

# CLEARWAVE® WATER CONDITIONER

MODEL: CW-125  
INSTALLATION AND MAINTENANCE MANUAL

**Bel-Aire**  
ElectronicAirCleaners.com



## ITEMS SUPPLIED:

- CLEARWAVE® UNIT - Model: CW-125
- Wire Ties, QTY 6
- 120 VAC Plug-in Power Supply
- Installation and Maintenance Manual

Thank you for purchasing the CLEARWAVE® Water Conditioner for Plumbing and Appliance Protection. CLEARWAVE prevents Calcium and Magnesium from forming scale in water. The microprocessor technology generates a series of electromagnetic waves that excite the Calcium and Magnesium molecules. These excited molecules remain in suspension, keeping them from bonding to each other or to pipes, fixtures, appliances or any other surface that comes into contact with the water. CLEARWAVE treated water helps dissolve pre-existing scale throughout your home's plumbing system and appliances. CLEARWAVE protects against scale buildup and scale corrosion 24/7 and works on galvanized, copper or plastic piping.

Go to [www.fieldcontrols.com](http://www.fieldcontrols.com) for more information.

**READ THESE INSTRUCTIONS CAREFULLY AND COMPLETELY BEFORE PROCEEDING WITH THE INSTALLATION.**

Please retain these instructions after installation.

Installed By: \_\_\_\_\_ Phone: \_\_\_\_\_ Installation Date: \_\_\_\_\_



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P/N 46402200 Rev F 04/17

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### IMPORTANT SAFETY INSTRUCTIONS

Before installing the CLEARWAVE® Water Conditioner, inspect the unit for any signs of damage.



**WARNING - Always unplug power adapter from standard electrical wall outlet prior to servicing unit. Do not operate this device with damaged power cable and/or damaged plug-in power supply (transformer). Do not immerse this device in water, as permanent damage will occur. Do not open thermally sealed plastic housing to access internal electronics.**

### SPECIFICATIONS

INPUT VOLTAGE (VAC)	CURRENT (mA)	VOLTAGE-AMPS (VA)	POWER FACTOR (PF)	POWER (Watts)
18.8	21	0.453	0.44	0.2

### FEATURES

Thank you for purchasing the CLEARWAVE® Water Conditioner. This Water Conditioner embodies unique electro-wave technologies not found in any other water conditioner. The CLEARWAVE® electro-wave technology significantly reduces the molecular bonding presence of calcium and magnesium concentrations, both expressed as calcium carbonate within treated water thus reducing the hardness value of water.

- No need to purchase expensive reverse osmosis system
- No need to add monthly salt pellets to water softening system
- Scale build up on pipes, valves, water heaters, appliances, faucets, sinks and toilets will dissolve overtime
- Enables soap and detergents to better lather and rinse
- Maintenance free
- No plumbing required

### WATER QUALITY REQUIREMENTS

The current practice of determining water hardness is the measurement of the concentration of calcium and magnesium in the water. The traditional water softener removes the calcium and magnesium from the water through a process called ion exchange, which will show a change in hardness using the current practice from measuring water hardness. The CLEARWAVE does not remove any calcium or magnesium ions from the water, therefore, testing the water before and after the installation of the CLEARWAVE will not show any change in water hardness. The best method of evaluation is to monitor the effects the CLEARWAVE has on scale forming areas such as: the effects on humidifier media pads scaling, showerhead scaling, toilet bowl scaling and the amount of soap needed to do the laundry.

The length of time required to alter the characteristics of the lime scale build up is dependent on the mineral makeup of the water being treated. The mineral makeup of the water can influence the operation of the CLEARWAVE's electrical field. Before installing any water conditioning system, it is very important to know the type and concentration of minerals in the water being treated. Have your water tested by your local or county water department. Table 1 contains the various levels of water hardness (Soft to Very Hard) as they relate to Parts per Million (PPM) and Grains per Gallon (GPG) of Calcium Carbonate Equivalent. The maximum hardness level the CLEARWAVE will effectively work on is 425 PPM or 25 GPG. Above these levels, the CLEARWAVE should be used in conjunction with a traditional ion exchange water softener to remove hardness and condition the water. This allows you to minimize the salt used to remove the hardness and maintain the cost saving benefit of the CLEARWAVE water conditioning system.

Table 1: Standardized Definition of Water Hardness

DESCRIPTION OF WATER HARDNESS	PARTS PER MILLION (PPM) OF CALCIUM CARBONATE EQUIVALENT	GRAINS PER GALLONS (GPG) OF CALCIUM CARBONATE EQUIVALENT
Soft	Less than 17.1	Less than 1.0
Slightly Hard	17.1 to 60	1.0 to 3.5
Moderately Hard	60 to 120	3.5 to 7.0
Hard	120 to 180	7.0 to 10.5
Very Hard	180 and above	10.5 and above

A high concentration of iron (soluble and insoluble) causes a disruption and weakening of the CLEARWAVE's electrical field, thus reducing its effectiveness on scale reduction. It is recommended that the total iron level in the water to be treated is less than 0.3 ppm (parts per million). There are iron removal filters available that commonly meet this requirement that can be installed in the water line before the CLEARWAVE.

