

# TACO Zone Control Product Information

## Switching Relays

*Product No.*

**SR501-4**  
**SR501-HC-4**  
**SR501-OR-4**  
**SR502-4**  
**SR503-4**  
**SR504-4**  
**SR506-4**

*Description*

**1 Zone Switching Relay**  
**1 or 2 Zone Switching Relay, High Current Capacity**  
**1 Zone Switching Relay with Outdoor Reset**  
**2 Zone Switching Relay with Priority**  
**3 Zone Switching Relay with Priority**  
**4 Zone Switching Relay with Priority**  
**6 Zone Switching Relay with Priority**

## Expandable Switching Relays – Expandable to 120 Zones (20 Zoning Panels)

*Product No.*

**SR501-EXP-4**  
**SR503-EXP-4**  
**SR504-EXP-4**  
**SR506-EXP-4**

*Description*

**1 Zone Switching Relay**  
**3 Zone Switching Relay with Priority**  
**4 Zone Switching Relay with Priority**  
**6 Zone Switching Relay with Priority**

## Zone Valve Controls

*Product No.*

**ZVC403-4**  
**ZVC404-4**  
**ZVC405-4**  
**ZVC406-4**

*Description*

**3 Zone Valve Control with Priority**  
**4 Zone Valve Control with Priority**  
**5 Zone Valve Control with Priority**  
**6 Zone Valve Control with Priority**

