BATCHEN

COMMANDER II AND CONCEPT 2000 LP GAS DISPENSERS

PROGRAMMING INSTRUCTIONS

Warnings, Cautions and Notes

Throughout this manual, the reader will find statements titled **WARNING**, **CAUTION** or **NOTE** with a short piece of information highlighting a hazard or providing additional clarification, or both. Each of these statements has a particular meaning, as follows:

WARNING

A Warning indicates that PERSONAL INJURY MAY RESULT if recommended procedures are not carefully followed and tells what to do to avoid such injury. Equipment may also be damaged.

CAUTION

A Caution indicates that EQUIPMENT MAY BE DAMAGED if recommended procedures are not carefully followed and tells what to do to avoid such damage. Potential for personal injury is not expected.

NOTE

A Note provides clarification of an operational procedure. Neither personal injury nor equipment damage is involved.

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Control Sheet

Periodically sections within this manual may be amended. When this occurs the page footer will identify the change by the Draft Letter increasing by one letter each time, e.g. Draft A, Draft B etc. When amendments are issued this control Sheet will be updated to reflect the latest changes.

The Amendment Table below will provide you with a complete history of all changes to the current revision of the document. You can check whether your manual is current by checking the revision and date issued in the table against the pages in the corresponding section. You can also check that you have all the necessary pages by referring to this table.

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SECTION A: INTRODUCTION

1. General

This manual provides instructions for programming Batchen Commander II and Concept 2000 LP Gas Dispensers.

The dispensers can be programmed using either a keypad (portable or fixed) or electronic switches on the Main Processor Board.

This manual provides instructions for programming using the switches on the Main Processor Board.

2. Safety Warnings

WARNING! – LP GAS USE

This equipment is designed to dispense Liquefied Petroleum Gas (LPG) to motor vehicles. It contains flammable liquefied gas under pressure and must be installed and serviced by persons trained and experienced in the safe handling of LPG, and in accordance with all relevant local and statutory regulations, and recognised industry procedures.

Failure to observe this warning may result in (but is not limited to):

- **the escape of flammable liquid or vapour;**
- **explosion;**
- **fire; or**
- **freeze burns.**

Sudden, uncontrolled depressurisation may result in the propulsion of components at high velocity.

WARNING! – NOZZLE OPERATION

Do not latch the nozzle in the open position.

If there is a leak at the nozzle and it is latched open, the nozzle cannot be shut off without the risk of freeze burns.

Incorrect connection or disconnection, or insufficient tightening of the nozzle may result in a substantial release of LPG when the trigger is operated.

WARNING! – FILLING OF DOMESTIC CYLINDERS

The Commander II AND Concept 2000 dispensers are designed to refuel motor vehicles with LP gas.

If they are used for filling domestic cylinders this may contravene local regulations as the gas dispensed may not be suitable for domestic applications.

NOTE

Service attendants operating this equipment should be fully trained in LPG refuelling and emergency procedures as set out in AS1596 "SAA LP Gas Storage and Handling" Code. All service operations must be carried out by authorised personnel in accordance with relevant local and statutory regulations.

In case of EMERGENCY **immediately push the "DISPENSER EMERGENCY STOP".**

The "DISPENSER EMERGENCY STOP" is a red push button located on the side of the dispenser. It is clearly labelled in large red letters.

Pushing the "DISPENSER EMERGENCY STOP" will immediately cause dispensing to cease by shutting down the power and LPG to the dispenser. Depending on the configuration of the site all other power and fuels on site may be shut down as well.

In case of a MINOR ACCIDENT **immediately push the "PUSH TO STOP".**

The "PUSH TO STOP" is a flap located in the Nozzle Receptacle. It is clearly labelled on a black label in Yellow letters.

Push the "PUSH TO STOP" will immediately cause dispensing to cease by shutting down the remote pump and closing the dispenser solenoid valve. Filling may be recommenced by replacing the nozzle into its receptacle and waiting 3 seconds before removing the nozzle to recommence the filling cycle.

Your LPG installation may have other specified emergency procedures. All operators should be familiar with these procedures before commencing operation. Your installer would be pleased to explain these to you if necessary.

3. Password Settings

In order to program the dispenser, a password is required.

Passwords are factory set but can be changed by the operator. Factory settings are shown in the table below.

Password Code	Factory Setting	Access
Pass code 1	111111	Allows totals to be viewed
Pass code 2	222222	Allows price setting, pump number setting and setting of configuration p values. It also enables the temperature and software version number to be viewed.
Pass code 3	333333	Allows k-factor setting, setting configuration a & b values, start flow timeout, currency resolution, minimum flow rate and density. It also enables cause of delivery end to be displayed.

4. Parameters and Password Levels

Parameter	Price Display	Setting	Password Level	Switch Number	Suggested Access
Electronic Volume Totals	**Volume sold**	Total Volume sold	1	*	Service Attendants
Electronic Value Totals	**Value sold**	Total Value sold	1	*	Service Attendants
Software Version	**Code**	1407	2	1	Technician
Display Segment Test		Visual	N/A	1	Technician
Unit Price	**Price**	100.0	2	1	Technician
LPG Temperature	**tEP**	LPG	2	1	Technician
Pump Number	**Pu nu**	01 & 02	2	1	Technician
Configuration p	**cFg P**	200/201 **	2	1	Technician
K Factor	**FActr**	1.0000	3	2	Calibrator
LPG Density	**dEn**	510	3	2	Calibrator
Cause of End Delivery	**cdE**	See manual	3	2	Calibrator
Preset Cut-Off	**Pcut**	0.0	3	2	Calibrator
Start Flow Time Out	**S Flo**	000	3	2	Calibrator
Minimum Flow Rate	**L Flo**	2.0	3	2	Calibrator
End Flow Time Out	**E Flo**	0	3	2	Calibrator
Density Error Delay	**dEd**	10 ***	3	2	Calibrator
Solenoid Delay	**Sd**	0.40/0.00 ****	3	2	Calibrator
Price Resolution	**r**	4	3	2	Calibrator
Configuration b	**cFg b**	00513/00516 *****	3	2	Calibrator
Configuration A	**cFg A**	2022	3	2	Calibrator
~~Delivery Start Delay~~	~~**dSd**~~	~~0.0~~	~~3~~	~~2~~	~~Calibrator~~

* To access Electronic Totals without a Keypad tap Nozzle Switch rapidly five times. Total Volume will be displayed for ten seconds followed by Total Value Sold displayed for ten seconds.
** 200 for Console or 201 for Stand Alone
*** Only available in Density mode.
**** 0.40 for Density Probe or 0.00 for Temperature Probe.
***** 00513 for Temp. Probe or 00516 for Density Probe.

5. Main Processor Board Switches

The dispenser is programmed using the three (3) switches on the Main Processor Board, shown in Figures 1 and 2.

Switch 1 (referred to as the Parameter Switch) and Switch 2 (referred to as the K Factor Switch) are configuration switches and are used to set parameters and modes of operation.

Switch 3 (referred to as the Advance Parameter Switch) is used to advance quickly to a parameter without having to cycle through each digit.

⚠ NOTE

Switch 2 (the K-Factor switch) is normally used only when the system is initially configured or when the meters are re-calibrated.

This switch should be accessed only by authorised service personnel. After use the K-Factor switch must be sealed from operation, as shown in Figure 3.

The general procedure for operating the switches is as follows:

a) Press and release the configuration switch (Switch 1 or Switch 2), as per the instructions in the following pages to access/alter the programming.

b) Alternatively, once a configuration switch (Switch 1 or Switch 2) has been pressed, use Switch 3 to advance quickly to a parameter without having to cycle through each digit.

c) The Value display will contain the name of the parameter and the Litres display will show an abbreviated name and the current value of the parameter.

d) Continue pressing and releasing the switch until the desired digit of the parameter is selected. The selected digit will be momentarily replaced by a "-" character when the switch is first pressed.

e) Hold down the configuration switch and the selected digit will roll over.

f) When the correct value is reached, release the configuration switch.

g) Repeat steps d) to f) for each digit that is to be changed.

h) Repeat step c) to select the next required parameter.

⚠ NOTE

When no switch presses have been detected for 14 seconds, the display will revert back to showing the last fill amount and the system will adopt the new parameter values.

