

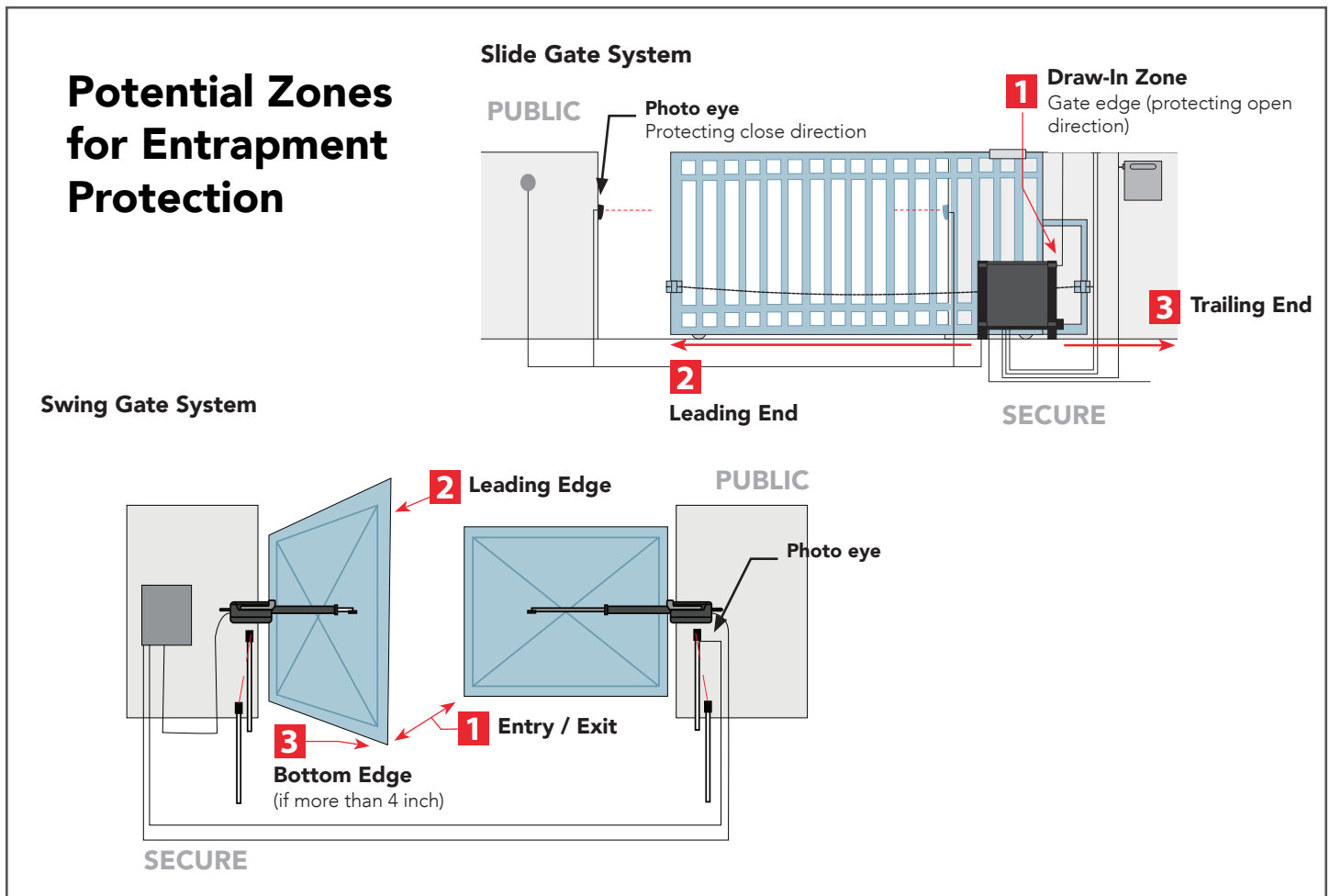


UL 325-2018 Standard for Safety

Nice Products Version

UL 325 - 7th Edition Frequently Asked Questions

Changes for UL 325-7th Edition - effective for gate operators manufactured after August 1, 2018



Frequently asked questions about the 7th Edition of UL 325 - effective for gate operators manufactured after August 1, 2018

Q1 Where can I go to get a basic understanding of UL 325 and its history?

A: The Door and Access Systems Manufacturing Association (DASMA) publishes many excellent Technical Data Sheets. TDS #353 provides details about Underwriters Laboratories, the history of UL 325 and many other key details. www.dasma.com/pdf/publications/techdatasheets/operatorelectronics/tds353.pdf

Q2 How is UL 325 7th Edition different from UL 325 6th Edition?

