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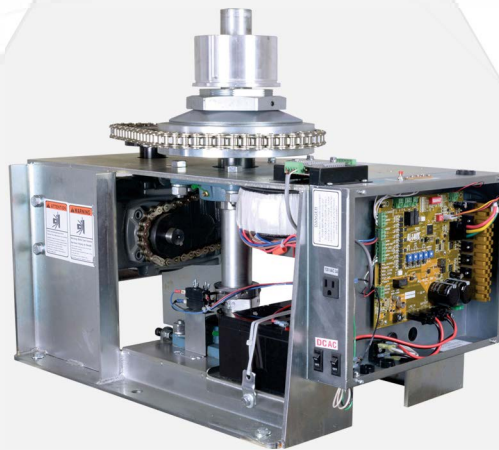
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**DC**

# ALL-O-MATIC®

## HEAVY DUTY GATE OPERATORS **MANUAL**



**SW-375 DC**  
SWING GATE OPERATOR

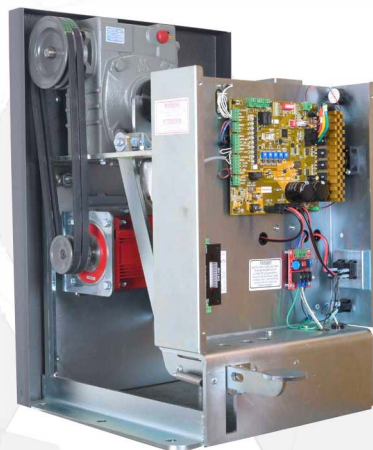
UL325  
COMPLIANT

UL991  
COMPLIANT

CANADA  
CSA C22.2  
COMPLIANT



**SL-175 DC**  
SLIDE GATE OPERATOR



MANUAL



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SL-175 Blowout Drawing . . . . .	Check Website
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# IMPORTANT SAFETY INSTRUCTIONS

## **WARNING**

TO REDUCE THE RISK OF **INJURY**:

**READ AND FOLLOW ALL INSTALLATION INSTRUCTIONS. DO NOT START INSTALLATION UNTIL YOU HAVE READ AND UNDERSTAND THESE DIRECTIONS. IF THERE IS SOMETHING YOU DO NOT UNDERSTAND, PLEASE CALL US.**

**NEVER** let children operate or play with gate controls.

Locate the control station and make sure it is (a) within sight of the gate and (b) at a minimum height of 5 feet so small children cannot reach it.

Install the enclosed entrapment warning signs next to the control station and in a prominent location.

For operators equipped with a manual release, instruct the end user on the correct operation of the manual release. Use the manual release only when the gate is not moving. It is advised that the power be turned off.

Always keep people and objects away from the gate. No one should cross the path of a moving gate.

The gate operator must be tested monthly. The gate must reverse on contact with a rigid object, or stop when an object activates the non-contact sensor(s). Always re-test the operator after adjusting the limits and/or force. Failure to adjust and re-test the gate operator properly may cause severe injury or death.

Keep gate(s) properly maintained. Have a qualified service technician make repairs to gate hardware and make proper adjustments to gate operator.

This gate entrance/exit is for vehicles only. Pedestrians must use a separate entrance.

There is nothing on a gate operator that is easily repaired or adjusted without a great deal of experience. Call a qualified gate service technician who knows your gate operator.

## SAVE THESE INSTRUCTIONS

# IMPORTANT SAFETY INSTRUCTIONS (CONTINUED)

## INSTALL THE GATE OPERATOR ONLY WHEN YOU HAVE READ THE FOLLOWING

### BEFORE GATE OPERATOR INSTALLATION

- Confirm that the gate operator being installed is appropriate for the application.
- Confirm that the gate is designed and built according to the current published industry standards.
- Confirm that all appropriate safety features and safety accessory devices are being installed, including all entrapment protection devices.
- Make sure that the gate opens and closes freely (by hand) before installing the operator.
- Repair or replace worn or damaged gate hardware before installing the gate operator.
- Eliminate all gaps in the sliding gate below a 6 foot height that permits a 2 1/4" sphere to pass through any location. This includes the area of the adjacent fence covered when the gate is in the open position
- Eliminate all gaps in a swing gate below a 4 foot height that permits a 4" sphere to pass through any location. This includes the hinge area of the gate.
- Install a proper electrical ground to the gate operator.
- Controls intended for user activation must be located at least 6 feet 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.
- The stop and/or reset button must be located in the line of sight of the gate. Activation of the operator reset control shall not cause the operator to move.
- Install a minimum of 2 warning signs, one on each side of the gate where they are easily visible.
- Take pictures of the installation.
- Test all safety features for proper function before placing the automatic vehicular gate in operation.

### GATE OPERATOR INSTALLATION

- Operator must be disconnected from the power source before attempting any installation of accessories.
- Install gate operator according to the installation instructions in this manual.
- Adjust the operator clutch or load sensing device to the minimum force setting that will allow for reliable gate operation.
- Install the operator inside the fence line. Do not install the operator on the public side of the fence line.

### MAINTENANCE

- Train owners/users on the basic functions and safety features of the gate system, including how to turn off the power and operate the manual disconnect feature.
- Leave safety instructions, product literature, installation manual, and maintenance manual with the owner or end user.
- Explain to the owner or end user the importance of routine service and operator testing on a monthly basis.

# UL 325 CLASS TYPES AND OBSTRUCTION SENSING SYSTEMS

Each class must have (2) monitored entrapment protection devices in each entrapment zone to sense and react to obstructions within 2 seconds.

All-O-Matic's gate operators conform to the most rigid Class One.

## UL 325 CLASS TYPES

### **CLASS ONE: RESIDENTIAL**

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

### **CLASS TWO: COMMERCIAL OR GENERAL PUBLIC ACCESS**

- A vehicular gate operator intended for use at a commercial location or building, such as a multi-family housing unit (five or more single family units), hotel, garages, retail stores, or other buildings accessible by or servicing the general public.

### **CLASS THREE: INDUSTRIAL OR LIMITED ACCESS**

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

### **CLASS FOUR: RESTRICTED ACCESS**

- A vehicular gate operator intended for use at a guarded industrial location or building, such as airport security areas or other restricted access locations not servicing the general public and where unauthorized access is prevented via supervision by security personnel.

## THE SIX TYPES OF OBSTRUCTION SENSING SYSTEMS

### **TYPE A:**

- Inherent entrapment protection system. This system must sense and initiate the reverse of the gate within 2 seconds of contact with a solid object.

### **TYPE B1:**

- Non-contact sensor (photoelectric sensor or equivalent). This system shall, upon sensing an obstruction in the direction of the gate travel, reverse the gate within a maximum of 2 seconds.

### **TYPE B2:**

- Contact sensor (edge device or equivalent). This system shall, upon sensing an obstruction in the direction of the gate travel, initiate the reversal of the gate within a maximum of 2 seconds.

### **TYPE C:**

- Inherent force limiting, inherent adjustable clutch, or pressure relief valve.

### **TYPE D:**

- Actuating device requiring continuous pressure to maintain opening or closing motion of the gate.

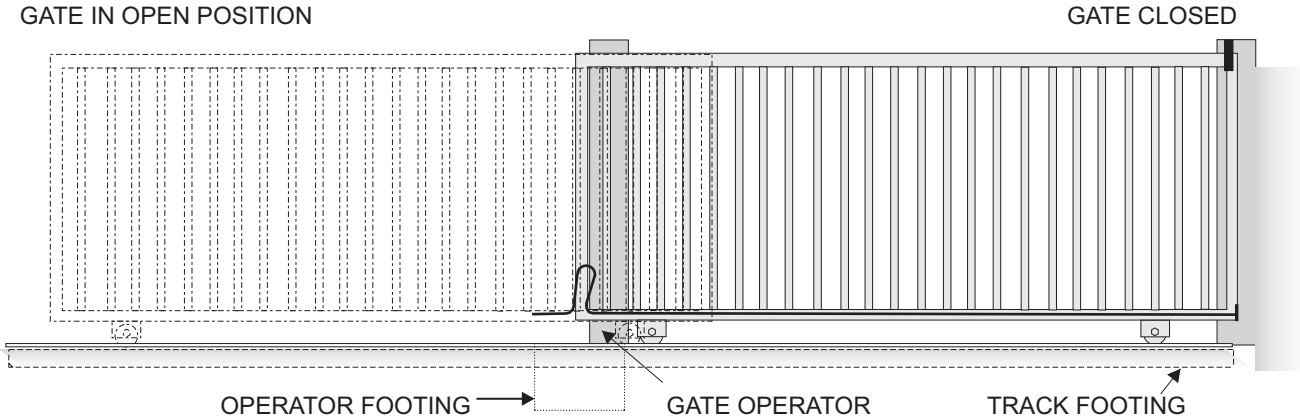
# SPECIFICATIONS

	SL-175 DC	SW-375 DC
<b>Max Gate Weight</b>	8,000 lbs. (12" per second) 3,000 lbs. (24" per second)	5,000 lbs.
<b>Max Gate Length</b>	100 feet	30 feet
<b>Warranty</b>	5 year commercial	3 year commercial
<b>Motor</b>	36 VDC brushless motor	36 VDC brushless motor
<b>Gate Speed</b>	12" or 24" per second (specify when ordering)	Adjustable 14-27 seconds per 90° opening
<b>Power Options</b>	115/230/480 VAC single phase and 36 VDC solar panel	115/230/480 VAC single phase and 36 VDC solar panel
<b>Duty Cycle</b>	Continuous	Continuous
<b>Temperature Range</b>	-40° to 160°	-40° to 160°
<b>Gearbox Ratio</b>	30:1 with internal disconnect	Large gearbox - 30:1 Small gearbox - 10:1
<b>Width X Length X Height</b>	19.5" W X 20" L X 27.5" H	19" W X 31" L X 25" H
<b>Shipping Weight</b>	320 lbs.	435 lbs. + 110 lbs. arm and wrench
<b>Emergency Release</b>	Mechanical foot pedal release	5/8" bolt to remove arm
<b>Belt Size</b>	4L-370 (AX35)	4L-230 (AX21)
<b>Main Sprocket Size</b>	40B18X1-3/8	60A45X5
<b>Chain Size</b>	50NP (30' included)	60NP
<b>Gearbox Sprocket</b>	N/A	Top: 60B23X1.5 Bottom: 50B18X1.125 and 50B20X7/8
<b>Limit Shaft Sprocket</b>	40B18X5/8	N/A
<b>Breaker Requirement</b>	20 amp dedicated	20 amp dedicated
<b>Gearbox Pulley</b>	2AK49 with 3/4" bore	5" with 5/8" bore
<b>Motor Pulley</b>	2AK30 with 5/8" bore	2" with 5/8" bore
<b>UL Classes</b>	III & IV	III & IV

