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# **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. At NO time should the gate panel be modified in any way. Any mounted signs should weigh less than 4 lbs.
3. Always keep people and objects away from the gate. **NO PERSON NOR OBJECT SHOULD CROSS THE PATH OF THE MOVING GATE.**
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, reset the gate operator. Failure to adjust and reset the gate operator properly can increase the risk of injury or death.
5. Use the belt tension lever release only when the gate is not moving and powered down.
6. **KEEP GATES PROPERLY MAINTAINED.** Read the owner's manual. Have a qualified service person make repairs to gate hardware.
7. The entrance is for vehicles only. **PEDESTRIANS MUST USE A SEPARATE ENTRANCE.**

**SAVE THESE INSTRUCTIONS.**

# INSTALLATION CHECK OFF SHEET

## UL 325 COMPLIANT VPL-24 INSTALLATION CHECK OFF LIST

THIS GATE OPERATOR IS INSTALLED FOR USE AS A CLASS \_\_\_\_\_  
INSTALLATION.

EACH ITEM ON THIS INSTALLATION CHECKOFF LIST **MUST** BE DISCUSSED WITH THE CUSTOMER. A COPY SIGNED BY BOTH THE INSTALLER AND CUSTOMER **MUST** BE RETURNED TO AUTOGATE. SIGNATURES INDICATE UNDERSTANDING OFF ALL SAFETY ASPECTS LISTED BELOW.

- \_\_\_ FOUR WARNING SIGNS SECURELY INSTALLED ON EACH SIDE OF GATE PANEL. (REQUIRED)
- \_\_\_ 1 OR 2 SAFETY/REVERSING PHOTO BEAMS INSTALLED, ONE ACROSS EACH SIDE OF GATE OPENING.
- \_\_\_ TWO 12 VDC BATTERIES INSTALLED (REQUIRED) DEEP CYCLE MARINE RECOMMENDED.
- \_\_\_ CUSTOMER ADVISED THAT GATE IS FOR VEHICULAR TRAFFIC ONLY. (REQUIRED)
- \_\_\_ A SEPARATE PEDESTRIAN ENTRY AND/OR EXIT IS PROVIDED. (REQUIRED)
- \_\_\_ GATE GUARD INSTALLED ON BACK SIDE OF OPERATOR. (REQUIRED)
- \_\_\_ KICK PLATE INSTALLED ON DOOR SIDE OF OPERATOR. (REQUIRED)
- \_\_\_ ARE ALL ACTUATING CONTROLS LOCATED FAR OUT OF REACH OF GATE. (REQUIRED)
- \_\_\_ IS THIS CLASS OPERATOR APPROVED FOR THE APPLICATION OF THE OPERATOR (CLASS 1,2,3,4,) (REQUIRED)
- \_\_\_ ARE CONTROLS TO RESET GATE AFTER OBSTRUCTED INSTALLED IN LINE OF SIGHT. (REQUIRED)
- \_\_\_ HARD WIRED CONTACT SENSORS LOCATED & WIRED TO AVOID ANY MECHANICAL DAMAGE.
- \_\_\_ FIELD WIRING SECURED TO AVOID PINCHING DAMAGE.
- \_\_\_ CUSTOMER INSTRUCTED AND IS CLEAR ON PROPER USE OF GATE OPERATOR. (REQUIRED)
- \_\_\_ CUSTOMER INSTRUCTED ON PROPER USE OF ALL CONTROL SEVICES USED WITH OPERATOR.
- \_\_\_ SAFETY INSTRUCTIONS WERE REVIEWED AND LEFT WITH CUSTOMER. (REQUIRED)
- \_\_\_ DID INSTALLER OFFER A PREVENTATIVE SERVICE / MAINTENANCE CONTRACT.
- \_\_\_ A PHOTO OF COMPLETED INSTALLATION TAKEN FROM FRONT AND BACK OF GATE & DATED.
- \_\_\_ CUSTOMER TRAINED ON MANUAL OPERATION OF THE GATE.

\_\_\_\_\_  
CUSTOMER'S SIGNATURE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
INSTALLER'S SIGNATURE

\_\_\_\_\_  
DATE

CUSTOMER & INSTALLER MUST RETAIN A COPY OF THIS CHECK OFF LIST FOR THEIR RECORDS

# UL 325 SAFETY RECOMMENDATIONS

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 system. **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 correctly installed safety/reversing devices will yield a complete UL 325 compliant system that will not only provide convenience and security, but will be safer with a minimal risk of injury.

The following information along with the check list on page three and the rest of this manual is provided to make you aware of potential areas that are of a safety concern. **Disregarding any of the following may result in serious injury or death.**

- FOUR WARNING SIGNS SECURELY INSTALLED ON EACH SIDE OF GATE PANEL (REQUIRED).
- 1 OR 2 SAFETY PHOTO BEAMS INSTALLED, ONE ACROSS EACH SIDE OF GATE OPENING.
- PHOTO BEAMS INSTALLED ACCORDING TO THEIR INSTRUCTIONS & IN AREAS THAT POSE ENTRAPMENT RISK.
- CUSTOMER ADVISED THAT GATE IS FOR VEHICULAR TRAFFIC ONLY (REQUIRED).
- A SEPARATE PEDESTRIAN ENTRY AND/OR EXIT IS PROVIDED (REQUIRED).
- GATE GUARD INSTALLED ON BACK SIDE OF OPERATOR (REQUIRED).
- KICK PLATE INSTALLED ON DOOR SIDE OF OPERATOR (REQUIRED).
- ALL ACTUATING CONTROLS LOCATED FAR OUT OF REACH OF GATE (REQUIRED).
- CLASS OF OPERATOR APPROVED FOR THE APPLICATION OF THE OPERATOR (CLASS 1,2,3,4) (REQUIRED)
- CONTROLS INTENDED TO RESET GATE AFTER OBSTRUCTED INSTALLED IN LINE OF SIGHT (REQUIRED).
- HARD WIRED CONTACT SENSORS LOCATED & WIRED TO AVOID ANY MECHANICAL DAMAGE.
- FIELD WIRING SECURED TO AVOID PINCHING DAMAGE.
- CUSTOMER INSTRUCTED AND IS CLEAR ON PROPER USE OF GATE OPERATOR (REQUIRED).
- CUSTOMER INSTRUCTED ON PROPER USE OF ALL CONTROL SERVICES USED WITH OPERATOR.
- SAFETY INSTRUCTIONS WERE REVIEWED AND LEFT WITH CUSTOMER (REQUIRED).
- INSTALLER OFFER A PREVENTATIVE SERVICE / MAINTENANCE CONTRACT.
- A PHOTO OF COMPLETED INSTALLATION TAKEN FROM FRONT AND BACK OF GATE & DATED.
- ADVISED CUSTOMER THAT FOR MANUAL OPERATION, THEY MUST DISCONNECT BATTERIES & AC POWER.
- CUSTOMER IS TRAINED ON MANUAL OPERATION OF THE GATE.
- DO NOT DISCONNECT THE SIREN IN ANY WAY – SWITCH S1#6 MUST STAY ON & S1#8 MUST STAY OFF. **TAMPERING WITH THE SIREN SWITCH SETTINGS MAY POSE THE RISK OF SERIOUS INJURY OR DEATH.**

