

Owner's Manual and Installation Guide



The proven leader in household leak protection: **WaterCop®** is there when you're not.

Table of Contents

System Description	2
System Components	2
General Safety Information	2
How the System Works	4
Selection of WaterCop® Installation Sites	4
Placement of Wireless Sensors	5
Leak Sensor Battery Life	5
Operating the WaterCop® Classic System	6
WaterCop® Specifications	6
FCC Information	6
Additional Components Available for Your WaterCop® Classic System	
Single and Dual Probe WaterCop® Leak Sensors	7
Low Temperature Sensor	7
Water Control Wall Switch	7
AC Power Adapter	7
WaterCop®/Wall Switch Interconnect Cable	7
Installation Guide	
Pre-Installation Testing of WaterCop®	
Manually Test the Valve	8
Manually Test the Leak Sensors	8
Troubleshooting	8
Installation of Leak Sensor	9
Installation Procedure	
Review Location and Type of Main Supply Line	9
Additional Part Requirements	
Compression Fittings	10
Solder Fittings	10
Electrical Connection	10
Warnings and Precautions	11
Changing Digital Codes	
Changing the Receiver Code	11
Changing the Transmitter Code	11
WaterCop® Interface Connections	12
Emergency Procedures	12

System Description

The WaterCop® Classic System is designed to detect leaks in your plumbing system at predetermined locations, and automatically shut off the water supply to help effectively reduce the chance of major water damage associated with a leak.

System Components

The WaterCop® Classic System is composed of two basic parts:

- A motorized ball valve that houses a wireless radio receiver which automatically turns off your water supply when any leak sensor detects water or low temperature sensor detects potential freezing.
- Leak sensors, which detect water from a leak or overflow, house a wireless radio transmitter that sends a signal to the WaterCop® to turn off your water supply.



CAUTION!

It is strongly recommended that eye protection be worn while servicing the system. Failure to do so could result in personal injury. DO NOT USE EXTENSION CORDS. KEEP FINGERS AND OBJECTS AWAY FROM THE VALVE.