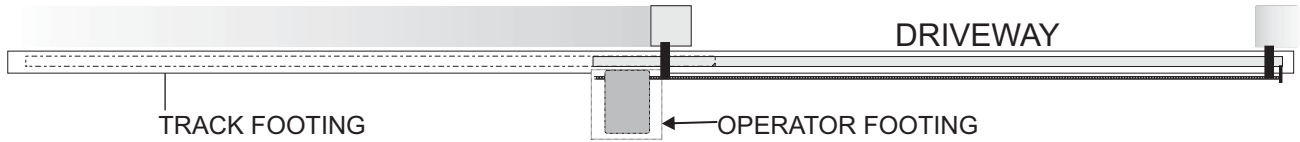


# SL-175 DC FRONT MOUNT INSTALLATION

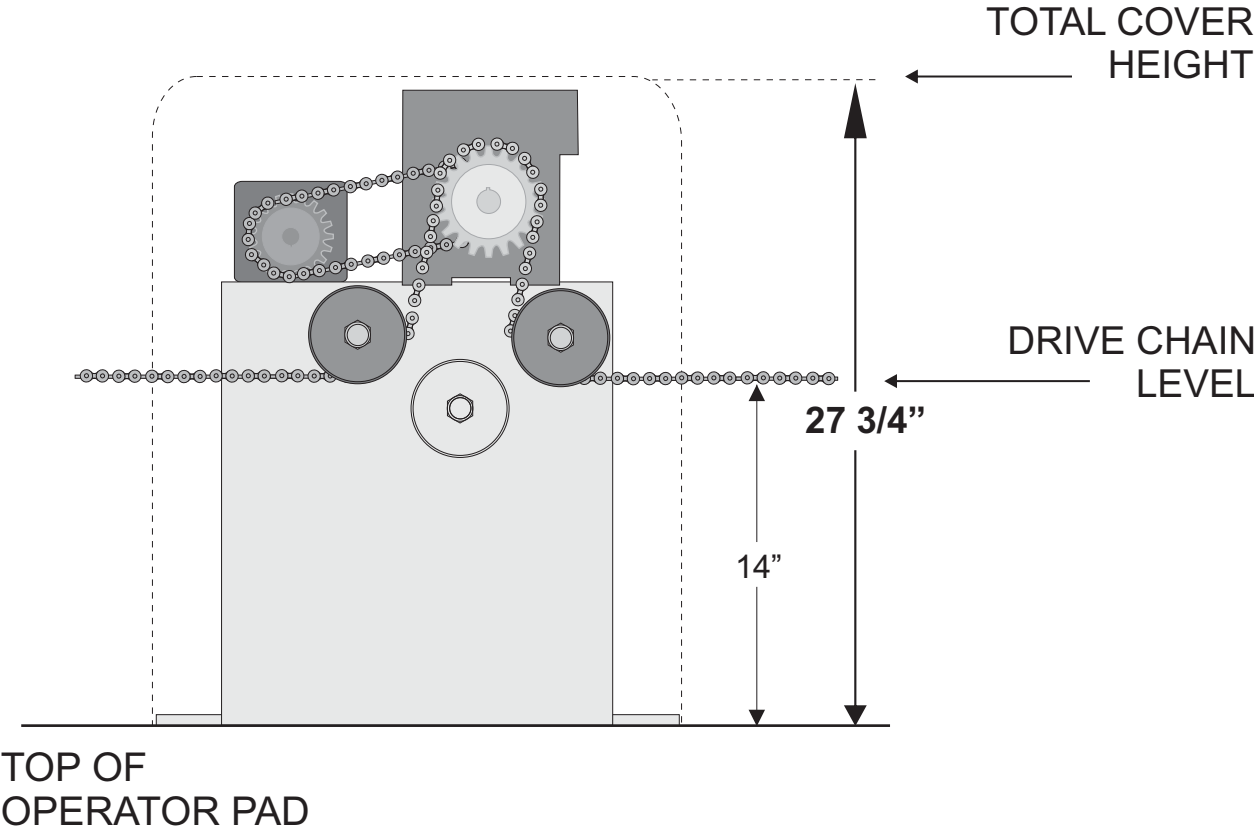
## FRONT VIEW



## OVERHEAD VIEW

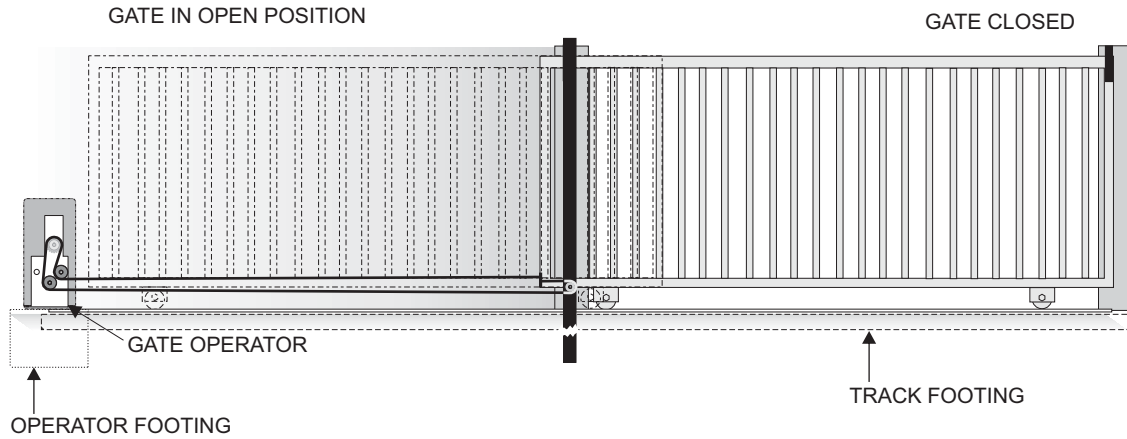


# SL-175 DC FRONT MOUNT INSTALLATION (CONTINUED)

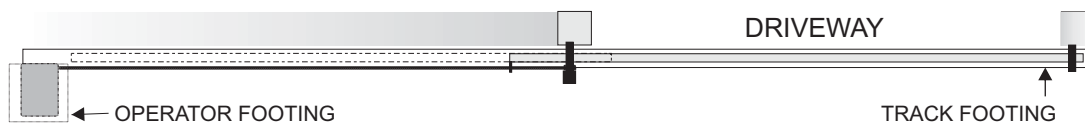


# SL-175 DC REAR MOUNT INSTALLATION

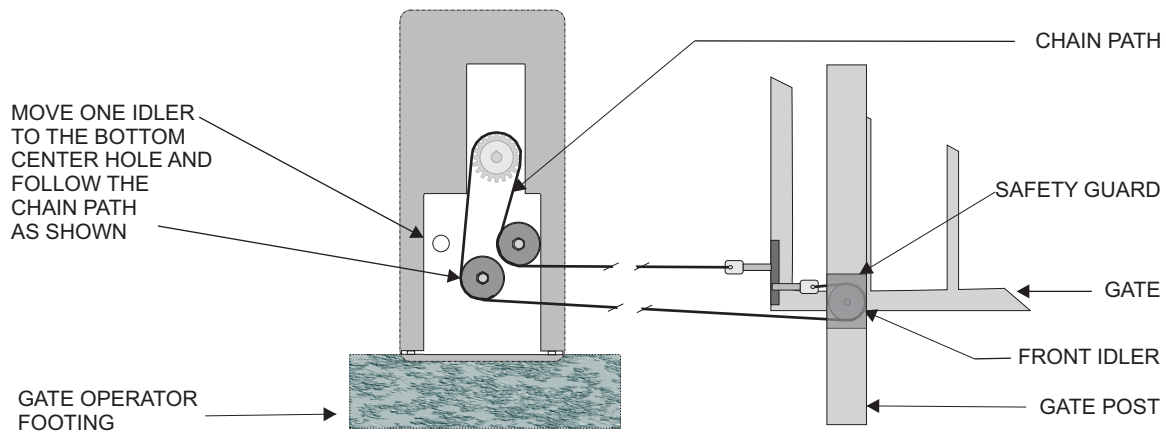
## FRONT VIEW



## OVERHEAD VIEW

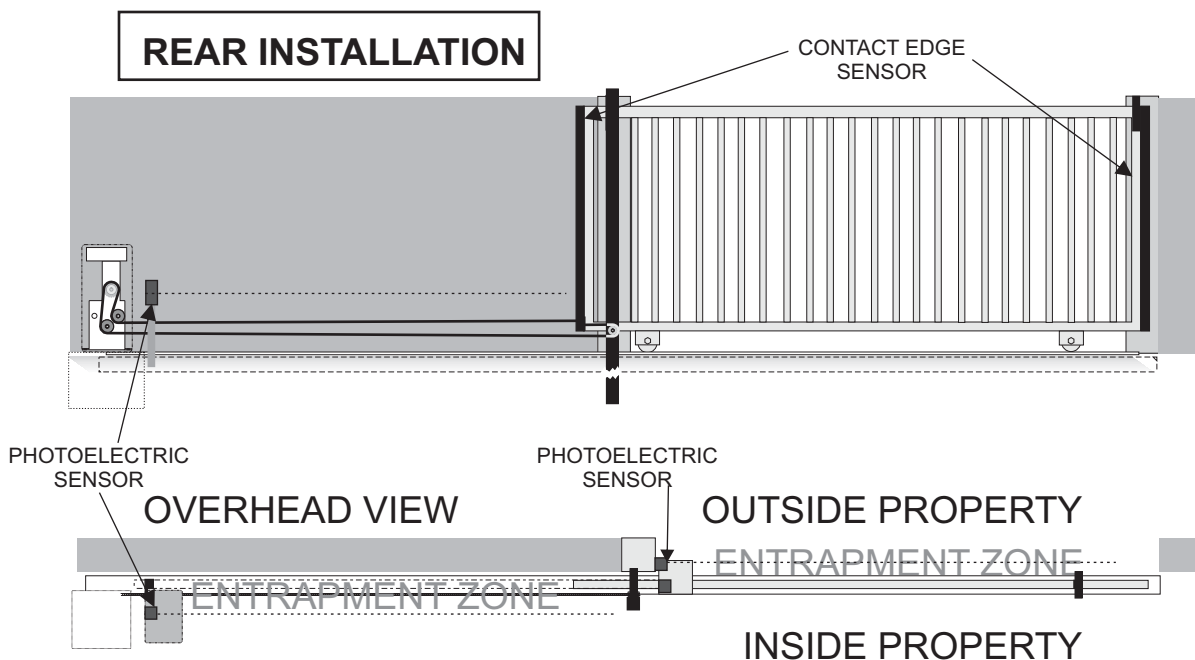
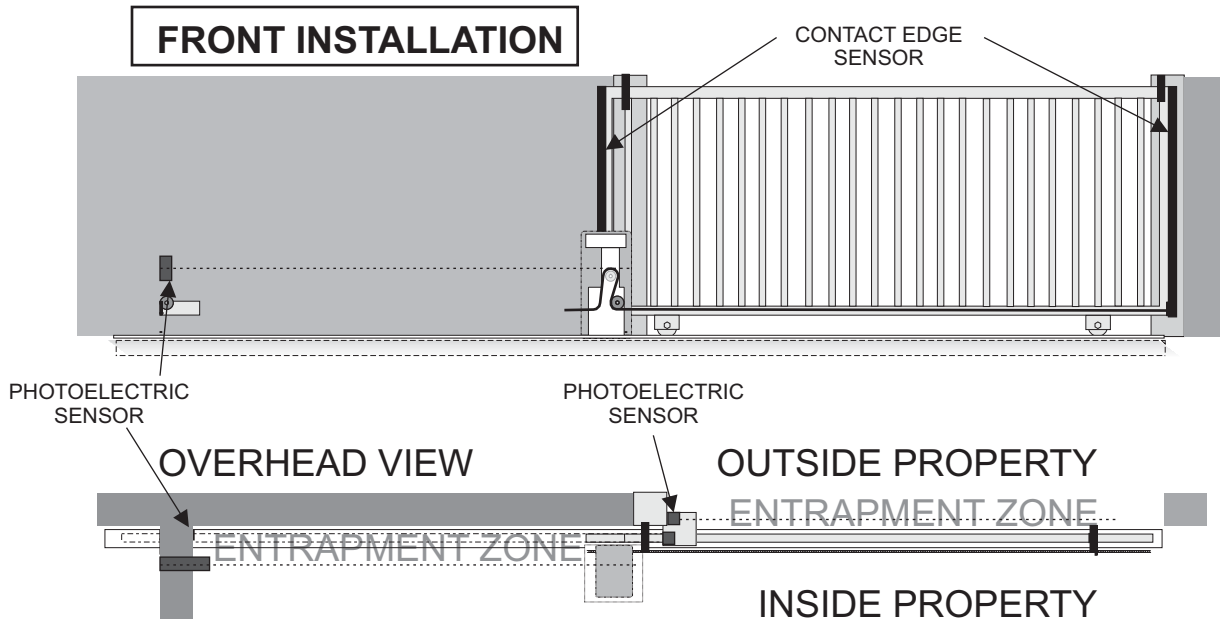


## CHAIN CONNECTION TO GATE



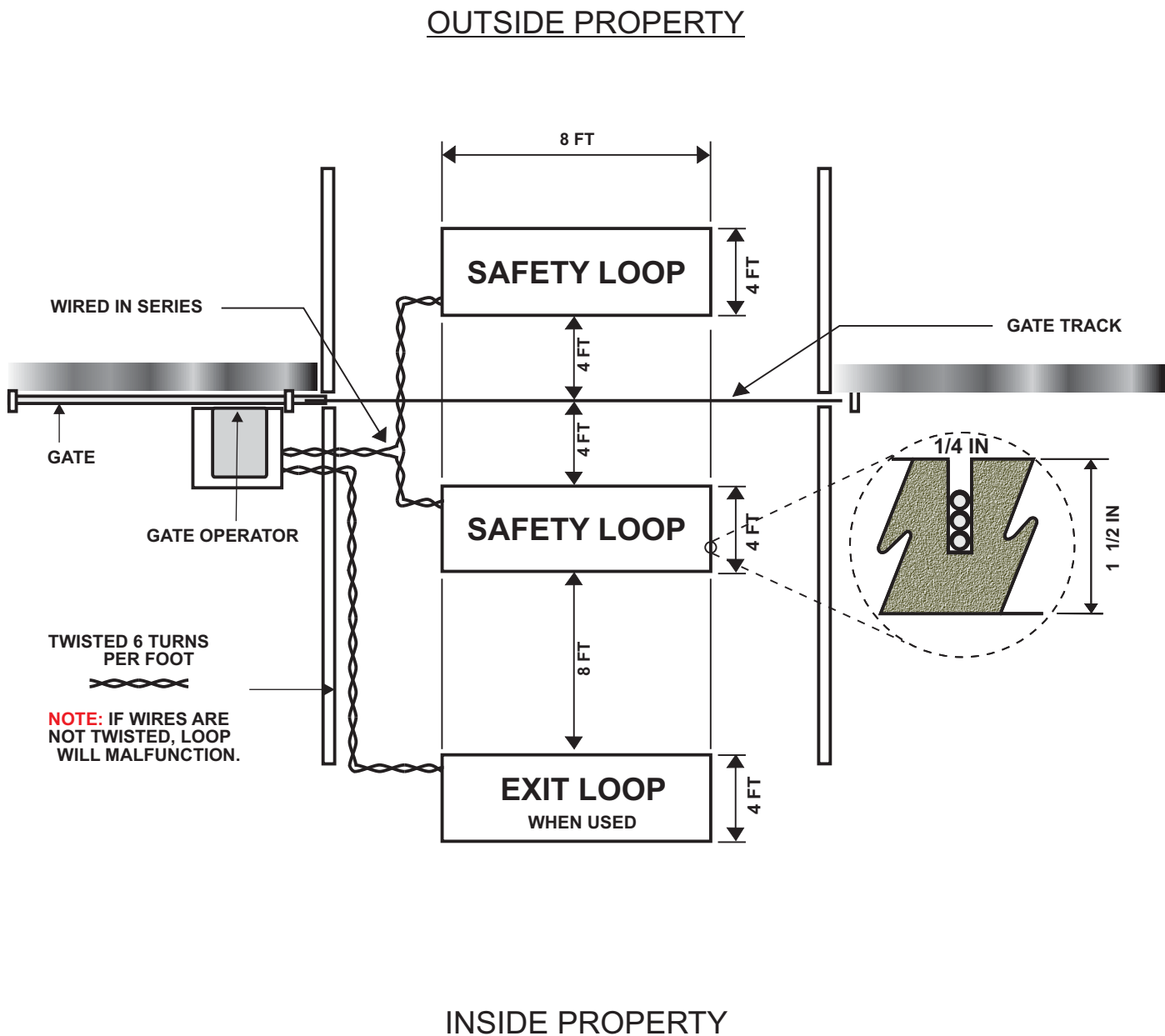
# SL-175 DC ENTRAPMENT PROTECTION INSTALLATION

- A minimum of (2) monitored entrapment protection devices are **REQUIRED** for each entrapment zone.
- An entrapment zone is a location or point of contact where a person can become entrapped between a moving gate and a rigid object.
- The operator is equipped with an inherent entrapment protection system (ERD).
- The gate operator requires an external monitored entrapment protection device (non-contact photoelectric sensor or contact edge) for each entrapment zone prior to gate operation. The operator cycles power to the external entrapment protection device and checks for device signals. If the operator does not receive the correct feedback from the device, the gate will not operate.



# SL-175 DC LOOP LAYOUT

- Below is a typical loop layout. When connecting to an All-O-Matic circuit board, use the following:
  - Safety Loop - Normally Closed (N.C) Contacts
  - Exit Loop - Normally Open (N.O.) Contacts
- Wires **MUST** be twisted from the exit point of the loop saw cut to the gate operator.
- Twist loop wires 6 turns per foot, as shown below. Improper twisting of wires can cause loop issues.
- When using an inside and outside safety loop, loops must be **WIRED IN SERIES**.



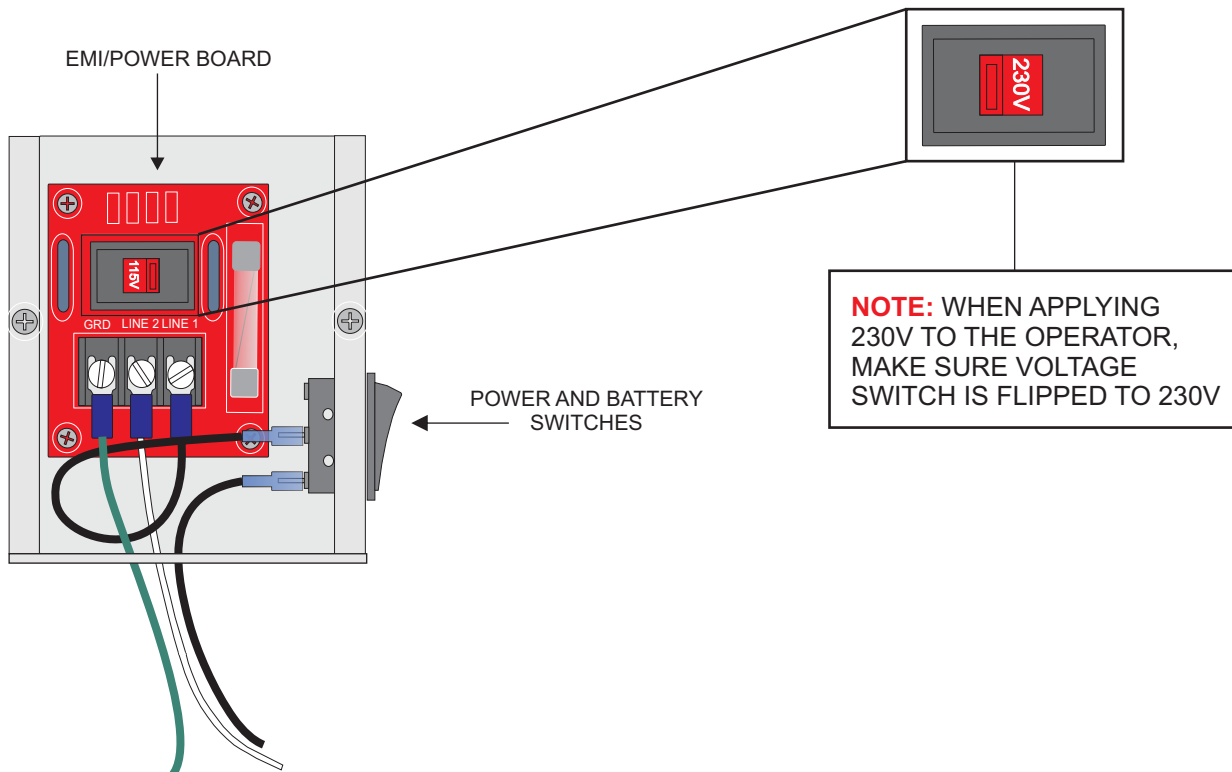
# SL-175 DC ELECTRICAL CONNECTION

## OPERATORS **MUST** BE PROPERLY GROUNDED!

- All gate operators **MUST** be properly grounded. This minimizes or prevents damage due to electrical charge, such as a near lightning strike or an electrical static discharge.
- Use a single wire for the ground. **DO NOT** splice two wires for the ground. If the wire breaks or is cut, replace it with a single length wire. **NEVER** use two wires for the ground.
- Check the local city code for proper earth ground rod type and grounding procedures.

- Use a minimum of a **20-amp**, dedicated circuit for power.

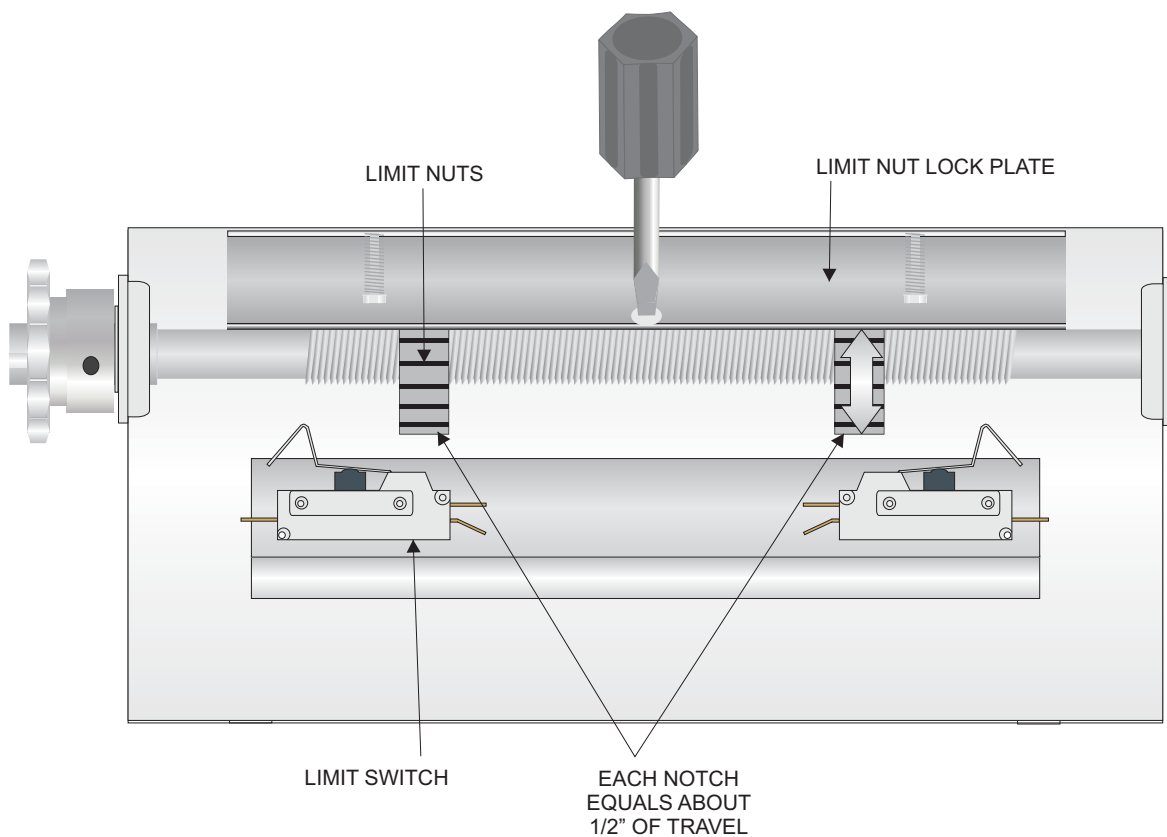
Power Connection	115 VAC	230 VAC Single Phase
LINE 1	115V HOT	230V LINE 1
LINE 2	115V NEUTRAL	230V LINE 2
GND	GROUND	GROUND



