OWNER'S MANUAL / INSTALLATION GUIDE

Introduction

WV-01 is a patented, wireless, water detection and automatic water shut-off system that works as an automatic valve for a home's main water supply line and can be easily installed by a certified professional plumber.

WV-01 is a new professional grade, electrically operated water shut-off valve introduced by FortrezZ LLC. Every year nearly 1 million families have their homes ruined and their lives overturned by water damage and the subsequent repairs. The **WV-01**, used in a Z-Wave home automation network along with Z-Wave water alarm sensors (WWA-0X), helps to reduce or eliminate water damage caused by leaky pipes or faulty appliances.

WV-01 can also work as a Water Level / Irrigation device. It can be set up to be on a "timed" schedule using a Smart Controller inside a Z-Wave Home Automation Network.

WV-01 operates in a Z-Wave enabled home network which uses the latest and most successful wireless home automation technology to provide protection 24/7, 365 days a year.

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System Components

The **Emergency Water Shut-off Valve System** has two basic components:

1. A motorized ball valve and housing containing a wireless Z-Wave radio transceiver which automatically turns off your water supply when any wireless water alarm sensor detects water or low, potentially freezing temperature.

2. A number of wireless water alarm sensors (WWA-0X), which detect water from a leak or overflow, or detect potentially freezing temperatures, and cause a wireless Z-Wave signal to be sent to the **WV-01** to turn off the water supply.

Package Contents

Check the contents of the packaging with the products listed below, it should contain the following:

- 1 ea. Water Valve **WV-01**
- 1 ea. DC power adapter
- 1 ea. Local monitoring probe
- 1 ea. Owner's Manual / Installation Guide

Note: The package may contain WWA-0X sensors or other Z-Wave devices if purchased as part of a kit.

Additional and Optional Components Available:

- WWA-01 wireless Z-Wave water leak detection sensors
- WWA-03/04 wireless Z-Wave water level or soil moisture sensors
- Optional car battery, 12VDC, for power outage backup
- Water level and soil moisture probes for use with WWA-03/04*
    - * some products may become Z-Wave certified or released after the **WV-01**

Product Specifications

- **WV-01** uses a motorized ball valve (available in multiple sizes: 1/2", 3/4", 1" and 1 1/4"), that is used to automatically turn off the main water supply when unwanted water is detected due to a leak or overflow.
- Multiple **WV-01** valves can be used and/or programmed into a Z-Wave Home Automation System.
- Brass valve with commercial grade seats and seals.
    - Ball valve: full port brass forged body
    - Seats   : RTFE
    - Seals   : Viton
- **General Usage Specifications:**
    - Maximum Working Pressure: 125 PSIG
    - Ambient Temperature   : 35° to 105° F
    - For Cold Water Applications
- **Sizes / Flow** (GPM @ 1 PSI pressure drop):

1/2"	19
3/4"	34
1"	52
1-1/4"	77

- **Enclosure:** Polycarbonate, NEMA 4x (weather resistant)
- **Voltage:** 110V AC converted to 12V DC (Class 2 power converter with 20' cord), 1.3A full load. Option to install an additional 12V DC battery (car or riding mower) as a power back-up.
- Meets the approvals of state and municipal authorities
- Three indicator lights. If the red light is on, it means that the valve is **closed**. The green light means that the valve is **open**, allowing water to flow freely through the plumbing system. If the yellow light is on or flashing, it means an **error** or the valve is **not programmed** into a Z-Wave network.

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Product Specifications (continued)

- ♖ Three panel-mount tactile switches to manually activate / program the valve.
- ♖ A Z-Wave system, which includes the **WV-01** in combination with sensors and a Z-Wave Gateway Controller (available in kits or sold separately), can automatically send you an email, text message, or phone call (based on your controller configuration) when a water leakage or overflow event occurs.
- ♖ A Z-Wave system which can be remotely operated (via internet or phone) through a Z-Wave Gateway Controller.
- ♖ When installed properly in a Z-Wave network, the **WV-01** and its system of WWA-0X sensors constantly monitor the home for water leakage. The WWA-0x sensors are battery operated wireless water / moisture / water level sensors which are strategically placed throughout the home. If one of these sensors trip, a wireless Z-Wave radio signal is relayed through the Z-Wave home network causing the **WV-01** to turn off the household water supply.
- ♖ The Z-Wave system can also include many other devices from other companies that are Z-Wave certified, such as light switches, thermostats, scene controllers and other useful Z-Wave devices.

