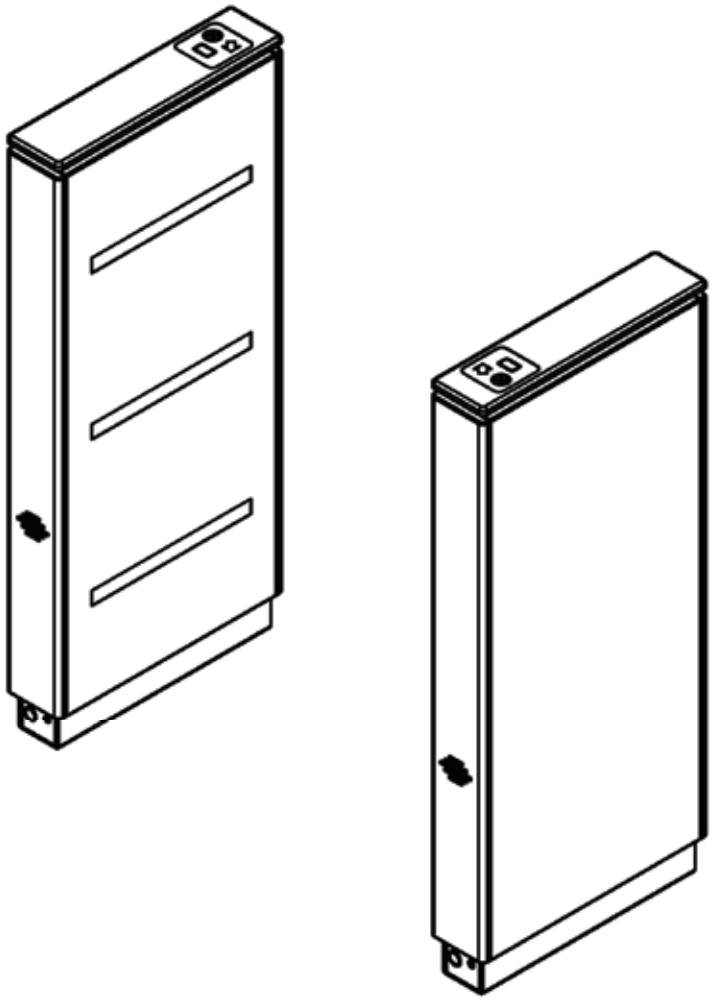
ALVARADO
dormakaba Group

# Supervisor 2000
# (SU2000)

**Barrier-Free Optical Turnstile**



## User Guide

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PUD3722R1-4

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## Contents

## Safety Precautions

**⚠ WARNING** The Supervisor 2000 may present a risk to persons and property if it is not operated correctly. Therefore, this manual must be read in its entirety and all safety and operations information must be adhered to. 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.
- Power off the turnstile before connecting or disconnecting any communication or power wiring to the turnstile.

- Pour utilisation à l'intérieur seulement.
- Utilisez uniquement des personnes qualifiées pour installer et entretenir le tourniquet.
- NE PAS faire fonctionner le tourniquet s'il a été endommagé de quelque façon. S'il est endommagé, faire réparer ou ajuster l'unité avant l'utilisation par un(e) préposé(e) à l'entretien qualifié(e).
- NE PAS modifier ou altérer le tourniquet.
- Le tourniquet doit être maintenu selon un calendrier d'entretien adéquat par des personnes qualifiées.
- Dans les applications de contrôle d'accès, former tout le personnel qui utilisera le tourniquet selon la bonne méthode de fonctionnement. De plus, bien former les nouveaux utilisateurs à leur intégration au système.
- NE PAS utiliser des pièces ne provenant pas du Alvarado pour réparer un tourniquet endommagé.
- Suivez strictement les instructions de manutention pour déplacer ou soulever le tourniquet lors de l'installation
- Éteignez le tourniquet avant de brancher ou de débrancher le câblage de communication ou le câblage d'electricité.

- This turnstile can be used by children aged 12 and above, inexperienced persons, or persons with reduced physical, sensory, or mental conditions, if such children or persons are supervised, or have been provided instruction regarding the safe and proper usage. Children shall not play with or around 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.

## Purpose Of This User Guide

The Supervisor 2000 (“SU2000”) User Guide is an operational manual which describes the operational features of Alvarado SU2000 optical turnstile product.

## Intended Users

The manual is intended for use by owners, facility operators and system integrators responsible for the product, the facility access system and the employees, vendors and invitees that will use the equipment on a day-to-day basis.

## User Responsibilities

As owner or caretaker of the equipment, it is essential that you maintain your SU2000s and ensure safe product use by the employees, vendors and invitees that will be utilizing the product.

The operation of the SU2000s should be tested weekly to ensure the product is operating correctly. This User Guide provides instructions for a Weekly Safety Check.

## SU2000 Overview

The Supervisor 2000 is a barrier-free optical turnstile that provides bi-directional access control and other passage modes. In Controlled Passage mode, upon receipt of a valid card signal from an access control system or GateKeeper turnstile control software, the integrated sensors allow a single user to pass through the turnstile in the requested direction. If an unauthorized user attempts to tailgate on the entry, the unit will recognize the illegal passage, a violation alarm will sound and red notification lights will flash.

The SU2000 utilizes integrated optical sensors to control access. The optical sensors detect patrons, determine the direction of patron movement, and (in conjunction with the facility access control system) detect unauthorized users as well as “piggybacking” or “tailgating” on allowed entries.

While access control throughput will depend on the access control system and readers used, the SU2000 supports extremely rapid entry and throughput. It will “stack” valid scans and process patrons as fast as they can walk through the turnstile.

## SU2000 Cabinets

There are three types of SU2000 cabinets used to create passage lanes: Main, Secondary, and center (expansion). A single lane consists of a Main cabinet and a Secondary cabinet [Fig. 1]. The center cabinets are used to create additional lanes with the addition of a single cabinet [Fig. 2].

Each cabinet has an unsecured and secured side. Alvarado follows what we call the “right-hand rule." User status lights and card readers are always installed on the right-hand side as you enter the turnstile.

### Main Cabinet

The Main cabinet contains the main turnstile controller, I/O control board, power supply, operational sensor receivers, crawl sensor receiver, and a recessed power button.

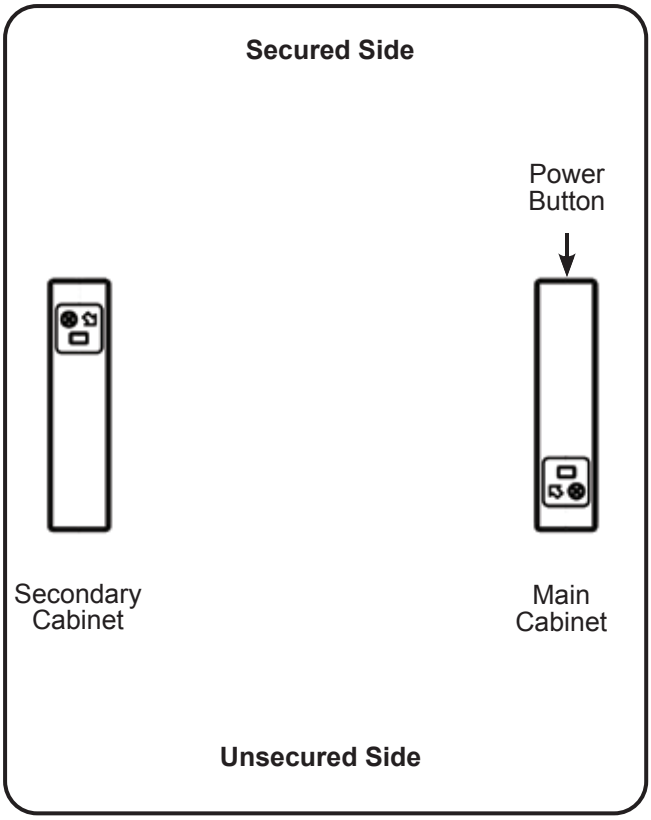
The reveal of the Main cabinet contains the user status display that communicates turnstile status to the user.

### Secondary Cabinet

The Secondary cabinet contains operational sensor transmitters and crawl sensor transmitter.

The reveal of the Secondary cabinet contains the user status display that communicates turnstile status to the user.

