



# Instruction Sheet

## Zone Sentry Zone Valve

102-410

SUPERSEDES: October 15, 2010

EFFECTIVE: January 15, 2011

Plant ID# 001-3944

### Application:

Taco Zone Sentry Zone Valves provide on-off, normally open or normally closed control in both open and closed hydronic systems. The 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.

### 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. We then went a step further, allowing the operator 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:

1. Valve body may be installed in any position, in any orientation (see Figure A).
2. Before mounting the body, refer to Figure B for any clearance requirements.

**CAUTION: Operator must be removed from the valve body before soldering (see Figure C). Ball valve must be in the full open position before soldering. Valve shipped in the closed position.**

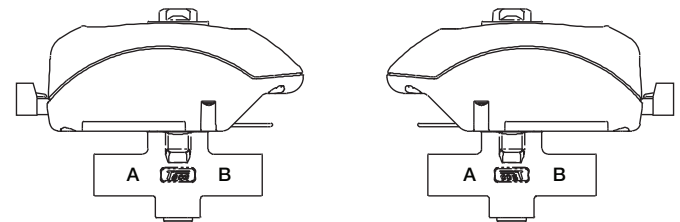
3. Use of a solder with a melting point below 600°F is recommended. Do not overheat! Make sure the ball valve is in the FULL OPEN position during soldering. Direct flame tip away from the center of the valve. Cool valve quickly with a wet rag.
4. Solder build-up on the ball valve may prevent proper opening and closing of the valve. Rotate the manual operation button several times to loosen any possible build-up.
5. Valve body can be submerged for leak testing before the operator is attached.

### Operator 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.**

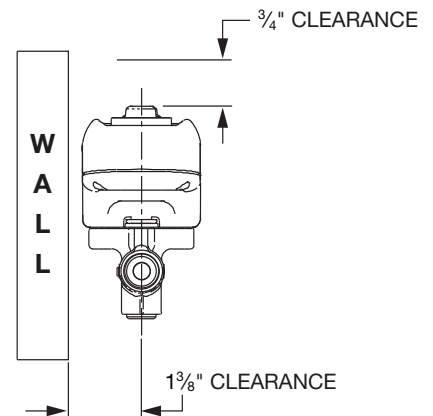
1. Valve operator may be attached to the valve body in either direction (see Figure A).

Figure A



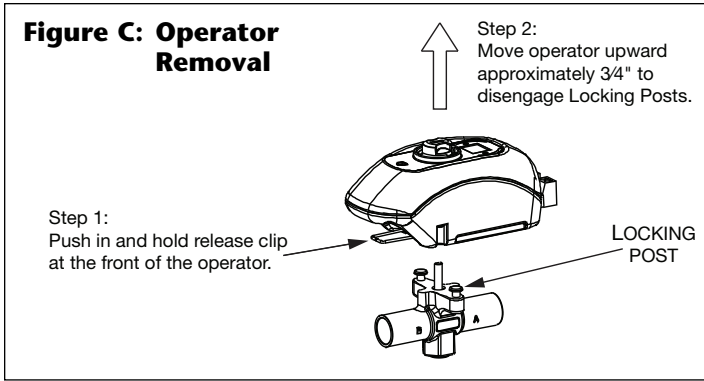
Two Position Head Placement.  
Universal Body Placement.  
May be installed in any position, any orientation.

Figure B



2. Operator Removal: Remove the valve operator prior to soldering by pushing in and holding the release clip at the front of the operator and lifting upward approximately 3/4" (see Figure C).
3. To re-assemble the operator to the valve body: Position operator such that the "D" shaped valve stem aligns properly with the "D" shaped operator drive cavity. (Note: The "D" shaped stem design allows for correct insertion every time.) Next, slide the valve stem into the operator cavity, push in and hold the release clip until the operator slips over the valve locking posts (see Figure C). Once the operator is flush to the valve body, let go of the release clip. Using very little force, try to take

**Figure C: Operator Removal**



the operator off of the valve body without using the release clip. Both locking posts should be firmly attached to the operator. If the operator slides up the stem, repeat the assembly process.

4. Wire the operator in accordance with system requirements (see Wiring Diagrams).
5. The plug-in quick connects can be disconnected from the valve operator 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.

