

# INSTANT-FLOW<sup>®</sup> WATER HEATER



## INSTALLATION AND OPERATION INSTRUCTIONS (LOW ACTIVATION MODELS)



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### REQUIRED ITEMS FOR INSTALLATION NOT SUPPLIED

- |                                  |  |
|----------------------------------|--|
| ✂ Electrical Junction Supply Box | ✂ 3/8" Flex Hose or 3/8" O.D. Tubing (2) |
| ✂ Electrical Supply Conduit      | ✂ Carpenters Level                       |
| ✂ Electrical Supply Wire         | ✂ Flat Head Screwdriver                  |
| ✂ Dual Outlet Angle Stop         | ✂ Phillips Head Screwdriver              |

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3100-140-001  
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Instantaneous  
Water Heaters

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# INSTANT-FLOW® SPECIFICATIONS (LOW ACTIVATION MODELS)



Before installation of heater, review electrical requirements needed for model of heater selected.

INCOMING WATER TEMPERATURE INCREASE						
MODEL	VOLTAGE	ACTIVATION	.35 GPM [1.3 LPM]	0.5 GPM [1.9 LPM]	1.00 GPM [3.8 LPM]	1.50 GPM [5.7 LPM]
CMX-12L	110/120	0.20 GPM [0.75 LPM]	28°F [16°C]	20°F [11°C]	-	-
CMX-12L	208	0.20 GPM [0.75 LPM]	49°F [27°C]	34°F [19°C]	-	-
CMX-12L	220/240	0.20 GPM [0.75 LPM]	56°F [31°C]	39°F [22°C]	20°F [11°C]	-
CMX-12L	277	0.20 GPM [0.75 LPM]	65°F [36°C]	45°F [25°C]	23°F [13°C]	-
CMX-15L	110/120	0.20 GPM [0.75 LPM]	35°F [19°C]	25°F [14°C]	-	-
CMX-15L	208	0.20 GPM [0.75 LPM]	61°F [34°C]	43°F [24°C]	21°F [12°C]	-
CMX-15L	220/240	0.20 GPM [0.75 LPM]	70°F [39°C]	49°F [27°C]	25°F [14°C]	-
CMX-15L	277	0.20 GPM [0.75 LPM]	81°F [45°C]	57°F [32°C]	28°F [16°C]	-
CMX-20L	110/120	0.20 GPM [0.75 LPM]	47°F [26°C]	33°F [18°C]	-	-
CMX-20L	208	0.20 GPM [0.75 LPM]	81°F [45°C]	57°F [32°C]	28°F [16°C]	-
CMX-20L	220/240	0.20 GPM [0.75 LPM]	90+°F [50+°C]	66°F [37°C]	33°F [18°C]	22°F [11°C]
CMX-20L	277	0.20 GPM [0.75 LPM]	90+°F [50+°C]	76°F [42°C]	38°F [21°C]	25°F [14°C]
CMX-30L	110/120	0.20 GPM [0.75 LPM]	70°F [40°C]	49°F [27°C]	25°F [14°C]	-
CMX-30L	208	0.20 GPM [0.75 LPM]	90+°F [50+°C]	85°F [45°C]	43°F [24°C]	28°F [16°C]
CMX-30L	220/240	0.20 GPM [0.75 LPM]	90+°F [50+°C]	90+°F [50+°C]	49°F [27°C]	33°F [18°C]
CMX-30L	277	0.20 GPM [0.75 LPM]	90+°F [50+°C]	90+°F [50+°C]	57°F [32°C]	38°F [21°C]
CMX-40L	208	0.20 GPM [0.75 LPM]	90+°F [50+°C]	90+°F [50+°C]	57°F [32°C]	38°F [21°C]
CMX-40L	220/240	0.20 GPM [0.75 LPM]	90+°F [50+°C]	90+°F [50+°C]	66°F [34°C]	44°F [23°C]
CMX-40L	277	0.20 GPM [0.75 LPM]	90+°F [50+°C]	90+°F [50+°C]	76°F [42°C]	50°F [28°C]

