



## Reliable machine protection

VibroLine is designed for a **continuous and seamless signal processing** of all measuring channels. With a cycle time of 8 ms, the device is particularly suitable for real-time **monitoring of dynamic processes**, such as in CNC machines. In time-critical applications (e.g. collision detection) the system even alarms within 0.7 ms.

The vibration monitoring provides up to **8 measuring channels** in a compact DIN rail housing. In addition to IEPE accelerometers, all sensors with output signal of max.  $\pm 10$  V AC are supported. An extra gain of 25 allows data acquisition from sensors with very low signal magnitudes.

The DAQ resolution of 24 Bit and a wide frequency range of up to 40 kHz provide the key advantage for **early detection of damage**.

An integration into an existing automation environment is achieved by analog/digital interfaces and field buses. As a Plus, VibroLine transmits the high-resolution sensor signals via **streaming**. The streamed raw data can be used for custom **signal analysis** and **AI algorithms**.

Model - Series HD	VLE	VLX
<ul style="list-style-type: none"> <li>Measured values via 4-20 mA</li> <li>Alarms via digital outputs</li> </ul>	✓	✓
<ul style="list-style-type: none"> <li>Measured values / alarms via field bus</li> <li>Modbus RTU/TCP, CANopen, http-API</li> </ul>	-	✓
<ul style="list-style-type: none"> <li>Upgradeable with options</li> <li>DataStream, MultiMode, DataInspect</li> </ul>	-	✓

## Your advantages at a glance

### Reduce costs with time advantage

- Damage is detected at an early stage
- Maintenance becomes predictable and schedulable

### Speed

- Monitoring of dynamic processes
- Crash and collision warning

### Individuality

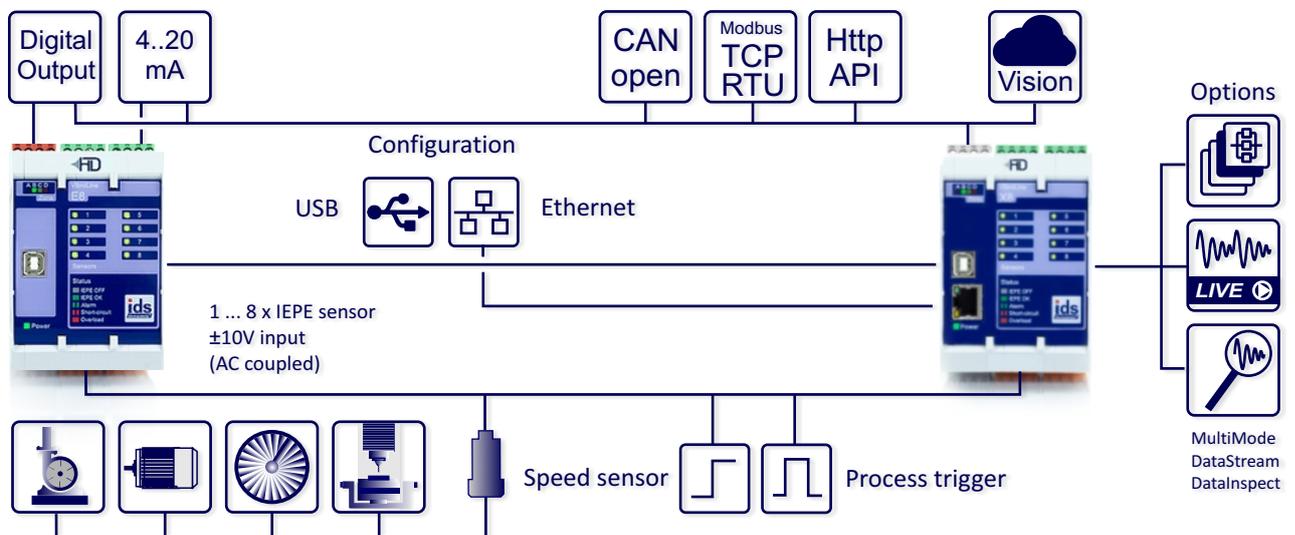
- 2 device series for various technical requirements
- 1, 2, 4, 6, 8 channels for variable no. of measuring points