# SL-175 DC GATE TRAVEL ADJUSTMENT

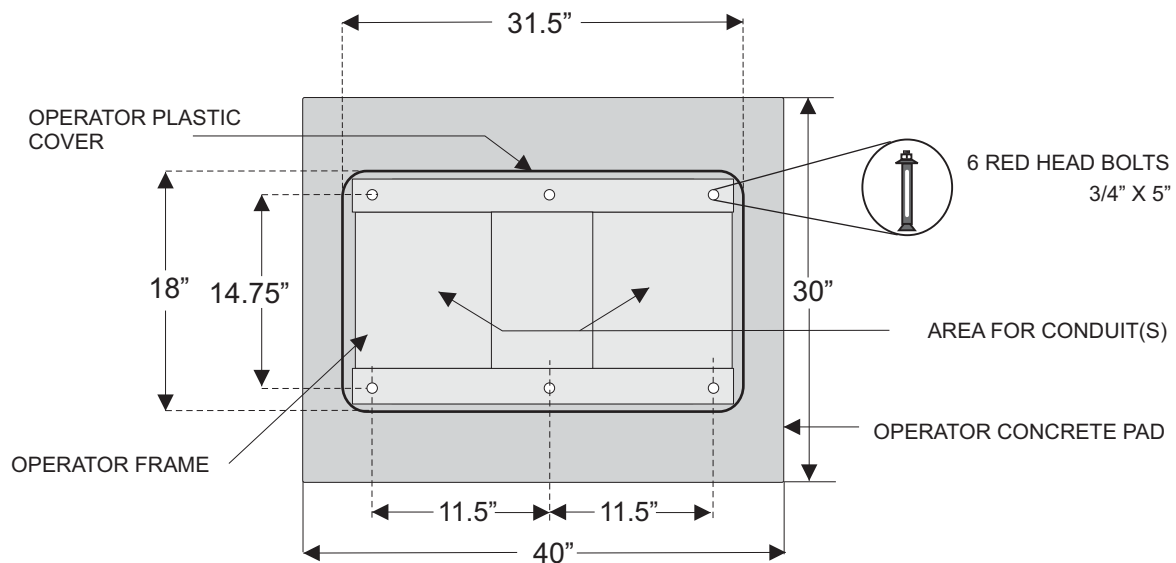
Locate the limit switches and follow the steps below:

- 1: Turn the power **OFF** on the operator.
- 2: Push the limit lock plate outwards.
- 3: Turn the limit nut in the desired direction.  
(Toward the switch to decrease travel and away from the switch to increase travel)
- 4: Place limit plate back to its locked position. (**MUST** be done for gate to hold its limits)
- 5: Turn the power **ON** on the operator.
- 6: Run the gate operator open and close. If additional adjustment is needed, repeat the steps.

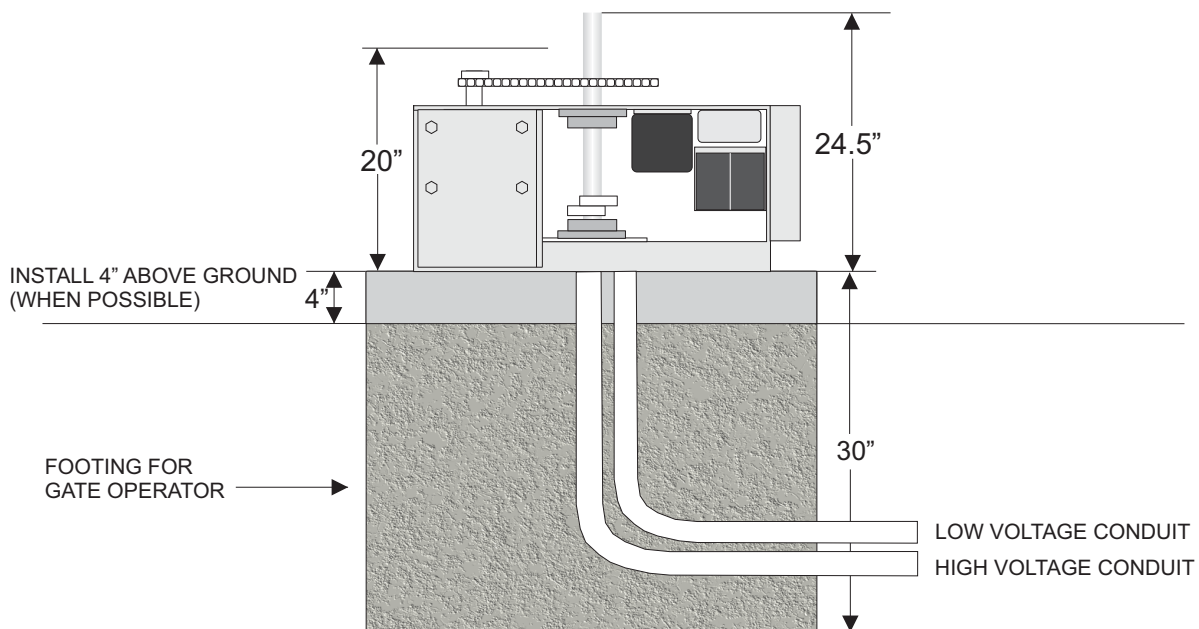


# SW-375 DC CONCRETE PAD INSTALLATION

## TOP VIEW



## FRONT VIEW



# SW-375 DC OPERATOR AND ARM DIMENSIONS

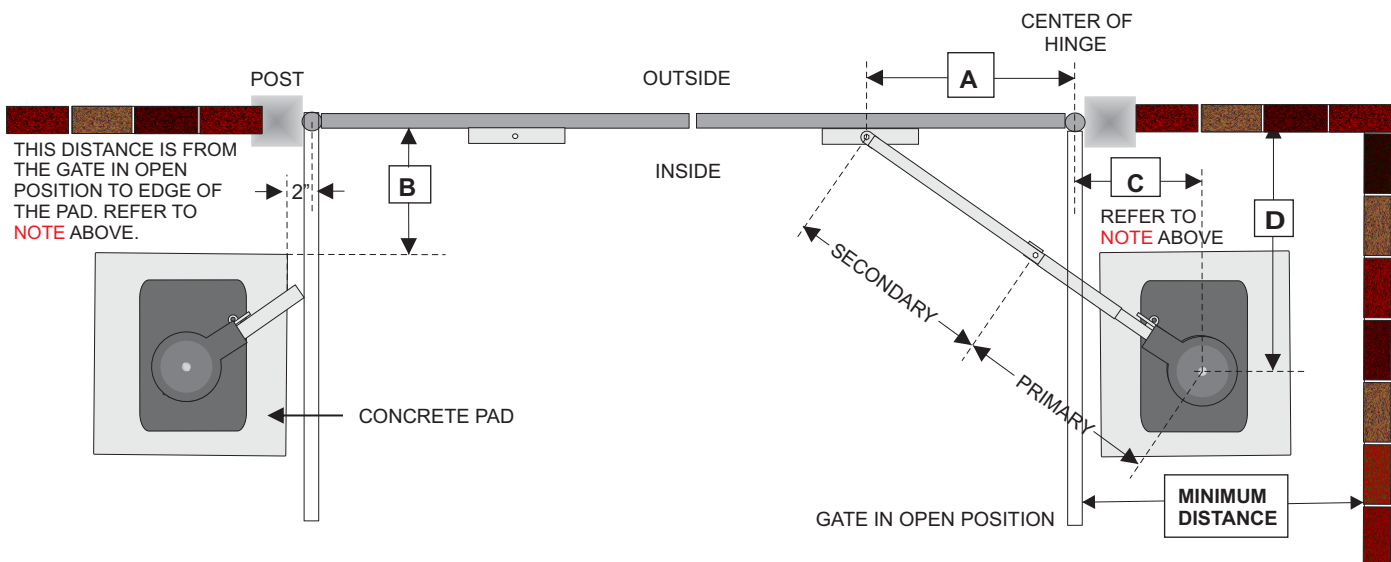
Please refer to the chart and drawing below for operator and arm dimensions.

- A: The distance between the center of the gate bracket and the center of the hinge point.
- B: The distance between the gate hinge point and the edge of the operator concrete pad.
- C: The distance from the gate in the open position to the center of the operator shaft.
- D: The distance from the center of the gate hinge to the center of the operator shaft.
- Minimum distance: The minimum distance required behind an open gate and an obstruction (ie: wall, bush, etc).  
If this distance is between 20" and 33", refer to the compact installation page.

**SW-375 DC Dimensions Chart**

Gate length	A	B	C	D	Minimum Distance
Less than 12'	36"	32"	13"	46"	34"
13'-15'	42"	38"	13"	52"	37"
16'-22'	48"	44"	13"	58"	40"

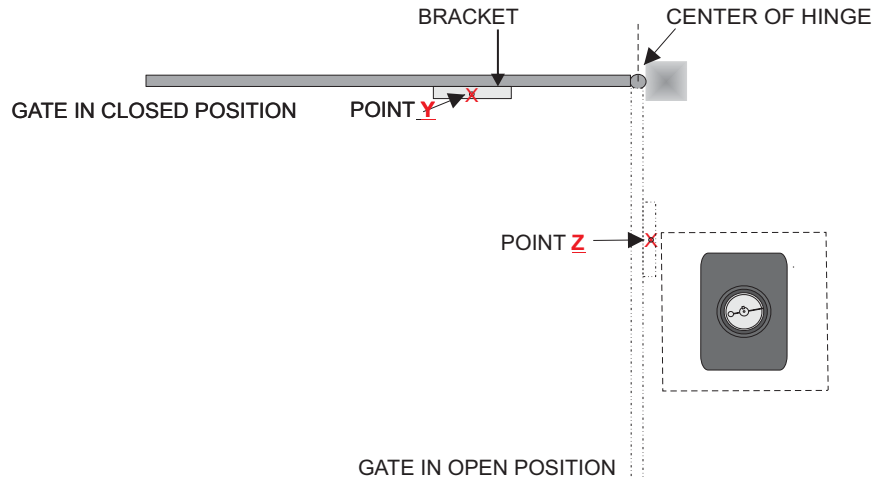
**NOTE:** The 2" distance shown above is from the gate in the open position (90 degrees) to the edge of the concrete pad. If the gate must open more than 90 degrees, the concrete pad and distance "C" need to move back accordingly. The distance between the open gate and the concrete pad needs to remain 2".



# SW-375 DC OPERATOR PLACEMENT AND ARM LAYOUT

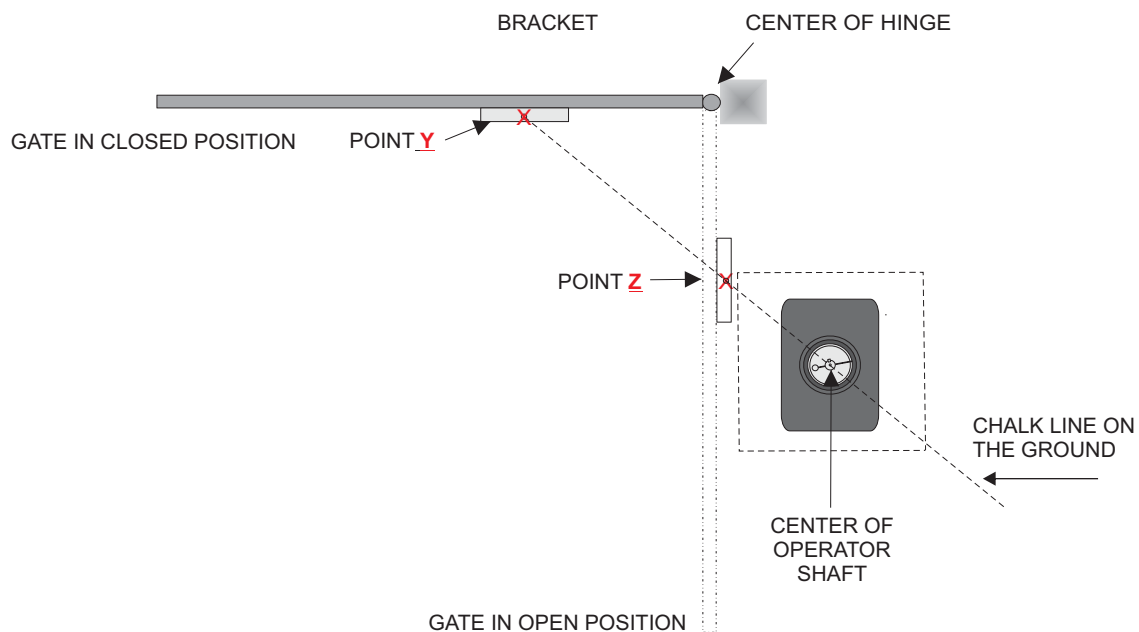
## Step 1:

- With the gate in the closed position, mark the ground directly below the center of the gate bracket. This will be point **Y**.
- With the gate in the open position, mark the ground directly below the center of the gate bracket. This will be point **Z**.



## Step 2:

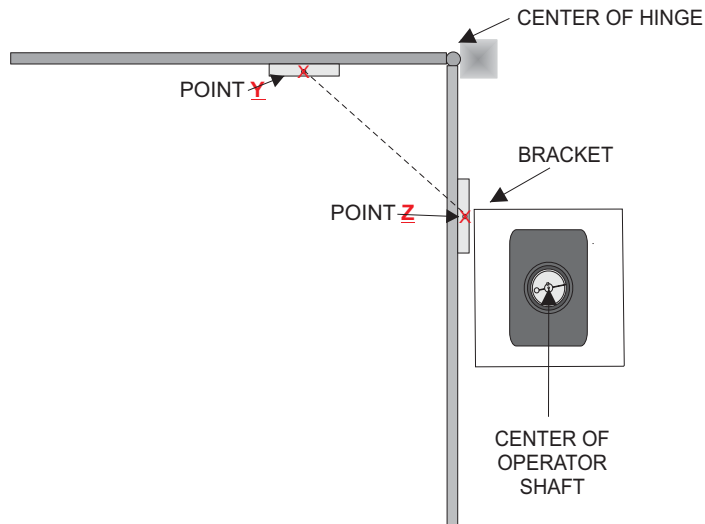
- Chalk out a line connecting point **Y** and going past point **Z** as shown in the drawing below.
- The center of the operator shaft goes on this line. Bolt down operator.



# SW-375 DC OPERATOR PLACEMENT AND ARM LAYOUT (CONTINUED)

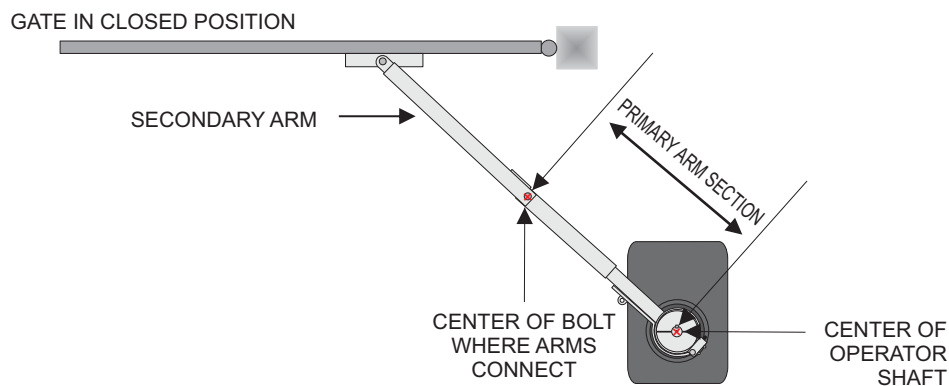
## Step 3:

- Measure the distance between point **Y** and point **Z**. Divide this number in half.
- This number is length of the primary arm section in the next step.
- **Please be exact.**



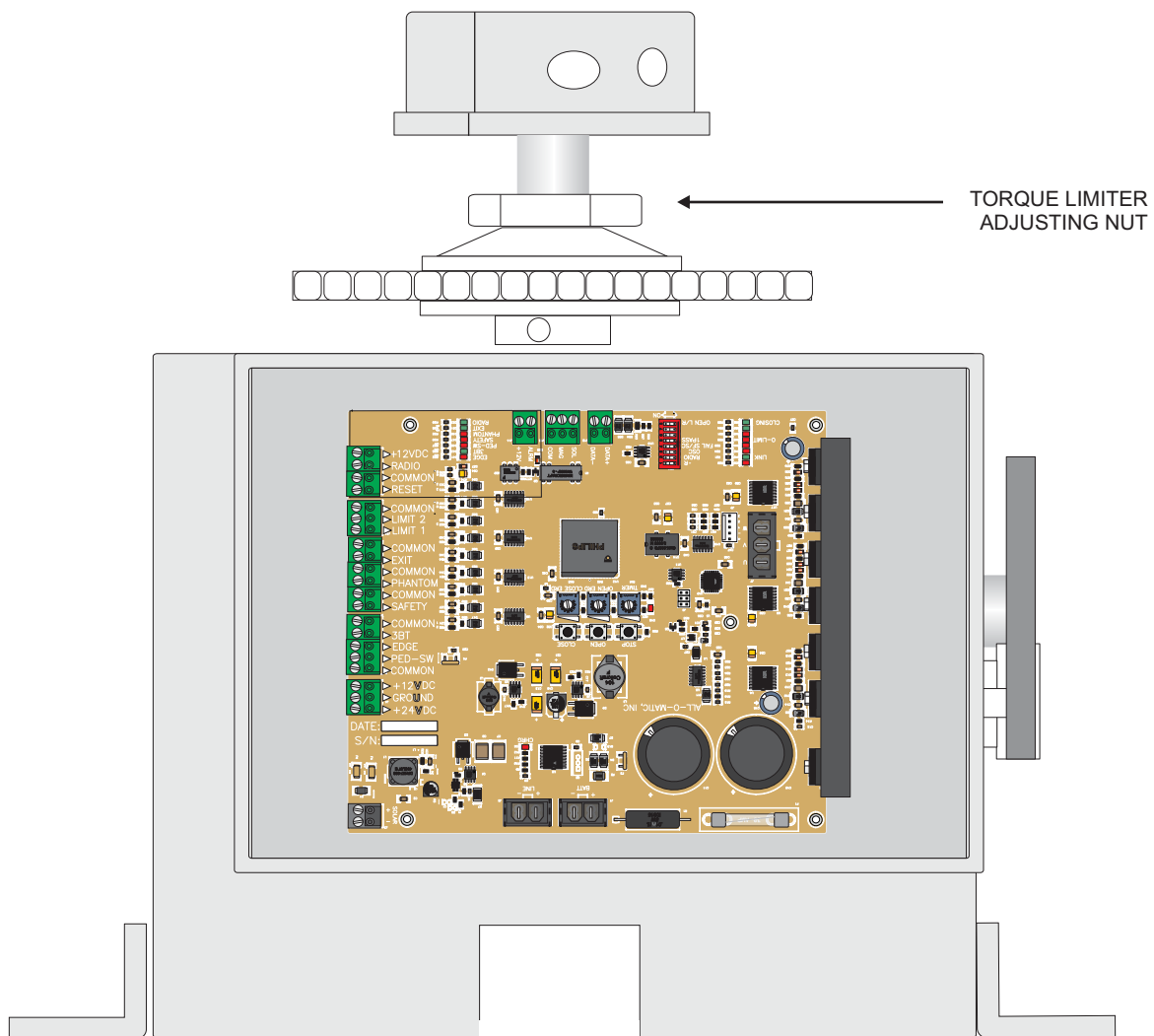
## Step 4:

- Cut the primary arm section the measurement you recorded in Step 3 (half the distance between point **Y** and point **Z**).
- The secondary arm makes up the rest of the arm length to the gate bracket and does not need to be measured exactly.



