

Condition Monitoring - Plus take to a new level



As individual as the requirements of Industry 4.0 are, as precisely you can expand your modern VLX Condition Monitoring with our powerful options.

- Simultaneously monitor multiple characteristic values per channel or easily exchange configurations with **MultiMode**.
- Transmit the vibration signals of your machines with **DataStream** live into your own evaluation software.
- Analyze vibration signals via **DataInspect** with our established VibroMatrix software.

Devices from version 4.0 can be upgraded to version 5.0. These VLX devices are then also ready for **your redefined level**.



MultiMode

- Monitor up to 3 characteristic values seamlessly and in parallel per sensor, such as vibration severity, unbalance and bearing condition.
- Load up to 8 measurement configurations into the VLX device and switch automatically as needed.
- MultiMode is perfect for automated inspection down to batch size 1 and monitoring in changing operating conditions.



DataStream

- Cost saving: this option replaces the need for DAQ measuring cards!
- Stream high-quality, lossless digitalized vibration signals directly into your applications, such as Matlab, LabView, C++, ...
- DataStream allows you to evaluate vibration signals in your own applications for e.g. signal analysis, pattern recognition or AI



DataInspect

- Condition monitoring detects and reports - finding the cause is the next step and is called: diagnosis.
- Vibration signals from abnormal machines are collected and evaluated with our analysis software VibroMatrix.
- Find the causes, even for complex machine faults.
- If you already have VibroMatrix as a mobile live measurement system, you can completely save yourself the need to learn the software again.



More power per measuring channel

MultiMode offers two features that increase performance. The first allows you to monitor up to 3 characteristic values per measuring channel.

- **Cost benefit:** reduced acquisition costs, one measuring channel now does the work of three.
- **Performance benefit:** monitoring for multiple faults on your machine at the same time.



Unbalance



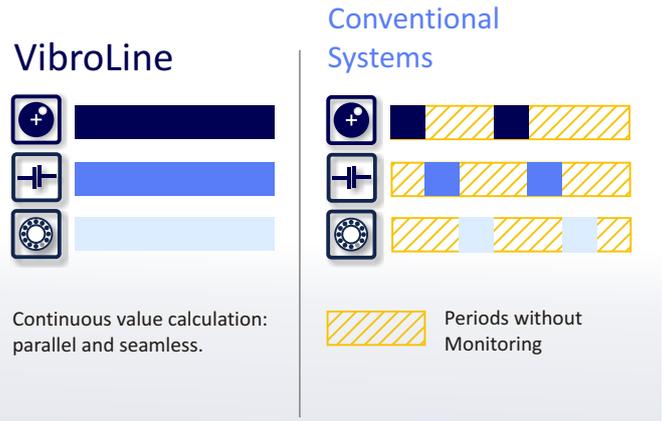
Misalignments



Bearing damage

The special feature of VibroLine is that monitoring takes place **parallel and seamlessly**.

This makes VibroLine particularly suitable for monitoring machines with dynamic load changes and speeds.



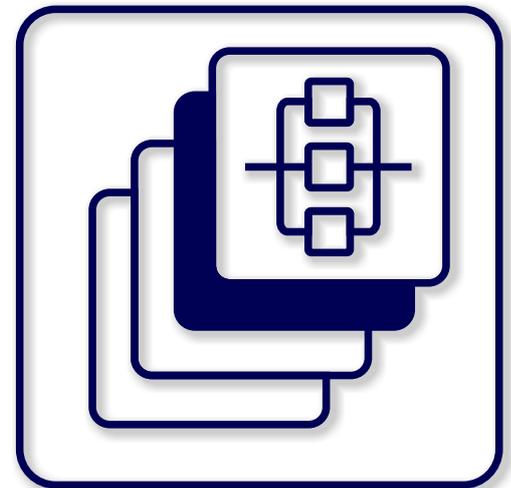
Flexibility for changing requirements

How it works

The second feature of MultiMode is the configuration change. Up to 8 configurations of the monitoring and I/O can be stored in the device. The required parameter set is then switched on via the activated fieldbus interface (Modbus, CANopen, HTTP).

Applications

- Industry 4.0 enables production down to **batch size 1**, regardless of which part is currently running down the line: with MultiMode, the appropriate monitoring parameters are always loaded.
- Complex machines know **different operating states**. With MultiMode, the right monitoring configuration is always available.



