

CITY WATER INSTALLATION CONFIGURATION WHOLE HOUSE WATER TREATMENT



PLANET FRIENDLY®

To
Home



ECOsmart® Point-of-Entry
110V

Power Settings:

HIGH: Low TDS Waters
(below 500ppm)

LOW: Medium to High TDS Waters
(above 500 ppm)

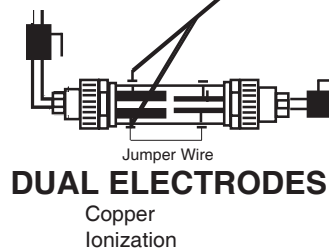


LOW VOLTAGE
DIRECTIVE

½ to 1½ amp. fuse

Thicker wire to chamber,
thinner to valve. Both of
the thicker wires connect
to copper bars.

(Connect Relay Valve To
Control Box Connector)



DUAL ELECTRODES

Copper
Ionization

Titanium Oxidation
Natural Oxygen

Lights will
circle on
control box,
indicating
power to the
electrodes,
when faucet
is opened.



Optional MTBE
Chamber will
install before filter

From City Line

Freeboard

(30% of Tank as
media lifts up)

Granular Activated Carbon

(to be installed last, premeasured
chemical removal media)

Hydroxite™ /KDF ®

Measured Mineral Media
(optional - based on city water
source, rare and used only if iron
over .6 ppm)

Sterile Pea Rock

Installs first, premeasured.
Larger stones toward bottom.

VIDEOS ONLINE:

<http://www.ecosmarte.com>

Online Support

Password: customer2007

TOLL-FREE: 1-800-466-7946

**An Alternative
Science to
Water Softening
and
Reverse Osmosis...**

APVMA #59599/01/1005

#59599/02/1005

EPA EST#083498-MN-001

INSTALLING THE ECOsmarte® MUNICIPAL POINT-OF-ENTRY SYSTEM:

Congratulations on your new investment! The ECOsmarte® Municipal Point-of-Entry Water System will provide years of satisfying home water.

The Point-of-Entry is designed to neutralize the harmful effects of hard minerals by ionization; and, at the same time, remove chlorine, foul taste and odors, sulfur, iron, dirt, rust, toxic chemicals and physical contaminants from your water system. It contains an electronic ionization chamber, high quality activated carbon, and a special blend of natural minerals to provide you with “filtered spring water” at every tap in your home or place of business. It should be noted there is no guarantee your water contains any of these contaminants presently.

When properly installed, the Point-of-Entry will provide many years of trouble-free service. Read this manual carefully and follow the installation steps in proper order.

Ionic Water Purification

“Ionic Water Purification” is an effective and proven method in preventing scale and controlling corrosion, in most applications Ionization is effective in removing existing scale buildup on pipes, plumbing and mechanical equipment. Electronic oxidation will provide additional oxygen to improve municipally fed water. Ionic water purification removes toxic chemicals from water and has benefits and features that allow it to go beyond water conditioning to become a complete water purification system. You have purchased the best non-salt, non-chemical technology available.

Bacteria

When bacteria is a concern, testing can be done at a cost of less than a few dollars by using a simple millepore bacteria test kit. Ionization controls biological infestations. The Point-of-Entry Systems are designed to provide bacteria control to protect the filter media from transient bacteria infestation. When known bacteria contamination exists in the source water, specific design and equipment must be used to assure adequate protection. Both of your electrode pairs have bacterial kill rates, but known bacteria in water should be EPA/ETL lab tested. The low-level ionization in your piping will provide longer and better protection against bacteria than your previously chlorinated water, when water is standing in the line. Although no claims on specific removals or kill rates are made by ECOsmarte.

Toxic Chemicals

When toxic chemicals, herbicides, pesticides, fertilizers or septic contaminants are known or suspected in the

water, specific and proper sized equipment is required. The tank size 10x54 furnished is designed to provide removal of chlorine and volatile organic chemical. ECOsmarte® has oversized your equipment for residential protection levels. You have protection against future chemicals in the municipal water supply.

Description and Operation

The Point-of-Entry consists of two major components:

1. **Electronic Ionization and Oxidation System including Electrode Chambers:** The Ionization System provides a low voltage electrical charge creating positively charged mineral ions, which significantly alters the physical characteristics of the water, minerals and chemicals in the water. Some dissolved substances become filterable, others are rendered neutral and will stay in solution providing benefits to health and superior taste. Your oxygen electrodes will oxidize mineral and bacteria, while raising the level of dissolved oxygen in the water.
2. **Self cleaning filter with:** Granular Activated Carbon (GAC) and sterile pea gravel, a special blend of insoluble natural minerals to filter and remove contaminants. The high quality filtration virtually provides, “Filtered Spring Water.” Healthy beneficial calcium remains in your water in soluble, bicarbonate form.

The Municipal System has Three Options:

1. Additional copper chamber for additional bacteria control (prefilter). (No removal claims made).
2. Additional Oxygen Chamber for MTBE removal (prefilter). (No removal claims made).
3. Hydroxite™ Mineral Media. If city source water is over .6ppm iron, ½ cube of Hydroxite™ is added before GAC. This will require changing the filter after five years instead of the usual seven or eight years.

All Point-of-Entry systems have been over-designed to allow for irregularities of water flow and contaminant levels. Each system has a recommended maximum level of water flow per minute and is related to the Maximum Contaminant Removal.

Granulated Activated Carbon (GAC)

Activated Carbon is very effective in removing these hazardous chemicals and is further supported with Hydroxite™. The Point-of-Entry is specially designed to permit a “normal” rate of water flow, to allow enough contact time for efficient removal of toxic contaminants. Your Ecosmarte system contains only the best GAC, as indicated by the NSF ratings on the media bag.

Point-of-Entry Installation Guide - Municipal Water

FLOW RATES

The Point-of-Entry System requires proper water service flow rates for satisfactory performance. Water flow rates of less than 10 GPM through the Point-of-Entry System will not allow proper backwash of the filter bed. A larger booster pump may be required and this is rare and rural in our experience.

If the media is not properly back-washed it will not break loose the contaminants. Without proper backwash the bed will slowly foul and make the media useless.