## **WARNING!**

**THE GATE OPERATOR IS DESIGNED AND FACTORY BALANCED FOR THE SPECIFIC GATE IT WAS SUPPLIED WITH. IT IS NOT SAFE TO MODIFY THE GATE IN ANY WAY OR ADD SIGNS WEIGHING MORE THAN 2LBS TOTAL. FAILURE TO COMPLY WITH THIS REQUIREMENT WILL VOID THE WARRANTY AND MAY RESULT IN SERIOUS INJURY OR DEATH.**

**CLASS I - RESIDENTIAL VEHICULAR GATE OPERATOR** – A vehicular gate operator (or system) intended for use in a home of one to four single family dwelling, or a garage or parking area associated therewith.

**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 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 or loading dock area or other locations not 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.

**THESE INSTRUCTIONS ARE INTENDED FOR THE INSTALLATION OF THE UL 325 CERTIFIED AUTOGATE MODEL VPL-24 ONLY AND SHOULD NOT BE SUBSTITUTED FOR THE INSTALLATION OF OTHER OPERATORS.**

# UL 325 PRIMARY AND SECONDARY ENTRAPMENT PROTECTION

## SAFETY INSTRUCTIONS REGARDING PRIMARY & SECONDARY ENTRAPMENT PROTECTION.

THIS UNIT IS PROVIDED WITH TWO MEANS OF ENTRAPMENT PROTECTION. (SEE UL-325 SECTION 30) (A GATE OPERATOR SHALL PROVIDE 1 **PRIMARY** (INHERENT) AND 1 **SECONDARY** ENTRAPMENT FEATURE).

**PRIMARY:** TYPE A – INHERENT ENTRAPMENT SENSING SYSTEMS

THE VPL-24 WILL REVERSE DIRECTION WHEN THE INHERENT TYPE A DEVICE SENSES AN OBSTRUCTION.

**SECONDARY:** TYPE B1 – PROVISION FOR CONNECTION OF A NON-CONTACT SENSOR (PHOTOELECTRIC OR THE EQUIVALENT).

(NOTE: UNIT SHIPS WITH S1-6 ON & S1-8 OFF. DO NOT CHANGE THESE SETTINGS)

**PRIMARY PROTECTION** DESIGNATED TYPE A INHERENT PROTECTION. UNIT WILL REVERSE DIRECTION WHEN AN OBSTRUCTION IS SENSED WHILE MOVING IN EITHER DIRECTION. SENSITIVITY IS ADJUSTED ARE IRD1 ON CONTROL BOARD. WHILE CLOSING IF A OBSTRUCTION IS SENSED BY THE PRIMARY INHERENT SENSOR, THE GATE WILL REVERSE AND OPEN TO THE FULL OPEN POSITION. THE GATE WILL REMAIN THERE UNTIL A CLOSE COMMAND IS RECEIVED OR WILL CLOSE BY TIMER AFTER NEW INPUT IS RECEIVED. IN ORDER FOR THE GATE TO CLOSE BY TIMER (IF ACTIVATED) A NEW INPUT ON TERMINALS J5 1-8 MUST BE GIVEN. IF AN INPUT STILL PRESENT WHEN THE GATE REACHED THE FULL OPEN POSITION, THIS INPUT WILL NEED TO BE RENEWED OR REMOVED AND ANOTHER INPUT GIVEN BEFORE THE CLOSE TIMER WILL CLOSE THE GATE.

**ENTRAPMENT ALARM** WILL ACTIVATE UPON THE PRIMARY INHERENT SENSOR SENSING A SECOND OBSTRUCTION BEFORE REACHING A LIMIT SWITCH. ONCE ACTIVATED, GATE WILL REMAIN AT REST ALARM WILL SOUND. THIS CONDITION CAN ONLY BE CLEARED BY AN INPUT APPLIED TO J5#4. THE WIRING USED TO RESET THE OPERATOR MUST BE IN THE LINE OF SIGHT AND MUST BE AN "INTENDED" RESET. ACCESS CONTROL DEVICES OF ANY KIND THAT REQUIRE AN INTENDED (ON PURPOSE) ACTIVATION MAY BE USED FOR THIS RESET. DEVICES THAT WILL CAUSE AN INCIDENTAL RESET (VEHICLE DETECTORS, PROBES, TIMERS, MOTION SENSORS, PHOTO BEAMS, ECT...) MUST **NOT** BE USED. **FAILURE TO COMPLY WITH THIS REQUIREMENT MAY RESULT IN SERIOUS INJURY OR DEATH.**

**IMPORTANT!**

**The secondary entrapment device must comply with UL 325, 4<sup>th</sup> edition effective criteria of March 1, 2000.**

# UL 325 APPROVED PHOTO BEAMS AND SAFETY (CONTACT) EDGES

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## **PHOTO BEAMS**

- |                   |                      |                             |
|-------------------|----------------------|-----------------------------|
| 1) EMX INDUSTRIES | MODEL#: IRB-325      | TRANSMITTER / RECEIVER TYPE |
| 2) ALLEN BRADLEY  | MODEL#: 60-2728      | RETRO-REFLECTIVE TYPE       |
| 3) OMRON / MMTc   | MODEL#: E3K-R10K4-NR | RETRO-REFLECTIVE TYPE       |