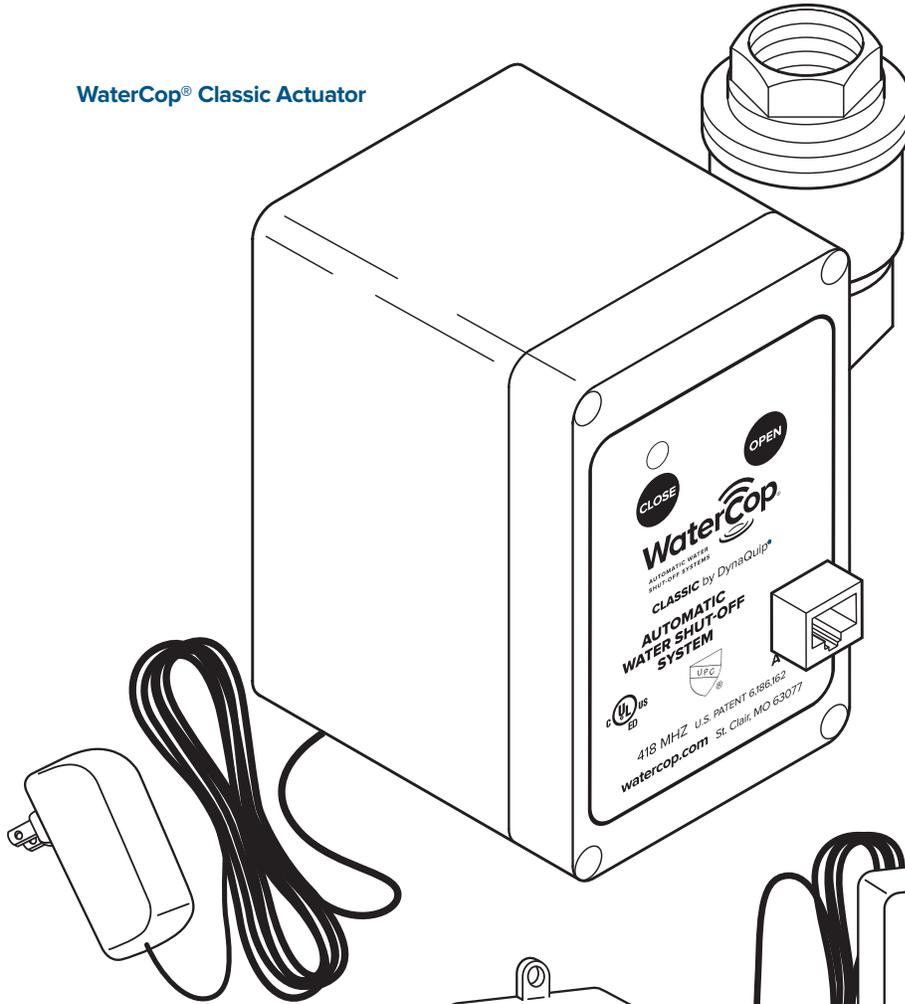


GENERAL SAFETY INFORMATION

Do not apply electrical power to the unit unless the unit is fully assembled. Failure to do so could result in personal injury and/or damage to the unit. Disconnect power source before working on or servicing the unit. Failure to do so could result in personal injury.

WaterCop® Classic System

WaterCop® Classic Actuator



Brass, Lead-Free Valve
(sold separately)

Range
Enhancing
Repeater



Transmitter



Probe

How the System Works

Leak sensors constantly monitor their selected areas for accumulating moisture. When a leak is detected, a sensor will send a radio frequency signal to the WaterCop® unit instructing it to shut off the water supply to the home. The WaterCop® valve will remain closed until it is manually reset.

The leak sensors are a battery powered device enabling it to be located anywhere a leak is likely to occur, or where water might cause damage.

The WaterCop® requires household electrical power (120 VAC outlet) and will not operate during a power outage unless receiving auxiliary power from a backup device such as an uninterruptible power supply unit (UPS). Additionally, the use of a certified surge protection device is highly recommended.



Selection of WaterCop® Installation Sites

The WaterCop® valve should be installed in the main water line just downstream from the main shut-off valve in your home. The **front control panel** of the WaterCop® should be easily visible in order to see what position the valve is in (open/closed). It should also be easily accessible for resetting after a leak has been detected and the water supply has been shut off. While the WaterCop® is completely supported by the piping in your plumbing system when it is installed, placement of the valve should ensure that the housing is protected from use as a step or from other excessive loads.

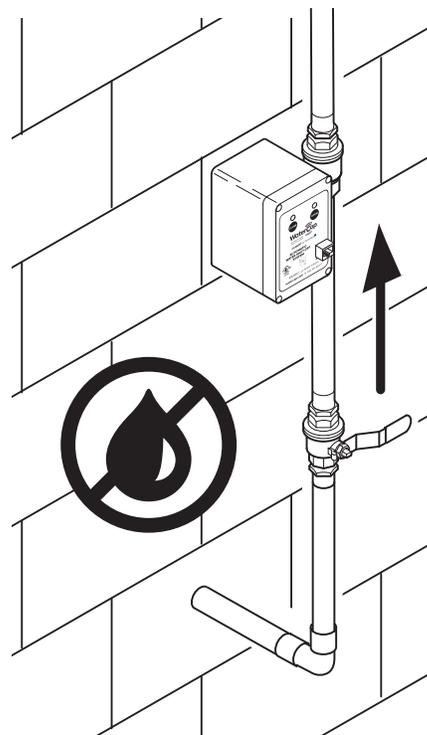
The WaterCop® requires household electrical power, and the provided power adapter must be plugged into a 120 VAC power source. Do not use an extension cord. As with all sensitive electric equipment, the use of surge protection is highly recommended.

The shut-off valve must be installed indoors:

- In the main water line;
- In place of or just downstream from the main water shut-off valve;
- In a dry location;
- Where it is accessible for checking and resetting the valve and for resetting the radio receiver code, if necessary;
- Where the case is protected from use as a step or from other excessive loads.

Local electrical and plumbing codes should be consulted to ensure that the installation is in complete compliance. (See Installation section for details.)

