

Sirio-LX

Obstacle Detection System for Level Crossings



Sirio-LX is an automatic radar-based system for preventing trains from colliding with obstacles on the track at level crossings. It has been designed to ensure the highest level of safety standard (SIL4, CENELEC 50129).

Innovative solutions for railway safety

Sirio-LX



Features

- **Safe:** Safety Integrity Level (SIL) 4, based on CENELEC EN 50129
- **Flexible:** Observes an area of a shape and size configured to the level crossing
- **Modular:** Up to 4 radar sensors can be used in the same installation site covering all geometries of level crossing
- **Performance:** Extremely low false alarm probability, even in harsh weather conditions (fog, rain, snow) and in all light conditions
- **Reliable:** Sensor MTBF > 10 years
- **Diagnostic Video Camera:** Video (closed circuit TV) transmission when obstacle detection occurs for system diagnostic purposes



Sirio-LX Architecture

The basic configuration is 1 radar and 1 outdoor cabinet.

Radar Sensor:

- Obstacle detection
- High resolution antenna
- Auto-diagnosis functions
- Communicates with the Control Unit through RS485

Corner Reflector:

- Sensor diagnostic functions

Control Unit:

- SIL4 fail-safe HW/SW
- Two main boards with 2oo2 architectures and HW watchdog in cold redundancy
- Receives and votes the data coming from the radar sensors
- Interfaces with railway signaling
- Sends diagnostic information to the Remote Control Terminal
- Collects and stores events such as failures, obstacle detection, etc.
- Sends and stores video of the monitored area

Remote Control Terminal:

- Receives all information from the Control Unit about the status of the level crossing via LAN or UMTS

Technical Characteristics

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| Typical Obstacles Detected | Cars, bikes, motorcycles and pedestrians |
| Obstacle Materials | Any |
| Radar Sensor Reliability | MTBF > 10 years |
| Safety Requirements | CENELEC 50129, SIL 4 |
| Reaction Time | 7 sec |
| IP Protection Class Radar Sensor | IP 66 |
| IP Protection Class Control Unit | IP 55 |
| Operating Temperature Range | -25° + 70° |

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