Installation and Programming Manual

CBOX936

Vehicular gate operator control box with 936 control board

CBOX with 936 control board

Nice

HySecurity®

CONTENTS

LIST OF INSTRUCTIONS

SECTION 1: 936 CONTROL BOX OVERVIEW

Congratulations on selecting a Nice gate operator using the 936 control board. With proper selection, system design, installation and maintenance this operator should provide years of reliable operation. This manual covers ONLY the installation of the control box. Refer to appropriate manual for actuator installation.

This manual provides documentation that covers the layout, installation, and programming of the Nice 936 control box for a typical installation. Please consult your Nice distributor for more information regarding installations or questions not specifically covered in this manual.

IMPORTANT!

These instructions do not contain installation instructions for the actuator(s). Refer to the separate actuator installation manual for actuator install instructions. The CBOX936 is used in the following Nice gate operator systems with associated actuators:

- 1550 System with 816 Actuator
- Titan12L System with 912L Actuator

EXTREMELY IMPORTANT!

Anyone who installs, assists with installation or otherwise facilitates the installation in any manner should thoroughly read and understand this manual in its entirety before any attempt is made to actually begin the installation process.

1.1 936 CONTROL BOARD FEATURES

The 936 control board offers the following features:

- Inputs for solar panel and battery
- Motor outputs for two actuators
- Low power consumption in Standby Mode
- Built-in charge regulator to maintain battery charge
- Socket for plug-in Nice receiver
- Easy setup with 7-segment LED display 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 various added accessories
- Two relay outputs for step-by-step operation or connecting 300 Hz pulse safety devices
- 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

CBOX936 SPECIFICATIONS	
OPEN/CLOSE TIME (TO 90°)	14 - 16 Seconds
MAX. DEGREE OF OPENING	Standard install = 105°, Special install = 120°
SOLAR COMPATIBLE	YES
OPERATING TEMPERATURE	-4° to 122° F (-20° to 50° C)
DIMENSIONS	8.5" x 18.25"x18.25"
PUSH-TO-OPEN INSTALLATION	YES
PULL-TO-OPEN INSTALLATION	YES
NUMBER OF GATES CONTROLLED	Single or dual gate
SENSOR TYPE INPUTS	Edge, Photo Eye, and Ground Loops
DC VOLTAGE INPUT	Solar In: 12 VDC
BATTERY POWER	12 VDC
STANDBY CURRENT	10 mA
INCLUDED SENSORS	Photo Eye TX/RX Through Beam Pair or Alternative Reflective Photo Eye
USER CONTROLS	936 Control Board
ENCLOSURE	CBOX: Type 3R, 18wX18hX8d (46wX46hX20.3)
ACCESSORY CONNECTORS	2x Step-by-Step Inputs, 2x Edge Sensor, Shadow, Safety, Free Exit, Emergency Bypass
RELAYS	Two programmable relays
UL 325 CERTIFICATION	Usage Class I, II, III, IV

SYSTEM ACTUATOR SPECIFICATIONS		
SPEC TYPE	**1550 SYSTEM**	**TITAN12L SYSTEM**
	816 ACTUATOR	**912L ACTUATOR**
Drive Type	Electromechanical Screw	Electromechanical Screw
Open/Close Time	14 - 16 Seconds	14 - 16 Seconds
Gate Max Length and Weight	16 foot (4.9m) leaf @ up to 600 lb. (272 kg)	• 20 foot (6m) leaf @ up to 600 lb. (272 kg) • 8 ft (2.4 m) leaf @ up to 1000 lb (453 kg)
Actuator Lengths (measured from mount hole to mount hole)	41 inches (104 cm) retracted 67 inches (170 cm) extended	43 inches (176.5 cm) retracted 69.5 inches (103.3 cm) extended

SECTION 2: 936 CONTROL BOX PARTS IDENTIFICATION

936 CONTROL BOX PARTS LIST

PART#	DESCRIPTION	QTY
CBOX936	Control Box with 936 Control Board	1
OXI/A	Multi-Channel Plug-in Receiver	1
ABF/A	Antenna for Multi-Channel Plug-in Receiver	1
273C	Gate Warning Signs	2
75500019	Cable Ties (for Warning Signs)	4
911	Audio Alarm	1
EPMB/A or MX4257	Photo eye (UL Requirement): Either Thru-Beam pair (P/N EPMB/A) or reflective photo eye (P/N MX4257).	1

GATE OPERATOR CONTROL BOX (P/N CBOX936)

NOTES: Some purchased systems may include a minimum specified 12V battery as part of the kit.

WARNING SIGNS (P/N 273C)

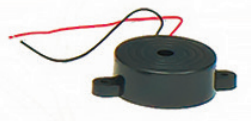
REFLECTIVE PHOTO EYE & REFLECTOR (P/N MX4257)

CABLE TIES (P/N 75500019 FOR WARNING SIGNS)

THRU-BEAM PHOTO EYE TX/RX PAIR (P/N EPMB/A)

RECEIVER ANTENNA (P/N ABF/A)

RECEIVER (P/N OXI/A)



AUDIO ALARM (P/N 911)

SECTION 3: SAFETY AND 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.

CLASS I RESIDENTIAL GATE OPERATOR

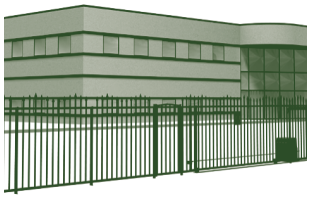
Intended for use in a location of one to four single family dwellings or a parking area associated with one to four single family dwellings.

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.

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.



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.

IMPORTANT!
The gate operator installation is NOT a "do-it-yourself" project. Contract a qualified gate operator installation company to install this system to ensure a safe and reliable installation.

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.

Consult local government agencies for latest rules and regulations to satisfy licensing, codes or regulations for automated gate system design and installation.

SAFETY, WARNINGS, AND CAUTIONS

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
- 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.

DANGER!

TO REDUCE THE RISK OF SEVERE INJURY, DEATH, OR PROPERTY DAMAGE READ AND FOLLOW ALL SAFETY INSTRUCTIONS. SAVE THESE INSTRUCTIONS!

- Never let children operate or play with gate controls. Keep the remote control away from children.
- Always keep people and objects away from the gate. No one should cross the path of the moving gate.
- Test the gate operator monthly. 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.
- Use the emergency release only when gate is not moving.
- Keep gates properly maintained. Read the user's manual. Have a qualified service person make repairs to gate hardware.
- The entrance is for vehicles only. Pedestrians must use separate entrance.
- Save these instructions.

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.

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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.

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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.

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.

GATE INSTALLATION REQUIREMENTS

Install this gate operator only when:

- The operator is appropriate for the construction of the gate and the usage Class of the gate;
- All openings of a horizontal slide gate are guarded or screened from the bottom of the gate to a minimum of 1.83 meters (6 feet) above the ground to prevent a 57.2 mm (2-1/4 inches) 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;
- All exposed pinch points are eliminated or guarded;
- guarding is supplied for exposed rollers);
- When utilizing a Nice 936 board, a maximum of 8 entrapment protection devices (6 BlueBUS and 2 pulse outputs may be connected.

PEDESTRIAN TRAFFIC

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.

GATE CLEARANCES

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.

GATE CONDITION

The gate must be properly installed and work freely in both directions prior to gate operator installation. Don't change operator force sensitivity settings to compensate for an improperly installed, improperly functioning, or damaged gate.

GATE CONTROL ACCESS

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.

STOP/START BUTTON LOCATION

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.

WARNING SIGNS

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.

PHOTO EYE SENSORS

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

- See instructions on the placement of non-contact sensors for each type of application.
- 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.
- 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.

CONTACT SENSORS (EDGE)

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

- One or more contact sensors shall be located where entrapment or obstruction risks exists, such as at the leading edge, trailing edge, and post-mounted both inside and outside of a vehicular horizontal slide gate.
- 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 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.
- 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.

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.

GATE CONSTRUCTION & 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

GENERAL GATE CONSTRUCTION REQUIREMENTS:

Gate Types

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

Detached Gates

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.

Gate Bottom Edge

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

Barbed Wire/Tape Height

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.

Existing Gate Latches

An existing gate latch shall be disabled when a manually operated gate is retrofitted

Gate Latch Restrictions

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

Gate Protrusions

Protrusions shall not be permitted on any gate. Consult ASTM F2200 for exceptions.

Gravity and Gate Movement

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

Pedestrian Gates

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.

Upgrading Non-Automatic gates

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

Pedestrian and non-Automatic Gates

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

Upgrading Existing Automated Gates

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

VEHICULAR HORIZONTAL SLIDE GATE REQUIREMENTS:

Class I, II and III Vehicular Horizontal Slide Gates:

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

Exposed Rollers

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

Guarding or Screening Gate Openings

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 inch (1.83 m) above grade, whichever is less, to prevent a 2 1/4 inch (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.

Gaps Between Gate Frames and Other Objects

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

Class I, Class II and Class III Gate Stops

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.

Gate Lateral Stability

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.

Class IV Vehicular Horizontal Slide Gates:

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

Guarded or Covered Rollers

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

Class IV Gate Stops

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.

Class I, II, and III Horizontal Swing Gates:

The following provisions shall apply to Class I, Class II, and Class III horizontal swing gates:

Avoiding Entrapment Areas

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.

Open Gate Size Restrictions

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 inch (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.

Open Gate Minimum Distance to Objects

Except for the zone specified in Open Gate Size Restriction (above) 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 inch (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.

Class IV Installations

Class IV vehicular horizontal swing gates shall be designed, constructed and installed in accordance with security related parameters specific to the application in question.

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:

GATE TRAVEL TESTING

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.

SAFETY DEVICE TESTING

Reconnect gate operator and perform the following tests:

Photo Eye Blockage Test

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.

Edge Contact Test

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.

Obstruction Test - Opening

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.

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. (1.83 m) above grade. Such locations occur if at any point in travel if the gap between a moving gate and the fixed counter opposing edges or surfaces is less than 16 inch (406 mm).

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 feet (1.83m) above grade. Such locations occur if during any point in travel:

a. The gap between the bottom of a moving gate and the ground is greater than 4 inch (101.6 mm) and less than 16 inch (406 mm); or

b. 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 inch (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 inch (406 mm) (examples are walls, curbs, berms or other immovable objects).

c. Potential entrapment zones are shown in INSTRUCTION 3 for swing gates, but there may be other entrapment zones presented by the actual installation and adjacent structures or landscape that must be protected as well. 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 swing gate is one sensor in the close direction (provided the gate in the open direction presents no risk of entrapment.)

The gate operator tests for the presence of at least one functioning sensor, and if not found, the operator will only run using continuous pressure on an Open/Close button, either on the controller, or an external device.

SENSORS AND ACCESSORIES

Instructions have been provided for installation of the photo eye transmitter/receiver pair per UL325 requirements, but there are other sensors that should be used to avoid entrapment scenarios.

- 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.

COMPATIBLE EXTERNAL SENSORS

Only the following external sensors have been evaluated and tested with Nice 936 control boards and are approved to be used for protection against entrapment:

- Nice BlueBUS Through-Beam Photo Eye
- ASO Sentir Series Contact Edge
- Miller Edge GEM-103 Edge Sensor Converter
- EMX IRB-RET Retro-Reflective Photo Eye
- EMX NIR-50-325 Retro-Reflective Photo Eye
- EMX WEL-200 Wireless Edge Transmitter/Receiver

SECTION 4: 120VAC ELECTRICAL WIRING SAFETY

Follow all safety warnings if installing AC power for charging purposes. Board operates only from DC power.

- 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.

CAUTION!
DO NOT WIRE AC POWER TO THE CONTROL BOARD! THE CONTROL BOARD OPERATES ON DC VOLTAGES ONLY!

DANGER!
TO REDUCE THE RISK OF SEVERE INJURY AND DEATH FOLLOW ALL SAFETY PROCEDURES!

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

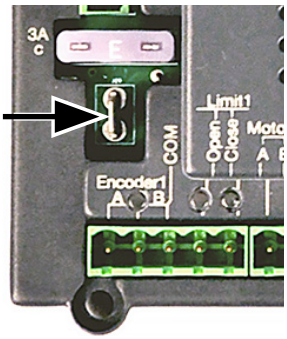


FIGURE 4-1: 936 CONTROL BOARD GROUND LOCATION

- 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.

IF AC POWER IS BEING RUN INTO THE CONTROL BOX FOR CONVERSION TO DC, 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.

Nice recommends an 8 foot copper rod driven all the way into the ground with a copper clamp and 12ga copper wire minimum.

Connect ground wire to the grounding lug on the lower left corner of the 936 control board (FIGURE 4-1). Alternatively, bonding of the control box can be done by drilling a hole in the control box, removing the powder coating around the hole, and bonding the copper ground wire to that area with a bolt.

4.1 HIGH VOLTAGE WIRE GAUGE REQUIREMENTS

Use Table below to determine high voltage wire size requirements.

Distance shown in the chart is measured from the operator to the power source. If power wiring is greater than the maximum distance shown, a service feeder is recommended.

When large gauge wire is used, a separate junction box must be installed for the operator connection.

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 electrical losses in the system.

TABLE 4-1: MAXIMUM RUN PER WIRE GAUGE

110V/AWG GAUGE	14	12	10	8	6	4
MAX RUN	180 FT (54.8m)	280 FT (85.3m)	460 FT (140m)	700 FT (213.3m)	1150 FT (350.5m)	1800 FT (548.6m)

SECTION 5: INSTALLATION SAFETY

IMPORTANT!

* The gate operator installation is NOT a "do-it-yourself" project. Contract a qualified gate operator installation company to install this system to ensure a safe and reliable installation.
* Property owner is responsible to ensure installer is qualified to make a safe and professional installation.
* Consult local government agencies for up-to-date rules and regulations to satisfy licensing, codes or regulations that regulate automated gate system design and installation.
* The gate being modified should be level and plumb and the gate should open easily and evenly.
* Nice swing gate systems are NOT intended for installation on an incline.
* These instructions assume actuator(s) has been installed per the applicable actuator installation manual. Install actuator before performing the procedures in this manual.

SECTION 6: TOOLS & MATERIALS NEEDED

Below is a list of tools and materials necessary for installation of the CBOX936 control box:

- Wire cutters/strippers
- Basic hand tools (screwdrivers, wrenches, pliers, etc..)
- Drill and assorted size bits
- Hardware for mounting control box
- Electrical conduits, grommets, asphalt patch, etc. as needed

SECTION 7: CONTROL BOX REQUIREMENTS

The following are required to install and program the CBOX936 control box:

- 12VDC battery to power the control board.
- A fully automatic AC-to-DC charger and/or solar panel to charge the battery.

