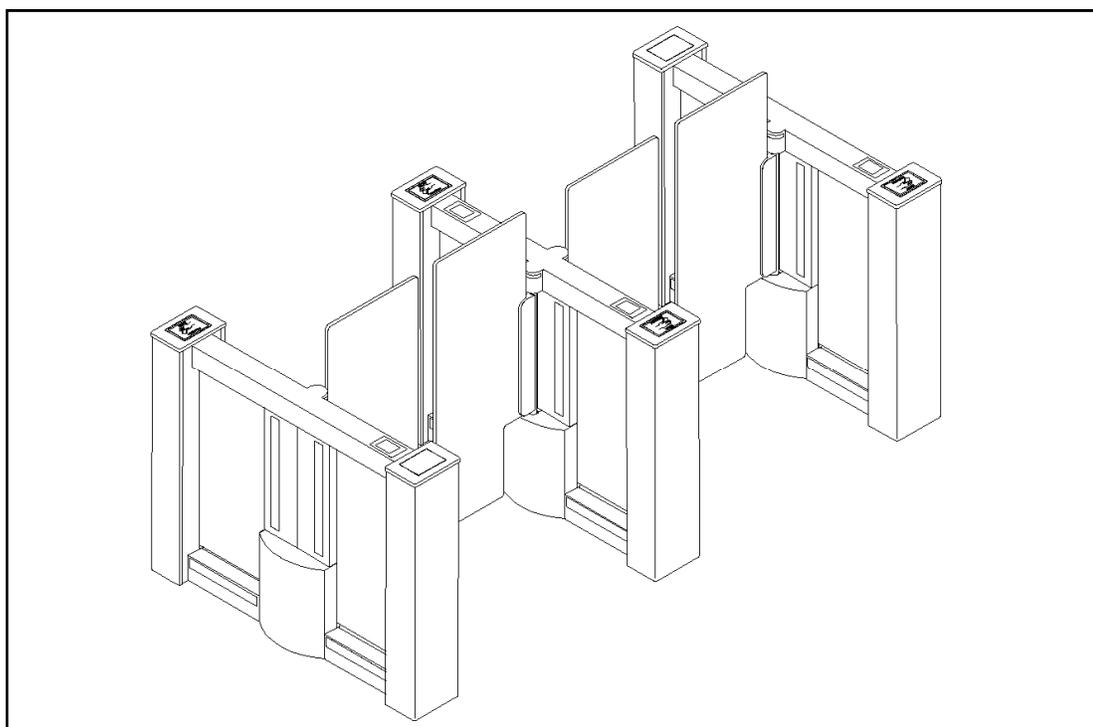


DS!

DESIGNED SECURITY, INC.

A Detex Company

ES9000-48" BARRIER OPTICAL TURNSTILE



INSTALLATION AND OPERATION INSTRUCTIONS

INTRODUCTION

*Welcome to the DSI family! The **DSI ES9000 Barrier Optical Turnstile**, although “high-tech”, is really a very straight-forward installation when a little time is taken to prepare before you begin.*

You may choose to take the time now to read and understand the installation and operation instructions in order to gain an understanding of what the system does and what is required from you to install your system. Experienced installers will find in this manual everything needed for trouble-free installation.

We are available to assist you by calling **800 272 3555** for Customer Support.

Treat the units as you would any fine furniture or delicate instrument. Keep them out of harsh environments. Do not store or install them where they will be exposed to inclement weather, or extremes of humidity, dust, or temperature. This will insure that they will keep their appearance and functionality for many years to come.

- When installing the wiring, be certain to strain-relief the cables to some hard point in the pedestal and leave enough service loop on each cable for any future repairs, component removal or upgrade. In other words, take the time to route your wires in such a way that they will not be damaged, or in the way, should the unit require servicing in the future.
- Precautions should be taken to properly ground the units to a known “Earth Ground”, during the mounting process, to prevent any ESD (electro-static discharge) damage to the electronics during installation and operation.

Your product may include customizations not described in the main text of this manual. The next page includes notes outlining these customizations.



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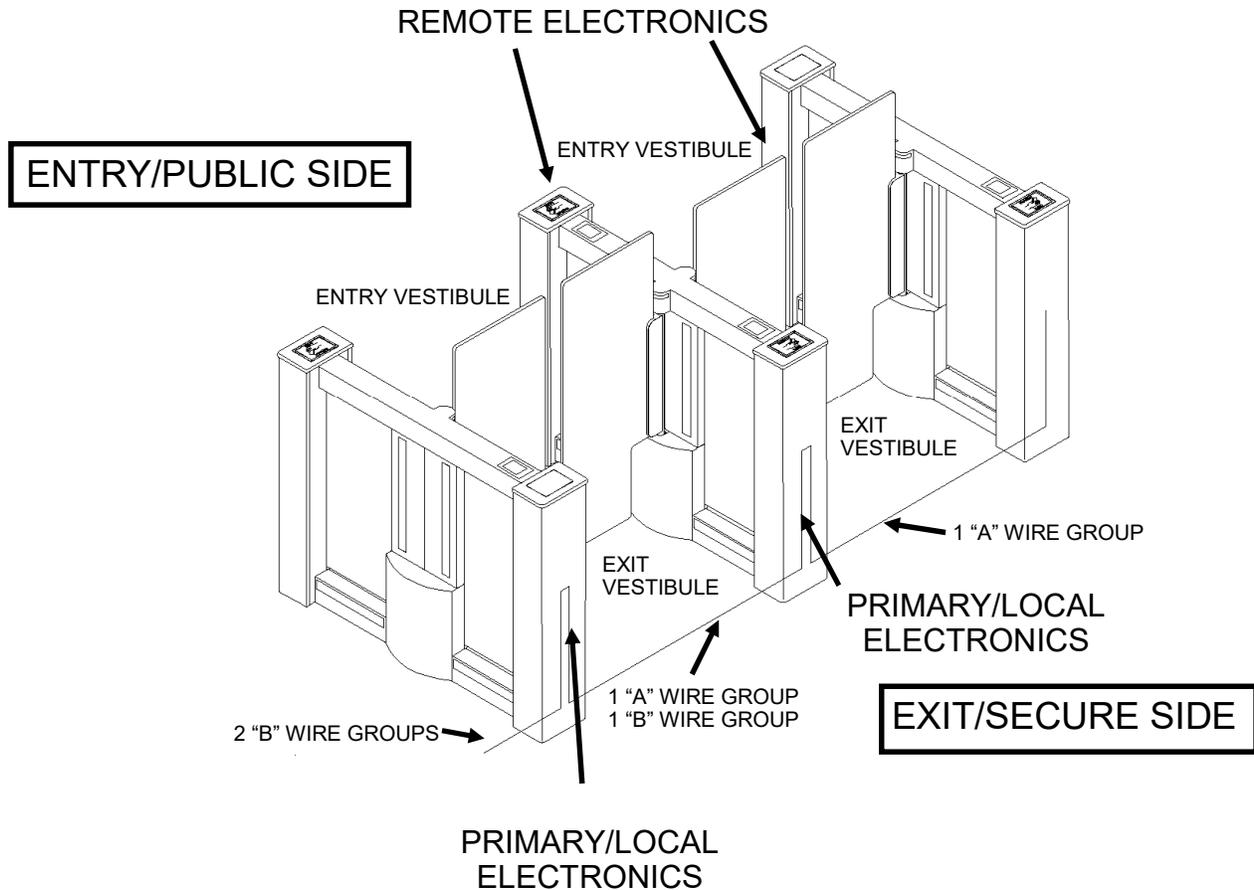
www.dsigo.com
Email: dsi@dsigo.com

CUSTOM NOTES

SITE PREPARATION

Precise placement and alignment of pedestals is critical for both functional and aesthetic performance. Ensure pedestals are properly spaced and aligned square, level, and plumb.

