DANGER WARNING DANGER

TRI-TRONICS® elevator door control products are designed for elevator door protection only. Our edges are not designed to be used in applications such as top of elevator cab protection, or in residential elevators in conjunction with scissor gates. Additionally, they are not designed to be used as machine safety light curtains commonly found in industrial robotic areas, or around machines that could pinch, grab, or cut person or persons in close proximity.

Replacement Parts

RA-2V	Receiver with extrusions for new mounting
LA-2V	Light Source with extrusions for new mounting
EBF-NYCH	Bracket, Flat, new mounting
EBA-NYCH	Bracket, Angled, new mounting

Vandal Resistant Leading EDGE

EDGE-4VS	Standard Unit for Side-Parting Doors
EDGE-4VC	Standard Unit for Center-Parting Doors

With Nudging

EDGE-4NVS	Same as above with Nudging
EDGE-4NVC	Same as above with Nudging

EDGE Only, No Power Supply

EDGE-6VS	Standard for Side-Parting Doors
EDGE-6VC	Standard for Center-Parting Doors

Waterproof Vandal Resistant Leading EDGE

EDGE-5WVS	Waterproof Unit for Side-Parting Doors
EDGE-5WVC	Waterproof Unit for Center-Parting Doors

With Nudging

EDGE-5NWVS	Same as above with Nudging
EDGE-5NWVC	Same as above with Nudging

Waterproof EDGE Only, No Power Supply

EDGE-6WVS	Waterproof Unit for Side-Parting Doors
EDGE-6WVC	Waterproof Unit for Center-Parting Doors

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070-0209 Rev.2

LEADING EDGE®

VANDAL RESISTANT INSTALLATION INSTRUCTIONS

TRI-TRONICS®

WARRANTY & LIMITATION OF LIABILITY

TRI-TRONICS COMPANY, INC. warrants that the products delivered by it will be of the kind and quality described in the order or contract and will be free of defects in workmanship or material. Should any failure to conform to the express warranty appear within three (3) year, ***TRI-TRONICS*** shall upon notification correct such non-conformity, including non-conformance with the specifications, at its option, either by repairing any defective part or parts or by making available, F.O.B. the seller's plant, a repaired or replacement part. This warranty shall be for a period of three (3) year after the date of delivery of any product not meeting such specifications.

This warranty is in lieu of all warranties of merchantability, fitness for purpose, or other warranties, expressed or implied, except of title and against patent infringement. Correction of non-conformities in the manner and for the period of time provided above shall constitute fulfillment of all liabilities of ***TRI-TRONICS*** to anyone, whether based on contract, negligence, or otherwise with respect to or arising out of such products.

TRI-TRONICS shall not be liable for special, indirect, or consequential damages. The remedies set forth herein are exclusive, and the liability of ***TRI-TRONICS*** with respect to any contract or sale or anything done in connection therewith, whether in contract, in tort, under any warranty, or otherwise, shall not, except as expressly provided herein, exceed the price of the product or products on which such liability is based.

This warranty shall not apply to any product which has been subjected to misuse, negligence, accidental or misapplied or modified or repaired usage by unauthorized persons, or as the result of improper installation thereof. Furthermore, any improper use, operation beyond capacity, substitution of parts not approved by ***TRI-TRONICS***, or any alteration or repair by others in such manner as in ***TRI-TRONICS'*** judgment affects the product materially and adversely shall void this warranty.