**Fig. 1** **Single-Lane Configuration**



## SU2000 Cabinets (cont.)

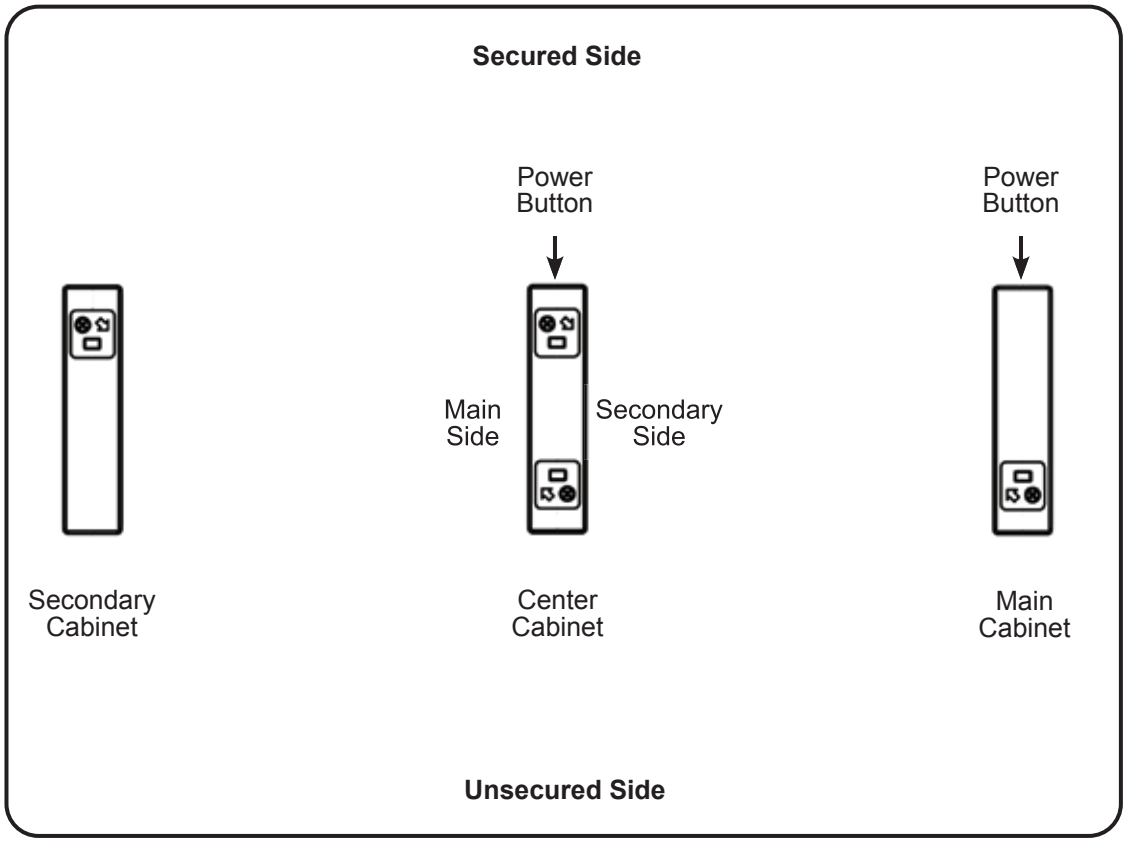
### Center Cabinet (Multi-Lane Configuration)

Center cabinets contain both Main and Secondary components. Center cabinets are extension cabinets used in multi-lane applications. An unlimited number of center cabinets can be added.

The center cabinet contains the main turnstile controller, I/O control board, power supply, operational sensors, crawl sensors for both the Main and Secondary side of the center cabinet, and a recessed power button.

The reveal of the center cabinet contains two user status displays that communicate turnstile status to the user for both directions of travel.

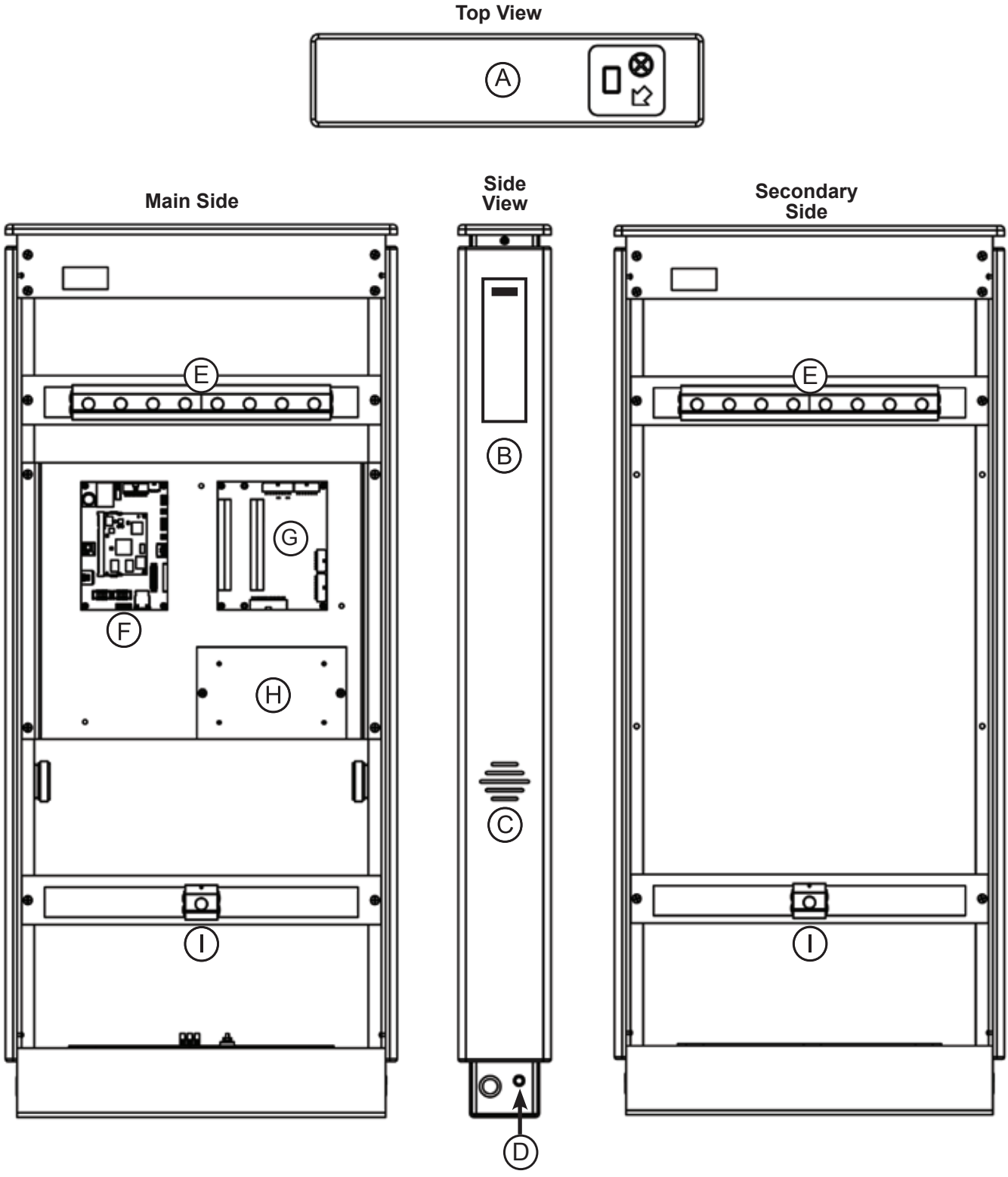
**Fig. 2** **Multi-Lane Configuration**



## SU2000 Components

An overview of the major turnstile components is presented below [Fig. 3]. More information on these components can be found later in this document.

**Fig. 3** **SU2000 Components**



## SU2000 Components (cont.)

### Ⓐ Cabinet Lid / User Status Display

Cabinet Lids are fabricated from 100% acrylic resin. For each direction of travel, there is a user status display located on the right-hand side. The user status display provides visual instructions to users regarding the status of presented credentials (based on data from the access control system) and visual notification of alarm conditions.

### Ⓑ End Panels

End panels are fabricated from #304 stainless steel. Slim mullion-style card readers may be installed to the end panels. An example card reader is shown installed in [Figure 3 - Side View].

### Ⓒ Speakers

Two speakers are mounted to the fascia of Main and center cabinets. The speaker is used to play auditory sounds and alarms.

### Ⓓ Power Button

There is one power button installed per turnstile. The power button is installed in the base of the Main / center cabinet on the secured side.

### Ⓔ Operational Sensors

Operational sensors are used to detect and monitor users as they enter, pass through and exit the turnstile. Infrared transmitters are on the Secondary side of the turnstile. Infrared receiver sensors are on the Main side of the turnstile.

### Ⓕ Main Turnstile Controller

The main turnstile controller houses the CPU unit and various hardware ports, such as USB, Ethernet, and HDMI.

### Ⓖ I/O Control Board

The I/O control board is the interface point between the turnstile and the facility access control system. Passage activation and the various other inputs and outputs available from the turnstile are accessed through the I/O control board terminal strips.

### Ⓗ Power Supply

There is a single power supply installed in the Main / center cabinet. This supply converts primary power to12V and 5V low-voltage power for main turnstile controller, optical sensor, and light operation.

### Ⓘ Crawl Sensors

Crawl sensors are used to detect users attempting to crawl through the lane. Crawl sensors are located near the cabinet base on both the entry and exit side of the turnstile. Infrared transmitters are on the Secondary side of the turnstile. Infrared receiver sensors are on the Main side of the turnstile.

## SU2000 Options

There are various SU2000 options. Options relating to turnstile operation are listed below:

### Alternate Power Supply

A 220 - 240 VAC, 50 Hz power supply and appropriately rated power button are utilized.

### Baseplate

A baseplate for either single lane or multi-lane configurations is available. The baseplate is powder coated black with a black non-slip coating in the passageway area. The baseplate includes enclosed cable runs and eliminates the need for trenching or stubbing up conduit from the floor.

