

SECTION 08731

AUTOMATIC DOOR OPERATORS - COMMERCIAL



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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Hoist-Type Door Operators:
  - 1. Hoist-type continuous-duty door operators for rolling doors, grilles, and industrial sectional doors with vertical or high lift (LiftMaster Model GH).

1.2 RELATED SECTIONS

- A. Section 06100 - Rough Carpentry: Installation and requirements for blocking and nailers.
- B. Section 16050 - Basic Electrical Materials and Methods: Installation and requirements for electrical connections.

1.3 REFERENCES

- A. National Electrical Manufacturers Association (NEMA): NEMA ICS 6 - Industrial Control and Systems: Enclosures.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
  - 4. Cleaning methods.
- C. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, edge conditions, and accessories.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging with labels intact until ready for installation.
- B. Schedule delivery of door operator so that spaces are sufficiently complete that door operators can be installed immediately upon delivery.

1.6 WARRANTY

- A. Manufacturer's standard limited 2-year warranty against material and manufacturing defects.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: LiftMaster; 845 Larch Avenue; Elmhurst, IL 60126-1196. Toll-Free: 800.282.6225. Email: specs@LiftMaster.com. Web: LiftMaster.com.
- B. Substitutions: Not permitted.

## 2.2 HOIST-TYPE DOOR OPERATORS

- A. Heavy Industrial-Duty Gear-Reduced Operator: LiftMaster GH Heavy Industrial-Duty Gear-Reduced Operator, continuous-duty high-starting torque motor with overload protection and emergency chain hoist with electric interlock.
  - 1. Electric Operator: Industrial-duty assembly, cULus listed and cULus labeled, with electric motor and factory-prewired motor controls, wormgear reduction unit, electric solenoid-actuated brake, manually operated chain hoist, 3-button open/close/stop control station, conduit-encased wiring from control circuit to motor, and accessories required for proper operation; operator shall be capable of driving door at a speed of approximately 8 to 9 inches (203 to 229 mm) per second.
    - a. Primary Speed Reduction Device: Wormgear-in-oil-bath gear reducer with synthetic "All Climate" oil with 43:1 to 45:1 speed reduction; permanently lubricated ball bearings on output shaft and output and door driven sprockets.
    - b. Brake: Electric solenoid-actuated brake capable of stopping and holding a door at any position.
    - c. Limit Switches: Fully adjustable, linear-driven limit mechanism synchronizing operator with door; low-friction nylon limit nuts fitted on threaded steel shaft that rotates on oil-tight self-lubricating bronze bushings; motor shall be removable without affecting limit switch settings.
    - d. Electric Motor: High-starting torque, continuous-duty, industrial-type motor protected against overload by current sensing and thermal overload devices. For single-phase applications, incoming voltage field-selectable between 115V and 230V, 60 Hz by properly positioning connector. For 3-phase applications, incoming voltage field-selectable between 208V, 230V and 460V, 60 Hz by properly positioning connector.
      - 1. Motor Specification:
        - a) 115/230V 60 Hz, single phase, 1/2 HP.
        - b) 115/230V 60 Hz, single phase, 3/4 HP.
        - c) 115/230V 60 Hz, single phase, 1 HP.
        - d) 115/230V 60 Hz, single phase, 1-1/2 HP.
        - e) 208/230/460V 60 Hz, 3-phase, 1/2 HP.
        - f) 208/230/460V 60 Hz, 3-phase, 3/4 HP.
        - g) 208/230/460V 60 Hz, 3-phase, 1 HP.
        - h) 208/230/460V 60 Hz, 3-phase, 1-1/2 HP.
        - i) 208/230/460V 60 Hz, 3-phase, 2 HP.
        - j) 208/230/460V 60 Hz, 3-phase, 3 HP.
        - k) 208/230V 60 Hz, 3-phase, 5 HP.
        - l) 460V 60 Hz, 3-phase, 5 HP.
        - m) 575V 60 Hz, 3-phase, 1/2 HP.
        - n) 575V 60 Hz, 3-phase, 3/4 HP.
        - o) 575V 60 Hz, 3-phase, 1 HP.
        - p) 575V 60 Hz, 3-phase, 1-1/2 HP.
        - q) 575V 60 Hz, 3-phase, 2 HP.
        - r) 575V 60 Hz, 3-phase, 3 HP.
        - s) 575V 60 Hz, 3-phase, 5 HP.
  - e. Motor Control and Enclosure: LiftMaster Logic 5.0 motor control shall be UL- approved microprocessor solid-state type and shall include the capability to select one of 7 wiring types; additional features shall include a maintenance

