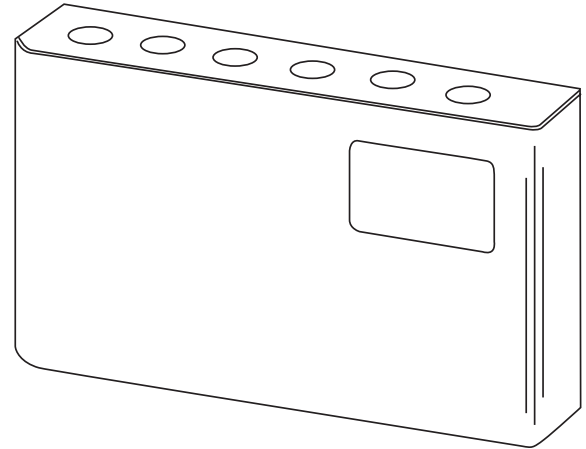


Application

The SR multiple-zone series control relays provide a convenient and cost effective way to control from two zones (SR201) up to six zones (SR601 with optional relays) and a boiler operating control in a multi-zone hydronic heating system.

Field selectable priority for zone 1 eliminates the need for additional relays to provide domestic hot water priority.

The SR601 series comes ready for four zones and can be expanded from four zone to six zone capacity with the purchase of two additional EXP10 relays.



SR601 Control Relay

Features

- Field selectable priority zone
- Sealed contact relays
- Field replaceable relays
- High capacity transformer
- LED status window
- Common 24 Vac transformer terminal
- Add-on expansion zones available

SPECIFICATIONS

Inputs

Power (L1-L2): 120 Vac 50/60 Hz, 10 VA (SR201/301), 1 A (SR601).

Thermostat/Heat Demand Dry Contacts (T1 through T6):

24 Vac, 0.12 A, Class 2,

(Power supplied by this unit - do not connect external power source),

(Set thermostat anticipator per thermostat instructions to measured current or 0.12 A),

Outputs

SR201/301 Thermostat Supply (R-C): 24 Vac, 5VA, Class 2 (15VA transformer secondary)

SR601 Thermostat Supply (R-C): 24 Vac, 6VA, Class 2 (25VA transformer secondary)

Line Voltage Boiler Output (Dry Contact X1-X2), and Line Voltage Circulator Outputs (C1 through C6):

Single Phase Motor: 1/3 hp @ 120 Vac

Single Phase Motor: 1/2 hp @ 240 Vac

General Purpose: 10 A @ 120/240 Vac

Resistive: 10 A @ 120 Vac (SR201/301), 7.4A @ 120 Vac (SR601)

CAUTION: Total load not to exceed 20 A (SR201/301) or 30A/2hp (SR601)

Environment

Temperature Limits: Maximum ambient 110°F (43°C).

Maximum Humidity: 85% RH non-condensing.

Shipping Weight: SR201/301 series, 4 lbs (1812 g); SR601 series, 6 lbs (2718 g).

Location: NEMA Type 1 (IP20).

Agency Listings

UL/CUL: File # E9429.

Table-1 Model Chart.

Model	Description
SR201	2 zone relay with Priority Plus. ¹
SR201B	2 zone relay with Priority. ²
SR201AT	2 zone relay with Auto-Test and Priority Plus. ¹
SR301	3 zone relay with Priority Plus. ¹
SR301B	3 zone relay with Priority. ²
SR301AT	3 zone relay with Auto-Test and Priority Plus. ¹
SR601	4 zone expandable to 6 zone relay with Priority Plus. ^{1,3}
SR601B	4 zone expandable to 6 zone relay with Priority. ^{2,3}
SR601AT	4 zone expandable to 6 zone relay with Auto-Test and Priority Plus. ^{1,3}
EXP 10	Relay for 1 zone expansion or replacement for All SR relays.

1 In addition to priority only logic, Priority Plus allows non-priority heating zones to be locked out for up to one hour on a call for priority domestic hot water heating.

