ESDI Model 110400-NoM
MultiPrice Water Vending Machine Controller
Four Vending Stations - No Pay Station

Operation and Installation Manual

WARNING ! ELECTRICAL SHOCK HAZARD !

AUTHORIZED PERSONNEL ONLY.

EXPOSED 120 VAC ON CIRCUIT BOARD.

THE CIRCUIT BOARD HAS MANY EXPOSED AREAS THAT ARE AT 120 VAC. CONTACTING ANY OF THESE AREAS CAN CAUSE BODILY HARM OR DEATH.

DISCONNECT POWER BEFORE SERVICING AND MAKING ANY CONNECTIONS

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Radiated Frequency Protection:

It is recommended that the controller board be shielded from radiated frequencies using a metal cover. It is further recommended that service personnel or persons gaining access to the internals of the machine, observe proper ESD control measures to prevent damage to the machine. It may be necessary for the OEM to place a line filter in the machine if external or internal sources cause conducted noise levels.

ESDI Model 110400-NoM Water Vending Controller
Four Station - No Pay Station
Installation & Operation Manual

Operating Instructions & Features

1.0. General Description:

The ESDI Model 110400-NoM is a Four Station MultiPrice Water Vending Controller that controls all of the functions necessary to operate an unsupervised four station bulk water vending system. It is designed to vend three volumes of water from each of four vending stations; twelve volumes total. Each of the twelve volumes is easily set by the technician during a calibration procedure. **Vend volumes can be any quantity limited only by the maximum vend time of 7 minutes, or a maximum flow sensor count of 65,535.**

The Model 110400-NoM controller is for applications where a payment station is not required.

The Model 110400-NoM has an optional dual flow rate, controlled by two vend valves. This will allow for a shorter vend time and a sharper turn off with no overflow. It works as follows: Both valves are open at first for a faster flow rate. When the water gets closer to the fill line, one valve will close, thus slowing down the flow rate and stopping without overflowing.

Visual information is provided by four single digit LED displays, one for each station, plus 17 single LED's providing feedback to the technician on the operation and status of the machine.

The maximum number of products is twelve (12). Please see data sheet or web site for a variety of vending possibilities & options. The ESDI 110400-XXX is available in the following configurations:

XXX	Vend Stations		Volumes Each		Total Products	
2X3	Two	(2)	Three	(3)	Six	(6)
2X4	Two	(2)	Four	(4)	Eight	(8)
3X3	Three	(3)	Three	(3)	Nine	(9)
3X4	Three	(3)	Four	(4)	Twelve	(12)
4X3	Four	(4)	Three	(3)	Twelve	(12)

2.0. Controller Features:

2.1. Selectable Single or Dual Flow Rate Water Vending:

The controller has a dual flow rate option that will allow you to vend water using one, or two vend valves. When using two vend valves, both valves will open at the beginning of the vend cycle. When the water level is filled close to the top, one of the valves will close leaving only one valve open. This will slow down the water flow as it reaches the fill mark. This will allow a faster vend cycle, with less chance for overfill.

During calibration, both valves will open (Pump and Vend Valve Outputs). When the vend switch is released both valves will stop. Thereafter, pressing the vend switch will activate one valve (the Pump output) only. During an actual vend cycle, both valves will open. One valve will shut off at the same point the vend switch was first released, during the calibration cycle. If only one vend valve is used, the vend cycle will be as follows. The Vend valve will open the vend pump will turn On. At the end of the vend cycle, the vend pump will turn Off and the vend valve will close.

2.2. UV Flush Option (Hot Water Removal):

An optional UV flush cycle is provided to periodically discard hot water that is left standing in the UV lamp assembly, and refresh the vending system in general. This water is discharged out the vend nozzle and into the drain. The flush cycle runs for a period of 3 seconds. When enabled, a flush cycle will occur upon each power-up and manual reset, and periodically, every 30 minutes after the last vend.

The flush cycle will not run if there is credit pending, if the system is in the process of vending water, during a Lockout condition, a Low Water condition, or a UV Lamp failure. During the flush cycle, the vender will not accept any selections. The Status Display will indicate "F" during the flush cycle. The flush cycle runs for a period of 3 seconds. DIP switch 4 enables the Flush cycle option. When this switch is ON, the flush cycle will be enabled.

