

# TROUBLE SHOOTING GUIDE

The trouble shooting section is comprised of information tables detailing PLC indicator LED's and tables listing general trouble shooting information. Use caution when accessing PLC indicator LED's inside the electrical control box due to electrical

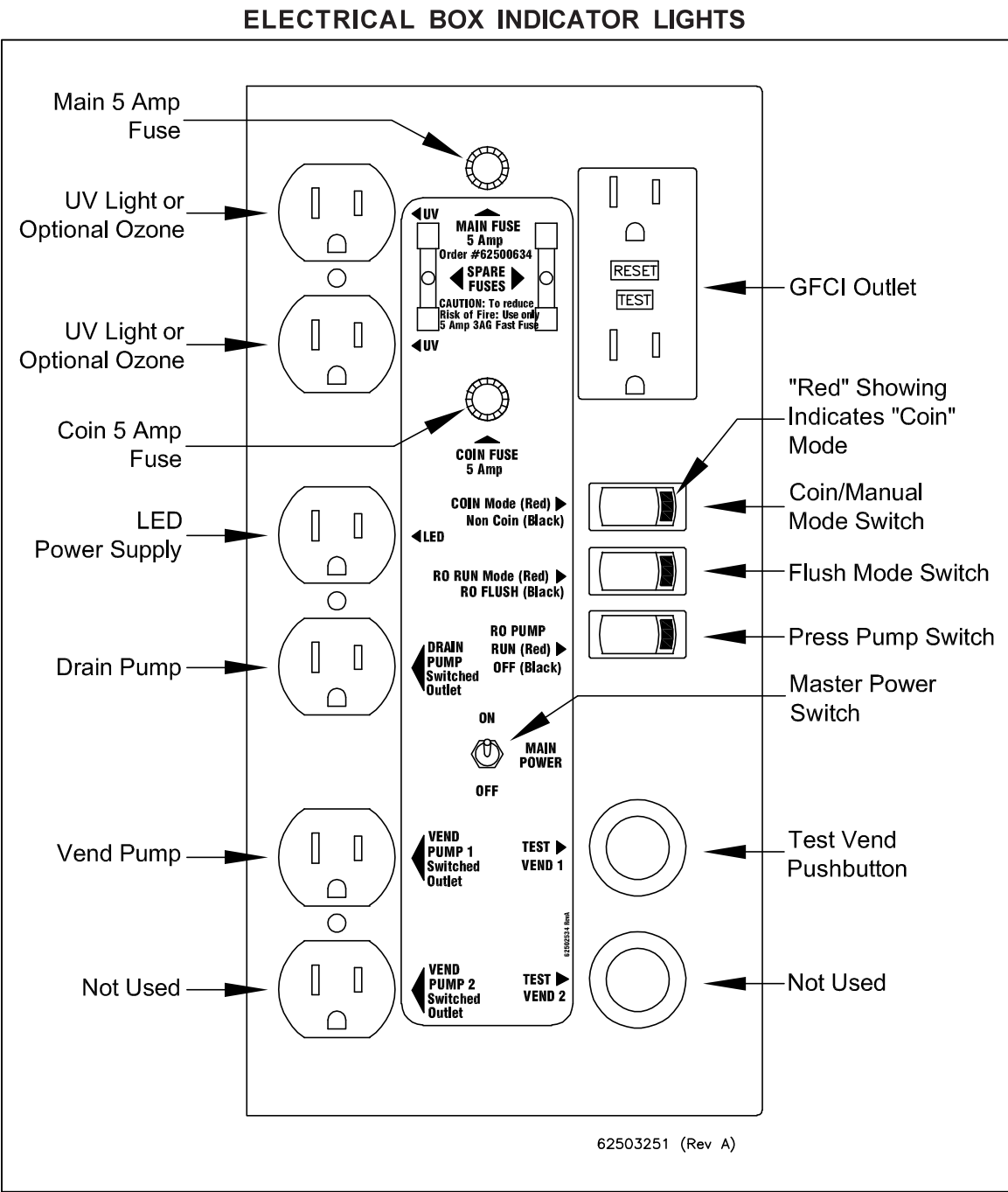


FIGURE 8

