Product Datasheet
Product PRO,VIBRA-CLOUD
Vibra+ Ground Vibration Logger, provisioned with SMS Alarms

techrentals

VIBRA-series: *VIBRA*+

Vibration Monitoring

DATASHEET *VIBRA*-series (VIB.04100/ 04120)

Profound *VIBRA*-series

Vibrations from pile driving, construction, road or rail traffic, demolition work and blasting can create nuisance or cause damage to buildings and sensitive equipment. These vibrations are accurately quantified with a system of the Profound *VIBRA*-series.

The *VIBRA*'s robust housing is IP65 watertight. The system is easily portable, lightweight and battery-operated which allows for approximately 21 daysof continuous and unmanned operation.

Depending on the chosen model *VIBRA* or *VIBRA*+, the system complies with national and international standards and is according to DIN 45669-1. The specific characteristics of each model are further outlined in the *VIBRA* features overview.

Setting up the system on site is easy: attach the 3-dimensional sensor to the structure to be monitored, switch on the system and start measuring. While measuring the *VIBRA* displays date, time, time interval and the current peak vibration values including frequency in all 3 directions. In advance an alarm level can be set.

Peak values including dominant frequencies, are directly stored in memory. For full interpretation measurement signals are transferred via USB to a computer for further analysis. The *VIBRA* pc software automatically generates tables and graphs of peak values and signals for use in reports. The data can also be easily exported as a csv-file.

If selected, the VIBRA transmits data and system status information directly to *vibramonitoring.com* via the integrated 4G modem with fall-back options to other networks. In addition the VIBRA transmit instant alarms via SMS to multiple recipients. With a VIBRA+ you can also choose to send the data to an e-mail account or upload the data to a FTP-server. As an alternative for the direct upload to your server, Profound can also offer you an alternative turnkey monitoring solution: *vibramonitoring.com*.

Technical specifications *VIBRA*-series

Velocity (PPV), frequency and acceleration (PPA)	: In x, y, z-direction per time interval
Displacement (*VIBRA*+ only)	: In x, y, z-direction per time interval
Sensor type	: 3-channel geophone
Geophone correction	: Digital IR filter
Velocity range	: 0 – 100 mm/s
Resolution display	: 0.01 mm/s
Resolution AD-converter	: 0.001 mm/s (24 bits ADC)
Frequency range and accuracy	: DIN 45669-1 or SBR – part A, B 2002
Storage capacity	: 4 MB. Fixed or ring memory incl. buffer
Storage interval	: 1, 2, 5, 10, 20, 30, 60 s
Data save level	: Adjustable between 0.01-100.00 mm/s (or always)
Alarm level	: Adjustable between 0.01-100.00 mm/s (or none)
Data retention	: 10 years (minimum) at 25 °C
Clock stability	: Within 5 minutes/year at 25 °C
Temperature range (operating)	: - 20 °C to + 60 °C
Housing	: Robust hard case
Protection rating	: IP65 according to DIN 40 050/ IEC 529
Dimensions (l x w x h)	: 214 x 150 x 45 mm
Weight	: 1315 gram
Display	: ≥ 4 Lines; display backlight; anti-reflex coating; anti-scratch
Batteries	: Li-ion battery
I/O functionality	: Geophone, USB and fastcharger
PC operating system	: WIN10/WIN8/WIN7
Accessories	: VIB.00320 Cable reel (50m) VIB.00407 Alarm beacon VIB.04420 USB charger VIB00340 Mounting plate VIB.00350 Geophone cone

VIB016/12/2018

FOR FURTHER INFORMATION

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profound

VIBRA-series: *VIBRA*+

DETAILED FEATURES OVERVIEW			*VIBRA*+
Maximum velocity | *v* | and frequency		In x-, y- and z-direction per time interval	●
Maximum acceleration | *a* |		In x-, y- and z-direction per time interval	●
Maximum displacement | *u* |		In x-, y- and z-direction per time interval	●
Trace option		Velocity versus time curve	●
AD-converter		24 bits sigma delta data conversion	●
Resolution display		0.01 mm/s	●
Resolution AD-converter		0.001 mm/s	●
DIN	Accuracy	DIN 45669-1	●
	Frequency characteristic	Lower limit: 1 Hz	●
		Upper limit I: 80 Hz	●
		Upper limit II: 315 Hz	●
	Dominant frequency determination	FFT (Hanning window) / Zero crossing method	●
	Data processing	DIN 4150-2	●
		DIN 4150-3	●
SBR	Accuracy	$0.85 \leq \Delta \leq 1.15$ in accordance with SBR	●
	Frequency characteristic	Part A: Lower limit (-3 dB): 0.8 Hz Upper limit (-3 dB): 125 Hz	●
		Part B: Lower limit (-3 dB): 0.8 Hz Upper limit (-3 dB): 100 Hz	●
	Dominant frequency determination	Method I /Method II	●
	Data processing	SBR Part A	●
		SBR Part B	●
Sample frequency		oversampling sigma delta conversion	●
Velocity data save level		Adjustable between 0.01-100 mm/s (or always)	●
Alarm level velocity | *v* |		Adjustable between 0.01-100 mm/ s (or none)	●
Alarm level displacement | *u* |		Adjustable in mm (or none)	●
Alarm level acceleration | *a* |		Adjustable in m/s² (or none)	●
Clock stability		≈ 5 minutes/year at 25 °C	●
Smart alarm level		Frequency dependent velocity alarm, complying with DIN/SBR	●
Optical signal device		Flashing wireless alarm beacon	●
External power		5 Volt supplied to the VIBRA USB connector	●
Wireless data transmission		Integrated 4G modem with fall back options	●
		SMS Alarm	●
		Online vibramonitoring service ready	●
		Upload to FTP server client	●
		E-mail: data, status, alarm	●
Ring memory		Ring buffer in server mode	●
VIBRA PC Trace Recorder		Continuous time/velocity trace recording	●

