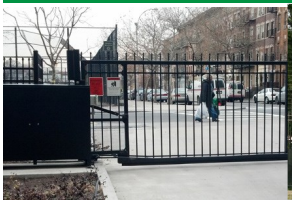
AutoGate
Gate Entry Systems

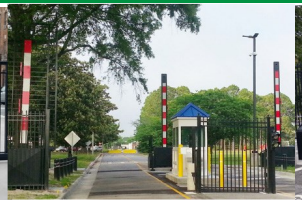
VERTICAL PIVOT GATE OPERATOR

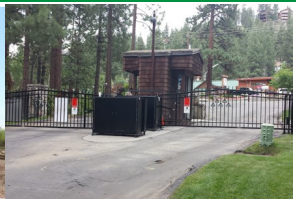
INSTALLATION AND OPERATION MANUAL

AG #_____

CURBS | HIGH SECURITY | CRASH | RAILROAD | CUSTOM





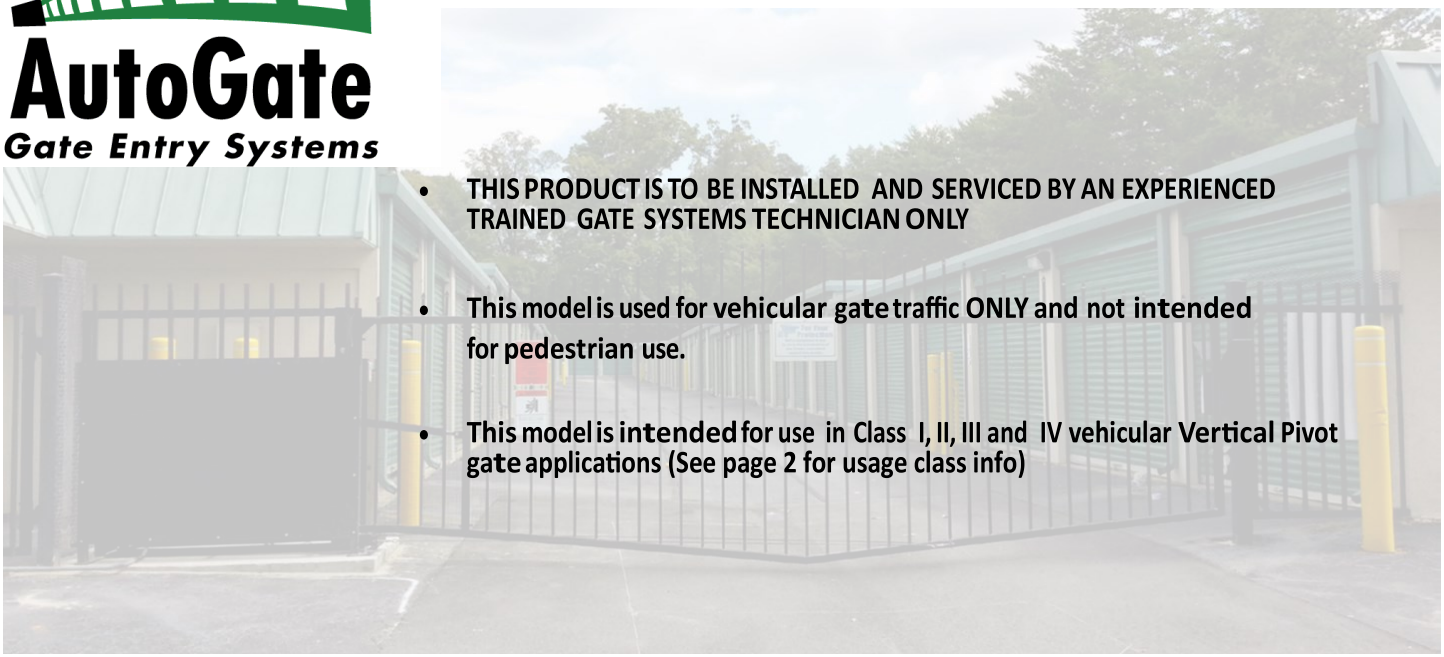


AutoGate Inc. • 7306 Driver Rd. Berlin Heights OH • 800-944-4283 • www.AutoGate.com

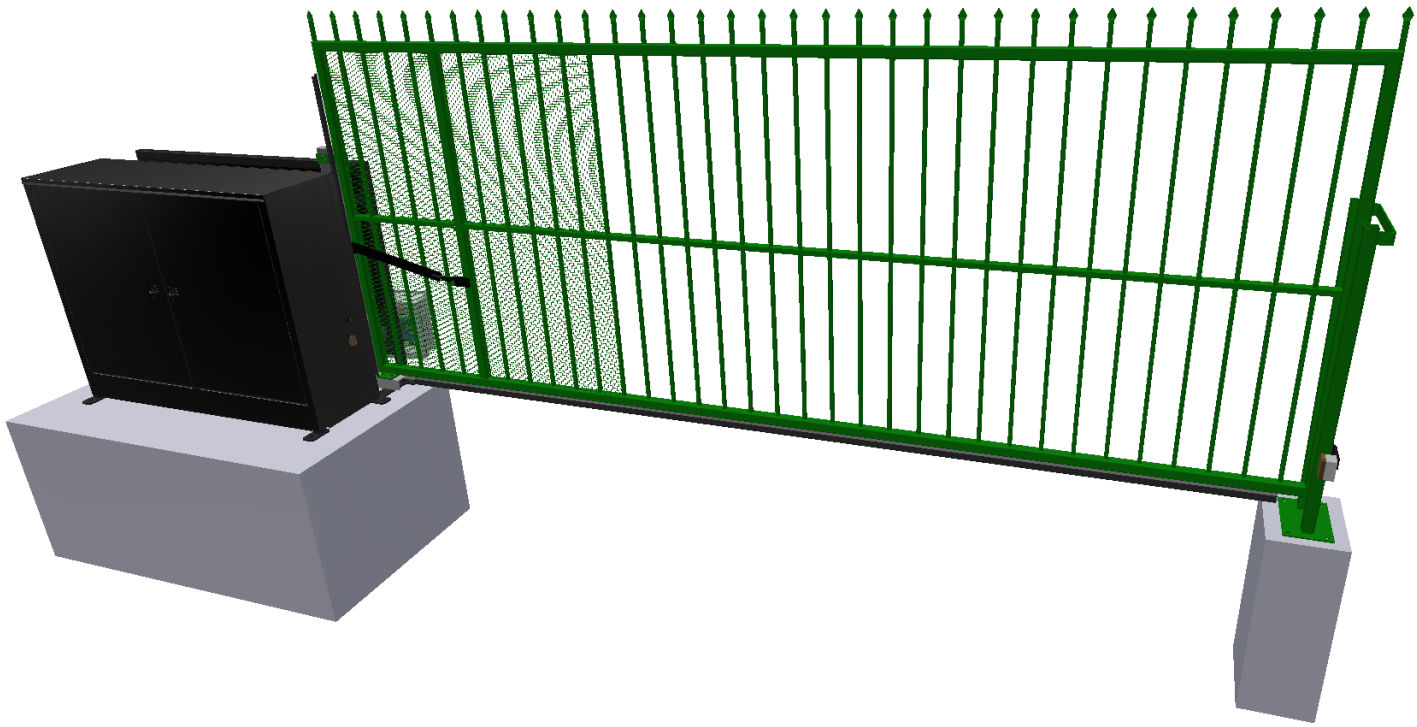
AutoGate
Gate Entry Systems

VERTICAL PIVOT GATE OPERATOR

INSTALLATION MANUAL



- THIS PRODUCT IS TO BE INSTALLED AND SERVICED BY AN EXPERIENCED TRAINED GATE SYSTEMS TECHNICIAN ONLY
- This model is used for vehicular gate traffic ONLY and not intended for pedestrian use.
- This model is intended for use in Class I, II, III and IV vehicular Vertical Pivot gate applications (See page 2 for usage class info)



FULL SIZE MANUAL AVAIALBLE TO DOWNLOAD AND PRINT AT WWW.AUTOGATE.COM

c UL us LISTED

MODEL VPG2490

TABLE OF CONTENTS

INTRODUCTION

AutoGate Vertical Pivot Gate Systems (VPGs) are offered in many styles and aesthetic uniqueness that surpass our competition. Each system is quoted, designed, assembled and fabricated uniquely to each site. Nothing is cookie cutter at Autogate except for our quality and commitment for delivering an exceptional product. In an industry of products that force the site or project to adjust to the limitation of a system, AutoGate seeks to adapt our systems to meet and exceed current, planned and future site conditions. VPGs are customizable for all site conditions:

- **Varying road grades**
- **Curbs**
- **Space limitations**
- **Security requirements**
- **Weather conditions**
- **Aesthetic desires**

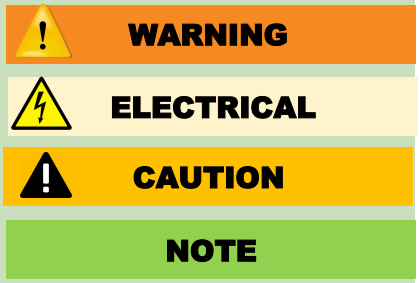
These are true and consistent product differentiators.

Automatic Gate Operators can produce high levels of force, therefore, it is very important that all gate operator system installers and designers are fully aware of potential hazards that exist with an incorrectly installed or designed systems. The internal safety capabilities of a gate operator system are not enough to reduce the risk of injury. The operator is only one part of a properly installed system which when combined with all ASTM F2200 requirements and correctly installed approved entrapment devices will yield a completed UL 325, 7th edition/CSA 22.2 NO. 247-14 listed system that will not only provide convenience and security, but will be safer with a minimal risk of injury. This gate system should only be installed and serviced by a trained and preferably a Certified Gate Operator Installer. The following information contained in this manual along with the installation checklist provided will make you aware of potential areas that are of a safety concern. Disregarding any of the following may result in SERIOUS INJURY OR DEATH!

SECTION 1 — SAFETY

SAFETY SIGN AND SYMBOL REVIEW

When you see these Safety Symbols and Signal Words on the following pages, they will alert you to the possibility of Serious Injury or Death if you do not comply with the warnings. The hazard may come from something mechanical or from electric shock. Read the warnings carefully. AS well as alerting you to the possibility of damage to your gate and/or the gate operator if you do not comply with the cautionary statements that accompany it. Read them carefully.



IMPORTANT NOTE:

- **BEFORE** attempting to install, operate or maintain the operator, you must read and fully understand this manual and follow all safety instructions.
- **DO NOT** attempt repair or service of your gate operator unless you are an experienced or factory trained Service Technician.

WARNING: This product can expose you to chemicals including lead, which are known to the State of California to cause cancer or birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

USAGE CLASS

CLASS I - RESIDENTIAL 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.

CLASS II - COMMERCIAL/GENERAL ACCESS 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.

CLASS III - INDUSTRIAL/LIMITED ACCESS VEHICULAR GATE OPERATOR

A vehicular gate operator (or system) intended for use in an industrial location or building such as a factory, loading dock area or other locations not accessible by or intended to service the general public.

CLASS IV - RESTRICTED ACCESS 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.

UL 325 ENTRAPMENT PROTECTION REQUIREMENTS

VERTICAL PIVOT GATE OPERATOR

GATE OPERATOR ENTRAPMENT PROTECTION TYPES

TYPE A	Inherent (built into the operator) entrapment protection system
TYPE B1	Non-contact sensors such as photoelectric sensors/beams
TYPE B2	Contact sensors such as edge sensors

The same type of device shall not be used for both entrapment protection means. Use of a single device to cover both the opening and closing directions is in accordance with the requirement; however a single device is not required to cover both directions. This operator is provided with Type A. The installer is required to install additional entrapment protection devices in each entrapment zone.

WARNING

IMPORTANT SAFETY INSTRUCTIONS

WARNING—TO REDUCE THE RISK OF INJURY OR DEATH, READ AND FOLLOW ALL INSTRUCTIONS.

1. Never let children operate or play with gate controls. Keep the remote control away from children.
2. Always keep people and objects away from the gate. NO ONE SHOULD CROSS THE PATH OF THE MOVING GATE.
3. DO NOT OPEN the Gate Operator cabinet while gate is in motion
4. Test the gate operator monthly. The gate MUST reverse on contact with a rigid object or stop when an object activates the non-contact sensors. After adjusting the force or the limit of travel, retest the gate operator. Failure to adjust and retest the gate operator properly can increase the risk of injury or death.
5. Use the emergency release only when the gate is not moving.
6. KEEP GATES PROPERLY MAINTAINED. Read the user's manual. Have a qualified service person make repairs to gate hardware.
7. The entrance is for vehicles only. Pedestrians must use separate entrance.
8. SAVE THESE INSTRUCTIONS.

GENERAL SAFETY INSTALLATION INFORMATION

WARNING! INSTALL AND OPERATE THE GATE OPERATOR ONLY WHEN:

1. The operator is appropriate for the construction of the gate and the usage Class of the gate.
2. All areas of the moving vertical pivot gate panel from the bottom of the gate to the top of the gate or a minimum of 1.83 m (72 in) above grade, whichever is less, that pass by a fixed stationary object, and in the area of the adjacent fence that the gate covers during the travel of the gate, shall be designed, guarded or screened to prevent a 57 mm (2-1/4 in) diameter sphere from passing through such areas.
3. All exposed pinch points are eliminated or guarded
4. The installer has ensured "a)" through "h)" below are clearly understood and followed:
    a) The operator is intended for installation only on gates used for vehicles. Pedestrians must be supplied with a separate access opening. The pedestrian access opening shall be designed to promote pedestrian usage. Locate the gate such that persons will not come in contact with the vehicular gate during the entire path of travel of the vehicular gate.
    b) The gate must be installed in a location so that enough clearance is supplied between the gate and adjacent structures when opening and closing to reduce the risk of entrapment. Swinging gates shall not open into public access areas.
    c) For gate operators utilizing Type D protection:
        1) The gate operator controls must be placed so that the user has full view of the gate area when the gate is moving,
        2) Automatic closing devices (such as a timer, loop sensor, or similar device) shall not be employed, and
        3) No other activation devices shall be connected.
    d) Permanently mounted controls intended for user activation must be located at least 1.83 m (6 ft) away from any moving part of the gate and where the user is prevented from reaching over, under, around or through the gate to operate the controls.

    Exception: Emergency access controls only accessible by authorized personnel (e.g. fire, police, EMS) may be placed at any location in the line-of-sight of the gate.

    e) The Stop and/or Reset button must be located in the line-of-sight of the gate. Activation of the reset control shall not cause the operator to start.
    f) A minimum of two (2) WARNING SIGNS shall be installed in the gate area. Each warning sign is to be visible by persons located on the side of the gate on which the placard is installed.
    g) For gate operators utilizing a non-contact sensors:
        1) See instructions on the placement of non-contact sensors for each type **(A, B1, B2)** of application,
        2) Care shall be exercised to reduce the risk of nuisance tripping, such as when a vehicle, trips the sensor while the gate is still moving, and
        3) One or more non-contact sensors shall be located where the risk of entrapment or obstruction exists, such as the perimeter reachable by a moving gate or barrier.
    h) For a gate operator utilizing a contact sensors:
        1) One or more contact sensors shall be located where the risk of entrapment or obstruction exists, such as at the leading edge and trailing edge.
        2) One or more contact sensors shall be located at any pinch point of a vehicular vertical pivot gate.
        3) A hardwired contact sensor shall be located and its wiring arranged so that the communication between the sensor and the gate operator is not subjected to mechanical damage.

INSTALLATION INFORMATION PER UL 325

1. Vehicular gate systems provide convenience and security. Gate systems are comprised of many component parts. The gate operator is only one component. Each gate system is specifically designed for an individual application.
2. Gate operating system designers, installers and users must take into account the possible hazards associated with each individual application. Improperly designed, installed or maintained systems can create risks for the user as well as the bystander. Gate systems design and installation must reduce public exposure to potential hazards.
3. A gate operator can create high levels of force in its function as a component part of a gate system. Therefore, safety fea-tures must be incorporated into every design. Specific safety features include:
    - Contact Edges Sensors
    - Guards for Entrapment Areas
    - Photoelectric Sensors/Beams
    - Screen Mesh
    - Instructional and Precautionary Signage
4. Install the gate operator only when:
    - The operator is appropriate for the construction and the usage class of the gate.
    - All openings or leading edge of a Vertical Pivot gate operator that pass by any fixed stationary objects while traveling open or closing, shall be designed, guarded or screened to prevent a 2 ¼" (57mm) sphere from passing through or entering the protected area designed to prevent entrapment.
5. The operator system is intended for vehicular traffic only! Pedestrians must be supplied with a separate access opening. The pedestrian access opening shall be designed to promote pedestrian usage. Locate the pedestrian access (gate) such that persons will not come in contact with the vehicular gate during the entire path of travel of the vehicular gate.
6. The gate must be installed in a location so that enough clearance is supplied between the gate and adjacent structures when opening and closing to reduce the risk of entrapment.
7. The gate must be properly installed and work freely in both directions when disengaged from the gate operator drive system.
8. Controls intended for user activation must be located at least 6 feet (1.8 m) away from any moving part of the gate and where the user is prevented from reaching over, under, around or through the gate to operate the controls. Outdoor or easily accessible controls shall have a security feature to prevent unauthorized use.

    Exception: Emergency access controls only accessible by authorized personnel (e.g. fire, police) may be placed at any location in the line-of-sight of the gate.

9. The Stop and/or Reset (if provided separately) must be located in the line-of-sight of the gate. Activation of the reset control shall not cause the operator to start.
10. A minimum of two (2) WARNING SIGNS shall be installed, one on each side of the gate where easily visible.
11. For a gate operator utilizing a non-contact sensor:
    - Reference owner's manual regarding placement of non-contact sensor for each type of application. See Install Entrapment Protection section.
    - Care shall be exercised to reduce the risk of nuisance tripping, such as when a vehicle trips the sensor while the gate is still moving.
    - One or more non-contact sensors shall be located where the risk of entrapment or obstruction exists, such as the perimeter reachable by a moving gate or barrier.
12. For a gate operator utilizing a contact edge sensor:
    - One or more contact sensors shall be located where the risk of entrapment or obstruction exists.
    - A hard wired contact sensor shall be located and its wiring arranged so the communication between the sensor and the gate operator is not subject to mechanical damage.

