



All-O-Matic, Inc.  
 7820 Gloria Avenue  
 Van Nuys, California, 91406  
 Phone: (818) 787-1988  
 FAX: (818) 787-2214  
 Email: [info@allomatic.net](mailto:info@allomatic.net)  
 Website: [allomatic.net](http://allomatic.net)

This Manu-Spec® utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat*™, *SectionFormat*™ and *PageFormat*™. A Manu-Spec is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets [ ]; delete optional text in final copy of specification. Specifier Notes precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate product model numbers, styles and types are used in Specifier Notes and in the specification text Article titled "Acceptable Material." Metric conversion, where used, is soft metric conversion.

This Manu-Spec specifies automatic swinging gate operators and accessories for residential, commercial, and industrial use.

## 32 31 11 GATE OPERATORS

### PART 1 GENERAL

#### 1.1 SUMMARY

**Specifier Note: Retain and edit the following Paragraph to suit type of gate operator being specified.**

- A. Section Includes: This Section specifies automatic swinging gate operators and accessories for [residential] [commercial] [industrial] use to ULC 325 Class [I] [II] [III] [IV].

**Specifier Note: Revise Paragraph below to suit project requirements. Add section numbers and titles as recommended by CSI MasterFormat and specifiers practice.**

- B. Related Requirements:

**Specifier Note: Include in this Paragraph only those sections and documents that directly affect the work of this section. If a reader of this section could reasonably expect to find a product or component specified in this section, but it is actually specified elsewhere, then the related section number(s) should be listed in the Subparagraph below. Do not include Division 00 documents or Division 01 sections since it is assumed that all technical sections are related to all project Division 00 documents and Division 01 sections to some degree. Refer to other documents with caution since referencing them may cause them to be considered part of the Contract.**

1. Section [03 30 00 - Cast-in Place Concrete: footings].
2. Section [03 30 00 Cast-in Place Concrete: conduits and electrical power supply].
3. Section [26 05 26 - Grounding and Bonding for Electrical Systems].
4. Section [26 05 19 - Low-Voltage Electrical Power Conductors and Cables]
5. Section [26 31 00 - Photovoltaic Collectors: solar panels].
6. Section [\_\_\_\_].

#### 1.2 REFERENCES



All-O-Matic, Inc.

**Specifier Note:** Define terms that are unique to this Section and are not provided elsewhere in the contract documents. Include in this Article terms that are unique to the work result specified that may not be commonly known in the construction industry. Delete the following Paragraph if no Definitions are required.

A. Definitions:

1. [ ].

**Specifier Note:** Paragraph below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain References Paragraph when specifying products and installation by an industry reference standard. List retained standard(s) referenced in this section alphabetically. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced and update as applicable. Contract Conditions Section 01 42 00 - References may be used to establish the edition date of standards. This Paragraph does not require compliance with standard(s). It is a listing of all references used in this section. Only include here standards that are referenced in the body of the specification in PARTS 1, 2 and/or 3. Do not include references to building codes at any level.

B. Reference Standards:

1. CSA International (CSA).
  - a. CSA C22.2-[2015], Canadian Electrical Code, Part II.
2. Underwriters Laboratories (UL).
  - a. UL 325-[2017], Door, Drapery, Gate, Louver, and Window Operators and Systems.
  - b. UL 991-[2004], Standard for Tests for Safety-Related Controls Employing Solid-State Devices.
3. US Green Building Council (USGBC).
  - a. LEED NC Version 4-[2018], LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.

**Specifier Note:** Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Contract Conditions and Section 01 33 00 - Submittal Procedures.

### 1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-installation Meeting: Convene meeting after Award of Contract and one week prior to commencing work of this Section to verify project requirements, substrate conditions and coordination with other building sub-trades, and to review manufacturer's written recommendations.
1. Comply with Section 01 31 19 Project Meetings and co-ordinate with other similar pre-installation meetings.
  2. Notify attendees 2 weeks prior to meeting and ensure meeting attendees include as minimum:
    - a. Owner.
    - b. Architect.
    - c. Manufacturer's technical representative.
    - d. Gate operator installer.
    - e. Electrical subcontractor.
  3. Ensure meeting agenda includes review of methods and procedures related to swinging gate operator installation including coordination with related work.
  4. Record meeting proceedings including corrective measures and other actions required to ensure successful completion of work and distribute to each attendee within one week of meeting.

### 1.4 SUBMITTALS

- A. Make submittals in accordance with Section [01 33 00 - Submittal Procedures].
- B. Product Data: Manufacturer's standard specifications and descriptive literature, including:
1. Product characteristics.

