SU5000

DESCRIPTIVE SPECIFICATIONS

ALVARADO
protecting assets and controlling the flow of people

The Supervisor 5000 is the thinnest optical turnstile available. It has clear, bi-directional motorized barrier panels and a stylish, architectural design that enhances any access control installation.

COMMON APPLICATIONS

- Employee and Visitor Access Control
- Time & Attendance Integration

TYPICAL INSTALLATION SITES

- Government Facilities
- Corporate Lobbies
- Entertainment Venues

FUNCTION

The Supervisor 5000 provides bi-directional access control and other operational and passage modes (described below). In access control mode, upon receipt of a valid card signal from an access control system, the motorized barriers of the turnstile open away from the user and 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 (with user configurable sounds) will sound and red notification lights will flash.

The SU5000 utilizes tandem motorized barriers and integrated optical sensors to control access. The optical sensors detect patrons, determine the direction of patron movement and (in conjunction with the facility access system) detect unauthorized users. In addition to detecting “piggybacking” or “tailgating” on allowed entries, the SU5000’s sensors prevent barriers from closing on users. If the barriers do encounter an obstruction on either opening or closing, the SU5000’s software detects the obstruction and takes corrective action, precisely controlling the motors to minimize impact.

While access control throughput will depend on the access control system and readers used, the SU5000 supports extremely rapid throughput. It will “stack” valid scans and process patrons as fast as they can walk through the turnstile.

Configurable features of the SU5000 are set in the field using an application (included) called LaneConfig. This application allows core configurable features – such as alarm sounds, motor settings, optical settings, detection settings, tailgating, safety sensor settings, barrier speed, alarm timer settings, etc. – to be changed and uploaded over a TCP/IP network at the installation site. Turnstiles can also be configured by loading LaneConfig on a laptop and plugging directly into an Ethernet port in the turnstile. More information about LaneConfig and the many configurable features of the SU5000 are described further in this document.

Embedded IP-based communication and configuration functionality is included in all SU5000 optical turnstiles, making it possible to adjust core turnstile settings via a local and/or remote TCP/IP network session. LaneConfig allows authorized security personnel and technicians to load software updates and set individual turnstile parameters including:

- Alarm sounds and alarm timer settings
- Optical settings for detection of lane passage, tailgating
- Motor settings, barrier breakaway, sensitivity and speed settings

LaneConfig can also be used with optical turnstiles that are not on a network by installing the application onto a laptop and plugging directly into an Ethernet port on the turnstile. More information about LaneConfig and various SU5000 communication and configuration options are described elsewhere in this document.

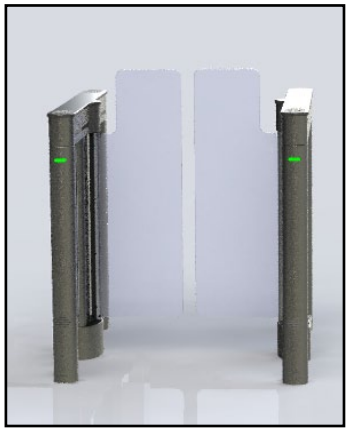
The embedded IP-based functionality of SU5000 optical turnstiles also allows a number of other methods of advanced configuration/control using a secure web page that can be viewed in a standard Web browser. This includes setup of IP addresses, network adapter and other settings. Additional remote desktop tools allow troubleshooting and diagnostics without an actual physical presence at the turnstile. Alvarado has an ongoing program to update the capabilities of its embedded IP capable devices.

Alvarado also offers an application (optional) called GateKeeper. This application is normally used by authorized personnel to automate day-to-day operational functions, such as entry overrides, opening / closing turnstiles and placing turnstiles in Free Passage mode. The application also allows users to automatically implement preset user definable modes, such as turnstile closures and direction changes, based on set times of the day or week. This allows turnstiles to be configured as the facility desires at the beginning and end of shift times, lunch times, Saturdays, holidays, etc. Other features within GateKeeper include automated alarm notification and attendant override function with log file tracking. A more complete description of GateKeeper is provided online at http://www.alvaradomfg.com/gateKeeper.htm. GateKeeper communicates with SU5000 turnstiles over a wired TCP/IP network.