2.3. Selectable Flow Meter, or Internal Timer Controlled Vending:

This controller allows the option of using either an inline water flow sensor, or an on-board timer to accurately control the amount of water. The board can accommodate many types of flow sensors, however, the maximum pulse count for a single vend is 65,535 counts, and the maximum vend time is 7 minutes. By far the best method for achieving accurate vending is to use an inline water flow sensor. However, it is possible to get accurate vending using the internal timer, as long as the water flow remains constant throughout the entire vending cycle.

DIP switch 3 controls how the water is metered during the vending cycle. In the OFF position the water is metered through an in-line water flow sensor that sends out pulses related to water flow. The pulses are counted and calibrated and provide a precise and repeatable vending quantity. In the ON position, water vending is controlled by an on board timer and no flow sensor is required.

2.4. Selectable Vend Switch, or Vend Upon Selection:

The controller has the option to begin vending upon pressing the selection switch, or waiting for a separate "Vend" switch to be activated before vending. A separate "Vend" switch allows the customer time to make his selection at one location, and then walk over to the vend station and place his container before the vending begins. Without this "Vend" switch, the container will need to be in place first, prior to making a selection. DIP switch 2 & 8 determines if the vend switch will be used. In the OFF position, a vend switch is not used and vending will begin upon activating the Selection switch. If a vend switch is used, place this switches to the ON position.

2.5. Maximum Vend Run Timer:

The controller has an internal maximum run timer for the water vending only. It is factory set to approx. 90 seconds beyond the normal vending time. If this time is exceeded, the controller will stop vending, go "Sold Out", and will not accept coins. The Status Display will indicate "E". A manual reset (power off, wait 5 seconds, then power on) will restart the controller. If the Maximum run time is exceeded, the controller will reset itself automatically after 60 minutes if there are no system problems and water is present.

3.0. Water Vending Machine – The Basic Machine:

1. Customer presses Selection Switch, selecting vend station, water volume.
2. The “Credit Lamp” illuminates at the appropriate vend station.
3. Customer presses the “Start Vend” switch at the vend station. (Without the vend switch, vending will begin upon making selection.)
4. The “Credit lamp” will turn off.
5. The Vend Valve & Pump will turn on and run until the proper amount of water has vended.

Installation & Wiring

4.0 Electrical Specifications:

4.1. Relay Outputs (All):	Any Voltage up to 120 VAC, 3 Amps Max.
4.2. Water Sensor Interface:	GEMS Turbine Flow Sensor, FT-110, Part No. 173935 (3800 Pulses per Gallon). Or similar type (See 5.1.1)
4.3. Vend Accuracy / Repeatability:	± 0.5 %.

4.4. Power Requirements:

Board:	5 VDC +/- 5%, 1.0 Amp Nominal.
Vend Pump & Valves:	24-120 VAC 60/50 Hz, 3 Amps Max.
4.5. Enclosure Size:	8" X 11" X 6".
4.6. Operating Temperature:	32° F to 150° F (0° to 65° C)
4.7. Storage Temperature:	-22° F to 167° F (-30° to 75° C)
4.8. Relative Humidity:	20% to 95% non-condensing

5.0. Input Connectors:

The terminal blocks on the board are pluggable and can be pulled from the board without having to remove the individual wires from the terminal block. It is recommended that all wiring be UL type 1015, 20 AWG, minimum. The power input and pump output should be 18 AWG minimum. The terminal blocks will accommodate up to a 16 AWG wire. The maximum current rating for the connector is 8 Amps.

5.1. TB1 Control Inputs:

All inputs must be isolated contact closures. DO NOT APPLY ANY EXTERNAL VOLTAGES TO INPUTS, OR BOARD MAY BE DAMAGED.

5.1.1. Flood Switch Input:

This input should be connected to a Flood Switch. The Flood switch is usually a float type switch that is placed at a low level in the cabinet, such that if there is a flood in the machine, the float switch will activate. Upon activation, the controller will shut down the controller. An open circuit on this input indicates a flood condition. A contact closure on this input will indicate there is no flood. There is a one minute delay before returning from a flood.

5.1.2. Low Water (Low Pressure) Input:

Is there water to vend? This input is connected to a water level sensor located at the lowest level of the reservoir. We recommend that the level sensor be placed such that there is at least 5 gallons of water remaining. If a low water condition is detected when the controller is idle, the controller will not accept any selections. If a low water condition is detected while vending, the controller will complete the vending and will not accept any new selections. The controller will automatically reset when the low water condition is no longer present. An open circuit on this input indicates a low water condition. A contact closure on this input will indicate the water level is good.. There is a five minute delay before returning from low water.

