Eemax™
Hot Water Solutions Made Easy

INSTALLATION GUIDE AND OWNER'S MANUAL

LavAdvantage™

ELECTRIC INSTANTANEOUS WATER HEATERS

⚠WARNING ***BEFORE ATTEMPTING ANY INSTALLATION, MODIFICATION OR SERVICE OF THIS HEATER, MAKE SURE THE ELECTRICAL POWER IS DISCONNECTED.***

Read and understand these instructions thoroughly before attempting the installation or service of this water heater. Failure to follow these instructions can result in serious injury, death and/or property damage. The warranty of this water heater will depend upon the proper installation according to these instructions. Some heaters come supplied with separate faucet aerators. If supplied, the aerator must be installed in the faucet for optimum performance. This heater must be used to heat water only and be in a location where it is not subject to freezing temperatures. The manufacturer is not liable for any damages resulting from improper installation or misuse.

This installation must conform to the latest requirements of the National Electrical Code and all applicable state and local codes. This information is available through your local authorities. You must understand these requirements before beginning this installation.

This unit is not required by UL 499 to employ a temperature and pressure relief valve (T&P). You should check with local codes to find out if one is required. If it is, it must be installed in the outlet hot water pipe between the heater and the isolation valve.

IMPORTANT SAFETY INSTRUCTIONS

When using this electrical equipment, basic safety precautions should always be followed, including the following:

READ AND FOLLOW ALL INSTRUCTIONS

A green terminal (or a wire connector marked “G”, “GR, “Ground”, or “GROUNDING”) is provided within the control box. To reduce the risk of electric shock, connect this terminal or connector to the grounding terminal of the electric service or supply panel with a continuous copper wire in accordance with your local electrical code.

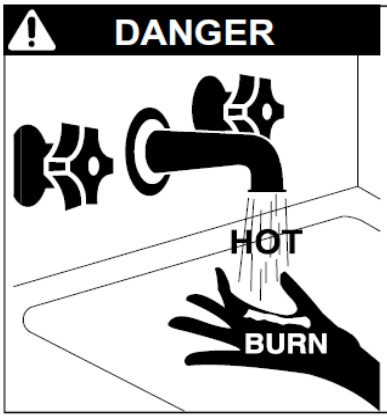
Contents

⚠CAUTION ***(CANADIAN INSTALLATIONS ONLY) CONNECT ONLY TO A CIRCUIT PROTECTED BY A CLASS A GROUND FAULT CIRCUIT INTERRUPTER. ATTENTION: BRANCHER UNIQUEMENT À UN CIRCUIT PROTÉGÉ PAR UN DISJONCTEUR DE FUITE DE TERRE DE CLASSE A.***

⚠CAUTION ***(CANADIAN INSTALLATIONS ONLY) DO NOT INSTALL IN A BATH ENCLOSURE OR SHOWER STALL OR CONNECT TO A SALT-REGENERATED WATER SOFTENER OR A WATER SUPPLY OF SALT WATER. ATTENTION: NE PAS INSTALLER DANS UNE BAIGNOIRE OU UNE CABINE DE DOUCHE ET NE PAS BRANCHER À UN ADOUCISSEUR D'EAU RÉGÉNÉRÉ AVEC DU SEL OU À UN APPROVISIONNEMENT EN EAU SALÉE.***

⚠CAUTION ***(CANADIAN INSTALLATIONS ONLY) USE COPPER CONDUCTORS ONLY. USE BONDING CONDUCTOR IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE PART I. UTILISEZ DEZ CONDUCTEURS EN CUIVE UNIQUEMENT. UTILISEZ DES CONDUCTEURS DE MIZE À LA MASSE CONFORMEMENT AU CODE CANADIEN DE L'ÉLECTRICITÉ, PARTIE I.***

SAVE THESE INSTRUCTIONS



Hot water can be dangerous, especially for infants or children, the elderly, or infirm. There is hot water scald potential if the thermostat is set too high.

Water temperatures over 125º F (51º C) can cause severe burns or scalding resulting in death.

Hot water can cause first degree burns with exposure for as little as:

3 seconds at 140º F (60º C)

20 seconds at 130º F (54º C)

8 minutes at 120º F (48º C)

Test the temperature of the water before placing a child in the bath or shower.

Do not leave a child or an infirm person in the bath unsupervised.

GENERAL

The Eemax, Inc.™ **LavAdvantage** heaters will provide optimum performance and energy savings when located under the sink and as close as possible to the point of hot water use. For best performance, the heater should be **BELOW** the point-of-use. Failure to do so may void the warranty. Contact your Eemax representative for further information.

