E-4

INSTALLATION INSTRUCTIONS

AND SAFETY INFORMATION

SINGLE AND DUAL GATE SYSTEMS



UL 325 CLASS I COMPLIANT

Residential Vehicular Swing Gate Operator

VIKING WIRELESS

SOLAR EFFICIENT OPERATION

VIKING ACCESS SYSTEMS™

VIKING ACCESS SYSTEMS™

VIKING ACCESS SYSTEMS™

STANDARD FEATURES
AND OPERATOR SPECIFICATIONS

- Manual Release Handle
- Opening up to 110°
- 100% duty cycle
- Built-in power-outage management options
- Up to 400 continuous cycles of operation on backup battery
- Intelligent obstruction detection with adjustable sensitivity
- Adjustable delay for overlapping dual gates
- Hold Open Timer to automatically close the gate
- Modular connectors for easy access control and accessory installation
- Regulated power supply for your external accessories
- LED indicators display gate and operator status for easy troubleshooting
- Equipped for 115 VAC, 24 VAC/VDC and Solar power supplies

THE VIKING E-4™ SWING GATE OPERATOR

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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 stop when an object activates the non-contact sensors. After adjusting the force or the limit of travel, retest the gate operator. Failure to adjust and retest the gate operator properly can increase the risk of severe injury or death.
5. Use the manual 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 5),
   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 in 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 into 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.

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IMPORTANT SAFETY INSTRUCTIONS (Continued)

6. Permanently mounted controls intended for user activation must be located at least 6 ft (1.83 m) away from any moving part of the gate and where the user is prevented from reaching over, under, around or through the gate to operate the controls. Exception: Emergency access controls only accessible by authorized personnel (e.g. fire, police, EMS) may be placed at any location in the line-of-sight of the gate.
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 (placards) shall be installed, in the area of the gate in such a manner that at least one WARNING SIGN is visible by persons located on each side of the gate, for both the secure and unsecure sides of the gate.
9. **For gate operators using non-contact sensors (photoelectric beam or like) in accordance with section 32.1.1 of the UL 325 standard:**
    a. See instructions on the placement of non-contact sensors for each type of application (refer to page 6).
    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 6).
    d. For UL compliance: Use Only - Omron: E3K-R10K4-NR-1 // EMX: IRB-RET, IRB-MON // Miller Edge: RG-K-R, PG-K-R100, PG-K-R50, MIM-62
    For ETL compliance: The following can also be used - Viking: 7851053 // Seco-Larm E-931-33PRGQ, E-936-S45RRGQ, E-931-S50RRGQ, E-960-D90GQ // EMX NIR-50-325
10. **For a gate operator utilizing a contact sensor (edge sensor or like) in accordance with section 32.1.1 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 6).
    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 4 inches (101.6 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. For UL compliance: Use only - EMX: WEL-200K // Miller Edge: ME117, ME120, ME123, MG020, MGR20, MGS20, RB-G-K10, MIM-62
    For ETL compliance: The following can also be used - ASO: 25.30, 25.45, 95.20 // Miller Edge: ME110

IMPORTANT SAFETY INFORMATION

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MAINTENANCE

Remove the Power Harness from the Control Board. (refer to page 11)

- Clean and lubricate the turning pins and gate hinges using the recommended lubricant.
- Check that all mounting hardware of the gate operator is properly tightened.
- 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 11)

- 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 and Hold Open Timer. (refer to pages 24-26)
- Check and confirm the operation of the manual release. (refer to page 7)
- 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.

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GENERAL SAFETY PRECAUTIONS (Continued)

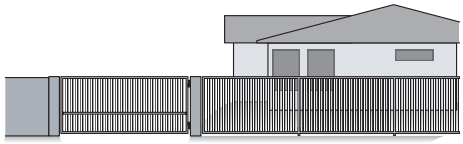
a. Use only the following type and size battery(ies): Yuasa NP7-12 or VIKING DUBA12
b. Do not dispose of the battery(ies) in fire. The cells may explode. Check with local codes for possible disposal instructions.
c. Do not open or mutilate the battery(ies). Released electrolyte is corrosive and may cause 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 different 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.

UL 325 Gate Operator Classifications

GLOSSARY

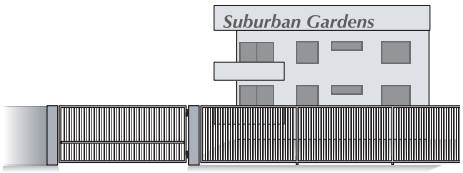
RESIDENTIAL VEHICULAR GATE OPERATOR

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.



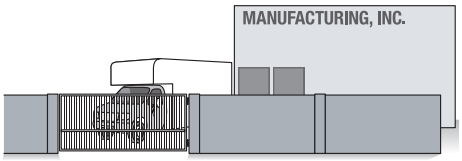
COMMERCIAL/GENERAL ACCESS VEHICULAR GATE OPERATOR

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.



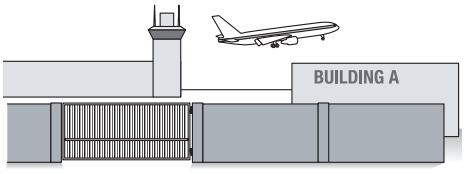
INDUSTRIAL/LIMITED ACCESS VEHICULAR GATE OPERATOR

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

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Monitored Entrapment Protection Requirements

IMPORTANT: MONITORED PROTECTION MUST BE INSTALLED

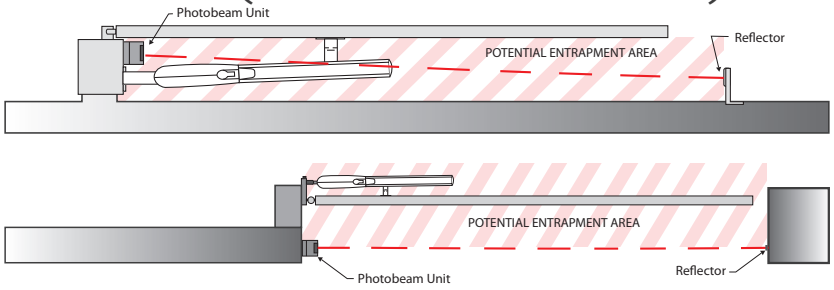
- **REQUIRED BY UL 325, an approved MONITORED entrapment protection sensor is REQUIRED to be installed in all areas accessible to potential entrapment and pinch points.**
- For a horizontal swing gate operator, at least one Monitored External Entrapment Sensor is required in each direction of travel. Except, if there is no entrapment zone in one direction of travel, it is not required to have a Monitored Entrapment sensor for that direction of travel.
  - ⚠ If there is a possible entrapment zone in the open direction, an external sensor MUST be connected to the "UL" input or the installation will not comply with UL 325.
  - ⚠ An external sensor connected to the "Re-Open" input terminal will protect against entrapment ONLY in the closing direction.
- The installed sensor MUST be **"10K Resistor Based".**
- You may connect up to FOUR monitored sensors, wired in parallel, to either the "UL" and/or "Re-Open" terminals, for a total of 8 monitored sensors.
- **Failure to install the required monitored entrapment protection sensor(s) may render the gate operator INOPERABLE. The gate can be moved manually. Refer to page 7.**
- Consult the installation manual of the sensor for detailed information about the usage, installation and maintenance.
- Use only UL and/or ETL Recognized Edge Sensors and Photoelectric Sensors. Refer to pg 3.

SWING GATE ENTRAPMENT ZONE – Locations between a moving gate or moving, exposed operator components and a counter opposing edge or surface where entrapment is possible up to 1.8 m (6 ft) above grade. Such locations occur if during any point in travel:

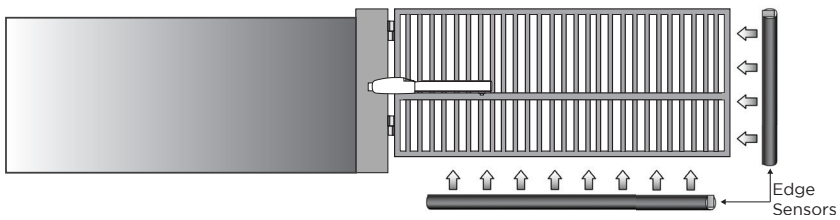
a. The gap between the bottom of a moving gate and the ground is greater than 101.6 mm (4 in) and less than 406 mm (16 in); or

b. The distance between the center line of the pivot and the end of the wall, pillar, or column to which it is mounted when in the open or closed position exceeds 101.6 mm (4 in). Any other gap between a moving gate and fixed counter opposing edges or surfaces or other fixed objects is less than 406 mm (16 in) (examples are walls, curbs, berms or other immovable objects).

Photoelectric Sensor (non-contact sensor)



Edge Sensor (contact sensor)



IMPORTANT SAFETY INFORMATION

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Monitored Entrapment Protection Installation

⚠ **IMPORTANT:** A minimum of one Monitored External Entrapment Sensor is required to be connected to the UL terminal OR the Re-Open terminal. If there is a possible entrapment zone in the open direction, an external sensor MUST be wired to the "UL" input or the installation will not comply with UL 325.

"UL" Protects against entrapment in both the opening and closing directions. Input will reverse the gate momentarily in the opposite direction it was traveling. Refer to page 22.

"Re-Open" Protects against entrapment in the closing direction ONLY. Input will reverse the gate all the way to the Open Limit. Refer to page 22.

STEP 1

Remove the Power Harness from the Control Board.

STEP 2

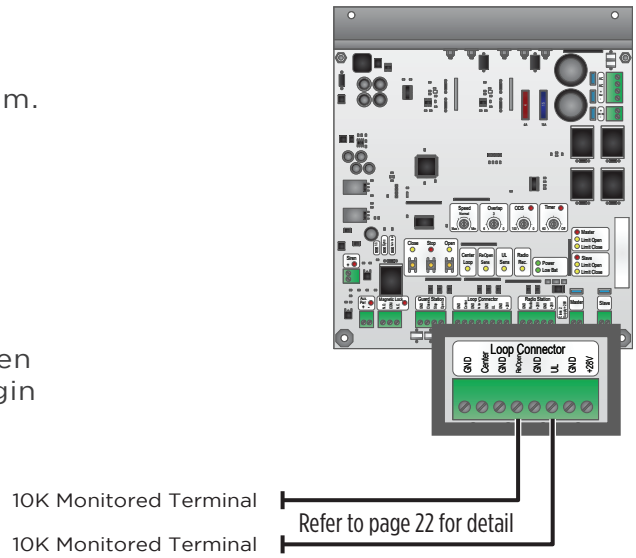
Connect the monitored entrapment protection sensor(s) to the Viking control board as illustrated below. Refer to page 39 for details regarding the supplied FA-XP30-10K Photobeam.

STEP 3

Learn the number of sensors connected:

- Press and hold the Stop Button.
- Connect the Power Harness to the Board.
- Release the Stop Button after 10 seconds when the "Center Loop" and "Radio Rec." LEDs begin to flash.

NOTE: The "Stop" LED will be flashing if there is a failure with at least one monitored entrapment sensor and the gate operator will be rendered inoperable.

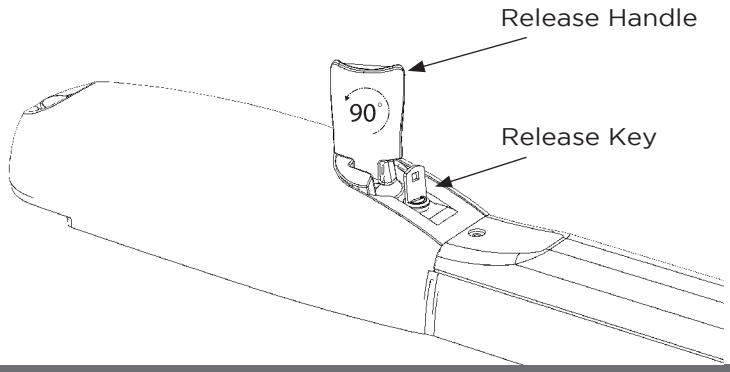


Manual Release

When manual operation is required:

1. Lift the Release Handle.
2. Insert the Release Key and rotate Key to unlock the Handle .
3. Rotate Handle counter clockwise.

The gate can now be moved manually.



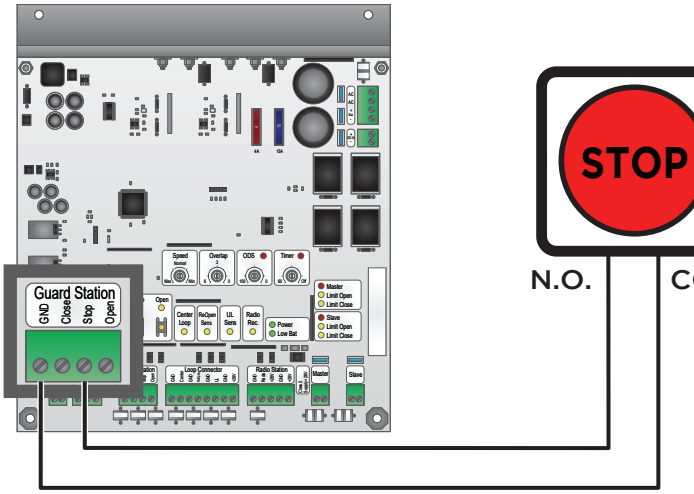
IMPORTANT SAFETY INFORMATION

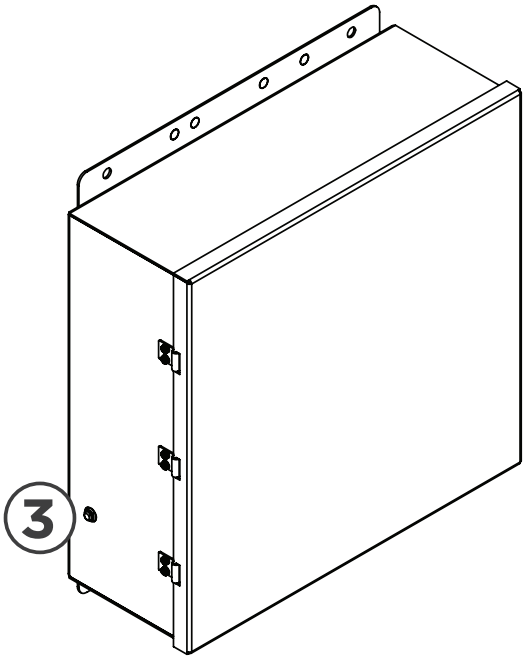
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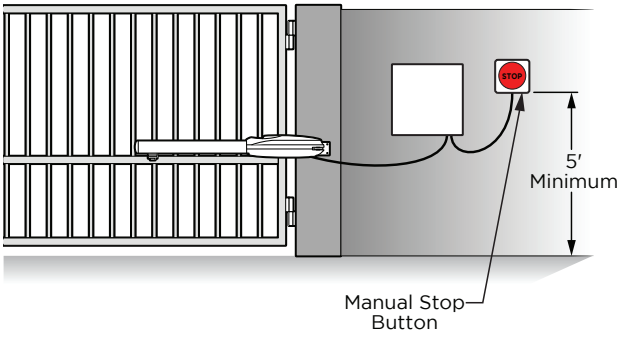
Audible Alarm Reset Switch Installation

Manual Reset for the Audible Alarm

- UL 325 standard requires an audible alarm to sound after two consecutive events detected by the inherent entrapment protection of the gate operator (obstruction sensor).
- The audible alarm will continue to sound for 5 minutes or until a stop command is actuated.
- The Stop command can be actuated in three 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.
  3. Using the Reset Button on the Electronic Control Unit that is externally accessible on the left side of the cabinet.

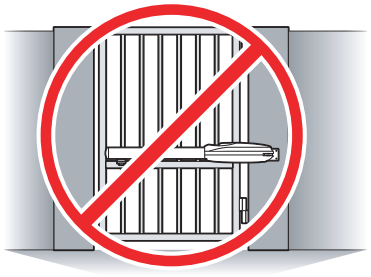




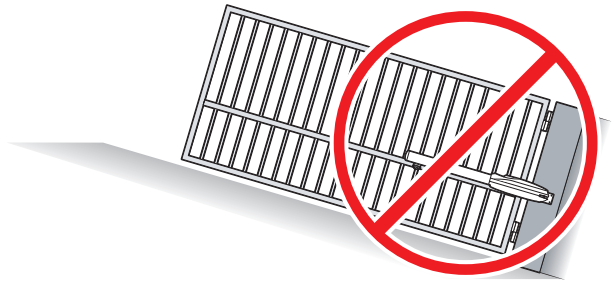


IMPORTANT SAFETY INFORMATION

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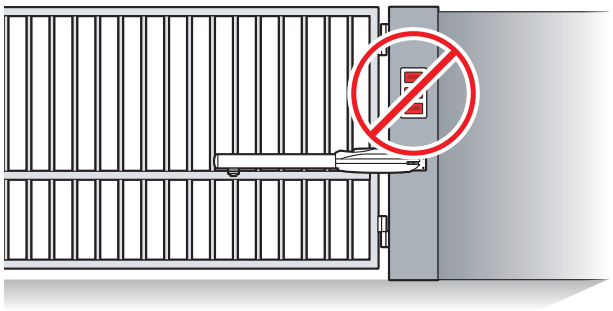
DO NOT allow pedestrian use of this gate



DO NOT install the gate operator to lift gates

Locate Control Buttons

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



Warning Placard Installation

A minimum of two (2) WARNING SIGNS (placards) shall be installed, in the area of the gate in such a manner that at least one WARNING SIGN is visible by persons located on each side of the gate, for both the secure and unsecure sides of the gate.

