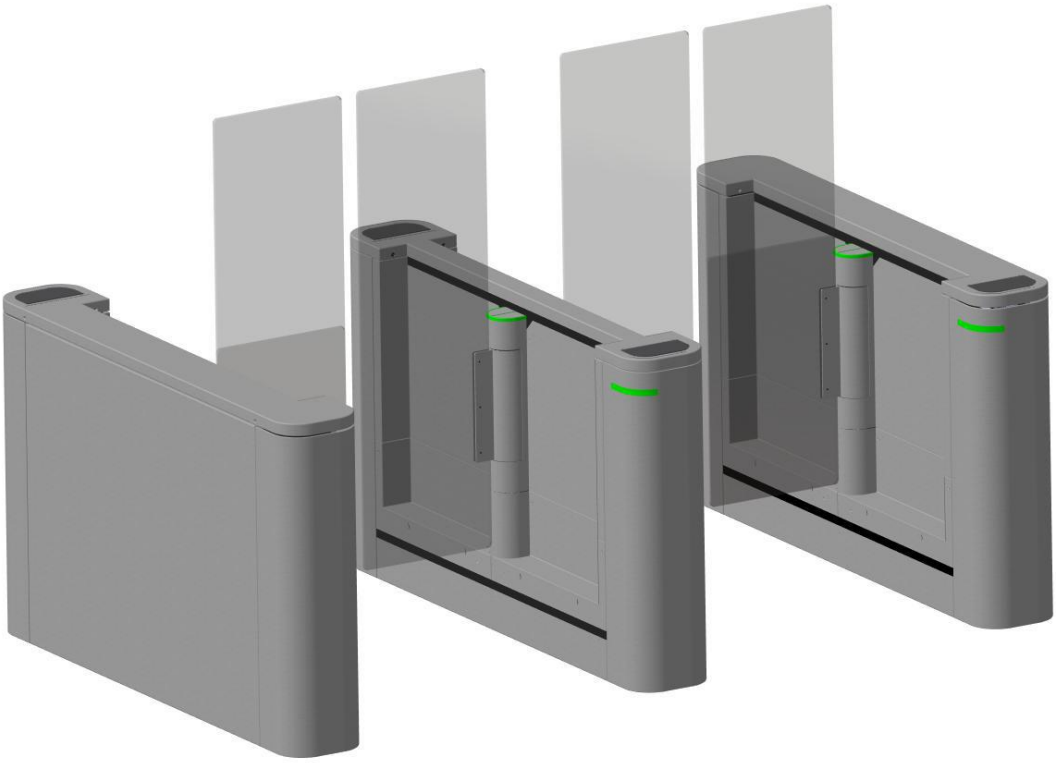
AUTOMATIC SYSTEMS
Access controlled...
Future secured

Security Entrance Lane

SlimLane® 940 NK
SlimLane® 950 NK



Engineering Specifications

With a constant view to adopting the latest technological developments, Automatic Systems reserves the right to amend the above information at any time.

ENGINEERING SPECIFICATIONS

SlimLane® 940-950 NK Security Entrance Lane

SECTION 08 42 29.33 – Swinging Automatic Entrances

SECTION 11 14 13.19 – Turnstiles

SECTION 28 16 21 – Access Control Interfaces to Mechanical Systems

SECTION 28 31 00 – Intrusion Detection

PART I – GENERAL

1.01 SECTION INCLUDES

This section covers the furnishing and installation of a Security Entrance Lane for pedestrian access control.

1.02 REFERENCES

A. The Security Entrance Lane must be UL listed as per UL 2593 – Outline of Investigation for Motor Driven Turnstile Operators and Systems.

B. The Security Entrance Lane must be certified per CAN / CSA - C22.2 no. 247-92 (R 2008) – Standards for Operators and Systems of Obstacles, Gates, Draperies, and Louvers.

1.03 SYSTEM REQUIREMENTS

A. The pedestrian Security Entrance Lane must control and restrict pedestrian traffic between secured and unsecured zones.

B. Must feature double swing door to securely block the pedestrian's path and prevent access in restricted areas without authorization.

C. Must be automatically operated and bidirectional, allowing traffic in both directions. Each direction must be independently configurable in one of three (3) states:
   1. Free: all persons are authorized to pass under all conditions,
   2. Controlled: each person must present a valid means of authentication to the reader before being authorized to pass,
   3. Locked: no one is authorized to pass, and authentication means are ignored.

D. Must be designed to operate in the "Normally Open" or "Normally Closed" operation mode
   1. In the "Normally Closed" mode, the security entrance lane provides a closed passageway and will only open upon acceptance of a signal,
   2. In the "Normally Open" mode, the security entrance lane provides a passageway that is always open in the rest position and will only close at unauthorized entry or tailgating attempts.

