

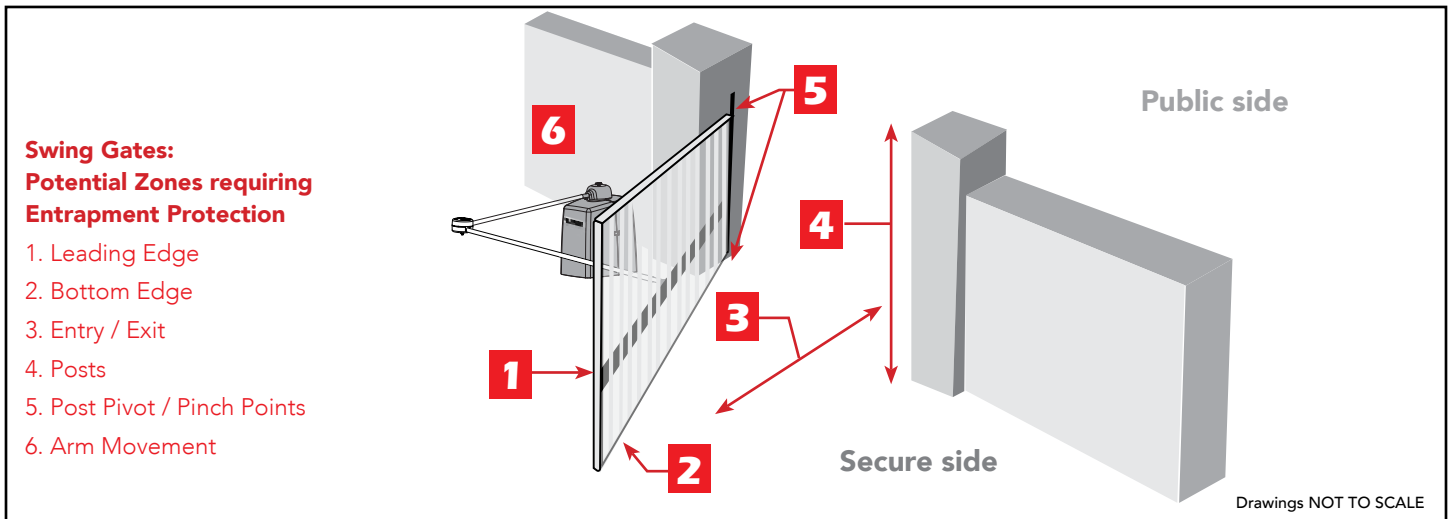
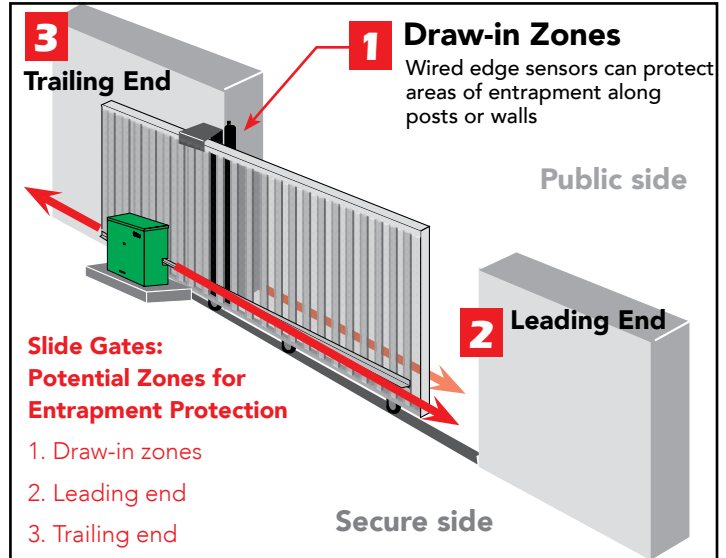
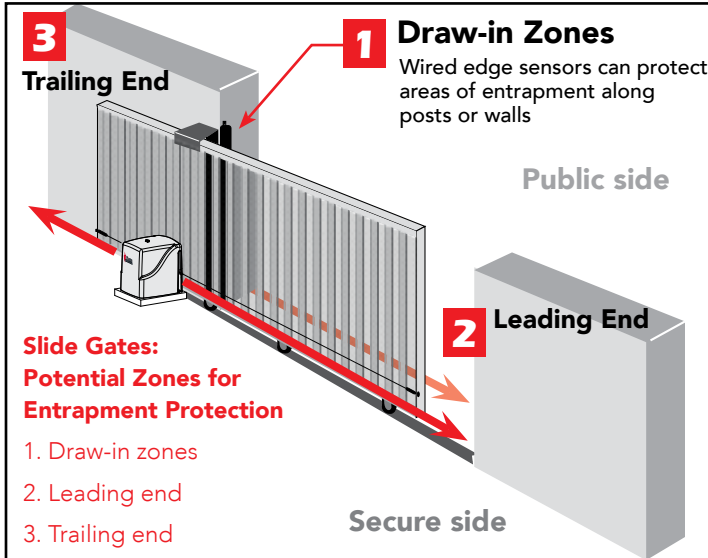
UL 325 Standard For Safety
Protection Against Entrapment

HySecurity Gate Operators

UL 325 – 2016

Quick Start - Supplement

Revision J



This document supplies *site planning scenarios and reference tables* that help explain the UL 325-2016 requirements for monitoring of external entrapment protection sensors. HySecurity is monitoring Normally Closed (NC) sensors to conform to UL 325 monitored entrapment protection requirements.

Approved sensors recommended for use with HySecurity gate operators are specified in this document.

For more information regarding UL 325-2016, refer to the HySecurity website section: www.hysecurity.com/gatesafety

Important Safety Information



A moving gate or barrier arm, bollard, or wedge can cause serious injury or death. It is therefore incumbent on the site designer, installer, and property owner to ensure that these hazards are mitigated and the public is warned of the existence of a potential hazard. Read all the product safety information prior to installation. Verify the gate operator is installed to comply with all safety standards and local and federal regulations and is designated for its proper usage class. For more information, refer to your gate operator's product manual.

To reduce the risk of injury or death:

1. READ AND FOLLOW ALL INSTRUCTIONS. Read the gate operator's product manual and review all the product labels and literature prior to installing, operating, or maintaining the automatic gate operator.
2. Never let children operate or play with gate controls. Keep all remote controls, especially radio transmitters, away from children. Do not allow children to play on or around the gate or gate operators.
3. Always keep people and objects away from the gate. NO ONE SHOULD CROSS THE PATH OF THE MOVING GATE. Start the gate operator only when a gate's travel path is clear.
4. Test the gate operator monthly. The gate MUST reverse on contact with a rigid object or stop when an object activates the non-contact sensors. After adjusting the force or the limit of travel, retest the gate operator. Perform routine tests of the entrapment protection sensors, such as photo eyes and edge sensors. Failure to adjust and retest the gate operator properly can increase the risk of injury or death.
5. Use the emergency release only when the gate is not moving.
6. KEEP GATES PROPERLY MAINTAINED. Read the product manuals. Have a qualified service person make repairs to gate hardware and replace batteries in accessory or entrapment protection sensory devices on a regular basis.
7. The automated gate entry is for vehicle use only. Pedestrians must use a separate entrance. Make sure a separate walk-through entrance is nearby. Make certain a clear pedestrian path is designated and signs direct pedestrians to the walk-through gate.
8. Install the supplied WARNING signs on the inside and outside of the gate or barrier gate/operator so they are clearly visible from both the secure and public sides. Installing the signs is a requirement for UL 325 compliance.
9. Use monitored sensors for protection against entrapment as specified in the current UL 325 Standard for Safety. Refer to *General Entrapment Protection Provisions per UL 325, Table 31.1* on page 18.

NOTICE: Extensive safety information exists in the gate operator product manuals. Be aware and read all safety information, labels and signage that is shipped with your gate operator to ensure quality site design, proper set up for functional gate operation and pedestrian safety. This document is a supplement, and as such, focuses on the differences in monitoring external entrapment protection sensors and the application of external sensors. Be sure to read all the information provided with your product manuals.

SAFETY INFORMATION SPECIFIC TO MONITORED ENTRAPMENT

The following is found in *HySecurity Programming and Operations Manuals*, but re-iterated here. Before installing the gate operator:

Mount access control devices beyond reach of the gate. The control devices that operate the gate must:

- Be located in a clear line of sight to the gate. Locate controls (Open, Close, Stop/Reset) where a user will have a clear view of the gate.

NOTE: An exception for Emergency Access Control devices exists. An EAC device accessible by authorized personnel only (e.g. fire, police, EMS), may be placed at any location within the line-of-sight.

- Be mounted beyond 6 feet (183 cm) of the gate to prevent users from touching or accessing the gate while operating the controls. People attempting to access the controls by reaching through or around the gate can be seriously injured or killed by the moving gate.
- Connect radio and other remote access (non-resetting controls) to the RADIO OPTIONS terminal.

Install an automatic operator only on gates that comply with ASTM F2200 Gate and Fence Standards and the usage class of the gate. Screen or enclose openings in the gate per UL 325 Standards for Safety which include:

- All horizontal slide gates must guard or screen openings from the gate's base support to a minimum height of 6 feet (183 cm) above the ground. This must prevent a sphere of 2¼-inches (57 mm) in diameter from passing through an opening in the gate or the adjacent fence that is covered in the gate's open position.
- All exposed pinch points are eliminated or guarded.
- Physical stops must exist in the gate construction to prevent over-travel in both directions and, for slide gates, guide posts must be installed to prevent the gate from falling in the event of a roller failure. Guarding must be supplied for exposed rollers.
- External entrapment protection sensors must be used wherever the risk of entrapment exists. Refer to 6.

SAVE THESE INSTRUCTIONS

| | |
|---|-----------|
| IMPORTANT SAFETY INFORMATION | 2 |
| Safety Information Specific to Monitored Entrapment | 2 |
| HySecurity Gate Operators | 5 |
| Table 1: HySecurity Gate Operators requiring External Monitored Entrapment Protection Sensors | 5 |
| Table 2: HySecurity Gate Operators maintaining Object Detection | 5 |
| Table 3: External Entrapment Protection Sensors Approved for Use with HySecurity Gate Operators | 6 |
| Label Changes to Controller Inputs | 7 |
| How Software Handles Monitored Entrapment | 8 |
| Table 4: Changes to Sensor Inputs on the Controller | 8 |
| What the Installer Needs to Do | 9 |
| Table 5: Installer Menu Settings for SENSOR Inputs | 10 |
| Table 6: Setting the Sensor Logic | 11 |
| Temporarily Power the Sensors | 12 |
| Photo Eye Alignment | 12 |
| Troubleshooting | 13 |
| Table 7: Troubleshooting Codes | 14 |
| Site Assessment & Gate Design for Monitored Entrapment..... | 16 |
| Site Assessment & Gate Design for Monitored Entrapment..... | 17 |
| Usage Class 4 Designated Gate Operator Provisions | 18 |
| General Entrapment Protection Provisions per UL 325, Table 31.1 | 18 |
| Diagram 1: Typical Slide Gate Site Assessment..... | 19 |
| Diagram 2: Typical Swing Gate Site Assessment | 20 |
| Diagram 3: Typical Barrier Arm Site Assessment | 21 |
| Diagram 4: Typical Vertical Lift Site Overview..... | 22 |
| Diagram 5: Typical SlideSmart DC Site Assessment | 23 |
| Diagram 6: SwingSmart DC Site Overview (Dual Gate)..... | 24 |
| WIRING HYSECURITY SENSORS: SMART TOUCH | 25 |
| Smart Touch: Wired Edge Sensor with GEM (-104)..... | 26 |
| Smart Touch: Photo Eye Thru Beam (EMX IRB MON)..... | 27 |
| Smart Touch: Photo Eye / Reflective (E3K R10K4) | 28 |
| Smart Touch: The Solution, MIM-62 (Multi-input Module)..... | 29 |
| Smart Touch: Photo Eye / Reflecti-Guard (RG-R)..... | 30 |
| Smart Touch: Wireless Edge, Wireless Gate Link..... | 31 |
| Smart Touch: Wired Edge with GEM-104 & Photo Eye | 32 |
| Smart Touch: WireLess Edge Gate Link & Photo Eye | 33 |
| Smart Touch: 2 CH Wired Edge with GEM-204 | 34 |

WIRING HySECURITY SENSORS: SMART DC35

- Wiring Tips for SENSOR COM Terminal: Smart DC.....36
- Menu Mode Navigational Tips.....36
- Smart DC: Wired Edge Sensor with GEM-104.....37
- Smart DC: Photo Eye Thru Beam (EMX IRB MON)38
- Smart DC: Photo Eye / Reflective (E3K R10K4).....39
- Smart DC: Multi-input Module (The Solution, MIM-62)40
- Smart DC: Photo Eye / Reflecti-Guard (RG-R).....41
- Smart DC: MGL-RX20 Wireless Gate Link42
- Smart DC: Wired Edge with GEM-104 and Photo Eye43
- Smart DC: WireLess Edge Gate Link and Photo Eye44
- Smart DC: 2 CH Wired Edge with GEM-20445
 - Smart DC Bi-Parting Gates: Dual Gate Wiring.....46
 - Smart DC Bi-Parting Gates: Photo Eye (EMX IRB MON)46
- HySecurity Contact Information48**

HYSECURITY GATE OPERATORS

The following bullet points highlight how your automated gate system sites can monitor external entrapment protection using HySecurity gate operators:

- **Normally Closed (NC) sensors** - Before gate movement occurs, the gate operator verifies that the external entrapment protection sensor is connected and fully functional.
- **Build Year (BY)** - An added menu item distinguishes between pre-2016 manufacturing dates and post-2016 manufacturing dates. Build Year (BY) is a factory-setting. Build Year 2 (BY 2) is the default for all HySecurity gate operators indicating a manufacturing date of 2016 in the serial number. Replacement controller boards for existing sites allow for a Build Year setting of 1 (BY 1) (pre-2016).
- **Independent Sensor Inputs** - The edge, photo eye and photo eye COM inputs on the Smart Touch and Smart DC Controllers (STC and SDC) have been re-labeled. The same wiring connections become three independent methods for easy entrapment sensor configuration and normally closed outputs. Refer to page 7.

Table 1: HySecurity Gate Operators requiring External Monitored Entrapment Protection Sensors

| HySecurity Gate Operators (includes Modular, Correctional, and UPS models) | Build Year post-2016 (set at the factory) | UL 325 Entrapment Protection Device Monitoring Required Normally Closed (NC) sensors tested & approved.* Three SENSOR Inputs on Controller. Installer Menu configurable.* Build Year (BY) factory-set to post-2016. |
|---|--|---|
| SlideDriver 15, 40, 30F, 50VF 2/3, 80, 200 | 2 | ● |
| SlideDriver 50VF series | 2 | ● |
| SlideSmart DC 15 & DCS 15 | 2 | ● |
| SlideSmart DC 10F & DCS 10F | 2 | ● |
| SwingRiser 14, 14-Twin, 19, 19-Twin, 30, 30-Twin | 2 | ● |
| SwingSmart DC 20 & DCS 20 | 2 | ● |
| HydraSwing 40, 40F, 40-Twin, 40F-Twin, 80F, 150 | 2 | ● |
| HydraLift 10, 10F, 20, 20F | 2 | ● |

*NOTE: Refer to tables on 6 and 10.

Table 2: HySecurity Gate Operators maintaining Object Detection

Table 2 indicates those HySecurity gate operators that may be within the exception parameters of UL 325 or comply with standards other than UL 325, but continue to maintain object detection capabilities. HySecurity strongly recommends that you assess every site for entrapment zones and provide the necessary protection to guard against entrapment.

| HySecurity Gate Operators with Obstruction Protection (Object Detection) | Build Year post-2016 | Sensor Inputs automatically set to "NOT USED" Installer has option to change settings as site design dictates. |
|---|----------------------|---|
| StrongArm (HTG) 14, 20, 28, 36 | 2 | ● |
| StrongArmCRASH (M30/M50) | 2 | ● |
| StrongArmPark DC 10 & DCS 10 StrongArmPark DC 14 & DCS 14 | 2 | ● |
| WedgeSmart DC 10 & 10 DCS | 2 | ● |
| WedgeSmart DC 14 & 14 DCS | 2 | ● |
| HydraWedge SM50 with HydraSupply XL | 2 | ● |

Table 3: External Entrapment Protection Sensors Approved for Use with HySecurity Gate Operators

The site designer or installer must determine which external entrapment protection sensors will be installed with the gate operator to create a UL 325 compliant installation site.

NOTE: Table 3 provides the list of sensors that are approved for use with HySecurity gate operators using the monitoring capabilities found in software versions h4.50 or h5.50 (or higher).

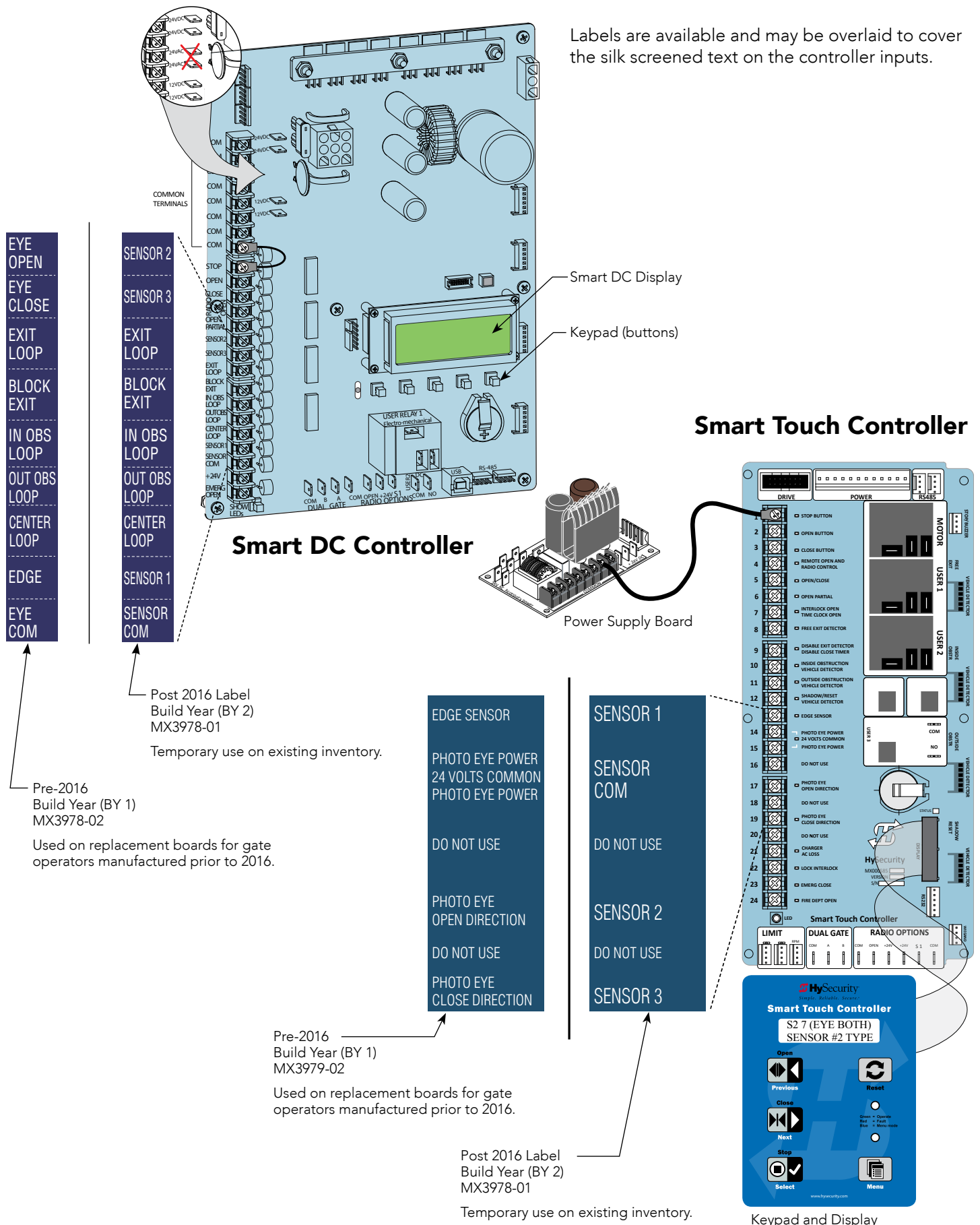


Temperatures and environmental conditions affect proper operation of external entrapment protection sensors. Always check the manufacturer's specifications shipped with the sensors.

| External Entrapment Protection Sensors: Normally Closed Contact, Compatible with HySecurity Gate Operators | | | | | |
|--|--|--|-----------------|----------------|-------------------|
| P/N | 2016 Monitored Sensors | Sensor Type | Output | Manufacturer | UL 325 Recognized |
| MX3981 | Wired Gate Edge Sensor MGR20-2U-05-T2, Round | Wraparound edge (5 ft for 2" round post) | 10K Resistor | Miller Edge | Type B2 |
| MX4161 | 2 CH Gate Edge Module (GEM-204) | Edge Interface Module | Normally Closed | | |
| MX3982 | Wired Gate Edge Sensor MGS20-2U-05-T2, Square | Wraparound edge (5 ft for 2" square post) | 10K Resistor | Miller Edge | Type B2 |
| MX4161 | 2 CH Gate Edge Module (GEM-204) | Edge Interface Module | Normally Closed | | |
| MX4037 | KIT: Wired Gate Edge Sensor MGO20-2E-05-T2, Square and Channel mount | Edge (3-sided activation Slide In Style) (5 ft, 1½" width) | 10K Resistor | Miller Edge | Type B2 |
| MX4161 | 2 CH Gate Edge Module (GEM-204) | Edge Interface Module | Normally Closed | | |
| MX3985 | Reflecti-Guard (RG-R) | Photo eye, reflective | Normally Closed | Miller Edge | Type B1 |
| MX4015 | KIT: MGL-K20 (includes MX3986 and MX4013) | Wireless Gate Link | Normally Closed | Miller Edge | Yes |
| MX3986 | Wireless Gate Link MGL-TX20 | Transmitter (battery-operated, radio control) | N/A | Miller Edge | Yes |
| MX4013 | Wireless Gate Link MGL-RX20 | Receiver (24VDC, radio control) | Normally Closed | | |
| MX3987 | The Solution, MIM-62 | Multi-Input Module | Normally Closed | Miller Edge | Yes |
| MX3990 | IRB-MON (Dist.~ 65 ft) | Thru-beam photo eye | Normally Closed | EMX Industries | Type B1 |
| MX000846 | KIT: IRB-325 (Dist.~ 50 ft) | Thru-beam photo eye | Normally Closed | EMX Industries | Type B1 |
| MX000999 | KIT: E3K-R10K4-NR (Dist. ~ 40 ft) | Photo eye, reflective | Normally Closed | Omron | Type B1 |

NOTE: Bold type indicate sensors or accessories that must be installed together for external entrapment protection to be properly monitored.

LABEL CHANGES TO CONTROLLER INPUTS



HOW SOFTWARE HANDLES MONITORED ENTRAPMENT

Since HySecurity gate operators use software to control gate movement, contacts, and accessories, the changeover to monitored sensors is simple. In fact, the ability to monitor sensors has always been an available Installer Menu item. (Refer to *Table 6: Setting the Sensor Logic* on page 11) Instead of an option, it now becomes the default standard.

- Build Year is a new Installer Menu item in Smart DC and Smart Touch Controllers versions h5.50 and h4.50 (and higher).
- New labels show where Edge, Photo Eye Open and Photo Eye Closed have changed to "SENSOR" inputs. You can program the type of sensor wired to one of those inputs. Refer to illustrations on page 7 and Table 4 below.
- Installer Menu items, PC and GC (Photo eye output and edge sensor output) which used to default to Normally Open (NO) have been converted to Normally Closed (NC) contacts so the software can detect the presence and proper operation of entrapment protection sensors.

Table 4: Changes to Sensor Inputs on the Controller

| Location of Sensor Inputs on Controller | | | Installer Menu Item Codes | |
|--|---------------------------|------------------------|---|----------------------|
| Smart Touch Controller (STC): Hydraulic gate operators | | | Smart Touch Display: | |
| Input # | Current Silk Screen Label | 2016 Silk Screen Label | OLED - two line, 32 character | LCD - 7 segment text |
| 13 | EDGE SENSOR | SENSOR 1 | S1 SENSOR 1 | 51 |
| 17 | PHOTO EYE OPEN DIRECTION | SENSOR 2 | S2 SENSOR 2 | 52 |
| 19 | PHOTO EYE CLOSE DIRECTION | SENSOR 3 | S3 SENSOR 3 | 53 |
| Smart DC Controller (SDC): Electromechanical gate operators | | | Smart DC Display: 32 character LCD | |
| No numerical input number appears on Smart DC | EYE OPEN | SENSOR 2 | S2 SENSOR 2 | |
| | EYE CLOSE | SENSOR 3 | S3 SENSOR 3 | |
| | EDGE | SENSOR 1 | S1 SENSOR 1 | |

NOTE: Three inputs for external entrapment protection sensors are available on the HySecurity gate operator controller. New silk screen controller boards are on order, but until they are ready for shipment, labels will be overlaid on the board to indicate terminology adaptations.

Table 4 indicates how the edge and photo eye inputs have been renamed to generic "sensor" inputs. They are interchangeable and configurable. The software must know what type of sensor is wired to SENSOR 1, 2, and 3 **BEFORE** it will allow gate travel. Refer to page 10.

WHAT THE INSTALLER NEEDS TO DO

All HySecurity gate operators indicating a manufacturing date of 2016 (or later) in the serial number, will have the Build Year set to 2. A Build Year of 2 (BY 2) indicates that your gate operator is prepared to monitor for external entrapment protection sensors. The Build Year setting appears in the system scroll on the gate operator display. **The gate operator will not automatically cycle the gate unless an indication that the appropriate number of external entrapment protection sensors are connected and operational.**

The normally closed (NC) entrapment protection sensors wired to the Controller's SENSOR inputs are monitored using HySecurity software. Prompts appear in the display requesting specific configurations based on the gate operator type.

