INSTALLATION GUIDE AND OWNER'S MANUAL

"SINGLE POINT", "FLOW CONTROLLED" and "THERMOSTATIC"

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 have 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.

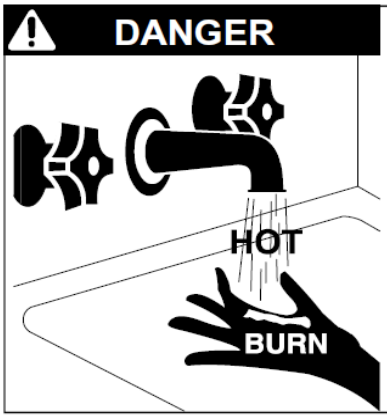
SP3012 ✓

⚠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.

(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 125° F (51° 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 140° F (60° C)

20 seconds at 130° F (54° C)

8 minutes at 120° F (48° 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 "**Single Point**" or "SP", " **Flow Controlled**" or "EX" and "**Thermostati**c" or "EX-T" 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.

"Single Point" heaters and **"Flow Controlled" heaters** are to be plumbed to a cold water source ONLY and heat it with a temperature rise at flow rates as shown on the table on page 10.

"Thermostatic" heaters are the only heaters of the three outlined in this manual which have thermostatic control. **"Thermostatic"** heaters accept cold or preheated water and heat it to temperatures suitable for normal domestic usage up to a maximum of 140 degrees F. With the "S" option, they can be used as a temperature booster for sanitation applications sometimes required for dishwashers in commercial kitchens. Units built with the "ML" option are factory-set to a maximum temperature of 110°f and are recommended for hand washing applications. The "ML" option is an excellent choice for supplying hot water to sensor-type or metering faucets.

⚠CAUTION This heater must be installed in a location where it is not subject to freezing temperatures.

1) MOUNTING THE UNIT TO THE WALL

1) The heater should be mounted “under the sink” as close to the point of use as possible. “Single Point” will have the brass fittings on the top pointing “up”. “Flow Controlled” and “Thermostatic” will have the fittings on the bottom pointing “down”.





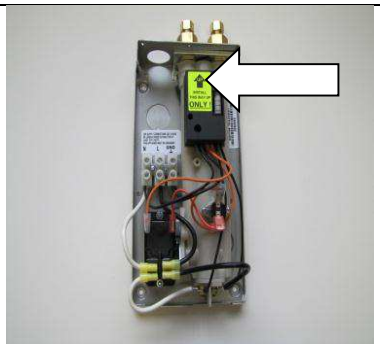


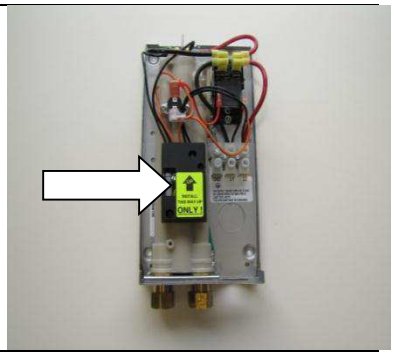
2) The fittings must be pointed in the vertical direction and be at least 16 inches below the level of the hot water faucet. Make sure to leave a minimum of 8 inches service clearance at the end **OPPOSITE** the fittings.





3) Remove the cover and fasten to the wall using the four mounting holes at each corner of the back plate. Make sure the “UP” arrow on the circuit board is facing “UP”. Replace the cover.





