



ZEMS6003AV-ULF- MOB-W1

Connected ZEMS Flush Valve
Installation, Operation, Maintenance
and Parts Manual



LIMITED WARRANTY

All goods sold hereunder are warranted to be free from defects in material and factory workmanship for a period of three years from the date of purchase. Decorative finishes warranted for one year. We will replace at no costs goods that prove defective provided we are notified in writing of such defect and the goods are returned to us prepaid at Atlanta, GA, with evidence that they have been properly maintained and used in accordance with instructions. We shall not be responsible for any labor charges or any loss, injury or damages whatsoever, including incidental or consequential damages. The sole and exclusive remedy shall be limited to the replacement of the defective goods. Before installation and use, the purchaser shall determine the suitability of the product for his intended use and the purchaser assumes all risk and liability whatever in connection therewith. Where permitted by law, the implied warranty of merchantability is expressly excluded. If the products sold hereunder are "consumer products," the implied warranty of merchantability is limited to a period of three years and shall be limited solely to the replacement of the defective goods. All weights stated in our catalogs and lists are approximate and are not guaranteed.

⚠ WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov

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⚠ AVERTISSEMENT: Cancer et effets néfastes sur la reproduction - www.P65Warnings.ca.gov

NOTE: The information in this manual is subject to change at any time without notice. Installations may be performed at different times of construction by different individuals. For this reason, these instructions should be left on-site with the facility or maintenance manager.

NOTE: READ ENTIRE MANUAL PRIOR TO INSTALLING PRODUCT.

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Overview:

Designed for modern commercial restrooms, the Zurn connected flush valve system delivers a superior user experience in both form and function.

Specifications:

- Exposed, quiet diaphragm-type, chrome plated Flushometer valve with a polished exterior.
- Zurn's AquaVantage® TPE diaphragm
Clog Resistant by-pass
Chloramine resistant
Dual seal
- Proprietary DR resistant low lead brass alloy
- Actuator ZEMS 6 VDC Motorized Actuator
- Automatic Sensor
Fully configurable sensor range adjustment
48 or 168 hour trap seal flush
Capacitive sensing push button override
- Control Stop
Internal siphon-guard protection
Vandal resistant stop cap
Sweat solder kit
Cast wall flange with set screw
- Vacuum Breaker
High back pressure
One piece hex coupling nut
- Internal seals
Chloramine resistant
- Adjustable tailpiece
- Spud coupling and flange for top spud connection
- Endpoint

Important Safety Information:

- Do not convert or modify this Zurn product. All warranties will be voided.
- All electrical wiring is to be installed in accordance with national/local codes and regulations.
- All plumbing is to be installed in accordance with applicable codes and regulations.
- Water supply lines must be sized to provide an adequate volume of water for each fixture.
- Flush all water lines prior to making connections.
- Do not use pipe sealant or plumbing grease on any fitting other than the control stop inlet.
- Sensor units should not be located across from each other or in close proximity to highly reflective surfaces.
- Control stop should never be opened to allow flow greater than fixture is capable of evacuating. In the event of valve failure, fixture must be able to handle a continuous flow.
- Be certain power is off to prevent damage to electrical components and/or personal injury. Connect the sensor to the actuator and power converter exactly as shown in Figure 1.

Prior to Installation:

- Prior to installing the Zurn Automatic Sensor-equipped Flushometer, install the items listed below as illustrated in Figures 1 through 3.
- Optional: Single-gang electrical outlet for plug-in power converter.
- Electrical wiring to the power converter outlet (120 VAC, 50 watts service required for each power converter used).
- Closet fixture.
Zurn carrier system, Z1200 series or equal.
- When installing your quality Zurn valve, to protect the polished finish do not use a toothed wrench, as this will cause gouges and scratches on your valve.

Electronic Emission Notices:

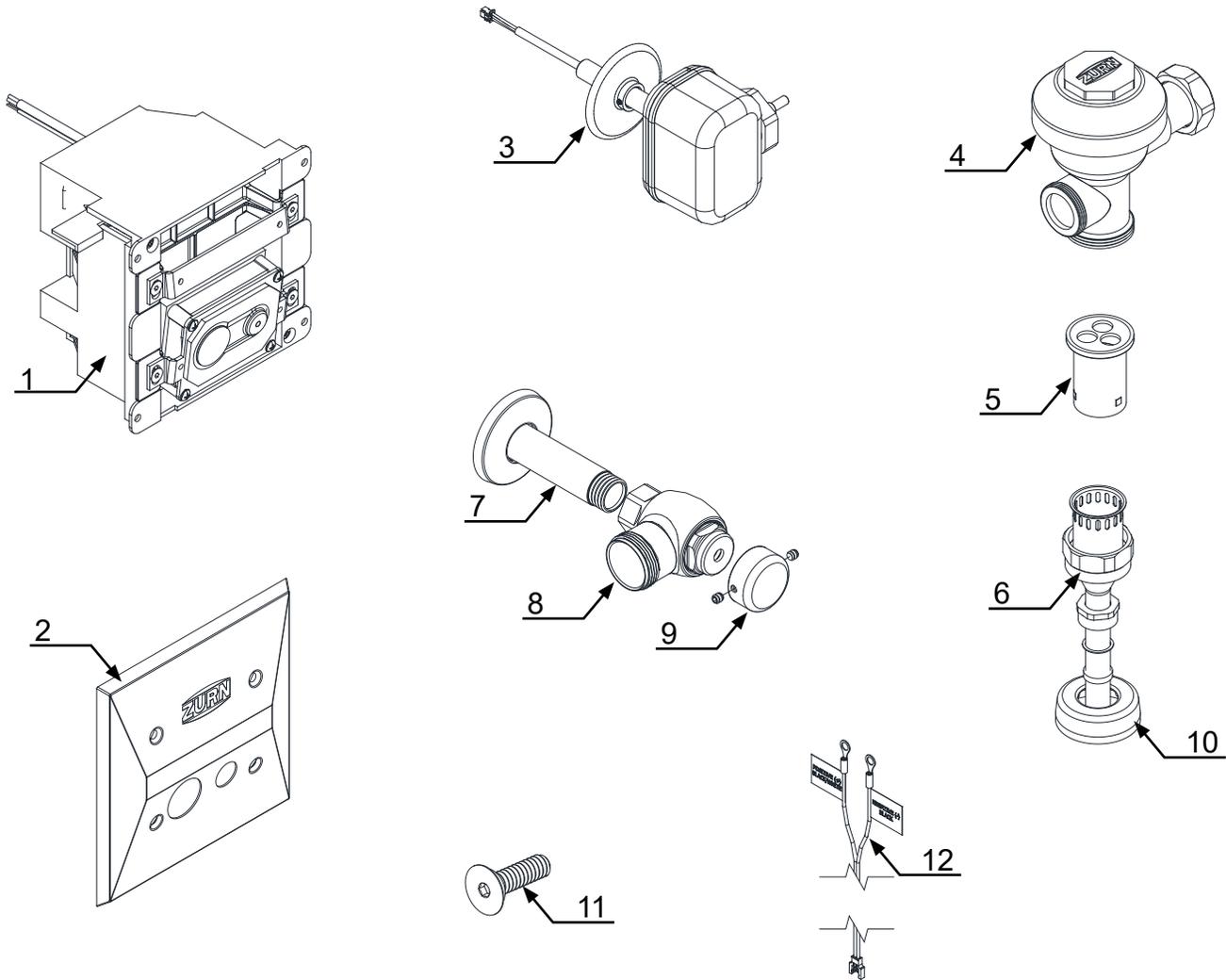
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The following information refers to Zurn Smart Connected Products, types: -W1. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference intended for use in non-residential/non-domestic environments. 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 the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an authorized dealer or service representative for help.

