SECTION 28 13 00
ACCESS CONTROL & ALARM MONITORING SYSTEM

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including all General and Supplementary Conditions and Division 1 Specification sections shall apply to this section and shall be considered as forming an integral part of this Work. These documents are referred to as the Project General Conditions in the remainder of these Specifications.

B. The General Security Requirements specification Section 28 05 00 shall apply to Work specified in this Section. Where similar requirements headings are listed herein, they are to augment the requirements indicated within the General Security Requirements Section. Nothing herein shall be construed as relieving Contractor from the requirements identified in the General Security Requirements specification Section.

C. Consult other Divisions: determine the extent and character of related work and properly coordinate work specified herein with that specified elsewhere to produce a complete and operable system.

D. Section 280500 Common Work Results for Electronic Safety and Security

E. Section 280800 Security System Commissioning

F. Section 282300 Video Surveillance

G. Division 8 – Door Hardware

H. Division 26 – Electrical

1.02 SUMMARY

A. Section includes materials, equipment, fabrications, installation and tests in conformity with applicable Codes and the requirements of Authorities Having Jurisdiction for the following:

1. A complete Access Control and Alarm Monitoring System (ACAMS) as described in the Specifications and as shown in detail on the Drawings. Complete system is defined as all labor and materials required to complete the Work described herein and as shown on the Drawings.

2. Products, equipment, materials, systems, assemblies, software and accessories as specified herein define the minimum standards.

3. Specifications and Drawings do not show or list every item, accessory, fastener, bracket, sub-assembly and appurtenance to be provided. When an item not shown or listed is clearly necessary for proper installation, operation and functioning of the equipment and systems the Contractor shall provide, install, test and certify the item at no increase in Contract price.

B. Provide all software and hardware for installation, connection and operation of the new security system equipment.

C. Furnish and install system and client software, labor and licenses for remote access to the Access Control and Alarm Monitoring System from designated workstations on the Owner's LAN/WAN network.

D. Provide installation, testing, adjustment and initial programming for all equipment and systems.

E. Fiber / data cabling

1. The project electrical contractor shall install all cabling as shown on the Drawings under a separate section. Cabling will be installed inside conduit, in cable basket, and above accessible ceiling as required. All cable pathways, supports, etc. are the responsibility of the electrical contractor and are not included in this section.
2. Provide all necessary equipment within the POP room as identified on the Drawings. This shall include, but not be limited to, cable management, patch panels, and other equipment.
3. Provide 150 access cards.
4. Provide final labeling of all cables at point of termination using a mechanical labeling system. Remove temporary labeling installed by electrical contractor.
5. Fully test and certify all cabling indicated on the Drawings after termination. It shall be the contractor's responsibility to coordinate with, and inspect the work of, the electrical contractor to ensure that cabling shown on the Drawings has been installed in a workmanlike and professional manner, and the cabling is certifiable.
6. Owner shall provide all necessary network switches, routers, security devices, and other networking hardware.
7. Provide all copper and fiber optic patch cables of the same performance specifications as the associated cable in a 1:1 ratio to number of cables specified in the ITS drawings. Examine all related drawings and coordinate with Owner to ensure the correct length of patch cables.

F. The following Work will be provided by others:

1. All computers and network switches will be provided by the Owner. Contractor shall assist Owner with installation of these as required.
2. Electrified door hardware as shown on the Drawings will be provided by the door hardware subcontractor under a separate section.
3. Conduit, copper cabling, and 120VAC power will be provided by the project electrical contractor under a separate section.

1.03 SYSTEM DESCRIPTION

A. Contractor shall insure that all new AMAG field panels are installed as indicated on the Drawings. All electrical connections will be completed internal to the field panels.

B. Scope of Work

1. The access control platform will be an expansion of the existing AMAG Enterprise server. Each new AMAG 2150 Series (field panel) controller(s) shall be its own LAN chain.
2. Contractor shall provide and install fiber optic cabling as indicated in the Drawings.
3. Provide (150) access cards.
4. Contractor will provide all final terminations to include security components and door locking hardware at both ends of cabling.
5. Contractor shall provide new contact/tamper switches in all field panels, security server cabinet(s) and Owner's Network Cabinet.
6. Provide and install all fiber optic cabling, fiber optic patch panels, and other incidental equipment as indicated on the Drawings.

C. Submittals:

1. Contractor Qualifications: Submit certification letters for the manufacturer of the ACAMS.
2. Product Data: Submit product information for components specified herein. Refer to Section 280500 for format and requirements.
3. A time schedule and description of work flow will be presented in the submittal that outlines the contractor's approach to install the ACAMS.