A: Not much and a lot. Changes were made to the 7th edition to clarify the confusion that occurred in 2016, when the 6th Edition went into effect. The primary confusion regarded the minimum number of entrapment protection sensors that are required to meet the standard. Since year 2000, UL 325 has required that gate operators be installed with two independent means of entrapment protection and that each means must protect both directions of gate travel. For 2016, a monitoring requirement for external sensors was added to block fully automatic operation until the minimum number of entrapment protection sensors have been installed. The wording of the 7th Edition of UL 325 has been clarified to resolve the differing interpretations regarding the minimum number of sensors required for each type of gate.

Q3 What is the minimum number of external entrapment protection sensors (combination of photo eyes and edge sensors) required in a typical automated gate installation?

A: The correct answer depends on the type of operator, the type of gate and the number of entrapment zones that must be protected. Table 32.2 was added to the 7th Edition of UL 325, making the minimum entrapment protection requirement very clear.

Note: For most gate operators, the first means of entrapment protection is the inherent sensor and the second means of entrapment protection is the external entrapment protection sensors the installer must add.

Table 32.2
Minimum Quantity of Entrapment Protection Means

	Opening	Closing
Horizontal Slide Gate	2	2
Horizontal Swing Gate	2*	2*
Vertical Pivot Gate	2	2
Vertical Lift Gate	1	2

* For a horizontal swing gate operator, at least two independent entrapment protection means are required in each direction of travel. Except, if there is no entrapment zone in one direction of travel, only one means of entrapment protection is required in that direction of travel; however, the other direction must have two independent entrapment protection means.

Exception: A Barrier Arm is not required to be provided with means to protect against entrapment, unless the arm moves toward a rigid object closer than 16 inches. (32.1.1)

Q4 What does monitoring mean?

A: Monitoring is an electrical means to verify that the external sensor has been installed. Every external sensor that protects against entrapment must be monitored for presence at least once per gate cycle. If an entrapment protection sensor is not installed, a constant hold input from a wired device is required to ensure the person pushing the open or close button is watching to verify the path of the gate is clear.

Q5 How does an operator monitor an external sensor?

A: Nice gate operators contain a couple of different methods of monitoring external sensors depending on which sensors you wish to use. The Nice 936 and 1050 Controllers contain BlueBUS, a proprietary communication protocol that allows a simple two wire interface to monitor multiple sensors. This is the only way to connect the photo eye(s) provided with the operator.

In addition to BlueBUS, both the 936 and 1050 Controller contain the ability to monitor a 300Hz pulse signal. See the operator manual for information on setting the programmable inputs for this purpose.

Q6 How many monitored external sensors can I connect to a Nice operator?

A: With BlueBUS, either the 936 or the 1050 Controllers can monitor up to 6 sets of sensors. The sensors can simply be 'daisy chained' together. One must set the jumpers on the sensors to indicate what function they perform. For more information, see the instructions provided with the BlueBUS photo eyes.

The 300Hz pulse inputs can accommodate two sensors, total one per each input.

Q7 Since an edge sensor is a normally open (NO) contact, how is it possible to monitor this?

A1: New edge sensors have an internal resistor and this resistor allows a small current to pass through the edge, which is how the edge will be monitored. This change also means that old edge sensors without the 10k resistor cannot be monitored, therefore you must be certain to buy edge sensors with a 10k resistor.

A2: For hard wired edges, the method of monitoring will vary by controller. For 936 and 1050 Controllers, you must use a converter to convert the resistive input to a pulsed output. The Miller Edge GEM-103 is available for this purpose.

A3: If the edge sensor is to be transmitted wirelessly to the gate operator, (not recommended) you won't need a GEM-103 module, but instead a Wireless Link Kit will be required. The EMX WEL-200 has been tested to be compatible with Nice Controllers.