NOTE

At least two (2) independent protection means are required in each direction of travel. The term "means" refers to devices such as Type "A" (Inherent Limit/Position Sensor) or "B1" (Non -Contact sensors/beams) and "B2" (Contact Edge Sensors). It is the installers responsibility to identify and protect all entrapment zones.

Entrapment is the condition when an object or person is caught or held in a position that increases the risk of injury. An Entrapment "zone" is any area of the Vertical Pivot Gate system that entrapment can occur.

GATE CONSTRUCTION INFORMATION ASTM F2200

Vehicular gates should be installed in accordance with ASTM F2200: Standard Specification for Automated Vehicular Gate Construction. For a copy, contact ASTM directly at 610-832-9585 or www.astm.org.

GENERAL REQUIREMENTS

1. Gates shall be constructed in accordance with the provisions given for the appropriate gate type listed, refer to ASTM F2200 for additional gate types.
2. Gates shall be designed, constructed and installed to not fall over more than 45 degrees from the vertical plane, when a gate is detached from the supporting hardware.
3. Gates shall have smooth bottom edges, with vertical bottom edged protrusions not exceeding 0.50 inches (12.7 mm) when other than the exceptions listed in ASTM F2200.
4. The minimum height for barbed tape shall not be less than 8 feet (2.44 m) above grade and for barbed wire shall not be less than 6 feet (1.83 m) above grade.
5. An existing gate latch shall be disabled when a manually operated gate is retrofitted with a powered gate operator.
6. A gate latch shall not be installed on an automatically operated gate.
7. Protrusions shall not be permitted on any gate, refer to ASTM F2200 for Exceptions.
8. Gates shall be designed, constructed and installed such that their movement shall not be initiated by gravity when an automatic operator is disconnected, in accordance with the following:
    - Vehicular horizontal slide gate. Shall not result in continuous, unimpeded movement in either lineal direction of its travel.
    - Vehicular horizontal swing gate. Shall not result in continuous, unimpeded movement in either direction along the arc of its path of travel.
9. For pedestrian access in the vicinity of an automated vehicular gate, a separate pedestrian gate shall be provided. The pedestrian gate shall be installed in a location such that a pedestrian shall not come in contact with a moving vehicular access gate. A pedestrian gate shall not be incorporated into an automated vehicular gate panel.

SPECIFIC APPLICATIONS

1. Any non-automated gate that is to be automated shall be upgraded to conform to the provisions of this specification.
2. This specification shall not apply to gates generally used for pedestrian access and to vehicular gates not to be automated.
3. Any existing automated gate, when the operator requires replacement, shall be upgraded to conform to the provisions of the required standard in effect at that time.

VEHICULAR VERTICAL PIVOT GATES

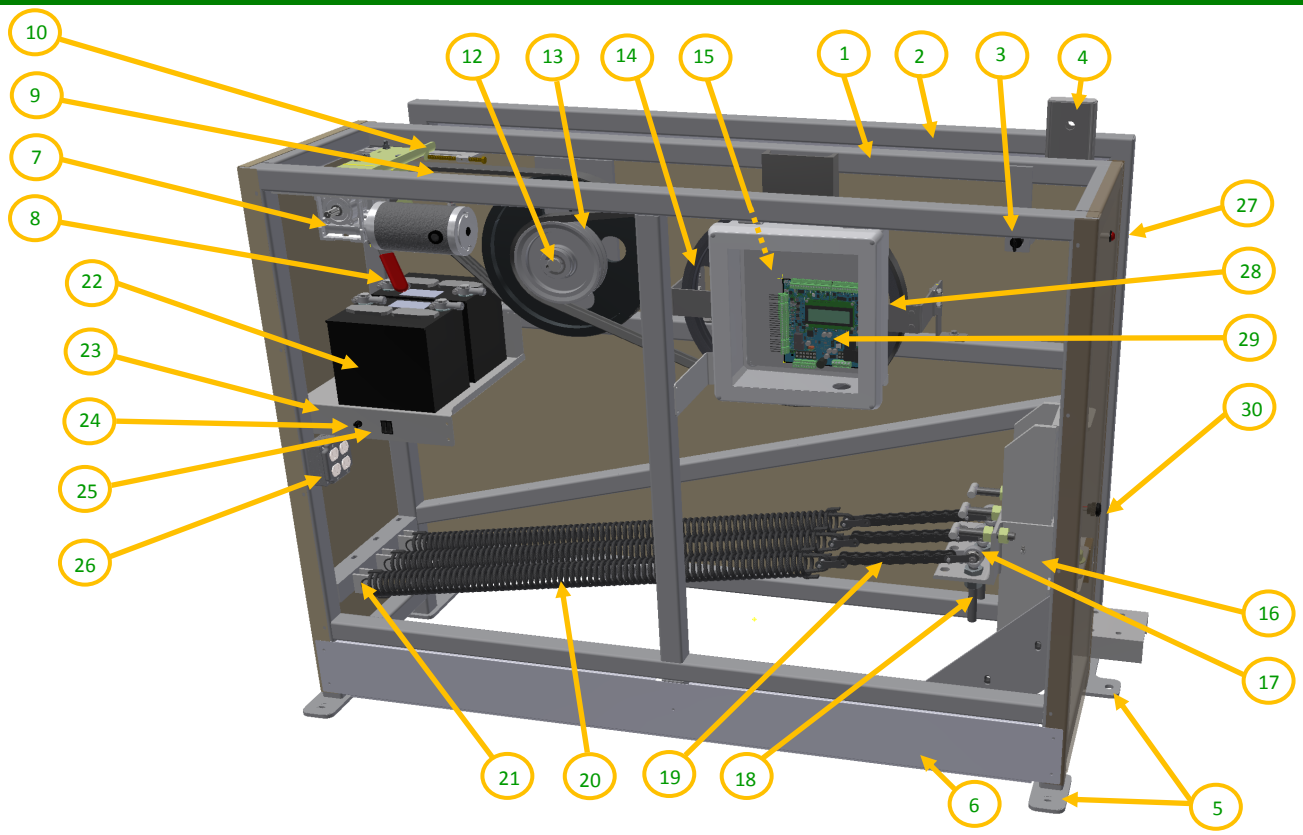
1. The following provisions shall apply to Class I, Class II and Class III vehicular Vertical Pivot gates:
2. All openings or leading edge of a Vertical Pivot gate operator that pass by any fixed stationary objects while traveling open or closing, shall be designed, guarded or screened to prevent a 2 ¼" (57mm) sphere from passing through or entering the protected area designed to prevent entrapment.
    Exception: All other fixed stationary objects greater than 16" (406mm) from the moving gate frame shall not be required to comply with this section.
3. Horizontal and Vertical frame members of a gate shall be smooth and shall not include protrusions other than gate hardware.
4. All gates shall be designed with sufficient lateral stability to assure that the gate will enter a receiver guide.
5. Class IV vehicular horizontal Vertical Pivot gates shall be designed, constructed and installed in accordance with security related parameters specific to the application in question.

SECTION 2 — TERMS, STANDARDS AND SPECIFICATIONS

GLOSSARY OF IMPORTANT TERMS

Operator	The mechanical device designed to open and close (raise and lower) the gate/barrier
Operator Arm	The steel tubing member of the operator the gate is bolted to and lifts the gate/barrier
Slide Assembly	An adjustable mechanism located on the operator arm that the extension springs attach to and by adjusting up and or down adds or subtracts tension to balance the operation of opening and closing of the gate panel.
Hand	The orientation or direction in which a gate assembly faces. Gate operator manufacturers determine the "Hand" of the operator by standing on the Private side of the gate entrance looking out.
False Panel	The exterior covering of the operator that typically faces the public side of the installation and provides protection from the moving gate/barrier.
Transport/Maintenance Pin (T/M)	Used to secure the Operator Arm when there is no gate attached. Also is used as a safety lock open/closed device during service work.
RAD (Right Angle Drive)	½ HP Motor Drive utilizing locking worm gear technology. The motor shaft and output shaft are oriented at 90° from each other. This type of drive provides for smoother operation throughout the gate movement cycle and is not back drivable.
Manual Operation Release Lever	Used to disengage the Right Angle Drive (RAD) from the belt drive system to allow manual opening or closing of the gate panel.
LPS (Limit/Position Sensor)	An electronic position sensor mounted on the main pulley drive shaft that provides gate position feedback to the control board. This component provides two separate features: 1. Type "A" inherent entrapment protection which safeguards against obstructions that may block and stop the gate during travel 2. Provides "open" & "close" limit positions
Genesis Control Board	The main circuit board that process the inputs and outputs to control the overall operation of the gate.
Kick Panel	The panel under the door to prevent any penetrating under the operator. It also helps prevent rodents from entering the bottom of the operator.
Gate Guard	The cage guard that protects the gate in the open position (up to 9') and prevents anyone from have access to that area.

OPERATOR DETAILS



1	OPERATOR FRAME	Main operator frame, 2” sq. steel tube construction
2	THROAT	Area between the operator and false panel where the gate opens up
3	TRANSPORT/MAINTENANCE PIN (T/M)	Used for locking the arm in place with or without the gate attached
4	OPERATOR ARM	Main 2” x 4” steel tube where the gate attaches
5	STAINLESS STEEL FOOTPADS	No messy rusty footpads
6	KICK PANEL	Prevents access under the operator and debris out
7	24VDC 90° RIGHT ANGLE DRIVE MOTOR (RAD)	1/2hp Gear motor drive to ensure safe and smooth operation
8	MANUAL OPERATION REALEASE LEVER	Disengages the coupler and allows the gate to be raised by hand
9	MOTOR DRIVE BELTS	(2) High quality...
10	MOTOR DRIVE BELT TENSIONER	One shown, total of two
11	GATE BELT TENSIONER	Allows you to tighten the belts ***(Not shown behind the Drive Pulley)***
12	INTERMEADITE DRIVE PULLIES	Provides high torque to move the gate
13	GATE DRIVE BELTS	(2) High quality belts to move the gate
14	MAIN GATE DRIVE PULLEY	Provides high torque to move the gate
15	LIMIT/POSITION SENSOR (LPS)	Digital Sensor that sets the open and close locations of the gate
16	SLIDE ASSEMBLY	Adjust the balancing up or down on the treaded rod (not pictured)*
17	T-BOLT ASSEMBLY	Fine tuning of the balancing
18	CHAIN TENSIONING BOLT ASSEMBLY	Roller chain attaches here
19	#80 ROLLER CHAIN	Connects the springs to the Chain tension Bolt
20	SPRINGS (Qty. will vary on gate size and weight)	Depending on gate size & weight, you can have 2 to 8 springs
21	REAR SPRING BARS	Attaches the springs, Qty. will vary on the # of springs
22	BATTERIES ((2) required, not supplied)	Min. 7Ah batteries, recommend Group 24 100Amp Marine Starting
23	BATTERY TRAY/POWER SUPPLY	Main Power Supply is mounted under the Battery Tray
24	3Amp AC Fuse	AC Supply fuse
25	AC/DC MAIN ON/OFF SWITCH	Turns on both the AC and DC power in one switch
26	INCOMING AC VOLTAGE JUNCTION BOX	Normally 120Vac, 240Vac compatible
27	FAULT LIGHT	Three flash modes: 1. Fault, 2: DC Power issue, 3: AC power issue
28	CONTROL BOX	Houses the Genesis control board and other accessory items
29	GENESIS CONTROL BOARD	State of the art control board with 4-line digital display
30	UL325 SIREN	Will be activate upon an ULfault
	* See Balancing Instructions for Slide details	

VERTICAL PIVOT GATE SYSTEM
MODEL VPG2490
SPECIFICATIONS

General Information

UL 325 7th Ed. Listed & CAN/CSA C22.2 No. 247-14 Listed

Rated for Continuous Duty Cycling

Power Supply Options: 120VAC—Single Phase, 20 Amp Service. 240VAC—Single Phase, 10 Amp Service. Solar.

Batteries & Charging System: Built-in Battery Backup. Two 12v Batteries Required (Field Supplied). Recommended Batteries: Group 24, Sealed Marine Starting

Gate Limit/Position Sensor (LPS): Combined Type "A" Entrapment protection. Open and Close Limit Position.

Open/Closing Speed: 10-12 seconds Std. Oversized gate speed of 14-16.

Shipping Weight: Typical VPG2490 Operator with 6' high x 20' long picket style gate = 1,500 - 1,800 lbs.

Warranty: Residential (5 years), Industrial/Commercial (3 years) from date of shipment on manufactured components workmanship. Purchased components and accessories are covered under their respective warranties. (See full warranty for details)

Optional Accessories: Solar Panels, Gear Motor Heater, Extreme Cold Package, MUTCD Reflective Tape, LED Warning lights, Audible Devices, and Emergency Access Systems (SOS, Opticom, Click to Enter, Key Box/Switch, etc.)

Motor & Drive System

RAD (Right Angle Drive): 1/2 HP, Gear Type, Right Angle Locking Worm Drive. Equipped with disengage lever for Manual Operation.

Dual Belt/High torque reduction system, Counter Balanced, Transport Maintenance pin (T/M) used for transport, maintenance to negate movement of gate panel).

Operator

Construction: Frame - 2" Sq., 11 Ga. (.120). Mounting pads—304 SS. Skins - 18 Ga. Galvaneal.

Gate Mounting Hardware: 304 Stainless Steel

Operator size: 68"Length, 53" Height, 30" Width

Paint: Standard Color - Black, powder coated. Spray applied colors are Commercial Coating 2-part High Solids Polyurethane. **Standard Spray Colors:** White, Brown, Green, and Gray. Custom colors available.

Genesis™ Control Board

Solid State coated programmable control board in an NEMA 4 electrical enclosure (Tested to –40° F).

Security Breach Protection: Built in 24V brake when A/C or battery is present. Optional internal locking Solenoid mechanism.

Monitored Inputs: Open - 2 inputs , Close - 2 inputs with an (2) additional programmable inputs for Open or Close.

Programmable Inputs, Outputs, & Relays: The board has 2 programmable inputs, 2 programmable outputs, and 2 built in relays for configuration and integration.

Control Wiring: 16 & 18 Ga. Single conductor. Copper with electronic compression terminals tin-plated for max corrosion prevention.

Dual Gate Operation: Programing allows for dual gate operation and Sally-Port configuration.

Delayed Closing: Programmable from 0 - 90 seconds.

Preemptive outputs: 1 - 5 seconds before gate moves.

Gate Construction

Gate Construction: 10' - 20' - 2" Sq., 11 Ga. (.120) Steel Tubing. Over 20' - 2 1/2" Sq. , 7 Ga. (.187) Aluminum Tubing.

Gate Lengths: 10' - 25' (Consult factor for over 25')
Gate Heights: 4' - 8' from pad grade. Consult factory for gates over 8' high as they require special crating and freight arrangements.

Picket Construction: Steel– 3/4" Sq. 18 Ga. Galvanized Tubing is standard. Aluminum—3/4" Sq. 1/8" wall is standard. Note: Contact factory for special sizes, spacing, and custom materials.

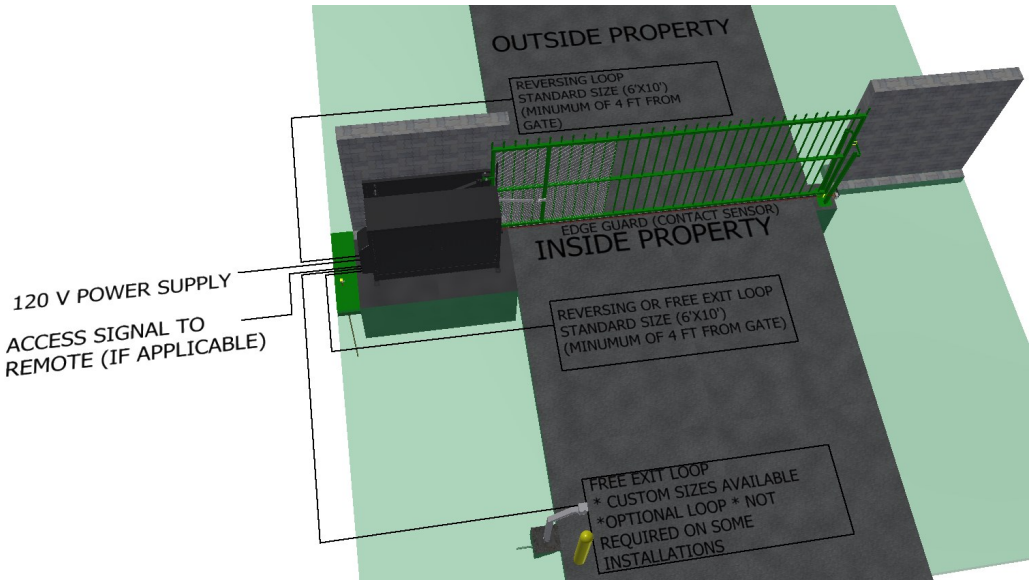
Chain Link Construction: 2 3/8" Sch. 40, 20 & 2" x .065" Galv. Steel Tubing 9 Ga. Galv. Fabric (12' up to 22').
2 3/8" Sch. 80, 40 & 2" x 1/8" 6061 Alum. Tubing 9 Ga. Alum Fabric (over 22' to 25').

Wind Bracing: Cable -75 mph design, 1/4" coated aircraft cable (16' 20' gates). Rigid Masted - Gates over 20' or certain heights and materials. Compliant with IBC Section 1609.6 Simplified Wind Load Method for 90 mph wind loading and the 150 mph hurricane wind loading.

Paint: Spray applied colors are Commercial Coating 2-part High Solids Polyurethane. **Standard Spray Colors:** Black, White, Brown, Green, and Gray. Custom colors available. **Powder coating available:** Max length of 25' and max height of 7'.

