

VibroMetra PC Vibration Measuring System

Why choose VibroMetra?

- Designed for vibration measurement - No ballast by unwanted functionality.
- VibroMetra is modular making it particularly economic with fewer channels.
- Also supports IEPE compatible microphones, force and pressure transducers.
- Off-line measurement: The system saves raw data in the background for later analysis.
- The necessary hardware is very compact making it particularly suited for mobile use.
- Simple plug & play installation.
- Short training time. After a few minutes you may start with the first measurement.
- Data export in common graphics, text and binary formats.
- Updates are free of charge. You will always have access to the latest software versions.

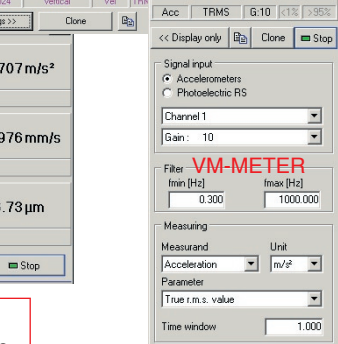
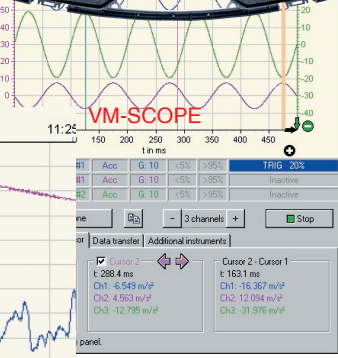
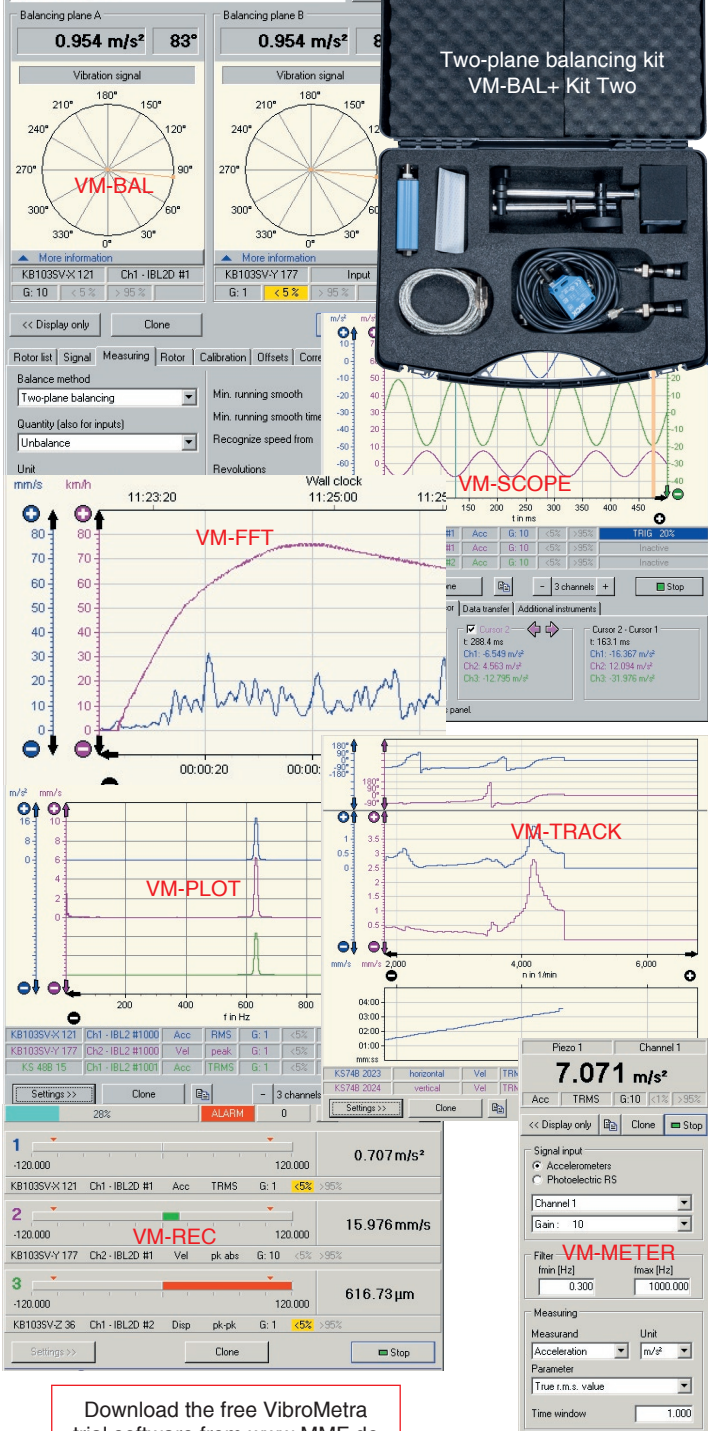
Hardware:	M302	M312
IEPE / USB Interfaces		
Inputs	2 IEPE, 1 digital trigger	2 IEPE, 1 digital trigger, 2 DC
Bandwidth	0.3 to 2000 Hz	0.1 to 40,000 Hz

