



## **GEO- & HYDROLOGICAL MONITORING**

Distributed Temperature Sensing (DTS)



**AP Sensing:  
Your reliable partner for  
geothermal and  
hydrological monitoring**

AP Sensing is your **global Distributed Temperature Sensing (DTS) solution provider**. Worldwide sales and service are provided through a network of regional sales offices and highly qualified partners. Unsurpassed **product reliability** 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 and flexible monitoring solution.

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

Building on our heritage, we have established a **technically advanced opto-electronic manufacturing and production environment**. AP Sensing is a leading DTS provider in a wide range of applications.



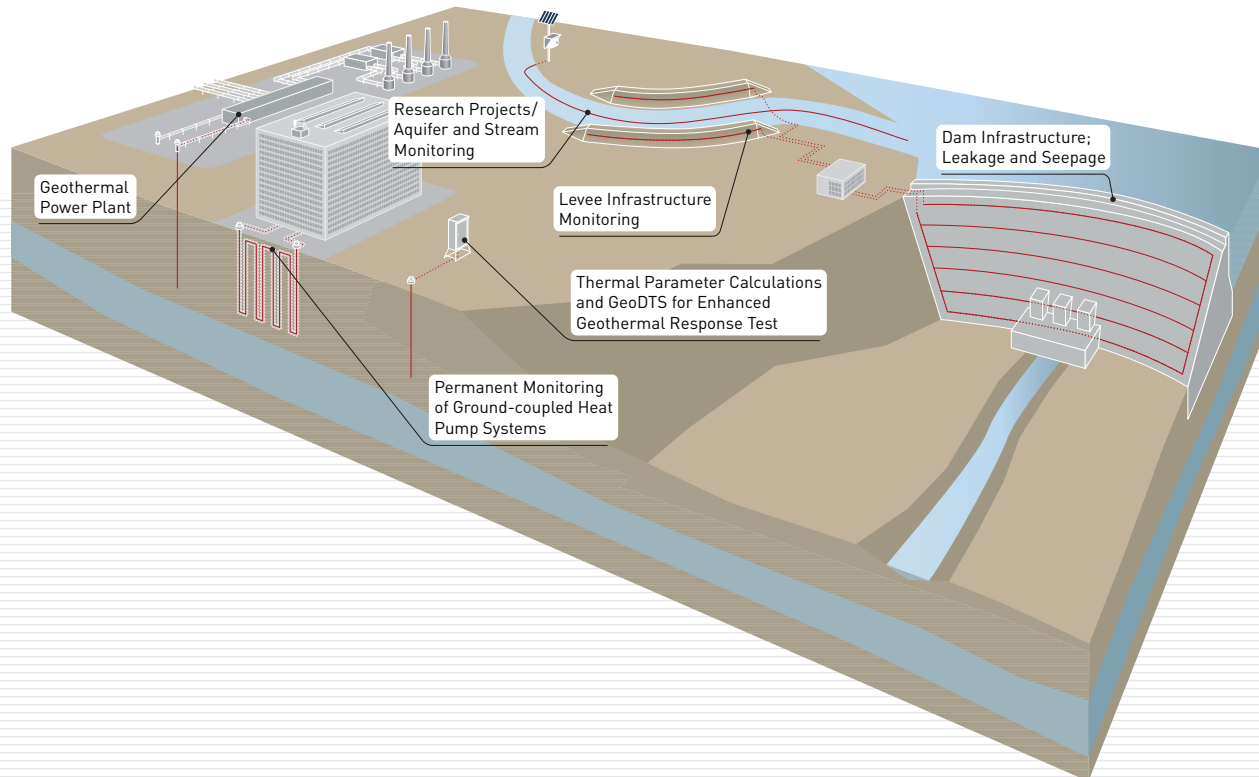
Leading the Way with Passion.

**Our expertise:  
The perfect fit for you**

DTS technology is **ideally suited for subsurface visualization**, proven in geothermal and hydrological applications, but also in downhole oil and gas and a wide range of other areas.

Accurate and reliable temperature sensing gives you **real-time temperature data**.

Superior technology and high quality mean a **long product life and low service and support costs**.



**DTS advantages**

Increased geothermal energy production yields

Greatly enhanced real-time subsurface visualization

Wellbore temperature data in real time

Tracking geothermal and hydrological changes over time

Hydrogen-tolerant sensor cables

Data management, analysis, and communication

**Application areas**

Hydrological and geological research: water flow, glacier melting, condition monitoring

Enhanced Geothermal Response Tests (EGRT)

Aquifer and ground water stream monitoring

Analysis of thermal stress in dams (CFRD: Concrete-Faced Rockfill Dam, Conventional Mass-Filled and Earth-Filled)

Leakage detection and seepage monitoring

Monitoring curing temperature and thermal parameters of concrete, including RCC (Roller-Compacted Concrete)

## Robust and reliable

With its **low power consumption**, the system can be run from a battery or solar panel.

**Available in rack, outdoor, and portable models** to fit your application needs. Outdoor housing units protect against temperature extremes and moisture.

