

Minimize Leaks
Maximize Asset
Protection



**LEAK DETECTION &
LOCATION SYSTEMS**

 **PermAlert**[™]
Division of Perma-Pipe, Inc.

Liquid Leak Detection & Location Systems

www.permalert.com

WHEN LEAK SENSING ALONE SIMPLY ISN'T ENOUGH ...

With increasingly complex requirements to support infrastructure such as mission-critical data centers and environmentally sensitive oil pipelines, facility managers are compelled to look for a smart and effective leak detection solution beyond conventional leak sensors.

PermAlert is the industry leader in leak detection technology in providing innovative solutions across multiple sectors. PermAlert offers the most effective, reliable and continuous monitoring solutions.

MONITOR
DETECT
LOCATE
REPORT

WHY PERMALERT LEAK DETECTION?



24 X 7 MONITORING

Continuous monitoring of critical infrastructure and equipment



MULTI-LEVEL ALERTS

Capable of detecting multiple and growing leaks while maintain continuous operations



SYSTEM LOGGING

Every leak detection event is recorded in system log to allow full audit trail and ease of troubleshoot



BMS INTEGRATION

Support BMS integration via RS485, Modbus, BACnet and dry contacts



COST SAVINGS

Minimize downtime and damages to critical infrastructures. And reduction of insurance premium

TECHNOLOGY SOLUTIONS

DATA CENTER APPLICATION

Water leak sensing under raised floor to provide early leak detection to maintain data center uptime and protect valuable assets.

FUEL LINE APPLICATION

Sensing cable to detect fuel leaks in critical infrastructure such as generator pads and fuel lines.

CRITICAL FACILITY APPLICATION

Sensing cable installed on ceiling to detect leaks from roof and/or plumbing such as sprinkler and chilled water piping.

INDUSTRIAL APPLICATION

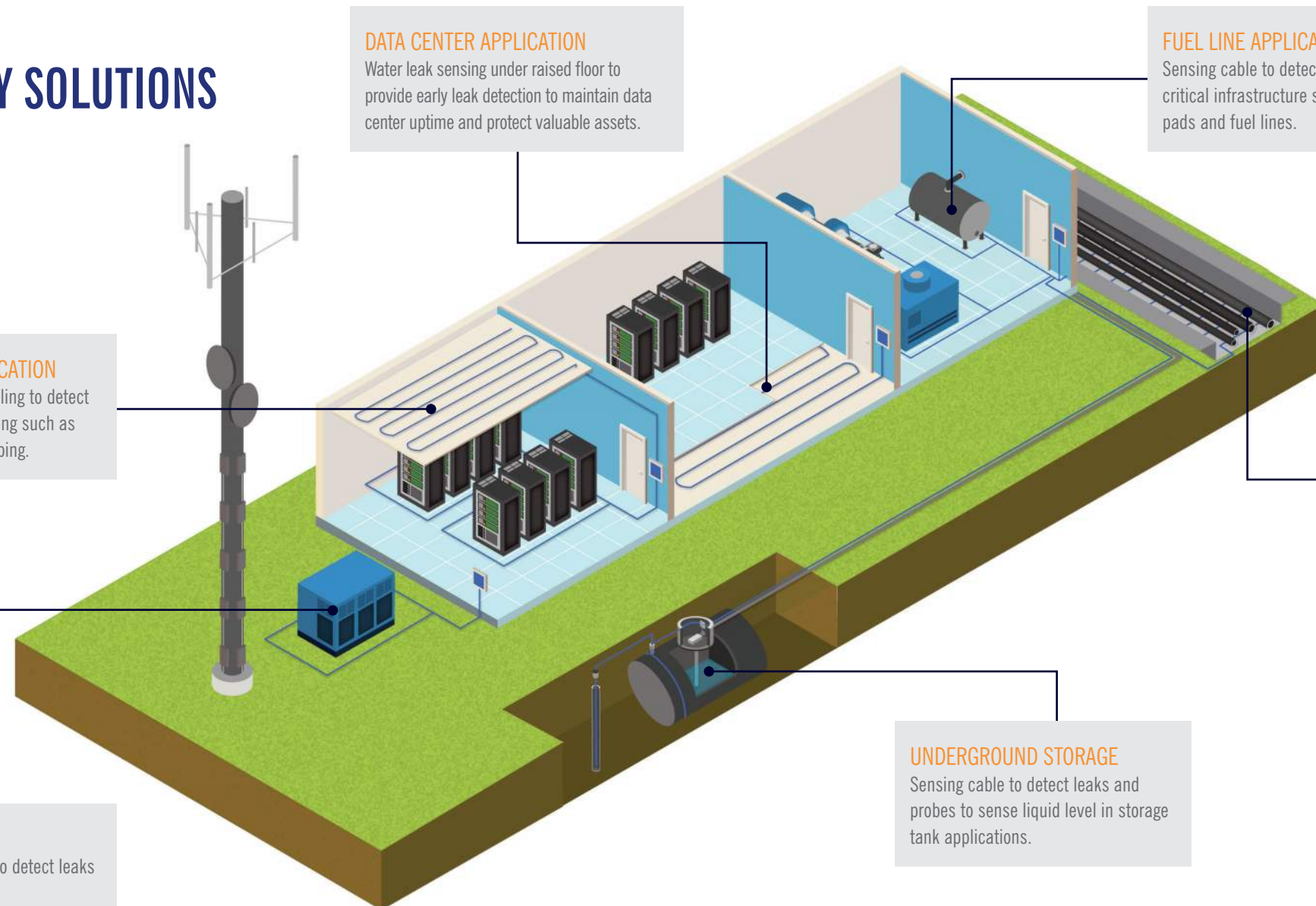
Sensing cable can be deployed in trenches connecting supply and return piping to detect water and/or hydrocarbon leaks. Sensing cable can monitor over long distances up to thousands of feet.

