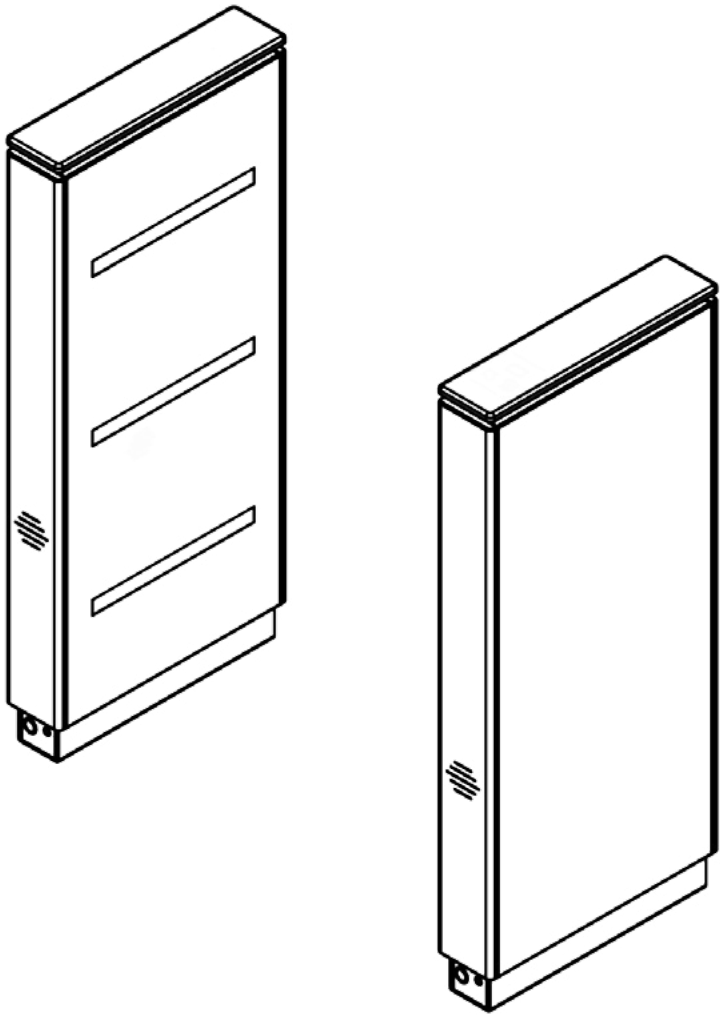
ALVARADO
dormakaba Group

Supervisor 500
(SU500)

Barrier-Free Optical Counting Turnstile



Installation Instructions

Alvarado Manufacturing Company, Inc.
12660 Colony Street, Chino, CA 91710
Phone: +1 (909) 591-8431
Fax: +1 (909) 628-1403
support@alvaradomfg.com
www.alvaradomfg.com

PUD1456R6-0

Contents

Safety Precautions

⚠ WARNING The Supervisor 500 may present a risk to persons and property if it is not installed and/or operated correctly. Therefore, this manual must be read in its entirety, and all safety and operational information should be followed. Note the following precautions:

- For indoor use only.
- Use only skilled individuals to install and service the turnstile.
- DO NOT operate the turnstile if it has been damaged in any manner. If damaged, have the unit repaired or adjusted by a skilled service person before use.
- DO NOT modify or alter the turnstile.
- Have skilled individuals maintain the turnstile according to a proper maintenance schedule.
- In access control applications, train all personnel that will be using the turnstile in the proper method of operation. In addition, properly train new users as they are added to the system.
- DO NOT use non-Alvarado parts to repair a damaged turnstile.
- Closely follow the handling instructions for moving or lifting the turnstile during installation.
- Power off the turnstile before connecting or disconnecting any communication or power wiring to the turnstile.
- The turnstile shall be disconnected from its power source during service and when replacing parts. The turnstile shall be disconnected from its power source before connecting or disconnecting any communication or other activation/feedback control wires. If it is not possible that the technician can check from any point to which he has access that the main power is removed, a disconnection with a locking system in the isolated position shall be provided.

Safety Icons

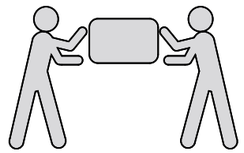
The following symbols are used throughout the manual to highlight important information an potential risks when installing, servicing or using the turnstiles covered in this manual.

⚠ WARNING This symbol is used in this manual to warn installers and operators of potential harm. Please read these instructions very carefully.

⚠ CAUTION This symbol is used in this manual to designate potential conditions that may pose a risk to pedestrians, personnel, property and equipment. Please read these instructions very carefully.

NOTE This symbol is used in this manual to designate useful information for the installer and operator. Please read these instructions.

☎ For questions, please contact Alvarado at (909) 591-8431, Monday – Friday 7:00am to 4:30pm PST. Please read this manual completely before installing or operating the purchased product.



A minimum of two people is required to complete the installation of this product.

Installation Tools

- Tape Measure
- Chalk Line
- Pencil
- Hammer Drill
- 1" Concrete Drill Bit
- Shop Vac
- Rubber Mallet
- Torque Wrench (ft-lbs.)
- Open Wrench
- 15/16" Socket
- Level
- #2 Phillips Head Screwdriver
- Precision Flat Head Screwdriver
- Clear RTV Silicone

Uncrating

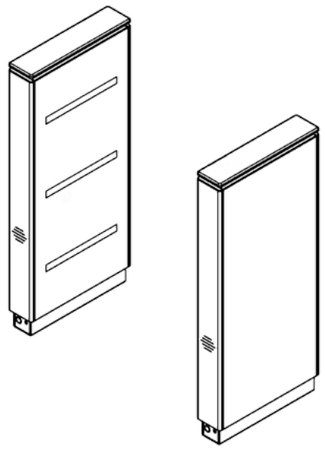
The SU500 has been packed for shipping to prevent damage to the unit. Two or more installers are required to unload the SU500 at the installation site. Once the turnstile cabinets have been placed in the installation location, carefully remove the protective packing material from the sides of the cabinets.

Parts List

This product is shipped with all installation hardware and components. If installing a single lane, refer to the Single Lane Parts List below. For additional lanes, refer to the Center Cabinet Parts List. Make sure that none of these parts are missing and/or damaged before beginning installation. If parts are missing and/or damaged, please contact Alvarado.

Single Lane Parts List

Slave Cabinet
(Qty 1)



Master Cabinet
(Qty 1)

Concrete Anchor Package:

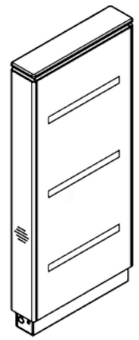
- 5/8" Concrete Anchors (Qty 4)
- 5/8" Anchor Bolts (Qty 4)
- 5/8" Flat Washers (Qty 4)

Cabling:

- 11' Crossover Cable (Qty 1)

Center Cabinet Parts List (Per Center Cabinet)

Center Cabinets are used to create additional lanes for multi-lane configurations. Each additional lane includes the parts below.



Center Cabinet
(Qty 1)

Concrete Anchor Package:

- 5/8" Concrete Anchors (Qty 2)
- 5/8" Anchor Bolts (Qty 2)
- 5/8" Flat Washers (Qty 2)

Cabling:

- 11' Crossover Cable (Qty 1)

Introduction

The SU500 may be used as a standalone counting device, or in conjuction with Alvarado's GateWatch software or GWCB-12 counting box.

This manual covers the physical installation process for the SU500 Barrier-Free Optical Counting Turnstile. Instructions for basic operations are provided. For detailed operational instructions, refer to the appropriate software / hardware documentation with which the SU500 will be integrated:

- GateWatch User's Manual
- GWCB-12 Installation & Maintenance Instructions

SU500 Cabinets

There are three types of SU500 cabinets used to create passage lanes: a master cabinet, a slave cabinet, and a center (expansion) cabinet. A single passage lane consists of a master cabinet and a slave cabinet [Figure 1]. The center cabinet is used to create additional passage lanes with the addition of a single cabinet [Figure 2].

The master cabinet is always installed on the right-hand side when viewed from the entry side.

Master Cabinet

The master cabinet contains the main turnstile controller, power supply, sensor receiver array, and a power button located at the base on the secured side.

If the optional count relays are installed, they are located below the main turnstile controller.

If optional battery-powered counters are installed, the counter for the entry direction is mounted to the side panel.

Slave Cabinet

The slave cabinet contains the sensor transmitter array.

If the optional battery-powered counters are installed, the counter for the exit direction is mounted to the side panel.

Center Cabinet (Multi-Lane Configuration)

Center cabinets contain both master and slave components. Center cabinets are extension cabinets used in multi-lane applications.

The center cabinet contains the main turnstile controller, power supply, sensor arrays for both the master and slave side of the center cabinet, and a power button located at the base on the secured side.

If the optional count relays are installed, they are located below the main turnstile controller.

If the optional battery-powered counters are installed, the counters for the entry and exit directions are mounted to the side panels (see page 31).

Figure 1 **Single-Lane Configuration**

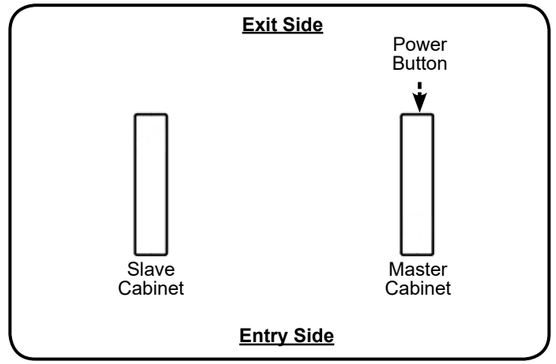
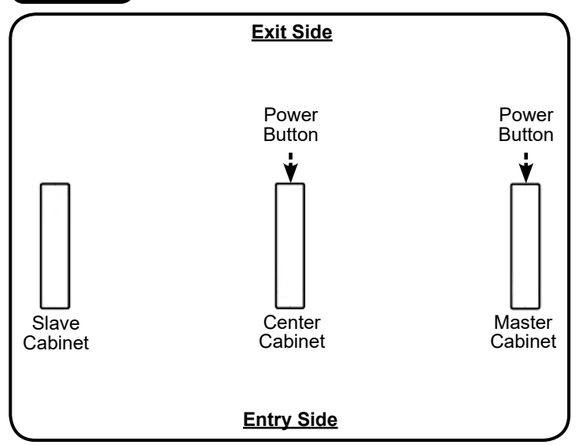


Figure 2 **Multi-Lane Configuration**



Count Data

The SU500 optical turnstile provides the following methods of outputting count data:

Ethernet / TCP/IP (Standard)

The SU500 can communicate count data directly to Alvarado's GateWatch server-based facility counting software in real time over a TCP/IP network. An Ethernet cable connection is required per turnstile. For more information on GateWatch, visit http://www.alvaradomfg.com/patron-counting-gatewatch10/.