LavAdvantage heaters accept cold or preheated water and heat it to temperatures suitable for normal domestic usage up to a maximum temperature setpoint of 140°F. Models featuring the "S" option can be used as a temperature booster for sanitation applications up to maximum temperature setpoint of 180°F. "ML" option units are factory set to a maximum temperature setpoint of 110°F and are recommended for multi-lavatory handwashing applications – refer to section 2 for supplied aerator details. The "EE" option units are factory set to a maximum temperature setpoint of 90°F, making them suitable for emergency eyewash applications.

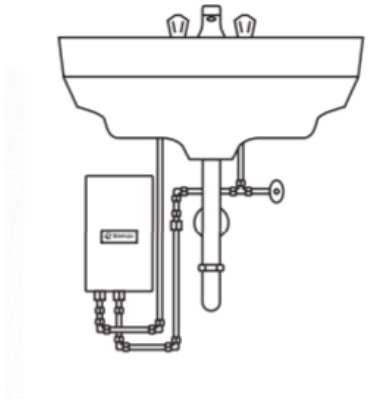
To obtain optimum performance and energy savings, the unit should be located as close as possible to the point-of-use. The unit is supplied with compression rings and nuts suitable for direct coupling to 3/8" copper or PEX™ piping. Do not use additional screwed fittings, pipe dope or teflon tape – doing so will void the warranty. **DO NOT SOLDER PIPES WHILE THE UNIT IS INSTALLED** as serious damage to the heater will result and the warranty will be voided.

1) MOUNTING THE UNIT TO THE WALL

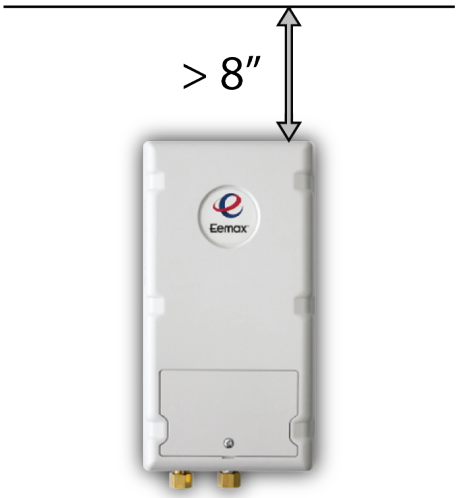
⚠CAUTION ***THIS HEATER MUST BE INSTALLED IN A LOCATION WHERE IT IS NOT SUBJECT TO FREEZING TEMPERATURES.***

1. The heater should be mounted under the sink as close to the point-of-use as possible. Ideal position is fittings pointed down, but the heater can be mounted in any orientation.

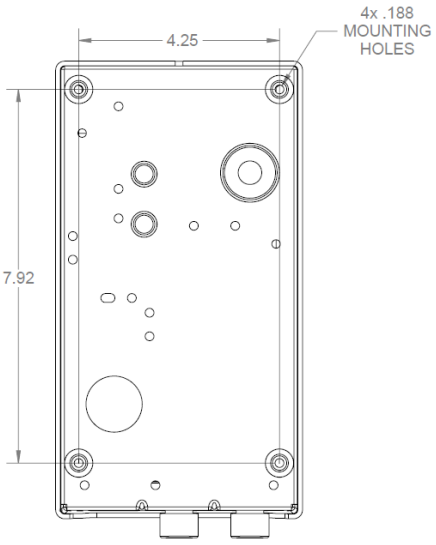
Note: an additional logo decal has been provided to ensure branding is clearly displayed in any mounting orientation.



2. Make sure to leave a minimum of 8 inches service clearance at the end **OPPOSITE** the fittings.



3. Remove the cover and fasten to the wall using the four mounting holes at each corner of the back plate. Replace the cover.



2) PLUMBING HOOK-UP

The heater is supplied with brass 3/8” compression fittings that are compatible with either copper or plastic pipes. Make sure these fittings are used for this installation. Contact your Eemax representative for further information.

⚠CAUTION ***NEVER SUBSTITUTE THREADED PIPE FITTINGS USING PIPE DOPE OR TEFLON TAPE AND NEVER SOLDER ANY PIPE CONNECTIONS WHILE ATTACHED TO THIS HEATER BECAUSE DAMAGE TO THE HEATER WILL RESULT. DOING THIS WILL VOID THE WARRANTY!***