**Designed for rugged field applications** including wide operating and environmental temperature ranges.

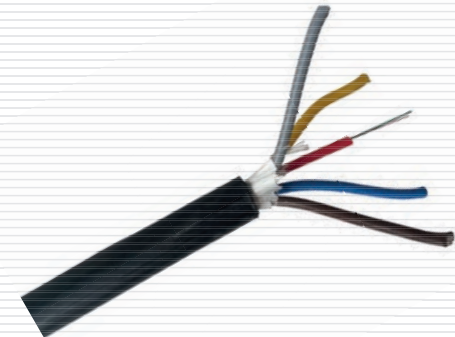
We offer a **wide range of standard communication and protocol options** so you can analyze your data, create reports, and store all relevant data.

*"When I think of AP Sensing, the first thing I think of is reliability. We completely trust and rely on their performance specifications and I know that their technical support team is dedicated and passionate about solving any problems that might come up."*

Paul Sanders, Petrospec Engineering



Rugged and versatile: Select the housing model (rack-mounted, outdoor, or portable) to fit your application.



Hybrid cable – fiber and heating for EGRT

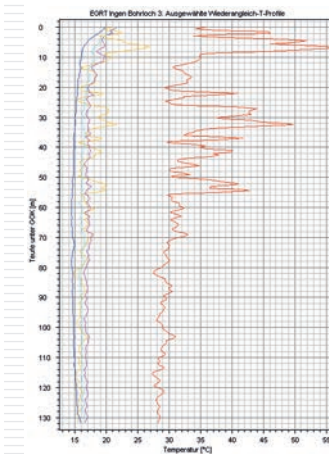
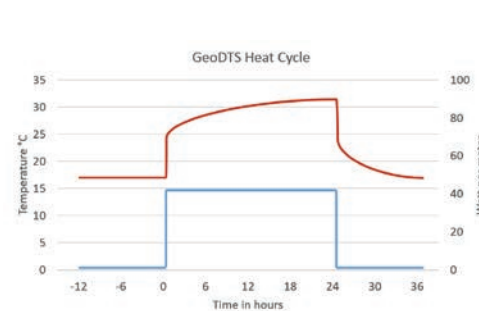
## AP Sensing's GeoDTS solution

AP Sensing developed a solution to specifically **meet the needs of EGRT (Enhanced Geothermal Response Tests)**, leakage detection, and seepage monitoring.

A **hybrid sensor cable containing copper wires for heat dissipation** is installed together with the borehole heat exchanger, so that **temperatures are determined along the entire length**.

Together with the PC-based configuration and evaluation software you can configure and visualize these measurements. Crucial **thermal parameters like ground conductivity are available**.

**Data is stored on an SD card**, so when your work is done, just download to your PC for analysis and final storage.



### DTS instrument features

**Proven field reliability; industry's lowest maintenance and warranty costs**

**Outdoor/rugged/cost-effective/reliable**

**Low power consumption (can be powered by a solar panel)**

**Wide temperature operating range**

**Repeatable measurements over full instrument operating temperature range**

**VxWorks: cyber security and real-time operating system (no Windows OS)**

**Eye-safe laser; ATEX-certified**

**Flexible measurement calibration for all fiber types**

**Multimode (MM) and singlemode (SM) DTS instruments**

## Smart calibration and reliable data

AP Sensing's calibration tool **corrects the most common sources of measurement error:** fibers with varying refractive indices, splices, connectors, and strain. SmartVision software is a powerful and flexible data management and storage system that **provides you with the complete measurement data for your analysis needs.**

SmartVision's **subsurface visualization capabilities** give you the real-time status of all connected DTS instruments and include alarm management and administrative functions.

## Quality and reliability

It's no accident that we have the **industry's lowest failure rate.** With over 25 years of HP/Agilent's optical test experience, we have continuously improved our design and production processes. We are passionate about delivering rugged and reliable DTS solutions.

*"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

Central SQL database

Trace visualization, analysis, and statistics

Post-measurement calibration

Point history graphs

2D color map

Record and playback functionality

## Your complete DTS specialist

AP Sensing is your reliable DTS partner. DTS technology has made **vast improvements over the last decade**. State-of-the-art optical components, sensing fibers, and strict manufacturing processes ensure a **long and dependable system life**.

Our customers truly value **our product engineering and support teams** and our worldwide network of regional experts.

Together with our global partner network, **we are passionate about fulfilling your needs** and helping you be successful.



### Why choose AP Sensing?

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

**Industry-leading vibration and shock robustness**

**Best measurement performance using unique code correlation technology**

**Highest measurement repeatability over the entire operating temperature range**

**Patented single-receiver design: minimal drift, no calibration**

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

**Best-in-class sensor cable partners**

**Industry's most tested and certified DTS system**

**Global, multilingual project engineering specialists**

## 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 **highly qualified and motivated employees and a network of expert regional partners.**

At AP Sensing we recognize that we can only be successful when our customers and partners are successful. **We take a respectful and proactive role in all our commitments.**

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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[www.apsensing.com](http://www.apsensing.com)

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