### Card Reader Integration

Due to the extremely slim architectural profile of the SU2000, generally only mullion-sized readers can be installed to the end cabinet. Custom reader integration is available. If you are utilizing larger sized readers, this will have been addressed during the ordering and product checklist process.

### Alternate Cabinet Materials

Cabinets may be fabricated from wood, laminates, or other materials. Contact Alvarado to discuss requirements.

### Power-Coated Cabinets

External cabinet materials may be powder-coated in a variety of colors.

### Lane Key Controls

A pair of 3-position key switches are provided to control each direction of travel per lane. Turning the key to one of three positions overrides all settings and can place the turnstile in Controlled Passage mode, Free Passage mode, or No Passage mode. Settings are user-configurable for each direction of travel.

### Longer Interconnect Cables

Among the cabling requirements for the SU2000 is an “interconnect cable" that runs through conduit between the two turnstile cabinets. The standard interconnect cable length is 11’. Longer interconnect cables, available in 20’ and 40’ lengths, are available on a custom order basis.

### GateKeeper

GateKeeper is an optional desktop application that allows installed Alvarado optical turnstiles to be controlled from a single PC. GateKeeper allows the control and scheduling of most day-to-day operating functions including designating a turnstile as entry or exit only, opening or closing a turnstile, and allowing single passage overrides for guests or personnel that have forgotten their access card. The application also includes various other functions. These functions include an emergency “open all turnstiles” capability that is in addition to the emergency override / fire alarm capabilities of the SU2000. The application has tiered login levels with three levels of security (Operator, Supervisor, and Administrator).

## Access Control Integration

There are two types of interfaces to allow an access control system to operate with the SU2000:

### Dry Contacts

Single passage activation and the various other inputs and outputs available to / from the SU2000 are accessed through the I/O control board located in the Main cabinet. The required system input to the SU2000 is a voltage-free, momentary dry contact (unless otherwise indicated). Outputs to the SU2000 are also voltage-free, momentary dry contacts. In rare cases, depending on the access control system, it may be desirable to utilize isolation relays to ensure proper system signaling. Additional information on I/O interfacing is provided later in this manual.

### TCP/IP

For select projects, a TCP/IP interface is available. This interface allows a third-party access system to communicate to / from the SU2000 using a defined TCP/IP command structure. There is an additional charge for use of the TCP/IP interface and implementation requires programming efforts on the part of the access system provider. Instructions pertaining to the TCP/IP interface is outside the scope of this manual.

## SU2000 Functionality

## Passage Modes

Entry and exit directions can be individually configured to different passage modes to suit facility requirements. For example, a turnstile can be configured for Controlled Passage mode in the entry and exit directions, or Controlled Passage mode in the entry direction and Free Passage mode in the exit direction. The turnstile may also be configured to any combination of the passage modes listed below.

The various passage modes are described below.

### Controlled Passage Mode

Upon receipt of an authorization signal from an access control system, a single passage in the authorized direction is allowed. Any unauthorized passage will set off a violation alarm. Controlled Passage mode can be either single direction or bi-directional.

### Free Passage Mode

An authorization signal is not required for a user to pass through the lane. Free Passage mode can be either single direction or bi-directional.

### No Passage Mode (Lane Closed)

No passage is allowed. Valid electronic credentials are ignored and passage is not allowed. Any passage will set off a violation alarm. No Passage mode can either be single direction or bi-directional.

### Visitor Passage Mode (2015 Release)

Visitor Mode places the turnstile in Free Passage mode in both the entry and exit directions. The purpose if this mode is to allow a group of non-credentialed visitors to enter and leave the facility without requiring an attendant to enter individual authorizations for each person. Typically, Visitor Passage mode is enabled / disabled with the use of a toggle button at a security desk.

## Setting Passage Modes

Turnstile passage modes can be set in one of three ways:

### Turnstile Lane Key Control

If this option has been ordered for your turnstiles, two 3-position key switches are installed on the turnstile. Turning the key to one of the three positions allows each turnstile direction to be placed in any of the passage modes. Instructions on using lane key control are provided on Page 17.

### I/O Control Board

Passage modes are set via wiring to the I/O control board inputs. This method is ideal for facilities that do not require changing passage mode configurations throughout the day. This is the most common method used by our customers. Instructions for wiring to the I/O control board are provided in the *SU2000 Installation Instructions.*

### GateKeeper

GateKeeper is an optional desktop software application. GateKeeper, along with other functionality, allows the passage modes for both the entry and exit side of the turnstiles to be changed using the GateKeeper application. Instructions on configuring passage modes using GateKeeper is outside the scope of this manual.

## Bi-directional Traffic and Smart Use of Passage Modes

Bi-directional traffic passage modes are: (1) controlled entry / controlled exit [Fig. 4], (2) controlled entry / free passage exit [Fig. 5]. Either of these configurations require users to wait for oncoming users to complete their passage before entering the turnstile.

**Fig. 4** **Controlled Entry / Controlled Exit**

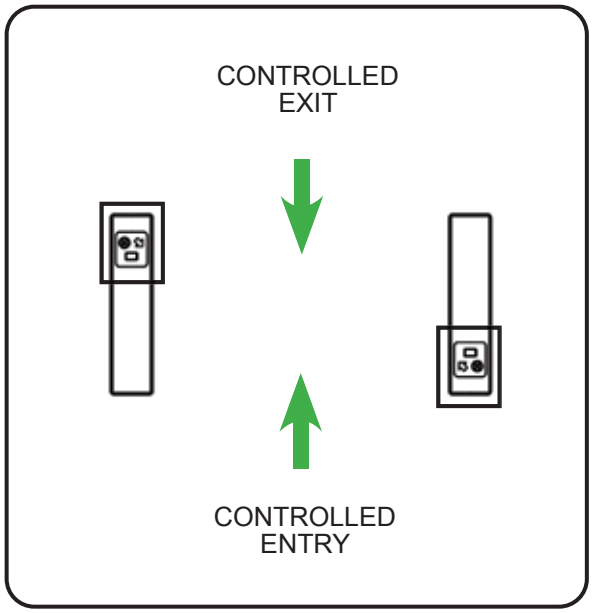
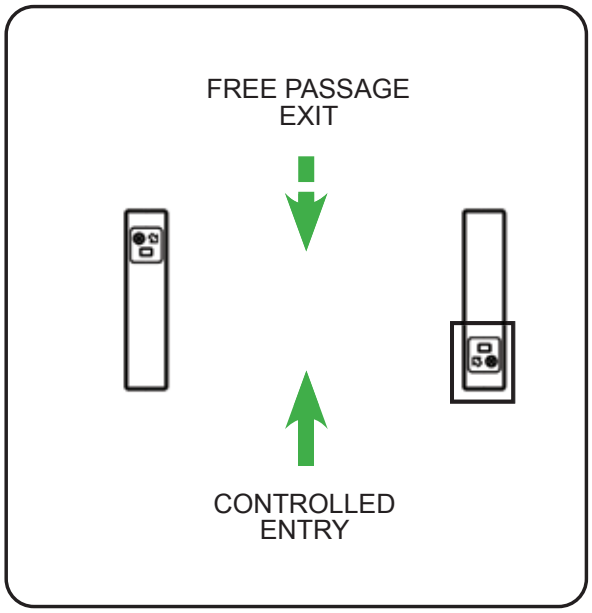



**Fig. 5** **Controlled Entry / Free-Passage Exit**



## Bi-directional Traffic and Smart Use of Passage Modes (cont.)

Bi-directional passage modes are generally suitable for low- to medium-volume applications. Traffic is generally heavy in only one direction at a time (arriving in the a.m. or leaving in the p.m.) and users naturally work out a protocol similar to drivers at a four-way stop.

For higher-level traffic applications, and where there are multiple turnstiles at an entry point, faster throughput can often be achieved by closing one direction of passage on select turnstiles as shown in [Fig. 6 & Fig. 7].

