

# «SmartLane®» Security Entrance Lane



**SmartLane 900**



**SmartLane 910**

## Engineering Specifications

## **ENGINEERING SPECIFICATIONS**

### **SmartLane 900-910 Security Entrance Lane**

SECTION 08 42 00 – Entrances

SECTION 11 14 00 – Pedestrian Control Equipment

SECTION 28 16 00 – Intrusion Detection

SECTION 28 10 00 – Electronic Access Control and 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 325 – Standard for door, Drapery, Gate, Louver, and Window 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 Doors, 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 sliding obstacles 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 two (2) readers (one for each direction) and to integrate the reader into its housing or to accommodate front mounted reader.
- G. Must be designed to guarantee user safety and ease of passage..

- H. Design of the unit must provide visual and audible notifications for intuitive process and high throughput.
- I. The equipment must include photoelectric sensors for presence detection positioned in two (2) horizontal rows and a central vertical column creating a safety zone near sliding obstacles.
- J. Can be implemented in a single lane or multiple adjacent lanes and combine narrow and wide lanes in the same array.

### 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 methods.
  - 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 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 manufactured 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 products against parts defects for a period of two (2) years from the date of invoicing. This warranty excludes normal wear on finishes or damage that occurs due to abuse or misuse. Obtain full warranty terms from Automatic Systems.
- B. An extended 5 year warranty is available. This warranty excludes normal wear on finishes or damage that occurs due to abuse or misuse. Please consult with a sales representative for full warranty details.

## 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  
Homepage : [www.automatic-systems.com](http://www.automatic-systems.com) E-mail : [sales@automatic-systems.com](mailto:sales@automatic-systems.com)
- B. Products:
  - 1. Security Entrance Lane, Model SL 900-910

### 2.02 CONSTRUCTION

- A. Frame
  - 1. To be manufactured from zinc plated steel for corrosion resistance.
- B. Housing
  - 1. To be manufactured from ANSI 304 stainless steel #4 brushed finish
  - 2. The panels must be removable to allow easy access to both the electro-mechanical drive and electronic control units
  - 3. Doors must be key-locked
- C. Glass obstacle
  - 1. Must be made of tempered glass ½ in (12 mm) thick. Available in heights between 39 in (990mm) and 67 in (1700mm)
  - 2. The security entrance lane must allow the addition of a fixed obstacle above the cabinet to prevent individuals from bypassing the gate.
- D. Top covers
  - 1. The top covers must be made of composite or polymer materials such as Arborite™, Corian™, or equivalent. They must be ¾ in (19mm) thick
- E. Enclosure
  - 1. Design of the unit's enclosure shall ensure an IP 40 degree of protection

### 2.03 DIMENSIONS

- A. Lane width:
  - 1. The walkway width of standard equipment **SL900** must be of 23" (584mm).
  - 2. The walkway width of equipment for people with reduced mobility **SL910** must be of 36" (914mm).
- B. Dimensions:
  - 1. Overall dimensions of standard cabinet (**SL900**)
    - a. Length maximum: 47 ¼ in (1200mm)
    - b. Height maximum: 40 in (1017mm)
    - c. Width maximum: 11 ¾ in (300mm)
  - 2. Overall dimensions of cabinet for people with reduced mobility (**SL910**)
    - a. Length maximum: 47 ¼ in (1200mm)
    - b. Height maximum: 40 in (1017mm)
    - c. Width maximum: 17 ¾ in (450mm)

## 2.04 OPERATION

- A. The unit must be automatically operated in both directions.
- B. Normal Operation (available for “Normally Closed & Controlled” configurations):
  - 1. In the stand-by position, the passageway must be securely blocked by means of double sliding obstacles,
  - 2. Upon receipt of an opening pulse from the access control system the obstacles must slide open, 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.
- C. 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. The sliding obstacles are opened and allow unobstructed exit,
    - 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.
- D. Power Failure
  - 1. In case of power failure, the obstacles must automatically open without any exterior supply of power (such as UPS, battery),
  - 2. After the power supply has been restored, the unit must return to its previous operating mode.

## 2.05 SECURITY

- A. Must provide two (2) sliding glass obstacles to securely block the passageway.

