



SECTION 08 71 13
AUTOMATIC DOOR OPERATORS

This section includes automatic door operators of stock configuration and hardware. This specification may be edited for POWAIRDOR automatic door operators.

This section includes performance, proprietary, and descriptive type specifications; edit text to avoid conflicting requirements. For more product information, contact: www.upwardor.com

PART 1 General

1.1 SECTION INCLUDES

*** Note to specifier: Select the components or assemblies that are intended to be part of the content of this section and will not be included in other sections. ***

- 1.1.1 Carwash electro-pneumatic door control panel. Upwardor model PA15-00017-00.
- 1.1.2 Carwash electro-pneumatic door control panel with timer to close. Upwardor model PA15-00024-00.
- 1.1.3 Trolley type operator for commercial, standard lift car wash sectional overhead doors
- 1.1.4 Side mount type operator for commercial, high lift car wash sectional overhead doors
- 1.1.5 Electro-pneumatic door control panel. Upwardor model PA17-00001-00.
- 1.1.6 Trolley type operator for commercial, standard lift sectional overhead doors
- 1.1.7 Side mount type operator for commercial, high lift and vertical lift sectional overhead doors

1.2 RELATED SECTIONS

*** Note to specifier: Indicate those sections that inter-rely on this section. The listing below is only partial and should be edited to include those sections specific to the project that describe subjects or products that affect this section directly. ***

- 1.2.1 22 06 15 Schedules for General Service Compressed-Air Equipment
- 1.2.2 22 15 13 General Service Compressed-Air Piping
- 1.2.3 26 05 00 Common Work Results for Electrical
- 1.2.4 28 14 13 Access Control Door Controllers
- 1.2.5 28 15 00 Access Control Hardware Devices

1.3 REFERENCES

*** Note to specifier: Edit this article after editing the rest of this section. Only list reference standards below that are included within the text of this section, when edited for a project specification – delete other references that do not apply. ***

- 1.3.1 UL325 Standard for Safety for Door, Drapery, Gate, Louver, and Window. Operators and Systems, Fifth Edition
- 1.3.2 National Electrical Code (NEC)
- 1.3.3 Canadian Standards Association (CSA)
- 1.3.4 International Standards Organization (ISO)
- 1.3.5 International Electrotechnical Commission (IEC)
- 1.3.6 Door & Access Manufacturers Association International (DASMA)

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1.4 SYSTEM DESCRIPTION

- 1.4.1 Pneumatic door operator control panel.
- 1.4.2 Rod-less pneumatic cylinder with mounting kit for:
 - 1.4.2.1 Overhead trolley configuration for standard lift and low headroom door applications.
 - 1.4.2.2 Side mount configuration for high lift and vertical lift door applications.

1.5 DELIVERY AND STORAGE

- 1.5.1 Schedule for delivery of materials to arrive upon completion of the doors the operators are to be installed on.
- 1.5.2 If storage is required, keep materials in their original packaging. Place indoors in a dry, secure space. Materials not to be removed until at time of installation.

1.6 SUBMITTALS

- 1.6.1 Submit under provisions of section 01 30 00, Administrative Requirements.
- 1.6.2 Shop drawings to show layout and mounting of operator and its related components according door dimensions, lift type and required clearances.
- 1.6.3 Manufacturer's warranty including required preventative maintenance required within warranty period.
- 1.6.4 Product manuals and data sheets according to the specified operator to include accessories/devices listed under article 2.9.

1.7 WARRANTY

- 1.7.1 Section 01 78 10, Warranties.
- 1.7.2 Provide manufacturers' limited warranty free of material defects and workmanship for a period of 1 year.

PART 2 Product

2.1 MANUFACTURERS

- 2.1.1 PowAirDor pneumatic sectional overhead door operator.
- 2.1.2 Acceptable manufacturer: Upwardor Inc., 8025 Lawson Road, Milton, ON, L9T 5C4; Tel. Toll free: 1-800-667-3367; Tel.: 905-876-3667; email: info@upwardor.com; Web: www.upwardor.com
- 2.1.3 Substitutions: Not permitted.
- 2.1.4 Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 – Product Requirements.