OUTDOOR APPLICATION

Ruggedized sensing solution to detect leaks for outdoor applications.

UNDERGROUND STORAGE

Sensing cable to detect leaks and probes to sense liquid level in storage tank applications.





PAL-AT®

The PAL-AT® control panel is an advanced leak detection system equipped with smart processor that is capable operating as standalone system, IP addressable as part of a networked solution or integrated with 3rd party building management systems (BMS). It operates similar to radar by measuring the time delay of the energy pulse reflections along the sensing cable (Time-Domain Reflectometer or TDR). The system establishes a reference map by storing the initial dielectric properties of the sensing cable. When the cable is exposed to liquids, the impedance change will result in changes to energy reflected thus triggers an alarm. Unlike resistive sensing technology which loses accuracy after initial leak detection, the PAL-AT® system is capable of pinpoint multiple leaks over long distance with high level of accuracy. The system is a truly cost effective and scalable solution that delivers unprecedented flexibility for leak detection in any application.

System Features

- Multilevel and multi-location detection
- Continuous monitoring capable
- Extensible system supports up to 4 channels (7500 ft sensing / channel)
- Support both cable and probe sensors
- Built in system logging of historical data
- Optional ruggedized NEMA 4X enclosure available for extreme environment
- Optional Intrinsically Safe Circuits (ATEX, UL, FM)
- Communication protocols – TCP/IP, RS-485 and RS-232
- Operate as standalone system or networked with PALCOM® 10 software
- BMS integration capable (Modbus, BACnet, RS-485 and dry contact relays)



FLUIDWATCH® & FLUIDWATCH II®

LIQUIDWATCH®

The PermaAlert LiquidWatch® is designed to detect volatile liquids and water utilizing discrete probes with fast sensing response in seconds. The highly modular system is expandable up to 64 probes and 16 alarm relays. The system can also be configured to monitor 3rd party switch such as float switch, high level switch and thermostat.

With the capability to monitor over long distances, probes can be easily setup remotely from the LiquidWatch® control panel. And the patented PHLR probe for LiquidWatch® is solid-state design that responds to hydrocarbon leaks in seconds while virtually eliminating false alarms.

System Features

- Connect up to 64 probes and 16 programmable alarm relays
- Configurable to monitor 3rd party switches
- Built in system logging of historical data
- Remote monitoring capable via RS-232, relays and PALCOM® 10 software
- Class I, Division 1, Groups C & D sensor circuits options available
- Optional Modbus RTU available
- Optional ruggedized NEMA 4X enclosure available for extreme environment



The FluidWatch® is a standalone system ideal for monitoring leaks in smaller areas and facilities such as unmanned equipment rooms, small tanks and small raised floor areas. The compact footprint of FluidWatch® II panel is easily installed in tight spaces with wall mounting holes.

