INSTALLATION MANUAL

510ULAC ACCESSORIES

Ingersoll Rand
Security Technologies

Table of Contents

MODULAR OPTIONS

1) Control Module Rack (CMR)

- **Description:**

  The CMR interfaces with the main board and power assembly via a 5" long plug-in cable. A CMR acts as a backplane for Dual Control Modules and Relay Control Modules.

  - ◆ A 2-Rack CMR must first be installed when any Dual Control Modules or Relay Control Modules are to be used in your 510ULAC Power Supply.

J1
For cable connection
to main board

6AMP, 3AG
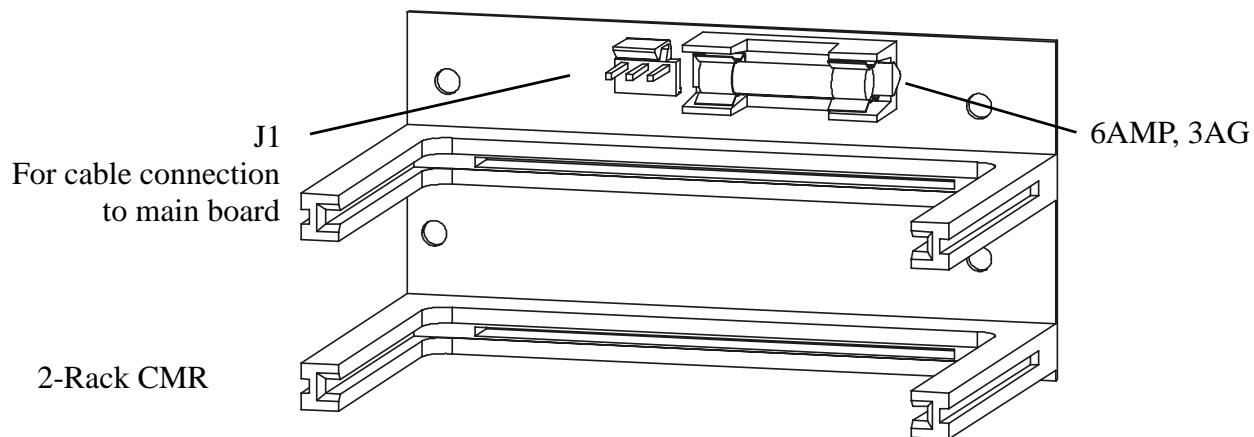
2-Rack CMR

- **Mounting a CMR to the Inside of the Cabinet:**

  Refer to the illustration below when mounting a 2-Rack CMR into a 510ULAC cabinet:

#8-32 x 1/2 LG. Phillips Pan Head screws
and lock washers
Qty=4
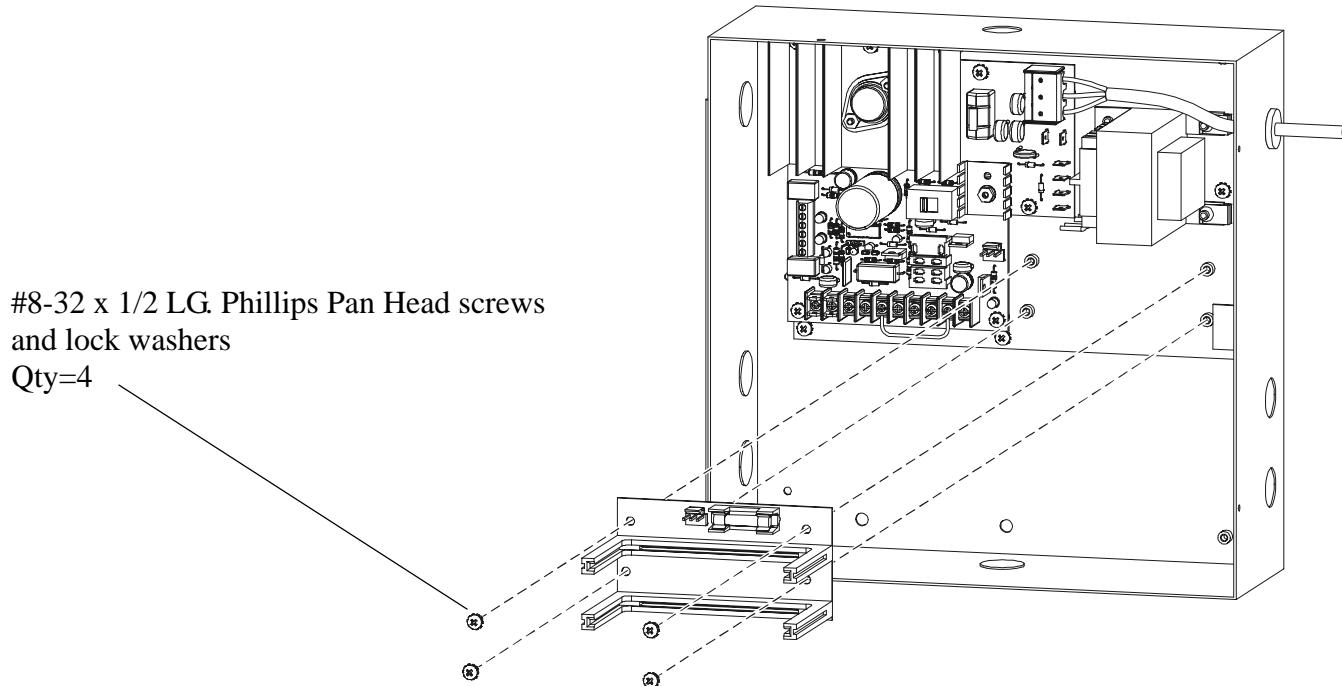
CMR (continued)

