Installation and Owners manual for

MAX ARM
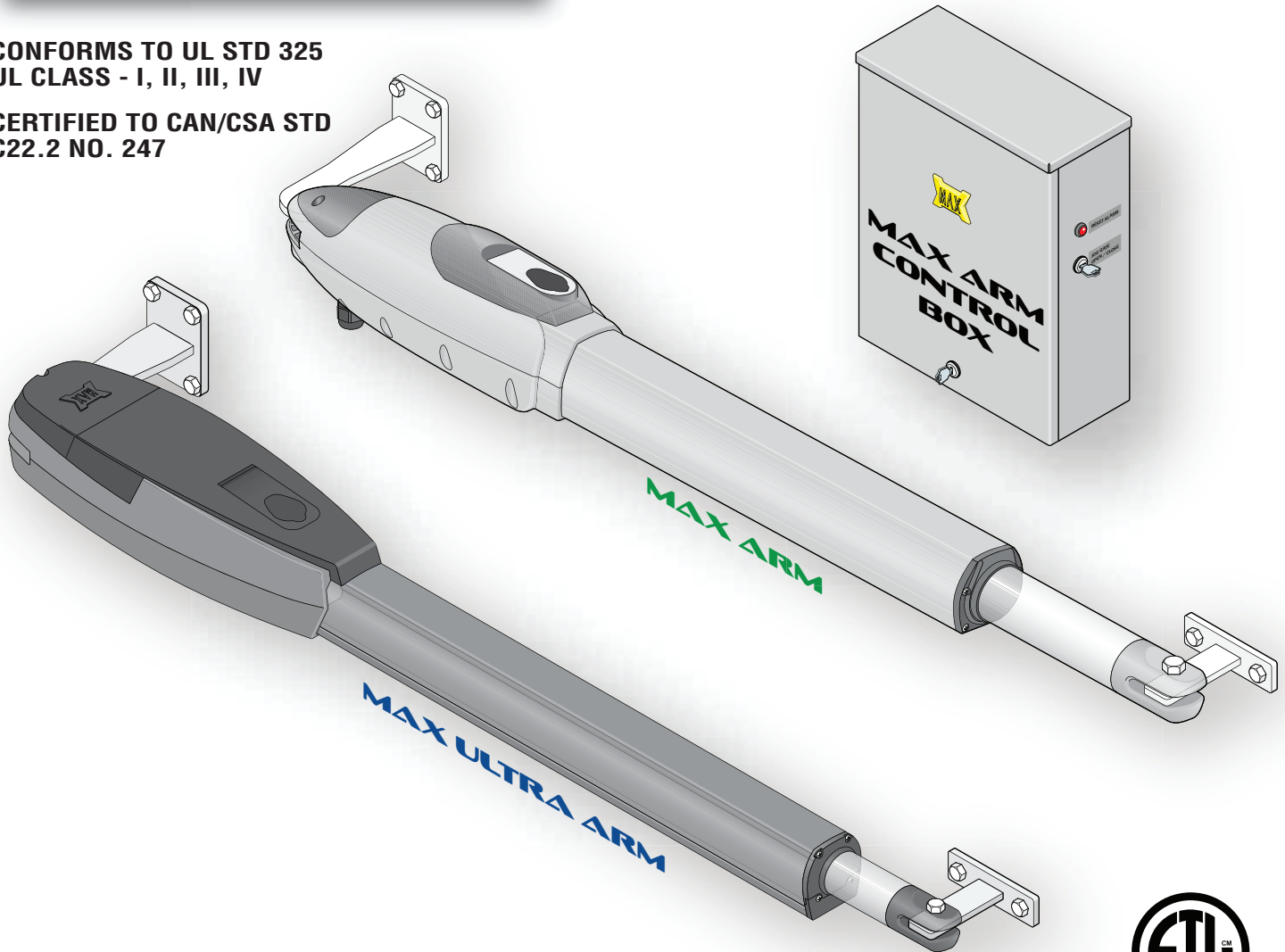# MAX ULTRA ARM

Actuator Arms

SAFETY SENSORS REQUIRED

CONFORMS TO UL STD 325
UL CLASS - I, II, III, IV

CERTIFIED TO CAN/CSA STD
C22.2 NO. 247

MAX ARM CONTROL BOX

MAX ARM

MAX ULTRA ARM

ETL
LISTED
c US
CM

Intertek
4009963

Residential / Commercial
Linear Gate Operators

MAXIMUM MAX CONTROLS

V1b.7

www.max.us.com

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SPECIFICATIONS

AC POWERED CONTROL BOX

13.5" (343 mm)

5.75" (146 mm)

17" 432 mm

12 V 7 Amp/Hr

12 V 7 Amp/Hr

Toroid Box

RESET ALARM

JOG GATE OPEN / CLOSE
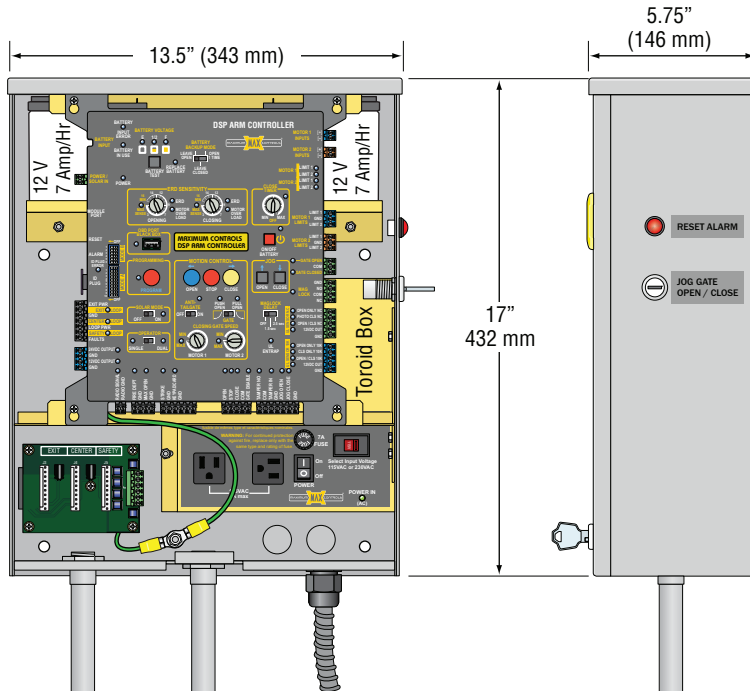
Class of operation.....UL 325 Class I, II, III, IV

Type of gate.....Vehicular swing gate only

Input AC power/amps.....
Switchable: 115VAC / 6 amp, 1 phase
OR
230VAC / 2 amp, 1 phase

Power output.....24 VDC

Operating temperature.....-4°F to 158°F (-20°C to 70°C)

Cycles per hour AC input power.....Continuous

Battery back-up cycles.....
(7 Amp/Hr batteries fully charged).....Approx 500 cycles

Entrapment protection.....

- UL 325 Type A Inherent (ERD sensor)

- Inputs for **NORMALLY CLOSED (N.C.) or 10K** Type
  UL 325 Type B1 (photo cell) and Type B2 (sensing edge)
  MONITORED when used.

SOLAR POWERED CONTROL BOX

13.5" (343 mm)

5.75" (146 mm)

17" 432 mm

12 V 18 Amp/Hr Battery

12 V 18 Amp/Hr Battery

Jog Switch (Optional)

Solar Regulator 24V 10 Amp

Loop Rack (Optional)

RESET ALARM

JOG GATE OPEN / CLOSE
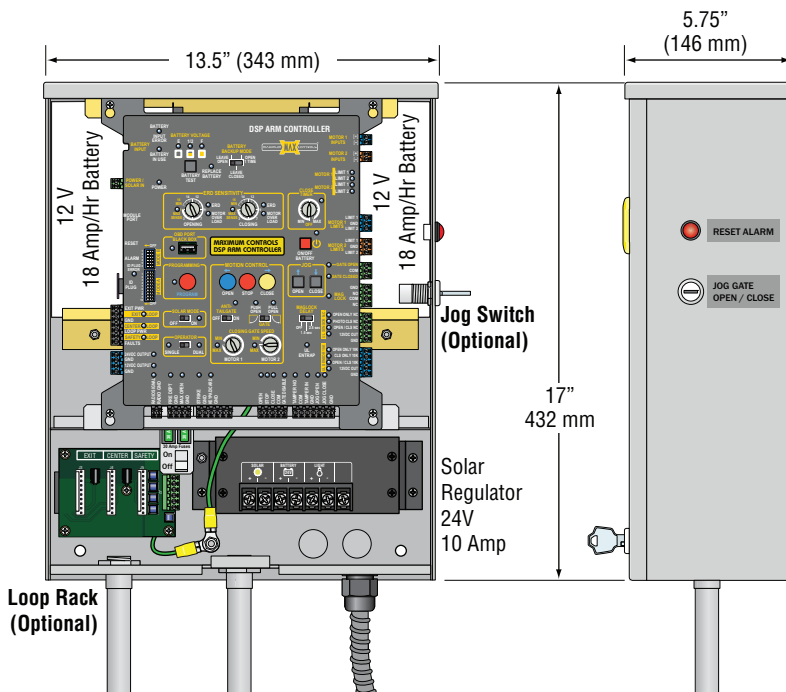
Class of operation.....UL 325 Class I, II, III, IV

Type of gate.....Vehicular swing gate only

Solar power.....
24V Solar Panel
Output: 36V (max) - Open Circuit

Power output.....24 VDC

Operating temperature.....-4°F to 158°F (-20°C to 70°C)

Cycles per hour.....Approx. 60

Entrapment protection.....

- UL 325 Type A Inherent (ERD sensor)

- Inputs for **NORMALLY CLOSED (N.C.) or 10K** Type
  UL 325 Type B1 (photo cell) and Type B2 (sensing edge)
  MONITORED when used.

SPECIFICATIONS

MAX ARM

Max Weight/Length

1600 lbs	1200 lbs	800 lbs	600 lbs
8ft	12ft	16ft	18ft
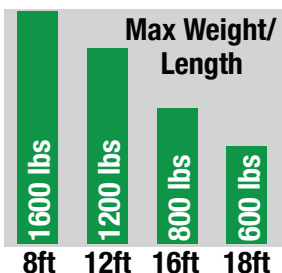
Power supply .....24 VDC

Peak thrust .....4500 N

Nominal thrust .....4000 N

Max Stroke length .....21.2 in

Maximum operating current .....7.5 A

Max Absorbed Power .....144 W

Maximum input power .....6 A

Operating Temperatures .....-20°C ~+50°C

Min = 41" (+/-.39")

4.5"

Max = 59.25" (+/-.39")

7.35"

4.5"

MAX ULTRA ARM

Max Gate Weight/Length

1600 lbs 725 kg	1200 lbs 544 kg	800 lbs 362 kg	600 lbs 272 kg
8ft	12ft	16ft	18ft
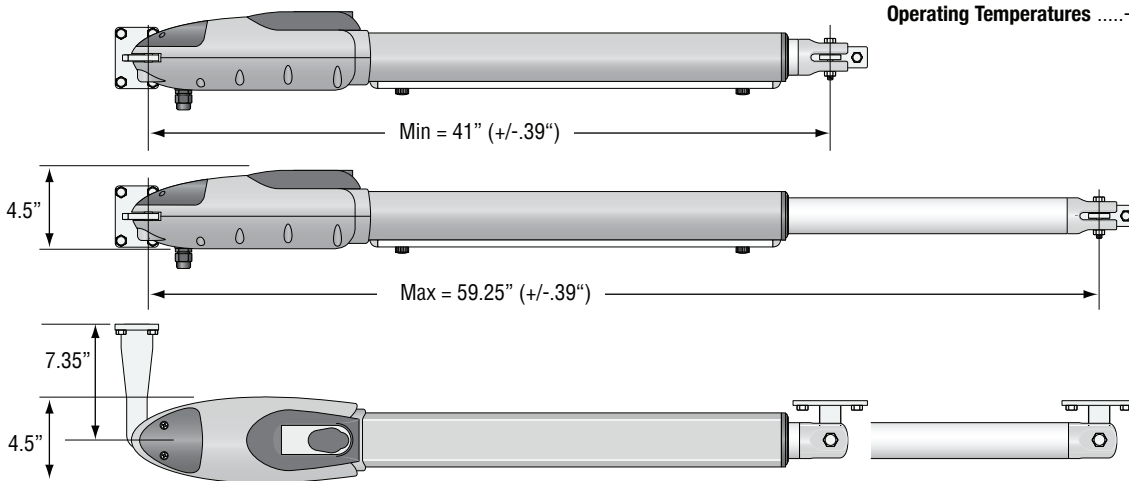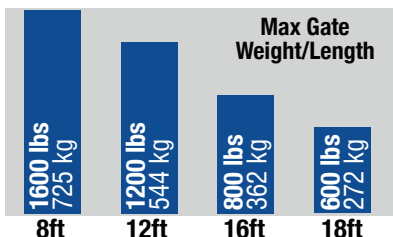
Power supply .....24 VDC

Max Stroke length .....21.2 in

Nominal thrust .....5500 N

Maximum operating current 6A

Operating Temperatures ..... -4°F ~+122°F (-20°C ~+50°C)

Min = 40.25"

5"
127mm

Max = 59.25" (+/-.39")

7.35"
186mm
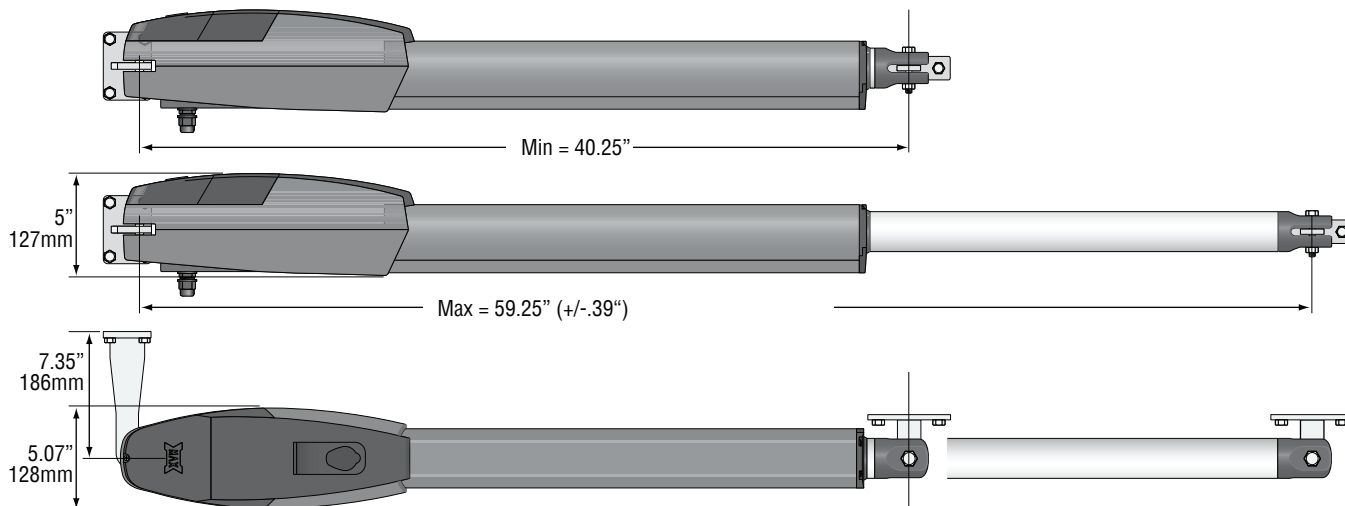
5.07"
128mm

IMPORTANT

BEFORE attempting to install, operate or maintain the operator, you must read and fully understand this manual and follow **ALL** safety instructions.
DO NOT attempt repair or service of your gate operator unless you are an Authorized Service Technician.

GATE CONSTRUCTION INFORMATION

Vehicular gates should be installed in accordance with ASTM F2200: Standard Specification for Automated Vehicular Gate Construction. For a copy, contact ASTM directly at 610-832-9585 or www.astm.org.

GENERAL REQUIREMENTS

Gates shall be constructed in accordance with the provisions given for the appropriate gate type listed, refer to ASTM F2200 for additional gate types.

Gates shall be designed, constructed and installed to not fall over more than 45 degrees from the vertical plane, when a gate is detached from the supporting hardware.

Gates shall have smooth bottom edges, with vertical bottom edged protrusions not exceeding 0.50 inches (12.7 mm) when other than the exceptions listed in ASTM F2200.

The minimum height for barbed tape shall not be less than 8 feet (2.44 m) above grade and for barbed wire shall not be less than 6 feet (1.83 m) above grade. An existing gate latch shall be disabled when a manually operated gate is retrofitted with a powered gate operator.

A gate latch shall not be installed on an automatically operated gate.

Protrusions shall not be permitted on any gate, refer to ASTM F2200 for Exceptions.

Gates shall be designed, constructed and installed such that their movement shall not be initiated by gravity when an automatic operator is disconnected, in accordance with the following.

Vehicular horizontal slide gate. Shall not result in continuous, unimpeded movement in either lineal direction of its travel.

Vehicular horizontal swing gate. Shall not result in continuous, unimpeded movement in either direction along the arc of its path of travel.

For pedestrian access in the vicinity of an automated vehicular gate, a separate pedestrian gate shall be provided. The pedestrian gate shall be installed in a location such that a pedestrian shall not come in contact with a moving vehicular access gate. A pedestrian gate shall not be incorporated into an automated vehicular gate panel.

Any existing automated gate, when the operator requires replacement, shall be upgraded to conform to the provisions of this specification in effect at that time.

Vehicular horizontal slide gate:
All weight bearing exposed rollers 8 feet (2.44 m), or less, above grade shall be guarded or covered.

All openings shall be designed, guarded, or screened from the bottom of the gate to the top of the gate or a minimum of 72 in. (1.83 m) above grade, whichever is less, to prevent a 2 1⁄4 in. (57 mm) diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that the gate covers in the open position. The gate panel shall include the entire section of the moving gate,including any back frame or counterbalance portion of the gate.

A gap, measured in the horizontal plane parallel to the roadway, between a fixed stationary object nearest the roadway, (such as a gate support post) and the gate frame when the gate is in either the fully open position or the fully closed position, shall not exceed 2 1/4 inches (57 mm), refer to ASTM F2200 for Exception.

Positive stops shall be required to limit travel to the designed fully open and fully closed positions. These stops shall be installed at either the top of the gate, or at the bottom of the gate where such stops shall horizontally or vertically project no more than is required to perform their intended function.

All gates shall be designed with sufficient lateral stability to assure that the gate will enter a receiver guide, refer to ASTM F2200 for panel types.

The following provisions shall apply to Class IV vehicular horizontal slide gates:
All weight bearing exposed rollers 8 feet (2.44 m), or less, above grade shall be guarded or covered.

Positive stops shall be required to limit travel to the designed fully open and fully closed positions. These stops shall be installed at either the top of the gate, or at the bottom of the gate where such stops shall horizontally or vertically project no more than is required to perform their intended function.

Vehicular horizontal swing gate:
Gates shall be designed, constructed and installed so as not to create an entrapment area between the gate and the supporting structure or other fixed object when the gate moves toward the fully open position.

The width of an object (such as a wall, pillar or column) covered by a swing gate when in the open position shall not exceed 4 inches (102 mm), measured from the center line of the pivot point of the gate, refer to ASTM F2200 for exception.

The distance between a fixed object such as a wall, pillar or column, and a swing gate when in the open position shall not be less than 16 inches (406 mm), refer to ASTM F2200 for exception.
ONLY **Class IV vehicular horizontal swing gates** shall be designed, constructed and installed in accordance with security related parameters specific to the application.

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UL 325 COMPLIANT INSTALLATION REQUIREMENTS

a) Install the gate operator only when:
a) N'installez l'ouvre-barrière que si :

1) The operator is appropriate for the construction of the gate and the usage Class of the gate,
1) l'ouvre-barrière est approprié pour la structure et la classe d'utilisation de la barrière;

2) All openings of a horizontal slide gate are guarded or screened from the bottom of the gate to a minimum of 1.83 m (6 ft) above the ground to prevent a 57.2 mm (2-1/4 inch) diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that the gate covers in the open position,
2) toutes les ouvertures de la barrière coulissante sont protégées ou grillagées du bas de la porte jusqu'à unminimum de 1,83 m (6 pi) du sol si bien qu'une sphère de 57,2 mm (2 1/4 po) de diamètre ne peut passer par une ouverture au niveau de la barrière et de la portion de la clôture adjacente que la barrière couvre en position ouverte;

3) All exposed pinch points are eliminated or guarded, and
3) tous les points de pincement sont éliminés ou protégés;

4) Guarding is supplied for exposed rollers.
4) des protections sont fournies pour les galets exposés.

b) The operator is intended for installation only on gates used for vehicles. Pedestrians must be supplied with a separate access opening. The pedestrian access opening shall be designed to promote pedestrian usage. Locate the gate such that persons will not come in contact with the vehicular gate during the entire path of travel of the vehicular gate.
b) L'ouvre-barrière est destiné à n'être installé que sur des barrières utilisées pour les véhicules. Il faut fournir une autre voie d'accès aux piétons. La voie d'accès pour les piétons doit être conçue pour favoriser le passage des piétons. Placez la barrière de sorte que personne ne puisse entrer en contact avec la barrière pour les véhicules sur l'ensemble de sa trajectoire.

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.
c) Pour réduire les risques de coincement lors de l'ouverture et de la fermeture, la barrière doit être installée dans un endroit où la barrière et les structures avoisinantes sont suffisamment éloignées l'une de l'autre. Les barriers battantes ne doivent pas ouvrir dans une zone d'accès public.

d) The gate must be properly installed and work freely in both directions prior to the installation of the gate operator. Do not over-tighten the operator clutch or pressure relief valve to compensate for a damaged gate.
d) La barrière doit être bien installée et fonctionner librement dans les deux directions avant d'entreprendre l'installation de l'ouvre-barrière. Ne serrez pas trop l'embrayage ou la soupape de surpression de l'ouvre-barrière pour compenser une barrière endommagée.

e) For gate operators utilizing Type D protection:
e) Pour les ouvre-barrières qui utilisent des protections de type D :
1) The gate operator controls must be placed so that the user has full view of the gate area when the gate is moving,
1) les commandes de l'ouvre-barrière doivent être placées de sorte que l'utilisateur voit l'ensemble de la zone de la barrière lorsque cette dernière est en mouvement;
2) The placard as required by 62.1.6 shall be placed adjacent to the controls,
2) l'étiquette requise selon la clause 62.1.6 doit être placée à côté des commandes;
3) An automatic closing device (such as a timer, loop sensor, or similar device) shall not be employed, and
3) un dispositif de fermeture automatique (comme une minuterie, une boucle de détection ou un dispositif similaire) ne doit pas être utilisé;
4) No other activation device shall be connected.
4) aucun autre appareil d'activation ne doit être connecté.

f) Controls intended for user activation must be located at least 1.83 m (6 ft) 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.
f) Les commandes destinées à l'activation par l'utilisateur doivent être situées à au moins 1,83 m (6 pi) des pieces mobiles de la barrière et à un endroit où l'utilisateur ne peut pas atteindre les commandes par le dessus, par le dessous, par les côtés et au travers de la barrière.

Exception: Emergency access controls only accessible by authorized personnel (e.g. fire, police, EMS) may be placed at any location in the line-of-sight of the gate.
Exception : Les commandes d'accès d'urgence accessibles au personnel autorisé seulement (p. ex. pompier, policier, SMU) peuvent être placées à tout endroit dans le champ de visibilité de la barrière.

UL 325 COMPLIANT INSTALLATION REQUIREMENTS CONTINUED

g) The Stop and/or Reset button must be located in the lineof-sight of the gate. Activation of the reset control shall not cause the operator to start.
g) Le bouton d'arrêt, le bouton de réenclenchement ou ces deux boutons doivent être situés dans le champ de visibilité de la barrière. L'activation des commandes de réenclenchement ne doit pas mettre en marche l'ouvrebarrière.

h) A minimum of two (2) WARNING SIGNS shall be installed, in the area of the gate. Each placard is to be visible by persons located on the side of the gate on which the placard is installed. Also see 62.1.1.
h) Au moins deux panneaux de mise en garde doivent être installés dans la zone de la barrière. Chaque étiquette doit être visible des personnes situées de chaque côté de la barrière sur laquelle l'étiquette est installée. Voir aussi la clause 62.1.1.

i) For gate operators utilizing a non-contact sensor in accordance with 32.1.1:
i) Pour les ouvre-barrières qui fonctionnent avec des capteurs sans contact conformément à la clause 32.1.1 :
1) See instructions on the placement of non-contact sensors for each Type of application,
1) Voir les instructions sur le positionnement des capteurs sans contact pour chaque type d'utilisation.
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, and
2) Des précautions doivent être prises pour réduire les risques de déclenchement inutile, comme lorsqu'un véhicule déclenche le capteur alors que la barrière est encore en mouvement.
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.
3) Un capteur sans contact ou plus doit être situé où il existe un risque de coincement ou d'obstruction, comme dans l'espace que peut occuper la barrière lorsqu'elle est en mouvement.

j) For a gate operator utilizing a contact sensor in accordance with 32.1.1:
j) Pour les ouvre-barrières qui fonctionnent avec des capteurs de contact conformément à la clause 32.1.1 :
1) One or more contact sensors shall be located where the risk of entrapment or obstruction exists, such as at the leading edge, trailing edge, and postmounted both inside and outside of a vehicular horizontal slide gate.
1) Au moins un capteur de contact doit être situé où il existe un risque de coincement ou d'obstruction, comme sur le bord d'ouverture, sur le bord de fermeture et sur les poteaux montés sur l'intérieur ou l'extérieur d'une barrière coulissante pour véhicules.
2) One or more contact sensors shall be located at the bottom edge of a vehicular vertical lift gate.
2) Au moins un capteur de contact doit être situé sur le bord inférieur d'une barrière levante pour véhicules.
3) One or more contact sensors shall be located at the pinch point of a vehicular vertical pivot gate.
3) Au moins un capteur de contact doit être situé au point de pincement d'une barrière à pivot vertical pour véhicules.
4) A hardwired 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.
4) Un capteur de contact doit être installé et câblé de sorte à éviter que la communication entre le capteur et l'ouvrebarrière soit gênée par des dommages mécaniques.

5) A wireless device such as one that transmits radio frequency (RF) signals to the gate operator for entrapment protection functions shall be located where the transmission of the signals are not obstructed or impeded by building structures, natural landscaping or similar obstruction. A wireless device shall function under the intended end-use conditions.
5) Un dispositif sans fil, comme un appareil qui transmet des signaux de radiofréquence (RF) à l'ouvre-barrière pour prévenir le coincement, doit être situé à un endroit où la transmission des signaux ne sera pas obstruée ou gênée par des structures, des arbres ou d'autres obstacles similaires. Un dispositif sans fil doit fonctionner selon les conditions d'utilisation finale prévues.

6) 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 152 mm (6 inches) but less than 406 mm (16 inches) above the ground at any point in its arc of travel, one or more contact sensors shall be located on the bottom edge.
6) Au moins un capteur de contact doit être situé sur les bords d'ouverture intérieur et extérieur d'une barrière battante. De plus, si le dessous d'une barrière battante est situé à plus de 152 mm (6 po) mais à moins de 406 mm (16 po) du sol à l'un des points de sa trajectoire, au moins un capteur de contact doit être situé sur le bord inférieur.

7) One or more contact sensors shall be located at the bottom edge of a vertical barrier (arm).
7) Au moins un capteur de contact doit être situé sur le bord inférieur d'une barrière verticale (bras).

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IMPORTANT SAFETY INFORMATION

IMPORTANT SAFETY INSTRUCTIONS WARNING – To reduce the risk of injury or death:
INSTRUCTIONS DE SÉCURITÉ IMPORTANTES AVERTISSEMENT – Pour réduire les risques de blessures et de mort :

1. READ AND FOLLOW ALL INSTRUCTIONS.
1. LISEZ ET SUIVEZ TOUTES LES INSTRUCTIONS.

2. Never let children operate or play with gate controls. Keep the remote control away from children.
2. Ne laissez jamais les enfants manoeuvrer les commandes de la barrière ou jouer avec celles-ci. Laissez la télécommande hors de la portée des enfants.

3. Always keep people and objects away from the gate. NO ONE SHOULD CROSS THE PATH OF THE MOVING GATE.
3. Tenez toujours à l'écart de la barrière toute personne ou tout objet avoisinant. IL NE FAUT JAMAIS PASSER DANS LA TRAJECTOIRE D'UNE BARRIÈRE EN MOUVEMENT.

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.
4. Vérifiez le fonctionnement de l'ouvre-barrière une fois par mois. Le sens de la course DOIT s'inverser lorsque la barrière entre en contact avec un objet dur ou la barrière DOIT s'arrêter lorsqu'un objet active les capteurs sans contact. Vérifiez à nouveau l'ouvre-barrière après tout réglage de la force de déclenchement ou du seuil de fin de course. Un réglage incorrect de l'ouvre-barrière ou l'omission de vérifier à nouveau le fonctionnement de l'ouvre-barrière peut causer des blessures, voire la mort.

5. Use the emergency release only when the gate is not moving.
5. Ne déclenchez le dispositif de désaccouplement d'urgence que lorsque la barrière ne bouge pas.

6. KEEP GATES PROPERLY MAINTAINED. Read the user's manual. Have a qualified service person make repairs to gate hardware.
6. ASSUREZ-VOUS QUE LA BARRIÈRE EST CORRECTEMENT ENTRETENUE. Lisez le manuel de l'utilisateur. Confiez la réparation du matériel de la barrière à un technicien qualifié.

7. The entrance is for vehicles only. Pedestrians must use separate entrance.
7. La voie d'accès est réservée aux véhicules seulement. Les piétons doivent utiliser une voie d'accès différente.
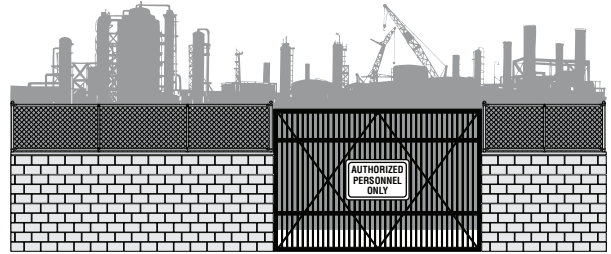
8. SAVE THESE INSTRUCTIONS.
8. CONSERVEZ CES INSTRUCTIONS.
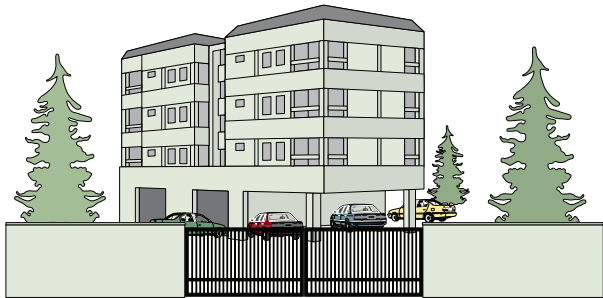
UL 325 MODEL CLASSIFICATIONS

CLASS I

Residential Vehicular Gate Operator - A vehicular gate operator (opener or system) intended for use in a home of one to four single family dwellings, or a garage or parking area associated therewith.
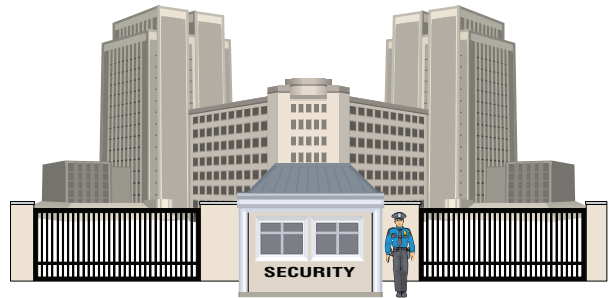

CLASS II

Commercial/General Access Vehicular Gate Operator - A vehicular gate operator (opener 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.

CLASS III

Industrial/Limited Access Vehicular Gate Operator - A vehicular gate operator (opener or system) intended for uses in an industrial location, loading dock area or other location not intended to service the general public.

CLASS IV

Restricted Access Vehicular Gate Operator - A vehicular gate operator (opener or system) intended for use in a guarded industrial location or buildings such as airport security area or other restricted access locations not servicing the general public, in which unauthorized access is prevented via supervision by security personnel.

UL 325 REQUIRED ENTRAPMENT PROTECTION

This vehicular gate operator must be installed with at least two independent entrapment protection means as specified in the table and definitions below.

The same type of device shall not be used for both entrapment protection means. Use of a single device to cover both the opening and closing directions is in accordance with the requirement, however, a single device is not required to cover both directions. This operator has been provided with type A entrapment protection. The installer is required to install additional entrapment protection devices in each entrapment area.

Gate Type	Class I & II	Class III & IV
Swing Gate	A, B1*, B2*, C, D	A, B1*, B2*, C, D, E
Slide Gate	A, B1*, B2*, D	A, B1*, B2*, D, E

A - Inherent entrapment protection system.

B1 - Provision for connection of a non-contact sensor (photoelectric sensor or the equivalent).

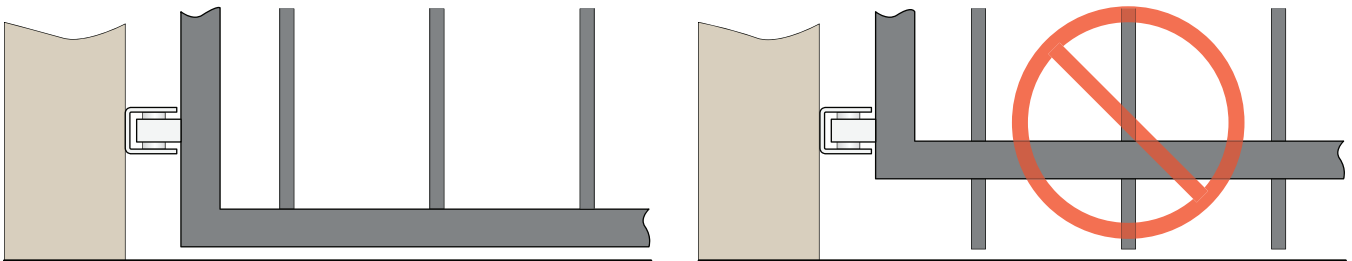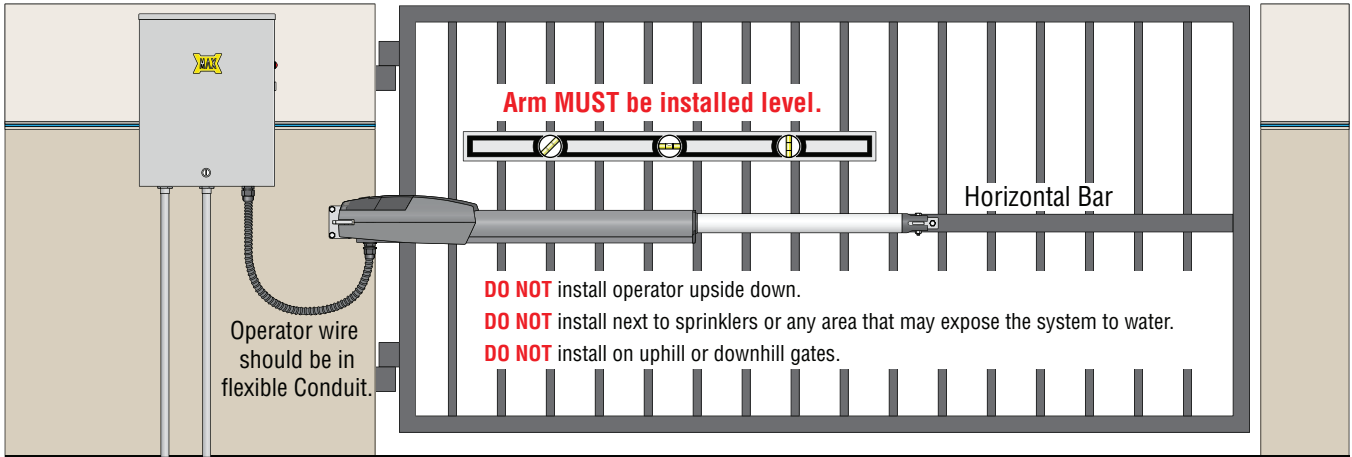**B2** - Provision for connection of a contact sensor (edge device or the equivalent).