AVAILABLE CONFIGURATIONS

SU5000 & SU5000E

The SU5000 consists of a pair of end cabinets with moving barriers that create a single 28” wide passageway. The SU5000E is an extension center cabinet, with the same dimensions as an end cabinet, used to create additional turnstile passage lanes with the addition of a single cabinet. For example, one SU5000 and one SU5000E would be used to create two turnstile lanes. Additional extension center cabinets are used to create additional turnstile lanes; e.g., one SU5000 and two SU5000E’s create three turnstile lanes. An unlimited number of center cabinets can be added.



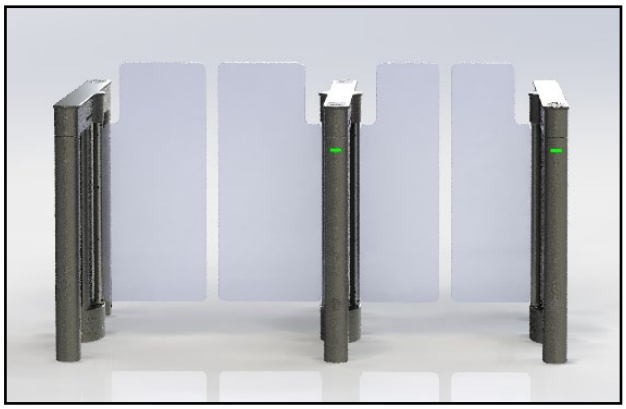
28” passage width - mid-height barriers.

SU5000-A & SU5000E-A

The SU5000-A consists of a pair of end cabinets with moving barriers that create a single 36” wide passageway. The SU5000E-A is an extension center cabinet with wider barriers, to allow an additional 36” turnstile passage lane to be created with the addition of a single cabinet as described in the section above. An unlimited number of center cabinets can be added.

COMBINING TURNSTILE LANES WITH DIFFERENT SIZED PANELS

Center cabinets that have a 28” passage barrier on one side and 36” wide barrier, or different height barrier, on the other side are available.



A multi-lane configuration with 36” passage width on left and 28” passage width on right - mid-height barriers.

AVAILABLE FINISHES

STAINLESS STEEL, POWDER COATED & PLATED

External cabinet materials are fabricated from #304 stainless steel polished to a #4 satin finish.
Powder coated cabinets are available (see Options).

MATERIALS

CABINET
Cabinets are fabricated from #304 stainless steel.

CABINET LIDS
Cabinet lids are fabricated from 100% acrylic resin (Color: Starry Night Black). Alternate acrylic resin colors and alternate materials can be provided (see Options).

INTERNAL FRAME
A powder coated internal steel frame houses electronics, sensors, motors and mechanical components.

MOVING BARRIERS
Clear moving barriers are fabricated from 0.5" (13mm) thick acrylic with abrasion resistant coating. Barriers come in widths to create 28" or 36" passage openings. Barriers come in three heights: 35" (low); 46" (mid); and 69" (high). High (69") barriers are fabricated from 0.75" (19mm) thick acrylic.
Moving barriers can be etched (with customer supplied design) (see Options).

SIDE PANELS
Clear side panels are fabricated from 0.375" (9mm) thick acrylic with abrasion resistant coating. Side panels can be etched (with customer supplied design) and / or illuminated (see Options).

CONTROL, OPERATIONAL MODES & FUNCTIONALITY

CONTROL MECHANISMS
The precise movement of the SU5000's motorized barriers is accomplished through DC brushless motors working in conjunction with position encoders and motor controllers. A main turnstile controller runs the operational application and interfaces to the motor controllers and optics over an internal high speed serial network. The turnstile controller also interfaces to outside configuration and administrative applications, LaneConfig and / or GateKeeper via TCP/IP – see Available Related Applications.

PASSAGE MODES
The SU5000 offers the following user-configurable passage modes:

Controlled Passage - The barriers are closed, securing the turnstile. Upon receipt of an authorization signal from an access control system the barriers move away from the user to the open position, allowing a single passage in the authorized direction. The barriers return to the closed position after the user has passed through the turnstile or the time frame allowed for an entry to occur has expired. Controlled Passage can be either single direction or directional.

