281326 - FARPOINTE DATA® - *CONEKT® MOBILE-READY CONTACTLESS SMARTCARD READERS AND CREDENTIALS*

1. GENERAL
	* + 1. RELATED DOCUMENTS
				1. Drawings and general provisions of the Contract, including:

General and Supplementary Conditions [OPTIONAL]

Division 01 Specification Sections [OPTIONAL]

Drawings

[LIST]

Related Specification Sections

[LIST]

* + - 1. SUMMARY
				1. Section Includes: Mobile-ready contactless smartcard access control readers and credentials (2.4-GHz/13.56-MHz readers and credentials for electronic access control (EAC) based upon radio frequency identification (RFID)).
				2. Related Sections and Divisions:

INCLUDE APPROPRIATE INFORMATION BELOW, INCLUDING A REFERENCE TO ALLOWANCES, IF PROXIMITY READERS AND CREDENTIALS ARE INCLUDED IN ANY ALLOWANCE ITEMS, AND ADD ALLOWANCES TO "RELATED SECTIONS" PARAGRAPH ABOVE. OTHERWISE DELETE FOLLOWING PARAGRAPH.

* + - * 1. Allowances:

INCLUDE APPROPRIATE LANGUAGE BELOW INCLUDING A REFERENCE TO ALTERNATES, IF PRODUCTS SPECIFIED IN THIS SECTION ARE SUBJECT TO ANY ALTERNATE BID ITEMS, AND ADD SUCH ALTERNATES TO "RELATED SECTIONS" PARAGRAPH ABOVE. OTHERWISE DELETE FOLLOWING PARAGRAPH.

* + - 1. DEFINITIONS - ACRONYMS
				1. ABA Track II Magnetic Stripe Format: Binary data format defined by the American Banking Association.
				2. AES: Advanced Encryption Standard - is a specification for the encryption of electronic data established by the U.S. National Institute of Standards and Technology.
				3. AHJ: Authority Having Jurisdiction - person or office charged with enforcing the Life Safety Code.
				4. ANSI – American National Standards Institute - organization that oversees the development of standards for products.
				5. BLE: Bluetooth Low Energy, also commonly referred to as Bluetooth LE and Bluetooth Smart.
				6. CE: European Union Conformity.
				7. EACS: Electronic Access Control System.
				8. FCC: Federal Communications Commission - agency of the United States government responsible for regulating communications by radio, television, wire, satellite, and cable.
				9. High Coercivity: Strong measure of the ability of a ferromagnetic material to withstand an external magnetic field without becoming demagnetized.
				10. ICC: International Code Council.
				11. IEEE: Institute of Electrical and Electronics Engineers.
				12. NECA: National Electric Code Association.
				13. NFPA: National Fire Protection Association.
				14. OEM: Original Equipment Manufacturer - (OEM) is a company whose products are used as components in another company's product
				15. OSDP: Open Supervised Device Protocol - (OSDP) is a communications protocol standardized by the Security Industry Association (SIA) that allows peripheral devices, such as card readers, interface with control panels or other security management systems. It is a minimum four-conductor interface, consisting of conductors for Power, Ground, Tx+ and TX-.
				16. RFID: Radio Frequency Identification. Incorporating electromagnetic or electrostatic coupling in the radio frequency portion of the spectrum allowing access control credentials and readers to communicate without physical contact.
				17. RoHS: Restriction of Hazardous Substances directive.
				18. Smartcard: Any pocket-sized card that has embedded integrated circuits using a validation process where the credential’s secure-key is challenged by the reader.
				19. System Controller: An electronic device that automates the process of when and where someone may enter or exit an area.
				20. UPS: Uninterruptible Power Supply.
				21. Wiegand Connection: A minimum of a five-conductor interface, consisting of conductors for Power, Ground, Data 0, Data 1, and LED control, used to transmit binary information between a reader and a system controller.
			2. PERFORMANCE REQUIREMENTS
				1. Design Requirements: Mobile-ready contactless smartcard readers shall read user credentials, both mobile and physical, without physical contact, process credential-encoded data and output data to access system controller resulting in instructions to allow/deny access.
				2. Performance Requirements:

Credentials shall be readable when presented in any orientation or at any angle to reader surface.

Transmission of radio frequency signals into the reader shall not compromise the system.

