

Water leak detection in underground pipe lines

Water scarcity caused by ever increasing demand in the present world has made it a precious commodity. Surveys carried out in different countries reveal that 15-30% of water is wasted in leakages in the pipelines. Plugging these leakages can give more capacity and revenue to water supply departments as well as offer

unpolluted and better quality commodity to consumers. This calls for a highly sensitive and precise instrument capable of detecting any type of leak on any type of pipeline laid deep underground.

Our WLD 90 completely satisfies the demand of such instrument for the job.

Salient Features

WLD 90

- Highly sensitive ground microphone for precise detection of leak spot
- Highly sensitive receiver amplifier capable of amplification up to 100 dB
- Six selective filters to suppress ambient noise and deliver desired signal of leak noise on headphones
- Separate controls for volume and sensitivity to help in detecting feeble leak noise
- LCD display with backlit facility for working under dark ambient condition
- User-friendly operation with minimum controls
- Compact and light weight

Principle of Operation

WLD 90

Water escaping at the leak spot strikes the surrounding soil, generating sound waves that propagate up to ground surface. These waves are received by the ground microphone when it is placed in the vicinity of the leak spot. Receiver amplifier connected to it enables the operator to hear the leak noise through headphones and signal level is displayed through an indicator to locate the leak spot accurately. There are several factors, such as pressure in the pipeline, type of leak (small or big puncture, failure of gasket or joint) that govern the sound wave frequency. Therefore the receiver amplifier should have selective filters for all type of leak noises.

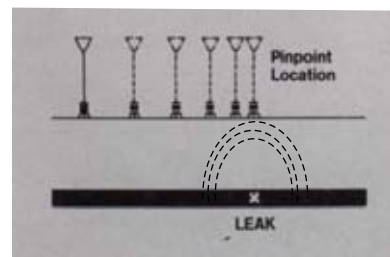


Fig 1. Pinpointing Location

Operation

WLD 90

Before commencing the operation, check and note down the pipeline material, diameter and pressure. The conductivity of sound waves and their propagation characteristics depend on the material of the pipeline (Fig. 2) Ground microphone MIC is kept on the ground surface, at marked route of the pipeline. The volume is set to middle position for comfortable audio signal received at headphones. Sensitivity is selected to give full scale deflection by small noises such as tapping the ground. Initially broad band filter E (120-1800 Hz) is selected for preliminary search. The ground microphone should be placed on the route of the pipeline at an interval of 1 m distance. When the leak spot is approached, the leak noise level starts being heard in the headphones as well as the LCD meter shows higher readings. One has to locate the spot having maximum noise level. At this stage, proper filter has to be selected for precise location of leak spot. Reduce the volume and set the sensitivity to locate the exact spot having maximum leak noise.

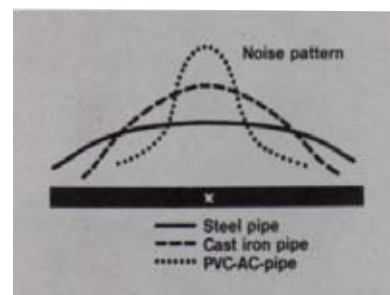


Fig 2. Run of the acoustic field

Accessories

WLD 90

1. Ground Microphone MIC
2. Headphone
3. Stick
4. Carrying case

Specifications

WLD 90

Frequency Selector	: Six positions A(240 Hz), B(400 Hz), C(650 Hz), D (1100 Hz), E (1800 Hz), F (3000 Hz)
Microphone	: MIC Ground Microphone
Display	: LCD Bar graph to display level of leak sound.
Mute switch	: To disconnect Headphones from amplifier
Battery	: Nominal Voltage 12 V DC Type 8xAA type Alkaline batteries
Operating Temperature	: -10 deg C to 50 deg C
Storage Temperature	: -15 deg C to 55 deg C
Dimensions	: 175 (W) x 75 (H) x 205 (D) mm
Weight	: Net 1 (kg.)

Other associated equipment recommended **Pipe route locator Model PL 8** for exact alignment of pipe line.

Marketed by

Aplab Limited

APLAB House, A-5, Wagle Industrial Estate,
Thane - 400604.

Tel. : +91-22-25821861-2-3, 25820319, 25321019

Fax : +91-22-25823137, 25824456, 25831128

Email : cfl@aplab.com

www.aplab.com



18, Electronic Sadan II, MIDC, Bhosari,
Pune 411026, Maharashtra, India.

Tel. : +91-20-27120784 / 27123176

Fax : +91-20-27121787

Email : telemtrix@vsnl.net