



RAILWAY MONITORING SYSTEMS

Controlguide **LiDAR**

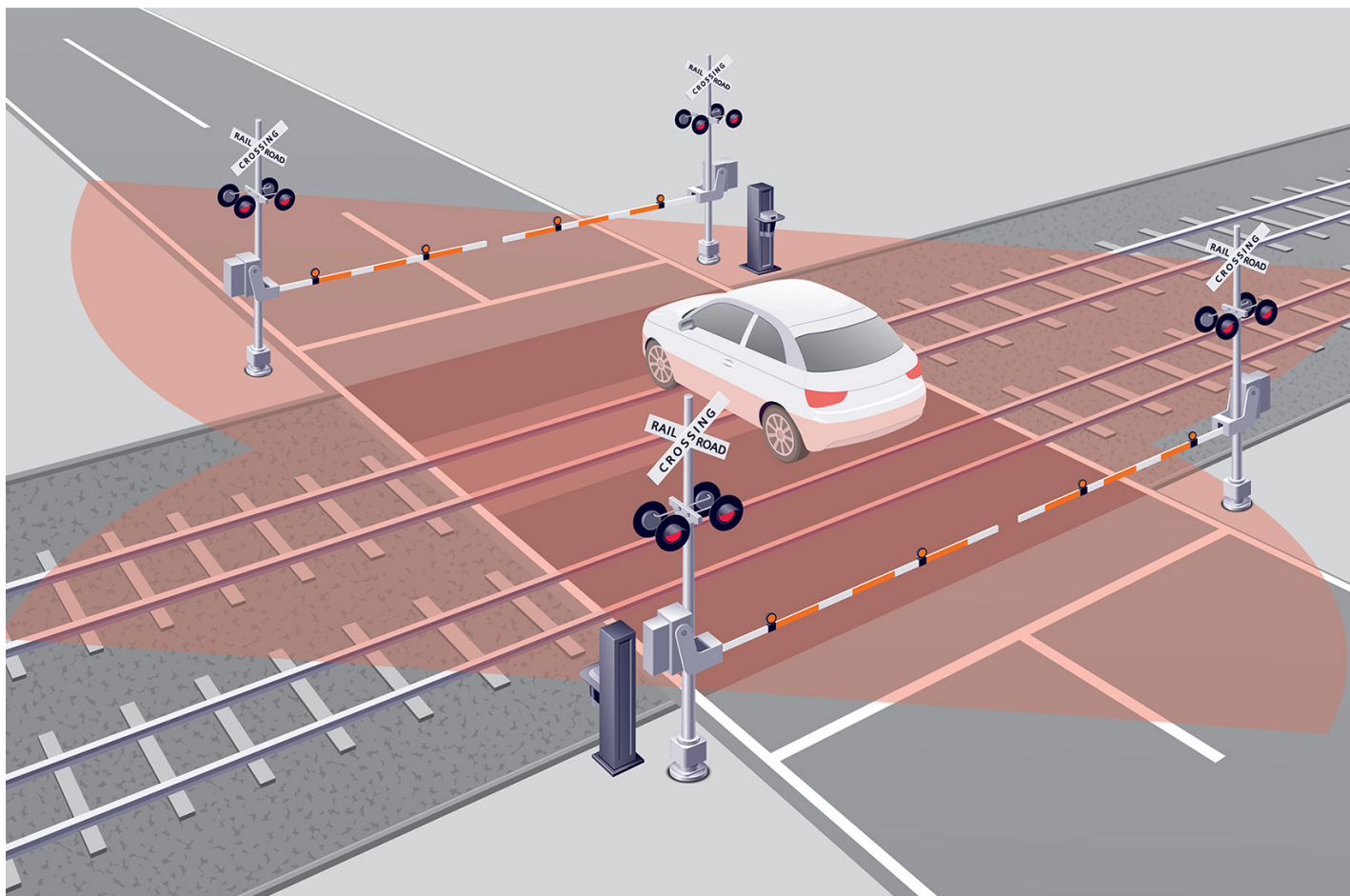
Keeping railroad crossings safe with advanced laser sensor technology

Siemens Controlguide LiDAR is well suited for railroad crossing applications. It provides safe and reliable detection of vehicles and obstructions caught between entrance and exit gates at highway crossings equipped with four-quadrant gates. The Zone D-RX sensor outputs a signal to the crossing control system to keep the exit gate up, allowing the vehicles to safely exit the crossing.

