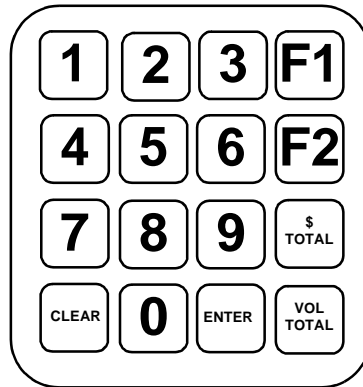


Programming

This section provides programming instructions for all Gilbarco electronic pumps and dispensers. You can do all electronic programming at the pump or dispenser.

Modular

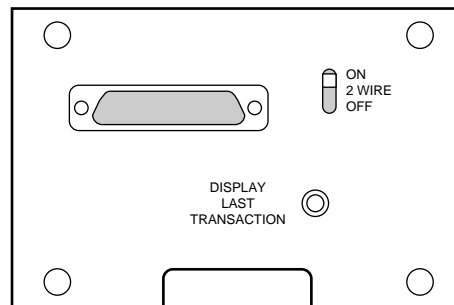
If the unit has a numeric keypad, it uses modular electronics. This keypad sits behind the locked access door on the A side of the electronics module. For The Advantage® series, it mounts on a removable magnetic pad that attaches to the inside cabinet or it mounts on the inside right options door.



Modular Numeric Keypad

Pre-Modular

Older units (pre-modular), built before May of 1986, need an external command module to program grades, prices and volume allocation. Other programming is set by jump jacks. These units have a command module jack behind the access door.



Pre-modular Command Module Jack

Modular Electronics Programming

Modular electronics requires the use of a numeric keypad for programming. When using the keypad, each time you press a key that action displays on the main display.

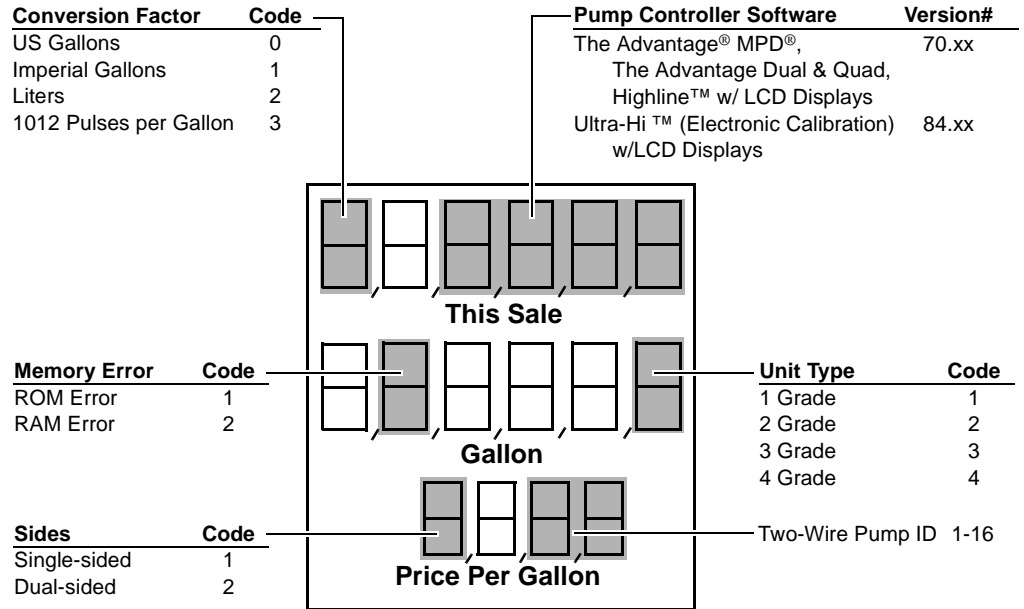
Power-Up Display

For your convenience, copy this page and use the forms below to record the displayed information on the pumps for reference.

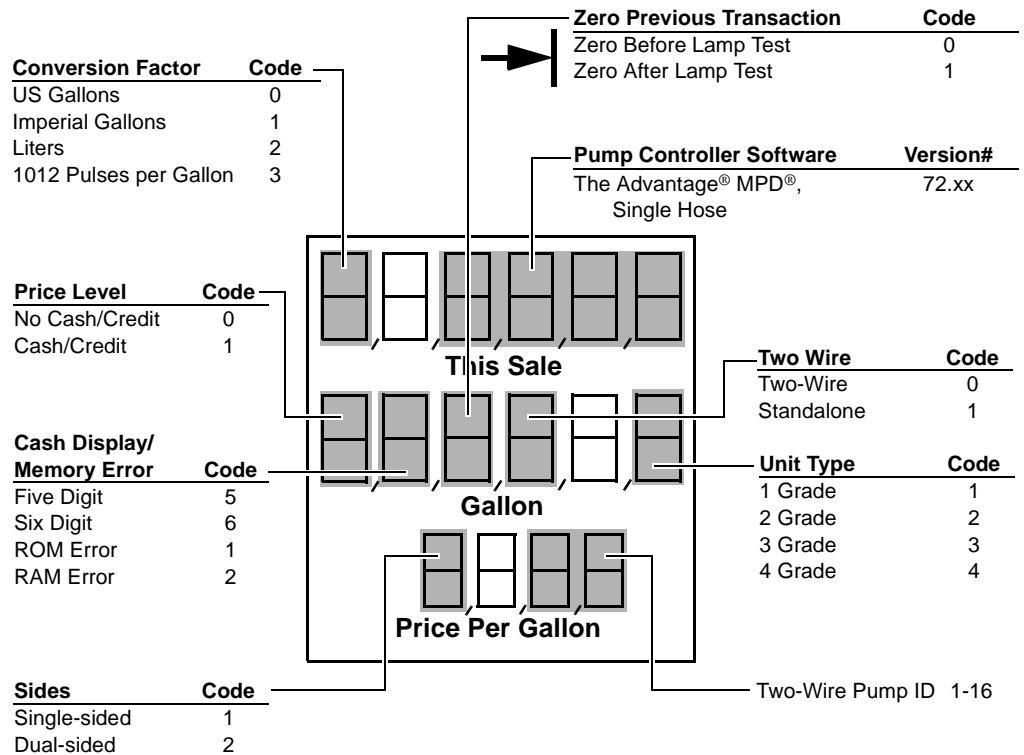
Date: Model Type: Location:	Pump#:	Date: Model Type: Location:	Pump#:	Date: Model Type: Location:	Pump#:
<p>_____ This Sale _____</p>		<p>_____ This Sale _____</p>		<p>_____ This Sale _____</p>	
<p>_____ Gallons _____</p>		<p>_____ Gallons _____</p>		<p>_____ Gallons _____</p>	
<p>_____ Price Per Gallon _____</p>		<p>_____ Price Per Gallon _____</p>		<p>_____ Price Per Gallon _____</p>	
Date: Model Type: Location:	Pump#:	Date: Model Type: Location:	Pump#:	Date: Model Type: Location:	Pump#:
<p>_____ This Sale _____</p>		<p>_____ This Sale _____</p>		<p>_____ This Sale _____</p>	
<p>_____ Gallons _____</p>		<p>_____ Gallons _____</p>		<p>_____ Gallons _____</p>	
<p>_____ Price Per Gallon _____</p>		<p>_____ Price Per Gallon _____</p>		<p>_____ Price Per Gallon _____</p>	
Date: Model Type: Location:	Pump#:	Date: Model Type: Location:	Pump#:	Date: Model Type: Location:	Pump#:
<p>_____ This Sale _____</p>		<p>_____ This Sale _____</p>		<p>_____ This Sale _____</p>	
<p>_____ Gallons _____</p>		<p>_____ Gallons _____</p>		<p>_____ Gallons _____</p>	
<p>_____ Price Per Gallon _____</p>		<p>_____ Price Per Gallon _____</p>		<p>_____ Price Per Gallon _____</p>	

On a preprogrammed unit, the following information displays for two or three seconds after you turn unit power on.