*** Note to specifier:

- When specifying article 2.2, refer to door opening heights and lift types to select and include one or more of the following articles, 2.4.1 through to 2.5.3. Delete all other articles not required under this section.
- When specifying article 2.3, refer to door opening heights and lift types to select and include one or more of the following articles, 2.4.1 through to 2.5.3. Delete all other articles not required under this section.
- When specifying article 2.6, refer to door opening heights and lift types to select and include one or more of the following articles, 2.7.1 through to 2.8.4. Delete all other articles not required under this section. ***

2.2 CARWASH ELECTRO-PNEUMATIC DOOR CONTROL PANEL. Upwardor model PA15-00017-00.

- 2.2.1 Model: PA15-00017-00 pneumatic door operator package as manufactured by Upwardor Inc.

- 2.2.2 Control panel: PA15-00017-00 electro/pneumatic door control panel with field inspection label according to laws and regulations as required in region of installation.
 - 2.2.3 Power supply primary to receive 120VAC, 60Hz, 0.35A, single phase “clean” line power from a protected source.
 - 2.2.4 Hardwired circuit with isolated screw-type terminals.
 - 2.2.5 Electro/pneumatic valve and speed control assembly. Speed control assembly to allow separate control of open/close speeds.
 - 2.2.6 Cover mounted Push buttons for manual control located on cover of the control panel for open/close.
 - 2.2.7 1 x “Primary” safety photo eye connection (monitored) as per UL-325 with pluggable terminal.
 - 2.2.8 Open/Close inputs for “dry” contact switching by external device.
 - 2.2.9 1 x Accessory installation kit (Upwardor part number PA16-00079-00) to include:
 - 2.2.9.1 1 x F.R.L. (Filter, Regulator, Lubricator) assembly.
 - 2.2.9.2 1 x 3/8” tube x 1/2”NPT push to connect straight fitting.
 - 2.2.9.3 1 x 3/8” tube x 3/8”NPT push to connect straight fitting.
 - 2.2.9.4 1 x 3/8” tube x 3/8”NPT push to connect elbow fitting.
 - 2.2.9.5 1 x Three-way pneumatic shut-off ball valve.
 - 2.2.9.6 50’ x 3/8” Poly tubing for pneumatic connections after the mechanical tubing.
 - 2.2.9.7 1 x Bottle PAD lubricant (250ml)
 - 2.2.10 Thru-beam: Telco SM7000 series for single beam coverage outside of door travel. *Note: To be mounted no higher than 6” above finished floor, if coverage above 6” is needed a second set is required.*
 - 2.2.11 Insure door is properly balanced and travels freely throughout range of motion to insure optimum operator performance for an opening speed of 3.5ft. /Second and a closing speed of 2 ft. /second.
- 2.3 CARWASH ELECTRO-PNEUMATIC DOOR CONTROL PANEL WITH TIMER TO CLOSE.
Upwardor model PA15-00024-00.
- 2.3.1 Model: PA15-00024-00 pneumatic door operator package as manufactured by Upwardor Inc.
 - 2.3.2 Control panel: PA15-00024-00 electro/pneumatic door control panel with field inspection label according to laws and regulations as required in region of installation.
 - 2.3.3 Power supply primary to receive 120VAC, 60Hz, 0.35A, single phase “clean” line power from a protected source.
 - 2.3.4 Hardwired circuit with isolated screw-type terminals.
 - 2.3.5 Electro/pneumatic valve and speed control assembly. Speed control assembly to allow separate control of open/close speeds.
 - 2.3.6 Cover mounted Push buttons for manual control located on cover of the control panel for open/close.
 - 2.3.7 Adjustable timer to close initiated at door open limit and post obstruction of the primary photo eyes.
 - 2.3.8 1 x “Primary” safety photo eye connection (monitored) as per UL-325 with pluggable terminal.
 - 2.3.9 1 x “Secondary” photo eye connection for advance open activation.
 - 2.3.10 Open/Close inputs for “dry” contact switching by external device.
 - 2.3.11 1 x Accessory installation kit (Upwardor part number PA16-00079-00) to include:
 - 2.3.11.1 1 x F.R.L. (Filter, Regulator, Lubricator) assembly.
 - 2.3.11.2 1 x 3/8” tube x 1/2”NPT push to connect straight fitting.
 - 2.3.11.3 1 x 3/8” tube x 3/8”NPT push to connect straight fitting.

