

Model:

- ▶ **Hot Water Dispenser HWD_2102**
With Portion Control



USERS GUIDE-Preliminary Edition

NOTICE TO INSTALLER: Please leave this book with the machine.

FETCO Hot Water Dispenser HWD_2102

Contact Information

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Description & Features

The following are the factory settings—and range of variables that are adjustable:

Temperature Control: Water temperature is factory set at maximum 97°C/208°F

(Temperature selectable 50-97°C/122°-208°F)

Portion Control: Delivery volume factory set to deliver up to maximum 21fl.oz/630cc.

(Portion control selectable 5-53fl.oz/158-1575cc by timer adjustment)

Operating Instructions

To Start:

Follow installation and set up procedures. If desired, set custom dispense temperature; dispense time/volume interval.

- 1) Open water valve
- 2) Power unit "ON" from rear power switch. Unit will fill and heat (up to 20 minutes for a new unit).
 - After unit is filled and heated
- 3) Ready Lamp will glow green
 - Unit may be operated when Ready Lamp is "off" (after initial fill).
- 4) White colored backlight intensity of control panel slowly pulsates during "READY" condition

NOTE→ the HWD_2102 should be left "ON". The hot water tank is well insulated to control energy loss.

-The HWD 2102 is ready to dispense-

Refer to control panel layout diagram for HWD_2102 hot water dispenser on Page 3

To dispense

- 1) Touch UNLOCK/DISPENSE pad for 1-3 seconds to unlock and activate dispensing system
 - Border of UNLOCK/DISPENSE pad will change: briefly turn pink and blink signaling activation
- 2) Remove finger from pad
 - Border of UNLOCK/DISPENSE pad will **glow steady red: ready to dispense**
- 3) Touch center of UNLOCK/DISPENSE pad to dispense. Keep finger on pad until dispense is complete.
 - Dispense automatically stops when time out is complete, or if finger is removed.

NOTE→ Dispense is unlocked and functioning only when Border of UNLOCK/DISPENSE pad is steady red.

Multiple dispenses are possible when the light bordering the UNLOCK/DISPENSE pad is steady and red colored
Lift finger and reactivate after portion by retouching pad for next dispense portion. Finger must be on pad to dispense.

The UNLOCK/DISPENSE pad rapidly flashes red if finger remains on it after dispensing and no water is dispensed.

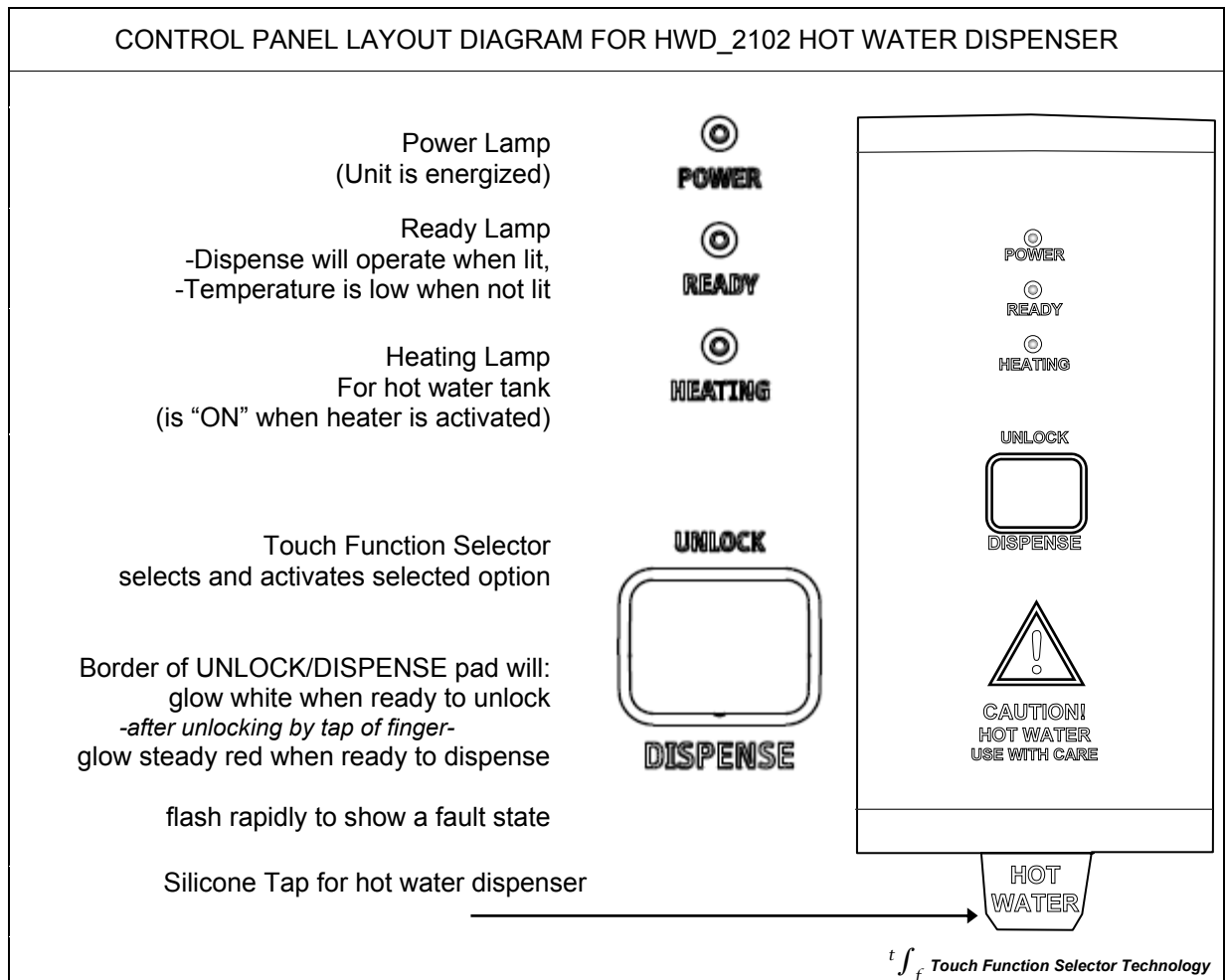
If finger remains on the UNLOCK/DISPENSE pad more than 10 seconds while rapidly flashing red-the controls "lock out"
and READY LIGHT & HEATING LIGHT will flash rapidly to show a fault state. All controls are disabled during fault state.

