INSTALLATION INSTRUCTIONS

AND SAFETY INFORMATION

FOR THE VIKING Q-7 GATE OPERATOR

CLASS II, CLASS III, AND CLASS IV

Heavy-Duty Commercial Vehicular Slide Gate Operator

VIKING WIRELESS

SOLAR EFFICIENT OPERATION

VIKING ACCESS SYSTEMS™

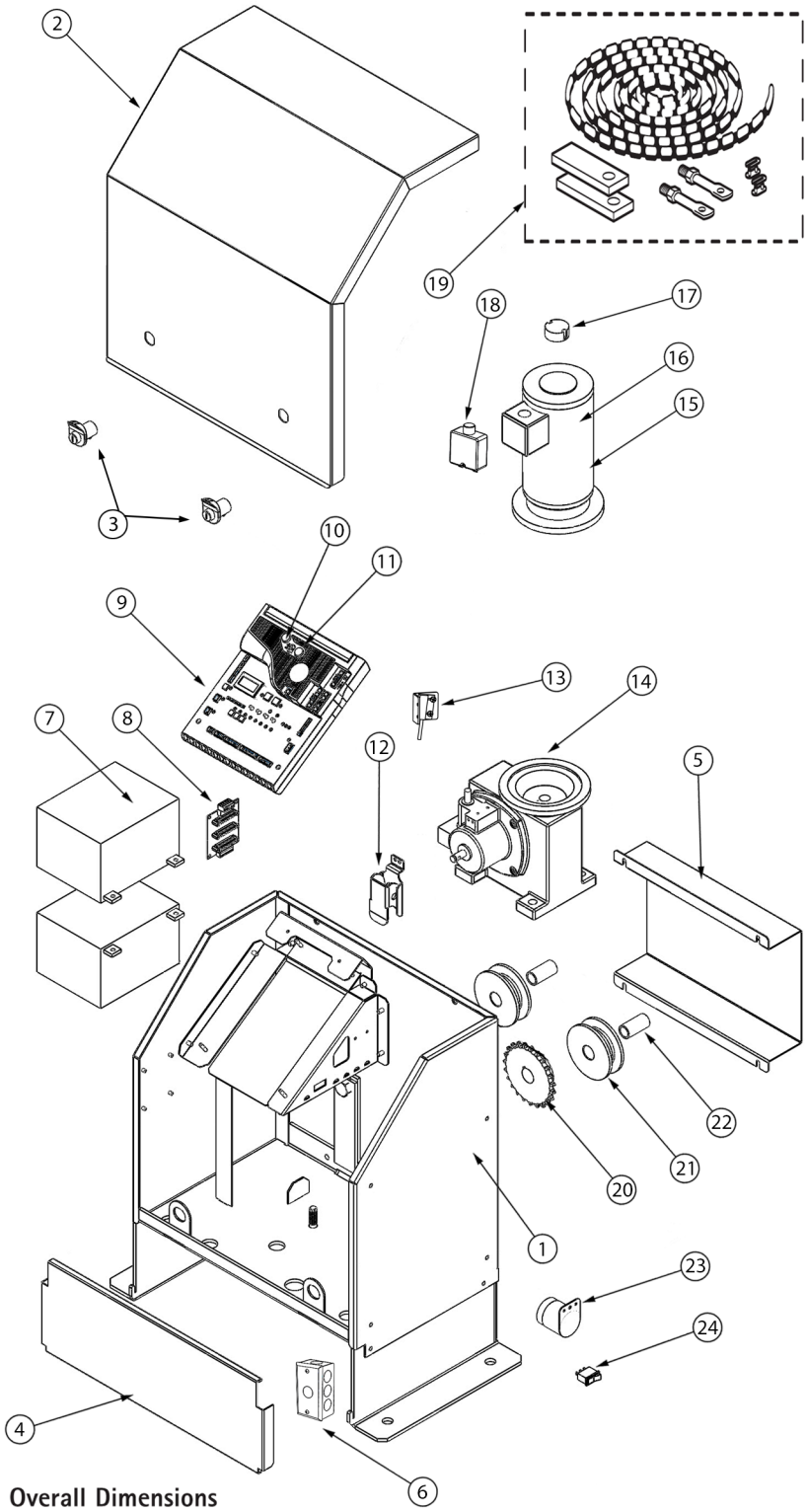
VIKING ACCESS SYSTEMS™

VIKING ACCESS SYSTEMS™

The Q-7™ gate operator has the capacity to operate slide gates up to 7000 lbs. and 120 ft. in length at 100% duty cycle under extreme conditions. This efficient operator provides a solution for high traffic commercial and industrial slide gate applications. The Viking Q-7™ gate operator offers efficiency and technology combined in a single package.

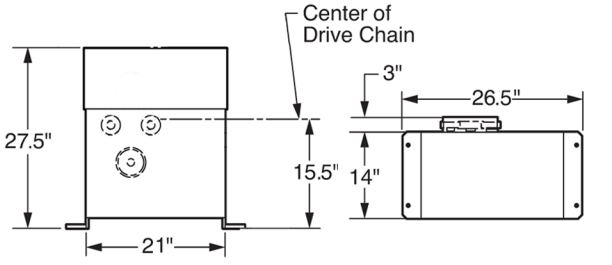
THE VIKING Q-7™ SLIDE GATE OPERATOR

PARTS DIAGRAM:

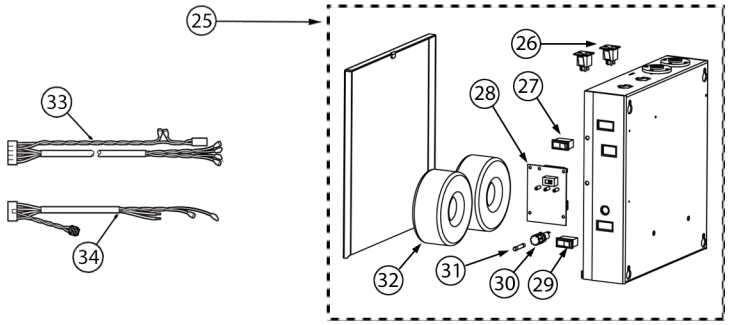


Item	Description	Part No.
1	Chassis	VAQ7CH10
2	Chassis Top Cover	VAQ7CHTC10
3	Q7 Cover Lock & Key	VAQ7CL
4	Chassis Front Cover	VAQ7CHFC10
5	Chain Guard	VAQ7CHCG10
6	Q7 J-Box Cover	VAQ7JBC
7	Battery	DUBA35
8	Loop Rack	VA-LR
9	Control Board	VFLEXPCBU16-Q7
10	Fuse - 4 amp	VNXF4A
11	Fuse - NOT USED	N/A
12	Release Handle	VNXQ7RH
13	Manual Release Sensor	DNXTS10
14	Q7 Gearbox	Q7GB70
15	Q7 Motor	VAQ7M0
16	Brush Kit	VAQ7MBK
17	Electronic Positioning Sensor 2 (EPS2)	VNXSLEPS2
18	Motor Breaker	VAQ7MB20
19	Chain #50 x 10' x 3 - Nickel Coated	Q4C50CHK
20	Sprocket 50B23	Q7SP50
21	Idler Pulley	VAQ4IP
22	Idler Pulley Bushing	VNXQ7IB20
23	Alarm	DUAL10
24	Battery Switch	DUMRS20
25	Q7 Power Box Assembly	VNXQ7PBA
26	Receptacle 120V	VQ120R
27	Motor Power Switch	DUMRS10
28	EMI Board	VNXDUEMI
29	AC Power Switch	DUMRS20
30	EMI Fuse Holder & Harness	VNXEFHH
31	Fuse - 8 amp	DUF8EMI
32	Toroid Transformer - 15 amp	DUTT15
33	Motor Harness	VNXQ7MH
34	Power Harness	VNXQ7PH

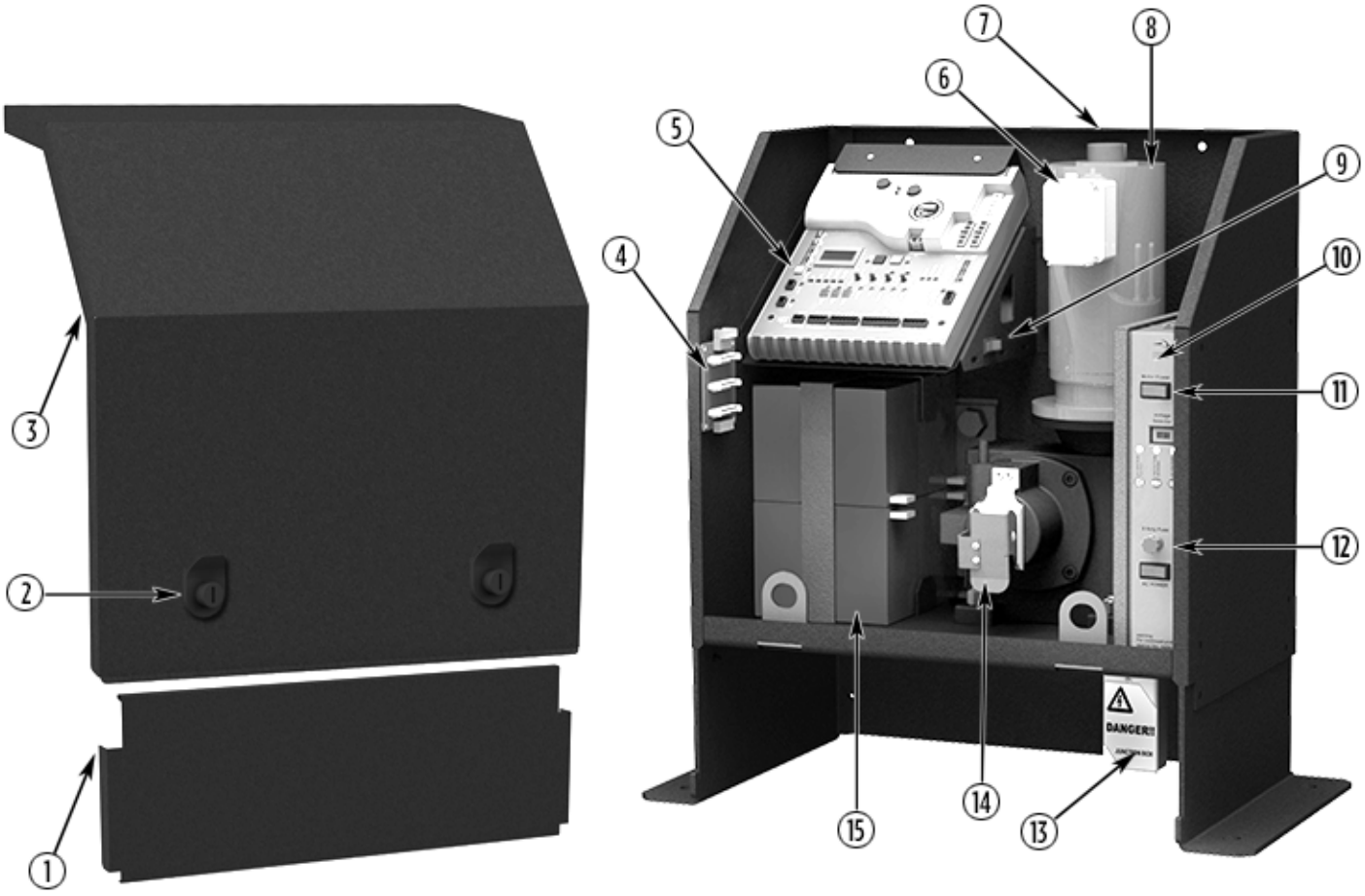
Overall Dimensions



Weight 300 lb.

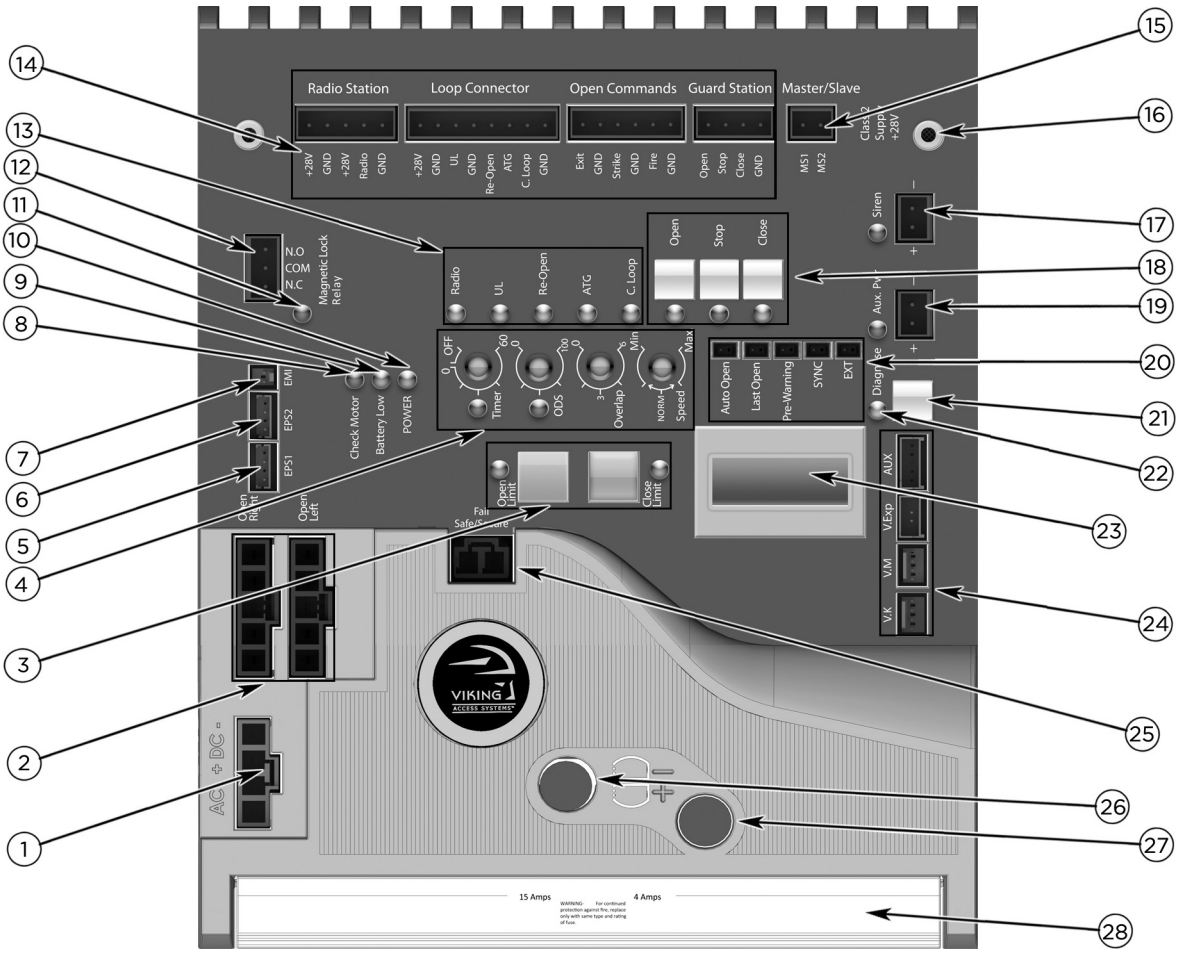


OPERATOR REFERENCES:



1. FRONT COVER
2. COVER LOCK (2)
3. TOP COVER
4. LOOP RACK
   for convenient loop detector installation
5. VFLEX CONTROL BOARD
6. MOTOR BREAKER
   resettable; protects the motor circuitry
7. EPS2 (ELECTRONIC POSITIONING SENSOR)
   sensor for the digital limits
8. MOTOR
9. BATTERY SWITCH
   disconnects batteries from the charging circuit during troubleshooting
10. POWER BOX ASSEMBLY
    removable; convenient access to the power supply components
11. MOTOR POWER SWITCH
    switch & breaker; provides additional protection for the motor circuitry .
12. EMI FUSE
    main power supply protection
13. J-BOX
    high voltage power supply connection
14. MANUAL RELEASE HANDLE
    convenient mechanical gear release
15. BATTERY BACKUP SYSTEM
    backup power supply in case of power outage; 24V/35Ah

CONTROL BOARD REFERENCES:



1. POWER HARNESS CONNECTOR
provides power to the control board.
pg 18-19

2. "OPEN LEFT" & "OPEN RIGHT"
provides power to the motor. pg 20

3. LIMIT SETUP BUTTONS
sets limit positions. pg 20-21

4. FEATURE ACTIVATION TRIM POTS
activate and set features. pg 24

5. "EPS1" CONNECTOR
monitors manual release operation.

6. "EPS2" CONNECTOR
monitors the limit positions.

7. EMI BOARD CONNECTOR
monitors the high voltage power supply.

8. "CHECK MOTOR" Status LED
indicates motor power status. pg 36

9. "BATTERY LOW" Status LED
indicates battery power status. pg 36

10. "POWER" Status LED
control board power status. pg 18,36

11. "MAGNETIC LOCK RELAY" Status LED
status of this on-board relay. pg 34, 36

12. "MAGNETIC LOCK RELAY" Terminal Block
connect electric locks here. pg 34, 36

13. INPUT STATUS LEDs
indicates input status. pg 36-37

14. ACCESS CONTROL TERMINAL BLOCKS
accessory connections. pg 29-32, 42-44

15. "MASTER/SLAVE" Terminal Block
wired master/slave connection. pg 22

16. CONTROL BOARD MOUNTING HOLES
secures and grounds the control board.

17. "Siren" Terminal Block
Vikings UL Siren is connected here.

18. ON-BOARD 3 BUTTON STATION
controls the gate during set up.

19. "AUX PWR" Terminal Block
used for solar applications & in-motion warning devices. pg 19, 25

20. FEATURE ACTIVATION PIN HEADERS
activate features by placing a jumper onto the pin headers. pg 25

21. "DIAGNOSE" Button
allows you to navigate through the Diagnostics LCD Display. pg 38-40

22. "DIAGNOSE" LED
informs that errors have been detected and available on LCD Display. pg 38-40

23. LCD DIAGNOSTICS DISPLAY
provides error messages, diagnostics settings and operator status information. pg 38-40

24. EXPANSION PRODUCT CONNECTIONS
connections for additional products from Viking Access Systems. pg 46

25. "FAIL SAFE/SECURE" Jumper
not applicable to this model.

26. NOT USED

27. FUSE HOLDER - 4 AMP
for charging circuit.

28. HEAT SINK
secures the control board and dissipates heat.

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IMPORTANT SAFETY INFORMATION

⚠ WARNING! Not Following these instructions may cause severe injury or death.

IMPORTANT SAFETY INSTRUCTIONS

⚠ WARNING! To reduce the risk of severe injury or death.

1. READ AND FOLLOW ALL INSTRUCTIONS.
2. Never let children operate or play with gate controls. Keep the remote away from children.
3. Always keep people and objects away from the gate. NO ONE 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 when an object activates the non-contact sensors. After adjusting the force or the limit 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 a separate entrance.
8. **Every gate operator installation MUST have secondary protection devices against entrapment, such as edge sensors and photo beams more in particularly in places where the risk of entrapment is more likely to occur.**
9. SAVE THESE INSTRUCTIONS.

IMPORTANT INSTALLATION INSTRUCTIONS

1. Install the gate operator only when:
   a. The operator is appropriate for the construction of the gate and usage Class of the gate (refer to page 9),
   b. All openings of a horizontal slide gate are guarded or screened from the bottom of the gate to a minimum of 6 feet (1.83 m) above the ground to prevent a 2-1/4 inch (57.2 mm) diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that the gate covers in the open position,
   c. ALL EXPOSED PINCH POINTS ARE ELIMINATED OR GUARDED, AND
   d. GUARDING IS SUPPLIED FOR EXPOSED ROLLERS.
2. 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 into contact with the vehicular gate during the entire path of travel of the vehicular gate.
3. 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 in to the public access areas.
4. The gate must be properly installed and work freely in both directions prior to the installation of the gate operator. Do not over-tighten the operator clutch or pressure relief valve to compensate for a damaged gate.
5. The gate operator controls must be placed so that the user has full view of the gate area when the gate is moving AND AWAY FROM THE GATE PATH PERIMETER.

IMPORTANT SAFETY INFORMATION

⚠ WARNING! Not Following these instructions may cause severe injury or death.

IMPORTANT INSTALLATION INSTRUCTIONS (Continued)

6. Controls intended for user activation must be located at least six feet (6') 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 (i.e. fire, police, EMS) may be placed at any location in the line-of-sight of the gate.

7. 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.
8. A minimum of two (2) WARNING SIGNS shall be installed, in the area of the gate. Each placard is to be visible by persons located on the side of the gate on which the placard is installed.
9. **For gate operators using non-contact sensors (photoelectric beam or like) in accordance with section 31.1.1 of the UL standard:**
   a. See instructions on the placement of non-contact sensors for each type of application (refer to page 10).
   b. 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
   c. 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 (refer to page 10).
   d. Use only Miller Edge photoelectric beams (refer to pages 10-11).
10. **For a gate operator utilizing a contact sensor (edge sensor or like) in accordance with section 31.1.1 of the UL 325 standard:**
   a. One or more contact sensors shall be located where the risk of entrapment or obstruction exists, such as a the leading edge, trailing edge, and post mounted both inside and outside of a vehicular horizontal slide gate (refer to page 10).
   b. One or more contact sensors shall be located at the bottom of a vehicular vertical lift gate.
   c. One or more contact sensors shall be located at the pinch point of a vehicular vertical pivot gate.
   d. A hardwired contact sensor shall be located and its wiring arranged so that the communication between the sensor and the gate operator is not subject to mechanical damage.
   e. A wireless contact sensor such as one that transmits radio frequency (RF) signals to the gate operator for entrapment protection functions shall be located where the transmission of the signals are not obstructed or impeded by building structures, natural landscaping or similar obstructions. A wireless contact sensor shall function under the intended end-use conditions.
   f. One or more contact sensors shall be located on the inside and outside leading edge of a swing gate. Additionally, if the bottom edge of a swing gate is greater than 6 inches (152 mm) but less than 16 inches (406 mm) above the ground at any point in its arc of travel, one or more contact sensors shall be located on the bottom edge.
   g. One or more contact sensors shall be located at the bottom edge of a vertical barrier (arm).
   h. Use only Miller Edge edge sensor (refer to pages 10-11).

