

# Nice Swing Gate Actuator

Vehicular Swing Gate Actuator

TITAN12L

936 Control Board

TITAN12L1

1050 Control Board

## 912L actuator installation instructions



CBOX with 936 control board



CBOX with 1050 control board



912L

**For Programming the 936 Control Board - See 1550 Manual**

**For Programming the 1050 Control Board - See 1551 Manual**

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## 1. Overview

Congratulations on selecting a Nice gate operator for automating your gate system. With proper selection, system design, installation and maintenance this operator should provide years of reliable operation.

This manual covers the following Nice operator models: Titan 12L and Titan 12L1.

### 1.1 TITAN12L/12L1 Swing Gate Actuator

This manual provides documentation that covers the layout, construction, mechanical and electrical installation of TITAN12L/12L1 swing gate operators with the Nice brand 936 or 1050 control board. TITAN12L/12L1 swing gate operators are intended for residential gate installations only. Please consult your Nice distributor or Nice Dealer/Installer for more information regarding installations or questions not specifically covered in this manual.

The TITAN12L/12L1 swing gate actuator is the foundation for the next generation of easily installed, configured and maintained swing gate operators from Nice. This Actuator has a maximum gate capacity of 600 lb for a 20 ft leaf or 1000 lb for an 8 ft leaf. Operator has a key lockable manual release, easily accessible limit switch settings and is easy to maintain or repair in-the-field. The TITAN12L/12L1 gives dealers, installers and homeowners the ability to take control of their access and security systems. This actuator includes a 2-year factory warranty against manufacturing defects and lifetime customer support.

### 1.2 Product Specifications

Model	TITAN12L+(12VDC)
Gate Specs	up to 600 lb for a 20 ft leaf (272 kg for 6 m) up to 1000 lb for an 8 ft leaf (453 kg for 2.4 m)
Open/Close Time (to 90°)	14-16 seconds
Maximum Degree of Opening	120°
Solar Compatible	Yes
Manual Release w/ Key-lock	Yes
Motor Encoder	Yes
Easily Positioned Limit Switches	Yes
Drive Mechanism	Stainless Steel Screw
Operating Temperature	-4° to 122° F (-20° to 50° C)
912L Actuator Weight	19.75 lb (8.96 kg)
Dimensions - Fully Retracted	43(L) x 4(W) x 6.75 inches (D) (109.2(L) x 10(W) x 17.5 cm (D))
Push to Open Installation	Yes
Pull to Open Installation	Yes
UL 325 Certified/Listed	Usage Class I, II, III, IV

### 1.3 What is Included

P/N	Name	Note
CBOX1050	Control Box/1050 Control Board	Paired w/ 912L Actuator to make TITAN12L System
CBOX936	Control Box/936 Control Board	Paired w/912L1 Actuator to make TITAN121 System
912L	Actuator with 12' harness	Used in both TITAN12L/12L1 System
OXI/A	Opera Receiver 433Mhz	Included in CBOX936/1050 Box
#1116	Pivot Arm	Included in Actuator Box
#10025215	Gate Attach Bracket	Included in Actuator Box
#1125	Bolt Kit	Included in Actuator Box
ABF/A	Directional antenna 433 khz kit	Accessory sold separately.

The 936 control board is housed in a protective plastic enclosure that includes two 7-segment LEDs, five dedicated programming buttons and three buttons for navigation of the setup and programming menus, as well as 3 buttons for open, close, and stop. Connectors for power, input and output peripherals are arranged around the edges of the board and clearly labeled. A plug-in connector is provided for direct installation of a Nice-brand receiver which can be associated with up to 1000 remote controls. Connectors for other Nice-brand plug-in accessories include the 2-wire Bluebus photocells for external entrapment protection. Dry contact inputs are provided for loop, probe, and photoelectric detectors as well as guard station inputs and fire department control. Voltage outputs (+12VDC and +24VDC) are available to power other safety and entrapment-prevention devices, along with a solenoid lock output.

The 936 control board accepts DC input voltage ranging from +10VDC to +35VDC with input polarity protection on the main input and the solar charge input. All settings are stored in non-volatile memory that is protected from power outages. Programmable slowdown position. Built-in current sensing provides inherent gate force monitoring and limiting for safety. The "Learn" function helps the gate installer configure the 936 control board semi-automatically for optimum settings of gate opening and closing speeds.

- Inputs for solar panels and batteries.
- Motor outputs for two motors.
- Low power consumption in stand-by mode.
- Built-in charge regulator to maintain battery charge.
- Socket for plug-in Nice receiver.
- Easy setup with 7-segment LEDs and dedicated buttons.
- Setup and learning stored in onboard memory.
- Digital programming for auto-close timing, force, speed, and opening delay.
- On-board buttons for operating the gate (Open, Close, Stop)
- Inputs for guard station, additional third party receivers, loop detectors, Fire, and UL/Edge signals.
- Two relay outputs (not programmable).
- Surge suppression on every peripheral input and output, up to 1200A.
- Bluebus port for Nice plug-in, self-monitored, entrapment protection devices.
- USB port and bootloader for easy software updates.
- Motor bypass connectors for rapid troubleshooting an actuator and positioning a gate.

## 1.6 1050 Control Board

The 1050 main control board is housed in a protective plastic enclosure that includes a 2-line LCD and with 5 dedicated buttons and 3 buttons for navigation of the setup, programming, and information menus, as well as 3 buttons for open, close, and stop. Connectors for power, inputs, and output peripherals are arranged around the edges of the board and clearly labeled. A plug-in connector is provided for direct installation of a Nice-brand receiver which can be controlled by up to 1000 transmitters. A recessed RJ-11 jack offers a connection to an optional O-view programmer with Bluetooth and O-View programmer and optional Bluetooth module that can be programmed via PC. Connectors for other Nice-brand plug in accessories include 2-wire Bluebus, self-monitored photocells for entrapment protection. Dry contact inputs are provided for loop, probe, and photoelectric detectors, as well as guard station and fire department control of gate opening and closing. Voltage outputs (+12VDC and +24VDC) are also made available to power safety and entrapment-prevention devices, and a magnetic lock if required. On board charge control circuitry delivers reliable power to a backup battery (if installed) and the unit is equipped with input for a solar panel for self-powered installations.

The 1050 main control board accepts DC input voltage ranging from 10VDC to 35VDC. A 2-line LCD with dedicated buttons allows installer to quickly program the 1050 when changes to its factory-default settings need to be made. A real time clock/calendar enables programming for scheduled weekly or daily events like opening, closing, or locking the gate. Gate opening and closing speed, acceleration, soft-start settings, and reversing speed may be set to factory default settings, or individually programmed per customized gate installation requirements. Built-in current sensing enables inherent gate force monitoring and limiting for safety and an on board alarm indicates when two sequential obstructions have been sensed in either direction. The "Learn" function helps the gate installer configure the 1050 control board semi-automatically for optimum settings of gate opening and closing speeds,

with simple programmable adjustments to force and speed settings that may be made with the programming button on the control panel.

## 1.7 1050 Main Control Board Specifics

- Inputs for solar panel and batteries, and Main DC Power.
- Low power consumption in stand-by mode.
- Built-in regulator to keep the battery charged (either through solar or Main DC power).
- Socket for plug-in Nice receiver.
- Board compatible with Nice Opera System (facilitates programming and diagnostic's away from the site of installation). Requires optional O-View and OVBT (Bluetooth) module.
- Easy programming with LCD display and dedicated buttons.
- Digital programming for auto-close, force, speed, opening delay.
- On board buttons for operating the gate (Open, Close, Stop).
- Built-in voltmeter to check input voltage, battery voltage, solar panel volt age, motors' current.
- Temperature sensor to optimize charging battery and system performance.
- Programmable service alarm.
- 2 Programmable timers (from 1 sec to 9 hours).
- Inputs for guard station, additional third party receivers, loop detectors, FIRE and UL/Edge signals.
- 2 programmable inputs (open, close, step, mid-position, hold to open, hold to close, activating timer).
- Surge suppression on every peripheral input (digital and analog).
- Ports for self-powered Nice plug-in peripherals. (BlueBus).

- 1.8 The installation of this product is not a “do-it-yourself” project. A qualified gate operator installation company should be contacted to install the gate operator to ensure a safe and reliable installation. Since many aspects of gate system installation are under the control of the installer, it is the responsibility of the property owner to ensure the installer is qualified to carry out the installation in a safe and professional manner.
- 1.9 Consult local government agencies for up-to-date rules and regulations as certain municipalities have established licensing, codes or regulations that regulate automated gate system design and installation.

## 2. General Safety Information

A gate operator is only a component in a gate system. The other parts of the gate system can include the gate, the external entrapment sensors, access controls, and vehicle detectors. To have a gate system that provides safety, security, and reliable operation it is essential these components operate together as a system. It is the responsibility of the system designer and/or installer to ensure any safety or operational issues have been addressed.

### IMPORTANT SAFETY INSTRUCTIONS



#### **WARNING**

To reduce the risk of injury or death.

1. READ AND FOLLOW ALL INSTRUCTIONS.
2. Never let children operate or play with gate controls. Keep the remote control away from children.
3. Always keep people and objects away from the gate. NO ONE SHOULD CROSS THE PATH OF THE MOVING GATE.
4. Test the gate operator monthly. The gate MUST reverse on contact with a rigid object or stop when an object activates the non-contact sensors. After adjusting the force or the limit of travel, retest the gate operator. Failure to adjust and retest the gate operator properly can increase the risk of injury or death.
5. Use the emergency release only when the gate is not moving.
6. KEEP GATES PROPERLY MAINTAINED. Read the user's manual. Have a qualified service person make repairs to gate hardware.
7. The entrance is for vehicles only. Pedestrians must use separate entrance.
8. SAVE THESE INSTRUCTIONS.



