

LeakMonitor

Permanent leak detection



DID YOU KNOW?

THE BIGGEST PROBLEMS START
WITH THE
TINIEST OF LEAKS

LeakMonitor

Pipelines are a valuable asset and leakage or failure can cost hundreds of thousands of dollars in direct and indirect costs. Up until recently, there have been no permanent monitoring solutions that can find very small leaks or monitor the strain of a pipe to detect problems before they become catastrophic.

Echologics, in partnership with Omnisens, has packaged a cost effective, accurate and highly sensitive alternative to traditional leak detection methods that can be installed on new pipeline installations to cost-efficiently monitor them on a continuous basis. When a new pipeline is constructed, a specialized fiber-optic cable is either laid under the pipe (for leak detection), or bonded directly to the pipe (for strain monitoring).

The LeakMonitor system is a fiber optic (FO) based system that works by detecting even the smallest changes in temperature that would indicate a fluid or gas leak. When a local change in temperature or strain occurs it affects the behavior of the light within the fibre, causing a scattering. The system can then pinpoint the leak or strain cause to within a meter of its location, and can be programmed to monitor the pipeline on an intermittent or continuous basis. If a pipeline has a leak or is subject to a high stress due to a movement in the soil, this will cause a local change in temperature or strain that can be pinpointed with a high degree of accuracy.

Echologics can engineer a pipeline leak or strain detection system for virtually any pipe installation that will monitor it permanently in real time. A basic system can monitor up to 18.6 mi (30 km) of pipe on a single fibre, and signal amplifiers can be added to extend this range to up to 155.3 mi (250 km).

Technical Specifications

- High accuracy distributed strain and temperature measurements
- Up to 100,000 measurement points over 18.6 mi (30 km)
- High spatial resolution and fast acquisition time
- <32.9° F (0.5 °C) measurement resolution
- Large dynamic range (maintain accuracy at 10dB attenuation)
- Long-term stability
- Unattended automatic monitoring
- Distance range extension and remote monitoring capabilities up to 155.3 mi (250 km)
- Cost effective for large a number of measurement points and long distances

Advantages

The Echologics LeakMonitor System is based on the Omnisens DiTeSt-STA100/200 Series instruments, which integrates a technology pioneered by Omnisens offering distributed measurement of temperature and strain in real-time. Key advantages include:

- Real time monitoring for leakage and strain
- Monitoring Range of over more than 30 kilometers using single mode standard optical fiber, extendable up to 250km using repeating amplifiers.
- Its inherent high stability and reliability guarantees an optimal security for the long-term surveillance of large structures.

Field Notes

When AMEC was engineering a new 18" (450mm) HDPE brine pipeline for New Brunswick Potash, the potential for a brine leak was considered a major environmental issue. A permanent monitoring solution was required to assure the local residents and the Ministry of the Environment. It was not a straightforward application however, as several stretches of the 7.5 mile (12km) pipe were double walled construction. Echologics was able to perform heat transfer modelling, and engineer a system with Omnisens that has recently been commissioned and tested with simulated leaks. The system is now operational and permanently monitoring this critical pipe.

- Up to 18.6 mi (30 km) distance range per channel
- Two measurement channels extending the range capacity to 37.3 mi (60 km) per instrument (standard). Additional channels can be implemented upon request.
- One meter spatial resolution
- High Performance in reliability, accuracy, repeatability
- Fast acquisition time (from 20 seconds to 5 minutes for the highest accuracy)
- Self-referenced allowing periodic measurements without any repeated calibration
- LeakMonitor is ideal for automatic unattended operation

Mueller Co.

Echologics is now a division of **Mueller Co.**, the leader in water infrastructure products and services, and part of the **Mueller Water Products, Inc.** family, which manufactures and markets products and services that are used in the transmission and distribution of safe, clean drinking water and in water treatment facilities throughout North America. Water flows through, is controlled by or measured by the types of products we manufacture – valves, hydrants, ductile iron pipe, and AMR and AMI systems. With **Echologics**, we can now help municipalities rebuild North America's aging water infrastructure by identifying leaks, potential leaks and assessing the overall condition of their piping systems.



Echologics Engineering Inc.
50 Ronson Drive, Unit 155
Toronto, Canada
M9W 1B3

Toll Free: +1 (866) ECHO LOG (324-6564)
Phone: +1 (416) 249-6124
Fax: +1 (416) 249-8833
Online: www.echologics.com