

LiftMaster® Commercial Door Operators: Door and Edge Sensor Frequently Asked Questions (FAQs)

The purpose of this document is to provide answers to frequently asked questions (FAQs) regarding the use of door and edge photo sensors with LiftMaster operators.

This list is not all-inclusive, but does provide answers to those questions most frequently encountered. The installer should always reference the operator's instruction manual for proper installation instructions and cautions.

GENERAL REGULATORY QUESTIONS

1) What is UL325?

UL325 is a safety standard that applies to controlled access systems such as garage doors, gates and other systems. Underwriters Laboratories is the leading third party certification organization in the United States. UL325 for Commercial Door Operators is a voluntary standard developed by UL in an open process that provides methods for testing these products, primarily in relation to their safety performance. UL labeling demonstrates that the product complies with the standard.

2) What happens if I use accessories or replacement parts that are not UL325 compliant?

First, it will void the product's warranty. Second, it may expose the installer and dealer to liability, should the operator be associated with any personal injury or property damage. All UL325 operators must be installed in accordance with the manufacturer's instructions - any installed safety accessories must also be UL325 compliant. In the case of LiftMaster Commercial Door Operators, the UL325 approved safety accessories have been designed and tested with the operator to ensure they comply with the standard. As a side note, an operator installed without monitored entrapment protection will only be in compliance with UL325 if the operator is in a constant pressure mode.

3) Can other brands of photo eyes be used with our LiftMaster Commercial Door Operators while maintaining our UL325 compliance?

No. For the LiftMaster Logic 4 operators, only photo eyes that have been tested and listed in the LiftMaster product UL file are approved for use with these operators as primary entrapment protection. This means that the photo eyes sold by LiftMaster are the only ones that have been tested, approved and listed for use with the operator. Other non-LiftMaster brands can be connected, but only to the safety edge terminals on the board, and they will not be monitored. They would be considered ancillary and may not be substituted for primary entrapment protection photo eyes mounted at 6" or less.

4) What is ancillary protection?

Ancillary protection is described as an additional form of door monitoring that can be used in conjunction with a primary entrapment protection device. The purpose of ancillary protection is to provide additional protection to a door already fitted with a primary entrapment device. An example of this would be adding a second set of photo eyes or a sensing edge to a door that already has a primary entrapment protection device.

5) At what height should our standard photo eyes be mounted?

UL325 requirements state that the primary set of monitored entrapment protection sensors must be mounted no higher than 6" from the ground/floor and no more than 6" horizontally from the center line of the plane of the door.

SENSOR APPLICATION QUESTIONS

6) What is the maximum number of photo eyes you can use on each Commercial Door Operator?

Logic 3: Three sets.

Logic 4: Three sets. The first set of CPS-U, CPS-UN4, or CPS-RPEN4 connects to the LMEP (monitored) input on the board. A CPSIII card (which includes an interface card) should be ordered to operate a second set of monitored photo eyes. The third set would be CPS or CPS-RN4 photo eyes - these are normally used with electro-mechanical operators and would connect to the safety edge input on the board. The CPS or CPS-RN4 would not be monitored and would be considered ancillary. Ancillary devices should not be installed in place of primary entrapment protection.

7) When would I use the CPSIII card?

The CPSIII card is used when you want to operate a second set of monitored photo eyes with a Logic 4 operator.

8) What is the effective length or distance that the CPS-U, CPS-UN4, CPS-RPEN4 (retro-reflective photo eye) will operate? Also, what is their NEMA rating?

Model	Use	Length	Rating
CPS-U	Indoor Only	Max. 30 feet	NEMA1
CPS-UN4	Indoor/Outdoor	Max. 45 feet	NEMA4X
CPS-RPEN4	Indoor/Outdoor	Max. 50 feet	NEMA4X

9) How many photo eyes can be used as primary entrapment protection on a LiftMaster Commercial Door Operator?

One set of photo eyes can be used for primary entrapment protection and must be directly connected to the LMEP input on the operator board. With the addition of CPSIII card, a second set of photo eyes can be added for additional primary entrapment protection. LiftMaster® offers the CPS-UN4 and CPS-RPEN4 for this purpose. All door sensors can be used as ancillary protection or as a control device, such as an open command. Using non-LiftMaster approved sensors as primary entrapment protection will void your operator warranty and may not function properly with the operator.

10) If you are using a second set of photo eyes to detect a truck or bus, is there a recommended height level that the second set of photo eyes should be set?

