

L CORR

Advanced Digital Leak Detection System

Represented in Ohio, Kentucky, and
West Virginia by:

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Flow Metrix, Inc.



21st century leak detection

Planning

Now you can truly be in control of your leak detection program... *all from your desktop or field computer.*

Zcorr is a network of Digital Correlating Loggers (DCLs) which pinpoint the exact locations of any leaks in one overnight surveillance. The easy-to-use Zcorr software revolutionizes the ease and accuracy of pipeline leak detection and pinpointing.

Zcorr lets the leak detection manager plan the placement of the Zcorr DCLs and analyze and review the overnight recording results - *all from the comfort and convenience of the office!*



Deployment

Zcorr is flexibly designed for a variety of deployment strategies:

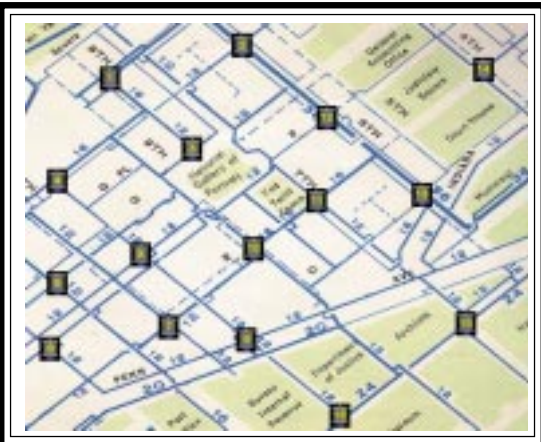
- ◆ One night - one zone
- ◆ Multiple nights - one zone
- ◆ Multiple nights - multiple zones

Deployment is planned by you, either in the office or in the field, working from your distribution system maps.



Work Order No. 21

Zone: A Deploy: 08/01/00
DCLs: 1-16 Retrieve: 08/02/00



| Logger No. | Address | Deployed by (Initials): | Retrieved by (Initials): |
|------------|-----------------------------------|-------------------------|--------------------------|
| 1 | Valve 22 @ 8th Avenue & I Street | | |
| 2 | Valve 26 @ 6th Avenue & H Street | | |
| 3 | Valve 17 @ 8th Avenue & G Street | | |
| 4 | Valve 23 @ 10th Avenue & H Street | | |

Sample Deployment Scenario

Deploy:

Enter the location of each Digital Correlating Logger (DCL); navigate the digitized map and click to place DCL at its location. DCLs are typically placed 400 to 4,000 feet apart depending on the environment.

A printed Zcorr Work Order directs field personnel to place DCLs on specific valves or other pipe fittings.

Retrieve:

The next morning field personnel replace the DCLs in their Docking Station. The Docking Station connects to your desktop PC, laptop, or rugged mobile computer via serial link.

Nighttime data recorded by the DCLs is transferred to the PC; permanently stored; and analysis is automatically performed, pinpointing the locations of any leaks present.

Analysis

- Auto Analysis:** *Z*Corr automatically correlates data among all DCLs, pinpointing the map locations of any leak sounds present. Click on any pair of DCLs to see the leak noise correlation.
- Listen:** *Z*Corr lets you listen to actual nighttime recorded leak sounds. Click on any logger symbol or leak index bar to hear the leak sound at that map location.
- Correlation Results:** Click on any thumbnail image to get a detailed analysis: pinpoint multiple leaks; enter pipe information; see logger and leak locations on map.
- Summary:** Shows a zone map with all DCLs and a summary table with all significant correlations and exact locations of pinpointed leak noises.
- Report:** Prints a full report of the *Z*Corr analysis for the entire zone.



*Z*corr ... the Digital Correlating Logger

| Feature | <i>Z</i> corr | Conventional Noise Loggers | Permanently Installed Noise Loggers |
|----------------------------|--------------------------|----------------------------|-------------------------------------|
| Pinpoints leak | Yes | No | No |
| Actual audio recording | Yes | No | No |
| Upgradeable/Reprogrammable | Yes | No | No |
| Digital mapping | Yes | No | No |
| Identifies multiple leaks | Yes | No | No |
| Communication mode | Internet/Docking Station | Docking Station | Drive-by Radio |

Technical Specifications

Digital Correlating Logger (DCL)

Enclosure: Aluminum, cylindrical

Protection: IP68 – fully submersible

Weight: 1 lb (450 grams)

Dimensions: Height = 4.5 inches (11.4 cm)
Diameter = 2.25 inches (5.7 cm)

Mounting: Magnet, 40 lbs (18 kg) pull force

Operating temperature range: -20 to +140°F
(-30 to +60°C)

Power Source: Lithium battery, 5-year life,
factory-replaceable, non-rechargeable

Sensor: High resolution electronic accelerometer;
Shockproof to 6,000 g;
Sensitivity: 1 V/g;
Resolution: 0.25 $\mu\text{g}/\sqrt{\text{Hz}}$

Data Acquisition: Frequency range: 1-3,000 Hz;
Signal range: sub 1 μg – 20 mg;
Digital Resolution: 20 bits

Docking Station

Enclosure: Rugged ABS carrying case

Protection: IP68 - closed; IP65 - open

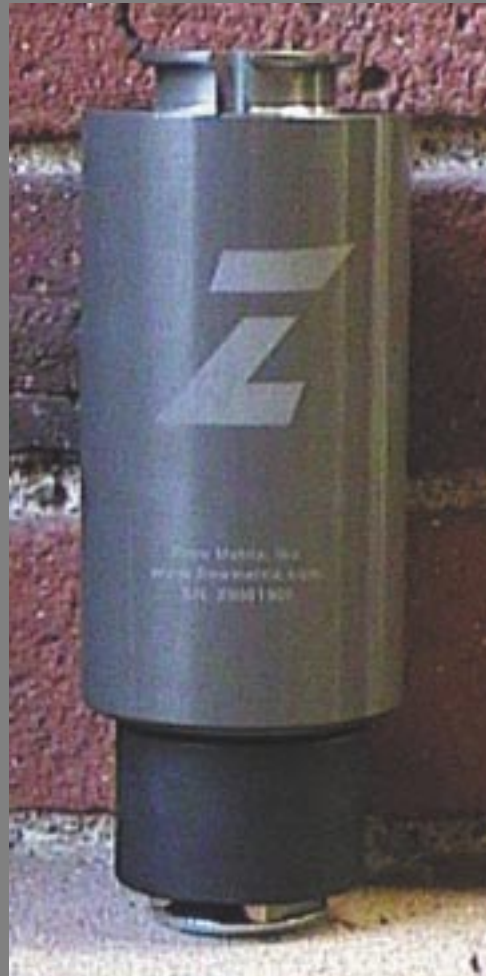
Weight: 15 lbs (6.8 kg) without DCLs

Dimensions: 20.5 x 16.75 x 8.5 inches
(52 x 42 x 22 cm)

Operating temperature range: 20 to 140°F
(-5 to +60°C)

Capacity: 3 to 16 DCLs

PC link: RS-232



Product Features

- ◆ *Z*Corr DCLs are locally intelligent. They feature auto-power management (have no on/off switch) and never require user intervention.
- ◆ *Z*Corr software has a familiar web browser interface, making it as easy to use as a remote control.
- ◆ The *Z*Corr system is expandable from 3 to an unlimited number of DCLs so it can grow with your leak detection program.
- ◆ With *Z*Corr a manager can run a leak detection program across pipeline networks anywhere in the world. DCLs can be transported ready to deploy, or setup and deprogrammed remotely, with data access and analysis by internet or email.
- ◆ *Z*Corr is fully upgradeable through software, making the latest technical advances available to all users.

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