# AS-RLY050-0 / AS-RLY100-1 / AS-RLY002-0 Relay Module

## *Introduction*

The relay module is a self-contained relay device that provides an interface between the low voltage circuitry and line voltage devices. Johnson Controls provides the following relay modules:

### RLY050 and RLY100

The RLY050 and RLY100 are primarily used with application specific controllers or in applications that require a metal relay enclosure. RLY050 has two 24 VAC relays. RLY100 has four 24 VAC relays.

### RLY002

The RLY002 is the same relay module used in the RLY050 and RLY100. You can use the RLY002 as a replacement board for either of these modules. You can also mount the RLY002 in Universal Packaging Modules (UPMs) using the enclosed hardware. The RLY002 has two 24 VAC relays.

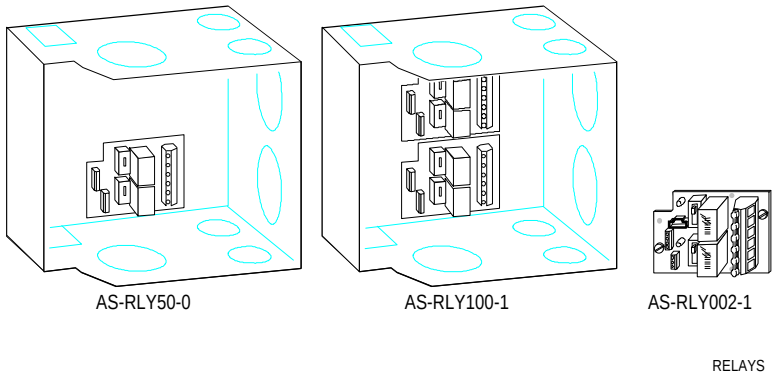


**Figure 1: Single/Double Relay (RLY) Modules**

## *Installation*

**Tools Needed**

- wire cutter
- flat-head screw driver
- Phillips-head screw driver
- mounting screws (The standoffs and screws required for RLY002 installation are provided with the relay.)

**Mounting the Relay Module**

***RLY050/100--AHU Tower***

Provide a smooth even surface for mounting the controller tower. If a smooth even surface is not available, you may use an optional mounting board (AS-AHUMTG-47). Prior to installation, remove the necessary knockouts in the relay box. Position the relay at the top of the tower, above the transformer, as illustrated in Figure 2. Once aligned with the tower, attach the relay to the mounting surface using two screws.