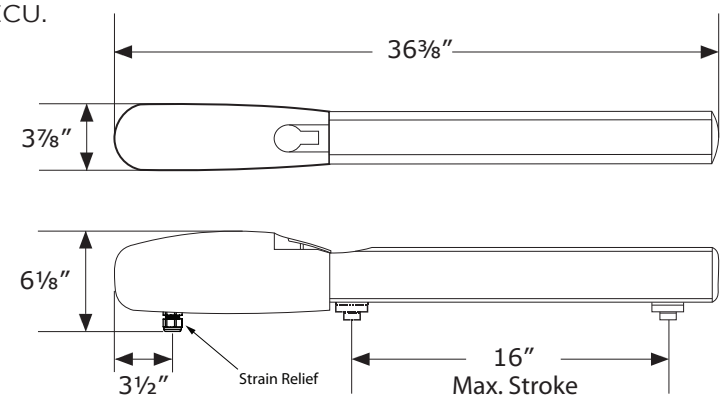


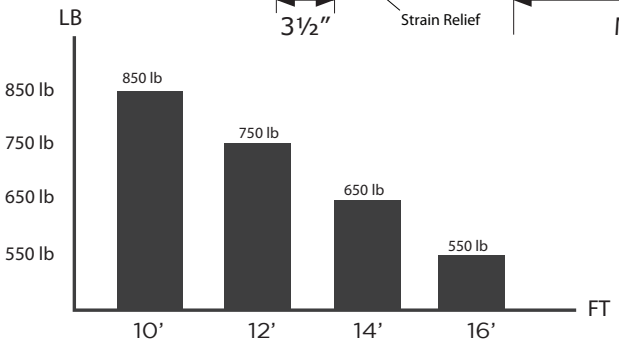
SPECIFICATIONS

SPECIFICATIONS	
Max Gate Length	16 Feet *refer to chart
Max Gate Weight	850 lbs *refer to chart
UL 325 Classification	Class I *refer to page 5
Duty Cycle	100%
Operating Voltage	24VDC
Main Power Source	120VAC / 240VAC Single Phase
Main Power Current	2.0A / 1.0A (each motor)
Main Power Frequency	50Hz / 60Hz
Main Power Fuse	4.0A Timed
Alternative Power	24VAC/VDC (60VA) or Solar
Accessory Power	24VDC (750mA)
Power Consumption - Sleep	6mA
Motor Current Draw - Typical	3.0A
Operating Temperature	-20°F (-28°C) to 160°F (71°C)
Opening Angle	110°

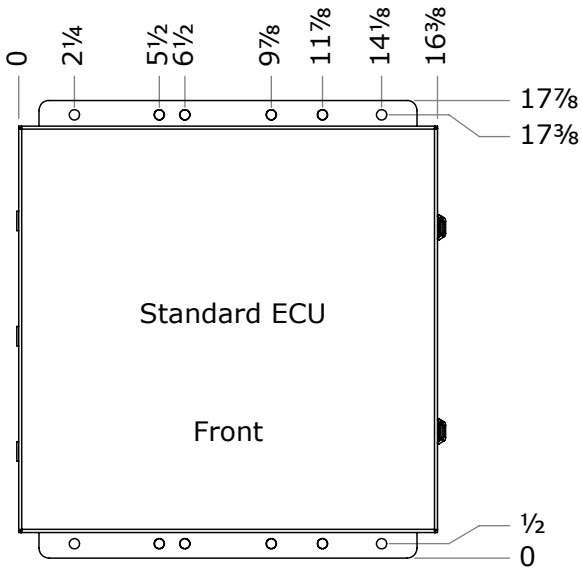
MOTOR CABLE LENGTH/GAUGE	
50 Feet	16 AWG
100 Feet	14 AWG
More than 100 Feet	Not Recommended

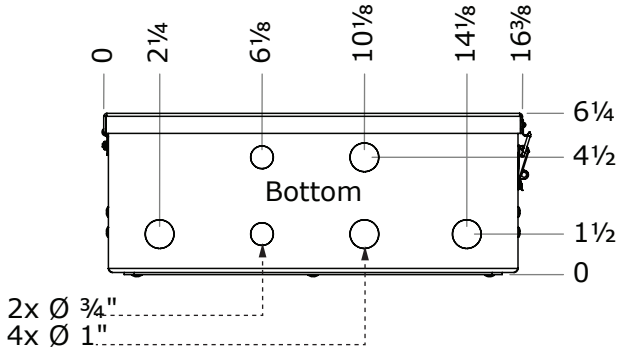
⚠ **IMPORTANT:** Cable shall be shielded with drain wire. Connect drain wire to chassis ground of both the Operator and the ECU.

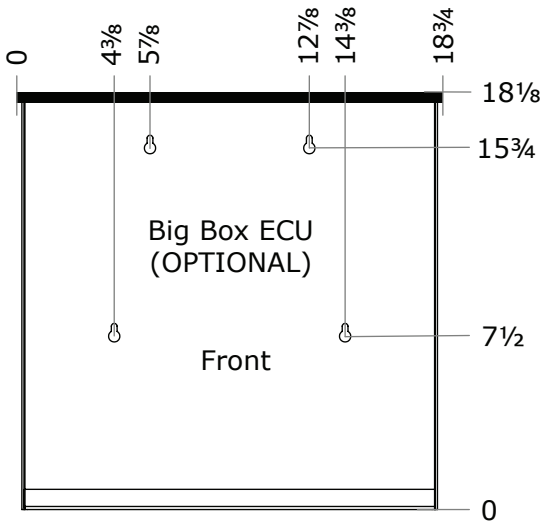


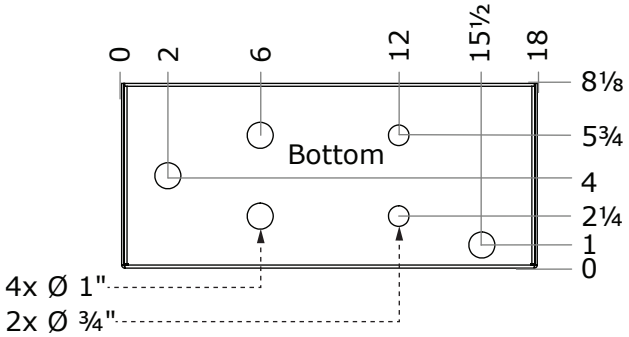


Gate Weight/Length Relationship

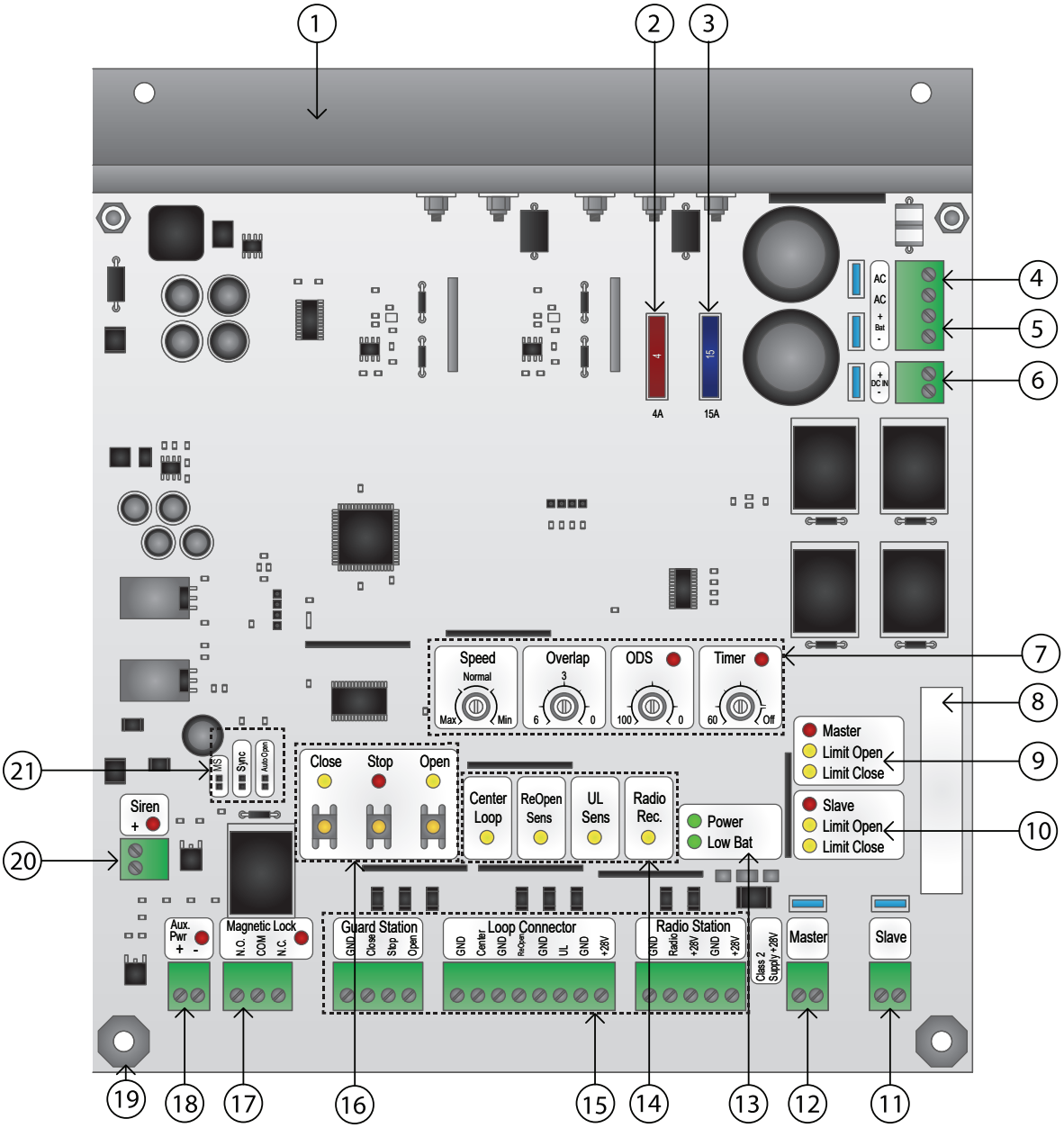








CONTROL BOARD REFERENCES



1. HEAT SINK - MASTER/SINGLE
secures the control board and dissipates heat.

2. FUSE HOLDER - 4 AMP
for the charging circuit.

3. FUSE HOLDER - 15 AMP
for the motor circuit.

4. AC POWER CONNECTION
24VAC to the control board. pg 18-19

5. BATTERY CONNECTION
24VDC charge voltage to the batteries.

6. DC POWER CONNECTION
24VDC to the control board. pg 18

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

8. SERIAL NUMBER
control board serial number for identification

9. MASTER MOTOR STATUS LEDs
indicates Master motor status. pg 36

10. SLAVE MOTOR STATUS LEDs
indicates Slave motor status. pg 36

11. SLAVE MOTOR CONNECTION
provides power to the Slave motor. pg 21

12. MASTER or SINGLE MOTOR CONNECTION
provides power to the Master motor. pg 20

13. POWER and BATTERY STATUS LEDs
indicates power supply status. pg 37

14. INPUT STATUS LEDs
indicates input status. pg 37

15. ACCESS CONTROL TERMINAL BLOCKS
accessory connections. pg 28

16. ON-BOARD 3 BUTTON STATION
controls the gate during setup and testing

17. "MAGNETIC LOCK Relay" and Status LED
status of this on-board relay. pg 34, 37

18. "AUX. PWR" Terminal Block
used for solar applications & in-motion warning devices. pg 18, 37

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

20. "Siren" Terminal Block
Vikings UL Siren is connected here. pg 8, 26, 37

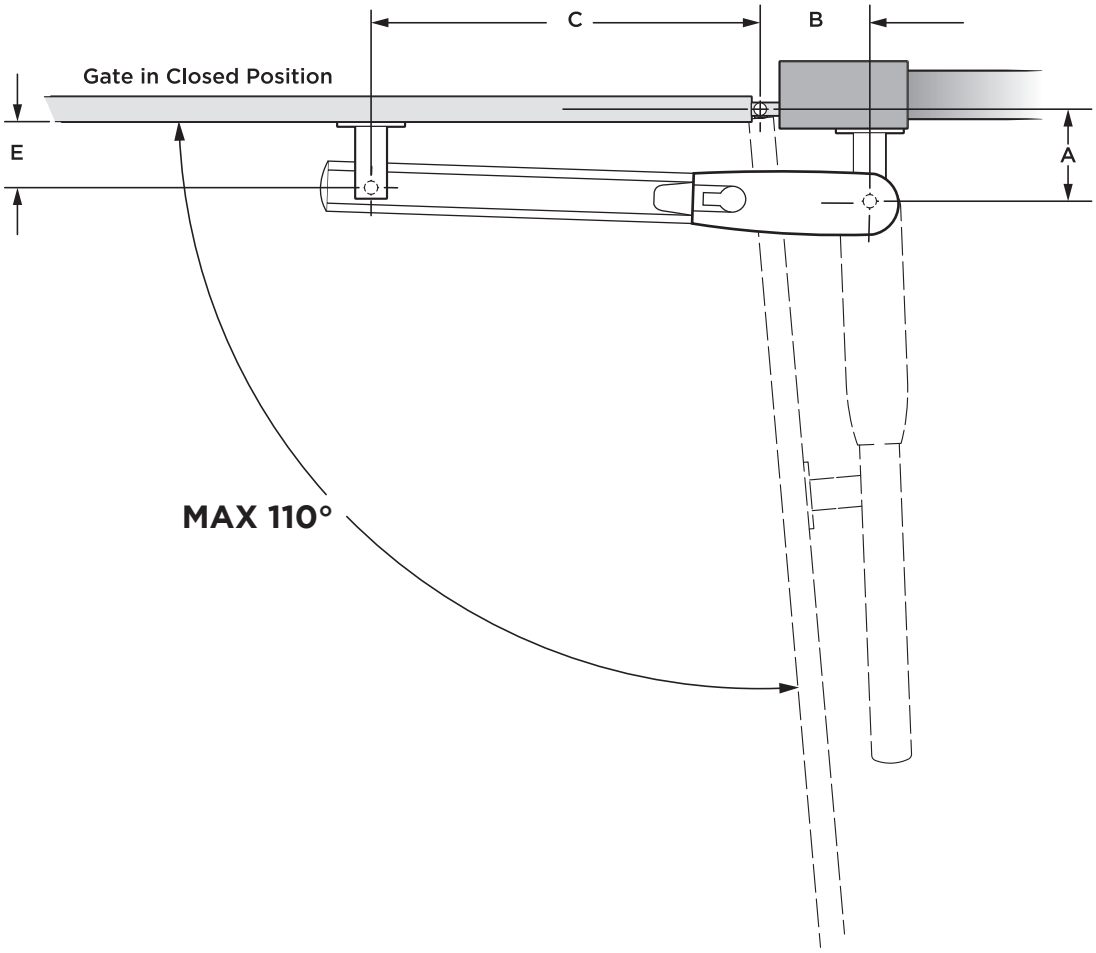
21. FEATURE ACTIVATION PIN HEADERS
activate features by placing a jumper onto the pin headers. pg 25

GATE OPERATOR INSTALLATION

Pull to Open Installation Option

This application is typically used to open the gate towards the inside of the property. The operator will "**PULL**" the gate to open.

1. The gate must be installed in a location so that enough clearance is provided between the gate and adjacent structures to reduce the risk of entrapment when opening and closing.
2. Swing gates are not to open into public access areas.