General Safety Information

Adherence to all local and municipal building, plumbing and electrical codes as they pertain to the installation of the **Water Valve WV-01 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 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.

Disconnect power source before working on or servicing the unit. Failure to do so could result in serious personal injury.

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

Pre-installation Testing of Water Valve WV-01

Although each unit is pre-tested at the factory, it is recommended that the unit be tested prior to installation to ensure proper operation in your home. Operating the valve before connecting the water line will not damage it. Use caution!

- ♖ The valve closes with enough force to cut off a finger.
- ♖ Be extremely careful to keep fingers and other items out of the valve.

Manually Test 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 **Water Valve WV-01** power adapter cord into a nearby 110V AC outlet. Within 10 seconds, the status indicator light will start blinking. Grasp goth sides of the housing (not the valve) with the valve pointing away from you. 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 of the opposite valve position. 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 difficulties getting the valve to open and close, call the installation help line listed on the back cover.

Operation

Manual Operation Handle

Status Light

Open Button

Indicator Lights

Close Button
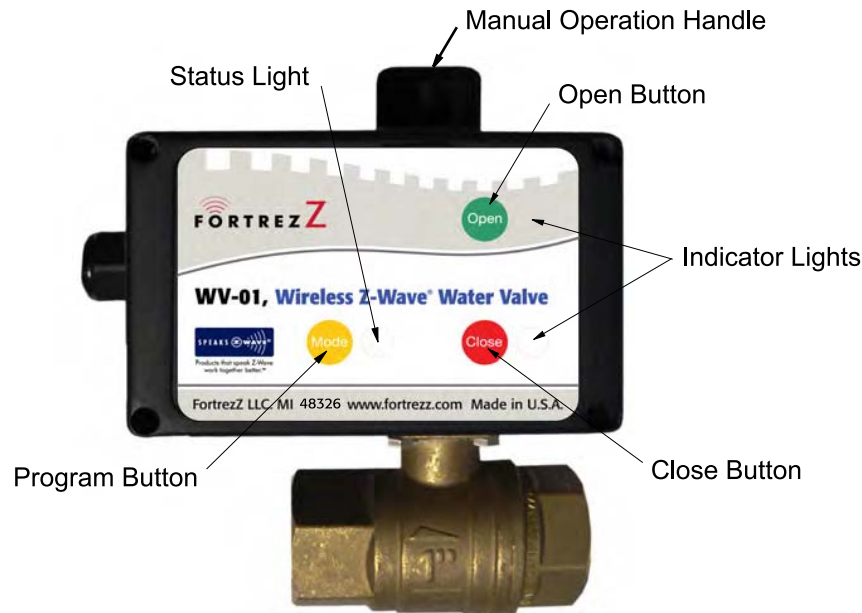
Program Button

1. Front Panel Operation

a) Open and Close Buttons and their Indicator Lights

The Open and Close Buttons allow the user to control the valve locally.
The LED Indicator Lights will indicate the status of the valve, either open or closed.

b) Program Button

The Program Button provides the means to include (add) the **WV-01** Water Valve into a Z-Wave network, exclude (remove) the Water Valve from a Z-Wave network, and to switch between modes. The operation of the Program Button for these different functions is described on page 5.

c) Status Light

The Status Light gives an indication about the current mode or any error conditions. Generally, if the water valve is in a Z-Wave network, the Status Light is turned off. The Status Light displays the indications in a cyclic manner, so zero, one, or more of the mode or error indications may be displayed sequentially and repeatedly. The mode indications are fast blinks, while the indications for error conditions are slow blinks. The mode indications are described on page 5, the error conditions can be found under section "Fault Conditions / Troubleshooting" on pages 8 and 9.

d) Power-On

At Power-On, the Water Valve system should start blinking within 10 seconds (if not in a network) and needs to be set up with the actual position of the ball valve. To set up Water Valve follow the sequence below:

    i.   Press the Open Button
    ii.   Press the Close Button
    iii. If "closed" is not the desired position, press the Open Button again

⚠️ **CAUTION: If the ball valve is not yet installed, KEEP FINGERS AND FOREIGN OBJECTS AWAY FROM THE BALL VALVE WHILE OPERATING IT (either by using the buttons or using wireless, Z-Wave commands). Objects in the path of the closing valve can damage the ball valve and can cause serious injury.**

NOTE: The Water Valve could perform the first two steps of the set up (shown above) automatically at power-on, but, it was programmed not to do so, to avoid personal injury or damage to the valve due to foreign objects in its path.