Zurn is not responsible for any radio or television interference caused by using other than specified or recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

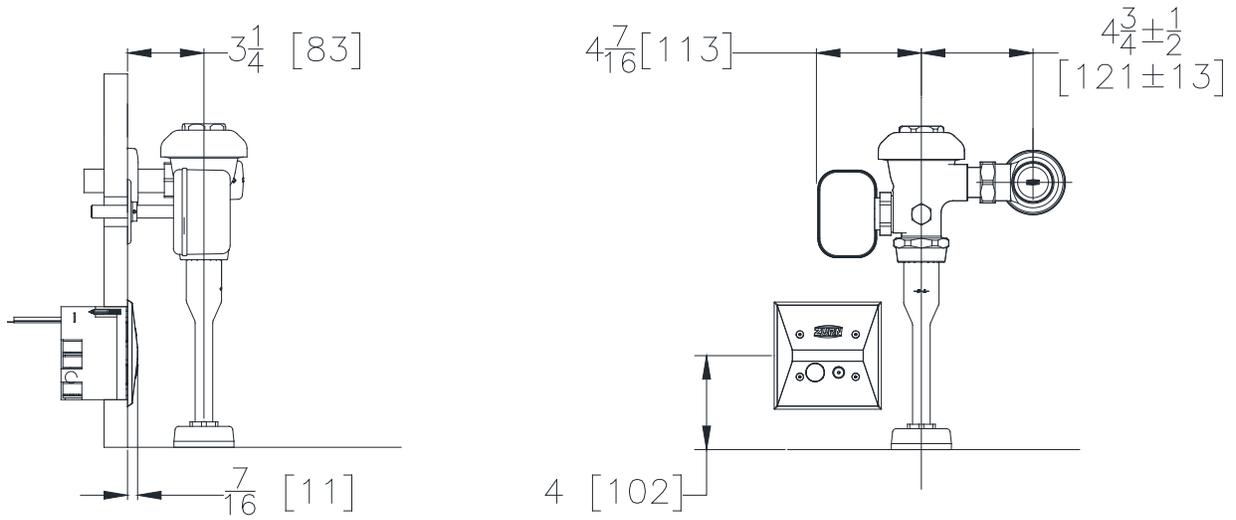
Smart ZEMS Parts List



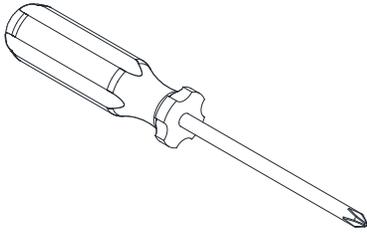
	Item Name	QTY
1	ZEMS Electronics Enclosure	1
2	ZEMS Sensor Cover Plate	1
3	ZEMS Actuator	1
4	Z6000 Diaphragm Valve	1
5	Vacuum Breaker	1
6	Vacuum Breaker Tube	1
7	Closet Cast Wall Escutcheon & Solder Kit	1

	Item Name	QTY
8	Closet Stop Assembly	1
9	Vandal Resistant Control Stop Cover	1
10	Spud Coupling Assembly	1
11	ZEMS Cover Plate Screws	4
12	Sensor Power Supply Cable	1

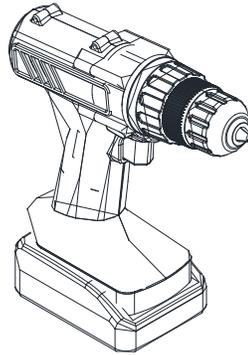
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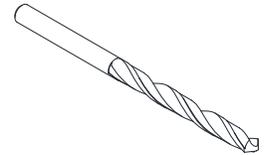
Required Tools



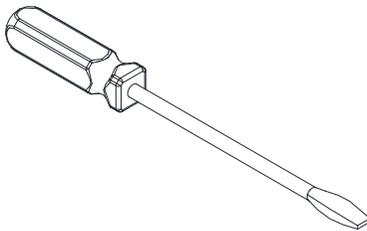
Phillips Head
Screwdriver



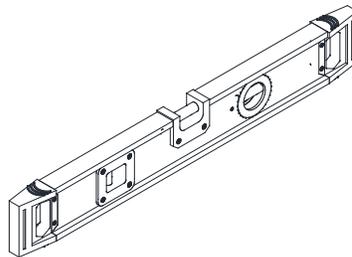
Hand Drill



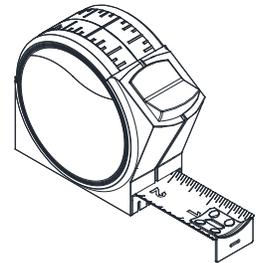
Drill Bits: 1-3/4"