IMPORTANT SAFETY INFORMATION

⚠ **WARNING! Not Following these instructions may cause severe injury or death.**

MAINTENANCE

Remove the Power Harness from the Control Board. (refer to page 18)

- Clean and lubricate the gate track wheels using the recommended lubricant.
- Inspect the track for any signs of cracking or separation.
- Check that all mounting hardware of the gate operator is properly tighten.
- Ensure that the gate moves freely.
- Check for corroded parts and replace if necessary.
- Check the battery for the following:
  - Battery connections must be free of corrosion.
  - Battery voltage must be 26VDC (fully charged battery).

Reconnect the Power Harness for the Control Board. (refer to page 18)

- Check and confirm the proper operation of all safety devices (photoelectric eye, edge sensors or like).
- Check and confirm the operation of all installed accessories.
- Check and confirm the operation of all special features such as the Intelligent Obstruction Sensor, Hold Open Timer. (refer to page 24 and 26)
- Check and confirm the operation of the manual release. (refer to page 11)
- Verify the functionally of the battery backup, or power failure option, by turning off the main power source (115VAC or 230VAC). **DO NOT FORGET TO TURN ON THE MAIN POWER SOURCE AFTER VERIFICATION.**

GENERAL SAFETY PRECAUTIONS

The following precautions are an integral and essential part of the product and must be supplied to the user. Read them carefully as they contain important indications for the safe installation, use and maintenance.

- These instruction must be kept and forwarded to all possible future users of the system.
- This product must be used only for that which it has been expressly designed.
- Any other use is to be considered improper and therefore dangerous.
- The manufacturer cannot be held responsible for possible damage caused by improper, erroneous or unreasonable use.
- Avoid operating in the proximity of the hinges or moving mechanical parts.
- Do not enter the path of the moving gate while in motion.
- Do not obstruct the motion of the gate as this may cause a situation of danger.
- Do not allow children to play or stay within the path of the moving gate.
- Keep remote control or any other control devices out of the reach of children, in order to avoid possible involuntary activation of the gate operator.
- In case of break down or malfunctioning of the product, disconnect from the main power source. Do not attempt to repair or intervene directly, contact only qualified personnel for repair.
- Failure to comply with the above may create a situation of danger.
- All cleaning, maintenance or repair work must be carried out by qualified personnel.
- In order to guarantee that the system works efficiently and correctly it is important to have the manufacturer's instructions on maintenance of the gate and operator carried out by qualified personnel.
- In particular, regular checks are recommended in order to verify that the safety devices are operating correctly.

All installation, maintenance and repair work must be documented and made available to the user.

IMPORTANT SAFETY INFORMATION

⚠ CAUTION: To Reduce the Risk of Fire or Injury to Persons:

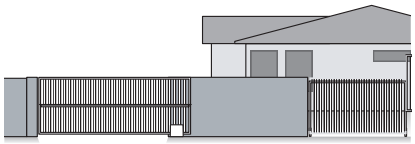
a. Use only the following type and size battery(ies): Yuasa NP7-12 or VIKING DUBA12
b. Do not dispose of the battery(ies) in fire. The cells may explode. Check with local codes for possible disposal instructions.
c. Do not open or mutilate the battery(ies). Released electrolyte is corrosive and may cause damage to the eyes or skin. It may be toxic if swallowed.
d. Exercise care in handling batteries in order not to short the battery with conducting materials such as rings, bracelets and keys.
e. Change the battery(ies) provided with or identified for use with this product only in accordance with the instructions and limitations specified in this manual.
f. Observe proper polarity orientation between the battery(ies) and charging circuit.
g. Do not mix batteries of differ ant sizes or from different manufactures in this product (applies to products employing more than one user replaceable secondary battery).
h. A battery-operated product employing a secondary battery supply intended to be charged within the product shall contain specific instructions concerning the proper method of charging.

UL325 Gate Operator Classifications

GLOSSARY

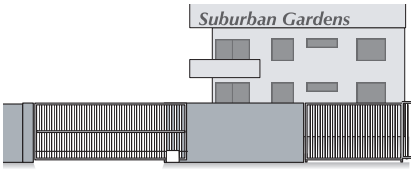
RESIDENTIAL VEHICULAR GATE OPERATOR

CLASS I - A vehicular gate operator (or system) intended for use in garages or parking areas associated with a residence of one-to four single families.



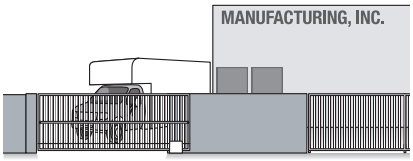
COMMERCIAL/GENERAL ACCESS VEHICULAR GATE OPERATOR

CLASS II – 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 building servicing the general public.



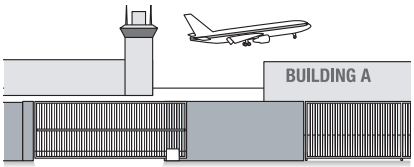
INDUSTRIAL/LIMITED ACCESS VEHICULAR GATE OPERATOR

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



RESTRICTED ACCESS VEHICULAR GATE OPERATOR

CLASS IV – 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.



Install the gate operator only when:
The operator is appropriate for the construction of the gate and the Usage Class of the gate.

IMPORTANT SAFETY INFORMATION

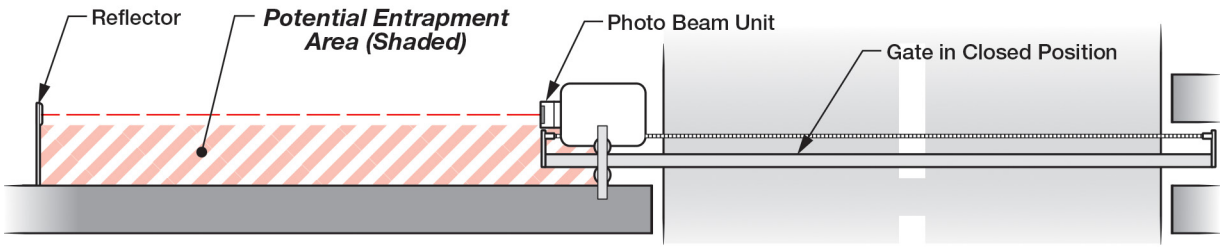
⚠ WARNING! Not Following these instructions may cause severe injury or death.

Secondary Entrapment Protection Requirements

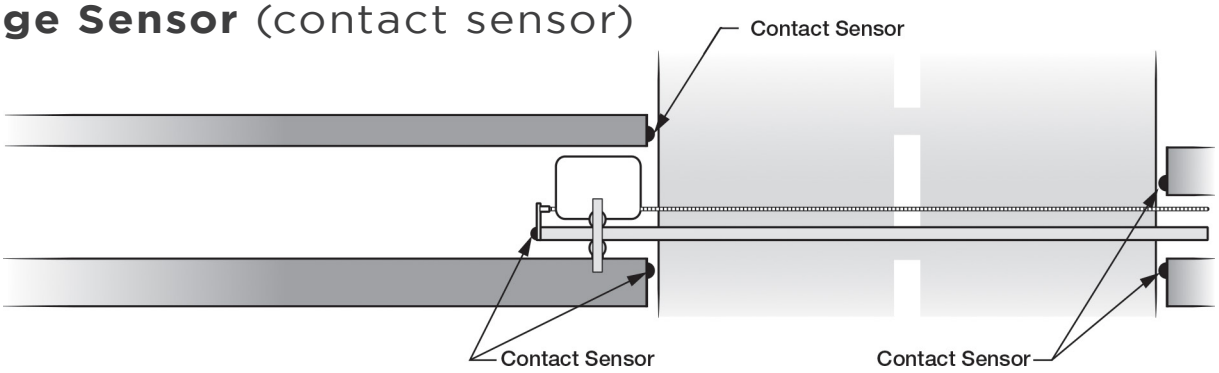
IMPORTANT: SECONDARY PROTECTION MUST BE INSTALLED

- **REQUIRED BY UL 325, an approved MONITORED secondary entrapment protection sensor is REQUIRED to be installed in all areas accessible to potential entrapment and pinch points.**
- The installed sensor MUST be **"10K Resistor Based".**
- At least ONE monitored sensor MUST be connected. (also, refer to page 46)
- You may connect up to FOUR monitored sensors, wired parallel.
- **Failure to install an approved monitored secondary entrapment protection sensor will render the gate operator INOPERABLE until one is installed.**
- Consult the installation manual of the sensor for detailed information about the usage, installation and maintenance.
- This type of installation will only reverse the gate approximately 12" in the opposite direction it was traveling when the sensor is triggered. (also, refer to page 46)
- This type on installation is to protect against entrapment only and DOES NOT reverse the gate all the way back to its limits when the sensor triggered. (also, refer to page 46)
- Use only UL Listed Edge Sensor and Photoelectric Beams.

Photo Beam (non-contact sensor)



Edge Sensor (contact sensor)



IMPORTANT SAFETY INFORMATION

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Secondary Entrapment Protection Installation

STEP 1

Connect the secondary entrapment protection sensor(s) to the Viking control board as illustrated below. Up to four 10K resistor based sensors can be wired in parallel.

STEP 2

Confirm the number of sensors connected:

- Toggle the "Diagnose" button until you see UL LEARN on the LCD Display.
- Default setting is 1 sensor.

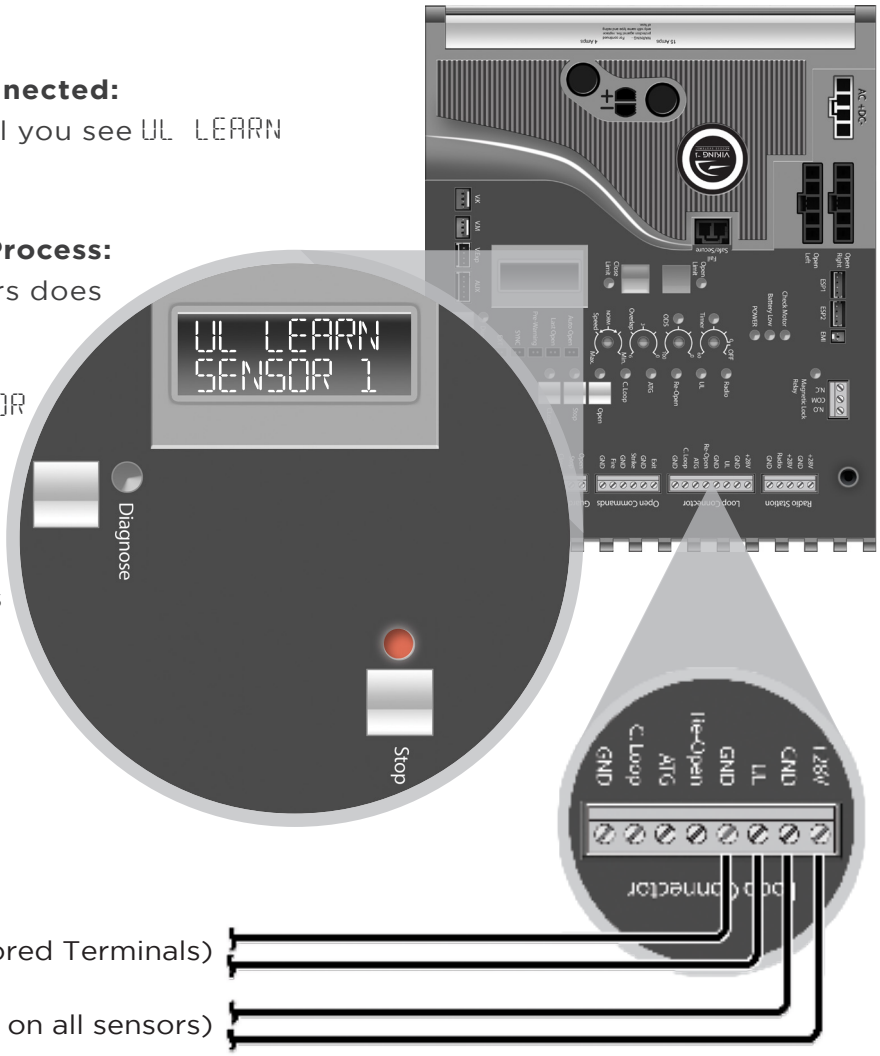
Proceed with the following Learn Process:

- If the number of connected sensors does not match the display.
- If the "Stop" LED is flashing.
- If the error message ERR UL SENSOR is displayed.

LEARN PROCESS

With the "UL LEARN" menu displayed and all secondary sensors properly connected to the control board:

- Press and hold the "Stop" button.
- Toggle the "Diagnose" button once.
- The correct number of sensors should now be displayed.



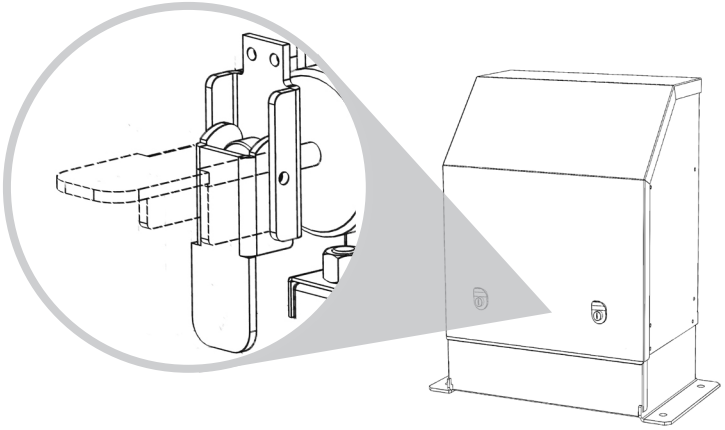
Manual Release

When manual operation is required:

1. Unlock and remove the Top Cover.
2. Lift the Release Handle up. The STOP LED will illuminate solid.

To resume normal operation:

1. Push the Release Handle down.
2. Run the gate closed to search for the installed Positive Stop. (page 20 step 4)
3. Normal operation will now resume.



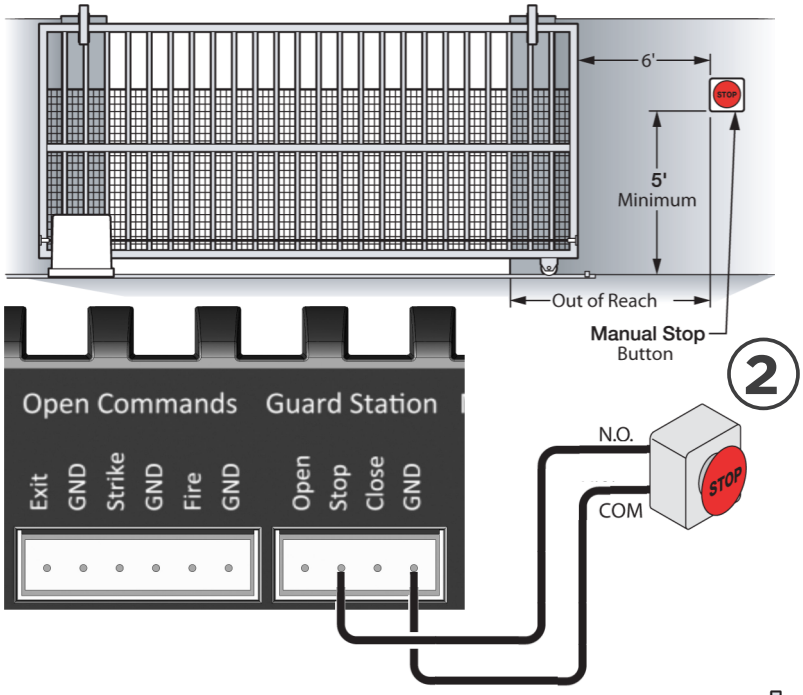
IMPORTANT SAFETY INFORMATION

⚠ WARNING! Not Following these instructions may cause severe injury or death.

Audible Alarm Reset Switch Installation

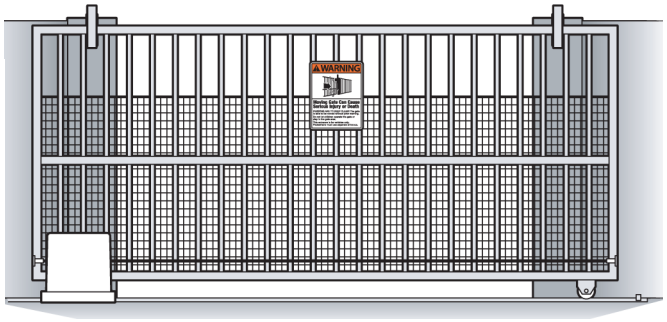
Manual Reset for the Audible Alarm

- UL325 standard requires an audible alarm to sound after two consecutive events detected by the primary entrapment protection of the gate operator (obstruction sensor).
- The audible alarm will continue to sound for 5 minutes or until a stop command gets actuated.
- The Stop command can be actuated in two different forms:
  1. Using the Built in Stop switch on the Control Board or;
  2. Using an External Stop button within the sight of the gate, away from moving parts of the gate and out of reach of children.
     a. Controls intended for user activation must be located at least six feet (6') 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.
     b. 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.



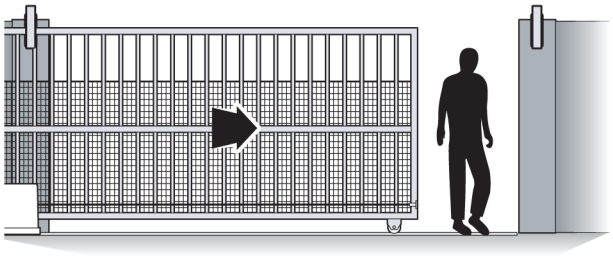
Warning Placard Installation

- All Warning Placards must be installed where visible in the area of the gate.
- A minimum of two placards shall be installed.
- A placard is to be installed in the area of each side of the gate and be visible.

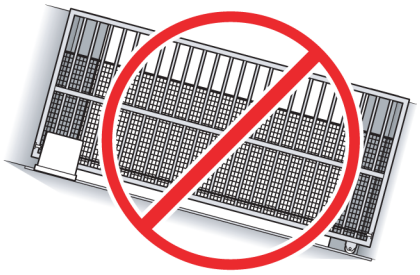


IMPORTANT INSTALLATION INFORMATION

⚠ CAUTION: To Reduce the Risk of Fire or Injury to Persons:
⚠ WARNING: For use with gates at a maximum 7000 lbs. in weight or 120 ft. in length.



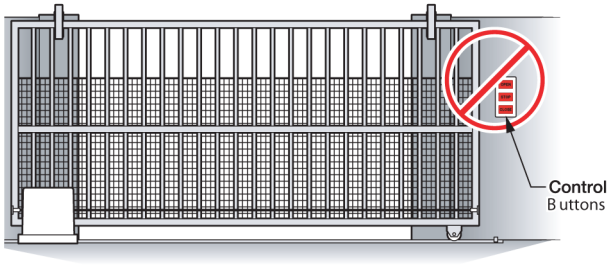
DO NOT allow pedestrian use of this gate

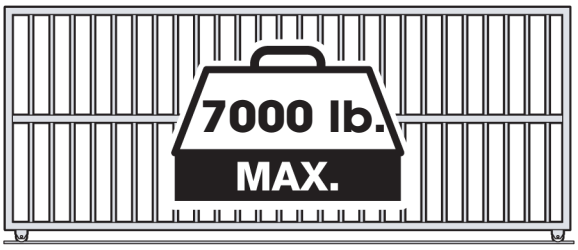


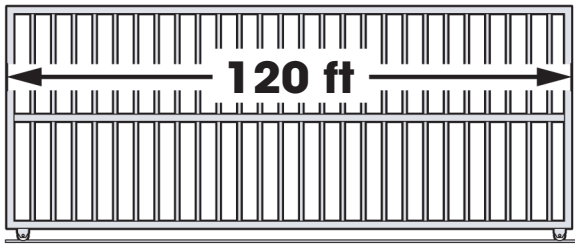
DO NOT install the gate operator to lift gates

Locate Control Buttons:

1. Within sight of the gate,
2. At a minimum height of 5 feet so small children are not able to reach it; and
3. At least 6 feet away from all moving parts of the gate.