Count Output Relay (Option)

The GWCB-12 is Alvarado's TCP/IP-enabled count controller. The SU500 outputs counts to the GWCB-12 via dry contact output relays. The GWCB-12 can then communicates the data to GateWatch over a TCP/IP network.The GWCB-12 is typically used when Ethernet communication to each turnstile is not available.

Local Counter (Option)

Battery-powered counters are integrated into the turnstile cabinet to conveniently track passages. Counters can be ordered in reset or non-reset variants. Counters enable the SU500 to function as a standalone unit without the need for additional software or hardware components.

Network Communication

SU500 turnstiles are TCP/IP enabled. Running Ethernet cabling to the SU500 master and center cabinets provides a number of benefits: (1) It allows integration with Alvarado's GateWatch software. (2) It allows easy implementation of SU500 application software updates and enhancements. If SU500's are networked, updates can be installed over the network. (3) Enables product to take full advantage of future enhancements.

Pre-Installation Requirements

The pre-installation requirements listed below must be reviewed before installing the turnstile. These notes also serve as a checklist that must be complied with after installation. The installation site should also be evaluated before actual installation of the turnstile to ensure that future turnstile placement is possible and installed as desired. This evaluation includes proper spacing, a firm foundation, and separate conduit runs for power and Ethernet lines.

Slab Requirements

The following slab requirements must be taken into consideration when selecting the installation location:

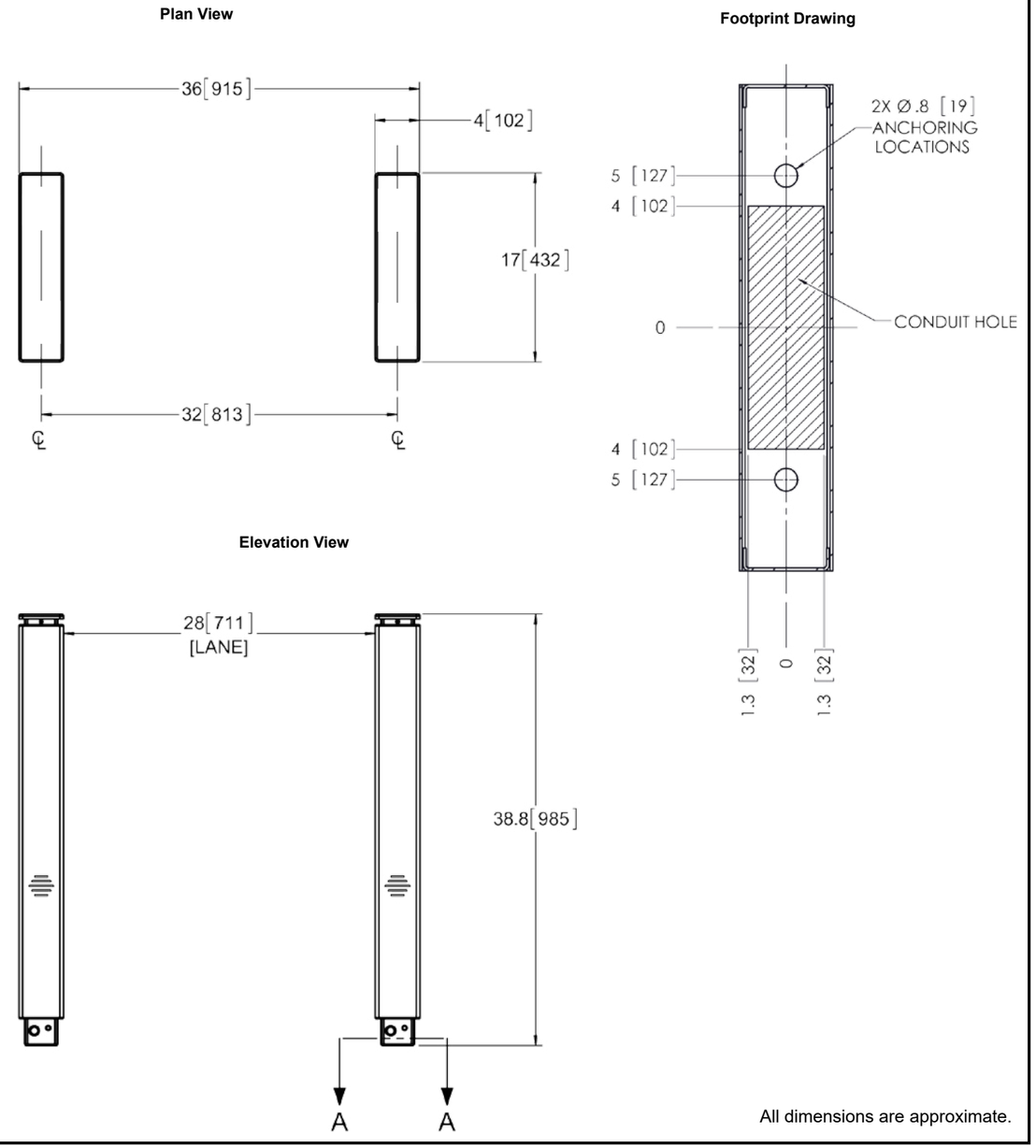
- A level solid concrete pad with a minimum thickness of 4" (102mm).
- Use full-sweep electrical conduit underneath the floor.
- Three separate conduits for primary source power, Ethernet (if applicable), and the crossover cable must be used.
- Cabinets must be installed plumb with the floor while level and square to each other.

Space Requirements (28" Lane)

NOTE

For ease of installation and servicing, Alvarado recommends 6" of space between the cabinets and adjacent walls or other surfaces.

Figure 3 **28" Single Lane - Plan, Elevation & Footprint Drawing**



All dimensions are approximate.

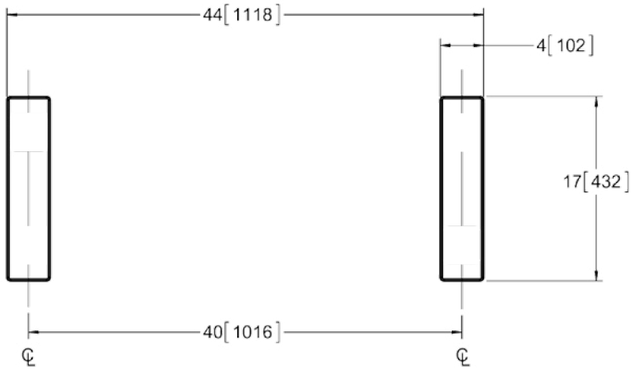
Space Requirements (36" Lane)

NOTE

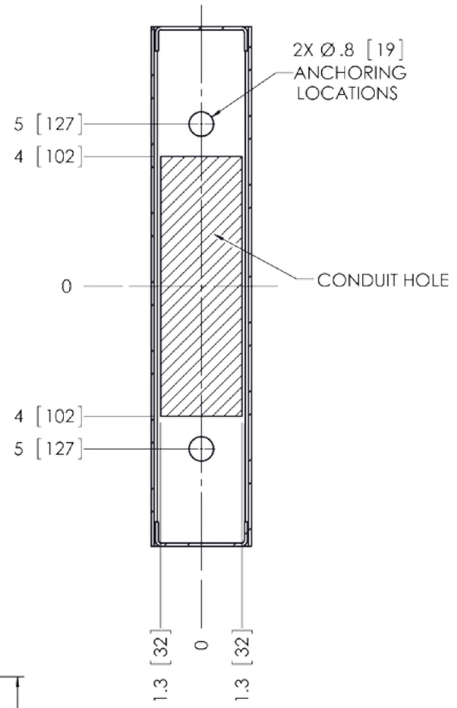
For ease of installation and servicing, Alvarado recommends 6" of space between the cabinets and adjacent walls or other surfaces.

Figure 4 **36" Single Lane - Plan, Elevation & Footprint Drawing**

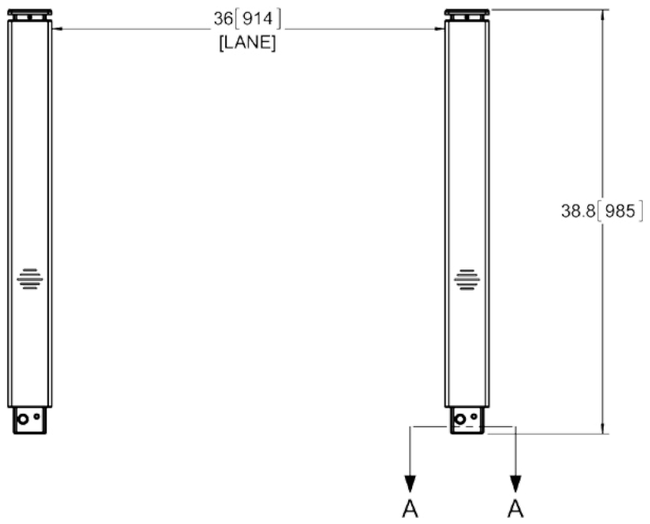
Plan View



Footprint Drawing



Elevation View



All dimensions are approximate.

Space Requirements (28" & 36" Optional Platforms)

NOTE

For ease of installation and servicing, Alvarado recommends 6" of space between the cabinets and adjacent walls or other surfaces.