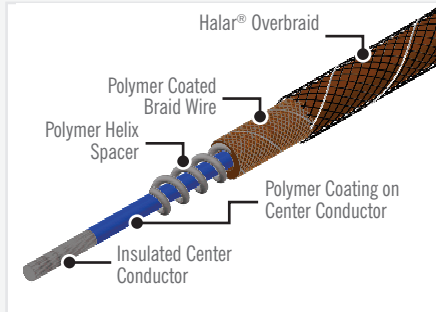
System Features

- Full plug and play complete system kit
- Sensor length options available – FluidWatch (50 ft, 75 ft & 100 ft) / FluidWatch II (15 ft, 25 ft, 60 ft & 100 ft)
- Support up to 4 SPDT output relays
- Adjustable system sensitivity
- Support low voltage application with 10 – 30 VDC

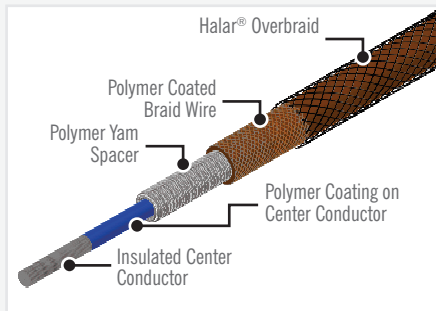
SENSING CABLES & PROBES

PermAlert offer wide variety of sensing cables and probes engineered to meet specific application requirements.

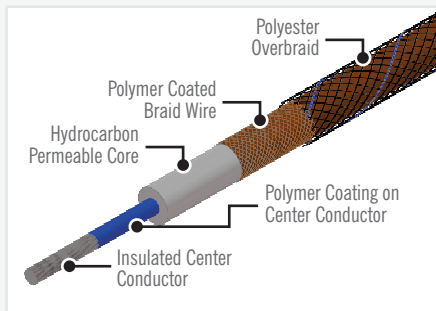
Cables



AGW-Gold
Chemically resistant and quick drying capability allow this cable to be widely adopted for water as well as corrosive liquid applications such as acids, bases and solvents.



AGT-Gold
Wicking cable designed to further enhance sensitivity in shallow depth application. Cable of detecting both water and corrosive liquids with as little as 1/16" (1.5 mm) depth.



TFH-Gold
Wicking cable engineered for hydrocarbons detection use only. Cable unique capability in distinguishing hydrocarbon from water effectively eliminates false alarms. Typical application in monitoring fuel lines, oil tanks and pipeline.

ATP

Twisted pair sensing cable designed specifically for polyurethane insulated pipes. The cable will detect any water-based liquids. The cable is factory installed along with the insulated pipe typically used in district heating and cooling applications.

