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INSTALLATION INSTRUCTIONS

TCC/RCC
Series Modular Consoles

SDC

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1.0 INTRODUCTION

**TCC x *L8 x *L4E
(12 stations shown)**

**RCC x *L8 x *L8 x *L4E x CAB7
(20 stations shown)**

1.1 Product Description

The TCC and RCC Series Modular Consoles provide a flexible, economical method of centrally supervising and controlling multiple openings within a facility. The Consoles are offered in either a Desktop (TCC) or Rack-mount (RCC) configuration. The Consoles can be custom-configured by selecting the desired modular switch/indicator panels.

Various switch/indicator panels are available with:

- Different quantities of switches (4 switches minimum, increasing in multiples of 4) with corresponding LED's

- Different types of switches (2 or 3-position; momentary or latching), accommodating various applications

- Optional key switch, reset button, and audible shunt

The TCC accepts up to (2) switch/indicator panels and the RCC accepts up to (3) switch/indicator panels. See Section 1.3 for total switch capacity.

The RCC can be installed in a standard 19" EIA/IEC rack or in optional tabletop CAB enclosures which hold either one (CAB7) or two RCC's (CAB12).

1.2 Product Features

- The consoles are designed for real-time observation and control by security personnel.

- Easy to understand visual indicators and control switches simplify door supervision and control.

- The TCC/RCC Series Consoles consist of an enclosure, switches, LEDs and terminal connector boards.

- An audible alarm beeper is provided with "E" type switch panels containing the Alarm Shunt, Reset Button and Key Switch.

- The Consoles can also be used to manually override doors controlled by an access control system.

- Combine TCC or RCC consoles with the Series 600 Power Supplies and UR4-8 universal relay processor for a complete system with optional customized monitoring and control.

- The consoles can be directly wired to locking devices, or they can be connected via microprocessor-controlled door control relay modules such as SDC UR-1 or UR4-8. When used in conjunction with a UR-1 or UR4-8, the tri-color LEDs may be used to see the status of controlled doors (secure, authorized unlock, forced door).

- The Key Switch may be used for Console Lockout (UR4-8 required). The Lockout feature ensures that only authorized personnel can operate the console. Two consoles can control a shared opening by connecting both to the input of the door relay control module (consult factory).

- Forced door conditions are indicated by a beeper and Red LED ('E' panel required) but the audible alarm can be suppressed, and the LED indication remains on until the status condition returns to normal.

- Heavy duty rocker-style switches provide high operational reliability.

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1.0 INTRODUCTION

1.3   Product Specifications

TCC:

Description:	Slope Front Desktop Console
Color:	Black Housing, Beige Top
Dimensions:	10-1/4"W x 4-3/4"H x 9-5/8"D
Capacity	12 stations maximum when using 2 switch panels.
	Base unit, less switch panels. See Page 6 for panel configurations

RCC

Description:	Rack Mount Console
Color:	Beige front panel
Dimensions:	19"W x 5-1/4"H x 6"D
Capacity	24 stations maximum when using three switch panels (max.is 20 stations with an "E" panel).
	Base unit, less switch panels. See Page 6 for panel configurations

Switch Panels (All Models):

Switch Type:	DRY Rocker Switch Output; 2- or 3-position (model dependent);
	Black Cap w/ white numeral;
Switch/LED Count:	4 or 8 per panel (model dependent)
Rocker Switch Rating:	2 Amp @ 24VDC (resistive)
Panel Dimensions:	5"W x 5-1/4"H

Switch Panels (*L4E and EA Models only):

Reset Button Switch Rating	3 Amp @ 30VDC (resistive)
Key Lock Switch Rating:	4 Amp @ 28VDC (resistive)
Input Voltage (for LED's and Alarm Buzzer only):	24VDC
Input Power (LED's):	80 mA per 4-position switch module
	24 mA @ 24VDC
Input Power (Buzzer):	160 mA per 8-position switch module