Table 5 illustrates what options are available for the HySecurity Controller's configurable inputs.

SENSOR 1

SENSOR 2

SENSOR 3

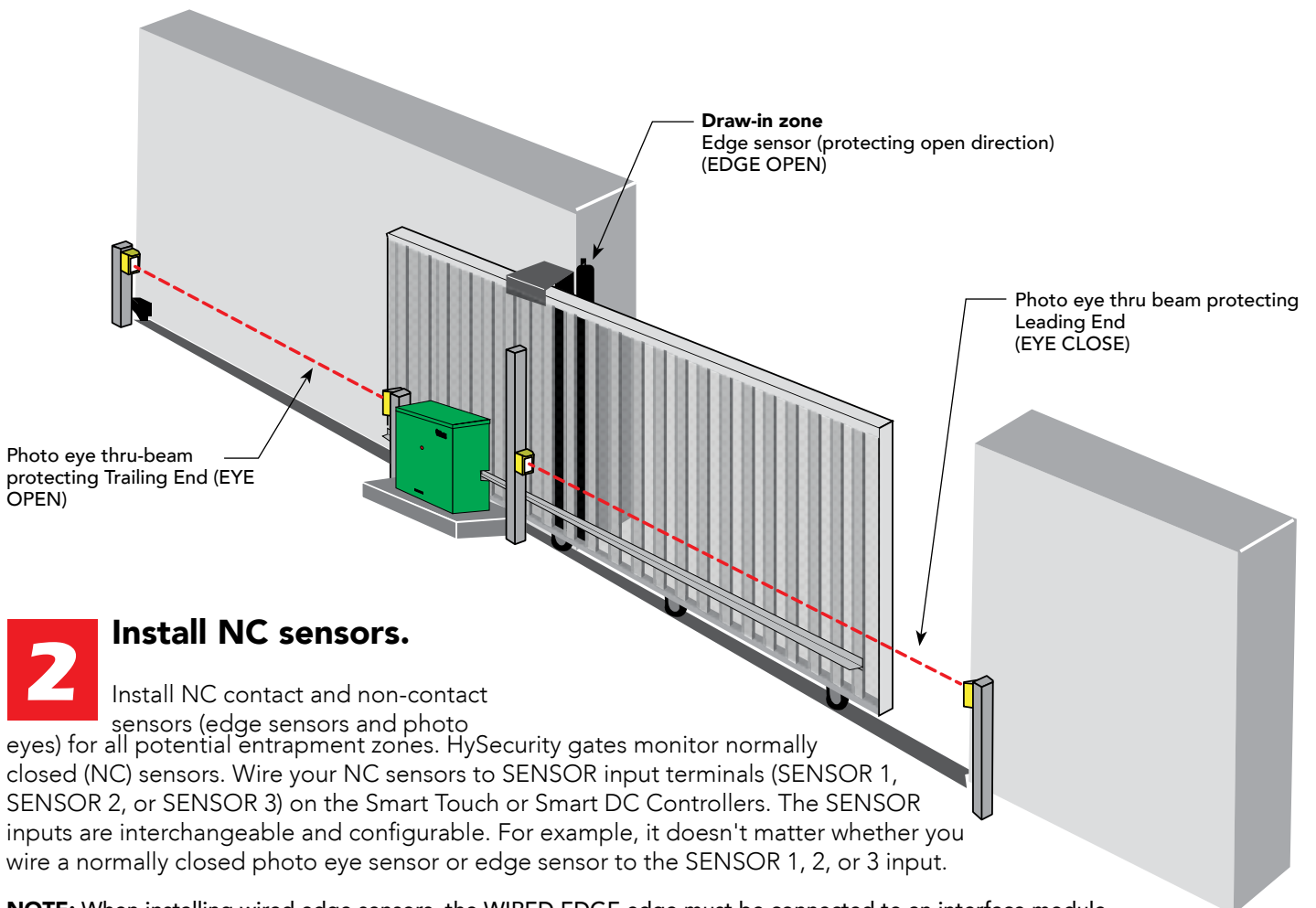
SENSOR COM



All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator receives a run command.

1 Assess Your Gate Site.

Design your gate installation so entrapment zones are kept to a minimum, and then install your HySecurity gate operator.

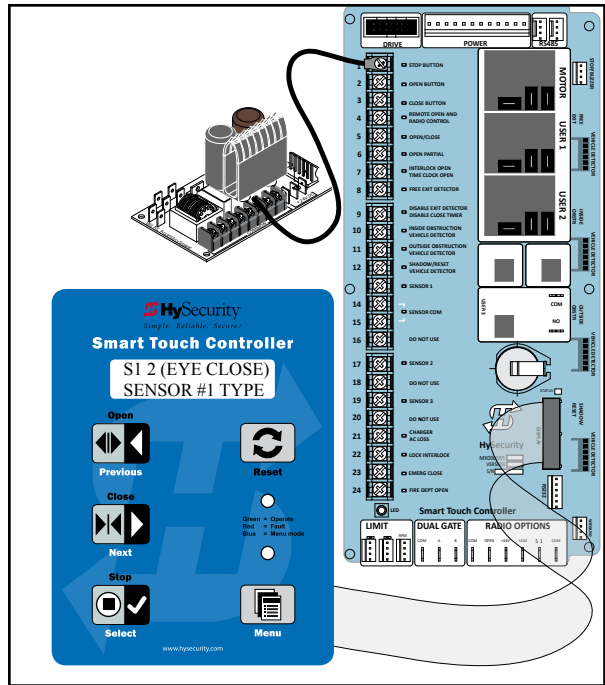
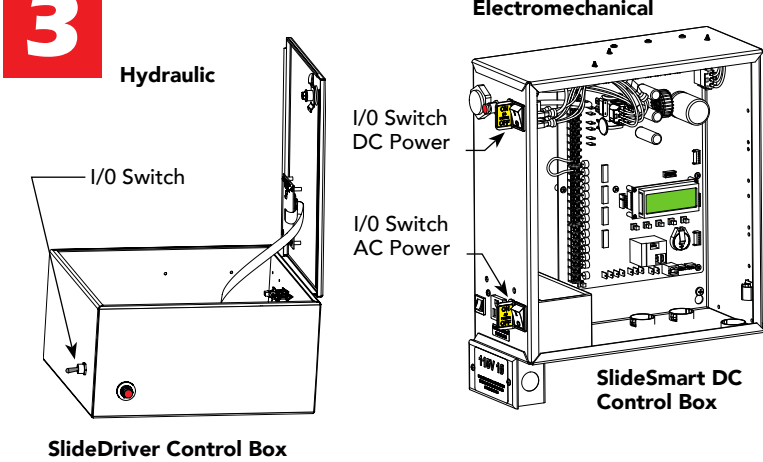


2 Install NC sensors.

Install NC contact and non-contact sensors (edge sensors and photo eyes) for all potential entrapment zones. HySecurity gates monitor normally closed (NC) sensors. Wire your NC sensors to SENSOR input terminals (SENSOR 1, SENSOR 2, or SENSOR 3) on the Smart Touch or Smart DC Controllers. The SENSOR inputs are interchangeable and configurable. For example, it doesn't matter whether you wire a normally closed photo eye sensor or edge sensor to the SENSOR 1, 2, or 3 input.

NOTE: When installing wired edge sensors, the WIRED EDGE edge must be connected to an interface module that produces an NC output. Refer to Table on page 6. Wireless edge sensors require no interface module.

3 Turn Power ON.

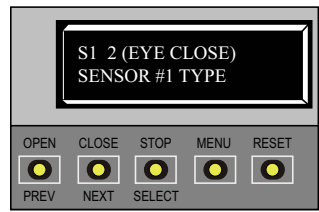


NOTE: Use PE, Photo Eye Alignment mode to temporarily power the sensors. Refer to *Photo Eye Alignment* on page 12.

4 Answer Initial Setup Prompts.

For slide gates you will be prompted for USAGE CLASS, GATE HANDING, and SENSOR 1, SENSOR 2, and SENSOR 3. Each SENSOR input, whether or not it has a contact or non-contact sensor wired to it, must be programmed to a non-zero setting before the gate will move.

NOTE: The gate operator will not automatically cycle unless an indication is received that the appropriate number of external entrapment protection sensors are connected and operational.



Smart Touch and Smart DC Controller: Menu Mode Navigation Buttons

| To change data appearing in the display | To navigate through the Selections | To choose what appears on the display | To navigate between menu items |
|---|--|---|---|
| Press Select . Two left characters blink. | Press Next or Previous . Continue pressing Next to view all selections. | Press Select . Blinking characters become static. | Press Next or Previous . Advance - press Next Previous - press Previous |

Table 5: Installer Menu Settings for SENSOR Inputs

| UL 325 HySecurity Gate Operator | Build Year 2016 (BY set) | Installer Menu Settings for STC & SDC Sensors 1, 2, or 3 (solo operators) | | | | | | | |
|---------------------------------|--------------------------|---|-------------|--------------|---------------|-------------|--------------|-------------------------|------------------------|
| | | #0 DISABLED | #1 NOT USED | #2 EYE CLOSE | #3 EDGE CLOSE | #4 EYE OPEN | #5 EDGE OPEN | #6 EDGE BOTH DIRECTIONS | #7 EYE BOTH DIRECTIONS |
| SlideDriver (fixed speed) | 2 | ● | ● | ● | ● | ● | ● | | ● |
| SlideDriver VFD | 2 | ● | ● | ● | ● | ● | ● | | ● |
| SlideSmart DC 15 | 2 | ● | ● | ● | ● | ● | ● | | ● |
| SlideSmart DC 10 | 2 | ● | ● | ● | ● | ● | ● | | ● |
| SwingRiser * | 2 | ● | ● | ● | ● | ● | ● | ● | |
| SwingSmart DC * | 2 | ● | ● | ● | ● | ● | ● | ● | |
| HydraSwing * | 2 | ● | ● | ● | ● | ● | ● | ● | |
| HydraLift | 2 | ● | ● | ● | ● | ● | | | |

NOTE: HySecurity does not update software for SlideWinder models. Refer to *Table 2: HySecurity Gate Operators maintaining Object Detection* on page 5 for an overview of HySecurity gate operators not requiring monitoring of external entrapment protection sensors to meet the 2016 UL 325 Standard of Safety regulations. * For notes on swing gates, refer to page 20.

Table 6: Setting the Sensor Logic

External entrapment protection sensors can be wired to any one of the three sensor inputs on the HySecurity Controller. The sensor logic, such as Eye Close Logic (EC), Eye Open Logic (EO) and Gate Edge Logic (GR) remain accessible in the Installer Menu, if the corresponding sensor type is installed, and determine how the gate operator will react when a monitored sensor is activated.

NOTE: Default settings shown in **Bold**.

| Installer Menu | Setting Options | Menu Tasks & Explanations | STC Wire Connections |
|-----------------------------------|---|---|---|
| EC 0 STOP ONLY EYE CLOSE LOGIC | 0 = Close eye stops only 1 = Two second reversal to open on swing, slide, or vertical gates. Reverse to full open with barrier gates, StrongArm M30 and StrongArm M50. 2 = Reverse to full open. | If the close photo eye is triggered, the default setting is non-reversal while the gate is traveling in the close direction. When triggered, with the optional setting of EC 1, the gate pauses and reverses it's direction for a 2-second interval, and then resumes moving in the close direction if the photo eye clears within 5 seconds. (See exception for barrier arms.) A setting of EC 2 causes the gate to reverse and travel full open when triggered. | Sensor 1, 2, or 3 Sensor COM COM +24V |
| EO 0 STOP ONLY EYE OPEN LOGIC | 0 = Open eye stops only 1 = Two second reverse to close | If the open photo eye is triggered, the default setting is non-reversal while the gate is traveling in the open direction. When triggered, with the optional setting of EO 1, the gate pauses and reverses it's direction for a 2-second interval, and then resumes moving in the open direction if the photo eye clears within 5 seconds. | Sensor 1, 2, or 3 Sensor COM COM +24V |
| GR 0 FULL OPEN GATE EDGE LOGIC | 0 = Edge reverses fully open 1 = Two second reversal only | The default setting is to reopen fully if the edge sensor is triggered while closing. The optional setting of GR 1 sets the gate to a 2-second reversal if triggered while closing. | Sensor 1, 2, or 3 Sensor COM +24V 10K resistor (Edge) |
| SR 1 REVERSE 25 REVERSAL LOGIC | 0 = IES reverses fully open 1 = Two second reversal only | If the inherent sensor is triggered, the default setting reverses the gate travel for a 2-second duration. The optional setting of SR 0 will cause the gate to reopen fully if triggered while closing. | N/A |
| PC 0 NO INPUT PHOTO EYE OUTPUT | 0 = Normally Open NO input 1 = Normally Closed NC input (monitored) | Changes occurring in 2016. The default setting is for photo eyes with Normally Close outputs. When set for NC, the connection is monitored and any short circuit fault will generate a FAULT 2 (FRL 2) alert. Press the Stop or Reset button to clear. See NOTE . | EYE Close EYE COM 4 wires total: COM +24V COM PHOTO EYE CLOSE |
| GC 0 NO INPUT GATE EDGE OUTPUT | 0 = Normally Open NO input 1 = Normally Closed NC input (monitored) | Changes occurring in 2016. The default setting is edge sensor with Normally Closed (NC) output. The optional setting of 0 requires an (NO) output. See NOTE . | EDGE SENSOR COM 4 wires total: COM +24V COM EDGE |

NOTE: The shaded Installer Menu items do not appear when Build Year is set to 2 (BY 2), post-2016. Exceptions exist for barrier arms, CRASH products, operators set to pre-2016 and Usage Class 4 provisions.

TEMPORARILY POWER THE SENSORS

The sensors are not receiving power until the gate operator receives a command to run (open or close command). To temporarily power sensors and check that the gate operator is monitoring the sensors properly, turn on Photo Eye Align by taking the following steps:

1. Access the User Menu and select PE.
To access the User Menu, press the Menu button twice. For a refresher on using the Menu Mode navigational buttons, refer to the chart below.
2. Press NEXT and continue to press NEXT until PE 0 (OFF) appears.
3. Press SELECT.
PE characters begin blinking.
4. To turn ON photo eye alignment and temporarily power the sensors, press NEXT so PE 1 (ON) appears.
5. Press SELECT.
PE stops blinking.
6. Press MENU to exit Menu Mode and return to Run Mode.



Smart DC display and keypad

NOTE: NOTE: The Photo Eye Align mode turns OFF with the next limit contact.

| Controller | Temporarily apply Power to Sensors | LED Status |
|-------------|------------------------------------|---|
| Smart DC | PE 1 (ON) PHOTO EYE ALIGN | When PE is ON, the LEDs associated with the sensor devices will be lit if the sensors are properly connected and sensors are grounded. The LEDs turn off when the ground circuit is removed. |
| Smart Touch | PE 1 (ON) PHOTO EYE ALIGN | LEDs next to the sensor connections will be lit when no power is being applied. When PE is turned ON, the LEDs turn off. If they do not turn off, check for wiring issues such as a short or misapplied relay COM connections. See CAUTION. If error messages appear on the display, refer to <i>Table 7: Troubleshooting Codes</i> on page 14. |

PHOTO EYE ALIGNMENT

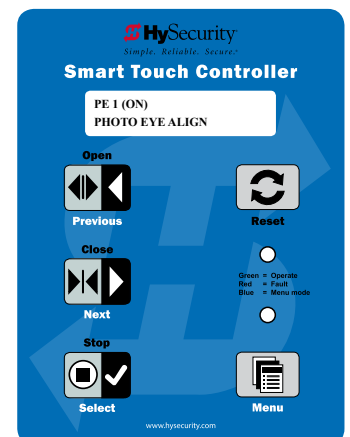
Most photo eyes require careful optical alignment in order to aim the emitter beam to the center of the receiver or reflector. In order to avoid false triggering, it is important to carefully align the system.

Align the photo eyes using this feature by taking the following steps:

1. Follow steps 1 through 6 in *Temporarily Power the Sensors*.
2. Move the photo eyes (up/down, side to side) to align the emitter beam.

| Audible Chirp | Beam Aligned ?? |
|---------------|-----------------|
| One | No |
| Two | Yes |

3. When the buzzer chirps twice, indicating the photo eyes are aligned, set the next photo eye (if the site has one) and continue the process until all photo eyes are aligned.
4. Run the gate with an open or close command. When any limit is triggered, the User Menu item PE resets to zero (OFF).



NOTE: To cover the potential entrapment areas, mount photo eyes preferably within 5 inches (13 cm) of the gate face. For more information, refer to ASTM F2200 Gate and Fence Standards.

TROUBLESHOOTING

The Smart Touch Controller reports system malfunctions using three simultaneously occurring methods:

- Codes presented on its display (alert, fault or error)
- Activation of a buzzer which emits a series of chirps at defined intervals
- Stop gate travel (and/or reverse direction of travel)

Overriding a tripped sensor or fault condition on a HySecurity gate operator with monitored entrapment sensors requires a 2-step process:

- Press Open or Close momentarily. Audible beeps in quick succession indicate tripped sensors or fault conditions.
- Within 5 seconds of hearing the beeps, apply constant hold pressure to override the tripped sensor or fault. The gate operator runs while pressure is maintained to actuating device (examples include, Push button Open, Push button Close, Open Partial or Keypad Open/Close), or a limit is reached, or another sensor trips.

A short list of codes appears in *Table 7: Troubleshooting Codes* and provides additional troubleshooting solutions. For a complete list of troubleshooting codes, refer your gate operator's *Programming and Operations* manual.

NOTE: A qualified technician may troubleshoot the operator with the aid of the information and procedures that follow. If it is necessary to call a distributor for assistance, be sure to have the model and serial numbers available. Other helpful information is the job name, approximate installation date, and service records of any recently-performed maintenance work.

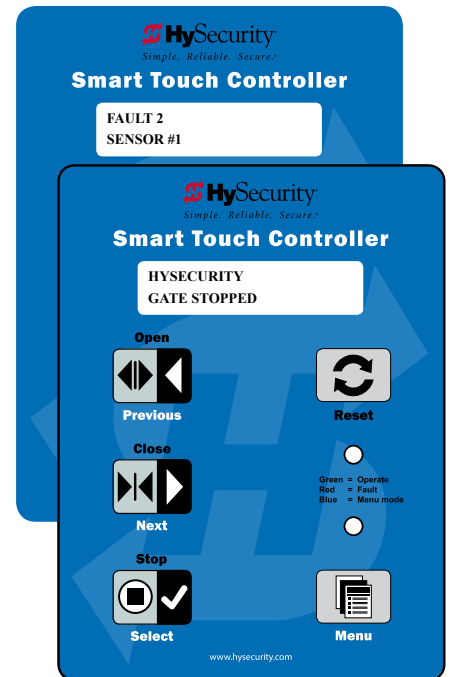


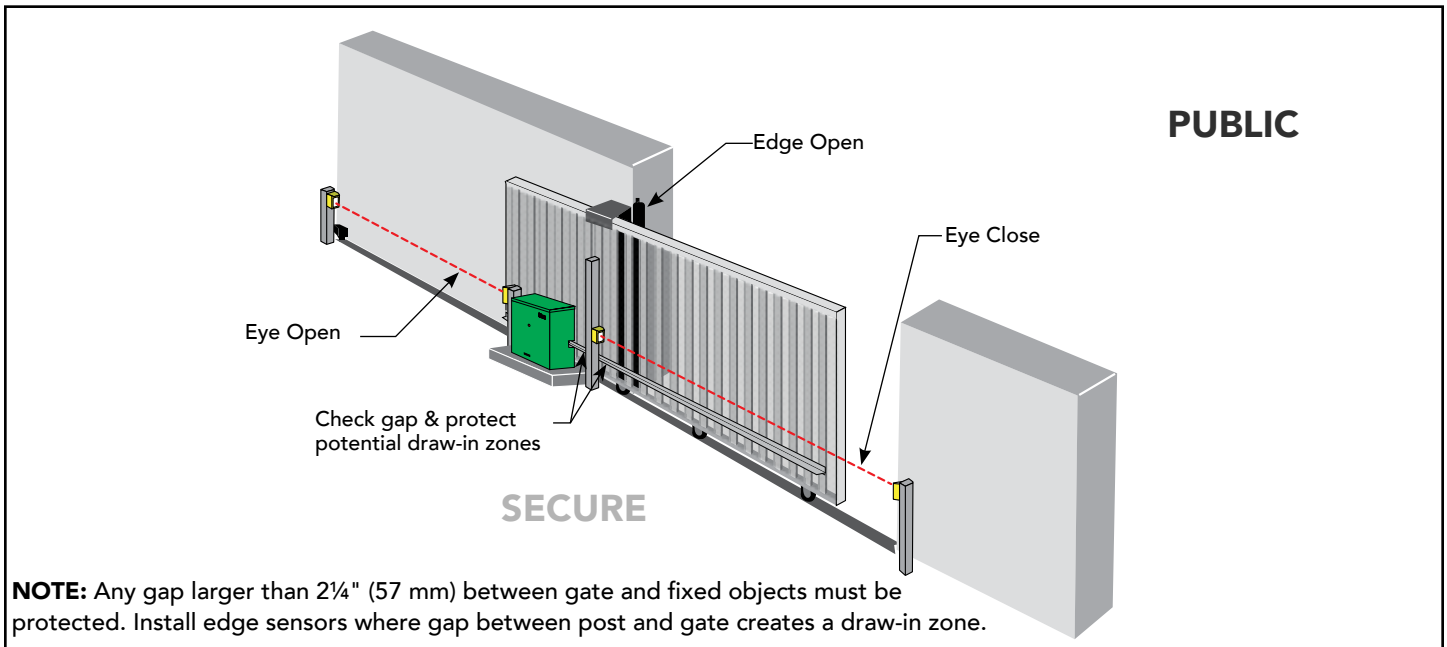
Table 7: Troubleshooting Codes

| Type | Display | Buzzer Chirp Sequence | Possible Cause & Suggested Corrective Action |
|-------|---|--|--|
| ALERT | HYSECURITY ENTRAPMENT MODE <i>EntE</i> | 2 chirps per second every 2s while control input is active | An IES has been tripped twice within a specific period of time. Check the gate site for obstructions and clear the gate area. To return to run mode operation, press the Reset button. |
| ALERT | HYSECURITY SAFE MODE <i>SAFE</i> | 2 chirps once when in Safe Mode | A gate "edge" or IES has been tripped or the operator has exited entrapment mode. Refer to the description above. NOTE: Gate will operate, if it receives a RUN command. |
| ALERT | !ACTION BLOCKED PHOTO EYE CLOSE <i>PEC</i> | 5 chirps indicating that the command cannot be initiated | Operator received command to run, but movement is prevented. Photo eye is not recognized as active. <ul style="list-style-type: none"> • Clear photo eye path • Realign photo eye. Refer to <i>Photo Eye Alignment</i> on page 12. • Replace photo eye battery • Check N.C. wiring (verify wires are not disconnected or shorted) • Review wiring diagrams. Especially path to SENSOR COM • Make sure SENSOR settings S1, S2, and S3 are correctly assigned. Refer to <i>What the Installer Needs to Do</i> on page 9. |
| ALERT | !ACTION BLOCKED PHOTO EYE OPEN <i>PEO</i> | 5 chirps indicating that the command cannot be initiated | Operator received command to run open, but movement is prevented. Photo eye is not recognized as active. <ul style="list-style-type: none"> • Clear photo eye path • Realign photo eye. Refer to <i>Photo Eye Alignment</i> on page 12. • Replace photo eye battery • Check N.C. wiring (verify wires are not disconnected or shorted) • Review wiring diagrams. Especially path to SENSOR COM • Make sure SENSOR settings S1, S2, and S3 are correctly assigned. Refer to <i>What the Installer Needs to Do</i> on page 9. |
| ALERT | !ACTION BLOCKED GATE EDGE (Open or Close) <i>GED</i> | 5 chirps indicating that the command cannot be initiated | Operator received command to run open, but movement is prevented. Gate edge blocked or disconnected and causes operator to enter SAFE mode. Gate edge is not recognized as active. <ul style="list-style-type: none"> • Replace sensor batteries • If using Miller Monitored Edge Link, be aware. Issues with radio interference cause false trips. Placing the antenna high and reducing environmental "noise" is critical to proper wireless transmission. Avoid placing the receiver sets within 100 feet of each other as crosstalk may occur. Use receivers & transmitters Version 1.02 or higher. • Verify wired edges are using a gate edge converter-type module. Miller Edges must have a wire with blue tape. The blue tape indicates that a resistor is built in. • Check N.C. wiring (verify wires are not disconnected or shorted) • Review wiring diagrams. Especially path to SENSOR COM • Make sure SENSOR settings S1, S2, and S3 are correctly assigned. Refer to <i>What the Installer Needs to Do</i> on page 9. |
| FAULT | FAULT 2 <i>FRL2</i> | 2 chirps per second once per minute | "Monitored" means the Controller must see the photo eye N.C. contact change from open to close after receiving the command to run, but before starting the motor. FAULT 2 indicates the controller did not see this sequence when the gate received a run command. <ul style="list-style-type: none"> • Check the wiring. Refer to the wiring diagram associated with the attached sensor. • Be sure the eye "common" wire is wired properly to the SENSOR COM terminal. |

