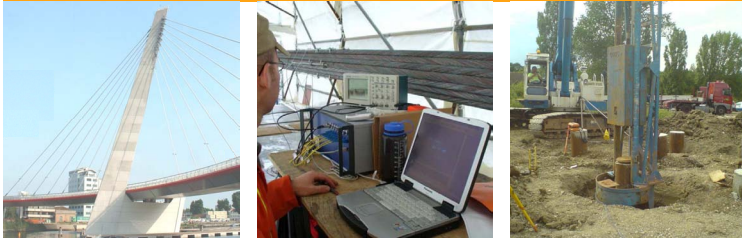


10.2030 SOFO DYNAMIC READING UNIT

For long-gage fiber optic deformation sensors



GENERAL DESCRIPTION

The SOFO Dynamic reading unit allows to measure SOFO sensors at high frequencies. One reading unit can be used to demodulate up to 8 channels. Multiple units can be combined when higher channel counts are needed.

SOFO Dynamic compatible sensors can be measured with both the SOFO Dynamic (dynamic measurements) and the SOFO V or SOFO VI reading unit (static and long-term measurements, reduced range). Most standard SOFO sensors can be measured by the SOFO Dynamic reading unit using an external custom-made compensator.



TECHNICAL DESCRIPTION

The SOFO Dynamic reading unit is based on a heterodyne low-coherence interferometer operating at 1550 nm. The optical signal is phase modulated by the demodulation interferometer. After detection, the reading unit tracks the phase modulation introduced by the sensors and converts it into a displacement. The resulting deformation is available in analog form on the analog outputs or in digital form on the USB connection that can be used to transfer the measurements directly to a PC for storage and further analysis. The measurements are relative and the zero point is lost on power off, but can be recalibrated using the SOFO V or SOFO VI reading unit.

Application domains:

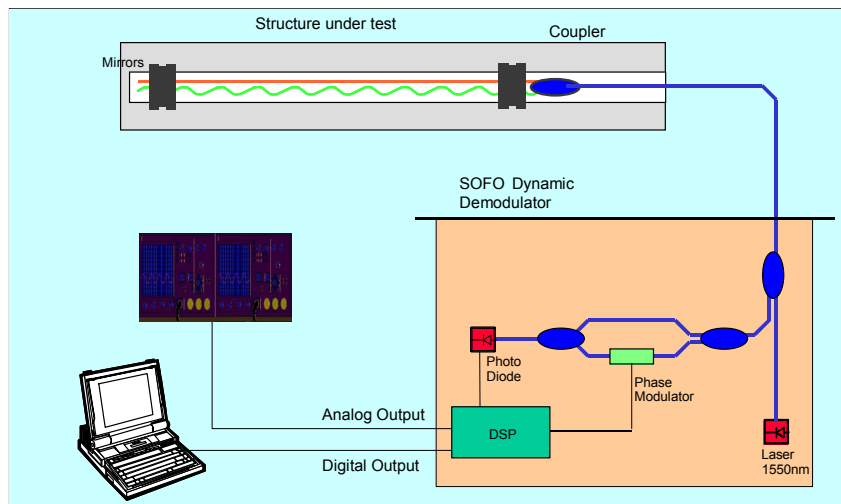
- Measurements of dynamic deformations of structures under dynamic loads such as traffic, wind, seismic, waves, ...
- Evaluation of dynamic amplification factors.
- System identification through modal analysis (ambient and forced vibrations). Determination of mode-shapes and modal curvatures.
- Damage detection through changes in modal parameters, stiffness and damping factors.
- Weight-in-motion through structural response.

FEATURES

- Dynamic measurements (0 to 10'000 Hz)
- High resolution
- High linearity and accuracy
- Compatible with all types of sensors based on SOFO technology
- No calibration required
- Portable system

PERFORMANCES

Bandwidth	0 (true DC deformation) to 10 kHz
Measurement range	±5 mm (maximum deformation)
Deformation rate	±10'000 µm/s (maximum deformation speed)
Sensor path unbalance	38 mm ± 5 mm ("DL" value)
Resolution	0.01 µm
Drift	<0.003 µm/s (after 1 h warm-up time); <0.5 µm/day with compensation (reduced no. of channels to 7)
Number of channels	8 per module, simultaneous acquisition
Digital readout	USB 2.0, up to 10 kHz refresh rate, 32 bits
Analog output	8 channels, 10 kHz refresh rate, 20 bits



TECHNICAL CHARACTERISTICS

Power supply	115 / 235 VAC
Dimensions / Weight	480 mm x 180 mm x 440 mm (19" rack mountable, 4HE) / 12 kg
Casing options	Optional rugged transport (shipping) metallic casing (610 mm x 305 mm x 736 mm)
Operating temperature	0°C to +30°C

ORDERING INFORMATION

Number of channels (4 or 8).

Option: Rugged transport metallic casing (yes or no).

Option: Compensators for Standard SOFO sensors (quantity and preferred "DL" value for each Compensator to be specified).

