

V 0503



Instruction Manual  
**THE MIRACLE-ONE™**  
LINEAR RESIDENTIAL GATE OPERATOR

installation instructions and manual book  
for architects, general contractors and dealers

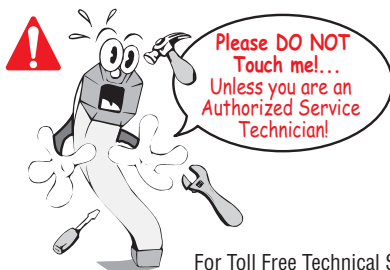
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**⚠ Attention:** This handbook is exclusively for qualified installation personnel, and assistance and/or maintenance service. - The performances indicated in this handbook are valid only if a correct assembly has been carried out.

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Release 3  
04/03

For Toll Free Technical Support: **1-888-ELITE-10**

# **U L L I S T I N G S   A N D   I N S T R U C T I O N S**

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## ***Installation Instructions Regarding the Gate Operator***

- A)** Install the gate operator only when:
  - 1. The operator is appropriate for the construction and the usage Class of the gate.
  - 2. All exposed pinch points are eliminated or guarded, and
  - 3. Guarding is supplied for exposed rollers.
  
- B)** The operator is intended for installation only on gates used for vehicles. Pedestrians must be supplied with a separate access opening.
  
- C)** The gate must be installed in a location so that enough clearance is supplied between the gate and adjacent structures when opening and closing to reduce the risk of entrapment. Swinging gates shall not open into public access areas.
  
- D)** The gate must be properly installed and work freely in both directions prior to the installation of the gate operator.
  
- E)** Controls must be far enough from the gate so that the user is prevented from coming in contact with the gate while operating the controls. Controls intended to be used to reset an operator after 2 sequential activations of the entrapment protection device or devices must be located in the line of sight of the gate outdoor. Easily accessible controls shall have a security feature to prevent unauthorized use.
  
- F)** All warning signs and 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 to person located on the side of the gate on which the placard is installed.

# **U L L I S T I N G S   A N D   I N S T R U C T I O N S**

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**G)** For a gate operator utilizing a non-contact sensor such as a photo beam:

1. See instructions on the placement of non-contact sensor for each type of application.
2. Care shall be exercised to reduce the risk of nuisance tripping, such as when a vehicle trips the sensor while the gate is still moving.
3. One or more non-contact sensors shall be located where the risk of entrapment or obstruction exists, such as the perimeter reachable by a moving gate or barrier.

**H)** For a gate operator utilizing a contact sensor such as an edge sensor:

1. A hard wired contact sensor shall be located and its wiring arranged so that the communication between the sensor and the gate operator is not subjected to mechanical damage.
2. A wireless contact sensor such as the 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 obstruction. A wireless contact sensor shall function under the intended end-use conditions.
3. 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) above the ground at any point in its arc of travel, one or more contact sensors shall be located on the bottom edge.

# **U L L I S T I N G S   A N D   I N S T R U C T I O N S**

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## ***Important Safety Instructions***

***Warning*** - To reduce the risk of injury or death:

**1. READ AND FOLLOW ALL INSTRUCTIONS.**

**2.** Never let children operate or play with gate controls. Keep the remote control away from children.

**3.** Always keep people and objects away from the gate.

***NO ONE SHOULD CROSS THE PATH OF A 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 injury or death.

**5.** Use the emergency release only when the gate is not moving. Make sure the power for the gate operator is off.

**6. KEEP GATES PROPERLY MAINTAINED.** Read the manual. Have a qualified service person make repairs to the gate or gate hardware.

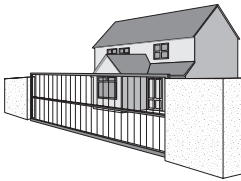
**7.** The entrance is for vehicles only. Pedestrians must use separate entrance.

**8. SAVE THESE INSTRUCTIONS.**

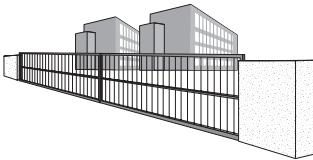
# UL LISTINGS AND INSTRUCTIONS

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

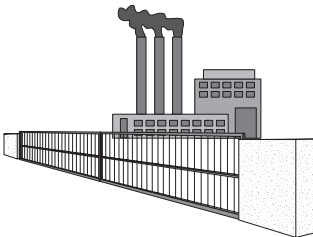
**Vehicular horizontal slide-gate operator (or system)** – A vehicular gate operator (or system) that controls a gate which slides in a horizontal direction that is intended for use for vehicular entrance or exit to a drive, parking lot, or the like.



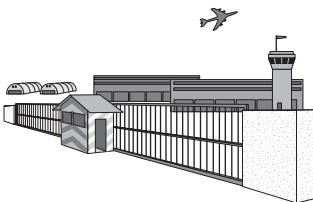
**Residential vehicular gate operator – Class I** – A vehicular gate operator (or system) intended for use in a home of one-to four single family dwelling, or a garage or parking area associated therewith.



**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.



**Commercial/General 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 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.

## **ROLE OF SPECIFIERS AND DESIGNERS**

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### **Specifiers and designers should design an automatic vehicular gate system to:**

- Incorporate UL 325 compliant equipment.
- Utilize an operator suited for gate system type, size, frequency of use, location and user population (Refer to UL 325 for usage class definitions)
- Separate pedestrian access from vehicle access.
- Reduce or eliminate pinch points.
- Reduce risk of entrapment injuries by minimizing all gaps in the gate and enclosing the area of the travel of the gate.
- Secure controls from unauthorized use.
- Locate all controls out of reach from the gate.
- Allow the user full view of the gate when operating.
- Consider special populations, such as children or the elderly.
- Conspicuously display all warnings and instructions.
- Be consistent with DASMA's Automatic Gate Opener System Safety Guide.

## **ROLE OF DEALERS, INSTALLERS AND TRAINED GATE SYSTEM TECHNICIANS**

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### **Installers, during the course of the installation proceedings for each job, should:**

- Confirm that the gate operator being installed is appropriate for the application.
- Confirm that the gate is designed and built according to current published industry standards.
- Confirm that all appropriate features and accessory devices are being incorporated, including both primary and secondary entrapment protection devices.
- Make sure that the gate works freely before installing the operator.
- Repair or service worn or damaged gate hardware before installing the operator.
- Eliminate all gaps in the sliding gate below a 4 foot height that permit a 2 1/4 inch sphere to pass through any location, including the area of the adjacent fence covered when the gate is in the open position.
- Install the gate operator according to the manufacturer's installation instructions.
- Adjust the operator clutch or load-sensing device to the minimum force setting that allows reliable gate operation.
- Install operator inside fence line (DO NOT install operator on public side of fence line)
- Install a proper electrical ground to a gate operator.
- Install keypad controls where users cannot touch, or reach through gate while operating controls.
- Install controls where user has full view of gate operation.
- Install all warning signs (In accordance with UL 325) on both sides of the gate to warn persons in the area of potential hazards associated with automatic vehicular gate operation.
- Test all features for proper functions before placing the automatic vehicular gate into service.
- Demonstrate the basic functions and safety features of the gate system to owners/end users/general contractors, including how to turn off power and how to operate the manual disconnect feature.
- Leave safety instructions, product literature, installation manual and maintenance manual with end user.
- Explain to the owners the importance of a service contract that includes a routine re-testing of the entire system including the entrapment protection devices, and explain the need for the owners to insure that this testing is performed routinely.
- Offer the owner/end user a maintenance contract, or contact them regularly to offer maintenance.

## **ROLE OF END USERS/HOME OWNER**

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### **End users should be made aware that they must:**

- Contact a trained gate systems technician to maintain and repair the gate system (End users should never attempt to repair the gate)
- Retain and utilize the installation and maintenance manual and safety instructions.
- Routinely check all gate operator functions and gate movement.
- Discontinue use if safety systems operate improperly, the gate is damaged, or the gate is difficult to move.
- Never overtighten the operator clutch of load sensing device to compensate for a damaged or stiff operating gate.
- Prominently display and maintain warning signs on both sides of the gate.
- Keep all obstructions clear of the vicinity of the path of the gate system.
- Actively discourage pedestrian use of the vehicular gate operating system.
- Prevent anyone from playing near any part of the gate system.
- Never allow anyone to climb under, over or through a gate or the adjacent fence area.
- Never allow children to operate gate.
- Keep portable controls out of reach of children.
- Never allow anyone to install an operating control within reach of the gate.
- Never allow anyone to install a horizontal slide gate with exposed rollers or openings large enough to allow a sphere of 2 1/4 inches to pass through any portion of the gate below a 4 foot height, including the area of the adjacent fence covered when the gate is in the open position.
- Always be certain that the gate area is clear of pedestrians before operating the gate.

## **SWING GATE SYSTEMS**

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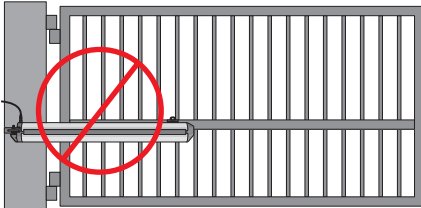
- **Entrapment Zone Hazard** - Body parts may become entrapped between a gate and a stationary object when the gate begins to move, which can result in serious injury or death. Pedestrians must stay clear of the gate path, and any area where gate motion is close to stationary objects.
- **Pinch Points Hazard** - The opening mechanism may have arms that can overlap with a scissoring effect, which can result in serious injury. Pedestrians must stay clear of the opening mechanism at all times, particularly when gate is opening.

Be sure that warning signs are prominently displayed on both sides of the gate and any other place where danger exists.

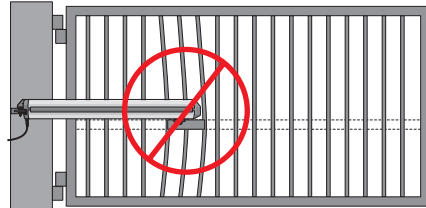
# WARNINGS AND PRECAUTIONS

**Warning** - To reduce the risk of injury to persons,  
**The Miracle-1 is for Vehicular Gate use ONLY!**

**Warning** Be sure to read and follow all these important instructions before installation of the gate operator. Elite Access Systems, Inc. is not responsible for improper installation or failure to comply with local building and electrical codes.



**DO NOT** install upside down.



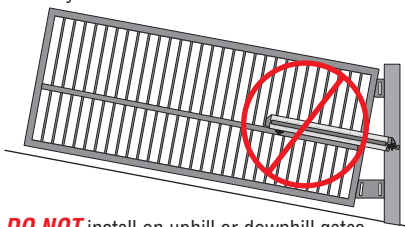
**DO NOT** install on a few pickets, they will bend. Weld a reinforcement bar across entire gate.



**DO NOT** install on **ANY** pedestrian passageways or doorways.



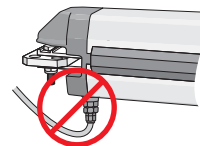
**DO NOT** install on **ANY** pedestrian gates.



**DO NOT** install on uphill or downhill gates.



**DO NOT** install next to sprinklers or any area that may expose bottom of operator to water.



**DO NOT** over-bend the cord from the operator. Doing this will cause the wires to eventually break.

**Caution** - If the "Timer" is to be left in the "ON" position, then add a *safety loop* and *center loop*.

## 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 control away from children.
3. Always keep the moving gate in sight and away from people and objects until it is completely closed.

**NO ONE SHOULD CROSS THE PATH OF THE MOVING GATE.**

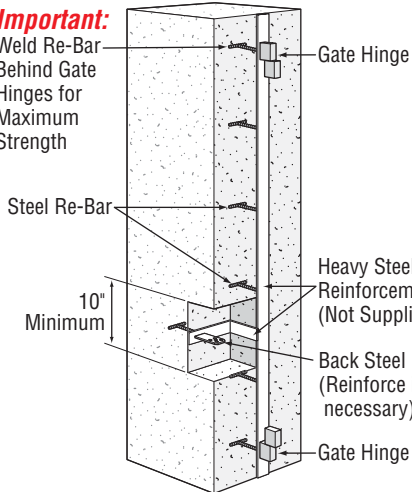
4. KEEP GATES PROPERLY MAINTAINED. Read the owner's manual. Have a qualified service person periodically inspect and make repairs to gate hardware.
5. **SAVE THESE INSTRUCTIONS.**

# PROCEDURE FOR INSTALLATION

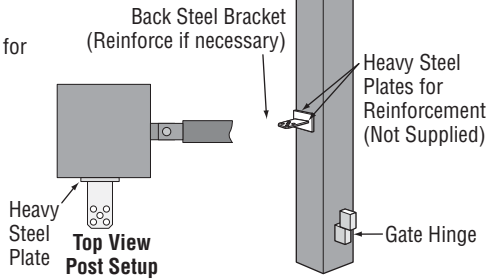
## Open To The Inside

**Important:**

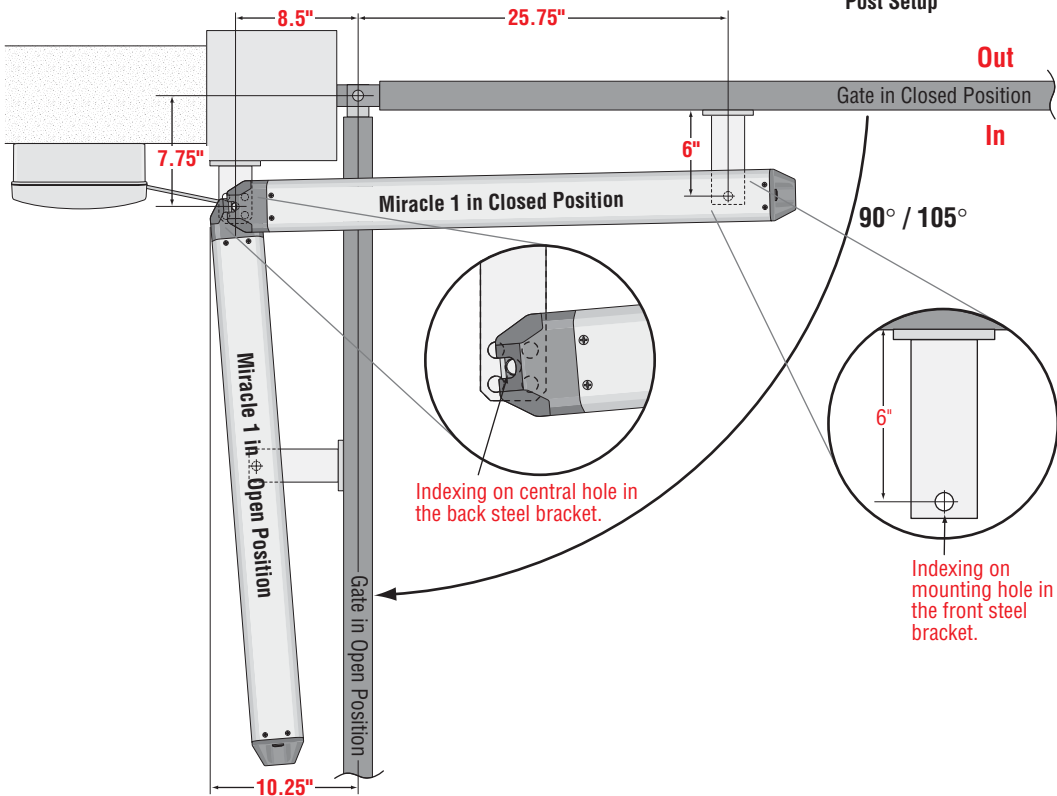
Weld Re-Bar Behind Gate Hinges for Maximum Strength