ALL DIMENSIONS ARE MEASURED IN INCHES

Range	A	B	C	E
90°	6.50 - 9.50	3.75 - 7.00	24.000	4.750
110°	6.50	7.00	24.000	4.750

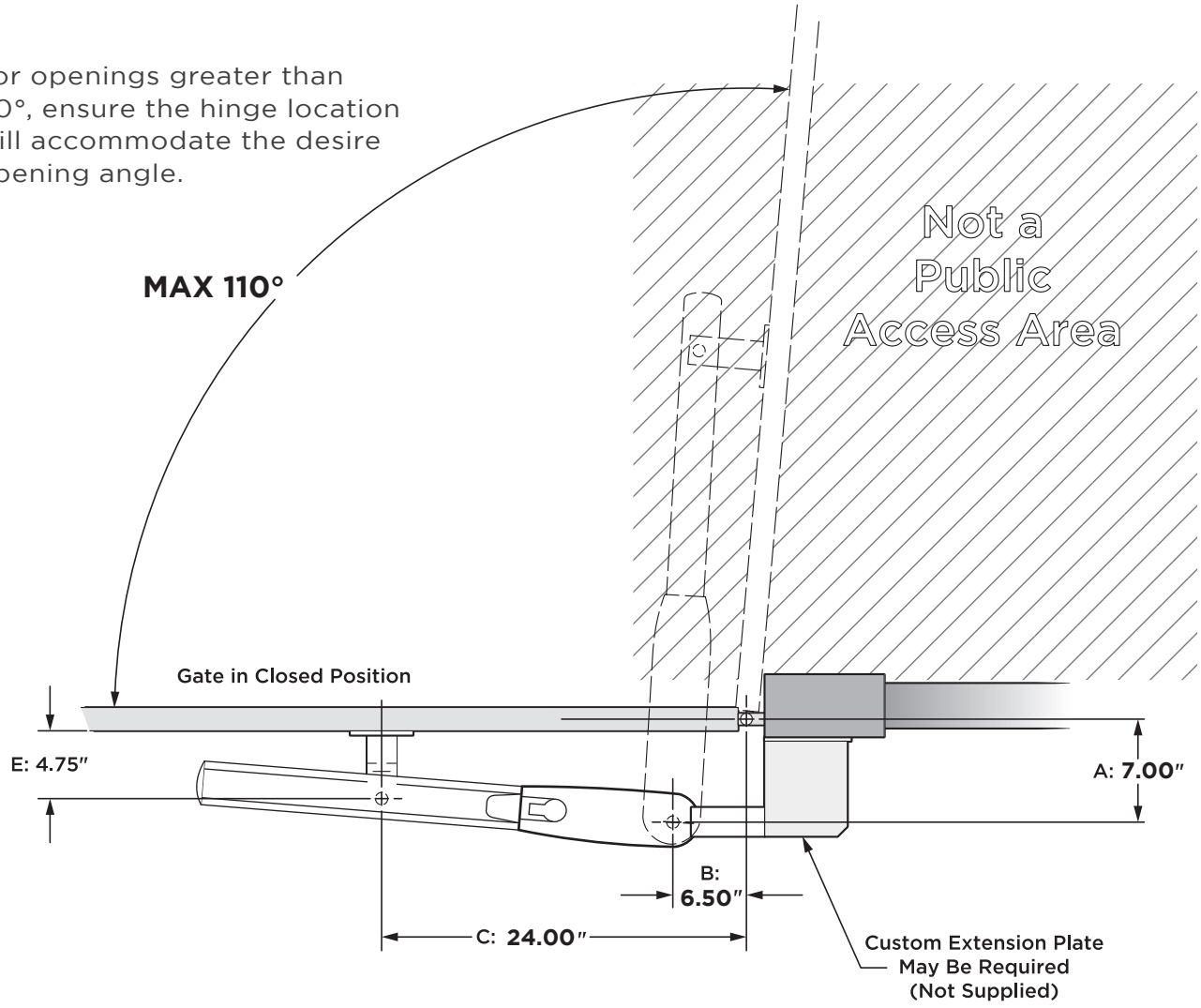
! Varying from the dimensions provided above may severely affect the speed and performance of the gate operator.

Push to Open Installation Option

This application is typically used to open the gate towards the outside of the property. The operator will "**PUSH**" the gate open.

1. The gate must be installed in a location so that enough clearance is provided between the gate and adjacent structures to reduce the risk of entrapment when opening and closing.
2. Swing gates are not to open into public access areas.

⚠ For openings greater than 90°, ensure the hinge location will accommodate the desire opening angle.



! Varying from the dimensions provided above may severely affect the speed and performance of the gate operator.

GATE OPERATOR INSTALLATION

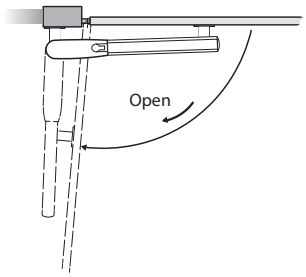
Rear Mounting Bracket

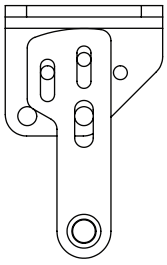
The following configurations are just samples that indicate the flexibility of this bracket.

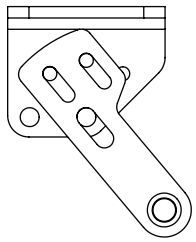
- The gate hinge location will determine the configuration you will choose to achieve the A and B dimensions on pages 12-13.
- When possible, it is best to use all 3 Bolts provided to secure the Extension Bracket to the Wall Bracket and torque specifications provided.

TECHNICAL TIP: Multiple configurations can be used to achieve the same A and B dimensions.

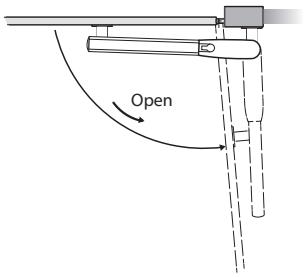
Pull to Open Left

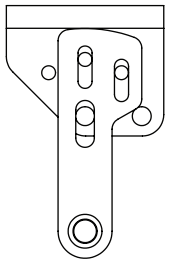


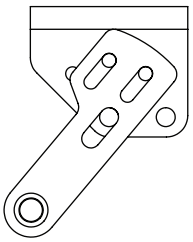




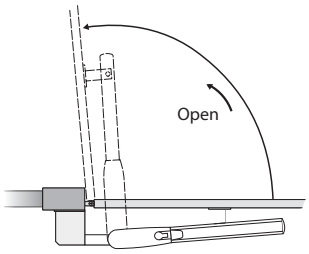
Pull to Open Right

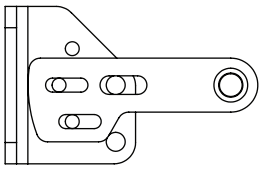




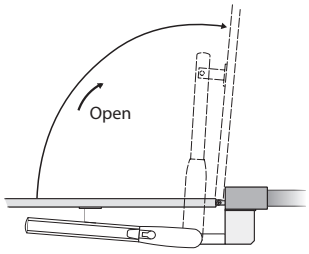


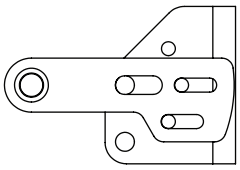
Push to Open Left



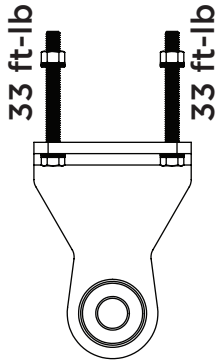


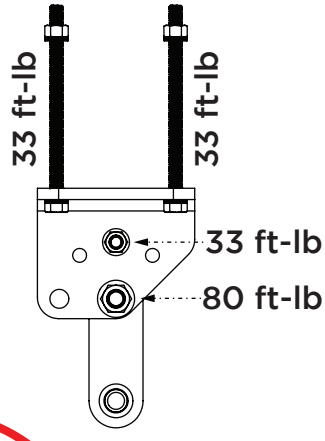
Push to Open Right



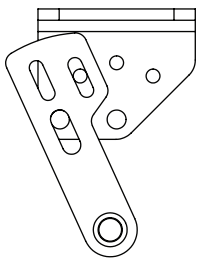


Torque Specifications:

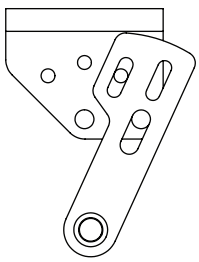


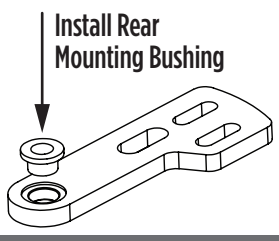


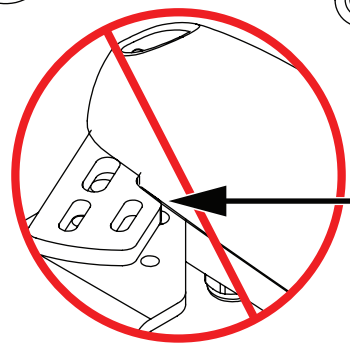
110° Open Left



110° Open Right



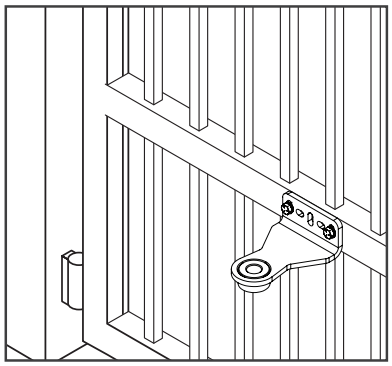




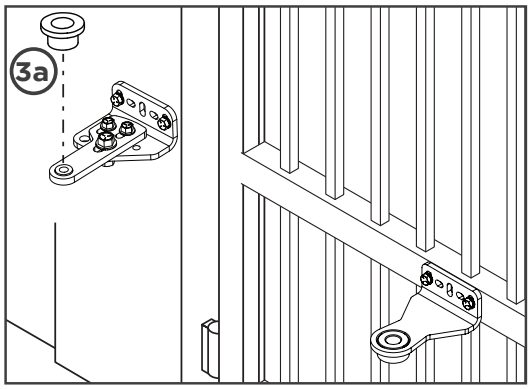
GATE OPERATOR INSTALLATION

⚠ **Caution:** If the Front Mounting Bracket is not attached to a frame member that runs the full length of the gate, the gate operator may damage the gate. DO NOT attach the bracket or backing plate to just a few pickets.

Mounting the Gate Operator







STEP 1

Front Mounting Bracket:

a. Position the bracket according to the dimensions provided on pages 12-13.

b. Ensure the bracket is level and affix in place.

⚠ The E-4 Operator MUST be mounted level. The Front Bracket will be offset lower than the Rear Bracket.

STEP 2

Back Mounting Bracket:

a. Position the bracket according to the dimensions provided on pages 12-14.

b. Ensure the bracket is level and affix in place.

⚠ The E-4 Operator MUST be mounted level. The Rear Bracket will be offset higher than the Front Bracket.

STEP 3

Mount the Gate Operator:

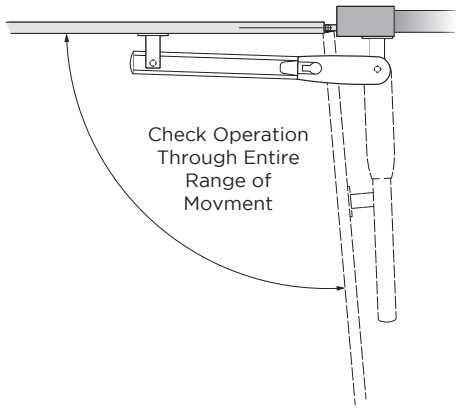
a. Install the Rear Mounting Bushing.

b. Install the operator onto the Front Mounting Bracket first then the Back.

⚠ Ensure the E-4 Operator is level.

c. Manually Release the E-4 Operator. Refer to page 7.

d. Manually move the gate to ensure the gate and operator moves freely.



STEP 4

Complete the Installation:

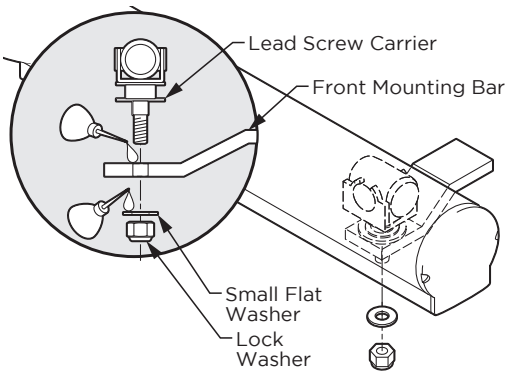
a. Dismount the operator.

b. Complete the welding process.

c. Lubricate the front bracket pivot point.

d. Reinstall the gate operator and verify once again that the gate moves freely.

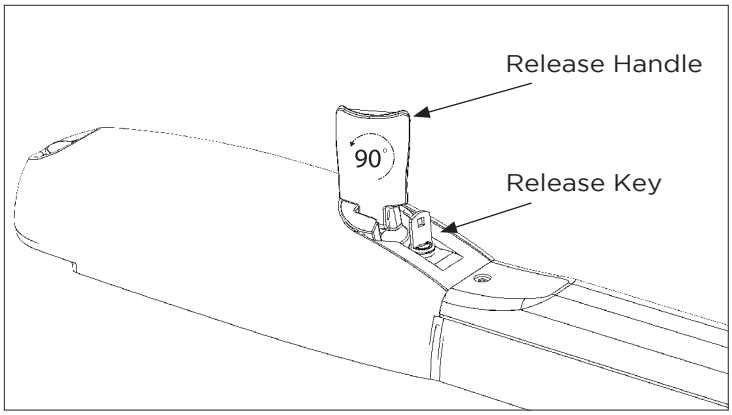
e. Rotate the Manual Release Handle clockwise to the engage position.



GATE OPERATOR INSTALLATION

Limit Position Setup

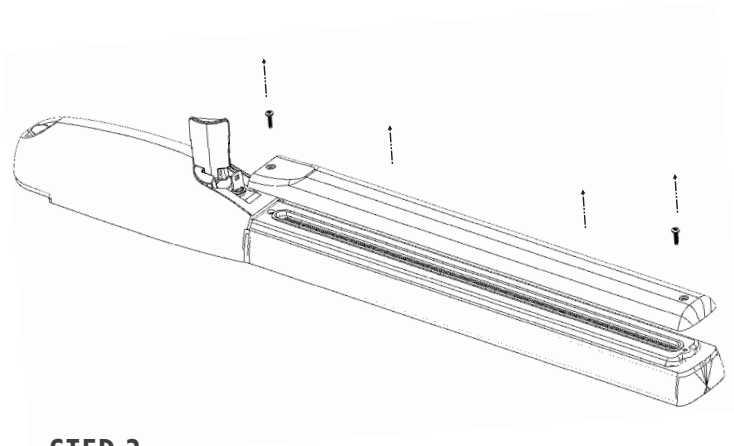
⚠ **IMPORTANT:** The gate operator uses positive stops to set the limits.



STEP 1

Manually Release the E-4 Operator:

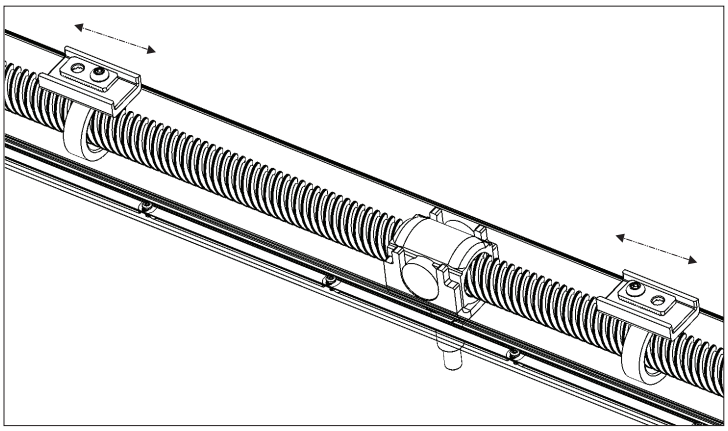
a. Lift the Release Handle.
b. Insert the Release Key and rotate Key to unlock the Handle .
c. Rotate Handle counter clockwise.