Specifications

Maximum Gate Length:	120 ft.
Maximum Gate Weight:	7000 lb.
Operating Temperature:	-20°F (-28°C) to 160°F (71°C)
Power Requirements:	115 VAC / 230 VAC (8.0* amp / 4.0 amp) *Includes 3 amp load on receptacle Single Phase (50Hz / 60Hz)

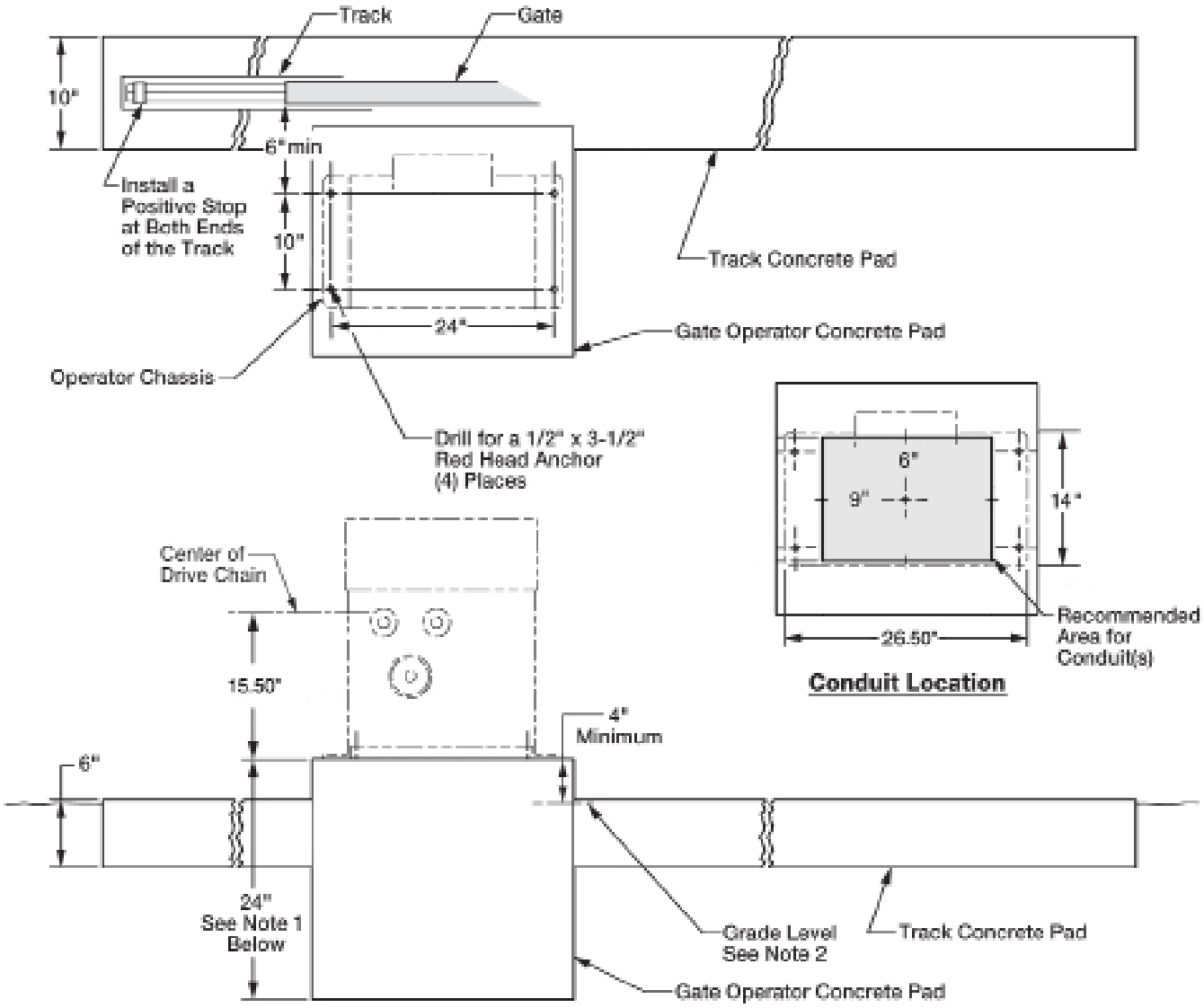
GATE OPERATOR INSTALLATION

Concrete Pad Installation

1. Follow the local building code to determine the required depth of the concrete pad.
2. Pad measurements recommended by Viking Access Systems are at least 28” long, 18” wide and 24” deep to ensure the stable operation of the operator, and a minimum of 4” above level grade to avoid any flooding of the machinery.
3. Provide a sufficient number of conduit pathways for all low power accessories such as loop detector leads, maglock, non-contact sensors, contact sensors, safety and other commands. Also provide conduit for the power supply to the operator.

⚠ DO NOT run low voltage and high voltage wiring in the same conduit.

⚠ Provide at least 12” separation between low and high voltage conduits.



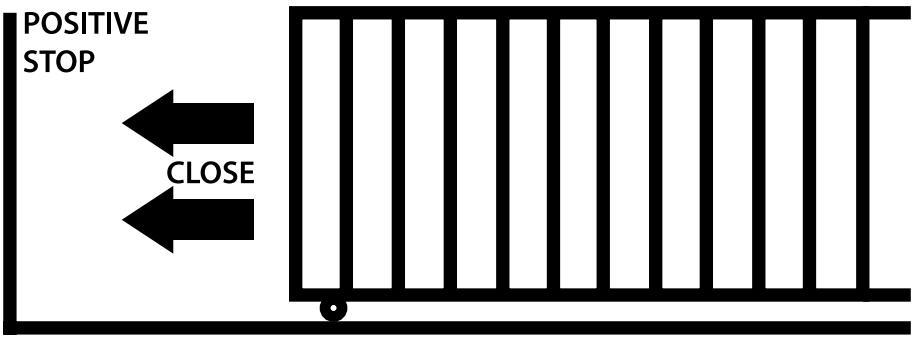
Positive Stop Installation

⚠ **IMPORTANT:** **This operator REQUIRES that a positive stop be installed** at the close position. This will be used as a reference to relearn the limit positions if the gate has been operated manually while released or if the EPS2 Cable has been disconnected.

NOTE: Viking Access Systems does not provide any form of positive stops.

Suggested Positive Stop Types:

- Wheel stop affixed to the track
- Gate catch plate, yoke or receiver



A POSITIVE STOP MUST BE INSTALLED AT THE CLOSE LIMIT BEFORE OPERATION.

GATE OPERATOR INSTALLATION

Operator Positioning

⚠ **IMPORTANT:** All openings of a horizontal slide gate are guarded or screened from the bottom of the gate to a minimum of 6 feet (1.83 m) above the ground to prevent a 2-1/4 inch (57.2 mm) diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that the gate covers in the open position.

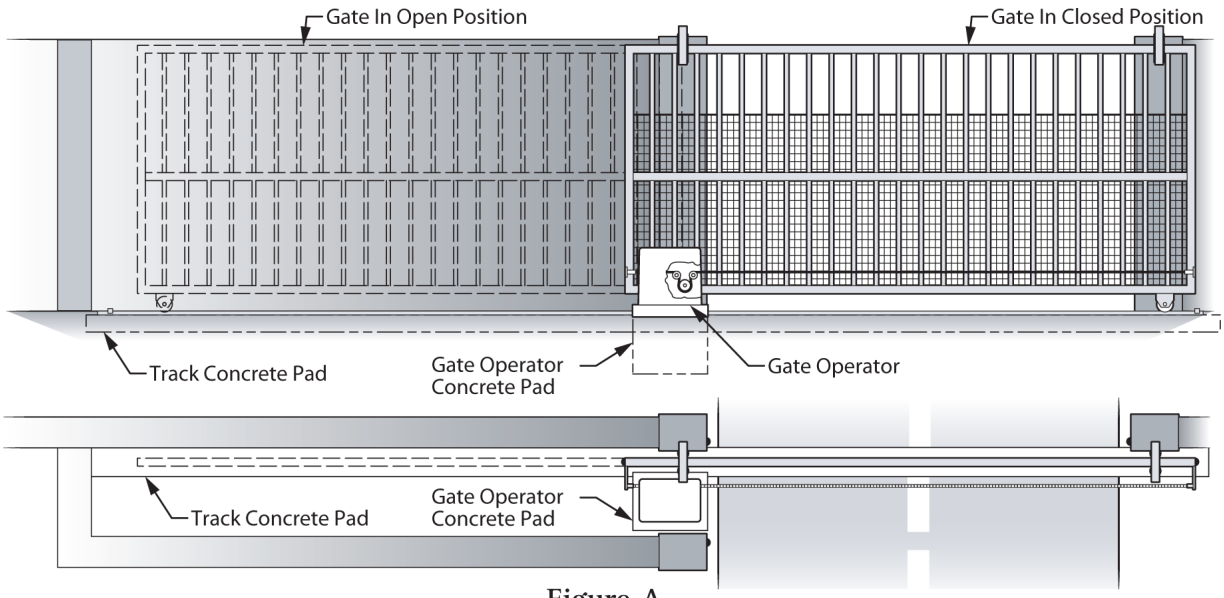
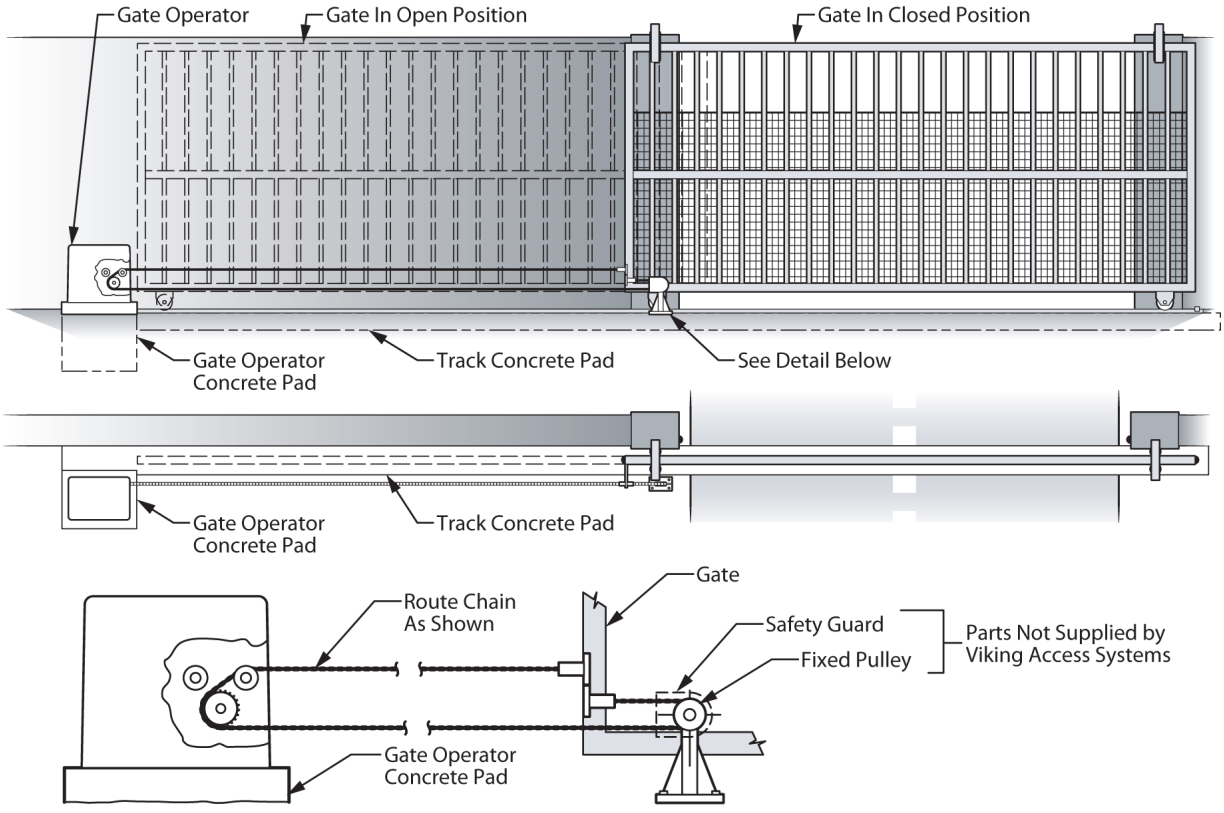


Figure A
Plan of Front Installation



Detail of Rear Install Chain Route

Figure B
Plan of Rear Installation

GATE OPERATOR INSTALLATION

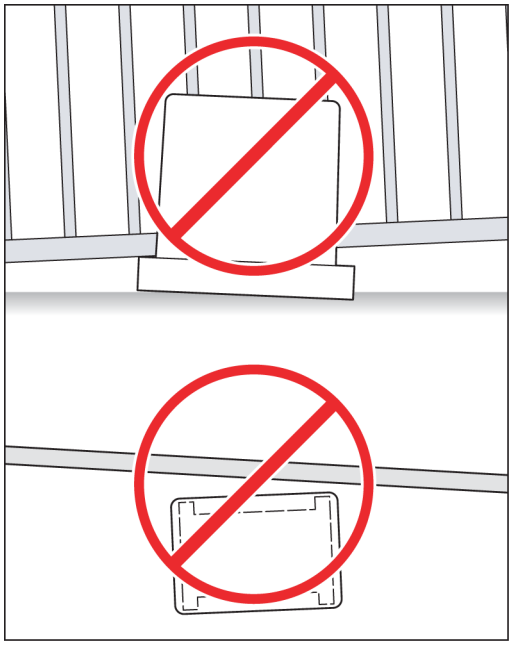
⚠ TECHNICAL TIP: Before completing the installation procedure;

- Open and close the gate manually, making sure there is sufficient space between the gate and adjacent walls.
- Check that the wheels are turning freely on the track and there are no restrictions while pushing the gate to the open and closed positions.
- Confirm that there is adequate spacing for the guide rollers and that there are no restrictions throughout the travel of the gate.

STEP 1

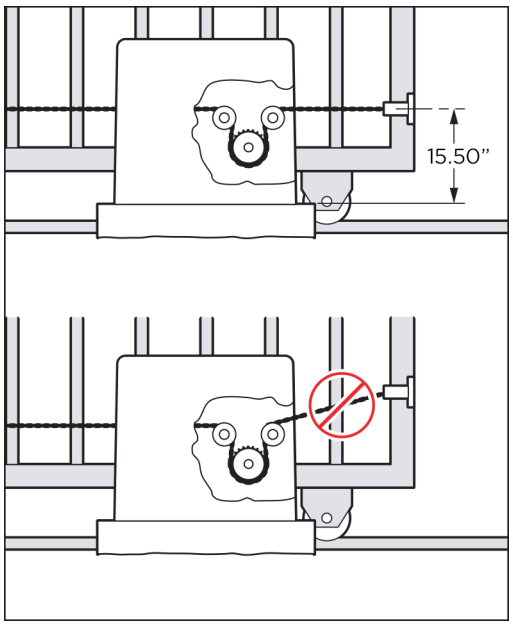
Before securing the chassis to the concrete pad or posts, make sure the gate and operator are LEVEL and PARALLEL.

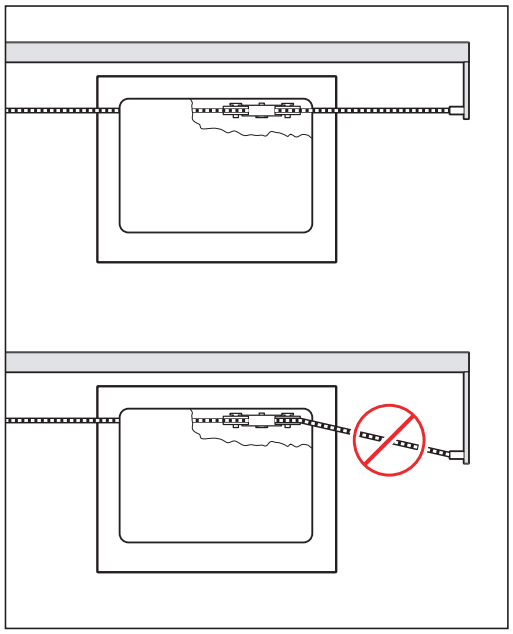
Minimum distance between the center of the chain and the inside edge of the gate frame is 3”.



STEP 2

Chain Installation: Before welding the provided chain brackets, make sure the chain will be in a straight line with, and at the same height as, the chain leaving the gate operator rollers.





ELECTRICAL INSTALLATION

High Voltage Supply Option

⚠ **Caution:** Always turn off power breakers when working with high voltage. DO NOT connect the "Power Harness" to the Control Board until the electrical installation is complete and ready for verification.

STEP 1

At the "Power Box":

a. Set the "Voltage Selector" according to the supply voltage (115V or 230V).

b. Turn the "AC Power" switch ON

STEP 2

⚠ **WARNING:** SINGLE PHASE AC ONLY

At the "J-Box":

a. Connect the incoming power wires, matching the wire color codes.

b. If the supply voltage is 120VAC, connect the red wire, labeled "Outlet Power", to the neutral (white) wires.

STEP 3

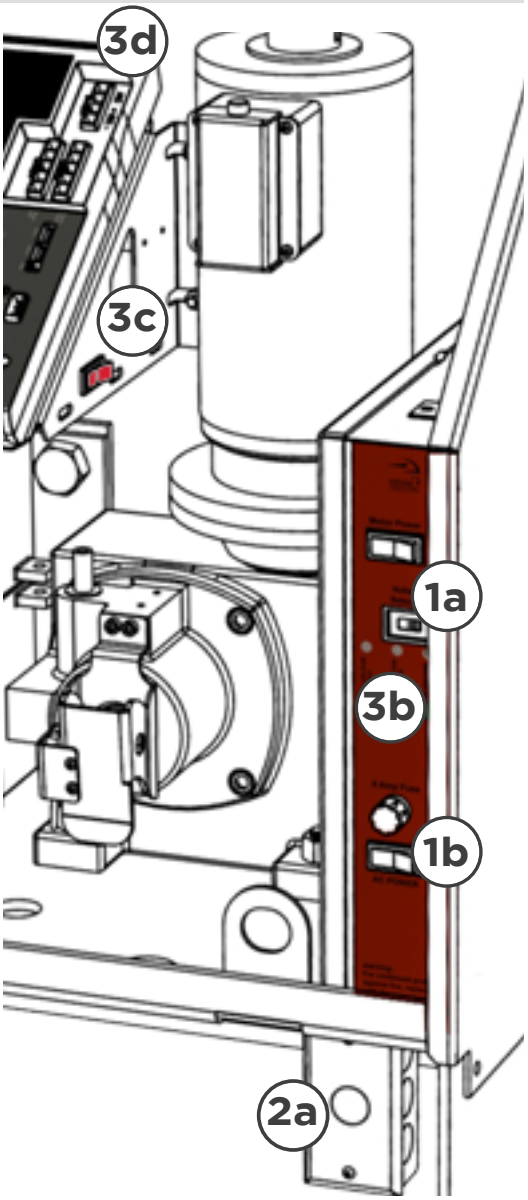
a. Turn ON the main facility breaker

b. Verify that all three (3) LEDs are illuminated at the "Power Box".

c. Turn the "Battery Switch" ON.

At the Control Board:

d. Connect the Power Harness and verify the "POWER" LED is illuminated solid.

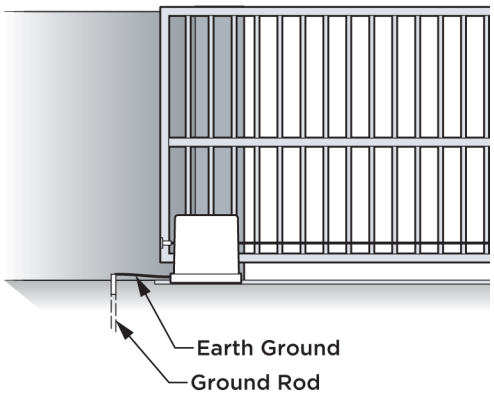


⚠ **TECHNICAL TIP:** If the "Power" LED is flashing or any of the 3 LEDs on the "Power Box" are not illuminated, refer to the Troubleshooting pages.

Tips for proper ground installation:

To minimize the effects caused by lightning, follow these guidelines.

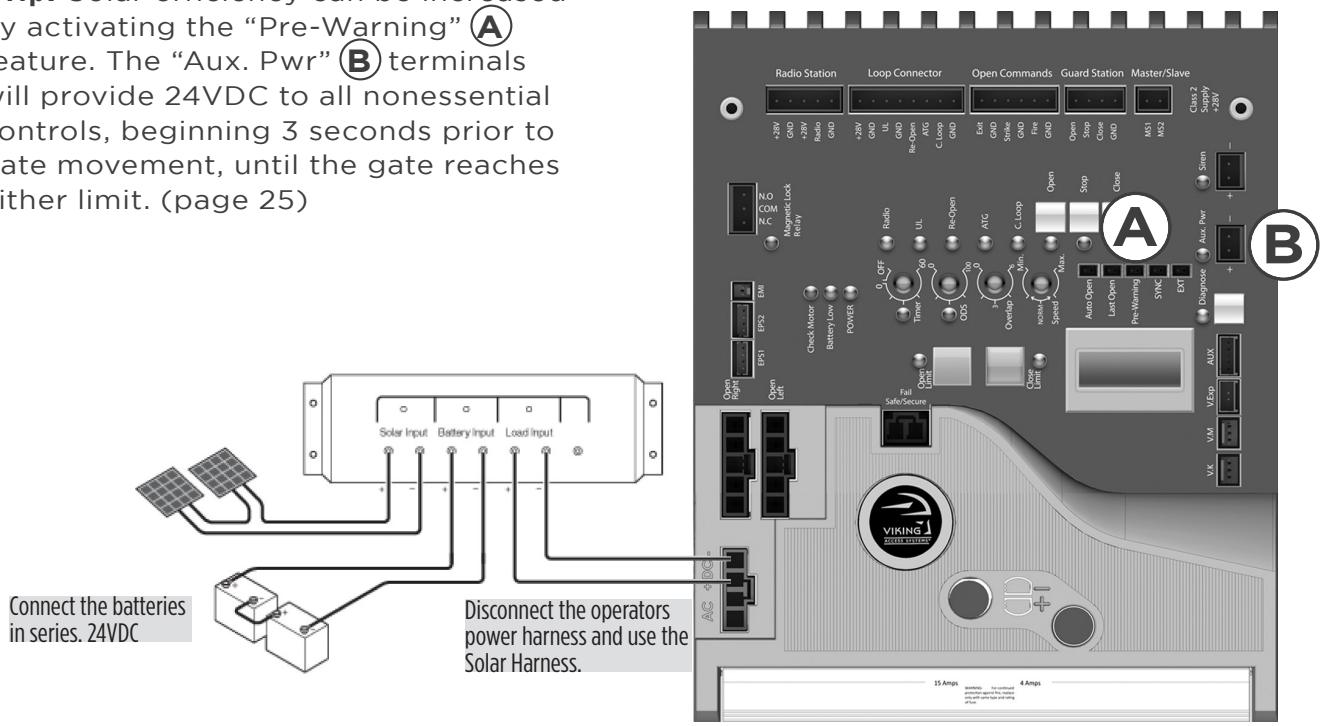
- Use a ground rod to provide a ground reference.
- Consult your city code and be aware of under-ground services in the site of the gate operator to prevent inconveniences.
- Always use a single bonding point for grounding.
- All ground wires must be as short and as thick as possible.
- Prevent unnecessary turns or loops in all ground wires.