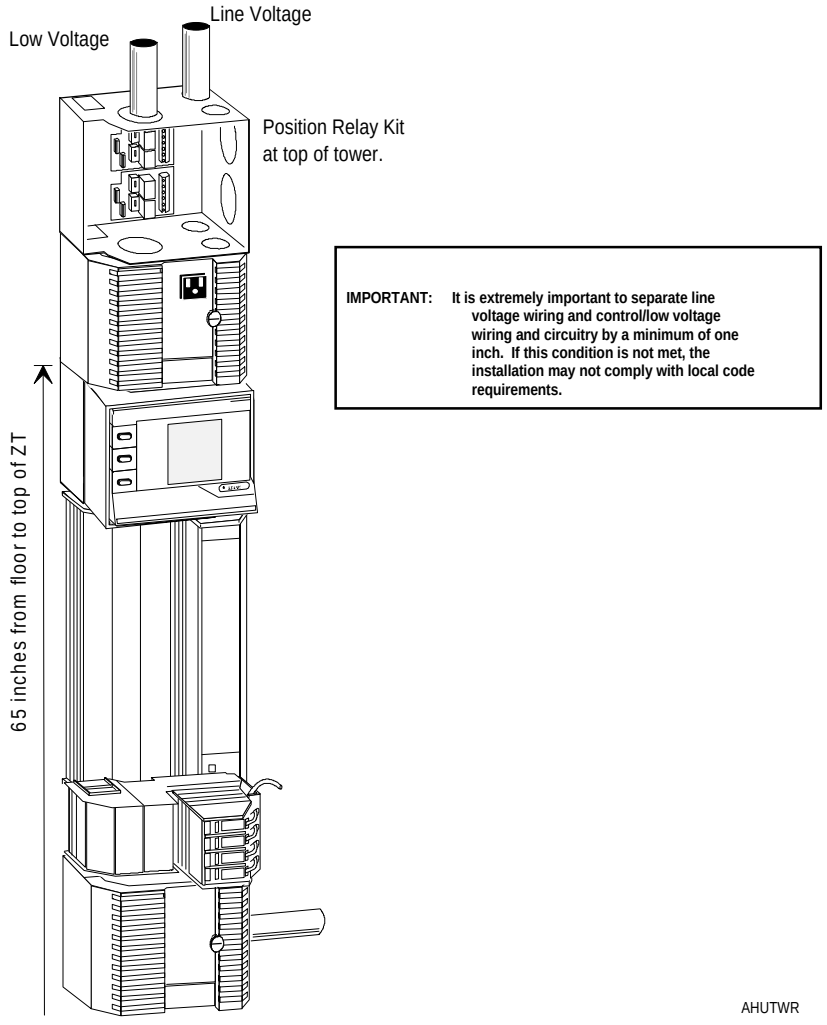


**Figure 2: AHU Tower**

### *RLY002--UPM*

Install the UPM in the desired location. Refer to the *Universal Packaging Module Technical Bulletin* for instructions on installing the UPM.

Position the RLY002 so the terminal for relay contacts is adjacent to the line voltage wiring in the UPM. Figure 3 illustrates one of the many options for positioning the RLY002.

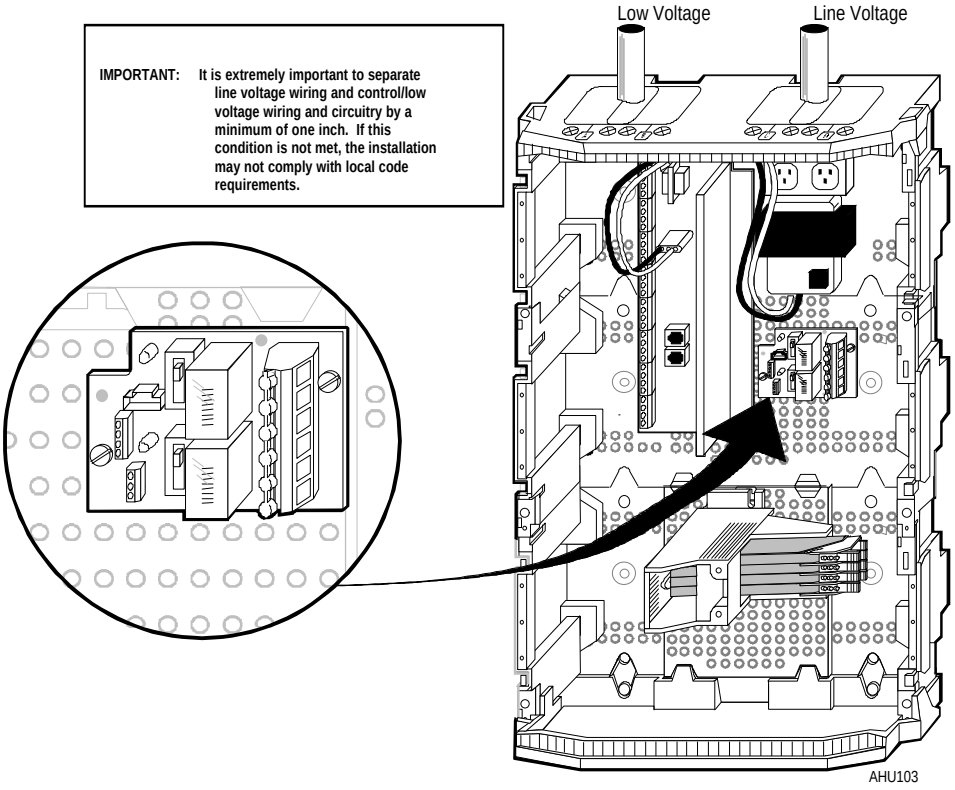


**Figure 3: Mounting the RLY002 with Control Equipment**

Use the two No. 8 sheet metal screws provided with the RLY002 to secure the relay to the UPM backbone. Use two of the four standoffs on the RLY002, keeping the mounting screws diagonally positioned from each other as illustrated in Figure 4.