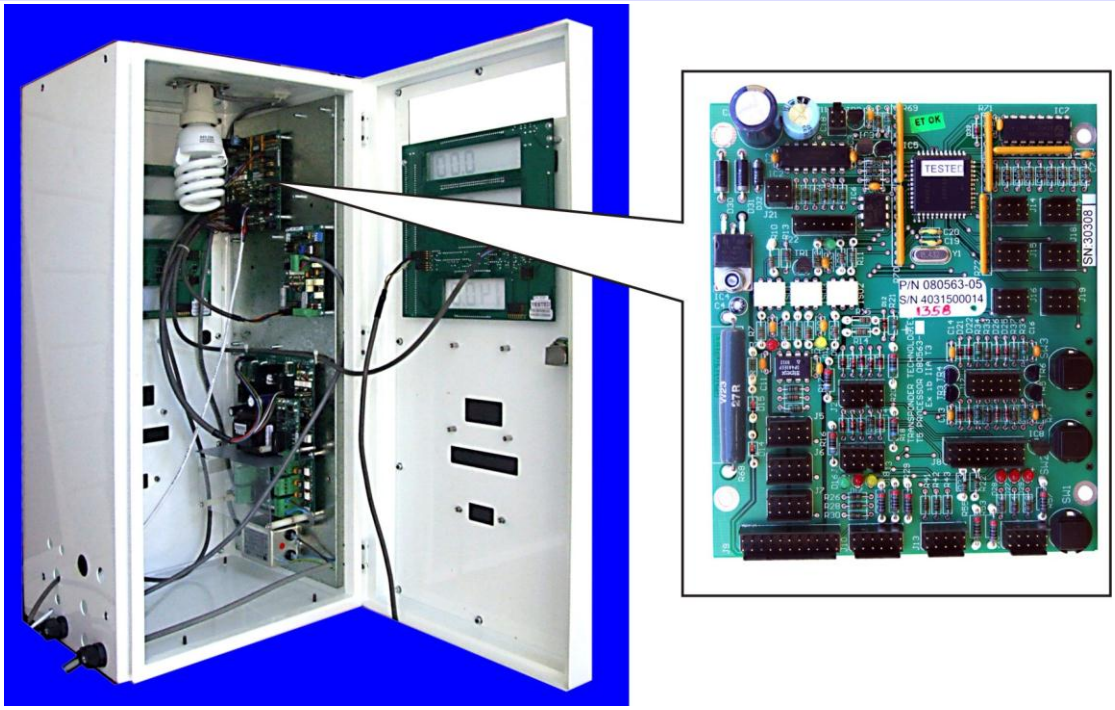


Figure 1: Main Processor Board Location

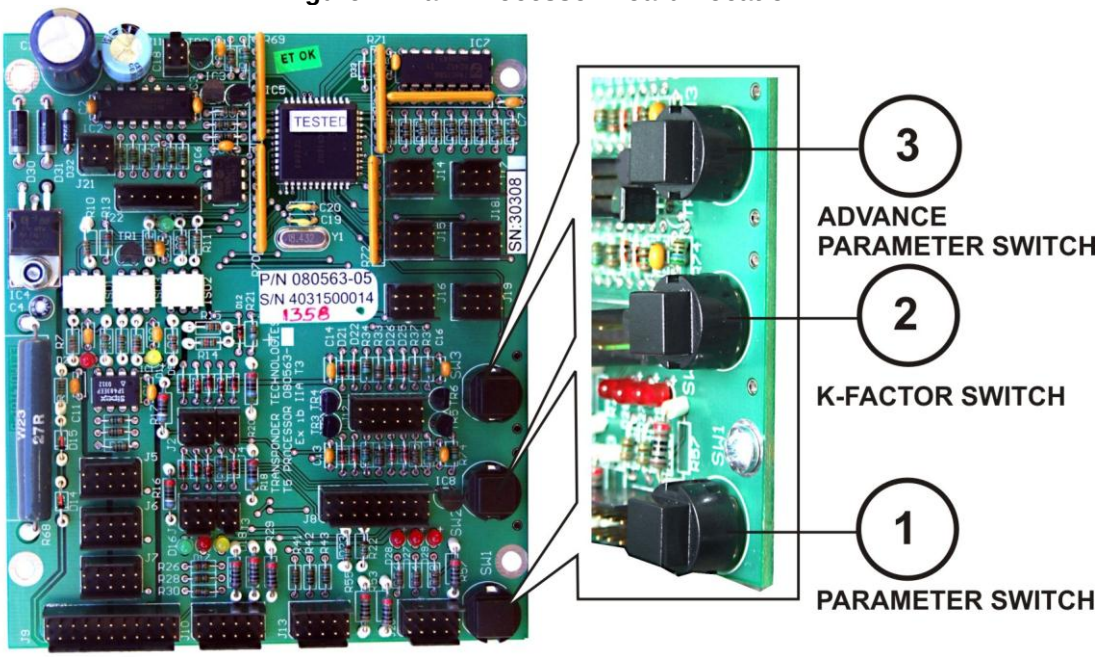


Figure 2: Main Processor Board Switches

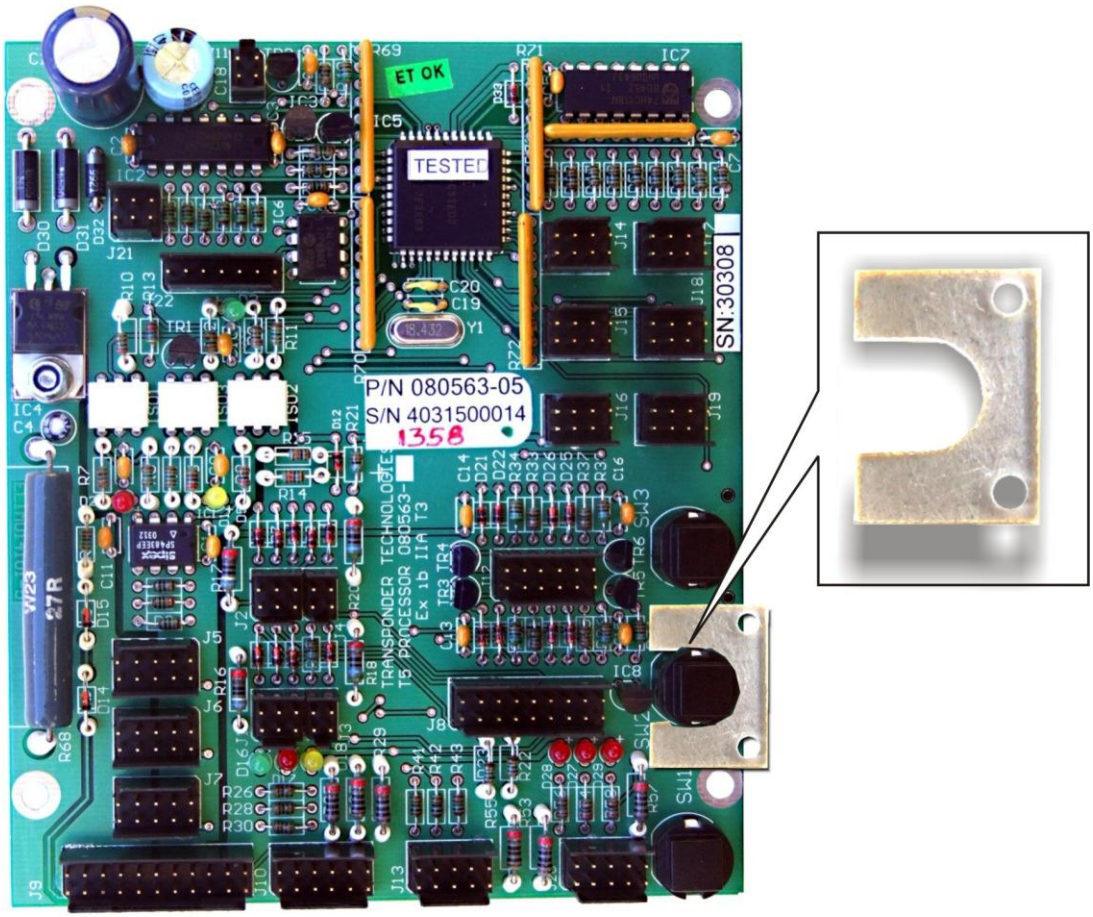


Figure 3: Main Processor Board Switch Seal

SECTION B: PROGRAMMING INSTRUCTIONS

NOTE

The dispenser has separate display panels for each hose, one on either side of the unit. The side of the dispenser which features the Electronics Cabinet door is referred to as Side A. The opposite side is referred to as Side B.

NOTE

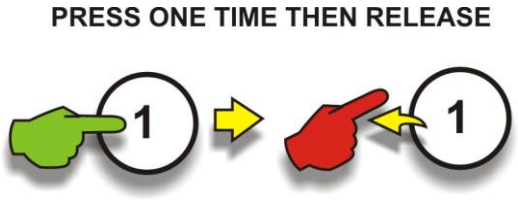
Durring setup the parameters will be displayed on all displays. i.e. there will be two lines displayed in the cents pr. litre display corresponding to the pump being configured.

NOTE

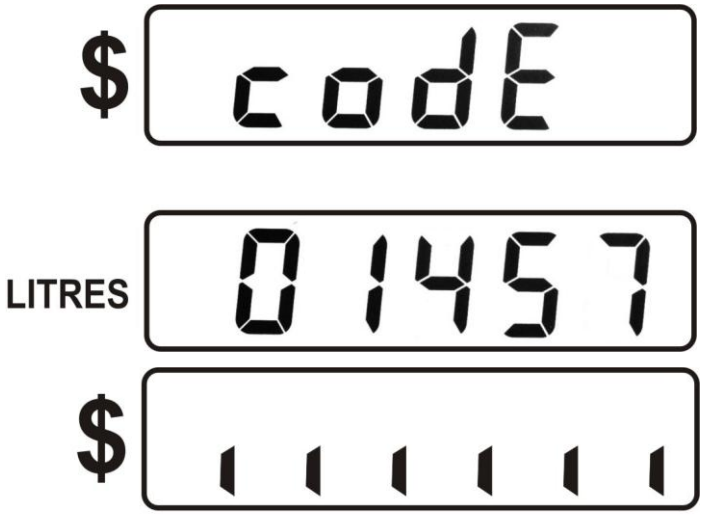
To secure the keypad and switches once programming is complete, insert the switch seal behind Switch 2 (K-Factor switch) as shown in Figure 3.

1. To Display the Software Version (read only)

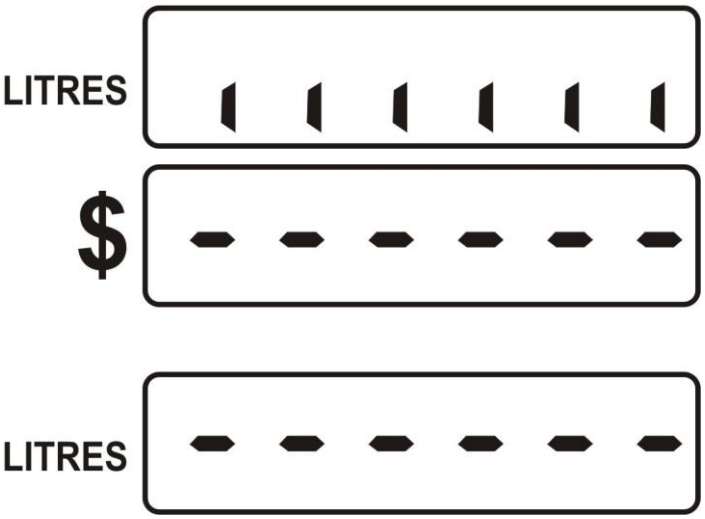
a) To display the software version, press Switch 1.



b) The software version will appear in the **LITRES** display panel.

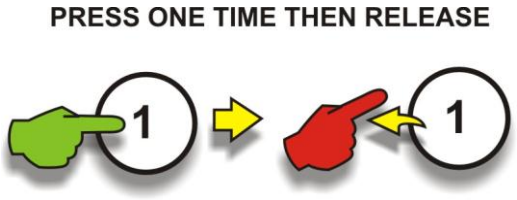


c) The panel will then display a segment check as shown.



2. To Change the Current Price

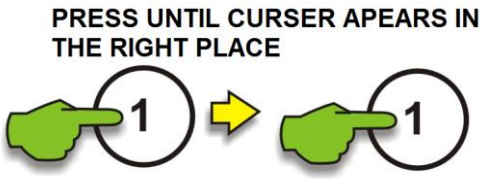
a) To view the current setting, first press and release Switch 1 one (1) time.



b) Press and release Switch 3 until the correct screen appears.

c) The **LITRES** display panel will display **P 000.0**

d) Press Switch 1 until the cursor moves to the digit that needs to be changed.



e) Press and hold Switch 1 until the correct number appears, then release the switch.

f) Repeat the last two steps to change any other digits.

g) The new price will be displayed on the **LITRES** display panel.

h) Wait 14 seconds for the unit to time out. The new price will appear on the **PRICE PER LITRE** display panel.

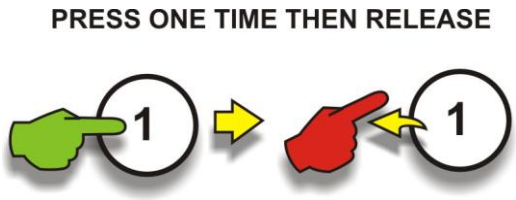
Example shows 140.0 cents/litre.

