



DASMA
Door & Access Systems
Manufacturers Association
International

DOOR OPERATOR & ELECTRONICS DIVISION

TECHNICAL DATA SHEET

#350

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Garage Door Operator and Gate Operator Terminology

A compilation of industry terminology can serve many purposes:

- Facilitate communication between parties within the industry.
- Improve the effectiveness of industry standards and other documents.
- Reduce potential confusion and misunderstanding by recognizing and cross-referencing multiple terms that may have the same definition.
- Educate interested parties outside an industry.

The members of DASMA have compiled an extensive list of terms and definitions related to operators and related devices to achieve these objectives.

The terminology information encompasses many common terms used in the industry. Some terms are cross-referenced to a “primary” term. The “primary” term is the one that would be used most often in DASMA standards and technical publications.

Concerning the terms and definitions contained in the Technical Data Sheet, please note the following:

- This Technical Data Sheet is not a standard; therefore, the document was not developed using the formal ANSI consensus process. The document was developed with input from a wide variety of industry members and consensus of the Operator & Electronics Division of DASMA was reached.
- This Technical Data Sheet includes a compilation of commonly used terms. Though we have strived to be comprehensive, this material may not include all terms that are used within the industry.
- The terms and definitions are not universal. Variations within the industry may exist with regard to precise meaning. It is hoped the existence of this document will help reduce inconsistency and drive the industry to common terminology.

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DASMA Garage Door Operator and Gate Operator Terminology

3-Button Control: See 3-Button Station

3-Button Station: A control device that includes the 3 commands Open, Close, and Stop.

AAWM: (Advance Audio Warning Module): See Audible Warning.

Accelerated Aging Test: A test used to measure the performance of a system or component due to aging, by utilizing controls to compress the real time in which such performance is measured to replicate a longer period of time; usually applied to gasket components, and also to thermoplastic materials and electrical insulation systems.

Accessory: Any supplemental item or device added to the basic gate or door system.

Activation Device: Any device used to initiate operation.

Actuating Device: See Activation Device

Activation Device - Constant Pressure: A device requiring continuous pressure to maintain opening or closing motion. (see also ANSI/CAN/UL325, Type D Entrapment Protection Type) The circuitry shall require a continuous activation of the device to run and upon release of the device shall stop immediately.

Actuator: A common term for swing hydraulic or screw drive type gate operators which mount to the gate post.

Adjustable Clutch: See Clutch.

Audible Warning: An audible signal, measured in decibels, that sounds for a designated period of time prior to the initiation of motion and commonly while in motion. When required by ANSI/CAN/UL 325 to alert a user to a second sequential obstruction of a gate, an audible signal is also called Audio Alarm.

Automatic Closing Device: See Timer to Close for the timed delay of opening and closing, and also see “Vehicle Detector Loop”.

A.W.G.: An acronym for American Wire Gauge, commonly used to specify the size of wire in the United States. The units are expressed in Gauge.

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Backframe: The main component of the frame where the motor and/or controller are mounted. The portion of a cantilever sliding gate that extends from the first supporting post to the end of the gate away from the road.

Battery Back-up: Term for a system that will continue to operate without the primary power being present. Typically the auxiliary power is supplied by batteries.

Belt Driven: Operators that transfer power from the motor to the drive shaft, trolley, or mechanism by use of drive belts and pulleys.

Block Diagram: A drawing of a gate operator and access controls system.

Brake Solenoid: See Solenoid.

C.S.A. (Canadian Standards Association): A Canadian non-government non-profit association that operates internationally to set standards for products and services through testing, certification, and inspection for safety and performance.

Cable Reel: An enclosure that houses wrapped electrical cord, which is normally spring loaded to allow for extension and retraction of cable in the housing.

Caliper Disc Brake: See Disc Brake.

Cantilever Gate: A sliding gate that is supported in such a way that no portion of the gate that projects over the road requires a wheel or other support.

Card Access: A collective term for all of the various types of card access control products controlling ingress and/or egress.

Card In/Card Out: Abbreviated term to describe a card access for both entry and exit control points (gate or door).

Card Reader: An electronic device used to convert the encoded information stored in or on a card or key tag type device.

Card Reader, Insert: A device that reads the identity of a card which is inserted into a cavity within the card reader housing.