Figure 5 **28" Portable Baseplate**

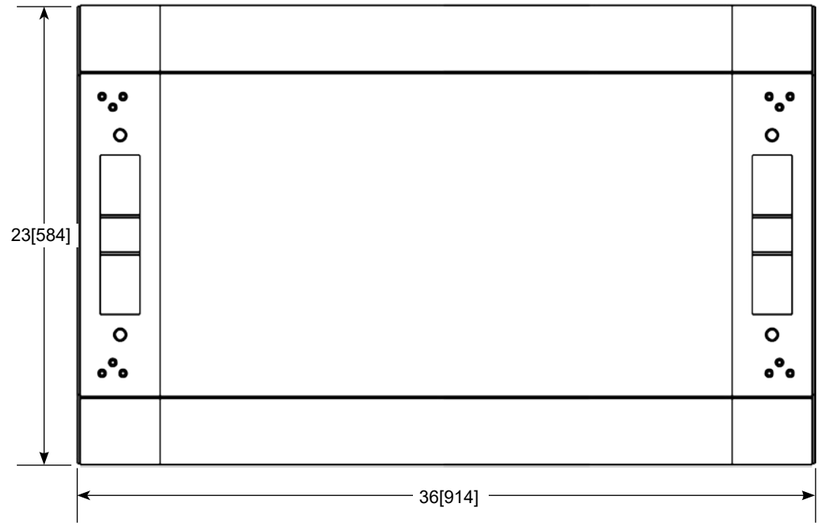
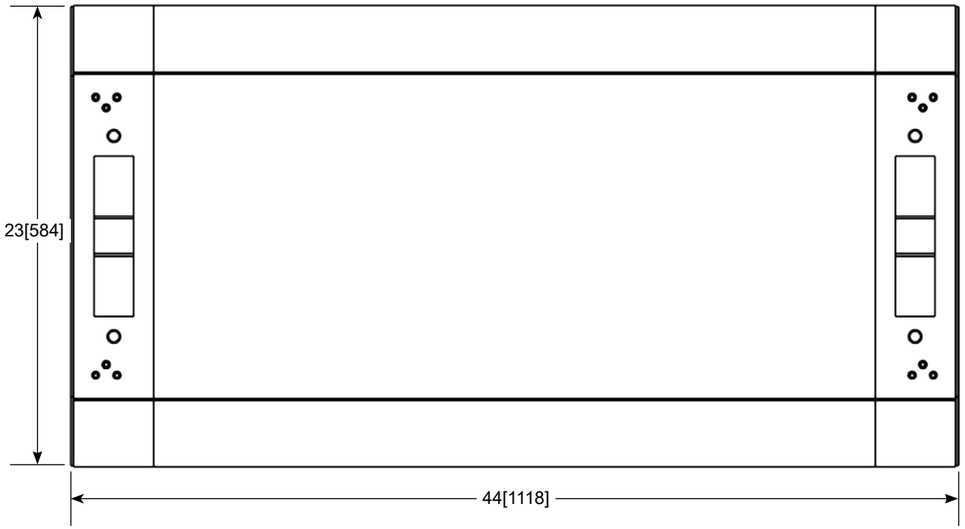


Figure 6 **36" Portable Baseplate**



All dimensions are approximate.

Conduit Requirements

NOTE

The conduit openings for each cabinet are 8" x 2.80" (203mm x 71mm) [Figure 7].

Primary Power Conduit (High Voltage Power)

- 3/4" (19mm) power conduit for primary source power (e.g. 120 VAC, 220 VAC) must be run to the master and center cabinets.

Ethernet Conduit (GateWatch / Network)

- 3/4" (19mm) conduit for Ethernet. Networked turnstiles must have Ethernet cable run to all master and center cabinets.

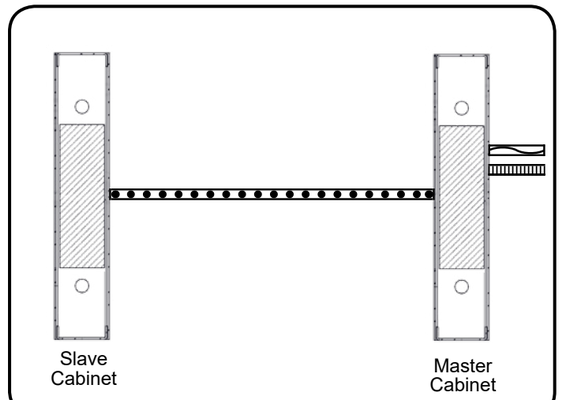
Crossover Cable Conduit

- 1 1/2" (38mm) conduit **must** be run to interconnect the cabinets in each lane.

NOTE

For multi-lane conduit requirements, refer to Appendix A on Page 36.

Figure 7 **Conduit Openings**



Symbology	Description	Conduit Size
	Primary Power	3/4"
	Ethernet Cable	3/4"
	Crossover Cable	1.5"

NOTE

Seal the floor area around the conduits running up and into the cabinets. This will prevent condensation and debris build-up coming from whatever may be below the floor.

Electrical Requirements

Power Supply	110-240 VAC, 50/60 Hz
Power Requirements	Peak power consumption is 22W per lane with all options installed.
Operational Voltage	Primary power is stepped down and rectified for low-voltage12 VDC and 5 VDC operation.
Fuse	2.5A (slo-blo) located in the master cabinet
Surge Protection	Alvarado suggests the use of surge protection on the high-voltage power line to further protect electronics

Environmental Requirements

- **DO NOT** install the product outdoors. This product is intended for indoor use only.
- **DO NOT** install the SU500 where infrared lighting (strobe lights, flash photography, etc.) is in the direct path of the optical sensors. Interference may affect the performance of the turnstile.

The following are suggested operating temperature and humidity ranges for the SU500:

	Operation	Non-Operation/Storage
Temperature Range	10° - 32°C / 50° - 90°F	0° - 40°C / 32° - 104°F
Humidity Range (Non-Condensing)	15% - 85% RH	--

⚠ CAUTION Operating the SU500 outside the suggested temperature and humidity ranges may negatively affect turnstile performance and could potentially cause damage to turnstile components.

Pre-Installation Checklist

It is the installer's responsibility to ensure the following steps are completed before beginning the installation.

1. All components and hardware to be installed have been unpacked, correctly identified, and moved to the installation location.
2. The turnstile configuration and layout has been confirmed with the site manager.
3. All applicable requirements in the Pre-Installation Requirements section have been met.

Pre-Installation Instructions

NOTE

It is assumed that the Pre-Installation Checklist steps are complete.

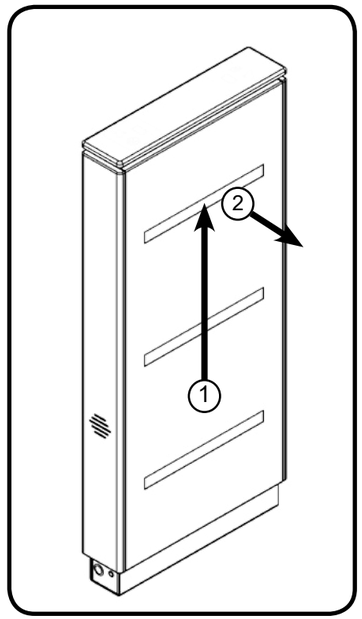
Side Panel Removal

1. To remove a side panel, slide the side panel up until it clears the pins, then pull straight out [Figure 8].

NOTE

Do not force open the side panels. Use a screwdriver to carefully loosen any tight fitting side panels. Take care when doing this to prevent damage to the unit.

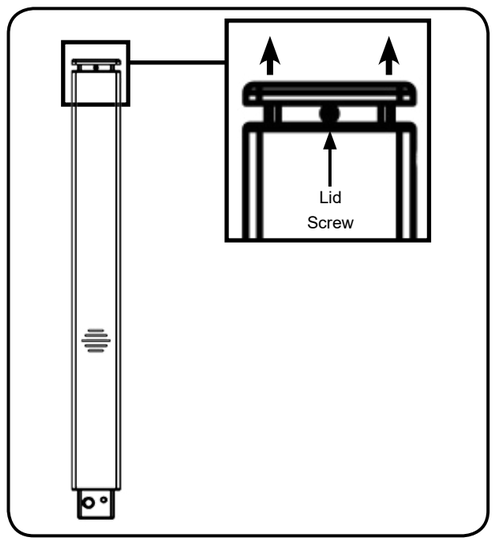
Figure 8 Side Panel Removal



Lid Removal

1. Locate the lid screws located on the cabinet end panels as shown in [Figure 9]. There is one lid screw per side.
2. Using a #2 Phillips head screwdriver, remove the two (2) lid screws.
3. Gently lift the lid in an upward motion to remove.

Figure 9 Lid Removal (Side View)



Turnstile Layout

With the panels and lids removed, confirm that the cabinets are laid out such that one side of the lane contains the master controller cabinet components and the other side of the lane contains the slave cabinet components. The correct layout orients the power button on the exit side as shown in [Figure 10]. An example of an incorrect layout is shown in [Figure 11]. Before proceeding, verify that the master controller cabinet components are facing the slave cabinet components, and the power button(s) are located on the secured side. The Lane 1 master cabinet is always the right-most cabinet when viewed from the entry side of the turnstile.

Figure 10 Correct Turnstile Layout

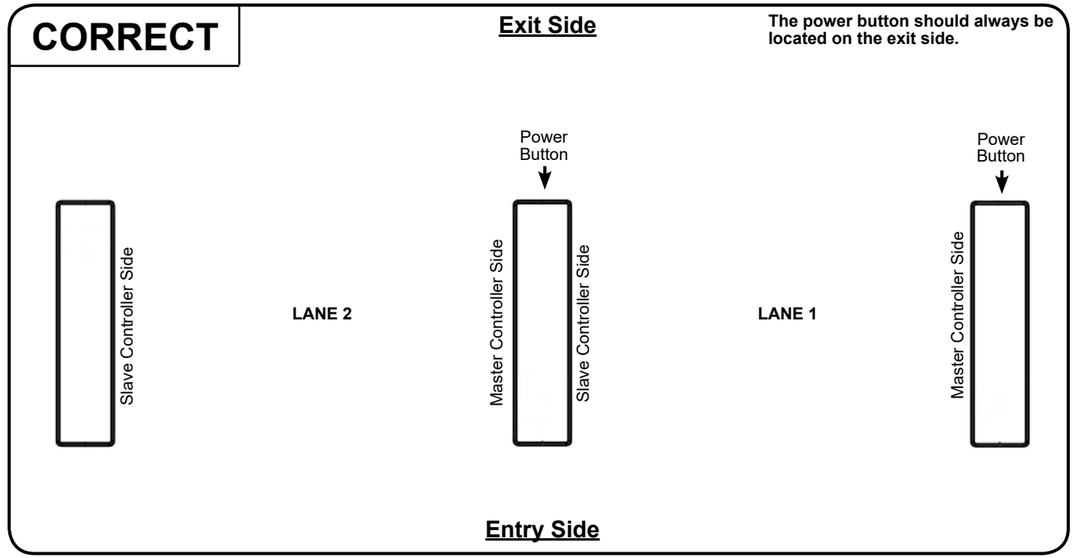
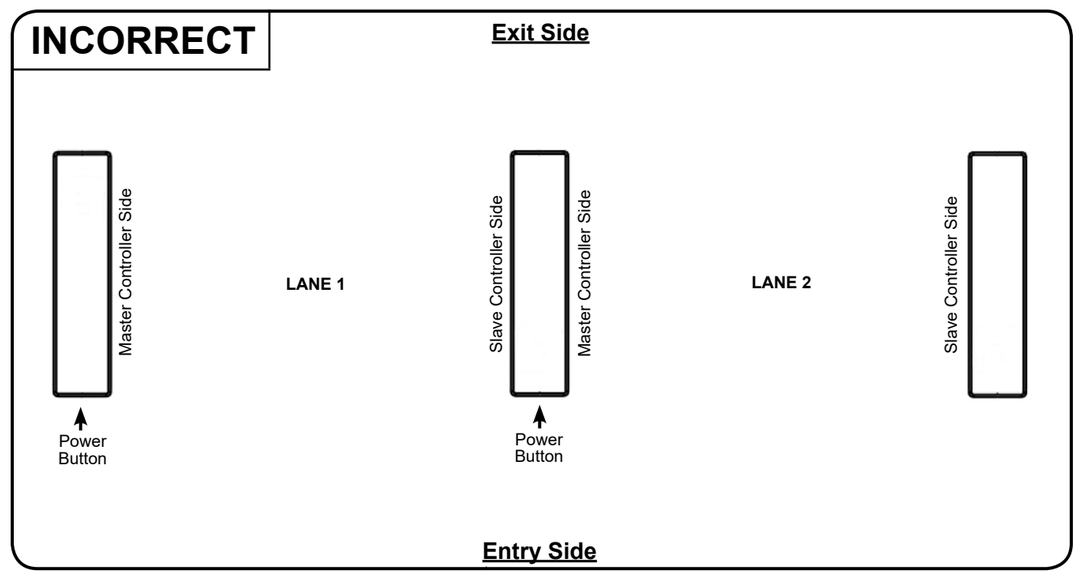