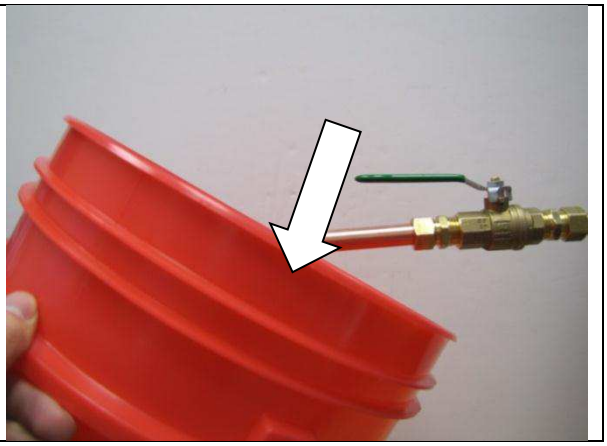
2) PLUMBING HOOK-UP

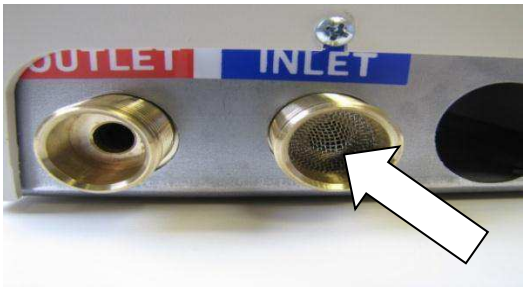
The heater is supplied with brass compression fittings that are compatible with either copper or plastic pipe. "Single Point" has 3/8" fittings. Both "Flow Controlled" and "Thermostatic" units have ½" fittings. Make sure these fittings are used for this installation. Contact your Eemax representative 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.***

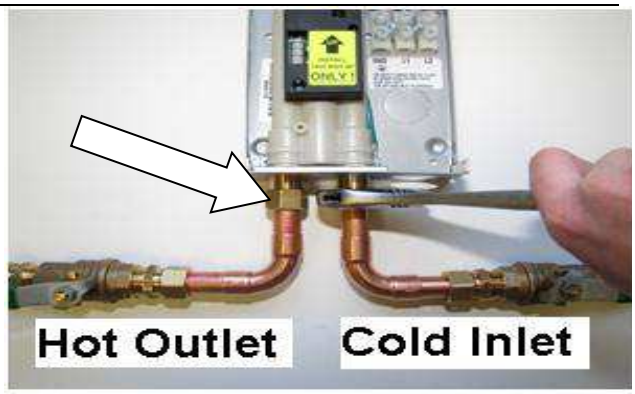
Eemax strongly recommends that the heater be supplied directly from the main cold water line when possible. This helps to avoid a potential water flow interruption to the heater which could lead to a failure of the heating element.

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

1) The heater's cold water INLET is on the "RIGHT" and the hot water OUTLET is on the "LEFT". 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.	

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 and fully open the inlet and outlet ball valves. Check for water leaks. If a leak is at a compression fitting, slowly tighten the compression nut until it stops. Replace the cover.





4) Open the hot water faucet and run the water a minute or two until the flow is continuous and free of air pockets. Close the faucet and install the aerator (if supplied). Failure to install aerator (if supplied) will result in lower-than-expected heater performance.





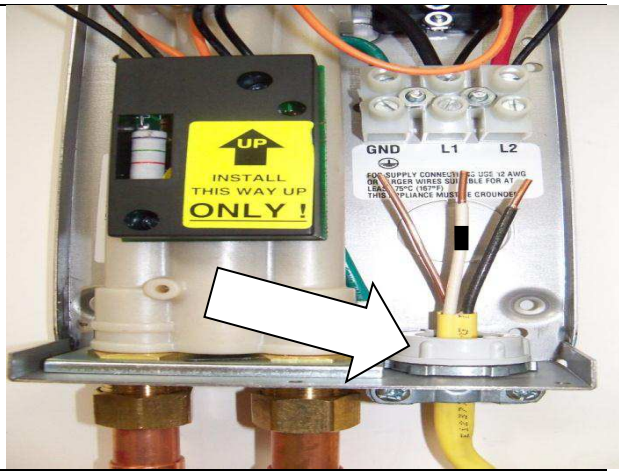
3) ELECTRICAL HOOK-UP

⚠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.***

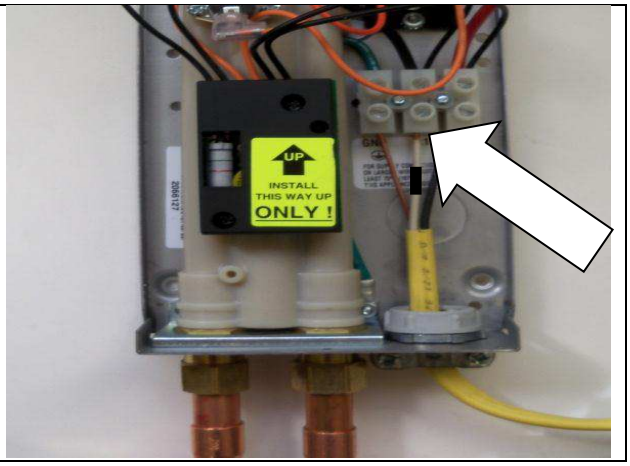
This heater must have its own independent circuit using insulated, UL listed, 2 wire cable (2 wire plus ground) of the appropriate size suitable for up to 75 degree C and protected by the correctly rated circuit breaker. Refer to the chart on page 7.