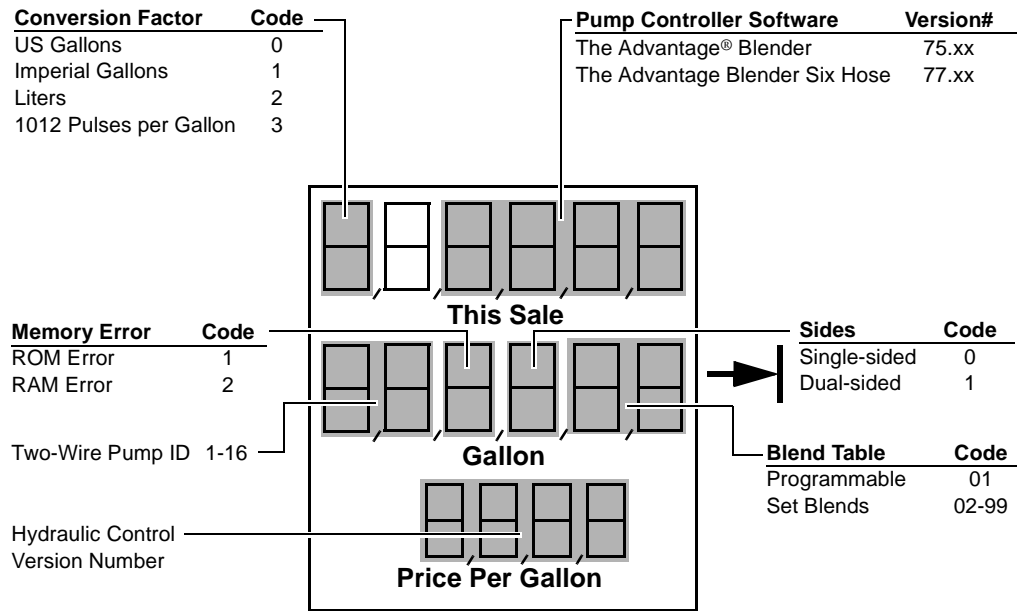
→ **The Advantage® MPD®, Dual and Quad, 4 x 4;
Highline™ and Ultra-Hi™ (Electronic Calibration) with LCD Displays;
Dimension®;
Performer™**



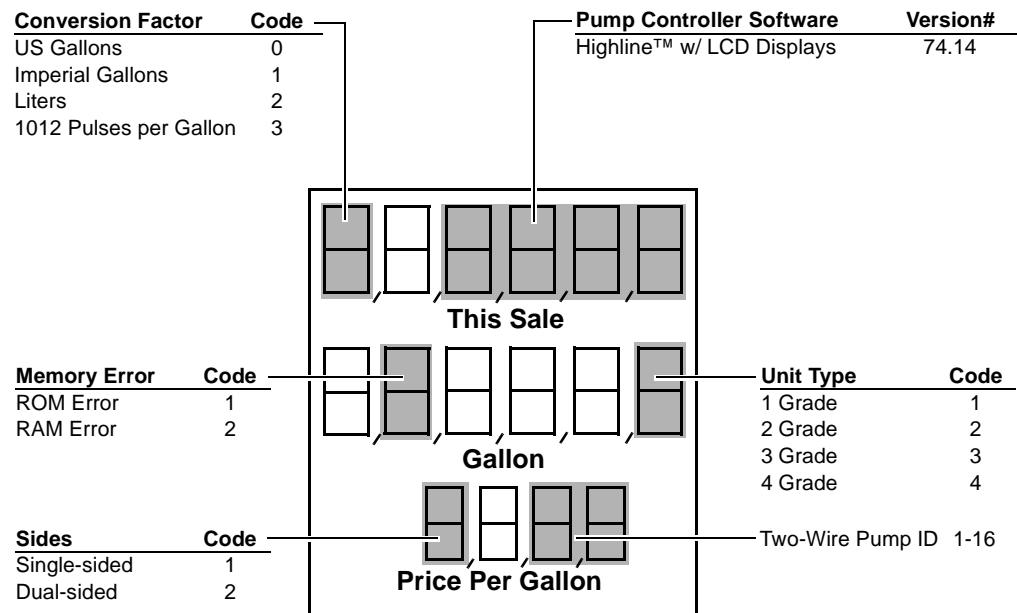
The Advantage MPD® Single Hose



The Advantage® Blender and The Advantage Blender Six Hose



Highline™ w/LCD Displays (Argentina Only)



Highline™, MPD®-1, MPD-3, Salesmaker™-2H and 4H with SIDs

Conversion Factor

(Non Ultra-Hi)	Code
U.S. Gallons	0
Imperial Gallons	1
U.S. Gallons to Liters	2
125 Pulses Per Liter	5
500 Pulses Per Gallon	6
132.1 Pulses Per Liter	7
1012 Pulses Per Gallon	8

Conversion Factor

(Ultra-Hi Only)	Code
1000 Pulses Per Gallon (Test Only)	0
Imperial Gallons	1
500 Pulses Per Gallon	2
Liters	3

Pump Controller Software **Version#**

Highline™, Super-Hi™, Salesmaker™ 2H and 4A, MPD®-1/3, MPD Fixed Blender w/ SID Displays	53.x
MPD-3 with LCD Displays	54.x
Highline, Super Hi Liters Only w/ SID Displays	55.x
Ultra-Hi™ (Electronic Calibration) w/SID Displays	80.x
Ultra-Hi™ (Electronic Calibration) w/SID Displays Liters Only	81.x

Memory Error **Code**

ROM Error	1
RAM Error	2

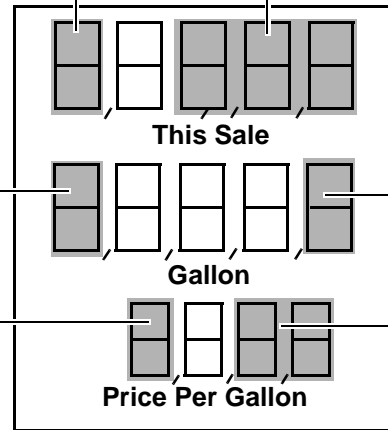
Sides -Blender

Memory Error	Code
Single-sided	1
Dual-sided	2

Unit Type **Code**

Highline, Salesmaker-2	1
Salesmaker- and 4A	2
MPD Three-Product	3
MPD Four-Product	4

Two-Wire Pump ID 1-16



MPD Pro Blender™, MPD Precision Blender™ and Salesmaker Pro Blender™

Conversion Factor	Code
U.S. Gallons	0
Imperial Gallons	1
U.S. Gallons to Liters	2
125 Pulses Per Liter	5
500 Pulses Per Gallon	6
132.1 Pulses Per Liter	7
1012 Pulses Per Gallon	8

Pump Controller Software **Version#**

MPD Pro Blender™, Salesmaker Pro Blender	62.x
MPD Precision Blender™	68.x
MPD Precision Blender™ (Liters only)	69.x

Sides - Blender

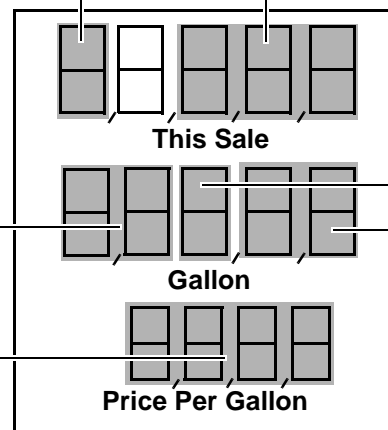
Memory Error	Code
Single-Sided	1
Dual-Sided	2
ROM Error	3
RAM Error	4
Hydraulic Controller ROM Error	5
Hydraulic Controller RAM Error	6

Two-Wire Pump ID 1-16

Blender Control Software Version Number

Blend Table **Code**

Programmable	01
Set Blends	02-99



Entering Personal Identification Number (PIN)

For entry into the system, modular electronics uses a programmable PIN (Personal Identification Number). There are three programming levels. Entering each level requires a separate PIN.

Note: When programming, Side 1 is Side "A" or the junction box side of the unit, Side 2 is referred to as Side "B".

Abbreviations used throughout instructions:

PIN Personal Identification Number
 MSD Most Significant Digit (example: 4386, 4 = MSD)
 LSD Least Significant Digit (example: 4386, 6 = LSD)

