

THE ECHOSHORE™ SYSTEM IS EASY TO INSTALL



Step 1: Select suitable location for the node components.



Step 2: Complete acoustic measurement to determine baseline normal operation.



Step 3: Mount the node and power source enclosures in the manhole or in an above ground panel.



Step 4: Install Rugged Antenna.



Step 5: Test and verify the operation of all installed equipment.

TECHNICAL INFORMATION

PERFORMANCE

Leak detection limit	Down to 5 gpm (18.9 L/min)*
Accuracy	Up to +/- 6 ft (2 m)**

* Dependent on pipe material, diameter, node spacing, and environmental conditions.
 ** Dependent on accurate system information inputs such as distance.

OPERATIONAL PARAMETERS

Ambient Temperature	-27°F to 130°F (-33°C to +55°C)
Liquid Temperature	33°F to 100°F (0.5°C to 38°C)
Liquid Flow Velocity	> 5 ft/s (1.5 m/s)*
Pressure	15 psi - 150 psi (100 kPa - 1000 kPa)
Pipe Material	Cast Iron, Steel, Ductile Iron, Asbestos Cement, PCCP, PVC, PE, and other plastics
Pipe Diameter	12" to 120" diameter (300 mm to 3050 mm)
Maximum Node Spacing	2,500 ft. (760 m)**

* Higher velocity may result in turbulent flow introducing noise into the pipeline. Measurements can be performed at higher velocities, however sensitivity may be limited.
 ** Spacing shown is applicable for non-plastic pipe materials. For plastic pipe materials a site specific survey is required to determine optimal spacing.

SPECIFICATIONS

Communication	3G cellular network. Compliant with GSM/GPRS/EDGE/UMTS/HSPA. HSPA+ Penta-Band 850, 900, 1700, 1900, 2100 MHz. GSM Quad Band 850, 900, 1900, 2100 MHz.
Security	RFC 6347 - Datagram Transport Layer Security (DTLS). Support SSL v2/v3 and TLS protocols. SFTP for secure file transfer and data integrity check. Encryption: support RSA SSH-1 and SSH-2 (default) protocols.
EMI	FCC15 Class A/ICES-003/EN 55011
Network Services	Internet Standard Protocols for IP network management: SMTP, FTP, SSH, HTTP, SNMP. Complete system management via SNMP. SNMP version 2c as per RFC 1441-1452, RFC 1901, 1908.
Alerting	email using built-in SMTP. SMS text message.
Power	Battery supplied input voltage of 3V - 5V.
Optional Power	110V AC. Solar.
Acoustic Hydrophone	Operating frequency range from 0-1500 Hz. Signal to noise ratio SNR > 80 dB Low pressure operation up to 150 psi (1,000 kPa), or high pressure operation up to 400 psi (2,700 kPa).
Additional Sensor Ports	Three. 4-20 mA current loop or 0 - 5V voltage output.
Enclosure	Conforms to Waterproof IP68.

ECHOSHORE™ IS FROM ECHOLOGICS

Echologics is globally recognized as a leader in non-invasive leak detection technology. Our advanced transmission main monitoring capability uses the next generation LeakFinder™ technology as the core of the EchoShore™ system. The EchoShore™ system delivers critical information in a timely manner wherever you are, allowing you to address transmission main issues before they escalate.

The EchoShore™ system is always on and ready to provide actionable information. Best of all, this proven, non-invasive, and non-disruptive technology can be installed anywhere to provide you 24/7 monitoring of your water transmission mains to mitigate catastrophic failure.

EchoShore 

ADVANCED TRANSMISSION
MAIN MONITORING

**Lifeguard
ON DUTY**

IT NEVER SLEEPS
SO YOU CAN.

Mueller Co.

Echologics® is a division of Mueller Co., the leader in water distribution products and part of the Mueller Water Products, Inc. family, a leading manufacturer and marketer of products and services used in the transmission, distribution and measurement of water. Mueller Water Products' broad product and service portfolio includes engineered valves, fire hydrants, metering products and systems, leak detection and pipe condition assessment. We help municipalities increase operational efficiencies, improve customer service and prioritize capital spending, demonstrating why Mueller Water Products is Where Intelligence Meets Infrastructure®.

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24/7 ADVANCED TRANSMISSION MAIN MONITORING.



Broken water mains. Flooding. Even property damage. Why let a solvable problem cost astronomical sums of money, damage your reputation, and disrupt life in your community.



It often starts with a leak and many utilities wait until there is an evident problem or disaster before reacting. But prevention, as the saying goes, is the best cure.