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 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



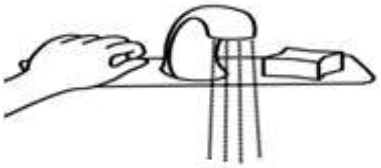
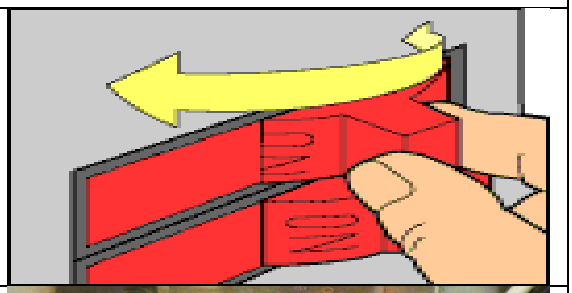
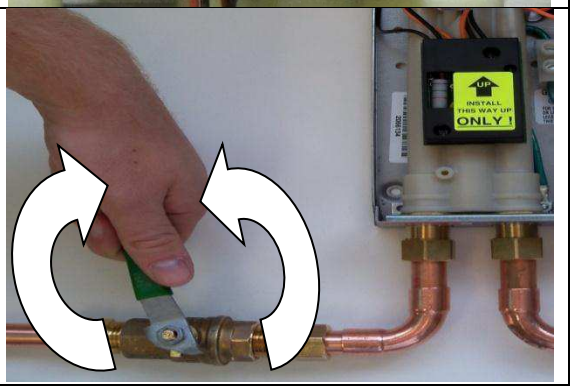
ELECTRICAL SPECIFICATIONS:

"SINGLE POINT" MODEL	"FLOW CONTROLLED" MODEL	"THERMOSTATIC" MODEL	VOLTS	kW	AMPS	WIRE SIZE AWG
SP2412	EX2412	EX2412T	120	2.4	20.0	12
SP3012	EX3012	EX3012T	120	3.0	25.0	10
SP3512	EX3512	EX3512T	120	3.5	29.2	10
SP3208	EX3208	EX3208T	208	3.0	14.4	14
SP4208	EX4208	EX4208T	208	4.1	19.7	12
SP8208	EX8208	EX8208T	208	8.3	40.0	8
SP35	EX35	EX35T	240*	3.5	14.6	14
SP48	EX48	EX48T	240*	4.8	20.0	12
SP55	EX55	EX55T	240*	5.5	22.9	10
SP65	EX65	EX65T	240*	6.5	27.0	10
SP75	EX75	EX75T	240*	7.5	32.0	8
SP95	EX95	EX95T	240*	9.5	40.0	8
n/a	n/a	EX012240T	240*	11.5	48.0	6
SP3277	EX3277	EX3277T	277	3.0	10.8	14
SP4277	EX4277	EX4277T	277	4.1	14.8	14
SP60	EX60	EX60T	277	6.0	22.0	10
SP80	EX80	EX80T	277	8.0	29.0	10
SP90	EX90	EX90T	277	9.0	33.0	8
SP100	EX100	EX100T	277	10.0	36.0	8

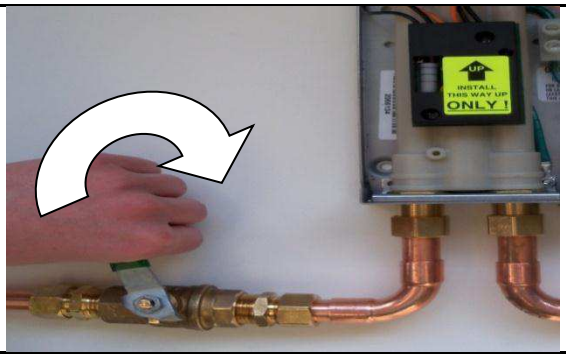
* 240V units can be used on 208V with 25% reduced temperature output.