TANK SIZE

The recommended size value and tank will determine the satisfactory performance or failure of the system. Water volume or flow rates can require commercial equipment or a second filter tank. For customers that demand calcium removal, a water softener can be used along with the Point-of-Entry system, with the softener first in-line. If system is configured with a softener, be sure not to backwash filter and softener at the same time. We advise an under-sink reverse osmosis system (non-brine) for complete calcium and sodium removal in drinking water, without the need for the usual softener pretreatment..

INSPECTING AND HANDLING THE SYSTEM

Inspect the equipment for any visible shipping damage. If damaged, notify the transportation company and request a damage inspection. Damage to cartons should also be noted.

NOTES:

Handle the filter unit with care. Damage can result if dropped or if set on sharp, uneven projections on the floor. Do not turn the filter unit upside down.

If a severe loss in water pressure is observed when the filter unit is initially placed in service, the filter tank may have been laid on its side during transit. If this occurs, backwash the filter to "reclassify" the media. The sand or gravel will resettle to bottom after several back-washes.

PLANNING

1. All installation procedures MUST conform to local and state plumbing codes.
2. Remember that the FILTER INLET is marked

with arrows. This is connected to the main water supply (i.e., from the water pump or the water meter).

3. Before installation study the existing piping system and determine the type of fittings required. NOTE: If the plumbing system is used to ground the electric supply, continuity should be by installing ground swaps around any nonconductive plastic piping used in this installation, It's highly recommended to use an alternative grounding source other than the water supply.

FILTER LOCATION

1. Select the location of your filter tank with care. The installation of the Point-of-Entry should allow for easy access to the main water supply, to allow for treatment of all water at the location.
2. An accessible drain to backwash the system is required, since the tank will rinse itself at 1,500 gallons.
3. Do not install a filter in a location where freezing temperatures occur. Freezing may cause permanent damage to this type of equipment, and will void the factory warranty. .
4. Temperatures above 120°F may also damage filters and will void the factory warranty. Garage installation in desert climates is okay as long as direct sun light is avoided.
5. **IMPORTANT:** If installed within 20 running pipe feet of your water heater, a check valve to prevent suction of hot water back into your filter is required.

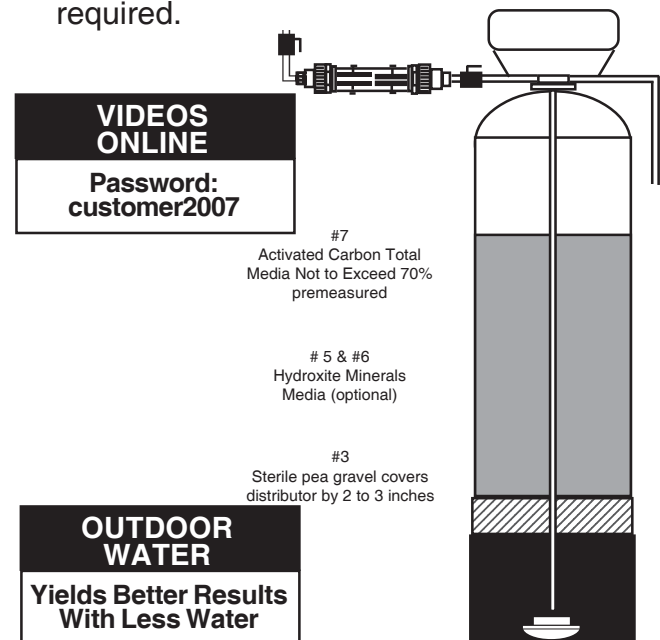


Figure 1: Free Space to allow for proper backwashing; Anchor 1/2" drain hose from water valve to drain. Use all of your premeasured ECOsmarte® packaging.

Point-of-Entry Installation Guide - Municipal Water



FILTER TANK INSTALLATION SET-UP

1. Position your filled tank where it will be permanently located.
2. Take measurements for plumbing configuration, and actual length of drain hose required.
3. The bypass valve can be separated from the valve body by removing the two screws and "u" clips, to allow the tank to be pulled out for easier installation.
4. Either PVC or copper pipe and fittings should be used and precut and fitted.
5. Unions and shut-offs should be considered to allow bypass and servicing of equipment.
6. Shut off main water supply and install. Replace grounding straps (jumper) where PVC has replaced copper.

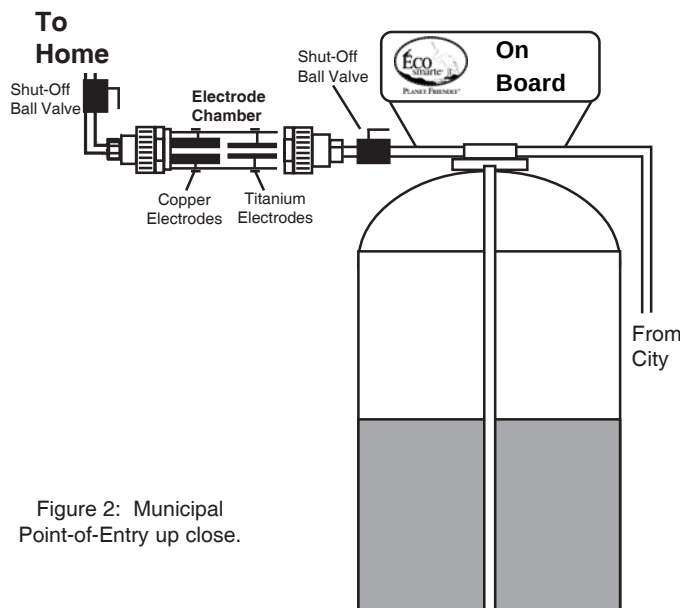


Figure 2: Municipal Point-of-Entry up close.

NEW CONSTRUCTION ONLY

Chlorinated municipal water should run through each faucet, hot and cold to accelerate removal of dust and oxidize solder residues. It is not unusual to see debris in your water for 7 - 21 days. Run faucet 5 seconds before drinking.

ELECTRONIC INSTALLATION

1. ECOsmarte® On Board Water Valve and ECOsmarte® Point-of-Entry control box may plug into the same outlet; they are both 110V.
2. The thin wire from the Point-of-Entry control box and the cable from the water valve relay must be connected to activate the system when water flows. The water valve is designed to regulate current from the control box to your electrodes.
3. The thick wire from the ECOsmarte® control box connect to the copper chamber. The voltage Power wire from the ECOsmarte® control box is a double wire and can be split and cut and fit as desired. The thinner, low-voltage wire connects to the water valve sensor. (Fig 1A, page 7)
4. There is a circle of red lights on the control box. The valve sensor activates the circling lights. Approximately every 2/3 minutes the lights will reverse direction. The change in direction indicates a polarity reversal that induces self cleaning of the electrodes. The lights must be on to indicate the system is operating. A light circles when a faucet is opened. A single light indicates power available to the system.