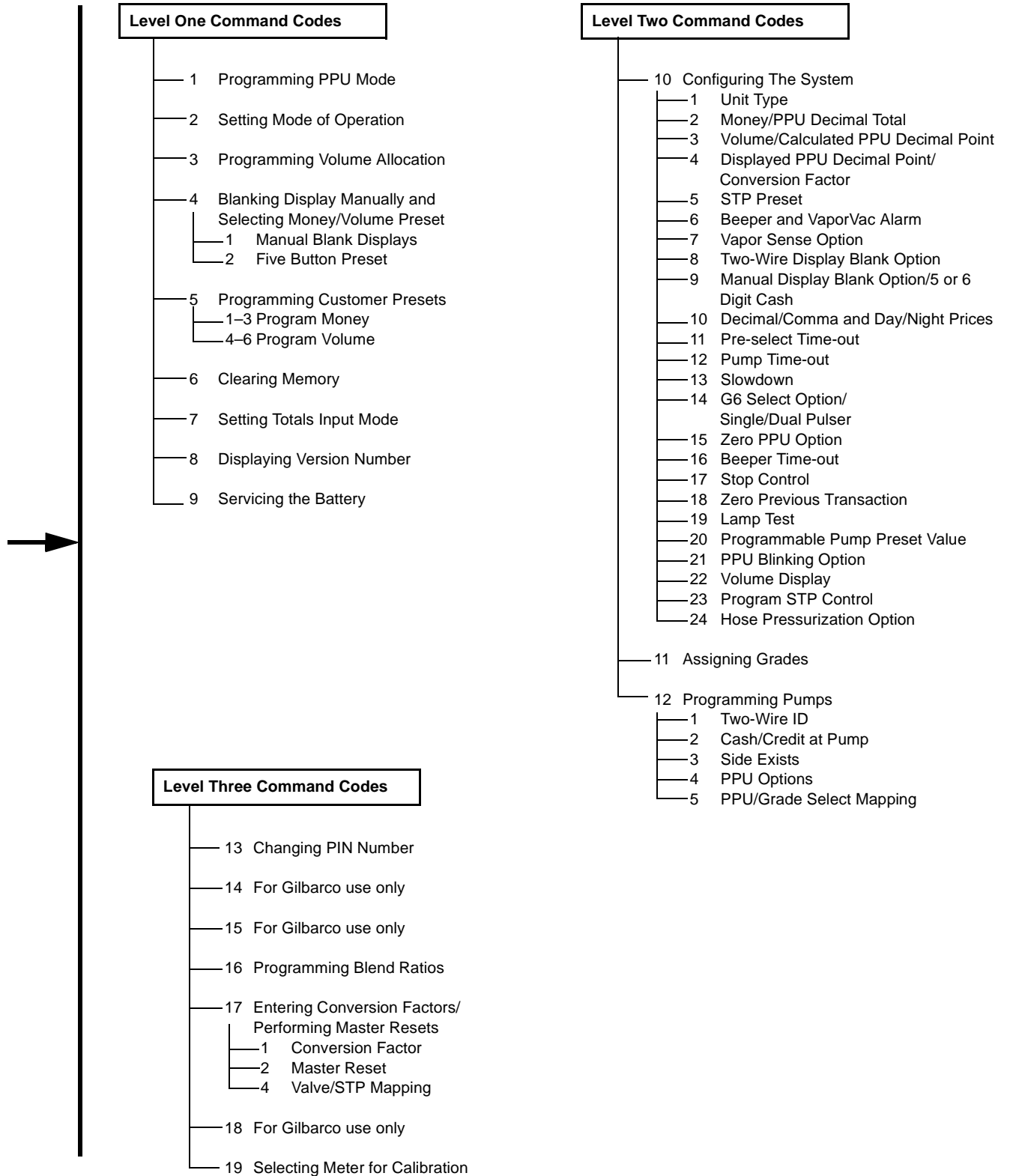
You must enter a four-digit PIN code (default 2222) to use all programming functions and levels. Separate PIN code entry is required for each level. To assign or change PIN codes, see Command Code 13.

To Use Command Codes	Press
Level One (1-9)	<ul style="list-style-type: none"> • Press F1. A decimal point (.) displays in the Money display and a one (1) displays in the Volume display. • Enter 4-digit user Level One PIN code. The default is 2222. Start with MSD. A zero (0) displays for each digit. • Press ENTER. <p>If flashing eights (8888) display in the Money display, you entered a valid Level One PIN code.</p> <p>If a decimal point (.) displays in the Money display and a one (1) displays in the Volume display, you entered an invalid Level One PIN code. Re-enter a valid Level One PIN code.</p>
Level Two (10-12)	<p>From any Level One Command Code:</p> <ul style="list-style-type: none"> • Press F1. Flashing eights (8888) display in the Money display. • Enter the Level Two Code (10-12) to access. • Press ENTER. A decimal point (.) displays in the Money display and a two (2) displays in the Volume display. • Enter 4-digit Level Two PIN code. The default is 1503. • Press ENTER. <p>If flashing eights (8888) display in the Money display, you entered a valid Level Two PIN code.</p> <p>If a decimal point (.) displays in the Money display and a two (2) displays in the Volume display, you entered an invalid Level Two PIN code. Re-enter a valid Level Two PIN code.</p>
Level Three (13, 16-17, 19)	<p>From any Level Two Command Code:</p> <ul style="list-style-type: none"> • Press F1. Flashing eights (8888) display in the Money display. • Enter Level Three Code (16-17) to access. <p>Note: <i>Cannot use code 13 to enter Level Three.</i></p> <ul style="list-style-type: none"> • Press ENTER. A decimal point (.) displays in the Money display and a three (3) displays in the Volume display. • Enter 4-digit Level Three PIN code. The default is 1309. • Press ENTER. <p>If flashing eights (8888) display in the Money display, you entered a valid Level Three PIN code.</p> <p>If a decimal point (.) displays in the Money display and a three (3) displays in the Volume display, you entered an invalid Level Three PIN code. Re-enter a valid Level Three PIN code.</p>

Press F1 to exit any command code or enter another.

Press F2 to exit programming and return to normal operation.

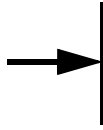
Programming Command Codes Quick Reference



Level One Command Codes

To access Level One command codes:

- Press F1.
- Enter your PIN (default 2222).



To access a different Level One command code (from any command code):

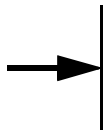
- Press F1.
- Enter the command code to access.
- Press ENTER.

Programming PPU Mode (Command Code 1)

Program the price per unit (PPU) for each side, grade, and price level (cash/credit).

- 1 Press 1, then press ENTER.
- 2 Select side, then press ENTER.

To Program	Press
Side 1 (side with junction box)	1
Side 2	2
Both sides	3



- 3 Select grade then press ENTER. Price level number flashes.
Note: The number of hoses/grades vary for each model.
- 4 Select Price Level, then press ENTER. The PPU flashes

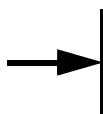
To Program	Press
Cash price levels	1
Credit price levels	2

- 5 Enter new PPU. Start with MSD (example: 1.259; press 1,2,5,9). Press ENTER.
- 6 Repeat steps 2 through 6 to program all sides, grades and price levels.

Setting Mode of Operation (Command Code 2)

Choose mode of operation, two-wire or standalone (with or without console control) for your pump/dispenser.

- 1 Press 2, then ENTER.
- 2 Select mode, then press ENTER.



To Set	Press
Standalone (without console control)	0
Two-wire operation (with console control)	1

Note: This is the default.

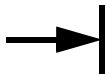
Programming Volume Allocation (Command Code 3)

Set a maximum limit on fuel volume pumped per customer.

- 1 Press 3, then ENTER.
- 2 Select side, then press ENTER.

To Program	Press
Side 1 (side with junction box)	1
Side 2	2
Both sides	3

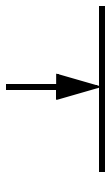
- 3 Select hose/grade, then press ENTER. The number of hoses/grades vary for each model.



- 4 Enter allocation amount. Start with MSD. For example, to enter 5.00 gallons, press 5, 0. The default is 000.0 (no allocation limit). You cannot enter the hundredths digit.
- 5 Press ENTER. Side number flashes.
- 6 Repeat steps to program all sides, grades and price levels.

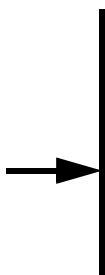
Blanking Display Manually and Selecting Money/Volume Preset (Command Code 4)

- 1 Press 4, then ENTER.
- 2 Select Function Code one or two as desired, then press ENTER.



Function Code 1: Manual Blank Displays

For This Function	Press
Displays off	0
Displays on (Default)	1



Function Code 2: Five Button Preset

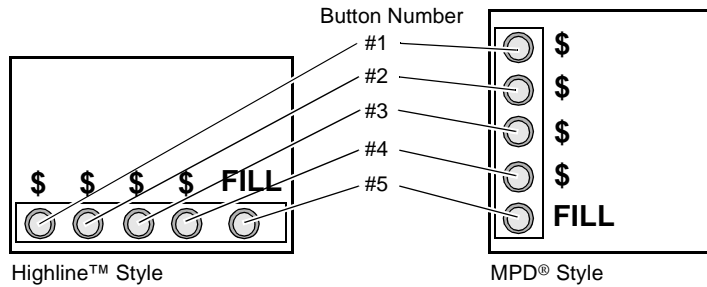
For This Function	Press
No Five Button preset * (Default)	0
Money preset	1
Volume preset	2
Incremental presets (for v.70.8.3 or higher)	3

* If Programmable pump preset is present, unit cannot be programmed to five button operation.

Programming Customer Presets (Command Code 5)

Five-Button Preset

Five-button customer preset uses five raised push-buttons or a five position membrane switch for selection. Selections are fixed and cannot be changed by the customer. The following are examples of five button presets.



Use the following procedure to program five-button customer presets.

Note: Use only with software versions 53.X, 55.X, 74.X, and 70.6 and higher.

- 1 Press 5, then ENTER.
- 2 Select side, then press ENTER.

To Program	Press
Side 1 (side with junction box)	1
Side 2	2
Both sides	3

- 3 Select Preset button number then press ENTER. Buttons are arranged from left to right or top to bottom. See illustrations above for button numbers.

