

SUPERSEDES: New

EFFECTIVE: August 16, 2016

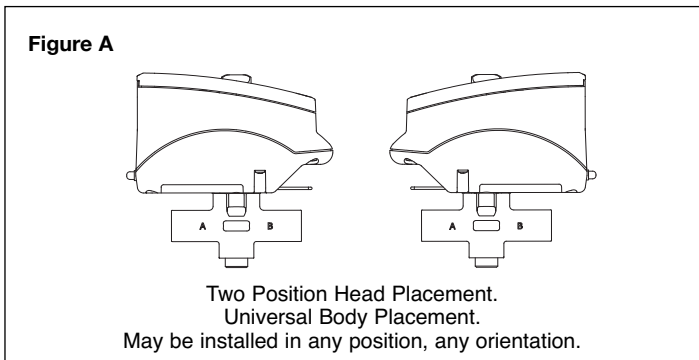
Plant ID# 001-4238

### Application:

The Taco Zone Sentry zone valve is designed for use in hydronic HVAC systems, primarily in fan coils and air handlers or other HVAC systems where a quality line voltage zone valve is required. The Zone Sentry can be installed in both heating and cooling applications. The Zone Sentry is available in two body configurations. The first is a 2-way on/off valve with either a normally open or normally closed actuator. The second type is a 3-way diverting valve.

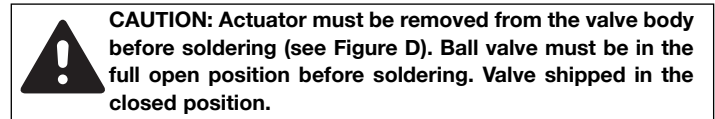
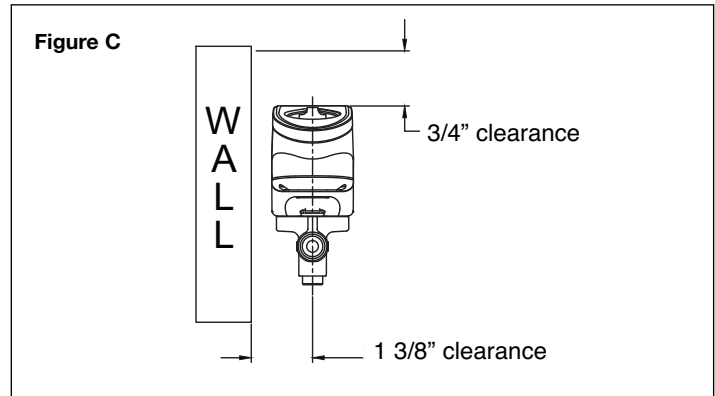
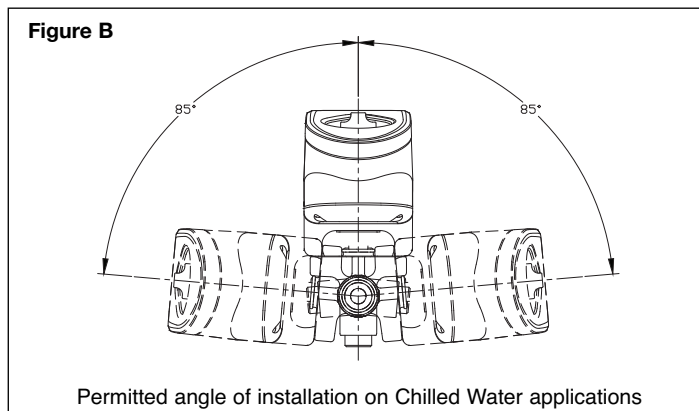
### General Installation Information:

The Multi-Volt Zone Sentry will accept input voltages between 120 and 277VAC 50/60HZ. The valve can be installed in any direction and in any orientation. (See Figure B exceptions on chilled water installations). The 2-way valve is bi-directional, either port may be used as the inlet. The actuator may be mounted on the body in either of the two possible mounting positions (see Figure A). Before installing the valve body, refer to Figure C for removal clearances.