**Fig. 6** **Morning / Return from Lunch**

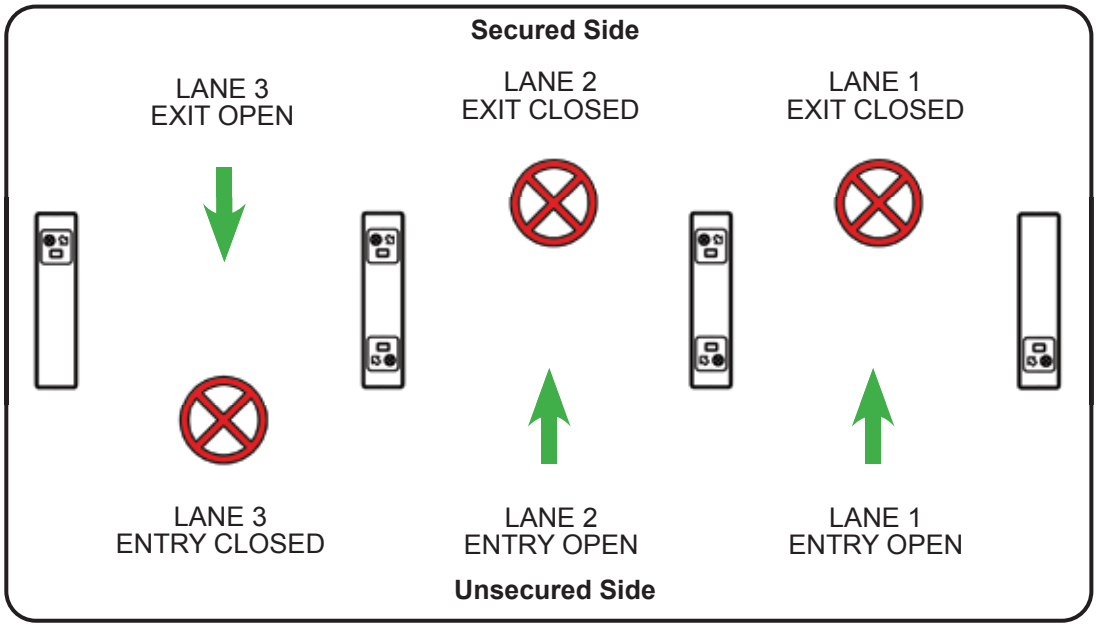
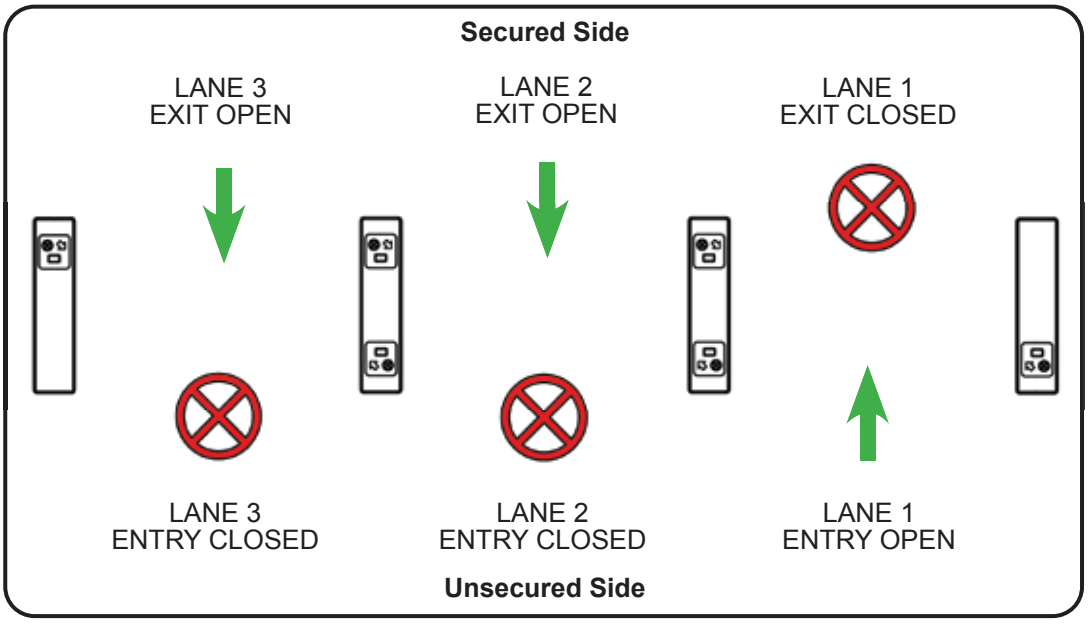


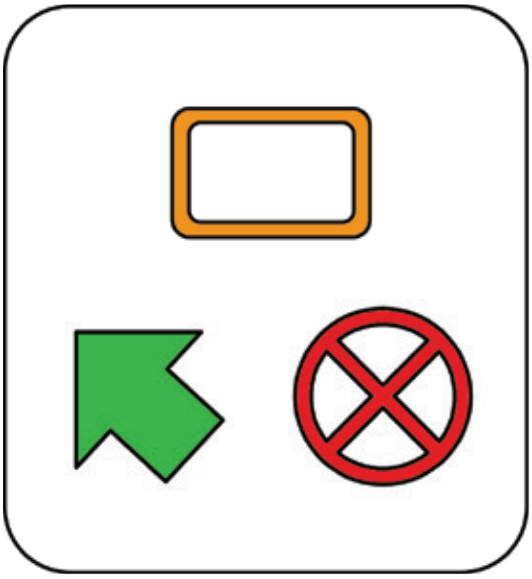

**Fig. 7** **Evening / Leave for Lunch**



## User Status Display

The user status display is used to communicate turnstile and credential status to the user. For each direction of travel, there is a user status display located on the right-hand side tunstile lid. The user status display functions as follows:

**Fig. 8** **User Status Display**



| User Status Icon | Indicates: |
|---|---|
| 10A  | An illuminated yellow card means the turnstile is ready for card presentation. |
| 10B  | An illuminated green arrow indicates passage is allowed in the direction of the arrow after valid credentials have been presented. |
| 10C  | An illuminated red X indicates passage is prohibited in the direction of the arrow. |
| 10D  (Flashing) | A flashing green arrow indicates the turnstile is in Free Passage Mode in the direction of the arrow. |
| 10E  (Flashing) | A flashing red X indicates the turnstile has an alarm condition and / or invalid credentials have been presented. |

## Operational Sounds

The SU2000 comes pre-configured with operational sounds to alert users and attendants of turnstile activity and alarm conditions. The sounds and alarms are played from the speakers mounted to each end of the Main and center cabinets.

The default operational sounds can be replaced with custom sounds using *LaneConfig*. Information on configuring operational sounds can be found in the *LaneConfig User Guide* located on the File Management CD.

**Table 1** Operational Sounds

| Operational Sound / Alarm | Description | Alarm Sound File Name |
|---|---|---|
| Access Granted (Entry Direction) | Good card / access granted in the entry direction. | entgranted.wav |
| Access Denied (Entry Direction) | Bad card / access denied in the entry direction. | entdenied.wav |
| Access Granted (Exit Direction) | Good card / access granted in the exit direction. | extgranted.wav |
| Access Denied (Exit Direction) | Bad card / access denied in the exit direction. | extdenied.wav |
| Blocked Sensor | Operational sensor blocked on the entry side of the turnstile. | entblk.wav |
| Tailgating (Entry Direction) | Tailgating / unauthorized passage detected in the entry direction. | enttail.wav |
| Tailgating (Exit Direction) | Tailgating / unauthorized passage detected in the exit direction. | extail.wav |
| Loitering | Person or object in the lane beyond the allotted time (default is 12 seconds). | panellingered.wav |
| Start-Up Complete | Turnstile start-up process is complete. | welcome.wav |
| Crawl Sensor | Object detected by the crawl sensor. | crawl.wav |

# SU2000 Operation
## Powering On / Off

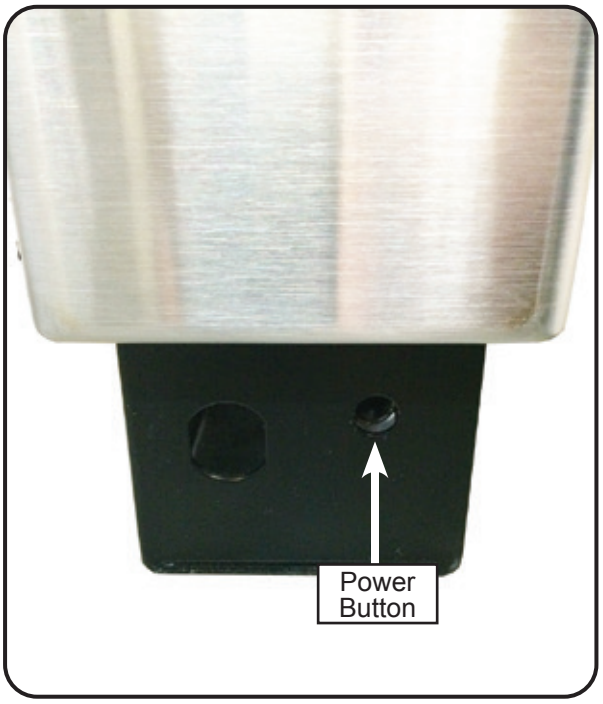
There is a power button located at the base of the end cabinet on the secured side of all Main and center cabinets
[Fig. 9].

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.
3. After the power-up sequence is completed, the SU2000 enters into the previously configured passage modes, or the passage modes currently defined in GateKeeper.

**NOTE**

SU2000s are factory set to operate in Controlled Passage mode in both the entry and exit directions.