3. To Display the Cause of Delivery End (Read Only)

This parameter shows why the last delivery ended, as per the table below.

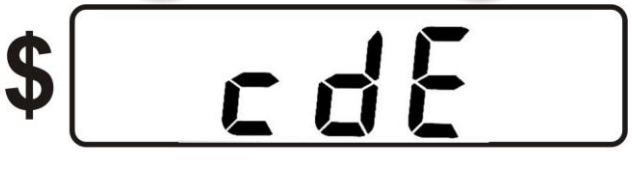
Text Displayed	Explanation
nd	A delivery has not yet occurred since the system was powered on.
HoSE	Nozzle stowed.
Fcc	Forecourt controller stopped the delivery.
S Flo	Start flow timer expired.
E Flo	End flow timer expired.
PrESEt	Stopped at preset amount.
toP	Delivery quantities reached maximum amount able to be displayed.
Error	An error occurred during delivery.
Pd	Pulser disconnected.
dEn	LPG density outside of range.
tEP	LPG temperature outside of range.
cAL	Calibration “K” factor below 0.01.

a) To view the current setting, first press and release Switch 1 one (1) time.



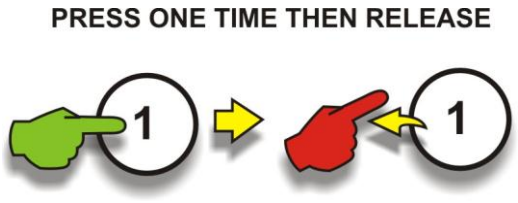
b) Press and release Switch 3 until the correct screen appears.

c) The code will be displayed on the **LITRES** display panel



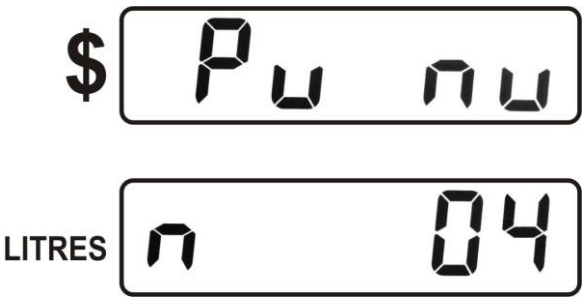
4. To Change the Pump Numbers (Side A and Side B)

a) To view the current setting, first press and release Switch 1 one (1) time.

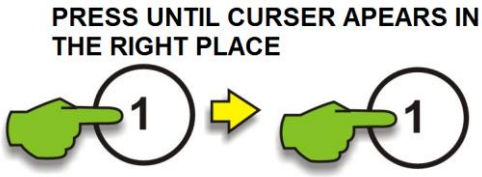


b) Press and release Switch 3 until the correct screen appears.

c) The current pump number will be displayed on the **LITRES** display panel.



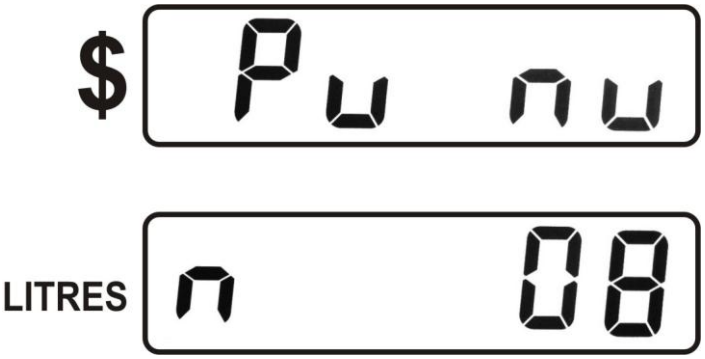
d) Press Switch 1 until the cursor moves to the digit that needs to be changed.



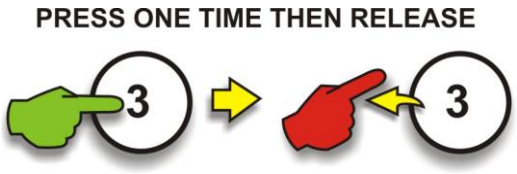
e) Press and hold Switch 1 until the correct number appears, then release the switch.

f) Repeat the last two steps to change any other digits.

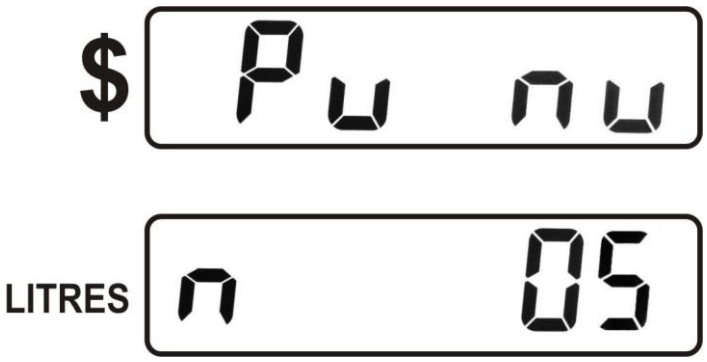
g) The new pump number will be displayed on the **LITRES** display panel.



h) To change the pump number on the other side, first press and release Switch 3.

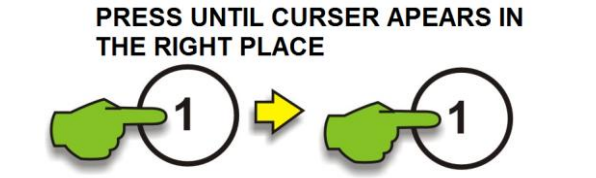


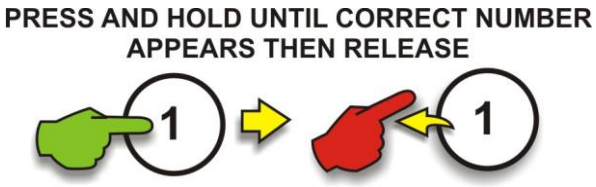
i) The current pump number will be displayed on the **LITRES** display panel.



j) Press Switch 1 until the cursor moves to the digit that needs to be changed.

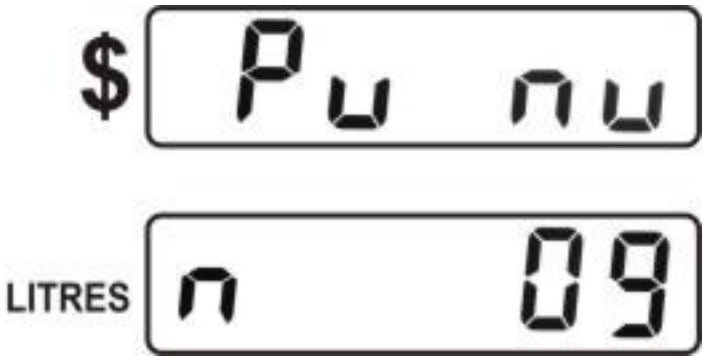
k) Press and hold Switch 1 until the correct number appears, then release the switch.





l) Repeat the last two steps to change any other digits.

m) The new pump number will be displayed on the **LITRES** display panel.

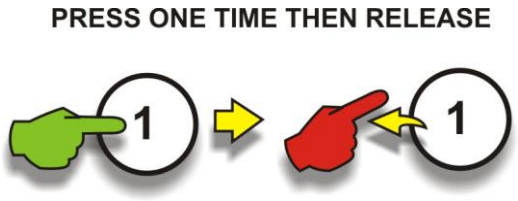


5. To Change the LPG Density Setting

⚠ NOTE

This parameter is only available in Temperature Probe Mode. (Config. b set to 00513)

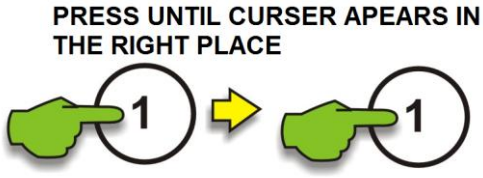
a) To view the current setting, first press and release Switch 1 one (1) time.



b) Press and release Switch 3 until the correct screen appears.

c) The current setting will be displayed on the **LITRES** display panel.

d) Press Switch 1 until the cursor moves to the digit that needs to be changed.



e) Press and hold Switch 1 until the correct number appears, then release the switch.

f) Repeat the last two steps to change any other digits.

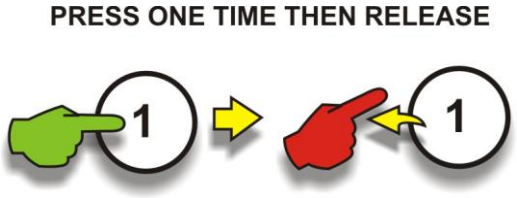
g) The new setting will be displayed on the **LITRES** display panel.

NOTE

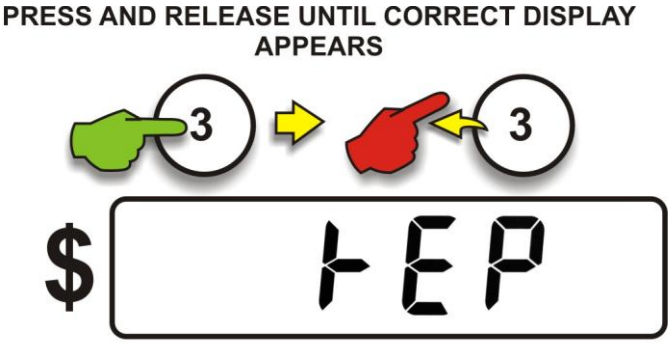
The example shown is for liquid propane gas

6. To Display the Temperature Setting (read only)

a) To view the current setting, first press and release Switch 1 one (1) time.