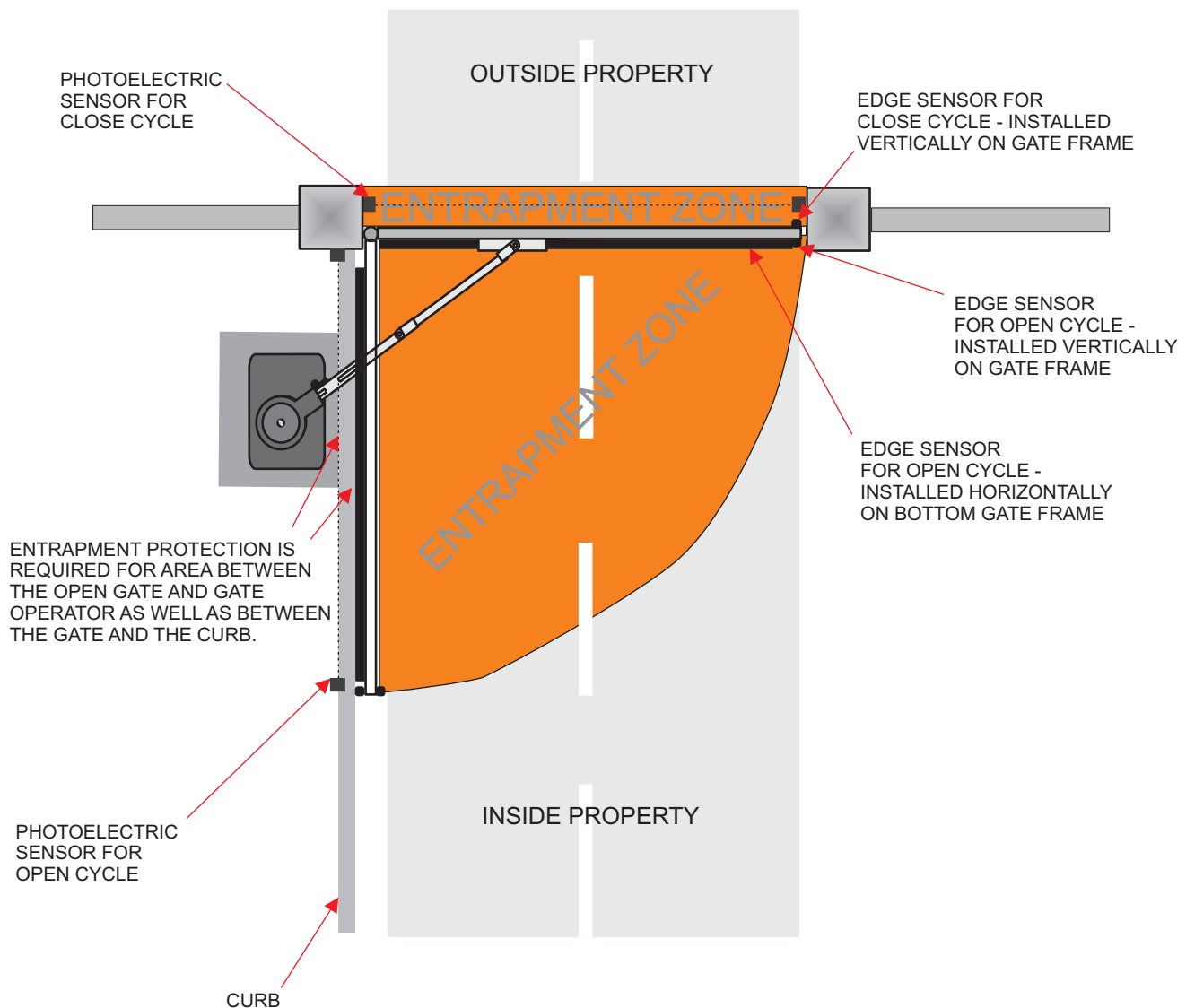
# SW-375 DC TORQUE LIMITER ADJUSTMENT

- The torque limiter on the operator is shipped loose (not adjusted). Use the wrench provided to adjust the large torque limiter nut on the operator, as shown in the images below.
- Tighten the torque limiter nut until the arm does not slip while the operator is running.
- Be sure to run the gate and grab the gate by hand to make sure the torque limiter will slip.
- This is an important adjustment. Please make sure to take the time to do it correctly.



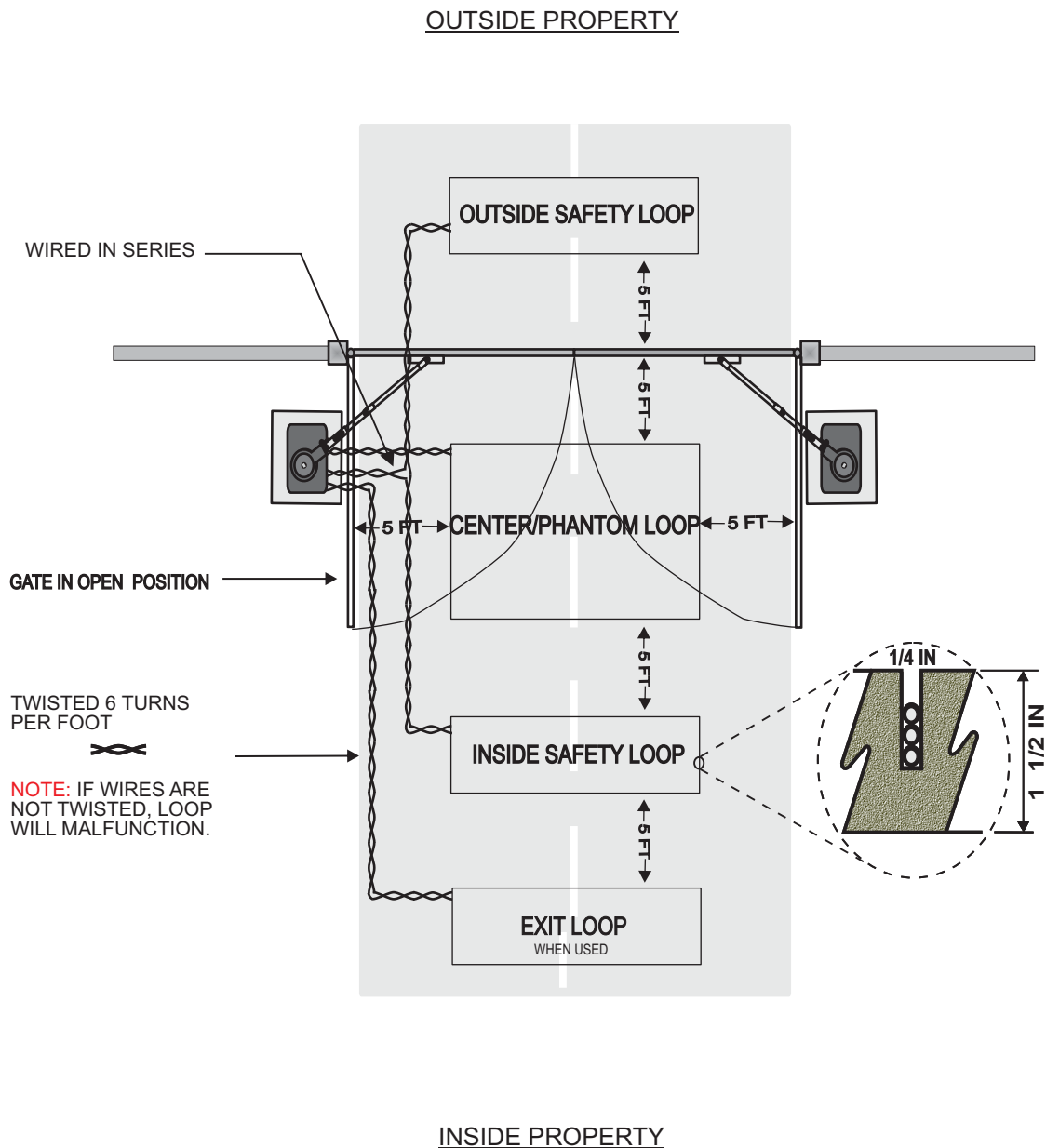
# SW-375 DC ENTRAPMENT PROTECTION INSTALLATION

- A minimum of (2) monitored entrapment protection devices are **REQUIRED** for each entrapment zone.
- An entrapment zone is a location or point of contact where a person can become entrapped between a moving gate and a rigid object.
- The operator is equipped with an inherent entrapment protection system (ERD).
- The gate operator requires an external monitored entrapment protection device (non-contact photoelectric sensor or contact edge) for each entrapment zone prior to gate operation. The operator cycles power to the external entrapment protection device and checks for device signals. If the operator does not receive the correct feedback from the device, the gate will not operate.



# SW-375 DC LOOP LAYOUT

- Below is a typical loop layout. When connecting to an All-O-Matic circuit board, use the following:
  - Safety Loop - Normally Closed (N.C) Contacts
  - Exit Loop - Normally Open (N.O.) Contacts
- Wires **MUST** be twisted from the exit point of the loop saw cut to the gate operator.
- Twist loop wires 6 turns per foot, as shown below. Improper twisting of wires can cause loop issues.
- When using an inside and outside safety loop, loops must be **WIRED IN SERIES**.



# SW-375 DC ELECTRICAL CONNECTION

## OPERATORS **MUST** BE PROPERLY GROUNDED!

- All gate operators **MUST** be properly grounded. This minimizes or prevents damage due to electrical charge, such as a near lightning strike or an electrical static discharge.
- Use a single wire for the ground. **DO NOT** splice two wires for the ground. If the wire breaks or is cut, replace it with a single length wire. **NEVER** use two wires for the ground.
- Check the local city code for proper earth ground rod type and grounding procedures.

- Use a minimum of a **20-amp**, dedicated circuit for power.

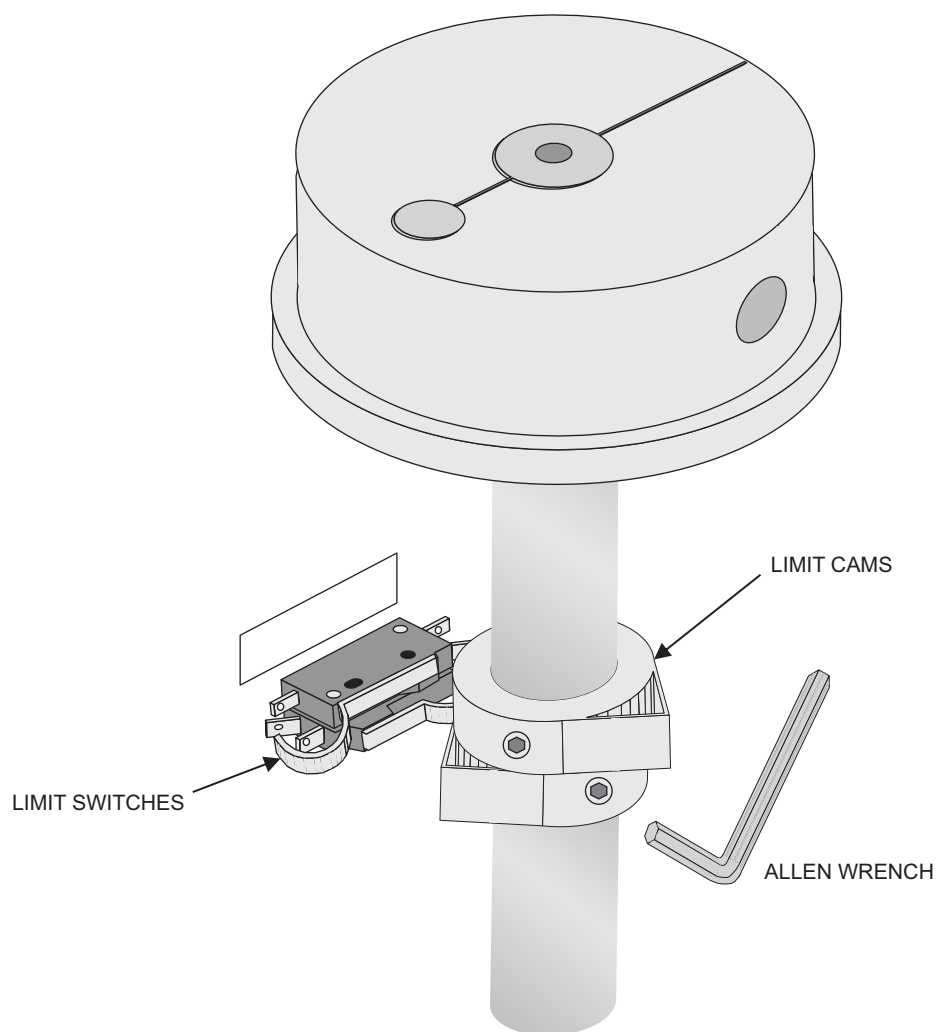
Power Connection	115 VAC	230 VAC Single Phase
LINE 1	115V HOT	230V LINE 1
LINE 2	115V NEUTRAL	230V LINE 2
GND	GROUND	GROUND



# SW-375 DC GATE TRAVEL ADJUSTMENT

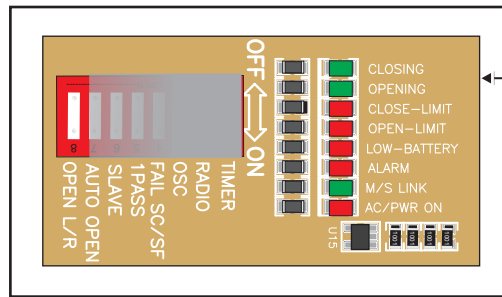
After locating the limit switches and identifying which one is open and close, follow the steps below to adjust the gate travel:

1. Turn the power OFF on the gate operator.
2. Use an allen wrench to loosen up the limit cams. Turn the limit cams in the desired direction.
3. Tighten the allen screw.
4. Turn the power ON on the gate operator.
5. Run the gate operator.
6. Repeat the steps if more adjustment is needed.

