



Condition monitoring systems

x, y and z axis: the sensor detects acceleration in three dimensions



Systems for vibration monitoring
and diagnostics



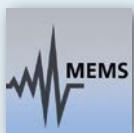
**Optimum condition analysis
thanks to acceleration
measurement in 3 axes**

**For connection to VSE
diagnostic electronics**

**Universal use thanks to IEPE
standard**

**Wide measuring range for
many different application
scenarios**

**Robust housings with IP 67,
IP 68 and IP 69K**



For efficient vibration diagnostics

The VSM type acceleration sensors can detect changes in vibration on the x, y and z axis. This spatial perception simplifies machine condition monitoring where forces and unbalances not only affect just one axis of motion, as is the case with motors and moving parts of the installation.




Important indicator of condition monitoring

The acceleration signal plays an important role in machine and plant condition monitoring. It is an indicator of various symptoms, such as unbalance, damaged bearings or crashes that may lead to machine failure or even irreparable damage.

The detected raw data is transferred for further evaluation to an external device, such as the VSE diagnostic electronics from ifm.



Products

Type	Description	Order no.
	Connection cable 3 m	VSM101
	Connection cable 0,3 m, M12 connector	VSM103
	Connection cable 10 m	VSM104

Common technical data

Operating voltage	[V DC]	13...15
Operating current	[mA]	4...6
Measurement axes		3
Measuring sensitivity	[mV/g]	100
Measuring range	[g]	± 40
Frequency range	[Hz]	0...4500
Ambient temperature	[°C]	-30...85
Protection rating		IP 67, IP 68, IP 69K
Housing material		stainless steel









Robust: MEMS measuring principle

The acceleration sensors are based on a MEMS chip (capacitive measuring principle) and designed for demanding industrial applications. Thanks to MEMS technology, the sensor's proper functioning can be checked actively via the diagnostic electronics (self-test).

Widely compatible: IEPE standard

The sensor transmits its data according to the IEPE signal, which is a standard on the market, e.g. for acceleration sensors. The advantage of IEPE devices is a constantly high sensitivity irrespective of the type of the connection cable or its length.

Accessories

Type	Description	Order no.
Diagnostic electronics for acceleration sensor type VSM		
	Communication interface: Ethernet, Protocol: TCP/IP, History memory with real-time clock, Counter function	VSE003
	Communication interface: Ethernet, Protocol: TCP/IP, History memory with real-time clock, Counter function	VSE101
	Communication interface: Ethernet, Protocol: PROFINET IO, Real-time clock	VSE150
	Communication interface: Ethernet, Protocol: EtherNet/IP, Real-time clock	VSE151
	Communication interface: Ethernet, Protocol: EtherCAT, Real-time clock	VSE152
	Communication interface: Ethernet, Protocol: Modbus TCP, Real-time clock	VSE153
Installation		
	Fixing magnet for straight and curved surfaces, M5 internal thread	E30491
	Adhesive adapter for acceleration and vibration sensors, M5 internal thread, stainless steel (303 / 1.4305)	E30475



Condition monitoring systems

Simply good, doubly effective: sensor measures acceleration on two axes



Systems for vibration monitoring and diagnostics



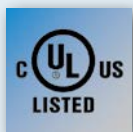
Optimum condition analysis thanks to acceleration measurement in 2 axes of motion

For connection to VSE diagnostic electronics

Universal use thanks to IEPE standard

Wide measuring range for many different application scenarios

Robust IP 67 design




For efficient vibration diagnostics

The VSM102 acceleration sensor is capable of detecting radial and axial vibration changes. This makes it easier, for example, to monitor the condition of angular contact ball bearings or extruders, as well as other systems where forces and unbalances act on more than just one axis of motion.

Important indicator of condition monitoring

The acceleration signal plays an important role in machine and plant condition monitoring. It indicates symptoms, such as unbalance, bearing damage or a crash, which, if they go unnoticed, can lead to machine failure, at an early stage. The detected raw data is transferred for further evaluation to an external device, such as the VSE diagnostic electronics from ifm.



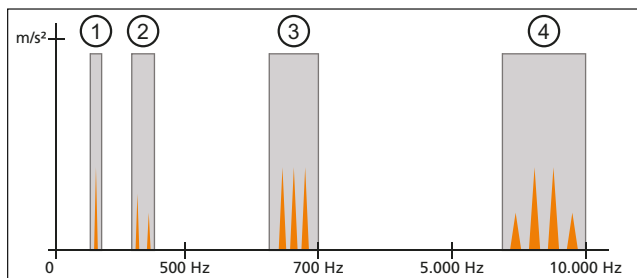
Type	Description	Order no.
	0.6 m connection cable with M12 connector	VSM102

Robust: MEMS measuring principle

The VSM102 acceleration sensor is based on a MEMS chip (capacitive measuring principle) and designed for demanding industrial applications. Thanks to MEMS technology, the sensor's proper functioning can be checked actively via the diagnostic electronics (self-test).

