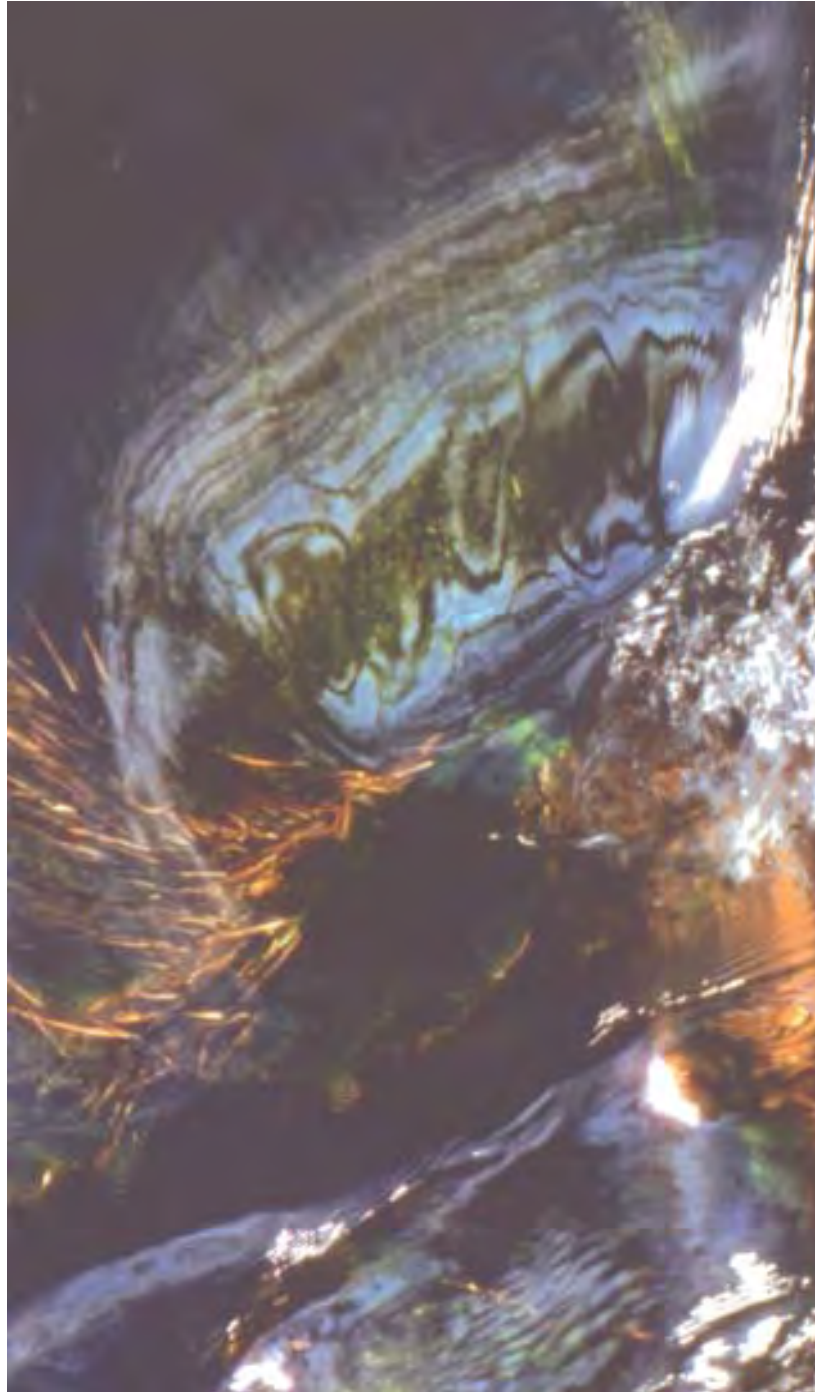# DigiCorr III

Digital Leak Noise Correlator

DigiCorr - The World's First Digital Correlator

*The DigiCorr Leak Noise Correlator is the world's first and only digital correlator - uniquely designed to provide a complete solution to leakage management issues facing the modern water utility: **on demand, real-time leak pinpointing, flexible leak analysis, systematic leak surveying,** and **powerful leakage management tools.***

Fast & Accurate Leak Pinpointing

Two Field Sensor Units detect, record, and digitally transmit leak noise present at remote pipeline contact points. DigiCorr analysis automatically pinpoints any leaks present.

A. Place sensors on pipeline, e.g. at hydrants and valves
B. Press Start ▶ on the touch screen
C. Follow the Pinpointing Wizard to identify the precise location of any leaks present

Flexible Leak Analysis

The DigiCorr is the only leak noise correlator that lets you reanalyze any recording at any time in the field or in the office. You may change any data originally entered, such as pipe and distance information, then re-correlate to update the leak location.

Systematic Leak Surveying

The DigiCorr is the only correlator that can be used to perform a comprehensive survey of your entire distribution network.