START-UP

1. Before allowing the water to flow through the Point-of-Entry system, the bypass valve on the back of the water valve should be in the "BY-PASS" position.
2. Turn main water supply on. Check fittings and installation for any leaks. Run water in each faucet, flush toilets to remove air from lines.
3. Turn off your hot water Inlet valve before beginning your first backwash.
4. Manually backwash the system by turning the timer head. **Do not open a faucet until the backwash is complete and runs clear water.** Using the faucet nearest the unit, open and run until clear.
5. Turn on a faucet nearest the Point-of-Entry system. This will allow water to flow through the Point-of-Entry system when the valve is in service. This will minimize air bubbles and activated carbon in the pipes.
6. From the nearest faucet, run the hot water until clear. If nearest faucet is "down-line" from water heater, drain hot water heater, and flush with hose level pressure.

Point-of-Entry Installation Guide - Municipal Water

FILTER TANK FILLING

For ease of handling and installation it is sometimes preferable to load and fill tanks at the location. These are procedures to follow:

1. Tape top of distributor tube, to prevent media from entering. If media gets into the distributor tube it will plug up the backwash valve causing poor or no water to flow.
2. Center distributor tube with a 1/4 to 1/2-inch extension above the top of the tank.
3. With optional fill funnel hold tube centered and install clean and washed coarse gravel. This should cover the base of the distributor tube by 2 to 3 inches minimum. (Pre-measured)
4. Check to make sure that the tape at the top of the distributor tube is not damaged.
5. Option: Additional coarse sand or Filter-ag. Up to an additional 2 gallons of coarse sand can be added to improve clarity and filtration for waters that have high turbidity caused by silt or other particles in the water. This is unique to certain areas North America
6. Option: Additional Hydroxite™ for iron and odor removal for rural well water installations if required, or in municipal water systems not meeting federal guidelines. Your City System without Hydroxite™ should remove 0.6 ppm iron at 7.0 pH or above, the EPA permitted maximum, without Hydroxite™.
7. Add activated carbon. Caution should be used as the fine dust easily gets all over the work area. Recommended: use mask when filling, your packaging has been pre-measured for volume.
8. After adding media clean top of the tanks and threads, making sure all particulate is wiped clear.
9. Check and remove tape and clean the top of the distributor tube.
10. Move tank close to the area of installation and fill with water. Should sit for twenty-four hours to let the media settle and escape. Air trapped in the filter can force small amounts of carbon into the water supply at start-up of system.

INSTALLATION OF CONTROL HEAD

1. After positioning tank, lubricate the distributor tube o-ring seal and tank o-ring seal. The 1" distributor tube should be cut flush with the top of each tank or 1/16" maximum above the tank.
2. Place the main control valve on tank. Note: Only use silicon lubricant
3. Keep timer head straight when screwing on tank, as this will pull the distributor tube through the o-ring.
4. Place ECOsmarte® On Board Control in by-pass position. Turn on main water supply. Open a cold water tap nearby and let run a few minutes or clear. Close water tap.
5. Place ECOsmarte® On Board Control in service position and let water flow into the tanks. When water flow stops, slowly open a cold water tap nearby and let run until air is purged from unit.
6. Plug unit into an electrical outlet and program the water valve.

The thicker of the two wires coming from the ECOsmarte® Controller will get connected to the Copper / Titanium Chamber installed in your water line. That wire will contain one Black, and one Red wire with female ends already attached. The RED and the BLACK wires go to the male connectors on either side of the chamber on the COPPER end. Included with the system, is a Grey Jumper Wire with female ends. One end of this Grey Jumper wire attaches to either side of the chamber on the Copper end. The other end of the Grey Jumper Wire, Jumpers up to connect to either side of the Titanium end of the chamber. Now, all FOUR electrode plates will receive power when water is turned on in the house, as activated by your water valve sensor.

OUTDOOR WATER

ECOsmarte will yield better results with less water used.

Filter tank life is not affected under ½ acre: irrigation, pop-up, mist or drip

WATER METER MAINTENANCE

CLEANING OR REPLACING VALVE TURBINE

Fig 1



Close up view of valve bypass, disassemble from valve body with Phillips screwdriver, sliding tank forward.

Fig 3



The turbine assembly and protective screen should be inspected and wiped clean after removing from the valve as pictured above.

Fig 2



With the tank slid forward at least 3", remove valve turbine assembly per Fig 3. Note: Bypass is hard plumbed.

Fig 4



Clean with white vinegar and moist rag. Replace by hand and reassemble per Fig 1, sliding tank back to the plumbed bypass.

DIAGNOSING A STUCK TURBINE

The ECOsmarte control box lights must circle when water is flowing and must stop circling when water is turned off. Occasionally particulate can impair or stick the turbine, causing the lights to circle constantly or not at all. Note: a leaky toilet can also cause the light problems.

Fleck SE (Simple Electronics) Controls

Simple Electronics from Fleck for ECOsmarte provide easy, step-by-step programming at the touch of a button.

The same SE control drives six different Fleck valves, saving you time in installation, service and training. Unlike other electronic valves, the SE control performs without switching out cams or fumbling with jumpers, pins and cryptic calculations.

A bright LED displays the time of day, soft water remaining and self diagnostic indicator so you're never left in the dark. Fleck valves with SE controls, simply the best solution for all of your residential water treatment applications.

Setup in Five Simple Steps

1. To set the **Time of Day** simply push the up  or down  buttons.
2. Get into the **Programming Mode** by pressing the up and down buttons   together for five seconds.
3. Now, set the **Capacity** by pushing the up  or down  buttons. To continue push the Extra Cycle button. 
4. Next set the **Regeneration Time** by pushing the up  or down  buttons. To continue, push the Extra Cycle button .
5. Finally, set the **Regeneration Day Override** by pushing the up  or down  buttons. To end the Programming Mode, push the Extra Cycle button .

