**PARKING CONTROL EQUIPMENT**

**SECTION 11 12 33.13**

**LIFT ARM PARKING GATE OPERATOR**

**DoorKing Model 1601**

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PART 1 GENERAL

This specification is based on products from DoorKing, Inc.

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The purpose of this specification is to describe the DoorKing 1601 Series vehicular lift arm parking gate operator system for the purpose of providing architecture and engineering specification templates.

This section of this specification provides a top-level view of document administration and DoorKing requirements, including references, description, warranty, and maintenance.

Equipment names and model numbers included herein are those currently under production as of the writing of this specification and are subject to change without notice.

1. The Owner/Operator (End User) or facility architect shall assume responsibility for providing traffic and safety engineering, including all necessary safety features to be used at each automated vehicular gate location, including, but not limited to: sidewalks for pedestrian traffic, sufficient roadway lighting, entrapment protection devices, warning signage, traffic lights, audible warning alerts, visual warning alerts, secondary traffic control devices, guard/control booths (as required).
2. The 1601 series system shall consist of one (or multiple) 1601 vehicular lift arm parking gate operator and additional optional items, as specified.

All vehicular automated lift arm parking gate systems should be carefully planned with safety as a paramount concern. The product is designed to control vehicle traffic; however, DoorKing, Inc., is not a traffic safety engineering firm and recommends that a system be reviewed before installation. It is recommended that all forms of safety equipment be utilized to the maximum extent possible. Such safety equipment includes, but is not limited to, entrapment protection devices, proper lighting, warning signs, traffic lights, gate arms and/or audible alarms.

* 1. SECTION INCLUDES

\*\*NOTE TO SPECIFIER\*\* Delete items below not required for project.

* + 1. Lift Arm Parking Gates and operators.
			1. DoorKing Model 1601.
		2. Electric gate operators.
		3. Sensors and controls.
	1. RELATED SECTIONS

\*\*NOTE TO SPECIFIER\*\* Delete items below not required for project; add others as required.

* + 1. Division 03 - Concrete
		2. Division 28 – Electronic Safety and Security
		3. Division 31 - Earthwork
		4. Division 32 – Exterior Improvements
		5. Division 34 - Transportation
	1. REFERENCES

\*\*NOTE TO SPECIFIER\*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. Underwriters Laboratories (UL): UL 325 – Standard for Safety for Door, Drapery, Gate, Louver, and Window Operators and Systems.
		2. Canadian Standards Association (CSA): CSA C22.2 No. 247.
		3. Underwriters Laboratories (UL): UL 991 – Standard for Tests for Safety Related Controls Employing Solid-State Devices.
		4. American Society Testing Materials (ASTM): ASTM F2200 – Standard Specification for Automated Vehicular Gate Construction.
		5. National Electrical Manufacturers Association (NEMA): NEMA ICS 6 – Industrial Control Systems: Enclosures.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 – Administrative Requirements.
		2. Product Data: Manufacturers data sheets on each product to be used, including:
			1. Preparation instructions and recommendations.
			2. Storage and handling requirements.
			3. Installation methods.
		3. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, edge connections, and accessories.
			1. Operation, installation, and maintenance manuals including wire diagrams.
			2. Risers, layouts, and special wiring diagrams showing any changes to standard drawings.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Deliver, store, and handle materials and products in strict compliance with manufacturer’s instructions and industry standards.
		2. Store products indoors in manufacturer’s original containers and packaging with labels clearly identifying product name and manufacturer. Protect from damage.
	3. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Substantial transformation and final assembly shall occur in the United States of America per Section 1605 of the ARRA-09.
		2. Installer Qualifications: Installation performed by factory authorized dealer contractor specifically trained in gate operator 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.
	4. WARRANTY
		1. Manufacturers standard five (5) year warranty.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: DoorKing, Inc.; 120 S. Glasgow Ave; Inglewood, CA 90301; Toll-Free Tel: 800-826-7493; Tel: 310-645-0023; Fax: 310-641-1586; Email: ghendrix@doorking.com; Web: doorking.com.