- **Interfacing a CMR to the Main Board:**
  Using the 5" long cable assembly provided in the kit, refer to the illustration below for interfacing the 2-Rack CMR to the main board:
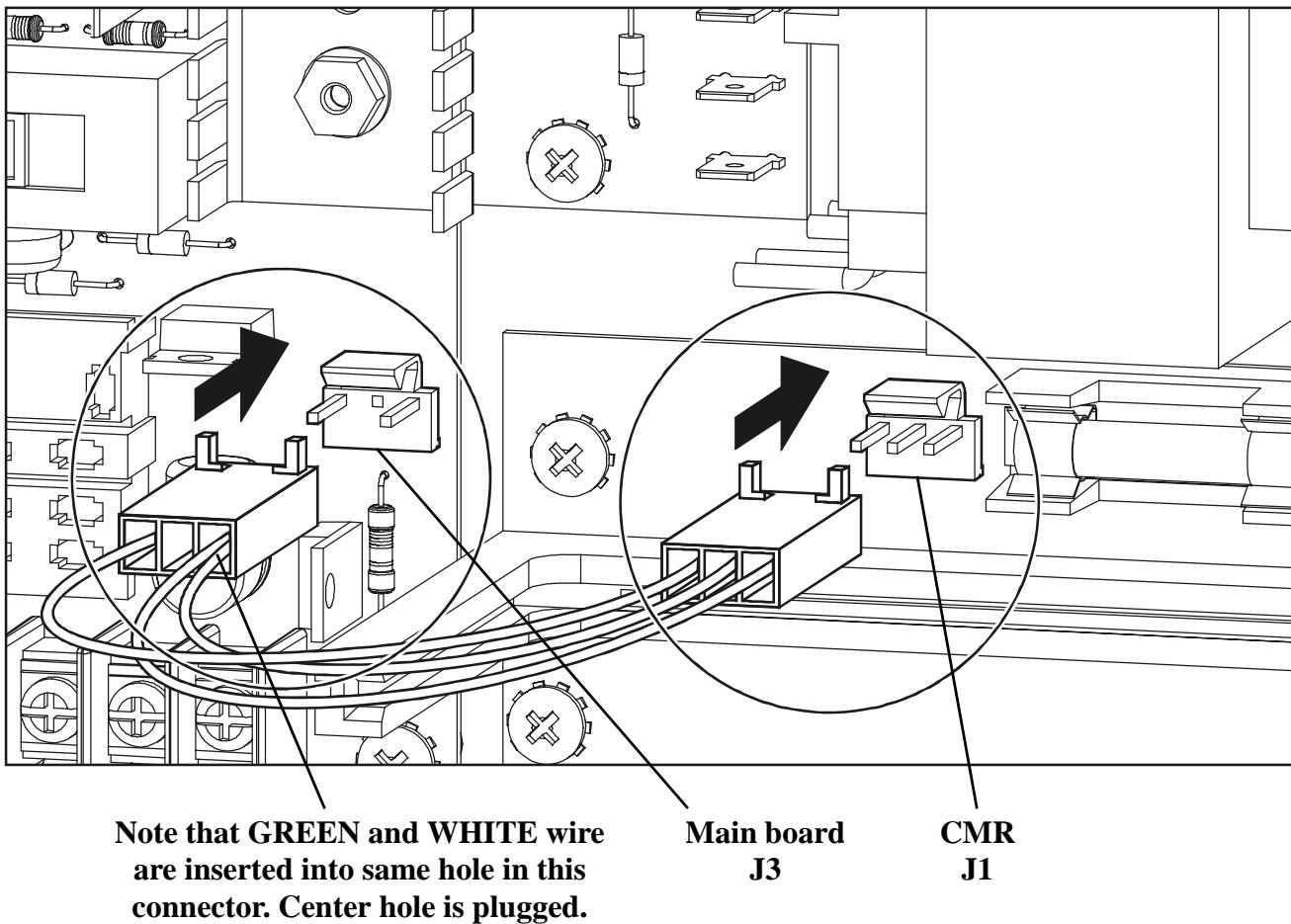
**Note that GREEN and WHITE wire
are inserted into same hole in this
connector. Center hole is plugged.**

**Main board
J3**

**CMR
J1**

2) Dual Control Module (DCM)

- **Description:**

   The DCM is a plug-in PCB providing separate sections for control of 2 individual doors. Each section includes a 9-position screw terminal block for output power, control connection and SPDT dry contact outputs (rated 5A@30VDC). A 3-pin header in each section is included to accept a Time Delay Module.

