

Fastlane Glassgate[®] 250 Plus

Optical Barrier Turnstile

Architectural & Engineering Specification

PART I – GENERAL

1.01 REFERENCES

- A. The Power supply unit (PSU) shall be listed to UL 60950-1, second edition and CSA C22.2 No. 60950-1-07, second edition.
- B. The Optical Barrier Turnstile shall be CE and UKCA marked in accordance with following the European Directives.
 - 1. Electromagnetic Compatibility EU Directive 2014/30/EU
 - 2. Low Voltage EU Directive 2014/35/EU
 - 3. Machinery Directives EU Directive 2006/42/EC

1.02 QUALITY ASSURANCE

- A. Manufacturer must operate a Quality Management System that meets the ISO 9001:2015. International Standard for design, development, and manufacturing activities, including associated software products.
- B. Manufacturer must operate an Environmental Management Systems that meets ISO14001:2015 International Standard.
- C. Manufacturer shall be a global supplier specializing in the design and manufacture of automatic security turnstiles with a minimum of twenty (20) years experience.
- D. 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 250 Plus Optical Turnstile with Glass Panels.

1.03 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 250 Plus Installation & Maintenance manual.
- D. Provide, upon request, site specific drawings detailing product placement, arrangement and wiring.

1.04 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. Do not stack pedestals on top of each other.
- C. Use forklift, pallet jack, or specified number of personnel for moving equipment, observing manufacturer's safety instructions at all times.

1.05 PROJECT/SITE CONDITIONS

- A. Install Fastlane Glassgate 250 Plus 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 250 Plus Optical Turnstile on manufacturer-supplied Floor Protector System to rest on a level finished floor.

1.06 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: 1 year from date of shipment or 2 years from installation with on-line product registration using manufacturer's Fastlane *Connect* remote services.

PART II - PRODUCTS

2.01 MANUFACTURER

- A. Integrated Design Ltd
Feltham Point
Air Park Way
Feltham
Middlesex
TW13 7EQ
United Kingdom
Tel (0) 208 890 5550
Fax (0) 208 890 2444

2.02 PRODUCT

- A. Fastlane Glassgate 250 Plus, NO SUBSTITUTIONS.

2.03 CONSTRUCTION

A. Exterior:

1. End Panels: stainless steel 304 grade 240 grit (Satin No. 4) horizontal grain (standard).
2. Side Panels: stainless steel 304 grade 240 grit (Satin No. 4) horizontal grain (standard) with polycarbonate filter windows for the infrared beams.
3. Encasement: stainless steel 304 grade 240 grit (Satin No. 4) horizontal grain (standard)

B. Interior Chassis:

1. Chassis framework must be black satin, powder-coated mild steel
2. 4 No. 10mm mounting studs are required to secure the baseplate to the floor substrate.

C. Decorative Tops:

1. Standard - Black Acrylic Composite®
2. Optional - Stainless steel 304 grade 240 grit (Satin No. 4) horizontal grain with Black Quartz Corian® for reader mounting locations.
3. Optional – Custom materials e.g. 20-25mm thick Stone, 10mm Glass with underside finish.

D. Glass Panels:

1. Toughened safety glass to BS EN 12150
2. Barrier height from FFS 1016mm, 1200mm, 1500mm, 1700mm

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

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2. User indication is provided by light emitting diodes (LED) projecting through a diffused acrylic prism, inserted into the top of the end panel. Approximate prism dimensions 80 x 10mm for the Round End Panel.

G. Enclosure:

1. Dimensions
 - a. Round end panel model Length 1248mm, Width 188mm, Height 1016mm
 - b. Square end panel model Length 1248mm, Width 188mm, Height 1016mm
2. Pedestal weight
 - a. RX/TX Pedestal (with DDA Glass) 73Kg 1016mm
 - b. Interlane Pedestal (with DDA Glass) 88Kg 1016mm
3. Unit enclosure shall provide an Ingress Protection rating of IP20.

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 pedestrians 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 holding force is applied to the glass barrier panels when closed to deter an unauthorized user from pushing through. Standard Lane widths of 660mm and Equality Act 2010-compliant wider lane widths of 914mm are available; custom lane widths may be accommodated subject to the application. All feature settings and calibration are built into the unit, managed by the relevant processor/microcontrollers.

