

SECTION 32 31 11

MOTORIZED GATE OPERATOR

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section include the following:
 - 1. Motorized Gate Operators
 - 2. Photoelectric Sensors
 - 3. Access Control Keypad Pedestal
- B. Related Sections include the following:
 - 1. Division 3 – *Cast-in-Place Concrete*
 - 2. Division 26 – *Common Results for Electrical*
 - 3. Division 32 – *Chain-Link Fences*

1.3 REFERENCES

- A. National Electrical Manufacturers Association (NEMA): *NEMA ICS 6 - Industrial Control and Systems: Enclosures.*
- B. Underwriters Laboratories (UL): *UL 325 - Standard for Safety for Door, Drapery, Gate, Louver, and Window Operators and Systems.*
- C. Underwriters Laboratories (UL): *UL 991 - Standard for Tests for Safety-Related Controls Employing Solid-State Devices.*
- D. International Organization for Standardization: *ISO 9001 - Quality Management Systems.*
- E. NFPA 70, *National Electrical Code (Latest Edition)*

1.4 SUBMITTALS

- A. Product Data: Equipment list, system description, electrical wiring diagrams for installation, and manufacturer's data sheets on each product to be used, including:
 - 1. Manufacturer's instructions and recommendations
 - 2. Concrete foundation requirements and diagrams

- B. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, edge conditions, and accessories.
 - 1. Operation, installation, and maintenance manuals including wiring diagrams.
 - 2. Risers, layouts, and special wiring diagrams showing any changes to standard drawings.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and handle materials and products in strict compliance with manufacturer's instructions and industry standards.
- B. Store products indoors in manufacturer's original containers and packaging, with labels clearly identifying product name and manufacturer. Protect from damage.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Installation performed by factory authorized contractor specifically trained in gate operation systems of the type found within this section.
 - 1. Provide documentation of maintenance and repair service availability for emergency conditions.
 - 2. Provide quarterly maintenance for one year following Substantial Completion of the Project.

PART 2 - PRODUCTS

2.1 MANUFACTURER'S

- A. Available Motorized Gate Operator Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Liftmaster
 - 2. Or, Approved equal.

2.2 GATE OPERATORS

- A. Gate Operators: LiftMaster CSL24U (Basis-of-design or as selected by sliding gate manufacturer.)
- B. Gate operator shall be compliant with Class I, II, III and IV vehicular slide gate applications.
- C. Safety Inputs: Actively monitor (3) inputs per board (main board and expansion board) totaling (6) inputs with any combination of up to:
 - 1. Main Board:

- a. (1) Monitored Close Photo Eye input
 - b. (1) Monitored Open Photo Eye input
 - c. (1) Monitored Open Safety Edge or Open Photo Eye input
2. Expansion Board:
- a. (2) Monitored Safety Edge or Photo Eye inputs (selectable for Open or Close)
 - b. (1) Monitored Photo Eye input (selectable for Open or Close)
- D. Electrical Requirements:
1. 115V AC, single phase. Coordinate electrical requirements with Division 26.
- E. Motor:
1. 24V DC, with soft/start operation
 2. Duty cycle: Continuous duty
- F. Capacity:
1. 13-foot sliding gate, 6 feet high.
 2. 900 pounds.
 3. Verify cantilever sliding gate dimension and weights are within the capabilities of the motorized gate operator prior to ordering.
- G. Battery Backup:
1. Power Management system draws 14.8 mA when gate is idle with remote controls programmed
 2. Provide (2) 7 Ah batteries
 - a. Minimum of 208 cycles.
 - b. Minimum of 24 days of standby power
- H. Programmable Auxiliary Relays: (2) programmable relays with (6) settings per relay
1. Pre-warning or gate-in-motion sounder
 2. Switch on/off devices at open or Close Limits or while gate is in motion
 3. Tamper detection if gate is pushed off Close Limit
 4. Cycle quantity feedback
 5. Red/Green light to control gate traffic
- I. Quick close, Anti-Tailgate: Quickly secures property, preventing unauthorized access.
- J. Surge Suppression: Industrial strength on high and low voltage outputs. Protects against lightning strikes at a minimum 50-foot radius.
- K. Operating Temperature Range:
1. Without Heater: -4 degrees F (-20 degrees C) to 140 degrees F (60 degrees C)