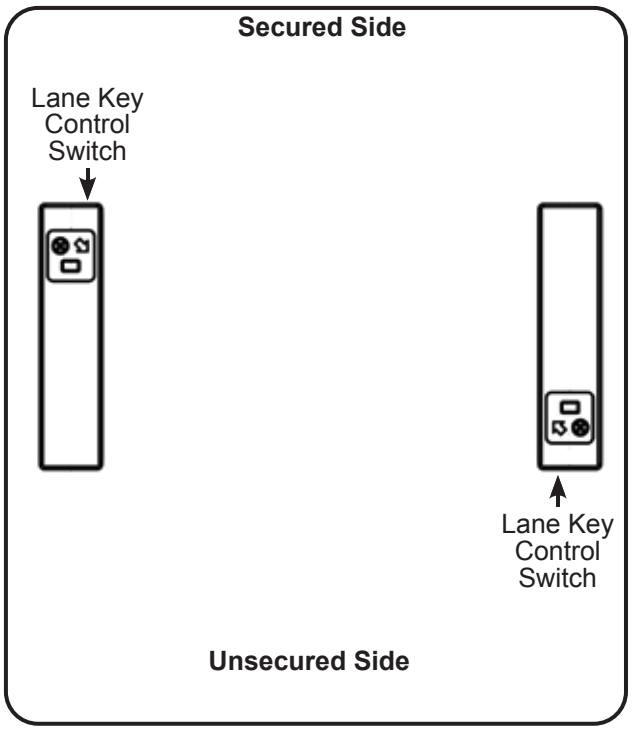
**Fig. 9** **Power Button**



## Lane Key Control (Option)

Optional 3-position lane key control switches can be selected during the ordering process. Installed lane key control switches are used to change passage modes for both directions of travel. Two (2) lane key control switches are installed per turnstile in the bottom end legs as shown in [Fig. 10].

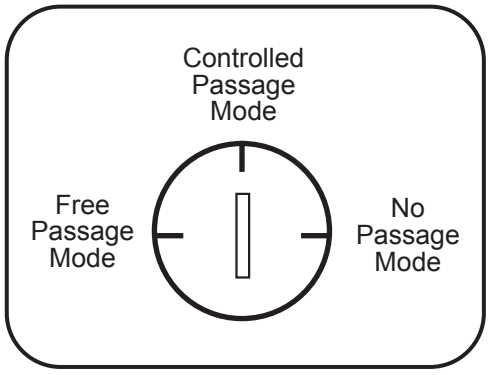
**Fig. 10** **Lane-Key Control Switch Locations**




Turning the key to one of three positions overrides all existing settings, placing the turnstile in Controlled Passage mode, Free Passage mode or No Passage mode depending on the orientation of the key. Refer to the Passage Modes section on Page 11 for more information.

1. Turn the key to the position that corresponds to the desired passage mode as shown in [Fig. 11].

**Fig. 11** **Lane-Key Control Switch**



# User Instructions

## Operational & Safety Considerations

- Users may move briskly, but should not run due to safety considerations.
- Users should not stop and linger in the turnstile. Loitering slows throughput and may trigger an alarm condition.
- Users with large bags, hand trucks, boxes, etc, should verify their combined width does not exceed passage width prior to entering the turnstile.
- Users requiring the use of a manual or motorized wheelchair should use designated wider passage turnstiles.

## Controlled Passage Mode

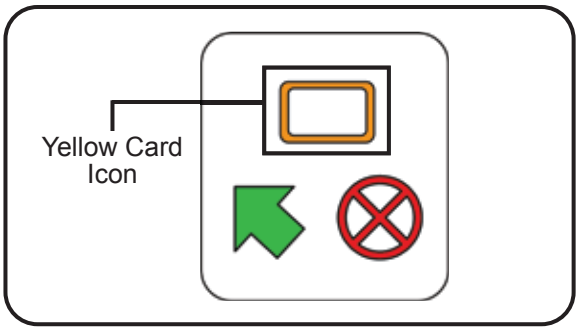
**NOTE**

It is assumed that mullion-style card readers are installed to the end panels. Instructions on presenting credentials to other media devices are outside the scope of this user guide.

Alvarado follows what we call the “right-hand rule." Card readers are always installed on the right-hand side as the user enters the turnstile.

1. Ensure the user status display's yellow card icon is illuminated [Fig. 12].
2. Present credentials to the card reader.
3. Upon card validation:
    - Authorized Entry chime sounds.
    - Green arrow icon illuminates on the user status display.
4. Promptly walk through the turnstile.

**Fig. 12** **Controlled-Passage Icon**




**TIPS**

To improve throughput:

- Instruct users to have their credentials ready for presentation prior to arrival at the turnstile.
- Keep the turnstile entry and exit areas free of obstructions and dissuade users from talking or congregating in those areas.
- Consider designating turnstiles as entry or exit only, particularly during busy throughput times (see Page 13).

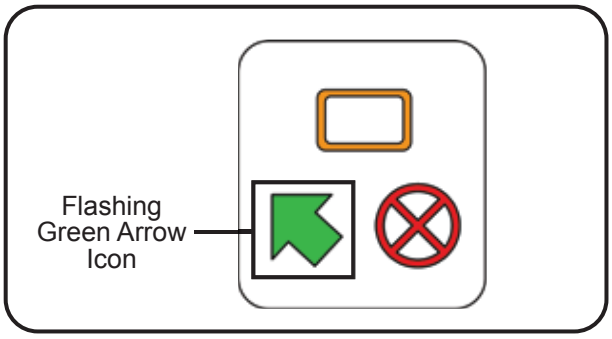
## User Instructions (cont.)

### Free Passage Mode

1. Ensure the user status display's green arrow icon is blinking [Fig. 13].

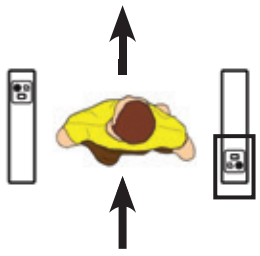
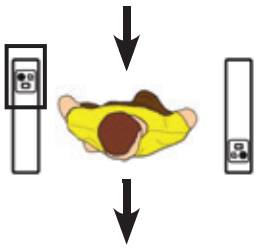
2. Walk through the turnstile.

**Fig. 13** **Free-Passage Icon**

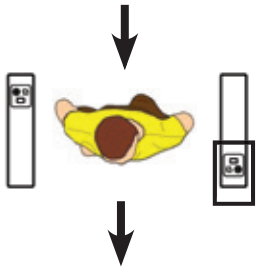
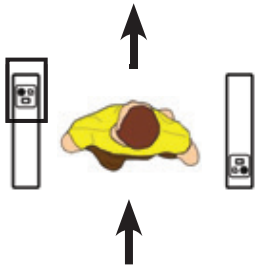
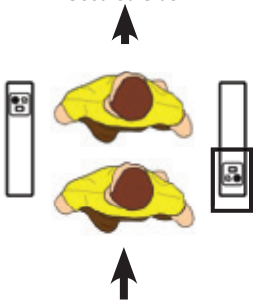
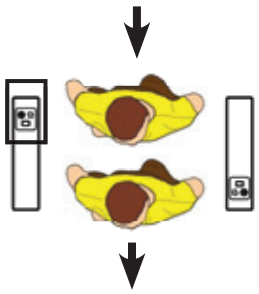



## Turnstile Operations

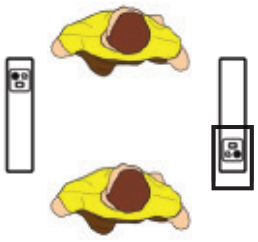
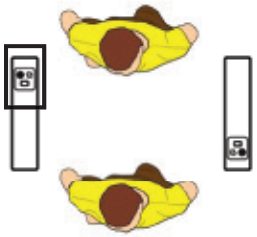
The following scenarios describe product behavior in common operational situations. Other operational information is available in other sections of this manual. Additional information can also be obtained by contacting Alvarado's technical support department.

| Function | Description | Turnstile Response | I/O Output |
|---|---|---|---|
| **Authorized Entry**<br>Secured Side<br>  <br>Unsecured Side | The user presents valid credentials to the card reader and completes an entry passage. | • Authorized Entry chime sounds.<br>• Green arrow icon illuminates on the entry side user status display. | YES |
| **Authorized Exit**<br>Secured Side<br>  <br>Unsecured Side | The user presents valid credentials to the card reader and completes an exit passage. | • Authorized Entry chime sounds.<br>• Green arrow icon illuminates on the exit side user status display. | YES |

## Turnstile Operation (cont.)

| Function | Description | Turnstile Response | I/O Output |
|---|---|---|---|
| **Unauthorized Exit Passage**<br>Secured Side<br>  <br>Unsecured Side | User activates the turnstile from the unsecured side.<br>When the card is validated, an unauthorized user performs an exit passage from the secured side. | When the unauthorized user enters the turnstile from the secured side:<br>• The Unauthorized Exit Passage alarm sounds for 4 seconds.<br>• Red stop icon flashes on the exit side user status display. | YES |
| **Unauthorized Entry Passage**<br>Secured Side<br>  <br>Unsecured Side | User activates the turnstile from the secured side.<br>When the card is validated, an unauthorized user performs an entry passage from the unsecured side. | When the unauthorized user enters the turnstile from the unsecured side:<br>• The Unauthorized Entry Passage alarm sounds.<br>• Red stop icon flashes on the entry side user status display. | YES |
| **Tailgate Entry**<br>Secured Side<br>  <br>Unsecured Side | An unauthorized user closely follows an authorized user to enter the facility. | When the unauthorized user tailgates:<br>• The Unauthorized Entry Passage alarm sounds for 4 seconds.<br>• Red stop icon flashes on the user status display. | YES |
| **Tailgate Exit**<br>Secured Side<br>  <br>Unsecured Side | An unauthorized user closely follows an authorized user to exit the facility. | When the unauthorized user tailgates:<br>• The Unauthorized Exit Passage alarm sounds for 4 seconds.<br>• Red stop icon flashes on the exit side user status display. | YES |