Available Software Instruments:

Balancing System VM-BAL	- Balancing of long and disk-shaped rotors in one or two planes - Automatic operation by rotary speed detection - User guidance by clear text instructions - Display of measuring results as polar graphic and numbers - Up to six correction methods (correction mass, drilling, milling, rotary rings, set screws, list of predefined correction masses) - Report function - Extremely compact - VM-BAL Kit fits into a small carrying case
Real-time signal display VM-SCOPE	- Displays and records short vibration events, e.g. for drop testing - Memory for 10 second post and 1 second pre trigger - Two measuring cursors - Vibration acceleration (VM-SCOPE+ also for velocity and displacement) - Up to four signals in one window without delay
Y/t Vibration Plotter VM-PLOT	- Long-term recording and display for slow changing vibration events - All measuring functions of VM-METER - Zoom and scroll functions - Vibration acceleration (VM-PLOT+ also for velocity and displacement) - Up to four signals in one window without delay
Vibration Analyzer VM-FFT	- Five window functions, high frequency resolution - RMS and peak spectrum - Bearing analysis functions with bearing library in VM-FFT+ - Power density spectrum in VM-FFT+ - User-defined curves for alarms at critical magnitudes, e.g. for quality testing - Vibration acceleration (VM-FFT+ also velocity and displacement) - Up to four signals in one window without delay - Two measuring cursors
Waterfall Analyzer VM-FFT 3D	- View of several FFTs over time (3D) in addition to the functions of VM-FFT - Useful tool for run-up / coast-down analysis - VM-FFT 3D+ also performs envelope, roller bearing and acoustic analysis
Tracking Analyzer VM-TRACK	- Magnitude and phase displayed as function of the rotary frequency - Quick detection of resonances - Vibration acceleration (VM-TRACK+ also velocity and displacement)
Data Recorder VM-REC	- Real-time recording in binary or text format with adjustable trigger - All measuring functions of VM-METER with value display - Bar graph and numeric display - Pre and post triggering - Vibration acceleration (VM-REC+ also velocity and displacement)
Vibration Meter VM-METER	- RMS, positive, negative and unsigned peak values, instantaneous value - Vibration acceleration, velocity and displacement - VM-METER+ also for phase distortion, main frequency and RPM
VM-STRUC	See building vibration
VM-BODY	See human vibration
VM-HAND	See human vibration

Measuring of initial unbalance

Slow down
Required 100 revolutions were read
Stop rotation
Speed 600 1/min



Download the free VibroMetra trial software from www.MMF.de

Human Vibration

PC Based Human Vibration Measurement

Hand-Arm Vibration Meter VM-HAND	
Hardware	Triaxial IEPE (KS943B.10) with 2 M302 USB devices
Weighting filter	Wh to ISO 8041 / ISO 5349
Calculations	Interval RMS of three axes Total vibration value Ahv Daily vibration exposure A(8) with different activities
Memory	Up to 10 000 measurements, Text or CSV (Excel) export
Other features	User guidance, report function
Whole-Body Vibration Meter VM-BODY	
Hardware	Triaxial IEPE (KB103SVD) with 2 M302 USB devices
Weighting filters	Wb, Wc, Wd, Wj, Wk and Wm to ISO 8041 / ISO 2631
Calculations	RMS, max. RMS (MTVV) and crest factor of three axes Total vibration value Ahv
Memory	Up to 10 000 measurements, Text or CSV (Excel) export
Other features	User guidance, report function



Human Vibration (continued)