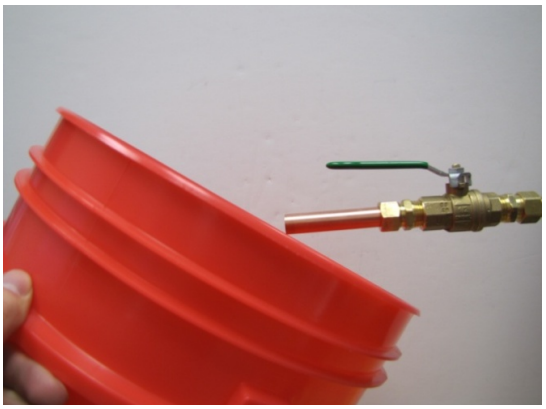
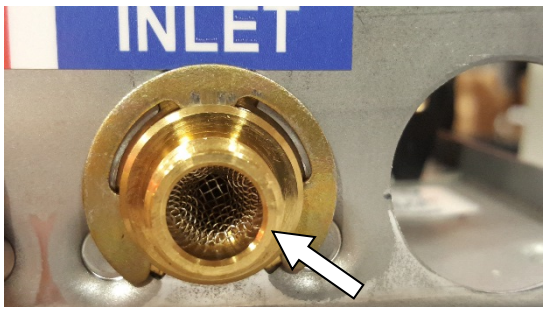
Eemax strongly recommends that the heater be supplied directly from the main cold water trunk line when possible. This helps to avoid a potential water flow interruption to the heater which could lead to a failure of the heating element.

System Requirements:

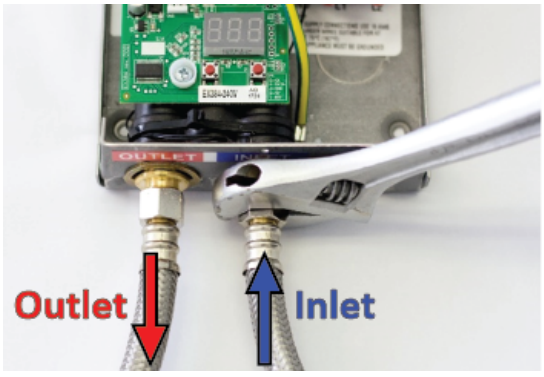
- **Minimum/maximum working pressure: 30 PSI/150 PSI**
- **Optimal operating pressure range: 35 to 80 PSI**
- **Min flow rate 0.2 GPM**

For optimum performance, we recommend the use of isolation valves (full flow ball type) on the inlet and outlet pipes.

⚠WARNING ***BEFORE ATTEMPTING ANY INSTALLATION, MODIFICATION OR SERVICE OF THIS HEATER, MAKE SURE THE ELECTRICAL POWER IS DISCONNECTED.***

1. The heater’s water INLET and OUTLET are labeled. Install full flow ball valves to the inlet and outlet pipes and run water through the inlet pipe into a bucket to purge it of any debris. Close the inlet ball valve. **FAILURE TO DO SO MAY CLOG THE HEATER!**	
2. Make sure the inlet filter screen is present in the inlet fitting and the inlet and outlet pipes are correctly aligned with the heater connections to minimize stress on the heater.	

3. Remove the cover. Connect the pre-assembled inlet and outlet pipes to the heater **(do not overtighten compression fittings)** and fully open the inlet and outlet ball valves. Check the system for water leaks at all plumbing connections. If a leak is present at the compression fitting, **slowly** tighten compression nut until it stops – **do not overtighten**.



4. Open the hot water faucet and run water for minimum 60 seconds and until the flow is continuous and free of air pockets. Close the faucet and install the aerator (if supplied).

Failure to install aerator(s) (if supplied) will result in lower-than-expected heater performance**.

Model	# of Aerators	Model	# of Aerators
SPEX3512T ML	2	SPEX4208T ML	2
SPEX35T ML	2	SPEX3277T ML	2
SPEX48T ML	2	SPEX4277T ML	2
SPEX55T ML	2	SPEX8208T ML	3
SPEX65T ML	2	SPEX60T ML	2
SPEX75T ML	2	SPEX80T ML	2
SPEX95T ML	3	SPEX90T ML	3
SPEX012240T ML	3	SPEX100T ML	3
SPEX3208T ML	2		

**ML thermostatic models are designed to deliver a flow of 0.35 GPM to each lavatory. Please install the supplied aerators to ensure maximum heating performance.

3) ELECTRICAL HOOK-UP

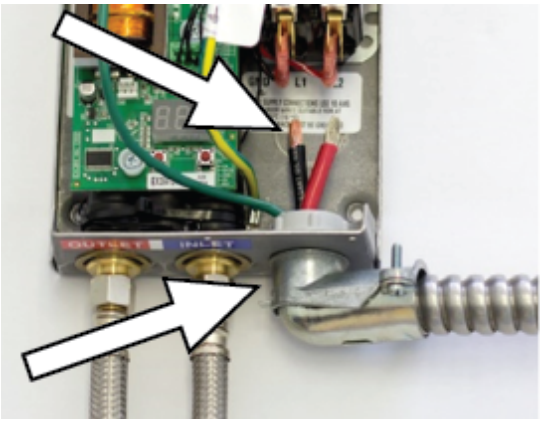
⚠WARNING ***BEFORE BEGINNING ANY WORK ON THIS INSTALLATION, BE SURE THAT THE ELECTRICAL BREAKER IS "OFF" AND THAT ALL MOUNTING AND PLUMBING WORK HAS BEEN COMPLETED PER THESE INSTRUCTIONS.***