## Turnstile Operation (cont.)

| Function | Description | Turnstile Response | I/O Output |
|---|---|---|---|
| **Entry Stacking**<br>Secured Side<br>  <br>Unsecured Side | Users quickly and consecutively present credentials to the turnstile (up to one card per second). The turnstile "stacks" the activations and processes users as fast as they can walk through the turnstile. | • Authorized Entry chime sounds for each activation.<br>• Green arrow icon illuminates on the entry side user status display. | NO<br>(Individual Authorized Entry Passage outputs are logged.) |
| **Exit Stacking**<br>Secured Side<br>  <br>Unsecured Side | Users quickly and consecutively present credentials to the turnstile (one card per second). The turnstile "stacks" the activations and processes users as fast as they can walk through the turnstile. | • Authorized Entry chime sounds for each activation.<br>• Green arrow icon illuminates on the exit side user status display. | NO<br>(Individual Authorized Exit Passage outputs are logged.) |
| **Loitering**<br>Secured Side<br>  <br>Unsecured Side | While performing an authorized entry passage, the user stops and loiters. | After remaining in the turnstile for 12 seconds:<br>• Loitering alarm sounds.<br>• Red stop icon flashes on both user status displays.<br>• The alarm condition continues until the user exits the turnstile. | YES |
| **Blocked Sensor**<br>Secured Side<br>  <br>Unsecured Side | Object is blocking the operational sensors for 15 seconds or longer. | • Blocked Sensor alarm sounds.<br>• Red stop icon flashes on the both user status displays. | YES |

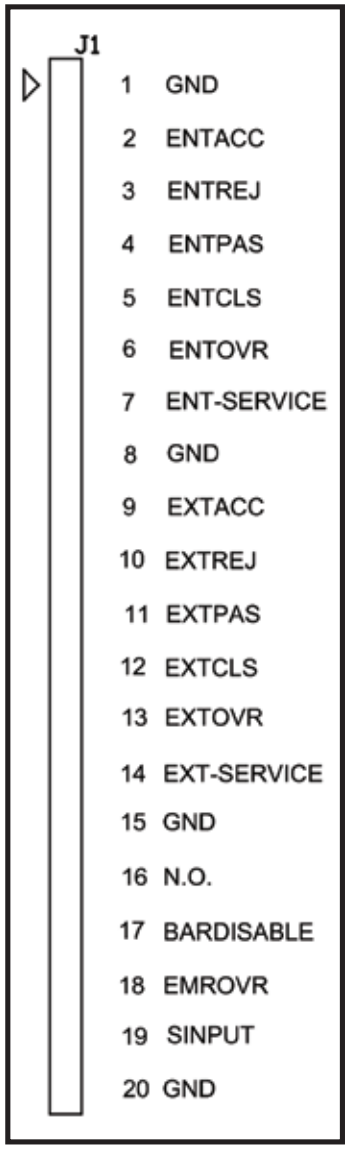
# I/O Control

This section explains the various I/O control board inputs and outputs, and how they may be used. It is assumed that the turnstiles are already installed and interfaced with the access control system. For access control wiring instructions, please refer to the *SU2000 Installation Instructions.*

## Inputs

The following inputs are available for access control system signals:

**Fig. 14** **Input Terminal Block (J1)**




### PINS 1, 8, 15, 20 - GND (Common Ground)

**Description**

Common ground terminals for access control system wiring. Only for input terminal block use.

**Purpose and Customer Use**

Access control system outputs that require a ground return are connected to these inputs.

### PIN 2 - ENTACC / PIN 9 - EXTACC (Card Accept)

**Description**

Receipt of an input contact authorizes a single passage in the appropriate direction.

**Purpose and Customer Use**

These are core system inputs. ENTACC (entry accept) signals the turnstile to allow a single valid passage in the entry direction. EXTACC (exit accept) signals the turnstile to allow a single valid passage in the exit direction. Typically these signals are provided after the access system determines that the card presented at the turnstile is valid for entry. ENTACC is used on virtually every installation. EXTACC is used in controlled entry / exit applications where users both card in and card out.

## Inputs (cont.)

### PIN 3 - ENTREJ / PIN 10 - EXTREJ (Card Reject)

**Description**

Receipt of an input contact instructs the turnstile that the presented credential is invalid.

**Purpose and Customer Use**

These inputs notify users that presented credentials are not authorized. ENTREJ signals the turnstile to notify the user that the credential presented in the entry direction is not authorized.

### PIN 4 - ENTPAS / PIN 11 - EXTPAS (Free Passage Mode)

**Description**

Receipt of an input contact places the turnstile in Free Passage mode in the appropriate direction.

**Purpose and Customer Use**

These inputs can be used if the customer desires to change passage modes through the use of remote key switches or buttons, and has not purchased the lane key control or GateKeeper options.

### PIN 5 - ENTCLS / PIN 12 - EXTCLS (No Passage Mode)

**Description**

Receipt of an input contact places the turnstile in No Passage mode in the appropriate direction.

**Purpose and Customer Use**

These inputs are typically used by the customer only if the customer desires to change passage modes through the use of key switches or buttons and has not purchased the lane key control or GateKeeper options.

## Inputs (cont.)

### PIN 6 - ENTOVR / PIN 13 - EXTOVR (Override)

**Description**

Receipt of an input contact allows a single authorized passage in the appropriate direction.

**Purpose and Customer Use**

These inputs are similar in operation to ENTACC / EXTACC and are typically used to allow an attendant to authorize entry or exit from an attendant desk using a key switch or button.

### PIN 18 - EMROVR (Emergency Override)

**Description**

Receipt of an input contact (or removal of a contact) places the turnstile in Emergency Override mode.

**Purpose and Customer Use**

This is a core system input. Typically, the building fire system is wired into this contact point. This input is configured as either normally open (N.O.) or normally closed (N.C.) using the JP3 jumper located on the I/O control board [Fig. 15]. Configure the JP3 jumper as required by the fire alarm safety system. The factory default setting is normally open (N.O.).

**Fig. 15** **N.O. / N.C Jumper (JP3)**

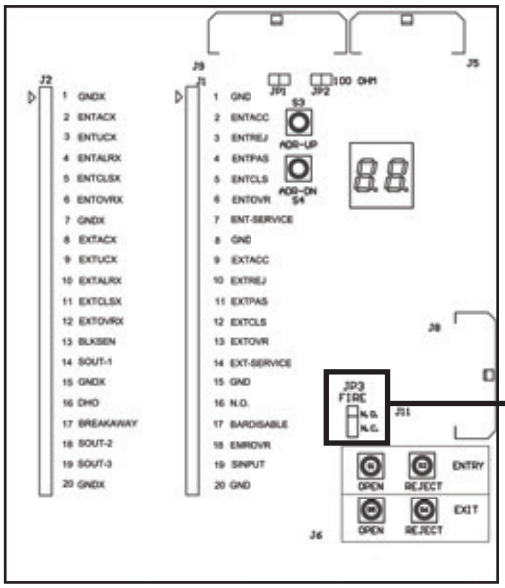
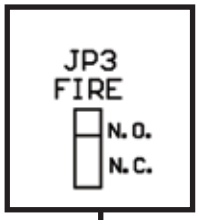
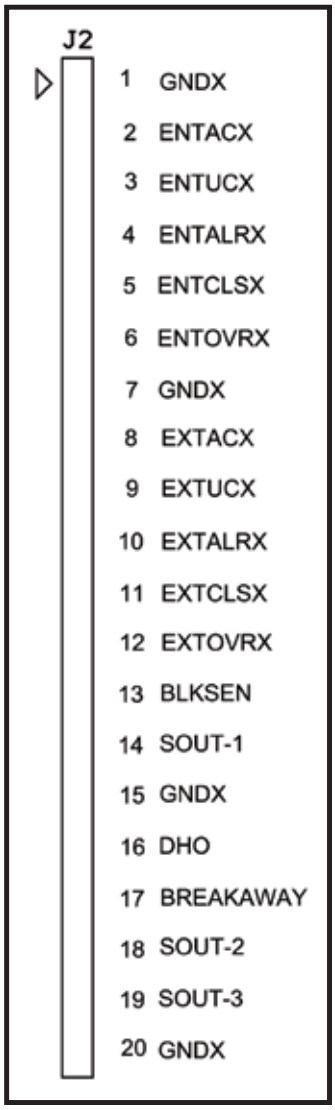



**Figure 15A**



# Outputs

**Fig. 16** **Output Terminal Block (J2)**




The following outputs are available to provide information on turnstile operational status and activity. All output contacts are 300ms in duration.

## PINS 1, 7, 15, 20 - GNDX (Common Ground)

### Description

Common ground terminals for access control system wiring. Only for output terminal block use.

### Purpose and Customer Use

Access control system inputs that require a ground return are connected to these outputs.