**Typical Masonry Column Setup**



**Typical Steel Post Setup**

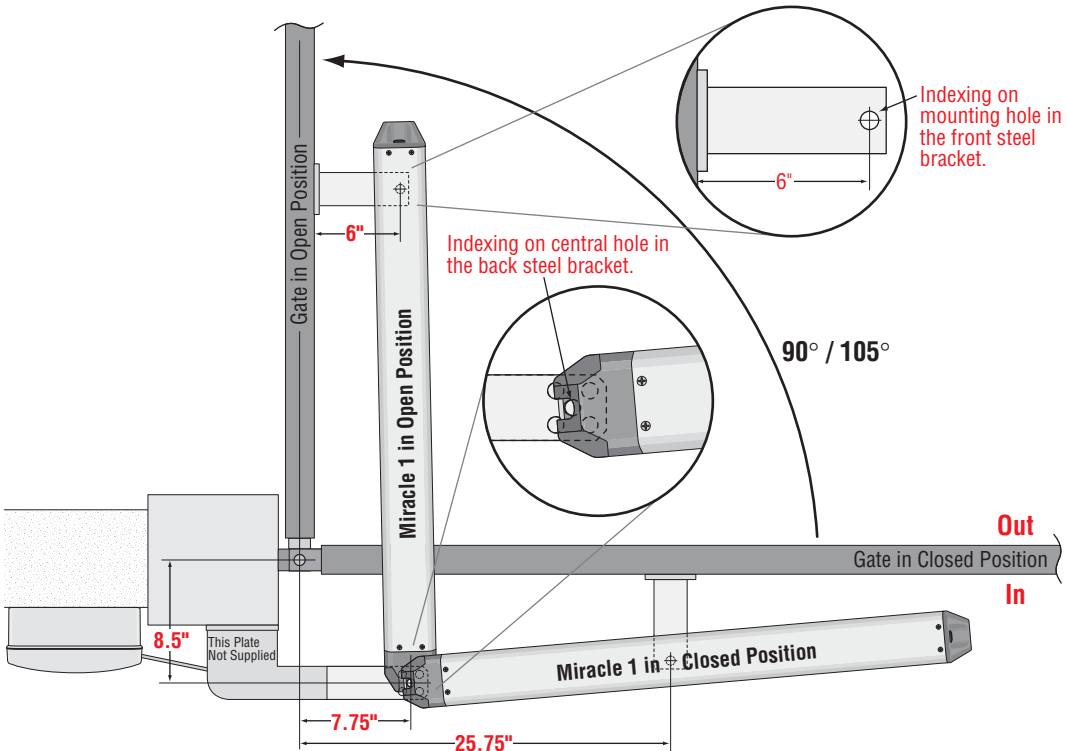
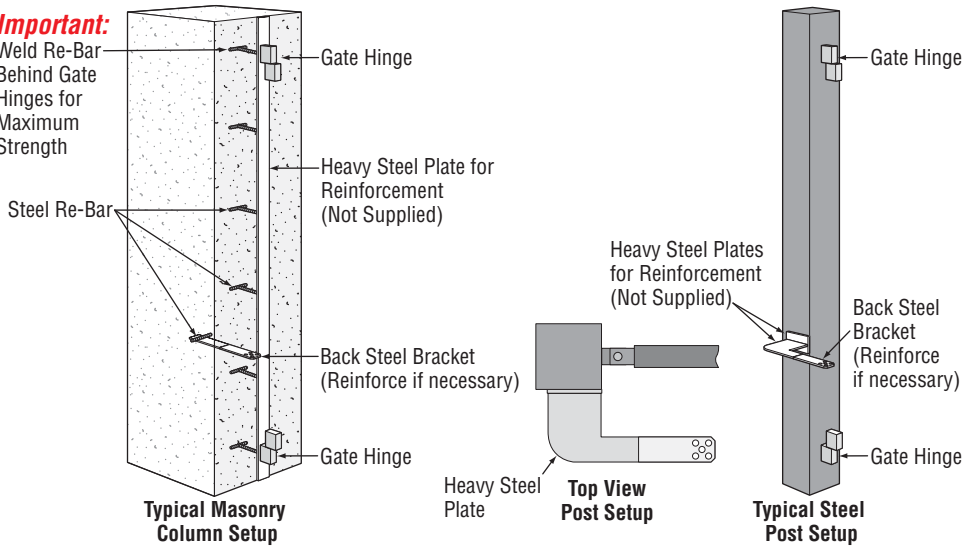


# PROCEDURE FOR INSTALLATION

## Open To The Outside

**Important:**

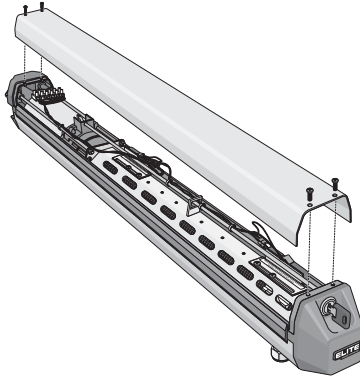
Weld Re-Bar Behind Gate Hinges for Maximum Strength



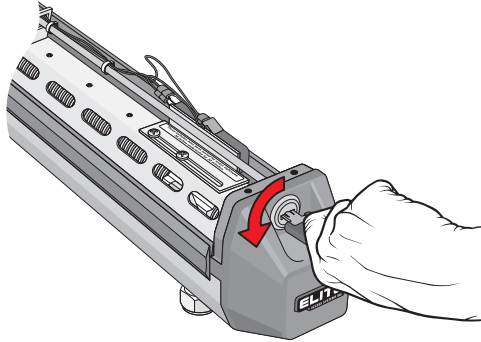
# PROCEDURE FOR INSTALLATION

## Mounting Instructions

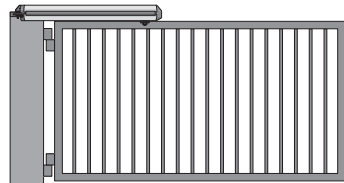
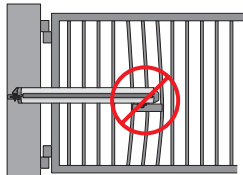
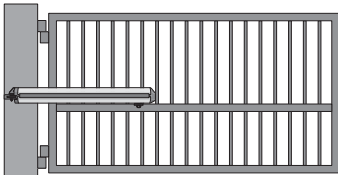
**Step 1:** Remove the 4 screws and lift the operator cover off.



**Step 2:** Release the mechanical lock by turning the key to the horizontal position.



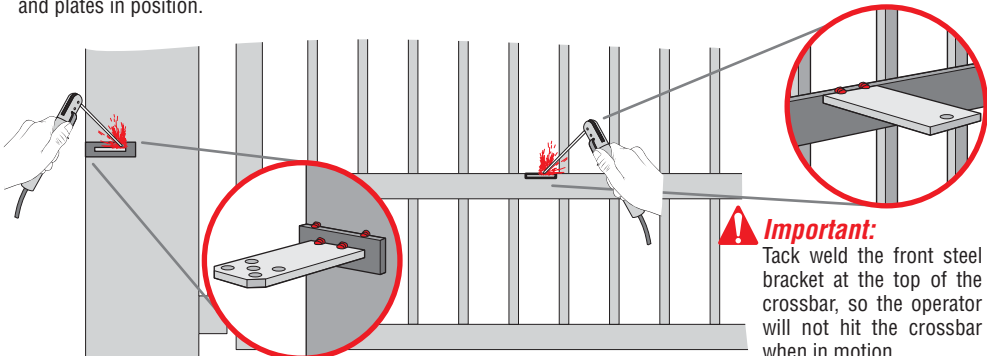
**Step 3:** Position the Miracle 1 *horizontally level* on the closed gate, where desired. For strength purposes, the front steel bracket *must* be attached in an area that can withstand *heavy forces*. Additional reinforcement steel plates may be necessary for mounting.



If using a gate crossbar, weld bar across *all* pickets. **Do not** weld the crossbar on a few pickets, or they will bend.

The Miracle 1 can be mounted on top of the gate frame.

**Step 4:** Position and level the operator brackets and reinforcement plates. (*See next page*). Tack weld brackets and plates in position.

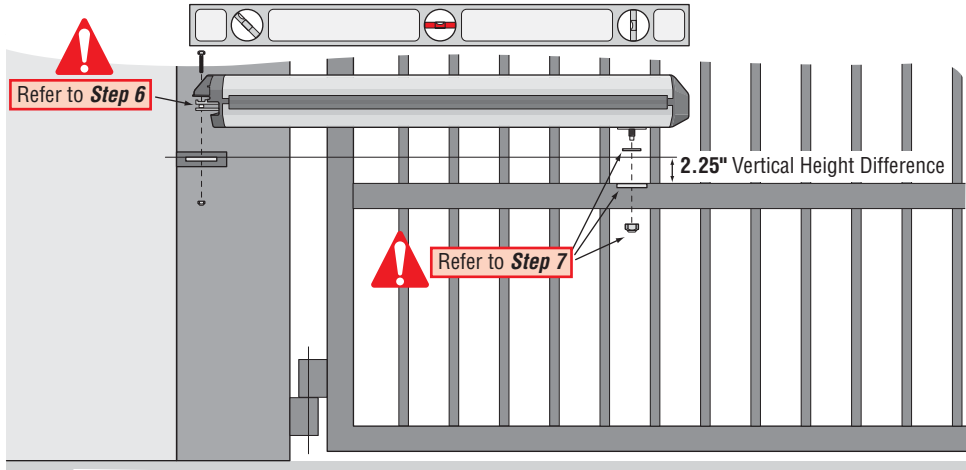


**Important:**  
Tack weld the front steel bracket at the top of the crossbar, so the operator will not hit the crossbar when in motion.

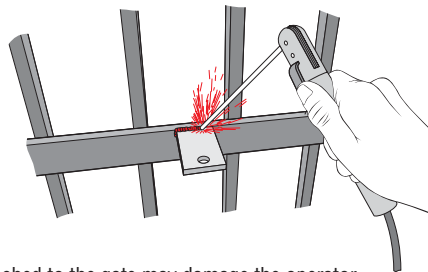
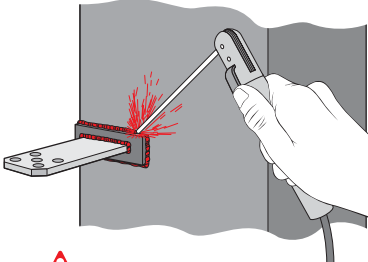
# PROCEDURE FOR INSTALLATION

## Mounting Instructions

**Step 4 (con't):** The gate **must** be in the closed position. **Make sure the operator is kept level** while tack welding the front and back steel brackets and reinforcement steel plates in position. After all tack welding is finished, **remove the operator!**

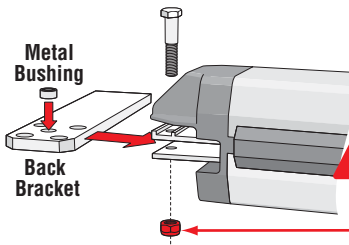


**Step 5:** With the operator removed, **completely** weld around the brackets and plates on the gate.

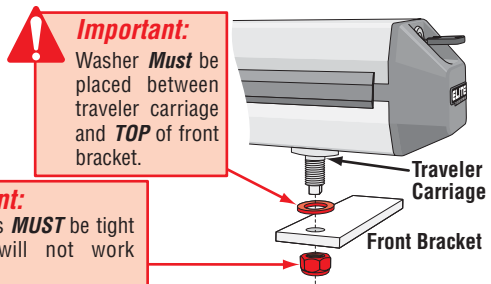


**Caution:** Welding the brackets with the operator attached to the gate may damage the operator.

**Step 6:** Remove the nut, bolt and bushing from the **back** operator bracket. Place the metal bushing in the hole of the steel bracket that will be used. Secure operator with the nut and bolt (See Below).




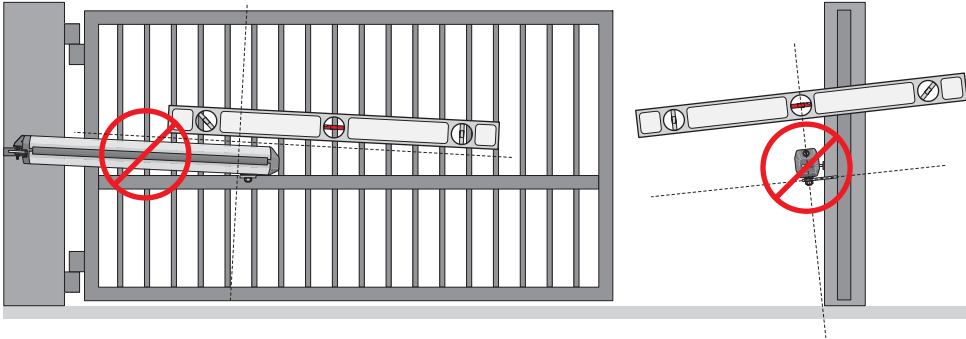
**Step 7:** Remove the nut from the traveler carriage at the **front** of the operator. Secure operator to the front bracket with the washer and nut (See Below).



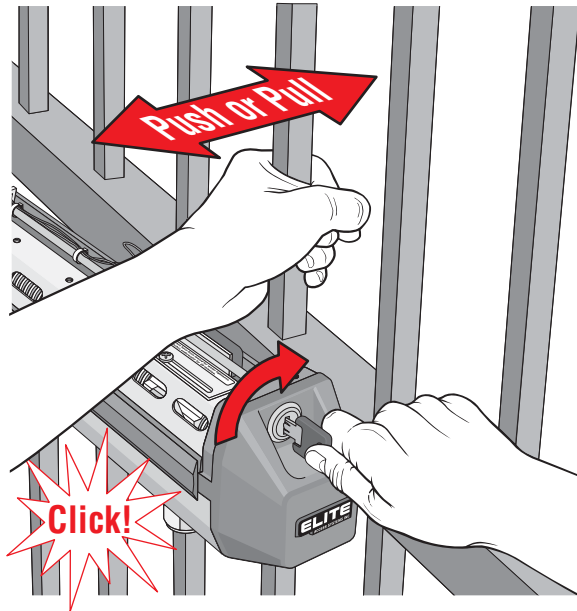
# PROCEDURE FOR INSTALLATION

## Mounting Instructions

**Step 8:**  Make sure that the operator is *level* or it will not function properly. An off-level installation may cause the gate or operator to fail prematurely.



**Step 9:** Lock the operator by turning the key to the vertical position while pushing or pulling on the gate until you hear the key release click into place. The gate should not move after the operator has been locked. Completing this successfully finishes the basic mounting of the operator to the gate. The next steps are to make all electrical connections to the operator and control board.

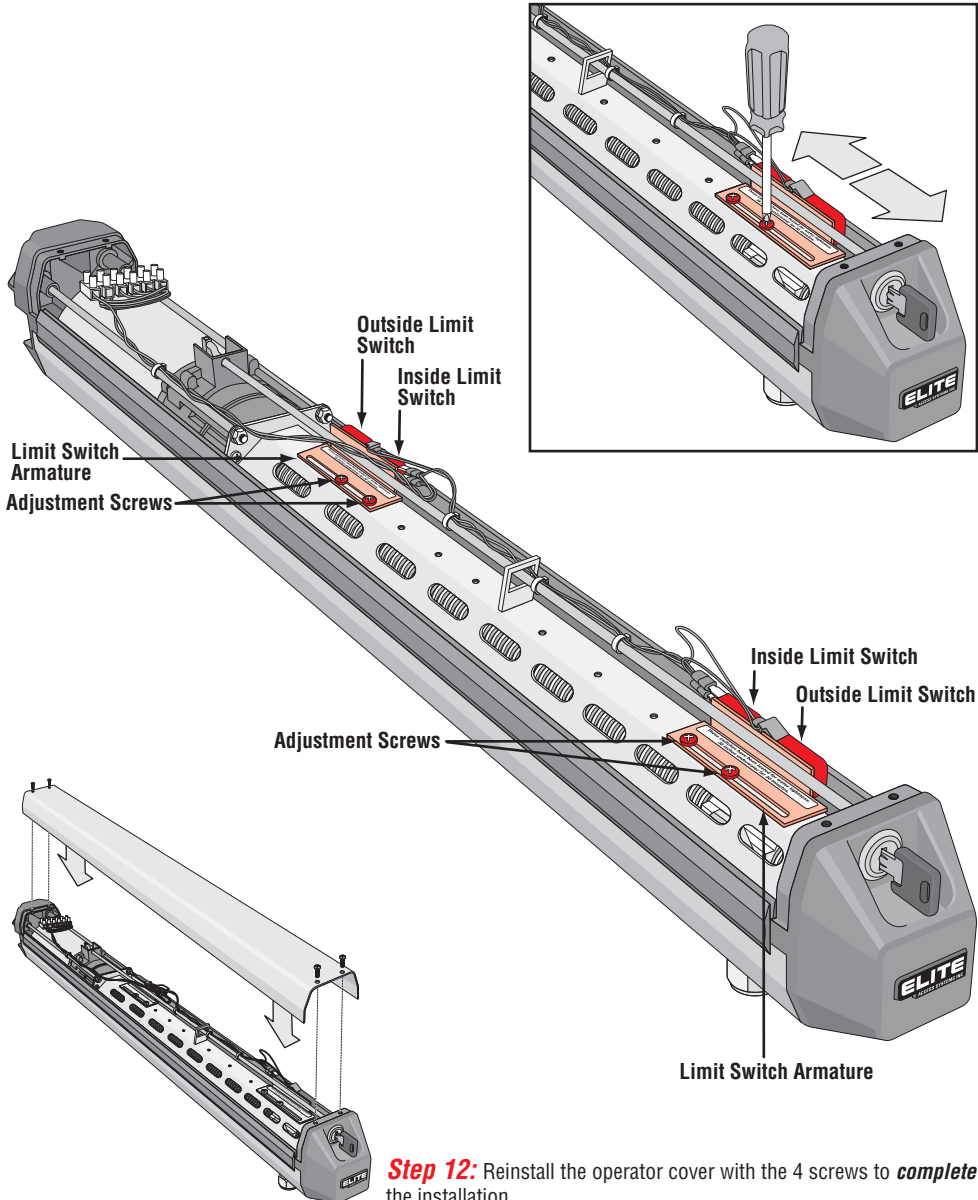


**Step 10:** The following pages show the correct electrical procedures needed for the operator. **After completing all the electrical connections**, continue to step 11 to complete the final adjustments on the operator.

# PROCEDURE FOR INSTALLATION

## *Adjusting the Limit Switches*

**Step 11:** Adjust the travel distance of the gate with the limit switches. Loosen the 2 screws of each limit switch armature. Slide to adjust. Position the **outside limit switches** of each armature to stop the gate in the "full open" and "full closed" positions. Re-tighten armature screws when gate positions are correct.