2. Mode Indications

Water Valve Mode	Number of Fast Blinks	Comments
Automatic Network Wide Inclusion (NWI) mode (Not available on some versions)	1	NWI mode is the default at initial power-on and is active for approx. 30 min. or until manually exited
In-Network (The Water Valve is in a Z-Wave network in either Water Alarm or Water Level mode)	2	Not repeated, only given at power-on or after inclusion
Out-of-Network (The Water Valve is not in a Z-Wave network) / Water Level mode	3	
Out-of-Network (The Water Valve is not in a Z-Wave network) / Water Alarm mode	4	Default mode at initial power-on

3. Automatic Network Wide Inclusion (NWI) Mode

At power-on, in some versions and before the **WV-01** is included in a network, the NWI mode is active. This mode allows automatic inclusion into an existing home network that has a Z-Wave controller supporting NWI mode. Please refer to your controller's user manual to determine whether or not the NWI mode is supported.

NWI mode is stopped after one of the following conditions occur:

- ♖ The Water Valve is automatically included,
- ♖ 30-minute timeout, or
- ♖ The Program Button is pressed

By pressing the Program Button, the user can perform a manual inclusion into the network (see below).

NWI mode is entered every time power is applied to the Water Valve, if it is not already a part of a Z-Wave network (included).

4. Inclusion (Manual) in a Z-Wave Network

To manually add (include) the Water Valve to a Z-Wave network, you **must also have a Z-Wave Controller.** Follow your Z-Wave Controller User Manual to configure the Controller for Inclusion Mode.

Once the Controller is in Inclusion Mode, ensure that the Status Light is flashing periodically (3 or 4 times).

Press the Program Button once. the Controller will indicate when the Water Valve is included and the Status Light will stop flashing.

Note: Inclusion and Exclusion are always done at Normal Transit Power Mode.

5. Exclusion from a Z-Wave Network

To manually remove (exclude) the Water Valve from a Z-Wave network, follow your Z-Wave Controller User Manual to configure the Controller for Exclusion Mode.

Once the Controller is in Exclusion Mode, press the Program Button once. The Controller will indicate when the Water Valve is excluded and the Status Light will start flashing periodically (3 or 4 times).

Note: Inclusion and Exclusion are always done at Normal Transit Power Mode.

6. Association with One or More Water Sensors

Once in a network, a smart Controller can be used to associate water sensors with the Water Valve. Association allows a sensor to control a Water valve directly without going through a Controller. *Refer to your Controller's documentation on how to associate devices.*

Typically, when associated, the Water Valve receives a Basic Set Command (value = 0xFF) to close the ball valve (when a Water Alarm is active).

If a water sensor is not associated with the Water Valve, then a Controller receives the massage from the water sensors and, in turn, sends a Binary Switch Command (value = 0xFF) to the Water Valve to close the ball valve.

7. Water Alarm Mode vs. Water Level Mode

The Water Valve is typically used in Water Alarm Mode. This mode is the default mode from the factory and provides protection in case of water leaks. The Water Valve will close when receiving a Basic Set Command (value = 0xFF) from an associated sensor. An associated water sensor will typically send a Basic Set Command (value = 0x00) when its alarm has been cleared and it no longer detects water at its sensors. However, in Water Alarm Mode, a Basic Set Command (value = 0x00) will not cause a Water Valve to open the ball valve. Instead, the Water Valve will respond with a Z-Wave "Application Rejected Request" transmission. This is because you must manually open the Water Valve after fixing the leak or checking to ensure that the leak has actually stopped since water may have merely run away from the sensor. In this situation, the Water Valve can be manually opened by either using the Open Button or sending a Binary Switch Set Command to the Water Valve.

