be set before the dispenser can be used, otherwise an error will be returned. Set the price in dollars per litre.

See Using the Dispenser Menus to edit these settings.

Changing the Pump Settings

The pump can have different modes, which can be set using the diagram below. See below for information on these modes. This is required during installation to change the pump between purge and standard mode.

See Using the Dispenser Menus to edit these settings.



Standard Mode

In standard mode, the main display will show:

- Top row: Transaction total in dollars
- Second row: Uncompensated litres dispensed by default, but can be changed in Dispenser Settings

And the unit price window will display the price per litre.

Purge Mode

Purge mode can be used for all calibrated runs with the exception of vapour tests. When in purge mode, the following is displayed on the main display:

- Top row: PurGE
- Second row: Uncompensated litres dispensed

The unit price window will alternate between showing temperature and density at 15 °C. If the density is outside of the compensation range, then the observed density will be displayed. This information is obtained from the V50 meter.

In purge mode, all display suppression is turned off.

Preset Options

A preset in dollars or litres can be set. Before a transaction, type in a desired preset value. There are three options for setting a preset:

- Dollars – the preset will be shown in the top row of the main display
- Litres – the preset will be shown in the bottom row of the main display
- Switchable – The preset can be switched between dollars and litres by holding '#' for three seconds when not in a transaction.

Presets can still be entered during a transaction, as long as flow has not started. Enter a preset by using the keypad. Pressing # will clear a preset. As soon as flow starts, the preset can not be changed, however, pressing the # key during the transaction will display the preset amount.

Pressing # after a transaction will recall the last preset. This will then be used for the next transaction, if it is displayed when the nozzle is picked up. This is useful for multiple transactions in a row requiring the same preset.

Presets entered must be larger than the MMQ. If the MMQ is large, when entering a preset after lifting the nozzle, the MMQ will automatically show up. Continue entering the desired preset to override this. If entering a preset before lifting the nozzle, and a value below the MMQ is entered, an error code will be returned.

Configuring the Slave Display

Slave displays can be configured to be a clone of the main display, to show side A, or to show side B. Otherwise, they can be disabled. Digits 0-3 represent each configuration as follows:

0 – Disabled
1 – Clone
2 – Side A
3 – Side B

These can be set for each slave display with the DS setting. Each number of the ds code represents a different slave display, and therefore up to 4 slave displays can be connected. The first digit correlates to slave display 1, and so on. In this case slave display 1 would show side B as the digit selected is 3.

Slave display numbers can be set with switches 2 and 3 on the slave display board. Use the following table to configure slave display numbering.

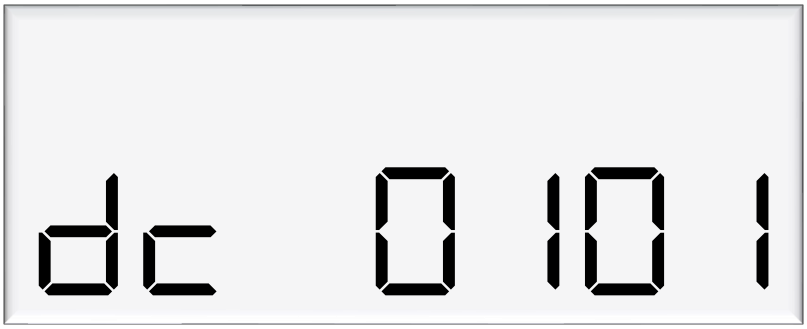
Slave Display Number	Switch 2	Switch 3
1	OFF	OFF
2	OFF	ON
3	ON	OFF
4	ON	ON

Configurating Custom Display

The custom display configuration can be used to show additional information on the unit price display. The additional information that can be shown includes the density, temperature, flowrate, and reset batch. This can be configured with the dc setting. Each digit corresponds to a custom display option. Setting a digit to 1, as opposed to 0, enables the custom display. The digits represent the following options:

Digit 1: Reset batch
Digit 2: Temperature display
Digit 3: Density display
Digit 4: Flowrate display

For example, the following code would enable temperature and flowrate to be shown on the custom display.