Solar Supply Option

⚠ **IMPORTANT:** The number of cycles achieved daily is dependent on many factors, including local solar radiation data and power consumption of the motor and accessories. It is very important that you consider this when using solar power.

⚠ **Tip:** Solar efficiency can be increased by activating the "Pre-Warning" (A) feature. The "Aux. Pwr" (B) terminals will provide 24VDC to all nonessential controls, beginning 3 seconds prior to gate movement, until the gate reaches either limit. (page 25)



⚠ **IMPORTANT:** Vikings Solar Package (**part # VA-SOCHP**) and its individual components are **NOT RECOMMENDED** for the Q-7 operator. Contact Viking Access Systems or your local solar provider for further information.

LIMITS SETUP

⚠ IMPORTANT:

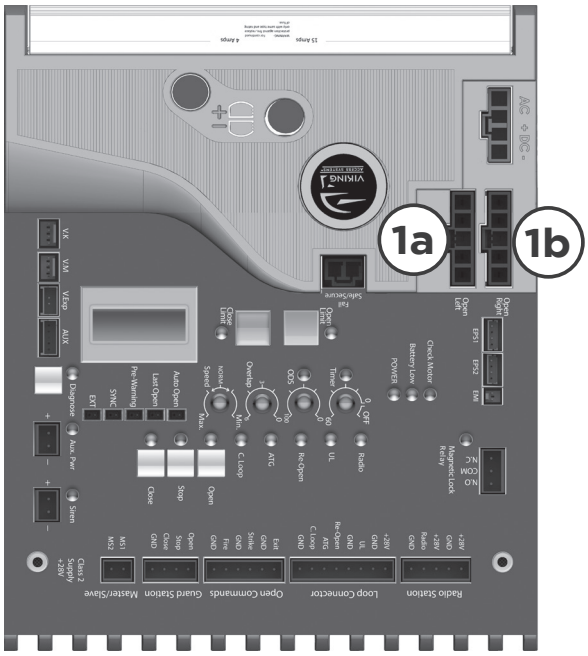
1. Before the initial limits setup, **a Positive Stop MUST be installed** at the close position. This will be used as a reference to relearn the limit positions if the gate has been operated manually while released or if the EPS2 Cable has been disconnected.
2. In the event of a complete power failure, including battery backup, the limit positions may have may been cleared and will need to be reset as described.

STEP 1

Connect the “Motor Harness” to the Control Board.

a. “OPEN LEFT” Connector if the gate opens to the Left, when viewed from inside.

b. “OPEN RIGHT” Connector if the gate opens to the Right, when viewed from inside.

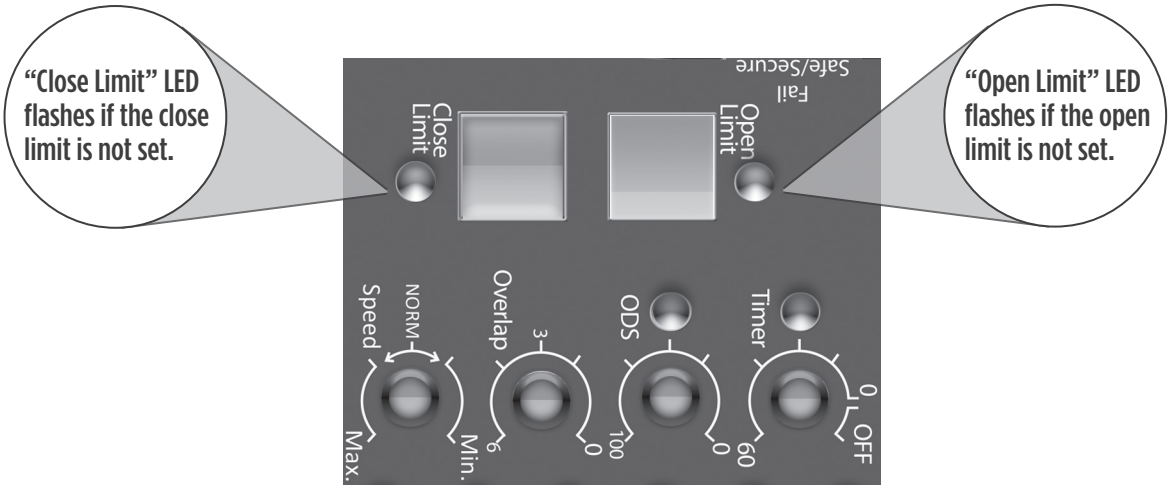


STEP 2

Move the gate to the desired close position then press and hold the “Close Limit” button until the LED is solid.

STEP 3

Move the gate to the desired open position then press and hold the “Open Limit” button until the LED is solid.



STEP 4

Run the gate in the close direction to search for the installed Positive Stop.

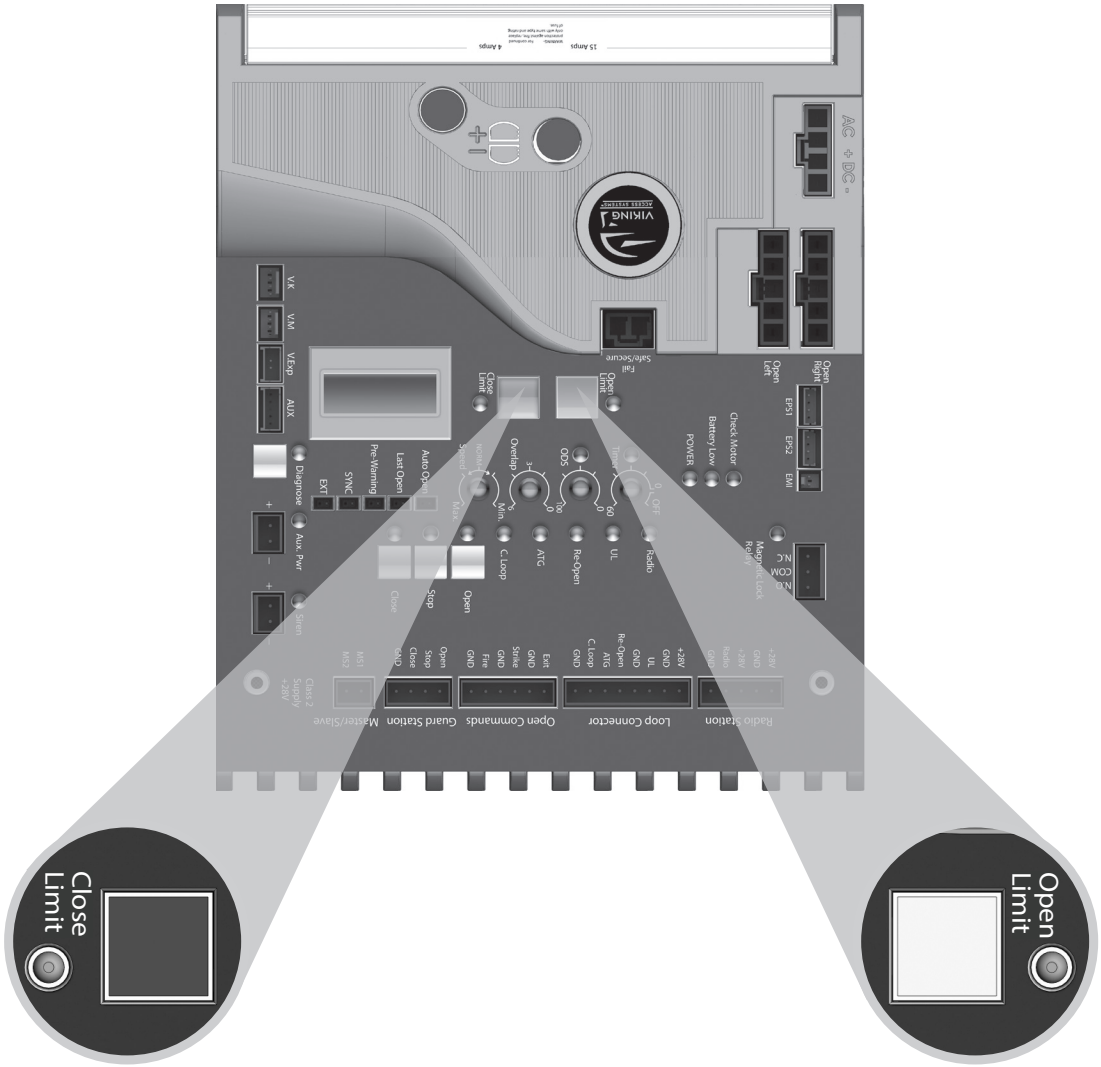
This will be used as a reference.

⚠ **NOTE:** For this 1st cycle, the gate will **run slowly past the set close limit, contact the Positive Stop** and reverse back.

LIMITS SETUP

⚠ **IMPORTANT:** **If the gate has been manually released and re-engaged:**

1. The Open Limit LED will be illuminated solid and the Close Limit LED will be flashing.
2. The gate will not run in the open direction **until step 4 is repeated on page 20.**



To Readjust the Close Limit:

1. Clear the current limit setting by holding down the “Close Limit” button until the LED is flashing.
2. Repeat STEP 2 on page 20 to set the limit.
3. Repeat STEP 4 on page 20 to relearn the installed Positive Stop reference.

To Readjust the Open Limit:

1. Clear the current limit setting by holding down the “Open Limit” button until the LED is flashing.
2. Repeat STEP 3 on page 20 to set the limit.

MASTER/SLAVE SETUP

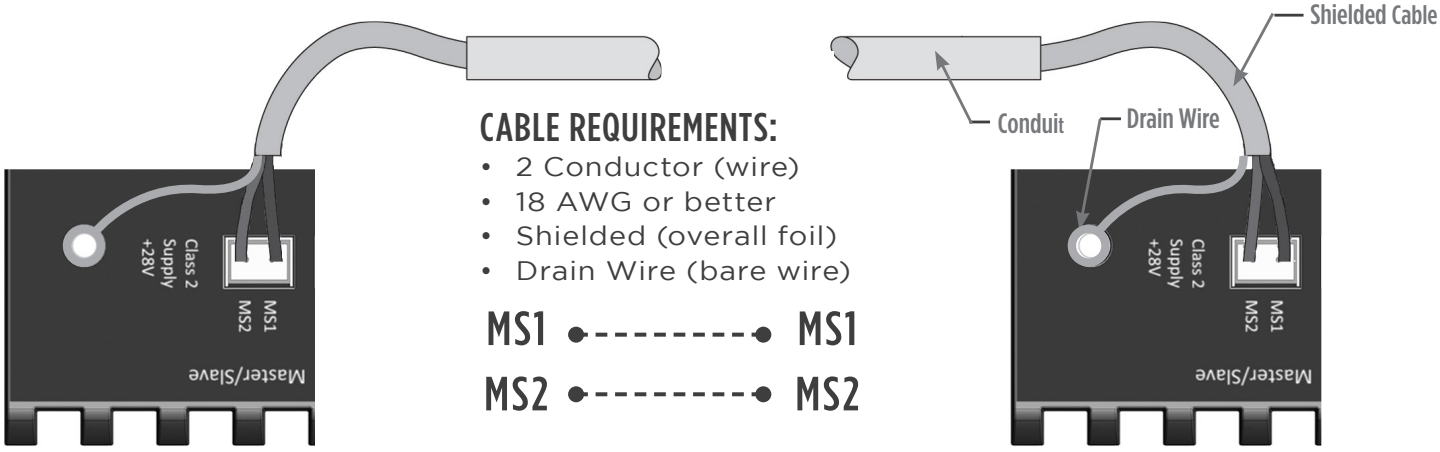
Two Wire Communication

⚠ **IMPORTANT:** DO NOT run the Master/Slave communication cable in the same conduit or within 12" of 115 - 230V power supply cables.

⚠ **Technical Tip:** DO NOT set the "Timer" and/or "Overlap" features on both operators Control Boards. Only turn these features on at the Master Control Board.

Step 1

Connect shielded cable to "Master/Slave" connectors at the control boards

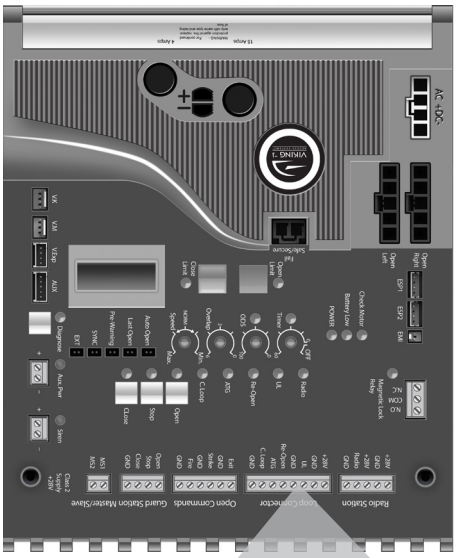


CABLE REQUIREMENTS:

- 2 Conductor (wire)
- 18 AWG or better
- Shielded (overall foil)
- Drain Wire (bare wire)

MS1 ●--------● MS1

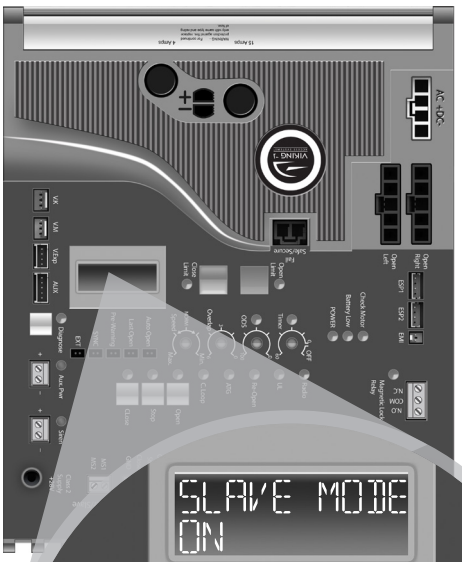
MS2 ●--------● MS2



Step 2

At the Master Operator:

Connect the secondary entrapment protection sensor(s) as described on page 11.

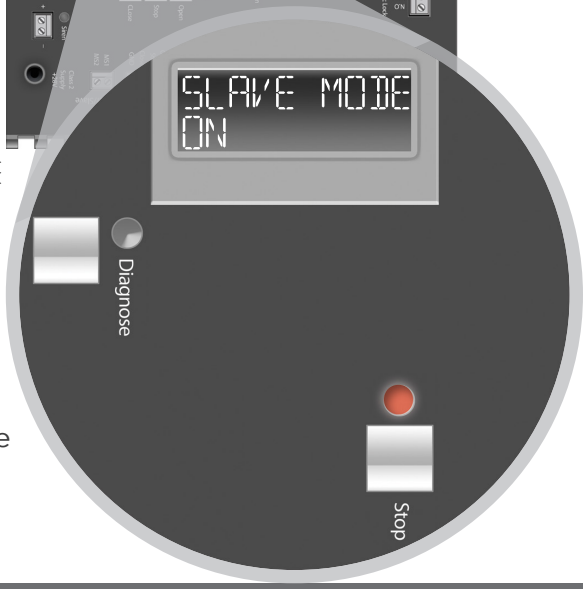


Step 3

At the Slave Operator:

Turn ON the SLAVE MODE Feature:

- Toggle the "Diagnose" button until you see SLAVE MODE on the LCD Display.
- Default setting is OFF.
- Press and hold the "Stop" button.
- Toggle the "Diagnose" button once.
- The feature should now be displayed as "ON".



Wireless Communication Options

⚠ **Technical Tip:** DO NOT set the “Timer” and/or “Overlap” features on both operators Control Boards. Only turn these features on at the Master Control Board.

REQUIRED ADD-ON:

Viking Konnect - Wireless Master/Slave Kit
PART# VA-KONNECT-MS

Step 1

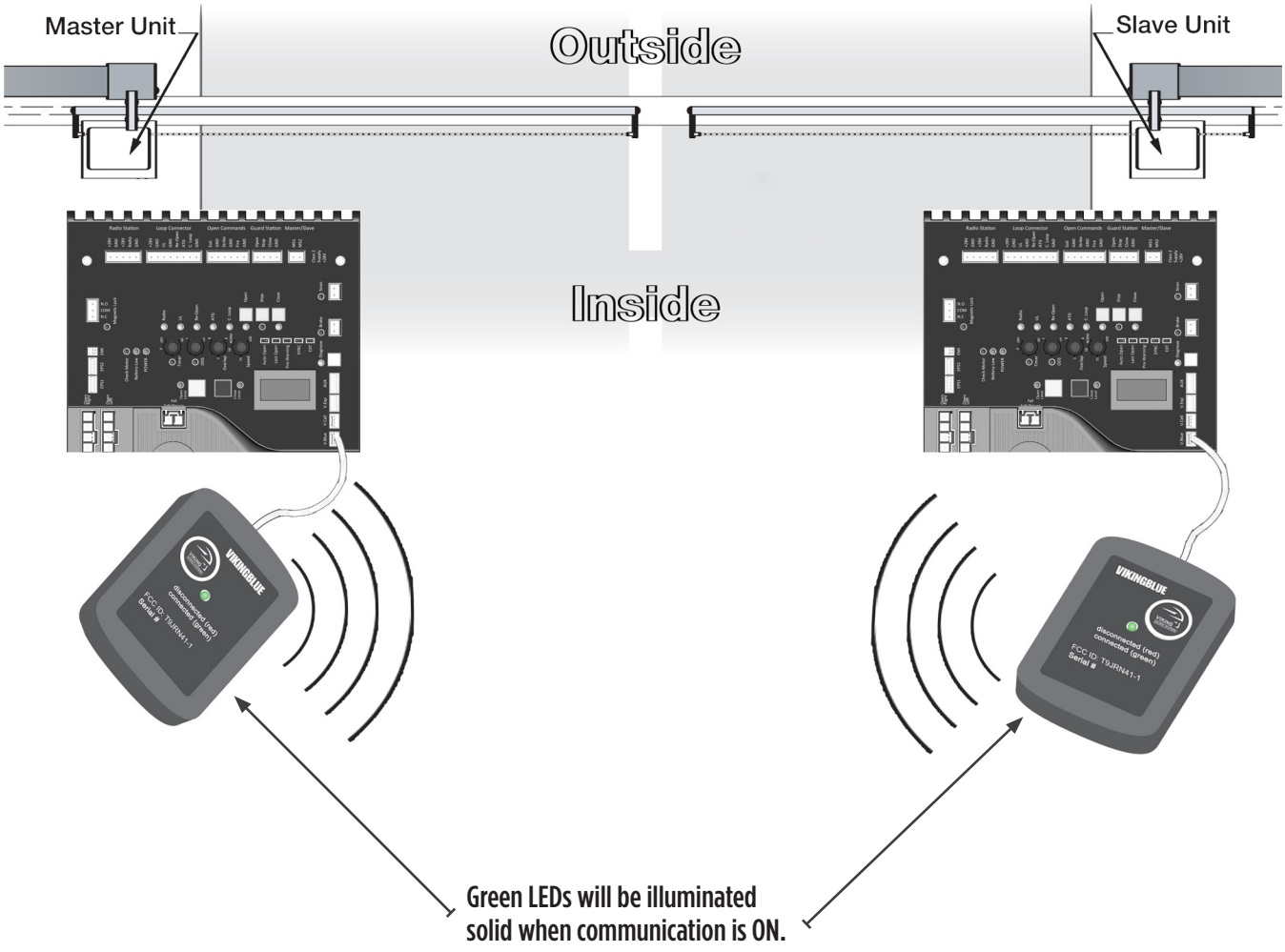
Plug the modules on to the “V.K” plug & play connection of each operators Control Board. It is not important which board the master or slave module is placed on.

Step 2

At the Master Operator: Connect the secondary entrapment protection sensor(s) as described on pages 11 and 22.

Step 3

At the Slave Operator: Turn ON the SLAVE MODE Feature as described on page 22.



