



ENGINEERING SPECIFICATIONS

SlimLane® 940 & SlimLane® 940 SC (Short Cabinet) Security Entrance Lanes

SECTION 11 14 00– Pedestrian Access Control Equipment (Gates/Turnstiles)



PART I – GENERAL

1.01 SECTION INCLUDES

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

1.02 RELATED SECTIONS

**** NOTE TO SPECIFIER **** Add required sections to this project

- A.

1.03 REFERENCES

- A. The pedestrian security entrance lane must be compliant with EC standards.

1.04 SYSTEM REQUIREMENTS

- A. The pedestrian security entrance lane must control and be able to 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 authorisation
- C. Must be automatically operated and bidirectional, allowing traffic in both directions. Each direction must be independently configurable in one of three states:
 - 1. Free: all persons are authorised to pass under all conditions
 - 2. Controlled: each person must present a valid means of authentication to the reader before being authorised to pass
 - 3. Locked: no one is authorised 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 an authorised 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 unauthorised entry or tailgating attempts
- E. Must use the building 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 two (2) readers (one for each direction) and to integrate the reader into its housing or to accommodate front-mounted reader
- G. Design of the unit must feature physical and electronic security to detect and deter unauthorised 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. Can be implemented in a single lane or as multiple adjacent lanes and combine narrow and wide lanes in the same array

1.05 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 and location, anchorage methods and location, and installation details.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver equipment to job site in manufacturer's packaging, undamaged and with complete installation instructions.
- B. Store indoors in a controlled environment, protected from construction activities and debris.

1.07 PROJECT/SITE CONDITIONS

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

1.08 QUALITY ASSURANCE

- A. All components and sub-assemblies must be manufactured in the European Union
- B. Manufacturer Qualifications:
 - 1. Manufacturer must be a company specialised in designing and manufacturing security entrance lanes with a proven minimum experience of fifteen (15) years
 - 2. Manufacturer with well-proven experience in public transport is recommended
 - 3. Manufacturer must have a Quality Management System compliant with ISO 9001:2000.
- C. Source Limitations: obtain Security Entrance Lanes through one source from Automatic Systems.

1.09 WARRANTY

- A. Automatic Systems warrants its products against defects in material and workmanship for a period of two (2) years from the date of invoicing. This warranty excludes glass breakage, normal wear on finishes or damage that occurs due to abuse or misuse. Obtain full warranty terms from Automatic Systems.

PART II – PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: subject to compliance with requirements, provide products by one of the following:
 - 1. AUTOMATIC SYSTEMS, 5 Avenue Mercator, 1300 Wavre, BELGIUM
Phone : +32-(0)10 230 211 Fax : +32-(0)10 230 202
Homepage : www.automatic-systems.com E-mail : asmail@automatic-systems.com
- B. Products:
 - 1. SlimLane® Security Entrance Lane, Model SlimLane 940 & SlimLane 940 SC

2.02 CONSTRUCTION

- A. Casing
 - 1. To be manufactured from brushed one and one half (1,5) mm thick stainless steel type AISI 304
 - 2. Self-supporting kinematic frame must be made of five (5) mm thick steel type ST52
- B. Side panels
 - 1. Side panels must be made of brushed one and one half (1,5) mm thick stainless steel type AISI 304 and be non-removable without appropriate tools
- C. Top Cover

**** NOTE TO SPECIFIER **** *Brushed stainless steel is the standard finish for the top cover. For an additional cost, other finishes are available as options listed in brackets to perfectly suit all architectural surroundings.*

Delete the following subparagraphs in brackets if no optional finish is required, or retain as necessary.

- 1. To be manufactured from brushed stainless steel type AISI 304
 - 2. *[Black laminate]*
- D. Swing doors
 - 1. To be manufactured from monolithic clear ten (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. 600 mm (23 ⁵/₈ in)
- B. Dimensions for Left and Right Units
 - 1. Cabinet Length: 1640 mm (64 ¹/₂ in) maximum or 1274 mm (50 ⁵/₃₂ in) for SlimLane 940 SC (Short Cabinet)
 - 2. Cabinet Height: 991 mm (39 in) maximum
 - 3. Cabinet Width: 200 mm (7 ⁷/₈ in) maximum
- C. Dimensions for Intermediate Unit
 - 1. Cabinet Length: 1640 mm (64 ¹/₂ in) maximum
 - 2. Cabinet Height: 991 mm (39 in) maximum
 - 3. Cabinet Width: 250 mm (9 ³/₄ in) maximum

2.04 OPERATION

- A. Normal Operation (available for “Normally Closed & Controlled” configuration)
 - 1. In stand-by position, the passageway must be securely blocked by means of double swing door
 - 2. Upon receipt of 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 an adjustable time-out
 - 4. If an unauthorised person follows an authorised person (tailgating) or attempts to enter from the opposite direction, the unit must detect the unauthorised 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 the 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

**** NOTE TO SPECIFIER **** *In case of power failure, the obstacles can be unlocked with a simple push as a standard. Optionally, a battery backup in case of power failure and a locking mechanism for the obstacles in the direction of egress are available [Listed in brackets].*

Retain one of the two following subparagraphs that is appropriate for the project.