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1.0 INTRODUCTION

1.4 Rocker Switch Types (All outputs are dry outputs
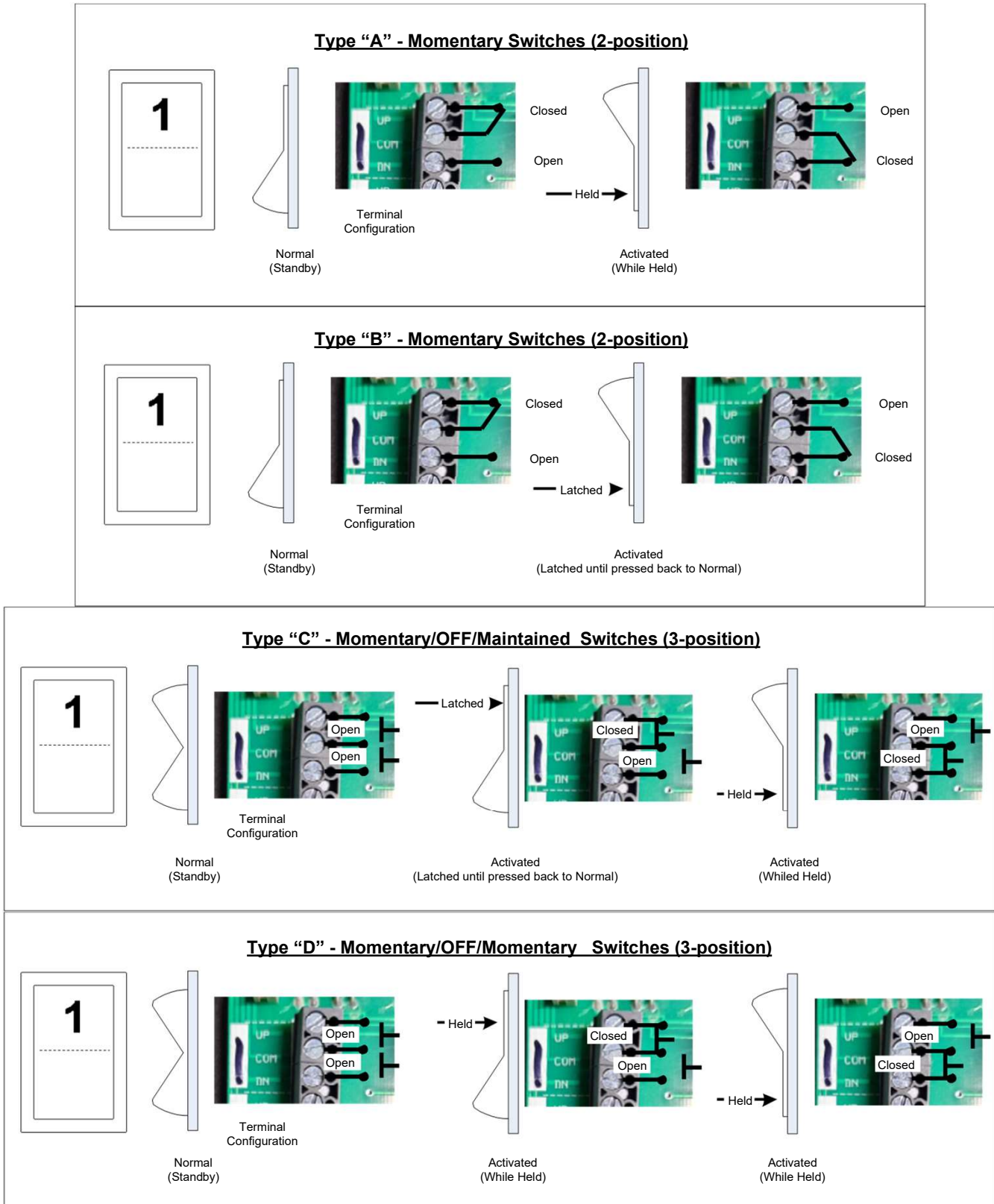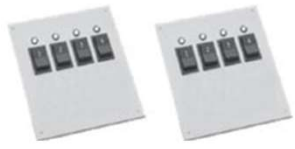
Fig 2. TCC/RCC Console Switch Types

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1.0 INTRODUCTION

1.5 Switch Panel Configurations

Note(s):

