

Nice Swing Gate Operator

Vehicular Swing Gate Operator

Model 3501

1050 Control Board



Programming & controls, connections and safety information provided in the 1551 manual in CBOX

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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: 3501 with 1050 (see 1551 manual for 1050 board programming and controls available).

1.1 1050 Control Board

The 1050 main control board is housed in a protective plastic enclosure that includes a 2-line LCD, 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 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 32VDC. 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 gate installer configure Nice 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.

1.2 1050 Control Board Features

- Inputs for solar panel, batteries, and Main DC Power.
- Low power consumption in stand-by mode.
- Built-in regulator to keep 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 voltage, 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).

1.3 What is Included

P/N	Name	Note
#CBOX1050	Control Box	
#CHBOX35	Chassis	
#ABOX35	Arm Assembly	
OXI/A	BlueBus Photo Eyes	
EPMB/A	BlueBus Photo Eyes	

1.4 Product Specifications

Model	3501
Electrical Data	
Power Supply	10 - 32 VDC
Operating Voltage	12VDC
Idle Current	110mA (awake) 10 mA (standby)
Performance Data	
Speed open 90° (s)	12 - 20 seconds
Duty Cycle (cycles/hour)	Varies based on charger time
Dimensional and General Data	
Working Temp (°F Min/Max)	-4° to 122° F (-20° to 50° C)
Dimensions - Control box (inches)	18w x 18h x 8d inches
Dimensions - Actuator (inches)	17.8w x 12h x 8.3d inches
Listed to UL325	Usage Class I, II, III, IV

1.5 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.

1.6 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.

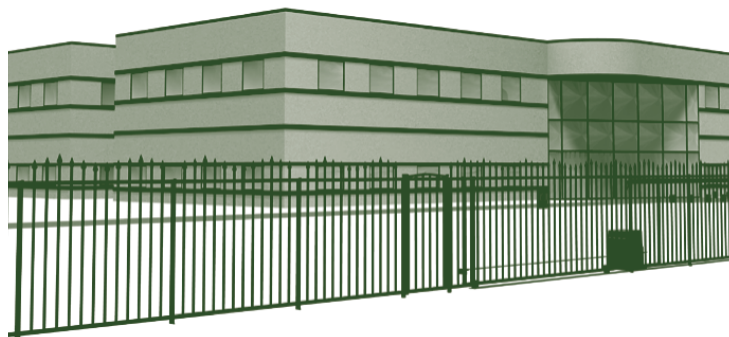
2.1.1 Class I Residential Gate Operator. Intended for use in a location of one to four single family dwellings or a parking area associated with one to four single family dwellings.



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.
- 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. Don't 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 A 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 When utilizing a Nice 1050 board, a maximum of 10 entrapment protection devices may be connected.
- 2.11 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.

2.12 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

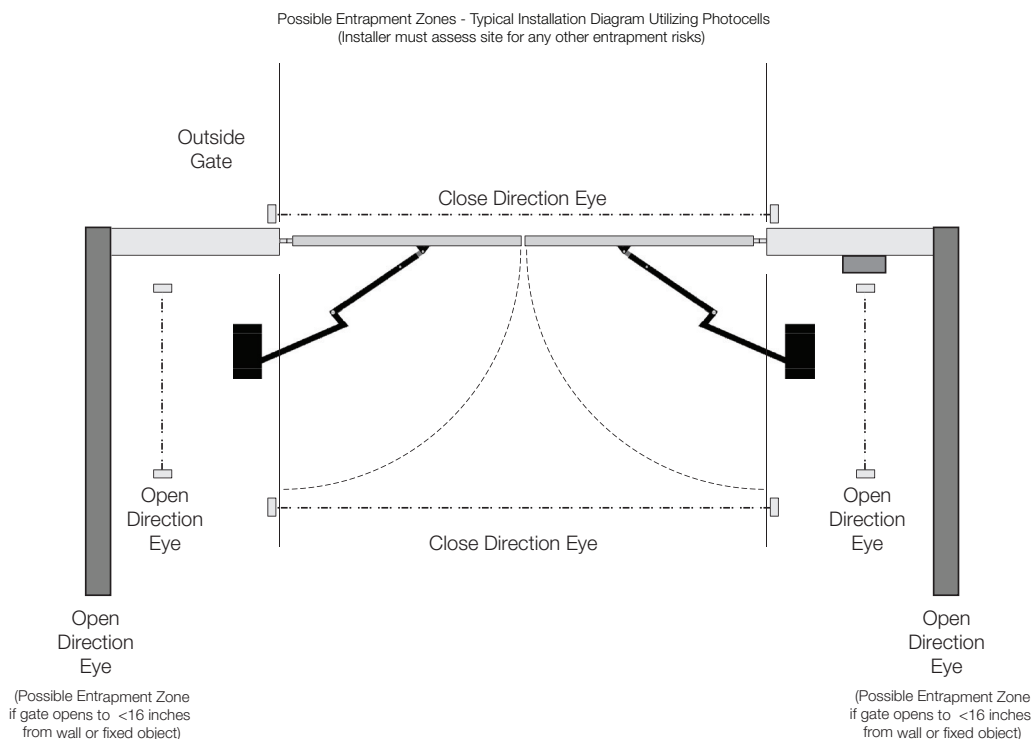
The UL325 standard for gate operators requires a minimum of two independent entrapment protection means for each entrapment zone. An entrapment zone is defined as follows:

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 below for 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.



Swing Gate Possible Entrapment Zones

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**

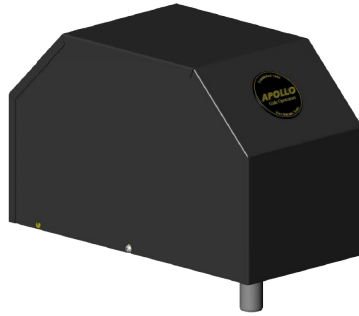
Only the following external sensors have been evaluated and tested with Nice gate systems and are approved to be used for protection against entrapment:

- Nice BlueBus Through-Beam Photo Eyes
- 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 - PARTS IDENTIFICATION



Control Box
#CBOX1050



Chassis
#CHBOX35



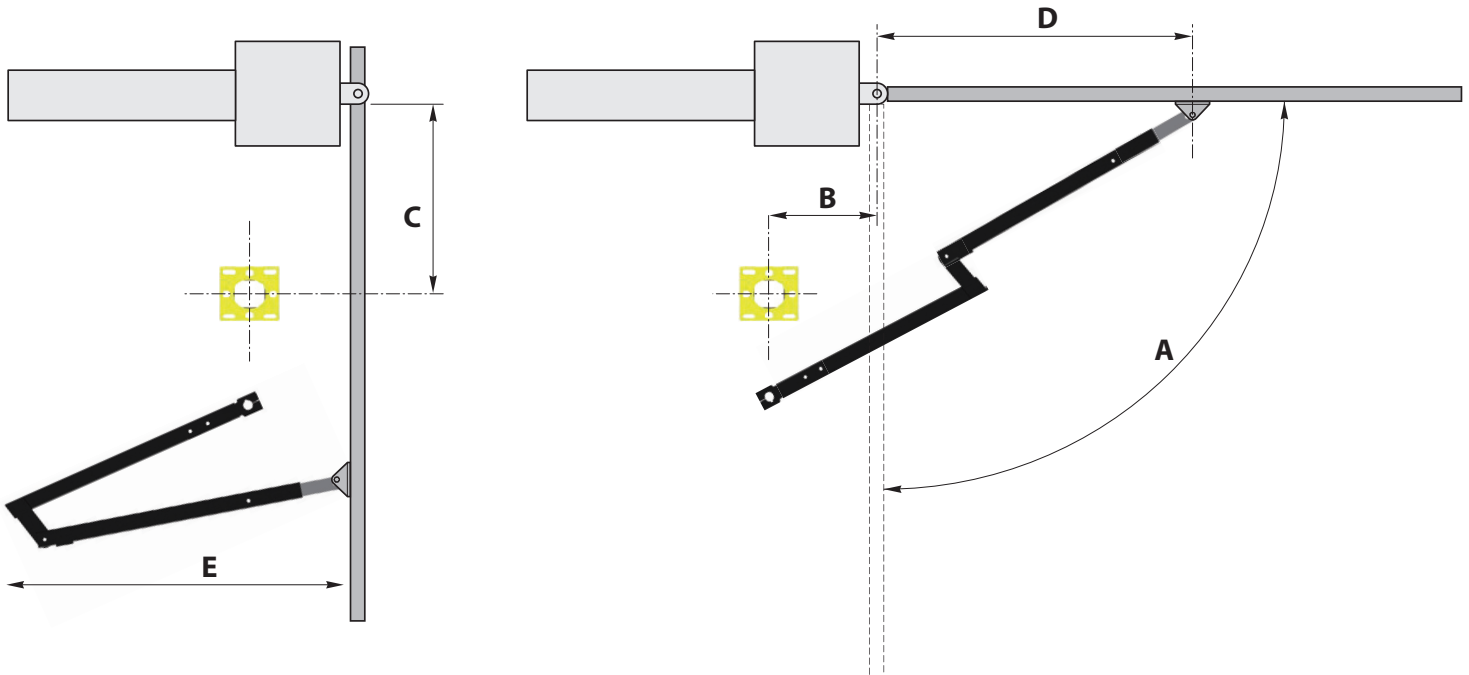
Arm Assembly
#ABOX35

9 - POST 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.

9.1 - Post location guide

Determine the angle that the gate will open to (A). Select the coordinates (B&C) as shown on the chart below. Distances are from the hinges square to the center of the mounting post. Longer gates should operate at slower speeds.



9 - POST INSTALLATION (CONT.)

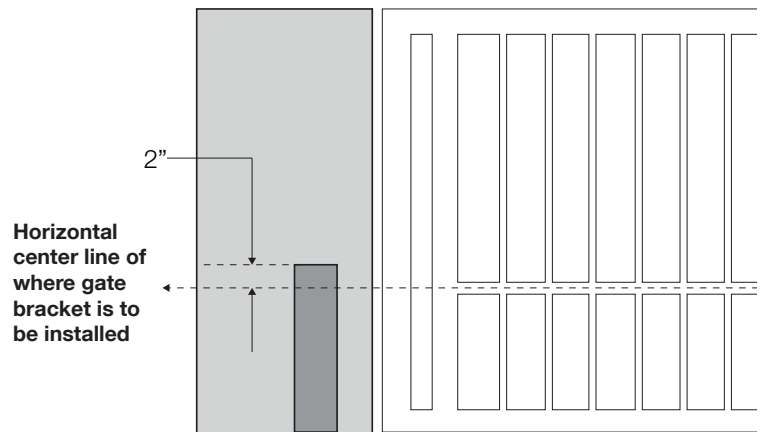
OPTIMUM SETTING SHOWN IN GREEN

A Open Degrees	B Inches	C Inches	D Inches	E Inches	Approximate seconds to open
90	10	31.2	46.3	40.6	15
90	10	30	47.1	42	16
92	15	30	42.1	34	15
97	13.5	25.5	46.3	46.8	17
97	15	25	45	47.1	16
100	20	25	40	43.7	13
107	20	20	42.4	53.5	17
110	25	20	37.4	50.6	13
116	25	15	39.3	58.4	16
117	20	15	44.3	50.3	20

9.2 - Post height

The 3501 operator is designed for installation using a 4"x4" square post with 1/4" wall thickness (not supplied).

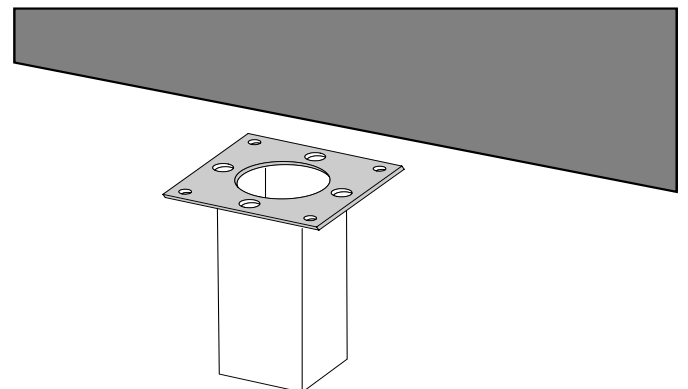
1. Determine the height on the gate where the arm will attach to.
2. The top of the post should be 2" above the centerline of the location where the gate attach bracket will be mounted to the gate. The gate attach bracket should be mounted to a structural member on the gate, DO NOT attach the bracket to pickets. The mounting post should be square to the gate in the closed position and level for proper operation.
3. Conduit should be considered at this time for cable routing from the control box to the chassis assembly



9.3 - Welding mounting bracket

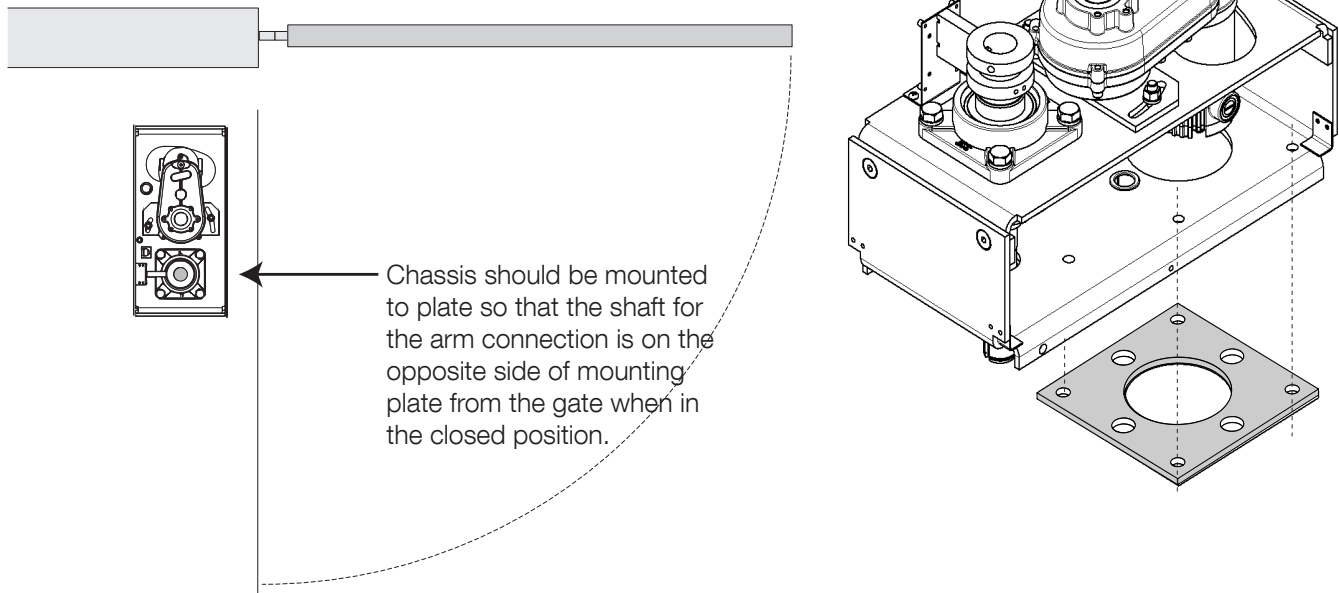
Weld the mounting bracket on the top of the mounting post. The bracket should be level and square to the post.