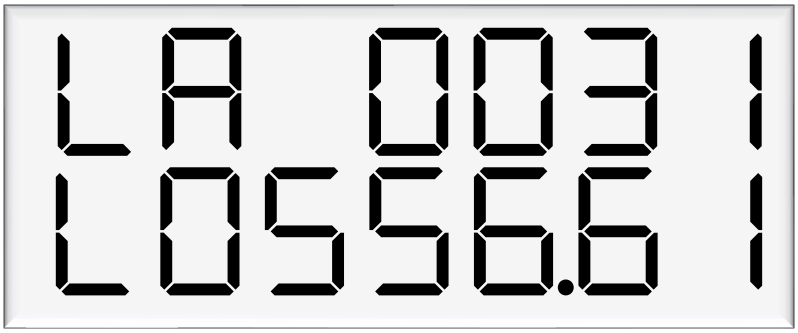
How to View Last Sale

To view the last sale details, continue pressing the parameter switch until the following display is shown.

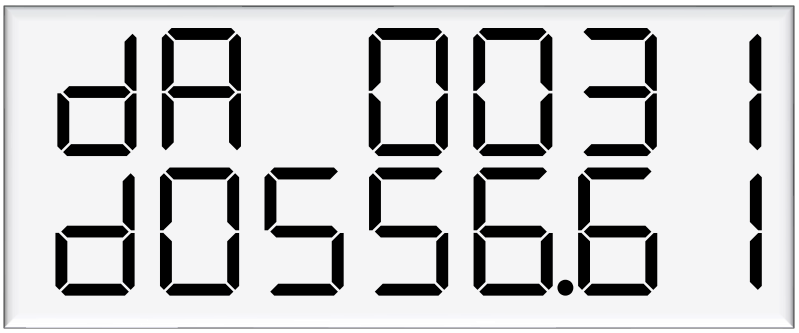
The top row will show uncompensated, unsuppressed quantity dispensed in litres, while the bottom row will show the density reading at 15°C. The unit price display will show the temperature reading at the end of the sale. The left most character of the density reading indicates the nozzle side.

How to View Electronic Totes

The dispenser records electronic totes for price and dollars. To view the electronic totes, continue pressing the parameter switch until the following display is shown:



The bottom row is a continuation of the top row – for example, the above display should be read as 003 105566 1. The side (A or B) will be shown in the unit price display. Dollars totals are also recorded, which can be viewed by continually pressing the parameter switch.



The electronic totes can also be viewed by pressing the # key five times on the main display, as long as the unit is not in a transaction. Each tote will be shown for ten seconds before the next tote is displayed.

NOTE: *Electronic totes and mechanical totes are disabled in purge mode.*

AdBlue Instructions

Cleaning the AdBlue Nozzle

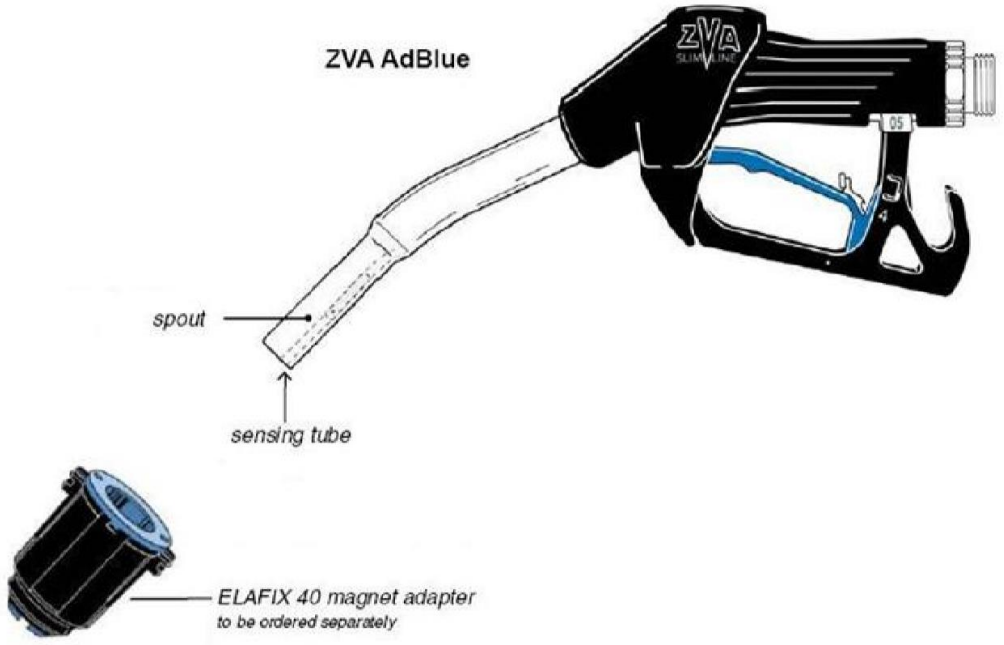
If AdBlue evaporates it may form crystals around the dispenser nozzle. A build up of crystals can block the air passage causing the nozzle to continuously trip off.