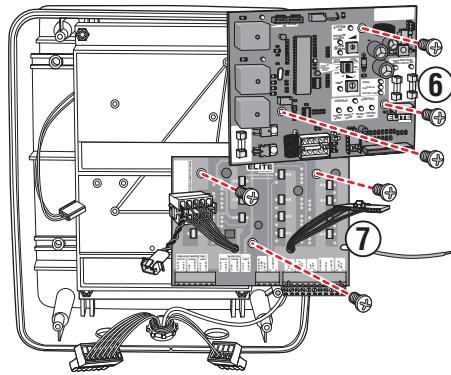
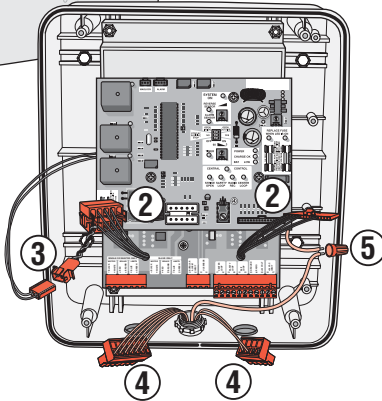


**Step 12:** Reinstall the operator cover with the 4 screws to **complete** the installation.

## REMOVING THE CONTROL / SURGE BOARDS

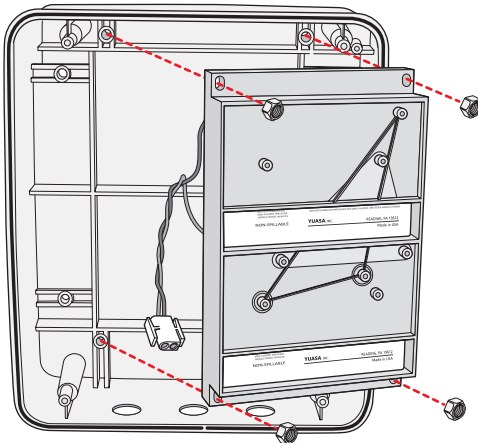


- ① Unscrew the 4 Phillips head screws from the cover.
- ② Unplug the **J1** and **J3** plugs.
- ③ Unplug battery connector.
- ④ Unplug all accessory wires from Surge Suppressor's removable terminals.
- ⑤ Disconnect ground wire.
- ⑥ Remove three Phillips screws from control board and remove board.
- ⑦ Remove three Phillips screws from surge suppressor board and remove board.

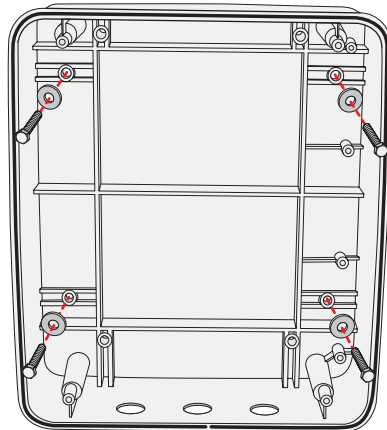


## MOUNTING THE CONTROL BOX

**⚠ Caution:** *Do Not* make new mounting holes, or enlarge existing holes in control box. Use the four mounting holes provided.

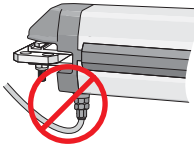


Remove the four nuts and remove battery rack. Reverse this process to reinstall.

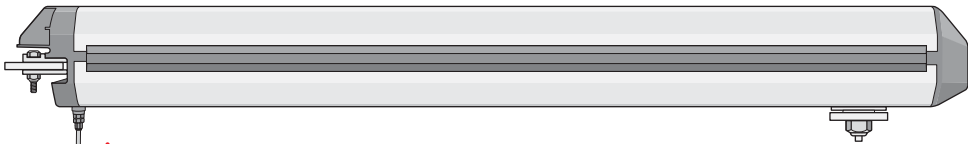


Mount control box with four screws and washers (recommend #10 thru 1/4-20 Bolts or Screws) *Do Not* over tighten.

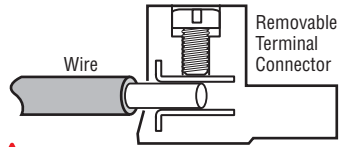
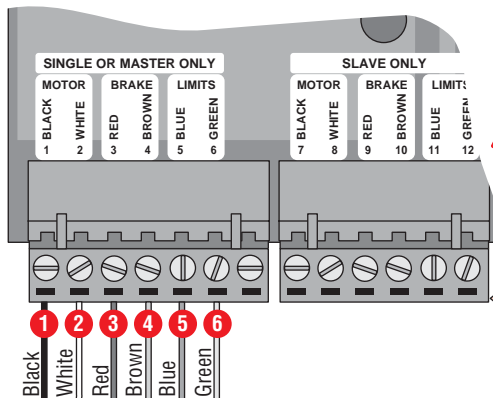
# WIRING 1 OPERATOR TO BOARD



**Caution:** Do **Not** over-bend the cord from the operator. Doing this will cause the wires to eventually break.



**Caution:** Do **Not** use wire less than **16 gauge** up to 200 Ft.



**Caution:** Make sure **BARE WIRE** makes good contact inside removable terminal connectors. **DO NOT** let wire insulation interfere with connection.

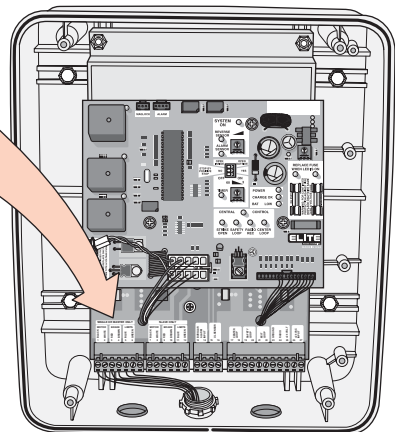
Removable Terminal Connectors

**Important:**

Install the Flex Connector (supplied) to secure the wire in the Miracle 1 Control Board Box.

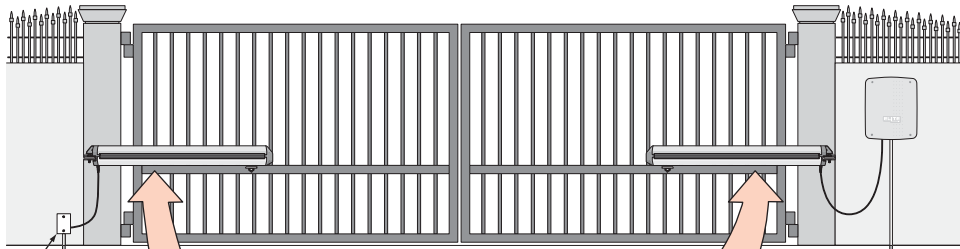
Install a **dedicated water tight conduit** for 6 wires. **DO NOT** run AC wire in same conduit as 6 wires!

More than 20 ft run, use shielded wire for the blue and green lines. **Shield must be grounded.**



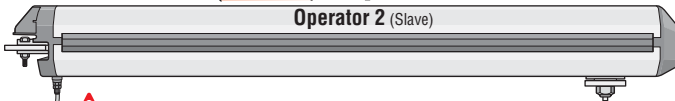
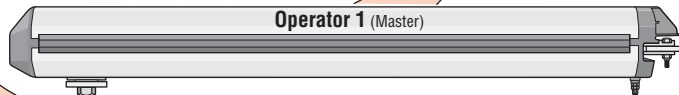
Water tight conduit and flex connector secured to control box.

# WIRING 2 OPERATORS MASTER / SLAVE

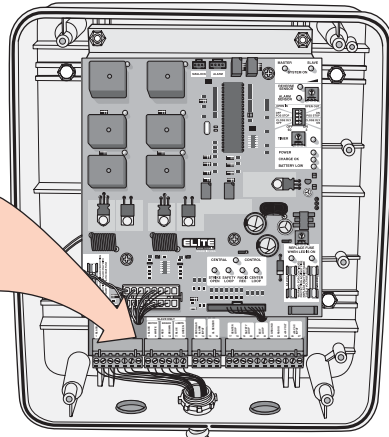
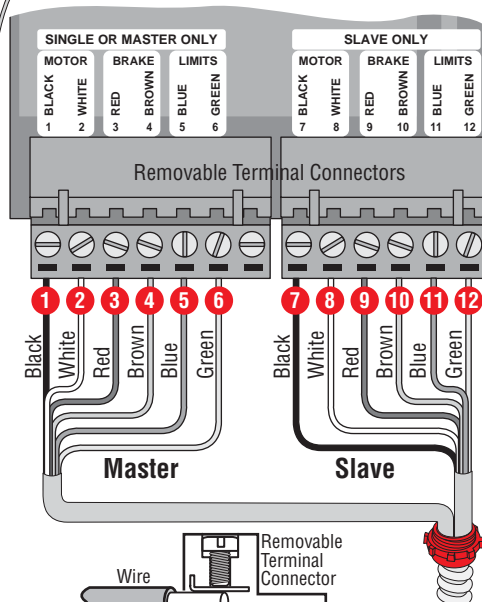


Water Tight Field Wiring Box

6 Wires, 16 AWG from operator in **dedicated water tight** conduit. **DO NOT run AC lines in same conduit!**

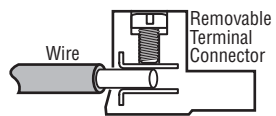


**Caution:** Do Not use wire less than 16 gauge up to 200 Ft.



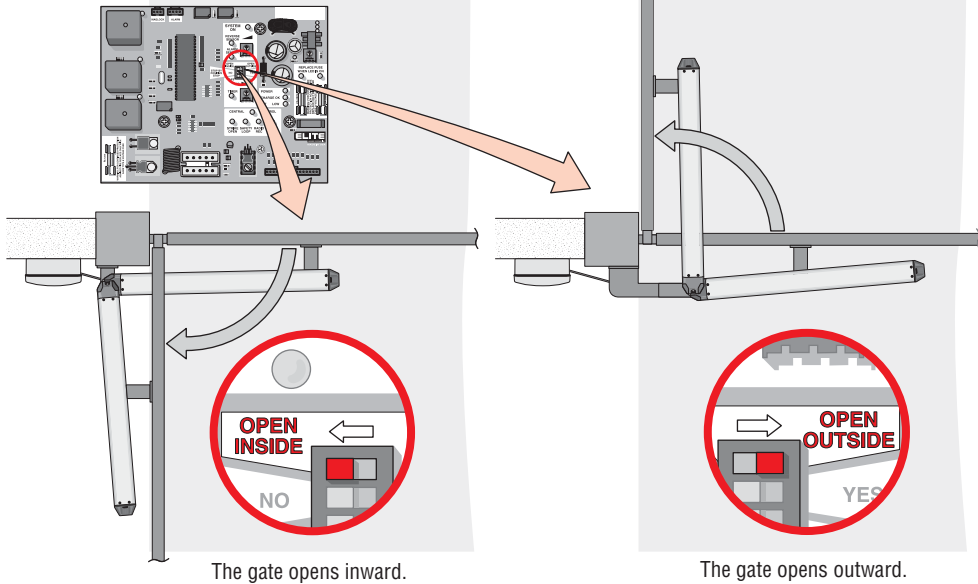
**Important:**  
 Install the Flex Connector (supplied) to secure the wire in the Miracle 1 Control Board Box.  
 Install a **dedicated water tight conduit** for 6 wires. **DO NOT run AC wire in same conduit as 6 wires!**  
 More than 20 ft run, use shielded wire for the blue and green lines. **Shield must be grounded.**

**Caution:** Make sure **BARE WIRE** makes good contact inside removable terminal connectors. **DO NOT** let wire insulation interfere with connection.



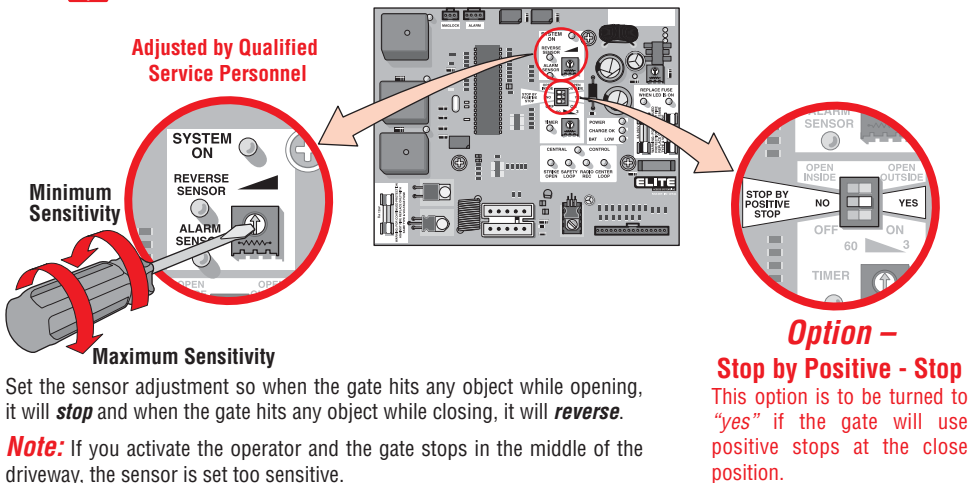
## CHOOSING GATE MOVEMENT DIRECTION

Switch the “Open Inside / Open Outside” switch on the control board to the corresponding position for the proper direction.



## SENSOR ADJUSTMENT

**⚠ Caution:** The sensors must be adjusted while the gate is in the opening or closing cycle.

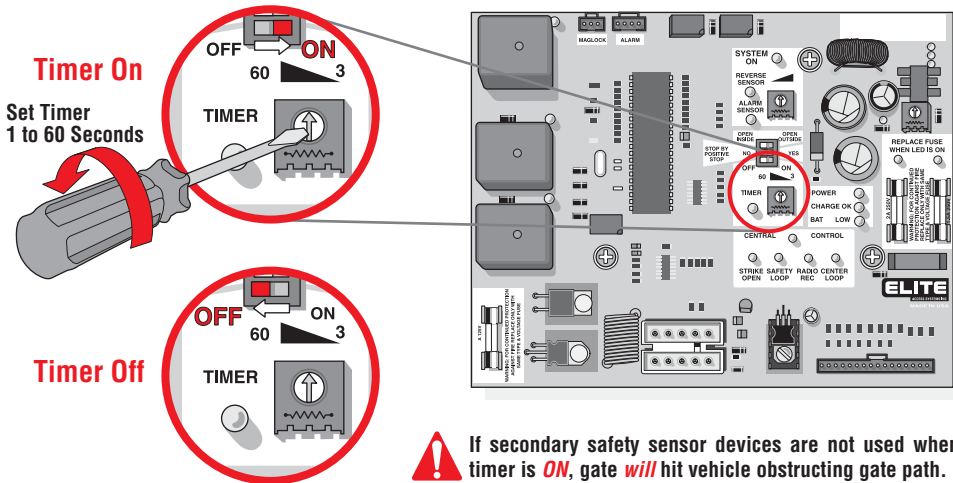


Set the sensor adjustment so when the gate hits any object while opening, it will **stop** and when the gate hits any object while closing, it will **reverse**.

**Note:** If you activate the operator and the gate stops in the middle of the driveway, the sensor is set too sensitive.

**⚠ Important:** It is necessary to still adjust your limit switch at the close position. The controller will look for the limit close first and then it will look for the positive stop.

## ADJUSTABLE TIMER



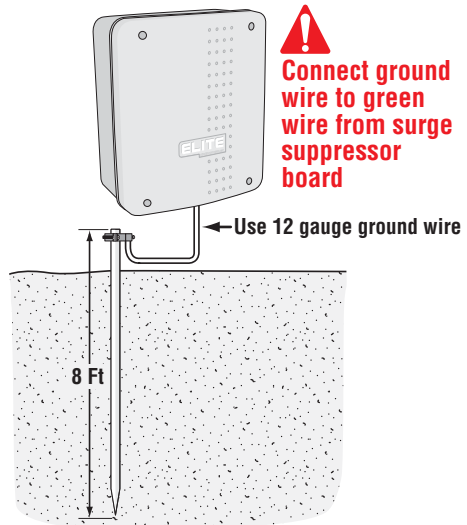
## EARTH GROUND ROD INSTALLATION

Proper grounding gives an electrical charge, such as from an electrical static discharge or a near lightning strike, a path from which to dissipate its energy safely into the earth.

Without this path, the intense energy generated by lightning could be directed towards the Elite gate operator. Although nothing can absorb the tremendous power of a direct lightning strike, proper grounding can protect the gate operator in most cases.

The earth ground rod **must** be located within 3 feet from the gate operator. Use the proper type earth ground rod for your area.

The ground wire **must** be a single, whole piece of wire. **Never** splice two wires for the ground wire. If you should cut the ground wire too short, break it, or destroy its integrity, replace it with a single wire length.



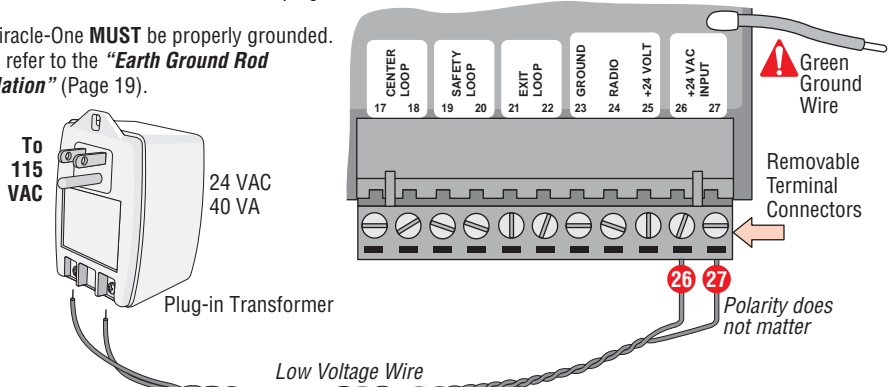
**!** Before digging more than 18" deep, contact local underground utility locating companies  
**Avoid damaging gas, power, or other underground utility lines.** **!**

**!** Elite Access is not responsible for improper installation or failure to comply with all necessary local building codes.

