District Cooling Network Monitoring

The Challenge

District cooling energy efficiency is challenged by the presence of undetected or unlocated leaks. Accurately locating the position of the leaks remains the main challenge, as background acoustic noise created by the pumps and noisy urban environment makes leak location using traditional pressure/acoustic methods inaccurate, less sensitive, and cumbersome to implement. Simultaneous leaks further impair the location performance of traditional pressure acoustic leak detection methods.

The long length of district cooling networks and their varied urban environments make point-based temperature measurements a poor monitoring tool to assess the progress of thermal transients along the pipeline network.

The Innovation

AP Sensing's fiber optic Distributed Temperature Sensing (DTS) is ideally suited to monitor temperature variations of long linear assets like pipelines.

DTS is a technology capable of transforming fiber optic cables into temperature sensing cable. DTS is able to produce a real time temperature profile of the entire length of the pipeline network with accurate location and temperature measurement. Cold spots can be identified and located, ensuring leaks and insulation failures are promptly located.

To date, AP Sensing's DTS system is monitoring more than 180 km of district cooling networks, with field proof performance of providing significant reduction in leak rates. The system makes continuous, real-time measurements, ensuring a prompt response to reduce risks and costs associated with leaks.

World-Class System

AP Sensing solutions are implemented in the most challenging and critical applications, protecting

Thermal transients in real time

APSENSING.

infrastructures around the world. Our systems are deployed in all regions in the world, with more than 600 AP Sensing customers across 70 countries.

AP Sensing is a leader in DTS technology, both hardware and software. Thanks to our patented code-correlation technique, AP Sensing's RAMAN DTS reaches longer distances without the strain/temperature cross-talk of Brillouin DTS. Our DTS-based leak detection software can be further enhanced by the use of machine learning algorithms to improve reliability, leak location, and detection time.

SmartVision software provides a powerful multi-user and multi-device visualization tool. SmartVision's intuitive graphical interface allows visualization of district cooling temperature profiles and leak locations. Alarms including leak locations can be shared directly via email or SMS messages to the maintenance department.

Reliable & Effective

Careful manufacturing and rigorous testing processes ensure equipment durability and system reliability. AP Sensing is the leading manufacturer of Distributed Fiber Optic Sensing equipment, bringing its extensive DTS monitoring experience from other fields to the district cooling market.

The use of fiber optic cables for temperature monitoring is considered the most reliable and efficient solution to date for temperature monitoring on long assets such as pipelines, power cables, and tunnels.
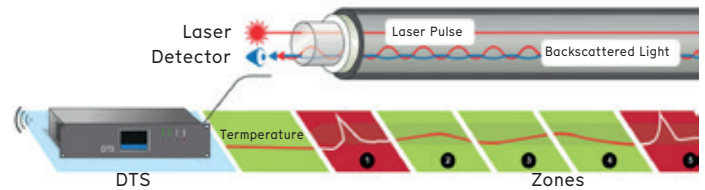
Fiber is the distributed sensor

Why AP Sensing?

- AP Sensing's DTS is the perfect solution to accurately locate cold spots and leaks along district cooling networks.
- Existing telecom cables can be transformed into sensing cables; the same cable can share telecom and sensing capabilities.
- Raman DTS temperature measurements are unaffected by vibration/strain from pumps and surrounding environment.
- AP Sensing's SmartVision software allows real time visualization of the progress of thermal transients along the network.
- Proven product quality, reliability and consistent performance in the field environment.
- World-class service, support, and training from AP Sensing's regional offices.
- Engineered & Made in Germany.

A4500A – cabinet IP66 window
Window required as per VdS

A4501A – cabinet IP66

A4502A – cabinet IP66 isolated

A4504A – cabinet IP66 – stainless steel

Selection of robust wall-mounted cabinets

THINKING AHEAD