

Water & Acid Leak Detection Installation References Examples

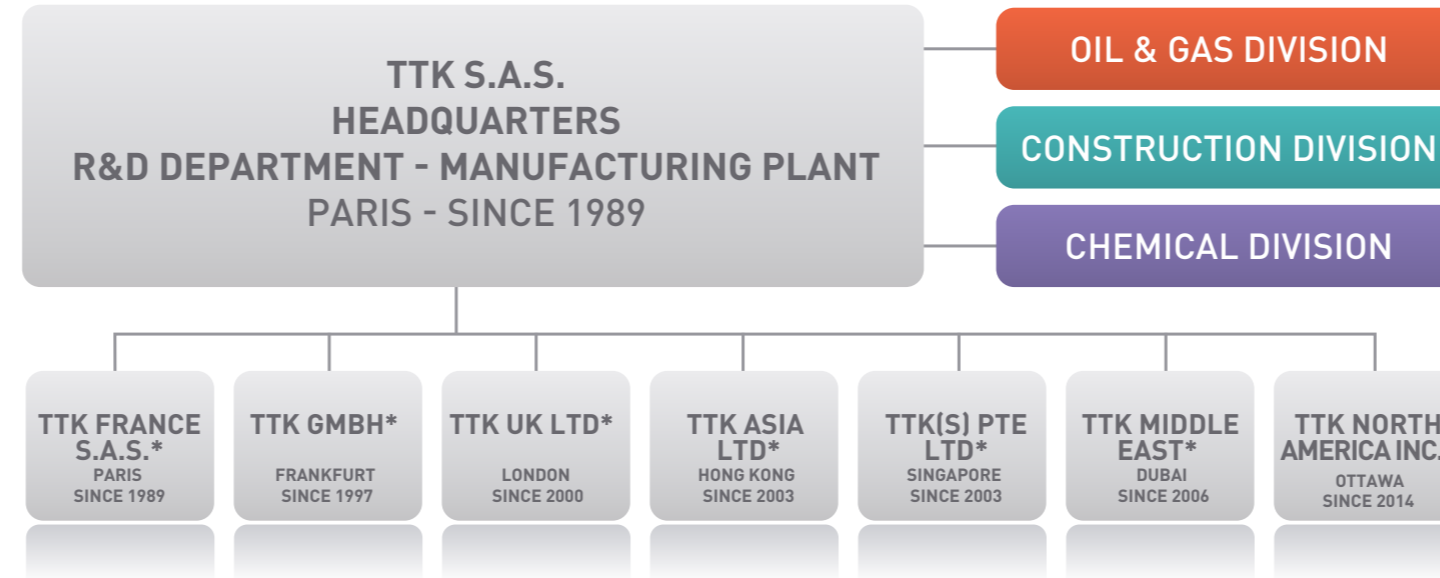
TTK equips 500+ biggest data centers in Europe, 120+ in Asia-Pacific; 660+ large sites of Banking and Finance in the world.

DATA CENTER & TELECOM	BANKING & FINANCE	PUBLIC & COMMERCIAL
<ul style="list-style-type: none"> Bouygues Telecom (global) Colt (global) Digital Realty Trust (global) Equinix (global) Facebook (Qatar) Global Switch (global) Huawei Interxion (global) Khazna (UAE) Nexity (Qatar) NTT (global) SFR (global) Telety (global) Teraco (South Africa) Verizon (global) VIPNET (Croatia) 	<ul style="list-style-type: none"> ABN Amro Bank (global) Bank of America (France) Barclays Bank (global) BNP Paribas (global) CNP Assurance (France) Credit Suisse (global) Deutsche Bank (global) DBS Bank (global) Goldman Sachs (global) HSBC (global) JP Morgan Chase (global) Macquarie Bank (Switzerland) National Bank of Kuwait Société Générale (global) Standard Chartered Bank (global) UBS (global) 	<ul style="list-style-type: none"> Abu Dhabi Investment Authority HQ (UAE) Bloomberg (United Kingdom) Deloitte Headquarters (United Kingdom) European Parliament (Belgium) Financial Times Headquarters (United Kingdom) Holiday Inn (Singapore) Hong Kong - Zhuhai - Macau Bridge (China) The Middle East Broadcasting Center Building (UAE) Museum Louvre (France; UAE) National Library (France) Omniturm (Germany) Qatar Metro Red Line (Qatar) Saint Gobain Tower (France) Supreme Council for National Security (UAE) The European Patent Office (Germany) University of Cambridge (United Kingdom)
LABORATORY / CLEANROOM	INDUSTRY	
<ul style="list-style-type: none"> Atomic Energy and Alternative Energies Commission (France) Brooks Automation Micron (Singapore, Greater China, USA) MMi Cleanroom (China) Novo Nordisk (USA) Sanofi (France) Taiwan Chimei Semi-conductor Plant Taiwan Mobile Taiwan Semiconductor Manufacturing Company 	<ul style="list-style-type: none"> Airbus (France) Abu Dhabi Company for Onshore Oil (UAE) ARAMCO (KSA) Electricité De France - EDF (France) Fujitsu (United Kingdom) IBM (France) Petroleum Development (Oman) Qatar Petroleum (Qatar) Thales (France) TOTAL (France) 	

