SECTION 28 10 00

DOOR ACCESS CONTROL

Display hidden notes to specifier. (Don't know how? [Click Here](https://www.arcat.com/sd/display_hidden_notes.shtml))

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\*\* NOTE TO SPECIFIER \*\* ProdataKey, Inc.; Mobile First Access Control  
This section is based on the products of ProdataKey, Inc., which is located at:67 W. 13490 S. , Suite 300Draper, UT 84020Toll Free Tel: 801-317-8802Email: [request info (sales@prodatakey.com)](https://arcat.com/rfi?action=email&company=ProdataKey%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(13700pdk)%253A%2520&coid=53723&spec=13700pdk&rep=&fax=)  
Web: <https://www.prodatakey.com>   
 [ [Click Here](https://arcat.com/company/prodatakey-inc-53723) ] for additional information.  
Our mobile-first platform was founded on the principle of simplicity without compromise. We engineered an entirely cloud-based access control platform that's easily configured and managed from any mobile device. Our cloud service is the cornerstone of our mission: to empower our partners through exceptional support and intuitive, secure solutions.  
ProdataKey has quickly positioned itself as a leader and innovator of mobile-first access control solutions being recognized as one of the top 100 fastest growing companies by Mountain West Capital Network.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Access control system requirements.
    2. Access control units and software.
    3. Cloud node - main panels.
    4. Cloud node - servers.
    5. Wireless internet gateways.
    6. Wireless repeaters.
    7. Card readers.
    8. Push button readers.
    9. Rugged vandal resistant readers.
    10. Proximity and pin keycard readers.
    11. QR readers.
    12. Touch mobile credential readers.
    13. Request-to-exit sensors.
    14. High voltage converters.
    15. Credentials.
    16. Door position switches.
    17. Electric strikes.
    18. Electromagnetic locks.
    19. High-security one door controllers.
    20. High-security two door controllers.
    21. High-security four door controllers.
    22. High-security eight door controllers.
    23. High-security outdoor controllers.
    24. High-security pedestal outdoor controllers.
    25. High-security fully customizable controllers.
    26. High-security cloud nodes.
    27. High-security cloud node servers.
    28. High-security readers.
    29. High-security credentials.
    30. High-security mobile kits.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 08 71 00 - Door Hardware.
    2. Section 28 31 00 - Fire Detection and Alarm. Doors to be released upon activation of the fire alarm system.
  1. DESCRIPTION
     1. Provide an Electronic Access Control System (ACS).
     2. Furnishing and installing an electronic door access control system and integrated, fully compatible property management system.
        1. System and software to be installed and left fully operational for the Owner's use.
        2. Cloud software licensing fees required for a period of \_\_\_\_ years to be included in proposal. Unlimited user permissions are included with service.
  2. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. American Disabilities Act (ADA).
    2. American National Standards Institute (ANSI):
       1. ANSI/BHMA A156.13 - Locks and Latches, Mortise (Grade 1).
       2. ANSI/BHMA A156.25 - Electrified Locks (Grade1).
    3. Federal Communications Commission (FCC):
       1. FCC part 15 Class A and CE directive 89/336/EEC.
    4. Restriction of Hazardous Substances and Shabbat compliant (RoHS),
    5. Underwriters Laboratories (UL):
       1. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies.
       2. UL 294 - Access Control System Units: Current Edition, Including All Revisions.
    6. Underwriters Laboratories Canada (ULC):
       1. ULC S-104, on the fire-rated door up to and including three hours.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data:
        1. Manufacturer's data sheets on each product to be used.
        2. Dimensions of individual components and profiles.
        3. Material descriptions.
        4. Operational descriptions.
        5. Finishes.
        6. Preparation instructions and recommendations.
        7. Storage and handling requirements and recommendations.
        8. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern, and color.
    2. Shop Drawings: Details of electrified integrated locking hardware and access control firmware, indicating the following:
       1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware and firmware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
          1. Basic Riser/Elevation diagrams of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
          2. Riser and point-to-point block wiring diagrams.
    3. Factory Certification: Provide a copy of the manufacturers official certification or accreditation document indicating proof of status as a qualified and authorized provider of the primary access control components from either one of the systems below or approved equal.
    4. Operating and Maintenance Manuals: Of manufacturers operating and maintenance manuals for each item comprising the complete access control and site management installation at closeout.
    5. As-Built Drawings: During system installation, the Contractor is to maintain a separate hard copy set of drawings, elevation diagrams, and wiring diagrams of the access control system to be used for record drawings. This set is to be kept accurately recorded and up-to-date by the contractor for a minimum of three months from the date the system is turned over to the owner including all changes and additions to the access control system.
  1. QUALITY ASSURANCE
     1. Comply with the following:
        1. NFPA 70
        2. The requirements of the local authorities having jurisdiction
        3. Applicable TIA/EIA standards
     2. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with a minimum of three years of documented experience.
     3. Installer Qualifications: Company specializing in performing the work of this section with a minimum of three years documented experience with access control systems of similar size, type, and complexity, and providing contract maintenance service as a regular part of their business; authorized manufacturer's representative.
     4. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.
  2. PRE-INSTALLATION CONFERENCE
     1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
  3. DELIVERY, STORAGE, AND HANDLING
     1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
     2. Protect from damage due to weather, excessive temperature, and construction operations.
  4. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

\*\* NOTE TO SPECIFIER \*\* Warranty information can be found at https://www.prodatakey.com/warranty.

* 1. WARRANTY
     1. ACS Software and Field Hardware Warranty:
        1. ACS Software shall be warranted for a period of two years from the date of shipment from the manufacturer, to be free of defects, and will function in substantial accordance with the published specification.
        2. ACS Field Hardware shall be warranted for a period of two years from the date of shipment from the manufacturer, will be free from defects, and will function in general accordance with the product specifications.
     2. Contractor Installation Warranty
        1. The contractor shall warrant all equipment not covered above for a period of two years from the date of beneficial use.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: ProdataKey, Inc., which is located at:67 W. 13490 S. , Suite 300Draper, UT 84020Toll Free Tel: 801-317-8802Email: [request info (sales@prodatakey.com)](https://arcat.com/rfi?action=email&company=ProdataKey%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(13700pdk)%253A%2520&coid=53723&spec=13700pdk&rep=&fax=);Web: <https://www.prodatakey.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
  1. ACCESS CONTROL SYSTEM REQUIREMENTS
     1. Access control system consisting of required equipment, conduit, boxes, wiring, connectors, hardware, supports, accessories, software, system programming, etc. as necessary for a complete operating system providing the functional intent indicated.
     2. Access Control Points:
        1. Refer to Door Hardware Specification Section 08 71 00 - Door Hardware for door hardware listing for each door in facility, including egress type hardware used and a description of the door operation.
        2. Refer to Door Schedule for list of doors on project and those with specific hardware control requirements.
        3. See Electrical Drawings for Specific Components:
           1. Peripherals on Secure Side: Reader/Keypad: Proximity reader.
           2. Locking Device: Electric strike or magnetic lock, provided by others to be coordinated with Door Hardware Consultant.

Configuration: Fail-safe, as noted within Door Hardware Specifications.