The LiDAR sensor is a reliable, economical, and easy-to-deploy alternative to the inductive vehicle detection loops typically used in four-quadrant crossings today.

The laser sensor scans defined target areas and is capable of measuring the size, distance, direction and speed of motion of detected objects.

SIEMENS



Features

Built for the Railroad

- The laser sensor was designed to be mechanically and electrically rugged for use in the railroad crossing environment, with a heated lens to prevent icing and dual redundant processors for high reliability.

Detection Zones

- Up to 6 user-configured detection zones for monitoring and alarming.

Easy to Install and Maintain

- Measurement, detection and output logic are all integrated with the sensors in a compact design.

Low Light

- Excellent object detection in the dark.

High Illumination

- Accurate detection, even in bright sun light.

Rain / Fog

- Proprietary technology to maintain accurate detection through fog and rain.

Input/Output

- Equipped with Ethernet, 2 dry-contact inputs and 8 normally-closed (NC) contacts to drive external devices and provide diagnostic indications.

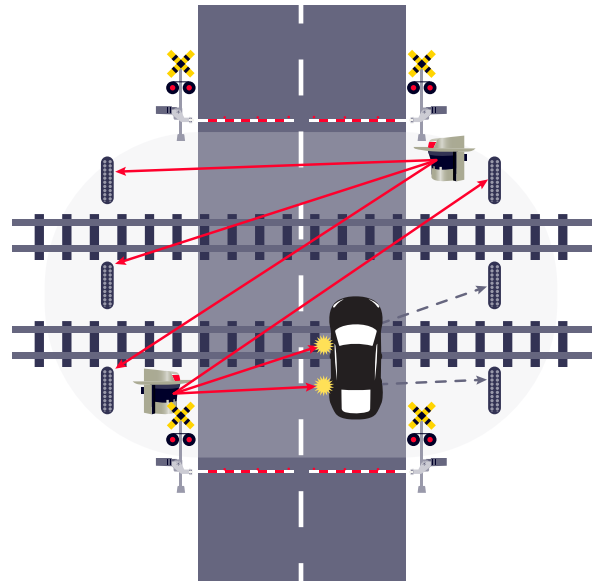
False Detection Prevention

- A filter function avoids false detection of birds, small animals, tree branches and leaves.