   Each DCM provides circuitry and connection terminals for 2 individual locking systems.
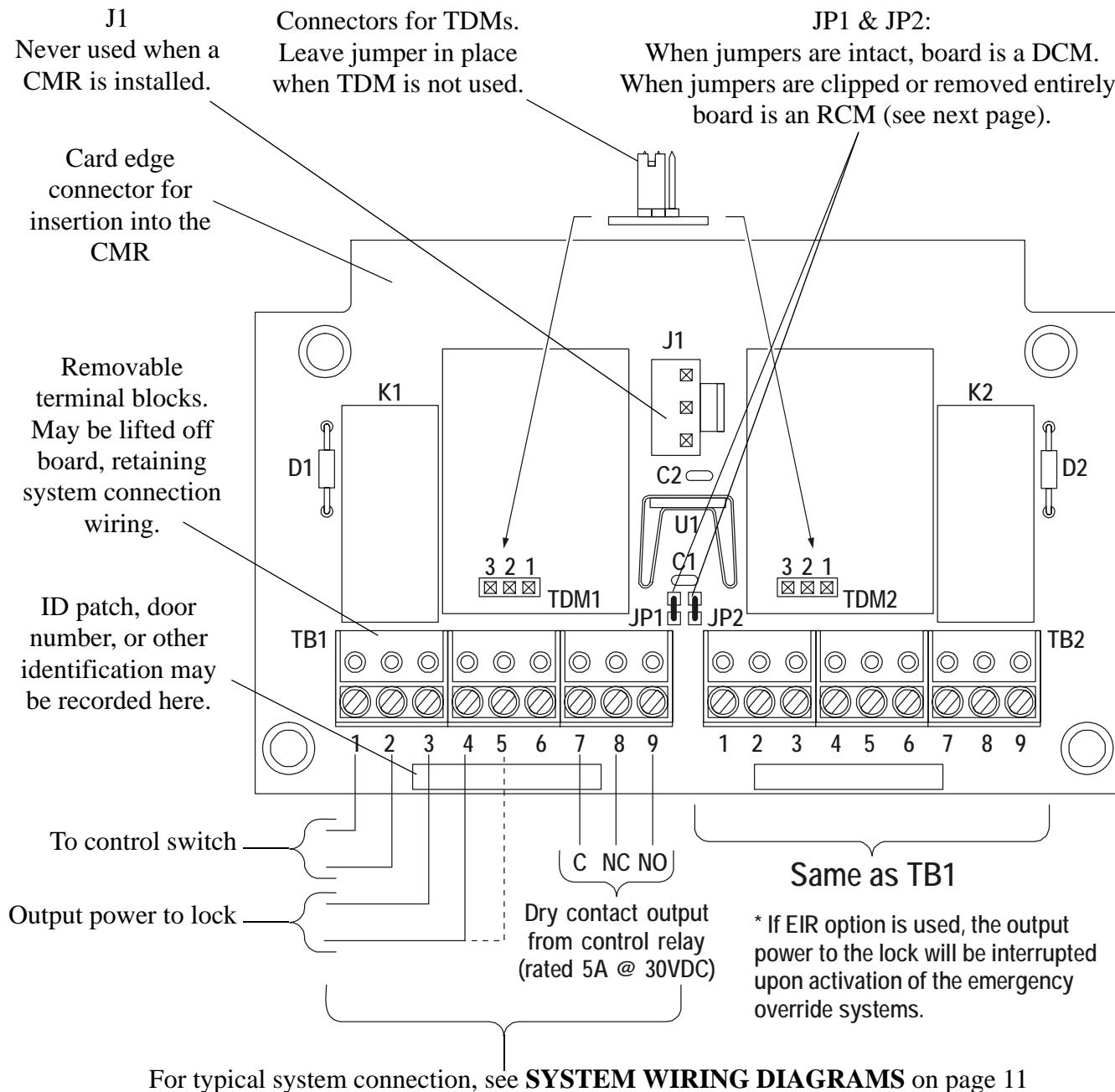
J1
Never used when a CMR is installed.

Connectors for TDMs. Leave jumper in place when TDM is not used.

JP1 & JP2:
When jumpers are intact, board is a DCM. When jumpers are clipped or removed entirely, board is an RCM (see next page).

Card edge connector for insertion into the CMR

Removable terminal blocks. May be lifted off board, retaining system connection wiring.

ID patch, door number, or other identification may be recorded here.

K1

D1

J1

C2

U1

C1

JP1 JP2

K2

D2

3 2 1
TDM1

3 2 1
TDM2

TB1

TB2

1 2 3 4 5 6 7 8 9

1 2 3 4 5 6 7 8 9

To control switch

Output power to lock

C   NC NO

Dry contact output from control relay (rated 5A @ 30VDC)

Same as TB1

* If EIR option is used, the output power to the lock will be interrupted upon activation of the emergency override systems.

