ARCHITECTURAL SPECIFICATION
Argus Optical Turnstile with Motorized Swinging Barriers

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 1 - GENERAL

1.1 SUMMARY

A. Section includes Optical Swing Lane(s). Provide complete system that has been fabricated and tested for proper operation at the factory.

B. Related Sections
1. Section 03 3000 "Cast-in-Place Concrete" for blockouts for recesses required for sensor barriers.
2. Division 26 electrical power section for wiring requirements for Optical Swing Lanes.
3. Section 28 13 00 "Access Control" for security access system providing control for door access and intrusion detection systems interfacing with Optical Swing Lane' controls.

1.2 REFERENCE STANDARDS

A. American Architectural Manufacturers Association (AAMA)
1. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum

B. ASTM International (ASTM)
1. ASTM B 209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
2. ASTM B 221 / ASTM B 221M Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes

C. International Code Council (ICC)
1. ICC A117.1 Accessible and Usable Buildings and Facilities (ANSI)

D. National Fire Protection Association (NFPA)
1. NFPA 70 National Electric Code.
2. NFPA 101 Life Safety Code.

E. Underwriters Labaoratories (UL)
1. UL325 safety standard for door, drapery, gate, louver, and window operators and systems.

F. Canadian Standards Association
1. CSA C22.2 #247 Operators and systems of doors, gates, draperies and louvres

1.3 ADMINISTRATION

A. Coordination:
1. Recesses: Coordinate size and location of recesses in floor construction for lane components including anchorages for frames and supports.
2. Anchorages: Furnish setting drawings, templates, and directions for installing anchorages that are to be embedded into flooring.
*Do these need any other coordination with related work like elevators?

B. Pre-installation Conference: Conduct conference at Project Site with Installation team.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of Optical Swing Lane specified.
   1. Include details, material descriptions, dimensions and profiles, installation details and finishes.
   2. Include rated capacities, operating characteristics, electrical characteristics, and specialties and accessories.

B. Shop Drawings: For Optical Swing Lane(s).
   1. Include plans, elevations, sections, attachment details, dimensions, required clearances, methods of field assembly, and location and size of each field connection.
   2. Indicate enclosures and components.
   3. Include diagrams for power, signal, and control wiring.

C. Samples for Verification: For each exposed component including hardware, for each color and finish selected, as required by architect.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified installer.

B. Field quality control reports.

C. Warranty: Sample of unexecuted manufacturer warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For Optical Swing Barrier, to include in operation and maintenance manuals.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Installer with minmum 10 years of experience equipped and trained by manufacturer for installation and maintenance of units required for this Project, and who employs a Certified Inspector.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Package Optical Swing Lane components individually with fasteners and installation templates; label and identify each package with door opening designation corresponding to Door Schedule.

B. Store components in weather-protected area in manufacturer's unopened packaging until ready for installation.

C. Protect materials from exposure to weather. Do not deliver until Rough Opening is Complete and Ready for Installation.

D. Trades of Division 26 to Coordinate with Manufacturer to determine size and location of Electrical Conduit.

1.9 WARRANTY

A. Special Manufacturer's Warranty: Standard form in which manufacturer agrees to repair or replace components of Optical Swing Lane that demonstrate deterioration or faulty operation due to defects in materials or workmanship under normal use within warranty period specified.
   1. Fabrication Warranty Period: Eighteen (18) months from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Argus Optical Swing Lane by Alvarado, dormakaba Group Contact 800-423-4143.
   1. **Argus 40 (47-1/4" (1200 mm) in length)**
   2. **Argus 60 (64-15/16" (1650 mm) in length)**
   3. **Argus 80 (65-3/8" (1660 mm) in length) and one-piece Full Cast Layer design of the frame sections**

B. **[Substitutions: Requests for substitution and product approval in compliance with the specification must be submitted in writing and in accordance with the procedures outlined in Division 1, Section "Substitution Procedures". Approval of requests is at the discretion of the architect, owner, and their designated consultants.]**