C - Inherent adjustable clutch or pressure relief device.

D - Provision for connection of an actuating device requiring continuous pressure to maintain opening or closing motion of the gate.
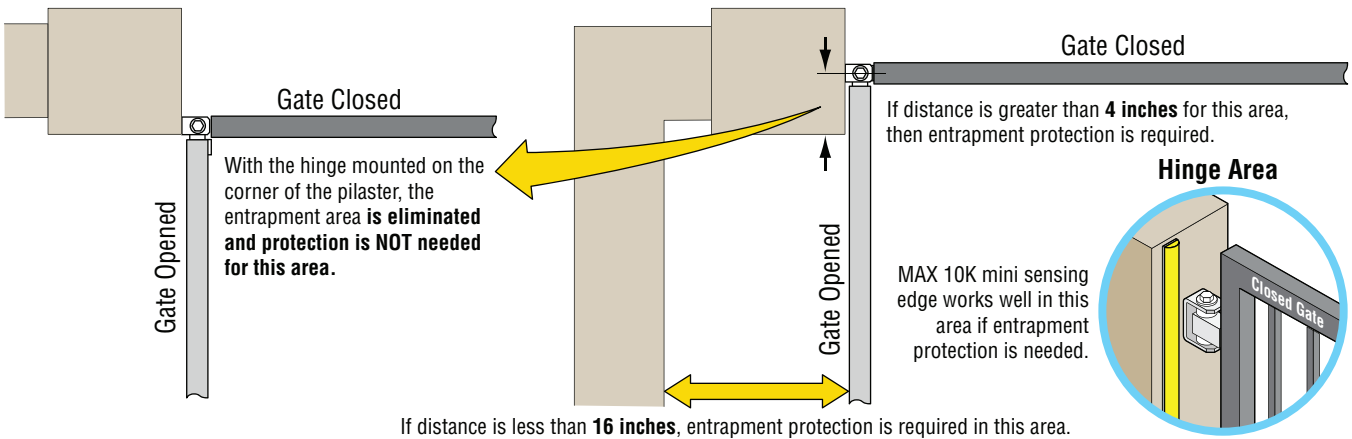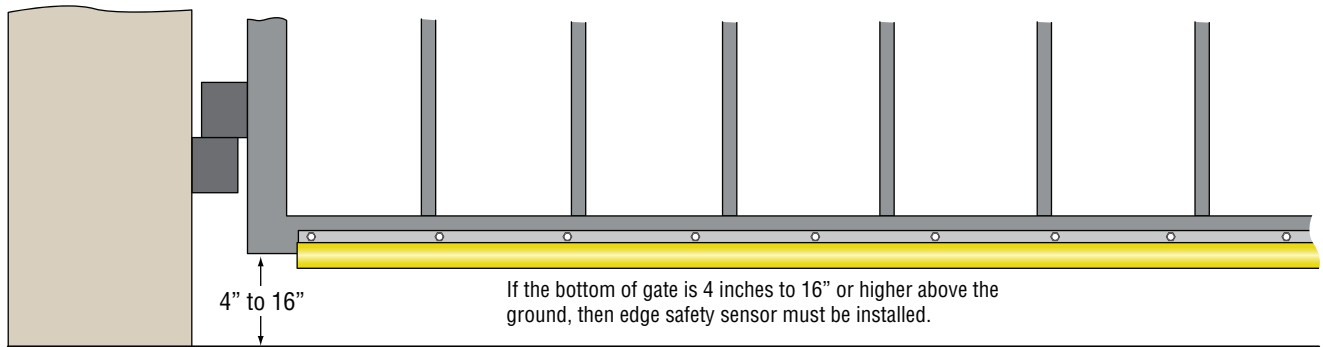
E - An audio alarm.

* B1 and B2 means of entrapment protection must be MONITORED.

GATE SAFETY INSTALLATION

Weld a horizontal bar across entire gate on any installation for strength. **DO NOT** weld the crossbar on just a few pickets, or they could bend.

Make sure that the operator is mounted **level** or it will not function properly. Arm should be mounted at least 12 inches above the ground.

Make sure there is slack in the operator cable. **DO NOT** over-bend the operator cable. Doing this will cause the wires to eventually break.

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

Arm MUST be installed level.

Horizontal Bar

DO NOT install operator upside down.
DO NOT install next to sprinklers or any area that may expose the system to water.
DO NOT install on uphill or downhill gates.

Operator wire should be in flexible Conduit.

Gate should have a **smooth** bottom edge, with vertical bottom edged protrusions not exceeding 0.50 inches.

4" to 16"

If the bottom of gate is 4 inches to 16" or higher above the ground, then edge safety sensor must be installed.

Gate Closed

Gate Closed

With the hinge mounted on the corner of the pilaster, the entrapment area **is eliminated and protection is NOT needed for this area.**

If distance is greater than **4 inches** for this area, then entrapment protection is required.

Hinge Area

Gate Opened

Gate Opened

MAX 10K mini sensing edge works well in this area if entrapment protection is needed.

Closed Gate

If distance is less than **16 inches**, entrapment protection is required in this area.

GATE SAFETY INSTALLATION

DO NOT install on uphill or downhill gates.

⚠ WARNING

Moving Gate Can Cause Serious Injury or Death
KEEP CLEAR! Gate may move at any time without prior warning.
Do not let children operate the gate or play in the gate area.
This entrance is for vehicles only. Pedestrians must use separate entrance.

Install on back side

⚠ WARNING

Moving Gate Can Cause Serious Injury or Death
KEEP CLEAR! Gate may move at any time without prior warning.
Do not let children operate the gate or play in the gate area.
This entrance is for vehicles only. Pedestrians must use separate entrance.

A minimum of two (2) **WARNING SIGNS** shall be installed.
One on **EACH** side of the gate area where easily visible.

DO NOT install a opening device accessible through the gate.
It **MUST** be mounted a minimum of 6 feet away from all moving parts of the gate and in sight of the gate.
Install it high enough to keep out of reach of small children.

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INTENDED USE OF
SWING GATE OPERATOR

The operator is intended for use on a **VEHICULAR** slide gate ONLY. It is intended to be used **WITH** appropriate entrapment protection safety devices and in-ground vehicle loop detection system. This operator has a inherent entrapment protection system and requires additional external **monitored** entrapment protection devices (Non-contact Photo sensors or contact sensing edges) for each entrapment area prior to gate operation. Pedestrians **MUST** use a separate entrance.
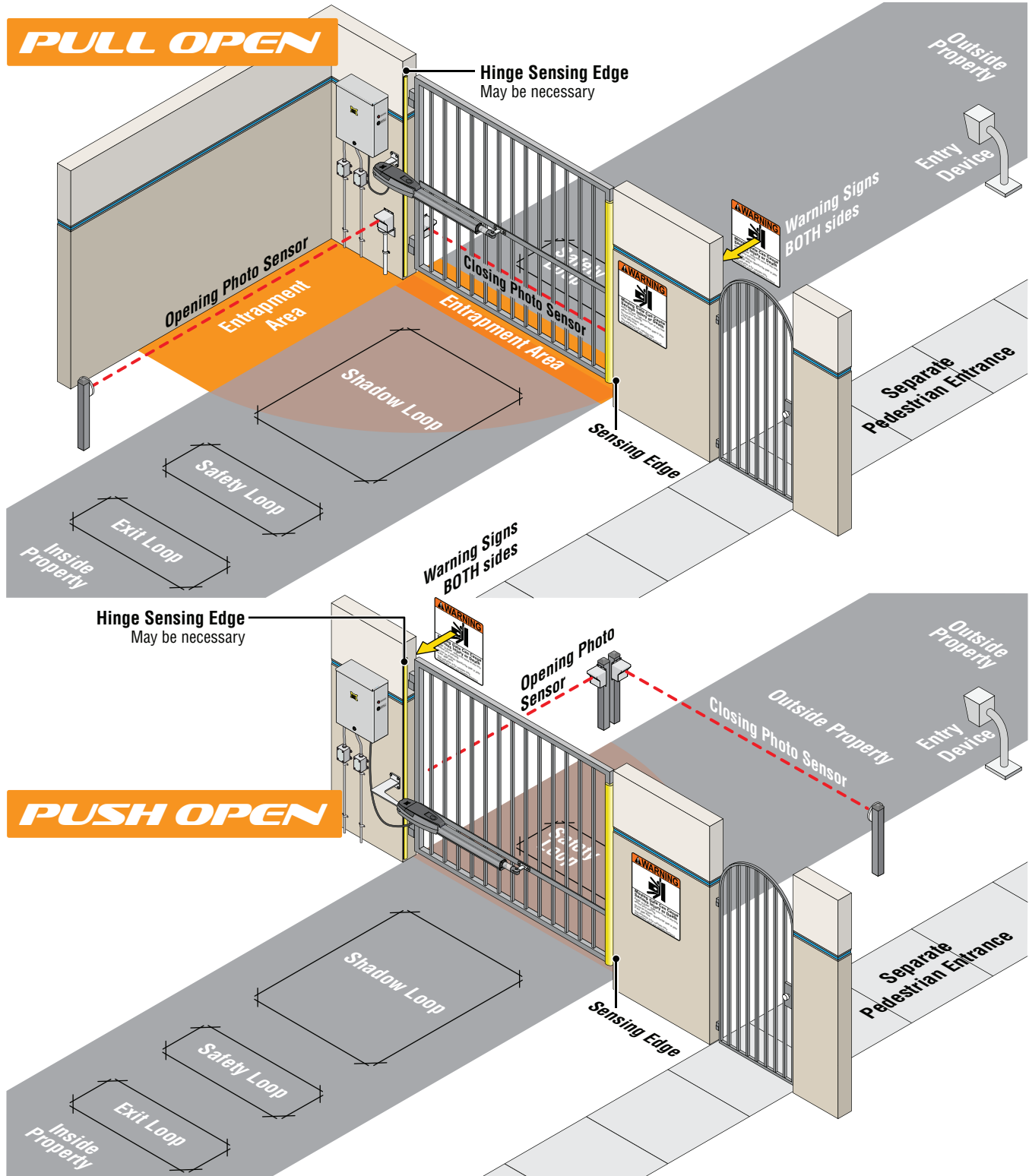
Read and understand this ENTIRE manual BEFORE installation. Check with the local building department prior to installing this gate operator to comply with local building code requirements. The gate must be installed in a location so that enough clearance is supplied between the gate and adjacent structures when opening and closing to reduce the risk of entrapment. Swinging gates should not open into public access areas.
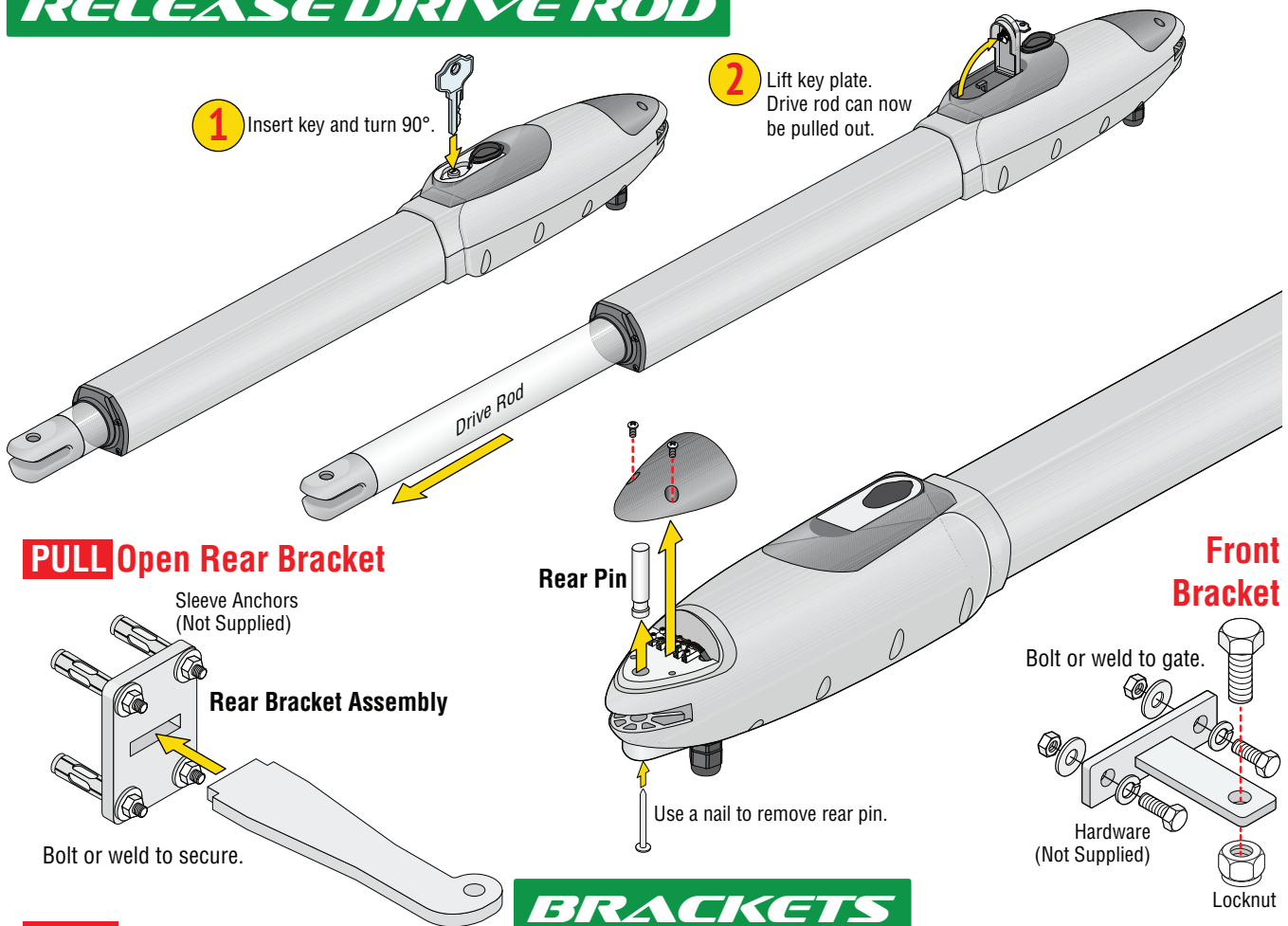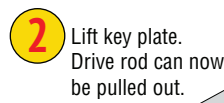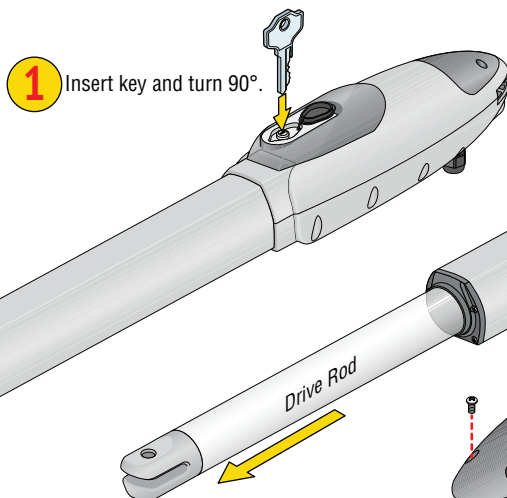
Start by selecting your model gate operator for Step 1.
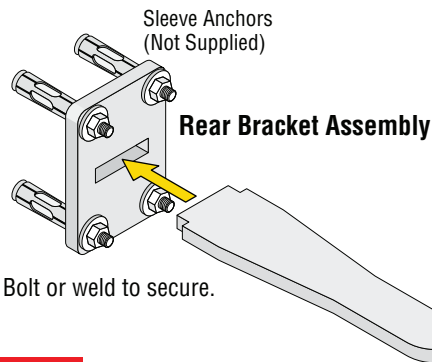
1a **MAX ARM** Page 12-14

1b **MAX ULTRA ARM** Page 15-17

1a MOUNT MAX ARM

MAX ARM

RELEASE DRIVE ROD

1 Insert key and turn 90°.

2 Lift key plate. Drive rod can now be pulled out.

Drive Rod

PULL Open Rear Bracket

Sleeve Anchors (Not Supplied)

Rear Bracket Assembly

Bolt or weld to secure.

Rear Pin

Use a nail to remove rear pin.

Front Bracket

Bolt or weld to gate.

Hardware (Not Supplied)

Locknut

PUSH Open Rear Bracket

Weld **completely** around the bracket to secure to the plate.

BRACKETS

Plate

MX115 Bracket

The bracket MUST be level and VERY secure to the plate and wall. **Extreme force will be exerted on this bracket during gate cycling.**
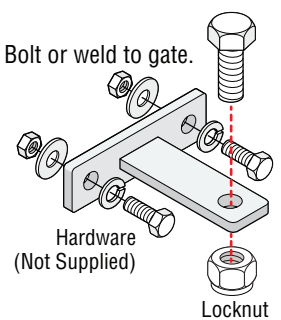
For **PUSH** open installation, please order MX115.
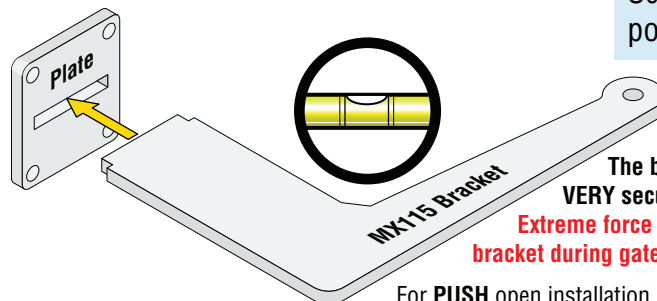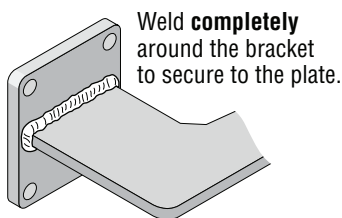
See page 14 for bracket positions and dimensions.

MOUNTING MAX ARM INFORMATION

Gate must be in good working condition before the actuator arm can be installed. Determine what direction the actuator arm will open the gate: "**PULL OPEN**" or "**PUSH OPEN**" Installation (See next page). See the "**GATE SAFETY and REQUIREMENTS**" in front of this manual (pages 4-11) for mounting requirements and limitations.

Drive Rod Extension

Release the drive rod and fully extend

Rotate rod back 2 turns min.

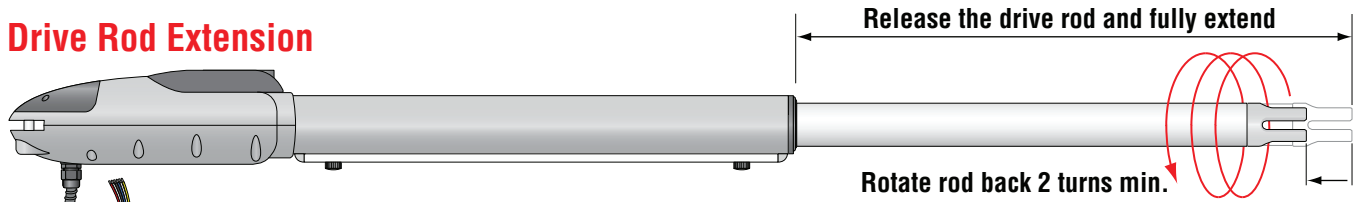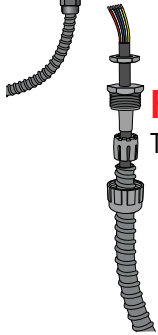**IMPORTANT:** Drive rod **MUST NOT** be **FULLY** extended when installed. This will damage the arm. Rotate fully extended rod back **at least** two full turns **BEFORE** installing the arm.
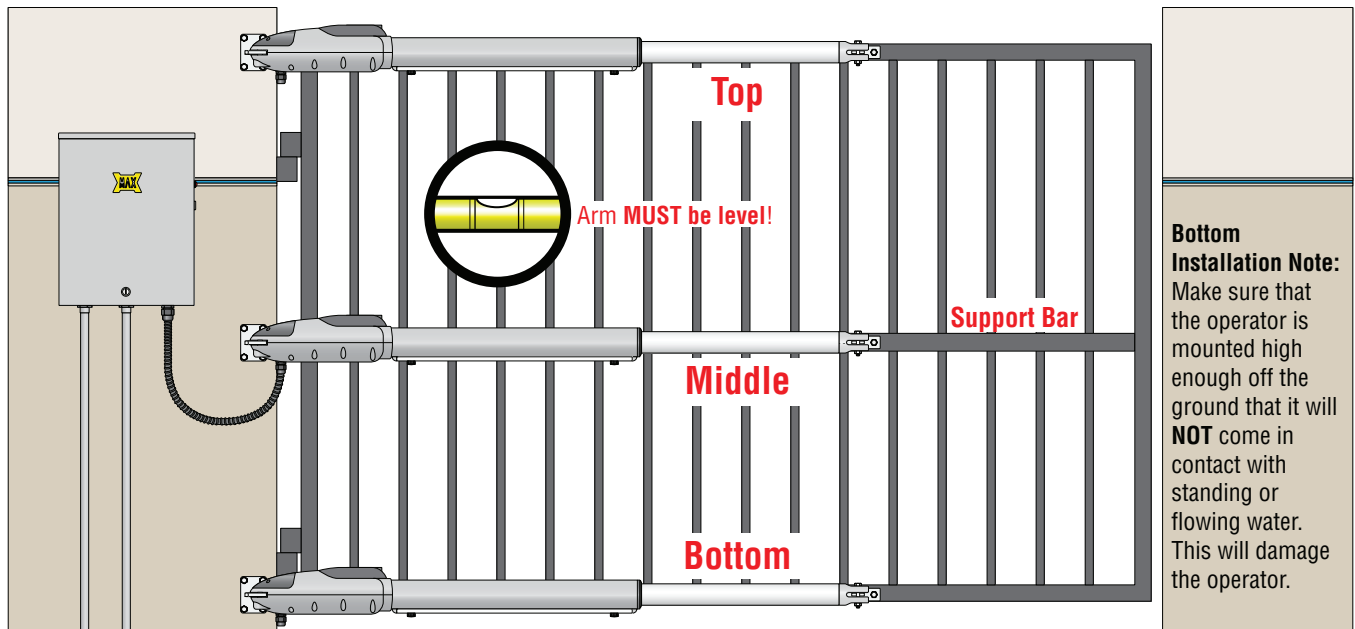
Flex Conduit

The operator wire needs to be in a flexible conduit (not provided).

Temporarily Mount Arm

Temporarily mount arm in desired position determined by next page's dimensions. Manually swing gate to the **OPEN** and **CLOSE** positions. When satisfied with gate positions, permanently mount brackets making sure that arm is **LEVEL**.

Top

Arm **MUST be level**!

Support Bar

Middle

Bottom

Bottom Installation Note: Make sure that the operator is mounted high enough off the ground that it will **NOT** come in contact with standing or flowing water. This will damage the operator.

Gate Support Bar

A support bar that spans the entire length of the gate must be installed to keep the pickets from bending. **Do not mount the front bracket directly to gate pickets!**

Welding Brackets to Surfaces

If brackets are going to be welded to the gate and/or wall, **only tack weld the brackets with the arm attached. Protect the arm from welding sparks during tack welding. Remove arm before completely welding around the brackets. Make sure the brackets are level when tack welding them!** The arm will not operate properly if not level.

MAX ARM

PULL OPEN DIMENSIONS

Closed

2.5"

B

A

C

59.25" Max
DO NOT Fully Extend Drive Rod

41" C1
Min

Open

Minimum distance
needed for clearance

Max Weight/ Length

1600 lbs	1200 lbs	800 lbs	600 lbs
8ft	12ft	16ft	18ft

Option 1: 9" Option 2: 10" Option 3: 11"

	A	B	C
Option 1	7"	5"	59.25"
Option 2	8"	6"	59.25"
Option 3	7.5"	7.5"	59.25"
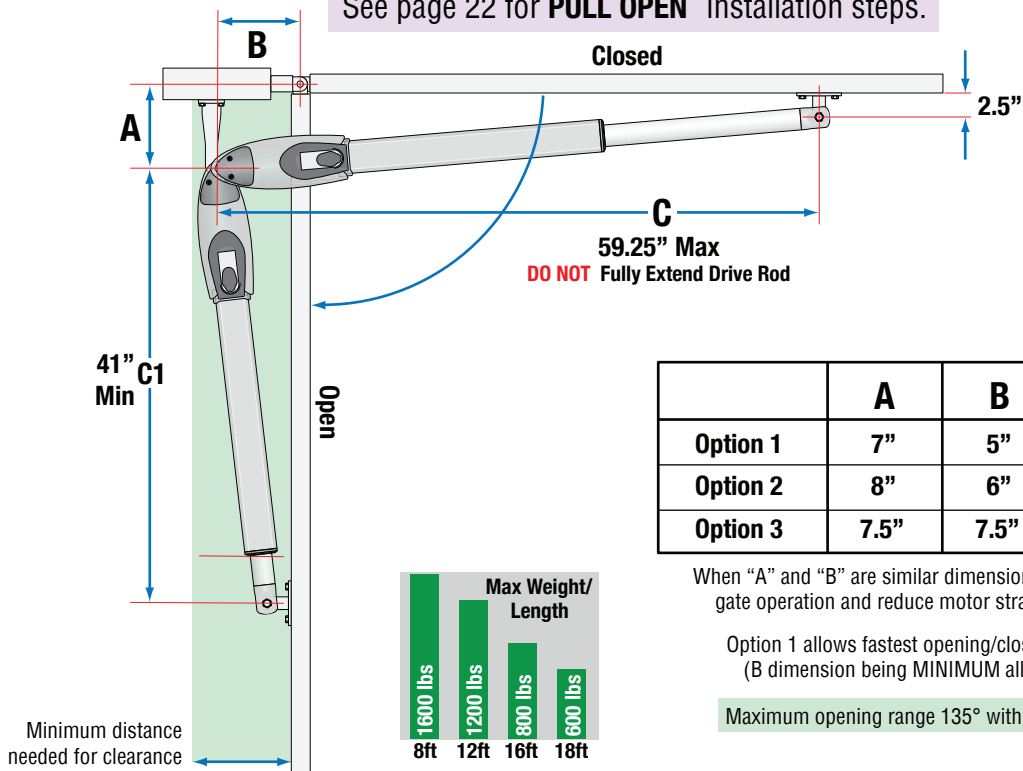
When "A" and "B" are similar dimensions, smoother
gate operation and reduce motor strain occurs.

Option 1 allows fastest opening/closing time
(B dimension being MINIMUM allowed).

Maximum opening range 135° with **Option 1**

PUSH OPEN DIMENSIONS

Bi-parting gates using overlap/maglock:
Motor 1/Primary gate opens **FIRST**. Install
overlap/maglock accordingly to account for this.

Open

C 59.25" Max
DO NOT Fully
Extend Drive Rod

Closed

2.5"

8"

NOTE: Rear bracket
MUST be fabricated.

6"

C1
41" Min

MAX ARM
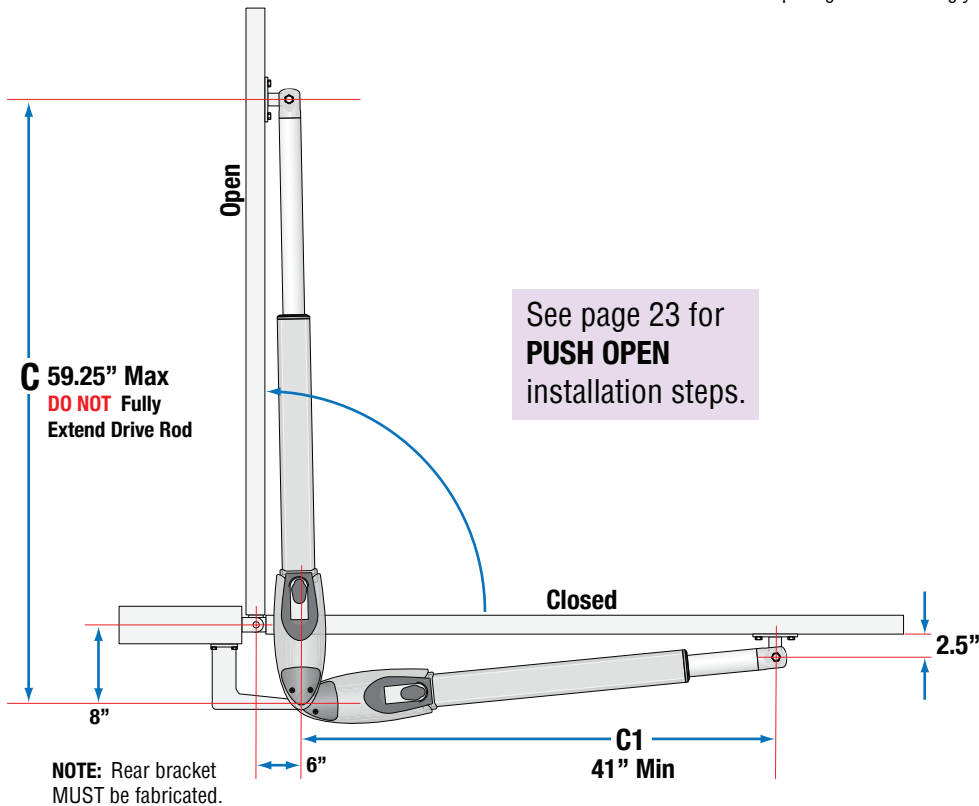
RELEASE DRIVE ROD

1 Insert key and turn 90°.

2 Lift key plate. Drive rod can now be pulled out.

Drive Rod
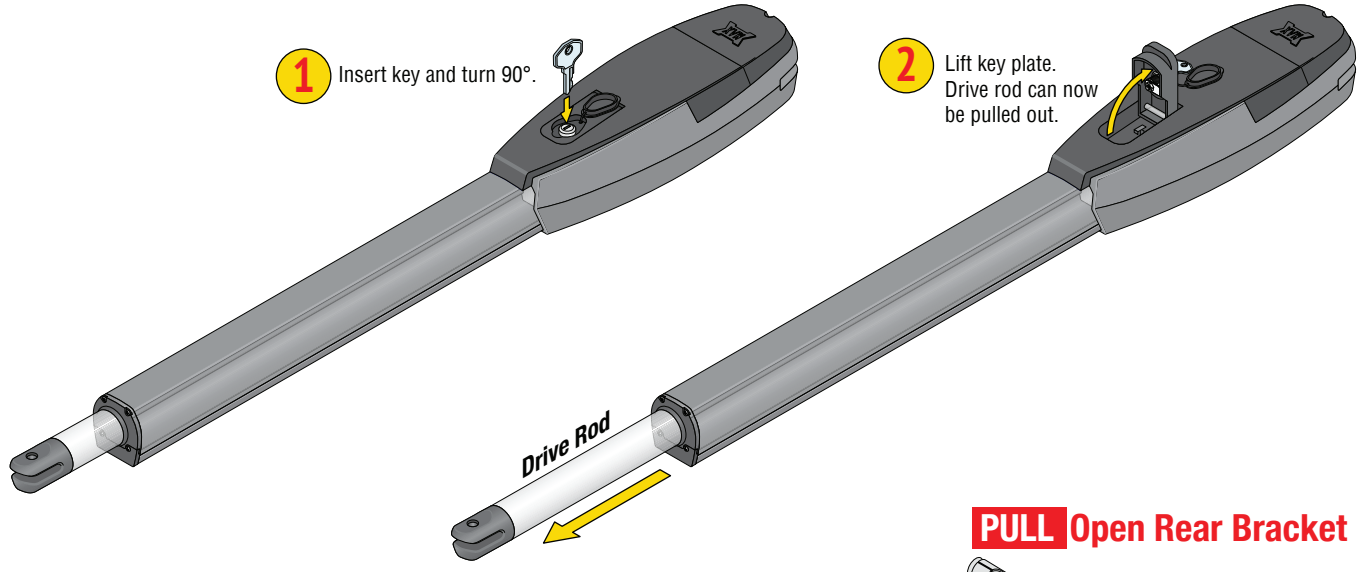
BRACKETS

See page 17 for bracket positions and dimensions.

PULL Open Rear Bracket

Bolt or weld to secure.

Front Bracket

Bolt or weld to gate.

Hardware (Not Supplied)

Locknut

Sleeve Anchors (Not Supplied)

Weld completely around the bracket to secure to the plate.

Rear Pin

Rear Bracket Assembly

PUSH Open Rear Bracket

Plate

The bracket MUST be level and VERY secure to the plate and wall. Extreme force will be exerted on this bracket during gate cycling.

MX115 Bracket

Arm Connection

For **PUSH** open installation, please order MX115.

MAX ULTRA ARM

MAX ULTRA ARM

Gate must be in good working condition before the actuator arm can be installed. Determine what direction the actuator arm will open the gate: "**PULL OPEN**" or "**PUSH OPEN**" Installation (See next page). See the "**GATE SAFETY and REQUIREMENTS**" in front of this manual (pages 4-11) for mounting requirements and limitations.

Drive Rod Extension

Manual Release

Release the drive rod and fully extend

Rotate rod back 2 turns min.

IMPORTANT: Drive rod **MUST NOT** be **FULLY** extended when installed. This will damage the arm. Rotate fully extended rod back **at least** two full turns **BEFORE** installing the arm in extended position.

