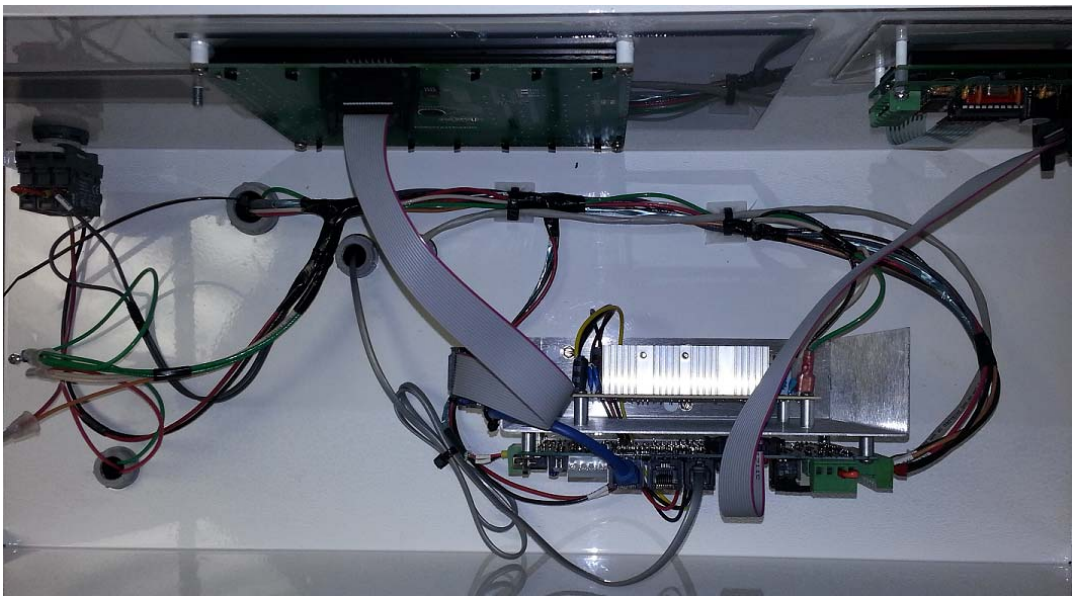
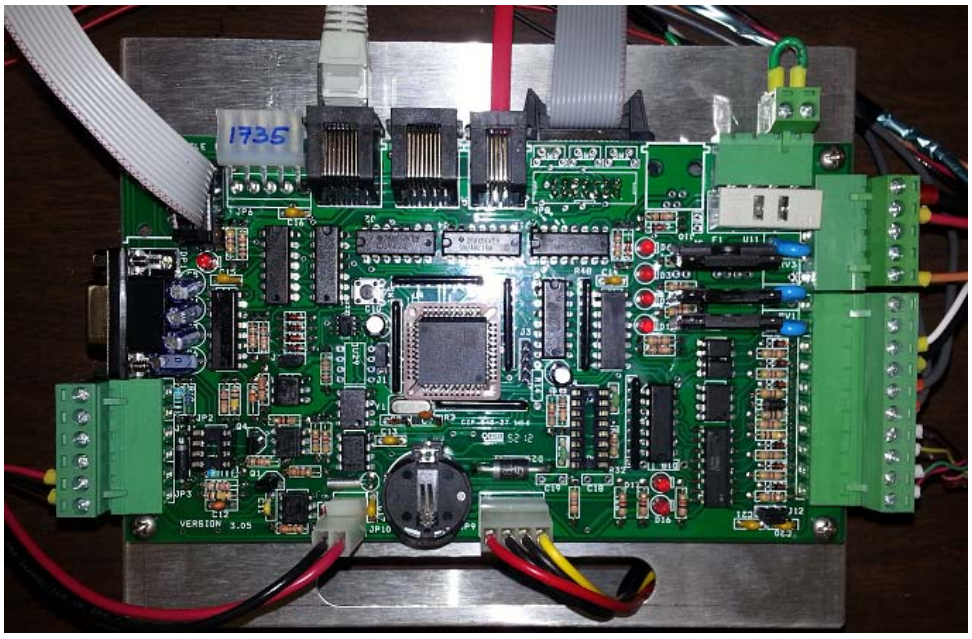
P4-Series LPG

ELECTRONIC DISPENSER CALCULATOR, VER 4.25F

Installation, Operation Instructions





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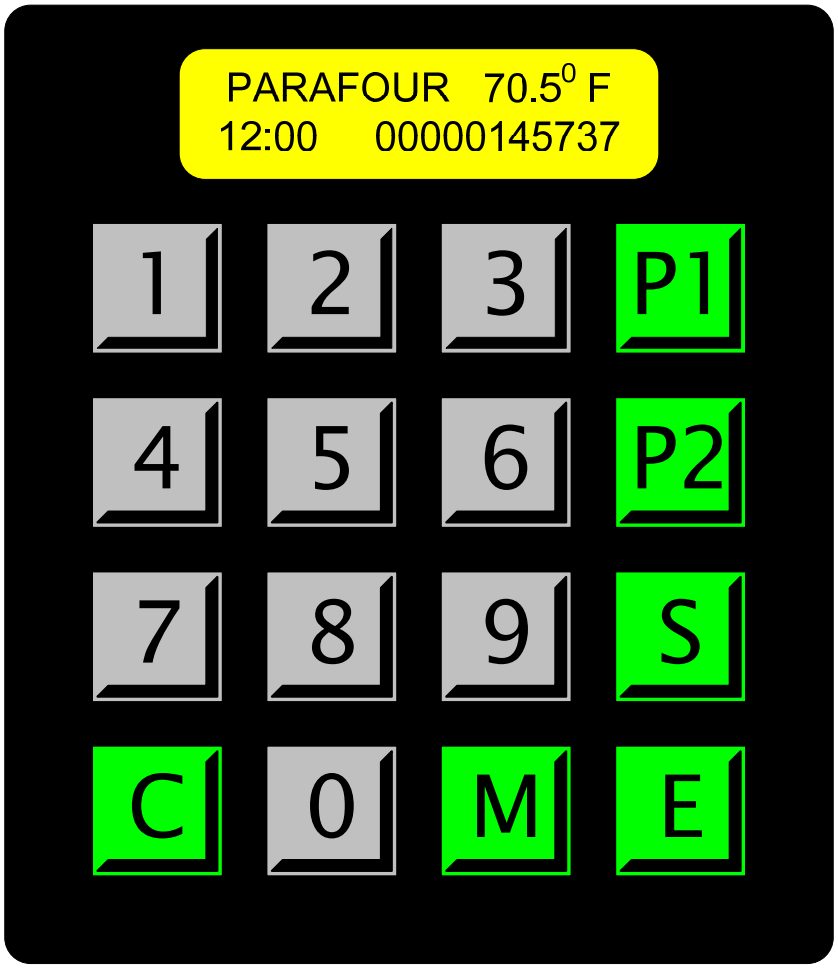
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ELECTRONIC PUMP CALCULATOR PROGRAMMING

When you power up the system, you will hear a long beep and the keyboard LCD module display will indicate something the following:

```
PARAFOUR      70.5⁰F
15:45     00000145737
```

That is the company logo and the temperature at the first line and the time and the date at the totalizer reading on the second line. This is the Basic Dispensing **"Operating Mode"** message. The dispenser will ONLY dispense fuel when the display shows this message. Therefore, after programming configurations, you must return to this screen mode for routine fuel dispensing There are 16 keys at the keyboard as shown below;



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Configuration Programming:

To enter Configuration Programming, you press and hold the M , [Menu] key for at least 3 seconds. The display will change for the operating mode (PARAFOUR Display on the small screed) to the Menu Selection Mode. The Display should now read “ATTENDANT”.

There are 6 main menu categories. These are:

- Attendant Menu
- Manager Menu
- Technician Menu
- Calibration Menu
- Reports Menu
- Master Menu

Each main menu has respective submenus for programming the calculator. Press the M , [Menu] key to progress to each menu as required. One press of the M , [Menu] key will advance the screen to the next option. When in the Menu categories, it will advance through each menu option to select. Once you have entered a given menu, the M , [Menu] key will advance through each functional configuration option within the selected menu.

To exit at any time and return to the PARAFOUR message (Basic Operation Mode), simply press the C [CLEAR], until the keypad display displays

```
PARAFOUR      70.5⁰F
15:45    00000145737
```

For most configuration programming options, the following Keypad functions will be consistent. Pressing the S [SELECT] key, will advance through pre-defined configuration options (Options where you must select a fixed setting and CANNOT enter a numerical setting such as pulser type, SW2 function, ATC on/off, Calibration on/off, etc).

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Pressing [C] [CLEAR] key, will move back through the previous options in the menu. Pressing the [E] [ENTER] key, will enter a menu, or save a setting selected or entered in a programming configuration option. The [0], [1], [2], [3], [4], [5], [6], [7], [8], [9], [Number] keys are used. To enter user defined configurations, such as calibration factor, time delays in seconds, suppression, etc.

ATTENDANT MENU

- Attendant Password
- Attendant Login
- Total Volume
- Attendant Logoff

Attendant Password

The first menu item for attendant menu is to check the attendant password for authorized staff. Only users having the attendant level authority and attendant password can enter into this level. Before entering into this level, the display will show the following,

```
ATTENDANT    MENU
C=cancel E=enter
```

This screen enables the user to enter into the Attendant Menu level.

Pressing [C], CLEAR will return to the previous menu item;

Pressing [M], MENU will proceed to the next menu item;

Pressing [E], ENTER will result in entering to attendant password check level.

```
ATTEND.    PASSWORD
                ****
```


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Enter your attendant password by using the number keys. The password is a 4-digit number (The DEFAULT Password is '0000") and it should be followed by E ENTER key to be verified. If the password entered is wrong you will see a short;

```
INVALID PASSWORD
```

If the password entered is correct, you will enter into Attendant Submenu Level;
First Submenu is Attendant Login;

Attendant Login

```
ATTENDANT  LOGIN
C=cancel E=enter
```

This screen enables the user to enter into the Attendant Login Submenu level. There MUST be an Attendant logged into the system for the dispenser to operate. The Attendant ID's can be from 01 – 99. For most operations, where Attendant volume and sales are not being tracked and reset by the manager each shift, simply enter "01" for the Attendant ID and press the E ENTER key to log in. The Attendant "LOG-IN / LOG-OUT" function can also be used to electronically "Lock-Down" the dispenser for security when not in use. To lock-down, you must "LOG-OFF" the attendant. To re-activate the dispenser, you will have to enter the Attendant menu and LOG-ON again.

If there is any other attendant already logged in the upper line will a short;

```
ALREADY  LOGGED
```

The message and the configuration will proceed to the next menu item.
If there is not any attendant logged in, the display will show;

```
ATTENDANT  LOGIN
Attendant ID  00
```


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Attendant ID 00 means that there isn't any attendant logged in. The attendant can enter his 2 digit ID by using the number keys on the keyboard followed by the E key. There will be a short "STORED" message for a short period of time and control proceeds automatically to the next menu item. The Logon process, records the attendant ID, starting time and date for the shift, general totalizer value at the beginning of the shift and clears shift totalizers for money and volume and shift transaction number.

Total Volume

```
TOTAL VOLUME
C=cancel E=enter
```

This is for reading the total Volume dispensed by the dispenser since initial setup. The volume indicated here should correspond to the volume indicated when the dispenser is in basic operation mode with the "PARAFOUR" message displayed..

```
TOTAL VOLUME
000000000043,567
```

This is a read only data. Pressing the C CLEAR or E ENTER key will result in passing to the next item within the attendant submenu.

Attendant Logoff

```
ATTENDANT LOGOFF
C=cancel E=enter
```

This screen enables the user to enter into the Attendant Logoff Submenu level.

```
ATTENDANT  LOGOFF
Attedant ID    XX
```

Attendant ID XX means that there is an attendant with ID XX is logged in.

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If this ID number is changed by using the number keys on the keyboard followed by the E key, there will be a short "WRONG ATTN. ID" message for a short period of time and control proceeds automatically to the beginning of the same level.

If the ID is correct with the ID of the attendant already logged in, then the logoff process is initiated. The Logoff process records ending time and date for the shift, general totalizer value at the end of the shift and stores shift totalizers for money, volume and number of transactions within the shift. If the printer is connected and enabled an automatic shift report is also printed. There will be a short "STORED" message for a short period of time and control proceeds automatically to the next menu item.

Manager Menu

- Manager Password
- P1 Value for Volume
- P2 Value for Volume
- P1 Value for Amount
- P2 Value for Amount
- Set Price
- Multi Pricing
- Total Daily Volume
- Total Daily Sales
- Clock Set
- Printer On/Off
- Print Confirmation On/Off
- Sales History
- Print Shift Report
- Change Attendant Password
- Change Password (Manager)
- Restore Manager Level Factory Defaults

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Manager Password

The first menu item for manager menu is to check the manager password for authorized staff. Only users having the manager level authority and manager password can enter into this level.