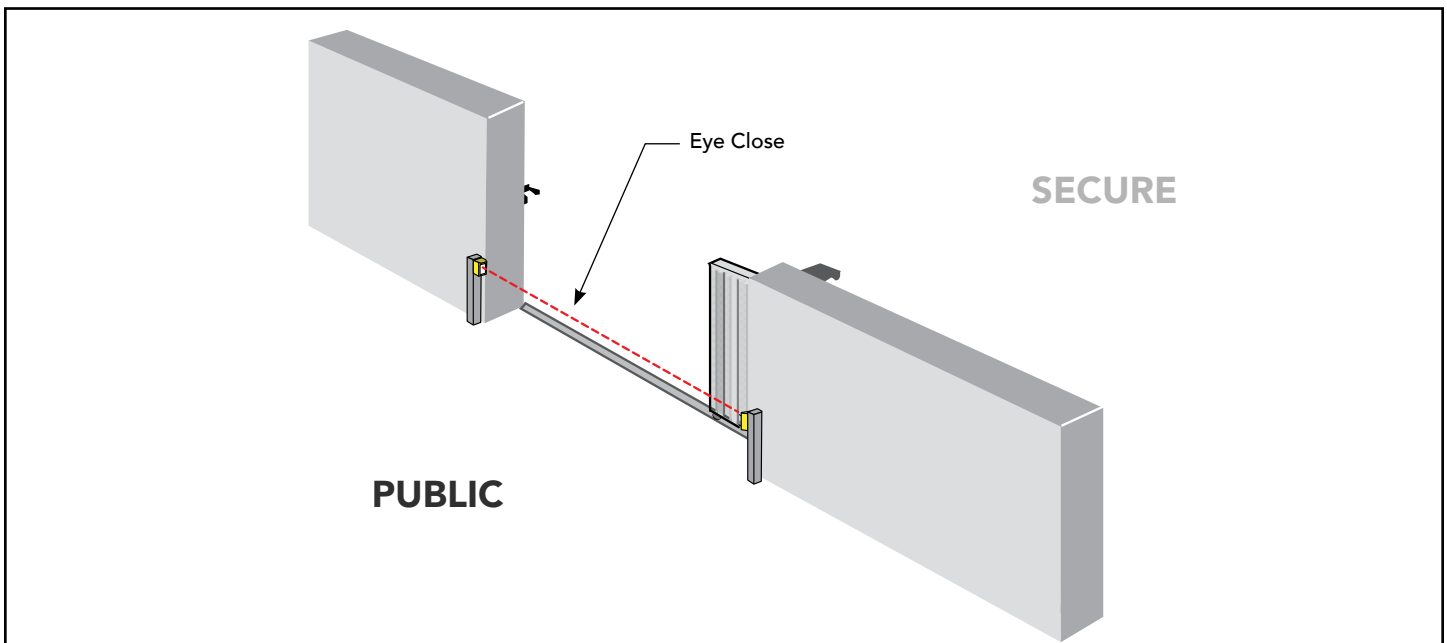
| Type | Display | Buzzer Chirp Sequence | Possible Cause & Suggested Corrective Action |
|-------|--|-------------------------------------|--|
| ERROR | ERROR 4 DUAL GATE | 3 chirps per second once per minute | <p>Indicates a problem with the communication between the two gate operators in a bi-parting gate system.</p> <ul style="list-style-type: none"> • Check the version of software by pressing Reset. The version number flashes on the display (examples, h4.54 or h5.56). • The software versions on the Primary and Secondary gate should be the same. If not, upload current software version using S.T.A.R.T. and a PC laptop computer. • Verify the Installer Menu item DG (DUAL GATE) is set to DG2 in Primary and set to DG1 in Secondary gate operator. • Make sure the wires are twisted and shielded. See illustration on page 46. • Be sure the low voltage wire runs, which include the bi-parting gate communication wires, are separate from any high voltage wires runs. Interference occurs if wire runs are mixed or too close to each other. <p>The error automatically clears when the communication fault is resolved.</p> |
| ERROR | ERROR 2 IES DISCONNECT | 3 chirps per second once per minute | <ul style="list-style-type: none"> • The IES sensor could be bad, check to see that the NC contact is intact. • Check that you have the most current sensor; visit our website and view the technical bulletins in the Tech Support area. The sensor wire could be loose; you may want to tighten the female connectors with some pliers. • Verify the version of the software by pressing the Reset button. The software version appears on the display. Make a note of it. The software version should be h4.50 or h5.50 (or higher). • If necessary, update the software using a PC laptop and S.T.A.R.T. Register and login in at www.hysecurity.com |
| ERROR | ERROR 7 MENU CHECKSUM <i>Err 7</i> | 3 chirps per second once per minute | Contact HySecurity. |
| FAIL | FAIL PROGRAM DATA ERR <i>FAIL</i> | 3 chirps per second once per minute | <ol style="list-style-type: none"> 1. Try turning off the power to the operator and having the customer re-seat all of the various connectors and cables. 2. Upload the latest software release. If the fail does not go away, contact Technical Support. |

NOTE: For a more extensive list of error codes, refer to your gate operator's product manual.

SITE ASSESSMENT & GATE DESIGN FOR MONITORED ENTRAPMENT



Slide Gate: Monitored Entrapment Site Scenario (Viewing from SECURE side)

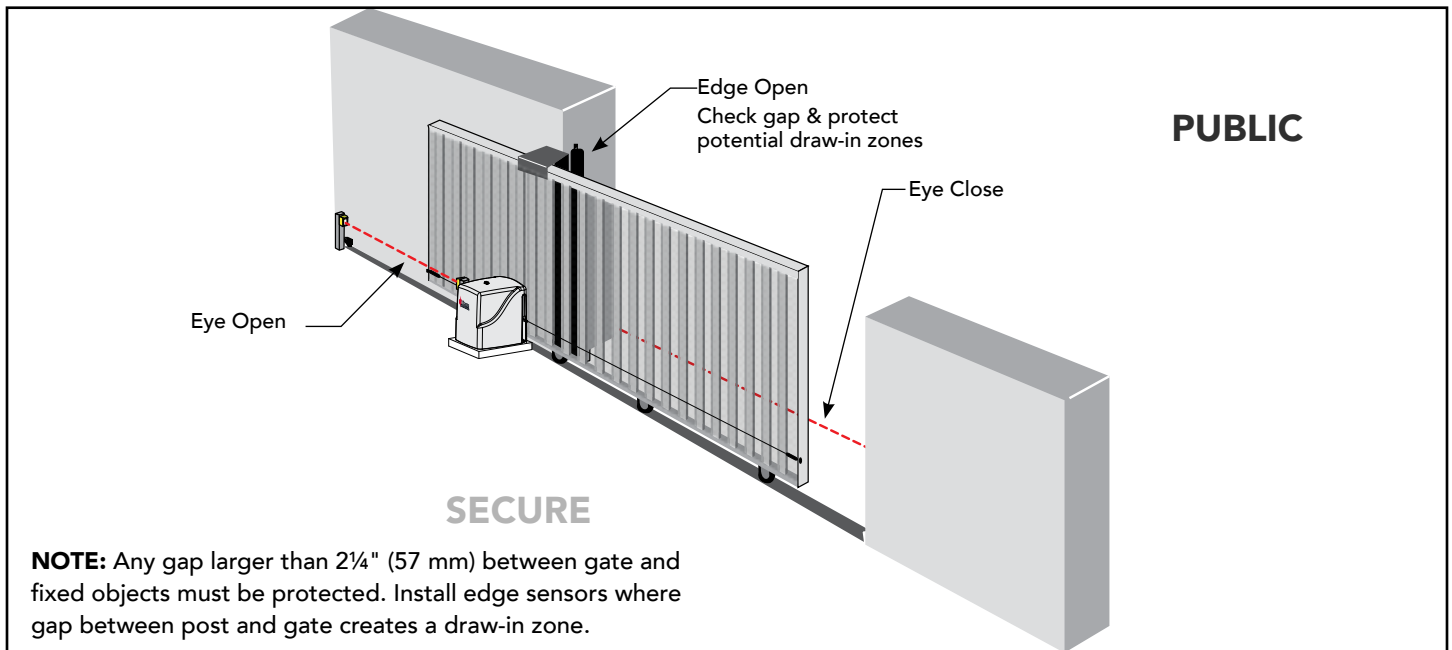


Slide Gate: Monitored Entrapment Site Scenario (Viewing from PUBLIC side)

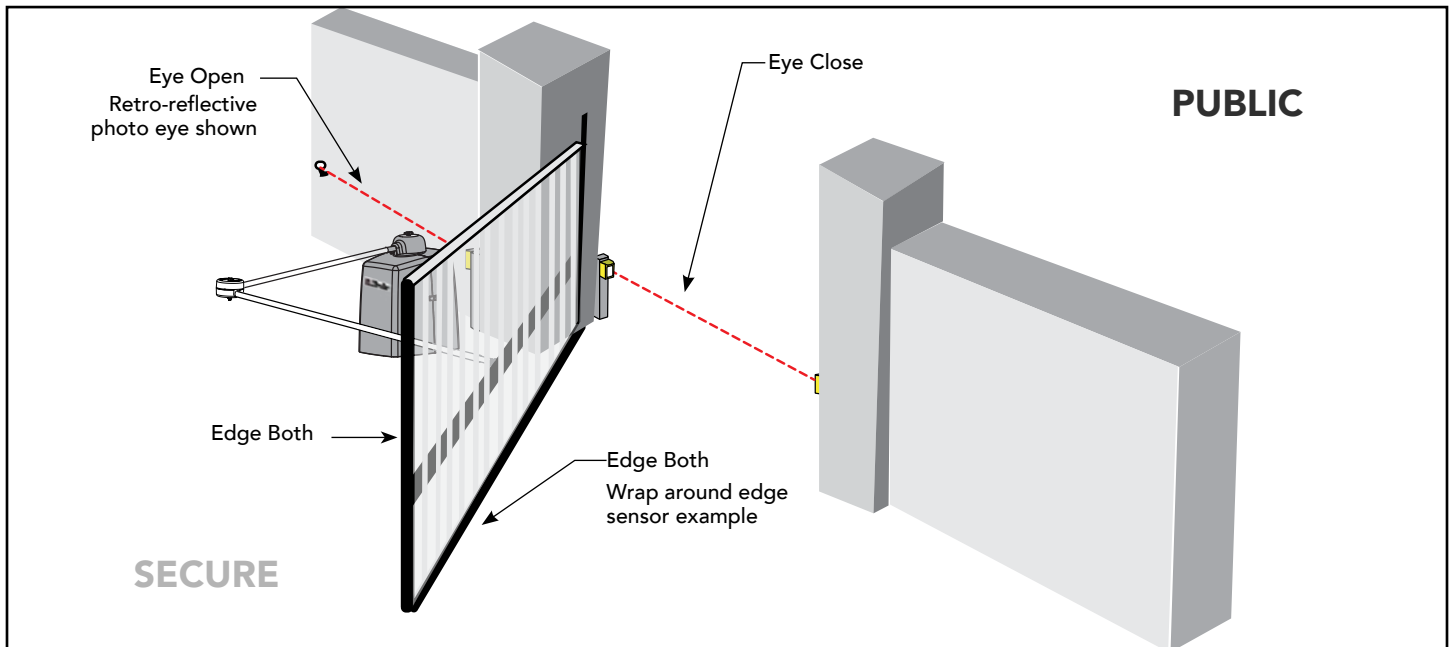
NOTICE: UL 325 Standard of Safety provides the MINIMUM safety standards. Site, gate hardware usage, and other conditions may dictate the use of additional safety designs/components. It is up to the gate system designer and installer to assess appropriate safety design and components above and beyond minimum UL 325 and ASTM F2200 standards. Always check your local area codes and comply with all regulations.

SITE ASSESSMENT & GATE DESIGN FOR MONITORED ENTRAPMENT

continued...



Slide Gate: Monitored Entrapment Site Scenario (Viewing from SECURE side)



Swing Gate: Monitored Entrapment Site Scenario (Viewing from SECURE side)

NOTICE: UL 325 Standard of Safety provides the MINIMUM safety standards. Site, gate hardware usage, and other conditions may dictate the use of additional safety designs/components. It is up to the gate system designer and installer to assess appropriate safety design and components above and beyond minimum UL 325 and ASTM F2200 standards. Always check your local area codes and comply with all regulations.

General Entrapment Protection Provisions per UL 325, Table 31.1

Effective January 12, 2016, Table 31.1 General Entrapment Protection Provisions for gate operator categories.

The following chart is a copy of UL 325 Standard of Safety, Table 31.1

| Gate Operator Category | |
|--|--|
| Horizontal Slide, Vertical Lift and Vertical Pivot | Swing and Vertical barrier (arm) |
| Entrapment protection types: A, B1, B2, D | Entrapment protection types: A, B1, B2, C or D |
| <p>NOTE: The same type of device shall not be utilized for both entrapment protection means. Use of a single device to cover both the opening and closing directions is in accordance with the requirement; however, a single device is not required to cover both directions. A combination of one Type B1 for one direction and one Type B2 for the other direction is the equivalent of one device for the purpose of complying with the requirements of either entrapment protection means.</p> | |
| <p>Type A – Inherent entrapment protection system.</p> <p>Type B1 – Non-contact sensor (photoelectric sensor or the equivalent).</p> <p>Type B2 – Contact sensor (edge device or the equivalent).</p> <p>Type C – Inherent force limiting, inherent adjustable clutch or inherent pressure relief device.</p> <p>Type D – Actuating device requiring continuous pressure to maintain opening or closing motion of the gate.</p> | |

The changes that occurred to HySecurity software and discussed on the previous pages are based on compliance with the UL 325 -2016 Standard of Safety.

An exception for vehicular barrier arms exists. As stated in UL 325 Standard of Safety:

An operator for a vehicular barrier (arm) that is not intended to move toward a rigid object closer than 16 inches (406 mm), and does not have a pinch point between moving parts by virtue of the operator's design or as a result of installation in accordance with instructions supplied with the operator as specified in UL 325 Standard of Safety is not required to be provided with means to protect against entrapment.

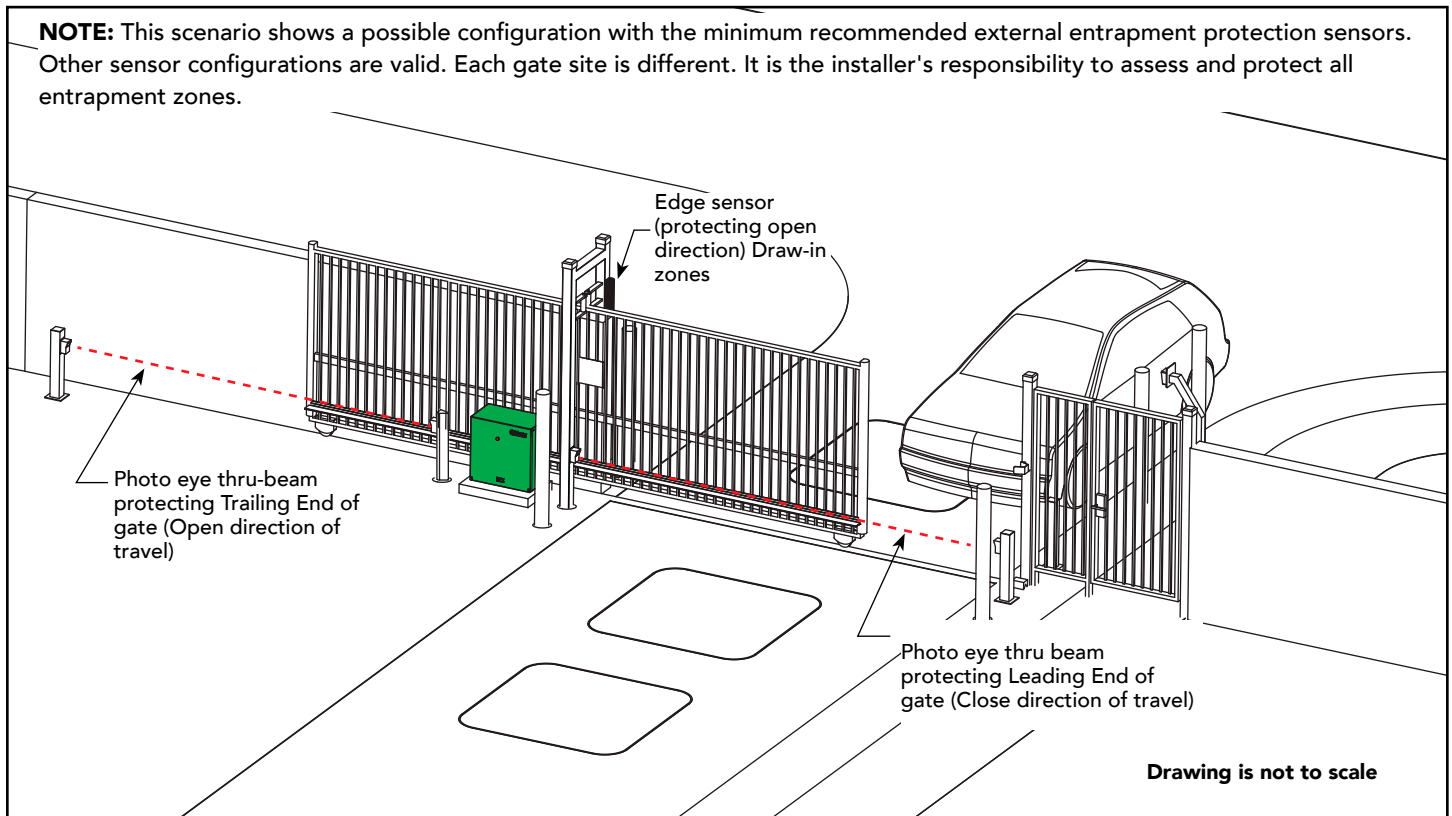
A provision also exists for Usage Class 4 and is described below.

Usage Class 4 Designated Gate Operator Provisions

Usage Class 4 sites must have a guard house or CCTV gate monitoring to verify credentials of vehicles entering or exiting the facility and to ensure safe gate operation in the rare occurrence where pedestrians may be present. HySecurity handles the UL 325 - 2016 gate operator provisions for Usage Class 4 in the following manner:

- SENSOR inputs default to 0 and must be set to a non-zero number before automatic gate operation is allowed. Normally Closed (NC) sensors become the default for monitoring if external entrapment protection sensors are connected. However, the gate operator can be configured through the Installer Menu to accept either Normally Closed (NC) or Normally Open (NO) outputs from sensors.
- When SENSOR 1, 2, and 3 are set to 1 (NOT USED) or when the software detects a programmed monitored sensor fault, a Warn-Before-Operate buzzer automatically sounds 3 seconds before movement and throughout gate travel.
- If a sensor input is held tripped, the gate operator can move the gate in the same manner as other usage classes with a simple constant hold input (Push button Open, Push button Close, Open Partial or Keypad Open/Close activation). Refer to *Troubleshooting on page 13*.
- Note that Alerts, Faults, and Errors used for troubleshooting are handled in the same manner as other HySecurity gate operator usage classes.

DIAGRAM 1: TYPICAL SLIDE GATE SITE ASSESSMENT



NOTICE: HySecurity slide gates are equipped with a Type A inherent entrapment sensor (IES) that complies with UL 325. Any impediment to gate travel causes the gate to stop and reverse.

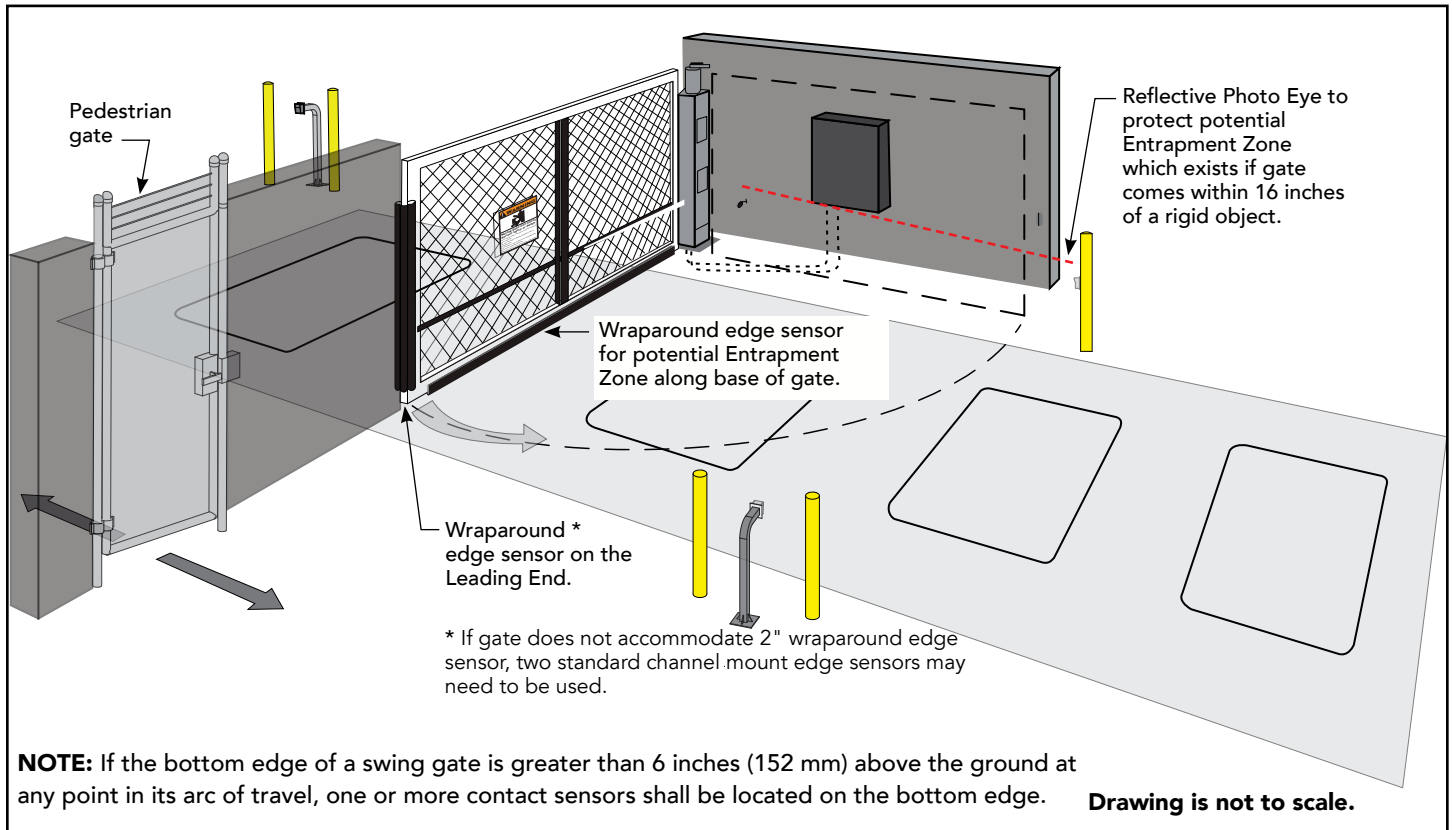
Monitored external entrapment protection sensors, which can be used in this site scenario and are compatible with HySecurity slide gates, appear in the following chart. For a full list, refer to page 6.

| EXAMPLE: External Entrapment Protection Sensors: Normally Close Contact, Compatible with HySecurity Gate Operators | | | | | |
|---|--|---|-----------------|---------------------|--------------------------|
| P/N | 2016 Monitored Sensors | Sensor Type | Output | Manufacturer | UL 325 Recognized |
| MX3981 | Wired Gate Edge Sensor MGR20-2U-05-T2, Round | Wraparound edge (5 ft for 2" round post) | 10K Resistor | Miller Edge | Type B2 |
| MX3983 | Gate Edge Module (GEM -104) | Edge Interface Module | Normally Closed | | |
| MX3990 | IRB-MON (Dist. ~ 65 ft) | Thru-beam photo eye | Normally Closed | EMX Industries | Type B1 |
| MX3990 | IRB-MON (Dist. ~ 65 ft) | Thru-beam photo eye | Normally Closed | EMX Industries | Type B1 |

A minimum of one monitored external entrapment protection sensor, in addition to the slide gate operator's inherent sensor, is required before enabling momentary control activation. However, if there is a risk of entrapment in both directions of gate travel, then both directions of travel must be protected by an external sensor.

NOTE: At minimum, external entrapment protection sensors must be installed wherever potential for entrapment exists during gate movement. Note that every site is different. All potential entrapment zones should be protected with contact or non-contact sensors. HySecurity gate operators detect NC output sensors and monitor them to comply with UL 325 Standard of Safety.

DIAGRAM 2: TYPICAL SWING GATE SITE ASSESSMENT



NOTICE: HySecurity swing gates are equipped with a Type A inherent entrapment sensor (IES) that complies with UL 325. Any impediment to gate travel causes the gate to stop and reverse.