## **SAFETY EDGES (CONTACT EDGES)**

- |                |   |
|----------------|---|
| 1) MILLER EDGE | MODEL-MU-22, MG-020, ME-123, MC-22, ME-113, ME-120, ME-020                |
| 2) TAPE SWITCH | MODEL IL, 107-RS, 107-LS, 121-BP, 101-B1, 102-A&B, 102-BHP, 101-BMT,101-B |

# WARNING!

## TO REDUCE THE RISK OF INJURY OR DEATH, READ AND FOLLOW ALL INSTRUCTIONS!

Proper design is important in your system layout and installation. Reversing/Safety devices must be used at all available points where injury or property damage may occur. For protection from injury to persons, use Photo Electric Eye or optional Pressure Sensing Edge on the leading edge of the gate. Reversing/Safety Loops (Vehicle Detectors) should be installed in front of and behind the gate to provide a reverse signal or stop signal to the gate operator. All Reversing/Safety devices should be tested and inspected weekly. If a Reversing/Safety device appears to not operate correctly, the unit should be disabled until repair can be made by a properly trained/experienced service company.

As the system designer/installer, you must advise your customer/end user on the correct usage of the gate operator and the system. In providing the service of design/installation of the operator and system, you are responsible for proper training of the customer as well as for the proper SAFE OPERATION. All precautions to eliminate ALL hazards MUST be taken before the unit can be put into operation. You MUST advise and warn your customer of any hazards that remain or if they choose not to use any of the recommended reversing/safety devices in the installation.

- If you did not order a **Reversing/Safety Edge** (for along the bottom rail of your gate), or an **Infra-Red Modulated Photocell** (Reversing/Safety Beam), you will not be in compliance with March 2000 UL 325 Code. Consult your dealer for additional information.
- Pedestrians **must use** a separate entrance/exit **and not** the vehicular entrance/exit gate.
- **NEVER** activate the gate from long distances where visibility of the gate cannot be seen. Anyone operating the gate should always operate it in a safe manner.
- **NEVER** allow children or anyone to play on or around the gate at any time.
- **DO NOT** affix any adhesive material within 30 days of receipt.
- **DO NOT** attach anything to gate over 4 pounds total weight without consulting the factory re-balancing instructions.  
**The gate must remain balanced to ensure safe and reliable operation.**
- The gate and operator are designed to work together. **Do not** attempt to install an unauthorized gate without factory authorization.
- **DO NOT ALLOW** any Access Control Devices to be mounted in such a way that someone could stick their hand or arm through to activate the gate.

# INSTALLATION INSTRUCTIONS

**NOTE: Before attempting any part of the installation, you MUST read the entire Installation Manual and Appendix A.**

## I. SITE PREPARATION:

### A. Concrete Pads

Concrete pads are required to install your VPL Operator, Yoke & Gooseneck.

If applicable, (See Dwg. #101). **NOTE: Operator & Yoke pads MUST be poured on the same grade and be level.**

1. Contoured gate grades may be an exception; check your order.
2. Certain special yokes do not require a pad; check w/site Dwgs. for installation.

### B. Operator Pad Options:

1. Full Pad, Minimum depth of 36" or below *local* frost line (See Dwg. #101).
2. 10"-12" thick pad with four (4) 12" dia. x 36" deep holes or below *local* frost line (See Dwg. #101).

**NOTE: All pads need to be level and smooth for ease of installation**

**NOTE: Refer to Dwg. #101 for all applicable conduit locations**

## II. RECOMMENDED INSTALLATION TOOLS AND EQUIPMENT FOR INSTALLING GATE & OPERATOR

Lifting Strap	Multi-Meter (DCV & AMPS)	½" Drive Socket Set:
Hammer Drill, 3/8 & 5/8 Bits	Grease Gun, Lithium Grease	9/16", 3/4", 15/16", 1-1/8"
Tape Measure	Screwdriver Sets (Flat & Phillips)	Open End Wrenches:
Hammer	Level	9/16", 3/4", 15/16", 1-1/8"

## III. RECOMMENDED INSTALLATION TOOLS AND EQUIPMENT FOR INSTALLING ACCESSORIES

Wire Cutters/Strippers	Electrical Tape	Misc. Electrical Connectors	Misc. 18 Ga. Strand Wire
Chalk Line	Amp. Meter	Batteries	

**NOTE: Refer to manufacturer's instructions of Accessory Equipment for correct wire size and type.**

**NOTE: (2) 12 VDC batteries are required and not normally provided. Deep cycle marine batteries are recommended.**

## IV. RECEIVING YOUR VPL GATE AND OPERATOR:

### A. Unloading & Unpacking

Gate weight per foot varies with gate style & height.

<u>Product</u>	<u>Approx. Weight</u>
Operator	1124 #
Steel Gate	24# / Ft.
Aluminum Gate	19# / Ft.

1. Have adequate equipment ready to unload your Gate & Operator *safely* (Forklift, Front End Loader or Wrecker with Telescoping Boom, see below **Lifting Gate & Operator**).
2. Before removing your Gate and Operator from the truck, inspect it for any visible damage and make sure the Gate Box was shipped upright. **DO NOT DROP EITHER GATE OR OPERATOR BOX!**
3. Disassemble protective wooden frame.
4. Locate Door and Key switch keys, if applicable, located at the front of the Operator and attached to the *Transport /Maintenance* (T/M) Safety Pin (See Dwg. #103).
5. The Transmitters, Antenna, ordered accessories, and Shipping Packet will be enclosed inside your operator.
6. Unpack Gate Box in the same careful manner.