2 Priority only logic locks out non-priority heating zones indefinitely.

3 Purchase two additional EXP10 relays to expand SR601 models from 4-zone to 6-zone capacity.

TYPICAL APPLICATIONS (wiring diagram)

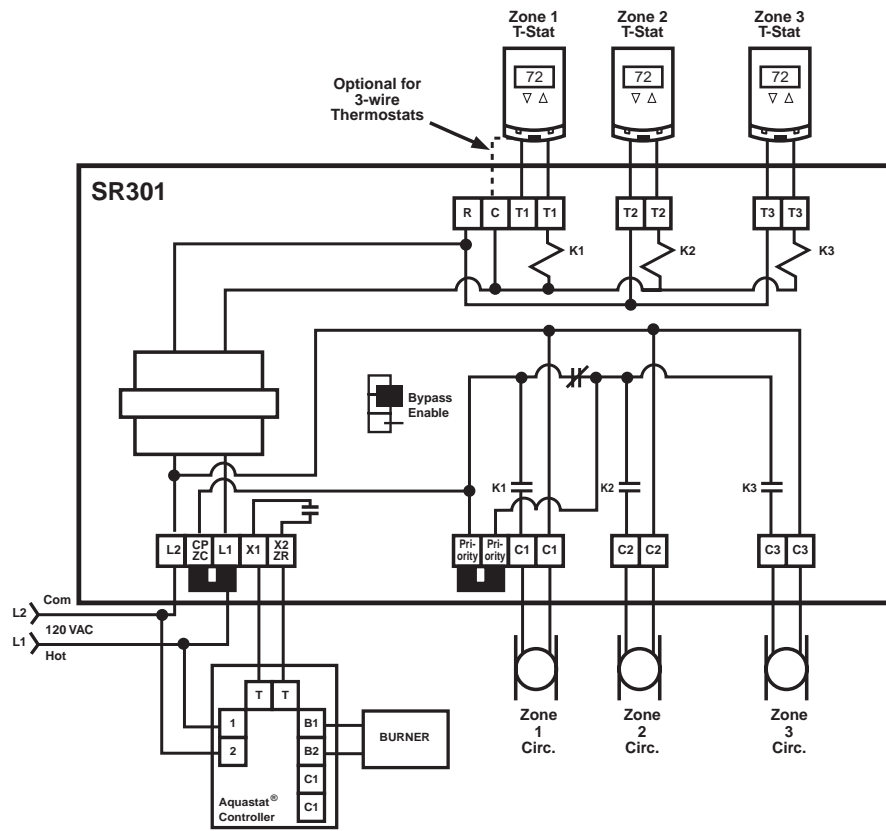


Figure-1 Typical Wiring SR201, SR301, and SR601 - Boiler Controller.