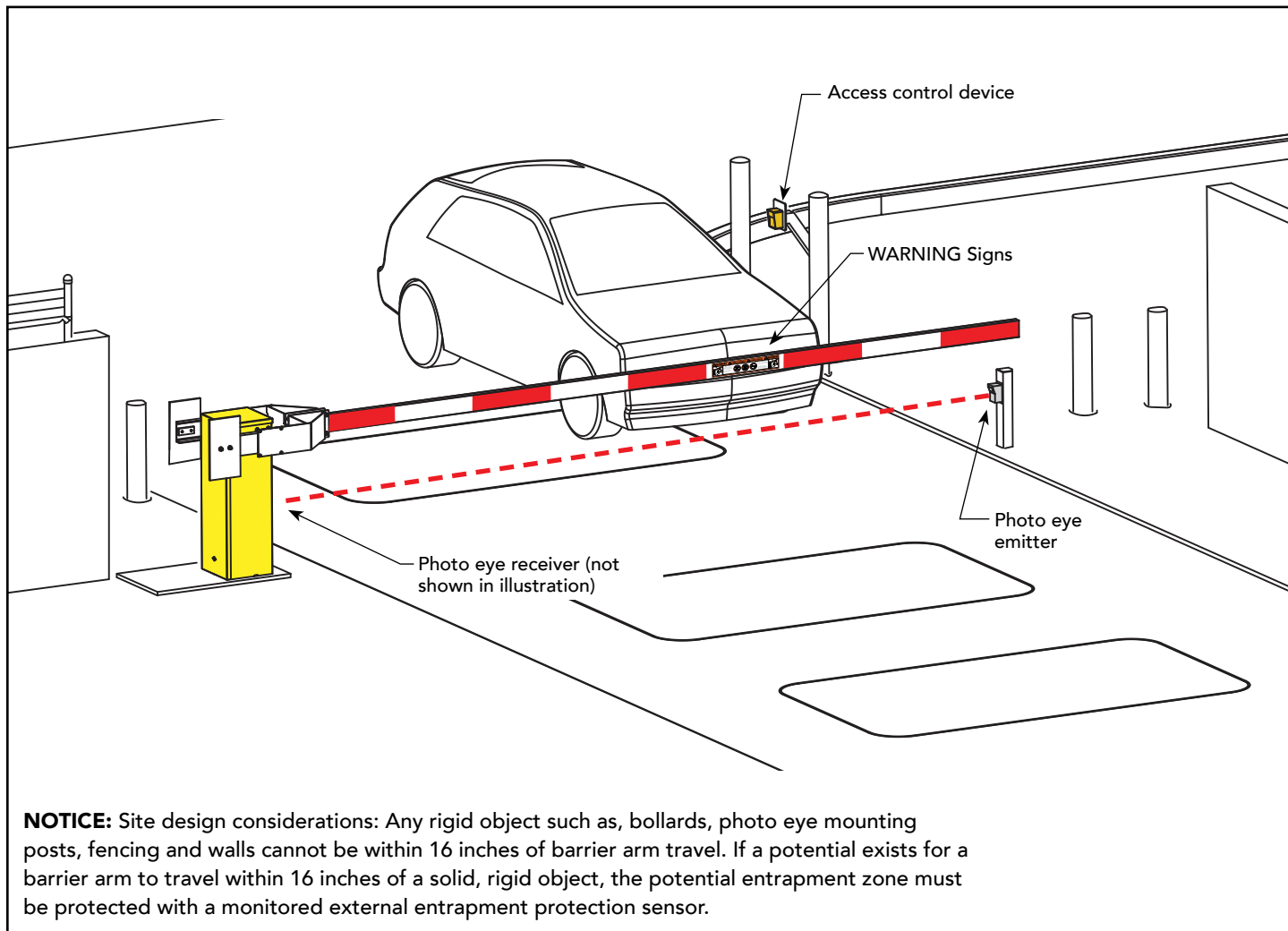
Monitored external entrapment protection sensors, which can be used in this site scenario and are compatible with HySecurity swing gates, appear in the following chart. *For a full list, refer to page 6.

| Example: External Entrapment Protection Sensors: Normally Close Contact, Compatible with HySecurity Gate Operators* | | | | | |
|---|--|---|-----------------|--------------|-------------------|
| P/N | 2016 Monitored Sensors | Sensor Type | Output | Manufacturer | UL 325 Recognized |
| MX3981 | Wired Gate Edge Sensor MGR20-2U-05-T2, Round | Wraparound edge (5 ft for 2" round post) | 10K Resistor | Miller Edge | Type B2 |
| MX3983 | Gate Edge Module (GEM -104) | Edge Interface Module | Normally Closed | | |
| MX3985 | Reflecti-Guard (RG-R) | Photo eye, reflective | Normally Closed | Miller Edge | Type B1 |

A minimum of one monitored external entrapment protection sensor, in addition to the swing gate operator's inherent sensor, is required before enabling momentary control activation. Installers may decide both the type and location of the one required entrapment protection sensor to protect either the open direction, the close direction or both directions of swing gate travel. However, if there is a risk of entrapment in both directions of gate travel, then both directions of travel must be protected by an external sensor.

NOTE: If a photo eye open is the only external entrapment protection sensor connected to a swing gate, it's application will require a constant push button hold close for the swing gate to operate. HySecurity gate operators detect NC output sensors and monitor them to comply with UL 325 Standard of Safety. Understand that UL 325 conveys the minimum standard of safety. Installers must assess each specific gate design and site and install external entrapment protection sensors to guard all potential entrapment zones.

DIAGRAM 3: TYPICAL BARRIER ARM SITE ASSESSMENT



UL 325 Exception: An operator for a vehicular barrier (arm) that is not intended to move toward a rigid object closer than 16 inches (406 mm), and does not have a pinch point between moving parts by virtue of the operator's design or as a result of installation in accordance with instructions supplied with the operator as specified in UL 325 Standard of Safety is not required to be provided with means to protect against entrapment.

HySecurity barrier arms provide features for object detection. For more information, refer to the gate operator's product manual. Since the StrongArm falls in the exception classification for monitored entrapment, your options for accessory connections and programming vary depending on your site requirements.

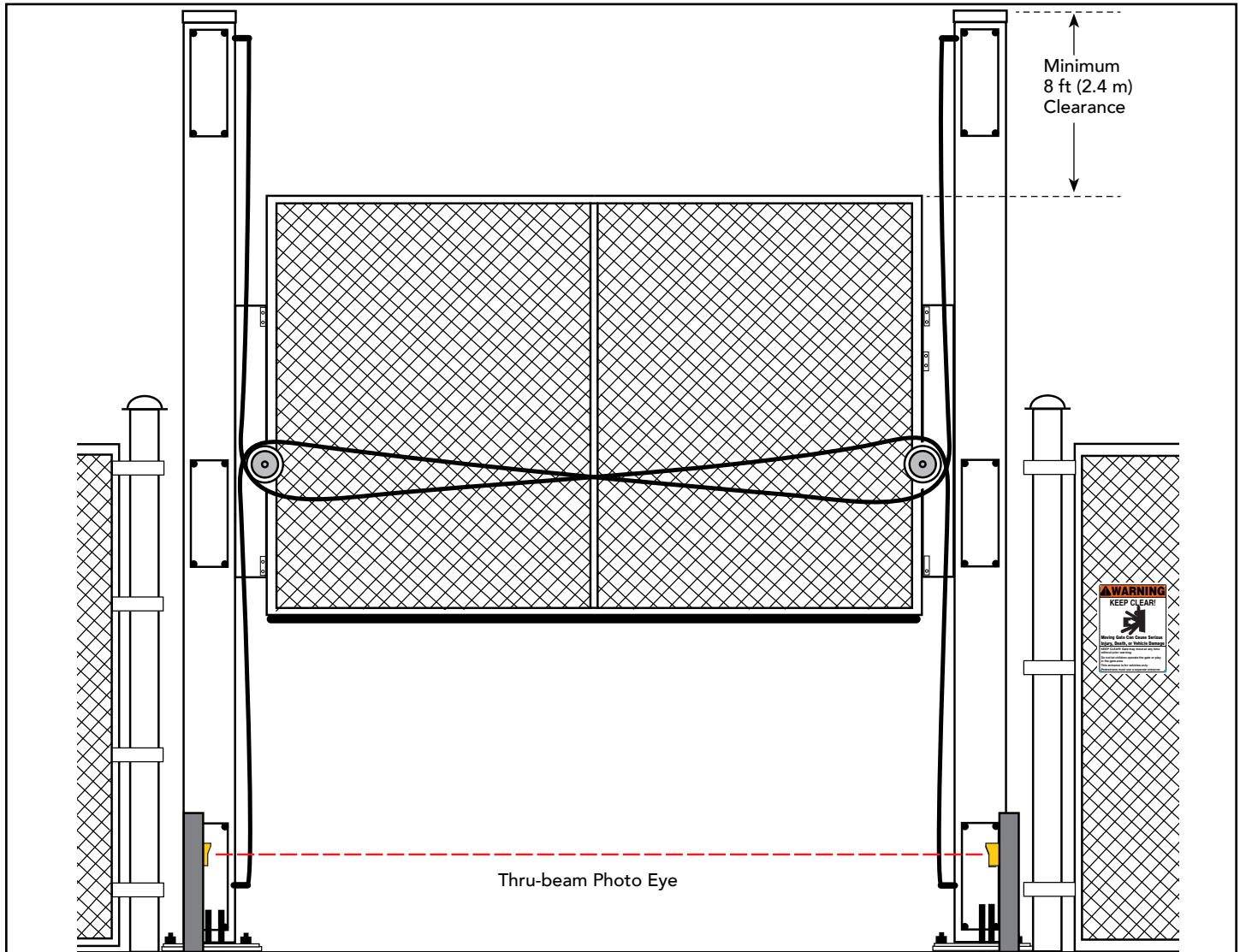
If your StrongArm uses version h4.50 software or higher:

- Build Year (BY) is set to 2
- SENSOR inputs default to normally closed contacts
- SENSOR input configuration defaults to "NOT USED"
- Gate will run with all SENSOR inputs set to "NOT USED"

All three sensor inputs can be re-configured.

NOTE: Even though no wires are attached to a SENSOR input, it must be "set" to 1 (NOT USED). The software requires confirmation of all 3 monitored input designations before allowing the gate to move.

DIAGRAM 4: TYPICAL VERTICAL LIFT SITE OVERVIEW



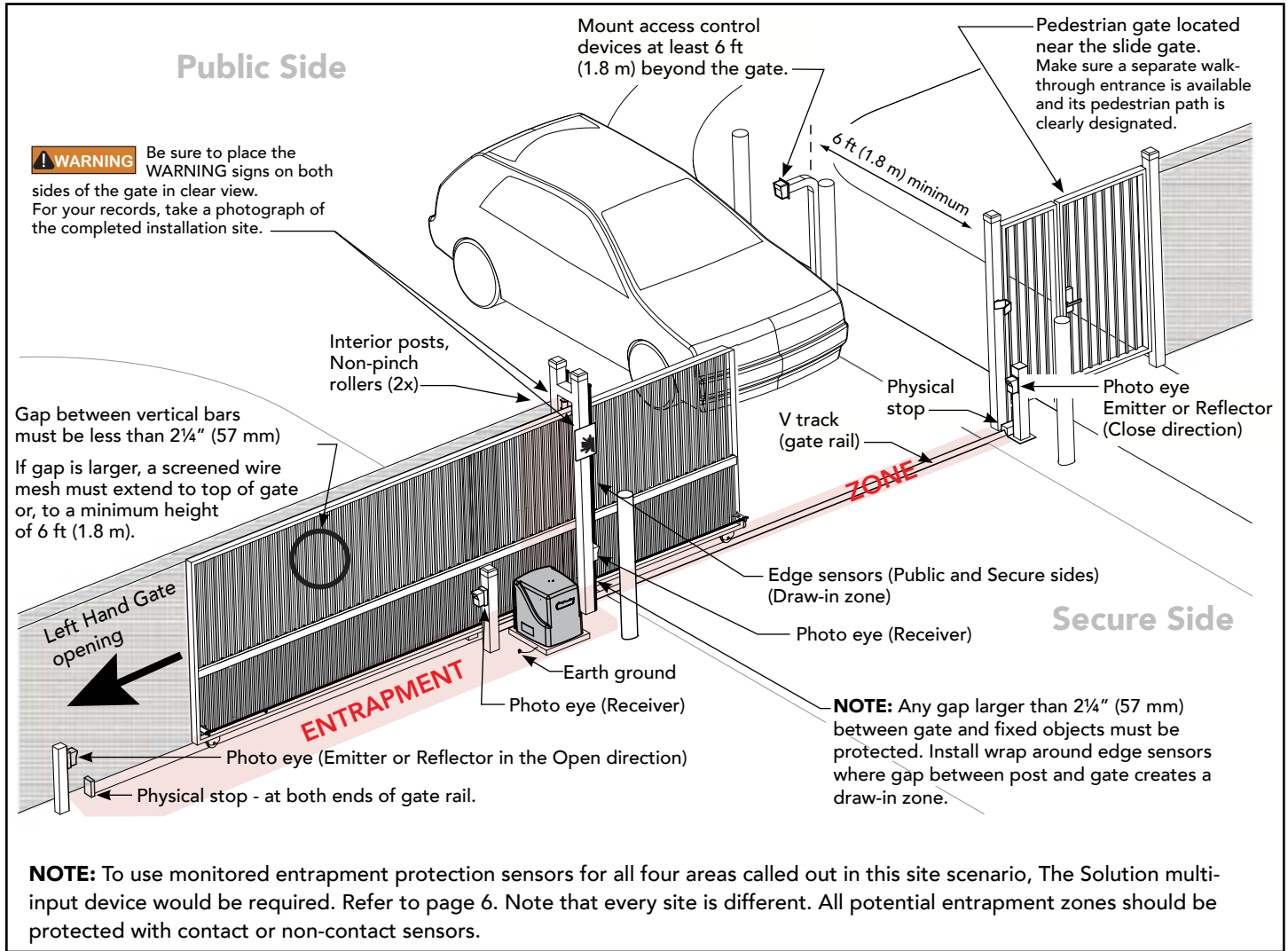
NOTICE: HySecurity vertical lift gates are equipped with a Type A inherent entrapment sensor (IES) that complies with UL 325. Any impediment to gate travel causes the gate to stop and reverse.

Monitored external entrapment protection sensors, which can be used in this site scenario and are compatible with HySecurity vertical lift gates, appear in the following chart. For a full list, refer to page 6.

| EXAMPLE: External Entrapment Protection Sensors: Normally Close Contact, Compatible with HySecurity Gate Operators | | | | | |
|---|-------------------------------|---------------------|-----------------|---------------------|--------------------------|
| P/N | 2016 Monitored Sensors | Sensor Type | Output | Manufacturer | UL 325 Recognized |
| MX3990 | IRB-MON (Dist. ~ 65 ft) | Thru-beam photo eye | Normally Closed | EMX Industries | Type B1 |

NOTE: A Thru-beam Photo Eye is recommended in this site scenario. A monitored wireless edge sensor is a viable option, though it is not called out in the site scenario, chart above, or wiring diagram. Every site is different. On vertical lift gates, one monitored sensor must be installed to protect the close direction of travel. However, all potential entrapment zones should be protected with contact or non-contact sensors. HySecurity gate operators detect NC output sensors and monitor them to comply with UL 325 Standard of Safety.

DIAGRAM 5: TYPICAL SLIDE SMART DC SITE ASSESSMENT



After wiring your external entrapment protection sensors to the Controller's sensor inputs, access the Installer Menu. Set sensors S1, S2, and S3 for this example of a site scenario, as follows:

GATE OPERATOR: SlideSmart DC and SlideSmart DCS using multi-input device.

Initial SENSOR setting = 0

S1 0
SENSOR #1 TYPE

Set SENSOR 1 = #5
EDGE OPEN (public side)

S1 5 (EDGE OPEN)
SENSOR #1 TYPE

Set SENSOR 2 = #5
EDGE OPEN (secure side)

S2 5 (EDGE OPEN)
SENSOR #2 TYPE

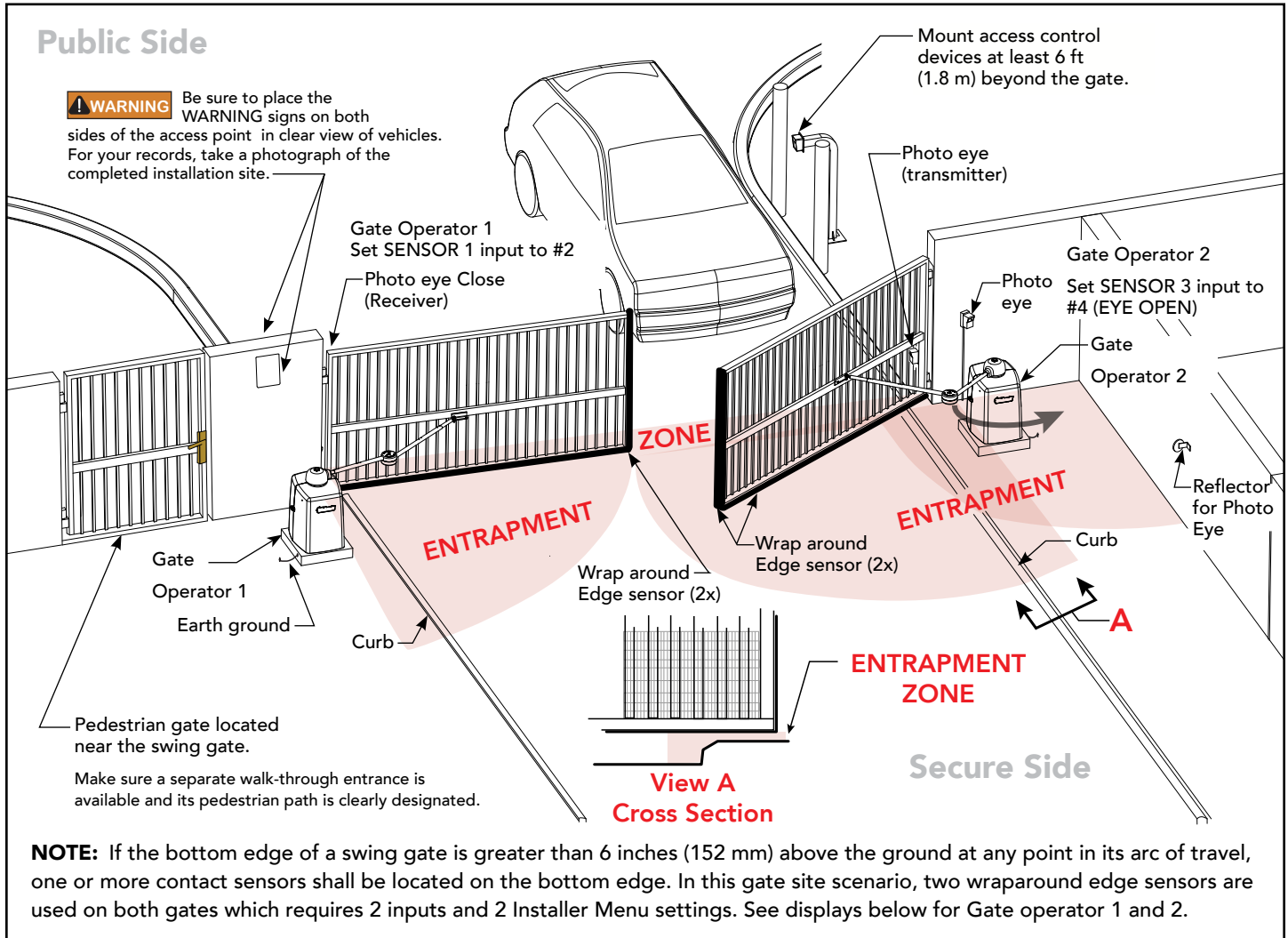
Set SENSOR 3 = #7
EYE BOTH **

S3 7 (EYE BOTH)
SENSOR #3 TYPE

**Since in the site scenario there are two monitored photo eye sensors protecting open and close directions of travel and only one input remaining, you could use a Multi-input device (The Solution). Connect sensors to two separate inputs on The Solution, set to NC contact (not Pulse) and wire The Solution output to SENSOR 3 on the Controller. In the Installer Menu, set SENSOR #3 TYPE to EYE BOTH. Another option? Use a long range photo eye and wire as a singular SENSOR input 1.

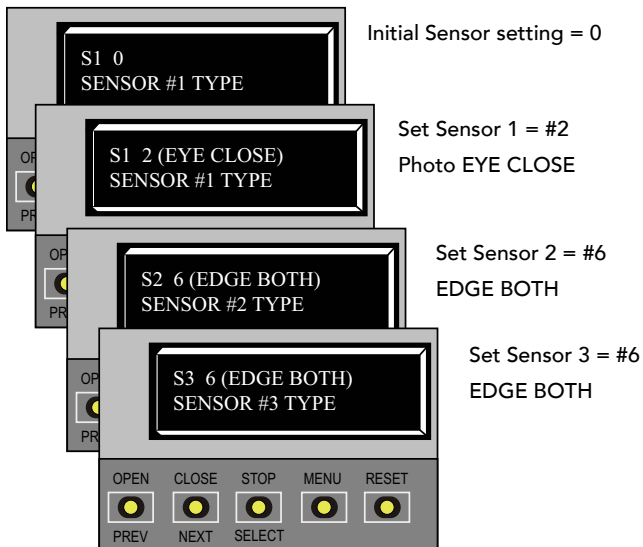
OPEN CLOSE STOP MENU RESET
PREV NEXT SELECT

DIAGRAM 6: SWINGSMART DC SITE OVERVIEW (DUAL GATE)

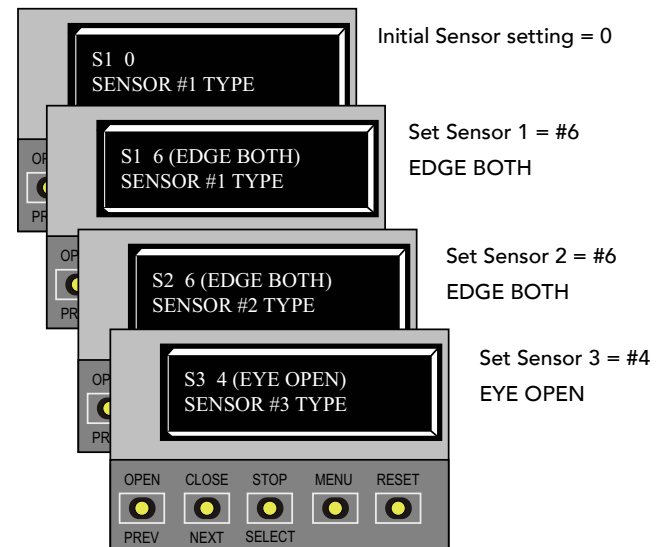


After wiring your external entrapment protection sensors to the Controller's sensor inputs, access the Installer Menu, Set sensors S1, S2, and S3. (Refer to Table 5: Installer Menu Settings for SENSOR Inputs on page 10.)

GATE OPERATOR 1: SwingSmart DC or DCS



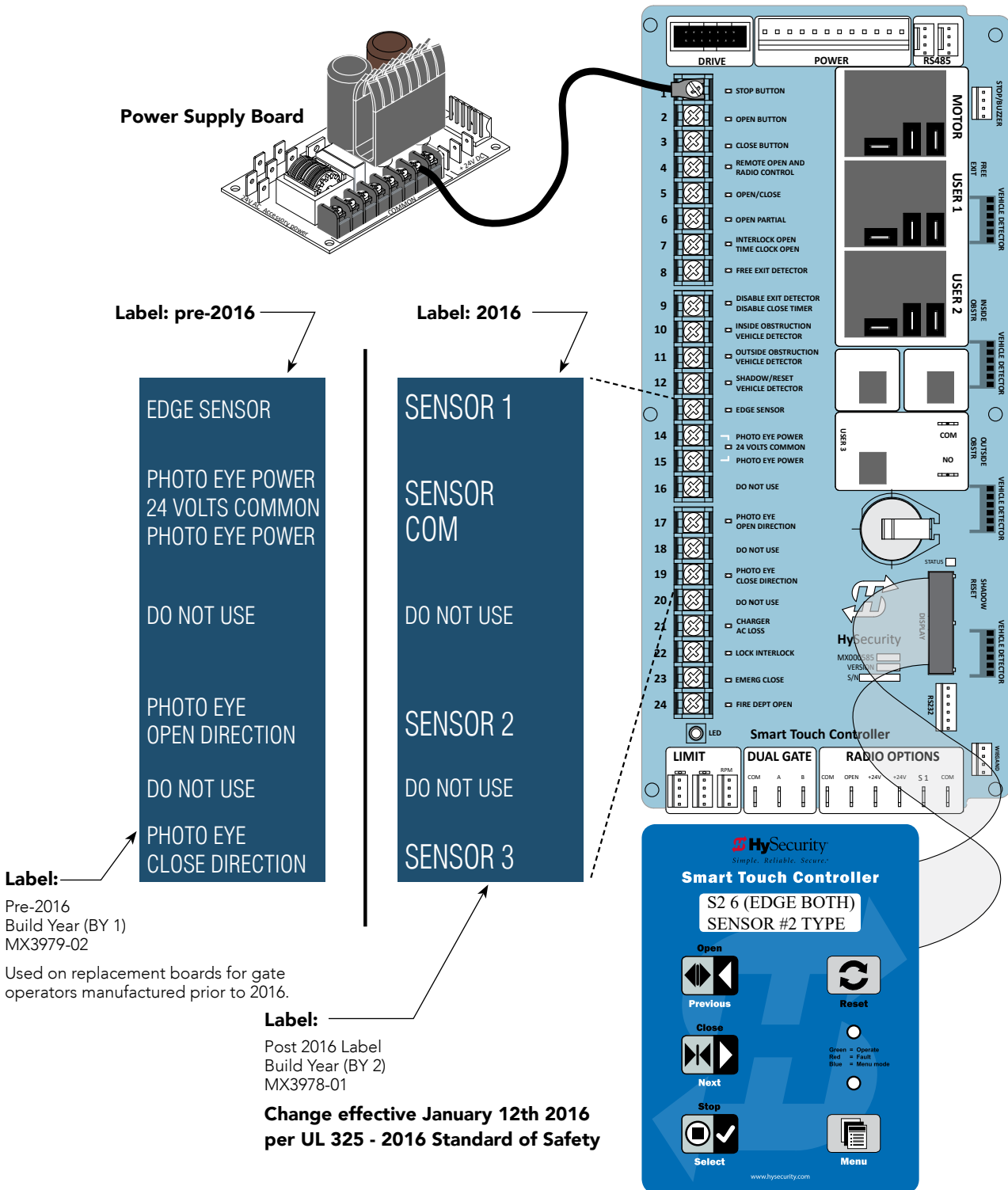
GATE OPERATOR 2: SwingSmart DC or DCS



Wiring HySecurity Sensors: Smart Touch

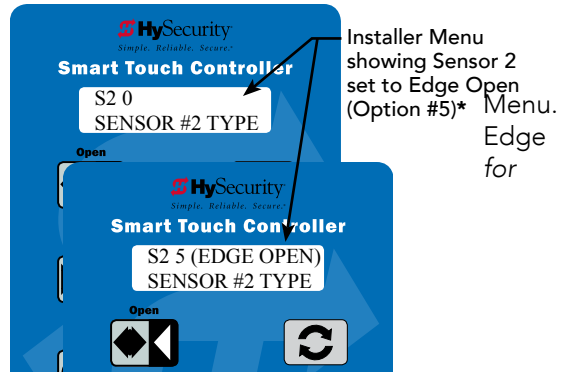
Wiring diagrams are provided on the following pages. The diagrams illustrate how to connect sensors and program the gate operator. HySecurity Smart Touch gate operators can monitor entrapment protection sensors per UL 325 - 2015 Standard of Safety using software version h4.50 (or higher).