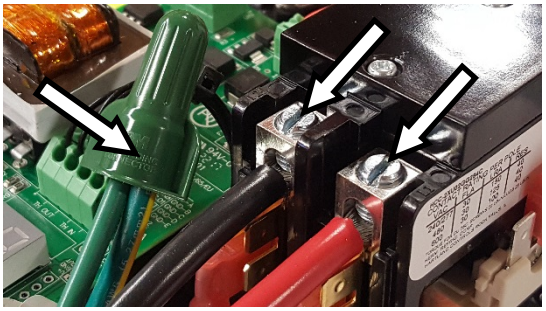
This heater must have its own independent circuit using insulated, UL listed, 2 wire cable (2 wire plus ground) of the appropriate size suitable for up to 75°C and protected by the correctly rated circuit breaker. For recommended copper wiring for conductors with a temperature rating of 75°C refer to the chart below:

ELECTRICAL SPECIFICATIONS

LavAdvantage model number	Voltage (VAC)	Max power (kW)	Max current (A)	Minimum wire size (AWG) @75°C rating
SPEX1812T	120	1.8	15	14
SPEX2412T	120	2.4	20	14
SPEX3012T	120	3	25	12
SPEX3512T	120	3.5	29	10
SPEX35T	240	3.5	15	14
SPEX48T	240	4.8	20	14
SPEX55T	240	5.5	23	12
SPEX65T	240	6.5	27	10
SPEX75T	240	7.5	32	10
SPEX95T	240	9.5	40	8
SPEX012240T	240	11.5	48	8
SPEX3208T	208	3	15	14
SPEX4208T	208	4.1	20	14
SPEX8208T	208	8.3	40	8
SPEX3277T	277	3	11	14
SPEX4277T	277	4.1	14.8	14
SPEX60T	277	6	22	12
SPEX80T	277	8	29	10
SPEX90T	277	9	33	10
SPEX100T	277	10	36	8

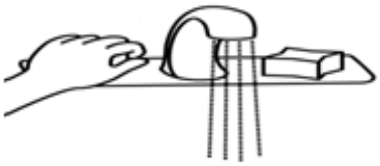
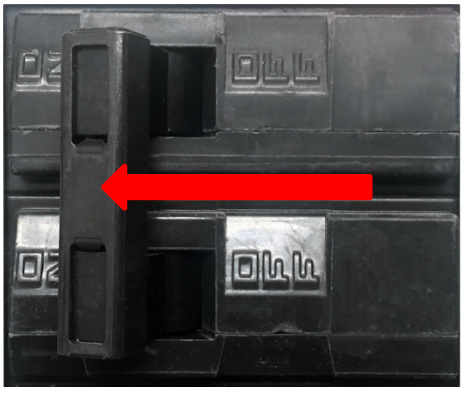
1. Power cable entry to the heater should be made through one of the knock-out holes located on the back plate or top/bottom ends of the unit. Use the appropriate strain relief fitting.



2. The power leads are to be secured to the L1 and L2 or L and N connectors on the terminal block or relay. The ground lead is to be secured to the GND connector on the block or the green ground wire with the provided wire nut.	
⚠WARNING ***FAILURE TO GROUND THE SYSTEM MAY RESULT IN SERIOUS INJURY, DEATH AND/OR PROPERTY DAMAGE.***	
3. Leave the breaker in the "OFF" position. Proceed to the next section: *COMMISSIONING THE HEATER*	

4) COMMISSIONING THE HEATER

⚠CAUTION ***BEFORE SWITCHING THE ELECTRICAL BREAKER "ON", MAKE SURE THE INLET AND OUTLET BALL VALVES ARE FULLY OPEN AND WATER IS FLOWING THROUGH THE HOT WATER FAUCET FOR A MINUTE OR TWO UNTIL THE FLOW IS CONTINUOUS AND FREE FROM AIR POCKETS. DO NOT SWITCH THE BREAKER "ON" IF THERE IS A POSSIBILITY THE WATER IN THE HEATER IS FROZEN.***

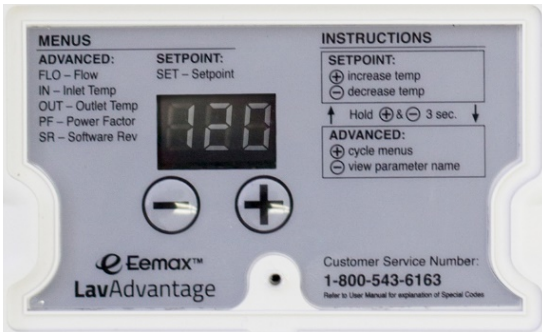
1. Make sure water is flowing through the faucet.	
2. Switch "ON" the electric power supply at the breaker.	