STEP 2

Remove the Lead Screw Cover:

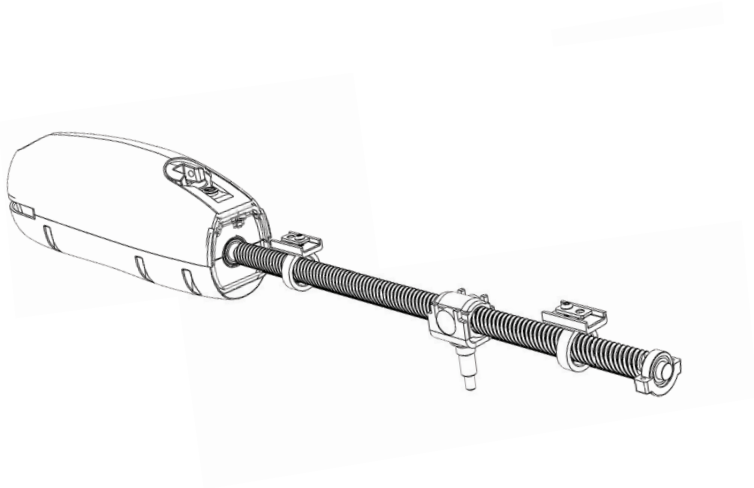
a. Remove the cover mounting screw.
b. Remove the Lead Screw Cover.



STEP 3

Set the Limit Positions:

a. Manually position the gate to the desired Close Limit Position.
b. Loosen the setscrews for the Close Positive Stop and slide the Stop up against the Lead Screw Carrier.
c. Re-secure the Close Positive Stop when the proper position has been determined. Ensure it is tightly secured.
d. Repeat the above steps for the Open Limit Position.



STEP 4

Verify the set Limit Positions:

a. Re-engage the manual release.

b. Run the operator three full cycles to verify that the limits are set at the desired positions.

⚠ **TECHNICAL TIP:** The Limit LEDs will illuminate solid when the limit position is set and the operator is at the corresponding limit.

ECU BOX INSTALLATION

Mounting the ECU Box

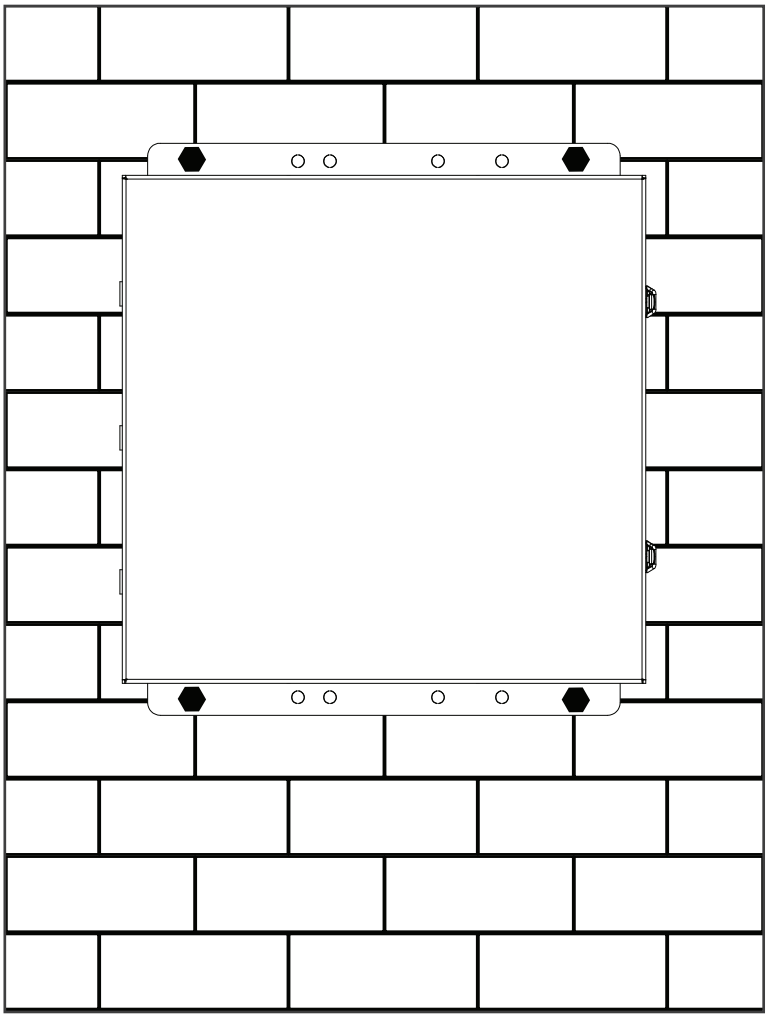
⚠ **WARNING:** If the control box is not mounted properly it may fall, causing damage and/or injury. The Electronic Control Unit (ECU) weight is approximately 40 lbs. Be sure that the substrate being mounted to and the fasteners being used are appropriate to support the weight of the control box.

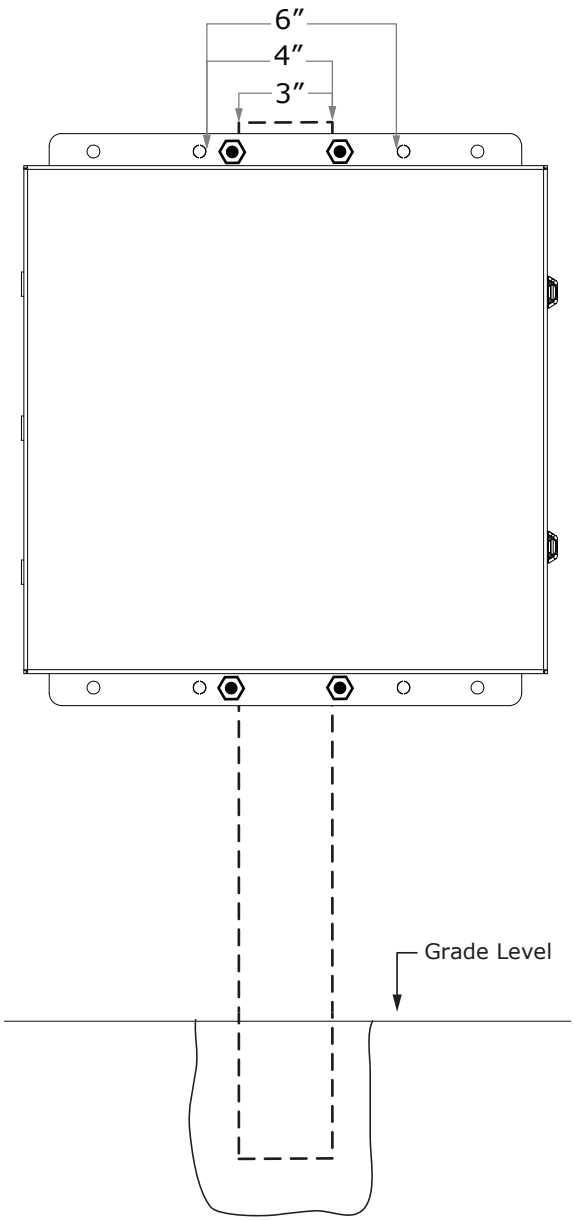
Substrate Mounting Option

- Hardware is not provided.
- Use 3/8” hardware.
- Consult local codes and guidelines.

Post Mounting Option

- Hardware is not provided.
- Use 3/8” hardware.
- 3”, 4” or 6” square post.
- Consult local codes and guidelines.





ELECTRICAL INSTALLATION

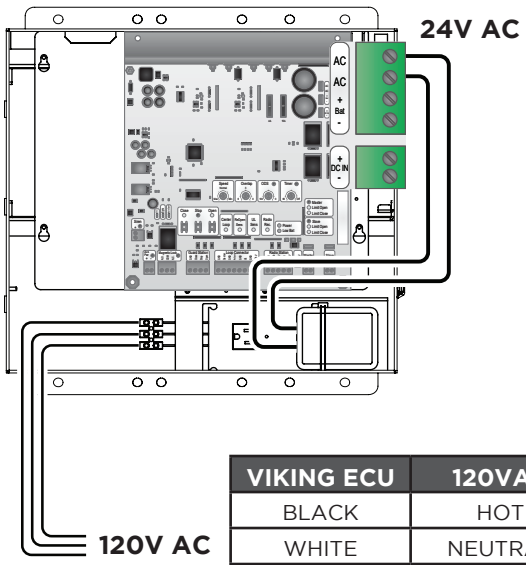
⚠ Caution: Always turn off power breakers when working with high voltage. DO NOT connect the "Power Harness" to the Control Board until the electrical installation is complete and ready for verification. To reduce the risk of electric shock, this equipment (external plug-in transformer) has a grounding type Plug, that has a third (grounding) pin. This plug will only fit into a grounding type outlet. If the plug does not fit into the outlet, contact a qualified electrician to install the proper outlet. Do not change the plug in any way.

Plug-In Transformer Power Supply

The ECU equipped with a 24VAC plug-in transformer as the power supply and pre-wired to the Control Board for your convenience.

FACTORY CONFIGURATION:

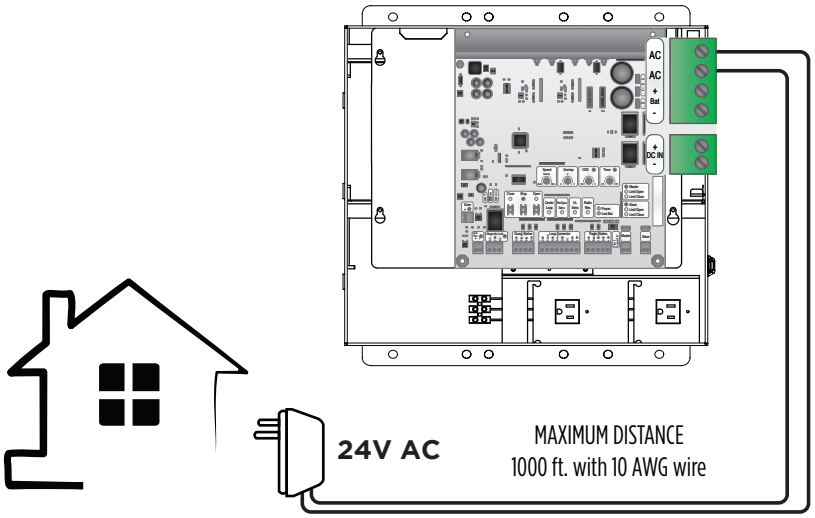
Following local codes or guidelines, provide 120VAC power to the receptacles.



VIKING ECU	120VAC
BLACK	HOT
WHITE	NEUTRAL
GREEN	GROUND

ALTERNATIVE OPTION:

Plug the Plug-in Transformer into the nearest 120V receptacle and connect to the GREEN and WHITE "AC" wires of the "Power Harness". Polarity is not important.

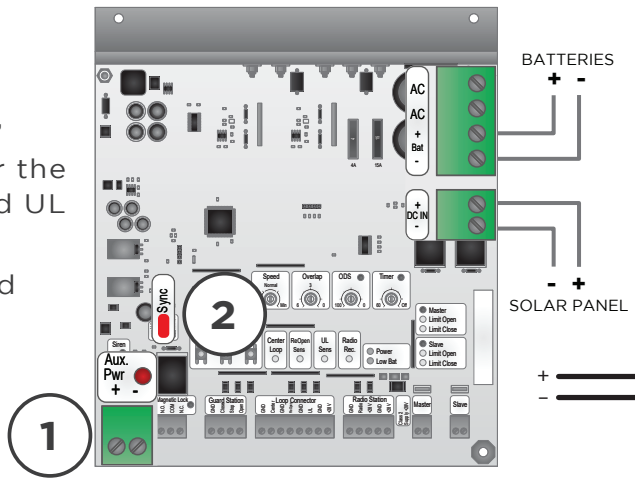


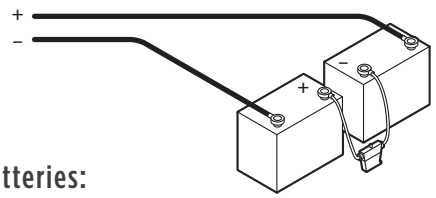
Solar Supply Option

NOTE: 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 with solar power.

⚠ IMPORTANT:

1. Use the"Aux PWR" terminals to power the required Monitored UL device(s).
2. Install the provided jumper (shunt) on to the Pin Headers labeled "Sync".





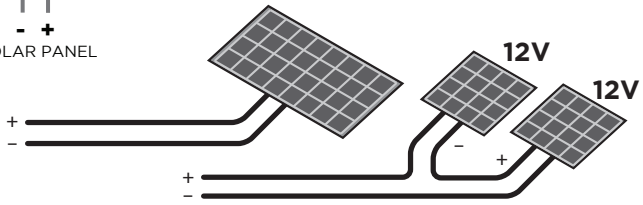
Batteries:

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

NOTE: Replace the operator batteries

Panel(s):

- Voltage 24V
- Wattage 80W



ELECTRICAL INSTALLATION

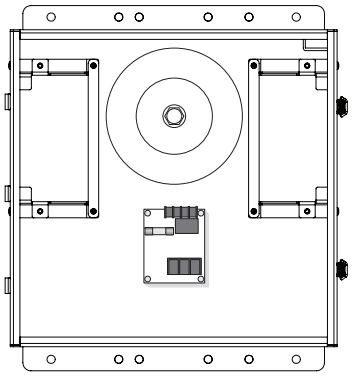
⚠ **Caution:** Always turn off power breakers when working with high voltage. DO NOT connect the "Power Harness" to the Control Board until the electrical installation is complete and ready for verification. To reduce the risk of electric shock, this equipment (external plug-in transformer) has a grounding type Plug, that has a third (grounding) pin. This plug will only fit into a grounding type outlet. If the plug does not fit into the outlet, contact a qualified electrician to install the proper outlet. Do not change the plug in any way.

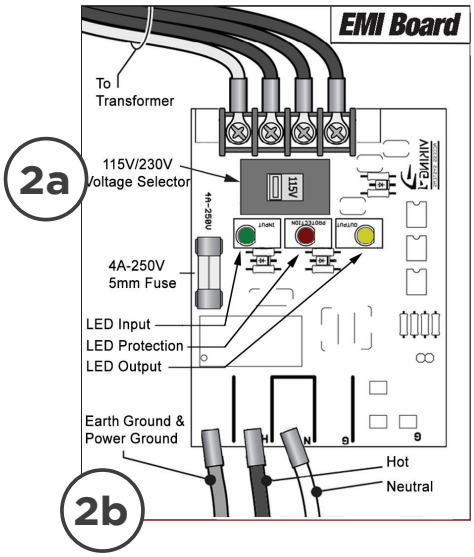
High Voltage Supply Option

STEP 1

Optional EMI Board and Toroidal Transformer:

a. Mount the optional EMI Board and Toroidal Transformer to the ECU Cabinet with the provided hardware.





STEP 2

⚠ **WARNING:** SINGLE PHASE AC ONLY

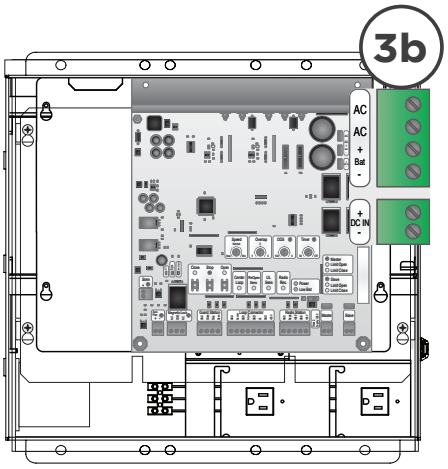
At the "EMI Board":

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

b. Connect the incoming power wires to the terminals as shown in the illustration.

c. Ground the ECU cabinet according to local code or guidelines.

d. Turn on the main facility breaker and verify that all three (3) Status LEDs are illuminated on the EMI Board.



STEP 3

At the Control Board:

a. Reinstall the Control Board Mounting Plate with the Control Board.

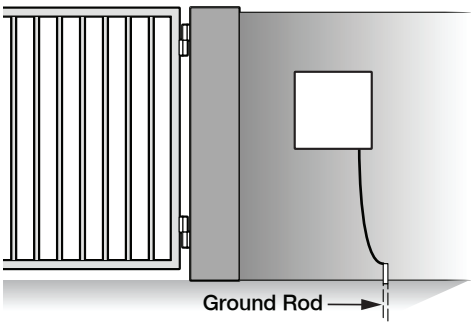
b. Connect the black outbound wires from the Toroidal Transformer to the Green and White "AC" wires of the "Power Harness". Polarity is not important. Verify the "POWER" LED is illuminated solid.

c. Reconnect all other harnesses.

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 underground 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.