The site designer or installer must determine which external entrapment protection sensors will be installed with the gate operator to create a UL 325 compliant installation site. For additional information, review [Gate Safety on the HySecurity website](#).

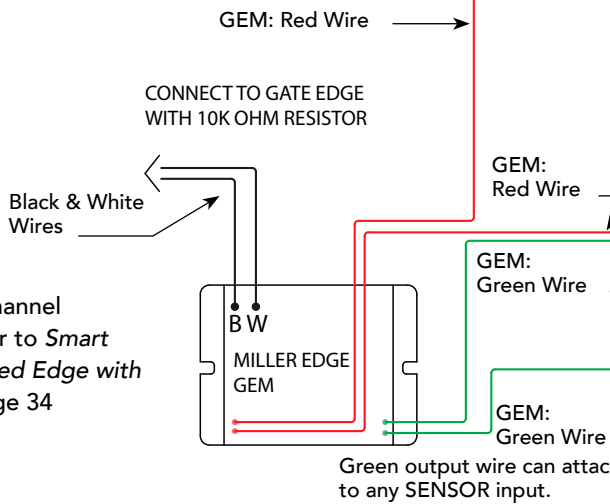
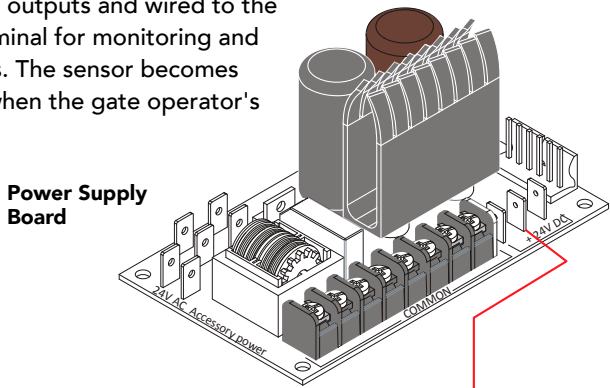


SMART TOUCH: WIRED EDGE SENSOR WITH GEM (-104)

1. Turn OFF power.
2. Connect the Green NC relay wire from GEM to Sensor 1, 2, or 3.
3. Connect Red & Green wires from GEM to SENSOR COM on Controller (or Power Supply Board, STC).
4. Connect Red wire from GEM to +24V on Controller (or Power Supply Board, STC).
5. Connect Black & White wire from GEM to 10K resistor in edge sensor.
6. Turn ON power and access the Installer Menu
Configure SENSOR setting accordingly (i.e. Edge Open, Close, or Edge Both). See *Table 5: Installer Menu Settings SENSOR Inputs on page 10*.

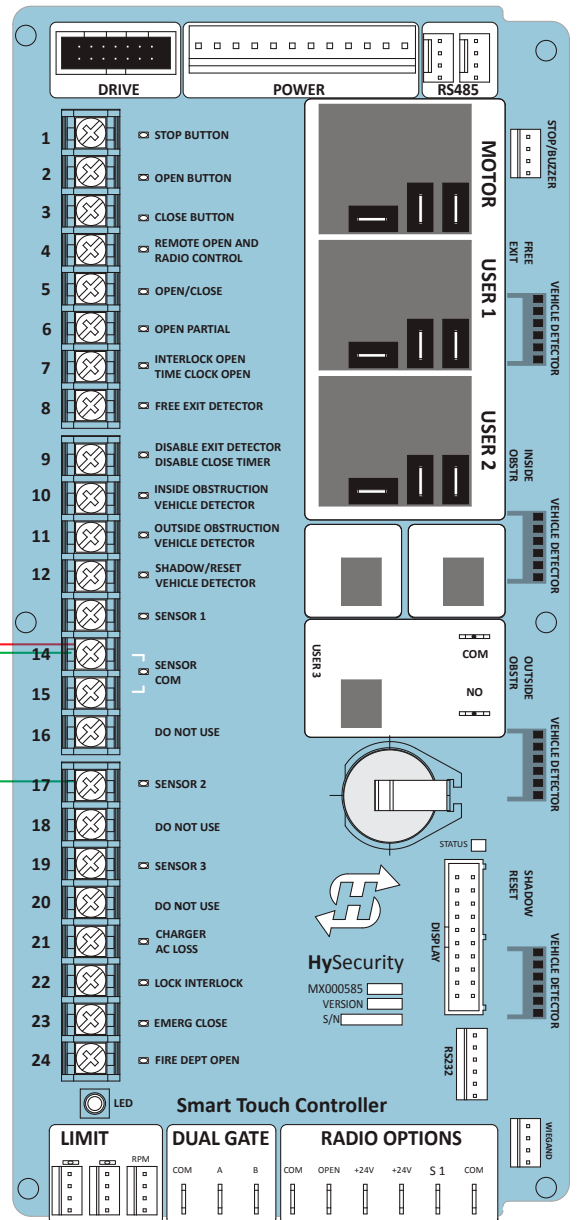


All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator's motor runs.



***NOTE:** For 2 channel capabilities, refer to *Smart Touch: 2 CH Wired Edge with GEM-204* on page 34

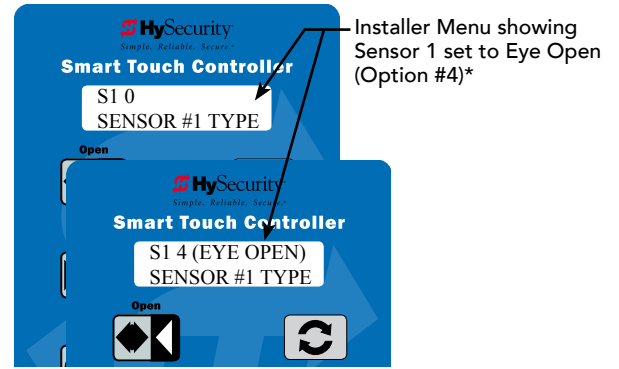
***NOTE:** Make sure whichever wired input used (SENSOR 1, 2, or 3) is the same Sensor # configured through the Installer Menu.



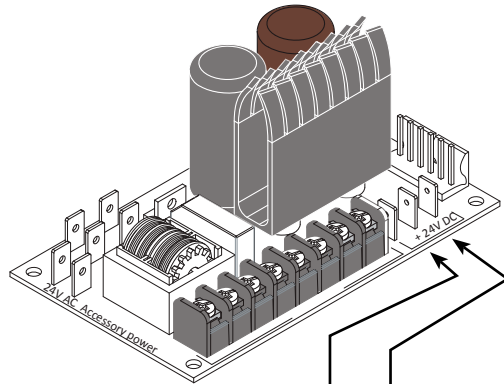
SMART TOUCH: PHOTO EYE THRU BEAM (EMX IRB MON)

1. Connect photo eye wiring.
NOTE: Run a jumper between photo eye -24V (POWER INPUT) and COM terminals on the Receiver.
2. Turn ON power.
3. Access the Installer Menu and configure SENSOR setting according to the entrapment area that the photo eye is monitoring. Refer to table on page 10.

***NOTE:** Make sure whichever wired input used (SENSOR 1, 2, or 3) is the same Sensor # configured through the Installer Menu.



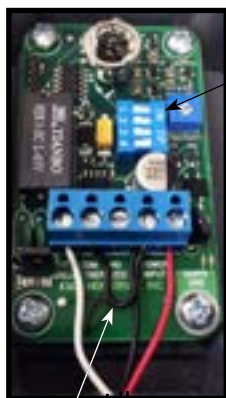
EMX IRB MON Photo Eye Transmitter



Power Supply Board

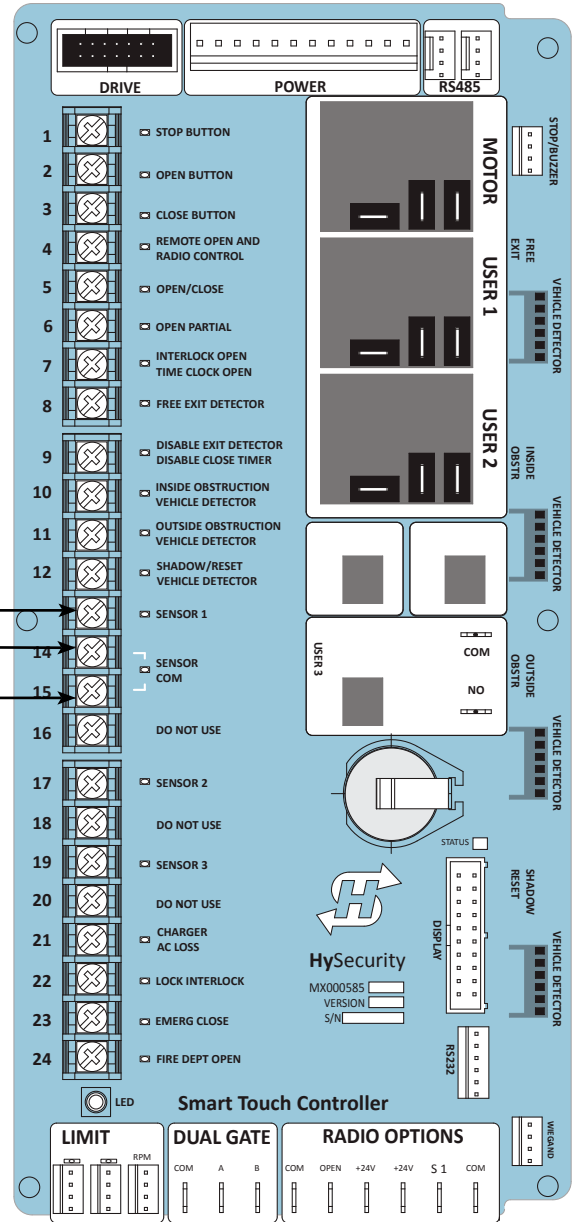
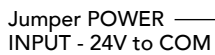


EMX IRB MON Photo Eye Receiver



CAUTION

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

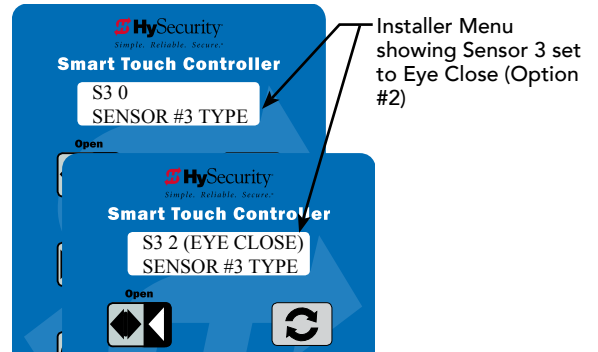


CAUTION

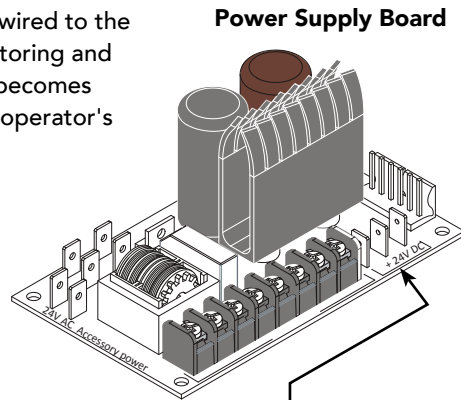
DIP switches must be set as shown otherwise the photo eye will not operate correctly. If you receive an Alert, " !ACTION BLOCKED " "Photo Eye Open" PEO or "Photo Eye Close" PEC, take steps to align the photo eye. Refer to *Photo Eye Alignment* on page 12.

SMART TOUCH: PHOTO EYE / REFLECTIVE (E3K R10K4)

1. Set Photo Eye switch to LIGHT ON. See NOTE.
1. Connect photo eye wiring.
NOTE: Run a jumper between photo eye -24V and Relay COM (C2) terminals. See photo.
2. Turn ON power.
3. Access the Installer Menu and configure SENSOR setting according to the entrapment area that the photo eye is monitoring. Refer to table on page 10.



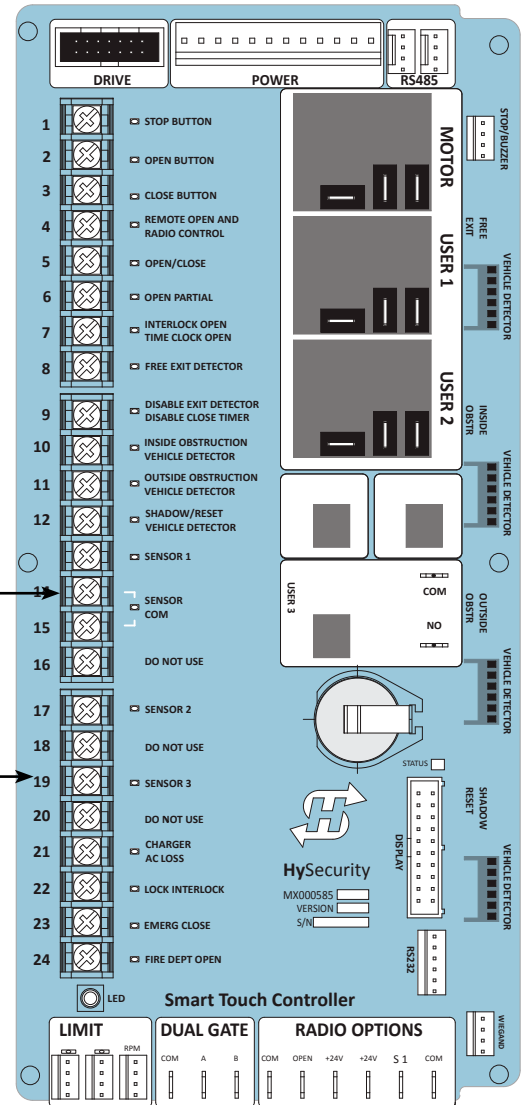
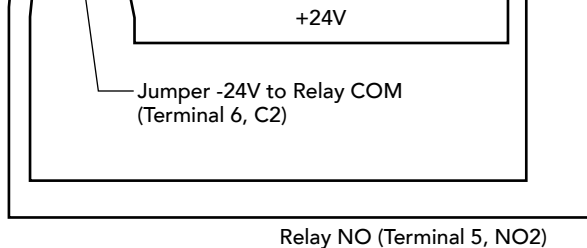
All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator's motor runs.



NOTE: Light/Dark switch must be set to LIGHT ON.



Omron (E3K R10K4)
Reflective Photo Eye



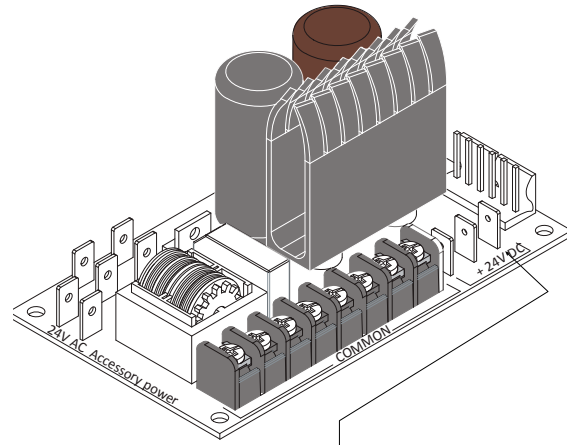
NOTE: If you receive an Alert, "!ACTION BLOCKED" "Photo Eye Open" PEO or "Photo Eye Close" PEC, take steps to align the photo eye. Refer to *Photo Eye Alignment* on page 12.

SMART TOUCH: THE SOLUTION, MIM-62 (MULTI-INPUT MODULE)

1. Turn OFF AC power.
2. Input channels 1 and 2 must be used and are always assigned to OUTPUT A.
3. All other input channels may be configured to either A or B.

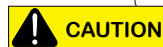
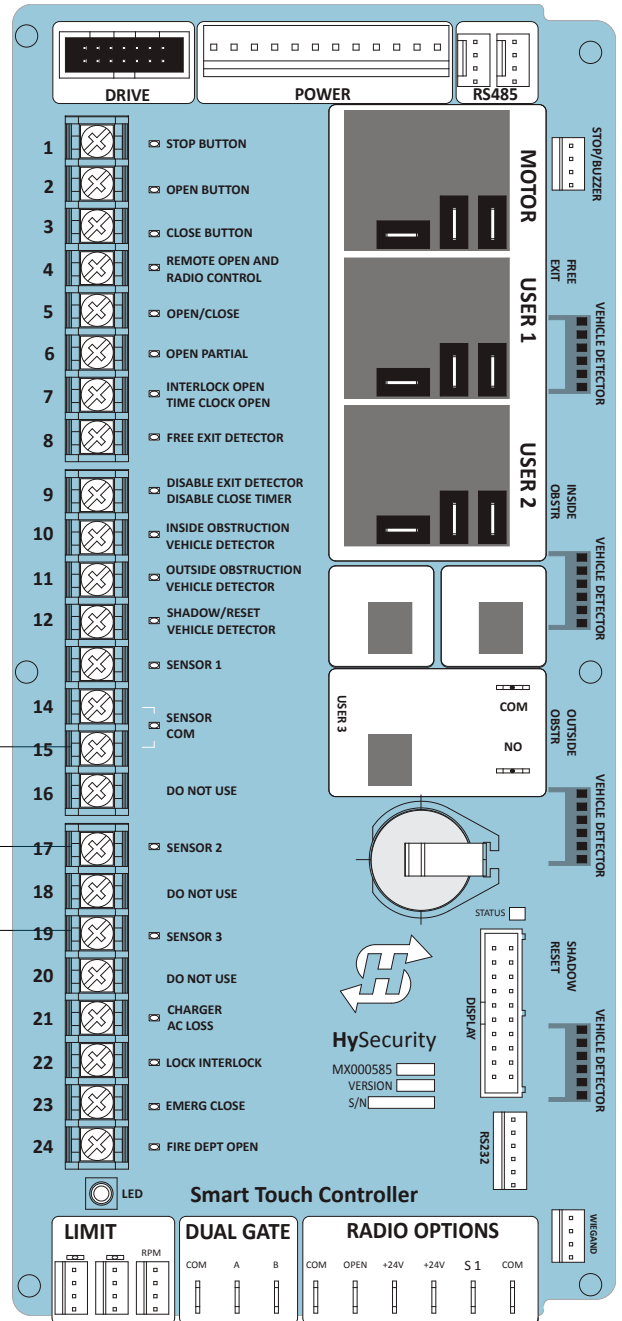
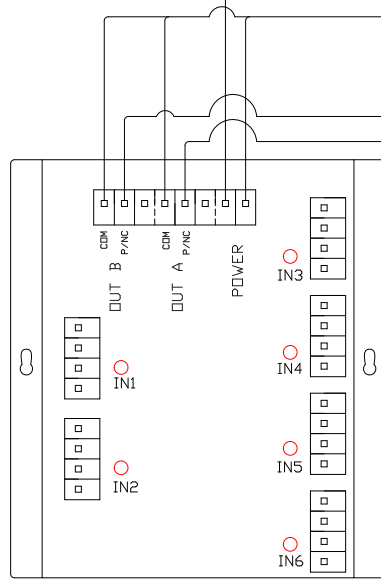
NOTE: If different sensor types are connected to the same output, then program the Controller SENSOR type for EDGE options.

4. Turn ON power.
5. Access the Installer Menu. Configure SENSOR setting according to the types of sensors wired to the Smart Touch Controller..



Power Supply Board

Connect either output (P/NC wire) to SENSOR 1, 2, or 3.



All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator's motor runs.

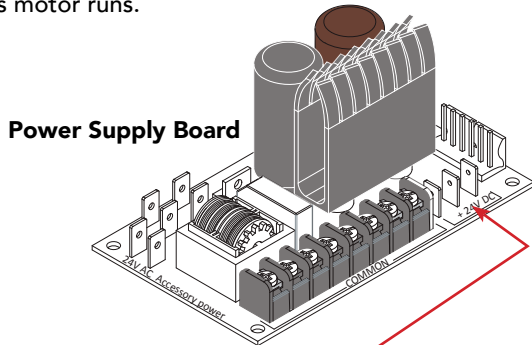
An example site scenario where The Solution might be useful is found on page 23.

SMART TOUCH: PHOTO EYE / REFLECTI-GUARD (RG-R)

1. Connect photo eye wiring.
NOTE: Run a jumper between photo eye -24V and CM terminals.
2. Turn ON power.
3. Access the Installer Menu and configure SENSOR setting according to the entrapment area that the photo eye is monitoring. Refer to table on page 10.

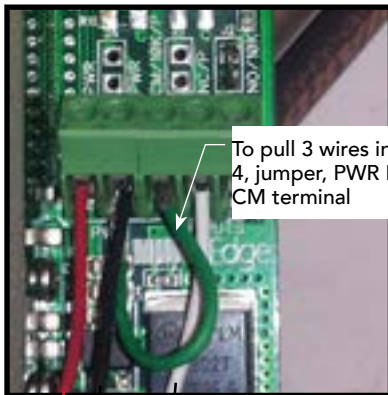


All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator's motor runs.



+24V

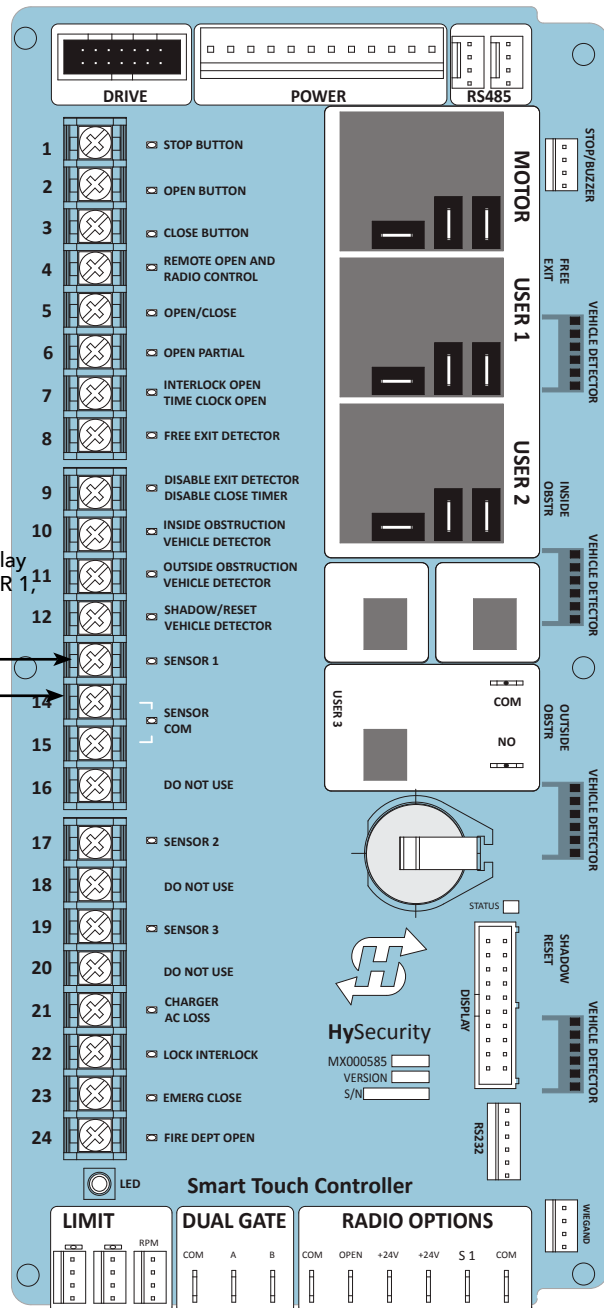
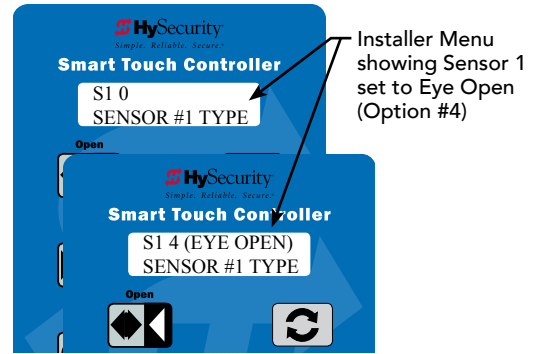
Reflecti-GUARD Photo Eye



To pull 3 wires instead of 4, jumper, PWR Relay to CM terminal

Connect NC relay wire to SENSOR 1, 2, or 3.

COMMON / NEG. to SENSOR COM



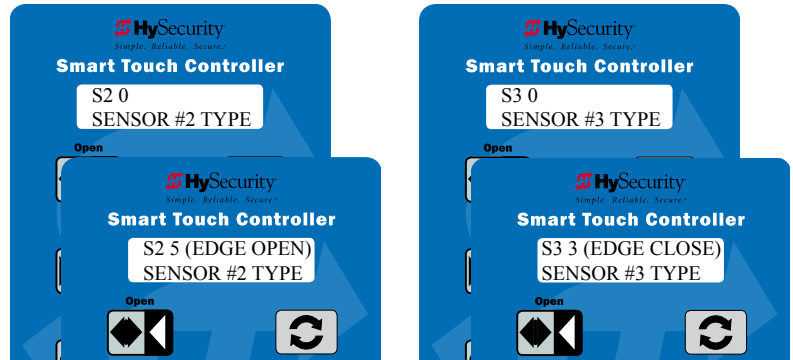
NOTE: If you receive an Alert, "!ACTION BLOCKED" "Photo Eye Open" PEO or "Photo Eye Close" PEC, take steps to align the photo eye. Refer to *Photo Eye Alignment* on page 12.