5.1.3. UV Good Input (UV Shut Down):

The UV Good input monitors the relay output from a UV lamp. Choose a UV lamp assembly with an internal circuit that monitors the lamp and has an isolated relay output to indicate a failure. An open circuit will indicate a bad UV lamp and the controller will shut down. A contact closure on this input will allow the controller to operate normally. If this input is not used, place a jumper between UV Status Input and Common.

TB1-1	Flood Input
TB1-2	Low Water Input
TB1-3	UV Good Input
TB1-4	Spare Input
TB1-5	Signal Ground

5.2. TB2 Flow Sensor Inputs

Used for metered vend only, not used for a timed vend. This input is for an external inline water flow sensor. As water passes through the flow sensor it sends out pulses. The controller counts these pulses and compares it to the calibrated amount predetermined in memory. The controller can accommodate many different types of water meters, however, the maximum count per a single vend is 65,535 counts. One that works very well is the GEMS Turbine Flow Sensor, FT-110 Series, P/N 173935 (3800 Pulses per Gallon max). Power in the form of +5VDC is provided to power the flow sensors. For each input, connect the Flow Sensor output to the appropriate input (V1 - V4), the Flow Sensor Power to "+5V OUT", and the Common to "GROUND".

TB2-1	Flow sensor input for Vend Station 1
TB2-2	Flow sensor input for Vend Station 2
TB2-3	Flow sensor input for Vend Station 3
TB2-4	Flow sensor input for Vend Station 4
TB2-5	Signal Ground Connect to each Flow Sensor
TB2-6	+5VDC Output Connect to each Flow Sensor

5.3. TB3 Vend Switch Inputs:

An Optional Vend Switch can be used to hold off the water vending until activated, this will allow the customer time to walk over to the vend station and place their bottle under the nozzle. This switch becomes enabled after the selection has been made. This input should be normally open. A contact closure will set the selection.

If this switch is not used, the vending will begin immediately upon making the selection. If this switch is not used, then turn ON Option switch "2". During calibration the Selection switch will act as the Vend switch and vending will begin upon making a selection.

All inputs are low voltage (+5VDC). Signals are either open, or closed. Use isolated contacts only. DO NOT APPLY ANY VOLTAGES TO THESE INPUTS, OR CIRCUIT BOARD MAY BE DAMAGED.

TB3-1	Vend switch input for Vend Station 1
TB3-2	Vend switch input for Vend Station 2
TB3-3	Vend switch input for Vend Station 3
TB3-4	Vend switch input for Vend Station 4
TB3-5	Signal Ground Connect to each Vend Switch

5.4. TB4 LockOut Inputs:

The Lockout Input allows an external device to disable the controller. Any external device such as a UV lamp monitor, or any other device supervising the controller operation. A contact closure on this input will allow the controller to operate normally and an open will disable the controller. If this input is not used, set the OPTIONS switch 7 to the On position and it will follow the system UV Lamp input.

If a lockout condition occurs, it will stop any vending immediately and go to lockout. The controller will NOT automatically reset and will require a manual reset from a technician. When a vend station is in lockout, that vend station will go Sold Out and will not allow any vending. The Status Display will indicate "U" when in lockout.

All inputs are low voltage (+5VDC). Signals are either open, or closed. DO NOT APPLY ANY VOLTAGES TO THESE INPUTS, OR CIRCUIT BOARD MAY BE DAMAGED.

TB4-1	Lockout Input for Vend Station 1
TB4-2	Lockout Input for Vend Station 2
TB4-3	Lockout Input for Vend Station 3
TB4-4	Lockout Input for Vend Station 4
TB4-5	Signal Ground Connect to each lockout switch.

5.5. TB11 Circuit Board Power Input 5VDC:

This input should be connected to a 5VDC power source. Operating voltage range is +/- 5% 1.0A Minimum. The transformer should be mounted outside the enclosure to prevent excess heat inside the enclosure.

