



# ENTRY-GUARD™ OPERATION MANUAL



## SAFETY INTERLOCK ACCESS CONTROL SYSTEM

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## 1. INTRODUCTION

Entry-Guard™ is a Safety Interlock System (SIS) that provides a fail-safe Access Control System (ACS) with a primary function to ensure that unauthorized personnel are prohibited from areas where laser radiation may be present. When the power to the controller is interrupted, critical outputs, such as door magnetic locks and laser interlocks, revert to a safe state: magnetic locks off, laser interlocks open.

The SIS has become more critical recently in light of accidents in the laser industry. These incidents have led organizations to develop better operating procedures and standards that suggest a separate system be implemented for safety functions, away from the basic process control procedure. This separation has become an industry standard.

## 2. OVERALL CONCEPT

Entry-Guard™ has the capability to integrate with components of any access control system, which may include any or all of the following components:

Lasers	Warning signs	Safety interlocks	Emergency stop switches
Laser shutters	Active status lights	Proximity sensors	Remote start switches
Enclosures	Audible signals	Safety mats	Exit request switches
Curtain systems	Keypads	Crash bar sensors	Bypass key switches
Light curtains	Card readers	Laser scanners	Magnetic locks
Entryway doors	Biometric scanners	PLC circuits	Electronic latches

Kentek's versatile enables placement of safeguards around all possible hazards within your work environment. We provide eleven outputs that can be used for a wide variety of applications.

Four laser interlocks (TB13, TB14, TB15, and TB16) are double pole double throw normally open/normally closed, dry contacts.

Three auxiliary interlocks (TB17, TB18, TB19) are single pole single throw normally open dry contacts.

All seven interlocks can be used to control anything that needs to be turned on or off depending on the status of the system. For applications that require a higher voltage or current rating, external relays can be used to switch power for these devices.

Two magnetic lock terminals (TB3, TB4) are double pole double throw normally open/ normally closed contacts and can provide 12VDC (with jumpers installed JP2/JP3). Removing these jumpers individually turns each set of contacts to dry contacts. These contacts are bypassed while the 'Exit now' circuit is active allowing entry into the room.

One 'Exit now' terminal (TB2) is double pole double throw normally open/ normally closed contacts and can provide 12VDC (with jumper installed JP1). These contacts switch during any 'Exit now' request and remain active until the 'Exit now' timer is finished.

One user +12VDC terminal (TBDC) has two connections for 12VDC and ground.

### 3. SYSTEM SPECIFICATIONS

Control Panel Dimensions: 6.00 D x 8.37 W x 10.50 L (inches)  
Control Panel Weight: 3 Pounds (Approx.)  
Input Power: Wall Transformer, Input: 120 VAC; Output: 12VDC, 2 Amp

#### **OUTPUT FEATURES:**

Laser Interlocks: (4) DPDT normally open / normally closed dry contacts

Auxiliary Interlocks: (3) SPST normally open dry contacts

Resistive loads for interlocks

- Maximum switched power: 60 watts or 125VA
- Maximum switched current: 2 amps
- Maximum switched voltage: 220VDC or 250VAC

Exit Now: (1) DPDT normally open / normally closed dry contacts

- Inductive or resistive loads, surge protected to 31VDC

Sign Operation Signals:

- Safe
- Danger/Safe
- Exit Now

On = 12VDC (normally open contacts)

Off = 0VDC (normally open contacts)

Maximum current draw: 15mA nominal at 12VDC

Magnetic Locks: (2) DPDT normally open / normally closed dry contacts  
(JP2 & JP3 removed)

- Inductive or resistive loads, surge protected to 31VDC

User DC Output: (2) 12VDC

Note: Maximum combined 12VDC output current for Exit Now, Sign Operation Signals, Magnetic Locks, and User DC Outputs not to exceed 1.5 amps all loads combined.

Calculate the current draw from every external component that is receiving power from this device. For 12VDC applications exceeding 1.5 amps use an external power source and connect through a set of dry contacts.

## **INPUT FEATURES:**

### Safety Loop

Door 1:	Normally closed dry contacts
Door 2:	Normally closed dry contacts
Auxiliary:	Normally closed dry contacts
Emergency access:	Normally closed dry contacts
Emergency stop:	Normally closed dry contacts

- Voltage across inputs: 12VDC
- Current: 61mA nominal
- Inputs can be daisy chained together to offer multiple external options

### Remote Start

- Voltage across inputs: 12VDC
- Current: 61mA nominal

### Exit Request

- Voltage across inputs: 12VDC
- Current: 24mA nominal

## **OTHER COMPONENTS:**

### Chime

Rated voltage:	12VDC
Current rating:	35mA
Sound pressure:	>80dB @ 12VDC (at 1 foot)

## 4. SYSTEM INSTALLATION

- 4-1. Remove components from packaging and verify that all components have been received and are not damaged.
- 4-2. Mount components in a visible location, where labels can be read and controls can be easily operated.
- 4-3. Create a template by either tracing each component outline on paper, or hold the product firmly against the wall and mark the hole locations prior to mounting equipment.
- 4-4. We recommend mounting the lowest point of the control panel between 48-56 inches above finished floor.
- 4-5. External wiring should be located within conduit or within the wall.
- 4-6. A basic wiring layout diagram is included with this manual (Page 10). Custom wiring drawings can be provided on request. All components should be wired by a certified electrician.
- 4-7. Please call 1-800-432-2323 if you have any questions about the installation of this product.

The following installation checklist is only a guide and is intended to be used by qualified service technicians. The sequence of the checks is arbitrary. Actual sequence will be determined by the technician performing the checks.

### ***General System Information***

The system is considered engaged when all of the following conditions are met:

- 4-8. 'START' LED is illuminated.
- 4-9. 'MAGLOCK ON' LED is illuminated.
- 4-10. All doors to the protected room are locked (if equipped with magnetic or electronic locks).
- 4-11. All interlocked (protected) equipment is enabled.
- 4-12. The 'LASER ON' sign is illuminated.
- 4-13. The 'LASER OFF' sign is not illuminated.
- 4-14. The 'ENTER CAUTION' or 'EXIT NOW' sign(s) (if so equipped) should be off except during 'Exit now' mode.
- 4-15. The 'EXIT NOW' audible alarm should not sound, except during exit now mode.

The system is considered disengaged or in safe mode when all of the following conditions are met:

- 4-16. The 'START' LED is not illuminated.
- 4-17. The 'MAGLOCK ON' LED is not illuminated.
- 4-18. All doors to the protected room are unlocked (if equipped with magnetic or electronic locks).
- 4-19. All interlocked (protected) equipment is disabled.
- 4-20. The 'LASER ON' sign is not illuminated.
- 4-21. The 'LASER OFF' sign is illuminated.
- 4-22. The 'ENTER CAUTION' or 'EXIT NOW' sign(s) (if so equipped) are not illuminated.
- 4-23. The building security system resumes control of the door locks (special requirement).

To engage the system:

- 4-24. Ensure the 'Key switch' is 'ON'.
- 4-25. Ensure the 'POWER ON' LED is on.
- 4-26. Ensure the 'ENTRYWAY CLOSED' LED is on.
- 4-27. Ensure the 'SYSTEM READY' LED is on.
- 4-28. Press the 'START' button and the system should engage.

The system should disengage when any of the following actions are performed:

- 4-29. Any 'EMERGENCY STOP' or 'EMERGENCY ACCESS' button is pressed.
- 4-30. Any door to the protected room is opened without first pressing an Exit/Enter Request, keypad or biometric scanner.
- 4-31. The building fire alarm actuates (special requirement).
- 4-32. Power outage with no battery backup.

The system is considered to be in exit now mode when the system is engaged and the exit now circuit is activated. The following occurs during exit now mode:

- 4-33. The front panel 'EXIT' LED illuminates.
- 4-34. The 'MAGLOCK ON' LED is NOT illuminated.
- 4-35. The magnetic door locks release (go to the unlocked position if equipped).
- 4-36. The 'ENTER CAUTION' and 'EXIT NOW' signs illuminate (if equipped).
- 4-37. The 'LASER ON' sign remains illuminated.
- 4-38. The 'LASER OFF' sign is NOT illuminated.
- 4-39. The audible chime sounds for 5 to 120 seconds (end user set).
- 4-40. While the chime is sounding, the protected doors can be opened without the system disengaging.
- 4-41. If the 'Exit Now Auto Reset' jumper is in place, closing all open doors after any door was opened terminates the exit now sequence as follows:
  - a. The chime signal is silenced.
  - b. The 'ENTER CAUTION' and 'EXIT NOW' signs turn off (if equipped).
  - c. The 'MAGLOCK ON' LED illuminates.
  - d. The magnetic door locks engage (go to the locked position if equipped)
  - e. The system remains engaged.
- 4-42. If the 'Exit Now Auto Reset' jumper is not in place, closing the doors does not terminate exit now mode before the timer times out; it will operate throughout the entire cycle.
- 4-43. If any door remains open when the exit now mode times out, the system reverts to disengaged mode.