Nice offers AC-to-DC converters and solar panel solutions for charging 12VDC batteries. Recommended battery specifications are as follows:

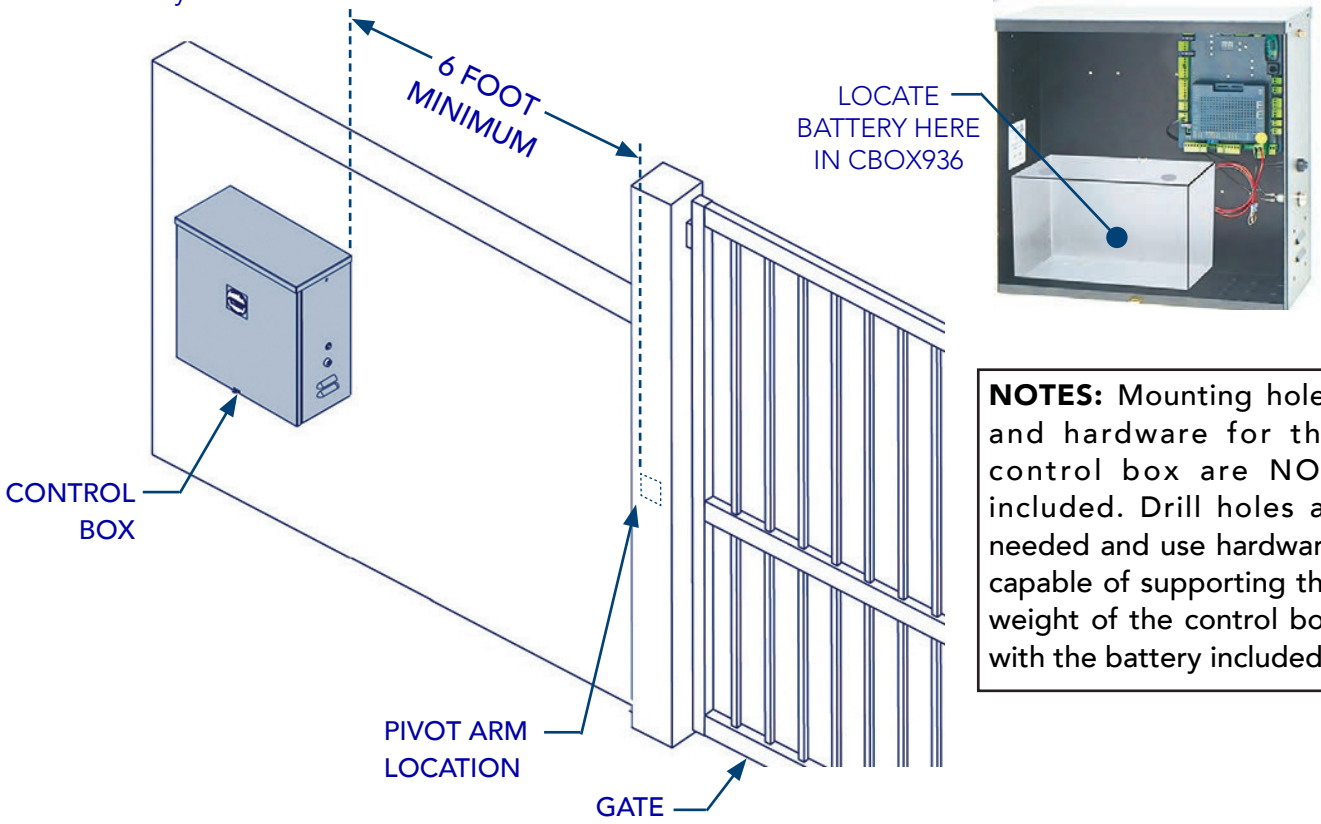
RECOMMENDED 12VDC BATTERY SPECIFICATIONS
12 Volt DC Output
Sealed lead acid starter battery
Terminal posts on top (not sides)
35 AMP hours or larger for AC charging applications
70 AMP hours or larger for Solar charging applications & Longer Backup

NOTES: Some purchased systems may include a minimum specified 12V battery as part of the kit and a choice of solar panel or AC battery charger.

SECTION 8: 936 CONTROL BOX INSTALLATION & SETUP

1 MOUNT CONTROL BOX

1. Mount control box on same side as actuator (for dual gate systems, same side as MASTER actuator with shorter harness) and at least six feet away from the pivot arm (FIGURE 1-1).
2. Set battery inside of control box with terminals toward the front.



NOTES: Mounting holes and hardware for the control box are NOT included. Drill holes as needed and use hardware capable of supporting the weight of the control box with the battery included.

IMAGE 1-1: CONTROL BOX MOUNTING LOCATION

NOTE: IMAGE 1-1 shows a typical install. The control box may be installed on either side of the wall depending on which direction the gate opens or where a person monitoring the gate will be located.

CAUTION!
DO NOT MOUNT THE CONTROL BOX WHERE THE PERSON USING THE PUSH BUTTON ON SIDE OF BOX CAN COME IN CONTACT WITH THE GATE!

2 WIRE ACTUATOR(S) TO CONTROL BOARD

NOTE: Refer to 912L actuator (MX4685) or 816-X actuator (MX4684) manuals for specific instructions and diagrams for wiring the actuator to the 936 control board.

1. Strip actuator wires back 1/4"-5/16" (7-8mm) and twist.
2. Remove 5-pin and 2-pin connector from the MOTOR 1 section on control board. If a dual gate system, also remove both MOTOR 2 connectors. See IMAGE 2-1.
3. Refer to wire diagram in appropriate actuator install manual, then use a small flat blade screwdriver to affix wires into screw terminals of connectors per wire diagram.
4. Plug in the wired connector to MOTOR 1 when finished. For dual gate systems, DO NOT connect the MOTOR 2 connector to the control board yet. MOTOR 2 connector will be connected at a later step.

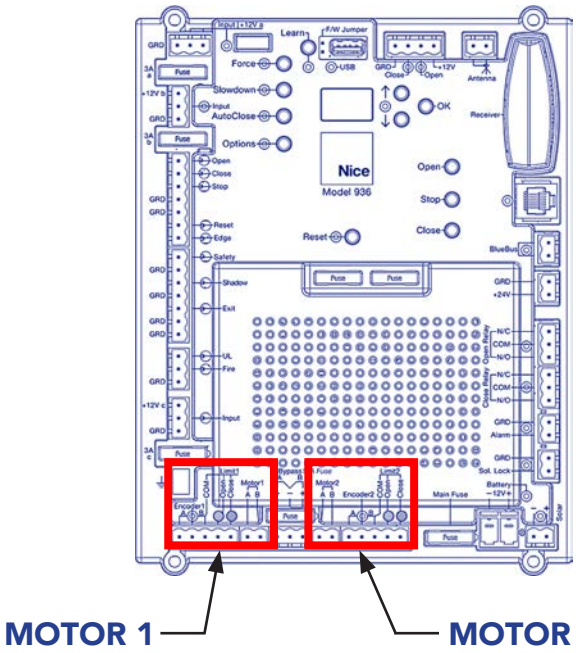


IMAGE 2-1: MOTOR (ACTUATOR) CONNECTORS

NOTES:

- If for a dual gate system, prepare both actuator harnesses per these instructions.
- Note that connections are different for Pull-to-Open and Push-to-Open installations.
- If a gate moves in opposite direction from what is expected, reverse the motor power lead wiring (red & black wires) for that motor.

3 DETERMINING BLUEBUS PHOTO EYE LOCATIONS

See below for suggestions of photo eye positioning for your gate configuration.

NOTE:
Name designations in IMAGE 3-1 (P1, P2, etc.) are arbitrary designations used to indicate jumper settings for each photo eye location. See INSTRUCTION 4 for jumper settings.

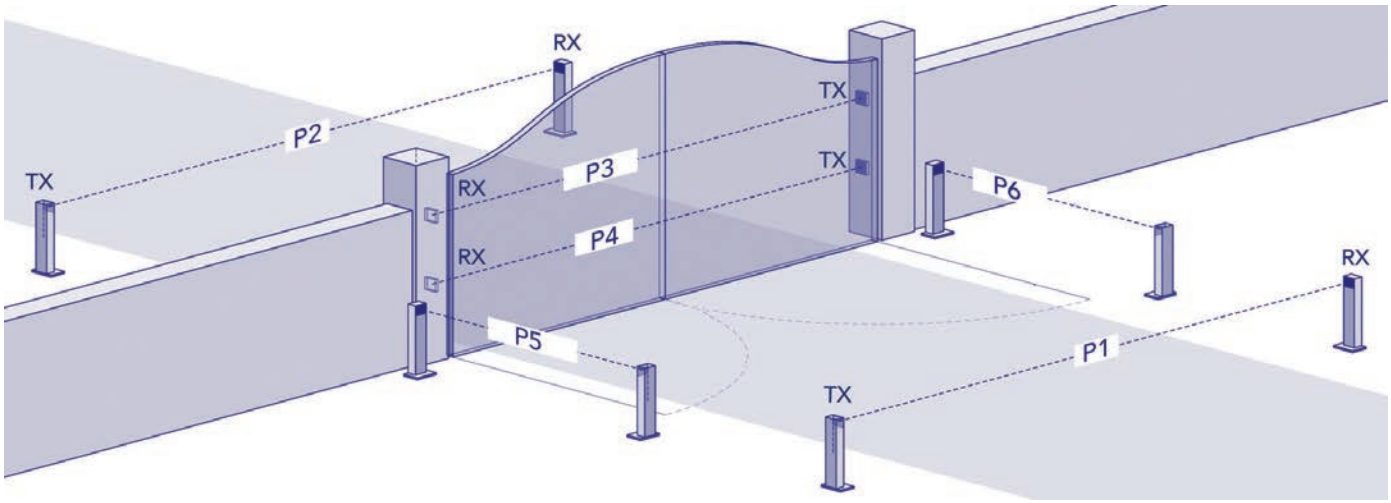


IMAGE 3-1: POSSIBLE ENTRAPMENT ZONES AND PHOTO EYE LOCATIONS

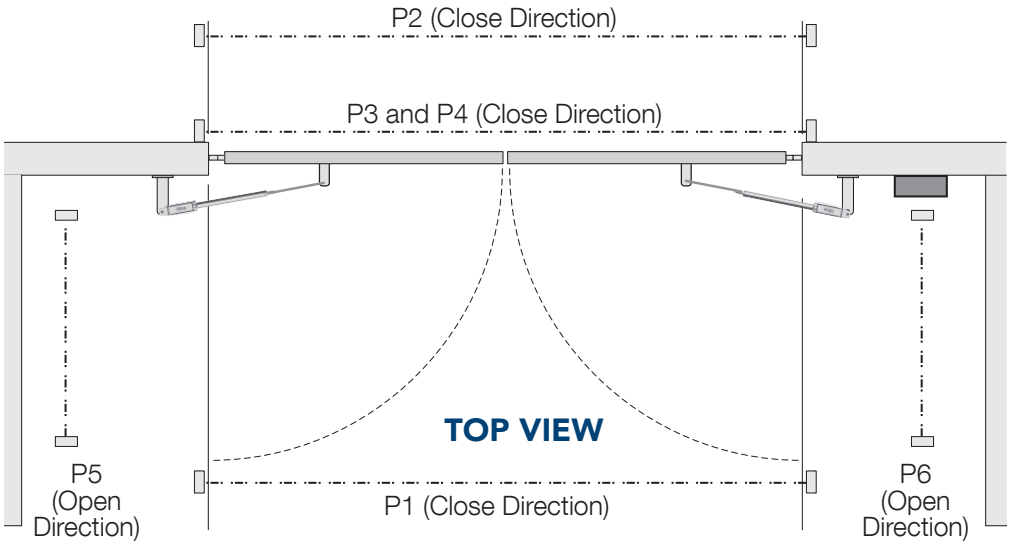
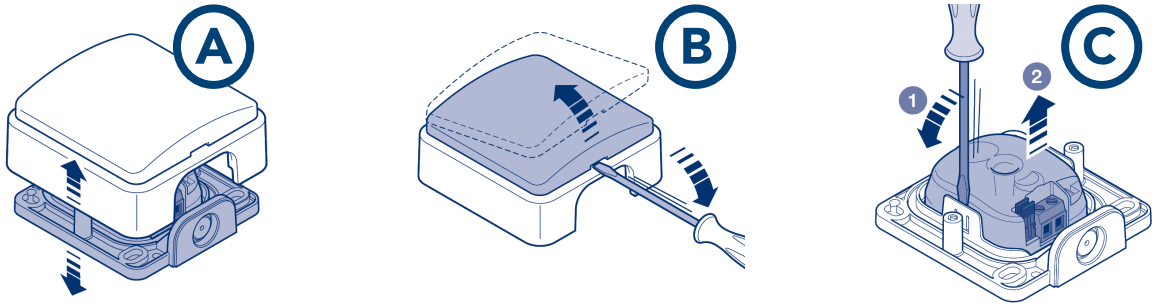


IMAGE 3-2: POSSIBLE ENTRAPMENT ZONES AND PHOTO EYE LOCATIONS (TOP VIEW)

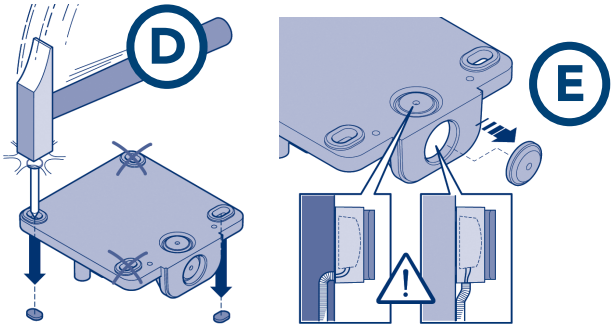
IMPORTANT!
The 936 control board will not operate without at least one monitored and functioning safety device connected to the control board. Before power is connected to the control board, install either the BlueBUS through-beam photo eyes per the instructions below or an alternative photo eye, such as the reflective EMX NIR-50-325 photo eye (per the instructions provided separately) before attempting to apply power to the control board. Note that some kits include only the EMX NIR-50-325 photo eye.

4 PREPARE BLUEBUS PHOTO EYES FOR INSTALL

1. Remove top cover (A) and faceplate (B), then use screwdriver to remove inner assembly from bracket (C).



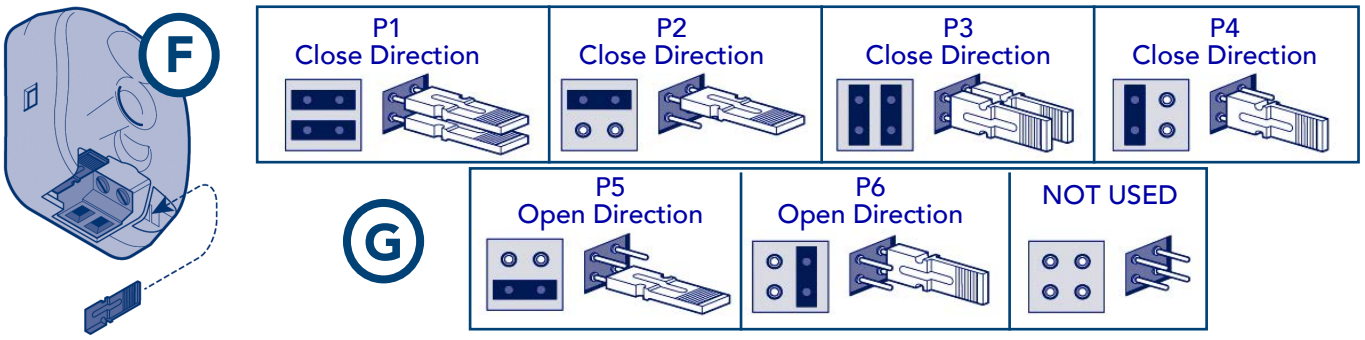
2. Knock out the four plastic tabs from mounting holes (D), then remove appropriate tab from wire entry hole (E); knock out rear tab for running wire underneath the mounting surface OR knock out bottom tab for running wires out the bottom.