Flat Head
Screwdriver



Level

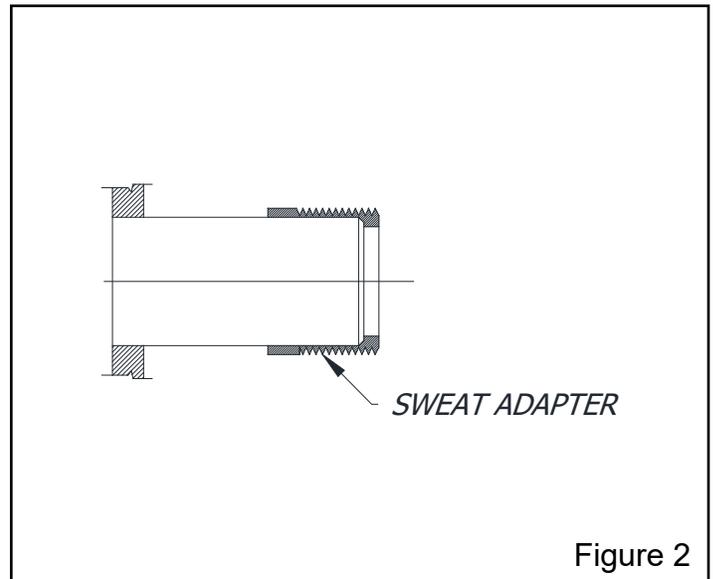
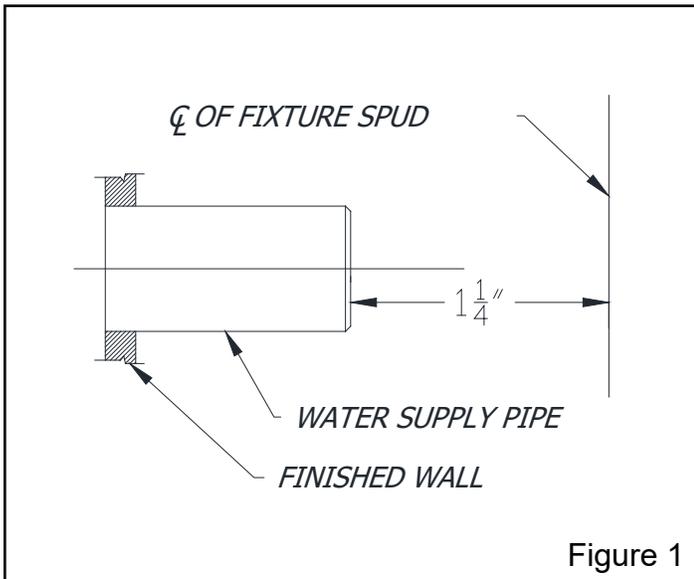


Measuring Tape



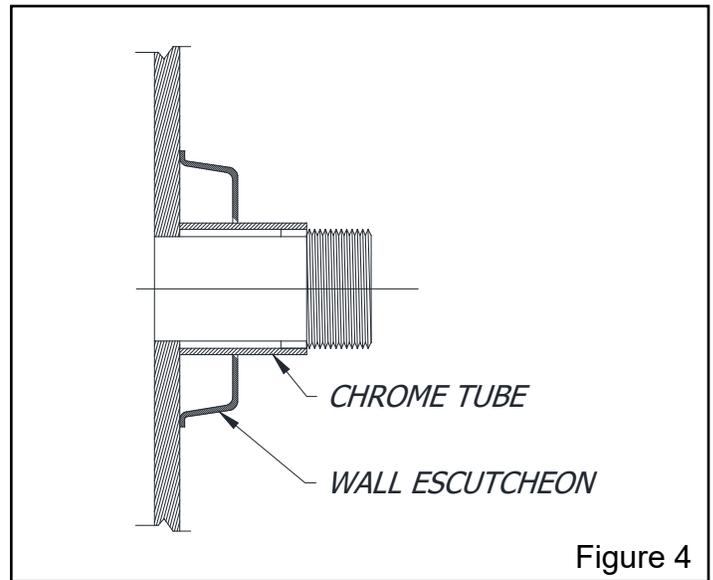
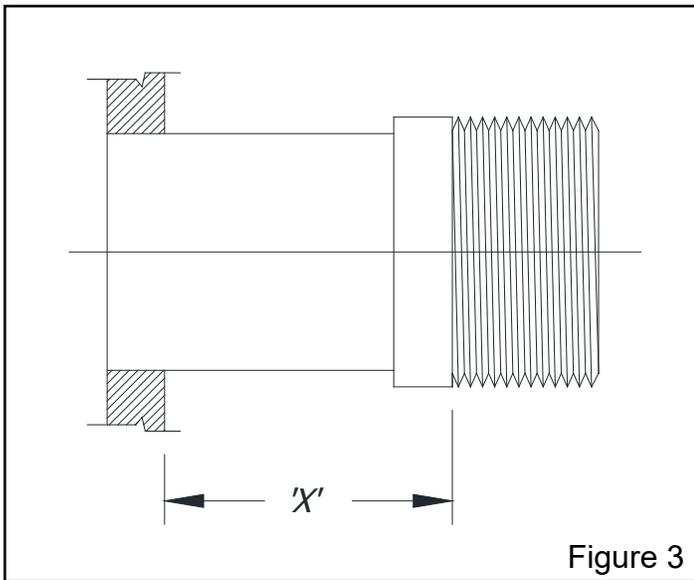
Sheetrock Saw

Sweat Solder Adapter Installation Instructions



1. Measure distance from finished wall to center line of fixture spud; cut water supply pipe 1-1/4" shorter than this measurement. Chamfer O.D. and I.D.

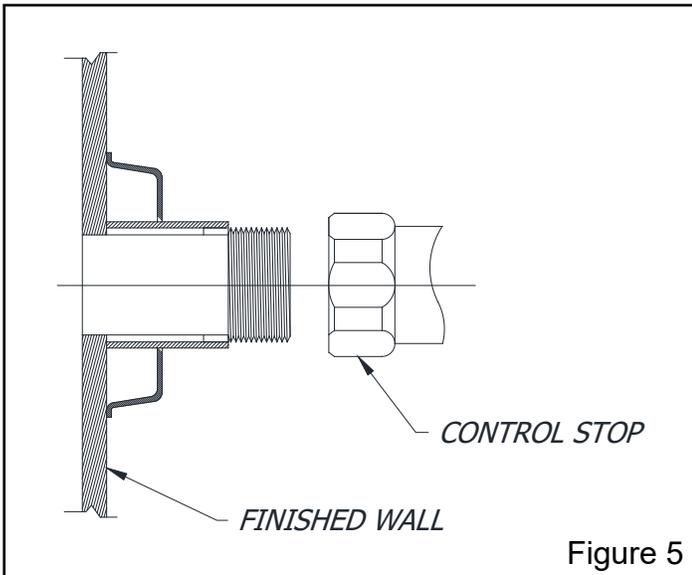
2. Slide threaded adapter onto supply pipe until shoulder stops on end of pipe. Then sweat-solder the adapter to water supply pipe.