## V. INSTALLING YOUR VERTICAL PIVOT LIFT (VPL) GATE AND OPERATOR:

**WARNING: DO NOT REMOVE THE T/M SAFETY PIN UNTIL THE GATE IS SECURELY ATTACHED AND OPERATOR IS FASTENED TO THE CONCRETE PAD. THE OPERATOR ARM IS UNDER A GREAT DEAL OF TENSION & CAN CAUSE EXTREME DAMAGE AND INJURY IF RELEASED PREMATURELY!**

### A. Attaching the Gate:

1. Position Gate on Operator Arm.
2. Use (1) 3/4 x 4" Bolt for the top connection. Use (4) 1/2 x 1-1/2" Bolts for the bottom connection.
3. Insert the top bolt first and then the bottom (4) bolts finger tight. Be certain gate is properly aligned before tightening. Tighten bottom bolts first, then tighten top bolt.
4. Locate Linkage Pivot Bolt (1/2" x 2-1/4") & lubricate with lithium grease or equal. Also lubricate both sides of spacer washer. Attach Linkage Arm to Gate & snug up on nylon lock nut, then back off 1/4 turn. **You may have to push down on the gate to insert Linkage Bolt.**

# INSTALLATION INSTRUCTIONS

## B. Positioning Operator:

For Operator position on pad with gate center line and conduit placement (See Dwg. #101).

**NOTE:** Allow concrete to cure a min. of (3) three days before setting Operator & Gate Assembly.

**NOTE:** If using a Forklift to position Operator only, lift from *sides* only! **Do not try to lift gate and operator together from the side!** (See Dwg. #103).

## C. Lifting Gate & Operator:

To lift Gate & Operator, (Front End Loader, Forklift or Wrecker with Telescoping Boom) use a towing strap or a lifting chain. The strap should be secured around Operator Arm and T/M Safety Pin or the top rail of the gate near the operator arm. (See Dwg. #103).

**NOTE:** It is recommended to attach Gate to Operator Arm **before** lifting (for better balance), but it is not mandatory.

## D. Positioning Operator & Gate:

1. Place Gate & Operator Assembly on pad so the end of the Gate is centered over the Yoke pad. Allow a minimum 3" from edge of pad to bolt holes to prevent concrete damage (See Dwg. #101 & #102).
2. Position and align Pad Yoke and center under gate. (See Dwg. #101)
3. Secure **Operator** with (1) 5/8" dia. Wedge Bolt in rear; check alignment.
4. Install remaining (3) 5/8" dia. Concrete Anchor Bolts provided, **level Gate & Operator on pad**, if necessary.
5. Secure Yoke with 1/2" dia. Anchor bolts (provided).

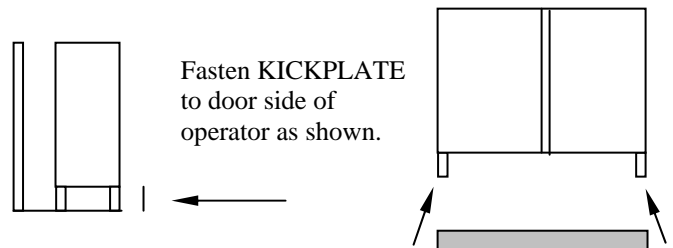
**NOTE:** If installing a Ground Yoke, allow a minimum space of 2" between bottom of Gate and Yoke.

## E. Wind bracing:

1. **If ordered**, attach wind bracing to gate with Galvanized Nuts provided on the rods or cables; one nut attached near operator and one attached at gate bracket (See Dwg. #I-105-1 & 2.). Tighten each side equally.

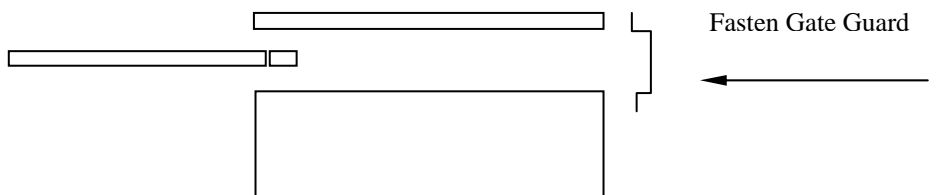
## F. Kick Plate:

1. Attach the kick plate to the door side of the operator using the 5 - 12 x 3 tek screws.



## G. Gate Guard:

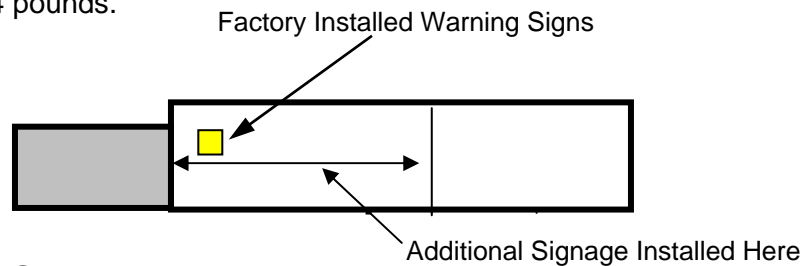
1. Install gate guard on the back side of the operator.



# INSTALLATION INSTRUCTIONS

## H. Additional Signage Installation:

We recommend any additional signage be installed between the operator and the center of the gate. The total weight cannot exceed 4 pounds.



## IV. OPERATOR WIRING & TESTING

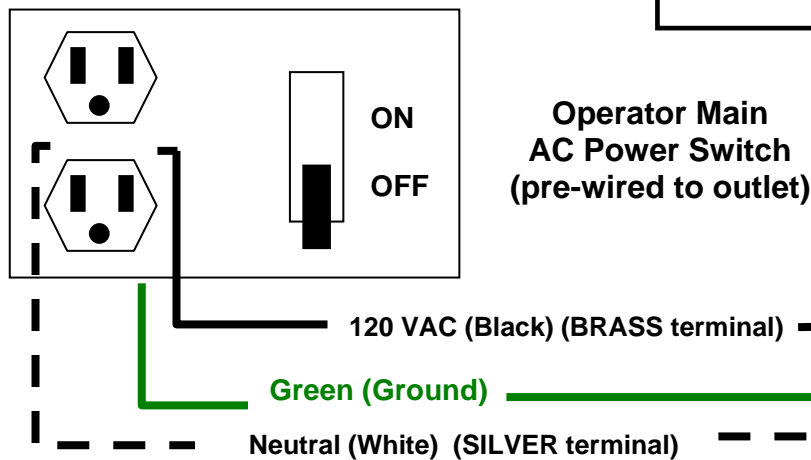
**NOTE:** Refer to electrical block diagram for additional information.