Button Number	Default Value
1 (Left-most, or top)	\$1
2 (Second from left or top)	\$5
3 (Third from left or top)	\$10
4 (Fourth from left or top)	\$15
5 (Bottom or right)	Automatically set for FILL

- 4 Enter new amount. Enter in whole numbers, start with MSD (valid 5.00; invalid 5.22), then press ENTER.
- 5 Repeat steps 3 - 4 to program preset amount for each button.

Continued →

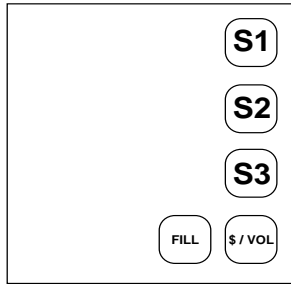
(Command Code 5, Continued)

Five-Button Incremental Pump Preset Option

Incremental preset uses a keypad for selections and the main LCD display board to display preset amount. Customers can enter their own money or volume amount (based on preset amounts). Customers select preset amount or can add preset amounts together for desired amount.

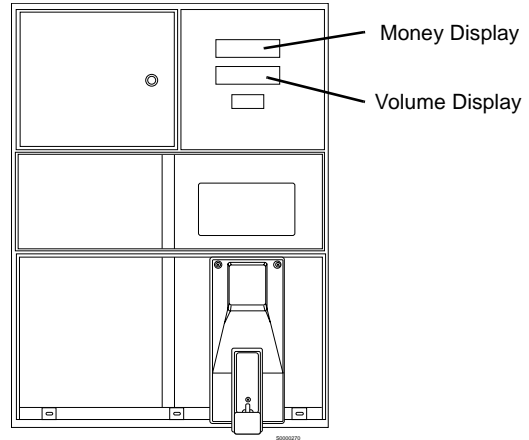
Note: This option is available only with v70.8.3 (or higher) software.

Example: If preset amounts are \$1, \$5 and \$10, and the customer wants to deliver \$15 of fuel, the customer would press the \$10 and \$5 preset buttons ($\$10 + \$5 = \$15$).



S0000269

Incremental Preset Keypad (Example)



Keypad Functions

Button	Function	Customer Usage
S1, S2 and S3	Retains preset value	Select preset value, continue to add to this amount by pressing additional values.
\$/VOL	Toggles between money and volume	Choose preset money or volume.
FILL	Clears preset amount	Reset to fill-up mode.

See “Blanking Display Manually and Selecting Money/Volume Preset (Command Code 4)” on page 5-8 for more information.

To program keypad for Incremental Preset Option, set Command Code 4, Function Code 2, Configuration Code 3 for Incremental Preset.

Function Code 1-3: Program Money

- 1 Enter desired amount for money value.

Program Button	Default Setting	Function
1	1	Money
2	5	
3	10	

(i.e. S1 programmed for \$1.00, S2 programmed for \$5.00 and S3 programmed for \$10.00)

- 2 Press ENTER.

Function Code 4-6: Program Volume

- 1 Enter desired amount for volume.

Program Button	Default Setting	Function
4	1	Volume
5	5	
6	10	

(i.e. S1 programmed for 1 gallon, S2 programmed for 5 gallons and S3 programmed for 10 gallons)

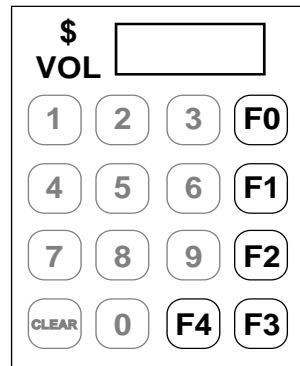
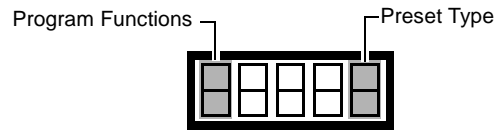
- 2 Press ENTER.



(Command Code 5, Continued)

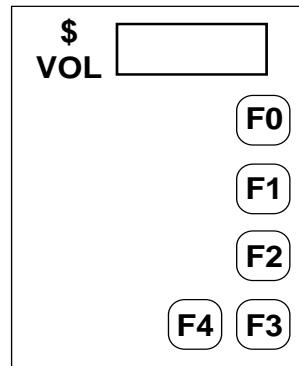
Five-Button Customer Programmable Pump Preset Option

Customer Preset uses a keypad and display assembly for selection. Customers can program their own dollar or volume amount.



S0000271

Customer Programmable Preset



S0000272

Five Button Programmable Preset

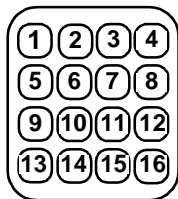
Use the following procedure to program Customer Programmable Presets.

Note: Pressing F2 twice at anytime will reset all programming and restart sequence.

- 1 Press 5, then ENTER.
- 2 Initialize self test. Press 1 then ENTER twice for The Advantage® series and Highline™ series with LCDs. Self test must take place before you can program.

Self Test Sequence

11.111 displays for one second, 222.22 for one second, 3333.3 for one second, 44444 for one second and 55555 for one second.
An 8 displays, then moves across the screen from left to right.
The display blanks and the beeper sounds twice.



- 3 After self test, continue with keypad test. If you do not start the keypad test within five seconds, the test aborts and the display returns to normal.

Keypad Test Sequence

Starting with 1, press each key in order ending with VOL. The beeper sounds after you press each key. The display shows the key number you pressed (1 being first and 16 for VOL being last, see illustration at left).

Note: If you do not start programming within ten seconds the display returns to normal.

- 4 After keypad test, press F3 twice on preset keypad then press F0 to change the following:
 - 0 in LSD position = Decimal Mode (number of decimal places matches main display board).
 - 1 in LSD position = Whole units only, no decimals (Customer Programmable Preset only not Five Button).
- 5 Press F4 then press F0 to change the following:
 - 0 in LSD position = Customer Programmable Preset
 - 1 in LSD position = Five Button Non Cumulative Preset
 - 2 in LSD position = Five Button Cumulative Preset

Continued →

- 6 Press F2 on Manager Keypad to exit if programming Customer Programmable Preset or
Press F4 if programming Five-Button Customer Programmable Preset.
- 7 Program Five Button Customer Programmable Preset. Buttons are pre-programmed to \$5, \$10, \$15, and \$20 values.

To Program This Button	Press
F0 for \$2	F0 twice, then F4
F1 for \$5	F0 five times, then F4
F2 for \$12	F0 twice, then F1 F0 once, then F4
F3 for \$30	F1 once F0 three times, then F4

- 8 Press F2 on Manager Keypad to exit programming mode.

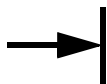
Clearing Memory (Command Code 6)

Perform a total memory clear. A memory clear works only if error code 31 (Totals Data Error) or 35 (Configuration Data Error) occurs. Record all totals before reset.

- 1 Press 6 then ENTER.
- 2 Press 1 then ENTER. System performs power-up reset and continues in normal operation. You must reprogram the unit.

Setting Totals Input Mode (Command Code 7)

Money total displays when Totals Input Mode is entered. Press VOL TOTAL to enter volume totals. Press \$TOTAL to change back to money total.



Only perform Command Code 7 after clearing memory (see Command Code 6), performing a master reset, or for new installs.

- 1 Press 7 then ENTER.
- 2 Select side then press ENTER.

To Program	Press
Side A (side with junction box)	1
Side B	2



- 3 Select grade then press ENTER.
Note: For Blenders, grade 7 = high product, and grade 8 = low product.
- 4 Enter total starting with MSD. Press ENTER.
- 5 Repeat Steps for each side and grade.
- 6 Press VOL TOTAL and repeat steps 3 - 5 for volume totals.

Displaying Version Number (Command Code 8)

Display software version installed in dispenser. Version number displays on volume display.

- 1 Press 8 then ENTER.
- 2 Select software option.

To Select	Press
Pump controller or blender pump controller	1
Blender hydraulics controller	2
Customer programmable preset	3

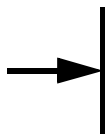
Servicing The Battery (Command Code 9)

Use the following steps to service the battery. All Legacy™ models and all other models built after 12/01/94 have no battery and do not use this test.

- 1 Press 9 then ENTER.
- 2 Select code then press ENTER.

To Select	Press
Battery service error override Use this code only if Error Code 34 displays.	1
Manual Battery Test If the battery test fails and Error Code 34 displays, use the Battery Service Error Override.	2

Level Two Command Codes



Do not allow station owners to program these service command codes. Before programming, know your unit's model number and software version. See "Displaying Version Number (Command Code 8)" on page 5-12.

Note: ASCs are required to use this programming information during the start-up procedure.

To access Level Two command codes:

- 1 Press F1, then enter the Level One PIN code, then press ENTER.
- 2 Enter a Level Two command code (10-12) then press ENTER. A decimal point displays in the money display and a 2 displays in the volume display.
- 3 Enter your Level Two PIN Code (Default 1503) then press ENTER.