Black object detection

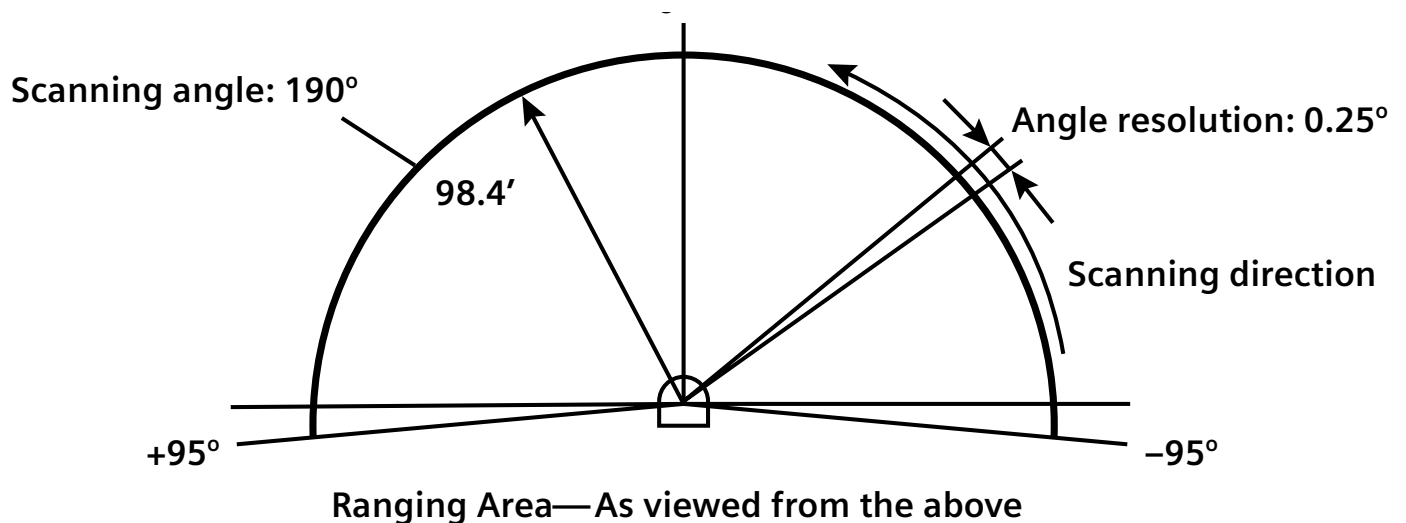
"Pole Detection Function" patented acquisition technology provides increased reliability for detecting low-reflectivity vehicles, such as black vehicles, that were previously difficult or impossible to detect.

- Pole detection measures the reflected light from a high-recognition material pole which is installed in the detection area.
- When a low-reflective object such as a black vehicle enters the area, the sensor recognizes it as an unexpected object since the reflected light from the pole is blocked by the object.
- Existing devices could be utilized instead of the detection pole.



Coverage pattern and angle resolution

Measurement of objects with "10% or higher reflectance" is guaranteed in a semi-circular zone with maximum radius of approximately 100 feet and scanning angle of 190 degrees with the laser beam emitted at intervals of 0.25 degrees.



The laser sensor scans defined target areas and is capable of measuring the size, distance, direction and speed of motion of detected objects.

While it is possible to install only one laser sensor per crossing, for optimal performance two sensors are recommended on opposite diagonal corners to offer complete coverage.

Specifications

Power Supply Input

Voltage	24 VDC +10% / -15%
Ripple Voltage	240 mVp-p
Power Consumption	27W for laser sensor 21W for heater

Communications

Ports	Ethernet, RJ-45, 10BASE-T/100BASE-TX compliant
Protocols	UDP and TCP/IP

Inputs / Outputs

Inputs	2 (dry contact closure)
Outputs	8 normally closed contacts External outputs 1-6: configurable outputs External outputs 7-8: error output signals

Ranging Specifications

Distance	98.4' (approximately 100 feet) radius at 10% reflectance
Angle	190 degrees
Angle Resolution	0.25 degrees
Ranging Error	+/- 7.9" (200 mm)
Measurement Error	+/- 3.9" (100 mm)

Laser Specifications

Wavelength	905 nm (infrared)
Safety Standard	Class 1 IEC 60825-1: 2014 (JIS C 6802:2014)

Operating Conditions

Temperature	-20 to 60 degrees C
Humidity	30 to 90% RH (no condensation or ice formation allowed, and wet-bulb temperature should not exceed 30 degrees C)
Lighting	100,000 lx or less