- 1. In case of power failure, the doors must breakaway manually with minimal force
- 2. *[In case of power failure, the doors must open automatically with battery backup and be blocked open in the direction of egress]*
- 3. 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
 - 1. 900 mm (35 ^{3/7} in), 1200 mm (47 ^{1/4} po), 1500 mm (59 po) or 1700 mm (67 po) high obstacles to securely block the passageway
- 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 unauthorised person entering into the secure zone:
 - 1. Passage with an unauthorised means of authentication
 - 2. Passage in the opposite direction
 - 3. Unauthorised person following an authorised 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 32 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 60 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 of anything that may cause interference, obstruct or fall into the lane passage and that is not a security threat
- F. In the event of detection of an unauthorised behaviour, the unit must close the double swing obstacles and activate the alarm conditions.

2.06 SAFETY

- A. The unit must be sized to withstand at least 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 25 mm (1 in) between the handrail and the swinging obstacles
- C. Must be designed to operate in "SECURI-SAFE" or "EGRESS" operating modes

**** NOTE TO SPECIFIER **** *Powered, the unit is available as a standard in 'SECURI-SAFE' mode. For an additional cost, the unit is available as an option listed in brackets in 'EGRESS' operating mode to meet the highest fire safety standards.*

Retain one of the two following subparagraphs that is appropriate for the project.

1. "SECURI-SAFE" operating mode; powered, the obstacles are electromechanically locked in case of a forced entry attempt in both directions, A or B
2. [*"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).*
 - a. *Manual opening force for automatic swing doors must not exceed 222 N (50 lbs)*
 - 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]*
- D. When combined with a fire alarm system and a fire alarm occurs, the obstacles must open automatically in the direction of egress to free the passage as long as 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.

For general public applications, additional safety sensors ensuring enhanced user protection are recommended:

**** NOTE TO SPECIFIER **** *Safety sensors are integrated as a standard to ensure user protection. For an additional cost, additional safety sensors are available as options listed in brackets for ease of passage, even with trolleys.*

Delete the following subparagraph in brackets if no additional safety sensors are required, or retain as necessary.

1. [*Additional safety sensors for enhanced user protection and luggage protection in entrance and exit directions]*

- F. Must be equipped with position sensors to control the position of the mobile obstacles with high precision and be able to stop obstacle's movement when an obstruction is detected
- G. The operating force of the swing obstacles must be limited and comply with limitations of obstacle forces DIN 18650-1:2005-12 and prEN 12650-1:1996 standards.

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 authorisation
 - a. Allows user to attempt authorisation, 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 authorisation
 - a. Notifies the users that they have passed through the lane without authorisation
 - 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 a safe movement without vibrations
- C. Magnetic sensor to control the position and the speed of the 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 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 (Firefox recommended)
 - 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 (with a minimum resolution of 1024 x 768 pixels)
 - 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. 110-240 Volts AC 50/60 Hz
- B. Consumption in operation:
 - 1. At rest : 65W maximum
 - 2. Peak : 300W maximum

2.11 PERFORMANCES

- A. Opening Time & Closing Time
 - 1. The opening time of the obstacles must not exceed 0.8 second
 - 2. The closing time of the obstacles must not exceed 0.8 second
- B. Operating Temperatures: 0 to +50 degrees Celsius (+32 to +122 degrees Fahrenheit)

2.12 OPTIONAL EQUIPMENT

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

- 1. *[Customised glass obstacles with pattern or logo]*
- 2. *[Monitoring Panel, available as 'Server' versions, to control up to 12 arrays of 12 lanes, regardless of where the units are installed in the building]*

PART III – EXECUTION

2.13 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.

2.14 INSTALLATION

- A. Install security entrance lane in strict accordance with manufacturer's instructions. Set units level. Anchor securely into place.

2.15 ADJUSTMENT

- A. Installer must adjust security entrance lane for proper performance after installation.

2.16 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.

2.17 CLEANING

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

2.18 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