Smarter Security

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ARCHITECTURAL & ENGINEERING SPECIFICATION
FASTLANE GLASSGATE ® 400 OPTICAL BARRIER TURNSTILE

PART I – GENERAL

1.01 CSI MASTER FORMAT SECTIONS
A. Section 11 14 00   Pedestrian Control Equipment (Gates/Turnstiles)
B. Section 28 10 00   Electronics Access Control and Intrusion Detection
C. Section 28 16 00   Intrusion Detection

1.02 REFERENCES
A. The Power supply unit (PSU) shall be listed using UL 60950-1, second edition and CSA C22.2 No. 60950-1-07, second edition (supplied by manufacturer of turnstiles).
B. The Optical Barrier Turnstile shall be CE marked in accordance with following the European Directives.
   1. Electromagnetic Compatibility EU Directive 2004/108/EC
   2. Low Voltage EU Directive 2006/95/EC
   3. Machinery Directives EU Directive 2006/42/EC

1.03 QUALITY ASSURANCE
A. Manufacturer must operate a Quality Management System that meets the ISO 9001:2008. International Standard for design, development, and manufacturing activities, including associated software products.
B. Manufacturer shall be a global supplier specializing in the design and manufacture of automatic security turnstiles with a minimum of twenty (20) years experience.
C. Installer shall have a minimum of three (3) years experience installing Fastlane turnstiles or similar equipment or shall supply a manufacturer-trained technician for Site Certification & Training following installation of the Fastlane Glassgate 400 Optical Turnstile with Glass Panels.

1.04 SUBMITTALS
A. Submit manufacturer's product literature including datasheet and drawing pack for specific model, including options.
B. Provide high resolution photo.
C. Provide, upon request, Glassgate 400 Installation & Maintenance manual.
D. Provide, upon request, site specific drawings detailing product placement, arrangement and wiring.

1.05 DELIVERY, STORAGE, AND HANDLING
A. Deliver equipment and materials to specified location in manufacturer's packaging undamaged, complete with installation instructions.
B. Store off ground, under cover, protected from weather and construction activities. For periods of extended storage the equipment will be kept in an environment that regulates temperature and humidity.

C. Use forklift, pallet jack, or specified number of personnel for moving equipment, observing manufacturer's safety instructions at all times.

1.06 PROJECT/SITE CONDITIONS
A. Install Fastlane Glassgate 400 Optical Turnstiles with Glass Panels on level, finished floor, and in strict accordance with manufacturer's installation chapter in the provided Installation & Maintenance manual.
B. Install Fastlane Glassgate 400 Optical Turnstile on manufacturer-supplied Floor Protector System to rest on a level finished floor.

1.07 WARRANTY:
A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of optical turnstile system that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following: faulty circuit boards (PCB), infrared beams, and mechanical components. Warranty Period: 3 years from date of shipment with Site Certification & Training, 1 year otherwise.

PART II - PRODUCTS

2.01 MANUFACTURER
A. Integrated Design Ltd, United Kingdom
Smarter Security, Inc. is the exclusive distributor in North America and also distributes Fastlane products in Central and South America.
110 Wild Basin Road, #200, Austin, TX 78746, USA
Tel: (512) 328-7277, Fax: (512) 328-7280, Web: www.smartersecurity.com

2.02 PRODUCT
A. Fastlane Glassgate 400 with Glass Panels, NO SUBSTITUTIONS. Include the following options: TCP/IP connections, Fastlane Desktop Remote Control Unit, Fastlane Touchcreen Remote, or Fastlane Connect.

2.03 CONSTRUCTION
A. Exterior:
1. End Panels: stainless steel 304 grade 240 grit (satin #4) horizontal grain (standard).
2. Side Panels: stainless steel 304 grade 240 grit (satin #4) horizontal grain (standard) with polycarbonate filter windows for the infrared beams.
3. Encasement: stainless steel 304 grade 240 grit (satin #4) horizontal grain (standard)
B. Interior Chassis:
1. Chassis framework must be black satin, powder-coated mild steel
2. 3/8" (10mm) mounting studs (qty 4) are required to secure the baseplate to the floor substrate.
C. Decorative Tops:
1. Stainless steel 304 grade 240 grit (satin #4) horizontal grain with Black Quartz Corian® for reader mounting locations.
2. Optional – Custom materials for reader mounting locations e.g. ¾" – ½" (20-25mm) thick Stone.
D. Glass Panels:
1. Toughened safety glass to EN14179 or laminated glass to EN12150.