Tack welds may be made from the top inside of the bracket and post. Bottom welds should be made for permanent rigidity.



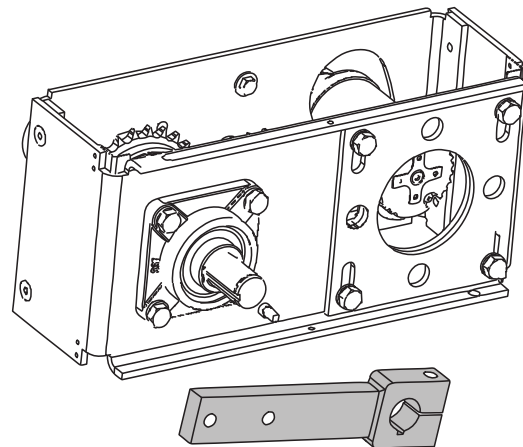
10 - CHASSIS MOUNTING

Set the chassis on the mounting plate as shown and secure using (4) 1/2" x 3/4" hex bolts and lock washers.

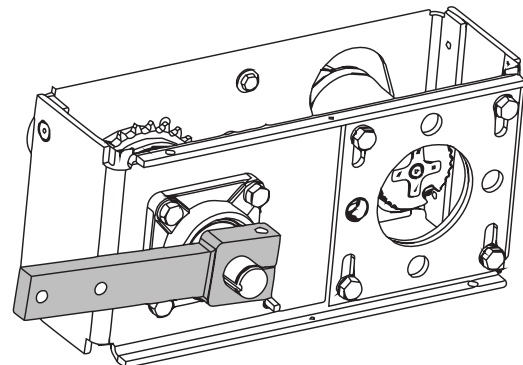


11 - CONTROL ARM ASSEMBLY

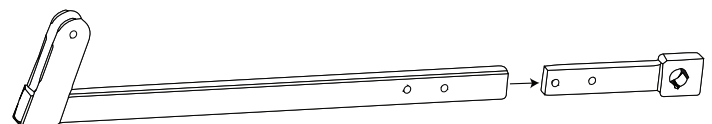
Install the primary arm collar to the main drive shaft using the 1/4" key stock, set screw, and socket head screw.



The collar should be installed on the shaft as far up as possible. Tighten set screw and socket head screw in place.

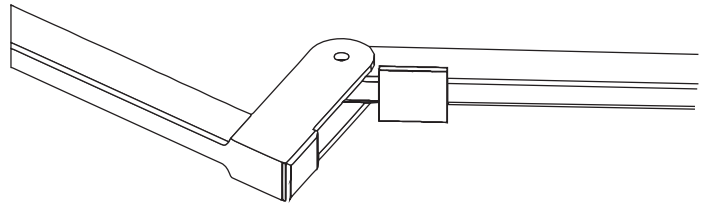


Attach the primary arm to the collar, the two ears on the primary arm should point toward the direction the gate will close.

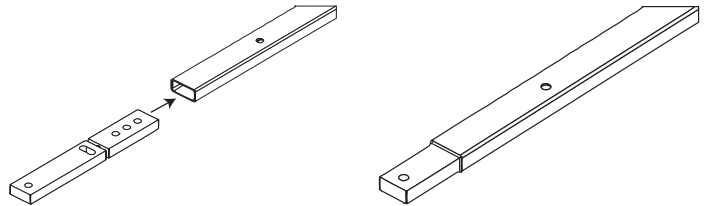


11 - CONTROL ARM ASSEMBLY (CONT.)

Attach the secondary arm to the primary arm using a 1/2" x 2-1/4" hex bolt, brass washers and lock nut. The stop tab should be positioned away from the gate.

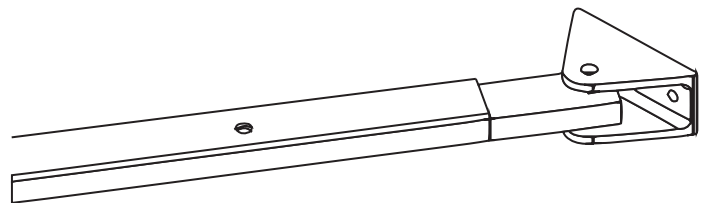


Install the aluminum adjustable arm to the secondary arm using the 1/2" x 1-1/2" hex bolt and nut. Use the middle hole in the adjustable arm.



Note: Once limits are set and the board has been programmed, this aluminum arm can be adjusted to fine tune the closed gate position.

Install the gate attach bracket to the adjustable arm using the 1/2" x 2-1/2" hex bolt, washers, and lock nut; or hitch pin.

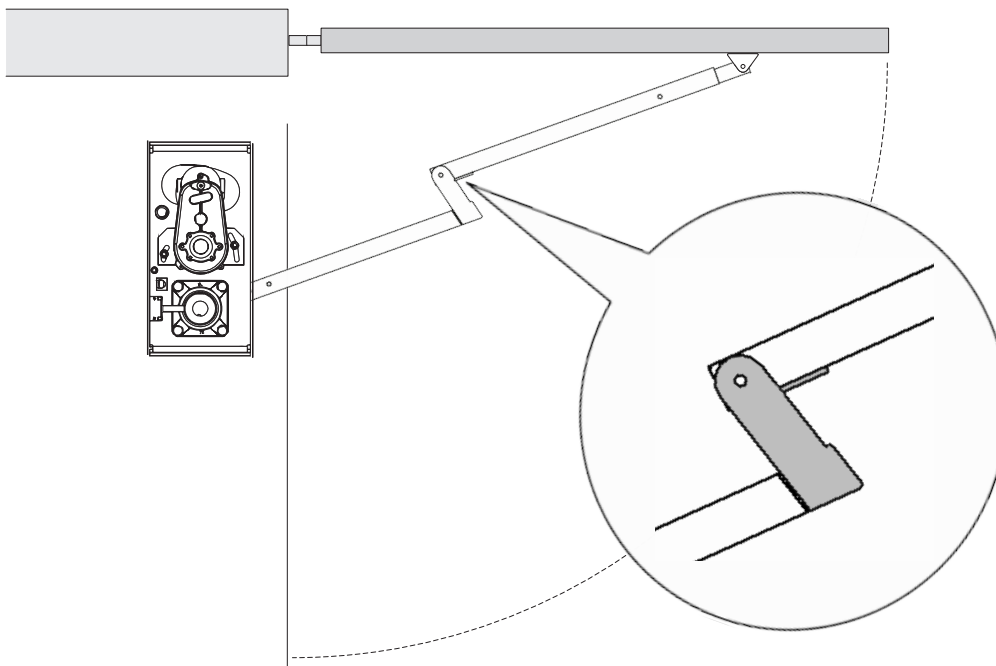
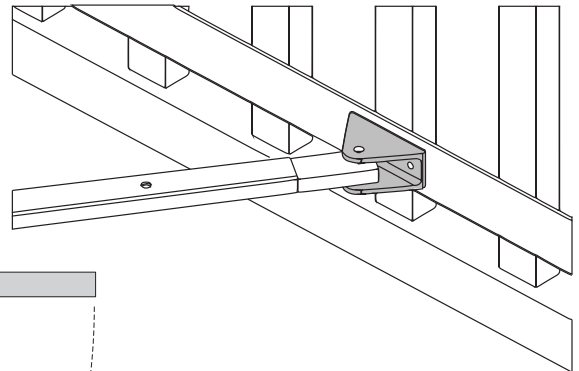


12 - GATE BRACKET MOUNTING

Push the arm assembly up against the gate in the closed position. Make sure that the primary arm is locked into the stop tab on the secondary arm as shown below.

Tack weld or clamp the gate attach bracket to the gate.

Note: Permanent welds or bolt attachment should be completed once limits are set.



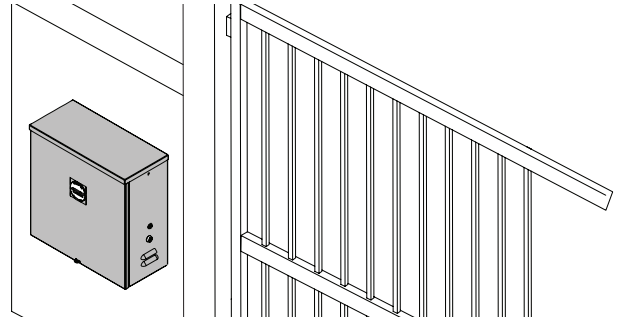
Make sure that the primary arm is locked into the stop tab on the secondary arm.

13 - CONTROL BOX MOUNTING

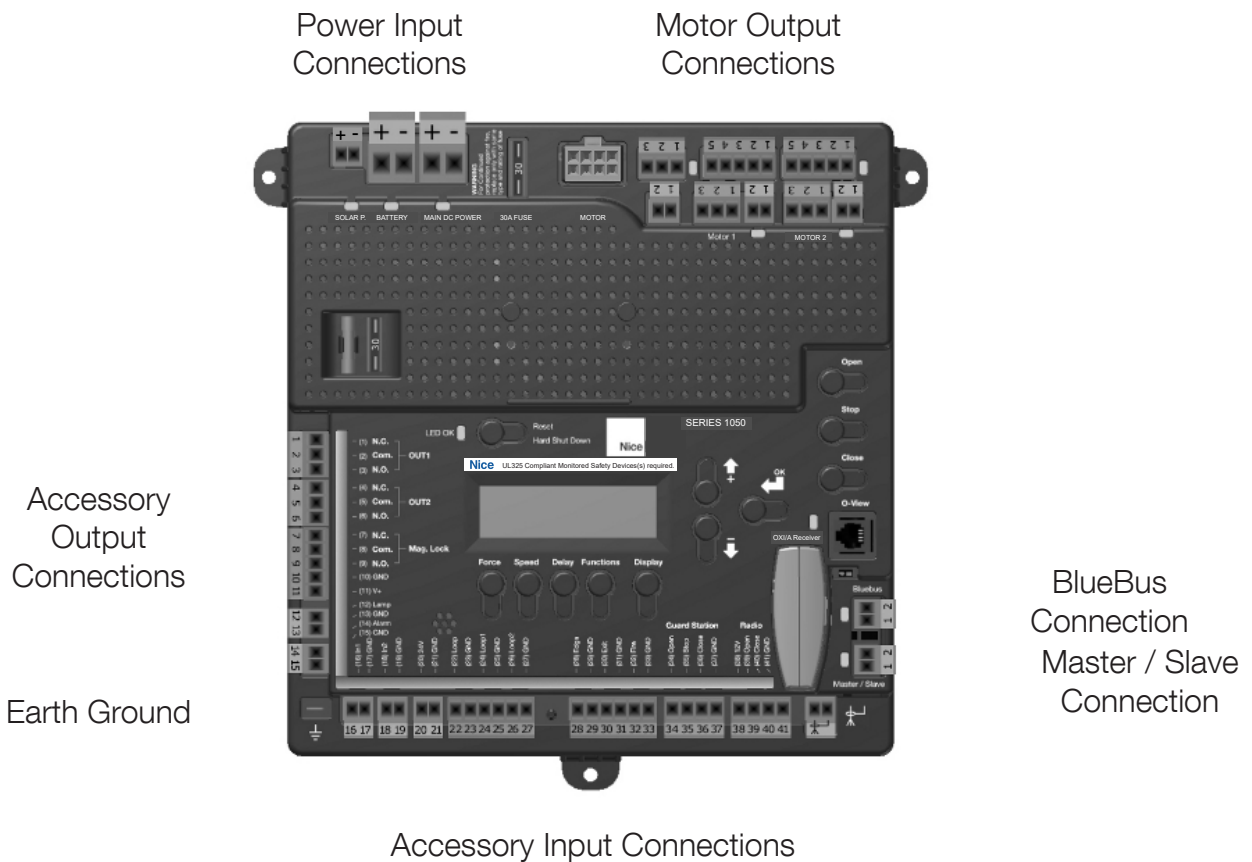
Mount the control box at least 6 feet from any moving part of the gate. There is 12 feet of cord provided for mounting flexibility. Use mounting hardware capable of supporting the weight of the control box with the battery installed.

