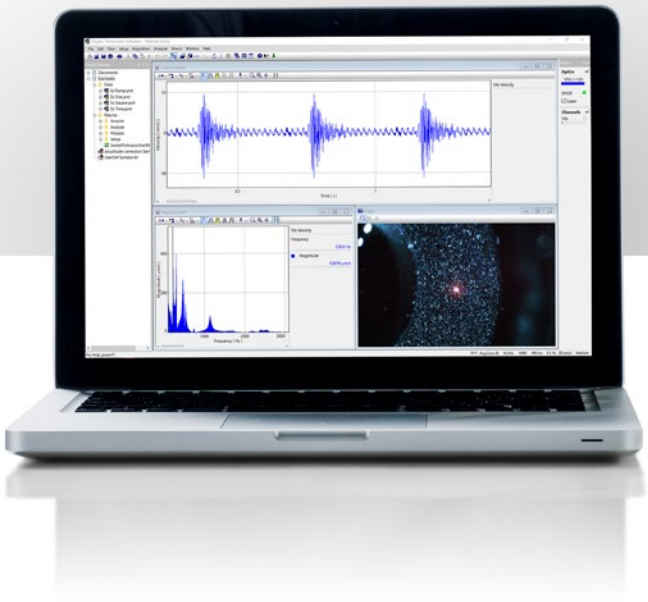
VibSoft is a comprehensive and easy-to-use software package for digital vibration data acquisition and analysis. VibSoft closes the gap between raw signal acquisition and profound analysis of vibration measurement data, offering optimum performance with laser vibrometers.

Choose between three versions VibSoft-VL, VibSoft-20 and VibSoft-PRO: Whether your testing applications require analog or fully digital data acquisition up to 25 MHz or multi-channel DAQ that allows connecting additional inputs like complementary sensor signals. When mobility is key, benefit from a lean, portable and WLAN connected laptop solution.

Further options like real-time video imaging, the powerful signal processor (a Polytec math library for post-processing) and a scripting engine for individual post-processing and control make VibSoft an extremely powerful tool.



Highlights

- Powerful DAQ and analysis from DC up to 25 MHz
- Fully digital or multi-channel analog
- Available as portable laptop solution
- Control all vibrometer settings remotely
- Real-time video imaging of test objects
- Comprehensive toolbox for analysis in time and frequency
- Sample excitation via internal signal generator
- Individual post-processing with Polytec signal processor
- Integrated scripting interface

VibSoft

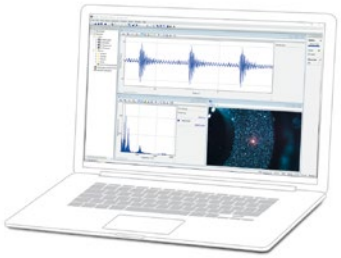
Data acquisition and analysis for laser vibrometry

Datasheet

VibSoft-VL

Portable and fully digital solution with wireless capability for frequencies from DC up to 24 MHz, lean and ready to use with any laptop or PC

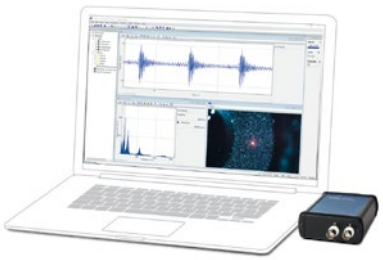
- Suitable even for high ultrasonic applications using a high sampling rate of 60 MSa/s and Gbit Ethernet
- Enables digital DAQ via Ethernet or WLAN[1] for Polytec laser vibrometers with VibroLink (VL) interface
- Provides cleanest signals with a high digital resolution, as signals are transferred fully digitally up to 24-bit
- Optimally integrated in the operating system securing super stable digital data transfer even under high system load



VibSoft-20

Portable analog 2-channel solution for frequencies from DC up to 20 kHz, flexible and mobile for field studies