alert diagnostic system, programmable Timer-to-Close with timer defeat input, mid-stop programming capabilities and a maximum run timer to provide motor overrun protection; motor control shall be housed in a NEMA 1 enclosure integral to the operator and shall conform to ANSI/NEMA ICS 6. (5 HP motor does not have Logic control features.)

1. Radio Receiver: LiftMaster Logic 5.0 on-board, 3-channel receiver with standard external antenna; equipped to accept Security+ 2.0 rolling code technology remote controls and trinary DIP switch remote controls, with memory up to (30) 3-button remote controls (or 90 single-button remote controls) plus 30 wireless keypads, or an unlimited number of trinary DIP switch remote controls. Tri-band frequency (310/315/390 MHz) sends multiple radio signals to bypass radio interference. (Standard Security+ Radio Receiver for 5 HP operator.)
2. Internet Connectivity: MyQ technology.
  - a) 902 to 928 MHz.
  - b) 50-channel FHSS (Frequency Hopping Spread Spectrum).
  - c) LiftMaster 828LM Internet Gateway enables monitoring and control of door operators and lighting controls via Internet-enabled smartphone, tablet or computer.
  - d) Provides two-way communication between commercial door operator and MyQ accessories to enable remote open, close and monitoring of commercial door.
  - e) 5 HP operator does not have standard Internet connectivity.
3. Contactor-Style (Mechanical) Motor Starter, Control and Enclosure: Motor starter shall be an across-the-line, mechanically interlocked, magnetic-reversing contactor; motor control shall be housed in a NEMA 1 enclosure integral to the operator; control enclosures shall conform to ANSI/NEMA ICS 6. 5 HP operator offered in contactor-style (mechanical) only.
- f. 3-Button Control Station: 3-button station providing open/close/stop functionality shall be NEMA Type 1 with maintenance alert indicator to signal intervals for routine door and operator maintenance.
- g. Door Drive: Operator shall be equipped with roller chain and sprockets as specified below, an electrically interlocked, floor level disconnect, a chain hoist for manual operation and an electric solenoid-actuated brake to stop motor and hold the door in any position:
  1. Roller Chain and Sprocket: 50B40 door sprocket and #50 drive chain, motor rated up to 1 HP.
  2. Roller Chain and Sprockets: 50B60 door sprocket and #50 drive chain, motor rated from 1-1/2 HP to 2 HP.
  3. Roller Chain and Sprockets: 80B60 door sprocket and #80 drive chain, motor rated at 3 HP.
  4. Roller Chain and Sprockets: As required for 5HP based upon door specification.
2. Primary Entrapment Protection Devices:
  - a. NEMA 1 Monitored Photo Sensors: LiftMaster CPS-U Monitored Photo Eyes fully monitored, non-contact, infrared beam photo sensor system shall reverse, in conjunction with the LiftMaster Logic 5.0 operator, a closing door to the full open position when an obstruction is sensed; photo sensors shall be mounted no higher than 6 inches (152 mm) maximum above the floor.
  - b. NEMA 4 Monitored Photo Sensors: LiftMaster CPS-UN4 Monitored Photo Eyes (industrial thru-beam) fully monitored, non-contact, photo beam reversing photo sensor system with NEMA 4 watertight enclosure shall reverse, in conjunction with the LiftMaster Logic 5.0 operator, a closing door to the full open position when an obstruction is sensed; photo sensors shall be mounted no higher than 6 inches (152 mm) maximum above the floor.