3. Keep water flowing through the faucet for the next step.

4. The display on the circuit board should come "ON". With the flow running, the heater will go through the 60 seconds **SafeStart™**/self-calibration procedure. The display will count down from 60 to 0. When the display timer reaches 45, the unit starts heating and continues counting down to 0.

5. After the 60 seconds in step 4, the display will show the temperature setpoint.

The heater is commissioned at this point.
Faucet can be turned off and used as needed.
Note: the temperature display will turn off after 5 minutes of inactivity. Display turns on when water flows through heater or if either pushbutton is pressed.



Congratulations!

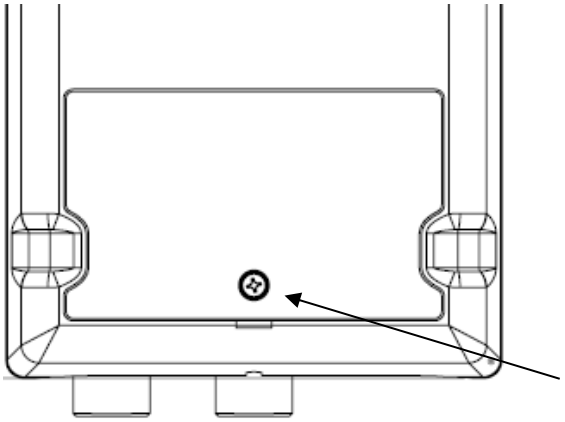
Your Eemax tankless electric water heater is fully installed and ready for use!

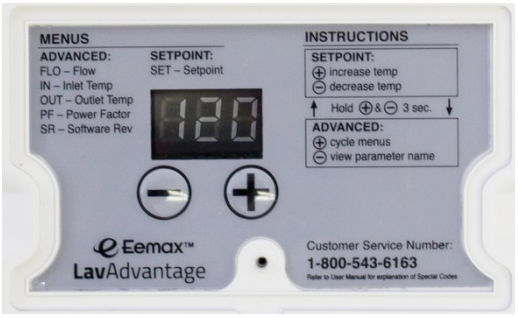
MAXIMUM TEMPERATURE RISE AT SPECIFIED FLOW RATE, °F

	GPM						
Model	**0.35**	**0.5**	**1**	**1.5**	**2**	**2.5**	**3**
SPEX1812T	35	25	12	8	6	5	4
SPEX2412T	47	33	16	11	8	7	5
SPEX3012T	59	41	20	14	10	8	7
SPEX3512T	68	48	24	16	12	10	8
SPEX35T	68	48	24	16	12	10	8
SPEX48T	94	66	33	22	16	13	11
SPEX55T	107	75	38	25	19	15	13
SPEX65T	127	89	44	30	22	18	15
SPEX75T	146	102	51	34	26	20	17
SPEX95T	185	130	65	43	32	26	22
SPEX012240T	224	157	79	52	39	31	26
SPEX3208T	59	41	20	14	10	8	7
SPEX4208T	80	56	28	19	14	11	9
SPEX8208T	162	113	57	38	28	23	19
SPEX3277T	59	41	20	14	10	8	7
SPEX4277T	78	56	28	19	14	11	9
SPEX60T	117	82	41	27	20	16	14
SPEX80T	156	109	55	36	27	22	18
SPEX90T	176	123	61	41	31	25	20
SPEX100T	195	137	68	46	34	27	23

NOTE: The heaters' actual temperature rises are limited by their thermostatic controls (max 90°F, max 110°F, max 140°F, max 180°F, based on model suffix). The theoretical values shown above are only for comparison purposes.

5) UNIT OPERATION





Remove screw to access user interface

Using the Eemax LavAdvantage Control Functions

Using the Eemax LavAdvantage is EASY. There are only 2 buttons: "–"and "+". Moving through the functions requires a minimum of effort – just follow along!

During operation the unit will show the current setpoint temperature and will display this temperature for 5 minutes after the unit is active.

Factory temperature setpoints/maximum adjustable range:

- Standard models: 120°F (70°F to 140°F)
    - Units 3.5 kW and below: 105°F
- S (sanitation) models: 120°F (70°F to 180°F)
- ML (multi-lavatory) models: 110°F (70°F to 110°F)
- EE (emergency eyewash) models: 90°F (70°F to 90°F)

SETTING TEMPERATURE

To INCREASE temperature, tap the "+" button repeatedly, or hold the "+" down to INCREASE the temperature quickly. To DECREASE temperature, tap the "–" button repeatedly, or hold the "–" down to DECREASE the temperature quickly.