Before entering into this level, the display will show the following,

```
MANAGER      MENU
C=cancel E=enter
```

This screen enables the user to enter into the Manager Menu level.

```
MANAGER  PASSWORD
                ****
```

Enter your manager password by using the number keys. The password is a 4-digit number (The DEFAULT password is"0000") and it should be followed by E ENTER key to be verified. If the password entered is wrong you will see a short;

```
INVALID PASSWORD
```

The Message at the bottom line and the control will return to the previous menu item.

If the password entered is correct, you will enter into Manager Submenu Level;
First Submenu is P1 Value set for Volume.

P1 Volume

****** This configuration is for PRESET function only. Do not configure these settings unless you wish to use PRESET for money or volume.***

The display will show the first menu item,

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```
P1 Volume
C=cancel E=enter
```

This is for presetting the P1 value for volume preset.

```
P1 Volume
       000.500
```

As the selection appears on the screen you can preset the figure by typing the number keys to the desired amount. The number pressed enters the screen from right and the previous number in the screen shifts to the left by one digit. If you need to cancel the operation, press C CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the preset programming you should press E ENTER key and the display will return a message "PROGRAM COMPLETE", which will store the new value into the non-volatile memory.

You can press M Menu key to proceed to the next menu item.

Next menu item is P2 key for Volume setting.

P2 Volume

****** This configuration is for PRESET function only. Do not configure these settings unless you wish to use PRESET for money or volume.***

The display will show next menu item,

```
P2 Volume
C=cancel E=enter
```

Press the E ENTER key to enter a configuration using the number keys.

```
P2 Volume   001.000
```


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As the selection appears on the screen you can preset the figure by typing the number keys to the desired amount. The number pressed enters the screen from right and the previous number in the screen shifts to the left by one digit. If you need to cancel the operation, press C CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the preset programming you should press E ENTER key and the display will return a message "PROGRAM COMPLETE", which will store the new value into the non-volatile memory. You can press M Menu key to proceed to the next menu item.

Next menu item is P1 key for Amount setting.

P1 Amount

****** This configuration is for PRESET function only. Do not configure these settings unless you wish to use PRESET for money or volume.***

The display will show next menu item,

```
P1 Amt.
C=cancel E=enter
```

Pressing E , ENTER will result in entering the P1 key for Amount setting,

```
P1 Amt.
       00000.500
```

As the selection appears on the screen you can preset the figure by typing the number keys to the desired amount. The number pressed enters the screen from right and the previous number in the screen shifts to the left by one digit. If you need to cancel the operation, press C CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the preset

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programming you should press E ENTER key and the display will return a message "PROGRAM COMPLETE", which will store the new value into the non-volatile memory.

You can press M Menu key to proceed to the next menu item.

Next menu item is P2 key for Amount setting.

P2 Amount

****** This configuration is for PRESET function only. Do not configure these settings unless you wish to use PRESET for money or volume.***

The display will show next menu item,

```
P2 Amt.
C=cancel E=enter
```

Pressing E Enter, ENTER will result in entering the P2 key for Amount setting,,

```
P2 Amt.
        00001.000
```

As the selection appears on the screen you can preset the figure by typing the number keys to the desired amount. The number pressed enters the screen from right and the previous number in the screen shifts to the left by one digit. If you need to cancel the operation, press C Clear CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the preset programming you should press E ENTER key and the display will return a message "PROGRAM COMPLETE", which will store the new value into the non-volatile memory.

You can press M Menu key to proceed to the next menu item.

Next menu item is Price Setting.

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Set Price

The display will show next menu item,

```
Set PRICE
C=cancel E=enter
```

This is for setting the price of the product per volume to dispense. You can set up to 5 different Price Units per Volume Dispensed. Multiple Pricing will be described in later sections.

Pressing E Enter, ENTER will result in entering into Price setting

```
Enter PRICE No
Price No        1
```

At this stage you should select the price number (1-5) that should be set. Price 1 is always default and it is the valid Price when Multiple Pricing is not used. It is recommended that if you are using "Multi-Price Option, to set Price level 1, as the HIGHEST retail Price for the site. To set the selected Price press the E Enter ENTER key.

```
Set PRICE
        000001.239
```

As the selection appears on the screen you can preset the figure by typing the number keys to the desired amount. The number pressed enters the screen from right and the previous number in the screen shifts to the left by one digit. If you need to cancel the operation, press C Clear CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the programming you should press E Enter ENTER key and the display will return a message "PROGRAM COMPLETE", which will store the new value into the non-volatile memory.

You can press M Menu Menu key to proceed to the next menu item.

Next Menu item is Multi-Pricing function.

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Multi Pricing

This is for turning "Multi-Price" function on, and selecting input method. If using this function with a single hose dispenser, select "KEYPAD". If using this function with a two hose (single side with cylinder and autogas nozzles) you should select "SWITCH".

```
M-Price      OFF          M-Price  KEYBOARD
C=cancel E=enter          C=cancel E=enter

M-Price i-Button          M-Price  KBD&i-BT
C=cancel E=enter          C=cancel E=enter

M-Price   SWITCH
C=cancel E=enter
```

The calculator can serve up to five different price settings for the same product. This option can be used in several ways.

You can turn this option OFF, Price 1 is default and valid for all product delivery.

```
M-Price      OFF
```

You can make Price selection via Keyboard before product delivery.

```
M-Price  KEYBOARD
```

You can make Price selection via Keyboard and also i-button interface before product delivery.

```
M-Price  i-Button
```

You can make Price selection via i-button interface before product delivery.

```
M-Price  KBD&i-BT
```

You can make Price selection via different Nozzle Switches before product delivery.

```
M-Price    SWITCH
```

Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

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Pressing E, ENTER will store Multi-pricing function according to the last screen readout and first line will show a "STORED" message for a short period of time.

Multi pricing is an option which enables the user to use different sales prices for different type of customers. Another option is to use different pricing for the same product coming out of different nozzles. That is one price for autogas nozzle, and second price for cylinder nozzle.

The setting has five modes. If Multi pricing is set to OFF, it becomes inactive. There is only "Price 1" active for all sales.
If it is enabled, i.e., it is set to KEYBOARD, then the user has the option to make this setting via the P2 key. When the nozzle switch is off and multi pricing is set to keyboard, pressing the P2 key will result the following screen.

```
ENTER PRICE NO
Price No     ?
```

The user has the option to select one of the five preprogrammed prices set into the system by pressing any number between 1 and 5. Next screen will be as follows;

```
Accept PRICE
       00002.259
```

If the user presses the E ENTER key to accept, the Price display will indicate the selected number and any sale from that point on will be based on this selected price. Pressing C, CLEAR will cancel the operation and return the display to initial position.

Last multi pricing mode is Switch selection. In this mode one product can be dispensed through 2 different nozzles with the selection of Switch 1 and Switch 2 for both nozzles respectively. At this mode Switch 1 always uses Price 1, Switch 2 always uses Price 2 for any sale.
Next menu item is Total Daily Volume readout.

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Total Daily Volume

```
TOTAL DAILY VOL.
C=cancel E=enter
```

There are two reset able electronic totalizers in the calculator independent from the shift totalizers. These can be used by the manager, to reset after each desired period (ie Shift, Day, Week, Maintenance interval, etc) First one is Daily Volume Totalizer.

Pressing E Enter, ENTER will result in entering total daily volume reading

```
TOTAL DAILY VOL.
000000000043,567
```

Pressing C Clear CLEAR key will proceed to the next menu item. Pressing E Enter ENTER key will enable you to clear the Daily Volume Totals.

```
CLEAR    TOTALS?
C=cancel E=enter
```

C Clear CLEAR key will not make any changes and proceed to the next menu item. E Enter ENTER key will result in clearing the value and store it back into the non-volatile memory.

Next menu item is Total Daily Sale Amount readout.

Total Daily Sale

```
TOTAL DAILY SALE.
C=cancel E=enter
```

Second independent resetable electronic totalizer other than the shift totalizers is the Daily Sale Totalizer.

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Pressing E, ENTER will result in entering total daily sales reading

```
TOTAL DAILY SALE.
000000000043,567
```

Pressing C CLEAR key will proceed to the next menu item. Pressing E ENTER key will enable you to clear the Daily Volume Totals.

```
CLEAR TOTALS?
C=cancel E=enter
```

E ENTER key will result in clearing the value and store it back into the non-volatile memory.

Next Menu item is Real Time Clock Setting.

Set Real Time Clock

```
SET CLOCK
C=cancel E=enter
```

This function is to set the internal real time clock.

Pressing E, ENTER will result in the following RTC setting screen.

```
SET CLOCK
04:52 01/02/2002
```

As the selection appears on the screen you can preset the RTC by typing the number keys to the desired value. First press '0' repeatedly until all characters in the time / date read "0". Then you can set the present time and date in the form of HH:MM DD/MM/YYYY. The number pressed enters the screen from right and the previous number in the screen shifts to the left by

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one digit. When the present time value is displayed, press the E ENTER key to store the new value into the non-volatile RTC and the display will return a message like "STORED", Pressing C CLEAR key will ignore RTC settings and cause to proceed to the next menu item.

Next Menu item is Printer On or Off Setting.

Set Printer On/Off

****** The PRINTER OPTION MUST be installed if you turn this configuration function "ON". If there is no dispenser printer installed, this configuration must be programmed to "OFF".***

```
PRINTER      OFF      (or)      PRINTER      ON
C=cancel E=enter                C=cancel E=enter
```

This is for enabling or disabling the Printer option if a printer is connected. Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

Pressing E, ENTER will cause the system to be set the PRINTER status either ON or OFF according to the last screen readout and first line will show a "STORED" message for a short period of time and control proceeds automatically to the next menu item.

Next Menu item is Print Confirmation.

Print Confirmation On/Off

If the calculator is connected to a printer and the printer is enabled. There is a secondary control option to ask for a print confirmation for a sales receipt after each sale. If this option is enabled and printer is in operation, there will be a confirmation prompt on the keyboard screen. If the user accepts a sales receipt will be printed. If the user cancels the prompt, there will be no activity on the printer.

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```
PRINT CONF.  OFF      (or)      PRINT CONF.   ON
C=cancel E=enter                C=cancel E=enter
```

This is for enabling or disabling the Printer Confirmation option if a printer is connected. Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

Pressing E, ENTER will cause the system to be set the Print confirmation status either ON or OFF according to the last screen readout and first line will show a "STORED" message for a short period of time and control proceeds automatically to the next menu item.

When this option is turned "ON", the dispenser will print a receipt after every transaction, and prompt the operator for a second copy. The operator MUST Press the E, ENTER Key in order to print the second copy. This copy will have a message "DUPLICATE COPY" printed on it.

Next Menu item is Sales History.

Sales History

```
SALES HISTORY
C=cancel E=enter
```

This function is to track last product delivery data up to 1024 or 8192 previous sales depending on the model. You must have the transaction number from the printed receipt in order to use this function.

Pressing E, ENTER will result in entering Sales History screen.

```
0001 09:35 03/05
Volume 00045,304
```

The components on this screen indicate;

0001	Record Number
09:35	Time of the record
03/05	Date of the record

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00045,304 Volume of product dispensed

Pressing C, CLEAR key will return to the previous menu item.

Next Menu item is Print Shift Report.

Print Shift Report

****** You must have the Printer Option installed in the dispenser for this function to work.***

```
PRINT SHIFT REP.
C=cancel E=enter
```

This menu item is used to print a shift report based on last completed shift information.

Pressing E, ENTER will result in printing a shift report.

If the printer is disabled, then the display will indicate a short "PRINTER DISABLED" message and the control will proceed to the next menu item.

If the printer is enabled, a report including the following data will be printed.

- Present Report Time and Date
- Attendant ID for the Shift
- Shift Start Time and Date
- Shift Ending time and Date
- Total volume dispensed during the shift
- Total sales amount during the shift
- Totalizer value at the beginning of the shift
- Totalizer value at the end of the shift
- Number of transactions during the shift

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The menu control will automatically proceed to the next menu item.

Change Attendant Password

```
CHNG. ATTN. PASS
C=cancel E=enter
```

This function is for changing the attendant password which is necessary for accessing the attendant menu.

Pressing E, ENTER will result in entering to manager password check level.

```
ATTEND. PASSWORD
          ****
```

Enter the attendant password by using the number keys. The manager password is a 4-digit number and it should be followed by E ENTER key to be checked. If the password entered is wrong you will see a short;

```
INVALID PASSWORD
```

Message at the bottom line and the control will return to the beginning of the same menu item. The attendant password is factory set to “0000”.