- c. NEMA 4X Monitored Photo Sensors: LiftMaster CPS-OPEN4 Monitored Photo Eyes (commercial thru-beam) and CPS-RPEN4 Monitored Retro-reflective Photo Eyes, fully monitored, non-contact, photo beam reversing photo sensor system with NEMA 4X watertight/corrosion-resistant enclosure shall reverse, in conjunction with the LiftMaster Logic 5.0 operator, a closing door to the full open position when an obstruction is sensed; photo sensors shall be mounted no higher than 6 inches (152 mm) maximum above the floor.
  - d. NEMA 6 Monitored Optical Edge System (OES): Shall provide a means to attach a 2-wire monitored sensing edge to a LiftMaster Logic 5.0 operator for continuous monitoring purposes; the edge, in conjunction with the LiftMaster Logic 5.0 operators, shall reverse a closing door to the full open position when an obstruction is sensed; sensing edge ordered separately and can be field-cut to required length.
  - e. Monitored Sensing Edge Interface:
    - 1. LiftMaster CPS-MEI Monitored Sensing Edge shall provide a means to attach a 2-wire monitored sensing edge to a LiftMaster Logic 5.0 operator for continuous monitoring purposes; the edge, in conjunction with the LiftMaster Logic 5.0 operators, shall reverse a closing door to the full open position when an obstruction is sensed; sensing edge ordered separately and can be field-cut to required length.
    - 2. LiftMaster CPS-EI Monitored Sensing Edge shall provide a means to attach a 4-wire monitored sensing edge to a LiftMaster Logic 5.0 operator for continuous monitoring purposes; the edge, in conjunction with the LiftMaster Logic 5.0 operators, shall reverse a closing door to the full open position when an obstruction is sensed; sensing edge ordered separately.
  - f. Additional monitored primary entrapment protection devices may be added with the appropriate interface device or plug-in accessory card.
3. Ancillary Entrapment Protection Devices:
- a. Retro-reflective Photo Sensors: LiftMaster CPS-RN4 Retro-reflective Photo Eyes non-monitored, non-contact, infrared beam photo sensor with polarized reflector for use in conjunction with the LiftMaster CPS-EI Monitored Sensing Edge and monitored 4-wire sensing edge, shall reverse a closing door to the full open position when an obstruction is sensed; photo sensor shall be mounted no higher than 6 inches (152 mm) maximum and no lower than 4 inches (102 mm) minimum above the floor.
  - b. NEMA 6 Optical Edge System (OES): 2-wire non-monitored electric edge shall reverse a closing door to the full open position when an obstruction is sensed.
  - c. Non-Monitored Electric Sensing Edge: 2-wire non-monitored electric edge shall reverse a closing door to the full open position when an obstruction is sensed.
  - d. Pneumatic Sensing Edge: Pneumatic (air hose) sensing edge shall reverse a closing door to the full open position when an obstruction is sensed.
4. Accessories
- a. Open-Only Push Button: LiftMaster 02-401M Mushroom Button Control Station
  - b. Door-Position Indicator: LiftMaster RGL24LY Red/Green Traffic Light

## PART 3 EXECUTION

### 3.1 EXAMINATION AND PREPARATION

- A. Do not proceed with installation until substrates have been properly prepared and deviations from manufacturer's recommended tolerances are corrected.
- B. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for

the substrate under the project conditions. Commencement of installation constitutes acceptance of conditions.

### 3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions and in proper relationship with adjacent construction. Test for proper operation and adjust until satisfactory results are obtained. Demonstrate operation to owner's personnel.

### 3.3 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch up, repair or replace damaged products before Substantial Completion.

END OF SECTION