1. Panel configurations are only available in 4 or 8 switches. All the switches on a panel are the same type (A, B, C or D).
2. Unless otherwise specified, switches are numbered in sequential order. The first, top-left switch is marked "1", and then they increase sequentially along the top row. If applicable, the sequence continues on the second row.
3. Switch types A and B are typically best suited for direct release or electrified door locking devices such as Emlocks, Strikes, Electrified Lockset, etc.
4. Switch types C and D are suited for devices which have separate inputs for "open" and "close" functions, such as overhead doors, rolling gates, etc. These switches do not provide a circuit path when in the "normal" position.
5. Full Status monitoring and alarm annunciation requires auxiliary relay auxiliary relay control modules. Consult the factory for assistance in selecting additional control modules to meet the needs of your specific application
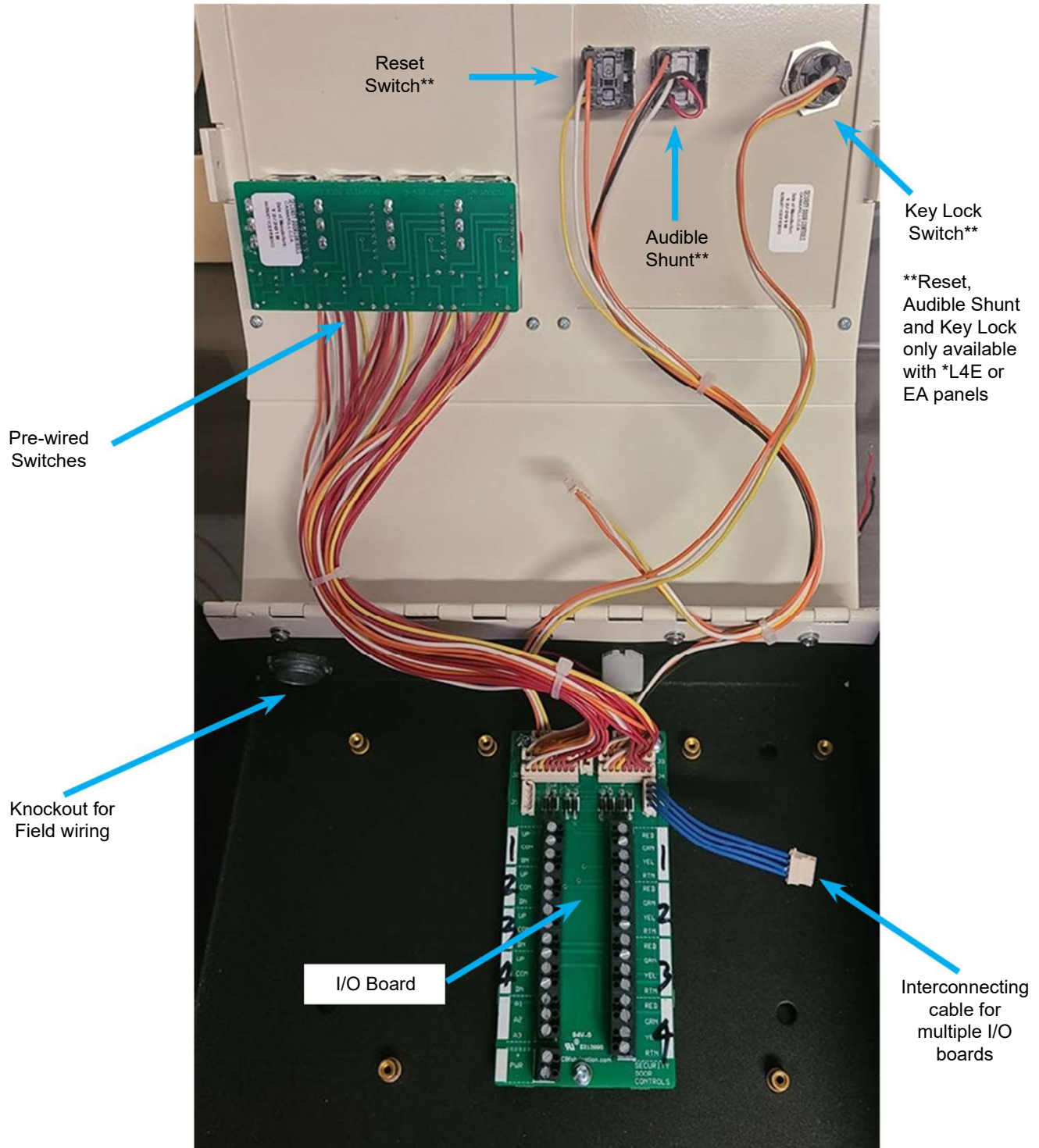
Part No	Description	Image
AL4	Four Momentary Switches with LED's	
BL4	Four Maintained Switches with LED's	
CL4	Four Momentary/Off/Maintained Switches with LED's	
DL4	Four Momentary/Off/Momentary Switches with Leds	
AL8-2	Eight Momentary Switches with LED's on 2 panels	
BL8-2	Eight Maintained Switches with LED's on 2 panels	
CL8-2	Eight Momentary/Off/Maintained Switches with LED's on 2 panels	
DL8-2	Eight Momentary/Off/Momentary Switches with LED's on 2 panels	
AL8	Eight Momentary Switches with LED's	
BL8	Eight Maintained Switches with LED's	
CL8	Eight Momentary/Off/Maintained Switches with LED's	
DL8	Eight Momentary/Off/Momentary Switches with Led's	
AL4E	Four Momentary Switches with LED's, Alarm Shunt, Reset Push Buttons and Key Lock	
BL4E	Four Maintained Switches with LED's, Alarm Shunt, Reset Buttons and Key Lock	
CL4E	Four Momentary/Off/Maintained Switches with LED's, Alarm Shunt, Reset Buttons and Key Lock	
DL4E	Four Momentary/Off/Momentary Switches with LED's, Alarm Shunt, Reset Buttons and key Lock	
EA	Panel with Alarm Shunt, Reset Push Buttons and Key Lock	
FA	Blank Panel	
CAB7	Black Cabinet for One RCC (7"H x 20-1/2"W x 14-1/2"D	
CAB12	Black Cabinet for Dual RCC (12-1/2"H x 20-1/2"W x 14-1/2"D) (Accomodates two vertically mounted RCC racks; not shown)	