## 2.1 UL325 Usage Classes

The UL325 standard covers gate operators. Within this safety standard several Usage Classes are described that define different types of installations where gate operators can be applied. Some operators are restricted in their usage application. All Nice USA operators are approved for use in all four UL325 Usage Classes. Appropriate Usage Classes are shown in the Specifications.

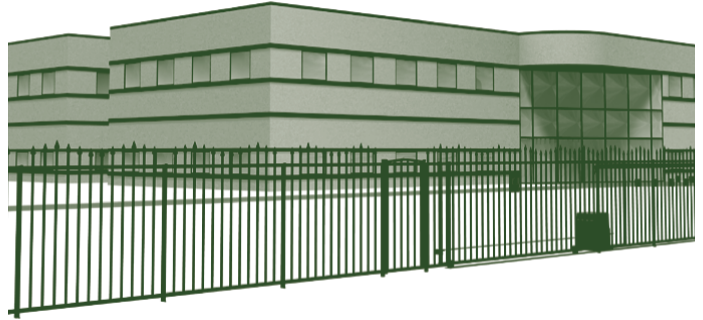
**2.1.1 Class I Residential Gate Operator.** Intended for use in a location of one to four single family dwellings or a parking area associated with one to four single family dwellings.



**2.1.2 Class II Commercial / General Access Gate Operator.** Intended for use in a commercial location or building such as a multi-family housing units (five or more single family units) hotels, garages, retail stores or other buildings servicing general public.



**2.1.3 Class III Industrial / Limited Access Gate Operator.** Intended for use in an industrial location or building such as factories or loading docks or other locations not intended to service general public.



**2.1.4 Class IV Restricted Access Gate Operator.** Intended for use in guarded industrial locations or buildings such as an airport security area or other restricted access location, not servicing general public, in which access is monitored by security personnel or via closed circuitry.





## 2.2 Vehicular Traffic Only

This automatic gate operator is not designed nor is it intended for pedestrian traffic. Vehicular gate operators must by their nature be powerful to function reliably. This power can cause injury or death. Accordingly, direct all pedestrian traffic to a separate walk-through gate.

### 2.3 Install This Gate Operator Only When:

- a. The operator is appropriate for the construction of the gate and the usage Class of the gate,
- b. 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 the portion of the adjacent fence that the gate covers in the open position,
- c. All exposed pinch points are eliminated or guarded, and
- d. Guarding is supplied for exposed rollers.
- e. When utilizing a Nice 936 board and 1050 board and 8 sensors may be connected.

2.4 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.

2.5 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 entrapment risk. Swinging gates shall not open into public access areas

2.6 The gate must be properly installed and work freely in both directions prior to gate operator installation. Do not change operator settings to compensate for an improperly installed, improperly functioning, or damaged gate.

2.7 Permanently mounted 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. 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.

2.8 The Stop and/or Reset button must be located in the line-of-sight of the gate. Activation of the reset control shall not cause the operator to start.

2.9 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.

2.10 For gate operators utilizing a non-contact sensor (Photo Eye):

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

2.11 For a gate operator utilizing a contact sensor (Edge):

- a. 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.
- b. 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.
- c. 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.
- d. 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 in) but less than 406 mm (16 in) above the ground at any point in its arc of travel, one or more contact sensors shall be located on the bottom edge.

### 3. Use of Vehicle Detectors

Use of vehicle detectors (loop detectors) is strongly encouraged to prevent damage to vehicles caused by gates closing on them. This is not considered to be a safety item as vehicle detectors cannot provide protection to pedestrians. In some situations, photoelectric devices may be used as vehicle detectors, but should be wired accordingly.

## 4. Gate Construction and Safety

Gate construction plays a very important role in ensuring the safety of any automated gate system. The standard for gate construction is ASTM F2200. Below are key areas to address safety in gate design. For complete information consult the standard. Copies of the standard are available at:

<https://www.astm.org/Standards/F2200.htm>

Another source of information is available from DASMA, the Door and Access System Manufacturer's Association. The Association publishes Technical Data Sheets, one of which concerns ASTM F2200. For more information, see:

<http://www.dasma.com/PDF/Publications/TechDataSheets/OperatorElectronics/TDS370.pdf>

### 4.1 General Requirements for gate construction

- 4.1.1 Gates shall be constructed in accordance with the provisions given for the appropriate gate type listed. Refer to ASTM F2200 for additional gate types.
- 4.1.2 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.
- 4.1.3 Gates shall have smooth bottom edges, with vertical bottom edged protrusions not exceeding 0.50 in. (12.7 mm) when other than the Exceptions listed ASTM F2200.
- 4.1.4 The minimum height for barbed wire shall not be less than 6 ft. (1.83 m) above grade. The minimum height for barbed tape shall not be less than 8 ft. (2.44 m) above grade.
- 4.1.5 An existing gate latch shall be disabled when a manually operated gate is retrofitted.
- 4.1.6 A gate latch shall not be installed on an automatically operated gate.
- 4.1.7 Protrusions shall not be permitted on any gate. Consult ASTM F2200 for exceptions.

4.1.8 Gates shall be designed, constructed and installed such that their movement shall not be initiated by gravity when an automatic operator is disconnected.

4.1.9 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.

4.1.10 Any non-automated gate that is to be automated shall be upgraded to conform to the provisions of this specification.

4.1.11 This specification shall not apply to gates generally used for pedestrian access and to vehicular gates not to be automated.

4.1.12 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.

## 4.2 Vehicular Horizontal Slide Gate Requirements

4.2.1 The following provisions shall apply to Class I, Class II and Class III vehicular horizontal slide gates:

4.2.1.1 All weight bearing exposed rollers 8 ft (2.44 m), or less, above grade shall be guarded or covered

4.2.1.2 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.

4.2.1.3 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 in. (57 mm). Exception: All other fixed stationary objects greater than 16 in. (406 mm) from the gate frame shall not be required to comply with this section.

4.2.1.4 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.

4.2.1.5 All gates shall be designed with sufficient lateral stability to assure that the gate will enter a receiver guide. Consult ASTM F2200 for details on various gate panel types.

4.2.2 The following provisions shall apply to Class IV vehicular horizontal slide gates:

4.2.2.1 All weight bearing exposed rollers 8 ft (2.44 m), or less, above grade shall be guarded or covered.

4.2.2.2 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.

### 4.3 Vehicular Horizontal Swing Gates

- 4.3.1 The following provisions shall apply to Class I, Class II, and Class III horizontal swing gates:
- 4.3.2 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, subject to the following provisions.
- 4.3.3 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 in. (102 mm), measured from the centerline of the pivot point of the gate. Exception: For a gate that is not in compliance with this provision, the defined area shall be subject to the entrapment protection provisions of UL 325.
- 4.3.4 Except for the zone specified in 4.3.3 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 in. (406 mm). Exception: For a gate that is not in compliance with this provision, the defined area shall be subject to the entrapment protection provisions of UL 325.
- 4.3.5 Class IV vehicular horizontal swing gates shall be designed, constructed and installed in accordance with security related parameters specific to the application in question.

### 5. Maintenance of Gate Systems

To keep your automated gate system performing both safely and reliably it is important to ensure that the components of that system are functioning properly. At least monthly:

- 5.1 Disconnect the gate operator and manually move the gate through its range of travel. Note any squeaks from rollers or hinges or areas of binding. The gate should travel smoothly and quietly throughout its range. If it does not, contact a gate professional to correct the problem.
- 5.2 Reconnect the gate operator and perform the following tests:
  - 5.2.1 With the gate opening, block any photo eyes and/or depress any safety edges used to protect the open direction. The gate should stop, or, stop and reverse.
  - 5.2.2 With the gate closing, block any photo eyes and/or depress any safety edges used to protect the close direction. The gate should stop, or, stop and reverse.
  - 5.2.3 Using a suitable obstruction in the path of the gate (a solid, immovable object), run the gate in the open direction until it contacts the obstruction. The gate should stop and reverse.
  - 5.2.4 Using a suitable obstruction in the path of the gate (a solid, immovable object), run the gate in the close direction until it contacts the obstruction. The gate should stop, or, stop and reverse.

## 6. Entrapment Protection

The UL325 standard for gate operators requires a minimum of two independent entrapment protection means for each entrapment zone. An entrapment zone is defined as follows:

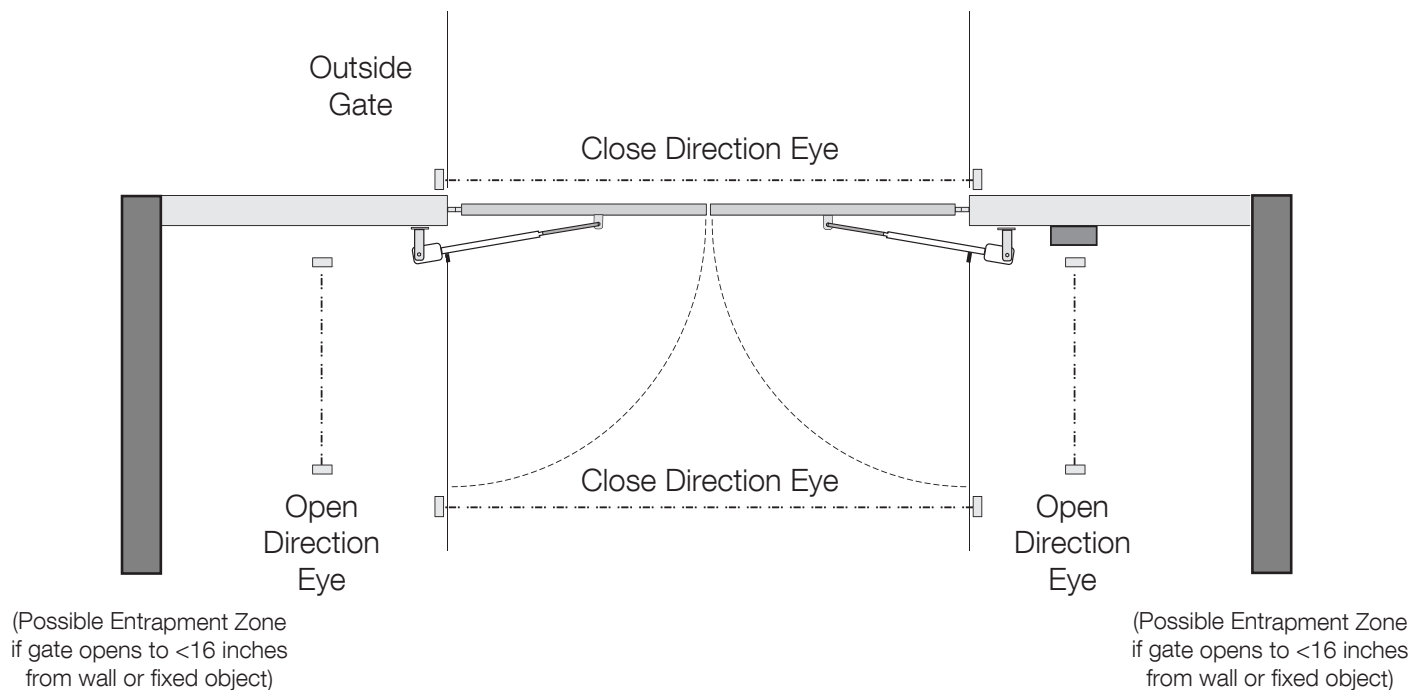
For slide gates, any locations between a moving gate and a counter opposing edge or surface where entrapment is possible up to a height of 6 ft. (1.83m) above grade. Such locations occur if at any point in travel the gap between a moving gate and the fixed counter opposing edges or surfaces is less than 16 in. (406mm).

For swing gates, locations between a moving gate or moving, exposed operator components and a counter opposing edge or surface where entrapment is possible up to 6 ft (1.83m) above grade. Such locations occur if during any point in travel:

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

Potential entrapment zones are shown in Figure 1 for slide and swing gates, but keep in mind there may be other entrapment zones presented by the actual installation and adjacent structures or landscape that must be protected as well.

Entrapment Protection Inputs - Typical Installation Diagram Utilizing Photocells



All Nice gate operators feature an Inherent Entrapment System (IES) (UL325 Type A) that monitors the force on the gate during travel. This system protects in both the open and close direction and reverses on contact with an obstruction. This IES system serves as one of the means of entrapment protection.

External sensors must be used to protect against entrapment at each location where an entrapment zone exists. The minimum number of external sensors required to enable automatic operation of the gate operator is as follows:

- Swing Gates: One sensor in the Close direction (provided the gate in the open direction presents no risk of entrapment.)
- Slide Gates: One sensor in the Open direction and one sensor in the Close direction.

The gate operator tests for the presence of these sensors, and if the required minimum number is not found, the operator will only run using continuous pressure on an Open/Close button, either on the controller, or an external device.

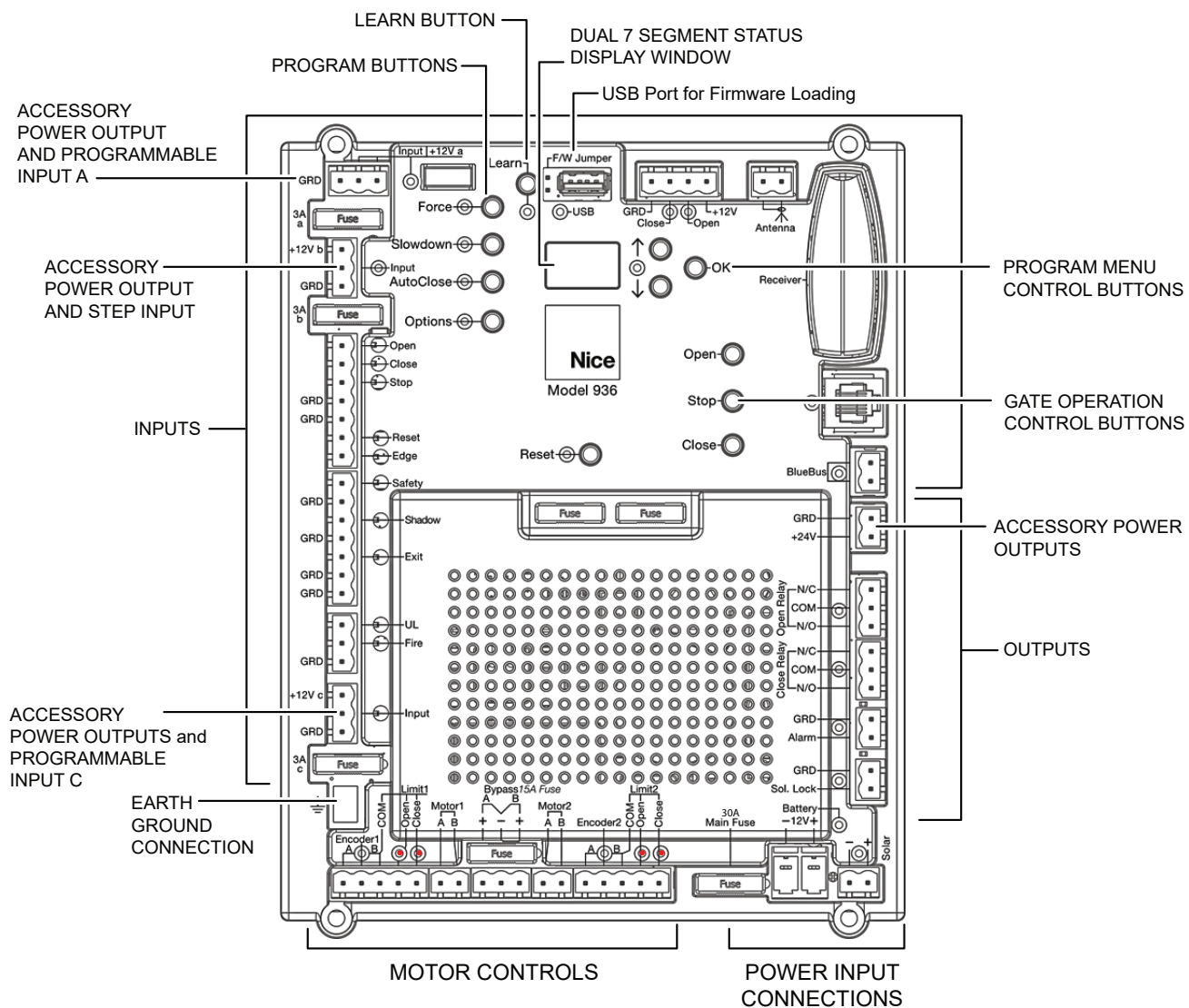
## 7. **Compatible External Sensors**

Only the following external sensors have been evaluated and tested with Nice gate systems and are approved to be used for protection against entrapment:

- Nice Through-Beam Photo Eye BlueBus
- EMX IRB-RET Retro-reflective Photo Eye
- ASO Sentir Series Contact Edge
- Miller Edge GEM-103 Edge Sensor Converter
- EMX WEL-200 Wireless Edge Transmitter/Receiver



## 8 - 936 CIRCUIT BOARD LAYOUT



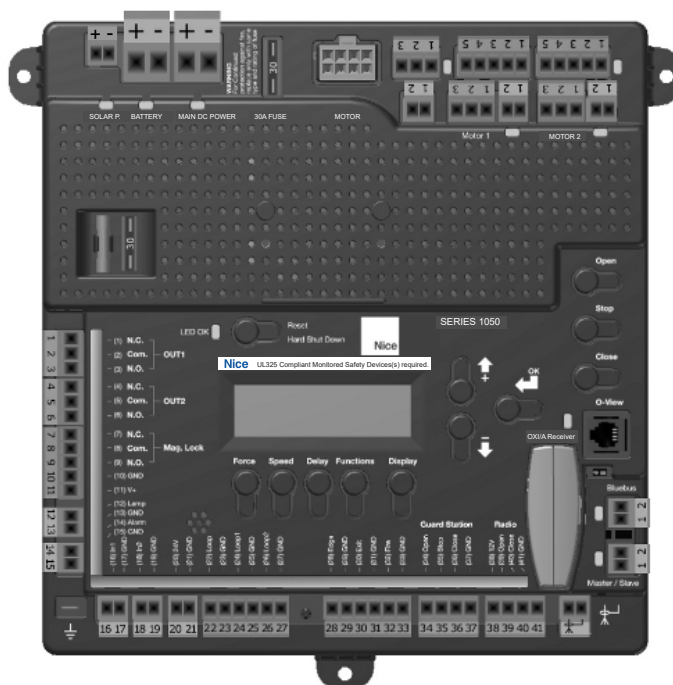
## 9 - 1050 CIRCUIT BOARD LAYOUT

Power Input  
Connections

Motor Output  
Connections

Accessory  
Output  
Connections

Earth Ground



BlueBus  
Connection  
Primary / Secondary  
Connection

Accessory Input Connections

## 10 - INSTALLATION PROCEDURES

### 10.1 - Pivot Arm Installation

**IMPORTANT** - Never weld parts to the gate or posts when the operator circuit board is powered. Doing so may damage the board beyond repair.