Features and Benefits

- Bright red LED display
- True time of day in hours and minutes
- Volume of soft water remaining
- Regeneration Steps and Cycle Time remaining
- Service and Self Diagnostic Indicator
- Easy, friendly programming
- Quick and easy setup of Capacity, Regeneration Time, and Day Override
- Advanced programming options including up to six independently adjustable cycle times
- Program Memory stores timer settings without batteries
- Electronic step-by-step regeneration
- Regeneration Tonight and Regenerate Now option

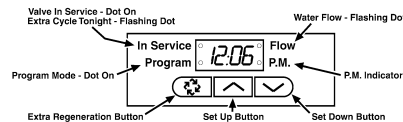
System Configurations

System Type 4	Single Unit Operation
Regeneration Types	Time Clock Delayed Meter Delayed Meter Immediate
Electrical Rating	24, 120 or 240 VAC (with appropriate transformer) 50/60 Hz
Operating Temperature Range	32° F - 120° F (0° C - 49° C)

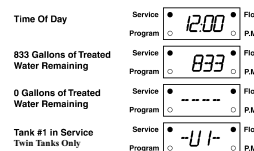
SE TIMER

Control Start-Up Procedures

Display



In normal operation the Time Of Day display alternates with Volume Remaining and Tank in Service displays (9000, 9100, 9500 SE Timer only). As treated water is used, the Volume Remaining display counts down (in gallons) from a maximum value to zero or (---). Once this occurs a regeneration cycle initiates immediately or delayed to the set Regeneration Time. Water flow through the valve is indicated by the flashing Flow Dot Indicator.



Set Time of Day



When the valve is In Service, push either the Set Up or Set Down button once to adjust the Time Of Day by one digit. Push and hold to adjust by several digits.

Start an Extra Regeneration Cycle



Push the Extra Regeneration button to start an extra regeneration tonight. Push and hold the Extra Regeneration button for 5 seconds to start an Extra Regeneration immediately.

Page 4

Printed in U.S.A.

SE TIMER

Control Start-Up Procedures (Cont'd.)

Set Control Programming

1. Push and hold both the Set Up and Set Down buttons for 5 seconds.



2. Set the Treated Water Capacity. Using the Set Up or Set Down buttons, set the amount of treated water to flow through the unit before a regeneration is required.

650 Gallons Capacity

Service 650 Flow

Program P.M.



ET028-0

4. Set the Regeneration Time. Use the Set Up or Set Down buttons to set the desired time of day for regeneration to occur.

2:00 A.M.

Service 2:00 Flow

Program P.M.



ET029-0

6. Set Regeneration Day Override. Use the Set Up or Set Down buttons to set the maximum number of days before a regeneration cycle must occur.

Regenerate Every

Service 7 Days Minimum

Program P.M.



ET030-0

*NOTE: If setting up the system for the first time, perform the following Fast Cycle Regeneration:

1. Push the Extra Regeneration button for 5 seconds to force an extra regeneration immediately.
2. Once the valve reaches Regen Step #1, let water run to drain for approximately 5 minutes.
3. Push the Extra Regeneration button once to advance valve to Regen Step #2.
4. Push the Extra Regeneration button once to advance valve to Regen Step #3 (if active).
5. Push the Extra Regeneration button once to advance valve to Regen Step #4 (if active).
6. Push the Extra Regeneration button once to advance valve to Regen Step #5 (if active).
7. Push the Extra Regeneration button once more to advance the valve back to Service.

SE TIMER

Control Start-Up Procedures (Cont'd.)

Immediate Regeneration Valves With Days Between Regeneration Override Set

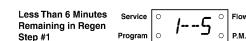
When the valve reaches its set Days Since Regeneration Override value, a regeneration cycle initiates immediately. This event occurs regardless of the Volume Remaining display having reached zero gallons.

Delayed Regeneration Valves With Days Between Regeneration Override Set

When the valve reaches its set Days Since Regeneration Override value a regeneration cycle initiates at the preset Regeneration Time. This event occurs regardless of the Volume Remaining display having reached zero gallons.

Control Operation During Regeneration

In Regeneration the control displays a special Regeneration display. In this display the control shows the current regeneration step number the valve is advancing to, or has reached, and the time remaining in that step. The step number that displays flashes until the valve completes driving to this regeneration step position. Once all regeneration steps are complete the valve returns to Service and resumes normal operation. For Example:



Pushing the Extra Cycle button during a regeneration cycle immediately advances the valve to the next cycle step position and resumes normal step timing.

Control Operation During Programming

The control only enters the Program Mode with the valve In Service. While in the Program Mode the control continues to operate normally monitoring water usage and keeping all displays up to date. Control programming is stored in memory permanently. There is no need for battery backup power.

Control Operation During A Power Failure

During a power failure all control displays and programming are stored for use upon power re-application. The control retains these values for years, if necessary, without loss. The control is fully inoperative and any calls for regeneration are delayed. The control, upon power re-application, resumes normal operation from the point that it was interrupted. An indication that a power outage has occurred is an inaccurate Time Of Day display.



Fig 1
Time and Day. Ecosmarte® Control Valve is displaying the time of day.



Fig 2.
 Ecosmarte® Control Valve is displaying the 2000 gallon backwash interval. (Low volume user). Typical settings for granular activated carbon tanks are 1000 gallons for low volume users, 2000 gallons for average and 3000 gallons per months for large families or when outdoor water is used. (On well water GAC valves use pins 6 and 12)

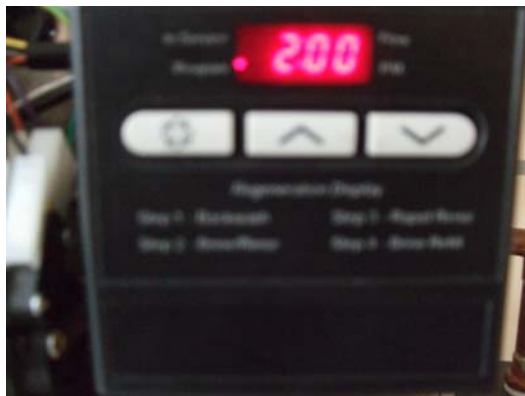


Fig 3
 Ecosmarte® Control Valve is displaying the time set for backwash (02:00AM). Backwash starts automatically when the preset usage has been reached, at 2:00AM when total gallons have been used that day.



Fig 4
 If 2000 gallon backwash isn't reached in certain amount of time, the system will backwash after set amount of days (14 days in Fig 4) regardless of remaining water.



Fig 5
Remaining gallons to backwash. Ecosmarte® Control Valve is displaying the remaining gallons to backwash, as indicated by the red LED display.