E. Must use the access control system to grant or deny access to the facility and operate with a variety of user authentication devices such as card reader devices, ticketing systems or barcode reader systems.

F. Design of the unit must be able to accommodate an integration of two (2) readers (one for each direction) within its housing or to accommodate surface mounted reader (s).

G. Design of the unit must feature physical and electronic security to detect and deter unauthorized use.

H. Must be designed to guarantee user safety and ease of passage.

I. Design of the security entrance lane must provide visual and audible notifications for intuitive process and high throughput.

J. Must provide equal access to people with reduced mobility. (**SLIM950 NK**)

K. Can be implemented in a single lane or as multiple adjacent lanes and combine narrow and wide lanes in the same array.

L. The equipment must include photoelectric sensors for presence detection positioned in at least two horizontal rows including a safety zone near swinging obstacles.

1.04 SUBMITTALS

A. Submit product data: equipment description, dimensions, electrical wiring diagrams for installation, and manufacturer's technical manuals on each product to be used, including:
   1. Preparation instructions and recommendations,
   2. Storage and handling requirements and recommendations,
   3. Installation instructions,
   4. Operation and maintenance manuals.

B. Provide shop drawings and indicate component connections, anchoring methods and installation details.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver equipment to job site in manufacturer’s original packaging, undamaged and with complete installation instructions.

B. Store indoors in a controlled environment, protected from construction activities and debris.

1.06 PROJECT/SITE CONDITIONS

A. Install the security entrance lane on leveled finished floor.

1.07 QUALITY ASSURANCE

A. The security entrance lane units must be assembled in North America

B. Manufacturer Qualifications:
   1. Manufacturer must be a company specialized in designing and manufacturing security entrance lanes with a proven minimum experience of ten (10) years

C. Source Limitations: obtain the security entrance lanes from Automatic Systems

1.08 WARRANTY

A. Automatic Systems warranties its SlimLane products against parts defects for a period of five (5) years from the date of invoicing if regular maintenance is performed. This warranty excludes normal wear on finishes or damage that occurs due to abuse or misuse. Obtain full warranty terms from Automatic Systems.

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PART II – PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: subject to compliance with requirements, provide products by the following:
   1. AUTOMATIC SYSTEMS AMERICA INC, 4005 Matte Boulevard, Unit D, Brossard, Quebec, J4Y 2P4, CANADA
      Phone : 800 263 6548
      Fax : 450 659 0966
      Home page : www.automatic-systems.com E-mail : sales.nam@automatic-systems.com

B. Products:

*** NOTE TO SPECIFIER *** Delete the following subparagraphs in brackets if no optional cabinet is required, or add as necessary.*

   1. SlimLane® Security Entrance Lane, Model Slim 940-950 NK

2.02 CONSTRUCTION

A. Frame
   1. To be manufactured from brushed 16 gauge (1,5mm) thick stainless steel type AISI 304,
   2. Self-supporting kinematic frame must be made of 3/16'' (5 mm) thick steel type S355 or equivalent.

B. Side panels
   1. Side panels must be made of brushed 16 gauge (1,5mm) thick stainless steel type AISI 304 and cannot be removed without appropriate tools.

C. Top covers
   1. To be manufactured from brushed stainless steel type AISI 304.

D. Swing obstacles
   1. To be manufactured from monolithic clear 3/8'' (10 mm) thick tempered glass.

E. Enclosure
   1. Design of the unit's enclosure must ensure an IP 40 degree of protection.

2.03 DIMENSIONS

A. Lane width:
   1. The walkway width for standard equipment, **SLIM 940 NK**, must be 23 in (584mm),
   2. The walkway width for equipment for people with reduced mobility, **SLIM 950 NK**, must be 36 in (914mm).

*** NOTE TO SPECIFIER *** Delete the following subparagraphs in brackets if no optional cabinet is required, or add as necessary.*

B. Dimensions Standard:
   1. Dimensions for Left and Right Units:
      a. Length maximum: 65 in (1651mm)
      b. Height maximum: 40 in (1016mm)
      c. Width maximum: $10^{7/16}$ in (265mm)

   2. Dimensions for Intermediate Units:
      a. Length maximum: 65 in (1651mm)
      b. Height maximum: 40 in (1016mm)
      c. Width maximum: $10^{7/16}$ in (265mm)

2.04 OPERATION

A. Normal Operation (available for "Normally Closed & Controlled" configurations):
   1. In the stand-by position, the passageway must be securely blocked by means of double swing doors,
   2. Upon receipt of an opening pulse from the access control system the obstacles must pivot in the direction of the passage into the lane, consequently freeing the passageway,
   3. The obstacles immediately close after passage or after a configurable delay,
   4. If an unauthorized person follows an authorized person (tailgating) or attempts to enter from the opposite direction, the unit must detect the unauthorized passage and activate the alarm conditions.