Card Reader, Proximity: A device that reads the identity of a card remotely, typically within a few inches of the card reader housing.

Card Reader, Swipe: A device that reads the identity of a card which is passed between two points of a card reader housing that is a slot instead of a cavity.

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Card Reader, Touch Plate: A device that reads the identity of a card which is placed flat against the front face plate of a card reader housing.

Center Loop: See Shadow Loop

Class I Vehicular Gate Operator: A vehicular gate operator (or system) intended for use in garages or parking areas associated with a residence of one-to four single families (source: ANSI/CAN/UL 325).

Class II Vehicular Gate Operator: A vehicular gate operator (or system) intended for use in a commercial location or building such as a multi-family housing unit (five or more single family units), hotel, garages, retail store, or other buildings accessible by or servicing the general public (source: ANSI/CAN/UL 325).

Class III Vehicular Gate Operator: A vehicular gate operator (or system) intended for use in an industrial location or building such as a factory or loading dock area or other locations not accessible by or intended to service the general public (source: ANSI/CAN/UL 325).

Class IV Vehicular Gate Operator: A vehicular gate operator (or system) intended for use in a guarded industrial location or building such as an airport security area or other restricted access locations not servicing the general public, in which unauthorized access is prevented via supervision by security personnel (source: ANSI/CAN/UL 325).

Class 2 Circuit: A circuit having limited voltage and energy capacity supplied by:

- a. An inherently-limited Class 2 transformer;
- b. A combination of an isolated transformer secondary winding and a fixed impedance or regulating network that together comply with the performance requirements for an inherently-limited Class 2 transformer;
- c. A dry-cell battery having output characteristics not greater than those of an inherently-limited Class 2 transformer;
- d. Any combination of (a), (b), and (c) above that together comply with the performance requirements for an inherently-limited Class 2 transformer, or
- e. One or more combinations of a Class 2 transformer and an overcurrent protective device that together comply with the performance requirements for a non-inherently-limited Class 2 transformer.
- f. A Limited Power Source (LPS) as defined by UL 60950-1 or UL 2054.

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Class of Application: See Usage Class.

Clutch: A mechanical slippage device that allows for some degree of stopping the gate or door should it meet an obstruction.

Coiled Cord: Electrical conductors in a cord that are coiled to allow for expansion and contraction of length.

Commercial/General Access Vehicular Gate Operator: See Class II Vehicular Gate Operator.

Conduit Opening: The area intended by the manufacturer through which conduits are intended to enter into the gate operator housing.

Constant Contact: Electrical controls term for an actuating device and circuitry that requires a continuous pressure to keep the operator moving. The release of the input will immediately cause the operator to stop. Also see Activation Device – Constant Pressure.

Contact Edge Sensor: A sensor, attached to an edge surface of a door, a gate or an object in the vicinity of the door or gate, that upon detecting an obstruction via contact with the edge, signals the operator to stop and/or reverse (source: ANSI/CAN/UL 325, Type B2 Entrapment Protection).

Contact Sensor: A sensor or mechanism that requires contact in order to sense an obstruction; see also Contact Edge Sensor.

Contactactor: A heavy-duty relay, which is rated in horsepower and/or amperage capacity, generally used in the control of an electric motor.

Continuous Duty: A motor rated to operate continuously under rated load without overheating.

Continuous Pressure Activation Device: A device that requires constant pressure to initiate movement of a garage door or gate. See also Activation Device – Constant Pressure.

Control Panel: An enclosure that houses electrical controls.

Control Board: An electronic circuit board commonly used to provide a logic sequence of operation.

Control Enclosure: A collective term for any of the devices that provide physical and possibly weather protection for electrical/electronic components; also called a control box.

Control Station: Generic term for a push-button device to allow activation of the gate or door, i.e. a 3 button station for Open/Stop/Close.

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Crank Arm / Extension Arm: Components of a swing gate operator that are connected between the gate operator and the gate.

Current Sensor: A device that monitors electrical flow or current through an electrical circuit. Typically used in operators as an inherent entrapment protection device.

Controlled Entrance: A door or gate that can be opened only by authorized users

Current Monitor: A device that supervises electrical flow, or current, through an electrical circuit.

Cycle: An action on a door or gate from the fully closed position, to the fully open position, and returned to the fully closed position.