Do not mount the control box where the person using the push button on side of the box can come in contact with the gate.

Set battery inside of control box with terminals toward the front (Do not use any battery with side terminals).



14 - CIRCUIT BOARD LAYOUT



15 - WIRING

15.1 - Incoming power wiring

Power input connections should be wired as follows:

Solar panel

Connect wires to the solar panel terminal block. The positive wire of the panel connects to the left terminal marked "+". Note: If the panel is connected backwards a red LED will illuminate below the terminal.

Battery

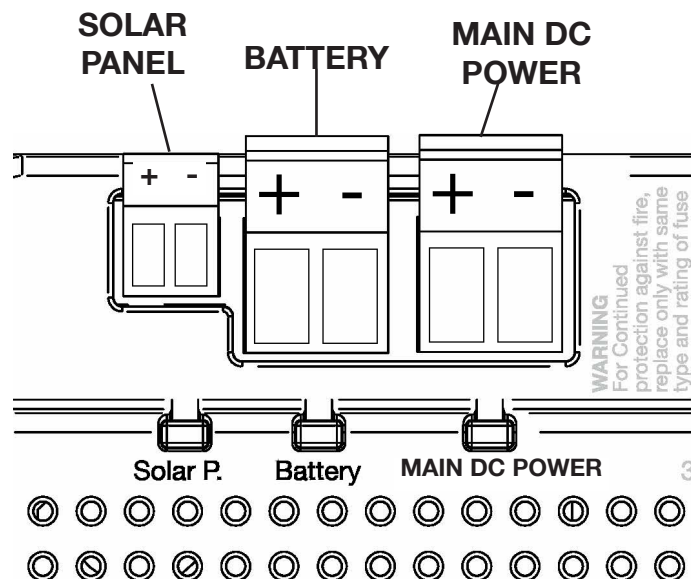
Connect wires to the battery terminal block. The positive wire of the battery connects to the left terminal marked "+". Note: If the battery is connected backwards a red LED will illuminate below the terminal.

Main DC Power - This terminal block is for incoming 10-32VDC power only!

Connect wires to the main DC power terminal block. Positive of the power supply connects to the left terminal marked "+".

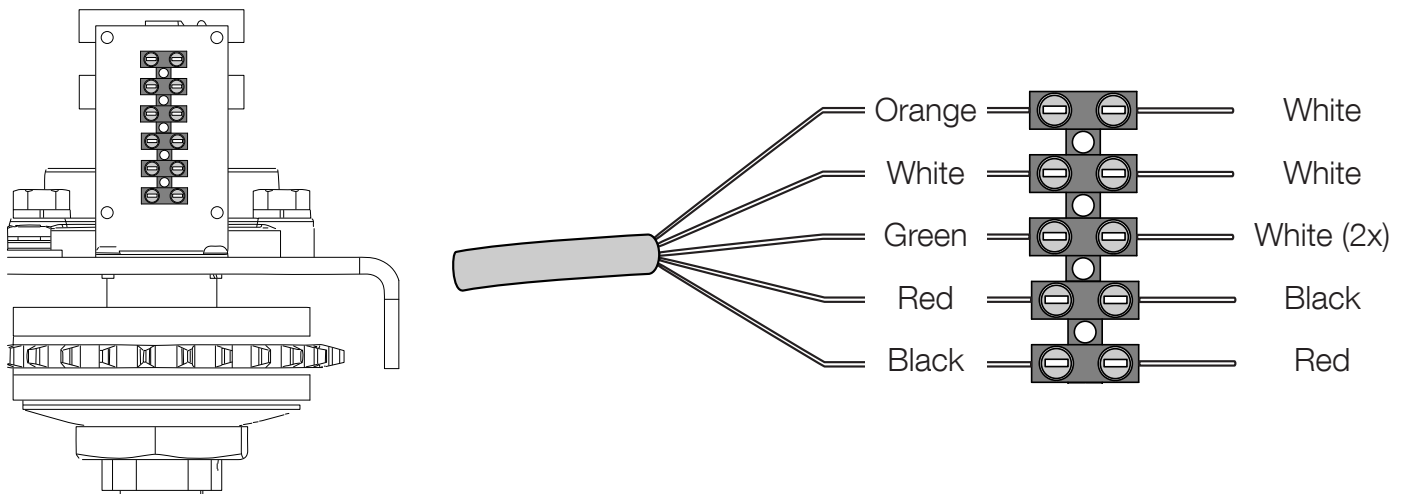
Note: Typically not used on 3501 installations.

Note: If supply is connected backwards a red LED will illuminate below the terminal. If supply is connected properly a green LED will illuminate



15.2 - Chassis wiring

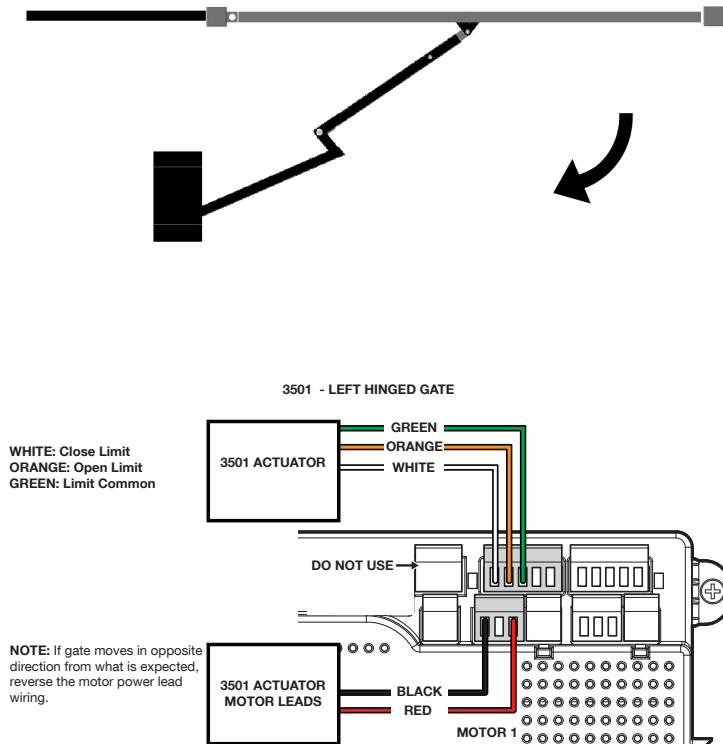
Located inside the chassis assembly next to the limit switches is a white terminal block. Wire the harness cable to the terminal block as shown below.



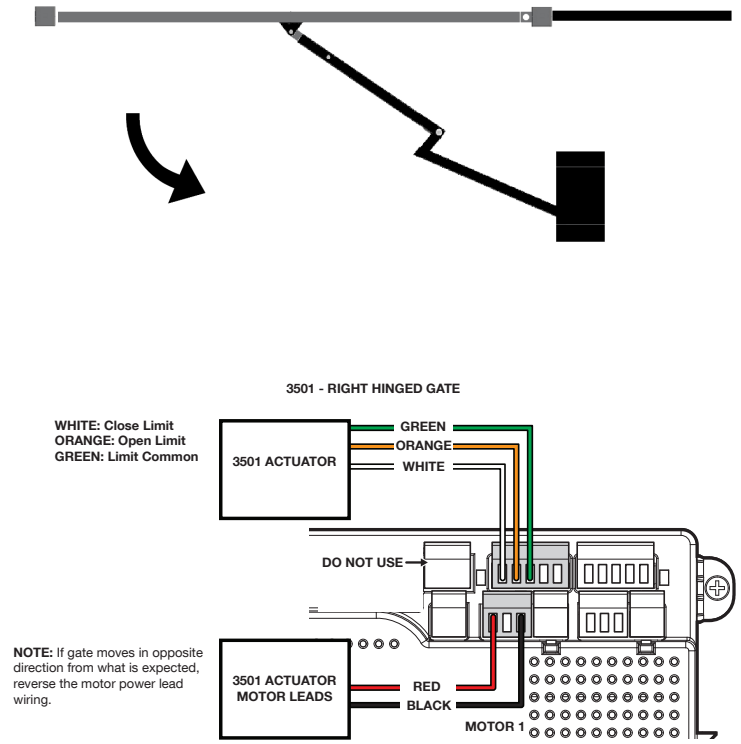
15 - WIRING (CONT.)

15.3 - Limit and motor wiring (Single and Dual Gate Application)

3501 WIRING (LEFT HINGED GATE)



3501 WIRING (RIGHT HINGED GATE)



Limit switch wiring

Connect the 3501 cable to the 5-pin connector as shown below.

Motor wiring

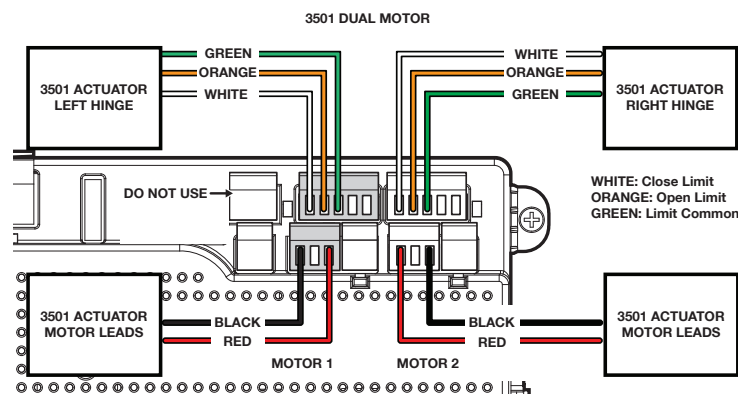
Connect the motor leads to the 3-pin connector as shown below.

Note: If the gate moves in the opposite direction from what is expected, reverse the motor wiring from what is shown. (Red to Pin 1, Black to Pin 3).

Single and Dual wiring

Install the 5 and 3-pin connector into the connection labeled "Motor 1" on the controller as shown. For a dual gate installation install the 5 and 3-pin connector for the left hinge gate operator into the connection labeled, "Motor 1" and connector for right hinge gate operator into the connection labeled, "Motor 2".

Note: (Motor 1) - Make sure motor lead connector is plugged in below the limit 5 pin terminal connector



16 - SETTING THE LIMIT SWITCHES

When first powered on, the board will scan for any BlueBuss photo eyes connected. If at least one eye is not detected, then one of the auxiliary inputs must be programmed to either pulse open or pulse close, with an External Entrapment sensor connected before learn mode is initiated.

Loosen set screws on both limit cams to the point where each cam can be turned by hand but still hold its place on the shaft.

NOTE: The control board is already in the “LEARN MODE” when shipped. You are in LEARN MODE if the word “ENTER” is flashing below “LEARN”.

If the board is not in “LEARN MODE”, press:

**FUNCTION → OK → SWING → OK → LIGHT → OK
AVERAGE
HEAVY**

You are in LEARN MODE if “ENTER” is flashing.

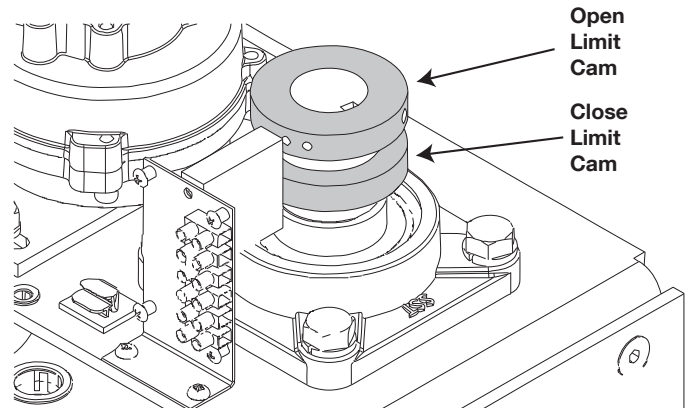
For dual gate installations - set one motor at a time.

OPEN LIMIT

Green OPEN LED

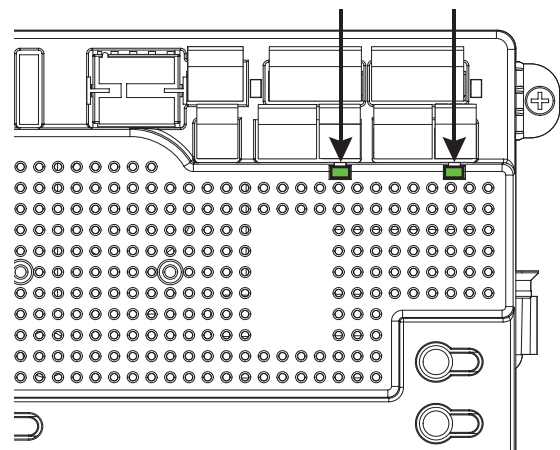
1. Using the OPEN button on the front of the Control Board, hold the button down until the gate reaches the fully extended open position. Note the direction the open limit cam is rotating.
2. Adjust the Open Limit on the operator (in the same direction that the shaft was rotating in step 1) until the GREEN light illuminates on the front of the control board as shown above. The fully OPEN limit switch is now set.