CONTROL BOARD SETUP

Initial Settings

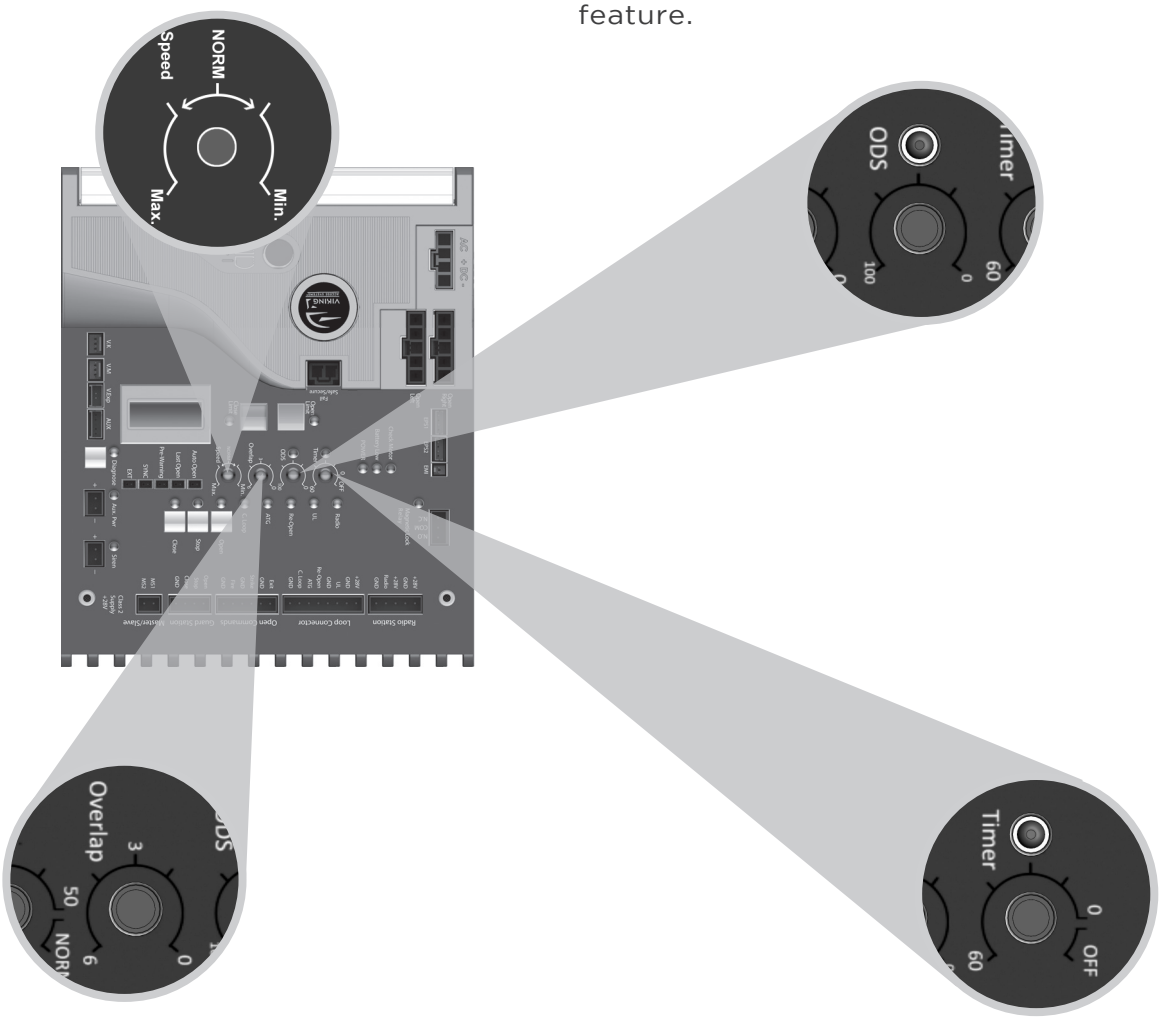
“Speed”
Motor Speed

Increases or decreases the speed of gate travel.

“ODS”
Obstruction Detection Sensor

Sets the amount of force required to trip the inherent obstruction sensor.

See page 26 for more details about this feature.



“Overlap”
Overlap Delay

Delays the gate from opening for the selected amount of time from 1-6 seconds.

⚠ Typically not used on slide gates. For Master/Slave application, the control board that has this feature turned on is the master and will close first.

“Timer”
Hold Open Timer

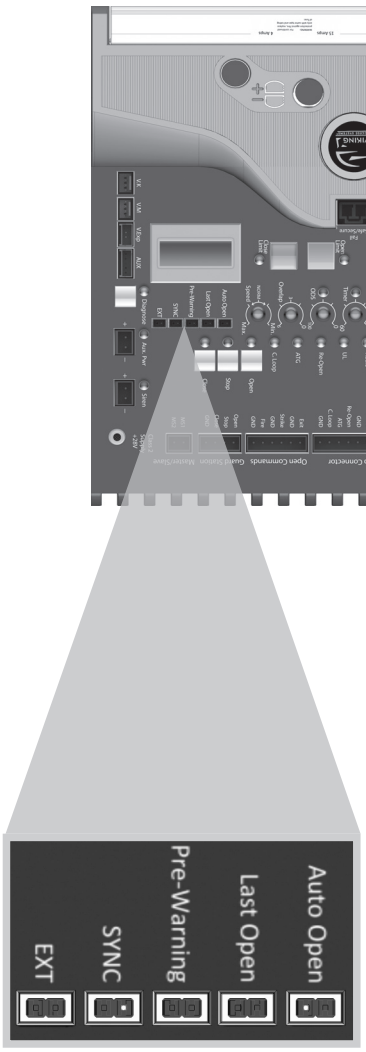
Automatically closes the gate after the selected amount of time from 1-60 seconds.

Turning the dial between “0” and “OFF” will disable this feature, requiring a close command to close the gate.

CONTROL BOARD SETUP

Initial Settings

NOTE: Installing a shunt or jumper on the pins will activate the feature.



"Auto Open" - Power Failure Option

Opens the gate automatically during power failure. Resumes normal operation when power is restored.

"Last Open" - Power Failure Option

Opens the gate automatically when the battery backup voltage is critically low.

"Pre-Warning" Initiates two options for an audio or visual warning, 3 seconds prior to gate motion, and will continue:

1. **Until gate reaches closed limit:** "Magnetic Lock" terminals provide a contact between "COM" and "N.O.".
2. **Until gate reaches either limit:** "AUX. PWR" terminals provide 24VDC.

"Sync" Used only in conjunction with the Viking Barrier gate operator model B-12. Activating this feature allows for synchronized operation with the B-12 operator. See page 35.

"EXT" Available for future developments.

⚠ **IMPORTANT:** Regardless of the power failure options chosen, the gate can be moved manually with a relatively low amount of force by following the steps for "Manual Release" as outlined at on page 11.

CONTROL BOARD SETUP

Obstruction Sensor (Primary Entrapment Protection)

⚠ **IMPORTANT:** The appropriate “ODS” setting is dependant upon the gate installation and construction. Set this feature accordingly. Additional Safety equipment should be used to reduce possible risk of injury or vehicle damage.

“ODS” Obstruction Detection Sensor

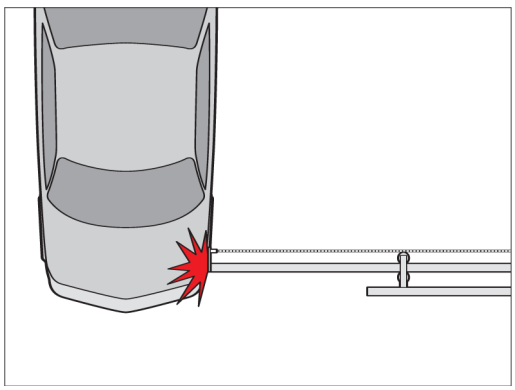
The Obstruction Sensor detects obstructions in the path of the traveling gate. The dial sets the amount of force required to activate the operators inherent obstruction detection.

Setting the dial to “0” will require the least amount of force to activate;

Setting the dial to “100” will require the maximum amount of force to activate.

UL325 standard requires an audio alarm to go off after two consecutive entrapment events sensed by the Inherent Entrapment Protection of the Gate Operator.

The audio alarm will sound for a period of 5 minutes or until a Stop command has been actuated. See page 12 for more information.



When the Obstruction Sensor detects an obstruction it will:

1. Stop the gate’s movement and reverse it momentarily.
2. Bring the gate to a resting position.
3. Disable the Hold Open Timer feature until the Gate Operator receives a new command.

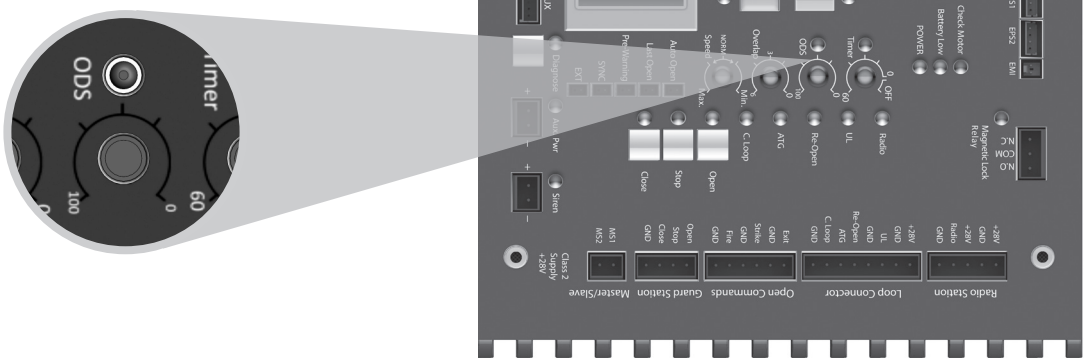
If second obstruction is detected before the gate reaches either limit it will:

1. Stop the gate’s movement.
2. Disable the Gate Operator.
3. Sound the UL Alarm
4. A STOP command must be provided to disable the alarm and continue operation.

⚠ **TECHNICAL TIP:** The Status LED for the “ODS” will indicate the following when it has been triggered.

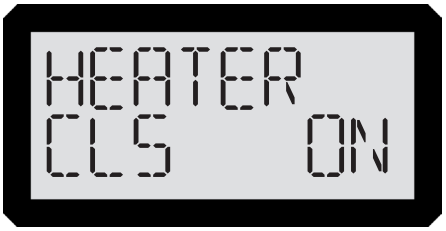
A. Solid: Obstruction.
Detected a sudden or abrupt increase in gate resistance.

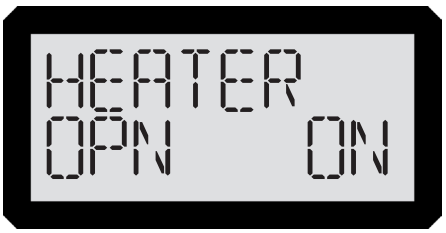
B. Flashing: Overload.
Detected a more subtle, but sustained increase in gate resistance.



Viking Heater

The operator has an integrated heater that is thermostatically controlled. Activate this feature when the operator is used in application temperatures down to -20°F (-29°C).





To set the heater to turn on at the Close Limit:

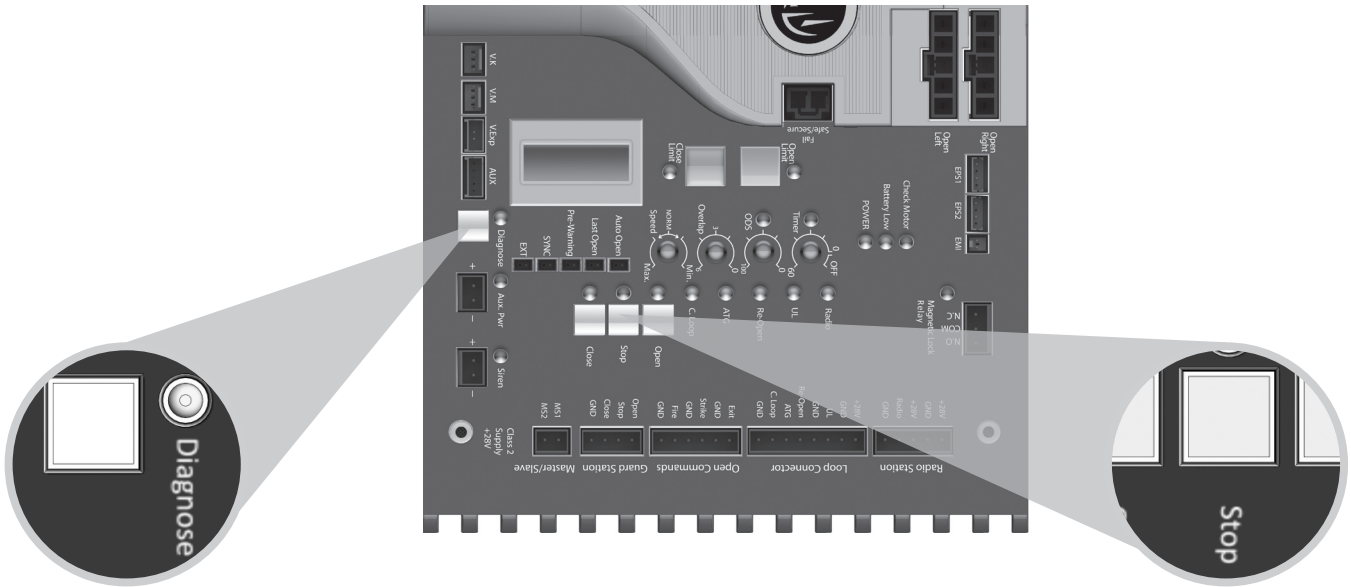
1. Use the “Diagnose” button to scroll through the LCD Display to “HEATER CLS”
2. Press and hold the “Stop” button on the control board.
3. Press and release the “Diagnose” button to turn this feature ON and OFF.

To set the heater to turn on at the Open Limit:

1. Use the “Diagnose” button to scroll through the LCD Display to “HEATER OPN”
2. Perform steps 2-3 as described above.

NOTE: If the application requires the gate to be held open for any reason, set the HEATER ON for both limit positions.

⚠ **IMPORTANT:** A POSITIVE STOP **must** be used on the gate at the limit position(s) the HEATER has been set for.



Viking Lock Mode

Turning this feature ON will secure the gate at the closed position, preventing unauthorized manual entry.

Use the LCD Display to activate this feature.

1. Use the “Diagnose” button to scroll through the LCD menu to “LOCK MOD”
2. Press and hold the “Stop” button on the control board.
3. Press and release the “Diagnose” button to turn this feature ON and OFF.

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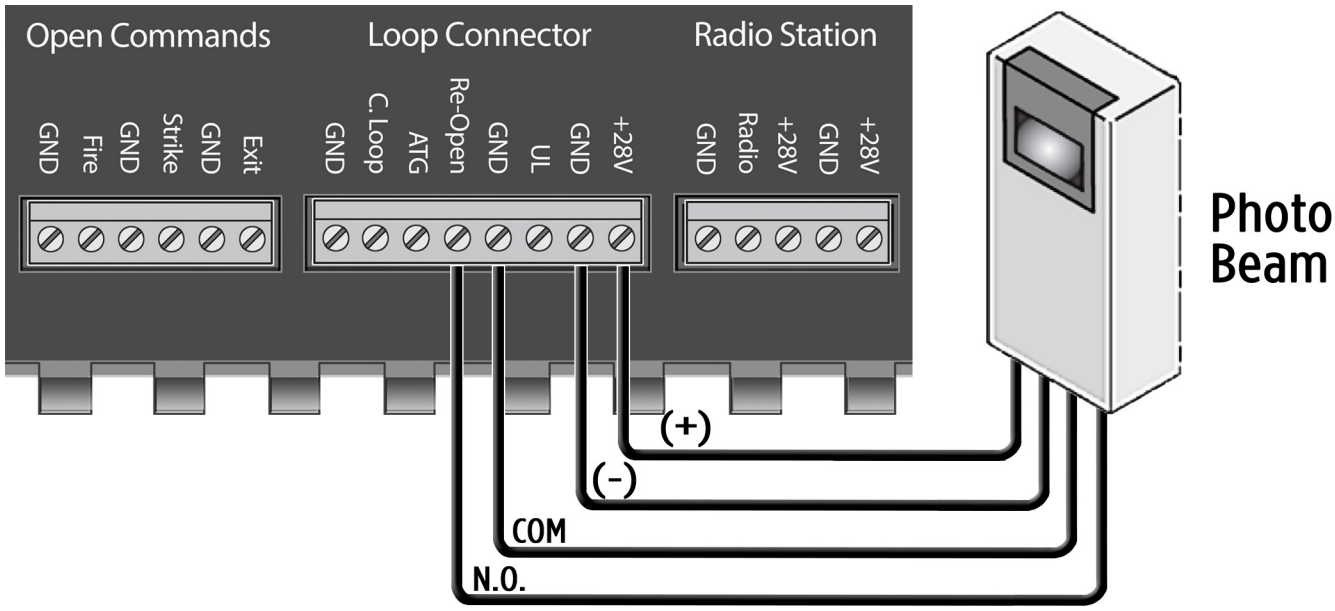
ACCESSORY CONNECTIONS

⚠ Cable use in Class 2 circuit to an external device shall be type CL2, CL2P, CL2R, CL2X or other cable with equivalent or better electrical, mechanical, and flammability ratings.

Re-Open Photo Beam (vehicular safety)

NOTE: This type of photo-beam installation will stop then RE-OPEN the gate all the way to the open limit when the beam is obstructed. Intended for vehicular safety ONLY. For the purpose of pedestrian entrapment, see pages 10-11 and 46.



Note regarding Photo Beam types:

Fail-Safe type - connect the **"N.C."** terminal of the photo beam to the "Re-Open" terminal on the control board.

Typically, these are the reflective type photo beams.

Fail -Secure type - connect the **"N.O."** terminal of the photo beam to the "Re-Open" terminal on the control board.

Typically, these are the transmitter/ receiver type photo beams.

Check for proper operation:

The "Re-Open" LED will illuminate solid while the beam is obstructed and remain off when the beam is unobstructed.

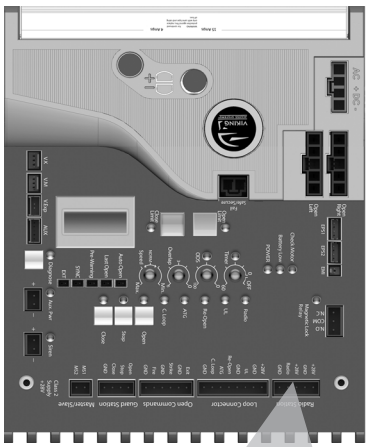
⚠ **TECHNICAL TIP:** For more information regarding accessory connections to the control board and individual input terminal functions, refer to "Appendix (A)" pages 42-43.

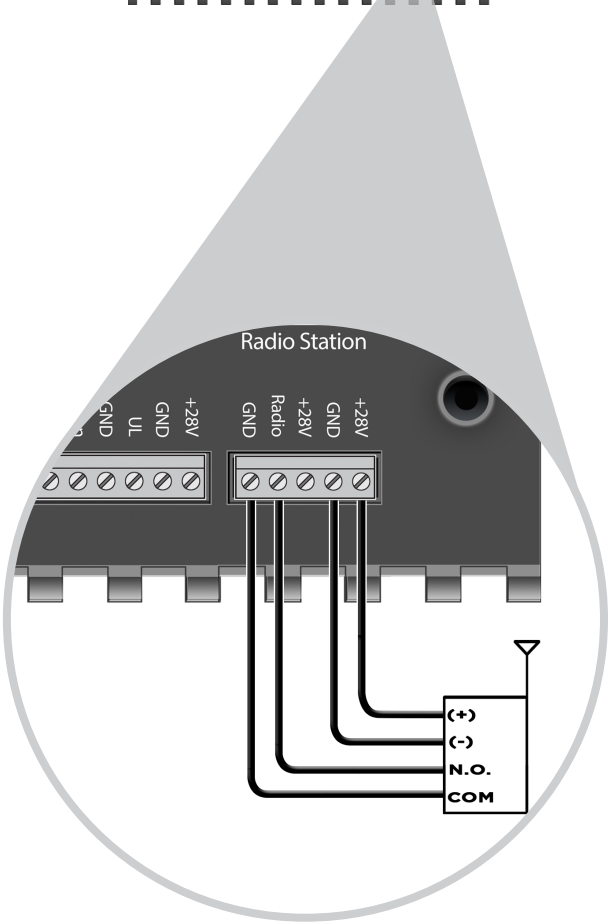
ACCESSORY CONNECTIONS

⚠ **Cable use in Class 2 circuit to an external device shall be type CL2, CL2P, CL2R, CL2X or other cable with equivalent or better electrical, mechanical, and flammability ratings.**

Radio Receiver (Typical)

⚠ **IMPORTANT:** The Hold Open "Timer" setting (page 24) affects how the gate will respond to the radio receiver command.





The control board provides two modes of operation that a radio receiver can control the gate:

Open-Stop-Close

1. By having the radio receiver connected as illustrated and with the Hold Open Timer OFF (see page 24):

Every command of the radio transmitter will control the gate as follows:

a. First command opens the gate,

b. Second command stops the gate and

c. Third command closes the gate

d. Any subsequent commands will continue in the same order to control the gate.

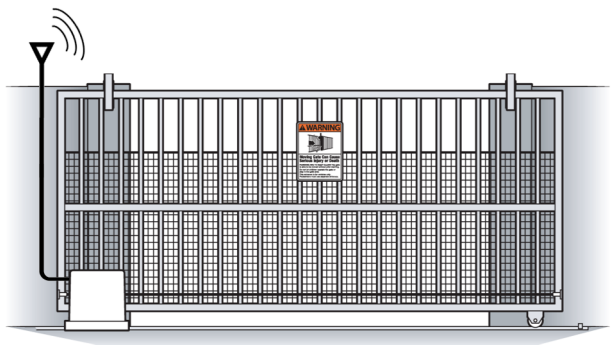
This type of configuration is not recommended for commercial installations.

Open Only

2. By having the radio receiver connected as illustrated and with the Hold Open Timer ON (see page 24):

Each command of the radio transmitter is **ALWAYS AN OPEN COMMAND** to the gate.

For maximum reception range:
Locate the radio antenna to the top of the gate column.



⚠ **TECHNICAL TIP:** For more information regarding accessory connections and terminal functions, refer to "Appendix (A)" on pages 42-43.

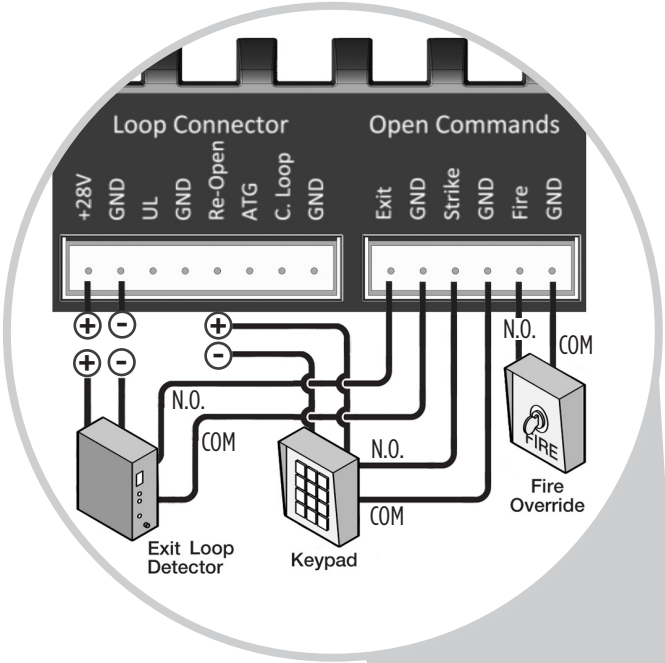
See "Appendix (B)" on page 44 for connecting common radio receiver models.