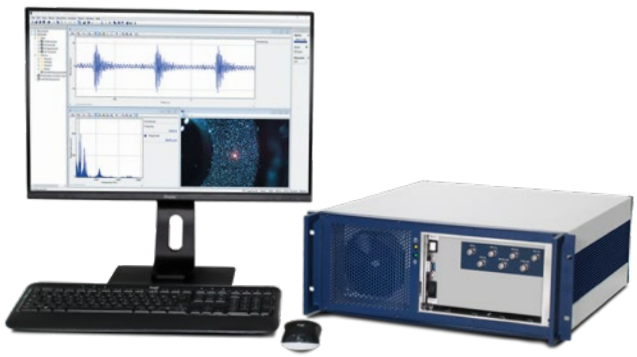
- Perfect for acoustic applications
- Compact and lightweight junction box VIB-E-220 connectable to a laptop or PC via USB
- Analyze transfer functions (FRF) by connecting a 2nd sensor
- IEPE support for 3rd party sensors
- Includes VibSoft-VL



VibSoft-PRO

High performance analog 4-channel synchronous data acquisition from DC up to 25 MHz with integrated signal generator, for power users in lab and test environments

- Suitable even for high ultrasonic applications
- Integrated signal generator for excitation of the sample
- Acquire 4 input signals synchronously and analyze transfer functions (FRF) with high performance A/D-converters
- Dedicated Industrial PC with integrated BNC I/O in 19” rack housing
- Includes VibSoft-VL



[1] Requires Vibrometer with wireless connectivity feature like VibroGo.

VibSoft versions – quick overview

	VibSoft-VL	VibSoft-20	VibSoft-PRO
Analog data acquisition			
Maximum Frequency bandwidth	–	20 kHz	25 MHz[1]
Analog DAQ input channels	–	2	4
Maximum input voltage	–	±10 V max.	±10 V max.
IEPE (ICP®) support for 3rd party sensors	–	S[3]	–
Internal Signal Generator	–	–	O
Digital data acquisition			
Digital DAQ via VibroLink[2]	S	S	S
Maximum Frequency bandwidth[1]	24 MHz	100 kHz	24 MHz
Remote control of all settings of the Polytec laser vibrometer[4]	S	S	S
Comprehensive toolbox for analysis, visualization and export of time and FFT data	S	S	S
Real-time video imaging of the test object (VIB-S-VID_USB)[5]	O	O	O
Audio Playback of live or stored measurement data (VIB-S-AUDIO)	O	O	O
Individual post-processing with signal processor (VIB-S-SigPro)	O	O	O
Integrated Scripting and interface for Matlab®, LabView®, Microsoft Excel® and Python	S	S	S
Phase compensation between LDV and reference channel(s) for synchronous measurement analysis	–	–	S
Easy installation of the latest updates and upgrades with Polytec Update via Internet	S	S	S
Can be used with a laptop computer[6]	yes	yes	no
Included hardware	–	VIB-E-220 USB junction box	VIB-W-001 Data Management System: Industrial PC with included BNC connectors
Cabling	Data cable (Ethernet) or wirelessly via WLAN[2]	BNC cables	BNC cables

S: Standard
O: Option
–: Not available

[1] For VibSoft-PRO and VibSoft-VL the maximum frequency bandwidth can be chosen between 100 kHz and 24 resp. 25 MHz (see list on page 5), according to the application and the used vibrometer system.
[2] VibroLink requires a Polytec laser vibrometer with VibroLink interface (see list of compatible vibrometer systems on page 7) and can be used with Ethernet or even wirelessly via WLAN (VibroGo). The maximum usable frequency bandwith depends on the vibrometer and on the software option. When VibSoft-20 or VibSoft-PRO are used with digital data acquisition, no analog data acquisition is possible at the same time.
[3] VibSoft-20 offers IEPE support for the 2nd input channel (Ref).
[4] For supported Polytec laser vibrometers (max. 2 vibrometers can be remote controlled).
[5] For sensor heads with integrated camera like VibroFlex Compact or VibroOne.
[6] Minimum system requirements of the used computer are given on page 4.