SMART TOUCH: WIRELESS EDGE, WIRELESS GATE LINK

A transmitter (MGL-TX20) and receiver (MGL-RX20) are required. Refer to table on page 6.

1. Turn OFF power.
2. Connect the wiring per the diagram shown.
3. Turn ON power and access the Installer Menu.
4. Configure SENSOR setting accordingly (i.e. Edge Open, Edge Close, or Edge Both). Refer to table on page 10.

Installer Menu showing SENSOR 2 set to EDGE OPEN (Option #5) and SENSOR 3 set to EDGE CLOSE (Option #3)

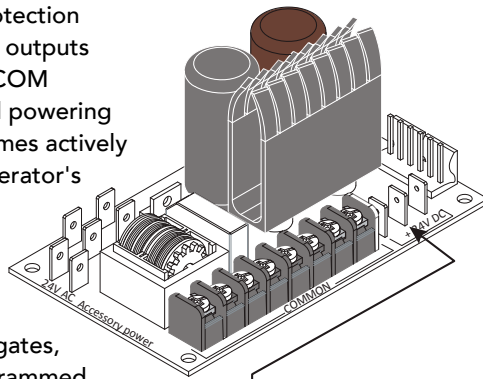


Refer to site scenarios on pages 20 and 24. Follow instructions that accompany the device.



Power Supply Board

All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator's motor runs.

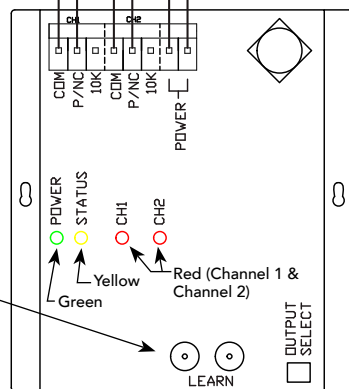


NOTE: In bi-parting swing gates, CH1 and CH2 may be programmed to the same SENSOR # TYPE on one controller, but each CH must be connected to separate SENSOR inputs. Always make sure that a gate edge is installed on each bi-parting swing gate.

Be aware. Issues with radio interference cause false trips. Placing the antenna high and reducing environmental "noise" is critical to proper wireless transmission. Avoid placing the receiver sets within 100 feet of each other as crosstalk may occur.

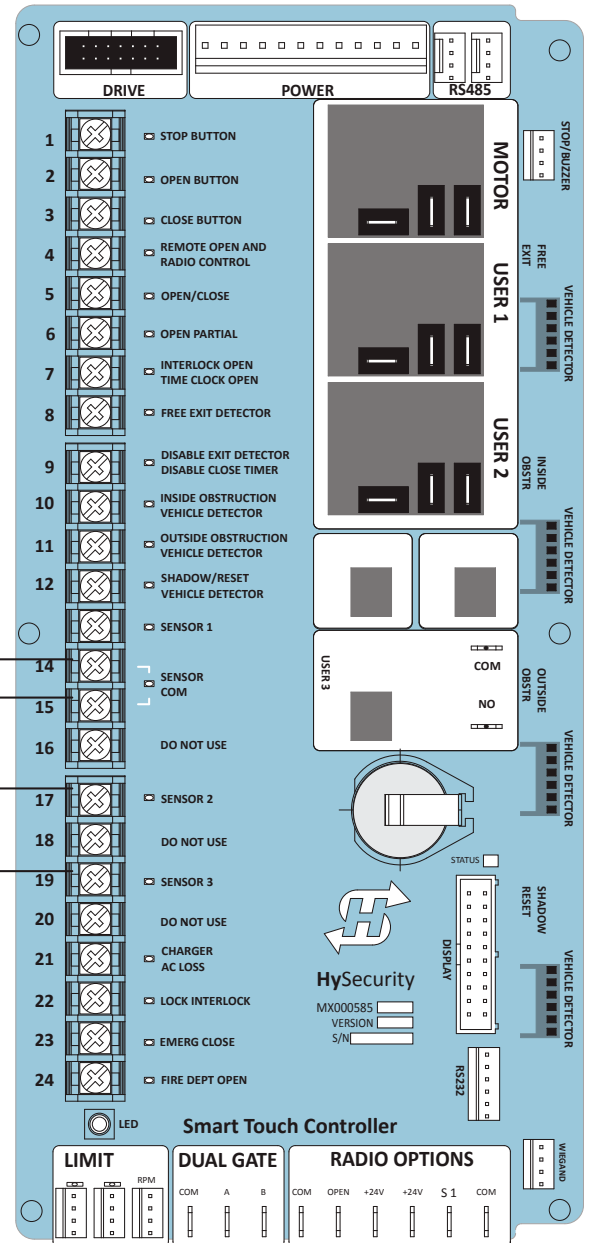
NOTE: Use Miller Gate Edges that have a wire marked with Blue Tape. The Blue Tape indicates a resistor is built in. Use receivers and transmitters, labeled Version 1.02 or higher.

Miller Edge LEARN mode. Press the LEARN button on the Receiver for 2 seconds until the amber light blinks continuously. Press the Edge or Test button on the Transmitter to complete the LEARN mode process and sync the receiver and transmitter.



**Wireless Edge Link (Receiver)
MGL - RX20**

Signal received from battery-powered Transmitter (MGL - TX20)

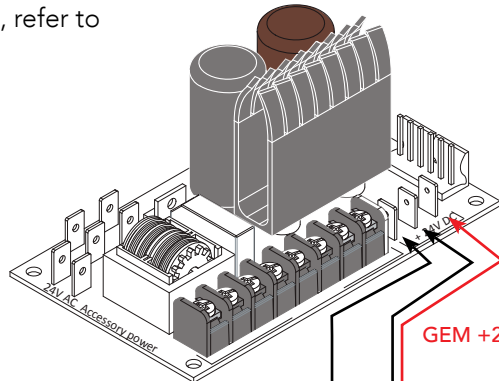


SMART TOUCH: WIRED EDGE WITH GEM-104 & PHOTO EYE

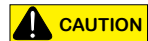
The wiring diagram illustrates a wired edge sensor with GEM-104 interface module and a photo eye connection. An example of the connections for an Edge sensor and a Photo Eye and the Installer Menu settings for the Smart Touch Controller (STC) are shown in Diagram 1 and Diagram 2 on 19 and 20.

For photo eye alignment, refer to page 12.

EMX IRB MON Photo Eye Transmitter



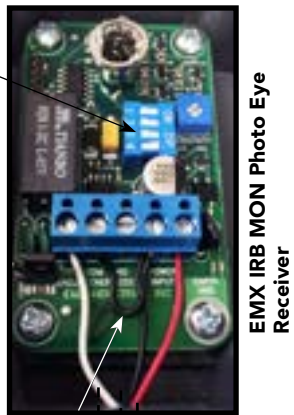
Power Supply Board



Set DIP Switches

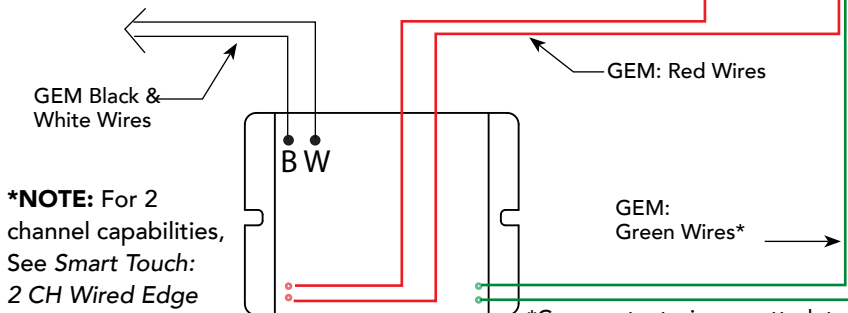
- 1 = OFF
- 2 = OFF
- 3 = OFF
- 4 = ON

NOTE: DIP switches must be set as shown otherwise the photo eye will not operate correctly. For easy photo eye alignment, refer to page 12.



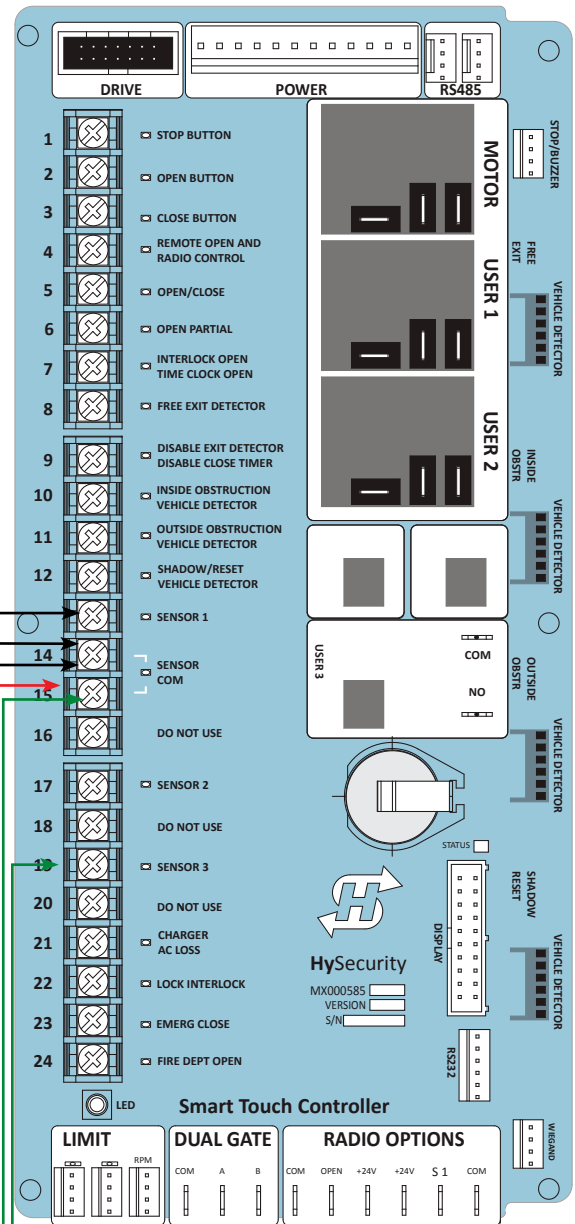
+24V

Jumper POWER INPUT - 24V to COM



***NOTE:** For 2 channel capabilities, See Smart Touch: 2 CH Wired Edge with GEM-204 on page 34..

*Green output wire can attach to any SENSOR input.



NOTE: Drawing is not to scale.
Combination of D0711 and D0712, Rev. A



All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator's motor runs.

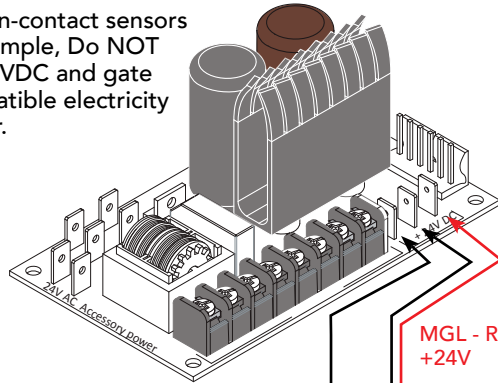
SMART TOUCH: WIRELESS EDGE GATE LINK & PHOTO EYE

The wiring diagram illustrates a wireless edge receiver and a photo eye connection. For photo eye alignment, refer to page 12.



Connect all contact and non-contact sensors to same power source. Example, Do NOT connect photo eyes to +24VDC and gate edges to +12VDC. Incompatible electricity flow. A FAULT 2 will appear.

EMX IRB MON Photo Eye Transmitter



Power Supply Board

Photo Eye Transmitter +24V

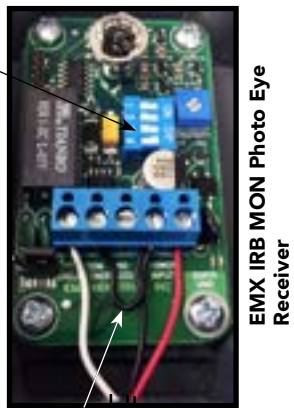
COMMON / NEG. to SENSOR COM



Set DIP Switches

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

NOTE: DIP switches must be set as shown otherwise the photo eye will not operate correctly. For easy photo eye alignment, refer to page 12.

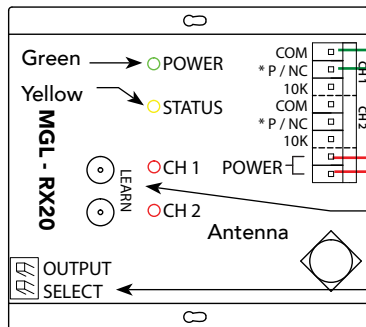


EMX IRB MON Photo Eye Receiver

+24V

Jumper POWER INPUT - 24V to COM in Receiver

Miller Edge 2 Channel Wireless Receiver (MGL - RX20)



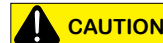
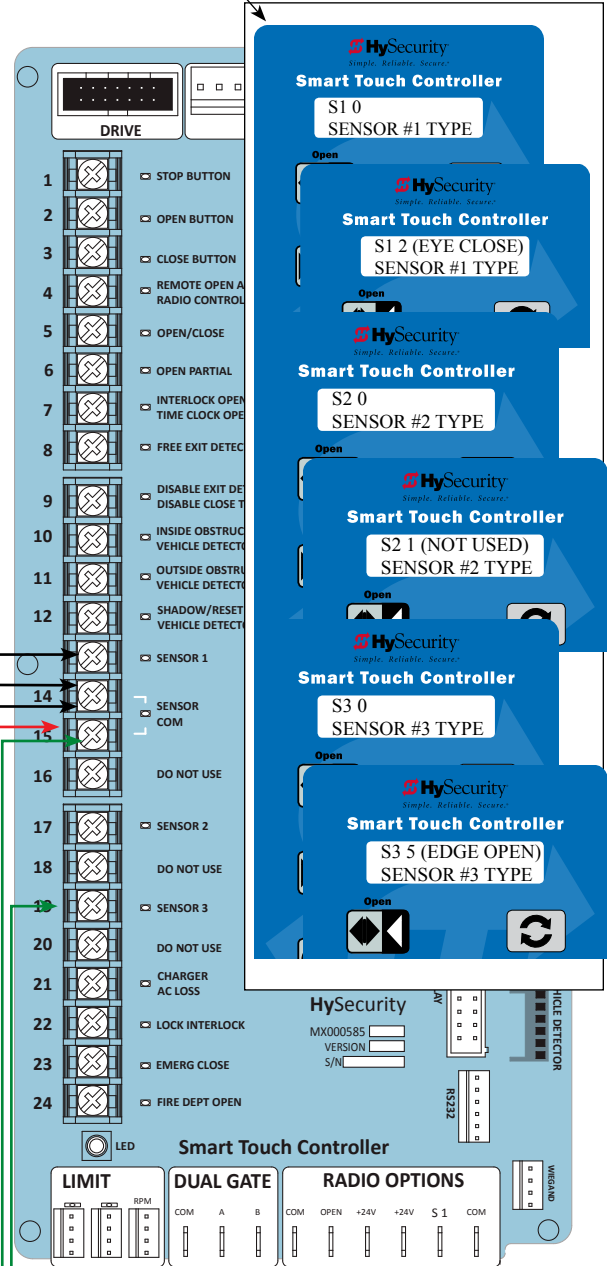
COM attaches to SENSOR COM

*Sensor wire (P/ NC) can attach to any SENSOR input.

CH 1 and CH 2 "LEARN" buttons. To identify and sync to one active transmitter, follow manufacturer's installation instructions. Use receivers & transmitters Version 1.02 or higher.

DIP switches for CH1 and CH2. Verify dip switch is set to "R" for each channel used. HySecurity uses NC "Relay" sensors. Do NOT select "P" as the output. P = "Pulse" device.

Configure Installer Menu items: SENSOR 1, 2, & 3



All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator's motor runs.

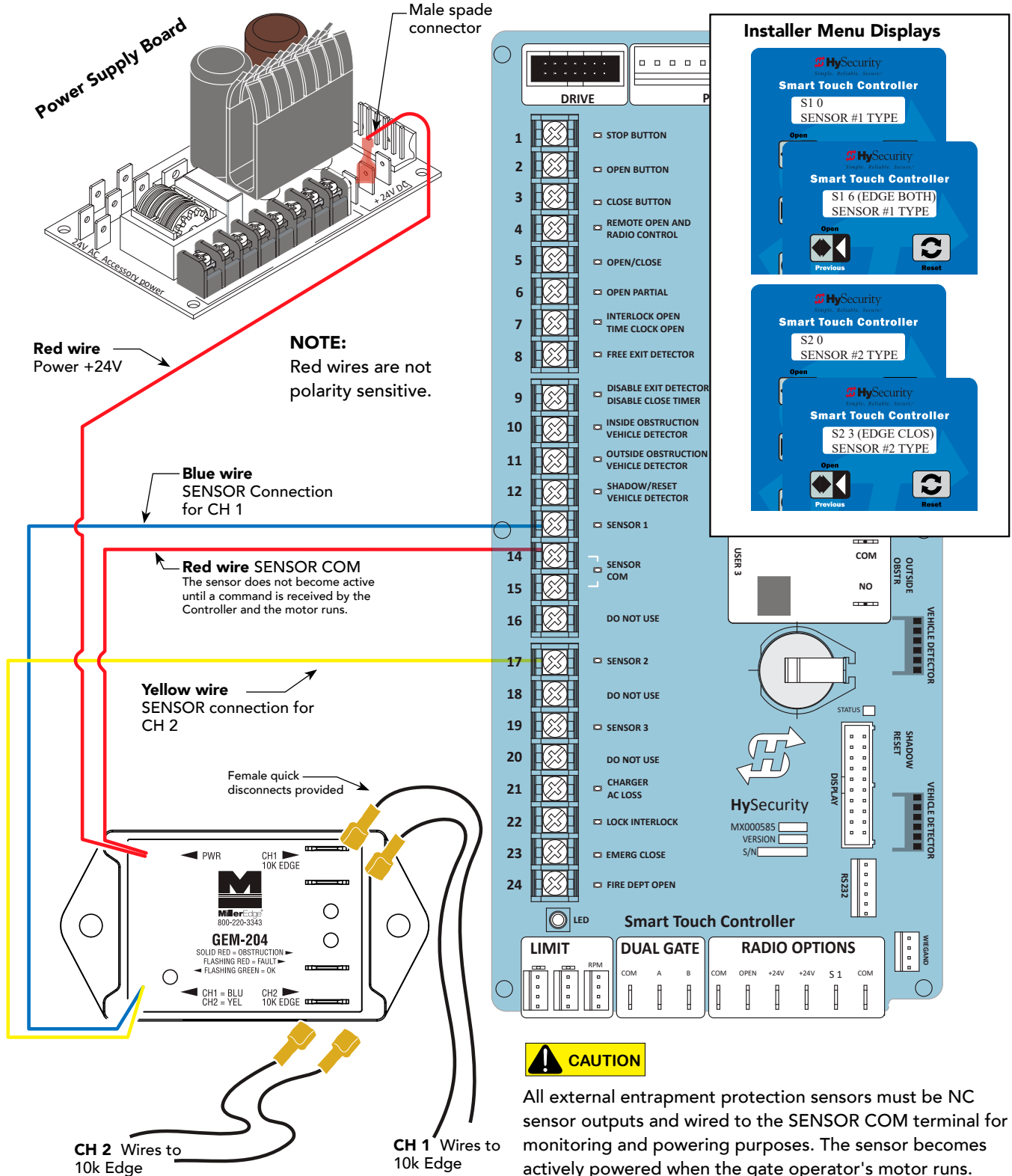
To SENSOR COM

SMART TOUCH: 2 CH WIRED EDGE WITH GEM-204

The wiring diagram illustrates a WIRED edge receiver connected to the STC controller via GEM-204.



Connect all contact and non-contact sensors to same power source.
Example, Do NOT connect photo eyes to +24VDC and gate edges to +12VDC. Incompatible electricity flow. A FAULT 2 will appear.

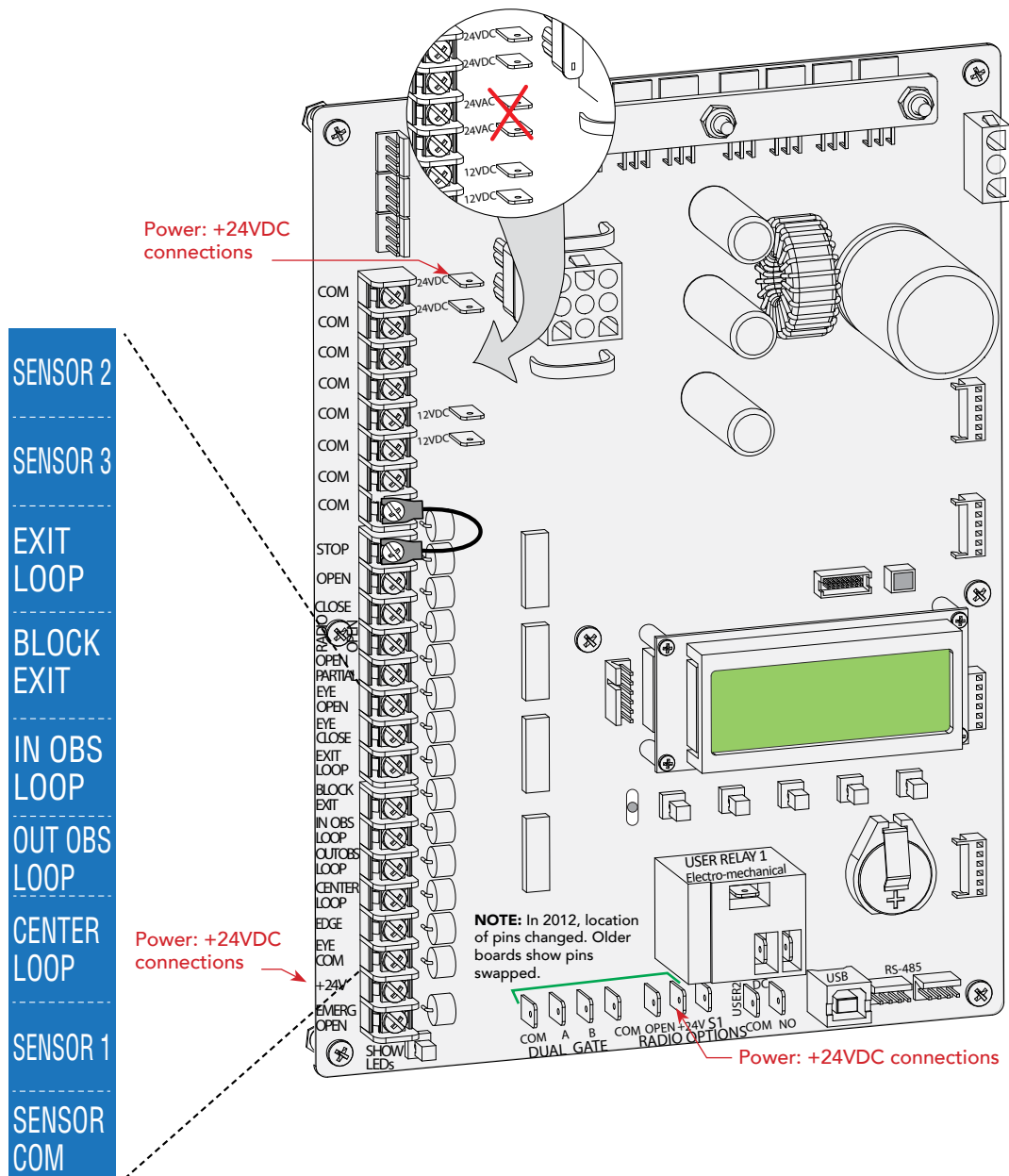


All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator's motor runs.

Wiring HySecurity Sensors: Smart DC

Wiring diagrams are provided on the following pages. The diagrams illustrate how to connect sensors and program the gate operator. HySecurity Smart DC gate operators can monitor entrapment protection sensors per UL 325 - 2015 Standard of Safety using software version h5.50 (or higher).

The site designer or installer must determine which external entrapment protection sensors will be installed with the gate operator to create a UL 325 compliant installation site. For additional information, review [Gate Safety on the HySecurity website](#).

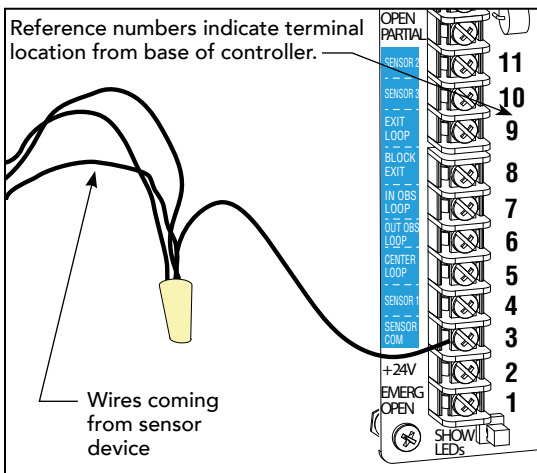


WIRING TIPS FOR SENSOR COM TERMINAL: SMART DC

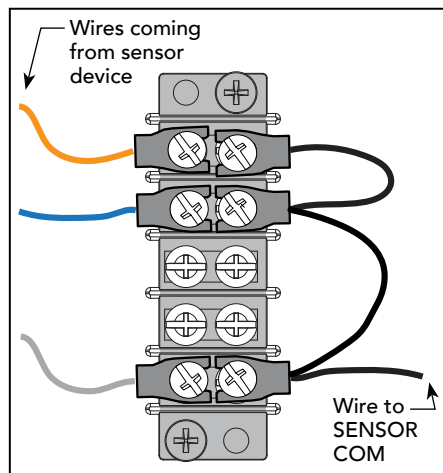
If using multiple sensor devices, use a wire nut as a junction and pigtail to SENSOR COM. Or, stack locking spade connectors. Or, install a separate terminal block and jumper outputs to one lead for SENSOR COM.