### Valve Installation:

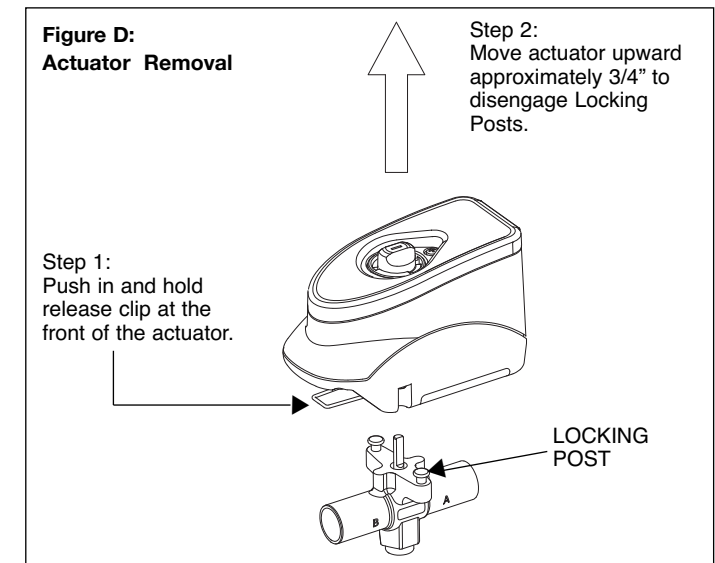
1. On hot water applications, the valve body may be installed in any orientation. On chilled water installations, do not install with the actuator beyond 85° from the topmost installation (see Figure B).
2. Before mounting the body, refer to Figure C for any clearance requirements.
3. Use of a solder with a melting point below 600°F is recommended. Do not overheat! Make sure the ball valve is in the FULL OPEN position during soldering. Direct flame tip away from the center of the valve. Cool valve quickly with a wet cloth.
4. Solder build-up on the ball valve may prevent proper opening and closing of the valve. Actuate the actuator once or twice and make sure the valve rotates fully.



5. Valve body can be submerged for leak testing before the actuator is attached.

### Actuator Installation / Wiring:

1. Actuator Removal: Remove the valve actuator prior to soldering by pushing in and holding the release clip at the front of the actuator and lifting upward approximately 3/4" (see Figure D).
2. To re-assemble the actuator to the valve body: Position actuator such that the "D" shaped valve stem aligns properly with the "D" shaped actuator drive cavity. (Note: The "D" shaped stem design allows for correct insertion every time.) Next, slide the valve stem into the actuator cavity, push in and hold the release --clip until the actuator slips over the valve locking posts (see Figure D). Once the actuator is flush to the valve body, let go of the release clip. Using very little force, try to take the actuator off of the valve body without using the release clip. Both locking posts should be firmly attached to the actuator. If the actuator slides up the stem, repeat the assembly process.
3. Changing the actuator orientation: The actuator may be attached to the valve body in either direction (see Figure A). In order to




reverse the actuator orientation on the valve body, see the actuator removal instructions in Step 1 with the following exceptions. Instead of moving the actuator the full  $\frac{3}{4}$ " , move it just high enough to clear the locking posts, rotate the actuator 180° and reinstall it on the locking post by following the previous instructions for reassembling the actuator.

**Mode of Operation:**

1. Upon initial field installation the capacitor requires a full charge, up to 60 seconds when power is initially applied and, before the valve starts to turn. Charging time will vary (typically less) during normal operation.
2. When the capacitor is charging the green LED light will FLASH.
3. Once the capacitor is charged, the green LED will stop flashing

but remain ON. At this point the valve's actuator will rotate the ball valve. The green LED will remain ON as long as power is applied.

4. When power is removed the green LED will turn OFF and the valve will rotate 90° into its normal position or non-powered position. For example: If the actuator is a NC (normally closed) version, the actuator would open the valve when power is applied. When the power is removed the actuator would then rotate the valve 90° to its normally closed position.



**WARNING: Do not use zone valves on indirect water heaters without a tempering device.**

**Multi-status LED and Troubleshooting:**

This troubleshooting table is intended as a helpful guide and is not all inclusive. There could be other causes and solutions for a non-functioning product.

LED STATUS	INDICATES	POSSIBLE CAUSE	POSSIBLE SOLUTION
Not Illuminated	Power off	No call No power	Verify there is a call. Check for voltage at the actuator.
Steady blink (once per second)	Charging		
Solid	Power on		
Slow blink (once every 5 seconds)	Excessive charging time	Incoming voltage too low	Reset the actuator (see note). Use voltage within the acceptable range.
Double blink (twice every 5 seconds)	Excessive opening time	Obstruction in valve Buildup of contamination in valve	Reset the actuator (see note). Remove obstruction. Clean the valve and/or system. Replace valve.

