



ZONE CONTROLS Z-ONE RELAYS™

Smart
Solutions, Inc.
High Performance Building Products

208-798-4449

CALEFFI
Hydronic Solutions



Heating & Cooling

Components for today's modern hydronic systems



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

FUNCTIONS AND FEATURES

- Single zone switching relay, multi-zone 3, 4, 5 and 6 pump switching relays and multi-zone 3, 4, 5 and 6 zone valve switching.
- Unlimited zone expansion standard on multi-zone, large terminal connections simplifies wiring, front bright LED function lights.
- Selectable priority, post purge and exercise, two dry contacts for DHW, XX, ZR/ZC capable of switching 120 VAC.
- Heavy duty sealed relays, fuse protected, 100% factory tested with 3 year warranty, ETL certified to CSA and UL standards.

ZSR SERIES SWITCHING PUMP RELAYS

CODE	DESCRIPTION
ZSR101	Single zone control
ZSR103	3 zone pump control
ZSR104	4 zone pump control
ZSR106	6 zone pump control

ZSR103, ZSR104 & ZSR106 OPERATING PRINCIPLE

The DIP Switches on the ZSR series can be positioned for the following operations.

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

Priority OFF / Priority ON: When priority mode 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 mode is OFF, all zones remain active.

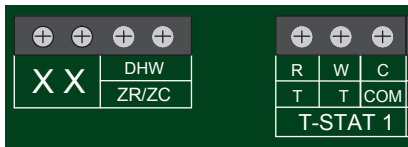
Primary OFF / Primary ON: When primary mode is ON, the primary pump will continue to operate during priority.

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

Post Purge OFF / Post Purge ON: When post purge is ON, the priority pump continues operating for 2 minutes after the priority zone is switched off.

DipSwitches

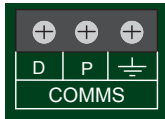
Master Priority OFF Primary OFF Exercise OFF Post Purge OFF	Slave Priority ON Primary ON Exercise ON Post Purge ON
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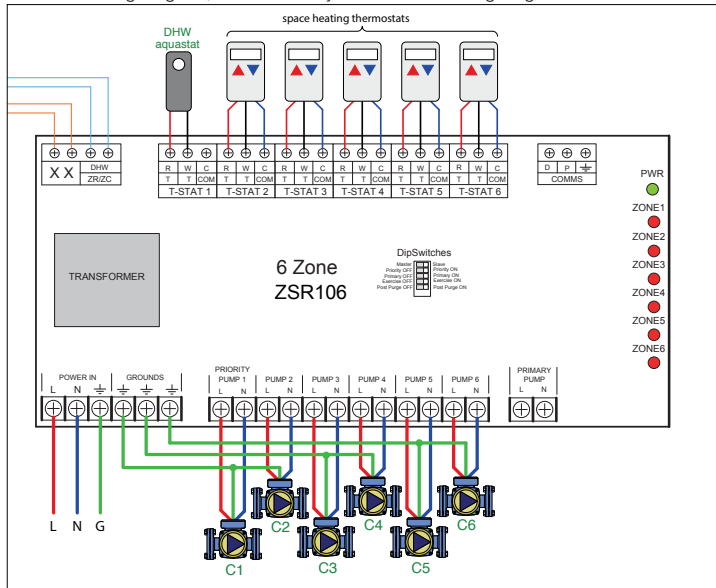
When a zone has a demand from a thermostat (T T or R W) the relay will close sending 120 VAC to the corresponding zone pump, primary pump and closes (X X) dry contacts signaling the boiler of a heating demand.

Zone 1 can be used for priority by positioning the Priority dip switch to ON, a demand from T-Stat 1 will activate priority pump 1 and all other zones will be switched OFF, plus DHW (ZR/ZC dry contact rated to switch max 120 VAC, 2A) will close during priority. Depending on Primary pump dip switch position, the primary pump will remain either ON or OFF.

Z-oneLink unlimited expansion allows adding ZSR series or ZVR series controls to a Master ZSR. Communication is accomplished by connecting three wires (thermostat wire) to the communication terminals located in the upper right hand corner. The dip switch is positioned to Master / Slave. A demand for heat from any zone will fire the boiler and start the pump.



Illustrative wiring diagram, consult factory for additional wiring diagrams.