DPDT (Double Pole Double Throw): A relay or switch with 2 sets of contacts, each with common, normally open, and normally closed terminals.

DPST (Double Pole Single Throw): A relay or switch with 2 sets of contacts, each with common and normally open terminals.

Detection Zone: An area of detection, defined by a sensor, intended to detect the presence of an object.

Dielectric Voltage Withstand Test: A high voltage stress test that is used to prove the integrity of the insulation in an electrical system.

Disc Brake: A brake system composed of calipers that can grip a rotating disc.

Door: A moving barrier such as a swinging, sliding, raising, lowering, rolling, or the like, barrier, that closes an opening for entrance and/or egress by persons or vehicles into or out of a building.

Duty Cycle: The number of cycles per a defined time period that a door or gate operator is designed to perform.

Edge Sensor: See Contact Edge Sensor.

Edge Transmitter: A wireless device used to transmit a signal from a contact edge sensor to a receiver connected to a gate or door operator which functions to stop and/or reverse direction.

Electrical Wiring Distance: Gate Operator term for the total distance that the electrical wires might have to be run between a control station and the gate operator; or the primary power source and the gate operator.

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Emergency Access Device: A relay or switch designed to allow Emergency Vehicles access through a gate.

Elastomeric Material Conditioning Test: A test that measures the elastic properties of plastic or rubber items such as gaskets.

Emergency Release: See Manual Release.

Endurance Test: A test intended to measure the long-term performance of a product under given conditions.

Entrapment: The condition when a object is caught or held in a position that increases the risk of injury. (source: ANSI/CAN/UL 325)

Entrapment Protection Circuit: The electrical circuit in the operator that provides for the detection of an entrapment and reversal of the motor, in order to protect against entrapment.

Entrapment Protection Device: A device installed with a gate or door operator, or internal circuitry, intended to prevent persons from becoming caught or held in a position that increases the risk of injury.

Entrapment Zone, Slide Gate: Locations between a moving gate and a counter opposing edge or surface where entrapment is possible up to 6 feet above grade. Such locations occur if during any point in travel the gap between a moving gate and fixed counter opposing edges or surfaces is less than 16 inches (source: ANSI/CAN/UL 325).

Entrapment Zone, Swing Gate: Locations between a moving gate or moving, exposed operator components and a counter opposing edge or surface where entrapment is possible up to 6 feet above grade. Such locations occur if during any point in travel a) the gap between the bottom of a moving gate and the ground is greater than 4 inches and less than 16 inches, or b) the distance between the center line of the pivot and the end of the wall, pillar, or column to which it is mounted when in the open or closed position exceeds 4 inches. Any other gap between a moving gate and fixed counter opposing edges or surfaces or other fixed objects is less than 16 inches, examples being walls, curbs, berms or other immovable objects (source: ANSI/CAN/UL 325).

Entrapment Zone, Vertical Pivot Gate: Locations between a moving gate or exposed operator components and a counter opposing edge or surface where entrapment is possible. Such locations occur when the gap between a moving gate and fixed counter opposing edges or surfaces, other than the ground or floor at the bottom of the gate, is greater than 2-1/4 inches and less than 16 inches on the public side of the gate, or on the private side of the gate is greater than 4 inches and less than 16 inches, or when the gap between a moving gate and fixed counter opposing edges or surfaces at the bottom of the gate is less than 16 inches (source: ANSI/CAN/UL 325).

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Entrapment Zone, Vertical Lift Gate: Locations between a moving gate or exposed operator components and a counter opposing edge or surface where entrapment is possible up to 8 feet above grade. Such locations occur when the gap between a moving gate and fixed counter opposing edges or surfaces, other than the ground or floor at the bottom of the gate, is greater than 4 inches and less than 16 inches or when the gap between a moving gate and fixed counter opposing edges or surfaces at the bottom of the gate is less than 16 inches (source: ANSI/CAN/UL 325).

External Entrapment Protection Device: A device, examples being an edge sensor, a photoelectric sensor, or similar entrapment protection device, which provides protection against entrapment when activated and is not incorporated as a permanent part of an operator. (source: ANSI/CAN/UL 325)

Eye-bolt: Threaded shaft that has a hole at one end for connecting a chain.

Factory Setting: A default setting of adjustable controls as selected at the factory prior to shipment.