If this occurs, rinsing the nozzle in a bucket of warm water will dissolve the crystals and unblock the air passage.

To avoid contamination of the AdBlue, thoroughly dry the nozzle after rinsing.

ZVA AdBlue Nozzle

The ZVA AdBlue nozzle with a magnetic safety catch is commonly used on AdBlue dispensers. The following image is included for reference. For further information refer to ZVA direct.



Automatic nozzle ZVA AdBlue for the refuelling of the “AdBlue” urea solution tanks.

Flow rate up to 40 l/min, working pressure 0.5 – 3.5 bar.

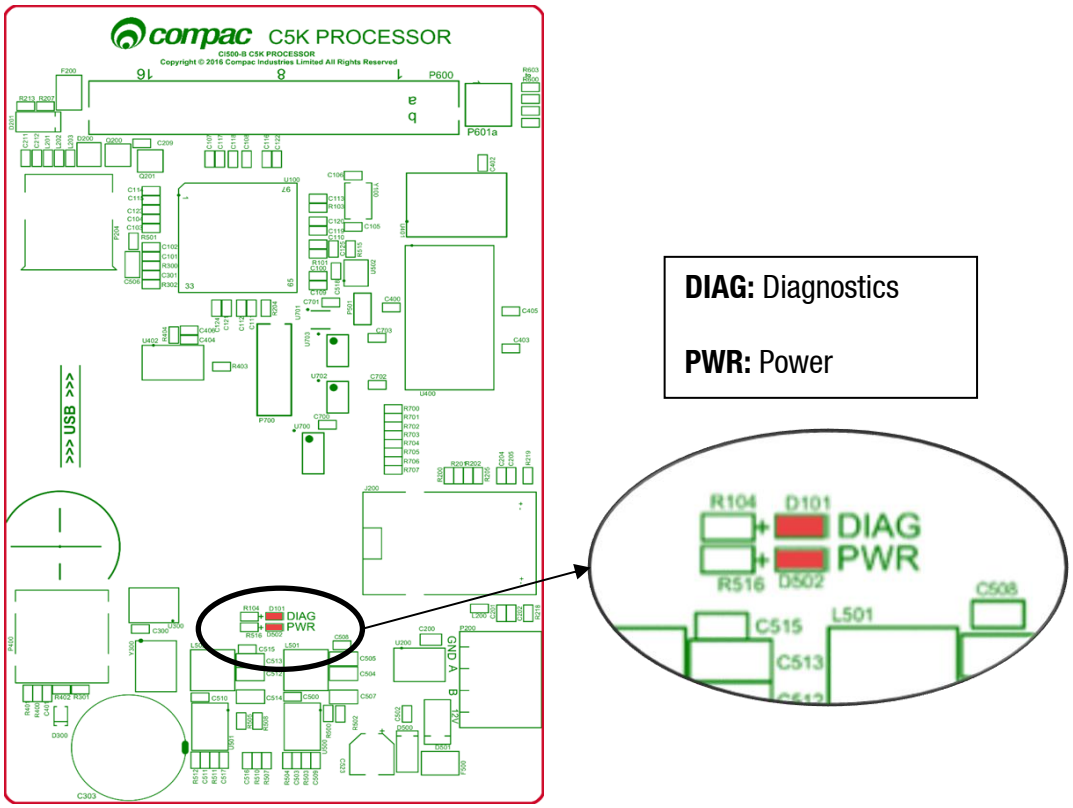
To avoid misfuelling, the standard type of ZVA AdBlue is equipped with a magnet opening in the spout. The nozzle will only open in combination with the magnet adapter ELAFIX 40 which must be installed in the AdBlue filler neck. For the refuelling of other containers or canisters please push an ELAFIX 40 over the spout.