Human Vibration Meter VM31

Inputs	4 IEPE channels
Measuring modes	Hand-Arm vibration Whole-body vibration Acceleration Velocity Displacement
Display modes	Running RMS Interval RMS Maximum RMS (MTVV) Peak value Max. peak value Total Vibration Value (a_{wv}) Vibration dose value (VDV) Crest factor
Band filters	0.4 - 100 Hz (W/B unweighted) 6.3 - 1259 Hz (H/A unweighted) 0.1 - 2000 Hz (acc.) 1 - 1000 Hz (acc.) 2 - 300 Hz (vel.) 10 - 1000 Hz (vel.) 5 - 250 Hz (displacement)
Weighting filters to ISO 8041	Hand-Arm: Wh Whole-body: Wb, Wc, Wd, Wj, Wk, Wm
Data recording	up to 10,000 records
PC data transfer	USB interface, CSV conversion and A(8) calculation tool included



Size: 120 mm x 65 mm x 25 mm
Power supply: 3 AAA cells or USB

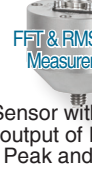
Available in the following kits:
VM31-WB (Whole-Body Kit)
VM31-HA (Hand-Arm Kit)
VM31-HAWB (H/A and W/B Kit)
VM31-M (Machine Vibration Kit)
VM31-S (Ship Vibration Kit)

Machine Monitoring

Vibration Meters

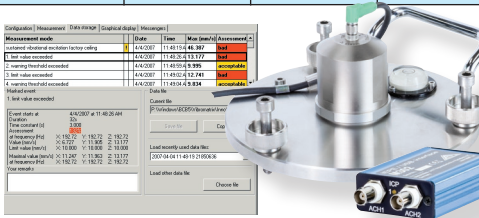
Model	VM22	VM23	VM24	VM25
VMID Measuring Points provide reliable magnetic coupling, identify the measuring point and set the instrument automatically				
Acceleration	-	-	0.1 - 240 m/s ² 0.2 - 10,000 Hz 3 - 1000 Hz 1000 - 10,000 Hz	0.1 - 240 m/s ² 0.2 - 10,000 Hz 3 - 1000 Hz 1000 - 10,000 Hz
Velocity	0.1 - 1000 mm/s 10 - 1000 Hz (ISO 10816)	0.1 - 1000 mm/s 2 - 100 Hz 10-1000 Hz	0.1 - 1000 mm/s 2 - 300 Hz 10 - 1000 Hz	0.1 - 1000 mm/s 2 - 300 Hz 10 - 1000 Hz
Displacement	-	0.01 - 60 mm 3 - 60/3 - 200 Hz	0.01 - 60 mm 2 - 300 Hz	0.01 - 60 mm 2 - 300 Hz
Parameters	true RMS	true RMS, peak - peak	true RMS, peak	true RMS, peak, crest, K(t)
Frequency analysis	-	512 lines (no graphics)	-	127 lines FFT
Temperature (infrared)	-	-	-	-40 - 125 °C
Rotary speed (optical)	-	-	-	1 - 9999 rpm
Memory, interface	16,000 values/USB	16,000 values/USB	16,000 values/USB	16,000 values/USB

Vibration Switches • Digital Vibration Sensor

Model	VS10	VS11	VS12
• Built-in piezoelectric accelerometer • Filters and ranges programmable via USB • MOS relay 60 V / 0.5 A • M8 mounting stud • Robust cases with IP67 • Free software tool for setup and measurement			
USB Measurement	-	RMS/Pk and 360 lines FFT (1/10 kHz)	
Monitoring functions	RMS/Peak value	RMS/Peak value or 10 selectable FFT limits	
Measuring ranges	acceleration: 0.1 - 1000 m/s ² ; velocity: frequency dependent		
Frequency ranges	HP: 0.1/2/5/10/20/50/100/200/500/1000 Hz; LP: 0.1/0.2/0.5/1/2/5/10 kHz		
Connections	Screw terminals for relay and supply, Micro USB socket inside	8-pin socket for USB/relay	
Power supply	USB or 5 to 30 VDC		
Dimensions (Ø x h)	50 mm x 52 mm	50 mm x 52 mm	50 mm x 36 mm