Fail Safe: (a) A design that, upon failure of a circuit or mechanism, functions in a manner that prioritizes safety over security. (b) Vehicle Detector term for a vehicle detector or other device that upon failure, or loss of power, closes an electrical contact and thereby completes the electrical circuit.

Fail Secure: (a) A design that, upon failure of a circuit or mechanism, functions in a manner that prioritizes security over safety. (b) Vehicle Detector term for a vehicle detector or other device that upon failure, or loss of power, opens an electrical contact and thereby allows the gate to close.

Fault Condition: Detection of an operational error.

Footprint: The physical outline dimensions of a gate operator as it mounts to a pad.

Frame, Operator: The physical support structure holding the drive mechanism and related components.

Free Exit Loop: A loop used to initiate an open command for vehicles exiting a secure area.

Friction Clutch: See Adjustable Clutch

Full Rated Load: The maximum capacity or power as determined by the manufacturer's rating.

Gate: A moving barrier such as a swinging, sliding, raising, lowering, rolling, or the like, barrier, that is a stand-alone passage barrier or is that portion of a wall or fence system that controls entrance and/or egress by persons or vehicles and completes the perimeter of a defined area.

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Gate Edge Device: See Contact Edge Sensor.

Gate Traversal: The full operating distance/range of a gate.

Gearhead Drive: Operators which produce the power to the drive shaft by a gearbox connected to the motor.

Hand of Gate Operator: When standing on the inside looking out (same side of opening as the operator) and refers to the side to which the gate operator is physically located.

Handing of Gate Operator: See Hand Of Gate Operator

Hardwired Contact Sensor: A contact sensor that relies on direct wiring to an operator in order to be operational

Harmonic Arm: A device commonly used with swing gate operators, to control movement of the gate in a manner that creates acceleration and deceleration at the end ranges of motion.

Hydraulic Drive: A term meaning that the actuator is hydraulically powered.

Hydraulic Locking: A method, usually a check valve, of locking a gate by blocking the flow in a hydraulic system.

Hydraulic Valve: Generic term describing any type of hydraulic valve that provides a function in a hydraulic system.

Idler: A roller, wheel, sprocket or pulley that turns with the system but does not generate torque.

Industrial/Limited Access Vehicular Gate Operator: See Class III Vehicular Gate Operator.

Inherent: An integral and permanent part of an operator.

Inherent Entrapment Protection System: A system, examples being a motor current or speed sensing system, which provides protection against entrapment upon sensing an object and is incorporated as a permanent and integral part of an operator.

Initial Setting: See Factory Setting

Integral Control: A control device that is native to the operator, as supplied by the factory.

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Intended Input: A control device that requires a person to perform a physical action, onto a button, a switch or other similar means, to cause a response from a door or gate operator.

Intermittent Duty: A limited duty operator with a determined maximum cycles per hour.

Keyed Release: An emergency or manual release that functions with the use of a key.

Keypad Access/Digital Entry: An access control device that uses a standard keypad for entry of codes to activate the gate by those with the authorized code(s).

L.D.I. (Long Distance Interface): An in-line accessory that acts as a relay station between the operator and the 3-button station; usually required when controls are further than specified.

LED (Light Emitting Diode): A type of diode designed to produce light commonly used for indicators and displays.

L.R.A. (Locked Rotor Amps): The amperage a motor draws when the motor shaft has exceeded the maximum load and the shaft has stopped rotating.

Leading Edge: The most forward part of the gate or door while it is in motion.

Left Hand: The left side determined from a position standing on the same side of the gate or door as the operator looking at the gate or door.

Light Duty (Commercial/Industrial) Vehicular Door or Gate Operator (or System): A commercial or industrial vehicular door or Class II, III, or IV vehicular gate operator (or system) intended and marked for limited or restricted duty.

Limit Switch: A collective term for a device that changes the state of an electric circuit upon reaching a predefined end of travel.

Line of Sight: The position of a control device located in such a way that the entire door or gate to be operated is directly visible during the full travel of the door or gate to the person operating the control.

Linear Actuator: See Actuator.

Load (Electrical): The amount of electrical power that is drawn from a line or other source.

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Load (Mechanical): The external mechanical resistance against which a machine acts.

Load Amperage Monitor: A sensor that monitors the flow of electricity through a circuit.

Load Current Sensor: See Current Sensor.