## MICROPROCESSOR LIMITS TEMPERATURE INCREASE ACCORDING TO FACTORY SET TEMPERATURE

TABLE 1											
MODEL	WATTAGE	VOLTAGE	AMPS	BREAKER SIZE		MODEL	WATTAGE	VOLTAGE	AMPS	BREAKER SIZE	
				INTERMITTENT DUTY	CONTINUOUS DUTY					INTERMITTENT DUTY	CONTINUOUS DUTY
CMX-12L	1440	110/120	12	15	15	CMX-20L	4800	220/240	20	20	30
CMX-12L	2500	208	12	15	15	CMX-20L	5540	277	20	20	30
CMX-12L	2880	220/240	12	15	15	CMX-30L	3600	110/120	30	30	40
CMX-12L	3320	277	12	15	15	CMX-30L	6240	208	30	30	40
CMX-15L	1800	110/120	15	15	20	CMX-30L	7200	220/240	30	30	40
CMX-15L	3120	208	15	15	20	CMX-30L	8310	277	30	30	40
CMX-15L	3600	220/240	15	15	20	CMX-40L	8320	208	40	40	50
CMX-15L	4150	277	15	15	20	CMX-40L	9600	220/240	40	40	50
CMX-20L	2400	110/120	20	20	30	CMX-40L	11080	277	40	40	50
CMX-20L	4160	208	20	20	30						

**NOTE: BEFORE INSTALLATION, COMPARE ELECTRICAL NEEDED FOR THE MODEL OF HEATER SELECTED.**

### INSTANT-FLOW® CMX SPECIFICATIONS:

#### DIMENSIONS:

8-3/16" [208 mm] X 15-1/16" [383 mm] X 2-3/4" [70 mm]

#### WEIGHT:

9 LBS. [4.08 Kg]

#### MATERIALS:

ALUMINUM HOUSING, CELCON WATERWAYS, NICHROME PARTS

#### COLOR:

WHITE

#### PIPE FITTINGS:

3/8" COMPRESSION

#### OPERATING PRESSURE RATING:

25 PSI [172 kPa] MINIMUM, 80 PSI [551.6 kPa] MAXIMUM

#### MAXIMUM PRESSURE RATING:

150 PSI [1034.2 kPa] NO PRESSURE RELIEF VALVE NEEDED  
UNLESS REQUIRED BY LOCAL CODES.

#### MAXIMUM OPERATING TEMP:

160°F [71°C]

#### MINIMUM OPERATING FLOW RATE:

0.20 GPM [0.76 LPM]

#### LISTINGS:

UL, HUD, IAPMO, UPC, ETL-c

# INSTANT-FLOW<sup>®</sup> Flow Secure<sup>®</sup> WATER HEATER

## (LOW ACTIVATION MODELS) (cont.)

### FACTORY SET TEMPERATURES:

104°F [40°C]

110°F [43.3°C]

