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cegard/Smart

IoT-Enabling Light Curtain - Technical Specifications

For ARCHITECTS, CONSULTANTS, AND SPECIFIERS

Elevator door protection system shall utilize an IoT-enabled two-dimensional (2D) reopening device that enables user-centric use cases for improving safety and convenience, as well as enable data-driven maintenance. This system shall be designed to detect persons / objects that are located between the elevator cab and hoistway doors in accordance with the requirements of ANSI/ASME A17.1-2016 in the United States, CAN/CSA B44-16 in Canada, and EN 81-20:2020.

The two-dimensional (2D) reopening device shall be an infrared light curtain with a minimum of 115 light beams that form a crisscross pattern. The detection field of the light curtain shall be no less than 70.8 inches (1.8 m). The light curtain shall be rated as suitable for no less than 100,000 Lux ambient light immunity. The operating range of the light curtain shall be no less than 9 ft (3 m) and the light curtain shall be mounted on the elevator cab doors to facilitate monitoring the door movement (e.g., "dynamic mounting method"). The light curtain shall utilize automatic gain adjustment to minimize the amount of energy required to operate efficiently and to compensate for severe misalignment, condensation, and contaminated lenses. Light curtain cables shall have a minimum length of 16 feet (5m) and be suitable for no less than 20 million door operations. For North America, the light curtain shall be certified by a nationally recognized testing laboratory (NRTL) as suitable for use in elevator systems.

The Internet Cloud infrastructure provider shall be fully ISO/IEC 27001 certified and compliant (ISO/IEC 27001 is the internationally leading standard for information security management systems [ISMS]). Conformity with ISO/IEC 27001 requires that an organization has put in place a system to manage risks related to the security of data owned or handled by the company, and that this system respects all the best practices and principles enshrined therein.

The light curtain shall provide information to an IoT-enabled device (Internet of Things) to transmit the information to the Internet Cloud. A web-based dashboard shall be available that allows users access to this information, near-real- time, with the ability to generate reports regarding each elevator being monitored. The information from the light curtain shall include:

- 24/7 Elevator Health Monitoring
- Active Alerts
- Number of Elevator Trips
- Elevator Travel Distance
- Last Maintenance Ride
- Elevator Shaft Temperature
- Elevator Shaft Humidity
- Number of Door Cycles
- Avg. Door Closing Time
- Avg. Door Opening Time
- Ride Quality according to ISO 8100-34:2021
- Vibrations per Floor
- Door Anomalies
- People counting for traffic analysis

The door protection system shall support 100 – 265 V AC, 50/60Hz incoming power and provide normally open (NO) and normally closed (NC) relay contacts. The relay contacts shall be rated for 125 V AC, 9 A and 30 V DC, 7A minimum and represent the status of the overall door protection system. The IoT-enabled device shall have an integrated interface for the IoT Cloud via 4G LTE wireless / cellular communication with roaming for optimal coverage at no extra cost. Remote monitoring solutions shall be based on Microsoft Azure Services, that are not Original Equipment Manufacturer (OEM) specific, in order to provide data transparency across the complete elevator portfolio, regardless of manufacturer.

For questions or need of additional information regarding the CEDES IoT-enabling light curtain powered by relayr, please contact your local CEDES or relayr representative.