

CLEARWAVE® WATER CONDITIONER

MODEL: CW-125



The ClearWave® Water Conditioner is the solution to scale build-up due to hard water. The ClearWave installs easily and virtually eliminates scale build-up in pipes, faucets, and appliances.

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

Please retain these instructions after installation.

Installed By: _____ Phone: _____ Installation Date: _____



FIELD CONTROLS

www.fieldcontrols.com

TABLE OF CONTENTS

BEFORE YOU INSTALL

Customer Satisfaction & Warranty Registration	3
Testing for Hardness and Iron Levels	3-4

OPERATION TIMETABLE	4
----------------------------------	---

INSTALLATION

Where to Install the ClearWave®	4
How to Install ClearWave®	4-5
Mounting the Unit to the Pipe	4-5
Properly Wrapping the Antennae	5
Connecting to Power Supply	5

TROUBLESHOOTING

Power Surges and Lock Ups	6
Loose Antennae Wires	6

FREQUENTLY ASKED QUESTIONS	6-7
---	-----

WARRANTY	8
-----------------------	---

WARRANTY REGISTRATION FORM	9
---	---

BEFORE YOU INSTALL

Please read the following information.

CUSTOMER SATISFACTION AND WARRANTY REGISTRATION

The ClearWave® unit is guaranteed for 18 months from the date of the original purchase against defects in workmanship and material. Warranty details can be found at the end of the manual. To activate your warranty please take a minute to fill out and mail the registration form located at the back of this manual to our warranty department today. This will allow us to better assist you if you have any questions about the ClearWave water conditioning system. It also allows us to keep the ClearWave system users informed on water quality issues and new product announcements.

TESTING FOR HARDNESS AND IRON LEVELS

The length of time required to alter the characteristics of the lime scale 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. Contact your local health department or county extension service to locate a water testing service near you.

Iron Concentration

A high concentration of iron (soluble and insoluble) causes a disruption and weakening of the ClearWave's electrical field, reducing its effectiveness on scale reduction. Under these conditions an iron removal system is required to filter out the iron prior to the ClearWave. We recommend an iron removal system for total iron levels above 0.3 ppm (parts per million).

Water Hardness

Definition of hardness:

(Taken from the 1992 edition of Standard Methods for the Examination of Water and Wastewater)

"Originally, water hardness was understood to be a measure of the capacity of water to precipitate soap. Soap is precipitated chiefly by the calcium and magnesium ions present. Other polyvalent cations also may

precipitate soap, but they often are in complex forms, frequently with organic constituents, and their role in water hardness may be minimal and difficult to define. In conformity with current practice, total hardness is defined as the sum of the calcium and magnesium concentrations, both expressed as calcium carbonate, in milligrams per liter.”

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 for measuring water hardness. Since the ClearWave does not remove any calcium or magnesium ions from the water, testing the water before and after the installation of the ClearWave will not show any change. The best method of evaluation is to monitor the effects the ClearWave has on scale forming areas such as: the effects on humidifier media pad scaling, showerhead scaling, and the amount of soap needed to do the laundry.

The degree of water hardness in the table below (according to the Water Quality Association) will allow you to determine what type of water hardness you have after you receive your water test data.

If your water falls under the description of Soft or Slightly Hard the effects of the ClearWave on the scale (if any) will not be noticeable. Any water problem you have is probably not caused by calcium or magnesium. 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 benefits of the ClearWave water-conditioning system.

DESCRIPTION OF WATER HARDNESS	PARTS PER MILLION (PPM) OF CALCIUM CARBONATE EQUIVALENT	GRAINS PER GALLON (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

OPERATION TIMETABLE

The following timetable should be used to evaluate the operation 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 soap 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 detergent, and 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 ONWARDS:

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.

Please note: The ClearWave is NOT a water softener and doesn't not REMOVE calcium or magnesium from the water.

INSTALLATION

WHERE TO INSTALL THE CLEARWAVE

The ClearWave coils should be mounted on the water supply pipe as it enters the building, before the piping branches off to supply the water heater and any cold water taps. This allows the ClearWave to condition all of the water supplied to 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.