Building Vibration

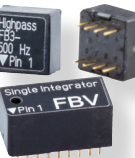
Building Vibration

Model	VM40C		
Triaxial Building Vibration Monitor includes piezoelectric sensor, electronics for signal conditioning, monitoring, recording and battery			
Supported standards	DIN 4150-3; BS 7385; SN 640312a		
Measuring ranges	Acceleration: 0.01 - 15 m/s²; Velocity: 0.1 - 2400 mm/s at 1 Hz; 0.1 - 30 mm/s at 80 Hz		
Frequency ranges	0.8 - 100 Hz; 0.8 - 395 Hz; 5 - 150 Hz (-3 dB)		
PC interface	USB for transfer of stored data		
SMS alerts	with optional 2G/3G modem VM40-MODEM		
	VM-STRUC	VM-STRUC+	VM-PERS VM-PERS+
PC based measuring system using the IEPE / USB interface M302 and IEPE compatible sensors			
Monitoring and recording of vibration events and raw signal			
Supported standards	DIN 4150-3		DIN 4150-2
FFT display	no	yes	no yes

Vibration Monitors

Model	M12	M14
M12 provides common analog signals: AC, DC, RMS, peak, 4-20 mA, relay M14 is fully digital with USB and RS-485 for setup and measurement; 4-20 mA and relay		
Vibr. acceleration	10 / 50 / 250 m/s ²	1000 m/s ²
Vibration velocity	10 / 50 / 250 mm/s	1000 mm/s
Vibr. displacement	100 / 500 / 2500 µm	-
High pass filters	FB3 plug-in modules; 2 to 1000 Hz	5/10/20/50/100/200/500/1000 Hz
Low pass filters	FB2 plug-in modules; 0.1 to 50 kHz	0.1/0.2/0.5/1k/2k/5k/10k Hz
Monitoring modes	true RMS or true peak-peak	true RMS or true peak FFT (500 lines, 10 limits)
Analog and digital interfaces	DC (RMS and pk-pk); AC wide-band; AC filtered; DC 4-20 mA	AC wide-band; DC 4-20 mA; USB; RS-485
Relay output	1 relay: 40 VAC/2 A	2 relays: 60 VAC/0.5 A
Sensor input	IEPE	IEPE
Level indication	LED bar graph	LED bar graph; bi-color
Power supply	12 to 28 VDC	8 to 28 VDC
Dimensions	22 x 76 x 111 mm ³	13 x 100 x 114 mm ³

Plug-In Filter Modules for M12, M33 and M208

The plug-in filter modules FB2 (low pass) and FB3 (high pass) are available with the following 3 dB cut-off frequencies:	
FB2:	0.1 / 0.3 / 0.5 / 1.0 / 3.0 / 5.0 / 10 / 30 / 50 kHz Butterworth, 4th order low pass
FB3:	2 / 3 / 5 / 10 / 30 / 50 / 100 / 300 / 500 / 1000 Hz Butterworth, 2nd order high pass
FBV/FBD:	Single / double integrator modules (M33 / M208)

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wind energy plants material testing 2020

modal analysis structural health monitoring
noise reduction vibration severity
drop testing **Vibration**
velocity frequency response
Sensors
spectral analysis Signal Conditioners
unbalance monitoring ship vibration Monitors
shock testing end-of-line test Meters
vibration exposure earthquake monitoring Calibrators
noise vibration harshness (NVH)
whole-body vibration order tracking analysis
vibration immersion passenger comfort
machine condition monitoring
seismic vibration emergency shutdown
acceleration calibration crash test
fatigue testing quality control
hand-arm vibration human vibration
building vibration ground-borne vibration
balancing predictive maintenance
pipeline vibration human vibration
bearing monitoring displacement

Manfred Weber

Metra Meß- und Frequenztechnik in Radebeul e.K.



Since 1954

Vibration Sensors with IEPE or Charge Output

General Purpose Shear Accelerometers

Model	KS76C10	KS76C100	KS77C10	KS77C100	KS56	KS57
						
Output	IEPE	IEPE	IEPE	IEPE	Charge	Charge
Range	± 600 g	± 60 g	± 600 g	± 60 g	± 4000 g	± 4000 g
Sensitivity	10 mV/g	100 mV/g	10 mV/g	100 mV/g	18 pC/g	18 pC/g
f _{min} (3 dB)	0.12 Hz	0.13 Hz	0.12 Hz	0.13 Hz	0.1 Hz	0.1 Hz
f _{max} (3 dB)	33 kHz	24 kHz	33 kHz	24 kHz	17 kHz	17 kHz
Connector	UNF 10-32	UNF 10-32	UNF 10-32	UNF 10-32	UNF 10-32	UNF 10-32
Weight	20 gr.	23 gr.	20 gr.	23 gr.	23 gr.	23 gr.
Height	17 mm	17 mm	17 mm	17 mm	17 mm	17 mm
Base	17 mm hex.	17 mm hex.	17 mm hex.	17 mm hex.	17 mm hex.	17 mm hex.