***TRI-TRONICS*® COMPANY, INC.**
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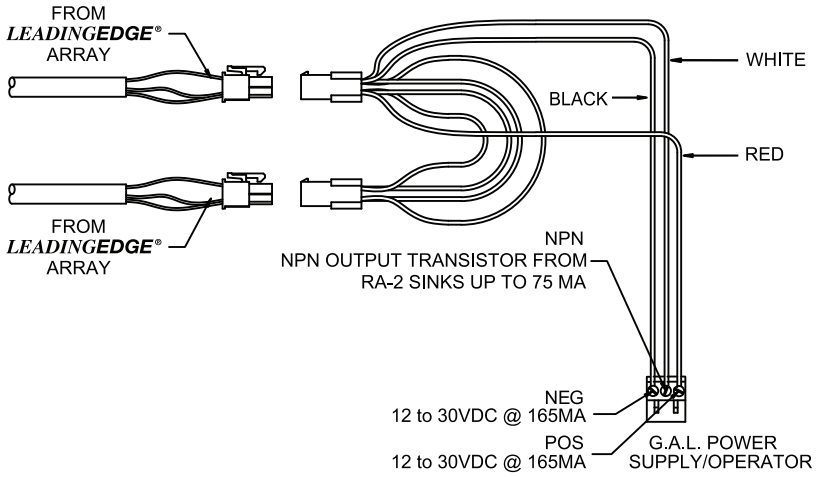
WIRING: GAL MOVFR TO *LEADING*EDGE® ARRAYS

Interface Cable for use with the GAL MOVFR Operator

ECI-3 - Elevator Cable Interface
The Model ECI-3 allows simplified 3-wire connection of the ***LEADING*EDGE®** array cables to a DC Power Supply / MOVFR Operator. The GAL Protection Enabling Chip #DPPC-000IN is required for plug & play compatibility with the ***TRI-TRONICS LEADING*EDGE®**.

WIRE:	*CONNECTIONS*
Red	12 to 30 VDC
Black	Ground
White	NPN

ECI-3 ELEVATOR INTERFACE CABLE HOOKUP WITH TYPICAL POWER SUPPLY CONTROL

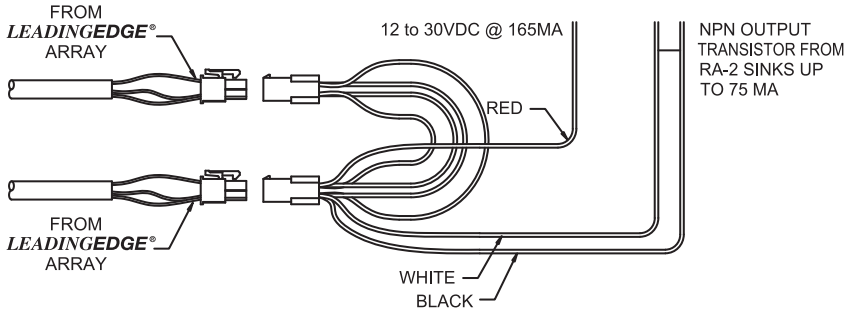


NOTE: MODEL LA-2V LIGHT SOURCE ARRAY AND MODEL RA-2V RECEIVER ARRAY ARE INTERCHANGEABLE.

WIRING LEADINGEDGE® ARRAYS TO OTHER 12 TO 30 VDC POWER SUPPLY CONTROLLERS

ECI-1 - Elevator Cable Interface
The Model ECI-1 allows simplified 3-wire connection of the *LEADING***EDGE®** array cables to most power supply / controllers. Connect the Red to 24 VDC, the Black to Ground and the White to NPN.

WIRE:	*CONNECT TO OTHER POWER SUPPLY TERMINAL*
Red	12 to 30 VDC
Black	Ground
White	NPN



NOTE: MODEL A-2V LIGHT SOURCE ARRAY AND MODEL RA-2V RECEIVER ARRAY ARE INTERCHANGEABLE.

TABLE OF CONTENTS

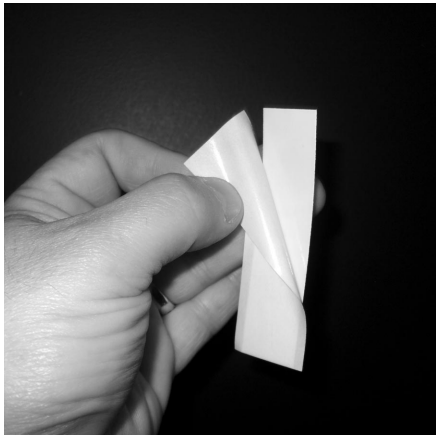
EDGE INSTALLATION STEPS

Step #1: Measure and mark a line at the bottom of door or doorjamb 1.7 inches from door sill. This is where the bottom of the bracket will be aligned (see Figure 1).