HOW TO INSTALL THE CLEARWAVE

Mounting the unit to the pipe

Mount the ClearWave onto the pipe by routing a wire tie through the two holes on each end of ClearWave housing base. (See Figure 1) The performance of the ClearWave is not affected by the direction or orientation. The unit may be mounted horizontally, vertically, or diagonally. The ClearWave can be used effectively on any type of water pipe; galvanized, copper, or plastic.

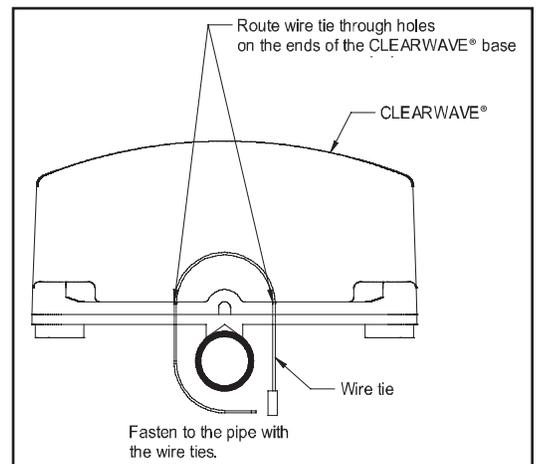


Figure 1

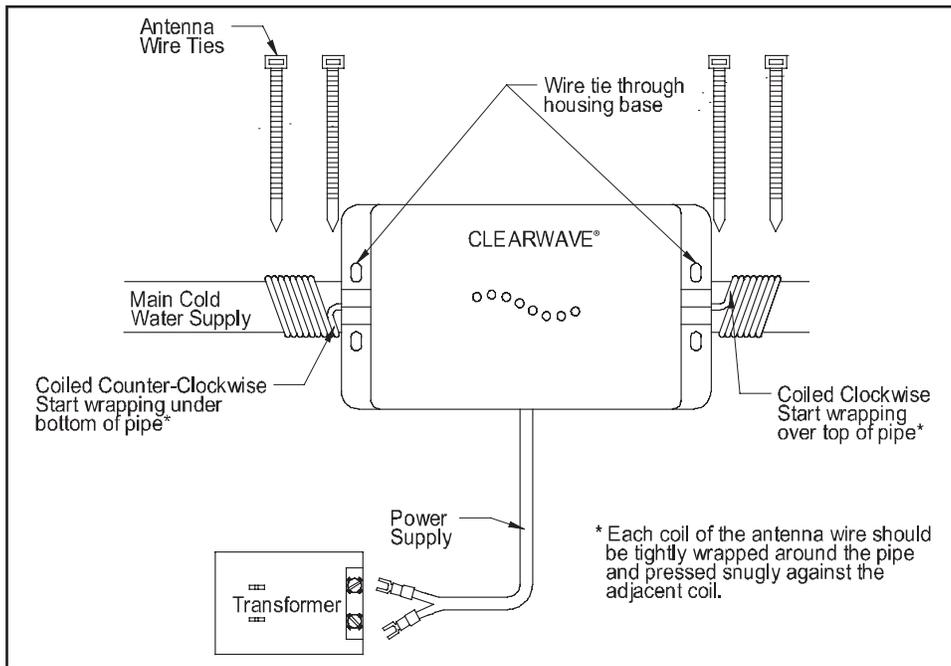


Figure 2

Properly wrapping the antennae

The antennae wrap around the water pipe on each end of the ClearWave. (See Figure 2) A minimum of seven fully wrapped coils of the antenna wire, with each coil wrapped tightly against the pipe and pressed snugly against each other, is required for best results. 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.

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. (See Figure 3) Wrap the left antenna 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.