The Water Level Mode has been implemented for special applications, such as trying to maintain a water level within a certain range. In this mode, the Water Valve will close when receiving a Basic Set Command (value = 0xFF) from an associated sensor, but will also open when receiving a Basic Set Command (value = 0x00) after a pre-configured time (default = 60 minutes, can be changed on the controller side from 1 min to 22+ days, see page 8) from the latest close command. In this case, the Water Valve will respond with a Z-Wave "Request Queued" transmission. This time can be configured by using the Configuration Command Class. The local water probe connected to the Water Valve will only operate in Water Level Mode when the Water Valve is not in a network. This is because the Water Level Mode is only intended for use with one sensor.

Note: The Binary Switch Set Command, to open or close the valve, will always operate immediately in either mode.

The above modes can be set using either the front panel buttons prior to being included in the network, or by using the Configuration Command Class (described below) after being included in the network.

To switch between Water Alarm Mode and Water Level Mode prior to inclusion in the network, do the following:

    i. Hold the Program Button down for 1 or more seconds
    ii. While still holding the Program Button, press the Open Button (for Water Level Mode) or the Close button (for Water Alarm Mode)

Note: This button press sequence is not available after network inclusion.

To switch between Water Alarm Mode and Water Level Mode after network inclusion, refer to the Z-Wave Configuration Command Class described under the Z-Wave Operation section on page 7.

8. Manual Operation (no AC or battery)

If a backup battery (for example, car battery) is not connected to the Water Valve backup power connector, the Water Valve will not operate when power is not present at the AC/DC power converter (for example, during lightning storms). In this situation, the handle at the side of the Water Valve can be turned in the direction indicated to turn off the water in an emergency.

With a charged backup battery, the Water Valve should be able to successfully operate with an associated water sensor assuming that there is still a wireless route from the water sensor to the Water Valve. In other words, the Water Valve will operate with a backup battery, if other relaying Z-Wave nodes are still operational (i.e., powered).

9. Z-Wave Operation (Advanced)

The following sub-sections provide specific Z-Wave information for the command classes implemented by the Water Valve:

a) Basic Command Class, Version 1

The Basic Command Class is fully implemented and the Set Command is described in the section titled "Water Alarm Mode vs. Water Level Mode" on page 6. The Water Valve will respond to a Basic Get with a Basic Report indicating the last known position of the ball valve (value = 0xFF indicates closed, and 0x00 indicates open).

Note: If the position is not known due to not configuring the Water Valve, or because the Valve is changing position, or because of a fault condition, the Basic Get will be ignored. The Water Valve will instead respond with a Z-Wave "Application Busy. Try Again Later" transmission.

b) Binary Switch Command Class, Version 1

The Binary Switch Command Class is fully implemented. The Binary Switch Set Command causes the ball valve to close with value = 0xFF and causes the ball valve to open with value = 0x00. A Binary Switch Report will be sent upon completion of the open or close operation. The Water Valve will respond to a Binary Switch Get with a Binary Switch Report indicating the last known position of the ball valve (value = 0xFF indicates closed and 0x00 indicates open).

Note: If the position is not known due to not configuring the Water Valve at power-on, or because the Valve is changing position, or because of a fault condition, the Binary Switch Get will be ignored. The Water Valve will instead respond with a Z-Wave "Application Busy. Try Again Later" transmission. To ensure that the position is known, the Water Valve must be configured by using the buttons to do an Open/Close cycle after power has been applied or re-applied after a dropout.

c) Manufacturer Specific Command Class, Version 1

The Manufacturer Specific Command Class is fully implemented. The Manufacturer Specific Get returns the following information:

Manufacturer ID:	0x0084
Product Type ID:	0x0213
Product ID:	(Version and Revision may vary)

d) Version Command Class, Version 1

The Version Command Class is fully implemented. The Version Get and Version Command Class Get return the Version Report and the Version Command Class Report, respectively.

e) Configuration Command Class, Version 1

The Configuration Command Class is implemented to switch between Water Alarm Mode and Water Level Mode. Switching between these two modes uses Parameter 0 of the Configuration Command Class. The Configuration Command Class can also be used to change Water Level Timeout (or Hysteresis Time) between the latest close operation and an open operation. The Hysteresis Time uses Parameter 1 of the Configuration Command Class.