Imagine being notified immediately about a problem main. The EchoShore™ system from Echologics will call, text or email you promptly after detecting a leak. 24/7 monitoring and notification is designed to cut your response time to help mitigate catastrophic failure.

The EchoShore™ system is based on proven LeakFinderRT™ technology, which has been used by Echologics to survey thousands of miles of mains, successfully locating hundreds of leaks.

The EchoShore™ system leverages components of the next generation LeakFinderRT™ creating a network that continuously monitors critical water transmission mains and alerts utilities of leaks before they result in catastrophic main breaks. The EchoShore™ system collects data and uploads it to a secure server. The data is then analyzed to determine the location of the leak and an alert is sent to the operator. Just like that!

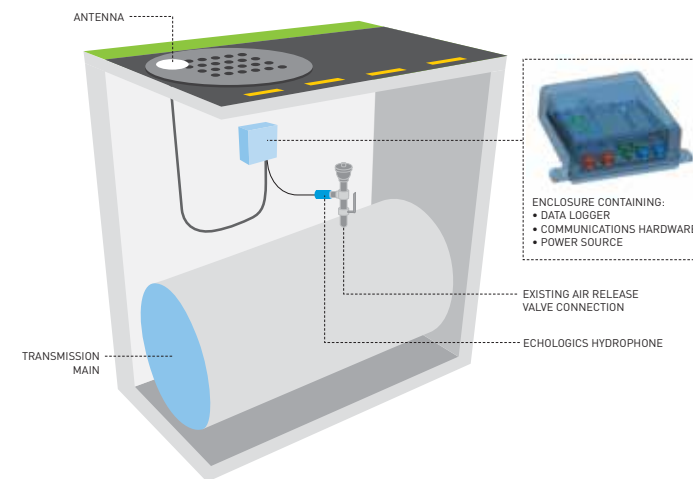
The EchoShore™ system is deployed non-intrusively without any disruption of your water operation.

**STAY OUTSIDE THE PIPE.
THINK OUTSIDE THE MAIN.™**

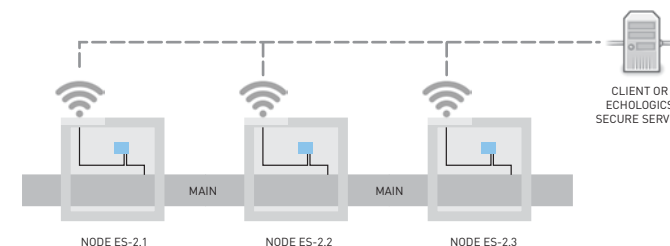
HOW THE ECHOSHORE™ SYSTEM WORKS

Early detection of leaks can prevent the loss of valuable time and money. The EchoShore™ system collects data and sends it to a secure server. The data is then analyzed to determine the location of a leak. After assessing the situation we will send you actionable information via email or SMS.

1. The EchoShore™ node is the base building block of the system, and is installed in a manway access chamber or above ground.



2. EchoShore™ nodes in key locations along water main deliver SCADA outside the fence.



3. EchoShore™ user interface easily integrates into existing customer infrastructure.



ECHOSHORE'S™ FEATURES:

- Feature:** 24/7 critical pipeline monitoring
- Advantage:** Mitigates catastrophic failure
- Benefit:** Prevents main break consequences of insurance claims, media exposure and water loss

- Feature:** 24/7 leak detection and daily correlation
- Advantage:** Early detection avoids risk of smaller leak becoming bigger
- Benefit:** Saves money and water on faster response to immediate leak information

- Feature:** 24/7 pressure transient monitoring location through cellular network to central website
- Advantage:** Proactive alert of event that may lead to leak or burst
- Benefit:** Saves money and protects property through advance information of possible failure

- Feature:** Technology is deployed outside of the pipe
- Advantage:** No in-pipe risk of operational disruption, interference with appurtenances or lost probes
- Benefit:** Reduces effort to acquire on-going critical pipe information

- Feature:** Monitoring data relayed through wireless cellular networks
- Advantage:** Brings telecom structure to the pipe and avoids hard-wired connections allowing wider and more convenient deployment
- Benefit:** Save money through lower cost to install

- Feature:** Web-based reporting interface
- Advantage:** Monitoring data is presented in easy-to-understand, customizable and actionable format
- Benefit:** Eases decision-making in responding to critical pipe information

- Feature:** Low-powered operation
- Advantage:** Can be installed anywhere
- Benefit:** Easy and lower cost of installation

- Feature:** Technical platform allows for growth of modular functionality
- Advantage:** Additional monitoring capabilities can be added as required
- Benefit:** Continuously expanding portfolio of pipe information can be easily acquired