


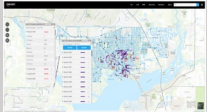




October 2020

TYPE OF OFFERING	LEAK DETECTION	CONDITION ASSESSMENT	REMAINING USEFUL LIFE	VIRTUAL CONDITION ASSESSMENT
PRODUCT NAME	EchoWave®	ePulse®	EchoLife®	PipeRank®
Technology Offering	Leak Locating	Pipe Wall Integrity Testing	Pipe Remaining Useful Life Estimate	All supported water pipes risk assessment
Type of Operation / Installation	Service / Product	Service Only	Service Only	Service Only
Pipe Size Applicability	All Pipe Diameters (up to 120")	Distribution & Transmission (up to 60")	Distribution Pipes (under 16")	All Pipes Diameters
Pipe Type Applicability	All Pipe Materials	AC, CI, DI, ST, RCPP, CPP, PCCP	AC, CI	All Pipe Materials
OPERATIONAL PARAMETERS				
Sensor Type	Accelerometer / Geophone / Hydrophone	Accelerometer / Geophone / Hydrophone	Not Applicable	Not Applicable
Sensor Spacing	150' to 5,280'	150' to 750'		
Leak Size Sensitivity **`	Under 1 gpm	Not Applicable		
Leak Location Accuracy ***	+/- 3'			
Liquid Temperature	33 °F to 100 °F			
Ambient Temperature	-27 °F to 130 °F			
Liquid Flow Velocity ****	< 5 ft/s			
Operating Pressure	30 psi to 300 psi		200 failure records	
Break History	Not Applicable	Not Applicable		
Miles of Pipe			At least 500	
Product View				
Web Link	http://www.echologics.com/services/large-diameter-leak-detection/echowave	http://www.echologics.com/services/condition-assessment/epulse	http://www.echologics.com/services/condition-assessment/echolife	https://www.echologics.com/services/virtual-condition-assessment/

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Notes:

*Transmission pipes over 24" require site specific technology implementations. Technical evaluation is needed to define how ePulse can support assessment of transmission pipes.

** Leak sensitivity depends on pipe material, diameter, sensor spacing, pressure and other environmental considerations.

*** Dependent on accuracy of system information provided by utility for pipe material, size & distance.

**** Higher velocities may result in turbulent flow introducing noise into the pipe. If higher velocities are encountered it may reduce leak sensitivity.



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ECHOLOGICS PRODUCT OFFERING

TYPE OF OFFERING



SURVEY MODE LEAK DETECTION

PRODUCT NAME

LeakFinder-ST®

LeakTuner®

EchoShore®-M

Technology Offering	Manual Leak Noise Correlation	Acoustic Ground Microphone	Remote Leak Noise Correlation
Type of Operation / Installation	Mobile		
Pipe Size Applicability	Designed for Pipes ≤ 16" diameter	Designed for all Pipe Diameters	Designed for Pipes up to 120" in diameter
Pipe Material Applicability	All Pipe Materials	All Pipe Materials	All Pipe Materials
Recording Lengths	30 seconds to 20 minutes	N/A	30 seconds to 5 minutes
Frequency Ranges	1Hz to 2000Hz	100Hz to 1200Hz	1Hz to 2000Hz
OPERATIONAL PARAMETERS			
Sensor Type	Accelerometer / Hydrophone	Accelerometer	Accelerometer / Hydrophone
Sensor Spacing (min./max.)	150' to 2,500'	Point Listening	150' to 5,280'
Smallest Detectable Leak*	Under 1 gpm		
Typical Leak Detected with accelerometer on 6" DI at 1000' spacing	3 gpm	N/A	3 gpm
Typical Leak Detected with accelerometer on 6" PVC at 500' spacing	8 gpm		8 gpm
Typical Leak Detected with hydrophone on 48" PCCP with 2,500' spacing	N/A		5 gpm
Leak Location Accuracy**	+/- 3'		+/- 6'
Power Requirements	Rechargeable Batteries	Rechargeable Batteries	Rechargeable Batteries
Battery Life	15 hours of Operation	8-10 hours of Operation	Approximately 5 days of preprogrammed recordings - depending on cell signal
Product Design Life	10 Years	10 Years	7 Years
Water Temperature; in pipe	33°F to 100°F		
Ambient Temperature; near product	-27°F to 130°F		
Water Flow Velocity; in pipe***	< 5 ft/s		
Operating Pressure	30 psi to 300 psi		
Communication Options	Short Range RF to Receiver	Bluetooth connection for headphones.	Cellular (3G)
Enclosure Rating	IP68	IP67	IP65
Product Warranty	2-Year Limited	2-Year Limited	1-Year
Product View			
Web Link	http://www.echologics.com/products/leakfinderst	http://www.echologics.com/products/leaktuner	http://www.echologics.com/services/large-diameter-leak-detection/echosore-m

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Notes:

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ECHOLOGICS PRODUCT OFFERINGS



TYPE OF OFFERING

MONITORING MODE LEAK DETECTION

PRODUCT NAME

EchoShore®-DX

EchoShore®-TX

Technology Offering	Autonomous Leak Noise Correlation	Autonomous Leak Noise Correlation
Type of Operation / Installation	Permanent	Permanent / Semi-Permanent
Pipe Size Applicability	Distribution Pipes ≤ 14"	Designed for Pipes up to 120" in diameter
Pipe Material Applicability	AC, CI, DI, ST	All Pipe Materials
OPERATIONAL PARAMETERS		
Sensor Type	Accelerometer / Hydrant Only	Accelerometer / Hydrophone (Air Valve / Tap Mount)
Sensor Spacing (min./max.)	Typically 150' to 1,000' - system dependant	Typical 600' to 5,280' - system dependant
Smallest Detectable Leak*	Under 1 gpm	
Typical Leak Detected with accelerometer on 6" DI at 1000' spacing	5 gpm	3 gpm
Typical Leak Detected with accelerometer on 6" PVC at 500' spacing	N/A	8 gpm
Typical Leak Detected with hydrophone on 48" PCCP with 2,500' spacing	N/A	5 gpm
Leak Location Accuracy**	+/- 6'	+/- 6'
Power Requirements	Factory Replaceable Battery	Field Replacable Battery
Battery Life	10 yrs w/ daily data collection	3 yrs w/ daily data collection
Product Design Life	10 Years	7 Years
Water Temperature; in pipe	33°F to 100°F	
Ambient Temperature; near product	-27°F to 130°F	
Water Flow Velocity; in pipe***	< 5 ft/s	
Operating Pressure	30 psi to 300 psi	
Communication Options	Cellular (LTE CatM1)	Cellular (3G)
Enclosure Rating	IP68	Multiple options to fit built environment All waterproof IP68
Product Warranty	2-Year	1-Year
Product View		
Web Link	http://www.echologics.com/services/small-diameter-leak-monitoring/echoshore-dx	http://www.echologics.com/services/large-diameter-leak-detection/echoshore-tx

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