PLANET FRIENDLY®
The Best Non-Salt, Non-Chemical
Water Technology

(Internal wiring of ECOsmarte Box, Valve, and Turbine available at www.ecosmarte.com/online-support.htm)

Online Support Password: customer2007

VIDEOS ONLINE
TOLL-FREE SUPPORT
1-800-466-7946

©Copyright 2003, 2004, 2007 ECOsmarte Planet Friendly, Inc. 1600 East 78th Street, Minneapolis, MN 55423

Point-of-Entry Installation Guide - Municipal Water

PLUMBING SYSTEM CLEANUP

The following procedures are guidelines only. Under no circumstances should any procedure outlined below be followed contrary to the appliance manufacturer's instructions.

SOFTENER

In some cases the water softeners are to remove iron from the water. Softeners, with the addition of chlorine will remove some ferrous iron until the resin bed becomes fouled to the extent that it will lose both hardness removal capacity and the limited capacity for iron removal. This requires resin bed replacement. Use of a softener with the Point-of-Entry will cause both systems to operate at less than optimum. (99% of ECOsmarte® customers discontinue the use of brine-based systems). Most of these put them on indoor hot water lines when calcium levels exceed 400ppm and these customers are the exception.

HOT WATER HEATER

If the hot water heater has been exposed to both iron and hardness for a long period of time, replacement of the heater tank may be the only practical solution to prevent further stains originating from this source. After completing the installation of the Point-of-Entry System, clean the hot water heater by opening the furthest hot water faucet from the heater run the water approximately thirty minutes to purge water heater.

If after approximately thirty minutes flushing, water does not clear, terminate flushing operation. The water heater will need flushing with approximately 1/2 gallon of household bleach. Allow bleach to stand in tank for twenty to thirty minutes. Flush tank again until water is clear.

NOTE: If water does not clear in approximately ten days water heater probably should be replaced.

IMPORTANT: Use medium setting on water heater when available.

DISHWASHER

The dishwasher will normally clean itself within a few days. Consult owner's handbook and follow manufacturer's instructions. After installation of Point-of-Entry, use vinegar as your rinse agent, medium heat or air-dry instead of high heat. The high heat setting is your largest residential amperage draw and is not cost effective or energy efficient, similar to the high settings on most water heaters. Confirm your temperature on low or medium heat, run two cups white vinegar with no dishes to purge. Spotting of dishes can occur above 400 ppm calcium and can require a softener on the hot water line. Salt use will be down 80% or more.

TOILET FLUSH TANKS

Prior to installation pour 4 to 6 ounces of toilet bowl cleaner into flush tanks and bowls and let stand. When installation is completed, flush toilets several times with iron-free water. If iron deposits or stains remain, repeat procedure until clear. The system will prevent recurrence.

IRON

Iron concentration as low as 0.3 ppm will cause staining. Your Point-of-Entry System is capable of filtering out the three main types of iron found in water supplies: soluble iron (also known as "clearwater" or ferrous iron), precipitated iron (also known as "red water" or ferric iron), and bacterial iron (also known as iron bacteria). Special care must be taken when we select a filter model if your water has a combination of high iron, very low pH and/or manganese levels above 0.2 ppm. ECOsmarte Well Water systems address these conditions, and it is unlikely this contaminate is in your city water.

MANGANESE

Manganese can cause more staining problems than iron and removal is difficult except for your Point-of-Entry System. As little as 0.05 ppm of manganese can produce brown or black staining and can be easily handled with standard equipment.

TANNINS (HUMMIC ACID)

Tannins (a hummic acid) are the result of various forms of decaying vegetation. Tannins can cause in the operation of the Point-of-Entry filter by a sticky coating on the media, thus rendering it incapable of filtering. Generally with tannin concentrations of 0.5 ppm or less, frequent backwashing will prevent the sticky coating from forming. Your Point-of-Entry representative before installing the system will need specific information; the type and level of tannins in the water and other contaminants that may need to be addressed. Cleaning of electrodes is required every three months when tannins are present. Tannins are rare in municipal water.

HYDROGEN SULFIDE (H₂S)

Hydrogen Sulfide (often referred to as "sulfur"), is easily detectable by its objectionable "rotten egg" odor. Sulfur corrodes iron, brass, copper, and silver. The Point-of-Entry is capable of removing sulfur in concentrations of up to 2 or 3 ppm, and sometimes as high as 5 ppm. Whenever hydrogen sulfide is present, backwashing must be performed at more frequent intervals, and the pumping system must include a retention tank to allow time for the oxygen to react with the hydrogen sulfide. Some cities deliver this odor only during certain seasons. You may backwash every day until source water clears. Confirm your odors are not in hot lines only, the water heater may be the source.

Point-of-Entry Installation Guide - Municipal Water

Call dealer for procedures.

PH

Water with a pH of 7.0 is neutral. pH below 7.0 is acidic. Acidic water (pH less than 7.0) is corrosive to pipes, appliances, etc. A pH of 7.0 or higher facilitates iron removal, which is why the filter is designed to increase the pH slightly (.1 to .2).

TROUBLESHOOTING GUIDE

Your Point-of-Entry will give you years and years of quality water and trouble-free service. The electrodes and filter material need to be replaced about every 5 to 8 years, depending on your Point-of-Entry model. The chart below will help you know when this should be done. In addition, the chart will help you handle other infrequent problems.

Important: If you think you have a problem, please check these items first before calling for service.

- Is your Point-of-Entry plugged in?
- Has water been flowing through the system and not bypassing it? Check bypass valves.
- Is backwash drain line crimped or plugged in?
- Has system been regularly backwashing? Check the backwash pins.
- Is "time of day" correct on backwash timer?

1. No Lights on Control Box:

Possible Causes:

- System is unplugged, or turned off.
- Well water system: light only turns on when pump runs
- Electrodes need replacement.
- Fuse blown or box defective due to power surge.
- Valve relay wire to control box is wrong

What to Do:

- Plug 'it back in, turn switch to "on" position.
- Make' sure wires are connected.
- See if a light turns on when water is turned on.
- Confirm outlet is good.
- Call for replacements.
- Change ½ to 1 amp fuse on controlbox

2. Lights Circle Constantly:

Possible Causes:

- Valve sensor is stuck, or dirty.
- You have a water leak, usually in a toilet or sprinkler line.

