



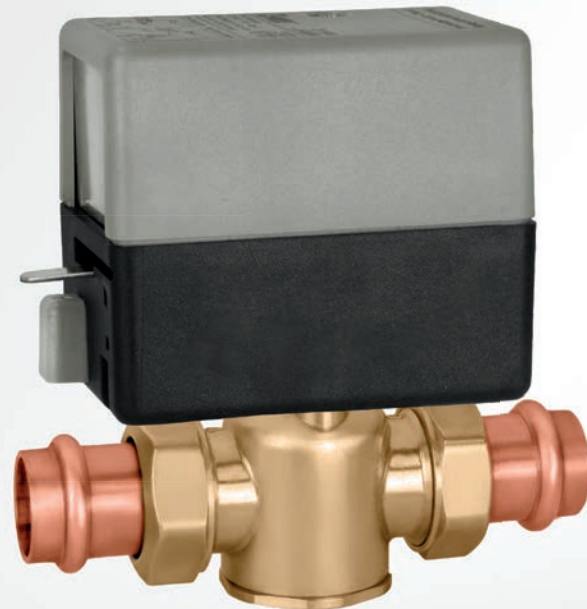
## 2-WAY 24 VOLT ZONE VALVES **Z-one™**

**CALEFFI**  
Hydronic Solutions



Heating & Cooling

Components for today's modern hydronic systems



US Patent 7,048,251.

## FUNCTIONS AND FEATURES

- A snap on actuator allows for fast installation and easy replacement with a convenient in-line push button.
- Compact design provides quick and easy installation, the Z-one valve fits perfectly inside baseboards and fan coils. Available with choice of NPT, sweat and press fittings for ease of installation and maintenance.
- Suitable for all types of systems - made with materials compatible with chilled or hot water up to 240°F, 15 psi steam, and open or closed systems.
- A gear ratio of 21:1 in the actuator increases torque for high close-off pressure and increases closing time to reduce water hammer.
- Hermetically sealed end switch in 24V actuators requires no minimum current load allowing multiple end switches connected in parallel to zoning panel.
- Low power consumption allows up to five valves per 40 VA transformer.

## Z-ONE™



CODE	CONNECTION
Z40	Inverted flare
Z40F	¾" Inv. flare
Z42	½" SAE flare
Z44	½" sweat
Z45	¾" sweat
Z46	1" sweat
Z47	1¼" sweat
Z50	Inverted flare
Z50F	¾" Inv. flare
Z54	½" sweat
Z55	¾" sweat
Z56	1" sweat
Z57	1¼" sweat
Z45P	¾" press
Z55P	¾" press

Z4\_: 24VAC 18" wire lead; Z5\_: 24VAC screw terminal

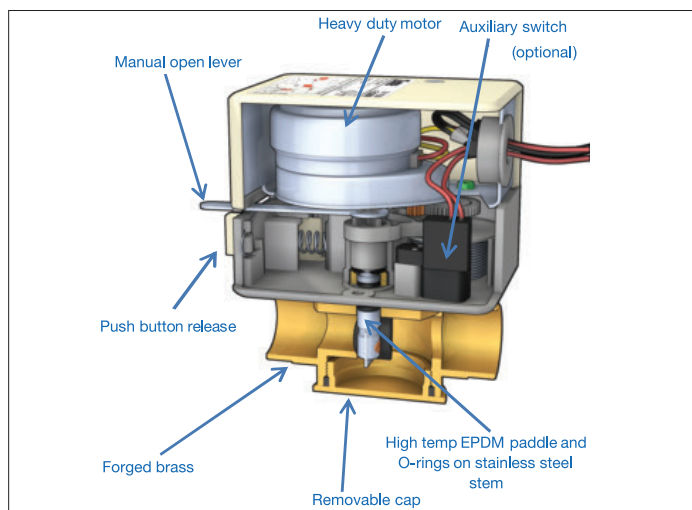
## PERFORMANCE

MAX. BODY PRESSURE	300 psi
TEMPERATURE RANGE	32 — 240 F
SUITABLE FLUIDS	Water, glycol solutions 5 psi steam
MAX. PERCENTAGE GLYCOL	50%
PATENTED	US 7,048,251
ELECTRICAL CONNECTIONS	18 inch wire lead Screw terminal block
APPROVALS	UL873, CUL Listed & CE

## MATERIALS

VALVE BODY	Forged brass
ACTUATOR	
BASE COVER	Polycarbonate
BASEPLATE	Aluminum

## CONSTRUCTION

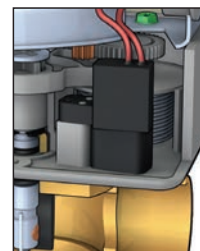


## CONSTRUCTION DETAILS

The Z-one™ valve is a truly universal zone valve that can be used in a wide range of commercial and residential applications; from fan coils to baseboard, radiant to high rise, the Z-one™ is the professional's valve of choice. The Z-one™ can be used in both chilled or hot water and low pressure steam applications. With Delta P close off pressures of up to 75 PSI, the Z-one™ outperforms all other zone valves. The Z-one™ is available in sizes from ½" to 1¼" sweat or NPT connections on valve body, with removable actuator.