- 2.3.11.4 1 x 3/8" tube x 3/8"NPT push to connect elbow fitting.
- 2.3.11.5 1 x Three-way pneumatic shut-off ball valve.
- 2.3.11.6 50' x 3/8" Poly tubing for pneumatic connections after the mechanical tubing.
- 2.3.11.7 1 x Bottle PAD lubricant (250ml).
- 2.3.12 Thru-beam: Telco SM7000 series for single beam coverage outside of door travel. *Note: To be mounted no higher than 6" above finished floor, if coverage above 6" is needed a second set is required.*
- 2.3.13 Insure door is properly balanced and travels freely throughout range of motion to insure optimum operator performance for an opening speed of 3.5ft. /Second and a closing speed of 2 ft. /second.

2.4 TROLLEY TYPE OPERATOR FOR COMMERCIAL, STANDARD LIFT CARWASH SECTIONAL OVERHEAD DOORS.

- 2.4.1 40mm rod less pneumatic cylinder with 102" (2590mm) stroke to open door 96" (2438mm). Upwardor part number PA11-00010-01.
 - 2.4.1.1 Drilled and tapped #10-32 holes 30" (762mm) from either end.
 - 2.4.1.2 1 x Cushion block kit for adjustable open/close slow down (Cushion) speeds 30" (243mm) at end of stroke (Upwardor part number PA16-00200-00).
 - 2.4.1.3 1 x Trolley mounting kit (Upwardor part number PA17-00070-00) for overhead mounting of the pneumatic cylinder center of the door.

Or

- 2.4.2 40mm rod less pneumatic cylinder with 129" (3276mm) stroke to open door 120" (3048mm). Upwardor part number PA11-00025-01.
 - 2.4.2.1 Drilled and tapped #10-32 holes 30" (762mm) from either end.
 - 2.4.2.2 1 x Cushion block kit for adjustable open/close slow down (Cushion) speeds 30" (243mm) at end of stroke (Upwardor part number PA16-00200-00).
 - 2.4.2.3 1 x Trolley mounting kit (Upwardor part number PA17-00070-00) for overhead mounting of the pneumatic cylinder center of the door.

Or

- 2.4.3 40mm rod less pneumatic cylinder with 153" (3886mm) stroke to open door 144" (3657mm). Upwardor part number PA11-00010-01.
 - 2.4.3.1 Drilled and tapped #10-32 holes 30" (762mm) from either end.
 - 2.4.3.2 1 x Cushion block kit for adjustable open/close slow down (Cushion) speeds 30" (243mm) at end of stroke (Upwardor part number PA16-00200-00).
 - 2.4.3.3 1 x Trolley mounting kit (Upwardor part number PA17-00070-00) for overhead mounting of the pneumatic cylinder center of the door.

2.5 SIDE MOUNT TYPE OPERATOR FOR COMMERCIAL, HIGH LIFT AND VERTICAL LIFT CARWASH SECTIONAL OVERHEAD DOORS.

- 2.5.1 40mm rod less pneumatic cylinder with 102" (2590mm) stroke to open door 102" (2590mm). Upwardor part number PA11-00010-01.
 - 2.5.1.1 Drilled and tapped #10-32 holes 30" (762mm) from either end.
 - 2.5.1.2 1 x Cushion block kit for adjustable open/close slow down (Cushion) speeds 30" (243mm) at end of stroke (Upwardor part number PA16-00200-00).
 - 2.5.1.3 1 x Side mount mounting kit (Upwardor part number PA17-00066-00) for outside of track mounting of the pneumatic cylinder center of the door.