- C. Shop Drawings: Include information as follows:
1. Physical dimensions and characteristics.
  2. Location of electrical connections.
  3. Wiring diagrams.
  4. Layout of control panel including LED diagnostics panel.
  5. Anchor bolt template.
- D. Manufacturer's written Instructions, including:
1. Delivery, storage and handling recommendations.
  2. Preparation and installation recommendations.
- E. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- F. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria, and physical requirements.
- G. Manufacturer's Field Reports: Submit manufacturer's field reports within 3 days of each manufacturer representative's site visit and inspection.

**Specifier Note: Coordinate Article below with Contract Conditions and with Section 01 78 36 - Warranties.**

- H. Installer's Experience: Submit verification of evidence of work similar to the work of this Section.
- I. Electrician's Qualification: Submit copy of certification as journeyman or master electrician.
- J. Warranty: Fully executed, issued in [Owner's] name, and registered with manufacturer, including:
- K. Manufacturer's [5-year] warranty, from date of substantial completion, covering defects in materials.

**Specifier Note: Retain the following only if specifying for a LEED project. Specify only the technical submittal requirements necessary to achieve the credits desired for this Project.**

- L. Sustainable Design (LEED) Submittals:
1. LEED Submittals: In accordance with Section [01 35 21 – LEED Requirements].
  2. Submit verification for items when appropriate as follows:
    - a. MR 5.1 and MR 5.2 for Regional Materials.
    - b. EA Credit 2: On-site Renewable Energy related to solar power.
    - c. [ ].

## 1.5 CLOSEOUT SUBMITTALS

**Specifier Note: Retain and edit the following Paragraph to suit type of gate operator being specified.**

- A. A. Operation and Maintenance Data: Supply maintenance data for swinging gate operator for incorporation into manual specified in Section 01 78 00 Closeout Submittals.

**Specifier Note: If LEED is not a part of the project delete the following Paragraph in its entirety.**

- B. Sustainable Design Closeout Documentation (LEED): Provide calculations on end-of-project recycling rates, salvage rates, and landfill rates for work of this Section demonstrating percentage of construction wastes which were recycled.
1. Submit verification from recycling facility showing receipt of materials.
- C. Record Documentation: In accordance with Section 01 78 00 Closeout Submittals.

**Specifier Note: Retain and edit the following Paragraph to suit type of gate operator being specified.**

1. List materials used in gate operators work.
2. Warranty: Submit warranty documents specified.

#### 1.6 QUALITY ASSURANCE

- A. Installer: Experienced in performing work similar to work if this Section.
- B. Electrician: Certification as journeyman or master electrician.

#### 1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in accordance with manufacturer's written instructions.
  1. Deliver gate operator components and accessories in manufacturer's original, unopened, undamaged packaging with identification labels intact and product name and manufacturer name clearly visible, and in sizes to suit project.
  2. Inspect each package for damage and promptly contact All-O-Matic Inc. directly to report damaged packages or materials.
  3. Replace damaged materials with new immediately.
- B. Store materials in manufacturer's unopened packaging until ready for installation.

#### 1.8 WARRANTY

- A. Project Warranty: Refer to Contract Conditions for project warranty provisions.
- B. Manufacturer's warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official.
  1. Manufacturer's [5-year] limited warranty is in addition to and not intended to limit other rights Owner may have under Contract Conditions.

### PART 2 PRODUCTS

**Specifier Note: Retain Article below for proprietary method specification. Add product attributes performance characteristics, material standards and descriptions in other Articles as applicable. Use of such phrases as or equal, approved equal or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining or equal products.**

#### 2.1 MANUFACTURER

- A. All-O-Matic Inc.
- B. 7820 Gloria Avenue, Van Nuys, California, 91406; Phone: (818) 787-1988; FAX: (818) 787-2214; Email: info@allomatic.net; Website: allomatic.net.
- C. Acceptable Material: All-O-Matic Inc., Brushless DC Swing Gate Operator [SW-300DC] [SW-325DC] [SW-350DC] [SW-375DC].

#### 2.2 PERFORMANCE REQUIREMENTS

- A. Comply with UL 325.
- B. Comply with UL 991.
- C. Comply with CAN/CSA C22.2.