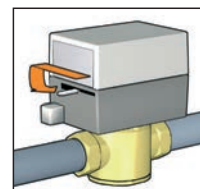
### • Auxiliary switch

The actuator contains an auxiliary micro-switch to operate other devices. The 24 V actuators use a sealed reed switch, patent pending, which has been produced specifically for use with relays, boiler contacts (TT) and DDC systems. It requires no minimum current load. The auxiliary switch is activated when the valve is 60% open or when the actuator is manually opened.



### • Manual opening (Normally closed actuator only)

The valve can be opened manually by moving the lever for opening it. When the power is restored the manual control is automatically overridden. The auxiliary switch is tripped when the unit is put into manual open position. This helps during start up to check if the wiring is correct without firing the valve electrically with the thermostat.



### • Easy push button

A simple push of the button makes it easy to remove it from the body of the valve for maintenance or replacement operations.

### • Operation

The actuator is fitted with a special mechanism for gradual movement of the valve paddle which provides smooth and quiet constant operation.

REFERENCE DOCUMENTATION: TECHNICAL BROCHURE 01115

WE RESERVE THE RIGHT TO CHANGE OUR PRODUCTS AND THEIR RELEVANT TECHNICAL DATA, CONTAINED IN THIS PUBLICATION, AT ANY TIME AND WITHOUT PRIOR NOTICE.



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**Z-one™**

ZONE VALVES AND CONTROLS

**CALEFFI**  
 Hydronic Solutions


Heating &amp; Cooling

Components for today's modern hydronic systems



## PRODUCT FEATURES

### Z-ONE™ ZONE CONTROLS

- **Installer friendly:**  
Ample room for terminations, large screw terminals, automatic resettable fuse, snap-in transformers.
- **Application versatility:**  
3 selectable 120 VAC auxiliary switches for enabling pumps and boilers, dedicated pump outputs, unlimited zone expansion.
- **Universal compatibility:**  
Compatible with 2, 3 and 4 wire zone valves and thermostats. Configurable pump logic.

### Z-ONE™ MOTORIZED ZONE VALVES

- **Extremely reliable design:**  
Clutch-protected drive train, durable synchronous motor. Millions installed in North America.
- **Easy to install and service:**  
Compact design with snap-on actuator with a convenient in-line push button. Removable bottom cap allows for easy in-pipe service.
- **Application versatility:**  
Hot water, chilled water and low-pressure steam.

### Dependable Z-one valves and controls

Whether zoning with pumps, valves or both, Caleffi's Z-one™ controls are versatile enough for one to unlimited number of zones.

## PRODUCT RANGE - ZSR SINGLE-ZONE AND MULTI-ZONE PUMP CONTROLS



ZSR101



ZSR106

ZONES	CODE
1	<b>ZSR101</b>
3	<b>ZSR103</b>
4	<b>ZSR104</b>
6	<b>ZSR106</b>

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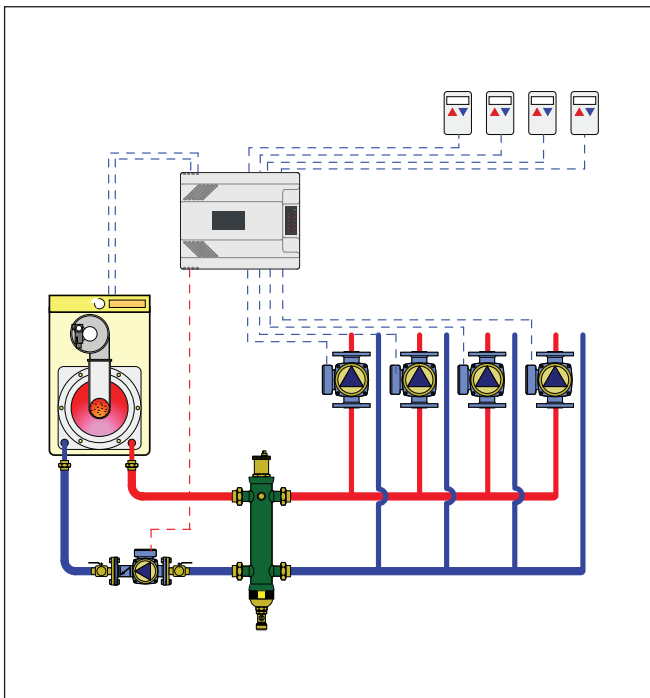