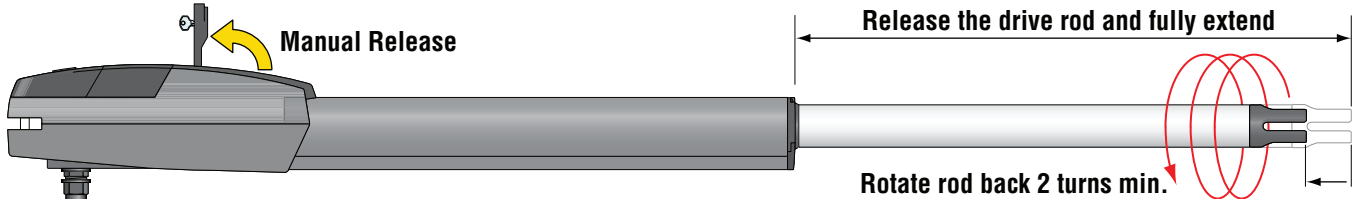## Flex Conduit
The operator cable needs to be in a flexible conduit (not provided).

Temporarily Mount Arm
Temporarily mount arm in desired position determined by next page's dimensions. Manually swing gate to the **OPEN** and **CLOSE** positions. When satisfied with gate positions, permanently mount brackets making sure that arm is **LEVEL**.

Top

Arm MUST be level!

Gate Support Bar

Middle

Bottom

Bottom Installation Note: Make sure that the operator is mounted high enough off the ground that it will **NOT** come in contact with standing or flowing water. This will damage the operator.

Gate Support Bar
A support bar that spans the **entire** length of the gate must be installed to keep the pickets from bending. **Do not mount the front bracket directly to gate pickets!**

Welding Brackets to Surfaces
If brackets are going to be welded to the gate and/or wall, **only tack weld or clamp the brackets with the arm attached. Protect the arm from welding sparks during tack welding. Remove arm before completely welding around the brackets. Make sure the brackets are level when tack welding them!** The arm will not operate properly if not level.

PULL OPEN DIMENSIONS

Closed

B

A

C

2.5"

59.25" Max
DO NOT Fully Extend Drive Rod
(see previous page)

40.25" Min

C1

Open

Minimum distance needed for clearance

Option 1: 9"
Option 2: 10"
Option 3: 11"
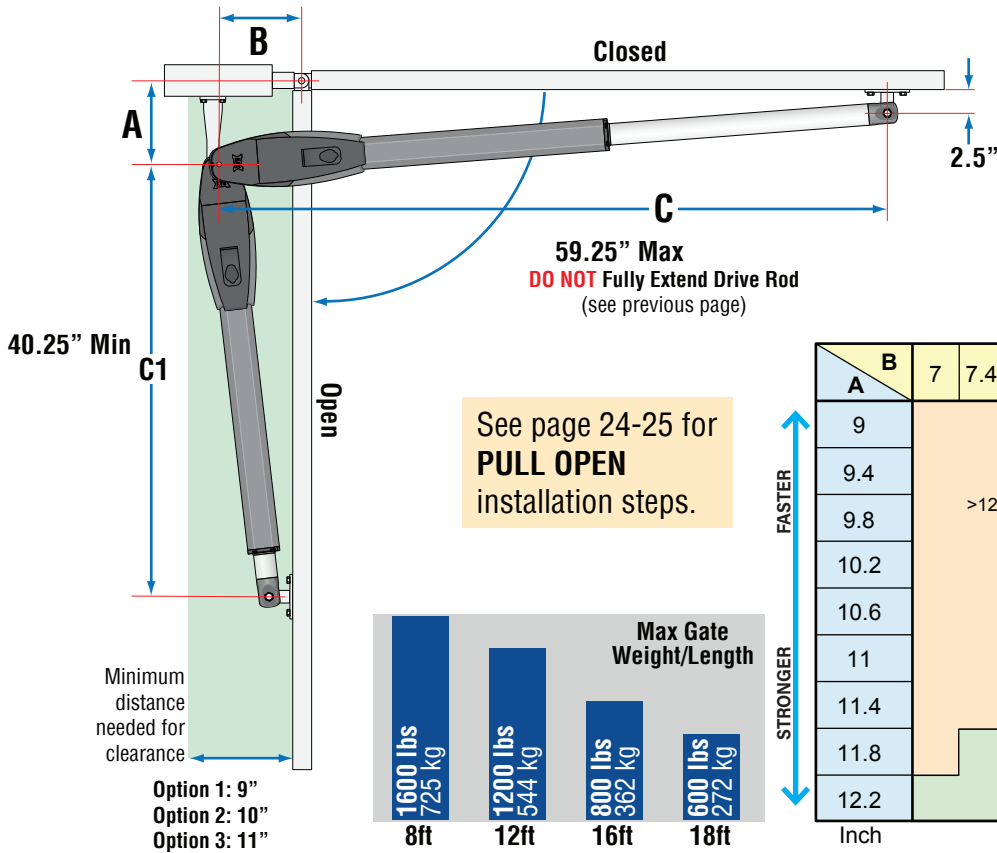
Option 1 allows fastest opening/ closing time (B dimensions being min allowed.

	A	B	C
Option 1	7"	5"	59.25"
Option 2	8"	6"	59.25"
Option 3	7.5"	7.5"	59.25"

When "A" and "B" are similar dimensions, smoother gate operation and reduce motor strain occurs.

Maximum Open is 135° with Option 1

See page 24-25 for **PULL OPEN** installation steps.

Max Gate Weight/Length

1600 lbs 725 kg	1200 lbs 544 kg	800 lbs 362 kg	600 lbs 272 kg
8ft	12ft	16ft	18ft

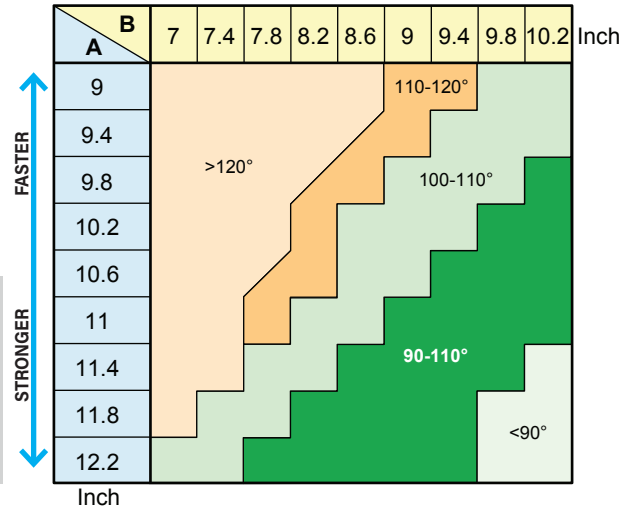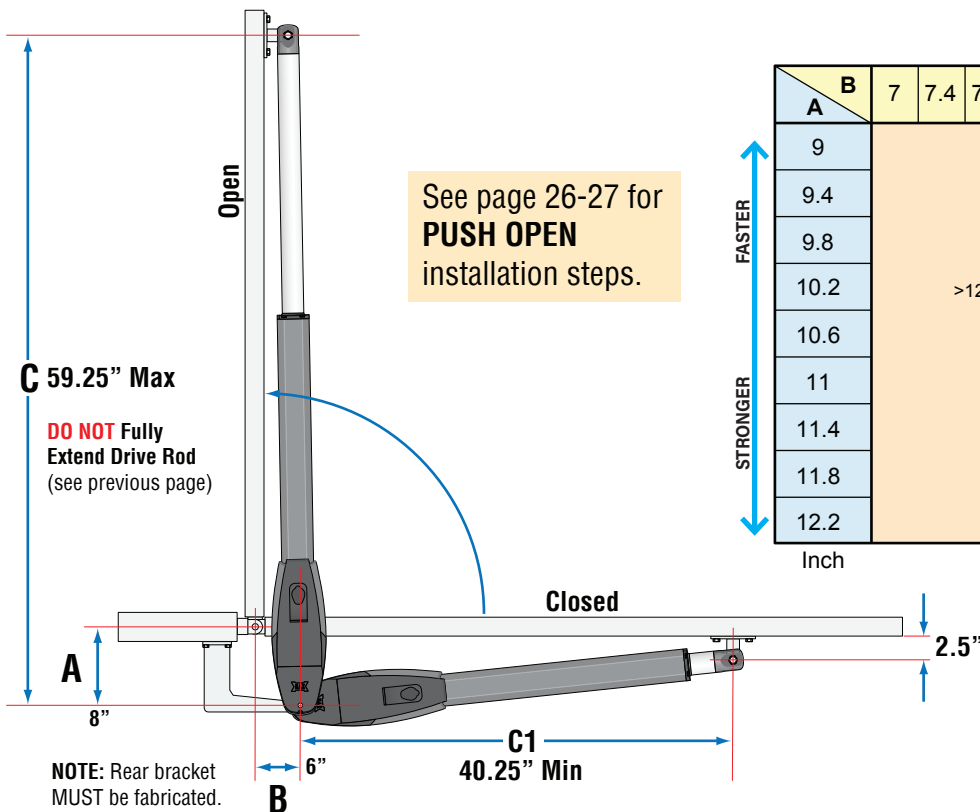| A \ B	7	7.4	7.8	8.2	8.6	9	9.4	9.8	10.2	Inch
9								110-120°		
9.4										
9.8	>120°							100-110°		
10.2										
10.6										
11										
11.4							90-110°			
11.8										
12.2								<90°		
Inch										

FASTER / STRONGER

PUSH OPEN DIMENSIONS

Bi-parting gates using overlap/maglock: Motor 1/Primary gate opens **FIRST**. Install overlap/maglock accordingly to account for this.

Open

See page 26-27 for **PUSH OPEN** installation steps.

C 59.25" Max

DO NOT Fully Extend Drive Rod (see previous page)

Closed

A

2.5"

8"

NOTE: Rear bracket MUST be fabricated.

6"

B

C1
40.25" Min

A \ B	7	7.4	7.8	8.2	8.6	9	9.4	9.8	10.2	Inch
9								110-120°		
9.4										
9.8	>120°							100-110°		
10.2										
10.6										
11										
11.4							90-110°			
11.8										
12.2								<90°		
Inch										

FASTER / STRONGER

MAX ULTRA ARM
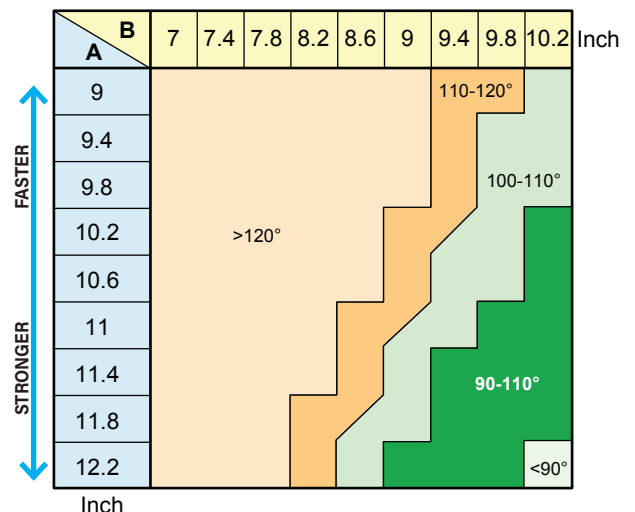
Mount the control box as near as possible to the actuator arm. Avoid drilling holes in the side or top of the box. Seal any holes made in box to keep out moisture.

13.5"

MAX

Front

Couplings and conduit not provided

6 1/8"

4 Mounting Holes
Mounting hardware not provided

11"

Mounting Hole

1 1/4"

Mounting Hole

10"

Back

Mounting Hole

Mounting Hole

1 1/4"

1"

Use **flexible** conduit to connect to control box, not provided.

5.75"

17"

RESET ALARM

JOG GATE OPEN / CLOSE

Side

Bottom

2 1/2"

3/4" Conduit Knock-Outs

2 1/2"

2 1/2" 4 1/2" 4 1/2" 3"
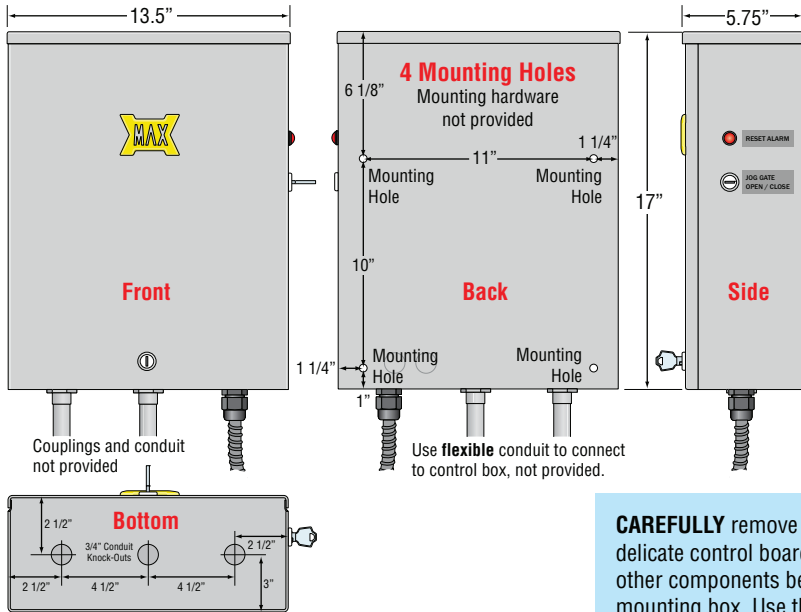
Use the knock-outs to run desired 3/4" conduit.
Never run low voltage wires in the same conduit as high voltage wire.

CAREFULLY remove the delicate control board and other components before mounting box. Use the 4 mounting holes to install box. See components connections to help with re-installation.
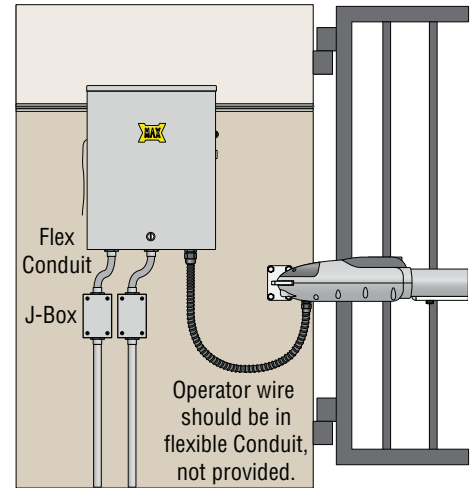
MAX

Flex Conduit

J-Box

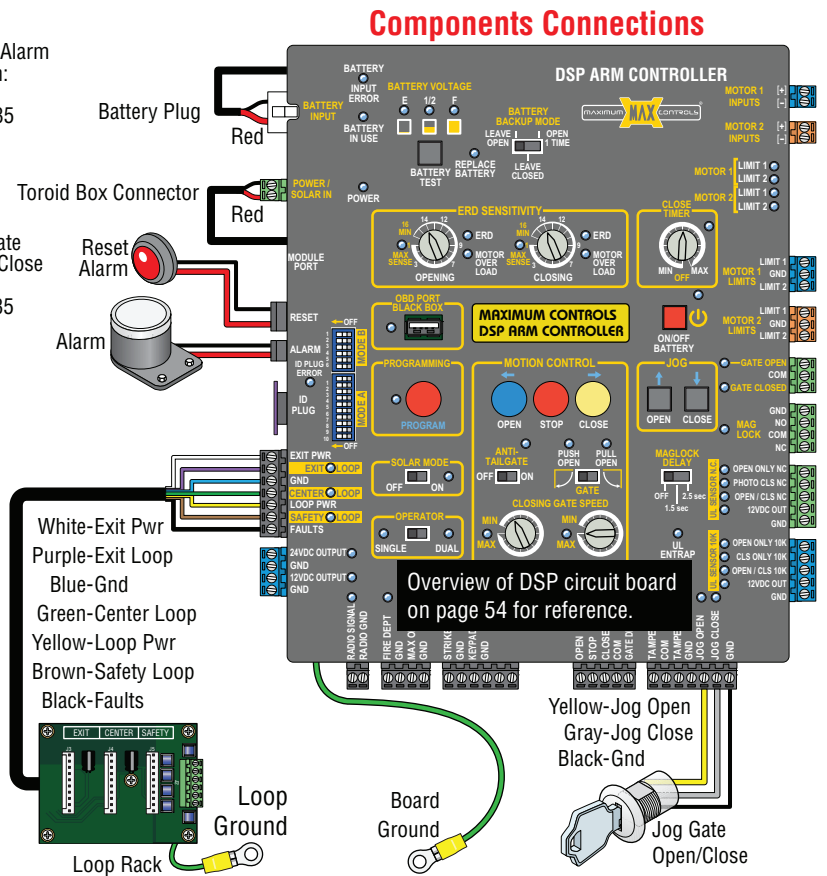Operator wire should be in flexible Conduit, not provided.

Make sure there is slack in the operator cable.
DO NOT over-bend the operator cable.
Doing this will cause the cable to eventually break.

DO NOT install near sprinklers or any area that may expose the system to water.
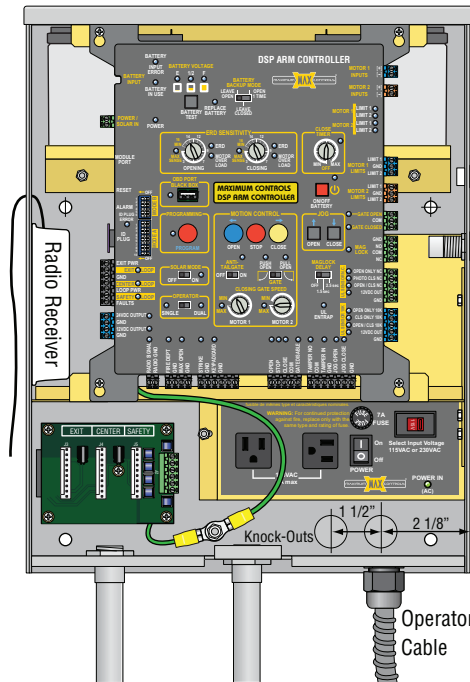
Reset Alarm Button:
See page 35

Jog Gate Open/Close
See page 35

Radio Receiver

EXIT CENTER SAFETY

Knock-Outs

1 1/2" 2 1/8"

Operator Cable

NOTE: Operator cable should be in flexible Conduit (not provided).

Please read all the "**SAFETY PAGES**" in front of this manual (pages 4-11) for installation requirements and restrictions.

Components Connections

Battery Plug

Red

Toroid Box Connector

Red

Reset Alarm

Alarm

DSP ARM CONTROLLER

MAXIMUM MAX CONTROLS

MAXIMUM CONTROLS DSP ARM CONTROLLER

White-Exit Pwr
Purple-Exit Loop
Blue-Gnd
Green-Center Loop
Yellow-Loop Pwr
Brown-Safety Loop
Black-Faults

EXIT CENTER SAFETY

Loop Rack

Loop Ground

Board Ground

Overview of DSP circuit board on page 54 for reference.

Yellow-Jog Open
Gray-Jog Close
Black-Gnd

Jog Gate Open/Close

NOTE: IF solar power is being installed, see page 38.

CAUTION: Make sure circuit breaker is OFF from incoming AC input wire BEFORE wiring!

Choose either **115V** or **230V** setting on input **AC power selector switch**. Wire desired input AC power wire to power terminal.
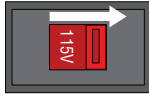
Input AC Power Options

CAUTION: If input AC power selector switch is set for **115V** but input power is actually **230 V**, 7 Amp Fuse will blow.
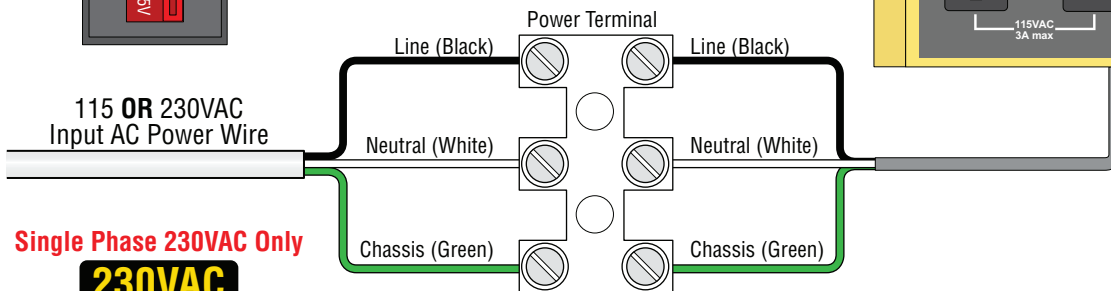
### Single Phase 115VAC Only

115VAC

Set to 115V

Single Phase 230VAC Only

230VAC

Set to 230V

MAX Toroid Box
(located inside of control box)

AC Power Selector Switch

7 Amp Fuse

7A FUSE

On / Off
POWER

Select Input Voltage
115VAC or 230VAC

115VAC 3A max

POWER IN (AC)

⚠ **DANGER**

HIGH VOLTAGE!

Power Terminal

Line (Black) — Line (Black)

115 **OR** 230VAC Input AC Power Wire

Neutral (White) — Neutral (White)

Chassis (Green) — Chassis (Green)

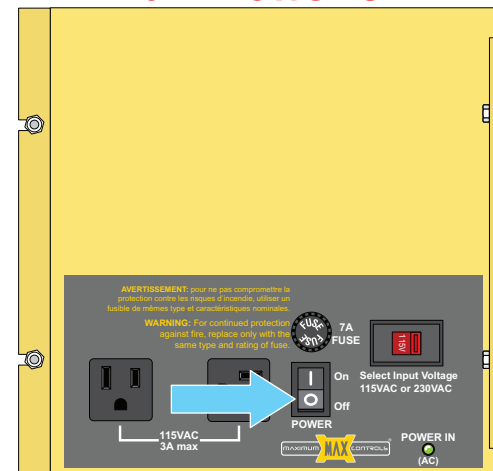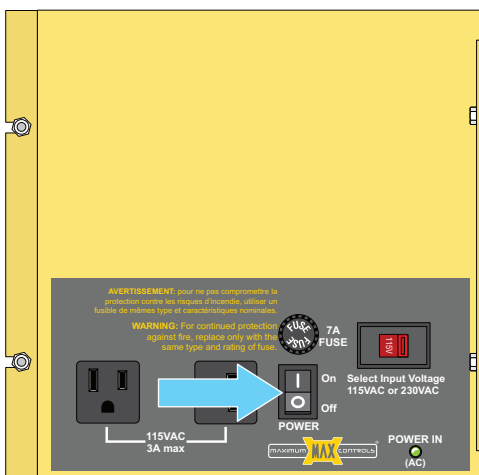**IMPORTANT:** Make sure there are **NO** exposed bare wires at the power terminal connection.
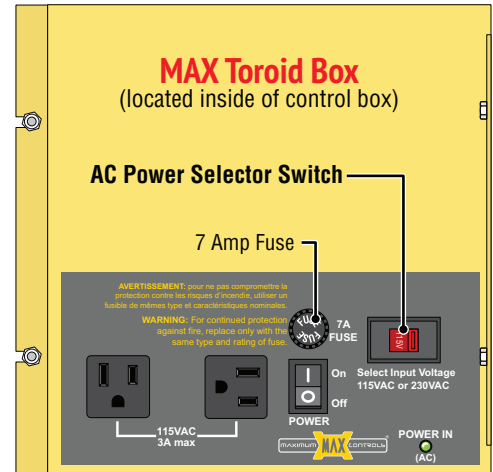
Turn Power ON

LEDs should light up on DSP board.
Battery power **automatically** turns **ON**.

IMPORTANT: This procedure must be followed whenever **ALL** power must be turned **OFF**.

Turn Power OFF

7A FUSE

On / Off
POWER

Select Input Voltage
115VAC or 230VAC

115VAC 3A max

POWER IN (AC)

❶ Turn OFF **POWER Switch** on **MAX Toroid Box.** Battery power will **remain ON**.

❷ **Press and HOLD** the **RED ON/OFF BATTERY** button on DSP board until beep is heard, then release button.
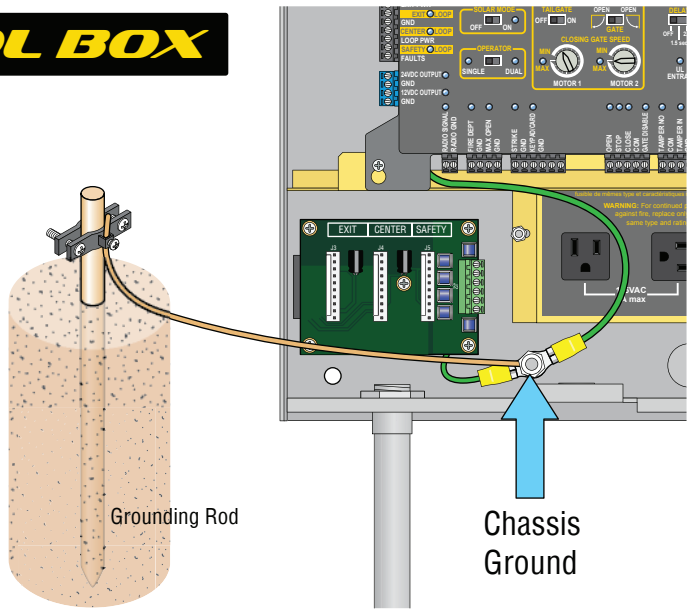
ON/OFF BATTERY

4 GROUND CONTROL BOX

Operator MUST be Properly GROUNDED

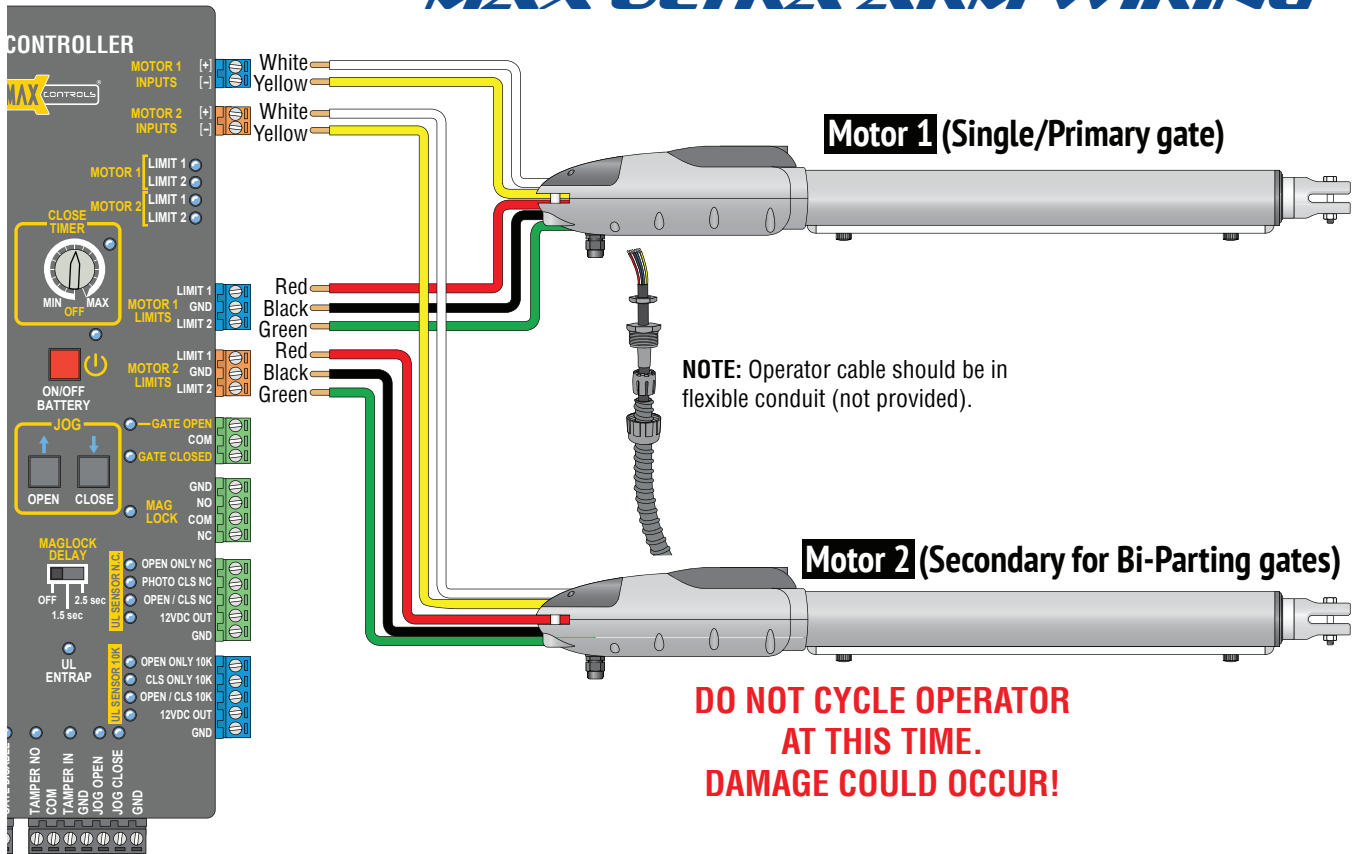**IMPORTANT:** Operator MUST be grounded in lightning prone areas or warranty will be **VOIDED!**

Proper grounding of this control box is a requirement for **LIGHTNING PROTECTION in lightning prone areas.** To be effective, ground connections should be made with a **minimum 12 AWG, 600 volt** insulated wire to a ground point within **10 feet of the control box**. The ground point must be at an **electrical panel**, a **metallic cold water pipe** that runs in the earth, or a **grounding rod**.

NOTE: Consult city codes for AC line wiring. Beware of existing underground services.
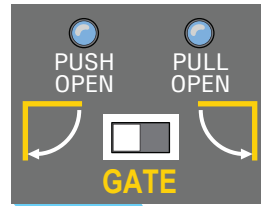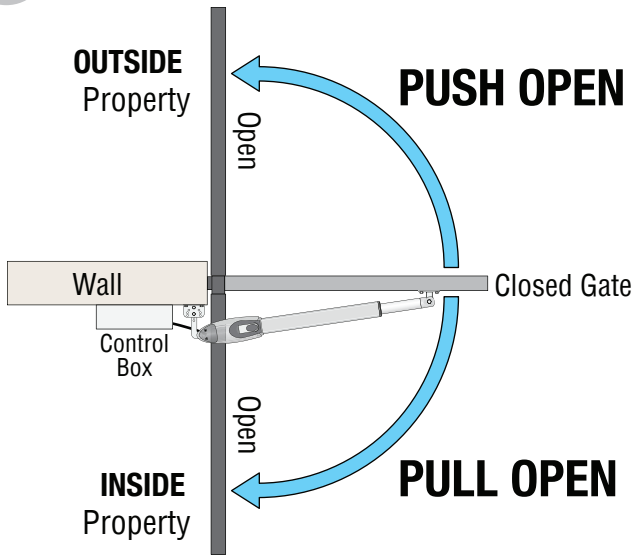
Grounding Rod

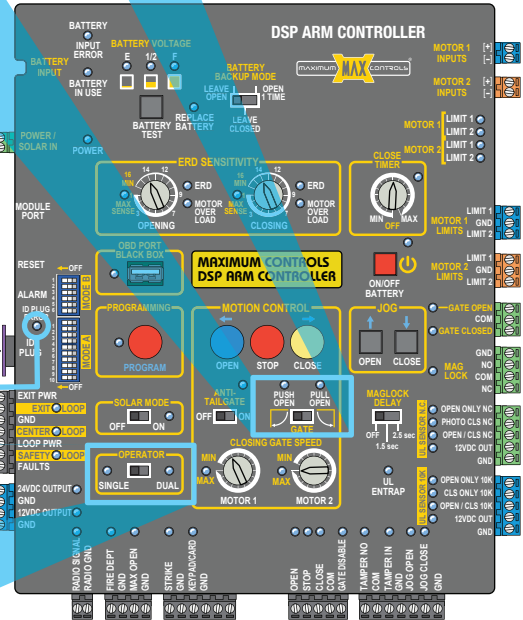Chassis Ground

5 WIRE ARM(S) TO DSP BOARD

MAX ARM WIRING OR MAX ULTRA ARM WIRING

CONTROLLER

MOTOR 1 INPUTS [+] [−] White / Yellow
MOTOR 2 INPUTS [+] [−] White / Yellow

Motor 1 (Single/Primary gate)

MOTOR 1 LIMIT 1 / LIMIT 2
MOTOR 2 LIMIT 1 / LIMIT 2

CLOSE TIMER
MIN OFF MAX

MOTOR 1 LIMITS LIMIT 1 / GND / LIMIT 2 Red / Black / Green
MOTOR 2 LIMITS LIMIT 1 / GND / LIMIT 2 Red / Black / Green

NOTE: Operator cable should be in flexible conduit (not provided).

ON/OFF BATTERY

JOG
OPEN   CLOSE

GATE OPEN / COM
GATE CLOSED

MAG LOCK GND / NO / COM / NC

MAGLOCK DELAY
OFF 2.5 sec 1.5 sec

UL SENSOR NC OPEN ONLY NC / PHOTO CLS NC / OPEN / CLS NC / 12VDC OUT / GND

UL ENTRAP

UL SENSOR 10K OPEN ONLY 10K / CLS ONLY 10K / OPEN / CLS 10K / 12VDC OUT / GND

TAMPER NO / COM / TAMPER IN / GND / JOG OPEN / JOG CLOSE / GND

Motor 2 (Secondary for Bi-Parting gates)

DO NOT CYCLE OPERATOR AT THIS TIME. DAMAGE COULD OCCUR!

6 SETTINGS: GATE/ID PLUG/OPERATOR

OUTSIDE Property

Open

PUSH OPEN

Wall

Closed Gate

Control Box

Open

INSIDE Property

PULL OPEN

Gate:
Set the desired opening direction.
See the illustration and next pages.

PUSH OPEN   PULL OPEN

GATE

DSP ARM CONTROLLER

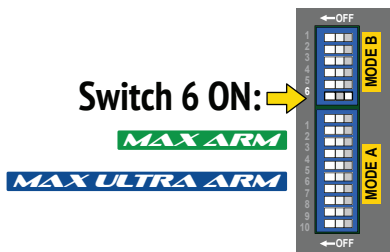**ID Plug Error:** If ID plug is **NOT** plugged in, board will constantly beep and arm will **NOT** function.
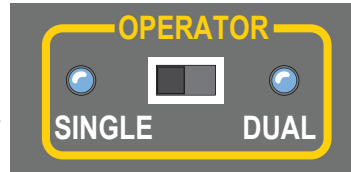
Operator:
Set operator to **SINGLE** for a single arm
Set operator to **Dual** for a bi-parting gates
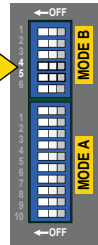(see page 33 for bi-parting gates)

OPERATOR

SINGLE   **DUAL**

---

7 ACTUATOR TYPE & GATE LENGTH

Mode B DIP-switch 6 **MUST** be **ON**.