NOTE: Each pair of photo eyes wired to the same gate operator must use a different jumper configuration for each pair (six maximum). Photo eye jumper settings perform as follows (refer to IMAGE 3-1 and G, below):

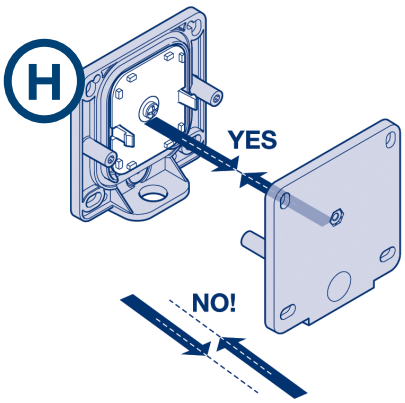
- P1/P2 = Hold gate open - reverse gate if closing.
- P3/P4 = Hold gate open - stops gate if closing and reverses back open when eye is cleared.
- P5/P6 = Keep gate from opening - reverse gate back closed.

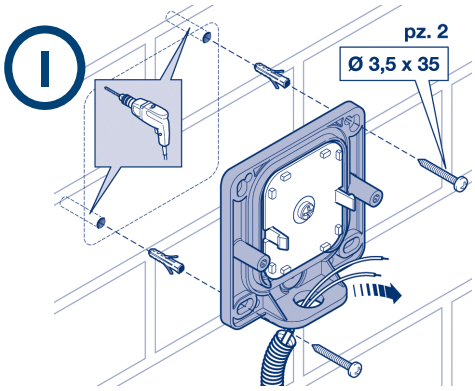
3. If more than one pair of photo eyes, configure jumpers so that each pair has a unique jumper setting (six maximum). Stow unused jumpers in slots on photo eye rear (F).

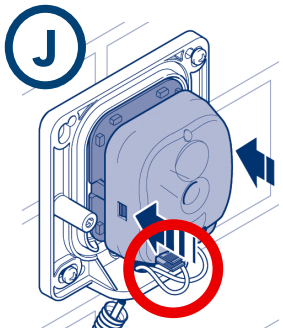


5 INSTALL & WIRE BLUEBUS PHOTO EYES

1. Ensure alignment between receiver and transmitter brackets (H), then affix both to selected locations with included screws (I).





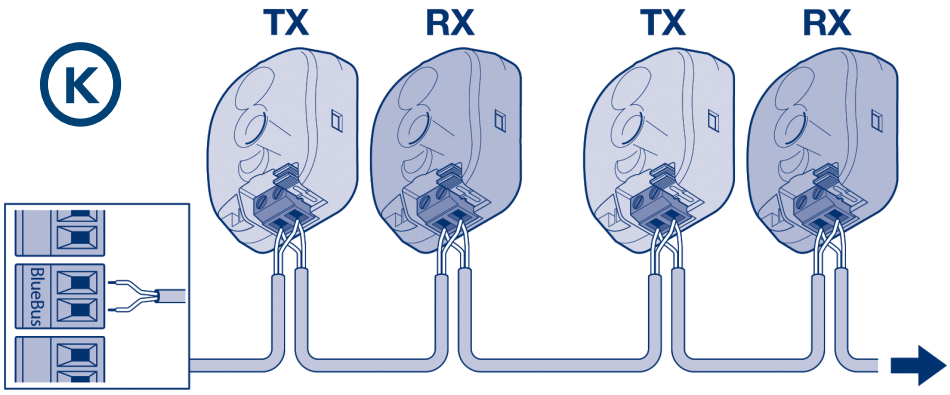


IMPORTANT!

If using the model EPMB/A non-adjustable photo eye (H), ensure the mounting surfaces for both devices are parallel with each other to ensure accurate alignment between TX and RX.

2. Thread 2-wire bus wire through bracket hole and snap photo eye assembly (J) into bracket.

3. Install bus wires into screw terminals (J, red circle) in parallel as shown (K). No polarity required.



NOTES:

Maximum total length of buss wire should not exceed 165 feet (50 meters).

When replacing photo eyes, jumper setting on the new device must match the old device to avoid having to re-learn the BlueBUS configuration.

6 CONNECT BLUEBUS PHOTO EYES TO BOARD

If the kit comes with BlueBUS photo eye pair, connect bus wires (no polarity) into 2-pin BlueBUS connector on control board (IMAGE 6-1). If an alternative reflective photo eye and reflector are provided, follow installation instructions included in the kit.

IMPORTANT!

Do not attempt to jumper or short the BlueBus connector pins as this will damage the control board.

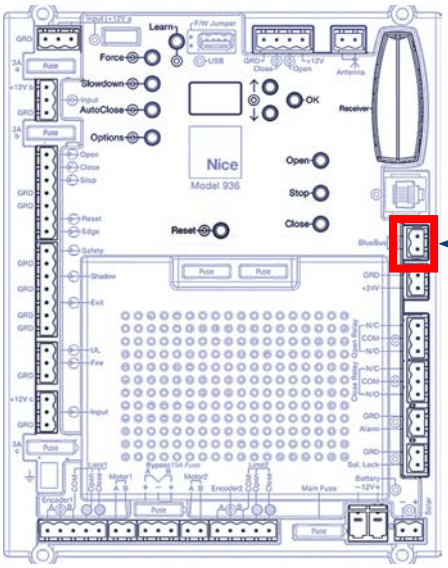


IMAGE 6-1: BLUEBUS CONNECTOR LOCATION

7 ATTACH WARNING SIGNS TO GATE

1. Place one warning sign (IMAGE 7-1) on outside of gate and the other inside of gate in high visibility locations (eye height) to warn of entrapment dangers. If signs cannot be attached to gate, ensure they are as visible as possible to pedestrians and anyone operating the gate.
2. Use two tie wraps per sign, or alternative means, to securely affix signs to gate.

IMAGE 7-1: MOVING GATE ENTRAPMENT WARNING SIGN

8.1 POWER OPTIONS AND WIRING

There are two possible configurations available to power the 936 control board:

- 12 VDC battery charged by solar panel
- 12 VDC battery charged by AC-DC charger applied to battery

DANGER!
DO NOT CONNECT AC POWER DIRECTLY TO MAIN DC POWER CONNECTOR ON CONTROL BOARD! THE BOARD ACCEPTS ONLY DC VOLTAGES!

IMPORTANT!
Power should not be applied to the control board until after the photo eyes have been installed and wired to the control board. Power is applied in INSTRUCTIONS 8.

8 BATTERY POWER - INPUT CONNECTIONS

1. Remove BATTERY connector from control board (IMAGE 8-1).
2. Retrieve black/red battery cable from kit, strip bare wires back 3/8"-7/16" (10-11mm), twist, and install into the Battery connector screw terminals (RED = +, BLACK = -).
3. Attach the battery cable lugs to the battery terminals; black to negative (-) and red to positive (+) terminals.
4. Plug battery connector back in control board (IMAGE 8-1).

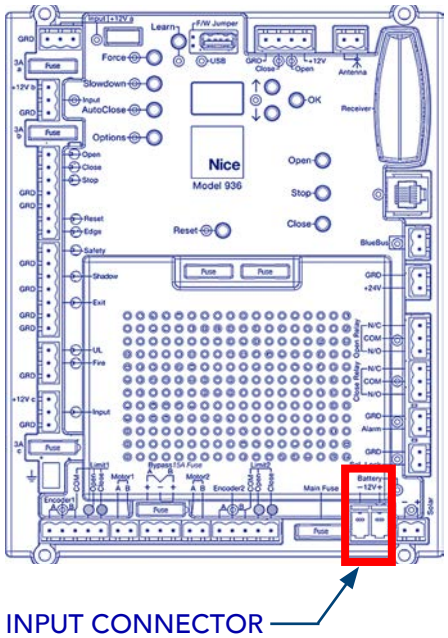


IMAGE 8-1: BATTERY POWER INPUT CONNECTOR

NOTE: If Battery power is wired backwards the LED (upper right of connector) will light red. If wired correctly, the LED will light green.

9A SOLAR PANEL CONNECTION - 10W TO 20W

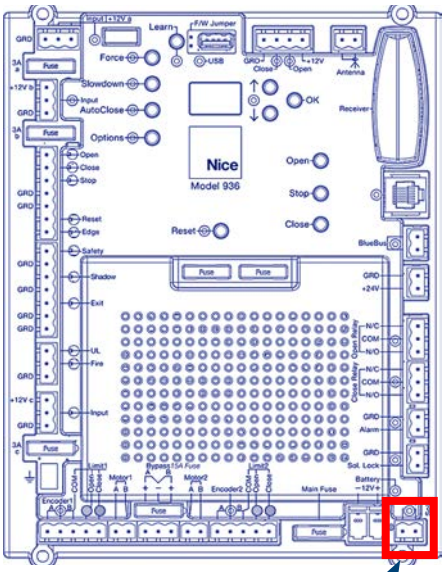
A 20 Watt, or smaller, solar panel may be installed to enable battery charging through the 936 control board's integral regulator/ conditioner as follows:

1. Assemble solar panel mounting bracket and panel with included hardware.
2. Locate solar panel out of shadows of surrounding buildings, walls, etc. and orient to collect the maximum sunlight energy throughout the year. In the northern hemisphere, mount panels at upward angle of about 45 degrees with panel oriented south. In the southern hemisphere orient the panel to face north.
3. Cut off two battery lugs from the end of the solar panel cable.
4. Strip wires back 1/4"-5/16" (7-8mm), twist, and install into the solar panel connector screw terminals on the control board (RED = +, BLACK = -). See IMAGE 9A-1.

NOTES:

- Turn ON Standby Mode (INSTRUCTION 12) if using only solar power to charge battery.
- If solar panel is wired backwards, a red LED will illuminate above the connector.

IMAGE 9A-1: SOLAR CONNECTORS ON CONTROL BOARD



NOTE: For 30W solar panels and above, an external regulator must be used. Nice offers a regulator (P/N SG-4) for this purpose. See INSTRUCTION 9B for installation instructions for the SG-4 regulator.

9B SOLAR PANEL CONNECTION - 30W AND ABOVE

Solar panels of 30W and above must be connected to a regulator which, in turn, then connects to the battery to enable battery charging. Nice offers a regulator (P/N SG-4) for this purpose. For regulators sourced elsewhere, follow the manufacturers instructions when installing. Install and wire the 30W and above solar panels and SG-4 regulator as follows:

1. Assemble solar panel mounting bracket and panel with included hardware.
2. Locate solar panel out of shadows of surrounding buildings, walls, etc. and orient to collect the maximum sunlight energy throughout the year. In the northern hemisphere, mount panels at upward angle of about 45 degrees with panel oriented south. In the southern hemisphere orient the panel to face north.
3. Drill two holes into a vertical surface in the CBOX chassis matching the two mounting tabs on the regulator. Mount the SG-4 with appropriate hardware to fix it in place.
4. Connect the red wire of solar panel to the yellow wire of the regulator and the black wire of solar panel to either of the regulator's black wires (see IMAGE 9B-1).
5. Connect the red (positive) battery wire (see notes above) to the red wire of the battery regulator and the black battery wire (negative) to the other black wire on the regulator, then attach both battery lugs to the battery (red to positive and black to negative). See IMAGE 9B-1).

NOTES:

- Wire-to-wire connections may be made using wire nuts, crimp caps, or butt connectors, as long as the connections are secure.
- It is permissible to cut off 8" to 10" (or so) of the solar panel wires (with battery lugs) in order to use for attaching the regulator to the battery.
- The SG-4 prevents reverse current leakage at night, so a blocking diode is not required in the system.
- A negative earth ground at the battery is recommended for most effective lightning protection.
- The SG-4 can be mounted outdoors, but do not expose to ambient temperatures above 140˚F (60˚C).
- Ensure that water is able drain from inside the case if it becomes wet.

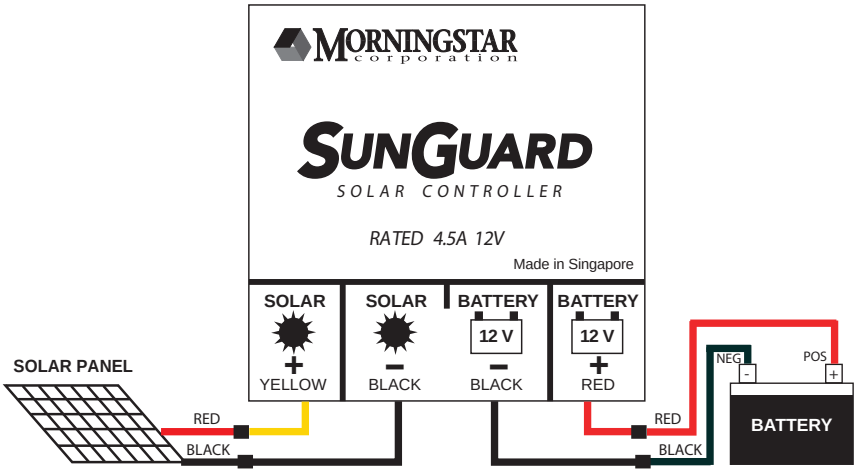


IMAGE 9B-1: P/N SG-4 SOLAR PANEL REGULATOR WIRING

10 POWER UP CONTROL BOARD

1. After applying battery power to the 936 control board the display will show...

   a) a chasing cursor (to confirm all LEDs are functional), followed by...

   b) the firmware version, then...

   c) the display will flash "bb" to indicate that the control board is scanning for monitored safety devices.

2. If safety devices (such as photo eyes) are found and determined to be functional, then display defaults to a flashing "Lr" indicating the board is ready to "Learn" the gate limits and you may proceed to INSTRUCTION 11.

3. If no safety devices are attached or functioning, display will show "E1".

4. If using the BlueBUS photo eyes when error is displayed, check for BlueBUS wiring errors and/or observe diagnostic LEDs per INSTRUCTION 13 to determine problem. If using the reflective photo eye with reflector, refer to the separate instructions included in the kit for troubleshooting instructions.

5. To reset the board after a scanning error (E1), remove power from the board (unplug battery connector) then after a few seconds reapply power (plug in battery connector).

6. Once safety devices (such as photo eyes) are found and determined to be functional, proceed to INSTRUCTION 11.

7. If safety devices provided in the kit are determined to be defective, contact Nice technical support.

8.2 GATE LIMIT LEARNING PROCEDURE

Before performing the fine adjustment to gate limits, the 936 control board must first "learn" the rough limits and the number of actuator motors used to move the gate, as described below.

IMPORTANT!
If configuring a dual gate system, only one actuator harness should be connected at a time to the control board at this point. Do NOT press the LEARN button until Step 9 in the instructions below.