Industrial Accelerometers

Model	KS74C10	KS74C100	KS80D	KS81B
				
Output	IEPE	IEPE	IEPE	IEPE
Range	± 600 g	± 60 g	± 55g	± 60 g
Sensitivity	10 mV/g	100 mV/g	100 mV/g	100 mV/g
f _{min} (3 dB)	0.12 Hz	0.13 Hz	0.13 Hz	0.13 Hz
f _{max} (3 dB)	21 kHz	16 kHz	22 kHz	11 kHz
Connector	TNC	TNC	M12	M12
Weight	28.5 gr.	32 gr.	66 gr.	101 gr.
Height	22 mm	22 mm	34 mm	24 mm
Base	16mm hex.	16 mm hex.	22 mm hex.	36 mm x 22 mm

Probe Accelerometer

Model	KST94C-4N	KST94C-9N
		
Output	IEPE	IEPE
Range	± 20 g	± 40 g
Sensitivity	100 mV/g	100 mV/g
Frequ. Range	40 to 3200 Hz (3 dB)	40 to 4500 Hz (3 dB)
Connector	UNF 10-32	UNF 10-32
Length	60 mm	60 mm
Diameter	25 mm	25 mm

Seat Pad Accelerometer

Model	NEW KS963SV
	
Output	IEPE
Sensitivity	100 mV/g
Cable	2 m
Connector	Plug Binder 711
Height	12 mm
Diameter	200 mm
Pad material	silicone rubber

Force Transducer

Model	KF24
	
For dynamic force measurement with highest resolution	
Output	Charge
Range	+2000 / -300 N
Sensitivity	300 pC/N
Connector	UNF 10-32
Weight	20 gr.
Height	17 mm
Base	16 mm hex.

Low Cost Accelerometers

Model	KS78B10	KS78B100	KD37	KD41
				
Output	IEPE+TEDS	IEPE+TEDS	Charge	Charge
Range	± 500 g	± 60 g	± 1000 g	± 300 g
Sensitivity	10 mV/g	100 mV/g	60 pC/g	200 pC/g
f _{min} (3 dB)	0.65 Hz	0.2 Hz	0.1 Hz	0.1 Hz
f _{max} (3 dB)	23 kHz	22 kHz	15 kHz	11 kHz
Connector	UNF 10-32	UNF 10-32	UNF 10-32	UNF 10-32
Weight	10.2 gr.	11.2 gr.	45 gr.	60 gr.
Height	15.5 mm	15.5 mm	24 mm	29 mm
Base	12 mm hex.	12 mm hex.	17 mm hex.	19 mm hex.

OEM Accelerometers

Model	KS90B	KS901B10	KS901B100
			
Output	Charge	IEPE	IEPE
Range	± 5000 g	± 500 g	± 60 g
Sensitivity	10 pC/g	10 mV/g	100 mV/g
f _{min} (3 dB)	0.1 Hz	0.65 Hz	0.2 Hz
f _{max} (3 dB)	19 kHz	22 kHz	11 kHz
Connector	solder pins	UNF 10-32	UNF 10-32
Weight	5.1 gr.	4.6 gr.	5.6 gr.
Size (mm)	11 x 10 Ø	12 x 10 Ø	12 x 10 Ø
Mounting	adhesive	adhesive	adhesive

High Sensitivity Accelerometers

Model	KS48C	KB12VD
		
Output	IEPE	IEPE
Range	± 6 g	± 0.6 g
Sensitivity	1000 mV/g	10 000 mV/g
f _{min} (3 dB)	0.1 Hz	0.08 Hz
f _{max} (3 dB)	4 kHz	260 Hz
Connector	M12	UNF 10-32
Weight	165 gr.	150 gr.
Height	36 mm	37 mm
Base	32 mm Ø	48 mm Ø

