



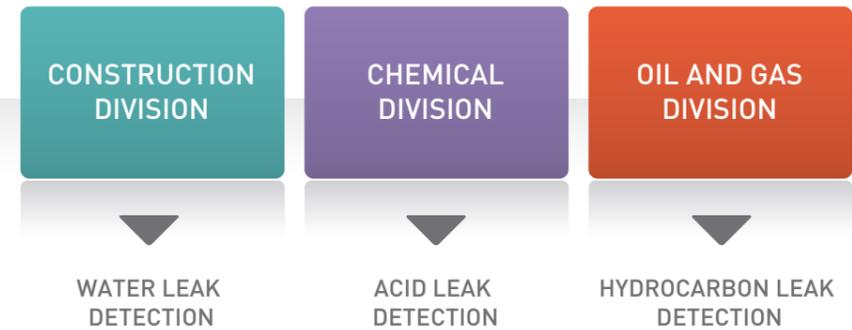
LIQUID LEAK DETECTION SYSTEMS

TTK Company

TTK is the world's **leading manufacturer** of Liquid Leak Detection Systems for commercial and industrial applications. Our expertise focuses in 3 fields: **Water, Acid Leak Detection and Hydrocarbon Leak Detection.**

TTK's headquarters, R&D center and the manufacturing facilities have been based in the Paris region, in the heart of France, for the past **25 years**. TTK **designs, develops, manufactures, sells and installs** (via subsidiaries or local partners) the leak detection systems. Since it was established, the company has built its brand name on Quality and Innovation.

All products are **manufactured in France**. TTK products hold a number of recognized international safety and specific approvals such as **UL, TUV/GS, IEC, and ATEX**. Thanks to the **innovative technology** and the **high reliability** of its products, TTK has achieved a leadership place via numerous references all over the world.



Technical Advantages of the TTK Systems

- ▶ Early detection with accurate location of leaks (precision 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: micro chip 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

The critical technical environments such as data centers, banking transmission systems, air traffic control centers, semiconductor plants, aim towards a "24/7" 0 defect safety. A non-detected liquid leakage can be extremely detrimental with the exploitation and generate very important financial or personal consequences.

TTK In Response With Digital Leak Detection Systems

The digital leak detection system **FG-NET** and **FG-SYS** consists of a series of sense cables and digital unit. These sense cables are often installed under the raise floors, to protect the critical areas.

The cables communicate with the panel via a digital serial interface. In the event of a leak on one sense cable, the digital panel triggers an audible alarm immediately. It displays the location of the leak (precision of 1 meter) on an interactive map allowing a quick action so as to reduce the operation downtime.

The digital panel also capable to:

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



Applications

TTK offers the best quality products to protect property from water and acid leakages. TTK systems are being used in a variety of applications such as data centers, government buildings, UPS rooms, laboratories, water supply systems, and industrial premises.

Hydrocarbon Leak Detection

Dangers of Hydrocarbon Leaks

In the Oil and Gas industry, the three potential consequences engendered by hydrocarbon leaks are **fire, explosion and environmental contamination**. All of them may cause irreversible damage to personnel, businesses or the ecosystem. The regulatory framework is also increasing in the sector. Consequently, it is imperative to consider an efficient detection system to protect your production / distribution lines or storage tanks from the hydrocarbon leaks.

TTK In Response With the Latest Innovative Technology

TTK offers **FG-OD: a fast response, re-usable and ATEX approved** oil leak detection sense cable. Used with different digital units or in Point Sensors, it detects and locates quickly, even small hydrocarbon leaks, at very early stage.

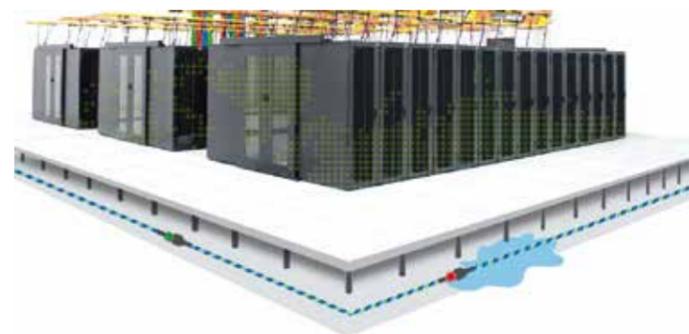
The system provides the **Dynamic Leak Evolution Analysis** allowing the operator to monitor leak's progression and to gain precious time in the event of a leak, particularly in pipelines and tank farm applications where the access to leak is time consuming and difficult.

The panel reports to the LAN-connected DCS / Safeguarding System by driving dynamic drawings and sending email alerts and SNMP traps.



Applications

FG-OD sense cable is capable of detecting gasoline, diesel oil, crude oil, and jet fuel amongst others. TTK oil leak detection systems are suitable for installation in the different environments of the Oil & Gas industry.