* + - * 1. Interface Requirements:

Interface with fire alarm system to release door lock upon activation of fire alarm system.

* + 1. Interface with Other Systems:
       1. Provide products compatible with other systems requiring interface with access control system.
       2. Interface with electrically operated door hardware as specified in Section 08 71 00 - Door Hardware.
          1. Capable of locking / unlocking / releasing controlled doors.
          2. Capable of receiving input from integral door hardware switches.
       3. Interface with the fire alarm system as specified in Section 28 31 00 - Fire Detection and Alarm
    2. Products to be listed, classified, and labeled by Underwriter's Laboratories Inc. (UL) or testing firm acceptable to the authority having jurisdiction as suitable for the purpose indicated.
       1. Access Control Units and Readers: Listed and labeled as complying with UL 294
  1. ACCESS CONTROL UNITS AND SOFTWARE
     1. Access control units and associated software compatible with readers to be connected.
        1. System to control the necessary quantity of doors through the interconnection io door controller cabinets. Connections: Made through wireless or network communications.
        2. Wireless-Based Controllers: WiMac (Wireless Mesh Access Control) technology with up to 1,000 devices per site.
        3. Network-Based Controllers: Network communications using Category 6 cabling from device to device as needed.
        4. System to provide unlimited cardholders along with event storage, battery back-up, and automatic offsite data backup of not less than 90 days.
           1. Allow for complete configuration and management through pdk.io SaaS-based management service via two-factor authentication using Internet-connected mobile devices and other compatible Internet-connected web browsers.
     2. Workstation Computers: Unless otherwise indicated, Hardware and associated peripherals not furnished by the access control system manufacturer to be provided by others, meeting access control system equipment manufacturer's recommended requirements.
     3. Badging Peripherals: Unless otherwise indicated, badging peripherals not furnished by the access control system manufacturer to be provided by others.
     4. Software: Unless otherwise indicated, provide software and licenses required for a fully operational system.
        1. Pdk.io cloud software for Cloud Node configuration, management, and control. Minimum functionality is to include but is not limited to:
           1. 90-day cloud backup.
           2. Real-time software updates.
           3. Custom reporting.
           4. Wireless mobile site surveys.
           5. Email and text supervision and alerting.
           6. True site partitioning.
           7. Custom rules engine.
           8. Elevator control.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. RED CLOUD NODE, MAIN PANELS
     1. Basis of Design: Red Cloud Node, Main Panels as manufactured by pdk. The main panel and gateway of access system and cost-effective building block platform that allows expansion in a scalable manner. Up to 1000 doors can be controlled from one Cloud Node.

\*\* NOTE TO SPECIFIER \*\* Delete model option not required.

* + - 1. Model RCNE. Red Cloud Node Ethernet/
      2. Model RCNEW. Red Cloud Node Ethernet + Wireless/
      3. Strategically placed at customer location and connected to door controllers with WiMac wireless or Network (Ethernet). Each Cloud Node operates as a fully intelligent system that retains all data necessary for operation. With its integral real-time functionality for inputs, outputs, cards, and schedules, all reporting and data changes are instant. Remote login to the Cloud Node via pdk.io allows for off-site configuration, management, and superior dealer and customer support.
      4. Standards Compliance: Conforms to UL 294 (excludes 1DPOE). ETLus Listed.
      5. Cloud Node Specifications:
         1. Connections: WiMac Wireless, Ethernet, Power.
         2. Com-Modules: WiMac Wireless and Network (Ethernet).
         3. Processor: Quad Core.
         4. Memory: 1GB RAM.
         5. Storage: 16 GB solid-state. Virtually unlimited cardholders, rules, and events.

Data and configuration auto-backup twice per week.

* + - * 1. Connectivity: pdk.io for remote connection for Dealer and Customer support.
        2. Encryption: AES 128 bit.
        3. WiMac Wireless Mesh: 2.4 GHz / 802.15.4.
        4. Wireless Range: 1 Mile. Line-of-Sight: 450 ft (137.16 m) indoor average.
      1. Environmental:
         1. Temperature: minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
         2. Humidity: 0 to 95 percent relative humidity noncondensing.
      2. Enclosure (WxHxD): 6.5 x 9.25 x 3 inches (165 x 235 x 76 mm). Metal lockable security can; indoor use only.
         1. Weight: 2.9 lbs (822 grams).
      3. Power Requirements: Input: 12 to 24 VAC/VDC. Output: 12VDC 1.5 A Battery-backed output.
         1. Power supply and battery not included.
         2. Power readers and other door hardware using the built-in bus.
         3. 10 A concurrent max on the bus.
      4. Recommended Power Supply: Included Transformer or HVC. Battery: 12V 5 Amp-hour.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. RED SERVER
     1. Basis of Design: Model RSVR Cloud Node, Server Edition as manufactured by pdk.
        1. The main system panel and is gateway to pdk io cloud platform. Each site requires one cloud node SE with an Internet connection. The cloud node SE then communicates with all local door controllers while storing all data on-site in case of an internet outage. With the pdk io API, the cloud node SE becomes a fully integrated access control solution.
        2. Communication Options:
           1. Ethernet.
           2. PoE.
           3. WiMac Wireless Mesh (2.4 GHz / 802.15.4).

Requires Ethernet to Wireless Gateway (LZE).

* + - * 1. Encryption: AES 128 bit.
        2. Wireless Range: 1 Mile. Line-of-Sight: 450 ft (137.16 m) indoor average.
      1. Environmental:
         1. Temperature: Minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
         2. Humidity: 0 to 95 percent relative humidity noncondensing.
      2. Enclosure (WxHxD): 19 x 2 x 13 inches (483 x 51 x 330 mm).
         1. Mountable to standard 19 inch (493 mm) server rack.
      3. Weight: 150.4 oz (4.264 kg).

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. PRO WIRELESS ETHERNET GATEWAY
     1. Basis of Design: Pro Wireless Ethernet Gateway Model LZE as manufactured by pdk. Gateway, power supply, ethernet cable, and antenna. Allows you to bridge WiMac wireless controllers to a local network shared with the Cloud Node.
        1. Connections: Power Input, Ethernet Port.
        2. Power: 9 to 30 VDC.
        3. Communication:
           1. Ethernet.
           2. Encryption: AES 128 bit.
           3. WiMac Wireless Mesh (2.4 GHz / 802.15.4).
           4. Wireless Range: 1 Mile. Line-of-Sight: 450 ft (137.16 m) indoor average.
        4. Environmental:
           1. Temperature: minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
           2. Humidity: 0 to 95 percent relative humidity noncondensing.
        5. Enclosure, Metal (WxHxD): 2.75 x 3 x 1.125 inch (70 x 76 z x 29 mm).
           1. Weight: 7.04 oz (200 grams).

\*\* NOTE TO SPECIFIER \*\* Used to increase distance of wireless signal in areas where signal strength is weak, or signal needs to travel long distances between door controllers. Becomes part of mesh network and connect with each other or directly to door controllers and cloud node. Delete article if not required.