4) COMMISSIONING THE HEATER

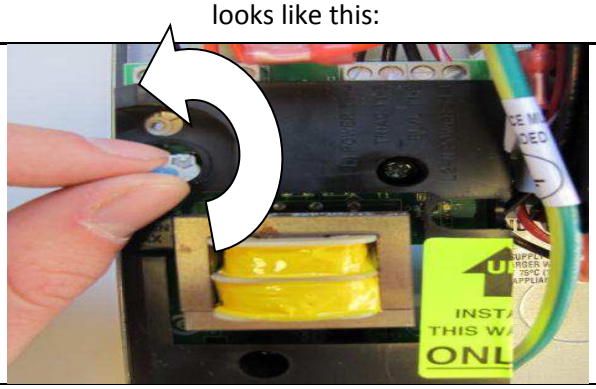
⚠CAUTION ***BEFORE SWITCHING THE ELECTRICAL BREAKER "ON", MAKE SURE THE INLET AND OUTLET BALL VALVES ARE FULLY OPEN AND WATER IS FLOWING THROUGH THE HOT WATER FAUCET FOR A MINUTE OR TWO UNTIL THE FLOW IS CONTINUOUS AND FREE FROM AIR POCKETS. DO NOT SWITCH THE BREAKER "ON" IF THERE IS A POSSIBILITY THE 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) The power indicator light on the circuit board should come "ON" after a delay of a few seconds.	
4) Check the performance of the flow switch by opening and closing the <u>OUTLET BALL VALVE</u> a few times. Keep the <u>INLET BALL VALVE</u> fully "OPEN". The power indicator light should be "ON" <u>ONLY</u> when water is flowing through the heater. Return the outlet valve to the fully "OPEN" position.	

5) SETTING THE TEMPERATURE

At this point, the water temperature may not be very hot. Using the OUTLET BALL VALVE, slowly reduce water flow until the desired temperature is achieved. Always keep the INLET BALL VALVE fully "OPEN". NEVER RESTRICT THE WATER FLOW USING THE INLET VALVE. The temperature is proportional to the flow through the heater; the lower the flow, the higher the temperature and vice versa.	

If water flow is TOO HOT follow the instructions below according to what model Eemax heater you have:"Single Point/Flow Controlled" or "Thermostatic".

"Single Point" and "Flow Controlled" heaters have a circuit board that looks like this:		"Thermostatic" heaters have a circuit board that looks like this:
	These heaters have no controls on the circuit board to turn the temperature of the water DOWN.	
Volume of water through these heaters is the way maximum temperature is controlled. If the outlet valve is adjusted to less than wide-open, open it up to maximum flow. You may have to change the faucet aerator to a larger size (0.5 GPM to 1 GPM, for example) to reduce temperature.		The thin blue temperature adjustment shaft in the upper left corner controls the maximum temperature of the water. If the water is too hot: turn the temperature adjustment shaft counter-clockwise about 1/8 of a turn and wait 15-20 seconds. If the temperature remains too hot, repeat this step until the desired temperature is achieved.

Congratulations !

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

TEMPERATURE RISE AT SPECIFIED FLOW RATE, DEGREES F:

"SINGLE POINT" MODEL	"FLOW CONTROLLED" MODEL	"THERMOSTATIC" MODEL	0.5 GPM	1.0 GPM	1.5 GPM	2.0 GPM	2.5 GPM
SP2412	EX2412	EX2412T	33	16	11	8	6
SP3012	EX3012	EX3012T	41	20	14	10	8
SP3512	EX3512	EX3512T	48	24	16	12	9
SP3208	EX3208	EX3208T	41	20	14	10	8
SP4208	EX4208	EX4208T	56	28	19	14	11
SP8208	EX8208	EX8208T	*	57	38	28	14
SP35	EX35	EX35T	48	24	16	12	9
SP48	EX48	EX48T	65	32	21	16	13
SP55	EX55	EX55T	75	38	25	19	15
SP65	EX65	EX65T	*	44	30	22	18
SP75	EX75	EX75T	*	51	34	26	20
SP95	EX95	EX95T	*	65	43	32	26
n/a	n/a	EX012240T	*	73	52	39	31
SP3277	EX3277	EX3277T	41	21	14	10	8
SP4277	EX4277	EX4277T	56	28	19	14	11
SP60	EX60	EX60T	*	41	27	20	15
SP80	EX80	EX80T	*	55	36	27	22
SP90	EX90	EX90T	*	61	41	31	26
SP100	EX100	EX100T	*	68	46	34	27

* Not enough water flow to activate the heater.