#### 2.3 DESCRIPTION

**Specifier Note: Retain and edit the following Paragraph to suit type of gate operator being specified. Choose either UL 325 Class III or Class IV when specifying the All-O-Matic SW-375DC swing gate operator. All other All-O-Matic swinging gate operators meet UL 325 Class I, II, III, and IV. Choose the Class which best suits the Project requirements.**

- A. Automatic swinging gate operators and accessories for [residential] [commercial] [industrial] use to UL 325 Class [I] [II] [III] [IV] including features as follows:

1. Housing: [SW-375 DC: Waterproof steel cover] [All other models: Polyethylene plastic cover]

**Specifier Note: Retain and edit the following Paragraph to suit the Project requirements and the gate operator to be specified. Dimensions shown are width × length × height. Choose the 12 × 17 × 25.5 inches for the All-O-Matic SW-300DC gate operator. Choose 19 × 25.5 × 21 inches for the SW-325DC gate operator. Choose 14 × 24 × 18 inches for the SW-350DC gate operator. Choose 19 × 31 × 25 inches for the SW-375DC gate operator.**

- a. Dimensions: [12 × 17 × 25.5] [19 × 25.5 × 21] [14 × 24 × 18] [19 × 31 × 25] inches.
2. Emergency Reversing Device (ERD): Intelligent obstruction sensor with alarm output.
  - a. Ensure alarm will operate for 5 minutes if gate hits obstruction twice before hitting limit switches.

**Specifier Note: Retain and edit the following Paragraph to suit the Project requirements and the gate operator to be specified. Choose the “Emergency quick release arm” option when specifying the All-O-Matic SW-300DC gate operator. Choose the “Emergency easy-slide quick release arm” option when specifying the All-O-Matic SW-325DC gate operator. The All-O-Matic SW-350DC has both an emergency release arm and an emergency foot pedal release. Contact All-O-Matic directly for information on emergency release for the All-O-Matic SW-375DC gate operator.**

3. Power failure release: [Emergency quick release arm] [Emergency easy-slide quick release arm] [and] [Emergency foot pedal] release.
4. Gate Status LEDs for items as follows:
  - a. Check for AC Power.
  - b. Gate Position.
  - c. Battery Status.
  - d. Opening/Closing Gate Direction Alarm Mode.
  - e. External Accessories Status.

**Specifier Note: Add other items as needed to suit Project requirements.**

- f. [ ].
5. UL 325 monitored device and stop command inputs for photocell or edge for open and or close direction.
6. Adjustable hold-open timer capable of holding gate open for 60 seconds maximum.
7. Master and slave synchronization for dual gate applications.
8. Programmable relay with four configurations as follows:
  - a. Cycle Counter.
  - b. Audible or strobe light when gate is in motion.
  - c. Alarm system output if gate is forced open.
  - d. Gate position indicator.
9. Soft start and stop algorithm.
10. Leaf delay setting adjustable potentiometer from 1-6 seconds for control of master and slave dual gates.
11. Three-button station and reset button to open, close and reset gate.
12. Anti-tailgating feature.
13. Fail safe and fail secure selection.
14. Open left and open right selection.
15. Pre-wired safety, phantom, and exit loop rack.
16. Low voltage accessory power: 12V and 24V 750 mAmps each maximum.
17. BLDC maintenance free motor.
18. Integrated battery backup.
19. MPPT solar charger.

20. Onboard relay for magnetic or solenoid lock control.

#### 2.4 OPERATOR THIS ARTICLE COMPLETED

**Specifier Note:** Retain and edit the following Paragraph to suit the Project requirements and the gate operator to be specified. Choose 250 cycles and 600 pounds if specifying All-O-Matic Gate Operator SW-300DC, the All-O-Matic Gate Operator SW-325DC or the All-O-Matic Gate Operator SW-350DC. Choose 100 cycles and 1000 pounds for the All-O-Matic Gate Operator SW-375DC. Retain the option for alternate solar power source only if the gate operator is to be powered by solar power. Choose the 36 VDC solar power source only when specifying the All-O-Matic SW-375DC gate operator. All other swing gate operators use the 24 VDC solar power source.

- A. Brushless DC Swing Gate Operator with integrated battery backup capable of [250] [100] continuous cycles on [600] [1000] pounds gate [and [24] [36] DC alternate solar power source].

**Specifier Note:** Retain and edit the following Paragraph to suit the Project requirements and the gate operator to be specified. Choose 1,200 pounds for the All-O-Matic SW-300DC gate operator. Choose 2000 pounds for the SW-325DC or the SW-350DC gate operator with a ½ HP continuous duty motor. Choose 2500 pounds for the SW-350DC gate operator with a 1 HP continuous duty motor. Choose 5000 pounds for the All-O-Matic SW-375DC gate operator.

1. Gate weight: [1200] [2000] [5000] pounds maximum.

**Specifier Note:** Retain and edit the following Paragraph to suit the Project requirements and the gate operator to be specified. Choose 22 feet for the All-O-Matic SW-300DC, the SW-325DC or the SW-350DC gate operator. Choose 30 feet for the SW-375DC gate operator.