REFERENCE TECHNICAL BROCHURES: 01284, 01285 & 01286

ZVR SERIES SWITCHING VALVE CONTROLS

CODE	DESCRIPTION
ZVR103	3 zone valve control
ZVR104	4 zone valve control
ZVR106	6 zone valve control

ZVR SERIES OPERATING PRINCIPLE

The jumpers on the ZVR series can be positioned for the following operations.

Priority ON / Priority OFF: When priority jumper 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 mode is OFF, any zones that were active when zone 1 was switched on will remain on.

Status During Priority ON / Status During Priority OFF: When status jumper is ON, the system pump will continue to operate during priority.

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

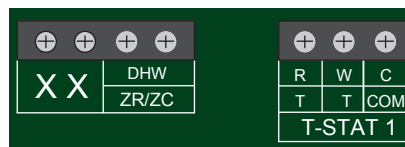
PRIORITY

ON OFF

STATUS DURING PRIORITY

ON OFF

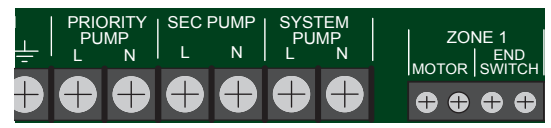
MASTER SLAVE



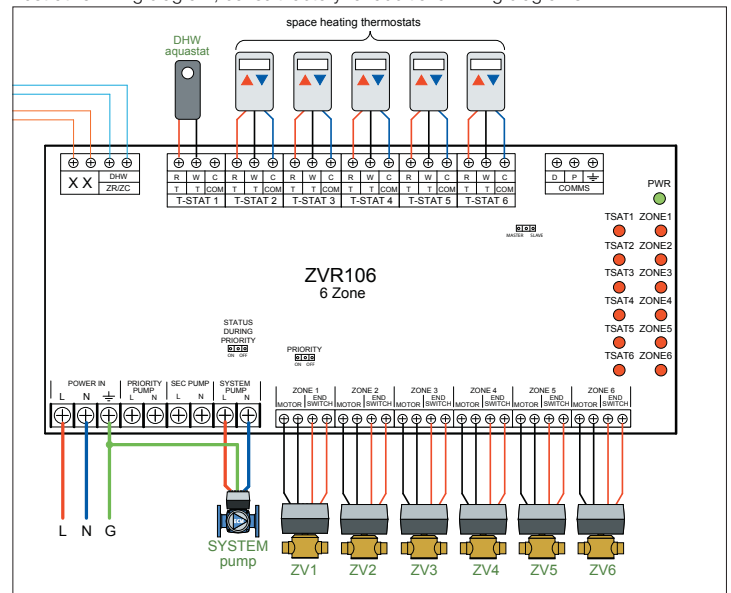
When a zone has a demand from a thermostat (T T or R W) the control will send 24 VAC to the corresponding zone valve. When the zone valve end switch closes, the system pump and

secondary pump will switch on and the (X X) dry contacts will close to signal the boiler of a heating demand. Zone 1 can be used for priority (either a priority pump or valve). When the priority jumper is ON, a demand from T-Stat 1 will activate 24VAC to valve 1 and the priority pump will switch on after the end switch closes (requires a jumper if a valve is not used). The DHW (ZR/ZC) dry contact will also close. Depending upon "Status During Priority" jumper, the system pump will either be ON or OFF.

Pump terminals connection have 120 VAC outputs for simplified pump connections. Zone valve connections can be 2, 3 or 4 wire.



Illustrative wiring diagram, consult factory for additional wiring diagrams.



03586-15NA



INSTALL TOGETHER 5 YEAR WARRANTY

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FUNCTIONS AND FEATURES

Z-ONE™ RELAYS

- Large terminal connections for system pump, secondary pump, and priority pump.
- Thermostat terminals are dual labeled for connection of low voltage 2, 3 and 4 wire thermostats.
- High capacity 40 VA transformer standard for 3 and 4 zone models, expandable to 80 VA, and 80 VA for the 6 zone model.
- Automatic resettable fuse with front LED lights plus Z-oneLink™ unlimited zone expansion

Z-ONE™ VALVES

- 7VA current draw allows up to five valves per 40VA transformer for economical operation.
- The compact design provides quick and easy installation and fits perfectly inside baseboards and fan coils.
- The snap-on actuator allows for fast installation and easy replacement with a convenient in-line push button.
- Available with choice of NPT, sweat and press fittings for ease of installation and maintenance.

