

PIPELINE LEAKAGE DETECTION

Fiber-Optic Leakage Detection System

**AP Sensing:
Your trusted partner for
fire detection**

AP Sensing is your **global DTS solution provider for your pipeline monitoring needs**. We provide global sales and service through a network of local offices and highly qualified partners. Our product quality and reliability are unsurpassed, which brings you peace of mind and lower cost of ownership. **With our experienced engineering team and global references, we are your ideal partner** to design, commission, and maintain a highly reliable asset protection solution.

The heart of our DTS solution is based on **key technologies developed by HP/Agilent Technologies, the world leader in optical test and measurement** for over 25 years.

Building on HP/Agilent's processes and knowledge, we have established ourselves as **the leading solution provider for distributed optical sensing in a wide range of applications**.



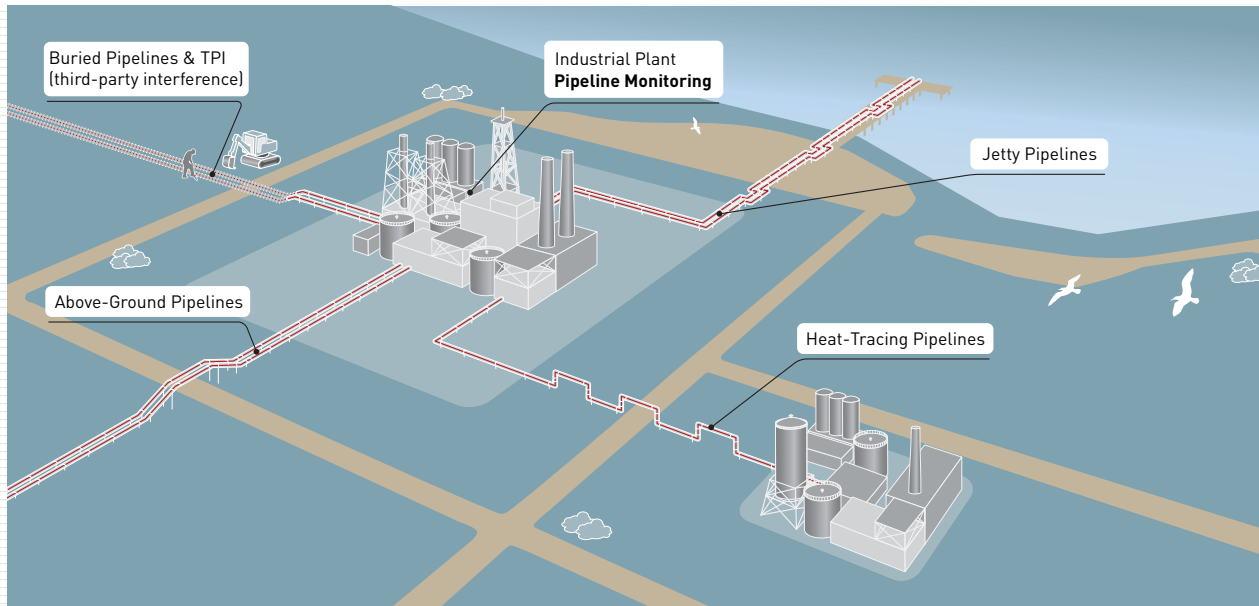
Leading the Way with Passion.

Our expertise: The perfect fit for you

Modern pipeline management needs to ensure **pipeline integrity, immediate leakage detection and risk mitigation**. AP Sensing's DTS solution provides the capabilities to monitor the entire downstream process 24/7 and **identifies leakages down to the exact location of the incidents**, even in hazardous environments.

The continuous sensor element – an optical fiber – leaves **no areas unmonitored**, which means a maximum level of coverage for you.

Temperature profiling lets you **detect anomalies during pipeline operation**. Leaks are precisely located and any failures of your heat tracing system can be detected quickly.



