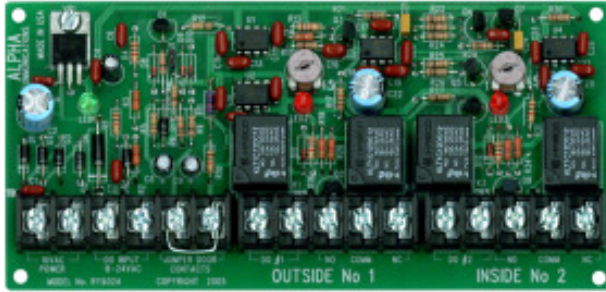




## R Y502A Dual Door Timed Switcher Relay Installation and Use Instructions



### R Y502A DUAL DOOR TIMED SWITCHER RELAY

#### APPLICATION

The RY502A Dual Door Timed Switcher Relay is used primarily to switch the door release functions automatically from an exterior entry door to an interior lobby door, when triggered from an intercom or video-intercom system. It's versatility allows its use in other specialty door and auto-switching relay applications.

#### PROCEDURE

1. Read installation instructions for this unit to determine proper location and installation method.
2. Install equipment.
3. Check wiring and connect. Observe all local and national electrical and building codes.
4. Apply power and check unit operation.

#### INSTALLATION AND EQUIPMENT LOCATION

The RY502A relay should typically be installed relatively close to an accessible source of 117-120VAC power, preferably close to the intercom or video-intercom system amplifier/control unit. Four (4) convenient mounting holes allow the unit to be mounted to a board or wall surface (using stand-offs or spacers). Make sure to mount the RY502A in a dry and ventilated environment, and keep away from any source of potential electrical interference. Observe all local and national electrical and building codes!

#### WIRING

Route all cables away from AC power wiring, transformers, fluorescent lights, light dimmers or other electrical devices. Protect cable from damage. Shielded cable should be used if AC interference is a concern, or if cables cannot be run adequately spaced away from any source of electrical interference.

#### CONNECTIONS

Before connecting, make certain wires are free from shorts or grounds. Make connections as shown on Page 4, and as detailed in the following instructions.

#### R Y502A DUAL DOOR TIMED SWITCHER RELAY

1. Connect a separate 16VAC transformer (to power the RY502A board), and connect to the two (2) RY502A terminals marked **16VAC POWER**. This 16VAC power should be used only to power the RY502A and should not be used to power any other equipment. **NOTE: DO NOT APPLY THIS 16VAC POWER UNTIL ALL WIRING HAS BEEN CHECKED AND ALL OTHER CONNECTIONS HAVE BEEN MADE.**
2. Run two (2) wires from the 8VAC to 24VAC door release OUTPUT of your existing intercom or video-intercom system, and connect to the two (2) RY502A terminals marked **DO INPUT 8-24VAC**. We have designed this flexibility into the RY502A to allow it to be used with almost any intercom or video-intercom door release output power.
3. A factory installed jumper wire should be connect to the two (2) RY502A terminals marked **JUMPER DOOR CONTACTS**. We have designed this flexibility into the RY502A to allow it to be used as a "man trap", which would require that the Outside Door be closed (as evidenced by a short across these terminals) before the interior door release will activate. If you wish to utilize this feature, remove the factory installed jumper wire and run two (2) wires to a door contact switch, connected to the Outside Door, which would be 'open' when the door is 'open'. Otherwise, leave the jumper in place.
4. Run two (2) wires from the Outside Door release device to the RY502A. If you wish to send 16VAC to that door strike, connect to the two (2) RY502A terminals marked **DO#1**. If you wish to use a different voltage to power this door strike or if you are using a magnetic lock, you would want to connect

these two (2) wires to the Form-C relay used for the Outside Door. Connect one wire to the Common terminal (**COMM**) and the other wire to the Normally Open (**NO**) OR Normally Closed (**NC**) terminal for **OUTSIDE No. 1**. When a door strike is used with a voltage requirement other than 16VAC, you will need to provide a separate low-voltage transformer with the proper voltage to power the Outside door strike. We have designed the RY502A to allow it to be used with almost any type of door release or magnetic lock on the market.

