SlimLane

ENGINEERING SPECIFICATION

NAM-SLIM940-950-ES-EN-I

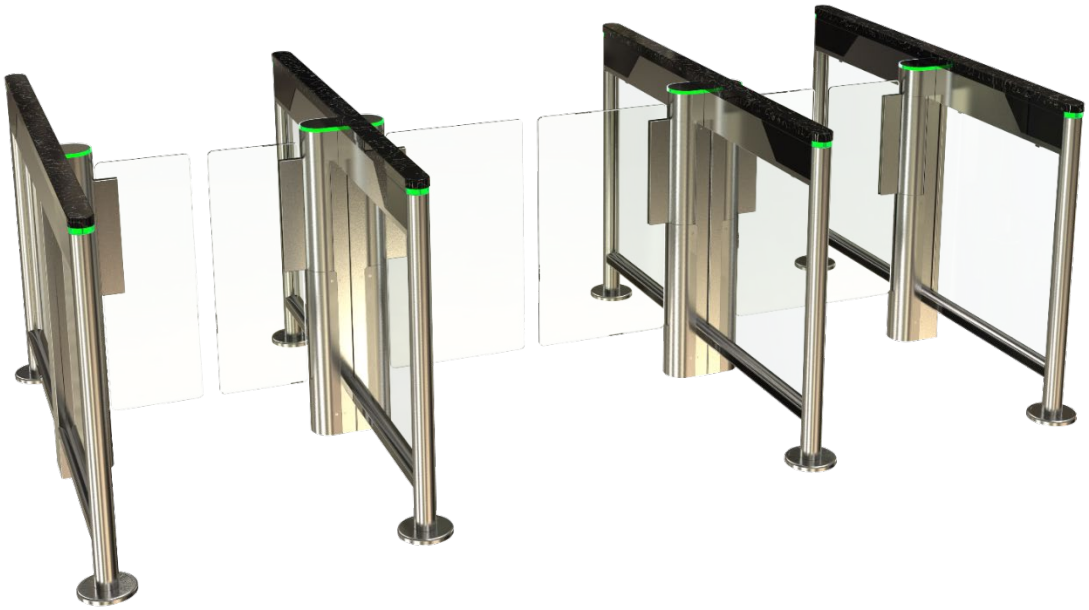
AUTOMATIC SYSTEMS

Access controlled...
Future secured

Security Entrance Lane

SlimLane® 940

SlimLane® 950



Engineering Specifications

125 E. Stansifer Ave Clarksville, IN 47129

ENGINEERING SPECIFICATIONS

SlimLane® 940-950 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 supply 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. It must feature double swing door to securely block the pedestrian's path and prevent access in restricted areas without authorization.

C. It must be automatically operated and bidirectional, allowing traffic in both directions. Each direction must be independently configurable in one of the three (3) following 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 through the gate.
3. **Locked:** no one is authorized to pass, and authentication means are ignored.

D. It 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 its rest position, and will only close under unauthorized entry or tailgating attempts.

E. It must use the access control system to grant or deny access to the secured zone(s) and operate with a variety of user authentication devices, such as card reader devices, ticketing systems or barcode reader systems.

F. The 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. The design of the unit must feature physical and electronic security to detect and deter unauthorized use.

125 E. Stansifer Ave Clarksville, IN 47129

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

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

J. It must provide equal access to people with reduced mobility. (**SLIM950**)

K. It can be implemented as a single lane or as multiple adjacent lanes combining narrow and wide lanes in the same array.

L. The equipment must include photoelectric sensors for presence detection positioned in at least two (2) horizontal rows, including a safety zone near the swinging glass obstacles.

1.04 SUBMITTALS

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

B. Shop drawings indicating component connections, anchoring methods and installation details must be provided.

1.05 DELIVERY, STORAGE AND HANDLING

A. Equipment must be delivered to the installation site in the manufacturer's original packaging, undamaged and with complete installation instructions.

B. Equipment must be stored indoor in a controlled environment, protected from construction activities and debris.

1.06 PROJECT/SITE CONDITIONS

A. The security entrance lane must be installed on a leveled finished floor.

1.07 QUALITY ASSURANCE

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

B. The following manufacturer qualification is needed:
   1. The manufacturer must be a company specialized in designing and manufacturing security entrance lanes with a proven minimum experience of fifteen (15) years.