## PIN 2 - ENTACX / PIN 8 - EXTACX (Authorized Passage)

### Description

An output contact is generated when a user completes an authorized passage in the appropriate direction. This signal is generated when a passage occurs after receipt of an ENTACC / EXTACC signal, after receipt of an ENTOVR / EXTOVR signal, or after a passage if the turnstile direction is in Free Passage Mode.

### Purpose and Customer Use

These outputs can be used by the facility access control system to track the number of authorized passages through the turnstile, or compare authorized entry or exit signals issued by the facility access control system against passages.

## PIN 3 - ENTUCX / PIN 9 - EXTUCX (Unauthorized Passage)

### Description

An output contact is generated when a user completes an unauthorized passage (i.e., tailgating after an authorized passage) in the appropriate direction. This is typically referred to by Alvarado as an “unauthorized passage” output.

### Purpose and Customer Use

These are important outputs to monitor as they identify unauthorized passages. The outputs are typically used to identify the time and location of unauthorized passages. This allows review of the unauthorized passage on security camera footage (if available).

## Outputs (cont.)

### PIN 4 - ENTALRX / PIN 10 - EXALRX (Unauthorized Entry/Exit)

**These outputs are not used on the SU2000.**

### PIN 13 - BLKSEN (Blocked Sensor)

**Description**

An output contact is generated when any of the turnstile's transmit / receive sensors in the operational sensor arrays cannot communicate for a defined time period (factory default is 15 seconds).

**Purpose and Customer Use**

This output is an important output to monitor. It would provide notification of a person or object lingering in the turnstile passage area or, as an example, if an object (such as a piece of gum or putty) was inhibiting communication between the sensors. Security camera footage (if available) can be used to review the situation surrounding generation of this output if desired.

### PIN 17 - DHO (Loitering)

**Description**

An output is generated when a user enters the turnstile and remains in the lane (blocking the sensors) past the defined DHO time. The default DHO setting is 12 seconds, but this can be customized using the *LaneConfig*.

**Purpose and Customer Use**

The DHO output is an important output to monitor. It provides notification of users loitering in the lane beyond the expected time required to complete a passage. Security camera footage (if available) can be used to review the situation surrounding generation of this output if desired.

# SU2000 Configuration Preparation

## Overview

SU2000 configuration changes are broken down into two sections: configuring the turnstile operating system, and configuring the turnstile application. Each type of configuration requires a different configuration tool.

Configuring the turnstile operating system is accomplished using the *UltraVNC Viewer* application (included on the File Management CD provided with the turnstile). Configurable operating system settings include the system time, IP address, and speaker volume. Typically, operating system settings are configured before turnstile application settings.

Configuring the turnstile application is accomplished using the *LaneConfig* (also included on the File Management CD). Configurable turnstile application settings include alarm sounds, detection settings, and alarm timer settings. Instructions on using LaneConfig can be found in the *LaneConfig User Guide* located on the File Management CD.

There are two ways to connect to the turnstile: 1) via a computer on the facility network (if networked), or 2) via a local laptop computer connected directly to the turnstile (if not networked). Keep in mind that newly installed turnstiles that will be networked must first be configured using a local laptop computer to set the network IP address.

This User Guide assumes you are configuring newly installed turnstiles via a local laptop computer. If your turnstiles are already networked and configured with a network IP address, refer to the *LaneConfig* documentation for installation and configuration instructions.

## New Installation Configuration Checklist

Perform the following configuration steps for newly installed turnstiles.

### Install Configuration Tools

1. UltraVNC
2. LaneConfig

### Connect Laptop Computer to the Turnstile

1. Remove side panel to access Ethernet port.
2. Connect laptop computer to the Ethernet port using an Ethernet cable.

### Configure Operating System Settings Using UltraVNC Viewer

1. Set local system time.
2. Set turnstile IP address (required for networked turnstiles).

### Configure Turnstile Application Settings Using LaneConfig (optional)

1. Configure turnstile parameters.

**NOTE**

The factory default settings are appropriate for most installations. If the facility requires a particular turnstile setting to be changed, change it at this time.

# Installing the Configuration Tools

Both the UltraVNC Viewer and LaneConfig installation package are 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

## Install 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.

## Install LaneConfig

Refer to the *LaneConfig Installation Guide* for installation instructions and additional computer requirements.

## Connecting a Laptop Directly to the Turnstile

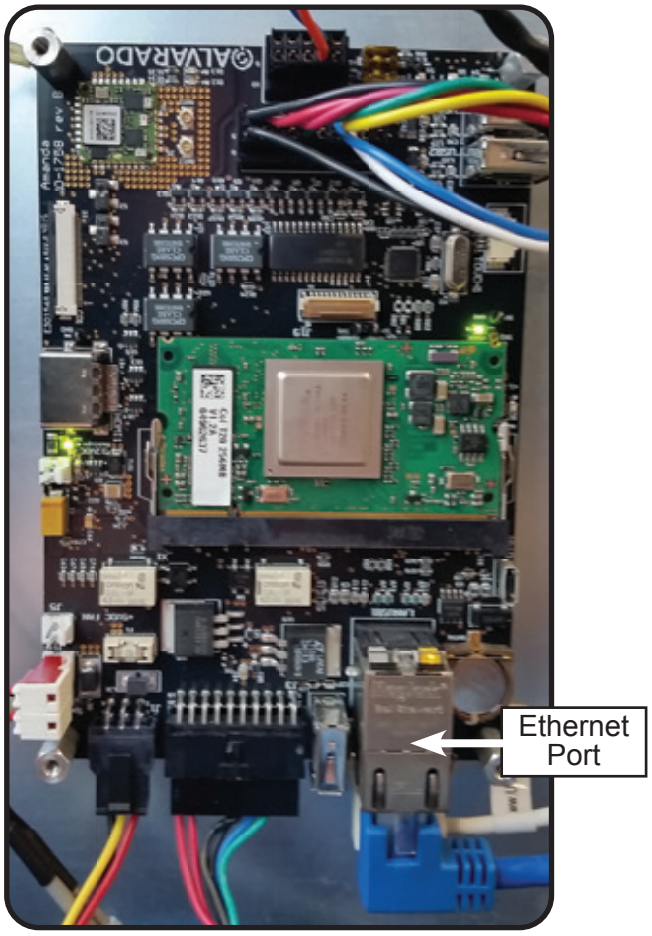
The SU2000 turnstile communicates with a computer or facility network via the main turnstile controller's Ethernet adapter. To access the main turnstile controller, the Main / center side panel will need to be removed. Instructions on removing the side panel can be found in the *SU2000 Installation Instructions*.

1. Locate the Ethernet port on the main turnstile controller [Fig. 17].
2. Connect the Ethernet cable from the computer to the Ethernet port.

**NOTE**

If network cable was run to the turnstile via conduit, temporarily disconnect the network cable from the Ethernet extension cable to configure the turnstile. Once the turnstile has been configured, reconnect the network cable.

**Fig. 17** **Main Turnstile Controller**



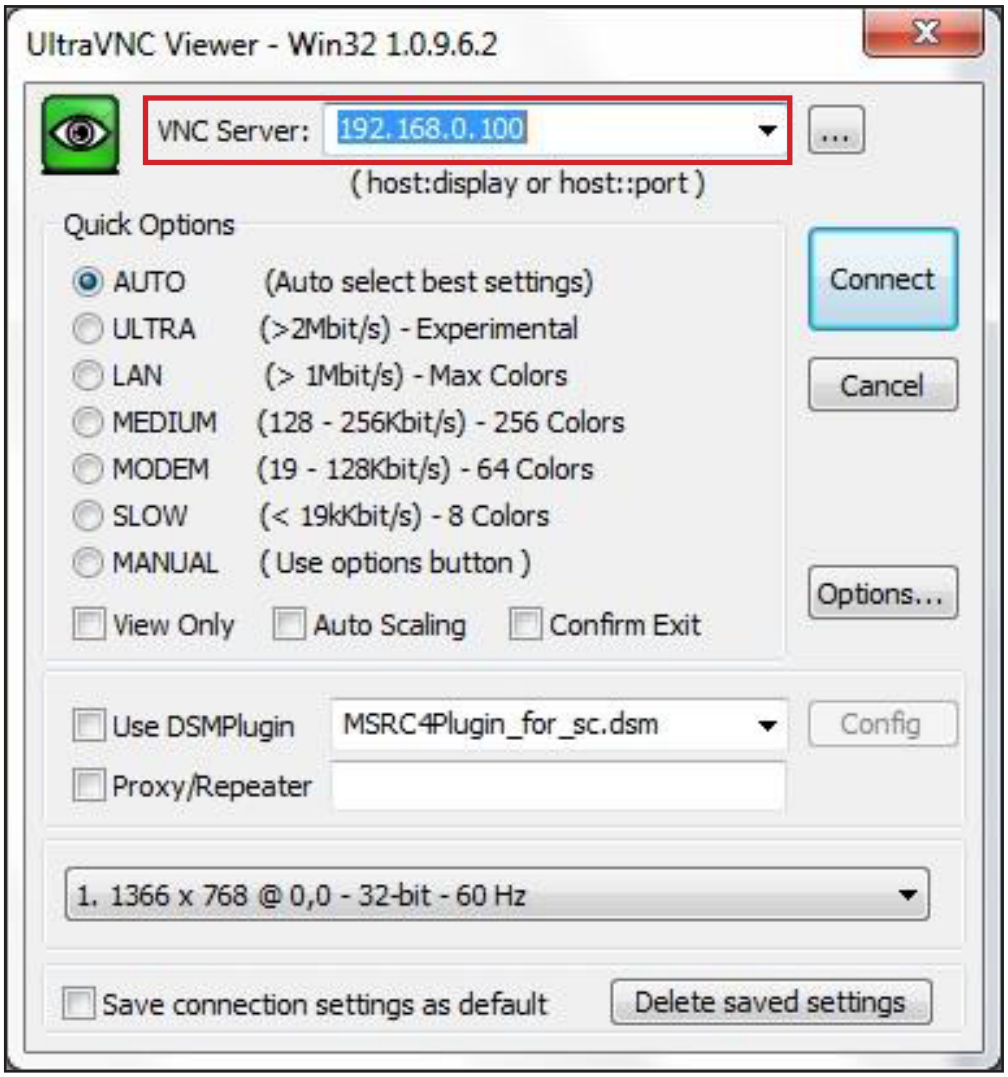
## Operating System Configuration

Operating system settings are configured using the **UltraVNC Viewer** application.