VIBRA geophone	
Digital ID	●
Geophone detection	●
Digital correction of the sensitivity	●
Digital correction of the *fres* and *Q*	●
Automatic inclination check	●
Automatic calibration check	●

PC Software	
WIN 10/WIN 8/WIN 7	●
Processing according to corresponding SBR-guideline	●
Processing according to a.o. DIN-guidelines	●
Extensive graphical data presentation including precise date time axis. Various data exporting options, e.g. as ASCII-(*.csv) file	●
VIBRA PC Remote Control	●

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VIB016/11/2018

VIBRA geophone

Profound *VIBRA* geophone

The Profound geophone for the *VIBRA* range has been designed for high-performance vibration monitoring.

Advanced mounting

The ball joint in combination with the wall bracket facilitates precise orientation of the geophone in the correct x-, y- or z-direction, as well as enabling fine tuning of the vial.

Digital ID

The geophone has an electronic datasheet, which also includes the serial number. Therefore, the source of measurement data can always be traced.

High-performance

Besides continuously monitoring the x-, y- and z-direction, the *VIBRA* also automatically corrects the measurement data for the individual sensitivity of each geophone channel. This guarantees high-quality measurements and performance.

VIBRA$^+$

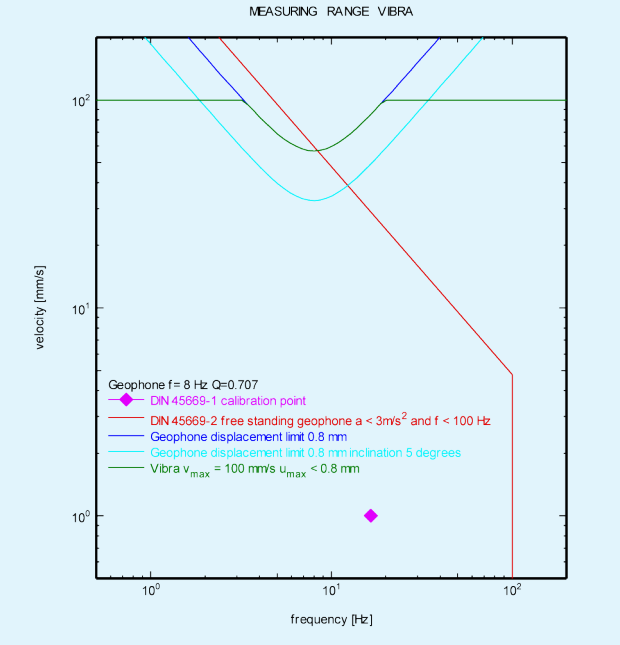
The *VIBRA* geophone in combination with the *VIBRA*$^+$ offers the following extras:

- Detection of the geophone's inclination, assuring that measurements are carried out with a correctly positioned geophone.
- Based on data from the electronic datasheet, the *VIBRA*$^+$ not only corrects the sensitivity, but also the resonance frequency and the quality factor with the help of digital correction filters.

More information about the *VIBRA* range can be found in the technical specifications.

Technical specifications *VIBRA* geophone

Channels	: 3 (x-, y-, z-direction)
Sensitivity	: 23.3 Vs/m
Resonance frequency (*fres*)	: 8 Hz ± 0.5 Hz
Output Resistance (*Rout*)	: 330 Ohm
Quality factor (*Q*)	: 0.75
Distortion at 18 mm/s and 12 Hz	: < 0.2 %
fres within tolerance	: < 15°
Sensitivity of the vial	: 53 arc minutes (R130 mm)
Electronic datasheet (ID)	: Serial number; calibration date; sensitivity; *fres* ; *Rout* ; *Q*
Temperature range (operating)	: - 20°C to + 60°C
Protection rating	: IP65 according to DIN 40 050 / IEC 529
Size	: Ø 74 mm
Mass	: 0.48 kg
Moving mass	: 11 ± 0.5 g (each channel)
Extra on *VIBRA*$^+$	: Inclination measurement
Accessories	: VIB.00320 Cable reel of 50 m VIB.00340 Mounting plate



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