T-DAR® T1010 T2010 Lobby Shield

Lobby Shield
ELECTRICAL INSTALLATION

T1010 Single-Door Lobby Shield - T2010 Double-Door Lobby Shield

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c UL us LISTED

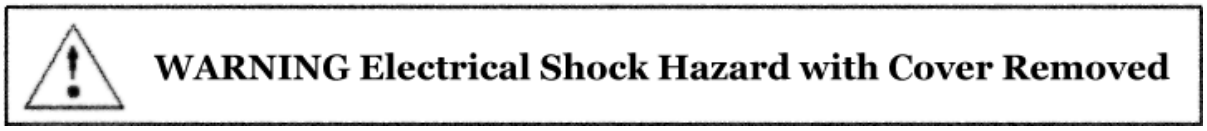
Revision 4.4

Warning:

Modification of the T-DAR Control Unit by cutting or drilling will VOID the warranty and may require replacement.

INSTALLATION

Important Safety and Warning Information



The T-DAR system may contain, produce and present the hazard for electrical shock or burns with the cover removed. There are no user serviceable parts under the interior panels. Only trained authorized personnel may perform maintenance or repair.

Underwriters Laboratories Inc. has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested for fire, shock and casualty hazards as outlined in UL's Standard for Safety UL 60950-1. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product. **UL MAKES NO REPRESENTATIONS, WARRANTIES OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING RELATED FUNCTIONS OF THIS PRODUCT.**

Units are for use in **RESTRICTED ACCESS LOCATIONS.**

Warning: Modifying the T-DAR Control Box will void the warranty

Critical Elements for a Successful T-DAR Installation

The T-DAR® system does a superb job of detecting violations of controlled access points. In order to accomplish this task, the T-DAR requires several critical elements and/or signals from the door and the access control system as detailed in this manual. To achieve successful operations, follow these five important elements:

1. **Modifying the T-DAR control box by cutting or drilling the metal enclosure may damage the control unit and will void the warranty. Modifying the enclosure can leave metal chips in the unit or cause damaging vibrations that can lead to failures of the T-DAR control unit.**

2. **LineLock input is critical if low frequency fluorescents are utilized for lighting.** An AC wall-mounted transformer is included in the T-DAR control unit. If the lighting in the area that is protected by the T-DAR is provided by low frequency (older style-line frequency) fluorescents, this transformer or other low voltage AC source must be used to ensure proper operation of the T-DAR system. Any source of 6 to 30 VAC will provide the correct line locking of the T-Dar system to the building lighting. Failure to supply Line lock input signal if low frequency fluorescents are utilized in the installation may cause erratic system operation.

3. **The local devices such as the door position sensor, camera head, and Annunciator Unit must be placed within a certain linear distance of the controller to minimize the effects of voltage drop.** This distance is 200ft (60m) and should not be exceeded unless a distance extender is used. Information about the cost and part number of the Data Extender is available from the Newton Security. Whenever possible, local devices shall be placed on the secure side of the portal being monitored to reduce the risk of vandalism and attempts to defeat.

4. **Door contact/door position switch signals must be immediate.** These signals must be sent to the T-DAR unit at the same time that the doors are opened. Failure to use isolated circuits or using access control system auxiliary outputs/relays to simulate valid access switch activity may result in poor system performance. There can be no noticeable latency in the receipt of valid access grant switch signals by T-DAR.

5. **Door contact/door position switch must be isolated from access control system.** The door contact switch must send separate isolated signals the T-DAR and Access control system. This may be done by using a double pole/single throw door contact switch or by using two separate door contact switches.

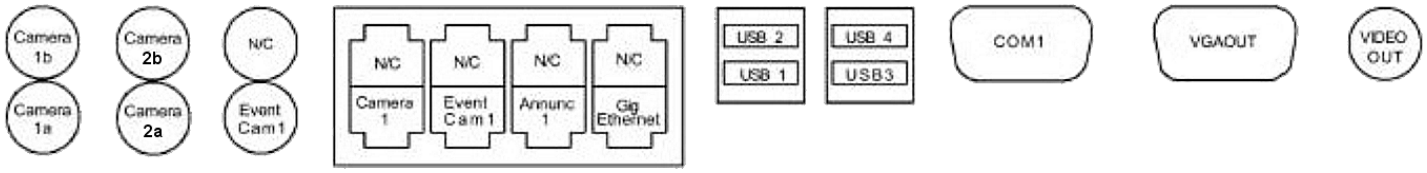
6. **Ensure there is a light level of 300 LUX under the camera(s).** For successful operation, the T-DAR system requires a minimum of 300LUX of downward lighting. The light levels under the cameras should remain above 300LUX during all times of the day and night. Use fluorescent light panels when possible, as these will provide a soft even consistent lighting over the entire area.

T-DAR CONTROL UNIT

The T-DAR control unit should be mounted and grounded in accordance with National Electrical Code (NEC) guidelines. The unit is not weatherproof so will require protection from rain or sprayed water. There are seven conduit knockouts on the sides and top of the unit.

Camera and Top Panel Connections

1. If you are installing a T1010 one head Lobby Shield, you will not be connecting a second camera head. In this case, ignore the instructions for the public camera 2 head (2a and 2b).
2. For each Camera Head, install and terminate two video coaxial cables (75 Ohm) from each camera with BNC connectors. Label the cables so that cameras 1a, 1b, 2a, and 2b are all easily distinguishable.
3. Attach the coaxial cables to camera BNC inputs the upper T-DAR panel in accordance with the labeling. Be sure that the camera head on the left door connects to ports 1a and 1b. If this is a double door Lobby Shield, the camera head on the right door should connect to ports 2a and 2b.
4. For each camera head, install and terminate an Ethernet cable (straight through) from the camera head to the T-DAR control unit.
5. Install and terminate one Ethernet cable (straight through) from the Annunciator to the Annunc 1 connector on the upper panel.
6. Install and terminate an adequate number of wires to support the inputs and outputs that are utilized on the system. Detailed examples of connections are available on the following pages.