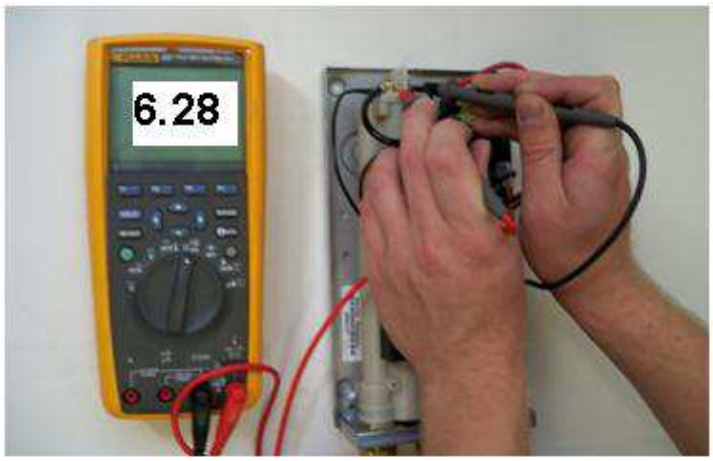
BASIC TROUBLESHOOTING

SYMPTOM: NO HEAT AND THE POWER INDICATOR LIGHT ON THE CIRCUITBOARD IS "OFF".

1) Verify the heater is mounted to the wall correctly. "Single Point" has the brass fittings pointed "UP". "Flow Controlled" and "Thermostatic" have the fittings pointed "DOWN".
2) Verify it is plumbed correctly. The cold water INLET is on the "RIGHT" and the hot water OUTLET is on the "LEFT".
3) No electrical power to the heater. Switch the breaker "ON".
4) Incorrect power supply. Make sure the heater is connected to the voltage specified on the rating label on the front cover.
5) Not enough water flow through the heater to turn the heating element "ON". Check the inlet and outlet ball valves to make sure they are open. Also check the inlet filter screen inside the inlet fitting to make sure it is not plugged (see page 4). Clean or replace the aerator at the faucet.
6) Still NO HEAT? Contact Eemax. Call 203-267-7890 or 800-543-6163.

SYMPTOM: NO HEAT, LOW OR INCONSISTENT TEMPERATURE WITH INDICATOR LIGHT "ON".

1) Water flow is too high. Reduce the water flow by slowly closing the OUTLET ball valve.
2) Incorrect power supply. Make sure the heater is connected to the voltage supply specified on the rating label on the front cover.
3) Electrical heating element is burned out. Turn off electrical power by switching the breaker "OFF". Use an ohmmeter to test the resistance across the two threaded terminals at the end of the element. The resistance varies, depending on the model of the heater, but should be less than 30 ohms. If it is much greater or fluctuating, contact Eemax for a replacement element cartridge.



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.

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.

PART NUMBERS FOR FITTINGS, AERATORS AND AERATOR ADAPTORS

COMPRESSION FITTINGS:		AERATORS:	
3/8" NUT	EX68B	0.5 GPM	EX0061-0.5AER
3/8" SLEEVE	EX68C	1.0 GPM	EX0061-1.0AER
5/8" NUT for ½" pipe	EX17		
5/8" SLEEVE for ½" pipe	EX16		

AERATOR ADAPTORS:	
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	EX60-344
MALE M24X1/FEMALE M22X1 X MALE 55/64"-27	EX61-387