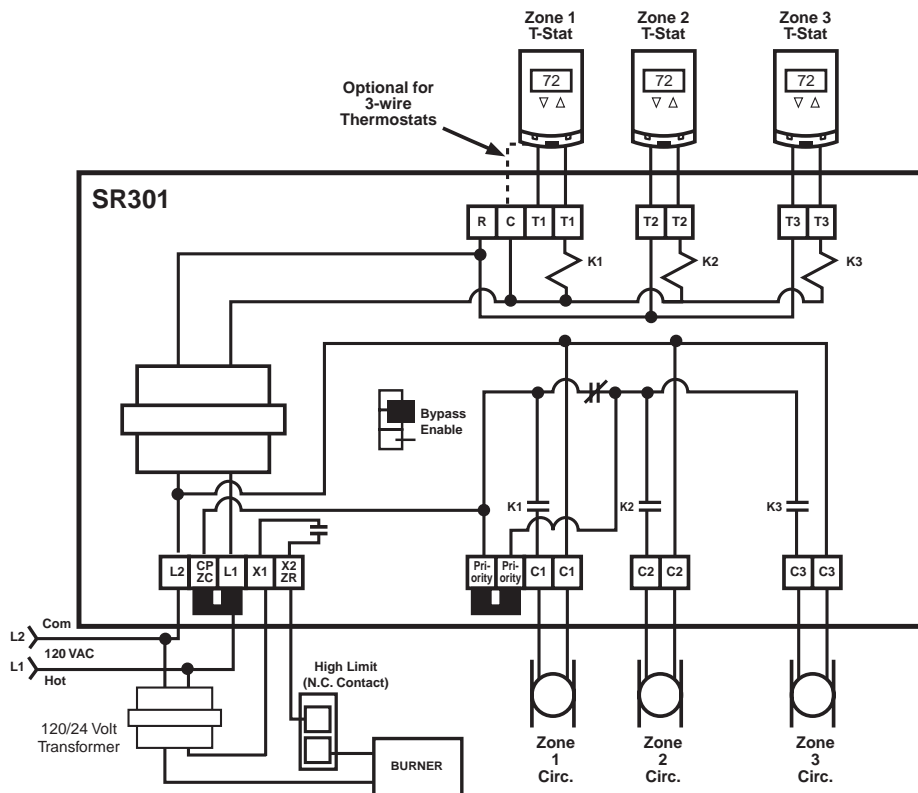
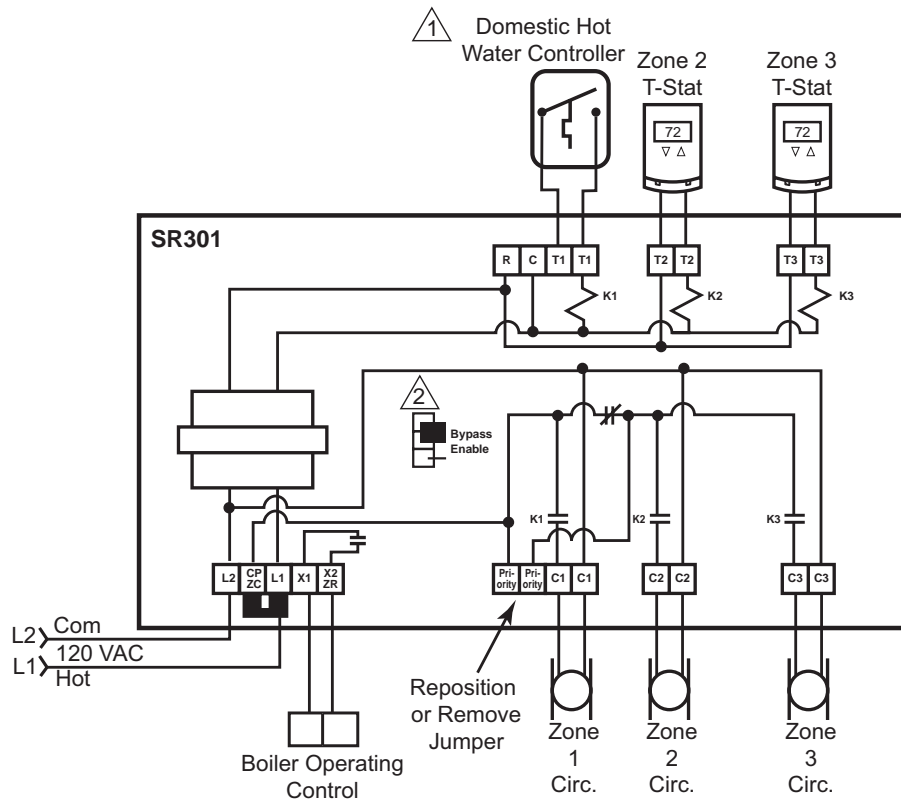