ELECTRICAL INSTALLATION

Motor Cable - Master (Single)

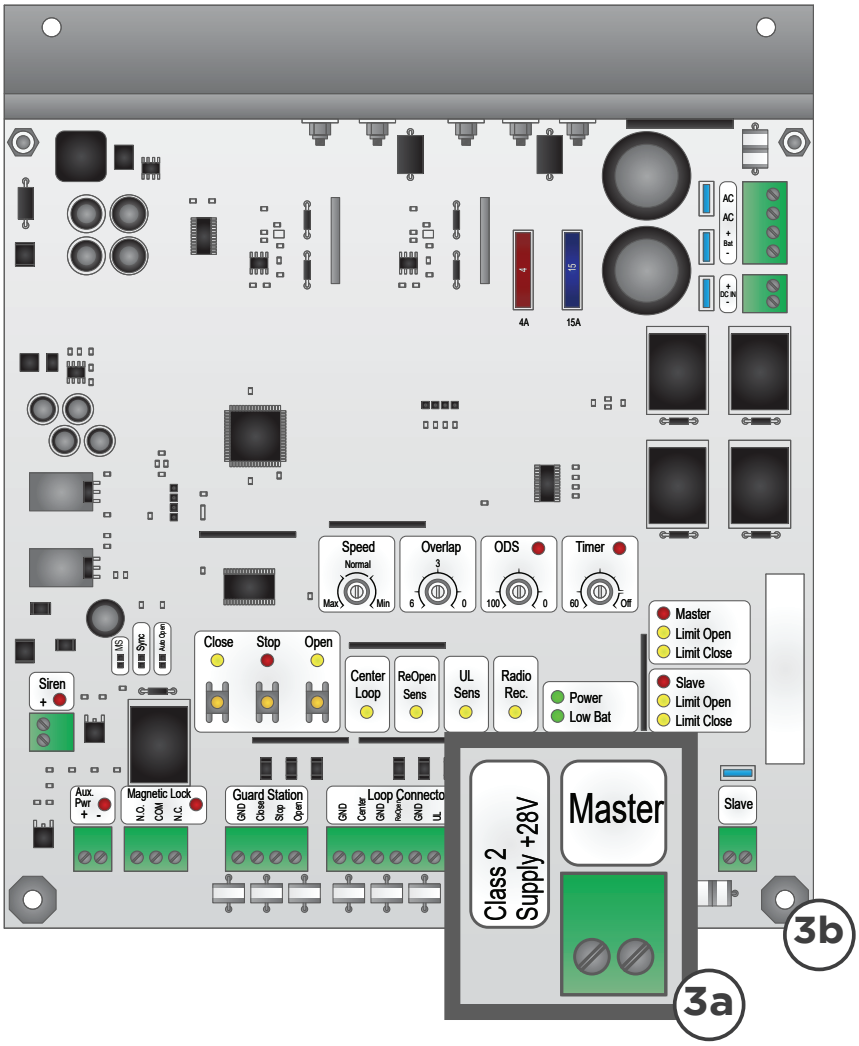
NOTE: The position of the motor wires will dictate in which direction the motor will travel when given an open or close command.

STEP 3

Master Motor:

a. Connect motor wires to the "Master" Terminal Block, according to the opening direction as described below.

b. Attach the grounding wire, non insulated, to the Board Mounting Plate using the screw provided.



Motor Wires Polarity

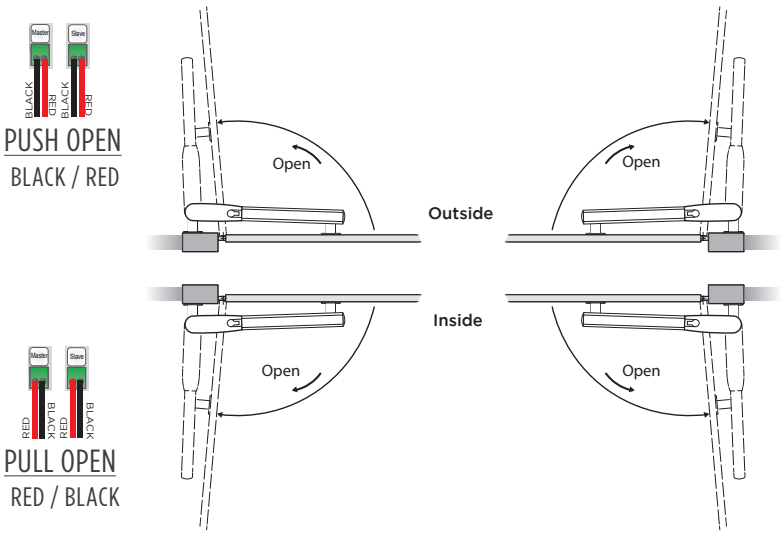
Master Pull or Push to Open:

Connect the motor wires to the "Master" Terminal Block according to the opening direction.

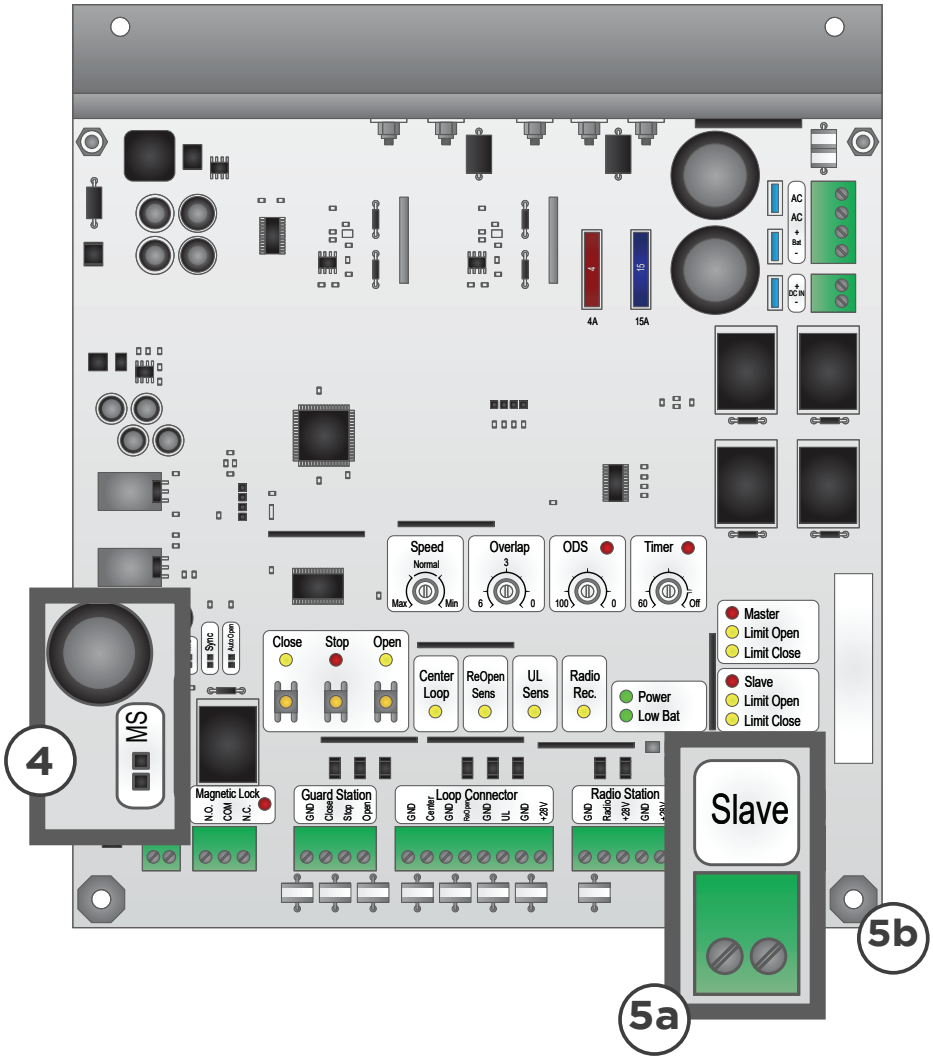
Distance from Control Board	Cable Wire Gauge
50 Feet	16 AWG
100 Feet	12 AWG

Motor Cable Length/Gauge Relationship

⚠ IMPORTANT: Cable shall be shielded with drain wire. Connect drain wire to chassis ground of both the E-4 operator and the Control Board.



Motor Cable - Master (Dual)



STEP 4

Master/Slave Configuration:

a. Install a jumper onto the “MS” Pin Header.

STEP 5

Slave Motor:

a. Connect motor wires to the “Slave” Terminal Block, according to the opening direction as described on Page 20.

b. Attach the grounding wire, non insulated, to the Board Mounting Plate using the screw provided.

ELECTRICAL INSTALLATION

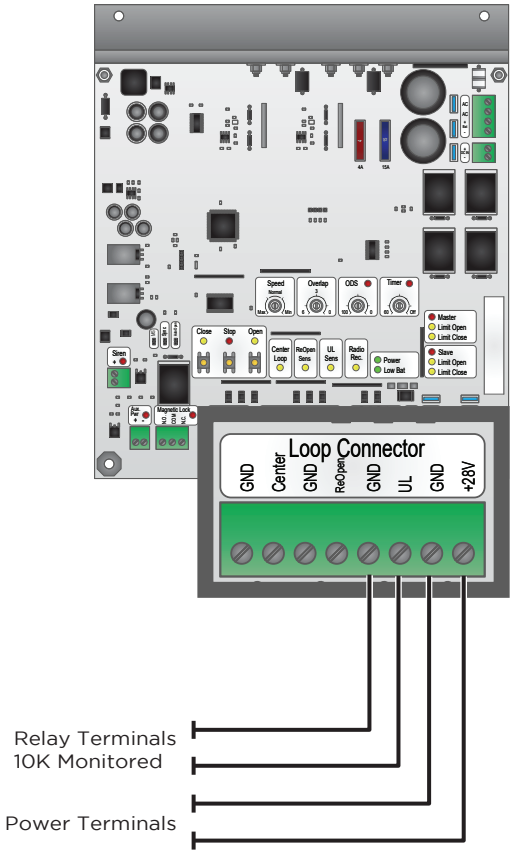
MONITORED UL SENSOR CONNECTIONS

UL (Monitored Input Terminal)

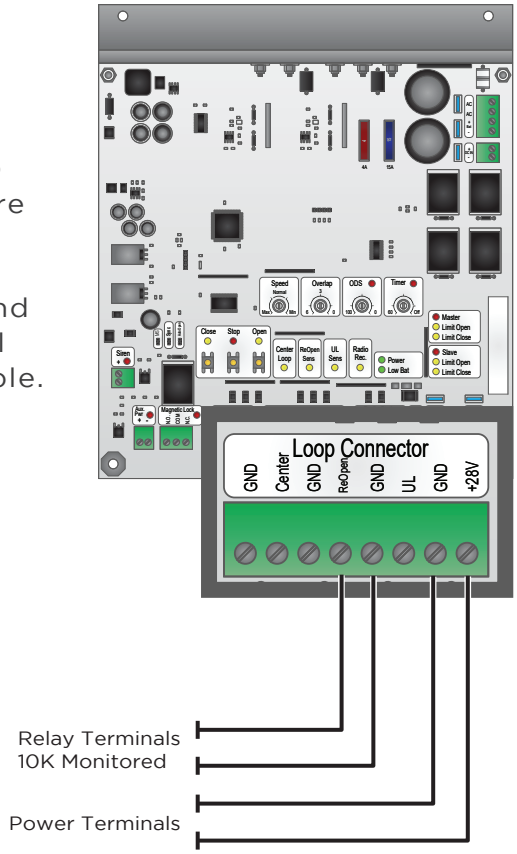
The “UL” input terminal protects against entrapment in both the opening and closing directions. Input will reverse the gate momentarily in the opposite direction it was traveling when a connected device it triggered. Pages 6-7.

Re-Open (Monitored Input Terminal)

The “Re-Open” input terminal protects against entrapment in the closing direction ONLY. Input will reverse the gate all the way to the Open Limit when a connected device it triggered. Pages 6-7.



NOTE: The “Stop” LED will be flashing if there is a failure with at least one monitored entrapment sensor and the gate operator will be rendered inoperable.



Check for proper operation:

When a connected device is triggered, the “UL” LED will illuminate and, if more than one Monitored device connected, the “Stop” LED will flash rapidly to indicate an input.

⚠ If more than one Monitored device is connected to this terminal, the “UL” LED will be illuminated. This alone is inconsequential.

Check for proper operation:

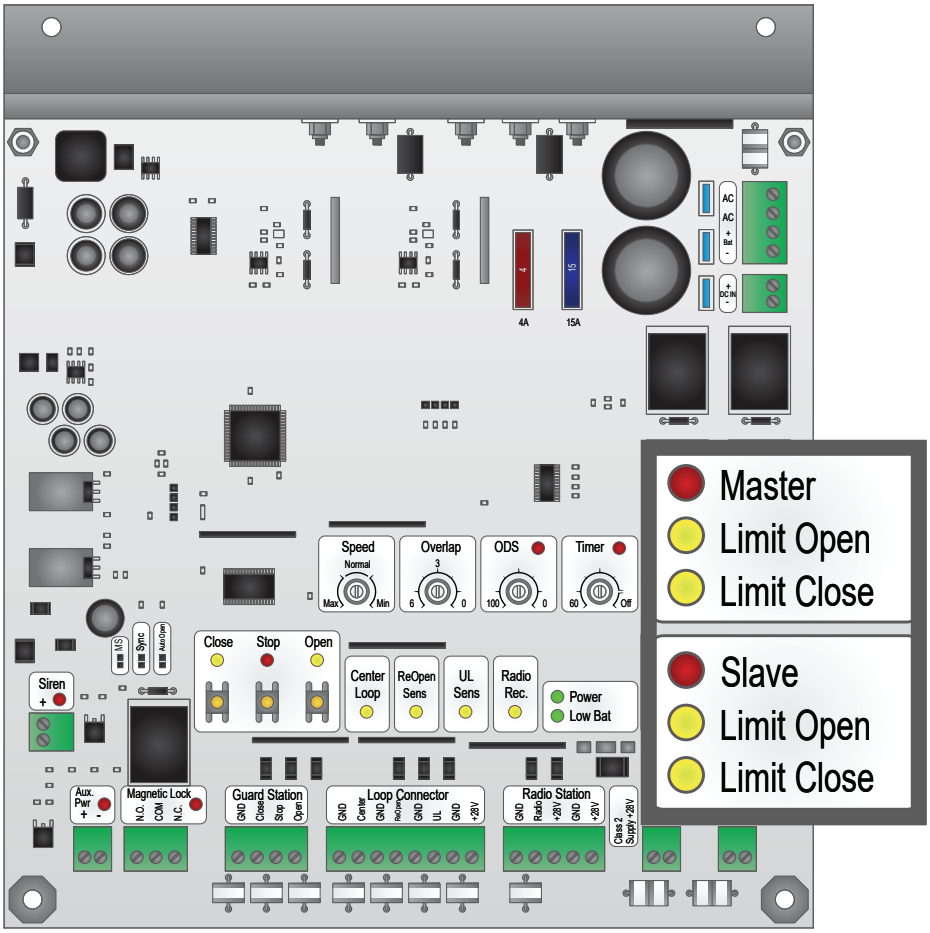
When a connected device is triggered, the “Re-Open” LED will illuminate and, if more than one Monitored device connected, the “Stop” LED will flash rapidly to indicate an input.

⚠ If more than one Monitored device is connected to this terminal, the “Re-Open” LED will be illuminated. This alone is inconsequential.

⚠ **TECHNICAL TIP:** For more information regarding accessory connections to the Control Board and individual input terminal functions, refer to pages 28-29.

LIMIT INDICATIONS

⚠ **IMPORTANT:** The gate operator uses positive stop limits. Refer to page 16 for specific instructions on how to set the limit positions for this gate operator. After the limit positions have been set, the Limit LEDs will illuminate solid when this operator reaches its corresponding limit.