**OPERATION/FUNCTIONALITY**

The following timetable should be used to evaluate the operation and functionality of the CLEARWAVE during the first 90 days.

**DAY 1:**

The CLEARWAVE action immediately starts to loosen existing scale in both the hot and cold water systems. One should find soaps lathers more easily.

**DAY 5 AND ONWARDS:**

Scale begins to break down and come off water heater elements (immersion heaters) and tanks. Most particles are microscopic and will flow through your water system, but some small particles may be seen in the water coming from the hot water tap.

**DAY 10 to 16:**

It should be noticeably easier to wipe clean ceramic, plastic, glass and metal surfaces. By now the quantity of bath soap, dish soap, laundry softening agents can be reduced. Scale should have loosened on faucets, showerheads and frequently used appliances that boil water (such as coffee makers).

**DAY 16 AND ONWARD:**

Scale should continue to loosen from faucets, showerheads and pipes. With the continuing break down and reduction of scale from the heating surfaces of water heaters, water should heat up quicker using less energy to achieve the desired temperature.

**AFTER 1 TO 2 MONTHS:**

Any scaly crust or stains in toilets or under faucets should be significantly reduced. No new stains or crust should form. Mold that attaches to scale will begin to disappear from shower curtains and, once cleaned, should not reappear. Depending on the water hardness in the area, the full effects can take up to 12 weeks, especially if the system has been heavily scaled up over many years.

## INSTALLATION

CLEARWAVE should be mounted on the pipe as close to water entry into the building, before the piping branches off to supply the water heater and any cold water taps. This maximizes the efficiency of CLEARWAVE to condition all of the water supplied into the building. The CLEARWAVE should be mounted after any water meter or grounding cable attached to the water piping system. Install the CLEARWAVE at least ten feet from any radio, television, or cordless telephone to eliminate any possible interference.

Mount the CLEARWAVE onto the pipe by routing a wire tie supplied with equipment through the two holes on each end of CLEARWAVE housing base (refer to Figure 1). The unit may be mounted horizontally, vertically, or diagonally to match the building piping orientation. The performance of the CLEARWAVE is not affected by unit mounting orientation. The CLEARWAVE can be used effectively on any type of water pipe: galvanized, copper, and/or plastic (PEX/PVC).

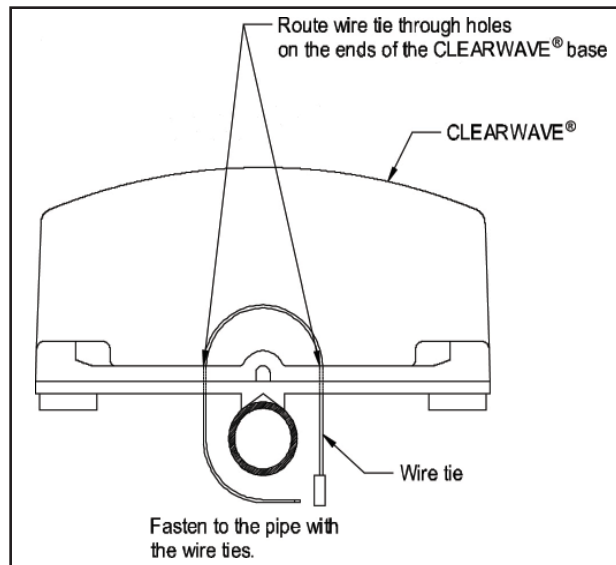


FIGURE 1

Wrap the red antennae wires around the water pipe protruding from each end of the CLEARWAVE (refer to Figure 2). The operation of the CLEARWAVE and the antenna installation is not based on direction of water flow, but **one antenna MUST be wrapped in a clockwise direction and the other wrapped in a counter-clockwise direction.** For best results, fully wrap the right antenna clockwise (over the top of the pipe first), keeping the antenna wire tight against the pipe and the preceding coil. Secure the end of the right antenna wire to the water pipe with a wire tie (refer to Figure 3). Wrap the left antenna wire counter-clockwise (under the bottom of the pipe first), keeping the antenna wire tight against the pipe and the preceding coil. Secure the end of the left antenna wire to the water pipe with a wire tie.