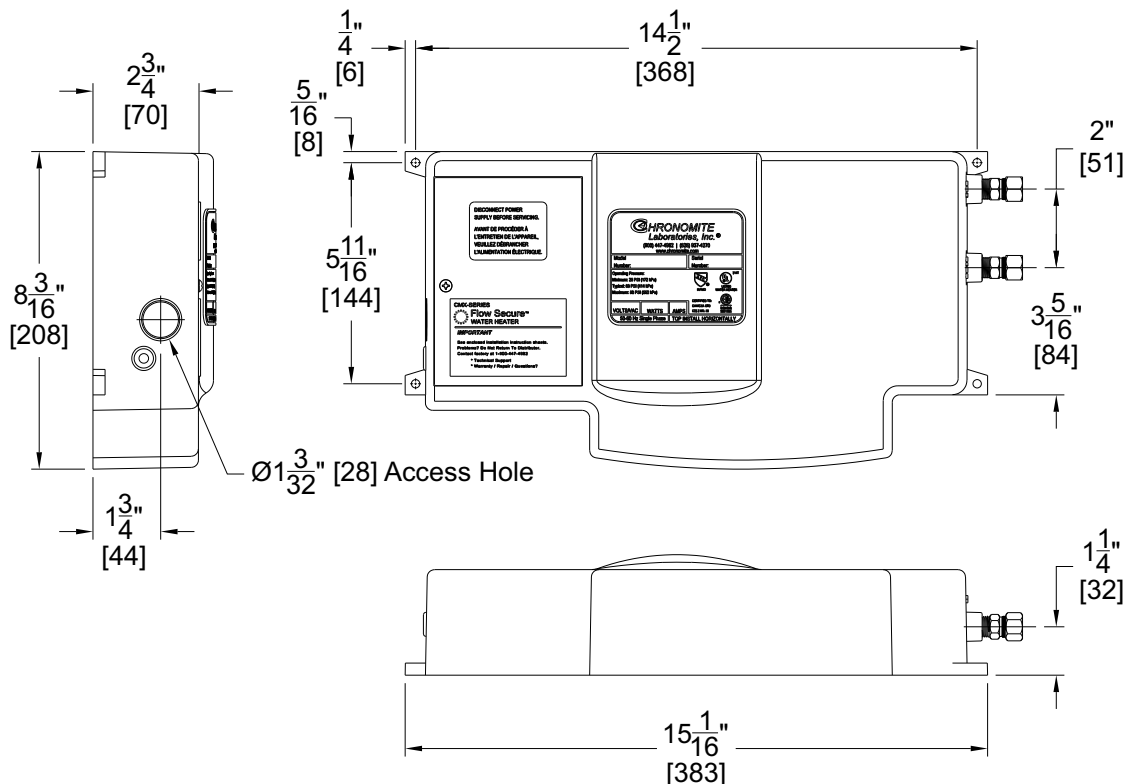
120°F [48.9°C]

Other temperature settings are available upon request up to 160°F [71°C]. Fixed temperature settings are not field adjustable. 110°F [43.3°C] / 120°F [48.9°C] settings are recommended with cold water mixing faucets.

### HOW INSTANT-FLOW<sup>®</sup> CMX WORKS

The engineered plastic case houses a series of ingeniously designed coils that instantly heat water as it flows through the vessel. A unique power switch automatically applies electrical current to the coils when hot water is requested. The electrical current is not applied when the water is not in use. The microprocessor is internally preset at the factory to maintain a constant output temperature with varying flow rates.

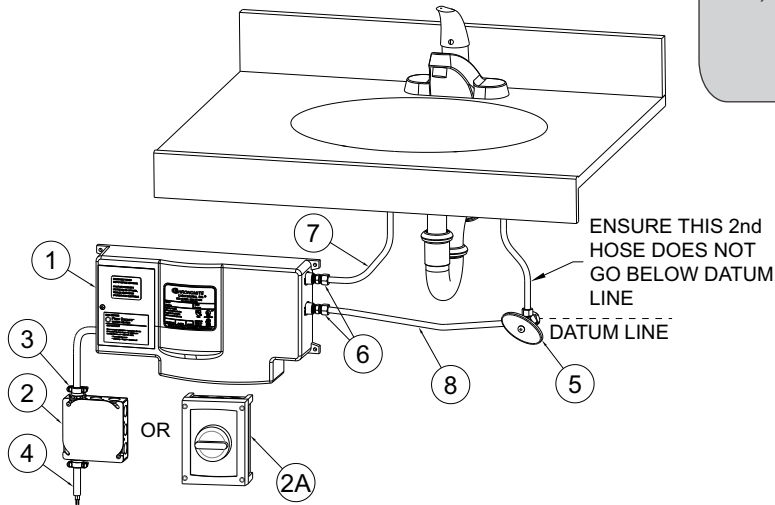
## INSTANT-FLOW<sup>®</sup> CMX DIMENSIONAL DATA



# INSTANT-FLOW® INSTALLATION



- A) Turn off the circuit breaker to avoid dangerous electrical shocks.
- B) Turn off the water supply.
- C) Do not apply heat to inlet or outlet fittings on heater. Do not solder direct.
- D) Flush supply line of all foreign material such as pipe dope, pipe chips, solder, sand, etc. before making up supply connections after working on water piping.