Camera 1a: Input, BNC connector from Stereo Camera Head1, camera a

Camera 1b: Input, BNC connector from Stereo Camera Head 1, camera b

Camera 2a: Input, BNC connector from Stereo Camera Head 2, camera a (only on T2010)

Camera 2b: Input, BNC connector from Stereo Camera Head 2, camera b (only on T2010)

Event Cam 1 (not available): Input, BNC connector from external Camera (not available)

Camera 1: RJ-45 Interface, Standard 10BaseT Cat-5 Ethernet cable to Camera Head 1 for Power/Control

Camera 2: RJ-45 Interface, Standard 10BaseT Cat-5 Ethernet cable to Camera Head 2 for Power/Control (only used on a T2010)

Annunc 1: Interface, Standard 10BaseT Cat-5 Ethernet cable to Annuciator for Power/Control

Gig Ethernet: Ethernet Interface, Standard Cat-5 Ethernet cable to Local Area Network (LAN)

USB 1-4: Interface, Standard USB-2 communications for back up hard drive

Com 1: Interface, RS-232 interface for secondary communications with processor

VGA Out: Output, 15 pin VGA for connection of computer monitor for local system control.

Video Out: Output, BNC connector to video monitor for set-up and monitoring

Note: BNC connections “2a” and “2b” are not included on a one head system.

Connection details

Input 1 (Lobby Shield reset)

Engaging input 1 resets the Lobby Shield and takes the system out of lock-down mode. The T-DAR will go into lock-down mode every time an alarm occurs. When in lock-down mode, clear all occupants from the Lobby Shield and close the doors before resetting the system.

Relay 1AB - 6AB

The T-DAR unit is equipped with six form-factors A relays that can be configured to activate on various user selectable conditions. In addition, the normal state of these relays is user definable, to allow for greater flexibility in integrating the system with a variety of access control systems. Four of the relays are located on the General 1 connector. The fifth relay is located on the first Portal/Head connector. In a two head system a sixth relay is located on the second Portal/Head connector.

Line Lock Input

The T-DAR Series uses the Line Lock input to sync with the local power grid. This input is useful in applications where the video input to the T-DAR system needs to be synchronized with the lighting, such as fluorescent or other types of flickering lighting.

Input Common

Use the common terminal to set the inputs on the T-DAR unit at +12V. For example, when wiring Input 1 on the General 2 connector, connect a jumper wire between the 12V terminal and the Input Common terminal. This allows Input 1 to generate a reference voltage, which when shorted to ground will trigger the input. If a wet contact is required, a jumper wire must be installed between the Main Common terminal and the Ground terminal on the General connector. In addition, a bond wire from the external power supplies ground terminal will need to be placed in the Ground terminal as well to provide for ground bonding.

Input 2 & 3 (door contacts)

Input 2 is the public door contact, located on General 2 (connector B). When using double doors on the public entrance, wire the door contacts in series to input 2. Input 3 is the secure door contact, located on Portal 1 (connector C). When using double doors on the secure entrance, wire the door contacts in series to input 3. All doors should use dedicated contacts, consisting of double-pole/double-throw switches. The contacts from all doors should connect directly with T-DAR to ensure there is no time delay. For the highest security, use a latching output from the doors so that the T-DAR knows when the doors are latched.

Input 4 (outside access reader)

Input 4 is the public door, public side access reader (located on Portal 1, connector C). The public door, public reader is used to gain access to the Lobby Shield from the non-secure side. This reader will not allow access through the public door when the secure door is open.

Input 5

Input 5 is the bypass input located on Portal 1, connector C. A momentary closure on the bypass input will allow multiple people to pass through the Lobby Shield without alarming. No local annunciator alarms or remote alarm relays will engage.

Input 6

Input 6 is the public door, secure side egress button, located on Portal 1, connector C. The internal egress button is used to exit the Lobby Shield to the non-secure area. This button will not allow access through the public door when the secure door is open.

Input 7

Input 7 is the motion detector input, located on Portal 1, connector C. A motion detector connected to this input will allow the Lobby Shield to reset automatically when there is no movement in the space for a set amount of time. See the settings below for configuring the motion input as a normally open (or normally closed) input. See the settings below for configuring the amount of time the Lobby Shield must remain motionless (empty) before the system resets after a violation. With a reset time of ten seconds, the Lobby Shield will reset itself (from an alarm) after there has been no motion in the space for ten seconds.