If the password entered is correct, you will be asked for new the password.

```
SET NEW PASSWORD
                ****
```

Enter the new user password by using the number keys. The user password is a 4-digit number and it should be followed by E ENTER key to be stored into the non volatile memory.

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Next menu item is for changing Manager Password.

Change Manager Password

****** WARNING!! We recommend that you record any changed passwords in 2 or more locations. If you loose the password you have set, you will NOT be able to access the menu ever again. You can Call PARAFOUR for a one time Password default reset code.***

```
CHANGE PASWORD
C=cancel E=enter
```

This function is for changing the manager password which is necessary for accessing to some of the system settings.

Pressing E , ENTER will result in entering to manager password check level.

```
MANAGER PASSWORD
                ****
```

Enter the manager password by using the number keys. The manager password is a 4-digit number and it should be followed by E ENTER key to be checked. If the password entered is wrong you will see a short;

```
INVALID PASSWORD
```

Message at the bottom line and the control will return to the beginning of the same menu item. The manager password is factory set to “0000”.

If the password entered is correct, you will be asked for new the password.

```
SET NEW PASSWORD
                ****
```


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Enter the new user password by using the number keys. The user password is a 4-digit number and it should be followed by E ENTER key to be stored into the non volatile memory.

Next menu item is for presetting Manager Defaults.

Preset Manager Defaults

```
PRESET DEFAULTS
C=cancel E=enter
```

This menu item is used to set the factory defaults for manager level menu settings.

Pressing E , ENTER will result in entering to master password check level.

```
MANAGER PASSWORD
                ****
```

Enter the manager password by using the number keys. The manager password is a 4-digit number and it should be followed by E ENTER key to be checked. If the password entered is wrong you will see a short;

```
INVALID PASSWORD
```

Message at the bottom line and the control will return to the next menu item. The manager password is factory set to “0000”. If the password entered is correct, and the display will return a message like “STORED”, which will set all settings within the manager level defaults into the non-volatile memory.

TECHNICIAN MENU

- Technician Password
- Nozzle Switch Polarity
- Pulser Type
- Switch [2] Mode selection
- Magnetic Card Reader Pulse Selection
- Magnetic Card Reader Pulse Width
- Leakage Control

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- Shut Off Time Adjustment
- Solenoid Delay Adjustment
- Volume Suppression
- Fast Solenoid Turn On Time
- Fast Solenoid Turn Off Time
- Display Type Selection
- Volume Display Dot Position
- Dispenser Address Set
- Grade Level Set
- *Grade Name Selection (US Versions Only)*
- Temperature Type Selection
- Serial Communication Parameter Setting
- Serial Port Setting
- Minimum Flow Rate Control
- Minimum Flow Rate Time
- Unit Price Dot Position Set
- Gilbarco Mode Unit Price Dot Position Set
- Display Test Option Set
- Version No
- Change Technician Password
- Restore Technician Level Factory Defaults

Technician Password

The first menu item for technician menu is to check the technician password for authorized staff. Only users having the technician level authority and technician password can enter into this level.

Before entering into this level, the display will show the following,

```
TECHNICIAN   MENU
C=cancel E=enter
```


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This screen enables the user to enter into the Technician Menu level.

Pressing E , ENTER will result in entering to technician password check level.

```
TECHN.  PASSWORD
        ****
```

Enter your technician password by using the number keys. The password is a 4-digit number and it should be followed by E ENTER key to be verified. If the password entered is wrong you will see a short;

```
INVALID PASSWORD
```

Message at the bottom line and the control will return to the previous menu item.

If the password entered is correct, you will enter into Technician Submenu Level;
First Submenu is Nozzle Switch Polarity Selection.
Next selection is Nozzle switch polarity setting.

Set Nozzle Switch

****** NOTE: for "Push-To-Start / Stop button controlled dispenser, this function MUST be set to the "OFF" selection. For Lift-To-Start" nozzle boot switch option, this function MUST be set to the "ON" selection.***

```
NOZZLE SW.   OFF        (or)        NOZZLE SW.    ON
C=cancel E=enter                    C=cancel E=enter
```

This is for setting the default Nozzle switch connection. Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

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Pressing E, ENTER will result in setting the Nozzle switch polarity either normally ON or normally OFF according to the last screen readout and first line will show a "STORED" message for a short period of time and control proceeds automatically to the next menu item.

Next menu item is Pulser type setting.

Set Pulser Type

****** NOTE: For NEPTUNE or LIQUA-TECH meters, this configuration MUST be set to the "PULSER TYPE 100" selection. For Liquid-Controls meters, this is usually set to the "PULSER TYPE 250" selection, but it may vary depending on whether or not the SCAMP option was ordered.***

```
PULSER TYPE 250          PULSER TYPE 100          PULSER TYPE 50
C=cancel E=enter         C=cancel E=enter         C=cancel E=enter
```

This is for setting the operating Pulsar type. Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

Pressing E, ENTER will set the Pulsar type 50 pulses/revolution, 100 pulses/revolution, or 250 pulses/revolution according to the last screen readout and first line will show a "STORED" message for a short period of time.

Next menu item is Switch [2] Mode selection.

Switch 2 Control Function

```
SW2          OFF          SW2 DUAL PRODUCT
C=cancel E=enter          C=cancel E=enter

SW2    MCR INPUT
C=cancel E=enter
```


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Different than the Standard Nozzle switch (Switch 1), there is a secondary Switch (Switch 2) which serves for the following functions.

You can turn this option OFF; Second Switch will not function at all.

SW2 OFF

You can use second switch for second nozzle delivery. That is same meter can serve for two different nozzles with different pricing.

SW2 DUAL PRODUCT

You can use the second switch input as the authorization signal from magnetic card reader by interfacing through a relay.

SW2 MCR INPUT

Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

Pressing E, ENTER will set the SW2 control function according to the last screen readout and first line will show a "STORED" message for a short period of time.

Besides the system Nozzle Switch (Switch 1) there is a secondary Nozzle Switch on the calculator which may serve for different purposes. If it is set to OFF, it will not affect the functionality of the system.
If it is set to DUAL PRODUCT, and Multi Pricing is set to SWITCH, then the Switch 1 will serve for nozzle 1, Switch 2 will serve for Nozzle 2 and they will have Price 1 and Price 2 for their sale price respectively.

Third option is to use the Switch 2 input as the Authorization signal from Magnetic Card reader module. As the switch input is TTL compatible, the user has to use a relay to "Turn On or OFF" the Switch 2 input, which will be activated or deactivated by the incoming AC110V signal from the MCR. In this mode, if the Switch 2 input is not enabled, regardless of the position of Switch 1 the system will not start to dispense the product. Consult installation guides for installing the dispenser with a specific Fuel Management System Card Reader Unit. Failure to properly

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interconnect and configure both the card reader and the dispenser will result in improper operation.

Next Menu item is Magnetic Card Reader Pulse Selection.

MCR Mode Setting

```
MCR           OFF          MCR DIRECT PULSE
C=cancel E=enter           C=cancel E=enter

MCR 1   PULS/VOL           MCR 10  PULS/VOL
C=cancel E=enter           C=cancel E=enter

MCR 10  PULS/VOL
C=cancel E=enter
```

You can interface the calculator to a magnetic card reader. This option sets the operating parameters of MCR interface.

You can set the MCR output pulse 1, 10 or 100 pulses per volume.

```
MCR 1     PULS/VOL
MCR 10    PULS/VOL
```

You can set the MCR output as a non ATC corrected direct Pulser output.

```
MCR DIRECT PULSE
```

Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

Pressing E, ENTER will set the MCR Mode setting function according to the last screen readout and first line will show a "STORED" message for a short period of time.

The MCR interface consists of

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Authorize Signal from MCR, (SW2 input via Relay in SW2 MCR Input Mode)
In Use Signal from dispenser (Motor AC Output from the Calculator)
Pulse Outputs from dispenser (Penny- and Volume- Outputs)
Pulse Power Input from MCR (Power Line for Penny+ and Volume+)

The MCR can be fed in 2 different types of pulses,

a. *Single Impulse type pulse output following the Quadrature Pulser of the dispenser.*
b. *Programmable width Pulse between Volume+ and Volume- terminals related with a programmable fraction to the volume dispensed. i.e., 1,10 or 100 pulses per unit volume.*

Most card readers should be set to 10:1 or 100:1 pulses for proper operation. Also, many card readers must also have their own setup configuration to ensure that they receive the correct number of pulses selected. Failure to properly set up and configure both the dispenser AND the card reader will result in improper operation.

This menu item selects the type of MCR signal and next menu item selects the width of the pulse if any of the Programmable Pulse options is selected.
Next Menu item is Magnetic Card Reader Pulse Width.

MCR Pulse width Setting

```
MCR PULSE    0,5ms.   MCR PULSE     1ms.
C=cancel E=enter      C=cancel E=enter

MCR PULSE     2ms.    MCR PULSE     4ms.
C=cancel E=enter      C=cancel E=enter

MCR PULSE    10ms.    MCR PULSE    20ms.
C=cancel E=enter      C=cancel E=enter

MCR PULSE    40ms.
```


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C=cancel E=enter

If MCR output is turned on and set to pulse output, the pulse width can be set as indicated above.

Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

Pressing E, ENTER will set the MCR Pulse width according to the last screen readout and first line will show a "STORED" message for a short period of time.

The most common selection is "4ms". If the card reader is reading less pulses that the dispenser displays, then increase the pulse width by one setting until the proper pulses are received. Failure to properly set up and configure both the dispenser AND the card reader will result in improper operation.

Next menu item is Leakage Control

Leakage Control Function

****** NOTE: This function is normally NOT USED and should be set to the "OFF" position.***

This is for setting the Leakage Control Function. When the nozzle switch is off, all system outputs, such as motor and solenoid driving sections of the system are off. Therefore, there should not be any product flow during that period. If any product flow is observed during that time it is most probably due to the expansion of the gas in the pipe or it is due to leakage on the system. This setting serves either to disable or set the sensitivity of this function.
When selected, one of the following screens will appear according to the stored selection.

LEAKAGE OFF LEAKAGE 0.25

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```
C=cancel E=enter                C=cancel E=enter

LEAKAGE    0.50                 LEAKAGE  1.00
C=cancel E=enter                C=cancel E=enter
```

Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

Pressing E, ENTER will result in setting the Leakage status either OFF or allows a maximum leakage 25%, 50% or 100% of one unit volume. That is 0, 25 liters or gallons, 0, 50 liters or gallons or 1, 00 liters or gallons respectively. This will be saved according to the last screen readout and first line will show a "STORED" message for a short period of time.

Next selection is Shut-Off Time Adjustment

Shut off time

```
SHUT OFF TIME
C=cancel E=enter
```

This is for setting the Shut off time i.e., the allowed time for the motor and solenoid valve to keep open during a product delivery as if there is not any product flow.

Pressing E, ENTER will result in entering Shut Off time setting,

```
SHUT OFF TIME
Seconds      30
```

As the selection appears on the screen you can preset the figure by typing the number keys to the desired amount. The number pressed enters the screen from right and the previous number in the screen shifts to the left by one digit. If you need to cancel the operation, press C CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the preset

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programming you should press E ENTER key and the display will return a message like "STORED", which will store the new value into the non-volatile memory.

You can press M Menu key to proceed to the next menu item.

NOTE: When used with a separate card reader, this setting should usually be set for 10-20 seconds LONGER, than the time out setting programmed into the card reader. Failure to properly set up and configure both the dispenser AND the card reader will result in improper operation.

Next menu item is Solenoid Delay Adjustment.

Solenoid delay time

```
SOLENOID DELAY
C=cancel E=enter
```

This is for setting the Solenoid delay time i.e., the time in seconds between the motor start and solenoid valve turning on at the beginning of the product delivery. *The recommend setting is for 2 seconds longer than the pump motor starter delay.*

Pressing E , ENTER will result in entering Solenoid Delay time setting,

```
SOLENOID DELAY
Seconds        1
```

As the selection appears on the screen you can preset the figure by typing the number keys to the desired amount. The number pressed enters the screen from right and the previous number in the screen shifts to the left by one digit. If you need to cancel the operation, press C CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the preset programming you should press E ENTER key and the display will return a message like "STORED", which will store the new value into the non-volatile memory.

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You can press M Menu key to proceed to the next menu item.

Next menu item is Volume Suppression.

Suppression of Volume Display

******NOTE: The recommended setting for this function is "450 mVol"***

```
SUPPRESSION
C=cancel E=enter
```

This is for setting Volume Display Suppression in mgal. Or in ml. units, the volume display will keep inoperative by the amount of this setting at the beginning of the product delivery.

Pressing E Enter, ENTER will result in entering Suppression volume setting,

