Improve Grid Reliability, Efficiency and Resiliency with Fiber Sensing

Monitoring of Electric Power Operator Infrastructure with Distributed Fiber Optic Sensing (DFOS) technology.



Distributed Fiber Optic Sensing technology (DFOS) turns fiber optic cable into a smart, linear sensor that cost-effectively generates real-time, actionable information about the immediate physical surroundings along the cable over great distances. With the current high-level of focus towards improving the resiliency and reliability of the electric grid and ensuring the security of critical infrastructure, distributed fiber optic sensing (DFOS) technology should be in every utility's technology toolbox for meeting these challenges.

Distributed fiber optic sensing (DFOS) techniques such as Distributed Temperature Sensing (DTS), Distributed Acoustic Sensing (DAS), and Distributed Strain Sensing (DSS) are powerful tools for monitoring of long, linear assets. The most prevalent sensing technology for power utility applications is DTS which monitors temperatures related to the past and present electric current loads of power cables.

Key Applications Include:

- Monitoring the temperature of land and submarine power cables, overhead lines, transformers, and other assets.
 - Hot spot detection
 - Ampacity (Real-time Thermal Rating)
- Monitoring sag of overhead lines
- Localization of faults in power cables
- Monitoring mechanical load (tension, bending, torsion) of power cables during production, installation, and operation
- Smart Grid Applications

In each of these applications, distributed fiber optic sensing offers clear benefits in the ability to cover a wide area from a central monitoring point, often by taking advantage of spare fibers in existing buried cables and overhead lines. Consequently, these approaches fit perfectly with specific requirements of the power industry









The VIAVI Fiber Sensing portfolio includes Brillouin (B-OTDR) based distributed temperature and strain (DTSS) as well as Raman-based distributed temperature sensing (DTS) and traditional OTDR testing. Both solutions are offered in portable and rack-mounted configurations.

DTSS — The B-OTDR solution can be set up in portable platform (OneAdvisor 1000) for cable commissioning and routine auditing or in the rack-mounted platform (FTH-DTSS) for permanent monitoring through the widely deployed VIAVI optical fiber monitoring system (ONMSi).

- Simultaneous temperature and strain measurement requiring only one fiber
- Single ended testing
- 80 km range
- Remote access for testing and reporting via LAN or Internet connection
- Portable and rack-mounted configurations





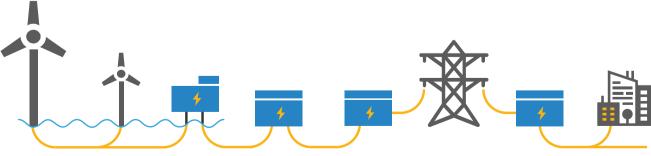


DTS — The VIAVI solution combines two unique functions (traditional OTDR and DTS) in a single unit. Available in a portable platform (OneAdvisor 800) for routine auditing or in the rack mounted platform (FTH-DTS) for permanent monitoring through the widely deployed VIAVI optical fiber monitoring system (ONMSi).

- Rayleigh 1550 and 1625 nm OTDR measurements fiber quality (loss, connectors, splices, etc.), fiber length, and bends
- Single ended testing requiring only one fiber
- Simplified DTS measurement enter desired test time and spatial resolution and press START
- 40 km range
- Remote access for testing and reporting via LAN or Internet connection
- Portable and rack-mounted configurations







1774.900.0424



Contact Us

+1844 GO VIAVI (+1844 468 4284)

To reach the VIAVI office nearest you, visit viavisolutions.com/contact

© 2024 VIAVI Solutions Inc. Product specifications and descriptions in this document are subject to change without notice. Patented as described at viavisolutions.com/patents gridefficiency-fly-fop-nse-ae 30194148 900 0624