### A. Connecting AC Power

**NOTE:** The A/C Power must be connected by a qualified, licensed Electrician, according to the [National Electric Code](#), and all State and local codes.

1. Turn Off DC power.
2. Wire incoming AC power to the 4 x 4 Box provided and turn on the breaker from your AC Source.
3. Turn AC Power Switch on at the 4 x 4 Box.

Pre-Mounted 120vac Electrical Outlet & AC Power Switch electrical connection



**Additional 120 VAC Surge Protection is recommended but not required. Surge unit *must* be grounded to a true earth ground.**

**Warning!**

AC Outlets are **HOT** at all times. Outlets are for service use only.

**A/C Electrical Supply Minimal requirements: 120 vac, 15amp circuit**

**WARNING: OPERATOR MUST BE GROUNDED TO TRUE EARTH GROUND LUG LOCATED ON FRAME (See Dwg. # 103)**

# INSTALLATION INSTRUCTIONS

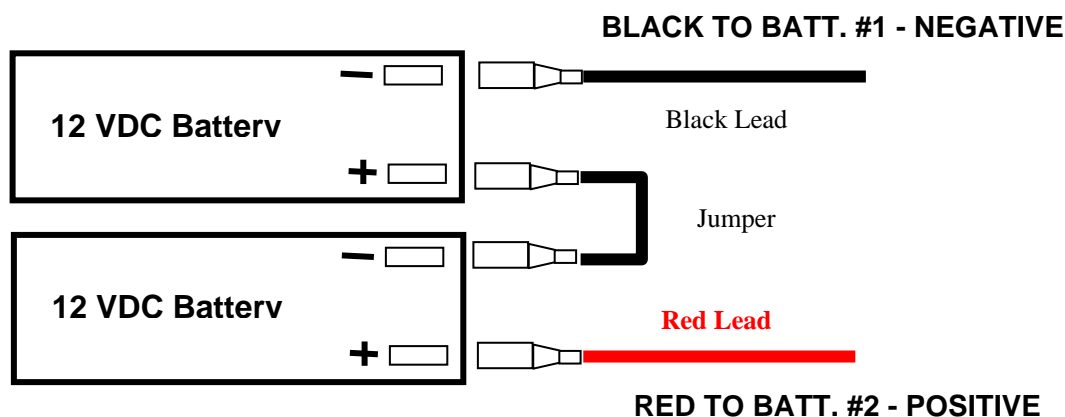
## B. Connecting Batteries - Required

**WARNING: Do not attempt to connect Batteries or power-up Gate & Operator until all Accessories have been completely connected & checked. This will prevent an accidental “short” of your system while wiring accessories.**

1. Install (2) 12 VDC Batteries (*not always include; check your order*) on the battery shelf. See drawing below for proper hook up. Use minimum 7 AH batteries for minimal battery back up or deep cycle marine batteries for extended battery back up.

**NOTE:** *Battery back up operation will depend on the size of batteries and / or the number of accessories powered by the batteries.*

2. Install Jumper Wire (provided) from **Batt. #1 - POSITIVE** to **Batt. #2 - NEGATIVE** (See Below).
3. Locate **RED** and **BLACK** Power Wires and connect:



## C. Testing

1. Remove T/M Safety Pin from front of Operator and hang it on the hook provided inside access door.

**NOTE:** It may be necessary to push **down** on end of gate in order to take pressure off T/M Safety Pin.

2. Temporarily remove any wires in the main circuit board Terminal #5 (rev. / safety) to disable any Reversing/Safety devices not installed from preventing the gate from closing. (See Board Dwg. #113)
3. Turn Main **DC** Power Switch “on”. (Located under the Control Box) Use a hand-held transmitter and the Push Button (not on all models, See Dwg. #103) to test your gate system. Test the gate by using the push button installed on the end panel. The push button will be controlled by the toggle switch mounted at bottom of Control Box (See Dwg. #103).

**NOTE:** Your gate should activate and open in approximately 10-12 seconds. If your gate does *not* lift properly, refer to "**Troubleshooting Tips**".

# INSTALLATION INSTRUCTIONS

4. If a key switch has been installed (below the push button), the key is removable from the switch in *either* the "on" or "off" position.
5. Your gate operator was supplied with four factory installed WARNING signs. These signs **MUST** be visible. Should your customer reject the usage of the standard warning signs, **you are strongly advised to have them sign a disclaimer.**

## D. Accessory Wiring (Ref. Electrical block diagram for additional information)

1. Turn off AC & DC power switches while connecting accessory wiring.
2. Reattach ALL wires removed from main circuit board Terminal #5 (safety/reversing).
3. Complete the **wiring & testing** of each accessory component one at a time. *SEE OPTIONAL ACCESSORIES INSTALLATION INSTRUCTIONS on page 21.*

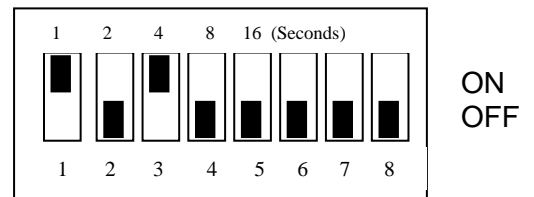
For example, to test the Safety/Reversing Beam, interrupt the beam when the gate is on the way down. The gate should stop and reverse when the beam has been broken or interrupted. Do the same for the Loops, Keypads, etc.

## V. CONTROL BOARD

Your VPL gate has many features and options. Most are controlled by an electronic circuit board inside the Control Box. Your circuit board is factory-set and should not be altered in any way or the Warranty may be voided. If an adjustment has to be made, consult your "Gate Board Instructions" for details. If you need any further assistance, please contact your local AutoGate Dealer or call AutoGate at 1-800-944-4283.

