Enigma®

Multi-point correlation system for leak location

Enigma® is a state-of-the-art digital correlation logging system for determining the location of leaks in buried water pipes. Enigma combines noise logging and noise correlation into one operation to provide improved operational efficiency.

Enigma offers the following:

- **Optimum performance in difficult leak detection situations**
- **Avoids costly night-time working**
- **Three sound samples separate leakage from genuine water use**
- **Latest 24-bit digital correlation**
- **Finds multiple leaks**

Multi-point network correlation

Enigma loggers are deployed at multiple positions, typically on valves or hydrants, during normal working hours. They maybe programmed for either daytime or night-time operation. The loggers record the actual leak sound. When retrieved the leak sound is transferred to the host software where it is processed to display all leak positions between loggers.

Programming and data readback utilises optical and USB communications to ensure rapid operation.





Enigma - eight logger system



Enigma-Compact - three logger system

- Low cost, high performance digital correlator
- Traffic friendly deployment
- Easy to use

Primayer

technology for network management and leakage control

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Multi-point correlation system for leak location

Optimum leak sensing



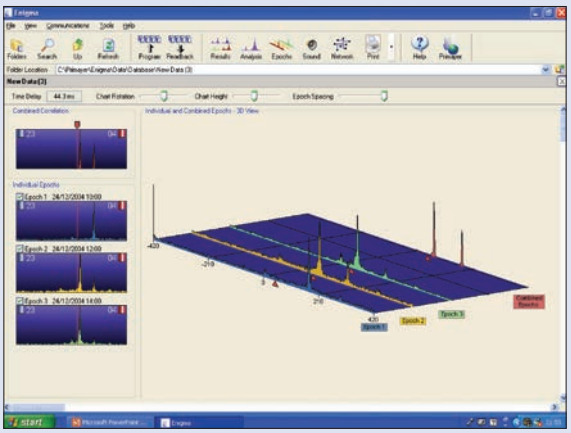
Overnight use provides ideal conditions for leak detection. This is because background acoustic noise from traffic, water usage and other sources, is lowest and, at the same time, water system pressure can be higher which greatly aids leak sound propagation.

System Features:

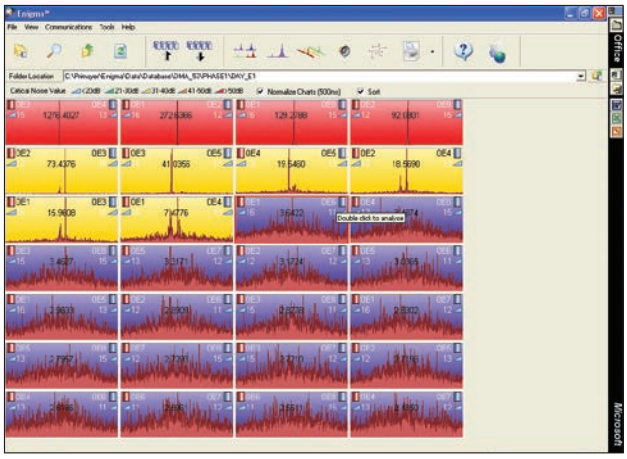
- Logger programming/readback via PC or one button press in the Communications Case
- Loggers powered for 5 years
- Advanced filtering and coherence functions
- Unwanted noise suppression
- Auto-velocity determination
- Pipe schematic with correlation 'thumbnails' display
- Interface to Google Maps*

Separating genuine water usage

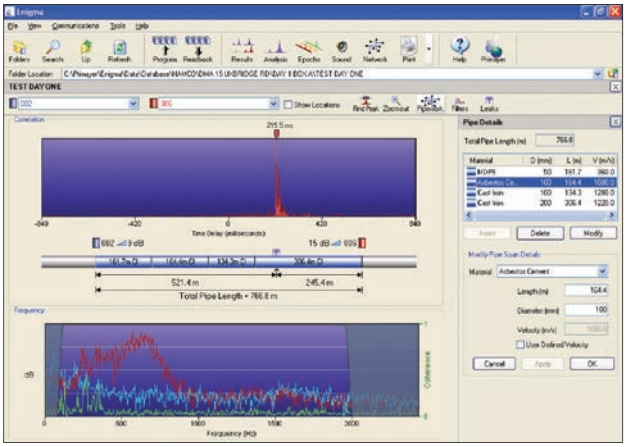
Each logger records during three sample periods, typically spaced one hour apart. A characteristic of leak noise is that it is always constant and so if the correlation peak is not present during all three samples then it is due to water use and not leakage.



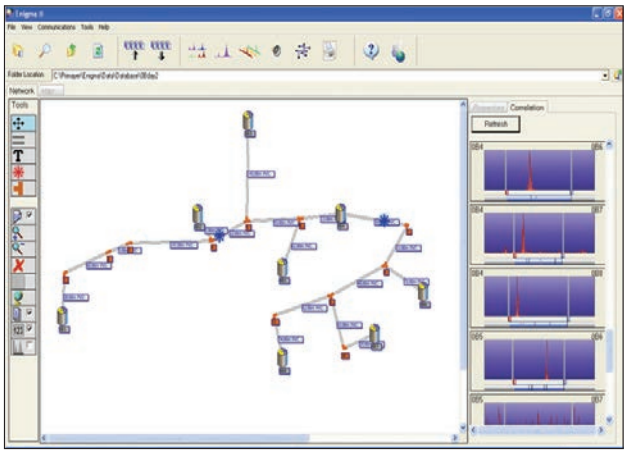
Multiple sample periods to determine if leakage or legitimate use of water



Display of 'thumbnail' correlation results with automated sorting of leak confidence



Leak on cast iron main found over 760m



'Thumbnail' correlations displayed (right side of screen) with pipe schematic for easy visualisation of leaks and logger positions

Products

Enigma-Compact Kit (3 loggers)	JXG 601
Enigma Kit (8 loggers)	JXG 001

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Information in this document is subject to change without notice.
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