```
SUPPRESSION
In mVol      100
```

As the selection appears on the screen you can preset the figure by typing the number keys to the desired amount. The number pressed enters the screen from right and the previous number in the screen shifts to the left by one digit. If you need to cancel the operation, press C Clear CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the preset programming you should press E Enter ENTER key and the display will return a message like "STORED", which will store the new value into the non-volatile memory.

You can press M Menu Menu key to proceed to the next menu item.

Next menu item is Fast Solenoid Turn-On Time setting.

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V2 Turn ON Value

```
V2 TURN       ON
C=cancel E=enter
```

This is for setting the Amount in Volume after which the second solenoid valve (fast valve) should open during the beginning of product delivery. *This function is used ONLY with "2-SOLENOID" Preset option. For SINGLE SOLENOID OPERATION, this setting is not required.*

Pressing E Enter, ENTER will result in entering V2 Turn on value setting,

```
V2 TURN ON
In mVol     500
```

As the selection appears on the screen you can preset the figure by typing the number keys to the desired amount. The number pressed enters the screen from right and the previous number in the screen shifts to the left by one digit. If you need to cancel the operation, press C Clear CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the preset programming you should press E Enter ENTER key and the display will return a message like "STORED", which will store the new value into the non-volatile memory.

You can press M Menu Menu key to proceed to the next menu item.

Next menu item is Fast Solenoid Turn Off Time setting.

V2 Turn OFF Value

```
V2 TURN OFF
C=cancel E=enter
```

This is for setting the Amount in Volume before which the second solenoid valve (fast valve) should close during the termination of product delivery. *This function is used ONLY with "2-SOLENOID" Preset option. For SINGLE SOLENOID OPERATION, this setting is not required.*

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Pressing E , ENTER will result in entering V2 Turn off value setting,

```
V2 TURN  OFF
In mVol    500
```

As the selection appears on the screen you can preset the figure by typing the number keys to the desired amount. The number pressed enters the screen from right and the previous number in the screen shifts to the left by one digit. If you need to cancel the operation, press C CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the preset programming you should press E ENTER key and the display will return a message like "STORED", which will store the new value into the non-volatile memory.

You can press M Menu key to proceed to the next menu item.

Next menu item is Display Type Selection.

Display Type

****** NOTE: For PARAFOUR P4-Series dispensers, this setting MUST be set to "DISPLAY TYPE 664 NEW" selection.***

The calculator has the ability to drive two types of an LCD Price-Volume display. These are either "866" or "664" configurations. "866" consists of 8 digits in upper row Sales display, 6 digits in middle row Volume display and 6 digits in lower row Price display. Whereas, 664 consists of 6 digits in upper row Sales display, 6 digits in middle row Volume display and 4 digits in lower row Price display. Each digit height is 1".

```
DISPLAY TYPE 866
C=cancel E=enter
```

```
DISPLAY TYPE 664
C=cancel E=enter
```

```
DISPLAY TYPE 664 NEW
C=cancel E=enter
```


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This is for setting the default Display Type. Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

Pressing E, ENTER will result in setting the Default display status either 866 or 664 mode according to the last screen readout and first line will show a "STORED" message for a short period of time and control proceeds automatically to the next menu item

Next menu item is Volume Display Dot Position.

Volume Display Decimal Position

The calculator has a 6 digit Volume display for volume readout on either "866" or "664" display. The readout for volume display can be adjusted either as "0000.00" or "000.000" configuration. That is displaying 2 or 3 digits on the left hand side of comma respectively.

```
VOLUME    0000.00
C=cancel E=enter
```

```
VOLUME    000.000
C=cancel E=enter
```

This is for setting the dot position on Volume display. Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

Pressing E, ENTER will result in setting the default volume display readout either "0000.00" or "000.000" mode according to the last screen readout and first line will show a "STORED" message for a short period of time and control proceeds automatically to the next menu item.

Next menu item is Dispenser Number Set.

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Dispenser Address Setting:

```
DISP. ADR.  1-16
C=cancel E=enter
```

This is for setting the Dispenser Address. This is important if the dispenser is included into a communication chain. Default Dispenser Address is 01.

Pressing E , ENTER will result in entering Dispenser Address setting,

```
DISP. ADR.  1-16
Address       01
```

As the selection appears on the screen you can preset the figure by typing the number keys to the desired amount. The number pressed enters the screen from right and the previous number in the screen shifts to the left by one digit.

If you need to cancel the operation, press C CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the address programming you should press E ENTER key and the display will return a message like "STORED", which will store the new value into the non-volatile memory.

You can press M Menu key to proceed to the next menu item.

Next Menu item is Grade Level Setting.

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Grade Level Setting:

```
GRADE LEVEL 1-16
C=cancel E=enter
```

This is for setting the Grade Level. This is important if the dispenser is included into a communication chain. Default Grade Level is 01.

Pressing E , ENTER will result in entering Grade Level setting,

```
GRADE LEVEL 1-16
Address       01
```

As the selection appears on the screen you can preset the figure by typing the number keys to the desired amount. The number pressed enters the screen from right and the previous number in the screen shifts to the left by one digit.

If you need to cancel the operation, press C CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the address programming you should press E ENTER key and the display will return a message like "STORED", which will store the new value into the non-volatile memory.

You can press M Menu key to proceed to the next menu item.

Next Menu item is Grade Name Selection…

Grade Name Selection:

```
GRADE    PROPANE GRADE    ETHANOL GRADE   METHANOL
C=cancel E=enter C=cancel E=enter C=cancel E=enter

GRADE    DIESEL  GRADE   GASOLINE
C=cancel E=enter C=cancel E=enter
```


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This is for selecting the Grade Name. This is setting is used for Printer application to type the grade Name on the receipt printer

Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

If you need to cancel the operation, press C CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the address programming you should press E ENTER key and the display will return a message like "STORED", which will store the new value into the non-volatile memory.

You can press M Menu key to proceed to the next menu item.

Next Menu item is Temperature Display Type Selection.

Temperature Display Type

```
TEMP.    CELCIUS          TEMP. FAHRENHEIT
C=cancel E=enter          C=cancel E=enter
```

This is for setting Temperature Display readout type. Please note that if ATC is not enabled there will be no Temperature Readout on the main display.

Pressing S SELECT key will cause the screen to switch between the above indicated conditions.

If you need to cancel the operation, press C CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the address programming you should press E ENTER key and the display will return a message like "STORED", which will store the new value into the non-volatile memory.

You can press M Menu key to proceed to the next menu item.

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Serial Communication Parameter Setting

```
SERIAL.COMM. OFF      GILB. 5787,E,8,1    GILB. 5787,N,8,1
C=cancel E=enter      C=cancel E=enter    C=cancel E=enter

GILB. 9600,E,8,1      GILB. 9600,N,8,1
C=cancel E=enter      C=cancel E=enter
```

This is for setting Serial Communication Protocol Parameters. The system is capable to communicate in Gilbarco Protocol. You can use standard 5787 Gilbarco Baud rate as well as 9600 industry standard baud rate as shown above.

Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

If you need to cancel the operation, press C CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the address programming you should press E ENTER key and the display will return a message like "STORED", which will store the new value into the non-volatile memory.

You can press M Menu key to proceed to the next menu item.

Next Menu item is Serial Port Type Setting

Serial Port Type Setting

```
RS232 ONLY            RS232 & RS485       RS232 & 2-WIRE
C=cancel E=enter      C=cancel E=enter    C=cancel E=enter
```

This is for setting Serial Port Type. The system can communicate in RS232, RS485 and Current Loop (Gilbarco 2-wire) standards.

Pressing S, SELECT key will cause the screen to switch between the above indicated conditions.

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If you need to cancel the operation, press C CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the address programming you should press E ENTER key and the display will return a message like "STORED", which will store the new value into the non-volatile memory.

You can press M Menu key to proceed to the next menu item.

Next Menu item is Version Number Indication

Minimum Flow rate Control

****** NOTE: This configuration function is NOT USED where standard flow rates are higher than 3 gal per minute, or where "Slow-Flow-Theft" is not a concern. This function is normally NOT used in North America.***

```
MIN. FLOW RATE
C=cancel E=enter
```

The Minimum Flow rate control is an option for improving the dispenser accuracy on standard LPG deliveries. Normally, if the flow rate falls below a certain level, the accuracy of the meter may cause unwanted results. This value is industrially accepted as 5 liters/minute or 3 gallons/minute. However, there is a selection where you can set the minimum acceptable flow rate between 1-9 liters/min and/or 1-9 gallons/min. If this option is enabled and the flow rate falls below the set limit and this condition occurs so many seconds as set in Minimum Flow Rate Time setting, the dispenser will stop the delivery and execute an "End of Delivery" procedure. To start the next delivery the nozzle switch must be turned off and on again. To cancel this option, the value for minimum flow rate should be set to zero "0".

Pressing E Enter, Enter key will cause the following screen to appear

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```
MIN. FLOW RATE
Liter/min.     5
```

As the selection appears on the screen you can preset the minimum flow rate by using the number keys. The number pressed appears on the rightmost location of the screen. If you need to cancel the operation, press C CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the minimum flow rate programming you should press E ENTER key and the display will return a message like "STORED", which will store the new value into the non-volatile memory. You can press M Menu key to proceed to the next menu item.

Next Menu item is Minimum Flow Rate Time setting.

Minimum Flow Rate Time

****** NOTE: This configuration function is NOT USED where standard flow rates are higher than 3 gal per minute, or where "Slow-Flow-Theft" is not a concern. This function is normally NOT used in North America.***

```
MIN. FLOW TIME
C=cancel E=enter
```

The minimum Flow Rate Time is the allowable limit in second for the dispenser to continue normal operation when the flow rate falls below the minimum flow rate set. This option is only valid if the minimum flow rate control option is enabled.

Pressing E, Enter key will cause the following screen to appear

```
MIN. FLOW TIME
Seconds        5
```


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As the selection appears on the screen you can preset the minimum flow rate time by using the number keys. The number pressed appears on the rightmost location of the screen. If you need to cancel the operation, press C CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the minimum flow rate time programming you should press E ENTER key and the display will return a message like "STORED", which will store the new value into the non-volatile memory. You can press M Menu key to proceed to the next menu item.
Next Menu item is Unit Price Dot Position setting.

Unit Price Decimal Position

The calculator has a 4 or 6 digit Unit Price display for Unit Price readout on either "664" or "866" display versions respectively. The readout for unit price display can be adjusted either as "0.00" or "0.000" configuration. That is displaying 2 or 3 digits on the left hand side of decimal point.

```
UNIT PRICE  0.00      UNIT PRICE 0.000
C=cancel E=enter      C=cancel E=enter
```

This is for setting the dot position on Volume display. Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

Pressing E, ENTER will result in setting the default unit price readout either "0.00" or "0.000" mode according to the last screen readout and first line will show a "STORED" message for a short period of time and control proceeds automatically to the next menu item.
Next menu item is Gilbarco Mode unit price Decimal point selection.

Gilbarco Mode Unit Price Decimal Position

```
GDP 0        XXXX     GDP 1      XXX.X    GDP 2      XX.XX
C=cancel E=enter      C=cancel E=enter    C=cancel E=enter
```


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```
GDP 3       X.XXX
C=cancel E=enter
```

Gilbarco Protocol sends 4 digits to the calculator for price setting. However, the decimal point position data is not included within this information. The user has to select the decimal point location from the dispenser settings. This option is to set the decimal point for price information when Gilbarco communication mode is used. Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

Pressing E, ENTER will result in setting the default Gilbarco unit price programming format either “XXXX”, “XXX.X”, “XX.XX” or ”X.XXX” according to the last screen readout and first line will show a “STORED” message for a short period of time and control proceeds automatically to the next menu item.

Next menu item is Display Test Option Setting.

Display Test Option

****** NOTE: For PARAFOUR P4 Series dispensers, this setting should be set to the “DISP. TEST OFF” selection.***

The calculator can drive one or two displays for each nozzle. There is a possibility to check the presence of the display units and whether they are attached to the calculator. The user can disable this function, or check the presence of only a single display or both. If the display presence check is enabled and relevant display(s) are not connected or disconnected during the operation the calculator will enter in an error state an stops and/or disables further delivery. The character display will show a message like,

```
Display Error
```

To recover from this state the user should plug in the display(s) back and/or cancel the Display test option from this menu item.

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```
DISP. TEST   OFF      DISP. TEST SINGLE   DISP TEST DOUBLE
C=cancel E=enter      C=cancel E=enter    C=cancel E=enter
```

Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

Pressing E, ENTER will result in setting Display Test Option according to the last screen readout and first line will show a "STORED" message for a short period of time and control proceeds automatically to the next menu item.

Next menu item is Version Number.

Version Number

For PARAFOUR P4-Series Dispensers, the software version MUST be version "4.25F" or higher

```
VERSION NO: 4.25F
C=cancel E=enter
```

This is a read only option and display the software version number.

You can press M Menu key to proceed to the next menu item.