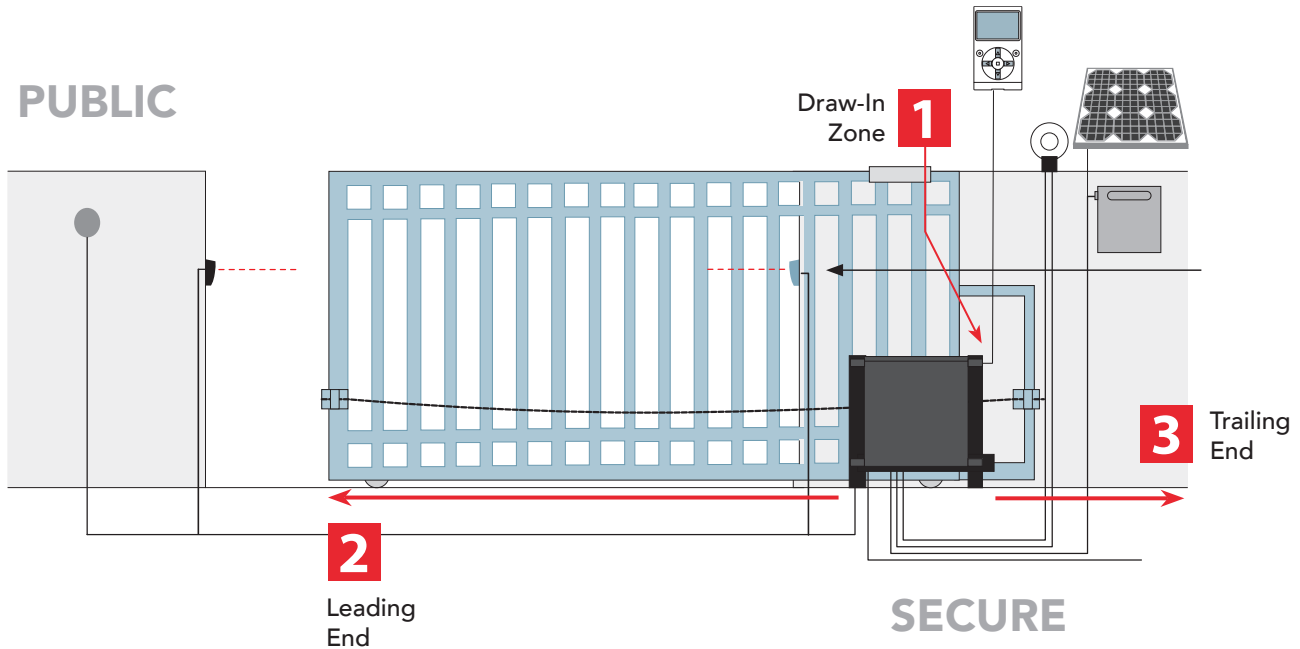
Q8 Why do you recommend hard wiring an edge sensor and avoiding the use of a wireless edge transmitter?

- A:**
1. Hard wiring an edge sensor reduces risk of RFI interference, which may cause a monitoring fault.
 2. Hard wired edge sensors offer faster signal communication, therefore reversal begins faster.
 3. No batteries to fail, which with monitoring, will cause a service call.
 4. Hard wiring an edge sensor also lowers the cost of installation.

Q9 I normally installed edges sensors on the leading and trailing end of a sliding gate. Isn't that the best way to protect against entrapment?

A: Not necessarily. While the leading and trailing ends of a sliding gate are potential entrapment zones, the risk of entrapment, serious injury or death is greatest at the "Draw-In" zone. Common installer practice has been to prioritize installation of edge sensors on the ends of a sliding gate, while not protecting the "Draw-In" zone where the gate travels past a rigid object such as a wall, gate support posts or stationary fences. We strongly recommend that the first edge sensor installed on a sliding gate be installed to protect the Draw-In zone. See slide gate illustration below:

Most common areas requiring entrapment protection



Installers must assess each specific site and install sensors that protect all potential entrapment zones.

Q10 What happens if one of the external Entrapment Protection Sensors becomes disconnected or fails in a Nice gate operator?

A: The operator will stop cycling in automatic mode. The gate operator monitors the "Presence" of each entrapment protection sensor. When the operator no longer detects a sensor, it will cease automatic operation only in the direction of the missing or failed sensor. The operator will stop functioning.

Q11 What devices have been tested for use with Nice gate operators?

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

Nice Recommended Sensors				
	Mfg. Part #	Mfg.	Details	Hysecurity Part #
Photo Eyes (Retroreflective)	IRB-RET	EMX	53 ft max range limit	
Photo Eyes (Through-Beam)	EPMOB	Nice	45 ft max range limit	EPMOB-A
Edge Sensors	Sentir Series	ASO	Channel mount, high profile Channel mount, low profile Round, wraparound Square, wraparound	AS1502-0440-05 AS1502-0430-05 AS1501-0760 AS1501-0790
	GEM-103	Miller Edge	Module for monitored 10K sensing edge, 4 wire pulsed output	
Edge, Wireless Kits	WEL-200	EMX	200 ft line of sight max range limit	

*EPB-MOB photo eyes are pre-bundled with Nice 1550, 1551, 3501, 7251/7351, 8300/8500, TITAN, 4300/4500 slide gate operators.

Q12 Can any UL Recognized or ETL Listed sensor be installed with any UL or ETL Listed gate operator?