NOTES:

- If a gate moves in opposite direction from what is expected, reverse the motor power lead wiring (reverse red & black wires) for that motor connection.
- If the wrong limit LED lights (i.e. the close LED lights when gate at open limit), reverse the limit wires (reverse orange and white) for that motor connection.

11 GATE LIMIT LEARNING PROCEDURE

1. The control board should already be powered from battery connection. If not, apply power per INSTRUCTION 8.

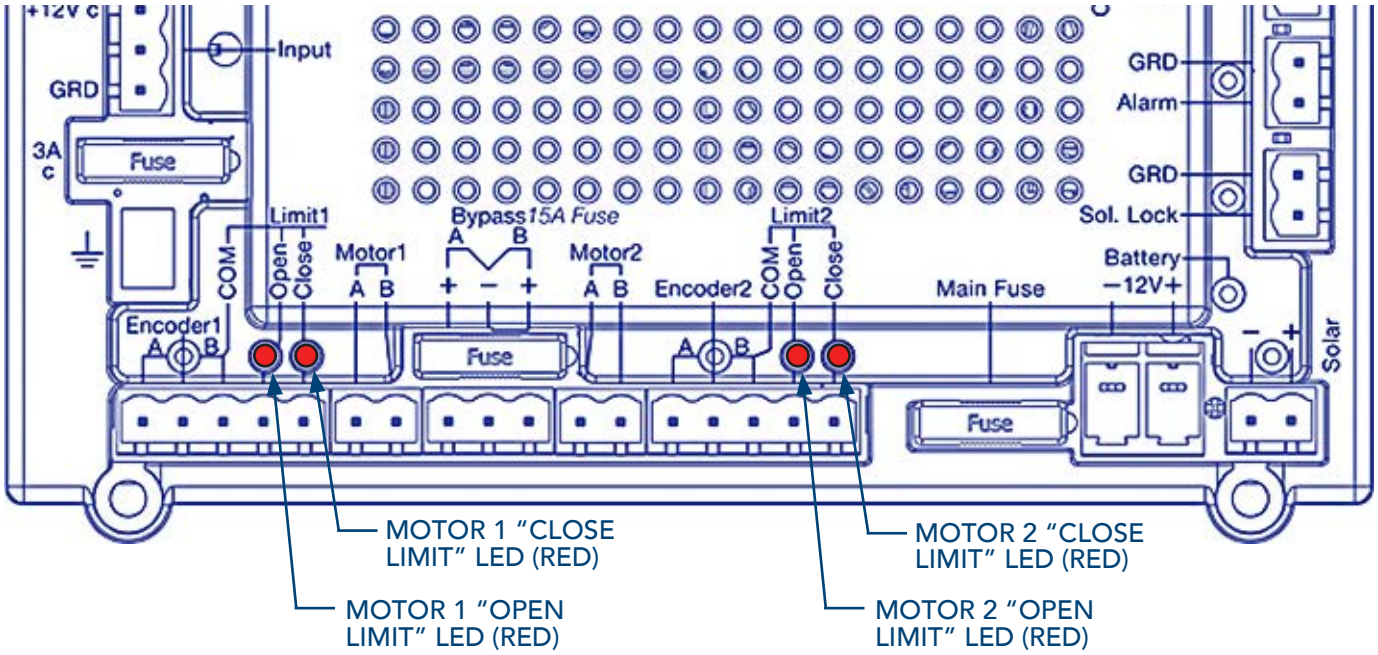


IMAGE 11-1: OPEN/CLOSE LIMIT LED LOCATIONS

2. There are separate OPEN and CLOSE limit LEDs for each input connector, MOTOR 1 and MOTOR 2. Refer to IMAGE 11-1 for location of OPEN and CLOSE limit indication LEDs on the control board.

3. If "Lr" is not already flashing in the LED display, press and hold the LEARN button for approximately 8-10 seconds or until "Lr" stops flashing, then release. "Lr" should now be flashing..

NOTE: Before the learning process, gates should only move for as long as buttons are held down and stop when buttons are released.

4. Press and hold down each button and ensure that the CLOSE LED lights up red when gate reaches the close limit, and the OPEN LED lights red up once the gate reaches the open limit (FIGURE 11-1).

5. Press either the OPEN or CLOSE buttons on the control board till gate is in approximately the halfway position.

6. For a dual gate system, unplug the primary actuator, plug in the secondary actuator and repeat steps 3 and 4, but do NOT push the OK button in Step 9 until BOTH actuator motors are connected to the Control Board. (Cont.)

11: GATE LIMIT LEARNING PROCEDURE (CONT.)

7. If a dual gate system, plug both actuator motor connectors into Control Board, ensuring that the second actuator with longer cable is plugged into MOTOR 2 connector.
8. Press the OK button. The board automatically begins the limit learning process and the gate(s) moves automatically as follows:

   a) A short opening sequence at half speed to determine the number of motors.

   b) A full closing cycle at half-speed to determine close limits (CLOSE LED lights at limit).

   c) A full opening cycle at half-speed to determine open limits. (OPEN LED lights at limit).

   d) A full closing cycle at full-speed into the closed position. (CLOSE LED lights at limit).

9. The OPEN and CLOSE buttons can now be pressed once (without holding) to fully open and close the gate.

12 SELECT CONTROL BOARD STANDBY MODE

IMPORTANT!
For solar applications turn Standby Mode ON.

Standby Mode puts the board into a low power consumption mode after about 2 minutes of inactivity in the "unlearned" state and after about 20 seconds after the board has "learned" the current system. A press of any button wakes up the board from Standby Mode. Select ON or OFF as follows:

1. Press OPTION button.
2. Use UP/DOWN buttons to scroll to standby option "Sb".
3. Press OK.
4. Use UP and DOWN buttons to select 1 (ON) or 0 (OFF).
5. Press OK.
6. Once Standby Mode is on, the control board will go to sleep after a time of inactivity when the operator is not moving, is in the auto-close countdown, or is being held open by an external auxiliary input.

NOTES:
24 volt output on right side and 12 volt output at top of board will turn off during Standby Mode - do not power entry or exit devices from these outputs.

BlueBUS function is disabled until board "wakes" up. Press any button to wake.

13 BLUEBUS PHOTO EYE STATUS & TROUBLESHOOTING

Once photo eyes are recognized by the control board, the photo eye LED behavior should be checked and adjustments made as follows:

1. After power up and all BlueBUS devices are recognized, observe LED behavior in each photo eye.
2. SLOWLY flashing LEDs indicate photo eyes are operating properly.
3. If LEDs indicate improper detection by the control board, poor transmission, or no signal, refer to TABLE 13-1. Continue to next section for instructions for adjustment of photo eye transmitter and receiver alignment.

TABLE 13-1: PHOTO EYE LED STATUS AND TROUBLESHOOTING

LED STATUS	MEANING	ACTION
Always off	(TX, RX) – The photocell has no power supply or is faulty.	Check that on the terminals of the photocell there is a voltage of approximately 8 to 12 V DC. If the voltage is correct, it is likely that the photocell is faulty.
3 quick flashes, (pause)	(TX, RX) – The pair of photocells has not been memorized in the control unit (or the interface).	Make sure that each pair of photocells has a different jumper configuration than the others. Perform the device learning procedure (INSTRUCTION 12).
Very slow flashing	(TX, RX) – The TX is transmitting properly. The RX is receiving an optimum signal.	None; optimum TX - RX alignment.
Slow flashing	(RX) – The RX is receiving a good signal.	None; good operation.
Fast flashing	(RX) – The RX is receiving a weak signal.	Fair operation; the photocell glass should be cleaned or re-aligned.
Very fast flashing	(RX) – The RX is receiving a poor signal.	Barely operational; clean the photocell glass and realign the TX and RX photocells.
Always on	(TX, RX) –The RX is receiving no signal.	Check if there is an obstacle between the TX and the RX; clean the photocell glass and realign the TX and RX photocells.

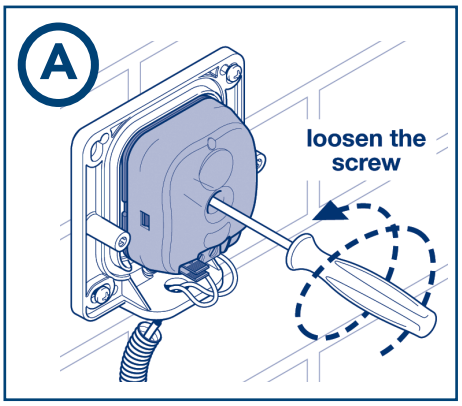
14 BLUEBUS PHOTO EYE ALIGNMENT

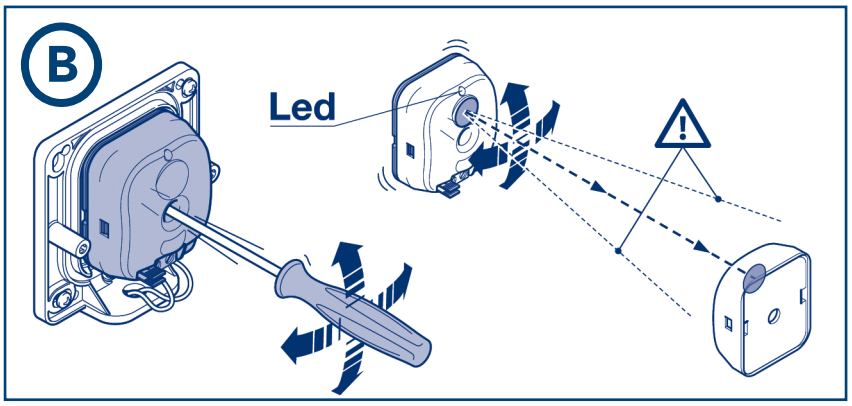
If adjustment of photo eye alignment is necessary, refer to the following instructions:

NOTES:
Photo eye testing is described in INSTRUCTION 15.

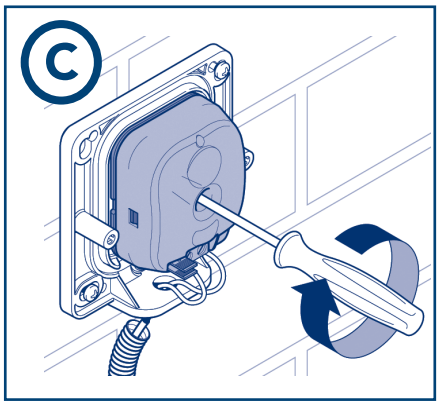
Adjustment instructions apply only to EPMOB/A and EPLOB/A models. EPMB/A model is not adjustable, and must be adjusted using other mechanical means left up to the installer.

1. Pull off front cover from photo eye assembly.
2. Use medium Phillips screwdriver to loosen screw (A).
3. Place screwdriver in hole (B) and lever the entire assembly in desired direction to change the angle of the entire assembly by up to 15 degrees in all directions (30 degrees total).





4. Observe LED behavior during adjustment and stop adjustment when LED flashes very slowly.
5. Re-tighten screw (C). Do not replace covers until after photo eye testing is performed in INSTRUCTION 15.



15 BLUEBUS PHOTO EYE TESTING

Photo eyes must be tested after power is applied to the control board to ensure proper operation:

1. Apply power to control board and ensure BlueBUS devices are detected and functioning.
2. Press the gate OPEN or CLOSE button on the control board to set gate in motion for each test.
3. Use a hand held cylinder of approx. 2" (5cm) diameter and 12" (30cm) in length and pass between photo eye line of sight as follows:

   a) Pass cylinder through line of sight near transmitter.

   b) Pass cylinder through line of sight near receiver.

   c) Pass cylinder through line of sight halfway between transmitter and receiver.
4. Each time the line of sight between transmitter and receiver is obstructed, the gate motion should immediately stop, then reverse direction.
5. If the gate does not react properly when photo eye line of sight is blocked, refer to INSTRUCTION 13 to determine the problem and applicable action.

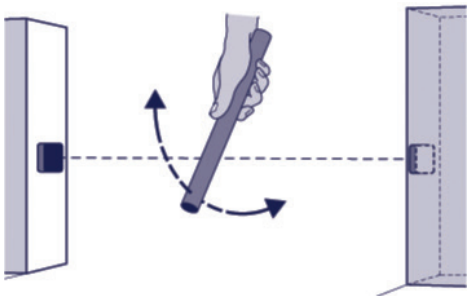
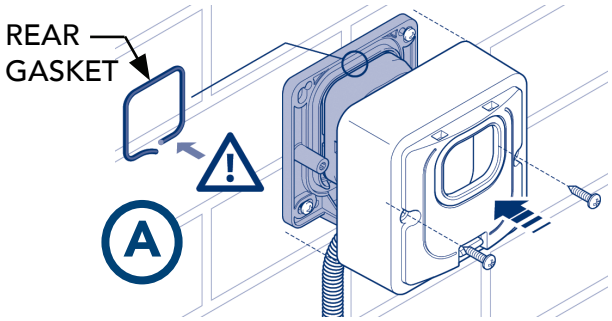


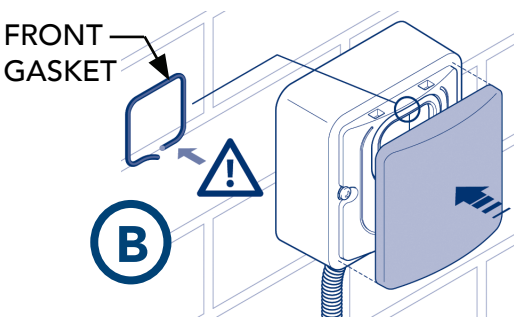
IMAGE 15-1: CYLINDER TESTING

16 BLUEBUS PHOTO EYE FINAL ASSEMBLY

If photo eyes have been tested and are working correctly, photo eye installation may be completed

1. Ensure rear rubber gasket is in position, then affix photo eye cover to assembly with hardware (A).
2. Ensure front rubber gasket is in position, then snap on face plate (B).





17 INSTALLING THE AUDIO ALARM

IMPORTANT!

The installer MUST connect the included audio alarm per these instructions. Installing the audio alarm is REQUIRED for UL325 compliance.

The audio alarm (siren) included in the kit must be connected to the 936 control board to provide an audible alarm to indicate a hard shutdown of the system, which is triggered by two consecutive entrapment events. It is a piezoelectric device that can produce a minimum of 100 dB @ 1 foot from enclosure of continuous sound and is powered by 3-12 VDC. Install as follows:

1. The alarm has short leads but may be located inside the box without wiring in additional cable.

   NOTE: If using additional cable length for installation of alarm external to the control box, maximum wire/cable length is 1000 feet (308.4m).

2. Locate the alarm output connector per IMAGE 17-1.
3. Ensure red wire is attached to Alarm terminal, and black wire to GND (ground) terminal.
4. In the event of a hard shutdown, be sure to determine the problem before resetting the shutdown (pressing the RESET Button on the control board).