Fuel Oil Leak Detection Installation References Examples

CONTINENT	COUNTRY	CLIENT	MONITORED AREA TYPE
EUROPE	France	Leading Energy Provider	Gas stations – U/G storage tanks, turret monitoring
	The United Kingdom	Bank Headquarters	Fuel room and day tanks
	Denmark	Refinery	Offsite valves
	Germany	Leading Manufacturer of Power Sources	Pit leak detection
	Iceland	Biomedical Manufacturer	Diesel network on power generators
THE MIDDLE EAST	Croatia	Terminal Operator	3 aboveground storage tanks (72m diameter)
	UAE	Hospital	Underground diesel pipes
	KSA	Airport	Underground jet fuel hydrant pipes
	KSA	Telecom	Generators/fuel tank/fuel pipe trench on 5 sites
	Oman	Government Office	Diesel network, power gen
AFRICA	Qatar	General Electricity And Water Supplier	Generators & diesel supply pipes
	Congo	Airport	Hydrant system
	Mauritius	Telecom	Generators room
APAC	China	Leading National Oil & Gas Company	Soil monitoring wells on 48 sites
	South Korea	Private Company	Diesel tanks
	Singapore	Principal Data Center Co-location Provider	Diesel network on power generators in data center
	Polynesia	Leading Energy Provider	Refinery
	Australia	Military Airbase	Pit leak detection
NORTH AMERICA	Canada	Leading Multinational Energy Corporation	Refinery - crude oil underground pipeline
	USA	Leading Pipeline Corporation	Above ground pipes pipeline station & underground pipes

Due to client confidentiality, clients names have been removed from this list.



* Every subsidiary has its technical support and commercial team

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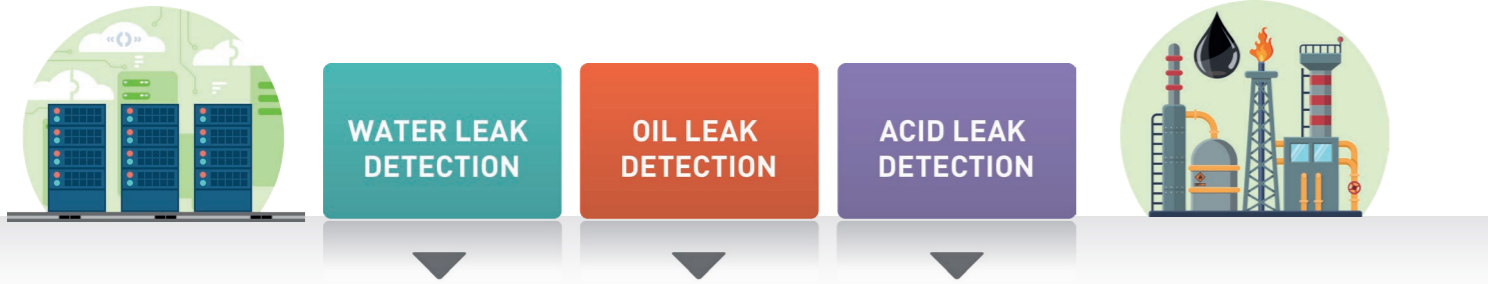
TTK: Europe's Leader in Digital & Addressable Leak Detection Solutions

TTK is Europe's leading manufacturer of Liquid Leak Detection Systems with 30 years' experience at the top of our market, specializing in water, oil/fuel and acid liquid leak detection solutions based on our microchip embedded sensing cables; the only fully digital and addressable system on the market today.