Loop Detector: See Loop Sensor.

Loop Sensor: A sensitive electronic detector that functions by creating an inductive/capacitive field surrounding a loop of wire. When a vehicle enters the area of the loop, the sensor detects the resultant change in inductance and an output is generated.

Louver Operator (or system): A motor driven louver used for opening and closing slats.

Low Voltage: The voltage transformed from the line voltage that is also used as the control voltage. Also see Class 2 Circuit.

M.R.T. (Maximum Run Time): A device that limits the time an operator may run during the open or close cycle in any one direction.

Manual Release: A device or system to allow the gate to be operated in a manual mode.

Master/Second: See Primary/Secondary.

Maximum Rated Voltage: The maximum voltage for which a circuit or operator is rated.

Mechanical Release: See Manual Release.

Monitoring: Checking for the presence and correct operation of a device, such as an entrapment protection device.

NEC (National Electrical Code): A standard that governs the use of electrical wire, cable and fixtures and electrical and optical communications cable installed in buildings. Note: The NEC was developed by the NEC Committee of the American Standards Institute (ANSI), was sponsored by the National Fire Protection Association (NFPA) and is identified by the description ANSI/NFPA 70-xxxx, the last four digits representing the year of NEC revision.

NEMA (National Electrical Manufacturers Association): A trade association made up of electrical suppliers

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that set voluntary standards for safety and performance of electrical products principally enclosures, motors and motor starters.

No Load: The condition where a machine is running, but no load is connected.

Non-Contact Beam: A term for a Non-Contact Sensor that typically uses infrared light (source: ANSI/CAN/UL 325, Type B1 Entrapment Protection).

Non-Contact Sensor: A device providing an obstruction detection signal upon the breaking of a beam or other technology NOT requiring physical contact (source: ANSI/CAN/UL 325, Type B1 Entrapment Protection.)

Non-Keyed Release: A release device that does not require a key to disengage.

Normal Operation Test: A test to determine functionality under generally expected operating conditions .

Normally Closed Contact: An electrical circuit relay contact that in its normal or non-activated position is closed.

Normally Open Contact: An electrical circuit relay contact that in its normal or non activated position is open.

Nuisance Tripping: The condition where normal operation is interrupted by false or unintended signals that trigger the protective sensors.

Obstruction Sensor: A sensor that detects objects in the path of travel of the gate.

Obstruction Loop: See Vehicle Detector Loop

Open Roller: A roller that is not covered or protected by some means.

Opto-Electronic Sensor: A device that uses light, commonly via laser *by measuring time of light transmitted and received to determine distance*, or infrared, by measuring the amount of light emitted and received to determine changes within the detection zone, for the purpose of detecting obstructions within the detection zone and, where permitted by ANSI/CAN/UL 325, may be used as an entrapment protection means or device.

Ornamental Iron Gate: An iron gate that features ornamental patterns integrated into the design of the gate.

Overload, Condition: Excessive power or current in a circuit beyond the normal operating specifications.

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Overload, Protector: A thermal switch (typically adjustable) that trips when excessive current attempts to pass through it.

Pad Mount: An installation method where the gate operator is set on a pad such as a concrete slab.

Pedestrian Door or Gate Operator (or System): A swinging, sliding, bi-parting, folding, or rotating door or gate operator (or system) that is used at pedestrian entrances or exits to buildings or other pedestrian traffic ways and is not used for vehicular traffic.

Pedestal: Support post for an access control device.

Pedestal Mount: A method of mounting a gate operator on posts.

Pedestrian Gate: Fence industry term for a gate or turnstile that is intended for pedestrian use and is therefore not automated. Per ANSI/CAN/UL 325, vehicular gate operators are NOT authorized for use by pedestrians, thus an alternate entry point must be provided if pedestrians are to gain access to a secured area.

Photo Beam: See Photoelectric Sensor.

Photocell (Light Beam): An entrapment protection device utilizing a light or beam.

Photoelectric Beam: See Photoelectric Sensor.

Photoelectric Eyes: See Photoelectric Sensor.

Photoelectric Sensor: A device that uses a light beam or other technology for the purpose of detecting obstructions by providing a detection signal to the operator upon the breaking of the beam, NOT requiring physical contact with the gate. Where permitted by ANSI/CAN/UL 325, this device may be used as an external entrapment protection device.

