

CTRL Systems, Inc. Best Practices

Industry

Electrical Maintenance

Application

Electrical Arc Tracking

System

Electrical.

Component

Wiring and insulating materials

Current Problem

Arc tracking is a progressive electrical failure which leads to creation of a carbonized path along the surface of a non-conducting insulator that connects two or more electrical conductors. Once a carbonized path is created, current flow, including arcing, may then occur along this path.



CTRL's Sound Solution.

1. After a short training lesson of familiarization and application of CTRL's UL101, the maintenance technician selects the UL101 receiver, headset, and concentrator from kit.
2. Verify operation of UL101 in accordance with the operator's manual.
3. Ensure electrical system under test is safely energized.
4. Without opening anything, begin at one end of the electrical system and scan around electrical cabinet vents and door openings from approximately 10 feet away.
5. Listen for electrical arc pops that originate from within the electrical housing.
6. Once a determination is made concerning the approximate location of internal electrical arcing, open electrical housing using approved methods, make repairs and re-verify using procedure above.

Benefit

Arc tracking is significantly enhanced by high voltage and conductive contaminants, such as dirt and moisture on the surface of non-conductive insulators. Temperature, humidity, and strain are all factors, which may contribute to electrical arc and tracking within electrical systems.

The UL101 ultrasound detector is used for routine scans of switchgear, substations, transformers and transmission lines. Ultrasound can be used in conjunction with infrared thermography as part of a preventive maintenance and predictive maintenance program, capable of detecting arcing, tracking, and surveying for partial discharge indicative of longer term insulation concerns and possible safety issues. It can provide a warning of arc flash danger from a safe distance of closed electrical panels.