Change Technician Password

****** WARNING!! We recommend that you record any changed passwords in 2 or more locations. If you loose the password you have set, you will NOT be able to access the menu ever again. You can Call PARAFOUR for a one time Password default reset code.***

```
CHANGE PASWORD
C=cancel E=enter
```


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This function is for changing the technician password which is necessary for accessing to some of the system settings.

Pressing E , ENTER will result in entering to master password check level.

```
TECHN.    PASSWORD
                ****
```

Enter the technician password by using the number keys. The technician password is a 4-digit number and it should be followed by E ENTER key to be checked. If the password entered is wrong you will see a short;

```
INVALID PASSWORD
```

Message at the bottom line and the control return to the beginning of the same menu item. The technician password is factory set to “0000”.

If the password entered is correct, you will be asked for new the password.

```
SET NEW PASSWORD
                ****
```

Enter the new technician password by using the number keys. The technician password is a 4-digit number and it should be followed by E ENTER key to be stored into the non volatile memory.

Next menu item is for presetting technician defaults.

Preset Technician Defaults

****** WARNING: Resetting to factory defaults will LOOSE ALL TECHNICIAN menu settings made thus far. We recommend that you record all settings BEFORE ever resetting to default.***

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```
PRESET DEFAULTS
C=cancel E=enter
```

This menu item is used to set the factory defaults for all technician level settings.

Pressing E , ENTER will result in entering to technician password check level.

```
TECHN.   PASSWORD
          ****
```

Enter the technician password by using the number keys. The manager password is a 4-digit number and it should be followed by E ENTER key to be checked. If the password entered is wrong you will see a short;

```
INVALID PASSWORD
```

Message at the bottom line and the control will return to the next menu item. The technician password is factory set to "0000". If the password entered is correct, and the display will return a message like "STORED", which will set all settings within the technician level defaults into the non-volatile memory.

CALIBRATION MENU

- Calibration Password
- ATC On/Off Selection
- *LC ATC On/Off Selection (US Versions Only)*
- Average Density/Temperature Table Selection
- Density Probe On/Off Selection
- Meter – Display Configuration
- Electronic Calibration On/Off Selection
- Calibration Factor Setting
- Calibration Factor Event Log
- Configuration Event Log
- Print Calibration Report

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- Change Calibration Password
- Restore Calibration Level Factory Defaults

There is a two level control for entering into the Calibration Menu. This number of levels is customer dependant and should be asked for while ordering. The items in Calibration Menu can be either only Password or Password + W&M Seal protected. Note that the weights & measure seal must be disabled by inserting the calibration key into pin 1 & 2 on the TP-3 connector bar next to the 120 vac fuse holder on the main terminal bar of the calculator assembly, to enable any changes. ***DO NOT plug into positions 3&4 as this will result in damage to the board, and voiding of the warranty.*** If the seal is enabled the keyboard screen will show a short "W&M SEAL ENABLED" message and control will skip the Calibration Menu.

****NOTE: This dispensing device is NTEP certified as a "Category1 Device" and therefore DOES NOT require a mechanical seal, as it has configuration and calibration event logs accessible to any W&M inspector. Refer to NTEP TYPE CERTIFICATE for clarification.***

Calibration Password

The first menu item for calibration menu is to check the calibration password for authorized staff. Only users having the calibration level authority and calibration password can enter into this level.

Before entering into this level, the display will show the following,

```
CALIBRATION MENU
C=cancel E=enter
```

This screen enables the user to enter into the Calibration Menu level.

Pressing E Enter, ENTER will result in entering to user password check level.

```
CALIBR.  PASSWORD
          ****
```


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Enter your calibration password by using the number keys. The password is a 4-digit number and it should be followed by E ENTER key to be verified. If the password entered is wrong you will see a short;

INVALID PASSWORD

Message at the bottom line and the control return will to the previous menu item.

If the password entered is correct, you will enter into Calibration Submenu Level;
First Submenu is ATC On/Off Selection.

Set ATC

***NOTE: PARAFOUR P4-Series dispensers come standard with electronic ATC. Therefore this configuration should be set to "ON". If the dispenser is NOT equipped with a digital temperature probe, OR if the probe has been unplugged from the "I2C BUS" connector, then this configuration MUST be set to the "OFF" selection.

The display will show next menu item,

```
ATC          OFF          ATC          ON
C=cancel E=enter          C=cancel E=enter
```

This is for enabling or disabling the ATC operation. Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

Pressing E, ENTER will result in setting the ATC status either ON or OFF according to the last screen readout and first line will show a "STORED" message for a short period of time and control proceeds automatically to the next menu item.
Next menu item is Density Probe On/Off Selection.

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Set Density Probe

******NOTE: This configuration should ALWAYS be set to the "OFF" selection.***

The display will show next menu item,

```
DENSITY PROBEOFF          DENSITY PROBE ON
C=cancel E=enter          C=cancel E=enter
```

This is for enabling or disabling the optional Density Probe. Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

Pressing E, ENTER will result in setting the density probe either ON or OFF according to the last screen readout and first line will show a "STORED" message for a short period of time and control proceeds automatically to the next menu item.

Next menu item is Density Meter – Display Configuration Selection.

Meter – Display Type Setting

******NOTE: For Neptune and Liqua-Tech meters, this configuration MUST be set to "METER DISP G-G" selection for gallons. For Liquid-Controls meters, this MUST be set to the "METER DISP L-G" selection for gallons. Failure to properly configure this will result in poor accuracy, or the impossibility of proper calibration.***

```
METER-DISP   L-L          METER-DISP   G-G
C=cancel E=enter          C=cancel E=enter

METER-DISP   L-G          METER-DISP   G-L
C=cancel E=enter          C=cancel E=enter
```


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The calculator has an option to be used either with liter or gallon based meters while the readout can also be selected either in liter or gallon. That means you can use a gallon meter and get the display readout in liters, or vice versa. This selection is used to set Meter-Display operation.

Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.

Pressing E, ENTER will set the METER – DISPLAY readout combination according to the last screen readout and first line will show a "STORED" message for a short period of time.
Next menu item is Electronic Calibration On/Off Selection.

Set Calibration

******NOTE: This configuration MUST be set to the "ON" setting for electronic calibration to work. It MUST be left in the "ON" position at all times for the electronic calibration to work. Failure to properly configure this will result in poor accuracy, or the impossibility of proper calibration.***

```
CALIBRATION OFF          CALIBRATION ON
C=cancel E=enter         C=cancel E=enter
```

This is for enabling or disabling the Electronic calibration. Pressing the S SELECT key will cause the screen to switch between the above indicated conditions.
Pressing E, ENTER will result in setting the Calibration status either ON or OFF according to the last screen readout and first line will show a "STORED" message for a short period of time and control proceeds automatically to the next menu item.
Next Menu item is Calibration Factor Setting.

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Calibration

******NOTE: For Neptune and Liqua-Tech meters, we recommend that you start with a default calibration factor of "+5.42%" before beginning calibration. This setting will usually yield accuracy of +/- .25 or better with little required change. For Liquid Controls MA4 series meters WITHOUT SCAMP MODULE, we recommend setting this to "-25.3%" and for MA4 series meters installed WITH the SCAMP module, we recommend setting this to "+92.0%".***

```
CALIBRATION
C=cancel E=enter
```

This is for setting the electronic calibration factor in %.; the volume calculation will be based on the calibration factor in percentage.

Pressing E , ENTER will result in entering Calibration Factor setting,

```
CALIBRAT.
FACTOR%     +00.00
```

This figure can be adjusted between -99.99% and +99.99%.

As the selection appears on the screen you can preset the figure by typing the number keys to the desired amount. The number pressed enters the screen from right and the previous number in the screen shifts to the left by one digit. S SELECT key will be used for setting (+/-). If you need to cancel the operation, press C CLEAR key, this will clear the changes and proceed to the next menu item. To finalize the preset programming you should press E ENTER key and the display will return a message like "STORED", which will store the new value into the non-volatile memory.

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Calibration Factor Event Log

```
CFACT. ELOG 0000
  00:00 00/00/00
```

This is a read-only information screen. It indicates the Calibration factor event log. First line shows how many times the Calibration factor has been changes since dispenser set up, and the second line shows the time and date of the last change made in Calibration factor. These data is inerasable and to be used by W&M data recording.

Configuration Event Log

```
CONFIG ELOG 0000
  00:00 00/00/00
```

This is also a read-only information screen. It indicates any change in Configuration parameters such as ATC On/Off, Probe On/Off, etc., First line shows how many times any configuration in Calibration Menu has been changed and stored into memory since dispenser set up, and the second line shows the time and date of the last change made in Configuration parameters. These data is inerasable and to be used by W&M data recording.

Print Calibration Report

```
PRINT CAL.  REP.
C=cancel E=enter
```

This menu item is used to print a calibration report based on the stored calibration information. Pressing E , ENTER will result in printing a calibration report.

If the printer is disabled, then the display will indicate a short "PRINTER DISABLED" message and the control will proceed to the next menu item.

If the printer is enabled, a report including the following data will be printed.

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- Present Report Time and Date
- Calibration Factor
- Calibration Status
- ATC Status
- Conversion Status
- Last Calibration Date and Time
- Total Number Of Calibrations

The menu control will automatically proceed to the next menu item.

Change Calibration Password

****** WARNING!! We recommend that you record any changed passwords in 2 or more locations. If you loose the password you have set, you will NOT be able to access the menu ever again. You can Call PARAFOUR for a one time Password default reset code.***

```
CHANGE PASWORD
C=cancel E=enter
```

This function is for changing the calibration password which is necessary for accessing to some of the system settings.

Pressing E Enter, ENTER will result in entering to calibration password check level.

```
CALIBR.   PASSWORD
            ****
```

Enter the calibration password by using the number keys. The calibration password is a 4-digit number and it should be followed by E Enter ENTER key to be checked. If the password entered is wrong you will see a short;

```
INVALID PASSWORD
```


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Message at the bottom line and the control returns to the beginning of the same menu item. The calibration password is factory set to “0000”.
If the password entered is correct, you will be asked for new the password.

```
SET NEW PASSWORD
        ****
```

Enter the new calibration password by using the number keys. The user password is a 4-digit number and it should be followed by E ENTER key to be stored into the non volatile memory.
Next menu item is for presetting calibration defaults.

Preset Calibration Defaults

****** WARNING: Resetting to factory defaults will LOOSE ALL CALIBRATION menu settings made thus far. We recommend that you record all settings BEFORE ever resetting to default.***

```
PRESET DEFAULTS
C=cancel E=enter
```

This menu item is used to set the factory defaults for all calibration level settings.
Pressing E , ENTER will result in entering to calibration password check level.

```
CALIBR.  PASSWORD
        ****
```

Enter the calibration password by using the number keys. The calibration password is a 4-digit number and it should be followed by E ENTER key to be checked. If the password entered is wrong you will see a short;

