

AquaSense[®] EV[™] ZEG Series

Automatic Sensor-Operated, Hard-Wired Flushometer

Installation, Operation, Maintenance, and Parts Manual

Patented and Patents Pending



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 Sanford, NC, 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 quaranteed.

PRIOR TO INSTALLATION

Prior to installing the ZEG EcoVantage urinal flushometer valve, install the items listed below:

- Urinal fixture
- Drain line
- Water supply line
- Electrical wiring to the power converter (120 VAC, 35 watts service required for each power converter used)

IMPORTANT:

- 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 operation (See Step 2).
- Dirt and debris can cause flush valve to run continuously.
- Sensor units should not be located across from each other or in close proximity to highly reflective surfaces.

INSTALLATION

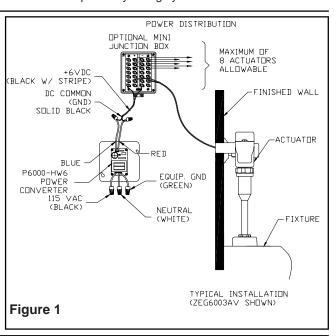
1.) Install the Zurn Power Converter in a convenient location near the flush valve, mounted in a 4 x 4 electrical box in accordance with local electrical codes. An optional mini junction box (P6000-MJ) is recommended to distribute power to multiple Pint Urinal Valves.

NOTE: One Power Converter can operate up to eight Pint Urinal Valves. For wiring from the Power Converter to the Pint Valve(s), use #18 AWG (by others). **Do not supply power** to the Power Converter until installation of valve is completed and checked.

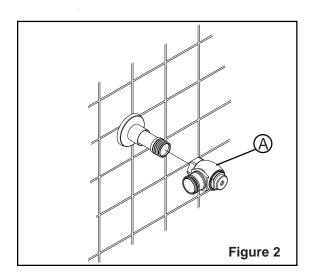
Proper polarity must be observed or damage to one or all components will result.

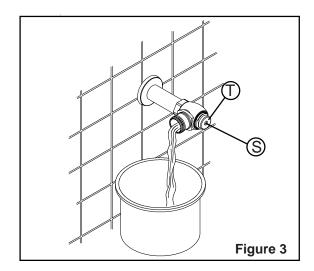
Optional Mini Junction Box

When using optional mini junction box, be certain power is off while making wire connections to prevent damage to electrical components.



The ZEG is designed to operate with 20 to 80 psi (138 to 552 kPa) of water pressure. Protect the chrome or special finish of this flushometer. **Do not use toothed tools to install or service the valve.**





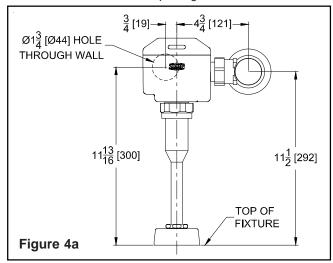
2.) Install stop valve assembly (A) using proper size supply escutcheon and sweat solder adapter kit if applicable. Thread sealing compounds should be used on male NPT threads only.

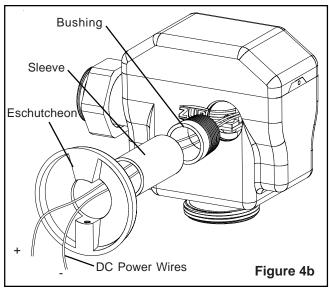
Before the supply water is turned on, be sure all stop valves are closed off tight. The stop valves can be opened and closed by using the adjusting screw (S) located at the center of the stop valve cap (T). Stop valve adjustments can only be made by using the adjusting screw (S). It is not necessary to remove the stop valve cap (T) when making adjustments. If for any reason it becomes necessary to remove the stop valve cap (T), be certain the water is shut off at the main supply valve.

- 3.) When all stops are connected to the water supply and water pressure is available, it is recommended that the supply piping be flushed to remove dirt, metal chips, etc., from system.
- A. Before the valve is installed, open each stop fully for a brief time and catch the water in a two gallon or larger bucket (Figure 3). For multiple installations, start with the stop valve closest to the water supply and work toward the most remote valve.
- B. Due to the small passages and orifices, it is not possible to flush the piping through the low volume valve.
- C. Once the lines are flushed, the valve can be installed.