## Expandable Zone Valve Controls – Expandable to 120 Zones (20 Zoning Panels)

*Product No.*

**ZVC404-EXP-4**  
**ZVC406-EXP-4**

*Description*

**4 Zone Valve Control with Priority**  
**6 Zone Valve Control with Priority**

## Add-On Power Controls *(For use with all -EXP controls)*

*Product No.*

**PC700**  
**PC702**  
**PC705**

*Description*

**Boiler Reset Control**  
**2-Stage Boiler Reset Control**  
**Variable Speed Pump Injection Mixing Control**

## Fan Controls

*Product No.*

**HAFC201-4**

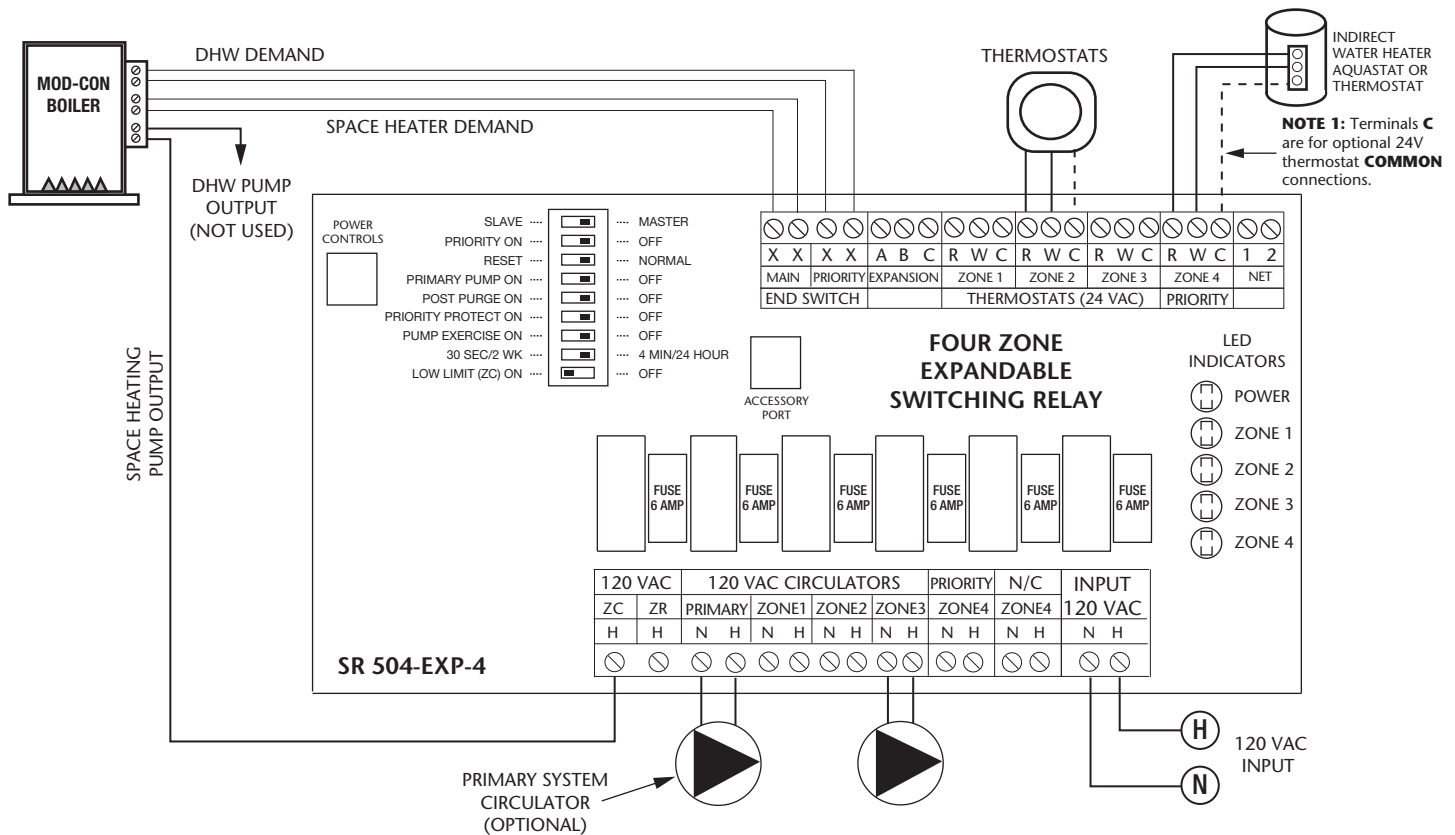
*Description*

**Hydro Air Fan Control with Optional Time Delays**

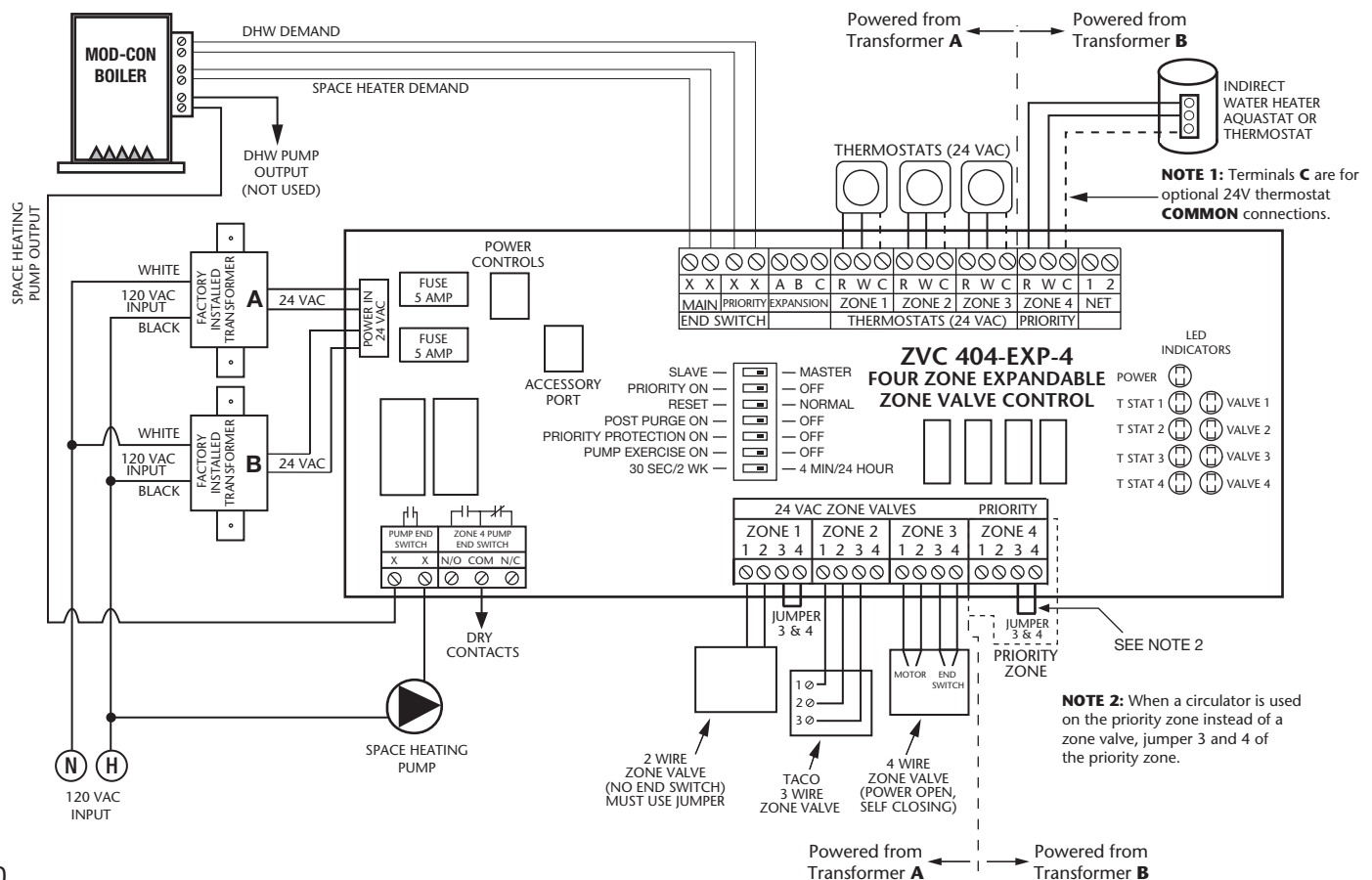
**Do it once.**  
**Do it right.**



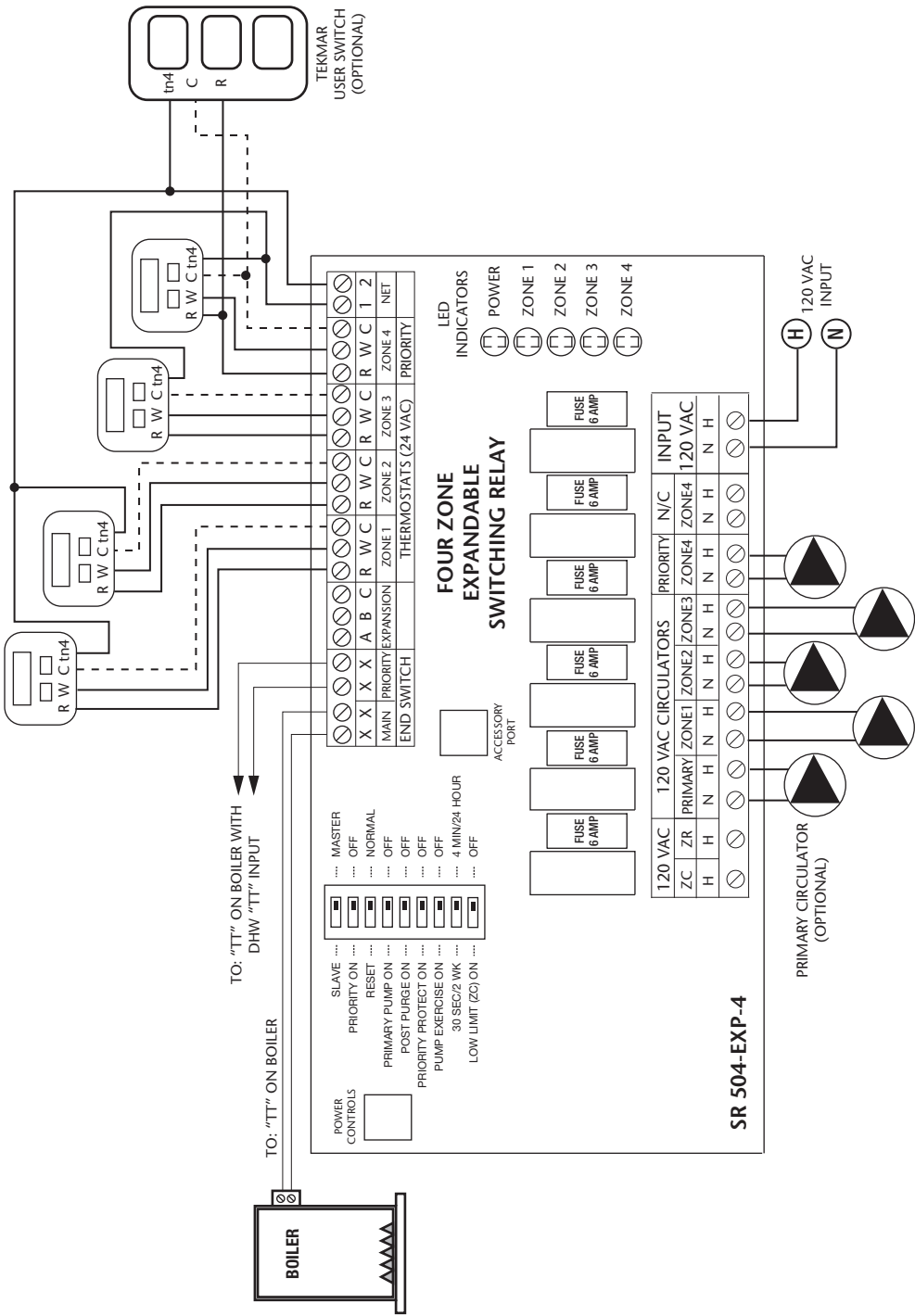
## SR504-EXP Switching Relay Connected to a MOD-CON Boiler