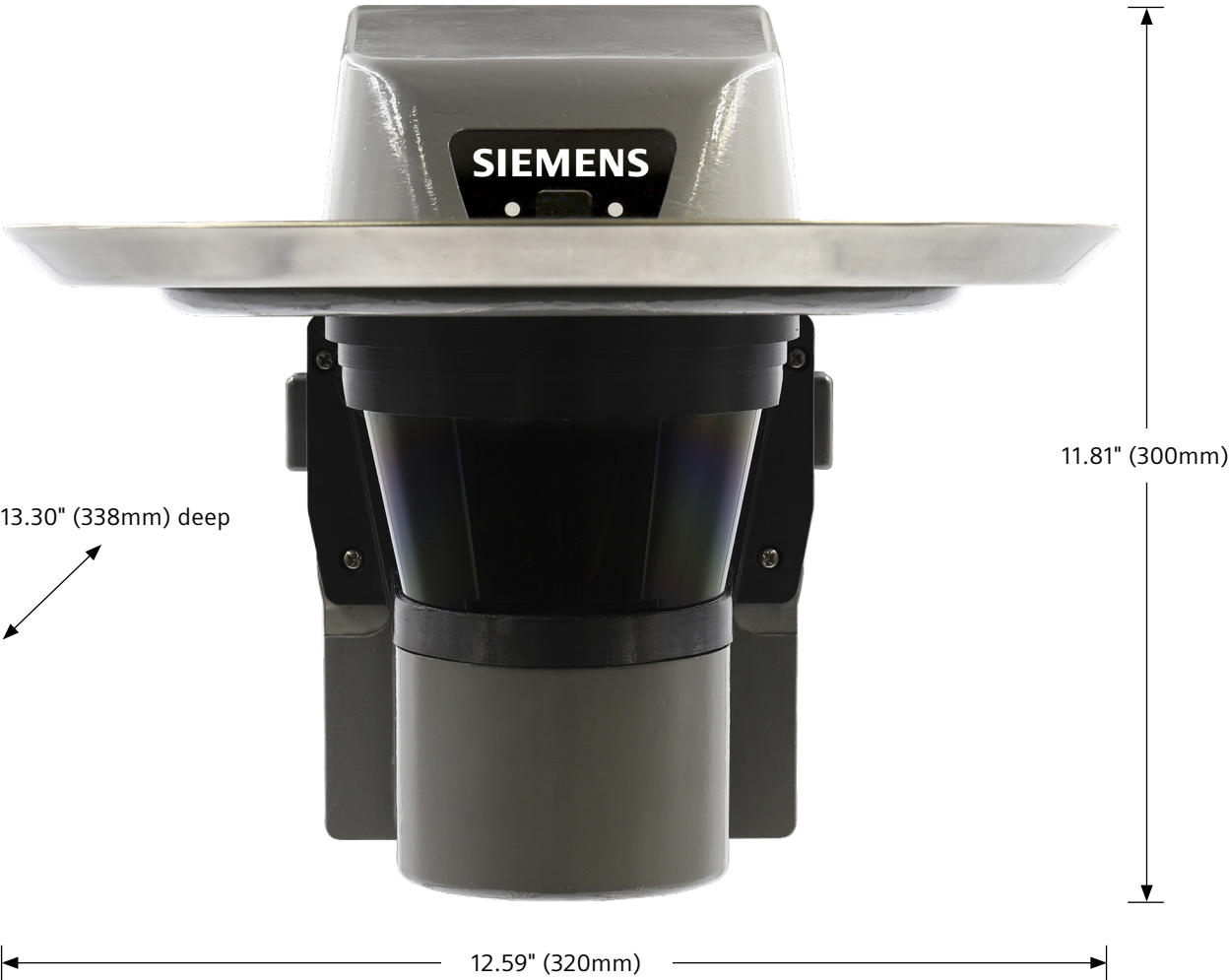
Storage Conditions

Temperature	-20 to 60 degrees C (no sudden temperature changes in temperature and no condensation or ice formation allowed, and wet-bulb temperature should not exceed 30 degrees C)
Humidity	30 to 90% RH (sudden temperature changes and no condensation or ice formation allowed, and wet-bulb temperature should not exceed 30 degrees C)

Physical Specifications

Mounting Height	29.5" (75 cm) for standard operation at highway crossings
Indicators	1 Green LED 1 Red LED 7-Segment LED
Sensor Body Case	Aluminum
Front Screen	Acrylic resin and heating element
Dustproof and Waterproof Performance	IP66
Environmental Compatibility	Compliant with RoHS directive (2011/65/EU, (EU) 2015/863)

Dimensions (approximate)



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