Switch 6 ON:

MAX ARM
MAX ULTRA ARM

Select gate length Mode B DIP-switches 4 & 5.

Switches 4 & 5

| 5	4	Gate Length
OFF	OFF	Gate < 7 ft
OFF	ON	7 ft < Gate < 10 ft
ON	OFF	10 ft < Gate < 13 ft
ON	ON	Gate > 13 ft

> = Greater than   < = Less than

---

8 GATE LIMIT ADJUSTMENTS

Adjust the limits for **OPEN** and **CLOSE** gate positions depending on **GATE** setting for **your chosen operator model** on the next 6 pages. **Mode B** DIP-switches 4&5 **MUST** be set correctly for your gate length. See step 7 above.
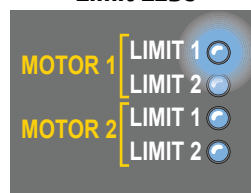
PULL or PUSH Open

PUSH OPEN   PULL OPEN
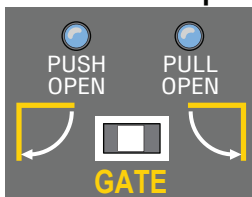
GATE

PULL OPEN configuration:
- **LIMIT 1** is **OPEN** limit
- **LIMIT 2** is **CLOSE** limit

PUSH OPEN configuration:
- **LIMIT 1** is **CLOSE** limit
- **LIMIT 2** is **OPEN** limit

Limit LEDs

MOTOR 1   LIMIT 1
              LIMIT 2
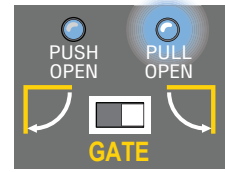**MOTOR 2**   LIMIT 1
              LIMIT 2

"BEEP / ALARM"

With gate in the exact **Close** and then **OPEN** positions respectively, adjust each limit until the appropriate **LED lights up** and a **BEEP/ALARM** is heard for each gate limit position
(follow the steps on the next 6 pages depending on your model operator).

PUSH OPEN / PULL OPEN
GATE

Operator MUST be wired to control box. Control box MUST have power.

1. Clear limits from control box memory. Press and **HOLD STOP** and **CLOSE** buttons **together** for 5 sec. until **BEEP/ALARM** is heard. Screen will display "**LEARNING LIMITS**".

MOTION CONTROL
OPEN STOP CLOSE

LEARNING LIMITS

"BEEP/ALARM"

2. Mount actuator arm on **REAR** bracket **ONLY**.

REAR bracket secured

Rear bracket **already** secured to gate post
3. Manually release actuator arm. See page 12.

Manual Release   "BEEP/ALARM"   Retract

4. Retract shaft until a **BEEP/ALARM** is heard from control box.

Extend

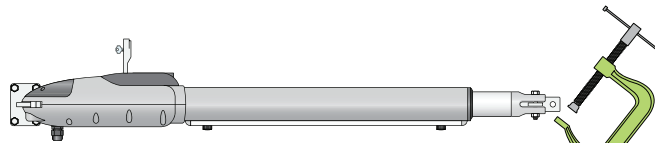**5.** Extend shaft to **5.5"** (typical) as shown. This will be **OPEN** position of operator.

OPEN position
5.5" Typical   (3.5" Min)

6. Bolt **FRONT** bracket to operator.

Bolt on FRONT bracket
See page 12.

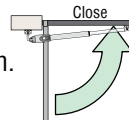**7.** Manually move gate to **OPEN** position.

Open

8. With operator shaft in same position, **temporarily** mount **FRONT** bracket (Clamp or tack weld) to gate in the **OPEN** position.

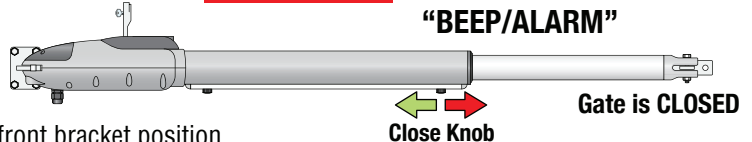**9.** Make sure gate remains in **OPEN** position. Loosen **OPEN** limit knob and slide until **BEEP/ALARM** is heard. Tighten knob when finished.

"BEEP/ALARM"   Gate is OPEN

Open Knob

10. Manually move gate to **CLOSE** position.

Close

Adjusting Limits (See note below)

11. Loosen **CLOSE** limit knob and slide until **BEEP/ALARM** is heard. Tighten knob when finished.

"BEEP/ALARM"   Gate is CLOSED

Close Knob

CAUTION: If **BEEP/ALARM** is **NOT** heard, readjust front bracket position.

NOTE: If 2 consecutive beeps are heard when moving gate to **CLOSED** position, then adjust gate to **FIRST** BEEP/ALARM position.

12. When satisfied with Open and Close positions of gate, **permanently** secure **FRONT** bracket.

Re-lock Manual Release

13. Re-lock Manual release.

Learn Adjusted Limits
MOTION CONTROL
OPEN STOP CLOSE

14. Learn newly adjusted limits on control box. Push the **OPEN** button, gate will open and learn open limit. Push the **CLOSE** button, gate will close and learn close limit.

NOTE: Gate **may not** ramp down when approaching limits while **"LEARNING"** gate positions but **will** ramp down **after** limits have been learned.

NOTE: If limits need to be **re-adjusted**, then they **MUST** be cleared first from control box memory, see **#1** above.

MAX ARM

MAX Arm/Ultra Arm V1b7

PUSH OPEN   PULL OPEN
GATE

Operator MUST be wired to control box. Control box MUST have power.

1. Clear limits from control box memory. Press and **HOLD STOP** and **CLOSE** buttons **together** for 5 sec. until **BEEP / ALARM** is heard. Screen will display "**LEARNING LIMITS**".

MOTION CONTROL
OPEN   STOP   CLOSE

LEARNING LIMITS

"BEEP / ALARM"

REAR bracket secured

2. Mount actuator arm on **REAR** bracket **ONLY**.
Rear bracket **already** secured to gate post

3. Manually release actuator arm. See page 12.

Manual Release   **"BEEP / ALARM"**   Retract

4. Retract shaft until a **BEEP / ALARM** is heard from control box.

Extend

5. Extend shaft to **5.5"** (typical) as shown. This will be **CLOSE** position of operator.

OPEN position
5.5" Typical (3.5" Min)

6. Bolt **FRONT** bracket to operator.

Bolt on FRONT bracket
See page 12.

7. Manually move gate to **CLOSE** position.

Close

8. With operator shaft in same position, **temporarily** mount **FRONT** bracket (Clamp or tack weld) to gate in the **CLOSE** position.

9. Make sure gate remains in **CLOSE** position. Loosen **CLOSE** limit knob and slide until **BEEP / ALARM** is heard. Tighten knob when finished.

"BEEP / ALARM"
Gate is CLOSED
Open Knob

10. Manually move gate to **OPEN** position.

Open

Adjusting Limits
(See note below)

"BEEP / ALARM"

11. Loosen **OPEN** limit knob and slide until **BEEP / ALARM** is heard. Tighten knob when finished.

Gate is OPEN
Close Knob

CAUTION: If **BEEP / ALARM** **NOT** is heard, readjust front bracket position.

NOTE: If 2 consecutive BEEP / ALARM is are heard when moving gate to **OPEN** position, then adjust gate to **FIRST** BEEP / ALARM position.
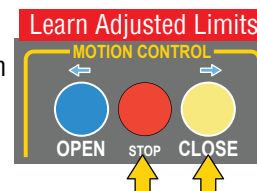
12. When satisfied with Open and Close positions of gate, **permanentely** secure **FRONT** bracket.

Re-lock Manual Release

13. Re-lock Manual release.

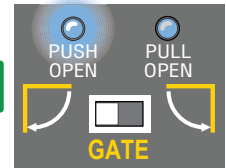Learn Adjusted Limits
MOTION CONTROL
OPEN   STOP   CLOSE

14. Learn newly adjusted limits on control box. Push the **OPEN** button, gate will open and learn open limit. Push the **CLOSE** button, gate will close and learn close limit.

NOTE: Gate **may not** ramp down when approaching limits while **"LEARNING"** gate positions but **will** ramp down **after** limits have been learned.
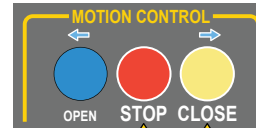
NOTE: If limits need to be **re-adjusted**, then they **MUST** be cleared first from control box memory, see **#1** above.

MAX ARM

PULL OPEN ULTRA ARM INSTALL
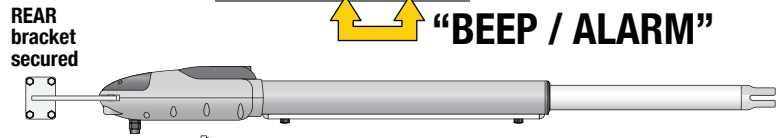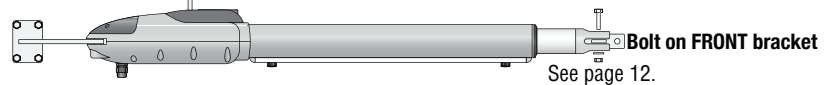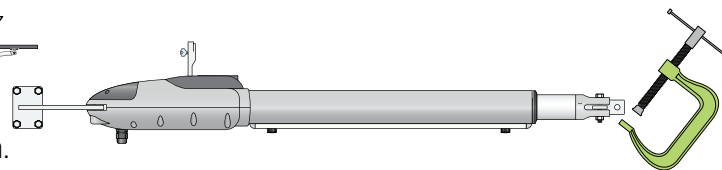
PUSH OPEN   PULL OPEN

GATE

Operator MUST be wired to control box. Control box MUST have power.

1. Clear limits from control box memory. Press and **HOLD STOP** and **CLOSE** buttons **together** for 5 sec. until **BEEP/ALARM** is heard. Screen will display "**LEARNING LIMITS**".

MOTION CONTROL

OPEN   STOP   CLOSE

LEARNING LIMITS

"**BEEP/ALARM**"

2. Mount actuator arm on **REAR** bracket **ONLY**.
Rear bracket **already** secured to gate post

REAR bracket secured

3. Manually release actuator arm. See page 15.

Manual Release

4. Retract shaft until a **BEEP/ALARM** is heard from control box.

Manual Release   "**BEEP/ALARM**"   Retract

5. Extend shaft to **5.5"** (typical) as shown. This will be **OPEN** position of operator.

Extend

OPEN position

5.5"

6. Bolt **FRONT** bracket to operator.

Bolt on FRONT bracket
See page 15.

7. Manually move gate to **OPEN** position.

Open

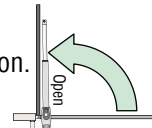**8.** With operator shaft in same position, **temporarily** mount **FRONT** bracket (Clamp or tack weld) to gate in the **OPEN** position.

Limit Switch   Limit Switch

PULL OPEN   CLOSE LIMIT ADJUSTMENT
PUSH OPEN   OPEN LIMIT ADJUSTMENT

PULL OPEN   OPEN LIMIT ADJUSTMENT
PUSH OPEN   CLOSE LIMIT ADJUSTMENT

9. Remove limit cap with 2 screws and slide limit cover off operator.

Limit Cover

Limit Cap

Continued on next page

LIMIT SWITCH ADJUSTMENTS

Adjustment Screw   Limit Switch   Limit Switch   Adjustment Screw

1   Remove limit cap with 2 screws and slide limit cover off operator.   Limit Cover   Limit Cap   Limit Switch   Limit Switch   2

MAX ULTRA ARM

10. Make sure gate remains in **OPEN** position. Loosen adjustment screw on OPEN limit switch and slide switch until **BEEP/ALARM** is heard. Tighten adjustment screw when finished.

Adjustment Screw

OPEN Limit Switch

Adjusting Limits (See note below)

Gate is OPEN

"BEEP/ALARM"

| PULL OPEN | OPEN LIMIT ADJUSTMENT | PULL OPEN |
| PUSH OPEN | CLOSE LIMIT ADJUSTMENT | |

11. Manually move gate to **CLOSE** position.

Close

12. Make sure gate remains in **CLOSE** position. Loosen adjustment screw on CLOSE limit switch and slide switch until **BEEP/ALARM** is heard. Tighten adjustment screw when finished.

Adjusting Limits (See note below)

CLOSE Limit Switch

Adjustment Screw

Gate is CLOSED

"BEEP/ALARM"

| PULL OPEN | CLOSE LIMIT ADJUSTMENT | PULL OPEN |
| PUSH OPEN | OPEN LIMIT ADJUSTMENT | |

CAUTION: If **BEEP/ALARM** is **NOT** heard, readjust front bracket position.

NOTE: If 2 consecutive beeps are heard when moving gate to **CLOSED** position, then adjust gate to **FIRST** beep position.

13. When satisfied with Open and Close positions of gate, **permanentely** secure front bracket.

14. Replace limit cap with 2 screws and slide limit cover on operator.

Limit Cap

Limit Cover

Re-lock Manual Release

15. Re-lock Manual release.

16. Learn newly adjusted limits on control box. Push the **OPEN** button, gate will open and learn open limit. Push the **CLOSE** button, gate will close and learn close limit.
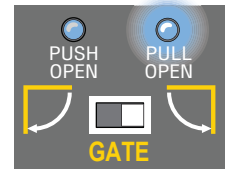
NOTE: Gate **may not** ramp down when approaching limits while **"LEARNING"** gate positions but **will** ramp down **after** limits have been learned.

Learn Adjusted Limits

MOTION CONTROL

OPEN   STOP   CLOSE

NOTE: If limits need to be **re-adjusted**, then they **MUST** be cleared first from control box memory, see **#1** above.
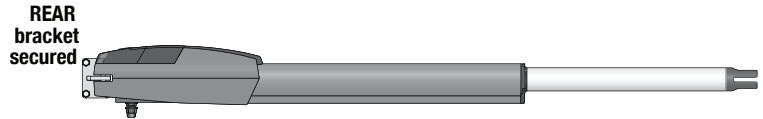
MAX ULTRA ARM

PUSH OPEN   PULL OPEN
GATE

Operator MUST be wired to control box. Control box MUST have power.

MAX ULTRA ARM

1. Clear limits from control box memory. Press and **HOLD STOP** and **CLOSE** buttons **together** for 5 sec. until **BEEP** is heard. Screen will display "**LEARNING LIMITS**".
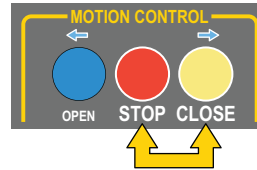
MOTION CONTROL
OPEN   STOP   CLOSE

LEARNING LIMITS

2. Mount actuator arm on **REAR** bracket **ONLY**.

Rear bracket **already** secured to gate post

REAR bracket secured

3. **Manually release** actuator arm. See page 15.

Manual Release

4. Retract shaft until a **BEEP** is heard from control box.

Manual Release   "BEEP"   Retract

5. Extend shaft to **5.5"** (typical) as shown. This will be **CLOSE** position of operator.

Extend
CLOSE position
5.5"

6. Bolt **FRONT** bracket to operator.
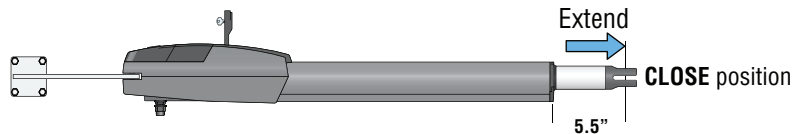
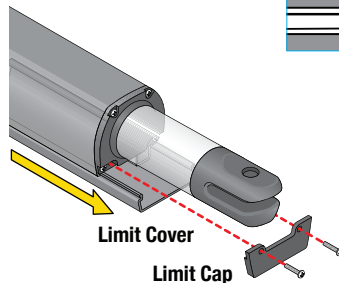Bolt on FRONT bracket
See page 15.

7. Manually move gate to **CLOSE** position.
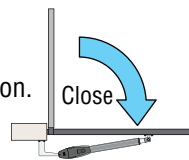
Close

8. With operator shaft in same position, **temporarily** mount **FRONT** bracket (Clamp or tack weld) to gate in the **CLOSE** position.
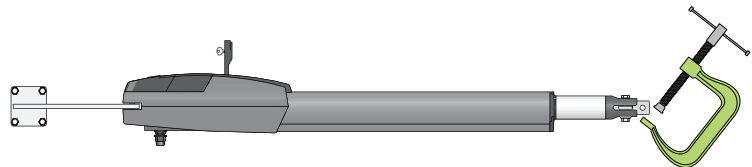
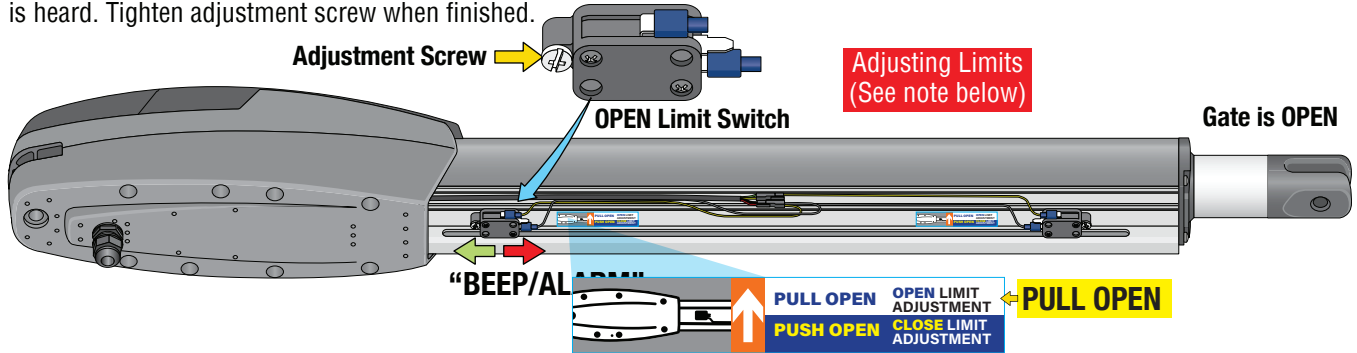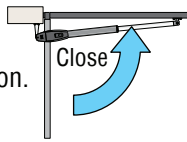**9.** Remove limit cap with 2 screws and slide limit cover off operator.
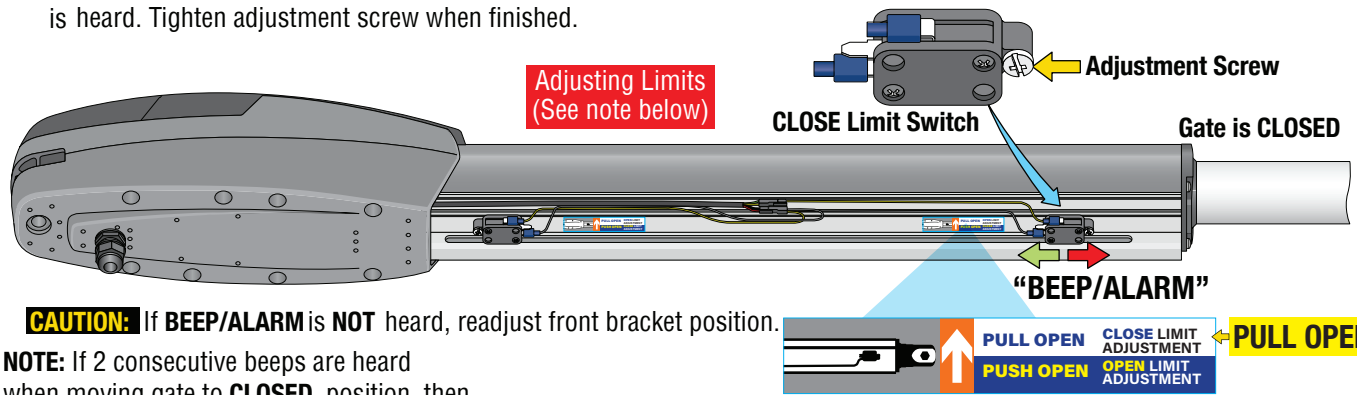
Limit Cap
Limit Cover
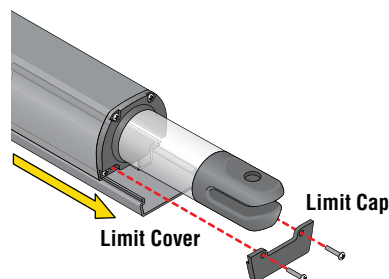
10. Make sure gate remains in **CLOSED** position. Loosen adjustment screw on CLOSE limit switch and slide switch until **BEEP** is heard. Tighten adjustment screw when finished.

Adjustment Screw

CLOSE Limit Switch

Adjusting Limits (See note below)

Gate is CLOSED

"BEEP"

PULL OPEN — OPEN LIMIT ADJUSTMENT

PUSH OPEN — CLOSE LIMIT ADJUSTMENT ← **PUSH OPEN**

11. Manually move gate to **OPEN** position.

Open

12. Make sure gate remains in **OPEN** position. Loosen adjustment screw on OPEN limit switch and slide switch until **BEEP** is heard. Tighten adjustment screw when finished.
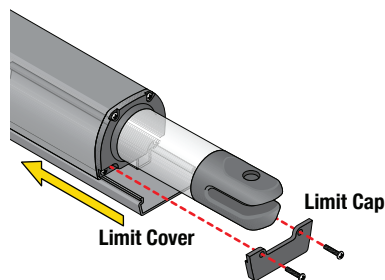
Adjusting Limits (See note below)

OPEN Limit Switch

Adjustment Screw

Gate is OPEN

"BEEP"

PULL OPEN — CLOSE LIMIT ADJUSTMENT

PUSH OPEN — OPEN LIMIT ADJUSTMENT ← **PUSH OPEN**
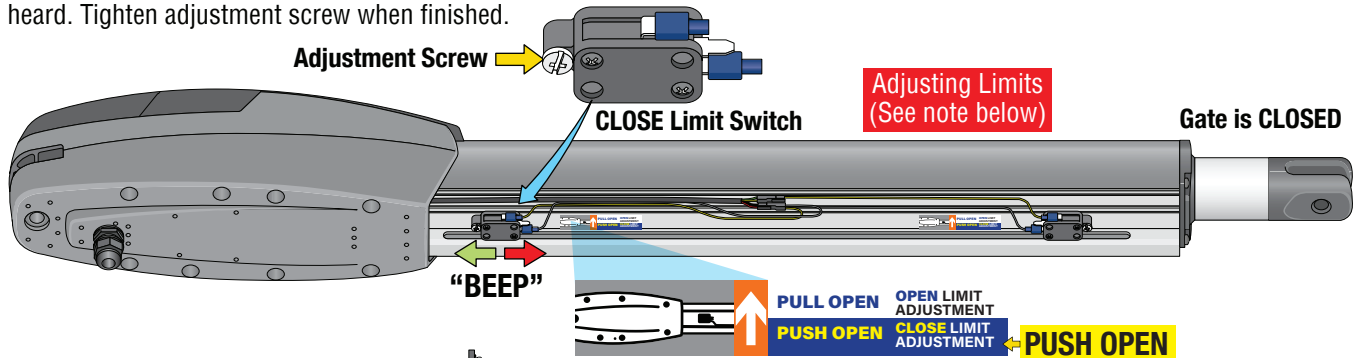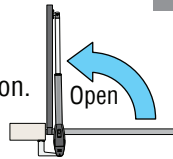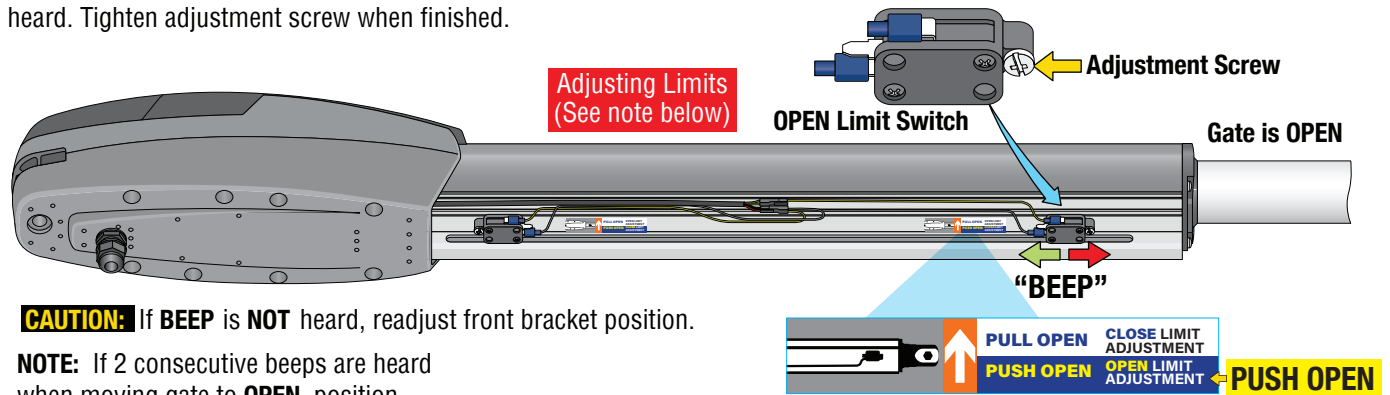
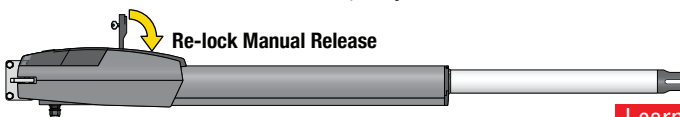**CAUTION:** If **BEEP** is **NOT** heard, readjust front bracket position.

NOTE: If 2 consecutive beeps are heard when moving gate to **OPEN** position, then adjust gate to **FIRST** beep position.

13. When satisfied with Open and Close positions of gate, **permanently** secure front bracket.

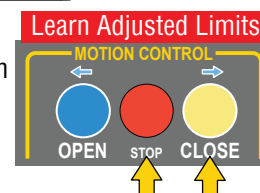**14.** Replace limit cap with 2 screws and slide limit cover on operator.

Limit Cap

Limit Cover

Re-lock Manual Release

15. Re-lock Manual release.

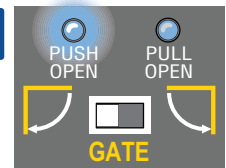Learn Adjusted Limits

MOTION CONTROL

OPEN STOP CLOSE

16. Learn newly adjusted limits on control box. Push the **OPEN** button, gate will open and learn open limit. Push the **CLOSE** button, gate will close and learn close limit.

NOTE: Gate **may not** ramp down when approaching limits while **"LEARNING"** gate positions but **will** ramp down **after** limits have been learned.

NOTE: If limits need to be **re-adjusted**, then they **MUST** be cleared first from control box memory, see **#1** above.

MAX ULTRA ARM

9 ENTRAPMENT PROTECTION LOCATIONS

At least **ONE** entrapment protection device **MUST** be installed or the operator will **NOT** function. Typically it is the **CLOSING** direction photocell. Entrapment sensors **MUST** be installed in **BOTH** opening and closing direction of gate movement where entrapment or pinch point exist.

CLOSING direction photocell

Top View

Beam: 5" or LESS from CLOSED gate.   **Entrapment Area**
Gate Closed

WIRELESS NOTE: Refer to the instruction sheet that comes with the wireless module for wiring and mounting instructions when using wireless option.

Wireless Module

End of Gate Options

Closed Gate

Closed Gate

OPENING/CLOSING
Two Sided 10K Sensing Edge

CLOSING ONLY
One Sided
10K Sensing Edge

IMPORTANT: Sensing edges **MUST** be Monitored 10K Normally Closed Type.

Hinge Area

Closed Gate

Max 10K Mini Sensing Edge (N.C.)

The hinge area may need protection against entrapment. MAX 10K mini sensing edge works well in this area. (OPEN/CLOSE direction input)

OPENING/CLOSING or Closing ONLY 10K (N.C.) Sensing Edge

IMPORTANT: Photocells **MUST** be in alignment or fault will occur.

Entrapment Area

Gate Open

If distance is less than **16 inches**, entrapment protection is **REQUIRED** in this area.

Normally CLOSED (N.C.) OPENING direction Photocell

Side View

See "**GATE SAFETY and REQUIREMENTS**" in front of this manual for entrapment protection requirements, locations etc, pages 4-11.

Gate Open

CLOSING direction Photocell

OPENING direction Photocell

Beam Height:
21" Normal
27.5" Max.

Entrapment Protection 10K Sensing Edge, Install along entire edge of gate.

LIST OF SENSORS - UL325 2018

The following is a list of recommended safety devices for the MAX Arm Operators (sold separately).

Omron E3K-R10K4-10R Photocell (Reflector)
EMX IRB-MON Photocell (Thru-Beam)
EMX IRB-RET Photocell (Reflector)
EMX Wireless Edge Link WEL-200T / WEL-200R
Enforcer E931-S50RRGQ Photocell (Reflector)
Enforcer E960-G90GQ Twin Beam (Thru-Beam)
Miller Edge Prime Guard Photocell (Thru-Beam)
Miller Edge GEM-104 10K to NC Converter

Miller Edge R-Band Wireless Edge Unit
    P/N: RB-G-RX10 & RB-TX10
Transmitter Solutions IGAZER50LR-UL Photocell (Reflector)
Transmitter Solutions IGAZESR66HD Photocell (Thru-Beam)
Transmitter Solutions Wireless Edge Sensor Model: RCOO900
    P/N: IGAZEREKIT-UL
ASO Edge MAX Mini Edge Contact Edge Sensor
ASO Edge Thin Edge MAX Edge 1 Contact Edge Sensor

OPEN ONLY NC
PHOTO CLS NC
OPEN / CLS NC
12VDC OUT
GND

UL SENSOR N.C.

5 sec

Learned monitored input
Automatically monitored
Additional learned monitored input
12VDC OUT monitored

OPEN ONLY 10K
CLS ONLY 10K
OPEN / CLS 10K
12VDC OUT
GND

UL SENSOR 10K

Learned monitored input
Learned monitored input
Additional learned monitored input

JOG OPEN JOG CLOSE GND

Power
NC

Normally Closed Photocells

IMPORTANT: NC MONITORED sensors **MUST** be powered by the **12VDC OUT** on the **UL Sensor N.C.**

See pages 45-53 for specific photocell wiring.

Opening Direction
must be learned to be monitored, see page 32.

Closing Direction Factory Default
Automatically Monitored, Does **NOT** need to be learned.

Power
NC

To operate gate, wire UL sensor on "Photo CLS NC" sensor input (factory default)

10K Sensing Edges

NC
Power

Opening Direction
must be learned to be monitored, see page 32.

NOTE: If the "**PHOTO CLS NC**" input is **NOT** used, then each gate leaf needs to have a UL sensor in OPENING or CLOSING direction.

NC
Power

Closing Direction
must be learned to be monitored, see page 32.

TEST PHOTO CLS NC SENSOR

Test **PHOTO CLS NC** entrapment protection sensor (Photocell typically used):

1. Press and **HOLD** the **STOP button & then the OPEN** button together until beeping is heard, learn mode begins.
   NOTE: **DO NOT** press the **OPEN** button before the **STOP** button or learn mode will **NOT** function.

MOTION CONTROL
OPEN STOP CLOSE

2. **PHOTO CLS NC** LED should be **ON** if an entrapment sensor is detected. If **PHOTO CLS NC** LED is **NOT** on, sensor has a problem.
   Possible problems:
   • Photocell are out of alignment.
   • Photocell is wired wrong - N.C. or N.O. depending on which type of photocell is used.
   • Sensor is bad.

UL SENSOR N.C.
OPEN ONLY NC
PHOTO CLS NC
OPEN/CLS NC
12VDC OUT
GND
NC
Power

UL SENSOR 10K
OPEN ONLY 10K
CLS ONLY 10K
OPEN/CLS 10K
12VDC OUT
GND

Closing Direction
automatically monitored

3. Press **STOP** button again within 5 min. to end learn mode, beeping stops.
   NOTE: If **STOP** button is not pressed within 5 min. learn mode automatically end after 5 min.

MOTION CONTROL
OPEN STOP CLOSE
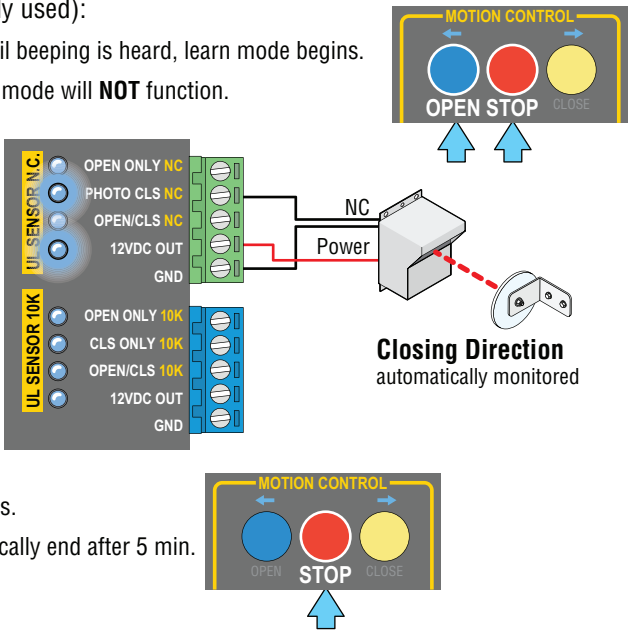
11 — ADJUST ERD REVERSE SENSOR

The **ERD Sensor - Electronic Reversing Device** (Type A) **MUST** be adjusted for the **OPEN and CLOSE gate cycles**.

When the gate encounters an obstruction during the **CLOSE** cycle, it will reverse to the open position and **PAUSE** the gate. An input command (press remote button or exit loop) is needed **BEFORE** the gate will reset and close again.

When the gate encounters an obstruction during the **OPEN** cycle, it will reverse approximately 6 inches and **PAUSE** the gate. An input command (press remote button or exit loop) is needed **BEFORE** the gate will reset and open again.
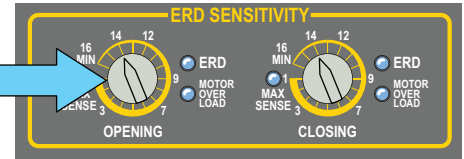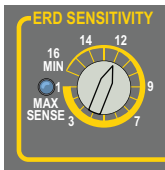
For the **ERD Sensitivity** to function correctly:

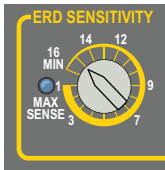- **Gate positions** must be learned **BEFORE** adjusting the ERD Sensitivity.