Refer to the following diagram for expressions used in this section



LOCATING YOUR TURNSTILE SYSTEM

There are three key technical considerations for locating the turnstiles. Two fairly obvious, the other, not as much.

The first obvious consideration is that a solid, stable mounting point for each pedestal is necessary to maintain proper alignment. Select a location that is flat and level, minimizing crowns or bows that would require pedestal shimming.

The second fairly obvious placement consideration is not to put turnstiles such that either vestibule is too close to a perpendicular barrier such as a wall, door, or velvet rope. This can cause queuing issues that will slow traffic and possibly leave users stranded in the lane waiting for traffic to clear. Pedestals placed too close to walls may make cover removal difficult.

The not-so-obvious consideration concerns Free Exit applications. If the Exit side approach is too long, users may be encouraged to achieve speeds such that they will get to the gate before it fully opens.

LAYOUT AND MOUNTING

PEDESTAL LAYOUT

- Using a chalk line, or equivalent method, lay out the pedestal arrangement. Pedestal positions should be parallel and square with each other.

PEDESTAL SPACING

- Verify the “on centers” measurement to accommodate the pedestal width and clearance for barrier operation prior to setting anchors or drilling for conduit.
- Lanes are specified by open walkway space—typically 36”. The pedestals measure 9” wide, so, in this case, the on-center measurement would be 45”
- This spacing will maintain a minimum 4.5” between the extended gate panels.

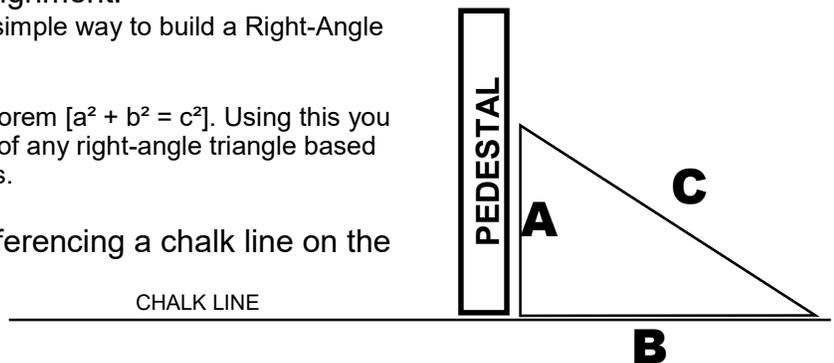
After going over the details of the installation with the architect or designer and you have determined planned spacing and orientation of the system, you may have some questions regarding how to lay out the array of pedestals with the most accuracy in regard to alignment.

Here are two alignment tips which may be helpful:

Tip 1- Determining a “Right Angle” for alignment.

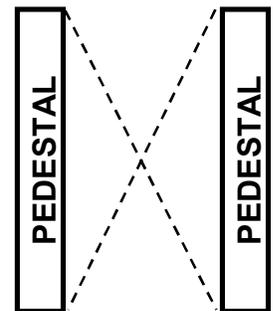
- Without getting into a lot of math, there is a simple way to build a Right-Angle Triangle by using sides of 3', 4' and 5'.
- This method is based upon a geometric Theorem [$a^2 + b^2 = c^2$]. Using this you can calculate the length of the long side (C) of any right-angle triangle based upon the known length of the other two sides.

Use this device to verify alignment by referencing a chalk line on the floor.



Tip 2 - Alignment Check

- Once you have established a known right-angle to the initial chalk-line, you will want to verify that each pedestal will be aligned to the adjacent pedestal.
- You may do this by choosing a point on each end of a pedestal mount, (for instance the center of a mounting hole), you can measure in an “X” pattern from one point to it’s opposite in the “X”.
- When the pedestals are the correct distance apart and both lengths of the “X” are equal, the pedestals are in alignment.



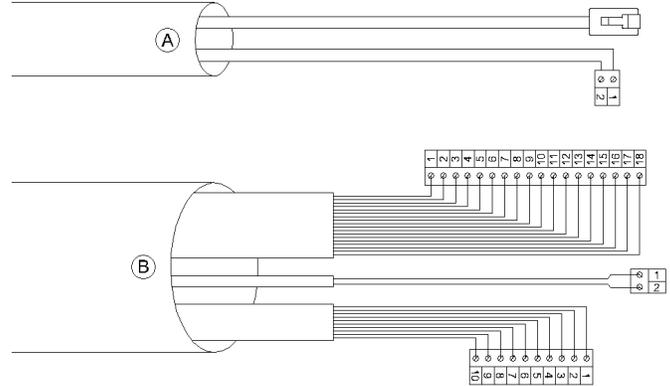
ANCHORS

- Use appropriate anchor system for the mounting surface.
- DSI recommends 1/2” diameter anchors

CONDUIT OR OTHER CABLEWAY PLACEMENT

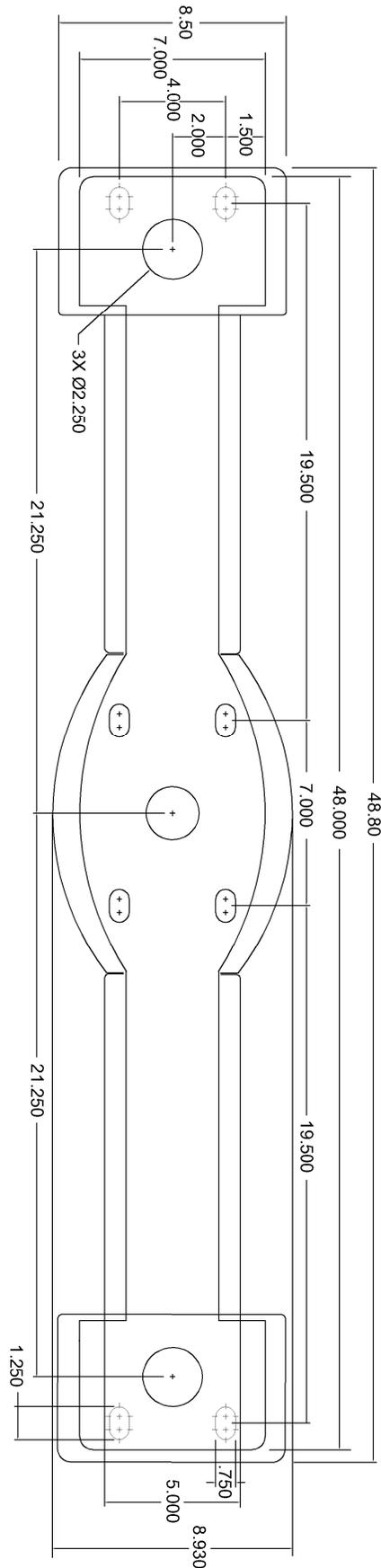
The pedestals will be oriented so the Primary Electronics is located on the Secure side. The Conduit should be located below this end of the pedestal. There are two wiring groups:

- A. Lane Power and Lane Data from each Lane's Primary Electronics to opposite pedestal for remote pedestal control cabling.
- B. From Access Control System to Each Lane's Primary Electronics for Input, Output, and Power connections.