Free Passage - An authorization signal is not required for a user to pass through the turnstile. Barriers are closed until a user enters the turnstile at which time the barriers automatically open in the direction of travel. Barriers close behind the user when it is safe to do so. Free Passage can be either single direction or bi-directional.

No Passage (Direction Closed) - No passage is allowed. The barriers are closed and remain closed. Valid electronic credentials are ignored and passage is not allowed. The barrier will still open in the "exit" direction if a fire alarm or life safety input is received. No Passage can be either single direction or bi-directional.

USER STATUS DISPLAY

An illuminated status icon display, visible to users, is flush mounted within the cabinet lid and is configured to function in the following manner:

Yellow Icon - An illuminated yellow card means the turnstile is ready for card presentation.

Green Arrow Icon - An illuminated green arrow indicates passage is allowed in the direction of the arrow and / or valid credentials have been presented. A flashing green arrow indicates the turnstile is in Free Passage mode in the direction of the arrow.

Red Stop Icon - An illuminated red X indicates passage is prohibited in the direction of the arrow. A flashing red X indicates the turnstile has an alarm condition and / or invalid credentials have been presented.

OPEN / CLOSED STATUS LIGHTS

An opaque end piece is mounted to the upper end “leg” on each side of the turnstile diffusing green and red signal lights. The lights function similar to toll booth lights, and perform in the following manner:

Green - An illuminated green bar indicates the turnstile is open for use. The bar remains green when a valid card input is received.

Red - An illuminated red bar indicates the turnstile is closed for use. The barrier will not open in the direction of travel unless the direction is “exit” and fire alarm or life safety input is received.

Red Flashing - A flashing red bar indicates the turnstile has an alarm condition. The duration of the alarm condition and flashing is user definable through LaneConfig software.

FUNCTIONALITY - USER CUSTOMIZABLE FEATURES & AVAILABLE TOOLS

In addition to the available passage and operating modes, the SU5000 has a number of additional user customizable features. These features allow turnstiles to be “tuned” to the operational requirements of an application and allow users to associate individual audio sounds with operational states and alarm conditions. SU5000 turnstiles also have several tools to assist service personnel with setup, diagnostics and troubleshooting.

Customizable features and custom sounds are downloaded to turnstiles over a TCP/IP network using the included LaneConfig application. The product ships with standard sounds. Users may create and install their own audio sounds in the form of .wav files.

Prior to shipping, turnstiles are configured with settings that are appropriate for most facilities and default sound files are loaded. A summary of configurable features, and setup and diagnostic tools, is listed below.

Operational Tuning Adjustments	Description
Barrier Breakaway	Controls barrier breakaway force if manually forced
Barrier Impact	Controls barrier operation if moving barriers encounter an object during operational cycle
Access Timeout	Valid credential presented but user does not pass through turnstile; controls time before barriers close and turnstile resets
Object	Controls object detection size
Tailgating	Controls tailgating sensitivity
Unauthorized Entry	Controls number of entry sensors user can block before triggering alarm
Blocked Sensor	Controls time before alarm is generated if sensors are blocked

Operational Sounds / Alarms*	Description	Configurable Sounds
Access Granted	Good card	√
Access Denied	Bad card	√
Unauthorized Presence	User enters turnstile without presenting card	√
Tailgating / Unauthorized Passage	Tailgating / unauthorized passage detected	√
Blocked Sensor	Sensors not cleared	√
Blocked Sensor (door close)	Doors are not closing due to unsafe condition	√
Blocked Sensor (door open)	Doors are not opening due to unsafe condition	√
Barrier Breakaway (universal sound)	Barriers have been forced open	√
Barrier Impact (universal sound)	Barriers encounter an object when moving	√

* Unless noted, sounds are configurable for both entry and exit direction.

Setup / Diagnostic Tools	Description	Configurable Sounds
Barrier Position (Home)	Barrier home position setting	N/A
Barrier Position (Open)	Barrier opening position setting	N/A
Startup	Appropriate startup engaged	√
Barrier Lingers	Barriers have stayed open past the allotted time to close	√
Debug	General debug application for troubleshooting	N/A
Optic Debug	Debug application for optics	N/A
Motor I/O Debug	Debug application for motor communication	N/A
Electromechanical Brake	Controls whether brake is used or not	N/A
Emergency Override Direction	Allows installer to set emergency override direction	N/A

ALARM CONDITIONS

In the event of an alarm condition, the designated alarm sound is played (see chart above) and both the status icon display and open / closed status lights will illuminate red for the defined time. An I/O output is also provided for most alarm conditions - see Turnstile Interface To Access Control System.