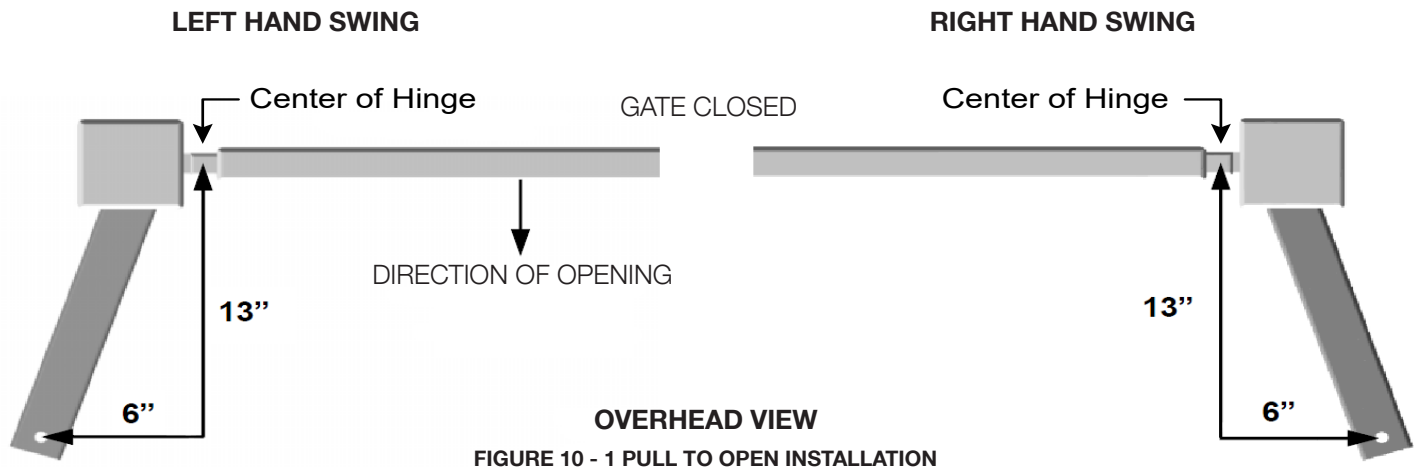
#### **PULL TO OPEN INSTALLATION - Location of Pivot Point**

The following instructions provide up to 105° of swing.

Measurements are taken from the center of pivot of the gate hinge.

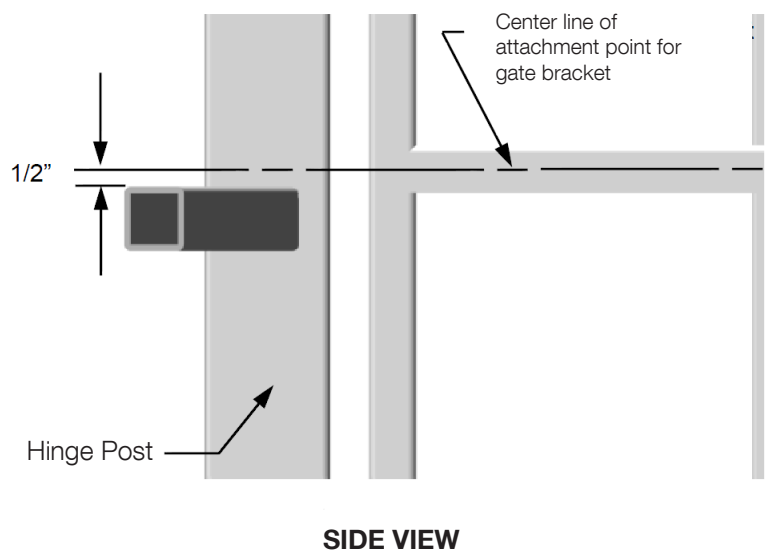
The pivot arm needs to be securely mounted to the hinge post or equivalent mounting surface. It is recommended to weld the pivot arm to a metal post. In order to achieve the correct articulation, geometry and rate of speed of the gate it is critical that the measurements below are followed. The pivot arm may need to be cut to achieve the correct placement of the actuator mounting hole. Measurements are taken from the center of pivot of the gate hinge.

**NOTE:** If you have columns built around your gate hinge post, check these measurements for proper clearance before proceeding with this pull to open installation.



#### **Vertical position of pivot arm**

The top edge of the Pivot Arm will be located 1/2 inch below the center line for the gate bracket. The Pivot Arm must be level when secured.



## 10 - INSTALLATION PROCEDURES (CONT.)

### 10.2 - Push to Open Installation

#### PIVOT ARM INSTALLATION - Location of Pivot Point

Measurements are taken from the center of pivot of the gate hinge.

The pivot arm needs to be securely mounted to the hinge post or equivalent mounting surface. It is recommended to weld the pivot arm to a metal post. In order to achieve the correct articulation, geometry and rate of speed of the gate it is critical that the measurements below are followed. The pivot arm may need to be cut to achieve the correct placement of the actuator mounting hole. Measurements are taken from the center of pivot of the gate hinge.

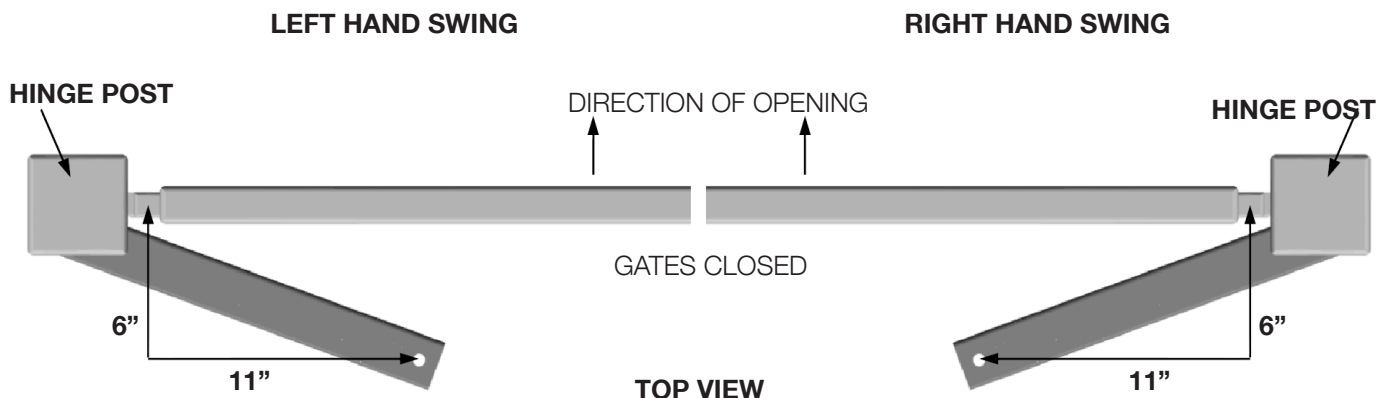


FIGURE 10 - 3 PUSH TO OPEN INSTALLATION

### 10.3 - Actuator mounting

Mount the actuator to the pivot arm as shown.

The lock nut should be snug to prevent movement or shifting when the actuator is running. This will also prevent excessive "bounce" or "wobble" when the gate stops moving.

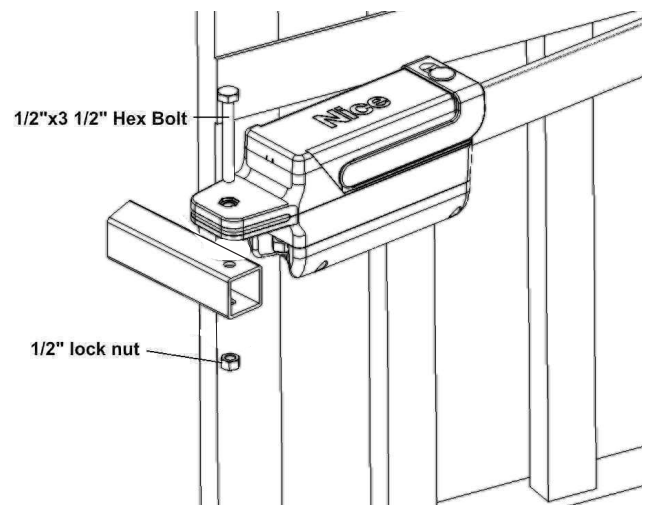


FIGURE 10 - 4 ACTUATOR MOUNTING

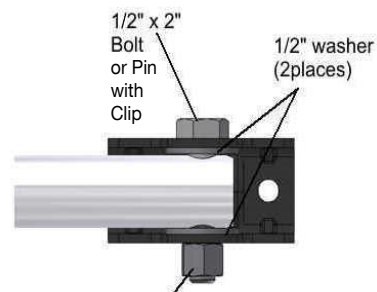


FIGURE 10 - 5 GATE BRACKET MOUNTING

## 10 - INSTALLATION PROCEDURES (CONT.)

### 10.4 - Manual Release / Manual Operation

#### MANUAL RELEASE DISENGAGE

1. Lift rubber key cover, insert key into lock, and rotate 90° clockwise.
2. Lift handle
3. Actuator is now Disengaged (manual operation is possible).

**NOTE:** Manual operation may be prevented if the actuator is fully retracted.



FIGURE 10-6 MANUAL RELEASE DISENGAGE

#### MANUAL RELEASE RE-ENGAGE

1. Close handle.
2. Rotate key 90° counter-clockwise and remove key.
3. Replace rubber key cover.
4. Operator is now re-engaged in Automatic Mode (manual operation is not possible).