16 sensitivity setting positions in EACH direction.
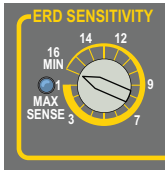**NO mechanical hard stops for knobs.**

ERD SENSITIVITY — OPENING / CLOSING — ERD MOTOR OVER LOAD

Typical Settings:

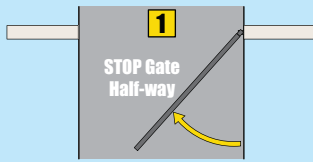**Position 12:**
- Typical gate setting.

Position 15:
- Heavy gate setting.
- Long gate setting.

Position 16:
- High wind area gate setting.

CAUTION: Position 16 results in gate exerting **MAXIMUM force** before reversing direction.

TIP: While Adjusting ERD.....

1 STOP Gate Half-way

Position gate half-way open and **STOP** gate. This gate position will put the most amount of resistance on the ERD sensor when gate cycles.
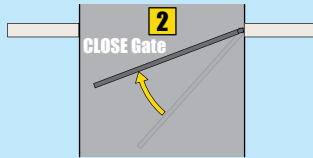
2 CLOSE Gate

CLOSE gate. If ERD sensor triggers, reduce sensitivity. If sensor does **NOT** trigger, sensitivity is set correctly.

Adjust ERD for EACH direction:
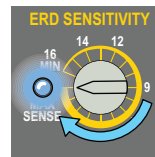
A. Turn knob until blue LED lights up. Maximum sensitivity reached, **Position 1** - Too sensitive for most gates.
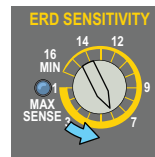
B. Turn knob **counter-clockwise** to reduce gate sensitivity while testing ERD until desired results is attained. (LED remains OFF for all but position 1)

If alarm sounds while adjusting ERD, press **STOP BUTTON** to shut-off alarm.

MOTION CONTROL — OPEN STOP CLOSE
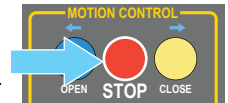
IMPORTANT: When satisfied with ERD adjustment, cycle the gate a few times to make sure that the ERD sensor does not **falsely trigger** during normal gate operation. Re-adjust if this happens.

12 — LOOPS & LOOP DETECTORS

Loop Detector Rack
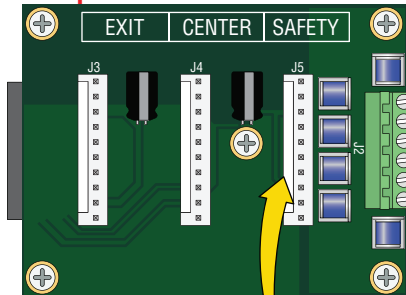
EXIT | CENTER | SAFETY

In-Ground Loops

Safety loops wired in series.

External Loop Detectors
Wire directly to 7-PIN terminal

ID PLUG — MODE A — OFF
EXIT PWR
EXIT LOOP
GND
CENTER LOOP
LOOP PWR
SAFETY LOOP
FAULTS
24VDC OUTPUT
GND
12VDC OUTPUT
GND
RADIO SIGNAL
RADIO GND
FIRE DEPT

EDI Loop Detector

EDI Loop Detector Low Current Draw
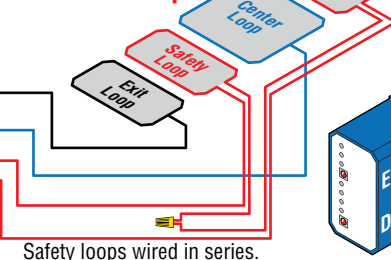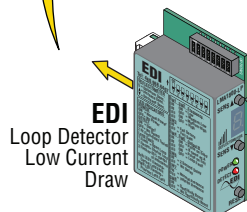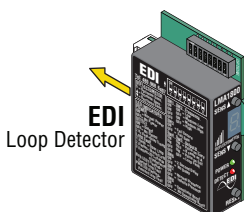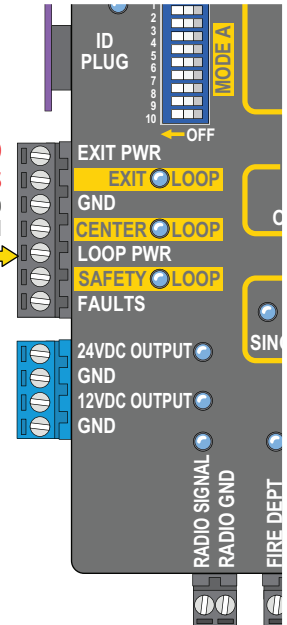
NOTE: DO NOT select the **PULSED** output option for Loop Detectors.

NOTE: DO NOT set Loop Detectors to **HIGH** sensitivity to avoid false trigger.

Plug-In Loop Detectors

MAX Arm/Ultra Arm V1b7

Battery Back-Up Mode

LEAVE OPEN - After a power failure, gate will continue to operate until battery power is drained. At this point, the next open command, gate will remain **OPEN** . Gate will **automatically** close after AC power is restored if close timer is ON.

LEAVE CLOSED - After a power failure, gate will continue to operate until battery power is drained. At this point, gate will remain **CLOSED.**

OPEN 1 TIME - After a power failure, gate **automatically OPENS** and **REMAINS OPEN.** When power is restored, gate will **automatically** close.

Anti-Tailgate

Turned OFF - Close timer will close the gate at its selected time.

Turned ON - (In-ground loops required) Gate will close after all the in-ground loops have been cleared no matter how long the close timer is set for. When an in-ground **safety** loop gets activated during the close cycle, gate will **PAUSE** and **NOT** reopen. When loop is cleared, gate will continue to close **preventing UNAUTHORIZED entry.**
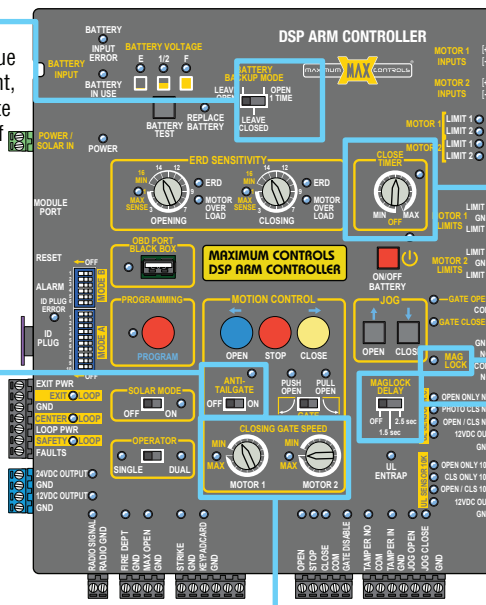
Close Timer

1st click clockwise - Knob at MIN: 1/2 sec...
2nd click clockwise: 1 sec...
3rd click: 4 sec...
4th click: 8 sec... etc up to 60 sec. MAX.

Maglock Delay
Set to OFF

Turned OFF - NO Maglock installed.

Set to 1.5 sec or 2.5 sec - You **MUST** select a time delay when using a maglock. Maglock power disengages 1.5 sec **or** 2.5 sec **before** gate starts opening.
Dual Gate Operators using Maglock: Primary gate opens **FIRST** so install maglock accordingly.

MAGLOCK LED (Monitors Maglock):
ON - Locked
OFF - Unlocked
Flashing - Problem with Maglock Power. See below to wire this feature.

Gate Speed
Typically Set to MAX

Maglock
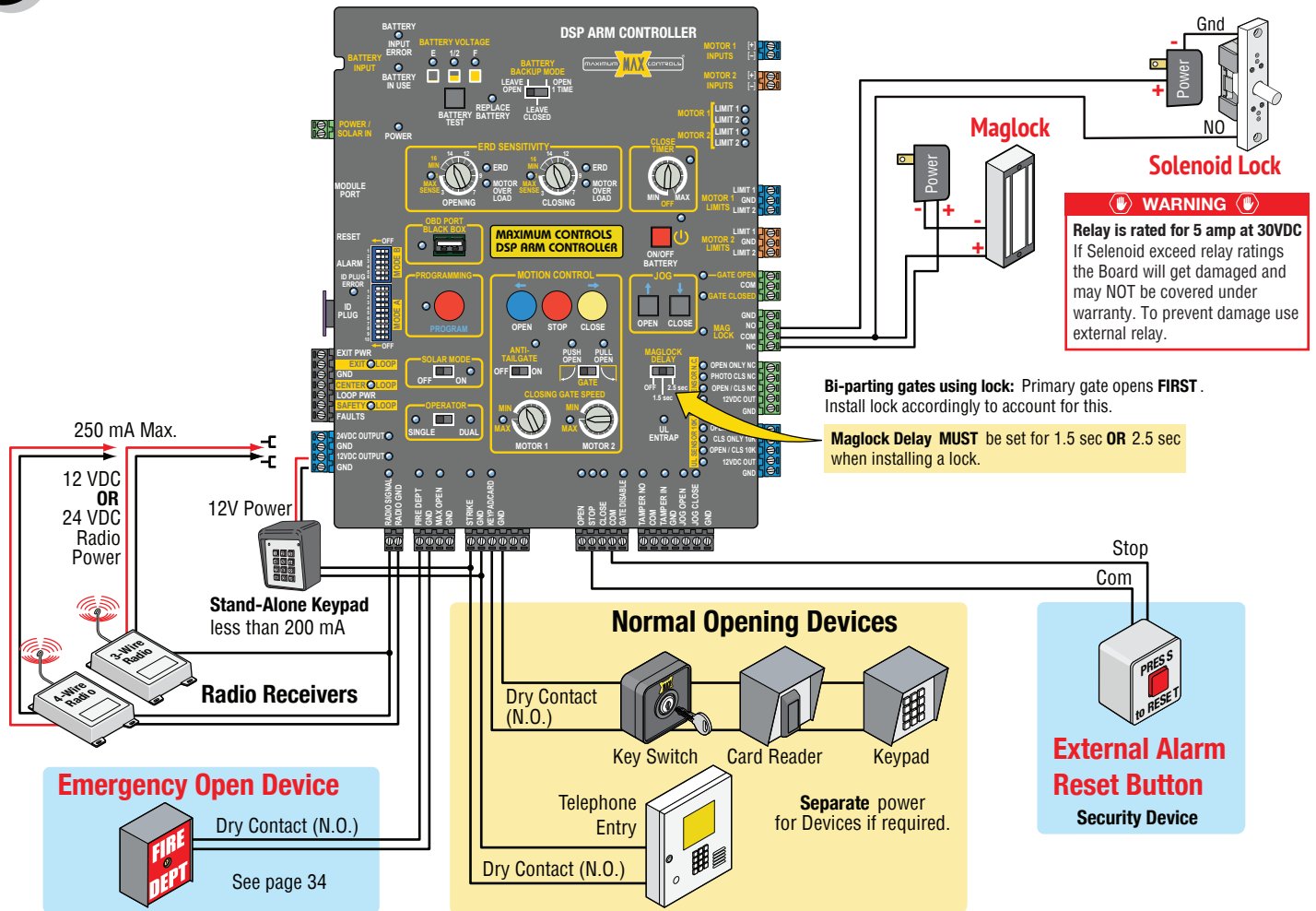
Solenoid Lock

⚠ **WARNING** ⚠

Relay is rated for 5 amp at 30VDC
If Selenoid exceed relay ratings the Board will get damaged and may NOT be covered under warranty. To prevent damage use external relay.

Bi-parting gates using lock: Primary gate opens **FIRST** . Install lock accordingly to account for this.

Maglock Delay MUST be set for 1.5 sec **OR** 2.5 sec when installing a lock.

250 mA Max.

12 VDC
OR
24 VDC
Radio
Power

Radio Receivers

12V Power

Stand-Alone Keypad
less than 200 mA

Emergency Open Device

Dry Contact (N.O.)

See page 34

Normal Opening Devices

Dry Contact (N.O.)

Key Switch   Card Reader   Keypad

Telephone Entry

Separate power for Devices if required.

Dry Contact (N.O.)

Stop
Com

PRESS to RESET

External Alarm Reset Button

Security Device

15 UL SENSOR LEARN MODE

AUTOMATICALLY MONITORED UL sensor Input

A sensor wired to the **PHOTO CLS NC** will **"AUTOMATICALLY"** be **MONITORED" (Factory default).**
All other inputs **MUST** be learned before they will be monitored.

Sensor Learn Mode:

1. Press and **HOLD** the **STOP button & then the OPEN** button together until beeping is heard, learn mode begins. **DO NOT** press the **OPEN** button before the **STOP** button or learn mode will **NOT** begin (no beeping).

2. LEDs **WILL** turn **ON** for each detected **"LEARNED"** sensor that has been wired to the inputs. If a sensor's LED is **NOT** on, that sensor has a problem and it **MUST** be corrected before continuing.

> **Possible problems:**
> • Photocells are out of alignment
> • Photocells are wired wrong - N.C. or N.O. depending on which type of photocells are used.
> • Sensor is bad

When all LEDs are **ON** that should be **ON**, proceed to next step.

3. Press **STOP** button again within 5 min. to learn sensors and end learn mode, beeping stops. Wired **"Learned"** Inputs will now be **MONITORED** .

NOTE: If **STOP** button is not pressed within 5 min., learn mode terminates. If no **"LEARNED"** sensors are detected then factory default setting is restored (Inputs will **NOT** be Monitored).

MOTION CONTROL
OPEN STOP CLOSE

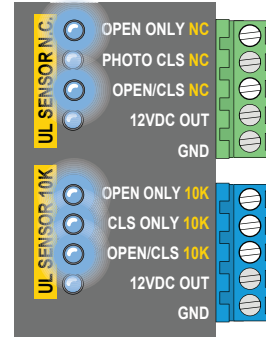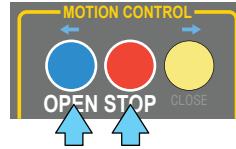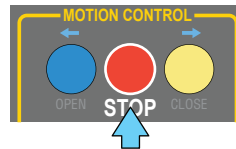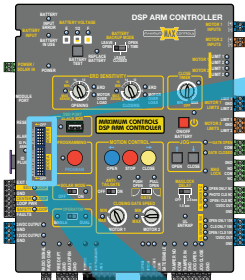| UL SENSOR N.C.		
OPEN ONLY NC		**"Learned"** monitored
PHOTO CLS NC		**Automatically** monitored
OPEN/CLS NC		**"Learned"** monitored
12VDC OUT		
GND		

UL SENSOR 10K		
OPEN ONLY 10K		**"Learned"** monitored
CLS ONLY 10K		**"Learned"** monitored
OPEN/CLS 10K		**"Learned"** monitored
12VDC OUT		
GND		

MOTION CONTROL
OPEN STOP CLOSE

16 DIP-SWITCH SETTINGS

Set desired features using DIP-switches.

←OFF

MODE B
1
2
3
4
5
6

MODE A
1
2
3
4
5
6
7
8
9
10

←OFF
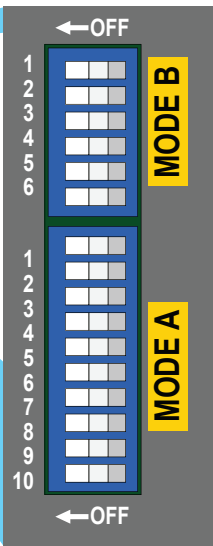
• **MODE B** DIP-switch 6 **MUST** be set to chosen operator type

MAX ARM OFF
MAX ULTRA ARM OFF

MODE B Switches	1	Open Relay Pulsed	OFF	Open Relay ON when gate open
			ON	Open Relay Pulsed when gate open
	2	Secondary Opposite Direction	OFF	Secondary moves **same** as primary
			ON	Secondary moves **opposite** of primary
	3	Lock on Close	OFF	Stop at close limit (see page 34)
			ON	Stop on overload condition after seeing close limit
	4 & 5	Select Gate Length	5-OFF 4-OFF	Gate **< 7 FT**
			5-OFF 4-ON	**7 FT <** Gate **< 10 ft**
			5-ON 4-OFF	**10 FT <** Gate **< 13 ft**
			5-ON 4-ON	Gate **> 13 FT**
			Short Gate **< 7 FT** - shorter ramp down	
			Long Gate **> 10 FT** - longer ramp down	
	6	Actuator Type	OFF	MAX Super arm 1300, MAX arm, MAX Ultra arm
			ON	- MAX Super arm 2300

< = Less Than
> = Greater Than

MODE A Switches	1	Battery Beep Mode	OFF	No beeping when ONLY battery power and gate is in motion.
			ON	Beeping when ONLY battery power and gate is in motion.
	2	Gate in Motion Alert	OFF	No alarm while gate in motion
			ON	Alarm while gate in motion
	3	Strobe Light Relay Control	ON	Tamper Relay NO/C Triggered while gate in motion for strobe light control.
	4	Quick-Close	OFF	No quick-close
			ON	Quick-close **ON**
	5	Close Tamper Detect	OFF	**NO** close tamper detect
			ON	Trigger tamper relay **(Alarm for slider ONLY)**
	6	Stop Input Polarity	OFF	Stop Input NO-**connect** to GND to activate
			ON	Stop Input NC-**disconnect** from GND to activate
	7	Open Relay Polarity	OFF	Open Relay **CLOSED** when gate is open
			ON	Open relay **OPEN** when gate is open
	8	Solenoid **OR** Maglock Control Relay	OFF	**For Maglock:** Control relay will trigger **BEFORE** closed limit is reached.
			ON	**For Solenoid:** Control relay will trigger **AFTER** closed limit is reached.
	9	UL Closing Photo ON PHOTO CLS NC Anti-tailgate	OFF	UL Closing Photo anti-tailgate **OFF**
			ON	UL Closing Photo anti-tailgate **ON**
	10	Reserved	OFF	**MUST** be OFF
			ON	**DO NOT** turn ON

DUAL GATE OPERATORS

Turn Dual **ON**.

OPERATOR
SINGLE → DUAL
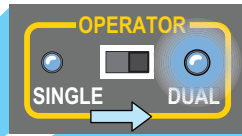
- **OPERATOR** switch **MUST** be set to **DUAL**.
- **Jog OPEN/CLOSE** buttons operate **BOTH** arms together.
- **EACH** arm is **MANUALLY RELEASED** individually.
- **CLOSING GATE SPEED** is adjusted for **EACH** arm.
- **ERD** adjusts **BOTH** arms sensitivity at the same time.
- **MODE B** DIP-switch 6 **MUST** be **ON**.
- **MOTOR 1** opens **FIRST**. Install gate overlap/maglock accordingly to account for this.
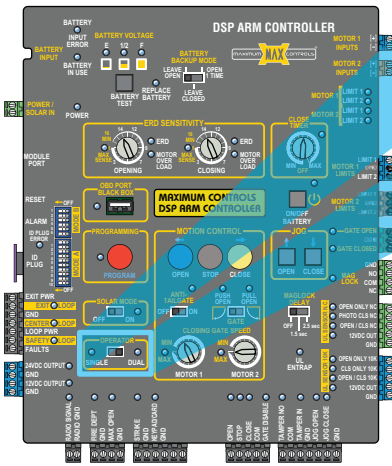
INSTALLATION NOTES:

PULL Open installation shown.

Safety device wiring and in-ground loops **NOT** shown.
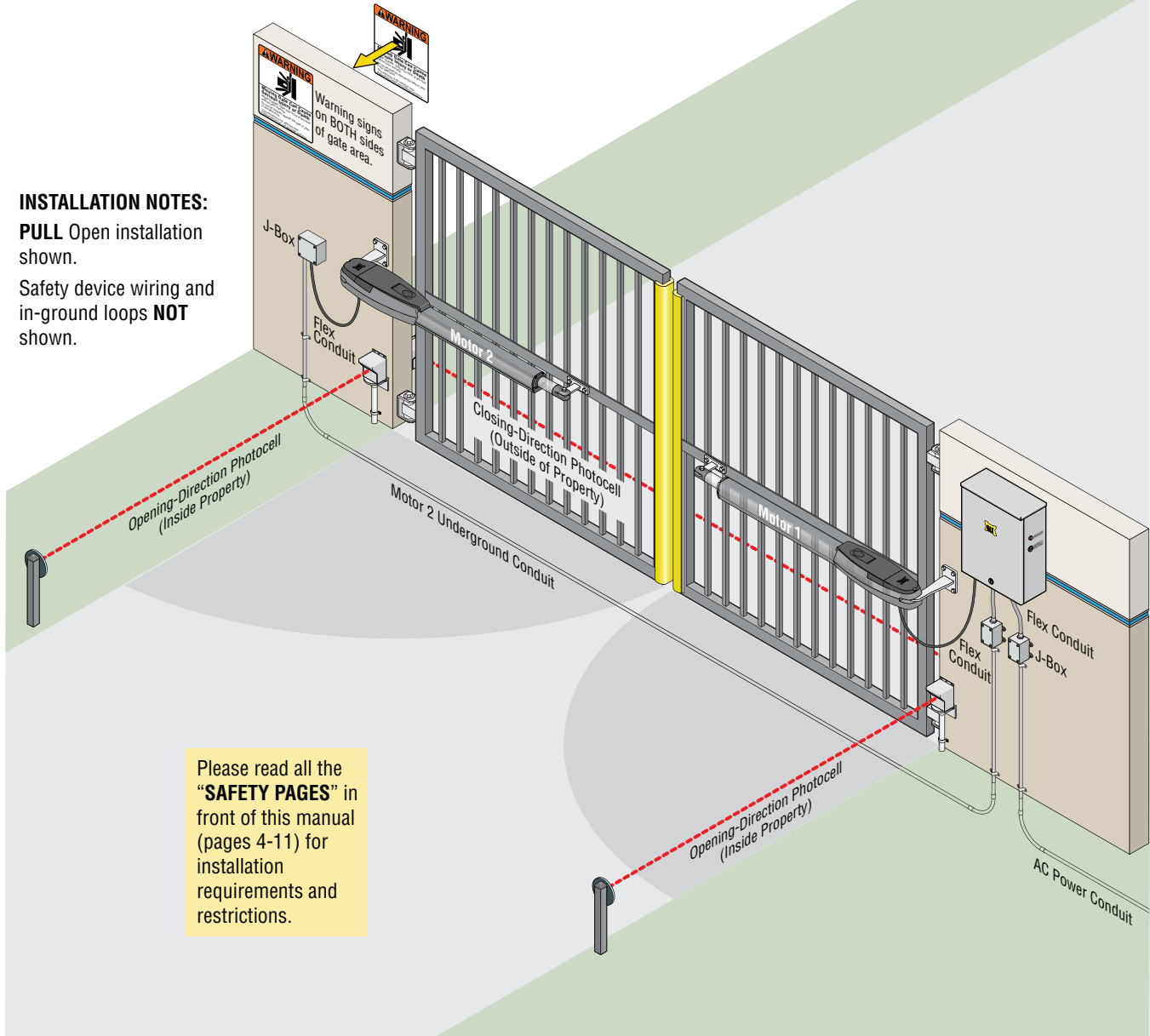
Warning signs on BOTH sides of gate area.

J-Box

Flex Conduit

Motor 2

Closing-Direction Photocell (Outside of Property)

Opening-Direction Photocell (Inside Property)

Motor 2 Underground Conduit

Motor 1

Flex Conduit
Flex Conduit
J-Box

Opening-Direction Photocell (Inside Property)

AC Power Conduit

Please read all the "**SAFETY PAGES**" in front of this manual (pages 4-11) for installation requirements and restrictions.

ADDITIONAL FEATURES

MAX OPEN / FIRE DEPT INPUTS

FIRE DEPT Input: Should be connected to a knox box device to allow the proper authorities to gain emergency access when necessary. The input will override the **GATE DISABLE** input and allow **EMERGENCY** personnel **FULL** 24/7 access. Gate fully opens.

MAX OPEN Input: Can be connected to a key switch and used as an **ADDITIONAL** input from the FIRE DEPT input. The input will override the **GATE DISABLE** input and allow **SECURITY** personnel **FULL** 24/7 access. Gate fully opens.

Knox Box   Key Switch
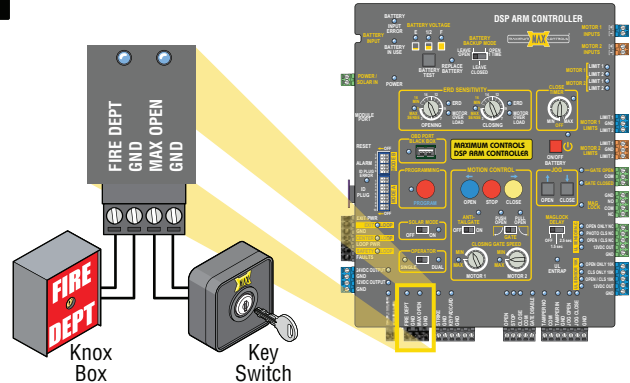
GATE TAMPER

The **GATE TAMPER** can be used for various functions such as turning a warning light, siren or camera on when the gate is tampered with (Vandalized Gate). The gate operator defines a "Vandalized Gate" as **UNAUTHORIZED** movement of the gate. This can occur if the arm is manually released and gate is moved from the **closed position** (or the gate is forced open from the **closed position without authorization).**

TAMPER NO/Com Relay: Connect a warning light, siren, camera or an existing alarm system to relay.

TAMPER IN/GND Input: Connect a sensor device to input. When Tamper In/GND gets triggered, device that is wired to Tamper relay (NO/Com) will activate.

Existing Building Alarm System   Siren   Warning Light   Security Camera   Tamper NO / COM / Tamper IN / GND   Motion Sensor   Power   Power
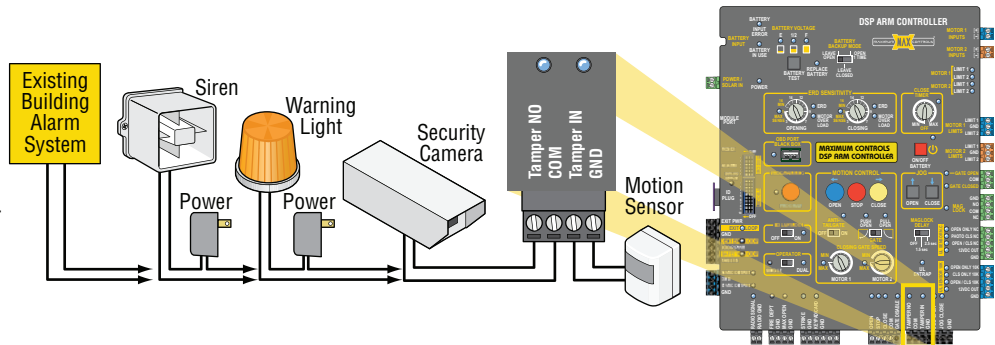
GATE TAMPER relay will activate when:
- Arm is **MANUALLY RELEASED** and pushed open from the **closed position without authorization**.
- Gate is **PHYSICALLY moved** from the **closed position** with **EXTREME** force.
- When the **FIRE DEPT** switch is activated **ONLY** if the **GATE DISABLE** has been turned **ON**.

GATE DISABLE

An ON/OFF switch or 7-Day timer device can be connected to the **GATE DISABLE** input. When these devices are turned ON, they will **DISABLE** normal opening devices such as keypad, exit loop etc. The **FIRE DEPT**/ **MAX OPEN** and **RADIO** inputs will remain enabled when **GATE DISABLE** has been turned ON. This is useful when the gated area needs to be secured from ALL but emergency or authorized vehicle entry. Some examples are: Residential home vacation period or during closed hours of a business when no one can monitor the property.

When GATE DISABLE is turned ON: The operator will beep for **3 minutes BEFORE arming itself.** This allows time to turn ON **GATE DISABLE** and leave the property before it is armed.

When FIRE DEPT/MAX OPEN gets activated: Gate opens and **GATE TAMPER** relay will activate immediately.

When RADIO Input gets activated: Gate opens and **GATE TAMPER** relay will activate **after 3 min**. This allows time to turn OFF **GATE DISABLE** or disarm an existing building alarm system if connected.
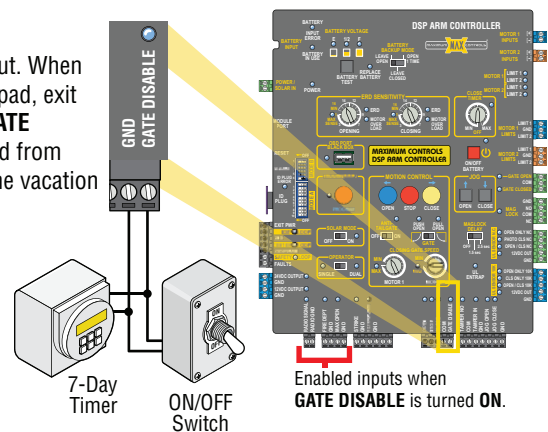
7-Day Timer   ON/OFF Switch   Enabled inputs when **GATE DISABLE** is turned **ON**.

GATE DISABLE prevents:
- Trying to trigger the **EXIT loop** to get the gate to open.
- Breaking into a keypad box and trying to trigger the wires to get the gate to open.

IMPORTANT: It is **NOT** recommended activating the **GATE DISABLE device** while persons are present inside the property.

OPEN / STOP / CLOSE INPUTS

The **OPEN/STOP/CLOSE** inputs will allow a standard 4-wire **3-Button Station** and a **External Alarm RESET Button** to be connected.
Corresponding LEDs will light when each button is activated.

External Alarm Reset Button

An external Alarm Reset button can to be installed in a secure place and connected as shown to quickly **SHUT-OFF** a sounding alarm. Otherwise alarm can be shut-off by the **RESET ALARM** button on the side of control box (see below).

3-Button Station
OPEN
STOP
CLOSE
Com

STOP
Com

External Alarm Reset Button
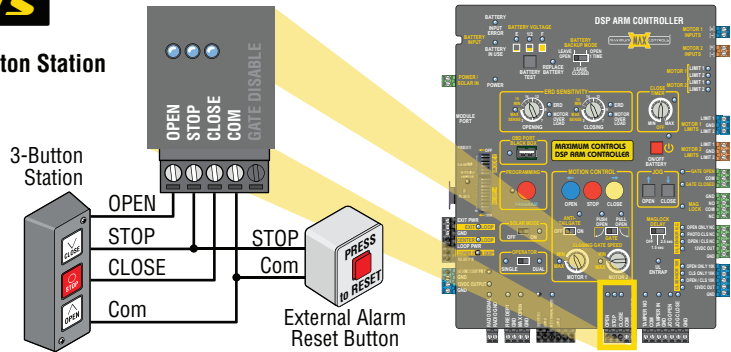
RESET ALARM BUTTON / JOG GATE OPEN/CLOSE
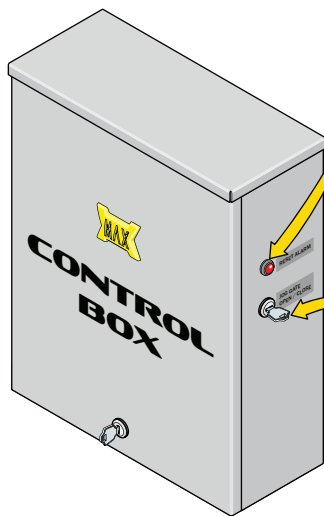
Reset Alarm Button:

If the Alarm Sounds During Normal Gate Operation: When the gate encounters **TWO** consecutive obstructions before completing a gate cycle, the alarm will sound and the gate will **PAUSE** in the position where the second obstruction occurred.
CHECK THE GATE AREA FOR ANY PROBLEMS BEFORE pressing the alarm reset button on the control box to shut off the alarm and reset the gate.

NOTE: Alarm will automatically shut-off after five minutes but **will not allow** gate to operate until the **alarm reset button** is pressed.

Jog Gate Open/Close:

The **JOG** key switch can open or close the gate electronically. Insert key on control box, turn and **HOLD** (in either direction) to **MOVE** gate. Jog switch will operate **BOTH** arms together for bi-parting gates. **NOTE: OWNER** of the gate operator is responsible for the **KEY** availability.

JOG buttons on circuit board function the same as **JOG** key switch.

CAUTION: Keep pedestrians and vehicles clear of the gate while it is moving.
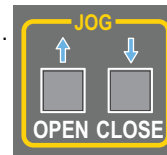
PROGRAMMING
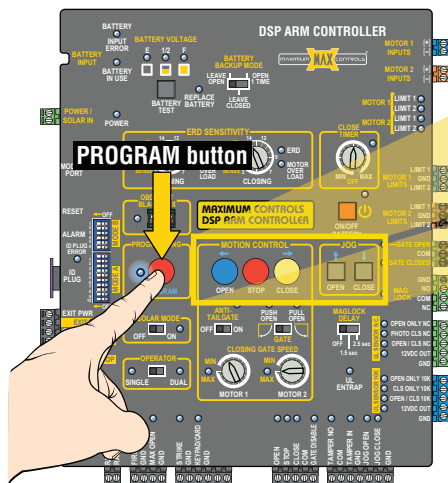
PROGRAM button

Press and hold PROGRAM button for 5 seconds to enter program mode.

Next   Back   Up   Down

MOTION CONTROL
OPEN   STOP   CLOSE

JOG
OPEN CLOSE
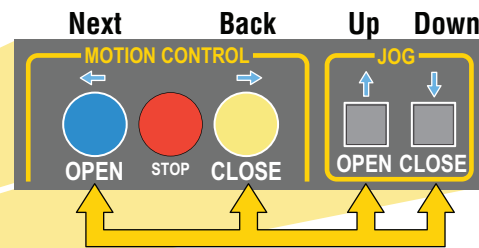
Programming Assistant Buttons

To enter **PROGRAM** mode, **press and hold PROGRAM button** for 5 seconds. Follow instructions on-screen using the 4 buttons shown above to program with. Press **ONLY PROGRAM button** again to end programming when finished.

In **PROGRAM** mode, you can do the following:

- Scroll through most recent errors.
- View input voltage (DC voltage).
- View average current gate consumption.
- View cycle count.
- Program date and time.
- Turn on/off other advanced features.

ADDITIONAL FEATURES

LOCK TO CLOSE

Mode B DIP-Switch 3 **MUST** be **ON**. Securely locks a **SINGLE** gate OR **DUAL** gates to a positive stop **without** the need of a maglock. Gate(s) **MUST** have a **POSITIVE STOP installed** in order for this feature to work.

Single Gate

Gate must have a **positive stop** in closed position (such as a trim piece on a gate post that overlaps gate).
Mode B DIP-Switch 3 **MUST** be **ON**.

NOTE:
PULL OPEN illustrated here shows positive stop position.
PUSH OPEN positive stop will go on **OPPOSITE** side of post.