2.3 DETECTOR LOOP

A. Detector Loop Cabling

1. Available Detector Loop Cabling Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Omnicable: IMSA 51-3, 14 AWG with XLPE type insulation
 - b. Or, Approved Equal

B. Detector Loop Sealant

1. Available Detector Loop Sealant Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. 3M: Detector Loop Sealant 5000, Black
 - b. Or, Approved Equal
2. Features:
 - a. Self-leveling
 - b. Durable
 - c. No mixing required
 - d. Total encapsulation of the detector wires
 - e. No linear shrinkage
 - f. Excellent resistance to massive physical, chemical and mechanical exposures

C. Foam Backer Rod

1. Polyethylene Backer Rod, closed cell, ASTM C509 / D1667 Grade.
2. Round, firm resilient, polyethylene extruded closed cell foam with water resistant outer skin.
3. Provides control depth for sealants

2.4 PHOTOELECTRIC SENSORS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Aomron/Omron – Heavy-Duty Retro-Reflective Photo Eye
2. Or, Approved equal
 - a. Submitted equal shall be submitted for proper review and approving. Submission shall be submitted (5) days prior closing date for questions.

B. Photoelectric Sensor characteristics

1. 24-240 VAC/DC
2. 35mA/125mA at 24VAC
3. NEMA 3, 4, 12 Outdoor Rating
4. 40 ft. sensing distance
5. 3 inch reflector

C. Mounting

1. Provide steel tubing, concrete, conduit, mounting bracket and steel tubing cap.
2. Refer to drawings for dimension
3. Align photoelectric sensor and reflector to properly detect vehicle traffic.

D. Control Wiring

1. Provide control wiring from photoelectric sensor to motorized gate operator.
2. Terminate control wiring at photoelectric sensor and motorized gate operator per manufacturer's instructions.

E. Locations

1. Photoelectric sensors shall be installed to provide the following controls:
 - a. Request to Exit
 - b. Safety Open
 - c. Close upon Exit

F. Operation:

1. Request to Exit
 - a. The Request to Exit photoelectric sensor shall signal motorized gate operator to open when photoelectric sensor beam is impeded by the presence of a vehicle.
2. Safety Open
 - a. The Safety Open photoelectric sensor shall signal motorized gate operator to reverse direct when attempting to close when photoelectric sensor beam is impeded.
3. Close upon Exit
 - a. The Close upon Exit photoelectric sensor shall signal motorized gate operator to close when photoelectric sensor beam is restored after being impeded by the presence of a vehicle.
 - b. The Close upon Exit photoelectric sensor shall not activate the motorized gate operator to open.

2.5 ACCESS CONTROL SYSTEM PEDESTAL

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Pedestal CEO, 42-3 series
2. Or, approved equal

B. Features:

1. Pedestal shall have 3" tube to accommodate 2" PVC conduit.
2. Provide keypad pedestal to serve access control keypad.
3. Pedestal shall include mounting base plate with bolt hole pattern.
4. Pedestal shall provide mounting height to accommodate code entry while seated in vehicle.
5. Pedestal shall accommodate steel housing for access control unit mounting.
6. Pedestal shall be vandal-resistant.
7. Finish shall be dark-bronze.

2.6 SQUARE STEEL HOUSING

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Pedestal CEO, MC-CS/SS-12 series
2. Or, approved equal

B. Features:

1. Sized to accommodate (2) Owner provide access control devices.
2. Bent and welded 16-gauge sheet metal steel.
3. Stainless Steel hinges
4. Finished using a washed phosphate detergent solution, powder coated at 400 degrees F and polyester TGIC, UV-protected powder coat finish.
5. Tapered hood for hand privacy.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, and other conditions affecting performance.

3.2 INSTALLATION

- A. Install motorized gate operator. Make all necessary mechanical connects to the new sliding gate via driven chain.
- B. Coordinate all electrical connections with Division 26.
- C. Coordinate proper installation prior to energizing equipment.
- D. Make all adjustment required for proper operation of the motorized gate operator.

- E. Coordinate Access Control Keypad, Access Control Keypad Pedestal, Photoelectric Sensors, Photoelectric Sensors Reflectors and Photoelectric Sensors pedestals with Division 26.

END OF SECTION

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