Motion Settings and Long Properties

Instructions for adjusting settings

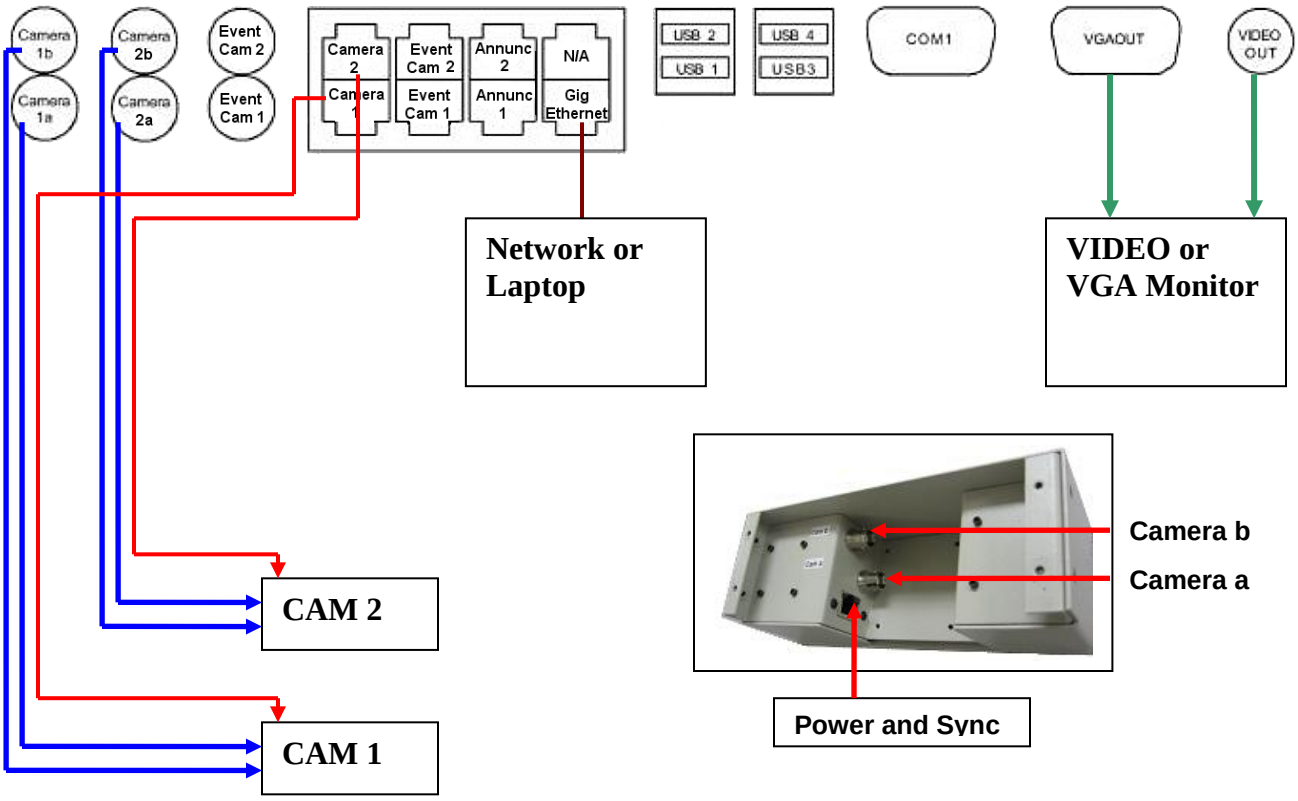
1. Press CTRL + SHFT + S to bring up the “Set Long Property” window
2. Enter a long property from the list below and press “OK”
3. Enter “1” for on, “0” for off, a relay designation, or a time, and press “OK”
4. Test new change on Lobby Shield

Long Properties

1. **tdar3.public_valid_timeout** – Set how long to wait for someone to come through the public door, in milliseconds.
2. **tdar3.force_door_alarm** – Select which type of alarm is triggered by a forced door; with the default of zero, no alarm is triggered but lockdown is entered anyway.
3. **tdar3.motion_reset_delay** – Set the length of time the motion detector must stay inactive (no motion) in seconds.
4. **tdar3.io.input.7.invert** – Input a “1” to invert the motion detector input (input 7).

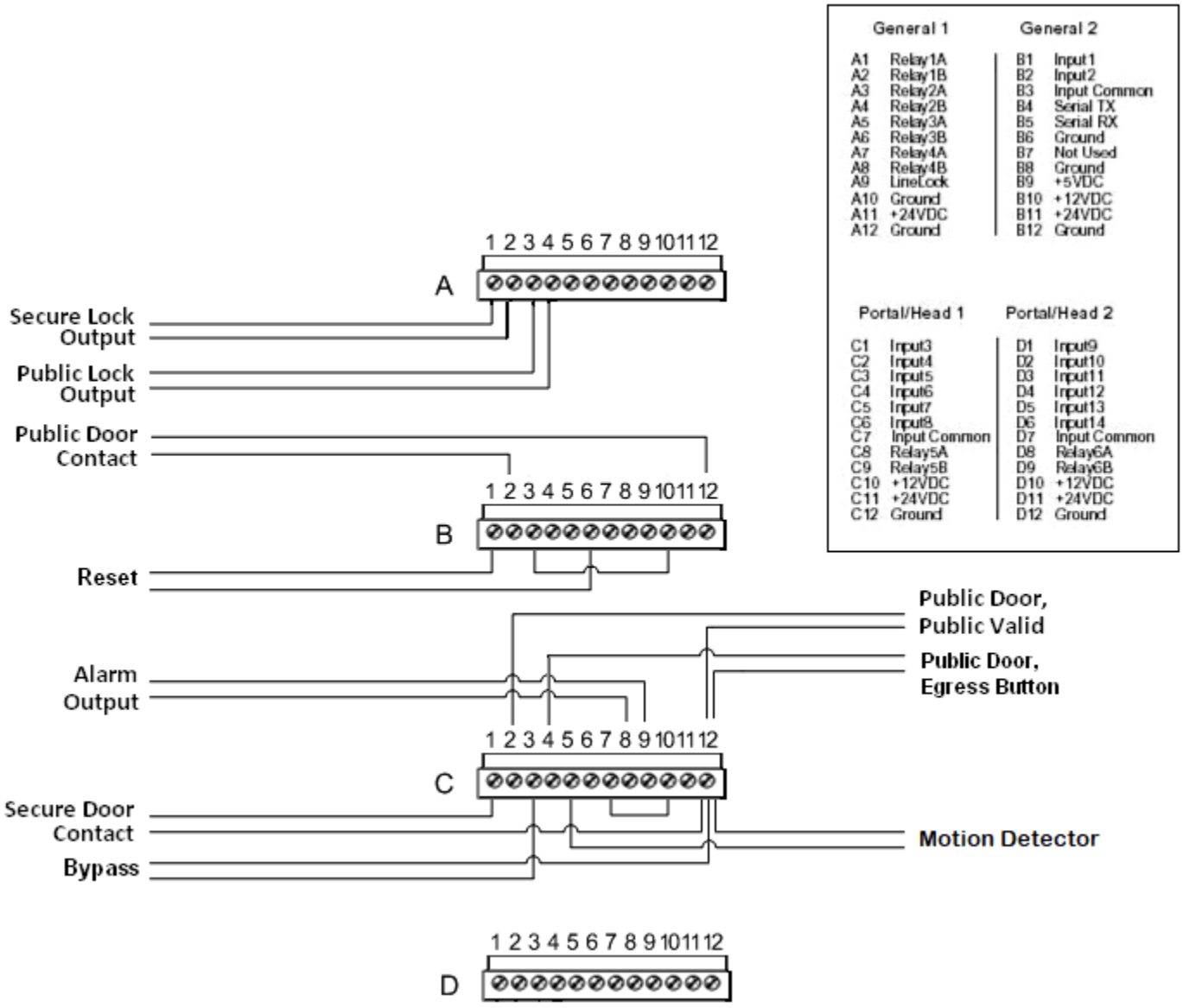
Camera Connections for Double Door Lobby Shield

