281326.11 - FARPOINTE DATA® - *RANGER® LONG-RANGE RECEIVERS AND TRANSMITTERS*

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: Long-Range Receivers and Transmitters (433-MHz radio frequency identification).
				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. AHJ: Authority Having Jurisdiction - person or office charged with enforcing the Life Safety Code.
				2. ANSI – American National Standards Institute - organization that oversees the development of standards for products.
				3. CE: European Union Conformity.
				4. EACS: Electronic Access Control System.
				5. FCC - Federal Communications Commission - agency of the United States government responsible for regulating communications by radio, television, wire, satellite, and cable.
				6. ICC: International Code Council.
				7. IEEE: Institute of Electrical and Electronics Engineers.
				8. NECA: National Electric Code Association.
				9. NFPA: National Fire Protection Association.
				10. OEM: Original Equipment Manufacturer - (OEM) is a company whose products are used as components in another company's product
				11. Receiver: A device for converting signals taken into possession wirelessly and over a distance, such as the electromagnetic waves emitted by a transmitter, into a form which may be used by an electronic access control system.
				12. RFID: Radio Frequency Identification. Incorporating electromagnetic or electrostatic coupling in the radio frequency portion of the spectrum allowing electronic access control credentials and readers to communicate without contact.
				13. Transmitter: A device that may be carried on a key ring that, when activated, emits electromagnetic waves containing access control related data.
				14. UPS: Uninterruptible Power Supply.
				15. 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 typically between a reader and a system controller.
			2. PERFORMANCE REQUIREMENTS
				1. Design Requirements: Receivers shall obtain user data from a button press on a transmitter. Each button on a transmitter may be associated with a unique channel on a unique receiver. Each transmitter shall send a unique code that may be associated with a unique person. The receiver will send all data to a connected access control field panel.
				2. Performance Requirements:

Transmitters shall be read when activated up to 200’ from the receiver.

Transmitters shall use a radio frequency of 433-MHz.

Receivers shall support industry standard electronic access control interfaces.

Transmitters shall support industry communication standards (RFID).

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

The reader data output time to the system controller: <95 milliseconds typical.

Transmission of radio frequency signals into the receiver 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.

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

* + - 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 Receivers:

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 Transmitters:

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 Receivers: One Year - Against Defects in Materials and Workmanship
				2. All Transmitters: 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. LONG RANGE RECEIVERS / TRANSMITTERS
				1. Receivers Shall Support the Following:

Frequency 433 MHz

Mounting: Any flat surface

Dimensions:

Two Channel Unit: 3.3" W × 3.3" H × 1.9" D (84 mm × 84 mm × 48.3 mm)

Four Channel Unit: 3.4" W × 6.3" H × 2.3" D (86.4 mm × 160 mm × 58.4 mm)

Weight:

Two Channel Unit: 8 oz (227 g)

Four Channel Unit: 12 oz (340 g)

Read Range:

Two Channel Unit: Up to 100’ (30.5 m)

Four Channel Unit: Up to 200’ (61 m), installer adjustable

Four Channel Unit: Read range can be extended further using a separate dipole antenna attaching to Receiver’s on-board SMA connector.

Voltage: 12 VDC nominal

Current Draw:

Two Channel Unit: 80 mA typical @ 12 VDC

Four Channel Unit: 120 mA typical @ 12 VDC

Indicators: LEDs and Audio ‘Beeper’ Tone Standard, installer adjustable

Secure Transmission Rolling code + encryption

Certifications FCC, ICC, CE, UL Standard 2942

IP Code: IP65

Cabling: 24 AWG multi-conductor stranded with an overall foil shield

Interface: Wiegand (26-bit industry standard and custom Wiegand formats)

Operating Temperature –40° F to 149° F (–40° C to +65° C)

Enclosure:

Impact Resistant PVC

Electronics sealed in a weather-resistant, UL listed enclosure

* + - * 1. Transmitters Shall Support the Following:

Frequency:

RF Transmitter – 433 MHz

Presentation – 125 kHz or 13.56 MHz

Activation Buttons:

2 Button Variant (Supports two channels)

4 Button Variant (Supports four channels)

Dimensions 1.45" W × 2.5" H × 0.56" D (37 mm × 63.5 mm × 14.2 mm)

Secure Transmission Rolling code + encryption

Weight 0.7 oz. (20 g)

Certifications FCC, ICC, CE, UL Standard 294

IP Code: IP65

Battery: Single replaceable CR2032, 3.3V, lithium battery

Read Range:

RF Transmitter: Up to 200 feet (61 m)

Presentation: Up to 3.5 inches (88 mm)

Durability: Electronics sealed in a weather-resistant enclosure

Interface: Wiegand (26-bit industry standard and custom Wiegand formats)

Operating Temperature: –40° F to 122° F (–40° C to +50° C)

Enclosure Color Black polycarbonate enclosure with gray ABS keys

OEM Label Area Dimensions 0.9" W × 0.35" H (22.86 mm × 8.89 mm), with corner radius of 0.63" (16 mm)

LED: Red (activated upon button press)

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. Receivers and Peripheral Devices:

Install number of conductors or 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 281326.11