# MULTI-CHANNEL SEISMOGRAPH FOR MASW, REFRACTION & VIBRATION MONITORING

Code : N450

- Digital engineering seismograph developed for high-precision near-surface geophysical and civil engineering applications. Designed for reflection, refraction, MASW, microtremor and vibration monitoring with true 24-bit data acquisition for maximum resolution and dynamic range.
- Suitable for a wide range of active-source surveys including sledgehammer impacts, falling weight sources, spark sources and detonator shots. Capable of achieving shallow to deep exploration depths depending on geology, spread configuration and seismic source energy.
- Provides comprehensive capabilities for engineering geology investigations such as bedrock profiling, layer identification, fault detection, subsurface void mapping, roadbed and embankment evaluation, and soil stiffness profiling through shear-wave velocity measurements.
- Ideal for geotechnical site characterization, seismic hazard studies, urban development assessments, infrastructure planning and quality control in transportation, highways, bridges, tunnels, hydropower and industrial projects. Also suitable for groundwater, mineral, coal and hydrocarbon exploration.

- Supports microtremor and ambient vibration measurements for site response analysis, building vibration assessment, construction-induced vibration monitoring and safety evaluation around sensitive structures and populated areas.
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- Modular architecture allows cascading of acquisition units, enabling flexible configuration from standard 24-channel and 48-channel setups to expanded multichannel arrays for MASW, refraction and microtremor array studies.
- Operated through a Windows 10/7 tablet or laptop, featuring intuitive software with real-time waveform display, QC tools, stacking, filtering and direct field validation. Wireless (Wi-Fi) operation provides efficient field deployment and mobility.
- Embedded self-diagnostic system automatically checks noise, crosstalk, channel consistency and system performance, generating immediate test reports to verify field readiness and ensure reliable operation before data acquisition.

## STANDARDS

ASTM D5777 • ASTM D4428 • ASTM D7400 • ASTM D5753 • ASTM D6429

## TECHNICAL SPECIFICATIONS

- Acquisition Resolution: True 24-bit A/D conversion
- Available Configurations: 24-channel  or 48-channel
- Frequency Response Range: 0.1 Hz – 16 kHz
- Dynamic Range: ≥ 144 dB
- System Noise (Full Band): < 0.5 µV
- Inter-Channel Crosstalk: > 80 dB
- Amplitude Consistency: ±0.1%
- Phase Consistency: ±5 µs
- Sampling Delay Range: 0 – 9999 ms

- Sampling Intervals: 10 µs, 20 µs, 50 µs, 100 µs, 200 µs, 500 µs, 1 ms, 2 ms, 5 ms, 10 ms, 20 ms
- Record Length / Points: 512 to 32768 points
- Trigger Modes: Threshold, internal, external (short/open circuit, signal)
- Anti-Aliasing Filter: Automatic tracking analog filter + digital filtering options
- Gain Settings: ×1, ×4, ×16, ×64, ×128 (with optional attenuation 1/8, 1/4, 1/2)
- Data Formats: SEG-2, SEG-Y, TXT
- Operating Platform: Windows 10 or Windows 7 tablet/laptop
- Communication: Wi-Fi wireless control (line-of-sight operation)
- Internal Power: Built-in 12 V / 9 Ah lithium battery
- External Power: 12 V DC input
- Typical Current Consumption: < 1 A at 48 channels; < 0.6 A at 24 channels
- Operating Temperature: –10 °C to +60 °C
- Operating Humidity: < 90% RH (non-condensing)

## EQUIPPED WITH

- 24-bit multichannel seismic acquisition system (24 or 48 channels)
- Windows-based seismic acquisition and control software
- Integrated Wi-Fi interface for field operation
- Built-in system diagnostics and noise monitoring functions
- Analog anti-aliasing and advanced digital filter suite

## SUPPLIED WITH

- Standard 4.5 Hz vertical geophone array (configurable channel count and spacing)
- Trigger cable and trigger sensor
- Power connection cables for internal and external supply
- Rugged transport case(s)

- Essential field connection accessories and tool kit