Notice: WaterCop® should be installed downstream of existing shut-off valves and pressure reducers. Install 18" downstream from existing indoor water meters to allow for future meter maintenance.



Placement of Wireless Sensors

Each WaterCop® Classic System can support an unlimited number of wireless leak sensors. Additional sensors may be added at any time. A sensor consists of a transmitter (a rectangular box) and a sensor probe (a small disc at the end of the wire, with two short gold prongs protruding from one side). Leak sensors should be placed in locations where leaks are most likely to occur.

Suggested Locations

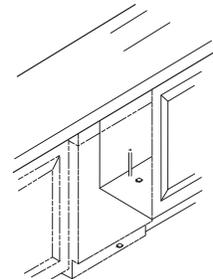
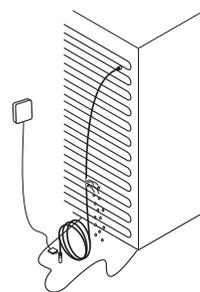
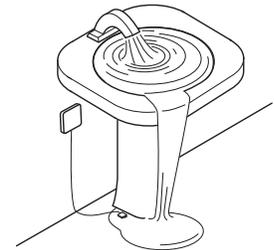
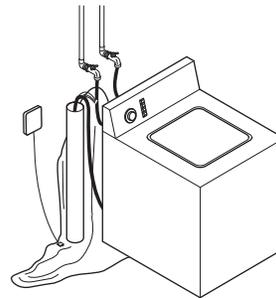
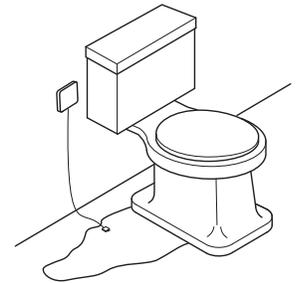
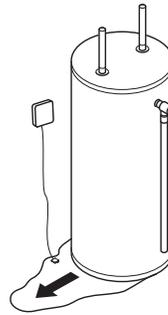
- Washing Machines
- Dishwashers
- Kitchen Sinks
- Bathroom Sinks
- Pipes that are prone to freezing (freeze sensors are also available)
- Toilets
- Ice Makers/Refrigerators
- Automatic Humidifiers
- Water Heaters

The transmitter in the leak sensors and the receiver in the WaterCop® communicate by radio frequency. The smaller the distance between them, the stronger the signal will be. The maximum transmission distance is somewhat dependent upon the building layout and type of construction, but will be in the 150'-200' range. The transmitter (attached to the sensor) must be kept dry. It is NOT splash proof. Sensors should never be placed outdoors. The sensor probe detects the water from a leak and is completely waterproof.

Sensor probes should be placed on the floor or in areas where water would tend to accumulate rapidly in common leak or overflow situations.

Make sure that any water from a leak will drain toward the sensor probe, not away from it. Avoid high traffic areas where the cord or sensor could be stepped on or kicked and where children or pets may disturb it.

The sensor probe should be placed FLAT on the floor so water can be detected as soon as it begins to accumulate. The sensor probe should be secured to the floor. Do not use hook and loop fasteners to secure sensor to floor as this will raise the probe too high above the floor. To avoid damage to transmitters and to provide for the strongest signal possible, the transmitter portion of the leak sensor should be mounted in a convenient location (on the wall, in a cabinet, closet, etc.) two to three feet above the floor. **(See Installation section for details on sensor installation.)**



Leak Sensor Battery Life

Fresh, high quality AA alkaline batteries are recommended. Assuming the sensor has not detected and transmitted a leak condition (standby mode); high quality AA alkaline batteries should last between three to five years.

Sensors will sound an audible “chirp” sound when batteries are low. Replace batteries when low or during periodic maintenance to ensure proper power and function. Re-test each unit in its regular location (see Installation Manual).