See Base Plate Template or Dimensional drawing for access and mounting detail

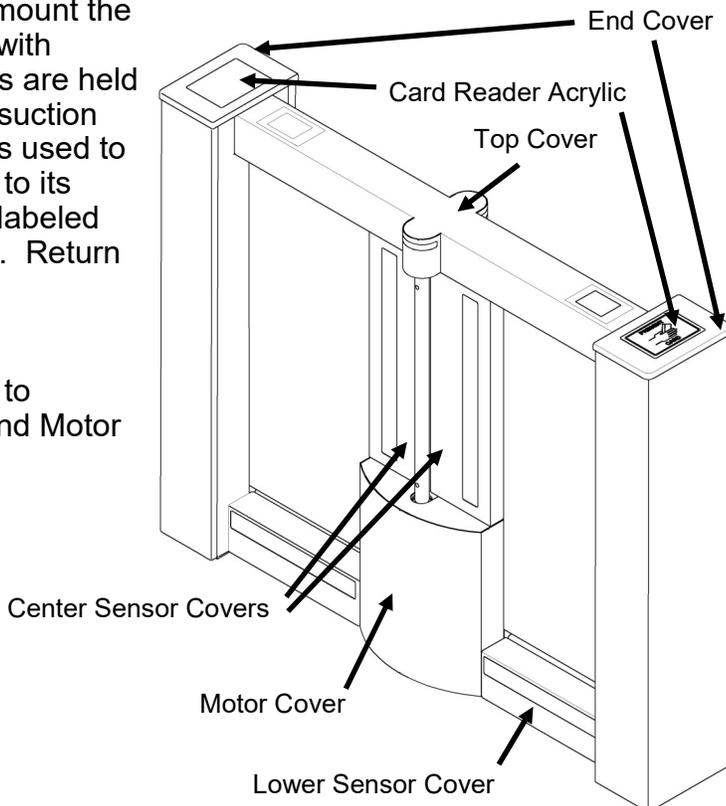
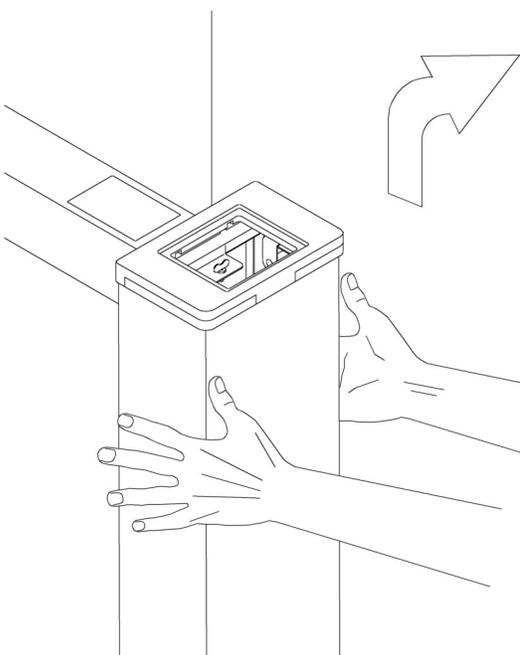
BASE PLATE TEMPLATE



INSTALLATION

If site preparation is complete, you are ready to mount the pedestals. The pedestal cladding is assembled with fasteners hidden by acrylic covers. These covers are held with magnetic strips and can be removed with a suction cup. Due to characteristics of the magnetic strips used to fasten the acrylics, each cover must be returned to its original location and orientation. Each acrylic is labeled and a corresponding label is found at its location. Return removed acrylics to matching label location and orientation.

To mount the pedestal to the floor, you will need to remove the End Cover, Center Sensor Covers and Motor Cover.



END REMOVAL STEPS

- Remove Card Reader acrylic cover with suction cup.
- Turn thumbscrew 1/4 turn CCW to unlatch.
- While gripping sides of end with the palms of your hands, lift straight up approximately 3/4" then pull away.
- Do not lift by Solid Surface top.
- Repeat for both ends.

CENTER SENSOR COVER REMOVAL STEPS

- Remove acrylic sensor covers from center panels with suction cup.
- Each cover is attached with 2 Philips-head truss bolts. Remove bolts.
- Remove panels and set aside.

MOTOR COVER REMOVAL STEPS

- Remove Center Sensor Cover as noted above. Remove 2 Philips-head truss bolts located toward top of cover.
- Remove motor cover by lifting directly up approximately 1/2".
- Place removed covers in safe location. Take care to avoid damaging finish or creating a hazard to pedestrian traffic.

ANCHOR TO FLOOR

With pedestal mounting holes and conduit access exposed, place pedestal on mounting point. Orient pedestal such that Primary Electronics are located toward the Secure Side. The right-most pedestal, when viewed from the secure side will only have the Remote Electronics located toward the Public side. Refer to "Site Preparation", Page 5 to verify these orientations. Verify the surface you are installing upon is not bowed or crowned. Use leveling bolts to level pedestal, then shim pedestal to compensate for uneven surfaces. Snug mounting fasteners, but do not fully tighten yet. This will allow you to fine-tune the pedestal alignments.

INSTALL BARRIER PANELS

With pedestals attached to floor, next install the barrier panels. The barrier shaft has two mounting holes. Each mounting hole has a counterbore on one end. Rotate the shaft to orient the mounting hole lengthwise to the pedestal and counterbore toward the Secure Side. The barrier panel clamp has visible screws on one surface. Orient panel as shown with clamp screws visible. If screws are not visible, you have the incorrect panel for this location. This orientation will allow a more cosmetic finish when viewed from the Public side. Remove mounting bolts stored in threads of clamp, and mount barrier panel to shaft by inserting mounting bolts through shaft from counterbore side and thread back into clamp. Tighten to 20 ft-lb.

SQUARE PEDESTALS

Check that pedestals are square to each other using techniques outlined in Site Preparation, Page 6.

VERTICAL ALIGNMENT

Check level of the pedestals vertically using a plumb or spirit level, use shims to make final adjustments.