T-DAR (Top Panel Connections)



Front Panel Connections

The T-DAR T-2010 control unit is equipped with four relays on the General connector plus one relay on each of the Portal connectors. If you are installing a T-1010 one head Lobby Shield, there is no Portal/Head 2 port. All of these relays are single pole/single throw, and are normally open. Various degrees of customization are possible through coordination with the manufacturer.



Note: Phoenix connector “D” (Portal/Head 2) is not available on a T1010 one head Lobby Shield. Phoenix connector “D” can be used with an inward swinging door encoder. A public Inward Swinging door must use an I100 Door Position Indicator (See Manual).

Front Panel Connections

Phoenix Style connectors, top to bottom

CONNECTOR A, General 1
Pins 1-8: Relay 1-4 A&B, general purpose Form A relay contacts, normally open
Pin 9: Line Lock, for use with 6-30VAC power for syncing to local power grid
Pin 10: System GND, for use with Line Lock
Pin 11: +24VDC
Pin 12: System GND

CONNECTOR B, General 2
Pin 1: Reset input, turns annunciator alarm off when triggered
Pin 2: Input 2, Public Door Contact
Pin 3: Sets logic level for inputs on General Connector 2. Connect to Ground for Logic High (+12V=Trigger) on inputs. Connect to +12V for Logic Low (GND = Trigger).
Pin 4: Rs232 Output, serial data
Pin 5: Rs232Input, serial data
Pin 6: System GND (all grounds connected internally)
Pin 8: System GND (all grounds connected internally)
Pin 9: Output, System +5VDC
Pin 10: Output, System +12VDC
Pin 11: Output, System +24VDC
Pin 12: System GND (all grounds connected internally)

CONNECTOR C, Portal 1
Pin 1: Input 3, Secure Door Contact
Pin 2: Input 4, Public Door, Public Side Valid
Pin 3: Input 5, Bypass
Pin 4: Input 6, Public Door, Egress Button (or reader)
Pin 5: Input 7, Motion Detector Input (for auto resetting Lobby Shield after an alarm)
Pin 7: Input, Sets logic level for inputs on Portal 1 Connector. Connect to Ground for Logic High (+12V=Trigger) on inputs. Connect to +12V for Logic Low (GND = Trigger).
Pin 8-9: Relay 5 A&B, general purpose Form A relay contacts, normally open
Pin 10: Output, System +12VDC
Pin 12: System GND (all grounds connected internally)

CONNECTOR D, Portal 2 (not included on a T-1010 one head system)
Pin 5: Encoder A, quadrate data from door position sensor
Pin 6: Encoder B, quadrate data from door position sensor
Pin 10: Output, System +12VDC
Pin 12: System GND (all grounds connected internally)

SYSTEM POWER
GND: Connection to Ground on 24VDC +/-10% 8amp Power Supply (external)
+24VDC: Connection to +24VDC +/-10% 8ampPower Supply (external)

Door Contacts

Unless it can be verified that the access control system can give immediate door open signals, the T-DAR unit must have an independent circuit for this function that allows isolation from the access control system. It is recommended that mechanical switches of the roller and plunger types be avoided in favor of magnetic switch door contacts.