AdBlue tends to crystallise. Due to the evaporation of water, white crystals will show. If these should block the air passage (a sign for this is that the ZVA AdBlue keeps tripping off continuously) this can be solved easily by moving the nozzle spout in a bucket with warm water. In order to avoid contamination, please rinse the nozzle spout with AdBlue previous to the next refuelling.

LED Diagnostics

LEDs on the circuit boards can be used to diagnose faults in the unit. View the LEDs and their corresponding tables to see the state of the board.

Processor Board



Processor Board LEDs	Operation/Possible Cause
Power	This should be on when there is power to the unit.
Diagnostics	This LED shows whether the firmware is running for the board. If it is off, the firmware is not running, and if it is on, it is running. Upon start up this LED will flash, indicating the firmware is loading. The flashing may last up to a minute before it stabilises to being constantly on. If the flashing lasts longer, the board is in bootloader mode – this means that the firmware has crashed, or not loaded correctly.

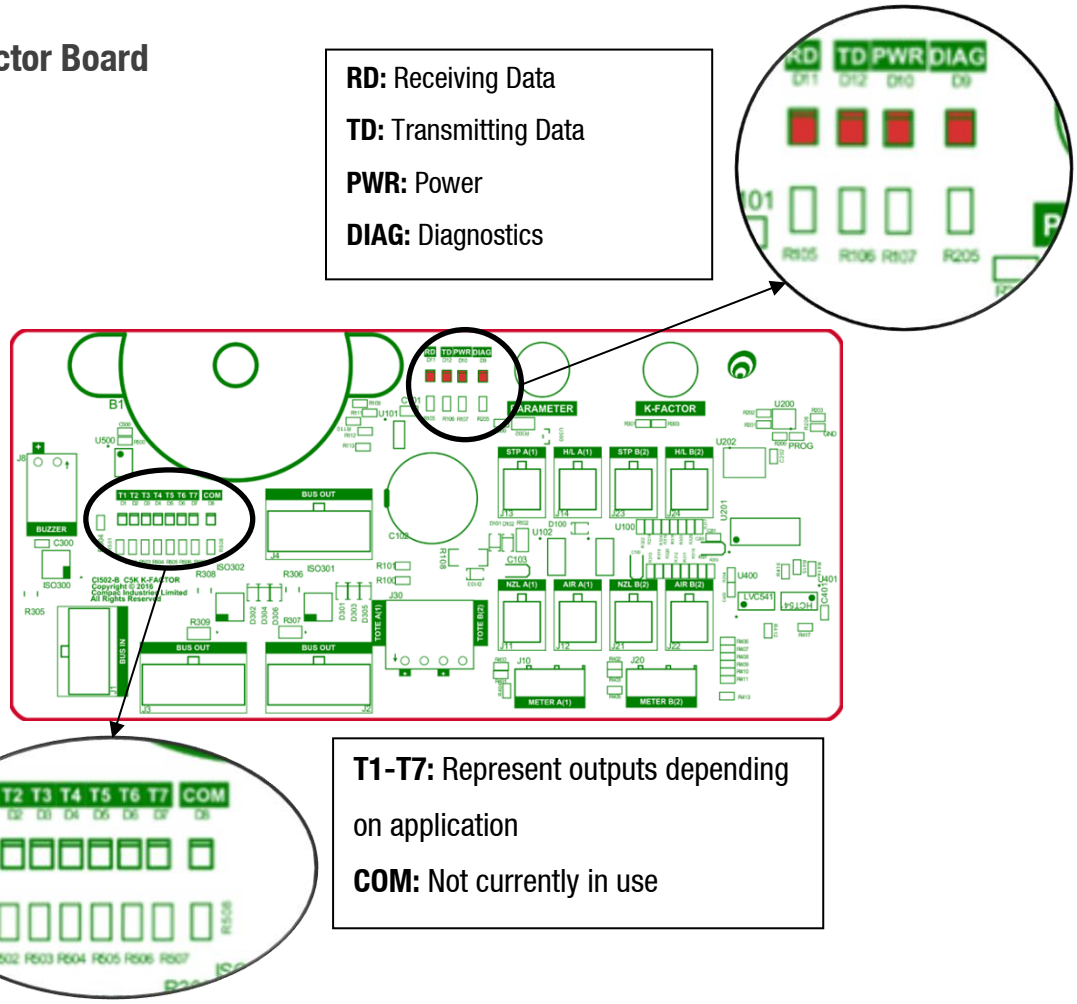
K-Factor Board

RD: Receiving Data

TD: Transmitting Data

PWR: Power

DIAG: Diagnostics



T1-T7: Represent outputs depending on application

COM: Not currently in use

K-Factor Board LEDs	Operation/Possible Cause
Power	This should be on when there is power to the unit.
Diagnostics	In normal operation, this should flash slowly, and then flash quickly when the nozzle switch is lifted.
Output LEDs (T1-6)	These LEDs correspond to side A and B motors and solenoids. They will light up according to the hardware they represent. The LEDs represent different outputs depending on application
Receiving data/ Transmitting data	In normal operation, these should be on when the Diagnostics light is on, and off when the diagnostics light is off. If the diagnostics light is on, and the TD/RD LEDs are off, this means these is an error. This could be due to cabling – check the bus system cables.

Error Messages

The unit will have error codes programmed in. The following is a list of error codes and how to rectify these errors.

Error Code	Fault	Action/Information
Er FLo	Excess flow	Maximum flow rate exceeded
Er dEn	Density out of range	Calibrate meter density using the K-Factor switch
	Temperature out of range	Calibrate meter temperature using the K-Factor switch
Er PrSt	The preset entered is below the MMQ	Enter a preset above (or equal to) the MMQ
Er 3	No price	Set the price
Er 8	Reverse flow	Check product is not flowing back into the tank once the delivery has finished. This only occurs if the non-return valves installed on site are faulty
