

APPLICATION NOTE

Fibre Optics Technology in Data Centres: Real Time Temperature Monitoring and Fault Location



DATA CENTRE CHALLENGES

Data Centres demand a high power consumption in daily operations, requiring bus ducts for electricity distribution. Compact, sandwiched bus ducts are a popular method of energy distribution to save up space and handle a capacity of up to 6000A.

However, the voltages within the bus ducts can be a **challenge to the overall safety of operations**. The copper conductor within the duct can dissipate large amounts of energy, particularly in loose joints. The potential risk of faults or fire and its severe consequences are ever present.

In order to avoid overheating of bus ducts at these loose joints, an effective measurement system is required as timing is key to **detecting potential incidents early on and preventing them**.

HOW THE TECH WORKS

The Distributed Temperature Sensing (DTS) technology consists of a fibre optic sensor cable attached to the enclosure of the bus duct. A unique fibre cable monitors the entire duct, covering all feeders, joints and tees and providing **real time temperature monitoring** of the whole area. The data is shown in the control panel display, totally integrated to the BMS/SCADA system.

Another important feature is the **configurable alarm zone settings**, that permits customisation of different temperature alarms depending on the zone and area covered. This ensures fast detection of critical hotspots before failures occur and minimises unwanted false alarms. Our DTS technology has the most complete set of Certifications in the market: VdS, UL, FM, ATEX, IECEx.

Highlights

- Real time monitoring and fault location to protect lives, operations and assets;
- Temperature range from -40°C to $+150^{\circ}\text{C}$ for bus duct fault monitoring;
- Maintenance-free solution;
- 3D Visualisation capabilities;
- Immune to EMI, built with insulating materials; and
- Customisable alarms per zones and different operating conditions.