5. Run two (2) wires from the Inside Door release device to the RY502A. If you wish to send 16VAC to that door strike, connect to the two (2) RY502A terminals marked **DO#2**. If you wish to use a different voltage to power this door strike or if you are using a magnetic lock, you would want to connect these two (2) wires to the Form-C relay used for the Inside Door. Connect one wire to the Common terminal (**COMM**) and the other wire to the Normally Open (**NO**) OR Normally Closed (**NC**) terminal for **INSIDE No. 2**. When a door strike is used with a voltage requirement other than 16VAC, you will need to provide a separate low-voltage transformer with the proper voltage to power the Inside door strike. We have designed the RY502A to allow it to be used with almost any type of door release or magnetic lock on the market.

#### 16VAC TRANSFORMER

1. Do not connect the 16VAC transformer primary to 117-120 VAC until entire installation is complete and all wiring is checked.

#### **FINISH INSTALLATION**

1. Install RY502A relay. Do not overtighten screws.
2. Make sure the RY502A is not twisted or buckled.
3. Connect transformer primary to 117-120 VAC. Observe all local and national electrical and building codes.

#### **TEST AND CHECKOUT**

1. Apply 16VAC power to the RY502A relay unit. The Green LED should show a Power 'On' condition.
2. Check for proper relay switching operation in accordance with the operating instructions.

**NOTE:** System warranty is void if this unit is installed or used in any manner other than described in this manual.

#### **OPERATING INSTRUCTIONS**

**NOTE:** Operating instructions are shown based upon the RY502A being connected to the 8-24VAC door release output of an intercom or video-intercom system amplifier/control unit, and to an Outside and an Inside building door release device. These instructions are applicable to other applications as well. Call our sales or technical dept. for more information on compatibility with other specialty applications.

To operate (or to test) the RY502A, make sure the 16VAC power is connected and the Green 'Power On' LED is lighted.

You can 'trigger' the operation of the RY502A three (3) different ways:

1. Momentarily press the 'DOOR' release pushbutton on your intercom or video-intercom apt. station to send the door release voltage into the RY502A 8-24VAC voltage input.
2. Using a separate power source/transformer, momentarily apply a voltage of 8VAC to 24VAC into the two (2) RY502A terminals marked **DO INPUT 8-24VAC**.
3. Using a small screwdriver, momentarily (and carefully), short the two (2) vertical testing pins on the RY502A, marked **J1** (see Fig 1.). These pins can be found in the upper left hand portion of the board just below and to the right of the transistor marked **Q1**. **NOTE:** These pins are only provided to assist the installer in testing and troubleshooting the RY502A and should not be used for any other purpose.

Once the RY502A has been 'triggered', the following sequence of events should occur:

1. Immediately the OUTSIDE door release (16VAC) voltage and Form-C relay will activate, and the Red LED marked LED2 will light for as long as this activation takes place. This timed duration can be adjusted from approx. 1 second to approx. 45 seconds, by using the variable potentiometer located just above LED2. Note the markings '1' and '45' to show the relative position of the potentiometer for the timed duration you require.
2. After the OUTSIDE door release times out, the RY502A looks for a 'jumper' across the terminals marked **DO INPUT 8-24VAC**. That jumper can either be a physical jumper wire or a set of contacts off the door switch on the Outside Door (in man-trap applications). Immediately the INSIDE door release (16VAC) voltage and Form-C relay will activate, and the Red LED marked LED3 will light for as long as this activation takes place. This timed duration can be adjusted from approx. 1 second to approx. 45 seconds, by using the variable potentiometer located just above LED3. Note the markings '1' and '45' to show the relative position of the potentiometer for the timed duration you require. **NOTE:** in 'man-trap' applications, the Inside Door will not activate until the door contact switch for the Outside Door closes.
3. After the INSIDE door release times out, the RY502A will be in the 'ready' mode and can be activated again.

## TROUBLESHOOTING

If the unit fails to operate as required, review operating instructions again. If the equipment fails to operate as indicated in the instructions, check the following points:

1. **ENTIRE UNIT DEAD:** Check for 16VAC power . Check that the Green 'Power On' LED is lighted. Check that the 16VAC transformer is being powered by 117-120 VAC primary power.
2. **UNIT DOES NOT 'TRIGGER' FROM INTER-COM OR VIDEO-INTERCOM SYSTEM:** Using a small screwdriver, momentarily (and carefully), short the two (2) vertical testing pins on the RY502A, marked **J1** (see Fig 1.).
3. **NO DOOR RELEASE AT OUTSIDE DOOR:** 'Trigger' the RY502A and check for 16VAC across terminals marked **DO #1**. Check the Form-C relay contacts with an ohmmeter. Check that the Red LED2 is lighted.
4. **NO DOOR RELEASE AT INSIDE DOOR:** Make sure the two (2) terminals marked **JUMPER DOOR CONTACTS** on the RY502A are shorted. Check for 16VAC across terminals marked **DO #2**. Check the Form-C relay contacts with an ohmmeter. Check that the Red LED3 is lighted.
5. **DOOR RELEASE TIMES ARE TOO LONG OR TOO SHORT:** Individually adjust the Outside and Inside door duration potentiometers (see Fig. 1.) for the delay time duration(s) needed.

**PLEASE NOTE:** If these basic checkpoints fail to indicate the problem, there may be an equipment fault. Contact the factory or a qualified service representative. Thank you.