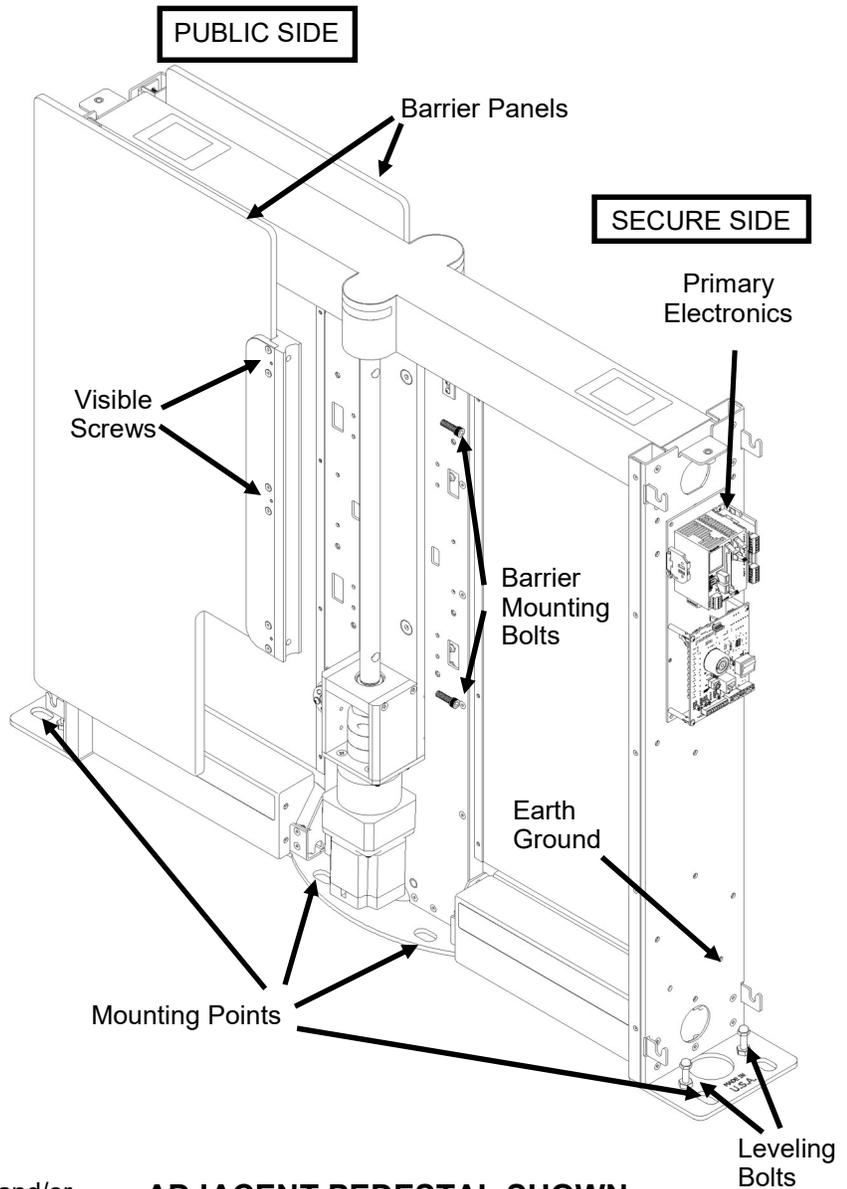
LEVEL ELEVATION

Level the elevation of the pedestals using a straight edge and/or a spirit level that will span two or three pedestals at once.

ANCHORS

Tighten securely to prevent any movement of the pedestal.

If you are ready to wire turnstiles, Skip to Wiring section. Otherwise, see next page for cover installation.



COVER INSTALLATION

When all covers are removed, some must be installed in a specific order. The following order accounts for that sequence.

All fasteners should easily install using hand tools—PLEASE DO NOT USE POWER TOOLS.

LOWER SENSOR COVER

- In the rare case the Lower Sensor Cover is removed, it can be reinstalled at any time.
- Align cover approximately 1/2" above finish location.
- Lower onto hook system.
- Install 2 Truss Bolts in mounting holes under acrylic cover
- Replace labeled acrylic cover to original location.

MOTOR COVER INSTALLATION

- Align cover approximately 1/2" above finish location.
- Lower onto hook system.
- Install 2 Truss Bolts in top tabs to anchor cover.

CENTER SENSOR COVER INSTALLATION

- Return cover to original location.
- Align mounting holes.
- Install 2 Truss Bolts in mounting holes.
- Replace labeled acrylic cover to original location.

TOP COVER INSTALLATION

- Return top cover to original location, noting orientation so Entry and Exit Displays are on correct ends.
- Rounded center protrusions are a tight fit. Align precisely.
- Plug in displays. Entry is 8-pin modular connector. Exit is 6-pin modular connector.
- Lower onto pedestal.

END COVER INSTALLATION STEPS

- Stand at end, grip both sides of end-panel and align straight onto pedestal, approximately 1" above finish location.
- Lower end-panel onto hook system.
- Rotate fastener 1/4 turn clockwise to latch.
- Install card reader acrylic cover.

WIRING

CABLE ROUTING

- Route Input and Output cables from Access Control System (ACS) to each Primary Electronics, located on Secure Side.
- Route power cable from each 24VDC @ 4A power supply to each Primary Electronics. Power Cable must be of sufficient Gauge to provide 24VDC under load, measured at the Power Input Connector. **(See Power Wire Gauge Calculator, Page 24)**
- The Lane Power and Lane Data cables must be routed between the Primary and Remote Electronics of each lane. (20 ft. cables included).
- The recommended installation is to have lane conduit under the Secure Side, Therefore, to route cables to the Remote Electronics, remove Top Cover of remote pedestal to access the upper wiring tray. Top Cover simply lifts off once both End Covers are removed. Unplug displays to fully remove
- Use provided wire anchors to contain wires in tray. This will prevent wire damage when reinstalling cover.
- Leave adequate service loop in cables. Route cables neatly in pedestal.
- Attach Earth Ground to provided locations.
- Check conduit or cableway for airflow. If airflow is detected, block airflow through conduit access hole. *Airflow through chassis may result in rapid dust accumulation on sensor optics which can lead to false alarms and frequent cleaning requirements.*

TERMINATIONS

POWER CONNECTOR

- Connect 4 Amp 24 Volt DC Power Supply to the “24VDC POWER INPUT” connector. Pin 1 is “+”, 2 is “-”.
- See page 24 for *Power Wire Gauge Calculator* to determine proper gauge for your application.

ADJACENT PEDESTAL INTERCONNECTIONS

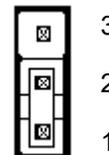
- Plug Lane Power cable into LANE POWER connector.
- Plug Lane Data cable into LANE DATA connector.
- Once powered, Data Status LED on each Electronics will indicate Lane Data quality.
 - * ON = Data Good.
 - * OFF = No Connection - Cable not plugged in.
 - * Flashing = Data corrupted – plug not fully seated; connector reterminated incorrectly; noisy cable path.

INPUT AND OUTPUT CONNECTIONS

- Terminate all Input and Output wiring to Connectors (provided).
- Input connector is inserted from bottom of board with screw-heads oriented toward backplate.
- **WARNING:** Multiple lanes sharing a common Input Source (i.e. Fire Alarm) must be isolated through a unique relay contact for each lane input. Wiring common inputs in parallel can cause damage to electronics.
- Configure output jumpers for N/O or N/C operation.
 - * J1 and J2 for Alarm Output.
 - * J3 for Valid Exit Complete Output.
 - * J4 for Valid Entry Complete Output.
 - * J5 for Bypass Status Output.