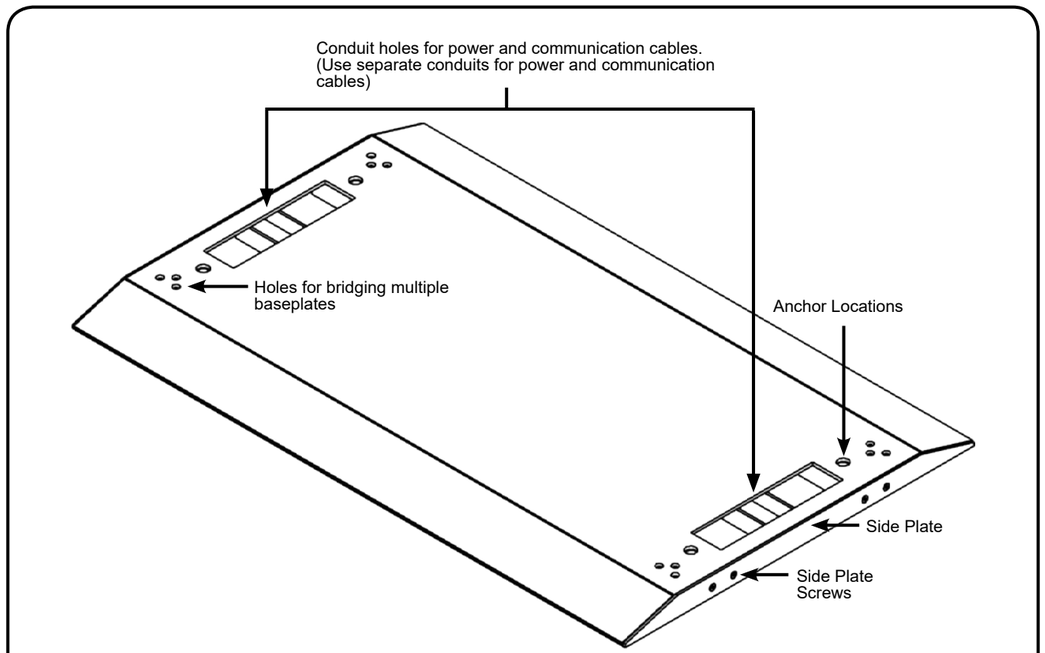
Figure 11 Incorrect Turnstile Layout (Lanes Oriented Backwards)



Portable Baseplate Assembly (Optional)

An optional SU500 portable baseplate may be purchased with the SU500 turnstile. A baseplate enables installation of the SU500 turnstile on a solid foundation without the need to drill holes in the ground. The portable baseplate also provides concealed conduit channels for wiring all power and communication cables. Baseplates come in different sizes and may be bridged together with other baseplates for multiple turnstile lanes. The following information will guide the installer in assembling the portable baseplate:

Figure 12 **Portable Baseplate**



Examine the area with a measuring tape and carefully mark the location where the portable baseplate(s) will be placed. Primary power and Ethernet cables (if applicable) must be accessible and provided to the turnstile. The side plate on the portable baseplate must be removed in order to route power / Ethernet (or the side plate may be drilled with appropriate holes as needed for concealment). Determine which side plate to remove and remove it by unfastening the (4) screws as shown in [Figure 12].

Place the portable baseplate carefully in the marked location. The installation process continues in the following sections. Follow the instructions there in order to pull the appropriate cables through the conduit openings.

For multiple lanes, baseplates may be attached together. Holes are provided for bridging multiple baseplates together. The side plate must be removed in order to bridge the baseplates together side by side. Secure the baseplates side by side by fastening the (6) screws provided to the link from the other baseplate (a link is provided for multiple lane baseplates).

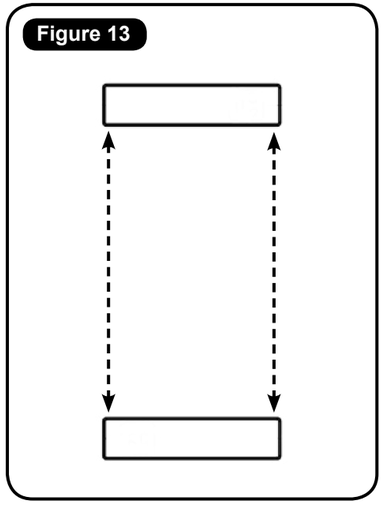
Installation Instructions
Anchoring the Turnstile

NOTE The Lane 1 master cabinet is always the right-most cabinet when viewed from the entry side of the turnstile.

1. Place the master cabinet and the slave cabinet in the determined location [see dimensions - Figures 3 -4].
2. Cabinets must be level to each other and square to all neighboring cabinets. This will ensure that all optical sensors are aligned for optimum performance. Use the following procedure to square each cabinet with respect to the floor and other cabinets:

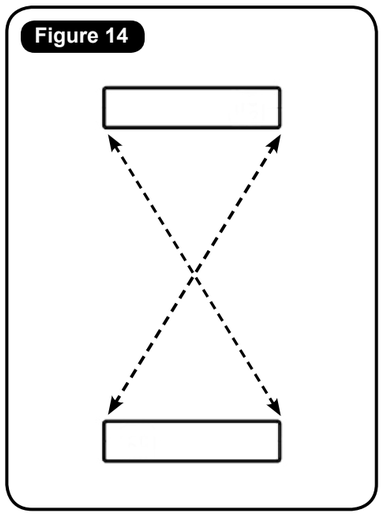
A. Measure the distance from the inside wall of one cabinet to the inside wall of the other cabinet, on both the entry and exit side of the lane for a consistent measurement [Figure 13].

Figure 13



B. Measure the diagonal distance from the end of one cabinet to the end of the opposing cabinet, then measure the opposing diagonal [Figure 14]. If these distances are equal, the cabinets are square.

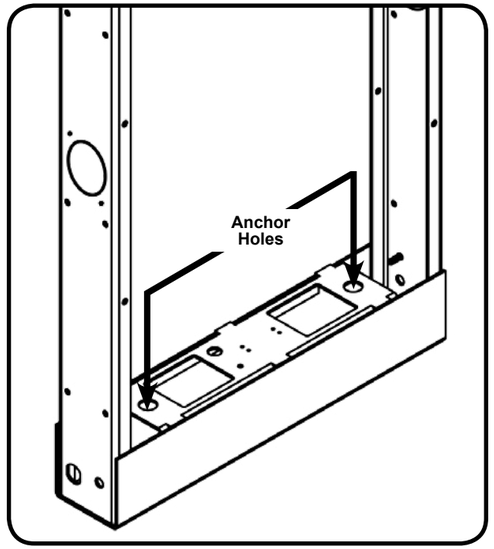
Figure 14



Anchoring the Turnstile (cont.)

3. Use a pencil and mark each anchor hole location [Figure 15]. There will be a total of two (2) anchor holes per cabinet. Remove the cabinets when complete.

Figure 15 Marking Anchor Holes

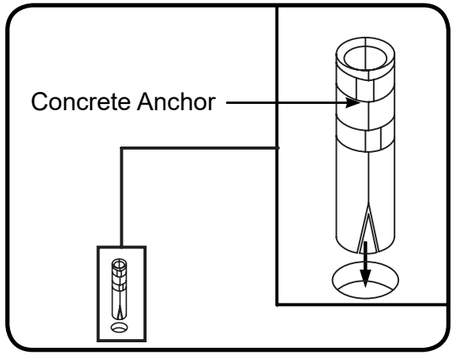


4. Using a 1" concrete drill bit, drill the anchor holes a minimum of 3" in depth at the center of each marked location.

NOTE

The anchor holes must be clean before installing the anchor bolts. If the holes are not clear of debris, the anchor bolts may not tighten correctly.

Figure 16 Anchoring



5. Insert the anchors into each drilled hole [Figure 16]. The threaded end of the anchor must be inserted into the hole first. Use a rubber mallet to tap the anchors into place, if needed. Ensure that the anchors are flush with the concrete floor.
6. If not already done, pull all wires (AC power, Ethernet and crossover cable) through conduit and conduit access holes prior to anchoring cabinets.
7. Using clear RTV silicone, seal the gaps between the conduit and conduit holes.
8. Maneuver each cabinet over the anchor locations. Insert two (2) 5/8" anchor bolts and flat washers.
9. Using a torque wrench (ft-lb) and 15/16" socket, torque the anchor bolts to 60 ft-lbs.

Wiring Instructions
Primary Power

IMPORTANT

110VAC or 220VAC primary power (unless ordered otherwise) must be hard wired in place. It is strongly recommended that a licensed electrician perform this procedure in accordance with all applicable local codes.