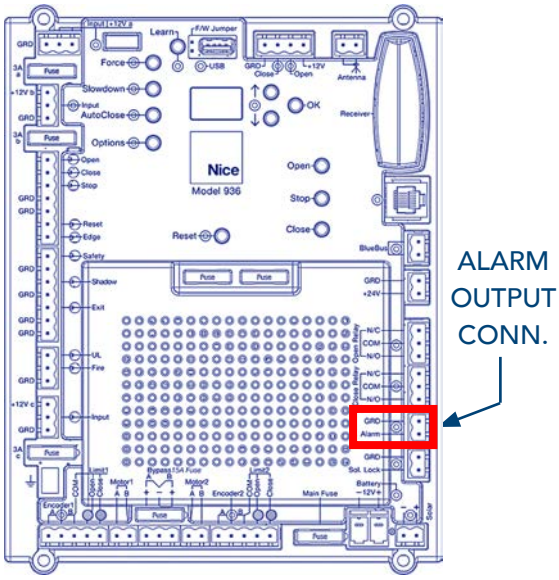


IMAGE 17-1: ALARM OUTPUT ON CONTROL BOARD

18 ASSIGNING NEW REMOTE CONTROL

Procure a functioning Nice 2-button or 4-button remote control with a battery installed (IMAGE 18-1) and assign it to the Nice OXI/A receiver as follows:

1. Press and hold the program button on the side of the Nice OXI/A receiver module (IMAGE 18-1, Left) until the green LED lights up on the side of the receiver, then release the button.
2. Within 10 seconds, press and hold any key on the Nice remote control until the LED in the Nice receiver blinks green 3 times, indicating that the remote control is programmed to control the receiver.
3. After the LED on the Nice receiver blinks green 3 times, another 10 second interval is started to program another Nice remote control if desired.
4. Repeat step 3 to program the additional Nice remote control (transmitter). Step 3 may be repeated as many times as necessary to program all available Nice remote controls.
5. Verify that the Nice remote control(s) can control the gate by pressing one or more buttons individually on the remote control(s). If remotes do not function properly - refer to Section 9.19 to assign the correct function to the radio channels using the OPTION button and Radio Channels option.

IMAGE 18-1: OXI/A RECEIVER (LEFT),
2-BUTTON REMOTE (MIDDLE) & 4-BUTTON REMOTE (RIGHT)

19 DELETING SINGLE REMOTE CONTROL

A Nice remote control that has been programmed to control a Nice OXI/A receiver may be removed from the receiver memory without affecting other assigned remote controls as follows:

1. Press and hold the button on the side of the Nice receiver (on 936 board) until the LED on the Nice receiver illuminates green and keep the button pressed. The LED will illuminate after approximately 4 seconds.
2. Press and hold any button on the Nice remote control until the LED on the Nice receiver blinks 5 green flashes
3. Release the button on the side of the Nice receiver.
4. It is recommended to verify that the non programmed Nice remote control no longer controls the gate.

20 DELETING ALL REMOTE CONTROLS

All programmed remote controls may be removed from the Nice OXI/A receiver memory as follows:

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

SECTION 9: 936 BOARD PROGRAMMING & CONTROLS

This section describes the navigation, menu, and programming controls for the 936 control board. See FIGURE 9-1 (below) and TABLE 21-1 (next page) for identification of the controls used to navigate and select various options, and the following pages for descriptions and diagrams of menus and the options available for programming.

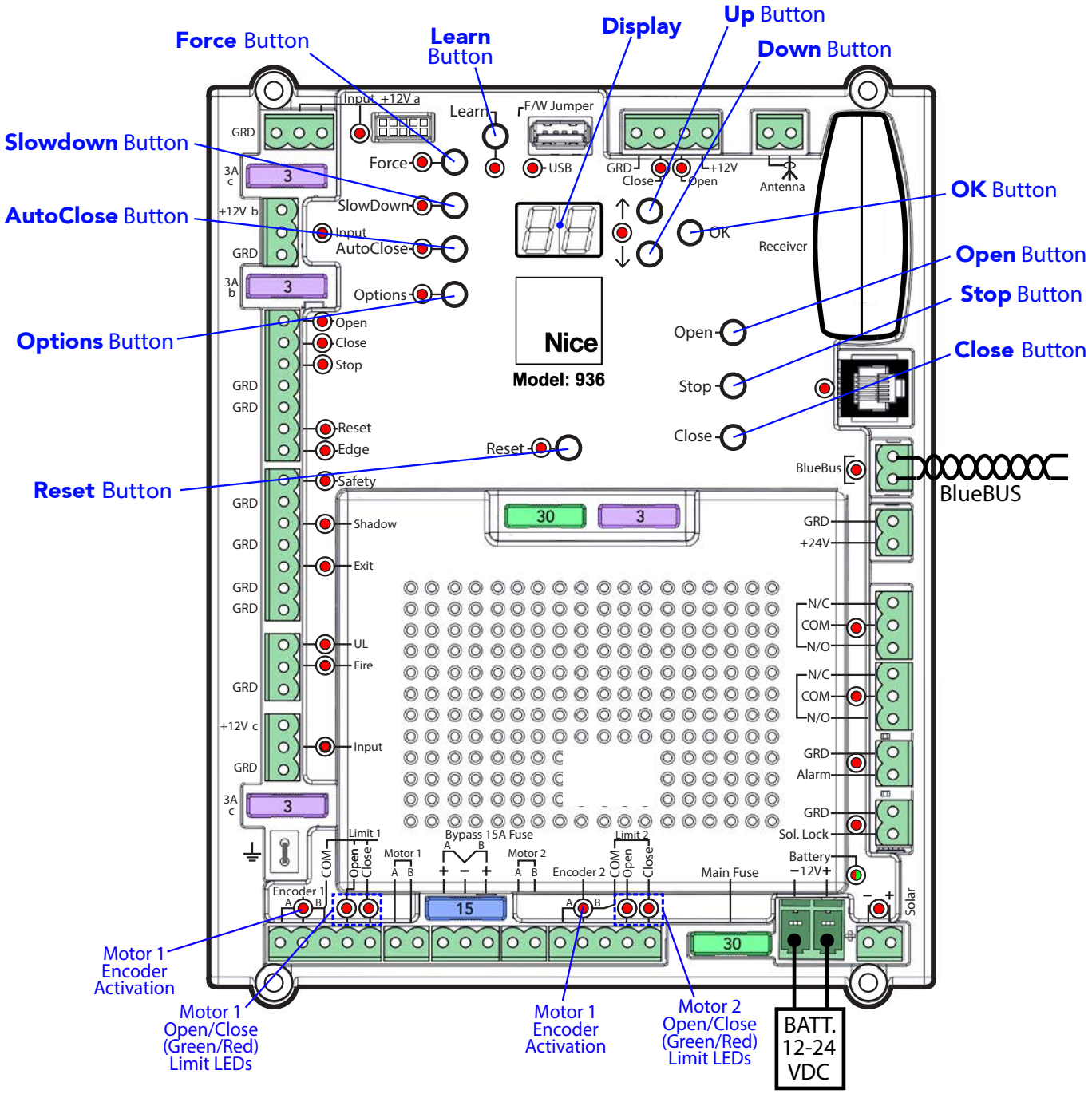


FIGURE 9-1: PROGRAMMING CONTROLS - 936 CONTROL BOARD

NOTE: Use programming buttons only after understanding the manual and its relation to the programming sequences shown on the following pages. Care should be taken whenever changes are implemented to ensure proper functionality and safety.

21 CONTROL BOARD MENU NAVIGATION

Refer to FIGURE 21-1 on previous page for image of 936 control board layout, LED indicators, and controls. Menus and parameters are accessed and selected by pressing the buttons on the 936 control board as shown in Table 21-1:

TABLE 21-1: 936 CONTROL BOARD BUTTON FUNCTIONS

BUTTON	FUNCTION
OPEN Button	Opens the gate.
STOP Button	Stops the gate, whether opening or closing.
CLOSE Button	Closes the gate.
UP Button	Used for navigating through menus, options, and values.
DOWN Button	Used for navigating through menus, options, and values.
OK Button	Selects the current menu, option, or value shown in the display.
RESET Button	Resets a hard shutdown.

Navigation buttons are used as follows:

1. Press desired option button. Two letters are shown in the display referring to the option name.
2. Press UP and DOWN buttons to scroll through options.
3. Press OK button to enter parameters values for displayed option.
4. Press UP and DOWN buttons to scroll through parameter values.
5. Press OK to select parameter value shown in display.

NOTE: The following pages illustrate and describe the menu selection options in the 936 control board.

9.1 PROGRAMMING THE 936 CONTROL BOARD

936 CONTROL BOARD PROGRAMMING OPTIONS		
FORCE BUTTON	Fc = Amount of force needed to cause the gate to stop and retract when hitting an obstacle.	
SLOWDOWN BUTTON	SP = Amount of slowdown (%) of gate as it nears open and close limits	
AUTO-CLOSE BUTTON	AC = Number of seconds after opening that gate automatically closes.	
OPTIONS BUTTON	bP = BI-PARTING GATE	Dual gate only: Sets delay in seconds of open/close of 2nd gate after 1st gate.
	rA = RUN ALARM	Selects behavior of alarm or strobe during opening and closing of gates.
	rc = RADIO CHANNELS	Selects how the buttons work on the remote transmitters.
	Sb = STANDBY MODE	Turns on and off the standby power saving mode.
	Sc = GATE SYNCHRONIZE	Dual gate only: Synchronizes both gates to make up for delay of Motor 2 cable length.
	SL = SOLENOID LOCK	Allows a solenoid lock to be automatically unlocked and locked during gate open/close.
	P1 or P2 = P1 or P2 INPUTS	Allows use of two extra inputs, either for step-by-step use or for 300 Hz pulse safety devices.

FORCE BUTTON 

This option selects the amount of force needed to cause the gate to stop and retract when hitting an obstacle. Current sensitivity should be set to a level strong enough for operation under normal conditions yet sensitive enough to reverse if obstructed.

Press the FORCE Button. “Fc” momentarily appears in the display, followed by the default of either “03” or the value last selected. Use the UP and DOWN buttons to select values, then press OK to accept selection. Values are as follows:

- 01 = Most Sensitive (least force required to cause a reversal)
- 02
- 03 = Average (default and recommended setting)
- 04
- 05 = Least Sensitive (most force required to cause a reversal)

SLOWDOWN BUTTON 

This option adjusts percentage of acceleration or deceleration when opening or closing. Setting Slowdown to lowest acceptable setting provides most reliable operation.

Press the SLOWDOWN button. “SP” is shown in display, followed by the default of either “03” or the value last selected. Use the UP and DOWN buttons to select values, then press OK to accept selection. Values are as follows:

- 1 - 5% (recommended for most gates)
- 2 - 10%
- 3 - 15% (default)
- 4 - 20%
- 5 - 25%

AUTO CLOSE BUTTON AC

This option adjusts amount of time before gate automatically closes.

Press the AUTO CLOSE Button. "AC" momentarily appears in the display, followed by the default of either "0" or the value last selected. Use the UP and DOWN buttons to choose 1 to 90 seconds, then press OK to accept selection. Values are as follows:

- 0 = disabled (default)
- 1-90 = seconds until close begins

OPTIONS BUTTON

The OPTIONS button is used to access the following parameters:

- bb = Blue Bus Scanning
- bP = Bi-parting Gate
- rA = Run Alarm
- rc = Radio Channels
- Sb = Standby Mode
- Sc = Gate Synchronization
- SL = Solenoid Lock
- P1 = Program Input 1
- P2 = Program Input 2

USING THE OPTIONS BUTTON

1. Press OPTION button and "bb" will appear in display.
2. After pressing the OPTION button, each press of the DOWN button accesses each option in turn.
3. Press OK while an option is displayed to enter the parameter values for that option.
4. Press the UP and DOWN buttons to scroll through the parameter values.
5. Press OK to accept the displayed value.
6. Pressing the OK button after pressing the OPTION button will scan for the BlueBUS devices (bb will blink). If devices are found, two dashes (--) will be displayed. If no devices are found then a flashing "E1" will be displayed indicating a BlueBUS error. If there is a new BlueBUS configuration, then the LEARN button should be pressed to re-learn the BlueBUS device configuration.

BI-PARTING GATE bP

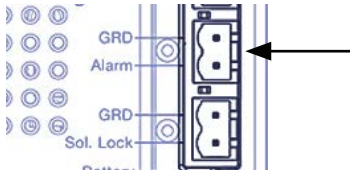
Bi-parting Gate Enables overlapping dual gates to dovetail smoothly by creating a momentary delay for Motor 2 when opening and Motor 1 when closing. **Example:** If 03 is selected, in the OPEN direction Motor 2 will begin to OPEN 3 seconds after Motor 1. In the CLOSE direction Motor 1 will begin to CLOSE 3 seconds after Motor 2.

- 0 = OFF (default)
- 1-5 = seconds delay between gates

RUN ALARM rA

If an audio alarm is connected, Run Alarm determines how the audible alarm (or strobe) behaves when it is triggered. Values are as follows:

- 0 = OFF (default)
- 1 = Alarm sounds for 4 seconds before gate travel.
- 2 = Alarm sounds for 4 seconds before and throughout gate travel.



RADIO CHANNELS rC

Radio Channels configures the interactions between the installed OXI/A receiver and external transmitter (or remote). Values are as follows:

- 1 = #1 button = Open/Stop/Close, #2 button = non-functional (default)
- 2 = #1 button = non-functional, #2 button = Open/Stop/Close
- 3 = #1 button = Open/Stop/Close, #2 button = lock gate open

STANDBY MODE Sb

Standby Mode allows board to go into a standby low power mode after 20 seconds of board inactivity. Values are as follows:

- 0 = Standby Mode OFF
- 1 = Standby Mode ON (Default)

NOTES:

- It is recommended to leave standby ON for all scenarios, but especially if using a solar panel to charge the battery.
- Standby activated after 20 seconds of idle operation. This time extends to 120 seconds in the unlearned state.

GATE SYNCHRONIZATION SC

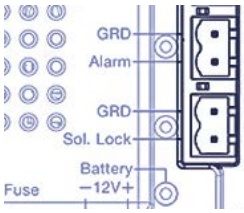
The longer cable harness of MOTOR 2 actuator in a dual gate configuration may cause it to lag behind the MOTOR 1 actuator. Turning on Gate Synchronization allows the control board to attempt to make the MOTOR 2 gate open and close at the same time as the MOTOR 1 gate. Values are as follows:

- 0 = OFF (default)
- 1 = ON

SOLENOID LOCK SL

Solenoid Lock allows a solenoid lock to be engaged after the gate closes, but also introduces a slight delay (1 second) in gate open and closing to allow solenoid lock to engage and disengage. Values are as follows:

- 0 = OFF (default)
- 1 = ON



SOLENOID LOCK OUTPUT CONNECTOR

P1 AND P2 INPUTS (P1 / P2) P1 P2

The P1 and P2 inputs may be used to connect 300 Hz pulse safety devices. If these inputs are set as pulse safety (value 1) or pulse entrapment (value 2), the control board will not operate if devices are not found at these inputs. If not used or used for a radio receiver, radio remote, a keypad, or similar devices, set value to 0. Values are as follows:

- 0 = Step By Step (Default).
- 1 = Pulse Safety (if the photo eye is obstructed in the close direction, the operator will stop and reverse to full open).
- 2 = Pulse Entrapment (if the photo eye is obstructed in the open or close direction, the operator will stop and reverse direction of travel for 2 seconds).

NOTE: 300 Hz pulse safety devices may be used either instead of the BlueBUS photo eyes or in conjunction with them.