TB11-1	Power Input, +5VDC
TB11-2	Power Input, -5VDC (Common)

5.6. TB10 Selection Switch Inputs:

The product selection switches are located on the back of the control board, connector TB10. The selection switch inputs select the water product and volume for vending. A contact closure to “SW COM V1,2,3,4", to any of these inputs will select that product. Note: "COM V1" is the common for vend station 1 selection switches. "COM V2" connects to vend station 2, and so on. These "SWCOM V" signals are only active when that vend station is available. Otherwise when the station is busy, the SWCOM will be Off and will not make the selection. It is important not to mix these signals with any selection switches of other vend stations, or problems will occur.

The ESDI 110400 is available in either of the following configurations:

ESDI 110400-2X3: Two vend stations, Three (3) volumes each:

Selection Sw:	Conn-Pin	Description:	
Item 1	TB10-1	Station 1	Vend Volume 1
Item 2	TB10-2	Station 1	Vend Volume 2
Item 3	TB10-3	Station 1	Vend Volume 3
SWCOMV1	TB10-4	Station 1	Station 1 Switch Common
Item 4	TB10-5	Station 2	Vend Volume 1
Item 5	TB10-6	Station 2	Vend Volume 2
Item 6	TB10-7	Station 2	Vend Volume 3
SWCOMV2	TB10-8	Station 2	Station 2 Switch Common

ESDI 110400-2X4: Two vend stations, Four (4) volumes each: (Factory Set Option)

Selection Sw:	Conn-Pin	Description:	
Item 1	TB10-1	Station 1	Vend Volume 1
Item 2	TB10-2	Station 1	Vend Volume 2
Item 3	TB10-3	Station 1	Vend Volume 3
SWCOMV1	TB10-4	Station 1	Station 1 Switch Common
Item 4	TB10-5	Station 1	Vend Volume 4
Item 5	TB10-6	Station 2	Vend Volume 5
Item 6	TB10-7	Station 2	Vend Volume 6
SWCOMV2	TB10-8	Station 2	Station 2 Switch Common
Item 7	TB10-9	Station 2	Vend Volume 7
Item 8	TB10-10	Station 2	Vend Volume 8

ESDI 110400-3X3: Three vend stations, Three (3) volumes each:

Selection Sw:	Conn-Pin	Description:	
Item 1	TB10-1	Station 1	Vend Volume 1
Item 2	TB10-2	Station 1	Vend Volume 2
Item 3	TB10-3	Station 1	Vend Volume 3
SWCOMV1	TB10-4	Station 1	Station 1 Switch Common
Item 4	TB10-5	Station 2	Vend Volume 1
Item 5	TB10-6	Station 2	Vend Volume 2
Item 6	TB10-7	Station 2	Vend Volume 3
SWCOMV2	TB10-8	Station 2	Station 2 Switch Common
Item 7	TB10-9	Station 3	Vend Volume 1
Item 8	TB10-10	Station 3	Vend Volume 2
Item 9	TB10-11	Station 3	Vend Volume 3
SWCOMV3	TB10-12	Station 3	Station 3 Switch Common

ESDI 110400-3X4: Three vend stations, Four (4) volumes each: (Factory Set Option)

Selection Sw:	Conn-Pin	Description:	
Item 1	TB10-1	Station 1	Vend Volume 1
Item 2	TB10-2	Station 1	Vend Volume 2
Item 3	TB10-3	Station 1	Vend Volume 3
SWCOMV1	TB10-4	Station 1	Station 1 Switch Common
Item 4	TB10-5	Station 1	Vend Volume 1
Item 5	TB10-6	Station 2	Vend Volume 2
Item 6	TB10-7	Station 2	Vend Volume 3
SWCOMV2	TB10-8	Station 2	Station 2 Switch Common
Item 7	TB10-9	Station 2	Vend Volume 1
Item 8	TB10-10	Station 2	Vend Volume 2
Item 9	TB10-11	Station 4	Vend Volume 3
SWCOMV3	TB10-12	Not Used	
Item 7	TB10-13	Station 4	Vend Volume 1
Item 8	TB10-14	Station 4	Vend Volume 2
Item 9	TB10-15	Station 4	Vend Volume 3
SWCOMV4	TB10-16	Station 4	Station 4 Switch Common

ESDI 110400-4X3: Four vend stations, Three (3) volumes each:

Selection Sw:	Conn-Pin	Description:	
Item 1	TB10-1	Station 1	Vend Volume 1
Item 2	TB10-2	Station 1	Vend Volume 2
Item 3	TB10-3	Station 1	Vend Volume 3
SWCOMV1	TB10-4	Station 1	Station 1 Switch Common
Item 4	TB10-5	Station 2	Vend Volume 1
Item 5	TB10-6	Station 2	Vend Volume 2
Item 6	TB10-7	Station 2	Vend Volume 3
SWCOMV2	TB10-8	Station 2	Station 2 Switch Common
Item 7	TB10-9	Station 3	Vend Volume 1
Item 8	TB10-10	Station 3	Vend Volume 2
Item 9	TB10-11	Station 3	Vend Volume 3
SWCOMV3	TB10-12	Station 3	Station 3 Switch Common
Item 7	TB10-13	Station 4	Vend Volume 1
Item 8	TB10-14	Station 4	Vend Volume 2
Item 9	TB10-15	Station 4	Vend Volume 3
SWCOMV4	TB10-16	Station 4	Station 4 Switch Common

*Do not connect any of these switches to regular "Common". Each switch must be an isolated momentary pushbutton type, suitable for low current operation.

6.0. Output Connectors:

All outputs are grouped by function. All outputs are controlled by normally open relays. Each group of relay outputs has one common input marked "IN", and outputs for each vend station (V1,V2,V3,V4). Connect the power source HOT to the relay output "IN" terminal. This is the power that will be switched to each of the vend outputs (V1,V2,V3,V4). Connect the power source NEUTRAL directly to each item. A "Power Neutral Distribution Bus" at TB9 is provided if all outputs use the same power neutral. Do not mix output voltages on this Bus. The relays are rated for 120VAC, 3 amps maximum.

6.1. TB-5 Sold Out Relay Output:

TB5-1	Sold Out Relay Contact NO
TB5-2	Sold Out Relay Contact COM

6.2. TB6 Credit Lamp Relay Output:

This output will turn ON at the selected vend station after the board has received money and a selection has been made. This lamp output indicates that credit has been accepted and vending will proceed upon activation of the Vend Switch. This output will remain ON until a vend cycle begins then it will turn OFF. This output can be used to illuminate the Vend switch, or a lamp over the vend station.

TB6-1	Credit lamp output for Vend Station 1
TB6-2	Credit lamp output for Vend Station 2
TB6-3	Credit lamp output for Vend Station 3
TB6-4	Credit lamp output for Vend Station 4
TB6-5	Relay Common Power Input

6.3. TB7 Vend Valve (2) Relay Output:

This output is used to control a Vend Valve. The function of this valve is selected by the OPTIONS "Valve 1-2" switch 1. In the OFF position, only one valve and/or pump will be used to vend the water, and this valve will work as follows: This valve will open before the pump output turns ON, and will close when the pump output turns OFF.

If the OPTIONS "Valve 1-2" switch 1 is in the ON position, two vend valves, or pumps, will be used for a two valve vending operation. This output will connect to either a vend pump, or a vend valve, or both. The output will turn ON at the beginning of vending. It will turn OFF, when the vending time for this valve is completed.

TB7-1	Vend valve output for Vend Station 1
TB7-2	Vend valve output for Vend Station 2
TB7-3	Vend valve output for Vend Station 3
TB7-4	Vend valve output for Vend Station 4
TB7-5	Relay Common Power Input

6.4. TB8 Pump (Valve 1) Relay Output:

This output will connect to either a vend pump, or a vend valve, or both. The output will turn ON, allowing power to pass, at the beginning of vending, or flush cycle. It will turn OFF, terminating power, when the vending, or flush cycle is completed.

TB8-1	Pump output for Vend Station 1
TB8-2	Pump output for Vend Station 2
TB8-3	Pump output for Vend Station 3
TB8-4	Pump output for Vend Station 4
TB8-5	Relay Common Power Input

6.5. TB9 Power Neutral Distribution Bus:

Connect the power source NEUTRAL directly to each output item. Do not mix voltages on this Bus.

TB8-1	Vend Station 1
TB8-2	Vend Station 2
TB8-3	Vend Station 3
TB8-4	Vend Station 4
TB8-5	Power Source Neutral Input

Setup & Programming

7.0. Switches & Indicators:

7.1. Calibrate Switch:

This switch will place the controller into the Calibration mode. In the Calibration mode the operator can set all of the vend quantities and store them in memory. See calibration procedure that follows.