BARRIER BREAKAWAY

All SU5000 turnstiles utilize motor force and if enabled, an electromechanical brake to provide adjustable resistance against a user pushing or pulling the barriers open. The force it takes to push or pull barriers open is an adjustable setting, up to the product maximum. Approximate maximum holding force measurements are available from Alvarado. When the set or maximum holding force is reached, the barriers "break away" and can be moved manually. The barriers automatically reset to the home (closed) position.

BARRIER CYCLE TIME

This is an adjustable feature. Factory set opening, and recommended, speeds are 1.0 seconds for low and mid barriers and 1.5 seconds for high (69") barriers.

BARRIER IMPACT

In the event that the barriers encounter resistance while opening or closing, barriers will stop moving, an alarm will sound and the status icon display and open / closed status lights will illuminate red to indicate an alarm condition. At this point, barriers can be moved manually. The barriers will automatically reset to the closed position once the obstruction is cleared. The barrier impact setting is adjustable.

EMERGENCY OVERRIDE / FIRE ALARM

Activation to open the barriers in conjunction with a fire alarm or other life safety system is achieved by supplying a sustained dry contact to the SU5000. During emergencies the SU5000 barriers will open in the exit direction and remain open. Status lights and alarm notifications will turn off.

POWER FAILURE

In the event of a loss of power to the unit, the barriers of the SU5000 can be freely moved in either direction. When pushed or pulled to the open position the barriers will remain open.

CARD READERS

SPACE FOR INTERNAL INSTALLATION OF CARD READERS

Internal space is available for mounting of slim style proximity card readers. The internal space available is 1.0" H x 1.9" W x 6.5" D (25mm x 48mm x 165mm). Use of larger readers is accomplished through custom solutions (see Options).

TURNSTILE INTERFACE TO ACCESS CONTROL SYSTEM

There are two types of interfaces to allow an access control system to operate with the SU5000:

DRY CONTACT - Single passage activation, and other functionality, is achieved by supplying an isolated, voltage free, momentary dry contact at the appropriate location on the I/O control board. Various outputs are also available to provide information on turnstile operational status and activity. A description of available input and output signals is provided below.

Input Signal	Entry / Exit
Direction Closed	√
Good Card (Activation)	√
Bad Card	√
Passage – Free Pass Mode	√
Single Entry Override	√
Life Safety Input	√

Output Signal	Entry / Exit
Authorized Passage	√
Unauthorized Passage	√
Unauthorized Presence	√
Sensor Blocked	√
Lingering Barrier	√

GATECONNECT - For large projects a TCP/IP interface is available through use of Alvarado's optional GateConnect application. This application allows a third party access system to control turnstile operation similar to the dry contact method, through the use of TCP/IP commands and responses. There is an additional charge for GateConnect and implementation requires a one-time programming effort on the part of the access system provider. Contact Alvarado for pre-evaluation of project requirements.

AVAILABLE RELATED APPLICATIONS

There are two additional applications that are available with the SU5000.

LANECONFIG – LaneConfig is a desktop application that comes standard with all SU5000's. The application allows configurable features of the SU5000 and updated software to be installed over a network. Use of LaneConfig in a networked setting eliminates the need to physically plug into individual turnstiles to change turnstile configurations or update software. LaneConfig is installed on a PC that is networked to installed SU5000 units and communicates to turnstiles via TCP/IP.

In installations where SU5000 turnstiles are not networked, LaneConfig is loaded on a laptop which is temporarily plugged into the Ethernet port of individual turnstiles when turnstile configurations are changed or software is updated.

GATEKEEPER – GateKeeper is an optional desktop application that allows all Alvarado optical turnstiles installed at a site to be monitored and controlled from a single PC. GateKeeper allows control of virtually all day-to-day operating functions including designating a turnstile as entry or exit, 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 include an emergency "open all turnstiles" capability that is in addition to the emergency override / fire alarm capabilities described earlier in this document. The application has tiered login levels with three levels of security (User, Supervisor and Administrator). The higher permission levels enable various additional features and settings.