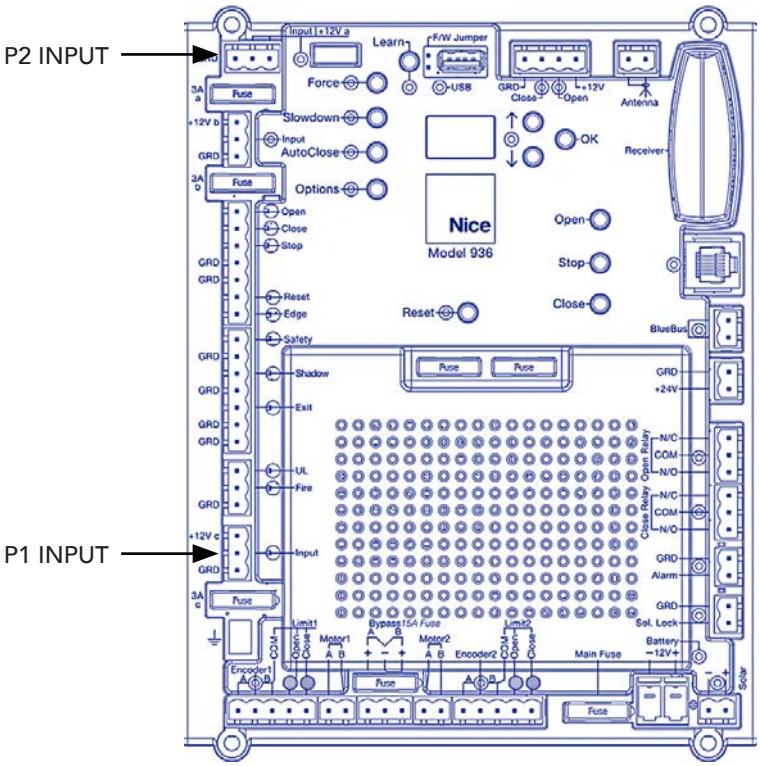


IMAGE 21-2: P1 AND P2 INPUT LOCATIONS

9.2 LCD STATUS AND ERROR DISPLAYS

TABLE 9-1: LCD STATUS AND ERROR DISPLAY DESCRIPTIONS		
LF	FLASHING	Board in unlearned state.
LF	SOLID	Learn button has been pressed and board ready for learn cycle. Pressing OK button begins the learn cycle.
[ ]	FLASHING	"Chasing Cursor" display is seen only during unlearned condition. Signifies motor activation and gate motion. Also confirms display segments are working at power up.
OP	SOLID	Open limit is activated.
CL	SOLID	Close limit is activated.
- -	SOLID	System in idle state (no motor activation) and no close or open limit activated. Also indicates BlueBUS devices detected and functioning.
AL	FLASHING	Hard shutdown is active and the audible alarm sounds. Display may be cleared by pressing Reset Button after obstruction is cleared from gate path.
E1	FLASHING	BlueBUS scan error or no monitored safety devices detected. May be cleared by pressing the Learn Button if a monitored safety device is connected.
E2	FLASHING	No actuator(s) sensed during first learning phase. Clear by ensuring actuator is plugged into board, then cycling power Off and then On.
E3	FLASHING	External EEPROM failed read/write test.
E4	FLASHING	Actuator encoder dropped out or failed during gate movement. Clear by pressing any button. Repeating error may indicate a faulty encoder or incorrect wiring.

SECTION 10: ACCESSORY CONNECTIONS

This section describes the accessory functions, connections, and wiring for the 936 control board. See FIGURE 10-1 (below) for a visual representation of all the accessory inputs and outputs, and the following pages for a description of the I/O connectors and functions.

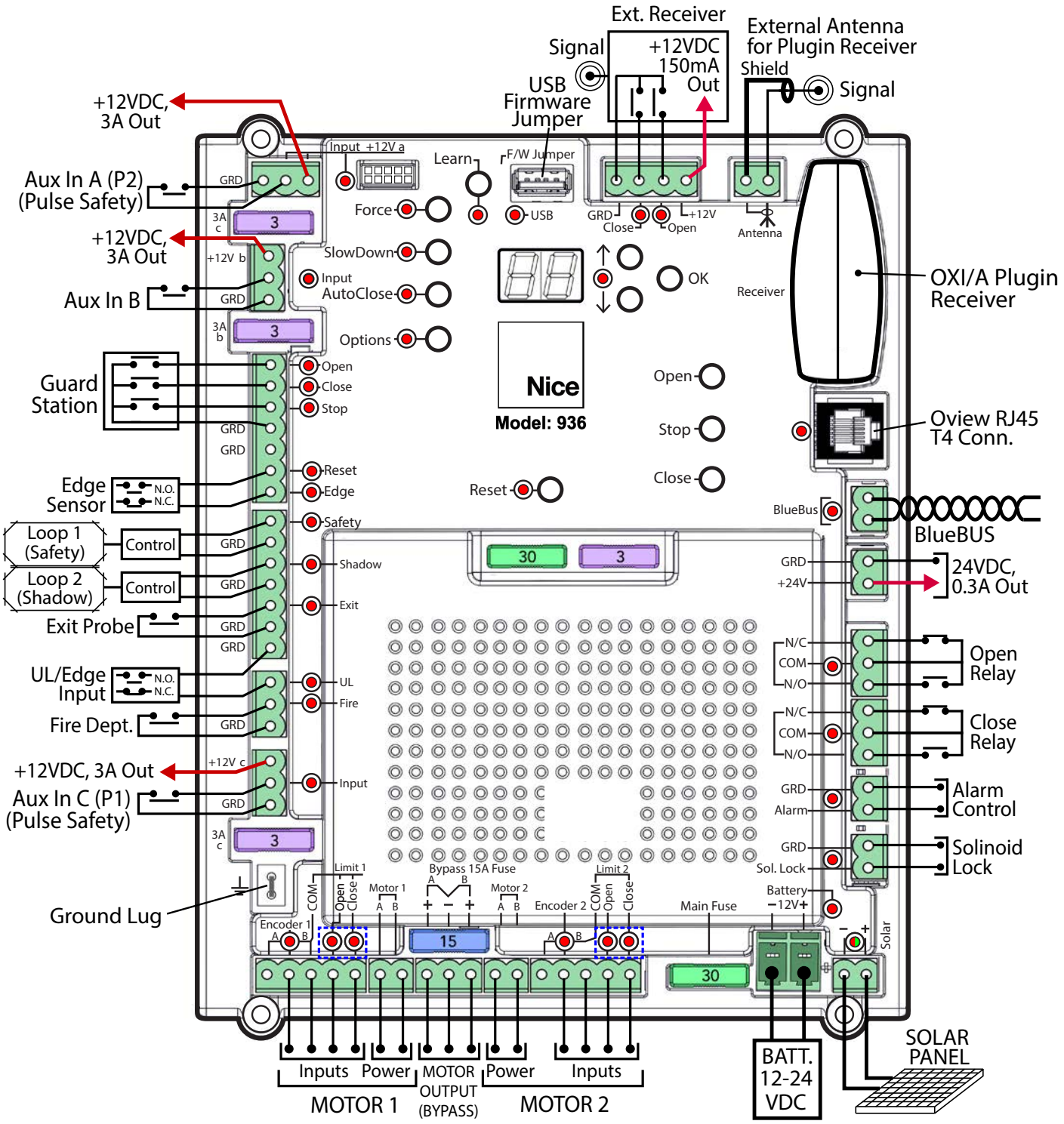


FIGURE 10-1: I/O FEATURES - 936 CONTROL BOARD

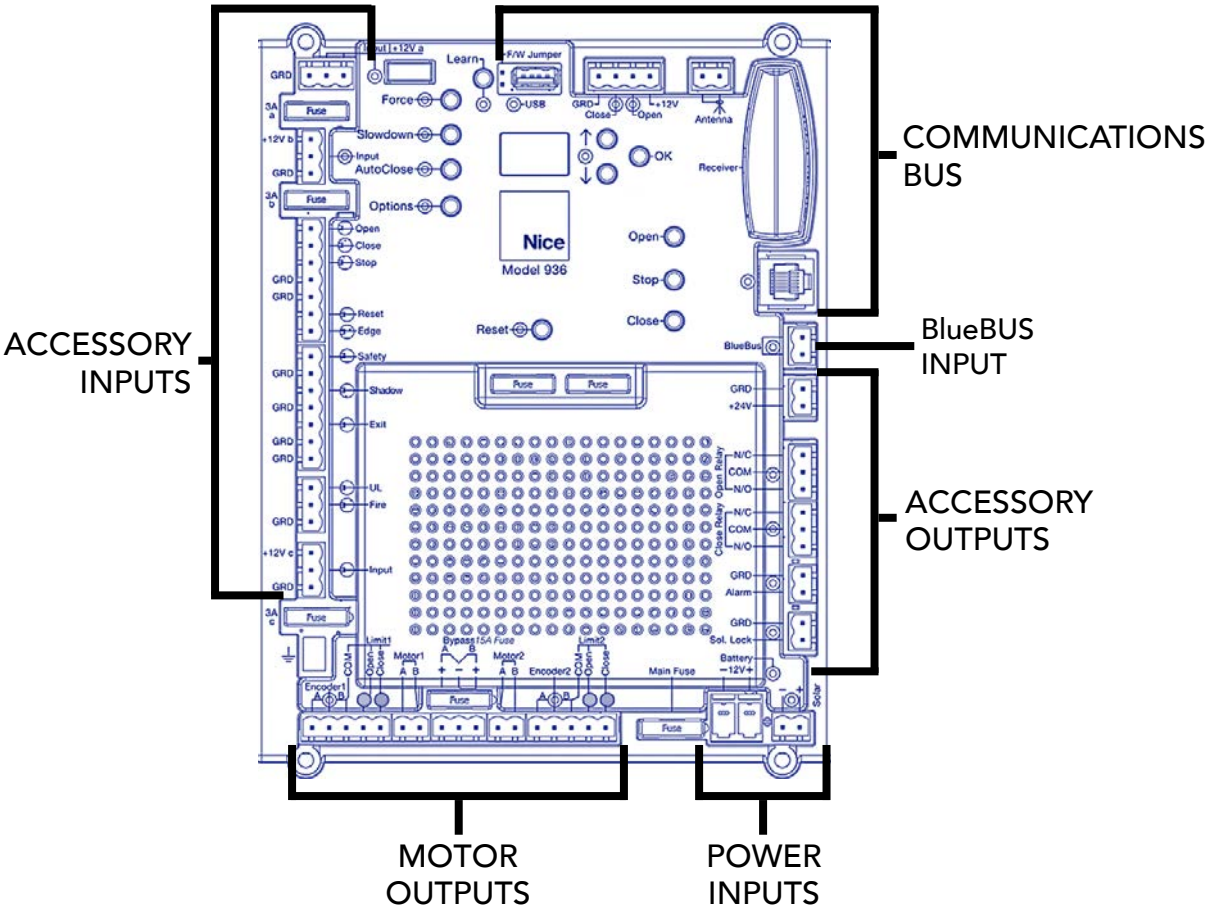


FIGURE 10-2: GENERAL I/O - 936 CONTROL BOARD

10.1 ACCESSORY POWER OUTPUTS

Refer to FIGURE 10-1 for locations (red callouts) of the five accessory power outputs, which are described below.

24VDC 0.3A POWER OUTPUT

This terminal is an internally fused (0.3A) output for powering external 24V DC accessories.

NOTE: In Standby Mode the voltage is inactive. **DO NOT** use to power entry/exit devices.

12V-a, 12V-b, and 12V-c 3A DC POWER OUTPUTS

Each of these three terminals provides 3A externally fused 12VDC power and remain powered when board is in Standby Mode. Each terminal includes a pin for step-by-step input.

12VDC 150mA POWER OUTPUT

This terminal provides internally fused (150 mA) 12VDC power. Dedicated open and close command inputs are available.

NOTE: In Standby Mode the voltage is inactive. **DO NOT** use to power entry/exit devices.

10.2 ACCESSORY INPUTS

Refer to FIGURE 10-1 and 10-2 for locations of the accessory inputs, which are described below.

AUXILIARY INPUT "A"; PROGRAM OPTION "P2"

This connector may be programmed (in OPTIONS) to accept 300 Hz pulse safety devices (safety or entrapment) or by default used as a step-by-step input. This connector features 12VDC, 3A power output that may be used to power external devices.

NOTES:

- In Standby Mode the voltage is inactive. DO NOT use to power entry/exit devices.
- A "Step-By-Step" input is a type of command that opens-stops-closes-stops the gate with each press of a button or other activation.

AUXILIARY INPUT "B"; STEP-BY-STEP

This inputs accepts devices that operate in a step-by-step mode.

OPEN INPUT

This input pin is a normally Open (NO) dry contact input. When shorted to ground (GND) it opens the gate to the open limit.

CLOSE INPUT

This input pin is a Normally Open (NO) dry contact input. When shorted to ground (GND) it closes to gate to the close limit.

STOP INPUT

This input pin is a Normally Closed (NC) dry contact input. In the absence of a 3-button station this input needs to be shorted to ground (GND).

RESET INPUT

This input pin is a Normally Open (NO) dry contact input. When shorted to ground (GND) a hard shutdown condition is reset.

EDGE INPUT

This input pin is a Normally Open (NO) dry contact input that stops a moving gate, momentarily reverses the gate direction, then stops the gate. Typically used for edge sensors.

SAFETY (LOOP) INPUT

This input pin is a Normally Open (NO) dry contact input that stops a closing gate, then reopens the gate.

SHADOW (LOOP) INPUT

Normally Open (NO) dry contact input that prevents a fully closed gate from opening, prevents a fully open gate from closing, stops and reverses open a closing gate and resets the auto-close timer (if activated).

FREE EXIT INPUT

Normally Open (NO) dry contact input that opens the gate from the closed position, reverses a closing gate and holds the gate in the fully open position until the free exit input is deactivated.

UL INPUT

Normally Open (NO) dry contact input that stops a moving gate to prevent an entrapment condition. Two successive activations of this input will create a hard shutdown condition. This condition requires a hard shutdown reset (press RESET Button) before board will again function.

FIRE INPUT
Normally Open (NO) dry contact input for use as a Fire Department control switch that opens and holds gate open until the fire input is removed.

BLUEBUS INPUT
2-wire non-polarized connection to BlueBUS enabled accessories. Provides monitored sensor input.

AUXILIARY INPUT "C"; PROGRAM OPTION "P1"
This connector may be programmed (in OPTIONS) to accept 300 Hz pulse safety devices (safety or entrapment) or, by default, be used as a step-by-step input. This connector features 12VDC, 3A power output that may be used to power external devices.

10.3 ACCESSORY OUTPUTS

Refer to FIGURE 10-1 and 10-2 for locations of the accessory outputs, which are described below.

OPEN OUTPUT
Dry contact relay output (SPDT), with Normally Open (NO), Normally Closed (NC) and common connections. Active during open cycle and open limit activation.

CLOSE OUTPUT
Dry contact relay output (SPDT), with Normally Open (NO), Normally Closed (NC) and common connections. Active during close cycle and close limit activation.