3. Measure from finished wall to first thread of adapter for length of chrome tube. Cut chrome tube this length 'x'.

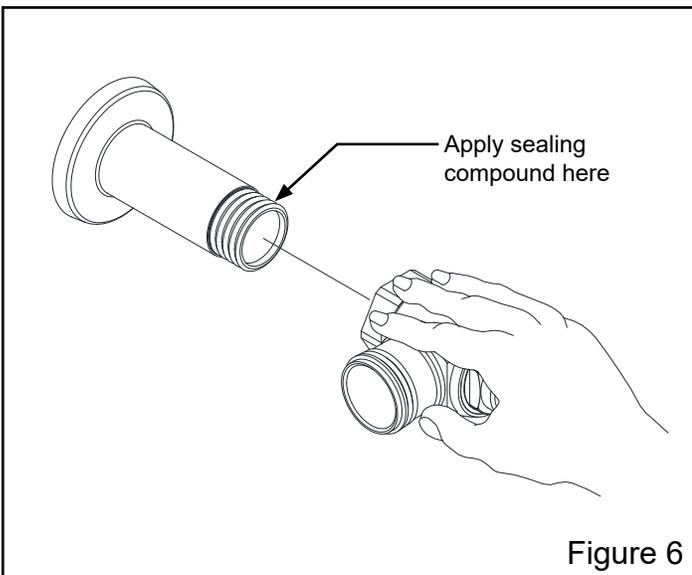
4. Slide wall escutcheon over chrome tube and slide both chrome tube and wall escutcheon over supply pipe pushing the wall escutcheon all the way to the wall.

Sweat Solder Adapter Installation Instructions Cont.



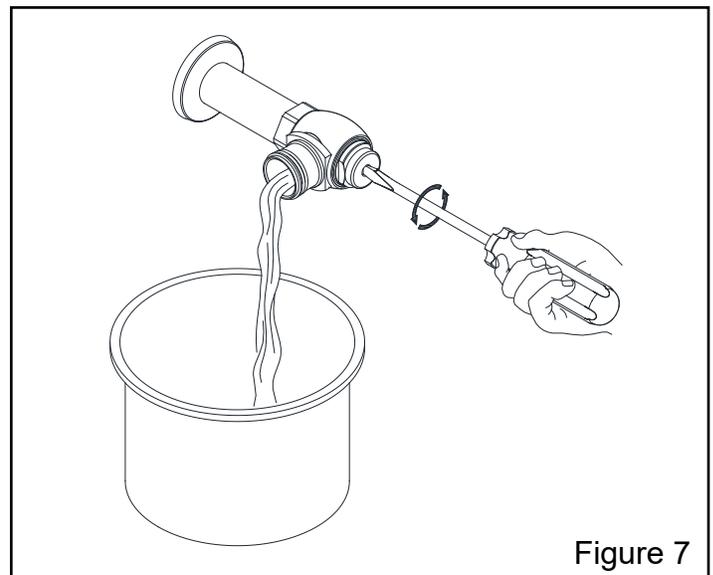
5. Screw control stop onto water supply water adapter.

Control Stop Installation Instructions



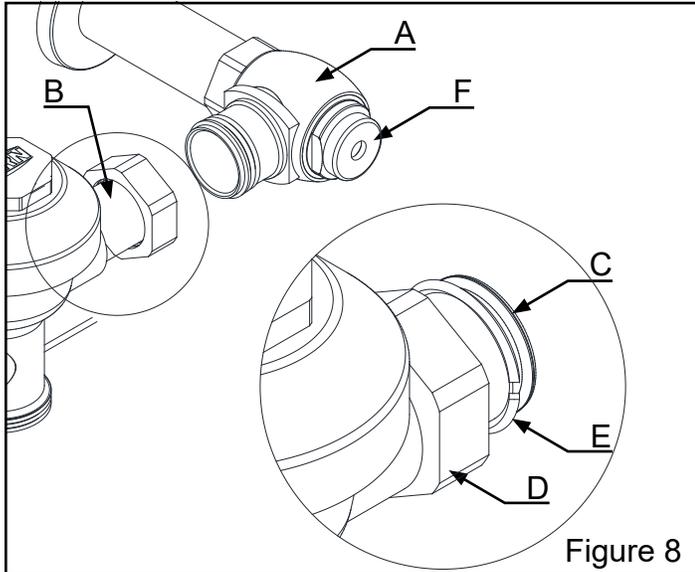
1. Install control stop assembly by threading it onto water supply pipe and tightening with a smooth jawed wrench. Apply thread sealing compound or pipe tape to male NPT thread on sweat solder adapter only.

Prior to turning on main water supply line ensure all stop valves are closed off tight by using a flathead screwdriver and turning the stop valve adjustment screw clockwise.



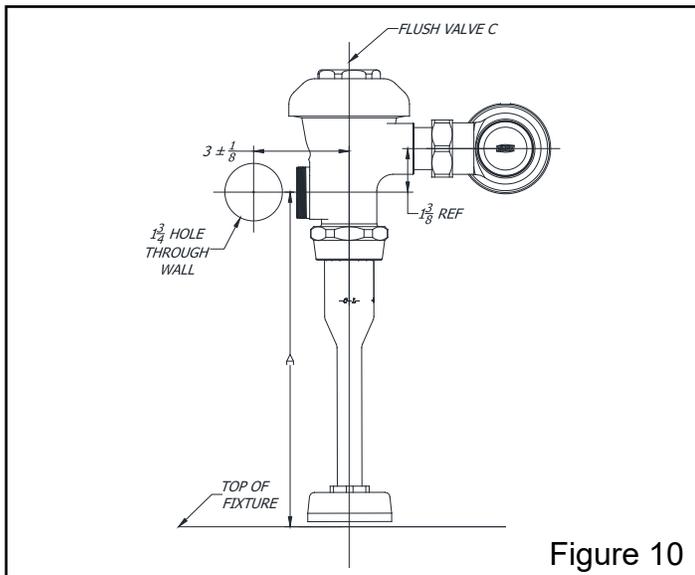
2. Allow the water supply line to flush any debris or sediment that may be present in the line. Close the control stop once the lines are complete flushed.

