

SUPERSEDES: New

EFFECTIVE: April 1, 2011

Plant ID# 001-3997

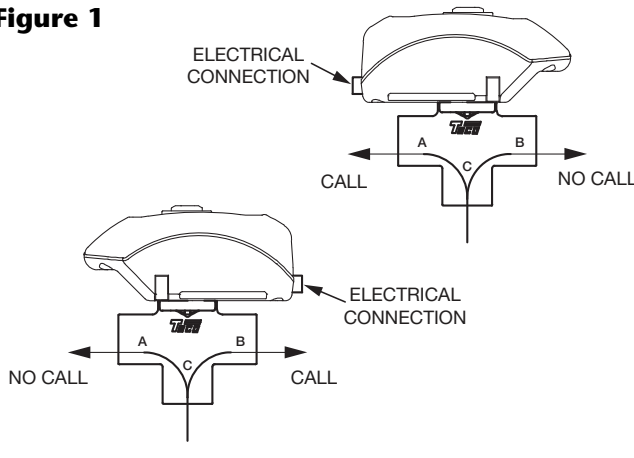
### Application:

Taco Zone Sentry Zone Valves can be used in a wide variety of heating and (non condensing) cooling applications, primarily designed for use with baseboard, fan coils, radiators, convectors, air handlers, heat pumps and radiant applications. Refer to the Product Specifications section for choosing the correct style valve for your application.

### General Installation Information / Operation:

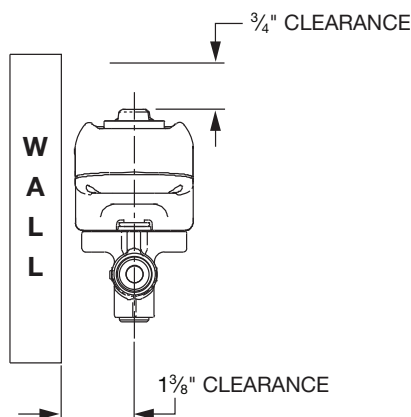
The Zone Sentry is the most technologically advanced zone valve ever made. It's also simple to install and operate. The valve body can be installed in any position and in any orientation. The actuator's electrical connections must be mounted over the port that requires flow when power is applied to the actuator. (See Figure 1.) The back of the valve makes 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°.

**Figure 1**



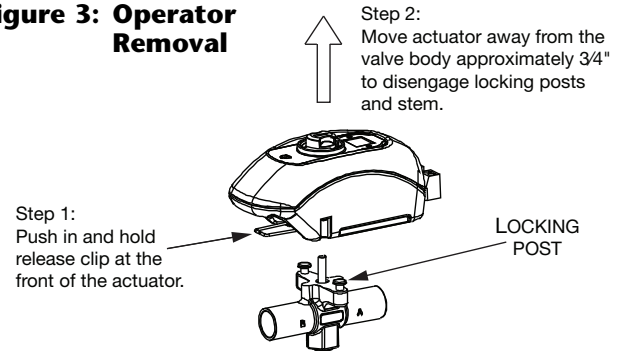
Before mounting the body refer to Figure 2 for any clearance requirements.

**Figure 2**



**CAUTION: Actuator must be removed from the valve body before soldering (see Figure 3). Ball valve must be in the full open position to the port that is being soldered.**

**Figure 3: Operator Removal**



**CAUTION: Installation should only be performed by a qualified professional.**

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 to the port that is being soldered. Direct flame tip away from the center of the valve. Cool valve quickly with a wet rag to prevent overheating. Solder build-up on the ball valve may prevent proper opening and closing of the valve.

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

### Step by Step Valve Installation:

1. Remove actuator from the valve body. Push in and hold the release clip at the front of the actuator, pull the actuator away from the body (approx.  $\frac{3}{4}$ " ). (See Figure 3.)
2. Open the valve to the full open position of the first port to be soldered (port A or B).
3. Clean and prepare the valve and pipe using the proper techniques required prior to soldering.
4. Fit the valve into the piping system.
5. Solder the port of the valve that you placed in the full open position, directing the flame away from the center of the valve.
6. Turn the opening of the valve to the second port to be soldered. (the opposite port of the one just completed.)
7. Repeat step 5 for the second port.
8. Solder the third port (bottom port). This port is always in the full open position.
9. Immediately cool the valve with a wet towel.

### Installing the Actuator on the Valve Body:

1. Position the actuator so that the “D” shaped valve stem aligns with the “D” shaped drive cavity in the operator
2. Slide the actuator onto the valve stem and rotate to align the valve’s 2 locking posts with the mating holes in the actuator. Push in the release clip and slide the actuator down flush to the valve body.
3. Verify that the actuator is locked by pulling it away from the valve body without pushing in the clip. (Do not use excessive force.)

### Mode of Operation:

1. Upon initial field installation the capacitor requires a full charge, up to 25 seconds 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 the thermostat is calling (the unit is powered).
4. Once the thermostat is satisfied the green LED will turn OFF and the valve will rotate 90° into its normal position or non powered position.