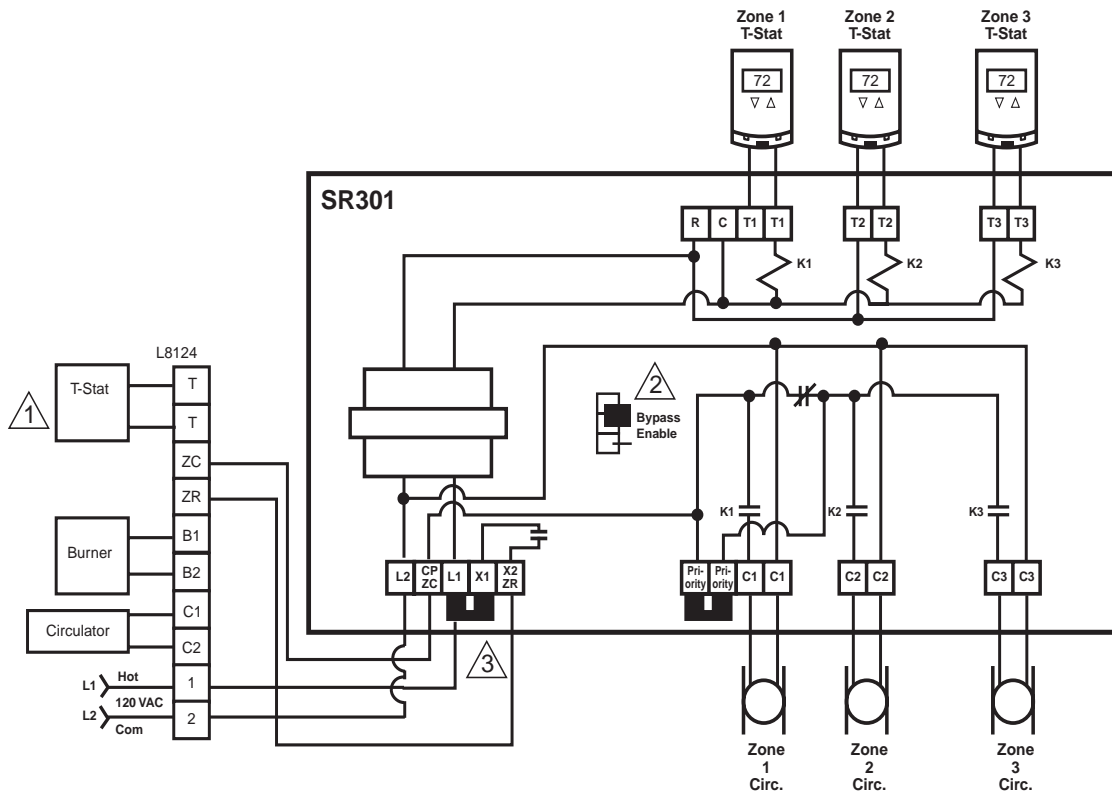
Figure-2 Typical Wiring SR201, SR301, and SR601 - 24 Vac High Limit & Gas Valve.



1 DHW Controller must provide dry contacts.

2 For Priority Plus, place Bypass/Enable jumper on Enable.

Figure-3 Typical Wiring SR201, SR301, and SR601 - Domestic Hot Water Priority.



- ① Aquastat controller switch logic terminals ZC and ZR:
 ZC, is powered with 120 Vac when the low temperature limit is satisfied.
 ZR, is powered with 120 Vac when the low limit is not satisfied or if any zone calls for heat.
- ② Bypass/Enable jumper in Bypass.
- ③ Move this jumper from terminal pair CP-ZC/L1 to terminal pair L1/X1.

Figure-4 Typical Wiring SR201, SR301, and SR601 - Tankless Coil Application.

INSTALLATION

Inspection

Inspect the package for damage. If damaged, notify the appropriate carrier immediately. If undamaged, open the package and inspect the device for obvious damage. Return damaged products.

Requirements

- Tools (not provided)
 - Digital multimeter
 - Screwdriver
 - Drill
- Training: Installer must be a qualified, experienced technician

Precautions

General

⚠ WARNING

- Electrical shock hazard! Disconnect power before installation to prevent electrical shock or equipment damage.
- Make all connections in accordance with the electrical wiring diagram and in accordance with national and local electrical codes.