ALARM OUTPUT
Internally fused (0.5A) output to power alarm accessories. Fully programmable output.

SOLENOID LOCK OUTPUT
Internally fused (1.85A) output to power solenoid lock. Fully programmable output.

MOTOR BYPASS OUTPUT
Located between the MOTOR 1 and MOTOR 2 outputs this output provides power directly to the actuator(s) while bypassing the control board. It is used for testing actuator motors. If actuator motor connector is plugged into left & center pins (push-to-open configuration), the gate should open. If motor connector is plugged into center & right pins, the gate should close. The opposite should happen for pull-to-open configuration.

NOTES:
- In Standby Mode the voltage is inactive. DO NOT use to power entry/exit devices.
- A "Step-By-Step" input is a type of command that opens-stops-closes-stops the gate with each press of a button or other activation.

10.4 EMERGENCY VEHICLE ACCESS

The automatic vehicular gate system must be designed to allow access to emergency vehicles under different operating conditions. Read all the following information. Make sure that your gate operating system is compliant with all local codes and regulations and that access for emergency vehicles is assured.

- During normal operation, emergency vehicles access the gate by using an emergency vehicle access device installed on your gate system. The type of device that is used in your community is dependent on local 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.
- 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 is disconnected. Once power is OFF, the gate can be manually operated. If using this control box in a Titan system, the 912L actuator is equipped with a mechanical release system that will allow the gate to be pushed open in the event of a power outage or equipment failure. The 1550 systems using the 816 actuators may be connected to the gate with a hitch pin and R-clip, which can function as a mechanical quick release.
- In the event of a power failure, the emergency vehicle access device may not be functional because the gate operator is not powered.

IMPORTANT!

Before manually opening the gate, verify that power has been shut off. To manually push open the gate:

- Titan912L actuator = Disengage mechanical release on the actuator or remove the hitch pin (if used) at gate attach bracket, then open the gate manually.
- 816 actuator = Remove the hitch pin (if used) from gate bracket, or disassemble gate bracket from actuator, then open the gate manually.

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.

10.5 COMMUNICATION BUS

The 936 control board communication bus is described in this section.

RADIO RECEIVER PORT INPUT
This is an input connector for the included Nice OXI/A radio receiver (FIGURE 10-1).

ANTENNA INPUT
Attachment point for external antenna to improve Nice receiver sensitivity, if necessary (FIGURE 10-1).

USB INPUT
Type A receptacle and jumper pins (marked "F/W Jumper") for in field software updates (FIGURE 10-1).

OVIEW CONTROLLER:

- The Oview controller is an optional programming and diagnostic tool, which plugs directly into the 936 control board using an RJ45 network cable and is part of the Nice "Opera" control system.
- The Oview controller can be used in "stand-alone" mode via its front-panel keypad.
- This unit, when matched with the optional Oview Bluetooth module (OVBT; see below) enables remote control and management of the gate controller.
- Remote control functions include most of the programming functions that are available at the front panel LCD on the control board as well as software updates.

OVIEW CONTROLLER

OVBT MODULE:
The optional OVBT Bluetooth module is used with the Oview controller for localized wireless control of the gate controller.

OPTIONAL OVBT MODULE

SECTION 11: APPENDIX

11.1 CALCULATE SOLAR REQUIREMENTS

22 CALCULATE SOLAR REQUIREMENTS

1. Estimate the gate traffic measured in open/close cycles per TABLE 22-1.

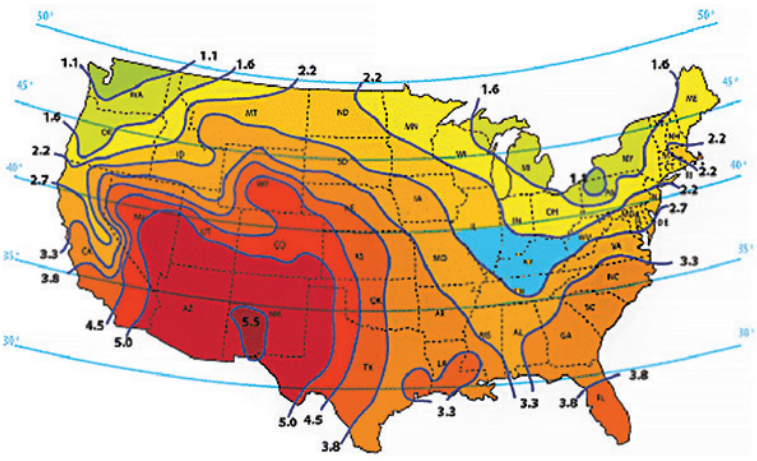
TABLE 22-1: SOLAR PANEL WATT/CYCLE CHART

DAILY CYCLES	1-10	1-20	1-40	1-60	1-80	80+
5 Watt Solar Panel	X					
10 Watt Solar Panel		X				
20 Watt Solar Panel			X			
30 Watt Solar Panel				X		
40 Watt Solar Panel (requires regulator)					X	
1.5 Amp Battery Charger					X	
10 Amp Battery Charger						X

NOTES:

- TABLE 22-1 should be used as only a guide. Alternative gate operator configurations may reduce or increase the daily power usage.
- For dual gate operators, double the amount of required solar wattage.
- If a standard electrical outlet is not available for trickle charging, a licensed electrician will be required for proper electrical hookup.

2. Estimate the amount of sunlight available per the Solar Map (right).
3. Use the solar wattage calculator found on the HySecurity website at **https://www.hysecurity.com/operators-accessories/solar/** to determine battery and solar panel size needed to serve the installation in question.



11.2 MAINTENANCE SCHEDULE

MAINTENANCE SCHEDULE			
Component	**Maintenance Action**	**6 Months**	**Annually**
ALARM	Activate the primary (inherent) reverse system by blocking the gate with a solid object. The gate should reverse momentarily then stop. Re-start the gate and block again with a solid object. The gate should reverse momentarily, then stop, and go into hard shutdown with an alarm.	X	X
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.	X	X
BATTERY	If operator is equipped with option DC backup system, check the batteries for any leakage or loose connections. Batteries should be replaced every two years.	X	X
FIRE DEPT	Check emergency vehicle access device for proper operation.	X	X
GATE	Inspect for damage.		X
LOOP(S)	Check vehicular reverse and shadow loops for proper operation.	X	X
RELEASE	Check manual release for proper operation.	X	X
MOUNTING HARDWARE	Check screws and nuts.		X
PHOTO EYES	Use a hand held cylinder (approx. 2" [5cm] diameter and 12" [30cm] in length) and pass between photo eye line of sight. Pass cylinder through line of sight near transmitter, pass cylinder through line of sight near receiver, pass cylinder through line of sight halfway between transmitter and receiver. Gate should stop and reverse on detection. Check for humidity, oxidation, and foreign bodies (such as insects) and remove from chassis. Clean housings and front plate. Do not use alcohol, benzene, abrasives or other cleaning products. Use only a slightly dampened soft cloth to clean transmissive panels or lenses.	X	X

11.3 SYSTEM TROUBLESHOOTING

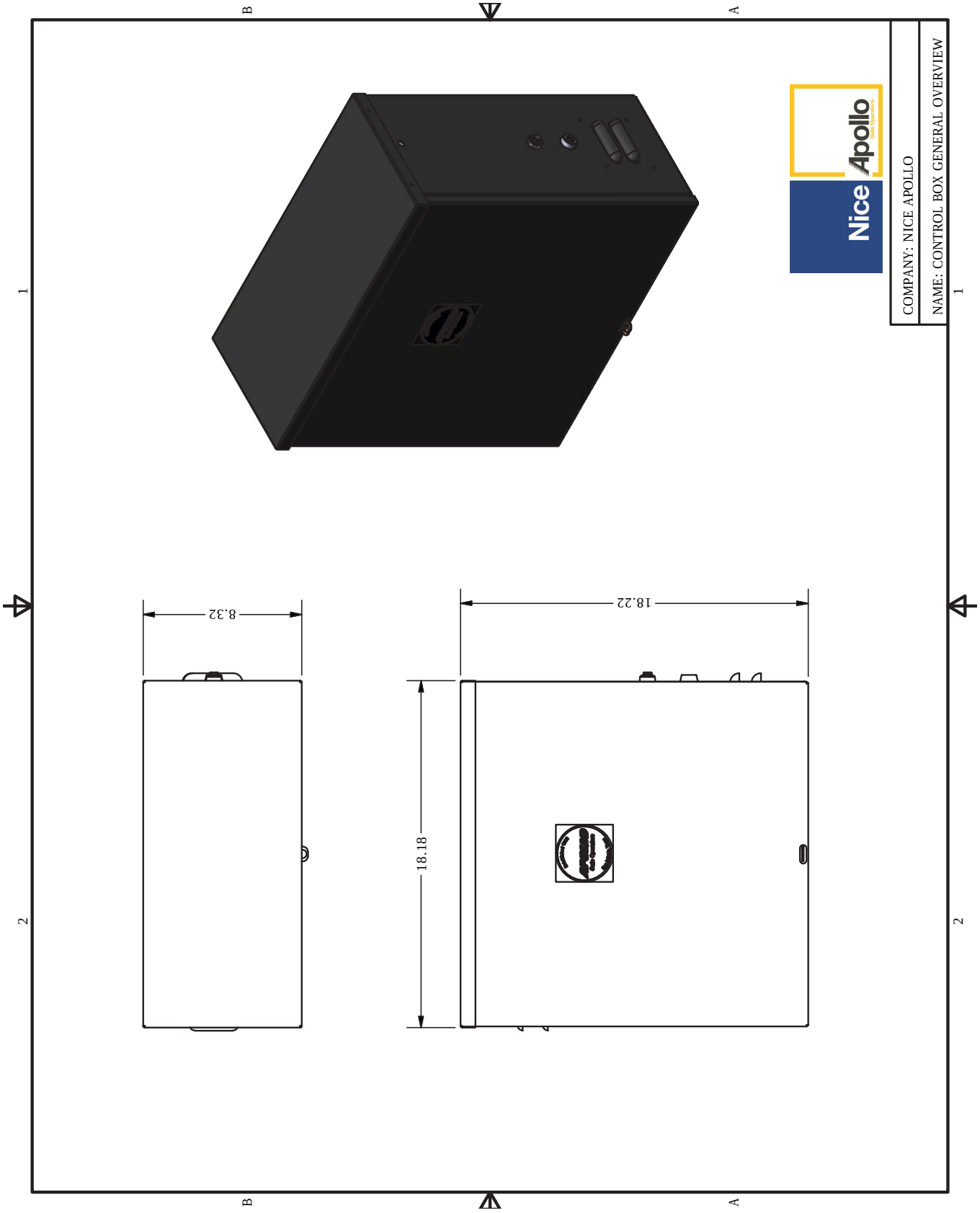
SYSTEM TROUBLESHOOTING	
Problem	**Possible Solution**
Gate opens a short distance, then stops and reverses.	• Check the UL/Edge input on the gate controller. • Ensure limit LEDs are functioning properly. • Check for obstructions. • Adjust Force Settings.
Gate opens but will not close.	• Check the input LEDs. Any ON will hold the gate open and indicates a problem with a keying device. Exception is "STOP". • Check the external safety devices. Any activated safety devices will hold the gate open and indicates a problem with the safety device. • Check limit LEDs. If both LEDs are simultaneously lit, it indicates both open/close at same times. Check limits for failures. Replace as necessary. • Check the loop detectors. Any activated safety devices can hold the gate open and indicates a 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 (Functions>Advanced). • Check the batteries for proper voltage. Replace if necessary. • Check incoming power.
Hard Shutdown (two 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 them as necessary.
No display	Check battery voltage and replace if necessary.
Gate moves in direction opposite expected.	Reverse the actuator's Red and Black motor wires connected to the control board.
Open Limit LED glows when gate is closed, and Close Limit LED glows when gate open.	Reverse the actuators orange and white encoder wires connected to the control board.

11.4 INSTALLATION CHECKLIST

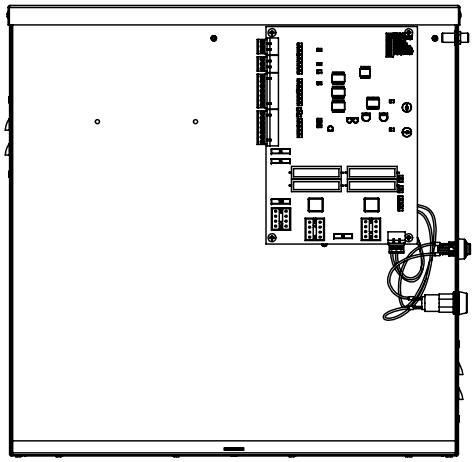
- The installer and customer must each ensure that all of the following actions have been completed.
- Left box is for installer check off and the right box is for customer check off.

		INSTALLATION CHECKLIST
☐	☐	The gate has been checked to make sure it is level and moves freely in both directions.
☐	☐	Potential pinch areas have been guarded so as to be inaccessible OR have contact and/or non-contact obstruction sensing devices installed.
☐	☐	The installer has installed one or more contact or non-contact obstruction sensing devices, in compliance with UL325 requirements for this installation.
☐	☐	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.
☐	☐	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.
☐	☐	There are no controls installed on the gate operator, or within 6 feet of the gate.
☐	☐	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.
☐	☐	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.
☐	☐	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.
☐	☐	The installer has reviewed all safety instructions with the customer, and has left the safety instructions and owner's manual for their reference.
☐	☐	The installer has answered any questions the customer has regarding the operation of the gate operator and gate operator safety precautions.
☐	☐	The installer has explained to the customer that a regular maintenance schedule for both the gate and the gate operator is recommended.
☐	☐	The installer has given the keys for the control box to the customer and explained how to manually open the gate in the event of a loss of power.