### **Control Panel Static Checks**

- 4-44. The key switch and pushbuttons are not damaged and operate smoothly.
- 4-45. The external power supply (wall transformer) is connected to the PCB.
- 4-46. The screws to any terminal blocks that have wires connected to them are tight and the wires won't pull out with moderate pulling force.
- 4-47. Ensure the bypass jumpers are removed for each of the "Safety Loop Inputs" that have wires connected to them (in use).

- 4-48. Ensure the bypass jumpers are in place for each of the “Safety Loop Inputs” that do not have wires connected to them (not used).
- 4-49. Ensure the +12V jumpers are removed from any magnetic lock that is connected to an external power source.
- 4-50. Ensure the “Exit Now Auto Reset” jumper is installed unless the customer has specified that closing the doors should not terminate the exit now chime. Select the status of the jumper: installed / not installed.

### ***Safety Loop Checks***

- 4-51. The ‘ENTRYWAY CLOSED’ LED illuminates when all the doors are closed and extinguishes when any door is opened.
- 4-52. The front panel ‘SYSTEM READY’ LED illuminates when all the doors are closed and all the ‘E-Stop’ and ‘E-Access’ pushbuttons are not pressed.
- 4-53. The front panel ‘SYSTEM READY’ LED extinguishes when any of the doors are open or ‘E-Stop’ or ‘E-Access’ buttons are pressed.
- 4-54. With the ‘SYSTEM READY’ LED not illuminated, pressing the front panel ‘START’ button does not engage the system.
- 4-55. With the ‘SYSTEM READY’ LED illuminated, pressing the front panel ‘START’ button engages the system.
- 4-56. With the system engaged, pressing the front panel ‘EMERGENCY STOP’ button, make sure the system disengages.
- 4-57. With the system engaged, pressing any external ‘E-Stop’ or ‘E-Access’ buttons, make sure the system disengages.

### ***Remote Inputs***

- 4-58. When the ‘REMOTE START’ button (if so equipped) is pressed the ‘START PB’ LED on PCB-EG001 adjacent to TB12 illuminates and extinguishes when the button is released.
- 4-59. When the remote ‘ENTER/EXIT REQUEST’ pushbutton (if so equipped) is pressed the ‘EXIT REQ’ LED on the PCB-EG001 adjacent to TB11 illuminates and extinguishes when the button is released.
- 4-60. When any keypad (if so equipped) is actuated the ‘EXIT REQ’ LED on PCB-EG001 adjacent to TB11 illuminates for approximately one second.

### ***Exit Request Function***

- 4-61. With the system engaged pressing any ‘ENTER/EXIT REQUEST’ pushbutton or activating a correct keypad code results in the system entering into exit now mode. The audible exit chime shall sound for a preset time of 5 to 120 seconds.
- 4-62. With the system in exit now mode and the ‘Exit Now Auto Reset’ jumper in place, opening and closing a door contact terminates exit now mode.
- 4-63. With the system in exit now mode and the ‘Exit Now Auto Reset’ jumper not in place, opening and closing a door will not terminate exit now mode.



## 5. SYSTEM OPERATION

- 5-1. Plug in the step down wall transformer supplied with the system into any 120VAC outlet and connect the power jack into the J3 power jack receptacle located on PCB-EG001. Verify that the red 'PWR' LED located on PCB-EG001 is illuminated. This should remain on while power is supplied to PCB-EG001.
- 5-2. Turn the key to the 'ON' position, verify that the 'POWER ON', 'SYSTEM READY', and 'ENTRYWAY CLOSED' LEDs on the control panel are illuminated. If they are not, check the jumpers located on the safety loop inputs on PCB-EG001 (TB5, 7, 8, 9, 10). Also, check to make sure all interlocked doors are closed, all emergency stop and access buttons are not depressed, and any auxiliary inputs are in the N/C state. The 'Safe' LED by TB1 on PCB-EG001 should also be on as well as the 'Key On' LED on PCB-EG-MPI.
- 5-3. Turn the start key to the 'ON' position; the 'POWER ON', 'SYSTEM READY', and 'ENTRYWAY CLOSED' LEDs on the control panel should all be illuminated. Inside the control panel the 'SAFE' LED adjacent to TB1 on PCB-EG001 and the 'Key On' LED on PCB-EG-MPI should be illuminated.
- 5-4. Press the 'START' button; both the 'START' LED and the 'MAGLOCK ON' LED should illuminate on the control panel. Inside the control panel the 'Engaged' LED and 'DNGR' (danger) status LED adjacent to TB1 should be illuminated. The 'Safe' LED adjacent to TB1 should not be illuminated.
- 5-5. Press the 'EXIT' button; the 'EXIT' LED should stay on and an audible signal should sound for the duration of the adjustable time period. On PCB-EG001, the 'DNGR' and 'EXIT' LEDs adjacent to TB1 and the 'Chime' LED on PCB-EG-MPI should remain on for the entire exit delay period. You can now silence the audible sound by removing JP1 on PCB-EG-MPI.
- 5-6. To set the exit duration for enter/exit periods use the 'Exit Duration' potentiometer (R14) located on PCB-EG001. Turn counter clockwise for the minimum setting of 5 seconds and clockwise for the maximum setting of 120 seconds. Press the EXIT button to verify time settings. To reset the time when the door is closed, leave (JP9) jumper installed on PCB-EG001. If full duration is required, remove (JP9) from the PCB-EG001. Check any external switches request to exit/enter switches (optional) along with any keypads (optional) to verify the circuit is receiving input signals.
- 5-7. Press the 'EMERGENCY STOP' button. Verify that the 'MAGLOCK ON', 'SYSTEM READY' and 'START' LEDs on the control panel turn off. Turn switch clockwise to reset. Press the 'START' button to reset the system and continue to test any external E-stop (optional) or E-stop access switches (optional). External emergency switches can be wired in series or connected to either TB9 or TB10 located on ETG-EG001.
- 5-8. The 'ENTRYWAY CLOSED' LED on the control panel is used to give the status of all door safety interlock connections. Normally closed safety interlocks should be used on all entryways to allow the Entry-Guard™ to monitor door status. These interlocks can be wired in series or connected directly to TB5 or TB7 located on PCB-EG001. Verify that when the all doors are closed, the 'ENTRYWAY CLOSED' LED is illuminated, and when the door is open, the 'ENTRYWAY CLOSED' LED is not illuminated. This safety loop will be bypassed once the 'EXIT' button is pressed to allow room entry or exit for selected time duration.

## **NOTES**

- 5-9. 'POWER ON' LED shows the key switch is on and power is applied.
- 5-10. 'MAGLOCK ON' LED shows the status of the magnetic lock outputs.
- 5-11. 'SYSTEM READY' LED shows when the entryway doors are all closed and all E-stops and E-access switches are not pressed.
- 5-12. 'ENTRYWAY CLOSED' LED shows when the entryway doors are all closed.
- 5-13. 'START' LED shows when the safety circuit is engaged.
- 5-14. 'EXIT' LED shows when the system is in exit now mode.
- 5-15. Pressing the 'STOP' button or turning the key switch off will turn off the Entry-Guard™ system.
- 5-16. 'EMERGENCY STOP' button will create a fail-safe status that will shut down laser emission completely or contain the laser beam within a laser shutter device. Once the button is pressed, it must be turned clockwise to reset. When the system has been reset, the 'START' button must be pressed to allow laser operation.

## 6. PREVENTIVE MAINTENANCE INSPECTION

Early detection of failed components ensures the safest work environment. Listed below is a weekly safety routine recommended to verify all relays, interlocks and switches are performing as intended.

- K1 Relay controls main system relay
- K2 Relay controls all interlock outputs
- K3 Relay controls exit now relay
- K4 Relay controls magnetic locks
- K5 Relay controls laser interlocks TB13 and TB14
- K6 Relay controls laser interlocks TB15 and TB16
- K7 Relay controls auxiliary interlocks TB17 and TB18
- K8 Relay controls auxiliary interlock TB19

- 6-1. Testing laser interlocks (TB13, 14, 15, 16): Using a multimeter set to measure continuity turn the key switch 'OFF' on the control panel and measure between common and N/C, then common to N/O.  
Common to normally closed should be closed.  
Common to normally open should be open.  
If these are not as indicated above, replace K2 or K5 or K6 on PCB-EG001.
- 6-2. Testing auxiliary interlocks (TB17, 18, 19): Using a multimeter set to measure continuity turn the key switch 'OFF' on the control panel and measure between common and N/O.  
Common to normally open should be open.  
If these are not as indicated above, replace K2 or K7 or K8 on PCB-EG001.
- 6-3. Test all emergency stops and emergency access switches individually. Press the 'START' button to engage the system and make sure it drops to the fail-safe state after each E-stop request. System will have to be engaged before each test. Verify that pressing each button creates a fail-safe status.  
If a switch fails to create a fail-safe status check these three possibilities:
  - 1. Make sure the switch is wired correctly on PCB-EG001.
  - 2. Check the switch contact for welded contacts by measuring across the contacts with the switch pressed in, which should indicate open contacts. replace if they remain normally closed in both sensor positions.
  - 3. Replace K1 on PCB-EG001.
- 6-4. Test all external safety interlocks individually. Engage system and open each door, curtain, or contact closure. Verify that opening each contact creates a fail-safe status. If the system doesn't drop to a fail-safe state, measure across the door contact with the door open. If it remains closed, replace the interlock. If it is open replace K1 on PCB-EG001.
- 6-5. Test any magnetic locks wired through TB3 or TB4. If a magnetic lock fails to open or release while the 'Exit now' bypass circuit is active, make sure it is wired correctly on PCB-EG001. If it is wired correctly and a problem still exists, replace K4 relay.