CONTROL BOARD SETUP

Initial Settings

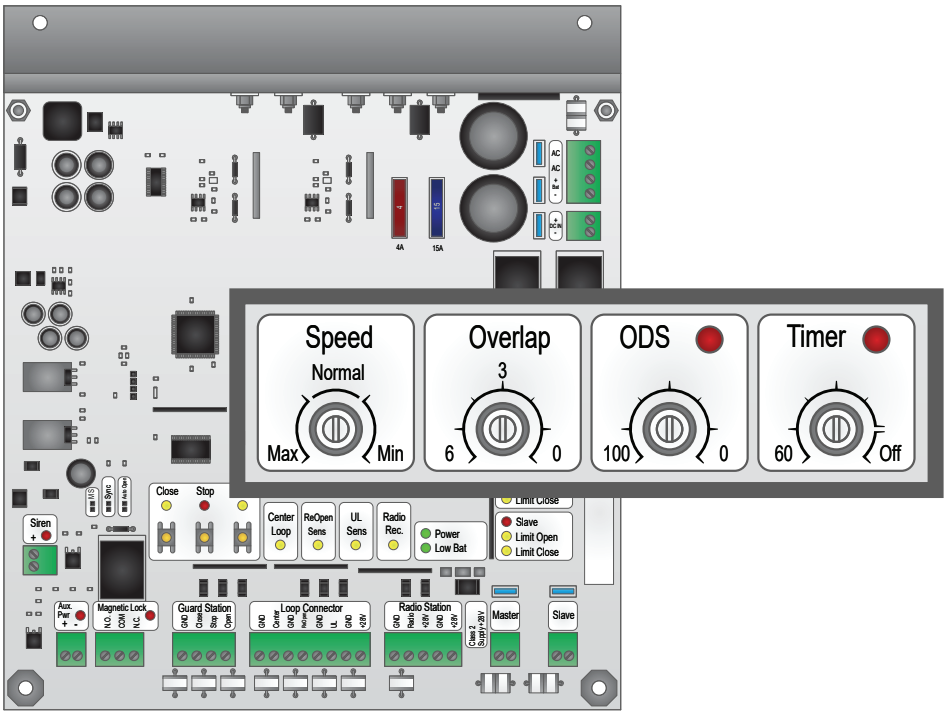
“Speed”
Soft Stop Speed

Increases or decreases the speed of Soft Stop portion 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.

⚠ For Primary/Secondary or dual applications, the Primary will delay to open and the Secondary will delay to close.

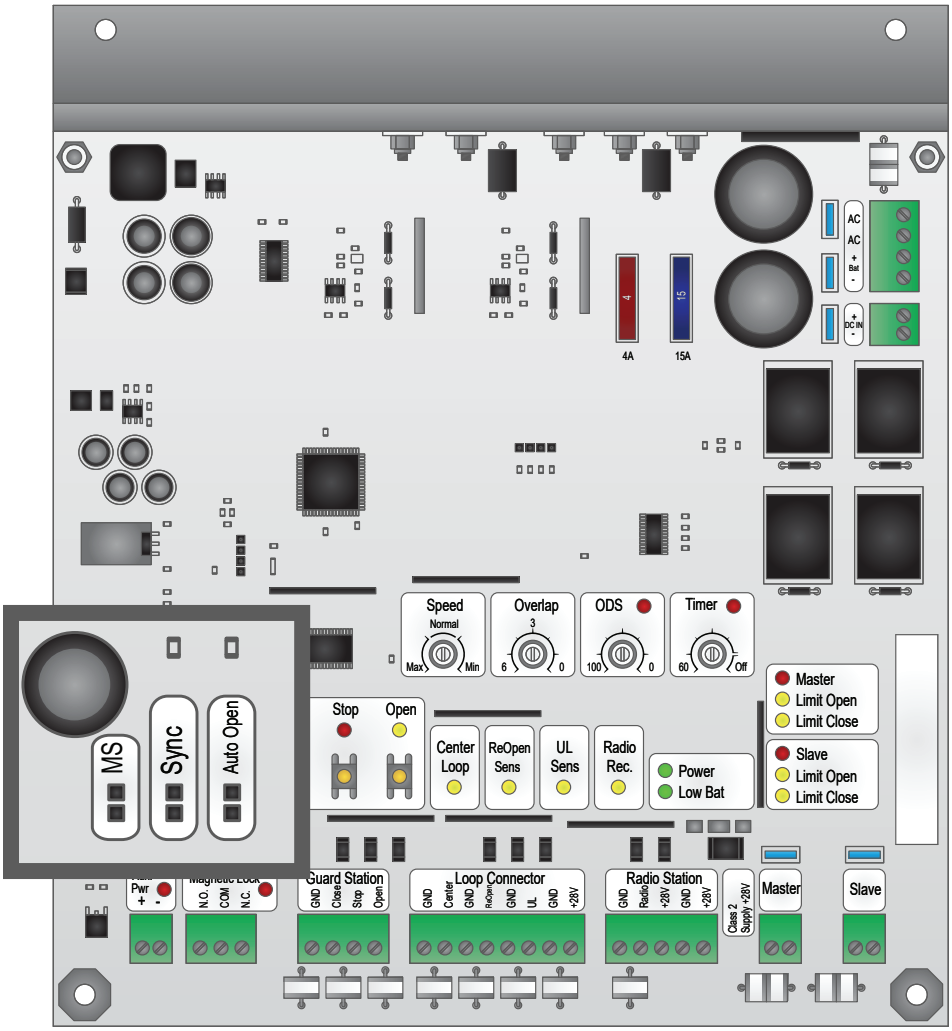
“Timer”
Hold Open Timer

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.

Initial Settings

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



"MS" Used only for dual gate applications. Activating this feature will allow the Control Board to operate two E-4 gate operators for dual gate applications. Refer to page 21.

"Auto Open" - Power Failure Option
Opens the gate automatically during power failure. Resumes normal operation when power is restored.

"Sync" Used for Solar Power application. Allows required UL Monitored devices to power up and stabilize after wake up from Sleep Mode. Refer to page 18.

CONTROL BOARD SETUP

Obstruction Detection Sensor (ODS)

⚠ **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

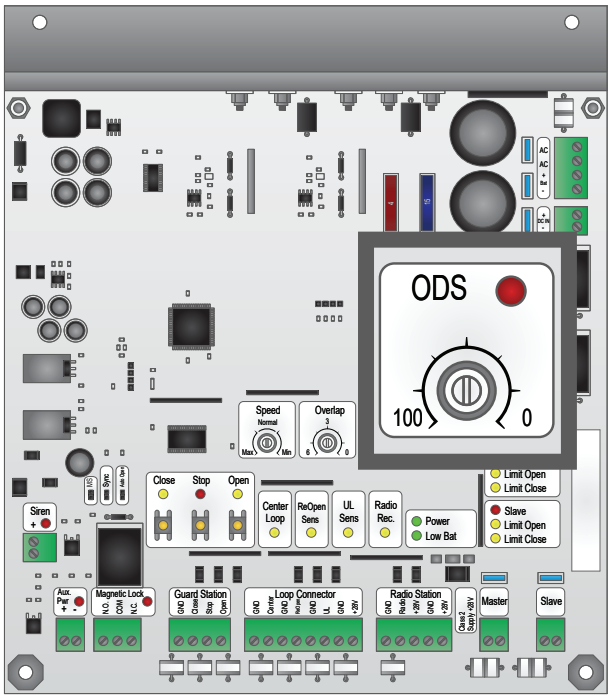
The Obstruction Sensor detects obstructions in the path of the traveling gate. The dial sets the amount of force required to activate the operators inherent obstruction detection.

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.

UL 325 standard requires an audible alarm to go off after two consecutive entrapment events sensed by the Inherent Entrapment Protection of the Gate Operator.

The audible alarm will sound for a period of 5 minutes or until a Stop command or the "Alarm Reset" switch has been actuated. (refer to page 8)



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.

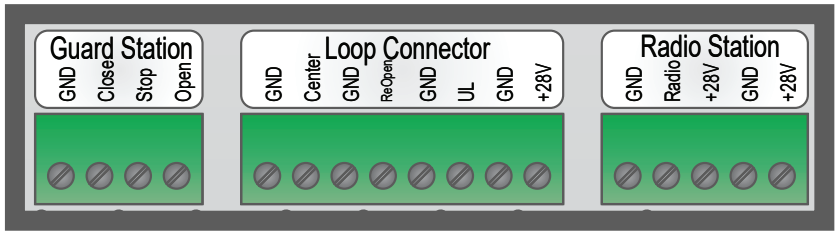
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ACCESSORY CONNECTIONS

Access Control Connections

Power Connections

The Control Board provides a 24VDC output to power external devices and controls.



"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 6-7 & 22)			**"N.O."**
	If stopped:	Prevents the gate from moving		
	If traveling:	Stops then reverses gate momentarily		
"Re-Open"	(see pages 6-7 & 22)			**"N.O."**
	If stopped:	No function		
	If closing:	Stops then Opens gate		
"Center"				**"N.O."**
	If not at open limit:	No function		
	If at open limit:	Prevents gate from Closing		
"Open"				**"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)

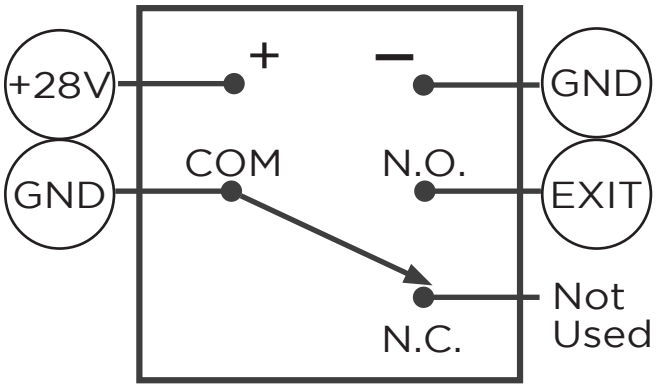
Access Control Connections

Relays 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.*

ACCESSORY CONNECTIONS

Radio Receiver

NOTE: The operator may be supplied with a **XR2N** Radio Receiver PN# 787023 and (2) XT4RC Transmitters PN# 78745301.

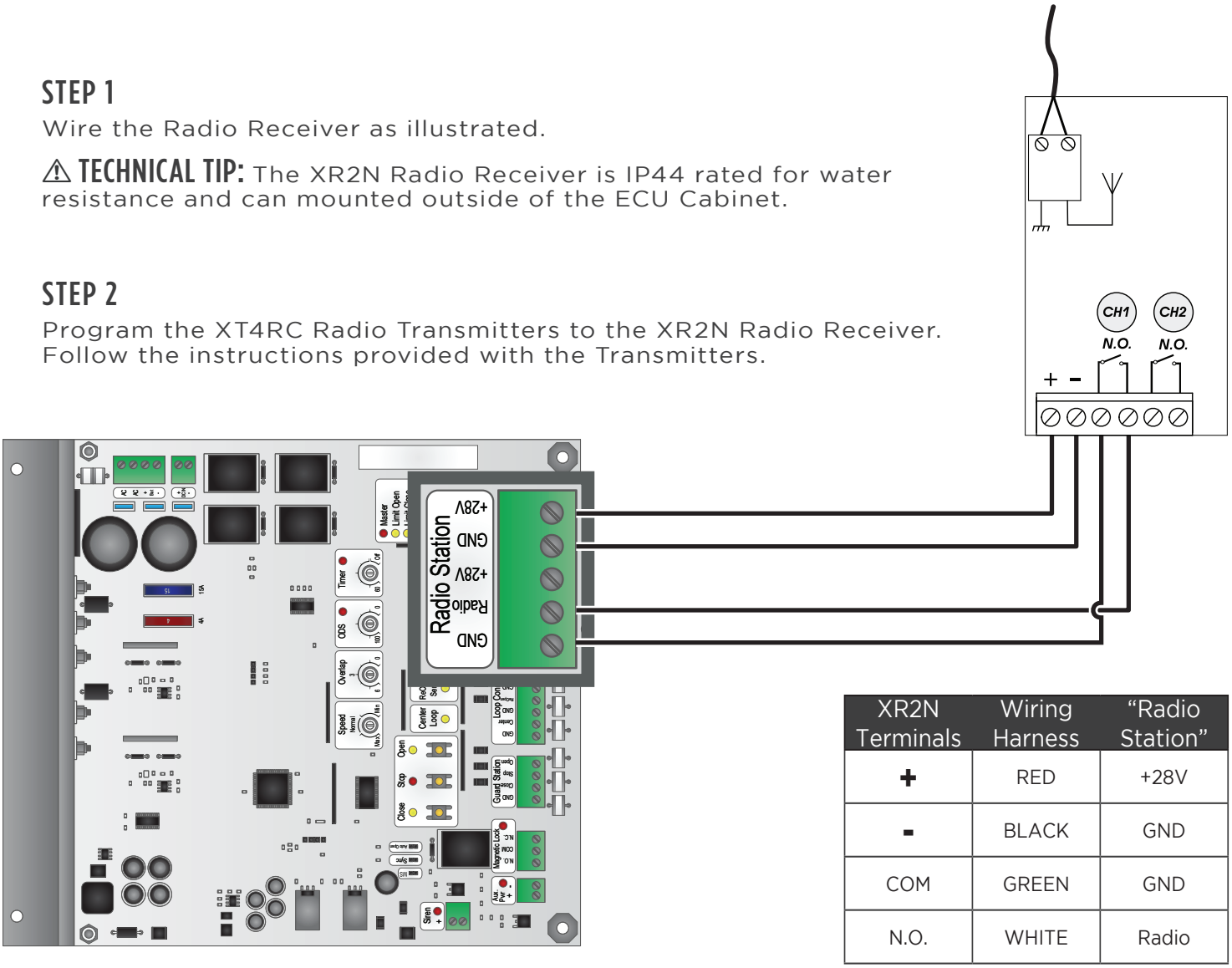
STEP 1

Wire the Radio Receiver as illustrated.

⚠ **TECHNICAL TIP:** The XR2N Radio Receiver is IP44 rated for water resistance and can mounted outside of the ECU Cabinet.

STEP 2

Program the XT4RC Radio Transmitters to the XR2N Radio Receiver. Follow the instructions provided with the Transmitters.



XR2N Terminals	Wiring Harness	"Radio Station"
+	RED	+28V
-	BLACK	GND
COM	GREEN	GND
N.O.	WHITE	Radio

⚠ **TECHNICAL TIP:** The Control Board provides two modes of operation that a radio receiver can control the gate. For more information regarding accessory connections and terminal functions, refer to pages 28-29.

1. Open-Stop-Close

By having the radio receiver connected as illustrated and with the "Timer" OFF:

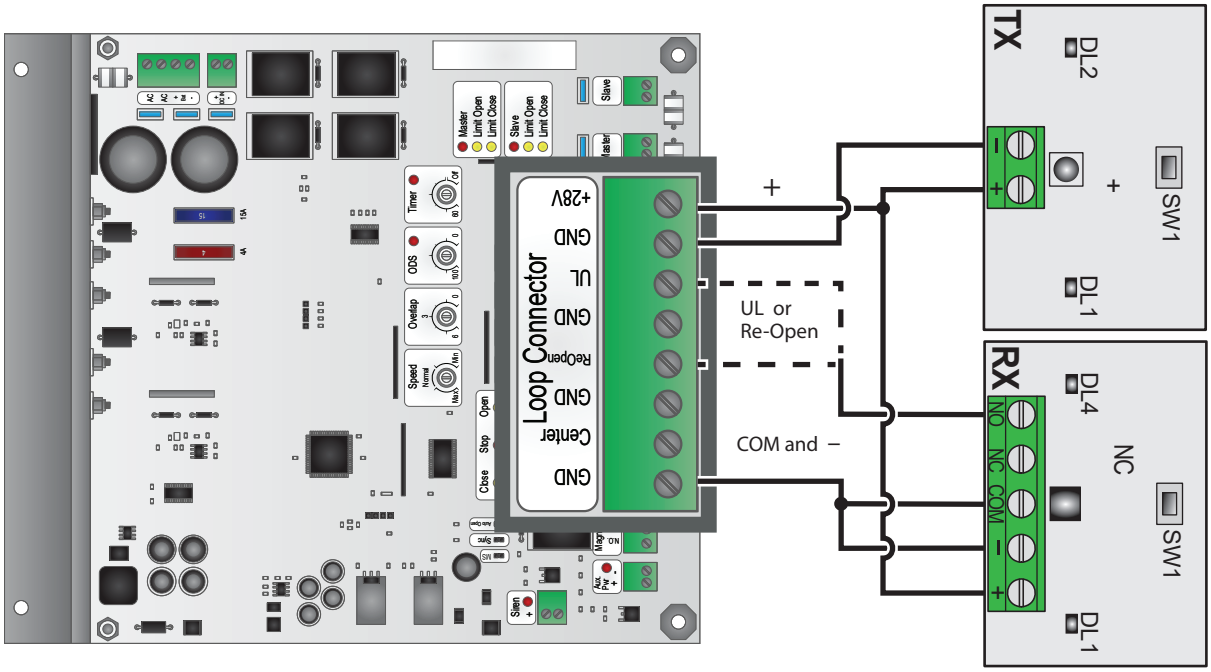
This type of configuration is not recommended for commercial installations.

2. Open Only

By having the radio receiver connected as illustrated and with the "Timer" ON.

Photocell

NOTE: The operator may be equipped with **XP30-10K** Photocell PN# 7871053. Refer to pages 6-7, 22 for UL 325 requirements.