# PLC INDICATOR LIGHTS

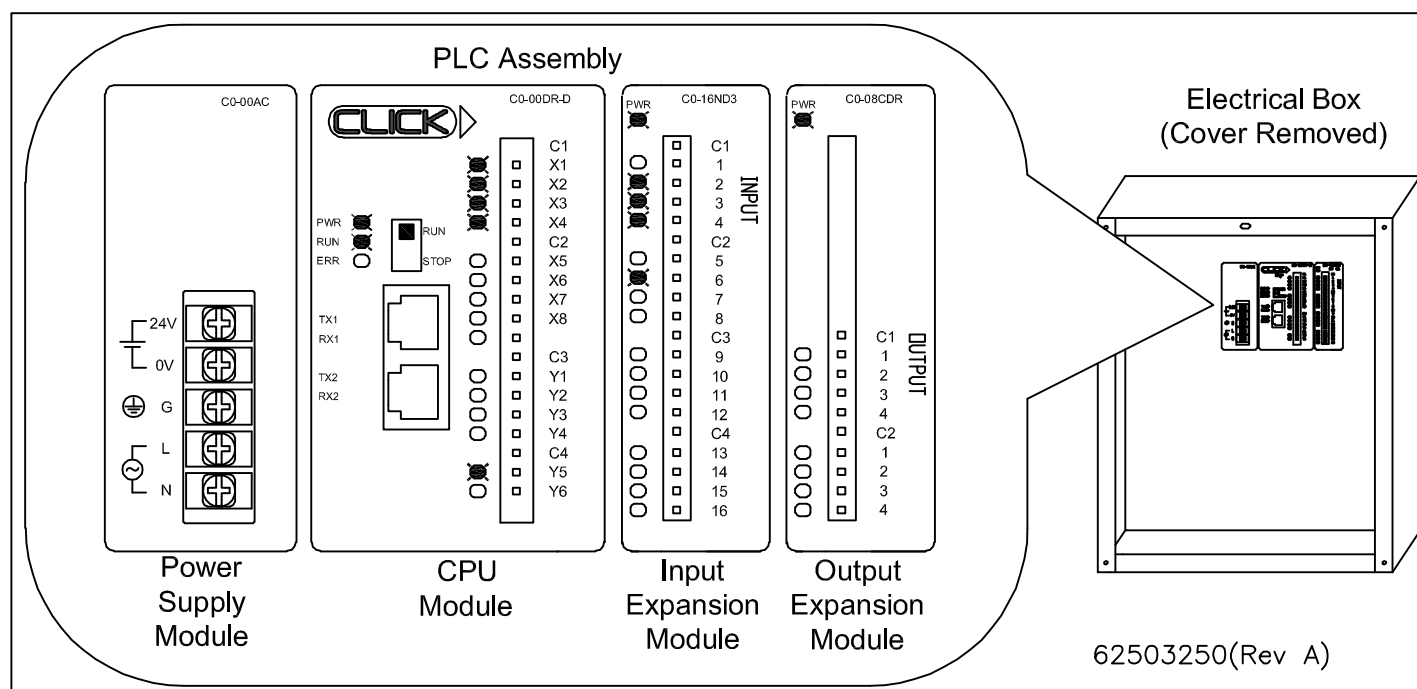


Figure 9

1. Refer to Figure 9 and PLC LED indicator status tables.
2. Figure 9 illustration represents normal LED status when:
  - a) Machine is *not* vending water
  - b) RO system is *not* charging
  - c) PLC is in "RUN" mode
  - d) RUN/CAL switch is in "RUN" position