A: No. In addition to UL 325 component recognition or an ETL Listing, a sensor must also be tested together with the specific gate operator to meet UL 325 Standard of Safety and be included on the operator manufacturers list of compatible sensors. (60.8.7)

About Component Recognition:

UL's component recognition service covers the evaluation of components or materials intended for use in a complete product or system. These components are intended only for incorporation into other end-use products that may be eligible for UL's Listing, Classification or Certificate Service.



You must consult your gate operator manual to determine the components that are tested for use with that specific gate operator. All entrapment protection sensors, such as photo eyes and edge sensors, must be tested by UL, ETL or another Independent Test Laboratory. Successfully passing a UL 325 component test allows the component manufacturer to "Mark" the product with a label that looks like one of these:



UL Recognized

This UL logo indicates that the component, in this case an EMX photo eye, was tested by UL and met the UL 325 standard for photo eyes.



ETL Listed

This circular ETL LOGO with a registration number below indicates that the component, in this case an EMX photo eye, was tested by Intertek and met the UL 325 standard for photo eyes.

However, neither "UL 325 Recognized" nor "ETL 325 Listed" as shown above fully qualifies a component to be used with a gate operator. Each sensor, brand and model, must still pass another test proving its compatibility and functionality when connected to a UL 325 Listed or ETL Listed gate operator. All gate operator manufacturer's installation instructions must list the sensors which are approved for connection to their gate operators. (32.2.1.1, 60.8.7)

Q13 Does Nice/HySecurity recommend a specific brand of edge sensor?

A: Yes, Nice/HySecurity recommends ASO brand edge sensors because the ASO design is robust and significantly more reliable (less prone to monitoring failure) than an edge sensor made with rubber coated foam. For 936 and 1050 Controllers, you must use a converter to convert the resistive input to a pulsed output. The Miller Edge GEM-103 is available for this purpose.

Q14 What other key changes were made to the 7th Edition UL 325, effective 8/1/2018?

A: There are several other noteworthy wording clarifications and additions, as noted below:

1. Entrapment zones have now been defined for each type of gate. Rather than put all the details here, please review the gate operator instruction manual. (4.23, 4.24, 4.29, 4.34)
2. An important clarification stated that every external entrapment protection sensor installed must be monitored. (32.1.8)
3. Common work around techniques to bypass monitoring have been specifically prohibited: It shall not be possible to make simple modifications in the field by adding, suppressing, or changing either on the operator or external entrapment protection device(s), to bypass, interfere with, or otherwise defeat the monitoring function, via a) The connection of wires; b) Terminals; c) Switches; d) Jumpers; or e) Components supplied with the operator or external entrapment protection device. (32.1.10)
4. The manual shall not provide instructions for which the stated purpose is to reprogram, reconfigure, or reset the monitored outputs such that they do not comply with the minimum entrapment protection requirements, except to revert to original factory settings. (32.1.11)
5. The operator shall not be provided with resistors installed or intended for installation across the terminals that are intended for monitored external entrapment protection devices and the manufacturer shall not recommend the use or installation of such resistors. (32.1.12)
6. A component, such as a resistor, capacitor, etc. required for monitoring shall be permanently installed at the factory by the manufacturer of the entrapment protection device. (32.1.13)
7. UL 325 - 7th Edition of is now the National Standard in Canada for Door & Gate Operators.

Q15 If an older Nice 936 or 1050 Controller requires replacement, do I need to change the installation to comply with the UL 325-2018 standard?

A: No, but we do recommend upgrading to the newest standard by updating your system and adding monitored safety devices.

Q16 Do gate operators manufactured prior to August 1st, 2018 require Monitored Entrapment Protection Sensors?

A: Yes and No. Monitoring of external entrapment protection sensors is only required when the automatic gate operator is manufactured after January 11, 2016. There is no requirement to update a pre-2016 operator to comply with a newer standard.

Q17 Can I update an older Nice operator to meet the new 2018 UL 325 standard?

A: Yes. The 936 controller can be reflashed in the field with the most current version of firmware. The 1050 controllers cannot be reflashed in the field. Some distributors have the ability to reflash the board with current firmware or else it will need to be replaced.

Q18 What UL 325 inspired changes may impact my external sensor choices?

A: The added expense and potential for false monitoring failures add complexity when using a monitored wireless transmitter/receiver and may push some installers to change their installation practices and choose locations for edge sensors that can be hard wired directly to the gate operator. Some installers may develop a preference to use photo eyes as entrapment protection sensors, because a photo eye may be easier to install and monitor than an edge sensor and because a photo eye offers non-contact protection. Nice/HySecurity is emphasizing that the most important and first location to install an edge sensor for all sliding gates is to protect the Draw-In Zone on the public side, where the gate moves behind the fixed fence line or wall during opening. The risk of entrapment, serious injury or death is greatest at the Draw-In zone.



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