TYPICAL LAYOUTS W/CONDUIT RECOMMENDATIONS

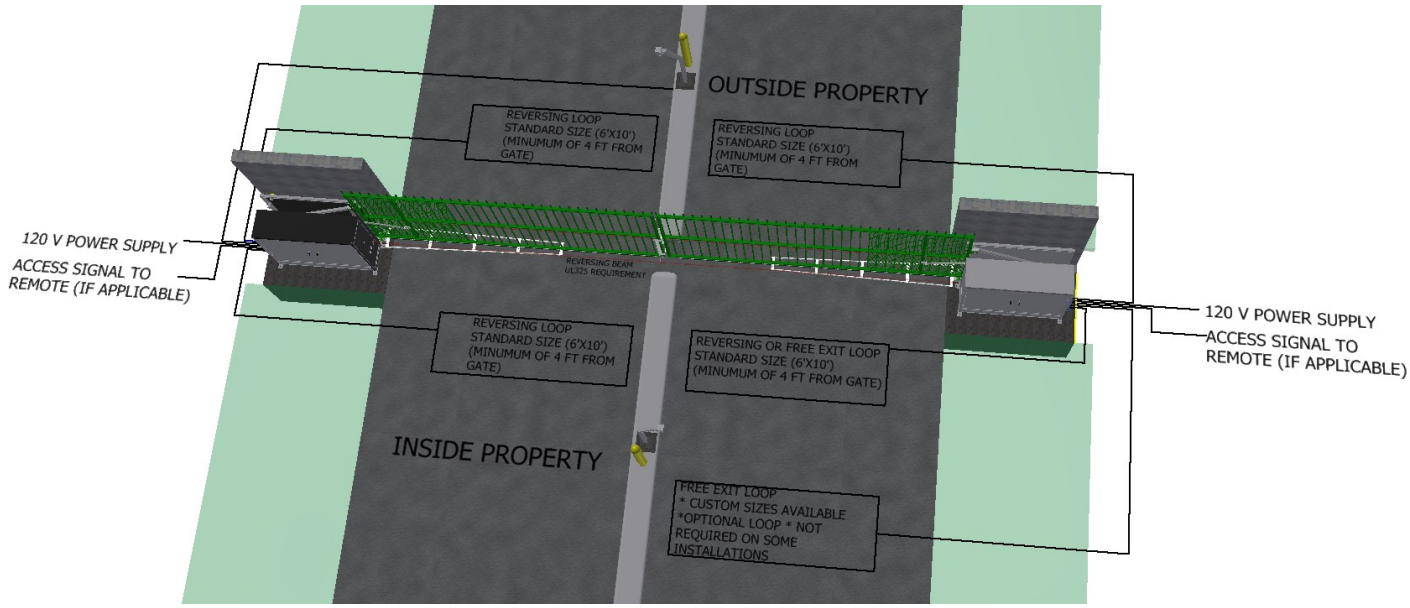
TYPICAL SINGLE GATE INSTALLATION



Typical conduit runs:

1. Loop “Homeruns”
2. AC Power Supply (20 AMP Circuit)
3. Access signal to remote (if applicable)
4. Keypad/card/phone signal & power
5. Photoelectric Sensor/Beam
6. Gate to Gate Communications (Dual gate or Primary/Secondary system)

TYPICAL DUAL GATE INSTALLATION

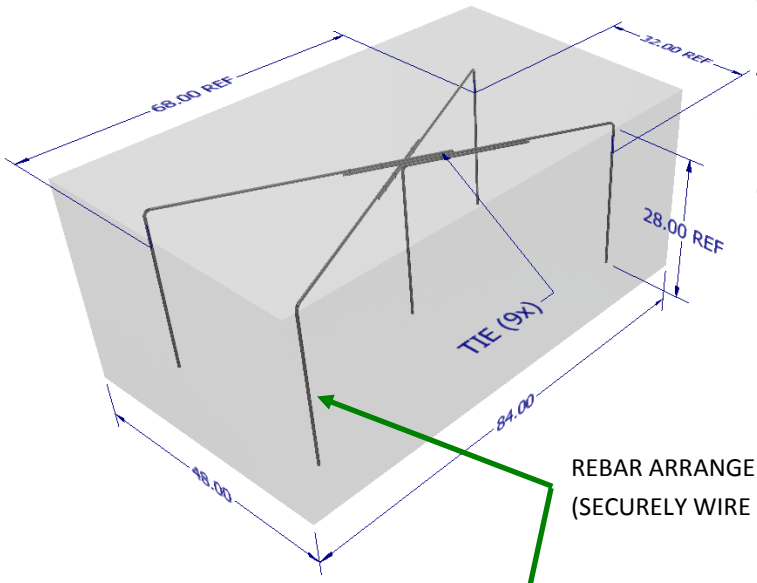


SECTION 3 — INSTALLING YOUR VERTICAL PIVOT GATE SYSTEM

TOOLS AND EQUIPMENT RECOMMENDATIONS

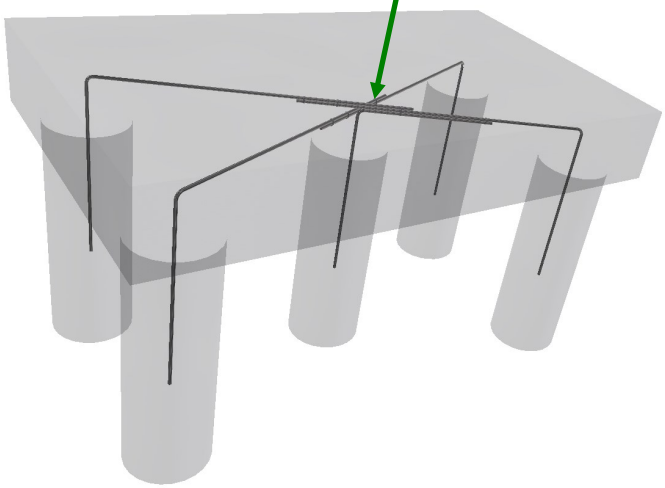
- Lifting Strap
- Hammer & Level
- Grease Gun, Lithium Grease
- Screwdriver Sets (Flat & Phillips)
- Electrical Tape, Wire Cutters/Strippers
- Misc. Electrical Connectors
- Chalk Line
- Multi-Meter (DCV & AMPS)
- Hammer Drill, 1/2 & 5/8 Bits
- Tape Measure
- ½” Drive Socket Set: 1/2”, 9/16”, 3/4”, 15/16”, 1-1/8”
- Open End Wrenches: 1/2”, 9/16”, 3/4”, 15/16”, 1-1/8”
- Batteries: (2) 12 VDC Group 24 Deep cycle marine starting

RECCOMENDED CONCRETE FOUNDATION OPTIONS



REBAR ARRANGEMENT
(SECURELY WIRE ALL 9 INTERSECTING POINTS)

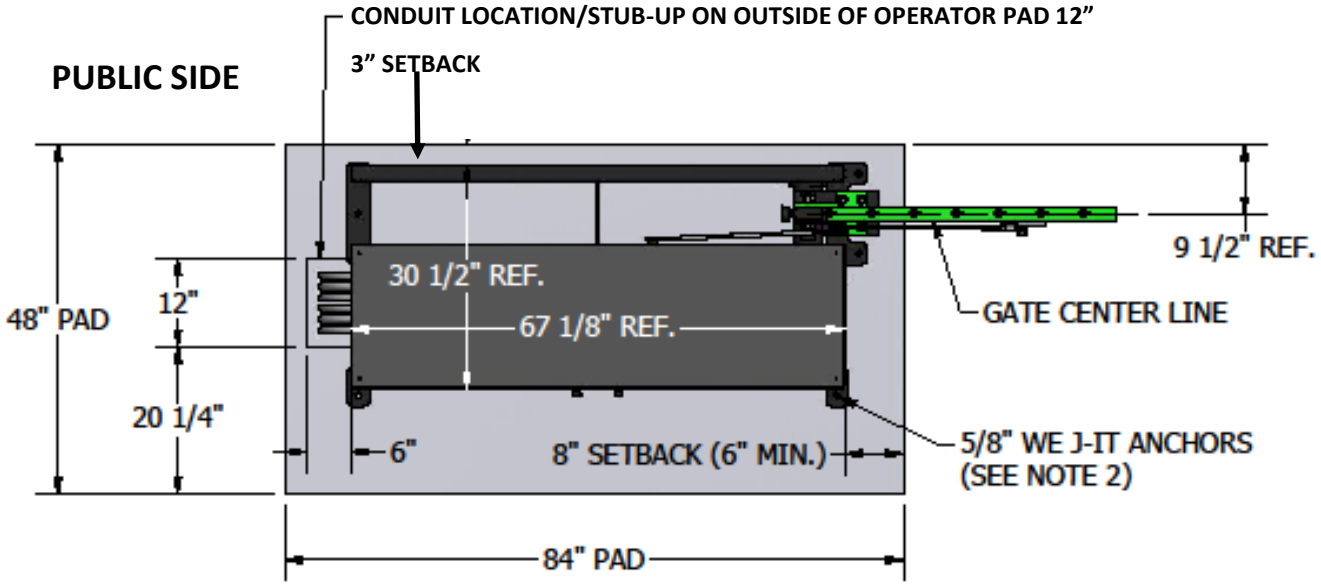
1. PAD DEPTH SHOULD BE BELOW LOCAL FROST DEPTH
2. TOP OF PAD MUST BE FLAT AND LEVEL
3. USE REBAR THAT CONFORMS WITH LOCAL CODES OR PROJECT SPECIFICATIONS
4. REBAR MUST BE INSTALLED 6"-8" BELOW TOP SURFACE.
5. CONCRETE COMPRESSIVE STRENGTH MINIMUM 3000 PSI
6. DRAWING IS FOR REFERENCE ONLY, SUPERCEDED BY LOCAL AND SITE GOVERNING CODES



1. TOP PAD DEPTH SHOULD BE 10”-12” THICK
2. (5) AUGERED 12”Ø HOLES SHOULD BE BELOW LOCAL FROST LINES
3. TOP OF PAD MUST BE FLAT AND LEVEL
4. USE REBAR THAT CONFORMS WITH LOCAL CODES OR PROJECT SPECIFICATIONS
5. REBAR MUST BE INSTALLED 6"-8" BELOW TOP SURFACE
6. CONCRETE COMPRESSIVE STRENGTH MINIMUM 3000 PSI
7. DRAWING IS FOR REFERENCE ONLY, SUPERCEDED BY LOCAL AND SITE GOVERNING CODES

LEFT AND RIGHT HAND STANDARD PAD & CONDUIT

LEFTHAND OPERATOR

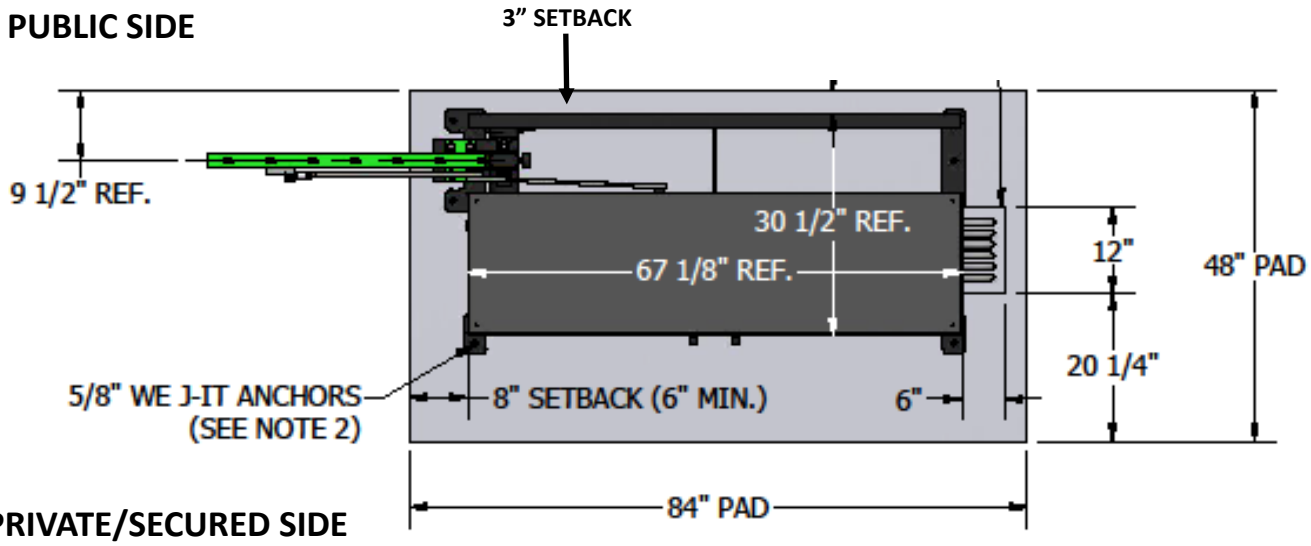


TYPICAL CONDUITS (Use 3/4" conduit or larger)

- 120Vac, Minimum 20Amp Circuit
- "Entrance" Keypad/Reader
- "Exit" Keypad/Reader
- Reversing Loop(s)
- Free Exit Loop(s)
- Office Communication
- Reversing Beam
- Optional

NOTES:
1) **Pad Dimensions can vary per site**
2) **Leave at least 3" between Anchors and edge of pad**
3) **All pads must be level and below local frost line**

RIGHTHAND OPERATOR



TYPICAL CONDUITS (Use 3/4" conduit or larger)

- 120Vac, Minimum 20Amp Circuit
- "Entrance" Keypad/Reader
- "Exit" Keypad/Reader
- Reversing Loop(s)
- Free Exit Loop(s)
- Office Communication
- Reversing Beam
- Optional

NOTES:
1) **Pad Dimensions can vary per site**
2) **Leave at least 3" between Anchors and edge of pad**
3) **All pads must be level and below local frost line**

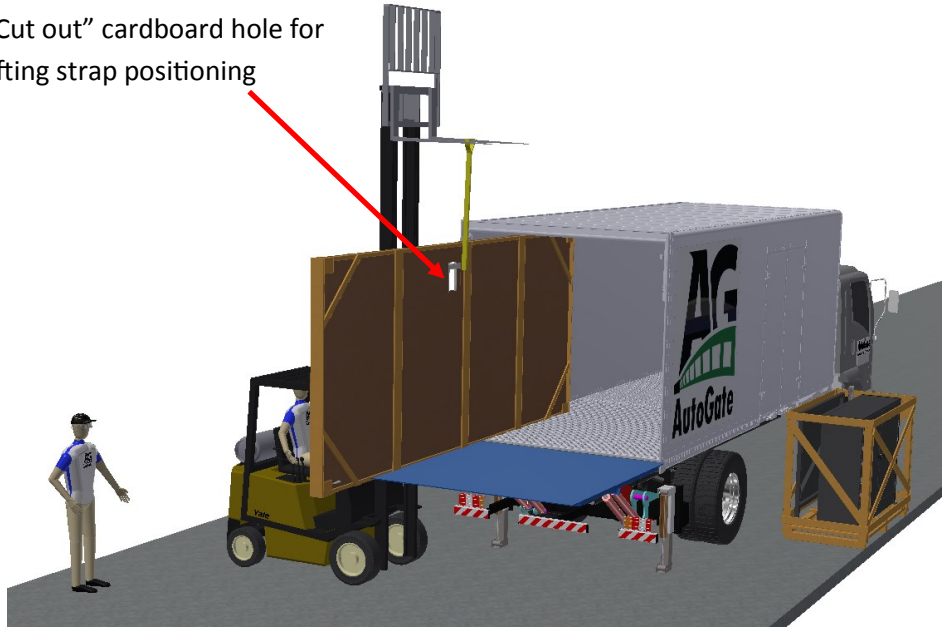
SECTION 4—RECEIVING AND UNOADING YOUR VERTICAL PIVOT GATE SYSTEM

Gate operator and gate can be delivered assembled but are commonly delivered in two separate crates. Crated operators are assembled and ready for the gate to be attached with supplied hardware.

CAUTION: ALWAYS INSPECT ALL ITEMS FOR DAMAGE BEFORE THE DRIVER LEAVES!
DOCUMENT ANY DAMAGE ON THE DELIVERY RECEIPT.
DO NOT DROP THE GATE OR THE OPERATOR FROM THE TRUCK!