## ZVC404-EXP Zone Valve Control Connected to a MOD-CON Boiler



# TEKMAR Communication Thermostat (TN4) Connected to SR504-EXP Switching Relay





# Instruction Sheet

## SR503-EXP, SR504-EXP & SR506-EXP Switching Relay

**Operation:** When any thermostat calls for heat, the appropriate circulating pump is energized and the isolated end switch (X and X) will start the boiler.

**Priority Operation:** When the priority dip switch is set to ON and the priority zone is actuated, all other zones will stop operation until priority zone is satisfied. When not switched to priority, all zones will operate independently.

**Mode Operation:** When the dip switch is set to NORMAL, the end switch relay will be energized if any zone is in operation. When the switch is set to RESET, the end switch relay will only be energized if the priority zone is in operation, or through the operation of a plug-in reset control.

**Primary Pump Operation:** When the dip switch is set to OFF, the primary circulating pump output will energize when any zone calls for heat, except the priority zone. When the dip switch is set to ON, the primary circulating pump output will energize when any zone calls for heat.

**Post Purge Operation:** When the dip switch is set to ON, the priority zone output will stay energized for 2 minutes after its thermostat or aquastat is satisfied, but not operate the boiler.

**Priority Protection Operation:** When the dip switch is set to ON, and if the priority zone calls continuously for more than one hour, power is returned to all the other zones, allowing each zone to function independently. Once the priority zone is satisfied, the control's auto-reset is activated and the priority zone is again allowed to have priority for up to one hour starting from when it calls next.

**Pump Exercise Operation:** When the dip switch is set to ON, the solid state timer cycles all the circulating pumps that are attached to the Expandable Switching Relay at the selected time interval. The time interval can be set for the pumps to run for either 30 seconds every 2 weeks or for 4 minutes every 24 hours.

**Low Limit (ZC) Operation:** When the dip switch is set to ON and the boiler drops below the set low limit (terminal ZC connected to boiler), all zone circulating pumps will stop. When the boiler rises above the set low limit, the zone circulating pumps are allowed to operate.

**End Switches (Dry Contacts):** The main end switch closes when any zone thermostat calls for heat and the mode switch is set to NORMAL. The main end switch also closes when the mode switch is set to RESET and a PC Series boiler reset power control is calling for heat. The priority end switch closes only when the priority zone thermostat or aquastat is calling for heat.

**Expansion Connections:** Set the expansion switch to MASTER on the switching relay that has the designated priority zone or is utilizing the PC Series plug-in option. Set all other daisy chained controls to SLAVE. Using thermostat wire (18-22 gauge) connect between terminals A, B, C on the master control to the corresponding A, B, C on the SLAVE control(s). Controls may be daisy chained up to 20 zoning panels using any combination of -EXP controls (120 zones if all are 6 zone panels).