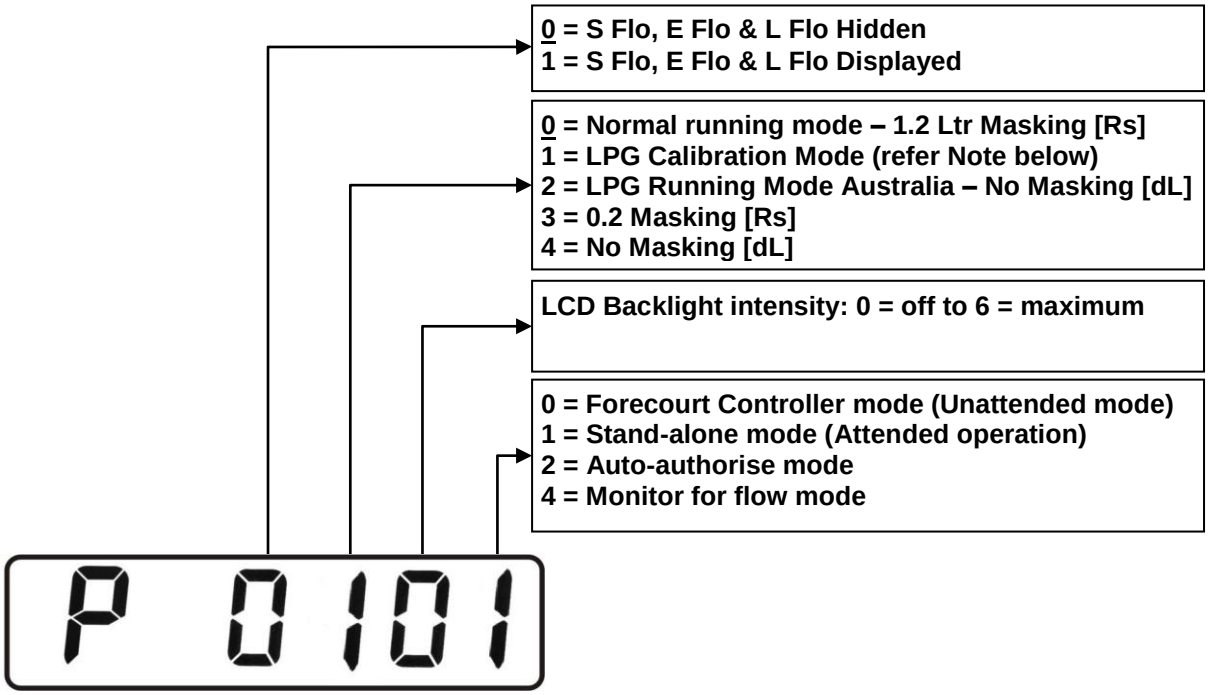
b) Press and release Switch 3 until the correct screen appears.



c) The current setting will be displayed on the **LITRES** display panel.

7. To Change Configuration p

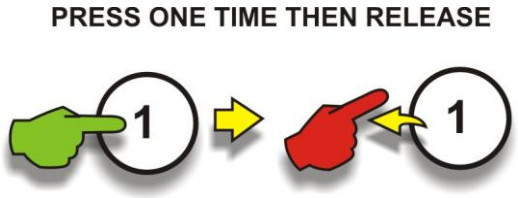
Each digit in this configuration parameter controls an aspect of the systems operation as shown below.



NOTE

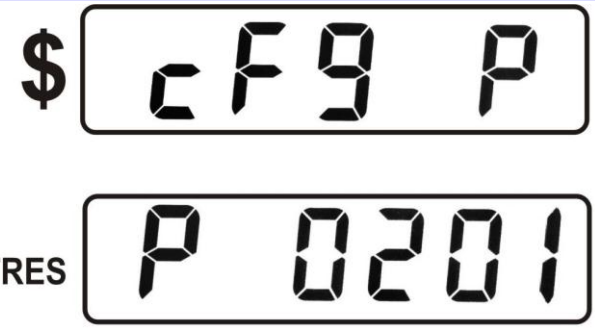
When the system is in LPG Calibration Mode the Value display will show non-compensated litres and the Price per Litre display will alternately show the temperature, density and flow rate.

a) To view the current setting, press and release Switch 1 one (1) time.

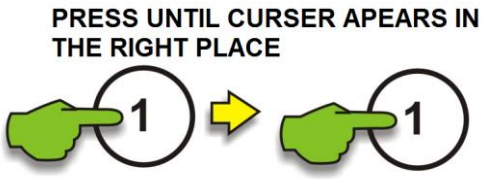


b) Press and release Switch 3 until the correct screen appears.

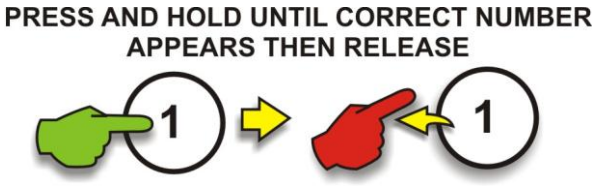
c) The current configuration will be displayed on the **LITRES** display panel.



d) Press Switch 1 until the cursor moves to the digit that needs to be changed.

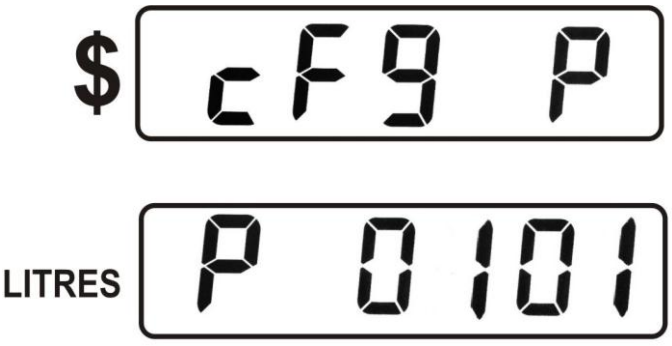


e) Press and hold Switch 1 until the correct number appears, then release the switch.



f) Repeat the last two steps to change any other digits.

g) The new configuration will be displayed on the LITRES display panel.



8. To Calibrate the Meter (Must be certified)

The K-Factor is used to calibrate the meter. It is a ratio of litres dispensed per revolution of the meter. To calibrate the dispenser/pump, dispense fuel into a certified measuring container and compare the displayed value with the amount dispensed.

For example:

Displayed volume:	10.00 litres
Measured volume:	20.00 litres

Then, to calculate the correct K-Factor apply the formula below:

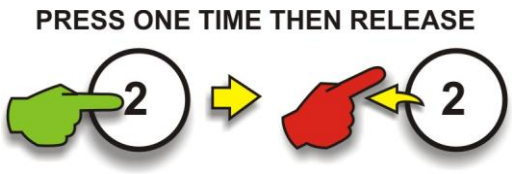
$$[\text{New K-Factor}] = [\text{Existing K-Factor}] \times \frac{[\text{Measured volume}]}{[\text{Displayed volume}]}$$

$$= [\text{Existing K-Factor}] \times \frac{20.00}{10.00}$$

$$= [\text{Existing K-Factor}] \times 2$$

Change the existing K-Factor to this new value as follows:

a) To view the current setting, press and release Switch 2 one (1) time.

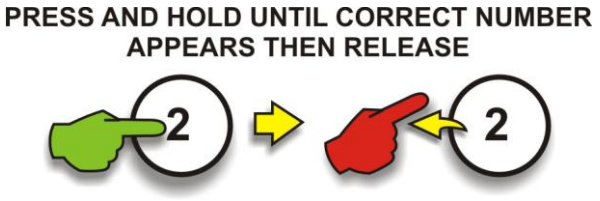


b) Press and release Switch 3 until the correct screen appears.

c) The current configuration will be displayed on the **LITRES** display panel.

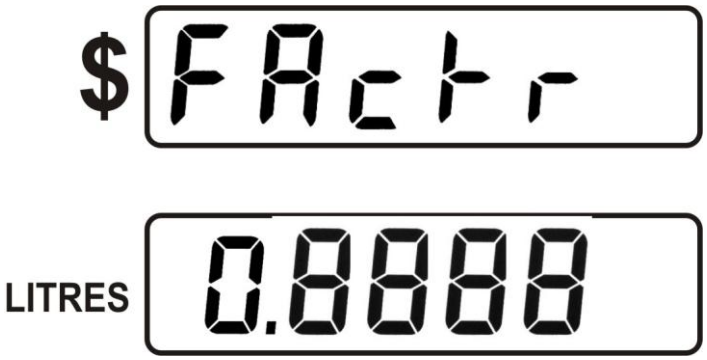
d) Press Switch 1 until the cursor moves to the digit that needs to be changed.

e) Press and hold Switch 1 until the correct number appears, then release the switch.



f) Repeat the last two steps to change any other digits.

g) The new configuration will be displayed on the **LITRES** display panel.

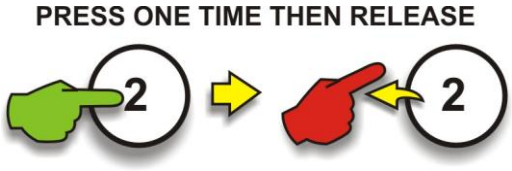


9. To Change the Pre-set Cut-off (only used on dispenser with key pad)

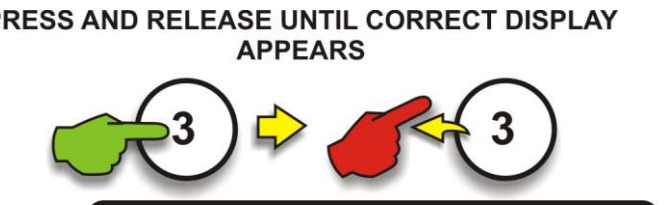
The Preset cut-off parameter only applies during preset deliveries. It is the amount of litres prior to attaining the preset at which the dispenser will switch from full flow to low flow.

The range of this parameter is 0.00-9.99 litres inclusive. A setting of 0.00 will result in a cut-off margin of 0.32 litres. The default setting is 0.00.

a) To view the current setting, press and release Switch 2 one (1) time.



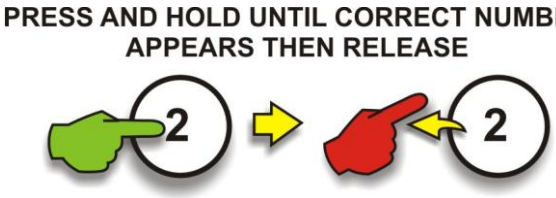
b) Press and release Switch 3 until the correct screen appears.



c) The current setting will be displayed on the **LITRES** display panel.

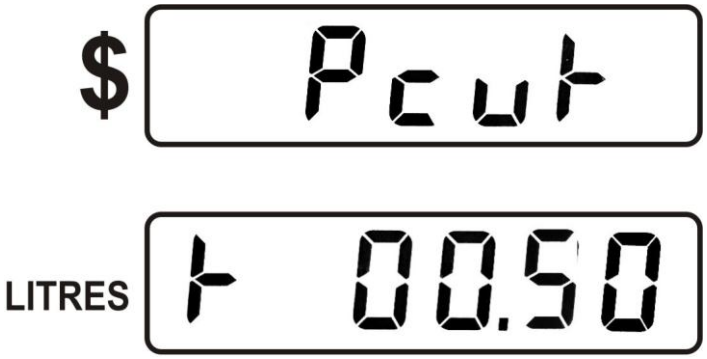
d) Press Switch 1 until the cursor moves to the digit that needs to be changed.

e) Press and hold Switch 1 until the correct number appears, then release the switch.



f) Repeat the last two steps to change any other digits.

g) The new configuration will be displayed on the LITRES display panel.