**Wiring Guide**

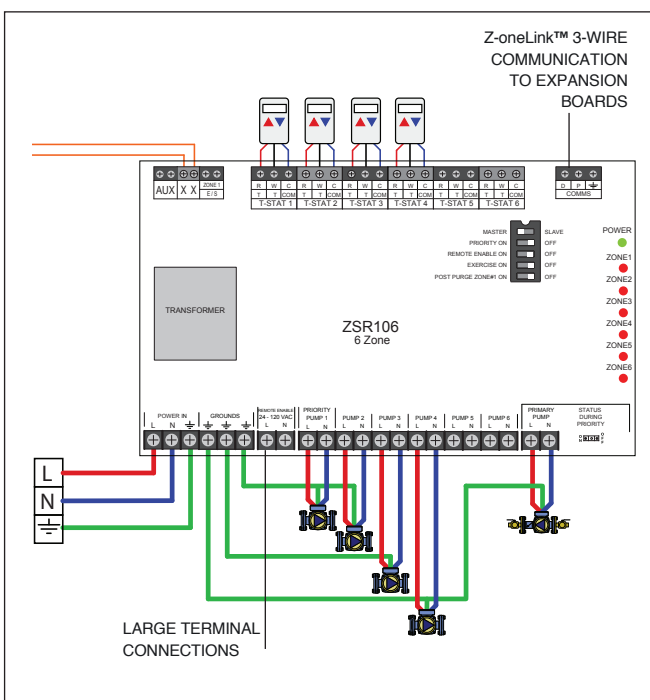


Certified to CSA C22-2 No.24  
Conforms to UL Standard 873

## APPLICATION DIAGRAM



## WIRING DIAGRAM



## PERFORMANCE

POWER SUPPLY	120 VAC, 50/50 Hz
TRANSFORMER VOLTAGE	24 VAC
MAX. TRANSFORMER LOAD	12 VA (ZSR103/104) 20 VA (ZSR106)
ELECTRICAL SWITCH RATING	20 A max combined
ELECTRICAL SWITCH RATING PUMP OUTPUT	120 VAC, 5A each
DRY CONTACT RATING, AUX, XX, ZONE1 E/S	120 VAC max, 2A each

## Multi-Zone Pump Control

- 3, 4 and 6 zone controls
- 1 primary pump output and 3 to 6 (model dependent) zone pump outputs (120 VAC/5A each)
- 3 dry contacts for enabling boilers and pumps
- Unlimited board expandability using Z-oneLink™ communications
- Each output individually fused. 2 extra fuses included.
- Selectable with DIP switches:
  - Priority (1 hour timeout)
  - Pump exercise
  - Post purge Zone #1 (after priority demand)
  - Remote Enable
  - Status of primary pump during priority
- Twelve 1/2" electrical knockouts
- Bright LED functional lights on front cover
- Multiple ground screws, eliminates wire nuts
- 3 year warranty