Presence of small metal objects, such as keys or coins, near the credential shall not alter the code nor prevent the code from being read.

Different types of credentials may be used interchangeably and shall be compatible with all readers in the system.

The reader shall be of a contactless pass-through type, reading any data programmed to the credential, regardless of credential data configuration.

Damage or vandalism to the reader shall not compromise any other part of the access control system.

Mobile access credential implementation shall respect personal privacy and be available to end users and other system stakeholders without a requirement to disclose or divulge any sensitive information.

* + - 1. ACTION SUBMITTALS
				1. Product Data: Provide details and technical specifications for each product indicated. Include physical dimensions, features, performance, electrical characteristics, ratings, software versions, and operating system details, as appropriate.
				2. Furnish all permits required for the specified work.
				3. Shop Drawings: Include system line diagrams, equipment locations, installation details, and system integration plans.

Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

Functional Block Diagram: Show single-line interconnections between components for signal transmission and control. Show cable types, quantities, and sizes.

Plans and Elevations: Dimensioned plans and elevations of equipment racks, enclosures, and conduit interconnections, including access and workspace requirements.

Power and Heat Load Calculations: Provide power and heat load calculations for all hardware, including backup UPS capacity calculations.

Wiring Diagrams: For power and signal wiring.

* + - * 1. Equipment and Software List: Include every piece of equipment and software by product/model name and/or number, manufacturer, serial number, revision number, location, and date of original installation. If factory and/or bench testing regimens are required by the project plan, add pretesting record of each piece of equipment and software, listing name of person testing, date of test, and adjustments made.
			1. INFORMATIONAL SUBMITTALS
				1. Field quality - control reports.
				2. Warranty: Sample of product warranty for each system component
			2. CLOSEOUT SUBMITTALS
				1. Operation and Maintenance Data: For all system components and software to include in emergency, operation, and maintenance manuals. In addition to items specified in Mater Format Section 017823 "Operation and Maintenance Data," [IF APPLICABLE] include the following:

Lists of spare parts and replacement components recommended for storage at the site for ready access.

Operation Guides

* + - 1. QUALITY ASSURANCE
				1. All work, equipment, materials, construction, and installation provided under the Contract shall comply with the current applicable rules, regulations, standards, and ordinances of the local Authorities Having Jurisdiction (AHJ).
				2. All equipment shall be installed to National, State, and Local laws in accordance with the Authority Having Jurisdiction.
				3. Electrical Components, Devices, Accessories, and Installation shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

Comply with NECA 1.

Comply with NFPA 70.

Comply with NFPA 101.

* + - * 1. Integration between all system components shall be tested and certified for proper interoperability by the manufacturers of each system.
			1. PROJECT CONDITIONS
				1. Environmental Conditions: system components shall be capable of withstanding the following environmental conditions without mechanical or electrical damage or degradation of operating capability:

All Readers:

Operation: Rated for continuous operation in ambient temperatures -40° to 150° degrees F (-40° to 65° degrees C).

Storage: Rated for continuous storage in ambient temperatures -40° to 150° degrees F (-40° to 65° degrees C).

All Physical Credentials:

Operation: Rated for continuous operation in ambient temperatures -40° to 150° degrees F (-40° to 65° degrees C).

Storage: Rated for continuous storage in ambient temperatures -40° to 150° degrees F (-40° to 65° degrees C).

* + - 1. WARRANTY
				1. All Readers: Lifetime - Against Defects In Materials and Workmanship
				2. Clamshell and Key Fob Credential: Lifetime - Against Defects In Materials and Workmanship
				3. All Other Credentials: One Year - Against Defects In Materials and Workmanship
1. PRODUCTS
	* + 1. APPROVED MANUFACTURER(S) NO SUBSTITUTIONS
				1. Farpointe Data, Inc.
				2. INSERT NAME OF APPROVED SYSTEM MANUFACTURERS
			2. APPROVED SYSTEM INTEGRATORS [OPTIONAL]
				1. INSERT NAME OF APPROVED SYSTEM INTEGRATORS
			3. SYSTEM COMPONENTS
				1. The Card Readers Shall Offer Support of the Following:

General:

Mobile 2.4-GHz and Physical Contactless 13.56-MHz Smartcard Access Credential Technology Support:

BLE Mobile;

MIFARE® Classic

MIFARE UltraLight®

MIFARE® Plus

MIFARE® DESFire® EV1 and EV2

FIPS-201

PIV

PIV-I

TWIC

CAC

Electrical Connection

Wiegand

Clock & Data

OSDP

Mounting on metallic surfaces shall have minimal impact on read range

MAXSecure™ High Security technology

Unique key known only to a specific organization’s readers and credentials

ValidIDTM: The reader shall scan through the contactless smartcard credential’s data in search of discrepancies in the encrypted data; which may occur during credential cloning or hacking.