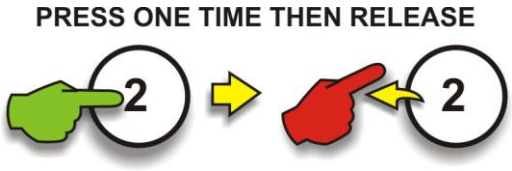


10. To Change the Start-flow Timeout

The Start-flow timeout is the length of time that the dispenser will wait for flow to start after the nozzle has been lifted. If this time limit is exceeded then the delivery will finish and the nozzle must be stowed before another delivery can commence.

The range of this parameter is 000-999 seconds inclusive. A setting of 000 will result in a timeout of 4 minutes. The default setting is 000.

a) To view the current setting, press and release Switch 2 one (1) time.

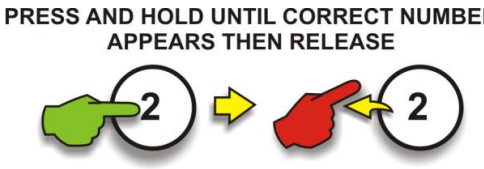


b) Press and release Switch 3 until the correct screen appears.

c) The current setting will be displayed on the **LITRES** display panel.

d) Press Switch 1 until the cursor moves to the digit that needs to be changed.

e) Press and hold Switch 1 until the correct number appears, then release the switch.



f) Repeat the last two steps to change any other digits.

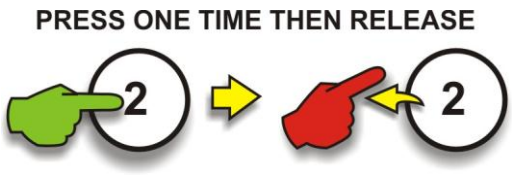
g) The new configuration will be displayed on the LITRES display panel.

11. To Change the Minimum Flow rate

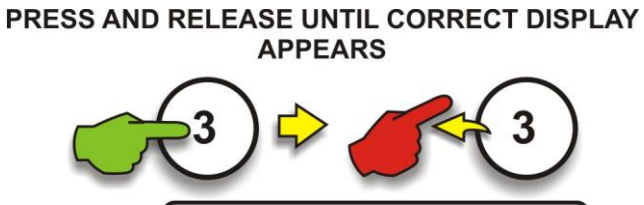
The system will stop the delivery if three times during the delivery the flow rate drops below this value for at least 10 seconds. The display will also flash the 'no FLo' error message.

The range of this parameter is 000-999 litres/minute inclusive. The default setting is 000.

a) To view the current setting, press and release Switch 2 one (1) time.



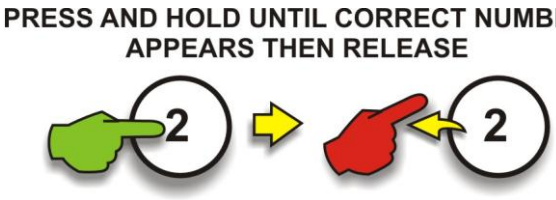
b) Press and release Switch 3 until the correct screen appears.



c) The current setting will be displayed on the **LITRES** display panel.

d) Press Switch 1 until the cursor moves to the digit that needs to be changed.

e) Press and hold Switch 1 until the correct number appears, then release the switch.



f) Repeat the last two steps to change any other digits.

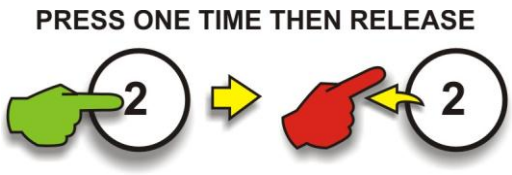
g) The new configuration will be displayed on the LITRES display panel.

12. To Change the Delivery Start Delay

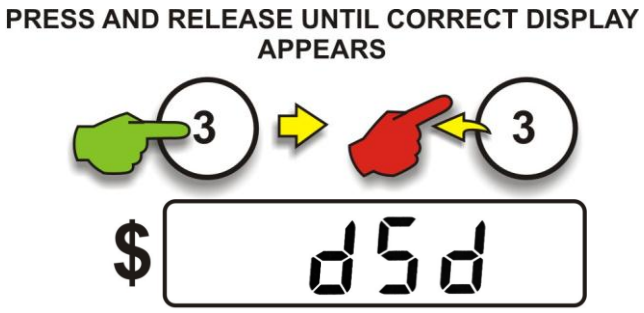
THIS FUNCTION HAS BEEN REMOVED. FOR EARLY VERSION SOFTWARE SET TO 0.0

The Delivery Start Delay is the time in seconds taken before delivery will start after the LPG density comes into range.

a) To view the current setting, press and release Switch 2 one (1) time.



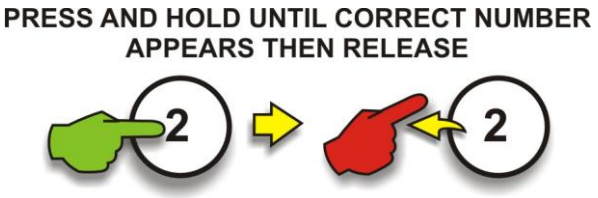
b) Press and release Switch 3 until the correct screen appears.



c) The current setting will be displayed on the **LITRES** display panel

d) Press Switch 1 until the cursor moves to the digit that needs to be changed.

e) Press and hold Switch 1 until the correct number appears, then release the switch.



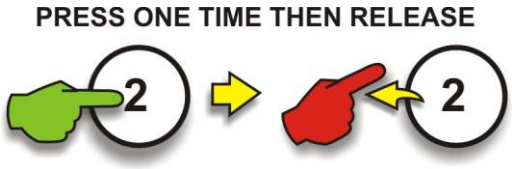
f) Repeat the last two steps to change any other digits.

g) The new configuration will be displayed on the **LITRES** display panel.

13. To Change the Density Error Delay

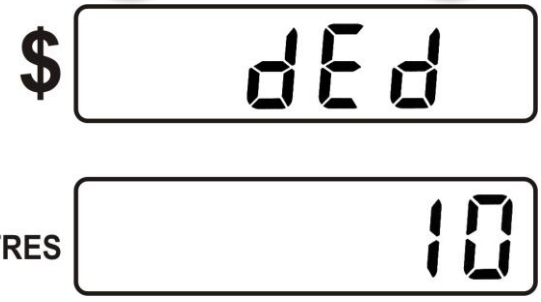
The Density Error is the time in seconds that LPG density needs to be out of range before an error message is displayed.

a) To view the current setting, press and release Switch 2 one (1) time.



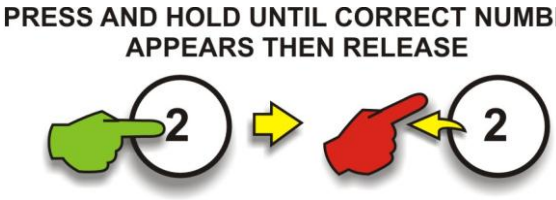
b) Press and release Switch 3 until the correct screen appears.

c) The current setting will be displayed on the **LITRES** display panel.



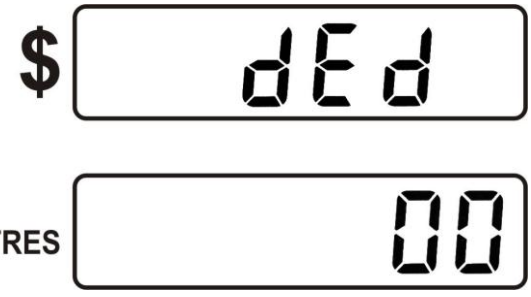
d) Press Switch 1 until the cursor moves to the digit that needs to be changed.

e) Press and hold Switch 1 until the correct number appears, then release the switch.



f) Repeat the last two steps to change any other digits.

g) The new configuration will be displayed on the LITRES display panel.

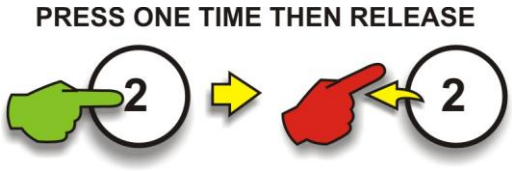


14. To Change the Solenoid Delay

The Solenoid Delay is the period of time taken until density comes into range and delivery commences. If this period is greater than 40 seconds a density error will be displayed. The available range is 0 to 99 seconds.

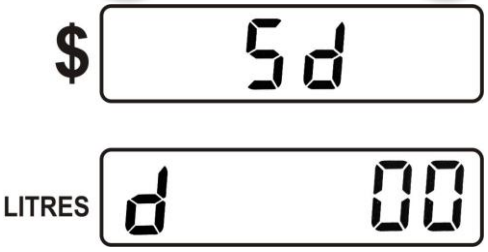
When only temperature probe is used The Solenoid Delay is the period of time taken until delivery commences.

a) To view the current setting, press and release Switch 2 one (1) time.



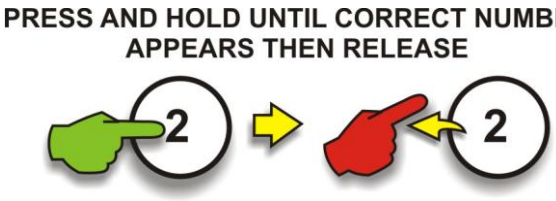
b) Press and release Switch 3 until the correct screen appears.

c) The current setting will be displayed on the **LITRES** display panel.



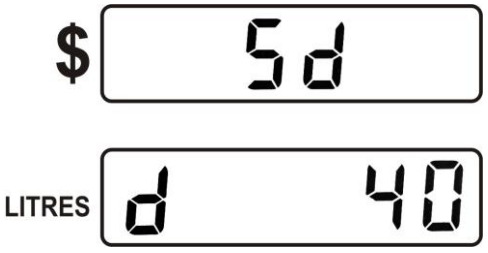
d) Press Switch 1 until the cursor moves to the digit that needs to be changed.

e) Press and hold Switch 1 until the correct number appears, then release the switch.



f) Repeat the last two steps to change any other digits.

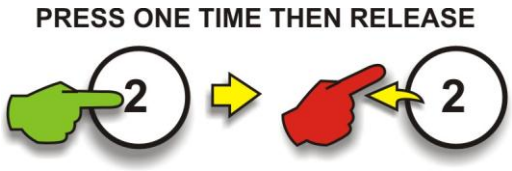
g) The new configuration will be displayed on the LITRES display panel.



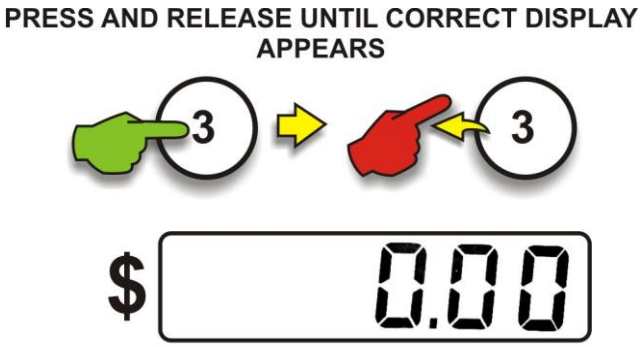
15. To Change the Price Resolution

This parameter sets the number of decimal places for the Unit Price parameter. It can be set to 0, 1, 2 or 3. As the parameter is changed, the Unit Price (price per litre) display will show zeros with the decimal place in the appropriate location as will the Price display. The default value is 3.

a) To view the current setting, press and release Switch 2 one (1) time.



b) Press and release Switch 3 until the correct screen appears.