\*\*NOTE TO SPECIFIER\*\* Delete one of the following two paragraphs.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 – Product Requirements.
	1. LIFT ARM PARKING GATE OPERATORS
		1. Microprocessor based solid-state control board interacting with card readers, RF transmitters, access control systems, ticket machines, other activating devices as required, external devices for pedestrian sensing (photo-eyes) and vehicle (loop) sensing systems. Control board shall include built-in down timer (1-25 seconds), built-in ports for two (2) plug-in loop detectors, Up input memory buffer, down command options, programming switches to set various operating modes, PAMS sequencing inputs (Perimeter Access Management System), inherent current sensing reverse system.
			1. Compliance: Compliant to UL 325, UL 991 and CSA C22.2 No. 247 and listed by Intertek Testing Laboratories NA, Inc. (ETL), a Nationally Recognized Testing Laboratory.
				1. This model is intended for use in Class II, III and IV vehicular barrier gate applications.
			2. Warranty: Five (5) year manufacturer’s standard warranty.
			3. Operator speed: 90-degrees in approximately 2.5 seconds.
			4. Enclosure: 12 gage, 0.105 inch (2.6 mm) G90 hot-dipped galvanized steel, powder coated, full gloss smooth super TGIC, polyester white.
			5. Configuration: Left or right hand mount. In the event of an obstruction close by the barrier gate, operator can be reversed to allow access to cabinet door.
			6. Motor: 1/2 HP, continuous duty.
			7. Gear Reduction: 60:1 worm gear running in a continuous oil bath with 360-degrees of gear travel.
			8. Magnetic Limit Switches: No mechanical switches to wear out or break.
			9. Operating Switches: Built-in power (on-off) and operating (up-down-normal) toggle switches.
			10. Convenience Outlets: Two (2) 115 VAC for accessory transformers.
			11. Electrical Power Requirements: 115/208/230/460/575 VAC.
				1. 208/230/460/575 VAC requires DoorKing High Voltage Kit, P/N 2600-266.
			12. Gate Arms: Fully retroreflectorized on both sides, vertical stripes alternately red and white at 16-inch intervals as required by the Manual on Uniform Traffic Control Devices (MUTCD).

\*\*NOTE TO SPECIFIER\*\* Delete six of the following seven paragraphs.

* + - * 1. 14-foot, 3 x 2.185-inch aluminum octagonal.
				2. 14-foot, 3 x 2.185-inch aluminum octagonal with contact reverse edge.
				3. 14-foot, 3 x 2.185-inch aluminum octagonal with contact reverse edge + Red/Green LED light strip (Red when arm is down, Green when arm is up).
				4. 14-foot, 3-inch round aluminum.
				5. 14-foot, 3-inch round aluminum with LED light strip.
				6. 14-foot, 1x3 kiln dried wood.
				7. 12-foot, PVC plastic.
			1. Pedestrian Protection

\*\*NOTE TO SPECIFIER\*\* Photo-eye for pedestrian detection must be specified to prevent barrier arm from rotating down onto unaware pedestrians.

* + - * 1. Photo-electric eye / auxiliary loop detector relay switch.

Requires DoorKing 9411 loop detector used in conjunction with photo-eye.

* + - 1. Accessories: Provide the optional accessories listed below.

\*\*NOTE TO SPECIFIER\*\* Delete optional accessories if not required.

* + - * 1. Arm Breakaway Kit – aluminum arms only.
				2. Folding arm kit for low ceiling applications.
				3. LED Lighted folding arm kit for low ceiling applications.
				4. Traffic signal and mount kit.
				5. Thermostatically controlled fan kit.
				6. Thermostatically controlled heater kit.
				7. Plug-in loop detectors.
				8. Electric reversing edge – reverses rotation of arm on contact with an obstruction.
				9. Gate Tracker Expansion – provides time and date stamped electronic record of cycles, input errors, loop detector input errors, obstruction hits and power cycles.

Requires companion DoorKing 1830 Series access controller.

* + - * 1. Backup power inverter – allows system to remain operation upon loss of primary (AC) power.

PART 3 - EXECUTION

3.1 INSTALLATION

A. It is preferred that this product be installed by a qualified gate operator technician who is certified by the Institute of Dealer Education and Accreditation (IDEA) or the American Fence Association (AFA).

B. Model 1601 shall be mounted, firmly secured, plumb and level, as required.

C. Wiring shall be uniform and in accordance with national electric codes and manufacturer’s instructions.

D. All splices shall be in easily accessible junction boxes or on terminal boards.

E. All cable runs in all junction boxes shall be tagged and identified.

F. Coordinate all work with other effected trades and contractors.

3.2 SYSTEM INITIALIZING AND PROGRAMMING

A. System shall be turned on and adjustment made to meet requirements of specifications and on-site conditions.

B. System shall function as specified.

3.3 SYSTEM TEST PROCEDURES

A. System shall be completely tested to assure that all components and accessories are hooked-up and in working order.

B. System shall be pre-tested by contractor and certified to function in accordance with plans and specifications.

C. System shall be tested in presence of owner's representative.

3.4 OWNER INSTRUCTIONS

A. Installation contractor shall conduct up to (1) hour of instruction in use and operation of the system to designated owner representatives, within (30) days of acceptance.

B. Installation contractor shall conduct up to (1) hour of technical training, in troubleshooting and service of the system, to designated owner representatives within (90) days of system acceptance.

3.5 MANUALS AND DRAWINGS

A. Contractor shall provide owner with (2) copies of standard factory prepared operation, installation and maintenance manuals. Manuals shall include typical wiring diagrams.

B. Contractor shall provide owner with (2) copies of any risers, layouts, and special wiring diagrams showing any changes to standard drawings, if required on project.

3.6 MAINTENANCE

A. The manufacturer recommends periodic maintenance at three month intervals as described in the installation and maintenance manual.

B. External reversing devices should be checked at least once a month.

END OF SECTION