To clear Fault State:

Switch machine "OFF" for about ten seconds, and then toggle back "ON" (Control Reset)

After controls initiate, hot water tank level and temperature are checked- then the "READY" light will activate.

NOTE→ This will take approximately 2 minutes for filled and heated unit; up to 20-30 minutes for a new and empty unit.



Operating Principles

The HWD_2102 delivers precision temperature water at selected temperatures. The green "READY" lamp must be lit. Unit will dispense water if green "READY" lamp is not lit.

Unit is factory calibrated at the optimum dispense portion of 21.3fl.oz/630cc (16 sec).

Hot water is drawn from the faucet, the fill valve cycles on and off to replenish the hot water tank.

The dispense valve faucet is protected by a silicone bumper over the tap.

When dispensing water at a rate that exceeds the unit's capacity to heat, the ready light will go off to show that the selected preset temperature is not available. Always observe the "READY" lamp

When the "READY" lamp is lit – proper dispense temperature is enabled.

When heating or reheating, the green "READY" light will turn off and the "HEATING" light will display

NOTE→ After exceeding the maximum optimum dispense portion of 21.3fl.oz/630cc the water supply in the hot water tank begins to become depleted. The "READY" lamp will turn off. Dispenser faucet does not "lockout". This may allow less heated water to dispense. For the highest selected dispense when "READY" lamp is lit.

NOTE→ When the HWD_2102 is powered on (or controller reset)- the controls check and adjust tank level and temperature. This will take approximately 2 minutes for filled and heated unit; up to 20-30 minutes for a new and empty unit.

Cleaning & Maintenance

Daily:

- Check the drip tray and empty if necessary.

Quarterly:

- Inspect all fittings and hoses for leaks.
- Inspect inside of tank for lime deposits. De-lime tank and probes if necessary.
(This procedure should be performed by a qualified service technician)

Notice:

- Turn off power before any cleaning procedure, including wiping the exterior for appearance reasons. Dry the exterior, especially the face panel, before turning on power.

WARNING:

- Equipment is designed for commercial use , equipment is not for household use
- Do not apply any type of spray cleaner on the face panel of this equipment.
- Never use solvent or solvent based cleaner or petroleum based polish on this equipment.
- Dry the face of the HWD-2102 before turning on power.
- No user serviceable parts, refer to qualified service technician for repair and adjustments.
- Dangerous high voltage and high temperatures inside
- WARNING-Do not plug-in this equipment or attempt to operate without all covers in place and all screws fastened.

Follow the cover reassembly sequence:

First: Lower face cover

Second: Upper face cover

Third : Top cover

This is noted and illustrated in more detail in section for qualified service technicians

- Unplug machine before disassembly or changing settings

The following pages contain repair and adjustment information for qualified service technicians

Specifications

For qualified service technicians

Electrical Rating Chart

Configuration Code	Heater Configuration	Voltage	Phase	Wires	Electrical Connection	kW	Maximum Amp draw	Flow Rate Per hour*
DOMESTIC CONFIGURATION								
H210210	1 X 1.4 KW	100-120	single	2+G	NEMA 5-15P	1.5	12.5	3.6 Gal/13.6 liters
H210220	1 X 2.1 KW	100-120	single	2+G	NEMA 5-20P	2.2	18.3	5.4Gal/20.4 liters
H210230	1 X 3.2 KW	200-240	single	2+G	NEMA 6-15P	3.3	13.8	8.2Gal/31.0 liters
EXPORT OR DOMESTIC CONFIGURATION								
H210220	1 X 2.1 KW	100-120	single	2+G	NEMA 5-20P	2.2	18.3	5.4Gal/20.4 liters
H210240	1 X 3.2 KW	200-240	single	2+G	cord only without plug	3.3	13.8	8.2Gal/31.0 liters

*Flow rate based on 55°F/13°C water mains supply and dispensing From ("READY" Light ON)
 Portion Control: factory calibrated at 16sec—the maximum optimum dispense portion of 21.3fl ounces or 630ml.
 Portion size is controlled by dispense time. Range: 4 sec to maximum single dispense is 1570cc/53 ounces in 40seconds (maximum dispense time).