Note: If red LED illuminates, reverse orange and white limit wires



MOTOR 1 LED - GREEN

MOTOR 2 LED - GREEN



CLOSE LIMIT

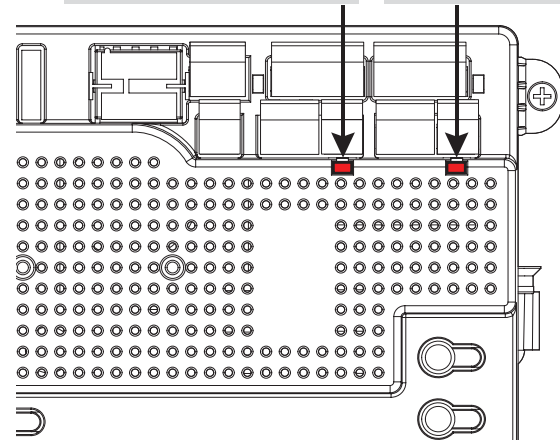
Red CLOSE LED

3. Using the CLOSE button on the front of the Control Board, hold the button down until the gate reaches the fully intended closed position. Note the direction the close limit cam is rotating.
4. Adjust the Closed Limit on the operator (in the same direction that the shaft was rotating in step 1) until the RED light illuminates on the front of the control board as shown above. The fully CLOSED limit switch is now set.

Note: If green LED illuminates, reverse orange and white limit wires

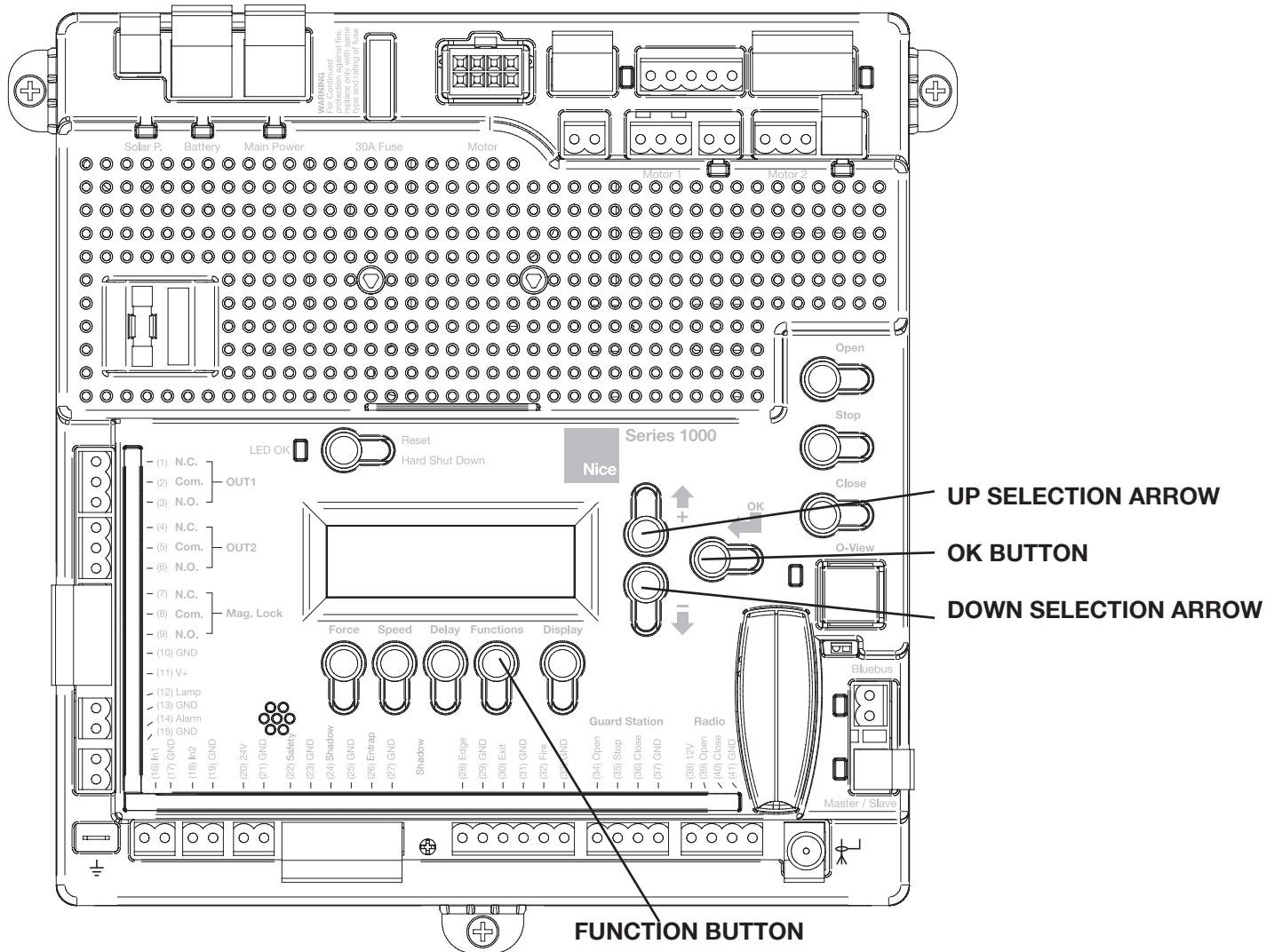
MOTOR 1 LED - RED

MOTOR 2 LED - RED



17 - LEARNING MODE

Nice has taken great care to simplify the installation, operation and safety of this device and to ensure longevity and reliability of the unit over time. The learning procedure consists of the following steps shown below:



NOTE: The control board is already in the “LEARNING MODE” when shipped.

If the board is not in “LEARN MODE”, press:

FUNCTION → OK → SWING → OK → LIGHT → OK
AVERAGE
HEAVY

You are in LEARN MODE if “ENTER” is flashing.

1. Test the motor direction by pressing and holding CLOSE. If the gate instead OPENS swap the RED and BLACK motor leads and retest to verify correct operation. Set limits according to the operators installation manual. **Limits and motor direction MUST be set prior to learning the board!**
2. Press and hold the Open or Close button on the gate controller until the gate is 50% open.
3. Connect the required monitored entrapment devices.
4. Press ENTER to allow the control board to scan for attached items, such as sensors, photo-eyes and other safety devices and start the learning sequence. The gate will open partially then stop. This is being done, so that the control board can sense the type and operational condition of the drive motor. The gate will then run to the closing limit (one leaf at a time in case of dual application: “slave” closes first then “primary” follows), so that it can properly sense the close limit switch. The gate will then fully open to test the open limit switch then fully close at high speed. The gate should be fully learned by the control board at this point.

The gate opener is now programmed for basic usage.

18 - ACCESSORY INPUTS AND OUTPUTS

18.1 - Outputs

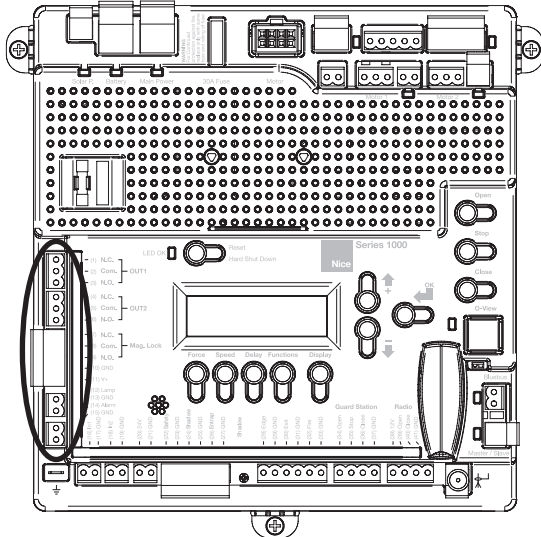


Figure - BOARD OUTPUTS

GATE OPERATOR ACCESSORY OUTPUTS:

OUT1 and OUT2: Individual, isolated relays provide COMMON, NORMALLY OPEN, and NORMALLY CLOSED dry contacts for switching accessories based on programming of the “Auxiliary IO” function. These outputs are programmed in the “FUNCTION Auxiliary I/O” menu.

Magnetic Lock: Provides fused power (1.85A max) and isolated relay COMMON, NORMALLY OPEN, and NORMALLY CLOSED dry contacts for electrically powered and maintained magnetic locks. The output time for magnetic lock activation/deactivation may be adjusted from 0 to 5 seconds.

Lamp: Provides fused power (1.85A max) to drive a flashing warning lamp to indicate gate operation. This output is active when the gate is operating (Opening and Closing). Lamp Delay sets the amount of time the lamp accessory output is activated prior to gate movement. Settings from 0 to 5 seconds with a step of 0.5 seconds.

Alarm: Provides fused power (0.5A @ 12VDC) to drive an alarm siren to signal the occurrence of a hard shutdown, caused by 2 consecutive entrapment events (signals). This alarm output is reset by pressing the “Reset Hard Shutdown” button on the front panel or activating the “FIRE” input.

18.2 - Inputs

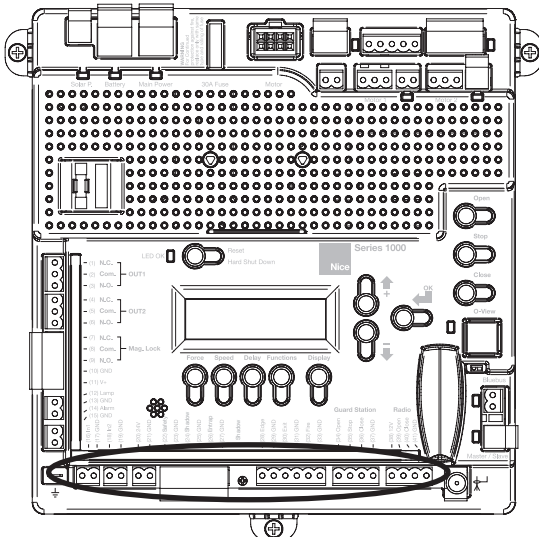


Figure - INPUTS

GATE OPERATOR ACCESSORY INPUTS:

Auxiliary Inputs 1 (16) and 2 (18): These digital inputs may be connected to the digital outputs of accessories and programmed to activate or control the gate operator in a number of different modes. Shorting the pins through a dry contact activates the programmed settings for these inputs. These inputs are programmed in the “FUNCTION Auxiliary I/O” menu.

SAFETY Input: (22) Dry contact input that can be programmed for an inductive loop or photo-eye detector. Shorting the Safety Input (22) to GND reverses a closing gate to the full open position. The opened gate is held opened for as long as the input is active. This input is not for external entrapment sensors.

SHADOW Input: (24) Dry contact input that can be programmed for an inductive loop or photo-eye detector. Shorting the Shadow Input (24) to GND maintains an OPEN gate fully open and a CLOSED gate fully closed until deactivated.

Setting the Shadow Input to “Photo Mode” causes the opening gate to stop, then reopens the gate when the Shadow Input is deactivated.

ENTRAP Input: (26) Dry contact input that can be programmed for an inductive safety loop or photo-eye detector. Shorting the ENTRAP input (26) to GND while the gate is opening cause the gate to close to the fully closed position. This input is not for external entrapment sensors.

EDGE Input: (28) This input may be configured as “DIGITAL” NO or “ANALOG” as required by the sensor type. When configured as “DIGITAL”, this is a dry contact input. When configured as “Analog”, there are additional options for the direction of travel it is intended to protect: Open, Close, or Both (swing only). When configured as “Analog” the input must measure an 8.2K - 10K ohm resistor. When the input is activated and set to Digital, the gate stops and reverses regardless of direction. If set to “Analog” the gate will only reverse if tripped while going in the programmed direction.

Exit Input: (30) Dry contact input for a vehicle exit sensor. Shorting this input to GND opens gate from the closed position and holds gate open with maintained input or reverses gate if closing.

Fire Input: (32) Dry contact input for a fire department control switch. Opens the gate and holds the gate open until the control switch is deactivated. This input is “hold to run”. Auto-close is disabled when this input is activated. Also clears hard shutdown.

GUARD STATION

Guard Station Open: (34) Dry contact input for a guard station open switch. Momentarily shorting the digital input to GND opens the gate to the full open position with the subsequent auto-close feature enabled.

Guard Station Stop: (35) Dry contact input (Normally Closed) for a guard station stop switch. Momentarily opening this input stops the opening gate at its current position. While this input is activated, all other inputs are disabled and are not functional.

Guard Station Close: (36) Dry contact input for a guard station close switch. Momentarily shorting the digital input to GND closes the gate (master and slave).

RADIO

Radio Open: (39) Dry contact input for an accessory radio open switch. Momentarily shorting the digital input to GND opens the gate to the full open position with the subsequent auto-close feature enabled.

Radio Close: (40) Dry contact input for an accessory radio close switch. Momentarily shorting the digital input to GND closes the gate.

Radio Input: Open/Close: (39 and 40) If you tie open and close together the unit will operate as a Step by Step command each time the input is shorted to GND, it will either OPEN, STOP or CLOSE.

18 - ACCESSORY INPUTS AND OUTPUTS (CONT.)

Deleting all Nice transmitters from the Nice Plug-In Receiver Memory.

All programmed remote controls may be removed from the Nice plug in receiver memory. This procedure needs to be performed at the gate controller.