- ① Chronomite Instant-Flow CMX See page 2 for selection
- ② Electrical Junction Supply Box (optional)
- 2A 2095-1 Disconnect Switch (optional)
- ③ Electrical Supply Conduit
- ④ Electrical Supply Wire
- ⑤ Dual outlet stop 3/8" Comp Outlet Connections
- ⑥ Fittings (supplied) 3/8" Comp x 1/4" NPT
- ⑦ Faucet Supply Inlet Hoses 3/8" NPS
- ⑧ Flow Control (supplied) Dual Threads 15/16" Male and 55/64" Female

## HEATER INSTALLATION:

1. Remove cover off of Water Heater. Attach conduit to the conduit connection punching. Then feed wires. Do not attach wiring.
2. Mount unit horizontally against the wall so the silver label reads correctly (See Figure 1). Use level to ensure unit is level and mount with four screws through the flanges located on each corner using molly anchors or fasteners.
3. Connect plumbing. Use female 1/4" NPT or hose with 3/8" compression at cold water inlet and hot water outlet to 3/8" compression faucet inlet connections (See Figure 1). **DO NOT APPLY HEAT TO THESE FITTINGS.**
4. Run water through the unit to expel all air bubbles. Cycle hot side of faucet 10 times to assist in removing air bubbles. Check for leaks at all fitting joints. If no leaks proceed to electrical installation.

**CAUTION: HEATING ELEMENTS MAY BURN OUT IF UNIT IS NOT MOUNTED HORIZONTALLY**

## ELECTRICAL INSTALLATION:

1. Connect power supply wires appropriately sized and protected by circuit breaker to the input terminals on the heater (hard wired) as shown in the Figure 2 wiring diagram.
2. Refer to Table 1 above on Page 2 for the voltage and amperage of the supply power.
3. Ensure each wire L2/N, G, L1 are connected to the respective terminals. Only connect to rated voltage on nameplate.
4. Ensure water inlet valve to heater is fully open. Do not throttle inlet
5. Turn on circuit breaker. Turn on water flow to exceed activation point listed in chart 2. The unit is almost ready for use. Shut off circuit breaker.
6. Check for leaks at all fitting joints and also inside heater.
7. Install cover. Turn on circuit breaker. Unit is now ready for use.
8. Local plumbing and electrical codes must be followed in this installation of water heater and the accessories.

## NOTES:

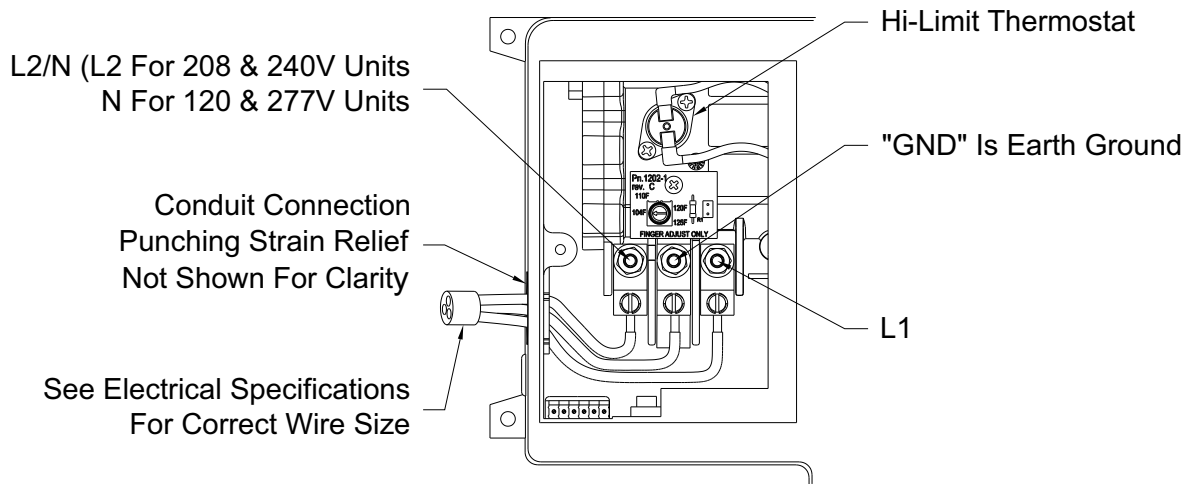
1. Failure to comply with code requirements voids the warranty.
2. Failure to install faucet flow control as shown on (Figure 3 page 6) may cause unsatisfactory operation of the heater.