B. Emergency Operation
   1. The unit must have an input in order to receive the "fire alarm" signal. When the emergency signal is activated, the unit must react in the following way:
      a. Obstacles automatically open in the direction of egress and remain open,
      b. Green signals are displayed on the pictograms in both directions.
   2. This operating mode continues as long as the emergency signal is active. After the emergency signal has been turned off, the unit must return to its previous operating mode.

C. Power Failure
   1. In case of power failure, the obstacles must open automatically with battery backup and be blocked open in the direction of egress,
   2. After the power supply has been restored, the unit must return to its previous operating mode.

2.05 SECURITY

A. Must provide double swing obstacles for immediate lane closure

*** NOTE TO SPECIFIER ** 35 3/8 in (900 mm) half-height doors are the standard height for the SlimLane 940 and 950 NK Security Entrance Lane. For an additional cost, other heights are available [as options listed in brackets] for enhanced physical security.*

Delete the following subparagraphs in brackets if no optional height glass is required, or retain the height that is appropriate for the project.

   1. 35 3/8 in (900 mm) high obstacles to securely block the passageway.
   2. [47 in (1200 mm) half-height doors and anti-climb panel made of 3/8 in (10 mm) thick clear tempered glass]
   3. [59 in (1500 mm) half-height doors and anti-climb panel made of 3/8 in (10 mm) thick clear tempered glass]
   4. [67 in (1700 mm) full-height doors and anti-climb panel made of 3/8 in (10 mm) thick clear tempered glass]

B. Must have an integrated electromechanical lock; the obstacles must be locked in case of an attempted break-in.

C. Passage must be electronically controlled in both directions to detect and deter unauthorized persons entering into the secure zone:
   1. Passage with an unauthorized means of authentication,
   2. Passage in the opposite direction,
   3. Unauthorized person following an authorized person, i.e. tailgating,
   4. Obstruction of an infrared beam path.

D. The security entrance lane must ensure that one valid authentication allows only one valid entry to the restricted area by using infrared sensors to determine the direction of the passage and number of pedestrians passing through the passageway at one time.

E. Passage must be electronically controlled in both directions by a high density matrix of at least 40 sensors:
   1. Each sensor must be composed of a separate emitter and receiver, no reflectors must be used,
   2. Sensors must be deployed in a matrix configuration made up of criss–cross beams, such that each optical receiver must detect the beams from several optical emitters; the optical detection matrix must offer at least 96 detection beams,
   3. Detection beams must be controlled by an algorithm capable of tracking the user's passage in the lane from entry to exit point, anticipating his position in the lane at each moment, as well as determining anything that may cause interference, obstruct or fall into the lane passage that is not a security threat.

F. In the event of detection of unauthorized behavior, the unit must close the swing obstacles and activate the alarm conditions.

2.06 SAFETY

A. The unit must be sized to withstand at least 380 lbs (1700N) of direct force applied on each side of the handrail, when respecting recommended installation.

B. Must be designed to avoid entrapment and prevent pinching points with safety clearance of at least 1 in (25 mm) between the handrail and the swinging obstacles.

C. Must be designed to operate in "EGRESS" operating mode
   1. "EGRESS" operating mode; powered and in an emergency, the obstacles can be unlocked by a simple push and open automatically in the direction of the evacuation (direction B - exit), but unable to open from unsecure side (direction A).
      a. Manual opening force for automatic swing obstacles must not exceed 50 lbs (222 N),
      b. Audio and visual alarms notify both security personnel and users of the evacuation in process,
      c. At the end of a configurable delay, the obstacles close automatically and the unit resumes previous operating mode,
      d. The obstacles are electromechanically locked in case of a forced entry attempt in direction A (entry).

D. When combined with a fire alarm system, the obstacles must open automatically in the direction of egress to free the passage as long as a fire alarm occurs and the emergency signal is active.

E. The unit must have user safety sensors to prevent obstacles from closing when a user is standing between the obstacles.

F. Must be equipped with additional safety sensors ensuring enhanced user protection and luggage protection in entry and exit directions.

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G. Must be equipped with position sensors to control the position of the mobile obstacles with high precision and be able to stop obstacles' movement when an obstruction is detected.

H. The operating force of the swing obstacles must be limited and comply with limitations of obstacle force Subject 2593 Outline for investigation and CAN/CSA - C22.2 n°247-92 (R2008).

2.07 PEDESTRIAN GUIDANCE

A. Visual notification with clear graphics must be incorporated into each passageway (one for each direction) to provide status of the lane, to control flow and to warn users.

B. Must integrate an additional visual notification into each passageway (one for each direction) for indication of valid authentication or unauthorized behavior, to improve user guidance.