ADVANCED FUNCTIONS

To access the ADVANCED FUNCTIONS menu:

With the display showing the current setpoint temperature, press BOTH "+" AND "–" buttons simultaneously for 3 seconds and the display will show:

FLOW RATE (GPM or LPM)

Pressing "-" at any time will display screen title (FLO, IN, OUT, PF, SR).

Continue tapping the "+" button to display the following (in this order):

INLET TEMPERATURE (cold water temperature) (°F or °C)

OUTLET TEMPERATURE (hot water temperature) (°F or °C)

POWER FACTOR (how hard the heater is 'working' shown as a percentage)

SOFTWARE REVISION (For Eemax Technical Service use only)

Pressing both "+" and "–" at any time for 3 seconds returns the display to the temperature set point, or just let the heater return to set point display on its own (120 seconds timeout).

ERROR CODES & UNITS

From Advanced Menu, press and hold the "+" and "–" buttons for 10 seconds.

CURRENT ERROR will display. F0 displays if no errors.

Pressing "-" at any time will display screen title (CE, PE1-5, UN, ECO).

Press the "+" button for 1 second to cycle through the following screens:

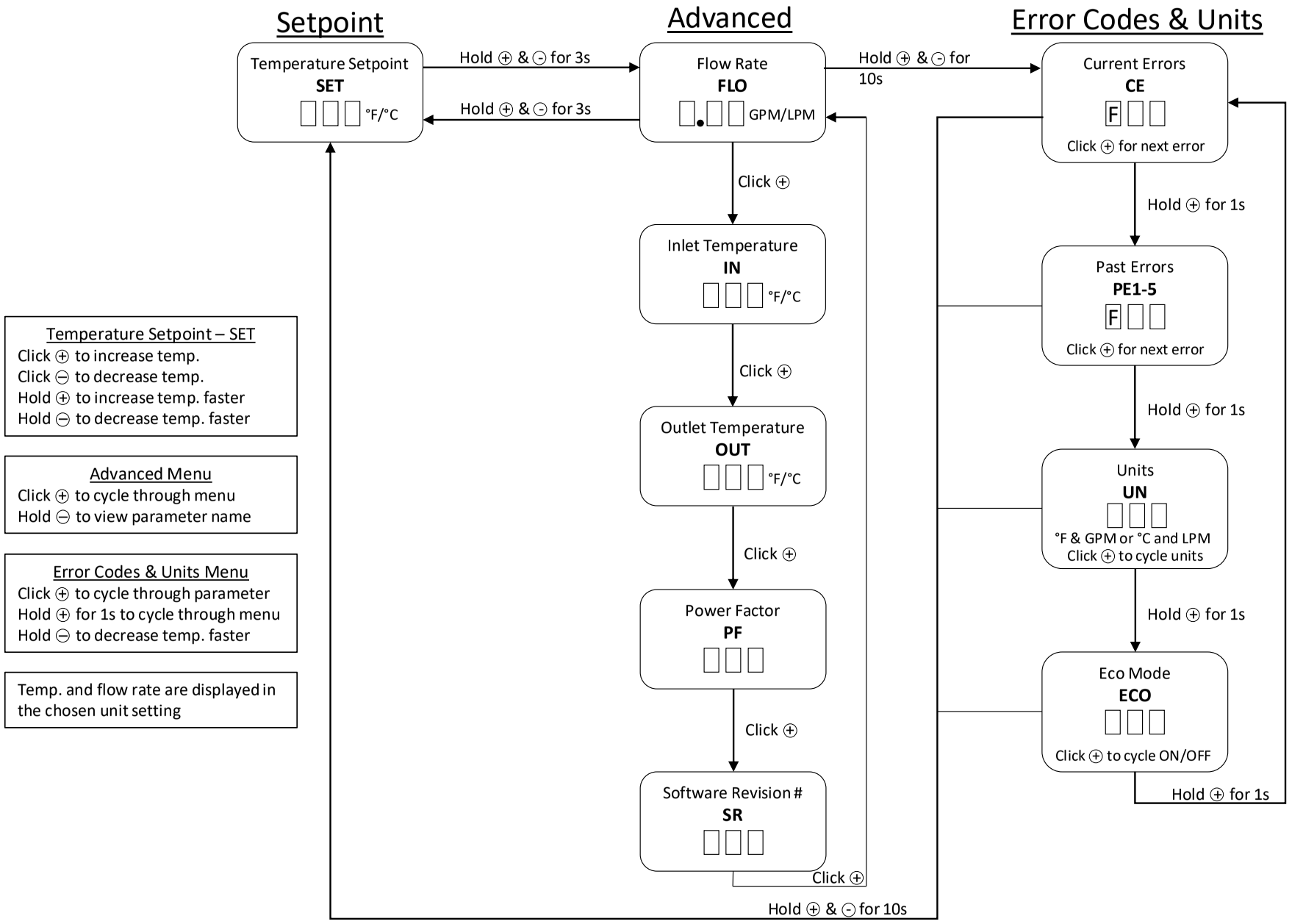
CURRENT ERROR

PAST ERRORS – Tap the "+" button to cycle through the past 5 previous errors. F0 displays if no errors.