## 7. ACCESSORY PARTS LIST\*\*

7-1.	ETG-KP	Keypad
7-2.	ETG-ML	Magnetic lock
7-3.	ETG-ML2	Magnetic lock for double door
7-4.	ETG-ES	Emergency stop
7-5.	ETG-ES-F	Emergency stop flush mount
7-6.	ETG-ES-FC	Emergency stop flush mount w/cover
7-7.	ETG-EA	Emergency access
7-8.	ETG-EA-F	Emergency access flush mount
7-9.	ETG-EA-FC	Emergency access flush mount w/cover
7-10.	ETG-SS	Remote start switch
7-11.	ETG-SS-F	Remote start switch flush mount
7-12.	ETG-SS-FC	Remote start switch flush mount w/cover
7-13.	ETG-RE	Request to exit/enter
7-14.	ETG-RE-F	Request to exit/enter flush mount
7-15.	ETG-RE-FC	Request to exit/enter flush mount w/cover
7-16.	ETG-INLK	Interlock switch
7-17.	ETG-INLKHD	Coded Interlock switch
7-18.	ETG-DLS	Dual status sign 120VAC Incandescent bulbs
7-19.	ETG-DLS-2	Dual status sign 12VDC LED bulbs
7-20.	ETG-TLS	Triple status sign 12VDC LED bulbs

## 8. SPARE PARTS LIST\*\*

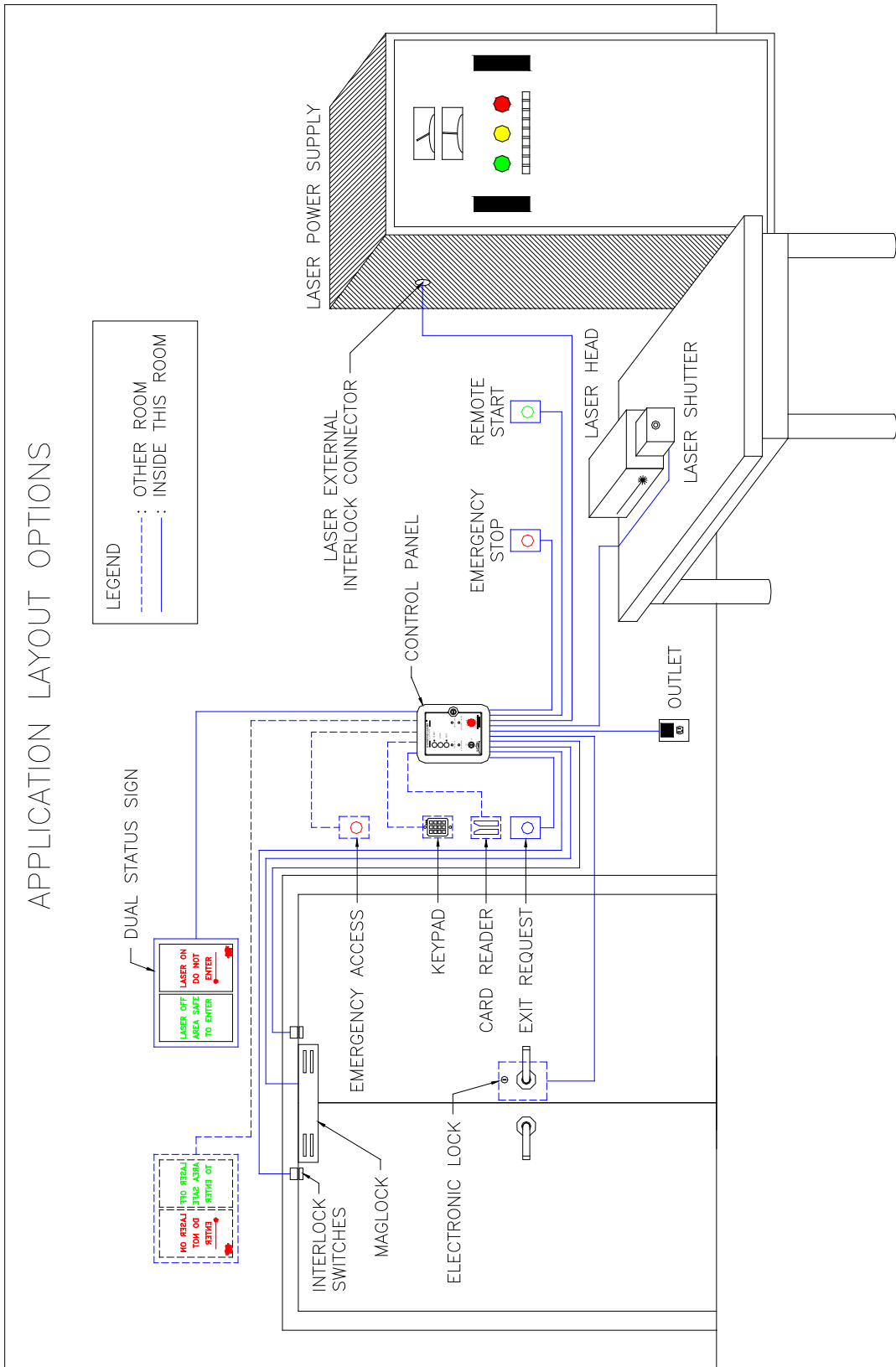
8-1.	F-2-250	Fuse (F1)
8-2.	RY-EG-1	Relay (K1-K8)
8-3.	IC-LM555	Integrated circuit (IC1)
8-4.	IC-MC14011	Integrated circuit (IC2)
8-5.	ETA-JM	Jumper cover (JP1-JP9)
8-6.	ETA-PS	Wall transformer 12VDC, 2 amp
8-7.	ETA-ES	Emergency stop on control panel
8-8.	ETA-KS	Power key switch on control panel
8-9.	ETA-AS	Internal audible signal

\*\*Call for updated lists

## **9. WARRANTY**

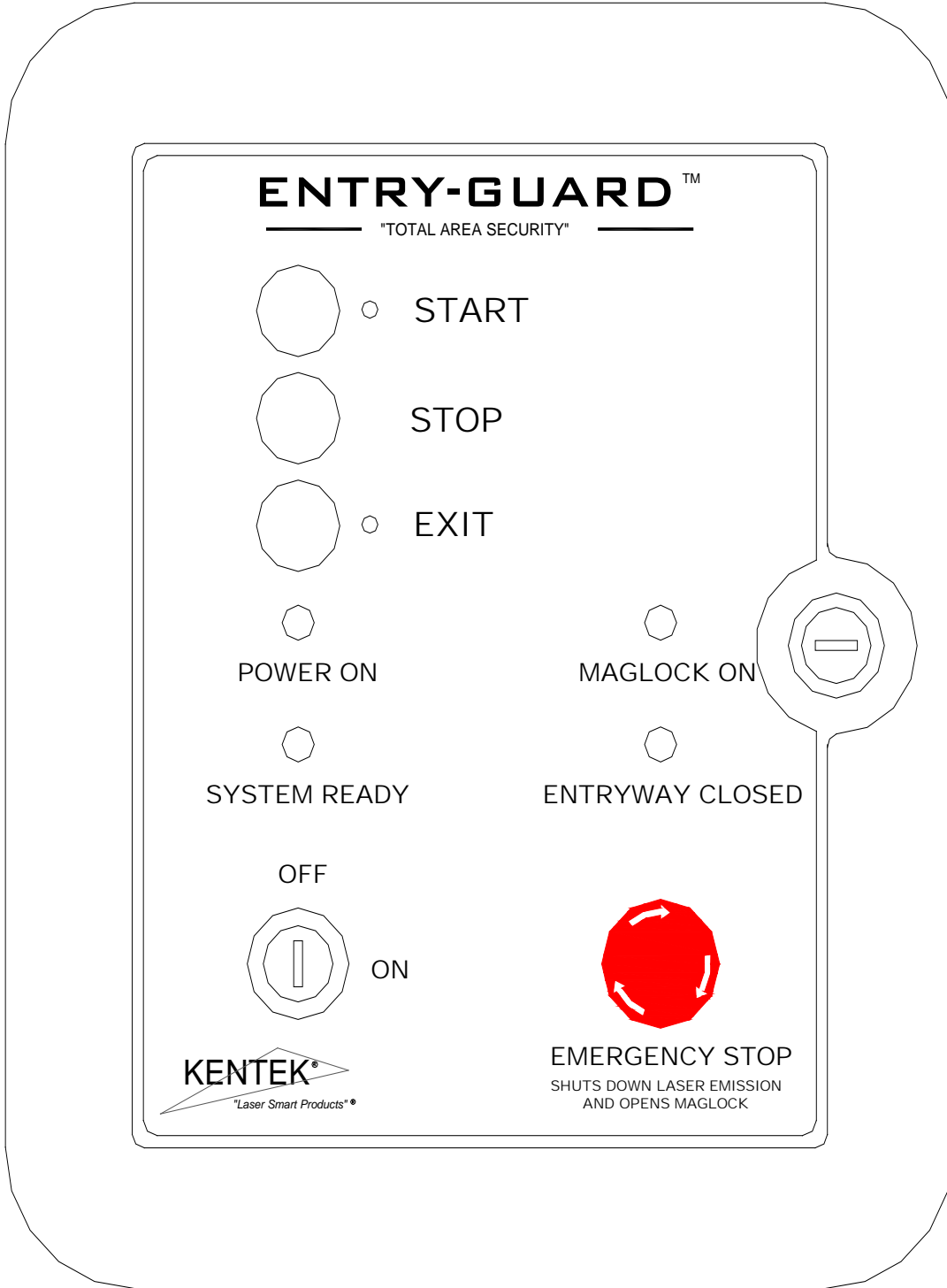
Kentek warrants Entry-Guard™ and Entry-Guard™ accessories to be free from defects caused by faulty material or poor workmanship. Liability under this warranty is limited to the obligation to repair or, at Kentek's sole option, to replace without charge, any part found to be defective under normal use within one year from date of invoice. Kentek must receive written notification within the warranty time period stating what defects were noticed, or what problems occurred with the product. This warranty shall not apply to items which have been subject to abuse or misuse after delivery, or to items which have been altered in a means not authorized by Kentek personnel.