The primary power wiring lines for 110VAC and 220VAC consist of the following:

Terminal	110V	220V
Ground	Green	Green/Yellow
Neutral	White	Blue
Line	Black	Brown

1. Locate the pre-installed power terminal block and attached wiring (located on the master cabinet base) [Figure 17].
2. Attach each primary power wire to the power terminal block with the corresponding color exiting on the other side [Figure 17A].
3. Using a Phillips-head screwdriver, tighten each terminal block connection.

NOTES

The orientation of the pre-installed terminal block may differ from what is shown in [Figure 17 & 17A]. On some installations, the terminal block is rotated 90 degrees.

Figure 17 Primary Power and Crossover Cable (Master Cabinet)

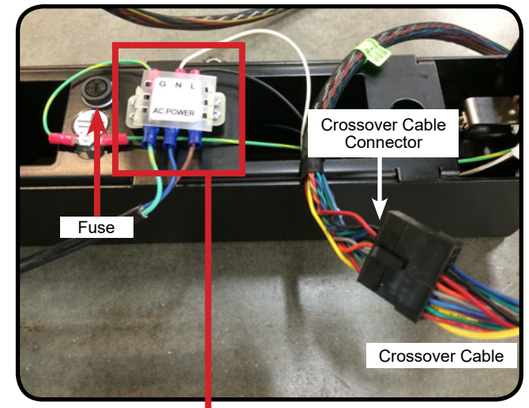
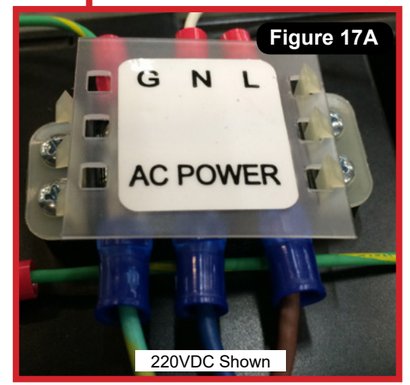


Figure 17A

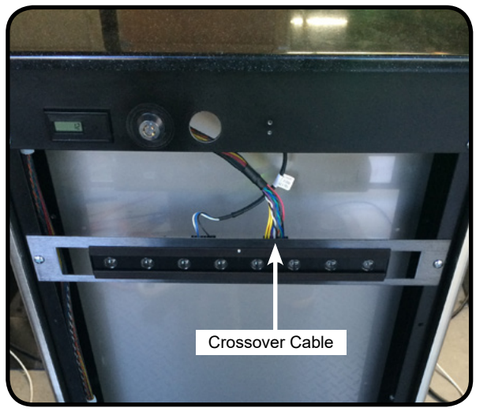


Crossover Cable

The included crossover cable interconnects communication signals and low-voltage power between the master and slave cabinets. The default length of the crossover cable included with the SU500 is 11'. Optional crossover cable lengths of 20' and 40' are available.

1. Connect one end of the crossover cable to the connector tucked into the master cabinet as shown in [Figure 17].
2. Connect the other end of the crossover cable to the transmitter sensor array in the slave cabinet as shown in [Figure 18].

Figure 18 Crossover Cable Connection (Slave Cabinet)



Count Output Relays (Optional)

NOTE

This section is only applicable to SU500s being used in conjection with the optional GWCB-12 count controller. Output relays are utilized to communicate count data to the GWCB-12. Verfiy that you have output relays installed as shown in [Figure 19].

1. Locate the entry and exit output relays [Figure 19].

Figure 19 Output Relays

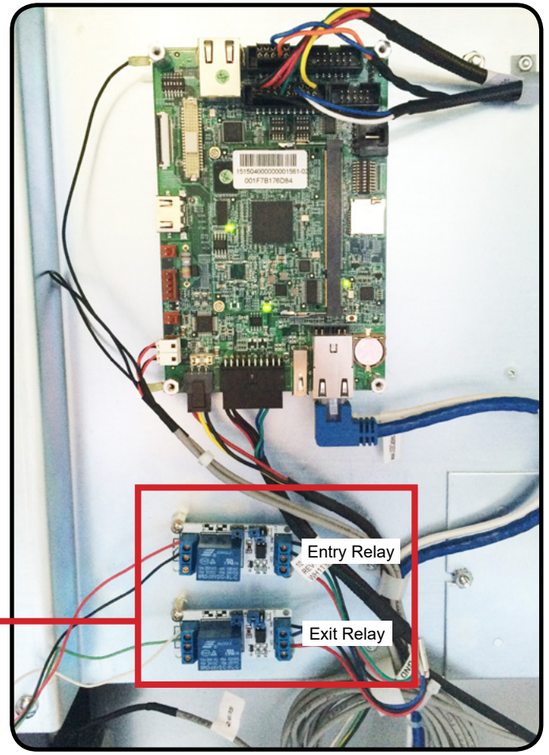
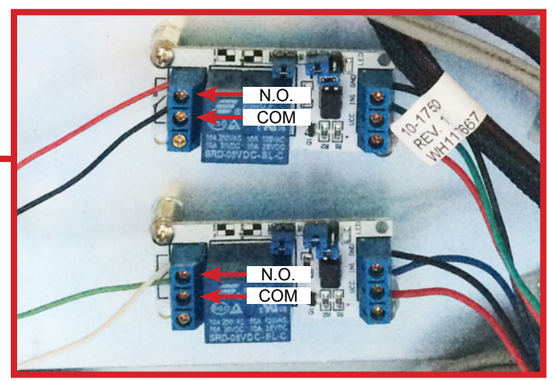


Figure 19A Output Relay Terminals



2. Using a precision flat-blade screwdriver, wire the relay's normally open (N.O) and common (COM) terminals to the GWCB-12 input terminals [Figure 19A].

NOTES

Relay wire shall be provided by the technician.

Refer to the *GWCB-12 Installation & Maintenance Guide (PUD3089)* for wiring instructions.

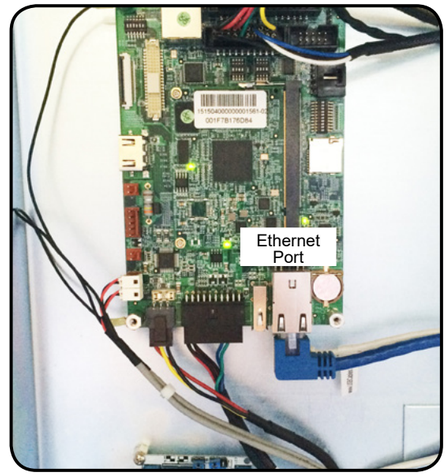
Ethernet Communication (Optional)

NOTE

It is assumed that Ethernet cabling has been run to the turnstile via conduit and pulled through the conduit opening in Step 6 of the Anchoring the Turnstile section.

1. Locate the main turnstile controller in the master / center cabinet.
2. Connect the Ethernet cable to the Ethernet Port [Figure 20].

Figure 20 Main Turnstile Controller



Basic Operations
Powering On

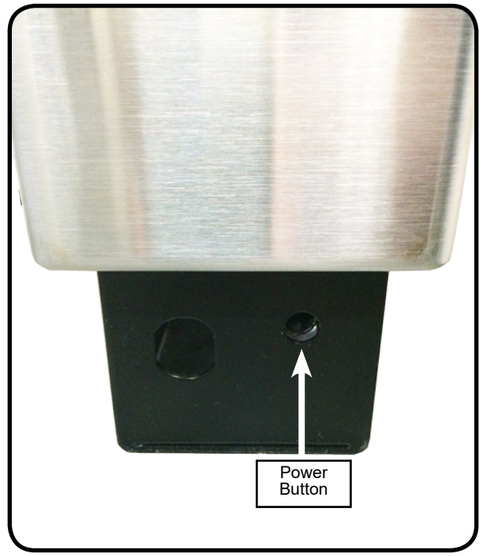
The power is button located at the base of the master cabinet on the secured side [Figure 21].

1. Using a slim object such as a pencil or pen, push the power button.
2. The power-up cycle takes less than one minute to complete. Two chimes sound during the power-up cycle to indicate status:
   - Ascending Chime: Operating system booted successfully.
   - Descending Chime: Turnstile application launched successfully, and the power-up cycle is complete.

NOTE

After the boot-up cycle is complete, the SU500 enters into the operating modes last configured.

Figure 21 Power Button



Configuring the SU500

To configure the SU500, you will need to modify the turnstile configuration file **ModelConfig.txt**. To access and modify this file, you will need a computer and **UltraVNC Viewer** remote desktop software. UltraVNC Viewer is located on the File Management CD that was provided with the turnstile. If you are unable to locate, or have misplaced, the File Management CD, contact Alvarado Technical Support.

Computer Requirements

- Operating System - Windows XP / Windows Vista / Windows 7 / Windows 8
- .NET Framework 4.0 or greater
- CD- / DVD-ROM drive

Installing UltraVNC Viewer

1. Insert the File Management CD into the CD/DVD drive on the computer.
2. Navigate to X:\File Management Utility CD\UltraVNC Software.
3. Double-click the **UltraVNC_1.0.9.6.2_Setup** icon to begin the installation.
4. During the installation process, go with the default selections with the exception of the **Select Components** screen, in which **UltraVNC Viewer Only** should be selected.
5. Follow the installation prompts until the installation is complete.

Before making any configuration changes, please read the following brief descriptions of the two SU500 operating modes.