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Parameter 0 - Mode

Size : 1 Byte
Configuration Value 1 = 0x00 (Water Alarm Mode), default
Configuration Value 1 = 0xFF (Water Level Mode)

Parameter 1 - Water Level Timeout

Size: 2 Bytes
Configuration Value 1 = 0x0000 to 0x7FFF (0 to 32,767 minutes or 22+ days,
negative values are ignored, default is 60 minutes)

f) Alarm Command Class, Version 2

The Alarm Command Class, Version 2, is fully implemented to signal that the main power (both AC main and, if present, backup battery) has dropped out or has been applied.

The Water Valve will continue to operate with a 12V Backup Battery while the battery is fully charged. Once the battery is discharged to a certain level, the Water Valve will recognize this, and send the Voltage Drop/Drift Alarm Event. When running on a discharged Backup Battery the Water Valve will periodically send the Voltage Drop/Drift Alarm Event, but will not be functional otherwise. If the main power is reapplied or a charged battery is connected, the Water Valve will send a Power Reapplied Alarm Event within 10 seconds.

If there is no Backup Battery connected to the Water Valve when main power has dropped out, the Water Valve will attempt to send a Voltage Drop/Drift message using residual power in the circuit.

The Alarm Command Class uses the following command class alarms and events:

Z-Wave Alarm Type: Power Management Alarm (0x08)
Z-Wave Alarm Events: Voltage Drop/Drift (0x05)
                         Power has been applied (0x01, only sent after Voltage Drop/Drift event)
Z-Wave Alarm Status: 0xFF, Enabled (Factory Default State)
                         0x00, Disabled

Note: The Water Valve will only send the Alarm Report Command unsolicited if it has previously received the Alarm set Command. In this case, the Alarm Report will only be sent to the last node from which it received the Alarm Set Command (i.e. it will not be 'broadcast' to the Z-Wave network.)

g) Application Status Command Class, Version 1

The Application Status Command Class is implemented to allow the Water Valve to signal other devices that the Water Valve is busy or has rejected a request because of its current state. These responses are described above in sections 7, 9a, and 9b.

10. Fault Conditions / Troubleshooting

The Status LED provides the following fault indications represented by 2 or more slow, periodic blinks. Generally, these should never occur. The presence of one of these status indications may mean that something is wrong with the Water Valve hardware.

Fault Indication	Number of Slow Blinks	Comments
Main Power Dropout	2	Check main AC power to Water Valve or Backup Battery
Motor Jammed / Timeout Error	3	Ensure that nothing is blocking the ball valve; cycle power to the Water Valve

Fault Indication	Number of Slow Blinks	Comments
Communication (I2C) Error	4	Cycle power to the Water Valve
ADC Error	5	Cycle power to the Water Valve
Time Error	6	Cycle power to the Water Valve
State Error	7	Cycle power to the Water Valve
Unknown Error	8	Cycle power to the Water Valve

We recommend our customers check for additional information and usage tips in the FAQ section of our website located at **www.fortrezz.com**.

USA

FCC Compliance Statements

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including those that may cause undesired operation.

Contains Transmitter Module FCC ID: XCT-Z3US

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 receiving antenna
♖ Increase the separation between equipment and receiver
♖ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
♖ Consult the dealer or an experienced radio/TV technician for help

RF Exposure

All transmitters regulated by FCC must comply with RF Exposure requirements. OET Bulletin 65 "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields" provides assistance in determining whether proposed or existing transmitting facilities, operations or devices comply with limits for human exposure to Radio Frequency (RF) fields adopted by the Federal Communications Commission (FCC). The bulletin offers guideleines and suggestions for evaluating compliance.

⚠ **CAUTION**

To satisfy FCC RF Exposure requirements for mobile and base station transmission devices, a separation distance of 20cm or more should be maintained between the antenna of this device and persons during operation, To ensure compliance, operation at closer than this distance is not recommended.

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Industry Canada Statement per Section 4.0 of RSP-100

The term **"IC"** before the certification/registration number only signifies that the Industry Canada technical specifications have been met.

Section 7.1.5 of RSS-GEN

Operation in subject to the following conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including those that may cause undesired operation.

From Section 7.1.1 of RSS-GEN, Issue 2, June 2007

a) The host device, as a stand-alone unit without any separately certified modules, complies with all applicable Radio Standards Specifications.
b) The host device and all separately certified modules it contains jointly meet the RF exposure compliance requirements of RSS-102, if applicable.
c) The host device complies with the certification labeling requirements of each of the modules it contains.