Fiber-optic advantages

Accurate measurements not compromised by corrosive atmospheres or EMI

Real-time temperature data along the entire passive optical sensor cable

Long measurement reach, virtually maintenance-free for decades

Easily installed in difficult access areas

Instrument can be located in a remote control room for safety compliance

Extreme operating temperature ranges

Ease of integration with existing site monitoring solutions

Applications

Gas pipelines like natural gas, ammonia, and CO₂

Liquid pipelines like gasoline, crude oil, and brine

Heated lines like sulfur pipelines

Cryogenic pipes transporting LNG or LPG

CCS (Carbon Capture and Storage) facilities

Buried pipelines to guard against TPI or accidents

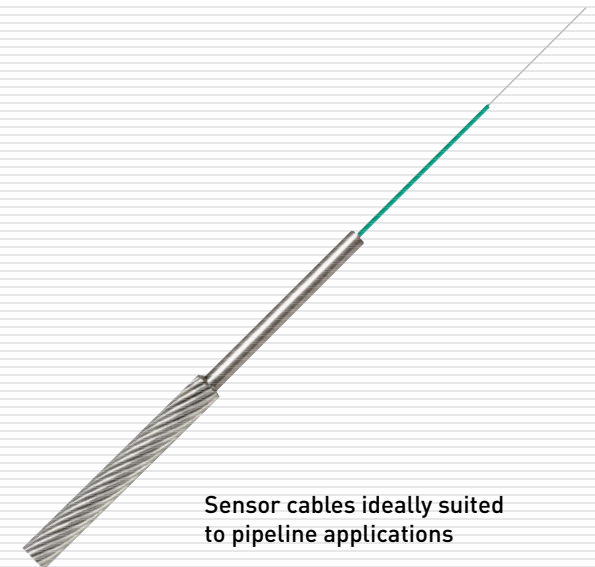
Gas pipelines

Our DTS technology gives operators **a reliable and cost-effective way to better manage gas pipelines** – in particular, natural gas, ammonia, methane, CO₂, and the entire CCS (Carbon Capture and Storage) process – by monitoring and analyzing temperature profiles.

A leakage on most pressurized gas lines causes a cold spot at the location due to the rapid expansion of the gas (the Joule-Thomson effect). By detecting even slight temperature drops within a half-meter range, AP Sensing's DTS solution **greatly increases the pipeline safety.**

"The SIL-2 (Safety Integrity Level) rating and ATEX Zone 0 certificate that AP Sensing has achieved gives us the confidence that their solution is going to work as planned, day in and day out, in high-risk environments. Operators sleep better at night knowing that the assets are protected and security standards are met."

Dr. Stephan Grosswig, GESO



Sensor cables ideally suited to pipeline applications

Ambient, hot and cold liquid pipelines

Temperature profiling significantly optimizes the safety of oil and brine pipes, because **even slight temperature deviations are detected**. This can prevent major environmental damage by improving response times.

Some products need to have their temperature regulated to protect the pipeline (for example, steam or sulfur). For materials that require a heat-tracing system, AP Sensing's DTS solution **identifies any failures of that system, which lets you respond to incorrect pipe temperatures**.

Our DTS solution **identifies leak points in cryogenic pipelines as well as possible insulation failures**. If you need to monitor pipeline cooling, we provide thermal gradient information – **ensuring that pipe stress is kept within specified limits**.

Instrument features

ATEX certification down to Zone 0

SIL-2 assessed by TÜV-recognized consultants

Proven field reliability with industry's lowest maintenance and warranty costs

Highest reliability throughout the entire operating temperature range

Lowest laser output power – inherently safe in case of fiber breaks

Wide range of industry standard communication protocols



Ease of integration and site overview

AP Sensing's DTS solution can be **fully integrated into the site monitoring and control system**. This becomes important when the DTS is located some distance away from the main control room, for example, an ATEX wall-mounted device located near a tank, or a rack-based system in the jetty control room. Our **integrated asset visualization software, SmartVision, gives your operators the complete plant overview, 24/7.**

It's no accident that we have the **industry's lowest failure rate**. Apart from over 25 years of HP/Agilent's optical test leadership, we are passionate about continuously improving our DTS solutions to help you meet your day-to-day challenges.

