LC-5000
Leak Noise Correlator

SubSurface Instruments

LC-5000
Leak Noise Correlator

Compact and Light-Weight. The Main Processor Unit, weighing less than 5 lb., can easily be carried all day

The Main Processor Unit displays up to 6 Correlations on one screen. User can easily drill into individual correlation from touch screen.

Ruggedly Built & Weather-Tight

The Main Processor Unit and the Transmitter Sensors can operate in rain storms, sub-zero temperatures and direct sun for hours.

Rechargeable Batteries

Runs all day on Lithium Ion Batteries.

High Sensitivity Transmitting Sensors Standard

The new LC-5000 Transmitting Sensors are very sensitive, small in diameter, and totally submersible. 4 times the resolution of its predecessor the LC-2500.

Easy To Set Up & Run – 3 Steps & You Are On Your Way

Input pipe materials, diameters, and lengths by simply selecting them in the program menus. Automatic functions can do the rest.

Easy To Set Up & Run

MAIN CORRELATION SCREEN, is the "home page" where every correlation begins. Icons at the bottom relay signal & battery strength.

In **PIPE DATA SCREEN,** user enters Material, Diameter & Lengths from the easy touch screen menu.

In **FILTER SCREEN,** user can adjust High & Low-Pass Filter ranges & adjust Notch Filter.

In **TRANSMITTER SENSOR SETTINGS,** the user can program & send settings to all units or select individual units for Relay or Relay & Pre-Amp Mode.

In **PRE-AMPLIFIER / TRANSMITTER MODE,** user has options for programming as Transmitters, Relays, Transmitter / Relays or Logger Mode for overnight or Short Term Deployment.

MENU SCREEN, is where user selects various functions like Data processing, Logger data retrieval, Equipment seting as well as FFT & White noise features.

Powerful Transmitter with Radios That Go Over Hills and Around Buildings

Pre-amp / Transmitter

"hear" the leak sounds at pipe locations and transmit them to the main processor.

aviation-grade stereo headphones are standard.

High sensitivity small diameter

LC-5000 Transmitter Sensors

standard for all pipe materials.

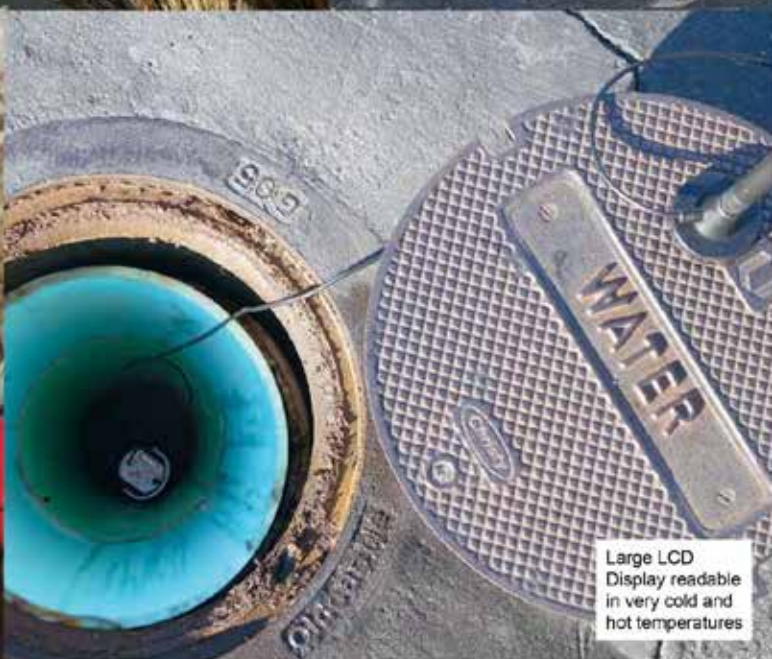
Patented Submersible Sensors

Deploying all 4 Transmitting Sensors allows for up to 6 correlations on Main Unit main screen.

Main Processor Unit with 24 bits digital signal processor (DSP) for much faster correlations

New LC-5000 high sensitivity Transmitting Sensors with strong magnets and 100 dB dynamic range

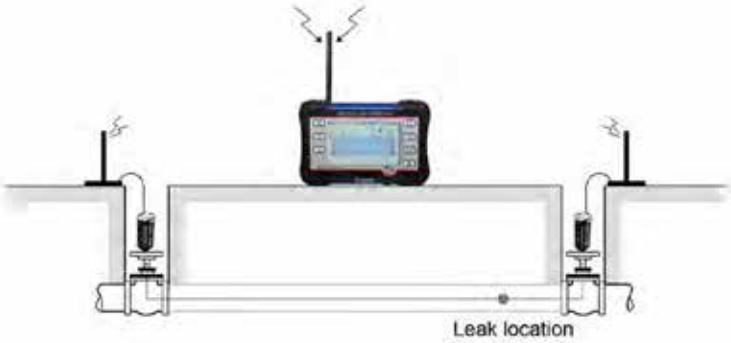
Powerful transmitter radios with 500 mWatts output to send signals 3000 ft.