### Reliability

- Continuous, seamless acquisition of measured signals
- Machine protection through immediate alerting
- Standards: ISO 10816/20816, ISO 14694, ISO 8528-9, VDI 3832, DIN EN IEC 60034-14

### Flexibility

- Flexible connection via standard signals and fieldbus
- Streaming of vibration signals for custom analysis
- Interface to diagnostic systems and quality assurance



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Technical Data	VLE HD 5.0	VLX HD 5.0
<b>Measuring inputs</b>		
Measurement range	±10 V AC, IEPE 6 mA supply selectable per channel	±10 V AC, IEPE 6 mA supply selectable per channel
Number	1,2,4,6,8	1,2,4,6,8
Gains G (switchable per channel)	1, 25	1, 25
Noise (0.1 ... 40 000 Hz), RMS	< 250µV (V1), < 15µV (V25)	< 250µV (V1), < 15µV (V25)
Noise (10 ... 1 000 Hz), RMS	< 60µV (V1), < 5µV (V25)	< 60µV (V1), < 5µV (V25)
Measurement error	<4%	<4%
<b>Digital trigger inputs</b>		
Number	1x speed trigger, 1x process trigger	3x speed trigger, 1x process trigger
Level	0 ... 24 V	0 ... 24 V
Schaltswelle High-Low	0.5 ... 24 V adjustable	0.5 ... 24 V adjustable
Maximal erkannte Drehzahl	180 000 rpm	180 000 rpm
<b>Signal processing (configurable)</b>		
Sampling of sensor signals	24 Bit, 96 000 Hz	24 Bit, 96 000 Hz
Bandpass filter	0,1 ... 40 000 Hz	0,1 ... 40 000 Hz
Order filter	Integral and fractional orders	Integral and fractional orders
Vibration quantities	Acceleration, velocity, displacement	Acceleration, velocity, displacement
Monitored characteristics	RMS, peak, peak-to-peak, 1/K(t), BCC	RMS, peak, peak-to-peak, 1/K(t), BCC
Alarm management	2 alarms and 4 zones per channel	2 alarms and 4 zones per channel
Cycle time	8 ms (0.7 ms for crash detection)	8 ms (0.7 ms for crash detection)
<b>Digital outputs (configurable)</b>		
Output High / Low	24 V, 100 mA / high resistance	24 V, 100 mA / high resistance
Number	3	1
Tripping and hold delay	0.0 ... 60.0 s (adjustable in 0.1 s steps)	0.0 ... 60.0 s (adjustable in 0.1 s steps)
<b>Relais output</b>		
Type / Switching power	Change over, max. 60 V / 2 A	-
Number	1	-
Tripping and hold delay	0.0 ... 60.0 s (adjustable in 0,1 s steps)	-
<b>Outputs for standard signals</b>		
Current loop output (insulated, passive)	4-20 mA	4-20 mA
Number	1, 2, 4, 6, 8	1, 2, 4, 6, 8
<b>LED-Indicators</b>		
per device	1x power and 4x evaluation zones	1x power, 4x evaluation zones, 1x network link and 1x network activity
per channel	IEPE OK, short circuit, open, overload	IEPE OK, short circuit, open, overload
<b>Interfaces</b>		
Configuration	USB	USB, Ethernet
Data protocol / streaming	-	CANopen, Modbus TCP, Modbus RTU, http-API
<b>Operation voltage supply</b>		
Voltage / Current consumption	24 V DC ±20 % / max. 500 mA	24 V DC ±20 % / max. 500 mA
<b>Mechanical data</b>		
Dimensions (W x D x H, in mm)	45 x 114,5 x 99 (1-4 channel) / 67,5 x 114,5 x 99 (6-8 channel)	45 x 114,5 x 99 (1-4 channel) / 67,5 x 114,5 x 99 (6-8 channel)
Weight	250 g (1-4 channel) / 380 g (6-8 channel)	250 g (1-4 channel) / 380 g (6-8 channel)
Mounting	Mounting rail DIN TS35	Mounting rail DIN Tragschiene TS35
<b>Enviromental conditions / standards</b>		
International protection marking	IP20	IP20
Ambient temperature	-20 ... 60 °C / 5..95 % Humidity	-20 ... 60 °C / 5..95 % Humidity