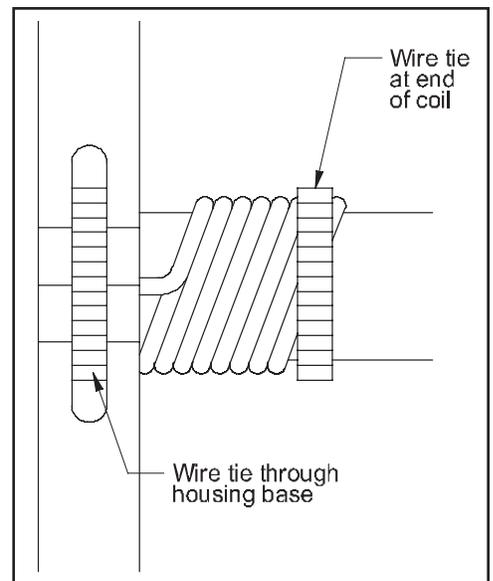


Figure 3

Connecting to power supply

Insert the power supply terminals onto the power supply screw terminals and fasten securely. Plug the power supply into a standard electrical wall outlet. (See Figure 2) When energized, the ClearWave modulation indicator lights start flashing sequentially indicating that the ClearWave is functioning properly.

TROUBLESHOOTING

POWER SURGES AND LOCK UPS

Your ClearWave water conditioner is designed to operate continuously, providing years of improved water quality. If your water quality seems to have changed check the items below to determine that your ClearWave unit is functioning correctly. To reset the ClearWave, simply unplug the unit, wait 1 minute and reconnect the power supply. If your home is in an area where these types of problems occur, install a surge protector on the electrical outlet that the ClearWave transformer is plugged into.

LOOSE ANTENNA WIRES

The antenna wires must be held tightly against the pipe and the coils must be pressed snugly against each other to transfer the energy into the water. If the antenna wires are loose, tighten them and also retighten the wire ties. Be sure that the antennae are wrapped in the proper direction.

(See Figure 2)

FREQUENTLY ASKED QUESTIONS

HOW IT WORKS

Q. Will the ClearWave reduce the amount of calcium in my water?

A. No. The ClearWave does not add or take away anything from your water. If you perform a water hardness test, you will notice no change in the calcium content (hardness).

Q. Is the ClearWave effective in extremely hard water conditions?

A. The ClearWave works effectively in water with hardness as high as 25 grains or 425 ppm. If your water is harder than this, we recommend you use a traditional salt softener in conjunction with the ClearWave. Mount the ClearWave prior to the softener for best results. **USAGE**

Q. How many ClearWave units do I need for my home and what is the maximum pipe size it can be used on?

A. One ClearWave will satisfy the requirements of most homes, since most homes have water mains of 1 inch or less. If your main water supply is larger than 1" but less than 1.5", then two ClearWaves installed side by side are recommended.

Q. Will the ClearWave affect my water pressure?

A. Many customers have noticed a substantial improvement in water flow due to the de-scaling effect of the plumbing system. This is especially true with customers who have well pumps, where pressure changes are more significant and noticeable.

Q. Does the ClearWave affect iron particles in water?

A. No. If iron content is high enough (above .30 ppm), then an iron filter is recommended prior to the ClearWave. One solution is the Automatic Backwash Iron/Sulfur filter sold by McMaster-Carr. Their phone number is 1-404-346-7000 and ask for part number 9843K13. It sells for about \$325.

PLACEMENT

Q. Is the performance of the ClearWave affected by the direction of the water flow?

A. No.

Q. Where, physically, do I install the ClearWave?

A. On the main incoming water line before it splits to the water heater or other pipe branches; preferably indoors. If you must install the unit outside, make sure you mount the ClearWave in a waterproof enclosure.

Q. Can the ClearWave be mounted vertically?

A. Yes. It can be mounted horizontally, vertically, even diagonally. It is not affected by orientation.

Q. Can the ClearWave be used on plastic pipe?

A. Yes. The ClearWave can be used effectively on any type of water pipe; galvanized, copper or plastic.

Q. Does the ClearWave need to be installed on the pipe?

A. No. If the unit cannot be installed directly on the pipe, then we suggest mounting the unit on the wall and wrapping the antennae around the pipe. All that needs to touch the pipe is the antennae. Be sure to obtain the minimum of seven wraps per antenna.