* 1. WIRELESS REPEATER
     1. Basis of Design: Wireless Range Extender Model MNR as manufactured by pdk.
        1. Communication:
           1. WiMac Wireless Mesh (2.4 GHz / 802.15.4).
           2. Encryption: AES 128 bit.
           3. Wireless Range: 1 Mile. Line-of-Sight: 450 ft (137.16 m) indoor average.
        2. Environmental:
           1. Temperature: minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
           2. Humidity: 0 to 95 percent relative humidity noncondensing.
        3. Enclosure, Metal (WxHxD): 2.75 x 1.5 x .75 inch (70 x 38 x 19 mm).
           1. Weight: 2.7 oz (76 grams). Without USB cable or wall plug.
        4. Power: Includes wall plug with 6ft cable. 3.3 to 5V, up to 500 mA.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. CARD READERS
     1. Wiegand Output Proximity Readers. 125 kHz EM and 125 kHz HID formats are compatible with these readers. These readers can read an HID format between Wiegand ranges of 26 to 37 bits. The default EM bit range is set to Wiegand 26 bits.
        1. Specifications: Operating voltage: 12 VDC.
        2. Frequency: 125 kHz.
        3. Card Type: EM card and HID card format.
        4. Reading Distance: 1-3/8 to 3-1/8 inches (35 to 79 mm).
        5. Output: HID Wiegand 26 - 37, EM Wiegand 26.
        6. Capable of working with HID Proximity Card Readers.

\*\* NOTE TO SPECIFIER \*\* Delete card reader options not required.

* + 1. Card Reader Model RDRSR:
       1. Mounting: Wall.
       2. Input Read Range: up to 1.8 inches (46 mm).
       3. Cable Distance: Wiegand 500 ft (152.4 m); 22 AWG.
       4. Environmental:
          1. Temperature: Minus 31 to 140 degrees F (Minus 35 to 60 degrees C).
          2. Humidity: 0 to 95 percent relative humidity, non-condensing.
          3. Protection Rating: IP67.
       5. Enclosure (W x H x D): 1.96 x 3.74 x 0.78 inches (50 x 95 x 20 mm).
          1. Weight: 13.4 oz (380 grams)
       6. Power: 6 to 16 VDC. Linear power supply recommended.

\*\* NOTE TO SPECIFIER \*\* Sleek and durable with rugged touch keypad readers. The mullion style reader is ideal for door frame applications. The single gang reader is perfect for wall mounting applications.

* + 1. Card Reader Model RDRGR: Single Gang. Vandal resistant.
       1. Environmental:
          1. Temperature: minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
          2. Humidity: 0 to 95 percent relative humidity noncondensing.
       2. Enclosure: Metal. (W x H x D): 3.25 x 4.875 x 0.875 inches (83 x 124 x 22 mm).
          1. Weight: Single Gang: 7 oz (198 grams).
       3. Power Supply: 5 VDC from included power supply.
    2. Card Reader Model RDRMR:
       1. Mullion. Vandal resistant.
          1. Environmental:

Temperature: minus 4 to 140 degrees F (Minus 20 to 60 degrees C).

Humidity: 0 to 95 percent relative humidity noncondensing.

* + - * 1. Enclosure: Metal. (W x H x D): 1.625 x 6.25 x 0.75 inches (41 x 159 x 19 mm).

Weight: Mullion: 8 oz (227 grams).

* + - * 1. Power Supply: 5 VDC from included power supply.

\*\* NOTE TO SPECIFIER \*\* the following two reader are traditional that fit any application. Mullion style reader is just the right width, making it ideal for door frame applications. Single gang reader, is perfect for wall mounting applications.

* + 1. Card Reader, Mullion: Model RDRM.
       - 1. Environmental:

Temperature: minus 4 to 140 degrees F (Minus 20 to 60 degrees C).

Humidity: 0 to 95 percent relative humidity noncondensing.

* + - 1. Enclosures, Plastic (WxHxD): 1.875 x 4 x 0.875 inch (48 x 102 x 22 mm).
         1. Weight: Mullion: 4 oz (113 grams).
      2. Power: 5V DC from included power supply.
    1. Card Reader, Single Gang: Model RDRG.
       1. Environmental:
          1. Temperature: Minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
          2. Humidity: 0 to 95 percent relative humidity noncondensing.
       2. Enclosures, Plastic (WxHxD): 3.25 x 4.75 x .875 inch (82 x 121 x 22 mm).
          1. Weight: Single Gang: 6 oz (170 grams).
       3. Power: 5V DC from included power supply.
  1. PUSH BUTTON READER
     1. Basis of Design: Push Button Reader Model RDRPB as manufactured by pdk. Equipped with rugged backlit keypad, weatherproof design, and a durable zinc alloy casing. Offers ability to unlock doors with proximity credentials, PIN, or the flexibility to configure two-layer security by requiring users to present a credential and enter a PIN to gain access.
        1. Input: Frequency: 125 KHZ. Read Range: from 1.1 up to 2.3 inches (28 x 58 mm).
        2. Output: Wiegand protocol. Cable Distance: Wiegand 500 ft (15.240 m); 22 AWG.
        3. Environmental:
           1. Temperature: Minus 40 to 140 degrees F (Minus 40 to 60 degrees C).
           2. Humidity: 0 to 95 percent relative humidity, noncondensing.
           3. Protection Rating: IP65.
        4. Enclosure (WxHxD) 3.22 x 5.03 x 1.10 inches (82 x 128 x 28 mm)
           1. Weight: 22.9 oz (650 grams).
        5. Power: 12-18 VAC or 12-24 VDC. Linear power supply recommended.
  2. RUGGED VANDAL RESISTANT READERS
     1. Basis of Design: Rugged Vandal Resistant Readers as manufactured by pdk. For indoor and outdoor applications. Us proximity credentials or PIN numbers to access secure areas. Add two-factor authentication on keypad readers, presenting proximity credentials and PIN number to gain access.
        1. Certifications: CE, IP68, and IK10.
        2. Mullion: Model RDRMRS.
           1. Read Range: 2 inches (51 mm) or less.
           2. Input: 125 kHz.
           3. Output: 26 to 37 bit Wiegand protocol.
           4. Temperature: Minus 4 to 122 degrees F (Minus 20 to 50 degrees C)
           5. Operating Humidity: 0 to 95 percent.
           6. Dust & Waterproof Rating: IP68.
           7. Impact Protection Rating: IK10.
           8. Power Voltage: DC 12 V plus or minus 10 percent.
           9. Enclosure: 4.05 x 1.88 x 0.86 inches (103 x 48 x 22 mm).
        3. Single-Gang: Model RDRGRS.
           1. Read Range: 2 inches (51 mm) or less.
           2. Input: 125 kHz.
           3. Output: 26 to 37 bit Wiegand protocol.
           4. Temperature: Minus 4 to 122 degrees F (Minus 20 to 50 degrees C)
           5. Operating Humidity: 0 to 95 percent.
           6. Dust & Waterproof Rating: IP68.
           7. Impact Protection Rating: IK10.
           8. Power Voltage: DC 12 V plus or minus 10 percent.
           9. Enclosure: 4.72 x 3.27 x 0.89 inches ( mm).
        4. Mullion Keypad: Model RDRMRK.
           1. Read Range: 2 inches (51 mm) or less.
           2. Input: 125 kHz.
           3. Output: 26 to 37 bit Wiegand protocol.
           4. Temperature: Minus 4 to 140 degrees F (Minus 20 to 60 degrees C)
           5. Operating Humidity: 0 to 95 percent.
           6. Dust & Waterproof Rating: IP68.
           7. Impact Protection Rating: IK10.
           8. Power Voltage: DC 12 V plus or minus 10 percent.
           9. Enclosure: 6.3 x 1.8 x 1 inches (160 x 46 x 25 mm).
        5. Single-Gang Keypad: Model RDRGRK.
           1. Read Range: 2 inches (51 mm) or less.
           2. Input: 125 kHz.
           3. Output: 26 to 37 bit Wiegand protocol.
           4. Temperature: Minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
           5. Operating Humidity: 0 to 95 percent.
           6. Dust & Waterproof Rating: IP68.
           7. Impact Protection Rating: IK10.
           8. Power Voltage: DC 12 V plus or minus 10 percent.
           9. Enclosure: 5.7 x 3.3 x 1 inches (145 x 84 x 25 mm).