Fact sheet for Multimode

Parallel parameter monitoring	
Number of characteristic values per measuring channel (*)	1 ... 3
Each characteristic value individually adjustable	yes
Simultaneous monitoring of all characteristic values in real time	yes

*Bis zur maximalen Geräteauslastung

change of configuration	
Number of configurations in the device	1 ... 8
Change configuration per	Modbus RTU, Modbus TCP, CANopen, HTTP
Configuration includes	Complete device image, except communication interfaces

Stream vibration signals with full scope of information

The **DataStream** option provides you with the vibration signals of your monitored machines in highest quality and resolution.

Cost benefit: DataStream eliminates the need for extra DAQ measurement cards or data acquisition devices. This option saves you this entire class of equipment. Your VLX will take control!

Information benefit: the data from the connected vibration sensors are streamed live and with the full resolution of 96 kHz / 24 bit from each measuring channel into your applications. In addition, the signals from the speed triggers are also transmitted. This allows you to gain the maximum amount of information from the data.

Performance advantage: you determine how long the raw data stream is sent - and there's nothing to stop you from performing a **continuous analysis**. You do not have to be content with single short sequences but get the original vibration signals from the sensors without interruption for as long as you wish.

Perfect for R&D: the program library VLDAQ.dll is used as interface to the vibration data. Whether Windows or Linux, PC or Raspberry Pi: your applications, created in C++, C#, Python, LabView, Matlab,

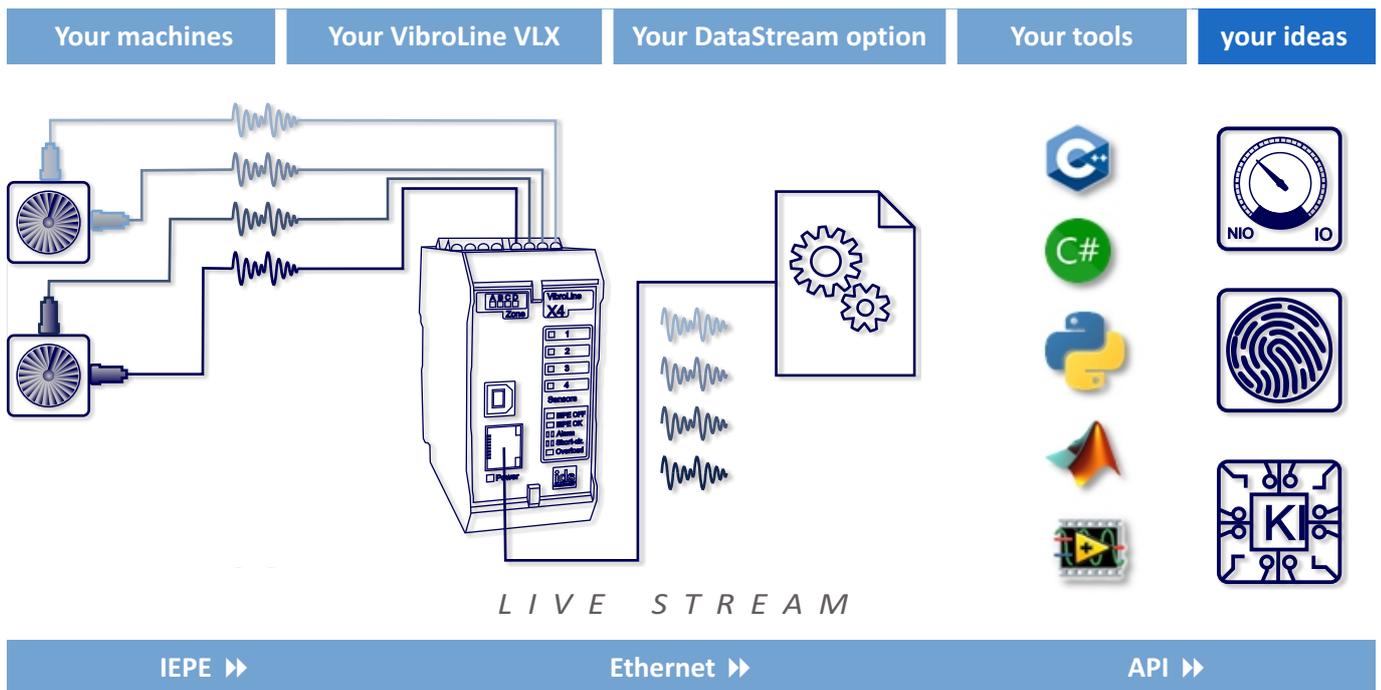
etc., receive the data and process it according to your specifications.