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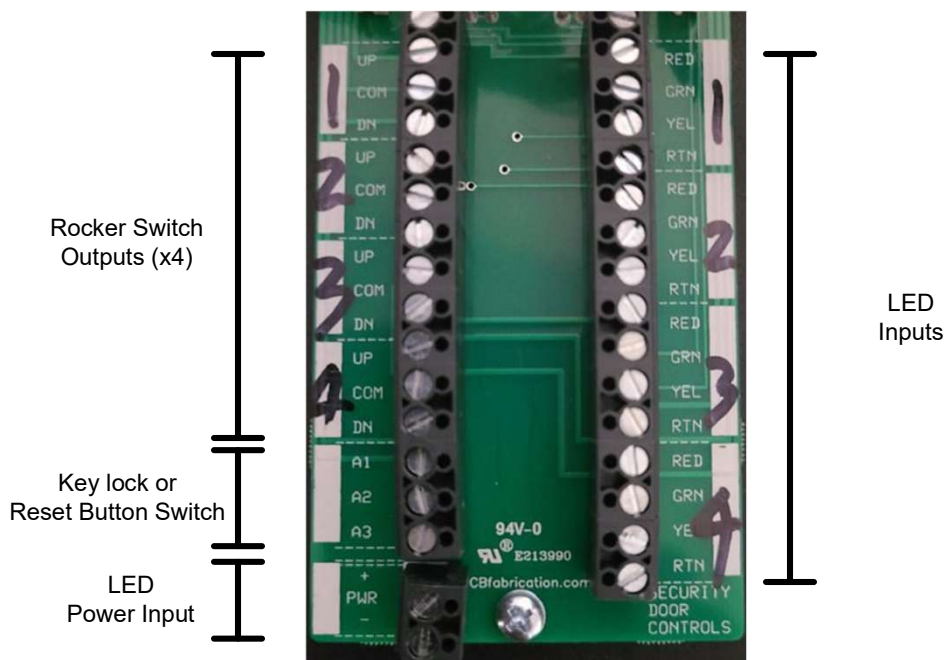## 2.0   CONSOLE HARDWARE DESCRIPTION

2.1   Input/Output Connector Boards

All RCC and TCC Consoles are pre-assembled at the factory. All field wiring connections will be terminated on the Input/ Output (I/O) board . One I/O Board is required for every four switches. The numbers on the I/O boards correspond the numbers on the switch cap.

Reset Switch**

Audible Shunt**

Key Lock Switch**

**Reset, Audible Shunt and Key Lock only available with *L4E or EA panels

Pre-wired Switches

Knockout for Field wiring

I/O Board

Interconnecting cable for multiple I/O boards

Fig 3. TCC Interior View
TCC x AL4 x EA shown

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2.0   CONSOLE HARDWARE DESCRIPTION

Rocker Switch Outputs (x4)

Key lock or Reset Button Switch

LED Power Input

LED Inputs

Fig 4. Input/Output Board Terminals

Buzzer (*L4E or EA pannels only)

