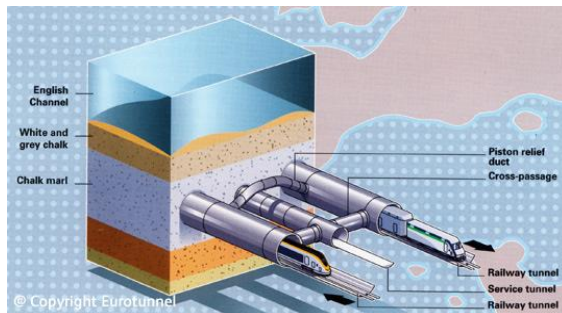




Eurotunnel Chooses AP Sensing for Fire Monitoring

A new safety standard has been achieved in rail tunnels. Eurotunnel – the operator of the channel tunnel – decided to significantly improve passenger safety by creating fire fighting stations equipped with fixed, fire suppression systems (SAFE stations). Eurotunnel chose AP Sensing's *Linear Heat Series* as the fire monitoring system to activate and control the suppression system.



The Channel Tunnel is 38 km long, the longest undersea tunnel in the world; it connects the United Kingdom with France. It utilizes high-speed Eurostar passenger trains, Eurotunnel Shuttle (roll-on/roll-off) vehicle transport and international rail freight trains.

Since opening in the spring of 1994, the Channel Tunnel has boosted travel and commerce between the UK and the Continent: by late 2010, it has been the natural choice for 230 million passengers and 215 tons of goods.

Safety and security are key requirements that have been taken into account since the Channel Tunnel was designed. However, reality challenged the safety concept in September 2008. A fire broke out on board a Eurotunnel Shuttle carrying trucks in the North Running Tunnel under the Channel. The train was travelling from England to France and was approximately 11km from the French tunnel exit.

Eurotunnel's security systems, on board the Shuttle and in the Tunnel, immediately detected the problem and the fire service took the necessary action to get the fire under control. Nevertheless, the scale of the damage to the infrastructure and the consequences in terms of reputation and loss of business for the company were considerable. In light of this, Eurotunnel quickly launched a review, looking into the appropriate ways to minimize the impact of such incidents.

As a result Eurotunnel has designed and implemented new fire fighting stations (SAFE stations). These stations detect fires using a state of the art AP Sensing Fiber Optic Linear Heat Detection System known as the *Linear Heat Series*.



Four SAFE stations - around 900 meters long - will be equipped with AP Sensing linear heat detection and monitoring systems. Once a train has stopped at a SAFE station, the systems detect the exact location of any fire regardless of high air currents. The specific fire location data is used to trigger the Fogtec high pressure water mist suppression system with pinpoint accuracy.

AP Sensing's equipment assesses the movement and position of the fire as the event unfolds. This is key for controlling and readjusting the fire suppression system over an extended time period of one hour. AP Sensing's *Linear Heat Series* is capable of withstanding temperatures up to 1000°C, giving crucial information about a fire's size, direction, and intensity.

Full-scale tests to evaluate the system were carried out in Spain in April 2010. These tests were performed under live conditions with intense temperatures (powerful enough to reach and even surpass 100 and 150 MW, which equates to a fire involving 40 cars). The results were extremely convincing; they demonstrate the efficacy of the concept to contain a fire and limit or even halt its propagation. The system offers many benefits including fast activation and intelligent control to keep the fire contained. This allows easy access for the rescue service and enables effective fire fighting.



The "SAFE" concept of smart interaction between AP Sensing's fire monitoring system and fire fighting systems is an important milestone, taking road and rail tunnel safety to a new level.