- It is assumed that the turnstile is powered ON and connected to the computer or facility network.

1. Launch UltraVNC Viewer.
2. Enter the turnstile IP address in the **VNC Server** field [Fig. 18]:
   - 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.
3. Click the **Connect** button.

**Fig. 18** **Ultra VNC Viewer - Configuration Window**



## Operating System Configuration (cont.)

4. Enter: **alvarado** for the password at the VNC Authentication window [Fig. 19].
5. Click the **Log On** button.

**Fig. 19** **UltraVNC Viewer**


6. Upon password verification, the SU2000 desktop will appear onscreen [Fig. 20]. Communication with the turnstile is now established.

**Fig. 20** **SU2000 Desktop**

## Setting the Local System Time

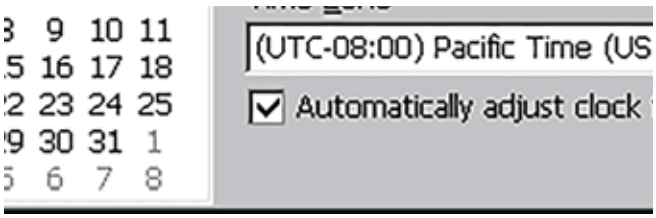
The operating system time is factory set to Pacific Time (U.S. and Canada). The operating system time should be set for your local time. To set the time, follow the instructions below.

1. Double-click the time display in the bottom right corner of the SU2000 desktop to bring up the 'Date / Time Properties' window [Fig. 21].

**Fig. 21** **Time Display**


2. Enter the correct **Date**, **Current Time**, and **Time Zone** in the appropriate fields [Fig. 22].
3. Press **OK** to save the time setting.

**Fig. 22** **Date/Time Properties Window**



## Setting the Local System Time

4. Click **Start**, click **Programs**, and click **SaveReg** [Fig. 23].

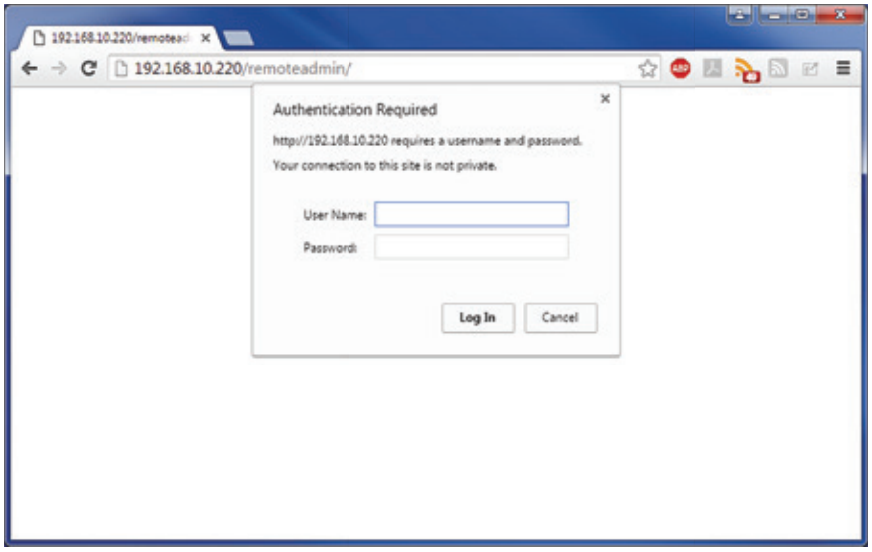
**Fig. 23** **Saving the Registry**

## Setting the Turnstile IP Address

The turnstile IP address only needs to be configured on networked turnstiles.

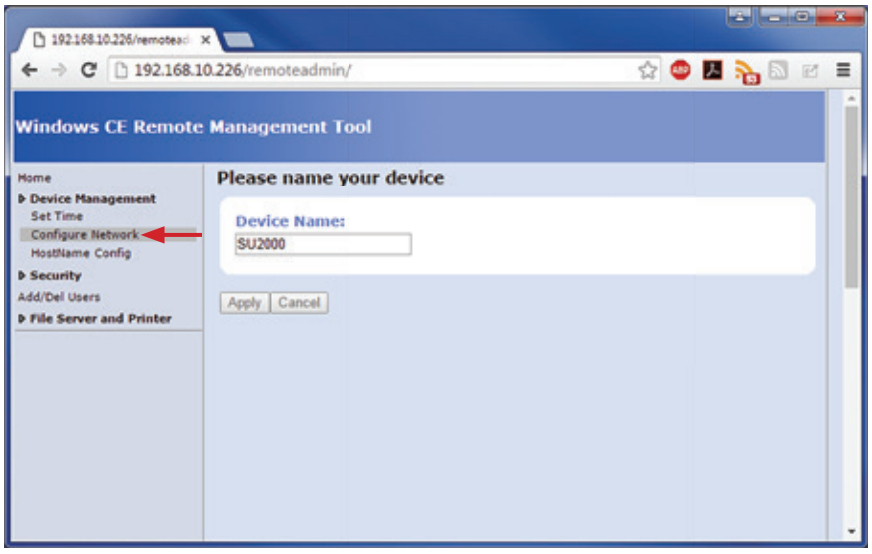
1. Open a web browser on your computer.
2. Type the SU2000's **IP address** into the address bar and press **Enter**. The default IP address is 192.168.0.100.
3. Enter **admin** into the *User Name* field and **alvarado** into the *Password* field. Click **Log In** [Fig. 24].

**Fig. 24** **Remote Admin - Authentication Required**




4. Click the arrow for **Device Management** to expand the list and select **Configure Network** [Fig. 25].

**Fig. 25** **Remote Admin - Device Management Menu**



# Maintenance

Preventative maintenance should be performed periodically after installation to ensure the product maintains its visual exterior and optimal performance. To maintain the SU2000, follow the instructions below as needed. Due to the various types of exterior finishes on the SU2000, 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.

## Maintenance (cont.)

### Interior Maintenance

Internal maintenance should occur once every year. Refer to the *SU2000 Installation Instructions* for details on how to access the interior of the turnstile. 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. **Test Activation** - Activate the turnstile and complete a passage in both the entry and exit directions.

## Troubleshooting

Use this troubleshooting section to diagnose and resolve common turnstile issues. If your particular issue is not covered in this troubleshooting section, please contact Alvarado Technical Support for further troubleshooting assistance.

| Symptom | Possible Cause | Solution |
|---|---|---|
| Unit will not turn on | No power | Make sure that there is power to the turnstile power terminal block. Check if LEDs are lit on the I/O control board and the seven-segment display is showing a number. |
| | Blown fuse | Check fuse. If necessary replace with a 2.5A (slo-blo) fuse. |
| Unit powers on, but does not complete power-up cycle (no chimes). All icons on the User Status Displays are lit solid. | The turnstile application software failed to load. | Contact Alvarado technical support for troubleshooting assistance. |
| Constant auditory alarming | Communication / Low Voltage Cable | Check the I/O control board to see if amber LEDs are lit. If they are lit, the most likely problem is a loose or improper communication connection. Disconnect the black 16-pin connectors from the I/O control board and main turnstile controller, apply contact cleaner / lubricant to connector pins and reseat. Retry operation.<br><br>If condition persists, perform the same process on the 16-pin connectors going into and out of the light boards and sensor boards. Retry operation. Alvarado Technical Support has a process document and can provide additional instructions. |
| 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. If this does not resolve the problem, contact Alvarado Technical Support for instructions on using the I/O control board to perform diagnostics on sensors. |

## Revision History

| Revision | Date | Author | Description |
|---|---|---|---|
| 1-0 | 02/14/15 | A. Flores | Original document. |
| 1-1 | 07/17/15 | A. Flores | Updated crossover cable length to 11'. |
| 1-2 | 11/18/15 | A. Flores | Added LaneConfig Installation and User Guide references. |
| 1-3 | 7/6/2016 | D. Bohannon | Updated for Amanda board. |

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