### A. Timers and Mode Selections (S1 and S2)

1. Full Speed Run Timer – Switch Pack S1 (1-5)  
Switches 1 through 5 are FACTORY PRESET.  
**PLEASE DO NOT CHANGE!**



1-5 Fast Run Timer    6-8 Mode Selection

# INSTALLATION INSTRUCTIONS

2. Mode Selections – Switch Pack S1 (6-8)
  - a. SWITCH 6 – “On” will energize K1 relay if someone attempts to push the gate open.
  - b. SWITCH 7 - FACTORY PRESET. **PLEASE DO NOT CHANGE!**
  - c. SWITCH 8 – “Off” will make K1 relay activate if not at closed limit switch (buzzers, counters, etc.) “On” will make K1 relay pulse when OLS is reached for interface to open a barrier arm gate in the same lane.
3. Close Timer – Switch Pack S2 (1-5)
  - a. Switches 1-5 on S2 are for the closing timer delay.
  - b. Default is S2-4 “ON” to provide a 8 second delay if activated.
  - c. If S2-7 is on, the gate will auto close by timer.
4. Mode Selections – Switch Pack (6-8)
  - a. SWITCH 6 – Sets aux. Open input terminal #4 at J5 to be pulse open-pulse close (Default is On).
  - b. SWITCH 7 – AUTO CLOSE TIMER – Default is ON. When on, use S2 1-5 to set close time delay. When close timer is selected, you **MUST** install vehicle and pedestrian detection devices. ***It is strongly recommended that photoelectric beams (eyes) be installed on BOTH sides of the gate to reduce the possibility of injury to persons that may attempt to walk through the gate opening. Along with the beams, it is strongly recommended that pressure-sensing edges be installed at the leading edge of the gate panel, and at any area that may present a PINCH POINT or provide a risk of ENTRAPMENT.***
  - c. SWITCH 8 – AUTO OPEN ON POWER FAILURE – When switch 8 is in the ON position, the operator will automatically open the gate approximately 15 seconds after the loss of power. Once power is restored, the operator will resume normal operation. Factory setting is “OFF” allowing the operator to function normally until the battery power has diminished. Once A/C has been restored, the operator will function normally.

**Note:** If batteries were completely discharged, remove from operator and recharge with a commercial grade battery charger.

## B. Instant Reverse Device (IRD)

The *instant reverse device* is an internal circuit that continuously monitors the motors current for increase draw. This is factory preset for your specific gate size. To test for proper operation, position yourself approximately 2/3 of the way across the driveway. With the gate descending, catch the gate and it should stop and reverse with 15lbs. of force or less. If the gate does not reverse, call the factory for technical assistance. If obstructed while closing, the gate will stop and reverse to the open position, time out (using the time delay set at S2 switches 1-5) and then close. If gate is opening when obstructed, the gate will stop its open travel. If inputs are present, gate will remain stopped. If no inputs are present or existing are cleared, the gate will time out and close.

**WARNING: INSTANT REVERSE DEVICE (IRD) SHOULD BE TESTED WEEKLY TO INSURE PROPER OPERATION AND SHOULD NOT EXCEED 15 lbs. OF FORCE.**

## C. Barrier Gate Access Manager Interface

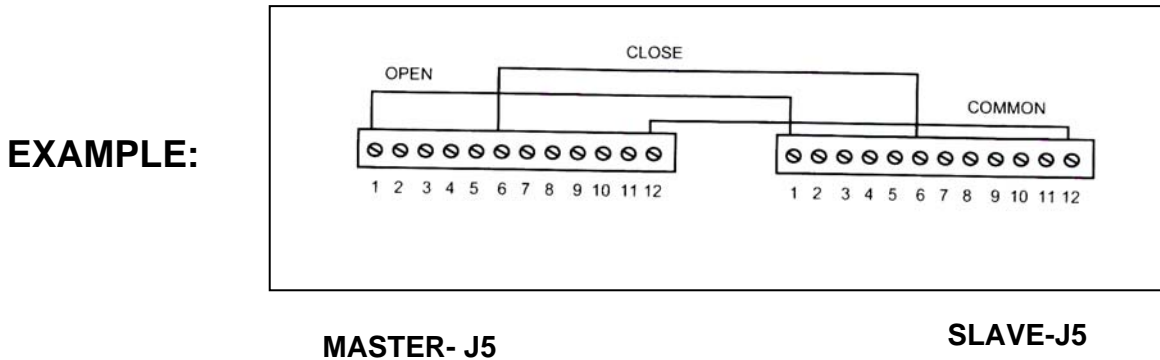
For full logical interface of AutoGate VPL to a barrier gate will require only two wires from the VPL gate control panel to the barrier. Run two wires from the VPL panel NO and COMMON terminals at J1 to the two LOW VOLTAGE raise gate terminals on the barrier gate. Next, switch on S1-8 to enable the relay to pulse open the barrier arm gate. When operator reaches open limit position, relay will pulse to open barrier. If while VPL gate is still open and another open signal is sent to the VPL gate, the relay will pulse again. If a constant open signal is on the VPL gate, then the relay will stay energized. For a day/night mode of operation where you will require the VPL gate to be held open, connect that hold open device to J5 AUX OPEN terminal #4. This will not pulse or hold the relay, but when an open signal is sent to J5 OPEN terminals #1, 2 or 3, the relay WILL pulse to raise the barrier arm. Note that while the VPL is closing and the SAFETY LOOP input is activated or the gate is OBSTRUCTED, the VPL gate will reverse BUT WILL NOT PULSE THE INTERFACE RELAY to open the barrier arm.

## VI. MASTER SLAVE WIRING

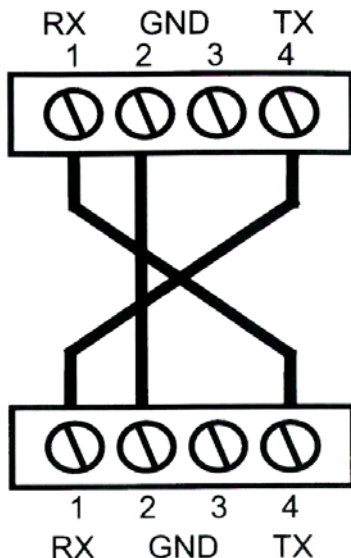
A. In a master/slave configuration, either unit can be the master. Choose one unit to be the master and then direct all control wiring to it (also install vehicle detector and receivers in it).