Multicolor Status Indicators:

Local and/or host controlled 4-state LED (red, green, amber and off)

Hardware:

Input Voltage: 8 to 14 VDC

Brownout Survivability: Readers whose source power dips below the stated operating range shall return to normal behavior once standard operational voltage is restored.

Operating Temperature Range: -40 to 149 degrees F (-40 to 65 degrees C)

Cabling:

18 Inch Pigtail Extension

Color-Coded

Shielded

9 Conductors

#24 AWG (0.60 mm)

RFID Operating Frequencies: 2.4 GHz and 13.56 MHz

Fabrication:

Enclosure: ABS Plastic

Sealing Method: Electronics sealed in weather and tamper resistant epoxy potting

RoHS Compliance

Hardware Secure Element: Included

Shall be based

In Field Reader Control

Control Cards: A selection of cards that modify local reader operation

Model: Conekt CSR-35P Presentation Mobile-Ready Contactless Smartcard Reader:

Read Range:

Mobile Credentials: Up to 1.5 inches (38 mm)

Physical Credentials: Up to 1.5 inches (38 mm)

Dimensions (H x W x T):

Mullion: 1.7 x 4.7 x 1.2 inches (43 x 119 x 30 mm)

Switch Plate: 3 x 5.1 x 1.2 inches (76 x 130 x 30 mm)

Weight: 3 oz. (85 g)

Current Draw: 40 mA typical at 12 VDC, 195 mA peak

Mounting:

Mounting Screws shall be concealed

Mullion, flat surfaces, or ANSI single-gang wall box

Color: Black

Audio Tone - minimum 70 dB at 5 inches

OEM Label Well: .9 x.35 inch (23 x 9 mm) with corner radius of .06 inch (1.5 mm)

Certifications/Compliances:

FCC

CE

ICC

Model: Conekt CSR-35L Long-Range Mobile-Ready Contactless Smartcard Reader:

Read Range:

Mobile Credentials: Up to Up to 15 feet (4.6 m)

Physical Credentials: Up to 1.5 inches (38 mm)

Dimensions (H x W x T):

Mullion: 1.7 x 4.7 x 1.2 inches (43 x 119 x 30 mm)

Switch Plate: 3 x 5.1 x 1.2 inches (76 x 130 x 30 mm)

Weight: 3 oz. (85 g)

Current Draw: 40 mA typical at 12 VDC, 195 mA peak

Mounting:

Mounting Screws shall be concealed

Mullion, flat surfaces, or ANSI single-gang wall box

Color: Black

Audio Tone - minimum 70 dB at 5 inches

OEM Label Well: .9 x.35 inch (23 x 9 mm) with corner radius of .06 inch (1.5 mm)

Certifications/Compliances:

FCC

CE

ICC

* + - * 1. The Mobile Access Credentials Shall Support the Following:

General:

Operation: iPhone or Android-based smartphones supporting BLE 4.0 or greater

More than one Mobile Access Credential may be stored on the smartphone

Security Features: Shall make use of cryptography and end-to end encryption keys, such as AES, as well as session keys, TLS and HTTPS.

Supported Data Configurations:

Wiegand

ABA Track II Magnetic Stripe

ID Marking Options:

Matches encoded (factory standard)

None (no ID marking)

Offset numbers

Random numbers

CMC-2 Conekt Mobile Access Credential:

Read Range:

CSR-35P: Upon presentation, up to 1.5 inches (38 mm)

CSR-35L: Up to 15 feet (4.6 m)

Printing: Custom graphics supported front and back.

Shall be protected behind the security parameters of the smartphone, including biometrics and/or PIN.

Shall be user controlled to be only active when needed.