2. Optional Glass Barrier Heights are available for 70.9" (1800mm) and 59.1" (1500mm) using 12mm laminated toughened glass. Lower barrier heights of 47.2" (1200mm) and Pedestal height 41.8" (1061mm) are available using 10mm toughed glass.
E. Card Reader Window:
   1. Optional frosted acrylic inset into end panel
F. Turnstile Status Display
   1. Located on the Right Hand Side of each lane viewed from the entrance/exit
   2. The Indicator is provided by LEDs diffused through frosted clear acrylic inset into the end panel.
G. Enclosure:
   1. Dimensions
      a. Elliptical end panel model   Length 55.4" (1408mm), Width 8.5" (218mm), Height 41.8" (1063mm)
      b. Square end panel model   Length 55.4" (1408mm), Width 8.5" (218mm), Height 41.8" (1063mm)
   2. Pedestal weight
      a. Interlane Pedestal (Inc Top Shaft Assy) 198lbs (90Kg)
      b. Receive/Transmit Pedestal (incl. Top Shaft Assy) 174lbs (79Kg)
      c. 70.9" (1800mm) DDA width Glass 37.4lbs (17Kg)
   3. Unit enclosure shall provide an Ingress Protection rating of IP40.

2.04 EQUIPMENT
   A. General: Two or more adjacent pedestals utilizing pulsed infrared beams to create an invisible electronic field between pedestals, monitoring the passage of individuals entering and leaving a facility, discriminating between people and nuisances (such as common briefcases, umbrellas, and rolling carts); with dual swinging glass panels to physically deter unauthorized individuals from passing through the lane. A breaking force is applied to the glass panels when closed to deter an unauthorized user from pushing through. Standard Lane widths of 26" (660mm) and 36" (914mm) are available, custom lane widths may be accommodated subject to the application. All calibrations, feature set selections and diagnostics are built in to the unit managed on board by the relevant processor cards. Must not require a Windows based PC to operate.
   B. Types of units: The system shall consist of a Transmit Gate Pedestal (TXG) and a Receive Gate Pedestal (RXG) to provide a single lane, and Interlane Pedestals (INT) to form additional lanes between the RXG and TXG pedestals.
   C. Capabilities:
      1. Detect and deter unauthorized persons from entering into the protected area.
      2. Detect unauthorized persons more than 1/4 inch (5 mm) at waist height, behind an authorized person, that is "tailgating" or "piggybacking."
      3. Detect direction of movement, that is, entry and exit.
      4. Verify entry into the protected area following authorization.
      5. Provide alarm outputs on detection of a violation by means of:
         a. Local sounders and indicators
         b. Remote sounder output
      6. Operate in bi-directional, single direction, no entry or free access modes.
      7. Minimize false alarms through the use of infrared beams connected to intelligent detection algorithms.
      8. Process a high number of people without security guard intervention, unless access is rejected by the system or a system anomaly occurs.
      9. Ensure a fast throughput, up to one person per second, subject to the access control system.

10. Buffering multiple inputs from an access control system to maximize throughput.
11. Easy to use.
12. Allow free movement for wheelchair users with ADA width lanes.
13. Allow safe emergency egress through a fire alarm input to open the glass panels.
14. Entry and exit with an authorized card, biometric, or other credential.
15. Entry and exit that is unauthorized causing an alarm.
16. Authorized card being read by the system but no entry or exit taking place using an optional alarm configuration.
17. Card presented for entry but exit occurring causing an alarm.
18. Card presented for exit but entry occurring causing an alarm.
19. Obstruction of an infrared beam path causing an alarm.
20. Create an alarm for a person pushing/forcing the glass panels, that is, forced entry.
21. Barrier Breakaway force greater than or equal to 120N.
22. Optional toothed, electromechanical barrier locking mechanism in place of friction brake.

D. Fastlane Optical System
1. Intelligently monitored infrared beam matrix: Up to 32 beam paths per lane.
   a. IR Beams with distributed processing for maximum signal analysis. Every 4 infrared beam paths have a dedicated microprocessor coupled to a custom-designed system controller. These technologies work together to create an "entity management" system that 'thinks' in real time to accurately position the size, shape, and speed of individual entities in the lane.
   b. Superfluous user behavior tolerated by the software without generating an alarm condition due to:
      i. Partial passage through the beams and moving back out again.
      ii. Hesitation in the beam field for less than a pre-selected number of seconds.
      iii. Presenting a card for authorization while within the beam-field, but before completing passage through it.
2. Access request transaction speed: Time delay of no greater than 100ms in signaling passage through the beams and readying the turnstile for the next user except when a greater delay is caused by the attached access control system.
   a. The optical system must be capable of throughput of up to 1 person per second.
3. Glass Panel Control Beams: Utilize a matrix of up to 32 infrared beam paths as glass barrier control to reduce the velocity or stop the glass barrier movement in the event that a user is in the path of an operating barrier.
4. Visitor Management System: Allows an unlimited number of people to pass through the lane. Once the visitors have entered and the system no longer sees anyone entering or exiting for 3 seconds, the glass panels return to the closed position.