Technical data

Basic features of the software:
Data acquisition and data storage in time and frequency domain up to 25 MHz (depending on configuration and used vibrometer system)
Measurement traces up to 72 hours (64 MSamples) in time domain (FFT subsequently possible with optional signal processor VIB-S-SigPro)
Display of displacement, velocity and acceleration and real-time integration and differentiation (s, v, a)
Allows calculation of up to 819,200 FFT lines (more than 33 millions of FFT lines possible in post-processing with signal processor).
Averaging: magnitude, complex, peak hold
Third octave analysis, dB(A) weighted spectrum, Nyquist diagram, real- und imaginary part, phase
Extensive peak analysis capability, enhanced by a band cursor for finding peaks automatically, also providing statistical parameters and harmonic oscillator curve fitting. Harmonic cursor plots up to 12 cursor lines at the 2nd, 3rd, ... order of the base frequency.
Digital filters (HP, LP, Band, Notch)
Data export in ASCII, Universal File (UFF), WAV, more export and import formats as options (e. g. ASAM)
Trigger on internal and external signals depending on front-end / sensor capabilities
Integrated scripting engine for programming (Visual Basic compatible, see option VIB-S-VBEng below for details)
Remote control of vibrometer sensor and front-end settings
The maximum usable signal frequency bandwidth is also limited by the properties of the connected vibrometer front-end or sensor.

Required hardware	
VibSoft-VL	• Laptop or PC[1] with - operating system Microsoft Windows 10 1607 64-bit or higher - RJ45 GigE Ethernet port for remote control or digital data acquisition with VibSoft-VL (The data acquisition uses a point-to-point connection and requires a dedicated Ethernet port only for the Vibrolink Data interface) - 1 free USB 2.0 A slot for software protection dongle - 1 free USB 2.0 A slot for VIB-E-220 Junction Box (only VibSoft-20) - 1 free USB 3.0 A slot for optional live video input (e. g. for VibroFlex Compact or VibroOne with integrated camera) • Polytec laser vibrometer with VibroLink interface (see page 7) • Suitable data cable for Ethernet connection (or a WIFI connection)
VibSoft-20	• Laptop or PC[1] with - operating system Microsoft Windows 10 1607 64-bit or higher - 1 free USB 2.0 A slot for software protection dongle - 1 free USB 2.0 A slot for VIB-E-220 Junction Box - 1 free USB 3.0 A slot for optional live video input (e. g. for VibroFlex Compact or VibroOne with integrated camera) - RJ45 Ethernet or USB 2.0 A port for remote control of used laser vibrometer • VIB-E-220 junction box (included) • BNC cables (included)
VibSoft-PRO	• Polytec VIB-W-001 Data management system (DMS) with integrated BNC connectors or PC[1] with - operating system Microsoft Windows 10 1607 64-bit or higher - 1 free PCIe x4 Generation 1 slots for the data acquisition board - For option VIB-S-SIG: 2 additional free PCIe x4 Generation 1 slots - 1 free USB 2.0 A slot for software protection dongle - 1 free USB 3.0 A slot for optional live video input (e. g. for VibroFlex Compact or VibroOne with integrated camera) - RJ45 Ethernet or USB 2.0 A port for remote control of used laser vibrometer • BNC cables (included)

[1] for detailed recommended specification requirements for the computer, please ask your Polytec sales engineer.