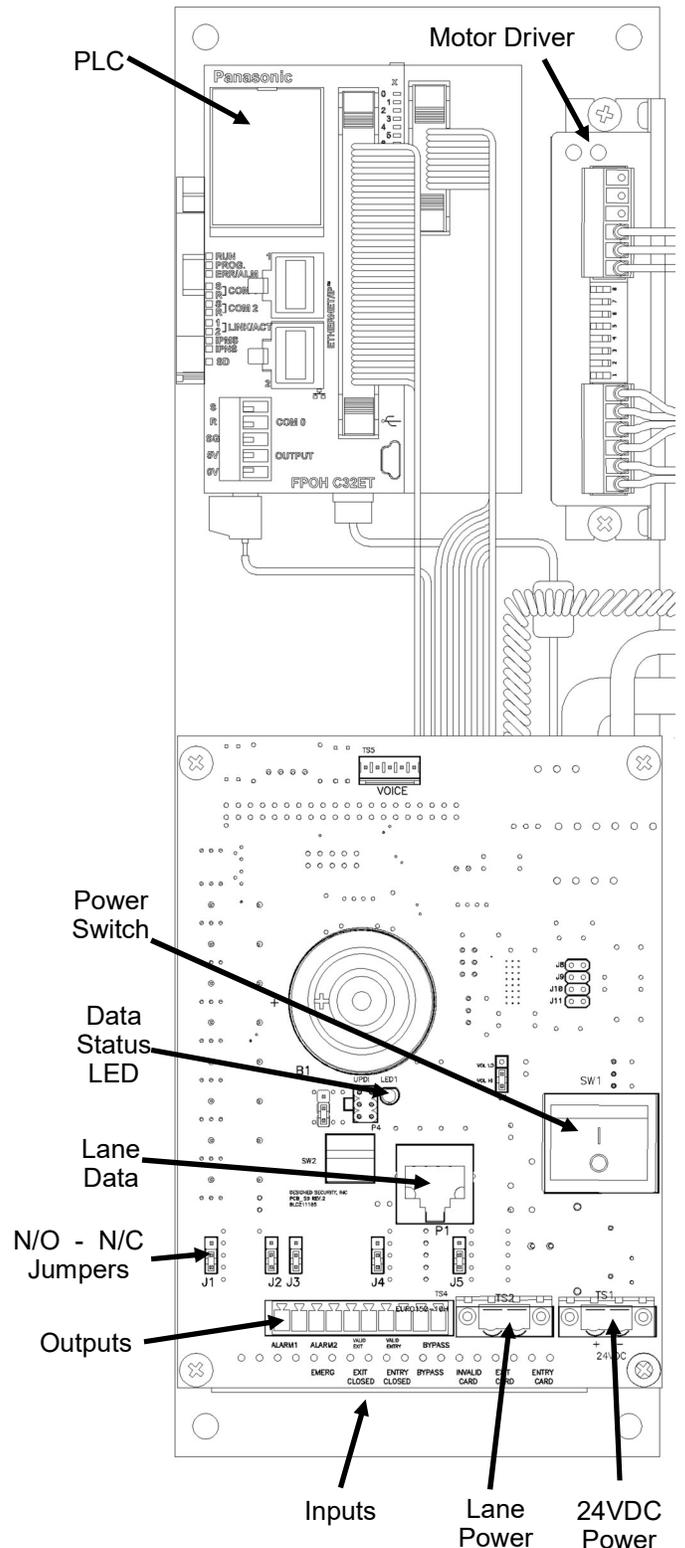
N/C OUTPUT - 2 to 3

N/O OUTPUT - 1 to 2



PRIMARY ELECTRONICS DETAIL

Inputs from Access Control System		
Entry Valid Card Read	1-2	Dry contact closure indicating valid Entry card read (Momentary Closure of .3 to .5 second recommended)
Exit Valid Card Read	3-4	Dry contact closure indicating valid Exit card read (Momentary Closure of .3 to .5 second recommended) Hold input for more than 20s for Free Exit
Invalid Card	5-6	Dry contact closure when an invalid card has been presented.
Inputs for Remote Control		
Reset/Bypass	7-8	Dry contact closure to reset alarms or to bypass the lane, stow the barriers and allow unrestricted traffic flow.
Entry Closed	9-10	Dry contact closure disables Entry mode.
Exit Closed	11-12	Dry contact closure disables Exit mode.
Emergency	13-14	Dry contact closure, moves Barriers to Exit, activates alarm graphics, and alarm relay output.
Reserved	15-16	Reserved for future use.
Reserved	17-18	Reserved for future use.
Outputs for Remote Monitoring		
Alarm	1-2	Indicates that unit is in Alarm Mode.
Alarm	3-4	Indicates that unit is in Alarm Mode.
Valid Exit	5-6	Indicates that an Exit passage was completed. Closes for .3 sec when triggered.
Valid Entry	7-8	Indicates that an Entry passage was completed. Closes for .3 sec when triggered.
Bypass	9-10	Indicates when unit is in Bypass Mode.

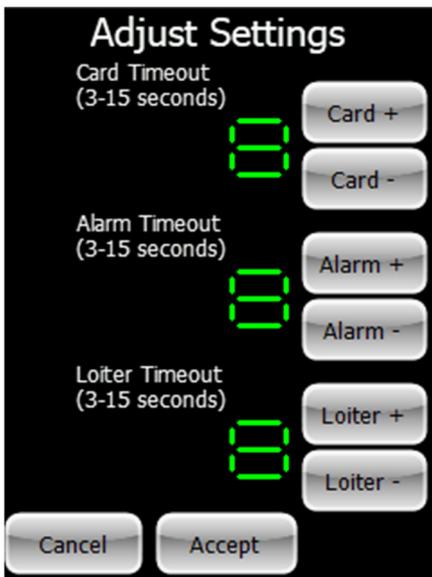
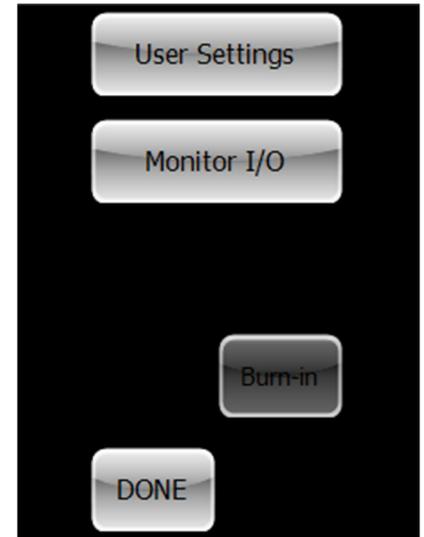


WARNING: Multiple lanes sharing a common Input Source (i.e. Fire Alarm) must be isolated

SETUP & OPERATION

Setup of the pedestal is accomplished via the LCD display located on the Public side. Use a suction cup to remove acrylic cover, then touch powered LCD. The main menu will display. User Settings allows adjustment of internal timers, and Monitor I/O helps diagnose connection issues by showing Inputs and Outputs in real time. Burn-In is a factory function.

Tap Done to return to normal operation. Replace acrylic cover.



Tap the User Settings button to access the Timer Adjustments. As one would expect, tap “+” for each timer to increase, and “-” to decrease. Click Accept to save and return to main menu.

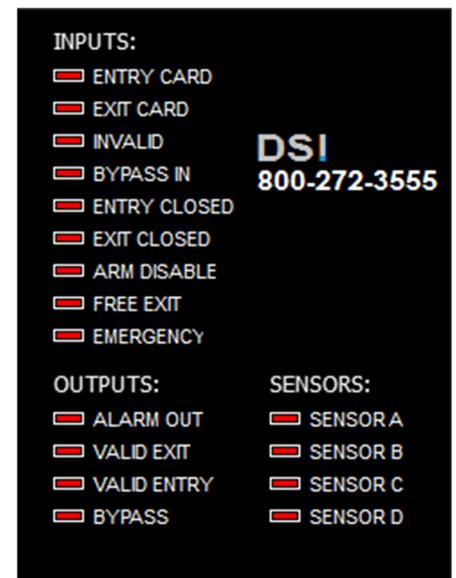
Card Timeout is the valid access grant time. It starts when valid card is retrieved from the queue. System rearms at end of Timeout period.

Alarm Timeout is the minimum alarm duration. Many users with a latching device that monitors the Alarm Relay will set this 3s so the lane is quickly available for next passage.