PART 2PRODUCTS

2.01 FUNCTIONAL REQUIREMENTS

A. The ACAMS system will control access control into the site, building and select interior doors as indicated on the plans.

B. Card readers restrict access to select areas of building and site maintaining separation between the facility and public.

2.02 TECHNICAL REQUIREMENTS

A. Software

1. ACAMS software and ACPs shall be an AMAG System as Manufactured by AMAG Technology, Inc., 20701 Manhattan Place, Torrance, CA 90501. [NO EXCEPTIONS]
2. Provide additional AMAG Enterprise reader licensing to accommodate quantity of forty-eight (48) additional card readers.

B. ACP

1. Acceptable manufacturer: Symmetry M2150 Series G4T-M2150-040 controllers (8 reader panel) in rack mounted enclosures [NO EXCEPTIONS] with the following options:
   a. AMAG MN-NIC43 network interface module
   b. WIM-8 wiegand interface module
   c. M2150-AC8/4 input / output board
2. Connect each ACP individually to the network. Additional ACPs will not be connected in a chain using RS-485.

C. Card reader

1. Acceptable manufacturer: HID iCLASS SE Reader, black in color. HID Part # 920NTNNEK0040L (with pigtail). Use HID Part # 910NTNNEK0040L (with pigtail) mullion mount where indicated on the SE drawings. [NO EXCEPTIONS]

D. Access card

1. Acceptable manufacturer: HID iClass proximity cards (Part #2002HPGGMN), Corporate 1000 format. All credentials to be purchased through AVS Technology (contact: Michael Riotto, 973-812-1866). [NO EXCEPTIONS]

E. Biometric reader (Suprema)

1. Biometric readers shall incorporate custom Digital Realty software / firmware, installed at the factory. Custom programing may not be available on units purchased through all sales channels. It shall be the Contractor's responsibility to verify model numbers and provide the correct parts. Contact Josh Solomon

with Suprema at jsolomon@bioconect.com or (289) 218-9748 for ordering information.

2. Wall-mount biometric reader

    a. Acceptable manufacturer: Suprema part #BC-CBEWIOC

F. Rack cabinet card reader kit

1. Rack card reader kit shall include a card reader, lock for the front and rear doors on of the rack cabinet, and wiring harnesses as required for connection of all equipment.
2. The rack card reader shall interface to a reader port on the AMAG M2150 ACP.
3. Contractor shall provide quantity two (2) surface-mount small form factor position switches for each kit to monitor the status of the cabinet doors.
4. Acceptable manufacturer: AVS AVS-APC-EL2 – Contact 973-812-1866 [NO EXCEPTIONS]

G. Door position switch

1. The door position switch shall detect the open / closed status of the portals upon which they are installed using a magnetically-activated reed switch.
2. Door position switches shall monitor the status of various types of portals, including conventional swing doors, and overhead doors.
3. The recess-mounted door position switch shall meet the following requirements:
    a. Recess-mount door position switch in the header of the door frame, and install the associated magnet in the corresponding location in the top of the door.
    b. Shall be single-pole, double throw (SPDT) unit.
    c. Switches shall be capable of initiating an alarm signal when the protected door is opened 1” on the latch side.
    d. Acceptable manufacturer: UTC Interlogix 1078 or equal
4. Surface-mount door position switch
    a. Shall be single-pole, double throw (SPDT) unit.
    b. Shall be capable of initiating an alarm signal when the protected door is opened 3”.
    c. Shall be equipped with a 36” armored cable jacket.
    d. Shall surface-mount to doorframe with mounting holes on 2” centers.
    e. Acceptable manufacturer: UTC Interlogix 2507 or equal

H. Power supplies

1. Acceptable manufacturer: Altronix (UL Listed Only) Maximal33RD Rack Mount power supply. Used for door locking hardware and biometric reader power [NO EXCEPTIONS]

I. Equipment cabinets

1. Refer to the drawings for quantity and configuration of cabinets. Some cabinets are provided under a separate section, with only internal parts provided under this section, while other require everything.
2. Acceptable manufacturer: APC AR3350 [NO EXCEPTIONS]

3. Cable Management
    a. Acceptable manufacturer: APC AR8425A
4. Cable Outfall
    a. Acceptable manufacturer: APC AR8654
5. Air containment end caps
    a. Acceptable manufacturer: APC ACCS1002
6. Air containment front assembly
    a. Acceptable manufacturer: APC ACCS1007
7. External air sealing kit
    a. Acceptable manufacturer: APC AR7731
8. Hybrid dual-cord cabinet ATS
    a. Acceptable manufacturer: APC AP4450 [NO EXCEPTIONS]
9. Hybrid single-cord and dual-cord PDU (vertical)
    a. Acceptable manufacturer: APC Rack PDU 2G, Switched Zero U 15A, 120VAC, (8) 5-15. Part number: AP8931 [NO EXCEPTIONS]
10. Hybrid single-cord and dual-cord PDU (horizontal)
    a. Acceptable manufacturer: APC Rack PDU, Switched, 1U, 15A, 120VAC, (8) 5-15. Part number: AP7900B [NO EXCEPTIONS]

