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Proper Installation of Photoelectric Non-Contact Sensors on Vehicular Commercial Door Operators

Introduction

According to UL 325, vehicular commercial door operators manufactured before 2010 must be equipped with one of the following 3 options:

1. Constant-pressure-to-close function, only
2. Three-button control function, only, with placard and instructions stating to mount control in line of site, or
3. A suitable external entrapment protection device when the system is controlled by any other remote or unattended features.

For operators manufactured after August 2010, there are only 2 options:

1. Constant-pressure-to-close, only, or
2. A suitable, monitored, external entrapment protection device. There are 3 options for this entrapment protection device. 1) A contact type sensor (edge sensor or equivalent) installed on the leading edge of the door, or 2) A non-contact type sensor (photoelectric sensor or equivalent), or 3) A light curtain composed of an array of photoelectric sensors.

Photoelectric Sensor Entrapment Protection Installation Height

Photoelectric sensors, when used for external monitored entrapment protection, must be installed parallel to the floor with the internal photoelectric beam no higher than six inches above the floor. In the past, some commercial door technicians have installed photoelectric sensors at a height of three feet or more above the finished floor in an effort to protect vehicles. Installing the entrapment protection sensors higher than six inches violates UL 325 requirements, violates manufacturers' instructions, and creates a dangerous environment that could expose the dealer and the building owner to liability. If vehicle protection is required, additional devices may be used, but they may never take the place of the primary monitored entrapment protection device.

Note: Technical Data Sheets are information tools only and should not be used as substitutes for instructions from individual manufacturers. Always consult with individual manufacturers for specific recommendations for their products and check the applicable local regulations.

This Technical Data Sheet was prepared by the members of DASMA's Operator & Electronics Division Technical Committee. DASMA is a trade association comprising manufacturers of rolling doors, fire doors, grilles, counter shutters, sheet doors, and related products; upward-acting residential and commercial garage doors; operating devices for garage doors and gates, sensing devices, and electronic remote controls for garage doors and gate operators; as well as companies that manufacture or supply either raw materials or significant components used in the manufacture and installation of the Active Members' products.

DOOR OPERATOR & ELECTRONICS DIVISION
TECHNICAL DATA SHEET

#382

Light Curtain or Light Array Entrapment Protection Installation Height

When a light curtain or light array with multiple light beams is used for monitored entrapment protection, the lowest emitted photocell (light beam) of the array is to be installed no higher than six (6) inches above the floor.

Ancillary Protection – Not Used for Entrapment Protection

For additional vehicle protection, devices such as edge sensors, light curtains, vehicle loop detectors, or additional sets of photo eyes can be utilized. Note that any ancillary protection provided for vehicular protection is not required to be monitored; however, systems with monitored entrapment protection provide feedback when the system is not functioning properly.

Important

UL 325 and manufacturers' instructions instruct facility owner and building maintenance personnel to conduct the required regular testing of automatic garage door and operator systems to ensure ongoing safe operation. The manufacturer's instructions provided with the commercial door operator should be reviewed concerning this testing.

Testing

Testing of the safety systems includes monthly testing of the photoelectric sensors for commercial door openers to verify proper working order.

1. Start the door moving down. Apply a controlled solid object obstruction in the path of the photoelectric beam. Verify that the door movement reverses direction.
2. With the door at the up limit, apply a controlled solid object obstruction in the path of the photoelectric beam. Verify that the obstructed photoelectric sensor prevents an operator from closing an open door.

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