Large LCD Display readable in very cold and hot temperatures

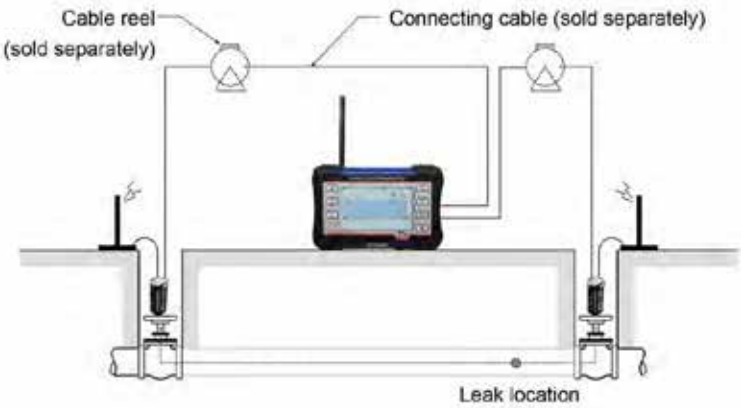
4-1 Radio and Cable Modes

(1) Radio mode



(2) Cable mode

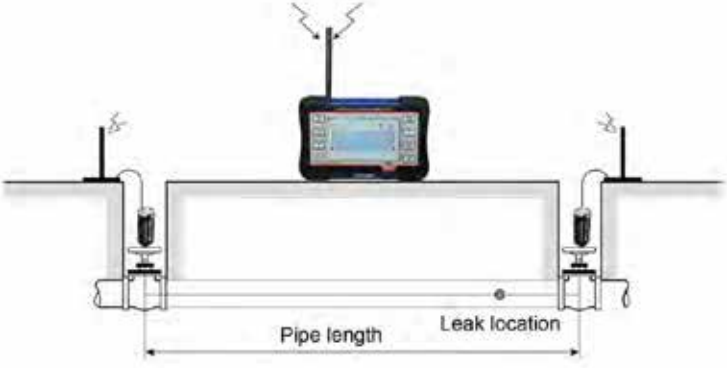
Cable mode is used when radio communication cannot be established between the leak detector and the pre-amplifiers due to interference from buildings or other radio stations etc.
Normally, leak detection is done in radio mode as shown in (1) above.



4-2 Example of Detecting a Leak in a Pipe

This section explains how to perform leak detection for the pipe shown below.

In this example, it is assumed that the water leaks from a certain location in the pipe. The pre-amplifiers detect the leak noise and send the signals to the main unit.



MODEL LC-5000
LEAK NOISE CORRELATOR

The LC-5000 System Includes:

1. LC-5000 Main Processor Unit
2. 2 or 4 Transmitting Integrated Sensors
3. 6-inch Antenna Extensions
4. Pedestals for Transmitting Sensors
5. Headphones (see inside) & Battery Recharging Cables
6. Instruction Manual and SDHC Card
7. "Heavy Duty" Composite Carrying Case

Specifications

Main Processor Unit

- Operating Temperature Range : -10 to 140°F
- Applicable Standard : IP52 (weather tight)
- External Dimensions : 10.7 inches (W) x 7.0 inches (D) x 3.2 inches (H)
- Weight : Approx. 4.8 lb. (with batteries)
- Battery : Lithium Ion (rechargeable)
- Continuous Operating Time : 8 hours minimum (at 20°C, backlight OFF)
- Minimum Operating Voltage : 4.2V
- Input : Radio x4 or Cable x2
- Display : 7-inch TFT LCD with touch screen
- Operation : Polarity correlation
- Td Range : ±50ms, ±100ms, ±200ms, ±400ms, ±800ms, ±1600ms, 3200ms or automatic setting
- Time Resolution : 25 µs (in ±50ms range), 50 µs (in ±100ms range), 100 µs (in ±200ms range), 200 µs (in ±400ms range), 400 µs (in ±800ms range), 800 µs (in ±1600ms range)
- Filter Range : THRU, 80Hz to 5,000Hz (4 low and 4 high)
- Notch Filter : OFF, 50Hz, 60Hz
- Auto Filter : Automatically selected from FFT operation
- Data Memory : 100 correlations
- FFT Monitor : 1kHz, 2.5kHz, 5kHz (common to both channels)
- Sound Memory : For 16 seconds
- External Interface : Antenna, Headphone, Power Switch, Cable, RS-232C

Optional Accessories:

8. External Sensors w/10-foot Cable
9. Rechargeable Spare Battery for Main Unit

Specifications:

Red and Blue Pre-Amplifiers

- Operating Temperature Range : -13 to 140°F
- Applicable Standard : IP68 (weather tight)
- External Dimensions : 3.14 inches (D) x 7.2 inches (H)
- Weight : Approx. 0.3 lb. (with batteries)
- Battery : Lithium Ion (rechargeable)
- Continuous Operating Time : 10 hours minimum (at 20°C, backlight OFF)
- Minimum Operating Voltage : 5.0V
- Input
  - Input Frequency Range : 20Hz to 5kHz (at THRU filter setting) 100Hz to 5KHz (at STD filter setting)
  - Input Sensitivity : 50 micro V, max.
  - Signal to Noise Ratio : 35dB, min.
- Radio Communication System
  - Output Frequency : UHF under approved frec.
  - Modulation : Direct frequency modulation
  - Output Power : 0.5W (500mW)
  - Output Impedance : 50Ω

Sensors

- Operation Modes : Correlation / Relay / Logger / Relay+Correlation
- Sensitivity Settings : 2.0 (1 to 20) Steps Manual & Auto
- Filter Setting Modes : Common / Through
- Recording : Audio signal recording (300 Seconds, logger mode only)
- GPS Function : Transmit position coordinates & elevation to the Main Unit
- Weight : 2.2 lbs

Manufactured by:

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