Photoeye: See Photoelectric Sensor.

Pinch Point: Any condition where the movement of a gate panel or gate operator mechanism has the potential of compressing and thus causing personal injury.

Placard: A sign, poster or notice commonly used on or around door and gate systems to encourage safe operation and warn of potential risks.

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Post: A rigid material, set upright and anchored to the ground that provides support.

Post Mount: See Pedestal Mount.

Pressure Relief Device: See Pressure Relief Valve.

Pressure Relief Valve: A device (typically an adjustable valve) that limits the maximum hydraulic pressure, thus force applied by a hydraulic gate operator upon contact with an obstruction.

Preventive Maintenance: Maintenance of a gate system on a scheduled basis to inspect and service a gate operator to help prevent failures.

Primary/Secondary: The term used when two gate operators are required for the same vehicular access location where a signal is sent between the operators to function in tandem.

Printed Circuit Board: See Control Board.

Push-button: A collective term for an activation device that requires manual input where its use is termed as an intentional act.

R.P.M. sensor: A sensor that monitors the revolutions of a shaft; typically used as an Inherent Sensing Device.

Radio Control: A wireless device that transmits or receives signals to the gate or door operator.

Ramp Up/Ramp Down: See Soft Start/Soft Stop.

Rated Capacity: Recommended maximum size and weight of a gate that a particular gate operator is designed to control.

Rated Electrical Frequency: The alternating current frequency that an operator is rated or; example 60 Hz (North America) or 50 Hz (European).

Rated Load: The maximum power or force a component can deliver before overload begins to occur.

Reach Through: Act of an individual extending an arm through a gate panel, or through any portion of a fence covered by a gate, with potential exposure to injury should the gate be activated.

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Receiver: A wireless device that receives signals, most commonly from a transmitter, typically used to activate a door or gate.

Relay: A switch operated by an electromagnetic coil.

Renewed Intended Input: A deliberate initiation or re-initiation of a device after the gate or door has shut down.

Reset Button: An input device that cancels the status that caused a shut down Stop condition to occur.

Residential Garage Door Operator: A vehicular door operator serving a residential building of one to four single-family units.

Residential Vehicular Gate Operator: See Class I Vehicular Gate.

Resistance-To-Impact Test: A test to determine an enclosure's ability to withstand physical contact with other objects by means of striking the enclosure.

Restricted Access Vehicular Gate Operator: See Class IV Vehicular Gate Operator.

Retractable Reel: See Cable Reel.

Reversal: A change in gate or door motion to the opposite direction.

Reversal Delay: An interval of time measured as the amount of time between the initiation of a signal to reverse and the time the gate or door actually begins to move in the opposite direction.

Reversing Contactor: See Contactor.

Reversing Device: An external sensor that is connected to signal a gate or door to reverse.

Right Hand: The right side determined from a position standing on the same side of the gate or door as the operator, looking at the gate or door.

Roller: A wheel that allows the gate or door to move along a track.

Rotary Limit Switch Assembly: A limit switch mechanism composed of a rotating screw or cam(s) or nut(s) that engages limit switches.

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SPDT (Single Pole Double Throw): A relay or switch with 1 set of contacts, featuring common, normally open, and normally closed terminals.

SPST (Single Pole Single Throw): A relay or switch with 1 set of contacts, featuring common and normally open terminals.

Schematic Drawing: An illustration of the element by element relationship of all parts of an electrical system. Useful for identifying all the wires connecting to a device.

Secondary: Auxiliary or back-up to primary.

Shadow Loop: A vehicle detector loop placed under the path of a gate that is active when the gate is at the open or closed limit position, typically found in swing gate applications.

Short Circuit: The condition in a circuit, when a path of very low resistance has occurred, usually accidentally. When the resistance drops, the electric current in the circuit becomes excessively high and can cause damage to the circuit.

Single Phase: Powered by a single alternating (AC) current, requiring two conductors.

Slipping Clutch: See Clutch.

Solenoid: Any electromagnetic coil and moving armature set used as an actuator, for example to control a braking device, a solenoid lock or solenoid activated hydraulic valve.

Soft Start/Soft Stop: A general application term for those control circuits that slowly start the door or gate into motion and when near the limit of travel slowly reduce the gate speed, there are different ways this is done, but they all serve to avoid shock load to the drive mechanism.