Section 10-1.



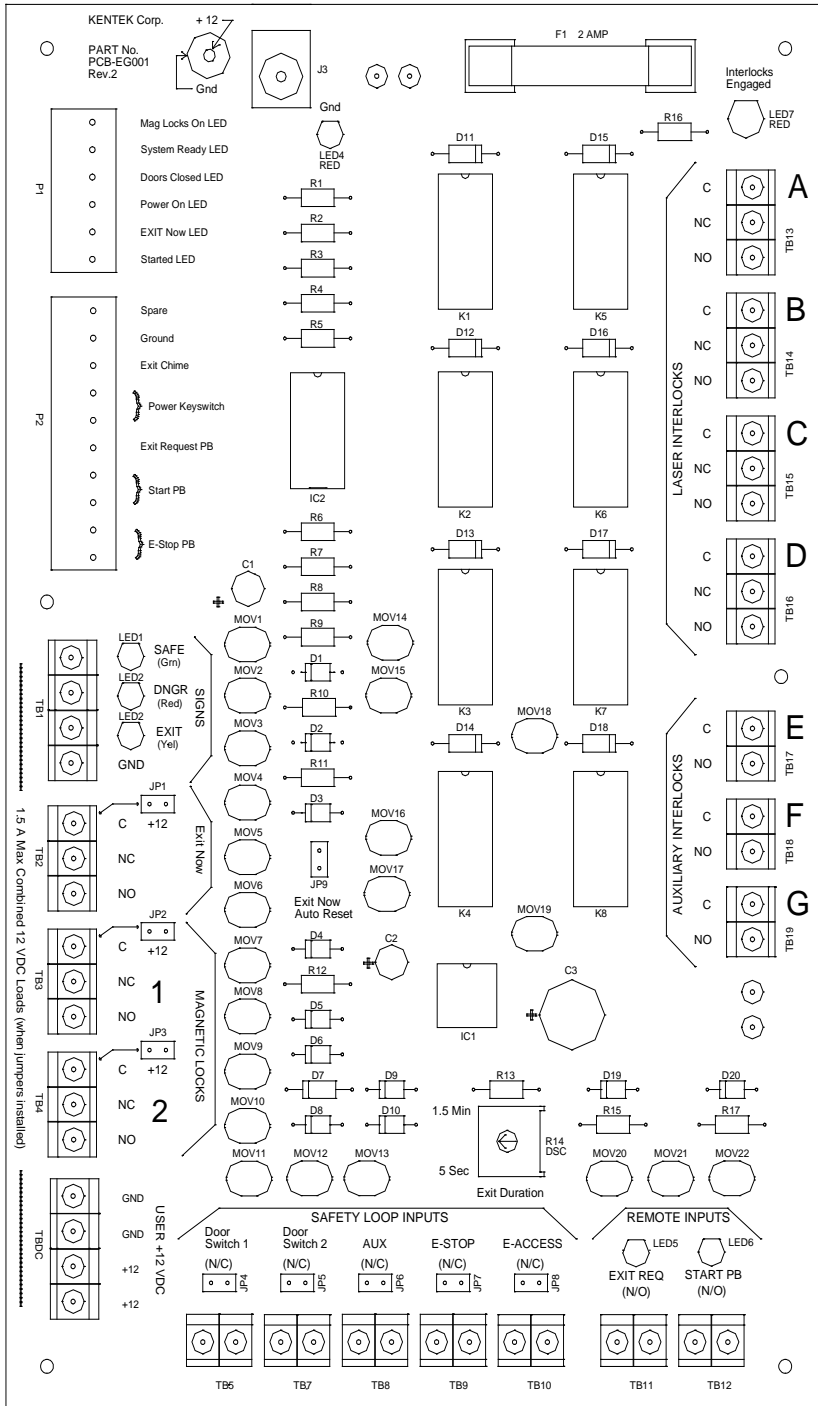
Section 10-2.

CONTROL PANEL FACEPLATE



Section 10-3.

# PRINTED CIRCUIT BOARD PCB-EG001

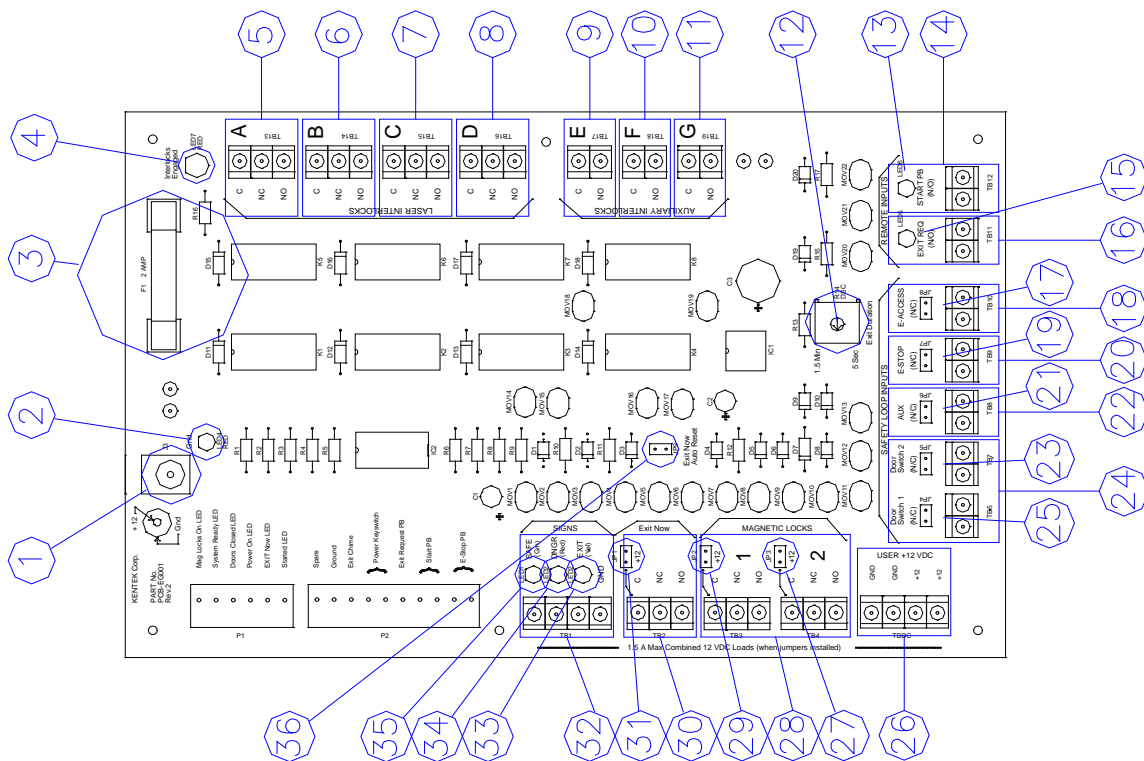




Section 10-4.