Common Carrier Delivery Unloading Tips

- Always request a delivery service with lift gate delivery trucks
- Use the lift gate or a fork lift to lower the operator
- Be sure to use leveling jacks (if available) to support weight of operator on tail lift
- ***Do not stand under or near operator while lifting***



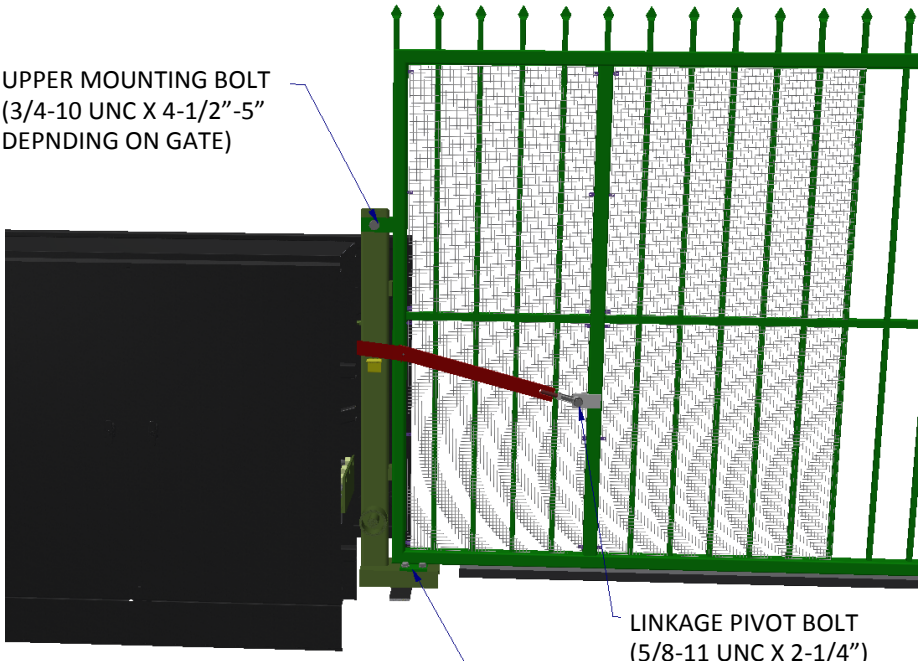
- Use a fork lift or similar device with a nylon lifting strap to off load the gate
- With lift gate in raised position gate can be positioned partially out of the truck
- *POSITION GATE SO THAT SUPPLIED CUT OUT FOR LIFTING IS JUST OUTSIDE THE TRUCK*
- ***Do not stand under or near gate while lifting***

ATTACHING YOUR GATE TO THE OPERATOR

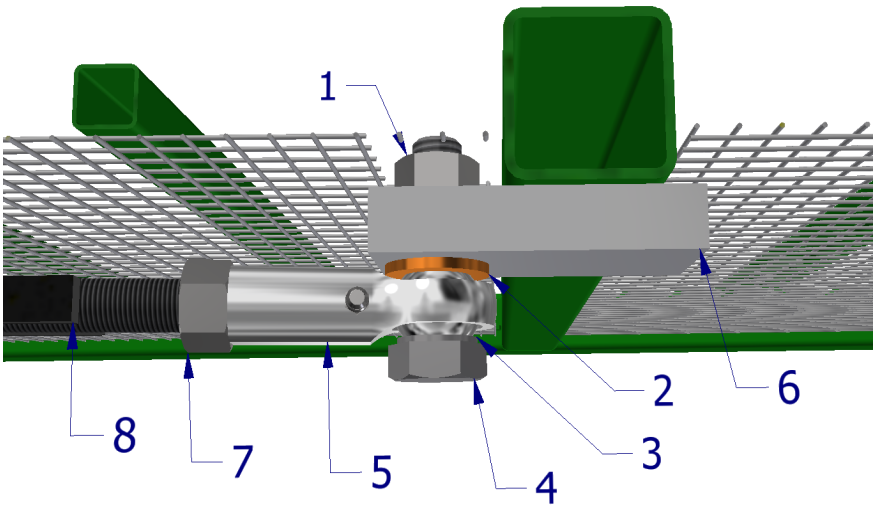
Carefully remove Gate operator and gate from packaging. Locate the cabinet door keys hanging on the Transport/ Maintenance Pin (T/M). Any accessories and necessary fasteners are packaged inside the operator.

WARNING: DO NOT REMOVE TRANSPORT/MAINTENANCE PIN UNTIL GATE HAS BEEN BOLTED TO THE OPERATOR ARM AND THE OPERATOR IS SECURLEY ANCHORED ACCORDING TO INSTRUCTIONS BELOW. OPERATOR ARM IS UNDER EXTREME TENSION LOAD AND REMOVING PIN COULD LEAD TO SERIOUS INJURY OR DEATH. IF AUTOGATE ATTACHED THE GATE AND OPERATOR PRIOR TO DELIVERY, INSPECT ALL BOLTS FOR TIGHTNESS.

1. Install Gate on Operator Arm.
2. Use (1) SS 3/4”-10 x 4 1/2” (STEEL GATE) or (1) SS 3/4”-10 x 5” (ALUMINUM GATE) Apply Never Seize to ALL SS bolt threads. Use (4) SS 1/2 x 1-1/2” Bolts for the lower mounting connection.
3. Insert the top bolt first and then the bottom four (4) bolts finger tight. Be certain gate is properly aligned before tightening. Tighten bottom bolts first, then tighten top bolt.
4. Linkage Arm is zip tied in the throat for shipping.
5. Locate Linkage Pivot Bolt kit (5/8” x 2 -1/4”) and follow the assembly diagram below. Tighten bolt to the gate lug hole. You may have to push down on the gate to insert Linkage Bolt.



WARNING: NOT FOLLOWING ASSEMBLY INSTRUCTIONS MAY CAUSE SERIOUS INJURY OR DEATH AS WELL AS DAMAGE TO THE GATE OR OPERATOR.



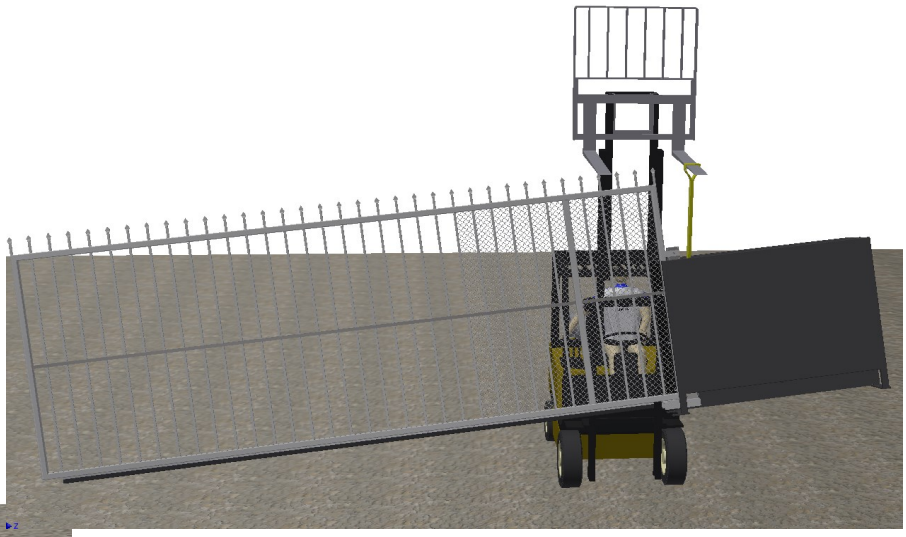
	PARTS LIST
#	DESCRIPTION
1	5/8-11 ZINC PLATED FULL HEX NUT
2	5/8” HEAVY WASHER
3	5/8” S.S. FLAT WASHER
4	5/8-11 x 2-1/4” LARGE HEX BOLT
5	5/8” DIA. 5/8-18 FEMALE ROD END
6	3/4” x 2” x 4” LUG
7	5/8-18 HEX NUT
8	LINKAGE ARM

LIFTING AND POSITIONING YOUR ASSEMBLED GATE AND OPERATOR

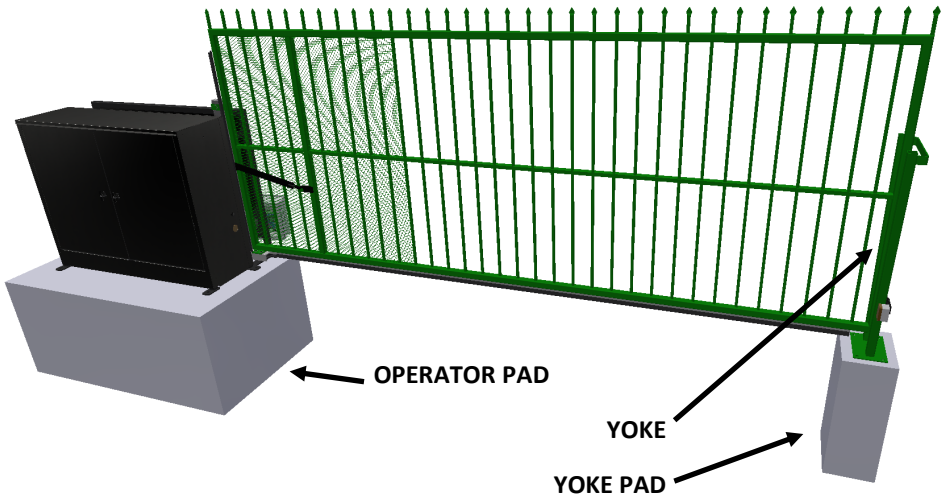
NOTE: It is recommended to attach Gate to Operator Arm before lifting (for better balance), but it is not mandatory. If using a Forklift to position Operator only, lift from sides only!

Do not try to lift gate and operator together from the side!

Use a lifting strap to lift Gate & Operator. The strap should be secured around Operator Arm and T/M Safety Pin or the top rail of the gate near the operator arm.



NOTE: ATTACHED GATE AND OPERATOR ARE NOT BALANCED AND WILL LEAN WHILE BEING LIFTED IN THIS MANNER. DO NOT ATTEMPT TO MANUALLY STABILIZE GATE OR OPERATOR.



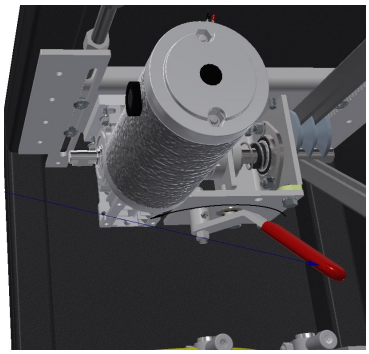
1) Place Gate & Operator Assembly on pad so the end of the Gate is centered over the Yoke pad or intended yoke position for the site (for yoke styles mounted to posts, buildings, etc.). Allow a minimum three (3”) inches from edge of the operator pad to anchor bolt holes to prevent concrete damage.
2) Position and align Yoke and center under gate on the pad, to a post or wall.
3) Secure Operator with (1) 5/8” dia. Wedge Bolt in rear; check alignment on pad as well as gate panel alignment before installing (4) remaining anchor bolts.
4) Secure Yoke with four (4) 1/2” dia. Anchor bolts (provided). If installing a Ground Yoke, allow a minimum space of two (2”) inches between bottom of Gate and Yoke.

MANUAL OPERATION OF THE GATE

DO NOT ATTEMPT UNTIL THE OPERATOR HAS BEEN ANCHORED TO THE CONCRETE PAD!

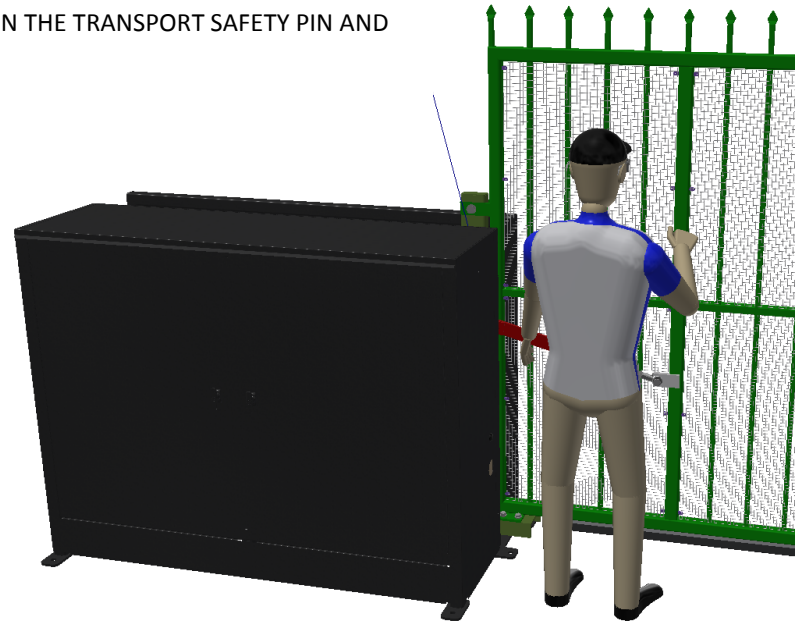
WARNING: DO NOT REMOVE TRANSPORT SAFETY PIN UNTIL GATE AND OPERATOR ARM HAVE BEEN ATTACHED ACCORDING TO INSTRUCTIONS. SPRINGS AND OPERATOR ARM ARE UNDER LOAD AND REMOVING PIN COULD LEAD TO SERIOUS INJURY OR DEATH.

MANUAL OPERATION RELEASE PROCEDURE

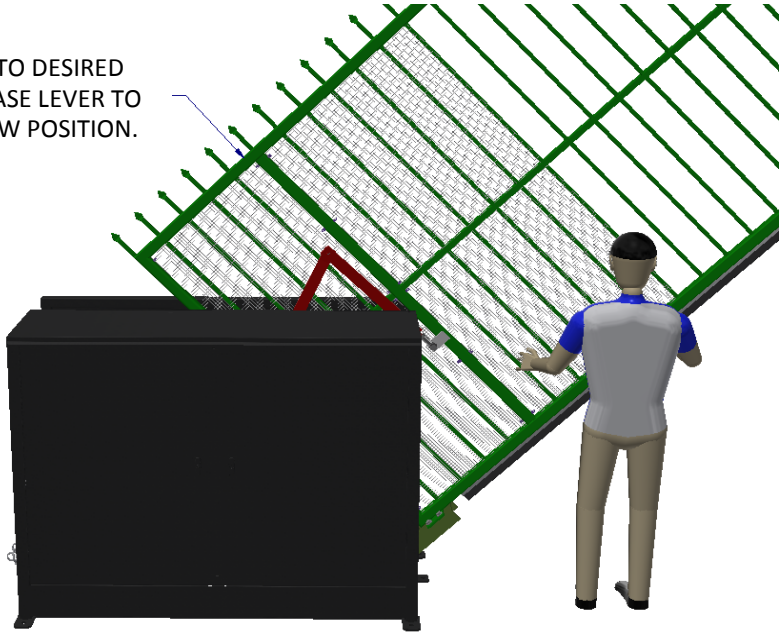


WARNING! DO NOT ATTEMPT TO MANUALLY OPEN AN MOVING GATE!

1. ROTATE THE **RED** HANDLE UNDER THE GEARMOTOR TO DISENGAGE THE DRIVE COUPLER.
2. REMOVE TRANSPORT SAEFTY PIN IF IT IS PLACE AND HANG ON THE HOOK PROVIDED.
3. IF GATE IS IN THE CLOSED POSITION, LIFT UP ON THE LINKAGE ARM WHILE HOLDING THE GATE. THE GATE IS UNDER SPRING TENSION AND WILL WANT TO TRAVEL OPEN.
4. MANUALLY PUSH THE GATE ALL THE OPEN TO THE DESIRED POSITION AND PULL THE **RED** LEVER BACK INTO PLACE. MOVE THE GATE UP OR DOWN SLIGHTLY TO LOCK THE CUPLER BACK IN PLACE.
5. IF THE GATE IS FULLY OPEN YOU CAN ALSO RETURN THE TRANSPORT SAFETY PIN AND LOCK THE GATE OPEN.

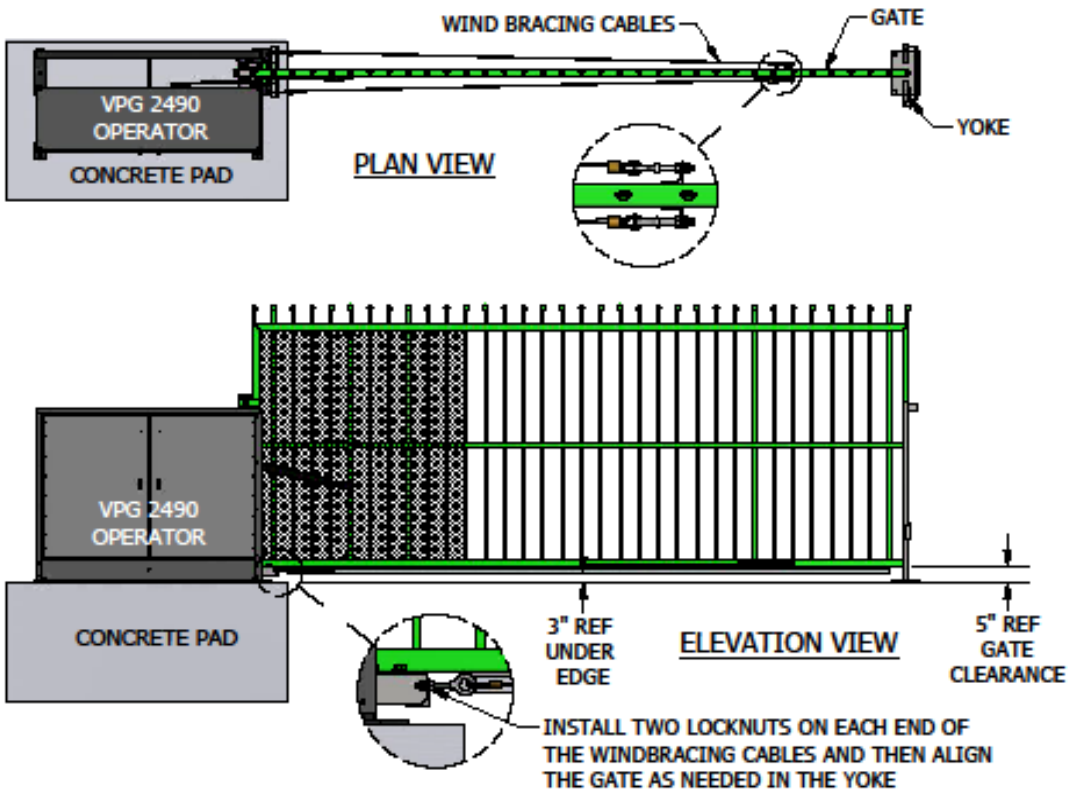


MANUALLY MOVE GATE TO DESIRED POSITION. RETURN RELEASE LEVER TO ENGAGE COUPLER AT NEW POSITION. GATE WILL SELF LOCK.