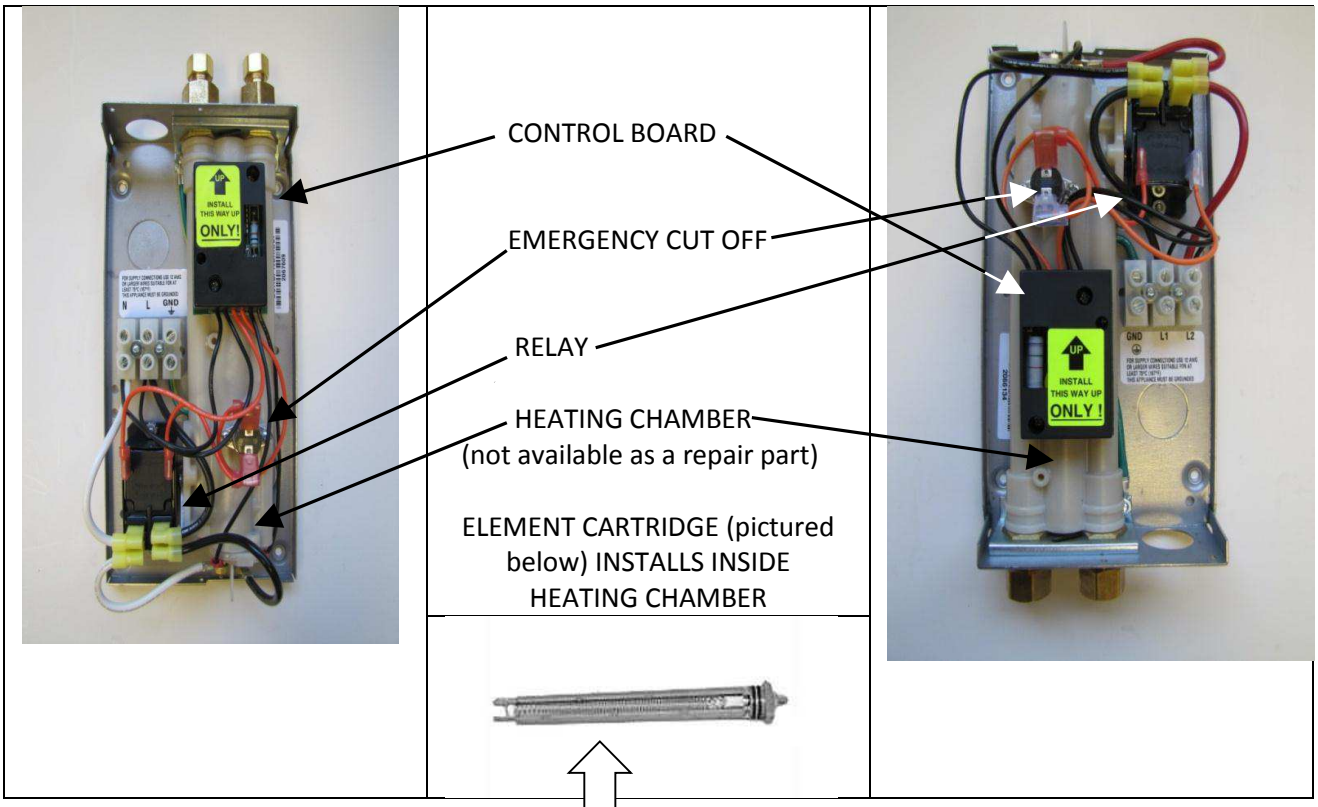
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Call 203-267-7890 or toll free: 800-543-6163.

Eemax Inc., 400 Captain Neville Drive, Waterbury, CT 06705

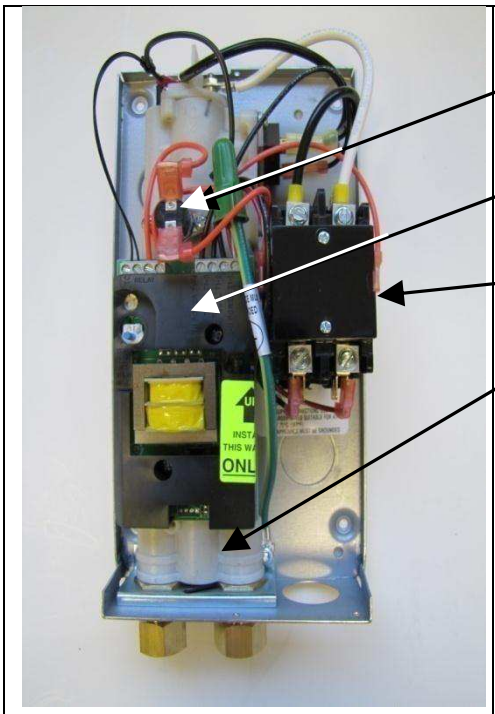
Tel: 800-543-6163, 203-267-7890, Fax: 203-267-7975, email: info@eemaxinc.com

