Z-one™ Relay
Multi-zone valve switching relays

ZVR series

01286/16 NA

Replaces 01286/14 NA

Certified to CSA C22-2 No.24
Conforms to UL Standard 873
Intertek
4009064

Function

The ZVR series is a zone valve and boiler operating control for multiple zone hydronic heating systems. The ZVR series interfaces with low voltage thermostats, or any other low voltage controllers having a switching action. The ZVR series controls up to 6 zone valves, depending on model selected. In addition, a system pump and secondary pump is turned on whenever any zone calls for heat. A DHW primary pump can also be operated. LED indicators provide functional status and easy system troubleshooting.

Features

- Compatible with 2, 3 and 4-wire thermostats or other low voltage controllers with switching action
- 120 VAC input
- Heavy duty, sealed relays
- 3 pump outputs (120 VAC/5 A) and 3 to 6 (model dependent) zone valve outputs (24 V)
- Zone priority selectable with 1-hour time-out feature
- Convenient R,W,C and T,T,COM dual labeling at thermostat terminals
- System pump status (on/off) during priority selectable
- Dry contacts (XX,AUX, ZONE 1 E/S) capable of switching line voltage
- Replaceable, snap-fit 40 VA transformer on 3 & 4 zone models, expandable to 80 VA with 2nd transformer
- Two replaceable, snap-fit 40 VA transformers (80 VA) on 6 zone models
- Automatic resettable fuse on 24 V circuit
- Expandable to unlimited number of zones using simple 3-wire connection between controls
- Large screw terminals for ease of wiring. On-board ground terminals
- Front panel LED indicator light for functional status
- 100% factory tested with 3 year warranty
- ETL certified to CSA and UL standards

Product range

Code **ZVR**103 Z-one™ Relay valve switching relays, 40 VA maximum transformer load.....three zone
Code **ZVR**104 Z-one™ Relay valve switching relays, 40 VA maximum transformer load.....four zone
Code **ZVR**106 Z-one™ Relay valve switching relays, 80 VA maximum transformer load..... six zone

Technical specifications

Materials

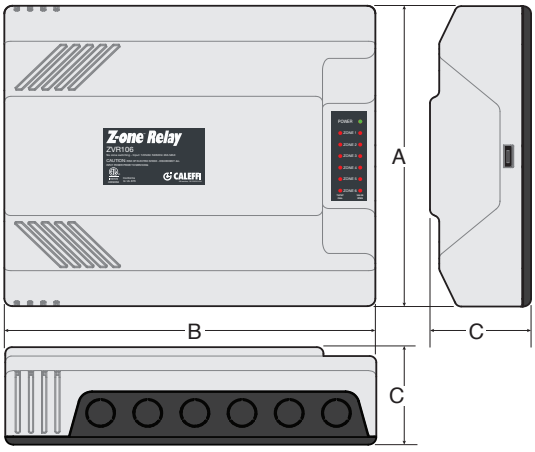
Housing plastic:	ABS
Front display lights:	LED
Electrical knockouts	(12) 1/2" size

Performance

Power supply:	120 VAC, 50/60 Hz
Transformer voltage:	24 VAC
Maximum transformer load:	40 VA (ZVR103/4), 80 VA (ZVR106)
Electrical switch rating:	20A max combined
Dry contact rating, XX, AUX, ZONE 1 E/S:	120 VAC, 2A each
Electrical switch rating pumps:	120 VAC, 5A each
Resettable fuse:	automatic
Temperature limits for:	
Shipping and storage max:	110°F (43°C)
Maximum Operating:	110°F (43°C)
Maximum humidity:	90% non-condensing

Approvals: ETL certified to CSA C22-2 No. 24, conforms to UL873

Dimensions

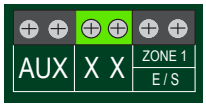


Code	Zones	A	B	C	Wgt. (lbs)
ZVR103	3	9 1/4"	11"	3"	2.0
ZVR104	4	9 1/4"	11"	3"	2.0
ZVR106	6	9 1/4"	11"	3"	2.0

Maintenance and Repair:

The Caleffi Z-one™ multi-zone valve relay comes with an automatic resettable fuse and requires no maintenance. If control fails or is damaged, replace control with functional one.

Boiler connections:

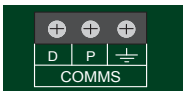


XX = Dry contact rated up to 120 VAC, 2 Amps, which is typically connected to TT on boiler control, closes when any zone calls including priority.