Figure 1

Step #2: Use double stick tape rectangles supplied in EGAC kit. Place five pieces of tape on back of flat bracket, and three pieces of tape on side of angled bracket as illustrated (see Figure 2).

NOTE: For Center-Parting doors, two angled brackets are used.



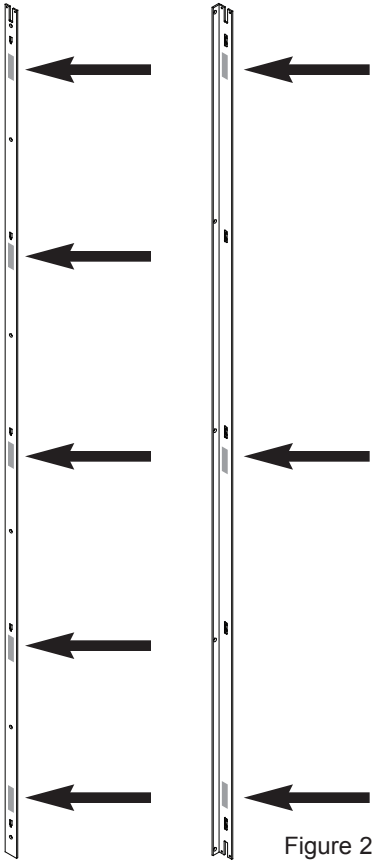


Figure 2

TROUBLESHOOTING

1) Verify the correct AC Supply Voltage is available at the Power Supply/Controller.
2) If “PWR OK” Green LED is OFF, verify the correct AC source power is available at input terminals (Figure 5b). If yes, replace the Power Supply/Controller.
3) Check to ensure connectors on interconnecting cables are securely plugged into the Power Supply and are screwed together tightly on the edges. Also, check to see if a wire is broken or pulled loose from the connectors.
4) If all light on both arrays are OFF and the “Power OK” led is ON:

   A. Unplug both arrays from the Power Suppy/Controller and disconnect the AC source power for 2 minutes to allow the resettable fuse to reset.

   B. Reconnect AC power and look for “Power OK” then plug in the RA. Check for “DSA” is ON, “Output Status” is OFF.

   C. If no, replace cable or RA. If yes, plug in the LA and check for the fast blinking red LED and on the RA the “Output Status” is ON. If no, replace LA cable or LA.
5) If the cables and plugs are okay, the next step is to identify which array is faulty.
6) Observe lights on RA and LA.
7) LA - Indicator is OFF, very dim, or blinking slowly, and/or RA - all lights are OFF, replace RA cable.
8) LA - Indicator is OFF, RA - “DSA” light is ON and “Output Status” is OFF, replace LA cable.
9) RA - “Output Status” is ON constantly, unplug LA cable. If “Output Status” remains ON constantly, replace LA cable.
10) If cable replacement does not solve the problem, we recommend that the RA (Receiver Array) be replaced first, followed by the LA (Light Source Array).

Model “LA” Light Beam Array Indicator
1) When power is applied, a red LED continuously flashes rapidly, which indicates receiving sync signal.

POWER SUPPLY/CONTROLLER INDICATORS

(See Figure 9)

1. POWER STATUS INDICATOR

Green LED Power Status Indicator will be lit when AC Power is applied and the DC Power Supply is functioning. If Green LED is ***NOT*** lit, check power supply connections and verify with A.C. Voltmeter.