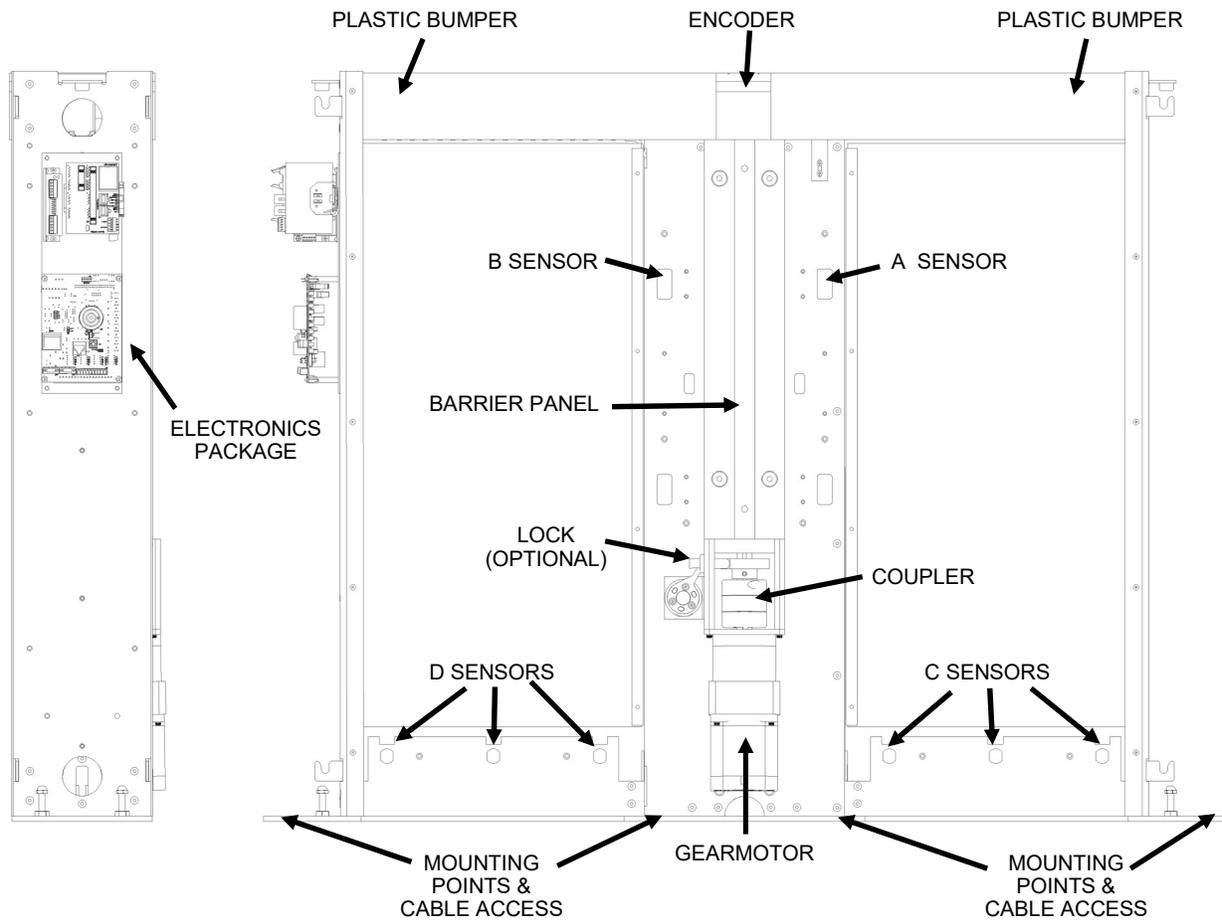
Loiter Timeout sets duration that a valid user can stand in lane after crossing the center threshold.

Tap Monitor I/O to launch a diagnostic tool that monitors the Inputs and Outputs. Red means the input is open/deactivated. Green means the contact is closed/active. This is useful to verify that the signals from the ACS are on the correct I/O pins. Green on a Sensor Input indicates that channel is blocked. Sensor C is a vestibule sensor on the Public Side. Sensor A is an anti-tailgate sensor on the Public Side of the gate near center. Sensor B is the Secure Side version of Sensor A. Sensor D is the Secure Side vestibule sensor.

Arm Disable and Free Exit are legacy images that haven't been removed from this screen. The legacy Arm Disable feature was almost never used, and Free Exit is now invoked by holding the Exit Card input for 20 seconds or more.



COMPONENT LOCATION



COMPONENT DESCRIPTION

Electronics Package

The Primary Electronics are found in the end of the left pedestal of each lane when viewed from the Secure side. The Remote Electronics are found in the left pedestal when viewed from the Public side.

The **Motor Controllers** control the local and remote barriers. These are mounted on each electronics panel, immediately above and to the right of the electronics control board.

The **PLC (Programmable Logic Controller)** is the Module mounted on the **DIN Rail** at the top of the Primary Electronics Package. The PLC controls the barriers by reading the **Encoder** position information and communicating barrier movement information to the Motor Controllers in response to PLC inputs.

Sensors

The **“C” Sensors** are used to detect objects present in the barrier path on the Public side of the lane. If something is blocking these beams, the barriers will not move to allow a user to exit from the secure side (although the barriers may always be pushed open in an emergency).

The **“D” Sensors** work similarly for users exiting from the secure side (IE: blocking this beam will prevent the barriers from moving in the Entry direction) additionally, when set for Free Exit, these sensors will detect the presence of an exiting user and tell the PLC to move the barriers to allow egress.

On either side of the Barrier will be located the **A & B Sensors** or the **A & B Transmitters**. These are the sensor beams that detect direction of travel, tailgating violations, and passage-complete for valid users.

Connection Panels

All Input and Output wiring, Power input, Lane Power and Lane Data terminate on the Primary Control Board.

The **Motor/Barrier Assembly** is the center section of the pedestal.

Located above the Barrier is the **Encoder**. This is a very sensitive encoder used to detect Barrier position and provide this information to the PLC. It is attached to the end of the shaft that drives the Barrier Panel.

Below the Encoder is the **Barrier Panel**. Located on the same shaft.

Units with optional Locking will have Locking Solenoid hardware mounted on this shaft.

This shaft goes into a shaft **Coupler** that allows quick removal of the Motor/Gearbox assembly for maintenance and repair.

Beneath the Coupler is the **Motor/Gearbox Assembly** that drives the Barrier.

FINAL TESTING PROCEDURE

With all wiring and setup completed, turn on power switch. Barriers will slowly move toward the Public side until they both come in contact with the Plastic Bumper on the Top Cover. They will then swing 180° toward the Secure side to verify a clear path. They will then return to the center position and be ready for operation. Follow the table below to test basic functions. Apply the designated input, then check for the indicated responses. Once finished, if you haven't already, install all covers as indicated on Page 11.

INPUTS	OUTPUTS					BARRIER POSITION	
	ALARM	VALID ENTRY	VALID EXIT	BYPASS	AUDIBLE		
ENTRY CARD		○				Entry direction for duration of Card Access Time	
EXIT CARD			○			Exit direction for duration of Card Access Time	
INVALID CARD					○	Centered/Armed	
RESET/BYPASS				○		Entry direction	
ENTRY CLOSED						Center if no other activity	
EXIT CLOSED						Center if no other activity	
FREE EXIT (EXIT HELD 20s)						Exit direction when "D" Sensor is broken by user	
EMERGENCY	○					Exit direction	
BARRIER AND SENSOR STATES							
FORCED BARRIER	& PASSAGE	○				○	BARRIERS WILL PROVIDE RESISTANCE AGAINST ATTEMPTS TO FORCE PASSAGE
	NO PASSAGE						
TAILGATE		○				○	

GUIDELINES FOR EVERYDAY USE

(PROVIDE COPIES TO ALL TURNSTILE USERS)

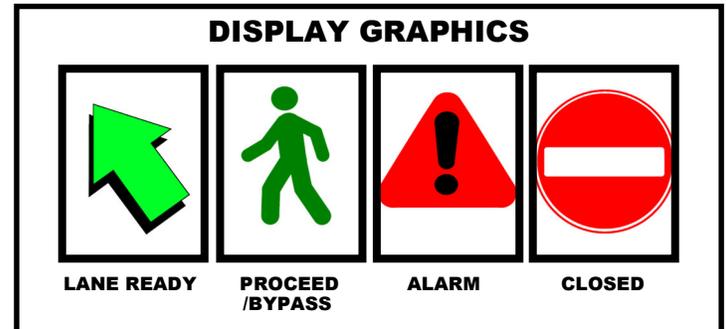
Optical Turnstiles are provided for greater security in your workplace. They help ensure that only authorized individuals will be allowed into the secure areas of your facility. You may find daily use of Optical Turnstiles becomes routine as you follow these basic guidelines:

USER VALIDATION

"ID" for access control can be of many types, from card readers to biometric systems.