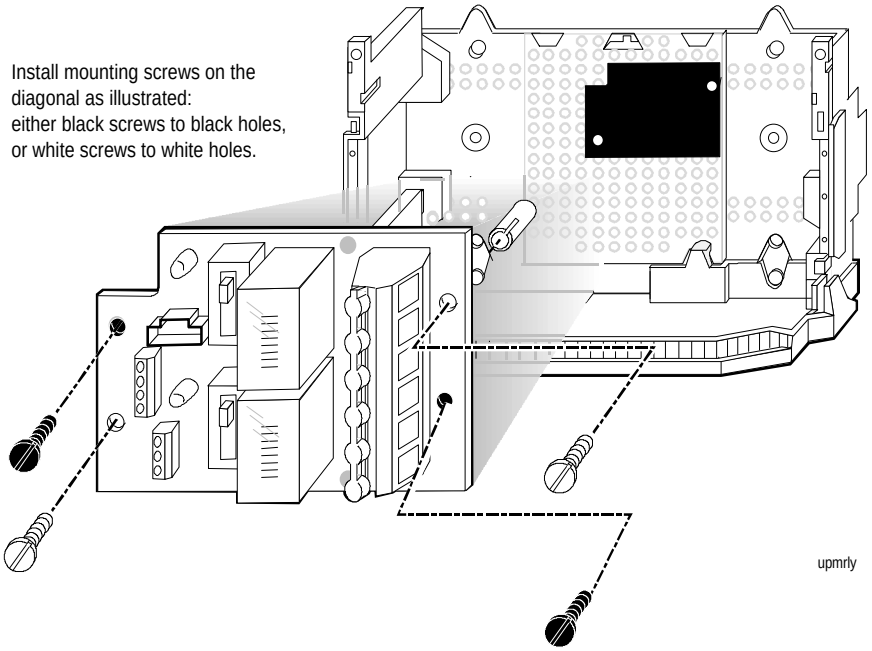


**Figure 4: Mounting the RLY002**

## Wiring the Relay Module

### *RLY050/100--AHU Tower*

Refer to Figure 5 when wiring a RLY050/100. Route control and binary feedback wires through the rectangular knockout in the enclosure and connect them according to the examples in Figure 5. For ease of wiring, use the AS-CBL100-0 with the AHU when the AHU is within three feet of the relay.

Route all other field wiring through the low voltage knockout (Figure 2), then through the rectangular knockouts to the controller. Bring the VAC and contactor wiring through the line voltage side of the relay, (Figure 2). Continue the 120 VAC power wiring for the transformer through the line voltage side of the enclosure for the transformer (XFR100).

WARNING: It is extremely important to separate line voltage wiring and control/low voltage wiring and circuitry by a minimum of one inch. If this condition is not met, the installation may not comply with local code requirements.

### *RLY002--UPM*

Refer to Figure 3 when wiring a RLY002. To ensure separation of line and control wiring, route all low voltage wiring from the controller on the left-hand side of the UPM (Figure 3). Route all line voltage wiring to the right-hand side (Figure 3). Connect control and binary feedback wires according to the examples in Figure 5. For ease of wiring, use the AS-CBL100-0 with the AHU when the AHU is within three feet of the relay.

**Table 1: Wiring Terminals--Low Voltage**

| Relay Terminal | Description |
|---|---|
| **A or C** | Relay Control, Switched 24 VAC from Binary Output |
| **B or D** | Relay Control, Switched 24 VAC from Binary Output |
| **Coils** | Relay Coil Supply, connected to both Relay Coils |
| **Triacs** | Triac voltage supply, used to energize Relay in "HAND" switch position |
| **Hand** | Binary Contact Feedback, closed indicates when HOA relay switch is in the "HAND" position |
| **Off** | Binary Contact Feedback, closed indicates when either HOA switch is in the "OFF" position |
| **HOA Com** | Binary Input common for HAND/OFF feedback |