REPAIR PARTS FOR “SINGLE POINT” AND “FLOW CONTROLLED” UNITS



“SINGLE POINT” MODEL	“FLOW CONTROLLED” MODEL	ELEMENT CARTRIDGE	CONTROL BOARD	RELAY	EMERGENCY CUT OFF
SP2412	EX2412	EX610	EX0183DL-30	EX250B	EX278A
SP3012	EX3012	EX480	EX0183DL-30	EX250B	EX278A
SP3512	EX3512	EX410	EX0183DL-30	EX250B	EX278A
SP3208	EX3208	EX1440	EX0183DL-30	EX253B	EX278A
SP4208	EX4208	EX1050	EX0183DL-30	EX253B	EX278A
SP8208	EX8208	EX520	EX0183DL-40	EX255B	EX278A
SP35	EX35	EX1650	EX0183DL-30	EX254B	EX278A
SP48	EX48	EX1200	EX0183DL-30	EX254B	EX278A
SP55	EX55	EX1050	EX0183DL-30	EX254B	EX278A
SP65	EX65	EX890	EX0183DL-30	EX254B	EX278A
SP75	EX75	EX770	EX0183DL-40	EX255B	EX278A
SP95	EX95	EX630	EX0183DL-40	EX255B	EX278A
SP3277	EX3277	EX260	EX0183DL-30	EX251B	EX278A
SP4277	EX4277	EX1870	EX0183DL-30	EX251B	EX278A
SP60	EX60	EX1280	EX0183DL-30	EX251B	EX278A
SP80	EX80	EX960	EX0183DL-30	EX251B	EX278A
SP90	EX90	EX850	EX0183DL-40	EX253B	EX278A
SP100	EX100	EX760	EX0183DL-40	EX253B	EX278A

REPAIR PARTS FOR "THERMOSTATIC" UNITS



EMERGENCY CUT OFF

CONTROL BOARD

RELAY

HEATING CHAMBER
(not available as a repair part)

ELEMENT CARTRIDGE (pictured below)
INSTALLS INSIDE HEATING CHAMBER



MODEL	ELEMENT CARTRIDGE *	CONTROL BOARD **	RELAY	EMERGENCY CUT OFF ***
EX2412T	EX610	EX284-120	EX259B	EX278A
EX3012T	EX480	EX284-120	EX259B	EX278A
EX3512T	EX410	EX284-120	EX259B	EX278A
EX3208T	EX1440	EX284AB-240	EX255B	EX278A
EX4208T	EX1050	EX284AB-240	EX255B	EX278A
EX8208T	EX520	EX284AB-240	EX255B	EX278A
EX35T	EX1650	EX284AB-240	EX255B	EX278A
EX48T	EX1200	EX284AB-240	EX255B	EX278A
EX55T	EX1050	EX284AB-240	EX255B	EX278A
EX65T	EX890	EX284AB-240	EX255B	EX278A
EX75T	EX770	EX284AB-240	EX255B	EX278A
EX95T	EX630	EX284AB-240	EX255B	EX278A
EX012240T	EX500 PRT	EX284AB-240	EX1050-1	EX278A
EX3277T	EX260	EX284AB-277	EX253B	EX278A
EX4277T	EX1870	EX284AB-277	EX253B	EX278A
EX60T	EX1280	EX284AB-277	EX253B	EX278A
EX80T	EX960	EX284AB-277	EX253B	EX278A
EX90T	EX850	EX284AB-277	EX253B	EX278A
EX100T	EX760	EX284AB-277	EX253B	EX278A

* If heater has suffix "DI" order element with suffix "SS"
** If heater has the suffix "ML" order circuit board with suffix "ML"
*** If heater has suffix "EE" or "FS" temp below 90°f, use p/n EX278E
*** If heater has suffix "S" or "FS" temp above 140°f, use p/n EX278D

CE

DECLARATION OF CONFORMITY

Manufacturer's Name: **Eemax, Inc.**

Manufacturer's Address: **400 Captain Neville Drive, Waterbury, CT 06705 USA**

Product Description: **Electric Tankless Water Heaters**

Product Model Designation: **SP, EX, EM, EC**

Application of Council Directive: **2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to Electrical Equipment designed for use within certain voltage limits and**

Council Directive 2004/108/EC relating to electromagnetic compatibility and repealing Directive 89/336/EEC.