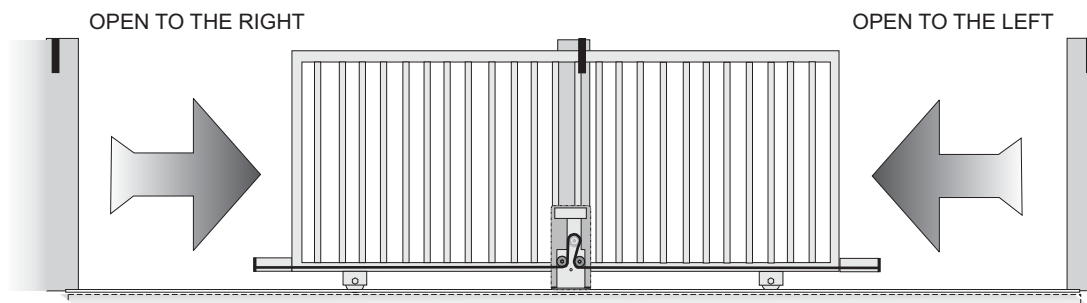
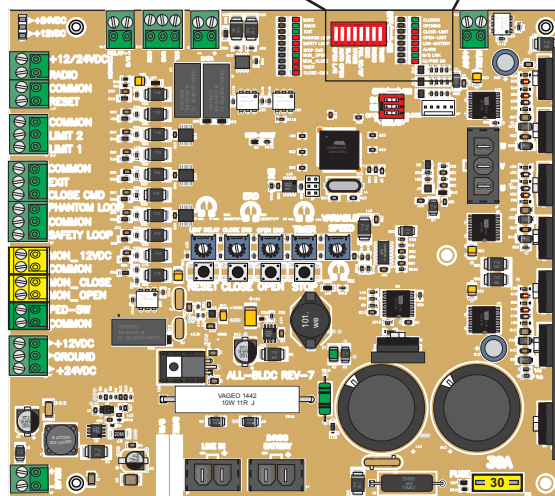


# SL-175 DC GATE OPERATOR OPENING DIRECTION SETTING

- Use OPEN L/R” dipswitch (#8) to change the opening direction of the operator.
- The direction of gate opening is determined from behind the gate operator.
- LEDs will show opening and closing direction when the gate is moving.
- OPEN L/R switch “OFF” is for left hand opening
- OPEN L/R switch “ON” is for right hand opening

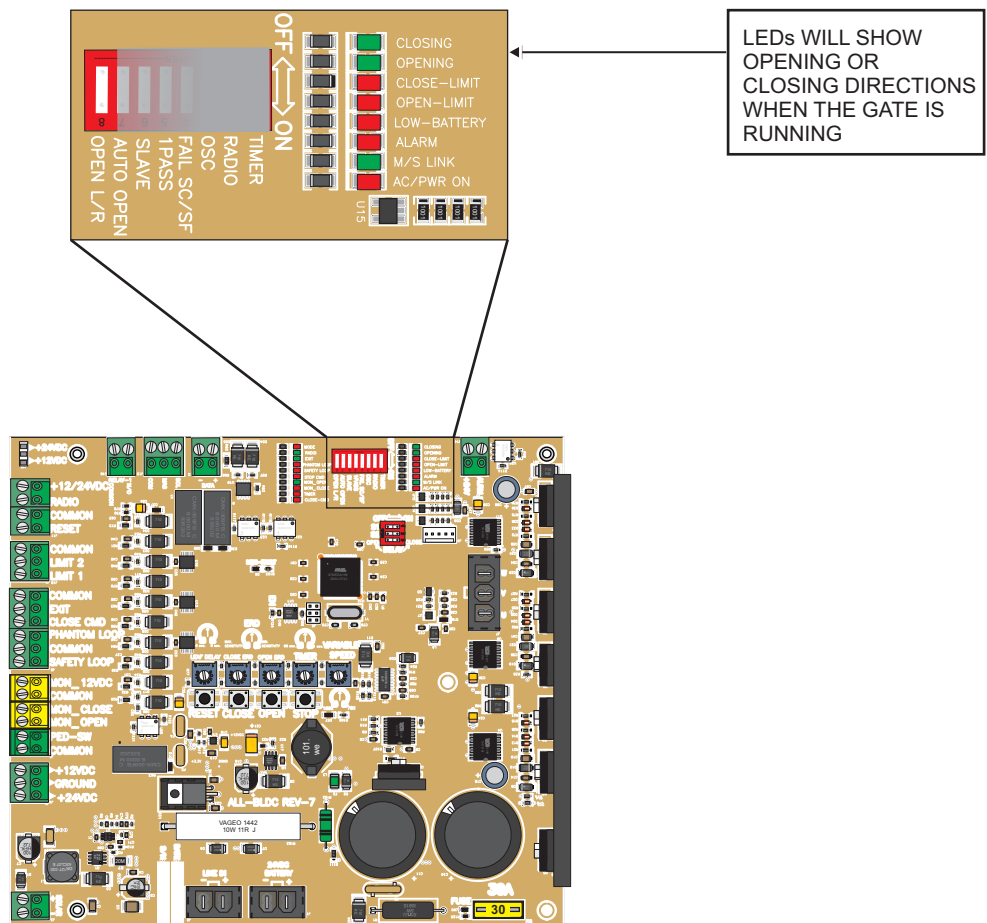


LEDs WILL SHOW  
OPENING OR  
CLOSING DIRECTIONS  
WHEN THE GATE IS  
RUNNING

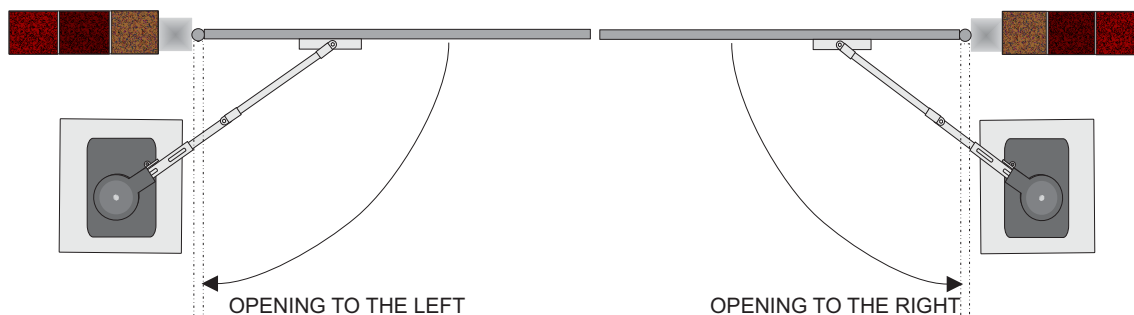


# SW-375 DC GATE OPERATOR

- Use OPEN L/R” dipswitch (#8) to change the opening direction of the operator.
- The direction of gate opening is determined from behind the gate operator.
- LEDs will show opening and closing direction when the gate is moving.
- OPEN L/R switch “OFF” is for left hand opening
- OPEN L/R switch “ON” is for right hand opening



LEDs WILL SHOW  
OPENING OR  
CLOSING DIRECTIONS  
WHEN THE GATE IS  
RUNNING



# PROGRAMMABLE RELAY AND LEAF DELAY

## RELAY SETTINGS

Board model ALL-BLDC includes a programmable relay (N.O.) with four different configurations. See table below for switch settings. Use the "Leaf Delay" potentiometer to adjust the delay time from 0 to 6 seconds.

- (1) 1 second pulse for every open start cycle  
- Typically used for a cycle counter
- (2) "ON" when the gate is in motion  
- Typically used for an audible alarm or strobe light to warn when the gate is in motion.
- (3) Alarm system output  
- Activates the relay when the gate is forced open
- (4) "ON" when gate is not fully closed  
- Typically used for a gate position indicator

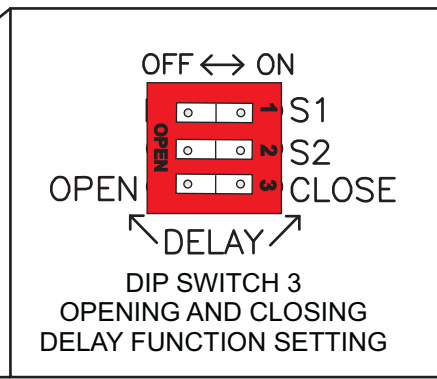
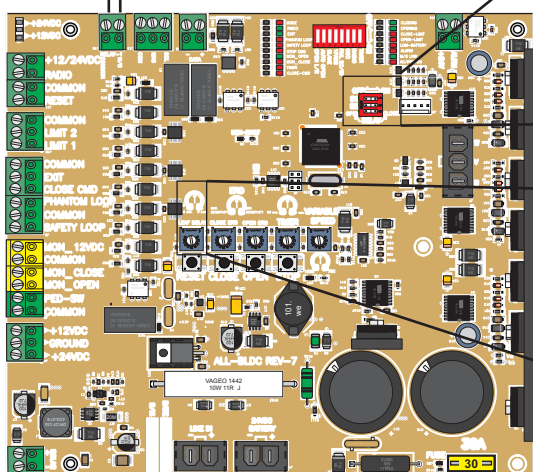
S1	S2	RELAY FUNCTION
OFF	OFF	ONE SECOND PULSE FOR EVERY OPEN START
ON	OFF	ON WHEN GATE IS IN MOTION
OFF	ON	ALARM SYSTEM OUTPUT
ON	ON	ON WHEN GATE IS NOT FULLY CLOSED

## DELAY SETTINGS

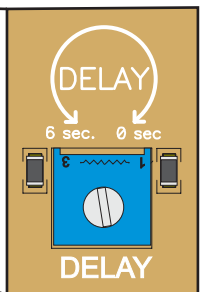
The ALL-BLDC board includes a delay option for open or close cycles. This delay option is most commonly used on swing gate applications. However, some slide gate applications may require a pre-warn strobe light or siren. In these applications this delay could be used for the pre-warn delay in conjunction with the RELAY function ON WHEN GATE IN MOTION.

Use the dip-switch 3 to set the desired delay direction.

- Flip the dip-switch 3 to the OFF position for the delay on opening direction
- Flip the dip-switch 3 to the ON position for delay on closing direction
- Use leaf delay potentiometer to adjust the delay
- It has adjustment from 0-6 seconds.
- Turn clockwise for less time
- Turn counter-clockwise for more time



0 TO 6 SECOND DELAY ADJUSTMENT

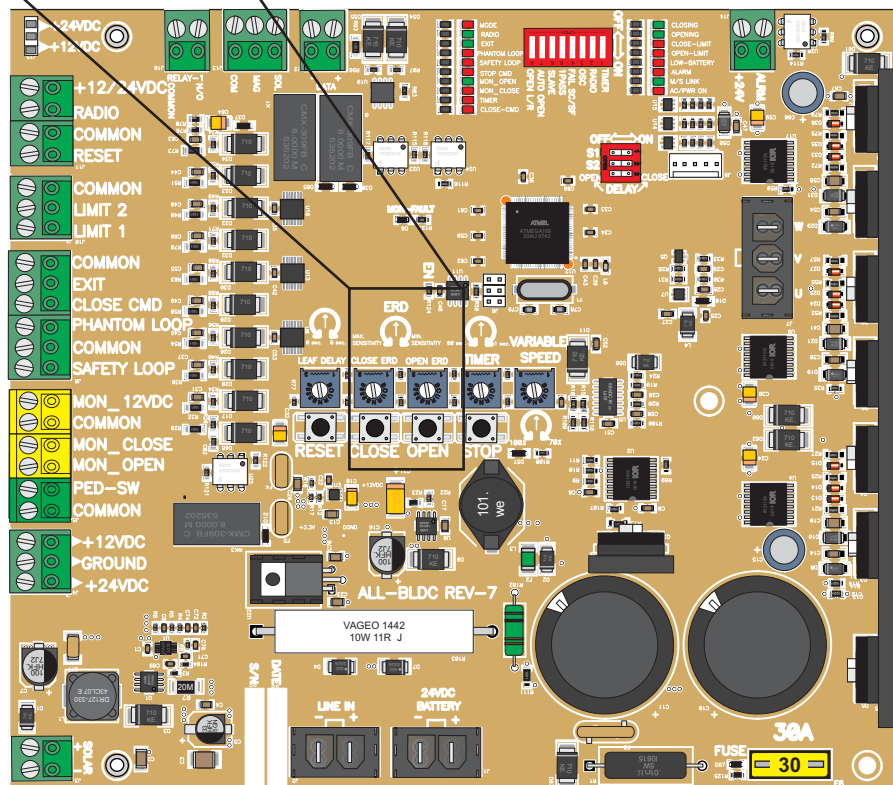
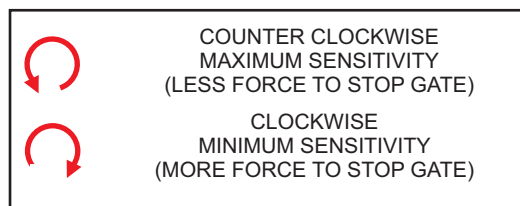
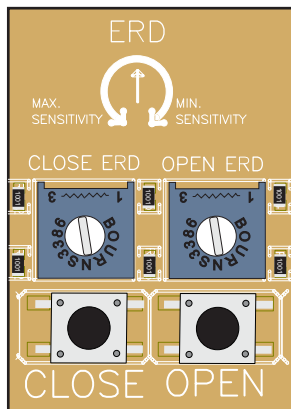


# ELECTRONIC REVERSING DEVICE (ERD) ADJUSTMENT

All DC boards are equipped with an Electronic Reversing Device (ERD), which will cause the gate to reverse direction when it comes into contact with an obstruction.

The amount of force required to reverse the gate's direction depends on the ERD sensitivity setting and motor rating.

If the gate reverses direction on its own without hitting an obstruction, the ERD is too sensitive. If the gate does not reverse when it hits an obstruction, the ERD is not sensitive enough.

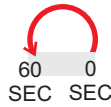


# TIMER ADJUSTMENT AND RADIO SETTING

**TIMER ON:** Automatic timer to close can be set from 1 to 60 seconds

**TIMER OFF:** Gate operation is "push button to open, push button to close"

**RADIO ON:** To override the timer and allow the radio receiver to close the gate before the timer



Turn potentiometer counter clockwise for more time

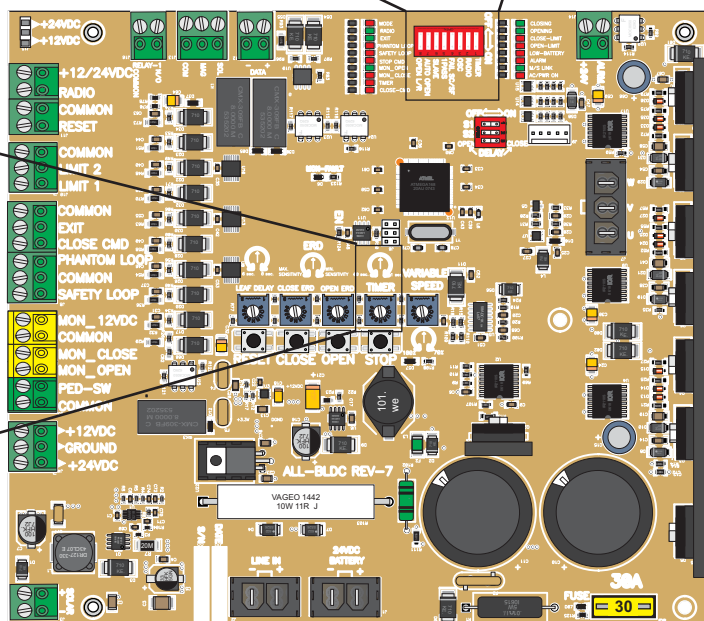
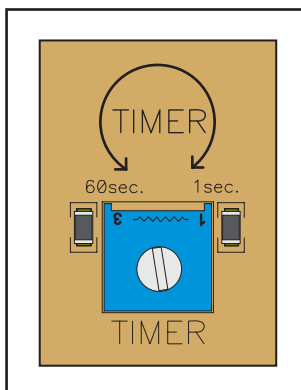
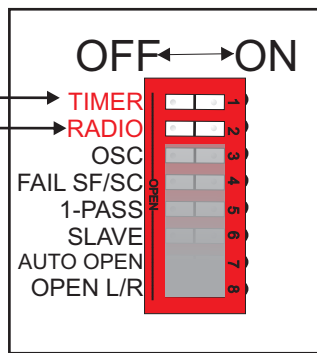


Turn potentiometer clockwise for less time

NOTE: The timer may not activate to close the gate if the potentiometer is turned counter clockwise all the way

TIMER "ON" TO  
ACTIVATE THE TIMER

RADIO "ON" = ALLOWS THE  
TRANSMITTER TO CLOSE  
THE GATE BEFORE THE TIMER



# DIP SWITCH FUNCTIONS

## TIMER

**TIMER** switch “ON” activates the automatic close timer.

## RADIO

**RADIO** switch “ON” allows the radio receiver to override the automatic close timer.

## OSC

**OSC** switch “ON” allows the radio receiver to stop and reverse the gate in any direction. During a cycle, the first signal stops the gate. A second signal reverses the gate.

## FAIL SC/SF

**ON** for **Fail-Safe**: Upon power failure, board will monitor battery voltage to make sure gate opens before battery completely drains. **OFF** for **Fail-Secure**: Upon power failure, gate will run until battery is low and lock closed.

## 1-PASS

**1-PASS** switch “ON” allows the gate to open until one vehicle goes over the safety loop. Once the vehicle has cleared the loop, the gate will stop and close. If a second vehicle goes over the loop while the gate is closing, the gate will stop. The vehicle must get off of the loop before the gate continues to close, forcing the second vehicle to present valid credentials. This is a true one pass, anti-tailgating feature to be used with safety loops.