Widely compatible: IEPE standard




The sensor transmits its data according to the IEPE signal, which is an established standard, e.g. for acceleration sensors. The advantage of IEPE devices is their consistently high sensitivity – regardless of the type and length of the connection cable.




- 1) Unbalance
- 2) Alignment error, loose footing
- 3) Rolling element bearing
- 4) Cavitation


Further technical data		
Operating voltage	[V DC]	10...15
Operating current	[mA]	4...10
Measuring sensitivity	[mV/g]	100
Measuring range	[g]	-40...40
Frequency range	[Hz]	1...4500
Number of measurement axes		2
Ambient temperature	[°C]	-30...85
Protection rating		IP 67
Housing material		stainless steel (316L / 1.4404)

Accessories

Type	Description	Order no.
Diagnostic electronics for vibration sensors		
	Communication interface: Ethernet, protocol: TCP/IP Real-time clock	VSE003
	Communication interface: Ethernet, protocol: TCP/IP Real-time clock	VSE101
	Communication interface: Ethernet, protocol: PROFINET IO Real-time clock	VSE150

Installation		
	Mounting adapter M16 and 1/4"	E30494

Connection technology

Type	Description	Order no.
M12 connection cable		
	2 m, black, PUR cable	EVC538
	5 m, black, PUR cable	EVC539
	10 m, black, PUR cable	EVC540



Configurable signal lamps



Signalling and display systems



Perfect visibility

Modern LED RGB technology – long life, reduced stock-keeping

Different modes configurable via IO-Link or setting menu

Also as standard version with digital inputs

Easy installation



High performance

Signal lamps are used for status indication or as warning device everywhere in factories on machines, conveyors and installations. ifm's innovative signal lamps offer several advantages over conventional signal lamps and are therefore suitable for demanding applications.


Flexible configuration

In general signal lamps must be adapted to the application. Instead of spending time and effort on screwing modules of different colours together, the new LED RGB technology makes it possible to adjust the signal lamp as needed via IO-Link or setting button (e.g. permanently on, low flash rate, high flash rate, different colours, siren). This reduces type variety and stock-keeping.



Type	Communication	Items supplied	Protection rating	Order no.	
				3 segments	5 segments

Signal lamps · M12 connectors

	Digital inputs / IO-Link	Mounting base	IP 65	DV1300	DV1500
	Digital inputs / IO-Link	Mounting base and siren	IP 54	DV1310	DV1510
	Digital inputs / IO-Link	–	IP 65	DV1320	DV1520
	Digital inputs / IO-Link	Siren	IP 54	DV1330	DV1530
	IO-Link	Mounting base	IP 65	DV2300	DV2500
	IO-Link	Mounting base and siren	IP 54	DV2310	DV2510
	IO-Link	–	IP 65	DV2320	DV2520
	IO-Link	Siren	IP 54	DV2330	DV2530

Versions

The signal lamps DV13xx / DV15xx have digital inputs and can be configured by means of a setting button on the device. The signal lamps DV23xx / DV25xx can be controlled and set via IO-Link without a setting button.

For demanding environments

Neither water nor dust stick to the smooth surface of the lamp body. This prevents dirt from sticking, ensuring visibility of the signal lamp in the long run.

No metallic components such as screws or connectors are exposed. This means that the lamps are particularly suited for use in the food industry and in the medical, pharmaceutical or chemical sector.

Optimum visibility

The patented technology creates a strong contrast between the light spot of the LED and the environment. This ensures optimum visibility, in particular in the event of extraneous light, for example in the vicinity of large windows.

Long life

The use of LED technology means the signal lamp has a very long life.

Adaptable

The LED RGB technology allows the signal lamp to be individualised (permanently on, low flash rate, high flash rate, different colours). This reduces type variety and stock-keeping.

The lamp can be put into different operating modes, e.g. analogue mode for level indication. 7 different signal sounds can be set for the siren.




Easy installation

A fixture is supplied with the device. In addition, a version with a mounting base is available which allows raised installation. This mounting base can be rotated by 90 degrees so that wall mounting is possible without further accessories. Moreover, accessories for pole mounting are available.



Common technical data

Operating voltage	[V DC]	18...30
Current consumption	[mA]	< 200
Ambient temperature	[°C]	-25...50
Light technology		RGB
Number of segments		3 / 5
MTTF in hours		660,000
Housing materials		ABS, PC

Accessories

Type	Description	Order no.
	Basic fixture	E89060
	Wall fixture	E89061
	Spacer pole 100 mm	E89065
	Spacer pole 300 mm	E89066
	Spacer pole 800 mm	E89067

Connection technology

Type	Description	Order no.
	Socket, M12, 8 poles, 2 m black, PUR cable	E11950
	Socket, M12, 8 poles, 5 m black, PUR cable	E11807
	Socket, M12, 8 poles, 10 m black, PUR cable	E11311
	Socket, M12, 8 poles, 15 m black, PUR cable	E11856
	Jumper M12 / M12, 1 m black, PUR cable	E12572

We reserve the right to make technical alterations without prior notice. · 11.2021