# CONNECTING POWER SUPPLY

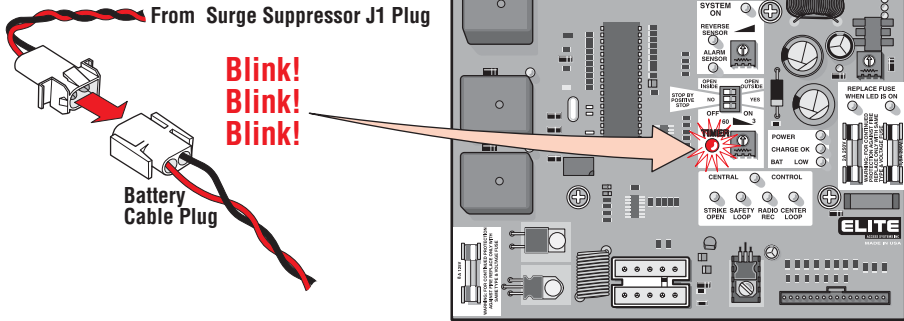
Connect Elite's plug-in transformer (24 VAC Included) to Surge Suppressor board, terminals #26 and #27. Polarity does not matter. Use low voltage direct burial landscape lighting cable, 14 gauge/300 watt not to exceed 500 ft or 10 AWG up to 1000 ft. The transformer must plug into 115 VAC.

**!** The Miracle-One **MUST** be properly grounded. Please refer to the **"Earth Ground Rod Installation"** (Page 19).



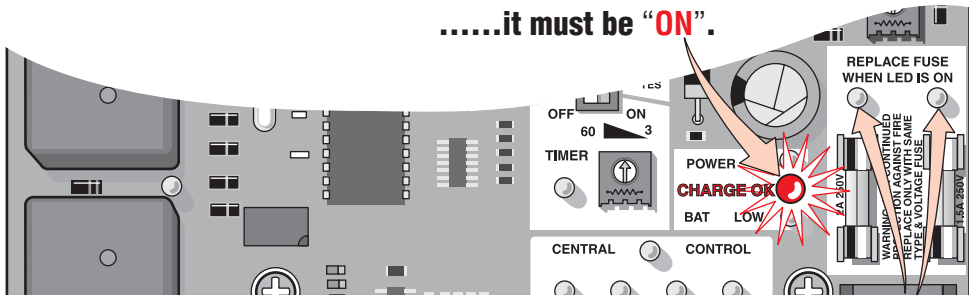
**!** **Caution:** Use low voltage direct burial landscape lighting cable – 14 gauge/300 watt not exceeding 500 ft. For longer than 500 ft, use 10 AWG wire up to 1000 ft.

Plug in the transformer and connect the battery cable plug into the surge suppressor J1 battery plug. The **"Timer"** LED will flash **"3 times"**.



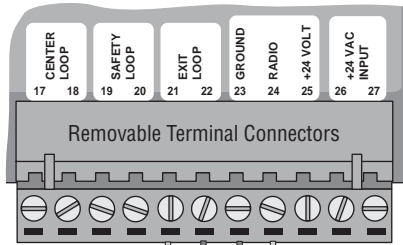
After that, check the **"Charge OK"** LED.....

.....it must be **"ON"**.



If you see these LED's **"ON"**, replace fuse.

# WIRING ADDITIONAL INPUTS

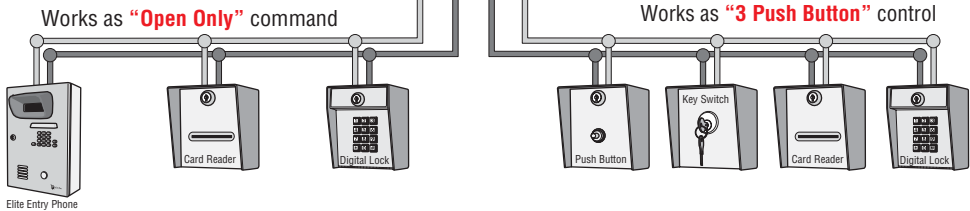


**⚠ Caution:** Make sure **BARE WIRE** makes good contact inside removable terminal connectors. **DO NOT** let wire insulation interfere with connection.

**⚠ Important:**

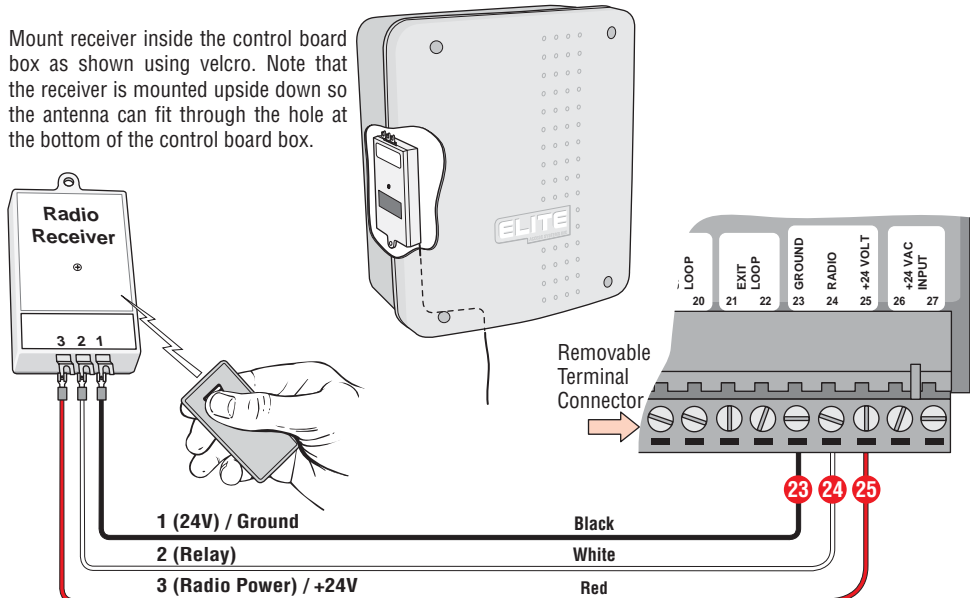
Wiring at #21 and #22 will be recognized as an **Open Only** command, and **Will Not** close the gate. To automatically **Close** the gate after an open cycle, the control board timer must be turned **ON**.

To provide a close command use #23 and #24. Wiring at #23 and #24 will be recognized as a **Three Push Button** command. The **First** command will **open** the gate. The **Second** command will **stop** the gate. The **Third** command will **close** the gate.



Elite Entry Phone

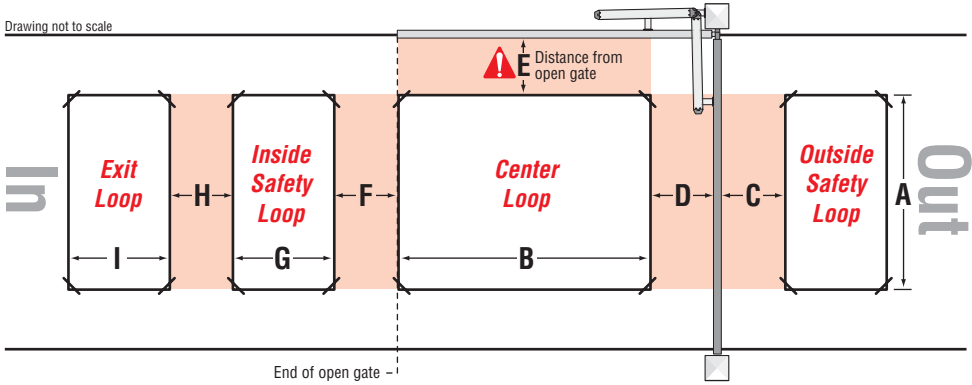
Mount receiver inside the control board box as shown using velcro. Note that the receiver is mounted upside down so the antenna can fit through the hole at the bottom of the control board box.



# SINGLE OPERATOR LOOP SIZE AND PLACEMENT

It is *VERY* important to have enough separation between loops and gates to prevent false detection.

**Caution:** Distance “E” must be a minimum of 4 feet away from open gate!



### Outside Safety Loop:

<b>If A =</b>	6 Feet	9 Feet	12 Feet	15 Feet	18 Feet	21 Feet
<b>Then C =</b>	4 Feet	4.5 Feet	5 Feet	5 Feet	5.5 Feet	6 Feet

### Center Loop:

This loop must have enough space between loop and gate when *opened* or *closed*.

If driveway is **smaller** than 18 ft, then **D** must be  $\geq 4.5$  ft

If driveway is **bigger** than 18 ft, then **D** must be  $\geq 5$  ft

<b>If B =</b>	6 Feet	9 Feet	12 Feet	15 Feet
<b>Then E =</b>	4 Feet	4.5 Feet	5 Feet	5 Feet

### Inside Safety Loop

If there is **no** center loop, then **F**  $\geq 4$  ft

If there is a center loop, then **F = B** or **G** which ever is largest.

### Exit Loop

**H = G** or **I** which ever is largest.

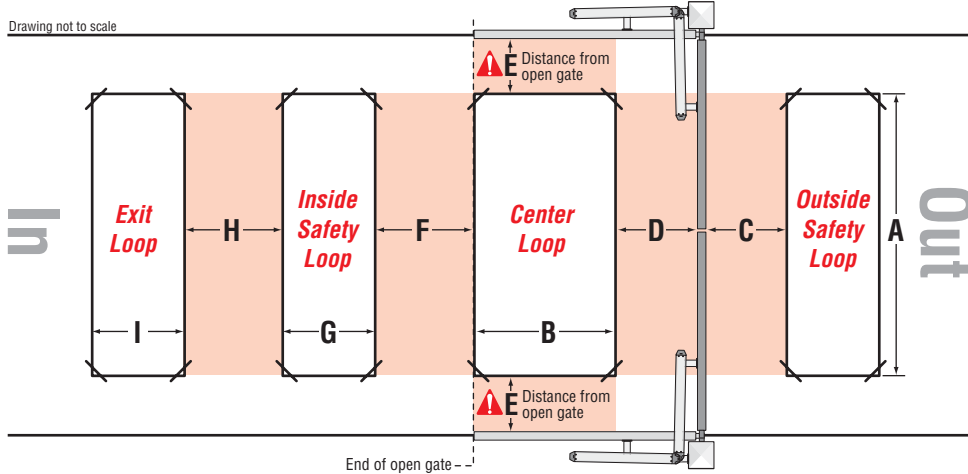
This is for a typical single Miracle 1 loop installation. Individual circumstances may alter dimensions.

For toll free technical support: **1-888-ELITE-10**

# MASTER/SLAVE LOOP SIZE AND PLACEMENT

It is **VERY** important to have enough separation between loops and gates to prevent false detection.

**⚠ Caution:** Distance “E” must be a minimum of 4 feet away from open gate!



### Outside Safety Loop:

<b>If A =</b>	6 Feet	9 Feet	12 Feet	15 Feet	18 Feet	21 Feet
<b>Then C =</b>	4 Feet	4.5 Feet	5 Feet	5 Feet	5.5 Feet	6 Feet

### Center Loop:

This loop must have enough space between loop and gate when **opened** or **closed**.

If driveway is **smaller** than 18 ft, then **D** must be  $\geq 4.5$  ft

If driveway is **bigger** than 18 ft, then **D** must be  $\geq 5$  ft

<b>If B =</b>	6 Feet	9 Feet	12 Feet	15 Feet
<b>Then E =</b>	4 Feet	4.5 Feet	5 Feet	5 Feet

### Inside Safety Loop

If there is **no** center loop, then **F**  $\geq 4$  ft

If there is a center loop, then **F = B** or **G** which ever is largest.

### Exit Loop

**H = G** or **I** which ever is largest.

This is for a typical master/slave loop installation. Individual circumstances may alter dimensions.

For toll free technical support: **1-888-ELITE-10**

# LOOP INSTALLATION AND NUMBER OF WIRE TURNS

## Loop Installation “Saw Cut” Type

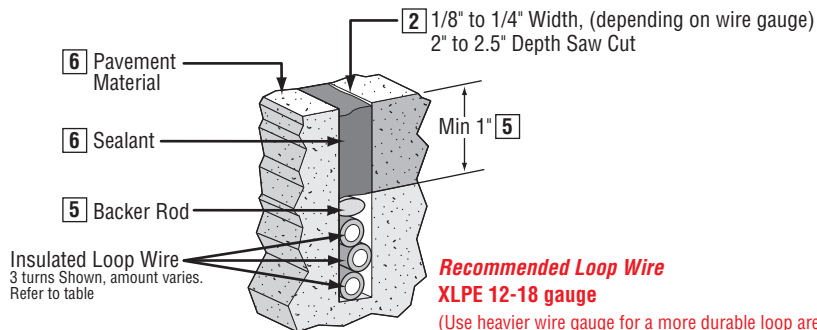
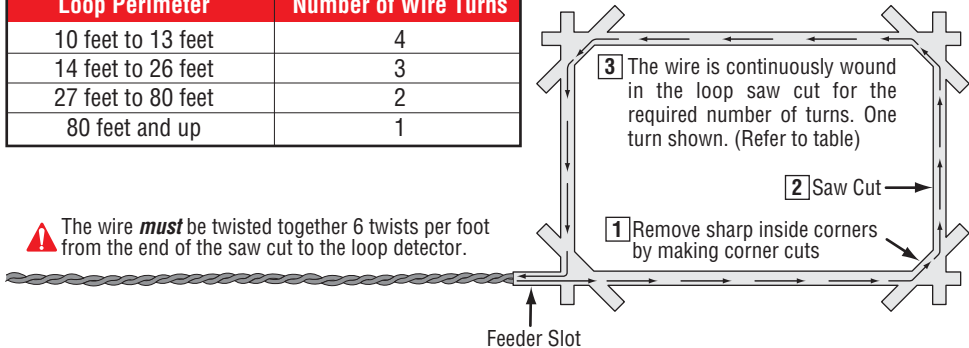
- 1 Mark the loop layout on the pavement. Remove sharp inside corners that can damage the loop wire insulation.
- 2 Set the saw to cut to a depth (typically 2" to 2.5") that insures a minimum of 1" from the top of the wire to pavement surface. The saw cut width should be larger than the wire diameter to avoid damage to the wire insulation when placed in the saw slot. Cut the loop and feeder slots. Remove all debris from the slot with compressed air. Check that the bottom of the slot is even.
- 3 It is highly recommended that a continuous length of wire be used to form the loop and feeder to the detector. It is also highly recommend using 12-18 AWG cross-link polyethylene (XLPE) insulation for the loop wire. Use heavier wire gauge for a more durable loop area. Use a wood stick or roller to insert the wire to the bottom of the saw cut (Do not use sharp objects). Wrap the wire in the loop saw cut until the desired number of turns is reached. Each turn of wire must lay flat on top of the previous turn.
- 4 The wire must be twisted together a minimum of 6 twists per foot from the end of the saw cut to the detector.
- 5 The wire must be held firmly in the slot with 1" pieces of backer rod every 1 to 2 feet. This prevents the wire from floating when the loop sealant is applied.
- 6 Apply the sealant. The sealant selected should have good adhering properties with similar expansion and contraction characteristics to that of the pavement material.

## Number of Wire Turns Needed for Loop

### ⚠ Important

Loop Perimeter	Number of Wire Turns
10 feet to 13 feet	4
14 feet to 26 feet	3
27 feet to 80 feet	2
80 feet and up	1

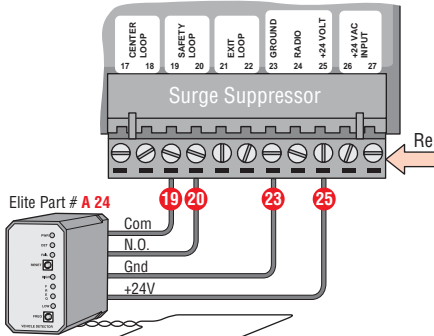
⚠ The wire **must** be twisted together 6 twists per foot from the end of the saw cut to the loop detector.



# LOOP DETECTOR WIRING

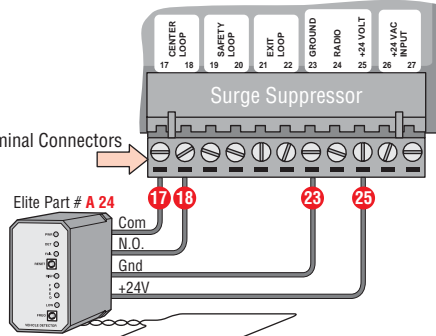
## Safety Loop

Allows gate to stay open when vehicles are obstructing gate path.