Operating the WaterCop® Classic System

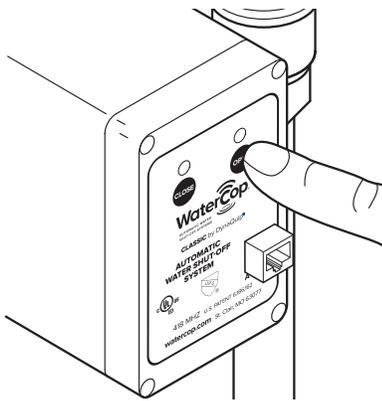
The normal position of the valve is open to allow full flow throughout the plumbing system. WaterCop® is a full port ball valve which does not restrict the flow capacity of your plumbing system. The indicator lights on the face of the WaterCop® will show the position of the valve.

If the valve is in the closed position (the red light will be lit), press **OPEN** and the valve will move to the open position (green indicator will light).

When water comes in direct contact with a leak sensor, an RF (radio frequency) signal is transmitted to the WaterCop® and the valve closes, turning off the water source to protect the building from additional damage.

The red indicator light will signal that the valve is now in the closed position, and that you need to check all areas where you have placed a sensor to determine what plumbing product caused the system to activate.

The valve will remain closed until the unit is manually reset on the WaterCop® panel. After the plumbing problem is fixed, reset the WaterCop® by pressing **OPEN** (green circle) on the face of the WaterCop®. Valve will open and green indicator will be lit. (See illustration.)



Note: If major repairs are needed to correct the plumbing system, it is recommended that the manual shut-off valve upstream of the WaterCop® also be closed during the repairs. Close the main water shut-off valve and unplug the WaterCop® before making repairs on the plumbing system.

Note: In case of a power failure, the WaterCop® cannot operate. If the power is out, you will need to use the manual shut-off valve to turn the water off in case of an emergency. When power is restored, the WaterCop® will remain in its last known position indicated by the red or green lights on the face of the unit.

WaterCop® Specifications

Actuator

Max. working pressure	125 psig
Ambient temperature	35° to 105° F
Enclosure	Polycarbonate
Voltage	12 VDC plus 120 VAC adapter
Current	0.85 Amps (Full Load)

Accessories

Sensor Signal Repeater	120 VAC 47mA
Sensors	3 VDC (2AA Batteries) 10mA

Valve

Valve	Full-Port, Lead-Free Brass, NPT
Valve seals	RTFE (Reinforced Teflon®)

Flow Data

Valve Size Cv = Gpm flow at 1 psi pressure drop

½" NPT	19	1" NPT	52
¾" NPT	34	1¼" NPT	77

For cold water applications

FCC Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiver;
- Increase the separation between the equipment and receiver;
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected;
- Consult the dealer for help.

Operation is subject to the following two conditions:

1. this device may not cause interference;
2. this device must accept any interference, including interference that may cause undesired operation of the device.



CAUTION: The user is cautioned that changes and modification made to the equipment without the approval of the manufacturer could void the user's authority to operate this equipment.

Additional Components Available for Your WaterCop® Classic System

Single and Dual Probe WaterCop® Leak Sensors

WCDFS1 (single probe) and WCDFS2 (dual probe)

- Battery or AC (optional) powered
- Transmits wireless signal to valve when moisture is detected
- Unlimited number can be used, placed anywhere
- 10' sensor cord, white

Low Temperature Sensor

WCDFST

- Monitors temperature of pipes prone to freezing
- Sends wireless signal to turn off water if low temperature detected
- 10' cord with clip to attach to pipe
- Leak sensor with probe

Water Control Wall Switch

RS100

- Proactively turn water on or off from convenient location
- Lighted display to valve position (on or off)
- Requires category 5E cabling connection to valve (see below)

AC Power Adapter

WPA

- For WCDFS1, WCDFS2, and WCDFST sensors
- Eliminates the need for AA batteries

WaterCop® / Wall Switch Interconnect Cable

CBL50 (50') and CBL100 (100')

- Required to connect WaterCop® valve with Water Control Wall Switch
- RJ45 molded connections for easy installation and durability

Installation Guide

IMPORTANT! Adherence to all local and municipal building, plumbing and electrical codes as they pertain to the installation of the WaterCop® Classic System is of utmost importance. Codes in some areas may require that a licensed plumber be employed to do the installation, or that the proper permits be obtained prior to any installation. Even if local codes do not require a licensed plumber to do the installation, it is necessary that the installer has a professional level of competence in both plumbing and electrical skills to perform the installation. These instructions assume this level of knowledge and skill. If in doubt, use a licensed professional.