B. At the MASTER any input (at J5) with control (detectors, receivers, keypads, timers, etc...) wires to it must also be run to the same terminals of the slave. Along with these control wires, both operators MUST share a common ground connection from chassis to chassis (or from common to common , i.e. master gate J5 terminal #12 to slave gate J5 terminal #12).

**EXAMPLE:** If only open and close are used at master then three wires will run between gates.



C. If it is required that if one gate senses an obstruction, the other reverses also, then 3 additional wires must be run between the master J3 and slave J3 as shown below. These connections are for transmitting IRD (obstruction signals) between both units. This will allow the master or slave to inform the other that a closing obstruction has occurred and for it to also reverse and open. **SET** switches on **S2, 1-8** the same on both gates.



**MASTER - J3**

### IRD - OBSTRUCTION SIGNAL CONNECTIONS

THE CONNECTIONS TO THE LEFT MUST BE DONE IN ORDER FOR GATE IRD'S TO WORK CORRECTLY. TERMINAL 1 OF MASTER MUST GO TO TERMINAL 4 OF SLAVE AND TERMINAL 1 OF SLAVE MUST GO TO TERMINAL 4 OF MASTER. TERMINAL 2 OF MASTER WILL GO TO TERMINAL 2 OF SLAVE.

**SLAVE - J3**

## VII. TROUBLE SHOOTING

### **WARNING: DISCONNECT BATTERIES AND AC POWER BEFORE SERVICING ANY MECHANICAL OR MOVING COMPONENTS!**

**A. BATTERY CHECKOUT** – When the batteries become weak the gate can begin to run noticeably slower. (NOTE: Batteries should only be checked when you are sure they have had adequate time to fully charge.) Turn off the AC power and run gate for 5 to 10 cycles while observing low battery indicator LED D12. If LED 12 comes ON, batteries are too weak to function properly. If LED 12 does not light, then voltage should be checked as they still may be near failure. Correct voltage is approximately 25.5VDC. (NOTE: If LED D12 does light, gate will open to conserve batteries in this test or in a real power loss, even if mode switch 8 is on S2 is off.) Return of AC power will clear the low battery indicator. If the batteries are not completely drained, you may have to charge the batteries as they may be too weak. Correct charge voltage is 27.5 VDC with batteries not connected (adjustment is at R63).

**B. GATE WILL NOT CLOSE** - Check for any active inputs, AC power loss, AC power switch is off or weak batteries. Check that batteries are connected properly. Is switch S3 in “ON” position (this is manual open switch). Check if S2 switch number 8 is in “ON” position and if AC power is lost, See LED D14. Check LED D12, if lit and AC power is off, then batteries need to be charged or replaced.

**C. GATE WILL NOT OPEN** - Check for AC power loss at D14 (check AC power switch) and that batteries are fully charged. Check fuses and if inputs are wired correctly, test S3 manual open switch.

**D. GATE DEAD – NO OPERATION** - Check LED D14 for AC power indication and check that AC power switch is “ON”. Check LED D11 for Heart Beat pulses, if none and D14 (AC) & D5 (BRAKE) are on, then gate has repeatedly sensed obstructions. Clear obstruction, then clear with next new input. IRD (D2) LED is flashing, MRT (Maximum Run Timer) has expired. Gate was unable to reach the closed limit switch. Check that fast run timer is set to run as long as possible.

**E. FUSE(S) ARE BLOWN** - F3 (10 AMP AC) AND/OR F4 (15 AMP DC) Check for shorts in wiring. If F3 AC fuse is blown, then batteries may also be dead. If you continue to blow fuses and no apparent shortages are visible, you most likely have a blown circuit board and it will need to be replaced.

### **WARNING: FOR CONTINUED PROTECTION AGAINST FIRE, ONLY REPLACE WITH THE SAME TYPE AND RATING OF FUSE.**

**F. GATE CLOSSES THEN REVERSES** - See IRD adjustments, also check for obstacles in gate travel, such as trees, sticks, etc. Charge voltage to batteries too low, adjust at R63. With batteries disconnected, set to 27.5.

**G. IRD OBSTRUCTION SIGNAL TO OTHER GATE NOT WORKING CORRECTLY** - Remove connector at J3, obstruct gate3, LED D13 should go off for a few seconds. This indicates signal was transmitted. Be sure gate3s share a common ground.

#### **H. GENERAL SERVICE** -

Belt(s) loose or need(s) replacement. Charge voltage for batteries should be 27.5 VDC with batteries disconnected (set at R63).

## VI. MANUAL OPERATION

A. Your VPL gate is easily operated manually in the event of total power or component failure.

1. Turn main power switches off (both A/C & D/C).
2. Release the belt tension lever located under the gear motor to remove the belt tension.
3. Position yourself in front of operator and lift up on Linkage Arm at the pivot point 1"-2". (See dwg. #103).
4. Walk out to end of gate and lift gate to the open position.  
**NOTE:** It only takes 16 - 30 lb. of force to open gate. If more is required, contact your dealer or factory.
5. Place the T/M pin through the bracket holes to prevent the gate from lowering.
6. Secure the belt tension lever in the locked position to re-apply tension to the belts.

## VII. MAINTENANCE

The Basic electric and mechanical systems require only minimum routine maintenance. The following items should be checked and serviced periodically depending on amount of use. (See Dwg. #103 for lube locations).

ITEM	RECOMMENDED MAINTENANCE
Grease pivot pins on Linkage Assembly (“LUBRIPLATE ‘R’ LOW TEMP” Grease)	10,000 cycles or 6 months
Grease all bearings (2) Operator Arm, (2) Bullwheel Shaft	every 6 months
Grease Chain Tension Bolt and Lube Chain	every 6 months
Check belts for wear and tightness (Belt flex is 1/4" – 1/2" top & bottom between output sheave & bullwheel)	every 6 months
Check battery water level, use distilled water only (Not required on maintenance-free)	every 6 months
Clean snow/ice off of gate (Bal. Correctly, gate will temporarily tolerate an add'l 10 lb. of wt.)	as needed
Clean lenses on Photocells or Reflectors	as needed
Lubricate (Graphite Oil) all lock cylinders	every 6 months
Check and verify proper operation of all <b>secondary</b> entrapment devices.	every month
Check and verify proper operation of all <b>primary</b> reversing feature. (see Section V, Item #2-A)	every week

## A. Balancing a Gate:

Four months after installation, then annually. It is recommended to check the balance of your VPL Operator. It is mandatory to re-check the balance if you change spring(s). You can monitor it on the amp meter installed on the control box door. It is recommended to follow the instructions below for accurate balancing numbers using a commercial grade AMP meter.

