Brüel & Kjær Vibro

Product Specification

Integrating Vibration Meters – Types 2513 and 2516

An accurate, cost-effective solution for machine vibration monitoring. Complete set includes accelerometer, cable, vibration meter, mounting magnet and a document folder (2513 is graduated in metric units, and the 2516 in g's and in/s).

Features

- Type 4384 Piezoelectric Accelerometer and cable is supplied but other accelerometers can be used
- AC output for data storage, display and processing
- DB and engineering unit display
- 41 LEDs gives up to 6% resolution (brightness can be adjusted)
- Acceleration vibration ranges cover from 1 to 1000 m/s^2 (2513), 0.1 to 100 g (2516)
- Velocity vibration ranges from 0.1 to 100 mm/s (2513), 0.01 to 10 in/s (2516)
- True peak, Max-peak, RMS and Max-RMS indication of vibration for acceleration or velocity (1 s time constant)
- Electronic integration of measurement for one minute L_{eq} display ("Equivalent" level)
- Linear and severity frequency weightings
- Vibration measurement techniques based on ISO 10816 (ISO 2372 BS 4675, VDI 2056)
- Selectable frequency band: 10 Hz-1kHz, 10 Hz-10 kHz as standard
- WH2258 option for 2513 provides high pass (HP) filter with 10 s L_{eq} time constant

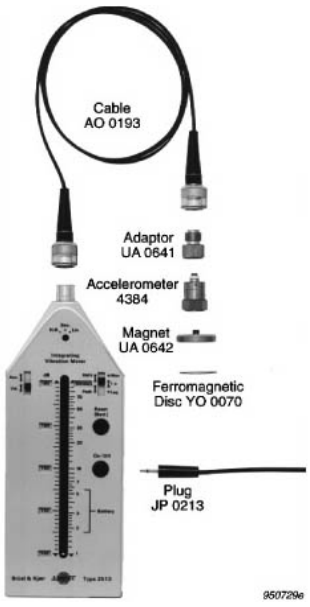

Fig. 1 Interconnection accessories

Fig. 2 The document folder with the Vibration Meter

Technical Specifications

Measurement Amplitude Ranges

2513 selectable ranges
Acceleration: ..... 1 to 100 and 10 to 1000 m/s²
Velocity: ..... 0.1 to 10 and 1 to 100 m/s
2516 selectable ranges
Acceleration: ..... 0.1 to 10 and 1 to 100 g
Velocity: ..... 0.01 to 1 and 0.1 to 10 in/s
Maximum internal noise
2513 acceleration: ..... 0.2 m/s²
2513 velocity..... 0.1 mm/s
2516 acceleration: ..... 0.02 g
2516 velocity.....0.007 in/s

Measurement frequency ranges

Lin: ..... 10 Hz to 10 kHz +3dB
Sev: ..... 10 Hz to 1 kHz, to ISO 2954
HP: ..... 1 kHz to 10 kHz ±3dB

Environmental

Operating temperature:.....-10 to +55°C
Storage temperature:.....-25 to +70°C
Change of temperature:-10 to +55°C (2 cycles, 1°C/min.)
Humidity: .....90% RH (non-condensing at 40°C)
Mechanical - non-operating:
Vibration: 0.3mm,20m/s²,10-500Hz
Shock: 1000m/s²
Bump: ..... 1000 bumps at 250m/s²

Indication

Level indicated: Instantaneous or Maximum True Root-Mean-Square (RMS), with 1s time constant. True Peak, with 1s decay-time constant, L_{eq} simultaneously with Maximum Peak.

Overall Accuracy: (at 80 Hz) +7% (including Accelerometer sensitivity tolerance). Temperature sensitivity +0.05dB/ºC. Vibration sensitivity -20dB (relative to the vibration level at the Accelerometer). Magnetic sensitivity negligible for field strengths up to 100 A/m.

Shock Measurement: (with half-sine impulse) +2 -3dB for 0.1 to 5 ms impulse, +1dB for 0.5 to 2 ms impulse, typical.

RMS Max. Drop: Held indication will fall by not more than 6% of indication per minute.

Peak Rise-Time: 6% per µs. For a rectangular step: 60µs.

L_{eq}/Max.-Peak function: Display gives two simultaneous indications. lower is L_{eq}, upper is Max.-Peak. Display flashes until measurement terminated (after 60 s ± 2%) with the standard instruments (10 s with the 2513/WH 2258); display is held until total 2 min. after the last "Reset" (2.5 min. for 2513/WH2258).

Display: 41-element LED "thermometer" style.

Brightness Adjustment: Automatic compensation for ambient lighting by photo-sensitive transistor.

Resolution: 6% (0.5 dB). Intermediate levels are signified by illumination of 2 adjacent LEDs.

Scales: Engineering units (m/s² and mm/s on 2513, g's and in/s on 2516) with logarithmic graduations, plus dB re 1 µm/s² and 1 nm/s (2513) as 0dB (10^{-7} in/s on 2516).

Overload Warning: Display flashes and level indication is suppressed until overload is removed.

AC Out: Sub-miniature socket accepting 2.5 mm jack-plug JP0213 or cable AO0173 for connection of a recorder or analyzer. Full insertion of plug disables automatic switch-off. Output impedance 10Ω in series with 33 mF. Open-circuit voltage 1V corresponds to full scale indication. Min. load 10kΩ.

Batteries

Type: 331.5V cells to IEC specification LR6 ("Penlight" or "AA" size), e.g., alkaline cells QB 0013.

Life: 24 hours continuous measurement in room lighting. In bright sunlight continuous measurement life falls to 10 hours.

Physical Characteristics

Weight: 350 g (12.4 oz) excl. accessories.

Height: 187 mm (7.4 in) without cable.

Width: 72 mm (2.8 in).

Depth: 22 mm (0.9 in).

Enclosure protection: IP20.

Accessories included

Integrating Vibration Meters include the following accessories:

Piezoelectric accelerometer.....4384
Document folder KE0198
Accelerometer cable (1.2m)..... AO0193
Adaptor, TNC plug to acc. UA0641
Mounting magnet UA0642
Sub-miniature Jack plug,
2.5 mm JP0213
3 Alkaline cells QB0013
Measurement record pad..... QP4992

Optional accessories for Types 2513/16

2.5 mm Jack-to-BNC-cable
(1.5 m)..... AO0173
Adaptor, 10-32 UNF..... JP0162
- a miniature coaxial connector
to TNC for correction of other
accelerometer cables to 2513
or 2516.
Set of 5 mechanical filters.....UA0553
Tripod bush adaptor.....DB1112
Accelerometer calibrator.....4294

Brüel & Kjær Vibro reserves the right to change specifications without notice

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