J. Exit alarm
1. Acceptable manufacturer: Designed Security Inc. ES4200-K1 Series Door Management Alarm [NO EXCEPTIONS]

K. Copper Assemblies
1. All copper assemblies shall be designed and certified for compliance with TIA CAT5e data transmission standards.
2. Jacks
    a. Provide keystone jacks with the specified wallplate at all termination locations. Refer to the Drawings for jack color-coding.
    b. Keystone jacks
        1) Acceptable manufacturer: Ortronics OR-TJ600-36 (blue)
        2) Acceptable manufacturer: Ortronics OR-TJ600-45 (green)
        3) Acceptable manufacturer: Ortronics OR-TJ600-88 (white)
    c. Wall plate
        1) Acceptable manufacturer: OR-40300546-88
    d. Field terminable plugs (Intercom and Key-box)
        1) Acceptable manufacturer: Optical Cable Corporation OCCFUP6A [NO EXCEPTIONS]
3. Rack-mount patch panel
    a. 24-port
        1) Acceptable manufacturer: ICC-ICMPP24CP6

b. 48-port

1) Acceptable manufacturer: Ortronics OR-PHD66U48

c. Label patch panels with DYMO labeling solution

4. Building entrance terminal

a. Provide building entrance terminals where copper telephone cabling enters POP rooms in both buildings.

b. Acceptable manufacturer: Circa Telecom 1880ECA1-25 or approved equal

L. Fiber optic assemblies

1. All fibers shall be connectorized with SC-style connectors.

2. All fiber optic assemblies shall be compatible with multimode cable.

3. 1U Rack-Mount Fiber Optic Patch Enclosure

a. 1U fiber optic patch enclosure shall accommodate no less than 36 SC-style connectors.

b. Acceptable manufacturer: Ortronics OR-FC01U-C

4. 2U Rack-Mount Fiber Optic Patch Enclosure

a. 2U fiber optic patch enclosure shall accommodate no less than 72 SC-style connectors.

b. Acceptable manufacturer: Ortronics OR-FC02U-C

5. Wall-Mount Fiber Optic Patch Enclosure

a. Acceptable manufacturer: Ortronics OR-6155MFC-12P

6. Fiber Optic Patch Adapter Panels

a. Acceptable manufacturer: Ortronics OR-OFPSCD12LC

PART 3EXECUTION

3.01 COORDINATION

A. Provide interface to electrified door hardware.

B. Coordinate all telephone and data network connections, programming, and requirements with the Owner's IT department.

C. Furnish and install any interface relays, materials, and cabling required for connection to the Fire Alarm Control Panel (FACP).

D. If a fire alarm cross connection is required Contractor shall be responsible for all coordination, equipment, installation and testing between the building owner's life safety system service provider and the owner's new Access Control system. Contractor is responsible to provide all required cabling between all life safety systems and Access Control devices.

E. Connect the ACAMS system to the Owners local area network utilizing the LAN/WAN. Coordinate all network connections and IP addressing with the Owner's Rep.

F. Connect all low voltage cables between lock power supplies and transfer hinges. Door hardware installer responsible for connections from electrified lock to transfer hinge.

G. The Access Control Server Appliance will communicate to the access control field panels via a network connection over the Owner's LAN/WAN. Contractor shall coordinate IP addresses, LAN drops, network connectivity and bandwidth allocation and usage with the Owner's Rep.

H. Coordinate all electrical power and conduit requirements with the Division 26 electrical contractor and the Owner. All security systems shall be on a dedicated security designated branch circuit.

I. Coordinate network connectivity and telephone and data cable requirements with Division 27 contractor scope of work and the owner.