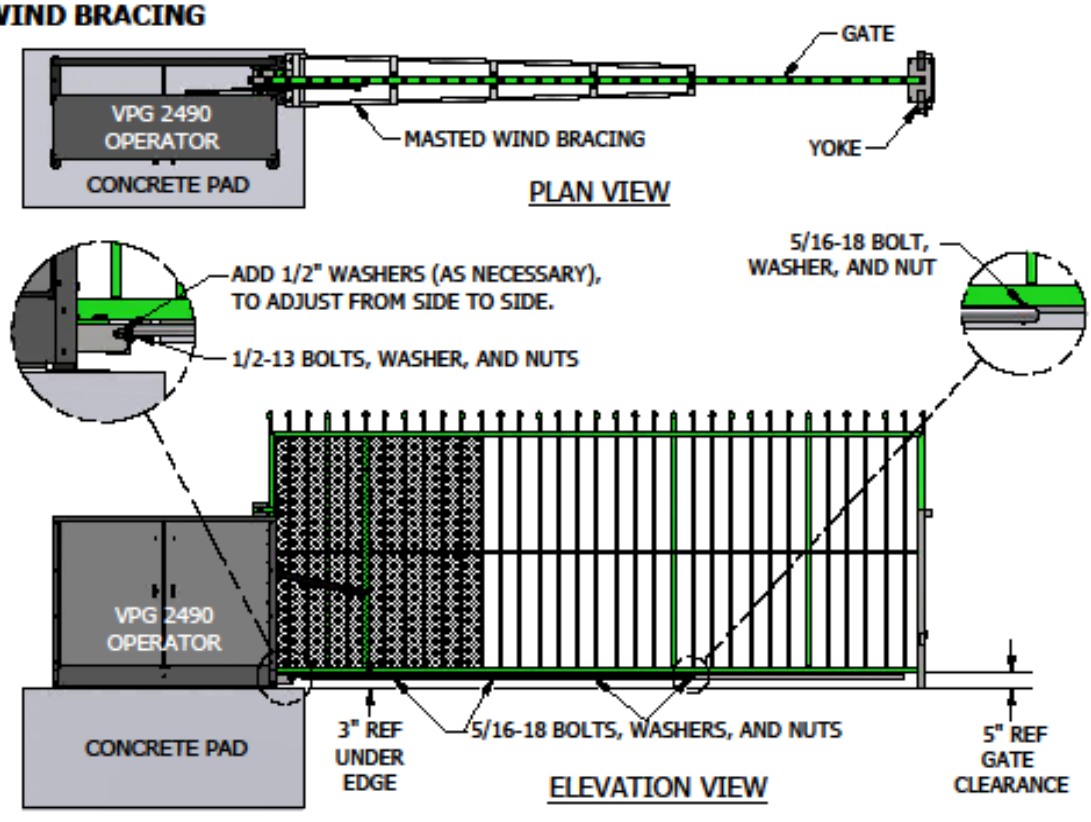


MASTED WINDBRACING

CABLE WIND BRACING



MASTED WIND BRACING



GATE GUARDS

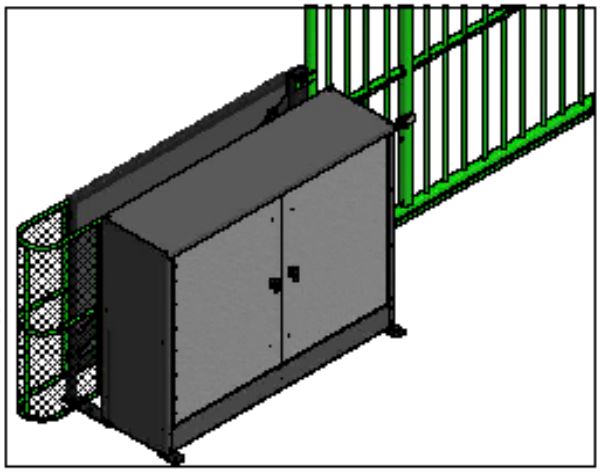
1 REFERENCE DWG. #'S 100, 101, 102 & 103

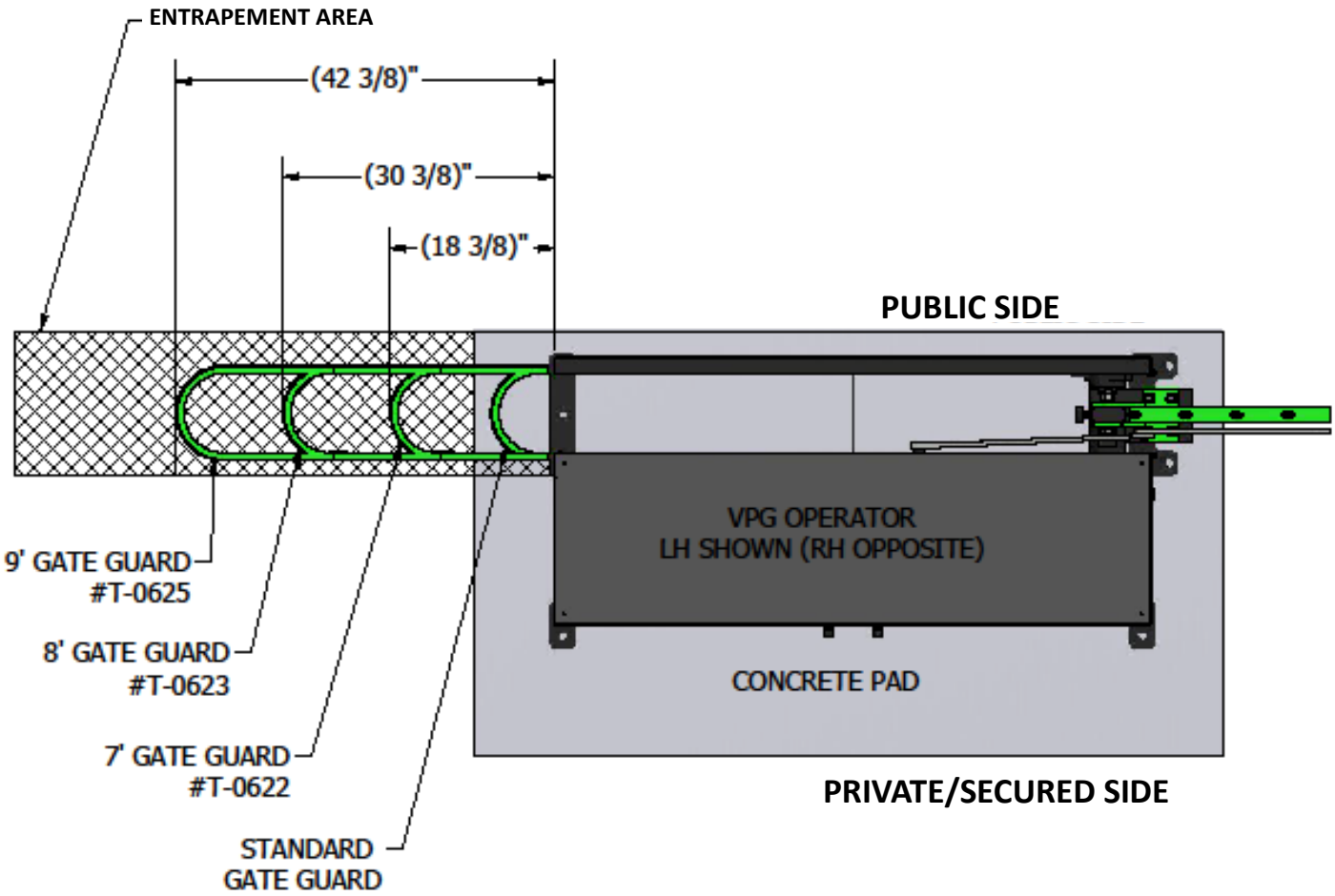
2 GATES OVER 9' TALL WILL REQUIRE LOCAL FENCING (SEE ATACHED SHADED AREA)

3 AUTOGATE PROVIDES GATE GUARDS FOR 9' TALL AND UNDER THAT ARE CONSTRUCTED OF STD. MATERIAL. NON-STANDARD MATERIALS MAY NOT HAVE A PROVIDED GUARD. IF GUARD IS NOT PROVIDED: RVIEW YOUR ORDER AND DWG, CONTACTAUTO-GATE.

4 FENCE OFF ALL AREAS PER F2200

5 INSTALL EXTERNAL ENTRAPEMENT PROTECTION DEVICES TO MITI-GATE POTENTIAL OF ENTRAPEMENT.





SECTION 5—OPERATOR ELECTRICAL

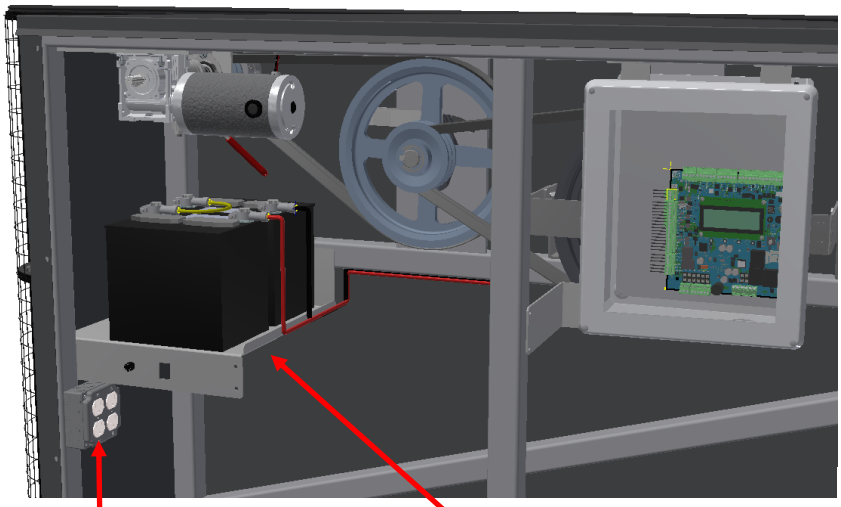
The AutoGate Genesis control board is DC powered as is the motor/gate controller with built in full battery back-up. Primary power is supplied by an AC/DC rectified output power supply (see below). Input AC is supplied through a dedicated 20 Amp breaker. Voltage is selectable, 90~132 VAC / 180~264 VAC via slide switch. This protects the Genesis controller from random or storm induced power surges on while AC power. The Earth Ground connection on the board is to aid in surge protection and random voltage issues.

NOTE: There is NO AC power inside the Control Board Enclosure!

A/C POWER CONNECTION

WARNING: ALL 120VAC OR 240VAC ELECTRICAL CONNECTIONS FROM SERVICE PANEL TO THE GATE OPERATOR MUST BE MADE BY A LICENSED ELECTRICIAN!

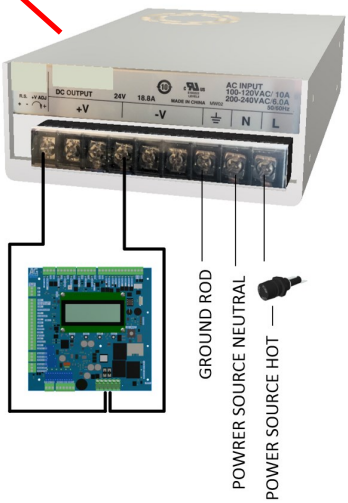
- Run AC power lines through conduit to junction box (see below) located inside the operator. (see typical conduit locations drawings page 14. Contact AutoGate for Optional routing).
- All AC power and control wiring MUST be run in separate conduits
- Before doing any wiring inside the operator ensure that the main power source has been disabled at the main circuit breaker. If this is a **SOLAR** application, ensure the power input is disconnected.
- The Power Supply will be wired a the factory, you only need to hook the AC into the supplied junction box.

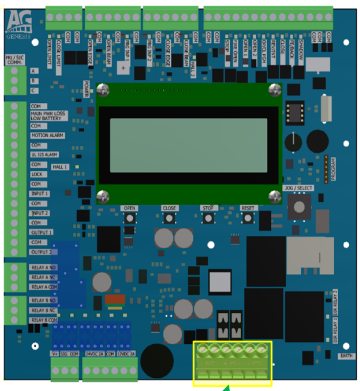


AC Junction Box

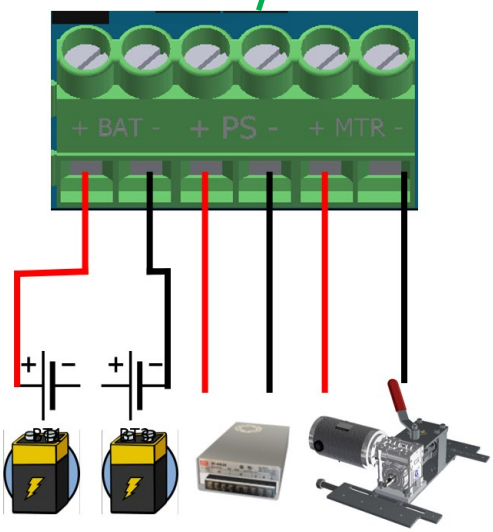
Rectified Power Supply

(Mounted under the battery shelve)





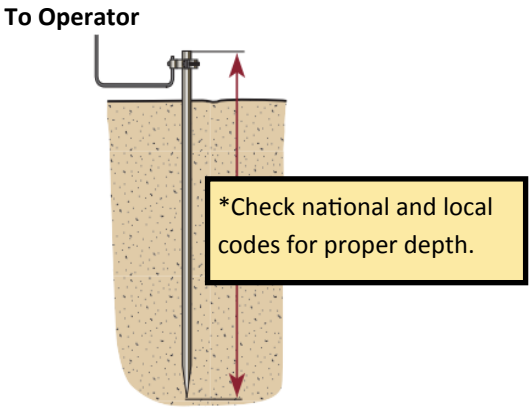
P11

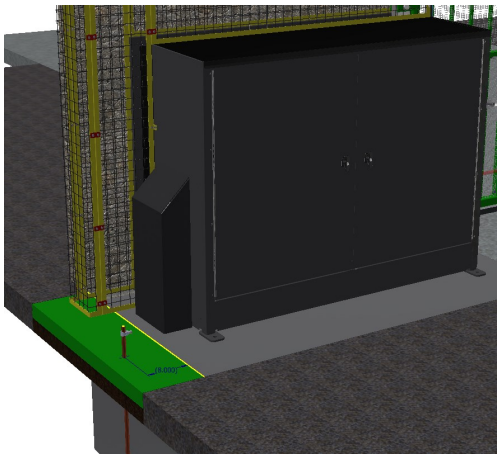


EARTH GROUND AND LIGHTNING PROTECTION

Install an approved 8’ earth ground rod 6” to 3’ off the rear side of operator pad*. The Ground wire connection is located inside the door. Recommended wire is #8 gauge or larger. ***NEVER splice the ground wire!***

Improper grounding will make the operator more susceptible to lightening or surge damage and can affect GENESIS Board or accessories.



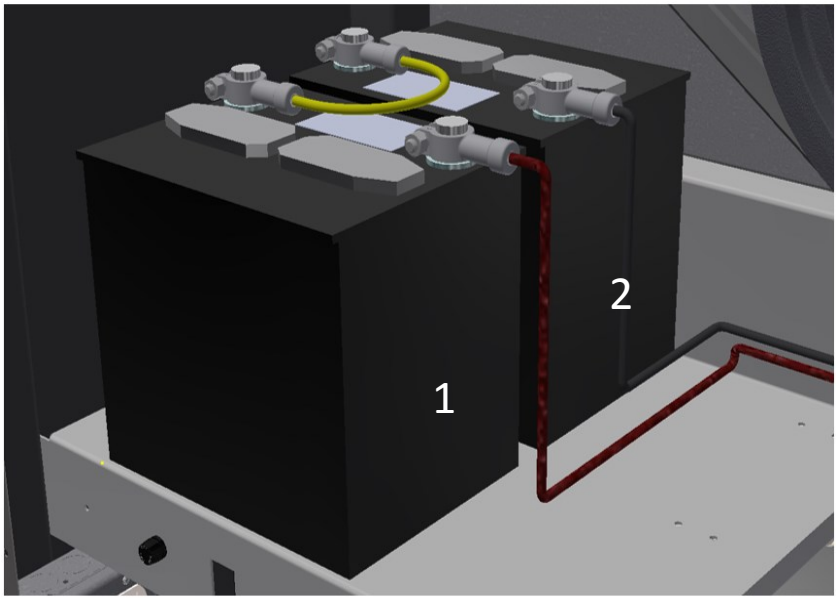


BATTERY WIRING AND INSTALLATION

The Genesis controller has a built-in battery charging system that has multiple formats. The charging sequence can handle full size flooded batteries as well as sealed lead acid or AGM batteries. The Genesis primary input voltage can also be connected directly to solar panel(s) for non-AC operation. The built-in charger when programmed for solar will allow the system to run off the batteries and will still charge them during the daylight hours.

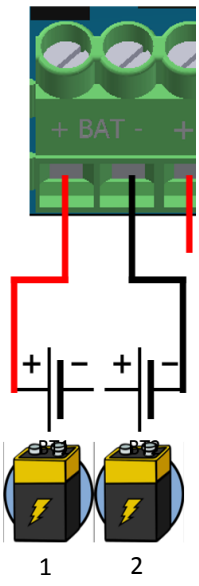
Install Two (2) 12 VDC Batteries **(Required, not provided)** on the battery shelf. AutoGate recommends Group 24, 80-100 Amp Hour Deep Cycle Marine Starting batteries for extended battery back up. At a minimum use (2) - 7AH batteries for battery back up.

BATTERIES MUST REST IN A LEVEL POSTION ON THE BATTERY TRAY TO AVOID ACID LEAKING FROM BATTERIES.