Probes

PHLR Probe

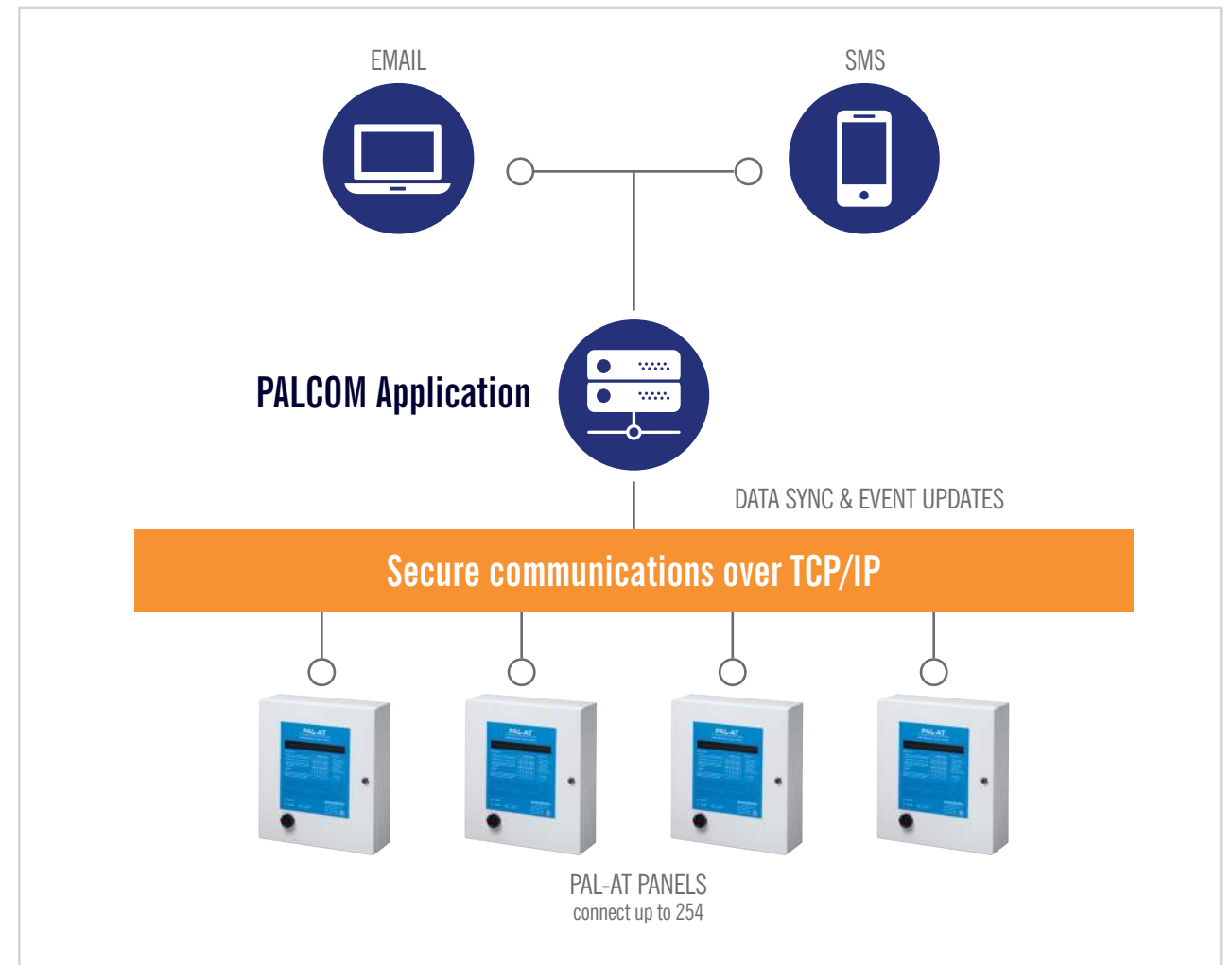
A resettable probe designed for detecting hydrocarbon. The probe is capable to detect many different grades of fuel such as gasoline, diesel, crude oil and jet fuel while eliminating potential false alarms by ignoring vapors. Options available to support pressurized and non-pressurized applications.

PFS Probe

A hermetically sealed reed float switch designed for liquid level sensing ideal for tank storage applications.

PWS Probe

The PWS probe is a versatile probe that is capable to detect all conductive liquids such as water, acid, bases and solvent. Its solid-state, stainless steel construction allows it to be used in highly corrosive environments with high level of accuracy.



PALCOM® 10 SOFTWARE

PALCOM® 10 offers centralized and aggregated remote management of networked PAL-AT® and LiquidWatch® systems. The interactive real-time display of sensor layout allow user to quickly identify and locate leaks and fault conditions. The software supports multiple connections protocols that includes TCP/IP, RS-485 and RS232.

System Features

- Connect up to 254 PAL-AT® and LiquidWatch® systems
- Centralized monitoring and logging of all events
- GLSViewer feature allow real-time display of leaks on system layout
- GraphViewer feature to allow plotting of sensing data for troubleshooting
- Alert notification via SMS and/or Email
- Remote configuration capable

THE QUESTION OF

TOTAL COST OF OWNERSHIP...

The criteria to selecting the right leak detection solution doesn't end with just initial purchase price and features of the system. The total cost of ownership (TCO) of the system throughout its service life is often overlooked during the decision making process. And the hidden life cycle cost can be especially high when the system is deployed in hard to access locations such as under a concrete floor. PermAlert's superior system reliability, dust-tolerant and reusable sensing cable technology offer a hassle-free solution that will reduce owner's total cost of ownership. Coupled with the flexible service offerings, PermAlert leak detect systems will operate well beyond its intended service life.

YOUR GLOBAL PARTNER FOR LEAK DETECTION

ABOUT PERMALERT

leak detection
division established
1988

30+ Million
square feet
actively monitored

serve over
25 countries

nasdaq listed
PPIH

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