



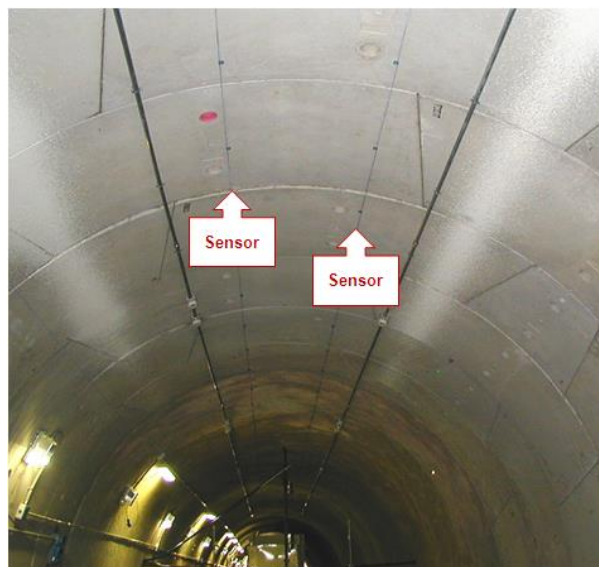
Linear Heat Series Selected for Italian Metro Tunnel

AP Sensing, together with our local partner, have been selected to equip a newly-built metro tunnel with the N4387A Linear Heat Series.

Besides providing fire alarm capabilities, the Linear Heat solution monitors the ventilation system and can activate the vents between stations to extract smoke from the tunnels and draw it away from the stations. All alarms and temperature values are also exported to a central SCADA platform to monitor potential fires, their sizes and the direction they are spreading in the tunnel.

The installation planning led to the following **Key Project Requirements**:

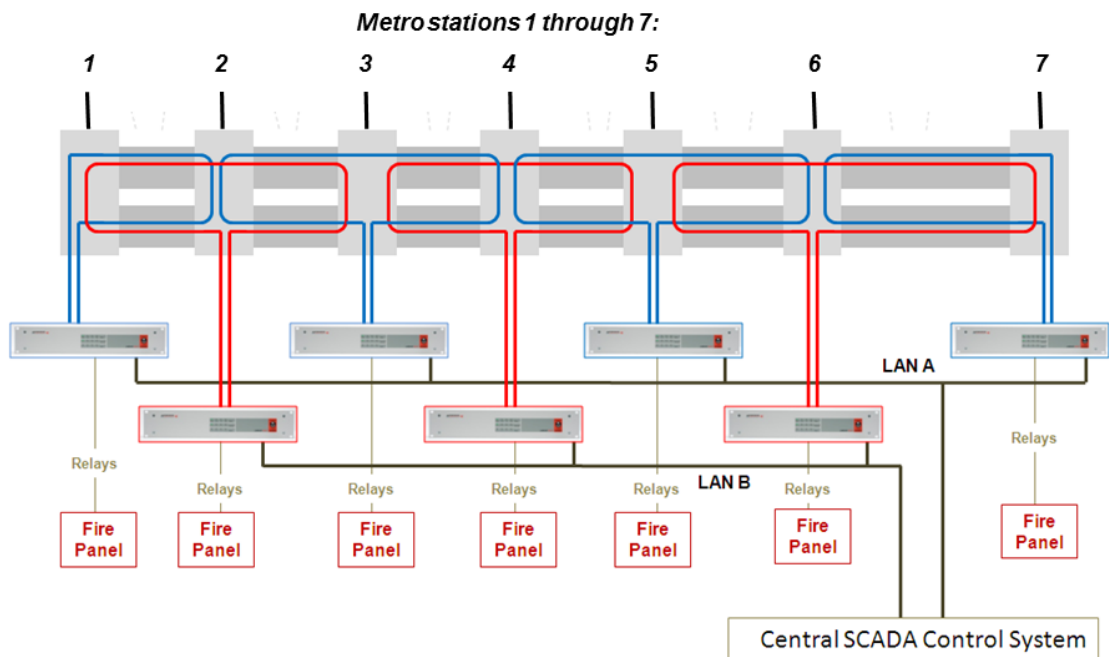
- Very high level of overall system availability.
- Class 1M laser, which is inherently safe and enables continuous operation even in the presence of fiber cuts.
- Open interfaces (LAN / Modbus) for easy integration to the SCADA systems.
- Fire monitoring capabilities – able to report temperatures up to 700°C to effectively control counter measures in emergency situations.



Project Setup:

- After project completion the system will include 7 Linear Heat Detection Instruments working in a fully redundant configuration.

- For fast heat detection times the certified sensor cable is mounted at the highest point in the tunnel.
- The passive and compact (4mm diameter) sensor cable is IEC600331-25 certified for a functional integrity of 2 hours at 750°C .



Project setup showing 7 Linear Heat Units serving 7 metro stations

Installation-specific highlights:

- All Instruments are using a dual-ended configuration (“looping”).
- Each area is permanently monitored by two fully independent instruments located in different control rooms to achieve the highest level of availability.
- With this setup the overall system is even protected against several - very rare - double failure scenarios (e.g. fiber cut and instrument failure at the same time).
- The Linear Heat instrument at each station can monitor all of the tunnel space in the 2 neighboring stations.
- 19+1 internal relays are used for reliable alarm handoff to the local fire panel in each metro station.
- Each unit has an integrated LAN interface to communicate with the remote control center.