Configuring The System (Command Code 10)

Use the steps below to configure the system.

- 1 Press 1, 0, then ENTER.
- 2 Enter a function code number (1-24) then press ENTER.
- 3 Enter a configuration code then press ENTER.
- 4 Choose another function code number or press F2 to exit.

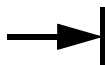
Function Code 1: Unit Type

Use this function code for all software versions. It is recommended to leave these settings at the system defaults.



For This Unit Type	Press
1 Product *	1
2 Products	2
3 Products	3
4 Products	4

* For Legacy, Performer, and The Advantage 4x4 units, always program unit type as "1 Product" for proper STP or motor activation.



Function Code 2: Money Decimal Point

Use this function code only for software versions 70.X, 75.X, 77.X, 72.X, 74.X, 84.X, and V54.X (except 70.0).

For This Money Decimal Point	Press
XXXXX.	1
XXXX.X	2
XXX.XX (Default)	3
XXX.XXX	4

Function Code 2: Money and PPU Decimal Point

Use this function code only for software versions 53.X, 55.X, 62.X, 68.X, 69.X, 70.0, 80.X and 81.X.

For This Money Decimal Point	And This PPU Decimal Point	Press
XXXXX.	XXX.X	1
XXXX.X	XX.XX	2
XXX.XX (Default)	X.XXX (Default)	3
XXX.XX	XXX.X	4

Function Code 3: Calculated PPU Decimal Point

Use this function code only for software versions 70.X, 72.X, 74.X, 75.X, 77.X, 84.X and V54.X (except 70.0).



U.S. Weights and Measures requires configuration code 4.

For This Calculated PPU Decimal Point	Press
XXXXX.	1
XXX.X	2
XX.XX	3
X.XXX (Default)	4

Function Code 3: Volume Decimal Point

Use this function code only for software versions 53.X, 55.X, 62.X, 68.X, 69.X, 80.X and 81.X.

For This Volume Decimal Point	Press
XXX.XX	1
XX.XXX	2
XXX.XX (Presets)	3

Function Code 4: Displayed PPU Decimal Point

Use this function code only for software versions 70.X, 72.X, 74.X, 75.X, 77.X, 84.X and V54.X (except 70.0).



Use this function code when you calculate the PPU in dollars but display the decimal point in cents (e.g., for Canada). You must program function code 3 before function code 4 if the displayed decimal point is different from the calculated decimal point.

For This Displayed PPU Decimal Point	Press
N/A	0
XXXX	1
XXX.X	2
XX.XX	3
X.XXX (Default)	4



Function Code 4: Conversion Factor

Use Command Code 17 (see page 5-23) for programming conversion factor for The Advantage® series. Use this function code only for software version 70.0.

For This Conversion Factor	Press
No conversion factor (Default)	0
U.S. gallons	1
U.S. gallons to imperial gallons	2
U.S. gallons to liters	3
1,012 pulses per U.S. gallons	4

Use this function code only for software versions 53.X, 55.X, 62.X, 68.X, and 69.X.

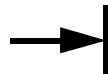
For This Conversion Factor	Press
Unprogrammed (Default)	0
U.S. gallons	1
Imperial gallons	2
U.S. gallons/liters	3
100 pulses per liter	4
200 pulses per liter	5
125 pulses per liter	6
500 pulses per gallon	7
132.1 pulses per liter	8
1,012 pulses per gallon (Not available in precision blenders)	9

Use these configuration codes only for software version 80.X and 81.X.

For This Conversion Factor	Press
Unprogrammed (Default)	0
Factory test only	1
Imperial gallons	2
500 pulses per gallon	3
Liters	4

Function Code 5: STP Prestart

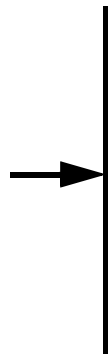
Use this function to program the STP to turn on after pump handle activation. Use this function code with all software versions. Turn this function ON for mechanical line leak detectors, or OFF for most electrical line leak detectors.



To Program the STP	Press
Off	0
On (Default) with pump handle activation	1

Function Code 6: Beeper and VaporVac® Alarm Option

Use this function to program the beeper when you lift pump handles, authorize the dispenser, or press keypad switches. The VaporVac Alarm options are available only in software version 70.8.2 or higher. Use the beeper option with all other software versions. The VaporVac Alarm beeps until warm start occurs.



To Program the Beeper	And the VaporVac Alarm	Press
Off (Default)	Off	0
On (Default for v. 70.8.2 or higher)	Off	1
Off	On *	2*
On	On *	3*

* VaporVac Alarm must be set ON for units in Mexico.

Function Code 7: Vapor Sense Option

Always set to OFF, except for 70.3 and older software: automatically set to ON for units with VaporVac® option (software versions 70.4 and higher). Use this function code only for software versions 70.X, 72.X, 74.X, 75.X, 77.X, 84.X and V54.X.

To Program the Vapor Sense Option	Press
Off (Default)	0
On	1

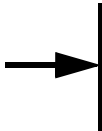
Function Code 8: Two-wire Display Blank Option

Use this function to blank the displays and disable the dispenser. You must perform a \$980.00 preset at the console to blank the displays and a \$981.00 preset to turn them back on. Use this function code for all software versions.

To Program The Two-Wire Blank Option	Press
Off (Default)	0
On	1

Function Code 9: Manual Display Blank Option

Use this function code only for software versions 53.X, 55.X, 62.X, 68.X, 69.X and 70.0.



To Program The Manual Display Blank Option	Press
Off	0
On (Default)	1

Function Code 9: 5 or 6 Digit Cash

Use this function to program five or six digits of cash. You must program control console/cash register to same mode for proper operation. Use this function code only for software versions 70.X, 72.X, 74.X, 75.X, 77.X, 84.X and V54.X, except 70.0.

To Program The Digits of Cash	Press
5 Digits of cash (Default)	0
6 Digits of cash	1

Function Code 10: Decimal/Comma

Use this function to set commas instead of decimals for all displays. Use this function code only for software versions 70.X, 72.X, 74.X, 75.X, 77.X, 84.X, and V54.X.



To Program The Decimal/Comma	Press
Decimal (Default)	0
Comma	1

Function Code 10: Day/Night Price Mode

Use this function only for software versions 53.X, 55.X, 62.X, 68.X, 69.X, 80.X, 81.X.

To Program The Day/Night Mode	Press
No (Default)	0
Yes	1

Function Code 11: Pre-select Time-out**Function Code 12: Pump Time-out**

Pre-select Time-out allows time at the pump before you raise the handle to make cash/credit, preset or grade selections. Pump Time-out limits customers time to start dispensing fuel with nozzle ON. Use these function only for software versions 53.X, 55.X, 62.X, 68.X, 69.X and 70.0.

For This Time-Out	Press
None	0
15 seconds (Default)	1
30 seconds	2
45 seconds	3
60 seconds	4
75 seconds	5
90 seconds	6
120 seconds	7

Use these function codes only for software versions 70.X, 75.X, 77.X, 84.X and V54.X, except 70.0.

For This Time-Out	Press
None (Default)	0
5 seconds	1
15 seconds	2
30 seconds	3
45 seconds	4
60 seconds	5
75 seconds	6
90 seconds	7
120 seconds	8

Function Code 13: Slowdown

Program the point at which the dispenser goes into slowdown on all non-blenders. Use these function codes only for software versions 70.X, 72.X, 74.X, 84.X and V54.X. Ultra-Hi units may require a higher setting than the default for proper operation

For This Slowdown	For V84.2.5 (or higher) Ultra-Hi units only	Press
.070 gallons (.265 liters)	.280 (1.183)	0
.120 gallons (.454 liters) (Default)	.480 (1.947)	1
.170 gallons (.643 liters)	.680 (2.759)	2
.220 gallons (.833 liters)	.880 (3.570)	3
.270 gallons (1.02 liters)	1.080 (4.382)	4
.320 gallons (1.21 liters)	1.280 (5.193)	5
.370 gallons (1.40 liters)	1.480 (6.001)	6
.420 gallons (1.59 liters)	1.680 (6.816)	7
.470 gallons (1.78 liters)	1.880 (7.627)	8
.520 gallons (1.97 liters)	2.080 (8.439)	9

Use these function codes only for software versions 53.X and 80.X.

For This Slowdown	Press
Normal	0
Ultra-Hi™ high gallonage	1

Function Code 14: G6 Select Option

Program the Grade 6 select button so the customer must press it before a transaction can begin. Use this function code only for software version 75.X, The Advantage® blenders.

For This G6 Option	Press
Do not press G6 Select	0
Must press G6 Select (Default)	1

Function Code 14: Single/Dual Pulser

Program the unit to single or dual pulser. Set to “1” for Super-Hi high gallonage units. Use this function code only for software versions 53.X and 55.X.