UNITS – Tap the "+" button to cycle between °F/GPM and °C/LPM.

NON-SILENT MODE – Tap the "+" button to toggle non-silent operation ON/OFF.

To return to setpoint hold "+" and "–" for 10 seconds, or just let the heater return to setpoint display or display turn-off on its own (120 seconds timeout).


Setpoint
Advanced
Error Codes & Units
Temperature Setpoint
SET
°F/°C
Hold ⊕ & ⊖ for 3s
Hold ⊕ & ⊖ for 3s
Flow Rate
FLO
GPM/LPM
Hold ⊕ & ⊖ for 10s
Current Errors
CE
F
Click ⊕ for next error
Click ⊕
Inlet Temperature
IN
°F/°C
Hold ⊕ for 1s
Past Errors
PE1-5
F
Click ⊕ for next error
Click ⊕
Outlet Temperature
OUT
°F/°C
Hold ⊕ for 1s
Units
UN
°F & GPM or °C and LPM
Click ⊕ to cycle units
Click ⊕
Power Factor
PF
Hold ⊕ for 1s
Eco Mode
ECO
Click ⊕ to cycle ON/OFF
Click ⊕
Software Revision #
SR
Hold ⊕ for 1s
Click ⊕
Hold ⊕ & ⊖ for 10s
Temperature Setpoint – SET
Click ⊕ to increase temp.
Click ⊖ to decrease temp.
Hold ⊕ to increase temp. faster
Hold ⊖ to decrease temp. faster
Advanced Menu
Click ⊕ to cycle through menu
Hold ⊖ to view parameter name
Error Codes & Units Menu
Click ⊕ to cycle through parameter
Hold ⊕ for 1s to cycle through menu
Hold ⊖ to decrease temp. faster
Temp. and flow rate are displayed in the chosen unit setting

6) TROUBLESHOOTING

CAUTION: Make certain power to unit is "OFF" before removing protective cover FOR ANY REASON.

For status code details, please consult the table below.

Code	Name	Possible causes	Heater response	Possible solutions
F23	No heat	- element failure - ECO tripped/malfunctioning - triac(s) failed open - relay/contactor malfunctioning - control board failure - inlet water supply out of spec	Heating will be disabled after 30 seconds of continuous no heat condition.	- measure element resistance with the unit completely turned off
F24	Low heat	- undervoltage - triac(s) failed open - control board failure - inlet/outlet thermistor(s) failure	Heating enabled, reduced performance (lower outlet temperature).	- verify power supply (voltage) while heater is running
F33	Residual heat	- internal water temperature elevated without flow - both triacs failed closed	Heating disabled until outlet temperature falls below the reactivation temperature (see default parameters table).	- run water through the unit
F34	Overvoltage	- inlet voltage is too high compared to the stated heater specifications	Heating enabled, reduced performance (higher outlet temperature).	- have certified personnel verify the inlet voltage - provide voltage within specified range
F36	Undervoltage	- inlet voltage is too low compared to the stated heater specifications	Heating enabled, reduced performance (lower outlet temperature).	- have certified personnel verify the inlet voltage - provide voltage within specified range
F38	High flow	- flow is too high to heat the water to setpoint temperature	Heating enabled, unit operates as intended (lower outlet temperature possible).	- reduce flow (outlet flow restrictor, faucet aerator)
F47	Inlet thermistor failure	- inlet thermistor interrupted or disconnected	Heating enabled based on default inlet temperature setting (see default parameters table; higher/lower outlet temperature possible).	- inspect connections/wiring of inlet thermistor
F48	Outlet thermistor failure	- outlet thermistor interrupted or disconnected	Heating enabled, auto calibration disabled.	- inspect connections/wiring of outlet thermistor
F64	Freeze warning	- inlet temperature is too low (below 35°F)	Heating disabled while condition is present.	- increase inlet water temperature above 35°F