1. Press and hold the button on the side of the Nice receiver until the led on the Nice receiver illuminates green and keep the button pressed.
2. Watch the led and on the receiver and verify the following sequence in the led.
3. Within 4 seconds after pressing the button (approx.) the green led illuminates.
4. Within 8 seconds after pressing the button (approx.) the green led turns off.
5. Within 12 seconds after pressing the button (approx.) the green led starts flashing
6. Count the green led flashes on the Nice receiver. On EXACTLY the 3rd flash, release the button on the Nice receiver.
7. It is recommended to test the Nice remote controls, if available, with Nice plug in receiver to verify that it no longer affects the gate controller.

19 - 120VAC POWER WIRING

DO NOT WIRE AC POWER TO THE 1050 CONTROL BOARD!

THE CONTROL BOARD OPERATES ON 10 - 32 VDC ONLY!

This section is intended for residential systems where a 120VAC transformer will be used

To reduce the risk of SEVERE INJURY or DEATH:

- Disconnect power to the gate operator by manually opening its dedicated circuit breaker before making any mechanical or electrical adjustments.
- Use a 20 Amp dedicated circuit breaker for each installed gate operator.
- Open dedicated circuit breaker supplying power to gate operator BEFORE a new installation or making any modifications to an existing installation of this gate operator.
- All wiring connections MUST be made by a qualified individual
- Run individual circuits in separate U.L. listed conduits. Do not combine high voltage (120VAC) power wiring and low voltage (+12VDC to +24VDC) control wiring in the same conduits.
- Use the information in table 1 to determine high voltage wire size requirements. The distance shown in the chart is measured in feet from the operator to the power source. If power wiring is greater than the maximum distance shown, it is recommended that a service feeder be installed. When large gauge wire is used, a separate junction box must be installed for the operator connection. The wire table is based on stranded copper wire. Wire run calculations are based on a 110 VAC power source with a 3% voltage drop on the power line, plus an additional 10% reduction in distance to allow for other losses in the system.

Table 1 - MAXIMUM RUN (FT) PER WIRE GAUGE

110V AWG	14	12	10	8	6	4
MAX RUN (ft)	180	280	460	700	1150	1800

The gate operator system should be grounded through the earth ground in the AC mains wiring system (GREEN WIRE). This ground connection will prevent dangerous currents from appearing on the metal control box, the actuator, or the gate itself.

DO NOT WIRE AC MAINS POWER TO THE METAL CONTROL BOX WITHOUT AN EARTH GROUND CONNECTION!



20 - SOLAR PANEL CHART

This Nice Operator is 12 Volt DC (Direct Current) powered. A 12 Volt sealed battery (33 ampere hour minimum for AC charged systems, 70 ampere hour minimum for solar charged systems) with connecting posts located on the top is recommended.

The following table should be used as a guide for capacity of operation of operators only, additional options and accessories may reduce the daily usage.

Please note that the charge capability of solar panels will vary with different geographical locations.

Daily cycles	1-10	1-20	1-40	1-60	1-80	80+
5 watt solar panel	*					
10 watt solar panel		*				
20 watt solar panel (requires regulator)			*			
30 watt solar panel (requires regulator)				*		
40 watt solar panel (requires regulator)					*	
1.5 amp battery charger					*	
10 amp battery charger						*
Note: Double the amount of solar wattage for dual gate operators						

Nice operators with the 1050 board that are used in solar applications need to be put into "Standby" mode.

To do this, press Functions – scroll to #8 "Standby" – Press OK – Scroll to desired amount of time before system enters Standby mode – Press OK. Once this is done, the operator will enter a Standby mode after the set time when the operator is not moving or in the auto-close countdown.

Things to note in Standby:

1. Display will be off and only a "heartbeat" will be present at the LED OK
2. Voltage at #20 (24 volts) and #38 (12 volts) will turn off - **DO NOT POWER ENTRY OR EXIT DEVICES HERE**
3. BlueBus connection is non functional
4. Master/Slave syncing is non functional (used for commercial operators only)

Connection of the solar panel(s) may be made at the top left corner of the board at "Solar P" (regulated charging to the "Battery" via the controller in the board) – note that the maximum output of the regulator in the 1050 board is 1.5A. If the installation requires larger than a 30W solar panel – an off-board regulator should be used and connected directly to the battery.

21 - OPTIONAL INPUTS

21.1 - Fire dept. connection

32 FIRE
33 GND

Dry contact input for a fire department control switch. Normally Open (NO) contact must be shorted to ground through a switch to open the gate. The FAIL SAFE connector which is shorted at the factory with a jumper (Normally Closed NC), may be wired in parallel with the Fire input to release the motor in the event of an emergency entry by the fire department during a power failure.

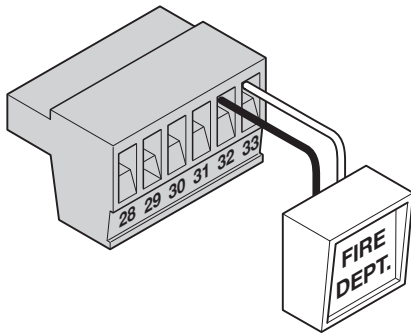


Figure - FIRE DEPT. INPUT

21.2 - Magnetic lock connection

7 NC
8 Com (Common)
9 NO
10 GND
11 V+ (Voltage is determined by incoming power supply)

This connection is used to install the magnetic lock. In this instance a gate can be locked magnetically to prevent a forced opening. Consult lock manual for specifics on installation and wiring

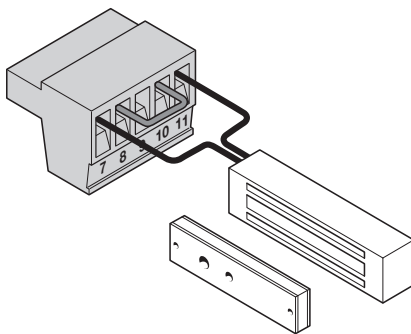


Figure - MAGNETIC LOCK WIRING (EXAMPLE)

21.3 - Guard station

34 OPEN
35 STOP
36 CLOSE
37 GND

With the Guard Station switches installed, the user can operate the gate by pushing the respective buttons for the command that is desired. Gate Open and Close are controlled by NORMALLY OPEN (NO) and Stop is controlled by NORMALLY CLOSED (NC) momentary switches.

NOTE: If the guard station inputs are not used STOP (35) and GND (37) need to be tied together

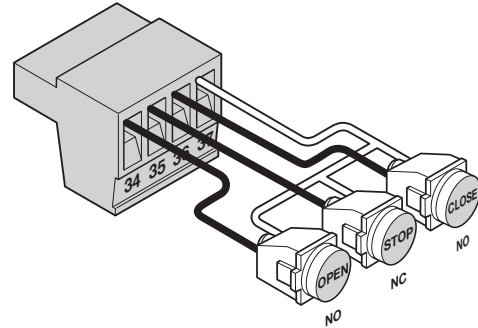


Figure - GUARD STATION INPUTS

21.4 - Exit and edge inputs wiring diagram

28 EDGE
29 GND
30 EXIT
31 GND

The EDGE input may be configured as a monitored ANALOG input, or DIGITAL (NC or NO) input. The EDGE sensor input is intended for ANSI/UL 325 listed gate edge sensors to protect against entrapment and hazardous pinch points along the moving edge of the closing gate. The EXIT sensor input is provided to activate to open the gate, or re-open a closing gate, upon sensing an exiting vehicle.

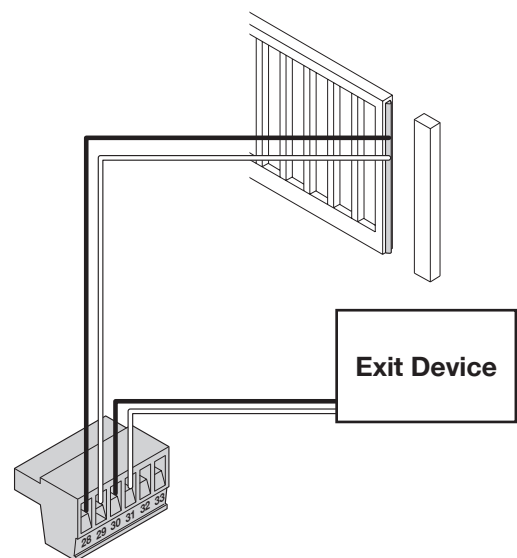


Figure - EXIT AND EDGE INPUTS

21 - OPTIONAL INPUTS (CONT.)

21.5 - Radio receiver connection (third party)

38 12V
39 OPEN
40 CLOSE
41 GND

The customer supplied radio receiver allows the gate operator to be operated via remote, such as wireless key-card readers or user remote controls.

Connecting the Open (39) and Close (40) pins together with the relay of a receiver enables step by step gate control. This configuration allows a single button to control the gate in the following sequence:

Press - Gate Open
Press - Gate Stop
Press - Gate Close
Press - Gate Stop

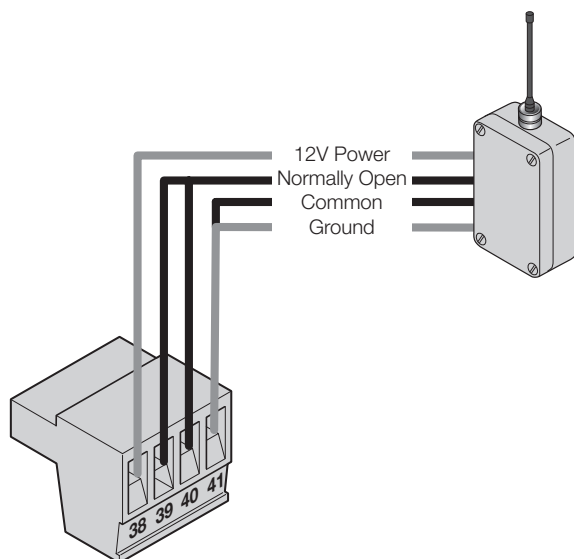


Figure - RADIO RECEIVER

21.6 - Optional power output

10 GND
11 V+

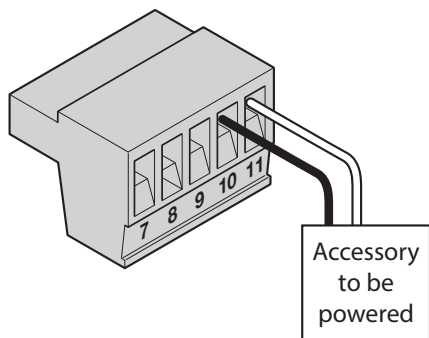
When the control board is in standby mode, power is still present at terminals 10 and 11. If standby mode is to be used (especially in a solar application) You may use the terminals 10 and 11 to provide power to accessories. Please note that the output voltage of terminal 11 is the same as the highest incoming voltage (on battery OR main power) to the control board.

For example:

If you are using a 12VDC battery to power to the control board connected to the Battery input, and the voltage of the battery is 13.5VDC - terminal 11 will have a 13.5VDC output.

If you are using a power supply input of 32VDC to the control board connected to the Main Power input - terminal 11 will have a 32VDC output.

If you are using a power supply connected to Main Power (at 32VDC) and also using a battery connected to the Battery input (at 13.5VDC) - terminal 11 will have an output of 32VDC.



22 - 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 electrical equipment and systems 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:

- 22.1** Damaged, discolored, or overheated equipment, connections, wiring, bearing caps and installations.
- 22.2** Excessive heat or discoloration at high current carrying connections. (look for bluing or heat affected metal).
- 22.3** Misalignment of electrically driven equipment. (Causes strain on pulley assemblies and bearings).
- 22.4** Poor electrical bonding (broken, disconnected or corroded bonding strap) and grounding, including evidence of corrosion.
- 22.5** Dirty equipment and connections. Clean equipment and connections.
- 22.6** Improper, broken, inadequately supported equipment, wiring and conduit, loose connections of terminals, and loose ferrules.
- 22.7** Poor mechanical or weld joints. Broken welds.
- 22.8** Condition of circuit breaker and fuses. Ensure that they are of the correct type and amperage.
- 22.9** 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).
- 22.10** Broken or missing wire, connectors, etc.
- 22.11** Operational check of electrically operated equipment such as motors, inverters, generators, batteries, lights, protective devices, etc. Ensure proper functionality of all systems during inspections.
- 22.12** 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.

