Fires in a tunnel cause potential risk to human life and severe damage to the tunnel structure, requiring extensive repairs or causing collapse of the tunnel. The resulting disruption of transport links can cause serious economic or social problems, such as increased traffic congestion, reduction in tourism or damage to the local economy.

Among the causes of fire in tunnels are the accumulation of combustible debris along the roadway and within vent shafts, fuel spills and oils on the road surface due to motor vehicle accidents. Other causes are short circuits, electrical malfunctions in control, power cables, ventilation and air handling equipment. Once a fire has started they often rapidly spread increasing the exposure to direct heat and inhalation of toxic combustion.

Due to limited access / egress points, fire detection systems need to detect at the earliest opportunity to enable evacuation to safety muster points and extinguishing of the fire.

Patol is a global leader in the design and manufacture of specialist fire detection products for industrial applications. Founded in 1968 Patol is a privately owned British company located near Reading UK.

Linear Heat Detection Cable (LHDC) is particularly suited to applications such as road and rail tunnels where harsh environmental conditions preclude the use of other forms of detection.

Patol LHDC offers extensive single zonal lengths which may be installed with the ability to trigger alarms for hot spots occurring on very small sections of the overall cable. The LHDC may be employed in a wide variety of applications but is particularly suited where there are harsh environmental conditions.

Patol’s LDM-519-DDL controller with distance locator display can be configured to operate in two wire mode that emulates the operation of conventional heat detectors. As a result, it can be interfaced directly with fire control panels or as part of an addressable loop. Each device has a 4 digit LCD display which activates on fire condition and displays the distance into the zone the alarm has occurred. This distance can also be integrated into a SCADA system using 4-20mA output. Digital LHDC may be employed in lengths up to 2km (1999m). The unit has an adjustment to accommodate interposing cables.

Due to limited access / egress points, fire detection systems need to detect at the earliest opportunity to enable evacuation to safety muster points and extinguishing of the fire.

The Patol LHDC is designed to provide early detection of fire conditions and overheating in circumstances where other forms of detection would not be viable, due to the inability to sustain the environment requirements.