CPU Module			
Indicator LED	"ON/OFF" Status (Bold Text indicates Normal Status)		Correction
PWR	<b>ON</b>	Power to PLC Module OK.	Normal Status
	OFF	No power to PLC Module	a) Power Switch off b) GFCI tripped c) check 120vac to Power Supply Module d) check 24vdc power to CPU module
RUN	<b>ON</b>	PLC Run/Stop switch is in "RUN" position	Normal Status
	OFF	PLC Run/Stop switch is in "STOP" position	Place switch in "RUN" position
ERR	<b>ON</b>	No faults in PLC Module	Normal Status
	OFF	Faults/Errors in PLC Module	Replace PLC module
X1	<b>ON</b>	PB-1 Selection Button (not pushed)	Normal Status
	OFF	PB-1 Selection Button pushed/jammed	a) button is pushed b) button is jammed c) switch is jammed or defective d) replace button and switch
X2	<b>ON</b>	PB-2 Selection Button (not pushed)	Normal Status
	OFF	PB-2 Selection Button pushed/jammed	a) button is pushed b) button is jammed c) switch is jammed or defective d) replace button and switch
X3	<b>ON</b>	PB-3 Selection Button (not pushed)	Normal Status
	OFF	PB-3 Selection Button pushed/jammed	a) button is pushed b) button is jammed c) switch is jammed or defective d) replace button and switch
X4	<b>ON</b>	PB-4 Selection Button (not pushed)	Normal Status
	OFF	PB-4 Selection Button pushed/jammed	a) button is pushed b) button is jammed c) switch is jammed or defective d) replace button and switch
X5	N/A	Not Used	N/A
X6	N/A	Not Used	N/A
X7	N/A	Not Used	N/A
X8	N/A	Not Used	N/A
Y1	<b>OFF</b>	Dispensing Solenoid Valve closed	Normal Status
	ON	Dispensing Solenoid Valve open	If valve is not open: a) check 120vac power to valve b) replace valve
Y2	N/A	Not Used	N/A
Y3	<b>OFF</b>	Out of Service LED "OFF" (machine operating correctly)	Normal Status
	ON	UV not operating (UV bulb not illuminated)	a) replace UV lamp b) replace UV ballast/controller
		Leak Level Switch activated (water in bottom of cabinet)	remove water from bottom of cabinet
		Stuck or Jammed selection button	check buttons and switches, replace if necessary
		Water Meter Sensor failed (Out of Service Light will "Lock On". Cycling 120v power will temporarily turn light "OFF" but will illuminate and "Lock On" after one vend cycle)	check for blinking sensor input when water is dispensing, replace sensor and/or water meter if not blinking during vend
Y4	N/A	Not Used	N/A
Y5	OFF	COIN/MAN switch is in "MAN" position	Normal Status for "Non-Coin" machines
	ON	COIN/MAN switch is in "COIN" position	Normal Status for "Coin Operated" machines
		Note: Y5 LED will momentarily transition from "ON" to OFF", then back "ON" to reset Coin VMC at start of a vend in coin operated machines	
Y6	N/A	Not Used	N/A

Input Expansion Module			
Indicator LED	Status (Bold Text indicates Normal Status)		Correction
PWR	ON	Power to Input Expansion Module OK.	Normal Status
	OFF	No power to Input Expansion Module	a) Power Switch off b) GFCI tripped c) check 120vac to Power Supply Module d) check 24vdc power to CPU module
1	OFF	COIN/MAN Switch is in "MAN" position	Normal position for "Non-Coin" operated machines
	ON	COIN/MAN Switch is in "COIN" position	Normal position for "Coin Operated" operated machines
2	OFF	RUN/CAL Switch is in "RUN" position	Normal operating position
	ON	RUN/CAL Switch is in "CAL" position	Only "ON" in calibrate position
3	ON	Leak Level Switch is in lower/bottom position	Normal Status
	OFF	Leak Level Switch is in upper/raised position	Check for water in bottom of cabinet, replace level switch is necessary
4	ON	UV Vend circuit, UV operating correctly	Normal Status
	OFF	UV lamp not operating	Replace UV lamp and/or ballast controller
5	N/A	Not Used	N/A
6	OFF	Not used in "Non-Coin" machines	Normal Status
	ON	Coin Operated machines: product storage tank has adequate water level	Normal Status
	OFF	Coin Operated machines: Product storage tank low water level	LED will transition "ON" when storage tank level is above 5 gallons
		Coin Operated machines: Lower Coin Level switch defective	Replace switch
7	N/A	Not Used	N/A
8	OFF	Non-Coin operated machines: Not Used	Normal Status
	OFF	Coin Operated machines: Normally "OFF", but will momentarily transition to "On" at start of a vend	Momentarily transition to "ON" resets VMC in coin operated machines
9	OFF	Water meter sensor LED may be OFF or ON	check for blinking sensor input when water is dispensing, replace sensor and/or water meter if not blinking during vend
	ON		
10	N/A	Not Used	N/A
11	OFF	Pause Button, not pushed	Normal Status
	ON	Pause Button pushed	if LED is "ON" but button is not pushed, button/switch is defective, replace
12	N/A	Not Used	N/A
13	OFF	RO Start signal, RO system OFF, (not calling for water or in charging cycle)	Normal Status when product storage tank is full
	ON	RO Start signal, RO system ON or calling for water	if LED is not "ON" and storage tank is "NOT" full: a) check feed water supply pressure b) check upper level switch in product storage tank
14	OFF	Test Vend Button #1 (not pushed)	Normal Status
	ON	Test Vend Button #1 (pushed or jammed)	Replace switch
15	OFF	Test Vend Button #2 (not pushed)	Test Vend Button #2 is wired (connected), but not used in 4 select machines
	ON	Test Vend Button #2 (pushed or jammed)	
16	N/A	Not Used	N/A