**Table 2: Wiring Terminals--Line Voltage (240 VAC 5 Amp Maximum)**

| Relay Terminal | Description |
|---|---|
| **COM** | Common Relay Contact |
| **NC** | Normally Closed Relay Contact |
| **NO** | Normally Open Contact |

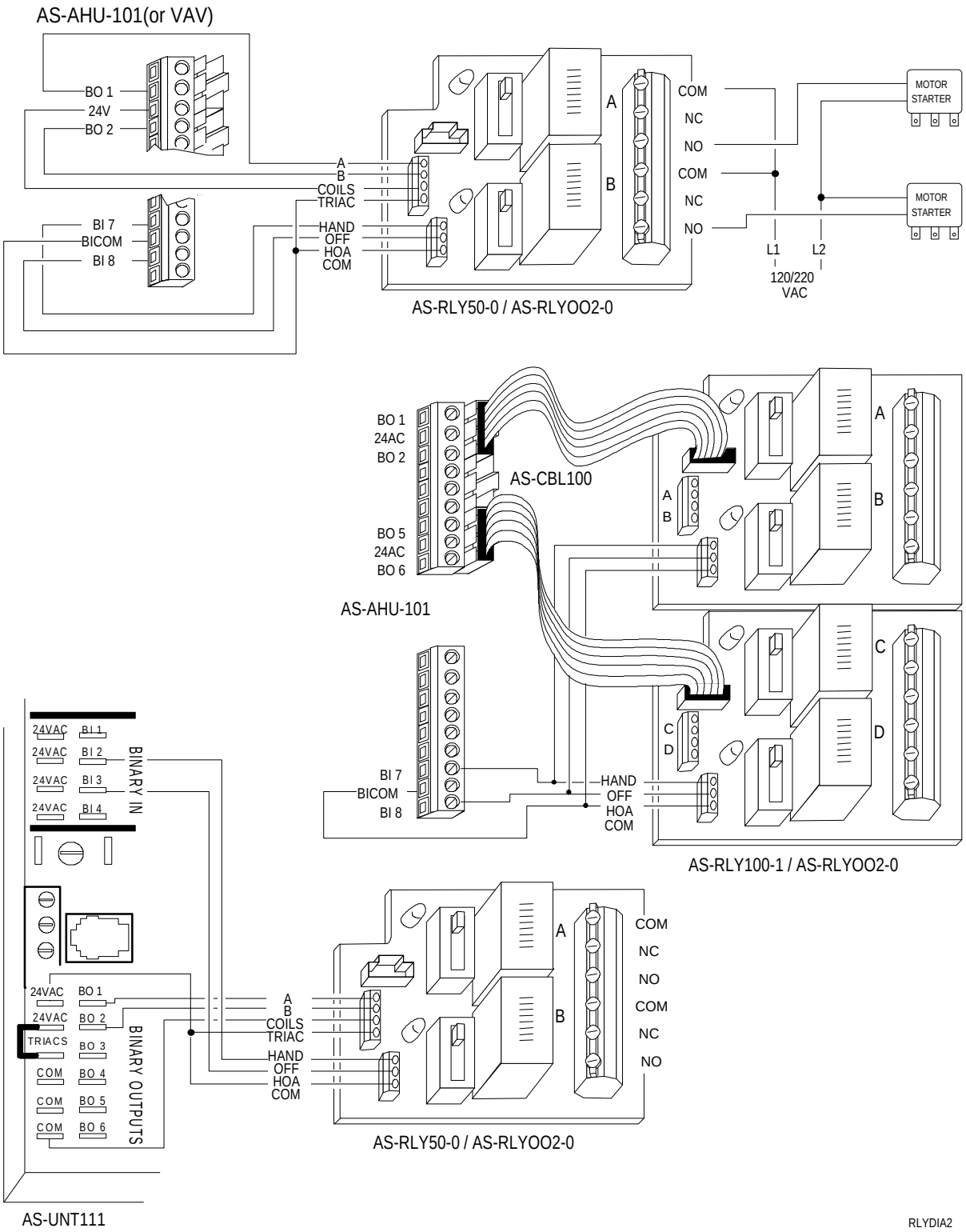


**Figure 5: Wiring Examples**

# Notes

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