



DASMA
Door & Access Systems
Manufacturers Association
International

GATE OPERATOR & ACCESS CONTROL POINT SYSTEMS DIVISION

TECHNICAL DATA SHEET

#377

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Selection, Placement, and Quantity of Photoelectric Eyes for Automated Vehicular Gates

Photoelectric eyes are commonly used to provide entrapment protection for automated vehicular gate operation. This technical data sheet provides general guidelines regarding location and placement of photo eyes. Proper placement of these devices is highly dependent on site-specific details; therefore, only general guidelines and items which should be considered can be provided in a document such as this.

Pedestrian vs. Vehicle Detection

Photo eyes that are provided as entrapment protection are intended to provide protection for pedestrians in the vicinity of moving gates. If protection against damage to vehicles is desired, additional photo eyes or other devices should be considered.

Location

When determining the location of photo eyes, the position of the gate with respect to fixed objects from the fully closed to the fully open positions is the main criteria for determining areas that need protection. DASMA TDS-370, *Rationale Behind the Provisions of ASTM F 2200 & Illustration Guidelines Based on the Provisions of ASTM F 2200* includes some drawings illustrating typical areas that require entrapment protection, but this will be very site-specific. ASTM F 2200, *Standard for Automated Vehicular Gate Construction*, gives requirements for areas that require entrapment protection, as well.

Mounting Height

Common industry practice is anywhere from a minimum of 4 inches, to a maximum of 27 inches, above the ground. Factors such as roadway curbing, susceptibility to debris, ice and snow, and proximity to foot traffic may affect the mounting height. If photoelectric eyes are used across a roadway, staggered heights for the transmitter and receiver may be used to reduce the possibility of a vehicle bumper reflecting the light back to the transmitting unit and getting a false reading.

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.

Mounting Distance

Common industry practice is within 5 inches of a gate panel or wall surface. Mounting distance should not be too close so as to get a false reading from a component of the gate or wall and should not be too far from the gate so as not to detect a pedestrian near the plane of the gate when closed.

Other Issues to Consider

- A through beam-type sensor with a separate transmitter and receiver may be needed for longer gates and or locations that are exposed to inclement weather.
- Consideration may need to be given to locating a sensor relative to sunlight at low incident angles. A longer hood may be needed.
- If dual beams are to be used, they should be placed so as to avoid interference between them. For this reason, transmitters should be placed on opposite sides of the area being protected.
- The manufacturer's instructions should be consulted for proper wiring and any limitations of use associated with photoelectric eye devices.
- Use devices that have been tested and certified to UL standards and that are listed as being compatible in the gate operator manufacturer's literature.
- Consult the *DASMA Automated Vehicular Gate System Safety Guide* for other information about automated vehicular gate systems.

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