\*\* NOTE TO SPECIFIER \*\* For indoor/outdoor applications and offers users flexibility of using everyday proximity credentials or PIN numbers to gain access to secure areas. Add an extra layer of security with two-factor authentication, requiring users to present proximity credentials and enter a PIN number to gain access. Delete article if not required.

* 1. PROX AND PIN KEYPAD READER
     1. Basis of Design: Prox and PIN Keypad Reader Model RDRKP as manufactured by pdk.
        1. Input: 125 KHZ.
        2. Output: 26 bit Wiegand protocol.
        3. Environmental:
           1. Temperature: Minus 31 to 140 degrees F (Minus 35 to 60 degrees C).
           2. Humidity: 0 to 95 percent relative humidity noncondensing.
        4. Enclosure, Plastic (WxHxD): 1.9 x 4.8 x 0.875 inches (48 x 122 x 22 mm).
        5. Weight: 5.3 oz (150 grams).
        6. Power: 9 to 18 VDC.
  2. QR READER
     1. Basis of Design: QR Push Button Reader Model RDRQR as manufactured by pdk. A rugged, backlit keypad designed to withstand severe weather conditions. For applications that integrate QR and bar-code scanning. Ability to unlock doors with proximity credentials and PINs, and flexibility to configure two-factor authentication.
        1. Input: QR.
        2. Input: Bar code.
        3. Input: Frequency: 125 KHZ.
        4. Read Range: Up to 1.1 inches (28 mm).
        5. Output: Wiegand protocol. Cable Distance: Wiegand 500 ft (15.240 m); 22 AWG.
        6. Environmental:
           1. Temperature: Minus 4 to 122 degrees F (Minus 20 to 50 degrees C).
           2. Humidity: 0 to 95 percent relative humidity, noncondensing.
           3. Protection Rating: IP65.
        7. Enclosure (WxHxD) 3.3 x 4.6 x 0.98 inches (82 x 128 x 28 mm)
           1. Weight: 12 oz (340 grams).
        8. Power: 12-18 VAC or 12-24 VDC. Linear power supply recommended.

\*\* NOTE TO SPECIFIER \*\* By using a mobile device as a credential, touch io allows users to keep their phone in their pocket for hassle-free entry. Simply tap the reader, and touch io will automatically authenticate or deny access. Unlike other Bluetooth readers, touch io uses inside-out technology to prevent accidental openings. Using advanced hardware, the reader detects which side of the door a user is standing, distinguishing between credentials inside or outside a room before granting access.

* + - 1. This reader requires a PDK system with an annual subscription to operate. Visit prodatakey.com to learn about pdk io and our complete lineup of access control products. Delete article if not required.
  1. TOUCH MOBILE CREDENTIAL READER
     1. Basis of Design: Touch Mobile Credential Reader. Model RDRBT as manufactured by pdk.
        1. Compliance: Conforms to UL Standard 294. FCC. UL Listed.
        2. Input:
           1. Badge Frequency: 125 KHz.
           2. Bluetooth Frequency: 2.4 to 2.486 GHz.
           3. Reader Bluetooth Range: Adjustable from 30 ft to 1 inch (9144 to 25 mm).
        3. Output: 26 bit Wiegand protocol. Cable: 24 AWG. Maximum Length: 400 ft (122 m).
        4. Environmental:
           1. Temperature: Minus 40 to 149 degrees F (Minus 40 to 65 degrees C).
           2. Humidity: 0 to 95 percent relative humidity, noncondensing.
           3. Protection Rating: IP65.
        5. Enclosure (WxHxD): 1.7 x 6 x 1.3 inch (43 x 152 x 33 mm).
           1. Weight: 7.8 oz (222 grams) with backplate.
        6. Power:
           1. Voltage: 5.5 to 16 VDC at the reader. Regulated power supply, 12 VDC at reader is recommended.
           2. Current Draw: 100 to 200 mA typical. 225 mA max peak at 12 VDC low-power mode. Bright light power mode available.
        7. Inside-out Antenna Enclosure Cap.
        8. Single-gang adaptor backplate included.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. REQUEST-TO-EXIT SENSOR
     1. Basis of Design: Request-to-Exist Model REXM as manufactured by pdk. A passive infrared sensor with qualified motion analysis. Adjustable Sensor sensitivity for long or short-range applications and an adjustable time delay. Mountable to any frame, header wall, or ceiling.
        1. Relay:
           1. Output: 2C Contact (N.C/N.O), 24 VDC 1 A Max.
           2. Hold Time: 0.5 to 64 seconds.
        2. Detection Type: Passive infrared.
        3. Coverage Range:
           1. At 7 ft (2.134 m) High: 12 x 5 ft (3.658 x 1.524 m).
           2. At 15 ft (4.572 m) High: 30 x 12 ft (9.144 x 3.658 m).
        4. Environmental: Humidity: 0 to 95 percent relative humidity noncondensing
        5. Enclosures, Plastic (WxHxD): 6.53 x 1.57 x 1.53 inches (166 x 40 x 39 mm).
           1. Weight: 6.4 oz (182 grams).
        6. Power: 12 to 24 VDC or VAC.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. HIGH VOLTAGE CONVERTER
     1. Basis of Design: High Voltage Converter Model HVC as manufactured by pdk. Power cloud node or single io in areas where high voltage power is available. Converter accepts 90 to 264 VAC and converts it to 12 VDC at 2 A.
        1. Input:
           1. Voltage Range: 90 to 264 Vac auto range.
           2. Frequency: 47 to 63 Hz.
           3. Efficiency: Average at 25, 50, and 100 percent Load: 82 percent or greater.
           4. Input Current:

Load of 1 Amp or Greater: 90 to 132 Vac / 12 V / 2 A.

Load of 0.5 Amps or Greater: 180 to 264 Vac / 12 V / 2 A.

* + - 1. Output: 12 V, 0 to 2 A.
      2. Protection: Auto recovery on Over-current, Over-temp, Short, and Overvoltage.
      3. Environmental:
         1. Temperature:

At 100 percent Load: 32 to 122 degrees F (0 to 50 degrees C).

At 80 percent Load: 140 degrees F (60 degrees C).