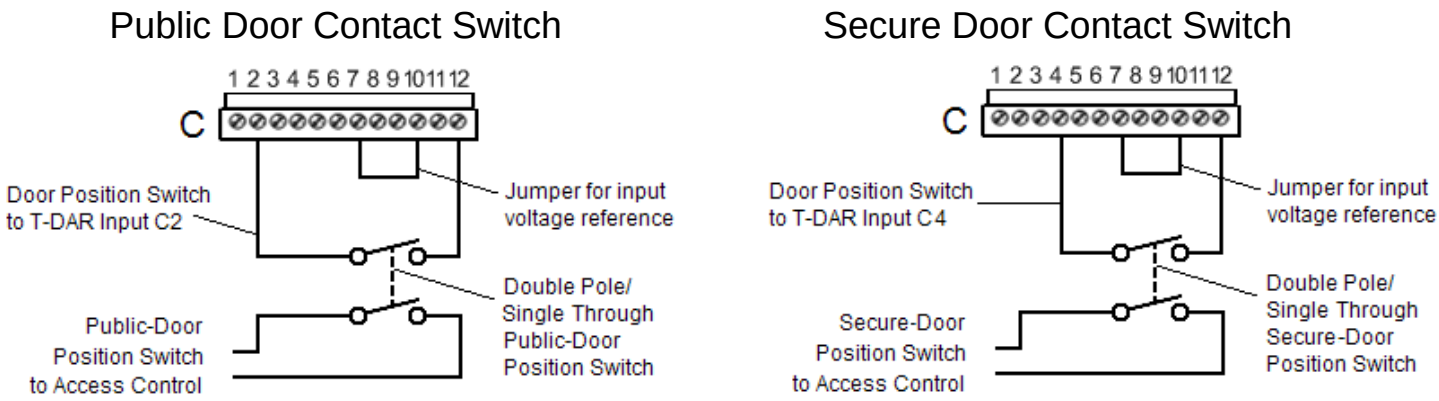
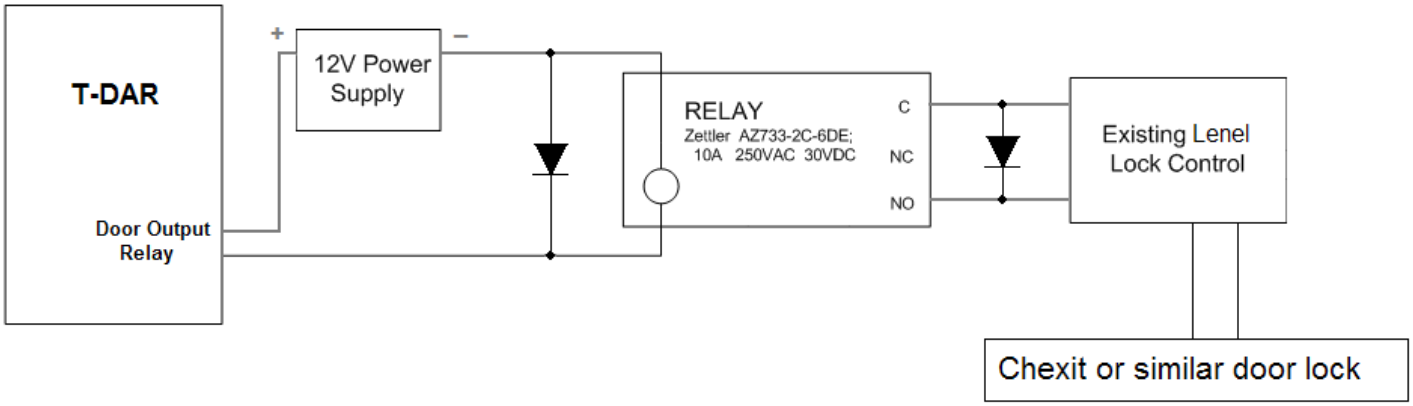


Figure 17 - Typical Configuration

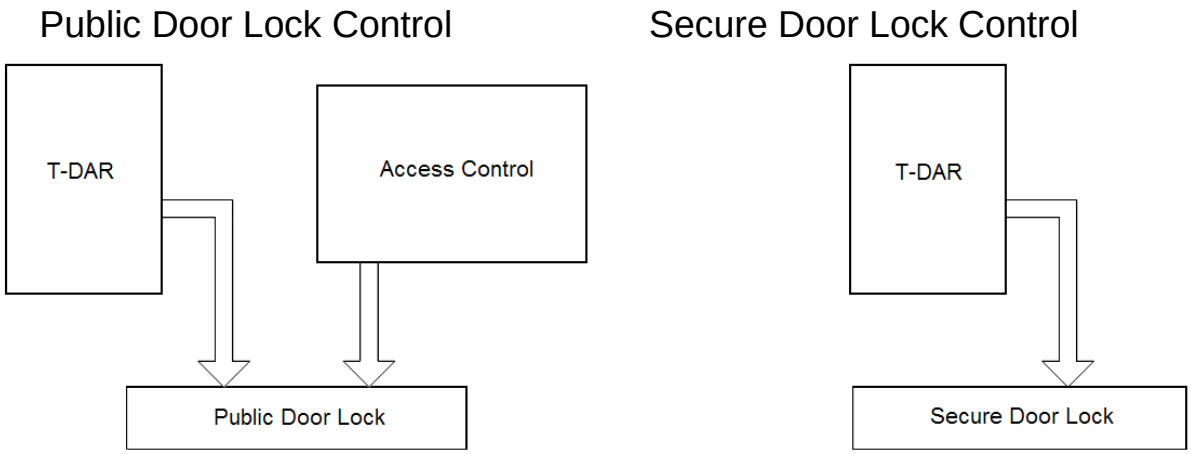
Door Lock Relay Connections

When using an electric solenoid locks, reverse voltage diodes across the solenoid terminals must be used to reduce voltage feedback to the system. Failure to use external relays with the Chexit, or similar solenoid locks, will damage the T-DAR control box. Be sure to connect the jumper between portal common and the correct reference connection (12V or ground)



