VM100B Vibration Analyzer

Application

- Condition monitoring of rotating machinery, like motors, pumps, compressors, turbines or gearboxes
- Route-based measurements at machines
- Roller bearing diagnosis
- Balancing
- Measurement of hand-transmitted and whole-body vibration; Ride comfort evaluation
- Run up/coast down analysis; resonance finding
- Vibrations on passenger and merchant ships
- Vibration measurement at very sensitive equipment (VC/Nano)

Properties

- Large screen with touch operation for clear user guidance
- 3 independent sensor channels
- Measurement of vibration acceleration, velocity and displacement
- Amplitude over rotation speed graphs
- Frequency analysis (FFT) with waterfall mode; Envelope analysis
- Weighting filters for hand-arm vibration and whole-body vibration
- RMS (1 s and infinite); vibration dose value (VDV); vector sum; peak; maximum peak
- TEDS sensor detection; Measurement point identification with RFID tags
- Tachometer input for RPM measurement
- Measurements saved on µSD card, PC connection via USB
- 3-channel time history plot of up to 10 hours
- Raw-signal recording as WAV file
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Technical Data

Measurement functions

Measurands	Vibration acceleration, velocity, displacement	
	Force, pressure, sound pressure	
Overall values	RMS (1s/∞); Peak (1s/max.); Crest; VDV; main frequency	
Measuring range acceleration	0.0000001 to 10000 (sensor dependent)	m/s²
Accuracy	±1 (> 5 % of full scale; mid-band)	%
ADC resolution	24	Bit
Lower frequency limit acceleration	0.4 to 5000 (34 high pass filters)	Hz
Upper frequency limit acceleration	10 to 24000 (38 low pass filters)	Hz
Weighting filters (human vibration)	Wb; Wc; Wd; Wh; Wj; Wk; Wm; unweighted	
Frequency analysis	FFT and PSD; 1 to 22000 Hz; 3 channels	
	1024 to 65536 points; 0.1 to 48 Hz resolution	
	Windowing: Rechteck, Hann, Hamming, Flattop	
	Triggering: auto; tacho; level	
	Waterfall mode; spectrogram	
Third-octave band analysis	1 to 160 Hz; 21 third-octave bands; 3 channels	
Envelope analysis	Frequency markers für fault frequencies; bearing list	
Measuring point identification	NFC reading interface for tags of types A, B, F and V	
Measurement data storage	Micro SD card; removable; FAT file system, via USB	
File types	CSV for measurement data, BMP for screen shots; WAV for raw signals	

Connectors

Input signals	IEPE	
Input connector	Socket Binder 711; 4 poles	
IEPEconstant current	3.5 to 4.5	mA
TEDS support	IEEE 1451.4; templates 25, 27, 28	
Digital interfaces	USB 3.0 HS; MSC; type C	

Power Supply

Battery	NiMH; 4.8 V; 9 Ah; built-in	
Battery operating time	10 to 14	h
External supply voltage	5	VDC
External supply current	<2500	mA
Supply connection	USB-C	

Case Data

Dimensions without connectors	215 x 150 x 50 (W x H x D)	mm
Weight	1300	g
Protection grade	IP65	
Operating temperature range	-20 to 60 (95 % rel. humidity without condensation)	°C

Scope of delivery	Carrying case; USB cable; charger
Optional accessories	VM100-RPM: License for amplitude-rotation speed measurement
	VM100-MAC: License for machine vibration and measurement route management
	VM100-ENV: License for envelope analysis for roller bearing diagnosis
	VM100-BAL: License for balancing in one or two planes
	VM100-VC: License for third-octave analysis; VC and Nano criteria
	VM100-HA: License for hand-arm vibration measurement
	VM100-WB1: License for whole-body vibration measurement
	034-B711-BNCf: sensor adapter cable with 3 BNC female plugs; 0.5 m
	VM100-LS: Photoelectric reflex switch with 5 m cable and magnetic stand
	The licenses VM100-AMP (amplitude-time/plotter) and VM100-FFT are included.