**NOTE:** Reset the actuator by removing power for 5 seconds and then restoring power.

**Flow Coefficients and Maximum Close-Off Pressure:**

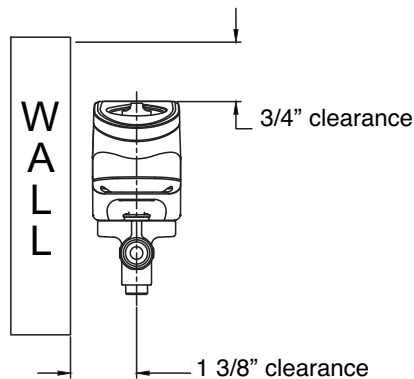
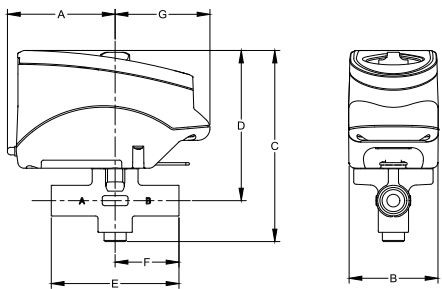
VALVE SIZE	C <sub>v</sub> (Kv)/Ft. of PIPE EQUIV.*	CLOSE-OFF PSI (kPa)
$\frac{1}{2}$ "	4.9 (4.3) / 9.5	0-125 psi (0-862 kPa)
$\frac{3}{4}$ "	10.3 (8.9) / 8.4	
1"	8.9 (7.7) / 47.4	

\* At 4' per second (max. recommended residential flow rate).

**Dimensions (for reference purposes):**

English dimensions are in inches. Metric dimensions are in millimeters. Metric data is presented in ( ).

VALVE SIZE	A	B	C	D	E (Sweat)	E (Threaded)	F	G
$\frac{1}{2}$ "	2 $\frac{5}{8}$ " (66.6)	2 $\frac{3}{8}$ " (60.3)	4 $\frac{7}{8}$ " (123.8)	3 $\frac{3}{4}$ " (95.3)	3 $\frac{1}{2}$ " (79.4)	3 $\frac{3}{4}$ " (95.3)	1 $\frac{1}{8}$ " (39.7)	2 $\frac{5}{8}$ " (58.7)
$\frac{3}{4}$ "			5" (127)	3 $\frac{7}{8}$ " (98.4)				
1"			3" (76.2)	3 $\frac{7}{8}$ " (98.4)	3" (76.2)	3" (76.2)	1 $\frac{1}{8}$ " (47.6)	





**WARNING: Wiring connections must be made in accordance with all applicable electrical codes.**

**WARNING: To prevent electrical shock, disconnect electric power to system at main fuse or circuit breaker box until installation is complete. When a service switch is installed, more than one disconnect switch may be required to deenergize this device for servicing.**

### Product Specifications:

Maximum Operating Pressure:	300 PSI (2,100 kPa)
Maximum Shutoff Pressure:	125 PSI (875 kPa)
Maximum Ambient Temperature	150°F
Fluid Temperature Range:	20° to 220°F, (-7° to 105°C)
Service:	Closed systems Optional open system configuration available Water/Water and glycol up to 50%
Seat Leakage:	Drop-Tight Close-Off
Electrical Rating:	120VAC to 277VAC 1Ph 50/60 Hz
Power Consumption, Charging:	4 Watts
Power Consumption, Power On:	1.5 Watts
Max. Duty Cycle	1 Cycle/Minute

### Materials of Construction, Actuator:

Body:	High Performance Engineered Polymer
Gears:	High Performance Internally Lubricated Engineered Polymer

### Materials of Construction, Standard Valve:

Body:	Forged Bronze
Stem:	Brass
Press Ring:	Brass
Ball:	Brass (Chrome Plated)
Seat:	Modified Teflon®
O-rings:	EPDM

## LIMITED WARRANTY STATEMENT

Taco, Inc. will repair or replace without charge (at the company's option) any product or part which is proven defective under normal use within three (3) years from the date of start-up or three (3) years and six (6) months from date of shipment (whichever occurs first).

In order to obtain service under this warranty, it is the responsibility of the purchaser to promptly notify the local Taco stocking distributor or Taco in writing and promptly deliver the subject product or part, delivery prepaid, to the stocking distributor. For assistance on warranty returns, the purchaser may either contact the local Taco stocking distributor or Taco. If the subject product or part contains no defect as covered in this warranty, the purchaser will be billed for parts and labor charges in effect at time of factory examination and repair.

Any Taco product or part not installed or operated in conformity with Taco instructions or which has been subject to misuse, misapplication, the

addition of petroleum-based fluids or certain chemical additives to the systems, or other abuse, will not be covered by this warranty.

If in doubt as to whether a particular substance is suitable for use with a Taco product or part, or for any application restrictions, consult the applicable Taco instruction sheets or contact Taco at [401-942-8000].

Taco reserves the right to provide replacement products and parts which are substantially similar in design and functionally equivalent to the defective product or part. Taco reserves the right to make changes in details of design, construction, or arrangement of materials of its products without notification.

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