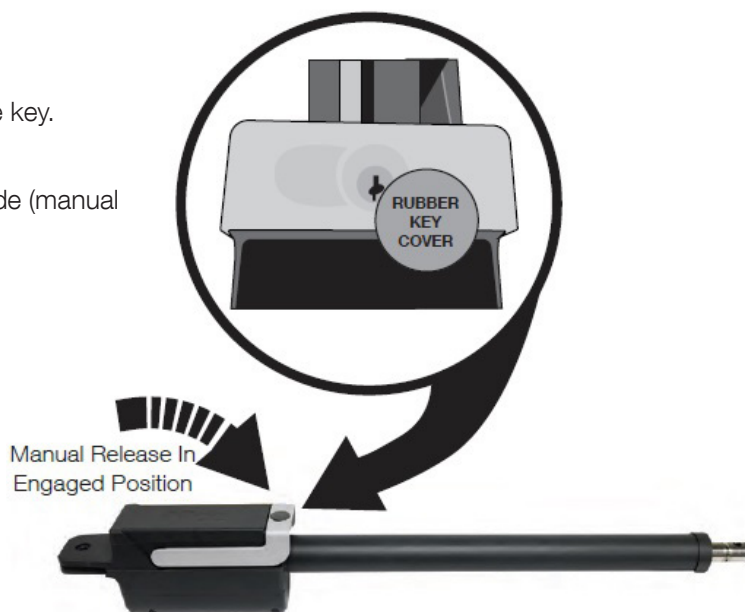


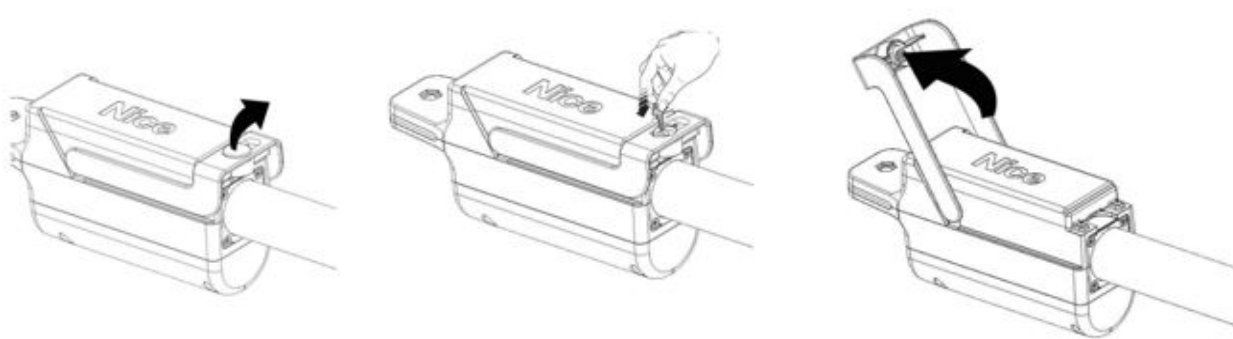
FIGURE 10-7 MANUAL RELEASE RE-ENGAGE

## 10 - INSTALLATION PROCEDURES (CONT.)

### 10.5 - TITAN12L Actuator Wiring

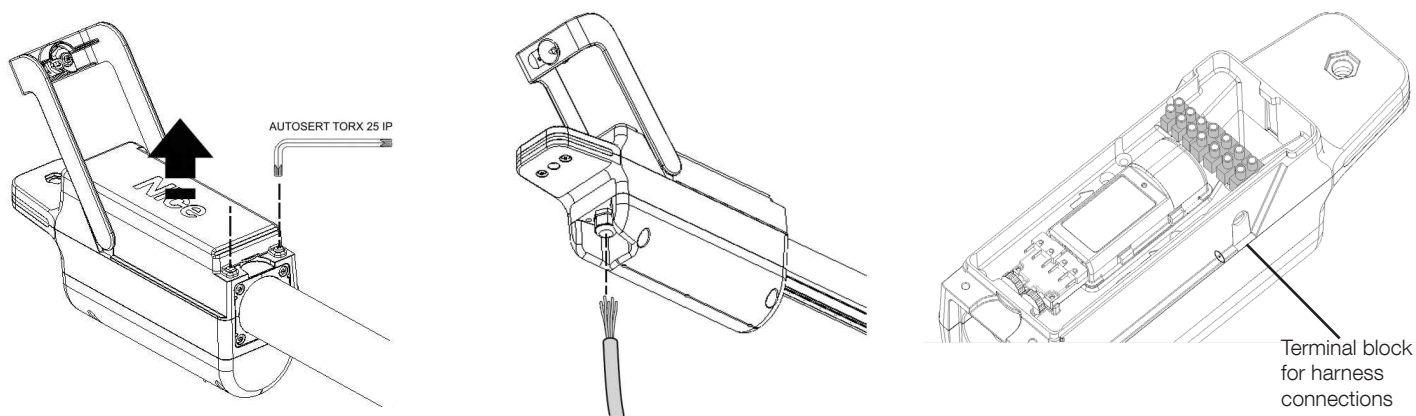
**THE FOLLOWING SECTION NEED ONLY BE USED FOR REWIRING IN THE EVENT OF A DESIRED LONGER OR SHORTER CABLE LENGTH.**

Using the supplied key, unlock the manual release handle. Lift upwards on the release handle as shown.

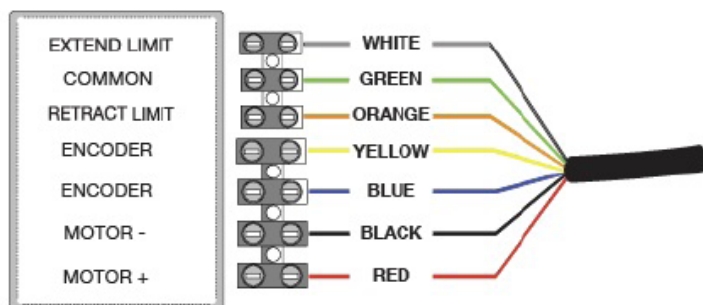


**FIGURE 10 - 8 MANUAL RELEASE HANDLE**

With the release handle up, remove the screws from the limit cover and remove the cover. On the bottom of the actuator loosen the strain relief nut and insert the wire into the actuator housing. The connections are on the top of the actuator behind the limit assembly.



**FIGURE 10 - 9 WIRE HARNESS INSERTION**



Connect the wiring to the actuator terminal block as shown.

**FIGURE 10 - 10 TITAN12L/12L1 ACTUATOR WIRING**



## 10 - INSTALLATION PROCEDURES (CONT.)

### 10.6 - 936 Control Board Wiring

#### 10.6.1 - TITAN ACTUATOR WIRING (PULL TO OPEN)

##### TITAN limit switch and smart sensor wiring

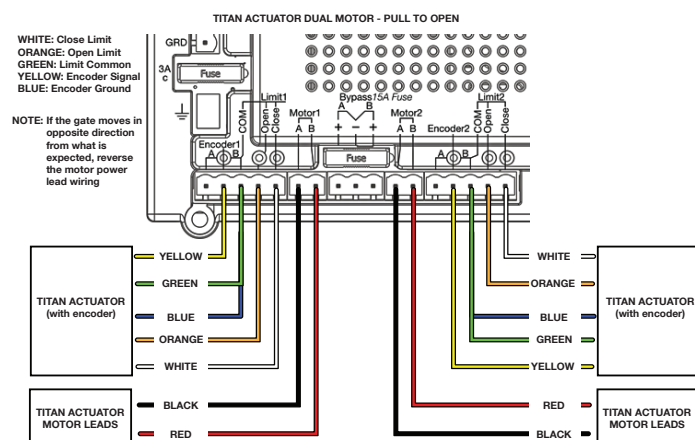
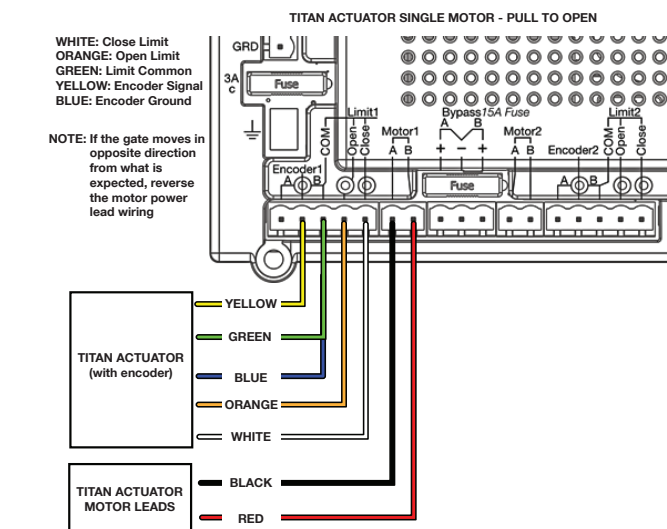
Connect the Nice TITAN actuator cable to the 5-pin connector as shown below. These connections enable the Nice TITAN limit switch and smart sensor inputs into the gate controller.

##### TITAN actuator motor wiring

Connect the Nice TITAN actuator motor leads to the 2-pin connector as shown below.

**Note:** If the gate moves in the opposite direction from what is expected, reverse the actuator wiring from what is shown. (Red to Pin 2, Black to Pin 1).

Install the 5 and 2-pin connector into the connection labeled "Motor 1" on the controller. Install the 5 and 2-pin and connector into the connection labeled "Motor 2" for a dual leaf swing gate installation. For dual actuators, the actuator with the shorter cable must plug into Motor 1 connections.



