

Industrial Strength Leak Detection



**Don't let an
undetected leak
or spill ruin
the environment
or your
reputation...**

TraceTek® Technology:

Find leaks before major damage is done...



Detect a spill, locate the source of the leak and take corrective action before an incident becomes a “news story.” The secret is quick detection and accurate location at the source of the leak. TraceTek sensor cable and monitoring systems make it possible.

If your business involves the transportation, storage, processing or consumption of hazardous fluids, the possibility of a leak must be considered.

Whether your concern is gasoline, jet fuel, diesel, crude oil, acids, bases, contaminated water or any other hazardous liquid, TraceTek® can provide a leak detection system tailored to your needs.

TraceTek leak detection systems can detect and pinpoint the source of a leak to help you take decisive action long before the spill can darken your reputation.

TraceTek Technology:

Sensor cable suited to the task

- TT3000 for acids, bases and other hazardous fluids with water content
- TT5000 for gasoline, jet fuel, diesel, crude oil, lube oil and other hydrocarbon based liquids
- TT5001 for organic solvents
- TT7000 for strong acids and bases

Reliability

- Simple detection and location circuit
- Radiation cross linked, fluoropolymer materials
- No exposed metal parts
- Tens of thousands of installations worldwide in every type of environment

Easy installation, simple maintenance

- Simple easy to understand alarm panel
- No field calibration required
- Self-monitoring for damaged or broken cable
- Easy to add to or make changes in the future

Precise leak location

- The entire cable is a sensor
- Leaks are reported to the nearest foot or meter with better than 0.1% accuracy

Instrumentation flexibility

- Small area, single channel monitoring with relay output
- Long cable lengths monitoring with precise leak-location reporting
- Single circuit / multiple circuit options
- Alpha numeric user interface
- Output to host systems via relay contacts, 4-20 mA analog current loop or serial data ports via modbus or Johnson Controls Metasys® format

Multiple circuit capability

- A single circuit can be as short as 1 meter or as long as 1500 meters
- TTDM-PLUS Alarm Panel can monitor a single circuit or up to 128 circuits



TraceTek Leak Detection Systems

can operate as stand-alone independent alarm systems or they can easily be integrated with:

- SCADA system
- Factory Automation Systems
- Building Management Systems
- Distributed Control Systems
- Programmable Logic Controllers.

A TraceTek Leak Detection System consists of Sensor Cable, Sensor Interface Modules and Alarm Panels. Additional sensor options include: float switches, point probes, pressure switches or any other sensor device that can provide a contact closure.

Instrumentation options include: low voltage / relay contact devices, instruments for hazardous locations, battery powered flashing light indicators, and other options tailored to the application.

TraceTek® Cable:

Direct buried applications:



Jet fuel transfer line with blue PVC slotted conduit for TT5000 installed at a major international airport.

TT5000 Sensor Cable in PVC conduit can be positioned below buried valves or beneath Above-ground Storage Tank bottoms.



Leak Detection and Monitoring for:

- single wall fuel pipe
- above ground storage tanks
- buried valves and fittings

TT5000 Fuel Sensor Cable is used to monitor the soil under and around fuel carrying pipes and tanks.

The TraceTek system detects and reports the location of an environmental release before major damage can occur. Leakage rates far below the threshold of a SCADA (Supervisory Control and Data Acquisition) leak detection system can be detected while contaminated soil is still measured in a few cubic meters rather than truck loads.

The TraceTek system reports the location of a leak to an accuracy of +/- 1 meter along the length of a pipeline or beneath a tank floor. The slotted PVC conduit allows the sensor cable to easily be removed and inspected for simple and direct verification of a leak before digging.

Detect and locate a leak before damaging the aquifer!



Figure 1

Figure 2

Figure 3

Figure 4

Above, figures 1: 8 litre per hour leak 1 hour after onset.

Figure 4: 8 litre per hour leak 20 hours after onset.

Positioning of the PVC conduit and TT5000 sensor cable is not critical. The intention is to detect a leak when the affected region is still below grade and easy to clean up with a minimum of environmental damage.



Interstitial and Indoor applications:

Interstitial monitoring for double wall pipe.



TraceTek 3000 sensor cable is designed to detect waste water, acids, bases, or any liquid that is conductive. Rapid detection, accurate location reporting and excellent chemical resistance make TT3000 a popular choice for double containment pipe systems.



TraceTek 5000 is the sensor of choice for fuel piping and underground storage tanks. TraceTek 5000 detects fuel but ignores water. Branch connectors simplify tracing complex manifolds and hydrant systems. Every foot of pipe has a unique "address" so that leaks are detected where they start and repairs can be accurately directed.

Indoor monitoring under raised floors, for chemical supply and return piping and other hazardous fluid leak detection.