Flush Valve Installation Instruction



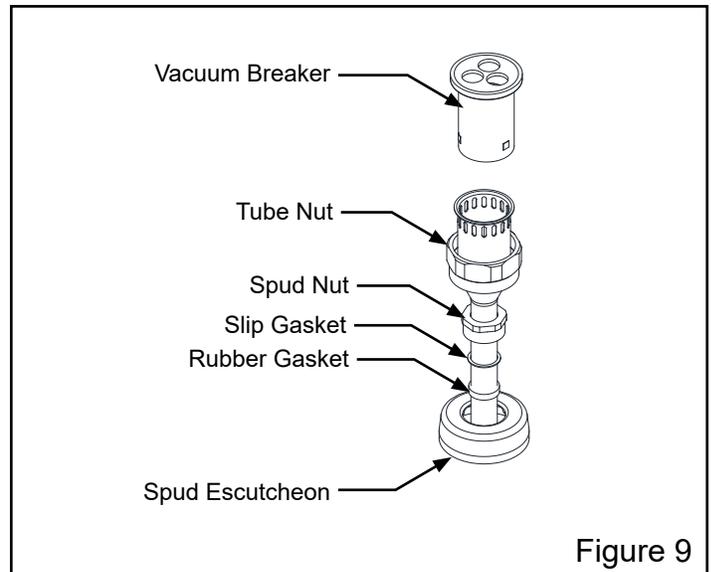
Prior to attaching flush valve (B) to control (A) inspect and verify that the O-ring seal is located within the O-ring groove (C) at the tailpiece. Ensure the locking nut (D) and locking snap ring (E) are also present on the tailpiece. Lubricate O-ring with water if necessary and insert flush valve tailpiece into the control stop valve. Tighten locking nut (D) using a smooth jawed wrench.

Motor Actuator Installation Instruction

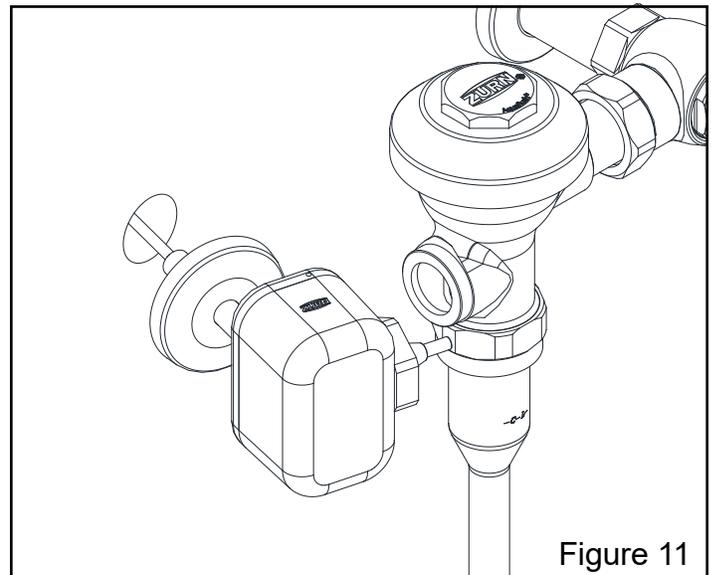


1. Drill 1-3/4" diameter hole per Figures 10 or 11.
2. Run "fish tape" from electrical box to 1-3/4" hole.
3. Install actuator escutcheon to the actuator pipe with setscrew toward actuator. Do not tighten setscrew at this time.
4. Pull actuator cable through hole with fish tape and back to sensor box. Secure cable to box with box clamp.

Install Vacuum Breaker Flush Connection



Slide the tube nut, spud nut, slip gasket, rubber gasket and spud escutcheon over the vacuum breaker tube and insert tube into fixture spud. Hand tighten tube nut to valve body and hand tighten spud nut onto fixture spud. Adjust the valve assembly for plumb. Tighten fixture spud nut, vacuum breaker tube nut and lock nut with a wrench.



5. With escutcheon loose and handle port washer installed, push power cable and cable supply tube into wall. The actuator must be angled away from the valve body at this time until the actuator push rod clears the handle port flange. The actuator can now be mounted to the flush valve and tightened.
6. Push escutcheon back to wall and tighten setscrew.

