

Expert Vibro – Vibration measurement

Vibration measurement with state of the art processor technology

Expert Vibro is Delphin Technology's new device for acquiring transient signals and vibrations. The latest processor technology enables 16 synchronous channels to be processed at high sampling rates while requiring minimal space. 24-Bit A/D converters ensure high precision. Users may switch between voltage measurement, IEPE or shaft vibration sensors. Integrated comparators and digital inputs allow flexible triggering. Measurement data is monitored "on the fly" with digital outputs being switched within msec in the event of a limit value violation.

Universal sensor connection

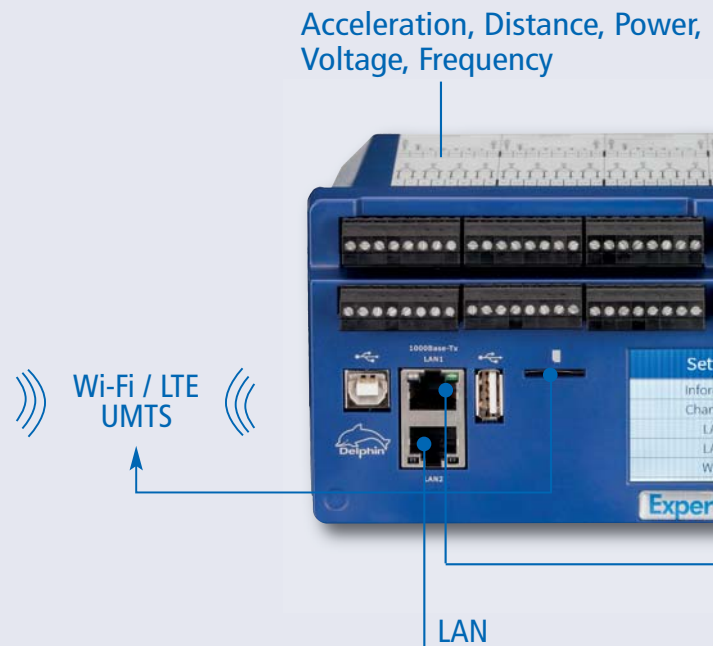
- Analog inputs switchable via software
 - Eddy current sensors
 - Acceleration sensors
 - Velocity sensors
 - mV / mA signals (pressure, etc.)
- Selectable IEPE feeds
- Integrated comparators for Keyphasor® sensors
- Measuring range to $\pm 25V$
- Plug-in screw terminals

Fully equipped – compact design

- 8 / 16 vibration inputs capable of being individually triggered
- 50 KHz sampling rate per channel (Σ 800 KHz)
- 32 GB data logger memory
- 4 digital inputs for frequency measurement of up to 1 MHz
- 4 analog outputs for monitoring purposes
- Convenient DIN rail-mounting
- Display capable of on-site graphic portrayal

User friendly configuration

Vibration measurement with Expert Vibro is user friendly. Intuitive configuration means fast installation and short training times. All relevant characteristic values are obtained from spectra and time signals. Spectra are calculated online and saved independently with time signals and characteristic values. Versatile software channels enable the Expert Vibro to perform complex analysis and monitoring tasks. The Expert Vibro's touch screen can display configuration or measurement data.



Applications

- Shaft vibration monitoring and analysis
- Bearing damage diagnostics
- Combustion chamber vibration monitoring
- Gear box analysis
- Housing vibrations
- Mobile vibration measurement

A range of interfaces

Expert Vibro can be connected via LAN to the intranet/internet and via USB to PCs. For standalone applications, integrated Wi-Fi, UMTS or LTE modules are optionally available. Connection is via an antenna at the SMA connectors. In addition to two PROFIBUS interfaces, Modbus TCP is available to users for fieldbus connections. Multiple Expert Vibro devices can be synchronized with each other.

Expert Vibro

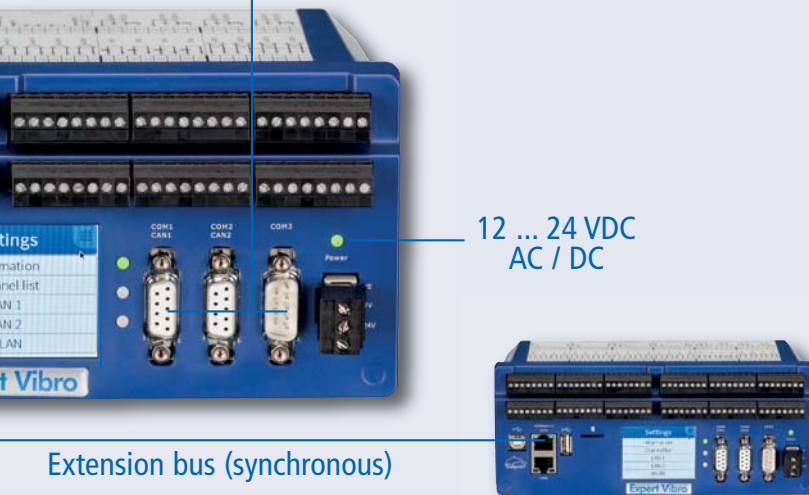
Inputs / outputs	Type 8	Type 16
Analog inputs (mV, mA)	8	16
Analog outputs (mV, mA)	4	4
Digital / frequency inputs	4	4
Digital outputs	8	8

Expert Vibro inputs / outputs



Technical specifications are available on page 45.