Q. When I move, can I take the ClearWave with me?

A. Yes. Since there is no plumbing involved with the installation of the ClearWave, removal is as easy as unwrapping the antennae and unplugging the unit.

LIMITED WARRANTY

Field Controls, LLC ("Company") warrants that its products shall be free from defects in material and workmanship under normal use for the limited period indicated, **from the date of manufacture, subject to the provisions 1-8 below.**

Eighteen (18) months

All Field Controls Products (except for those listed below as 5 years or 90 days).

Five (5) years

Field Controls Direct Vent Systems (FDVS), Field Oil Vent Kits (FOVP), and ComboVents (CV).

Field Controls warrants that the products listed below shall be free from defects in material and workmanship under normal use for the limited period indicated, **from the date of purchase by the consumer, subject to the provisions 1-8 below.**

Ninety (90) days

UV lamps/bulbs

Provisions:

1. During the limited warranty period, Company, or its authorized service representative, will repair or replace, at Company's option, without charge, a defective Product. Product that is repaired may be repaired with new or refurbished replacement parts. Product that is replaced may be replaced with a new or refurbished product of the same or similar design. Company will return repaired or replacement Product to customer in working condition. Labor charges are not covered as part of the limited warranty.
2. With regard to UV lamps/bulbs, customer shall be required to include a "valid proof of purchase" (sales receipt) identifying the Product purchased (Product model or accurate date code information) and the date the Product(s) was purchased.
3. Product whose warranty/quality stickers, Product serial number plates or electronic serial numbers have been removed, altered or rendered illegible shall not be covered under the limited warranty.
4. Defective Product must be returned to Company, postage prepaid.
5. IN NO EVENT SHALL COMPANY BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR SIMILAR DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOST PROFITS OR REVENUE, INABILITY TO USE PRODUCT, OR OTHER ASSOCIATED EQUIPMENT, THE COST OF SUBSTITUTE EQUIPMENT, AND CLAIMS BY THIRD PARTIES) RESULTING FROM THE USE OF PRODUCT. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.
6. THIS WARRANTY AND REMEDIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL, WRITTEN, EXPRESS, STATUTORY OR IMPLIED. TO THE EXTENT PERMITTED BY LAW, COMPANY DISCLAIMS ALL IMPLIED AND STATUTORY WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
7. Company makes no warranty of any kind in regard to other manufacturer's products distributed by Company. Company will pass on all warranties made by the manufacturer and where possible, will expedite the claim on behalf of the customer, but ultimately, responsibility for disposition of the warranty claim lies with the manufacturer.
8. Product that has been subjected to misuse, accident, shipping or other physical damage, improper installation or application, abnormal operation or handling, neglect, fire, water or other liquid intrusion are not covered by the warranty.

CLEARWAVE® WARRANTY REGISTRATION

Please take a minute to fill out and mail this registration form to our customer service department today.

Place in stamped envelope and mail to:
 Field Controls, L.L.C.
 2630 Airport Road
 Kinston, NC 28504

ClearWave® Warranty Registration

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone#: _____ Fax#: _____

1. Do you have iron present in your water?	YES NO	If Yes, how much?	Light Moderate Heavy Very Heavy
2. Had you installed an Iron filter prior to purchasing the ClearWave®?	YES NO		
3. Where did you purchase the ClearWave?			
4. Date purchased			
5. Mfg. date code			

Hardness Level (Check One)	<input checked="" type="checkbox"/>
Light 1-3 grains 17-51 ppm	<input type="checkbox"/>
Moderate 4-6 grains 52-102 ppm	<input type="checkbox"/>
Hard 7-10 grains 103-170 ppm	<input type="checkbox"/>
Very Hard 10 grains and above 170 ppm and above	<input type="checkbox"/>

Briefly describe any current water problems; scale build up, odor, taste, staining, etc... _____

(ppm-parts per million)



FIELD CONTROLS

Phone: 252.522.3031 • Fax: 252.522.0214
www.fieldcontrols.com