**DOOR INTERLOCK CONTROLLER**

1. **GENERAL**
   1. SUMMARY
      1. Section includes specifications for a Factory Programmed PLC Controller for operating door interlock systems of up to four doors.
   2. RELATED REQUIREMENTS
      1. MasterFormat 2014
         1. 08 71 00 - Door Hardware
            1. 08 71 06 – Door Hardware Schedule
         2. 28 05 00 – Common Work Results
            1. 28 05 13 – Conductors and Cables for Electronic Safety and Security
            2. 28 05 13.16 – Access Control Conductors and Cables
         3. 28 06 10 – Schedules for Electronic Access Control and Intrusion Detection
         4. 28 10 10 – Electronic Access Control and Intrusion Detection
      2. MasterFormat 2016
         1. 08 71 00 - Door Hardware
            1. 08 71 06 – Door Hardware Schedule
         2. 27 15 01 – Communications Horizontal Cabling Applications
            1. 27 15 01.11 – Conductors and Cables for Electronic Safety and Security
            2. 27 15 01.15 – Access Control Communications Conductors and Cables
         3. 28 05 07 – Power Sources for Electronic Safety and Security
            1. 28 05 07.11 – Power Sources for Access Control
         4. 28 06 10 – Schedules for Access Control
         5. 28 10 00 - Access Control
            1. 28 14 00 - Access Control System Hardware
            2. 28 15 00 - Access Control Hardware Devices
            3. 28 16 00 - Access Control Interfaces
   3. REFERENCES
      1. Abbreviations
         1. PLC – Programmable Logic Controller
         2. REX – Request to Exit
      2. Reference Standards
         1. ADA – Americans with Disabilities Act
         2. NFPA 70 – National Electric Code
         3. NFPA 72 – National Fire Alarm Code
         4. NFPA 101 – Life Safety Code
         5. NFPA 731 – Guide for Premises Security
         6. OSHA – Occupational Safety and Health Act
         7. UL 294 – Standard for Access Control Systems
         8. BHMA A156.18 – American National Standard for Materials and Finishes
         9. State and Local Building Codes
   4. QUALITY ASSURANCE
      1. Manufacturer Qualifications:
         1. Minimum of ten years of experience in manufacture and design of electronic access control hardware and devices.
         2. Capable of providing equipment for expansions, replacements, and spare parts.
         3. Capable of providing factory direct technical support.
         4. Products shall be manufactured in the United States of America.
   5. INSTALLER QUALIFICATIONS
      1. Minimum of five years of experience installing access control, surveillance and security systems and devices.
   6. SUBMITTALS
      1. Submit in accordance with Division 01, Section 01 33 00
      2. Product Data:
         1. Manufacturer’s standard details and catalog information demonstrating compliance with the Project Documents.
         2. Data sheets marked to identify specific products and accessories necessary for a complete system.
         3. Installation Instructions.
      3. Close-Out Submittals
         * 1. User manual.
           2. System device locations on architectural floor plans.
           3. Wiring and connection diagram.
           4. Maintenance requirements.
           5. Written system test report.
   7. PRODUCT HANDLING AND STORAGE
      1. Store products indoors in a secured area, and protect from moisture, construction traffic, and damage.
      2. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer.
   8. WARRANTY
      1. All equipment, materials, and labor shall have a limited warranty of 12 months from the date of final acceptance by the Owner.
      2. Software maintenance updates or upgrades shall be provided at no additional cost to the Owner during the warranty period.
2. **PRODUCTS**
   1. MANUFACTURER
      1. Dortronics Systems, Inc.