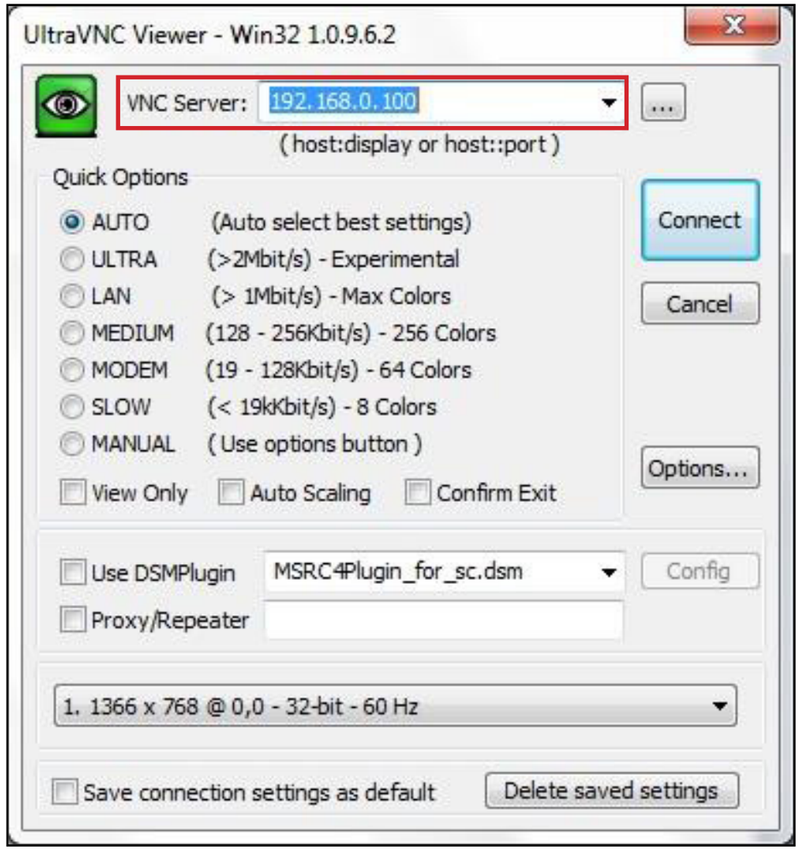
Operating Mode	Description
Count	A count is generated each time a user completes a passage. Count mode can be either single direction or bi-directional. Bi-directional count mode is the default configuration. **This is the default operating mode.**
No Passage	No passage is allowed. A passage attempt sets off a violation alarm. If a user passes through the lane, a count is still generated in order to track no passage violations.

Configuring the SU500 (cont.)

Connecting a Computer to the Turnstile

1. Locate the Ethernet port on the main turnstile controller [Figure 20].
2. Connect the Ethernet cable from the computer to the Ethernet port.
3. Launch UltraVNC Viewer.
4. Enter the turnstile IP address in the **VNC Server** field [Figure 22]:
    - If this is a newly installed or non-networked turnstile, enter the factory default turnstile IP address: **192.168.0.100**.
    - If the turnstile has already been configured with a facility network IP address, enter that network IP address.
5. Click the **Connect** button.

Figure 22 **UltraVNC Viewer**



Configuring the SU500 (cont.)

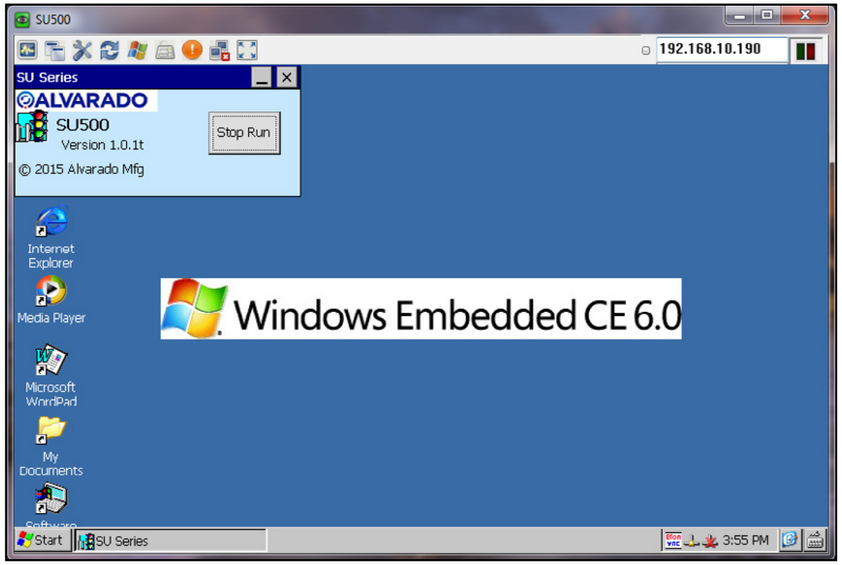
6. Enter: **alvarado** for the password at the VNC Authentication window [Figure 23].
7. Click the **Log On** button.

Figure 23 VNC Authentication Screen

Setting Operating Modes

1. Upon password verification, the SU500 desktop appears onscreen [Figure 24]. Communication with the turnstile is now established.

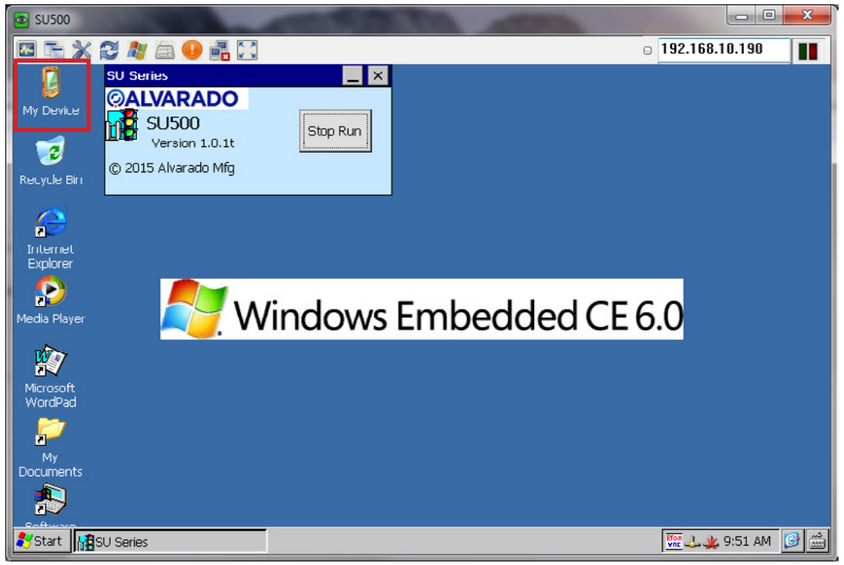
Figure 24 SU500 Desktop



Configuring the SU500 (cont.)

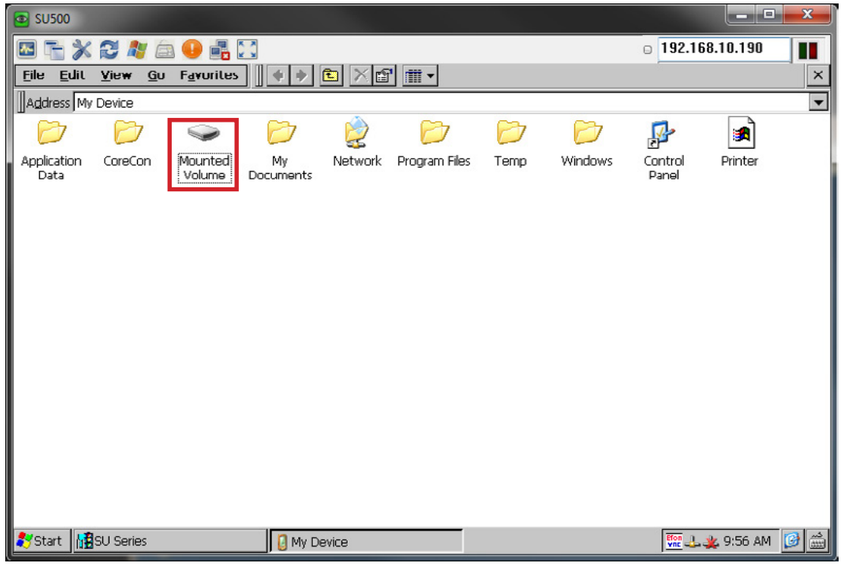
2. Slide the **SU Series** window to the right in order to see the **My Device** icon [Figure 25].
3. Double-click the **My Device** icon.

Figure 25 My Device Icon



4. Double-click the **Mounted Volume** icon [Figure 26].

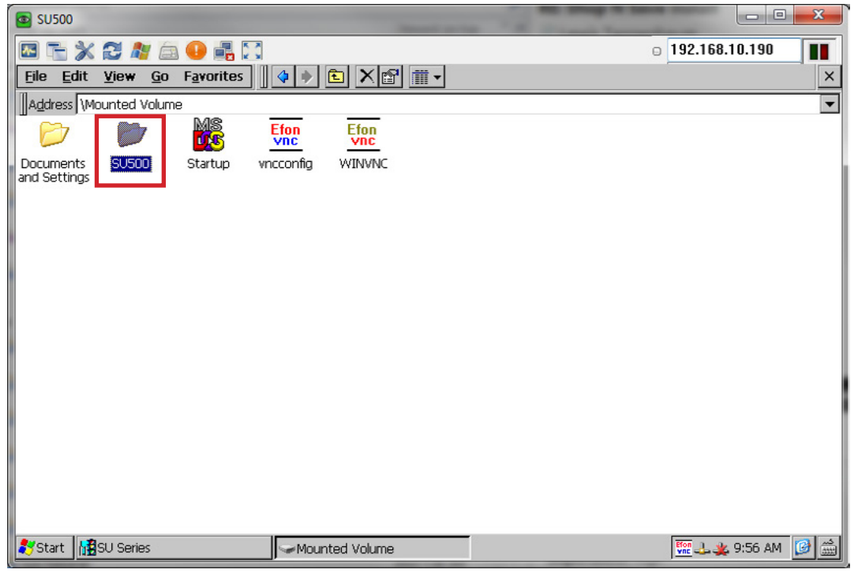
Figure 26 Mounted Volume Icon



Configuring the SU500 (cont.)

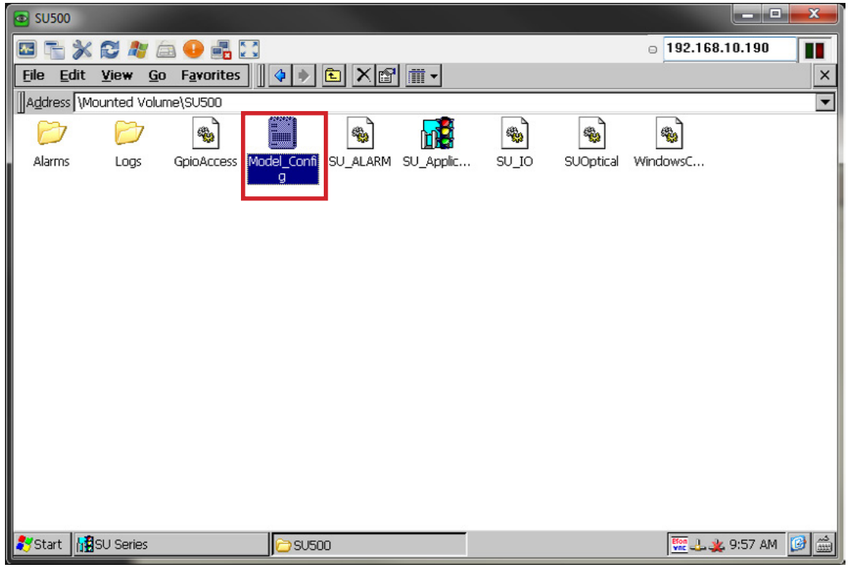
5. Double-click the **SU500** folder [Figure 27].