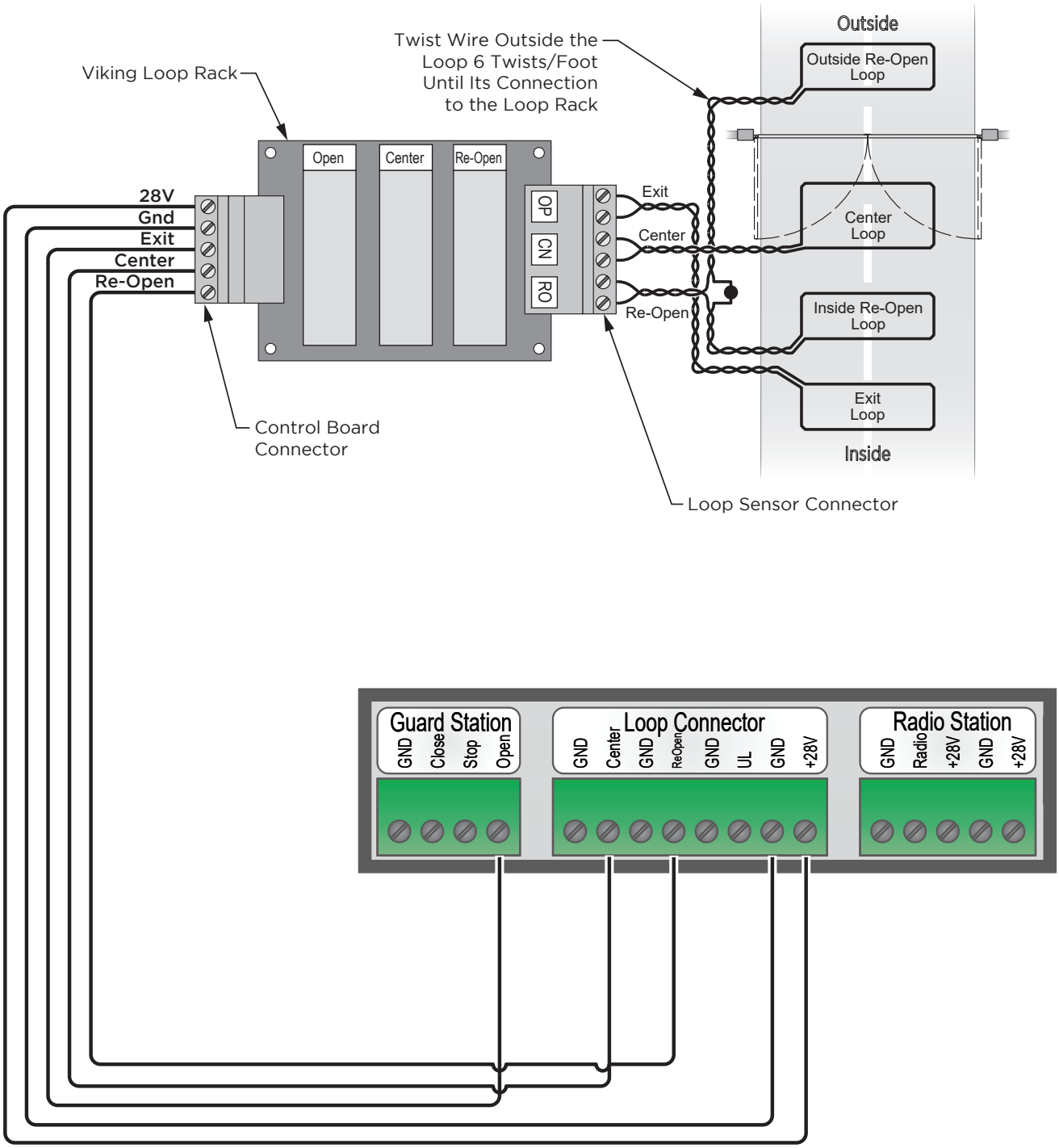


ACCESSORY CONNECTIONS

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.

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

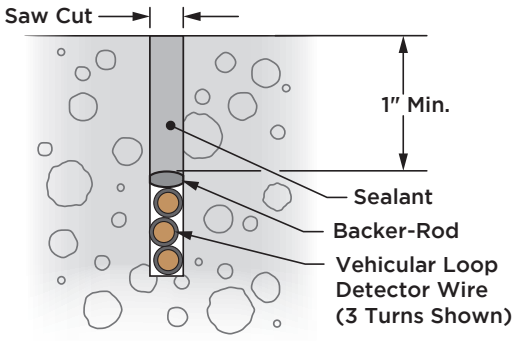


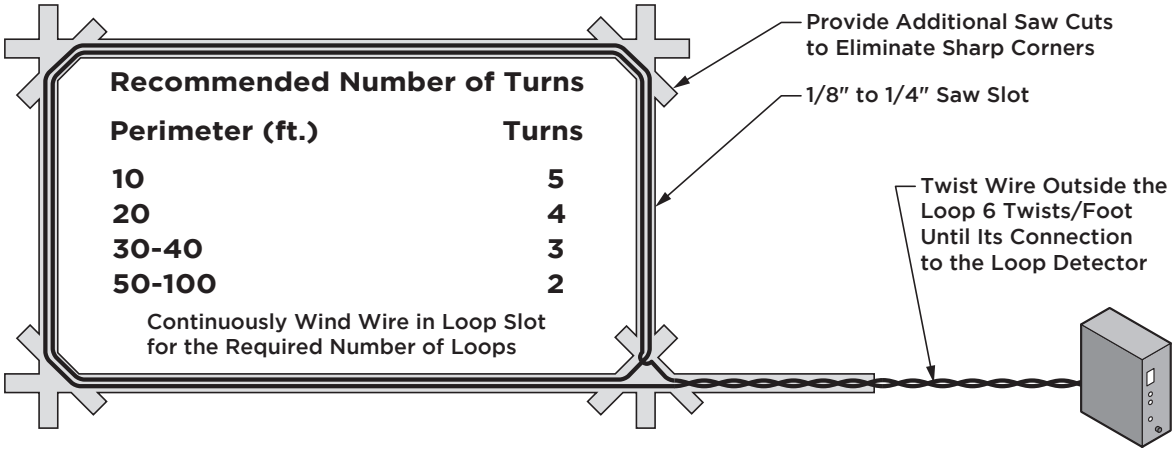
Guidelines for Loop Installation

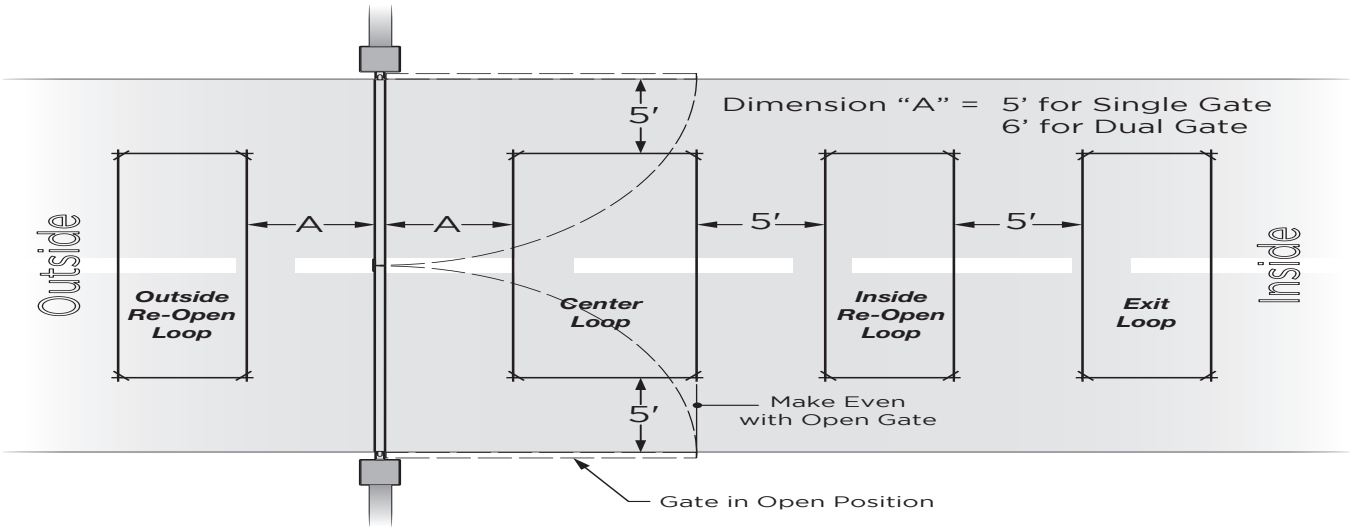
1. Prevent sharp corners in the geometry of the loop sensor.
2. Install the appropriate number of turns for your loop geometry based on the loop perimeter. Use the Table below as a guide.
3. Use XLP (cross-linked-polyethylene) type of wire. This wire reduces the effects of moisture and other environmental 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 as needed.

⚠ **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

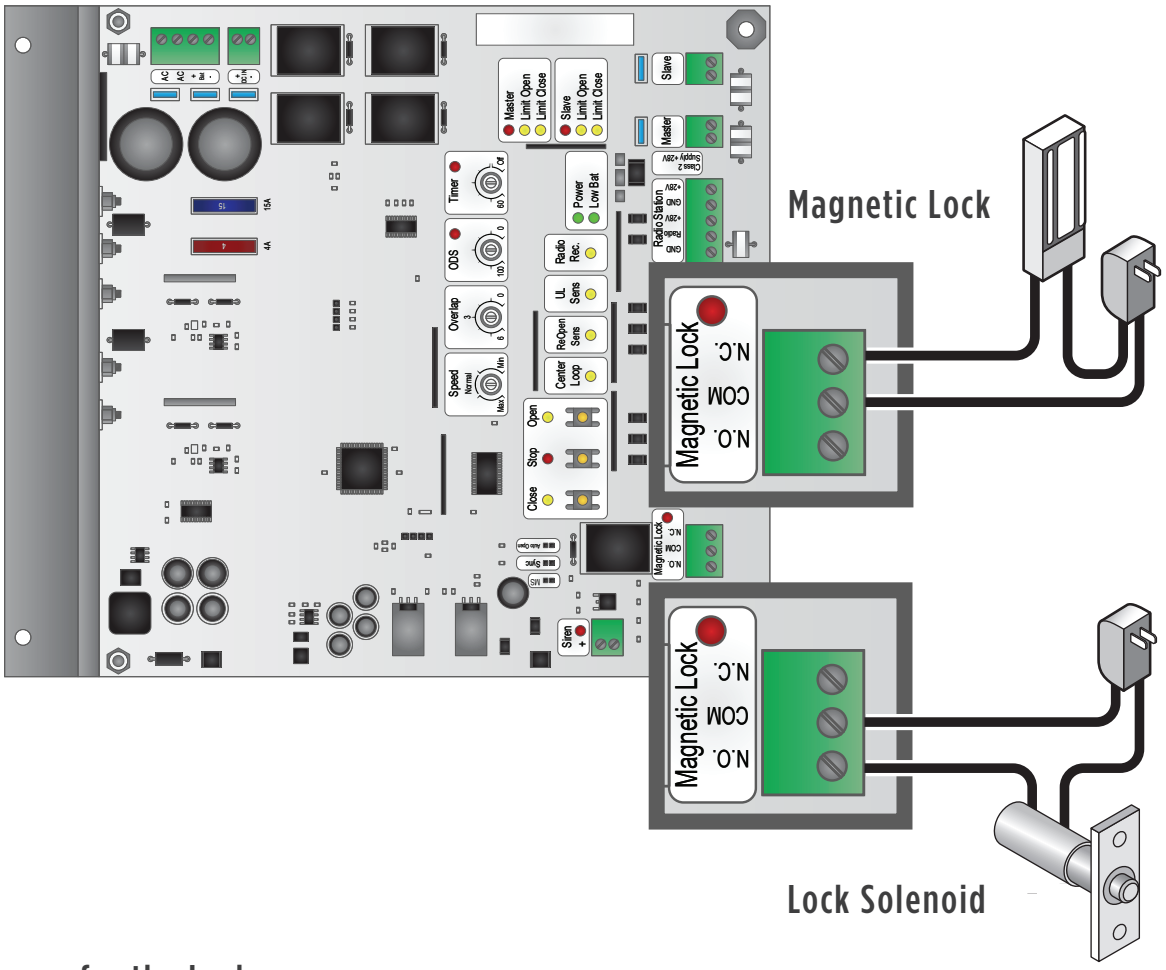






ACCESSORY CONNECTIONS

Magnetic Lock, Lock Solenoid



Power for the Locks:

Do not use the 24VDC power supplied by the Control Board. A Class 2 external power supply or plug-in transformer must be used for the magnetic lock or lock solenoid. 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.

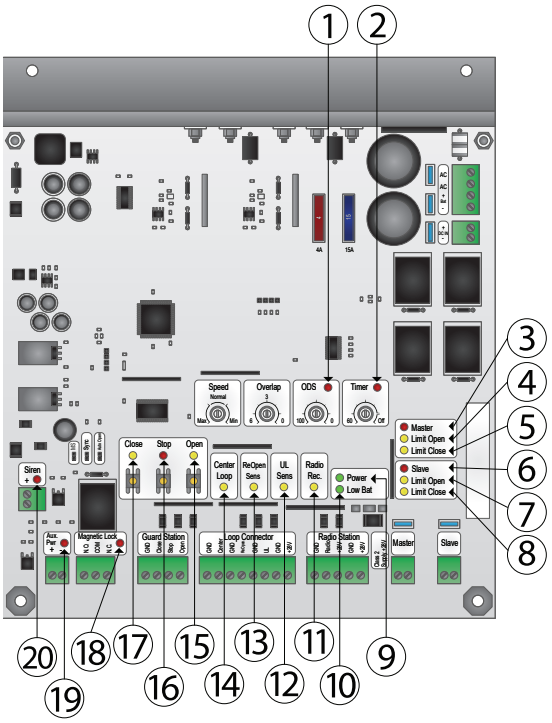
⚠ **TECHNICAL TIP:** The Magnetic Lock Relay LED will indicate status of the on-board relay even if a lock is not connected to the Control Board. Refer to page 37.

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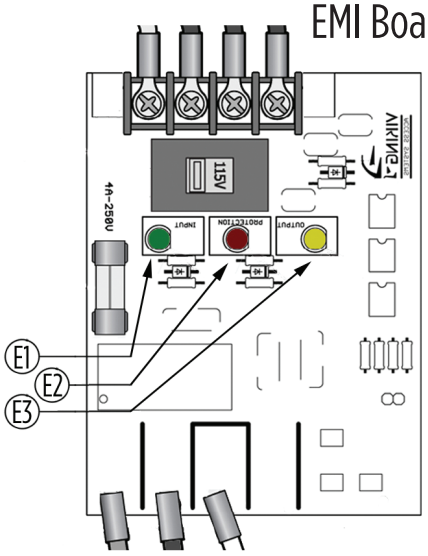
TROUBLESHOOTING

LED References

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 for further troubleshooting.



EMI Board (optional)



Page 38

#	LED	Status	Meaning	TS Ref#(s)
1	"ODS"	OFF	Normal Condition.	
		SOLID	Obstruction event detected from one or both motors. (pg 24, 26)	1-5, 11-13
		FLASHING	Overload event detected from one or both motors. (pg 24, 26)	1-5, 11-13
2	"Timer"	OFF	If gate is at the open limit, the Timer to close is turned OFF. (pg 24)	
		SOLID	Timer to close is ON and counting down to close the gate. (pg 24)	
		FLASHING	Timer is ON but is not timing out due to a conflicting command. (pg 24)	9, 10
3	"Master"	OFF	Normal Condition.	
		SOLID	1: The control board is sending power to the Master motor but the circuit is open preventing the motor from running. 2: In conjunction with the ODS LED, confirms obstruction or overload event.	7, 8 1-5, 11-13
4	M "Limit Open"	OFF	Master gate is not at the open limit position.	
		SOLID	Master gate is at the open limit position.	
5	M "Limit Close"	OFF	Master gate is not at the close limit position.	
		SOLID	Master gate is at the close limit position.	
6	"Slave"	OFF	Normal Condition.	
		SOLID	1: The control board is sending power to the motor but the circuit is open preventing the motor from running. 2: In conjunction with the ODS LED, confirms obstruction or overload event.	7, 8
7	S "Limit Open"	OFF	Slave gate is not at the open limit position.	
		SOLID	Slave gate is at the open limit position.	
8	S "Limit Close"	OFF	Slave gate is not at the close limit position.	
		SOLID	Slave gate is at the close limit position.	