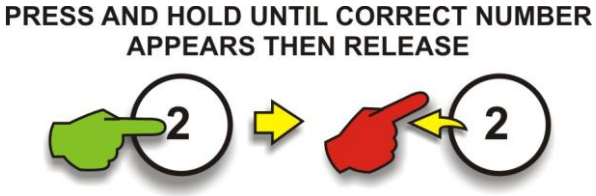


c) The current setting will be displayed on the **LITRES** display panel.

NOTE

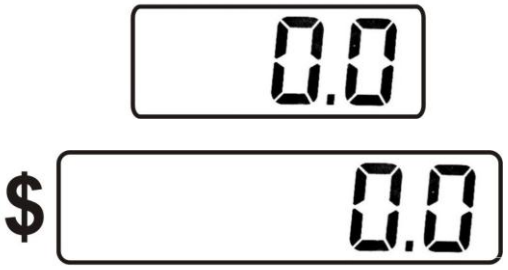
This setting (r4) is used where the price is displayed in CENTS PER LITRE

d) Press and hold Switch 2 until the correct number appears, then release the switch.

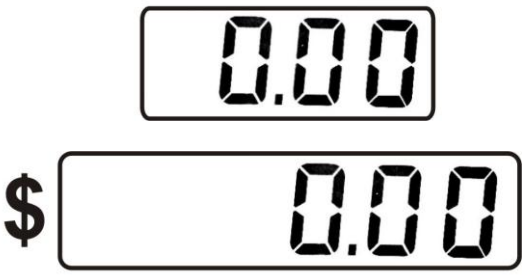


e) The new configuration will be displayed on the LITRES display panel.

f) The current number of decimal places will be shown in the PRICE PER LITRE panel.



g) The example on the right shows the resolution 2 (2 decimal places) setting.

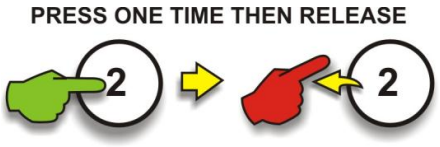


h) The example on the right shows the resolution 3 (3 decimal places) setting.

16. To Change The Current Level 1 Password

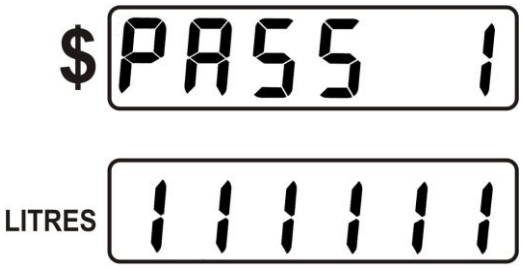
Passwords are only used for programming keyboard.

a) To change the current level 1 password, press and release Switch 2 one (1) time.



b) Press and release Switch 3 until the correct screen appears.

c) The current password will be shown in the LITRES display panel.



d) Press Switch 1 until the cursor moves to the digit that needs to be changed.

e) Press and hold Switch 1 until the correct number appears, then release the switch.

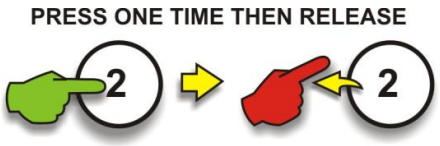
f) Repeat the last two steps to change any other digits.

g) The new password will appear in the LITRES display panel.

17. To Change The Current Level 2 Password

Passwords are only used for programming keyboard.

a) To change the current level 2 password, press and release Switch 2 one (1) time.

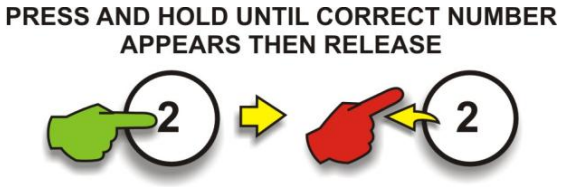


b) Press and release Switch 3 until the correct screen appears.

c) The current password will be shown in the LITRES display panel.

d) Press Switch 1 until the cursor moves to the digit that needs to be changed.

e) Press and hold Switch 1 until the correct number appears, then release the switch.



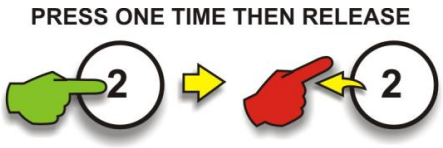
f) Repeat the last two steps to change any other digits.

g) The new password will appear in the LITRES display panel.

18. To Change The Current Level 3 Password

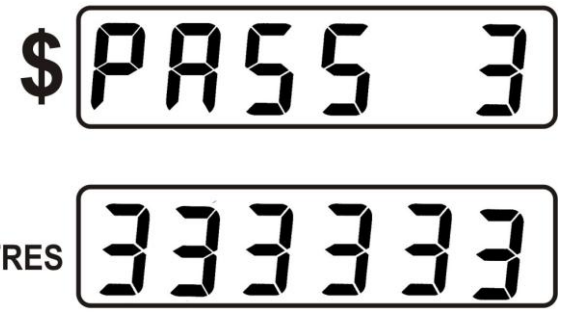
Passwords are only used for programming keyboard.

a) To change the current level 3 password, press and release Switch 2 one (1) time.



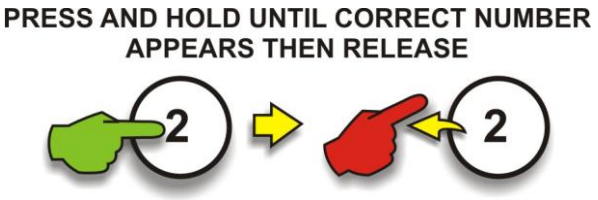
b) Press and release Switch 3 until the correct screen appears.

c) The current password will be shown in the LITRES display panel.



d) Press Switch 1 until the cursor moves to the digit that needs to be changed.

e) Press and hold Switch 1 until the correct number appears, then release the switch.

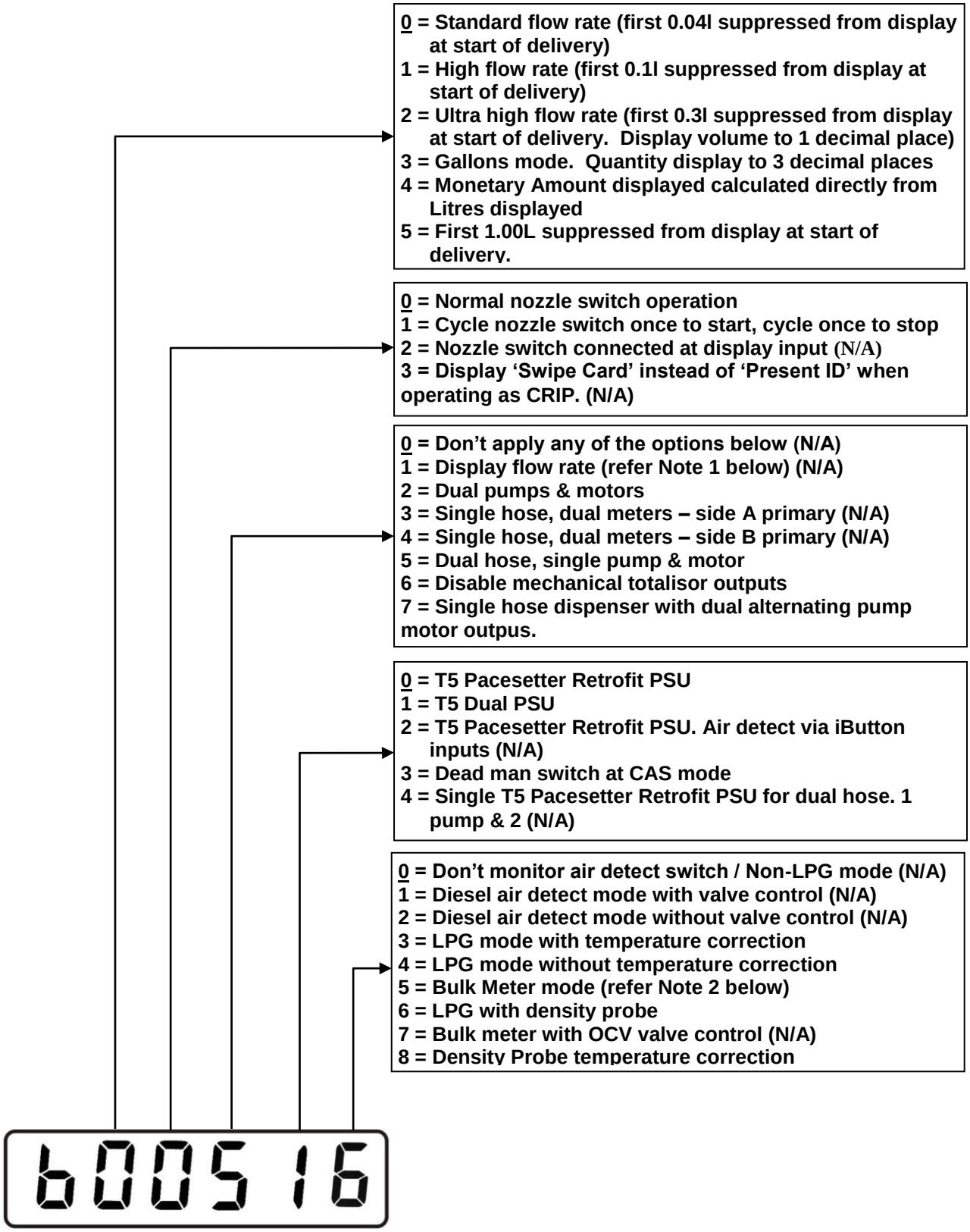


f) Repeat the last two steps to change any other digits.

g) The new password will appear in the LITRES display panel.

19. To View Configuration B

Each digit in this configuration parameter controls an aspect of the systems operation as shown below. This configuration is factory set and should not be altered.



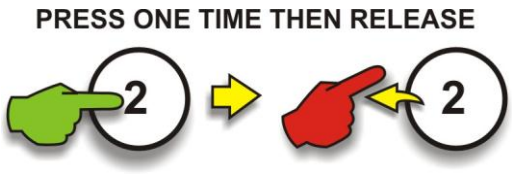
NOTE 1

"Display flow rate" option requires a system with a Litres-only Display card connected in addition to the primary display.

