# ZN551 Relay Pack (ALC/RP-ZN551)

*Installation & Operating Instructions*

20658_RP_ZN551_ins_ops rev. 05/03/13

## Product Overview

The Relay Pack (ALC/RP-ZN551) is designed to couple directly to the ALC ZN551 controller to simplify wiring. The Relay Pack provides 5 relays. One for each of the dry contact inputs and an optional 6th for those applications where 6 relays may be needed. The Relay Pack plugs into the ALC ZN551 controller and provides AC power to the controller. It also ties into the analog output and provides power for the actuator from the same or an additional transformer (field selectable). The Relay Pack also provides power to each of the relays to eliminate the need for and additional power supply and the additional wiring that would otherwise be required with other relays.

## Product Identification

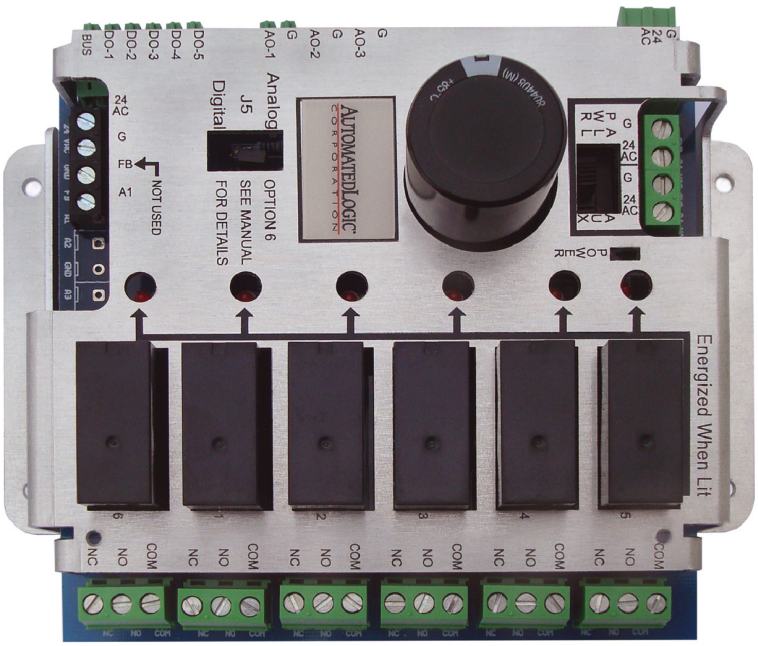
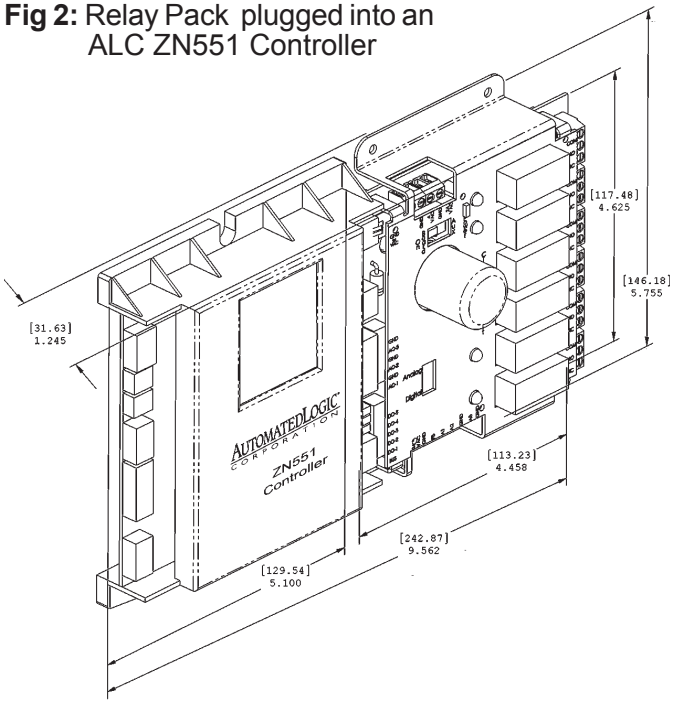



**Fig 1:** Relay Pack Interface Board

**Fig 2:** Relay Pack plugged into an ALC ZN551 Controller




## Operation

Any one of the 5 relay closures from the ALC ZN551 controller will energize the associated (1-5) high power relay (Form-C, SPDT). An LED next to each relay indicates if it is energized.

Option 6 determines how the analog signal is to be used.

- If J5 is in the Analog position, then the controller analog signal (0 to 10VDC) is passed onto the A1 Terminal analog signal to the actuator.
- If J5 is in the “Digital” position, then the controller analog signal operates relay 6. An analog signal greater than 1.4VDC will energize relay six. An analog signal less than 0.8 VDC will de-energize relay six.

