



**DASMA**  
Door & Access Systems  
Manufacturers Association  
International

OPERATOR & ELECTRONICS DIVISION

# TECHNICAL DATA SHEET

## #367

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## Testing of External Entrapment Protection Devices Used With Vehicular Gate Operators

### Introduction

Manufacturers of external entrapment protection devices may choose to have their products evaluated for compliance with UL 325 by one of the following methods:

1. Testing, including various possible installed locations as part of an investigation test plan.
2. Use within established acceptable methods of use.

### Definition of Some Commonly Used External Entrapment Protection Devices

Two common external entrapment devices are photoelectric eyes and edge sensors.

**Photoelectric Eye:** There are two common types of photoelectric eyes. One type of photoelectric eye is a sensor that consists of a light-emitting device and a light-receiving device, where if the beam is blocked by an obstruction, the sensor signals the operator to stop and/or reverse. Another type of photoelectric sensor is a photo-reflective type that uses a single source for both emitting and receiving a light beam, where the beam is reflected back to the sender/receiver unit by the use of a reflector. Most photoelectric eyes are modulated infrared to prevent response from visible ambient light such as sunlight.

**Edge Sensor:** An edge sensor is a sensor, attached to an edge surface, which detects obstructions and signals the operator to stop and/or reverse. Various types of edge sensors are available, including pneumatic, electric, optical electronic and invisible field.

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**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.

An external entrapment protection device is considered a “component” of an automated vehicular gate system, and is intended for use in a specific end product. Typically, a component is incomplete in construction features or restricted in performance capabilities. The performance of a component may change, dependent on the end use application. Therefore, it is necessary for a testing agency to determine the acceptability of an external entrapment protection device, when reviewing the product(s) on which the device will be used.

### **Components and Testing**

Under a component evaluation program for external entrapment protection devices intending to be used with vehicular gate operators, it is not required for component assemblies to be tested with specific vehicular gate operators. In an instance where a component manufacturer obtains written authorization from an operator manufacturer indicating that the component is intending to be employed with a specific operator or system, that operator or system will be used during the component testing.

### **Component Review by Nationally Recognized Testing Laboratories**

An external entrapment protection device manufacturer submitting a product for evaluation must include all alternative entrapment protection component options as part of their test plan. The testing agency will review the product, as submitted, and issue a report that includes all component options subject to acceptable methods of use and installation.

### **Means of Establishing Acceptable Methods of Use and Installation**

Conditions for acceptable usage normally include the following as specified in UL Standard for Safety for Door, Drapery, Gate Louver, and Window Operators and Systems, UL 325:

- Installation requirements noted in Chapter 56
- General requirements, installation and power, noted in Section 34.1
- Current protection noted in Section 34.2
- All applicable vehicular gate operational verification tests noted in Clauses 31.1.6, 31.1.7, and 31.2.1.1, and all applicable requirements in the UL Standard for Safety-Related Controls Employing Solid-State Devices, UL 991, during the operator investigation.

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