## INSTANT-FLOW<sup>®</sup> Flow Secure<sup>®</sup> WATER HEATER INSTALLATION (cont.)

### **! IMPORTANT**

The manufacturer of this water heater will not be liable for any damages due to the failure to follow these installation and operation instructions.

**ATTENTION:**  
Unit Must Be Hard Wired



**NOTE:**  
Heaters Are Single Phase. All Tests Are Measured At The Output Of The Heater.

**FIGURE 2 WIRING CONNECTION**

### **! NOTICE**

Air in the heater may cause the elements to burn out. If the water lines are drained, allowing air into the heater, be sure to follow the following start-up procedure:

#### **START UP PROCEDURE:**

1. Turn off electrical supply - open circuit breaker
2. Turn on water supply. Cycle hot side of faucet 10 times to assist in removing air bubbles.
3. Expel all air from lines and heater. Check for leaks at all fittings, joints and at water heater.
4. Turn on electrical power supply - close circuit breaker.

# INSTANT-FLOW® SPECIFICATIONS (LOW ACTIVATION MODELS)

## OPERATION INSTRUCTIONS:

- Turn the hot water fixture to activate the Flow Switch. The Flow Switch activates at 0.20 gallons per minute (GPM) [0.76 LPM] and deactivates at 0.18 gallons per minute (GPM) [0.68 LPM].
- If you increase the flow rate of the water above the KW capacity, the water temperature will become cooler. Cold water can always be mixed just as with a conventional system if using a two handle faucet. Select the appropriate Flow Control.
- Once you decrease the hot water flow rate to 0.18 GPM [0.68 LPM] the unit will deactivate. It is not advisable to operate the heater at 0.18 GPM [0.68 LPM] hot water flow rate.

## NOTES:

1. Periodically inspect (4 times a year) the supply lines, connections and heater for any moisture, corrosion or other potential preventable problems.
2. Prior to shutting off water valves for servicing, winterization, etc, always disconnect power from unit 1st.
3. Unit is intended to heat water only, and does not provide a means of cooling if inlet temperature exceeds set point temperature of heater.

## OPTIONS:

- Pressure & Temp. Relief Valve Assembly (TP)
- 1/2" Male NPT (NPT08)
- Disconnect Switch, Rotary 40A - Lockable Nema 4X (2095-1)

## FLOW CONTROLS:

You may want to install the supplied Flow Control in your design. This high-quality control makes the water heating system operate more effectively, as well as save water. The supplied GPM [LPM] Flow Control assures that the flow rate will not exceed GPM [LPM], however, less water can always be used. Consumer can mix the cold water as with a conventional system.

FACTORY SET TEMPERATURES		
104°F	***110°F	***120°F
Notes:		
*	Other Temperature Settings are available upon request up to 160°F	
**	Fixed Temperature Settings are not Field Adjustable	
***	110°F / 120°F Temperature Settings are not recommended with metering / sensor faucets (cold water mix needed)	

## FLOW CONTROL SPECIFICATIONS

**MATERIAL:** Chrome Plated, Brass Housing.  
**THREADING:** DUAL threads 15/16" Male  
55/64" Female

**NOTE:** Flow Controls are adaptable to other thread configurations. Vandal resistant models are available. Please call factory if adapter or vandal resistant model is needed.