C. Source Limitations: the security entrance lanes must be obtained 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. Full warranty terms must be obtained from Automatic Systems.

PART II – PRODUCTS

2.01 MANUFACTURERS

A. Manufacturer: 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
   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
2. [SlimLane Security Entrance Lane, Model: Slim SC 940-950]
3. [SlimLane Security Entrance Lane, Model: Slim EP 940-950]
4. [SlimLane Security Entrance Lane, Model: Slim EPR 940-950]
5. [SlimLane Security Entrance Lane, Model: Slim EPW 940-950]

2.02 CONSTRUCTION

A. Frame:

1. It must be manufactured from brushed 16 gauge (1,5mm) thick stainless-steel type AISI 304L.
2. The 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 304L and cannot be removed without appropriate tools.

C. Top cover:

1. It must be manufactured from brushed stainless-steel type AISI 304L.

D. Swing obstacles:

1. They must be manufactured from monolithic clear 3/8'' (10 mm) thick tempered glass.

E. Enclosure:

1. The design of the unit's enclosure must ensure an IP 40 degree of protection.

2.03 DIMENSIONS

F. Lane width:

1. The passageway width for standard equipment, **SLIM 940**, must be 23 in (584mm).
2. The passageway width for equipment intended for people with reduced mobility, **SLIM 950**, must be 36 in (915mm).

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

G. Standard dimensions:
   1. Left and right unit dimensions:
      a. Length maximum: 64 1/2 in (1640mm).
      b. Height maximum: 39 in (991mm).
      c. Width maximum: 7 7/8 in (200mm).
   2. Intermediate unit dimensions:
      a. Length maximum: 64 1/2 in (1640mm).
      b. Height maximum: 39 in (991mm).
      c. Width maximum: 9 7/8 in (250mm).

H. [Short Cabinet (SC) dimensions:
   1. Left and right unit dimensions:
      a. Length maximum: 50 1/4 in (1275mm).
      b. Height maximum: 39 in (991mm).
      c. Width maximum: 7 7/8 in (200mm).
   2. Intermediate unit dimensions:
      a. Length maximum: 50 1/4 in (1275mm).
      b. Height maximum: 39 in (991mm).
      c. Width maximum: 9 7/8 in (250mm)].

I. [EP cabinet dimensions:
   1. Left and right unit dimensions:
      a. Length maximum: 64 in (1625mm).
      b. Height maximum: 39 in (991mm).
      c. Width maximum: 7 7/8 in (200mm).
   2. Intermediate unit dimensions:
      a. Length maximum: 64 in (1625mm).
      b. Height maximum: 39 in (991mm).
      c. Width maximum: 9 7/8 in (250mm)].

J. [EPR cabinet dimensions:
   1. Left and right unit dimensions:
      a. Length maximum: 56 1/4 in (1430mm).
      b. Height maximum: 39 in (991mm).
      c. Width maximum: 7 1/8 in (182mm).
   2. Intermediate unit dimensions:
      a. Length maximum: 56 1/4 in (1430mm).
      b. Height maximum: 39 in (991mm).
      c. Width maximum: 9 7/8 in (250mm)].

K. [EPW cabinet dimensions (IDEMIA's MorphoWave Compact Reader on entry side only):
   1. Left and right unit dimensions:
      a. Length maximum: 65 1/8 in (1654mm).
      b. Height maximum: 39 in (991mm) (not including the MorphoWave reader).
      c. Width maximum: 8 in (204mm).
   2. Intermediate unit dimensions:
      a. Length maximum: 65 1/8 in (1654mm).
      b. Height maximum: 39 in (991mm) (not including the MorphoWave reader).
      c. Width maximum: 9 7/8 in (250mm)].

L. [EPW cabinet dimensions (IDEMIA's MorphoWave Compact Reader on entry and exit side):
   1. Left and right unit dimensions:
      a. Length maximum: 66 1/4 in (1683mm).
      b. Height maximum: 39 in (991mm) (not including the MorphoWave reader).
      c. Width maximum: 8 in (204mm).
   2. Intermediate unit dimensions:
      a. Length maximum: 66 1/4 in (1683mm).
      b. Height maximum: 39 in (991mm) (not including the MorphoWave reader).
      c. Width maximum: 9 7/8 in (250mm)].