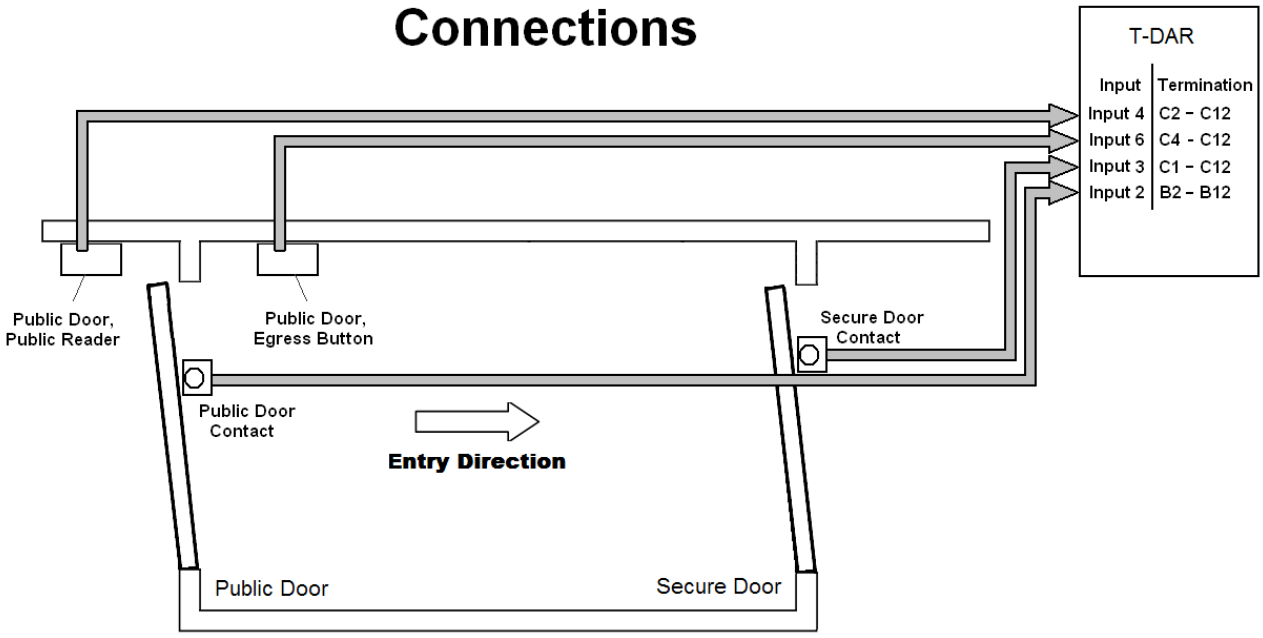
Door Lock Method

The T-DAR unit should be able to lock one or both doors, regardless of the state of the access control system. The access control system's ability to unlock the doors should be overridden by the T-DAR's signal to lock them. The diagram below shows a T-DAR unit controlling the public door lock, in parallel with the access control system. Each door will lock, when the T-DAR unit and/or the access control system proceeds to lock it. **Note:** the T-DAR system is capable of controlling all door locking. Dual control of the public door (shown here) is not required.



Access Valid

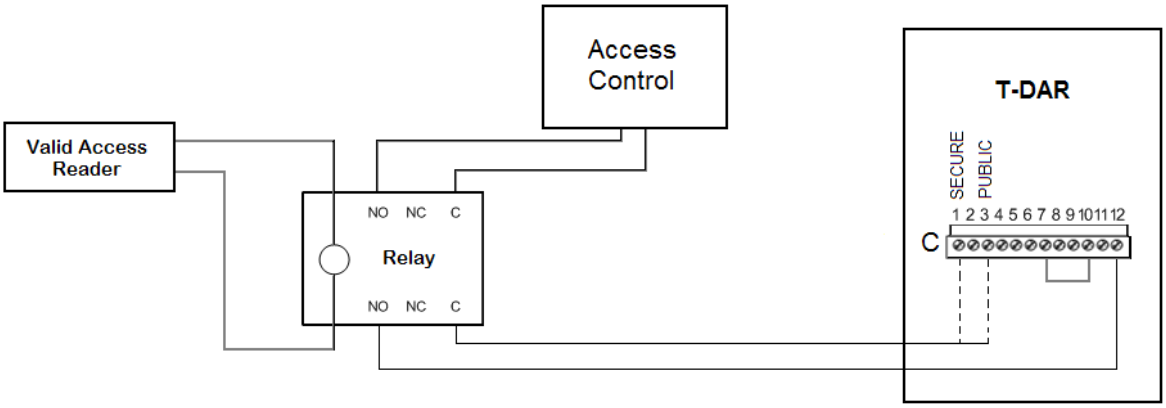
Valid access grant signals should be immediate**.**



Access Valid Connections (external relay)

The valid access grant switch should be electrically isolated from the access control system to allow for proper operation. This will typically require the installation of a double pole/double throw relay that provides outputs to the access control system as well as the T-DAR system.

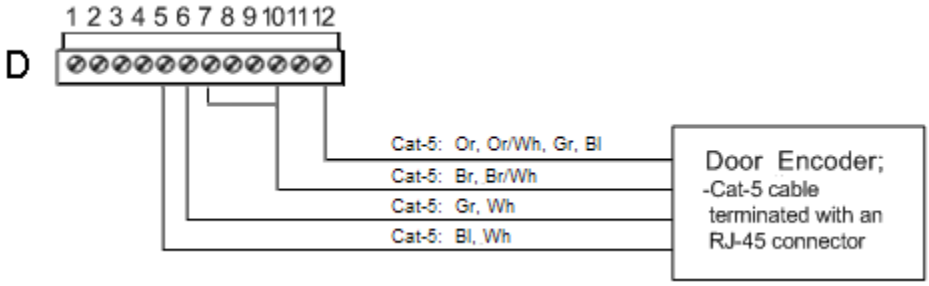
Public and Secure Valid Access Connections



Door Position Sensor (Door Encoder)