Or

- 2.5.2 40mm rod less pneumatic cylinder with 129" (3276mm) stroke to open door 129" (3276mm). Upwardor part number PA11-00025-01.
 - 2.5.2.1 Drilled and tapped #10-32 holes 30" (762mm) from either end.
 - 2.5.2.2 1 x Cushion block kit for adjustable open/close slow down (Cushion) speeds 30" (243mm) at end of stroke (Upwardor part number PA16-00200-00).
 - 2.5.2.3 1 x Side mount mounting kit (Upwardor part number PA17-00066-00) for outside of track mounting of the pneumatic cylinder center of the door.
- Or
- 2.5.3 40mm rod less pneumatic cylinder with 153" (3886mm) stroke to open door 153" (3886mm). Upwardor part number PA11-00010-01.
 - 2.5.3.1 Drilled and tapped #10-32 holes 30" (762mm) from either end.
 - 2.5.3.2 1 x Cushion block kit for adjustable open/close slow down (Cushion) speeds 30" (243mm) at end of stroke (Upwardor part number PA16-00200-00).
 - 2.5.3.3 1 x Side mount mounting kit (Upwardor part number PA17-00066-00) for outside of track mounting of the pneumatic cylinder center of the door.
- 2.6 ELECTRO-PNEUMATIC DOOR CONTROL PANEL. Upwardor model PA17-00003-00.
 - 2.6.1 Model: PA17-00003-00 pneumatic door operator package as manufactured by Upwardor Inc.
 - 2.6.2 Control panel: PA17-00001-00 electro/pneumatic door control panel with field inspection label according to laws and regulations as required in region of installation.
 - 2.6.3 Power supply primary to receive 120-240VAC, 50/60Hz, 0.8-0.55A, single phase "clean" line power from a protected source.
 - 2.6.4 Printed circuit logic board with mono-chromatic display screen and pluggable terminals for accessory connections.
 - 2.6.5 Manifold type electro/pneumatic valve and speed control assembly. Speed control assembly to allow separate control of open/close and open/close "cushioning" speeds.
 - 2.6.6 Push buttons for manual control located on cover of the control panel for open/close/stop and automatic/manual function selection.
 - 2.6.7 1 x "Primary" safety photo eye connection (monitored) as per UL-325 with pluggable terminal. 1 x "Secondary" photo eye connection (non-monitored), menu selectable functions with pluggable terminal.
 - 2.6.8 4 x 24vdc Accessory inputs, menu selectable functions with pluggable terminals.
 - 2.6.9 1 x "Dry" or 24vdc "wet" output (N.O.), menu selectable functions with pluggable terminal.
 - 2.6.10 1 x 24vdc Red/Green traffic light control output, menu selectable functions with pluggable terminal.
 - 2.6.11 1 x 24vdc Remote receiver input, menu selectable functions with pluggable terminal.
 - 2.6.12 1 x 24vdc External pushbutton input for open/close/stop and automatic/manual function selection with pluggable terminal.
 - 2.6.13 1 x Encoder with prefabricated cable (25ft.) for mounting to 1" spring shaft.
 - 2.6.14 1 x F.R.L. (Filter, Regulator, Lubricator) assembly.
 - 2.6.15 1 x Three-way pneumatic shut-off ball valve.
 - 2.6.16 50' x ½" Poly tubing for pneumatic connections after the mechanical tubing.
 - 2.6.17 1 x Bottle PAD lubricant (250ml)

*** Note to specifier: Specify one of the following sub-articles under article 2.6.18. Options described in 2.6.18.2 and 2.6.18.3 must be mounted 6" above surface of the floor as per UL-325 and DASMA TDS-364. If detection range is required to extend above the 6" specify one of the sub-articles as a required secondary sensor. Delete the sub-articles not required. ***

