

3-Part Architectural Specifications

Electric Door Operator

Model: MSJ

Part 1 General

1.01 Description

A. Work Included: Supply and installation of an industrial heavy-duty V-belt drive Jackshaft type Electric Door Operator with chain hoist and solenoid brake, of size and capacity recommended by door manufacturer, as specified; as well as the necessary driving hardware and control accessories necessary for proper operation.

B. Mounting: To be wall mounted or shelf mounted or horizontal top of hood mounted on the right (or on the left) of the door. Hoist position on the right of operator (or on the left of operator).

1.02 Related Work

A. Door preparation, miscellaneous or structural metal work, field electrical wiring, wires, disconnect switches, fuses and conduit are in the scope of work of other sections or trades.

1.03 Submittals

A. Submit manufacturer's product data and installation instructions for each type of operator. Include both published data and any specific data prepared for this project.

1.04 Delivery, Storage and Handling

A. Product shall be delivered to the project site in manufacturer's original packaging.

B. Product shall be handled and stored to prevent damage to materials, finishes and operating mechanisms.

1.05 Warranty

A. Operator shall be warranted to be free from defects in material and workmanship for a period of 2 years per our [Terms and Conditions of Sale](#).

Part 2 Product

2.01 Manufacturer

A. Acceptable Product: Operator model MSJ as manufactured by 9141-0720 Québec Inc. (DBA Manaras-Opera), part of the Canimex Group: 136 Oneida Drive, Pointe-Claire, Québec, Canada H9R1A8. Tel: (800) 361-2260. Fax: (888) 626-0606. www.manaras.com. Email: info@manaras.com.

B. Substitutions: Not permitted.

2.02 Operator

A. Motor: To be rated ___ HP, ___ Volts, ___ Phase, 60Hz high starting torque, continuous-duty single phase capacitor start or 3 phase motor, open drip proof, protected against overload by a built-in thermal protection with automatic reset (3 phase motors) or a current sensing device with manual reset (1 phase motors).

Note to Architects:

Also available with 50Hz 220V 1 phase and 380V 3 phase motor. Motor shall be separate from reduction mechanism for ease of maintenance.

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B. Reduction: First step in reduction to be Bx section V-belt drive additional steps by chain and sprockets giving an output shaft speed of 46 rpm. Input steel shaft to be 3/4" (19.05mm) in diameter and supported by cast iron pillow block bearings. Intermediary and output steel shafts to be 1" (25.4mm) in diameter with 1/4" keyway and supported by cast iron pillow block bearings.

C. Drive: Door shaft to be driven by a #50 roller chain and 50B12 sprocket combination to provide door travel of 6" (152.4mm) to 12" (304.8mm) per second.

D. Clutch: To be friction type, positioned on input shaft, adjustable from outside.

E. Brake: To be an electrically activated drum type solenoid brake.

F. Manual Operation: To be by a chain hoist with electrical cut-off and floor level engagement device for manual operation. Hoist on right is standard.

G. Electrical Enclosure: All electrical components to be in a NEMA 1 enclosure. The enclosure's cover to be hinged. Optional Nema 4/12, Nema 4X and Nema 7/9 enclosures.

H. Limit Switches: To be rotary-type limit switch with oil-impregnated steel cams, and commercial grade switches. Systems to be enclosed in electrical control box, and limit shaft to be supported in frame by self-lubricating bronze bushings. System to be provided with Accu-cam® precise and quick one-handed adjustment feature. Limit switches to remain in time when there is a manual operation or after the motor has been removed. Designed to prevent any lever breakage when limits have been exceeded during manual operation.

I. Corrosion Protection: Frame and control enclosure to be protected by baked on, long lasting enamel finish. Polymer control box cover. Internal shafts to be protected by yellow chromate coating.

Option #1: Control Circuit with 5V_{DC} Logic Electronic Control with Monitoring Function ("M" version)

J. Motor Control: to be a 24V_{DC} relaying and 5V_{DC} logic circuit with a 40VA class II transformer, non-volatile memory. Features included: On-board radio receiver, 1.5s delay on reverse, programmable maximum run timer, mid-stop, timer to close (suspension possible from floor level), independent input loop terminal, advance close system, test buttons, reverse wiring detection and door lock sensor. Operating mode selection to be possible on site during or after installation. To provide the monitoring of Primary External Entrapment Protection Devices. To include compatible and approved monitored photo cells. Terminal strip to allow connection of 3-button stations (one supplied with the operator), non-monitored sensing edges, non-monitored photo cells, one push-button radio control (external strip), ceiling pull switches, key switches, loop detectors, external interlocks. 2A fuse protected 24V_{AC} output is available for accessory power supply.

K. Operating Mode: To be C2 (or B2 or D1 or E2 or T or TS, see appendix for description).

L. Standards: Operator to be certified CAN-CSA C22.2 No.247-14 and ANSI/CAN/UL 325:2017 by a National Recognized Testing Laboratory or an Accredited Certification Body, such as UL or CSA, and labeled in accordance.

Note to Architects:

Motorized doors can cause serious injuries or death. Manaras-Opera strongly recommends the use of entrapment protection systems, especially in case of momentary contact to close as in B2, T or TS operating modes.

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M. Control Accessories to be Supplied: 3 push-button station, open close key switch, one-button radio control, 3-button radio control, monitored electric sensing edge, monitored through beam photo cells, monitored retro reflective photo cells, monitored light curtains, non-monitored electric sensing edge, non-monitored pneumatic sensing edge, non-monitored through beam photo cells, non-monitored retro-reflective photo cells, non-monitored light-curtains.