E. Operating Modes
1. Optical turnstile mode – where by the glass panel barriers are positioned to the exit end of the lane and the system operates as an optical-only turnstile.
2. Normally closed mode – where by the barriers are closed (centered within the lane) and open away from requested and authorized direction of travel.
3. Visitor entry mode – where the turnstile opens upon visitor request and allows free travel through the turnstile without issuing an alarm. Once the visitors have entered and the system no longer sees anyone entering or exiting for 3 seconds, the beam operations return to their original security setting.
4. Emergency – unit must have a dedicated input for integration with a fire control panel to receive fire alarm signals. When the emergency signal is activated, glass barriers will open in the exit direction and remain open to allow unobstructed passage. Once the emergency signal is deactivated, the unit must return to the operating mode immediately preceding the alarm.

5. Power Fail – unit must have glass panel barriers that open automatically with internal auxiliary power option in the event of power failure. Without this option, barriers may be easily pushed open in either direction. Once power is restored, unit must return to the operating mode immediately preceding the event.

F. Inputs:
1. Entry Request: Normally Open dry contract. Closing on request for <1 second
2. Exit Request: Normally Open dry contract. Closing on request for <1 second
3. Entry Visitor Request: Normally Open momentary closing switch contacts
4. Exit Visitor Request: Normally Open momentary closing switch contacts
5. Break Glass Unit / Fire Panel: 12V to 24Vdc Opto Isolated, 20mA max
6. Ethernet port

G. Outputs:
1. Voltage-free relay contacts rated 24Vdc @ 500mA for the following functions for alarm indicators, and to provide turnstile and entry and exit door emulation.
2. Output to Access control System:
   a. Access monitoring (used as confirmation of access after authorization)
      i. Entry: Normally closed (opening for 1s)
      ii. Exit: Normally closed (opening for 1s)
   b. Alarm 1: Normally closed (closing for a minimum of 1s)
   c. Alarm 2: Normally open (closing for 1s)
3. Two-Stage Audio/Visual Alarm System
   a. First stage notifies user and guard that someone has entered the lane without authorization.
      i. Allows user to back up and attempt authorization, before going into a full alarm.
      ii. Guard becomes aware that a lane violation may occur.
   b. Second stage notifies user and guard that someone has passed through the lane without authorization.
      i. Notifies the user that they have passed through the lane without authorization.
      ii. Guard becomes aware that a lane violation has occurred and to take appropriate action.
4. Audible Alarms: Provide for each lane triggered in an alarm condition.
   a. Local alarm sounders.
   b. Relay Contact: utilized to trigger external alarm systems.
   c. Secondary sounder that will be triggered in the event of "forced entry," that is, an individual tries to push through the glass panels after an alarm event.
5. Status Display: Provide for each lane a visual indication of the status of the lane.
   a. Standby – White
   b. Please Proceed – Green
   c. Red – Lane closed
   d. Flashing Red - Alarm.

H. Power Requirements:
1. Pedestal: Low voltage 24Vdc supply current 1.5A nominal per barrier
   a. Hazardous voltage must not be present at pedestal to ensure user safety.
2. Power Supply Unit:
   a. PSU to be remotely installed.
   b. PSU Wall Mounted Metal Enclosure, approximately 13 inches (330mm) long by 8 inches (200mm) wide by 5 ½ inches (136mm) tall.
   c. PSU input voltage 100Vac to 240Vac at 60/50Hz, connection by 5A fused spur.

I. Wiring Requirements:

1. Pedestal Wiring: Each Transmit and Receive Pedestals (pedestals with a single motor drive units) requires an independent 24Vdc supply using a minimum conductor cross sectional area of 16 AWG ($1.5mm^2$) e.g. Belden 8620 or similar. Interlane Pedestals (pedestals with dual motor drive units) require two independent 24Vdc supplies.
2. Fastlane System Interconnect: A CAT5 cable (provided) between the Transmit and Receive or Interlane pedestals for each lane to facilitate power, synchronization of infrared beams, and motor driver communication.
3. Earth Cables: earth connection from each pedestal to ground, using a green/yellow sleeved cable with a minimum conductor cross sectional area of 18 AWG ($1mm^2$).
4. Card Readers: as required by access control system manufacturer (typically mounted to pedestal on the right hand side of the lane entrance).
5. Access Control Lane Integration: as required by access control system manufacturer. (typically, 10-conductor cable with a minimum conductor cross sectional area of $0.35mm^2$ (22 AWG)).
6. Emergency Input: FP200 or similar from the Fire Panel Normally Closed relay contacts (or 24V signal) to each Interlane and Receive Pedestal.
7. Optional – Touchscreen: a twisted pair plus screen e.g. Belden 8302, between all lane CPU's (up to 8 lanes) for RS485 communications with the optional Touchscreen Interface.
8. Optional - Remote Control: 8-conductor cable with a minimum conductor cross sectional area of 22 gage ($0.35mm^2$). Typically to reception desk or security room.
9. TCP/IP cables: An Ethernet cable is required between each Fastlane processor board and a remote location for a hub. The hub may either be connected to the Internet via a router or mobile network connection for remote support, diagnostics and software upgrade.