- 2.6.18 Safety photo eyes (Mandatory for Primary, optional for Secondary):
- 2.6.18.1 Light curtains: Telco SG13 series for 6' of continuous vertical coverage within door travel.
- Or
- 2.6.18.2 Thru-beam: Telco SM7000 series for single beam coverage outside of door travel. *Note: To be mounted no higher than 6" above finished floor, if coverage above 6" is needed a second set is required for connection to Secondary input.*
- Or
- 2.6.18.3 Polarized reflective: Telco SP2000 series for polarized reflective single beam coverage outside of door travel. *Note: To be mounted no higher than 6" above finished floor, if coverage above 6" is needed a second set is required for connection to Secondary input.*
- 2.6.19 Incorporated anti-entrapment function for reversal of door upon contact with obstruction on closing.
- 2.6.20 Incorporated "timer to close" with menu selectable functions and delay.
- 2.6.21 Incorporated "timer to open" with menu selectable functions and delay.
- 2.6.22 Menu adjustable mid-stop and open limit.
- 2.6.23 Menu adjustable "cushion limits".
- 2.6.24 Insure door is properly balanced and travels freely throughout range of motion to insure optimum operator performance for an opening speed of 3.5ft/second and a closing speed of 2ft/second.

2.7 TROLLEY TYPE OPERATOR FOR COMMERCIAL, STANDARD LIFT AND LOW HEADROOM SECTIONAL OVERHEAD DOORS.

- 2.7.1 40mm rod less pneumatic cylinder with 102" (2590mm) stroke to open door up to 96" (2438mm). Upwardor part number PA11-00102-00.
- 2.7.1.1 1 x Trolley mounting kit (Upwardor part number PA17-00070-00) for overhead mounting of the pneumatic cylinder center of the door.
- Or
- 2.7.2 40mm rod less pneumatic cylinder with 129" (3276mm) stroke to open door up to 120" (3048mm). Upwardor part number PA11-00129-00.
- 2.7.2.1 1 x Trolley mounting kit (Upwardor part number PA17-00070-00) for overhead mounting of the pneumatic cylinder center of the door.
- Or
- 2.7.3 40mm rod less pneumatic cylinder with 153" (3886mm) stroke to open door up to 144" (3657mm). Upwardor part number PA11-00153-00.
- 2.7.3.1 1 x Trolley mounting kit (Upwardor part number PA17-00070-00) for overhead mounting of the pneumatic cylinder center of the door.
- Or
- 2.7.4 40mm rod less pneumatic cylinder with 177" (4495mm) stroke to open door up to 168" (4267mm). Upwardor part number PA11-00177-00.
- 2.7.4.1 1 x Trolley mounting kit (Upwardor part number PA17-00070-00) for overhead mounting.

2.8 SIDE MOUNT TYPE OPERATOR FOR COMMERCIAL, HIGH LIFT AND VERTICAL LIFT SECTIONAL OVERHEAD DOORS.

2.8.1 40mm rod less pneumatic cylinder with 102" (2590mm) stroke to open door up to 102" (2590mm). Upwardor part number PA11-00102-00.

2.8.1.1 1 x Side mount mounting kit (Upwardor part number PA17-00066-00) for outside of track mounting of the pneumatic cylinder center of the door.

Or

2.8.2 40mm rod less pneumatic cylinder with 129" (3276mm) stroke to open door up to 129" (3276mm). Upwardor part number PA11-00129-00.

2.8.2.1 1 x Side mount mounting kit (Upwardor part number PA17-00066-00) for outside of track mounting of the pneumatic cylinder center of the door.

Or

2.8.3 40mm rod less pneumatic cylinder with 153" (3886mm) stroke to open door up to 153" (3886mm). Upwardor part number PA11-00153-00.