Vend Volume Calibration Procedure:

The calibration procedure allows the board to be programmed to dispense any twelve volumes of water, and not just limited to 1, 3 and 5 Gallons. When using a water flow sensor, the maximum count for a single vend is 65,535 counts. This allows a wide variety of flow sensors to be used. When using the Internal Vend Timer, the maximum vending time is limited to approx. 7 minutes maximum with a .2 second resolution. If vend time is exceeded the Status Display will show “E”.

In the calibration mode, the vend switch is used to start and stop the water dispensing. If the vend switch is not used, then the selection switch will act as the vend switch. The vend switch may be pressed and released multiple times to add water while adjusting the vend volume. Too many intervals may affect accuracy. If the vend switch remains idle for longer than 8 seconds, the calibration for that item will terminate, and the data will be stored in memory. At this time the Status display will show C and the next item can be selected for calibration.

How Two Valve Operation Works: During calibration the 2 valves to 1 valve scheme will work the same as described above. The first Selector switch release will end the 2 valves, and subsequent dispensing will be done with one valve. This will allow the calibration to be more easily accomplished from the front of the machine using only the selection switches. During the calibration process, the Money display will say "No Sale". If the selection switch is idle for 8 seconds or more, the calibration of that item will end and the Money display will no longer say "No Sale". The next item can then be selected and calibrated.

The Calibration procedure is performed as follows:

Note: If a vend switch is not used, then the selection switch will act as the vend switch in this procedure.

1. Move “Calibrate Switch” to the ON position.

2. Display will show “C” indicating the calibration mode.

3. Activate the selection switch to select vend quantity 1. Indicator will show “1”.

4. Place a calibrated measuring container in the vend chamber.

5. Activate and hold the “Vend” switch on until the desired amount of water has vended. Release the Vend switch and the vending will stop. The display will show “C” indicating completion. The calibration information will be stored in non-volatile memory. Repeat, or go on to next switch.

6. Activate the selection switch to select vend quantity 2. Indicator will show “2”. Repeat steps 4 & 5.

7. Activate the selection switch to select vend quantity 3. Indicator will show “3”. Repeat steps 4 & 5

8. Activate the selection switch to select vend quantity 4. Indicator will show “4”. Repeat steps 4 & 5.

9. When calibration is completed move “Calibrate Switch” to the OFF position. The controller will reset and start up in the vend mode.

10. Test all vend quantities for accuracy.

11. The calibration is stored in a non-volatile memory that will not change until the calibration procedure is again performed.

7.2. Options Switches / Mode Selections:

DIP SW 1	Number of vend valves	Off = 1 valve	On = 2 valves
DIP SW 2	Vend Switch Present?	Off = Yes	On = No
DIP SW 3	Flow meter, or timed vend	Off = Metered vend	On = Timed vend
DIP SW 4	UV flush	Off = No UV flush	On = UV flush On
DIP SW 5	Option A	(Not assigned)	
DIP SW 6	Option B	(Not assigned)	
DIP SW 7	No lockout	Off = Lockout Enabled	On = No Lockout
DIP SW 8	Vend switch Present?	Off = No	On = Yes

7.3. Common LED Indicators:

Power:	This LED will illuminate when power is applied to the circuit board.
Program:	This LED will illuminate when programming mode is active.
Low Water:	This LED will illuminate when Low Water level is reached.
UV Bad:	This LED will illuminate when the UV lamp is bad.
Flood:	This LED will illuminate when the Flood switch is active.

7.4. Vend Station LED Indicators:

There are four sets of these indicators, one for each vend station. These report the status of each individual vend station.

Credit:	This LED will illuminate when the credit lamp output is active.
Valve:	This LED will illuminate when the vend valve output is active.
Pump:	The LED will illuminate when the pump output is active.

7.5. Vend Station Status Display:

There is one Status display for each vend station. The Status display is a single digit 7 segment LED that displays the vend station status and any error messages, as follows:

Display " 0 "	=	Waiting for customer.
Display " 1 "	=	Item 1 Selected.
Display " 2 "	=	Item 2 Selected.
Display " 3 "	=	Item 3 Selected.
Display " 4 "	=	Item 4 Selected.
Display " 8 "	=	Tests all segments at start up & reset.
Display " E "	=	Excessive vend time.
Display " F "	=	Flush cycle in progress.
Display " L "	=	Low Water.
Display " U "	=	System is in Lockout. (UV Bad)
Display " C "	=	Calibration mode