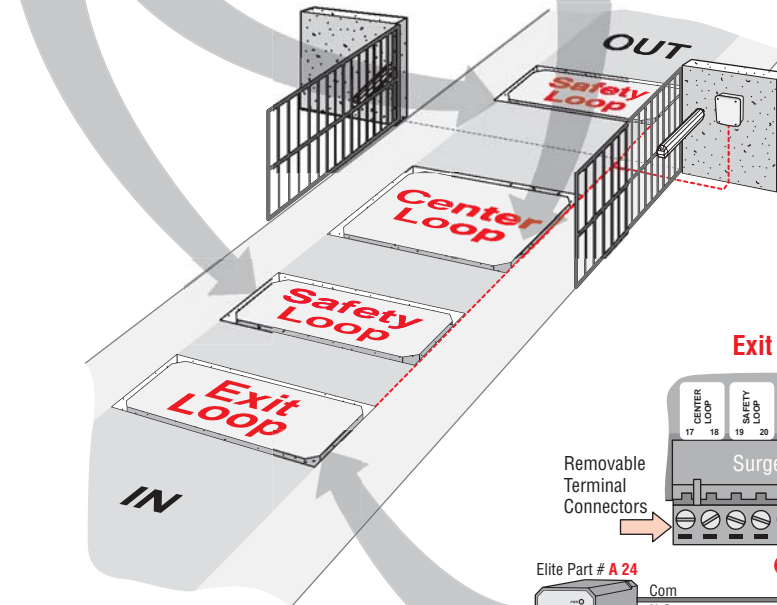


## Center Loop

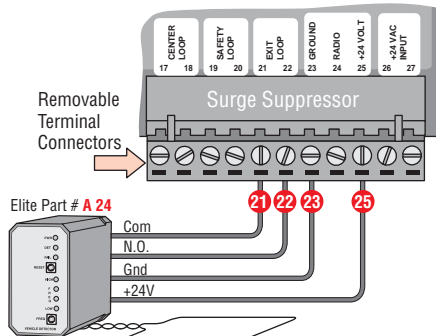
Allows gate to stay open when vehicles are obstructing gate path.



For fail safe operation, connect safety loops in series.

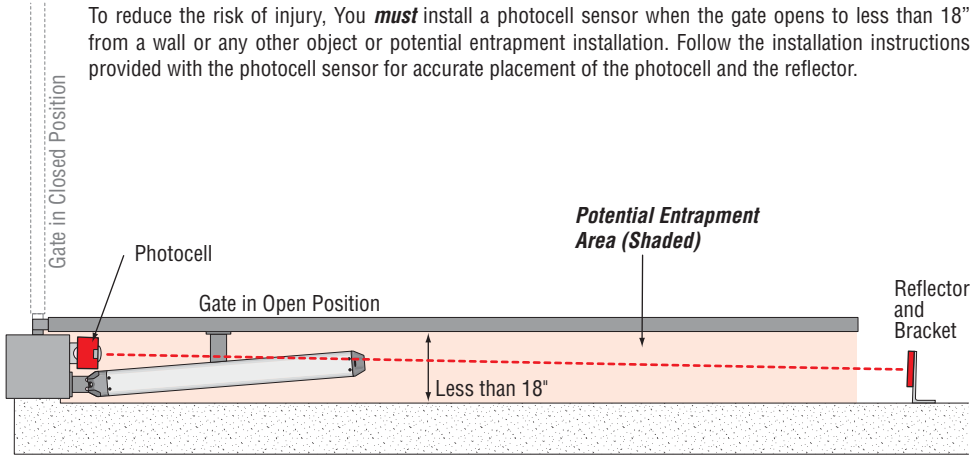


## Exit Loop



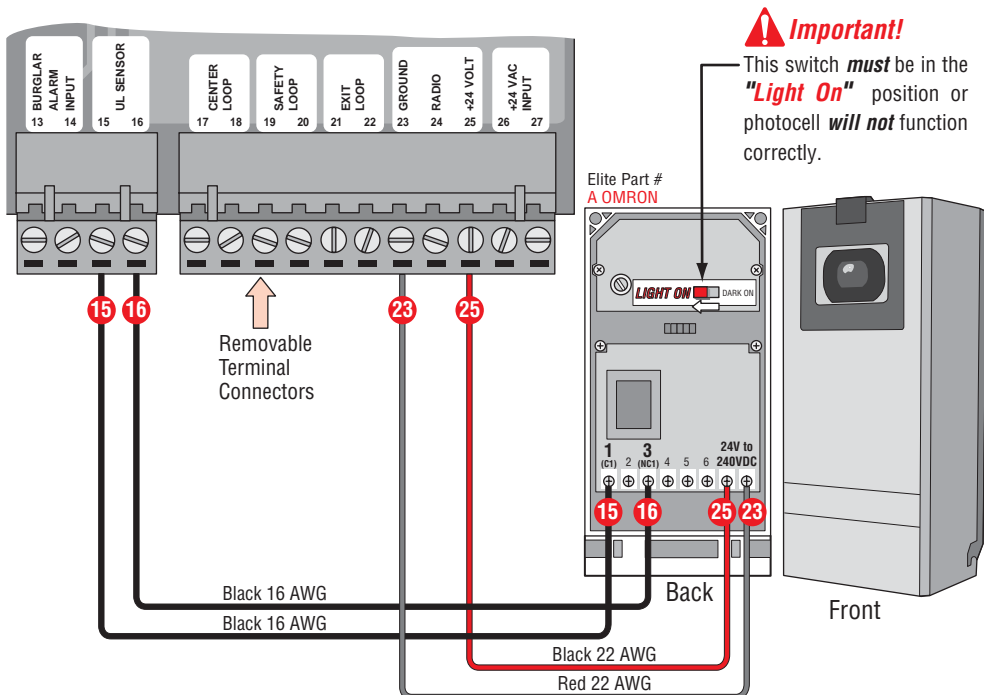
Allows gate to automatically open for exiting vehicles.

# P H O T O C E L L   I N S T A L L A T I O N

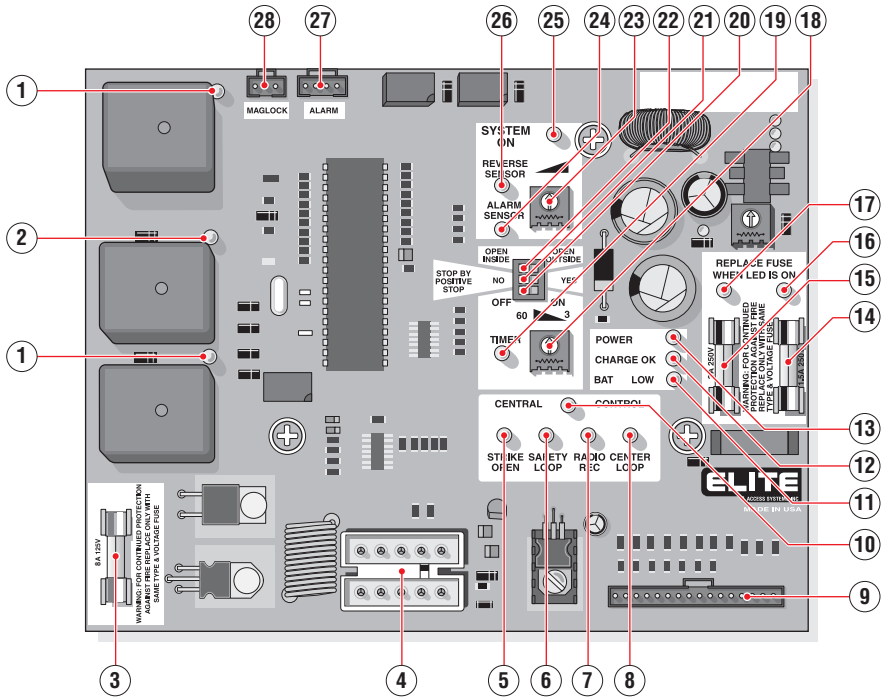


If **multiple sensors** are being used, all of the photo beam sensors are to be **connected in parallel at the UL sensor input on the surge suppression board**.

If you are going to use a non-contact sensor as a secondary entrapment protection you should use a recognized component to comply with the revised UL 325 intended to be used in class I or class II gate operator, like the following: OMRON Retro-Reflective Photocell, Model: E3K-R10K4-NR

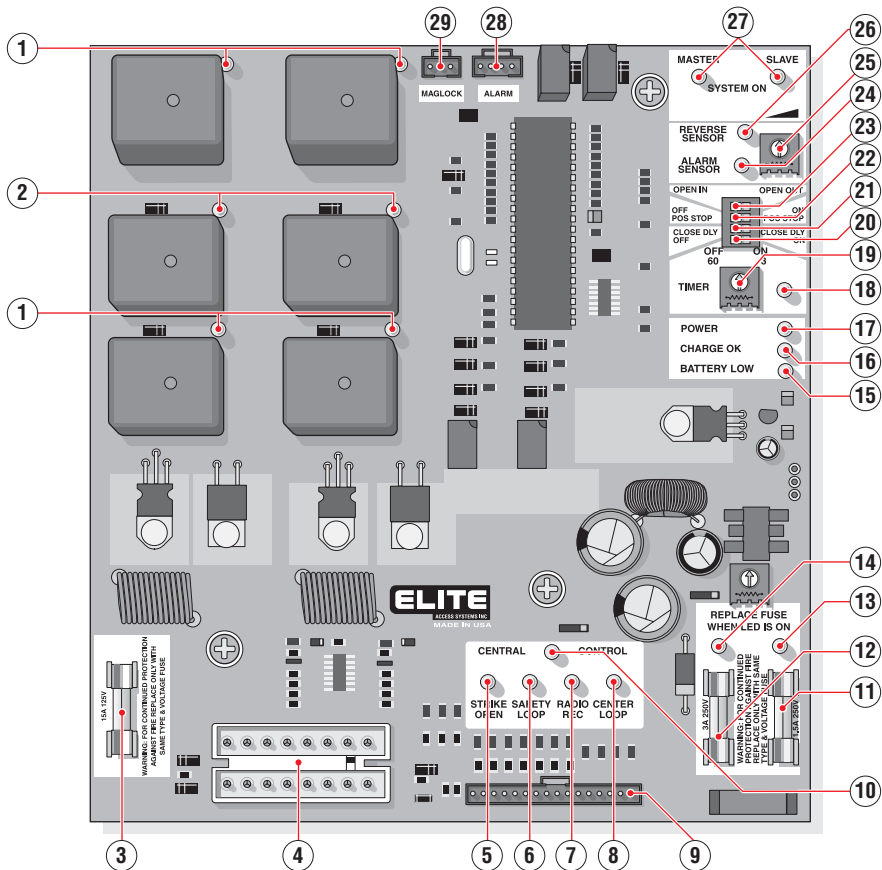


# CONTROL BOARD DESCRIPTION



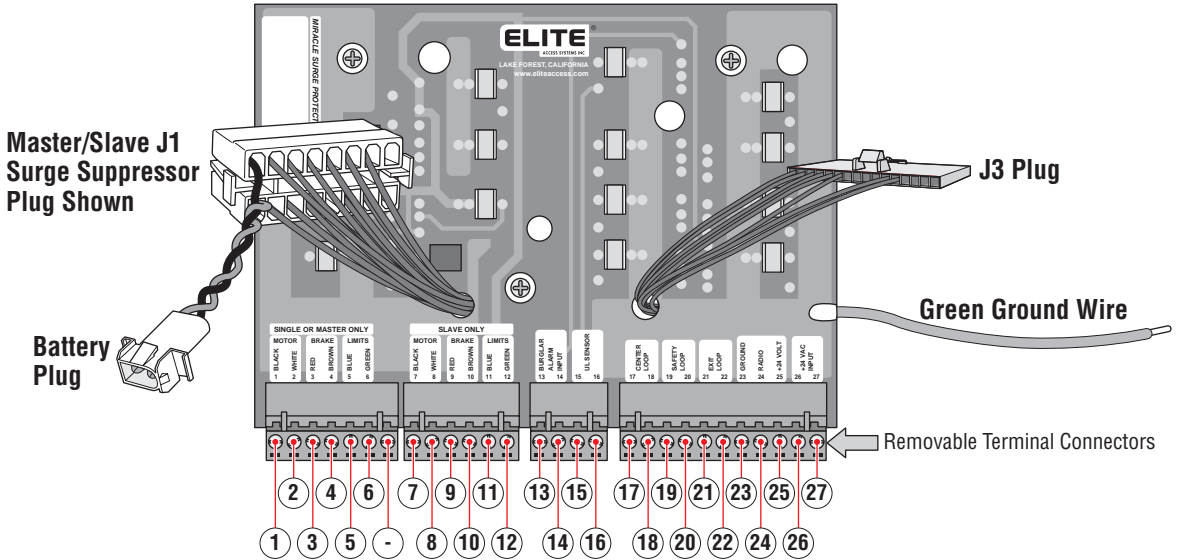
- |   |   |
|---|---|
| ① Open or Close Relay LED                   | ⑮ Board Fuse                                    |
| ② Control Relay LED                         | ⑯ Replace Charging Power Fuse LED               |
| ③ Motor Fuse                                | ⑰ Replace Board Fuse LED                        |
| ④ J1-Batteries and Motor Connector          | ⑱ Timer Pot (3 to 60 sec.)                      |
| ⑤ Strike Open LED                           | ⑲ Timer Active LED                              |
| ⑥ Safety Loop LED                           | ⑳ Switch-Timer, Off / On                        |
| ⑦ Radio Receiver LED                        | ㉑ Stop by Positive Stop Option Switch, No / Yes |
| ⑧ Center Loop LED                           | ㉒ Switch-Open Inside / Outside                  |
| ⑨ J3 Transformer & Input Commands Connector | ㉓ Reverse Sensor Adjustment                     |
| ⑩ Central Control LED                       | ㉔ Alarm Sensor LED                              |
| ⑪ Batteries Low LED                         | ㉕ System On LED                                 |
| ⑫ Charger Ok LED                            | ㉖ Reverse Sensor LED                            |
| ⑬ Power LED                                 | ㉗ Burglar Alarm & Audio Alarm Output Connector  |
| ⑭ Charging Power Fuse                       | ㉘ Maglock Connector                             |

# CONTROL BOARD DESCRIPTION Master / Slave



- |    |   |    |   |
|----|---|----|---|
| 1  | Open or Close Relay LED                   | 16 | Charge OK LED   |
| 2  | Control Relay LED                         | 17 | Power LED   |
| 3  | Motor Fuse                                | 18 | Timer Active LED  |
| 4  | J1-Batteries and Motor Connector          | 19 | Timer Pot (3 to 60 sec.)                                  |
| 5  | Strike Open LED                           | 20 | Switch-Timer, Off / On                                    |
| 6  | Safety Loop LED                           | 21 | Overlapping Gate, Off / On                                |
| 7  | Radio Receiver LED                        | 22 | Stop by Positive Stop Option Switch, No / Yes Close Delay |
| 8  | Center Loop LED                           | 23 | Switch-Open Inside / Outside                              |
| 9  | J3 Transformer & Input Commands Connector | 24 | Alarm Sensor LED  |
| 10 | Central Control LED                       | 25 | Reverse Sensor Adjustment                                 |
| 11 | Charging Power Fuse                       | 26 | Reverse Sensor LED  |
| 12 | Board Fuse                                | 27 | System On LED   |
| 13 | Replace Charging Power Fuse LED           | 28 | Burglar Alarm & Audio Alarm Output Connector              |
| 14 | Replace Board Fuse LED                    | 29 | Maglock Connector   |
| 15 | Batteries Low LED                         |    |   |

# SURGE SUPPRESSOR BOARD DESCRIPTION



- |   |                                       |   |                            |   |
|---|---------------------------------------|---|----------------------------|---|
| <ul style="list-style-type: none"> <li>① Black Wire from Operator (Power)</li> <li>② White Wire from Operator (Power)</li> <li>③ Red Wire from Operator (Brake)</li> <li>④ Brown Wire from Operator (Brake)</li> <li>⑤ Blue Wire from Operator (Limits)</li> <li>⑥ Green Wire from Operator (Limits)</li> </ul> | <p>Single or Master Operator Only</p> | <ul style="list-style-type: none"> <li>⑦ Black Wire from Operator (Power)</li> <li>⑧ White Wire from Operator (Power)</li> <li>⑨ Red Wire from Operator (Brake)</li> <li>⑩ Brown Wire from Operator (Brake)</li> <li>⑪ Blue Wire from Operator (Limits)</li> <li>⑫ Green Wire from Operator (Limits)</li> </ul> | <p>Slave Operator Only</p> | <ul style="list-style-type: none"> <li>⑬ Burglar Alarm Input (Normally Open)</li> <li>⑭ Burglar Alarm Input (Common)</li> <li>⑮ UL Sensor Input (Normally Open)</li> <li>⑯ UL Sensor Input (Common)</li> <li>⑰ Center Loop (Normally Open)</li> <li>⑱ Center Loop (Common)</li> <li>⑲ Safety Loop (Normally Open)</li> <li>⑳ Safety Loop (Common)</li> <li>㉑ Exit Loop (Normally Open)</li> <li>㉒ Exit Loop (Common)</li> <li>㉓ Ground (Common)</li> <li>㉔ Radio Relay Input</li> <li>㉕ Radio Input (+ 24 Volt DC)</li> <li>㉖ AC Power Input +24 VAC (Polarity does not matter)</li> <li>㉗ AC Power Input +24 VAC (Polarity does not matter)</li> </ul> |
|---|---------------------------------------|---|----------------------------|---|