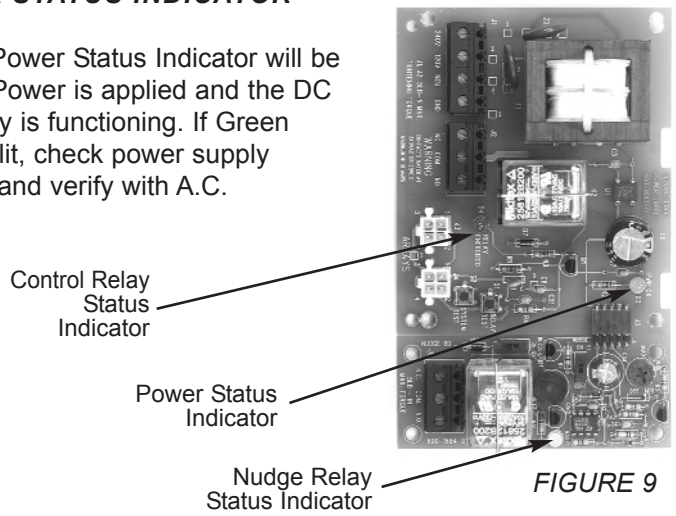


FIGURE 9

2. CONTROL RELAY STATUS INDICATOR

Red LED Control Relay Status Indicator will be lit when Control Relay is energized. The Control Relay will be energized when no obstructions are detected. The Control Relay and its LED Indicator can be energized as a test by pressing the ***“RELAY TEST”*** switch. When the LED is lit, the Control Relay is energized and the door should close.

3. NUDGE RELAY STATUS INDICATOR

Yellow LED Nudge Relay Status Indicator will be lit when Nudge Relay is energized. The Nudge Relay will energize if and when an obstruction occurs for over the adjustable (5 to 45 seconds) timed period. The Nudge Relay and its LED Indicator can be energized as a test by pressing the ***“SYSTEM TEST”*** switch.

Step #3: Mark the five countersunk screw holes using a marker, awl, or scribe (see Figure 3).

Figure 3

Step #4: Drill holes using a 7/64" drill bit (see Figure 4).

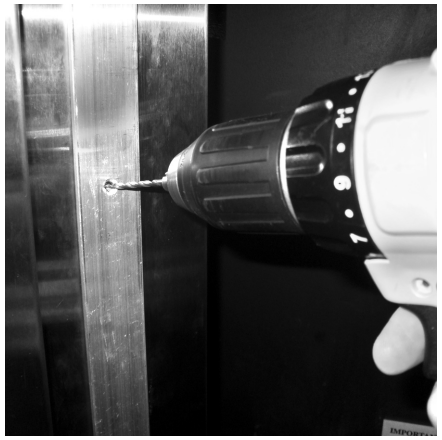


Figure 4

Step #5: Screw bracket to door or doorjamb using self-tapping screws provided. Use a #2 Phillips driver bit for best torque and fit (see Figure 5).

NOTE: Start from the middle screw holes and work your way out from there... up one, down one, and so forth. This will ensure a flat installation of the bracket. Due to uneven surfaces and binding issues, this process will help to reduce buckling of the bracket.

Figure 5

Step #6: Mount RA-2V EDGE to doorjamb bracket by aligning PEM-studs on back of edge with keyholes on bracket. Slide edge downward to lock in place. Repeat this process to secure the LA-2V EDGE on the angled bracket for the door (see Figure 6).
NOTE: For Center-Parting doors, both the LA-2V and the RA-2V are mounted on angled brackets.

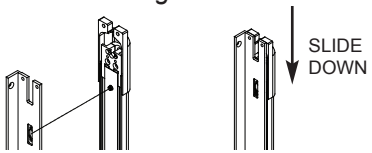



Figure 6

Step #7: Screw in the 2 spanner screws provided in the EGAC kit at the top of the edges where the two tabs are sticking up on the top end caps. Use a #6 spanner bit for best torque and fit (see Figure 7).

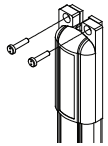



Figure 7

Step #8: Route the edge cables with slack and mount using hardware provided in the EGAC kits. And then plug edges into Power Supply (see Figure 8).