4-20 mA Vibration Transmitters

Velocity Transmitters KSI84VR-H-L-R

High pass options (-H)
-3 : 3 Hz
-10 : 10 Hz
-30 : 30 Hz
Low pass options (-L)
-1k : 1000 Hz
Measuring ranges (-R)
-10 : <0.1 to 10 mm/s
-12 : <0.127 to 12.7 mm/s (0.5 in/s)
-20 : <0.2 to 20 mm/s
-25 : <0.254 to 25.4 mm/s (1 in/s)
-40 : <0.4 to 40 mm/s
-50 : <0.508 to 50.8 mm/s (2 in/s)
Type example: RMS of velocity; 10 to 1000 Hz; 40 mm/s
KSI84VR-10-1k-40

NEW

Acceleration Transmitters KSI84AR-H-L-R

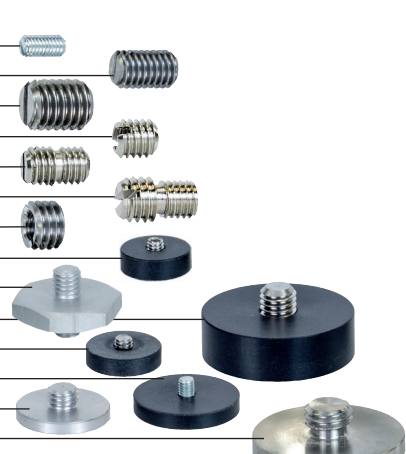


Common mechanical data:
Height: 43 mm
Base: 22 mm hex.
Weight: 60 grams
Connector: M12
Protection: IP67, insulated

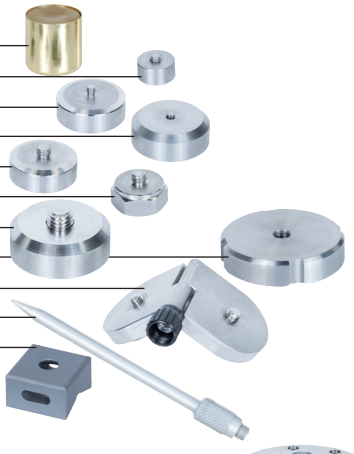
High pass options (-H)
-1 : 1.5 Hz
-1k : 1000 Hz
Low pass options (-L)
-1k : 1000 Hz (with 1.5 Hz high pass)
-10k : 10 000 Hz
Measuring ranges (-R)
-10 : <0.1 to 10 m/s²
-20 : <0.2 to 20 m/s²
-50 : <0.5 to 50 m/s²
-100 : <1 to 100 m/s²
-200 : <2 to 200 m/s²
-500 : <5 to 500 m/s²
Type example: RMS of acceleration; 1 to 10 kHz; 100 m/s²
KSI84AR-1k-10k-100

Mounting and Connection Accessories

Model	Description
021	M3 x 6 mounting stud
003	M5 x 8 mounting stud
043	M8 x 10 mounting stud
022	Adapter M3 (tap) to M5
045	Adapter M5 to UNF 10-32
046	Adapter M5 to ¼"-28
044	Adapter M5 (tap) to M8
106	Insul. flange M3, small
006	Insulating flange M5
206	Insulating flange M8
129	Adhesive insul. pad M3, small
329	Adhesive insul. pad M3, large
029	Adhesive insulating pad M5
229	Adhesive steel pad M8



Model	Description
002	Adhesive wax
108	Magnetic base M3, small
308	Magnetic base M3, large
408	Magnetic base M4 (tap)
008	Magnetic base M5 large
708	Magnetic base M5 small
208	Magnetic base M8 small
508	Magnetic base M8 (tap) large
608	Curve magnet M5
001	Accelerometer probe, M5
141	Handle / curve adapter M3
143	Hand-held adapter M3