Please refer to instructions provided for reader operation by the manufacturer, or by your security director.

- **Look** at display for **LANE READY** status, then present ID to the Reader mounted on, or in, the right-hand pedestal of the lane you are using. It may beep to indicate your ID was read.
- **Listen** for a **BEEP** after the **ID has been validated** and/or **watch** the Display on the top of the right-hand pedestal to indicate authorization.
- Next **Look** for a **PROCEED/BYPASS** message to indicate that **you are now authorized** to pass through the lane. **The barriers will automatically swing out of the way** allowing passage.



CAUTION: AVOID TOUCHING THE BARRIER, except in an Emergency, otherwise AN ALARM MAY SOUND

- **MOVE THROUGH THE LANE PROMPTLY.** Avoid stopping or moving backward, as this will trigger the alarm.

TIP: During passage through the lane, swinging items (purses, briefcases, etc.) could be interpreted by the turnstile as a person tailgating you, or moving in the other direction, thus causing an alarm. To avoid delays caused by false alarms, hold items high and close to your body, or at your side as you pass through the lane.

- **IF ALARM SOUNDS**, exit the lane, **STOP** and wait for security personnel to respond.
- Once through the lane, continue moving ahead to clear the lane for other users.

FREE EXIT MODE

Some turnstiles may be configured for "Free-Exit," meaning there is no requirement to present ID when leaving the secured area. Look for **PROCEED/BYPASS** graphic on the right-hand side of the lanes when in Free-exit mode.

- **As you enter the lane, the turnstile will sense your presence and direction** allowing you to exit the secured area of the building. **Barriers will automatically open for Free Exit.** Pass through turnstile as outlined above.
- Keep in mind that the sensors are active during Free-exit mode. Keep any bags or packages high and close to your body, or at your side, and avoid swinging them, as this may cause an alarm, even in Free Exit mode.

EMERGENCY USE

- During an emergency you may push through the Barriers. Follow established procedure for emergency egress of the building.

GUARD/OPERATOR - OPTICAL TURNSTILE GUIDELINES

(LEAVE COPY AT GUARD OR OPERATOR DESK FOR REFERENCE)

Making an optical turnstile installation work well depends upon a number of factors being present.

- **Users must be provided adequate instruction. Written, and First-hand / One-on-one.**
- **Users must know that a consequence to them exists for improper use, in order to avoid abuse of the access control system. Without consequence, abuse will continue.**
- **Guards must be knowledgeable in proper operation of the turnstiles, and be able to effectively provide training to new or errant Users.**
- **Guards must have an established policy and the authority to act on any Security violation.**

TRAINING USERS

- Optimally, all Users need to be provided with a written instruction, and, be shown at least one time, one-on-one, how to properly use the turnstile.
- Instruction should include having the User identify the Reader location and be asked to explain to the instructor what is expected of the User as they approach and use the lane.
- The Users need to know that they are to **always AVOID touching the barriers**, except in an emergency. This is a violation. **IF THE USER TOUCHES THE BARRIERS, THEY SHOULD VISIT THE GUARD.**

NOTE: The single most frequent violation, and cause of abuse, results from Users “pushing through” the barriers. It is important that the User be trained to NEVER touch the barriers, they are automatic.

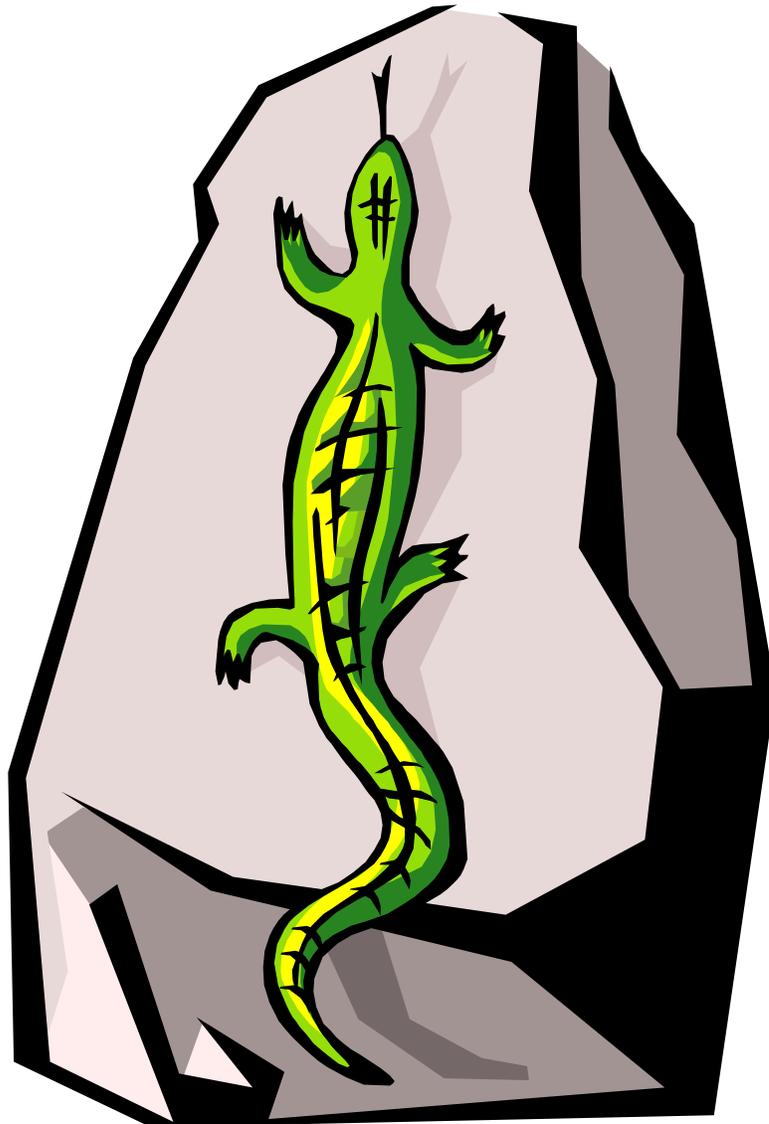
GUARD TRAINING AND AUTHORITY

- The Guard **MUST** have the authority to stop Users who have violated a lane. Even Free Exiting Users who cause an alarm should be encouraged to use the lane properly through some consequence to their action after causing a violation. Without consequence, the User will continue to abuse the Security system.

TIP: Some of our customers get good results by having their Guard call an errant User over to the desk and verify the User's ID. This inconvenience to the User's routine encourages them to use the lane properly and to avoid causing alarms. This also provides the Guard an opportunity to help the User learn how to use the turnstile.