Er 10	Configuration lost	Reconfigure the unit
Er 13	Slave display restarted	Power Failure, Hardware failure
Er 14	K-Factor board offline	Check the connecting bus cable
Er 15	K-Factor board restarted	Power Failure, Hardware failure
Er31	Transaction ended but fuel is still flowing	Solenoid leaking
Er41	Pump comms lost	Check the connecting wire connections to the comms boards from the pump side and from the controller side
Er 50	Meter communication error	Check that the meter is connected correctly. Check correct configuration and correct software installed. Ensure the meter IDs on the dispenser software and V50 meter match
Er 52	Meter error	If the problem persists, repower the unit. Replace the meter if necessary

Er 53	Meter stopped vibrating	If the problem persists, repower the unit. Replace the meter if necessary
Er 54	Temperature sensor failure	If the problem persists, repower the unit. Replace the meter if necessary
Er 55	Meter not ready	Wait for meter to calibrate. If the problem persists, repower the unit
Er61	V50 meter could not set it's zero point	Try restarting the meter. If the problem persists, Replace the meter.
Er62	V50 meter could not reset the batch (Could not zero the transaction values when nozzle was lifted to start a new transaction)	Try restarting the meter. If the problem persists, Replace the meter.
Er71	V50 meter is set but variant is not selected	Set variant to DEF
Abd	Slave display offline	Check connections to display Check the slave board configurations
hoLd	Processor offline / no power to processor	This will occur upon start up – allow time for the processor to load. If the problem persists, check connections to processor
cAL ib c	K-Factor data integrity failure, or the processor board has been replaced	The K-Factor seal must be broken, and the switch must be pressed
cAL ib P	The K-Factor board has been swapped/replaced	The K-Factor seal must be broken, and the switch must be pressed
cAL ib	The unit needs calibration, usually due to a hardware change	Check the K-Factor and temperature and density calibrations
cAL ibF	K-Factor is not set or is 00.0000	Set the K-Factor Calibrate meter
A ir	May suggest air is in the system. May be density out of range, or coil amplitude too low while meter is operating, displayed until next sale is started	Make sure pump is running. Check tank and pipework for leaks. Purge system. Increase the Solenoid delay on the K-Factor switch
orun	Overrun – flow above preset	Increase the preset cutoff
SuMP	Sump error – liquid detected in the sump	Empty the sump. Check the dispenser for leaks