Weights and Capacities

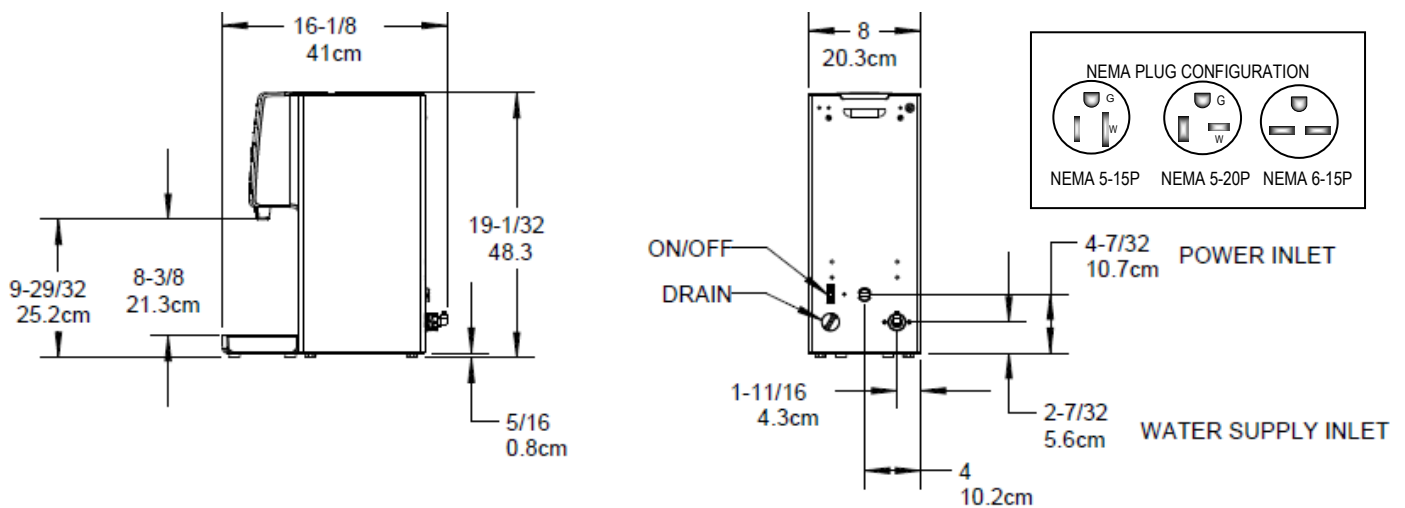
Brewer / Dispenser Model	Weight (empty)	Water tank Capacity	Weight (filled)
Hot Water Boiler HWD-2102	19 lb	1.8 gallon-6.9 liter	36

Water Requirements

Pressure: 20-75 psig Minimum Flow Rate: 1½ gpm

Water connection inlet: ¼ inch flare fitting.

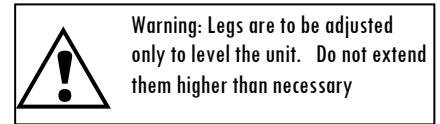
Dimensions & Utility Connections



Installation

The installation must comply with applicable federal, state, and local codes having jurisdiction at your location. Utilize only qualified beverage equipment service technicians for installation.

A Service Company Directory may be found on our website, <http://www.fetco.com>.

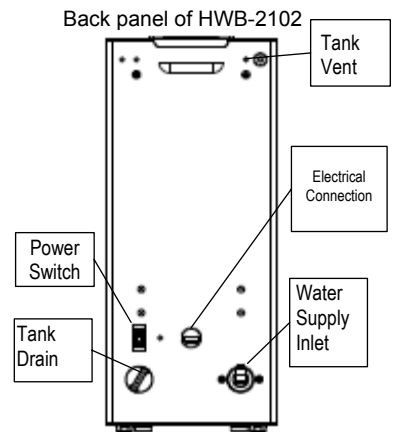


Setup

1. Before placing the unit, verify that it will fit in the space intended for it, and that the counter or table will support its' weight.
2. When the unit is in position, use a bubble level to level it front to back and side to side by adjusting the legs.

Water Connection

1. Water inlet is $\frac{1}{4}$ inch flare fitting.
2. Install a shut off valve near the unit to facilitate service.
3. Install a backflow prevention device, a spring loaded double check valve such as a WATTS SD-2 or SD-3 is usually accepted by most zoning authorities.
4. If an inline water filter is used (highly recommended), it should be installed after the water shut off valve and in a position to facilitate filter replacement.
5. Flush the water supply line and filter **before** connecting it to the unit.
6. Verify that the water line provides at least $1\frac{1}{2}$ gpm (5.7lpm), and that the water pressure is between 40-75 psig, (276-517kPa).



DRAIN VENT DIAGRAM

Venting brewer and vent drain

NOTE→ When the HWD_2102 is initially filled and powered "ON", water may flow from the vent drain. This is normal, and caused by expansion of the large amount of cold water in the hot water tank.

All equipment with vent drains should be attached to tubing that exits into a plumbed drain system.

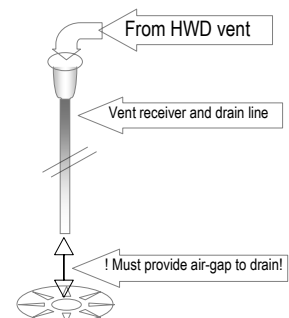
Attach a Vent Drain

A drain line should be used for the tank vent.

Materials: use $\frac{1}{4}$ " i.d. heavy wall silicone tubing or $\frac{3}{8}$ " i.d. rigid tubing only.

IMPORTANT: Allow a 4" to 12" air-gap from the end of the drain line to main drain.