CAUTION

- Avoid locations where excessive moisture, corrosive fumes, explosive vapors, or vibration are present.
 - Avoid electrical noise interference. Do not install near large conductors, electrical machinery, or welding equipment.
-

Mounting

Mount the SR201/301/601 series to a suitable surface. Slotted keyholes and standard holes are provided for mounting purposes. Do not mount on a surface that exceeds 110°F (43°C).

Status Indicators

An illuminated LED indicates the presence of power at the transformer (power) or zones (zone 1 through zone 6).

Wiring

Terminal Description

Line Voltage Terminals

L1, 120 Vac hot input.

L2, 120 Vac neutral input.

CP/ZC, circulator power input.

PRIORITY, Zone 1 priority select.

C1/C1, Zone 1 120 Vac circulator power.

C2/C2, Zone 2 120 Vac circulator power.

C3/C3, Zone 3 120 Vac circulator power.

C4/C4, Zone 4 120 Vac circulator power.

C5/C5, Zone 5 120 Vac circulator power.

C6/C6, Zone 6 120 Vac circulator power.

Dry Contact Terminals

X1, Dry contact heat demand.

X2/ZR, Dry contact heat demand.

Low Voltage Terminals

R, 24 Vac transformer hot.

C, 24 Vac transformer com and optional for 3-wire thermostat.

T1/T1, Zone 1 24 Vac thermostat.

T2/T2, Zone 2 24 Vac thermostat.

T3/T3, Zone 3 24 Vac thermostat.

T4/T4, Zone 4 24 Vac thermostat.

T5/T5, Zone 5 24 Vac thermostat.

T6/T6, Zone 6 24 Vac thermostat.

Typical Installation

To wire the SR301 as a typical 3 zone heating circulator relay with dry contact output for turning on a boiler controller, 24 Vac gas valve or auxiliary equipment (refer to Figure-1 and Figure-2).

Line Voltage

1. Remove knockout below L1 & L2 terminals.
2. Connect line voltage: Connect 120 Vac hot line voltage to L1 and 120 Vac neutral to L2. Connect ground screw (green) to earth ground.
3. Remove knockout below C1/C1 terminals.
4. Connect zone 1 120 Vac load (circulator): Connect the switched hot 120 Vac to C1 left and 120 Vac neutral to C1 right.
5. Remove knockout below C2/C2 terminals.
6. Connect zone 2 120 Vac load (circulator): Connect the switched hot 120 Vac to C2 left and 120 Vac neutral to C2 right.
7. Remove knockout below C3/C3 terminals.
8. Connect zone 3 120 Vac load (circulator): Connect the switched hot 120 Vac to C3 left and 120 Vac neutral to C3 right.

Thermostats

1. Remove knockout above T1/T1 terminals.
2. Connect zone 1 controller (thermostat): Connect RH-24 Vac hot to T1 left and the switching leg to T1 right. C-24 Vac common connects to C.
3. Remove knockout above T2/T2 terminals.

NOTE

C terminal optional for electronic thermostats.

4. Connect zone 2 controller (thermostat): Connect RH-24 Vac hot to T2 left and the switching leg to T2 right.
5. Remove knockout above T3/T3 terminals.
6. Connect zone 3 controller (thermostat): Connect RH-24 Vac hot to T3 left and the switching leg to T3 right.

Boiler/Burner Controller (Refer to Figure-1)

1. Remove knock out below X1 & X2/ZR terminals.
2. Connect boiler/burner controller: Connect the boiler/burner controller to X, and the 24 Vac high limit connects to X2/ZR.

Boiler/Burner Controller 24 Volt Gas Valve (Refer to Figure-2)

1. Remove knock out below X1 & X2/ZR terminals.
2. Connect secondary 24 V transformer: Connect 24 Vac transformer to X1 and the gas valve to X2/ZR.

Domestic Hot Water Priority

1. Remove the jumper between the PRIORITY/PRIORITY terminals on the lower portion of the printed circuit board (Refer to Figure-3).

NOTE

Zone 1 must be used for Priority or Priority Plus if required.

CAUTION

Total line voltage load should not exceed 10 amps.