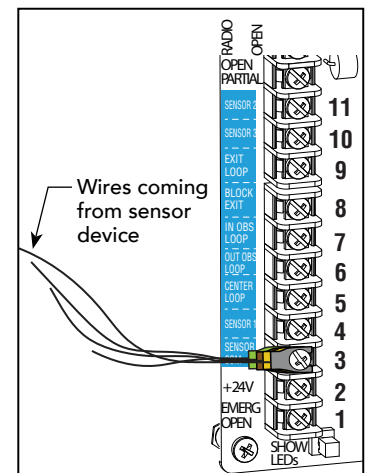
All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator receives a run command.



Wire nut and pigtail to SENSOR COM



Add terminal block



Crimp spade on wire and stack

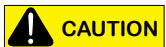
MENU MODE NAVIGATIONAL TIPS

The buttons on the display keypad perform certain functions while in Menu Mode. Refer to the chart.

| To change data appearing in the display | To navigate through the Selections | To choose what appears on the display | To navigate between menu items |
|---|--|---|---|
| Press Select . Two left characters blink. | Press Next or Previous . Continue pressing Next to view all selections. | Press Select . Blinking characters become static. | Press Next or Previous . Advance - press Next Previous - press Previous |

SMART DC: WIRED EDGE SENSOR WITH GEM-104

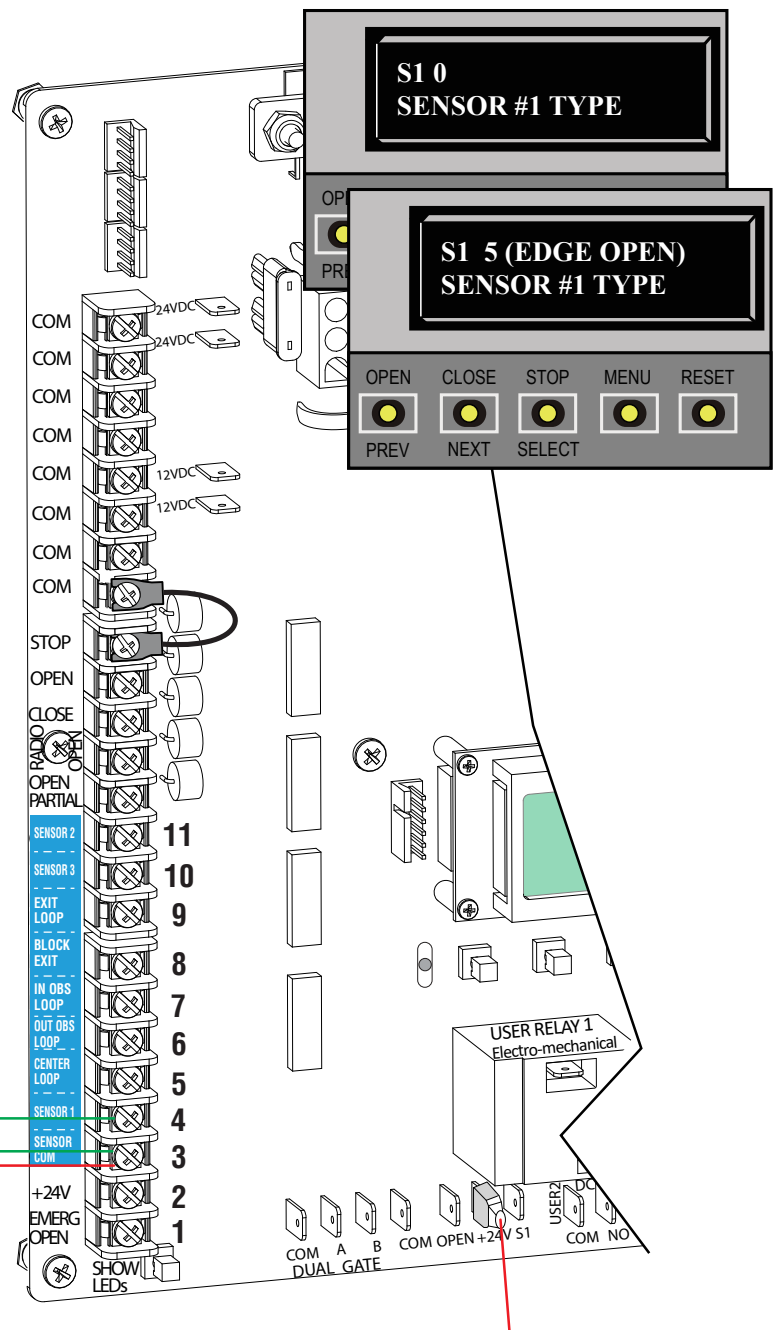
1. Turn OFF AC power.
 2. Connect the Green NC relay wire from Miller Edge GEM to Sensor 1, 2, or 3.
 3. Connect one Red and one Green wire from GEM to SENSOR COM on Controller.
 4. Connect Red wire from GEM to +24V on Controller. (Red wires are not polarity sensitive.)
 5. Connect Black & White wire from GEM to edge sensor. Blue tape on Miller Edge wire indicates a 10k edge. Only Miller edges with blue taped wire can be used with the GEM module.
 6. Turn ON power.
- NOTE:** Make sure both AC & DC switches are ON and the red battery wire is plugged in.
7. Access the Installer Menu. Configure SENSOR setting accordingly. For example, Edge Open, Edge Close, or Edge Both.



All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator receives a run command.

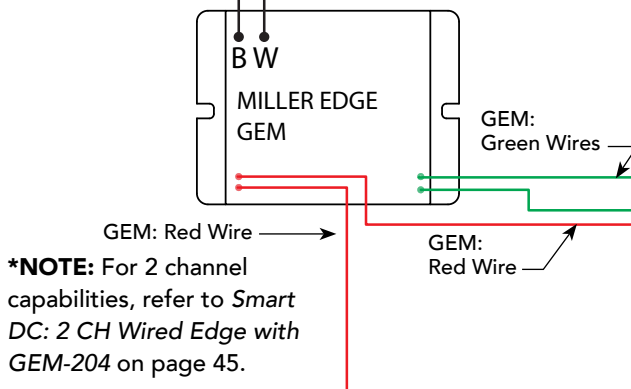
***NOTE:** Make sure whichever wired input used (SENSOR 1, 2, or 3) matches the SENSOR # configured through the Installer Menu.

Installer Menu Settings



CONNECT TO GATE EDGE WITH 10K OHM RESISTOR

NOTE: Green output wire can attach to any SENSOR input. S1 SENSOR #1 TYPE shown in illustration.



SMART DC: PHOTO EYE THRU BEAM (EMX IRB MON)

1. Turn OFF AC power.
2. Connect photo eye wiring.

NOTE: On the Receiver, run a jumper between photo eye -24V (POWER INPUT) and COM terminals to reduce the number of wires connect to Smart DC terminals.

3. Turn ON power.

NOTE: Make sure both AC & DC switches are ON and the red battery wire is plugged in.

4. Access the Installer Menu. Configure SENSOR setting accordingly.
For example, Eye Close, Eye Open, or Eye Both.

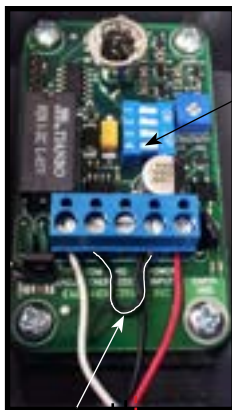


All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator receives a run command.

EMX IRB MON Photo Eye Transmitter



COMMON / NEG. to SENSOR COM



EMX IRB MON Photo Eye Receiver



Set DIP Switches

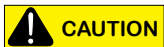
- 1 = OFF
- 2 = OFF
- 3 = OFF
- 4 = ON

COMMON / NEG. to SENSOR COM

TIP: Jumper POWER COM to RELAY COM

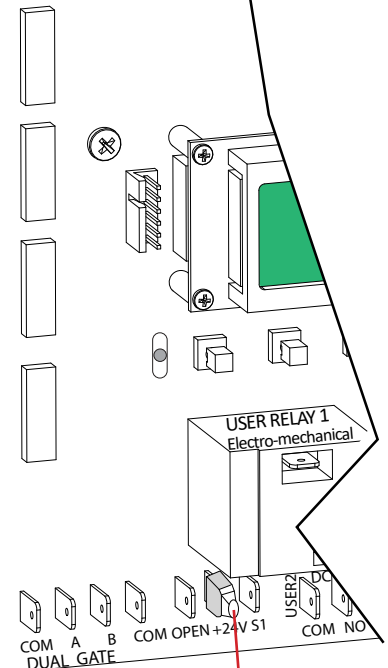
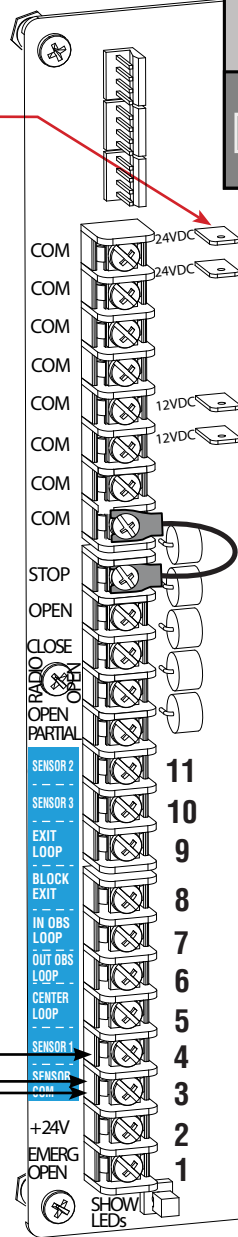
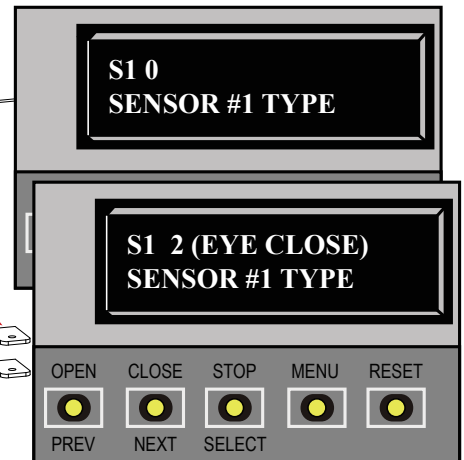
+24V

NC Relay



DIP switches must be set as shown otherwise the photo eye will not operate correctly. If you receive an Alert, "!ACTION BLOCKED" "Photo Eye Open" PEO or "Photo Eye Close" PEC, take steps to align the photo eye. Refer to *Photo Eye Alignment* on page 12.

Installer Menu Settings



SMART DC: PHOTO EYE / REFLECTIVE (E3K R10K4)

1. Set Photo Eye switch to LIGHT ON.
2. Turn OFF AC power.
3. Connect photo eye wiring.

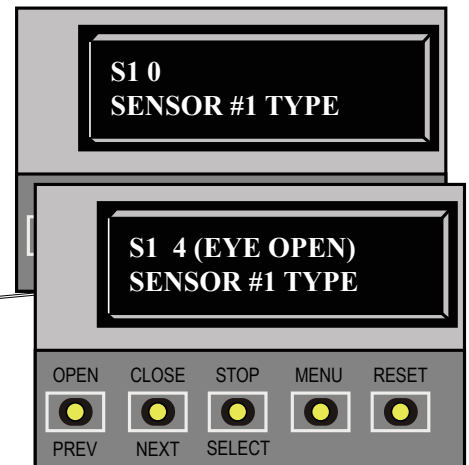
NOTE: Run a jumper between photo eye -24V and Relay COM (C2) terminals. See photo.

4. Turn ON power.

NOTE: Make sure both AC & DC switches are ON and the red battery wire is plugged in.

5. Access the Installer Menu. Configure SENSOR setting accordingly. For example, Eye Close, Eye Open, or Eye Both.

Installer Menu Settings



All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator receives a run command.

NOTE: Light/Dark switch must be set to LIGHT ON.



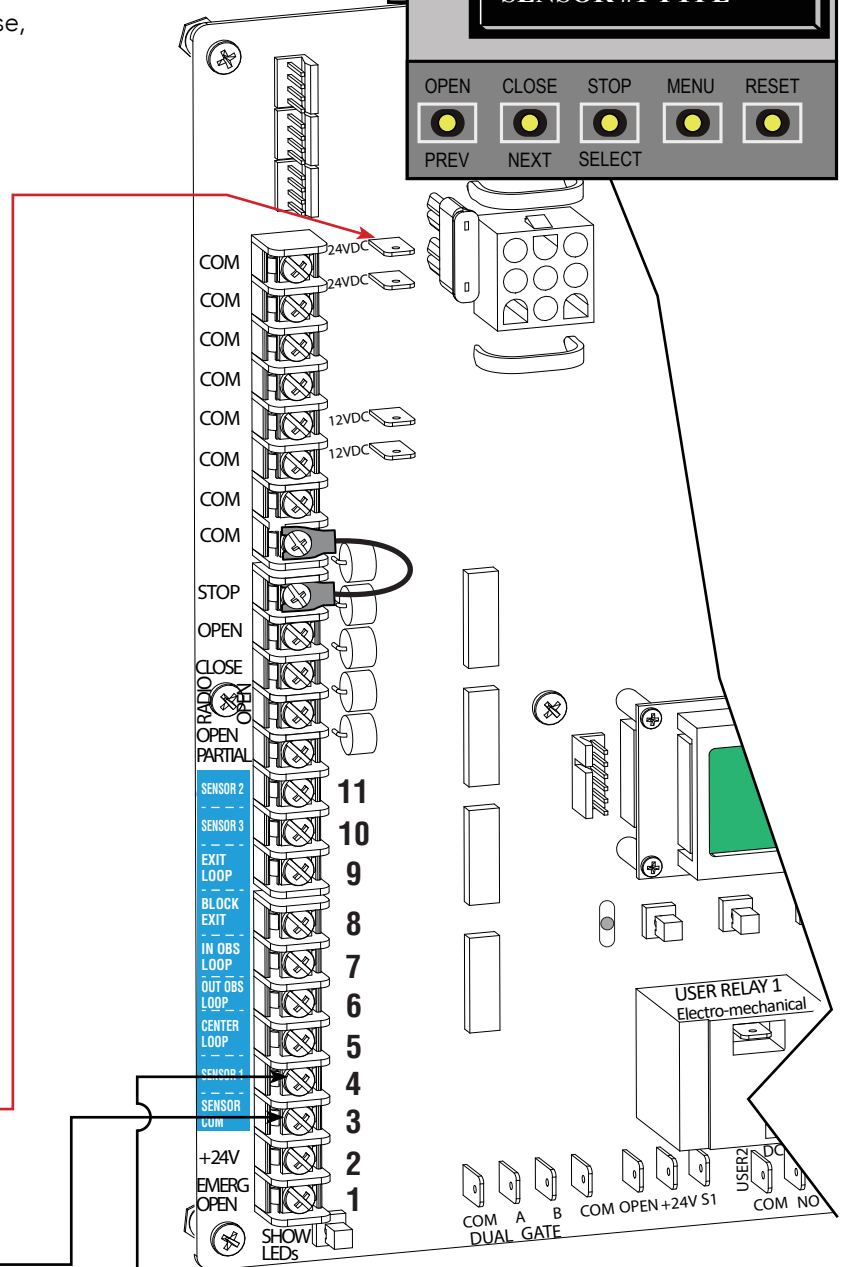
Omron (E3K R10K4)
Reflective Photo Eye

+24V

Jumper -24V to Relay COM
(Terminal 6, C2)

COMMON / NEG. to SENSOR COM

Relay NO (Terminal 5, NO2) to SENSOR on Smart DC



NOTE: If you receive an Alert, "!ACTION BLOCKED" "Photo Eye Open" PEO or "Photo Eye Close" PEC, take steps to align the photo eye. Refer to *Photo Eye Alignment* on page 12.

SMART DC: MULTI-INPUT MODULE (THE SOLUTION, MIM-62)

1. Turn OFF AC power.
2. Input channels 1 and 2 must be used and are always assigned to OUTPUT A.
3. All other input channels may be configured to either A or B.

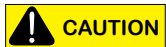
NOTE: If different sensor types are connected to the same output, then program the Controller SENSOR type for EDGE options.

4. Turn ON power.

NOTE: Make sure both AC & DC switches are ON and the red battery wire is plugged in.

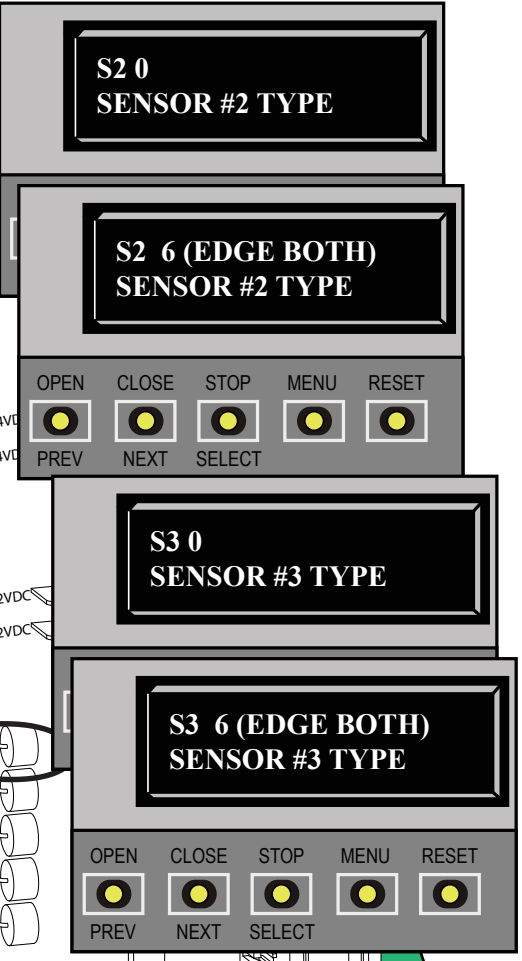
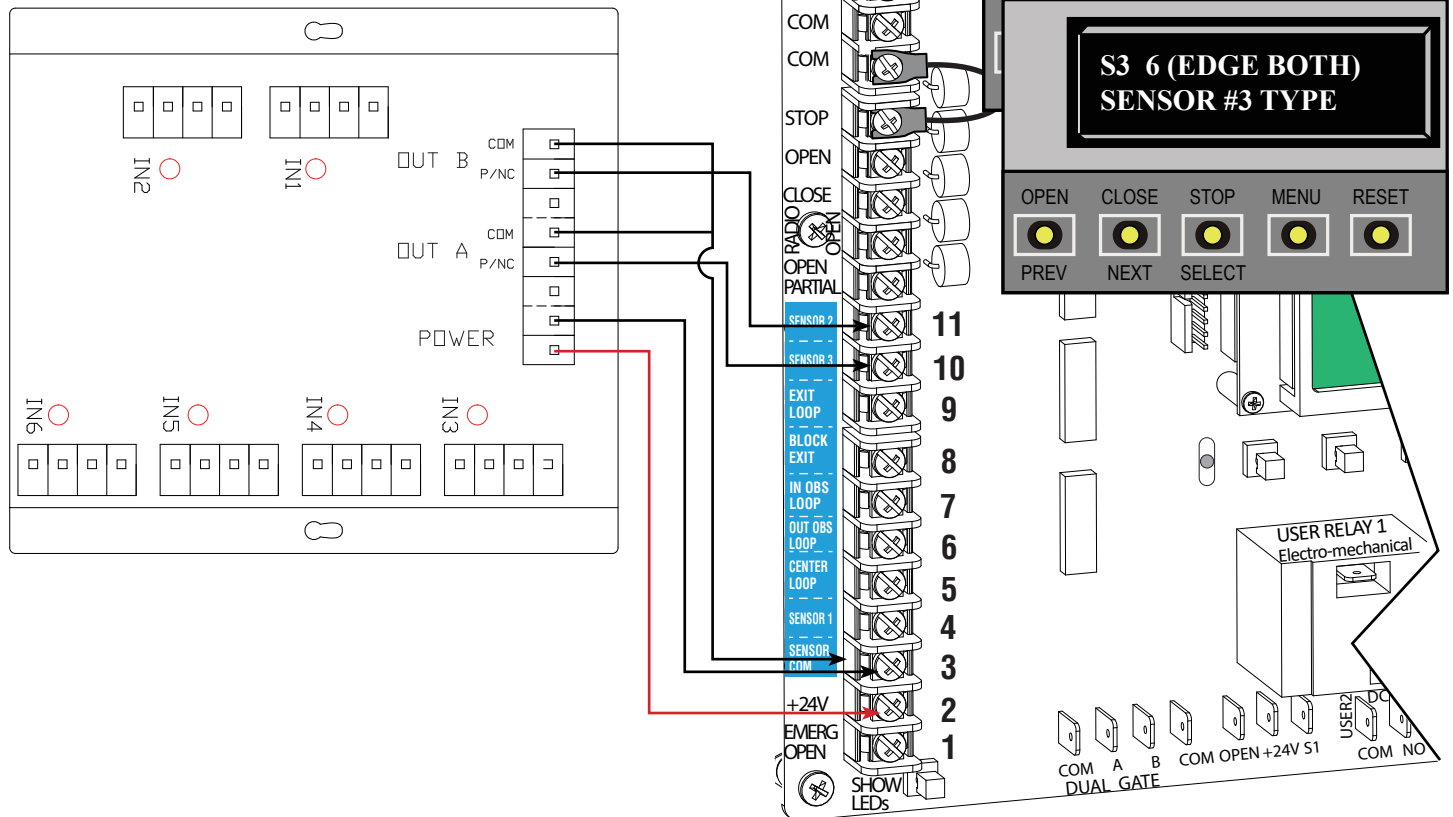
5. Access the Installer Menu. Configure SENSOR setting according to the types of sensors wired to the Smart DC.

Installer Menu Settings
Examples in displays show bi-parting swing gate site scenario.



All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator receives a run command.

Connect either output (P/NC wire) to SENSOR 1, 2, or 3.



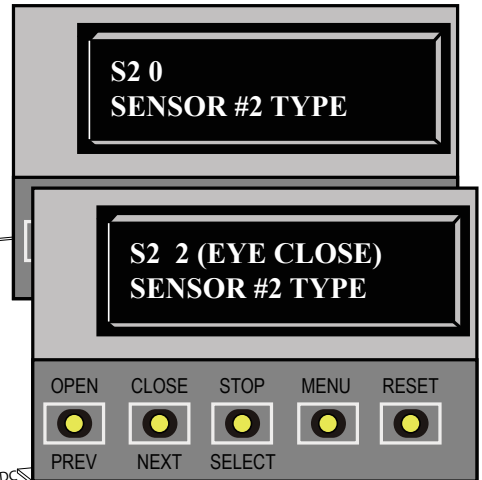
SMART DC: PHOTO EYE / REFLECTI-GUARD (RG-R)

1. Turn OFF AC power.
2. Connect photo eye wiring.
NOTE: Run a jumper between photo eye -24V and CM terminals.
3. Turn ON power.
NOTE: Make sure both AC & DC switches are ON and the red battery wire is plugged in.
4. Access the Installer Menu. Configure SENSOR setting accordingly. For example, Eye Close, Eye Open, or Eye Both.

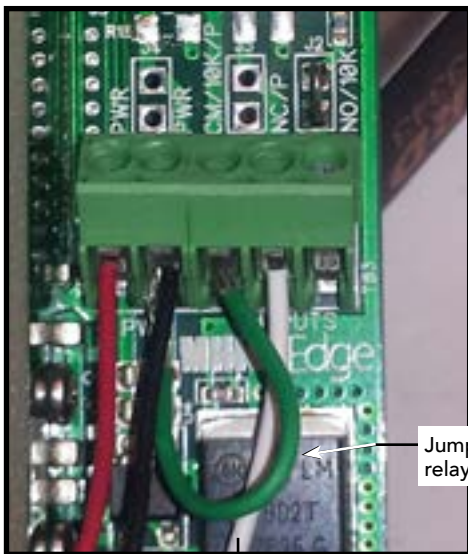


All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator receives a run command.

Installer Menu Settings



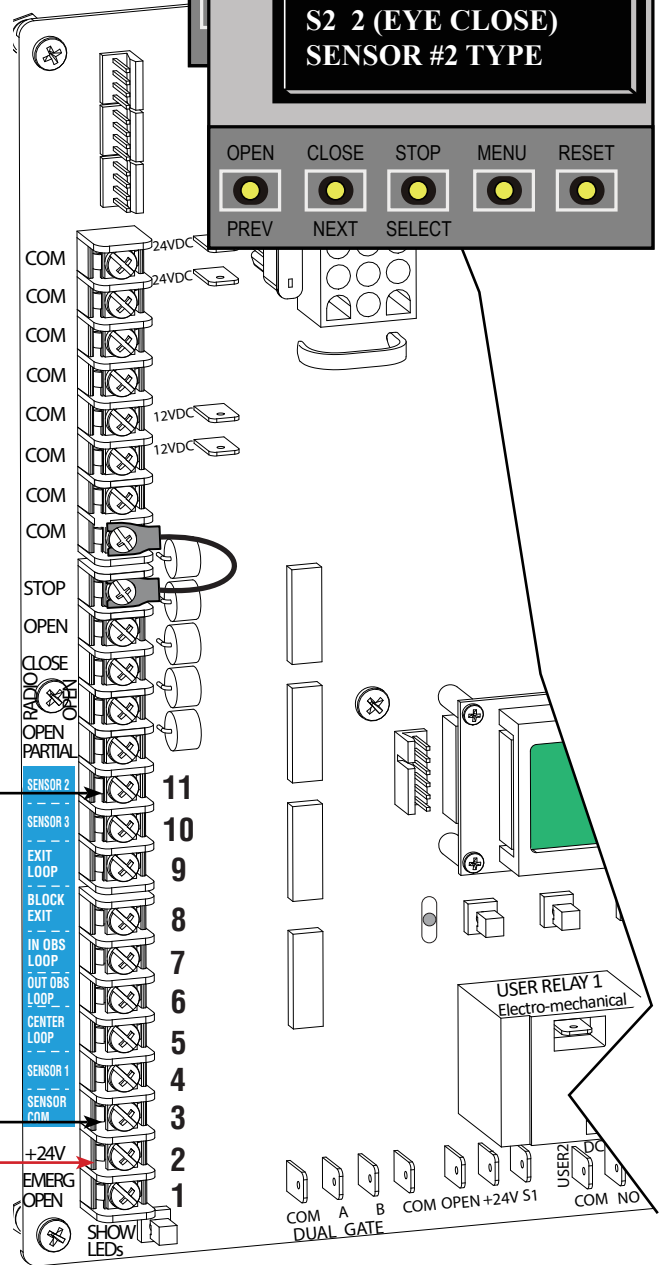
Reflecti-GUARD Photo Eye



Jumper, PWR -24V to relay CM

Connect NC relay wire to SENSOR 1, 2, or 3.