From Section 5.2 of RSS-GEN, Issue 2, June 2007

Equipment Labels: **Contains IC: 8156A-Z3X**

From Section 7.1.6 of RSS-GEN, Issue 2, June 2007

Digital Circuits: If the device contains digital circuitry that is not directly associated with the radio transmitter, the device shall also comply with ICES-003, Class A or B as appropriate, except for ICEC-003 labeling requirements. The test data obtained (for the ICES-003 tests) shall be kept by the manufacturer or importer whose name appears on the equipment label, and made available to Industry Canada upon request, for as long as the model is being marketed in Canada.

EUROPE[1]

The **WV-01** module has been certified for use in European countries.
The following testing has been completed:

Test standard: ETSI EN 300 328 V1.7.1 (2006-10)

Note: [1] To be completed Q1. 2010

How the System Works

Water Sensors WWA-0x constantly monitor their selected areas for accumulating moisture. When a leak is detected, a sensor will send a radio frequency signal to the Water Valve **WV-01** unit, instructing it to shut off the water supply to the home. The Water Valve **WV-01** will remain closed until is manually reset (Water Alarm Mode).

The Water Alarm Sensors WWA-0x are battery powered devices which enables them to be located anywhere a leak is likely to occur, or where water might cause damage. The Water Valve **WV-01** requires household electrical power 110V AC, and will not operate during a power outage (except when a 12V DC car battery backup is installed and maintained fully charged).

Installation

Review Location and Type of Main Supply Line

The main supply line should enter the house in either the basement or 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 homes the water main shut-off valve can usually be found in close proximity to the water heater installation. The Water Valve **WV-01** should be installed in the main water line just downstream from the main shut-off valve in your home.

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The Water Valve **WV-01** must be installed indoors:

- ♖ In the main water line;
- ♖ Just downstream from the main water shut-off valve;
- ♖ In a dry location;
- ♖ Where it is accessible for checking and resetting the valve;
- ♖ Where the case is protected from use as a step or from excessive loads.
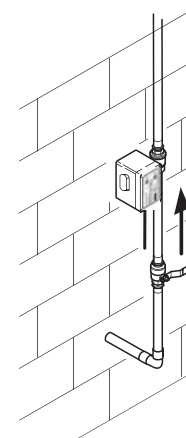
⚠️ **Local electrical and plumbing codes should be consulted to ensure that the installation is in complete compliance!**

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

Additional Parts Requirements

Installation of Water Valve **WV-01** will require additional parts. When the main supply line is cut to accommodate the Water Valve **WV-01**, new fittings will be needed to connect the ends of the piping to the Water Valve **WV-01**.

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 Water Valve **WV-01** is to be installed in a copper line, you may have multiple choices 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:

- a) 2 fittings (male pipe thread x compression) available at most local hardware or plumbing suuply stores
- b) Teflon tape or thread sealant
- c) Tubing cutter
- d) Ruler
- e) Pencil or marker
- f) 2 large adjustable wrenches

Measure the outside diameter of the copper tube and note the valve size to be sure the proper size fittings are purchased.

Steps of installation using compression fittings:

1. Remove nuts and sleeves from compression fittings and install fittings into each end of the valve using Teflon tape or thread sealant to ensure a watertight seal. Hold on 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 1/2" tube (5/8" outside diameter) subtract 1/2", for 3/4" tube 97/8" outside diameter) subtract 3/4" 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 of the valve assembly so that the tube extends into the compression fittings.

3. Select the location for the Water Valve **WV-01**.
   Be sure to consider that you will need access to the front panel of the Water Valve and that a power outlet is in close proximity. 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 in place. Make sure you have access and room to adjust before cutting the tube.

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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 marks. Careful, may still be water in the line.

7. Remove any burrs from tube ends and clean ends.

8. Install compression nuts and sleeves to each tube end.

9. Shift tube ends to install Water Valve **WV-01** in the 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. 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.

Placement of Water Alarm Sensors WWA-0x

Each Water Valve **WV-01** can support multiple Water Alarm Sensors WWA-0x. A Z-Wave network can have up to 232 nodes. Additional sensors may be added at any time. The Water Alarm Sensors WWA-0x should be placed in locations where leaks are most likely to occur.