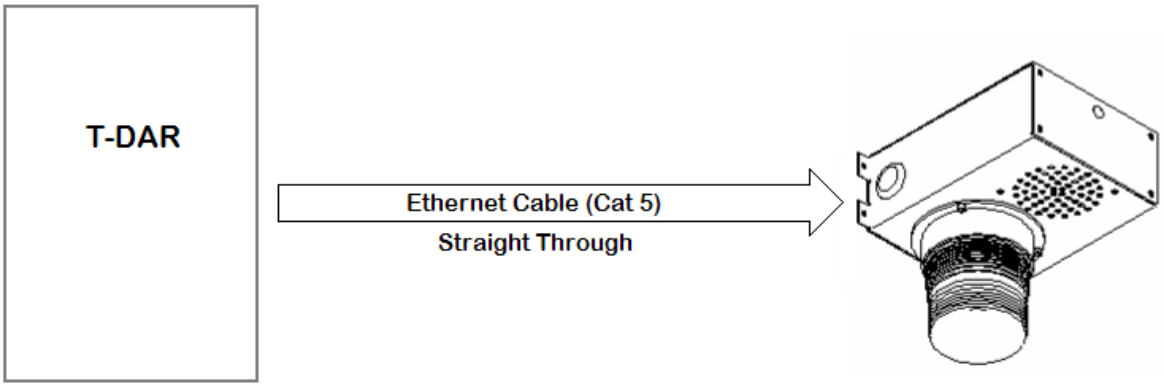
A public Inward Swinging door must use an I100 Door Position Indicator. If an I100 Door Position Indicator is not used for public doors that swing into the field of view of the camera, erratic operation will result. Note that there is no portal D connection port on a T-1010 one head Lobby Shield. Contact the manufacturer if you have a one head Lobby Shield with an inward swinging public door. The secure door does not require the use of a Door Position Indicator. The cable for connecting the sensor should be extended from the wall/frame and terminated into the unit. The cable is a straight through Ethernet (cat 5) cable terminated with an RJ-45 connector. The other end of the cable is then terminated as flying leads on the C portal connector as shown below.

Public Door Encoder Connection



Annunciator Unit

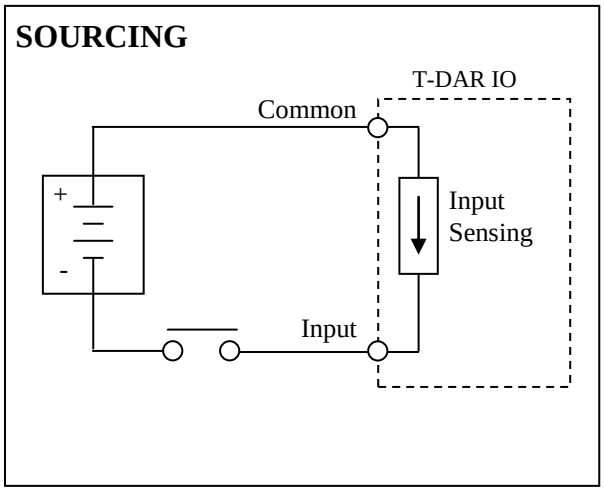
The Annunciator Unit needs to be located at the security portal being monitored so that violations are immediately announced to the violator as well as the persons in the secure area. Install and terminate one Ethernet cable (straight through) on the Annunciator Unit, leading directly to the ‘Annunc 1’ connector on the T-DAR control unit. The maximum annunciator cable length is 200ft (60m).

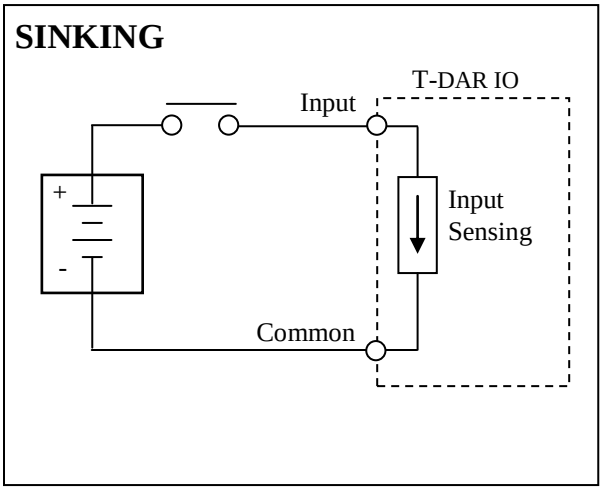


T-DAR Dual Digital Inputs

The T-DAR uses dual polarity opto-isolators on all digital inputs. All inputs can be used as either sinking or sourcing inputs.

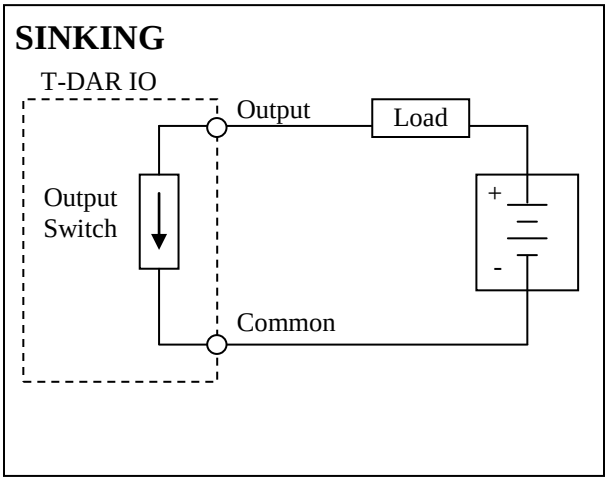
Note: as there is a single common for the entire set of inputs, all inputs must be configured as either sourcing or sinking per phoenix style connector. It is not possible to mix the inputs between sourcing and sinking. The following diagrams illustrate the typical installation for each of the types of input:





T-DAR Digital Outputs

The T-DAR uses relays for outputs. When the relay is triggered, connection points A & B are closed and current is allowed to pass. All output relays are labeled as A & B on the front of the T-DAR control box. Applications should not exceed 3 amps. The following diagram illustrates the typical installation for the sinking type of output:



DETAILED SPECIFICATIONS - CB110MT/210MT/410MT

Power Specifications

Operating Voltage Range	**24 VDC ±10%**
Peak Voltage (Non-continuous)	**30 VDC**
Required Amperage	**10 Amps**

DC Input Specifications

Minimum Pulse Width	**0.4 mSec**
ON Voltage Level	**>10 VDC**
OFF Voltage Level	**< 2 VDC**
Input Impedance	**2.2 KΩ**
Minimum ON Current	**>10 mA**
Maximum OFF Current	**<0.1mA**
OFF to ON & ON to OFF Response	**0.2 mS Typical**
Maximum Input Current	**10mA@12VDC, 20mA@24VDC**
Commons	**Three Commons: General 2, Portal/Head 1&2**