```
INVALID PASSWORD
```

Message at the bottom line and the control returns to the next menu item. The calibration password is factory set to “0000”. If the password entered is correct, and the display will return a

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message like “STORED”, which will set all settings within the calibration level defaults into the non-volatile memory.

REPORTS MENU

- Shift Report
  - Print Shift Report
  - Show Shift Report
- Calibration Report
  - Print Calibration Report
  - Show Calibration Report

- Version Number

The Reports Menu is to Print Reports about Last shift Data and Calibration Parameter Logs. This Menu is active while Printer attached. Presently, displaying these parameters is not available. They will be included to the system in future versions.

MASTER MENU

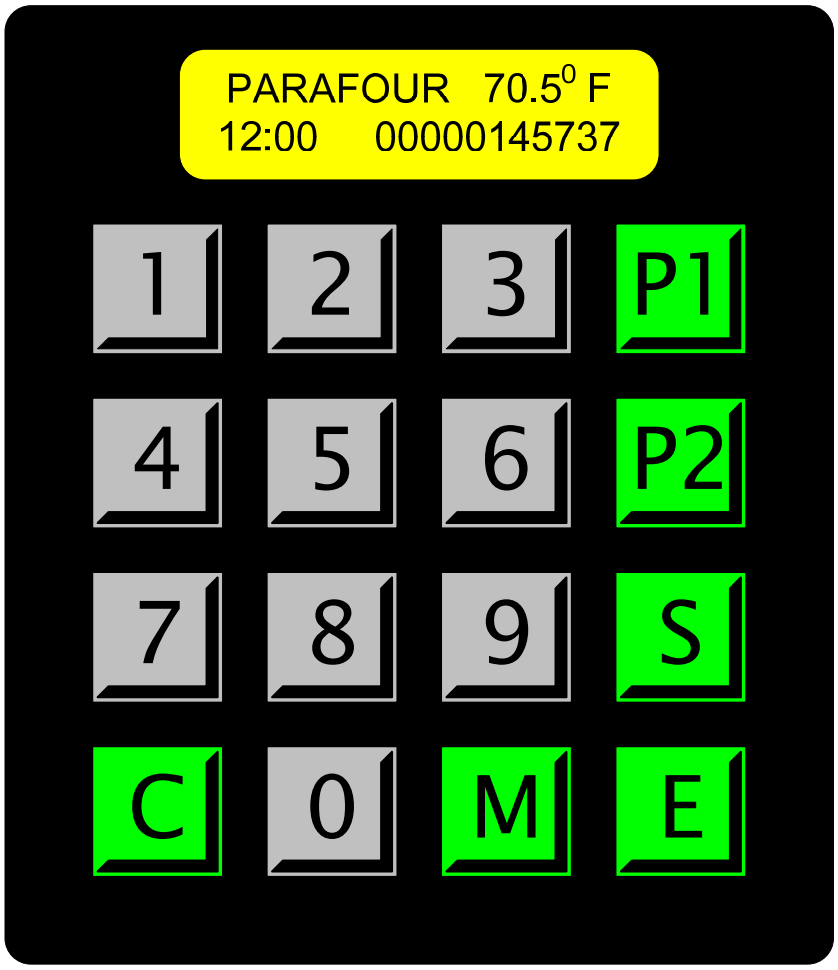
Master Menu is used to restore all factory parameters back to the system. This option is not supported in this software version.

- Master Password
- Restore Master Level Factory Defaults

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DISPENSER OPERATION

The dispenser will only operate when the following message is indicated on the keypad display:



For normal operation, there is no need to activate any options with the keypad in order to dispense fuel. Simply press the “PUSH-TO-START / STOP” button to initialize dispensing, or if equipped with a “LIFT-TO-START” nozzle boot, then lift the nozzle to start. The display should first read ‘INITIALIZING…….” And then change to “FUELLING…” when the display has reset and the pump has been turned on.

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Preset

If the PRESET option has been turned on and configured in the MANAGER's MENU during the system initial configuration and programming process, the the operator may, at the beginning of each transaction if so desired, preset the delivery for a fixed delivery of either money or volume. This is done as follows:

There are 2 different ways to make Preset with your calculator.

- Numerical Keypad Preset
- Optional Preset Buttons

Keypad Preset

If you select the Numerical Keyboard Preset method, you should press the S *key which will initiate the preset process. The keyboard display will show the following*

```
AMOUNT  PRESET
     00000000.00
```

By using the number keys followed by the E *key, the operator can program the desired value for amount preset. At each keystroke the pressed key value will be displayed both in the keyboard screen and sales field of the main display where, the volume part is automatically blanked out for better visibility.*

The operator can switch between Amount Preset and Volume Preset modes by pressing the S *key. This will result in the following screen;*

```
VOLUME  PRESET
       0000.00
```


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Again by using the number keys followed by the E *key, the operator can program the desired value for volume preset. At each keystroke the pressed key value will be displayed both in the keyboard screen and volume field of the main display where, the sales part is automatically blanked out for better visibility.*
When the desired value is reached for any selection, i.e., volume or amount pressing the E *key will program the preset value to the calculator. Next product delivery will be based on this preset. If the operator decides to cancel the operation, the nozzle should be removed and replaced back to its housing.*

Any time within the presetting process before pressing the enter key the operator can clear the entered value by pressing the C *CLEAR Key or cancel the operation by pressing the* M *key completely where both displays will restore their initial readouts.*

External Button Preset

Next option is to make the preset via external preset buttons. There are two external buttons. Button 1 represents the values for either volume or amount set in P1 settings, Button 2 represents the values for either volume or amount set in P2 settings.

Like Keypad preset, activating any of these buttons will result in entering the preset Mode. The keyboard display will show the following

AMOUNT PRESET
00000000.00

By using preset buttons the value pre-assigned will be added to the value on the screen and displayed both in the keyboard screen and sales field of the main display where, the volume part is automatically blanked out for better visibility. To change the preset from amount to volume or

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vice versa, the user should press both buttons at the same time. This will result in the following screen;

VOLUME PRESET
0000.00

Likewise, using preset buttons the value pre-assigned will be added to the value on the screen and displayed both in the keyboard screen and volume field of the main display where, the sales part is automatically blanked out for better visibility.

In this mode there is no need to take any action to enable preset operation. Simply taking off the nozzle and starting the delivery will activate the preset and the product delivery will be based on the preset value on the display.

However, if the operator wants to cancel the operation in this mode he has to press the C Clear *key on the keyboard or the nozzle should be removed and replaced back to its housing.*

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Product Delivery

Product Delivery without Preset

Take the Nozzle and connect to the vehicle.

Turn on the Nozzle Switch

Price display and Volume display will be cleared. Product price display will show the Price. Keyboard Module display will show

FUELLING……
11:45 03/07/2003

Start Fuelling

Price display and Volume Display will be updated as per product dispensed. When finished,

Turn off the Nozzle Switch.

Remove the Nozzle.

Product Delivery with Preset

Put the Nozzle

Preset Amount or Liter Value by using the SELECT, ENTER and number keys.

Turn on the Nozzle Switch

Price display and Volume display will be cleared. Product price display will show the Price. Keyboard Module display will show

FUELLING……
11:45 03/07/2003

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Start Fuelling

Price display and Volume Display will be updated as per product dispensed. When preset value is reached the system will stop and the Keyboard Module display will show

FINISHED……

Turn off the Nozzle Switch.

Remove the Nozzle.

Product Delivery with Multi-Pricing option enabled

******NOTE: We recommend that if multi-pricing is used, then the operator re-enter the selection of Price Level "I" after the end of each transaction, as this is the BASE price level and should be the highest price level programmed during initial configuration.***

Press the P2 key to enter "Multi-Price Selections. *When the nozzle switch is off and multi pricing is set to keyboard, pressing the* P2 *key will result the following screen.*

```
ENTER PRICE NO
Price No     ?
```

The user has the option to select one of the five preprogrammed prices set into the system by pressing any number between 1 and 5. Next screen will be as follows;

```
Accept PRICE
       00002.259
```

If the user presses the E *ENTER key to accept, the Price display will indicate the selected number and any sale from that point on will be based on this selected price.*

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Product Delivery Screen with Density Probe Enabled