Whenever complex piping, hazardous chemicals and critical working environments come together, a system to monitor for fluid leakage becomes critical.



TT3000 (for conductive liquids) and TT5001 (for organic solvents) are used to monitor the chemical supply systems in semi-conductor manufacturing facilities, pharmaceutical plants, and similar high value facilities that demand excellent environmental monitoring.

TraceTek cable provides the flexibility to monitor long runs of pipe or a single valve box where visual inspection is difficult or impossible. Precise location reporting assists in rapid and accurate dispatch of emergency response teams.

TraceTek® Technology:

TraceTek Technology and System Components

RIGHT: TraceTek Sensor Cables are made with materials that have excellent chemical resistance. The TT3000 sensor cable uses two conductive insulated wires separated by the solid Kynar insulated core.

The TT3000 is quick to reset when removed from a spill because the solid core resists accumulation of liquids and contaminants. TT3000 sensor cable detects conductive liquids such as waste water, acids, bases, cooling water etc.

RIGHT: TraceTek 5000 sensor cable is designed to detect and locate liquid hydrocarbon fuel spills. The material properties of the core and jacket materials allow the cable to detect and locate liquid fuels such as gasoline, jet fuel and diesel while at the same time completely ignoring water.

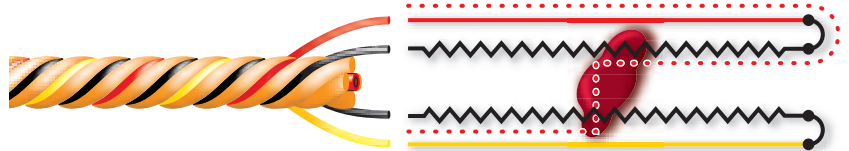
TT5001 is a similar cable that uses a different material that is sensitive to organic solvents.

LEFT: The TTDM-PLUS Alarm Panel can act as a stand alone leak detection control panel or as the display and user interface for a multiple circuit network of leak detection circuits.

RIGHT: The TTSIM-1 Sensor Interface Module is the key component of multiple circuit leak detection networks.

Leak detection information and cable status is digitized and transmitted to a TTDM-PLUS panel for display or directly transmitted to Factory Automation Systems, PLC's, DCS etc.

BELOW: TTC-1 is a good choice when a short length of sensor cable is used to monitor a small area and a simple relay contact interface.



Other TraceTek monitoring options include:

TTA	For small area monitoring in hazardous locations
TTG	Multiple sensor cables (4 or 12 circuits) in hazardous locations
TT-FLASHER	Battery powered, flashing light indicator for hydrocarbon leak detection
TTSA	For small area monitoring in non-hazardous locations

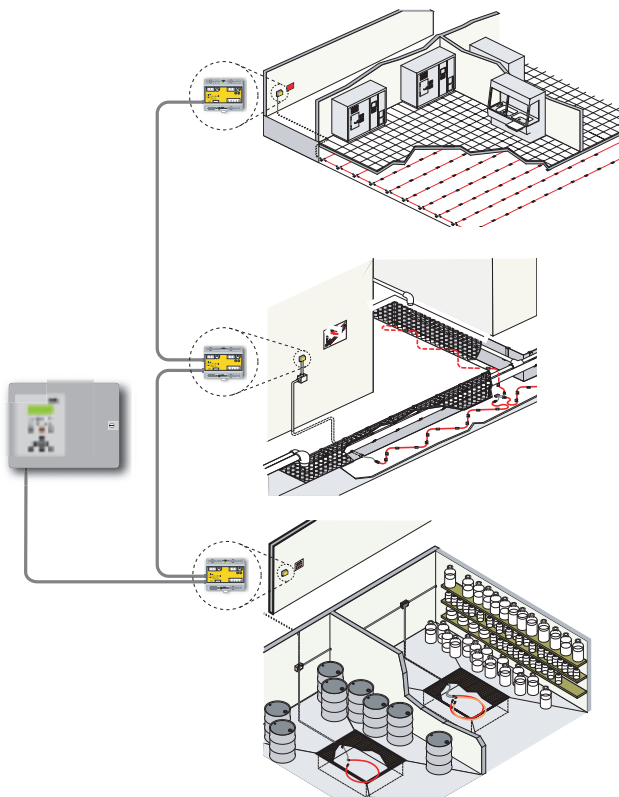
System integration and telemetry options:

Relay Contacts TTA, TTC, TTG and TTDM Panels have summary alarm and trouble contacts available for low level alarm and trouble signals to a host system. TTSIM does not have its own relay contacts but can be used in conjunction with TT-RRB to provide a programmable array of relay contacts.

4-20 mA analog current TTDM-PLUS has an analog output. The installer can adjust scaling and channel assignment through simple menu commands.