Configurable options

		VibSoft-		
		VL	**20**	**PRO**
Maximum Frequency bandwidth[1]				
Analog 20 kHz	Maximum Frequency bandwidth of DAQ 20 kHz	–	S	–
VIB-S-BW100K	Maximum Frequency bandwidth of DAQ 100 kHz	S	–	S
VIB-S-BW500K	Maximum Frequency bandwidth of DAQ 500 kHz	O	–	O
VIB-S-BW3M	Maximum Frequency bandwidth of DAQ 3 MHz	O	–	O
VIB-S-BW24M	Maximum Frequency bandwidth of DAQ 24 MHz	O	–	–
VIB-S-BW25M	Maximum Frequency bandwidth of DAQ 25 MHz	–	–	O
Number of channels for analog data acquisition				
CH 2	2 data acquisition channels for analog signals like laser vibrometers, accelerometers, force transducers (specifications see below)	–	S	S
CH 4	4 data acquisition channels for analog signals like laser vibrometers, accelerometers, force transducers (specifications see below)	–	–	O
Additional options				
VIB-S-VBEng Visual Basic Engine	Scripting and open data interface with WinWrap Basic Engine and Polytec File Access. Visual Basic for Applications (VBA)® compatible programming interface to create Basic scripts for automation of measurements and data presentation. Includes integrated development environment (IDE) for programming and debugging. Includes Polytec File Access to retrieve data via external applications (e.g. Visual Basic, Matlab, VSI Rotate etc.) which support Microsoft's standard Component Object Model (COM). All programming languages that support COM can be used for own applications (only for Windows operating systems). Supports User Defined Data Sets (UDDS) to apply mathematical operation to internal and external measurement data files and to store processed data in Polytec files (*.pvd, *.svd, *.mvd).	S	S	S
VIB-S-SIG Integrated Signal Generator	Integrated function generator for sample excitation. Supports a wide range of arbitrary waveforms for exciting the object under test like sine, sweep, periodic chirp, burst chirp, pseudo random, burst random, true random, rectangle, triangle, ramp and user defined signals. Output voltage max. ±10 V at high-impedance load, max. ±5 V at 50 Ω Maximum output current: ±60 mA Output impedance: 50 Ω Maximum signal frequency like maximum frequency bandwidth for data acquisition Permanently short-circuit proof	–	–	O
VIB-S-AUDIO Audio Playback	Noise identification via audio playback: allows for listening into the structural borne noise signal to identify noise sources. Works on live data or stored data. Output at computer speaker or headphone jack.	O	O	O
VIB-S-VID_USB Live Video Option USB	Video Option: display and storage of a live video image in VibSoft for precise targeting and documentation purposes. Requires a sensor head with integrated video camera (e.g. VibroFlex Compact, VibroOne).	O	O	O
VIB-S-SigPro Signal Processor	The signal processor is the user interface to the PolyMath library included in the Polytec software. Easy-to-use spreadsheet for post processing of measurement data. Operations include FFT, Inverse FFT, Digital filters, Integration, Differentiation, Re-sampling, ...).	O	O	O
VIB-S-ASAM ASAM ODS Interface	ASAM ODS Interface enables import and export of point data, band data and the geometry to and from files compliant with ASAM ODS 5.3.0 ATFX standard.	O	O	O

S: Standard
O: Option
–: Not available

[1] The license for VibSoft-20 and VibSoft-PRO also includes a license for digital data acquisition with VibroLink, limited to the respective frequency bandwidth.
Remarks: VibSoft-20 allows digital data acquisition even of 100 kHz, VibSoft-PRO with VIB-S-BW25M allows digital data acquisition up to 24 MHz via VibroLink.
During digital data acquisition, the analog input channels can not be used!

Configurable options

		VibSoft-		
		VL	**20**	**PRO**
Data Management System (DMS)				
VIB-W-001 or PC-I	Industrial Rackmount computer, based on a 19" industrial PC with Intel i7 high performance Quad-Core CPU, 16 GByte RAM, 1 TB SSD, LAN, graphics board, video input, optical mouse and keyboard. (specifications see below) Version VIB-W-001 offers integrated BNC connectors for the input and output signals of VibSoft-PRO at the front.	O	O	O
Software Maintenance				
VIB-S-SM-B	Basic Software Maintenance for the system is included for the duration of 1 year.	S	S	S
VIB-S-SM-1	Software Maintenance Contract 1 Year New releases of the software are provided free of charge for an additional period of 1 year after the end of the basic software maintenance.	O	O	O
VIB-S-SM-UNI	This special software maintenance agreement for universities and colleges entitles to a continuous update of the software package purchased with the measurement system. New releases of the software are provided free of charge during the software support lifetime.[1]	O	O	O

[1] In this period additional charges for the upgrade of the Data Management System may arise as future new software releases may require certain hardware conditions.

