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The Automatic Choice

ARCHITECTURAL SPECIFICATIONS

OPTICAL TURNSTILES

SentryLane™ 3000 Series
Optical Drop Arm Barrier
Entrance System

G2.1

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DIVISION 10 - SPECIALTIES **SECTION 10450 PEDESTRIAN CONTROL DEVICES**

Specifier Note: Coordinate and edit articles and paragraphs below to suit project requirements. Add section numbers and titles per CSI "MasterFormat" and specifier's practice. Consult with manufacturer regarding performance requirements for units applicable to project, as well as, related equipment and accessories required.

PART I – GENERAL

1.01 SUMMARY

- A. Work Included: Furnish complete optical turnstile system, as specified, that has been manufactured, fabricated, and installed as per manufacturer's criteria without defects, damage or failure.

1.02 SYSTEM DESCRIPTION

- A. Two or more adjacent pedestals utilizing active photoelectric beams to create a sensing field between pedestals, monitoring the passage of individuals entering and/or leaving a secure area, discriminating between people and nuisances, such as briefcases, umbrellas, empty wheelchairs, and rolling laptop bags.
- B. Operating Modes
1. Barrier Mode – Barriers normally closed
 2. Optical Mode – Barriers retracted
 3. Lane Closed – Barriers closed and no entry allowed
 4. Free Exit – Barriers normally closed but open when a person enters the lane

1.03 PERFORMANCE REQUIREMENTS

- A. Capabilities:
1. Detect unauthorized persons entering into the protected area.
 2. Detect unauthorized persons from entering, more than ¼ inch at waist height, behind authorized persons, that is, "tailgating."
 3. Detect direction of movement, that is, entry or exit.
 4. Verify entry into the protected area following card presentation and trigger an "entry lane used" output relay.
 5. Provide alarm outputs on detection of a violation by means of:
 - a. Local integrated sounder with 5 sounds.
 - b. Remote sounder output.
 - c. Nine contact closing relays.
 6. Allow bi-directional or single direction movement.
 7. Minimize false alarms through the use of sensing beams
 - a. Connected to intelligent detection algorithms utilizing a microprocessor using neural network intelligence.
 - b. Process a high number of people without security guard intervention, unless access is rejected by the system or a system anomaly occurs.
 - c. Ensure a fast throughput, approximately one person per second, subject to access control system.
 - d. Buffering multiple inputs from an access control system to maximize throughput in both directions.



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- e. Allow safe emergency egress without hindrance of a physical barrier. The steel barriers “breakaway” in the direction of travel.
- f. Allow free movement for wheelchair users.
- g. Allow for visitor management such that when activated, an unlimited number of visitors can pass through the lane. The system will reset to a normal operation mode once the last visitor has passed through and 3 seconds of inactivity have elapsed.

B. Detecting and Signaling Capabilities:

1. Entry and exit with an authorized card.
2. Entry and exit that is unauthorized.
3. System will reset in 5 seconds if an authorized card being read by the system but no entry or exit taking place.
4. Unauthorized card being presented.
5. Card presented for entry but exit occurring.
6. Card presented for exit but entry occurring.
7. Obstruction of an infrared beam path.
8. Unauthorized person following an authorized person through the beam path at least 1/4 inch distance apart at waist height, that is, “tailgating.”
9. Forced entry through the steel barriers
10. All beams in the path of the steel barriers will act simultaneously as detection and safety beams to minimize the potential for the barrier to close on an individual in the lane.
11. Intelligent Infrared Beams: Minimum 36 required per lane.
12. Beams controlled by intelligence, capable of differentiating between relatively smaller inanimate objects (e.g., umbrella, briefcase, large purse, rolling laptop bag) and human targets.
13. At the factory sensitivity setting, user behavior tolerated by the software without generating an alarm condition due to:
 - a. Part passage through the beams and moving back out again.
 - b. Hesitation in the beam field for less than five seconds.
 - c. Presenting a card for authorization while within the beam-field, but before completing passage through it.
 - d. Speed: Time delay of no greater than 10 ms in signaling passage through the beams and readying the optical turnstile for the next user except when a greater delay is caused by the attached access control system.
 - e. The speed and torque of the barrier is adjustable.

1.04 QUALITY ASSURANCE

- A. Original Manufacturer Qualifications: Minimum 10 years experience in the manufacture of optical turnstiles. Have a quality management system that is complaint with ISO 9001:2000.
- B. Accessibility Requirements: In addition to local governing regulations, comply with Section 4.10 in the U.S. Architectural & Transportation Barriers Compliance Board’s “Americans with Disabilities Act (ADA), Accessibility Guidelines (ADAAG).



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PART II – PRODUCTS

2.01 MATERIALS

- A. Pedestals – 14 Gage Stainless Steel Sheet: Type 304.
- B. Tops – 14 Gage Stainless Steel or Corian in a color to be determined.
- C. Available in a variety of laminate tops and sides.

2.02 DIMENSIONS

- A. Pedestal 7 inches wide x 38 inches high – Length can vary depending on end style. Round end is 36 inches, Flat end is 33.25 inches.