ZONE 1 E/S = Dry contact rated up to 120 VAC, 2 Amps, will close with any call to ZONE 1. Zone 1 can be enabled as a priority zone, typically used for heating domestic hot water. The ZONE 1 E/S can be used to close a DHW contact on boiler controls equipped with these features.

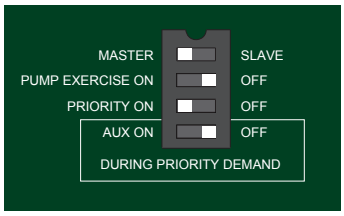
AUX = Dry contact, rated up to 120 VAC, 2 Amps, close when any zone calls and can be used as signal to a variable speed self regulated pump or other controls.

Communication connections:



Connect terminals to matching terminal of slave boards D to D, P to P, Ground to Ground. Use 18 gauge thermostat wire and it should be shielded if located in close proximity to high voltage wiring.

The ZVR series of controls is programmed by the dip switches which can be positioned for the following operations.



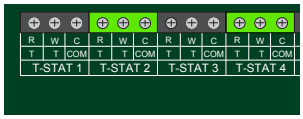
Master / Slave: allows for unlimited expansion to additional ZVR or ZSR relays.

Pump Exercise ON / OFF: When exercise mode is ON, each circulator is switched on for 30 seconds following 72 hours of inactivity.

Priority ON / OFF: When priority switch is ON, upon demand, Zone 1 will operate as priority and all other zones are temporarily switched off (with 1 hour time-out). When priority is OFF, any zones that were active when Zone 1 was switched on will remain on.

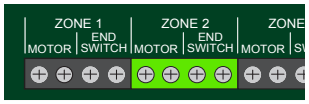
AUX ON / OFF Durning Priority Demand: When AUX switch is ON, the AUX dry contacts will close during a priority demand. When switch is OFF, the AUX dry contacts will remain open during a priority demand.

Thermostat connections:



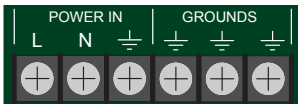
R = 24 VAC.
W = Heat call
C = Common of 24 VAC
Heat demand is initiated by closing R to W.
24 VAC is always present between R & C.

Zone valve connections:



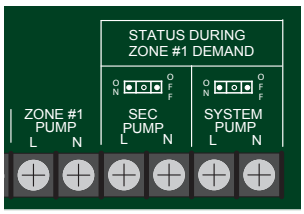
Motor = 24 VAC to power the zone valve motor
End Switch = Connects to end switch on zone valve. Must be jumpered if using a 2 –wire zone valve.

Input power:



L = Line (hot leg) of 120 VAC supply
N = Neutral of 120 VAC
⏚ = Grounds

Pump outputs:



SYSTEM PUMP = Runs when any zone calls for heat.