GateKeeper has an intuitive graphic interface that gives desk attendants a current “status” of all installed turnstiles. In addition, when alarm conditions occur, the application provides both visual and audio notification of what happened. All actions (such as passage overrides), and turnstile alarms, are logged. Logs may be printed or saved for recordkeeping or diagnostic purposes.

GateKeeper also includes a built in Event Scheduler. This extremely useful tool allows day-to-day operational changes that are often implemented at sites to be scheduled and automatically implemented without the need for a guard or attendant to “remember” to change settings. Event Scheduler allows operation templates to be saved and then automatically implemented at user defined times. Examples include changing the entry status of turnstiles (entry, exit, bi-directional control or free passage) at set times of the day. Similarly, a facility may want barriers activated or disabled at select times and / or only specific lanes operational on weekends and holidays. This flexibility allows turnstiles to be used more efficiently, can decrease the number of turnstiles that may be needed and allows Alvarado’s optical turnstiles to seamlessly integrate into a customer’s operational requirements.

A single license of GateKeeper allows users to control all turnstiles installed at a single licensed site.

OPTIONS

ALTERNATE LID COLORS AND MATERIALS

Cabinet lids may be ordered in alternate colors and materials.

ALTERNATE POWER SUPPLY

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

BARCODE READER FOR VISITOR IDENTIFICATION

A 1D / 2D barcode reader can be installed on either or both sides of the turnstile. The barcode reader is recessed into the right-hand leg of the turnstile, with scan opening located below the Open / Closed Status Light. Barcode readers are generally used for visitor identification and work with most access control or visitor management solutions.

Barcode Reader

BARRIER HEIGHTS

Moving barriers are available in low (35”), mid (46”) and high (69”) heights. Low and mid-height barriers are 0.5” (13mm) thick. High (69”) barriers are 0.75” (19mm) thick. See Technical Dimensions.

BARRIER / SIDE PANEL ETCHING

Customer’s choice of logo / artwork may be etched on the moving barriers and / or side panels. Contact Alvarado for space limitations.

Barrier / Side Panel Etching

BARRIER WIDTHS

Moving barrier widths may be customized to meet unique installation requirements.

BASEPLATE

A baseplate for either single turnstile or multi-turnstile 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 floor.

Multi-Turnstile Baseplate

CARD READERS / PHYSICAL ACCESS DEVICES

Due to the extremely slim architectural profile of the SU5000, generally only mullion sized readers can be housed inside the cabinet. Custom fabricated solutions, including pedestals, are used to house alternative readers. When requesting use of readers other than mullion size, provide the manufacturer and model number to Alvarado for evaluation. Custom reader integration generally requires providing a sample of the actual reader to be used to Alvarado for design purposes.

CUSTOM CABINETS

External cabinet materials may be powder coated in a variety of colors. Cabinet materials can also be plated in a variety of finishes.

LONGER INTERCONNECT CABLES

Longer interconnect cables are available to accommodate installations where standard conduit runs are not available. The standard interconnect cable length is 13'. Custom cables are available in 20' or 40' lengths.

SIDE PANEL ILLUMINATION (DYNAMIC)

Dynamic Side Panel Illumination combines Static Side Panel Illumination with dynamic changes to the lighting of the side panel on the right hand side of the turnstile (directly underneath the User Status Display). Depending on turnstile status, the side panel changes color in coordination with the User Status Display. The Dynamic Side Panel Illumination option allows an attendant to visually identify the status of installed turnstiles and quickly identify a turnstile with an alarm condition. Colors used with Dynamic Side Panel Illumination are blue, green and red.

Blue Illuminated Panel – A constantly illuminated blue panel corresponds with the yellow icon on the User Status Display and means that the turnstile is ready for presentation.

Green Illuminated Panel – An illuminated green panel corresponds with the green arrow icon on the User Status Display and means that a valid credential has been presented or the turnstile is in "free passage" mode.

Red Illuminated Panel – An illuminated red panel corresponds with the solidly illuminated red stop icon on the User Status Display and means that an invalid credential has been presented.