#### 10.6.2 - TITAN ACTUATOR WIRING (PUSH TO OPEN)

##### TITAN limit switch and smart sensor wiring

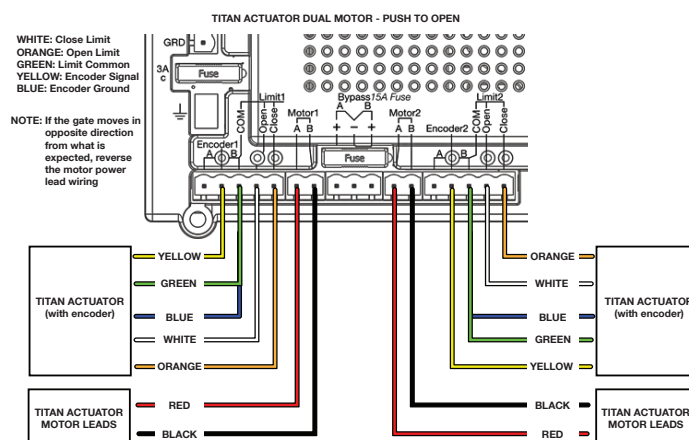
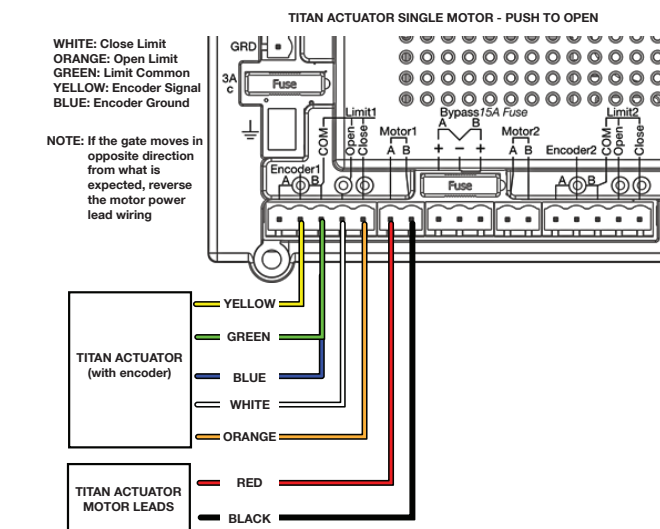
Connect the Nice TITAN actuator cable to the 5-pin connector as shown below. These connections enable the Nice TITAN limit switch and smart sensor inputs into the gate controller.

##### TITAN actuator motor wiring

Connect the Nice TITAN actuator motor leads to the 2-pin connector as shown below.

**Note:** If the gate moves in the opposite direction from what is expected, reverse the actuator wiring from what is shown. (Red to Pin 1, Black to Pin 2).

Install the 5 and 2-pin connector into the connection labeled "Motor 1" on the controller. Install the 5 and 2-pin and connector into the connection labeled "Motor 2" for a dual leaf swing gate installation. For dual actuators, the actuator with the shorter cable must plug into Motor 1 connections.



## 10 - INSTALLATION PROCEDURES (CONT.)

### 10.7 - 1050 Control Board Wiring

#### 10.7.1 - TITAN ACTUATOR WIRING (PULL TO OPEN)

##### TITAN limit switch and smart sensor wiring

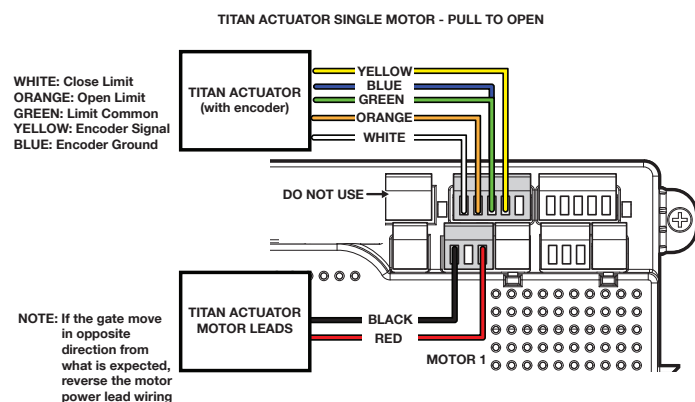
Connect the Nice TITAN actuator cable to the 5-pin connector as shown below. These connections enable the Nice TITAN limit switch and smart sensor inputs into the gate controller.

##### TITAN actuator motor wiring

Connect the Nice TITAN actuator motor leads to the 3-pin connector as shown below.

**Note:** If the gate moves in the opposite direction from what is expected, reverse the actuator wiring from what is shown. (Red to Pin 2, Black to Pin 1).

Install the 5 and 3-pin connector into the connection labeled "Motor 1" on the controller. Install the 5 and 2-pin and connector into the connection labeled "Motor 2" for a dual leaf swing gate installation. For dual actuators, the actuator with the shorter cable must plug into Motor 1 connections.



#### 10.7.2 - TITAN ACTUATOR WIRING (PUSH TO OPEN)

##### TITAN limit switch and smart sensor wiring

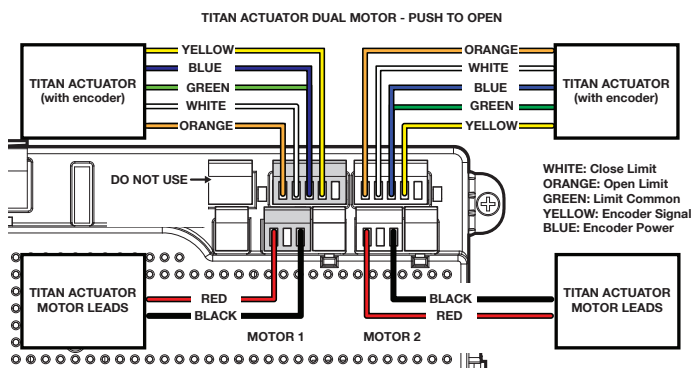
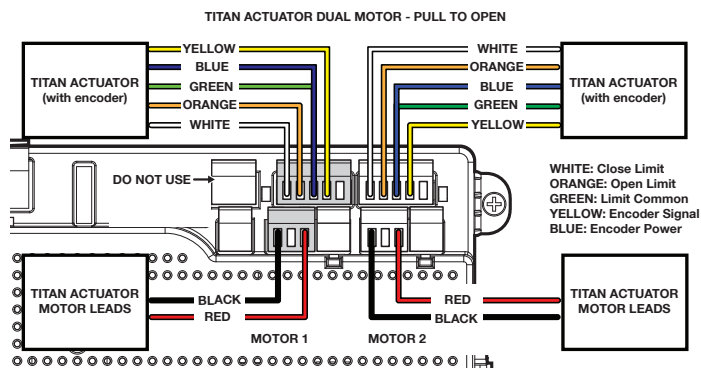
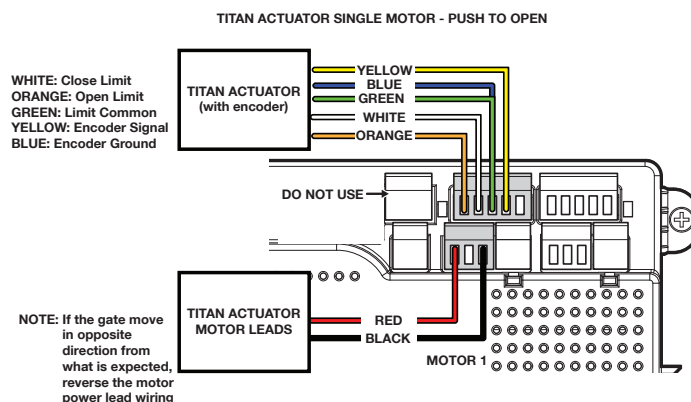
Connect the Nice TITAN actuator cable to the 5-pin connector as shown below. These connections enable the Nice TITAN limit switch and smart sensor inputs into the gate controller.

##### TITAN actuator motor wiring

Connect the Nice TITAN actuator motor leads to the 3-pin connector as shown below.

**Note:** If the gate moves in the opposite direction from what is expected, reverse the actuator wiring from what is shown. (Red to Pin 1, Black to Pin 2).

Install the 5 and 3-pin connector into the connection labeled "Motor 1" on the controller. Install the 5 and 2-pin and connector into the connection labeled "Motor 2" for a dual leaf swing gate installation. For dual actuators, the actuator with the shorter cable must plug into Motor 1 connections.



## 10 - INSTALLATION PROCEDURES (CONT.)

### 10.8 - Limit Switch Adjustment

**BEFORE continuing with this section, make sure to have the MANUAL for the control box specific to this installation in hand.**

1. From the manufacturer, Titan actuators will be in the fully retracted position.
2. If the actuator is not mounted to the pivot arm, do so at this time (see Sec. 5.3).
  - a. For a standard pull to open application, bring the gate leaf to the fully open position.
  - b. For a reversed push to open application, bring the gate leaf to the fully closed position.
3. Bring the bracket end of the actuator (with the gate bracket attached) into contact with the gate and mark placement.
4. Remove the extension tube from the bracket and weld or bolt the bracket to the gate using 3/8" bolts, lock washers and nuts.
5. Bolt the extension tube of the operator back into the gate bracket.
6. Disengage the actuator to allow for manual operation (see section 5.4).
7. Remove the top cover to expose the limit assembly.
8. Manually move the gate to the:
  - a. Fully closed position for pull to open applications
  - b. Fully open position for push to open applications

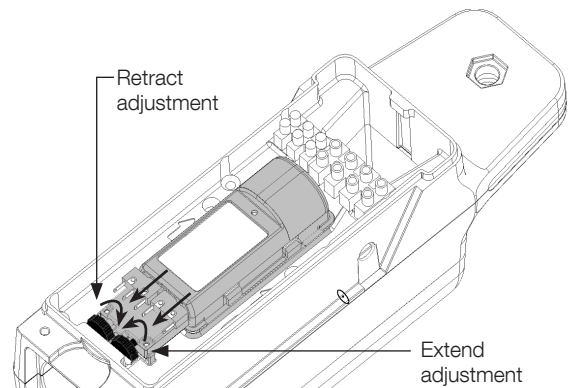
**A clicking sound will be heard as this manual operation is performed. This sound is the extend limit cog (blue) self-adjusting.**

9. Manually move the gate back to the:
  - a. Fully open position for pull to open applications
  - b. Fully closed position for push to open applications
10. Re-engage the actuator to engage the drive train.
11. Plug the actuator into the control board (see Sec. 5.6).
12. Put the control board in hold-to-run (Learn) mode. (refer to control board manual)
13. Remove the plastic dual knob cover and turn the knob controlling the linear motion of the retract limit cog (white) to bring it into contact with the limit switch. If this is done correctly you will see:
  - a. With the 1050 control board
    - i. The LED below the motor connection port being used, illuminate green indicating the open limit is active for a pull to open application.
    - ii. The LED below the motor connection port being used, illuminate red indicating the closed limit is active for a push to open application.
  - b. With the 936 control board
    - i. The LED marked Limit 1 Open (or Limit 2 Open if using motor 2) illuminate red indicating the open limit is active for a pull to open.
    - ii. The LED marked Limit 1 Close (or Limit 2 Close if using motor 2) illuminate red indicating the close limit is active for a push to open.
14. Press and hold:
  - a. The close button until the close limit is activated for a pull to open application.
  - b. The open button until the open limit is activated for a push to open application.
15. If the location of the gate is not the location desired, disengage the actuator using the manual release lever (sect 2.4), move the gate to the position desired and reengage the actuator.