Close
Open
Post with positive stop

Positive Stop
1/4"
Closed Gate
Post

Gate **CLOSE** limit **must** be adjusted to stop 1/4" **BEFORE** the positive stop.
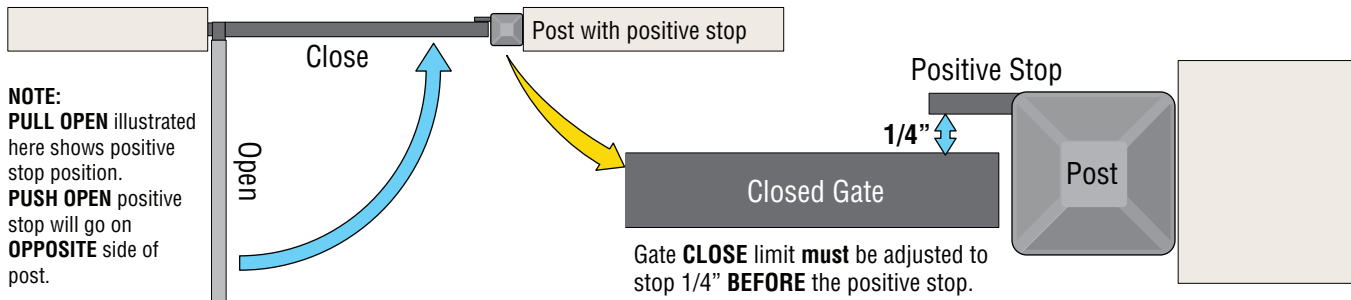
When gate closes **AFTER** limits have been learned, gate will close to close limit position and **continue very slowly until it touches the positive stop** ..."actively" locking gate against the positive stop. This securely locks the gate to positive stop **without** the need of a maglock. The gate **will not** have any play in **CLOSED** position...it is locked in place.

Dual Gates

Secondary gate must have a **positive stop** (such as a trim piece on the **SECONDARY** gate that overlaps primary gate). Secondary gate reaches close position **FIRST**.
Mode B DIP-Switch 3 **MUST** be **ON**.
The **MAGLOCK DELAY** must be set to **1.5 sec** so the gates **do not** collide due to the positive stop overlap plate.

NOTE:
PULL OPEN illustrated here shows positive stop position.
PUSH OPEN positive stop will go on **OPPOSITE** side of secondary gate.

Overlapping Positive Stop
Close
Open
Close
Open
Secondary Gate (Closes first)
Primary Gate (Closes second)

Positive Stop
NOTE: Primary gate opens **FIRST** and closes **LAST**.
Closed SECONDARY Gate
1/4"
Closed PRIMARY Gate

PRIMARY gate **CLOSE** limit **must** be adjusted to stop 1/4" **BEFORE** the positive stop on secondary gate.

When gates close **AFTER** limits have been reached, **SECONDARY** gate will reach close position **FIRST** (**MAGLOCK DELAY** must be set to **1.5 sec**). **PRIMARY** gate then will close to close limit position and **continue very slowly until it touches the positive stop on secondary gate** ..."actively" locking **PRIMARY** gate against the positive stop on secondary gate. This securely locks the gates together **without** the need of a maglock. The gates **will not** have any play in **CLOSED** position...they are locked in place.

ADDITIONAL FEATURES

MAX CELL HUB

No need for conventional large control box to manage access areas. Manage gate access areas using **Max Cloud App**: for card readers, radio receivers or transponders)

- Works exclusively on Max operators (Max PRO series / Actuators)
- Affordable cell data plans (AT&T or Verizon)
- Use the **Max Cloud App** to manage access areas (**Up to 16** different areas per cell hub).
- Max Cell Hub plugs into "**Module Port**" of DSP Arm controller board.
- Cell hub communicates with **Max wiegand converter** device or **Max keypad** device **hardwired** or **wirelessly**.
- Supports RS485 peripheral devices.
- Works when battery back-up power only is being used by DSP Arm Controller board.
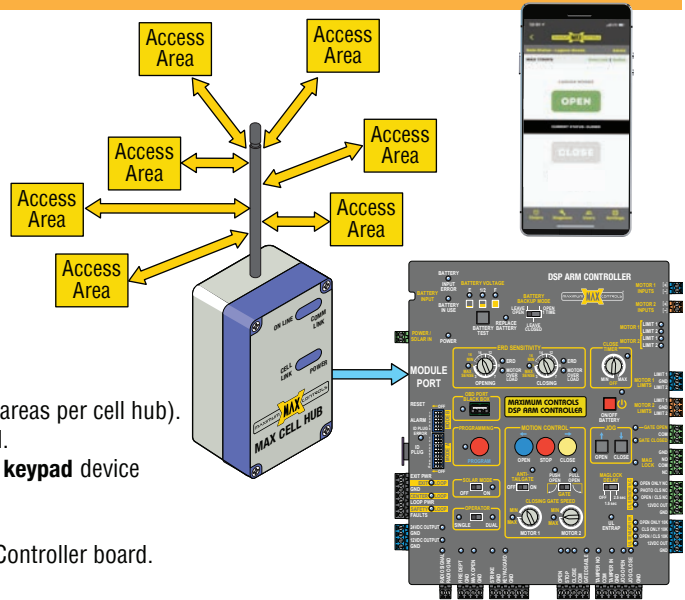
MAX WIEGAND CONVERTER

One Access Area

- Works in conjunction with the Max Cell Hub, **hardwired** or **wirelessly** connected.
- Control an access area with a dedicated relay in the wiegand converter device.
- Wiegand port supports any 26-bit keypad, card reader, radio receiver & RFID transponder.
- Use the **Max Cloud App** to program cards/keyfob, radio transmitters & transponder tags and assign optional time restrictions.
- Wiegand converter supports exit switch request for pedestrian gates.
- Track the wiegand device's activity in the event log from the black box on DSP board.

Connect any **ONE** of these options to the Max wiegand converter device.

Wiegand Radio Receiver

Wiegand Card Reader

Wiegand Keypad

Wiegand RFID transponder

Solenoid Lock
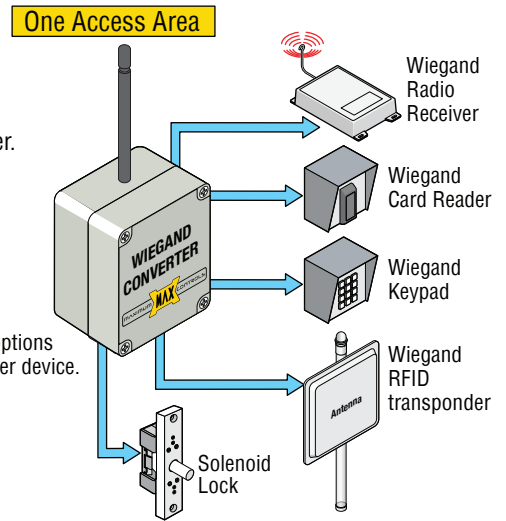
MAX KEYPAD

AVAILABLE WITH CELL DATA ACTIVATION

One Access Area

- Works in conjunction with the Max Cell Hub, **hardwired** or **wirelessly** connected.
- Wiegand input port supports any 26-bit card reader, radio receiver & RFID transponder.
- Use the **Max Cloud App** to program cards/keyfob, radio transmitters & transponder tags and assign optional time restrictions.
- Programmable keycodes via **Max Cloud App**.
- Request to exit (RTE) Port.
- Track the keypad device's activity in the event log from the black box on DSP board.

Connect any **ONE** of these options to the Max keypad device.

Wiegand Radio Receiver

Wiegand Card Reader

Wiegand RFID transponder

SOLAR CONTROL BOX INSTALLATION

Steel housing
Two layers protection
Gold zinc
Electrostatic
Powder-Coating

SOLAR MODE
Switch to enable
low power draw
for solar mode

Gold plated
automobile connectors
through-out the system

Loop Rack
OPTIONAL

Control Panel

Two 12V 18 AH
(AGM Rechargable Batteries)

UL Reset Button

Jog Switch
OPTIONAL

Solar Regulator
24V, 10A
(Morning Star)
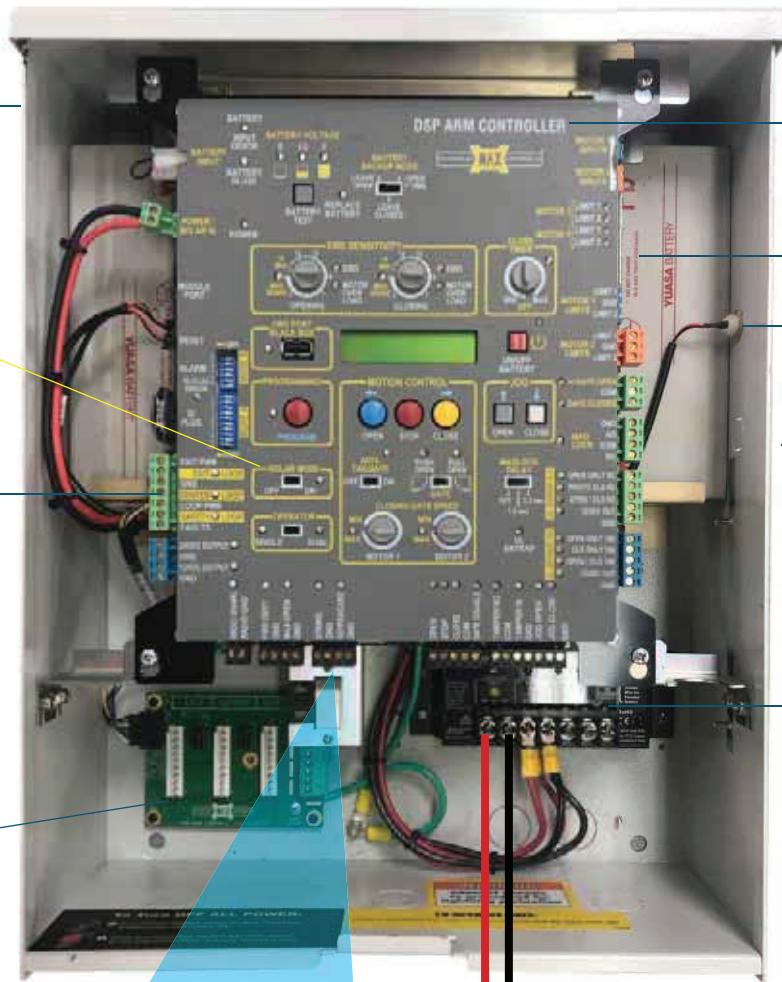
V(+)   GND

1

Insert the included
fuse into the empty
fuse slot (no polarity)

30A
FUSE

2
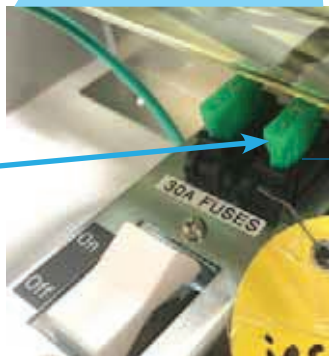
Wire solar panel terminals to
solar regulator input
Caution: polarity matters
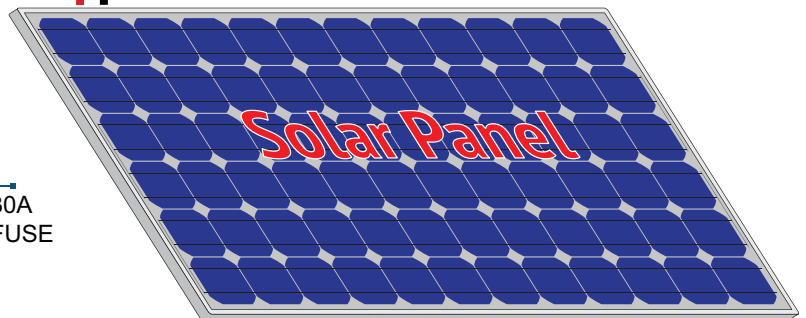
Solar Panel

24V Solar Panel
Output: 36V (max) -
Open Circuit

3 **Turned ON** the switch located directly
underneath the fuses

On

Off

4 **Leave the solar mode switch off and follow the included installation manual for
standard installation and setup of limit switches**
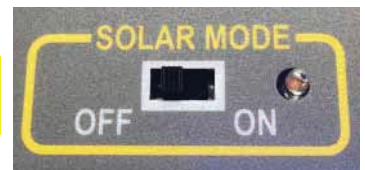
DO NOT TURN ON THE SOLAR MODE SWITCH UNTIL INSTALLATION IS FINISHED

SOLAR MODE
OFF   ON

5 Turn SOLAR MODE ON

Operator will go into low power mode 30 seconds after gate stops moving and loop detectors are not active. While in low power mode:
- All LEDs will turn off except power LED and solar mode LED (blinking)
- 12V DC OUTPUT and 12V DC OUT on 10K port will remain ON, all other power outputs will turn OFF
- **EXIT LOOP** detector remains **ON, CENTER & SAFETY LOOP** detectors are turned **OFF.**
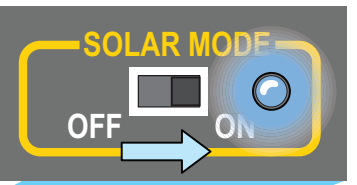
Power radio receiver using **12V DC OUTPUT**
In low power mode, **12V DC OUTPUT** is left ON

Turn SOLAR MODE **ON** .

Normal Opening Device

3-Wire Radio

4-Wire Radio

Radio Signal

Radio Signal
Radio Gnd

Ground

12V Power DC

AAS DKLP
Low power keypad
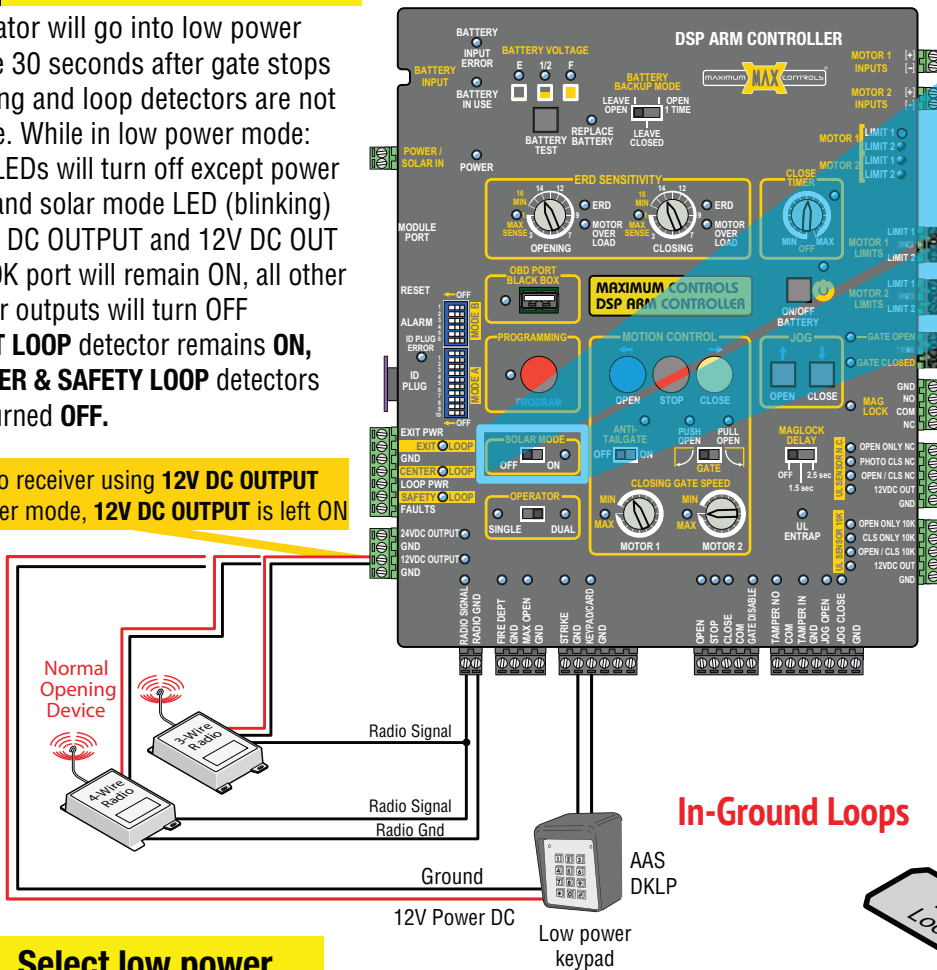
In-Ground Loops
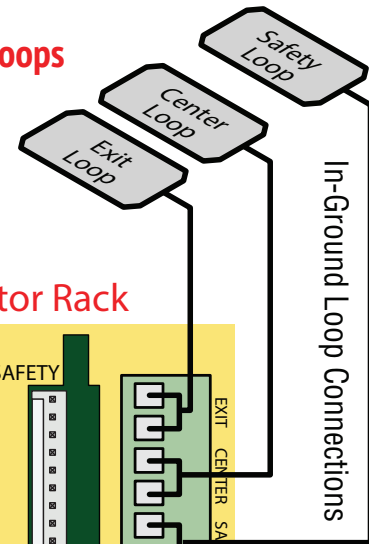
6 Select low power radio RECEIVER

For OPTIONAL Loop Rack

7 Select Low Power Loop Detectors

Recommended: Plug-In Loop Detectors
EDI LMA1800-LP

NOTE: While in low power mode, **EXIT LOOP** detector remains **ON, CENTER & SAFETY LOOP** detectors are turned **OFF**

Loop Detector Rack

EXIT   CENTER   SAFETY

In-Ground Loop Connections

Exit Loop

Center Loop

Safety Loop

8 OPTIONAL

Remove local 7A/Hr batteries from operator and TURN ON DIP Switch MODE A -1

EXIT   CENTER   SAFETY
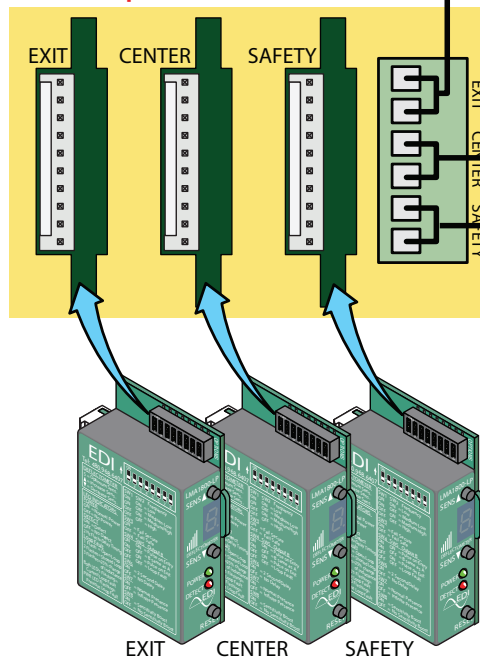
SOLAR CONTROL BOX INSTALLATION

Select proper solar panel

		ZONE 1 (6 Hrs Sunlight/Day)		ZONE 2 (4 Hrs Sunlight/Day)		ZONE 3 (2 Hrs Sunlight/Day)	
PANEL SIZE	Total System Current Draw (mA)	Cycles/day w/1 rainy day	Cycles/day w/10 rainy days	Cycles/day w/1 rainy day	Cycles/day w/10 rainy days	Cycles/day w/1 rainy day	Cycles/day w/10 rainy days
60 W	26	1328	346	1233	252	1138	157
	50	1295	314	1197	215	1098	117
	100	1227	245	1121	139	1015	33
	200	1091	109	970	■	848	■
	250	1023	41	894	■	765	■
85 W	26	1442	460	1309	327	1176	195
	50	1409	427	1273	291	1136	155
	100	1341	359	1197	215	1053	71
	200	1205	223	1045	64	886	■
	250	1136	155	970	■	803	■
120 W	26	1601	619	1415	433	1229	248
	50	1568	586	1379	397	1189	208
	100	1500	518	1303	321	1106	124
	200	1364	382	1152	170	939	■
	250	1295	314	1076	94	856	■
200 W	26	1965	983	1658	676	1351	369
	50	1932	950	1621	639	1311	329
	100	1864	882	1545	564	1227	245
	200	1727	745	1394	412	1061	79
	250	1659	677	1318	336	977	■

SWING, ACTUATOR — ACTUATOR — GATE SOLAR CYCLES PER DAY with built-in 18A/Hr battery

ZONE 1 (6 HRS/DAY)
ZONE 2 (4 HRS/DAY)
ZONE 3 (2 HRS/DAY)
NOT RECOMMENDED
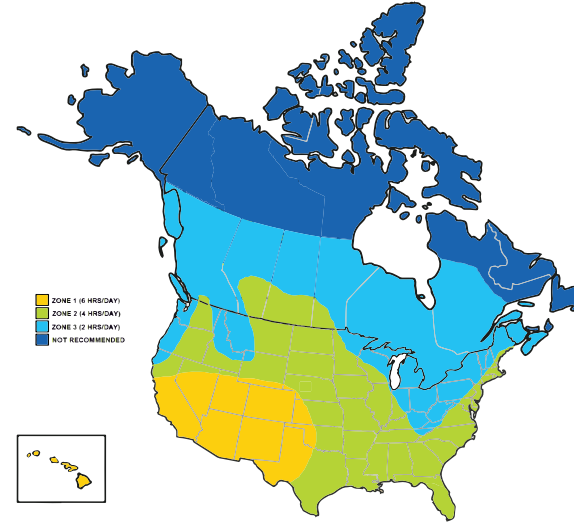
The map and daily cycle rate shown are approximations based upon the average solar radiation and the temperature effects on batteries in the given regions. Local geography and weather conditions may require additional solar panels.

USE LOW POWER accessories in order to minimize power draw. Each additional accessory draws power affecting the daily cycle rate.

TROUBLESHOOTING

These next pages can help troubleshoot problems that might occur after installation is complete.

OBD PORT BLACK BOX

Download a simple .txt file to troubleshoot gate operator errors and view event history.

1. Plug MAX USB flash drive into **OBD port**. OBD LED will flash while file is downloading.
Remove flash drive after LED stops flashing (up to 5 minutes to download).

2. Plug flash drive into any computer USB port **OR** smart phone using a USB phone adapter.
The most recent **8000 events can be viewed**. No special software required.

Smart Phone

USB Phone Adapter Required

Computer

OR

MAX Flash Drive
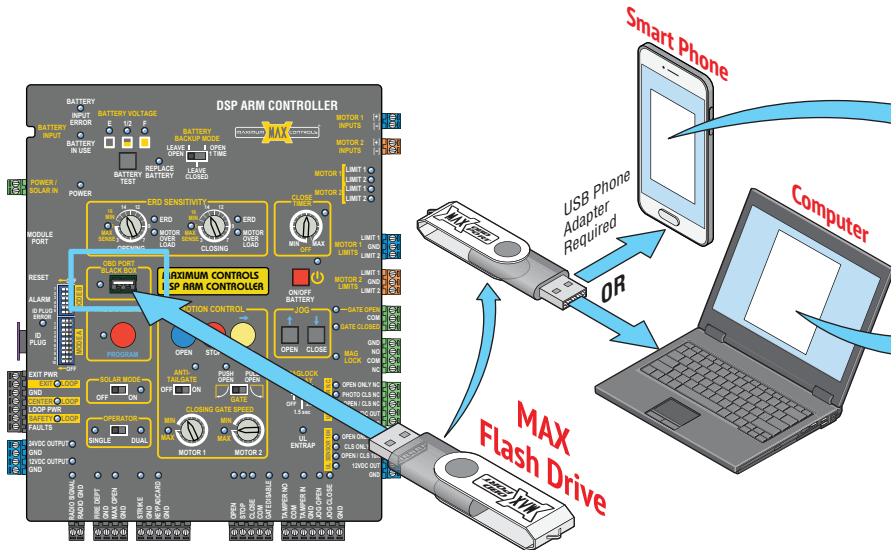
Event History Text Document Sample

Event type clarification:
INFO: informational message only
WARNING: unusual event but doesn't cause system malfunction
ERROR: abnormal event, could cause system malfunction
ENTRAP: entrapment detection event

Event Report:

Fri 07/11/2021 10:59:41	INFO	: Cycle Counter
Fri 07/11/2021 10:59:41	ENTRAP : SEC_MC: First ERD Detected	
Fri 07/11/2021 10:59:37	INFO	: Radio Input Deactivated
Fri 07/11/2021 10:59:36	INFO	: Radio Input Activated
Fri 07/11/2021 10:58:54	INFO	: PRI_MC: Fully Open Position Learned
Fri 07/11/2021 10:58:53	INFO	: SEC_MC: Fully Open Position Learned
Fri 07/11/2021 10:57:40	INFO	: PRI_CIO: Communication Established
Fri 07/11/2021 10:57:38	ENTRAP : PRI_MC: Photo Cell Deactivated	
Fri 07/11/2021 10:57:34	ENTRAP : PRI_MC: Photo Cell Activated	
Fri 07/11/2021 10:57:21	INFO	: Radio Input Deactivated
Fri 07/11/2021 10:57:21	INFO	: Radio Input Activated
Fri 07/11/2021 10:56:46	WARNING: PRI_MC: Tamper Reported	
Fri 07/11/2021 10:56:36	INFO	: SEC_MC: Fully Open Position Unknown
Fri 07/11/2021 10:56:36	INFO	: PRI_MC: Fully Open Position Unknown
Fri 07/11/2021 10:56:36	WARNING: PRI_MC: Tamper Reported	
Fri 07/11/2021 10:56:33	ENTRAP : PRI_MC: Photo Cell Deactivated	
Fri 07/11/2021 10:56:33	ENTRAP : PRI_MC: Photo Cell Activated	
Fri 07/11/2021 10:56:33	ENTRAP : PRI_MC: Photo Cell Deactivated	
Fri 07/11/2021 10:56:33	ENTRAP : PRI_MC: Photo Cell Activated	

TEST PHOTO CLS NC SENSOR

Troubleshoot **PHOTO CLS NC** entrapment protection sensor (Photocell typically used):

1. Press and **HOLD** the **STOP button & then the OPEN** button together until beeping is heard, learn mode begins.

   NOTE: DO NOT press the **OPEN** button before the **STOP** button or learn mode will **NOT** function.

2. **PHOTO CLS NC** LED should be **ON** if an entrapment sensor is detected.
   If **PHOTO CLS NC** LED is **NOT** on, sensor has a problem.
   Possible problems:
   • Photocells are out of alignment
   • Photocells are wired wrong - N.C. or N.O. depending on which
     type of photocells are used
   • Sensor is bad

MOTION CONTROL
OPEN STOP CLOSE

UL SENSOR N.C.
OPEN ONLY NC
PHOTO CLS NC
OPEN/CLS NC
12VDC OUT
GND

UL SENSOR 10K
OPEN ONLY 10K
CLS ONLY 10K
OPEN/CLS 10K
12VDC OUT
GND

NC
Power

Closing Direction
automatically monitored

3. Press **STOP** button again within 5 min. to end learn mode, beeping stops.

   NOTE: If **STOP** button is not pressed within 5 min. learn mode automatically end after 5 min.

MOTION CONTROL
OPEN STOP CLOSE
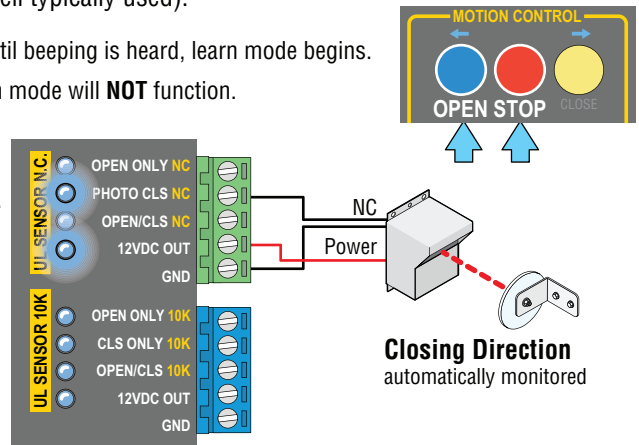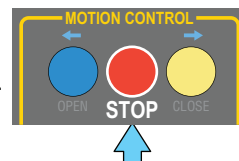
GATE CYCLING TROUBLESHOOTING

Gate Symptom	Solutions (what to check)
Gate moves slowly.	• Check if GATE SPEED rotary dial is set to MAX position (LED on). • Gate may be too heavy for operator (check manual for maximum gate weight for your model operator). • Check if "BATTERY IN USE" LED is ON. If so, gate is on Battery back-up mode and battery is running low. • Gate hinges may be too tight.
Gate beeps when opening and closing.	• Operator may be in battery back up mode. check if "Mode A" switches are set correctly. • Check if "Gate in Motion" Alarm feature is ON ("Mode A" switch 2 is set correctly).
Gate does NOT open.	• Check if Power LEDs are ON on both DSP board and Toroid box. • Check if GATE "PULL open / PUSH open" switch is set properly. • Check if GATE DISABLE LED is ON. If so, check if GATE DISABLE input is active. • Check if "OPEN ONLY 10K/NC" LED or "OPEN/CLS" LED is ON or BLINKING. If so, check entrapment sensor wiring. • Check if "BATTERY IN USE" LED is ON. IF so, battery may be too low and gate is kept closed (BATTERY BACK-UP MODE switch set to "Leave Closed").
Gate does NOT close.	• Check if Power LEDs are ON on both DSP board and Toroid box. • Check if "PHOTO CLS" LED is ON. If so, check entrapment sensor wiring and alignment. • Check if any loops are active, check SAFETY LOOP, CENTER LOOP or EXIT LOOP LED is ON. • Check if any open command inputs are active (check if LED is ON for: RADIO, FIRE DEPT, MAX OPEN, STRIKE, KEYPAD/RDR. Check device connected to the input that LED light is turned ON. • Check if GATE "PULL open / PUSH open" switch is set properly. • If "OPEN ONLY 10K/NC" LED or "OPEN/CLS" LED is ON. If so, check entrapment sensor wiring. • If "BATTERY IN USE" LED is ON and BATTERY BACK-UP MODE switch is set to "leave Open", then battery may be too low and gate is kept OPEN. • If "BATTERY IN USE" LED is ON and BATTERY BACK-UP MODE switch is set to "OPEN 1-TIME", then if AC power is lost, gate will automatically open 1 time. • If "CLOSE TIMER" is OFF, then gate will not close automatically. A close command (radio, close) is required to close gate. • Loop detector is defective (CENTER, EXIT, or SAFETY). All 3 loop LEDs flashing indicates loop fault. • Loop has a short or open. Measure loop resistance. • Check if manual release on arm is released. If so, re-lock manual release.
Gate stops premature-ly and beeps, moves in opposite direction.	• If "ERD" LED is ON, an obstruction (ERD event) is detected. If no apparent obstruction, select a less sensitive ERD setting. • If ANY UL sensor LED is ON, entrapment sensor is triggered.
Gate will stop before reaching desired limit setting.	• Gate Open and Close Limits have not been learned properly. Relearn limit positions by clearing limits first, press STOP + CLOSE button together for 5 sec (until BEEP is heard), adjust limits and relearn NEW limits.
Gate stops abruptly while in motion.	• Bad hinge - hinge pin offsets during motion causing abrupt gate movement. • Operator placement is not proper or arm pivot point is not correct. • Check if "OPEN/CLS" LED is ON. If so, check entrapment sensor wiring. • Motor cable may be compromised. Unplug cable from "Motor Inputs" and ensure wires are not broken and are crimped properly.
Gate re-opens while closing.	• Check if closing photocell is misaligned with reflector (check photocell on "PHOTO CLS", "OPEN/CLS" or "OPEN ONLY" inputs.
Gate does not learn new limit positions.	• Use jog OPEN/CLOSE buttons to learn new positions instead of using OPEN or CLOSE buttons.
Unable to learn limits.	• Check label to see that OPEN/CLOSE limit wiring connections are correct. • Ensure to go into learn mode: Hold STOP + CLOSE buttons until BEEP is heard, relearn limits by using OPEN and CLOSE buttons.
Gate NOT moving after learning limits.	• Ensure manual release is re-engaged.

MAX Arm/Ultra Arm V1b7

DSP ARM CONTROLLER

Callout labels (left side):
1. BATTERY INPUT ERROR
2. BATTERY IN USE
3. BATTERY VOLTAGE
4. REPLACE BATTERY
5. POWER
6. ERD
7. MAX SENSE
8. MOTOR OVERLOAD
10. OBD PORT
11. PROGRAM
12. ID PLUG ERROR
13. SOLAR MODE
14. PRIMARY/SECONDARY
15. EXIT LOOP
16. CENTER LOOP
17. SAFETY LOOP
18. 12 VDC
19. 24 VDC
40. CLOSING GATE SPEED

ID plug **MUST** be plugged in.

Callout labels (right side):
20. CLOSE TIMER
22. ON/OFF BATTERY
23. ANTI-TAILGATE
24. OPEN LEFT
25. OPEN RIGHT
26. GATE OPEN
27. GATE CLOSED
28. MAGLOCK
29. OPEN ONLY NC
30. PHOTO CLOSE NC
31. OPEN / CLOSE NC
32. 12VDC OUT
33. OPEN ONLY 10K
34. CLOSE ONLY 10K
35. OPEN / CLOSE 10K
36. 12VDC OUT
37. UL ENTRAPMENT
38. GATE TAMPER
39. GATE DISABLE

DSP Board LED Problem Condition	Normal LED	Solution(s) for Problem Condition
"BATTERY IN ERROR" LED is ON.	1	• "BATTERY Plug" not plugged in to "BATTERY INPUT" port.
"BATTERY IN USE" LED is ON	OFF 2	• AC power is lost, operator is in battery back-up mode. • Check if Toroid box AC POWER ON/OFF SWITCH is ON.
"BATTERY VOLTAGE (E 1/2 F)" LEDs, only "E" is ON.	OFF 3	• Battery is very LOW. Check if toroid box AC power ON/OFF switch is ON. If so, check AC power.
"REPLACE BATTERY" LED is ON.	OFF 4	• Battery needs to be replaced if BATTERY TEST fails and "REPLACE BATTERY" LED is ON.
"BATTERY IN USE" and "POWER" LED are FLASHING	OFF / ON 2 / 5	• Battery not plugged in to BATTERY INPUT port.
"UL Entrap" LED is ON	ON 37	• An entrapment event has occurred, check if an entrapment sensor was triggered (see if PHOTO CLS, OPEN ONLY, or OPEN/CLS LEDs are on).
"ERD" LED is FLASHING	ON 6	• An ERD event may have occurred. Check for gate obstruction. • ERD sensitivity is too high for application. Re-adjust ERD setting, (see ⑪).
"PHOTO CLS" LED is ON "CLS ONLY 10k" LED is ON	OFF 30 / 34	• Sensor on PHOTO CLS or CLS ONLY 10k inputs (photocell or edge) may have detected an obstruction while closing gate. • Photocell on PHOTO CLS or CLS ONLY 10k inputs is misaligned with reflector.
"PHOTO CLS" LED is flashing "CLS ONLY 10k" LED is flashing	OFF 30 / 34	• Sensor on PHOTO CLS or CLS ONLY 10k inputs (photocell or edge) may not be wired properly, (see ⑩). • Sensor is NOT a N.C. monitored sensor that is UL 325 2018 compliant. • Sensor might need to be re-learned, (see ⑮). • Sensor is damaged or malfunctioning.
"OPEN ONLY" LED is ON	OFF 29 / 33	• Sensor on OPEN ONLY input (photocell or edge) may have detected an obstruction while cycling gate. • Photocell on OPEN ONLY input is misaligned with reflector.
"OPEN ONLY" LED is FLASHING	OFF 29 / 33	• Sensor on OPEN ONLY input (photocell or edge) may not be wired properly, (see ⑩). • Sensor is NOT a N.C. monitored sensor that is UL 325 2018 compliant. • Sensor on OPEN ONLY is damaged or malfunctioning. • Sensor might need to be re-learned, (see ⑮).
"MAX SENSE" LED is ON	OFF 7	• MOST sensitive setting for ERD entrapment detection. Select a less sensitive setting (recommend level 10 thru 16), (see ⑪).
"OBD PORT" LED is FLASHING	OFF 10	• Up to 8000 event history and error codes are being downloaded to connected flash drive. Up to 5 min.
"PROGRAM" LED is FLASHING	OFF 11	• Program button has been pressed and programming mode is active. Press button again to leave programming mode.