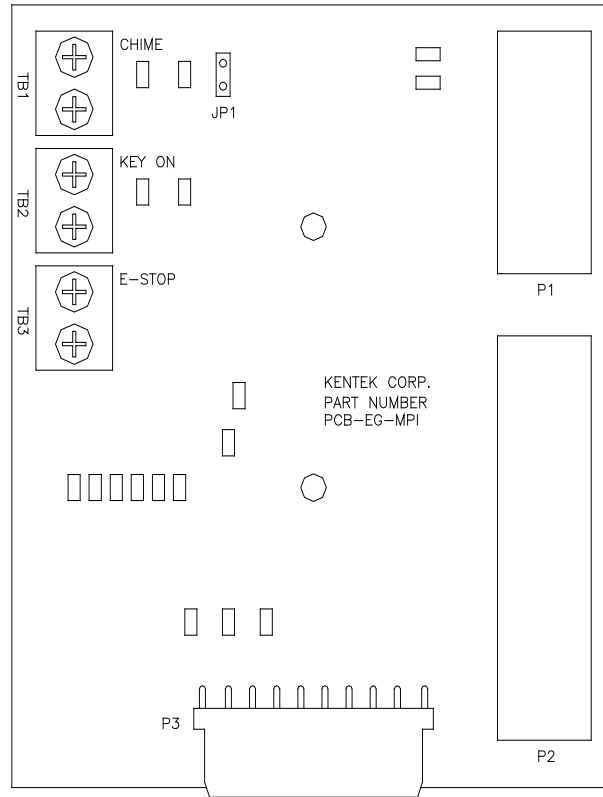
PRINTED CIRCUIT BOARD LAYOUT  
PCB-EG001

- KEY**
1. POWER JACK, INPUT: 12VDC, 2AMPS
  2. POWER LED INDICATOR
  3. FUSE, FAST ACTING 1/4" AGC SERIES
  4. SYSTEM ENGAGED LED INDICATOR
  5. LASER INTERLOCK A TERMINAL BLOCK
  6. LASER INTERLOCK B TERMINAL BLOCK
  7. LASER INTERLOCK C TERMINAL BLOCK
  8. LASER INTERLOCK D TERMINAL BLOCK
  9. AUXILIARY INTERLOCK E TERMINAL BLOCK
  10. AUXILIARY INTERLOCK F TERMINAL BLOCK
  11. AUXILIARY INTERLOCK G TERMINAL BLOCK
  12. EXIT NOW TIME ADJUSTMENT POTENTIOMETER
  13. REMOTE START LED INDICATOR
  14. REMOTE START TERMINAL BLOCK
  15. REMOTE EXIT LED INDICATOR
  16. REMOTE EXIT TERMINAL BLOCK
  17. EMERGENCY ACCESS JUMPER
  18. EMERGENCY ACCESS TERMINAL BLOCK
  19. EMERGENCY STOP JUMPER
  20. EMERGENCY STOP TERMINAL BLOCK
  21. AUXILIARY JUMPER
  22. AUXILIARY TERMINAL BLOCK
  23. DOOR SWITCH 2 JUMPER
  24. DOOR SWITCH 1 & 2 TERMINAL BLOCK
  25. DOOR SWITCH 1 JUMPER
  26. 12VDC USER OUTPUT
  27. MAGNETIC LOCK 2 JUMPER
  28. MAGNETIC LOCK 1 & 2 TERMINAL BLOCK
  29. MAGNETIC LOCK 1 JUMPER
  30. REMOTE EXIT NOW TERMINAL BLOCK
  31. REMOTE EXIT NOW JUMPER
  32. ILLUMINATED SIGN STATUS
  33. EXIT/ENTER NOW LED INDICATOR
  34. DANGER LED INDICATOR
  35. SAFE LED INDICATOR
  36. EXIT NOW AUTO RESET JUMPER



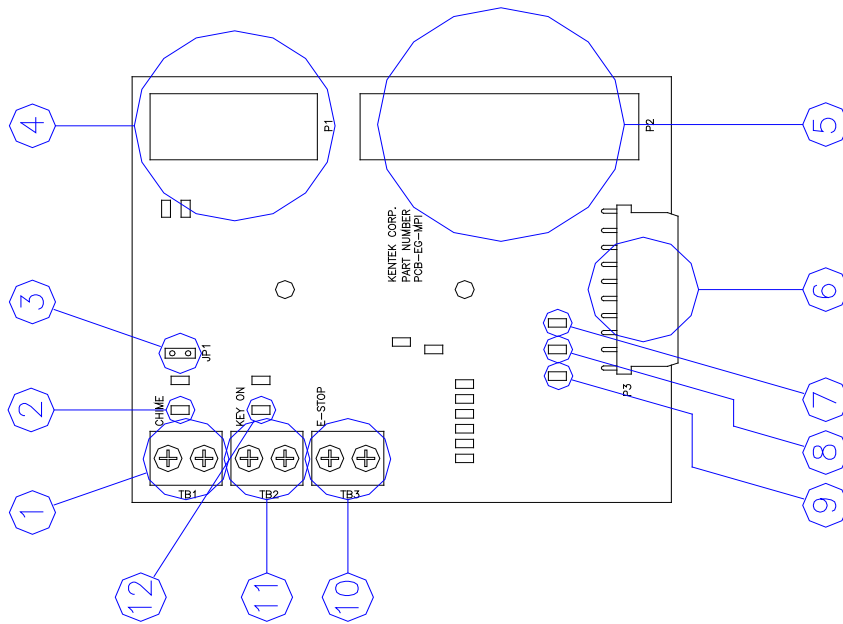
Section 10-5.

PRINTED CIRCUIT BOARD  
PCB-EG-MPI



Section 10-6.

PRINTED CIRCUIT BOARD LAYOUT  
PCB-EG-MPI

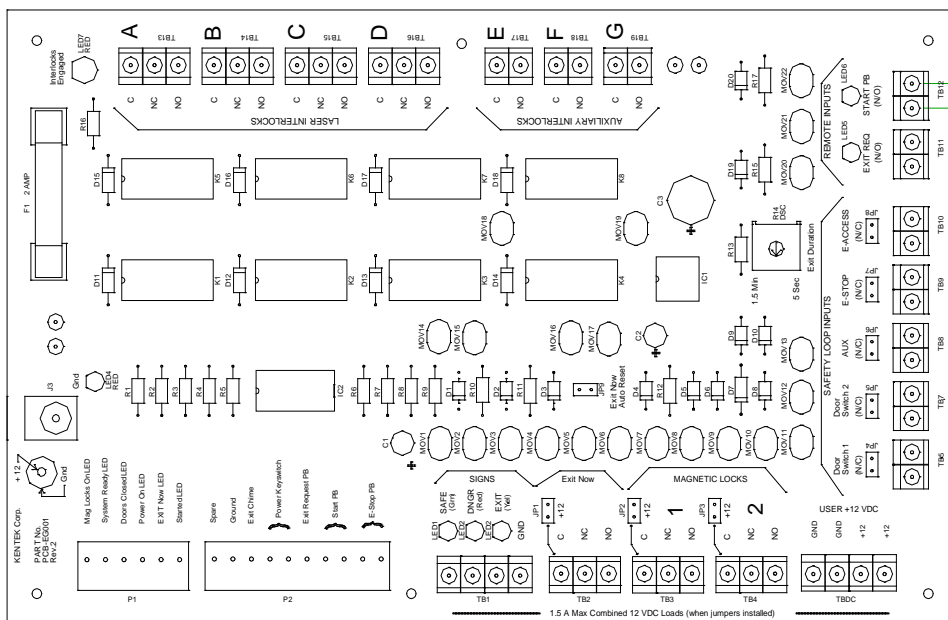


KEY

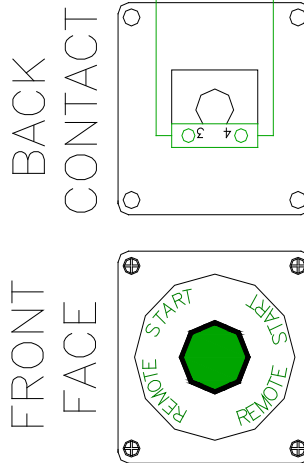
1. CHIME TERMINAL BLOCK
2. CHIME LED INDICATOR
3. CHIME AUDIBLE SIGNAL JUMPER
4. P1 CONNECTOR LED CONTROL
5. P2 CONNECTOR FUNCTIONAL CONTROL
6. P3 CONNECTOR MEMBRANE CONTROL
7. START LED INDICATOR
8. STOP LED INDICATOR
9. EXIT LED INDICATOR
10. EMERGENCY STOP TERMINAL BLOCK
11. KEY SWITCH TERMINAL BLOCK
12. KEY SWITCH ON LED INDICATOR

Section 10-7.