CAUTION!

The valve closes with great force. It could cut off a finger. Keep fingers and other items out of the valve when testing.



WARNING!

The WaterCop® case is **NOT EXPLOSION PROOF**. The shut-off valve must **NOT** be installed where it could ignite flammable vapors or explosive mixtures.

To reduce risk of electrical shock, fire, or damage to property or WaterCop®: Do not use extension cords. Use of extension cords can cause fires or electric shock. Install WaterCop® within 20 feet of an outlet or, install an outlet near the WaterCop®. Comply with all local codes.

Before opening case, unplug power cord. When case is open, it is possible to contact electrified components. Always unplug the power cord before opening the unit. Wear eye protection for plumbing and electrical work.

NOTICE: WaterCop® should be installed downstream of existing shut-off valves and pressure reducers. Install 18" downstream from existing indoor water meters to allow for future meter maintenance.

Manually Testing the Valve and Wireless Sensors

Manually Test the Valve

To test your WaterCop® Classic System, gently pull the safety plugs out from each end of the valve. Check the position of the valve by looking in either threaded end.

In the open position, you will be able to see through the valve; in the closed position only the shiny surface of the ball will be visible. Place the base of the housing on a sturdy surface, as close as feasibly possible to the location where it will be permanently installed. Plug the WaterCop® power cord into a nearby 120 VAC outlet. The valve position indicator lights should now correspond to the actual position you noticed: Green = Open, Red = Closed. Grasp both sides of the housing (not the valve) with the valve pointing away from you for safety. Being very careful not to have your fingers or other objects near the valve openings, press the colored circle just below the unlit indicator light. You will hear the motor change the valve position. Again, look into the threaded end of the valve to verify that the valve has changed position. **If it appears that the valve has not turned from one position to the other, DO NOT try to reposition the valve yourself by inserting any tool or fingers into the valve.** Operate the valve several more times from open to close, checking each time for proper positioning. If you are experiencing trouble getting the valve to open and shut, call 800-545-3636.

Manually Test the Leak Sensors

Leak and Temperature sensors require power to operate. Use either fresh AA alkaline batteries (not included) and/or a WaterCop® AC Adapter (sold separately) to power. If both are used, batteries will provide back-up power in the event AC power is lost. Rechargeable batteries are not recommended. To install batteries, remove the battery cover located on the back of the sensor and install batteries in accordance with the (+ and -) placement guide. Reinstall the back plate.

Follow suggestions found in the section titled "Placement of Leak Sensors" for recommendations where sensors should be placed. Locate a wall near the area you choose to monitor.

Avoid high traffic areas where cord or sensor could be stepped on or kicked. Mount transmitter at a convenient location on the wall, two to three feet above the floor.

This will help avoid damage to the sensor and provide a strong signal. Use provided mounting hardware.

1. Following all safety precautions, make sure that the WaterCop® is plugged in and the valve is in the **OPEN** position. Leave the WaterCop® near your main water line, on a sturdy surface. It is important that anyone who will be near the valve is aware of the safety precautions, and does not insert any object into the valve, or handle the valve during the test.
2. At one of the locations you have chosen to monitor, drop the sensor probe (not the mounted transmitter) into a cup of water. Hold until you hear the sensor transmit a signal to the WaterCop® (about 5 seconds) and beep. This test simulates a leak, and lets you check for interference between the sensor and the WaterCop®.
3. Take the sensor out of the water and carefully dry off the sensor and prongs. It should stop beeping.
4. Go back to your WaterCop® and verify that the valve has closed (the red indicator light will be lit).
5. Keeping all objects away from the valve, reset the WaterCop® by pushing the green circle below the **OPEN** text.
6. Repeat steps 2 through 5 until you have tested each sensor directly in the locations you wish to monitor.