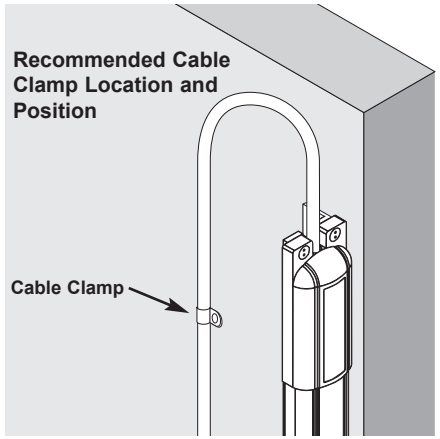


Figure 8

SYSTEMS OPERATION AND TROUBLESHOOTING

ARRAY INDICATORS

Systems operation can be monitored by observing the status of the LED Indicators located in the Light Source Array, Receiver Array, and on the Power Supply/Controller P.C. assembly (see Figure 7).

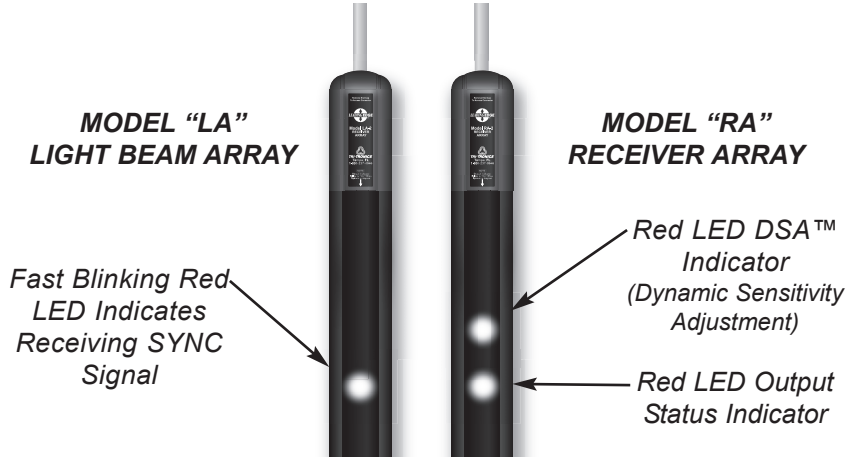


FIGURE 7

1. DSA INDICATOR

The Dynamic Sensitivity Indicator will flash "ON" as the door(s) are moving. The short duration pulse indicates the system is automatically adjusting the sensitivity of the system as it moves. This assures that a small object such as a hand will break the beam(s) and the door(s) will stop closing.

NOTE: *This indicator will turn on continuously when the gap between the arrays is less than 2-1/2" or when the system requires maximum gain.*

2. OUTPUT STATUS INDICATOR

The Output Status Indicator is used to ensure alignment and monitor the actual output of the RA (Receiver Array). This indicator will be lit when the arrays are aligned and there is no obstruction blocking the beams. The LED will go off when an object breaks one (or more) of the light beams. The output status indicator should also go off when testing the system by pressing the ***"SYSTEM TEST"*** switch located on the Power Supply/Controller P.C. assembly.

1. NUDGE/BUZZER ASSEMBLY
NUDGING/REDUNDANT OPERATION

The nudge Control Relay can be used to ***"NUDGE"*** the door closed after an adjustable (5 to 45 sec.) time delay. This same relay can also operate in a "***REDUNDANT"*** mode (i.e., both the main control relay and the accessory relay operate simultaneously). The "***REDUNDANT"*** mode is useful as an optional safety measure when switching high voltage. Simply series the N.O. contacts of both relays to prevent accidental closure as a result of relay contact failure (i.e., welded contacts).