Electrical and electronic equipment (EEE) is presumed to comply with Directive 2011/65/EU, RoHS II and Directive on Packaging and Packaging Waste, 2004/12/EC.

Referenced Safety Standards

IEC 60335-2-35:2006
Used in conjunction with IEC60335-1:2001
(incl. Corrigendum 1:2004 and 2:2006)

Referenced EMC Standards

CISPR 14-1 (Ed. 5): 2005 (EN 55014-1 2006)
CISPR 14-2 (Ed. 1): 1997 +A1/A2: 2008
(EN 55014-2: 1997 +A1/A2: 2008)
IEC 61000-3-2 (Ed. 3): 2005 +A1/A2: 2008
(EN 61000-3-2: 2006+ A1:2009)
IEC 61000-3-3 (Ed. 2): 2008
(EN 61000-3-3: 2008)
IEC 62233 (Ed.1):2005 (EN 62233: 2008)

I, the undersigned, hereby declare that the models specified above conform to the above Directive(s) and Standard(s).

Signature: _____

Printed name: Jeff Hankins

Title: Vice President, Operations and Technology

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Eemax CE Product Plan

New Model No.	Former Model Number	Phase	Modules	Volts	Watts
SP002120CE	SP2412	1	1	120	2.4kW
SP003120CE	SP3012	1	1	120	3.0kW
SP004120CE	SP3512	1	1	120	3.5kW
SP004240CE	SP35	1	1	240	3.5kW
SP005240CE	SP48	1	1	240	4.8kW
SP006240CE	SP55	1	1	240	5.5kW
SP007240CE	SP65	1	1	240	6.5kW
SP008240CE	SP75	1	1	240	7.5kW
SP010240CE	SP95	1	1	240	9.5kW
SP003220CE	SP282*	1	1	220	2.8kW
SP004220CE	SP332*	1	1	220	3.3kW
SP006220CE	SP552*	1	1	220	5.5kW
SP007220CE	SP662*	1	1	220	6.6kW
SP009220CE	SP882*	1	1	220	8.8kW
EX004240CE	EX35	1	1	240	3.5kW
EX005240CE	EX48	1	1	240	4.8kW
EX006240CE	EX55	1	1	240	5.5kW
EX007240CE	EX65	1	1	240	6.5kW
EX008240CE	EX75	1	1	240	7.5kW
EX010240CE	EX95	1	1	240	9.5kW
EX003220CE	EX282*	1	1	220	2.8kW
EX004220CE	EX332*	1	1	220	3.3kW
EX006220CE	EX552*	1	1	220	5.5kW
EX007220CE	EX662*	1	1	220	6.6kW
EX009220CE	EX882*	1	1	220	8.8kW
EM1015	Same*	1	1	230	1.50kW
EM1024	Same*	1	1	230	2.30kW
EM1637	Same*	1	1	230	3.68kW
EM1637SP	Same*	1	1	230	3.68kW
EM2046	Same*	1	1	230	4.60kW
EM2557	Same*	1	1	230	5.75kW
EM2557SP	Same*	1	1	230	5.75kW
EM3273	Same*	1	1	230	7.36kW
EM4092	Same*	1	1	230	9.20kW

New Model No.	Former Model Number	Phase	Modules	kW @ 240v	kW @ 220v
EC004240CE	EX332T	1	1	3.9	3.3
EC006240CE	EX55T	1	1	5.5	4.6
EC007240CE	EX65T	1	1	6.5	5.5
EC008240CE	EX75T	1	1	7.5	6.3
EC010240CE	EX95T	1	1	9.5	8.0

For repair parts, see pages 13 and 14. *Contact Eemax directly.	**PRESSURE** **175 kPa min** **1034 kPa max**