16. Turn the knob controlling the linear motion of the extend limit cog (blue) to bring it into contact with the limit switch. If this is done correctly you will see:
  - a. With the 1050 control board
    - i. The LED below the motor connection port being used, illuminate red indicating the close limit is active for a pull to open application.
    - ii. The LED below the motor connection port being used, illuminate green indicating the open limit is active for a push to open application.
  - b. With the 936 control board
    - i. The LED marked Limit 1 Close (or Limit 2 Close if using motor 2) illuminate red indicating the Close limit is active for a pull to open.
    - ii. The LED marked Limit 1 Open (or Limit 2 Open if using motor 2) illuminate red indicating the Open limit is active for a push to open.
17. If the location of the gate is not the location desired, engage the manual release, move the gate to the position desired and disengage the manual release, then repeat step 12.
18. Consult the 1550 or 1551 manuals for instruction regarding the particular learn procedure.

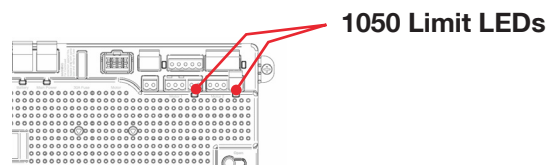
**Steps 9 thru 16 may need to be repeated if the open and close positions established during the learn cycle need adjustment.**

**\*Once the operator has been learned and the location of the limits is correct, replace the dual knob cover and top cover.**

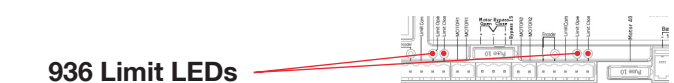


**FIGURE 10 - 13 LIMIT SWITCH ADJUSTMENT**

**NOTE:** Turning the knob in the direction shown above will move the limit cog toward the limit switch



**FIGURE 10- 14 LIMIT LOCATION 1050 CONTROL BOARD**



**FIGURE 10 - 15 LIMIT LOCATION 936 CONTROL BOARD**

## 11 - GENERAL LAYOUT AND SAFETY ACCESS

### Possible Entrapment Zones - Typical Installation Diagram Utilizing Loop Sensors and Photocells

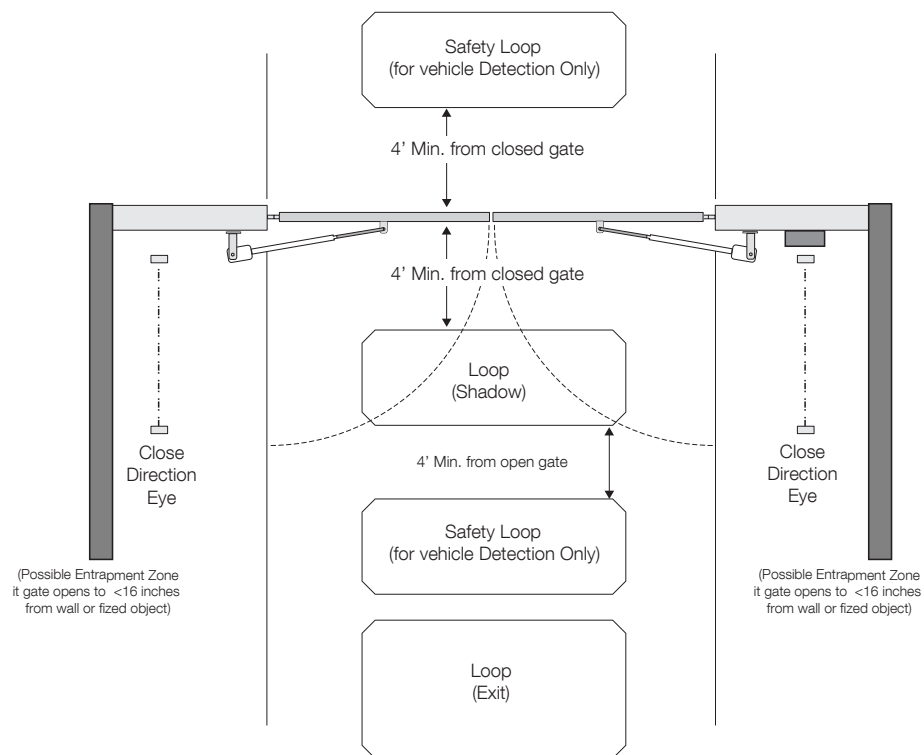


Figure 11-1 LAYOUT FOR IN-GROUND LOOPS

### Possible Entrapment Zones - Typical Installation Diagram Utilizing Photocells

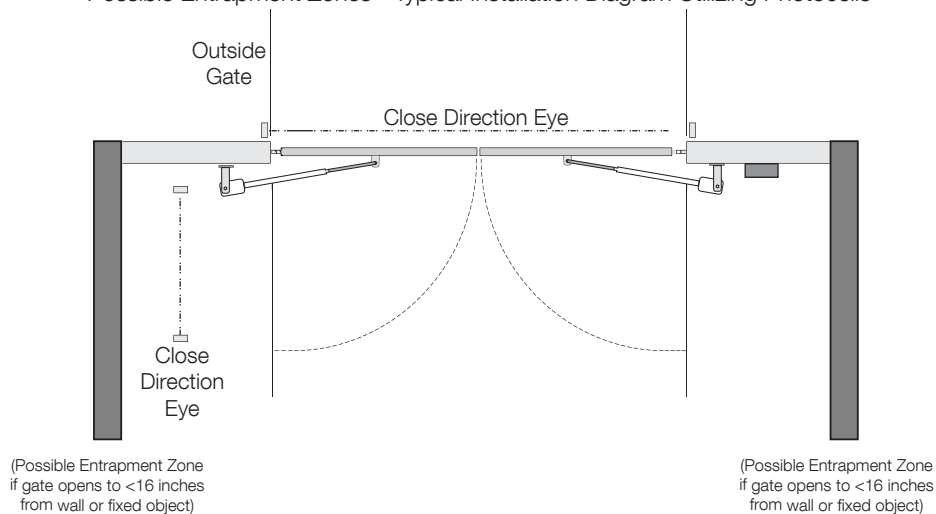


Figure 11-2 LAYOUT FOR PHOTO CELLS

## 12 - ACCESSORIES AND SENSORS

### EXTERNAL ENTRAPMENT PROTECTION

Non-contact and contact sensors must be installed individually or in combination with each other to provide complete external entrapment protection.

Care should be exercised to reduce the risk of nuisance tripping, such as when a vehicle trips the sensor while the gate is still moving, and 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.

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.

A wireless contact sensor such as one that transmits radio frequency (RF) signals to the gate operator for entrapment protection functions shall be located where the transmission of the signals are not obstructed or impeded by building structures, natural landscaping or similar obstruction. See 1550 or 1551 manual for more information on external entrapment protection.

### DURING INSTALLATION

- DISCONNECT POWER at the control panel before making any electric service power connection.
- Be aware of all moving parts and avoid close proximity to any pinch points.
- Know how to operate the manual release.
- Adjust the unit to use the minimum force required to operate the gate smoothly even during mid-travel reversing.
- Place controls a minimum of 8 feet away from the gate so that the user can see the gate and operate controls but cannot touch the gate or gate operator while operating the controls.
- Warning signs must be placed on each side of the gate or in high-visibility areas to alert of automatic gate operations.



## 13 - INSPECTION AND OPERATION

Proper inspection of all equipment is required to ensure continuous functionality, safety and to ensure reliable operation in all weather conditions. Inspect electrical assemblies and wiring installations for damage, general condition, and proper functioning to ensure the continued satisfactory operation of the gate operating system. Adjust, repair, overhaul, and test gate operating system in accordance with the recommendations and procedures in the gate operator system and/or component manufacturer's maintenance instructions.