Sensor Installation Instruction

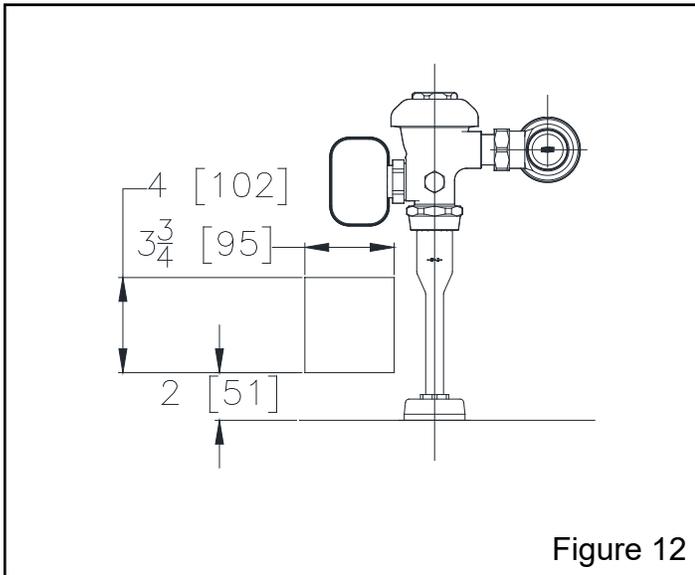


Figure 12

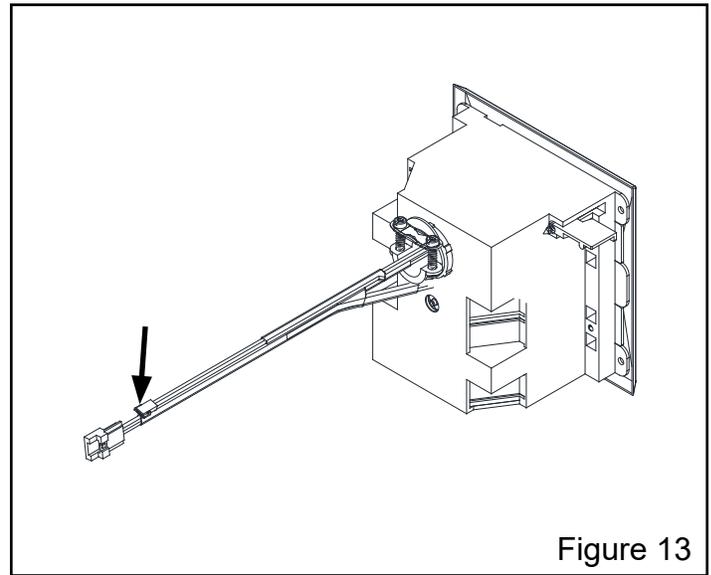


Figure 13

1. Cut out opening as shown above.

2. Attach power cable to small connector coming out the backside of ZEMS Electronics Enclosure.

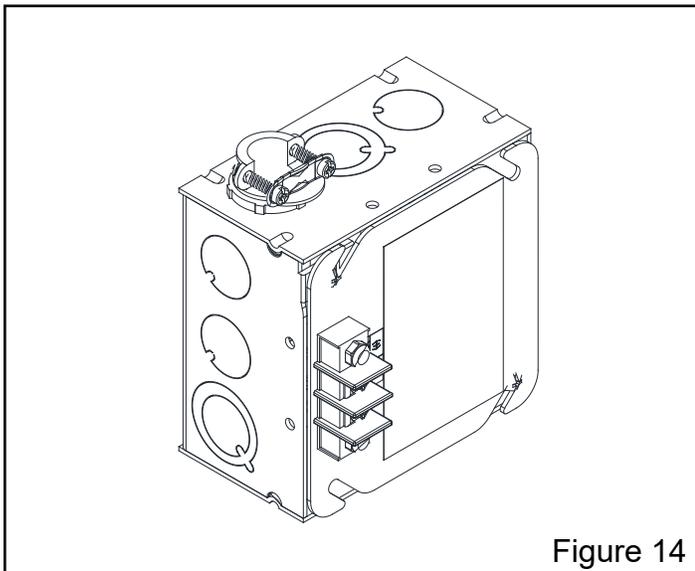
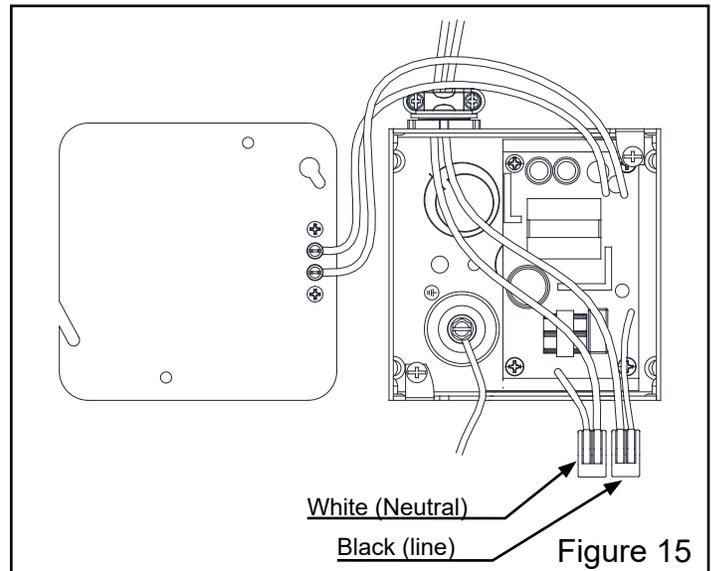


Figure 14



3. Loosen cover retaining screw with Phillips head screw driver to remove cover from HW6 enclosure. Feed power cord into enclosure box through wire clamp (not provided). Tighten screws clockwise on wire clamp to secure power cable in place.

4. Connect power cord with Wago connector as outlined above. See P6000-HW6 installation instruction for detailed instructions.

⚠ Main power should be turned off before performing this step.

⚠ This step should only be performed by licensed electrician.

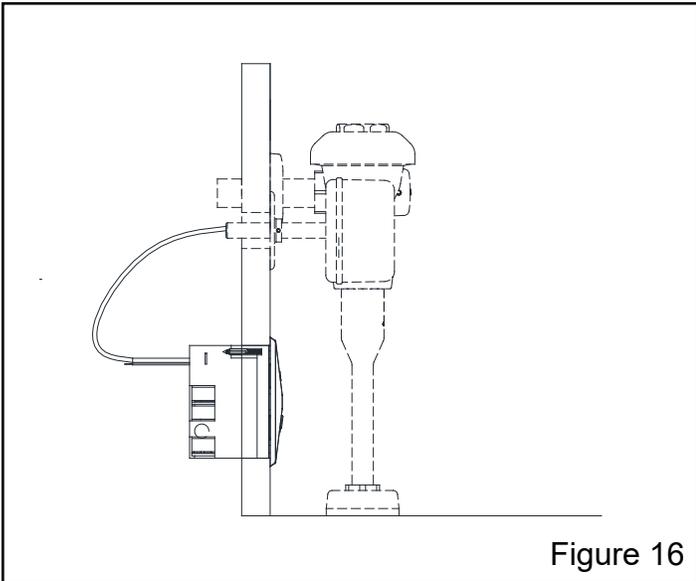


Figure 16

5 Feed motor cable from actuator to enclosure. Connect the motor cable from actuator to the large three wire motor cable connector exiting the backside of enclosure.