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 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, powered by a supercapacitor circuit board, 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. The unit must provide double swing obstacles for immediate lane closure.

*** NOTE TO SPECIFIER ** 35 7/16 in (900 mm) half-height doors are the standard height for the SlimLane 940 and 950 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 7/16 in (900 mm) high glass 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].
5. [72 in (1830 mm) full-height doors and anti-climb panel made of 3/8 in (10 mm) thick clear tempered glass].

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

C. The passage must be electronically controlled in both directions to detect and deter unauthorized persons entering the secure zone for the following situations:
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 transmitter 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 transmitters; 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.

125 E. Stansifer Ave Clarksville, IN 47129

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 requirements.

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

C. It 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. It must be equipped with additional safety sensors ensuring enhanced user protection and luggage protection in entry and exit directions.

G. It 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. The unit 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. It allows the user to attempt authorization, before going into a full alarm.
    b. The 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. It notifies the users that they have passed through the lane without authorization.
    b. The guard is informed that a lane violation has occurred and takes appropriate actions.

2.08 DRIVE UNIT

D. The unit's motor assembly must include a powerful DC permanent magnet motor with epicyclical gearbox ensuring fast movement of the obstacles.

E. It must include a controller ensuring progressive accelerations and gradual decelerations, for safe movement without vibrations.

F. It must include a magnetic sensor to control the position and the speed of the mobile obstacles with high precision.

G. The drive unit must be silent; the noise level generated from the unit must not exceed 55dB (measured at 3 feet from the motor assembly).

2.09 CONTROLLER

A. A microprocessor-based controller with the following characteristics must be used:

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 a web-based monitoring software (supplied separately by the manufacturer) and offer the following features:

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. It must be able to control all installed units.
   b. It must be able to change the operating mode of the units.
   c. It must show the status of the units (in service, fraud, technical error, etc.).
   d. It must have a scheduler.
   e. It must have an events log.
   f. It must provide usage statistics.

2.10 POWER SUPPLY

A. Power supply:
   1. 24 Volts DC.

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

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

   2. *[24VDC from remote power supply (located at a maximum of 100ft from the unit)].*
   3. *[110–240 Volts AC 50/60 Hz].*

B. Unit's power consumption in operation:
   1. At rest: 40W maximum.
   2. Normal: 300W maximum.
   3. Peak: 480W maximum.

2.11 PERFORMANCE

A. Obstacles opening & closing Time:
   1. The opening and closing time of the obstacles must not exceed 1.0 second for SLIM940 units.
   2. The opening and closing time of the obstacles must not exceed 1.2 seconds for SLIM950 units.

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

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

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 glass obstacles].*
3. *[Ramp for ease of installation].*
4. *[Raised base for ease of installation].*
5. *[Monitoring Panel, available as a 'Server' version, to control all arrays and lanes, regardless of where the units are installed in the building].*
6. *[Manual control panel].*
7. *[Custom surface finish].*
8. *[Custom top finish - Corian or Arborite].*
9. *[Emergency push button].*
10. *[LED lighting for lateral side glass panels].*
11. *[Flangeless end posts].*
12. *[Reader integration within housing - Dimensions to be validated by Automatic System].*
13. *[Barcode reader assembly - Dimensions to be validated by Automatic System].*
14. *[Surface mounted reader integration].*
15. *[Flat elevator dispatch screen integration (EP and EPW only)].*
16. *[Angled elevator dispatch screen integration (EP, EPR and EPW only)]*
17. *[IDEMIA's MorphoWave reader integration (EPW only)]*

PART III – EXECUTION

3.01 INSPECTION

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

B. The installing contractor must proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. The Security Entrance Lane must be installed in strict accordance with the manufacturer's instructions. The unit level must be set. The unit must be anchored securely in place.

3.03 ADJUSTMENT

A. The installing contractor 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. The turnstile and its surrounding area must be carefully cleaned after the installation to remove excess caulk, dirt, and labels.

3.06 MAINTENANCE

A. The equipment must be maintained according to the manufacturer's instructions.

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

END OF SECTION