



LF-24 Low Frequency Geophone

- Economical, low-frequency geophone designed for vibration monitoring
- Vertical and horizontal versions available
- Low-power electronic circuit, providing reverse filter function below geophone's natural frequency
- Extended bandwidth down to 1 Hz @ 100% damping
- Rugged design, allowing high shock peaks
- Electronics fully potted in epoxy resin for high reliability
- 5-pin, water-tight, C91-M IP65 connector
- Low-impedance output matches broad range of recorder inputs
- Electrical load does not affect damping characteristics
- Small dimensions compared to conventional 1 Hz geophones
- Customized designs possible



The LF-24 Low Frequency Geophone is optimized for size and performance where weight and cost are important factors in vibration monitoring and low-frequency seismic measurement. The device uses a low-power electronic circuit to provide reverse filtering function below the geophone's natural frequency, extending the recording bandwidth down to 1 Hz. The compensation circuit permits the use of a higher natural frequency geophone, allowing for high shock peaks that could seriously damage conventional low-frequency geophones. The electronics are fully potted in epoxy resin for reliability; a 5-pin, water-tight connector is provided for signal output and power supply. The low-impedance output matches many recording devices, and the electrical load will not affect the damping characteristics.

Applications: vibration monitoring, low-frequency seismic measurement, blast monitoring, vibration measurement of buildings, & site engineering.

Specifications

INPUT/OUTPUT, INC.

Frequency

| | |
|--|-----------------------------------|
| Natural frequency (f_n) | 1 Hz |
| Tolerance | $\pm 15\%$ |
| Maximum tilt angle for specified f_n | 20° (vertical) or 5° (horizontal) |

Distortion

| | |
|--|--------|
| Distortion with 0.7 in/s _{p.p.} coil-to-case velocity | <0.15% |
| Distortion measurement frequency | 12 Hz |

Damping

| | |
|--------------------------------|------|
| Open-circuit damping (typical) | 100% |
|--------------------------------|------|

Sensitivity

| | |
|--------------------|------------|
| Sensitivity | 15 V/m/s |
| Tolerance | $\pm 10\%$ |
| Spurious frequency | 240 Hz |

Equivalent Input Noise

300 nm/(s.sqrt(Hz)) above 10 Hz

Power Supply Voltage

 $\pm 5 V_{dc}$ to $\pm 15 V_{dc}$ (symmetrical)

Supply Current

 ± 1 mA (at rest)

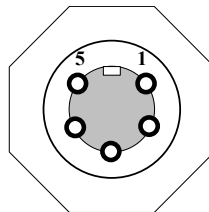
Physical Characteristics

| | |
|-----------------------------|----------------------------------|
| Diameter | 34 mm (1.34 in) |
| Height | 65 mm (2.56 in) |
| Weight | 170 g (6 oz) |
| Operating temperature range | -20°C to +60°C (-4°F to +140°F) |
| Storage temperature range | -40°C to +70°C (-40°F to +158°F) |

Mounting Thread

M8

Connector

Type *Amphenol – Series C91-M IP65, 5-pin*

| <u>Pin</u> | <u>Wire</u> |
|--------------|-------------|
| 1 Signal + | Yellow |
| 2 Power - | Gray |
| 3 Power GND | Green |
| 4 Power + | Pink |
| 5 Signal GND | White |

Limited Warranty Period

180 days

Ordering Information

| | |
|--------------------|-------------|
| LF-24 (vertical) | P/N 1100241 |
| LF-24 (horizontal) | P/N 1100242 |

United States – Stafford, TX
Input/Output, Inc.
Fax: 281.879.3500
Phone: 281.933.3339
E-mail: info@i-o.com

Russia
Input/Output, Inc.
Fax: 7.095.2322240
Phone: 7.095.2322254

England
Input/Output, Inc.
Fax: 44.1603.411403
Phone: 44.1603.4114000

Web Site
www.i-o.com