Troubleshooting

- If the wireless sensor does not close the valve, check that the sensor has power and batteries and/or AC adapter is installed correctly. Repeat test.
- If the batteries have power and the wireless sensor still does not make the valve close, physically remove it from its installed location and place it next to the WaterCop® unit. Repeat test. If the sensor operates properly when it is closer to the Water Control Panel, but not when it is installed at its remote location, try moving the sensor to a different position or try a different wireless sensor. Some possible causes of signal reduction are steel construction, foil backed insulation or other large metallic barriers.
You may also use a range enhancing repeater (WPR – sold separately) to extend the effective range of the wireless signals.
- If the unit still does not function properly, check the digital code settings (see instructions for changing digital codes).
- If the code matches the code on the WaterCop® valve, and it still does not function properly, replace the sensor.

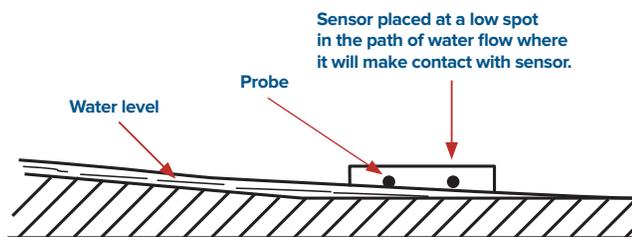
Installation of Leak Sensor

Once testing is complete, finish installation of the leak sensors by unwinding the cord and placing the sensor probe on the floor at the lowest point (where water would naturally collect) in the area to be monitored.

Be sure that the sensor is placed FLAT on the floor so water can be detected as soon as it begins to accumulate. The sensor should be secured to the floor, taking care that the metal probes are not covered. Verify that the transmitter and wire are clear of doors, drawers, sharp edges, or other hazards that may cause damage.

Unplug the WaterCop® after the testing is complete. The WaterCop® can now be installed.

Prior to installation, read all warnings and precautions carefully.



Installation Procedure

Check the contents of the carton with the products listed on the carton label. The shipping package should contain the following:

- 1 each WaterCop® with power adapter (20' cord)
- 1 each Owner's Manual/Installation Guide

Note: The package may contain sensors if purchased as part of kit.

Read Operating Instructions before any installation is attempted. All sections of this Owner's Manual/Installation Guide should be read and completely understood.

Review Location and Type of Main Supply Line

The main supply line should enter the house in either the basement or a crawl space beneath the first floor. The water main shut-off valve is usually located near where the line comes through the basement wall or just after the water line enters the living area from the crawl space. In apartments, townhouses, and manufactured housing constructions the water main shut-off valve can usually be found in close proximity to the water heater installation. The WaterCop® valve should be installed in the main water line just downstream from the main shut-off valve in your home. The water supply must be shut off prior to installation of the WaterCop®.

Choose a dry location to install the WaterCop®. The front control panel should be easily visible in order to see what position the valve is in (open/closed) and accessible for resetting after a leak has been detected and corrected, and for checking and resetting the radio receiver code if necessary. Place the valve where the housing is protected from use as a step or other excessive loads. The shut-off valve must be installed:

- In the main water line;
- Just downstream from the main water shut-off valve;
- In a dry location (indoors only);
- Where it is accessible for checking and resetting the valve and for resetting the radio receiver code, if necessary; and
- Where the case is protected from use as a step or other excessive loads.



CAUTION: Never use the housing for leverage when mounting this unit or tightening fittings. Use a wrench on the valve flats that are provided.



CAUTION: High heat from soldering or brazing can damage valve seats or motor housing. Proper precautions should be taken to prevent damage from heat when installing the unit. Remove plastic housing before soldering valve in place.



WARNING: Do not use on fire sprinkler systems.

Additional Part Requirements

Installation of the WaterCop® will require additional parts. When the main supply line is cut to accommodate the WaterCop®, new fittings will be needed to connect the ends of the piping to the WaterCop® valve.

The type of connecting fittings to use will be determined by the type of existing piping, local plumbing codes, and “industry standard practices.”