REMOTE START WIRING

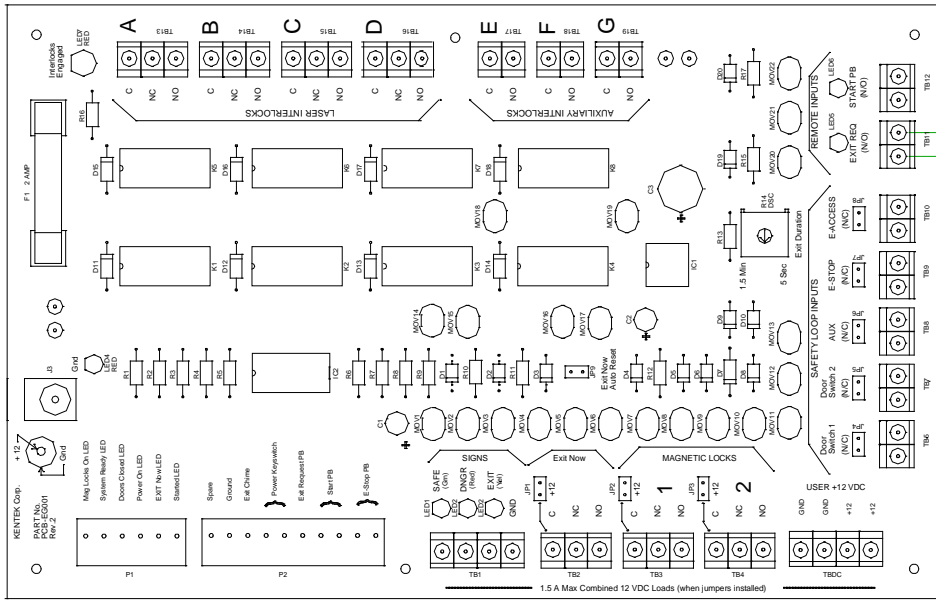


REMOTE START SWITCH  
 MOMENTARY PUSH BUTTON  
 N/O CONTACT  
 WIRE TO TB12

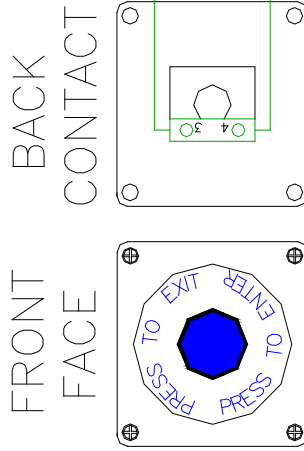


Section 10-8.

REQUEST TO EXIT WIRING

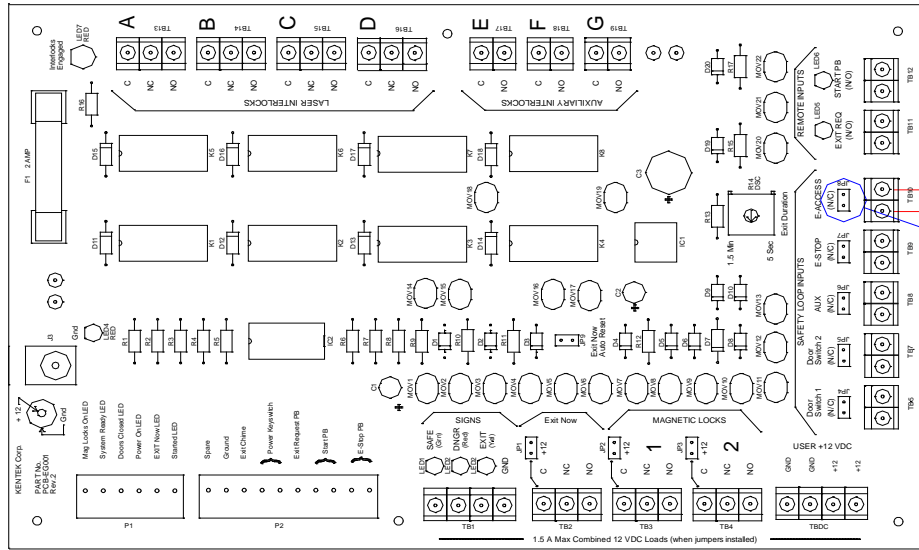


REQUEST TO ENTER/EXIT SWITCH  
 MOMENTARY PUSH BUTTON  
 N/O CONTACT  
 WIRE TO TB11



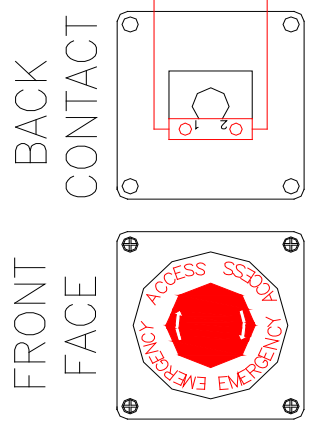
Section 10-9.

EMERGENCY ACCESS WIRING



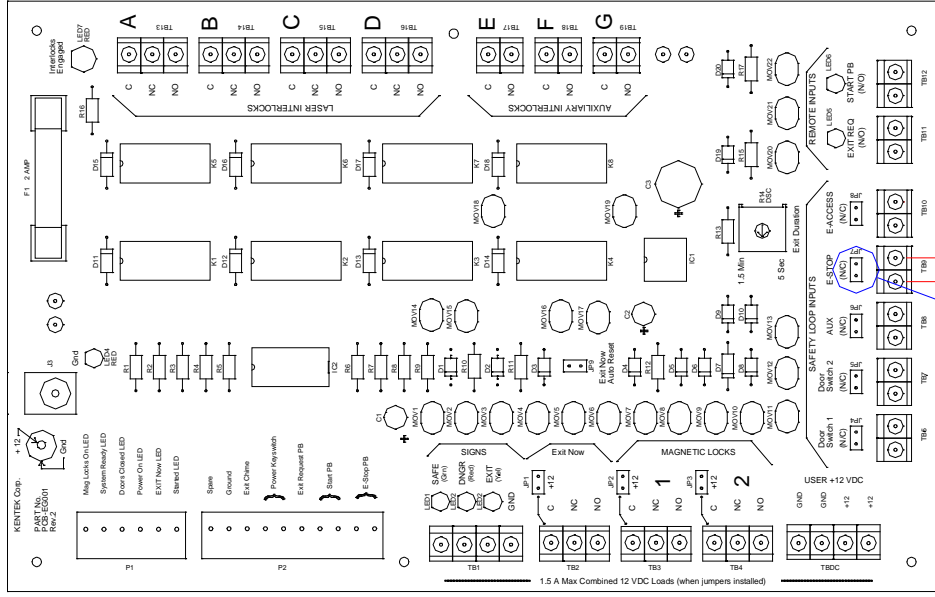
REMOVE JUMPER

EMERGENCY ACCESS  
 MUSHROOM HEAD, MAINTAINED,  
 TWIST TO RELEASE  
 N/C CONTACT  
 WIRE TO TB10



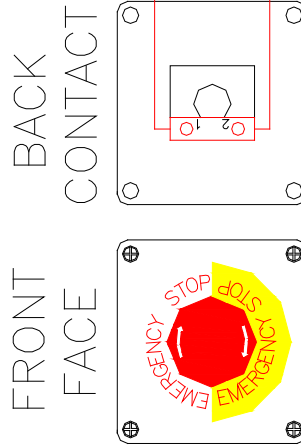
Section 10-10.

EMERGENCY STOP WIRING



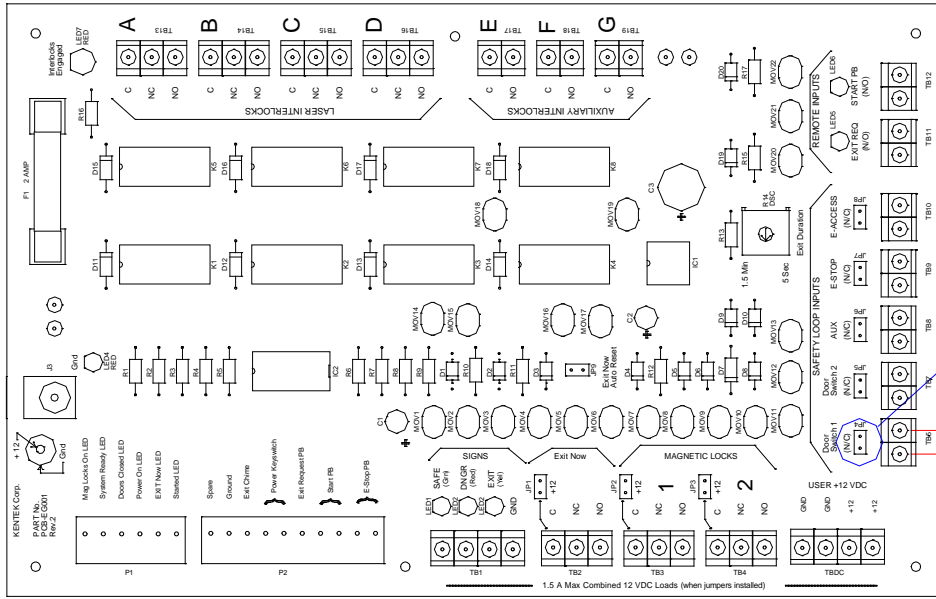
REMOVE JUMPER

EMERGENCY STOP  
MUSHROOM HEAD, MAINTAINED,  
TWIST TO RELEASE  
N/C CONTACT  
WIRE TO TB9



Section 10-11.