The general recommendation is for the installer to place the second set of photo eyes at a height that will protect the area of the vehicle that passes over and misses the primary set of photo eyes. For example, if a bus service center wants to install a second set of photo eyes and the bus bumper at its furthest point forward on the vehicle is 36" from the ground, the general installation suggestion would be a minimum of 36" plus half the height of the bumper. If the bumper is 10" tall, it would be recommended to mount the eyes at 41". Each situation is different and should be assessed by the installer to determine the most effective mount-height for the second set of photo eyes. It is important to ensure that the most forward point on the vehicle be targeted with an adequate vertical surface for detection. To minimize the risk of crosstalk from the first set of photo eyes to the second, they should be mounted no less than 24" apart vertically (see IMAGE B: Preventing Crosstalk when Mounting Two Sets of Monitored Sensors) and the sensors should be in opposing orientation.

11) In what applications will I have to use the junction (CPI) box to get my photo eyes to work?

The CPI interface box is used when you want to add an unmonitored photo eye as ancillary protection.

12) Can the current photo eyes be used on Logic 3 operators? Does this include retro-reflective?

The CPS-U, CPS-UN4 and CPS-RPEN4 can be used with all LiftMaster Logic 3 operators. This does not, however, bring a Logic 3 operator to compliance with the 2010 UL code.

13) How do I know if using other manufacturers' photo eyes voids the LiftMaster warranty on the operator?

Only photo eyes that are listed in the UL Master File for each operator may be used with that specific LiftMaster operator and only LiftMaster branded sensors meet this qualification. Refer to the product operator's manual with each LiftMaster sensor for set-up and operating instructions, as well as compatibility information. In order to maintain the product warranty, follow the instructions and cautions as described by LiftMaster. Use of devices other than those listed in the UL Master File voids the UL325 listing and may open up the installation to safety concerns.

14) If multiple sets of retro-reflective photo eyes are used on doors right next to each other, is it possible the main photo eye could bypass one reflector and go to the next?

It is possible, but would most likely be a very rare occurrence. The reflectors are designed to receive a signal from various angles and then return the signal to the original sender. The CPS-RPEN4 has a very narrow angle of incidence. If a bypass were to occur, a missed signal would likely be interpreted by the transmitting photo eye as a different signal. It is also recommended that, in a multi-door installation, all primary sensors and reflectors be installed at the same height. Assuming the doors are all mounted on a flat floor and not on a staggered dock wall, the door rails and hardware work to effectively block the majority of any stray signal. IMAGE A and IMAGE B are two recommended examples for installing multiple sets of photo eyes. For any installation specific questions, please call the LiftMaster Service Center at 800.528.2806.

CPS-RPEN4 QUESTIONS

15) If I need a damp environment modification, can I use the CPS-RPEN4 retro-reflective photo eye or can a corrosive film form on them?

The CPS-RPEN4 is rated NEMA4X for corrosion protection and would be suitable for a damp environment as long as ice, snow, water or soap residue, etc., does not cover the transmitting photo eye or reflector. This will block the signal and either reduce the range of the signal, or prevent the photo eye from operating correctly. CPS-UN4 photo eyes are preferred for this application. In applications where heavy residue is anticipated, a safety edge is recommended as the primary safety device.

16) Will glare from the sun, shiny vehicles or harsh weather conditions (dew, fog or snow fall) interfere with the new retro-reflective photo eye, CPS-RPEN4?

The CPS-U and CPS-UN4 sensors can be impacted by direct sunlight, so the travel of sunlight throughout the day should be considered when mounting these sensors. Shiny vehicles can pose a potential issue for the CPS-U and CPS-UN4 sensors, so the recommended installation positioning should be followed (see IMAGE A at the end of this document). The optical polarization technology of the CPS-RPEN4 reflector should minimize the potential for these same types of issues. All three sensors (CPS-U, CPS-UN4 and CPS-RPEN4) can see through light, smoke, fog and other atmospheric conditions; however, if a lens gets covered with water, ice, snow, etc., the operation of the photo eye can be restricted or obstructed.

17) What is the minimum distance the CPS-RPEN4 requires for testing alignment?

The technology used in the CPS-RPEN4 requires that the transmitter and reflector be at a minimum of five (5) feet apart in order to generate correct alignment. Since many installers often test the alignment of door sensors before installing them, they should be reminded of this distance requirement. This will prevent calls and concerns about the photo eyes not operating correctly.

18) How do I know that my CPS-RPEN4 is correctly aligned?

Once the photoelectric sensor is installed and the reflector correctly positioned, the orange sensor light will not be visible. If the light is flashing, the sensor has only intermittent contact and the reflector and/or sensor must be adjusted to achieve correct alignment. With correct alignment, the orange beam will not be visible. When making adjustments, small increments are best, as the CPS-RPEN4 has a fairly narrow sensing path. This path gives the CPS-RPEN4 the ability to achieve great accuracy on door widths up to 50 feet.

19) Can the CPS-RPEN4 be wired through a wall mounted control station?