Your added value: whether pattern recognition, depth diagnostics or AI - you just put the vibration signals into your algorithms for data analysis and provide your customers with unique features.

And condition monitoring? Depending on the device load, this also runs in parallel. If the device load is too high, automated alternating operation can be set up using the MultiMode option.

Fact sheet for DataStream

Transfer of the vibration signals	
Parallel to condition monitoring	yes
Sampling rate (adjustable)	32 000 Hz, 48 000 Hz, 96 000 Hz
Transfer of the speeds	
Number of speed signals	0 ... 3
Max. speed (adjustable)	6 ... 180 000 rpm
Interface	
Hardware	Ethernet
Protocol VLX - DLL	TCP / UDP proprietary
Protocol DLL — your application	Detailed documented API
Supported platforms	Windows, Linux, Raspberry Pi (32/64 Bit)



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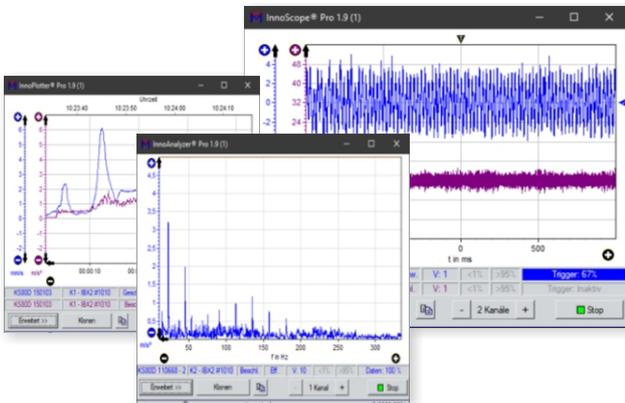
Finding causes for irregular behavior - with data from VibroLine

While the VibroLine Condition Monitoring provides an overview of the condition of your monitored machines and facilities, **the DataInspect** option is designed for in-depth diagnostics.

Perfect extension: DataInspect is used specifically when condition monitoring indicates abnormalities. Or when in-depth diagnostics are needed for R&D. In both cases, the goal is to find the causes of machine behavior.

Optimal data basis: DataInspect is based on high-resolution vibration and speed signals. Therefore, the DataStream option is the basis for it. With the VibroLine Recorder, these signals are recorded and saved in a raw data file.

Professional analysis tools: The raw data file is loaded into our established analysis software VibroMatrix. VibroMatrix offers the replay function to play back the recorded raw data as often as required. They are then visualized by means of specialized software modules and can be evaluated interactively.



The **InnoMeter Pro** module offers you the possibility of displaying characteristic values - as you already know them from condition monitoring - but also of interactively re-parameterizing them.

The **InnoPlotter Pro** shows more: it writes the characteristic values into a measurement curve over time and thus makes fluctuations and recurring processes visible.

The **InnoScope Pro** goes even deeper into the time signal. It visualizes the raw sensor signal, which can be filtered and statistically evaluated in the instrument. You can also play back the signal as a sound in order to be able to perform an acoustic evaluation.

Vibrations in the frequency range, on the other hand, are perfectly shown to you by the **InnoAnalyzer Pro**. You can use the **frequency analysis** to find the relevant vibration frequencies for excessive characteristic values from the condition monitoring. Are they speed multiples, they are perfectly tracked with the integrated **order analysis**. A deeper diagnosis of rolling bearings is offered by the built-in **envelope curve analysis** in interaction with the integrated rolling bearing database.

Natural frequencies and speed ranges to be avoided are detected specifically with the InnoAnalyzer Speed.

Teamwork: the VibroMatrix analysis software is freely downloadable. You can involve as many people as you like in the analysis. Anyone to whom you give your raw data file can contribute to the diagnosis in a profound way. The IDS team is also at your disposal for a vibration diagnosis.

Fact sheet for DataInspect

Interface	
Data transfer per	VibroLine Recorder (included in the installation)
Transmission mode	Data is written to a file (*.ids), no real-time mode
Data type	Raw data, no information loss
Data transmission configuration	
Channelwise transfer	yes, individually adjustable
Speed transfer	yes, individually adjustable
Data evaluation	
Included tools	InnoMeter, InnoPlotter, InnoScope, InnoAnalyzer, InnoAnalyzer Speed (all in Pro variant)
Evaluation with software	VibroMatrix, free download
Data sharing	Raw data files can be freely shared for evaluation