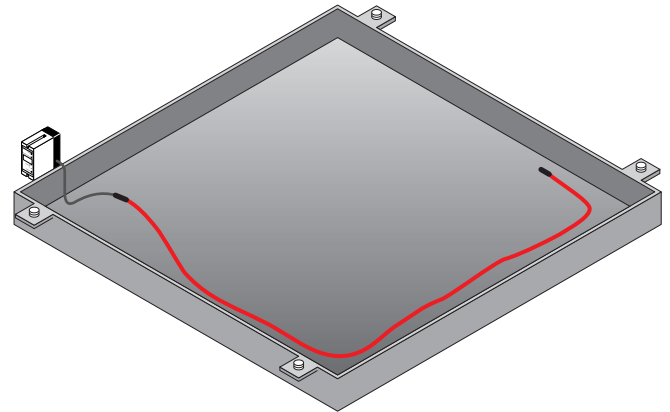
Serial Data Port TTDM-PLUS and TTSIM offer full data access via the Modbus® (J-Bus) protocol. TTDM-PLUS has a user selectable RS232 or RS485 serial port. TTSIM is RS485 only.

Telemetry The standard connection method between TTDM-PLUS and TTSIM's is twisted copper wire pair. When network distances increase beyond 1300 m (4000 feet) there are other options available including: fiber optics, spread spectrum radios and cell phone based alarm reporting.

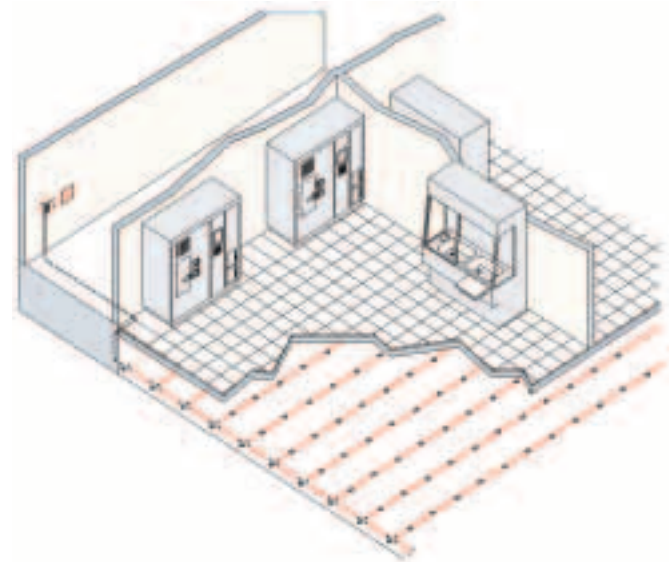


For clean rooms and similar building applications a single TTDM-PLUS alarm panel can monitor the entire facility for hazardous liquid spills.

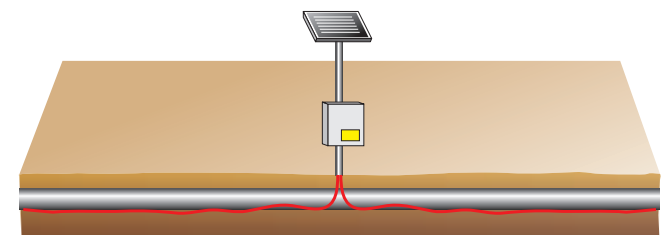
Here several TTSIM units are monitoring specific areas while the TTDM-PLUS monitor the entire network.



For a single small area, a TTC-1 can provide relay contact output to a PLC or building management system. The combination of sensor cable and a TTC makes an effective drip tray monitoring system.



Knowing the leak location is important when the size of the monitored area gets larger and when the sensor cable is concealed by walls or raised detection and location performance with location accuracy to +/- 1 meter.



TT5000 can be installed along a buried pipeline using a cluster of 4 TTSIM units mounted in a single enclosure. Powered points are required approximately every 5 to 6 km (3 to 4 miles).

TraceTek and Tyco Thermal Controls

Tyco Thermal Controls

The TraceTek Leak Detection and Locating System was developed by Raychem Corporation in the mid 1980s. The TraceTek Products Group became part of Tyco Thermal Controls when Raychem Corporation was acquired by Tyco International in 1999.

Tens of thousands of TraceTek systems have been installed over the years in a variety of leak detection applications ranging from water detection in commercial buildings to hazardous fluid monitoring to leak detection for fuel storage and transportation systems. The versatility of the TraceTek technology lends itself to customized designs that detect and locate liquid leaks and spills before equipment or environmental damage becomes significant. Whether it's a matter of personnel safety, the need to 24/7 reliability, or avoidance of expensive environmental clean-up costs and penalties, the TraceTek system can be a key element of your facility operating and security systems. Tyco Thermal Controls is an ISO 9001 Certified Development and Manufacturing Facility with sales and support operations in over 40 countries around the world.

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