Flow Metrix integrates distribution system maps (from paper copy, graphics files, GIS) directly into the user interface of the DigiCorr. Complete recordings are saved automatically into a survey database, together with associated map, pipe, and correlation information.

DigiCorr Survey benefits include:

- Reduce unaccounted for water - Recover 75%+ of leakage, sustaining very low leakage levels
- Reduce emergency response, repair, and operations & maintenance costs
- Maximize revenues by selling all water produced and avoiding mandatory water use restrictions
- Conserve water and minimize liability exposure

Powerful Leakage Management Tools

DigiCorr Pro is the world's first computerized leakage management system.

- Advanced data analysis capabilities, including distinguishing water usage from leakage, leak source/type, multiple pipe sections, and *Smart Listening*™
- Sophisticated digital mapping and database software to analyze and track leakage system-wide
- Management tools which enhance distribution system maintenance. For example, analysis of leakage by area, pipe type, pipe age, pressure zone, etc.

DigiCorr's Multi-Use Capabilities:

- **Rapid Response**
- **DigiCorr Survey**
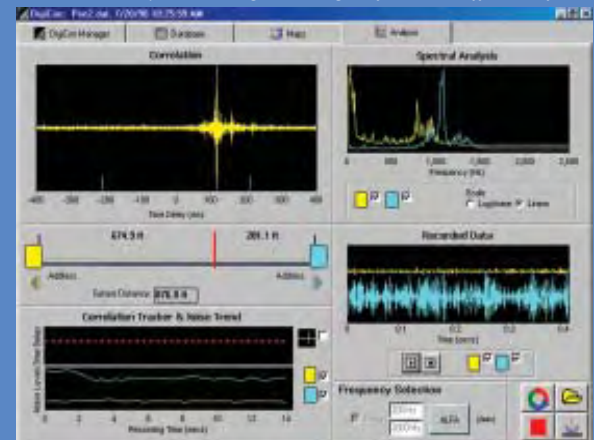- **DigiCorr Pro Leakage Management System**

Rapid Response Interface: Simple 1-touch leak pinpointing
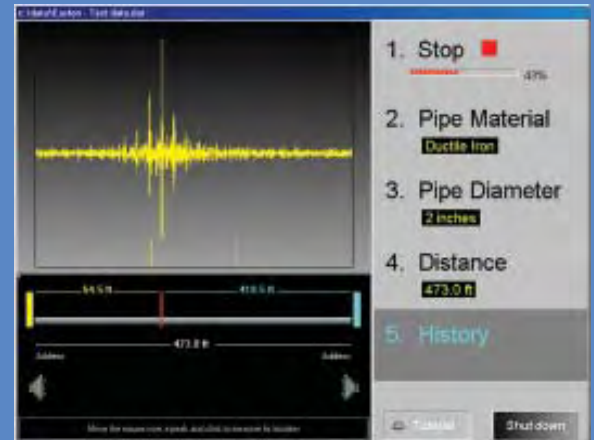
DigiCorr Survey Interface: Data from the network is systematically recorded and saved automatically
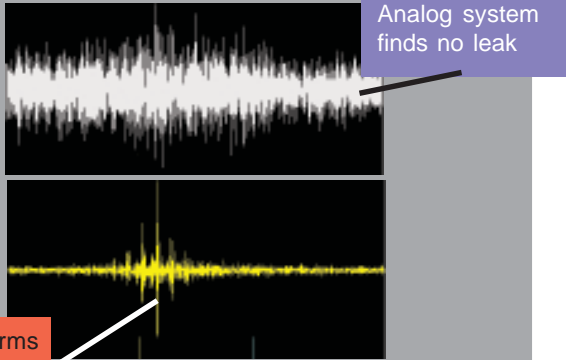

Advanced Analysis: Manage leakage - from the office or field

ALFA™ - Automatic Leak Frequency Analysis

The DigiCorr is the only correlator capable of creating an Automatic Leak Frequency Analysis by uniquely processing each recorded leak sound.

Analog system finds no leak

DigiCorr confirms service leak

Conventional correlators miss some leaks due to disturbances such as traffic and varying pipe flow. In the screens above, the DigiCorr is able to lock onto - and pinpoint - the leak sound in heavy traffic conditions.

ALFA™:

♦ Eliminates filtering, greatly simplifying and accelerating the process of finding a leak

♦ Improves the leak signal-to-noise ratio enabling detection of inaudible, difficult-to-find leaks

♦ Enhances precision of leak pinpointing

♦ Resolves multiple leak sounds simultaneously
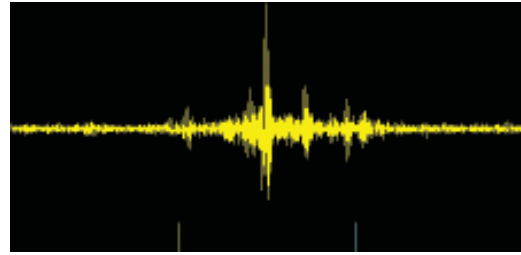
Actual DigiCorr recording of multiple leaks in a daytime urban environment

What's So Great About Digital?