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**NOTE: Antennae wires may be secured to water pipe with electrical tape (not supplied) instead of or in combination with tie wraps.**

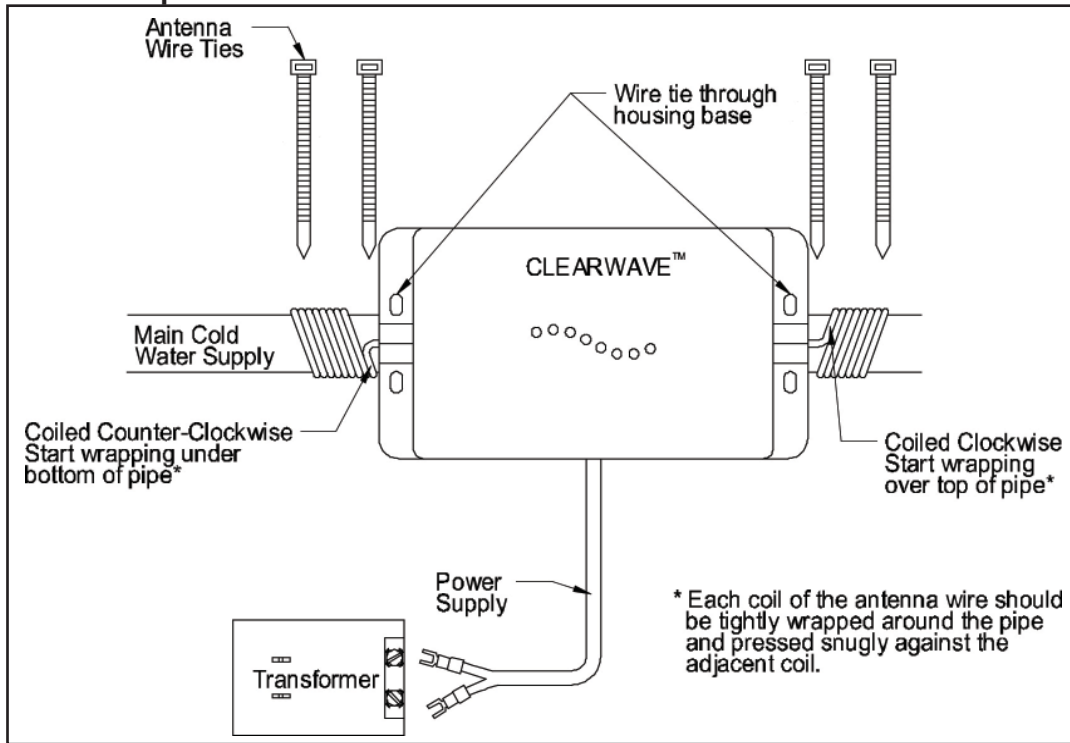


FIGURE 2

Insert the unit power cable terminals onto the plug-in power supply (transformer) screw terminals and fasten securely. Plug the power supply into a standard 3 prong electrical wall outlet (refer to Figure 2). When energized, the CLEARWAVE modulation indicator lights start flashing sequentially indicating that the unit is functioning properly.

**MAINTENANCE AND TROUBLESHOOTING**

*Power Surges and Lock Ups:* Your CLEARWAVE is designed to operate continuously, providing years of service. To reset the CLEARWAVE, simply unplug the power supply from standard wall outlet, wait 1 minute and then plug the unit back in to standard wall outlet. If you live in an area where power surges are common, install a surge protector on the electrical outlet that the CLEARWAVE power supply is plugged into.

*Loose Antennae Wires:* The antennae wires must be held tightly against the water pipe and the coils must be pressed snugly against each other to transfer the electromagnetic energy into the water. If the antennae wires are loose, tighten them and also retighten the wire ties. Be sure that the antennae wires are wrapped in the proper direction (refer to Figure 2).

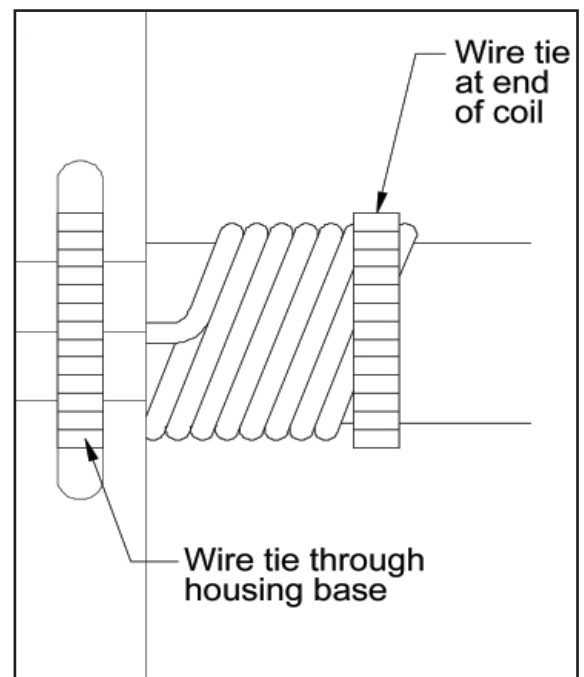


FIGURE 3

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**Technical Service and Support:**

1.800.742.8368

FieldTec@fieldcontrols.com

www.fieldcontrols.com

**WARRANTY**

**Field Controls warrants that the CLEARWAVE shall be free from defects in material and workmanship under normal use for 18 months from date of purchase.**

Please complete the warranty registration on-line at [www.fieldcontrols.com/product-registration/](http://www.fieldcontrols.com/product-registration/).

In the event of a warranty claim, we suggest attaching the original purchase receipt to this installation manual for your records. Thank you again for purchasing CLEARWAVE.



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