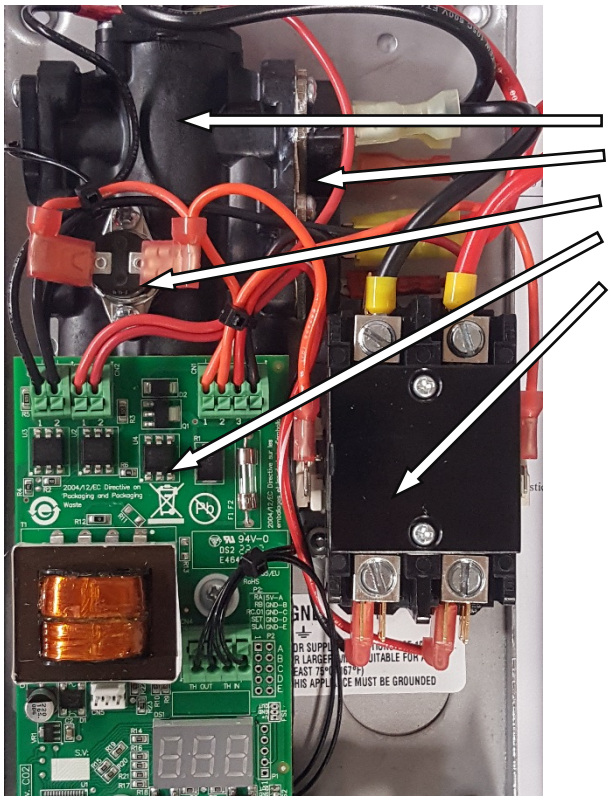
Still having trouble? Please call our Technical Service Department.

Default parameters:

Status code	Model suffix	Default values	
F33	T, ML	Trip	170°F
		Reactivation	140°F
	EE	Trip	100°F
		Reactivation	95°F
	S	Trip	195°F
		Reactivation	165°F
F47	T, ML, EE, S		65°F

7) PERIODIC MAINTENANCE

This heater is designed for many years of care free use. In order to maintain consistent water flow, it may be necessary to periodically clean the faucet aerator or the filter screen located in the brass inlet fitting at the heater.



Heating chamber
Triacs
Energy cut-off (ECO)
Control board
Contactor

ELEMENT CARTRIDGE (pictured below)
INSTALLS INSIDE HEATING CHAMBER

8) PART NUMBERS FOR FITTINGS, AERATORS AND AERATOR ADAPTORS

COMPRESSION FITTINGS:	
3/8" NUT	EX68B
3/8" SLEEVE	EX68C

AERATORS:	
0.35 GPM	EX0061-0.3-AER

MALE 13/16"-27 X MALE 55/64"-27	EX61-339
FEMALE 3/4"-27 X MALE 55/64"-27	EX61-341
FEMALE 13/16"-24 X MALE 55/64"-27	EX61-349
MALE 15/16"-27 X MALE 55/64"-27	EX61-336
MALE 11/16"-27 X MALE 55/64"-27	EX61-344
MALE M24X1/FEMALE M22X1 X MALE 55/64"-27	EX61-387

9) REPAIR PARTS FOR LavAdvantage UNITS

Model number	Element cartridge	Control board	Relay	Energy Cut-Off (ECO)
SPEX1812T	EX800 PRT	EX384-120	EX259B	EX278A-KIT
SPEX2412T	EX610	EX384-120	EX259B	EX278A-KIT
SPEX3012T	EX480	EX384-120	EX259B	EX278A-KIT
SPEX3512T	EX410	EX384-120	EX259B	EX278A-KIT
SPEX3208T	EX1440	EX384-240	EX255B	EX278A-KIT
SPEX4208T	EX1050	EX384-240	EX255B	EX278A-KIT
SPEX8208T	EX520	EX384-240	EX255B	EX278A-KIT
SPEX35T	EX1650	EX384-240	EX255B	EX278A-KIT
SPEX48T	EX1200	EX384-240	EX255B	EX278A-KIT
SPEX55T	EX1050	EX384-240	EX255B	EX278A-KIT
SPEX65T	EX890	EX384-240	EX255B	EX278A-KIT
SPEX75T	EX770	EX384-240	EX255B	EX278A-KIT
SPEX95T	EX630	EX384-240	EX255B	EX278A-KIT
SPEX012240T	EX500 PRT	EX384-240	EX1050-1	EX278A-KIT
SPEX3277T	EX260	EX384-277	EX253B	EX278A-KIT
SPEX4277T	EX1870	EX384-277	EX253B	EX278A-KIT
SPEX60T	EX1280	EX384-277	EX253B	EX278A-KIT
SPEX80T	EX960	EX384-277	EX253B	EX278A-KIT
SPEX90T	EX850	EX384-277	EX253B	EX278A-KIT
SPEX100T	EX760	EX384-277	EX253B	EX278A-KIT
* If heater has suffix “DI” order element with suffix “SS”				

If you need any assistance from our Technical Service Department, make sure you can identify this water heater by having the model no:_____ and serial number:_____.

Call 203-267-7890 or toll free: 800-543-6163.

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Notes: