

The Off-the-shelf,
Customized Monitoring System

SIMS Compact monitor

Coordinated Solutions for your Applications

Continuous and high productivity require security: Unlimited machine availability is the primary factor to guarantee a trouble-free production process and predictable productivity.

We at Brüel & Kjær Vibro provide this security. For many years we have provided the methods our customers use to prevent unscheduled shutdowns. Using our vast experience a new and innovative system solution – the SIMS Compact monitor – has been developed. With this exciting development we enter a new age in vibration measurement and machine condition monitoring.

SIMS stands for **Smart Integrated Monitoring System** and is the supreme concept for a new generation of measuring and diagnosis systems. "Smart" fits your understanding of the concept. Because all SIMS instruments are conceived to adapt easily and exactly to any special requirements in your production plant.



Off-the-shelf with customized features

Every production plant is different; each one makes special demands on a monitoring system. The SIMS Compact monitor is the first monitoring system conceived especially for this. Each instrument can be individually configured for your requirements – with all the functions you need. And the off-the-shelf design is the principle to fulfil all your specific tasks.



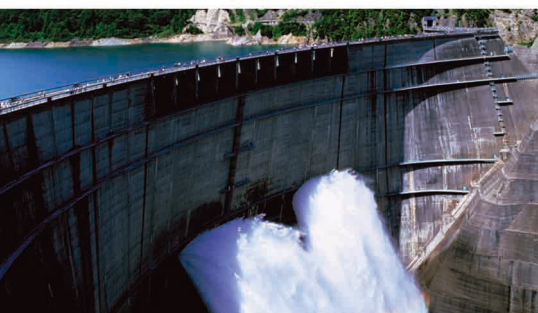
Dependable machine protection in any size package

The SIMS Compact monitor monitors your machines during operation and protects them from breakdown and the consequential costs. The SIMS Compact monitor can fulfil this task in two ways: as a stand-alone, independent, compact system for individual machines, or a plant-wide monitoring concept with PC interface.



Many instruments rolled into one

Many machines in production processes are extremely complex and place corresponding demands for reliable monitoring. In the past it was often necessary to use a number of different instruments. Now only one is necessary: The SIMS Compact monitor. Through the unique building-block principle most known monitoring tasks can be tackled. Whether you need bearing vibration and shaft vibration according to standards, or monitoring of axial position, temperature and speed, – the SIMS Compact monitor is up to the task.



Compact and rugged

The SIMS Compact monitor is as compact as it is multi-functional and can be used almost anywhere. For example mounted on a rail in a cabinet, or optionally in a protective housing directly on the machine casing. In addition the SIMS Compact monitor is ruggedly constructed for use any time in rough industrial conditions.



Dependable for the highest demands

The SIMS Compact monitor fulfils with extreme reliability all the most stringent requirements that can be demanded of an industrial-standard measuring and monitoring electronic system. The innovative OK monitoring takes care of the reliability of all sensor signals, while the "hot-swap" capability allows you to exchange hardware while the system is switched on. The comprehensive self-monitoring of all system functions and an optional redundant power supply guarantee even more system security. And selectable options like measurement types, integration of control and process parameters as well as voting logic provide you with authoritative measured data.



Scalable and extendable

The SIMS Compact monitor offers you a cost-effective start as a compact system for a single machine. You can extend this any time to a complete solution for your entire plant, e.g. through supplementary monitoring channels, implementation of a PC connection with process visualization, data exchange with a control system via OPC, etc.

Your Advantages in Machine Protection and Analysis th

Modular, multi-faceted, extendable

The SIMS Compact monitor is conceived to guarantee maximum flexibility together with high dependability. In real terms this means the monitoring instrument can be adapted by its configuration to the task. If the requirement changes, this simply needs a change in the configuration and the SIMS Compact monitor takes on the additional or new task.



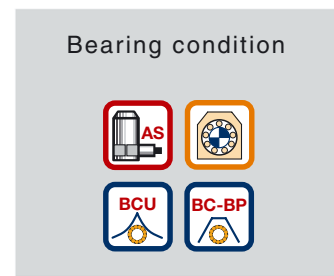
SIMS Compact monitor is not only available in a series of ready-made, task-specific, standard solutions. We configure also individually, i.e. you receive the system with exactly the combination of measuring and monitoring tasks you asked for.

Sm@rt Technology

With Sm@rt technology the SIMS Compact monitor sets new standards for monitoring operating machines. Intelligent yet simple characteristic values are used to independently identify and take into consideration the operating mode of the machine. This reduces costly false alarms and increases the security. Without requiring any additional accessories damage symptoms are signalled to provide the maintenance personnel with on-site support.

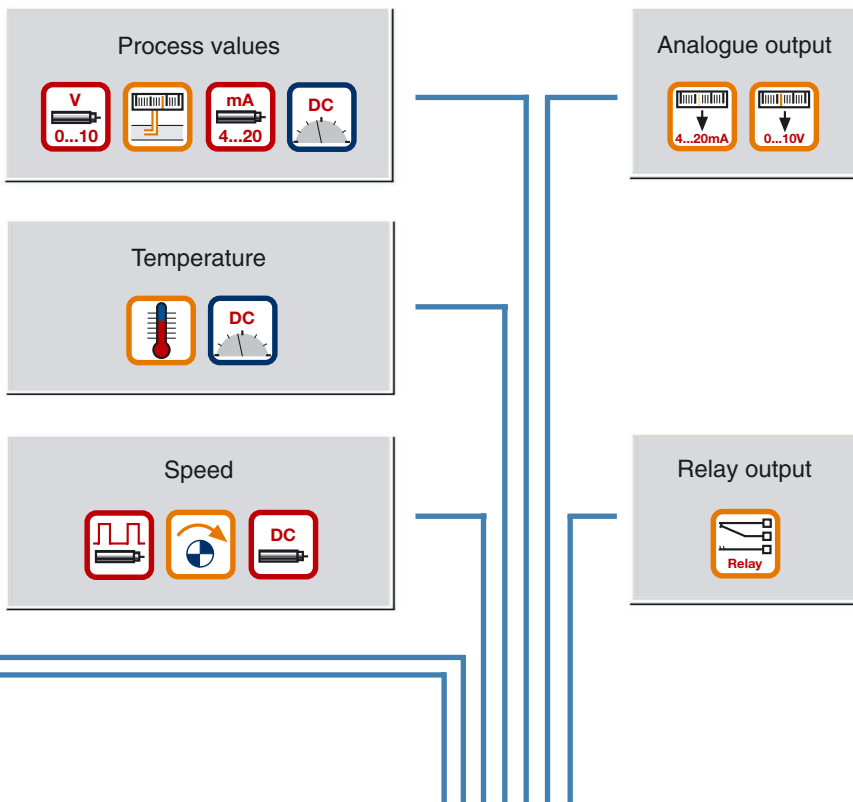
Control via PC

Each individual instrument and also a complete SIMS Compact monitor network can be connected to the XMS software*. The advantage: all measurements and alarms can be visualized on a PC monitor. Various measurement types can be displayed in parallel, allowing the analysis of machine condition and measured data to be continuously displayed on the screen.



*see our XMS brochure (BBF 0010-EN-11)

through the Smart Integrated Monitoring System

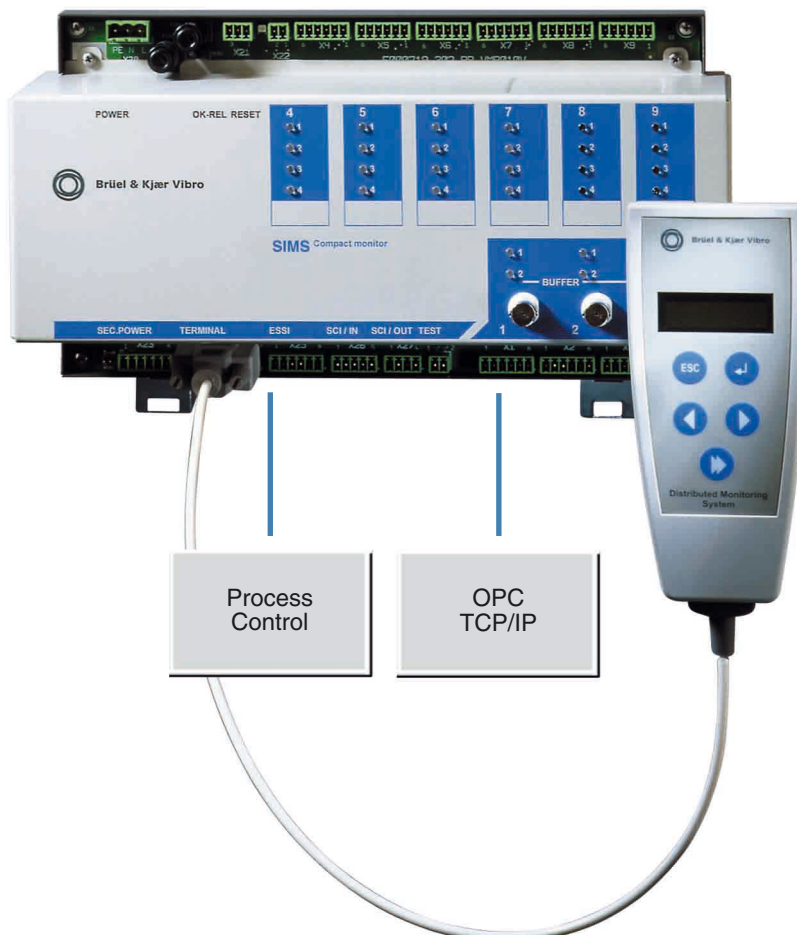


Combined with Off-line monitoring

Together with the VIBROTEST 60 data-collector, the SIMS Compact monitor offers an ideal combination for the most comprehensive maintenance of your machines. Because both instruments are coordinated with one another and optimally complement each others utilization.

Integration into existing control systems

Integration into your process control system in an existing maintenance system without an additional accessory is another powerful feature of the SIMS Compact monitor. The standard OPC interface takes care of this integration.



User Terminal

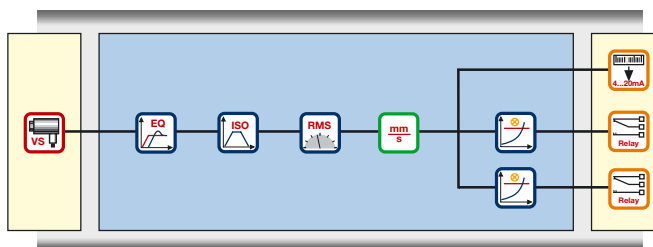
Some examples: A selection of complete solutions

For monitoring your plant, we offer in the SIMS Compact monitor a large selection of pre-configured versions. You can directly initiate typical tasks for machine protection and maintenance.

However, the SIMS Compact monitor can fulfil many more requirements than illustrated here. The combination of options for further measuring and monitoring tasks is almost unlimited. Thus, you can confidently use the instrument in virtually all applications.

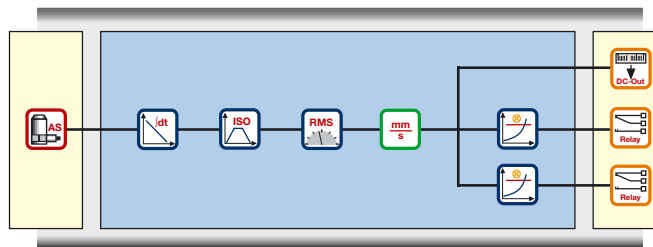
You can find a comprehensive description of the configuration options in the "SIMS Compact monitor Technical Specifications" brochure. For special needs our colleagues are always available with experience and whatever it takes to advise you.

1
Classic monitoring with a vibration velocity sensor
CV-114



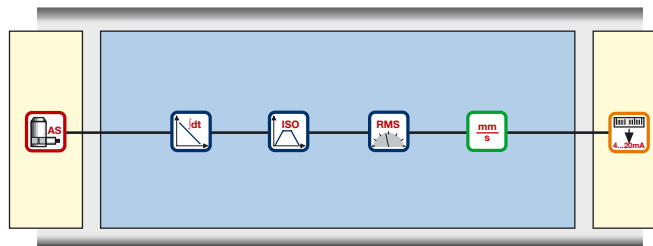
With the classic monitoring task, the signal from a vibration velocity sensor is monitored for the RMS value. Two potential-free relay contacts and an analogue output tell you the current condition.

2
Vibration monitoring with a vibration acceleration sensor
CV-112



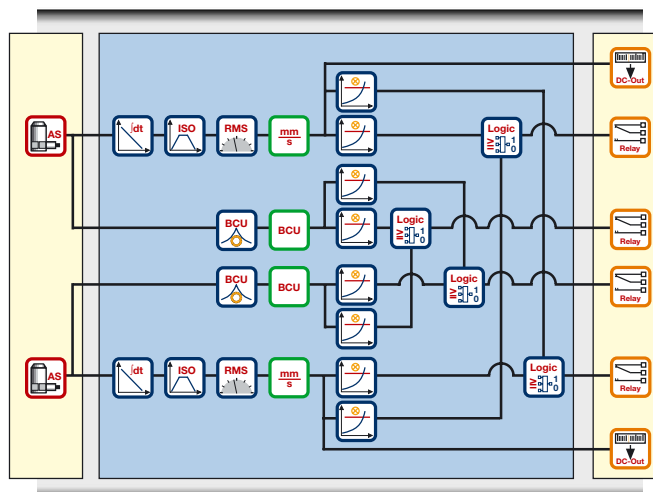
For standardized monitoring of a machine according to DIN ISO 10816, any desired acceleration sensor can be used. Two potential-free contacts and an analogue output are also available in this case.

3
Vibration measurement with output to peripheral equipment
CV-101



If the vibration values are only required, for example, as an RMS value to be fed to a control or process system, the assessed value according to DIN ISO 10816 is available as an analogue output.

4
Monitoring rolling-element bearing condition and housing vibration
BC-112



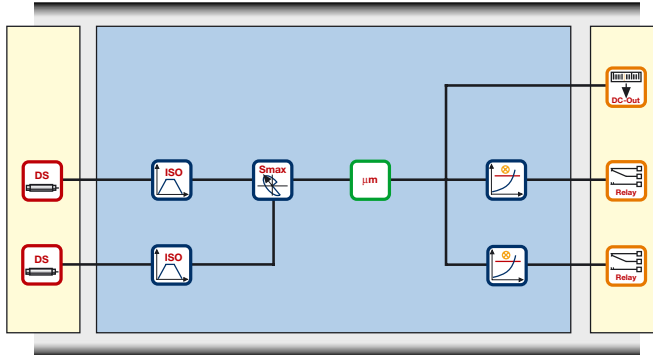
When rolling-element bearing condition is to be monitored in addition to the standardized RMS value, the BCU rolling-element bearing condition value can also be determined. The built-in voting logic provides certain identification of any changes. With simultaneous monitoring of two bearings, two potential-free contacts for alarming and two analogue outputs for each bearing are also available for peripheral equipment.

Talk to us and ask about further monitoring solutions: The possibilities are vast

5

Monitoring relative shaft vibration

RV-117

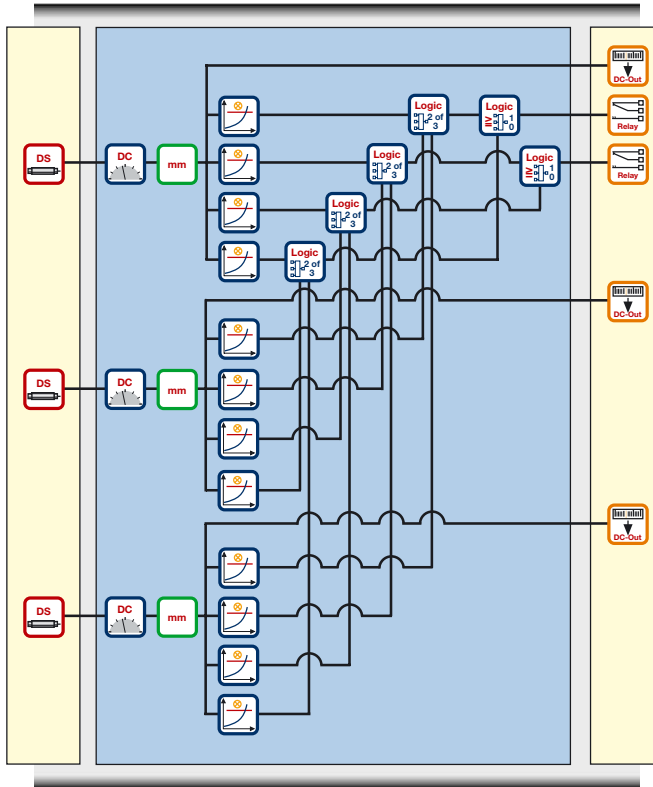


For monitoring journal-bearing machines according to DIN ISO 7919, the maximum excursion as an Smax signal is determined from signals of two eddy-current displacement sensors. Two relay contacts and an analogue output are available for alert and danger alarm signalling and signal output to peripheral equipment.

6

Monitoring axial position with 2-of-3 voting logic

AP-327



Axial position of a shaft is monitored with this standard solution. Monitoring with 3 eddy-current displacement sensors provides 2x redundancy. The value from each measurement point is compared with alert and danger limits and output through a 2-of-3 voting logic. This provides reliable monitoring of the axial shaft position of a machine.

Various settings are possible with all the systems to allow you to exactly configure the SIMS Compact monitor to your own monitoring requirements. For this purpose a User Terminal can be connected to adapt the filters, latching relay mode, time delays, limit values, etc.

Explanations

Inputs

3 sockets for input modules; up to 6 channels for measurement and monitoring purposes; max. 3 channels for vibration sensors



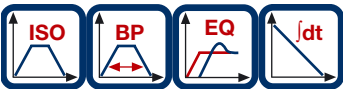
Input modules for sensors

For acquiring signals from vibration velocity, acceleration, displacement sensors, as well speed, process value or other user-defined sensors

Sensor power resp. sensor-specific, e.g. CCS (constant-current) or -24 V

OK monitoring of inputs for cable damage and signal saturation

Signal processing



Measurement types (some under preparation) RMS, Peak value, DC value (GAP, temperature, process value, etc.) Bearing condition, (BCU, BP) speed and Smax

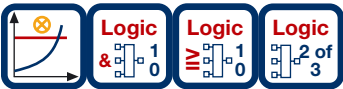


Signal conditioning

DIN ISO filtering (10 Hz – 1 kHz) or variable bandpass; as desired with linearization or signal integration

Measurement ranges freely adjustable

Simultaneous multi-assessment of input signals possible, e.g. vibration severity according to DIN ISO 10816 and rolling-element bearing condition



Monitoring

Limit values and alarm delays randomly adjustable; Trip-multiplier function; optional voting logic (e.g. 2-of-3); 5 ms maximum reaction time (plus measuring time)

Outputs and signalling

6 sockets for output modules



Analogue DC output

Current (0/4 ... 20 mA) and voltage (0 ... 10 V), freely scalable, up to 12 DC outputs (also with freely adjustable output curve) possible



Alarm relays

Freely selectable switching; up to 12 alarm relays possible

OK relay

Central relay in normally energized mode for self-monitoring

Display of operational status by LEDs according to DIN 19235; alarm status, OK status and power supply

Accessories

User Terminal

Display with keypad for local display and on-site configuration

Protective housing

Stainless-steel in protection class IP65/67 for rough industrial conditions

Digital interfaces

Data exchange with OPC-capable server Client (RS-232, 422, 485 and TCP / IP) SCI system interface for configuration and service

Power supply

Selectable AC voltage (85 - 264 V, 50/60 Hz) or DC voltage (18 - 75 V); redundant power supply provided for

Physical data

Mechanical characteristics

Metal housing in protection class IP20 for mounting on a 35 mm rail

Ambient conditions

Operating temperature: -30° C ... +70° C (ambient temperature)
Storage temperature: -40° C ... +85° C
Humidity: max. 95%, non-condensing

Dimensions

311 x 170 x 113 mm (width x height x depth)

Weight

Approx. 2.3 kg, without protective housing

General signal-flow chart structure



The key to its success lies within the SIMS Compact monitor. The processing of the signal, described by the signal-flow chart, makes the SIMS Compact monitor the standard solution for your tasks.



Input

Connection of signal sources
(e.g. sensors)

Signal process corresponding to your task formulation

Filtering to desired frequency range;
determination of the measured value;
assessment of the measurement through
limit comparison

Output

Preparation of
binary signals and
analogue signals for
output



Regardless whether you're dealing with a well-proven standard solution or your special application, with the modular construction and task-oriented signal processing you're always on the right path with a SIMS Compact monitor.

Brüel & Kjær Vibro A/S
Linde Allé 5A
2850 Nærum
Denmark
Tel.: +45 45 80 05 00
Fax: +45 45 80 29 37
E-Mail: info@bkvibro.com
Internet: www.bkvibro.com

Brüel & Kjær Vibro GmbH
Leydheckerstraße 10
64293 Darmstadt
Germany
Tel.: +49 (0) 6151 428 11 00
Fax: +49 (0) 6151 428 12 00
E-Mail: info@bkvibro.de
Internet: www.bkvibro.com

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