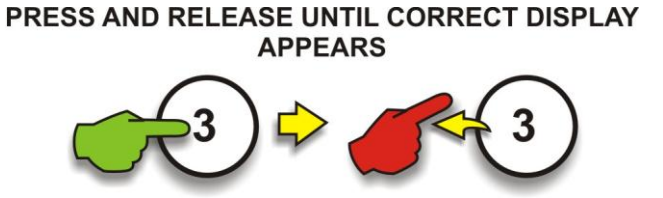
NOTE 2

When "Bulk Meter mode" is enabled, the Litres display will show volumes greater than 10,000 litres with 1 decimal place instead of 2. The maximum single fill volume in Bulk Meter mode is 60,000 litres (instead of 10,000).

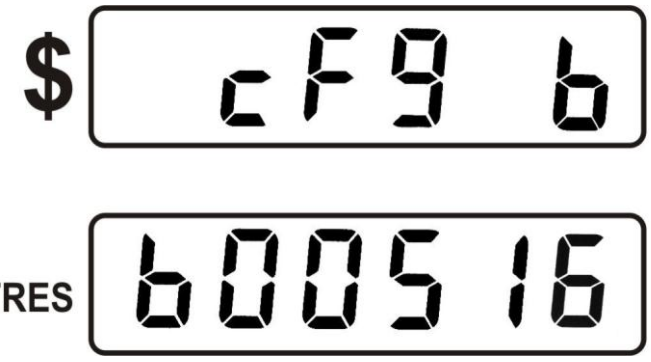
a) To view the current setting, press and release Switch 2 one (1) time.



b) Press and release Switch 3 until the correct screen appears.

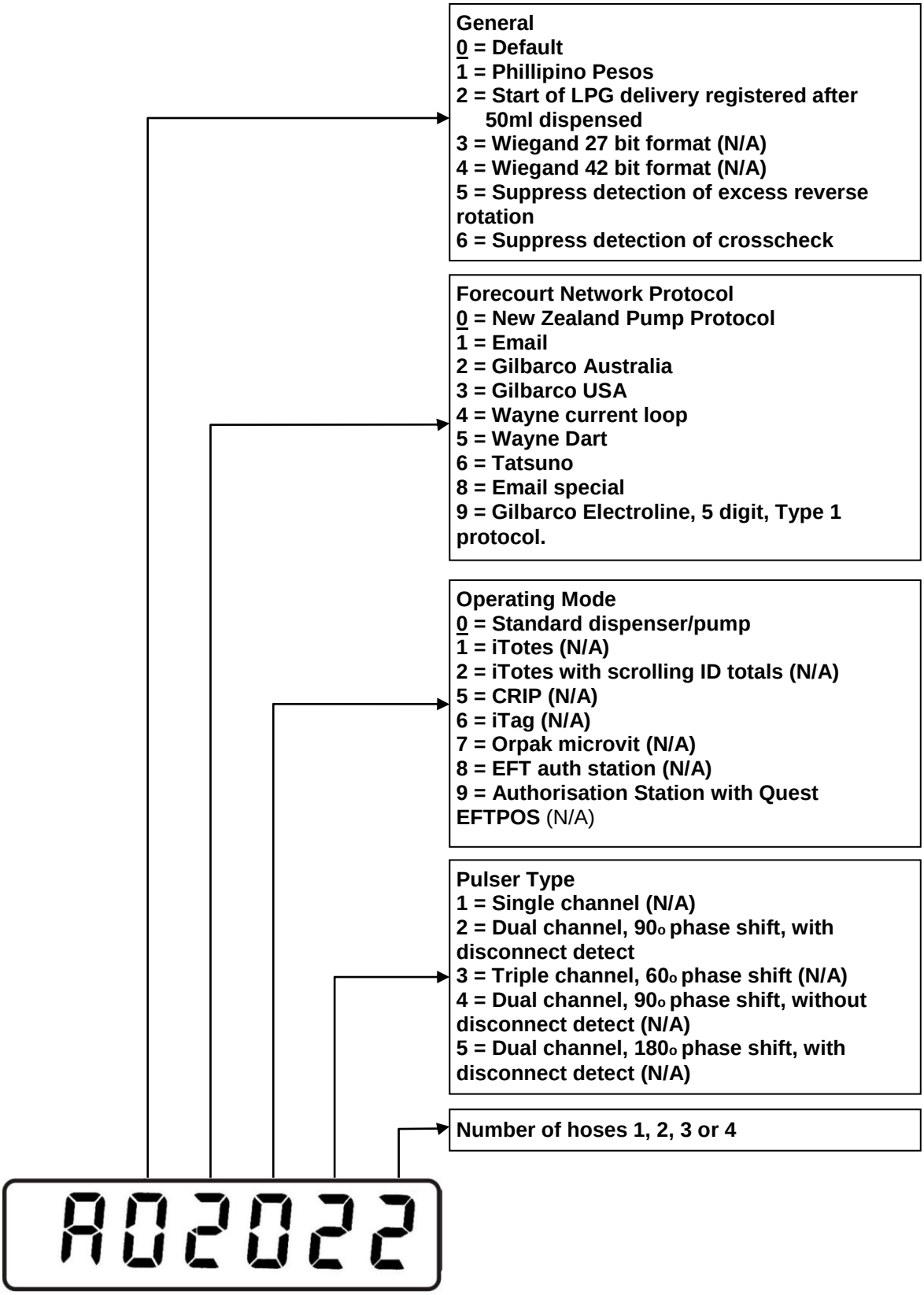


c) The current configuration will be displayed on the **LITRES** display panel.



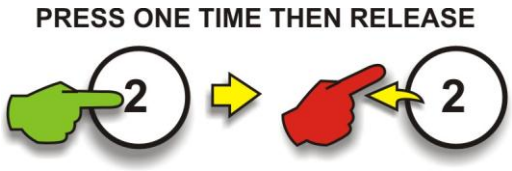
20.

21. To View Configuration A

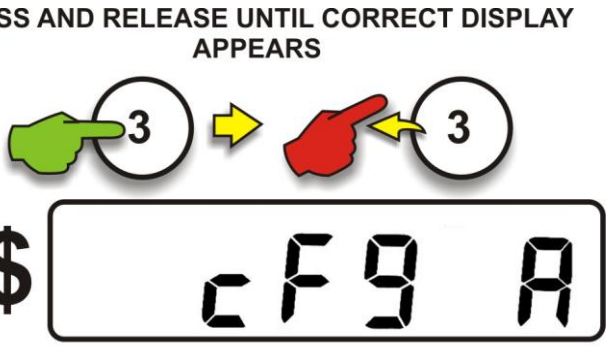


Each digit in this configuration parameter controls an aspect of the systems operation as shown below. This configuration factory set and should not be altered.

a) To view the current setting, press and release Switch 2 one (1) time.



b) Press and release Switch 3 until the correct screen appears.



c) The current configuration will be displayed on the **LITRES** display panel.

SECTION C: TROUBLE SHOOTING

1 Fatal Error Codes

Displayed Error Msg.	Fault	Action
Err 11	Excess pulses detected on either pulser channel.	Pulse channel detector may have failed.
Err 12	Excess pulser reverse rotation.	Non-return valve may be faulty.
Err 16	Pulser disconnected.	Check pulser connections.
Err 17	Illegal pulser state or state transition.	Check pulser. Channel may have failed or excess rotation speed may have occurred.
Err 34	Processor Silicon Serial Number device not detected.	SSN IC is damaged or missing. Processor may require replacement.
Err 35	EEPROM data error.	Re-enter configuration data. If error reoccurs replace Processor board.
Err 36	EEPROM totals data error.	Re-power system. If error reoccurs replace Processor board.
Err 38	Flash memory error.	Replace Processor board.
Err 39	EEPROM failure.	EEPROM not responding. Replace processor board.
Err 80	PSU Expansion Card offline.	Check connections to PSU Expansion card (quad only).
Err 84	Temperature/Density Probe Interface Card offline.	Check TBus power. Check connections to Temperature IFC. Check power supply board fuses.
Err 88	Data message response from Display board not detected.	Check TBus power. Check connections to Display board.
Err 89	Display board not detecting data message from processor.	Check TBus power. Check connections to Display board. Check power supply board fuses.

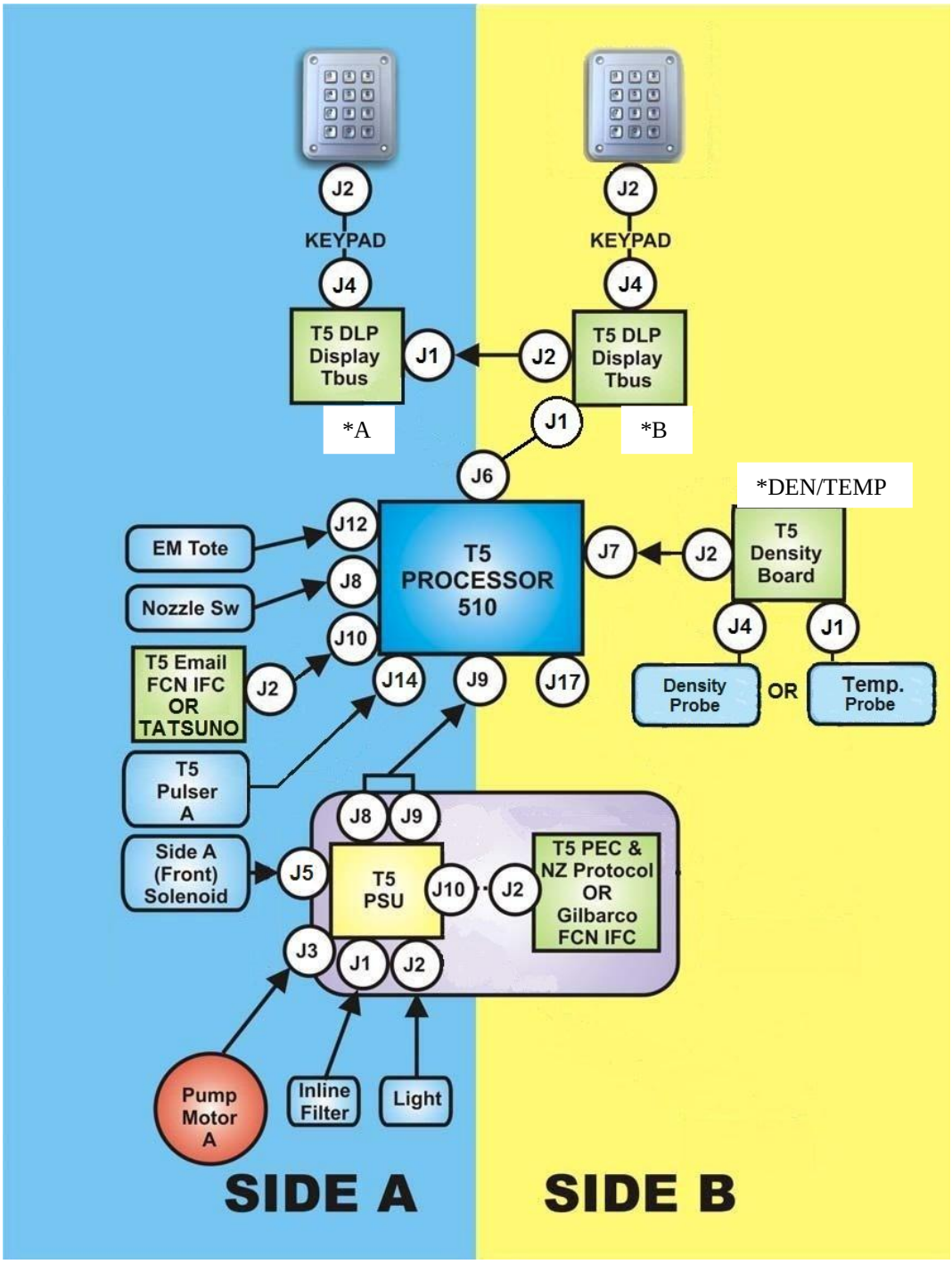
2 Non-Fatal Error Codes

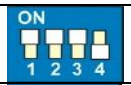
The following errors are classified as non-fatal and either clear after a short timeout or do not prevent another delivery from starting:

Displayed Error Msg.	Fault	Action
AGAin	ID was not correctly read.	Present ID again. If error keeps reoccurring then check the connections to the Reader and replace Reader if necessary.
---x--	ID rejected.	The x in the error message is a code indicating the reason the ID was rejected. Possible reasons are: expired ID invalid ID wrong ISO and/or Access No Pre-allocated dollar limit reached. Limit reached ID already in use Expired timer Invalid function code System error
Err 19	The air detect switch has closed during delivery*.	Check for possible sources of air introduction in pumping components. (N/A)
dEn	LPG density is out of range	If there is a real-time density probe attached, check for faults or check LPG. If using static density parameter, check the value it is set to.
tEP	LPG temperature is out of range	If there is a real-time temp probe attached, check for faults or check LPG. If using a static temp parameter, check the value it is set to.

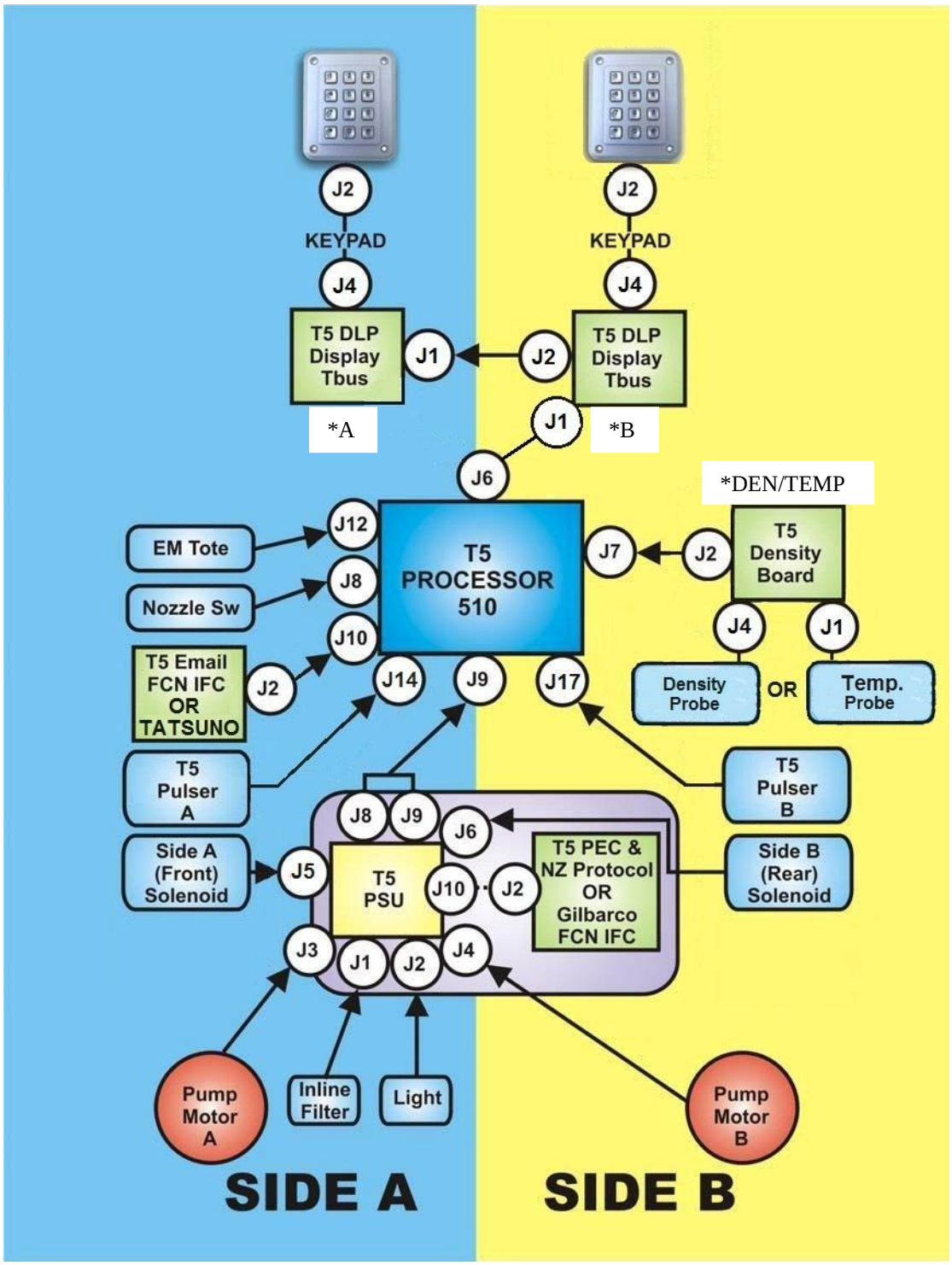
SECTION D: DISPENSER WIRING CONFIGURATION

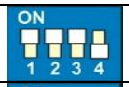
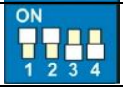
1. Single Hose Dispenser Configuration



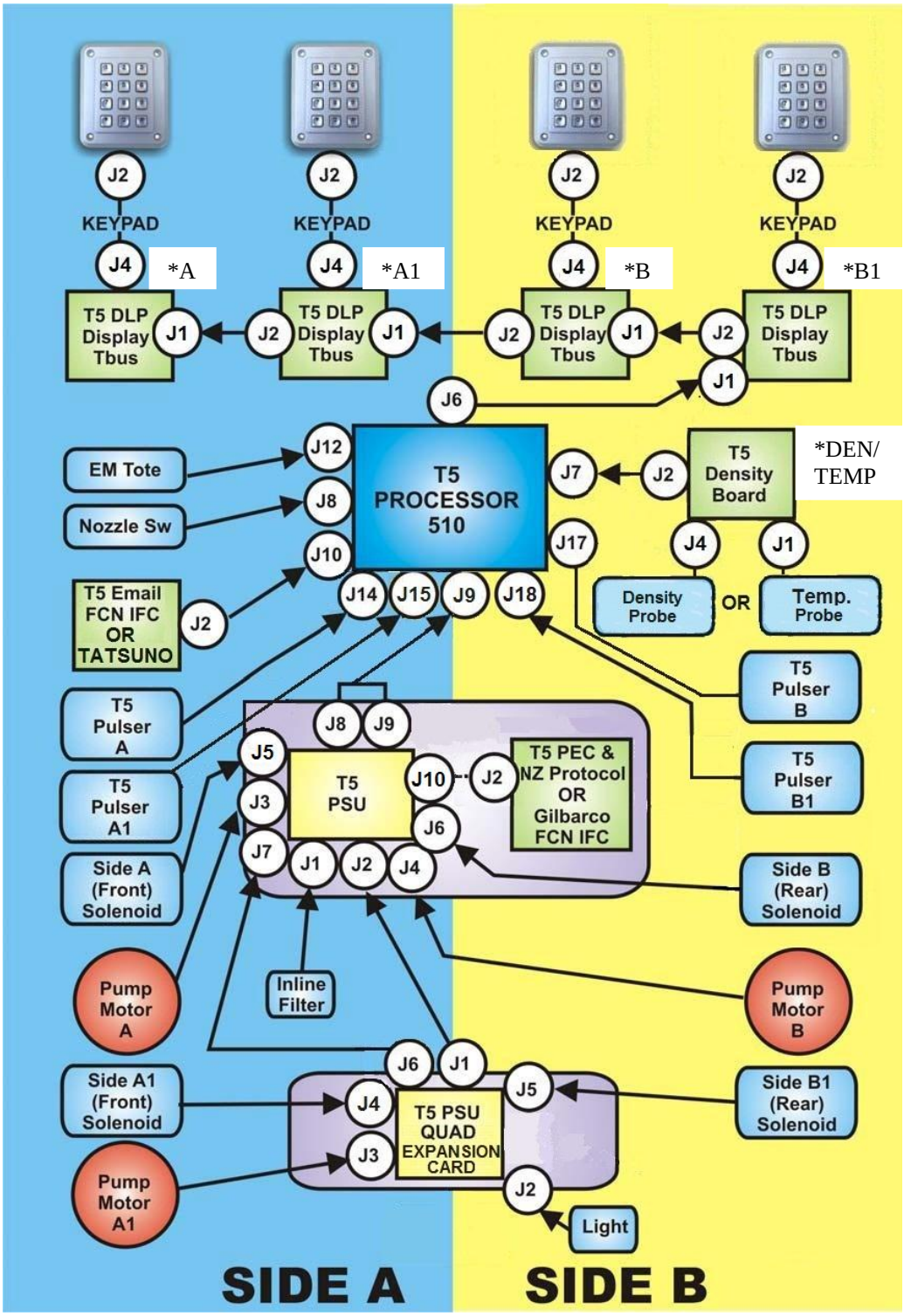
Switch Settings:			
*A		*DEN/TEMP (For Density Probe)	
*B		*DEN/TEMP (For Temp. Probe)	

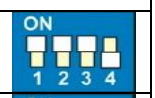
2. Dual Hose Dispenser Configuration



Switch Settings:			
*A		*DEN/TEMP (For Density Probe)	
*B		*DEN/TEMP (For Temp. Probe)	

3. Quad Hose Dispenser Configuration



Switch Settings:					
*A		*B		*DEN/TEMP (For Density Probe)	
*A1		*B1		*DEN/TEMP (For Temp. Probe)