Suggested Locations

- Washing Machines • Toilets • Sump Pumps • Dishwashers • Bathroom Sinks
- Kitchen Sinks • Automatic Humidifiers • Icemakers/Refrigerators • Water Heaters
- Pipes that are prone to freezing (WWA-01 also works as a Freeze Alarm Sensor)
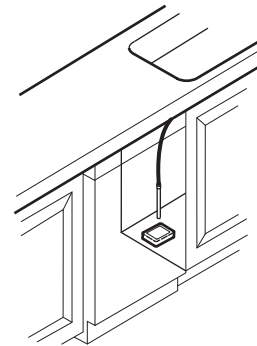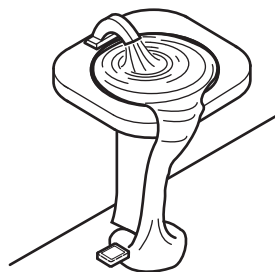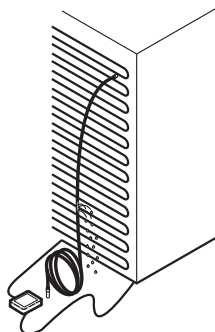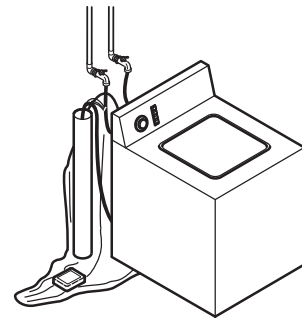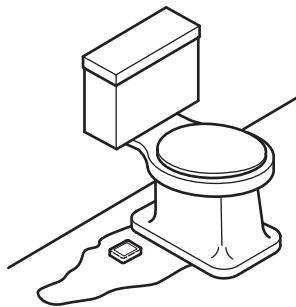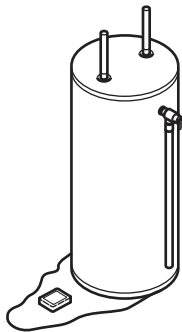
Operating the Water Valve WV-01

*Note: If major repairs are needed to correct the plumbing system, it is recommended that the manual shut-off valve upstream of the Water Valve **WV-01** also be closed during the repairs. Close the main water shut-off valve and unplug the Water Valve **WV-01** before making repairs on the plumbing system.*

*In case of a power failure and without a backup battery, the Water Valve **WV-01** 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 Water Valve must be cycled via the Open/Close Buttons or Z-Wave Binary Switch Command to ensure that the current ball valve position is known. it is recommended to manually cycle (open-close-open) your Water Valve once every 3-4 months.*

Test Procedure

After the Water Valve has been installed and included in a network, and the controller/water sensor(s) have been included and configured, perform the following steps to test the Water Valve system:

1. Following all safety precautions, make sure that the Water Valve **WV-01** is plugged in and the valve is in the open position. If the Water Valve is not installed, 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 water sensor enclosure) into a cup of water. Hold until the sensor transmits a signal to the Water Valve **WV-01** (aprox. 5 seconds). This test simulates a leak, and lets you check for interference between the sensor and the Water Valve.

3. Take the sensor probe out of the water and carefully dry off the sensor probe and prongs. It should stop beeping.

4. Go back to your Water Valve **WV-01** and verify that the valve is closed (the red indicator light will be lit).

5. Keeping all objects away from the valve; reset the Water Valve **WV-01** by pressing the green circle next to "Open" text.

6. Repeat steps 2 through 5 until you have tested each sensor at the locations you wish to monitor.

General Safety Information

Warnings and Precautions

Warning
The motorized drive unit case is not capable of supporting 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 the Water Valve.

Warning
Do not apply electrical power to the unit unless the unit is fully assembled (as it was shipped). Failure to do so could result in personal injury and/or damage to the unit.

Warning
Disconnect power source before working on or servicing the unit. Failure to do so could result in personal injury.

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.