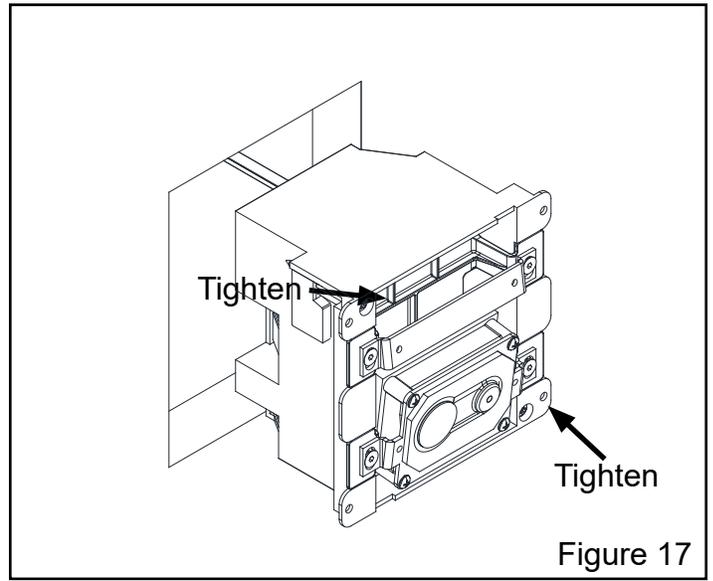


Figure 17

6 Mount the box into drywall cutout. Hold enclosure to the wall and tighten the two included fasteners attached to blue box.

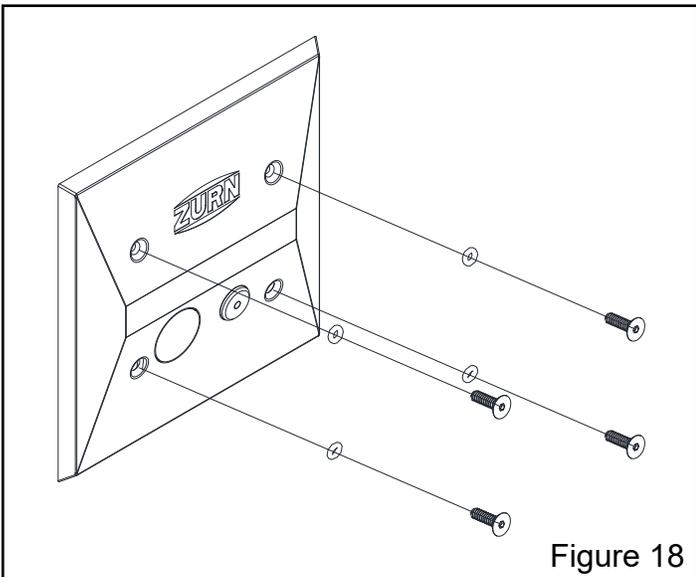


Figure 18

7. Apply light pressure to sensor faceplate while assembling to compress gaskets while tightening fasteners with supplied allen wrench.

Customized Sensor Range Setting

The ZEMS is factory set to accommodate most closet and urinal installations. If this factory setting does not accommodate your specific environment, follow steps below to customize your range settings for your specific ZEMS model.

CALIBRATION INSTRUCTIONS FOR ZEMS G2

1. Obtain a target. SEE FIGURE 18.
2. PRESS and HOLD button for 10 seconds or until the LED turns solid.
(*Unit will blink four times and flush once while button is being held)
3. RELEASE finger after LED turns solid.
4. PRESS and HOLD button when LED starts blinking.
5. RELEASE finger when LED turns solid.
6. Set target at desired distance, (No less than 16") from sensor face and verify NO other objects are in view of sensor face.
7. Keep target steady - Unit will blink while calibrating.
8. After 30 seconds, calibration ends with a fast double blink or a solid LED for 5 seconds.
9. IF THE LED REMAINS SOLID FOR 5 SECONDS AFTER CALIBRATION, the calibration was NOT successful. REPEAT STEPS 2-8
10. For closet installations continue to "VERIFY CALIBRATION FOR CLOSET INSTALLATIONS".

Verify Calibration for Closet Installations

1. Stand outside closet stall and close door and verify that sensor does not see stall door. If LED blink/flashes, recalibrate to a shorter range.
2. Slowly open door to closet stall while looking at ZEMS-IS sensor.
3. If led blinks while door is opening, recalibrate to a shorter range. FAILURE TO DO SO WILL RESULT IN GHOST FLUSHING.

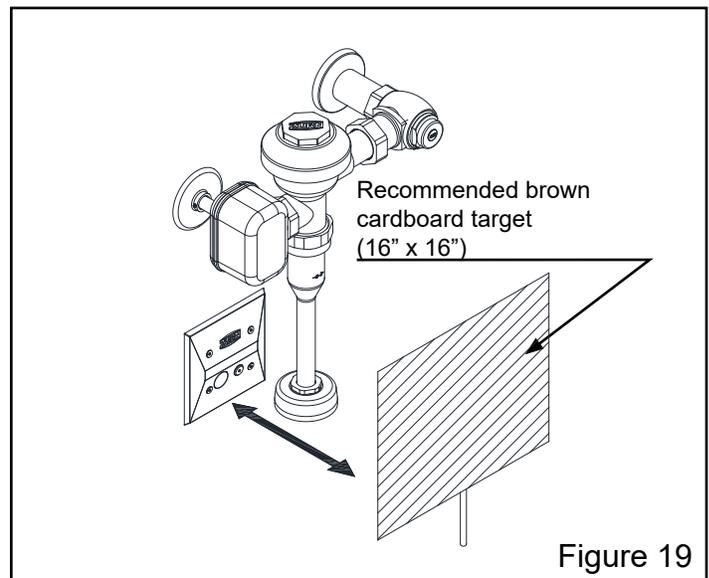


Figure 19

Activating the Motor Actuator with the Sensor

To activate the motor actuator with the sensor, simply place a target in front of the sensor. A single red light will flash indicating the sensor has recognized the target. If the target stays in view for eleven seconds, two flashing red lights will occur. This indicates that the target has been in view for the required time and upon leaving the view, a signal will be sent to the motor actuator to flush the flush valve. NOTE: If the target does not stay in view for the required eleven seconds, a flush will not occur.