For typical system connection, see **SYSTEM WIRING DIAGRAMS** on page 11

3) Relay Control Module (RCM)

- **Description:**
  The RCM is a plug-in PCB providing separate sections for control of 2 individual doors. Each section includes a 9-position screw terminal block for control connection and DPDT dry contact outputs (rated 5A@30VDC). A 3-pin header in each section is included to accept a Time Delay Module.

 Each RCM provides circuitry and connection terminals for 2 individual locking systems.

J1
Never used when a CMR is installed.

Connectors for TDMs. Leave jumper in place when TDM is not used.

JP1 & JP2:
When jumpers are clipped or removed entirely, board is an RCM. In this case, board is an RCM, since JP1 & JP2 are missing.

Card edge connector for insertion into the CMR

Removable terminal blocks. May be lifted off board, retaining system connection wiring.

ID patch, door number, or other identification may be recorded here.

To control switch

K1   J1   K2
D1   C2   D2
U1
C1
TDM1   JP1   JP2   TDM2
TB1   TB2
1 2 3 4 5 6 7 8 9   1 2 3 4 5 6 7 8 9

NC NO C | C NC NO

Same as TB1

DPDT dry contact outputs from control relay (rated 5A @ 30VDC)

* If EIR option is used, the output power to the lock will be interrupted upon activation of the emergency override systems.

- **Mounting DCM or RCM cards into the CMR:**
  Starting from the top slot downward, each DCM or RCM card pushes into a slot of the CMR with the component side facing the transformer.

 A 2-rack CMR with 2 DCM (or RCM) cards being installed.
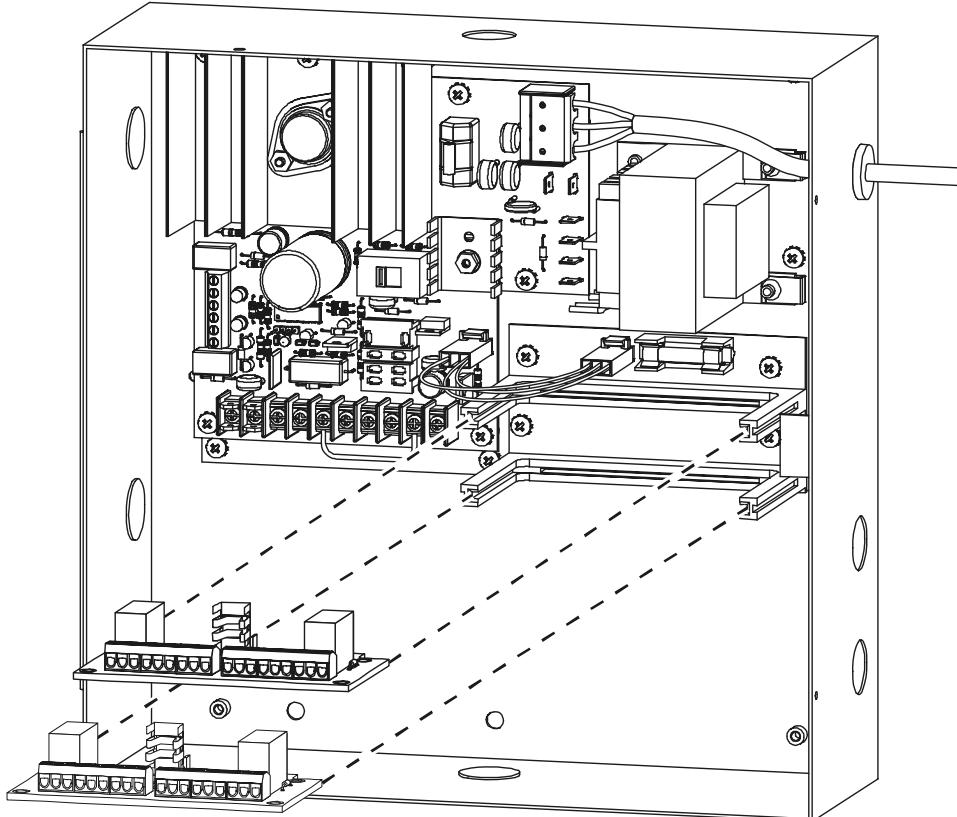
4) Time Delay Module (TDM)

- **Description:**

   The TDM is a plug-in PCB providing an adjustable (0-30 seconds) delay on relock (DCM) or delay on state change (RCM).

   A TDM can be added to each individual section of the DCM or RCM..