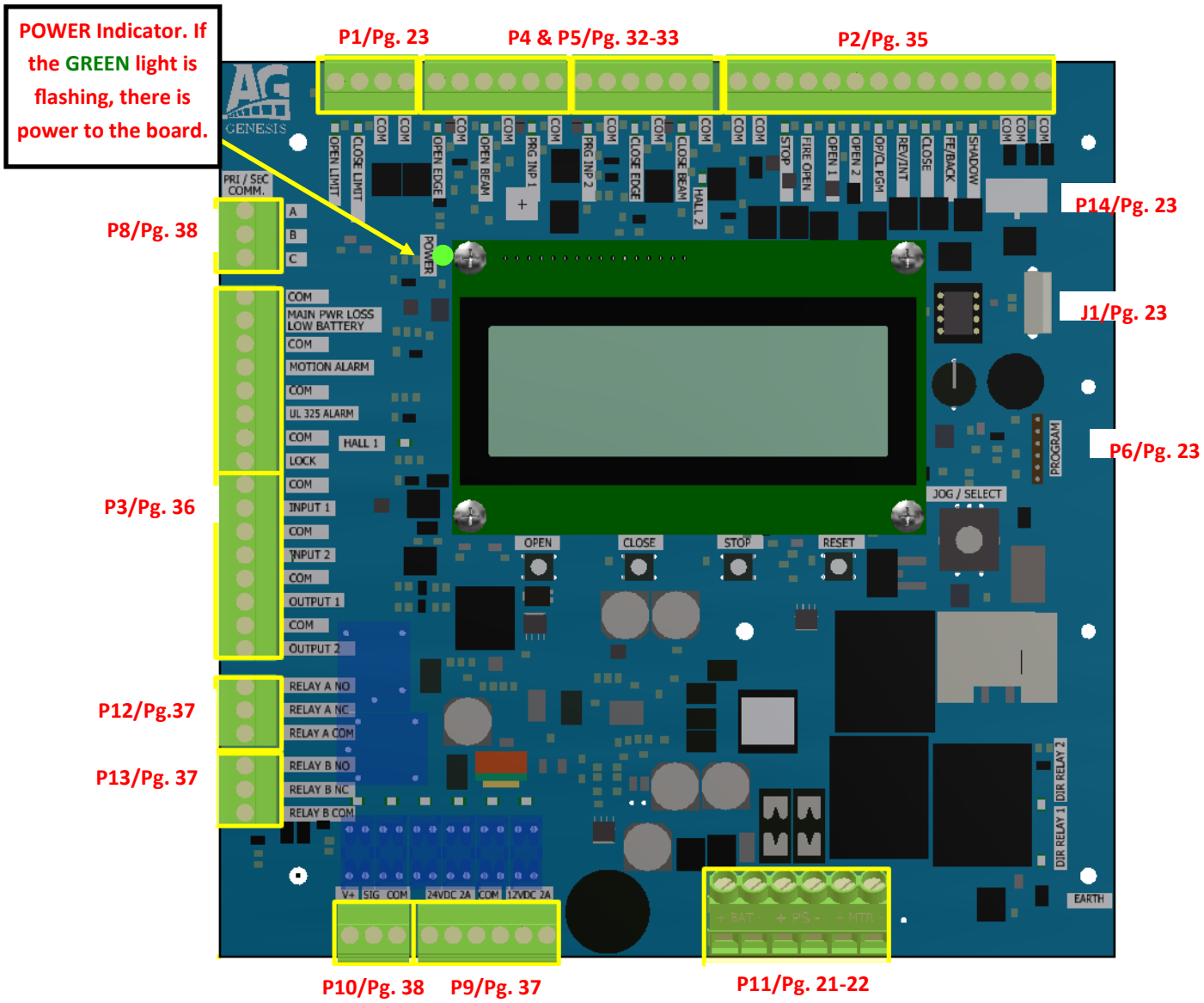
Typical 24V series connection

1) Jumper wire from battery 1 NEGATIVE is connected to battery 2 POSITIVE.
2) Wire from battery 1 POSITIVE to POSITIVE terminal on control board
3) Wire from battery 2 NEGATIVE to NEGATIVE terminal on control board.

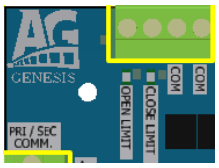


Batteries will charge when AC power or Solar Panels are present and power gate automatically without any changes in wiring. **Note:** Solar applications will require a program selection in the board menu (see page ??.

SECTION 6—GENESIS CONTROL BOARD



P1



Note: P1 is NOT USED on the VPG2490 model. The VPG2490 uses a Limit Position Sensor (LPS). P1 would only be used in you were to install the GENESIS board in an older operator with limit switches.

P14– Loop Rack Accessory Wiring harness port: Used with our LR-3 Loop Rack board

J1-USB For data connection

P6-Program Plug: Used to update board software

GENESIS CONTROL BOARD

GENESIS CONTROL BOARD

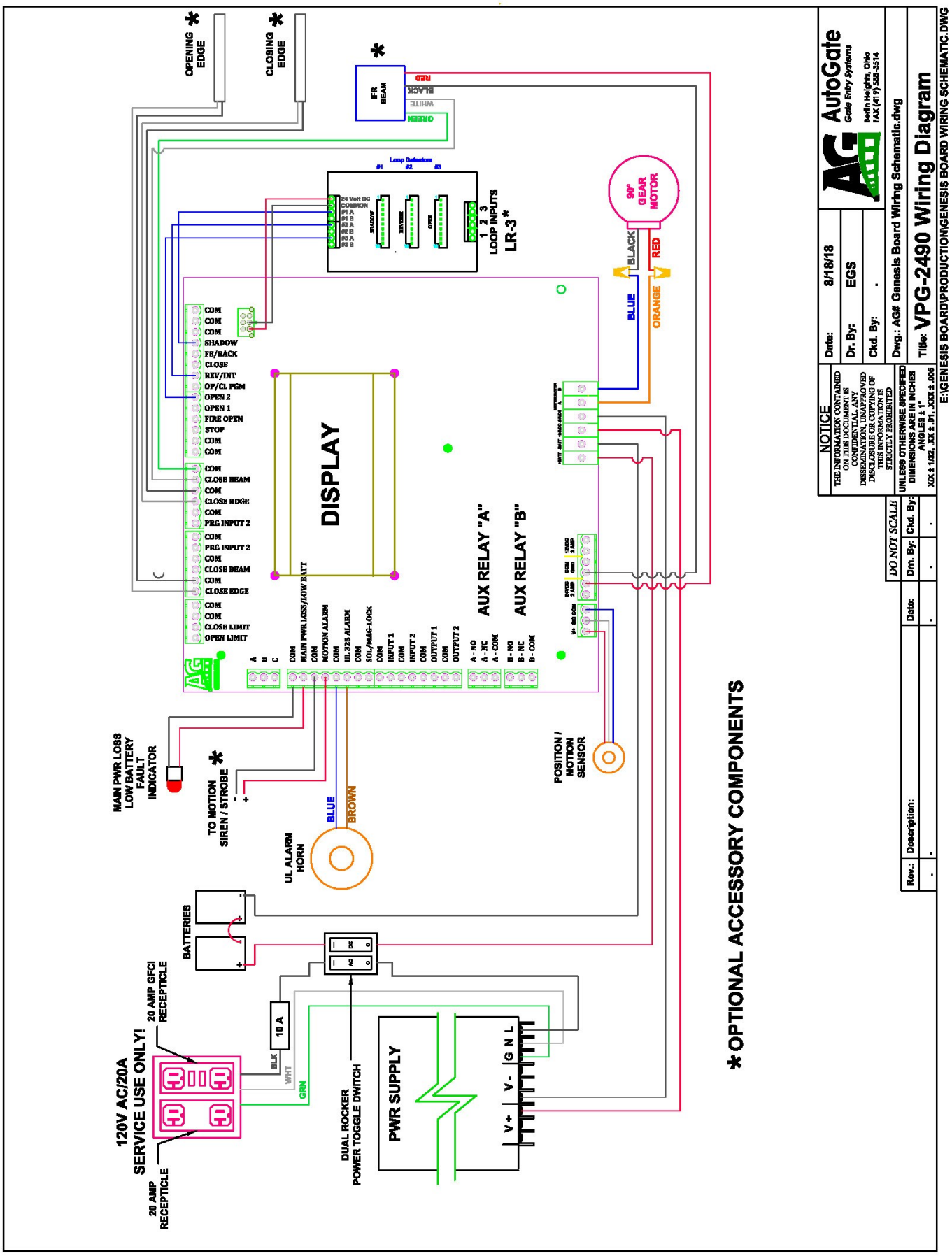
GENESIS CONTROL BOARD

GENESIS CONTROL BOARD

GENESIS CONTROL BOARD

GENESIS CONTROL BOARD

VPG-2490 WIRING DIAGRAM



SECTION 7—ENTRAPMENT PROTECTION DEVICE INSTALLATION AND WIRING

NOTE: The operator ***will not*** operate without the minimum entrapment devices installed! You must have ONE Type "A" and ONE Monitored Type "B" installed in both the OPEN and CLOSING directions.

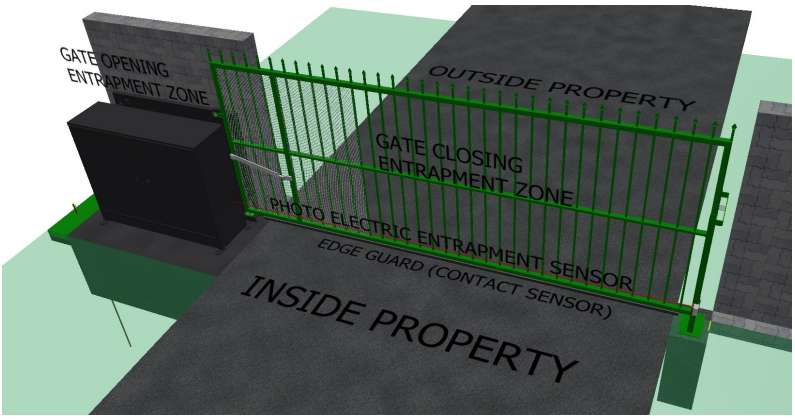
The Genesis controller is equipped with Type "A" inherent obstruction sensing and has 6 monitored entrapment inputs. The monitored inputs will be initially programmed at factory but are field selectable. There are edge and beam inputs for both "Open" and "Close" directions. **Please note that a minimum of one "open" and one "close" approved monitored entrapment device must be present along with one Type "A" device for the gate operator to function.** There are 2 programmable monitored inputs for open or close, and either can be edge or beam. All inputs are capable of 10K or 2-wire pulse, and will be programmable in the field. Any additional entrapment areas must be protected in a similar way with approved monitored devices.

APPROVED PROTECTION DEVICES FOR THIS OPERATOR

Type B1 (non-contact) devices

Open or Opening

Your Vertical Pivot operator now requires a minimum of ONE OPEN obstruction device to be wired to the Genesis Control board to operate. You may use any approved device listed below. The face and the throat area are required to be protected per UL325 7th edition.



The Genesis board supports use of a maximum of four type B1 devices.

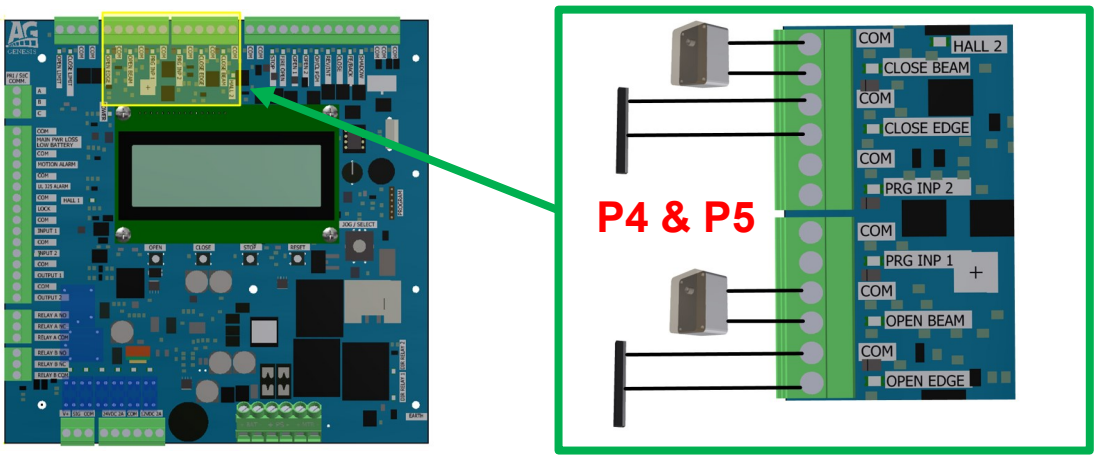
- Open Beam
- Close Beam
- (2) Programmable Inputs

Close or Closing

Photoelectric sensors/beams should be positioned within 4" of the moving gate where risk of entrapment is identified. If using only one close beam locate within 18" of road surface.

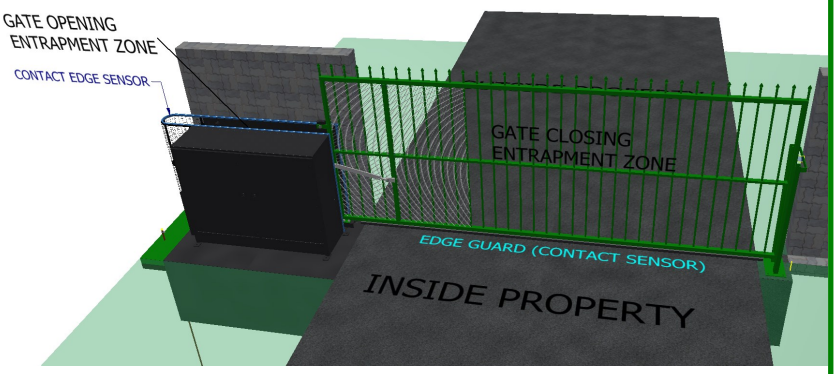
Approved Non-Contact Devices: EMX IRB-Mon, EMX IRB-RET & OMRON EK3

MONITORED DEVICE CONNECTIONS POINTS



Type B2 (contact)

Edge Sensors



Close or Closing

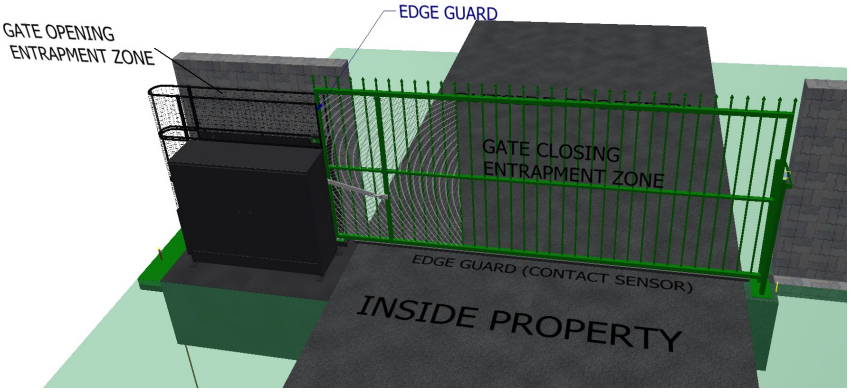
Contact edges on the bottom of the gate are often added as an extra entrapment device for the closing mode. We do not recommend a contact edge to be the only external entrapment device for the closing mode.

- Open Edge
- Close Edge
- Programmable Inputs (x2)

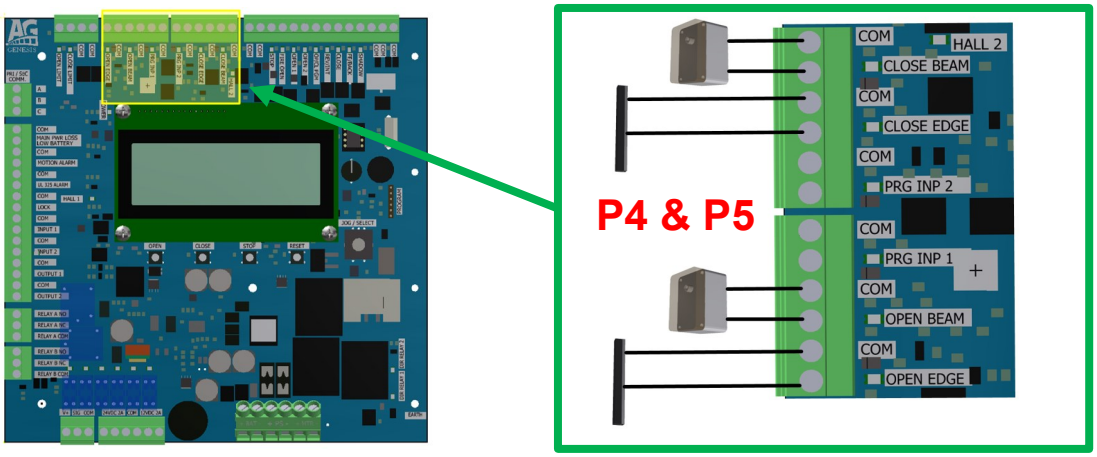
Approved Edge Sensor Devices: Miller Edge CPT 223, ASO SENTIR 15-10VT, 45 STKS4

Open or Opening

Your Vertical Pivot operator now requires a minimum of (1) OPEN obstruction device to be wired to the Genesis Control board to operate. You may use any approved device listed above. The face and the throat area are required to be protected per UL325 7th edition.



MONITORED DEVICE CONNECTIONS POINTS

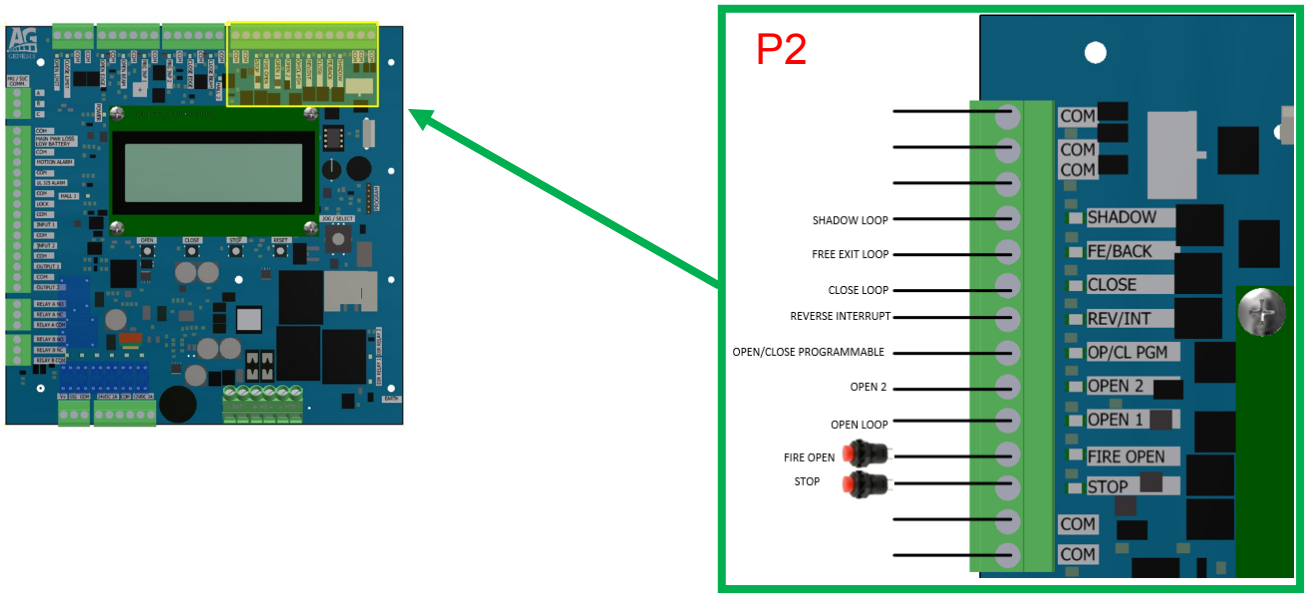


NOTE: The two programmable inputs can be configured as either edge or beam and as either open or close.