**Mode of Operation:**

1. Upon initial field installation the capacitor requires a full charge, up to 20 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 operator 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. For example: If the actuator is an NC (normally closed) version, the operator would open the valve when the thermostat calls. Once the thermostat is satisfied the operator 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.**

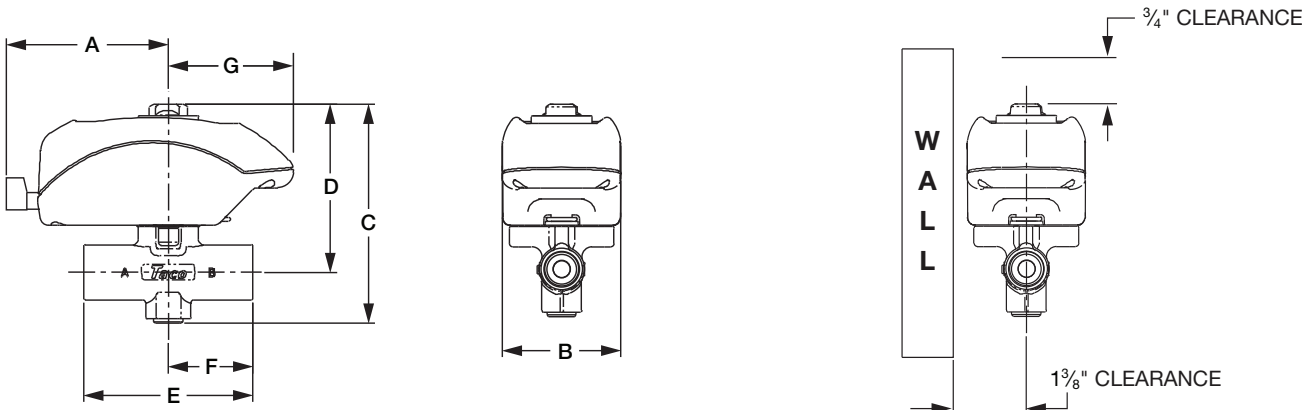
**Flow Coefficients and Maximum Close-Off Pressure:**

VALVE SIZE	Cv (Kv)/Ft. of PIPE EQUIV.*	CLOSE-OFF PSI (kPa)
1/2"	4.9 (4.3) / 9.5	0-125 psi (0-862 kPa)
3/4"	10.3 (8.9) / 8.4	0-125 psi (0-862 kPa)
1"	8.9 (7.7) / 47.4	0-125 psi (0-862 kPa)

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

**Dimensions (for reference purposes):**

VALVE SIZE	A	B	C	D	E (Sweat)	E (Threaded)	F	G	WEIGHT (Valve + Actuator)
1/2"	3"	2 3/8"	4 1/8"	2 1/16"	3 1/8"	3 3/4"	1 9/16"	2 5/16"	0.85 lbs
3/4"	3"	2 3/8"	4 1/8"	2 1/8"	3 1/8"	3 5/16"	1 9/16"	2 5/16"	0.90 lbs
1"	3"	2 3/8"	4 1/8"	2 1/8"	3 7/8"	3 7/8"	1 7/8"	2 5/16"	1.10 lbs

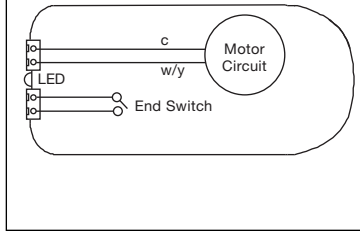


# Zone Sentry Zone Valve Wiring Diagrams

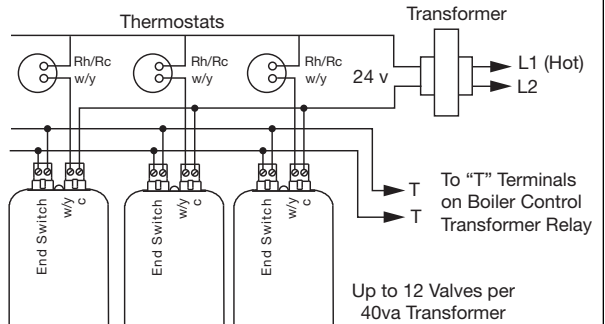
**WARNING: Wiring connections must be made in accordance with all applicable electrical codes.**

**CAUTION: To prevent electrical shock, disconnect electric power to system at main fuse or circuit breaker 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:**