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

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### Product Specifications:

Maximum Operating Pressure:	300 PSI (2,100 kPa)
Maximum Shutoff Pressure:	125 PSI (875 kPa)
Fluid Temperature Range:	20° to 240°F, (-7° to 115°C) @ 135°F (57°C) ambient
Service:	Closed systems Optional open system configuration (high oxygen content) Up to 50% Glycol
Ball Rotation Speed:	Full Open to Full Close (90° turn), 5 seconds (after charge time) Full Close to Full Open (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 max
Power Consumption, Power On:	1.44 Watts, 0.06 Amps max
Heat Anticipator Setting:	0.5 Amps
End Switch Rating:	1 Amp @ 24 VAC

### Materials of Construction, Actuator:

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

### Materials of Construction, Valve:

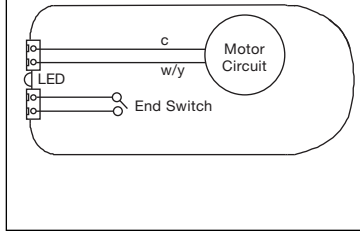
Body:	Forged Bronze
Stem:	Brass
Press Ring:	Brass
Ball:	Brass (Chrome Plated)
Seat:	Modified Teflon®
O-rings:	EPDM

# Zone Sentry Installation and Wiring Diagrams

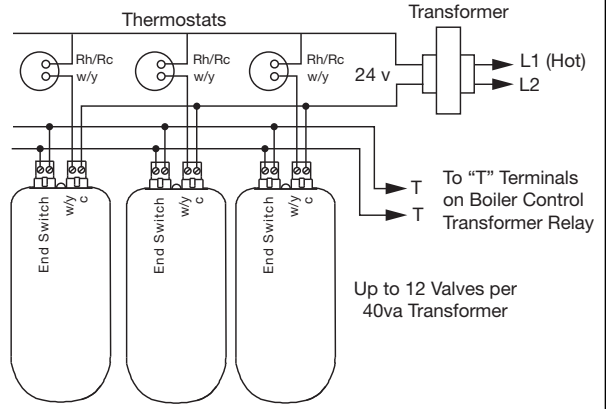
**WARNING:** Wiring connections must be made in accordance with all applicable electrical codes.

**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.

Simplified Internal Schematic:



Typical Zone Sentry Zone Valve Wiring:

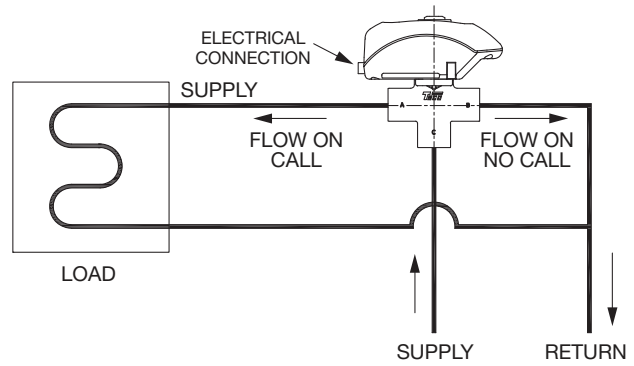
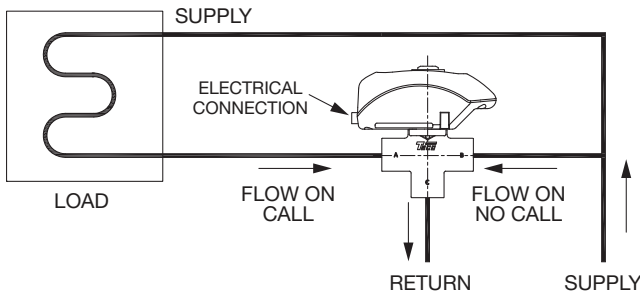


**NOTE 1:** Some power robbing thermostats require the use of a resistor (always use the resistor provided by the thermostat manufacturer with the Zone Sentry). Consult the thermostat instructions for the resistor installation.

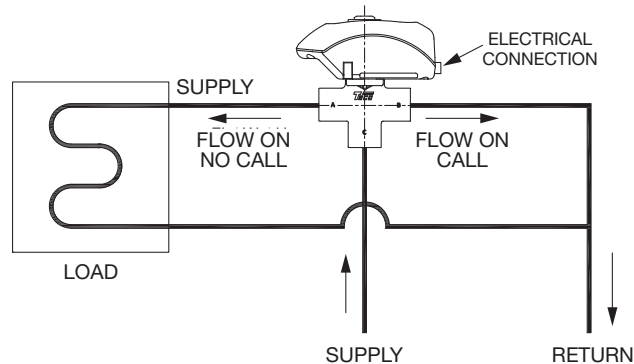
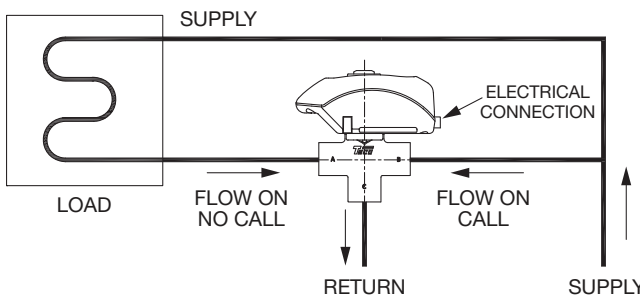
**NOTE 2:** The plug-in quick connects can be disconnected from the valve actuator for ease of wiring. Insert the corresponding wire into the quick connects and tighten by turning the screw.

**CAUTION:** Do not jumper the power/motor (24 VAC) connection terminals, even temporarily. This may cause damage to the thermostat's heat anticipator or to the transformer.

Typical Installations for 3-way Valves Normally Closed to the Load



Typical Installations for 3-way Valves Normally Open to the Load



**NOTE for 3-way:** Actuator's power connections must be mounted over the port requiring flow when power is applied. The valve should always be installed so that the unpowered port is the one with the highest percentage of time with flow.

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