```
FUELLING……
00 1,005 654,350
```

The items on the second line have the following meanings;

00	Vapour/Contamination State
1,005	Volume Correction Factor
654,350	Product Density at 15°C

Vapour/Contamination State Codes:

00	No vapour or contaminant detected. Product is normal.
01	Vapour detected because the measured density is unstable. This is usually a sign that there are bubbles of LPG in the mixture.
02, 03	Vapour is detected by the way of the measured density being too low. This is usually a sign that there is a large quantity of vapour present.
80, 81, 83	Contaminant detected. This is usually a sign that there is water or some conductive contaminant in the system.

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DIAGNOSTICS & TROUBLE SHOOTING FAULTS:

1. Dispenser will not start or will not flow gas:
    a. Is the dispenser powered? (Does the keypad display have a message? If not, then there is no power)
        i. If Yes, then go to B
        ii. If NO, then check that there is power to the dispenser. If there is power on the BLACK & WHITE main power lines to the dispenser, then check the 2 amp fuses on both the power supply and the main board.
    b. Does Keypad Display say “PLEASE LOGIN”?
        i. If YES, then go to Attendant Menu and log in
        ii. If NO, go to C
    c. Does the Keypad display say “INITIALIZING….” while the sales display resets, and then changes to “FUELING….”?
        i. If YES, then go to D
        ii. If NO, then go to E
    d. Does the pump turn on?
        i. If NO, is there 120 vac on the red pump motor starter wire when the keypad display says ‘FUELING?
            1. If YES, Check motor starter relay for proper operation, then go to G
            2. If NO, Then motor starter control relay on main board may be bad. Call PARAFOUR
    e. Is there a trouble code on the price display?
        i. If YES, what code”
            1. If EO2, then check nozzle switch setting in TECHNICIAN Menu.
                a. Press PTS button to turn off, and reset nozzle switch configuration, or;
                b. Replace nozzle in boot with nozzle switch, and reset nozzle switch configuration
            2. If EO4, then check that the pulser connections are good at the main board TP2 connector, Pins 1-4, and at the pulser connector in Ex-Proof enclosure on meter.
            3. If EO6, then reverse the GREEN & Yellow wires on TP2-Pins 2 & 3, for proper pulser rotation.
        ii. In NO, then go to F
    f. Are the meter liquid inlet valve and vapor return valve open?
        i. If YES, go to G
        ii. If NO, then open the vapor valve first, allow for pressure to equalize, then open the liquid valve

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g. What is the Differential Pressure? Look at the vapor and liquid pressure gauges in the hydraulics enclosure, and record the difference. There should be a minimum of 50 psi for proper operation (For Autogas fueling of LPI vehicles, there must be a minimum of 130 PSI differential.
    i. If less than 20, then go to H
    ii. If more than 50, then go to I
    iii. If LPI vehicle and less than 130 psi, then go to H
h. Is the pump making adequate differential pressure?
    i. If YES, then go to I
    ii. If NO, then check that the internal valves in the tank are fully open BEFORE the motor starts. Check to ensure that the bypass valve is installed and adjusted properly for the application, and has unrestricted flow returning to the vapor space of the tank.
i. Is the meter working properly?
    i. Inspect the meter strainer, clean and replace if required
    ii. Inspect the measuring chamber for free and smooth movement, clean, polish or replace as required
    iii. Inspect the differential valve, repair or replace seals as required
    iv. Inspect the vapor eliminator, repair or replace as required.

2. The dispenser does not appear to be sending pulses to the Card Reader:
    a. Is the pulser + and pulser - (red/black shielded pair in main conduit) connected to the card reader?
    b. Is the connection between the dispenser pulse supply wires and the card reader installed with shielded wire, with the drain grounded on the card reader side ground?
    c. Is the card reader supplying +5vdc reference voltage to the red wire?
    d. Is a resistor between the red/black wires required, and if so, is it present (consult with card reader manufacturer for connecting to an “Open Collector” type 2-wire pulse output circuit
    e. Is the dispenser and card reader both configured the same for pulses? (ie, 100:1, 10:1, pulse width, etc)
3. The dispenser is not authorizing the dispenser
    a. Is the Black/white shielded pair connected to a normally OPEN, close to authorize relay on the card reader?
    b. Has the card reader, been configured (or modified if so required as with the Fuel master FMU-2500)
    c. Is there continuity on the SW2 wires when the card reader is authorized?
    d. Has the SW2 configuration in the TECHNICIAN Menu been set to “MCR INPUT”

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ERROR CODES

CODE #	Remarks	Description
E-01	Reserved	**Watch dog timer error**: In case the calculator software enters into an unknown state, has an independent recovery system to overcome the problem and reset the system. Such a condition will be warned with E-01 error code.
E-02	Recoverable	**Nozzle Switch error** When the system is powered on, or reset by an external or internal command and the nozzle switch is not in closed position the system will respond with an E-02 code on the display. Putting the nozzle in its housing or turning off the activation switch will reset the error.
E-04	Recoverable	**Pulser error** When the system is powered on, or reset by an external or internal command, the calculator performs and pulser presence check. If the pulser is not connected or misconnected the system will respond with an E-04 error. Connecting the pulsar properly to the controller will reset the error.
E-05	Recoverable	**Density Probe CRC Error** If the Density Probe is enabled and the Probe is connected but there is an error in communication with the Probe the system will respond with an E-05 error. Disabling the Probe from the Calibration Menu or connecting the Probe properly will recover the error.
E-06	Not recoverable	**Pulser back count limit error** The pulser is allowed to turn and produce pulses only to one direction. Some pulsers have mechanical limitation for reverse turning, some pulsers can turn in both directions. For those kind of pulsers, during product delivery it is allowed a specific amount of volume for the pulser to turn in the reverse direction. This amount is

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		internally calculated and will be subtracted from the real amount when the pulser starts to turn in the right direction. However, if reverse turning exceeds the preset value, the system will shut off all outputs and respond with an error code E-06. Only resetting the system will cause to overcome that error.
E-07	Recoverable	**Invalid flow error** When the nozzle switch is off, all system outputs, such as motor and solenoid driving sections of the system are off. Therefore, there should not be any product flow during that period. However, if a product flow is detected when the nozzle switch is off, exceeding a predefined level, the system will shut off all the outputs and warns with an error code E-07. When this code is observed, the cause of the error should be corrected and the system should be restarted. You can use the Leakage control function to enable, disable or set the sensitivity of this function.
E-08	Recoverable	**RTC Presence error** At startup the system checks the integrity of the on board Real time clock. If an error occurs in reaching the RTC the system will respond with an error code E-08 and flashes the error display 5 times at startup. To recover the problem completely, RTC should be replaced.
E-09	Recoverable	**RTC operation error** If the internal RTC is present on board, but not functioning properly, the system gives a warning message of E-09 and flashes the error display 5 times at startup. To recover the error completely, the RTC should be replaced.
