



Fire Detection in Metropolitan Railways

The Challenge

Metropolitan railways are used for high-capacity public transportation and eliminate unwanted congestion by reducing the number of vehicles on the road. Mass transit is also more environmentally friendly than other modes of transportation.

However, protecting metropolitan railways is a challenging task. Most are built underground with a multi-branched network of tunnels, while stations are wide-open spaces. Additionally, thousands of passengers use these systems every day.

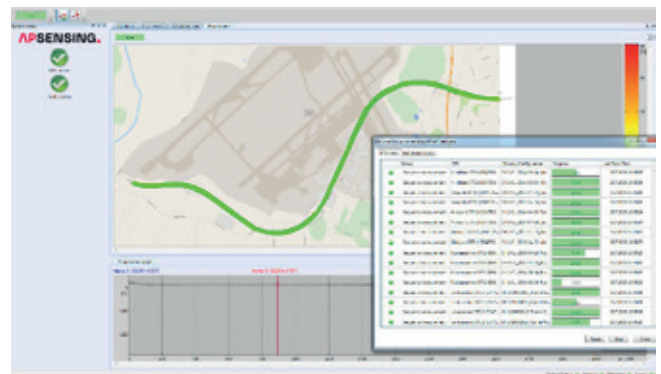
Fire safety is achieved through a combination of architecture, procedures and technical solutions that are especially designed for the protection of life and property in metropolitan railways. Fire detection systems must be robust and reliable, providing complete coverage and high availability even in inaccessible areas. Fires must be detected and located immediately despite the high air currents typically prevailing in metro systems.

The Innovation

AP Sensing's proven fiber optic Linear Heat Detection (LHD) solution is optimally designed to be used in tunnels, stations, trays and voids within metropolitan

railway systems. Our solution utilizes a passive, fiber optic cable as a distributed temperature sensor that is very light and easy to install. The sensor cable withstands severe conditions and delivers fast heat detection, while also having the industry's lowest false alarm rate.

Thousands of temperatures along the sensor cable are measured in real-time, pinpointing any hotspot or fire with complete accuracy. AP Sensing's unique sensor cable design allows temperature measurement up to 1000°C, enabling the system to not only detect, but also monitor fire development by providing vital information about fire size and spread. With



SmartVision metro asset visualization

With our comprehensive asset-visualization software SmartVision, all information is available at a glance and rendered for further processing by SCADA.

Fast & Adaptable Detection

The AP Sensing LHD solution consists of a fiber optic sensor cable and a fully tested control instrument that measures a complete temperature profile along the tunnel within seconds. As an addressable linear heat detector, multiple project-specific fire zones are mapped to the control instrument and a variety of alarm parameters (rate-of-rise, maximum, adaptive) can be programmed to each fire zone. This solution delivers fast detection while minimizing false alarms.

Pre- and main alarms can be programmed per fire zone to initiate automatic countermeasures. In the event of a fire, our linear heat detection system provides immediate information regarding fire location, size and spread. All information is available through dry-contacts and high level communication e.g. Modbus protocol.

Reliable & Cos-Effective

Our LHD solution is thoroughly tested, with the most complete set of certifications on the market (VdS, UL, FM, ATEX, IECEx, SIL) and a 35 year MTBF. It is robust and has passed highly demanding type tests.

The sensor cables are proofed against IEC 60331-25 for high temperatures, ensuring the system can withstand the demands of fire monitoring. The cables are passive, robust, immune to EMI, resistant to dirt and dust, and do not require maintenance. In the case of a break, a cable is easily spliced – reducing the off-time of the tunnel. Regulation stipulates testing of the fire protection system in certain intervals; testing of AP Sensing's LHD system is simple, time-saving and doesn't require closing the tunnel. Heating a few meters at a lane closure is sufficient to test the entire system.



Why AP Sensing?

- Industry-leading linear heat detection technology with fast response times, excellent accuracy and low maintenance.
- All product variations are fully certified and in compliance with internationally recognized standards.
- In controlled fire tests, our system has proven to detect fires of all sizes 30% faster than prescribed by fire detection guidelines.
- Our experience and proven deployment in all regions in the world – our project reference list is extensive and comprehensive.
- Range of certified sensor cables to fit every need and comprehensive.
- Easy system integration through flexible protocols and interfaces.
- World-class service, support and training.



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