### RY502A IMPORTANT COMPONENT LOCATIONS

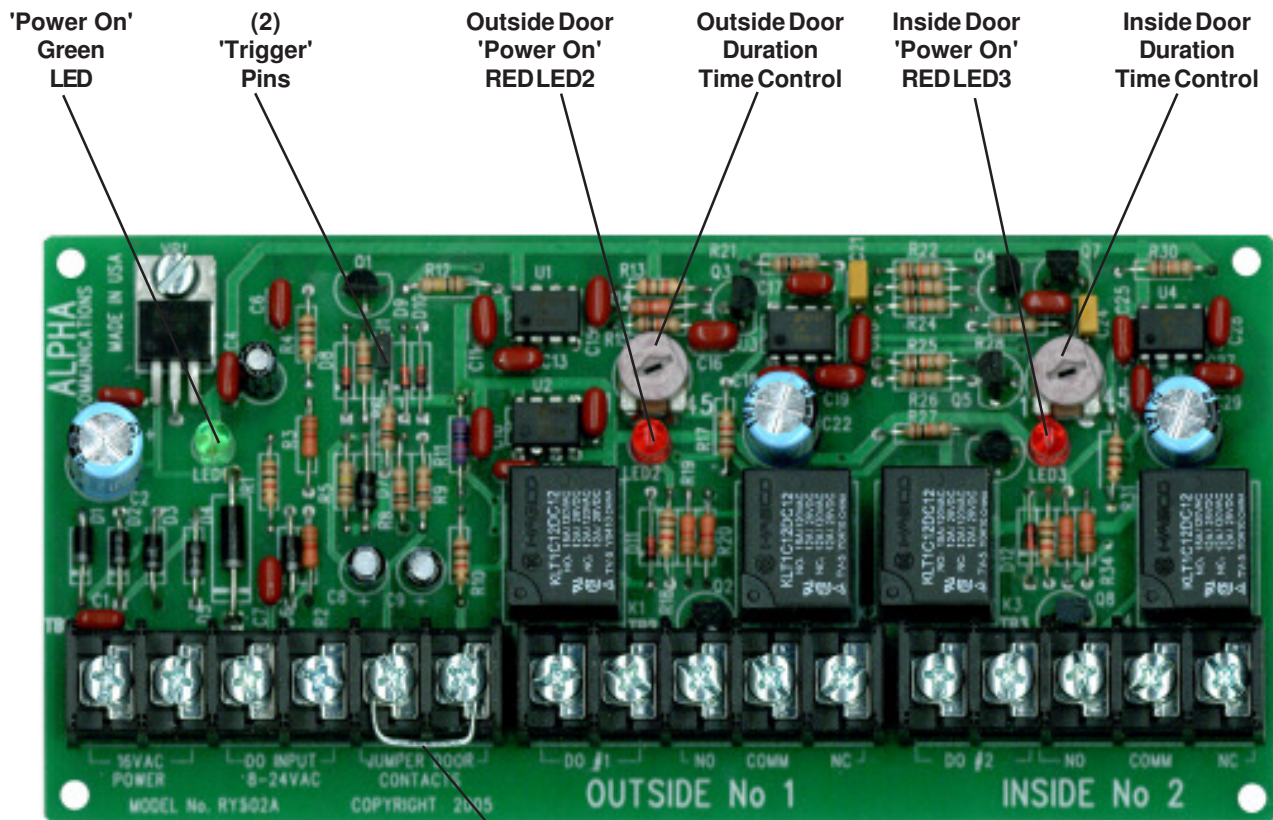


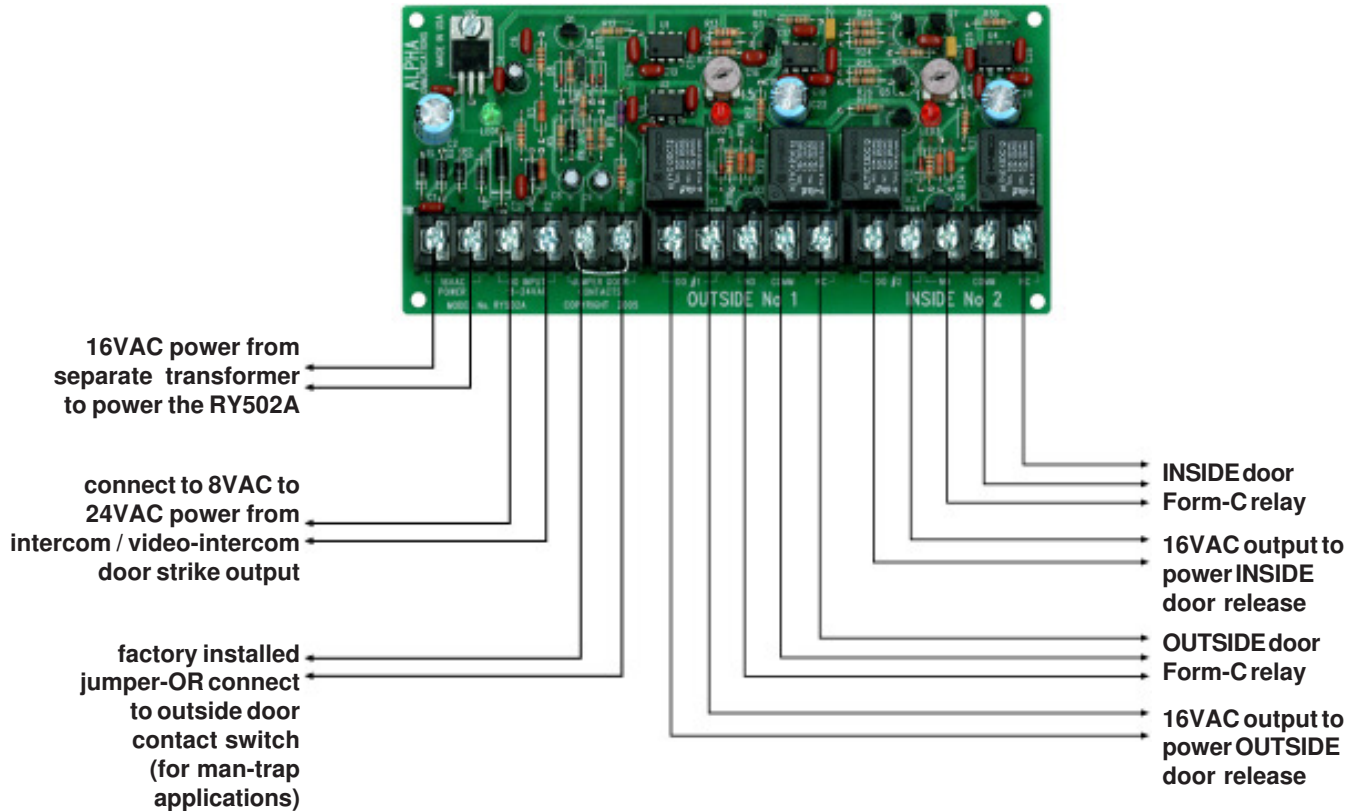
Fig 1.

Factory Installed Jumper



## TYPICAL WIRING CONNECTIONS FOR RY502A DUAL DOOR TIMED SWITCHER RELAY

### RY502A RELAY



**Notes:**

1. All low voltage wiring is #18AWG unless shown otherwise.
2. The 16VAC transformer that powers the RY502A should be a separate power source and should not be used to power any other equipment. This transformer is also used to provide the 16VAC door strike outputs for DO #1 and DO #2 (see above). Normally you would only need a transformer with a rating of 10VA, but if your 16VAC door strikes require a higher VA rating, you can use a 16VAC transformer up to 40VA.
3. Observe all local and national electrical and building codes.
4. All terminals connections shown may not be in the order that they appear on the equipment.

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