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Emergency Procedures

In the unlikely event that the Water Valve **WV-01** System should shut off the main water supply and then become inoperable due to power outage or damage, it is possible to manually operate it to return water service. Unplug the Water Valve **WV-01** from its power source. The valve may be manually turned with the handle at the side. this procedure should only be necessary in emergencies. **Similarly, the handle can be used to turn off the water supply in an emergency.**

Emergency manual shut-off

Battery Life
for Water Alarm Sensors WWA-0x

<u>Batteries are not covered under warranty.</u>

For our customer's benefit we are not installing the batteries into the WWA-0x. This can be easily done with a small screwdriver using the enclosed hardware. This way we have up to 10 years of product shelf life and the customer gets a fresh battery.

The manufacturer supplied and recommended battery for use and replacement is the GMB type ER14250H (3.6V Lithium, 1/2AA 1200mAh). Other manufacturers have similar 1/2AA Lithium batteries that can be used, but be advised, some of them can be as low as 600mAh. If you use multiple WWA-0x in your home we recommend you purchase some spares.

Battery life under normal monitoring conditions and with a 4 hour reporting back to controller time is 1 1/2 to 2 years. Some controllers have a default of 20 minutes wake-up and reporting time. For maximum battery life we recommend to use the maximum allowed time setting in your controller.

Note: If a water or freeze alarm event is happening in your monitored area you will receive the alarm within a few seconds, this is not dependent on the controller wake-up settings.

Also, when the WWA-0x is in an alarm condition with the buzzer active and sounding and with the RF transmissions going periodically (until a user intervene to cancel the alarm), a significant amount of your battery capacity will be consumed. For maximum protection we recommend changing the water sensor battery after each alarm event.

A depleted Lithium battery cannot be measured with a volt meter. It will still show 3.6V. To correctly test a Lithium battery you will need to test it under a load condition, ex: measure voltage with a 75 ohm resistor load on the battery. If the voltage is below 3V, the battery is depleted.

LIMITED WARRANTY

THE PRODUCT IS PROVIDED WITH ONE YEAR LIMITED MANUFACTURER WARRANTY.

FORTREZZ, LLC. warrants its products to be free from defects in material and workmanship, under normal use, for one year, and is not responsible for consequential damages or installation costs of any nature. FORTREZZ, LLC. expressly disclaims all implied warranties, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. FORTREZZ, LLC. does not warrant, guarantee, or make any representations regarding the use or the results of the use of the products or any accompanying materials in terms of their correctness, accuracy, reliability or otherwise. In no event shall FORTREZZ, LLC. be liable to Purchaser hereunder or in respect of any products ordered or delivered to Purchaser, whether in contract, tort including negligence or otherwise for a loss of profits or loss of use or for any incidental, consequential, special or indirect damages howsoever caused, whether or not FORTREZZ, LLC. has been advised of the possibility of such loss or damage. FORTREZZ, LLC's maximum liability to Purchaser under these conditions shall in no event exceed the amount paid by Purchaser for the products that are the subject of the claim and in respect of all claims for products ordered from FORTREZZ, LLC. to which these conditions apply to the amount paid by Purchaser for the products which are subject of the claims. Use of the Water Valve in life support and/or safety applications is entirely at the Purchaser's risk and Purchaser agrees to defend, indemnify and hold harmless FortrezZ from any and all damages, claims, suits, or expenses resulting from such use If you are not comfortable with your limited warranty, or not completely satisfied with the WV-01, or the WV-01 does not perform as expected we encourage you to return the WV-01 to your DISTRIBUTOR for an exchange or for a full refund within 30 days of purchase. Or, you can return the WV-01 to FORTREZZ, LLC. with an RGA number.

All products returned to FortrezZ must have a valid Returned Goods Authorization (RGA).

Send the **Water Valve WV-01** unit to: FortrezZ, LLC.
Warranty Replacement Center
1080 Centre Rd. Suite C
Auburn Hills. MI 48623, postage prepaid

You must use the original packaging and include a proof of purchase (photocopy of receipt) along with the RGA#.

⚠️ The Water Valve / Controller / Water sensor system is based on wireless (RF) transmissions through the air. Any wireless transmission can be subject to RF interference and, although it is highly unlikely, this interference may cause the Water Valve system to not operate as intended. **The Water Valve system must not be used in life support and/or safety applications.**

Information contained in this publication regarding Water Valve applications and the like is provided only for your convenience and may be superseded by updates. It is your responsibility to ensure that the Water Valve application meets with your specifications.

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OWNER'S MANUAL / INSTALLATION GUIDE

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