ENTRAPMENT PROTECTION DEVICE FUNCTIONAL CHARACTERISTICS	
Monitored Open Edge	When activated, the gate will stop, (in less than 2 seconds), and then reverse and go to a full close secured position. Gate will remain closed until it receives an "INTENDED" INPUT (Keypad/Reader/Push Button/Free Exit) or the board is manually reset (Not from an Entrapment input).
Monitored Open Beam	When activated, the gate will stop, (in less than 2 seconds), and then reverse and go to a full close secured position. Gate will remain closed until it receives an "INTENDED" INPUT (Keypad/Reader/Push Button/Free Exit) or the board is manually reset (Not from an Entrapment input).
Monitored Programmable Input 1 & 2	Choice of Open or Close direction by Menu, choice of Edge or Beam and then 10K or 2 wire by Menu. *(Refer to PROGRAMABLE INPUT FUNCTIONAL descriptions for required action.*
Monitored Close Edge	When activated the first time, the gate will stop in less than 2 seconds, and reverse to full open and allow the 'Timer To Close' to be activated upon open limit. Upon the second activation closing, before reaching the close limit, the gate will again stop, (in less than 2 seconds), and reverse to full open and the 'Timer To Close' will be deactivated. The gate will remain at full open until an "INTENDED" INPUT is activated (Keypad/Reader/Push Button/ Free Exit) . The close command will close the gate and clear the hold command. An 'Open' command or a "Reverse" command, (not the Close Beam input) will trigger the reset of the 'Timer To Close' activation. Also, any of the action buttons on the control board can activate the gate, (Close button will close gate and the Open & Stop buttons will reset the 'Timer To Close' to be active). Note: Upon the second activation before reaching the close limit, when the gate is in the "HOLD" condition, any input that was being maintained at the time of the second activation shall be ignored until the gate is enabled by a different input! If the CLOSE EDGE remains
Monitored Close Beam	When activated, the gate shall stop in less than 2 seconds, and then reverse to full open. The 'Timer to close' will become active only after all inputs are clear.

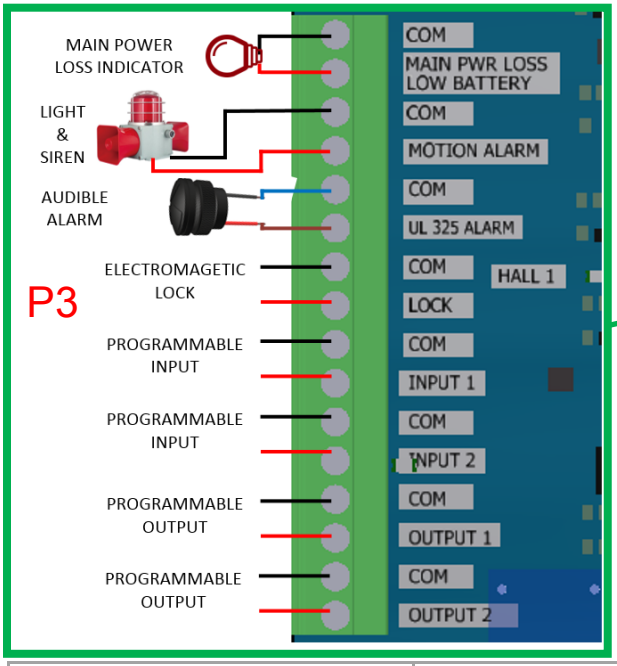
OPERATIONAL RELAYS

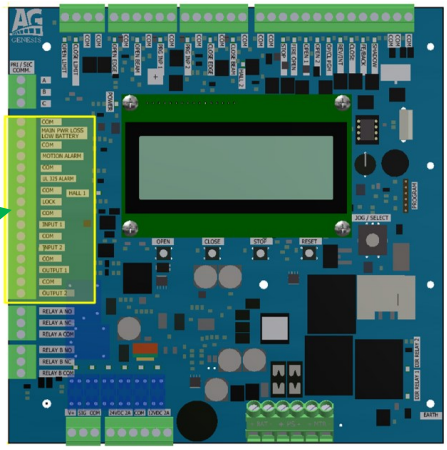
In addition to the entrapment sensor inputs there are operational inputs for vehicle detection, communication with another gate or similar device as well as push buttons for control of various modes of operation.



INPUT NAME	FUNCTION AFTER MOMENTARY TRIGGER	FUNCTION DURING
Shadow Loop	While at open limit, hold open, ignore once off of the open limit switch. ***(****Not common on Vertical Pivot Gate)*	Hold Open
FE/Back (Free Exit/ Back Away)	Opens gate as Open1, but when signal is removed, gate is given command to close. (Close command over ridden by any other open or Reverse/Interrupt command or stop command) (Primarily designed to work with FE/Back on Barrier Arms)	Starts opening movement from any position
Close Loop	Start closing movement from any position, Open commands can override. If gate is closing when activated, gate stops until clear and then continues to close. Close input responds on release of the input normally. Close input will hold the gate open while input is maintained with the gate in the open position. When in constant pressure mode, close input responds on initial press. **(**Not common on Vertical Pivot Gate)	If held in upward motion, no effect. If held in downward motion, gate movement is paused until released and continues downward on release
Reverse/ Interrupt	When closing, stops and re-opens.	If held, stay open
Open / Close PGM	When menu option not enabled, Input = open 1 only. When enabled, input = Open 1 unless the open limit is reached, it then turns to Close. If input is held during OPEN, gate holds open. Input needs to cycle off before input can CLOSE gate.	If held it remains in its state
Open 1	starts opening movement from any position	starts opening from any position
Open 2	starts opening movement from any position	Same as above
Fire Open	Absolute open, until the board is hard power reset, or local reset button pushed	Locks gate open until released
Stop	Stops gate at any point and cancels current inputs. Inputs will be ignored until stop is released. A stop input will disable the auto-	If held, no gate movement, inputs ignored.

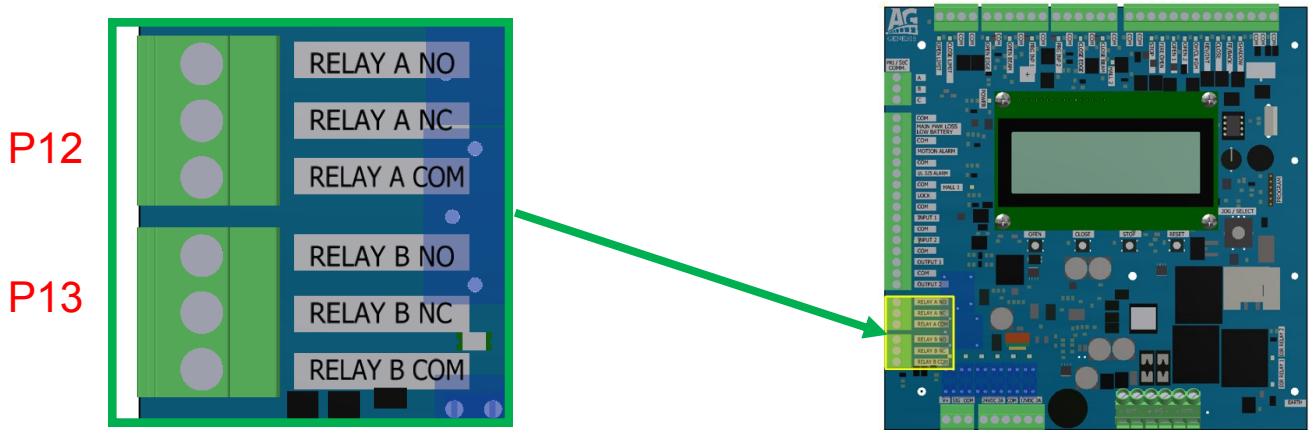
OPERATIONAL OUTPUTS





Warning Light	**Four States** **OFF:** No faults **FAST Blink:** Low battery voltage **DOUBLE PULSE Blink:** Loss of AC power **SLOW Blink:** Any other fault ***priority for the signals are:*** 1 - Low battery 2 - Loss of AC
Motion Alarm	Active for full cycle (**ON-OFF** menu selectable). Programmable for pre-movement opening (0-5 seconds menu selectable). Programmable for pre-movement closing (0-5 seconds menu selectable).
UL325 Alarm	Active for conditions related to UL325 specifications
Lock	**Programmable/Selectable:** **Magnetic lock option** - Active when the gate is closed. **Solenoid Interlock option** - Momentary activation to open the bolt that mechanically latches the gate closed.
Input 1	**OPTIONS:** OFF, OPEN, CLOSE, Single Button, Reverse, Fire, Shadow, Auto Open, Hold Open, Emergency Secure, Auxiliary Pulse 1 & 2, Auxiliary Hold 1 & 2
Input 2	Same as INPUT 1
Output 1	**OPTIONS:** OFF, Pulse on Open or Close Limit, Hold on Open or & Close Limit, Pulse on motor Open or Close, Hold on Motor Open or Close, Hold on UL Alarm, Hold on Motor Run
Output 2	Same as Output 1

OPERATIONAL OUTPUTS

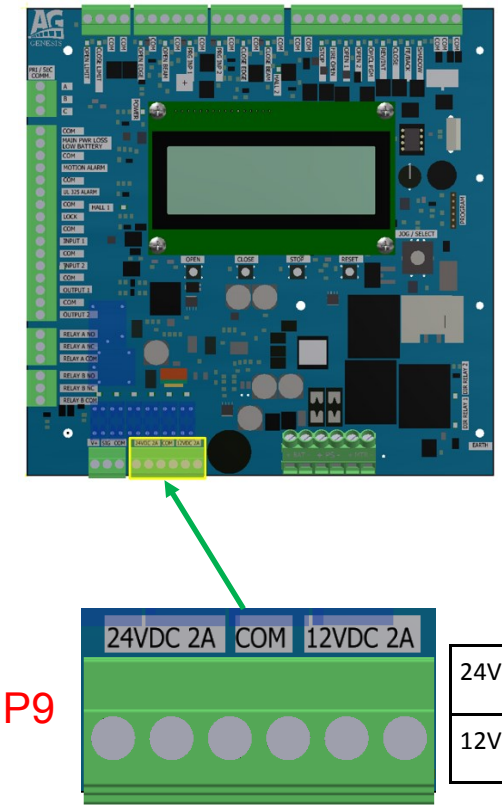


AUX Relays A & B: Are programmable for operation based on gate action or position. Both relays are form "C" relays that can be programmed to change state based on gate position or motion.

AUXILIARY RELAYS A & B	**OPTIONS:** OFF Pulse on OPEN Limit: 2-second Relay Activation Pulse on CLOSE Limit: 2-second Relay Activation Hold on OPEN Limit: Latches Relay ON during OPEN Limit Hold on CLOSE Limit: Latches Relay ON during CLOSE Limit Pulse on Motor OPEN: 2-second Pulse when gate starts to move OPEN Pulse on Motor CLOSE: 2-second Pulse when gate starts to CLOSE Hold on Motor OPEN: Latches Relay on when gate is OPENING Hold on Motor CLOSE: Latches Relay ON when gate is CLOSING

POWER FOR EXTERNAL DEVICES

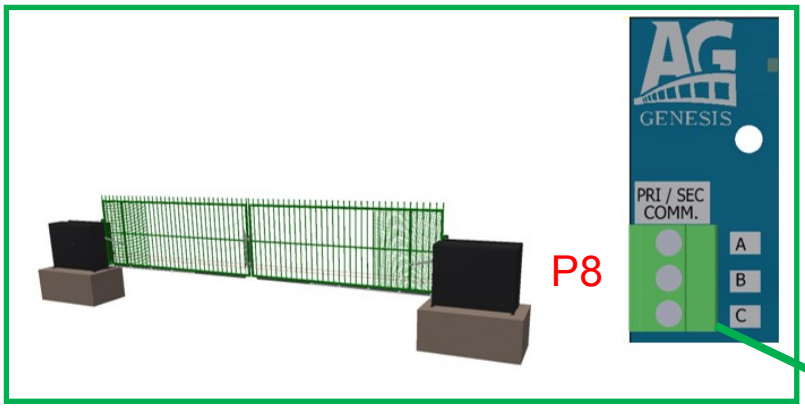
The Genesis board has (2) 24VDC outputs and (2) 12VDC outputs to power external devices. Each is fused at 2 AMPS.

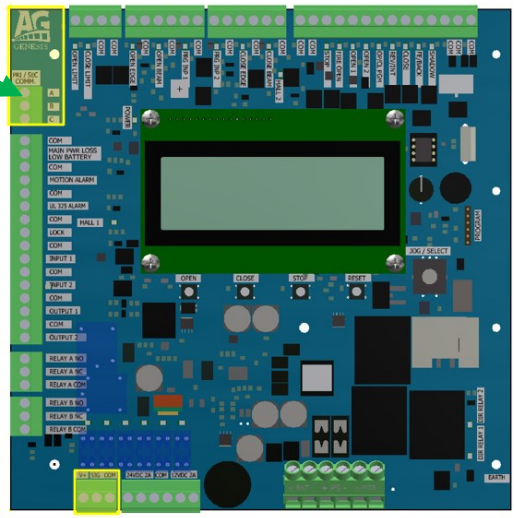


24VDC	ACCESSORY Power	(3) Fused at 2 Amps
12VDC	ACCESSORY Power	(3) Fused at 2 Amps

COMMUNICATIONS AND POSITION SENSOR

Primary/Secondary communications allow for communications between gates for Dual Gate configurations.





PRIMARY/SECONDARY OR DUAL GATES

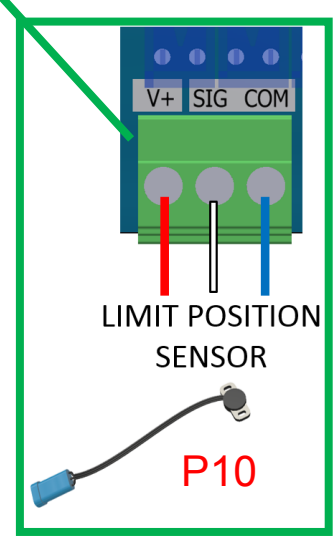
When using two gates to cover a driveway and they both need to cycle together on an open input. Connect the two boards with a 4-conductor SHIELDED 18 ga. wire (3 required, 1-spare) and set the following board parameters:

```
>Dual Gate Mode:
  Off
     Status:
  Disconnected
```

P/M: Set for Primary /Secondary communication. Gates need to communicate with each other to work properly.

LIMIT/POSITION SENSOR (LPS)

Your gate is equipped with a LIMIT/POSITION SENOSR. It will be properly set when it leaves the factory. If you need to adjust it, refer to the instructions below. If you need to replace, contact AutoGate.



ADJUSTING THE LIMIT/POSITION SENSOR

```
>Op:4500 Ramp:4000
 Gate 1
 Cl:430 Ramp:950
 Op Sp:10 Cl Sp:10
```

WARNING! This screen requires a PASSCODE to access.

1. In programming mode, Set your cursor to the GATE (line 2) and enter (>Gate). Using the Jog knob you can slightly adjust the OPEN or CLOSE position by turning it left or right.
2. Once you have readjusted you gate position, “enter” again to back out of the Gate line and go up to the **Op:** line or down to the **Cl:** line to set your new numbers.
3. “Enter” (Op or Cl) and turn the Jog knob to the new numbers and test your gate.

GENESIS FREQUENTLY ASKED QUESTIONS (FAQ'S)

Q. What kind of power does the Genesis board run on?

A. The Genesis board runs from a 24 volt DC power supply and 24 volt battery back-up. Genesis can run directly off solar panels. The gate motor runs off the batteries and the Solar Panels will keep the batteries charged. The charging circuit is integrated on the board.

Q. How much accessory power is available?

A. The Genesis board has both 24 volt DC and 12 volt DC accessory power available. A total of 2 amps are available at 24 VDC. A separate 2 amps are available at 12 VDC.

Q. Does Genesis have monitored inputs for "Entrapment Protection"?

A. Yes, there are 6 monitored inputs. Two dedicated inputs for the closing direction, (1-beam, 1-edge), and two dedicated inputs for the open direction, (1-beam, 1-edge). There are two fully programmable inputs that can function in either direction and for either type of device. These inputs are capable of monitoring 10K ohm devices.

Note: there must be at least one (1) device connected in both the open and close direction in order for the gate to operate.

Q. Is there a way to monitor the gate position, (Open or Closed)?

A. Yes, there are 2 Auxiliary relays on the board which can be used. Also there are 2 Auxiliary Outputs which can output 24 Volts DC to accessories when open and/or closed.

Q. Can the board control external devices, such as traffic lights, counters, and other options?

A. Yes, the 2 Auxiliary relays are programmable to trigger based on gate position and/or motion.

Q. Can the speed of the gate motion be controlled ?

A. Yes, the speed of the gate can be controlled separately in both directions. The adjustment will be from 100% to 75%.

Q. Why is the Green LED light flashing?

A. The green flashing LED signifies that the processor is powered up and working. If LED is on steady or OFF, the processor has a problem and the board needs replaced.

