



LIQUID LEAK DETECTION SYSTEMS

OIL & GAS DIVISION

OIL LEAK DETECTION SOLUTIONS FOR POWER GENERATION INDUSTRY

TTK will reduce down-time, maintain plant safety, and prevent environmental hazards with an effective and accurate oil leak detection system. Automate leak detection and integrate into a PLC (Programmable Logic Controller), mitigating human error and increase response time to critical leaks.

TTK CONTINUOUSLY MONITORS OIL LEAK IN A POWER GENERATION FACILITY

CRITICAL EQUIPMENT:

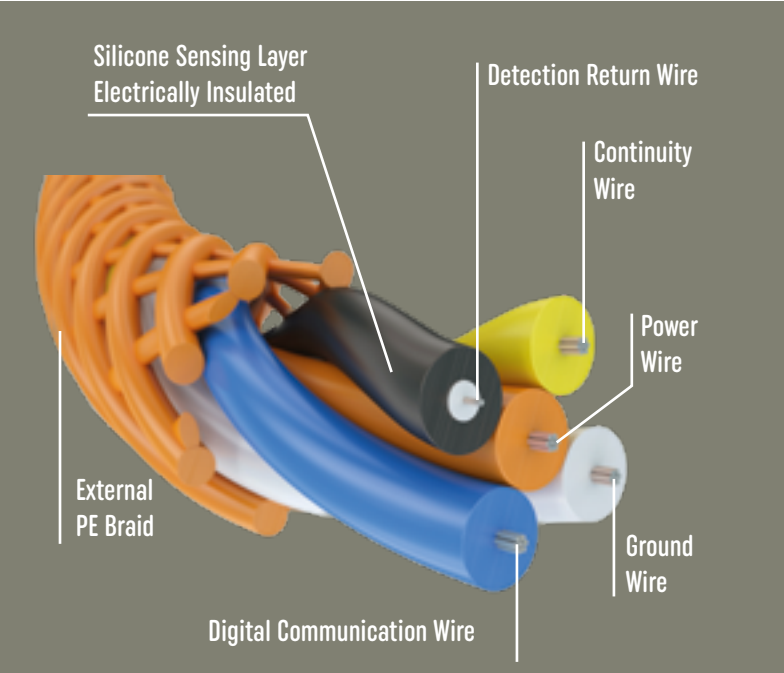
- Transformers (Main, PT, Excitation, Auxiliary, Generator Step-Up, SUS, SFC)
- Heat exchangers
- Fuel oil & Diesel storage tanks
- Backup generators and associated equipment
- Lubricating Equipment (process enclosure, seal oil, turning gear, slip ring, excitation brushes, EHC)
- Combustion Turbine Base Enclosure
- Air Compressors

INFRASTRUCTURE:

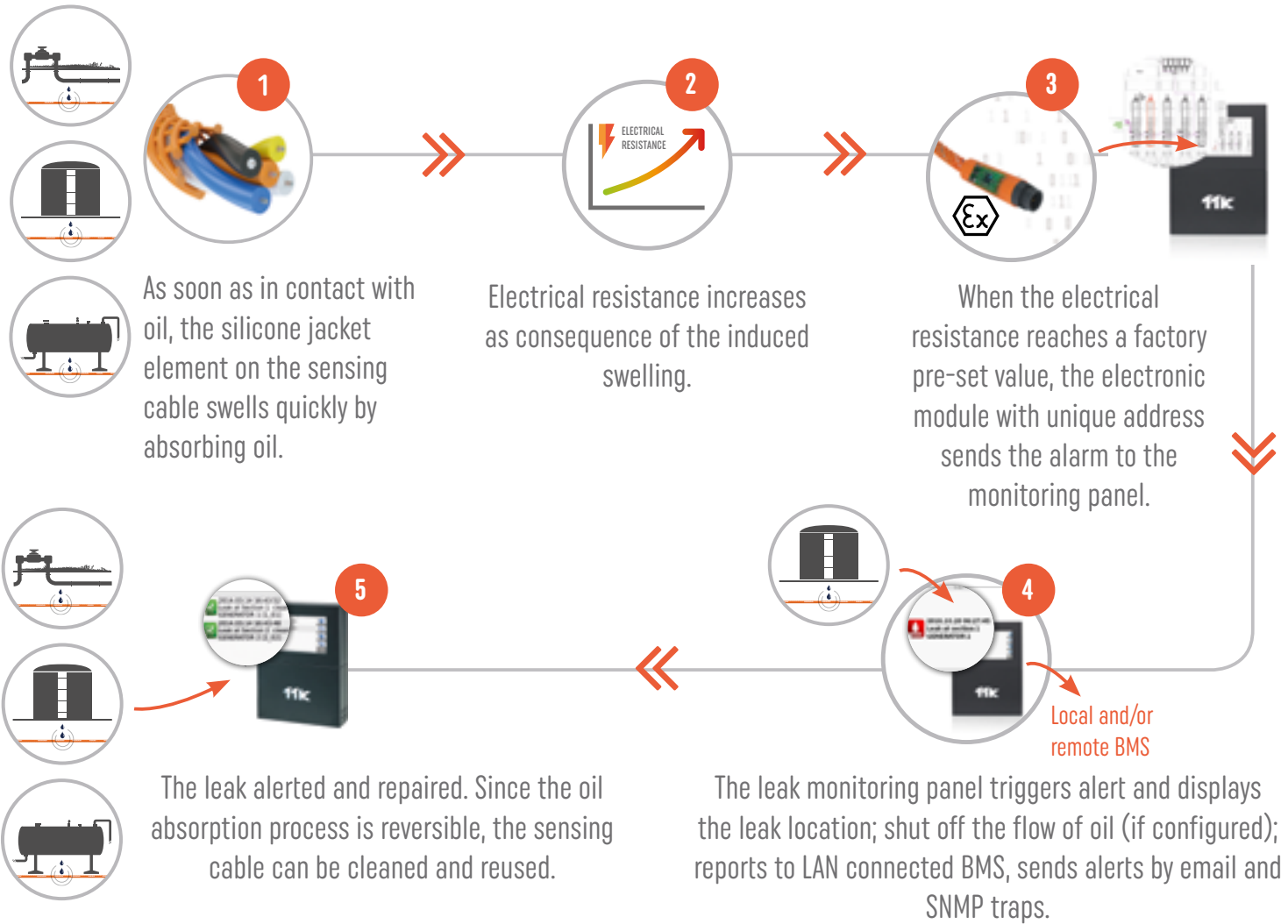
- Storm water sump
- Oil / water separators
- Fire water enclosure
- Potable water well
- Surface water intake
- Cooling Towers
- Cooling Pumps