Red Illuminated (Flashing) Panel – A flashing red panel corresponds with the flashing red stop icon on the User Status Display and means that the turnstile has an alarm condition.

Contact Alvarado for additional information about this option.

SIDE PANEL ILLUMINATION (STATIC)

Side panels may be illuminated via low-voltage LEDs in the following colors: white; green; blue; red. The panels are constantly illuminated with the selected color when the turnstile is powered.

Side Panel Illumination (Static)

TCP/IP (GATECONNECT)

See the description under Available Related Applications.

TCP/IP (GATEKEEPER)

GateKeeper communicates with SU5000 turnstiles over a wired TCP/IP network. The program runs on current Windows operating systems. Wireless communication is available. See the full description under Available Related Applications or online at http://www.alvaradomfg.com/gateKeeper.htm.

TURNSTILE KEY CONTROLS

Two 3-position key switches are installed on the turnstile to control passage modes for both directions of travel. 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.

CONDUIT REQUIREMENTS

PRIMARY POWER CONDUIT

.75" power conduit for primary power must be run to each master controller cabinet.
Note: The product standard is 110-120VAC (use of 220-240VAC is an option).

LOW-VOLTAGE & COMMUNICATION CONDUIT

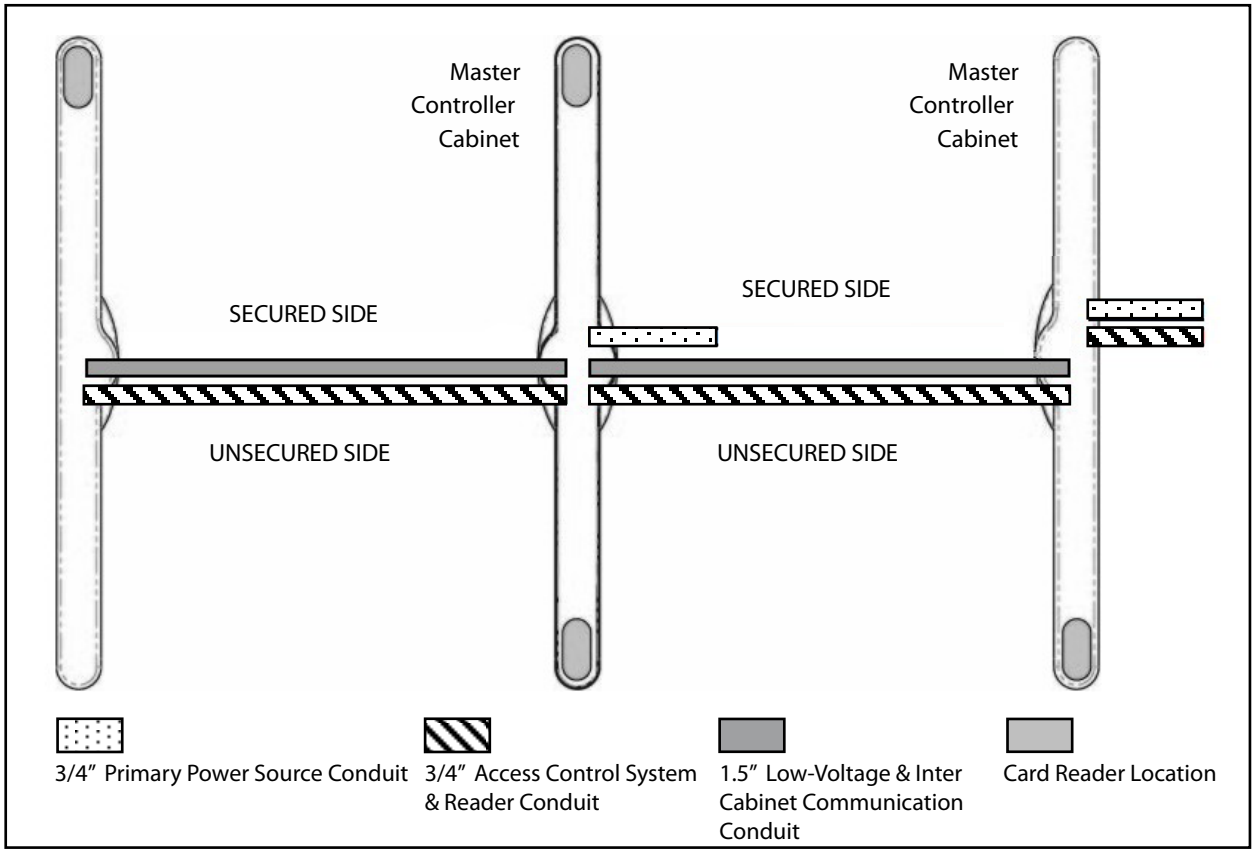
1.5" conduit must be run to allow passage of the interconnect cable between cabinet sets. 13' interconnect cables are included. 20' and 40' interconnect cables are available options.