ZVR Z-ONE RELAY



ETL Certified to CSA C22-2 No.24
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CODE	DESCRIPTION
ZVR103	3 zone valve control
ZVR104	4 zone valve control
ZVR106	6 zone valve control
NA10343	Expansion transformer

The ZVR series is a multi-zone valve relay and boiler operating control for multiple zone hydronic systems. The ZVR series is compatible with 2, 3, and 4 wire thermostats or other low voltage controllers with switching action. The ZVR series controls up to 3, 4, 5 or 6 zones, depending on model selected. In addition, a system circulator pump and secondary pump is turned on whenever any zone calls for heat. LED indicators provide functional status and easy system troubleshooting. The ZVR series is a perfect match when installed together with Z-one™ Z4 and Z5 series zone valves.

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.

Electrical switch rating, ZR/ZC, DHW, XX: 120 VAC, 2A each.

Electrical switch rating pumps: 120 VAC, 5A each.

Resettable fuse: automatic.

High capacity 40 VA transformer standard for 3 and 4 zone models expandable to 80 VA, and 80 VA for the 6 zone model.

Warranty: 3 year when installed separately without Z-one™ zone valve.

Z4 SERIES Z-ONE™ WIRE LEADS



E239721
US LISTED
868P

Two-way zone valve. Spring return.
Normally closed actuator: Z111000.
Auxiliary micro-switch.
Max. body pressure: 300 psi.
Temperature range: 32°–240°F.
Suitable fluids: water, 50% max. glycol.
Power supply: 24 V AC.
Power consumption: 5 W, 7 VA.
Rating of auxiliary micro-switch contacts:
0.0 A min, 0.4 A max 24 V (24 V only).
18" wire lead connection.
US Patent 7,048,251.
Warranty: 2 year when installed separately
without ZVR relays.

CODE	DESCRIPTION	CV	ΔP
Z40	Inverted flare	3.5	30 psi
Z40F*	¾" Inv. flare	3.5	30 psi
Z42	½" SAE flare	3.5	30 psi
Z44	½" sweat	2.5	50 psi
Z45	¾" sweat	7.5	20 psi
Z45P**	¾" press	7.5	20 psi
Z46	1" sweat	7.5	20 psi
Z47	1¼" sweat	7.5	20 psi

* Two ¾" sweat fittings (NA10006) included.

** Two ¾" Presscon™ fittings (NA16265) included.

Z5 SERIES Z-ONE™ TERMINALS



E239721
US LISTED
868P

Two-way zone valve. Spring return.
Normally closed actuator: Z151000
Auxiliary micro-switch.
Max. body pressure: 300 psi.
Temperature range: 32°–240°F.
Suitable fluids: water, 50% max. glycol.
Power supply: 24 V AC.
Power consumption: 5 W, 7 VA.
Rating of auxiliary micro-switch contacts:
0.0 A min, 0.4 A max 24 V (24 V only).
Screw terminal connection.
US Patent 7,048,251.
Warranty: 2 year when installed separately
without ZVR relays.

CODE	DESCRIPTION	CV	ΔP
Z50	Inverted flare	3.5	30 psi
Z50F*	¾" Inv. flare	3.5	30 psi
Z54	½" sweat	2.5	50 psi
Z55	¾" sweat	7.5	20 psi
Z55P**	¾" press	7.5	20 psi
Z56	1" sweat	7.5	20 psi
Z57	1¼" sweat	7.5	20 psi

* Two ¾" sweat fittings (NA10006) included.

** Two ¾" Presscon™ fittings (NA16265) included.

Z-ONE PUMP RELAYS WITH 3 YEAR WARRANTY



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CODE	DESCRIPTION
ZSR101	Single zone relay
ZSR103	3 zone valve control
ZSR104	4 zone valve control
ZSR106	6 zone valve control

ZSR Z-ONE RELAY

Power supply: 120 VAC, 50/60 Hz.

Transformer voltage: 24 VAC.

Maximum transformer load: 12 VA (ZSR101/3/4), 20 VA (ZSR106).

Electrical switch rating: 20A max combined.

Electrical switch rating pump output: 120 VAC, 5A each.

Dry contact rating, ZR/ZC, DHW, XX: 120 VAC max, 2A each.

Replaceable fuses: Type 2AG, 5A slow blow.

Warranty: 3 year.

REFERENCE DOCUMENTATION: TECHNICAL BROCHURE 01286,
01285, 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.

Caleffi North America, Inc. 3883 W. Milwaukee Road Milwaukee, WI 53208
Tel. 414-238-2360 Fax 414-238-2366
sales@caleffi.com · www.caleffi.com
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