

Vibration Meter



Applications

Human Vibration Exposure Assessment per ANSI and ISO measurement standards plus ACGIH TLV and EU Directives

- Hand-arm Vibration Exposure Analysis
- per ISO 5349 and ANSI 2.70
- Whole-body Vibration Exposure Analysis
- per ISO 2631 and ANSI 3.44
- 1/3 Octave and Vibration Signal Recording
- General Vibration Measurements

Whole-body and hand-arm vibration analyzer: CEL-960

The system hardware consists of an accelerometer (HA and/or WB) with connecting cable plus the analyzer which is housed in a very compact, rugged and lightweight case. A charging base is provided.

- Measures and records X, Y and Z axis vibration levels, RMS and Peak
- Calculates and stores overall and time history data of vector sum, daily exposure A(8) and VDV
- Vibration input signal and 1/3 octave spectrum recording
- Presence detector and warning light (WB)
- Up to 20-hour run time with Lithium-Ion rechargeable battery

Wireless remote control: dB96

A pocket or laptop PC, along with dB96 software is the interface between the operator and the CEL-960.

- Simultaneous control of up to 5 instruments
- Management of instrument setups and measurement configurations
- Download of measurement files
- Real-time display of measured data on a colour screen

Processing software: dB98

dB98 is used to create graphic and numeric reports with text descriptions and search functionality.

- Compliant with standards ISO 5349 and ISO 2631
- Data transfer via USB2.0
- Automatic reports

Standards

ISO 8041 (2005), ISO 5349 (2001), ISO 2631 (1997)

Metrology

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| Channels | From 1 to 4 (depending on configuration and option) |
| Display resolution | 0,01 |
| Conditioning | IEPE : 12V-4mA or 24V-4mA |
| Voltage (input) | 5V AC peak |
| Filtering | <ul style="list-style-type: none"> • Wd, Wk, Wh (digital, according to ISO 8041) • Programmable filter: 0.4 - 4000 Hz • 1/1 octave: 1Hz - 2kHz / 1/3 octave: 0.8Hz - 2.5kHz (Optional on 1 channel) |
| Measured magnitudes | <ul style="list-style-type: none"> • General measurement mode: acceleration, peak, peak - peak, crest factor, rms (x, y, z) • Hand-arm: acceleration, peak, peak - peak, RMS (x, y, z), ahv, A(8) • Whole-body: acceleration, peak, peak - peak, peak factor, rms (x, y, z), av, Aeq, A(8), A(8)v, VDV, MTVV, SEAT • Simultaneously stores overall and time history data for all metrics • Signal recording: manual or on trigger (fs_{max} = 8192Hz (Optional on 1 channel)) • Parallel measurement and time history of all indicators |
| Calibration | With calibrator / by input of sensitivity (HA, WB) by gravity (WB only) |
| Temperature | -10°C / +50°C (0-95% HR) |
| Dimension / Weight | 105 x 60 x 25 mm / 135 g |

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| Memory Module | <ul style="list-style-type: none"> Integrated 1GB flash memory (Micro SD) Storage of measurement files (minimum rate: 1s) Signal storage (programmable sampling) |
| General Performance | <ul style="list-style-type: none"> Typical battery life: 20 hours (stand-alone mode) / 10 hours (remote controlled mode) 3.7 V - 2.3 A battery - Charging time: 6h30 (USB or charger) |

| Specification | Triaxial Hand-Arm accelerometer | Triaxial Whole Body seatpad | Monoaxial accelerometer for SEAT (option) |
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| Sensitivity | 10 mV/g | 10 mV/g | 10 mV/g |
| Dynamic range | 500 g | 18 g | 500 g |
| Bandwidth | From 1 to 12,000 Hz (± 1 dB) | From 0 to 2,000 Hz (-3 dB) | From 0.1 to 1,000 Hz |
| Resonance frequency | > 36 kHz | 5.5 kHz | > 28 kHz |
| Weight | 13 g | 270 g | 18 g |
| Temperature range | -40°C / +125°C (-40°F / +257°F) | -20°C / +70°C (-4°F / +158°F) | -50°C / +125°C (-58°F / +275°F) |
| Material / Characteristics | Titanium | Seatpad with presence detector | Stainless steel |
| Accessories | Hand-arm Adapters for direct mount, steering wheel / handlebar, T-bar | Removable retractable reel cable | Floor mounting using an isolated magnetic base |

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| Control software dB96 | <ul style="list-style-type: none"> Control using a Pocket PC/Tablet PC: configuration management / real-time display / data collection Wireless Bluetooth communication Programmable start modes: immediate / delayed / by periods / on detection of presence Visual display and coding of data on colour screen of remote control Pre-programmed configurations (whole body, hand-arm, general vibration) Storage of signal: manual or automatic on trigger Written and oral comments (synchronised with measurement file) PC-compatible software Languages: English, French |
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| Processing software dB98 | <ul style="list-style-type: none"> Transfer of measurement files generated by CEL-960 through USB2.0 Calculation of A(8) and peak factor according to Directive 2002/44/EC, calculation of dose on coded events Whole body (health, comfort or perception, seated, standing, lying), Hand-arm Time history plots for all indicators Re-Calculates average values between users' cursors Automatically formatted reports |
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| Standard package | <ul style="list-style-type: none"> CEL-960 - Transducer – Desktop charger – dB96 Carrying case / CD / Documentation dB98 Processing Software |
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| Options | <ul style="list-style-type: none"> Vibration calibrator / Pocket PC / Tablet PC Floor mounting system / Shock-proof protecting skin |
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