B. Types of units:

- a) Receive Pedestal (RXG)
- b) Transmit Pedestal (TXG)
- c) Interlane Pedestal (INTG)

C. Capabilities:

1. Detect and deter unauthorized persons from entering into the protected area.
2. Detect unauthorized persons more than 5mm 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. Buffering multiple inputs from an access control system to maximize throughput.
10. Easy to use.
11. Allow free movement for wheelchair users with wide lane width options compliant with the Equality Act 2010.
12. Allow safe emergency egress through a fire alarm input to open the glass panels.
13. Entry and exit with an authorized card, biometric, or other credential.
14. Entry and exit that is unauthorized, causing an alarm.
15. The system reads an authorized card, but no entry or exit takes place using an optional alarm configuration.
16. Card presented for entry but exit occurring causing an alarm.
17. Card presented for exit but entry occurring causing an alarm.
18. Obstruction of an infrared beam path causing an alarm.
19. Create an alarm for a person pushing/forcing the glass panels, that is, forced entry.
20. Barrier Breakaway force greater than or equal to 70N.

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.
 - b. The system throughput including barrier operation and access control system is typically 30 persons per minute.
 3. Glass Panel Control Beams: Use a matrix of up to 32 infrared beam paths as glass barrier control to reduce the velocity or stop the glass barrier movement if 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 – whereby 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 – whereby the barriers are closed (centered within the lane) and open away from the 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 system no longer sees anyone entering or exiting for 3 seconds, the visitor authorization will expire and the lane will return to the standby state.
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, volt-free contact. Closing on request for <1 second
 2. Exit Request: Normally Open, volt-free contact. Closing on request for <1 second
 3. Entry Visitor Request: Normally Open momentary closing switch contacts. Volt-free.
 4. Exit Visitor Request: Normally Open momentary closing switch contacts. Volt-free.
 5. Ethernet port
6. Fire Panel Signal: Opto-isolated input 12 to 24Vdc, 10mA nominal

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 (opening for 1s) – Alarm Output
3. Alarm 2: Normally closed (opening for 1s) – Barrier Tamper/Obstruction Alarms
4. Two-Stage Audio/Visual Alarm System
 - a. First stage notifies user and guard that someone has entered the lane without authorization.

- i. Allows the user to back up and attempt authorization before going into a full alarm.
 - ii. Guard becomes aware that a lane violation may occur.
 - b. The second stage notifies the user and guards 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.
- 5. Audible Alarms: Provide for each lane triggered in an alarm condition.
 - a. Local alarm sounders.
 - b. Relay Contact: utilized to trigger external alarm systems.
- 6. 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 1.25A 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 5½ 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 barrier) requires an independent 24Vdc supply using a minimum conductor cross-sectional area of 16 AWG (1.5mm²) 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 transmit PCB 12Vdc 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 (1mm²).
 - 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, 12-conductor cable with a minimum conductor cross sectional area of 0.35mm² (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. Ethernet Port: An Ethernet cable is required between each Fastlane processor board and a remote location for a hub. The hub may either be connected to a local area network (LAN) for Fastlane Connect Apps (and or a Web Browser). A LAN with Internet connection is preferred, or a Fastlane Touchscreen for remote configuration and control.

Optional - Wired Remote Control: 12-conductor cable with a minimum conductor cross-

sectional area of 22 AWG (0.35mm²). Typically to a reception desk.

2.05 FACTORY TESTING

- A. Fastlane Glassgate 250 Plus 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. (In the event that proximity readers are to be concealed under Corian[®] or behind acrylic windows, the read range of the specific reader should be tested as required).

- 1. Card Reader Mounting at pedestal ends:

- a. Under, or surface-mounted on 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 lane will operate as normal.
 - c. Provide a visual indication when an alarm is activated.

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:

Each lane has web pages that may be accessed using a computer/web browser when the lane is connected to a LAN. (A Fastlane finder application may be downloaded from www.fastlane-turnstiles.com to gain easy access to the lanes connected to the LAN)

The Fastlane Processor may be set to operate using DHCP or static IP addresses as required.

The web pages may be used for remote control, diagnostics or lane configuration.

The lanes may be operated/controlled from a PC using Windows Applications that may be downloaded from www.fastlane-turnstiles.com, subject to LAN configuration/specification.

An optional Multilane Touchscreen Console connected to a LAN (or on a hub directly to the Fastlane Turnstiles) may be used for Visitor Entry/Exit, Alarm Indication, Population counting and lane configuration.

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 fiberboard
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. Mains electrical supply service for the remote power supply and low voltage/ control cables 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.
 - E. Cleaning: Clean metal, acrylic and glass surfaces carefully after installation to remove excess caulk, dirt, and labels.
- F. Maintenance: Maintain the equipment according to the manufacturer’s instructions.

[Integrated Design Limited reserves the right to change this specification at any time without notice.]

END OF SECTION

Version History

Issue	Date	Change	ref
A0	06/03/24	New issue	