J7

J8

J9

J1

J3

J2

J4

J5

J6
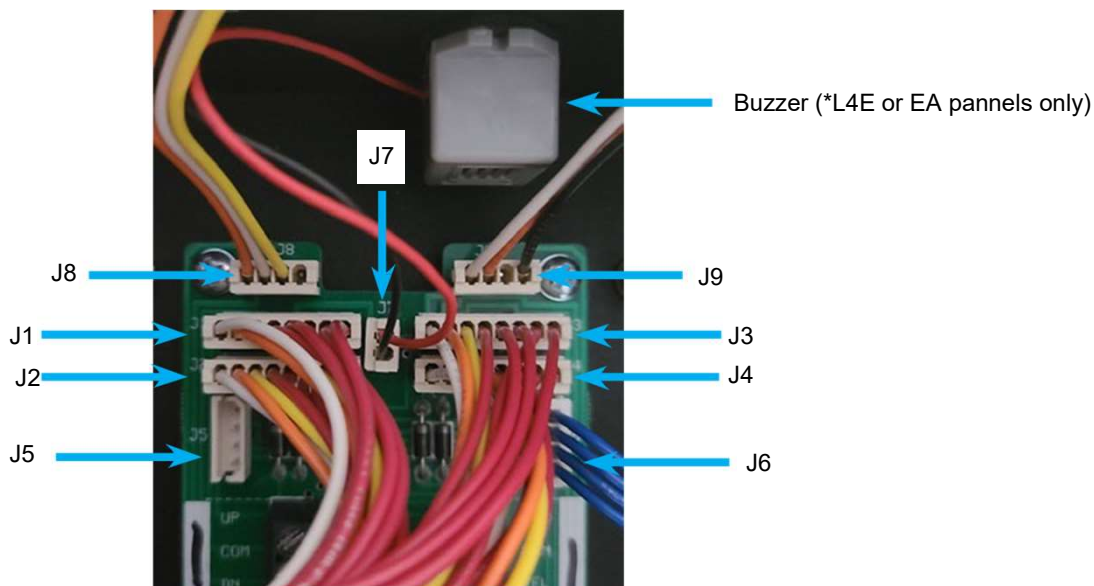
Fig 5. Input/Output Board Connectors

I/O Board Connectors	Function
J1 – J4	Panel Rocker Switches 1-4, respectively
J5 & J6	Blue Interconnection Cable for Multiple Boards
J7	Buzzer (Alarm; Active when RED LED is On)
J8	Reset Button or Key Switch (one per I/O board)
J9	Audible Shunt Switch
Note: When using multiple I/O boards, the audible shunt switch may plug into any J9 connector. To utilize both the reset button and key switch lock, a minimum of two I/O boards are required	

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2.0   CONSOLE HARDWARE DESCRIPTION

2.1   Rocker Switch Outputs

Each rocker switch output is labeled according to its corresponding rocker switch cap number. The 3-terminal output is marked UP, COM and DN. The electrical configuration of the output is dependent on the panel model type (A, B, C, or D). **Refer to Page 5 for all terminal configurations.**

2.1.2   Reset Button/Key Lock Switch Output
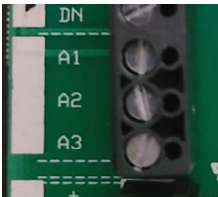
NOTE: Only used with *L4E and EA panels

Terminals A1, A2 and A3 on each I/O board is an output for the J8 connector, allowing either the Reset Button or Key Switch to be plugged into J8 and connected to field wiring via these terminals. Most TCC/RCC consoles will have more than one I/O board, allowing both the Reset Button Switch and Key Lock Switch to be used by plugging each switch into a J8 connector. The electrical configuration of the switches is as follows:

Terminal	Reset Button Inactive	Reset Button Pressed	Key Lock Switch (Key Horizontal)	Key Lock Switch (Key Vertical)
A1	Common	Common	Common	Common
A2	Closed	Open	Closed	Open
A3	Open	Closed	Open	Closed

2.1.3   LED/Alarm Power Input
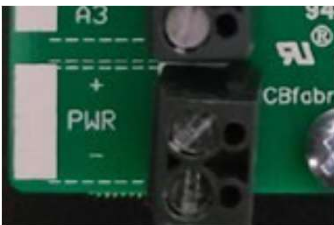
The (+) and (-) terminals may be used to provide power to the console LED's & Alarm Buzzer. NOTE: if the LED's are not being used, a power connection is not required for console switch operation.

Apply +24VDC to these terminals (polarity sensitive!). NOTE: If the console has more than one I/O board power only needs to be applied to one board. Power & alarm status will transfer to the other I/O boards via the blue interconnection cables.

2.1.4   LED Control Inputs
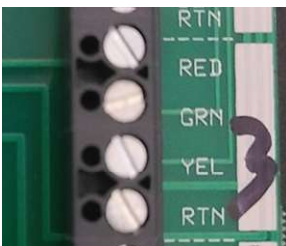
Applying +24VDC to either the RED, GRN or YEL terminals will cause the LED to illuminate red, green or amber (orange), respectively. IMPORTANT: (-)24VDC must be applied to the (-) PWR terminals (see 2.1.3)

The RTN terminal is directly connected to the (+)PWR input connection. Applying +24VDC to the (+) PWR terminal will supply +24VDC power to all the RTN terminals. This allows the RTN terminal to be used to power the RED, GRN or YEL terminals (see wiring examples

For *L4E or EA panels only: Applying +24VDC to the RED terminal will cause the LED to illuminate RED and will cause the buzzer to activate. The audible shunt button may be used to silence the buzzer.

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3.0   CONSOLE WIRING EXAMPLES

3.2   Direct Connection to Locking Devices with 3-State Status LED
             (Door Secure / Door Unsecure / Authorized Open) (for AL or BL Series Panels

NOTE: The rocker switch rating must be taken into consideration when connecting locking devices directly through the switch. It is recommended to use example 3.3 for locks drawing more than 1 Amp.