+24V COMMON / NEG. to SENSOR COM



NOTE: If you receive an Alert, "!ACTION BLOCKED" "Photo Eye Open" PEO or "Photo Eye Close" PEC, take steps to align the photo eye. Refer to *Photo Eye Alignment* on page 12.

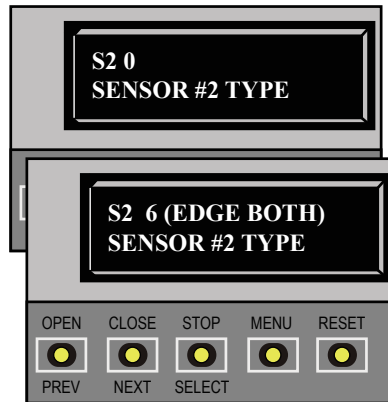
SMART DC: MGL-RX20 WIRELESS GATE LINK

A transmitter (MGL-TX20) and receiver (MGL-RX20) are required (Version 1.02 or higher).

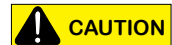
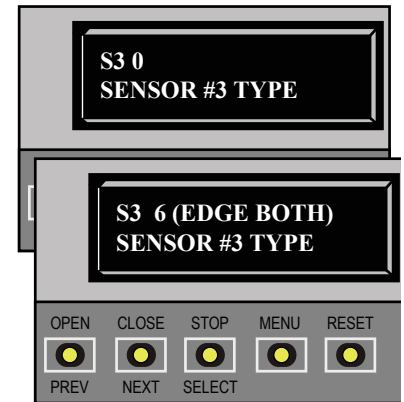
1. Turn OFF AC power.
2. Connect the wiring per the diagram shown.
3. Turn ON power.
4. Access the Installer Menu. Configure SENSOR setting accordingly For example, Edge Open, Edge Close, or Edge Both.
5. Follow instructions that accompany the device.

Installer Menu Settings
Examples in displays show
bi-parting swing gate site scenario.

Configuring **SENSOR 2**

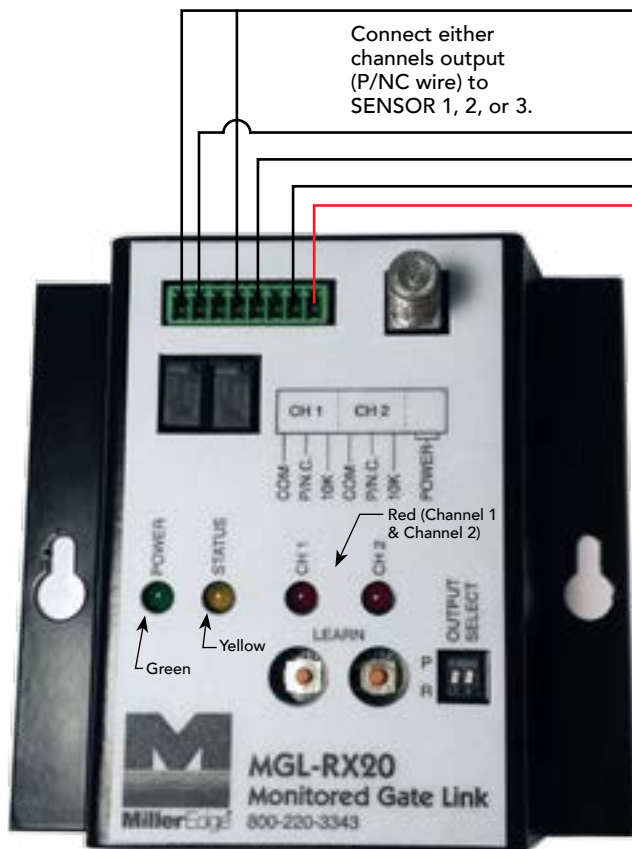


Configuring **SENSOR 3**

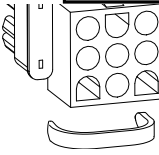
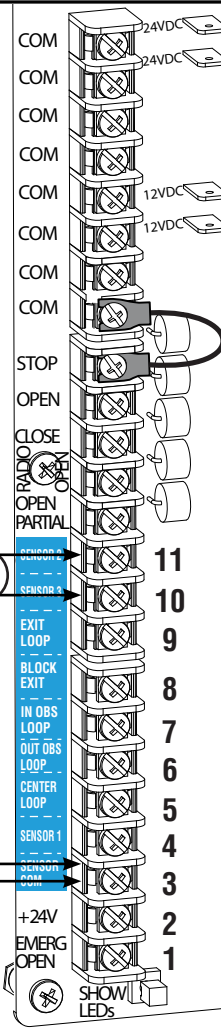


All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator receives a run command.

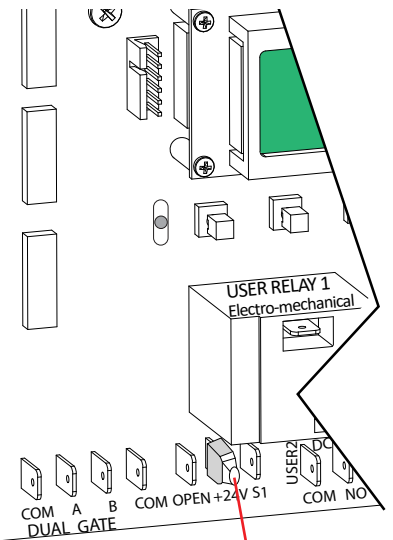
NOTE: Miller Edge LEARN mode. Press the LEARN button on the Receiver for 2 seconds until the amber light blinks continuously. Press the Edge or Test button on the Transmitter to complete the LEARN mode process and sync the receiver and transmitter.



Wireless Edge Link (Receiver) MGL - RX20
Signal received from battery-powered
Transmitter (MGL - TX20)



NOTE: One wireless edge receiver has the NC connections for up to two wireless edge transmitters. Use Miller Gate Edges that have a wire marked with **Blue Tape**. The **Blue Tape** indicates a resistor is built in. To avoid crosstalk, use receivers & transmitters Version 1.02 or higher.



NOTE: In bi-parting swing gates, CH1 and CH2 may be programmed to the same SENSOR # TYPE on one controller, but each CH must be connected to separate SENSOR inputs. Always make sure that a gate edge is installed on each bi-parting swing gate.

SMART DC: WIRED EDGE WITH GEM-104 AND PHOTO EYE

The wiring diagram illustrates a wired edge sensor with GEM-104 interface module and a photo eye connection. Refer to *Photo Eye Alignment* on page 12.

NOTE: Turn OFF AC power before connecting sensor wires to Smart DC.

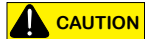


All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator receives a run command.

EMX IRB MON Photo Eye Transmitter



COMMON / NEG. to SENSOR COM



Set DIP Switches

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

NOTE: DIP switches must be set as shown otherwise the photo eye will not operate correctly. Refer to *Photo Eye Alignment* on page 12.

TIP: Jumper POWER COM to RELAY COM



EMX IRB MON Photo Eye Receiver

COMMON / NEG. to SENSOR COM
to SENSOR COM
NC Relay

Installer Menu Settings

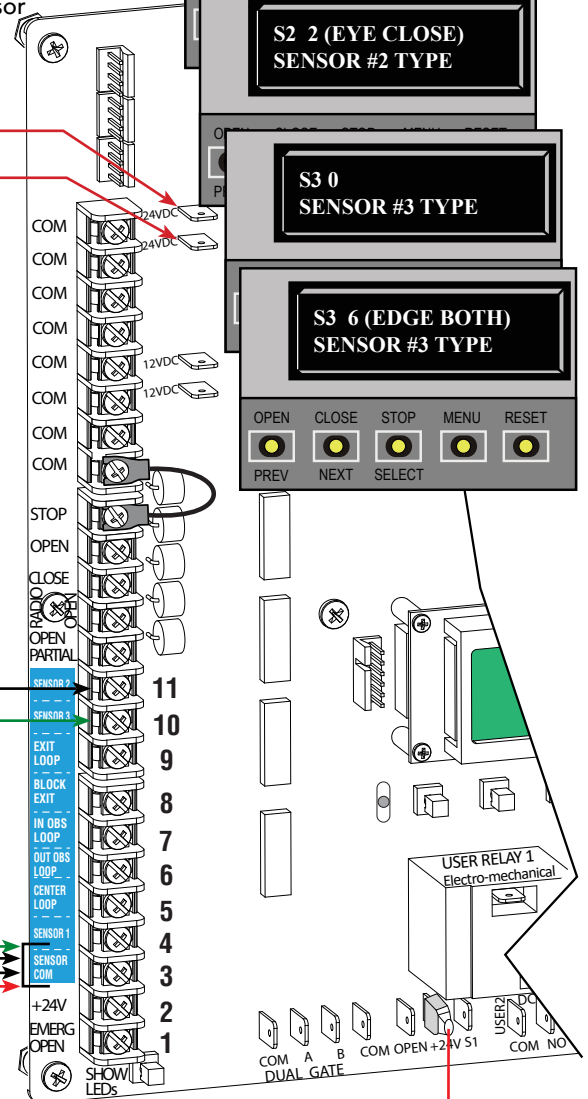
S2 0
SENSOR #2 TYPE

S2 2 (EYE CLOSE)
SENSOR #2 TYPE

S3 0
SENSOR #3 TYPE

S3 6 (EDGE BOTH)
SENSOR #3 TYPE

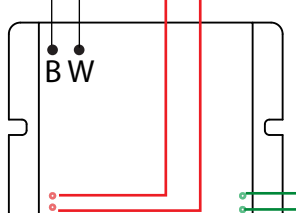
OPEN CLOSE STOP MENU RESET
PREV NEXT SELECT



GEM +24V

GEM Black & White Wires

***NOTE:** For 2 channel capabilities, refer to *Smart DC: 2 CH Wired Edge with GEM-204* on page 45.

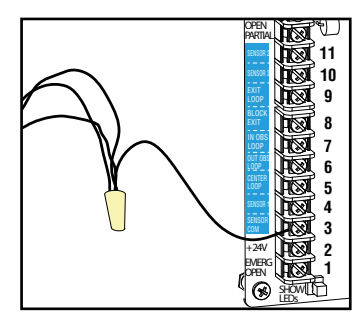


GEM: Red Wires

GEM: Green Wires*

*Green output wire can attach to any SENSOR input.

TIP: Use a wire nut as a junction for SENSOR COM.



SMART DC: WIRELESS EDGE GATE LINK AND PHOTO EYE

The wiring diagram illustrates a wireless edge receiver and a photo eye connection. Refer to *Photo Eye Alignment* on page 12.

NOTE: Turn OFF AC power before connecting sensor wires to Smart DC.

EMX IRB MON Photo Eye Transmitter



Connect all contact and non-contact sensors to same power source. Example, Do NOT connect photo eyes to +24VDC and gate edges to +12VDC. Incompatible electrical flow. A FAULT 2 appears.

Photo Eye Transmitter
+24V

COMMON / NEG. to SENSOR COM



Set DIP Switches

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

NOTE: DIP switches must be set as shown otherwise the photo eye will not operate correctly. For easy photo eye alignment,

TIP: Jumper POWER COM to RELAY COM

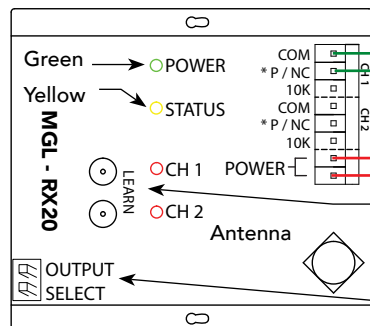


EMX IRB MON Photo Eye Receiver

+24V

COMMON / NEG. to SENSOR COM

Miller Edge 2 Channel Wireless Receiver (MGL - RX20)



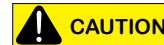
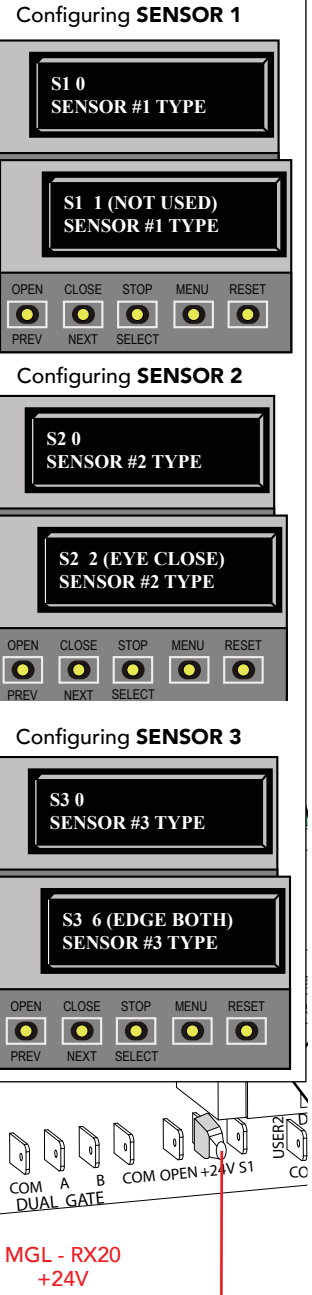
+24V → To SENSOR COM

COM attaches to SENSOR COM
*Sensor wire (P/ NC) can attach to any SENSOR input.

CH 1 and CH 2 "LEARN" buttons. Press the LEARN button on the Receiver for 2 seconds until the amber light blinks continuously. Press the Edge or Test button on the Transmitter to complete the LEARN mode process and sync the receiver and transmitter.

DIP switches for CH1 and CH2. Verify dip switch is set to "R" for each channel used. HySecurity uses NC "Relay" sensors. Do NOT select "P" as the output. P = "Pulse" device.

Installer Menu Settings



All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator receives a run command.

SMART DC: 2 CH WIRED EDGE WITH GEM-204

The wiring diagram illustrates a WIRED edge receiver connected to the SDC controller via the 2 channel GEM-204.

NOTE: Turn OFF AC power before connecting sensor wires to Smart DC.

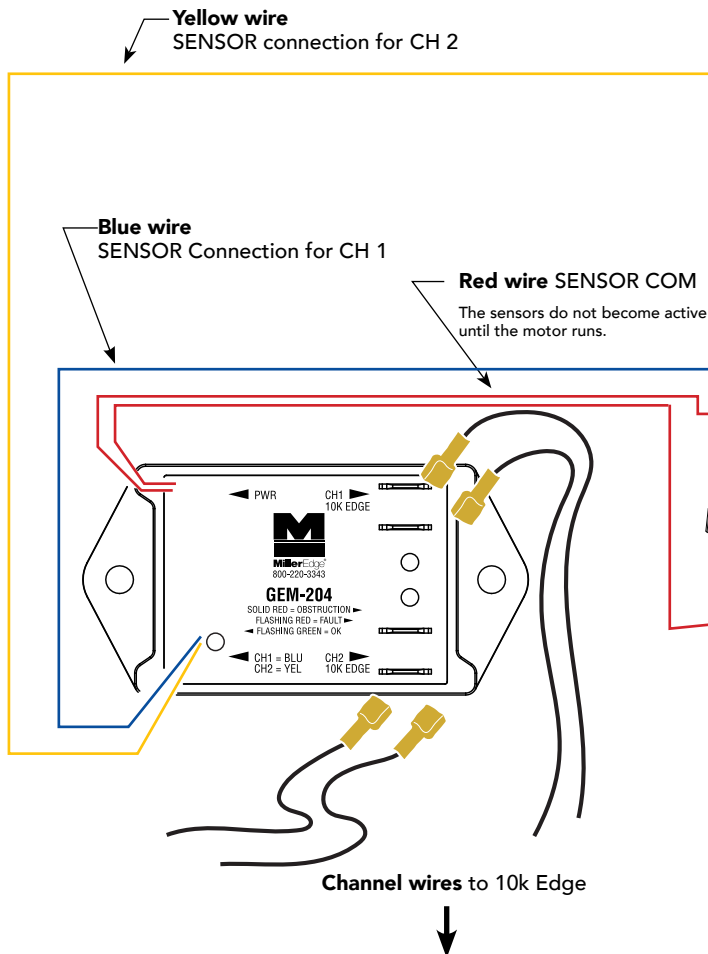
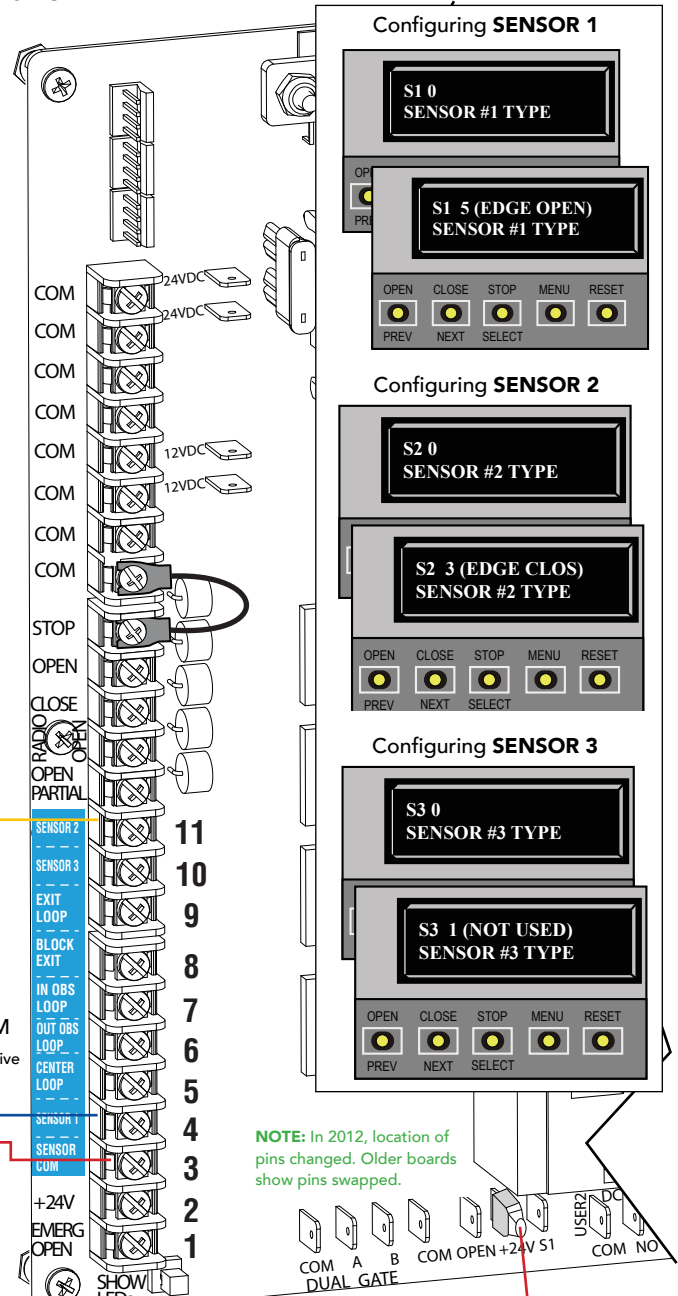


Connect all contact and non-contact sensors to same power source. Example, Do NOT connect photo eyes to +24VDC and gate edges to +12VDC. Incompatible electricity flow. A FAULT 2 will appear.



All external entrapment protection sensors must be NC sensor outputs and wired to the SENSOR COM terminal for monitoring and powering purposes. The sensor becomes actively powered when the gate operator receives a run command.

Installer Menu Settings



Red wire
Power +24V
NOTE: Red wires are not polarity sensitive.

SMART DC BI-PARTING GATES: PHOTO EYE (EMX IRB MON)

The following illustrates a photo eye connection for bi-parting Smart DC gate operators and the Installer Menu Settings for each (Primary and Secondary).

NOTE: Turn OFF AC power before connecting sensor wires to Smart DC.



Connect all contact and non-contact sensors to same power source. Example, Do NOT connect photo eyes to +24VDC and gate edges to +12VDC. Incompatible electrical flow and FAULT 2 occurs.

EMX IRB MON Photo Eye Transmitter



NOTE: To align the Photo Eye, access PE (photo eye alignment) via the User Menu.

COMMON and +24V can be wired to matching terminals in Receiver

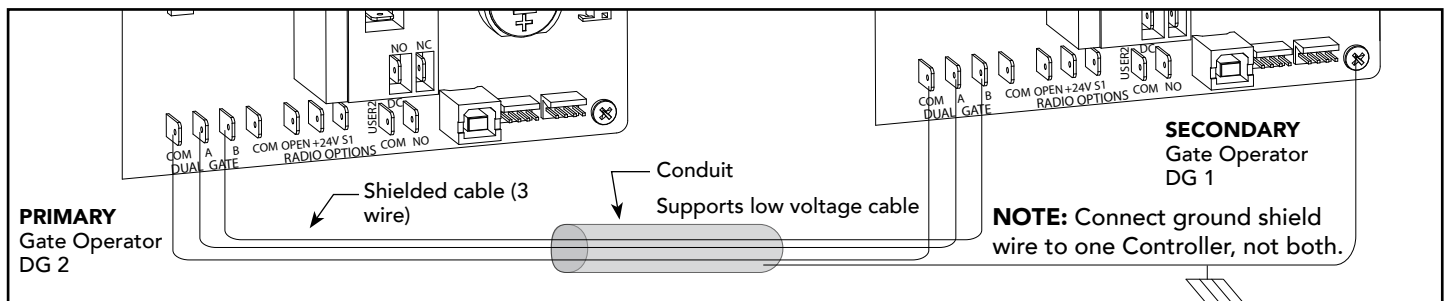


Set DIP Switches
 1 = OFF
 2 = OFF
 3 = OFF
 4 = ON



TIP: Jumper POWER COM to RELAY COM inside receiver

Smart DC Bi-Parting Gates: Dual Gate Wiring



WARRANTY

1. Warranty.

Hy-Security Gate, Inc. ("HySecurity") warrants that at the time of sale each of its products will, in all material respects, conform to its then applicable specification and will be free from defects in material and manufacture.

The following additional durational warranties apply to HySecurity products, depending on whether (1) the product is purchased through an authorized HySecurity 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 www.hysecurity.com), within the 60-day period described below.

1(a) HySecurity Products Purchased Through Authorized Distributors and Properly Registered

For any gate operator product that is purchased from an authorized HySecurity distributor (this excludes product purchased through internet resellers or any distributor not authorized by HySecurity), if the product registration is completed by the Dealer/Installer/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. Hydraulic Industrial Gate Operators: Five Years or 500,000 gate cycles (whichever occurs first) after the date of installation,
- b. Electromechanical Slide and Swing operators: Five Years after the date of installation—unless installed in a single family residential application, in which case the warranty term shall be Seven Years after the date the product is shipped from HySecurity,
- c. Electromechanical Barrier Arm Operators: Two Years or 1,000,000 gate cycles (whichever occurs first) after the date of installation,
- d. Hydraulic Wedge Operators and Electromechanical Surface Mount Wedge Operator: Two Years or 500,000 gate cycles (whichever occurs first) after the date of installation;

provided that the preceding 5-year warranty period in (a) and (b) will not extend beyond seven years from the date that the product was shipped from HySecurity, and the 2-year warranty period in (c) and (d) 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-h), which have a shorter warranty period.

- e. Hydraulic Gate Operator Drive Wheels including XtremeDrive™ wheels and rack: Two Years from date of installation.
- f. AC and DC power supplies, chargers and inverters and HyNet module: Two years from date of installation, except batteries.
- g. Batteries: One Year from date of shipment from HySecurity.
- h. 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) HySecurity Products Not Purchased Through an Authorized Distributor or Not Properly Registered within 60 Days

For any product that is not purchased from an authorized HySecurity distributor or for which the product registration was not completed by the Dealer/Installer/End User within 60 days of the date of purchase, the following One-Year Limited Warranty will apply: HySecurity warrants that the product will remain serviceable for the following periods, which begin on the date that the product was shipped from HySecurity:

- a. All Gate Operators: One Year or 100,000 gate cycles whichever comes first.
- b. AC and DC power supplies, chargers or inverters: One Year.
- c. HyNet module: One Year.
- d. Hydraulic Gate Operator Drive Wheels: One Year.

1(c) Replacement Parts

HySecurity warrants that replacement parts (whether new or reconditioned) will remain serviceable for One Year from the date that the product 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, 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 another manufacturer's name plate 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. Exclusion of Other Warranties.

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

3. Buyer's Exclusive Remedies for Any Nonconformity.

If a HySecurity 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 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 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.

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 retains and reserves all right, title, and interest in the intellectual property rights of its products, including any accompanying proprietary software. No ownership of any intellectual property rights in the products or accompanying software 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.



HYSECURITY CONTACT INFORMATION

Before contacting your distributor or HySecurity Technical Support, obtain the serial number of your operator.

- Qualified HySecurity distributors are experienced and trained to assist in resolving any problems. For the name of a qualified distributor near you, contact us at www.hysecurity.com.
- HySecurity Technical Support 800-321-9947.

For information about HySecurity training for installers, maintenance personnel, and end users, refer to the company website at www.hysecurity.com.

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