NOTE→ Consult local plumbing codes.



HWD_2102 service setup and adjustment, temperature and portion control

Two Upper Dials (Marked: S3 and S2)

Temperature selection.

Base temperature begins at 50°C/122°F, in Celsius units.

-Factory set, is 88°C/190°F.

Add dial position numerical value in degrees Celsius (°C) to 90° base to a maximum of 97°C/207°F

DIAL SETTING POSITIONS		SETTING EXAMPLES			
Temperature Setting S2 (Lower dial)	Temperature Setting S3 (Upper dial)	DIAL		Deg. C	Deg. F
		S2	S3		
NA	0 (0)	6	6	66	150
NA	1 (+1)	7	1	71	160
NA	2 (+2)	7	7	77	170
NA	3 (+3)	8	2	82	180
NA	4 (+4)	8	5	85	185
5 (+50)	5 (+5)	8	8	88	190
6 (+60)	6 (+6)	9	3	93	199
7 (+70)	7 (+7)	9	4	94	201
8 (+80)	8 (+8)	9	6	96	205
9 (+90)	9 (+9)	9	7	97	207

IMPORTANT When Changing Settings:

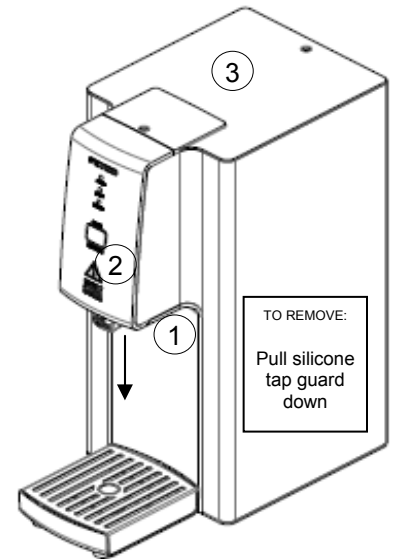
Switch machine "OFF" for about ten seconds, and then toggle back "ON" (Control Reset) after adjusting dials, or following reassembly and plugging in.

Remove all screws and panels to access control board for adjustments.

Pull off silicone tap guard

Reinstall

- 1) Lower face panel first,
- 2) Upper face panel next,
- 3) Top panel last



Remove covers to access dials for setting temperature and dispense volume.

Do not operate without all covers and screws in place

Unplug machine before disassembly or changing settings.

Switch machine "OFF" for about ten seconds, and then toggle back "ON" (Control Reset)

S1 Timer Dial (Bottom Dial, Marked: S1)

For dispense time and volume to be delivered

This dial controls flow for 4 seconds to 40 seconds or approximately 158-1575ml or 5-55 fluid ounces.

For best temperature regulation-do not exceed 16 seconds.

Brewer is factory set at dial position-"3"

Calibrated to 16 sec—the maximum optimum dispense portion of 21fl ounces or 630 ml.

Each dial position of 0-9 increments is four seconds from the base of position "0" (at four seconds)

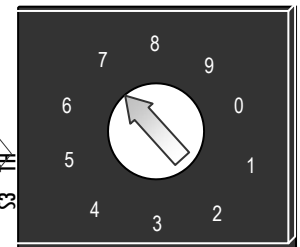
Bottom dial marked S1		Dispenses (approximately)	
Dial position	Sec	ml	ounces
0	4	158	5.3
1	8	315	10.7
2	12	473	16
3	16	630	21.3
4	20	788	26.6
5	24	945	32
6	28	1103	37.3
7	32	1260	42.6
8	36	1418	48
9	40	1575	53.3

Dial S3 ☐ ☒

Set temperature

Temperature on dials starts at 50°C (97°C shown) ←

Each number 1 °C

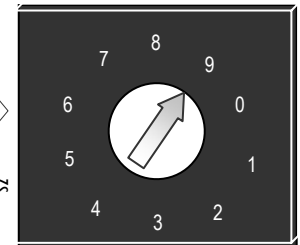


Dial S2 ☒ ☐

Set temperature

Temperature on dials starts at 50°C (97°C shown) ←

Each number 10 °C



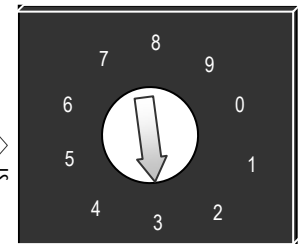
Dial S1

Set Portion (time)

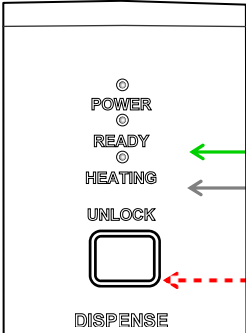
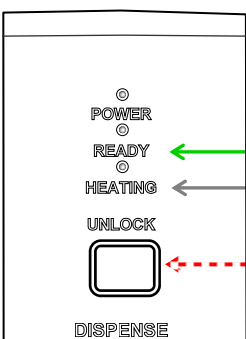
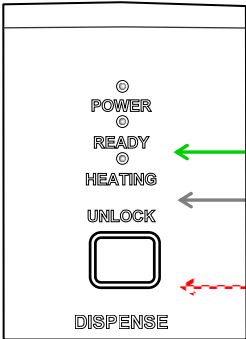
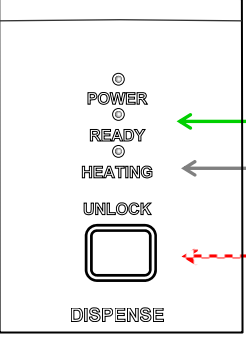
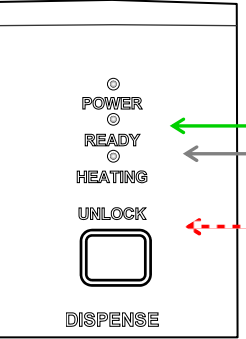
Units are 4 sec intervals