Relay Output Specifications

Minimum-Maximum Voltage Range	**0 – 30 VDC**
Peak Voltage	**<50 VDC**
Maximum Current (resistive)	**2 A**
Maximum Inrush Current	**5 A**
OFF to ON Response	**0.2 mSec Typical**
ON to OFF Response	**0.2 mSec Typical**

Auxiliary Power Outputs

+5 VDC	**Incorporated over-current breaker**
+12 VDC	**Incorporated over-current breaker**
+24 VDC	**Incorporated over-current breaker**

CONNECTION TO LAPTOP / LAN

To Configure the Host TCP/IP Connection

1. The factory set TCP/IP connection on the host computer is typically set to “automatic”. Changing these settings will establish a connection to the Newton Security Inc. TDAR, but may disconnect or even conflict with your current network system. Please check with your network administrator if you have any questions.
2. From the desktop right click “My Network Places” and select “Properties”. A new window will open, select “Local Area Connection” and click “Properties” from the new selection. A third window will open, select “Internet Protocol” (TCP-IP) and click its “Properties”.
3. You will see a selection box labeled “Use Following IP Address, select this option.
4. Enter the following information:
    a. IP: 10.0.0.21 (unless the unit is .21, then use .22, etc)
    b. Subnet: 255.0.0.0
    c. Gateway 10.0.0.1
5. Apply these changes and return to the desktop. You may have to reboot your host computer before the changes take effect. The system will now connect using the ***Configure Connection*** option in the User Interface.

Install the Software

The Newton Security Inc. T-DAR System Software CD-ROM contains an installer for the user interface application and a loader program for the T-DAR Door Control Unit application.

User Interface (UI) Application

1. Insert the T-DAR Software CD-ROM into the host PC.
2. Press Start on the Task bar and select Run.
3. From the Run dialog box, type ***d***Error! Bookmark not defined.:\setup **or**
4. Browse to the CD-ROM drive and execute setup.exe.
5. Follow the on-screen instructions.

IMPORTANT NOTE: There can only be one copy of the T-DAR UI installed on a computer at a time. As an example, T-DAR Lobby Shield software must be removed before T-DAR Tailgate Detection software is installed. Failure to do so will result in unexpected behavior.

Configure Connection

Selecting Configure Connection from the menu opens the dialog box to specify connection type, IP address and connection preference.

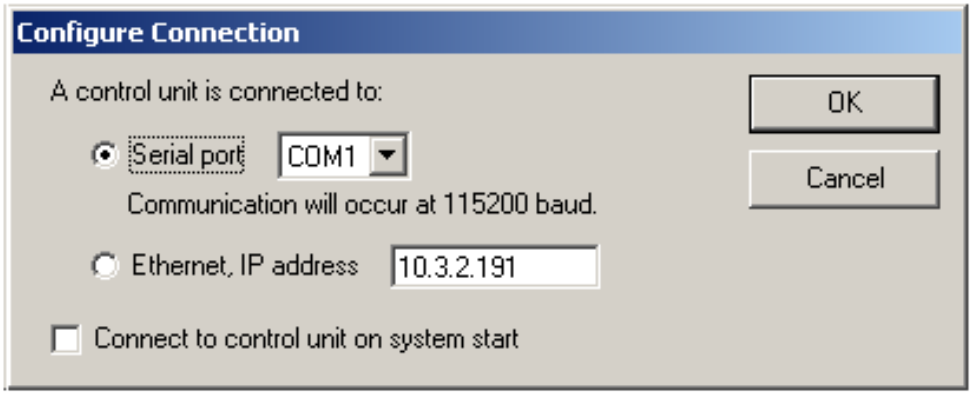


Figure 18 - Configure Connection

Connecting via Ethernet

1. serial number and factory-set IP address of each vision system is printed on the inside lower corner of the door of the unit, in the following format:

   SN: CB200101000102 IP: 10.3.2.21

2. The IP address in the above label is 10.3.2.21
3. If the IP address in the UI matches the unit, skip to step 7
4. Refer to **Connect via Serial Ports** to establish a serial port connection
5. Select ***Connection*** then ***Configure Connection*** from the application's menu bar.
6. Select ***Ethernet, IP address*** from the ***Configure Connection*** dialog.
7. Enter either the pre-configured IP address in the field next to ***Ethernet, IP address*** or enter a new IP address that is compatible with the network.
8. Note: If the IP address of the vision system is changed, the information printed on the unit will no longer be valid.
9. Select ***Connection*** then ***Disconnect*** from the menu bar. This will close the serial port connection.
10. Select ***Connection*** then ***Connect*** from the menu bar.
11. A connection via Ethernet should establish.

Input and Relay Output Screen of the Monitor Display

The “Show I/O” option of video outputs will display a real-time view of the T-DAR status. Green squares represent output relays that are closed. There are two door lock relays (1 and 2) as well as two alarm output relays (5 and 6). It is normal for output relay 1 to stay on. A green relay square will always represent a locked door; there is no option to invert a relay’s status. To invert a relay output, an external relay must be used. Relays 3, 4, 7, and 8 will not be used and none of the outputs 1-12 will be used in this Lobby Shield. Viewing the “Show I/O” display is only available from the master of a master/slave system.

Inputs

The inputs of the T-DAR, control its operation and place it in various states. The Lobby Shield will not work if the inputs are not signaled correctly. Green inputs (2 and 3) represent closed doors. These signals can be inverted in the GUI, using an open circuit or closed circuit to signal the T-DAR. A green square represents a closed door. The Secure and Public Grant signals can be inverted in the GUI as well. A green square public or secure grant will always signify a valid grant.

Show I/O Display of T-DAR Video Out