* + - * 1. The Physical Contactless Smartcard Credentials Shall Support the Following:

General:

Passive Operation: Credentials must be powered by the reader and not make use of a battery

Operating Temperature Range: -40 to 158 degrees F (-40 to 70 degrees C)

Humidity: 0 – 95% non-condensing

Credential coding shall be derived from a population of at least 184 trillion possible unique codes

Supported Data Configurations:

Wiegand

ABA Track II Magnetic Stripe

ID Marking Options:

Matches encoded (factory standard)

None (no ID marking)

Offset numbers

Random numbers

Frequency: 13.56 MHz Smartcard Credential Technology Support for the following:

MIFARE® DESFire® EV2

MIFARE® Classic

CSC-2 Conekt Clamshell Contactless Smartcard:

Dimensions: 3.4 x 2.1 x 0.07 inches (86 x 54 x 1.8 mm)

Clamshell-type plastic card

Reinforced vertical slot punch

Beveled edges

Size: 3.4 x 2.1 x 0.07 inches (86 x 54 x 1.8 mm)

Printing: via Adhesive Overlay

Read Range: Up to 2.25 inches (57 mm)

Memory: 2K

CSM-2 Conekt ISO Composite Contactless Smartcard:

Dimensions: 3.4 x 2.1 x 0.03 inches (86 x 54 x 0.76 mm)

Operating Temperature: -31 to 122 degrees F (-35 to 50 degrees C)

Slot Punch Indicators: Vertical and Horizontal

Read Range: Up to 2.25 inches (57 mm)

Memory: 2K

Surface Material:

PET

Printing: Supports dye sublimation imaging

Graphic Options:

None (standard)

Custom color graphics

Magnetic Stripe Options:

None

3-track high coercivity

CSK-2 Conekt Key Fob Contactless Smartcard Credential:

Dimensions: 1.9 x 1.5 × .28 inches (49 × 38 × 7 mm)

Slot Punch: Built-in stainless-steel eyelet

Read Range: Up to 1 inch (25 mm)

Memory: 2K

Finish:

ABS housing (Gray)

Stainless-steel frame

Graphic Options:

None (standard)

Custom graphics

OEM Label Well: .9 x.35 inch (23 x 9 mm) with corner radius of 0.06 inch (1.5 mm)

1. EXAMINATION
	* + - 1. Examine cable pathways including conduit, raceways, cable trays, and other pathway elements for compliance with space allocations, installation tolerances, hazards to cable installation, and other conditions affecting installation.
				2. Examine rough-in for control cable and conduit systems to card readers, and other EACS components to verify conduit and back-box locations prior to installation of EACS devices.
				3. Examine available network capacity and support infrastructure.
				4. Examine install location for compliance with surface requirements, space allocations, installation tolerance, hazards to safe system operation, and other conditions affecting installation.
				5. Commencement of work by installer is acceptance of substrate surface requirements, space allocations, installation tolerance, hazards to safe system operation, and other conditions affecting installation.
				6. Proceed with installation only after unsatisfactory conditions have been corrected.
			1. PREPARATION
				1. Comply with ANSI/TIA-606-B Labelling Standard.

Develop acceptance test concept and, on approval, develop specifics of the test.

Develop cable and asset-management system details; input data from construction documents. Include system schematics and technical drawings in electronic format.

* + - * 1. In meetings with Architect and Owner, present Project planning documents and review, adjust, and prepare final programming and configuration documents. Use final documents to program and configure system software.
			1. CABLING
				1. Comply with NECA 1, "Good Workmanship in Electrical Construction"
				2. Install cables and wiring according to national, state, and local laws.
				3. Wiring Method: Install wiring in raceway and cable tray except within consoles, cabinets, desks, and counters. Conceal raceway and wiring except in unfinished spaces.
				4. Junction boxes and enclosures containing security-system components or cabling, and which are easily accessible to employees or to the public, shall be provided with tamper resistant fasteners and/or tamper detection switches. In addition, hinged enclosure doors shall be equipped with locking hardware. Boxes above ceiling level in occupied areas of the building shall not be considered accessible. Junction boxes and small device enclosures below ceiling level and easily accessible to employees or the public shall be covered with a suitable cover plate and secured with tamperproof screws.
			2. CABLE APPLICATION
				1. Comply with TIA 569-C, "Commercial Building Standard for Telecommunications Pathways and Spaces."
				2. Card Readers and Keypads and Peripheral Devices:

Install number of conductor pairs recommended by device manufacturer for the functions specified.