## Mounting

- Mount the ZN551 controller in the desired location. (The Relay Pack requires a minimum of 6” clearance to the right of the ZN551 controller.)
- Slide the Relay Pack into the output terminals of the ALC ZN551 controller.
- Using the Relay Pack as a template, mark the 4 mounting holes with a pencil or marker.
- Remove the Relay Pack from the ALC ZN551 controller.
- Drill 1/8” pilot holes where marked.
- Slide the Relay Pack back onto the output terminals of the ALC ZN551 controller.
- Drive the screws thru the mounting feet into the surface.

Specifications subject to change without notice.

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## *Termination*

**Power:**

Connect 24 VAC power to the top of the board as shown in Fig 3 to the “PWR ALL” terminals ( Be sure to follow polarity). If an actuator is to be powered from an independent transformer than apply 24 VAC power to the “AUX” terminals from an independent transformer (Be sure to follow polarity).

**Controller Interface Connection:**

Input control interface is made by plugging the Left Hand terminal connectors of the interface board into the Right Hand terminals of the ZN551 controller (see mounting). Accessory terminal plugs can be provided for the Relay Pack if remote wiring is preferred. Pin to Pin connection will then be required. These connections also provide power from the Relay Pack interface board to the ZN551 controller.

**Actuator Connection:**

a) Connect the actuator wiring to the bottom of the interface board to the “Actuator” terminals. 24 VAC power is supplied from the Relay Pack board already connected in step 1 above. The switch “S1” determines if power comes from the system transformer or an independent transformer. (Be sure to follow polarity)

b) Connect the analog signal to terminal A1 as shown in Fig 3.

c) The FB terminal is not connected internally and is provided for termination only.

**Relay Connection:**

All relay field connections are on the right side of the Relay Pack interface board as shown in fig 3. Each output is isolated and controlled by an independent Form-C, SPDT relay contact with an LED to indicate relay Energized (on) or De-energized (off). All normal positions are when the relay coil is De-energized (Red LED off).

Com = Common, NO = Normally Open, NC = Normally Closed.

**Note:** When wiring is complete put all terminal cover plates on to protect from accidental touching or electrocution.

## *Setup*

**S1, Power Source:**

If an actuator is used, move S1 to the left “PWR ALL” for sharing system power with the actuator or move S1 to the right “AUX” for independent power sourcing.

**J5, Option 6:**

J5 is a three pin header. Top two = Analog, Bottom two = Digital (Relay 6 active)