Table continued on next page

| DSP Board LED Problem Condition	Normal LED	Solution(s) for Problem Condition
"ID PLUG" LED is FLASHING and board beeping	OFF **12**	• Insert ID PLUG module that is tethered to chassis into "ID PLUG" connector.
"SOLAR MODE" LED is ON	OFF **13**	• Operator is being powered by solar panel ONLY.
"OPEN/CLS" LED is ON	OFF **31**	• Sensor on OPEN/CLS input (photocell or edge) may have detected an obstruction while opening or closing gate.
"OPEN/CLS" LED is FLASHING	OFF **31**	• Photocell on OPEN/CLS input is misaligned with reflector. • Sensor on OPEN/CLS input (photocell or edge) may not be wired properly, (see **10**). • Sensor is NOT a N.C. monitored sensor that is UL 325 2018 compliant. • Sensor on OPEN/CLS is damaged or malfunctioning. • Sensor might need to be re-learned, (see **15**).
"MOTOR OVERLOAD" LED is ON	OFF **8**	• Check if gate is binding against catch post or bracket in opened or closed position. • Check if gate moves manually with low resistance throughout its full range of motion. • Check if hinges are operational and well greased. • Check if operator is positioned properly relative to the gate hinge, (see **1**). • Gate may be too heavy for operator (check manual for maximum gate weight for your model operator).
"EXIT" LOOP LED is FLASHING or contstantly ON	OFF **15**	• Loop fault condition: Check if EXIT loop wires are connected into to loop input connector properly. • Check if loop detector is inserted properly in Loop Rack slot. • Set unique loop detector frequency for each loop detector used. • Loop Detector might be defective. Replace defective loop detector. NOTE: RENO loop detector LED's flash as default, but function normally (ignore the flashing).
"SAFETY" LOOP LED is FLASHING or contstantly ON	OFF **17**	• Loop fault condition: check if SAFETY loop wires are connected into to loop input connector properly. • Check if SAFETY loops are wired in series. • Check if loop detector is inserted properly in Loop Rack slot. • Set unique loop detector frequency for each loop detector used. • Loop Detector might be defective. Replace defective loop detector. NOTE: RENO loop detector LED's flash as default, but function normally (ignore the flashing).
"CENTER" LOOP LED is FLASHING or contstantly ON	OFF **16**	• Loop fault condition: check if CENTER loop wires are connected into to loop input connector properly. • Check if CENTER loops are wired in series. • Check if loop detector is inserted properly in Loop Rack slot. • Set unique loop detector frequency for each loop detector used. • Loop Detector might be defective. Replace defective loop detector. NOTE: RENO loop detector LED's flash as default, but function normally (ignore the flashing).
"GATE DISABLE" LED is ON	OFF **35**	• Check if an external device is triggering GATE DISABLE input. Disconnect devices individually to determine possible false triggering of GATE DISABLE.
"MAG LOCK" LED is FLASHING	OFF **28**	• Maglock power is lost. Check if maglock power transformer is wired properly or needs to be replaced. • Switch is set to delay but no maglock is connected. Set switch to OFF
"GATE TAMPER" LED is FLASHING	OFF **34**	• Gate was manually moved off of its CLOSED position causing Tamper Relay to trigger for few seconds.
"12VDC" LED is OFF. "24VDC" LED is OFF	ON **18 or 19**	• Check for a short in wiring to connected device. DO NOT power external keypads or telephone entry to this port (only use for radio receiver / photocell).
"ON/OFF BATTERY" LED is OFF	ON **22**	• Batteries are turned OFF. Turn toroid box AC POWER switch ON and batteries automatically turn ON.
"ANTI-TAILGATE" LED is ON	OFF **23**	• Anti-tailgate feature is turned ON. If this feature is not desired, turn Anti-tailgate OFF.
"CLOSING GATE SPEED" LEDs are ON but gate moves slowly.	ON **40**	• ONLY Maximum settings will turn LEDs ON. All other settings, LEDs remain OFF.

MAX Arm/Ultra Arm V1b7

COMMON SENSOR WIRING

OMRON E3K-R10K4 WIRING

Pre 2018 WITHOUT Built-in Resistor

NORMALLY CLOSED (NC)
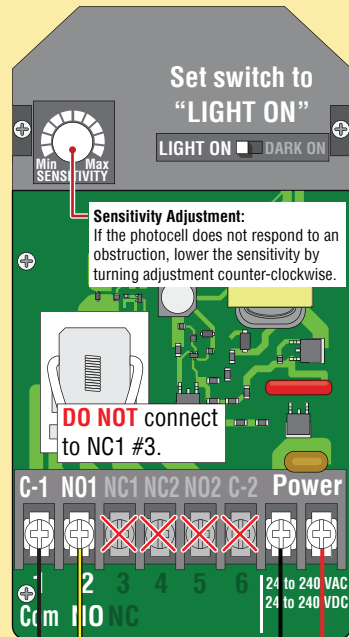## Wiring to E3K Photocell

CLOSING Direction Photocell (Reflector)

OMRON
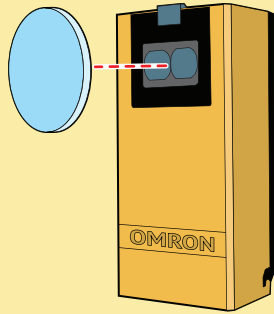
NOTE: To meet the UL 325 2016 standard, Type B1 Non-Contact sensor entrapment protection device **MUST** be **MONITORED** by the gate operator.

Set switch to "LIGHT ON"

LIGHT ON ☐ DARK ON

Min Max SENSITIVITY

Sensitivity Adjustment:
If the photocell does not respond to an obstruction, lower the sensitivity by turning adjustment counter-clockwise.

Installation Steps:

1. Set switch to "LIGHT ON"
2. Wire 12V power to photocell
3. Wire **PHOTO CLS NC** to photocell **NO1**
   Wire **GND** to photocell **C-1**
4. Align photocell to reflector
5. Adjust sensitivity

DO NOT connect to NC1 #3.

C-1 NO1 NC1 NC2 NO2 C-2 **Power**

1   2   3   4   5   6   24 to 240 VAC
Com NO NC   24 to 240 VDC

IMPORTANT: Photocell **MUST** be in alignment with reflector or fault will occur.

OK to use 12VDC

UL SENSOR N.C.
- OPEN ONLY NC
- PHOTO CLS NC
- OPEN/CLS NC
- 12VDC OUT
- GND

PHOTO CLS NC

12VDC OUT Monitored

GND

UL SENSOR 10K
- OPEN ONLY 10K
- CLS ONLY 10K
- OPEN/CLS 10K
- 12VDC OUT
- GND

DSP Arm Controller

IMPORTANT:
Photocell MUST be powered by **12VDC OUT MONITORED** or it will **NOT** be **MONITORED**.

NOTE: DO NOT use 10K Resistor included with photocell.

Post 2018 WITH Built-in Resistor
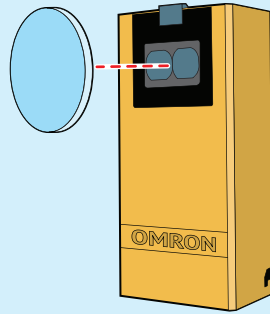
NORMALLY CLOSED (NC)
Wiring to E3K Photocell

CLOSING Direction Photocell (Reflector)

OMRON

UL 2018 Label on packaging

****NEW!!!****

E3K with Built-In Resistor to comply with UL325-2018 Requirements

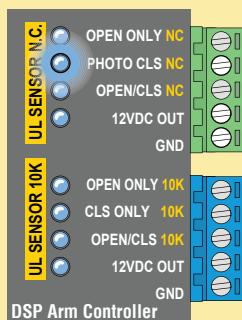** Please consult enclosed wiring diagrams and operator instruction manual**

NOTE: To meet the UL 325 2018 standard, Type B1 Non-Contact sensor entrapment protection device **MUST** be **MONITORED** by the gate operator.

Set switch to "LIGHT ON"

LIGHT ON ☐ DARK ON

Min Max SENSITIVITY

Sensitivity Adjustment:
If the photocell does not respond to an obstruction, lower the sensitivity by turning adjustment counter-clockwise.

Installation Steps:

1. Set switch to "LIGHT ON"
2. Wire 12V power to photocell
3. Wire **PHOTO CLS NC** to photocell **NO2**
   Wire **GND** to photocell **C-2**
4. Align photocell to reflector
5. Adjust sensitivity

DO NOT connect to NC2 #4.

C-1 NO1 NC1 NC2 NO2 C-2 **Power**

1   2   3   4   5   6   24 to 240 VAC
Com NO NC   24 to 240 VDC

IMPORTANT: Photocell **MUST** be in alignment with reflector or fault will occur.

OK to use 12VDC

UL SENSOR N.C.
- OPEN ONLY NC
- PHOTO CLS NC
- OPEN/CLS NC
- 12VDC OUT
- GND

PHOTO CLS NC

12VDC OUT Monitored

GND Polarity **DOES** matter

UL SENSOR 10K
- OPEN ONLY 10K
- CLS ONLY 10K
- OPEN/CLS 10K
- 12VDC OUT
- GND

DSP Arm Controller

IMPORTANT:
Photocell MUST be powered by **12VDC OUT MONITORED** or it will **NOT** be **MONITORED**.

UL325 - 2018 Compliance

10K Resistor Wiring to E3K Photocell

Set switch to "LIGHT ON"

LIGHT ON ◼️ DARK ON

Min Max
SENSITIVITY

Sensitivity Adjustment:
If the photocell does not respond to an obstruction, lower the sensitivity by turning adjustment counter-clockwise.

OPENING Direction Photocell (Reflector)

OMRON

Installation Steps:

1. Set switch to "LIGHT ON"
2. Wire 12V power to photocell
3. Wire **PHOTO CLS NC** to photocell **NO1** Wire **GND** to photocell **C-1**
4. Align photocell to reflector
5. Adjust sensitivity

**IMPORTANT:** Photocell **MUST** be in alignment with reflector or fault will occur.
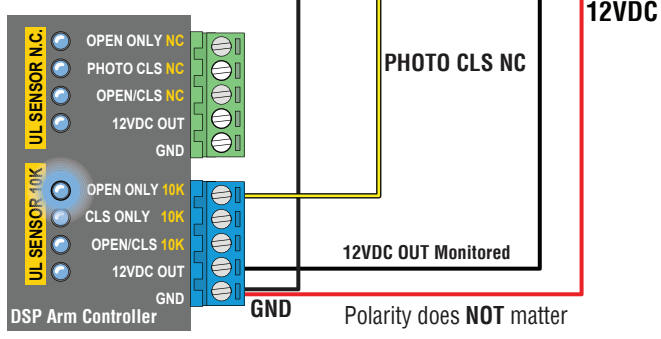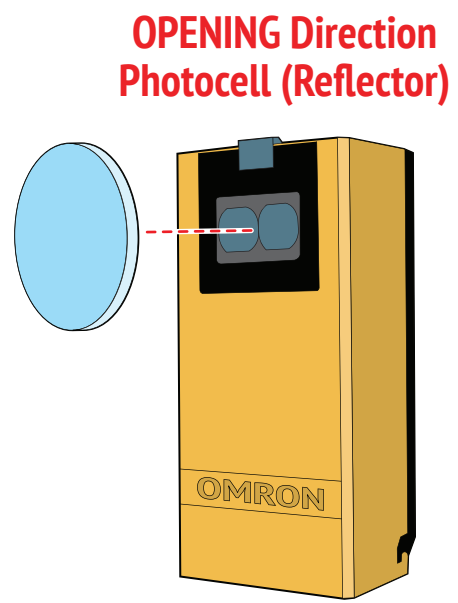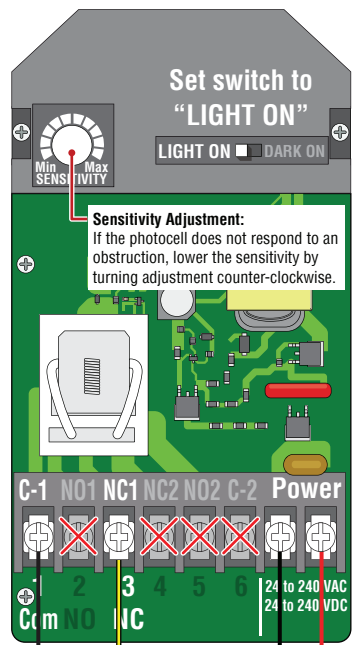
C-1 NO1 NC1 NC2 NO2 C-2 **Power**

1   2   3   4   5   6   24 to 240 VAC
Com NO   NC   24 to 240 VDC

OK to use 12VDC

PHOTO CLS NC

UL SENSOR N.C.
- OPEN ONLY NC
- PHOTO CLS NC
- OPEN/CLS NC
- 12VDC OUT
- GND

UL SENSOR 10K
- OPEN ONLY 10K
- CLS ONLY 10K
- OPEN/CLS 10K
- 12VDC OUT
- GND

DSP Arm Controller

12VDC OUT Monitored

GND   Polarity does **NOT** matter

IMPORTANT: Photocell MUST be powered by **12VDC OUT** or it will **NOT** be **MONITORED**.

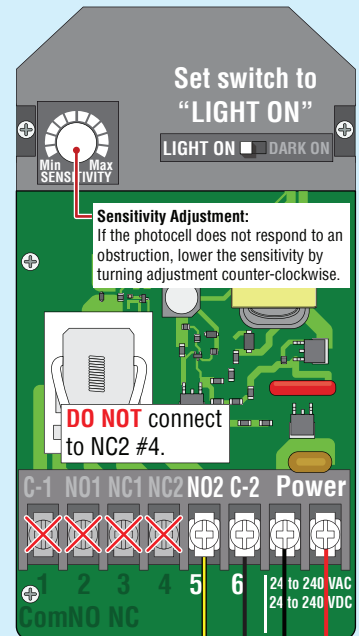## UL 2018 Label on packaging

****NEW!!!****

E3K with Built-In Resistor to comply with UL325-2018 Requirements

** Please consult enclosed wiring diagrams and operator instruction manual**
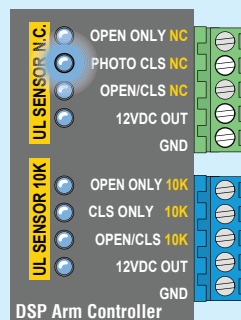
NOTE: To meet the UL 325 2018 standard, Type B1 Non-Contact sensor entrapment protection device **MUST** be **MONITORED** by the gate operator.

The WEL-200 is a complete wireless solution for interfacing sensing edges to gate and door operators, while ensuring compliance with UL325 monitoring standards. **Each receiver can connect with up to four transmitters** with separate relay and pulse outputs for open and close edge functionality. Each transmitter can run for up to two years on two AA lithium batteries. With enhanced diagnostic features, installation and maintenance for the WEL-200 is easy and reliable. Feedback is provided for all fault modes, including edge open, short conditions, low battery and failed transmitters.
See next page to connect reciver to transmitter.

OPEN Transmitter

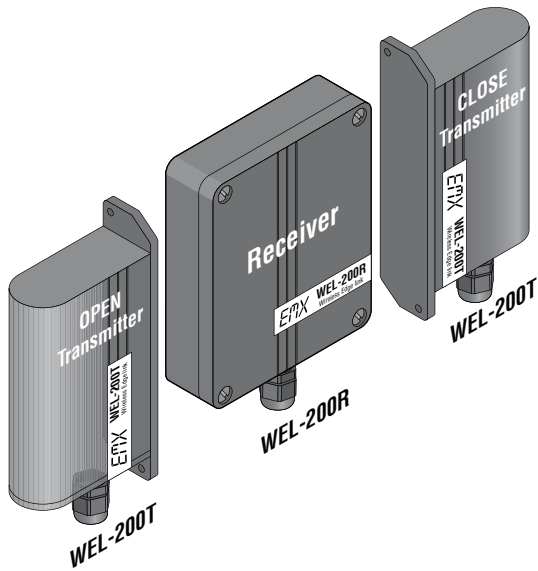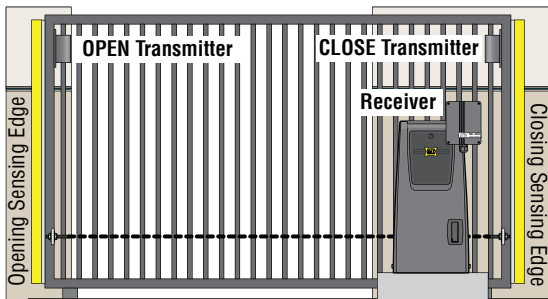Receiver

WEL-200T

WEL-200R

CLOSE Transmitter

WEL-200T

10K Resistor Wiring to WEL-200 Wireless

OPEN Transmitter

CLOSE Transmitter

Receiver

Opening Sensing Edge

Closing Sensing Edge

Typically used on SLIDE gates

CH1 — LLD1
CH2 — LLD2
CH3 — LLD3
CH4 — LLD4

RELAY 1
RELAY 2

ON 0 1 2 3 4

MODE

STATUS POWER

JP-2 JP-1

10K 10K
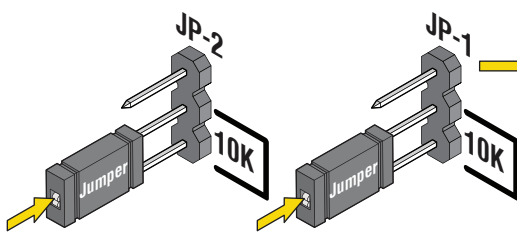
Jumper Jumper

Set both jumpers to 10K position

RELAY OPEN   RELAY CLOSE

10K   10K

JP1   JP2

EARTH

COM - OUT	COM - OUT	NC - COM - NO	NC - COM - NO	POWER
PULSE 1	PULSE 2	RELAY 1	RELAY 2	12 - 24

CONTACTS SHOWN IN ENERGIZED STATE

VDC/VAC

Wire to 10K Inputs

UL SENSOR N.C.
- OPEN ONLY NC
- PHOTO CLS NC
- OPEN/CLS NC
- 12VDC OUT
- GND

UL SENSOR 10K
- OPEN ONLY 10K
- CLS ONLY 10K
- OPEN/CLS 10K
- 12VDC OUT
- GND

DSP Arm Controller
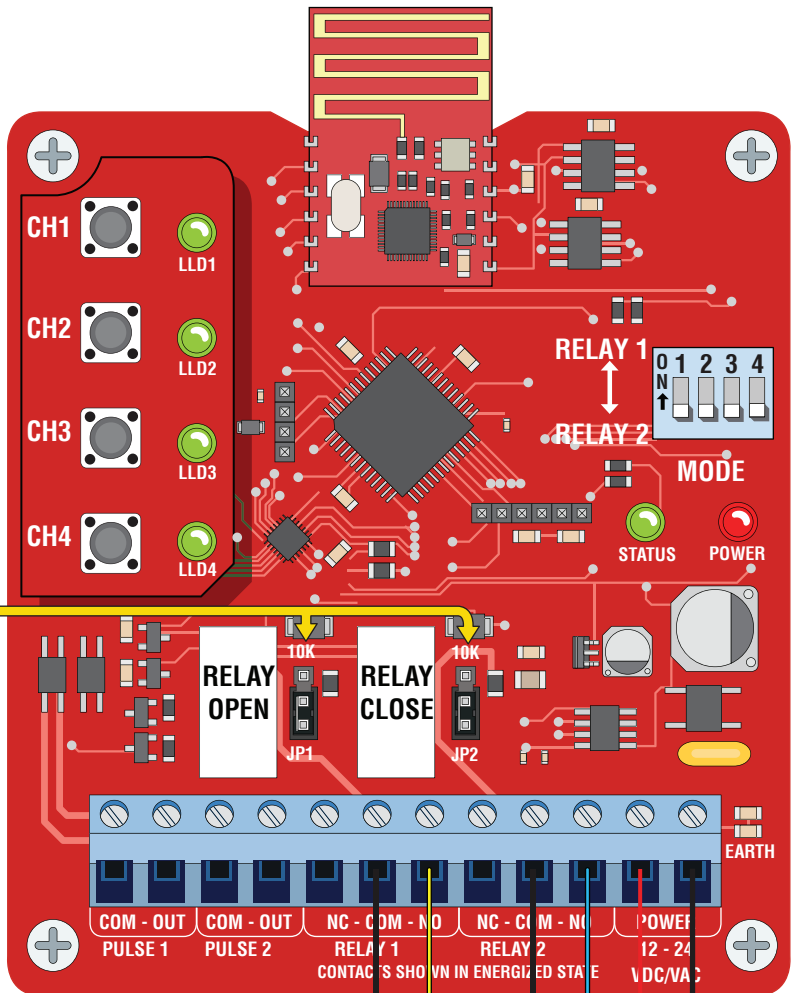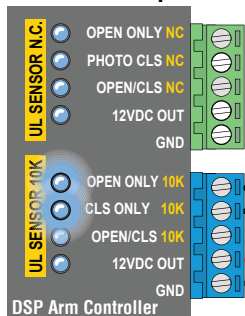
Wire to (NO) of Relay 1

Wire to (NO) of Relay 2

12VDC OUT Monitored

GND

Polarity does **NOT** matter

CONNECTING RECEIVER TO TRANSMITTER

WEL-200R Receiver **WEL-200T Transmitter**
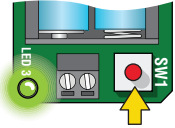
Connecting is a two step process. First, on the receiver, press and hold the channel assignment switch until the green status LED begins rapidly flashing, then release; this will clear any existing assignment for that particular channel. Hold down the connection switch on the transmitter. If it is not currently connected to a receiver, it will begin flashing rapidly until successfully connecting. Detailed instructions are given below.
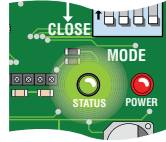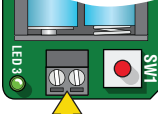
NOTE: If there are no existing connections, the receiver's status LED will blink rapidly while it is finding a clean operating frequency (this can last a few seconds)
After initialization, the system status LED will flash on/off once every 2 seconds post)
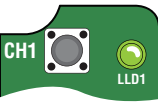
STEPS
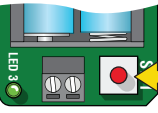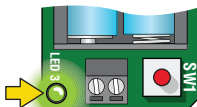
1 Set each channel to the desired OPEN/CLOSE direction function using the MODE dip switch. If a DIP switch is in the OPEN (ON) position, then that channel will trigger the OPEN relay on receiver. Otherwise it will trigger the CLOSE relay, CLOSE (OFF) position.

2 Install 2 AA Lithium batteries in the WEL-200T (transmitter)

The green LED on the transmitter will quickly flash 2x every two seconds
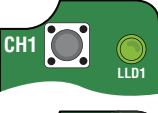
3 Install a properly terminated edge to the transmitter (8.2k or 10k termination)

4 On the receiver, hold down the desired channel assignment switch until all four channel LED's activate and the system status LED begins flashing rapidly, then release the switch.

5 On the transmitter, hold down the connection switch (next to the terminal block). The LED on the transmitter will begin flashing rapidly after ~4 seconds

Upon successful connection, the LED will flash once every two seconds If the transmitter fails to connect, it will return to its initial state, with the LED flashing twice every two seconds. If this occurs, repeat steps above

TESTING

Without activating the edge, observe the receiver channel status LED, it should be OFF.

When the edge is activated, the receiver channel status LED will turn on and the corresponding OPEN/CLOSE direction output will activate.

The transmitter status LED will blink once every second when the edge is activated. If the channel does not exhibit this behavior, double check the edge wiring/termination and transmitter batteries.

EMX IRB-RET2 WIRING
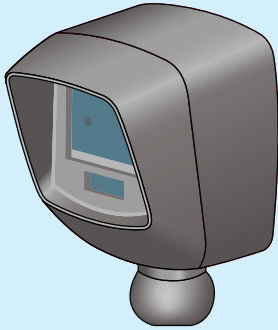
IMPORTANT: Photocell MUST be powered by **12VDC OUT** or it will **NOT** be **MONITORED**.

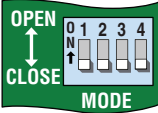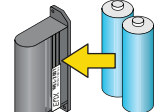NOTE: To meet the UL 325 2018 standard, Type B1 Non-Contact sensor entrapment protection device MUST be MONITORED by the gate operator.

Photocell (Reflector) CLOSING Direction

SW1
1 - OFF
2 - OFF
3 - OFF
4 - ON

NOTE: Power must be cycled when switches are changed.

SW2
1 - OFF
2 - OFF
3 - ON
4 - ON

NOTE: Power must be cycled when switches are changed.

PULSE
E   C

ENERGIZED
NC   COM   NO

- VRX +

- VTX +

JP1
4W
2W

PHOTO CLS NC

GND

UL SENSOR N.C.
OPEN ONLY NC
PHOTO CLS NC
OPEN/CLS NC
12VDC OUT
GND

UL SENSOR 10K
OPEN ONLY 10K
CLS ONLY 10K
OPEN/CLS 10K
12VDC OUT
GND

MAX Arm/Ultra Arm V1b7
REV 10-02-23
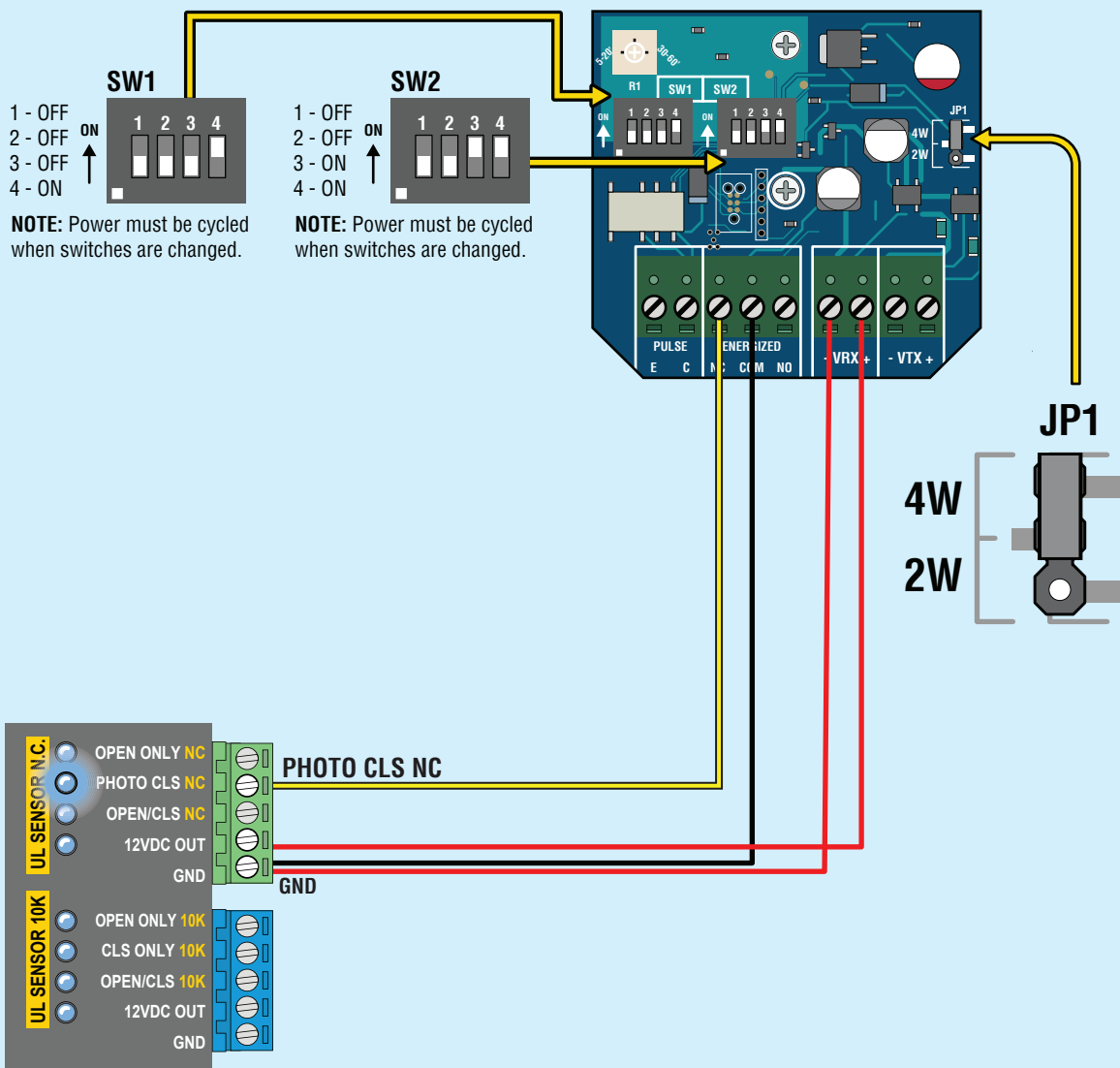
COMMON SENSOR WIRING

EMX IRB-RET

IMPORTANT: Photocell MUST be powered by **12VDC OUT** or it will **NOT** be **MONITORED** .

NOTE: To meet the UL 325 2018 standard, Type B1 Non-Contact sensor entrapment protection device MUST be MONITORED by the gate operator.

Installation Steps:

1. Set DIP-switches
2. Remove jumper JP-5
3. Insert jumper on 4W JP-6
4. Wire 12V power to photocell **(VRX)**
5. Wire DSP board **PHOTO CLS NC** to photocell **NC (Energized)**
   Wire DSP board **GND** to photocell **COM (Energized)**
6. Align photocell to reflector
7. Adjust sensitivity

Photocell (Reflector) CLOSING Direction

Sensitivity Adjustment:
If the photocell does not respond to an obstruction, lower the sensitivity by turning adjustment counter-clockwise.

SENSITIVITY

For RED BOARD

JP-5 10K

JP-6 4W 2W

Jumper

Insert

Jumper

Insert

DIP-Switches

1 - OFF
2 - OFF
3 - OFF
4 - ON

0 1 2 3 4
ON ↑

NOTE: Power must be cycled when switches are changed.

JP-5 10K

Jumper

Remove

JP-6 4W 2W

Jumper

Insert

0 1 2 3 4
ON

10K   4W 2W

NC COM   VRX

ENERGIZED   PULSE OUT
NC COM NO   C   VRX   VTX

UL SENSOR N.C.	OPEN ONLY **NC**
	PHOTO CLS **NC**
	OPEN/CLS **NC**
	12VDC OUT
	GND

PHOTO CLS NC

GND

12VDC OUT
Polarity does **NOT** matter

UL SENSOR 10K	OPEN ONLY **10K**
	CLS ONLY **10K**
	OPEN/CLS **10K**
	12VDC OUT
	GND
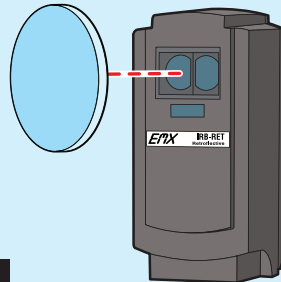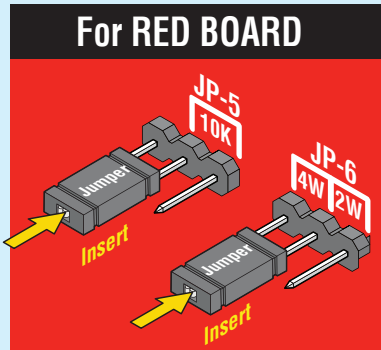
Blue Transmitter (TX) / Red Receiver (RX) Boards
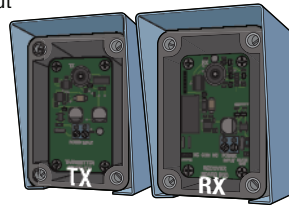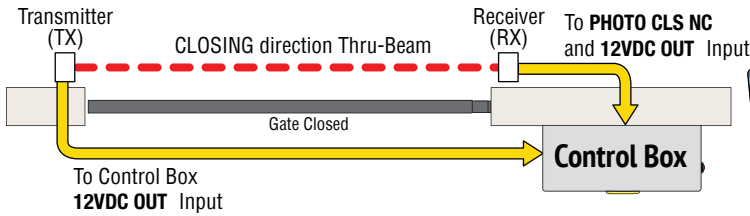
CMX IRB-MON **Photocell (Thru-Beam) CLOSING Direction Single Gate Operator**

Transmitter (TX)   CLOSING direction Thru-Beam   Receiver (RX)   To **PHOTO CLS NC** and **12VDC OUT** Input

Gate Closed

Control Box

To Control Box **12VDC OUT** Input

TX   RX

IMPORTANT: Photocells **MUST** be in alignment or fault will occur. Green LED will remain **ON** receiver when in proper alignment.

Transmitter (TX)

TX

POWER INPUT   Green LED

TRANSMITTER BOARD (TX)

Installation Steps:

1. Set DIP-switches on receiver.
2. Install jumper on receiver.
3. Wire DSP **12VDC OUT** power to receiver.
4. Wire **PHOTO CLS NC** to receiver photocell **NC**. Wire DSP Board **GND** to receiver photocell **COM**.
5. Wire **12V** DSP power to transmitter.
6. Align photocells.
7. Adjust sensitivity on receiver.

Sensitivity Adjustment: If the photocell does not respond to an obstruction, lower the sensitivity by turning adjustment counter-clockwise.

DIP-switches: 1, 2, 4 are **OFF**. Switch 3 is **ON** If trouble occurs, try turning switch 4 OFF.

NOTE: Power must be cycled when switches are changed.