Follow device manufacturer’s installation requirements for maximum cable distances and sizes.

* + - 1. GROUNDING
				1. Comply with Section 260526 "Grounding and Bonding for Electrical Systems." [IF APPLICABLE]
				2. Comply with IEEE 1100, "Recommended Practice for Power and Grounding Electronic Equipment."
				3. Ground cable shields, drain conductors, and equipment to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments.
				4. Signal Ground:

Terminal: Locate in each equipment room and wiring closet; isolate from power system and equipment grounding.

Bus: Mount on wall of main equipment room with standoff insulators.

* + - 1. IDENTIFICATION
				1. In addition to requirements in this article, comply with applicable requirements in Section 260553 "Identification for Electrical Systems" [IF APPLICABLE] and with TIA/EIA 606-B.
				2. Label each terminal strip and screw terminal in each cabinet, rack, or panel.

All wiring conductors connected to terminal strips shall be individually numbered, and each cable or wiring group being extended from a panel or cabinet to a building-mounted device shall be identified with the name and number of the particular device as shown.

* + - * 1. At completion, cable and asset management documentation shall reflect as-built conditions.
			1. FIELD QUALITY CONTROL
				1. Perform tests and inspections:

Testing Agency: Engage a qualified testing agency to perform tests and inspections.[OPTIONAL]

Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.[OPTIONAL]

Factory Commissioning: Onsite visit by the Manufacturer’s in-house personnel to inspect, test, and assess system programming, functionality, and performance. [OPTIONAL]

* + - * 1. Tests and Inspections:

LAN Cable Procedures: Inspect for physical damage and test each conductor signal path for continuity and shorts. Test for faulty connectors, splices, and terminations. Test according to TIA/EIA 568-C, "Commercial Building Telecommunications Cabling Standards - Part 1: General Requirements." Link performance for UTP cables must comply with minimum criteria in TIA/EIA 568-C.

As appropriate, test each reader for proper LED and audio tone function, as well as read range and data output accuracy.

Test each circuit and component of each system. Tests shall include, but are not limited to, measurements of power-supply output under maximum load, signal loop resistance, and leakage to ground where applicable. System components with battery backup shall be operated on battery power for a period of not less than 10 percent of the calculated battery operating time. Provide special equipment and software if testing requires special or dedicated equipment.

Operational Test: After installation of cables and connectors, demonstrate product capability and compliance with requirements. Test each signal path for end-to-end performance from each end of all pairs installed. Remove temporary connections when tests have been satisfactorily completed.

* + - * 1. Devices and circuits will be considered defective if they do not pass tests and inspections.
				2. Prepare test and inspection reports.
			1. CLEANING
				1. Clean components soiled by work as recommended by manufacturer.
				2. Remove surplus materials and debris from site.
			2. STARTUP SERVICE
				1. Engage a factory-authorized service representative to supervise and assist with startup service.[OPTIONAL]
				2. Provide onsite visit by Manufacturer’s in-house personnel to train Owner’s operations personnel.[OPTIONAL]
				3. Complete installation and startup checks according to approved procedures that were developed in "Preparation" Article and with manufacturer's written instructions.
				4. Enroll and prepare badges and access cards for Owner's operators, management, and security personnel.[OPTIONAL]
			3. ADJUSTING
				1. Occupancy Adjustments: When requested within 30 days of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project for this purpose. Tasks shall include, but are not limited to, the following:

Check cable connections.

Check proper operation of card readers, intrusion sensors, integrated systems, and database configuration. Verify system configuration and adjust settings needed.

Recommend changes to the system configuration and settings to improve Owner's use.

Provide a written report of adjustments and recommendations.

* + - 1. DEMONSTRATION
				1. Demonstrate proper operating procedures to owner's representative.
				2. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain the system equipment.[OPTIONAL]
				3. Develop and provide separate training modules for the following:

Computer system administration personnel to manage and repair the LAN and databases and to update and maintain software.

Operators who prepare and input credentials, monitor the system, and to enroll personnel.

Security personnel.

Hardware maintenance personnel.

Corporate management.

* + - 1. MAINTENANCE
				1. The Contractor shall offer a Software Upgrade and Support Agreement (SUSP).

As part of the agreement, normal business hours (9:00 AM – 6:00 PM), telephone support shall be available.

The option of 24/7 telephone support shall be offered.

END OF SECTION 281326