ACCESS CONTROL SYSTEM & READER CONDUIT

The SU5000 has space for the acceptance of a .75" conduit for access control and reader cabling. Alvarado does not provide cables for access control systems.

TCP/IP CONDUIT

Use of TCP/IP communication with LaneConfig, GateKeeper or GateConnect requires the running of an ethernet cable to each master controller cabinet. Do not run cable in the same conduit as AC Power Wireless communication is available.



SHIPPING & SITE PREPARATION

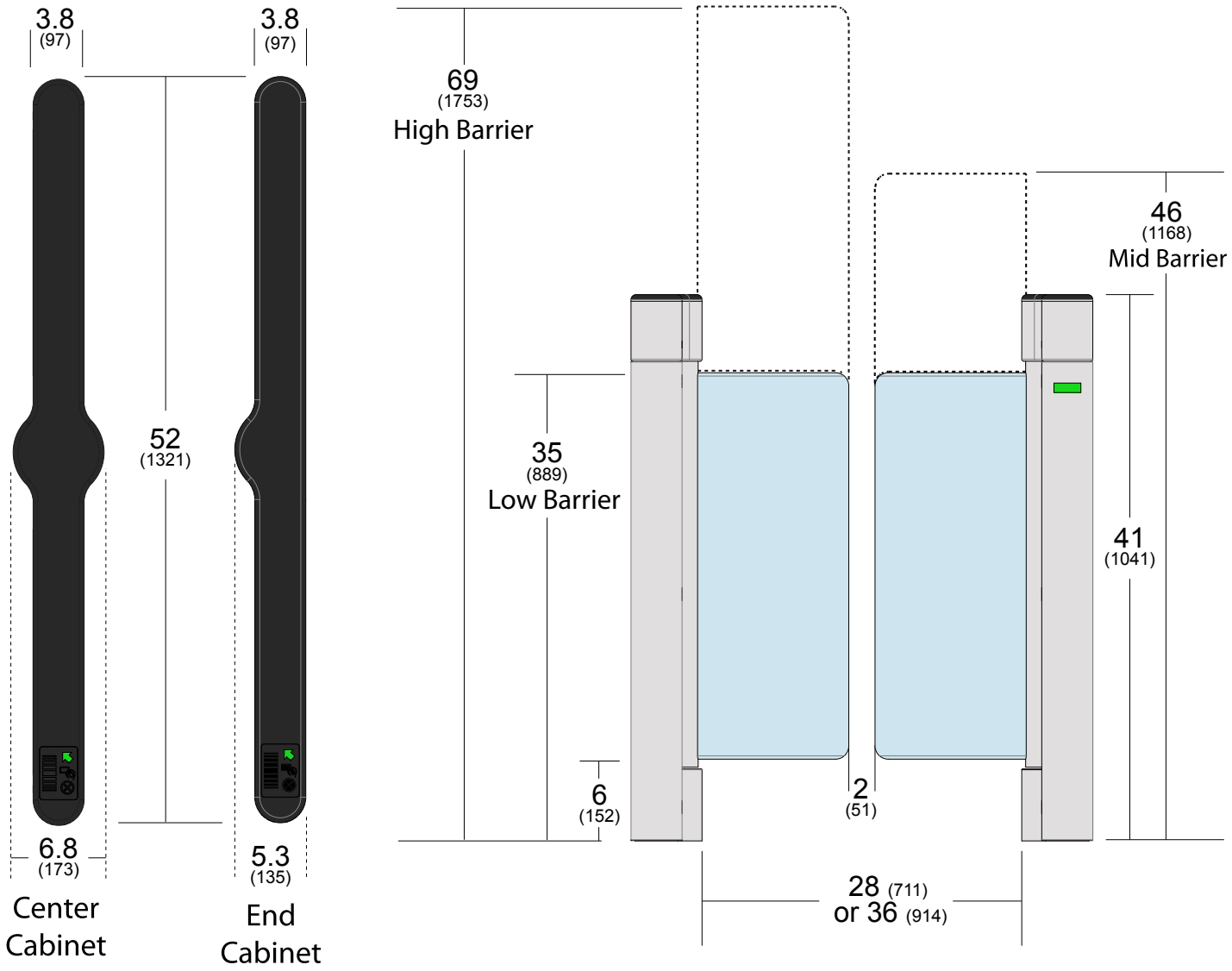
SHIPPING

SU5000 cabinets are shipped assembled for easy installation. Each cabinet includes mounting hardware (anchors, bolts, washers, etc.) to mount the unit to a standard, level concrete floor.

SITE PREPARATION

Turnstiles must be installed on a firm foundation in a manner that allows the required power and access control cabling to be pulled into the turnstile cabinet. The slab platform should be a minimum of 4" deep, level concrete. Installation should be performed by a skilled installer following Alvarado's instructions. Detailed drawings and installation manuals are available online.

TECHNICAL DIMENSIONS



Dimensions shown in inches (mm). All measurements are approximate.

THROUGHPUT RATES	
CARD READER TYPE*	USERS PER MINUTE**
PROXIMITY	40
MAGNETIC STRIPE	25
MAGNETIC STRIPE WITH NUMERIC KEYPAD	20
BARCODE SCANNER	40
*Access control system response is assumed to be instantaneous	**Approximate. Rates may increase with user familiarity.

ELECTRICAL	
	DESCRIPTION
TRANSFORMER	110-120VAC, 60 Hz. or 220-240VAC, 50 Hz. (optional)
POWER REQUIREMENTS	Maximum power consumption is 300W per lane with all options installed.
OPERATIONAL VOLTAGE	Primary power is stepped down and rectified for low voltage 24 VDC, 12 VDC, and 5 VDC operation.
ON/OFF KEY SWITCH	An on/off key switch is located on each master cabinet.