The most common material for water supply lines is copper. If the WaterCop® is to be installed in a copper line, you still have a choice of fittings and methods of installation.

Compression Fittings

The unit can be installed with compression fittings using common household tools and basic mechanical ability. You will need:

- two fittings (male pipe thread x compression) available at most local hardware or plumbing supply stores;
- Teflon® tape or thread sealant;
- tubing cutter;
- ruler;
- pencil or marker;
- two large adjustable wrenches

Measure the outside diameter of the copper tube and note the valve size to be sure you purchase the proper size fittings for the job.

1. Remove nuts and sleeves from compression fittings and install the fittings into each end of the valve using Teflon® tape or other thread sealant to ensure a watertight seal. Hold one wrench on flats of valve body and use the other to tighten fittings.
2. Measure the distance from end to end of valve assembly. For ½" tube (5/8" outside diameter) subtract ½", for ¾" tube (7/8" outside diameter) subtract ¾" from your measurement. This is the length of the section of tubing to be cut out of the existing line. The piece of existing tubing to be cut out is shorter than the measured length so that tube ends extend into the compression fittings.
3. Select the location for the WaterCop®. Be sure to consider that you will need access to the front panel of the control unit. After cutting the section of tube

out of the line, you will need to shift the tube ends to be able to fit the unit into place. Make sure you will have access and room to adjust before you cut the tube.

4. Mark the tube in the location you have selected. Double check the length and location you marked.
5. Turn water off and drain the system.
6. Use tube cutter to cut copper tube at the locations you marked. Careful, there will probably still be some water in the line.
7. Remove any burrs from the tube ends and clean ends.
8. Install compression nuts and sleeves to each tube end.
9. Shift tube ends to install WaterCop® valve in line.
10. Position the unit and tighten compression nuts. Hold the fitting with one wrench while tightening the nut with the other. Tighten both nuts.
11. Plug unit into a proper power source and turn valve to open position (**OPEN** button/green light).
12. Unplug unit, turn water back on and carefully check for leaks.
13. Tighten fittings if needed to stop any leaks.
14. Plug unit back into power source. Installation is complete.

Solder Fittings

An alternative method is to solder the unit into the water line. This method requires a considerably higher skill level to accomplish the installation properly and safely. If you are not skilled in this area, it is strongly recommended that you contact a professional plumber to do this type of installation.

Electrical Connections

The WaterCop® is supplied with a power adapter (20' cord) to be plugged into a 120 VAC power source. It is recommended that the WaterCop® not be plugged into an extension cord.

Review “Specification” current and power requirements as not to overload the circuit supplying power.

As with all valuable electronic items; we recommend plugging the WaterCop® Actuator into a surge protector.

Warnings and Precautions



The motorized drive unit case is not capable of supporting any loads. Do not attempt to use the unit as a step. This will cause damage to the unit and could cause personal injury. Do not store highly flammable items such as oily rags or other combustibles near your WaterCop®.



CAUTION! It is recommended that eye protection be worn while installing or servicing the system. Failure to do so could result in personal injury.



CAUTION! Do not use the case as leverage when mounting this unit or tightening fittings. Apply wrench to flats on the valve body to tighten fittings.

Changing Digital Codes

Codes on all control units and transmitters are set at the factory and should not require alteration. If you use other wireless products in your home (garage door openers, etc.), there is a slight chance of interference with the signal. The following instructions will aid in resetting the code.

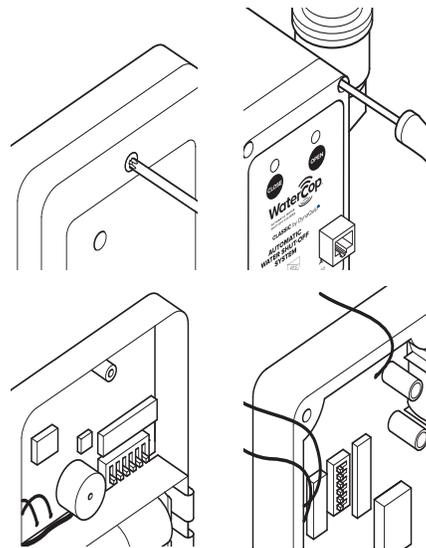
Important Note: All transmitters and the control unit must have the same code setting!