What to Do:

- Disconnect copper electrode lead wires until fixed to avoid build-up of copper. Your titanium electrode will be free, additional dissolved oxygen in the water will do no harm.

3. Loss of Water Pressure or Flow:

Possible Causes:

- City water system lost pressure.
- Pump out (for well water).
- Bypass valve partially closed; home valves not fully open. Open all valves completely, then turn back one-quarter turn to prevent future sticking.
- Filter tank is fouled because backwashing hasn't occurred, drain line is plugged or pump output is too low.

What To Do:

- Check to see if city is problem.
- Check pump and pressure tank.
- Check valve positions on unit and in home.
- Booster pump or larger pip'rag needed if regular occurrences. May need larger Point-of-Entry tank.
- Make sure tank has been backwashing.
- Manually backwash system, using your valve settings.

4. Water is coming out the backwash drain at the wrong time:

Possible Causes:

- Power outage has reset clock on automatic system.
- Installer plugged system into outlet that only has intermittent power.

What to do:

- Reset to proper time.

5. Black Specks Seen in Water, Second Week

Possible Causes:

- System has not been backwashed adequately.
- Water going through Point-of-Entry tank in the wrong direction.

What to do: (See Start-up)

- Run system through manual backwash. And run cold water from faucet close to Point-of-Entry until clear.
- Call installer to correct.
- Drain and flush water heater.

6. White Powder On Glassware In Dishwasher Or On Shower Glass Doors.

Possible Causes:

- This problem is old scale or calcium in water.
- Calcium is over 400ppm.

What to Do:

- Try using vinegar as dishwasher rinsing agent. Try other types of soaps if problem lasts more than a month or so.
- Non-chlorine cleaners such as Lime-Away will produce best results.

USE LOW HEAT OR AIR DRY ON DISHWASHER

Point-of-Entry Installation Guide - Municipal Water

7. Chunks Of White Scale In Faucet Aerators.

Possible Causes:

- System installed in houses with existing scale.

What To Do:

- This problem shows Point-of-Entry is working to eliminate scale. Take off aerators as needed to clear.

8. Soap In Clothes Or Residue In Hair.

Possible Causes:

- Too much soap being used.

What To Do:

- Reduce soap used

9. Orange-Brown Stain In Laundered Clothes or Rotten Egg Odor Is Noticed:

Possible Causes:

- Water is bypassing your tank,
- Electrodes not getting power.
- Tank is fouled and is not backwashing enough, improper backwashing.
- Water source quality has changed.
- Well system: Pressure tank undersized.

What To Do:

- Check valve positions to make sure water is flowing through tank.
- Check to see that system has power. Check drain line for plugs. Run system through a manual backwash cycle. Good flow to drain? If not, open tank and clean head.
- Contact us to see if you may need a larger system that matches your increased water needs.
- Call us to retest water. New media or bigger tank needed.
- Call us to make sure system is working and is the proper size for your needs.

10. Fishy Smells, Chlorine Or Other Odor

Possible Causes:

- Water is bypassing your tank.
- You are using water at a faster rate than capacity especially if irrigation has changed.

What To Do:

- Check valve positions to make sure water is flowing through tank.
- Contact us to see if you need larger tank.

11. Green Water build-up in Toilet or Bath:

Possible Causes:

- Water valve relay is stuck, putting constant power to the copper electrode.
- Power is constant to electrodes due to box failure.

- pH of water is below 6.4 (well water).

- A toilet or sprinkler line is leaking

What To Do:

- Clean and free valve sensor.
- Call dealer for replacement box.
- Consider pH-up tank.

Contact us if you discover other problems that we haven't covered here. Most problems tend to occur right after installation. Once solved, you can expect maintenance free service for a long time.

RESIDENTIAL PREVENTATIVE MAINTENANCE SCHEDULE

1. Electrode cleaning: **once per year (every 6-months in AZ, TX, and bad water areas).**
2. Electrode replacement: every 5-8 years.
3. Filter replacement (threaded tank only): every 5-8 yrs.

You will need to replace the copper electrodes only; the titanium should never corrode. However both electrodes should be cleaned annually to insure system performance.

The electrodes can be cleaned periodically by removing the entire chamber and Soaking it in a water/muriatic acid solution (5:1). To replace the copper electrodes, see the Copper Electrode

KEEP INSTRUCTIONS AND TROUBLE-SHOOTING MANUAL IN A SAFE PLACE FOR FUTURE REFERENCE.



PLANET FRIENDLY®

SIX DAYS PER WEEK TOLL-FREE

1-800-466-7946

<http://www.ecosmarte.com>

OUR PRODUCT GROUP

- ☐ 100% Chemical-Free Spa System
- ☐ 100% Chlorine-Free Pool System
- ☐ Well Water Point-of-Entry
- ☐ Municipal Point-of-Entry
- ☐ ECOsmarte® Light Commercial 1½" Systems (Homes 4,000 to 8,000 Sq. Ft.)

FREE ELECTRODE OFFER:

There are two ways in which ECOsmarte® will send you a free set of replacement copper electrodes for your city water system. Take advantage of one of these, and your water treatment system will operate 10 to 15 years without needing to re-order copper electrodes.

- 1) Refer one customer, who purchases an ECOsmarte® Point-Of-Entry water treatment system (municipal or well) and you qualify for a free set of replacement copper electrodes.

OR

- 2) Send us a two or three paragraph letter telling us what you like about your water or the changes you noticed in your home water when using the ECOsmarte® Point-Of-Entry water treatment system. Send this letter in with your warranty card below, and we will post it shortly thereafter on our "testimonials" section of our web page, and you will qualify for a free set of replacement copper electrodes.

The Friendliest Products on the Planet



ECOsmarte® Point-of-Entry Warranty Registration

Date Received: _____

Name: _____

Street Address: _____

City: _____

State / Zip: _____

Phone Number: _____

Return this card within 60 days to register your ECOsmarte® Point-of-Entry System. Timely registration will ensure a prompt warranty response in the event a problem occurs. Carefully read the Warranty descriptions on this document. The same warranty information is contained within your Owner's Manual.

FREE ELECTRODE KIT OFFER! To receive your free copper electrode kit from the ECOsmarte factory, just send this registration card along with a paragraph describing why you enjoy your ECOsmarte® Water.