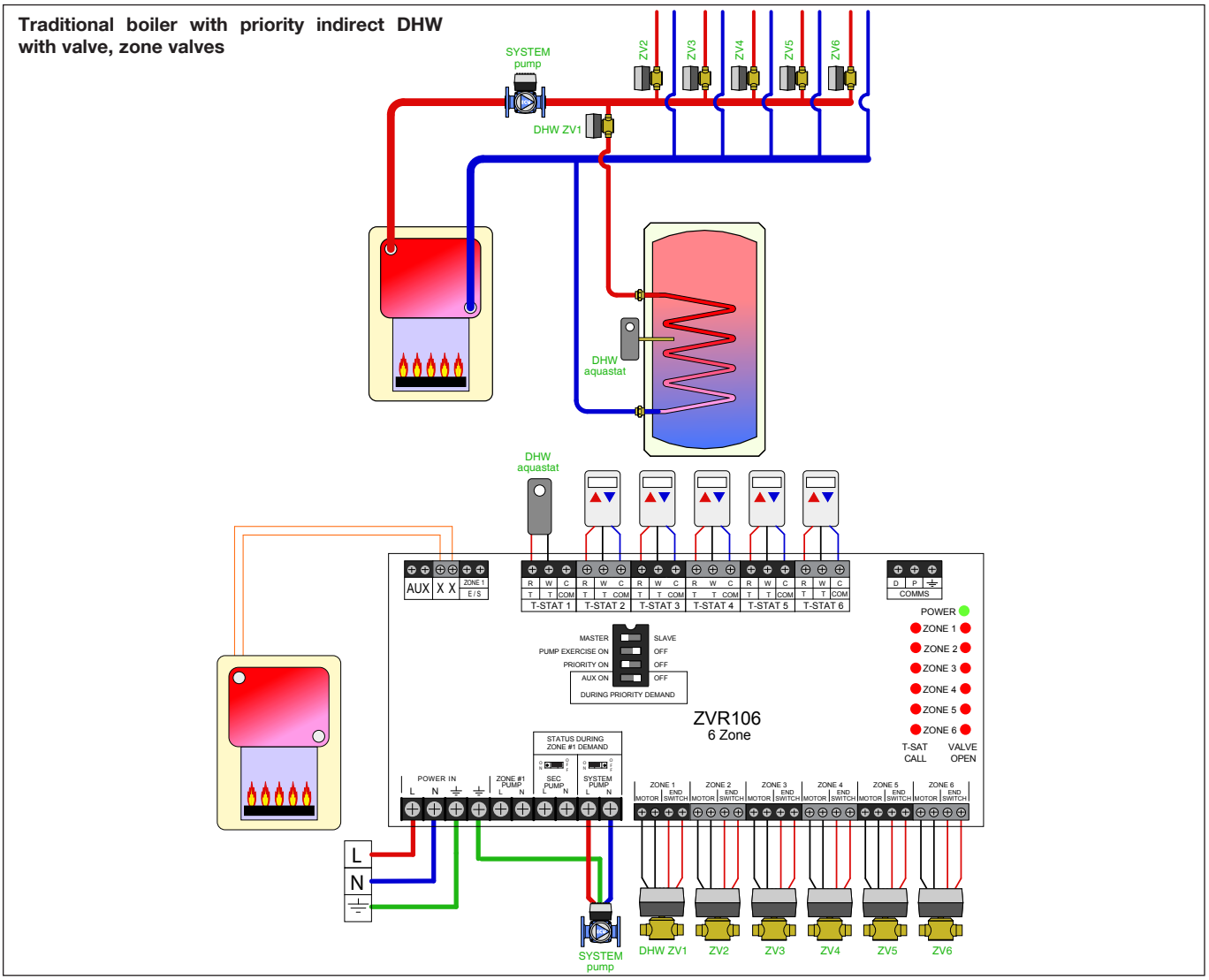
SEC PUMP = Runs when any zone calls for heat.

ZONE 1 PUMP = Runs when zone 1 thermostat calls for heat and zone 1 end switch has closed. A jumper is required between the ZONE 1 END SWITCH terminals when using a pump for ZONE 1 instead of a zone valve.

STATUS DURING ZONE 1 DEMAND ON / OFF = When status jumper is placed on ON pins, the secondary and / or system pump will continue to operate during ZONE 1 demand. When jumper is placed on OFF pins, the corresponding pump will be OFF during ZONE 1 demand.

WARNING: NEVER CONNECT R & C DIRECTLY, this will be a direct short on the 24 VAC supply.

WARNING: When connecting 2 or more Z-one controls, all controls must be powered by the same 120 VAC circuit.



Hydronic diagram is for illustration purposes only, some components have been removed for simplicity.

SPECIFICATION SUMMARY

Z-one™ Relay ZVR series

Multi-zone valve switching relay. Compatible with 2, 3 and 4-wire thermostats or low voltage controllers with switching action. Power supply 120 VAC, 50/60 Hz. Zone priority selectable with 1 hour time-out feature. System pump status (on/off) during priority selectable. Transformer voltage: 24 VAC. R,W,C and T,T,COM dual labeling at thermostat terminals. Dry contacts (XX,AUX,T,T,ZONE 1 E/S) capable of switching line voltage. Automatic resettable fuse on 24 V circuit. Expandable to unlimited number of zones using 3-wire connection between controls. Large screw terminals. Front panel LED indicator light for functional status. ETL certified to CSA C22-2 No. 24, conforms to UL873. Provided with heavy duty, sealed relays, 3 pump outputs (120 VAC/5 A) and 3 to 6 (model dependent) zone valve outputs (24 V), replaceable, snap-fit 40 VA transformer on 3 and 4 zone models, expandable to 80 VA with second transformer, two replaceable, snap-fit 40 VA transformers (80 VA) on 6 zone models, and on-board ground terminals. Temperature limits for shipping, storage and operating: 110 degrees F (43 degrees C). Maximum humidity: 90 percent non-condensing. Electrical switch rating: 20A maximum combined. Electrical switch pumps: 120 VAC, 5A each. Dry contact rating XX,AUX,T,T,ZONE 1 E/S: 120 VAC, 2A each.

We reserve the right to make changes and improvements to the products and related data in this publication, at any time and without prior notice.

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