Sensor Cables

Model	Type	Plug 1	Plug 2	Temp.	Length
009-UNF-UNF-1,5	Charge/IEPE	UNF10-32	UNF10-32	120 °C	1.5 m
009/T-UNF-UNF-1,5	Charge/IEPE	UNF10-32	UNF10-32	200 °C	1.5 m
009-UNF-BNC-1,5	Charge/IEPE	UNF10-32	BNC	120 °C	1.5 m
009-SUB-UNF-1,5	Charge/IEPE	Submin.	UNF10-32	120 °C	1.5 m
009/T-SUB-UNF-1,5	Charge/IEPE	Submin.	UNF10-32	200 °C	1.5 m
010-UNF-BNC-5	Charge/IEPE	UNF10-32	BNC	120 °C	5 m
010-UNF-BNC-10	Charge/IEPE	UNF10-32	BNC	120 °C	10 m
010-TNC-BNC-1,5	Charge/IEPE	TNC	BNC	120 °C	1.5 m
009-SUB-BNC-1,5	Charge/IEPE	Submin.	BNC	120 °C	1.5 m
084-B713G-PIG-5	4-20 mA	M12 straight	pigtail	80 °C	5 m
084-B713W-PIG-5	4-20 mA	M12 angled	pigtail	80 °C	5 m
085-B713G-PIG-5	IEPE	M12 straight	pigtail	80 °C	5 m
085-B713W-PIG-5	IEPE	M12 angled	pigtail	80 °C	5 m
085-B713G-BNC-5	IEPE	M12 straight	BNC	80 °C	5 m
085-B713W-BNC-5	IEPE	M12 angled	BNC	80 °C	5 m
088-B711F-B711-10	IEPE, triaxial	Binder 711 fem.	Binder 711 mal.	80 °C	10 m
088-B718G-B711-5	IEPE, triaxial	Binder 718	Binder 711	80 °C	5 m
088-B718G-PIG-5	IEPE, triaxial	Binder 718	pigtail	80 °C	5 m
091-B707-B711-3	IEPE, triaxial	Binder 707	Binder 711	120 °C	3 m
034-B711F-BNC	IEPE, triaxial	Binder 711 fem.	3 x BNC	80 °C	0.5 m

Model	Description
130	Triaxial mounting cube M3
030	Triaxial mounting cube M5
230	Triaxial mounting cube M8
330	Triaxial mounting cube M10
700	Underwater pressure hull for accelerometers, <20 Bar, inner Ø 50 mm

Termination Boxes

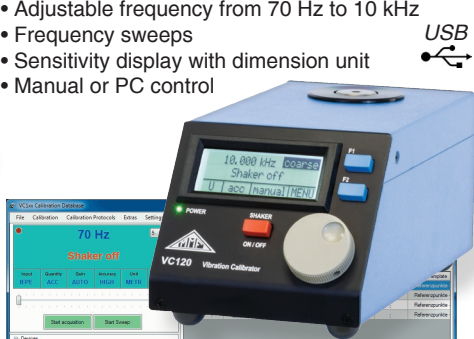
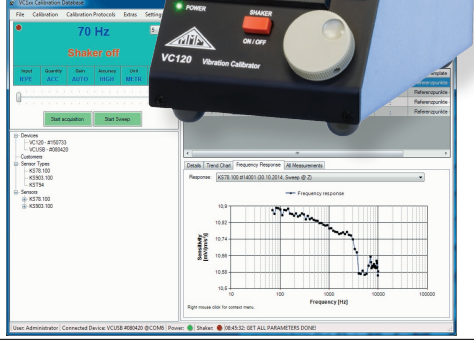
Model	Description
801	BNC termination box for 4 sensors
802	BNC DIN rail interface for 4 sensors

Connection Accessories

Model	From	To
017	UNF 10-32 (female)	BNC (male)
117	UNF 10-32 (female)	BNC (female)
025	UNF 10-32 (female)	TNC (male)
016	UNF 10-32 (female)	UNF 10-32 (female)
031	UNF 10-32 front panel feed-through (2 female)	
032	UNF 10-32 front panel socket (female/solder)	
080G	M12 straight plug with screw terminals	
080W	M12 angled plug with screw terminals	



Vibration Calibrators

Model	VC20	VC21	VC21D	VC120
				
				• Self-contained vibration calibrating system • Adjustable frequency from 70 Hz to 10 kHz • Frequency sweeps • Sensitivity display with dimension unit • Manual or PC control
				
