



Conveyor & Tunnel Fire Detection

Bulga Coal, Australia

An AP Sensing Linear Heat Detection solution was selected to monitor surface and coal reclaim tunnel conveyors at the Bulga Coal Handling Plant, NSW, Australia. The customer, Glencore Coal, produces about 12 million tons of coal a year and required an advanced and durable system for the protection and monitoring of its operation.

Owning around 6,000 ha of land, the Bulga Coal Handling Plant needed a reliable and precise fire detection system for early detection and localization of abnormal heat build-up in its facilities. Monitoring this build-up minimizes the potential for equipment overheating, which would consequently endanger personnel and damage the mine and its equipment.



Glencore Coal Bulga Operation

In collaboration with the partner Advanced Photonics Australia, AP Sensing has equipped the customer with a fiber optic Distributed Temperature Sensing (DTS) system. Glencore identified the need for a system that could not only provide fire detection coverage and early warning of heat build-up, but also deliver information for efficient fire management (i.e. evacuation, fire-fighting activities), locate the build-up or fire within 0.5 meters, activate fire suppression systems and provide a full history of the fire (initiation point, movement/spread, temperatures, and date/time stamping for reporting and investigation).

To guarantee quality and reliability in the harsh conditions of the mine, a robust and maintenance-free fire detection system is necessary. This solution consists of over 5 km of cable distributed throughout the site in a fully redundant set-up, providing area coverage for the conveyors, three reclaim tunnels, the handling and preparation plant, through to the train loadout conveyor and bin. Precision of detection is unaffected by wind, dust, heat and harsh environmental effects.



DTS cable distribution along conveyor paths

DTS Unit

Our DTS system provides complete and constant remote monitoring coverage of the entire length of the cable, has a Safety Integrity Level of SIL2 (IEC61508) for high reliability when alarming, and interfaces to fire alarm panels and existing site HMI/SCADA systems. The system for Glencore is fully integrated with the site's existing SCADA, enabling a smooth integration with the current IT infrastructure.

Fiber Optic Cable

The fiber optic cable is accredited for fire detection use (flame resistance 750°C for 2 hours, IEC 60331-25), does not propagate the flame along the cable (IEC 60332-3), is suitable for harsh environments (stainless steel cable sheet with high crush resistance), is immune to EMI (electromagnetic interference) and requires no maintenance after installation.



Tunnel conveyers at Glencore Bulga

Our DTS technology is a resilient and maintenance-free solution for protecting valuable assets. Monitoring the surface and reclaim tunnel conveyors of Glencore Bulga increases safety throughout the operation and minimizes serious damage. Our systems have been successfully tested and deployed in both surface and underground mines.



Coal trucks