J. Coordinate door hardware with the Division 8 Hardware contractor.

3.02 INSTALLATION

A. Control Equipment Installation

1. Coordinate installation of equipment with other trades to avoid unforeseen conflict.
2. Follow pre-approved submitted schedule for installation of card reader system to the controllers.
3. Install supervisory and end of line resistors as required.
4. Interconnect all access control panels, lock power supplies and device power supplies with conduit and screw cover raceway (gutter) to protect cables throughout. (Not required if this equipment is contained within an equipment cabinet.)
5. Coordinate with the electrical contractor for hardwire of all power supplies with electrical conduit fittings and junction boxes, plug in transformers and exposed cable is unacceptable. (Not required if this equipment is contained within an equipment cabinet.)
6. Coordinate conduits, pathways, and j-boxes to panels and devices with the electrical contractor.
7. Coordinate Network Data Drop with Owner IT staff inside access controller
8. Coordinate IP address with Owner IT staff
9. Install cross connection of existing cables and terminations in metal enclosures
10. Terminate all cross connections in panel enclosures on terminal blocks (Phoenix or Weidmuller)

B. Field Devices

1. Homerun all cable from field devices to control panel, utilizing J-Hangers, sleeves and risers for vertical and horizontal cable runs.
2. Provide wiremold surface mounted raceways to devices when concealment of EMT conduit is not possible and cabling would be otherwise exposed.
3. Install devices as indicated on drawings.
4. Use conduit pathways and fish cable as required to final device locations including using storefront mullion as raceways.

C. Locking and ADA Hardware

1. Coordinate the installation and termination of the security cable with the installation of the electric door hardware, transfer hinge, electric strike, push paddles, automatic door openers, and local exit hardware power supplies.

Terminate and coordinate any REX switch requirements with push paddles for automatic door opening.

D. Card Readers

1. General

a. Wire readers back to the Controller directly. Do not daisy chain readers together.

b. Presenting a card to the reader shall initiate a single read. Thereafter the card must be removed from the reader's field and re-presented before it is again read by the system.

c. Coordinate specific reader types to be used with Owner and reference provided contract drawings.

2. Integral LED to indicate the status of the door and an audible indicator. The LED status shall be as follows:

a. Red steady indicates reader is powered up

b. Red flash after card presentation indicates card has been read but access is denied

c. Green Momentary indicates card is valid and access is granted

d. Green Steady indicates door is unlocked indefinitely on schedule.

3. Provide units capable of communicating in Wiegand format.

E. Line Supervision

1. Contractor will provide and install resistors at the following devices for 4-state supervision - supports secure, alarm, short circuit and open circuit states:

a. Position switches

b. Request to exit devices

c. Motion detectors

d. Exit alarms

e. Door management alarms

f. Glass break devices

F. Tamper Monitoring

1. Provide additional monitor input points for monitoring the following:

a. Tamper switches located within each security equipment enclosure

b. Supervision of power supplies and batteries. AC power and low battery.

3.03 TESTING / COMMISSIONING REQUIREMENTS

A. Contractor shall test and certify all data cabling components in accordance with ANSI / TIA standards and prepare a report for submission to Architect certifying and warranting all cabling.

B. Acceptance Pretesting (Section 280800)

1. Perform a 100% pretest of the system prior to final testing by the Owner, or the Owner’s representative per the approved test plans and using the approved test data sheets.

2. In the event of failures, repair the system and repeat the pretest.
3. Submit the pretest data to the Owner of the Owners Representative for their review.
4. The testing of the Access Control System shall include as a minimum, the following:
    a. Card Reader Door Test: Test doors to ensure alarm contact provide alarm activation and relock when closed, REX shunts door and command card reader bypasses alarm inputs for area when applicable
    b. Card Reader/ADA Test: Test doors according to card reader test above.
    c. In addition, test ADA push plate interlocking function to ensure door does not operate when locked. Test that interior ADA actuator always functions.
    d. Door Contact: Test doors to ensure local alarm, activation and deactivation of alarm output.
    e. Motion Detector: Test motion to ensure local alarm, activation and deactivation of alarm output.
    f. Help Button Test: Test help button devices to ensure activation and alarm reporting.
    g. CCTV System Test: Test and verify CCTV system viewable from workstations.
    h. Security Equipment Room Test: Inspect all system panels, power supplies, and other related security equipment located in these areas. Test AC, Battery, and communications loss.
5. Commissioning Test
    a. Notify the Owner or the Owner's Representative that the system is ready for the Final Testing by providing a minimum of 5 days' notice of the desire to test. The test date will be confirmed, if other testing does not conflict, by the Owner or the Owner's Representative
    b. Testing shall be performed to the requirements of 28 08 00. If any deficiencies are found, testing may be stopped at the discretions of the Owner or the Owner's Representative. All repairs will have to be made and tested per 28 08 00 before acceptance will be granted.
    c. Contractor shall provide the Record Documents per 28 05 00.
6. Recommendation for acceptance will be generated if all of the following conditions have been satisfied:
    a. All items are operational per the plans and specifications as demonstrated in the successful completion of the final acceptance testing.
    b. All items conform to the Contract Documents, the site specific drawings, and statement of work.
    c. Record drawings have been submitted and accepted.

END OF SECTION 28 13 00