To Program	Press
Single pulser (Default)	0
Dual pulser, for Super-Hi™ high gallonage units	1

Function Code 15: Zero PPU Pricing

Allows fuel dispensing with a PPU of zero (fleet operations only). Use this function code only for software versions 70.X, 75.X, 77.X, 84.X, and V54.X, except 70.0.

To Program Zero PPU Pricing	Press
Disabled (Default)	0
Enabled	1

Function Code 16: Beeper Time-out

Use with Function Code 12 to give an audible signal for pump time-out. After pump time out, the beeper beeps for X seconds, then deactivates. Use this function code only for software versions 70.X, 75.X, 77.X, 84.X, and V54.X, except 70.0.



For This Beeper Time-Out	Press
None (Default)	0
5 seconds	1
15 seconds	2
30 seconds	3
45 seconds	4
60 seconds	5
75 seconds	6
90 seconds	7
120 seconds	8

Function Code 17: Stop Control

Deactivates one or both sides of a dispenser. Deactivation is automatic if the Push To Stop Button is installed. Use this function code only for software versions 70.X, 72.X, 74.X, 75.X, 77.X, 84.X, and V54.X, except 70.0.

To Program STOP Control	Press
For one side (Default)	0
For two sides	1

Function Code 18: Zero Previous Transaction

Programs the dispenser to reset the last transaction after lamp test (normal) or after the pump handle is raised and unit is authorized. You must use Configuration Code 1 for New Jersey installs.

Use this function code only for software versions 70.X, 72.X, 74.X, 75.X, 77.X, 84.X, and V54.X (except 70.0.).

To Zero Previous Transactions	Press
After lamp test (Default)	0
Before lamp test	1

Function Code 19: Lamp Test

Use this function code only for software versions 70.7.4, 72.X, 74.X, 75.X, 77.X, 84.X, and V54.X (except 70.0).

To Perform	Press
<i>Not used</i>	0
One second lamp test	1
Two second lamp test	2
Three second lamp test (Default)	3
Four second lamp test	4
Five second lamp test	5
Six second lamp test	6
Seven second lamp test	7
Eight second lamp test	8
Nine second lamp test	9

The specified time is the delay between STP/motor activation and valve activation only if STP prestart is activated.

Use this function code only for software version 70.3.

To Perform	Press
Three second lamp test (Default)	0
One second lamp test	1

Function Code 20: Programmable Pump Preset Value

Normally set to "0". Program to "1" for use with 6-digit cash programming. Use this function code only for software versions 70.X, 72.X, 74.X, and V54.X, (except 70.0-70.2).

To Set Programmable Pump Preset Value	Press
X1 (Default)	0
X10	1

Function Code 21: PPU Blinking Option

Program the PPU displays in the price bar to blink under certain conditions. Use this function code only for software versions 70.3 and higher, and 72.X.

To Set PPU Blinking	Press
Off	0

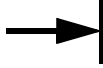
To Set PPU Blinking	Press
On (Default)	1

Function Code 22: Volume Display

Use this function to program the volume display. Use this function code only for software versions 70.7.5 and 72.1.4 and higher. When programmed to 1, the decimal point is not shown on the display. Function code 22 is not approved by U.S. Weights and Measures.



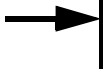
To Set Volume Display	Press
XXX.XXX (Default)	0
XXXXXX	1



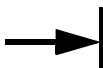
Note: If set to “1”, decimal point will not show.

Function Code 23: Program STP Control

Use this function to activate all STPs on all transactions (regardless of which grade is selected). Use this code for The Advantage® MPD single-hose units only for software versions 75.4.4, 77.3.5, and 72.1.4 and higher.



To Set STP Control	Press
Off (Default)	0
On	1



Function Code 24: Hose Pressurization Option

Use this function to pressurize the hose during lamp tests of the first transaction after a power up or the first transaction after a period of inactivity. Use this function code only for software versions 77.3.5, 75.4.4, 72.1.4, and 70.7.5 and higher.



Note: Use this function only when instructed by Gilbarco Technical Support.



Before using this function, first determine if the unit has version 10.6.3 software installed on the blender hydraulic interface board. If version 10.6.3 exists and Function Code 24 is programmed to “1”, update the software to at least version 10.6.5 and master reset the unit using the jump jack on the main display. (Do not use Command Code 17 to perform the master reset.) This will prevent overrun and underrun presets. See PSB 08-97 for more information.



To Set Hose Pressurization Option	Press
Off (Default)	0
On, up to two hours	1
On, up to 1/2 hour	2

Assigning Grades (Command Code 11)

Program all grade assignments at the console, cash register or G-SITE™ system. Grade mapping means that the console, not the pump, keeps track of grades.

Programming Pumps (Command Code 12)

Program the pump as follows.

- 1 Press 1, 2 then ENTER.
- 2 Select side then press ENTER.

To Program	Press
Side A (side with junction box)	1
Side B	2

- 3 Enter a function code number (1-5) then press ENTER.
- 4 Enter a configuration code then press ENTER.
- 5 Choose another function code number or press F2 to exit.

Function Code 1: Two-wire ID

Do not use the same ID (address) number for units (or unit sides) on the same data loop. For a G-SITE with CRIND configuration, Side “A” always defaults to 7, Side “B” always defaults to 11. If ID numbers are different, you must program Side “A” to 7, Side B to 11.

To assign a number 1-16, press that number on the keypad.

Function Code 2: Cash/Credit at Pump

When programmed to “Yes,” the customer must make a selection at the unit by pressing the Cash or Credit button.

To Program	Press
No (Default, required for CRIND™ dispenser)	0
Yes (Required if the console is programmed for cash/credit price levels)	1
Yes (For H111B with LCD and cash/credit only)	2

Function Code 3: Side Exists

Use this option for single-sided units only.

To Program	Press
Does not exist	0
Exists (Default)	1

Continued →

Function Code 4: PPU Options

This option is used mainly with single level CRIND™ units and split island operation.

- If the unit has single-level PPU displays (T17539-G3, T18699-G1 or -G2), select option 0. The PPU will display the price regardless of the level sent from the console or CRIND.
- If the unit has dual-level PPU displays (T17539-G2, T18705-G1 or -G2), select option 1. The level 2 (bottom) display is used for single level price posting when top display is covered.

To Program	Press
Level 1 price bar displays level sent by console or CRIND card reader	0
Normal (Default)	1
Level 2 price bar, level 1 prices, level 1, level 2 prices	2
Level 2 price bar displays level sent by console or CRIND card reader (V70.6 and higher)	3

Function Code 5: PPU/Grade Select Mapping

This option is used only with Optimum™ units.

To Program	Press
Normal (Default)	0
Outside PPU/grade select reversed	1

Level Three Command Codes

Do not allow station owners to program these service command codes. To access Level Three command codes:

- 1 Press F1, then enter the Level One PIN.
- 2 Enter a Level Two command code (10-12) then press ENTER.
- 3 Enter your Level Two PIN Code (Default 1503) then press ENTER.
- ➔ 4 Enter Level Three command code (16 or 17) then press ENTER.
- 5 Enter your Level Three PIN Code (Default 1309) then press ENTER.

Changing PIN Code (Command Code 13)

Use the following procedure to change PIN code.

- 1 Press 1, 3 then ENTER.
- 2 Select a level number (1, 2 or 3) then press ENTER.
- 3 Enter new PIN code.

Programming Blend Ratios (Command Code 16)

You must be in Level 3 to change blend ratios.

- 1 Press 1, 6, then ENTER.
- 2 Select side number (1-3) then press ENTER.

To Program	Press
Side A (side with junction box)	1
Side B	2
Both sides	3

- 3 Select grade number 1-5 then press ENTER. The following table contains the recommended grade numbers for each model. Use the following table when programming grades.

For These Models	Program These Grades
MPD Precision Blenders and Fixed Blenders	Grade 1, 2, and 3
The Advantage Series Six-Hose (Fixed) Blenders	Grade 1, 2, and 3 (see programming note on following page)
MPD ProBlenders, Salesmaker Pro, and The Advantage Series Selectable Blenders	Grades 1, 2, 3, 4, and 5 * Add Grade 6 for an unblended hose.

* For three grades, program as Grade 1, 3, 5, and 6 for an unblended hose. (Certain modifications may allow Grades 1, 2, 3, and 6.)

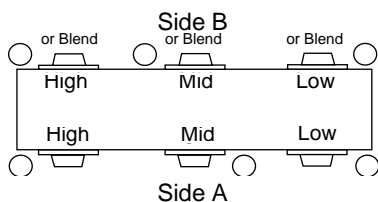
- 4 Select low product blend percentage then press ENTER. The high product blend percentage calculates automatically.
- 5 Repeat sequence for remaining grades.

Programming The Advantage® Six Hose Blender

The Advantage Series Six-Hose Blender is available in two configurations: symmetrical and mirror image. The difference is in the grade layout on side B of the unit.