   A separate TDM is needed for each locking system when this feature is required.
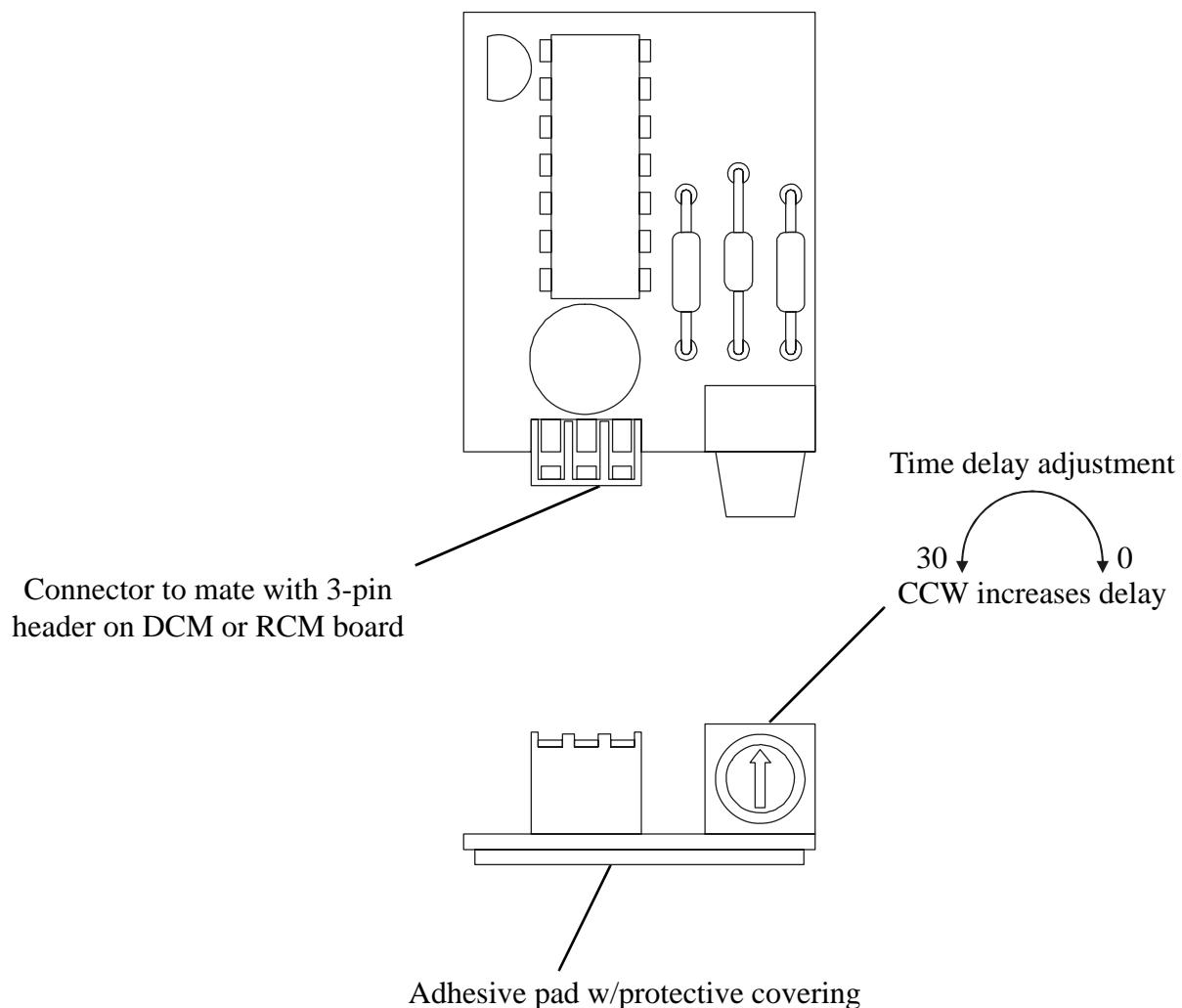
Time delay adjustment

30   0
CCW increases delay

Connector to mate with 3-pin
header on DCM or RCM board

Adhesive pad w/protective covering

- **Mounting a TDM to a DCM or RCM:**
  Each DCM or RCM will accept either a single or two TDMs.
 The locations for mounting the TDM are marked TDM1 and TDM2.

  1.) If you are installing only one TDM, remove the jumper from TDM1
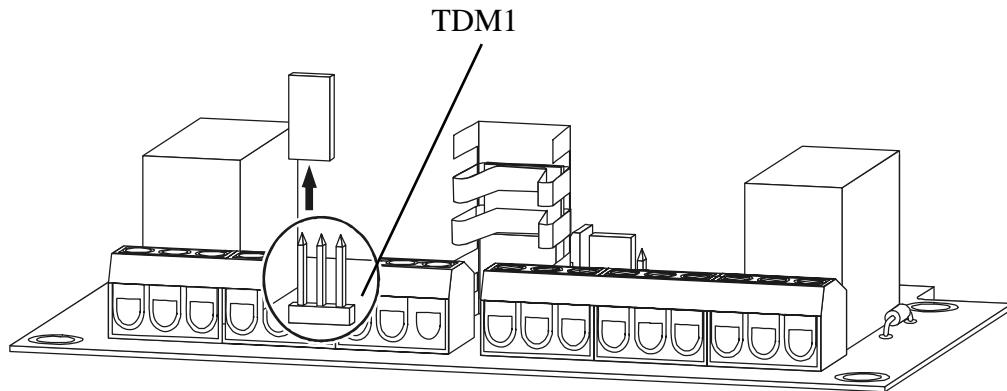
TDM1

If you are installing two TDMs, remove the jumpers from TDM1 & TDM2.