2. Gate length: [22] [30] feet maximum.

**Specifier Note:** Retain and edit the following Paragraph to suit the Project requirements and the gate operator to be specified. Choose either the 18–30 seconds per 90 degree opening when specifying the All-O-Matic Gate Operator SW-375DC. All other All-O-Matic swinging gate operators have a travel speed of 14–25 seconds per 90 degree opening.

3. Gate travel speed: [14–25] [15–29] seconds per 90 degree opening.
- Include travel adjustment control.
  - Include obstruction sensing system.

**Specifier Note:** Retain and edit the following Paragraph to suit the Project requirements and the gate operator to be specified. Choose the 36 VDC option when specifying the All-O-Matic SW-375DC gate operator. All other All-O-Matic swinging gate operators have a 24 VDC motor.

- B. Motor: [24] [36] VDC brushless motor.

**Specifier Note:** Choose 925:1 ratio for SW-300DC. Choose 750:1 ratio for SW-325DC. Choose 945:1 ratio for SW-350DC. Choose 820:1 ratio for SW-375DC. Motor to output speed reduction ratio: [925:1] [750:1] [945:1] [820:1] [with torque limiter]

1. Speed Reduction Ratio: [SW-300DC = 925:1] [[SW-325DC = 750:1 [with internal clutch]]] [[SW-350DC = 945:1 [with internal clutch]]] [SW-375DC = 1815:1].

**Specifier Note:** Retain and edit the following Paragraph to suit the Project requirements and the gate operator to be specified.

- C. Main Power Source: [115] [230] [480] VAC [single phase].
- D. Optional Power Source: [24] [36] VDC solar power].

**Specifier Note:** Retain and edit the following Paragraph to suit the Project requirements and the gate operator to be specified. Both the All-O-Matic SW-300DC and the SW-325DC are available with power consumptions of either 6 Amps at 115 VAC or 3.5 Amps at 230 VAC. The All-O-Matic SW-350DC has a power consumption of 6 Amps at 115VAC or 3.5 Amps at 220 VAC. The All-O-Matic SW-375DC has a power consumption of 6 Amps at 115VAC; 2.5 Amps at 480VAC or 3.5 Amps at 230 VAC.

1. Power consumption: [6 Amps at 115 VAC] [9 Amps at 115 VAC] [3.5 Amps at 230 VAC] [4.5 Amps at 230 VAC] [2.5 Amps at 480 VAC].

**Specifier Note: Retain and edit the following Paragraph to suit the Project requirements. Choose the 14 Ahrs batteries when specifying the All-O-Matic SW-375DC. All other All-O-Matic swinging gate operators use 7 Ahrs batteries.**

2. Integrated battery backup with [7] [14] Ahrs batteries.

**Specifier Note: Choose 1000 VA Transformer for the SW-375DC.**

- E. Transformer: [480 VA toroidal transformer] [1000 VA toroidal transformer].
- F. Operating temperature range: Minus 40 degrees F to 160 degrees F.

**Specifier Note: Retain and edit the following Paragraph to suit the Project requirements and the gate operator to be specified. Consult with ALL-O-Matic directly before editing the following Paragraph.**

- G. LED Diagnostics: Include items as follows:
  1. "AC/PWR On": LED will be on when AC power is being used.
  2. "M/S Link": LED will be on when master/slave communication is active.
  3. "ALARM": Two states as follows:
    - a. 1st state: LED will blink(horn will beep also) every 30 seconds when battery is low, bad or disconnected.
    - b. 2nd state: LED will turn on for 5 minutes when operator goes on shut down mode due to gate hitting obstruction and horn will sound for 5 minutes or until cancelled.
  4. "LOW BATTERY": LED will be on when battery is low.
  5. "MODE": Two states as follows:
    - a. 1st state: LED will blink approximately every two seconds when overload occurs over current.
    - b. 2nd state: LED will blink fast approximately twice per second when gate is jammed and motor sensors are not responding or are disconnected.
  6. "OPEN-LIMIT": LED will be on while limit nut is against open limit switch.
  7. "CLOSE-LIMIT": LED will be on while limit nut is against close limit switch.
  8. "OPENING": LED will be on while gate operator is in opening cycle.
  9. "CLOSING": LED will be on while gate operator is in closing cycle.
  10. "RADIO": LED will be on while Radio input is activated (closed circuit to Common).
  11. "EXIT": LED will be on while Exit input is activated (closed circuit to Common).
  12. "PHANTOM": LED will be on while Phantom input is activated (closed circuit to Common).
  13. "SAFETY": LED will be on while Safety input is activated (open circuit to Common).
  14. "STOP CMD": LED will be on while Stop Command input is activated (open circuit to Common).
  15. "CLOSE CMD": LED will be on while Close Command input is activated (closed circuit to Common).
  16. "MON\_OPEN": LED will be on while Monitor Open input is activated (open circuit to Common) or when device is not installed.
  17. "MON\_CLOSE": LED will be on while Monitor Close input is activated (open circuit to Common) or when device is not installed.
  18. "MON\_FAULT": LED will be on when entrapment device (MON\_OPEN or MON\_CLOSE) is not installed or fault condition has been detected.
  19. "TIMER": LED will blink when timer is counting on open position only.