Figure 27 **SU500 Folder**



6. Double-click the **ModelConfig** file to make edits [Figure 28].

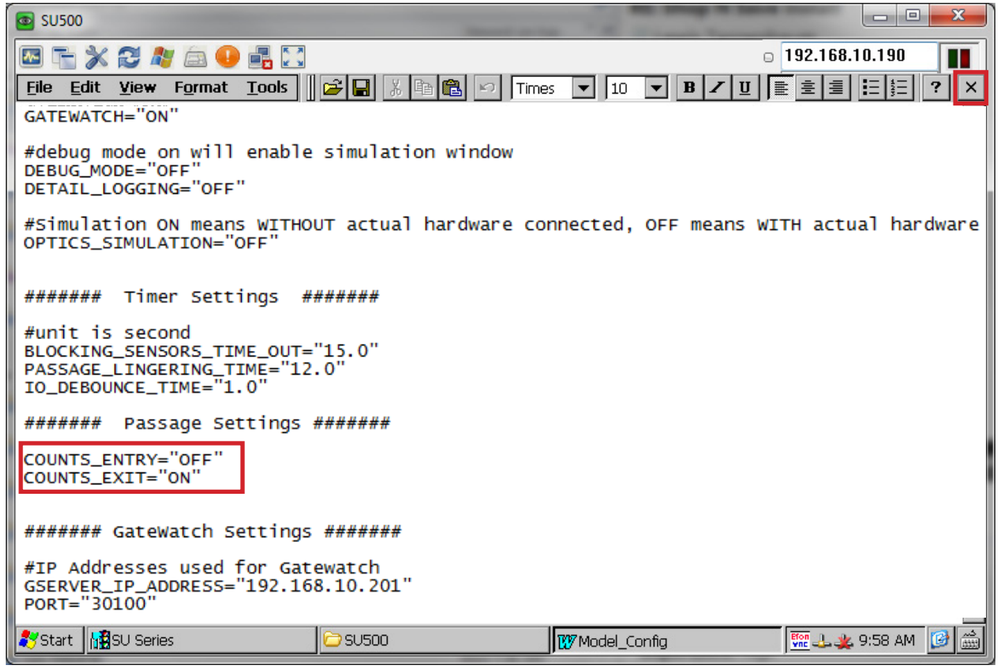
Figure 28 **ModelConfig File**



Configuring the SU500 (cont.)

7. Scroll down to **Passage Settings** section and locate the **COUNTS_ENTRY=** and **COUNTS_EXIT=** lines [Figure 29].
8. For either direction, input "OFF" for No Passage mode, and "ON" for Count mode.

Figure 29 **ModelConfig Settings**



If the SU500 will be used in conjunction with Alvarado's GateWatch software, proceed to 'Configuring the GateWatch Server IP Address' on the next page. If not, proceed to step 9 below.

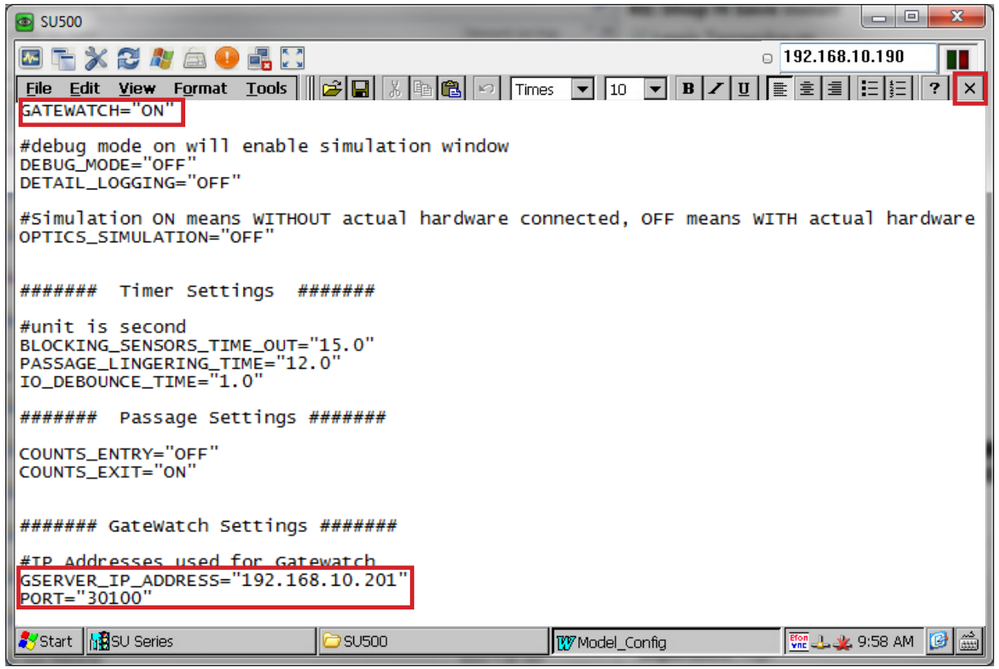
9. Click the **File** drop-down menu and click **Save**.
10. Click X in the upper-right corner until back at the home screen [Figure 30].
11. Close UltraVNC Viewer.
12. Cycle power to the SU500 for the changes to take effect.

Configuring the SU500 (cont.)

Configuring the GateWatch Server IP Address

1. Verify GATEWATCH is set to "ON".
2. Scroll down to the GateWatch Settings section and locate the **GSERVER_IP_ADDRESS=** line.
3. Enter the GateWatch server IP address
4. Click the **File** drop-down menu and click **Save**.
5. Click X in the upper-right corner until back at the home screen [Figure 30].
6. Close UltraVNC Viewer
7. Cycle power to the SU500 for the changes to take effect.

Figure 30 **ModelConfig Settings**

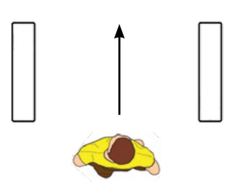


Testing Lane Functionality

Perform the following turnstile functionality tests to validate basic turnstile operation. Tests are provided for Count and No Passage modes.

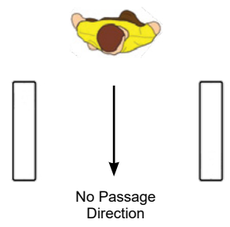
COUNT MODE

To perform this test, set the SU500 to Count mode in either the entry or exit direction.

TEST	PROCEDURE	TURNSTILE RESPONSE
Count Direction 	Enter the lane and complete a passage.	• Count output is generated in the direction of the passage. • No alarm sounds as the user enters and exits the turnstile.

NO PASSAGE MODE

To perform this test, set the SU500 to No Passage mode in either the entry or exit direction.

TEST	PROCEDURE	TURNSTILE RESPONSE
 No Passage Direction	Walk through the lane in direction set to No Passage mode.	• Unauthorized Entry alarm sounds. • Count output is generated in the direction of the violation.

Testing Turnstile Functionality (cont.)

BLOCKED SENSOR

TEST	PROCEDURE	TURNSTILE RESPONSE
	Using your hand or other object, block the sensors for at least 15 seconds.	• After 15 seconds, the Blocked Sensor alarm will sound. The alarm will continue to sound until you the obstruction is removed.

LINGERING

TEST	PROCEDURE	TURNSTILE RESPONSE
	Walk into the lane, and remain in the lane for at least 15 seconds.	• After 12 seconds, the Loitering alarm sounds.

Testing Ethernet Communication (Optional)

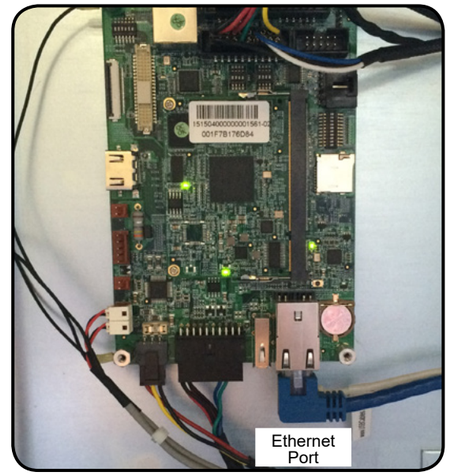
NOTE

The following procedure is applicable to non-networked (standalone) turnstiles.

Required Items:

- CAT5/6 Ethernet Cable
- Laptop Computer Running Windows 7 or Windows 8

Figure 31 **Main Turnstile Controller**



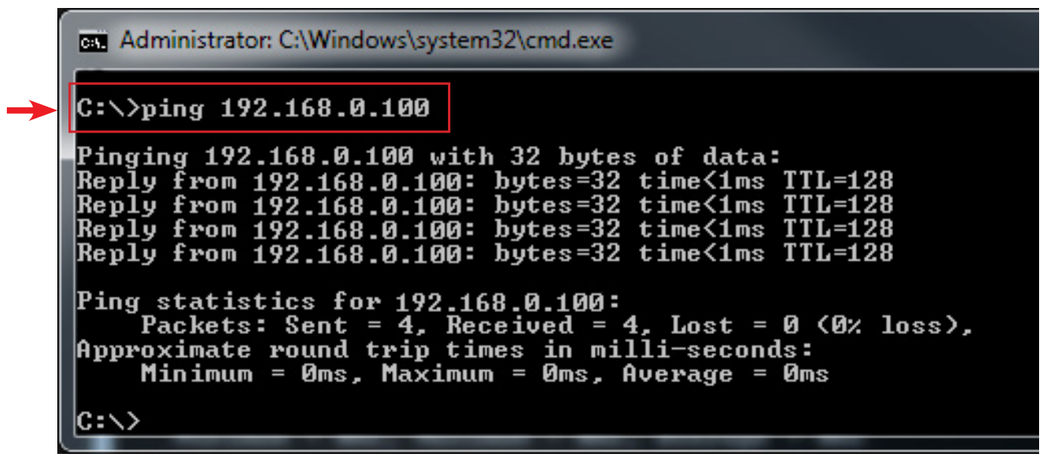
1. Locate the Ethernet port on the main turnstile controller [Figure 31].
2. Connect the Ethernet cable to the Ethernet port.
3. Connect the other end of the Ethernet cable to the laptop computer.
4. Launch **Command Prompt** on the computer by typing **CMD** in the '**Search programs and files**' field.
5. Enter the following command: **ping XXX.XXX.X.XXX,** where XXX.XXX.X.XXX is the IP address of the turnstile [Figure 32].