0 starting at 4 seconds

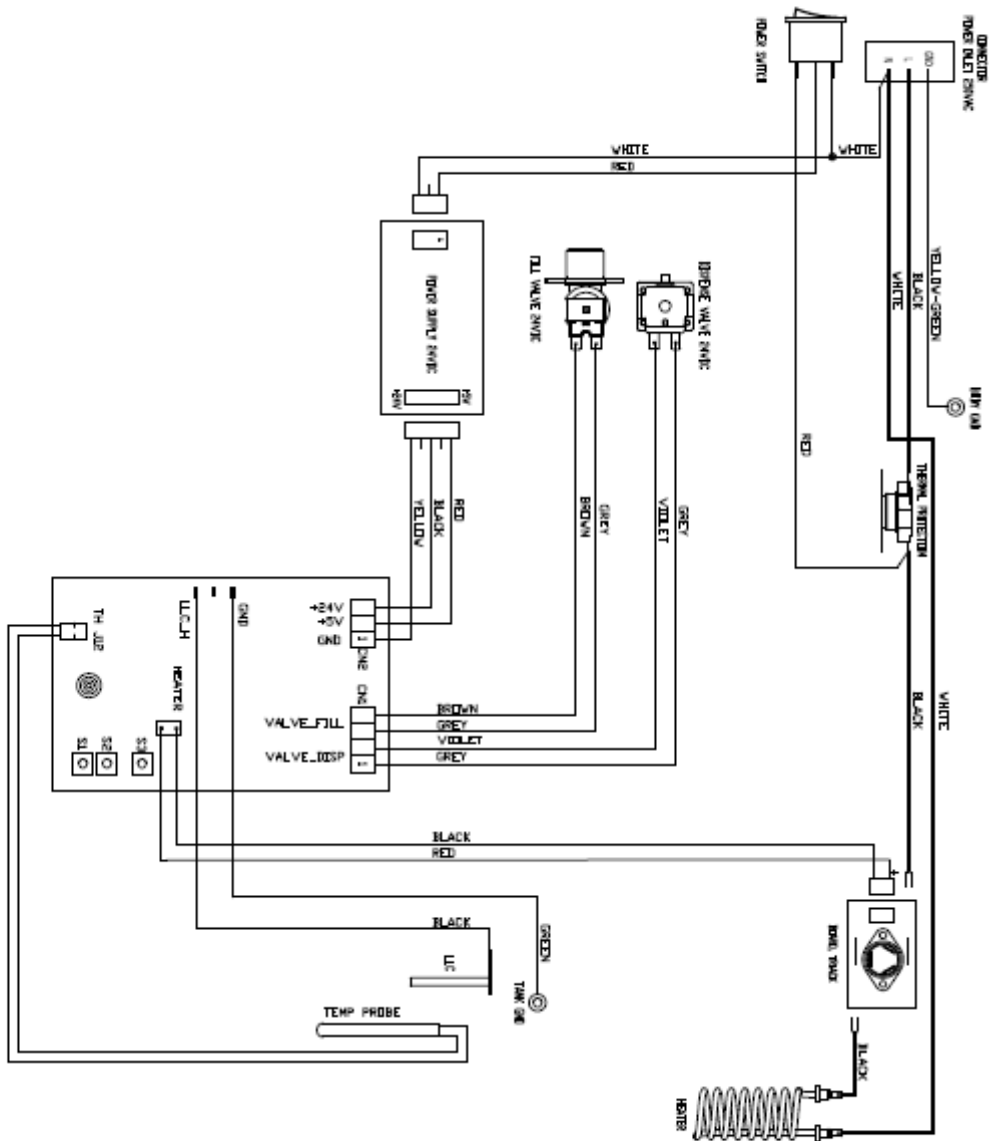
Shows 16 seconds



TEMPERATURE SETTING DIALS

	<u>Problem with Water Supply</u> <u>-INITIAL FILL</u> Power lamp—(steady) READY lamp → (1X) slower blinking HEATING lamp → (2X) faster blinking Touch Pad → (INACTIVE)	* * * □	Hot water tank not filled in 6 minutes. Problem with water supply. Problem with fill valve.
	<u>Problem with Water Supply</u> <u>-REFILL</u> Power lamp—(steady) READY lamp → (1X) slower blinking HEATING lamp → (2X) faster blinking Touch Pad → (Glows Bright White)	* * * □	Hot Water Tank not filling or refilling fast enough. Check water filter-replace if old. Problem with fill valve. Check water level probe, all connections and wires
	<u>Problem with Temperature Probe</u> Power—(steady) READY lamp → (2X) faster blinking HEATING lamp → (1X) slower blinking Touch Pad → (INACTIVE)	* * * □	Tank not heating Heater failure Check heat circuit Probe sheath flooded Check probe, connections and wires
	<u>Problem with Touch Pad</u> Power—(steady) READY lamp → (2X) faster blinking HEATING lamp → (2X) faster blinking Touch Pad → First: Rapid flashing Second: Inactive	* * * * 1: □, □, □ 2: □	Finger left on touch pad too long after activating “DISPENSE”
	<u>Problem with Touch Pad</u> Power—(steady) READY lamp → (2X) faster blinking HEATING lamp → (2X) faster blinking Touch Pad → Glows Bright White (OR-INACTIVE)	* * * * □	Front cover not fastened. Condensation on contacts Solvent or strong cleaner damaged face plate