## SLAVE

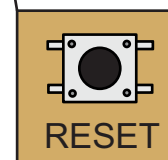
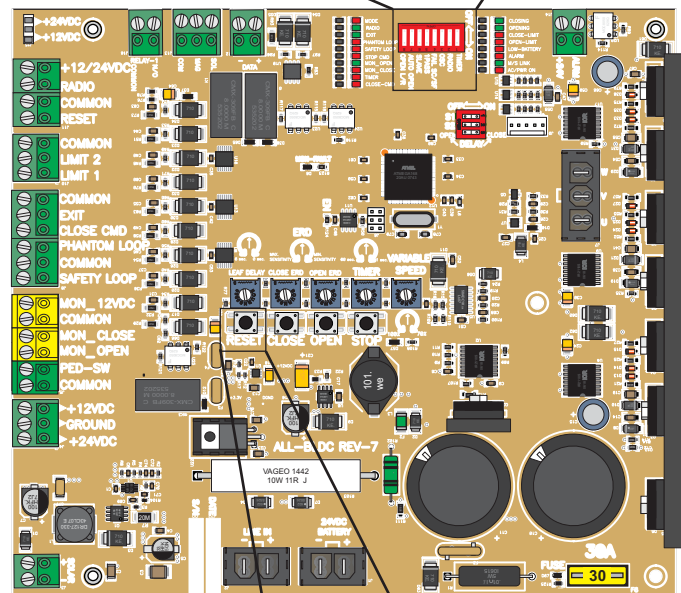
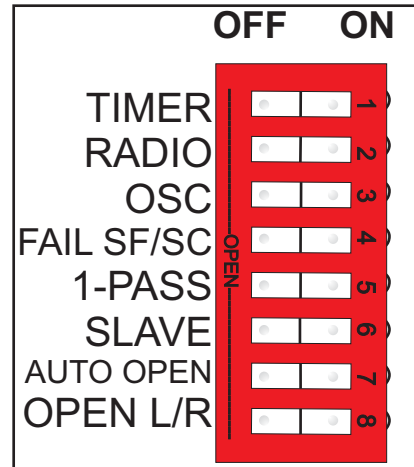
This feature is used in dual gate applications. The **SLAVE** switch will be “ON” only on the slave operator. All other dip switches will be “off”. **SLAVE** switch will be “OFF” on the master operator. Set desired dip switch settings on the master operator only.

## AUTO OPEN

This feature is to automatically open the gate on power interruption. It is a very particular feature used in areas where the fire department requires the gate to open automatically after a power outage. Set this dip switch “ON” when this feature is desired.

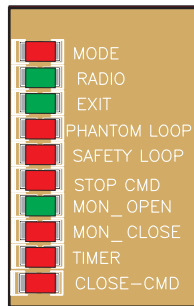
## OPEN L/R

**OPEN L/R** switch “ON” is used for right hand opening of the gate. The “OFF” position is used for left hand opening of the gate.



**NOTE:** IF ANY CHANGES ARE MADE TO THE DIPSWITCHES WITH THE POWER ON, PRESS THE **MAIN RESET** BUTTON TO RECOGNIZE THE CHANGE.

# LED DIAGNOSTICS



## **MODE**

Blinks **once** every two seconds when there is a problem with the motor **hall sensor** feedback. Blinks twice every **two seconds** when a **motor overload** is detected. Blinks **three** times every two seconds when the gate is **jammed**.

## **RADIO**

ON when the RADIO input is activated (closed circuit to common).

## **EXIT**

ON when the EXIT input is activated (closed circuit to common).

## **PHANTOM LOOP**

ON when the PHANTOM LOOP input is activated (closed circuit to common).

## **SAFETY LOOP**

ON when the SAFETY LOOP input is activated (open circuit to common)

## **STOP CMD**

ON when the STOP CMD input is activated (open circuit to common)

## **MON\_OPEN**

ON when the MON-OPEN input is activated (open circuit to open) or when a device is not installed.

## **MON\_CLOSE**

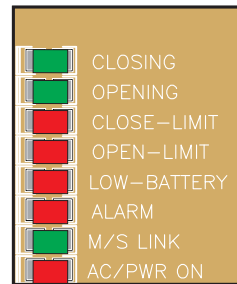
ON when the MON\_CLOSE input is activated (open circuit to common) or when a device is not installed.

## **TIMER**

Blinks when the timer is counting down to close automatically.

## **CLOSE-CMD**

ON when the CLOSE-CMD input is activated (closed circuit to common).



## **CLOSING**

ON while the gate is in the close cycle.

## **OPENING**

ON while the gate is in the open cycle.

## **CLOSE-LIMIT**

ON while the limit nut is activating the close limit switch.

## **OPEN-LIMIT**

ON while the limit nut is activating the open limit switch.

## **LOW-BATTERY**

ON when the batteries are low.

## **ALARM**

Blinks every 30 seconds (alarm will also beep) when the batteries are low, bad, or disconnected. Turns on for 5 minutes (alarms also goes off) when the operator goes into shut down mode due to the gate hitting an obstruction (ERD).

## **M/S LINK**

ON when master/slave communication is active.

## **AC/PWR ON**

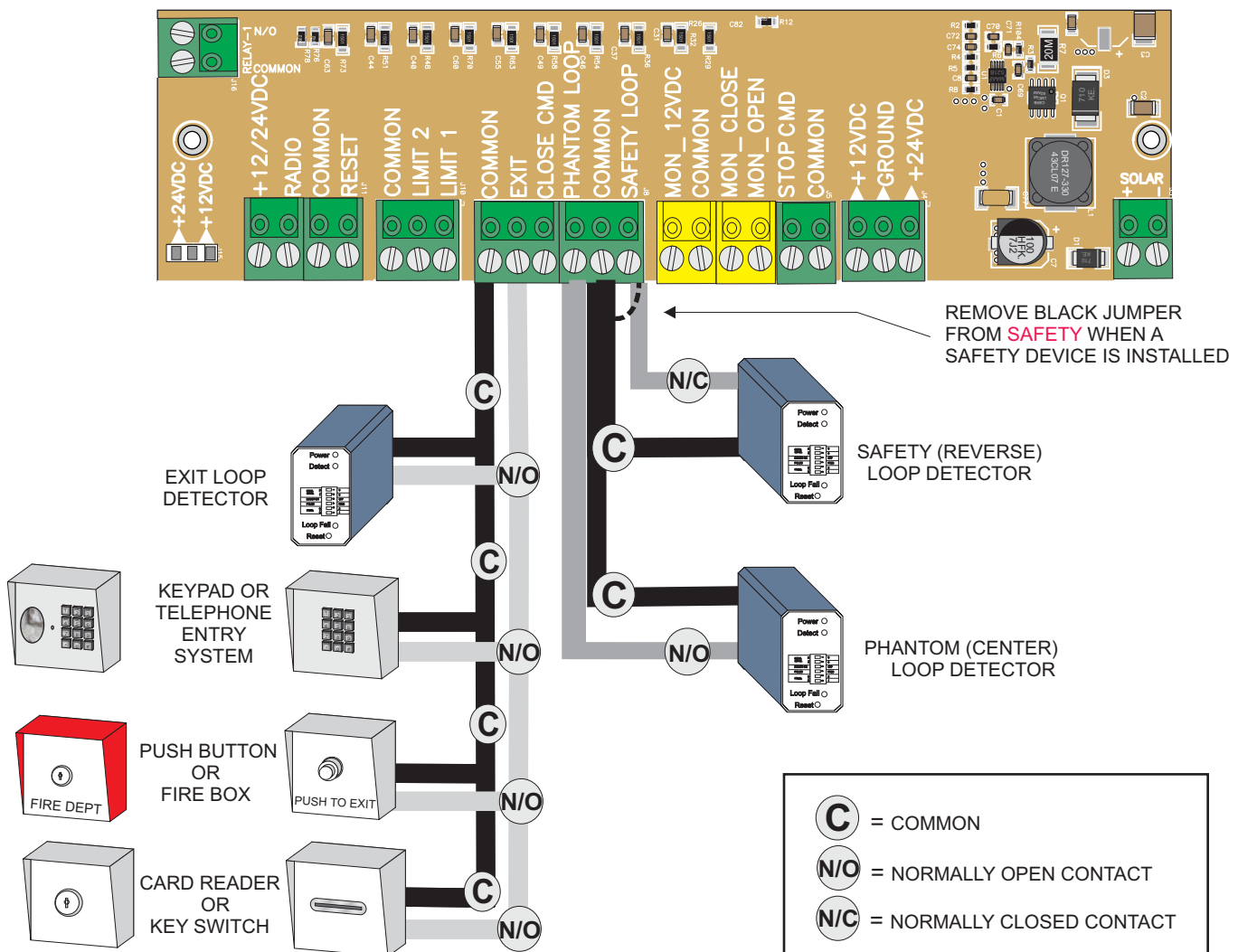
ON when AC power is on.

# ACCESSORY CONNECTIONS

The circuit board has a 24 VDC terminal that provides up to 500 mAmps to power accessories such as loop detectors, keypads, etc. If the total current draw of your accessories exceeds the 500 mAmps, a separate power supply (transformer) is required.

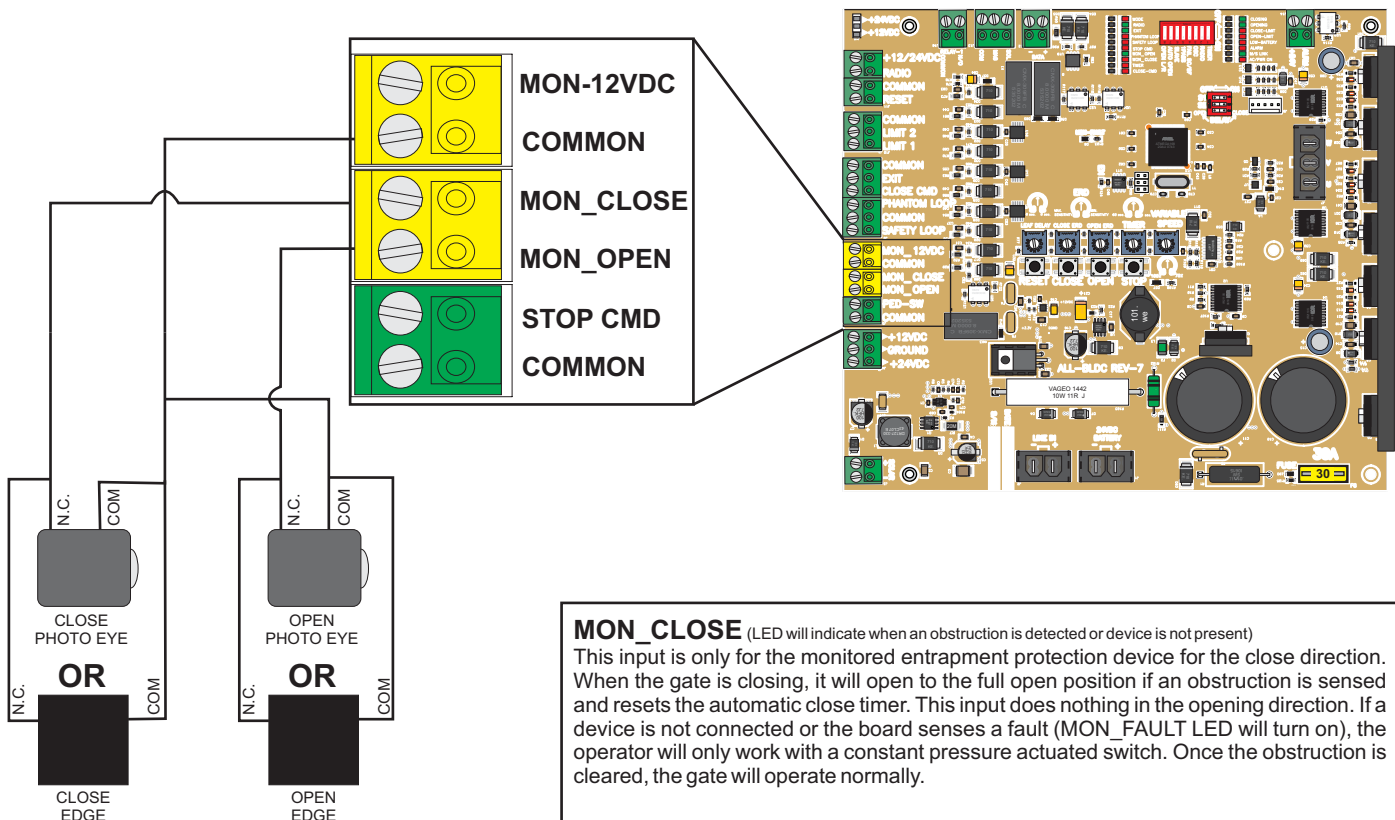
When installing a safety photo eye, safety loop detector, or pedestrian switch, make sure to remove the black jumper between the 24V-COM and SAFETY and/or STOP CMD terminals.

NO Contacts	NC Contacts
Exit Loop Detector	Safety Loop Detector
Keypad	Safety Photo Eye
Telephone System	Pedestrian Switch
Push Button	
Card Reader	



# SL-175 DC MONITORED ENTRAPMENT PROTECTION DEVICE CONNECTION

- There are 2 types of sensors that can be connected to the gate operator for UL 325 monitored entrapment compliance: non-contact sensors (photo eye) and contact sensors (edge sensors).
- Monitored entrapment protection devices use 4 wires to connect to the board. From the device, connect the **RELAY COMMON** to the board **COMMON** and the **NORMALLY CLOSED** relay contact to the assigned **MON\_OPEN** or **MON\_CLOSE** input. Connect the power wires to the **COMMON** and **MON-12/24VDC**.
- **IMPORTANT:** You must use the MON-12/24VDC to properly monitor entrapment protection devices. To turn this voltage on for **initial setup**, press reset button on the board. Do not use the 24 VDC terminal on the board's terminal strip.
- **NOTE:** The power to the **MON-12/24VDC** terminal will be off when the gate is at rest (not moving). It will be normal to see the **MON\_OPEN** and **MON\_CLOSE** LEDs when the gate is closed. If the auto close timer is **OFF** it will do the same when the gate is at rest in the open position. Also, if no devices are connected both of these lights will stay ON.
- Please refer to the device manufacturer wiring instructions for details (on next page), making sure to follow the normally closed wiring directions. Some devices may work on monitoring interfaces other than normally closed.
- Should there be a need for more than 1 entrapment protection device for each direction, use a multi-input module from Miller Edge (model: MIM-62).

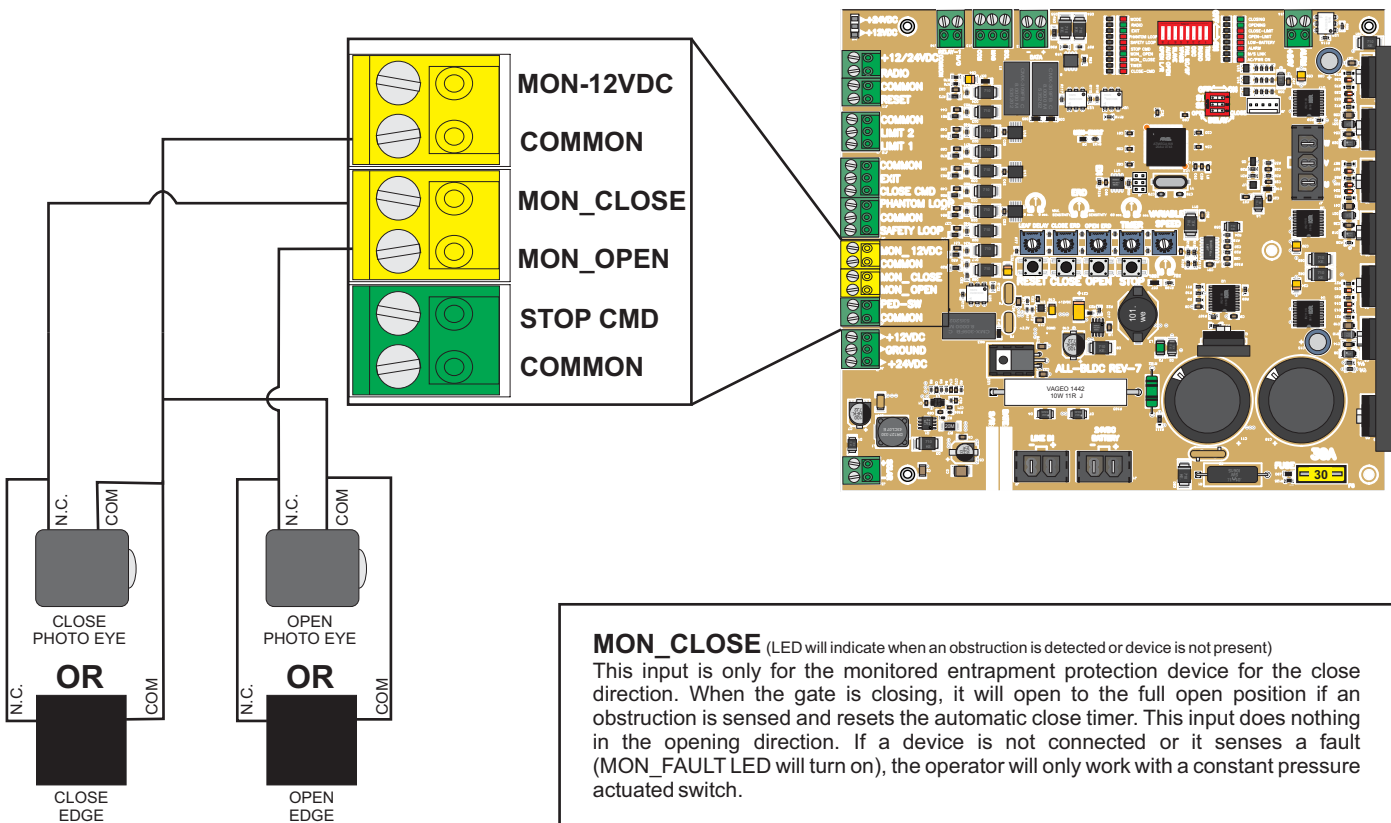


**MON\_CLOSE** (LED will indicate when an obstruction is detected or device is not present)  
 This input is only for the monitored entrapment protection device for the close direction. When the gate is closing, it will open to the full open position if an obstruction is sensed and resets the automatic close timer. This input does nothing in the opening direction. If a device is not connected or the board senses a fault (MON\_FAULT LED will turn on), the operator will only work with a constant pressure actuated switch. Once the obstruction is cleared, the gate will operate normally.