Strobe Light: Visual warning device, typically used to alert to pending or moving gates.

Surge Arrestor/Suppressor: A device intended to protect an electrical circuit from high voltage such as power surges or lightning strikes.

Solenoid: Any electromagnetic coil and moving armature set used as an actuator, e.g. to control a relay or a disc brake.

System: In the context of these requirements, a system refers to a group of interacting devices intended to perform a common function.

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T.D.C. (Time Delay Close): See Timer To Close.

Timer To Close: An action characterized by a specified time, initiated when the operator reaches the full open position, causing the gate to close.

Take Up Reel: See Cable Reel

THHN (Thermoplastic High Heat-resistant Nylon-coated): A designation for a common type of wire insulation intended for use inside a conduit.

Three Wire System: Wire system composed of a hot wire, a neutral wire and a ground wire.

Timer: A time based device that controls the activation of a switch at set intervals.

Trailing Edge: The portion of the gate panel that follows the forward direction of motion.

Two Wire System: Wire system composed of a hot wire and a neutral wire.

U.L. (Underwriters Laboratories): A non-government organization that develops safety standards for devices, systems and materials, and labels and lists various products. The organization also operates laboratories for product testing.

Usage Class: The intended application category for vehicular gates intended to be automated, examples being Classes I, II, III and IV.

VA: An abbreviation for Volt*Amperage.

V.O.M. (Volt Ohm Meter): A test instrument typically used to measure and display voltage, current and resistance.

VAC (Volts Alternating Current): An electrical current that periodically reverses direction. The common household voltage of 120 Volts 60 Hz is an example.

VDC (Volts Direct Current): The electrical current that flows in one direction only an example of which is a battery.

Vehicle Detector: A sensing device, such as a roadway loop, infrared beam, opto-electronic sensor, or vehicle probe, used to detect the presence of a vehicle.

Vehicle Detector Loop: The application of a roadway loop and a vehicle detector applied to open, hold open, close, stop or reverse a gate in the opening or closing cycle when a vehicle is present.

Vehicular Barrier (Arm) Operator (or System): An operator (or system) that controls a cantilever type

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device (or system), consisting of a mechanical arm or barrier that moves in a vertical arc, intended for vehicular traffic flow at entrances or exits to areas such as parking garages, lots or toll areas.

Vehicular Door Operator (or System): A door operator (or system) that is intended for vehicular traffic at entrances or exits to commercial or industrial buildings areas such as garages, loading docks, or parking lots.

Vehicular Horizontal Slide-Gate Operator or System: A vehicular gate operator or system that controls a gate which slides in a horizontal direction that is intended for use for vehicular entrance or exit to a drive, parking lot, or similar location.

Vehicular Swing-Gate Operator (or System): A vehicular gate operator (or system) that controls a gate which swings in an arc in a horizontal plan that is intended for use for vehicular entrance or exit to a drive, parking lot, or similar location.

Vehicular Vertical Lift-Gate Operator (or System): A vehicular gate operator (or system) that controls a gate which moves in the vertical direction and is intended for use at a vehicular entrance or exit to a drive, parking lot, or similar location.

Vehicular Vertical Pivot-Gate Operator (or System): A vehicular gate operator (or system) that controls a gate that moves in a arc in a vertical plane that is intended for use for vehicular entrances or exits to a drive, parking lot, or similar location.

Vehicular Vertical Slide-Gate Operator (or System): See Vehicular Vertical Lift-Gate Operator (or System).

V-Track Gate: A gate roller system employing a ground mounted angle iron that supports the matching V-type wheels under a sliding gate.

Wedge Anchors: One of many names for a device driven into a hole which expands and thus cannot be pulled out, and allows for the bolting down of a gate operator.

Wired Control: A control implemented in a form of fixed physical interconnections between the control, the associated devices, and an operator to perform predetermined functions in response to input signals.

Wireless Control: A control implemented in means other than fixed physical interconnections (such as radio waves or infrared beams) between the control, the associated devices, and an operator to perform predetermined functions in response to input signals.

Wiring Diagram: A point to point illustration of where wires terminate in a control panel, operator or system.

XLPE: A designation for a common type of wire insulation, which employs cross-linked polyethylene to achieve XHHW (high heat-resistant water-resistant).

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