TDM1   TDM2
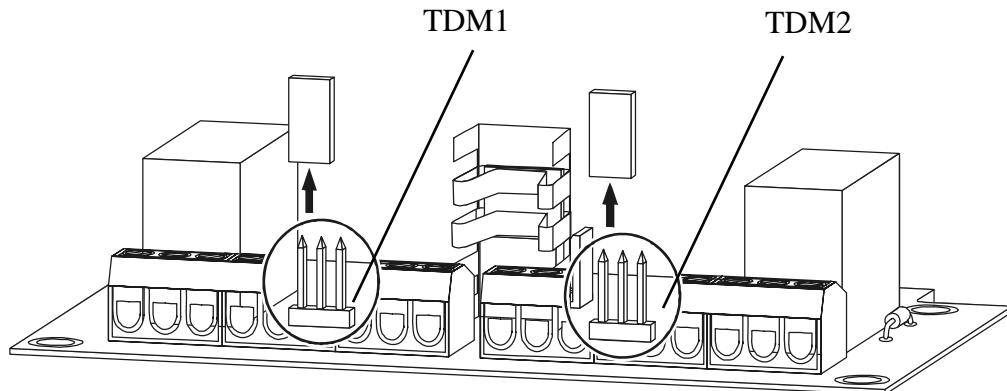
2.) The protective covering should be removed from the underside of each TDM exposing an adhesive pad.
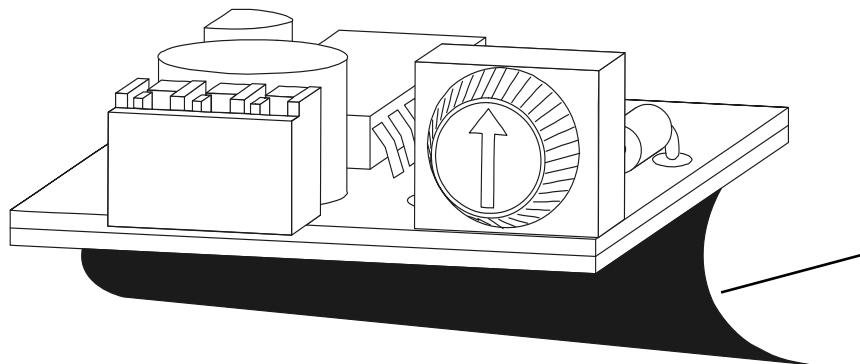
Peel off protective covering to expose adhesive.

- **Mounting a TDM to a DCM or RCM (continued):**
    - 3.) Place the TDM over the 3-pin header on the DCM or RCM and carefully press down to mate connector J1 on the TDM with the 3-pin header (TDM1) on the DCM or RCM. Apply a bit more pressure to create a bond between the adhesive on the underside of the TDM and the DCM or RCM. Repeat this procedure for TDM2 on the DCM or RCM if two TDMs are being installed.

Illustrations below apply to both DCM cards and RCM cards.
- ◆ 1 TDM being installed (onto TDM1).

J1

3-pin header TDM1
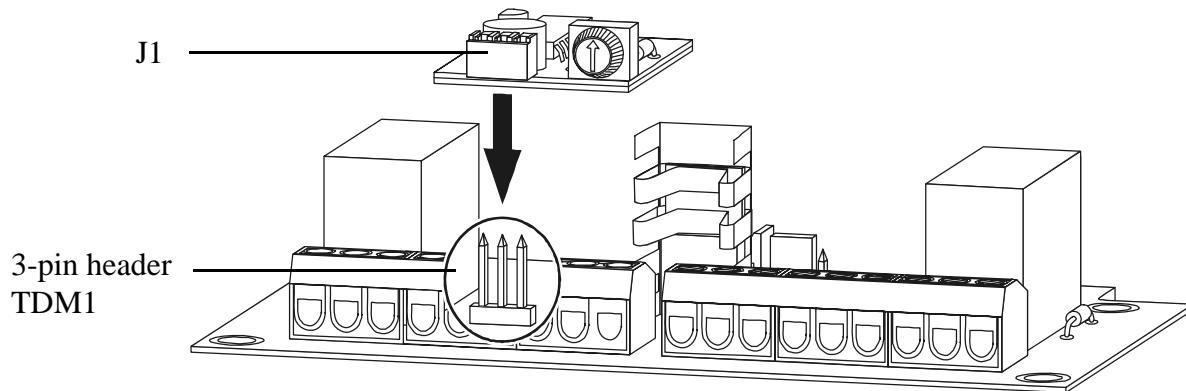
- ◆ 2 TDMs being installed (one onto TDM1 and one onto TDM2).
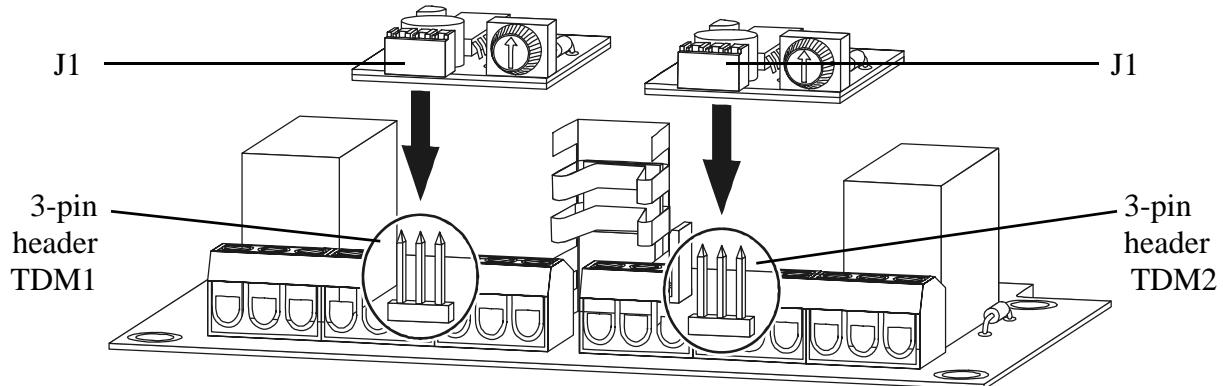
J1   J1