NOTE

192.168.0.100 is the default IP address configured by Alvarado. If the turnstile has been assigned a different network IP address, ping that IP address instead. Contact your system administrator for network information.

6. A successful ping will result in the message shown in [Figure 33]:

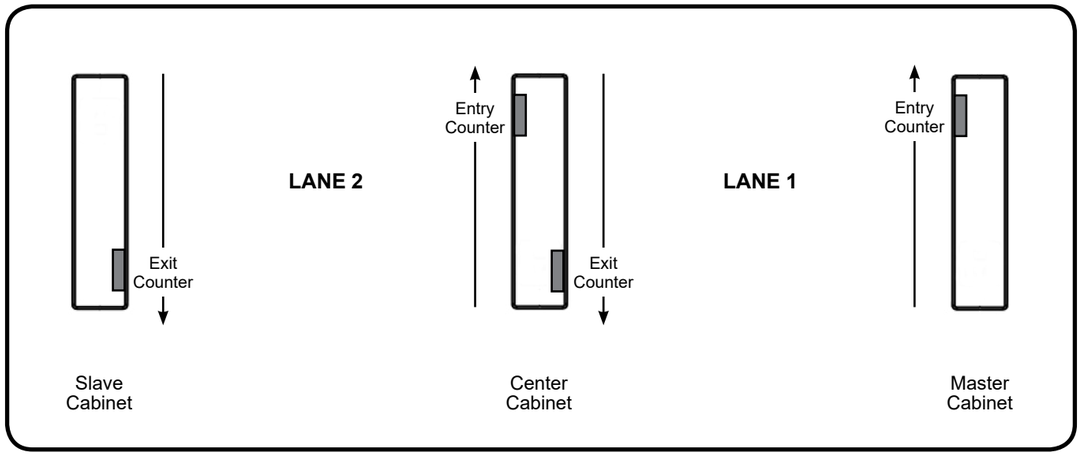
Figure 32 **Ping Results**



Battery-Powered Counters (Optional)

Optional battery-powered counters are integrated into the turnstile cabinets [Figure 33]. One counter is required per direction of travel. Each passage through the turnstile generates a count. Counters can be ordered as reset or non-reset variants. Reset counters can be reset to “0” using a key-operated switch integrated into the turnstile cabinet. Non-reset counters will automatically reset at 1,000,000 counts.

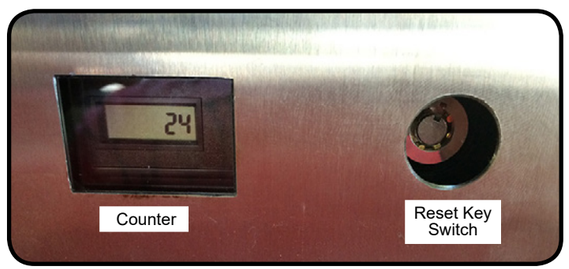
Figure 33 **Counter Locations (Two-Lane Configuration)**



To reset the counter:

1. Insert barrel key into the key switch and turn key in a clockwise direction [Figure 34].

Figure 34 **Counter with Optional Reset Key Switch**



Finish the Installation

Complete the following steps below only if the primary power, crossover cable, and access control wiring is connected.

1. Reinstall the lids and secure with the lid mounting screws.
2. Reinstall the end panels and secure with the end panel mounting screws.

Post-Installation Checklist

1. Power On
   - ☐ SU500 boots up successfully.
2. Lane Functionality
   - ☐ Lane generates count outputs in the entry/exit direction.
   - ☐ Lane alarms when the sensors are blocked.
3. Attachment
   - ☐ Cabinet lids and panels are securely fastened to the turnstile.
4. Wipe Down Turnstile
   - ☐ Stainless Steel – Wipe down stainless steel with a damp cloth or use Alvarado's recommended commercial products.
   - ☐ Powder Coated - Wipe down power coated surfaces with a damp cloth.
5. Manuals Handoff
   - ☐ Provide the *SU500 Installation Instructions* to the project or site manager.

Maintenance

Preventative maintenance should be performed periodically after installation to ensure the product maintains its visual exterior and optimal performance. To maintain the SU500, follow the instructions below as needed. Due to the various types of exterior finishes on the SU500, different types of care must be taken to keep the unit clean and undamaged.

Cleaning the Cabinet Exterior

Regular cleaning is the best way to maintain any stainless steel or finished equipment and prevent corrosion.

1. Stainless steel surfaces may be cleaned using any commercially available stainless steel cleaner or polish. If a heavier scratch mark is apparent, a metal blend and finish pad by 3M Company or equivalent may be used followed by a stainless steel cleaner. ALWAYS POLISH IN THE DIRECTION OF THE GRAIN.

2. Powder-coated cabinet surfaces may be cleaned using a soft damp cloth. Any deep scratches in this type of finish should be touched up to prevent rust or corrosion from forming. If left untreated, rust can spread under the powder-coat finish.

Cleaning the Top Lid and Sensor Lens Covers

Use cleaning products that are specifically recommended for use on acrylic surfaces. We recommend two products:

- ***Brillianize***
- ***Novus #1***

The two recommended products will clean the material and leave a greaseless shine that will repel dust and resist fingerprints. DO NOT use scouring compounds or chemical cleaners like Windex that contain ammonia or alcohol.

1. Using a soft cloth, clean the acrylic surfaces according to the instructions provided with the recommended cleaning product. DO NOT SCRUB THE ACRYLIC!
2. Check for cracks or scratches on the acrylic sensor lens covers. Sensor lens covers should only be replaced if they are inhibiting the function of the unit.

Interior Maintenance

Internal Maintenance should occur once every year. Dust build up is the most important concern inside the cabinet. Use canned air dust remover to clean out all the dust from the inside of the cabinet and specific areas noted below.

1. **Printed Circuit Boards (PCBs):** Using canned air dust remover, blow out the dust on the printed control boards.
2. **Sensors:** Using canned air dust remover, clean the dust from the optical sensors.

Weekly Safety Check

Perform the following safety check on a weekly basis to ensure that the turnstile is ready for user operation. If the turnstile does not pass the Activation , do not use the turnstile. Contact your service professional or Alvarado for assistance.

1. **Attachment** - Verify that the cabinet lids and side panels are secure. If necessary, tighten screws.
2. **Passageway** - Check the turnstile passageway and entry and exit areas for trash or other debris that may impede traffic or be a safety hazard.
3. **Count Test** - Activate the turnstile and complete a passage in both the entry and exit directions.

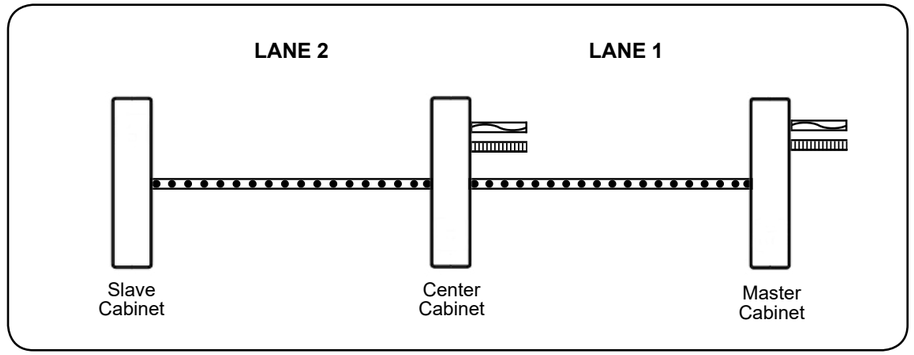
Troubleshooting

This basic troubleshooting section is provided to aid installers with the most commonly encountered installation problems. If you require more troubleshooting assistance, contact Alvarado technical support.

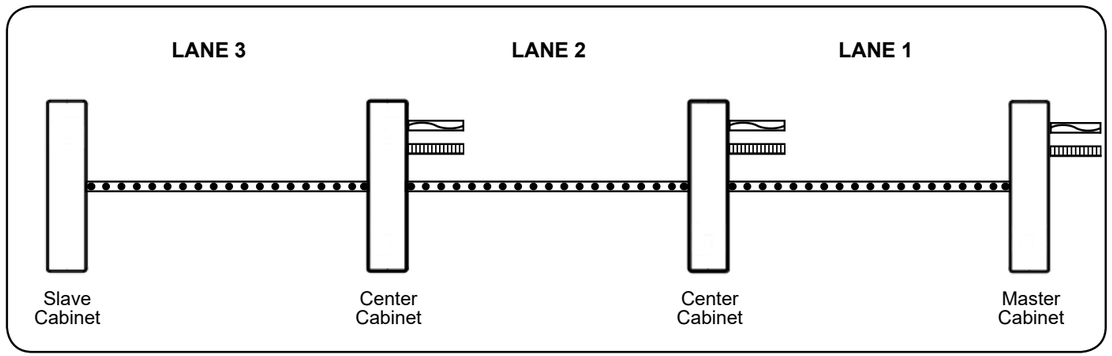
Symptom	Possible Cause	Solution
Unit will not power up	No Power	Make sure that there is power to the turnstile power terminal block. Check if LEDs are lit on the main turnstile controller.
	Blown Fuse	Check fuse. If necessary replace with a 2.5A (slo-blo) fuse.
	Bad Power Supply	Meter the 5V (red) and 12V (yellow) output on the power supply supply output. Replace power supply if defective.
Blocked Sensor Auditory Alarms sounds after 15 seconds (default)	Wire or cable blocking sensors	Check for a stray wire or cable in front of the transmit and receive operational sensors (horizontal arrays).Tuck any stray wire or cable out of sensor viewing area.

Appendix A - Multi-Lane Conduit Requirements

Two-Lane Configuration



Three-Lane Configuration



Symbology	Description	Conduit Size
	Primary Power	3/4”
	Ethernet Cable	3/4”
	Crossover Cable	1.5”

Revision History

Revision	Date	Author	Description
5-0	07/14/15	A. Flores	Updated to new optical electronics configuration.

Alvarado dormakaba Group, Inc. 12660
Colony Street, Chino, CA 91710
Telephone: (909) 591-8431
Fax: (909) 628-1403
support@alvaradomfg.com
www.alvaradomfg.com