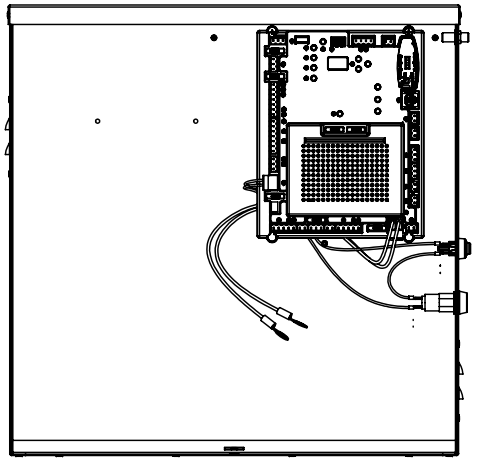
SECTION 12: PART DRAWINGS



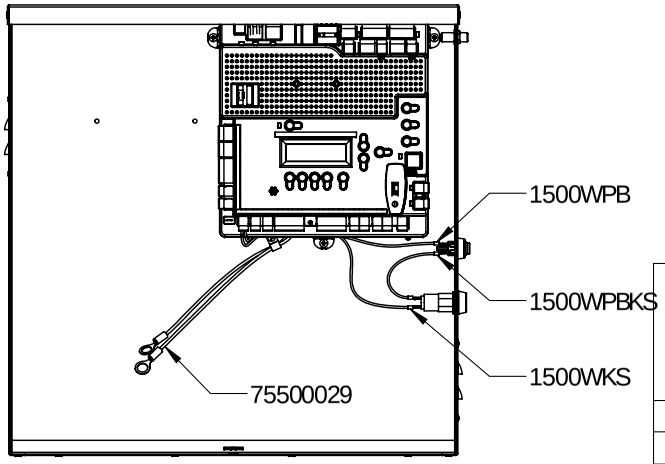
	ITEM NO.	PART NUMBER	DESCRIPTION	CBOX 636	CBOX 936	CBOX 1050
	1	101F	F CONNECTOR F/ CNTRL BOX	1	1	1
	2	635US	BOARD, CONTROL 636	1	-	-
	3	936US	BOARD, CONTROL 936	-	1	-
	4	1050US	BOARD, CONTROL, 1050US	-	-	1
	5	1115	KEYSWITCH, SINGLE POLE	1	1	1
	6	1119	SWITCH, PUSH BUTTON, CNTRL BOX	1	1	1
	7	1500WKS	WIRE SET UP F/ KEYSWITCH	1	1	1
	8	1500WPB	WIRE SET UP F/ PUSH BUTTON	1	1	1
	9	1500WPBKS	WIRE SET UP F/PSH BTN/KEYSW	1	1	1
	10	10002	HW SCREW, 6-32 X 1/4 SS PHIL TRUSS	4	4	4
	11	10005399	LABEL, 600 SERIES, YELLOW	1	-	-
	12	10016215	LID, BLK, PC, F/1500	1	1	1
	13	10020915	TAB, ZINC, F/SWING GATE CONTROL PLUS RIVET	1	1	1
	14	10022999	LABEL, DOMED, NICE LOGO	1	1	1
	15	10031990	BOX, CNTRL, BLK, W/KO	1	1	1
	16	10055699	LABEL, F/ CBOX1050	-	-	1
	17	10059999	LABEL, DOME, F/UL325	-	1	1
	18	71070001C	BOX, CB, 1500/1600 COLORED	1	1	1
	19	71070070	INSERT, FOAM PAD F/NEW 1500 BOX	1	1	1
	20	75500029	HARNESS F/ 1050/936 BOARD	-	1	1
	21	KBOX636	KIT, KBOX 636	1	-	-
	21	KBOX1050	KIT, KBOX 1050	-	-	1
	21	KBOX936	KIT, KBOX 936	-	1	-
B	22	MX3526	CLAMP, CABLE, .187 NYLON	-	-	1



CBOX636



CBOX936



CBOX1050

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE INCHES.
TOLERANCES IN DECIMAL:
2 PLS (0.XX) = ± .03
3 PLS (0.XXX) = ± .005
ANGLES = ± 0.5
DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	CJE	7/18/2018
CHECKED		
ENG APPR.		

Nice HySecurity Simple. Reliable. Secure.

Nice/HySecurity 6705 S 209th St, Ste 101 , Kent, WA 98032-2327

DESCRIPTION: CONTROL BOX, SWING GATE

PART NO.: CBOX

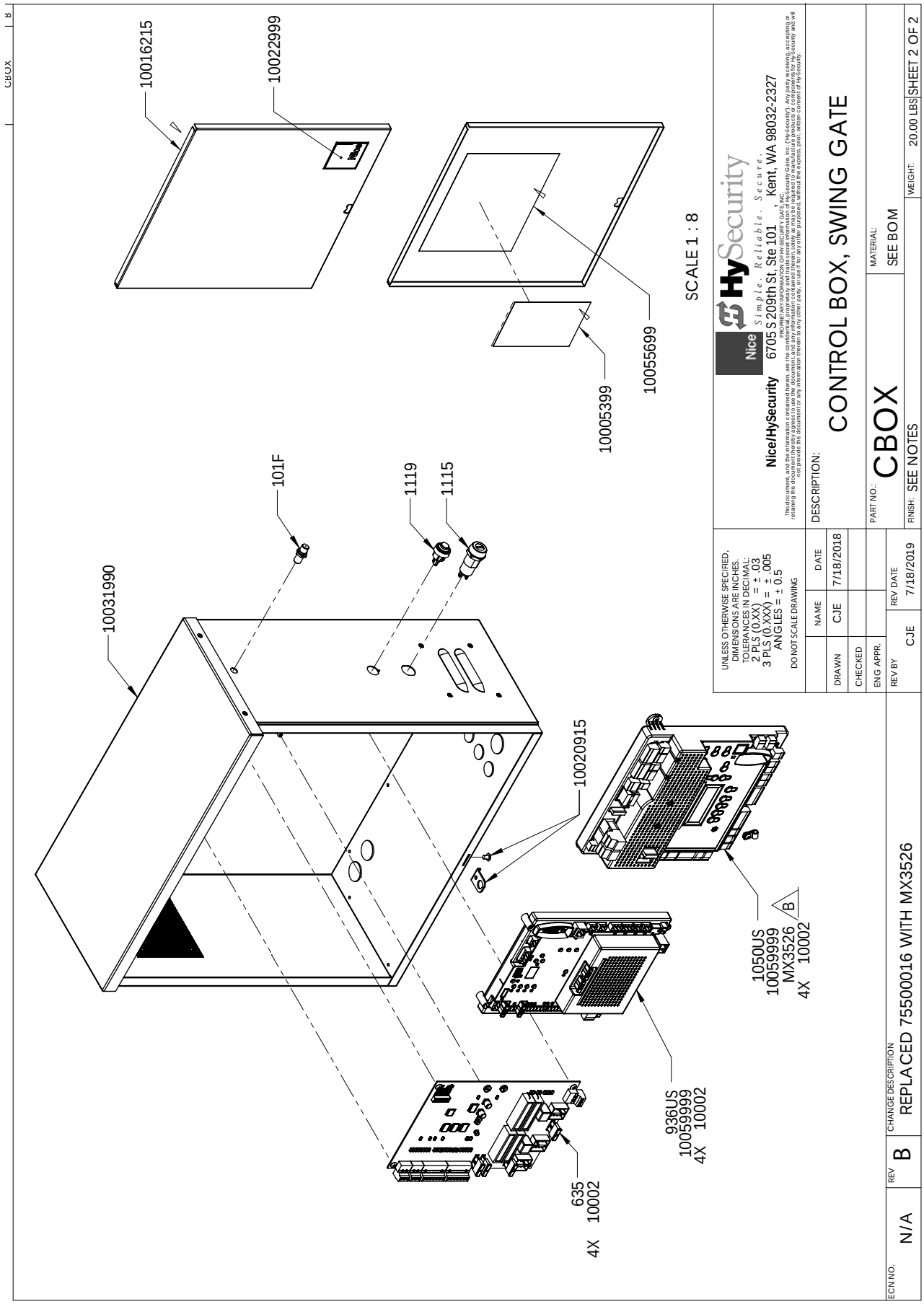
MATERIAL: SEE BOM

FINISH: SEE NOTES

WEIGHT: 20.00 LBS

SHEET 1 OF 2

ECN NO.	REV	CHANGE DESCRIPTION	REV BY	REV DATE
N/A	B	REPLACED 75500016 WITH MX3526	CJE	7/18/2019


10016215
10022999
10055699
10005399
SCALE 1 : 8
101F
1119
1115
10031990
10020915
1050US
10059999
MX3526
4X 10002
B
936US
10059999
4X 10002
635
10002
4X
Nice/HySecurity 6705 S 209th St. Ste 101 , Kent, WA 98032-2327
HySecurity Simple. Reliable. Secure.
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES IN DECIMAL: 2 PLS (0.XX) = ± .03 3 PLS (0.XXX) = ± .005 ANGLES = ± 0.5 DO NOT SCALE DRAWING
DRAWN CJE 7/18/2018
CHECKED
ENG APPR.
REV BY CJE REV DATE 7/18/2019
DESCRIPTION: CONTROL BOX, SWING GATE
PART NO.: CBOX
MATERIAL: SEE BOM
FINISH: SEE NOTES
WEIGHT: 20.00 LBS
SHEET 2 OF 2
ECN NO. N/A
REV B
CHANGE DESCRIPTION REPLACED 75500016 WITH MX3526

SECTION 13: WARRANTY

LIMITED WARRANTY—NICE-BRANDED PRODUCTS

1. Warranty.

Hy-Security Gate, Inc. ("HySecurity") warrants that at the time of sale, each Nice-branded gate operator product that it sells will, in all material respects, conform to the then applicable specification for the product and will be free from defects in material and manufacture.

The following additional durational warranties apply to products purchased through a distributor authorized by HySecurity to sell Nice products ("Authorized Distributor"), depending on whether (1) the product is purchased through an Authorized Distributor and (2) whether a timely and complete product registration is submitted to HySecurity.

It is therefore important that you register your product with HySecurity, online at www.hysecurity.com/warranty, within the 60-day period described below.

1(a) Nice-branded Products Purchased Through Authorized Distributors and Properly Registered

For any gate operator product that is purchased from an Authorized Distributor (this excludes product purchased through internet resellers or any distributor not authorized by HySecurity to sell Nice products), if the product registration is completed by the Dealer/Installer or End User within 60 days of the date of purchase, the following warranty terms will apply. HySecurity warrants that the product will remain serviceable for the following periods:

a) Electromechanical pad-mounted Slide and Swing operators: Three years after the date of installation,

b) Electromechanical linear actuator Swing operators: Three years after the date of installation,

c) Electromechanical barrier arm operators: Three years after the date of installation,

d) Nice-branded accessories: Three years after the date of installation, *provided that* the Three-Year warranty period in (a), (b), or (c) will not extend beyond four years from the date that the product was shipped from HySecurity.

The preceding warranty durations do not apply to the products or components described below (e-f), which have a shorter warranty period:

e) Batteries: One Year from date of shipment from HySecurity.

f) Components subject to normal wear including, but not limited to, chains, belts, idler wheels, sprockets and fuses: One Year from date of installation.

1(b) Nice Products Not Purchased Through an Authorized Distributor or Not Properly Registered within 60 Days

For any product that is not purchased from an Authorized Distributor or for which the product registration was not completed by the Dealer/Installer/End User within sixty (60) days of the date of purchase, the following **Two-Year Limited Warranty** will apply: HySecurity warrants that the product will remain serviceable for Two Years from the date that the product was shipped from HySecurity.

1(c) Replacement Parts

HySecurity warrants that replacement parts (whether new or reconditioned) will remain serviceable for One Year from the date that the part was shipped from HySecurity or the remaining period of the Gate Operator warranty, whichever is longer.

1(d) Limitations and Exclusions Applicable to Each of the Preceding Warranties.

The preceding warranties shall not apply to equipment that has been (1) installed, maintained, or used improperly or contrary to instructions; (2) subjected to negligence, accident, vandalism, or damaged by severe weather, wind, flood, fire, terrorism or war; or (3) damaged through improper operation, maintenance, storage or abnormal or extraordinary use or abuse. Any modification made to products will void the warranty unless the modifications are approved in writing by HySecurity in advance of the change (this exclusion does not apply to normal installation of approved accessories and/or protective devices or sensors). It is the responsibility of the Distributor, Dealer/Installer, or End User to ensure that the software version in the product is maintained to the latest revision level.

The preceding warranties do not extend to accessories when those items carry the name plate of a manufacturer other than HySecurity or Nice and they are not a part of the base model. HySecurity disclaims all warranties for such accessory components, which carry only the original warranty, if any, of their original manufacturer. HySecurity hereby assigns its rights under such manufacturer warranties—to the extent that such rights are assignable—to Buyer.

These warranties extend to HySecurity's Distributors, to the Dealer/Installer, and to the first End User of the product following installation. They do not extend to subsequent purchasers. **2. Limitation of Certain Implied Warranties and Exclusion of Other Warranties.**

The warranties contained in Section 1 are the exclusive express warranties given by HySecurity and supersede any previous, contrary or additional representations, whether oral or written. Any prior or extrinsic representations or agreements are discharged or nullified. ANY IMPLIED WARRANTIES, INCLUDING ANY **WARRANTY OF MERCHANTABILITY** OR **WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE**, ARE LIMITED IN DURATION TO PERIOD OF THE APPLICABLE EXPRESS WARRANTY FOR THE PRODUCT OR COMPONENT. HYSECURITY HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES—INCLUDING ANY LIABILITY FOR INFRINGEMENT, AND ANY WARRANTIES OTHERWISE ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

3. Buyer's Exclusive Remedies for Any Nonconformity.

If a Nice product fails to conform to the warranties in Section 1, Buyer must notify and order replacement parts from the Distributor through which the product was purchased within a reasonable time and in no event more than thirty (30) days after the discovery of the nonconformity. HySecurity will investigate and, in the event of a breach, will provide, within a reasonable period of time, one of the following: (1) repair or replacement of any nonconforming products or components or (2) refund of the price upon return of the nonconforming items. HySecurity reserves the right to supply used or reconditioned material for all warranty claims. HySecurity will not be considered to be in breach of or default under this Warranty because of any failure to perform due to conditions beyond its reasonable control, including any force majeure. This warranty does not cover any incidental expenses, including fines or penalties, temporary security, labor, shipping, travel time or standby time that are incurred for inspection or replacement of any nonconforming items. As a condition of warranty coverage, warranty claims must be submitted in accordance with the procedures described on the HySecurity form, "RMA Procedures."

THE REMEDY SELECTED BY HYSECURITY IN ACCORDANCE WITH THIS PARAGRAPH SHALL BE THE **EXCLUSIVE AND SOLE REMEDY OF BUYER FOR ANY BREACH OF WARRANTY.**

4. Exclusion of Consequential and Incidental Damages.

HYSECURITY AND NICE SHALL NOT BE LIABLE FOR ANY INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM NONDELIVERY OR FROM THE USE, MISUSE, OR INABILITY TO USE THE PRODUCT OR FROM DEFECTS IN THE PRODUCT OR FROM HYSECURITY'S OR NICE'S OWN NEGLIGENCE. This exclusion applies regardless of whether such damages are sought for breach of warranty, breach of contract, negligence, or strict liability. This exclusion does not apply to claims for bodily injury or death.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you.

5. Severability.

If any provision of this warranty is found to be invalid or unenforceable, then the remainder shall have full force and effect.

6. Proprietary Rights.

HySecurity and Nice retain and reserve all right, title, and interest in the intellectual property rights of their products, including any accompanying proprietary software. No ownership of any intellectual property rights in the products or accompanying so□ware is transferred to Distributor, Dealer/Installer, or End User.

7. Applicable Law.

This warranty will be interpreted, construed, and enforced in all respects in accordance with the laws of the State of Washington, without reference to its choice of law principles. The U.N. Convention on Contracts for the International Sale of Goods will not apply to this warranty

This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.

Nice Branded Product Warranty D0920 Revised 101519

Page 1 of 1

DOCUMENT REVISIONS		
NAME	**DESCRIPTION OF CHANGE**	**DATE**
Curtis Harvey	Rev A: Release for publication.	11/13/2019

INSTALLATION INFORMATION AND SIGN-OFFS

Installation Acceptance

Address where opener is located

Installer name, number and address

End user name and telephone number

Contact us:
Nice | HySecurity
Kent, WA 98032
800-321-9947
hysecurity.com