FUSE PROTECTION	A 2.5 amp fuse (slo-blo) is installed in each master cabinet.
SURGE PROTECTION	Alvarado suggests use of surge protection equipment in connection with the installation to protect electronics.
DRIVE MOTOR	24V BLDC

WEIGHT, DIMENSIONS, ENVIRONMENT			
	STANDARD	METRIC	
PRODUCT WEIGHT*	200 lbs.	91 kg	*Weight for a standard 28" lane (two cabinets)
SHIPPING WEIGHT**	275 lbs.	125 kg	**Includes weight of shipping crate(s)
HEIGHT	41"	1041mm	
WIDTH	3.8"	97mm	
DEPTH	56"	1422mm	
OPERATING TEMPERATURE	32° to 104° F	0 to 40° C	
STORAGE TEMPERATURE	0° to 104° F	-4 to 40° C	
RELATIVE HUMIDITY	5-90% (non condensing)	--	

WARRANTY

For a period of 18 months from the date of purchase, Alvarado will replace or repair, at Alvarado's option, any products or parts which are defective in materials or workmanship, provided recommended installation and maintenance procedures are followed. This warranty is void if damage is due to improper installation, maintenance or use. This warranty is limited to parts only, and does not cover labor or shipping charges incurred in connection with the removal or replacement of warranted products or parts.

This warranty is expressly made in lieu of any and all other warranties, expressed or implied, including, but not limited to implied warranties of merchantability and fitness for a particular purpose. Alvarado shall not be liable for any loss or damage, directly or indirectly, arising from the use of purchased products. In no event shall Alvarado be liable to buyer for consequential damages, special damages, incidental damages, loss of use, business interruption, loss of profits, or damages of any kind arising out of the use or inability to use a purchased product. In no event shall Alvarado be liable for damages which exceed the purchase price of a covered product.