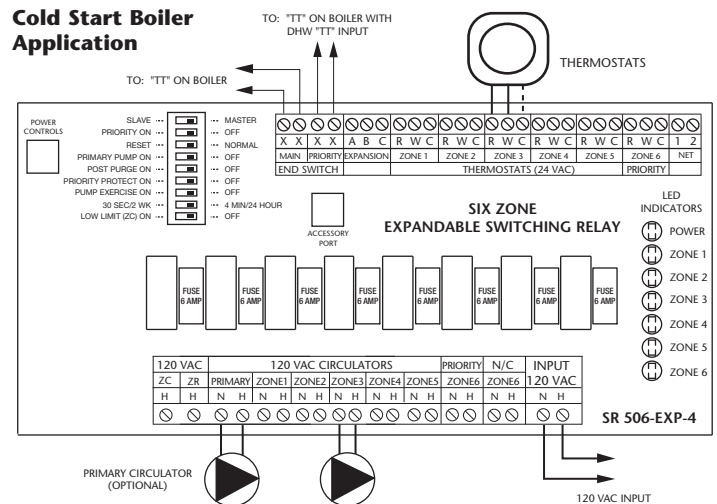
### Thermostat Input (24 vac):

- R** Hot side of transformer. Connect to **R** on thermostat.
- W** Switched **R** signal from thermostat. Connect to **W** on thermostat.
- C** Common side of transformer. Connect to **COM** on thermostat (optional).
- NET** Network terminals 1 & 2 are tied together for wiring convenience when using communicating style thermostats (optional).

### 120 VAC Connections (N is Neutral, H is Hot):

- Power Input** Connect 120 Volt AC power
- Primary** Primary Pump (optional)
- Zone 1-5** Circulator Zones
- Priority Zone 6** Priority Zone (if enabled) or Zone 6
- N/C Zone 6** Normally closed terminals for the Priority Zone. Will deactivate on a Priority Zone call.

### Cold Start Boiler Application



### Dip Switch Settings:

|                          |                          |               |
|--------------------------|--------------------------|---------------|
| SLAVE                    | <input type="checkbox"/> | MASTER        |
| ZONE PRIORITY ON         | <input type="checkbox"/> | OFF           |
| RESET                    | <input type="checkbox"/> | NORMAL        |
| PRIMARY PUMP FUNCTION ON | <input type="checkbox"/> | OFF           |
| POST PURGE ON            | <input type="checkbox"/> | OFF           |
| PRIORITY PROTECTION ON   | <input type="checkbox"/> | OFF           |
| PUMP EXERCISE ON         | <input type="checkbox"/> | OFF           |
| 30 SEC/2 WK              | <input type="checkbox"/> | 4 MIN/24 HOUR |
| LOW LIMIT (ZC) ON        | <input type="checkbox"/> | OFF           |

**External Diagnostics:** Externally visible lights show full functionality of the switching relay. The green light should always be on, indicating that power is connected. When the thermostat calls for heat, both the appropriate circulator and red indicating light are energized.

For more wiring diagrams, visit [www.taco-hvac.com](http://www.taco-hvac.com).

### Specifications:

| PRODUCT NUMBER | NUMBER OF ZONES | INPUT VOLTAGE | MAXIMUM COMBINED LOAD | TYPE 1 ENCLOSURE WIDTH | HEIGHT | DEPTH |
|----------------|-----------------|---------------|-----------------------|------------------------|--------|-------|
| SR506-EXP-4    | 6 with Priority | 120/60/1 VAC  | 20 amps               | 12 1/4"                | 8"     | 3"    |

All circulator relay connections, including ZC/ZR, are rated 1/3 hp (6 FLA, 36 LRA) at 120 VAC. End switch connections are rated 24 VAC, 1 amp. All thermostat connections supply a 24 VAC class 2 output.

### Features:

- Front External Indicator Lights
- Ideal for Retrofitting
- Primary Circulator Output
- Simplified Wiring
- Plug-In Power Controls
- Sealed Relays
- Compact Design
- Fuse Protected
- 100% Factory Tested
- Two Isolated End Switches
- Expandable to 20 Zoning Panels (120 zones if all are 6 zone panels)
- Contractor Friendly PC Board Layout
- Universal Thermostat Compatibility
- UL Approved
- 24 volt Power Input or Output Terminal
- Extended 3 Year Warranty
- Made in the USA

**WARNING:** Wiring connections must be made in accordance with all applicable electrical codes. Use copper wire only. 120 VAC wiring must have a minimum temperature rating of 75°C. Failure to follow this instruction can result in personal injury or death and/or property damage. 12-18 gauge wire recommended for 120 VAC connections, 14-22 gauge wire for thermostat connections, and 14-22 gauge wire for 24 VAC source connections.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## Do it Once. Do it Right.®