The difference in the digital technology used only in the DigiCorr versus the analog technology used in all other correlators is fundamental.

Features	DigiCorr	Analog Correlators
Automatic Leak Frequency Analysis (ALFA)	Yes	No
Data Analysis in the Office	Yes	No
1-Button Operation	Yes	No
High Resolution Correlation Display	Yes	No
Expensive Periodic Calibration	No	Yes
Interpretation	Easy	Difficult
Reprogrammable	Yes	No
Upgradeable	Yes	No
License-free Digital Radio Transmission	Yes	No
Supports Any Language	Yes	No

The DigiCorr senses leak noise significantly below the threshold of human hearing. The sound is immediately digitized at the sensor and transmitted with the quality of a CD recording.

♦ Sensitivity is approximately 30 times greater than analog technology

♦ True digital recording and radio transmission preserves the fine detail of the leak sound, enabling pinpointing of even the quietest, most difficult-to-find leaks

♦ Advanced digital signal processing, such as ALFA, digital mapping, databasing, and special processing for different types of pipes, is only possible in a digital system

About Flow Metrix...

Our corporate headquarters are located in Maynard, Massachusetts with representatives and distributors world-wide. Our research & design, product development, manufacturing, technical support and administrative departments are all located in the US.
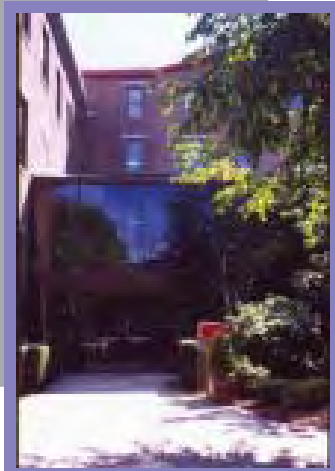
Our objective is to deliver technologically superior, easy to use, and affordable leak detection systems to our customers while maintaining the industry's most extensive and responsive customer support network.

The DigiCorr is the most significant advance in acoustic leak detection in over 20 years. Our patented technology allows our customers to reduce their unaccounted for water to record low levels.

Flow Metrix's unique digital data analysis and customer support is accessible to our customers from around the world via the Internet...www.flowmetrix.com

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Technical Specifications

Field Sensor Units (FSU)

Pipeline Sensors
- Accelerometers: Sensitivity = 12V/*g*; Noise < 0.016 μ*g* / √Hz; Bandwidth = 1 – 4,000 Hz
- Hydrophones are available for in-flow measurements

FSU Radio Transceivers
- Noise-free digital transmission
- ISM/LAN 2.4 GHz spread spectrum, license-free worldwide, FCC/ETSI approved
- Range up to 10,000 feet [3 km] (line-of-sight)
- Two-way communication with base station radio transceiver

Data Acquisition
- Intelligent automatic gain = 10 – 80,000
- 16-bit data acquisition, 92 dB dynamic range, sampling rate = 5 kHz

Power Supply
- Intelligent power management
- Up to 32 hours battery life, rechargeable & replaceable
- Re-charger for FSUs from AC outlet or standard auto DC

Physical Characteristics
- Size and weight: 4.25 x 4 x 8 inches, 6.5 pounds [10.8 x 10.2 x 20.3 cm, 3 kg]
- Rugged, metal, weatherproof enclosure

Base Station Computer

Physical Characteristics
- Rugged (impact, grit & water-resistant) computer; Pentium processor, TFT color, bright sunlight-readable screen
  (DigiCorr software will run on any PC using Windows™, with at least 32 MB RAM and 800x600 display resolution.)
- Rugged, weather-resistant stereo headphones

Digital Radio Transceiver
- Size and weight: 5 x 3.25 x 1 inches, 1 pound [12.7 x 8.3 x 2.5 cm, 0.5 kg]
- Rugged, metal, weatherproof enclosure

DigiCorr Software

- ALFA™ *(Automatic Leak Frequency Analysis)*
- Easy to use, MS Windows™
- High resolution display of correlation function, on-screen, land-marked location of detected leaks
- Correlation range: ± 880 milliseconds
- 15 types of pipe materials, including multiple sections of different pipes
- Automatic sound velocity measurement
- 16-bit stereo/mono sound playback
- Visual inspection of sound recording
- Spectral (FFT) analysis capability

- Digital filters with full manual frequency band selection available: High-pass: 1-2,000 Hz and Low-pass: 10-2,500 Hz in steps of 1 Hz
- Automatic assessment of leak probability
- Elimination of spurious noise events
- Reanalysis of same data possible
- Manual selection of possible leaks from correlation function
- Data storage (any number of studies)
- Database & mapping module
- Upgradeable to DigiCorr *Pro*

Flow Metrix
Advanced Leak Detection Systems