Changing the Receiver Code

Disconnect power to receiver unit by unplugging power cord.

1. Remove cover using the 4 screws located in the corners of the cover.
2. Locate code switch block (see illustration page 12). Switches are numbered 1 through 8.
3. Arrange the switches in any combination (on or off position). Write down the code combination you selected.
Example: 1-on, 2-off, 3-off, 4-on, 5-off, 6-on, 7-off, and 8-off.

4. Some WaterCop® receivers may have 6 dip switches. To match codes between 6 and 8 dip switch units, set switches 1-6 exactly the same on both units. Switches 7 and 8 must remain in the “on” or “up” position.
5. Reinstall cover. Carefully tuck wires completely into case and hold cover in position while tightening screws.
6. Reconnect power by plugging the power cord into power receptacle.



Changing the Transmitter Code

1. Remove transmitter cover.
2. Locate code switch block. Switches are numbered 1 through 8.
3. Arrange the switches in the exact combination as the code that you set in the receiver. It is important that the same exact code be set in the receiver and all transmitters. If the codes differ, the unit will not function properly.
4. Some WaterCop® transmitters may have 6 dip switches. To match codes between 6 and 8 dip switch units, set switches 1-6 exactly the same on both units. Switches 7 and 8 must remain in the “on” or “up” position.
5. Test each transmitter to ensure that the unit is functioning properly.
6. If not, verify that all codes are set the same. When all transmitters are functioning properly, your WaterCop® Classic System is on duty to help protect your home from damage due to plumbing leaks.

WaterCop® Interface Connections

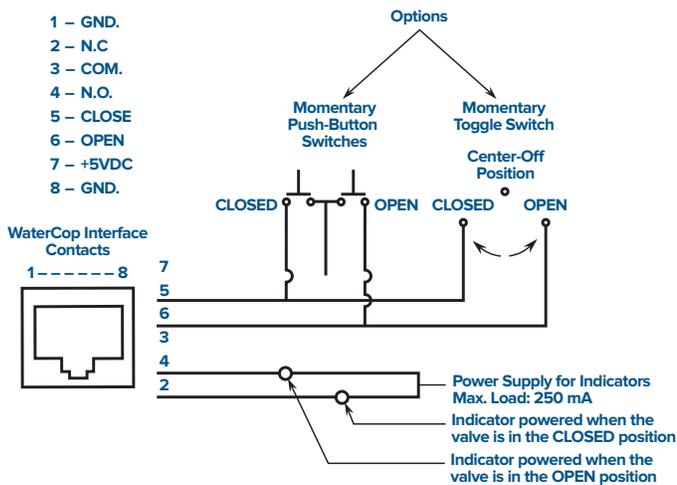
Contacts 5, 6 and 7 are used to control the valve position from a remote location. The most common is your home security system control panel.

This is done by wiring these contacts to a control switch on the panel. The diagram below shows typical installation options. This control can be a relay, push buttons or toggle type switch. This control needs to be a momentary switch, which means that the control switch stays made or “on” for a short period of time (1 to 3 seconds) and then returns to a neutral position.

Contacts 2, 3 and 4 are used to signal a remote device as to the position of the valve. This is done by connecting a low voltage circuit with indicator lights to these contacts. The diagram shows a typical installation.

When the valve is in the closed position, contacts 2 and 3 will be made completing the circuit and lighting the indicator light, showing that the valve is in the normal open position.

When the valve is in the open position, contacts 3 and 4 will be made completing the circuit and lighting the indicator light, showing that the valve is closed.



Emergency Procedures

In the unlikely event that the WaterCop® Classic System should shut off the main water supply and then become inoperable due to a power outage or damage, it is possible to manually operate the WaterCop® to return water service. Unplug the WaterCop® from its power source. The valve may be manually opened by removing the clip holding the housing to the valve, sliding the housing off the valve shaft, and turning the valve shaft a quarter turn with a screwdriver.

This procedure should only be necessary in emergencies.