3-pin header TDM1   3-pin header TDM2

SYSTEM WIRING DIAGRAMS

1) Dual Control Modules & Relay Control Modules

- **Description:**

  Each DCM or RCM card has two terminal blocks (TB1 & TB2) for connecting two individual systems. If required, one system can be connected to TB1, and TB2 may be interfaced to provide other system operations (voltage and/or dry contact outputs). Unless noted, all connections shown may be repeated on TB2 for a second system. System types may also be mixed, i.e., one on TB1 and a different one on TB2.

DCM or RCM Terminal Block Normal Conditions (power supply. input power or bat. power on)
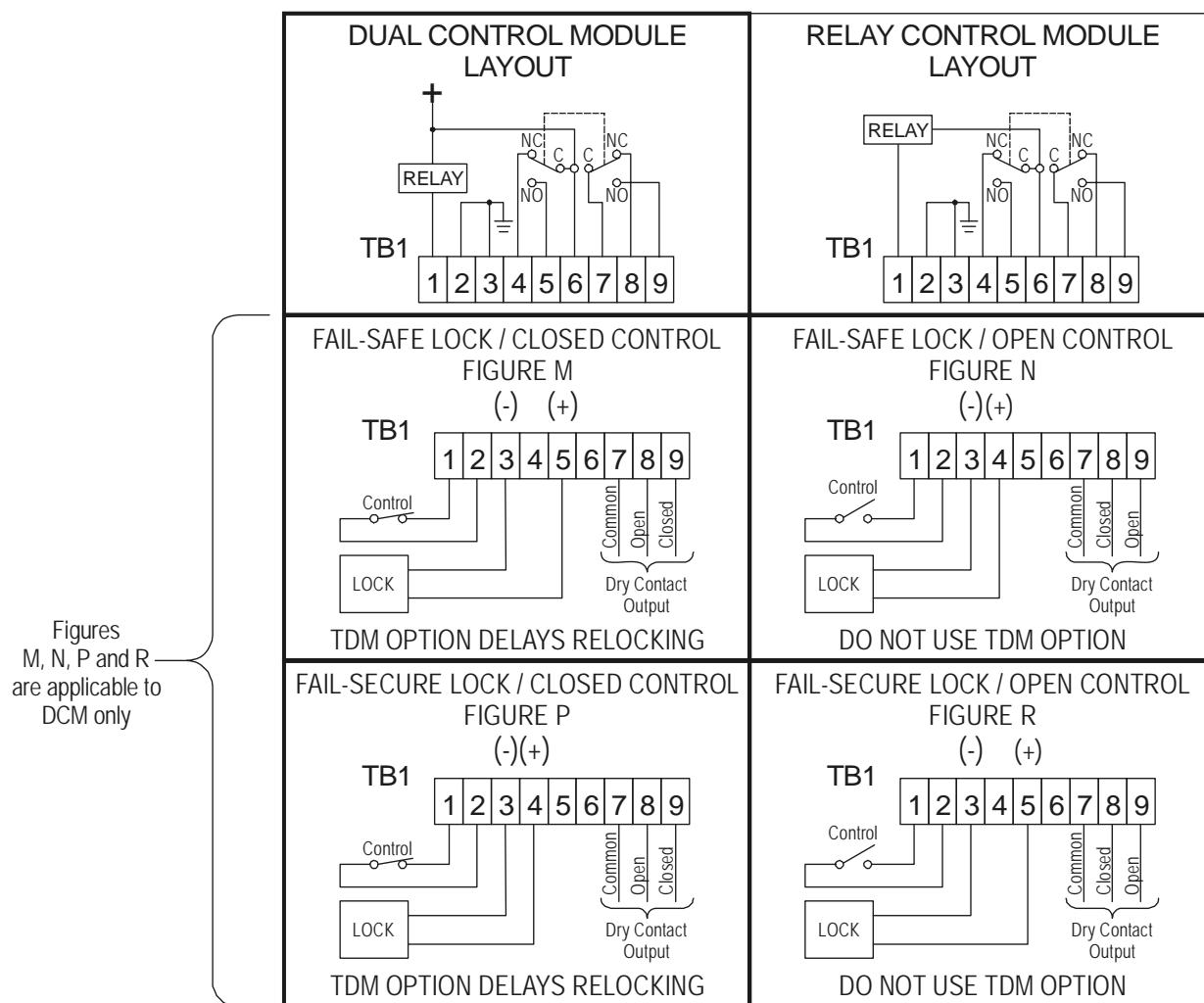
NOTES:

1) If EIR option is used, the output power to the lock will be interrupted upon activation of the emergency override system.
2) If the TDM option is used with a closed control, the lock will not relock until the preset time has expired.
3) All drawings show lock in secure state.

2) Special System Wiring

FIGURE X: Wiring a DCM card for one locking system with two sets of dry contact outputs.

JUMPER
JUMPER

(-)   (+)   (-)   (+)

TB1   TB2

1 2 3 4 5 6 7 8 9   1 2 3 4 5 6 7 8 9

Control

LOCK   Common Open Closed   Common Open Closed

                    Dry Contact   Dry Contact
   Output   Output
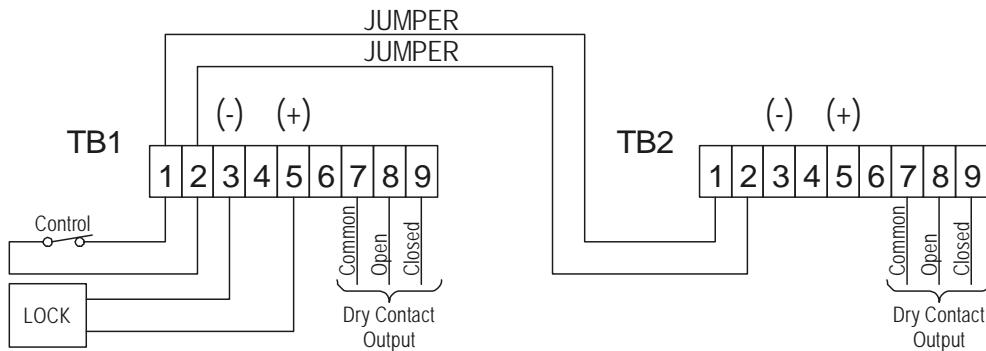
FIGURE Y: Safety interlock. Fail-safe locks - both doors normally closed and unlocked.
Opening one door locks other door until the open door is relocked.
Emergency unlock controls require a separate diagram.

(-)   (+)   (-)   (+)

TB1   TB2

1 2 3 4 5 6 7 8 9   1 2 3 4 5 6 7 8 9

* Door #2   * Door #1
Status   Status
Switch   Common Closed Open   Switch   Common Closed Open

                      Dry Contact   Dry Contact
Door #1   Output   Door #2   Output
Lock   Lock
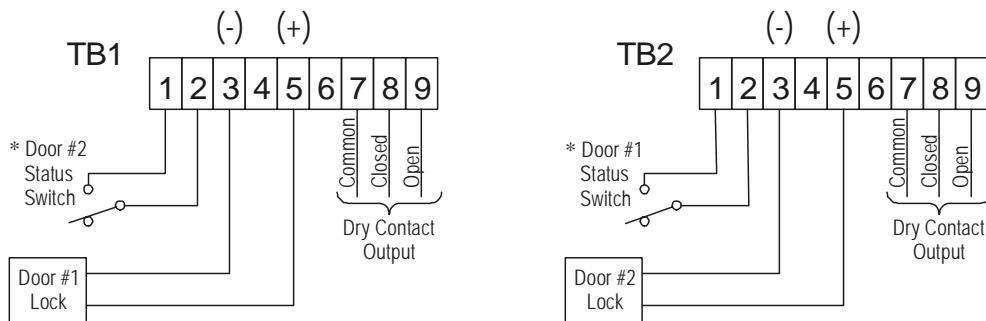
NOTE: Do not use TDM option with this interlock.   *Shown with door
                                                           in closed position

FIGURE Z: Security interlock. Fail-safe locks - both doors normally closed and locked.
Unlocking one door voids release for other door until unlocked door is relocked.

** Door #2   ** Door #1
MBS Status   MBS Status
Switch   (-)   (+)   Switch   (-)   (+)

TB1   TB2

1 2 3 4 5 6 7 8 9   1 2 3 4 5 6 7 8 9

Control   Control

Door #1   Common Open Closed   Door #2   Common Open Closed
Lock   Lock
                    Dry Contact   Dry Contact
                      Output   Output

**Shown with door   * If EIR option is used, the output power to the lock will be interrupted
in closed position   upon activation of the emergency override system.