



Condition monitoring systems



Online condition monitoring with fieldbus interface



Systems for vibration monitoring and diagnostics



Fieldbus for data exchange with a PLC

Optimised condition and process monitoring

3 Ethernet ports: for separate office and machine networks

6 channels: 4x dynamic (e.g. acceleration, force), 2x analogue

Large onboard history log with real-time clock



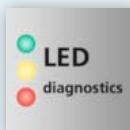
Diagnostics



PROFINET



Laptop parameter setting



LED diagnostics



EtherNet/IP



Modbus

Extensive and customisable condition monitoring

VSE150 is a 6-channel diagnostic system designed to evaluate 4 dynamic signals (e.g. rotational acceleration) and 2 analogue inputs. The new VSE15x family provides different fieldbus interfaces to exchange data with a PLC. This makes it possible to display the measuring values directly on the control system and optimally adapt the monitoring functions to the operating states and processes of the machine. In addition to the fieldbus, 2 fast digital switching outputs (response time ≤ 1 ms) are provided for time-critical alarms.

Reduced network complexity saves time and money

The direct PLC connection via fieldbus allows auxiliary parameters (e.g. rotational speed and triggers for operating states) as well as non-time-critical alarms from condition monitoring to be exchanged over the bus. This not only reduces wiring complexity but also saves the cost of providing the corresponding inputs/outputs on the PLC.



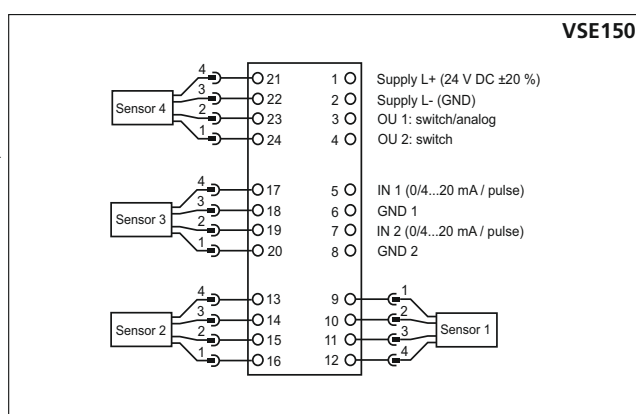
Process-optimised condition monitoring

Machines with varying processes such as machine tools have high demands on condition monitoring systems. To recognise deterioration in quality at an early stage and avoid scrap or even damage, a process-dependent detection of even the smallest change is necessary. This can only be achieved by interlinking the operating parameters (e.g. rotational speed, power consumption, feed rate, tool) and the vibration data – ideally in the PLC. This combination of control and condition monitoring data enables process-dependent monitoring, leading to a considerable increase in quality and process reliability. The same applies to diagnosis (rolling-element bearing condition, ball screw, unbalance), where, in many cases, a high degree of diagnostic validity can only be achieved by combining the vibration monitoring data with the machine/process parameters of the PLC. Influencing process factors must be minimised and the measured data evaluated systematically. Here, too, integrating condition monitoring with the PLC is an enormous advantage and a direct fieldbus connection provides the optimal solution.


Rapid response protects machinery

If machine protection (e.g. crash monitoring) is part of the monitoring concept of a machine, a fast response is critical to minimise potential damage. Here, reaction speed is everything. For time-critical alarms, the diagnostic electronics provides two additional digital outputs. The response time of the diagnostic electronics from the time the event occurs until the switching output reacts is 1 ms. This signal can be used to initiate an immediate machine stop to protect man and machine and minimise or even completely avoid consequential damage.

Wiring diagram






Products

Type	Description	Order no.
	Profinet IO Device Klasse C	VSE150
	Ethernet/IP	VSE151*
	Modbus TCP	VSE153*

*available as from February 2018

Technical data		
Operating voltage	[V DC]	24, ± 20 % IEPE input 24, + 20 %
Protection rating, protection class		IP 20, III
Inputs/outputs		4 inputs dynamic, can be configured individually: 0...10 mA AC, IEPE or 0/4...20 mA DC 2 inputs static, electrically isolated: 0/4...20 mA DC or pulse (HTL) 2 digital alarm outputs (PNP 100 mA) or 1 digital output and 1 analogue output 0/4...20/22 mA
Dynamic input		16-bit resolution Frequency range 0...12,000 Hz max. sampling rate 100 kSamples/s
History memory		integrated ring memory (FIFO) with battery buffered real time clock, approx. 880,000 data sets
Ambient temperature	[°C]	0...60

Accessories

Type	Description	Order no.
	Parameter setting software	VES004
	Jumper cable Ethernet, cross-over patch cable 2 m, PVC cable, RJ45 connector / RJ45 connector	EC2080
	Jumper cable Ethernet, cross-over patch cable 5 m, PVC cable, RJ45 connector / RJ45 connector	E30112