DATA CENTERS - MISSION CRITICAL AREAS

CLEAN ROOM - SEMI CONDUCTOR PLANTS

TECHNICAL ROOMS

PIPELINES

TANK FARMS - FUEL DISTRIBUTION NETWORKS

OIL REFINERIES - PETROCHEMICAL PLANTS

GENERATOR ROOMS

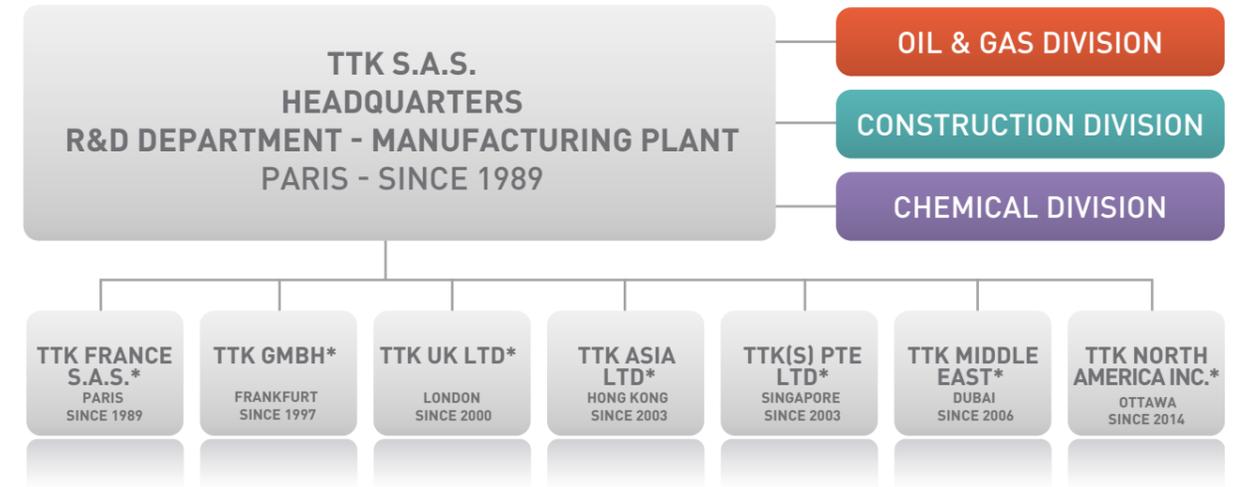


Water & Acid Leak Detection Installation References

TTK equips 270+ biggest data centers in Europe, 80+ in Asia-Pacific; 300+ large sites of Banking and Finance in the world.



<p>DATA CENTER & TELECOM</p> <ul style="list-style-type: none"> BBC Bouygues Telecom China Unicom Colt Digital Realty Trust Equinix Global Crossing Global Switch IBM Interxion Level 3 Orange Singtel Telety T-systems Vodafone 	<p>BANKING & FINANCE</p> <ul style="list-style-type: none"> ABN Amro Bank Barclays Bank BNP Paribas Citigroup Commerzbank AG Credit Agricole Credit Suisse Deutsche Bank HSBC ING Group JP Morgan Chase Nomura Royal Bank of Scotland Société Générale Standard Chartered Bank UBS 	<p>PUBLIC & COMMERCIAL</p> <ul style="list-style-type: none"> Aéroport de Paris (France) Defense Ministry (France) European Council (Belgium) Frimley Park Hospital (United Kingdom) Independent Commission Against Corruption Headquarter (HK, China) Kowloon Commerce Centre Tower 1 (HK) Museum Louvre (France) National Library (France) Presidential Palace (UAE) Shanghai Stock Exchange (China) Singapore Air Traffics Control Centre (Singapore) The European Patent Office (Germany) University of Cambridge (United Kingdom) West Corridor (China)
<p>LABORATORIES / CLEANROOMS</p> <ul style="list-style-type: none"> Atomic Energy and Alternative Energies Commission (France) Changi Water Reclamation Plant (Singapore) MMI Cleanroom (China) Sanofi (France) Taiwan Chimei Semi-conductor Plant Taiwan Semiconductor Manufacturing Company 	<p>INDUSTRY</p> <ul style="list-style-type: none"> Abu Dhabi Company for Onshore Oil (UAE) Airbus (France) Air France (France) ARAMCO (KSA) Electricity of France - EDF (France) Fujitsu (United Kingdom) Petroleum Development Oman (Oman) Qatar Petroleum (Qatar) Renault (France) TOTAL (France) 	



* Every subsidiary has its technical support and commercial team

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Hydrocarbon Leak Detection Installation References

COUNTRY / CITY	PROJECT	MONITORED AREA TYPE
France	Leading Energy Provider	Hydrocarbon Underground Pipe-in-pipe
	Airport	Jet Fuel Distribution System
	Principal Data Center & Colocation Provider	Diesel Generator Room in Data Center
Singapore	Water Traitement Company	Diesel Distribution System Underground Pipe-in-pipe
Hong Kong	Private Sport Club	Genset Room
Taiwan	Military Project	Oil Tank Storage Room
South Korea	Private Companies	Diesel Tank
Australia	Main Data Center	Generator Room
Saudi	Key Telecom Company	Generator, Fuel Tank, Fuel Pipe Trench
	Universities	Fuel Tank
	Public Research Center	Outdoor Pipe + Fuel Tank, Generator
UAE	Data Center	Fuel Pump Room, Fuel Tank
	Communication Service Provider	Fuel Tank, Generator
	Local Business Conglomerate	Fuel Tank
	Investment Council Headquarters	Fuel Tank, Generator
	Landmark Commercial Building	Fuel Tank, Generator Rooms
Airport	Underground Fuel Tank	