Tankless Coil Applications

The SR301 can also be wired for tankless coil applications to provide low limit protection for the boiler controller. If the boiler temperature drops below low limit, all circulators deactivate until the low limit is satisfied (refer to Figure-4).

To convert the SR301 for tankless coil application:

1. Remove jumper located between CP/ZC and L1 terminals and install on terminals between L1 and X1.
2. Wire as shown in Figure-4.

Electronic Thermostats

All SRX01 relays are compatible with electronic thermostats requiring 2 wire and 3 wire (require 24 Vac common terminal) connections. For thermostats requiring the C (24 Vac common) connection, wire C terminal from zone thermostat to the C terminal on the terminal block of the SR201/301/601.

Thermostat Anticipator Setting

Refer to thermostat manufacturer's anticipator setting instructions.

CHECKOUT

1. Verify jumper positions:
 - a. Priority/Priority jumper
 - b. Bypass/Enable pin jumper
 - c. CP/CZ - L1 jumpers.
2. Verify wiring of all zone thermostats and circulators.
3. Verify that 120 Vac is available across L1 and L2.
4. Verify that 24 Vac is available across R and C terminals of the SR panel.
5. To check the performance on any zone:

Disconnect the zone thermostat and install a jumper wire across the T1/T1 zone input terminals. When jumpered the zone circulator terminals C1/C1 should be powered with 120 Vac. The normally open dry contacts, X1/X2ZR terminals should be closed.
6. Repeat the check out process for each zone.
7. The relay cubes, EXP10, are interchangeable and can be removed and plugged into other zones to check for possible problems in one or more relay cubes.

THEORY OF OPERATION

The SR Multi-Zone series controller can be field selected for Standard, Priority and Priority Plus control operations.

Operation mode set-up is determined by the position of a pin jumper called the Bypass/Enable jumper. The Bypass/Enable jumper is a group of three small pin located on the circuit board as **JP1**. In small print **BYPASS** and **ENABLE** are next to the pins. The center pin is the Common.

Terminals label **PRIORITY** located on the lower section of the circuit board are factory jumper to prevent priority override features.

Standard Operation

To select Standard Operation, set **JP1** to **BYPASS** (jumper Bypass and center pins). Jumper bar to remain on **PRIORITY/PRIORITY** terminals

Whenever an external contact closure occurs across any pair of zone thermostat input terminals T1 thru T6, a corresponding zone relay on the SR Multi-zone controller is energized to start the appropriated zone circulator and activate the boiler starting circuit via isolated X1-X2/ZR terminals

Priority Operation

To select Priority Operation, set **JP1** to **BYPASS** (jumper Bypass and center pins). Remove jumper bar between **PRIORITY/PRIORITY** terminals.

When "PRIORITY" mode is selected, zone (T1) has priority over zones 2 through 6 (T2-T6). A demand from priority will activate the burner starting circuit and turn on the priority circulator.

Circulators for zones 2 through 6 are **disabled** until the Priority zone demand is **satisfied**

Priority Plus Operation

To select Priority Plus Operation, set **JP1** to **ENABLE** (jumper Enable and center pins). Remove jumper bar between **PRIORITY/PRIORITY** terminals

The "PRIORITY PLUS" feature prevents heat zones from extended lock out. If the priority zone (T1) demand calls continuously for more than 60 minutes, the Priority Plus feature overrides the priority zone and returns zones (T2-T6) to normal operation.

The Priority zone is **disabled** until the Priority Plus timer is reset. The timer is reset either by removing the call from zone (T1) input or cycling the power to the SR Multi controller.

Auto Test Feature

Auto-Test feature is available on SR201AT/301AT/601AT models of the SR Multi-Zone controller only.

To use the Auto-Test feature press the red button on the upper portion of the controller housing to test up to 2 zones at a time. Specialized circuitry protects the thermostat circuitry during Auto-Test.

MAINTENANCE

The SR201/301/601AT requires no maintenance. The EXP 10 relay cubes are replaceable.