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 Visit our web site at: <http://www.taco-hvac.com>

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## TACO Zone Controls Cross-Reference

|   | TACO       | ARGO           | ERIE      | HONEYWELL   |
|---|------------|----------------|-----------|---|
| <b>SWITCHING RELAYS</b>                   |            |                |           |   |
| 1 Zone Switching Relay (DPDT)             | SR501      | AR822II        | SR100     | RA89A (2), RA845A (1), RA832A (1), R8845U, RA889A |
| 1 Zone Switching Relay                    | SR501-HC   |                |           |   |
| 1 Zone Switching Relay with Outdoor Reset | SR501-OR   |                |           |   |
| 2 Zone Switching Relay with Priority      | SR502      | AR-861-2II (3) | SR201     |   |
| 3 Zone Switching Relay with Priority      | SR503      | AR-861-3II (3) | SR301     |   |
| 4 Zone Switching Relay with Priority      | SR504      |                | SR601     |   |
| 6 Zone Switching Relay with Priority      | SR506      |                | R601 (4)  |   |
| <b>EXPANDABLE SWITCHING RELAYS</b>        |            |                |           |   |
| 1 Zone Switching Relay with Priority      | SR501-EXP  | ARM-3P (5,6)   |           | AQ25042B (9)                                      |
| 3 Zone Switching Relay with Priority      | SR503-EXP  | ARM-4P (5,6)   |           |   |
| 4 Zone Switching Relay with Priority      | SR504-EXP  | ARM-6P (5,6)   |           |   |
| 6 Zone Switching Relay with Priority      | SR506-EXP  |                |           |   |
| <b>ZONE VALVE CONTROLS</b>                |            |                |           |   |
| 3 Zone Valve Control with Priority        | ZVC403 (7) | AZ-3           | VL500 (8) |   |
| 4 Zone Valve Control with Priority        | ZVC404 (7) | AZ-4P          | VL500 (8) |   |
| 5 Zone Valve Control with Priority        | ZVC405 (7) | AZ-5           |           |   |
| 6 Zone Valve Control with Priority        | ZVC406 (7) | AZ-6P          |           |   |
| <b>EXPANDABLE ZONE VALVE CONTROLS</b>     |            |                |           |   |
| 4 Zone Valve Control with Priority        | ZVC404-EXP |                |           | AQ25044B (9)                                      |
| 6 Zone Valve Control with Priority        | ZVC406-EXP |                |           |   |

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*Description*

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**1 or 2 Zone Switching Relay, High Current Capacity**

**1 Zone Switching Relay with Outdoor Reset**

**2 Zone Switching Relay with Priority**

**3 Zone Switching Relay with Priority**

**4 Zone Switching Relay with Priority**

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## Expandable Switching Relays – Expandable to 120 Zones (20 Zoning Panels)

*Product No.*

**SR501-EXP-4**

**SR503-EXP-4**

**SR504-EXP-4**

**SR506-EXP-4**

*Description*

**1 Zone Switching Relay**

**3 Zone Switching Relay with Priority**

**4 Zone Switching Relay with Priority**

**6 Zone Switching Relay with Priority**

## Zone Valve Controls

*Product No.*

**ZVC403-4**

**ZVC404-4**

**ZVC405-4**

**ZVC406-4**

*Description*

**3 Zone Valve Control with Priority**

**4 Zone Valve Control with Priority**

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## Expandable Zone Valve Controls – Expandable to 120 Zones (20 Zoning Panels)

*Product No.*

**ZVC404-EXP-4**

**ZVC406-EXP-4**

*Description*

**4 Zone Valve Control with Priority**

**6 Zone Valve Control with Priority**

## Add-On Power Controls (For use with all -EXP controls)

*Product No.*

**PC700**

**PC702**

**PC705**

*Description*

**Boiler Reset Control**

**2-Stage Boiler Reset Control**

**Variable Speed Pump Injection Mixing Control**

## Fan Controls

*Product No.*

**HAFC201-4**

*Description*

**Hydro Air Fan Control with Optional Time Delays**

## CONTROLS MADE EASY.®

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