**MON\_OPEN** (LED will indicate when an obstruction is detected or device is not present)  
 This input is only for the monitored entrapment protection device for the open direction. When the gate is opening, it will reverse for 2 seconds and stop if it senses an obstruction. This input does nothing in the closing direction. If a device is connected and the board detects a fault (MON\_FAULT LED will turn on), the operator will only work with a constant pressure actuated switch. Once the obstruction is cleared, the gate will operate normally.

# SW-375 DC MONITORED ENTRAPMENT PROTECTION DEVICE CONNECTION

- There are 2 types of sensors that can be connected to the gate operator for UL 325 monitored entrapment compliance: non-contact sensors (photo eye) and contact sensors (edge sensors).
- Monitored entrapment protection devices use 4 wires to connect to the board. From the device, connect the **RELAY COMMON** to the board **COMMON** and the **NORMALLY CLOSED** relay contact to the assigned **MON\_OPEN** or **MON\_CLOSE** input. Connect the power wires to the **COMMON** and **MON-24VDC**.
- **IMPORTANT:** You must use the MON-24VDC to properly monitor entrapment protection devices. Do not use the 24 VAC terminal on the board's terminal strip.
- Please refer to the device manufacturer wiring instructions for details, making sure to follow the normally closed wiring directions. Some devices may work on monitoring interfaces other than normally closed.
- Should there be a need for more than 1 entrapment protection device for each direction, use a multi-input module from Miller Edge (model: MIM-62).



**MON\_CLOSE** (LED will indicate when an obstruction is detected or device is not present)  
 This input is only for the monitored entrapment protection device for the close direction. When the gate is closing, it will open to the full open position if an obstruction is sensed and resets the automatic close timer. This input does nothing in the opening direction. If a device is not connected or it senses a fault (MON\_FAULT LED will turn on), the operator will only work with a constant pressure actuated switch.

**MON\_OPEN** (LED will indicate when an obstruction is detected or device is not present)  
 This input is only for the monitored entrapment protection device for the open direction. When the gate is opening, it will reverse for 2 seconds and stop if it senses an obstruction. This input does nothing in the closing direction. Upon power up, if a device is not detected, the operator will assume that one is not required for the opening direction. If a device is connected and the board detects a fault (MON\_FAULT LED will turn on), the operator will only work with a constant pressure actuated switch.

# MONITORED ENTRAPMENT PROTECTION DEVICE CONNECTIONS

ENFORCER E-960-D90GQ/ E-931-S33RRGQ / E-931-S50RRGQ	
CONTACT	BOARD TERMINAL
N.C.	MON_CLOSE OR MON_OPEN
COM	COMMON
12-30 VDC/AC	COMMON
12-30 VDC/AC	MON_12/24VDC

ENFORCER E-936-S45RRGQ	
WIRE	BOARD TERMINAL
BLACK	MON_CLOSE OR MON_OPEN
WHITE	COMMON
BLUE	COMMON
BROWN	MON_12/24VDC

ALLEN BRADLEY GRU-24	
WIRE	BOARD TERMINAL
BLACK	MON_CLOSE OR MON_OPEN
ORANGE	COMMON
BLUE	COMMON
BROWN	MON_12/24VDC

OMRON E3K-R10K4-NR		
SWITCH	CONTACT	BOARD TERMINAL
LIGHT ON	N.O.2	MON_CLOSE OR MON_OPEN
	C.2	COMMON
	24 TO 240 VAC	COMMON
	24 TO 240 VAC	MON_12/24VDC

EMX IRB-MON		
SWITCH	CONTACT	BOARD TERMINAL
SW1 - OFF	N.C.	MON_CLOSE OR MON_OPEN
SW2 - OFF	COM	COMMON
SW3 - ON	POWER/ VRX	COMMON
SW4 - OFF	POWER/ VRX	MON_12/24VDC

EMX IRB-325	
CONTACT	BOARD TERMINAL
N.C.	MON_CLOSE OR MON_OPEN
COM	COMMON
POWER	COMMON
POWER	MON_12/24VDC

EMX NIR-50-325	
WIRE	BOARD TERMINAL
BLACK	MON_CLOSE OR MON_OPEN
WHITE	COMMON
BLUE	COMMON
BROWN	MON_12/24VDC

EMX IRB-RET		
SWITCH	CONTACT	BOARD TERMINAL
SW1 - OFF	N.C.	MON_CLOSE OR MON_OPEN
SW2 - OFF	COM	COMMON
SW3 - OFF	POWER/ VRX	COMMON
SW4 - ON	POWER/ VRX	MON_12/24VDC

TRANSMITTER SOLUTIONS R50R-UL/R32P-UL/SR33HD/SR66HD	
CONTACT	BOARD TERMINAL
N.C. (3)	MON_CLOSE OR MON_OPEN
COM (5)	COMMON
NON POLARITY (1)	COMMON
12-30 VDC/AC (2)	MON_12/24VDC

TRANSMITTER SOLUTIONS iGAZE RE KIT		
SWITCH	CONTACT	BOARD TERMINAL
ALL OFF	N.C.1	MON_CLOSE OR MON_OPEN
	COM	COMMON
	(-) 12/24 VDC	COMMON
	(+) 12/24 VDC	MON_12/24VDC

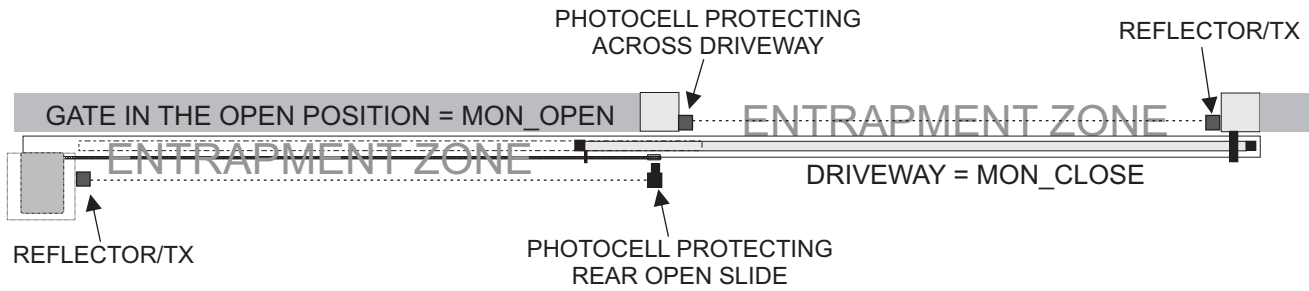
EMX WEL-200	
CONTACT	BOARD TERMINAL
RELAY CLOSE (NC) RELAY OPEN (NC)	MON_CLOSE MON_OPEN
RELAY CLOSE (COM) RELAY OPEN (COM)	COMMON COMMON
POWER	COMMON
POWER	MON_12/24VDC

MILLER EDGE RBAND 6 WIRES FOR 1 EDGE - 8 WIRES FOR 2 EDGES		
SWITCH	CONTACT	BOARD TERMINAL
SW 1 - ON	N/C N/C	MON_CLOSE MON_OPEN
SW 2 - ON	COM COM	COMMON COMMON
SW 3 - ON	COM A.TEST	COMMON MON_12/24VDC
SW 4 - ON	12/24 (+) AC/DC	24-VDC GROUND

MON\_CLOSE = PROTECTS ACROSS THE DRIVEWAY/CLOSING DIRECTION  
MON\_OPEN = PROTECTS THE REAR SLIDE / OPENING DIRECTION

# MONITORED ENTRAPMENT PROTECTION DEVICE CONNECTIONS

## OVERHEAD VIEW OF DRIVEWAY



## WIRING ENTRAPMENT DEVICE TO DC BOARD

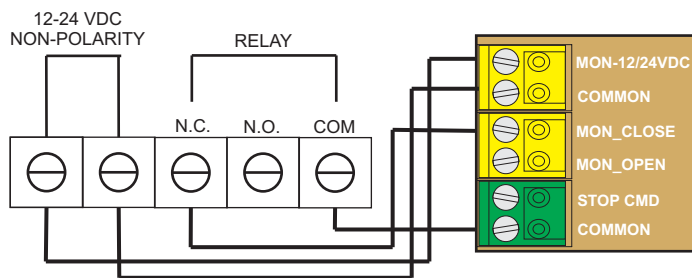
(RED, BLUE AND GOLD BOARDS)

### WIRING DEVICE ACROSS DRIVEWAY / CLOSE DIRECTION (MON\_CLOSE)

WIRE TO THE YELLOW CONNECTOR

FOR OMRON E3K,  
USE RELAY C2 AND NO 2

ENFORCER PHOTOCELL  
MODELS MUST END IN -GQ

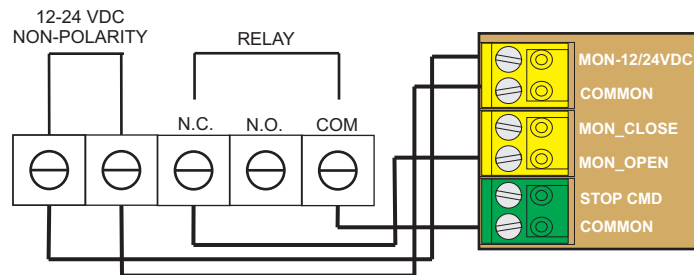


### WIRING DEVICE FOR OPEN DIRECTION (MON\_OPEN)

WIRE TO THE YELLOW CONNECTOR

FOR OMRON E3K,  
USE RELAY C2 AND NO 2

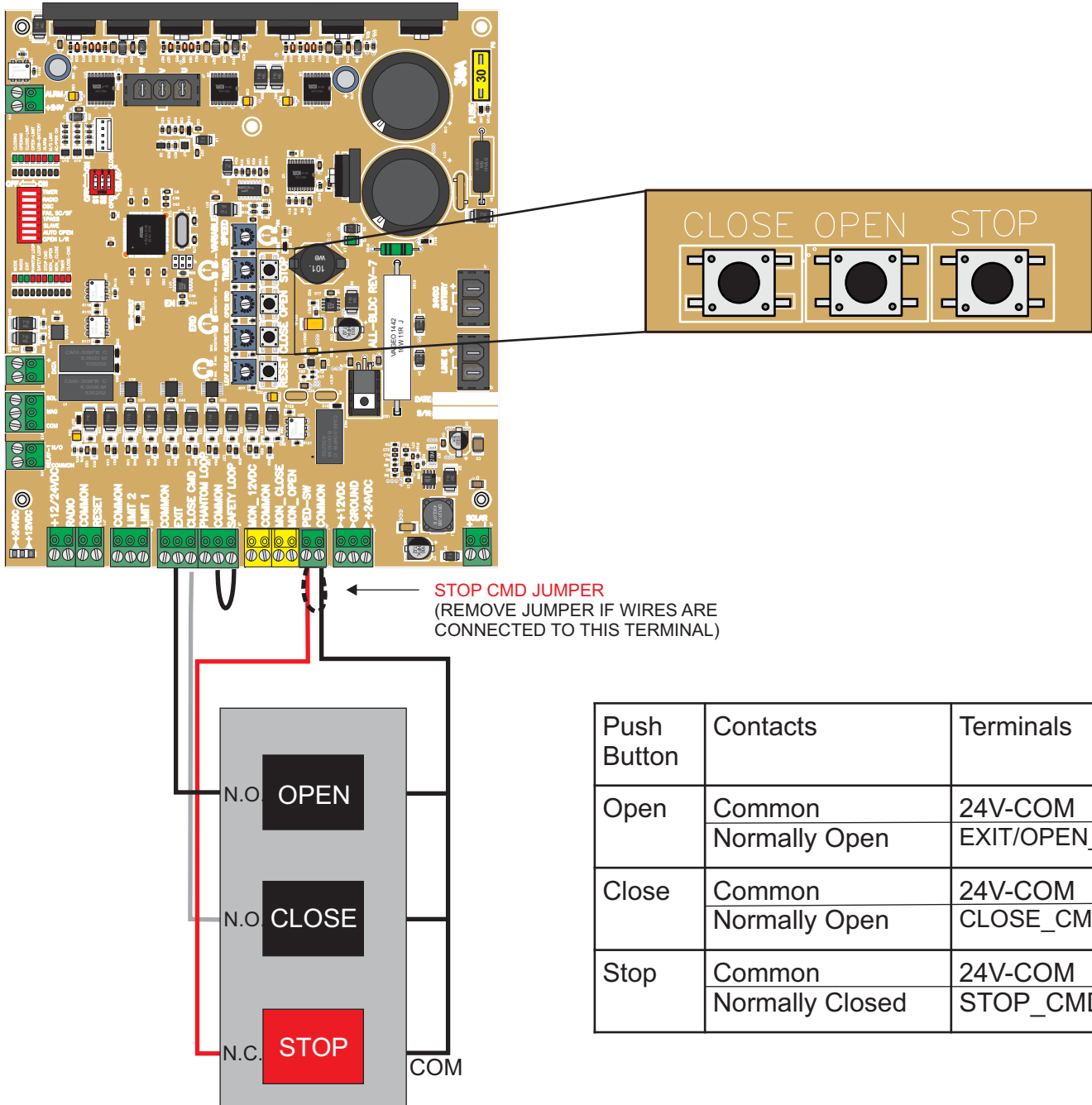
ENFORCER PHOTOCELL  
MODELS MUST END IN -GQ





# THREE-BUTTON STATION CONNECTION

- A three button station and reset push button are integrated on the board to make limit and ERD adjustments easier.
- An external three button station may also be installed. See diagram below for wiring instructions,
- **NOTE:** STOP\_CMD jumper must be removed if a three button station is installed.



# MASTER/SLAVE CONNECTION

## BEFORE CONNECTING MASTER/SLAVE COMMUNICATION WIRES, TAKE THE FOLLOWING STEPS:

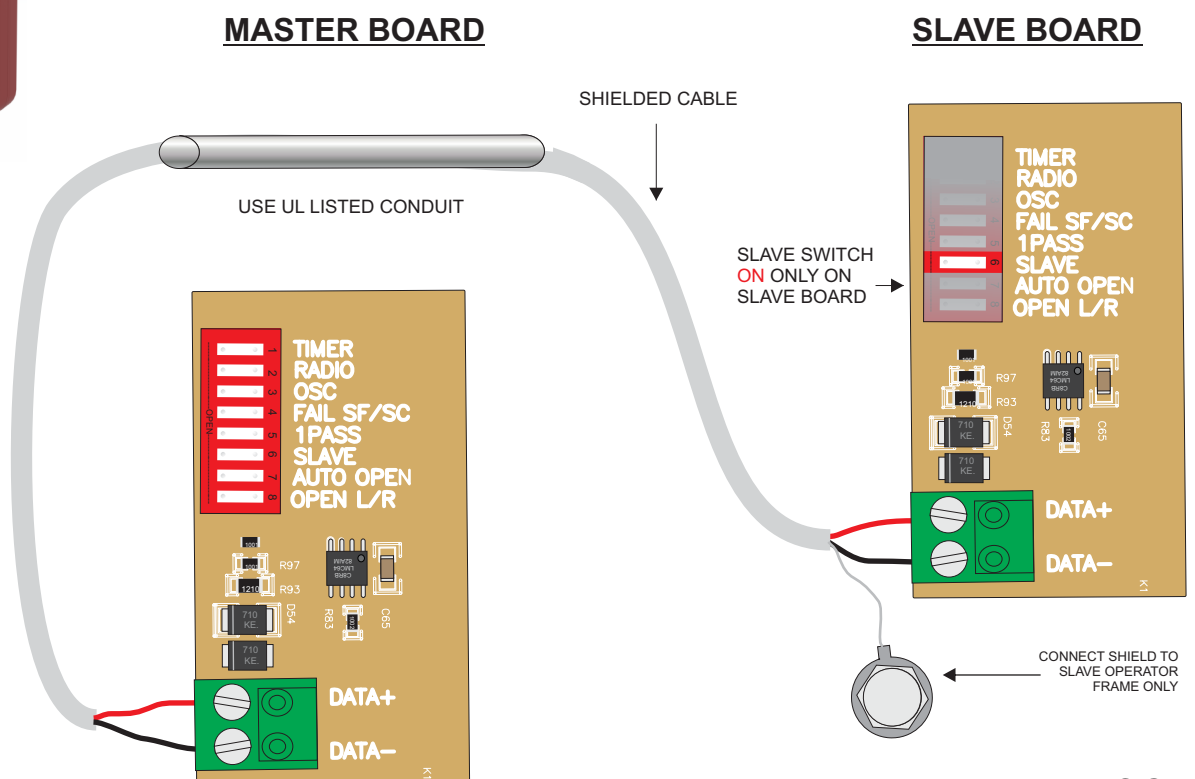
- 1: Test and adjust the limit switches and ERDs for each operator as stand alone machines
- 2: Once the machines have been adjusted, turn slave dip switch "ON" on the slave board.  
Press the RESET button on the slave board or reset the power.
- 3: Connect the master/slave communication wires to "DATA -" and "DATA +".  
The "M/S LINK" LED should be "ON" on both machines.
- 4: Connect all accessories to the master operator. Accessories installed on the slave operator will not work.



**NOTE:** We now offer a new solution for applications where it is difficult or impossible to run wires across the driveway for dual gate M/S communication.

The new WiSe module is a wireless solution that can be used in place of running hard wires for communication.

Installation is quick and easy. All you need are power and DATA+ / DATA- connections. There is no programming or set up on the board necessary. Just connect the wires and it will automatically link up.