ACCESSORY CONNECTIONS

⚠ Cable use in Class 2 circuit to an external device shall be type CL2, CL2P, CL2R, CL2X or other cable with equivalent or better electrical, mechanical, and flammability ratings.

Anti-Tailgate, Open Commands & Guard Station

⚠ **TECHNICAL TIP:** For more information regarding accessory connections and terminal functions, refer to "Appendix (A)" on pages 42-43.



Open Commands

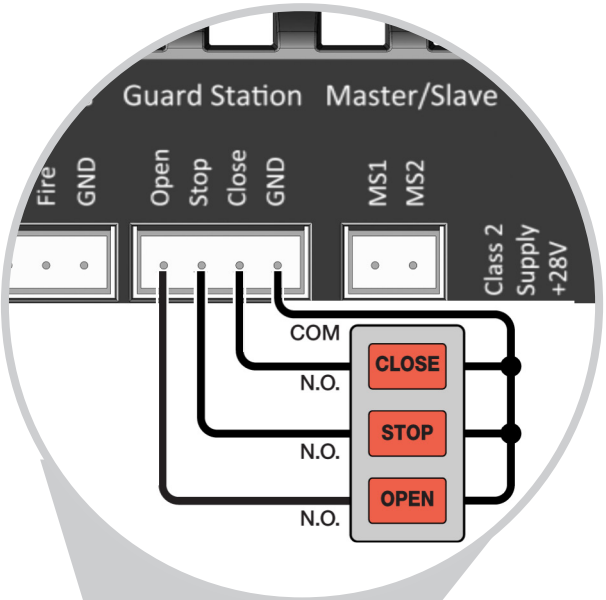
"Exit", "Fire" and "Strike" input terminals all provide an open command to the control board. Any device connected as shown will open the gate.

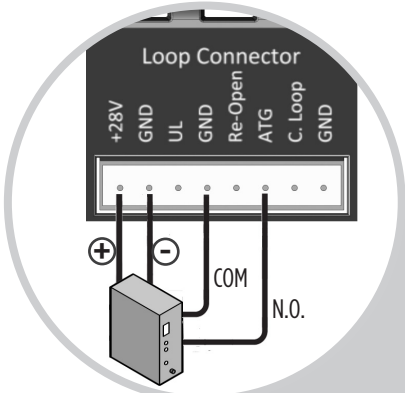
Guard Station

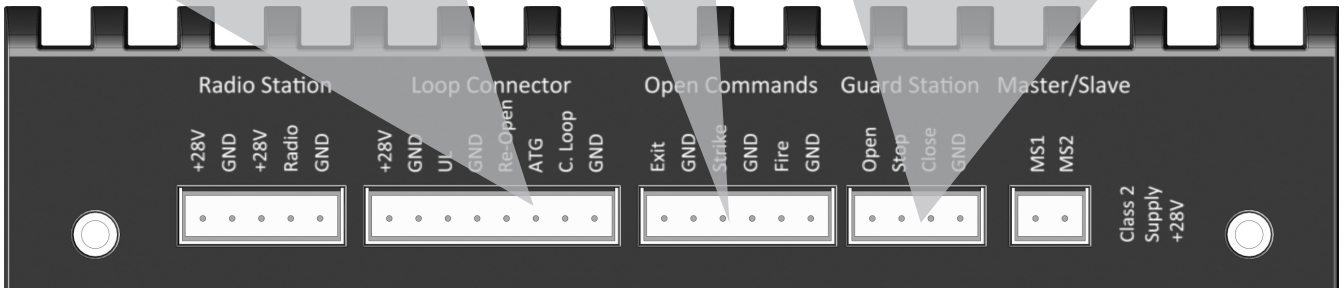
⚠ All three buttons must be a Normally Open "N.O." type of switch, and can share the same common "C" connection to "GND".

"ATG" Anti-Tailgate

This input will stop the gate when the vehicle triggers the sensor, then closes the gate when the vehicle leaves the sensor, preventing unauthorized vehicles from entry.





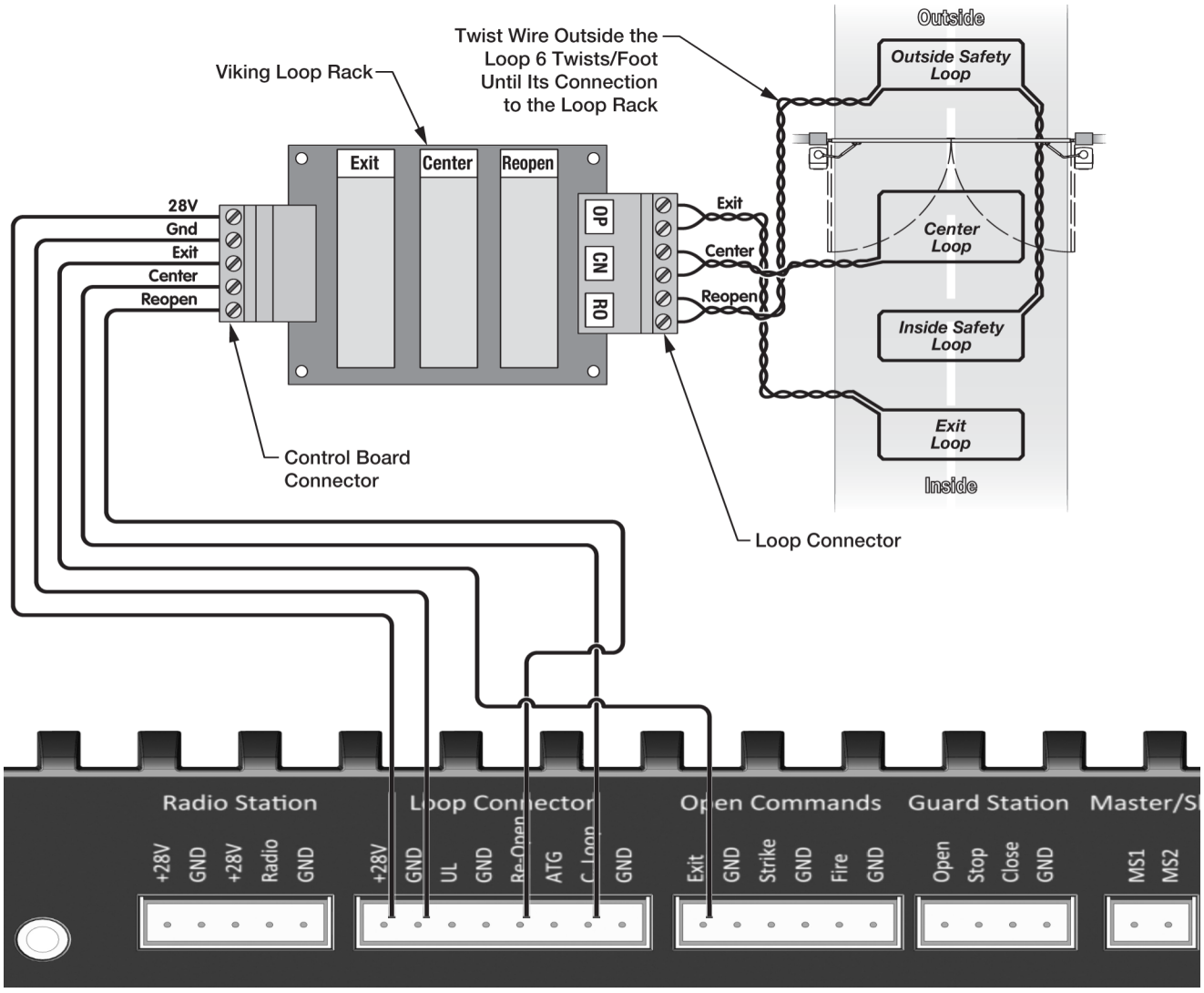


ACCESSORY CONNECTIONS

Viking Loop Rack

TIP: This operator may be equipped with a pre-wired **Loop Rack** that plug-in type loop detectors can be connected to. This provides a convenient alternative to the box type loop detectors that would need to be wired to the control board. Viking does not provide either type of loop detectors.

Loop Rack: Part # VA-LR
Loop Rack Wiring Harness: Part # VA-LRH



Guidelines for Loop Installation

1. Prevent sharp corners in the geometry of the loop sensor.
2. Install the appropriate number of turns for your loop geometry based on the loop perimeter. Use Table C (below) as a guide.
3. Use XLP (cross-linked-polyethylene) type of wire. This wire reduces the effects of moisture and other environmental events in altering the functionality of the vehicular loop detector.
4. Twist the lead wire at least 6 turns per foot.
5. Use BACKER-ROD to minimize damage to the loop detector wire prior to using the sealant.
6. Place the loop detector wire and adjust the sensitivity of the vehicular loop detector unit in a way to minimize the effects of the gate over the loop detector wire.

⚠ **IMPORTANT!** Some of the following parameters may affect the proper functionality of the vehicular loop detector.

Consult the manufacturer of the vehicular loop detector and/or loop wire.

- Gate size
- Number of turns in the loop sensor wire
- Distance of the loop sensor wire to the gate at either at the open or close position

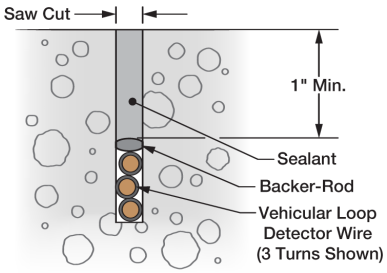
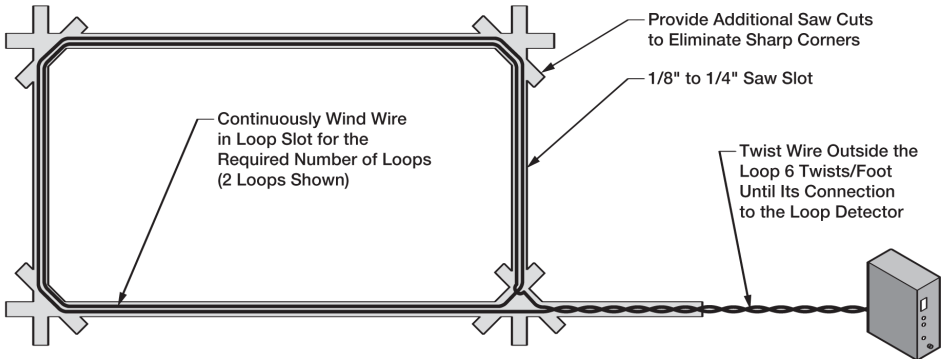
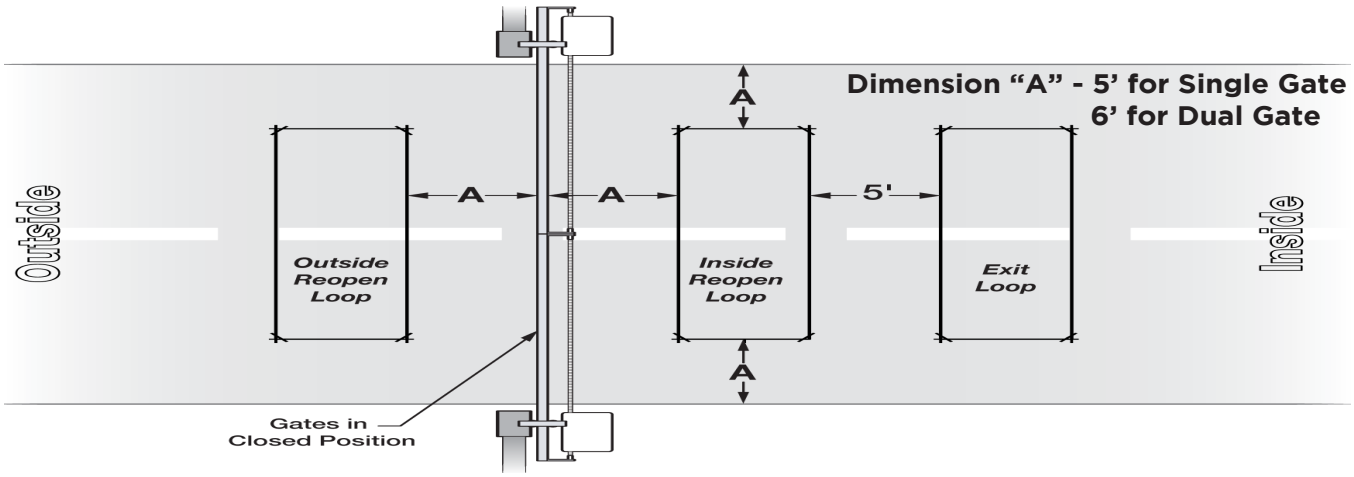


Table C - Recommended Number of Turns

Perimeter (ft.)	Number of Turns
10	5
20	4
30-40	3
50-100	2





ACCESSORY CONNECTIONS

Magnetic Lock, Lock Solenoid

NOTE: Viking Access Systems does not provide external gate lock devices. These items can be purchased from your dealer or distributor.

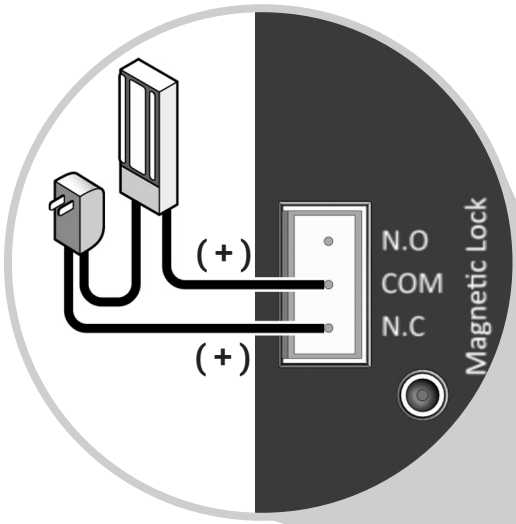
Power for the Locks:

Do not use the 24VDC power supplied by the control board. An external power supply, or plug-in transformer, must be used for the magnetic lock or lock solenoid. Plug the transformer into the "120VAC" receptacle provided at the operators Power Box. This will prevent rapid drainage of the battery in the event of power failure.

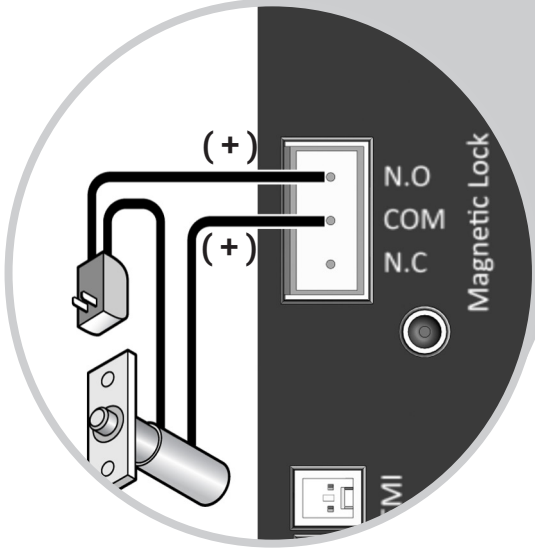
The control boards "Magnetic Lock" relay is rated for 10A-250VAC.

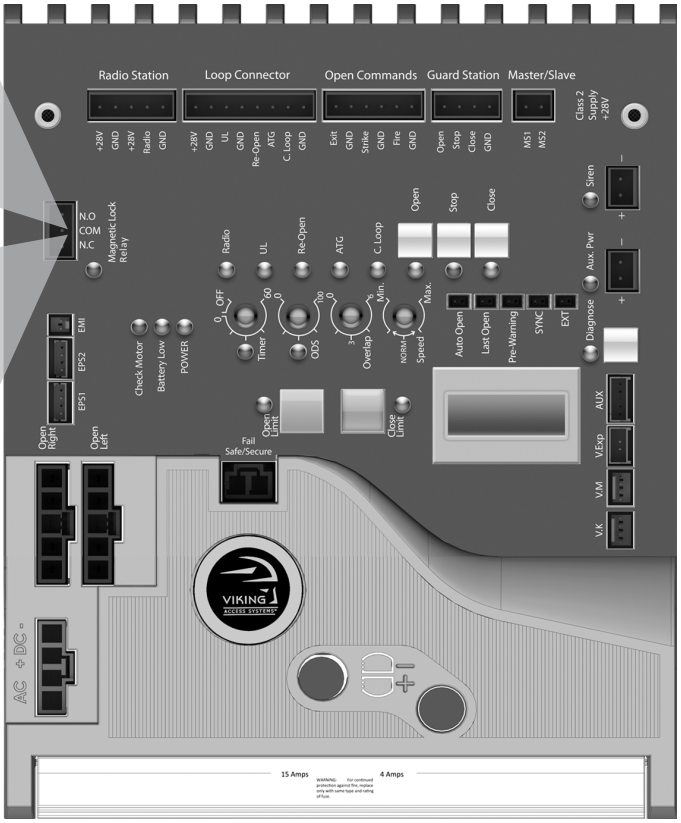
⚠ **TECHNICAL TIP:** The Magnetic Lock Relay LED will indicate status of the on-board relay even if a lock is not connected to the control board. Refer to page 36.

Magnetic Lock



Lock Solenoid





Barrier Arm (B-12) Synchronization Option

NOTE: The Control Board provides a convenient solution for applications that require synchronized operation with the Viking Barrier Arm Operator model B-12.

This type of application opens and closes in the following pattern:
1. Open Command is provided only to the Viking B-12 Barrier Arm Operator.
2. The Barrier Arm will delay to open until this Gate Operator reaches its Open Limit.
3. The Gate Operator will delay to close until the Barrier Arm reaches its Close Limit.

STEP 1 (Figure A & B)

Connect the Gate Operator to the Viking B-12 Barrier Arm Operator as illustrated.

STEP 2 (Figure A)

At the B-12 Barrier Arm Operator, connect the primary device that will be used as the OPEN input.

STEP 3 (Figure B)

On the Gate Operator Control Board, activate Sync Mode by placing a jumper on to the pin headers labeled “SYNC”.

Figure A

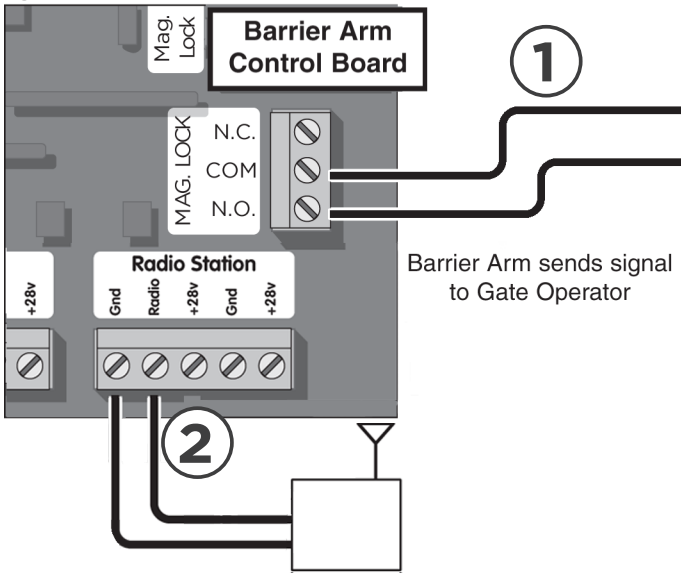
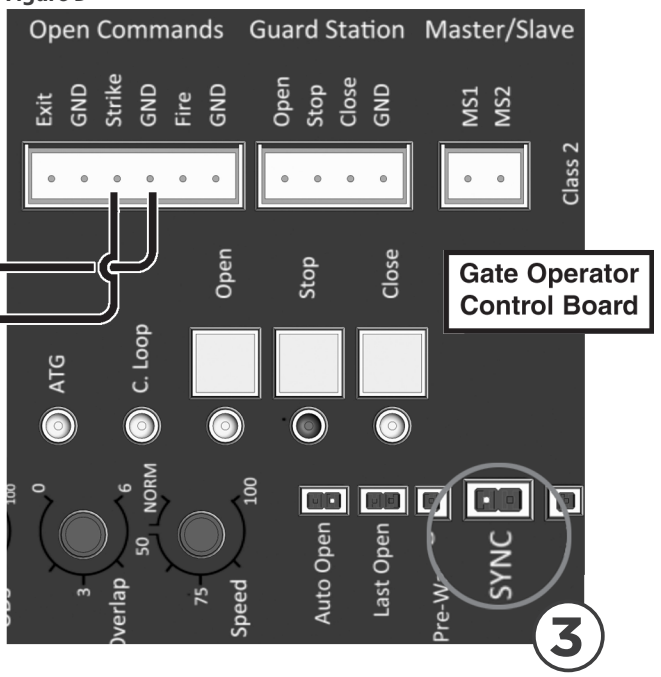


Figure B



STEP 4 (Figure C & D)

Connect Viking B-12 Barrier Arm Operator to the Gate Operator as illustrated.