HWD_2102 Wiring Diagram

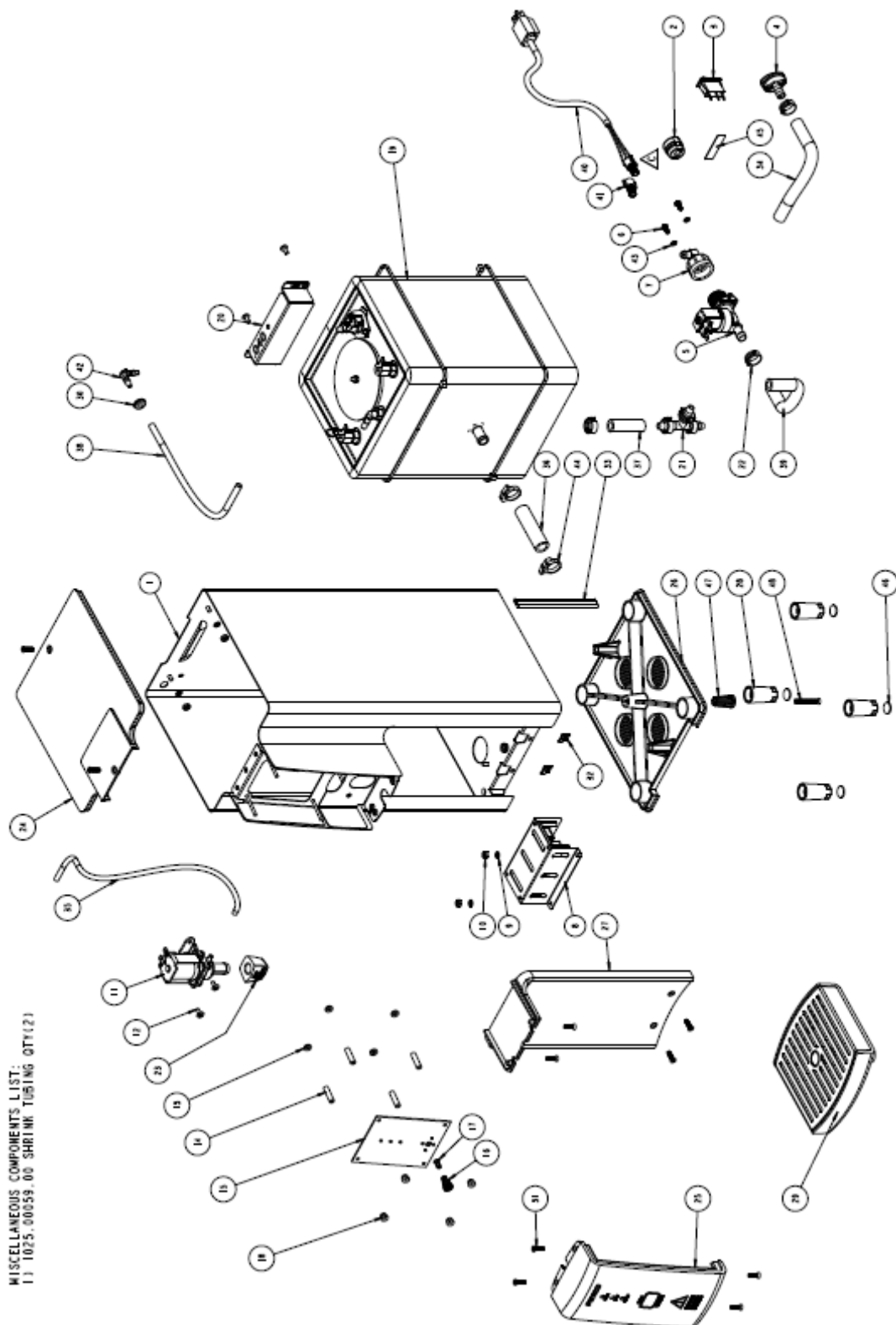


TOLERANCES			REVISIONS			FETCO		
DIRECT AS NOTED			NO	DATE	BY	1401.00040.00		
DECIMAL			A	02-08-2012		1401.00040.00		
FRACTIONAL			B			1401.00040.00		
N/A			C			1401.00040.00		
ANGULAR			D			1401.00040.00		
N/A			E			1401.00040.00		

