



CONDITION MONITORING

of Live Cables in Nuclear Power Plants

Despite the recurring incidence of cable failures in aging nuclear power plants, there is no method for locating intermittent faults in energized circuits. Intermittent faults, unlike hard faults (such as open or short circuits), are defined as a temporary change in impedance that may only last a fraction of a millisecond. While less detectable than hard faults, signal spiking from intermittent faults can lead to alarm conditions and reactor trips.

How does it work?

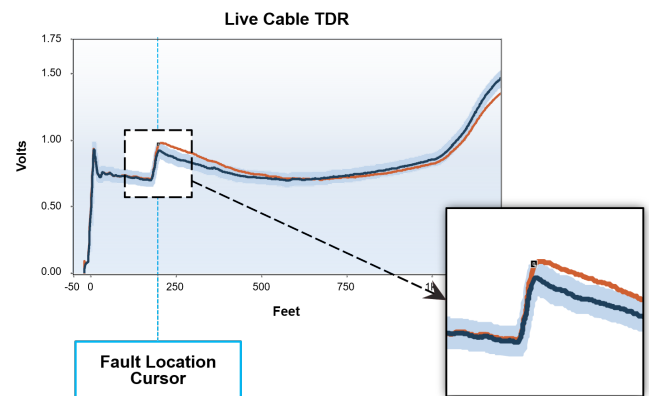
- A Time Domain Reflectometry (TDR) signature is safely coupled onto a live circuit and then measured to establish a healthy baseline.
- Repeated TDR measurements are continuously monitored for impedance changes along a cable circuit, thereby identifying and locating any circuit anomalies.
- When the circuit anomaly exceeds a predetermined monitoring threshold, the anomaly is automatically recorded, flagged, and stored in a database for distance to fault diagnostics.



TDR Integrated into AMS' CHAR System

Benefits of Use

This live cables test system can remain connected for long-term trending of changes in both energized or de-energized cable circuits. In addition to locating intermittent faults, the online monitoring system can detect circuit degradation resulting from temperature, radiation, vibration, and humidity effects on cables, connectors, and end devices.



Automatic Intermittent Fault Detection Software

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