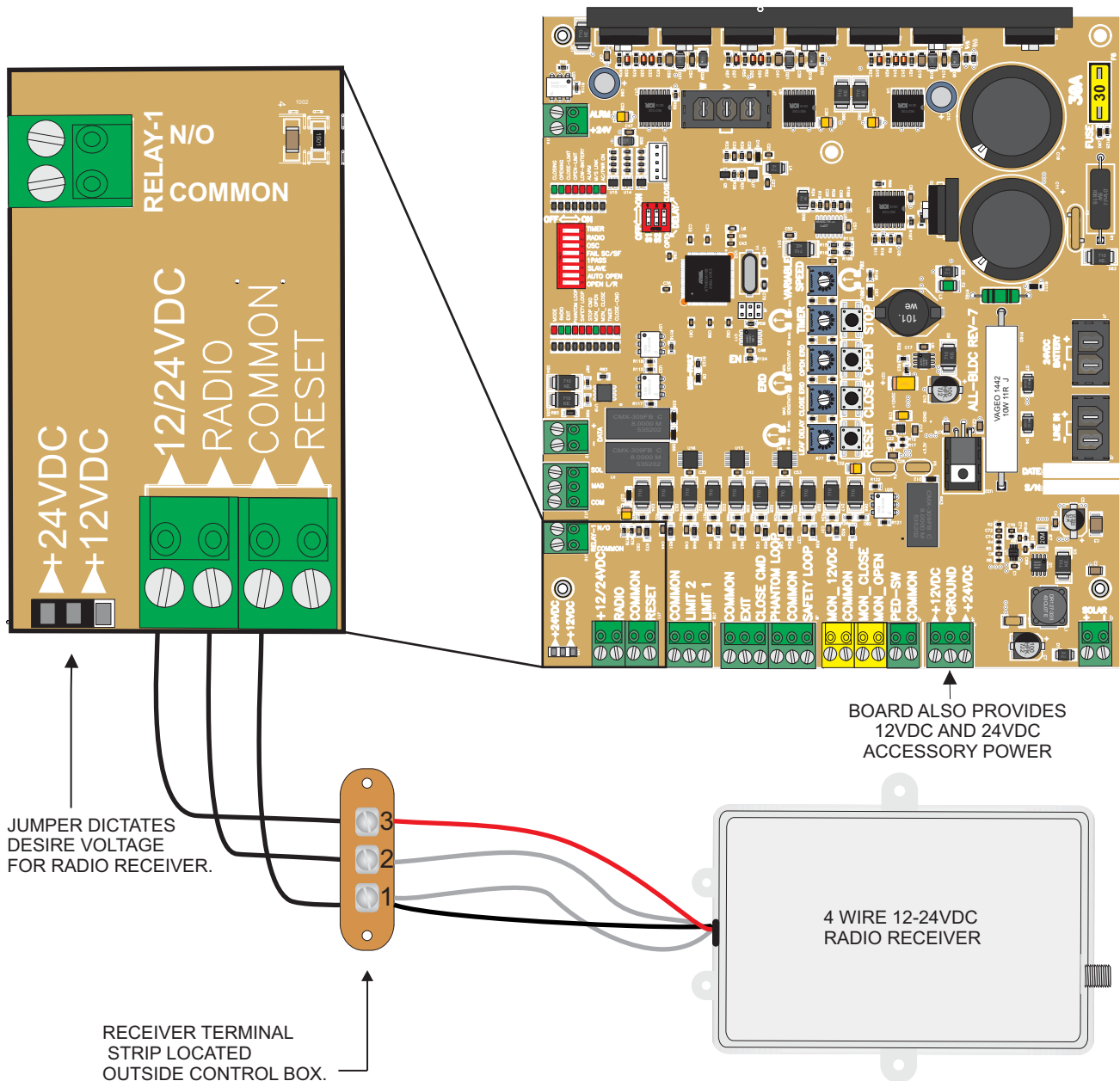
# RADIO RECEIVER CONNECTION

There are two types of receivers: 3-wire and 4-wire:

3 wire receivers can mount on the radio receiver terminal strip located outside of the control box.

For 4 wire receivers, connect the relay contact wires to terminals 1 (COMMON) and 2 (RELAY/RADIO) on the receiver terminal strip located outside of the control box (one wire on each terminal). For power connect the black(negative) wire to terminal 1 (COMMON) and the red (positive) wire to terminal 3 (+12/24VDC) on the receiver terminal strip as shown below.

RADIO dip switch ON allows the radio receiver to override the automatic close timer. See TIMER adjustment page for more details.



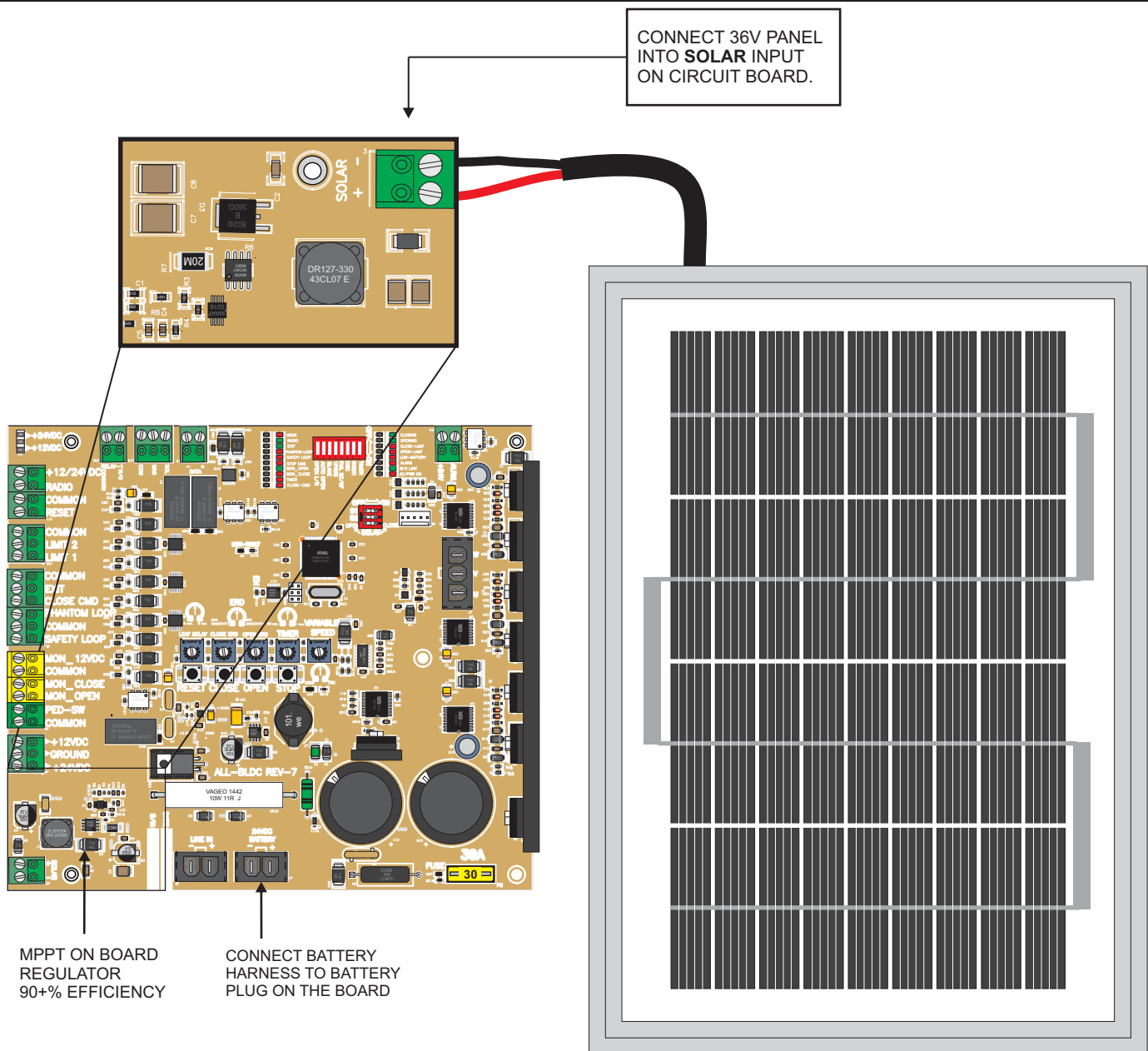
# SOLAR PANEL CONNECTION

The solar panel input requires a minimum of a 36VDC, 40 Watt panel. The charging circuit is limited by 80 watt maximum. With (3) 14Ah, 12VDC batteries, a receiver and (2) monitored entrapment devices connected, this set up will provide about 10 cycles/day.

Be sure to use the SOLAR input for solar panels. The on board solar battery regulator offers a MPPT feature that makes it more efficient than other types of regulators.

For a solar installation, upgrade the batteries according to usage. When the application requires more than 80 watts of solar power, an external charge controller regulator is necessary. See next page for external solar system.

For information on solar applications (solar panel sizes, battery size, etc.), please call All-O-Matic.

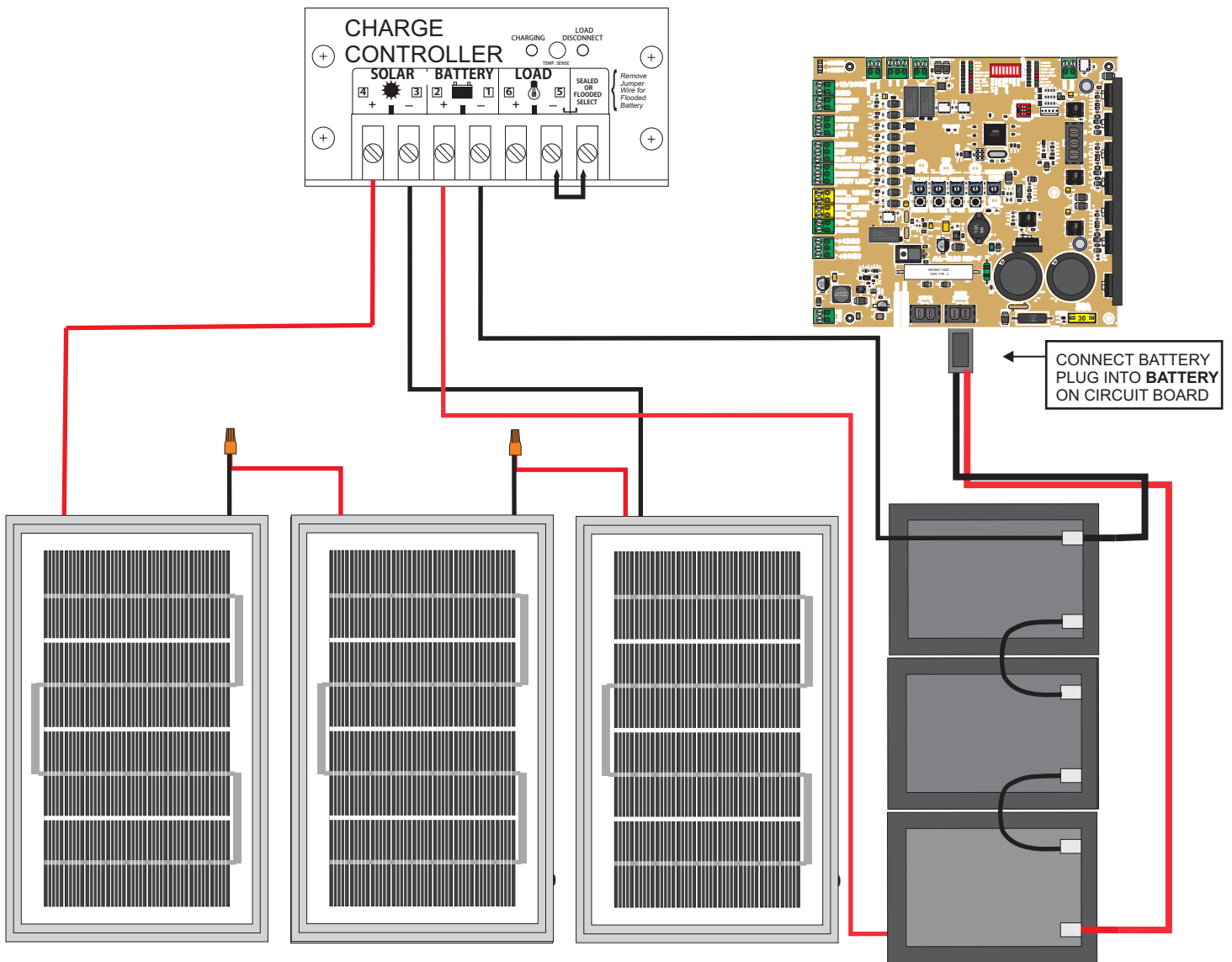


# EXTERNAL SOLAR SYSTEM INSTALLATION

When using an external solar package, connect batteries straight into the **LINE IN** input. The batteries will need to be upgraded to meet application requirements. See wiring below.

For information on solar applications (solar panel sizes, battery size, etc.), please call All-O-Matic.

**IMPORTANT:** When more than two solar panels are need, special wiring precautions must be taken to prevent damage to batteries and or charge controller regulator. If the panels are 12VDC they must be wired in series to make 36VDC. If 36VDC panels are used they must be wired in parallel.



# SL-175 DC EMERGENCY RELEASE

## Procedures to manually open Gate :

1. Turn operator power "OFF"
2. Push foot pedal down and move to the left to lock pedal in down position
3. Push gate open



# WARRANTY AND RECORD

## MANUFACTURER'S LIMITED WARRANTY

**ALL-O-MATIC INC** warrants the SL-175 DC gate operator for a period of five (5) years in commercial installations. The SW-375 DC will have warranty period of three (3) years in commercial installations. The above operators, within their warranty period, are to be free from defects in circuitry, motor, gearbox and workmanship. This warranty begins from the date of purchase to the original owner. Warrantor will repair or, at its option, replace any device which it finds to require service. This device must be sent to the warrantor at the consumer's expense to:

**ALL-O-MATIC INC.  
7820 GLORIA AVE.  
VAN NUYS, CA 91406**

The warrantor will return the repaired or replaced unit to the customer at the consumer's expense. Labor charges for dealer service or replacement are the responsibility of the owner. These warranties are in lieu of all other warranties either expressed or implied, and ALL-O-MATIC INC shall not be liable for consequential damage. All implied warranties of merchantability and or fitness for a particular purpose are hereby disclaimed and excluded. This limitation is not valid in jurisdictions which do not allow limitation of incidental or consequential damages or limitation of warranty periods. In order to obtain this policy, please complete the registration card and send it by mail within 30 days of purchasing from ALL-O-MATIC INC. or your installer. If product is not registered, only a one year warranty on all parts will be provided.

## CUSTOMERS RECORD

Customer Name \_\_\_\_\_

Address \_\_\_\_\_

Purchased from (Installation Co.) \_\_\_\_\_

Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Model Number \_\_\_\_\_

Serial Number \_\_\_\_\_ - \_\_\_\_\_

# OPERATOR CURRENT DRAW AND TECHNICAL TIPS

<b>DC GATE OPERATORS</b>	<b>CURRENT DRAW @ 115VAC</b>	<b>CURRENT DRAW @ 220VAC</b>
SL-175DC	9 AMPS	5 AMPS
SW-375DC	8 AMPS	4.5 AMPS

## TECHNICAL TIPS:

Board says “opening/closing”, but the gate does not move.

- Check the fuse on the circuit board. If the fuse is blown (the LED next to the fuse will be on), replace the fuse. If the gate goes back into operation, make sure that the gate is not binding or hitting either of the positive stops and/or catch. If the fuse blows again (immediately), the impact has shorted the transistor(s) on the board and the board will need to be repaired.
- Check the motor harness. Make sure the connector is in tight and that none of the wires are loose.

Radio and Monitored Power jumpers

- Jumpers come on 12VDC from the factory. The radio jumper is located on the top left of the board. The monitored power jumper is located to the right of the “12VDC/GROUND/24VDC” green terminal, underneath the relay. (NOTE: The 1090 Multicode receiver must have 24VDC to work)

The 10 amp fuse on the EMI board keeps blowing

- Turn off the power, disconnect one of the white wires from the bridge rectifier and replace the fuse. Turn the power back on. If the fuse does not blow immediately, the bridge rectifier needs to be replaced.
- If the fuse blows with the white wire disconnected, make sure the MOVs (blue wafer components) or traces on the back of the EMI board have not burned. Check voltages from the EMI board, transformer, bridge rectifier, etc. to see where the voltage issue is occurring.

Learning the slow down for the open and close limits

- Get the gate in the fully open or close position. Press and release “RESET” on the circuit board. Run the gate one full cycle (full open and full close) without interruption. The first cycle may run slower while the board is learning and will run full speed the second cycle.

The gate is running slow

- Make sure that the variable speed potentiometer is at 100%.
- Follow the steps above to learn the slow down on the board.

Technical Support

- Technical Support is available in English and Spanish, Monday-Friday from 7:00 am to 3:30 pm PST
- Call us at (818) 787-1988

Advance Replacement/ Repair and Return Policy

- We advance replace items within the first (2) years of the operator date. In order to get an advance replacement, you must call our tech support and troubleshoot from the job site. If the item is determined to be defective, we will issue the technician a RMA number to give to the distributor. The distributor will send us a PO for the advance replacement item. Please note that any warranty item over (2) years will be repair and return only.
- We repair defective boards (including boards out of warranty) at no charge, provided that the board components are still available (applicable to boards over (15) years old) and that the board was not damaged by a power surge or has evidence of water damage. You can send the board in directly to us or send it to us through your distributor. We do our best to get the boards out 1-2 days after we receive it.





**Power Door Products**

(914) 698-5083

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