TTK patented hydrocarbon detection is via a sensing element which is a coaxially extruded silicone jacket element containing Carbon Black. The black wire swells by quickly absorbing liquid hydrocarbon (lubrication oil or petroleum products). The outer layer of the black sensor wire is a watertight electrical insulator, permeable for liquid hydrocarbon only.

As the conductor swells, an integral microprocessor monitors for resistance. Once that resistance threshold is achieved, a leak response will be transmitted to the controller.

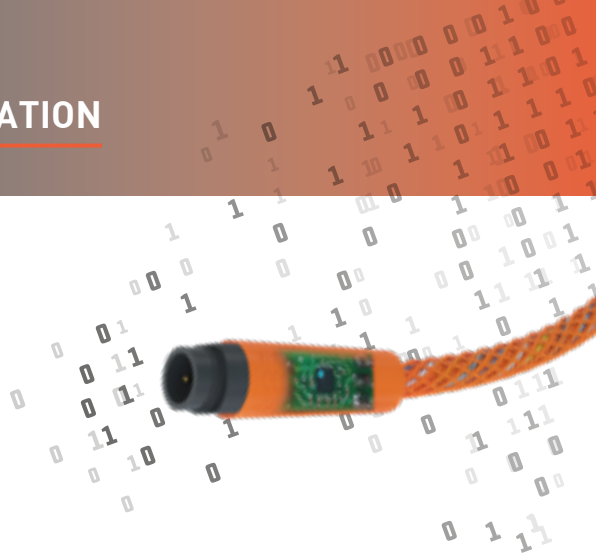


HOW DOES TTK HYDROCARBON LEAK DETECTION SYSTEM WORK



TTK LEAK DETECTION SOLUTIONS FOR POWER GENERATION

TTK, the world's leading manufacturer of Liquid Leak Detection Systems for over 30 years, provides reliable and fast response oil and water leak detection solutions to mission critical areas, such as power generating facilities, nuclear plants, tank farms, oil, and gas industry, and well as commercial buildings. TTK oil leak detection systems are based on addressable sensing cables/point sensors and leak monitoring panels.



REUSABLE OIL SENSING CABLES AND OIL POINT SENSORS

- Truly cleanable and reusable cables allowing to minimize your equipment costs
- Fast response to hydrocarbon liquids such as diesel oil, fuel, crude oil, gasoline
- Unreactive to water and pollutants
- Leak location on section length
- A range of reusable and addressable sensing cables and point sensors available



Addressable diesel oil sensing cable: FG-OD



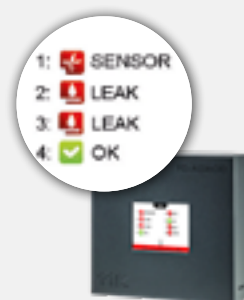
Addressable diesel oil point sensor: FG-ODP

LEAK MONITORING PANELS

- Simultaneous leaks/cable break faults can be detected on independent circuits and sensors.
- Faults are called out by type and associated cable section
- Modbus (RTU / Ethernet), TPC/IP, Dry Contact
- Integral mapping for quick leak locating
- A range of monitoring panels for small, medium, and large installation scales available



FG-NET range of high capacity digital leak monitoring panel



Four (or Eight) zones leak monitoring panel (FG-AL4/8-00)



ADVANTAGES OF TTK RELIABLE OIL LEAK DETECTION SOLUTIONS FOR POWER GENERATION

- Quick Detection
- No Nuisance Alarms
- Reusable Detectors
- Modular and Expandable System
- Installation and Maintenance Cost Reduction*
- Automate and Integrate for an Unmanned Solution

* Compared to competitive cable-like leak detection systems.