Modbus PROFIBUS

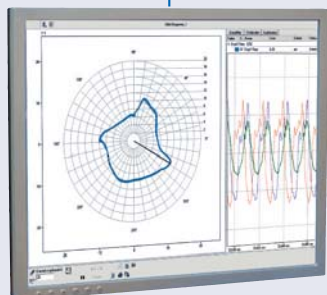


Local and decentralized interfaces

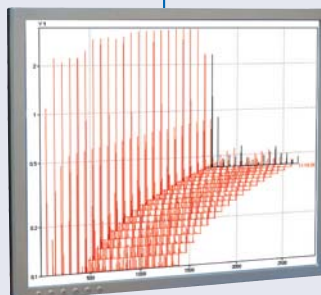
- Interfaces to PC
 - LAN interface (Modbus TCP)
 - USB host for data read out
- Field bus interfaces
 - 2 x PROFIBUS DPV1 slave (redundant)
 - 3 x serial interface (Modbus RTU)
 - 2 x CAN interfaces
- Remote monitoring
 - Optional Wi-Fi
 - GSM / UMTS / LTE optional

Monitoring and online analysis in a single device

- Fast limit value monitoring of time signals
- Monitoring of characteristic values
- Online transfer of measurement data
- Spectrum – online – up to 12,800 lines (FFT)
- Versatile characteristics (characteristic values for phase, frequency and amplitude)
- Accounting and statistics function
- Integration functions (two-stage)



Orbit, Time signal



Cascade, Spectra

Expert Vibro – Techn. specifications

Expert Vibro

Inputs / Outputs	
Analog inputs	8 or 16
Sampling rate, adjustable per channel	1 Hz ... 50.000 Hz
Voltage / current range	± 25 V / 0 ... 20 mA, 4 ... 20 mA, free
Signal conditioning, switchable via software-selectable	No, AC coupling, IEPE
Resolution / input impedance	24 Bit / 4 MΩ
Dielectric withstand voltage / galvanic isolation	± 100 VDC / ±400 VDC
Channel to channel	
Usable signal bandwidth	DC ... 20 kHz
Digital frequency inputs	4
Input signal	low: 0 ... 2 V / high: 5 ... 50 VDC@3.5 mA / galvanically isolated
Frequency inputs measurement range	0,2 Hz ... 1 MHz
Analog outputs	4
Resolution	16 Bit
Output range	0 ... 10 V / ± 10 V / 0 ... 20 mA / 4 ... 20 mA / galvanically isolated
Minimum / Maximum load resistance	500 Ω
Digital outputs	8
Switching voltage / current / PWM	50 V / 0,6 A / galvanically isolated / 5 Hz ... 10 KHz, to 1:500
Data storage	
Maximum size / measurement values	16 GB /... 1 billion measurement values
Signal processing functions	
High-pass filter / Low-pass filter / Band-pass filter	
Cutoff frequency / filter ordering / filter characteristic	0,5 ... 20,000 Hz / 4, 6, 8, 10 / Bessel, among others
Integrator / differentiator	
Single or double-integrator / differentiator	
FFT	
Line number / window / average	max 12,800 lines / Hanning, Flattop ... / 2 ... 32 times
Types of FFT	narrow / wide band, envelope / demodulation, amplitude-phase spectra
Characteristic values from time signal	
Maximum / minimum value, peak-to-peak value, arithm. mean, true RMS, max of vect. Sum, arithm. mean of the product	
Characteristic values from frequency spectra	
Frequency, main phase and any harmonic amplitude, frequency, total value, square root means (in any frequency bands), total value, residual value	
Interfaces	
Physical equipment COM 1 / COM 2	RS485, 9-pole sub-D connector, DIN EN ISO 19245-1
Physical equipment COM 3	RS232, 9-pole sub-D connector
LAN	2 x 1000Base-TX
Wi-Fi / WWAN	802.11b/g/n / GPRS, UMTS, LTE
USB	Device 2.0 / Host 2.0
PROFIBUS	2 x PROFIBUS DPV1 / Slave max. 12 Mbit
CAN / RS 232/485	2 x CAN 2.0 / Modbus RTU, SCPI, ASCII
General technical information	
Dimensions / weight	210 mm x 80 mm x 125 mm / 750 g
Fixing	Support rail DIN EN 60715 or screw fixing, plugable screw terminals, 96 terminals in 2 rows
Signal connections	max. 1,5 mm ²
Temperature range	-20 ... 60 °C
Supply voltage / power consumption	12 ... 24 VDC / ± 10% / ca. 20 Watts