1. Remove the wire nut on the **RED** motor lead and hook up one Amp Meter lead to the **RED** wire and the other Amp Meter lead to the **ORANGE** wire. Cycle the gate up and down and record the highest amp reading in both directions (reading should be in the 2.0 to 6.0 range). The highest reading for both the up and down cycles should be very close to the same. If not, you will have to adjust the SLIDE ASSY. (see Dwg. # 107).
2. Loosen the 1 1/8" nuts on either side of the Slide Assy. Angle on the Threaded Rod. *If the gate Amps are too high in the OPEN mode, move the Slide Assy. UP to help it OPEN.* (This is the most common adj. Made). *If the gate is flying open and struggling to close, move the Slide Assy. DOWN.* Only adjust the Slide Assy. 1/4" (3 to 4 turns) at a time when adjusting. After each adjustment, check your amp readings.
3. When you have the gate back in balance (within a half amp (.5) is minimal), tighten both nuts on Slide Assembly threaded rod.

## B. Board Replacement

1. Turn ALL power off (**AC & DC**) to the board.
2. Remove (slide off) J2 "Open & Close" Limit Switch Terminal strip.
3. Remove (slide off) Accessories 1 through 12 Terminal strip.
4. Carefully remove the wires for the 24vdc Acc. Power, Battery Power, AC Power & Motor wires.
5. Take the board off the Standoffs and remove the (2) mounting bolts and replace with your NEW circuit board and put all wires & connections back in the same place.
6. Double check the D.I.P. switch settings to be sure they are the same as your original board.

## VIII. OPTIONAL ACCESSORIES INSTALLATION INSTRUCTIONS

(Your gate order may not have included any or all of these accessories)

***CAUTION! Failure to completely install any Safety/Reversing Devices may cause your gate to default Open. (Ex.: Hooking up your Loop Wires to the Socket Base while not having the Detector plugged in, or having your IFR Receiver hooked up and not the IFR Transmitter.)***

**NOTE: Refer to electrical block diagram for additional information on all accessory wiring.**

### **A. Reversing/Free Exit Loops and Detectors:**

1. Locate your "Homerun" lead-in Loop wires and connect the Free Exit Loop to Socket Base connections #7 & #8 (Free Exit Device).
2. Locate your "Homerun" lead-in Loop wires and connect the Reversing/Safety Loop(s) to Socket Base connections #7 & #8. You can wire (2) two Safety Loops to (1) one Socket Base (Safety Device). Check the loop instructions for proper phasing.
3. Plug in your Loop Detector in the pre-wired socket base(s).

### **B. Photoelectric Sensors:**

Refer to page 7 of this guide for the list of UL 325 approved components and to the manufacturer's instructions for their proper installation.

1. Verify voltage compatibility, 24 VDC is required.
2. Connect signal wire N.O. (normally open) to terminal #5 on your control board.
3. Connect the ground wire to terminal 9, 10, 11 or 12 (commons).
4. Connect the power wires to the terminal strip located inside the control box.

### **C. Contact Sensor Edge:**

Refer to page 10 of this guide for the list of UL 325 approved components and to the manufacturer's instructions for their proper installation.

1. Connect signal wire N.O. (normally open) to terminal #5 on your control board.
2. Connect the ground wire to terminal 9, 10, 11 or 12 (commons).

### **D. Vehicle Sensor Probe (Car-Sense 101):**

1. Locate the Car-Sense 101 Vehicle Sensing Probe either along the edge of the Exit Drive or install in the pavement as shown on Dwg. # 108.
2. Once installed, run the 2-conductor cable to Socket Base connections #6, 7 & 8 (Free Exit Device). Refer to manufacturer's instructions for proper wiring.
3. Connect the power wires to the terminal strip located inside the control box.
4. Connect signal wire to an open terminal – 1, 2, 3.
5. Connect the ground wire to terminal 9, 10, 11 or 12 (commons).
6. Plug in you Car Sense Detector in the pre-wired socket base. Refer to Manufacturer's Instructions.

## E. Gate Auto Timer:

1. Install your timer in the electrical box.
2. Run the power wires to Terminal Strip main power (+ and -).
3. Run connections 3 & 5 to your Free Exit connections on the Circuit Board #'s 1, 2 or 3 (Open) & 9, 10, 11 or 12 (Common). (Refer to Manufacturers Instructions).

## F. Keypads:

1. Refer to your Keypad Manufacturers Instructions for complete wiring.
2. Run the power wires to Terminal Strip main power (+ and -).
3. The **N.O. & Common** signal wires to open the gate need to be attached to the Circuit Board #'s 1, 2 or 3 (Open) & 9, 10, 11 or 12 (Common) (Refer to Manufacturer's Instructions).

## G. Card Readers:

1. Refer to your Card Reader Manufacturer's Instructions for complete wiring.
2. Run the power wires to Terminal Strip main power (+ and -).
3. The **N.O. & Common** signal wires to open the gate need to be attached to the Circuit Board #'s 1, 2 or 3 (Open) & 9, 10, 11 or 12 (Common) (Refer to Manufacturer's Instructions).
4. We recommend using a grounding rod to minimize lightning damage.

## H. Phone Systems:

1. Refer to your Phone System Manufacturers Instructions for complete wiring
2. Most phone systems require a dedicated power supply and therefore they may not function during a power outage.
3. The **N.O. & Common** signal wires to open the gate need to be attached to the Circuit Board #'s 1, 2 or 3 (Open) & 9, 10, 11 or 12 (Common) (Refer to Manufacturer's Instructions).
4. We recommend using a grounding rod to minimize lightning damage.

**NOTE:** Refer to Appendix A3 for approved UL 325 Compliant components.



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