C. **[Substitutions Not Permitted]**

D. Source Limitations: Obtain Optical Swing Lane components through one source from a single manufacturer.

2.2 Optical Swing Lane

A. Profile, inlay and drive unit shall be manufactured from aluminum.
   1. **Corporate Satin: Aluminum Profile and Drive Unit: Niro N 700, Aluminum Inlay: White P 100, Glass Side Panes: White G 810 (Clear G 800 for Argus 40), Glass Scan Unit: Black G 880, Glass Swinging Barrier Panels: Clear G 800**
   2. **Deep Black: Aluminum Profile and Drive Unit: Black P 190, Aluminum Inlay: Silver N 190, Glass Side Panes: Black G 880 (Clear G 800 for Argus 40), Glass Scan Unit: Black G 880, Glass Swinging Barrier Panels: Clear G 800**
   3. **Alternate finishes (Variety of finishes available) [Manufactures standard colors]**

B. Glass Side Panes: Side panes are fabricated from temerped glass.
   1. **Corporate Satin: Glass Side Panes: White G 810 (Clear G 800 for Argus 40), Glass Scan Unit: Black G 880**
   2. **Deep Black: Glass Side Panes: Black G 880 (Clear G 800 for Argus 40), Glass Scan Unit: Black G 880**
   3. **Alternate finishes (Variety of finishes available) [Manufactures standard colors]**
   4. **Side panels etched with a customer supplied design**
   5. **Side panels illuminated**

C. Moving Barriers: Clear moving barriers are fabricated from 3/8" (10mm) tempered laminated glass.
   1. **Corporate Satin: Clear G 800**
   2. **Deep Black: Clear G 800**
   3. **Clear Polycarbonate**
   4. **25-9/16" (650 mm) passage opening**
   5. **36" (915mm) passage opening**
   6. **39" (990mm) High Barrier**
   7. **47-1/2" (1206mm) High Barrier**
   8. **71" (1803mm) High Barrier**
   9. **Moving barriers etched with a customer supplied design [only available on polycarbonate swinging barriers]**

2.3 EQUIPMENT

A. Control Mechanisms: The precise movement of the Argus motorized barriers is accomplished through a low energy 24V brushless motorworking in conjunction with position encoders and motor controllers. A main turnstile control board runs the operational application and interfaces to the motor control board and LED board over an internal, high-speed serial bus.
   1. Smooth and controlled for all sized barriers; no shimmying or wobbling during opening or closing.
   2. Self-aligning so that barriers always align in the home or closed position.
   3. Barriers to detect impact with an object or obstruction during the opening or closing cycle so as to minimize impact with a person, object or obstruction.

B. Locking Device: Integrated electromechanical lock which secures the barriers against forced entry in the home or closed position.

C. Power Loss (Fail Safe): In the event of loss of power, the barriers can be feely moved in either direction. When pushed or pulled to the open position the barriers remain open.

D. Sensors: Strategically placed optical sensors and a sophisticated detection algorithm detects patrons, determines the direction of patron movement, and (in conjunction with the facility access control system) detects unauthorized users.
   1. Each sensor to consist of a separate transmitter and receiver operating on a high-speed communication bus.
   2. The sensors and system:
      a. Must have the capability of tracking a user's passage from entry to exit point
      b. Must consistently detect closely following tailgaters on allowed entries while avoiding generating false alarms for commonly carried objects
      c. Must detect patrons travelling in the opposite direction when passage has been allowed
   3. Sensitivity settings to be adjustable via an included configuration utility.
   4. Sensor operation shall not be affected by natural or indoor lighting.
   5. Sensors to be deployed at various heights to detect persons crawling through the passage area.
   6. Safety sensors shall be present to prevent the barriers from closing or opening when persons or objects are the barrier field of travel.
   7. The optical system to provide superior processing speed and throughput of up to one person per second, subject to the access control system limitations.
   8. Climb Over Detection: A laser sensor is installed underneath the middle of the inlay to detect an unauthorized user attempting to climb over the lane to gain entry.

2.4 SECURITY

A. Actuation: Optical Swing Lane actuation by external card reader, biometric reader, key pad, remote push button or sensor detection on exit. Actuation devices provided by others **[by dormakaba].**
   1. A 1D/2D barcode imager can be installed on either or both sides of the turnstile. The imager is installed within the top of the inlay above the standard card reader.
   2. Elevator Destination Dispatch: Integrate with virtually any Elevator Destination Dispatch solution to direct users to the correct elevator when presenting their authorized credentials. The dispatch display can be mounted directly to the turnstile, eliminating the need for employees/visitors to identify themselves a second time when entering an elevator.