24VDC power is connected to both the console and the locking device. The **(+)24VDC** connection for the locking device runs through a Type A (momentary) or B (maintained) switch on the console. For fail-secure devices, depressing the switch down unlocks the door by completing the circuit, or for a fail-safe device, it breaks the circuit.

When a DC power source is applied to the **"PWR"** input all return **"RTN"** outputs on the console I/O boards are supplied with (+)24VDC. These outputs may be used to power the red, green or yellow indicator LED's on the console. When wired per the circuit diagram in Figure 7, the amber LED illuminates while the door is unlocked & opened by rocker switch activation and the green LED illuminates when the door is closed & locked. Forced door conditions (i.e., door open while the rocker switch is NOT activated) are indicated by a red LED and an audible buzzer (*L4E panel or EA panel required for audible alarm). The latching Audible Shunt push button on the *L4E / EA panel can be used to silence the buzzer, but the red LED and the push button lamp will remain on until the door returns to its normal secure state.
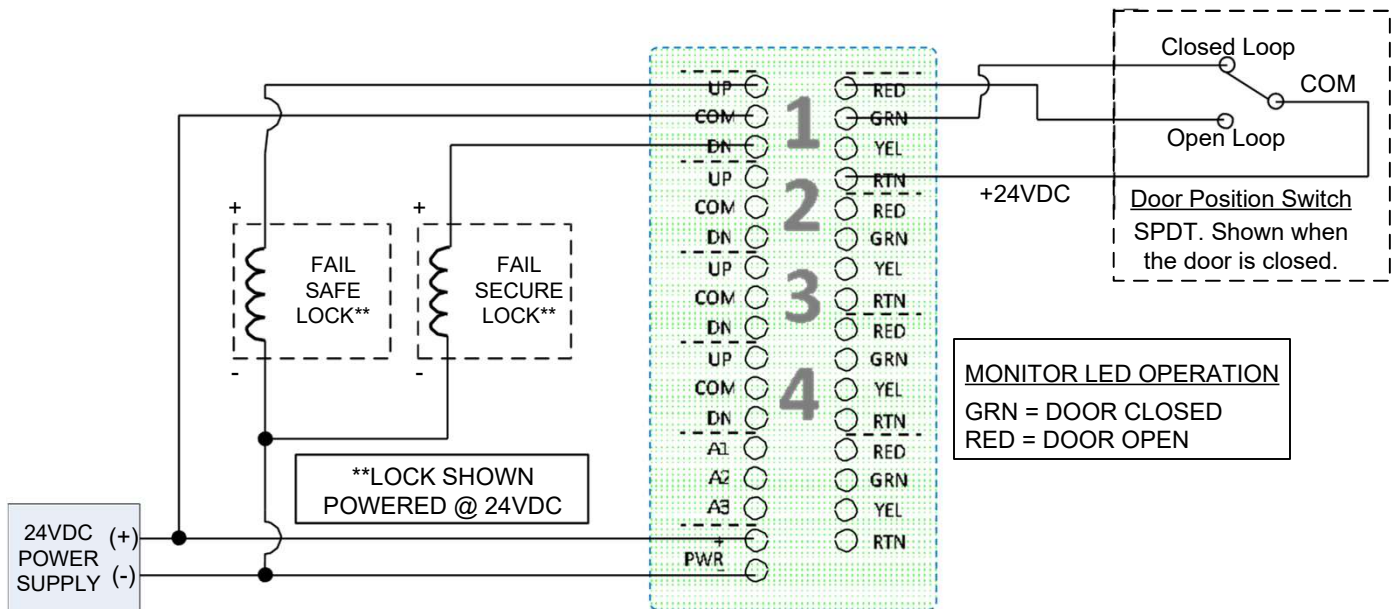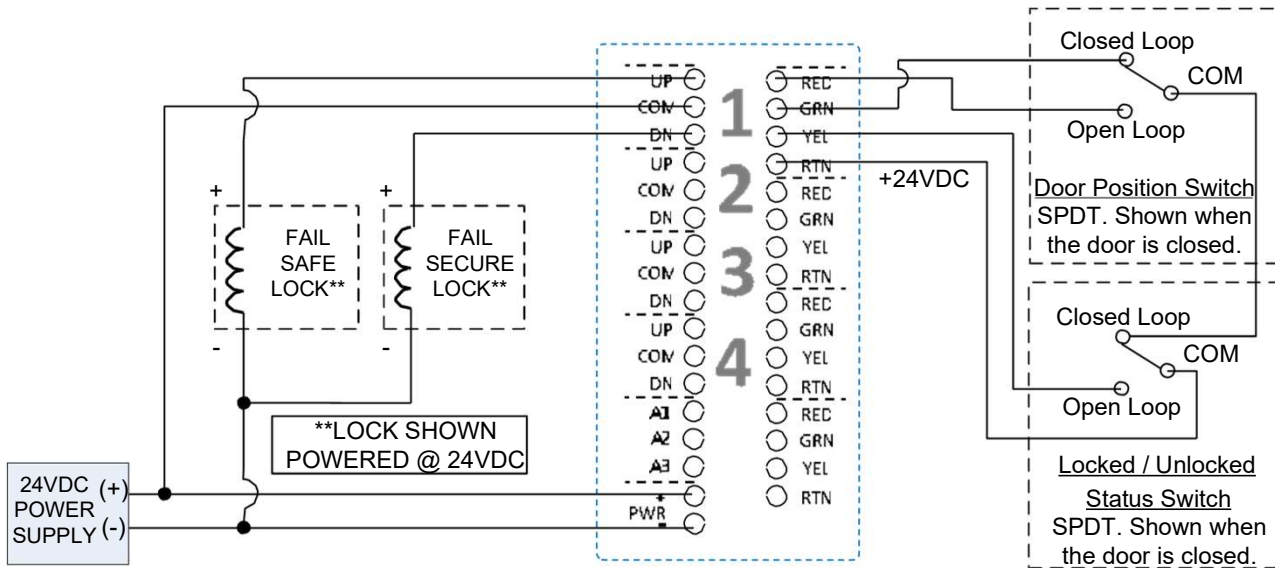