E-10	Recoverable	**ATC Sensor error** If ATC Operation is enabled, the system will check the presence the ATC probe before making temperature measurements. If the presence is not detected,

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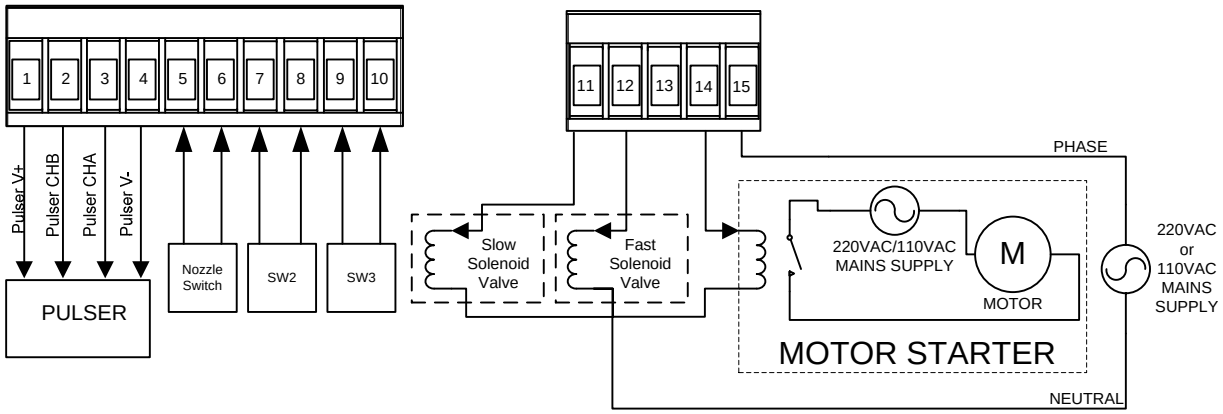
		the calculator will respond with an E-10 error. Connecting the ATC probe to the system or disabling the ATC option will recover the error.
E-11	Recoverable	**Density Probe Presence Error** If the Density Probe is enabled and there is no Probe connected the system will respond with an E-11 error. Disabling the Probe from the Calibration Menu or connecting the Probe properly will recover the error.

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REFERENCE ILLUSTRATIONS

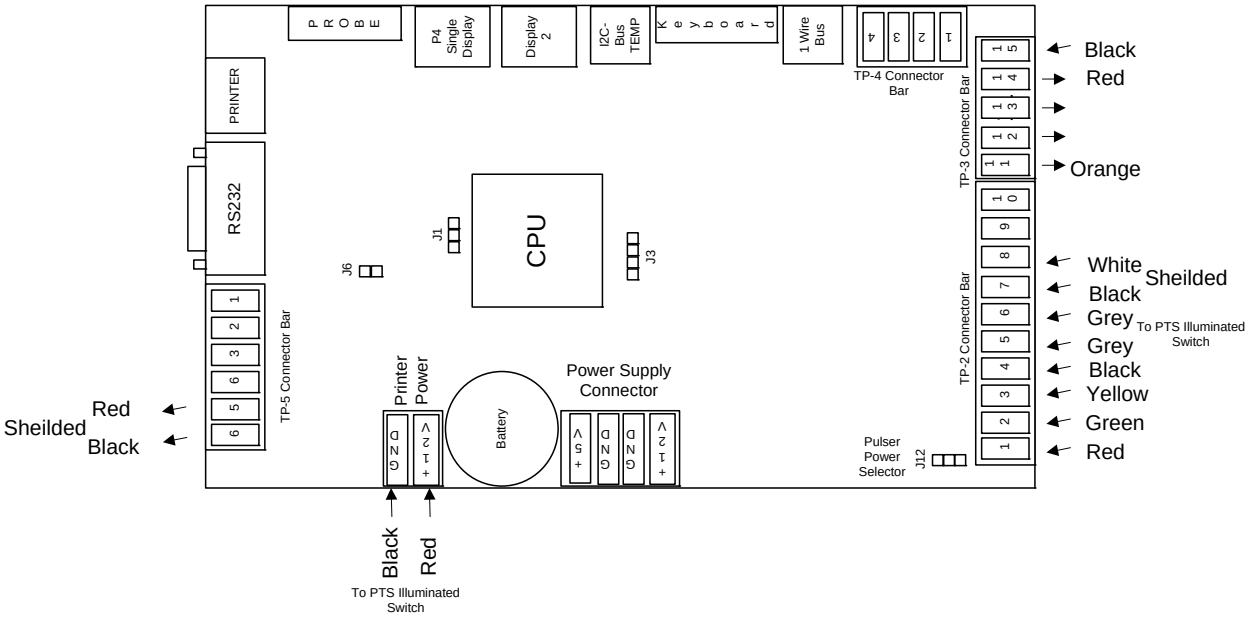
Diagrams

WIRING DIAGRAM



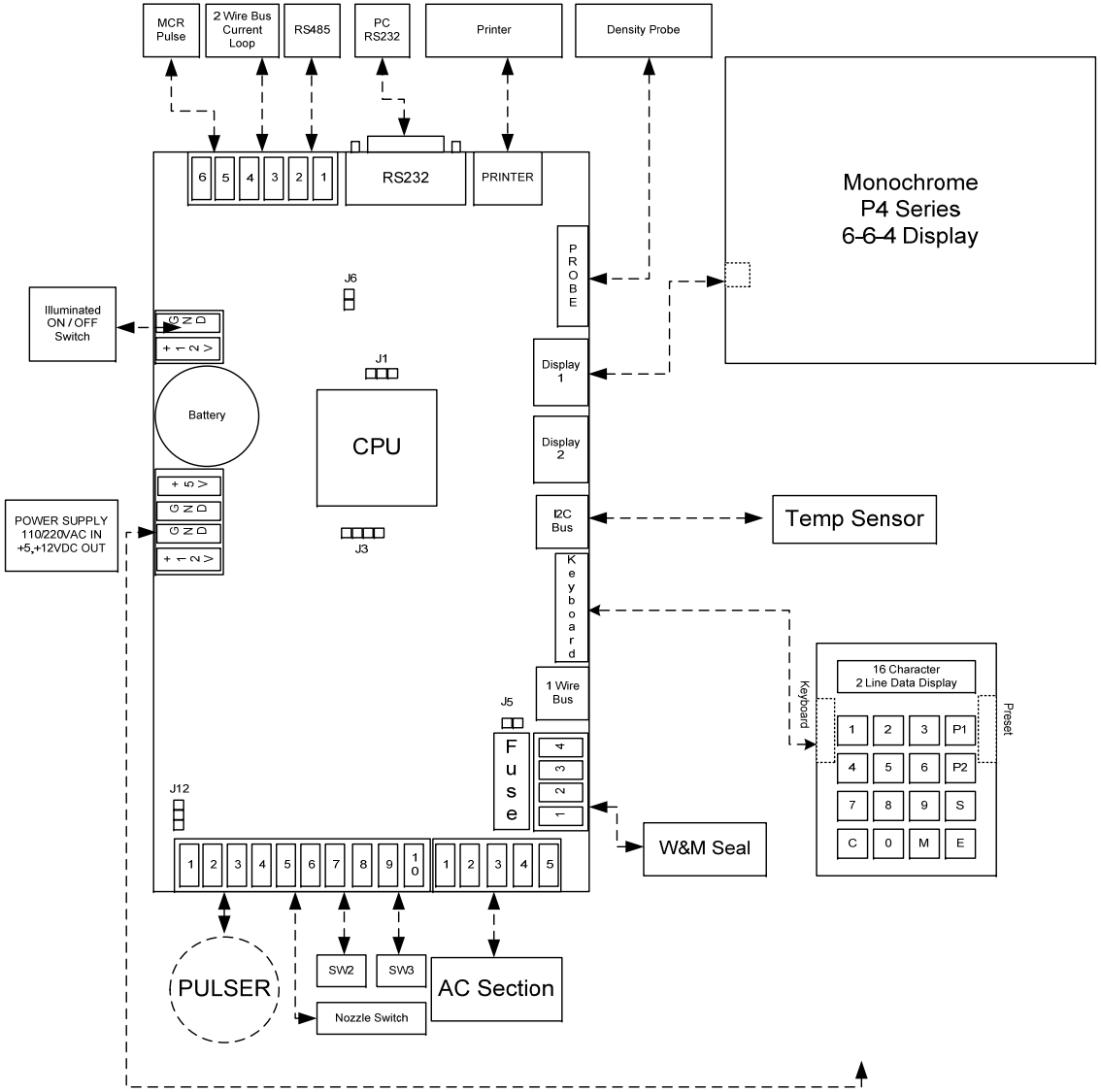
NOTE: For multiple hoses/dispensers, the TP3-14 RED Motor Starter wires MUST NOT be combined. Use a relay such as FINDER 48.31.8.120.0060.SPA or equivalent to isolate separate dispensers

PULSER, SWITCH INPUT AC SECTION OUTPUT WIRING DIAGRAM



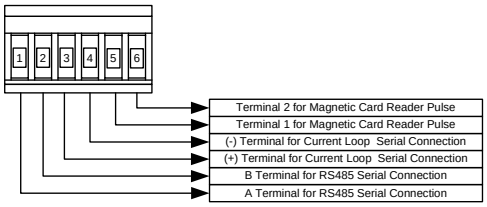
Main board Layout

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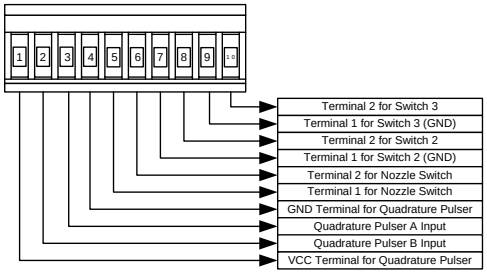


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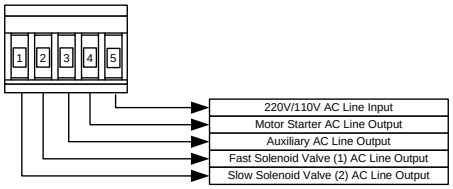
MCR and Serial Interface Connection Bar TP-4-6 Pin



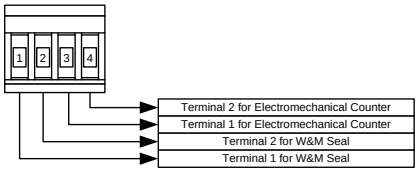
Quadrature Pulser and Switch Input Connector TP-2-10 Pin



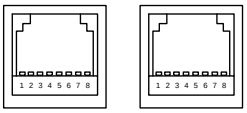
AC Line Input/Output Connector Bar TP-2-5 Pin



W&M Seal and Electromechanical Connector Bar TP-3-4 Pin

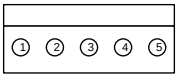


Display Interface Connectors J2 & J4



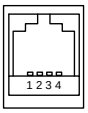
1	DATA
2	GND
3	CLOCK
4	GND
5	DTEST
6	+12VDC
7	LOAD
8	+12VDC

Density Probe Connector JP6



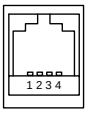
1	GND
2	VCC
3	TXDPRB
4	RXDPRB
5	EARTH

I2C Bus ATC Sensor Connector J11



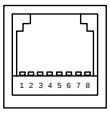
1	SDA
2	GND
3	SCL
4	VCC

1-Wire Bus Connector J10



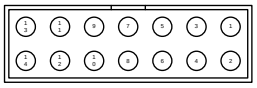
1	VCC
2	1-Wire
3	GND
4	GND

Printer Interface Connector J9



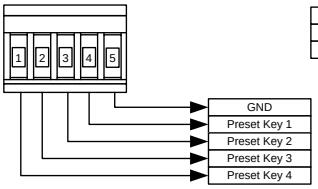
1	NC
2	NC
3	LED
4	RTSPRN
5	TXDTTL
6	RXDTTL
7	GND
8	VCC

Keyboard Connector JP8

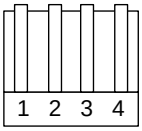


1	VCC
2	VCC
3	LCDE
4	LCDRS
5	LCD1
6	LCD0
7	LCD3
8	LCD2
9	KEY1
10	KEY0
11	KEY2
12	BUZZER
13	GND
14	GND

Keyboard Preset Keys Connector

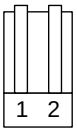


Power Plug JP9



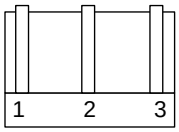
1	VCC +5VDC
2	GND
3	GND
4	+12VDC

Printer Power Plug JP10



1	GND
2	+12VDC

Power Supply AC Input Connector

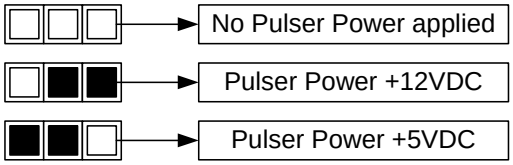


1	EARTH
2	NEUTRAL
3	LINE

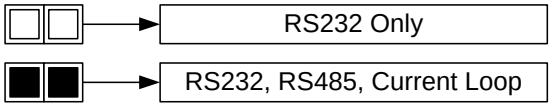
Interface Connectors

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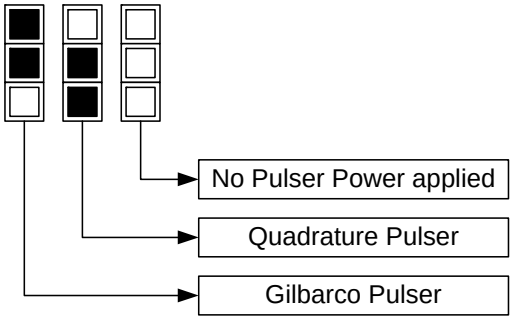
Pulser Power Selection Jumper (J12)



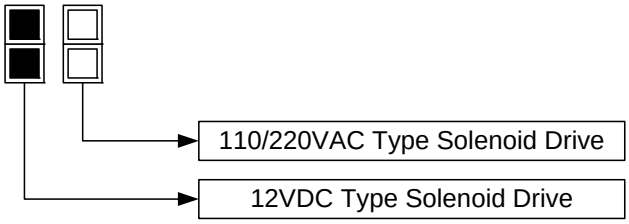
Serial Interface Selection Jumper (J6)

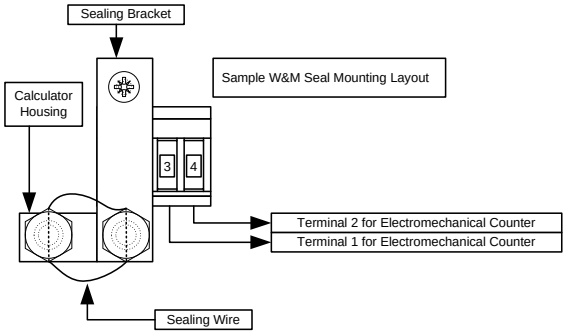


Pulser Type Selection Jumper (J1)

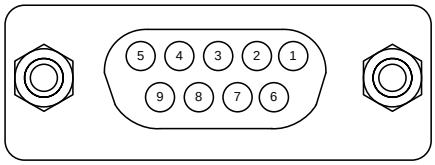


Solenoid Type Selection Jumper (J5)
Factory Set “Don’t Change”





RS232 DB9 Female Connector



1	VCC
2	RXD
3	TXD
4	DTR
5	GND
6	NC
7	CTS
8	RTS
9	NC

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INSTALLATION "QUICK-GUIDE"

WARNINGS:

!!! - This device is electrical powered and should only be installed by a licensed electrician, who is specifically familiar with Class 1, Division 1 & 2 Hazardous area installations. Injuries resulting from incorrect installation, installation by an un-licensed or under qualified electrician, misuse, or other improper installation activity, are NOT the liability of the manufacturer.

!!! – This device is designed to contain Liquified Petroleum Gas (Propane or LPG) at a working pressure not to exceed 350 psi. It should only be installed by a qualified and/or licensed professional Gas technician. Injuries resulting from incorrect installation, installation by an un-licensed or under qualified gas technician, misuse, or other improper installation activity, are NOT the liability of the manufacturer.

MOUNTING NOTES:

1. This dispenser must be affixed to a solid base (recommended either a minimum 4" think reinforced concrete pad or a steel skid frame) with a minimum of 4 each, 5/16" grade 3 bolts, mounted in 4 of the provided base mount slots. This is a requirement of UL 495.
2. There must be a minimum 24 gpm excess flow installed on the inlet piping to the dispenser, or an approved shear/break-away device (Such as the Squib Taylor Tripod System) to prevent loss of fuel in the event of a cabinet knock-over and rupture in supply/vapor return piping. This is a requirement of NFPA Pamphlet 58
3. The Autogas delivery hose installation for this dispenser should include:
    a. A whip hose installed in the outlet elbow, with a maximum length of 24"
    b. An approved pull-away device such as the MEC model MEC860S6. The pull-away should be hard mounted to a stud in the pad of the skid frame, approximately 4" to the right of the cabinet, and 4" projecting in front of the cabinet. Failure to properly mount the pull-away to ensure 180 degrees of left and right rotation, and/or mounting to the dispenser cabinet, may cause a failure to separate in the event of an accident, and result in injury.
    c. A delivery hose installed in the pull-away outlet, with a standard length of 12' and not to exceed 18' as per NFPA Pamphlet 58.
    d. The dispenser nozzle boot is designed for an LGE / ELAFLEX GG20 nozzle or exact equivalent. Use of any other nozzle may adversely affect the nozzle boot switch, if so equipped.
4. The Liquid supply piping from the pump to the dispenser inlet MUST be a minimum of 3'4" schedule 80 pipe. 1" or larger is recommend for pump to dispenser pipe runs in excess of 15'.
5. The vapor return piping from the vapor eliminator gauge and valve assembly MUST be a minimum of 3/8" copper tubing. However PARAFOUR strongly recommends using a minimum of 3/4" schedule 80 Pipe.
6. PARAFOUR Strongly recommends and encourages the use of under-cabinet break-away shear protection for both the liquid supply lines, and the vapor return lines under the dispenser, especially for public accessible sites.

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ELECTRICAL NOTES:

BLACK wire Connect to 120 vac, 60 hz, minimum 5 amp breaker
(if card reader, is used, then use the SAME leg as the card reader)

WHITE wire, Connect to Neutral

GREEN wire, Connect to ground
Parafour SRONGLY recommends that a dedicated ground rod be driven directly below or adjacent to the cabinet, for cabinet ground and static charge dissipation

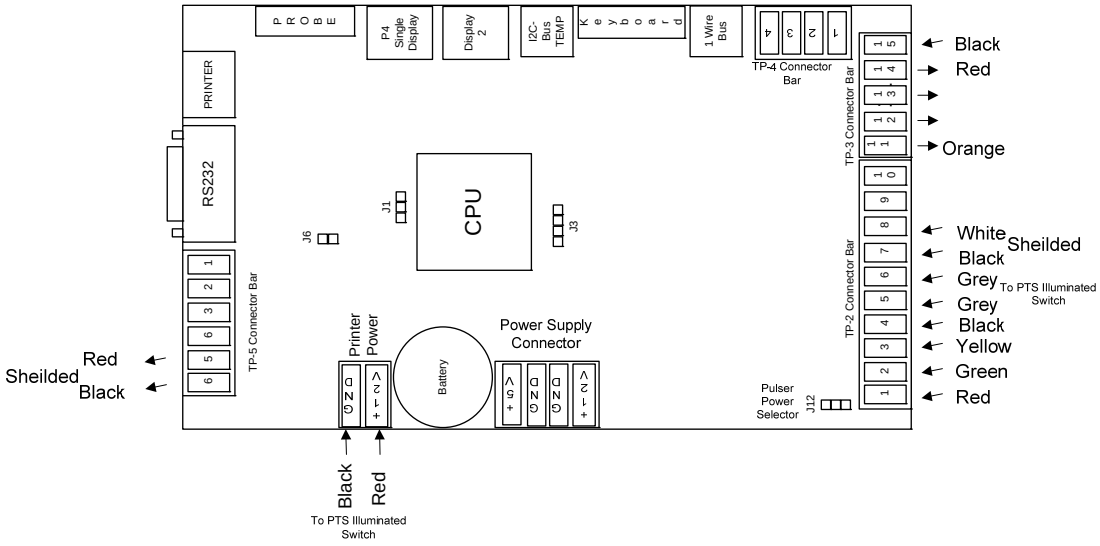
RED wire, Connect to motor starter relay for control of motor contactor, max 1.5 amps
NOTE: For multiple hoses/dispensers, the TP3-14 RED Motor Starter wires MUST NOT be combined. Use a relay such FINDER 48.31.8.120.0060.SPA or equivalent to isolate separate dispensers

SHEILDED Wires:

RED / BLACK Pair
RED wire, Connect to Pulser + supply voltage from card reader
(usually 5-12 vdc)
BLACK wire, Connect to Pulser – for signal to card reader
(NOTE: some card readers require a resistor to be installed between the + & - Pulse wires)

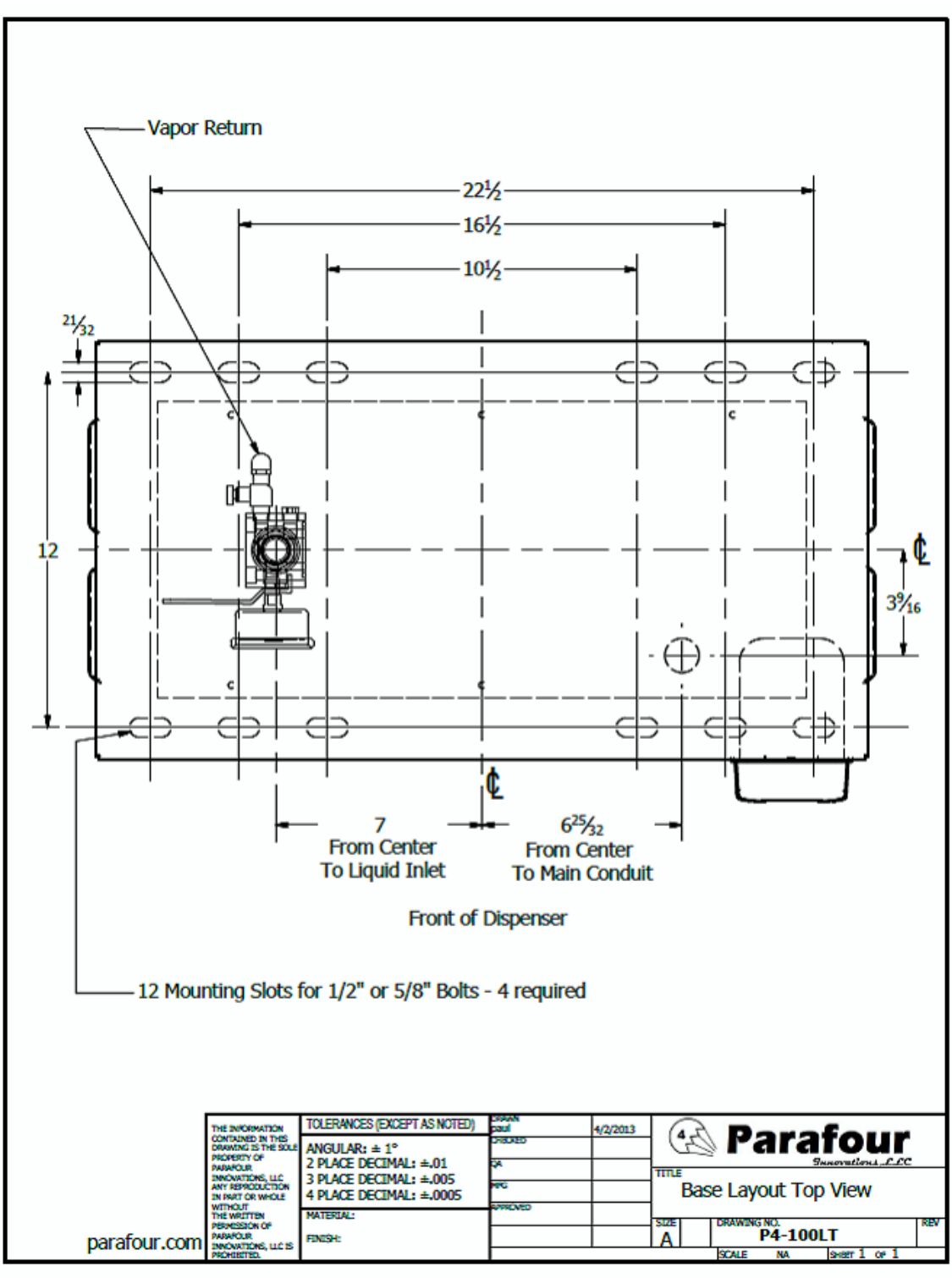
WHITE / BLACK Pair
WHITE wire, Connect to card reader authorize relay, NO, close on authorize
BLACK wire, Connect to card reader authorize relay, NO, close on authorize
(NOTE: Some card readers require either a modification to the control board (such as Fuel Master FMU2500), or a special control board (Fuel Master FMU2500) or that a separate relay be installed in the card reader)

NOTE: For card reader installations, PARAFOUR DOES NOT recommend that the solenoid be used as a control point. The dispenser should be configured for a card reader, and both units properly interconnected and configured to work together.



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Dispenser Mounting Base Footprint



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