Vehicular Protection Inputs - Typical Installation Diagram Utilizing Loop Sensors and Photocells

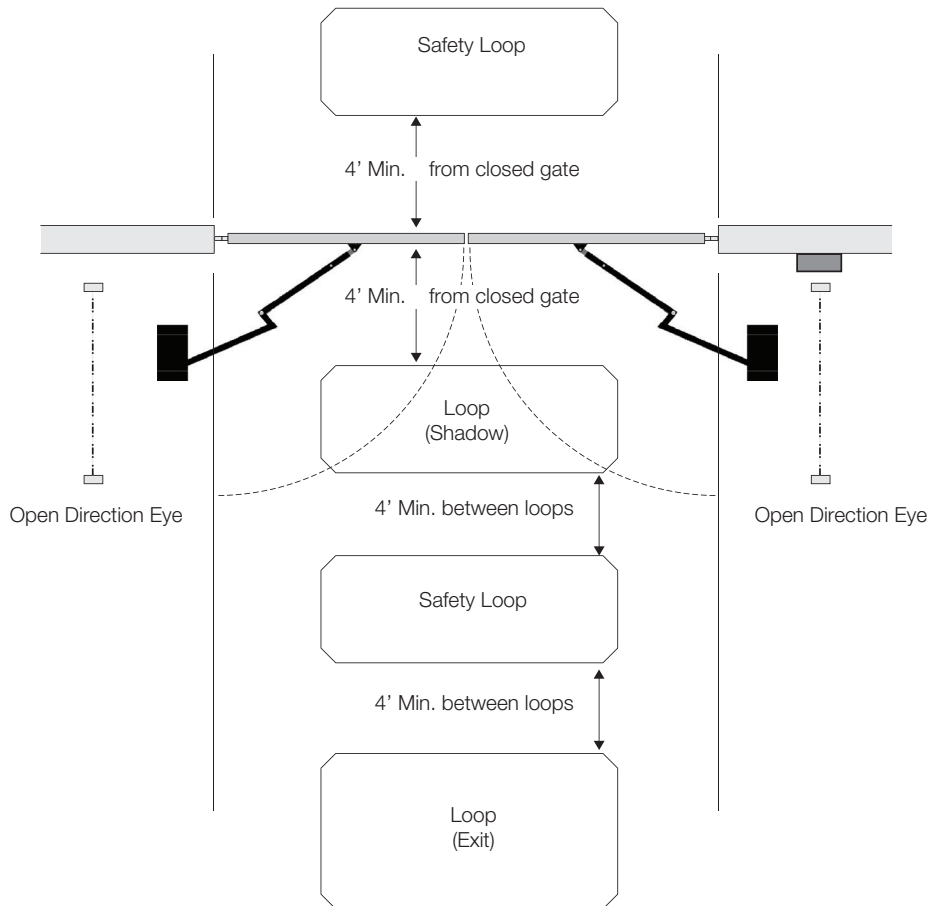


Figure - LAYOUT FOR IN-GROUND LOOPS

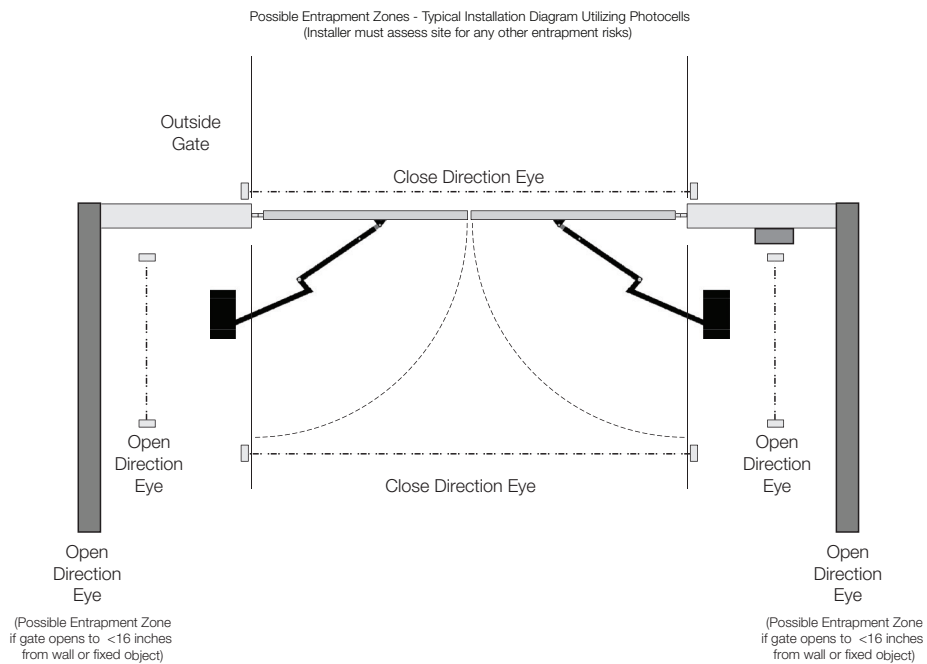


Figure - LAYOUT FOR PHOTOCELLS

EXTERNAL ENTRAPMENT PROTECTION

Non-contact and contact sensors must be installed individually or in combination with each other to provide 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 the 1551 manual for more information on external entrapment sensors and installation instructions.

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.

25.1 - Monitored Safety Device

BlueBus photo-eyes:

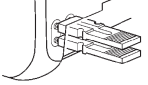
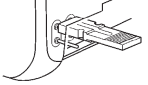
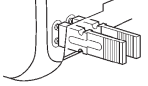
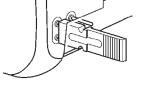
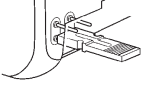
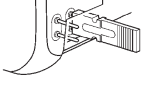
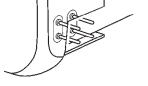
The EPMB/A photocell (along with EPMOB/A, and EPLB/A photocells) is a thru-beam device - consisting of a transmitter (TX) and a receiver (RX) that connects via two (2) wires. Polarity of the wiring is not important. EPMOBs may be wired in parallel to one another or directly to the board - it is not necessary to make a "home run" to the board with each EPMOB. Multiple sets of EPMOBs may be used, however each PAIR must be set to an exclusive address by setting the jumpers in the units. What this means, is that each pair of eyes must have their jumpers set to match each other - but every pair must be set differently from the other pairs. The address jumpers also determine the functionality of each set of eyes: Open direction or Close direction, etc. (see Table 1).

1. Mount the transmitter and receiver appropriately to a rigid mounting surface. Eyes should be placed appropriately to protect areas of entrapment according to UL325 guidelines.
2. Set the jumpers in each pair of eyes to match each other. Ensure that each pair of eyes are set differently. Use the table below to find the setting of the jumpers that corresponds to the functionality desired from each pair of eyes.
3. Connect the EPMOBs to the Bluebus connector of the circuit board. Polarity of the wiring is not important. Eyes may be connected in parallel to one another - or directly to the board.
4. LEARN the Bluebus port.
On a 1050 board - Press Functions (1. Learn) - Press "OK" (Learn Bluebus) - Press "OK". Allow the board to scan the Bluebus Port.
When complete - test the functionality of each set of eyes.
5. Fine tune the alignment of each pair of eyes. The more slowly the lights flash on the units - the better they are aligned.

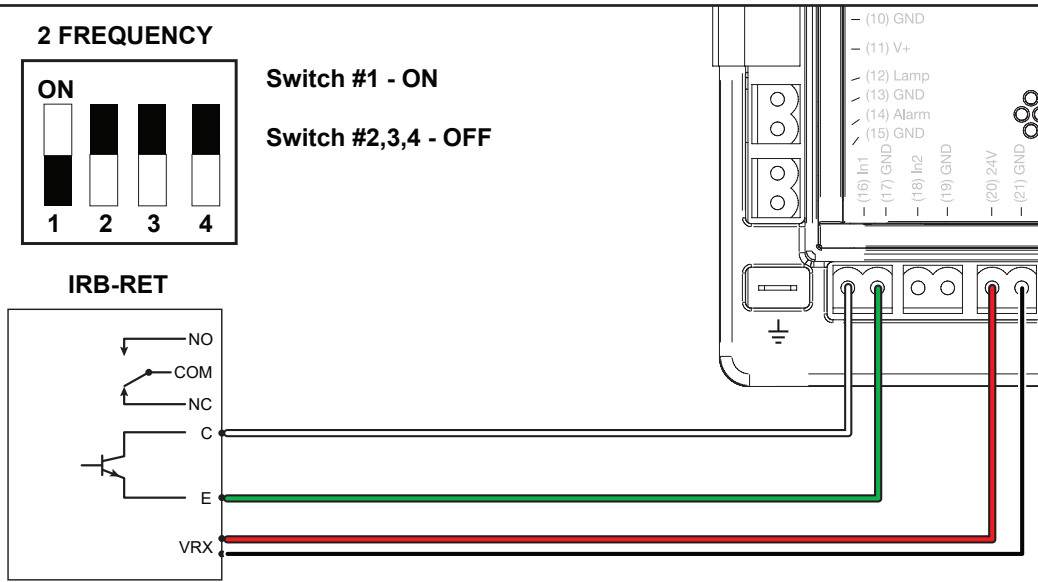
Close Direction A/B: Resets timer to close in open position, reverses gate if closing, no effect if gate is closed or during opening cycling. Typically used when the photo eyes are on the outside of the property (gates opening inward).

Close Direction 2 A/B: Resets timer to close in open position, reverses gate if closing AFTER obstruction is cleared, pauses the gate on opening cycle - opening resumes after obstruction clears. Typically used when the photo eyes are on the inside of the property (gates opening inward).

Open Direction A/B: Delays gate opening from closed position. Stops and reverses gate back closed on open cycle. Typically used to protect an entrapment point when the gates are opening.

Table 1	
Photocell	Jumpers
CLOSE DIRECTION A	
CLOSE DIRECTION B	
CLOSE DIRECTION 2A	
CLOSE DIRECTION 2B	
OPEN DIRECTION A	
OPEN DIRECTION B	
NOT USED	

25 - IRB-RET Wiring Diagram



1. Press "Functions"
2. Select #3 "Auxiliary IO" and Press "OK"
3. Select "In Aux 1" (or "In Aux 2") and Press "OK".
4. Select "Pulse Open" or "Pulse Close" and "Press OK"
5. Connect 300Hz Monitored Safety Device to In1 (16) or In2 (18) accordingly.

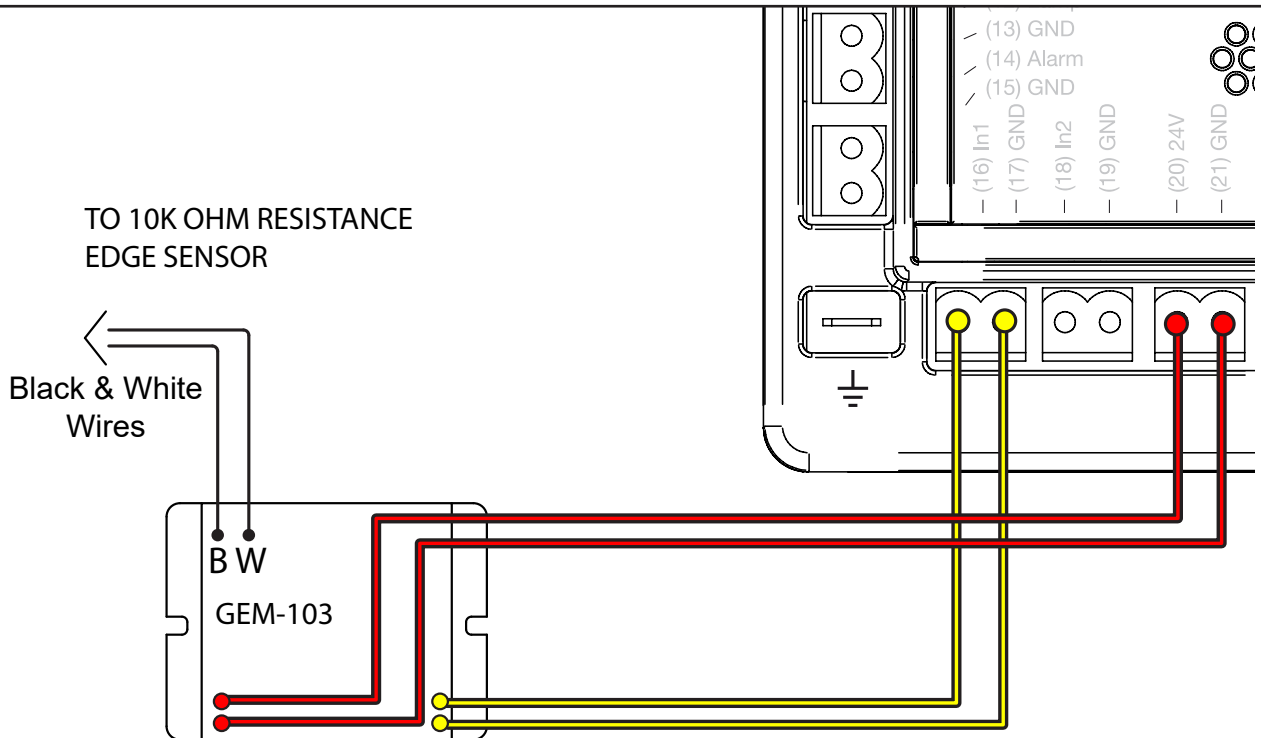
NOTES:

*Only one monitored (Pulse) device may be connected per programmable input: In1 or In2.

*All four (4) jumpers must be on the **LEFT** and **CENTER** pin.

*At least one monitored device must be properly connected to 1050 boards that are UL325 7th Edition in order to complete the "Learn" mode. A "BlueBus Error" will result if this requirement is not met.