Figure C

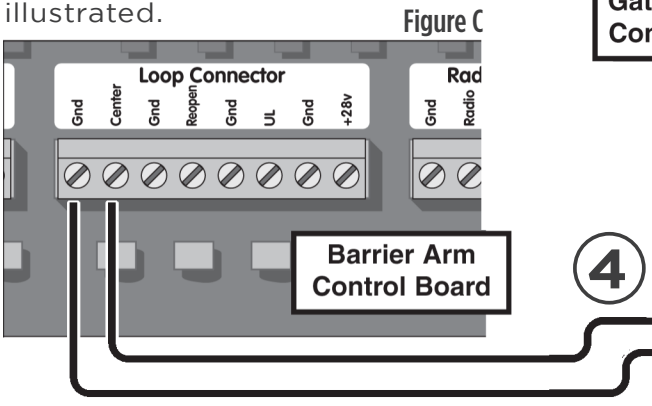
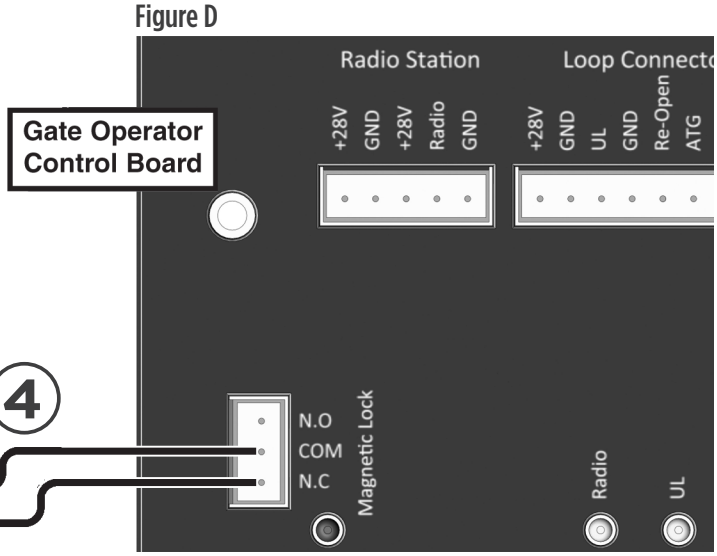


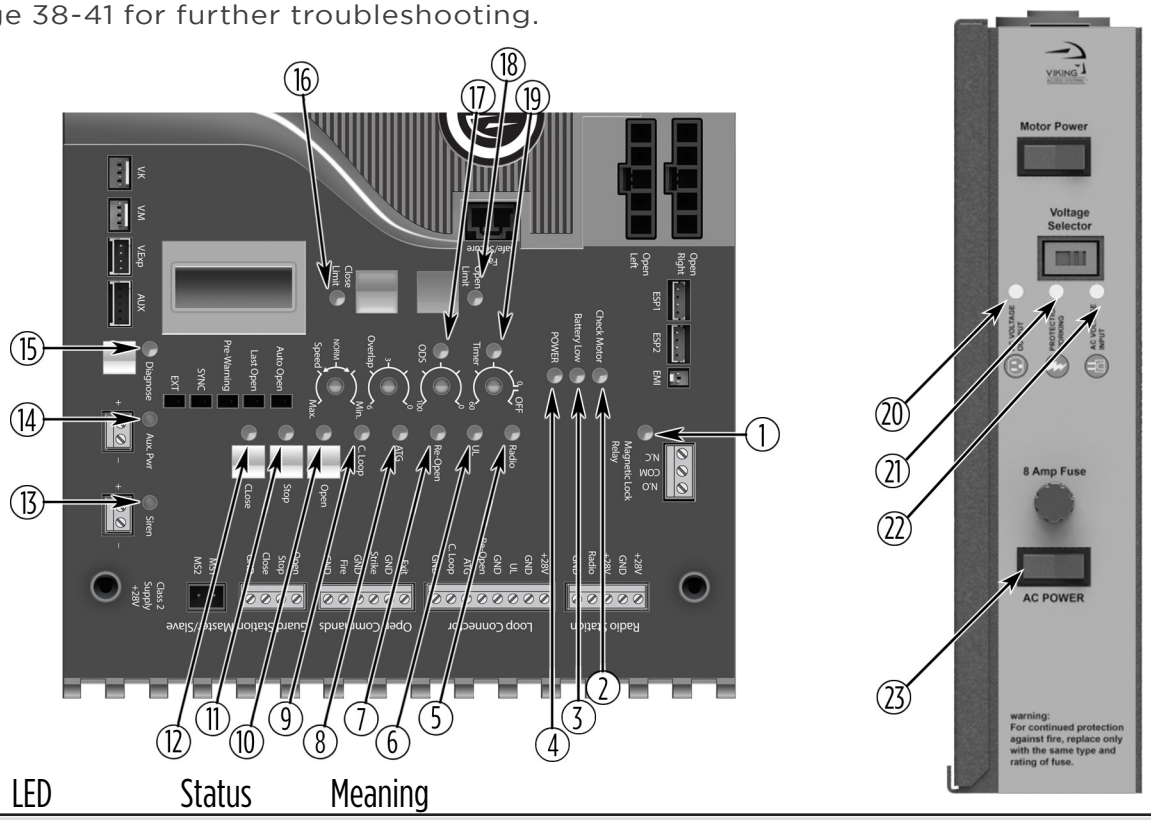
Figure D



TROUBLESHOOTING

LED References

In addition to the LCD Display, the control board LEDs monitor the various circuits of the control board. Use the table below to identify the corresponding "TS Ref#" and refer to page 38-41 for further troubleshooting.



Page 41

#	LED	Status	Meaning	TS Ref#(s)
1	"Magnetic Lock Relay"	OFF	At Closed Limit and Magnetic Lock Relay state is closed across "COM" & "N.C.". (pg 34). Gate should be at the Close Limit.	
		SOLID	Not at Closed Limit and Magnetic Lock Relay state is closed across "COM" & "N.O.". (pg 34). Gate should not be at the Close Limit	
2	"Check Motor"	OFF	Normal Condition.	
		SOLID	The control board is sending power to the motor but the circuit is open.	7, 8
3	"Battery Low"	OFF	Normal Condition.	
		SOLID	Batteries are low. Check power supply to the operator. (pg 18-19).	1, 2
		FLASHING	Batteries critically low. Check power supply to the operator. (pg 18-19).	1, 2
4	"POWER"	SOLID	Normal Condition.	
		FLASHING	Operator is running on batteries only (pg 18-19).	1, 2
		OFF	No power to control board.	1, 2, 4, 5
5	"Radio"	OFF	Normal Condition.	
		SOLID	Control Board is receiving an input from a device connected to the Radio terminal (pg 30, 42).	9, 10
6	"UL"	OFF	Normal Condition.	
		SOLID	Control Board is receiving an input from a device connected to the UL terminal (pg 10-11, 42).	9, 10, 16, 22
7	"Re-Open"	OFF	Normal Condition.	
		SOLID	Control Board is receiving an input from a device connected to the Re-Open terminal (pg 29, 32, 42).	9, 10
8	"ATG"	OFF	Normal Condition.	
		SOLID	Control Board is receiving an input from a device connected to the ATG terminal (pg 31, 42).	9, 10

LED References

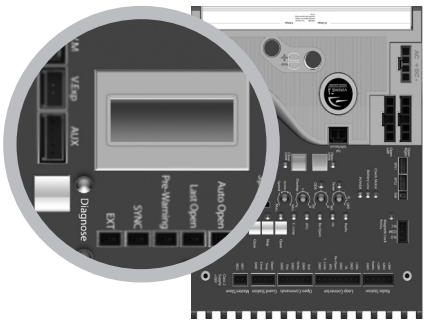
Use the table below to identify the corresponding "TS Ref#" and refer to page 38-41 for further troubleshooting.

#	LED	Status	Meaning	Pg 41 TS Ref#(s)
9	"C Loop"	OFF	Normal Condition.	
		SOLID	Control Board is receiving an input from a device connected to the C Loop terminal (pg 32, 42).	9, 10
10	"Open"	OFF	Normal Condition.	
		SOLID	Control board is receiving an input from a device connected to any of the following input terminals: Exit, Fire, Strike or Open (pg 31, 42).	9, 10
11	"STOP"	OFF	Normal Condition.	
		SOLID	Control Board is receiving an input from a device connected to the Stop terminal (pg 31, 42) or the operator is Manually Released (pg 11)	9, 10, 23
		FLASHING	There is a problem with the required monitored sensor(s) connected to the "UL" input terminal (pg 10-11 & 22)	16, 22
12	"Close"	OFF	Normal Condition.	
		SOLID	Control Board is receiving an input from a device connected to the Close terminal (pg 31, 42).	9, 10
13	"Siren"	OFF	Normal Condition.	
		SOLID	Second consecutive obstruction has been detected. (pg 26).	11, 13, 1, 2
		FLASHING	Batteries are critically low.	1, 2
14	"Aux. Pwr"	OFF	No voltage output on these terminals at the moment.	
		SOLID	There is 24VDC output on these terminals at the moment.	
15	"Diagnose"	OFF	Normal Condition.	
		FLASHING	Errors have been detected; Check LCD Display for ERR messages (pg 40).	
16	"Close Limit"	OFF	Gate is not at the close limit position.	
		SOLID	Gate is at the close limit position.	
		FLASHING	Close limit position has been erased or not set (pg 20-21).	6
17	"Open Limit"	OFF	Gate is not at the open limit position.	
		SOLID	Gate is at the open limit position.	
		FLASHING	Open limit position has been erased or not set (pg 20-21).	6
18	"ODS"	OFF	Normal Condition.	
		SOLID	Obstruction has been detected. (pg 26).	11, 13, 1, 2
		FLASHING	Overload has been detected. (pg 26).	11, 13, 1, 2
19	"Timer"	OFF	The close timer is turned OFF or gate is not at the open limit if the timer is turned ON. (pg 24).	
		SOLID	Gate is at Open Limit, Timer is turned ON and counting down to close. (pg 24).	
		FLASHING	Gate is at Open Limit, Timer is turned ON but is not timing out due to a conflicting command. (pg 24).	9, 10
20	"AC VOLTAGE OUTPUT"	SOLID	Normal Condition.	
		OFF	There is no output voltage from the Modular Power Box.	2
21	"PROTECTION WORKING"	SOLID	Normal Condition.	
		OFF	EMI Board is damaged and circuit is not protected . Replace EMI Board.	
22	"AC VOLTAGE INPUT"	SOLID	Normal Condition.	
		OFF	Incoming power to Modular Power Box is not sufficient.(pg 18).	1
23	"AC POWER"	SOLID	Normal Condition for High Voltage installations.	
		OFF	High Voltage is not supplied to the Power Box Assembly (pg 18).	1

TROUBLESHOOTING

LCD Display References

The control board is equipped with a LCD Display that provides operator information, current conditions, settings, diagnostics and error messages. Use the table below to identify the corresponding "TS Ref#" and refer to page 41 for further troubleshooting.



1. Error Messages will be displayed first.
2. The "Diagnose" LED will flash consecutively indicating how many Error Messages are available.
3. Press the Diagnose button to manually scroll through all of the Messages.

LCD MSG	Meaning	Page 41 TS Ref #s
MODEL Q7	Indicates the Model of the unit	
	System Status Messages	
GATE IS IDLE	Gate is stopped between limits	
GATE IS OPENING	Gate is opening	
GATE IS CLOSING	Gate is closing	
GATE IS OPENED	Gate is at the limit open position	
GATE IS CLOSED	Gate is at the limit close position	
STOP BY OBSTRUCT	Gate stopped due to an obstruction sensor event	11, 12, 13
STOP BY OVERLOAD	Gate stopped due to an overload of the gate system	11, 12
OVERLAP TIMING	Gate is waiting for the overlap time	
HOLDING __ SEC	Gate is at the limit open position and timing to close - The display shows the actual time left before closing	
EPS2 OK	While the gate is running, indicates the percentage of accuracy of the EPS. "OK" indicates 100% accurate communication	
UL LEARN SENSOR _	Indicates the number of connected Secondary Entrapment Protection Sensors that are being monitored through the UL input terminal. (pg 11)	

LCD Display References

LCD MSG	Meaning	Page 41 TS Ref #s
SEARCH POS STOP	Needs to search for the Positive Stop, that has been installed at the close position, in order to use as a reference for the limits after manual operation.	
	Multi Meter Displays	
MOT AMP ___.. A	This is the motor current amperage during operation	
MOT VOLT ___.. VDC	This is the actual motor voltage during operation	
AC VOLT ___.. VAC	This is the actual low voltage AC to the Control Board from the transformer	
CHARGE ___.. VDC	Indicates the charging voltage to the batteries, if the Battery Switch is in the OFF position.	
BAT VOLT ___.. VDC	Indicates battery voltage, if the AC power is discontinued to the Control Board.	
	Board Settings Messages	
EPS2 ___% ERR	Indicates that the Electronic Positioning Sensor (EPS) needs to be tuned. Error rate is displayed as a percentage	
SPEED __%	Shows the percentage of speed set by the Speed adjustment on the control board. (pg 24)	
OVERLAP __. SEC	Shows the number of seconds set by the Overlap Adjustment on the control board. **This feature is not available on slide gate operator models**	
OBS SENS ___%	Shows the force setting selected to trip the obstruction sensor. (pg 26)	
TIMER __ SEC	Shows the amount time set or remaining to hold the gate at the Open Limit position, before the gate starts to close. (pg 24)	
HEATER __ OFF	The Integrated Heater is disabled for the open "OPN" and/or close "CLS" limits (pg 27)	
HEATER __ ON	The Integrated Heater has been enabled to turn on at the open "OPN" and/or close "CLS" limits (pg 27) "*" will be displayed while it is heating	
LOCK MOD OFF	The Lock Mode feature is turned OFF (pg 27)	
LOCK MOD ON	The Lock Mode feature is turned ON (pg 27)	

TROUBLESHOOTING

LCD Display References

LCD MSG	Meaning	Page 41 TS Ref #s
	Error Messages	
ERR AC LOW	Indicates that the 24VAC supply to the VFlex Board is too low from the 115/230 power supply.	1, 3. 20
ERR AC HIGH	Indicates that the 24VAC supply to the VFlex Board is too high from the 115/230 power supply.	1, 3, 20
ERR AC NO AC	Indicates that there is no 24VAC supply detected to the VFlex Board from the 115/230 power supply.	1, 2, 4, 20
ERR CHRG HIGH	Potential problem with the charging voltage from the control board.	1, ?
ERR CHRG CHECK 4A	a) 4 Amp Fuse is blown, or; b) There is a problem with the batteries or the control board.	18, ?
ERR BAT LOW	The battery voltage is low.	1, 2, 3, 4
ERR EPS2 WRONG	The EPS (Electronic Positioning Sensor) has one of the following conditions: a) The EPS is not properly adjusted b) The EPS has a potential connection problem c) The EPS has the wrong cable harness	?
ERR EPS2 MISSING	Missing or damaged EPS2 cable harness	14, 17
ERR ___ LIMIT	Indicates that the open "OPN", close "CLS" or both "NO" limits are cleared and need to be set.	6
ERR FUSE 30 AMP	Motor Power Switch has been tripped.	7, 11, 12
ERR EMI NO EMI	No EMI board detected.	15
ERR EMI NO FUSE	8 Amp main fuse is blown on Power Supply Panel Assembly.	2
ERR EMI NO AC	There is no AC voltage detected from the EMI Board.	20
ERR EMI UNKNOWN	There is a problem with the communication between the EMI Board and the VFlex Board.	21
ERR EMI PROTECT	Lightning strike protection for the EMI Board (behind the Power Supply Panel Assembly) needs to be replaced.	?
ERR NO POS STOP	During the first learn cycle, could not locate the installed close Positive Stop, within 2 feet of the Close Limit position.	6
ERR UL SENSOR	There is a problem with the required monitored sensor(s) connected to the “UL” input terminal (pg 10-11 & 22).	22

Solutions

Begin the troubleshooting process by referring to the error messages on the LCD Display and/or the Status LEDs on the control board. Use pages 36-40 to identify the Troubleshooting Reference # (TS Ref#) then reference the table below.

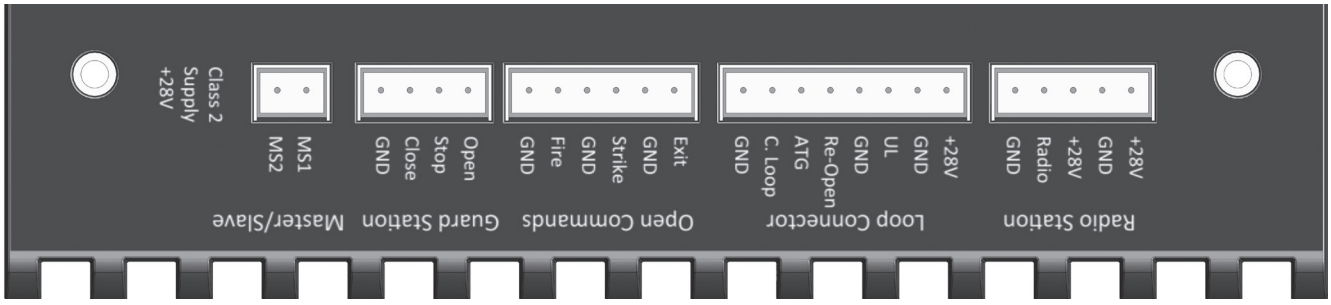
TS Ref#	CHECK	Page Ref#
1	Check that the high voltage power supplied to “J-Box” is within range. 100V-120V or 200V-240V.	pg 18
2	Remove and check EMI Fuse for continuity.	pg 3, 18
3	Check that the “Voltage Selector”, on the Modular Power Box, is set according to the high voltage power supply. 115VAC or 230VAC.	pg 3, 18
4	Check that the “AC POWER” switch is turned ON.	pg 3, 18, 36-37
5	Check that the Power Harness is connected to the control board.	pg 4, 18
6	Set the limit position.	pg 20-21
7	Check the “Motor Power Switch” at the front of the Power Box Assembly.	pg 3
8	Check the “Motor Breaker” near the top of the motor.	pg 3
9	Check the Status LEDs and LCD Display to determine if the control board is receiving an input from any external devices or if the “ODS” has been triggered.	pg 24, 26, 36-38
10	Remove the external devices from the control board to determine if the control board is responding to an input or problem with the external device or wiring.	pg 29-32, 36-37
11	Check the gate, track and chain for any debris or cause for resistance. Check the “ODS” setting on the control board.	pg 8, 12, 26
12	Check that the gate can be moved manually with low resistance throughout its full length of travel.	pg 8, 17
13	Check the limit position.	pg 20-21
14	Check the cable for the Electronic Positioning Sensor for damage. Clean the connection pins.	pg 4
15	Check that the EMI cable is properly connected to the “EMI” connection at the VFlex control board and at the EMI Board.	pg 4
16	Check the LCD Display for Error Messages.	pg 40
17	Check that the cable from the Electronic Positioning Sensor is connected to the “EPS2” port on the Control Board.	pg 3-4
18	Check 4 Amp fuse on the control board.	pg 4
19	Manually adjust any setting on the Control Board to clear all wireless override settings.	
20	Check for 24VAC out from the Power Harness to the control board.	pg 18
21	Check the EMI Cable and contacts between the EMI Board and the VFlex Board.	pg 2, 4
22	Check the secondary entrapment protection sensors connected to “UL” terminal.	pg 10-11
23	Check the Manual Release mechanism and Sensor.	pg 11
?	The Control Board or EMI board may be damaged. Call Viking Technical Support for further assistance.	

Appendix (A)

Access Control Connections

Power Connections

The control board provides a 24VDC output to power external devices and controls. Alternatively, for devices that require a power supply other than 24VDC, the operators Power Box contains a convenient 120VAC receptacle to connect a plug-in transformer.



"C"	**=**	**Common**
"N.O."	**=**	**Normally Open**

Terminals Connections and Input Functions:

Viking Terminal		Function		Device Terminal
"+28V"	----------	*DC Positive*	----------	**"+"**
"GND"	----------	*DC Negative*	----------	**"–"**
"GND"	----------	*Relay Common*	----------	**"C"**
"Radio"				**"N.O."**
	If "Timer" OFF:	Open - Stop - Close		
	If "Timer" ON:	Open / Reopen if closing		
"UL" (see pages 10 & 11)				**"N.O."**
	If input is brief:	Stops gate then Reverses 12 inches		
	If input is longer:	Stops gate, does not reverse		
	If "UL ADV" is ON:	Stops then Opens gate		
"Re-Open"				**"N.O."**
	If stopped:	No function		
	If closing:	Stops then Opens gate		
"ATG" Anti-Tailgate				**"N.O."**
	Input is received:	Stops gate if closing		
	Input is released:	Closes gate to prevent tailgating		
"C. Loop"				**"N.O."**
	If not at open limit:	No function		
	If at open limit:	Prevents gate from Closing		
"Open", "Exit", "Fire" & "Strike"				**"N.O."**
	If stopped:	Opens gate		
	If closing:	Stops then Opens gate		
"Stop"				**"N.O."**
	If traveling:	Stops gate		
"Close"				**"N.O."**
	If stopped:	Closes gate		
	If traveling:	No function		

⚠ **TECHNICAL TIP:** Each input Terminal (i.e. Radio, Exit, Re-Open, UL) has a corresponding Status LED that when illuminated indicates an input is currently being provided to the terminal and the gate is responding accordingly. (See pages 36-37 LED References)

Relays In General

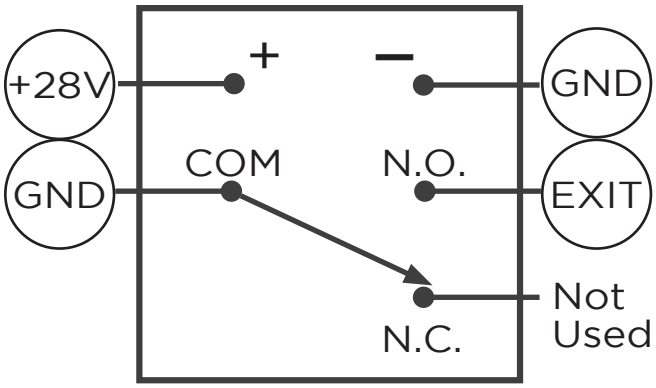
NOTE: Viking Access Systems does not provide the external safety devices and access controls. These items can be purchases from your dealer or distributor.