NOTE: *Check to be sure that "**Nudging**" the door closed after the adjustable time delay is in accordance with all applicable codes and speci½cations.*

Nudge Buzzer Assembly

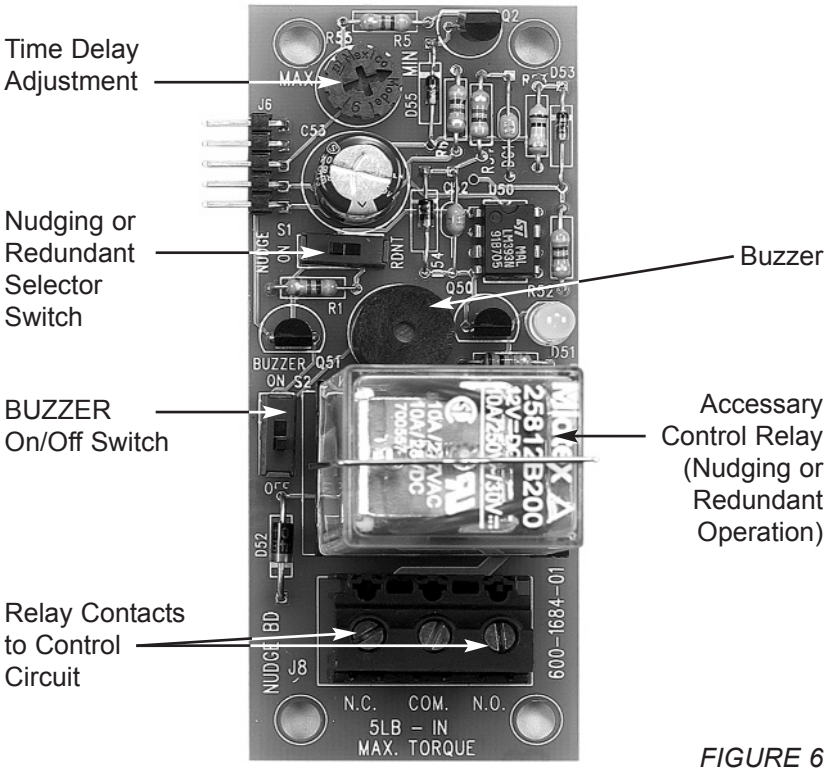


FIGURE 6

INSTALLATION OF POWER SUPPLY/CONTROLLER

STEP #1 - INSTALL ENCLOSURE FOR POWER SUPPLY/CONTROLLER

Locate a convenient mounting position on top of the elevator cab for the Power Supply / Controller. Secure in position.

STEP #2A - MOUNTING THE POWER SUPPLY PC ASSEMBLY

Mount Power Supply / Controller PC assembly into the enclosure using four (4) 6/32 screws provided (see Figure 4a).

STEP #2B - OPTIONAL NUDGE/BUZZER PC ASSEMBLY

Plug optional Nudge / Buzzer PC assembly into the Power Supply / Controller and mount with additional four (4) 6/32 screws (see Figure 4b).