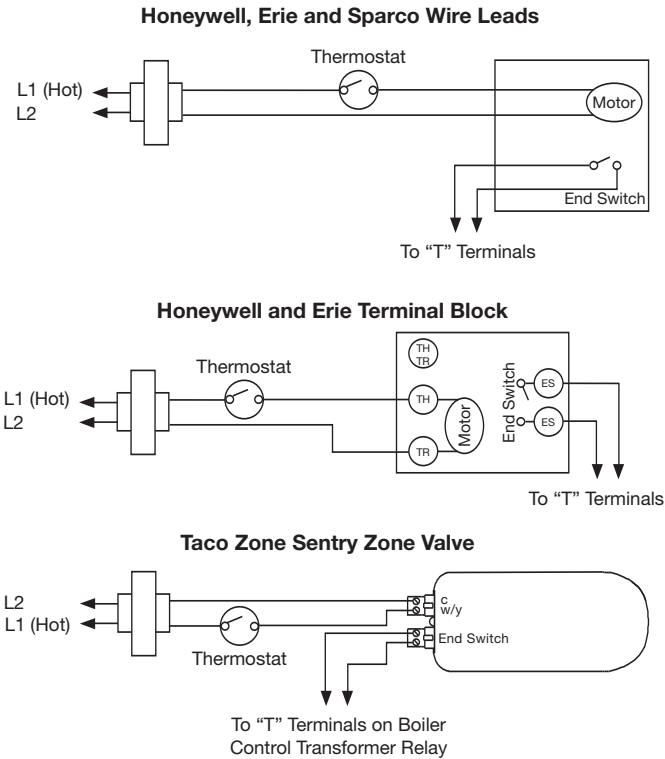


**Typical Zone Sentry Zone Valve Wiring:**

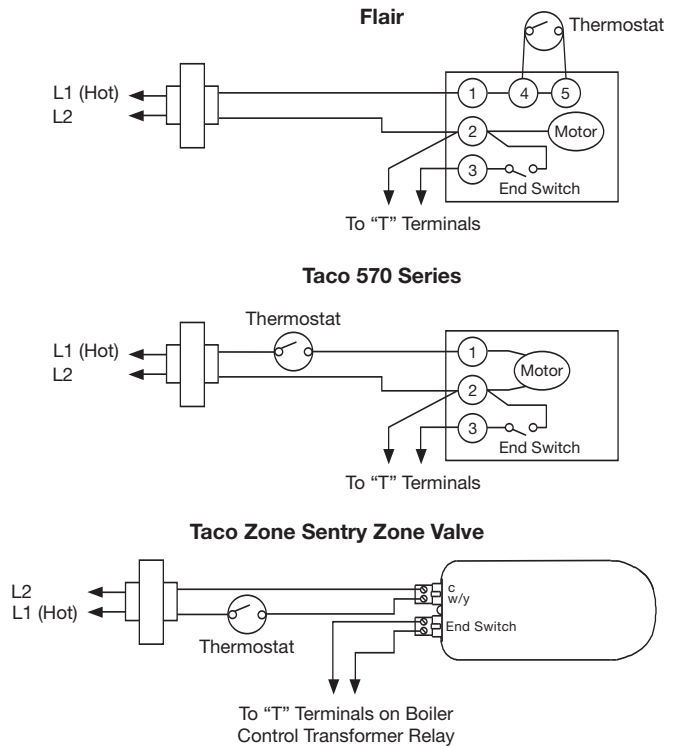


**NOTE: Some power robbing thermostats require the use of a resistor (always use the resistor provided by the thermostat manufacturer with the Zone Sentry). Consult the thermostat instructions for the resistor installation.**

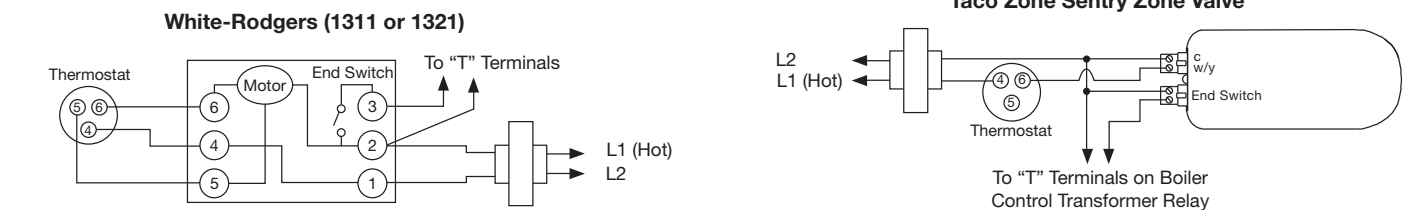
**Wiring a Taco Zone Sentry Zone Valve to Replace a Honeywell, Erie or Sparco Valve:**



**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)
Fluid Temperature Range:	20° to 240°F, (-7° to 115°C) @ 135°F (57°C) ambient
Service:	Closed systems Optional open system configuration 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
Power Consumption, Power On:	1.44 Watts, 0.06 Amps
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

# 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.

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