WIRING, HWD-2102, LI, MGNL, 1 HEATER

1401.00040.00

HWD_2102 Parts

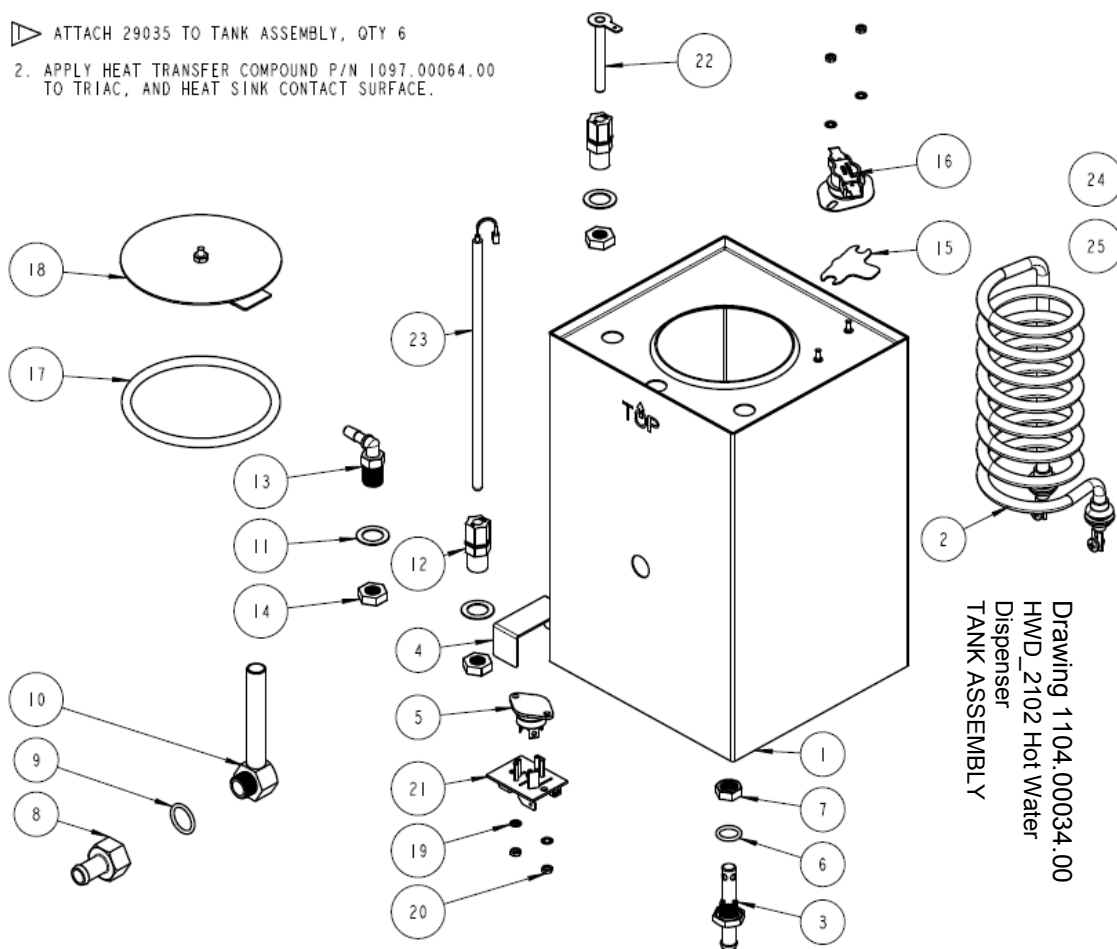


Drawing 1101.00121.00 HWD_2102 Hot Water Dispenser Parts Diagram

Drawing 1101.00121.00 HWD_2102 Hot Water Dispenser Parts Diagram			
ITEM NO	QTY	PART NO	DESCRIPTION
1	1	1111.00028.00	BODY, WELDMENT, HWD-2102
3	1	1058.00020.00	SWITCH, POWER ROCKER RED, ILLUMINATED 250V
4	1	1023.00147.00	PLUG, TANK SERVICE DRAIN FOR 18GA AND UP BODY
5	1	1057.00043.00	SOLENOID VALVE, SINGLE, 180 DEG, 24VDC
6	2	1082.00010.00	SCREW, M4x10 ZINC PLATED PAN PHILLIPS MACHINE
7	1	1102.00164.00	ADAPTER ASSY, 3/4" BSP X 1/4 SAE FLARE
8	1	1102.00159.00	POWER SUPPLY ASSEMBLY, HWD-2100
9	4	1083.00011.00	WASHER, #8 SCREW SIZE, INTERNAL TOOTH LOCK
10	4	1084.00006.00	NUT, 8-32 18-8 HEX MACHINE SCREW
11	1	1102.00179.00	DISPENSE VALVE ASSEMBLY, HWD-2102
12	4	1082.00023.00	SCREW, #8-32 X 3/8 TRUSS HD PHIL., MACHINE
13	4	1083.00010.00	WASHER, #8 SCREW SIZE W/NEOPRENE- BONDED SEAL
14	4	1029.00020.00	SPACER, #6 SCREW SIZE, 1/4" OD X 1", NYLON 6/6, RND
15	1	1108.00015.00	CONTROL BOARD/SOFTWARE HWD-2102
16	1	1085.00008.00	SPRING, CONTROL, DISPLAY, HWD-2100
17	1	1087.00006.00	RIVET, 0.187" DIA, PLASTIC, BLACK
18	4	1029.00018.00	NUT, #6 KNURLED THUMB
19	1	1104.00034.00	TANK ASSEMBLY, 2100W/120V, HWD-2102
20	1	1112.00115.00	BRACKET WELDMENT, TANK LOCK, HWD-2100
21	1	1029.00002.00	FITTING, HOSE BARB TEE, SIZE 3/8" , NYLON
22	6	1086.00003.00	UNICLAMP, 15.9 HOSE OD CLAMP
23	1	1029.00017.00	FAUCET, SILICONE, HWD-2100
24	1	1023.00153.00	TOP COVER, HWD-2102
25	1	1023.00151.00	FRONT PANEL TOP, HWD-2102
26	1	1023.00154.00	BOTTOM BASE, HWD-2102
27	1	1023.00152.00	FRONT PANEL BOTTOM, HWD-2102
28	4	1023.00136.00	LEG, HWD-2100
29	1	1102.00180.00	DRIP TRAY ASSEMBLY, HWD-2102
30	1	1024.00041.00	PUSH IN GROMMET, 1/4"ID (7/16" PANEL HOLE)
31	10	1082.00058.00	SCREW, # 8-32 X 5/8, FLAT HD, PH, 18-8 SS
32	2	1084.00027.00	NUT, CLIP ON (J-NUT), #8-32, 18-16 GA., BPF
33	2	1082.00062.00	SCREW, # 6-32 X 1/2, FLAT HD, PH, 18-8 SS
34	1	1402.00031.00	HARNESS, UNIVERSAL, HWD-2102
35	1	1025.00039.00	TUBE, 5/8" OD X 3/8 ID X 10" LG, DRAIN
36	1	1025.00040.00	TUBE, 1/4" OD X .125" ID X 16" LG, VENT
37	1	1025.00041.00	TUBE, 3/4" OD X 1/2" ID X 2.75" LG, DISPENSE
38	1	1025.00042.00	TUBE, 5/8" OD X 3/8" ID X 2" LG, BOTTOM TANK
39	1	1025.00044.00	TUBE, SILICONE, 5/16" OD X 3/16" ID X 10.5" LG, TANK VENT
40	1	1025.00046.00	TUBE, 5/8" OD X 3/8" ID X 5.0" LG, DOUBLE VALVE
42	1	1029.00023.00	FITTING, SINGLE BARBED ELBOW, 1/4", KYNAR
43	2	1083.00005.00	WASHER, M4 18-8 INTERNAL TOOTH LOCKWASHER
44	2	1086.00002.00	CLAMP, HOSE, SIZE "G" NYLON
45	1	1044.00001.00	LABEL "FOR USE ON IND. CIRCUIT"
46	4	1029.00025.00	FOOT, ANTI-SLIP
47	1	1023.00155.00	PLUG, BOTTOM BASE, HWD-2100
48	1	1082.00065.00	SCREW #8-32 X 1 1/2", FLAT HD PH, 18-8 SS
		Consult FETCO	CORD, POWER
		Consult FETCO	CONNECTOR, IEC POWER EN60320 C20, 0722 SERIES
		Consult FETCO	BUSHING--CORD, POWER