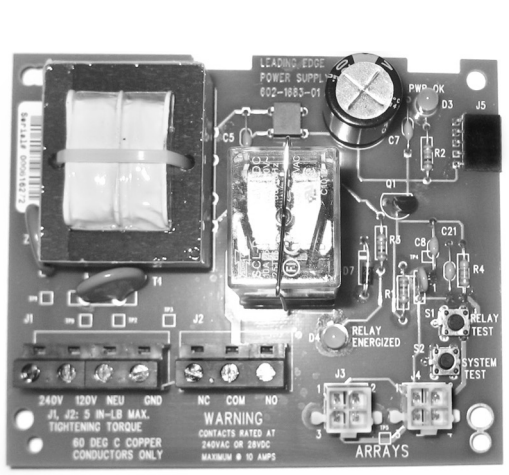


FIGURE 4a

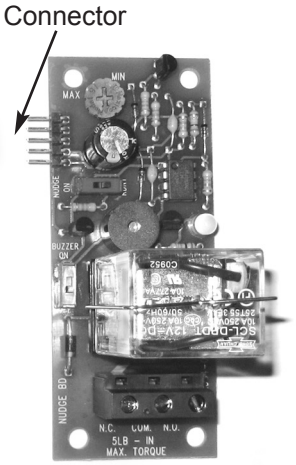


FIGURE 4b

POWER SUPPLY/CONTROLLER PC ASSEMBLY

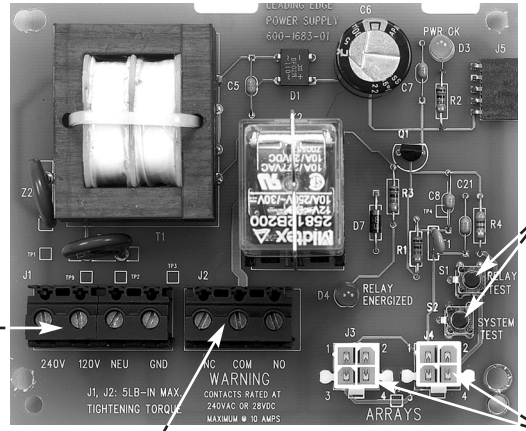


FIGURE 5a

CAUTION: Ensure AC Supply Voltage is "OFF" at the source before attempting to connect to the Power Supply/Controller Terminals.

STEP #3 - AC POWER CONNECTIONS

Wire AC power to the appropriate Power Input Connections on Power Supply/Controller *(see Figure 5b).*

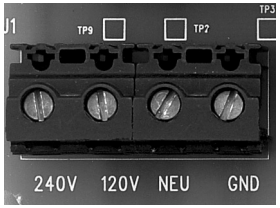


FIGURE 5b

STEP #3B - CONTROL RELAY CONNECTIONS

Wire the contacts of the Control Relay into the door control circuit. Wire the contacts of this relay so that, when de-energized, the door remains open *(see Figure 5c).*

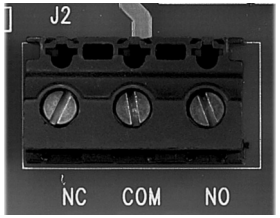


FIGURE 5c

***NOTE:** Care should be taken not to exceed the 10 amp @ 240 VAC/30 VDC ratings of the **Model 455-0001** plug-in relay. When the installation calls for **switching high-voltage** D.C., an external slave relay is recommended. Damage to the relays caused by loads in excess of the contact ratings is not covered by the TRI-TRONICS warranty.*

***Stop to Test:** With power applied, push the **"RELAY TEST"** switch. The Control Relay should energize, and the door(s) should close* (see Figure 5e).

STEP #4A - APPLY POWER AND VERIFY THE "PWR OK" GREEN LIGHT IS ON.

STEP #4B - WITH POWER APPLIED, PUSH THE "RELAY TEST" SWITCH (see Figure 5e).

This Control Relay should energize. The red "RELAY ENERGIZED" light comes ON and the door(s) should close.

STEP #5 - ARRAY CONNECTIONS

Plug both LA (Light Source Array) and RA (Receiver Array) into the Power Supply/Control (See Figure 5d).

***NOTE:** Plugs are interchangeable and short-circuit protected.*

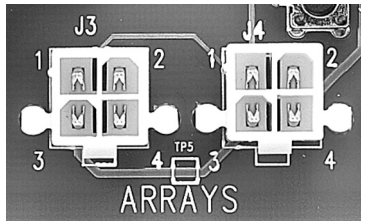
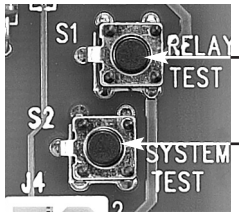


FIGURE 5d

***Stop to Test:** When power is applied, the doors will shut. Now push the **"SYSTEM TEST"** switch. This simulates a Beam Break and the door(s) will stop closing. Release the switch and the door(s) will* close (see Figure 5e).



CONTROL RELAY TEST SWITCH

SYSTEM TEST SWITCH

FIGURE 5e

INSTALLATION IS NOW COMPLETE!