DOOR INTERLOCK WIRING



REMOVE JUMPER

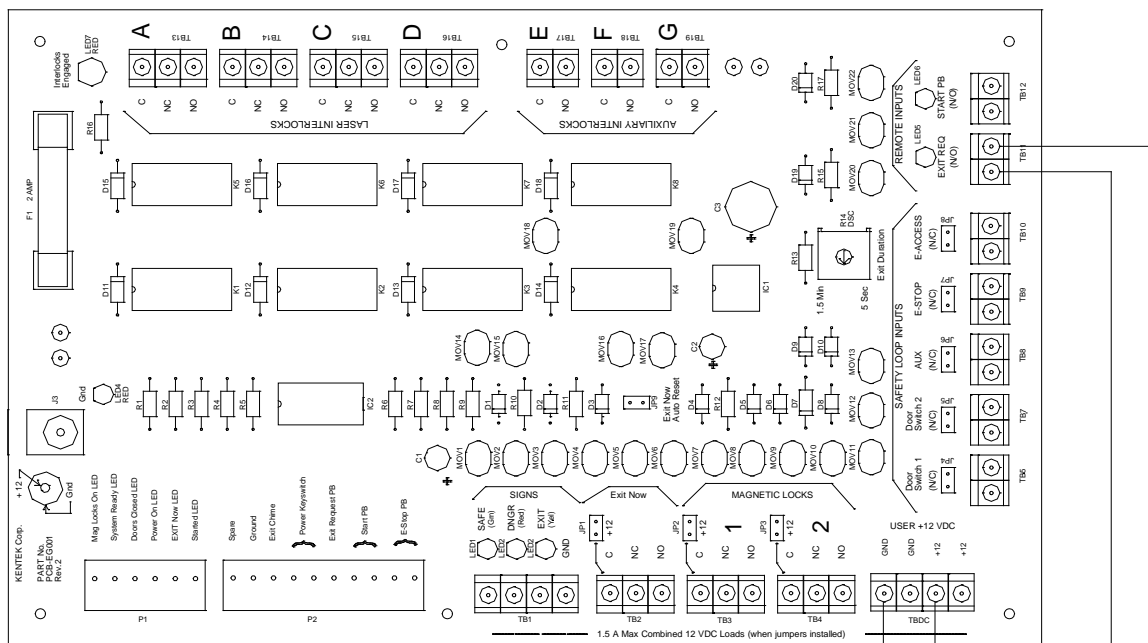
DOOR INTERLOCK SWITCH  
 N/O = DOOR OPEN  
 N/C = DOOR CLOSED  
 CONNECT TO TB5 or TB7

MOUNT TO DOOR  
 MOUNT TO DOOR FRAME

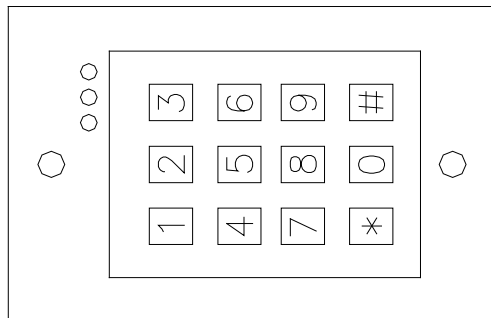
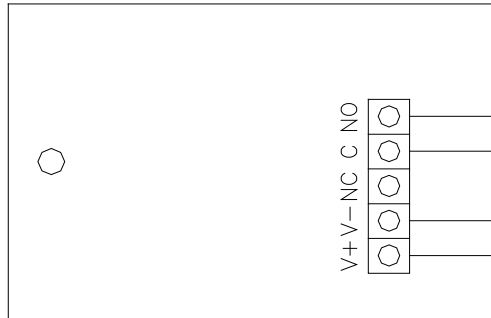


Section 10-12.

KEYPAD WIRING

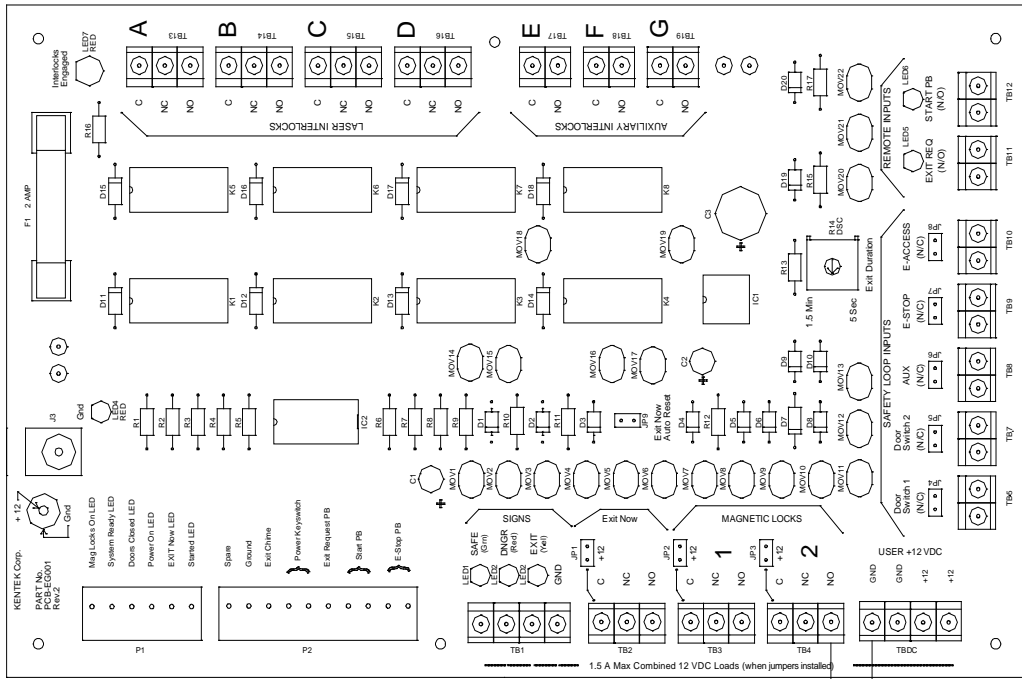


V+ TO TBDC +12  
 V- TO TBDC GND  
 COMMON TO TB11  
 N/O TO TB11

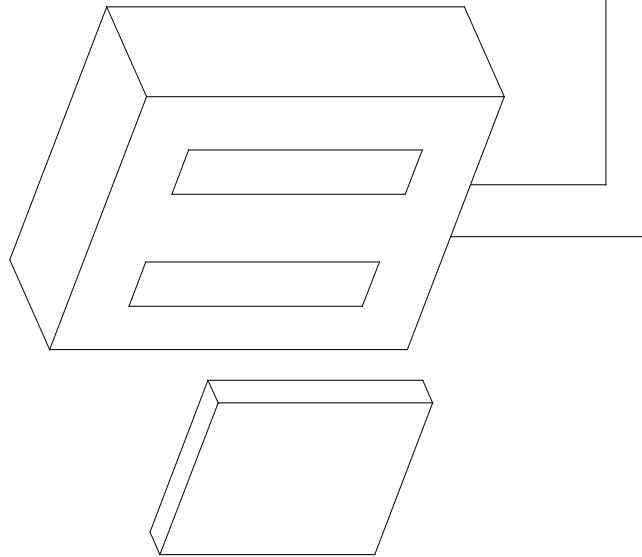


Section 10-13.