## Single-Zone Pump Control

- 2 independent outputs
- Mounts to 4" x 4" junction box
- Rear wiring access

## PRODUCT RANGE - ZVR MULTI-ZONE VALVE CONTROLS



ZVR106

ZONES	CODE
3	ZVR103
4	ZVR104
6	ZVR106

Scan to view



Wiring Guide



Certified to CSA C22-2 No.24  
Conforms to UL Standard 873

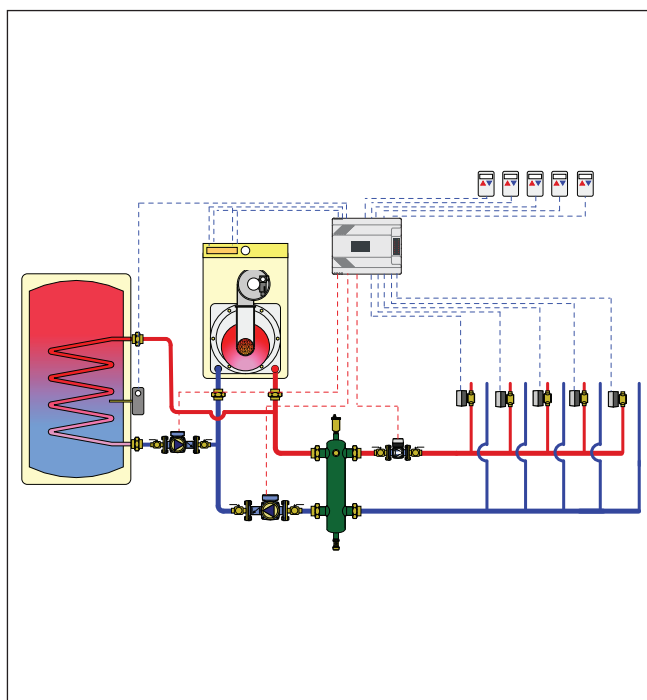
### PERFORMANCE

POWER SUPPLY	120 VAC, 50/50 Hz
TRANSFORMER VOLTAGE	24 VAC
MAX. TRANSFORMER LOAD	40 VA (ZVR103/104) 80 VA (ZVR106)
ELECTRICAL SWITCH RATING	20 A max combined
ELECTRICAL SWITCH RATING PUMP OUTPUT	120 VAC, 5A each
DRY CONTACT RATING, AUX, XX, ZONE1 E/S	120 VAC max, 2A each

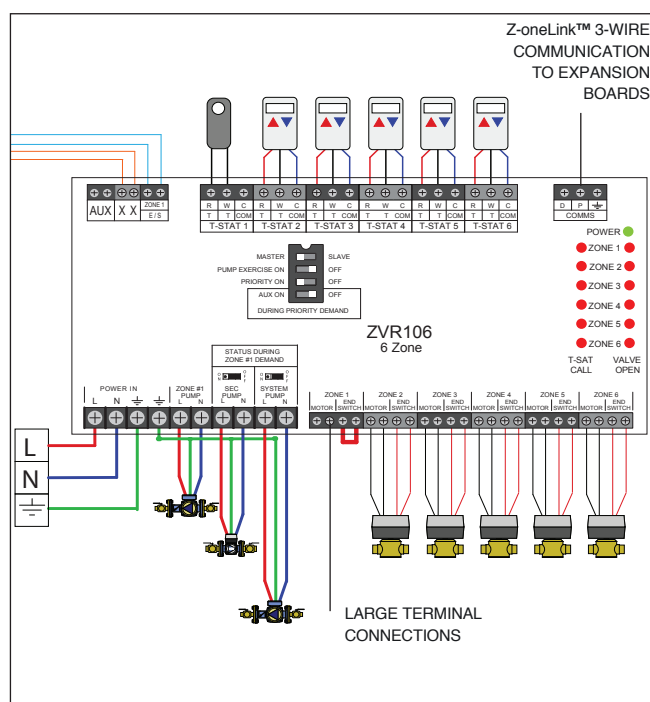
### Multi-Zone Valve Control

- 3, 4 and 6 zone (thermostat and valve) controls
- 3 pump outputs (120 VAC/5A each)
- 3 to 6 zone valve outputs (24 V)
- 3 dry contacts for enabling boilers and pumps
- Unlimited board expandability using Z-oneLink™ communications
- Automatically resettable fuse on 24 V circuit
- Selectable with DIP switches:
  - Priority (1 hour timeout)
  - Pump exercise
  - Status of system pump during Zone #1 call
- Twelve 1/2" electrical knockouts
- Bright LED functional lights on front cover
- Multiple ground screws, eliminates wire nuts
- 3 year warranty
- 5 year warranty when installed with Caleffi Z-one™ motorized zone valves

### APPLICATION DIAGRAM



### WIRING DIAGRAM





## PRODUCT RANGE - Z-ONE™ VALVES

### Z4 SERIES Z-ONE™ WIRE LEADS

CODE	DESCRIPTION	Cv	ΔP
<b>Z40</b>	Inverted flare	3.5	30 psi
<b>Z40F*</b>	¾" inv flare	3.5	30 psi
<b>Z42</b>	½" SAE flare	3.5	30 psi
<b>Z44</b>	½" sweat	2.5	50 psi
<b>Z44P</b>	½" press	3.5	30 psi
<b>Z45</b>	¾" sweat	7.5	20 psi
<b>Z45P</b>	¾" press	7.5	20 psi
<b>Z45PL**</b>	¾" press	7.5	20 psi
<b>Z46</b>	1" sweat	7.5	20 psi
<b>Z46P</b>	1" press	7.5	20 psi
<b>Z47</b>	1¼" sweat	7.5	20 psi

\*Two ¾" sweat fittings (NA10006) included.

\*\*One extra long press fitting for retrofit.