Q. System is completely dead and will not operate, how do I open the gate?

A. In a catastrophic failure (blown board, total power loss, etc.), pull the release handle on the bottom of the motor drive mechanism to disengage the drive coupler. Then at the gate, lift the Linkage Arm slightly upwards. The springs will start to pick the gate up. Then, push up on the bottom of the gate until fully open. Insert the T/M pin to lock open.

Q. Why won't my gate run in it is in programming mode?

A. This is a safety feature. Sudden gate motion while programming could cause a unintended reaction by the service technician that could lead to an injury. The only time the gate can move in program mode is during the program screen while setting Limit Switches. There is the ability to move the gate in minute increments by turning the JOG/SELECT knob while the "GATE" option is chosen on the screen.

FREQUENTLY ASKED QUESTIONS (FAQ'S)

Q. What is the difference between the "FAULT" log and the "OPERATIONAL" log?

A. The "Fault" log will store failures that are not part of standard operations. This includes things like no device connected to an active monitored input, or loss of voltage from the power supply, low battery voltage during the battery test, etc. The Operational log records all input actions, like the Open Input activation, or a monitored device is activated. This log also records the actions like close activation from the auto timer.

Q. Can I download the logs?

A. Yes, the logs will be available to down load by the USB port.

Q. My gate is not working, and a row of LED's is flashing?

A. The row of flashing LED's indicates the control board is in a programming mode and will not allow the gate to move. The control board will automatically cycle out of programming mode after 1 minute of no activity by the Jog/Select knob.

Q. What do I do if the "Main Power Loss / Low Battery" LED is flashing?

A. This LED is a multifunctional indicator. There are 3 flash rates that will display. If the LED is flashing, there is either a "Main Power" loss, a "Low Battery" condition, or a system fault. Open the outer cabinet door and look at the control board, a "Fault Screen" will display the current situation or fault.

Q. My gate closes too fast. How do I slow it down?

A. There are several possibilities:

1. The gate may be out of balance. Once the gate has been rebalanced or determined to be "In" balance, if necessary, the closing speed can be adjusted.
2. Adjust the slowdown time longer
3. Change the overall running speed of the gate in the closing direction

To access these adjustments will require a PASSCODE. Adjusting the "DECEL" rate shorter will slow the gate down faster, thereby slowing the overall speed. To adjust the closing speed, access the screen showing the gate speed, which will have both Open & Close speed adjustable. The speed will be adjustable from 85% to 100% in 5% increments. Our recommendation would be to slow the gate down to 95% and test. This will normally be enough for most installations. If necessary, adjust to 90%.

Q.

A.

Q.

A.

TROUBLE SHOOTING THE GENESIS BOARD

No power to control board	• Verify power switches are “ON”. • Check 20 amp fuses on control board. • Check wires and connections at power supply & batteries.
Gate will not operate	• Make sure Motion/Position sensor is connected and Genesis can see the signal. • Verify that there is at least one monitored device in both the open and close direction connected and operating correctly. • Check that both the batteries and power supply are on and the correct voltage is available to the board. • Check wiring connections at the motor; verify they are clean and tight. • Make sure the motor disconnect is engaged for operation.
Gate starts to move then stops and/or reverses	• Verify motor over current value is set properly. • Check and adjust gate balance. • If reverses when closing, check for any input activation. • If reverses when opening, check for any “Open Entrapment” input activation.
Gate will not close	• Check operation inputs for activation, clear as necessary. • Verify “Close Monitored Inputs” are connected properly and functional. • Check for Reversing or Free Exit loop or detector fault. • Clear “HOLD OPEN” or “FIRE INPUT” command.
Gate will not open	• Verify “Open Monitored Inputs” are connected properly and functional.
Gate opens, will not time out to close	• Verify “Auto Close” is on. • Use “Close” command to close gate. If gate closes, gate was in second close edge obstruction and was awaiting an input to activate motion.
Alarm is sounding and gate will not run	• Gate is in UL Alarm lock out – Reset to clear alarm; Verify no obstruction in gate path
Batteries will not charge up	• If running on the AC Power Supply, make the board is not set for SOLAR operation. Verify that the power supply has an output voltage of 26.5 ± .5 volts. • If running on SOLAR panel(s), make sure board is set for SOLAR operation. Verify the panel(s) have an output greater than 31 volts DC.
Red LED light on side of Cabinet is flashing	• The RED LED is a warning light. If flashing, indicates a fault or failure. • Fast Flash – Low Battery • Double Pulse Flash – Main Power input Missing • Slow Flash – Fault or UL Alarm

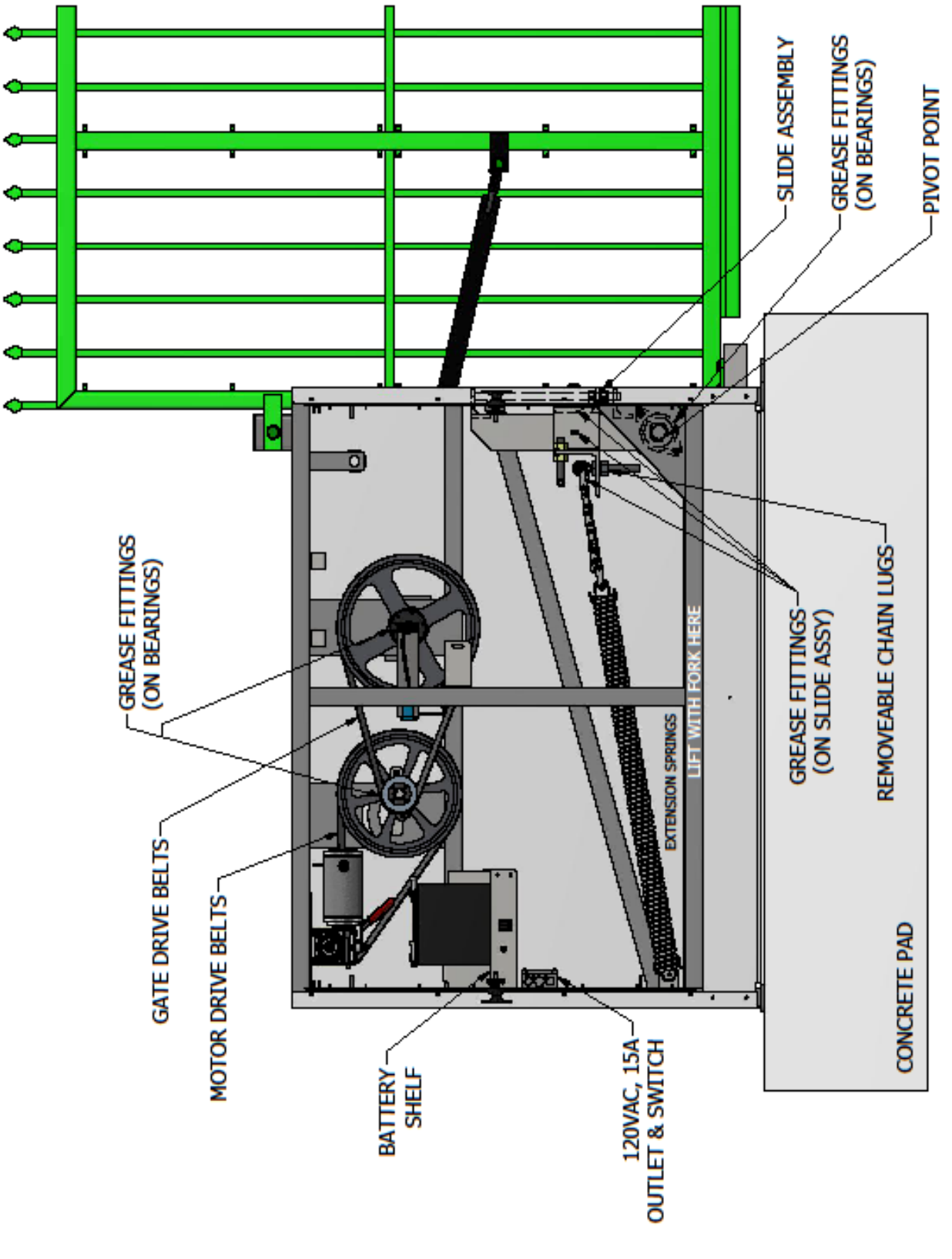
MAINTENANCE

The basic electrical and mechanical systems require only minimum routine maintenance. The following items should be checked and serviced periodically depending on amount of use. Each item below has supporting illustrations and/or instructions in this manual. Contact AutoGate for any questions or issues. ***Maintenance is important to any gate system and can affect safety, warranty, quality operation, and life-cycle of the system.***

REFER TO OPERATOR DETAILS PAGE 10 AND MAINTENANCE OPERATOR DETAILS ON PAGE 43

ITEM	RECOMMENDED MAINTENANCE
Grease Linkage Assembly ("LUBRIPLATE 'R' LOW TEMP" Grease)	10,000 cycles or 6 months
Grease all bearings: two (2) Operator Arm, four (4) Bullwheel Shafts	10,000 cycles or 6 months
Grease Chain Tension Bolt and Lube Chain & lightly coat springs (Use a non-evaporating cable and chain spray)	10,000 cycles or 6 months
Check belts for wear and tightness. (See page 44 for instructions)	Every 6 months
Charge voltage for batteries should be 27.5 VDC with batteries disconnected check at battery in maintenance menu.	Every 6 months
Check battery water level, use distilled water only (Not required on maintenance-free or AGM style batteries)	Every 6 months
Clean snow/ice off of gate (Balanced correctly, gate will temporarily tolerate an additional 10 lb. of wt.)	As needed
Clean lenses on Photoelectric sensors/beams or Reflectors	As needed
Lubricate (Graphite Oil) all door latch, lock cylinders and mechanisms	Every 6 months
Check and verify proper operation of all ***External monitored*** entrapment protection devices. See page 22 and the external entrapment protection device (s) manufactures instructions.	Every month
Check and verify proper operation of the ***Internal*** (TYPE A) entrapment protection device (LPS) by walking to the middle to end of the gate and stop the gate, it should reverse.	Every month
Check gate balance (see page 46)	Four months after install, then annually
Check to make sure all WARNING signs are still displayed	Every month

MAINTENANCE OPERATOR DETAILS



ELEVATION VIEW

Note: P/M Details only, see other pages for details on electronics and accessories.

BELT CHANGING INSTRUCTIONS

Changing the belts on an AutoGate Vertical Pivot is easy by following the step by step procedure outline below. As always, we are only a phone call away should you need assistance at 800-944-4283.

STEPS

1. Remove the **(4) 5/16" Tek Screws** on the **Top Panel**, remove and set aside.
2. Remove the **STIFFENER PLATE** from the **POISITION SENSOR bracket**. This allows a space to remove belts.
3. Release the **MOTOR DRIVE BELT** tension by loosening the **(4) 3/8" CARRIAGE BOLT nuts** securing the **GEAR MOTOR** bracket to the **SIDE SLIDE** plates with a 9/16" wrench. Now using a 15/16" wrench, back off the **(2) Gear Motor FORCING screws** so that only 1" remains through the coupling nut.
4. Slide the **GEAR MOTOR assembly** to create slack in the belts.
5. On the center of the pulleys. Loosen the **FLANGE BEARING bolts** about one turn that secure the shaft bearings using a 15/16" wrench.
6. Loosen the **MIDDLE FORCING screw** which is applying tension on the **GATE DRIVE belts** by using a 15/16" wrench. This too needs to be fully loosened to allow enough room to remove the belts.
7. Remove old belts and install new belts loosely.
8. Apply snug pressure to the **MOTOR DRIVE belts** by using the **(2) GEAR MOTOR FORCING screws**. This should also snug the **GATE DRIVE belts**. ***Do not overtighten!***
9. Thread the **MIDDLE FORCING screw** to finger tight.
10. Re-Assemble the **STIFFNER PLATE** to the **POSITION SENSOR bracket**.
11. Operate the gate up and down for (5) time to seat the belts.
12. Tighten the **MIDDLE FORCING screw** to tighten the **DRIVE GATE belts**. Correct tightness is 10lbs. of pressure applied at the center of belts with a 1/2" defection.
13. Tighten the **FLANGE BEARING bolts** on the middle set of pulleys.
14. Tighten the **GEAR MOTOR FORCING screw** to achieve 1/2" deflection with 10lbs. Of pressure applied at the center of the belts.
15. Tighten the **(4) CARRIAGE bolts** to secure the **GEAR MOTOR bracket** to the **SIDE SLIDE plates**.
16. Operate the gate up and down 5-10 times to check for proper operation.
17. Replace the **Top Panel** using the (4) **Tek** screws.

BELT TIGHTENING INSTRUCTIONS

MOTOR DRIVE BELT
150-175 LBS. for the double belt
75-85 LBS. for single belts
GATE DRIVE BELT
80-90 LBS. for the single belts

TEST: Push down at the center of the belt between the pulleys, you want a 1/4" deflection @ 6 LBS. (See drawing below)

DRAWING GOES HERE……

SPRING CHANGING INSTRUCTIONS

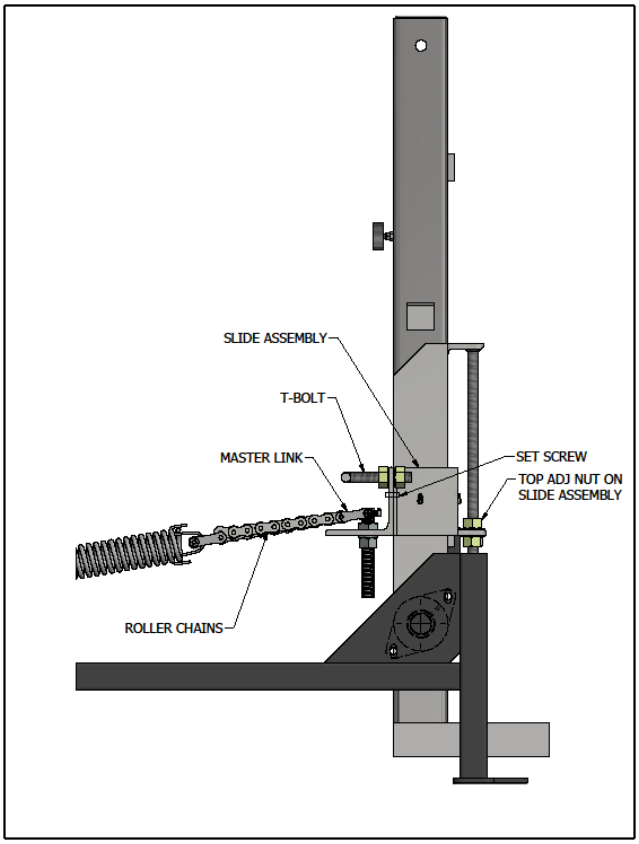
WARNING: SPRINGS ARE UNDER A TREMENDOUS LOAD. TAKE EXTREME CAUTION WHEN REMOVING AND REPLACING THEM.

TOOLS REQUIRED: 5/16" (Nut Driver), 1/2", 1 1/8", 1 5/16" Open End Wrenches

STEPS:

1. For ease of access, remove the door and end panel nearest the gate.
2. Disable the photoelectric sensor/beam if equipped.
3. Remove any upper "T" bolts completely and loosen the slide assembly screws.
4. Loosen the top adjusting nut of the slide assembly. Thread the nut up to within four (4") inches of the top of slide mechanism.
5. You will now raise the gate. (**DO NOT** release the disengage lever!) Initiate the gate to open, immediately move to the gate and help raise it open, once the slide moves up, hold on the bottom rail of the gate until fully open. The gate may bounce slightly, there will be a loud bang but no damage will occur.
6. Turn Off AC/DC Power before gate "times out" and tries to close. Insert T/M Pin.
7. Using a 1 5/16 wrench, loosen and remove the chain tension bolt with the damaged spring.
8. Replace damaged spring
9. Replace chain tension bolt. ***NOTE***: Grease fitting must point down! Tighten bottom nut. ***NOTE***: Chain *MUST* remain level and not twisted once tightened.
10. Remove T/M pin and restore AC/DC power.
11. Lowering the gate. Initiate the gate to close and at the same time, assist the gate down by pulling on the bottom rail of the gate. The slide will move down and another loud bang as the gate is lowered.
12. Turn off AC/DC power.
13. Thread the slide nut back down to the slide assembly and tighten.
14. Replace the T-Bolts to their original location and tighten and tighten the slide assembly screws.
15. Restore AC/DC power and hook photoelectric sensor/beam back up.
16. Cycle gate.
17. Spray all springs with a chain lube to prevent corrosion.
18. Grease Chain Tension bolts, Linkage Arm & Bearings

RECOMMENDED: Always check and adjust the balance after any spring change. Refer to balancing instructions at www.AutoGate.com or the instructions on Page 46



TESTING AMPERAGE

1. Connect AMP meter in series by removing the wire nut from the **RED** motor lead.
2. Cycle gate up and down recording the highest amperage in the space provided and adjust in necessary. hHighest UP and DWON readings should not exceed a 1 AMP difference. For example: If your highest reading is 6.5 UP and 6>0 DOWN, that would be acceptable. Unacceptable would be 3.1 UP and 8.) down.

ADJUSTING:

1. Loosen the set screws on the Slide Assemble as well as the 1 1/8" nuts on booth sides (top & bottom)of the Slide Assembly Angle.
2. Only adjust the nuts 3 to 4 turns (1/4") at a time and check your amperage readings after each adjustment. NOTE: you're your amps in the OPEN mode should be approximately .5 (1/2) amp higher then the CLOSE amperage.
3. If the gate opens too slow and is drawing high amps, raise the Slide Assembly and recheck. If the gate will NOT close, lower the Slide Assembly and re-check. If your gate stalls in ether direction, you have over-adjusted. Back off the last adjustment and re-check.
4. If the gate is slow starting to close from the open position, increase the length of the T-Bolt (s).
5. Tighten Set Screws and 1 1/8" nuts.