The instruction/installation manual for the CPS-RPEN4 provides a diagram showing the direct unit hook-up to the common and LMEP connectors on the Logic 4 operator control board. To run the wiring through a wall mounted control station, the blue wire should be connected to the common in the wall mounted control station and a separate wire should be run from the operator through the control station, connecting to the brown wire. The brown wire does not connect to any of the terminals in the wall station - it only passes through the station. Follow the manual for connecting the CPS-RPEN4 to a Medium-Duty Logic board versus a Logic 4 board.

IMAGE A - Recommended installation for adjacent doors and more than one set of photoelectric sensors

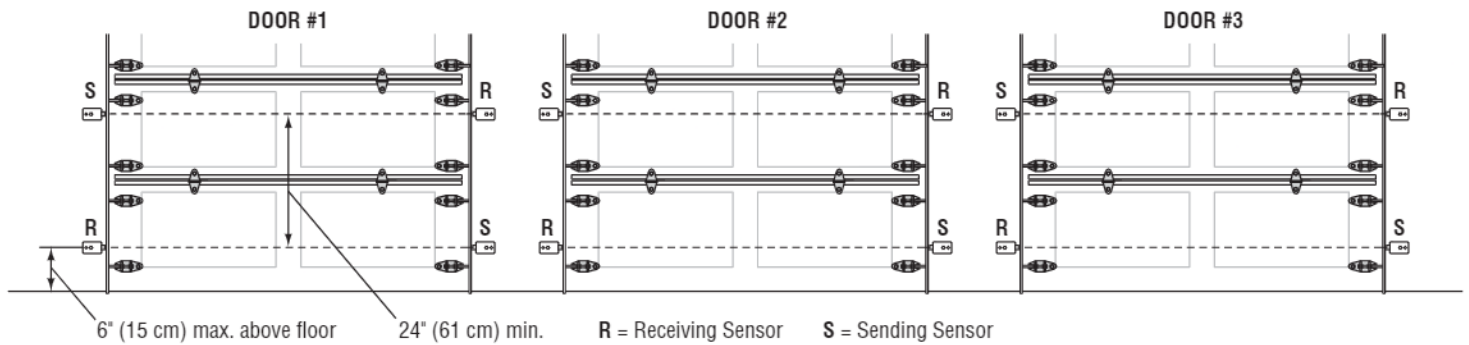
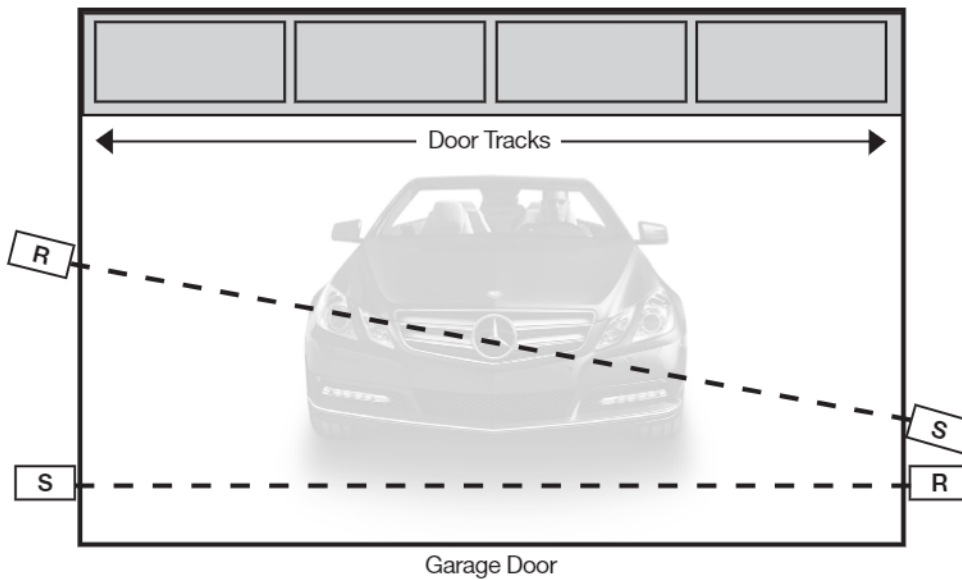


IMAGE B - Preventing crosstalk when mounting two sets of monitored sensors



LiftMaster Sensor Compatibility Chart

	CPS-U	CPS-RPEN4	CPS-UN4	CPS-EI	CPS-MEI	CPSIII	CPS	CPS-N4
Logic 4 Operators	X	X	X	X	X	X	*X	*X
Medium-Duty Logic Operators	X	X	X	X	X			
Electro-Mechanical Operators							X	X
Logic 3 Operators	X	X	X	X	X	X	*X	*X

***NOTE:** CPS and CPS-N4 can connect to the edge input as an ancillary device. This chart does not cover all permissible combinations of LiftMaster operators and sensors - only the more frequently encountered match-ups. The LiftMaster CPS-RPEN4GM is a retro-reflective photo eye specially developed for use as primary entrapment protection on LiftMaster Gate Access Systems (GAS).