MAGNETIC LOCK WIRING

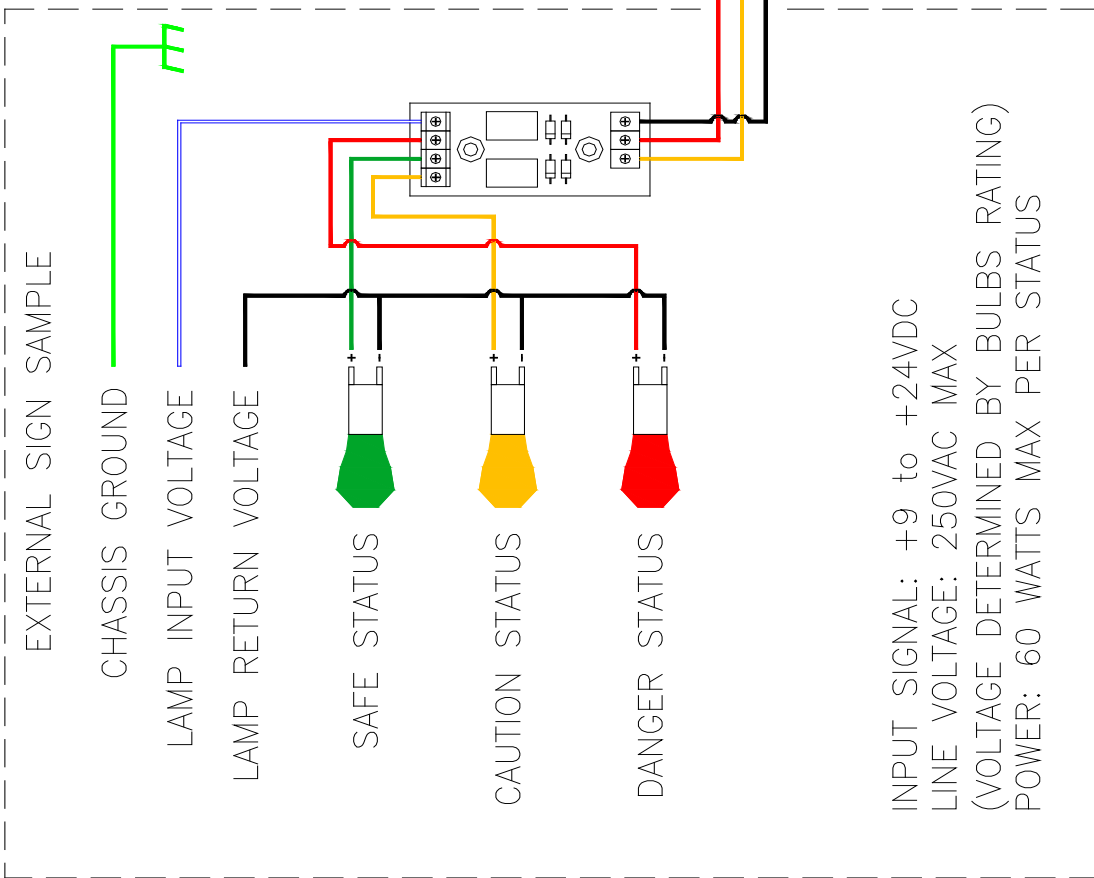
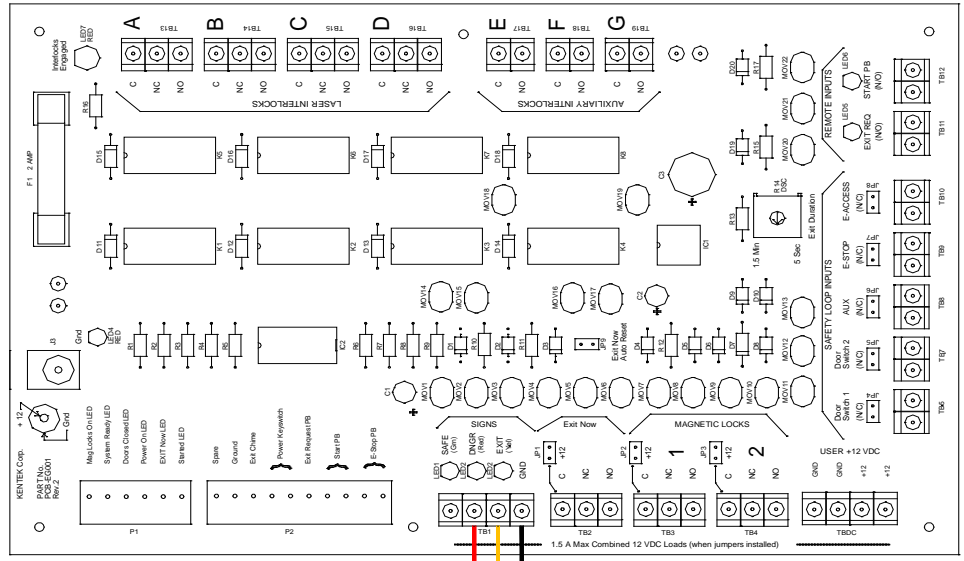


MAGNETIC LOCK  
 POSITIVE WIRE TO TB3 OR TB4 N/O,  
 RETURN TO TBDC GROUND



Section 10-14.

REMOTE TRIGGER FOR MULTI  
STATUS SIGN WIRED WITH OUR  
EXTERNAL PCB-DLS CIRCUIT



EXTERNAL SIGN SAMPLE

CHASSIS GROUND

LAMP INPUT VOLTAGE

LAMP RETURN VOLTAGE

SAFE STATUS

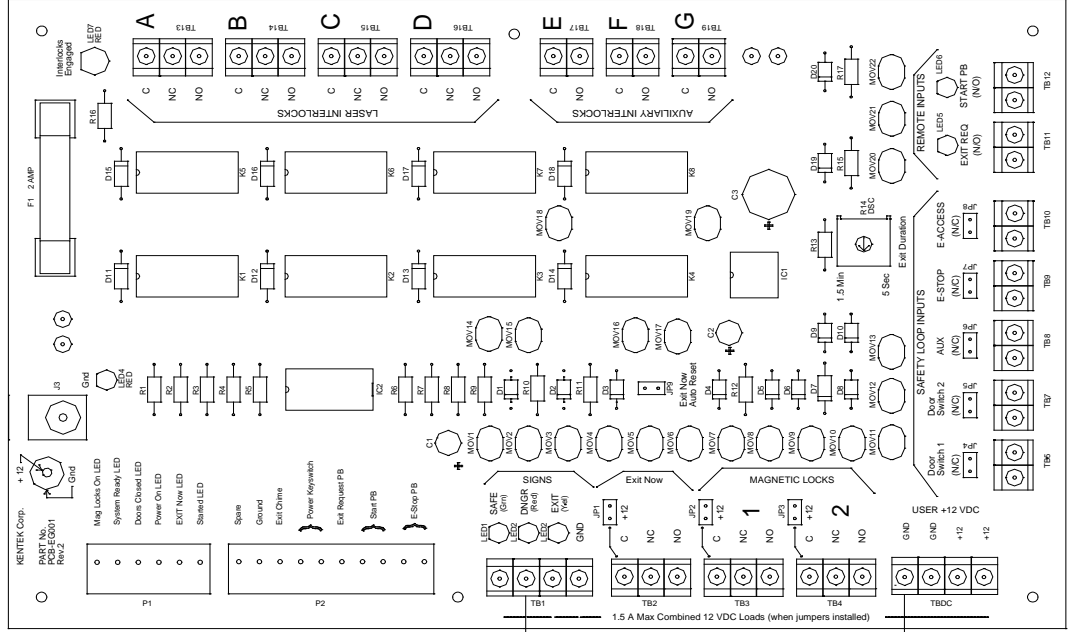
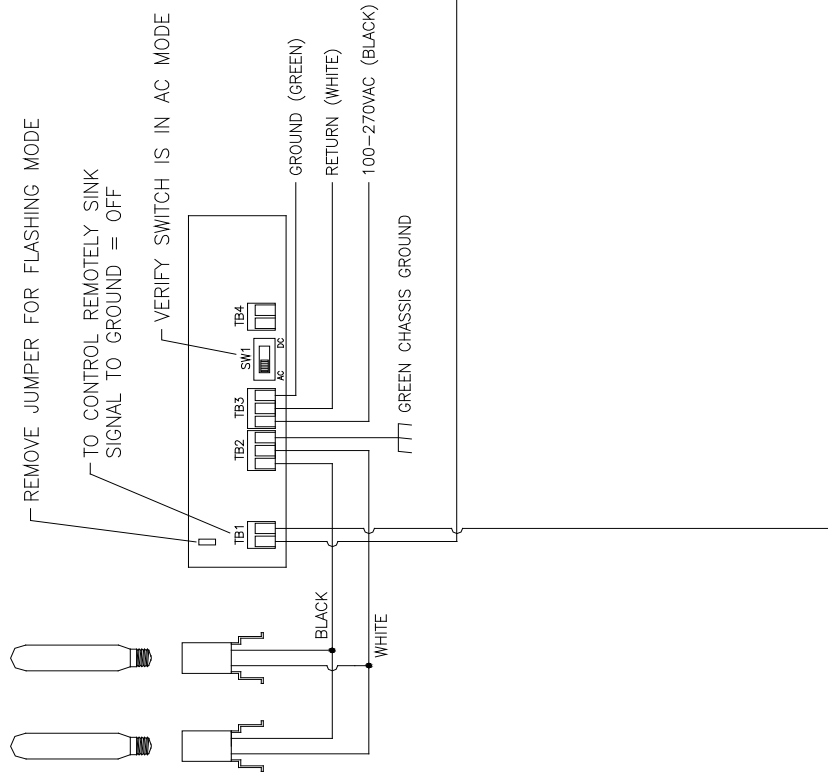
CAUTION STATUS

DANGER STATUS

INPUT SIGNAL: +9 to +24VDC  
LINE VOLTAGE: 250VAC MAX  
(VOLTAGE DETERMINED BY BULBS RATING)  
POWER: 60 WATTS MAX PER STATUS

REMOTE TRIGGER FOR SINGLE STATUS SIGN  
WIRED WITH OUR EXTERNAL PCB-SIGN CIRCUIT  
(VAC DIAGRAM)

100-270VAC DIAGRAM  
(USE PROPERLY RATED BULBS FOR VOLTAGE APPLIED)



Section 10-16.

REMOTE TRIGGER FOR SINGLE STATUS SIGN  
WIRED WITH OUR EXTERNAL PCB-SIGN CIRCUIT  
(VDC DIAGRAM)

10-30VDC DIAGRAM  
(USE PROPERLY RATED BULBS FOR VOLTAGE APPLIED)

