

Enigma[®]-hyQ

For trunk main leak location



Enigma[®]-hyQ is a variant of the standard Enigma multi-point correlation logger that has been further optimized for leak location in large diameter pipes and over longer distances. A high sensitivity hydrophone is used (directly detects the pressure wave in the water) coupled with the application of narrow band filtering.

System Features

- High sensitivity hydrophone
- Narrow band filtering technique
- Very low electronic 'noise floor'
- Records acoustic data at night
- Multiple recording 'epochs'

Operation

Enigma is designed for night-time operation, the optimum time for leak sound propagation - when background acoustic noise is lowest and water pressure is usually highest.

Optimum design

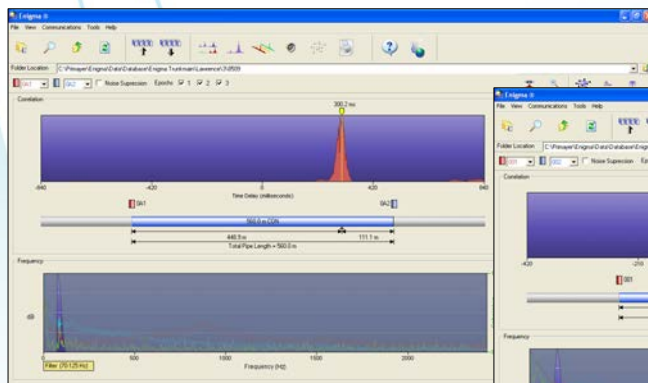
For detecting quiet leaks *Enigma* is designed with the lowest possible 'electronic noise floor' - the lowest random noise generated within the logger's semiconductors. This is coupled to the ability to process very low frequency signals.

Narrow Band Filtering

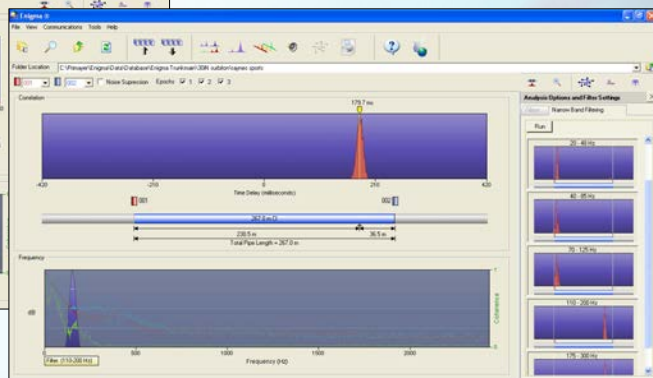
The Narrow Band Filter tool automatically 'sweeps' the frequency range and produces multiple correlations in different frequency



bands (as displayed on the right side in screens below). The technique can enable results when operating over longer distances and large diameter mains).



Leak on 1500mm diameter concrete main over 560 metres (Chicago, USA)



Leak on 800mm diameter iron main over 267 metres (London, UK)



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