TTK's headquarters, R&D center and the manufacturing facilities are based in Paris, France. TTK designs, develops, manufactures, sells and installs (via subsidiaries or local partners).

All products are manufactured in France and, since 2018, have the benefit of a 10-year warranty! TTK products hold a number of recognized international safety and specific approvals such as UL, FM, TUV/GS, IEC, and ATEX.

Reliable and innovative, TTK leak detection solutions are used widely in 64 countries across Europe, The Middle East, The Americas, Asia and Africa.



Technical Advantages of the TTK Systems

- ▶ Early detection with accurate location of leaks (precise to 1 m)
- ▶ Reliable detection: unique cable structure helps to efficiently prevent false alarms
- ▶ Simultaneous faults can be detected, no single leak can hide behind another in the same zone
- ▶ Addressable system: microchip embedded into each sense cable
- ▶ Very fast response & reusable cables
- ▶ TCP/IP connection, MODBUS integration
- ▶ Robust system with long service life

What Can TTK Bring You More?

- ▶ Energy savings: Consume much less electricity with zero slave module
- ▶ Cost savings: Reduce costs on equipment and maintenance
- ▶ Simple design, simple installation
- ▶ Flexible solutions available for small, medium and large area monitoring
- ▶ Ideal and already widely exploited for mission critical environments such as data centers, cleanrooms, Oil & Gas industry

Water & Acid Leak Detection

Liquid Leak Risks

Critical technical environments such as data centers, banking transmission systems, air traffic control centers, and semiconductor plants, aim towards a "24/7" 0 defect safety. A liquid leakage that goes undetected can be extremely detrimental with the potential severe financial and personal consequences.

TTK In Response With Digital Leak Detection Systems

The digital leak detection systems, FG-NET and FG-SYS consist of a series of sense cables and digital units. These sense cables are often installed under raised floors in order to protect critical areas.

The cables communicate with the panel via a digital communication protocol. In the event of a leak on one sense cable, the digital panel triggers an audible alarm immediately and displays the location of the leak (precise to 1 meter) on an interactive map allowing a quick identification and reaction so as to reduce operation downtime.

The digital panel also has the ability to:

- ▶ Send the alarm messages to the remote equipments, such as host BMS or a computer.
- ▶ Send the alarm messages by email and SNMP Traps via TCP/IP network.



Applications

TTK offers tailored solutions with innovative technologies to protect property from water and acid leakages. TTK systems are being utilized to protect Data Centers, critical IT infrastructures, telecommunication facilities, as well as banks, military, government, museum and laboratories, to name but a few.

Fuel Oil Leak Detection

Dangers of Fuel Oil Leaks

In the Oil and Gas industry, hydrocarbon leaks may cause irreversible damage to personnel, business or the ecosystem. The regulatory framework is also increasing in this sector.

In building environments, non-detected diesel oil leakage on generators can be extremely detrimental with potentially severe consequences, especially in data centres, healthcare sites, airports, or critical mission facilities.

Consequently, it is imperative to consider an efficient detection system to protect your production / distribution lines and diesel generators from hydrocarbon leaks.

TTK In Response With Three Application-Specific Oil Sense Cables

TTK offers the FG-OD range of fast response, re-usable and ATEX approved oil leak detection sense cables. Used with different digital units or in point sensors, they quickly detect and locate hydrocarbon leaks, at any point along their length.

To cover a wide range of applications, both within building environments and the Oil and Gas industry, TTK offers three application-specific oil sense cables which are configured with different levels of sensitivity during the manufacturing process. While the high sensitivity cable provides a very fast response to light / medium distillates, the low sensitivity cable is specifically designed to be used where hydrocarbon vapors are present in confined environments.

Applications

From airports to service stations, from underground pipelines to refineries, and including data centers, all three of the TTK sense cables for oil leak detection have proved their efficiency throughout our range of successful projects around the globe.