MONITOR LED OPERATION

Green   =   DOOR CLOSED & LOCKED

Amber   =   DOOR UNLOCKED BY SWITCH
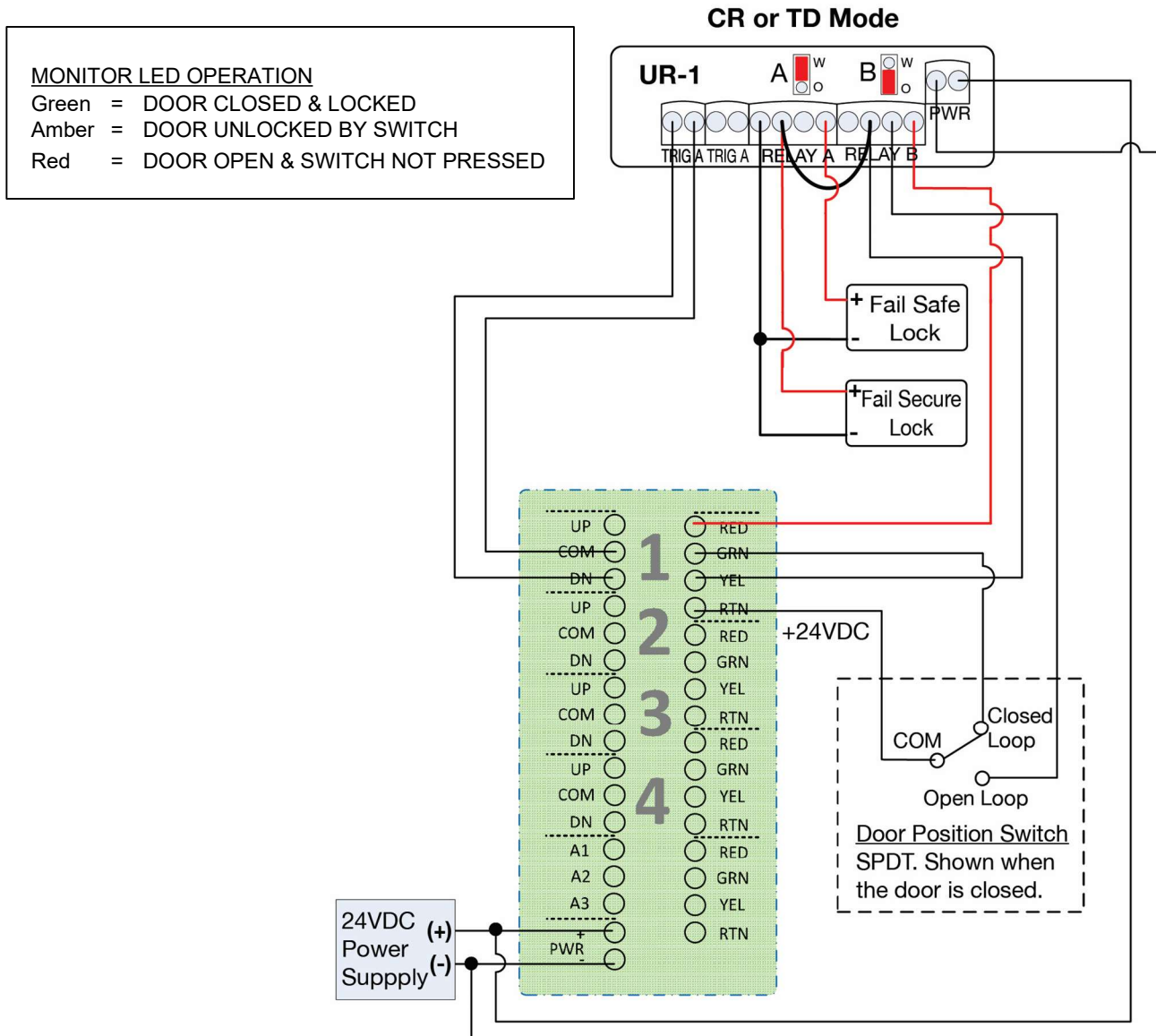
Red   =   DOOR OPEN & SWITCH NOT PRESSED