Replace components of the gate operating system that are damaged or defective with identical parts, with manufacturer's approved equipment, or its equivalent to the original in operating characteristics, mechanical strength, and environmental specifications. A partial list of suggested problems to look for and checks to be performed are listed below:

- 13.1 Damaged, discolored, or overheated equipment, connections, wiring, bearing caps and installations.
- 13.2 Excessive heat or discoloration at high current carrying connections. (look for bluing or heat affected metal).
- 13.3 Misalignment of electrically driven equipment. (Causes strain on pulley assemblies and bearings).
- 13.4 Poor electrical bonding (broken, disconnected or corroded bonding strap) and grounding, including evidence of corrosion.
- 13.5 Dirty equipment and connections. Clean equipment and connections.
- 13.6 Improper, broken, inadequately supported equipment, wiring and conduit, loose connections of terminals, and loose ferrules.
- 13.7 Poor mechanical or weld joints. Broken welds.
- 13.8 Condition of circuit breaker and fuses. Ensure that they are of the correct type and amperage.
- 13.9 Insufficient clearance between exposed current carrying parts and ground or poor insulation of exposed terminals. All exposed connections must be covered (prevent arcing between exposed parts, and electrical shock).
- 13.10 Broken or missing wire, connectors, etc.
- 13.11 Operational check of electrically operated equipment such as motors, inverters, generators, batteries, lights, protective devices, etc. Ensure proper functionality of all systems during inspections.
- 13.12 Ensure safety placards and warning signs are present as specified within this document. Ensure proper functionality of all safety devices as specified. Non-functioning or malfunctioning safety devices should be replaced immediately.

## 14 - EMERGENCY VEHICLE ACCESS

The automatic vehicular gate system must be designed to allow access to emergency vehicles under different operating conditions.

During normal powered operation, emergency vehicles access the gate by use of the emergency vehicle access device installed on your gate system. The type of device that is used in your community is dependent on your city codes. These devices may include (but are not limited to) Fire Department lock boxes, Click-2-Enter radio receivers, strobe light sensors, siren sensors, etc.

Check with your installer to determine if your gate system is equipped with a back-up power system. In the event of a primary (AC) power failure and a back-up system (DC) power failure (low charged or dead batteries for example), the system must have a release system to allow the gate to be manually operated. The release device must be accessible from either side of the gate and must be present so that emergency personnel can gain access through the gate under this condition.

If applicable, this system is equipped with a manual release system that will allow the gate to be pushed open in the event of a power outage or equipment failure.

**NOTE:** Never attempt to manually push open any gate with an operator attached to it until you have verified that power to the operator has been shut-off.

The automatic vehicular gate system must be designed to allow access to emergency vehicles under different operating conditions.

In the event of a power failure, the emergency vehicle access device may not be functional because the gate operator is not powered.

**NOTE:** DC powered back-up systems are optional and your gate system may or may not be equipped with one. Check with your installer to determine if your gate system is equipped with a back-up power system.

For manual fail-safe gate operation, turn power to the operator OFF. If a backup power system is in use, be sure that this power is turned OFF also or disconnected. Once power is OFF, the gate can be manually operated by engaging the manual release level.



## 15 - MAINTENANCE SCHEDULE

**Table 2**

		<b>COMPLETE</b>	<b>BASIC</b>
Alarm	Activate the (inherent) reverse system by blocking the gate with a solid object. The gate should reverse momentarily then stop. Restart the gate and block again with a solid object. The gate should reverse momentarily, then stop, and go into hard shutdown with an alarm	●	●
Backup System	If operator is equipped with DC backup system, check to be sure the system opens the gate upon loss of AC power	●	●
Battery	If operator is equipped with DC backup system, check the batteries for any leakage or loose connections. Batteries should be replaced every two years	●	
Fire Dept	Check emergency vehicle access device for proper operation	●	●
Gate	Inspect for damage	●	
Reverse System	Check that the gate reverses on contact with an object in both the opening and closing cycles	●	●
Loop(s)	Check vehicular reverse and shadow loops for proper operation	●	●
Release	Check manual release for proper operation	●	
Complete	Overall Check: Complete check of gate and gate operating system	●	
Mounting Hardware	Check screws and nuts	●	

## 16 - TROUBLESHOOTING

**Table 3**

<b>SYMPTOM(S)</b>	<b>POSSIBLE SOLUTION</b>
Operator will not Power On. Power LED is OFF	Check that power to the circuit board is turned ON Check terminal block wiring for loose or broken wires If voltage measures OK, check the terminal block Check the fuses (may be both AC and DC fuses in installation)
Gate opens a short distance, then stops and reverses	Check the external entrapment sensors on the gate controller Adjust Force Settings
Gate opens but will not close	Check the input LEDs. Any ON will hold the gate open and indicates a problem with a keying device Check the external entrapment devices. Any activated devices will hold the gate open and indicates a possible problem with the device Check the loop detectors. Any activated loop detectors can hold the gate open and indicates a possible problem with the loop detector or ground loop
Battery backup system will not open gate upon AC power outage	Check if backup system is set to open gate automatically or requires an input to open Check the batteries for proper voltage. Replace if necessary
Hard Shutdown (2 back to back obstructions) LED blinking, Buzzer sounds for 5 minutes	Clear any obstructions from the path of the gate. Press RESET to clear (or hard reset button)
Gate opens by itself	Check accessory inputs and clear then as necessary

## 16 - TROUBLESHOOTING (CONT.)

**Table 4: 1050 Board Display Read Out and Troubleshooting**

DISPLAY	REASON	POSSIBLE SOLUTION
Dynamic M1	Actuated connected to Motor 1 has a brief current spike and tripped Type A sensor.	Check for obstruction in gate path or degraded gate hardware.
Dynamic M2	Actuated connected to Motor 2 has a brief current spike and tripped Type A sensor.	Check for obstruction in gate path or degraded gate hardware.
Static M1	Actuated connected to Motor 1 has an extended current spike and tripped Type A sensor.	Check for obstruction in gate path or degraded gate hardware.
Static M2	Actuated connected to Motor 2 has an extended current spike and tripped Type A sensor.	Check for obstruction in gate path or degraded gate hardware.
Input UL/Edge	UL/Edge input is tripped while gate is running. Appears is IN1 or IN2 input is tripped if configured as a pulsed, external sensor input.	Ensure photo eyes are aligned, edges are not tripped, and all inputs are programmed correctly.
Input STOP!	STOP input is not connect to GND.	Ensure jumper wire is being used and check external stop button wiring.
Photo Test FAIL!	BlueBus monitored sensor check fails.	Verify photo eye is connected, aligned, and internal jumpers are set correctly.
Device Error	Position sensor is not being correctly detected by the board or if there is an active input on the board preventing the learn process.	Ensure Motor 1 and Motor 2 position sensors are connected correctly for the type of actuator being used. Also make sure there are no active inputs.
Gate Opened	Appears during Learn Mode if Open Limit is active.	Change gate to mid-travel and restart the learn process.
BlueBus or Input - Activated	Appears when active BlueBus or other external entrapment sensor input is preventing gate motion.	Ensure all sensors are connected correctly and properly aligned. Ensure all inputs are programmed correctly.
Hard Shut Down	Appears when Dynamic and/or Static sensors have two consecutive trips.	Press the Reset/Hard Shut Down button to clear the trip and reenable gate operation.
Overload	Appears when Motor 1 or Motor 2 over-current.	Ensure motors are connected properly and there is no obstruction to gate movement.
Slide Requires - Min 2 Sensors	Appears when there are not at least two external entrapment sensors programmed and installed on a Slide Gate: 1. Open direction 2. Close direction.	Ensure all sensors are connected correctly and functional. Does not appear on Swing gates.
1 Open & 1 CIs - Sensor Required	Appears when Slide Gate operator does not at have at least one external entrapment sensor programmed and installed in each direction.	Ensure all sensors are connected correctly and functional. Does not appear on Swing gates.
Min. 1 Sensor - For Swing Gate!	Appears when Swing gate operator does not have at least one entrapment sensor programmed and installed for both open and close direction for travel.	Install minimum number of sensors. Does not appear on Slide Gates
BlueBus Error!	Appears when previously learned numbers and type of BlueBus sensors change.	Correct wiring/number of sensors and redo the learn procedure for the operator.
Scanning BlueBus - Prs Disp to Cncl	Appears when initial BlueBus learn procedure is in process.	Pressing the Display button will postpone the scan and remain in Learn Mode. Pressing and holding the open or close buttons will move the gate in the desired direction.

## FRENCH TRANSLATIONS

The following French translations provided below are found in the Safety Section located at the beginning of the manual.

English	French
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 CETTE NOTICE ET CONFORMEZ-VOUS AUX MISES EN GARDE
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.

## 17 - Appendix - French Translations (CONT.)

English	French
Install the gate operator only when:	N'installez l'ouvre-barrière que si :
The operator is appropriate for the construction of the gate and the usage Class of the gate,	l'ouvre-barrière est approprié pour la structure et la classe d'utilisation de la barrière;
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,	toutes les ouvertures de la barrière coulissante sont protégées ou grillagées du bas de la porte jusqu'à un minimum 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;
All exposed pinch points are eliminated or guarded, and	tous les points de pincement sont éliminés ou protégés;
Guarding is supplied for exposed rollers.	des protections sont fournies pour les galets exposés.
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.	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
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.	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 barrières battantes ne doivent pas ouvrir dans une zone d'accès public.
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.	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.

## 17 - Appendix - French Translations (CONT.)

English	French
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. 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.	Les commandes destinées à l'activation par l'utilisateur doivent être situées à au moins 1,83 m (6 pi) des pièces 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 : 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.
The Stop and/or Reset button must be located in the line of-sight of the gate. Activation of the reset control shall not cause the operator to start.	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.
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.	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.
For gate operators utilizing a non-contact sensor	Pour les ouvre-barrières qui fonctionnent avec des capteurs
See instructions on the placement of non-contact sensors for each Type of application,	Voir les instructions sur le positionnement des capteurs sans contact pour chaque type d'utilisation.
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	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.
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.	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.
For a gate operator utilizing a contact sensor	Pour les ouvre-barrières qui fonctionnent avec des capteurs
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.	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.

## 17 - Appendix - French Translations (CONT.)

English	French
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.	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.
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.	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.
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.	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.





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