# ALARM & MAGLOCK CONNECTIONS

## Relay Contact Rating

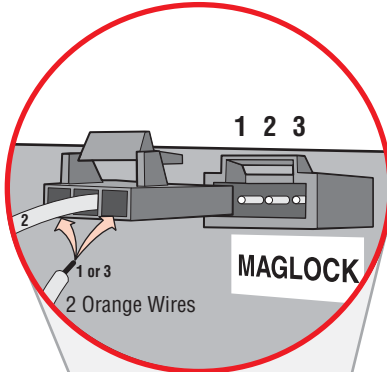
0.5 A - 125 VAC

1 A - 24 VDC

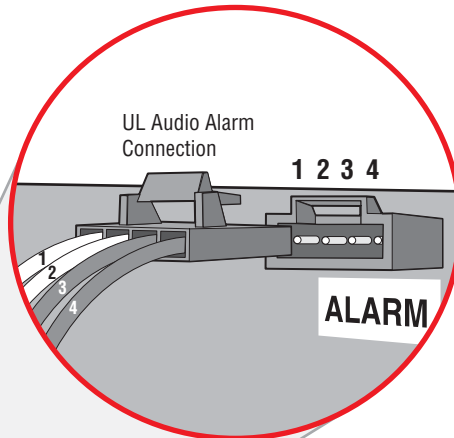


Use the harness provided with the unit to make the connections to the **alarm** outputs. (Refer to next page)

### Maglock Connection (Optional)



### Alarm Connection



#### Connect for Open Inside

1. Ground - for Open Inside
2. Power

OR

#### Connect for Open Outside

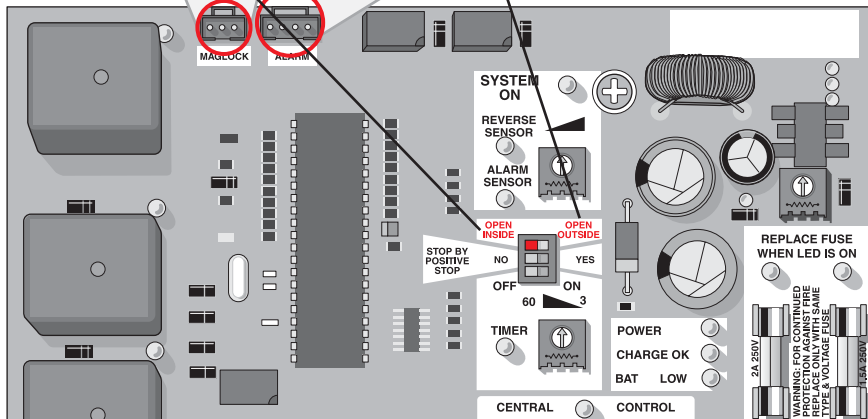
2. Power
3. Ground - for Open Outside

#### Burglar Alarm Relay Output

1. Common
2. N. O.

#### UL Audio Alarm Connection

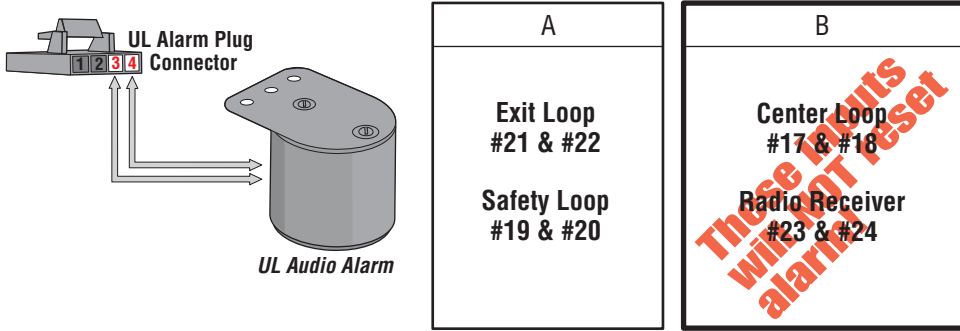
- 3 and 4 UL Audio Alarm



# UL AUDIO ALARM

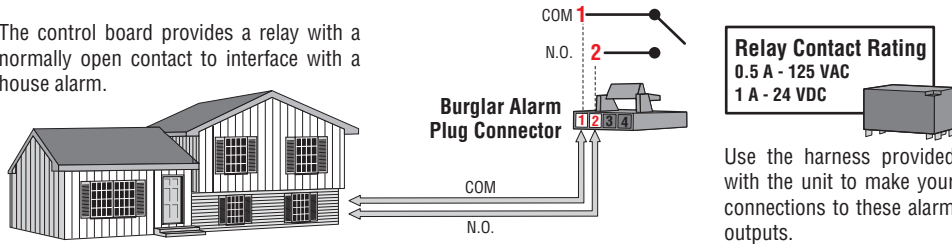
This UL alarm is required per UL-325. It will go off after **2 consecutive events** on reverse sensor.

The UL alarm will sound for a period of 5 minutes or until a new command is received by one of the commands in column A but **NOT** column B.



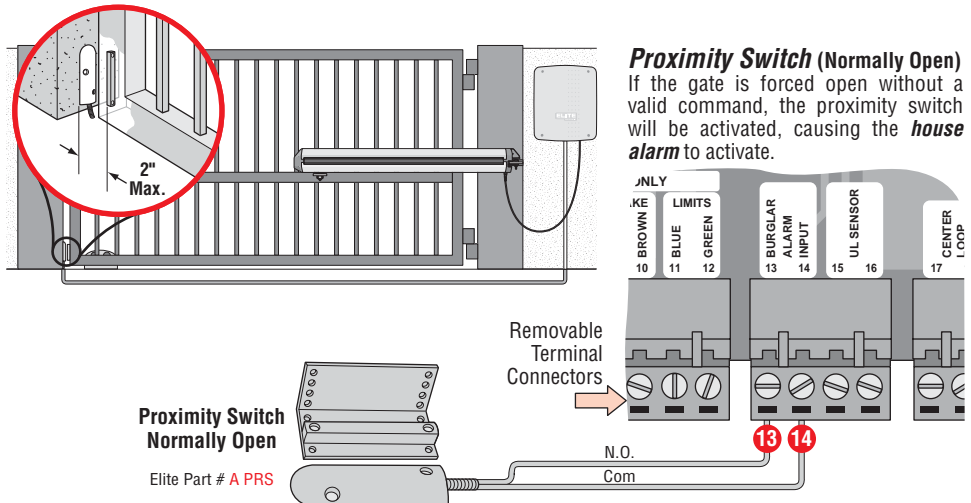
# BURGLAR ALARM

The control board provides a relay with a normally open contact to interface with a house alarm.

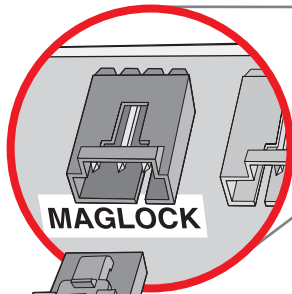


## ⚠ Important:

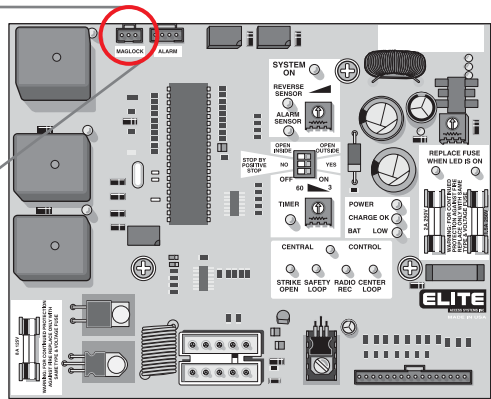
When interfacing with a house burglar alarm you must install **positive stops** at the gate closed position.



# GATE OPENING "INSIDE" INSTALLATION OF...

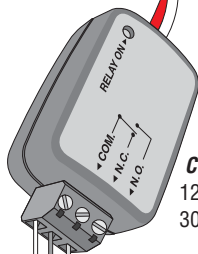


**MAGLOCK**



Control Board

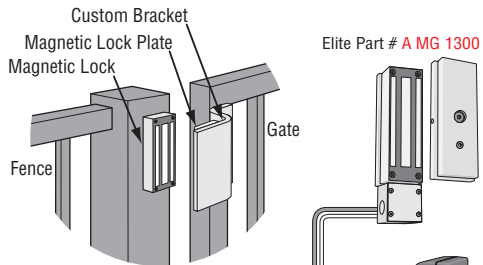
1. **Ground** - Plug in white wire to open gate *Inside*
2. **Power** - Always plugged in (red wire)



Elite Part # **Q240 MAU**

**Contact Rating**  
125 VAC - 0.5 A  
30 VDC - 2 A

## ...Magnetic Lock Wiring



Elite Part # **A MG 1300**

N.C.

Common

Power for Maglock

### **Note:**

The optional relay module (Elite Part # Q240 MAU), allowing interface with external devices, is available, only from Elite Access Systems.

## ...Solenoid Lock Wiring

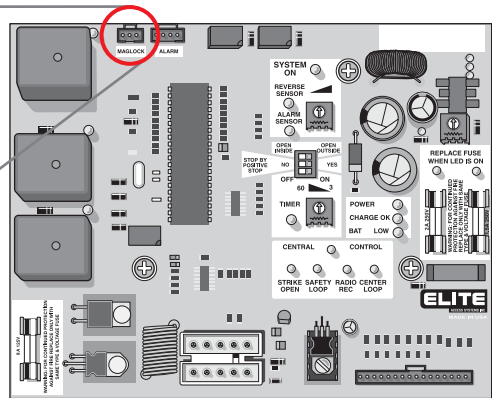
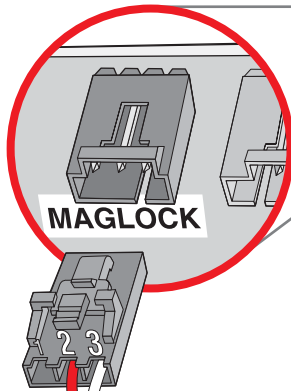


N.O.

Common

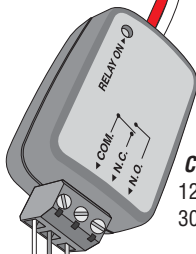
Power for Solenoid

# GATE OPENING "OUTSIDE" INSTALLATION OF...



Control Board

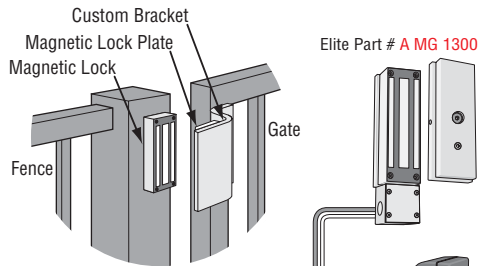
- 2. **Power** - Always plugged in (red wire)
- 3. **Ground** - Plug in white wire to open gate *Outside*



Elite Part # Q240 MAU

**Contact Rating**  
 125 VAC - 0.5 A  
 30 VDC - 2 A

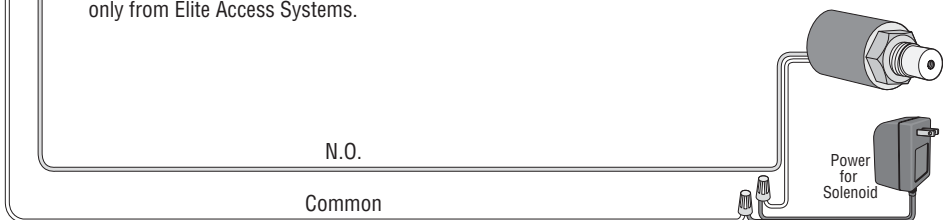
## ...Magnetic Lock Wiring



### Note:

The optional relay module (Elite Part # Q240 MAU), allowing interface with external devices, is available, only from Elite Access Systems.

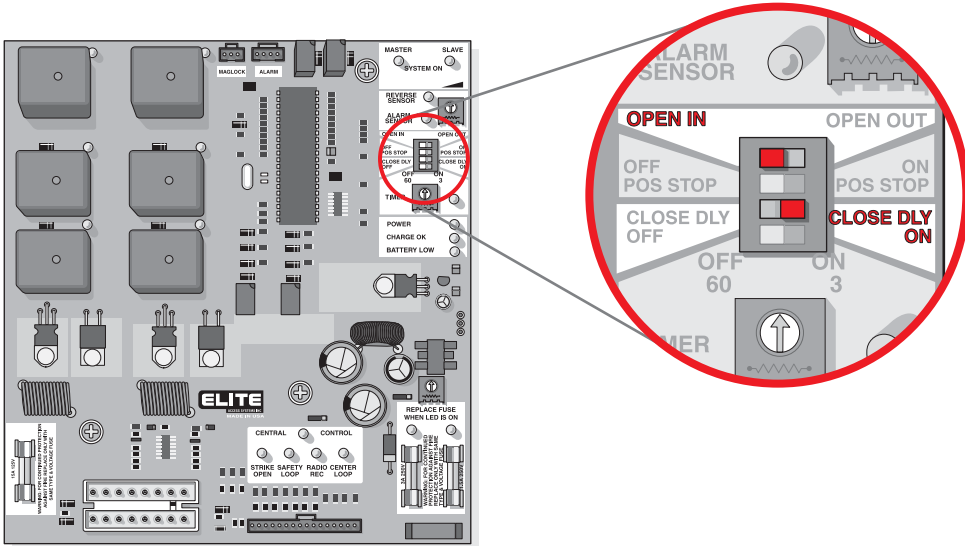
## ...Solenoid Lock Wiring



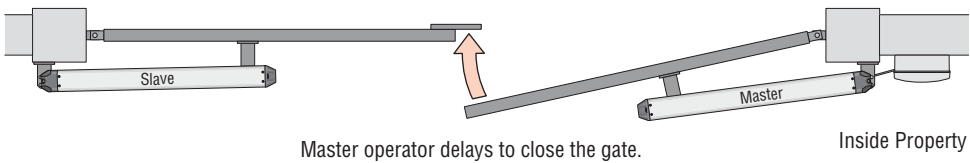
# CLOSE DELAY OPTION

## Master/Slave Only

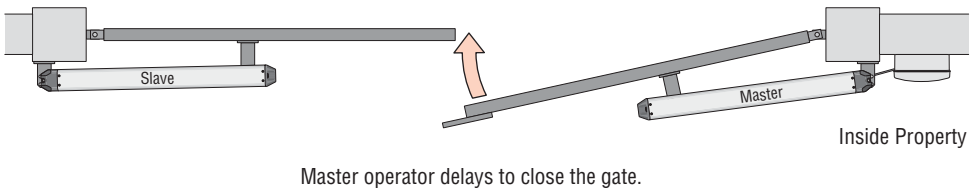
This option is to be used when there is a master/slave installation with overlapping gates.



### Opening "Inside" and Overlap to the "Outside"...



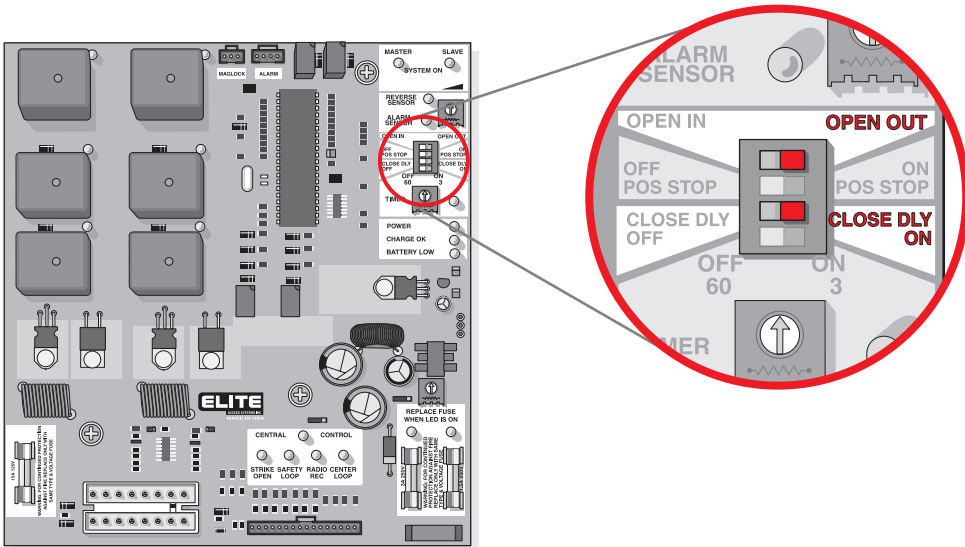
### Opening "Inside" and Overlap to the "Inside"...



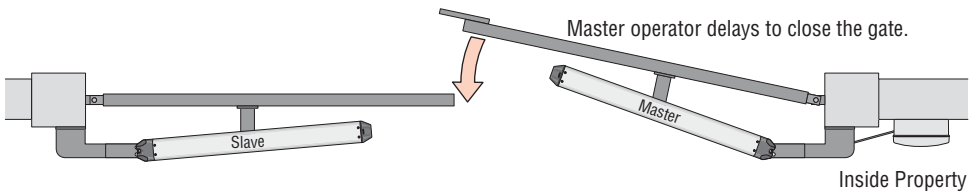
# CLOSE DELAY OPTION

## Master/Slave Only

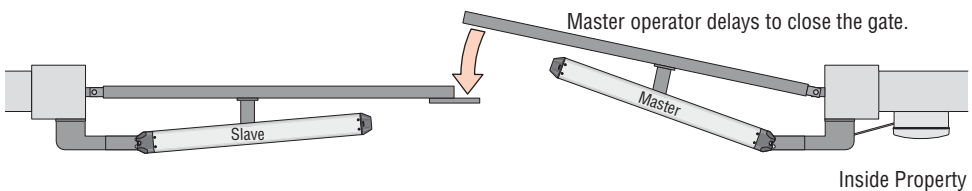
This option is to be used when there is a master/slave installation with overlapping gates.