Regular maintenance of the total system is recommended to assure sustained, optimum performance.

FIELD REPAIR

Replacing Existing Relay

The EXP 10 relay cubes are replaceable.

To replace an EXP 10 relay cube:

1. Turn off power.
2. Unplug the original relay.
3. Plug in a new EXP 10 relay cube.
4. Restore power and check for proper operation.

DIMENSIONAL DATA

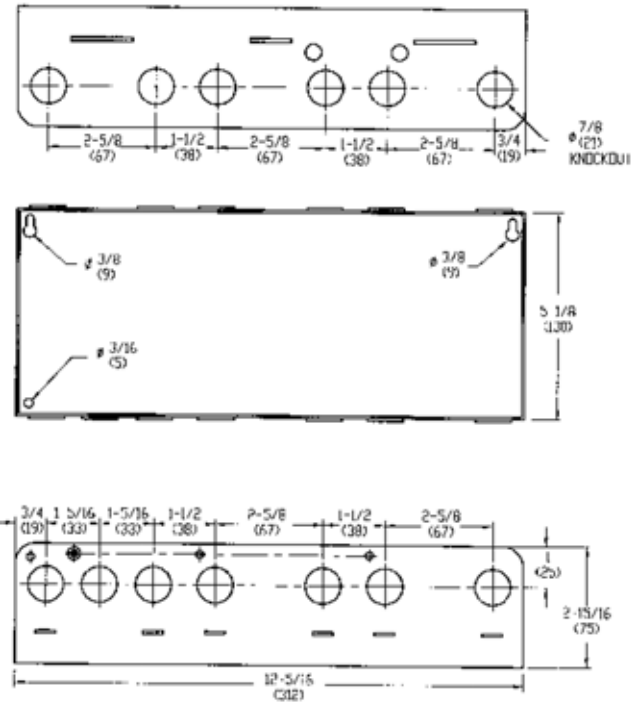


Figure-5 SR201/301 Dimensions.

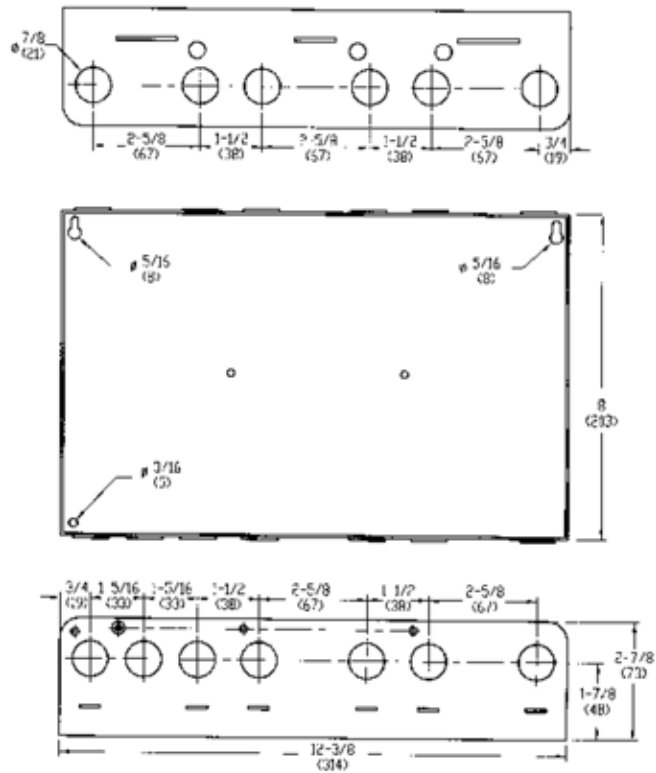


Figure-6 SR601 Dimensions.

Copyright 2008, TAC
All brand names, trademarks and registered
trademarks are the property of their respective
owners. Information contained within this
document is subject to change without notice.

F-27019-3

TAC
1354 Clifford Avenue
P.O. Box 2940
Loves Park, IL 61132-2940
www.tac.com

t.a.c. [®]
by **Schneider Electric**