Page 38

#	LED	Status	Meaning	TS Ref#(s)
9	"Power"	OFF	No power to control board or in Sleep Mode.	1, 6, 15
		SOLID	Normal Condition.	
		FLASHING	Operator is running on batteries only. (pg 18-19)	1-5
10	"Low Bat"	OFF	Normal Condition.	
		SOLID	Batteries are low. Check power supply to the operator. (pg 18-19)	1-5
		FLASHING	Batteries critically low. Check power supply to operator. (pg 18-19)	1-5
11	"Radio Rec"	OFF	Normal Condition.	
		SOLID	Control Board is receiving an input from a device connected to the Radio terminal. (pg 28-30)	9, 10
12	"UL Sens"	OFF	Normal Condition.	
		SOLID	Control Board is receiving an input from a device connected to the UL terminal or when more than one required Monitored 10K Sensor is connected. (pg 6-7, 22, 28)	9, 10, 14
13	"ReOpen Sens"	OFF	Normal Condition.	
		SOLID	Control Board is receiving an input from a device connected to the Re-Open terminal or when more than one required Monitored 10K Sensor is connected. (pg 6-7, 22, 28, 32)	9, 10, 14
14	"Center Loop"	OFF	No voltage output on these terminals at the moment.	
		SOLID	An input from a device connected to the Center terminal. (pg 28, 32)	9, 10
15	"Open"	OFF	Normal Condition.	
		SOLID	An input from a device connected to the Open terminal. (pg 28, 32)	9, 10
16	"Stop"	OFF	Normal Condition.	
		SOLID	Control Board is receiving an input from a device connected to the Stop or has not learned the required monitored sensor(s). (pg 6-7, 22, 28)	9, 10
		FLASHING	There is a problem with the required monitored sensor(s) connected to the "UL" and/or "ReOpen input terminals. (pg 6-7, 22)	14
17	"Close"	OFF	Normal Condition.	
		SOLID	An input from a device connected to the Close terminal. (pg 28)	9, 10
18	"Magnetic Lock"	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.	
19	"Aux. Pwr"	OFF	No voltage output on these terminals at the moment.	
		SOLID	There is 24VDC output on these terminals at the moment.	
20	"Siren"	OFF	Normal Condition.	
		SOLID	Second consecutive obstruction has been detected. (pg 24, 26)	1-5, 11-13
		FLASHING	Batteries are critically low.	1-5
E1	"AC VOLTAGE INPUT"	SOLID	Normal Condition.	
		OFF	Incoming power to the optional EMI Board is not sufficient..(pg 19)	2
E2	"PROTECTION WORKING"	SOLID	Normal Condition.	
		OFF	EMI Board is damaged and circuit is not protected. Replace the optional EMI Board.	
E3	"AC VOLTAGE OUTPUT"	SOLID	Normal Condition.	
		OFF	There is no output voltage from the optional EMI Board..(pg 19)	2-3

TROUBLESHOOTING

Solutions

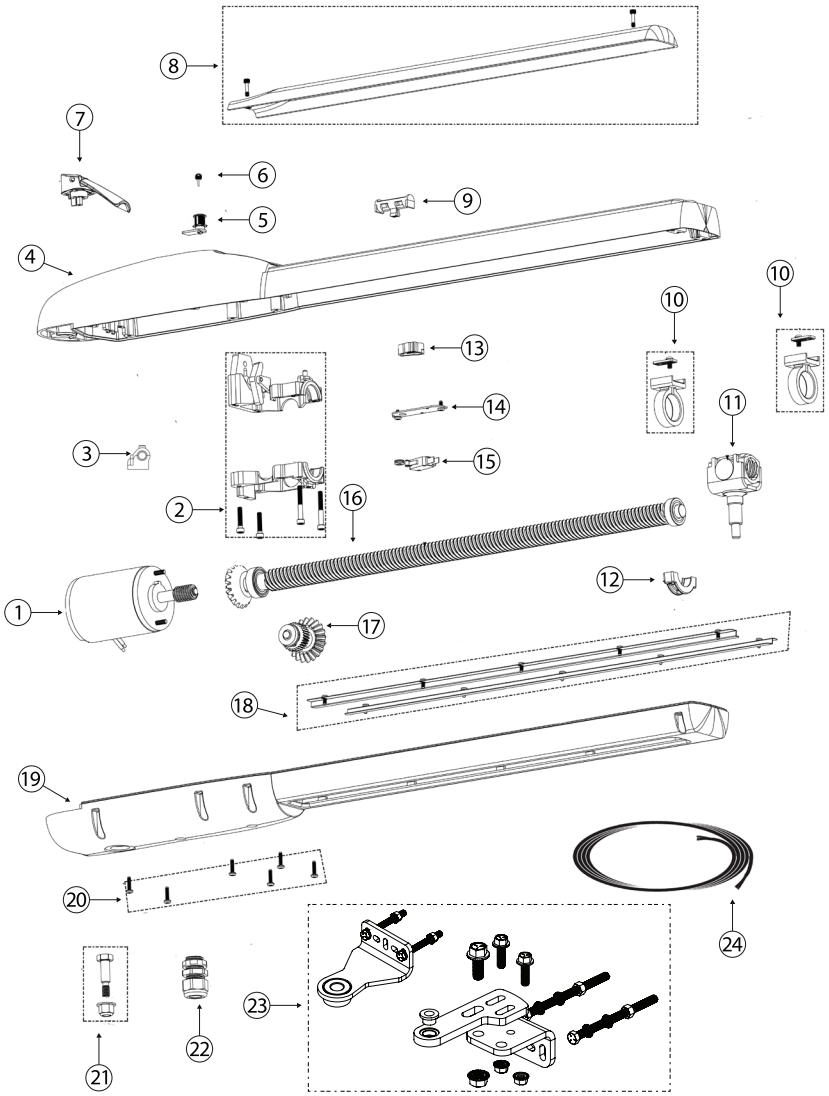
Begin the troubleshooting process by referring to the Status LEDs on the control board. Use pages 36-37 to identify the Troubleshooting Reference # (TS Ref#) then reference the table below.

TS Ref#	CHECK	Page Ref#
1	At the Control Board Power Harness, check for 24VAC from the Transformer.	pg 11, 18
2	Check that the high voltage power supply is within range. 100V-120V or 200V-240V.	pg 19
3	At the optional “EMI Board”, remove and check EMI Fuse for continuity.	pg 19
4	Check that the “Voltage Selector”, on the optional “EMI Board”, is set according to the high voltage power supply. 115VAC or 230VAC.	pg 19
5	Check 4 Amp fuse on the control board.	pg 11
6	Check that the Power Harness is connected to the control board.	pg 11, 18, 19
7	Check Motor Fuse on the control board.	pg 11
8	Check that the operator is not in Manual Release mode.	pg 7
9	Check the Status LEDs to determine if the control board is receiving an input from any external devices or if the “ODS” has been triggered.	pg 11, 24, 26, 28
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 11, 28
11	Check the “ODS” setting on the control board.	pg 24, 26
12	Check that the gate can be moved manually with low resistance throughout its full range of motion.	pg 7, 15
13	Check the limit position.	pg 16
14	Check the required Monitored 10K Sensor(s) and wires. Execute the UL Learn Sensor process.	pg 7, 22
15	The control board will go into sleep mode after 10 seconds of inactivity and all LEDs will go out. Any command or input (excluding “UL” and “ReOpen”) will wake up the control board.	
?	The Control Board. Call Viking Technical Support for further assistance.	

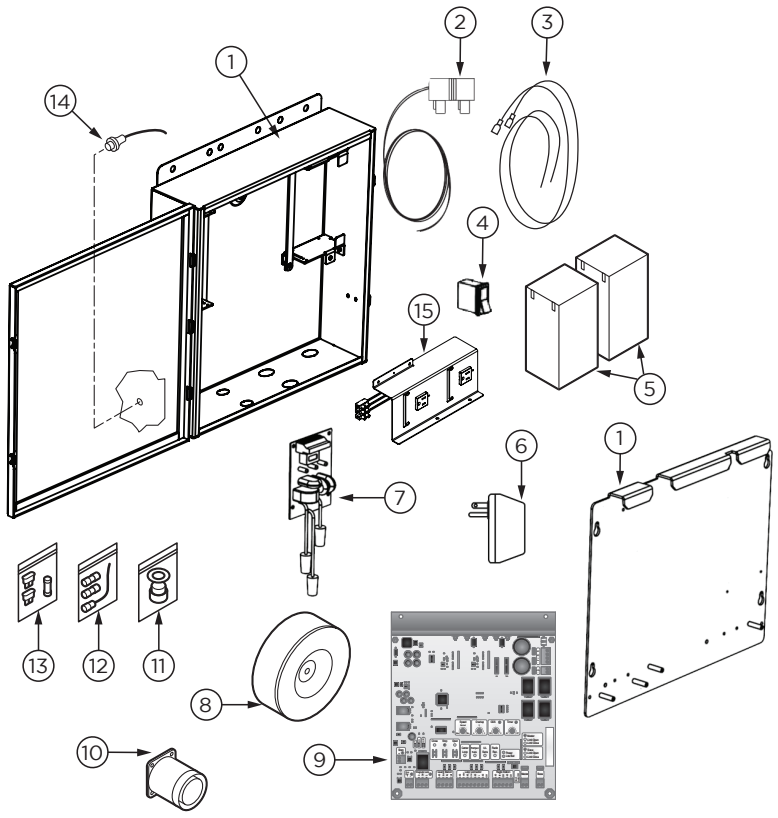
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PARTS DIAGRAM - OPERATOR:

Item	Description	Part No.
1	Motor (24 VDC)	E4MO
2	Gearbox Chassis	E4GBC
3	Grease Cup	E4GGC
4	Casing Upper	E4CU
5	Lock & Keys, Manual Release	E4LMR
6	Key, Manual Release	E4KEY
7	Handle, Manual Release	E4HMR
8	Access Cover	E4AC
9	Level Assembly	E4LA
10	Limit Positive Stop	E4LPS
11	Carrier Assembly	E4CA
12	Bearing Cap	E4BC
13	Cam, Manual Release	E4CMR
14	Plate, Manual Release	E4PMR
15	Switch, Manual Release	E4SMR
16	Leadscrew Assembly	E4LSA
17	Gear Drive Assembly	E4GDA
18	Dust Brush Set (optional)	E4DB
19	Casing Lower	E4CL
20	Casing Mounting Bolts	E4CMB
21	Mounting Hardware, Back	E4MHB
22	Strain Relief	E4SR
23	Mounting Bracket Kit	VE4MBK
24	2 Conductor Cable	VA-2CB16



PARTS DIAGRAM – CONTROLLER:



Item	Description	Part No.
1	ECU Enclosure w/ PCB Back Plate	ECUEB
2	Power Harness	E4PH
3	Battery Harness	E4BTH
4	Battery Switch	DUMRS10
5	Battery	DUBA12
6	Plug-in Transformer	PT24V1A
7	EMI Board (optional)	DUEMI10
8	Toroid Transformer - 10 amp (optional)	DUTT10
9	Control Board	VE4PCB
10	ECU Audio Alarm	ECUAA
11	Strain Relief (ECU)	DH3/4NMCC
12	ECU Antenna Kit	ECUAH
13	Fuse Kit	E4FSKT
14	Alarm Reset Switch	ECUARS
15	Receptacle Box Assembly	VA-RBA

LIMITED WARRANTY

FAAC International, Inc. ("Seller") warrants the first Purchaser of the product to be free from defects in material and workmanship for a specific period as defined by the Warranty Disclosure on the website www.vikingaccess.com. The Warranty Period commences from the date of invoice.

Control Boards, Accessories or Spare Parts factory installed or sold with any of the products above carry the same warranty period as the product they are sold with, excluding batteries that carry a maximum 2 year warranty.

Accessories or spare parts sold separately have a 1-year warranty period.

Products repaired under warranty carry the remainder of the original warranty period. For products repaired outside of warranty, the Seller warrants that all parts used for the repair will be free from defects in materials and workmanship for a period of ninety (90) days.

Defective products must be returned to Seller, freight prepaid by Purchaser, within the warranty period. A Return Material Authorization Number (RMA) must be obtained before product is returned. Items returned will be repaired or replaced, at Seller's option, upon an examination which discloses to the satisfaction of the Seller that the item is defective. The Seller will return the warranted item freight prepaid.

This limited Warranty covers the product under the normal use and service for which it was intended, provided it has been properly installed and operated. Seller's obligations under this warranty shall be limited to the repair or exchange of any part. This warranty shall not apply to products or parts thereof which have been repaired or altered, without Seller's written consent, outside of Sellers's workshop or altered in any way so as, in the judgment of Seller, to affect adversely the stability or reliability of the product(s) or has been subject of misuse, negligence, or accident, or has not been operated in accordance with the product's instructions or has been operated under conditions more severe than, or otherwise exceeding, those set forth in the specifications for such product(s).

When the warranty service involves the exchange of an operator or part, the item the Seller replaces becomes its property and the replacement becomes Purchaser's property. The Purchaser represents that all removed items are genuine and unaltered. The replacement may not be new but will be in good working order and at least functionally equivalent to the item replaced. The replacement assumes the warranty service status of the replaced item.

The products are not warranted to meet the specific requirements, if any, of safety codes of any particular state, municipality, or other jurisdiction, and the Seller doesn't assume any risk or liability whatsoever resulting from the use thereof, whether used singly or in combination with other machines or apparatus.

The Seller does not assume nor authorizes any person to assume for them any other liability in connection with the sale or use of the products of beyond that extended herein.

The warranty hereinabove set forth shall not be deemed to cover maintenance parts, including, but not limited to hydraulic oil, motor brushes, or the like. No agreement to replace or repair shall constitute an admission by the Seller of any legal responsibility to effect such replacement to make such repair, or otherwise.

All products sold by the Seller are subject to design and/or appearance modifications, which are production standards at the time of shipment. The Seller may, but shall not be required to, modify or update products shipped prior to a current production standard.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE. THIS WARRANTY SHALL NOT APPLY TO PRODUCTS OR ANY PART THEREOF WHICH HAVE BEEN SUBJECT TO ACCIDENT, NEGLIGENCE, ALTERATION, ABUSE, OR MISUSE OR IF DAMAGE WAS DUE TO IMPROPER INSTALLATION OR USE OF IMPROPER POWER SOURCE, OR IF DAMAGE WAS CAUSED BY FIRE, FLOOD, LIGHTNING, ELECTRICAL POWER SURGE, EXPLOSION, WIND STORM, HAIL, AIRCRAFT OR VEHICLES, VANDALISM, RIOT OR CIVIL COMMOTION, OR ACTS OF GOD.

The Seller shall not be liable for any loss or damage whatsoever resulting, directly or indirectly, from the use or loss of use of the product(s). Without limiting the foregoing, this exclusion from liability embraces a Purchaser's expenses for downtime or for making up downtime, lost profit, damages for which the Purchaser may be liable to other persons, damage to property, and injury to or death of any persons.

This limited warranty extends only to wholesale customers who buy directly through the Seller's normal distribution channels. The Seller does not warrant its products to end consumers. Consumers must inquire from their selling dealer as to the nature and extent of that dealer's warranty, if any.

THE LIMITED WARRANTY OFFERED HEREIN IS THE SOLE AND EXCLUSIVE REMEDY AVAILABLE TO THE PURCHASER. CORRECTION OF DEFECTS, IN THE MANNER AND FOR THE PERIOD OF TIME DESCRIBED HEREIN, SHALL CONSTITUTE THE COMPLETE FULFILLMENT OF ALL LIABILITIES OF SELLER TO THE PURCHASER WITH RESPECT TO THE COVERED PRODUCT, AND SHALL CONSTITUTE FULL SATISFACTION OF ALL CLAIMS, WHETHER BASED ON CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY LOSS OF PROFITS OR ANY INDIRECT, CONSEQUENTIAL, INCIDENTAL, SPECIAL OR PUNITIVE DAMAGES ARISING OUT OF SELLER'S BREACH OF THIS LIMITED WARRANTY, OR ARISING OUT OF THE CUSTOMER'S INABILITY TO USE THE COVERED PRODUCT, EVEN IF SELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to a particular Purchaser. This Limited Warranty gives the Purchaser specific legal rights. The Purchaser may also have other rights, which vary from state to state.

VIKING ACCESSORIES



VIKING MONITOR Off-site access to operator diagnostics. With the Viking Monitor 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
*ECU Operators require (1) Antenna Extension Cable (part# VA-RPSMA)****



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-SURGE PRO AC**



VIKING 24V 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.

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INSTALLATION DATE: _____

COMPANY / INSTALLER: _____

CONTACT: _____

SERIAL NUMBER(S): _____

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

VIKING ACCESS SYSTEMS
17595 Cartwright Rd Irvine, CA 92614
Phone 800.908.0884
Fax 949.753.1640
www.vikingaccess.com

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