OIL LEAK DETECTION APPLICATIONS



TRANSFORMERS

Transformer oil and its appropriate volume/pressure is critical to the performance and operational life of a transformer.

Monitoring a transformer's most prone leakage points or its containment and leak path will allow for quick detection and facility response, mitigating damage and loss of downtime.



PROCESS LUBRICATION EQUIPMENT

Lubrication is a critical process function for a power generation plant, reducing friction and increasing electrical output. The many pieces of equipment within a lubricating system creates a challenging for leak detection application.

TTK's addressable and integrated leak detection allows for equipment-based and piping-based leak monitoring throughout the entire lubrication system. Digital leak detection is easy to integrate, allowing hundreds monitored locations to communicate individually with a facilities PLC.



STORAGE TANKS

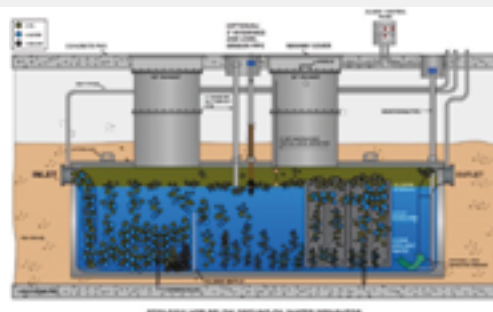
Bulk fuel storage is critical for a power generation station's emergency back-up system, it also creates a large volume collection point of liquid hydrocarbon. Leak detection can be applied to many locations within a tank and its surrounding containment. Application of leak detection is dependent on tank construction, containment substrate, and containment drainage.



COMBUSTION TURBINE

The combustion turbine, the critical cornerstone of the plant, is the most important location for leak detection. Tight spaces, explosive materials, high volume of critical instrumentation and piping, make the CT enclosure the focus of an automated power generation station. Since the CT enclosure is unmanned leak monitoring is critical to prevent down time and catastrophic damage.

TTK's patented liquid hydrocarbon leak detection allows for accurate leak detection in C1/D1 (zone 0) environments. That technology prevents nuisance alarms from dust, dirt, and metal, while only reacting to the liquid hydrocarbon itself.



SUMP (STORM WATER/ FRESH WATER), OIL WATER SEPARATOR

As a collection point of clean water, precipitation, and run off material; sumps and separators are a last containment before leaked hydrocarbon can enter the water table. The clean water side of a separator and the collection sumps of a power generation station are critical locations of hydrocarbon leak detection. With changing water elevations, float sensors or vertical cable detectors are great solutions in oil on water leak detection.



TTK Headquarters / 19 rue du Général Foy / 75008 Paris / France / T: +33.1.56.76.90.10 / F: +33.1.55.90.62.15 / www.ttk.fr / ventes@ttk.fr

TTK UK Ltd. / 3 Luke Street / London EC2A 4PX / United Kingdom / T: 0207 729 6002 / F: 0207 729 6003 / www.ttkuk.com / sales@ttkuk.com

TTK Pte Ltd. / #10-08, Shenton House, 3 Shenton Way / Singapore 068805 / Tel:+65-6220.2068 / Mob: +65.9271.6191 / Fax: +65-6220.2026 / www.ttk.sg / sales@ttk.sg

TTK Asia Ltd. / 2107-2108 Kai Tak Commercial Building / 317 Des Voeux Road Central / Hongkong / Tel:+852.2858.7128 / Fax:+852.2858.8428 / www.ttkasia.com / info@ttkasia.com

TTK Middle East FZCO / Building 6EA, Office 510 PO Box 54925 / Dubai Airport Free Zone / UAE / T: +971 4 70 17 553 / M: +971 50 259 66 29 / www.ttkuk.com / cgalmiche@ttk.fr

TTK Deutschland GmbH / Berner Strasse 34 / 60437 Frankfurt / Deutschland / T: +49(0)69-95005630 / F: +49(0)69-95005640 / www.ttk-gmbh.de / vertrieb@ttk-gmbh.de

TTK North America Inc / 1730 St. Laurent Boulevard, Suite 800 / Ottawa, ON K1G 5L1 / Canada / T: +1 613 566 5968 / www.ttkcanada.com / info@ttkcanada.com

Thomas Sales & Marketing Inc. TTK Master Distributor For USA / 7200 W 66th St / Bedford Park, IL 60638 / The United States / T: +1 630-518-4724 / www.ttkusa.com / dmolk@ttkusa.com

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