C. Audible notification must be incorporated into each passageway to provide status of the lane and alarm conditions with two (2) distinctive audible tones:
   1. First stage notifies user and guard that someone has entered the lane without authorization:
      a. Allows user to attempt authorization, before going into a full alarm,
      b. Guard is notified that a lane violation may occur.
   2. Second stage notifies user and guard that someone has passed through the lane without authorization:
      a. Notifies the users that they have passed through the lane without authorization,
      b. Guard is notified that a lane violation has occurred and takes appropriate actions.

2.08 DRIVE UNIT

A. Powerful DC permanent magnet motor with epicyclical gearbox ensuring fast movement of the obstacles.

B. Controller ensuring progressive accelerations and gradual decelerations, for safe movement without vibrations.

C. Magnetic sensor to control the position and the speed of the mobile obstacles with high precision.

D. Drive unit must be silent; the noise level generated from the unit must not exceed 55dB.

2.09 CONTROLLER

A. Microprocessor-based controller with the following characteristics:
   1. ARM9™ processor,
   2. LINUX operating system,
   3. IP interface,
   4. USB interface,
   5. CAN Bus interfaces,
   6. Embedded web server, accessible by a web browser, to monitor in real time the lane, set operating modes, advanced parameters and to provide diagnostics for quick detection of problem source,
   7. IP communication interface for extended settings and functions.

B. The controller must have equipment diagnostic capability and the ability to be configured:
   1. The diagnostic software must be web based and embedded in the controller,
   2. The communication between the diagnostic software and a device must be 10/100Base-T Ethernet,
   3. The embedded diagnostic software must be accessible by a web browser from any device,

4. The diagnostic software must provide the following features:
   a. Real time monitoring of the lane,
   b. Operating modes and advanced parameter settings,
   c. Quick detection of the source of the problem and trouble notification with the unit.

C. The equipment must have the ability to be controlled through web based monitoring software (supplied separately by manufacturer)
   1. The monitoring software must be web based
   2. The communication between the monitoring software and the security entrance lane must be 10/100Base-T Ethernet
   3. The monitoring software must be accessible by a web browser from any device
   4. The monitoring software must provide the following features:
      a. Control all installed units,
      b. Change the operating mode of the units,
      c. Show the status of the units (in service, fraud, technical error, etc.),
      d. Scheduler,
      e. Events log,
      f. Statistics.

2.10 POWER SUPPLY

A. Power supply:
   1. 24 Volts DC

** * NOTE TO SPECIFIER * * 24VDC power supply is integrated as a standard. For an added cost, other power supply are available as options. [Listed in brackets]*

Delete the following subparagraphs in brackets if no optional power supply is required, or add as necessary.

   2. *[24VDC remote power supply (max 100ft)]*
   3. *[110–240 Volts AC 50/60 Hz]*

B. Consumption in operation:
   1. At rest : 40W maximum
   2. Normal : 300W maximum
   3. Peak : 480W maximum

2.11 PERFORMANCE

A. Opening Time & Closing Time
   1. The opening time of the obstacles must not exceed 1.0 second
   2. The closing time of the obstacles must not exceed 1.0 second

B. Operating Temperatures: 32° to 122°F (0° to 50°C)

C. MCBF (Mean Cycles Between Failures): 10 000 000 cycles

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2.12 OPTIONAL EQUIPMENT

** * NOTE TO SPECIFIER * * Delete the following subparagraphs in brackets if this optional equipment is not required, or add as necessary.*

1. *[Customized glass obstacles with pattern or logo]*
2. *[Laminated obstacles]*
3. *[Monitoring Panel, available as 'Server' versions, to control all arrays and lanes, regardless of where the units are installed in the building]*
4. *[Manual control panel]*
5. *[Custom Finish]*
6. *[Reader integration within housing - Dimension to be validated by AS]*
7. *[Barcode reader assembly - Dimension to be validated by AS]*
8. *[Biometric reader integration in endcap - Dimension to be validated by AS]*

PART III – EXECUTION

3.01 INSPECTION

A. Installer must examine the installation location and advise the Contractor of any site conditions inconsistent with proper installation of the product. These conditions include but are not limited to the following:
   1. Security Entrance Lane must be installed on a level concrete pad,
   2. Power supply and control wiring must be installed following manufacturer's recommendations.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Install Security Entrance Lane in strict accordance with manufacturer's instructions. Set units level. Anchor securely in place.

3.03 ADJUSTMENT

A. Installer must adjust Security Entrance Lane for proper performance after installation.

3.04 INSTRUCTION

A. A factory trained installer must demonstrate to the owner's maintenance crew the proper operation and the necessary service requirements of the equipment, including exterior maintenance.

3.05 CLEANING

A. Clean turnstile and area carefully after installation to remove excess caulk, dirt and labels.

3.06 MAINTENANCE

A. Maintain the equipment according to the manufacturer's instructions.

Automatic Systems reserves the right to change this specification at any time without notice.

END OF SECTION