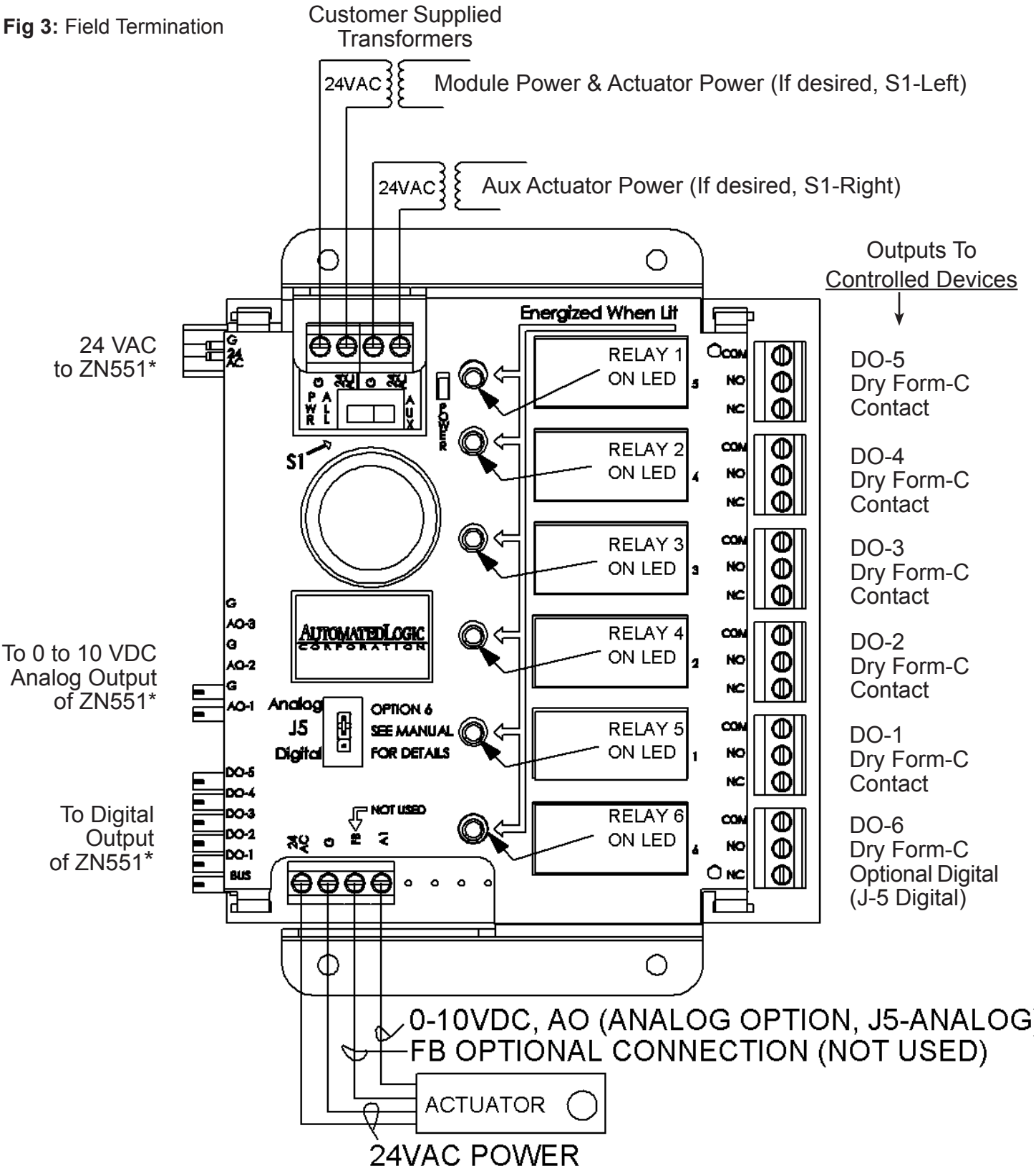
**Analog Operation (A1):**

Move J5 to the “Analog” jumper position (Center pin to top pin)

**Relay 6 Operation:**

Move J5 to the “Digital” jumper position (Center pin to bottom pin)

**Fig 3:** Field Termination




**** Edge connectors plug directly into ZN551 controller board.***

Specifications subject to change without notice.

## *Diagnostics*

| **Possible Problems:** | **Possible Solution:** |
|---|---|
| Power LED is not lit up | • Check for power at the 24V terminals in the upper left. |
| Relays will not operate | • Check to make sure you have a good connection between the ALC ZN551 controller and the Relay Pack.<br>• Make sure you have selected the desired relay configuration, NO or NC. |
| The actuator is not functioning | • Check to make sure “Option 6” jumper J5 is in the analog mode. |

## *Specifications*

**Power:**
24 VAC @3.5 VA (without ZN controller or actuator)

S1 Left, all grounds are common
S1 Right, Aux + and Aux Ground are isolated

**Actuator Power Termination Limit:**
24 VAC @60 VA

**Output Relays:**
5-SPDT Relays
1 optional SPDT Relay (analog controlled)

**Relay Switching Load:**
Resistive 10 A @250 VAC or 30 VDC
Inductive 7.5 A @250 VAC or 5A @30 VDC

**Digital Input (from ZN551 Controller):**
Terminal to ground
22mA @ 24 VDC for each relay

**Optional relay six analog signal:**
Optional Digital Jumper (Control relay 6, SPDT)
Energize Analog Output >1.4 VDC
De-energize Analog Output <0.8 VDC

**Analog Output from ZN551 Controller to Actuator:**
Optional Analog Jumper
(Analog Output feed through to terminal A1)
0 to 10VDC signal

**Mounting:** 4 bracket mounting holes

**Terminals:** 26 to 16 AWG, 300V @10A

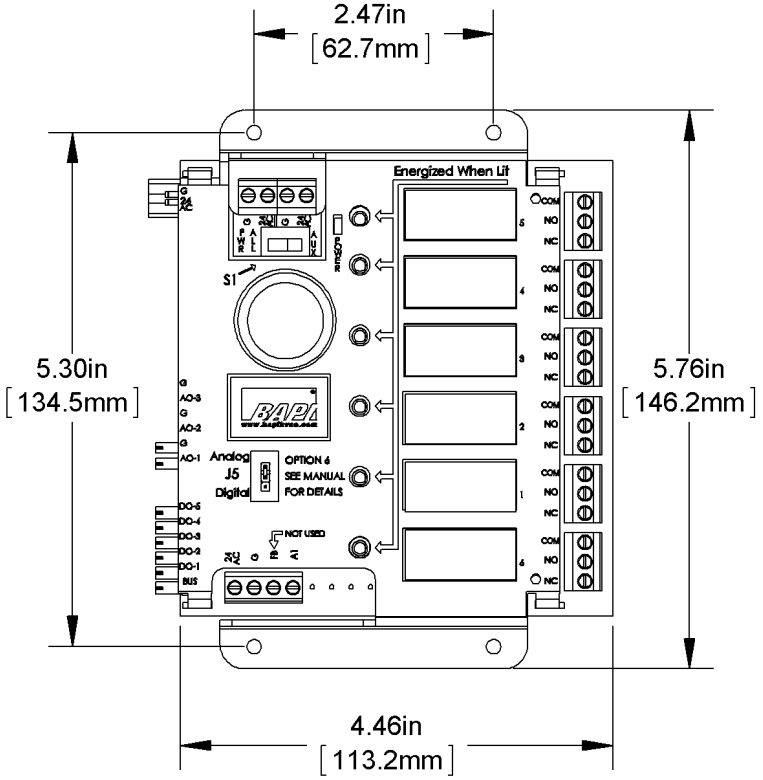



**Fig 4:** Relay Pack Dimensions