### Opening "Outside" and Overlap to the "Outside"...

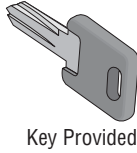


### Opening "Outside" and Overlap to the "Inside"...

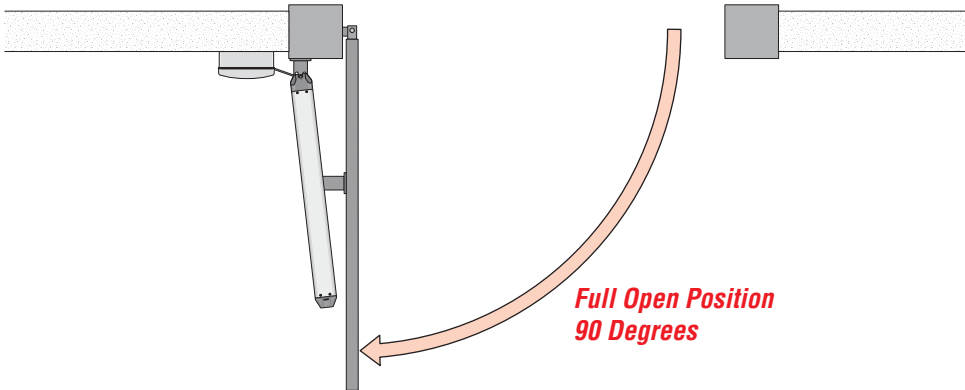


# EMERGENCY KEY RELEASE

**Step 1:** To move the gate during an emergency or power failure, insert key and turn counterclockwise to **Unlock** the Miracle 1 from the gate.



**Step 2:** Move the gate **manually** to the full open position 90°.



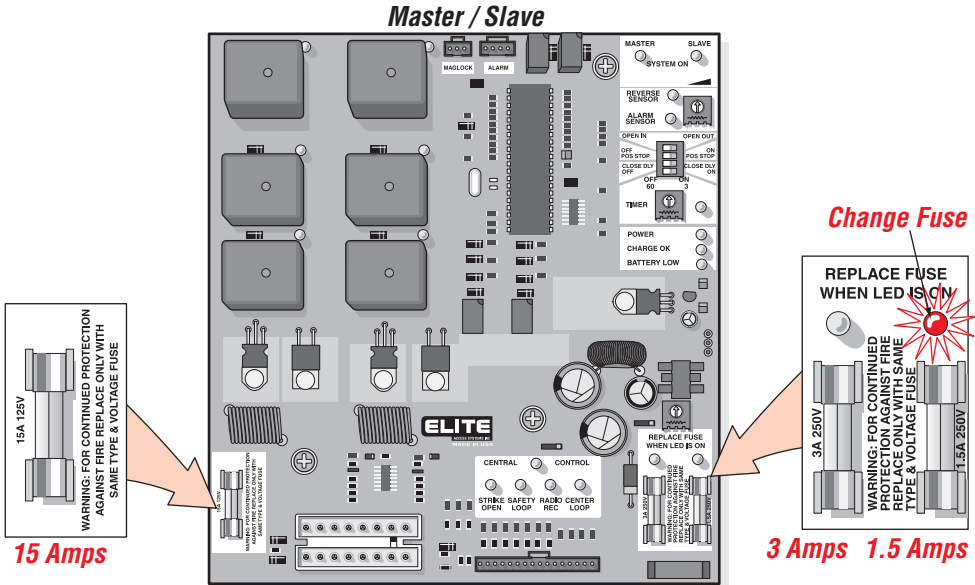
**Step 3:** **Re-Lock** the operator by turning the key clockwise while pushing or pulling on the gate until you hear the key release click into place. The operator can resume normal operation as soon as power is restored.



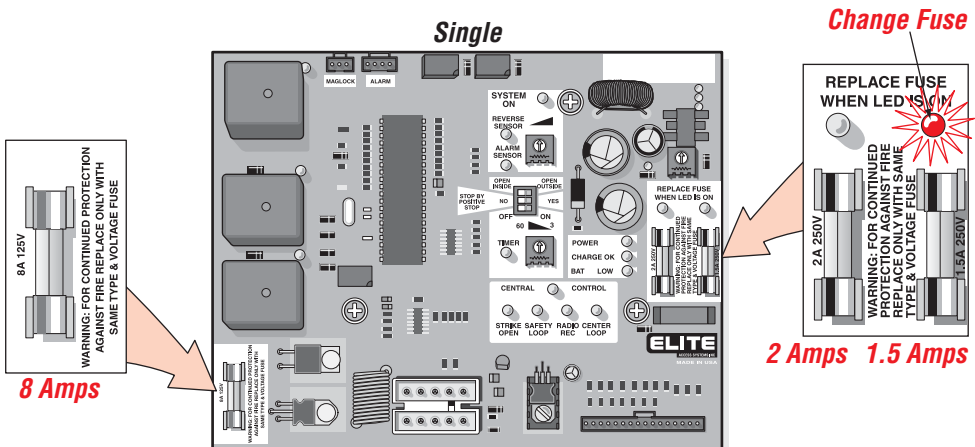
# TROUBLESHOOTING

## Check the Fuses

If the gate is not moving in any direction be sure to check all of the LED displays on the control board. If the board power or charging power LEDs are on, change the corresponding fuse on the right side of the board. If the motor will not work, and all LED's on the board are ok, check the fuse on the left side of the board and replace if necessary.



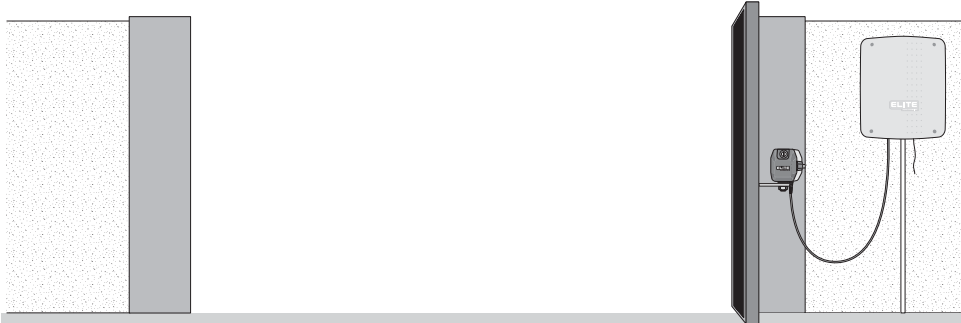
**⚠ Caution:** If left side board fuse is blowing on a regular basis, make sure operator is operating smoothly. Verify traveler carriage washer placement (Page 12). Check motor wire connections. Replace the fuses only with specified rating (Supplied by Elite Access).



# TROUBLESHOOTING

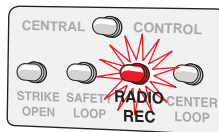
## The Gate Will Not Close!

For Toll Free Technical Support: 1-888-ELITE-10

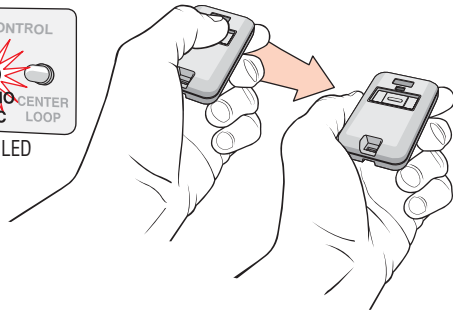


**Symptom:** The radio receiver LED on the control board remains “ON” when using the remote control.

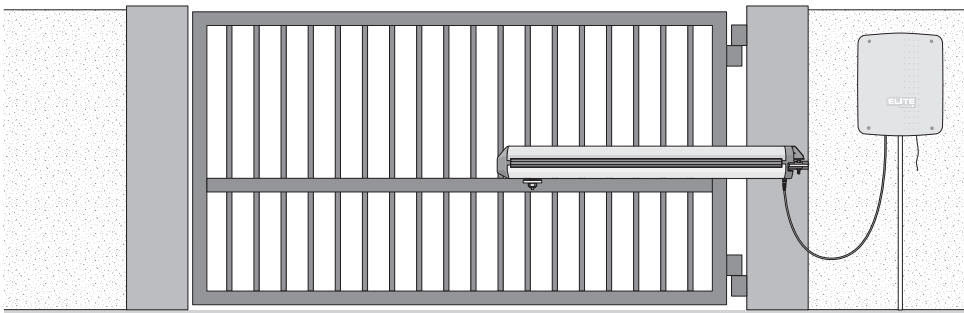
**Possible Solutions:** Stuck remote control button. The radio receiver has malfunctioned in the “ON” position.



Control Board LED



## The Gate Will Not Open!

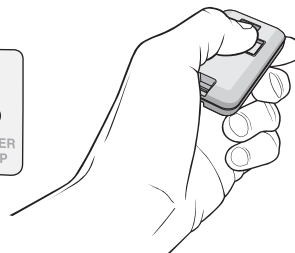


**Symptom:** The radio receiver LED on the control board remains “OFF” when using the remote control.

**Possible Solutions:** Dead battery in the remote control. Remote control code switches are different from radio receiver code switches. The radio receiver has malfunctioned in the “OFF” position.



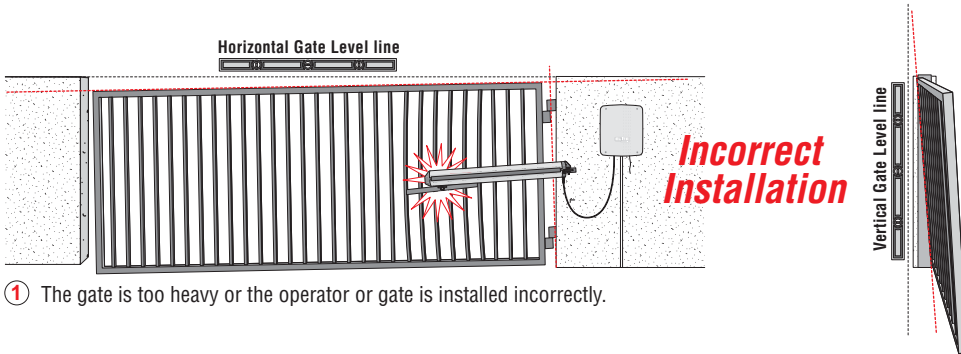
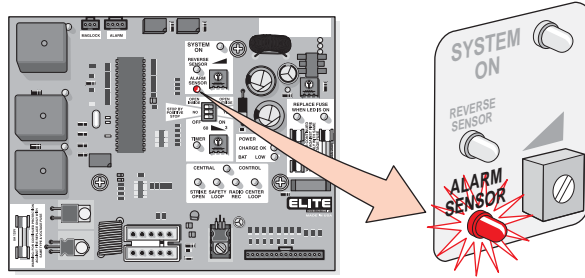
Control Board LED



# TROUBLESHOOTING

You will **SEE** the alarm LED “**ON**” when...

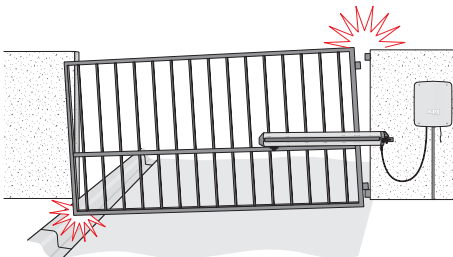
For Toll Free Technical Support:  
**1-888-ELITE-10**



① The gate is too heavy or the operator or gate is installed incorrectly.



② A foreign object is on the gate frame while the gate is moving.



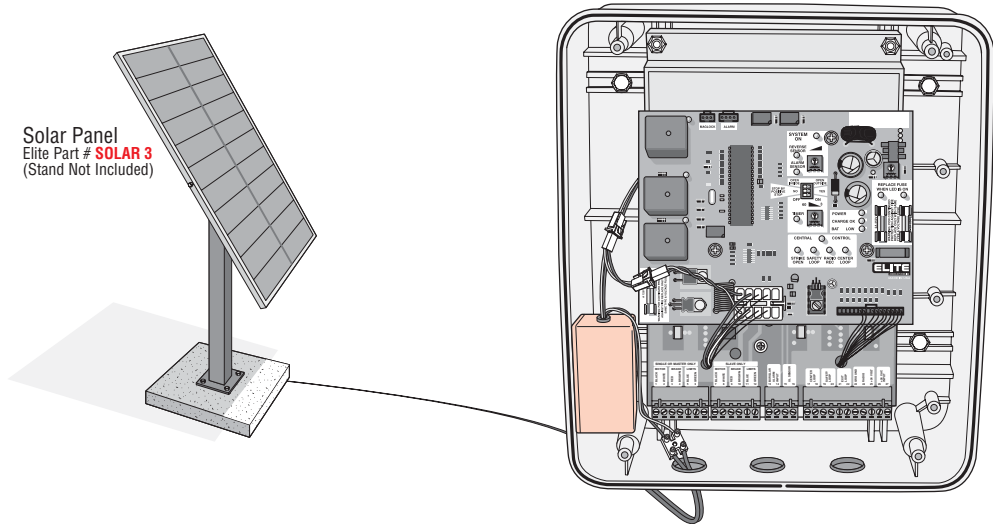
③ Gate hinges are too tight or broken and the gate is not moving freely.



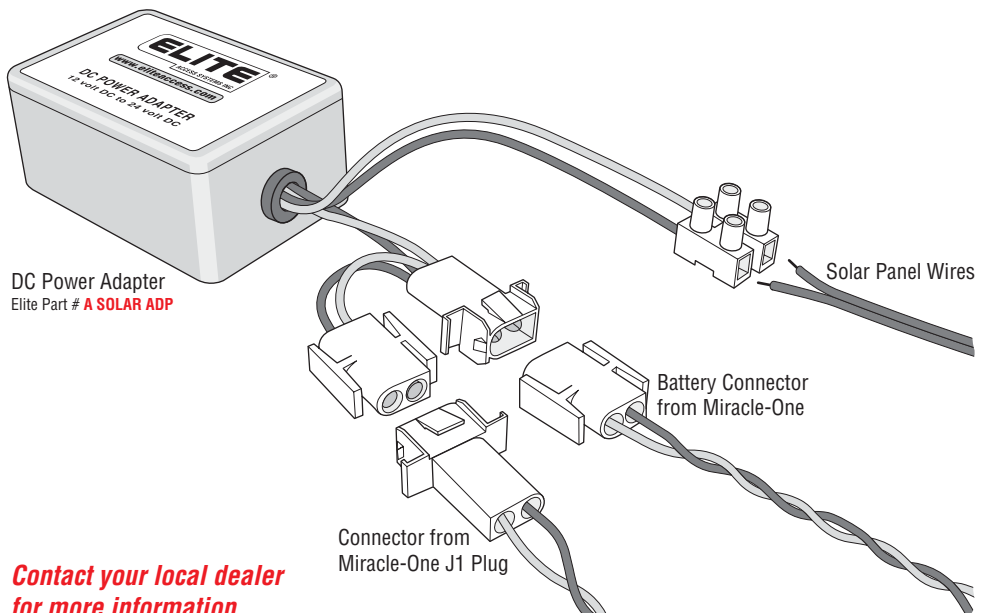
④ The gate hits the driveway, curb or other, and gets stuck in an awkward position.

## OPTIONAL SOLAR POWER

Elite offers a plug-in solar adapter and solar panel as an option for the Miracle 1. Simply plug in the adapter to the existing electronic control box. No other modifications are necessary. Elite's "SOLAR 3" solar panel provides solar power for the Miracle 1 single and double arm operators. Contact your local dealer for more information.