2.05 FACTORY TESTING
A. Fastlane Glassgate 400 Optical Turnstile with Glass Panels shall be fully assembled and staged as a system at the factory to accommodate soak testing for a period of 48 hours at a minimum to ensure proper operation and electrical connectivity. System shall be inspected for mechanical, electrical and aesthetic condition prior to packaging and shipment.

2.06 SECURITY EQUIPMENT
A. Card Readers: System compatible with major access control technologies for owner-provided card readers of suitable dimensions to be mounted onto pedestals. Must support integration of multiple card readers at each mounting location by manufacturer.
   1. Card Reader Mounting at pedestal ends:
      a. Under, or surface-mounted on Corian decorative top part
      b. Option at pedestal ends behind acrylic window or surface-mounted.
B. Manufacturer-supplied Accessories
   1. Touchscreen Remote Control: Optional
      a. Operational Mode Control through Touchscreen control.
         i. Optical turnstile mode.
         ii. Normal mode.
         iii. Visitor entry
      b. Provide Visitor Buttons allowing an unlimited number of visitors to pass through the lane in the entry or exit direction.
         i. Once the visitors have entered and the system no longer sees anyone entering or exiting for 3 seconds, the beam operations return to their original security setting.

   c. Provide indication designed to illuminate when an alarm is activated to provide a visual indication of the lane alarm status.

   d. Provide real time population count.

  2. Remote Console: Optional

   a. Provide Visitor Buttons allowing an unlimited number of visitors to pass through the lane in the entry or exit direction

   b. Provide Alarm Indication

   c. Key switch

  3. Ethernet Connection:

   The turnstiles will provide individual TCP/IP addresses when connected to a computer network to enable remote control of function and operation, along with remote monitoring facilities.

  4. Floor Protectors: Optional. Modular system designed to support turnstile pedestals without need for drilling mounting bolts into floor or running a conduit under floor between pedestals for cables.

  5. Fastlane Infill System: Optional. A series of decorative glass modular panels that guide users in a desired direction, while complimenting turnstile design.

2.07 ENVIRONMENTAL

 A Product use:

  1. Energy consumption per lane: 438kW hours per annum.

  2. Maintenance: Annual Interval 12 month interval minimum.

  3. Indoor use only.

2.08 SUSTAINABILITY

 A. The product is recyclable at end of life. The following materials are to be distributed to appropriate recycling facilities resulting in a very low residual waste of non-recyclable material.

  1. Stainless Steel (sheet material 1mm to 1.5mm thickness)

  2. Mild Steel (sheet material 1.2 to 3mm thickness)

  3. Plastics

  4. Glass

  5. Printed circuit boards

  6. Special components e.g. gearboxes and motors, friction brakes, power supply modules

 B. The product is supplied on reusable plastic pallets with recyclable carton packaging comprising of the following materials.

  1. Corrugated fiber board

  2. Foam

  3. Polyethylene

PART III – EXECUTION

3.01 SITE EXAMINATION

 A. Inspection: Installer / Integrator shall examine the installation and advise the contractor of any site conditions unacceptable for proper installation of product.

  1. Finished floor substrate must be dead level within the footprint of the turnstile.

  2. Main supply service for power supply and low voltage power out & control wiring must be installed.

 B. Installation: Turnstiles shall be installed in accordance with manufacturer's Fastlane Installation & Maintenance manual.

 C. Setup & Adjustment: Installer / Integrator shall perform initial equipment electronic adjustments to ensure proper performance after installation.

D. Instruction: Installer / Integrator with a minimum of 3 years experience installing Fastlane optical turnstiles shall furnish operator training for end user, or provide for Smarter Security Site Certification & Training services during installation.

E. Cleaning: Clean metal, acrylic and glass surfaces carefully after installation to remove excess caulk, dirt, and labels.

[Smarter Security reserves the right to change this specification without notice.]

END OF SECTION