The following programming examples assume blends of 100%, 60%, and 0%. These numbers are for this example only. When programming blend percentages, use the blend ratios provided by site personnel. See PSB 30-97 for more information.

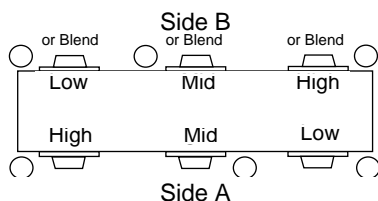
Mirror Image



Program:

Side A: G1 = 100 G2 = 60 G3 = 0
 Side B: G1 = 100 G2 = 60 G3 = 0

Symmetrical Image



Program:

Side A: G1 = 100 G2 = 60 G3 = 0
 Side B: G1 = 0 G2 = 60 G3 = 100

Map side B grades at the console to ensure the correct prices are shown in the PPU's.

Entering Conversion Factors/Performing Master Resets (Command Code 17)

Follow the steps below to enter conversion factor and perform a master reset.

- 1 Press 1, 7 then press ENTER.
- 2 Enter Function Code then press ENTER.
 If you select Function Code "2" and press ENTER, then select 1 and press ENTER, the unit performs a master reset and returns to normal operation. See "Function Code 2: Master Reset", below.
- 3 Enter configuration code, then press ENTER.

Function Code 1: Conversion Factor

Use this function code only for software versions 70.X, 72.X, 74.X, 75.X, 77.X, 84.X, and V54.X, except 70.0. For version 84.X, calibration switch must be ON before conversion is entered. See "Meter Calibration" on page 6-30 for more information.

To Program	Press
No conversion factor (Default)	0
U.S. gallons	1
Imperial gallons	2
Liters	3
1,012 pulses per gallon	4

Function Code 2: Master Reset

Use this function code only for software versions 54.0, 70.4, 72.0, 75.3, 77.2 and higher.

To Program	Press
N/A	0
Master reset	1

Function Code 4: Valve/STP Mapping

Use this function code only for Optimum™ units. This function is required programming to eliminate error code 4350.

To Program	Press
Not programmed (default)	0
Normal	1
Outside valves reversed	2

Selecting Meter for Calibration (Command Code 19)

Use this code to calibrate one meter for The Advantage® Super-Hi units with software version 82.0.3 or higher.

- 1 Press 1, 9 then press ENTER.
- 2 Select side number (1-2) then press ENTER.

To Select	Press
Side A (side with junction box)	1
Side B	2

- 3 Select meter number (0-3) to calibrate then press ENTER.

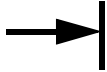
To Select	Press
Normal operation (after calibration)	0
Calibrate A meter only	1
Calibrate B meter only	2
Calibrate both meters	3

Pre-Modular Electronics Programming

Pre-Modular electronics requires the use of a command module and operator panel for two-wire, price and volume allocation programming. All other programming is set by jump jacks on the logic board (see Logic Boards in the Component Section for specific settings).

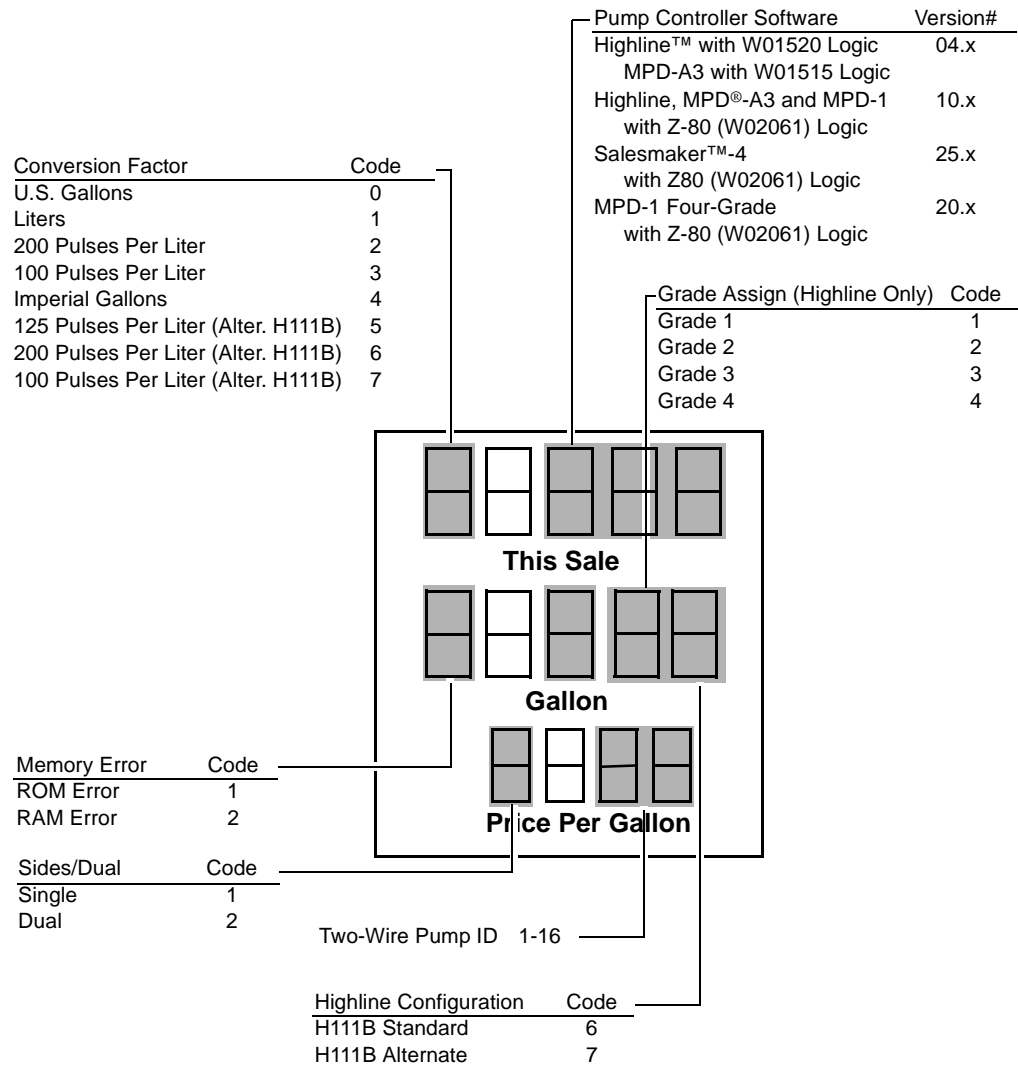
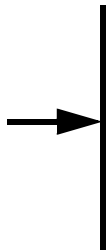
Power-Up Display

Pre-Modular models with a Z-80 (W02061 Logic Board) configuration will display configuration codes on power-up.



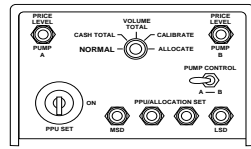
Note: For grade assignments other than the Highline™ series. See “W02061 Logic Board” on page 6-121.

For Highline™ with W01520 Logic MPD-A3 with W01515 Logic
For Highline, MPD®-A3 and MPD-1 with Z-80 (W02061) Logic
For Salesmaker™-4 with Z80 (W02061) Logic
For MPD-1 Four-Grade with Z-80 (W02061) Logic

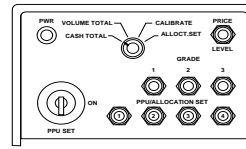


Attaching The Command Module

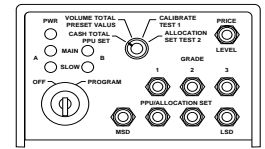
Use one of the following command modules, with an extension cable, for programming:



Highline™
PA01310000



MPD®-1, MPD-A3, Salesmaker™-4
PA01390001



MPD®-2/C
PA01540000

- 1 Attach extension cable (supplied with command module) to command module.
- 2 Insert other end of extension cable into connector plug on operator panel.
- 3 Follow programming instructions. You must program both sides. Move command module to other side for MPD® and Salesmaker™ units. Set command module toggle switch to “B” for Highline™ units. Repeat steps.

Note: When programming, Side 1 is the A side or the junction box side of the unit, side 2 is the other side.

Programming PPU Prices

- 1 Turn the PPU SET keyswitch to ON. For MPD-2 turn keyswitch to PROGRAM.
- 2 Press Grade 1 button to display grade 1 price per unit (gallon), or PPU. For Highline units, set PUMP CONTROL toggle switch to selected hose. A single-hose unit is always set to A.
- 3 Press PPU/ALLOCATION SET buttons to set the price. Price digits change when you press the buttons.

For example, to set PPU to \$1.259:

- Press button 1 (or MSD) until a “1” appears on left side of display.
 - Press button 2 (or button to the right of MSD) until a “2” appears.
 - Press button 3 until a “5” appears.
 - Press button 4 until a “9” appears. The PPU will now display 1.259.
- 4 For two-level pricing, press PRICE LEVEL button and repeat step 3.
 - 5 Press another grade button and repeat steps 2 and 3. To select grade 4 on an 8-hose model, press 3 and 1 simultaneously.