Specifications of data acquisition channels for analog signals		
	VibSoft-20	**VibSoft-PRO**
Maximum Frequency bandwidth	20 kHz	25 MHz
Number of data acquisition channels	2	2 / 4
Input voltage range	±10 V	±200 mV .. ±10 V
Input impedance	1 MΩ, single-ended BNC	50 Ω, 1 MΩ (switchable)
Input coupling	AC/DC, adjustable in the software (only both channels)	DC fixed
Overvoltage protection	–	for measurement ranges up to ±1 V: ±5 V (1 MΩ), 3.5 Vrms (50 Ω) for measurement ranges > ±2 V: ±50 V (1 MΩ), 5 Vrms (50 Ω)

General specifications for data management system and junction box		
	VibSoft-20	**VibSoft-PRO**
Operating temperature	+5 ... +40 °C (41 ... 104 °F)	
Storage temperature	-10 ... +65 °C (14 ... 149 °F)	
Relative humidity	max. 80 %, non-condensing	
Component	Junction Box VIB-E-220	VIB-W-001 Data management system
Dimensions [W x H x D]	82 x 32 x 150 mm	450[1] x 190 x 550 mm 19", 84 HP/4 U
Weight	150 g	18 kg
Power supply	via USB	100...240 VAC ±10 %, 50/60 Hz
Power consumption		max. 525 VA

[1] width with angle brackets: 485 mm

VibSoft-VL: Compatible vibrometer systems

The following laser vibrometers are available with a VibroLink (VL) interface which allows for fully digital data acquisition and remote control via Ethernet or even WLAN (VibroGo) using VibSoft-VL data acquisition and analysis software or Polytec Device Communication software without additional data acquisition hardware (analog-to-digital converters).

Vibrometer	Digital resolution[3]	Bit depth[4]	Data cable[5]	Remarks
VibroFlex 	0.19 nm/s	24-bit	VFX-C-100-D02 (M12, X-coded)	
VibroOne 	0.19 nm/s	24-bit	VFX-C-100-D02 (M12, X-coded)	
VibroGo 	168 nm/s [6] 336 nm/s [7]	16-bit	A-CBL-0001/0002[8] (M12, D-coded)	Connection via WLAN possible with option VGO-WIC (wireless connectivity) and a WLAN-stick
IVS-500 	336 nm/s	16-bit	IVS-C-540—xx[8] (M12, D-coded)	Requires option IVS-DIG

[3] Digital resolution is defined by the quantization step of the measured data in the smallest measurement range.
[4] The bit depth is the resolution of the transferred measurement data.
[5] All data cables have a RJ45 connector on one side and a M12 industrial grade connector for the laser vibrometer on the other side.
[6] Digital resolution of 168 nm/s valid for VibroGo Pioneer.
[7] Digital resolution of 336 nm/s for VibroGo Lab, Explorer and Sonic.
[8] The data cable A-CBL-0001 is technically identical with IVS-C-540-05 and A-CBL-0002 is technically identical with IVS-C-540-10.

For additional technical information and applications of Polytec VibSoft software, please contact your local Polytec sales engineer or visit our website at https://www.polytec.com/vibsoft.

Polytec update

Supplies your Polytec software with the latest updates
Polytec Update is a software tool that provides your Polytec products with the latest software releases and hotfixes. Polytec Update therefore always keeps you posted when there are updates for your Polytec measurement or desktop software – to ensure reliable measurement results and smooth working with Polytec products.

Online and offline operation
Polytec Update works best on a measuring computer with a direct connection to the Internet. But even on computers that don't have their own Internet access, Polytec Update helps you to update your Polytec software. All you need is a second computer with an Internet connection.

Compliance with standards		
Laser safety	IEC/EN 60825-1	
Electrical safety	IEC/EN 61010-1	
EMC	IEC/EN 61326-1	
	Emission:	Limit class B
		IEC/EN 61000-3-2 and 61000-3-3
	Immunity:	IEC/EN 61000-4-2 to 61000-4-6 and IEC/EN 61000-4-11
RoHS	IEC/EN 63000	

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2022/11 - Technical specifications are subject to change without notice.