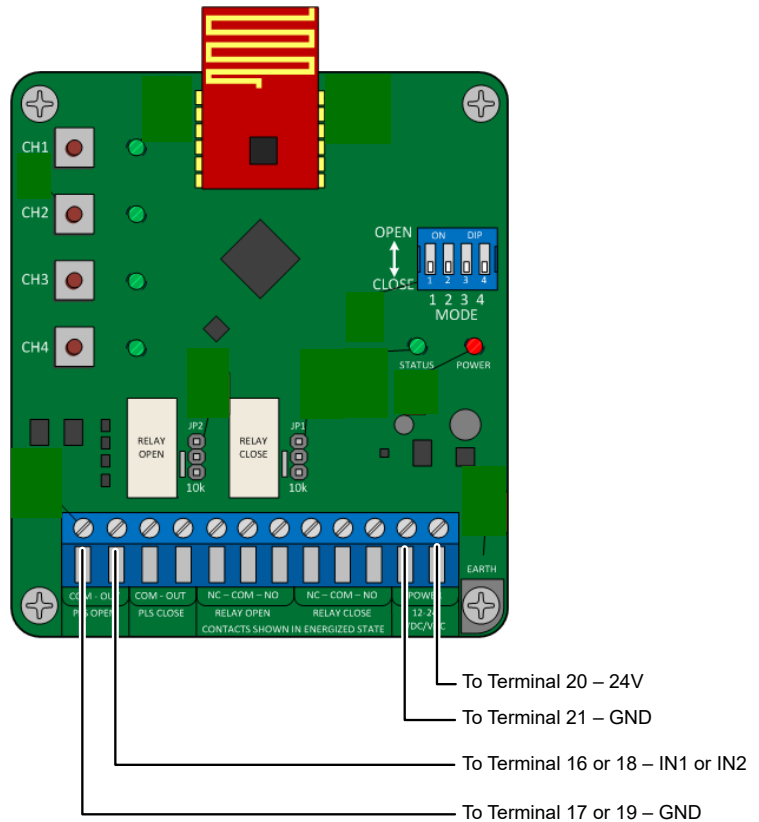
26 - GEM-103 Wiring Diagram



EMX WEL-200 Wireless Edge Receiver

Dip Switch Settings determine which relay activates when the associated edge is tripped.

See WEL-200 manual for instructions for programming receiver/transmitter pairs.





WARNING

AVERTISSEMENT



**Moving Gate can cause
Serious Injury or Death.**

Persons are to keep clear! The gate is able to be moved without prior warning.
Do not allow children to operate gate or play in gate area.
This entrance is for vehicles only. Pedestrians must use separate entrance.

**Le portail en mouvement peut causer
des blessures graves ou la mort.**

Les personnes ne devront pas s'approcher!
Le portail est capable d'être bougé sans avertissement préalable.
Ne pas laisser les enfants utiliser le portail ou jouer dans le domaine du portail.
Cette entrée est réservée aux véhicules.
Les piétons devront utiliser une entrée séparée.

28 - MAINTENANCE SCHEDULE

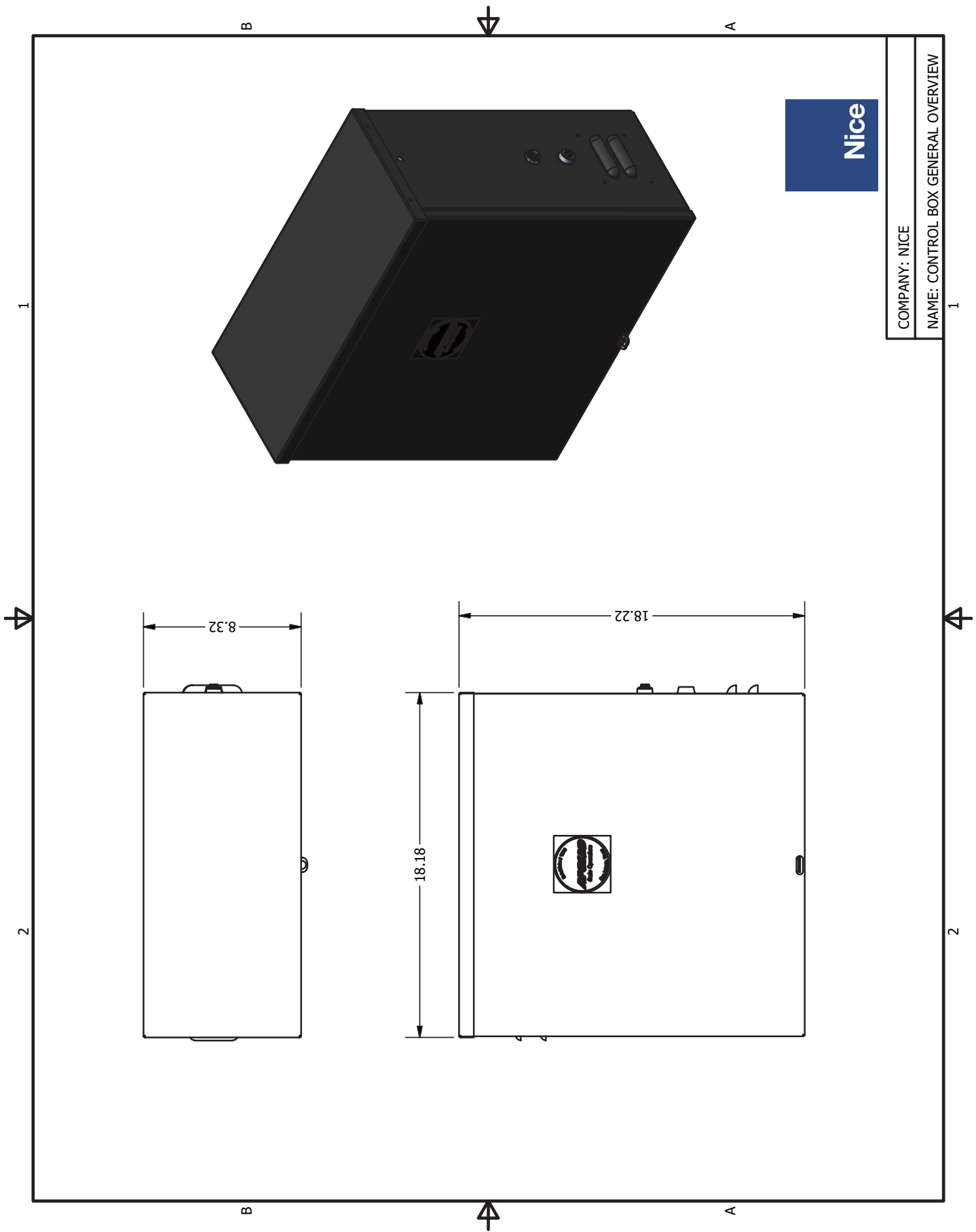
Table 2			
		COMPLETE	BASIC
Alarm	Activate the primary (inherent) reverse system by blocking the gate with a solid object. The gate should reverse momentarily then stop. Restart the gate and block again with a solid object. The gate should reverse momentarily, then stop, and go into hard shutdown with an alarm	●	●
Backup System	If operator is equipped with option DC backup system, check to be sure the system opens the gate upon loss of AC power	●	●
Battery	If operator is equipped with option DC backup system, check the batteries for any leakage for loose connections.	●	
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	●	

29 - TROUBLESHOOTING

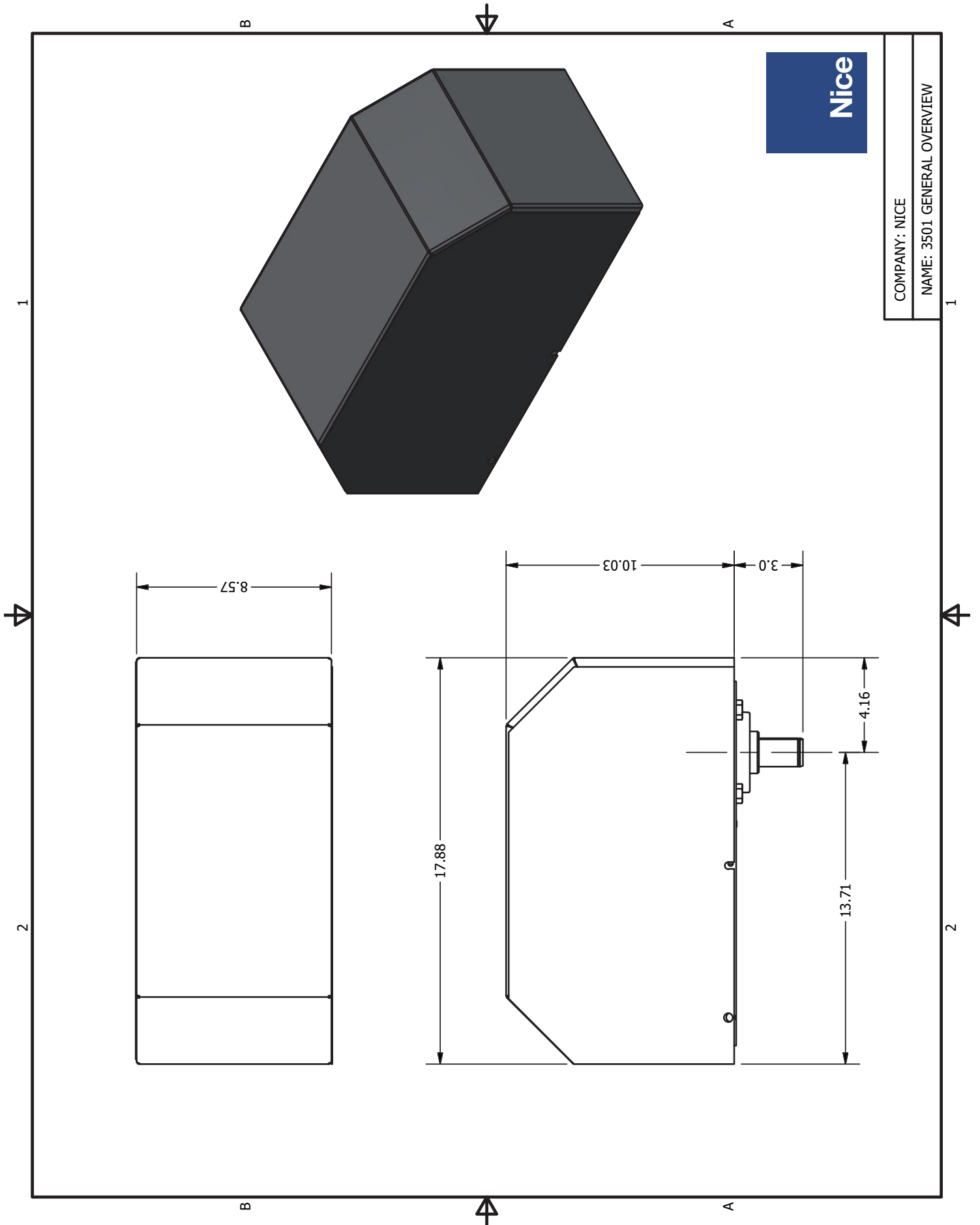
Table 3	
SYMPTOM(S)	POSSIBLE SOLUTION
Operator will not Power On. Power LED is OFF	Check that power to the circuit board is turned ON Check terminal block wiring for loose or broken wires If voltage measures OK, check the terminal block Check the fuses (may be both AC and DC fuses in installation)
Gate 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

Table 4: 1050 Board Display Read Out and Troubleshooting

DISPLAY	REASON	POSSIBLE SOLUTION
Dynamic M1	Actuator 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	Actuator 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	Actuator 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 if 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 connected 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.	Move 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 Cls - 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.