MAIL TO: ECOsmarte Planet Friendly, Inc.
1600 East 78th Street
Richfield, MN 55423

**Product
Purchased:**

Municipal
System

Well Water
System

Commercial
Point-of-Entry
System

☐☐☐

LIMITED FIVE-YEAR WARRANTY
ECOsmarte® warrants to the original owner that the entire water system (including tanks, electronics, flow switch and media) is free from defect in material and workmanship under normal use, service and conditions. All parts are F.O.B. factory.

The labor charges incidental to the repair and/or replacement of parts, tanks, or water conditioning units other than factory repairs is expressly **excluded** from this warranty. The filter media is also expressly **excluded** from this warranty **IF** the electrode chamber(s) have not been maintained according to manufacturer's requirements. See Warranty Repair section below for repair procedures.

LIMITED LIFETIME WARRANTY
ECOsmarte® warrants to the original owner that the pressure vessel (i.e., tanks only) is free from defect in material and workmanship under normal use, service and conditions.

To the original owner at the original installation site, the pressure vessel is warranted not to leak, burst, or fail in any way, subject to the following conditions:

- (1) Installation is made according to manufacturer's recommendations and local codes, and
- (2) Water pressure does not exceed 100 PSI or water temperature not higher than 100° F, and
- (3) That failure has not resulted from misuse, alteration, freezing, or act of God, and
- (4) A bypass valve has been installed (which comes with the water valve).

If failure should occur, the manufacturer will replace (labor and freight excluded) or at its option repair any part or parts that to its satisfaction proves defective. In no event shall manufacturer's liability exceed the original purchase price.

All warranty coverage terminates if you sell or otherwise transfer the equipment.

WARRANTY REPAIR PROCEDURE
In order to be eligible for service under this warranty you **MUST** return the warranty registration card attached below within 60 days of purchasing the ECOsmarte product. If something goes wrong with your ECOsmarte product, call 1(800)466-7946 with a brief description of the problem or write:

ECOsmarte Planet Friendly, Inc.
1600 East 78th St.
Richfield, MN 55423

We will problem solve your system and contact you within 72 hours to give the results of our analysis and an estimate of the labor charges required to fix the System. If you authorize repairs, we will either arrange for on-site service or instruct you to send the product to the factory. You must pay any labor charges upon receipt of the repaired System. If you inform us that you wish us to provide necessary parts to you but you wish to have repairs performed elsewhere, we send replacement parts to you within 72 hours. There is no charge for problem solving.

NO OTHER WARRANTY EXPRESSED OR IMPLIED, INCLUDING MERCHANTABILITY, APPLIES to the equipment, nor is any person or company authorized to assume any other warranty. ECOsmarte Planet Friendly, Inc., does not assume any responsibility for any consequential damages occasioned by the equipment, or inconvenience or interruption in operation.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Please register your warranty with the form included in this manual.



PLANET FRIENDLY®

**VIDEOS ONLINE
FOR MOST TOPICS**

**Valve Programming
Filter Replacement**

ECOsmarte® Point-of-Entry Municipal System Pre-Install Checklist

Your Point-of-Entry Municipal System will require the following material and tools for proper installation:

Tools & Working Items

- ☐ Only PVC Cement & Cleaner (No CPVC or ABS)
- ☐ 2" Pipe Wrench & 18" Water Pump Pliers
- ☐ Pipe Cutter (Copper) or Hacksaw & Sandpaper (Cleaning end of pipe)
- ☐ Propane Torch, Flux, Lead-free Solder for copper required plumbing
- ☐ Screwdriver (Med. Flat), Needle Nose Pliers, Funnel, & consumables (screws, teflon tape, pipe straps)
- ☐ Access to Floor Drain or Laundry Tub Drain, Backwash Drain Hose (5/8" OD, 1/2" ID), Measure distance from tank to drain, (3/8" ID) Hose Clamp for valve, mounting clamp for drain
- ☐ 110V Duplex Outlet within 4 feet of electronics and 6 feet from filter tank
- ☐ 10' Roll Plastic Plumbers Tape
- ☐ Two 3/4", 1" or 1 1/4" PVC Bushings to reduce ECOsmarte® electrode chamber at unions (1 1/2") to your pipesize
- ☐ Check valve (if your Point-Of-Entry installs within 20 pipefeet of water heater)
- ☐ Three (3) Ball Valves or Shut-Offs to isolate chamber for cleaning.

You should have received the following:

- ☐ 1 NSF rated ECOsmarte® by Fleck filter control valve (to install on filter w/ clip on upper basket), prewired to ECOsmarte box
- ☐ 1 NSF Filter Media Tank (10x24 1"; 12x62 1 1/2" Light Commercial)
- ☐ 1 Distributor Tube (Pre-installed in filter, with lower basket installed)
- ☐ 1 NSF Sterile Pea Rock (measured)
- ☐ 1 Bypass, 1" FPT with drain control, connectors for valve itself.
- ☐ 1 Copper / Titanium Electrode Chamber, 1 1/2" Hub with NSF rated slip union.
- ☐ Turbulator installed in 1", separate w/ 1 1/2" Light Commercial
- ☐ 1 ECOsmarte™ Point-of-Entry Electronics System
- ☐ 1 Warranty Card with Electrode Referral Offer within this document
- ☐ 1 Installation / Operating Guide (this document)

Optional Items

- ☐ ECOsmarte® Planet Friendly® Hydroxite™ (if municipal iron level is above 0.6 ppm)
- ☐ ECOsmarte® MTBE Double Oxy Chamber Option or add Cu Bacteria Control Chamber



Pic. 1

ECOsmarte
Control Box



Pic. 2

ECOsmarte
Valve



Pic. 3

ECOsmarte
Valve
Bypass



Pic. 4

ECOsmarte
Cu/Ti
Chamber



Pic. 5

Flexible
Backwash
Line



Pic. 6

C Clamp



**Glass
Pack®**

PLANET FRIENDLY®

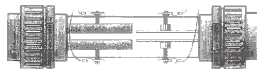
100% CHEMICAL-FREE SPA OR WATERFALL SYSTEM



1-800-ION SWIM

Priced from
\$1,295

Enjoy the same premium water in your spa or **waterfall** that you have in your entire house. The **ECOsarte Spa** and **Waterfall System** comes configured to your needs. We offer products to run crystal clear, chemical-free water, a dual electrode, copper-titanium system. Even large, heavily used or outdoor spas (350 - 10,000 gallons) or ponds with fish will enjoy clear water without chemicals. You will find the dual electrode chamber is simple to install and it comes with a 60-day, money-back guarantee. Your spa will not require sanitation chemicals again, and you



Turbo: Dual Electrode 1 1/2" (Split Chambers available) at additional cost

will go right from the water to your pajamas. Birds will visit you pond or waterfall. Copper ions destroy bacteria and algae while, for large spas the titanium oxidizes inert organics, and eliminates ammonia in fishponds.

