QL-TERRATONE-60
High-Precision 60-Second Broadband Seismograph

Overview

The QL-TERRATONE-60 is a research-grade broadband seismograph engineered for precision earthquake and vibration monitoring. With a frequency response from 60 seconds to 80 Hz, ultra-low self-noise below the USGS NLNM, and a wide dynamic range of 155 dB, it is purpose-built for seismic networks, reservoir monitoring, mining, oil & gas exploration, and subsurface imaging research. Compact, rugged, and energy efficient (<2 W), it is suitable for both permanent installations and portable surveys.

Key Features

- Ultra-low noise: below NLNM (0.025–10 Hz).
- Wide bandwidth: 60 s (0.0167 Hz) to 80 Hz.
- Dynamic range ≥ 155 dB (1–10 Hz).
- Nominal sensitivity ≥ 2000 V/m/s ±1 %, ±10 V differential output.
- UVW 54.7° triaxial capacitive structure.
- GNSS and IRIG timing with <0.01 ms synchronization error.
- Compact and rugged: Φ150 × 205 mm, 5.5 kg, IP67 rated.
- Low power: <2 W, operates on 9–20 VDC.
- Automatic mass unlock/lock and centering with remote zero adjustment.
- Supports EVT, MiniSEED, and GEOPEN data formats.
- MTBF > 50,000 h, CE/EMC/RoHS2 compliant, 2-year warranty.

Technical Specifications

Dimensions	Φ150 × 205 mm
Weight	5.5 kg
Enclosure	Hermetically sealed, IP67
Operating Temp.	–40 °C to +60 °C
Storage Temp.	–40 °C to +80 °C
Humidity	0–100 % non-condensing
Bandwidth	60 s (0.0167 Hz) to 80 Hz
Sensitivity	≥ 2000 V/m/s ±1 %
Output Range	±10 V differential
Dynamic Range	≥ 155 dB (1–10 Hz)
Self-Noise	Below NLNM (0.025–10 Hz)
Cross-Axis Sensitivity	≤ 1 %
Non-Linearity	≤ 0.1 %
Input Velocity Limit	> 10 mm/s (1 Hz)

Power Supply	+12 VDC nominal (9–20 VDC)
Consumption	< 2 W average
Acquisition	32-bit, 3-channel ADC
Sampling Rates	50, 100, 200, 500 sps (simultaneous)
Timing	GNSS and IRIG, <0.01 ms error
Storage	≥ 8 GB industrial CF card
Data Formats	EVT, MiniSEED, GEOPEN
Protocols	Jopens, TCP/IP, FTP
Calibration	Electronic (pulse, sine, pseudo-random)
MTBF	> 50,000 h
Warranty	2 years