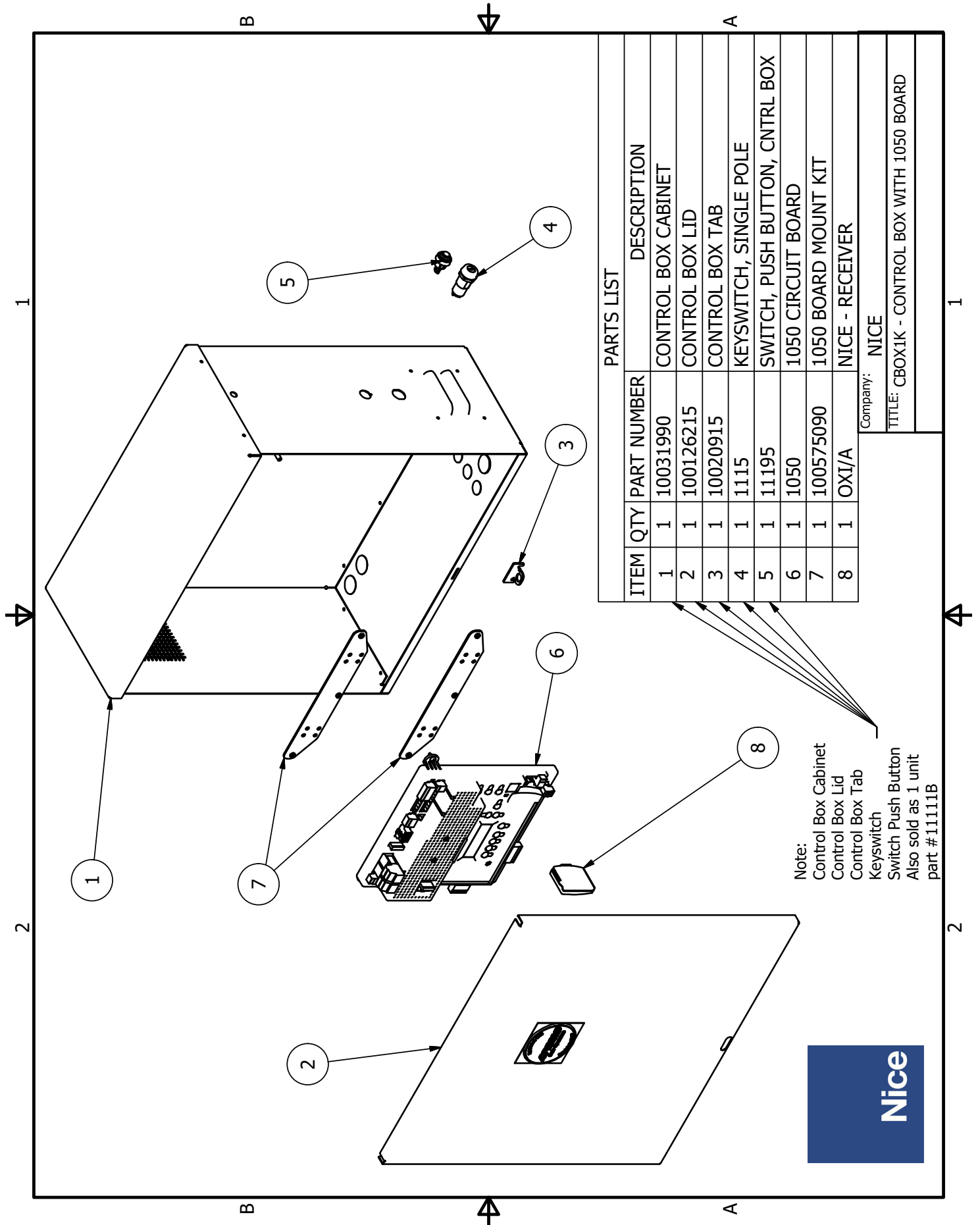
COMPANY: NICE
NAME: CONTROL BOX GENERAL OVERVIEW



COMPANY: NICE

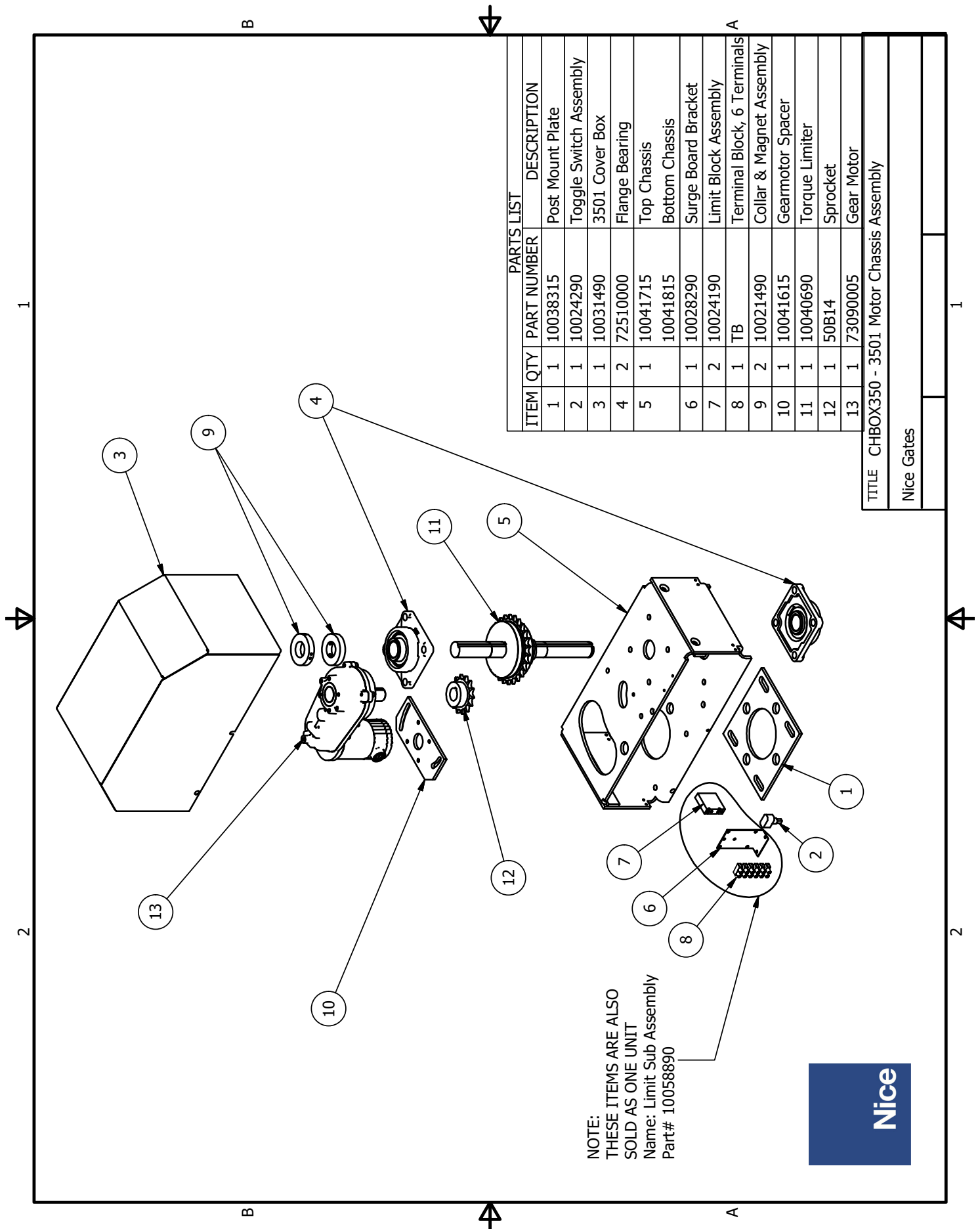
NAME: 3501 GENERAL OVERVIEW

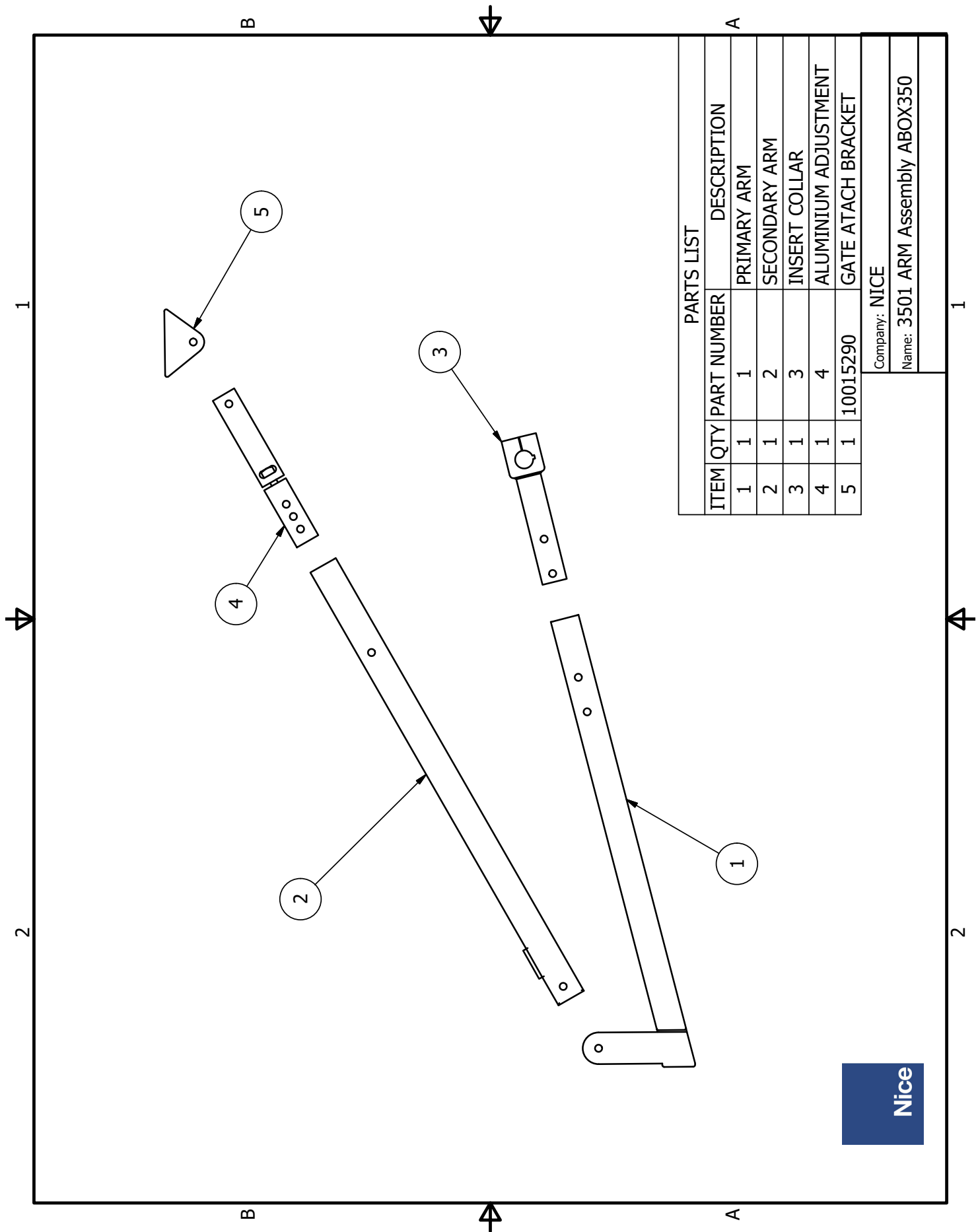




PARTS LIST			DESCRIPTION
ITEM	QTY	PART NUMBER	
1	1	10031990	CONTROL BOX CABINET
2	1	100126215	CONTROL BOX LID
3	1	10020915	CONTROL BOX TAB
4	1	11115	KEYSWITCH, SINGLE POLE
5	1	11195	SWITCH, PUSH BUTTON, CNTRL BOX
6	1	1050	1050 CIRCUIT BOARD
7	1	100575090	1050 BOARD MOUNT KIT
8	1	OXI/A	NICE - RECEIVER

Company:	NICE
TITLE:	CBOX1K - CONTROL BOX WITH 1050 BOARD





PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	1	PRIMARY ARM
2	1	2	SECONDARY ARM
3	1	3	INSERT COLLAR
4	1	4	ALUMINIUM ADJUSTMENT
5	1	10015290	GATE ATACH BRACKET

Company: NICE

Name: 3501 ARM Assembly ABOX350

Nice

Nice Group USA Limited Warranty – 2 (TWO) YEARS

Nice Group USA (“Manufacturer”) warrants this product shall be free from defects in materials and workmanship for a period of 2 years from the manufacture date. These warranties are in lieu of all other warranties expressed or implied and shall be considered void if the product is damaged due to, but not limited to, improper installation, improper use, terrorism or acts of God. The proper operation of this product is dependent on your compliance with the instructions regarding installation, operation, maintenance, and testing. Failure to comply strictly with those instructions will void this limited warranty in its entirety.

If, during the 2 year time period from the date of manufacture, this product appears to contain a defect covered by this limited warranty, **call the manufacturer service center at 1-800-226-0178** before uninstalling and/or dismantling this product. The technical assistance department at the manufacturer will discuss the problems you are experiencing in order to confirm the product defect. You will provide the information from the dated proof of purchase receipt to confirm the warranty period or the technician will confirm your extended warranty period through your registration information on file. The technician will give you the shipping information you need to return your product. Your product must be returned to the manufacturer service center in a prepaid and insured manner. Should your product be covered under the warranty policy, your product will be repaired, replaced with a factory rebuilt product or replaced with a new product (at the manufacturer’s discretion) at no cost to you and sent back to you via standard ground freight.

THIS WARRANTY AND THE OBLIGATIONS AND LIABILITIES OF MANUFACTURER ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Under no circumstances shall the manufacturer be liable for consequential, incidental or special damages of any kind whatsoever. The manufacturer’s liability for a breach of warranty, breach of contract, negligence or strict liability cannot exceed the cost of the warranted product. No person is authorized to assume for the manufacturer any other liability in connection with the sale of this product.

33 - INSTALLATION CHECKLIST

Left box is for installer check off and the right box is for customer check off.

- ☐

1. The gate has been checked to make sure it is level and moves freely in both directions.
- ☐

2. Potential pinch areas have been guarded so as to be inaccessible OR have contact and/or non-contact obstruction sensing devices installed.
- ☐

3. The installer has installed one or more contact or non-contact obstruction sensing devices, in compliance with UL325 requirements for this installation.
- ☐

4. If pedestrian traffic is expected, a separate pedestrian gate has been installed, a minimum of seven feet from the gate. The customer has been informed that all pedestrian traffic must use the pedestrian gate.
- ☐

5. Warning signs have been installed on each side of the gate in highly visible locations. The customer has been informed that these signs must remain at all times.
- ☐

6. There are no controls installed on the gate operator, or within 8 feet of the gate.
- ☐

7. The installer has properly adjusted the obstruction sensing feature and has tested the gate to make sure that the gate stops and reverses a short distance with minimal resistance applied (Approximately 40 lbs. on a swing gate, at the end of the gate.
- ☐

8. The installer has instructed the customer in the proper use of the gate operator and reviewed all of the operational functions, obstruction sensing devices, warning beeper and reset, etc.
- ☐

9. The installer has instructed the customer in the proper way of disconnecting the operator. Manual disconnect must never be used while the gate is in motion. The power must be turned off and battery disconnected before disengaging the operator.
- ☐

10. The installer has reviewed all safety instructions with the customer, and has left the safety instructions and owner's manual for their reference.
- ☐

11. The installer has answered any questions the customer has regarding the operation of the gate operator and gate operator safety precautions.
- ☐

12. The installer has explained to the customer that a regular maintenance schedule for both the gate and the gate operator is recommended.

Installation Acceptance

Address where opener is located

Installer name, number and address

End user name and telephone number

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.

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.

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.

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.