At 60 percent Load: 158 degrees F (70 degrees C).

* + - * 1. Storage Temperature: Minus 4 to 58 degrees F (Minus 20 to 70 degrees C)
        2. Operating Humidity: 10 to 90 percent.
        3. Storage Humidity: 10 to 95 percent.
      1. CE: Input: 3.0 KVac. Output: 3.0 KVacEC.
      2. Isolation: CE: In Conformance With:
         1. EMC Directive 2004/108/EC.
         2. Low Voltage Directive 2006/95/EC.
      3. Reliability: Greater than 100,000 hours at 100 percent load and normal inputs (25 degrees C).
      4. Enclosure: Metal lockable security can; indoor use only.
         1. Dimensions (WxHxD) 5 x 5 x 2 inches (127 x 127 x 51 mm).
      5. Weight: 22 oz (624 grams).

\*\* NOTE TO SPECIFIER \*\* Credentials are all about convenience. We offer five flexible credential options to meet any situation. Choose from the clamshell card, printable card, key ring, sticker, and rubber bracelet. You can even use other credentials offered by third-party manufacturers, such as

* + - 1. biometrics and Bluetooth. Delete article if not required or delete credentials not required.
  1. CREDENTIALS
     1. Credentials:
        1. Clamshell Card Part Number: CSC. (WxHxD) 2-1/8 x 3-7/8 x NA inches (54 x 98 x NA mm).
        2. Printable Card Part Number: CPC. (WxHxD) 2-1/8 x 3-7/8 x NA inches (54 x 98 x NA mm).
        3. Key Fob Part Number: KFC. (WxHxD) 1-1/4 x 1-1/2 x NA inches (32 x 38 x NA mm).
        4. Leather Key Fob Part Number: LTH. (WxHxD) 1-5/8 x 2-1/2 x NA inches (41 x 64 x NA mm).
        5. Sticker Part Number: STK. (WxHxD) 1 x 1 x NA inches (25 x 25 x NA mm).
        6. Bracelet Part Number: BRC. One size fits all.
     2. Communication: 125 KHz 26 bit
     3. Compatibility:
        1. 125 KHz HID compatible proximity card.
        2. 26 bit; 8 bit facility code, 16 bit card number.
        3. Default Facility Code: 077.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. DOOR POSITION SWITCHES
     1. Magnetic Contacts: By Door Hardware Consultant. Coordinate integration with Door Hardware specifications.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. ELECTRIC STRIKES
     1. Electric Strikes: By Door Hardware Consultant. Coordinate integration with Door Hardware specifications.
     2. Power to Electric Strikes: By Electrical Contractor.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. ELECTROMAGNETIC LOCKS
     1. Door Hardware Consultant. Coordinate integration with Door Hardware specifications.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. HIGH SECURITY ONE DOOR CONTROLLERS
     1. Basis of Design: Model R1. Red 1 Controller as manufactured by pdk. Built-in Ethernet connectivity and self-discovery, simplifying ip configuration and functionality. OSDP functionality. On-board power supply. Supervised power circuit that monitors input, output, battery voltage, and overall controller health.
        1. Compliance: Conforms to UL 294. ETL Listed.

\*\* NOTE TO SPECIFIER \*\* The following modules are optional. Delete options not required.

* + - 1. Module: WiMac Wireless. For plug and play connections.
         1. WiMac Wireless: 2.4 GHz / 802.15.4.
         2. Wireless Range: 1 Mile. Line-of-Sight: 450 ft (137.16 m) indoor average.
      2. Module: PoE++. For plug and play connections.
      3. Connections:
         1. Removable screw-down terminals.
         2. Built-in power supply.
         3. Industrial-grade 2A form-C relay.
         4. Reader: One.
         5. Input A: One.
         6. Input B: One.
      4. Encryption: AES 128 bit.
      5. Environmental:
         1. Temperature: Minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
         2. Humidity: 0 to 95 percent relative humidity noncondensing.
      6. Enclosure: Metal lockable security can; indoor use only.
         1. Dimensions (WxHxD) 10.4375 x 7.625 x 3 inches (265 x 194 x 76 mm)
      7. Power:
         1. Input: 12 to 24 VDC Input.
         2. 14 VDC 2A 28 watt class 2 wall-wart power supply; input supply to the board.
         3. Powers readers and other door hardware directly from the bus.
         4. Battery: Not included but required to comply with UL 294.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. HIGH-SECURITY TWO DOOR CONTROLLERS
     1. Basis of Design: Model R2 Red 2 Controller as manufactured by pdk. Built-in Ethernet connectivity and self-discovery. OSDP functionality. On-board power supply. Supervised power circuit that monitors input, output, battery voltage, and overall controller health.
        1. Compliance: Conforms to UL 294. ETL Listed.

\*\* NOTE TO SPECIFIER \*\* The following modules are optional. Delete options not required.

* + - 1. Module: WiMac Wireless. For plug and play connections.
         1. WiMac Wireless: 2.4 GHz / 802.15.4.
         2. Wireless Range: 1 Mile. Line-of-Sight: 450 ft (137.16 m) indoor average.
      2. Module: PoE++. For plug and play connections.
      3. Connections:
         1. Removable Screw-down Terminals.
         2. Built-in Power Supply.
         3. Industrial-grade 2A Form-C Relay.
         4. Readers: Two.
         5. Input A: Two.
         6. Input B: Two.
      4. Encryption: AES 128 bit.
      5. Environmental:
         1. Temperature: Minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
         2. Humidity: 0 to 95 percent relative humidity noncondensing.
      6. Enclosure: Metal lockable security can; indoor use only.
         1. Dimensions (WxHxD) 10.4375 x 7.625 x 3 inches (265 x 194 x 76 mm)
      7. Power:
         1. Input: 12 to 24 VDC Input.
         2. 14 VDC 2A 28 watt class 2 wall-wart power supply; input supply to the board.
         3. Powers readers and other door hardware directly from the bus.
         4. Battery: Not included but required to comply with UL 294.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. HIGH-SECURITY FOUR DOOR CONTROLLERS
     1. Basis of Design: Model R4. Red 4 Controller as manufactured by pdk. Built-in Ethernet connectivity and self-discovery. OSDP functionality. On-board power supply. Supervised power circuit that monitors input, output, battery voltage, and overall controller health.
        1. Compliance: Conforms to UL 294. ETL Listed.

\*\* NOTE TO SPECIFIER \*\* The following modules are optional. Delete options not required.

