



POWER CABLE MONITORING

Distributed Temperature Sensing and
Real Time Thermal Rating (DTS & RTTR)

**AP Sensing:
Your trusted partner for
Power Cable Monitoring**

AP Sensing is your global DTS solution provider for your power grid. 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 references in transmission and distribution, in land cables, subsea cables and superconductors we ensure proper monitoring of your network.

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.

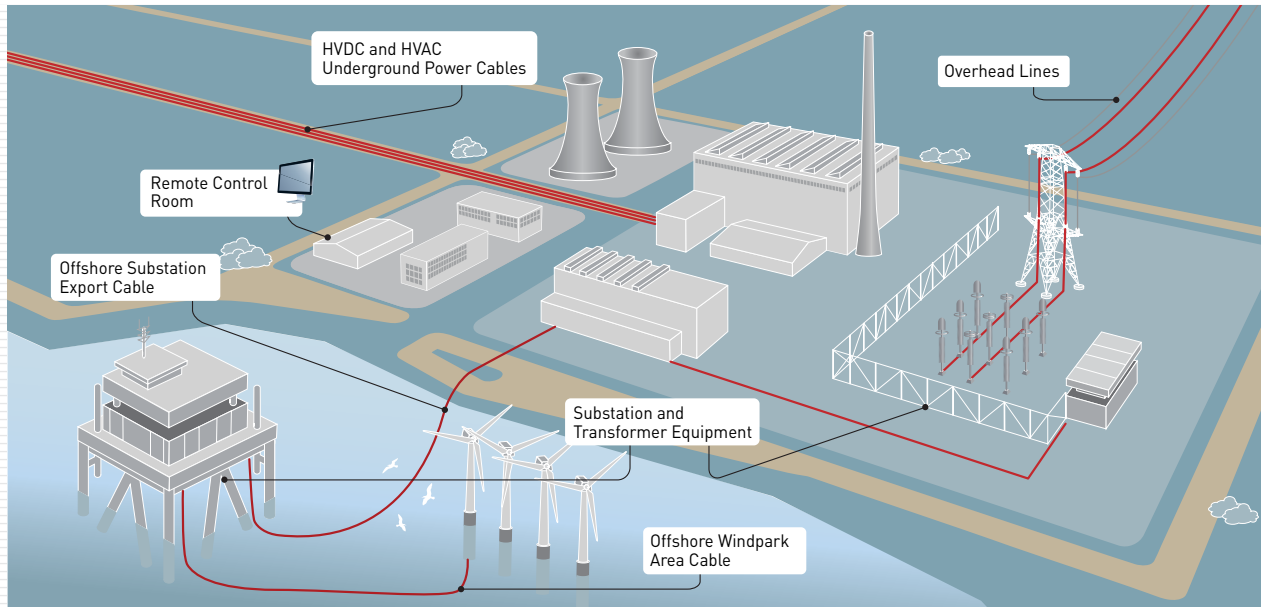
**Our expertise:
The perfect fit for you**

We understand the challenges you face and the need to protect your assets. AP Sensing's DTS technology ensures gapless and real-time temperature measurement along the entire power circuit. It computes the actual ampacity and predicts emergency ratings hours in advance. With AP Sensing's power management solution you get the maximum network performance at safe ampacity levels.

Our leadership is the result of our ongoing promise to you: we will always deliver well-designed, comprehensive solutions that meet your challenges.

Based on the quantum mechanical RAMAN effect and our patented code correlation technique, AP Sensing's DTS technology measures an accurate temperature profile along an optical fiber over thousands of meters with measurements in a few minutes.

We measure "every minute, every meter, and every degree!"



Fiber-optic RAMAN advantages

Accurate measurements not compromised by strain or EMI

Real-time temperature data along the entire circuits

Perfect base to compute precise power ratings (RTTR)

Zones tailored to specific alarm criteria and laying conditions

Applications

HVDC / HVAC underground power cables

Power cable joints and terminations

Power cable tunnels and trenches

Subsea power cables

Overhead lines

Transformers

Substation equipment

Maximum safety and protection for your assets

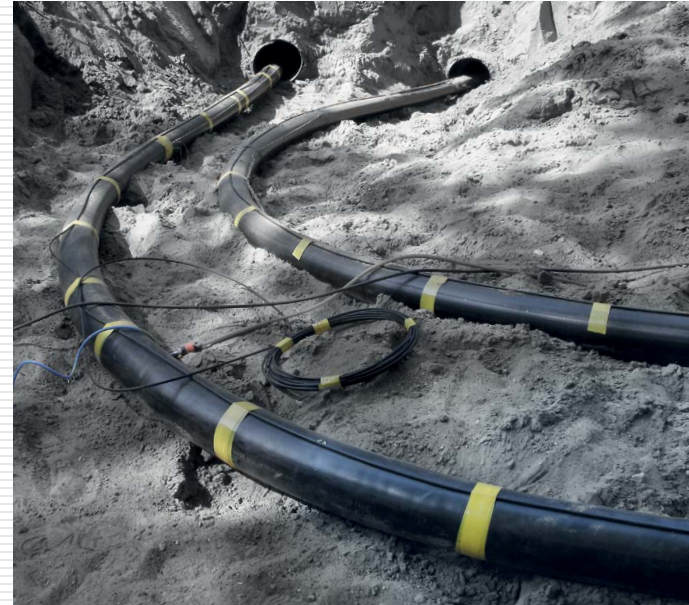
AP Sensing's DTS system, together with our proven RTTR (real-time thermal rating) engine and unique SmartVision management suite, gives you the ideal solution to monitor and protect your power infrastructure.