▶ ATTACH 29035 TO TANK ASSEMBLY, QTY 6

2. APPLY HEAT TRANSFER COMPOUND P/N 1097.00064.00 TO TRIAC, AND HEAT SINK CONTACT SURFACE.



Drawing 1104.00034.00
HWD_2102 Hot Water
Dispenser
TANK ASSEMBLY

HWD_2102
Hot Water Tank
Parts

1104.00034.00 TANK ASSEMBLY, HWD-2102		
1	1	1114.00052.00 TANK WELDMENT, HWD-2102
2	1	1107.00014.00 HEATER ASSEMBLY, IMMERSION 1440W/120VAC
2	1	1107.00008.00 HEATER ASSEMBLY, IMMERSION 2100W/120VAC
2	1	1107.00015.00 HEATER ASSEMBLY, IMMERSION 3200W/240VAC
3	1	1013.00008.00 FITTING 3/8" HOSE ID WATER INLET/DRAIN
4	1	1003.00109.00 BRACKET, HEAT SINK
5	1	1059.00001.00 TRIAC 40A, 600V
6	1	1024.00014.00 O-RING, 1/2 X 3/32 CS, DASH # 112
7	1	1013.00011.00 NUT FOR 3/8 HOSE ID FITTING
8	1	1013.00070.00 FITTING 1/2" HOSE ID, WATER OUTLET
9	1	1024.00039.00 O-RING, 11/16 X 7/8, 3/32 WIDTH
10	1	1112.00142.00 WELDMENT, FITTING, TANK OUTLET, HWD-2102
11	3	1083.00006.00 WASHER, .875" OD X 0.562" ID FLAT
12	2	1025.00001.00 FITTING, COMPRESSION MALE CONNECTOR
13	1	1025.00009.00 FITTING, 90 DEG, 1/4 NPT X 5/16 BARB
14	3	1023.00003.00 LOCKNUT, MODIFIED THREAD, 1/4-18 NPT
15	1	1003.00005.00 BRACKET, ONE SHOT THERMOSTAT
16	1	1053.00004.00 THERMOSTAT, SINGLE SHOT, 25A
17	1	1024.00007.00 O-RING, DASH #344, TANK COVER
18	1	1102.00007.00 TANK COVER ASSEMBLY
19	4	1083.00009.00 WASHER, #6 SCREW, INTL TOOTH LOCKWASHER
20	4	1084.00010.00 NUT, HEX, #6-32, UNDERSIZED, ZINC PLATED
21	1	1051.00016.00 BOARD, TRIAC DRIVE WITH RC FILTER
22	1	1112.00002.00 PROBE WELDMENT, WATER LEVEL 2.25" LG
23	1	1054.00002.00 PROBE, TEMPERATURE, 8" LONG, 50K OHM
24	1	1022.00053.00 TANK INSULATION, HWD-2102
25	4	1066.00001.00 TIE, CABLE 14.5 x 0.19, H/T, BLK NYLON