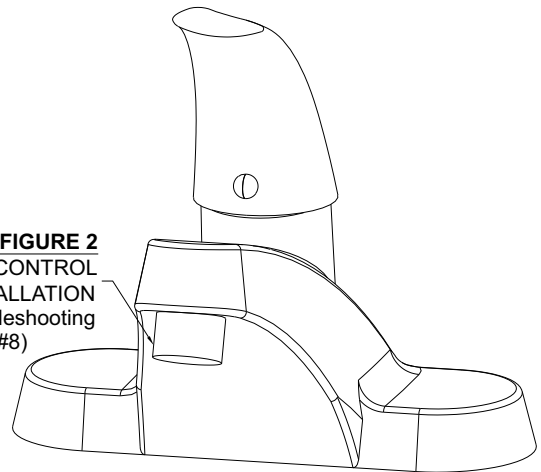
FLOW CONTROL MODELS CHART			
KW	ACCESSORY PACKAGE	≥ 45 PSI	< 45 PSI
1.2 - 5.4	AP-6-P	L412-0.35-NP 0.35 GPM SPRAY	L412-0.5-NP 0.5 GPM SPRAY



## NOTICE

•Flow Controls are adaptable to other thread configurations. Please call factory if adapter is needed.

**FIGURE 2**  
FLOW CONTROL  
INSTALLATION  
(See Troubleshooting  
List #8)



## IMPORTANT

Periodically inspect (4 times a year) the supply lines, connections and heater for any moisture, corrosion or other potential preventable problems.

# INSTANT-FLOW<sup>®</sup> Flow Secure<sup>®</sup> WATER HEATER TEMPERATURE ADJUSTMENT POTENTIOMETER 104°-125° F

The potentiometer allows the factory preset temperature of the heater to be changed in the field. The potentiometer will adjust water temperature between 104°F and 125°F provided the wattage of the heater selected is capable of producing the temperature increase at the requested flow rate. See Table 1 temperature chart for each model to determine the temperature range of the heater installed. Adjustment knob is  $\frac{3}{4}$  turn from minimum to maximum setting. Do not use a screwdriver to adjust the knob.

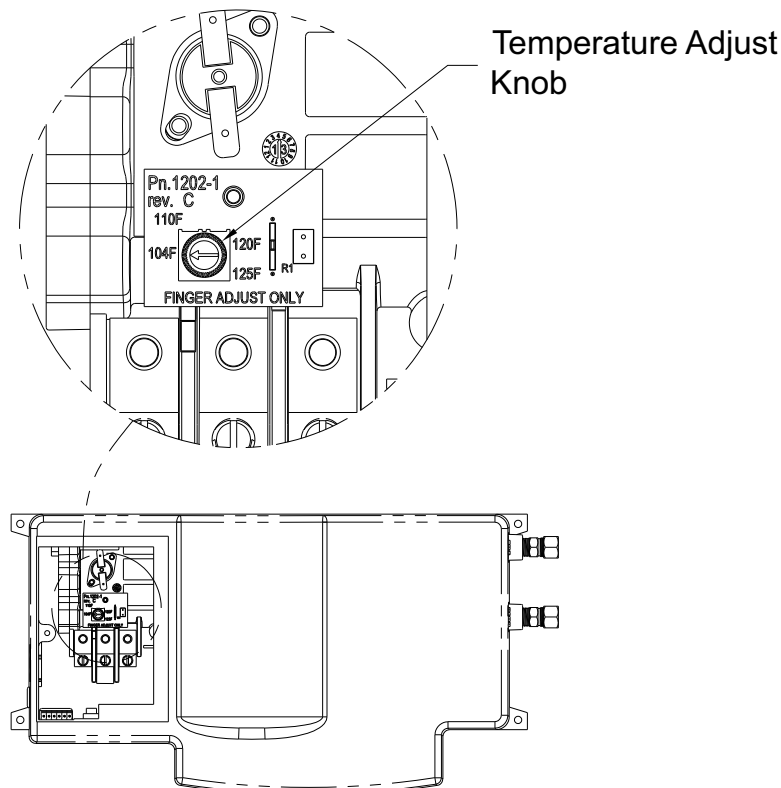
When using the potentiometer please use the following operation instructions:

To increase temperature:

- Turn off power to heater.
- Using a screwdriver, remove access cover
- Turn knob by hand in small increments clockwise to match desired temperature
- Board is marked with 104°F, 110°F, and 120°F
- Install access cover
- Turn on power to heater.