2.8.3.1 1 x Side mount mounting kit (Upwardor part number PA17-00066-00) for outside of track mounting of the pneumatic cylinder center of the door.

Or

2.8.4 40mm rod less pneumatic cylinder with 177" (3886mm) stroke to open door up to 177" (3886mm). Upwardor part number PA11-00177-00.

2.8.4.1 1 x Side mount mounting kit (Upwardor part number PA17-00066-00) for outside of track mounting of the pneumatic cylinder center of the door.

2.9 ACCESSORIES

*** Note to specifier: The following is a list of common sensors used in accessory for automatic operation of the door operator. Depending on the site and application requirements one or more of these sensors may be required for efficient and safe means of building access and traffic control. Options are not limited to the ones listed under article 2.9. It is recommended to insure any required sensors are suitable for their intended purpose and that they are certified according to the applicable governing laws which may apply. Remove the options not required. ***

2.9.1 In ground loop and loop detector for vehicle detection.

2.9.2 Pushbutton sub-station.

2.9.3 Motion sensor for vehicle detection.

2.9.4 Proximity sensor for vehicle detection.

2.9.5 Combination Motion and Proximity sensor for vehicle detection.

2.9.6 Remote pushbutton and remote pushbutton receiver.

2.9.7 Traffic lights for visual signaling.

2.9.8 Laser scanner for advanced automatic detection of vehicles and pedestrians.

2.9.9 Keypad

PART 3 Execution

3.1 EXAMINATION

3.1.1 Remove all components from packaging and inspect for any damage in shipment, verify all components and quantities.

3.1.2 Inspect door for correct balance, free movement in travel, correct size and configuration with appropriate clearances around the door and its components.

3.1.3 Verify all mounting surfaces are prepared and of good construction and appropriate material for fastening.

3.2 PREPARATION

- 3.2.1 Clean all mounting surfaces.
- 3.2.2 Keep all materials to be installed in a clean space outside of the immediate area of installation.
- 3.2.3 Installer to insure they have all of the necessary tools and medium of fasteners prior to installation.
- 3.2.4 Installer to insure the door is installed according to the manufacturers' instructions, is balanced through its full range of travel and is of the correct lift type for the specified operator configuration.

3.3 INSTALLATION

- 3.3.1 Refer to manual and manufacturer's instructions.
- 3.3.2 Mount electro-pneumatic control panel and related accessories.
- 3.3.3 Install related components to the cylinder and mounting assembly.
- 3.3.4 Mechanical trade to provide sufficient source of compressed air. Source from mechanical pipe to be placed close to location of the control panel and terminated with the three way ball valve that is provided.
- 3.3.5 Electrical trade to provide and connect appropriate source of primary electrical power.
- 3.3.6 Electrical trade to run necessary conduit for low voltage connection of all sensors and safety devices.
- 3.3.7 Make all necessary low voltage connections with stranded wire of appropriate gauge. Insure terminations are tight with no protruding, bare wire and loose strands.
- 3.3.8 Make all pneumatic connections from the mechanical pipe to the control panel and cylinder with the provided polyurethane tubing. Insure tubing is cut clean and straight prior to making connection with the push to connect fittings.
- 3.3.9 Commission door and operator as per instructions in the manual.

3.4 CLEANING

- 3.4.1 Clean control panel with moist paper towel or soft cloth. Do not apply solvents and degreasers to the enclosure and its' interior components. Avoid cleaning printed circuit.
- 3.4.2 Clean cylinder with paper towel or soft cloth and soapy water. Wipe away from the cover strip and traveler to avoid internal contamination. Do not apply solvents and degreasers to the cylinder.

3.5 PROTECTION OF FINISHED WORK

- 3.5.1 Lockout accessibility and operation to untrained personnel.
- 3.5.2 Leave operator in manual operation or disable automatic functions.
- 3.5.3 Cover all materials to protect from painting and other work which may occur after installation. Remove coverings prior to building completion.

END OF SECTION