* + - 1. Module: WiMac Wireless. For plug and play connections.
         1. WiMac Wireless (2.4 GHz/ 802.15.4).
         2. Wireless Range: 1 Mile. Line-of-Sight: 450 ft (137.16 m) indoor average.
      2. Module: PoE++. For plug and play connections.
      3. Connections:
         1. Removable Screw-down Terminals.
         2. Built-in Power Supply.
         3. Industrial-grade 2A Form-C Relay.
         4. Readers: Four.
         5. Input A: Four.
         6. Input B: Four.
      4. Encryption: AES 128 bit.
      5. Environmental:
         1. Temperature: Minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
         2. Humidity: 0 to 95 percent relative humidity noncondensing.
      6. Enclosure: Metal lockable security can; indoor use only.
         1. Dimensions (WxHxD) 10.4375 x 7.625 x 3 inches (265 x 194 x 76 mm)
      7. Power:
         1. Input: 12 to 24 VDC Input.
         2. 12 VDC 5A 60 watt class 2 wall-wart power supply; Input supply to the board.
         3. Powers readers and other door hardware directly from the bus.
         4. Backup Battery: 12 V 8 Amp-hours not included but required to comply with UL 294.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. HIGH-SECURITY EIGHT DOOR CONTROLLERS
     1. Basis of Design: Model R8. Red 8 Controller as manufactured by pdk. Built-in Ethernet connectivity and self-discovery. OSDP functionality. On-board power supply. Supervised power circuit that monitors input, output, battery voltage, and overall controller health.
        1. Compliance: Conforms to UL 294. ETL Listed.

\*\* NOTE TO SPECIFIER \*\* The following modules are optional. Delete options not required.

* + - 1. Module: WiMac Wireless. For plug and play connections.
         1. WiMac Wireless: 2.4 GHz / 802.15.4.
         2. Wireless Range: 1 Mile. Line-of-Sight: 450 ft (137.16 m) indoor average.
      2. Module: PoE++. For plug and play connections.
      3. Connections:
         1. Removable Screw-down Terminals.
         2. Built-in Power Supply.
         3. Industrial-grade 2A Form-C Relay.
         4. Readers: Eight.
         5. Input A: Eight.
         6. Input B: Eight.
      4. Encryption: AES 128 bit.
      5. Environmental:
         1. Temperature: Minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
         2. Humidity: 0 to 95 percent relative humidity noncondensing.
      6. Enclosure: Metal lockable security can; indoor use only.
         1. Dimensions (WxHxD) 14.25 x 18.25 x 4.06 inches (362 x 464 x 103 mm)
      7. Power:
         1. Input: 12 VDC.
         2. Powers readers and other door hardware directly from the bus.
         3. Backup Battery: 12 V 8 Amp-hours not included but required to comply with UL 294.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. HIGH-SECURITY OUTDOOR CONTROLLER
     1. Basis of Design: High Security Red Gate Controller Model as manufactured by pdk. Ethernet connectivity, self-discovery, sampling IP configuration and functionality. OSDP, onboard power supply. Supervised power circuit monitors input, output, battery voltage, and overall controller health. Plug-and-play power options available.
        1. Model RGE: Ethernet.
        2. Model RGW: Wireless.

\*\* NOTE TO SPECIFIER \*\* PoE module and pole mount kit are optional. Delete options not required.

* + - 1. PoE++ Module: Part Number RMPOE.
      2. Pole Mount Kit: Part Number PMK.
      3. Connections:
         1. Removable Screw-down Terminals.
         2. Built-in Power Supply.
         3. Industrial-grade 2 A Form-C Relays: Two.
         4. Reader Input: Two.
         5. Input A: Two.
         6. Input B: Two.
      4. Communication Options:
         1. Ethernet.
         2. WiMac Wireless: 2.4 GHz / 802.15.4.
         3. PoE++.
         4. Encryption: AES 128bit.7
         5. Wireless Range: 1 Mile. Line-of-Sight: 450 ft (137.16 m) indoor average.
      5. Environmental:
         1. Temperature: Minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
         2. Humidity: 0 to 95 percent relative humidity noncondensing.
      6. Enclosure: Polycarbonate lockable security NEMA 4X UL-rated enclosure.
         1. Dimensions (WxHxD): 7 x 9.25 x 2.25 inches (178 x 234.95 x 57 mm).
      7. Weight: 21 oz (595 grams).
      8. Power:
         1. Input: 12-24 VDC.
         2. Powers readers and other door hardware directly from the bus.
         3. Backup Battery: 12 V 1.2 Amp-hours, not included.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. HIGH-SECURITY PEDESTAL OUTDOOR CONTROLLER
     1. Basis of Design: Red Pedestal Outdoor Controller as manufactured by pdk. For outdoor applications. Weatherproof stainless-steel housing protects controller. Blank faceplate for reader. Built-in network connectivity and self-discovery. Fully equipped with controller health monitoring and OSDP functionality.
        1. Model RPE: Ethernet.
        2. Model RPW: Wireless.

\*\* NOTE TO SPECIFIER \*\* PoE module and pole mount kit are optional. Delete options not required.

* + - 1. PoE++ Module: Part Number RMPOE.
      2. Connections:
         1. Removable screw-down terminals.
         2. Built-in power supply.
         3. Industrial-grade 2A Form-C Relays: Two.
         4. Reader Input: Two.
         5. Input A: Two.
         6. Input B: Two.
      3. Communication:
         1. Ethernet.
         2. WiMac Wireless: 2.4 GHz / 802.15.4.
         3. Encryption: AES 128 bit.
         4. Wireless Range: 1 Mile. Line-of-Sight: 450 ft (137.16 m) indoor average.
      4. Environmental:
         1. Temperature: Minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
         2. Humidity: 0 to 95 percent relative humidity non-condensing.
      5. Enclosure: Stainless-steel enclosure.
         1. Dimensions (W x H x D): 5.5 x 9.5 x 5.5 inches (140 x 241 x 140 mm).
      6. Weight: 116.8 oz (3.311 kg).
      7. Power:
         1. Included Power Supply: 14 VDC, 2 A transformer.
         2. 12-24 V AC/DC Input.
         3. Powers readers and other door hardware directly from the bus.
         4. Battery-Backed Output: 12 VDC 1.2A not included.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. HIGH-SECURITY CUSTOMIZABLE CONTROLLER
     1. Basis of Design: Model RMAX Red Max Controller as manufactured by pdk. Equipped with two Altronix power supplies and two four-door expander boards. Customizable with any Red expansion board, allowing for scalability and control of up to 24 doors from one enclosure. Expander Boards Available: One-door, two-door, and four-door. Expanders include built-in Ethernet connectivity and self-discovery.
        1. Red 4 Expander Connections:
           1. Removable Screw-down Terminals.
           2. Industrial-grade 2A Form-C Relays: Four.
           3. Reader: Four.
           4. Input A: Four.
           5. Input B: Four.
        2. Red 2 Expander Connections:
           1. Removable Screw-down Terminals.
           2. Industrial-grade 2A Form-C Relays: Two.
           3. Reader: Two.
           4. Input A: Two.
           5. Input B: Two.
        3. Red 1 Expander Connections:
           1. Removable Screw-down Terminals.
           2. Industrial-grade 2A Form-C Relays: One.
           3. Reader: One.
           4. Input A: One.
           5. Input B: One.
        4. Communication Options: Ethernet.
        5. Environmental:
           1. Temperature: Minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
           2. Humidity: 0 to 95 percent relative humidity non-condensing.
        6. Enclosure: Metal lockable security can; indoor use only.
           1. Dimensions (WxHxD): 20.75 x 26.75 x 4.125 inch (527 x 679 x 102 mm).
        7. Power:
           1. 12 VDC.
           2. Power readers and other door hardware using the built-in bus.