2.03 OPTICAL TURNSTILE SYSTEM

- A. Lane Configuration
 - 1. Multiple Adjacent Lanes: Two pedestals, with interior.
 - 2. All lanes must have 2 steel drop barrier arms.
- B. Optics: Minimum 36 pulsed multi sensor beam array per lane.
- C. Lane Width can vary from 22 inches to 42 inches:
 - 1. Factory standard for ADA passage: 36 inches.
 - 2. Factory standard for standard passage: 28 inches.
- D. Power Requirements:
 - 1. 24v DC supply current 2A nominal per lane.
 - 2. Power Supply: Manufacturer supplied, to be used in installation.
 - 3. Mains PSU, 110v or 240v. PSU to be remotely installed near the turnstile(s).
- E. Wiring Requirements:
 - 1. Power: Two conductor cables, minimum 18 gage.
 - 2. Power Distances: 24vDC: 100 feet on 18 gage cable.
 - 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 gage.
 - 4. Card Readers: As required by access control system manufacturer.
 - 5. Access Control Points: As required by access control system manufacturer.
- F. Inputs: Voltage-free switching, current sense 1mA typical.
 - 1. Entry Request: Normally open.
 - 2. Exit Request: Normally open.
 - 3. Invalid Card: Normally open.



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4. FACP: Normally closed.
 5. Load cell sensor logic is integrated into primary and secondary boards for crawl over top sensing.
- G. Outputs – Nine Required:
1. Relay outputs for the following functions:
 - a. Proof of Entry – Normally open.
 - b. Proof of Exit – Normally open.
 - c. Invalid Entry Alarm – Normally open.
 - d. Tailgate Entry Alarm – Normally open.
 - e. Invalid Exit Alarm – Normally open.
 - f. Tailgate Exit Alarm – Normally open.
 - g. Crawl Through Alarm – Normally open.
 - h. Entry Card Reader Shunt – Normally closed.
 - i. Exit Card Reader Shunt – Normally closed.
- H. Serial Port: Two RS485 multi-drop serial ports for transmitting flow and other operational data and two 422 multi-drop serial ports for touch-screen communications. Expansion to wireless communication port to accept wireless closed radio or LAN transceiver.
- I. Audible Alarms: Provide for each lane triggered in an alarm condition.
1. Local integrated sound card in turnstile shall have the following:
 - a. Card read accepted tone.
 - b. Tailgate alarm tone.
 - c. Invalid lane entry alarm tone.
 - d. Crawl alarm tone.
 - e. On board volume adjustment including “mute”.
- J. Card Readers: System compatible with all major access control technologies for owner-provided card readers of suitable dimensions to be mounted into pedestals.

2.04 TURNSTILE

- A. Pedestal Style: Horton Automatics Inc.
- a. End Pieces: 14 Gage Brushed stainless steel.
 - b. Side Panels: 14 Gage Brushed stainless steel.
 - c. Top: 14 Gage Brushed stainless steel.
 - d. Barriers: Brushed stainless steel round tube.
- B. Wiring: 485 Signal Interconnection: Minimum conductor of 18 gage / 4 conductor cable between each pedestal.
- C. Card Reader Mounting: At pedestal ends recessed under the acrylic located in each end of the top supplied by security system integrator. Surface mounting blocks available for smartcard readers with pin pad access.
- D. Displays:
- a. Lane Status Indicator (LSI) using easy-to-understand graphics set behind smoked acrylic panels in top.
 - b. Graphic Indicators are:



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1. Card icon – to indicate lane is ready for card read.
2. Green arrow pointing into lane – to indicate that the lane is ready for the user to proceed.
3. Flashing red “X” – to indicate that lane is in alarm.
4. Solid red “X” – to indicate that lane is in use from the opposite direction.

E. Sounder:

- a. Card read accepted tone.
- b. Tailgate alarm tone.
- c. Invalid lane entry alarm tone.
- d. Crawl alarm tone.
- e. On board volume adjustment including “mute”.

F. Lane Layout: Position as indicated on Drawings.

2.05 ACCESSORIES

- A. Mounting Platform – Available where coring for cable path or floor anchoring is not possible. Platforms are ADA-compliant and include a non-skid rubber walk surface.
- B. Remote Lane Control – Available as Touch Screen PC, HMI, or Push Button.
 1. Provide operation that can be used to change one operational feature for a variety of options, such as changing from free egress during the day to requiring carding out at night, or enabling momentary free passage for disabled access or carts.
- C. Provide indicator designed to illuminate when an alarm is activated to provide a visual indication of the lane alarm status.
- D. Controllers are wired via RS422 communications for both push button and touch screen models.

2.06 FINISHES, GENERAL

- A. Stainless Steel Finishes:
- B. Remove tool and die marks and stretch lines or blend into finish.
- C. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches.
- D. Run grain with long dimension of each piece.
- E. Directional Satin Finish: No. 4 finish.
- F. Other finishes such as laminate, bronze or brass are available upon request.



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PART III - EXECUTION

3.01 EXAMINATION

SITE VERIFICATION OF CONDITIONS: Installer must verify that base conditions previously installed under other sections are acceptable for product installation according to with manufacturer's instructions. Notify the Contractor in writing of conditions detrimental to the proper and timely completion of work. Do not start work until all negative conditions are corrected in a manner acceptable to the installer and manufacturer.

3.02 INSTALLATION

- A. **GENERAL:** Install units plumb, level and true to line, without warp or rack of frames with manufacturer's prescribed tolerances. Anchor in place. Unit is free-standing with no additional support required. Adjacent construction not to bear down on unit.
- B. **CLEARANCE:** Allow for 2" access space for each end pedestal.

3.03 CLEANING, ADJUSTMENT AND PROTECTION

- A. **CLEANING:** After installation, installer to take following steps:
1. Remove temporary coverings and protection of adjacent work areas.
 2. Remove construction debris from construction site and legally dispose of debris.
 3. Repair or replace damaged installed products.
 4. Clean product surfaces and lubricate operating equipment for optimum condition and safety.
- B. **ADVISE CONTRACTOR:** Of precautions required through the remainder of the construction period, to ensure that units will be without damage or deterioration at the time of acceptance.

Note: Horton Automatics reserves the right to make product improvements and change specifications without notice.

END OF SECTION