B. Optical Swing Lane Control: shall allow one entry per authorization.
   1. Open Lane mode: Barrier element to remain open until tailgate detection

2. Normally Closed: The barriers are closed, securing the turnstile.
3. Barrier Disabled: The barriers remain open, allowing the unit to function as a barrier free optical turnstile.
4. Emergency: Activation to open the swinging barriers in conjunction with a fire alarm or other life safety system is achieved by
5. supplying a sustained dry contact to the Argus. During emergencies the Argus' swinging barriers will open in the exit direction and remain open. Status lights and alarm notifications will turn off.

2.5 OPERATION

A. The locking and unlocking of the Optical Swing Lane is accomplished by use of low voltage, 24 VDC, system. Activation is by a momentary, isolated normally open dry contact closure.

B. Acuation
   1. Credential requirement on entry and exit
   2. Credential requirement on entry only
      a. Free exit

C. Turnstile Interface to Access Control System:
   1. Dry Contact: Single passage activation, and other functionality, is achieved by supplying an isolated, voltage-free, momentary dry contact at the appropriate location on the I/O control board.

D. Related Applications
   1. PAVIS 3: Pavis 3 is a licensed application for integrators and service technicians. The application allows configurable features of the Argus, provides firmware updates, changes settings, also helps to commission the unit. It is an excellent tool for service technicians to troubleshoot and maintain the product.
   2. GATEKEEPER: Web-based application that allows all Alvarado optical turnstiles installed at a site to be monitored and controlled from a single PC. GateKeeper allows control of virtually all day-to-day operating functions, including designating a turnstile as entry or exit, opening or closing a turnstile, and allowing single passage overrides for guests or personnel that have forgotten their access card. The application also includes various other functions.

2.6 POWER REQUIREMENTS

A. Electrical Characteristics:
   1. Voltage: 110-120 VAC, 60 Hz
   2. **A 220-240 VAC, 50 Hz power supply and EU wiring scheme.**
   3. Refer to Division 26 electrical sections for wiring connections. Coordinate with Manufacturer to Determine the Location of Electrical Conduit

B. Lighting:
   1. Ambient Lighting (Dynamic): Dynamic side panel illumination combines changes to the ambient lighting of the side panel in coordination with the card cue display light. The Dynamic Side Panel Illumination option allows users and attendants to visually identify the status of each lane. Colors used with Dynamic Side Panel Illumination are white, green and red. The white color can be replaced with any color on the RGB color spectrum.
   2. Ambient Lighting (Static): Side panels may be illuminated using any color on the RGB color spectrum. Color can be changed easily by the owner through the use of a smart phone application called Door Pilot (Bluetooth interface starter kit needed). In this state, the panels are constantly illuminated with the selected color when the turnstile is powered (standard with Pavis 3, optional app control).

a. Adjustable brightness
b. Full Color selection

2.7 OPTIONS

A. A platform for either single turnstile or multi-turnstile configurations is available. The passageway area of the platform is powder coated with a highly-textured black coating. The platform includes enclosed cable runs and eliminates the need for trenching or stubbing up conduit from floor.

B. Multiple lane arrangement

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine optical turnstiles to determine if work is within manufacturer's required tolerances and ready to receive work.
   1. Verify recesses and supplemental framing comply with requirements on approved shop drawings.
   2. Verify electrical power and control connections are properly located and of correct characteristics.

3.2 INSTALLATION

A. General: Comply with turnstile manufacturer's written installation instructions and approved shop drawings.

B. Set units level, plumb, and true to line, with uniform joints. Maintain assembly dimensional tolerances, aligning with adjacent Work.

C. Complete connections to electrical power, lighting, and controls in accordance with requirements of respective Division 26 and Division 28 Sections.

D. Install panels, with operators and controls. Fit, align, and adjust assembly for smooth operation.

3.3 ADJUSTING

A. Adjust operating components and hardware to produce smooth operation and tight, uniform fit.

B. Replace damaged components and accessories.

3.4 CLEANING

A. Clean finished surfaces in accordance with manufacturer's written instructions. Do not use cleaning agents or methods not approved by manufacturer.

B. Clean exposed metal surfaces to factory new appearance.

END OF SECTION