Option #2: Control Circuit with 5V_{DC} Logic Electronic Control without Monitoring Function (“E” version)

N. Motor Control: To be a 24V_{DC} relaying and 5V_{DC} logic circuit with a 40VA class II transformer, non-volatile memory. Features included: On-board radio receiver, 1.5s delay on reverse, programmable maximum run timer, mid-stop, timer-to-close (suspension possible from floor level), independent input loop terminal, advance close system, test buttons, reverse wiring detection and door lock sensor. Operating mode selection to be possible on site during or after installation. Does not provide monitoring function. Terminal strip to allow connection of 3-button stations (one supplied with the operator), sensing edges, photo cells, one push-button radio control (external strip), ceiling pull and key switches, loop detectors, external interlocks. 2A fuse protected 24V_{AC} output is available for accessory power supply.

O. Operating Mode: to be C2 (or B2 or D1 or E2 or T or TS, see appendix for description).

P. Standards: Operator to be certified CAN/CSA C22.2-247.92 and ANSI/UL325 5th Ed. PRIOR to August 2010 revision by a National Recognized Testing Laboratory or an Accredited Certification Body, such as UL or CSA.

Note to Architects:

Motorized doors can cause serious injuries or death. Manaras-Opera strongly recommends the use of entrapment protection systems, especially in case of momentary contact to close as in B2, T or TS operating modes.

Q. Control Accessories to be Supplied: 3 push-button station, open close key switch, one-button radio control, 3-button radio control, non-monitored electric sensing edge, non-monitored pneumatic sensing edge, non-monitored through beam photo cells, non-monitored retro-reflective photo cells, non-monitored light-curtains.

Option #3: 24V Electro-Mechanical Control Circuit

R. Motor Control: to be 24V_{AC} control circuit, 40VA class II transformer, fuse protected on output, heavy-duty across-the-line linear reversing contactor with mechanical interlock. Pre-wired to an angle terminal for connection of 3-button stations (one supplied with the operator), non-monitored sensing edges, non-monitored photo cells, one push-button radio control (external strip), ceiling pull and key switches, loop detectors, external interlocks, plug-in radio card and auxiliary output module. 2A fuse protected 24V_{AC} output is available for accessory power supply.

S: Operating Mode: to be C2 (or B2 or D1 or E2 or TS, see appendix for description).

Optional: 1.5s delay on reverse, timer to close, double limits, etc...

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T. Standards: Operator to be certified CAN/CSA C22.2-247.92 and ANSI/UL325 5th Ed. PRIOR to August 2010 revision by a National Recognized Testing Laboratory or an Accredited Certification Body, such as UL or CSA.

Note to Architects:

Motorized doors can cause serious injuries or death. Manaras-Opera strongly recommends the use of entrapment protection systems, especially in case of momentary contact to close as in B2, T or TS operating modes.

U. Control Accessories to be Supplied: 3 push-button station, open close key switch, one-button radio control, 3-button radio control, non-monitored electric sensing edge, non-monitored pneumatic sensing edge, non-monitored through beam photo cells, non-monitored retro-reflective photo cells, non-monitored light-curtains.

Part 3 Execution

3.01 Installation

A. Installation: to be in accordance with Manaras-Opera instructions and in compliance with federal, state or local regulations.

Appendix: Wiring Type Descriptions

C2 Wiring (0): Function: Factory preset as per UL325. Momentary contact to open and stop, constant-pressure-to-close with a 3-push-button station. Activation of entrapment protection devices⁽¹⁾ will reverse the door while closing. Auxiliary devices function as an open control and to reverse the door during closing.

B2 Wiring (1): Function: Momentary contact to open, close, and stop, with a 3-push-button station. Activation of entrapment protection devices⁽¹⁾ will reverse the door while closing. Auxiliary devices function as open-close controls and reverse the door during closing⁽²⁾.

D1 Wiring (2): Function: Constant-pressure-to-open and constant-pressure-to-close. Activation of entrapment protection devices⁽¹⁾ will stop the door during closing.

E2 Wiring (3): Function: Momentary contact to open and constant-pressure-to-close. Release of close button or activation of entrapment protection devices⁽¹⁾ will reverse the door to the fully opened position.

T Wiring (4): Function: Momentary contact to open, close and stop. Only applicable with the timer-to-close. If the entrapment protection devices⁽¹⁾ are activated while the door is closing, the door will reverse and will not close by the timer-to-close (TTC). TTC will also be disabled if the chain hoist is engaged or if the stop is activated before the elapsed time. TTC will resume its normal operation only after the door is fully closed. During TTC timer count down, any input from the radio, open, loop or a power outage will reset the timer. During TTC count down, the close button or SBC will close the door immediately⁽²⁾.

TS Wiring (5): Function: Momentary contact to open, close and stop. Only applicable with the timer-to-close. If the entrapment protection devices⁽¹⁾ are activated while the door is closing, the door will reverse and will close by the timer-to-close (TTC). During TTC timer count down, any input from

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the radio, open, loop, stop, entrapment device⁽¹⁾, or chain hoist engagement, or a power outage will reset the timer. During TTC count down, the close button or SBC will close the door immediately⁽²⁾.

⁽¹⁾ Applies to monitored or non-monitored entrapment protection devices.

⁽²⁾ If the monitored entrapment protection device or loop input remains activated, the door can be closed by constant-pressure on the close button.