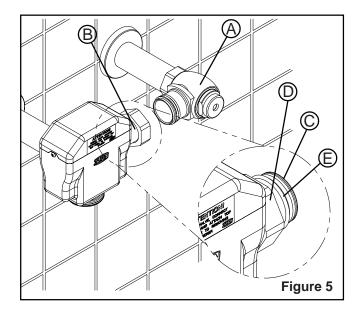
4.) Flushometer Installation

A. Drill 1-3/4" diameter hole per Figure 4a.

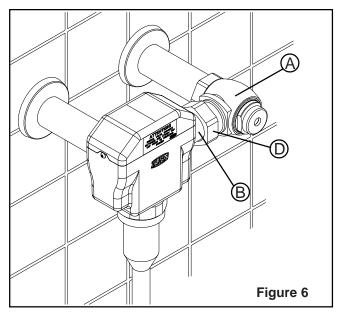




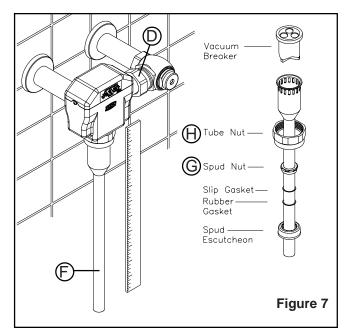
B.Install the threaded bushing to the rear of the valve. Slip the cover tube and escutcheon onto the bushing (these parts are the same as used for the stop) see Figure 4b.



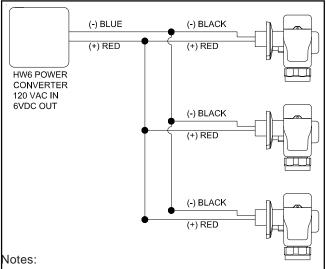
5.) Prior to inserting the flush valve tailpiece (B) into stop valve (A), be certain that the O-ring seal (C) is located in O-ring seal groove at the end of the tailpiece and that the locking nut (D) and locking snap ring (E) are located as shown. Care should be taken not to damage the O-ring when inserting the tailpiece into the stop valve. If lubrication is needed, wetting the O-ring with water will be sufficient.



6.) Insert the flush valve tailpiece (B) into the stop valve (A) and hand tighten the lock nut (D) to the stop valve.



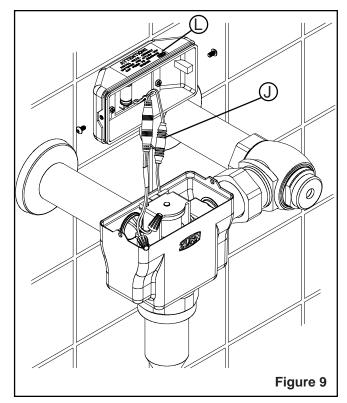
- **7.)** Determine the length of vacuum breaker tube **(F)** required to join the flush valve and fixture spud. Cut the vacuum breaker tube, if required, to this length. Assemble the vacuum breaker tube assembly and spud nut assembly to the flush valve and fixture spud.
- 8.) Hand tighten spud nut (G) and vacuum breaker tube nut (H) to fixture and flush valve. Adjust the valve assembly for plumb. Tighten fixture spud nut (G), vacuum breaker tube nut (H) and lock nut (D) with a wrench. Slide the escutcheon on the wiring connection back against the wall and lock it in place with the allen set screw. Do not turn water on until power is connected see 9.



- Failure to observe proper polarity will result in failue of the sensor and/or power converter.
- 2. Use #18 awg for interconnections.
- The maximum number of actuators per power converter is eight.

 Figure 8

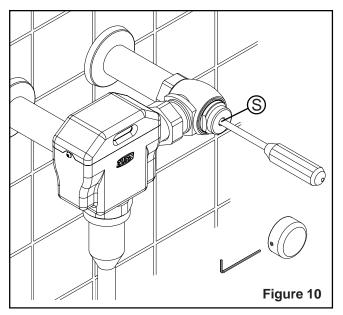
- 9.) Wiring installation (see fig. 8)
- A. Remove the two cover retaining screw and lift the flushometer top cover.
- B. Run fish tape through the valve, cover tube, and wall to the power supply or optional junction box.
- C. Pull a pair of 18 ga. wires from the power supply or junction box back through the wall into the valve.
- D. Valve will either have a +/- quick connection or two wire nut connectors for attachment of power leads. Connect DC power wires with proper polarity to red (+) and black (-) wires and secure with wire nuts. Tuck wires into housing being careful not to crimp any wires
- E. Reinstall the flushometer cover using the two button head allen screws. There are two extra screws in the top cover in case of loss.
- F. Turn on the power and check the flushometer for sensing function.