Output Expansion Module			
Indicator LED	Status (Bold Text indicates Normal Status)		Correction
<b>PWR</b>	<b>ON</b>	Power to Output Expansion Module OK.	Normal Status
	OFF	No power to Output Expansion Module	a) POWER Switch off b) GFCI tripped c) check 120vac to Power Supply Module d) check 24vdc power to CPU module
<b>1</b>	<b>OFF</b>	RO Feed Supply Solenoid closed	Normal Status
	ON	RO Feed Supply Solenoid open	If valve is not open: a) check 120vac to valve b) replace valve
<b>2</b>	<b>OFF</b>	RO Pressure Pump off	Normal Status
	ON	RO Pressure Pump on	If pump is not running: a) check pressure pump switch b) check/replace MR-2 motor contactor c) check 120vac power to motor
<b>3</b>	<b>OFF</b>	S3 Concentrate Flush Solenoid Valve closed	Normal Status
	ON	S3 Concentrate Flush Solenoid Valve open	If valve is not open: a) check 120vac power to valve b) replace valve
<b>4</b>	<b>OFF</b>	Drain Pump off	Normal Status
	ON	Drain Pump on	If pump is not running: a) verify pump cord is plugged into receptacle marked "Drain Pump" b) check 120vac power at receptacle marked "Drain Pump" c) replace pump
<b>5</b>	<b>OFF</b>	Vend Pump off	Normal Status
	ON	Vend Pump on	If pump is not running: a) verify pump cord is plugged into receptacle marked "Vend Pump 1" b) check 120vac power at receptacle marked "Vend Pump 2" c) replace pump
<b>6</b>	N/A	Not Used	N/A
<b>7</b>	<b>OFF</b>	S7 Product Recirculation Solenoid Valve closed	Normal Status
	ON	S7 Product Recirculation Solenoid Valve open	If valve is not open: a) check 120vac power to valve b) replace valve
<b>8</b>	<b>OFF</b>	S4 Product Flush Solenoid (Airgap) Valve closed	Normal Status
	ON	S4 Product Flush Solenoid (Airgap) Valve open	If valve is not open: a) check "Flusk Rocker Switch" position b) check 120vac power to valve c) replace valve