**\*\* NOTE TO SPECIFIER \*\*** 39 in (990 mm) half-height doors are the standard height for the SmartLane 900 and 910 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 is required, or retain the height that is appropriate for the project.

- 1. 39 in (990 mm) half-height doors
  - 2. [47 in (1200 mm) half-height doors and anti-climb panel made of ½ in (12 mm) thick clear tempered glass]
  - 3. [67 in (1700 mm) full-height doors and anti-climb panel made of ½ in (12 mm) thick clear tempered glass]
  - 4. [74 in (1900 mm) full-height doors and anti-climb panel made of ½ in (12 mm) thick clear tempered glass]
- B. Must have a mechanical locking device integrated. The sliding obstacles must be mechanically blocked in the rest position to prevent any attempted fraud attempt.
  - 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. Detection
  - 1. The equipment must include 48 photoelectric sensors to ensure users' safety, optimal passage detection and reliable detection of frauds and intrusions,
  - 2. The vertically positioned photoelectric sensors (containing 16 cells) must create a safety zone that will ensure the moving glass obstacles do not hit users,
  - 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 sliding obstacles and activate the alarm conditions.
- G. Fixed obstacles (when equipped) limiting passage and preventing any fraudulent passage.
- H. Passage must be electronically controlled and independently configurable in both directions in three (3) operating modes:
  - 1. "Controlled" operating mode
    - a. In stand-by position, the passageway must be securely blocked by means of mechanically locked sliding obstacles
    - b. When receiving an opening pulse from the access control system, the mechanism must unlock, consequently the obstacle will open
    - c. Closes after user passage or after an adjustable time-out
  - 2. "Free" operating mode
    - a. In stand-by position, the passageway must be securely blocked by means of mechanically locked sliding obstacles
    - b. When a user enters the lane, the photoelectric cells will detect his presence and consequently the obstacle will open
    - c. Closes after user passage or after an adjustable time-out
  - 3. "Locked" operating mode
    - a. In stand-by position, the passageway must be securely blocked by means of mechanically locked sliding obstacles
    - b. On passage authorization request, or if a user enters the lane, the obstacles will remain locked
    - c. All pictograms will be red to indicate the lane "locked" status

### 2.06 SAFETY

- A. When combined with a fire alarm system, the obstacles must open automatically to free the passage as long as a fire alarm occurs and the emergency signal is active.
- B. The unit must have user safety sensors to prevent obstacles from closing when a user is standing between the obstacles.
- C. 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.
- D. The operating force of the sliding obstacles must be limited and comply with limitations of obstacle force UL 325 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 MECHANISM**

- A. Sliding door mechanism with the following characteristics:
  - 1. Motorization:
    - a. Three-phase asynchronous geared motor combined,
    - b. Variable-speed controller ensuring progressive accelerations and gradual decelerations, for a safe movement without vibrations,
    - c. Inductive sensors to control the absolute position of the glass obstacles with high precision.
  - 2. A “crankshaft and rod” type device must be used to transmit the motion to the glass obstacles,
  - 3. The crankshaft and rod mechanism must ensure a mechanical lock-up of the sliding system in both extreme positions,
  - 4. The motor must be a 1/6 HP (0.12kW),
  - 5. The torque limiter must be electronic.

## **2.09 CONTROLLER**

- A. Microprocessor-based controller with the following characteristics:
  - 1. 4 Mo internal RAM and SD type integrated flash memory,
  - 2. USB interface,
  - 3. CAN Bus interface,
  - 4. I/O modules (8 Inputs and 24 Outputs),
  - 5. LED indicators showing the status of the inputs and outputs,
  - 6. IP communication interface for extended settings and functions,
  - 7. Must have the ability to plug in a maintenance panel through the USB interface.
- 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
  - 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: 120 Volts AC 60 Hz
- B. Nominal consumption in operation:
  - 1. Nominal : 250W maximum
  - 2. Peak : 600W maximum

## 2.11 PERFORMANCE

- A. MCBF: 10 000.000 average number of cycles between breakdowns, when respecting manufacturer's recommended maintenance.
- B. The equipment flow capacity must allow up to 60 passages per minute.
- C. Operating Temperatures: 32° to +113°F (0° to +45°C).



**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 into 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