Application:
Taco Zone Sentry® Zone Valves provide on-off, normally open or normally closed control in both open and closed hydronic systems. The Taco Zone Sentry valves can be used in a wide variety of applications, specifically designed for use in heating systems and in chilled water systems where condensation is present. It is primarily used in baseboard, fan coils, radiators, convectors, air handlers, heat pumps and radiant applications. Refer to the Product Specifications section for choosing the correct valve model for your application.

Ease of Installation / Operation:
The Zone Sentry is the most technologically advanced zone valve ever made. It's also simple to install and operate. The valve can be installed in any direction, in any orientation except for chilled water installations (see Figure B). We then went a step further, allowing the actuator to be mounted to the valve body in either direction (see Figure A), great for those tight baseboard jobs. Snap-in quick connects on the back of the valve make for a simple, secure and fast wiring hook-up. A green LED light shows full functionality of the valve’s operation and thermostat status. Under a no power situation the manual override button located on the top of the valve allows the ball to be rotated up to 90° and is also marked with a slot to indicate the position of the valve.

Valve Installation:
Inverted Flare Notes:
1. The ability to reuse inverted flare valves and/or fittings has limitations, at some point the joint will no longer seal.
2. The valve and fittings should not be supporting any pipe loads.
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:
NOTE: Some power robbing thermostats require the use of a resistor (always use the resistor provided by the thermostat manufacturer with the Zone Sentry). Consult the thermostat instructions for the resistor installation.

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 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.

4. Wire the actuator in accordance with system requirements (see Wiring Diagrams).

5. The plug-in quick connects can be disconnected from the valve actuator for ease of wiring. Insert the corresponding wire into the quick connects (see Wiring Diagrams) and tighten by turning the screw.

6. Caution: Do not jumper power/motor (24 VAC) connection terminals, even temporarily. This may cause damage to the thermostat’s heat anticipator.

### 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.

<table>
<thead>
<tr>
<th>LED STATUS</th>
<th>INDICATES</th>
<th>POSSIBLE CAUSE</th>
<th>POSSIBLE SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Illuminated</td>
<td>Power off</td>
<td>No call</td>
<td>Verify there is a call. Check for voltage at the actuator.</td>
</tr>
<tr>
<td>Steady blink (once per second)</td>
<td>Charging</td>
<td>No power</td>
<td></td>
</tr>
<tr>
<td>Solid</td>
<td></td>
<td>Charging</td>
<td></td>
</tr>
<tr>
<td>Slow blink (once every 5 seconds)</td>
<td>Excessive charging time</td>
<td>Not enough VA</td>
<td>Reset the actuator (see note). Use a larger VA transformer or add an additional transformer.</td>
</tr>
<tr>
<td>Double blink (twice every 5 seconds)</td>
<td>Excessive opening time</td>
<td>Obstruction in valve Buildup of contamination in valve</td>
<td>Reset the actuator (see note). Remove obstruction. Clean the valve and/or system. Replace valve.</td>
</tr>
<tr>
<td>Failing actuator</td>
<td></td>
<td></td>
<td>Replace Actuator.</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>VALVE SIZE</th>
<th>C&lt;sub&gt;v&lt;/sub&gt; (Kv/ft&lt;sub&gt;2&lt;/sub&gt;) of PIPE EQUIV.*</th>
<th>CLOSE-OFF PSI (kPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
<td>4.9 (4.3) / 9.5</td>
<td>0-125 psi (0-862 kPa)</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>10.3 (8.9) / 8.4</td>
<td></td>
</tr>
<tr>
<td>1&quot;</td>
<td>8.9 (7.7) / 47.4</td>
<td></td>
</tr>
<tr>
<td>Inverted Flare 3/4&quot; sweat fitting</td>
<td>3.5 (3.0) / 72.9</td>
<td></td>
</tr>
</tbody>
</table>

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

### Dimensions (for reference purposes):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
<td>3 (76.2)</td>
<td>2 (60.3)</td>
<td>4 (104.8)</td>
<td>3 (79.4)</td>
<td>3 (79.4)</td>
<td>3 (84.1)</td>
<td>1 (39.7)</td>
<td>2 (58)</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td></td>
<td></td>
<td>3 (79.4)</td>
<td>3 (79.4)</td>
<td>3 (84.1)</td>
<td>3 (84.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1&quot;</td>
<td></td>
<td></td>
<td>3 (99.1)</td>
<td>3 (77.8)</td>
<td>7 (187.3)**</td>
<td>3 (88.9)**</td>
<td>1 (44.5)</td>
<td></td>
</tr>
<tr>
<td>Inverted Flare 3/4&quot; sweat fitting</td>
<td></td>
<td></td>
<td>3 (77.8)</td>
<td>3 (79.4)</td>
<td>3 (79.4)</td>
<td>3 (79.4)</td>
<td>3 (84.1)</td>
<td></td>
</tr>
</tbody>
</table>

**E Sweat dimension includes inverted flare fittings.**

**E Threaded dimension is less fittings.**

### WARNING: Do not use zone valves on indirect water heaters without a tempering device.
WARNING: Wiring connections must be made in accordance with all applicable electrical codes.

CAUTION: 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.

NOTE: Some power robbing thermostats require the use of a resistor (always use the resistor provided by the thermostat manufacturer with the Zone Sentry). Consult the thermostat instructions for the resistor installation.

Wiring a Taco Zone Sentry Zone Valve to Replace a Honeywell, Erie or Sparco Valve:

Wiring a Taco Zone Sentry Zone Valve to Replace a Flair or Taco 3-Wire Valve:

Wiring a Taco Zone Sentry Zone Valve to Replace a White Rodgers Valve:
Product Specifications:

- Maximum Operating Pressure: 300 PSI (2,100 kPa)
- Maximum Shutoff Pressure: 125 PSI (875 kPa)
- Maximum Ambient Temperature: 135°F
- Fluid Temperature Range: 20°F to 220°F (-7° to 105°C)
- Service: Closed systems
- Optional open system configuration available
- Ball Rotation Speed: Full Open to Full Close (90° turn), 5 seconds (after charge time)
- Seat Leakage: Drop-Tight Close-Off
- Electrical Rating: 24 VAC, 60 HZ, 0.48 Amps
- Do not use more than 12 zone valves per 40VA transformer.
- Power Consumption, Charging: 11.4 Watts, 0.48 Amps
- Power Consumption, Power On: 1.44 Watts, 0.06 Amps
- Heat Anticipator Setting: 0.5 Amps
- End Switch Rating: 1 Amp @ 24 VAC

NOTE: Some power robbing thermostats may cause a reduction of the number of valves possible per 40VA transformer.

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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TACO WILL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF ITS PRODUCTS OR ANY INCIDENTAL COSTS OF REMOVING OR REPLACING DEFECTIVE PRODUCTS.

This warranty gives the purchaser specific rights, and the purchaser may have other rights which vary from state to state. Some states do not allow limitations on how long an implied warranty lasts or on the exclusion of incidental or consequential damages, so these limitations or exclusions may not apply to you.