SOIL > CYCLIC

# P & S WAVE (BENDER ELEMENTS) CONTROLLING UNIT

Code : T848

- Measures shear wave velocity (Vs) of soil at very small strains to calculate initial shear modulus (Gmax). Non-destructive measurements can be made repeatedly during saturation, consolidation, or staged loading.
- Uses piezo-ceramic bender elements mounted in the triaxial pedestal and top cap (or in oedometer caps) to transmit and receive S-waves across the specimen; optional P-wave transducers support Vp measurements.
- Supports multiple interpretation methods time-domain first arrival, cross-correlation, and frequency-domain phase slope with automated and manual picking to validate arrivals and reduce user bias.
- Integrated software coordinates excitation waveforms, high-speed acquisition, travel-distance handling from specimen geometry, and produces Vs, Gmax, and damping estimates vs. effective stress with exportable plots/tables.

- Compatible with common specimen sizes and drainage configurations; operates under drained/undrained states with confining and back pressure, enabling stress–stiffness relationships and modulus degradation baselines.

## STANDARDS

ASTM D8295

## TECHNICAL SPECIFICATIONS

- Measurement: Shear wave velocity (Vs) and Gmax; optional Vp
- Excitation: Single pulse, pulse train, sine sweep/chirp (programmable)
- Receiver: High-sensitivity BE receiver with low-noise conditioning
- Sampling Rate: Up to 500 kHz (selectable)
- Bandwidth: Suitable for S-wave detection on 38–100 mm specimens (soil-type dependent)
- Specimen Size: Ø36–150 mm (standard Ø50 mm)
- Mounting: Triaxial cap & pedestal (standard); direct simple shear (optional)
- Analysis Tools: Time-domain pick, cross-correlation, phase-slope; manual override & quality metrics
- Outputs: Vs, Gmax, travel time, path length, arrival picks, signal spectra, QA flags
- Software: Test templates (during saturation/consolidation/loading), batch processing, report export
- Optional ALFA Cloud integration for secure, real-time data upload, centralized storage, and web access to results.

## EQUIPPED WITH

- Pair of bender elements with sealed feedthrough housings (cap & pedestal)

- Low-noise signal conditioner and drive amplifier
- High-speed data acquisition interface with trigger/sync leads
- PC software for excitation control, acquisition, and Vs/Gmax analysis
- Cabling set, sealing grommets, and mounting hardware for listed specimen sizes

## SUPPLIED WITH

- Spare sealing grommets and cable glands
- Assorted connectors and mounting screws
- Quick-start fixtures for alignment and verification