10 A concurrent max on the bus.

* + - * 1. Backup Battery: 8 Amp-hour not included but required to comply with UL 294.
      1. Included Power Supply:
         1. Altronix eFlow 102NB: Two.
         2. Input: 120 VAC 60 Hz.
         3. Output: 12 VDC.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. HIGH-SECURITY CLOUD NODE
     1. Basis of Design: Red Cloud Node as manufactured by pdk. The Main Controller. Built-in Ethernet connectivity and self-discovery. Built-in plug-and-play connectivity options. Additional network or WiMac wireless controllers can be added. OSDP functionality. Onboard power supply. Supervised power circuit that monitors input, output, battery voltage, and overall controller health.
        1. Compliance: Conforms to UL 294. ETL Listed.
        2. Connections:
           1. Removable screw-down terminals.
           2. Built-in power supply.
           3. Industrial-grade 2A Form-C Relay.
           4. Reader.
           5. Input A.
           6. Input B.
        3. Communication Options:
           1. Ethernet.
           2. WiMac Wireless; 2.4 GHz / 802.15.4.
           3. Encryption: AES 128 bit.
           4. Wireless Range: 1 Mile. Line-of-Sight: 450 ft (137.16 m) indoor average.
        4. Environmental:
           1. Temperature: Minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
           2. Humidity: 0 to 95 percent relative humidity non-condensing.
        5. Enclosure: Metal lockable security can; indoor use only.
           1. Dimensions (WxHxD): 10.44 x 7.63 x 3 inches (265 x 194 x 76 mm).
        6. Power:
           1. Input: 12 to 24 VDC.
           2. 14 VDC 2A 28 watt class 2 wall-wart power supply; input supply to the board.
           3. Powers readers and other door hardware directly from the bus.
           4. Battery Backup: Not included but must be installed to comply with UL 294.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. HIGH-SECURITY CLOUD NODE SERVER
     1. Basis of Design: Red Cloud Node SE Model RSVR as manufactured by pdk. Fits any standard 19 inch (483 mm) server rack. Automatically discovers other door controllers, monitors battery health, and provides anytime access to intuitive io cloud software.
        1. Communication Options:
           1. Ethernet.
           2. WiMac Wireless: 2.4 GHz / 802.15.4. Wireless requires Ethernet to Wireless.
           3. Gateway: LZE.
           4. Encryption: AES 128 bit.
           5. Wireless Range: 1 Mile. Line-of-Sight: 450 ft (137.16 m) indoor average.
        2. Environmental:
           1. Temperature: Minus 4 to 140 degrees F (Minus 20 to 60 degrees C).
           2. Humidity: 0 to 95 percent relative humidity non-condensing.
        3. Enclosure: Mountable to standard 19 inch (483 mm) server rack.
           1. Dimensions (WxHxD): 19 x 2 x 13 inch (483 x 51 x 330 mm).

Weight: 150.4 oz (4.254 kg).

* + - 1. Power: Standard 110-220 VAC outlet.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete keypads and models not required.

* 1. HIGH-SECURITY READERS
     1. Basis of Design: Red Readers as manufactured by pdk. OSDP secure connectivity. 13.56 MHz high-frequency and 125 kHz low-frequency communication, and mobile-ready options.
        1. Certifications: FCC, IC, CE, UL 294, EN 302291, EN 301489, EN 300330, EN 50130-4, IP55, and BIS IS 13252.
        2. Mullion: Enclosure: 1.7 x 5.1 x0.71 inches (43 x 130 x 18 mm).
           1. Weight: 7 oz. (198 grams).
           2. Model: RM. High-Security(13.56 MHz).
           3. Model: RMP. High-Security + Prox.
           4. Model: RMB. High-Security + Mobile.
           5. Model: RMPB. High-Sec + Prox + Mobile.
        3. Keypad: Enclosure: 3.25 x 5.1 x 0.71 inches (83 x 130 x 18 mm).
           1. Weight: 11.3 oz. (320 grams).
           2. Model: RK. High-Security(13.56 MHz).
           3. Model: RKP. High-Security + Prox.
           4. Model: RKB. High-Security + Mobile.
           5. Model: RKPB. High-Sec + Prox + Mobile.
        4. Single Gang: Enclosure: 3.25 x 5.1 x 0.71 inches (83 x 130 x 18 mm).
           1. Weight: 10 oz. (283 grams).
           2. Model: RG. High-Security(13.56 MHz).
           3. Model: RGP. High-Security + Prox.
           4. Model: RGB. High-Security + Mobile.
           5. Model: RGPB. High-Sec + Prox + Mobile.
        5. Read Range: 125 kHz up to 4 inches (102 mm).
        6. Output: OSDP and Wiegand protocol.
        7. Encryption: MIFARE DESFire EV2.
        8. Cable Distance: Wiegand 500 ft (152.4 m); 22 AWG.
        9. Temperature: Minus 31 to 150 degrees F or (Minus 35 to 66 degrees C).
        10. Humidity: 0 to 95 percent noncondensing.
        11. Protection Rating: IP55.
        12. Power: 5 to 16 VDC, linear power supply recommended.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. HIGH-SECURITY CREDENTIALS
     1. Basis of Design: Red Key Fobs and Printable Cards as manufactured by pdk.
        1. High-Security smart credentials, 13.56 MHz, with a low profile and durable design.
        2. Key Fobs:
           1. Model RKF. Memory Size: 8 K.
           2. Dimensions: 1.57 x 1.22 x 0.19 inch (40 x 31 x 5 mm).
           3. Frequency: 13.56 MHz.
           4. Read Range: Up to 1 inch (25 mm).
           5. Temperatures: Minus 13 to 176 degrees F (Minus 25 to 80 degrees C).
           6. Material: Polycarbonate.
        3. Printable Cards:
           1. Model RC: 4 K.
           2. Model RC8: 8 K.
           3. Model RCP: 4 K + Prox.
           4. Model RC8P: 8 K + Prox.
           5. Dimensions: 3.37 x 2.13 x 0.03 inches (86 x 54 x 0.76 mm).
           6. Frequency: 13.56 MHz + 125 kHz.
           7. Read Range: Up to 3 inches (76 mm).
           8. Temperatures: 50 to 160 degrees F (10 to 71 degrees C).
           9. Material: PVC + PET.
        4. Mag Stripe Cards:
           1. Model RC8M: 8 K.
           2. Dimensions: 3.37 x 2.13 x 0.03 inches (86 x 54 x 0.76 mm).
           3. Frequency: 13.56 MHz.
           4. Read Range: Up to 3 inches (76 mm).
           5. Temperatures: 50 to 160 degrees F (10 to 71 degrees C).
           6. Material: PVC + PET.
        5. Security Level: EAL 5+.
        6. Encryption: MIFARE DESFire EV2.
        7. Bit Format: 32 bit.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. HIGH-SECURITY MOBILE KITS
     1. Red Modules as manufactured by pdk. Controller and expansion board features a built-in network input. When a cat5 or cat6 is plugged in, controller is automatically discovered and can communicate with other controllers on the network. Choose alternative methods of communication from controller to controller using plug and play module kits.
        1. Basis of Design: PoE++ Module Kit. Model RMPOE. Plug-and-play connection options available. Module plugs seamlessly into door controller and instantly ready to go. Can fully power up to 4 doors.
           1. Communication: Ethernet.
           2. Environmental:

Temperature: Minus 4 to 140 degrees F (Minus 20 to 60 degrees C).