9.) ACTIVATION

Remove and discard the protective label **(L)** from in front of the lens.

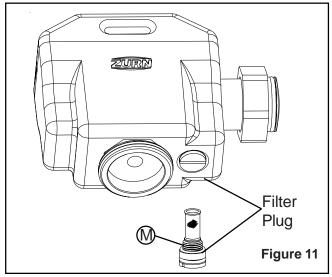
Normal valve operation will occur when the valve senses an object (person). The LED will blink brightly once and then dimly three times about a second apart. There will be a pause and then a double blink. At that point the valve is charged. When object leaves view of the sensor, valve will activate. This six second sensing cycle will prevent the valve from flushing needlessly when someone walks by. If special circumstances require adjustment of the sensing distance, see Appendix A - Changing Activation Distance.



10.) The ZEG urinal valve comes preset for both flow volume and sensing distance. Each valve is operated at the factory using water to insure proper function before being packed for shipment. The valve does not require water pressure regulation for variation in water pressure within the specified pressure range (20 psi to 80 psi) due to internal pressure regulation.

Open the stop valve to wide open position using the adjusting screw (S) on the front of the stop valve. The water volume will never have to be adjusted with the stop valve as on some conventional urinal installations.

Install vandal resistant stop cover to complete the installation.

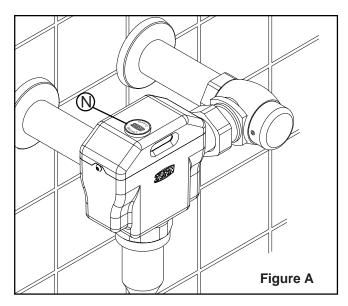


11.) FILTER

When accessing filter, be certain the stop valve is closed at adjusting screw (S) Figure 10.

Activate valve to relieve internal water pressure and to ensure stop valve is closed properly. The filter is accessible from the bottom of the valve using a slot head screw driver. The filter will come out with the plug and can be cleaned with water and a soft brush.

When replacing be sure o-ring (M) is in place and undamaged.



APPENDIX A

TO CHANGE ACTIVATION DISTANCE FOR THE OBJECT LOCK SENSOR

The valve does not have to be disabled in any way to change the detection range. Included with each valve is a Zurn "Magic Magnet" that is used to intiate the auto-calibration mode. Calibration is accomplished as follows.

- 1. Place the Zurn "Magic Magnet" (N) on the left hand side of the flat top surface of the valve and move around until the LED comes on.
- 2. The LED will blink 10 times to indicate magnet is in the proper position. Hold magnet in place until 10 flashing lights occur and the red light turns solid. The solid red light indicates the electronics are in calibration mode.
- 3. Remove the magnet and stand in front of sensor about 24" away for the rest of the calibration. The calibration process takes about 60 seconds. Do not move during this process.
- 4. When calibration is completed the solid red light will disappear and the LED will blink twice brightly.

TROUBLE SHOOTING GUIDE

Problem	Possible Cause	Diagnosis	Solution
No lights are visible in	Electronics fault.	Run through reset procedure	
the sensor eye.		below.	
Valve does not flush.	Valve could be sensing a	Hold a flat object at an acute	Reduce sensing range
	close by surface or reflections	angle to the valve and see if it	Eliminate reflective
	from some opposite surface.	flushes (three ring binder	object.
		works well)	
	Lens could be dirty or dam-	Visual inspection of batteries	Replace if obstructed or
	aged.	and battery case.	damaged
	Electrical leads disconnected	Check plug insertion and wire	Reinsert plug or repair
	or broken wire.	continuity.	leads
	Electrical corrosion has	Visual inspection	Replace
	caused loss of contact.		
	Sensor not detecting user.	Hold hand at different ranges	Reset sensor range
		in front of valve to see if it can	(Appendix A)
		be detected.	
Light flashes randomly in	Electronics fault	Run through reset procedure	
sensor eye and valve		below	
does not flush			
Lights follow normal	Water not turned on.	Close stop, disconnect valve,	Find source valve and
sequence, valve does		crack stop to check for water.	turn on.
not flush.	Plugged filter.	Close stop, remove and	Clean and reinstall filter
		inspect filter.	
	Stop valve closed.	Check stop screw.	Open stop valve
	Wiring fault.	Check solenoid leads and and	Reinsert plug or repair
		insertion of solenoid plug.	wiring
	Solenoid malfunction.		Clean P6900-SRK
			components. See parts
			list
Valve flushes but does	Diaphragm damage or plugged	Visual inspection.	Replace diaphragm
not shut off.	diaphragm orifice.		
	Solenoid malfunction		Clean P6900-SRK
			components. See parts
			list
Leaks	Incorrectly installed.	Check for leak location.	Remove and reinstall.
			Pay close attention to
			alignment of inlet tube
			and outlet boss with
			mating pieces.
	Damaged O-ring on inlet tube.	Check for cuts.	Replace O-ring