### Z5 SERIES Z-ONE™ TERMINAL BLOCKS

CODE	DESCRIPTION	Cv	ΔP
<b>Z50</b>	Inverted flare	3.5	30 psi
<b>Z50F*</b>	¾" inv flare*	3.5	30 psi
<b>Z54</b>	½" sweat	2.5	50 psi
<b>Z54P</b>	½" press	3.5	30 psi
<b>Z55</b>	¾" sweat	7.5	20 psi
<b>Z55P</b>	¾" press	7.5	20 psi
<b>Z55PL**</b>	¾" press	7.5	20 psi
<b>Z56</b>	1" sweat	7.5	20 psi
<b>Z56P</b>	1" press	7.5	20 psi
<b>Z57</b>	1¼" sweat	7.5	20 psi

\*Two ¾" sweat fittings (NA10006) included.

\*\*One extra long press fitting for retrofit.

## PERFORMANCE

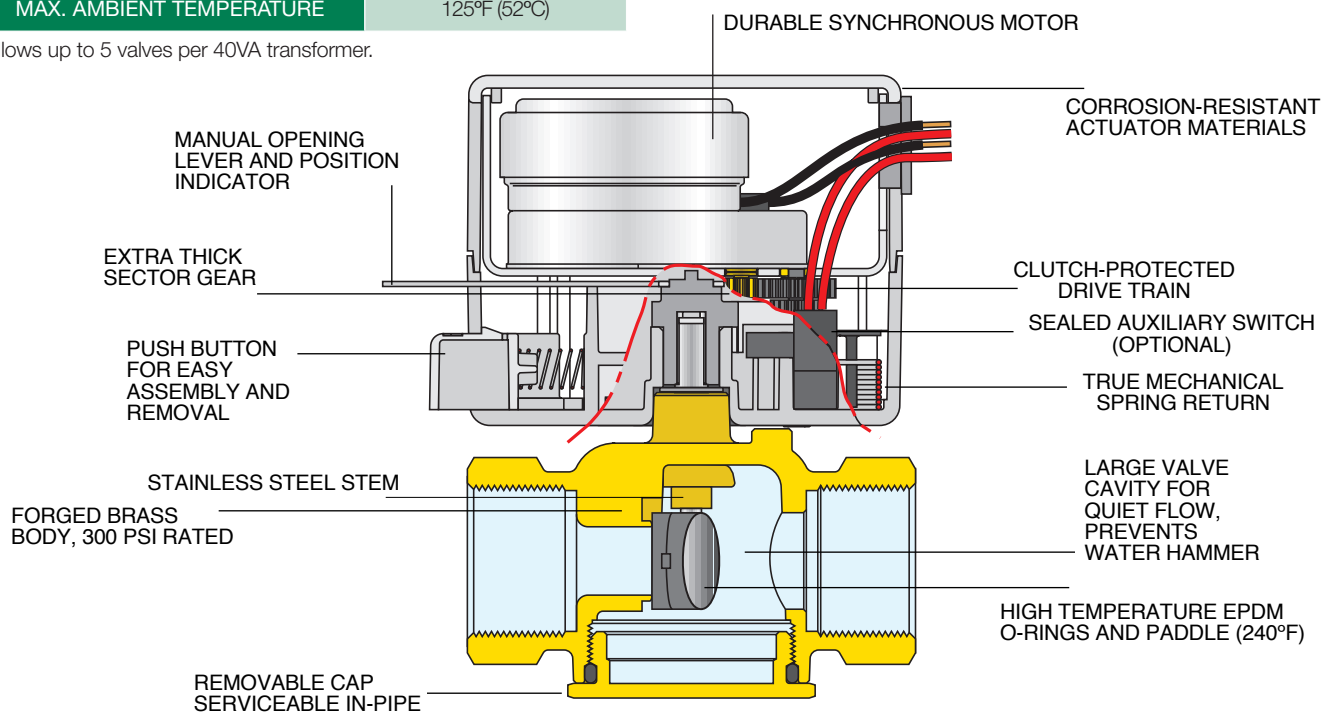
WORKING TEMPERATURE RANGE	32 — 240°F (0-115°C)
MAX. PERCENTAGE OF GLYCOL	50%
POWER SUPPLY	24 V AC
POWER CONSUMPTION	5 W, 7VA*
MAX. AMBIENT TEMPERATURE	125°F (52°C)

\*Allows up to 5 valves per 40VA transformer.



US Patent 7,048,251

## CONSTRUCTION



Caleffi Partner:

ONLINE



CATALOG

**CALEFFI**  
Hydronic Solutions

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