Humidity: 0 to 95 percent relative humidity noncondensing.

* + - * 1. Product: Red 1.

PoE Switch: 11 W / 0.8 A.

PoE + Switch: 24 W / 1.7 A.

PoE ++ Switch: 27 W / 2 A.

* + - * 1. Product: Red 2.

PoE Switch: 11 W / 0.8 A.

PoE + Switch: 24 W / 1.7 A.

PoE ++ Switch: 27 W / 2 A.

* + - * 1. Product: Red 4.

PoE Switch: 11 W / 0.8 A.

PoE + Switch: 24 W / 1.7 A.

PoE ++ Switch: 49 W / 3.5 A.

* + - * 1. Product: Red 8.

PoE Switch: 11 W / 0.8 A.

PoE + Switch: 24 W / 1.7 A.

PoE ++ Switch: 49 W / 3.5 A.

* + - 1. Basis of Design: WiMac Wireless Module. Model RMW.
      2. Plug-and-play connection options are available. Module plugs seamlessly into door controller and instantly ready to go. Once plugged in, controller automatically knows to communicate with other controllers over WiMac wireless.
         1. Communication:

WiMac Wireless: 2.4 GHz / 802.15.4.

Wireless Range: 1 Mile. Line-of-Sight: 450 ft (137.16 m) indoor average.

Encryption: AES 128-bit.

* + - * 1. Environmental:

Temperature: Minus 4 to 140 degrees F (Minus 20 to 60 degrees C).

Humidity: 0 to 95 percent relative humidity noncondensing.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly constructed and prepared.
      2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install an electronic access control system in accordance with the manufacturer's instructions.
      2. Centralized Distributed Power Management System and Boxed Power Supplies:
         1. Configuration: Provide the least number of power supplies required to adequately serve doors with access control hardware and equipment.
         2. Dual-Path Failover and Redundancy: The centralized distributed power management system shall support the ability to failover to a secondary reliable, stable supply of electricity if the primary electricity source fails under a variety of operating conditions. This failover will be seamless to the System Operator to ensure functionality when the primary power source is disconnected. The failover shall occur in less than 60 seconds from the time the primary power source goes offline, thus minimizing functional gaps. Acceptable options are:
            1. Backup Generator.
            2. Battery Backup.
      3. Install system at locations as indicated on the Electronic Access Control System Schedule.
      4. Use manufacturers supplied hardware.
      5. Replace defective or damaged components as directed by the Engineer.
      6. Furnish to the Owner all required keys and credentials.
   4. CABLE INSTALLATION
      1. Cables to be installed in accordance with Section 27 10 00 - Structured Cabling (27 15 00)
      2. Wiring to be run "free-air" above accessible ceilings, in conduit, or in a secured metal raceway as designated on the plan drawings. Cable to be free of tension at both ends.
      3. Size conduit per manufacturer's recommendations or per project plans, whichever is larger.
   5. ADJUSTING
      1. Adjust and check each operating item of integrated access control door hardware, and each door opening to ensure proper secured operation and function of every unit. Replace units that cannot be adjusted to operate as intended.
         1. Integrated Access Control Products:
            1. A detailed schedule of doors and integrated lock functions tested.
            2. Verify integrated lockset functional operation signals are being recognized.

Present a compatible credential and verify LED and sounder activity.

When a valid credential is presented to the card reader, the door unlocks.

A change in Real-time door status monitoring is recognized when the door is not closed and latched.

* + 1. Adjust locksets for smooth operation without binding.
  1. TESTING AND ACCEPTANCE
     1. Conduct tests upon completion of all work or during construction when identifiable portions of overall work are complete.
     2. Owner's Construction Representative and Information Technology (IT) staff along with the Architect/Engineer may be in attendance to witness testing. Provide a minimum of one week advance notice to allow for such participation. Failure to provide notification shall be grounds for the Owner/Engineer to reject all documentation of results on related testing and to require a repeat of the affected test.
     3. The test plan shall be established to not delay the project schedule. Obtain approval of schedule with the above parties before commencing with Acceptance Tests. The schedule shall allow time for the correction of defects and remedial work.
     4. Supply all equipment and personnel necessary to conduct acceptance tests.
     5. Perform tests related to connected equipment of others only with permission and presence of Contractors responsible for that equipment.
     6. Test completed installation to verify each component of the electronic access control system is properly installed and operating.
     7. Should it be found by the Engineer that the materials or any portion thereof furnished and installed under this contract fail to comply with the specifications and drawings, with the respect or regard to the quality, amount of value of materials, appliances, or labor used in the work, it shall be rejected and replaced by the Contractor and all work distributed by changes necessitated in consequence of said defects or imperfections shall be made good at the Contractor's expense.
     8. Document all tests.
  2. FIELD QUALITY CONTROL
     1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.
        1. Verify and obtain the owner's approval that all electronic door locks and software are operating correctly.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection, or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
  1. CLEANING AND PROTECTION
     1. Clean products in accordance with the manufacturers recommendations.
     2. Do not use abrasive cleaners.
     3. Touch-up, repair or replace damaged products before Substantial Completion.
  2. TRAINING
     1. Provide training for the owner's staff and/or contract maintenance personnel on an overview of the system and on operation and maintenance of equipment installed by the contractor.
     2. Coordinate with the Owner's Construction Representative and Architect/Engineer to schedule sessions. Provide adequate notification to allow the Agency to schedule staff.
     3. Training shall be held at the Project Site and shall be conducted during normal working hours.
     4. Provide one Training Session.
     5. Training session duration shall be not less than four hours and up to eight hours.
  3. MANUALS
     1. Submit a quantity three Operation and Maintenance Manuals within ten working days of the completed work. Manuals are available on the knowledgebase.
     2. Provide hard copy documents per specification Section - (26 05 00).
     3. In addition, provide all documents in electronic form (Adobe Acrobat PDF).
     4. As a minimum, Operation and Maintenance Manuals shall include:
        1. Drawings annotated to show cable routes, and major equipment locations.
        2. Cabling Schematics.
        3. Approved Submittals.
        4. Test plan and test report sheets.
        5. Programming documents (pre-sets, tours, etc.)
        6. Hardware and software technical manuals.
        7. Operator and maintenance manuals.
        8. Troubleshooting Guidelines.
        9. Equipment Rack Elevations.
  4. WARRANTY AND SUPPORT
     1. This Contractor shall guarantee the following for a period of one year from the date of substantial completion of this work:
        1. All provided materials and equipment.
        2. Installation of all equipment, hardware, cabling, and related components.
        3. Warranties shall include labor, materials, and travel time.
        4. See Division 1, General Conditions, and General Requirements - Guarantee Documents and the individual technical sections for further requirements.
        5. Contractor shall repair, replace, or alter systems or parts of systems that have failed, or found defective, or not meeting specified performance requirements. This shall be at no cost to the State.
        6. If while fulfilling requirements of this warranty, the Contractor disturbs other work, the Contractor shall arrange for such disturbed work to be restored to its original condition by the responsible Contractor.

END OF SECTION