				• Most powerful portable vibration calibrators at the market • VC21: World's first portable calibration source for frequencies from 15.92 to 1280 Hz • Load independent • Quartz stabilized frequencies • Accuracy display • Battery powered • Traceable to PTB standard
				VC21D with detachable clamping device for the dynamic calibration of non-contact displacement sensors (proximity probes)
Frequencies and Accelerations	159.15 Hz (1000 s ⁻¹): 10 m/s²	15.92 Hz: 1 / 2 m/s² 40 Hz: 1 / 2 / 5 m/s² 80 Hz: 1 / 2 / 5 / 10 m/s² 159.2 Hz: 1 / 2 / 5 / 10 / 20 m/s² 320 Hz: 1 / 2 / 5 / 10 / 20 m/s² 640 Hz: 1 / 2 / 5 / 10 / 20 m/s² 1280 Hz: 1 / 2 / 5 / 10 / 20 m/s²	15.92 Hz: 1 / 2 m/s² 40 Hz: 1 / 2 / 5 m/s² 80 Hz: 1 / 2 / 5 / 10 m/s² 159.2 Hz: 1 / 2 / 5 / 10 / 20 m/s² 320 Hz: 1 / 2 / 5 / 10 / 20 m/s² 640 Hz: 1 / 2 / 5 / 10 / 20 m/s² 1280 Hz: 1 / 2 / 5 / 10 / 20 m/s²	70 - 10 000 Hz by adjustable by knob or programmable via USB interface, 1 m/s² fixed applitude
Accuracy	± 3 % at 10 to 40 °C; 5 % at -10 to 55 °C			± 3 % at 70 - 1000 Hz; ± 5 % at 1000 - 10 000 Hz; 23 °C ± 10 °C
Maximum load	600 gr.	500 gr. (depending on frequency)		400 gr.
Sensor mounting	M5	M5	M5, M6x0.5, M8x1, M10x1, M14x1, M20x1, 1/4"-28, 3/8"-24, 1/2"-20	M5; thread adapters included
Display	OLED for magnitude and frequency	OLED for magnitude and frequency	OLED for magnitude and frequency	LCD for charge, IEPE and voltage sensitivity and frequency
PC interface	-	-	-	USB; PC software for setup, sweep and data base included
Power supply	Built-in accumulator or mains plug adapter / charger			Built-in accumulator or external mains adapter / charger

Charge and IEPE Amplifiers

Model	M72A1	M72A3	M72S1 ⁽¹⁾	M72B1	M72B3	M72R1 ⁽¹⁾	M208A	M208B	M29	M33	IEPE100	
							 M208A with integrated web server for remote measurement and operation		 Banana plugs inter-connect module power		 Remote Charge Converter Input: Charge Output: IEPE	
Sensors	Charge / IEPE						IEPE		IEPE		Charge	
Inputs /Outputs	BNC / BNC; rear panel						BNC / BNC + D-Sub		BNC / BNC		BNC / BNC	
Channels	1	3	1	1	3	1	8		1		1	
Charge gain	0.1 / 1 / 10 / 100 / 1000 mV/pC						-		-		0.1 / 1 / 10 mV/pC ⁽²⁾	
Voltage gain	0 / 20 / 40 / 60 dB						0.1 to 1000 incr.		1 / 10 / 100 / 1000	1	1/10/100/1000	-
Sensitivity tuning	0.001 to 9999 mV(pC)/m.u.			-			yes		-	-	-	-
Integration	none (acceleration); single (velocity); double (displacement)						with plug-in integrator modules		-	with FBV/FBD ³⁾		-
Frequ. range	0.1 Hz - 50 kHz						0.1 Hz - 100 kHz		0.1Hz-100kHz	0.2Hz-50kHz	0.1 Hz - 65 kHz	
High pass	0.1 / 3 Hz						plug-in filters 3 to 1000 Hz		Plug-in filter ³⁾		-	
Low pass	0.1 / 1 / 10 / 50 kHz						plug-in filters 0.1 to 100 kHz		-	Plug-in filter ³⁾		-
TEDS support	yes			-			yes		-	-	yes (option)	
Dig. interfaces	-	-	USB ⁽¹⁾	-	-	USB ⁽¹⁾	serial; Ethernet		-	-	-	
Meter display	output level in percent			-			RMS / peak		-	-	-	
Relay output	-						with adj. threshold		-	-	-	
Indicators	IEPE; gain; filters; integrators; overload						IEPE; overload; low level		IEPE, power, overload		-	
Power supply	8 - 28 VDC or mains adapter ⁽¹⁾						10 - 28 VDC or mains adapter		5-26 VDC or mains adapter		4 - 20 mA IEPE supply	
Dimensions (mm)	105 x 43 x 95	105 x 104 x 95	80W x 34H x 170	105 x 37 x 95	105 x 78 x 95	80W x 34H x 170	483 x 44 x 124 mm ³		40 x 55 x 45	54 x 55 x 45	44 mm x 24 Ø	

⁽¹⁾ Rack case with mains supply and USB interface for 8 units M72R1 (**M72R8**) or 8 units M72S1 (**M72S8**) available. ⁽²⁾ IEPE100 has 3 gain ranges to be selected by DIP switches. ⁽³⁾ See plug-in filter modules