

Tunnel and highway monitoring

Distributed temperature sensing

Planck distributed temperature sensing (DTS) measures temperature along an optical sensing cable. In road tunnels, the temperature profile helps operators locate unusual heating and follow its development by tunnel chainage.

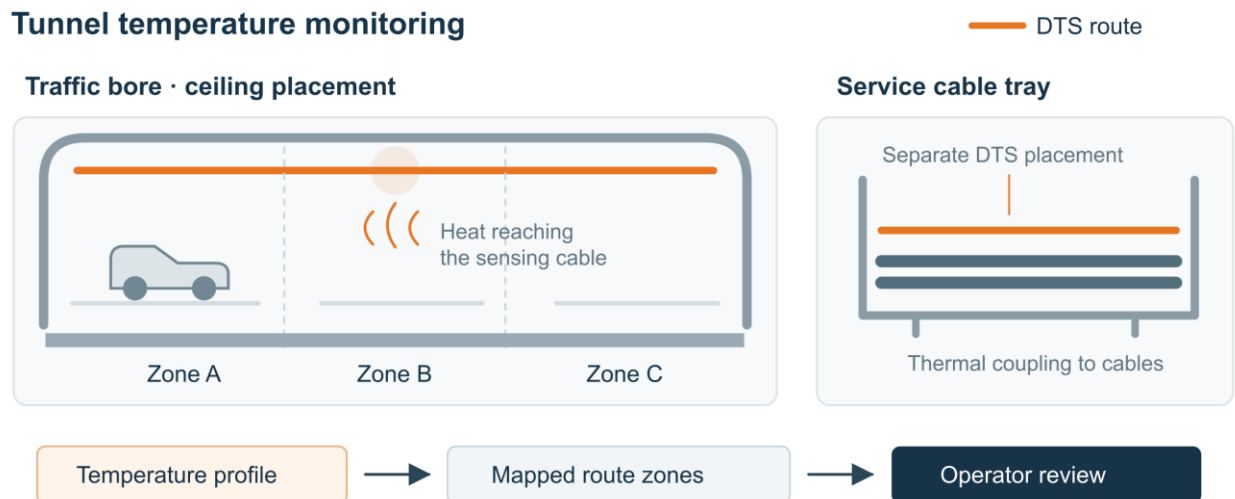
Tunnel heat monitoring

A sensing cable near the tunnel ceiling records temperature changes as heat reaches it. Cable position, ventilation and obstructions affect the response. Monitoring zones relate measurements to tunnel sections and access points.

Cable trays and service corridors

Power cables and other services need sensing routes positioned near the assets. Suitable thermal contact supports temperature trending and hot-spot investigation. A ceiling cable should not be assumed to detect a small hot spot inside a cable tray.

Tunnel temperature monitoring



Ceiling and cable-tray routes observe different thermal conditions. Illustrative layout; not to scale.

System design

Installation and commissioning

Map the sensing route to tunnel chainage, locate equipment and agree the measurement settings. Commissioning checks location mapping, temperature response, interfaces and instrument or cable faults. Fire-related use requires a complete system design and validation against the project's detection and certification requirements.

Highway traffic monitoring

DAS can be assessed separately for vibration-based traffic observation along highways and through tunnels. Estimating vehicle movement or traffic flow requires dedicated analytics and route trials; it is not a DTS temperature function.

Planck DTS equipment

Planck DTS offers four optically switched channels with E2000 connectors. Interfaces include REST API, WebSocket, RS485 Modbus, Ethernet and alarm relays.

DTS variant	Max. range	Spatial resolution
5 km multimode	5 km	0.3 m
10 km multimode	10 km	1 m
15 km multimode	15 km	1 m
25 km single-mode	25 km	5 m

Select range and spatial resolution together with measurement settings. Confirm the configuration and performance in the model datasheet.

Specify the cable construction, expected airflow and representative heating scenarios. Agree alarm criteria with the tunnel operator and the responsible system designer.

Discuss your project

Send the tunnel drawings, service routes and monitoring requirements to discuss the sensing layout.

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