- It is important that the Guard deal with the User from a frame of mind of *“What can I do to help you learn how to use the Security system and avoid causing alarms?”*
- Having copies of the User Instructions available to give users is suggested. Taking time to lead the user through the process will also help build rapport and reinforce that the relationship between the Guard and the User is complementary rather than adversarial.
- If you have questions, or would like further assistance drawing from over a decade of experience with Optical Turnstiles, please contact DSI Customer Support at 800 272 3555.

APPENDIX



SPECIFICATIONS

Power: 24-26 VDC @ 4 Amps per walkway

Wiring:	Power-	Less than 50 feet;	-14 Gauge
		50 to 100 feet;	-12 Gauge
(See Power Wire Gauge calculator on page 24 for detail)			
	Signal-	50 to 200 feet;	-22 Gauge

Inputs:	N/O Dry Contact for	- Valid Entry Card (from Access Cntrl)
	N/O Dry Contact for	- Valid Exit Card (from Access Cntrl)
	N/O Dry Contact for	- Invalid Card (from Access Cntrl)
	N/O Dry Contact for	- Bypass/Reset/Override
	N/O Dry Contact for	- Entry or Exit Closed
	N/O Dry Contact for	- Emergency (Fire Alarm)

WARNING: Multiple lanes sharing a common Input Source must be isolated through a unique relay contact for each lane input. Wiring common inputs in a daisy-chain (parallel) can cause damage to electronics.

Outputs: Output relays are rated for 1A @ 5-30 VDC
Output relays may optionally be N/C, see Page 14

N/O Dry Contact for	- Alarm (2X)
N/O Dry Contact for	- Valid Entry
N/O Dry Contact for	- Valid Exit
N/O Dry Contact for	- Bypass

Audible Alarm: 80db at 3 feet

Timing Adjustments:	Card Access	(3-15 Seconds timeout if no passage)
	Alarm Auto-Reset	(3-15 Seconds timeout for Alarm sounder)

Dimensions: 9"W X 38"H X 49"L

Walkway Spacing: Standard / A.D.A. - 36" between pedestals
Custom Lane Widths may differ from Standard

Mounting: 1/4" Steel base with eight .75" x 1.25" Slotted Mounting Holes and three 2.25" Dia Cable Access Holes per pedestal

Interconnect Cables:	Power:	20'
	Data:	20'

POWER WIRE GAUGE CALCULATOR

STEP BY STEP		WORKSPACE COLUMN	EXAMPLE
<ul style="list-style-type: none"> Specify total Current load, in Amps, of all devices sharing this trunk. 			4 Amps
<ul style="list-style-type: none"> Specify Distance (in feet) of actual Wire Run from power supply to the most remote load. 			125'
<ul style="list-style-type: none"> Multiply figures from above two lines. 			
<ul style="list-style-type: none"> Match final number to Table below to determine Wire Gauge needed to provide adequate Voltage. 			500
<p>IF YOUR FIGURE EXCEEDS 680, YOU MAY;</p> <ul style="list-style-type: none"> BREAK THE LOAD UP INTO SEPARATE WIRE RUNS, OR CONSULT YOUR POWER CABLE SUPPLIER FOR THEIR RECOMMENDATION FOR YOUR APPLICATION. 	FINAL NUMBER	WIRE GAUGE	
	up to 45	22 AWG	
	45 to 90	18 AWG	
	90 to 170	16 AWG	
	170 to 275	14 AWG	
	275 to 415	12 AWG	
	415 to 680	10 AWG	

CARE AND CLEANING

Congratulations on your purchase of a DSI Optical Turnstile system.

This guide provides information for cleaning and maintaining the finishes, materials and optical paths of DSI's standard finishes on our turnstile line. Including ES810, ES811, ES831, ES8500, ES8300, ES880, and ES860, ES9000

DSI recommends the following information be distributed to appropriate personnel to preserve long lasting appearance of the finish, and to maintain clear optical paths for the Infrared beams.

Stainless Steel -

Soap and water may be used to clean stains. Use a quality stainless steel cleaner/conditioner to preserve finish.

CAUTION: Avoid getting polish or solvents on the Acrylic panels to prevent contaminating the optical path.

Solid Surfaces (i.e. Avonite[®] or Corian[®]) and Laminates-

Soapy water or ammonia-based cleaners will remove most dirt and stains from Solid Surface and Laminate finishes.

Additional Corian information is available from the DuPont Corian website: <http://www.corian.com>

Brass -

These finishes are clear-coated and should be polished with any product labeled as appropriate for a clear-coat finish. Automotive clear-coat polishes work well for this application. (Turtle Wax's Clear Coat Polish and Restorer is what we use at the factory)

Powder Coat Painted -

Clean with mild soap, water and a soft non-abrasive cloth. A periodic use of a non-ammonia based cleaning solution (Formula 409) can be used for oils or stubborn stains. Always apply by hand using a circular motion.

Acrylics - CAUTION: Never use ammonia-based glass cleaners, abrasive cleaners, or paper towels to clean Acrylic.

These surfaces should be cleaned with a soft cloth dampened with soap and water, or use a spray cleaner such as Chemtronics[®] ES1668; at <http://www.chemtronics.com/> or you may call Chemtronics at 800-645-5244 for more information.

Optics - The Acrylic over the sensors and reflectors must be kept optically clear for the Infrared Beams to function properly. Cleaning personnel need to be instructed to avoid wiping any oils or other polishes on these panels. Use of alcohol or ammonia based cleaners may leave a static charge which will attract dust. The Chemtronics[®] ES1668 is an anti-static cleaner that works well. Any similar anti-static cleaner approved for use on Acrylic, such as LCD monitor cleaner, should work.

Dust accumulation on the inside of these Acrylic panels, and on the Sensors/Reflectors themselves, can impair the optical path which may lead to false alarms. A periodic inspection after initial installation may help determine the appropriate interval for cleaning the inside surfaces, based upon the environment at the site.

TROUBLESHOOTING TIPS

The following are a few of the most common questions the Customer Support group answers.

Symptom: **Gates do not move on start-up,**

Solution:

Blocked sensor. Use LCD display I/O diagnostic on Page 15 to determine which sensor is problematic.

Symptom: **Gates misaligned at center.**

Solution:

If mounting is square and plumb, ensure Plastic Bumpers are still on Top Cover, Page 16.

Symptom: **Gates vibrate during operation, or overtravel when stopping.**

Solution:

Tighten Barrier mounting bolts, Page 10.

Symptom: **Multiple users card in, only first user allowed to pass.**

Solution:

The Access Control System is holding the Valid User (Entry or Exit) Input for subsequent users. The Access Control System needs to be adjusted to provide a shorter cycle time (preferably less than half a second contact closure) in order to provide a discrete input cycle to the ES9000 for each valid card read. Because many Access Control Systems are built to control door locks, their default setting is five seconds, and the system simply holds the lock for each subsequent user rather than providing a unique input cycle (Open/Close/Open) for each valid user.

DSI!

DESIGNED SECURITY, INC.

WARRANTY

The DSI Optical Turnstile Product you have purchased is warranted to be free of defects in material and workmanship when properly installed, used and maintained according to instructions. DSI will, for a period of three (3) years from date of purchase, repair or replace any part which, upon our examination, proves to be defective under normal use. **DSI/DETEX SHALL NOT BE LIABLE FOR ANY DIRECT, INCIDENTAL OR CONSEQUENTIAL LOSS OR DAMAGE ARISING OUT OF THE FAILURE OF THIS DEVICE.**