In General

In regards to the Viking control board, all external safety devices and access controls contain, and are, simple relays that provide an input to the Viking control board when the device is activated.

When these devices are activated, their internal relays create a contact, or short, between the "C" and "N.O." terminals. This contact is what provides the command to the Viking control board.

⚠ **TECHNICAL TIP:** Viking uses the Normally Open "N.O." contact from the device, excluding "fail-safe" type photo beams. In such instances, the Normally Closed "N.C." will be used instead.



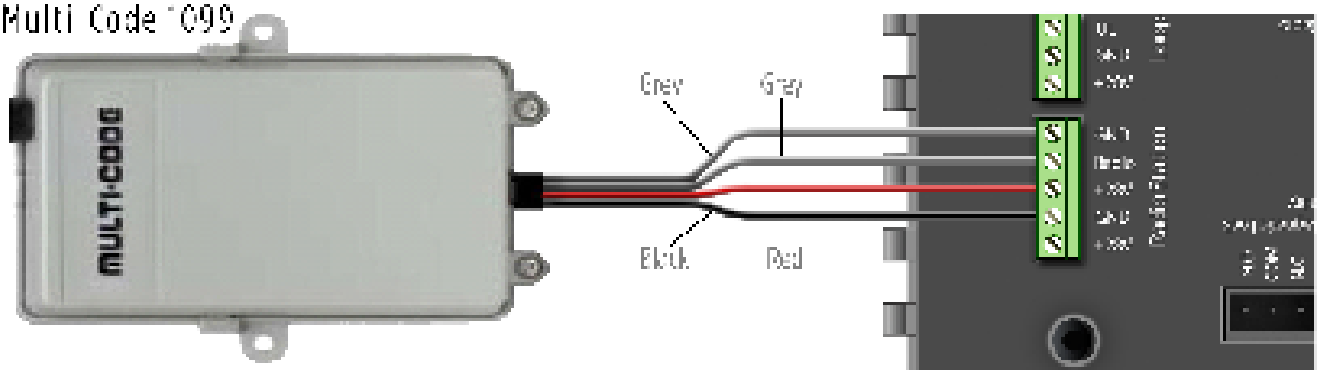
Glossary of Terms

1. **Terminal:** Wire Connections.
2. **Input Terminal:** On the Viking control board, the terminal which is labeled for a specific command (Re-Open, Exit, Radio, etc.). The N.O. contact from the access control device is to be connected to the Input Terminal.
3. **Terminal Block:** On the Viking control board, a removable block containing multiple terminals.
4. **Relay:** The component of an access control or safety device that provides an input or command to the Viking control board.
5. **"C" Relay Common Terminal:** This is the relay terminal that makes contact (a short) to the N.O. terminal when the device is activated. *Always wire this relay terminal to any "GND" terminal at the control board.*
6. **"N.O." Relay Normally Open Terminal:** The relay terminal that has an open contact to "C" while the relay is not activated, and a closed contact when the relay is activated. *Almost always wire this relay terminal to an "Input Terminal" at the control board,*
7. **"N.C." Relay Normally Closed Terminal:** The relay terminal that has a closed contact to "C" while the relay is not activated, and an open contact when the relay is activated. *This terminal is rarely used.*
8. **Relay Coil:** Contains the terminals that provide power at the relay.
9. **"+" Relay Positive Terminal:** The positive power pole for the relay coil. *Always wire this relay terminal to any "+28V" terminal at the control board.*
10. **"−" Relay Negative Terminal:** The negative power pole for the relay coil. *Always wire this relay terminal to any "GND" terminal at the control board.*

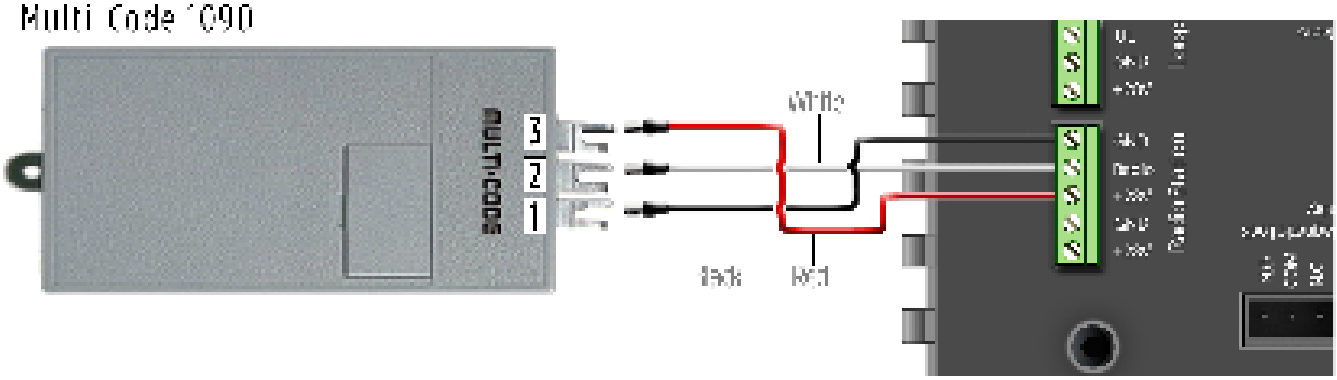
Appendix (B)

Common Radio Receivers - Connections

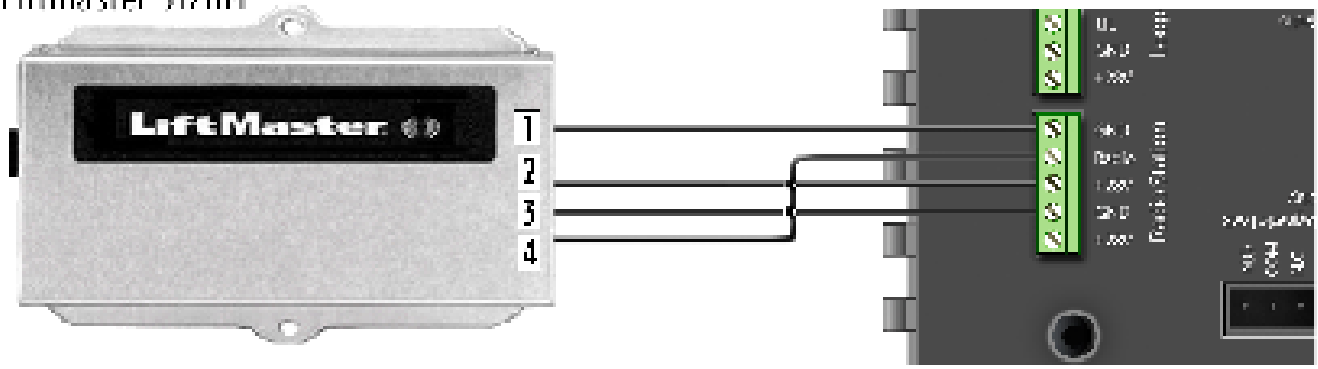
Multi Code ˚099



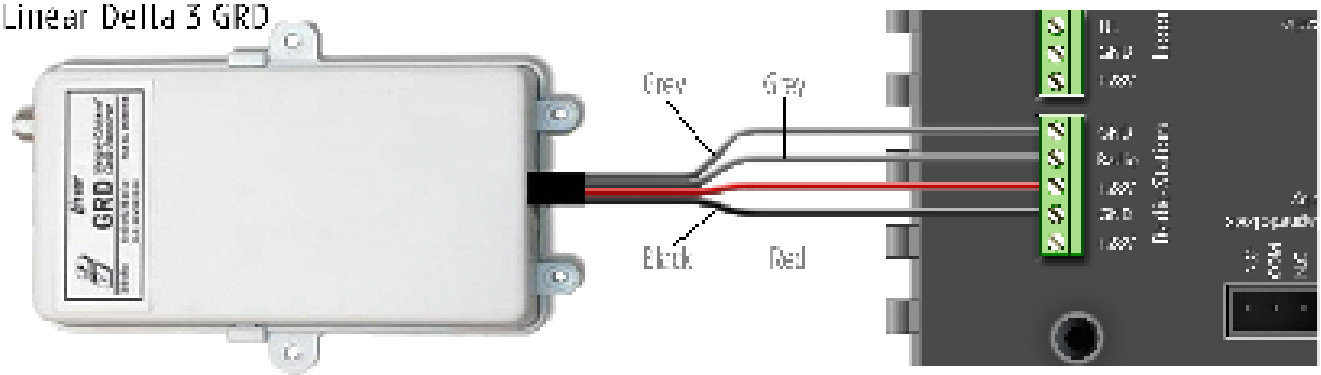
Multi Code ˚090



Liftmaster 312HM



Linear Della 3 GRD



APPENDIX (C)

Solar Applications

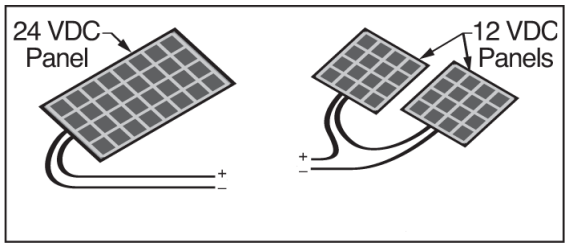
NOTE: Viking recommends Solar Package (**part # VA-SOCHP**) for most general solar applications. Alternatively, individual and third party solar components can be used. The following are minimum system requirements and installation information.

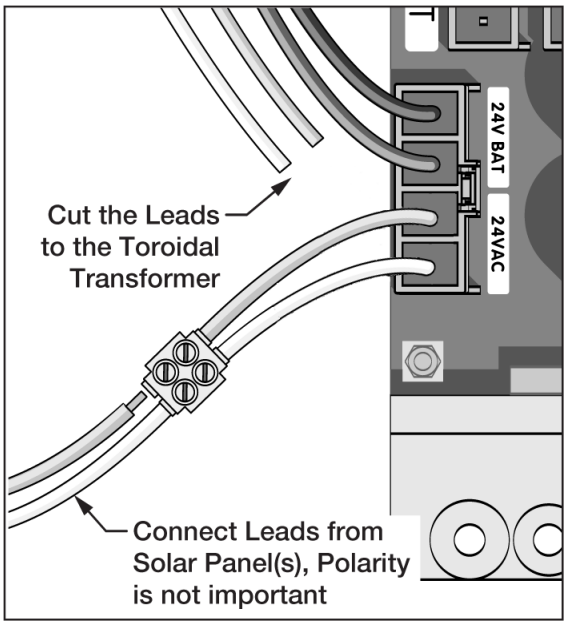
Panels

- Voltage 24V
- Wattage 80W (minimum)

Cut the wires coming from the toroidal transformer.

Connect the solar panel cables to the power harness as shown.

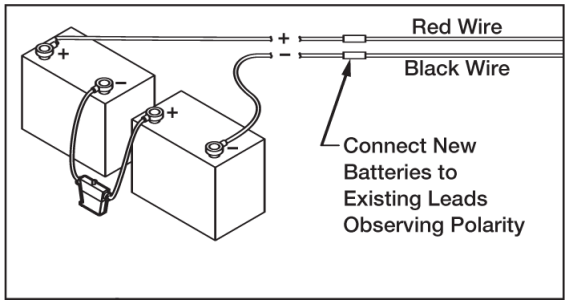




Batteries & Fuse

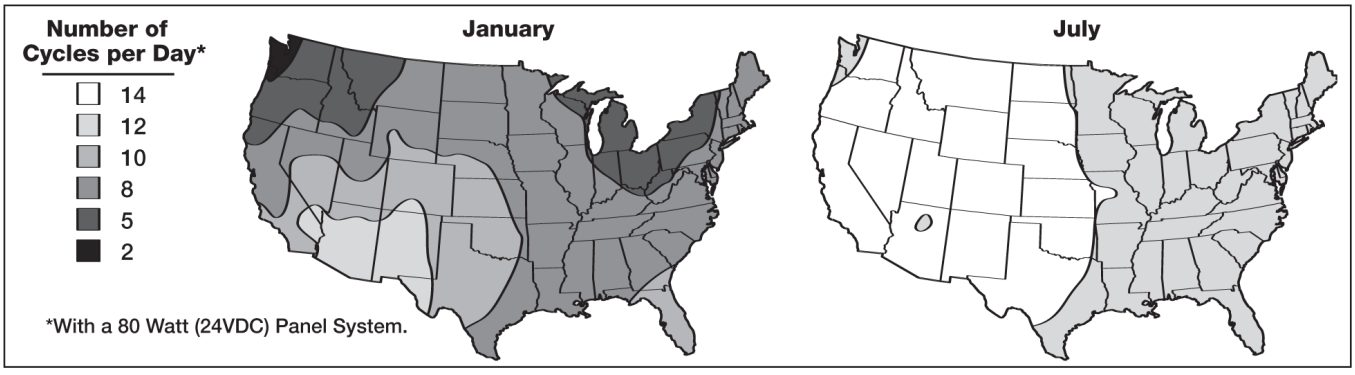
Voltage	24V	
Amp Hour	35Ah	(minimum)
Fuse	10A	(minimum)

Replace the operators batteries with 35Ah or greater.



⚠ **IMPORTANT:** The chart provided can be used as a guide for the number of cycles the gate will operate per day. The chart is for a single gate operator with just:

a. One Radio Receiver
b. One low voltage, low current loop detector
c. One low voltage, low current photo beam



If more specific information is needed please consult with Viking Access Systems. For more information regarding solar energy refer to www.nrel.gov/solar

Appendix (D)

UL ADV Feature

IMPORTANT REQUIREMENTS:

- The installed sensor MUST be **“10K Resistor Based”.**
- **Only use this feature if** ALL sensors connected to the UL input terminal are desired to reverse the gate all the way to the OPEN LIMIT position.

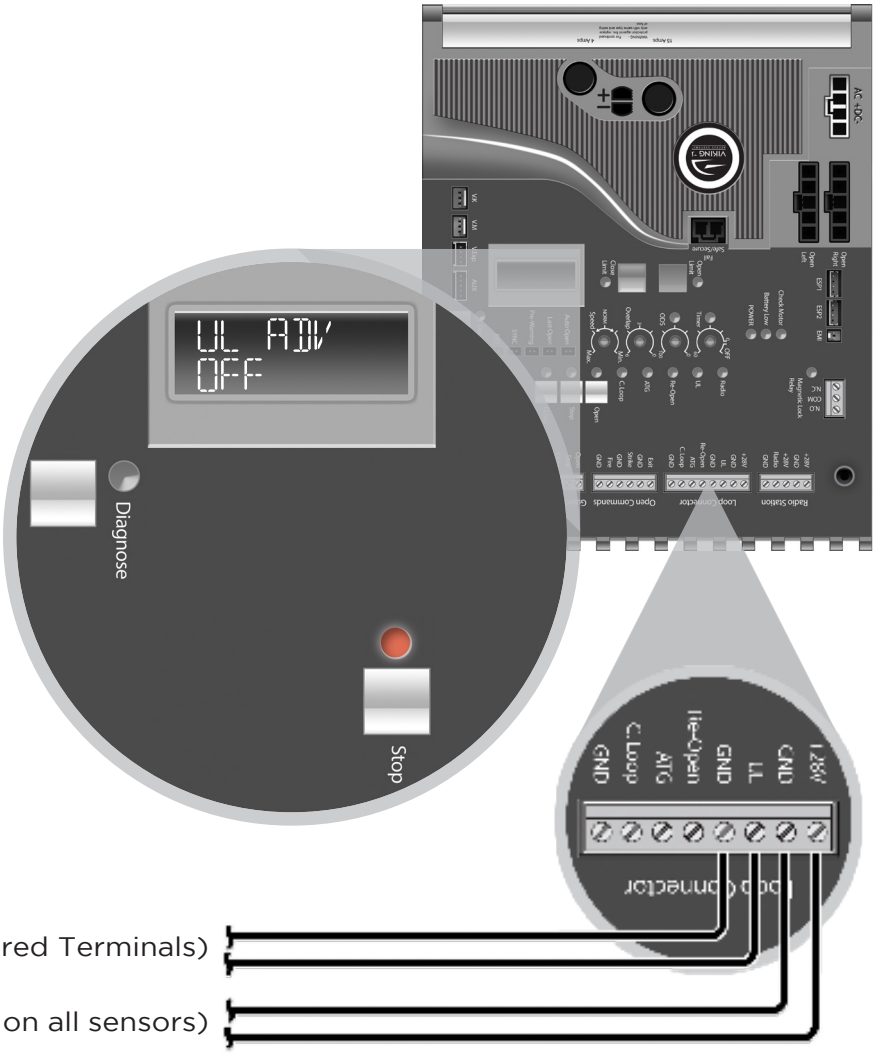
STEP 1

Connect the Monitored Sensor to the Viking control board input terminals “UL” and “GND” as illustrated.

STEP 2

Turn ON the UL ADV Feature:

- Toggle the “Diagnose” button until you see UL ADV on the LCD Display.
- Default setting is OFF.
- Press and hold the “Stop” button.
- Toggle the “Diagnose” button once.
- The feature should now be displayed as “ON”.



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VIKING EXPANSION PRODUCTS

VIKING KONNECT Master/Slave Kit Secure and reliable Master/Slave communication using Viking's Konnect technology. Paired with the Viking App, each module also doubles as a diagnostic tool.
Part# VA-KONNECT-MS
****Q-7, B-12 & ECU Operators require (2) Antenna Extension Cables (part# VA-RPSMA)****

VIKING KONNECT Diagnostic Tool On-site remote access to the operator from the convenience of a compatible hand held device. With the Viking App, this tool becomes a wireless extension of the control board allowing you to view and change settings, review diagnostic information, operate the gate for testing and update the control boards firmware. **Part# VA-KONNECT-D**
****Q-7, B-12 & ECU Operators require (1) Antenna Extension Cable (part# VA-RPSMA)****

VIKING MONITOR Off-site access to operator diagnostics and perform firmware updates from just about anywhere with cellular service. With the Viking App, this tool allows you to monitor and label multiple operators by site and location for quick reference. Provides error notifications, operator status, settings and diagnostic information.
Part# VA-MONITOR
****Q-7, B-12 & ECU Operators require (1) Antenna Extension Cable (part# VA-RPSMA)****

VIKING APP Mobile device user interface application for Viking Konnect and Viking Monitor. Available for iOS, Android and Windows operating systems. Free for download from your mobile device application store or www.vikingaccess.com

VIKING AC SURGE PRO Adds another layer of protection to the high voltage power supply of your gate operator. Connecting the AC Surge Pro in parallel to the EMI Board, provides a dual layer of protection from surges up to 20,000 Volts / 10,000 Amps. **Part# VA-SURGEPROAC**

VIKING SOLAR KIT The components included in this package are intended to provide sufficient power for general applications.
Part# VA-SOCHP

This Kit includes the following components:

(2)	**12V 40W Solar Panels**	Part# VA-SO40W	**(wired in series = 24V 80W)**
(2)	**12V 35Ah batteries**	Part# DUBA35	**(wired in series = 24V 35Ah)**
(1)	**Solar Charger**	Part# SOCHR10	
(1)	**Solar Power Harness**	Part# SOHAR	

⚠ **NOTE:** The number of cycles achieved from this kit are dependent upon the following and may require increased panel and battery capacities:
- Power consumption of all accessories being used
- Average solar radiation of geographic location

OUR CONTINUOUS COMMITMENT TO EXCELLENCE

Viking Access Systems is continuously working hard to identify and design products that will appeal to the industry and its needs. As technology continues to advance, we have developed a completely efficient and intelligent line of gate operators to meet the changing demands. These machines offer: full UL325 and UL991 compliance, soft-start and soft-stop, intelligent obstruction sensors, continuous operation (100% duty cycle) and extreme power efficiency. Innovative features include: adaptive and self-learning algorithms, redundancy design in both hardware and software to ensure operation and functionality, protection from lightning, short circuit and power surges, and our exclusive helical gearing offering the highest efficiency rating in the industry. Our entire product line is continually modified and improved based on the latest technology and our customer's valuable feedback. The results are products that offer accuracy, efficiency, reliability and performance, all in sleek, high-tech designs.

We pledge to continue establishing ourself as the leader in high quality, innovative gate operators by developing "Next Level" technology. We are committed to providing safety and convenience with innovative solutions for every security gate need.

VIKING
ACCESS SYSTEMS™

VIKING ACCESS SYSTEMS™ VIKING ACCESS SYSTEMS™ VIKING ACCESS SYSTEMS™

STANDARD FEATURES
AND OPERATOR SPECIFICATIONS

- UL Listed; UL325 and UL991
- ETL Listed; UL325 and UL991
- Elegant design, appealing to any architectural project
- Plated and powder coated steel chassis
- Adjustable travel speed
- Up to 120' maximum gate opening
- 100% duty cycle
- 100 cycles of operation on backup battery (2000 lb. gate and 40' length)
- Intelligent speed control with smooth start and stop, self-adjust system
- Anti-Tailgate and Operation Pre-Warming features
- On-Board LCD Display provides diagnostics, operator status, settings and real-time volt and amp readings
- Intelligent obstruction detection with adjustable sensitivity
- Built-in climate control for cold weather applications
- Built-in protection against lightning strikes or similar electrical surges
- Regulated power supply for your external accessories
- Inherent overload protection; redundancy design using multiple types of protection
- Modular connectors for easy access control and accessory installation
- Digital limits setup and control
- LED indicators display gate and operator status for easy troubleshooting
- Mechanical Gear Release

INSTALLATION DATE: _____

COMPANY / INSTALLER: _____

CONTACT: _____

SERIAL NUMBER(S): _____

ALL INSTALLATION, MAINTENANCE AND REPAIR WORK MUST BE DOCUMENTED AND MADE AVAILABLE TO THE USER.

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