Receiver (RX)
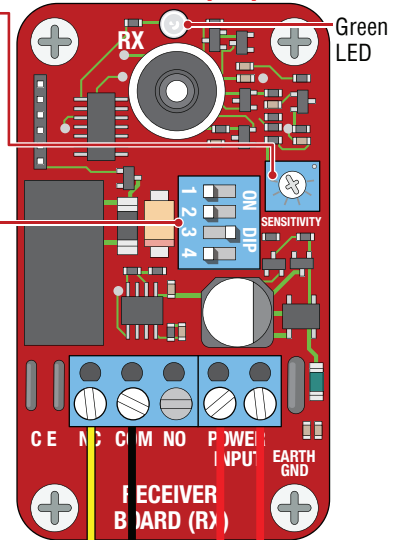
RX   Green LED

SENSITIVITY

ON DIP 1 2 3 4

C E   NC   COM   NO   POWER INPUT   EARTH GND

RECEIVER BOARD (RX)

IMPORTANT: Photocells MUST be powered by **12VDC OUT** or they will **NOT** be **MONITORED**.

12VDC OUT Polarity does **NOT** matter

UL SENSOR N.C.

OPEN ONLY NC
PHOTO CLS NC
OPEN/CLS NC
12VDC OUT
GND

UL SENSOR 10K

OPEN ONLY 10K
CLS ONLY 10K
OPEN/CLS 10K
12VDC OUT
GND

DSP Arm Controller

PHOTO CLS NC - Normally Closed

GND - Common
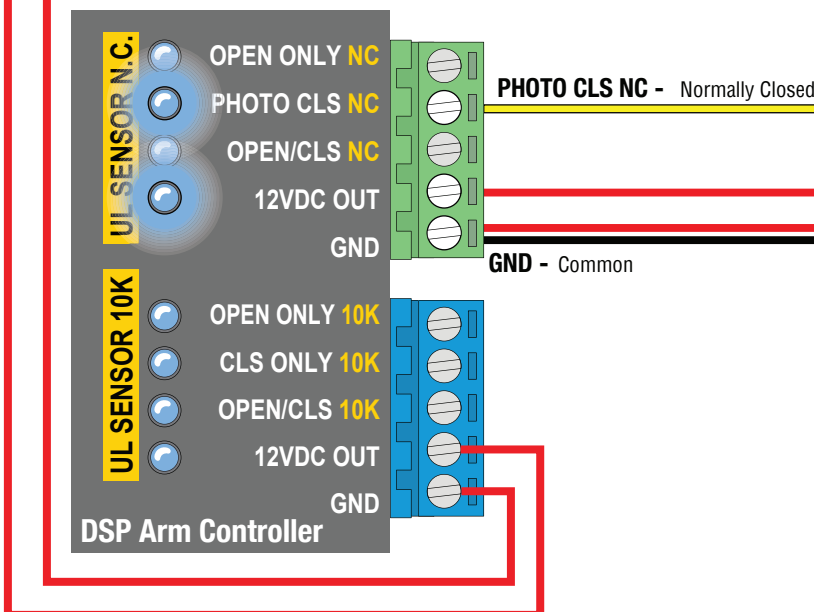
NOTE: To meet the UL 325 2018 standard, Type B1 Non-Contact sensor entrapment protection device **MUST** be **MONITORED** by the gate operator.

Green Transmitter (TX) / Green Receiver (RX) Boards

EMX IRB-MON **Photocell (Thru-Beam) CLOSING Direction Single Gate Operator**

Transmitter (TX)
CLOSING direction Thru-Beam
Receiver (RX)
To **PHOTO CLS NC** and **12VDC OUT** Input

Gate Closed

Control Box

To Control Box **12VDC OUT** Input

TX **RX**

IMPORTANT: Photocells **MUST** be in alignment or fault will occur. Green LED will remain **ON** receiver when in proper alignment.

Transmitter (TX)

TX

POWER INPUT   Green LED

TRANSMITTER BOARD (TX)

Installation Steps:

1. Set DIP-switches on receiver.
2. Install jumper on receiver.
3. Wire DSP **12VDC OUT** power to receiver.
4. Wire **PHOTO CLS NC** to receiver photocell **NC.** Wire DSP Board **GND** to receiver photocell **COM.**
5. Wire **12V** DSP power to transmitter.
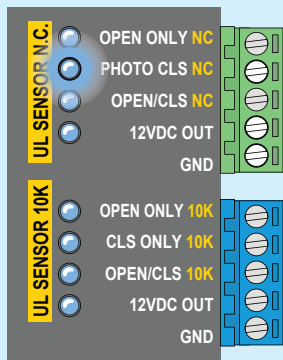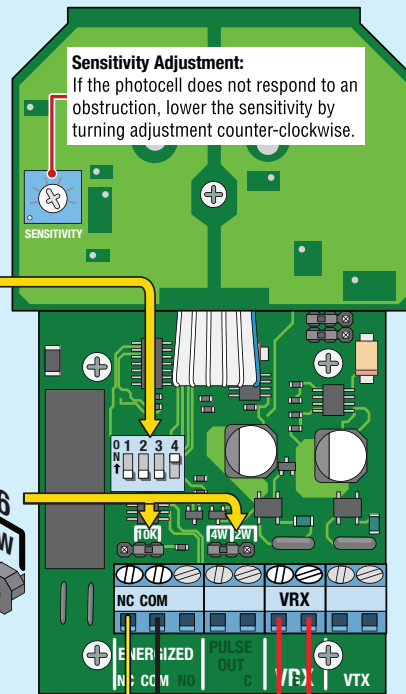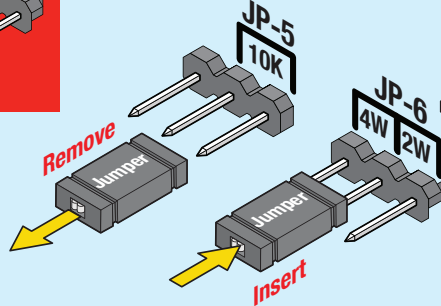6. Align photocells.
7. Adjust sensitivity on receiver.

Sensitivity Adjustment: If the photocell does not respond to an obstruction, lower the sensitivity by turning adjustment counter-clockwise.

Receiver (RX)

RX

Green LED

DIP-switches: 1, 2, 3 are **OFF.** Switch 4 is **ON** If trouble occurs, try turning switch 4 OFF.

NOTE: Power must be cycled when switches are changed.

SENSITIVITY

NO COM NC   JUMPER

NC COM NO   POWER INPUT   EARTH GND

RECEIVER BOARD (RX)

NO Com NC

Jumper **MUST** be on Com-NC.

Jumper

IMPORTANT: Photocells MUST be powered by **12VDC OUT** or they will **NOT** be **MONITORED**.

12VDC OUT Polarity does **NOT** matter

DSP Arm Controller

UL SENSOR N.C.
- OPEN ONLY **NC**
- PHOTO CLS **NC**
- OPEN/CLS **NC**
- 12VDC OUT
- GND

PHOTO CLS NC - Normally Closed

GND - Common

UL SENSOR 10K
- OPEN ONLY **10K**
- CLS ONLY **10K**
- OPEN/CLS **10K**
- 12VDC OUT
- GND

NOTE: To meet the UL 325 2018 standard, Type B1 Non-Contact sensor entrapment protection device **MUST** be **MONITORED** by the gate operator.

RBAND Receiver

CHECK

GND ANT

PROG

R1
R2

MR ON DIP
1 2 3 4
R3 ATEST

Channel 1 & 2 transmitters **MUST** be programmed by RBAND receiver. See below or Miller Edge Wireless RBAND instruction sheet to program transmitters to receiver.

DIP-Switches
1-ON
2-ON
3-ON
4-OFF

Channel 1

Channel 2

12/24 AC/DC

+ − CS1 C1 BS1 CS2 C2 BS2 NO3 C3 Com ATEST

12/24 A /DC

CS1 C1 BS1 CS2 C2 BS2 NO3 C3 Com ATEST

Pos Neg C1 BS1 C2 BS2

Second transmitter sold separately

Transmitter

Receiver

UL SENSOR N.C.
OPEN ONLY NC
PHOTO CLS NC
OPEN/CLS NC
12VDC OUT
GND

UL SENSOR 10K
OPEN ONLY 10K
CLS ONLY 10K
OPEN/CLS 10K
12VDC OUT
GND

24VDC OUTPUT
GND
12VDC OUTPUT
GND

Wire 10K Edges

RBAND Transmitter

MGL-TX20

Program Button

Batteries

Green LED

Terminal Block Connection Polarity does NOT matter.

10K CLOSING Edge

Channel 1

Channel 2

10K OPENING Edge

Mount on Gate's **OPENING** side.

A RBAND transmitter is needed for each channel of the receiver.

Mount on Gate's **CLOSING** side.

DSP ARM CONTROLLER

BATTERY
BATTERY VOLTAGE
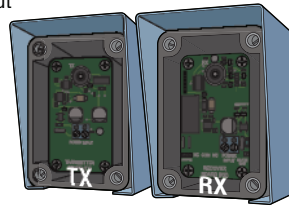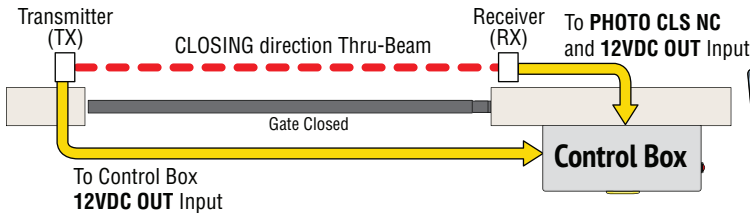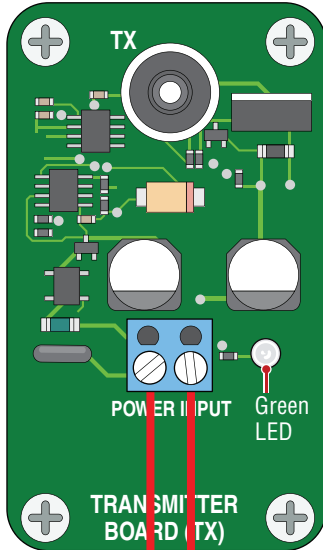BATTERY INPUT ERROR
BATTERY IN USE
BATTERY TEST
POWER
BATTERY BACKUP MODE
LEAVE OPEN / OPEN 1 TIME / LEAVE CLOSED
REPLACE BATTERY
MOTOR 1 INPUTS
MOTOR 2 INPUTS
MOTOR 1 LIMIT 1 LIMIT 2
MOTOR 2 LIMIT 1 LIMIT 2

POWER/SOLAR IN

MODULE PORT

ERD SENSITIVITY
MIN ERD MOTOR OVER LOAD
OPENING
MIN ERD MOTOR OVER LOAD
CLOSING
CLOSE TIMER
MIN SEC MAX

MOTOR 1 GND LIMITS
LIMIT 1 GND LIMIT 2
MOTOR 2 GND LIMITS
LIMIT 1 GND LIMIT 2

RESET

OBD PORT BLACK BOX

MAXIMUM CONTROLS DSP ARM CONTROLLER

ON/OFF BATTERY

ALARM
ID PLUG ERROR
ID PLUG

PROGRAMMING
PROGRAM

MOTION CONTROL
OPEN STOP CLOSE

JOG
OPEN CLOSE

GATE OPEN
GATE CLOSED
MAG LOCK
GND
COM
NO

EXIT PWR
EXIT LOOP
GND
CENTER LOOP
LOOP PWR
SAFETY LOOP
FAULTS

SOLAR MODE
OFF ON

ANTI-TAILGATE
OFF ON

GATE

PUSH OPEN
DUAL OPEN

MAGLOCK DELAY
OFF 2.5 s
13 s

UL ENTRAP

OPEN ONLY NC
PHOTO CLS NC
OPEN/CLS NC
12VDC OUT
GND

24VDC OUTPUT
GND
12VDC OUTPUT
GND

OPERATOR
SINGLE DUAL

CLOSING GATE SPEED
MIN MAX
MOTOR 1
MIN MAX
MOTOR 2

OPEN ONLY 10K
CLS ONLY 10K
OPEN/CLS 10K
12VDC OUT
GND

RADIO SIGNAL
RADIO GND
FIRE DEPT
GND
STRIKE
GND
KEYPAD/RADIO
GND
OPEN
STOP
CLOSE
GATE DISABLE
TAMPER NO
COM
TAMPER IN
GND
JOG OPEN
GND
JOG CLOSE
GND

Channel 1 - CLS ONLY 10K
CLOSING direction **ONLY**
Automatically MONITORED.

Channel 2 - OPEN ONLY 10K
OPENING direction **ONLY**
MUST be **LEARNED** to monitor sensor, See Step 15.

NOTE: Channel 2 sensor will function without being "Learned" but will NOT be MONITORED by the gate operator.

Wireless Receiver/Transmitter Programming:

1. Make sure receiver and transmitters have power.

2. Green power LED will be blinking on channel 1 transmitter (unlearned).

3. To enter learn mode, press and hold the receiver program button for ~2 seconds until the R1 LED turns on, then release the button.

4. Press the transmitter program button for ~2 seconds. The receiver will beep. Wait 10 seconds for an additional beep to complete programming.

5. To program a transmitter to channel 2, press and hold the receiver program button until the second beep, then release the button. The R2 LED should be on. Repeat step 4 for channel 2 transmitter.

ERASE PROGRAMMING . If you need to replace a transmitter or you have any other programming issues, you may need to erase the receiver.

1. To erase transmitters programmed into the receiver, use a screwdriver to short the two pins marked MR next to the DIP-switches.

2. While shorting the pins, press and hold the program button for several seconds; you will hear a series of 10 beeps followed by a rapid chirping sound.

3. When the chirping stops, release the program button. Wait ~10 seconds and you will hear 2 beeps. The receiver is now ready to be reprogrammed.

RCOO900 Receiver

12/24 VAC/DC C1 NC1 NO1 C2 NC2 NO2 Test1 Test2 TestC
Program Reset

Wire NO2 for Safety 2 on transmitter

Wire NO1 for Safety 1 on transmitter

TCOO900 Transmitter

RCOO900 Receiver

UL SENSOR N.C.
- OPEN ONLY NC
- PHOTO CLS NC
- OPEN/CLS NC
- 12VDC OUT
- GND

UL SENSOR 10K
- OPEN ONLY 10K
- CLS ONLY 10K
- OPEN/CLS 10K
- 12VDC OUT
- GND

Pos Neg C1 NO1 C2 NO2

Receiver DIP-Switches

1-OFF
2-OFF
3-OFF
4-OFF
5-ON
6-ON

Frequency
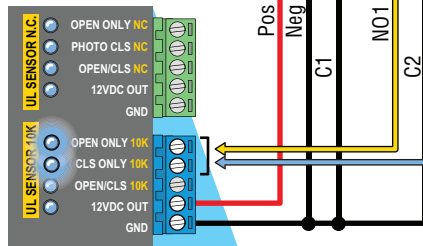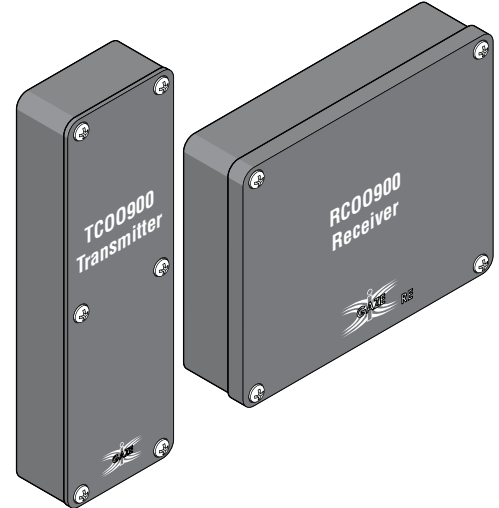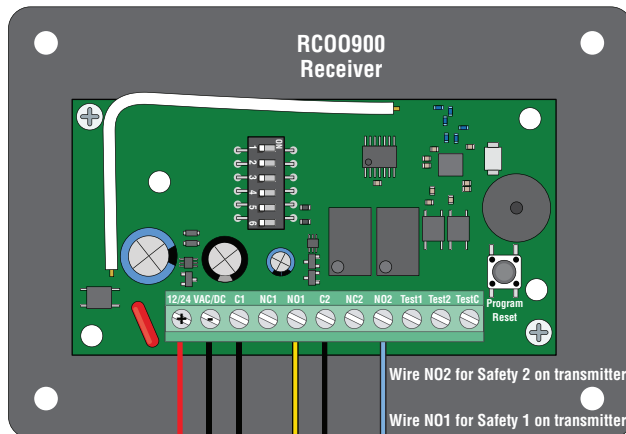
5 & 6 **MUST** be **ON** for 10K input

Both safety edges are 10KΩ resistive
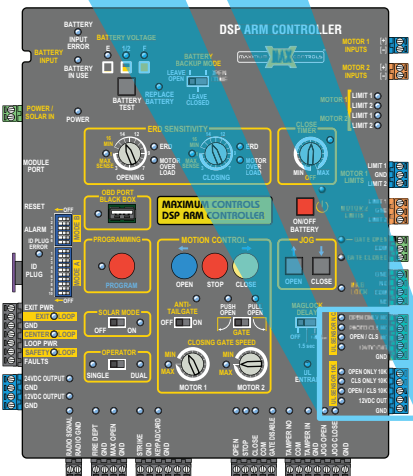
Wire 10K Edges

TCOO900 Transmitter

10K Opening OR Closing Edge

Safety 1   Safety 2

10K Opening OR Closing Edge

Can be mounted on Gate's **OPENING OR CLOSING** position.

Can be mounted on Gate's **OPENING OR CLOSING** position.

ON
1 2 3

Set to **OFF**

Frequency DIP-switches 2 & 3 **MUST** be set the same as the receiver DIP-switches 3 & 4.

DSP ARM CONTROLLER

MAXIMUM CONTROLS DSP ARM CONTROLLER

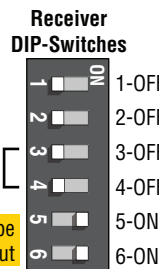Mount transmitter as high as possible on gate. Minimum of 8" above ground.
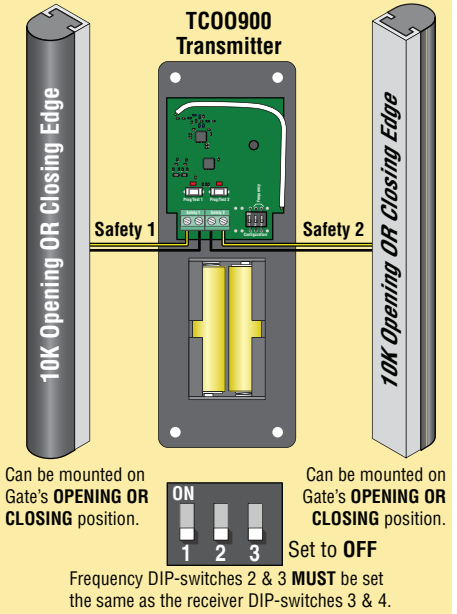
Wireless Receiver/Transmitter Programming:

1. Make sure receiver and transmitter have power.

2. Press and HOLD **PROGRAM/RESET** button on **receiver** until **ONE** "BEEP" is heard. Release button.

3. Press and HOLD **PROG/TEST 1** button (Safety 1) on **transmitter** until **TWO** "BEEPS" are heard. Release button.

Prog/Test 1

Repeat steps for **PROG/TEST 2** button (Safety 2) on **transmitter** if second edge is used.

Prog/Test 2

NOTE: See iGaze RE Wireless kit instruction sheet for **complete** installation and programming instructions.

MAX Arm/Ultra Arm V1b7

Operator Motor 1
(Single/Primary gate)
See page 20.

Operator Motor 2
(Secondary/Bi-Parting gates)

DSP ARM CONTROLLER

BATTERY
INPUT
ERROR
BATTERY VOLTAGE
E 1/2 F

Solar Input
See pages 38-40.

BATTERY
INPUT
BATTERY
IN USE

BATTERY
BACKUP MODE
LEAVE
OPEN
LEAVE
CLOSED
OPEN
1 TIME
page 31

MAXIMUM MAX CONTROLS

MOTOR 1
INPUTS [+] [–]

MOTOR 2
INPUTS [+] [–]

BATTERY
TEST
REPLACE
BATTERY

POWER / SOLAR IN

POWER

MOTOR 1
LIMIT 1
LIMIT 2
MOTOR 2
LIMIT 1
LIMIT 2
page 21

Gate Status Monitoring Device

Solenoid Lock
Gnd

Max Keypad
Sold Separately
See page 37.

Max Cell Hub
Sold Separately
See page 35.

Max Wiegand Converter
Sold Separately
See page 37.

MODULE
PORT

ERD SENSITIVITY

ERD
MOTOR
OVER
LOAD
OPENING

ERD
MOTOR
OVER
LOAD
CLOSING

CLOSE
TIMER
MIN MAX
OFF
page 31

MOTOR 1
LIMITS
LIMIT 1
GND
LIMIT 2

Power
NO

DIP-Switches
See page 32.

RESET
OFF

ALARM
ID PLUG
ERROR

OBD PORT
BLACK BOX
page 43

MAXIMUM CONTROLS
DSP ARM CONTROLLER

ON/OFF
BATTERY page 19

MOTOR 2
LIMITS
LIMIT 1
GND
LIMIT 2

See page 31.

Power

External Loop Detectors
Wire directly to
7-PIN terminal
See page 30.

External Loop Detector

ID Plug:
REQUIRED.

See page 21.

ID
PLUG

PROGRAMMING
page 35

PROGRAM

MOTION CONTROL

OPEN STOP CLOSE

JOG

OPEN CLOSE
page 35

GATE OPEN
COM
GATE CLOSED

GND
NO
COM
NC

MAG
LOCK

Maglock

Maglock Delay MUST
be set for 1.5 sec OR
2.5 sec when
installing a lock.

EXIT PWR
EXIT LOOP
GND
CENTER LOOP
LOOP PWR
SAFETY LOOP
FAULTS

ANTI-
TAILGATE
OFF ON
page 31

PUSH
OPEN
PULL
OPEN
page 21

GATE
CLOSING GATE SPEED

MAGLOCK
DELAY
OFF 2.5 sec
page 31

OPEN ONLY NC
PHOTO CLS NC
OPEN / CLS NC
12VDC OUT
GND

Factory Wired

In-Ground Loops

Safety
Loop
Center
Loop
Safety
Loop

250 mA Max.

24VDC OUTPUT
GND
12VDC OUTPUT
GND

SOLAR MODE
OFF
page 38

OPERATOR
SINGLE DUAL
pages 21 & 33

MIN
MAX
MOTOR 1

MIN
MAX
MOTOR 2
page 31

UL
ENTRAP

OPEN ONLY 10K
CLS ONLY 10K
OPEN / CLS 10K
12VDC OUT
GND

Power

**Entrapment
Protection Devices**
See pages 28 & 29.

**Some UL
sensor inputs
must be
learned to
"MONITOR"
connected
device**
See page 32.

NC

**Opening
Direction**

See page 30.

Exit
Loop

Loop Detector Rack

EXIT CENTER SAFETY

J3 J4 J5

Safety Loops
Wired in series

RADIO SIGNAL
RADIO GND

FIRE DEPT
GND
MAX OPEN
GND

STRIKE
GND
KEYPAD/CARD
GND

OPEN
STOP
CLOSE
COM
GATE DISABLE

TAMPER NO
COM
TAMPER IN
GND
JOG OPEN
JOG CLOSE
GND

12V Power

Stand-Alone Keypad
less than 200 mA
See page 31.

NC

**Normally Closed
Photocells**

**Closing
Direction**

ONE entrapment
protection sensor
MUST be installed
or operator will
NOT function.

**Opening
Direction**

NC

**10K
Sensing
Edges**

NC

In-Ground Loop Connections

12 VDC OR 24 VDC Radio Power

**Plug-In Loop
Detectors**

EDI

**Normal
Opening
Device**

See page 31.

3-Wire
Radio

4-Wire
Radio

Radio Signal

Radio Signal
Radio Gnd

Gnd
Jog Close
Jog Open

Jog Gate Open/Close
(located on side of control box)
See page 35.

**Closing
Direction**

Gnd
Tamper IN

Motion Sensor
See page 34.

Emergency OPEN
(Overrides gate
disable switch)

FIRE
DEPT

NO
Gnd

See page 34.

See page 34.

Warning
Light

Siren

Existing
Building
Alarm
System

MAX OPEN
(Overrides gate
disable switch)

NO
Gnd

Security
Camera
Com
Tamper NO

Power Power

Telephone Entry

Dry Contact NO
Gnd

Gate Disable
Com

Gate Disable Switch
See page 34.

Timer

Com
Close
Stop
Open

3-Button Control Station
Dry Contact
See page 35.

Key Switch Card Reader Keypad

Dry Contact NO
Gnd

Com
Stop

PRESS
to RESET

External Alarm
Reset Button
Dry Contact

See pages 31 & 35.

MAX Arm/Ultra Arm V1
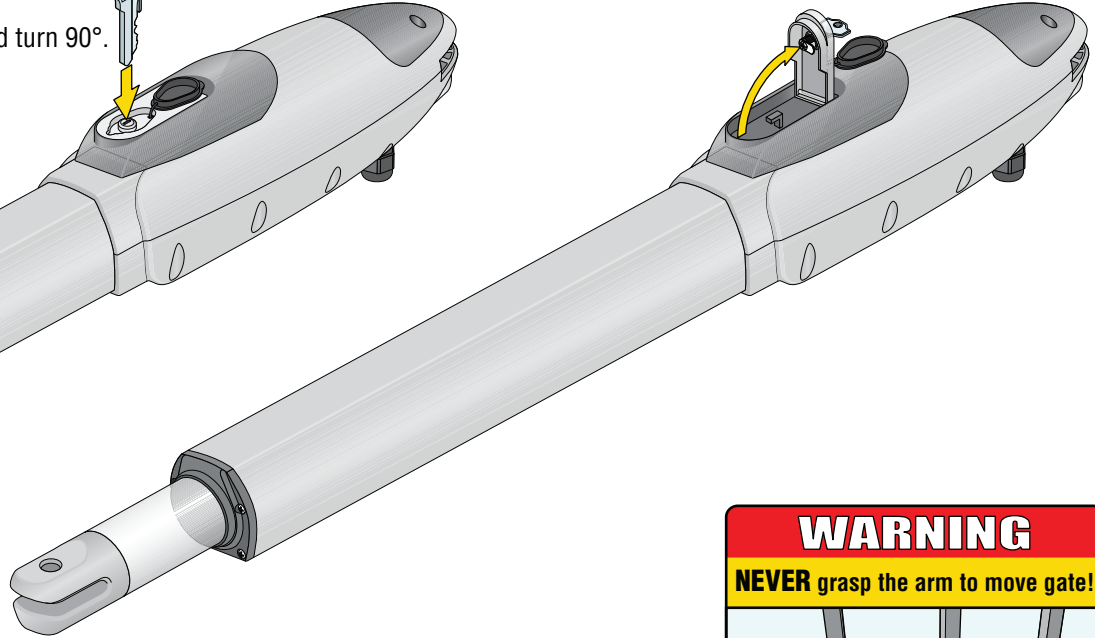
MAX ARM

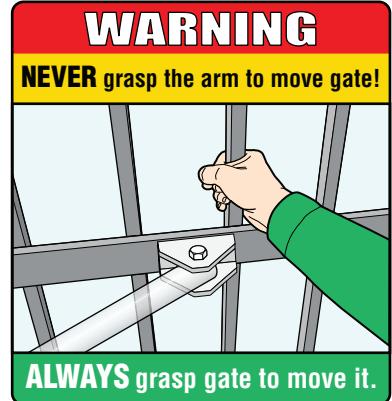**1** Insert key and turn 90°.

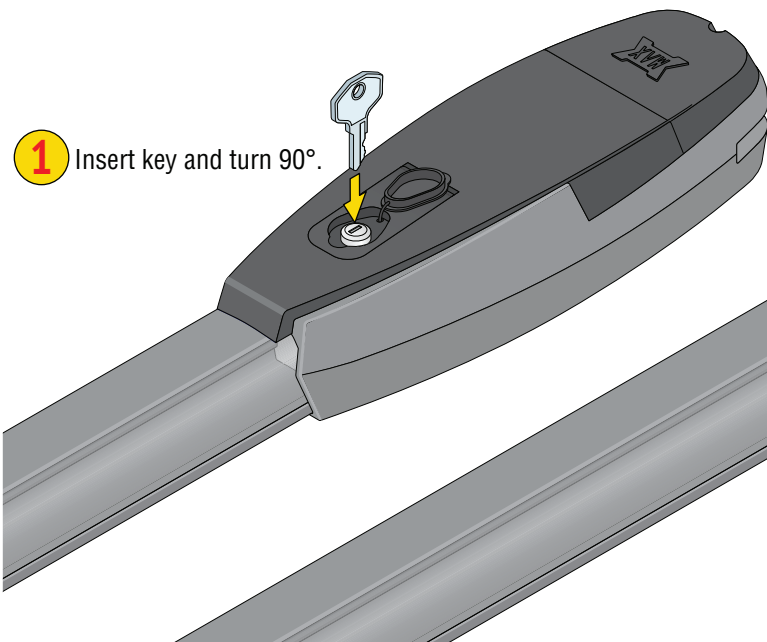**2** Lift key plate cover 90°.
Gate can now be manually moved.

OWNER of the gate operator is responsible for the **KEY** availability.

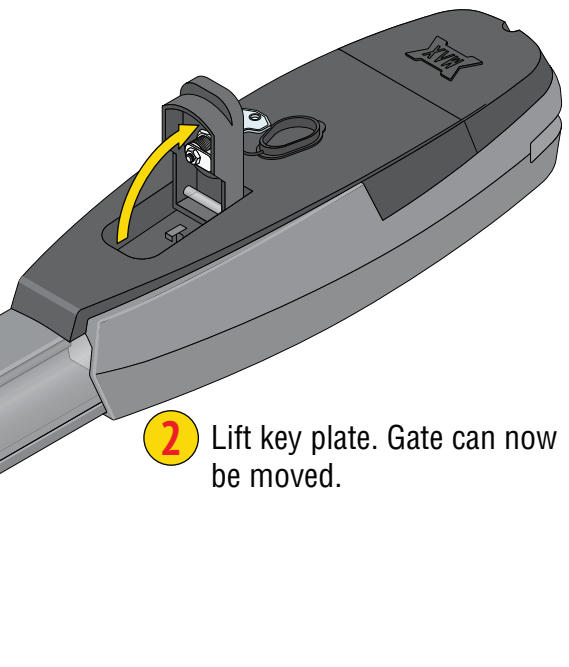**ALWAYS** verify that power is OFF BEFORE manually releasing gate!

WARNING

NEVER grasp the arm to move gate!

ALWAYS grasp gate to move it.

MAX ULTRA ARM

1 Insert key and turn 90°.

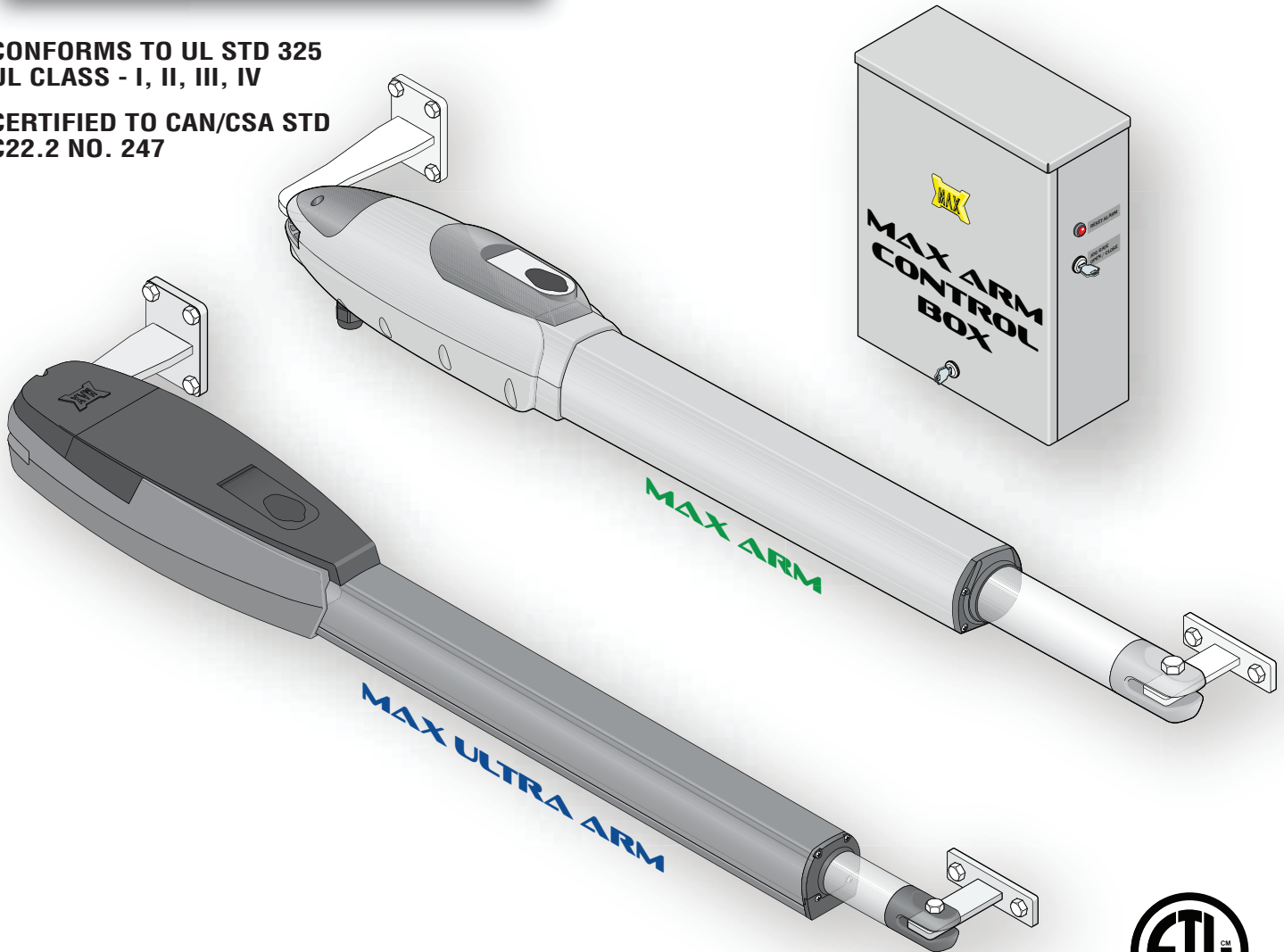**2** Lift key plate. Gate can now be moved.

MAX ARM

MAX ULTRA ARM

Actuator Arms

SAFETY SENSORS REQUIRED

CONFORMS TO UL STD 325
UL CLASS - I, II, III, IV

CERTIFIED TO CAN/CSA STD
C22.2 NO. 247

MAX ARM CONTROL BOX

MAX ARM

MAX ULTRA ARM

Residential / Commercial
Linear Gate Operators

ETL
C LISTED US
Intertek
4009963