





OVERVIEW

1.1. What is the purpose of the controller?

- a) To vend uniform quantity of the drink for each customer / vending cycle
- b) To keep a tab on the number of drinks sold in each type.

1.2. How does the controller achieve these objectives?

a) The solenoid valves in the machine are capable of delivering the liquids at a uniform rate. So, to have a control on the volume of drinks, it is sufficient to control the time for which the solenoid valves are kept open in each vending cycle.

The controller has got 4 independent timers with an adjustable setting of 1 to 12 seconds. These timers control 4 relays. These relays have one contact each which are to be wired to operate the 4 solenoid valves. So, by controlling the timers, we can ensure that solenoid valves are set to open for specific time periods. This will automatically ensure uniform volume of drink in each vending cycle.

b) The 4 timers also operate 4 counters, which increment the number displayed by 1 for each pulse. So every time a drink is vended through the controller, the sale is automatically recorded. The counters are non-resettable electromagnetic type and so the counter reading will not be disturbed by power loss / machine being switched off. If counter readings are noted down every time the operator changes, the number of drinks sold by the particular operator can be easily located on the slot by two holes in diagonally opposite corners of the slot.



INSTALLATION PROCEDURE

2.1. Electrical Connections :

For better maintainability all the connections required are brought out on 2 part connectors. The mating connectors are also provided along with adequate wires crimped to them. Using this the wiring has to be done as per the following scheme.

12 way connector terminal no.	Description	Colour of wire
1.	Selection Common	Red
2.	Selection 1	Blue
3.	Selection 2	Black
4.	Selection 3	Green
5.	Selection 4	Yellow
6.	Valve Common	White
7.	Valve 1	Green
8.	Valve 2	Yellow
9.	Valve 3	Orange/Pink
10	Valve 4	Blue
11	230V AC phase	Red
12	Neutral	Black

2.2. Adjustment:

The timings of all the 4 timers can be independently adjusted by turning the 4 trimpots in the Timer PCB. The trimpots can be easily located as 4 screw heads on the Timer PCB, on opening the rear cover of the controller. Though the trimpots appear like screw heads, there is no tightening or loosening involved. So DO NOT USE FORCE while adjusting these delicate components. Turning the trimpot clockwise will increase time - and hence volume of drink per vend.

OPERATING SEQUENCE

- Power ON
- Ready Lamp glows
- Press Ready switch
- Ready lamp goes off
- Choose Drink by pushing the corresponding lever
- Drink starts flowing
- Continues to flow till the set time is over
- Ready lamp glows
- Ready for next cycle

Trouble Shooting

Problem	:	The power on the READY Lamp does not come on.
Check	:	If normal operation is possible by pressing the Ready and selecting the drink, then only the bulb in the READY lamp should be changed. If operation is not possible, then check 220V AC fuse, transformer and power supply and in that sequence.
Problem	:	One flavour is not working.
Check	:	<p>The switch signal (24V DC) should be measurable in the corresponding terminal block when the selection is being made. If it is available and READY lamp does not go off then Main PCB is faulty. If the signal is not observed at the terminal, then check the wiring and the main switch.</p> <p>If the READY lamp goes off but the drink does not come, check the 24V AC signal at the corresponding valve point in the terminal block. If the signal is not observed, change the PCB. If the signal is available, check the wiring and the valve coil.</p>
Problem	:	Ready lamp is on. On pressing Ready goes off. But no selection is working.
Check	:	The key switch must be on. If it is not, then none of the selections will work. Check if 24V DC is observed in the Selection Switch Common terminal point when the READY lamp is off. If not, the PCB is faulty. If it is available check the wiring.
Problem	:	When selection is made, the count goes up. But the drink does not come.
Check	:	Any wiring loose connection could cause this problem. It could also be due to failure of the 24V AC transformer in the machine or failure of the corresponding valve coil.

TOOLS REQUIRED

- a. Multimeter
- b. 25W Soldering iron
- c. Wire cutter and stripper suitable for 0.8 to 1.5 sq. mm.
- d. Nose pliers
- e. Small screw driver (PYE 552 or equiv.)
- f. Medium screw driver (PYE 502 or equiv.)
- g. M3 Nut driver
- h. Sheet metal cutting scissors (small)
- i. Consumables like wires, fuses (500mA & 10A) 70:30 lead and flux
- j. Tiny items like M3 bolts, 3mm Nuts and 3mm spring washers

Recommended Spares

- a. Push Button switch
- b. Bulbs
- c. 12 way John's Connector
- d. Transformer
- e. Power supply card
- f. Main PCB
- g. Molex pins
- h. Fuses
- i. Counter
- j. 12 way Terminal Block

Some Tips to the Service Engineers

a. Before concluding that the problem reported by the customer is due to the controller, check all other possible causes since certain other factors also can affect the controller performance as follows.

- Any disturbance to the brix setting can cause change in volume setting
- Any change in CO₂ pressure can cause change in volume

b. Repairs of the following nature can be done by the service engineer.

- Changing the Ready Push Button
- Replacing the Bulb
- Replacing the power supply PCB
- Replacing the Main PCB
- Replacing the transformer
- Correcting any wiring problems like loose connections or bristles at the MOLEX pin points

c. While transporting any PCBs, either fresh spares or defective units, take adequate care to pack them. If they are carried without proper packing in the tool kit itself, the possibility of damages to the PCB is very high. This is strongly advised against.

d. DO NOT attempt rectifying / modifying any of the PCBs. PCB rectifications shall be carried out by M/s PULSARS only.

e. Any defective part being returned for rectification or replacement must be accompanied by :

- customer's complaint and
- the service engineer's observations and diagnosis.

Packing Instructions

The following instructions are to be strictly adhered to whenever it is required to transport the controller or its parts. The instructions will apply equally for local as well as city to city transportation.

- a. When the whole controller box is transported, take adequate care to avoid damage to the connector, LCD display and switches.
- b. When any PCB is transported, it should be wrapped in a bubble pack and further protected by a hard cardboard or plastic box.
- c. All parts must be packed in shockproof and moisture proof packages.
- d. Further precaution must be observed while sending them unaccompanied (like while sending any part for service to Madras)
- e. Any defective part that is sent back for the service to the factory **MUST** be accompanied by a detailed report. It must give the
 - * Exact nature of the fault reported
 - * Service Engineer's diagnosis and
 - * The status of the machine after changing the particular defective part.