Programming Volume Allocation

- 1 Turn the keyswitch to OFF.
- 2 Turn command module rotary switch to ALLOC. SET. Only the volume display will light.
- 3 Press PPU/ALLOCATION SET buttons to set the maximum transaction volume.

For example, to set a five gallon limit.

- Press PPU/Allocation Set button #3 (third from left) until a “5” appears on the volume display.
- The volume display will read 005.0.

Note: Volume allocation is set by fueling position, not by hose.

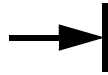
Calibrate

Setting the rotary switch to this position removes the unit from console control. It also moves the volume display decimal point to show thousandths of units. This allows the ASC to calibrate the meters without interrupting the console/cash register operator.

Two-Wire

For console/cash register control set the 2 WIRE switch on the operator panel to ON. For standalone operation set it to OFF.

Additional Programming

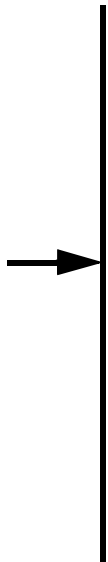


The following programming functions can be performed using the manager's keypad when the unit is in normal operation.

Verifying Blend Ratio For The Advantage Blenders (Software version 75.5 and 77.5)

- 1 Press ENTER on the manager's keypad.
- 2 The PPU's will display the blend ratio programmed.

Displaying Last Transaction (DLT)



Use this function to display the last transaction during the first 15 minutes after AC power is lost. For units with SIDs (screened image displays), you can use the DLT function no more than twice during the 15 minute period.

Modular Units

From the manager's keypad:

- Press F1 to display DLT for side A.
- Press F2 to display DLT for side B.

On The Advantage® series, Highline™ series with LCDs, MPD®-3 series with LCDs, Dimension, and Performer, the last transaction automatically displays during the first 15 minutes after AC power is lost.

Pre-Modular Units

- Press DLT button on side A operator panel to display last transaction for side A.
- Press DLT button on side B operator panel to display last transaction for side B.

Displaying Pump Totals

Modular Units

To view Side 1 Totals:

- 1 Press \$TOTAL on manager's keypad. Combined cash and credit total will display for Grade 1, Side 1.
- 2 Select grade(s). Read \$totals for each grade selected. The number of hose(s)/grades(s) vary for each model.
Note: For Blenders, grade 7 = high product, and grade 8 = low product.
- 3 Press VOL TOTAL. Volume total displays for grade selected.
- 4 Select grade(s). Read volume totals for each grade selected. To view Side 2 Totals, press ENTER.
- 5 Select Side 2. Repeat "To view Side 1" steps (on next page) for Side 2.
- 6 Press CLEAR to exit.



Continued →

Pre-Modular Units

You can use the command module or the operator panel control switches to read pre-modular pump totals.

To view Highline™ Cash/Volume Totals:

- 1 Turn the command module rotary switch to either CASH or VOLUME total.
- 2 Read appropriate CASH or VOLUME totals displayed.

To view MPD®-A3,-1,-2 and -C or Salesmaker™-4 Cash/Volume Totals:

- 1 Turn the command module rotary switch to CASH total.
- 2 Press GRADE button.
- 3 Read CASH totals displayed. Repeat for each grade.

-OR-

Move operator panel CASH-VOLUME switch to CASH.

- 4 Press GRADE button (LEFT-RIGHT TOTALS button on Salesmaker-4 models).
- 5 Read cash totals displayed. Repeat for each grade (side).
- 6 Set switch to VOLUME and repeat above steps to view volume totals.

Programming ATC Option

The ATC option is available in Canada only.

At power-up, units programmed with the ATC option will flash 104 before displaying normal information. Units not programmed will flash 100.

See MDE-2996 for more information on programming and operating the ATC option.

Use the following procedure to program the ATC option for each fueling position.

- 1 Turn the program switch on the ATC controller board ON.
- 2 Press 100, then ENTER.
 - The money position (showing fueling position selected) displays 1.
 - The volume position (showing fuel type selected: 1=gasoline, 2=diesel) displays 1.
 - The PPU position (showing fuel density selected: 740=gasoline, 840=diesel) displays 730.
Note: The default fuel density is 730.
- 3 Select the fuel type and press ENTER.
- 4 The software will sequence through each fueling position. Select the fuel type for each position (see step 2).
- 5 Turn the programming switch on the ATC controller board to OFF.
- 6 Press F2 to exit the ATC programming mode.

Master Resets

The master reset (or memory clear/cold start function) clears all pump data and system configurations. Complete re-programming is necessary after a master reset. A master reset does not clear conversion or calibration factor on electronic calibrated Ultra-Hi™ dispensers.

Some software versions allow you to perform a master reset at the manager keypad.

Use the following steps each time you perform a master reset on both modular and pre-modular units.



- 1 Record all pump totals and isolate the unit in the distribution box.

Perform Master Reset at Manager Keypad

For These Software Versions Use the Manager Keypad and Follow These Steps

For These Software Versions	Use the Manager Keypad and Follow These Steps
70.4, 54.0, 72.0, 75.3, 77.2, 84.X and higher	<ol style="list-style-type: none"> 1. Press F1, enter Level One PIN code then press ENTER. 2. Press 1, 7 then ENTER. Enter Level Two PIN code then press Enter. 3. Press 1, 7 then ENTER. Enter Level Three PIN code then press Enter. 4. Press 1, 7 then ENTER. 5. Press 2 then ENTER. Enter 1 then press ENTER. Displays will reset with all zeros and no error codes.



Note: When performing a master reset at the manager keypad, continue with step 8 on page 5-30. Do not perform steps 2–7.

- 2 Turn power off.
- 3 Press CLEAR, then ENTER on the manager keypad.

Note: The Advantage® and Dimension® series units built after 12/01/94 and H-111/Legacy® and Performer™ series units built after 11/01/93 do not require you to press ENTER.

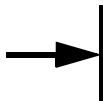
For units without batteries, the display will not turn off until after 15 minutes.

- 4 Follow the steps listed in the following “Modular” and “Pre-Modular” tables for performing the master reset.

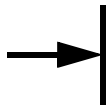
For Pre-Modular Units, Perform Master Reset at Logic Board

Locate the logic board and it’s part number before performing these steps.

For This Dispenser/Pump Model	Use This Board	Follow This Series of Step 4
Highline™ series	T12472 Logic W01520 Logic	<ol style="list-style-type: none"> 4a. Remove P16 from the logic board. 4b. Short across capacitor C11 for 10 seconds. 4c. Remove short and replace P16. See page 6-107 and page 6-115.
MPD®-A3	W01515 Logic	<ol style="list-style-type: none"> 4a. Remove J202 from logic board. 4b. Short across capacitor C16 for ten seconds. 4c. Remove short and replace J202. See page 6-113.
MPD-2/C with Z-80 logic	W01523 Logic W02418 Logic	<ol style="list-style-type: none"> 4a. Reset the Logic Board by placing a jumper jack on pins marked MASTER RESET on the upper right corner of the logic board. See page 6-117.
Highline series, Salesmaker™-4 and MPD-1 with Z-80 logic	W02061 Logic	<ol style="list-style-type: none"> 4a. Insert jump jack in JP-6 on logic board. 4b. Turn power On then Off. 4c. Remove JP-6. See page 6-121.



Continued →



For Modular Units, Perform Master Reset at Display Board

Locate the display board and know its part number before performing these steps. See “Display Boards” on page 6-55 for more information.

Master Reset at Display Boards

For This Dispenser/Pump Model	Use This Board	Follow This Step 4
Highline™ series, Salesmaker™ 2H and 4A, MPD®-1 with SID	T16226	4a. Place a jump jack across pins 4 and 6 of P803 if it has six pins or across 2 and 4 if it has four pins. See page 6-134.
MPD-3 and MPD-3 blender with SID	W02107	4a. Insert Master Reset Programming Plug (R18479-G1) to connect pins 1 and 11 of P803. See page 6-139.
Highline™ series with LCD, Legacy®, Performer™	T17701	4a. Remove JP-1A jump jack on Side “A” main display.
The Advantage® series, Dimension®	T17543	4b. Wait 30 seconds. 4c. Install jump jack in JP-1B. See page 6-142 and page 6-143.
The Advantage series, MPD-3 with LCD, and Dimension	T17962 *	
H111	T18904 (pump controller board)	See page 6-111.



* Some T17962 boards label JP-1A as JP1SEL and JP-1B as JP1CLR



- 5 Turn power on.
- 6 The displays reset to all zeros and no error codes.
- 7 Remove programming plug or jump jack, or return jump jack to original position.
- 8 Reprogram the unit and remove distribution box isolation.