TESTIMONIALS AT
www.ecosmarte.com

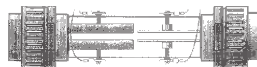
100% CHLORINE-FREE POOL SYSTEM



1-800-ION SWIM

Priced from
\$1,995

The **ECOsarte 100% Chlorine-Free Pool System** offers the swimming pool owner something never before available: simple pool maintenance combined with the finest swimming water in the pool industry. The standard **Above-Ground Pool System** (up to 10,000 gallons) generates copper ions which destroy bacteria and algae. The titanium electrode oxidizes inert organic matter; a non-chemical, oxygen shock is delivered to your pool each time the pump is run. The **Turbo Pool System** (10,001 to 50,000 gallons) reduces your electric bill as your pump will only need to be run 4 to 8 hours per day. In addition it comes with a 60-day, money-back guarantee, and a 5-year factory



Turbo: Dual Electrode 1 1/2" (Split Chambers available) at additional cost

warranty. Installation is simple. You cut out 11" of your above ground PVC pipe and insert the chamber with our quick-change Unions. You will use your pool more, and wish you had purchased the **100% Chlorine-Free Pool System** long ago!

(Automated Systems Available For up to 750,000 gallons)

1-800-ION SWIM

The Best Non-Salt, Non-Chemical Water Technology

or look us up on the web at
www.ecosmarte.com

ECOsmarte® Point-of-Entry Factory Warranties

LIMITED FIVE-YEAR WARRANTY

ECOsmarte® warrants to the original owner that the entire water system (including tanks, electronics, water valve and media) is free from defect in material and workmanship under normal use, service and conditions. All parts are F.O.B. factory.

The labor charges incidental to the repair and/or replacement of parts, tanks, or water conditioning units other than factory repairs is expressly **excluded** from this warranty. The filter media is also expressly **excluded** from this warranty *IF the electrode chamber(s) have not been maintained, or the Wellmate retention tank has not been "Blown Down" according to manufacturer's requirements. See Warranty Repair section below for repair procedures.*

LIMITED LIFETIME WARRANTY

ECOsmarte® warrants to the original owner that the pressure vessel (i.e., tanks only) is free from defect in material and workmanship under normal use, service and conditions.

To the original owner at the original installation site, the pressure vessel is warranted not to leak, burst, or fail in any way, subject to the following conditions:

- (1) Installation is made according to manufacturer's recommendations and local codes, and
- (2) Water pressure does not exceed 100 PSI or water temperature not higher than 100° F, and
- (3) That failure has not resulted from misuse, alteration, freezing, or act of God, and
- (4) A bypass valve has been installed (which comes with the water valve).

If failure should occur, the manufacturer will replace (labor and freight excluded) or at its option repair any part or parts that to its satisfaction proves defective. In no event shall manufacturer's liability exceed the original purchase price.

All warranty coverage terminates if you sell or otherwise transfer the equipment.

WARRANTY REPAIR PROCEDURE

In order to be eligible for service under this warranty you **MUST** return the warranty registration card attached below within 60 days of purchasing the ECOsmarte® product. If something goes wrong with your ECOsmarte® product, call 1(800)466-7946 with a brief description of the problem or write:

**ECOsmarte Planet Friendly, Inc.
1600 East 78th St.
Richfield, MN 55423**

We will problem solve your system and contact you within 72 hours to give the results of our analysis and an estimate of the labor charges required to fix the System. If you authorize repairs, we will either arrange for on-site service or instruct you to send the product to the factory. You must pay any labor charges upon receipt of the repaired System. If you inform us that you wish us to provide necessary parts to you but you wish to have repairs performed elsewhere, we send replacement parts to you within 72 hours. There is no charge for problem solving. A minimum charge of \$25 is assessed to any electronic box sent to the factory and no problem is identified (The box has a 99% quality chart).

***NO OTHER WARRANTY
EXPRESSED OR IMPLIED,
INCLUDING MERCHANTABILITY,
APPLIES*** to the equipment, nor is any

person or company authorized to assume any other warranty. ECOsmarte Planet Friendly, Inc., does not assume any responsibility for any consequential damages occasioned by the equipment, or inconvenience or interruption in operation. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Please register your warranty with the form included in this manual.



PLANET FRIENDLY®

ECOSmarte® Point-of-Entry Post-Installation Checklist

**VIDEOS ONLINE
FOR MAINTENANCE**

ONLINE SUPPORT FRAME

**Password:
customer2007**

- ☐ 1) Has unit(s) backwash run clean?
- ☐ 2) Has faucet nearest the filters run clean?
- ☐ 3) Have other faucets been opened and has trapped air or carbon passed clear?
- ☐ 4) Do control box lights circle when water flows? Do the lights stop circling when the water stops flowing?
- ☐ 5) Does D/C voltage exist between 5V and 19V on both copper and titanium electrodes?
- ☐ 6) Does polarity reverse on voltage (indicated by lights reversing)?
- ☐ 7) Does voltage stop when lights stop circling on the Control Box?
- ☐ 8) Does copper ppm measure between 0.1 and 0.5 ppm?
- ☐ 9) Has backwash line been properly secured and vented per code?

TIPS FOR EASIEST INSTALL & BEST PERFORMANCE

- A) Soak Granular Activated Carbon and/or Hydroxite filters 24 hours before putting in final service. This can be done before tank is brought to site, or the night before installation. Unit can be left in bypass the first night after installation.
- B) Water with Total Dissolved Solids **BELOW** 500 ppm should operate in "**High**" mode; water with Total Dissolved Solids **ABOVE** 500 ppm should operate in "**Low**" mode.
- C) First Electrode Cleaning Schedule: **Well Water Systems - 60 days; Municipal Water Systems - visually inspected at 180 days** and cleaned at least annually. Cleaning should be done using three-parts water and one-part muriatic acid (3:1) in a 5-gallon bucket for 15 minutes, or using cleaning caps available from you dealer.

www.ecosmarte.com