Operate your network at the highest possible safe ampacity level by using steady state and transient thermal analyses. Compare current loads with estimates made during the planning stage and learn how much you can safely increase the steady-state load. The system computes all data you need to plan for peak loads and emergencies.

Measurement data are continuously fed into the RTTR computation engine providing an accurate assessment of the actual ampacity, based on proven industry standards IEC/60853 and /60287 and finite element modeling.

"AP Sensing's support team has been a fantastic resource for us over the years. They have helped us with system development and implementation planning, and they are always quick to respond to our technical queries with competent advice and helpful tips."

Geoff Harris, Ausgrid

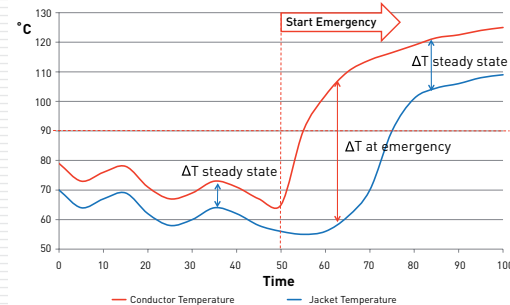


Confident load management and network planning insight

AP Sensing's SmartVision management suite offers a **quick and easy overview of the thermal status of your circuits** with an easy-to-use graphical user interface.

Circuit layouts are mapped and the various sections are colorized according to the measured cable surface temperatures. **Temperature graphs and hotspot tables are always available and easily accessed.**

AP Sensing's alarm management engine signals when limits are exceeded and your assets are at risk. Sections of the cable route can be flexibly defined as different zones; different alarm levels and types can be assigned to each zone.



SmartVision features

- Integrated management solution
- Asset visualization
- Reporting and analysis capabilities
- Alarm management
- Central database
- Conductor temperature calculation
- Easy integration into control and management systems
- Ampacity computing – actual and predicted (RTTR)

Instrument features

- DTS systems up to 40 km measurement range
- Unlimited range extension with DTS remote units
- Capable to measure on SM and MM fibers
- One DTS measures up to 24 phases or circuits
- Portable, outdoor and rack enclosures available
- Seamless integration thanks to variety of interfaces and protocols

AP Sensing's leadership in quality and innovation

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.

The optics are protected against condensation, dust and moisture. Long-term customer installations worldwide confirm our own internal tests: **the most rugged and dependable DTS device available** with the longest MTBFs for the laser, the switches, and the entire system.

The instrument runs on a proven real-time operating system (VxWorks), which is extremely stable and not susceptible to viruses. VxWorks is used in mission-critical operations such as space exploration.

"For me AP Sensing is the forerunner for distributed optical temperature sensing. You can see in their solutions a combination of experience and creativity – an intuitive design that works just as you'd expect, yet they aren't afraid to think out of the box, or provide a customized solution. They carry on their HP/Agilent heritage and continue to develop and advance, while remaining true to their core values of quality and reliability."

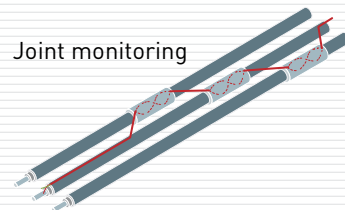
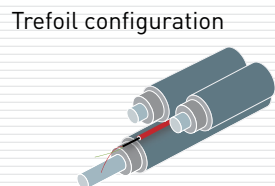
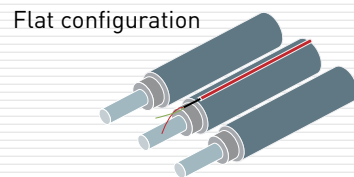
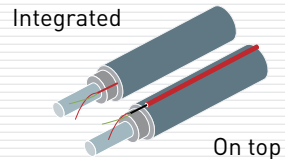
Roberto Gaspari, Prysman



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 power cable monitoring 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.



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

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.**

At AP Sensing we recognize that we can only be successful when our customers and partners are successful. Therefore 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!

info@apsensing.com
www.apsensing.com

Product specification and descriptions in this document subject to change without notice and are not binding to AP Sensing.

© AP Sensing GmbH, 2014 / Printed in Germany / English