Fig 7.

WIRING SHOWN FOR
CONSOLE POSITION #1

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3.0   CONSOLE WIRING EXAMPLES

3.3   Connecting Locking Devices via UR-1 Universal Relay Module (applicable to all panel models)

Connecting the console to door locking devices via the UR-1 allows you to isolate lock power, add the capability of timed operation, as well as the ability to report a forced door condition. To operate the door, connect the Normally Open switch to the **Trigger A** input on the module, then connect the locking device to the access **Relay A** per the wiring diagram.

When a DC power source is applied to the **"PWR"** input, all return **"RTN"** outputs on the console I/O boards are supplied with (+)24VDC. These outputs may be used to power the red, green or yellow indicator LED's on the console. When wired per the circuit diagram in Figure 8, the Green LED illuminates when the door is closed and locked. To indicate an authorized unlock or forced door status, set the UR-1 for CR or TD operation (refer to UR-1 manual), wire the red and yellow LED inputs per the circuit diagram below. Connect the Open Loop output of the door position switch to the common terminal of **Relay B** so that if the door opens and the **Relay A** is active (authorized unlock), the yellow LED illuminates, or if the door opens and if the Relay A is not active (forced door), the red LED illuminates. Forced door conditions are indicated by a Red LED and an audible buzzer (*L4E panel or EA panel can be used to silence the buzzer, but the Red LED and the push button lamp will remain on until the door returns to its normal secure state.

Fig 8.

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3.0   CONSOLE WIRING EXAMPLES

3.4   Installation Procedure

Step 1 – Select appropriate wiring diagram
.Fig. 6, 7, or 8 to wire the console direct to door locking devices or via relay modules.

Step 2 – Wire External Relay modules.
If used configure and wire external relay modules, such as SDC's UR-1 or UR4-8 (see applicable installation manual)

Step 3 – Terminate the Lock Power / Control Wiring (Switch Outputs 1-4).
Determine whether the switch outputs will be used to switch lock power directly or as dry signal outputs to auxiliary relay boards. Follow the wiring diagram appropriately for fail-safe or fail-secure locks. Be careful to observe lock voltage polarity. NOTE: All low voltage lock wiring shall be 18-gauge minimum (wire gauge shall be determined by the SDC wire gauge chart or another voltage drop too). Signal wire shall be 22-gauge minimum.

Step 4 – Terminate the Door Monitoring (Optional LED Inputs)
Connect the Door Position Status switches, Latch Status switches to the LED inputs directly or via secondary relays, per the appropriate wiring diagram.

Step 5 – Terminate Key Switch / Reset Outputs (Optional)
A1, A2, A3 Output – This SPDT output is controlled by either the Key Switch or the momentary Reset button which connect to the I/O board at input J8. Refer to section 2.1.2 on Page 9 for more information.

Step 6 – Connect 24VDC Power Source to the Power inputs.
Before applying power, verify that all the connections are securely terminated by gently pulling on each wire. Connect 24VDC power to the I/O board Power Input, as shown in the wiring diagram. Be careful to observe polarity.

Step 7 – Verify Operation
Test operation of door locking devices and LED's by pressing each rocker switch. If applicable, verify operation of LED's and alarm buzzer, by opening each door without pushing a button, causing a forced door alarm. Verify operation of Audible Shunt button by pressing it to silence the forced door alarm. Test operation of Key Switch and Reset Button if connected.

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4.0 TROUBLESHOOTING

- If a switch does not operate the connected door, check the RCC/TCC I/O board for loose connections by carefully on all screw terminal connections.

- Check wiring at door for switch continuity and/or voltage.

- If connected to doors via external relay modules, check troubleshooting procedures in the appropriate manual.

- Contact SDC technical support for further help or application assistance.