1668 Sag Harbor Turnpike

Sag Harbor, NY 11963

800-906-0137

[www.dortronics.com](http://www.dortronics.com)

* + 1. Product Model: Model 4700
       1. No Alternates
  1. DESCRIPTION
     1. The Door Interlock Controller (“Door Controller”) shall have the following characteristics:
        1. Interoperable with all commercial access control systems**.**
        2. Door control capability: Two (2) to Four (4) doors
        3. Enclosure: 12”x15.5”x4.5” steel NEMA 1 enclosure
           1. Integral Power Supply: 4 amps 12/24 VDC Class 2 UL-294
           2. Fire Alarm connection for Emergency Egress
           3. Separate Fire Alarm Relay Output
        4. Electrical:
           1. AC Input: Fused 110 VAC.
           2. DC Output: 4 amp (fused) @ 12/24 VDC (field selectable)
           3. Signal Inputs:

Door & REX status: Six (6)

Trim Pot: One (1) Programmable Analog Adjust

* + - * 1. Control Outputs:

Lock Output Relays: Four (4) DPDT rated for 2 amps (fused) @ 30 VDC – 0.5 Amps @ 125 VAC

LED Traffic Light Indicators: Two (2) Programmable

Alarm Output: One (1)

* + - 1. Optional LED display can be used to facilitate adjustment of the time delay.
  1. OPERATION
     1. The Door Controller shall be configured to operate as follows:
        1. Only designated doors shall be unlocked or open at the same time.
        2. Unlocking or opening one door shall automatically secure other designated doors within the Interlock.
        3. A request for access at any normally locked door will inhibit the REX inputs for all other locked doors and secure all unlocked doors in the area.
        4. Lock relay contacts to switch low voltage power to maglocks and/or strikes.
        5. For user feedback, the lock relay contacts allow low voltage red and green LED’s to be utilized for lock status.
  2. ACCESSORIES
     1. The manufacturer shall have available the following accessories to support system installation and operation:
        1. 1100 Series Electromagnetic Door Locks
        2. 3300 Series Electric Strikes
        3. 3400 Series Electric Drop Bolts
        4. 5210 Series Mushroom & Key Reset Buttons
        5. 5276 WR Series Waterproof Switches
        6. 5277 Series Piezoelectric Switches
        7. 5278 Series Touchless Switches
        8. 5287 Series Heavy Duty Buttons
        9. 6500 Series Emergency Pull Stations
        10. 7201 Series Hi-Intensity LED’s
        11. 7286 Series Door Prop & Exit Alarms
        12. 7000 Series Annunciators & Controls

1. **EXECUTION**
   1. EXAMINATION
      1. Examine conditions and proceed with work in accordance with Division 01, Section 01 71 00.
      2. Notify of any adverse conditions affecting installation or subsequent operation.
      3. Installation location per drawings.
         1. Notify Owner if selected location is not secure or does not offer protection from accidental damage.
         2. Notify Owner if location does not provide reasonable temperature and humidity conditions, free from sources of electrical and electromagnetic interference.
   2. INSTALLATION
      1. Installation shall be accomplished in a professional manner by qualified personnel meeting Installer requirements.
      2. Install necessary wiring in accordance with manufacturer's recommendations.
      3. All wiring shall be installed in accordance with NFPA 70, the National Electrical Code.
      4. Install controllers and devices in accordance with manufacturer's instructions at locations indicated in the plans.
      5. Configure interlock controls for proper door sequencing as described in the Contract Documents.
      6. Install products under environmental conditions within Manufacturer's published limits.
   3. FIELD QUALITY CONTROL
      1. Testing
         1. Check tightness of all terminal strip wire clamping screws and circuit board mounting screws.
         2. Test proper operation of door interlock controllers and connected components of the system.
         3. Determine and report all problems to the Manufacturer.
      2. Installation Contractor shall submit a written test report that the system has been 100% tested and approved.
         1. Final test shall be witnessed by the Owner, Engineer, Electrical Contractor, Chief Security Officer, and performed by the Installation Contractor.
         2. Final test report shall be included in the Close-out Submittal package.
      3. Training
         1. Provide instruction to the Owner's satisfaction with regard to proper use and operation of the system.
   4. ADJUSTING
      1. Make proper adjustment to controller, extensions and readers for correct operation in accordance with manufacturer's instructions.
   5. DEMONSTRATION
      1. Demonstrate at final inspection that Door Interlock control system and associated ancillary devices function properly.

END OF SECTION