Trouble Shooting: Smart ZEMS Flush Valve

Problem	Possible Cause	Corrective Action
Valve will not operate.	Stop valve is closed	Open stop valve.
	Supply valve is closed.	Open supply valve.
	The electric wire(s) is not connected.	Connect the wires.
	Sensor lens may be dirty.	Clean lens.
	Reflective surface in front of sensor.	Remove the reflective surface from in front of the sensor.
	Detection range not adjusted properly.	Adjust the detection range.
	The infrared sensor or the actuator is out of order.	Contact distributor for replacement.
	Sensor fault	Replace sensor
	No power provided by power supply	Replace power supply
Flush valve does not activate after user leaves	Sensor does not recognize a user	Re-calibrate sensor per "Calibration Instructions" section.
	Power supply may be disrupted	Check available voltage where escutcheon is attached to wall with DC voltmeter. 7.4-9 VDC is required. Verify connection to actuator.
Repeated valve activation when power is provided	Insufficient DC power level (less than 7.4 volts DC)	Upgrade the -HW6 power supply to the new ZURN power supply (greater than 7.6 volts DC).
Insufficient volume of water to adequately siphon fixture	Stop valve is not open enough.	Open stop valve for desired volume of water.
	Urinal piston installed in closet valve.	Replace urinal piston with proper closet piston.
	Insufficient volume or pressure at supply.	Consult fixture guide for minimum gallons per minute flow and running pressure for satisfactory performance.
Valve is flushing too long or not shutting off.	Trip mechanism not seating properly due to foreign material between trip mechanism and seat.	Disassemble parts and rinse thoroughly.
	By-pass orifice is plugged or partially plugged.	Examine by-pass orifice and clean if necessary being certain not to enlarge orifice opening.
	Line pressure is not adequate to force trip mechanism to seal.	Pressure is inadequate or has dropped below minimum operating range. Steps should be taken to increase the line pressure.
Water splashes out of fixture/	Supply volume is more than is necessary.	Adjust downward on control stop.
	Lime accumulation on vortex or spreader holes of fixture.	Remove the lime build up.
Flush is not considered quiet.	Control stop may not be adjusted for quiet operation.	Adjust the control stop for quiet operation keeping in mind the fixture evacuation requirements.
	Fixture may be contributing to noise.	Check noise created by fixture by placing a cover over the bowl opening to separate valve noise from bowl noise. If it is determined the fixture is too noisy, consult with fixture manufacturer.
	Piping system may be source of noise.	High pressure in the system can sometimes be controlled by the stop valve. Other sources of noise may be the absence of air chamber and shock arrestors, loose pipes, improper size pipes, etc. In these cases the building engineer should be consulted.
Flush valve "ghost" flushes or activates randomly with no user present.	Sensor Lens may be dirty.	Clean lens.
	Power supply output is out of tolerance.	DC voltage must be between 7.4-9 volts. Check for power fault or malfunction in a unit or replace with a Zurn power converter.
	3) Sensor is viewing stall door.	Re-calibrate sensor per "Calibration Instructions" section.
Flush valve shuts off too quick.	Diaphragm Valves	
	Damaged diaphragm.	Install new P6000-ECA, P6000-EUA replacement kit.
	Enlarged by-pass orifice.	Install new P6000-ECA, P6000-EUA replacement kit.
	Piston Valves	
	Damaged piston.	Install new P6200-EC, P6200-EU replacement kit.
Enlarged by-pass orifice.	Install new P6200-EC, P6200-EU replacement kit.	
Valve is short flushing	Diaphragm Valves	
	Enlarged by-pass orifice.	Install new P6000-ECA, P6000-EUA replacement kit.
	Urinal piston installed in closet valve.	Replace urinal piston with proper closet piston.
	Piston Valves	
	Enlarged by-pass orifice.	Install new P6200-EC, P6200-EU replacement kit.
Urinal piston installed in closet valve.	Replace urinal piston with proper closet piston.	

For further assistance with troubleshooting, visit <http://www.zurn.com/>

Trouble Shooting: Smart ZEMS Endpoint, Gateway & Portal

Problem	Possible Cause	Corrective Action
Endpoint		
Device not communicating	Device lost power	Double check power connections and supply
	Y cable was not connected	Ensure cable is securely connected
	Gateway disconnected	See gateway troubleshooting
Connected device not functioning	Wiring error in y cable	Ensure cable is securely connected
	See Connected Device Troubleshooting Guide	See Connected Device Troubleshooting Guide
Faucet / Flush Valve actuates but does not register on portal	IR sensor not connected to endpoint	Connect IR sensor to endpoint
Gateway		
Gateway appears online and LoRA light on, but activations are not registering on plumbSMART product page		Power cycle gateway
Gateway powered up where status light flashes, LoRA light is off	No ethernet connection, no SIM card	Reconnect ethernet or reinsert simcard, depending on device type
	Gateway was disabled in Senet	Call Customer Support
	Building LAN has restricted access	Contact organization IT department
No lights are flashing	Gateway is not powered	Power Gateway
Portal		
High daily use alerts	Usage spiked	Adjust threshold (possibly move to portal area)
Endpoint is not appearing on portal	Endpoint was not registered on plumbSMART	Register device in plumbSMART
Device not communicating alert	See endpoint troubleshooting	See endpoint troubleshooting
	Gateway is at extreme limit of communication range	Call customer support to verify signal strength. (Move Gateway closer to connected devices)
Water usage does not match reported usage	Not paired with correct product type	Call customer support
	Correct aerator is not installed	Check that correct aerator is installed and replace with correct aerator if needed
	Flow rate parameter settings does not match default for product type	Reset to default parameter settings
	Not enough water pressure	Call building maintenance
	Swapped lids / labels	Call customer support
Omitted activations	Gateway is at extreme limit of communication range	Call customer support to verify signal strength. (Move Gateway closer to connected devices)

For further assistance with troubleshooting, visit <https://plumbsmart.zurn.com/app/training>

Maintenance Instructions

- If abrasives or chemicals are used it can lead to dulling of luster, attacking of chrome plating or decorative finishes.
- ONLY use mildly warm soapy water, and then wipe dry with a clean/soft towel or cloth.
- When cleaning other areas of the restroom be sure the sensor lenses are protected from other cleaning chemicals/solvents to prevent potential damages to the sensor and/or electronics.
- For surface shine, rubbing a polishing agent will polish the surface of all components.

Repair Instructions

- Please call a Zurn representative if you are having trouble with this product.

Service Parts

- There are no serviceable parts on this product. Please call a Zurn representative if you are having trouble with this item or need help troubleshooting.

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