GENERAL TROUBLE SHOOTING		
Refer to PLC LED indicator status tables and Figure 9 for detailed information on PLC Inputs and Outputs status and trouble shooting.		
PROBLEM	CAUSE	CORRECTION
Machine will not power up	Circuit Breaker tripped	Locate circuit breaker box, reset appropriate breaker
	Power Cord GFCI tripped	Push reset
	GFCI Receptacle tripped	Push reset
	Main Power Switch "OFF"	Turn on main power switch
Main 5 amp fuse blown	Voltage Suppressor (TVS) shorted (refer to Electrical Box wire diagram for location on terminal strip)	Replace TVS. <b>Note:</b> TVS is designed to short/fail in the event of a power surge or lightning strike, which in turn blows main 5 amp fuse. The Main 5 amp fuse <b>will continue</b> to blow if the TVS is not replaced. <b>DO NOT OPERATE THE MACHINE WITHOUT THE TVS INSTALLED.</b>
	Internal electrical short in machine	Consult qualified electrician to identify/troubleshoot possible shorted component or wiring
Coin 5 amp fuse blown	Coin transformer shorted or failed (mounted from bottom of electrical control box)	Replace transformer
Power Cord or Duplex Receptacle GFCI tripped	nuisance tripping	Reset GFCI; press test button, and reset again to ensure correct & safe operation
	Shorted electrical component or wiring	Consult qualified electrician to identify and troubleshoot problem
RO System will not start/charge	PLC Input Expansion Module #13 LED is NOT "ON"	Product storage tank upper level switch SW-4 failed, replace
		RO Feed Pressure Switch PS-1 failed, replace
RO Pressure Pump Motor will not start/run	Pressure Pump Switch in "OFF" position	Turn pump switch on
	Failed/Siezed pressure pump (prevents motor from starting)	Replace pump
	Failed motor	Replace motor
	Failed MR-2 Motor Contactor/Relay	Replace MR-2 Relay
RO Pressure Pump noisy (buzzing sound)	Pre-Filters plugged	Replace filters
	Feed Manifold Strainer plugged	Disassemble manifold and clean screens
RO Membrane low or no product water production (RO pressure pump operating at correct pressure)	Fouled/Scaled RO membrane	Replace membrane
RO system operating pressure excessive	T-Handle pressure valve incorrectly adjusted	Adjust valve (Refer to Flushing/Charging)
	Fouled/Scaled RO membrane	Replace membrane
RO System low/no operating pressure	T-Handle regulating valve failed	Replace valve
	RO Pressure Pump failed/damaged	Replace Pump

GENERAL TROUBLE SHOOTING (continued)		
RO Feed Solenoid Valve will not close, even when main power switch is "OFF"	Valve body has corroded and continues to bypass water even when not powered	Replace valve
Dispenser Nozzle stream spraying (not uniform flow)	Nozzle strainer dirty, has debris obstructing flow	Clean screen. <b>DO NOT OPERATE MACHINE WITHOUT NOZZLE SCREEN.</b>
Vend Pump will not start	Vend Pump Power Cord Unplugged	Plug cord into receptacle marked "Vend Pump 1"
	Verify PLC Output Expansion Module indicator LED #5 is "ON" during vend cycle	If indicator LED #5 is "ON", replace vend pump
Drain Pump will not start	Drain Pump Power Cord Unplugged	Plug cord into receptacle marked "Drain Pump"
	Verify PLC Output Expansion Module indicator #4 is "ON" when drain tank water level is above "drain tank level switch"	If indicator LED #4 is "OFF", replace drain tank level switch
		If indicator LED #4 is "ON", replace drain pump
Drain Pump runs but will not pump	Pump intake screen inside drain tank plugged	Drop drain tank from dispenser and clean screen
	Pump internal check valve fouled with debris or slime	Disassemble pump and clean pump internals or replace pump
UV Lamp not "ON"	UV Power Cord Unplugged	Plug cord into receptacle marked "UV Light"
	UV Lamp failed/burned out	Replace UV lamp
	UV Ballast/Controller failed	Replace UV Ballast/Controller
Long/Short or inconsistent vend volumes	Water Meter Sensor failed	Replace sensor
	Water Meter failed/damaged	Replace water meter
Coin Changer no coin acceptance (Coins drop to coin return cup)	Out of Service light "ON"	Refer to PLC troubleshooting tables for "out of service"
	Coin Jam in Coin Changer Discriminator/Acceptoy (upper portion of coin changer)	Remove coin changer assembly and inspect/clear coin jam
	Coin Changer failed	Replace coin changer
Bill Validator no bill acceptance	Coin Changer inventory tubes low	Completely fill coin tubes, then cycle power (coin changer will perform tube inventory)
	Bill Validator jammed	Clean bill validator, remove any debris from transport mechanism
	Bill Validator failed	Replace validator
Select Button "Sold Out"	System Motor Errors set in VMC	Clear "System Errors", refer to "System Error Clearing in coin mech section"