To decrease water temperature:

- Turn off power to heater.
- Using a screwdriver, remove access cover
- Turn knob by hand in small increments counter-clockwise to match desired temperature
- Board is marked with 104°F, 110°F, and 120°F
- Install access cover
- Turn on power to heater.





# INSTANT-FLOW® Flow Secure® LEAK DETECTION WATER HEATER

## ALARM ACTIVATION:

Your Instant-Flow CMX water heater is equipped with an integral float sensor for internal leak detection inside housing assembly. If float is activated, water will automatically shut off internal to heater via solenoid and an audible alarm will sound.

To reset alarm, depress reset button on lower circuit board per figure below. If problem persists, shut off faucet, power, and water to unit for service by maintenance personnel.

Note: Solenoid is normally open. Ensure no faucet flow, and the water supply is shut off 1<sup>st</sup> prior to turning off power to heater.

## BMS OUTPUTS:

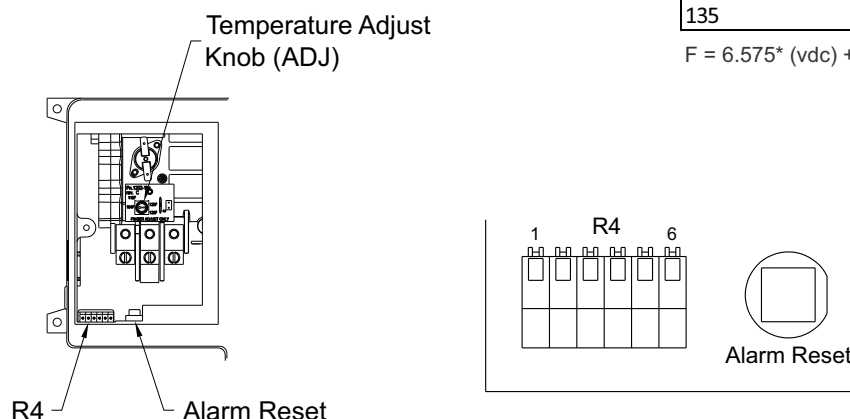
10 VDC outputs for BMS system to monitor are located on R4 terminal block. See output charts below. Acorn Controls BasYc can be used with this system with a dashboard already programmed for heater.

R4 TERMINAL BLOCK		
	Common	1
Temperature output	See Temperature vs Voltage Output Chart	2
kW Controller	0v=0 and 10vdc = 100% Power	3
Heater On/Off	0v=Off and 10vdc = On	4
Solenoid Water Leak	0v=dry and 10vdc = Wet/Leak	5
Pressure Sensor Switch	0v=open and 10vdc = switch closed (100 PSI)	6

## Temperature vs Voltage Output Pin 2

F	0-10 vdc
100	2.05
105	2.89
110	3.45
115	4.4
120	5.08
125	6.1
130	6.71
135	7.05

$$F = 6.575 * (\text{vdc}) + 86.45$$





# INSTANT-FLOW® Flow Secure® WATER HEATER TROUBLESHOOTING GUIDE

## **TROUBLESHOOTING GUIDE**

Your Instant-Flow CMX water heater has no internal user serviceable parts and should be returned to the factory for repair or replacement. Please contact factory for return authorization. If after following the Installation Instructions, your Instant-Flow CMX does not heat water in accordance with this literature, please check the following:

1. **Low Power** – Verify your voltage by using a voltage meter. You should obtain your reading off the two outside terminals located on the heater. Compare the reading against the voltage specified in the Installation Instructions. The center terminal is always the earth ground. The hot and neutral legs, in the case of 110 V heaters, are attached on the two outside terminals.
2. **Low Voltage** – The percentage of reduction in voltage will result in a like reduction in temperature increase.
3. **Check Low Amperage Draw** – Check amperage draw using an Amperage Probe. Please compare your results with the Installation Instructions (Table 1) to determine if the heater is operating correctly.
4. **Length of Pipe** - Length of pipe run will affect the temperature increase. The heater should be mounted no more than 12-18 inches [ 305mm-457mm] from the point of use.
5. **Check shut off valve.** Check shut-off valve and make sure valve is open 100% to allow full water pressure and flow to the heater.
6. **High-Limit Thermostat** - Shut off power on breaker. Remove cover. Push in reset button on module. Refer to Figure 2 for location. Reinstall cover. Turn on breaker. If problem persists, contact factory.
7. **Heater Element** - Shut off power on circuit breaker. Remove cover. Measure element resistance by using an ohmmeter or multi-meter. Obtain your reading off of termination rods with brass nuts on each heater module. Refer to Figure 2 for location. This reading should be between 6 and 30 ohms for each element.
8. **Check Flow Rate** – Controlling flow rate is essential to insure proper temperature increase. In the case of the low flow rate heater it is mandatory that the flow control be attached to the end of the faucet. Check your flow rate to insure proper operation of the heater. Low Flow Rate Models require 0.20 GPM (0.76 LPM) to activate.
9. **Installation** – Heater must be installed in a horizontal position. The silver label will then be located in the upper left corner as you face the heater.
10. **Water Supply** – Do not throttle water supply to inlet of Instant-Flow CMX. Operating conditions shall not exceed specification on page 2.
11. **Freezing** – Instant-Flow CMX heaters must be drained and stored if installed in a location subject to freezing. Disconnect the inlet/outlet compression fittings and blow air through one side of the heater to assist draining. Failure to completely remove water from the unit will result in freezing and cracking.
12. **Problems?**- Call our toll-free hotline 800-447-4962 or 626-937-4270

## **WARNING**

- This water heater is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the water heater by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the water heater.
- The water resistivity must not be less than 1100 OHM-CM.
- The water heater must be earth grounded.
- The water heater is not to be installed in locations where freezing can occur.



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## **WARRANTY INFORMATION**

Your Instant-Flow CMX water heater has been engineered and built to the highest quality standards and is backed by a full, factory warranty. Every Instant-Flow CMX water heater is guaranteed to be free from defects in material and workmanship for a period of (1) year from the date of purchase. The above warranty applies to original purchaser if unit is installed per Chronomite Laboratories, Inc.'s Installation Instructions. Chronomite Laboratories, Inc. will repair or exchange parts at the factory at no cost. This warranty is limited to repairing or replacing said products which prove to be defective upon factory inspection, F.O.B. City of Industry, California.

### **EXCLUSION OF COVERAGE FROM THIS LIMITED WARRANTY:**

1. Chronomite is not liable under this limited warranty or otherwise if the water heater has not been installed or maintained in accordance with Chronomite's printed instructions or installed with improper installation materials. In addition, the water heater or any of its component parts have been subject to misuse, neglect, alteration or accident and the water heater has not been installed in accordance with the applicable local plumbing and or building codes and/or regulations.
2. Chronomite is not liable under this warranty if the water heater has not been continuously supplied with potable water or the water inlet temperature is above Chronomite's recommended maximum temperature. In addition, water heater experiences any water pressure or flow interruptions, normal operation inlet water pressure is outside of the published specification (UPC 2009), or exposed to any condition that causes the heater to turn on before the air is purged from the heater also known as "dry fire."
3. Chronomite is not liable if the water heater has been exposed to conditions resulting from floods, earthquakes, winds, fire, freezing, lightning or circumstances beyond Chronomite's control, or has been used for other than the intended purpose.

**If violation occurs from the stated exclusions of coverage from this limited warranty or thereafter; owner, and not Chronomite or its agent/representative, is liable for and shall pay for all field charges, labor, water heater, damage or other expenses incurred in the repair or replacement of the water heater.**