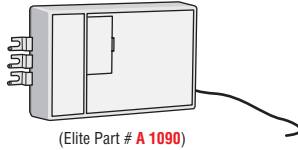


**DC Power Adapter fits inside the Miracle-One electronic box**



# MIRACLE 1 ACCESSORIES

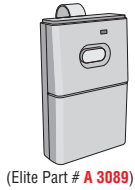
## 24V DC Radio Receiver



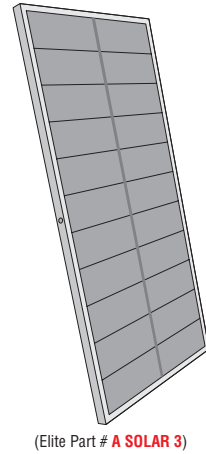
## Maglock/Solenoid Relay Adapter



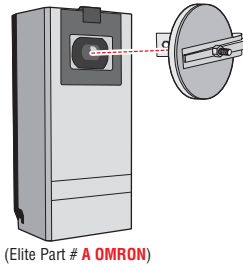
## Transmitter



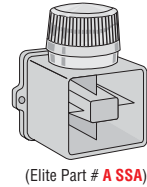
## Solar Panel



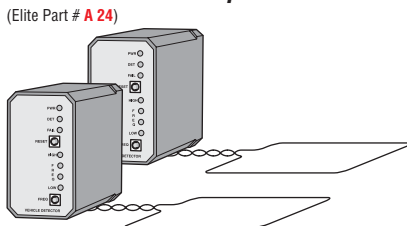
## 24V Photo Electric Eye



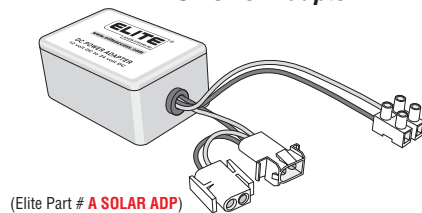
## Outdoor Siren with Strobe Light



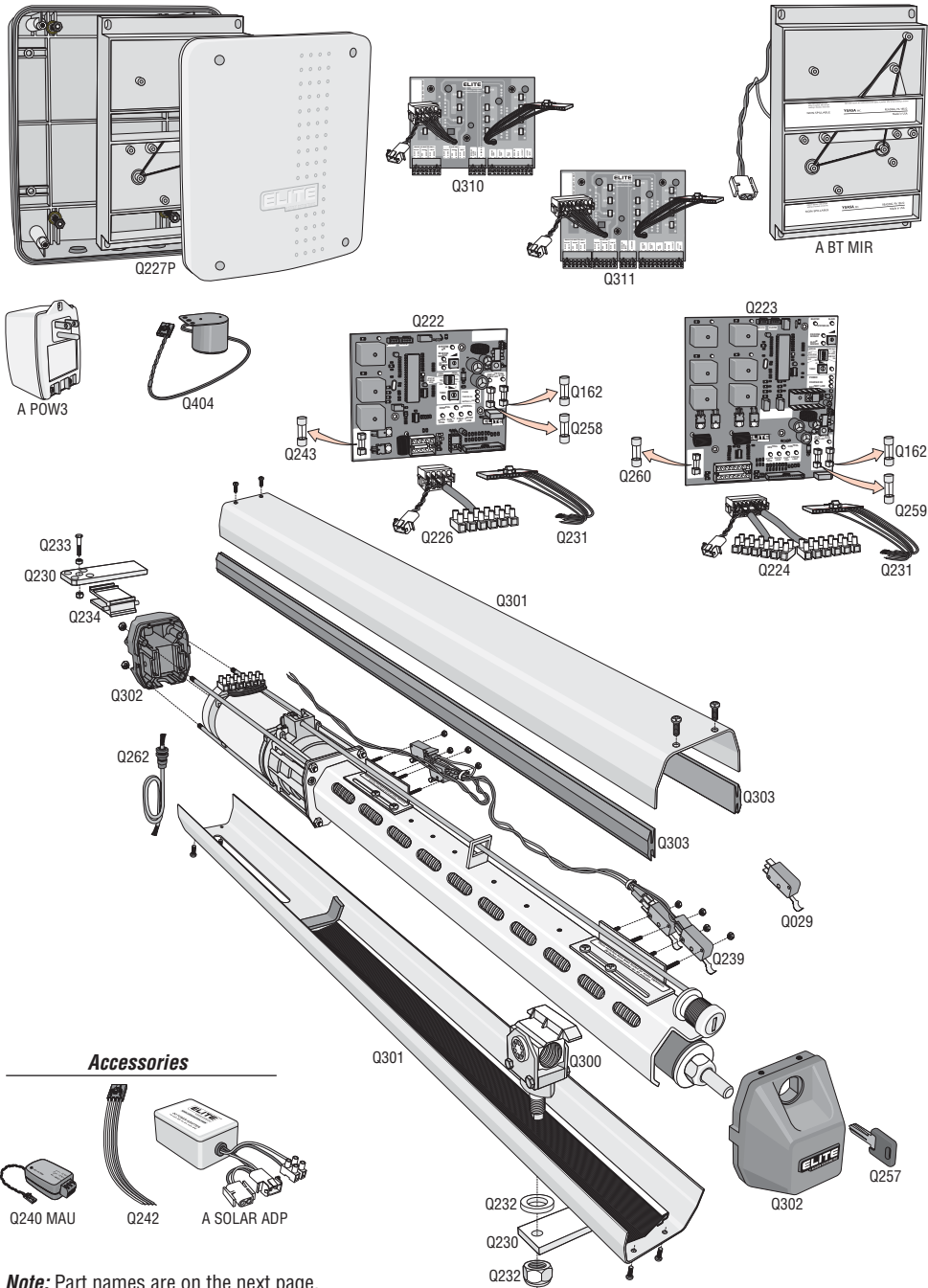
## 24V DC External Loop Detectors



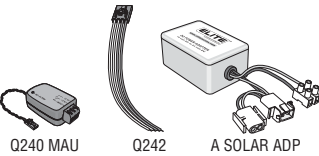
## DC Power Adapter



# MIRACLE 1 PARTS



## Accessories



**Note:** Part names are on the next page.

## M I R A C L E 1 P A R T S L I S T

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- A BT MIR** - Plastic Rack and 2 Batteries  
**A POW3** - Transformer (24 VAC)  
**A SOLAR ADP** - DC Solar Power Adapter  
**O-MIRACLE 1 ARM** - Single Miracle 1 Arm (Complete)  
**Q029** - Limit Switch (1)  
**Q162** - 1.5 Amp Fuse  
**Q222** - Control Board (Single Operator)  
**Q223** - Control Board (Master/Slave)  
**Q224** - Power Harness (Master/Slave)  
**Q226** - Power Harness (Single Operator)  
**Q227P** - Plastic Control Board Box (Nuts and Bolts for Battery Rack)  
**Q230** - Steel Bracket Mounting Plates (2)  
**Q231** - Radio and Accessory Harness  
**Q232** - Bottom Washer and Nut (for Traveler Carriage Bolt)  
**Q233** - Bolt, Bushing, Nut (Fits Rear Mount of Operator)  
**Q234** - Bracket/Rod  
**Q239** - Limit Switch Harness (Wires and 4 Limit Switches)  
**Q240 MAU** - Maglock/Solenoid Relay Adapter  
**Q242** - Alarm Harness  
**Q243** - 8 Amp Fuse Miracle 1  
**Q257** - Replacement Key (Operator made Post 3/14/99)  
**Q258** - 2 Amp Fuse Miracle 1  
**Q259** - 3 Amp Fuse Miracle M/S  
**Q260** - 15 Amp Fuse Miracle M/S  
**Q262** - Harness-Motor (Operator Cord)  
**Q300** - Traveler Carriage  
**Q301** - Arm Cover Set (Top and Bottom, Aluminum)  
**Q302** - Arm End Caps (Set)  
**Q303** - Arm Cover Gaskets (Set)  
**Q310** - Miracle 1 Surge Protection  
**Q311** - Miracle M/S Surge Protection  
**Q404** - UL Audio Alarm

## M A I N T E N A N C E

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This swing gate operator is designed to be very low in maintenance. For intensive duty installations: *(every six months)* lubricate the operator fitting plates, lubricate the gate hinges, and check that electric connections are in good conditions.

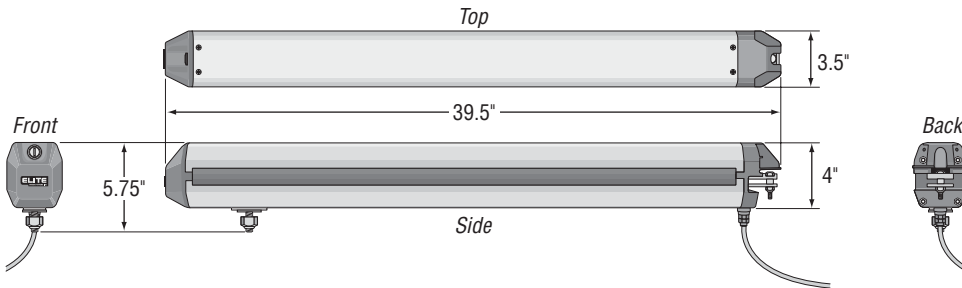
For Toll Free Technical Support: **1-888-ELITE-10 (1-888-354-8310)**

***Important:*** Any service must be performed by an authorized service technician.

# FEATURES AND SPECIFICATIONS

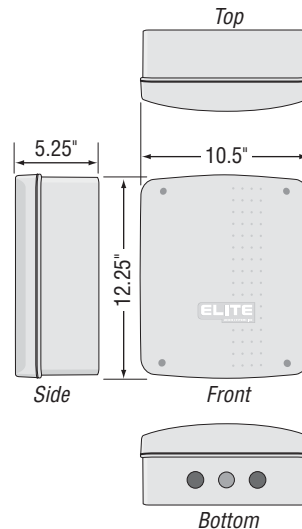
## Mechanical Specifications

<b>Motor -</b>	24V DC, 12 Amps.
<b>Cycles -</b>	100 / Day. (Consult factory for solar applications)
<b>Shipping Weight:</b>	Single Unit: 58 lbs. - Master/Slave: 89 lbs
<b>Torque -</b>	600 lbs. of torque.
<b>Finishing -</b>	Aluminum.
<b>Capabilities -</b>	Maximum gate size 15' wide, 600 lbs.
<b>Operator Travel Speed -</b>	14 to 18 seconds 90° opening.



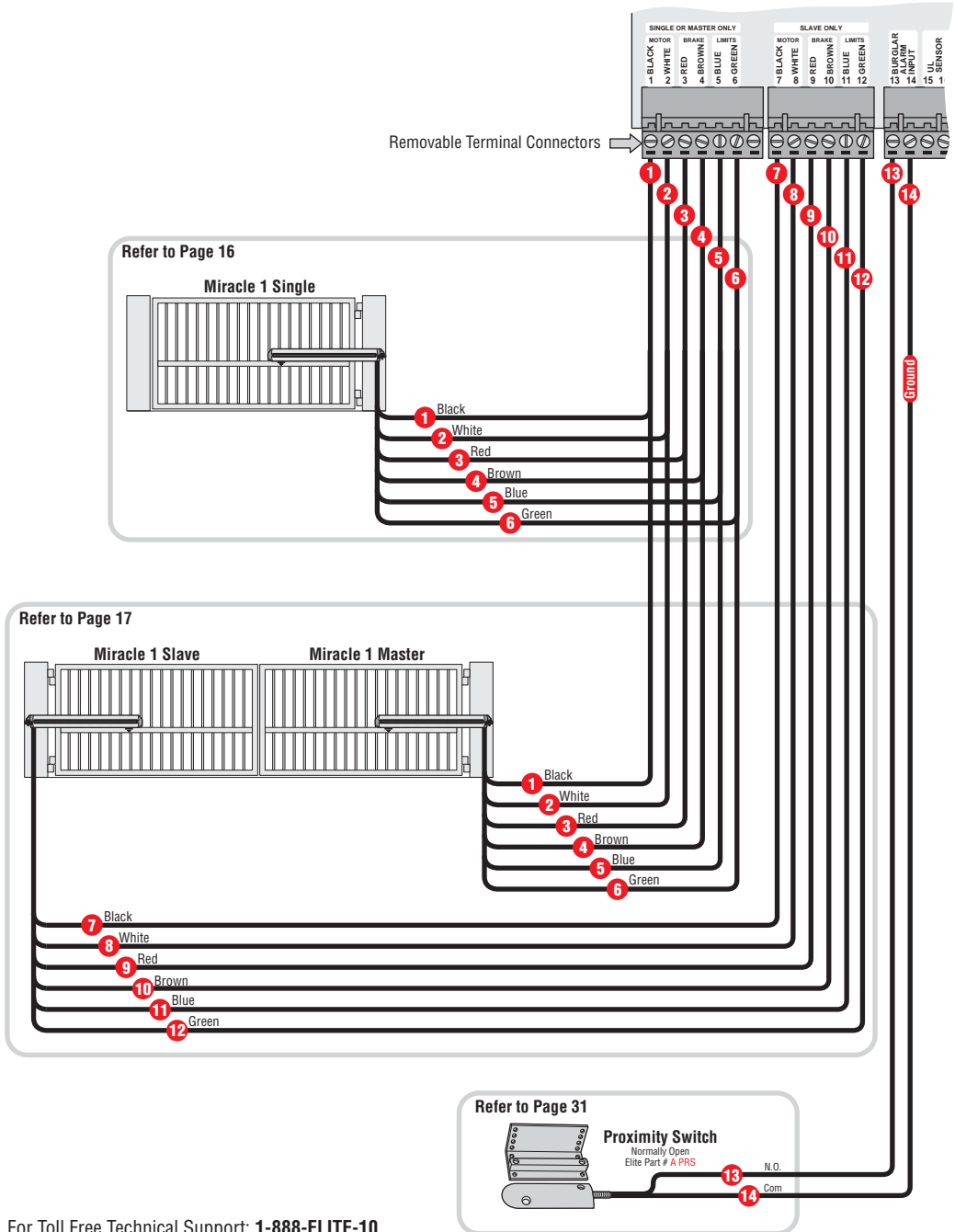
## Electrical Specifications

<b>Running System -</b>	Uses a Microcontroller with built-in "watchdog" system.
<b>Modular Board -</b>	Board uses LEDs to indicate all input and output functions.
<b>Sensor -</b>	When the gate makes contact with an object while opening or closing, the gate will reverse for 1 second then go into neutral, so it can be pushed by hand.
<b>Timer -</b>	Can be set from 3 to 60 seconds, or "push-open/stop/close" operation.
<b>Master/Slave -</b>	Dictates synchronized movement between two gate operators.
<b>Safety Loop Input -</b>	Anti-tailgating system uses a "stop only" method of operation. Will not work as a commercial loop system.
<b>Alarm Output -</b>	Can be interfaced with any home alarm system. Alarm will sound if the gate is forced open manually. Optional siren can be installed.
<b>Spike Suppressors -</b>	Protected by spike suppressors.
<b>Alternate Outputs -</b>	Sensor alarm, alarm system, and magnetic locks.
<b>Electronic Inputs -</b>	Any type of radio receiver, full-control system "push-open/stop/close", safety loop, photocell, telephone entry, and key switch.
<b>Housing Finish -</b>	Weather proof.



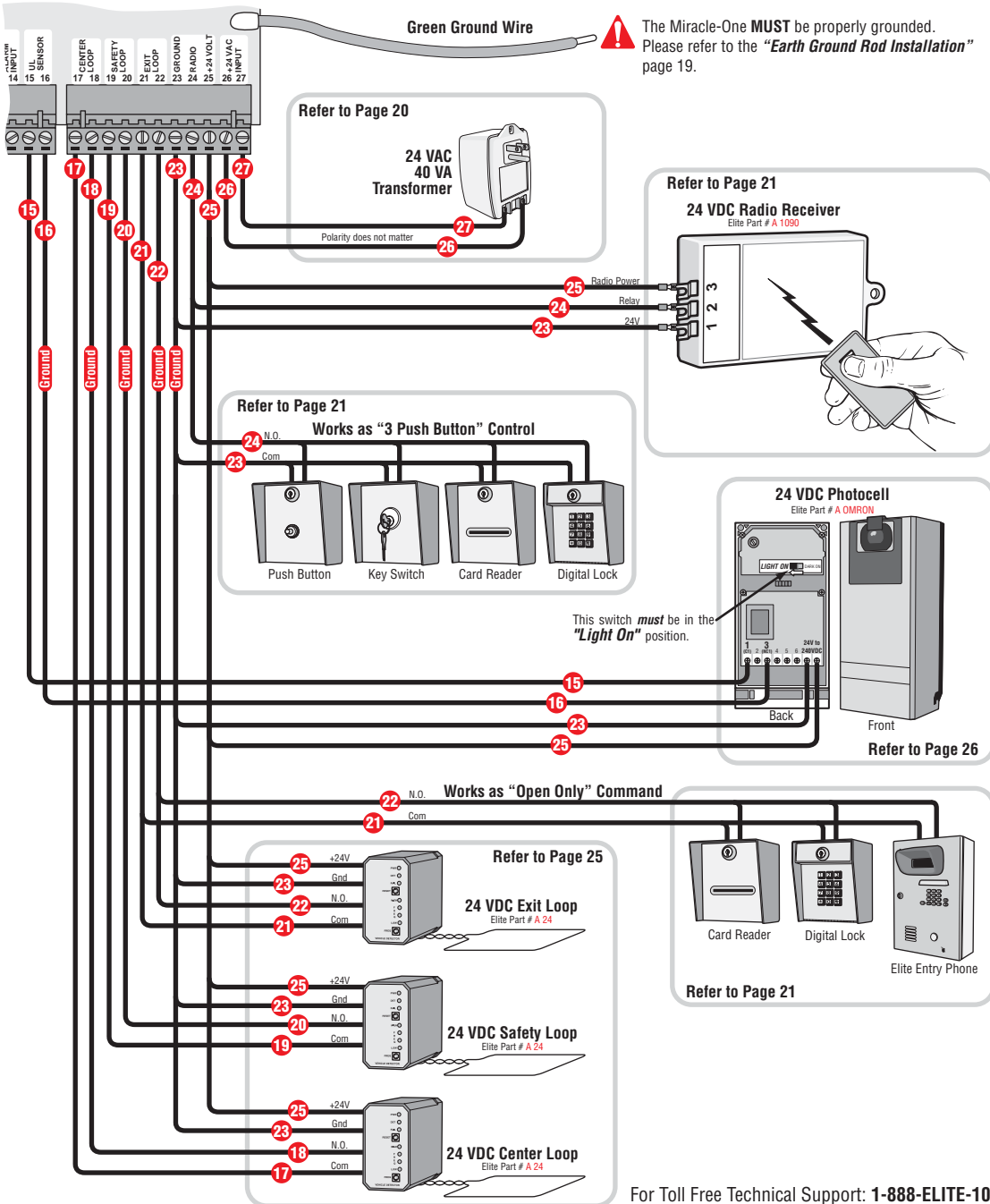
All specifications have been written and verified with our best attention. We do not take responsibility for possible errors or omissions. We reserve the right to introduce changes to the technological progress.

# SURGE SUPPRESSOR WIRING DIAGRAM



For Toll Free Technical Support: 1-888-ELITE-10

# SURGE SUPPRESSOR WIRING DIAGRAM



For Toll Free Technical Support: 1-888-ELITE-10