"Knowing the technology and market, it is evident to me that AP Sensing is the forerunner in distributed optical sensing. Their solutions reflect a combination of experience and creativity. Experience comes from their HP/Agilent heritage, the leader in test and measurement equipment, with decades of experience in developing and manufacturing extremely reliable and high quality products. The creativity comes from their passion and commitment to solving real customer problems."

David Orr, Protex Systems



SmartVision features

Integrated management solution

Asset visualization for complete plant overview 24/7

Reporting and analysis capabilities

Alarm management

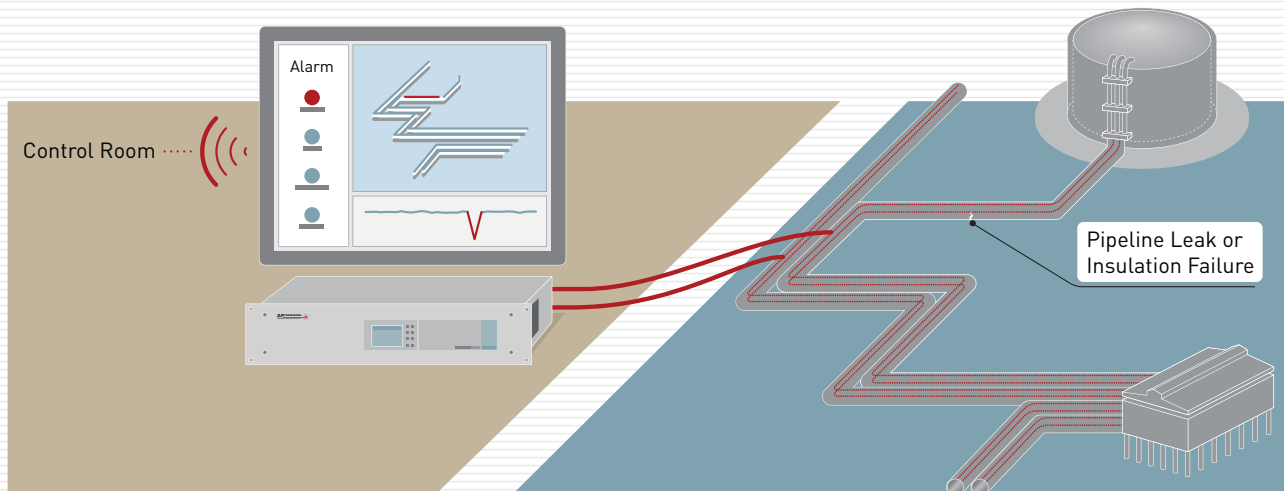
Central database

Easy integration into control and management systems

Your complete solution provider

AP Sensing is your long-term partner. **We listen to your challenges and strive to provide the best solution for your application.** Our complete offering fits your pipeline safety demands and protects your valuable assets.

AP Sensing's support philosophy does not end with the commissioning – it goes far beyond. Our experienced support and engineering team can help you with the design, installation, and project management. This includes not only onsite service but also **hotline support, maintenance, and training.** Whatever is needed – our team of experts is happy to assist you.



Pipeline Monitoring

Why choose AP Sensing?

Best measurement performance due to unique code correlation technology

No drift, no recalibration thanks to patented single-receiver design

Low-power laser for safe use and longest product life (MTBF is 33 years)

Sensor cables that fit your needs, including steel sheathing and operating ranges from -196 °C to +300 °C

Market's most complete set of test reports and certifications

Support for project planning, design, and installation

Project management and commissioning

A worldwide network of regional partners and experts

Our mission is to ensure your success

Drawing on our HP/Agilent heritage in optical test, we have established ourselves as **the leading solution provider for distributed optical sensing.**

We remain committed to delivering **well-designed, comprehensive solutions** to our customers.

We have worldwide offices with **highly qualified and motivated employees, and a network of expert regional partners.**

With the industry's most complete set of tests and certifications, AP Sensing helps you comply to all relevant security standards, and ensures environmental and employee safety.

Contact us for more information!

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