

Power cable temperature monitoring

Distributed temperature sensing

Planck DTS measures temperature along a sensing fiber installed with power cables. The temperature profile helps operators locate hot sections and review changes over time.

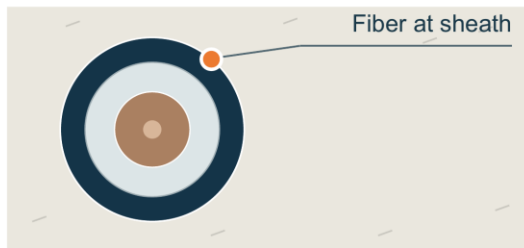
Applications

- Underground transmission and distribution cables
- Cable tunnels and utility corridors
- Wind farms and renewable connections
- Landfalls and submarine cables with compatible sensing fiber

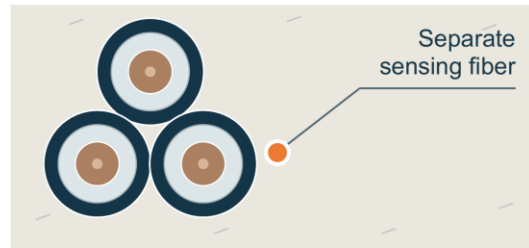
What DTS measures

DTS measures temperature at the sensing fiber, not directly at the conductor. Fiber placement and the surrounding materials affect the temperature response. Select the installation to match the monitoring purpose, whether it concerns the cable or the tunnel environment.

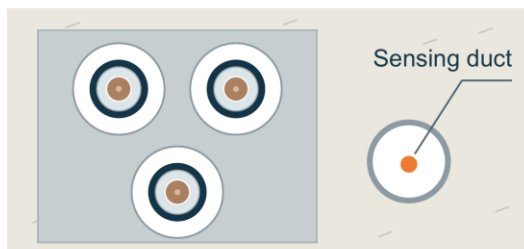
01 Cable-integrated fiber



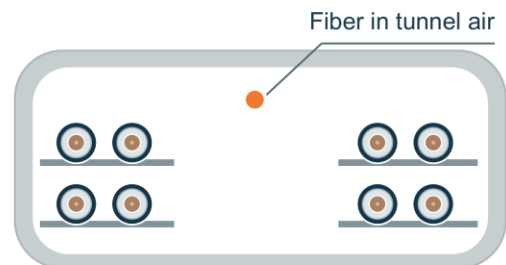
02 Separate sensing cable



03 Dedicated adjacent duct



04 Tunnel-air monitoring



Conceptual sections • Not to scale • Orange denotes sensing fiber

Monitoring in practice

Temperature profiles can show where a cable route runs hotter than surrounding sections. Map the profile to named cable sections and use zone alarms to flag temperature limits agreed for the installation. Profile history helps operators review an event and compare conditions over time. Alarm settings and integration with existing monitoring systems are configured for each project.

Measurement and equipment

The Planck DTS rackmount platform provides four optically switched channels with E2000 connectors. Select the model for the fiber route and required spatial resolution.



Model	Maximum sensing range	Spatial resolution
5 km MM	5 km	0.3 m
10 km MM	10 km	1 m
15 km MM	15 km	1 m
25 km SM	25 km	5 m

MM means multimode fiber; SM means single-mode fiber. See individual datasheets for accuracy, measurement time and operating conditions.

Integration and configuration

Interfaces include REST API and WebSocket, RS485 Modbus, Ethernet and relay output. The channels are measured in sequence through the optical switch. Confirm the acquisition cycle for the selected model and channel configuration.

Map optical distance to the physical cable route during commissioning. Account for lead fiber and spare coils so that a temperature event can be assigned to the correct cable section. Check fiber compatibility and optical loss before agreeing the final configuration.

Conductor temperature and thermal rating require a validated cable model. DTS does not replace electrical protection.

For application review, share the route length, cable construction and available fiber details with Planck Sensing at www.plancksensing.com/contact.

References: [EPRI 1024189](#) · [SEAFOM MSP 01](#) · Planck DTS datasheets [5 km](#) / [10 km](#) / [15 km](#) / [25 km](#)