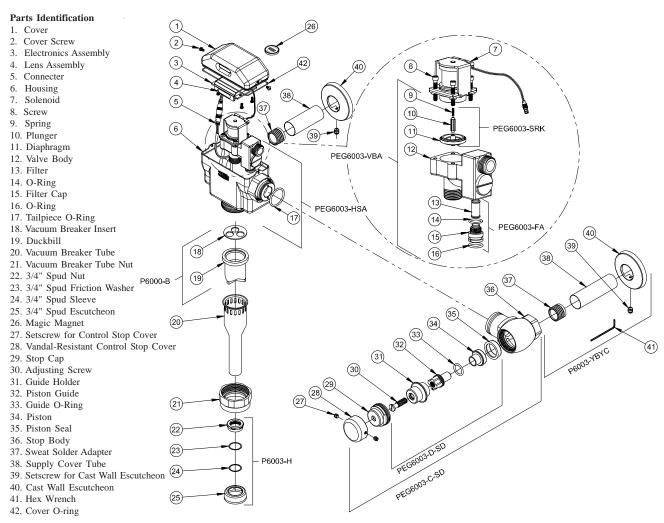
Electronics Reset Procedure: Remove valve cover. Disconnect solenoid wires ((J) Figure 9). Disconnect one wire nut connection to disrupt power to the valve. Place magic magnet on top cover as if changing activation distance (See Appendix A). Reconnect solenoid wire connector. Place valve cover back on valve housing, carefully tuck wires into housing. Secure cover with two screws provided. Reconnect power and check for sensor function.

Soft RESET for Electronics:

- 1. Remove the battery cover from the battery box.
- 2. Wait for two minutes.
- 3. Reassemble.
- 4. Hold target in front of sensor eye (light should blink once followed by a double blink over a 5 second period).
- 5. Solenoid will activate when target leaves view.



ZEG6003EV-HW6 1/8th Gallon Urinal Parts Breakdown



C + 1 C + D - 1 - I' + 1 D +	D . 1 . 4 M
Control Stop Repair Kit and Parts	Product No.
Control Stop Repair Kit for 3/4",	PEG6003-D-SD
Includes Items 30-35	
3/4" Control Stop Replacement, Includes	PEG6003-C-SD-
Items 29-36	CP
Seal Seat for 1" and 3/4", Includes Item 35	P6000-D42
Sweat Solder Adapter, Includes Item 37	P6003-YBA
Sweat Kit and Eschutcheon, Includes Items 37-41	P6003-YBYC

Flush Connections and Spud Coupling Kits	Product No.
3/4" Flush Connection and Spud Coupling,	P6003-H
Items 22-25	
Vacuum Breaker Repair Kit, Items 18-19	P6000-B

Lid and Housing Kits	Product No.
1/8 GPF Cover Replacement Kit P, Item 1	PEG6003-L
1/8 GPF Housing Replacement Left, Items 6-17, 42	PEG6003-HSA-1
1/8 GPF Housing Replacement Right, Items 6-17, 42	PEG6003-HSA-2
1/8 GPF Lid O-ring, Item 42	PEG6003-CVR-
	ORING
Solenoid and Valve Kits	Product No.
1/8 GPF Solenoid Valve Body Replacement Kit,	PEG6003-VBA

Solenoid and Valve Kits	Product No.
1/8 GPF Solenoid Valve Body Replacement Kit,	PEG6003-VBA
Items 9-16	
1/8 GPF Solenoid Repair Kit, Items 9-11	PEG6003-SRK
1/8 GPF Solenoid Replacement Kit, Items 7-8	PEG6003-M
1/8 GPF Filter Replacement Kit, Items 13-16	PEG6003-FA

Replacement Parts and Repair Kits	Product No.
1/8 GPF Cover screw, Item 2	PEG6003-CVR-S
1/8 GPF Electronics Assembly, Item 3	PEG6003-EL
1/8 GPF Lens Assembly, Item 4	PEG6003-SC
1/8 GPF Power Connector, Item 5	PEG6003-CWE

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