**Specifier Note: Add other items as required. Consult with ALL-O-Matic directly before specifying other items.**

20. [ ]].

## 2.5 ACCESSORIES



- A. Concrete Footings: In accordance with Section [03 30 00 - Cast-in-Place Concrete].
- B. Electrical Conduits: In accordance with Section [26 05 33 - Raceway and Boxes for Electrical Systems].

**Specifier Note: Edit the following Paragraph to suit the Project requirements and coordinate the Paragraph with other Project Manual sections where appropriate. Contact All-O-Matic directly for information related the backup solar panel that they recommend for use with their swinging gate operators.**

- C. SOURCE QUALITY CONTROL
- D. Ensure all swinging gate mechanisms components and electrical accessories are from same manufacturer.

## 2.6 PRODUCT SUBSTITUTIONS

- A. Substitutions: [In accordance with Section 01 23 13 - Product Substitution Procedures] [No substitutions permitted].

## PART 3 EXECUTION

### 3.1 INSTALLER

- A. Use only installers who have training and experience of work similar to work of this Section.
- B. Use only certified journeyman or master electricians when performing electrical work.

### 3.2 EXAMINATION

**Specifier Note: Retain and edit the following Paragraph to suit type of gate operator being specified.**

- A. Verification of Conditions: Verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for swinging gate operator installation in accordance with manufacturer's written recommendations.
  1. Visually inspect substrate in presence of Architect.
  2. Ensure that gate moves freely before installing gate operator.
  3. Inform Architect of unacceptable conditions immediately upon discovery.
  4. Proceed with application only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Architect.

**Specifier Note: Retain and edit the following Paragraph to suit type of gate operator being specified.**

- 5. Starting installation of swinging gate operator implies substrate conditions and gate installation are acceptable for Work of this Section.

### 3.3 PREPARATION

1. Install concrete footings in accordance with gate operator's written recommendations and with Section [03 30 00 Cast-in-Place Concrete].
2. Install high and low voltage conduits and electrical power supply where indicated and in accordance with Section [26 05 00 - Common Work Results for Electrical].

### 3.4 INSTALLATION

- A. Install swinging gate operators in accordance with manufacturer's written instructions.
- B. Locate swinging gate operator [inside fence line] [as indicated].
- C. Install plumb and square.
- D. Ground swinging gate operator in accordance with Section [26 05 26 - Grounding and Bonding for Electrical Systems].
- E. Install accessories and additional components specified.





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F. Connect low voltage wiring in accordance with Section [26 05 19 - Low-Voltage Electrical Power Conductors and Cables].

### 3.5 ADJUSTMENT

- A. Adjust swinging gate operator clutch or load sensing device to minimum force setting that will still allow for reliable gate operation.
- B. Lubricate moving parts to operate smoothly and fit accurately.

### 3.6 CLEANING

- A. Perform daily progress cleaning.
  - 1. Leave work area clean at end of each day.
- B. Upon completion, remove surplus materials, rubbish, tools and equipment.
- C. Collect recyclable waste and dispose of in accordance with manufacturer's written recommendations and at appropriate recycling facilities.

**Specifier Note: Specify protection methods completed after installation, but prior to acceptance by the owner. Include only statements unique to this Section. Coordinate the following Article with Section 01 76 00 - Protecting Installed Construction.**

**Specifier Note: Retain and edit the following Article to suit type of gate operator being specified.**

### 3.7 CLOSEOUT PROCEDURES

- A. Demonstration and Training: Engage factory-authorized service representative to train Owner's maintenance personnel in adjustment, operation, and maintenance and to demonstrate use of swinging gate operators.

### 3.8 PROTECTION

- A. Protect installed swinging gate operators from damage during construction.
- B. Repair or replace adjacent materials damaged by installation of swinging gate operators.

**END OF SECTION**