SMART DIGITAL SENSORS

CONDITION MONITORING – CUSTOM SOLUTIONS

MULTIFUNCTIONAL INTELLIGENT SENSOR

Efficiency, quality, robustness and data analysis method according to customer requirements – these are the advantages of our smart sensors and efficient analysis algorithms

▷ Thereby our solutions are particularly suitable for vibration and tilt monitoring in civil engineering structures, laboratories, equipment and machinery as well as ideal for integration into existing industrial systems.

SMART INTELLIGENT SENSORS

DIGITAL ACCELERATION & INCLINATION SENSOR

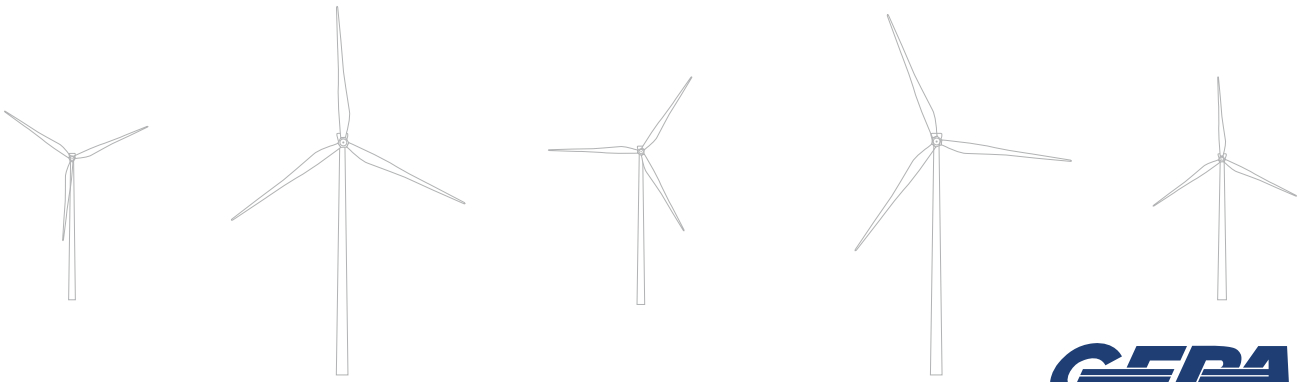
▷ "3D ACC" MULTIFUNCTIONAL INTELLIGENT SENSOR

The multifunctional digital sensor "3D ACC" is an economical alternative to traditional force-balanced accelerometer. The proprietary noise reduction algorithm integrated in the sensor allows the use for various applications in condition-based maintenance especially at low frequency on structures and machinery.
Using the integrated 360° 3-axis inclinometer, tilt monitoring with simultaneous vibration monitoring is now easier than ever before.

The sensor can easily be adapted to customer-specific needs, including online – GSM connectivity data management with live visualization alertings via SMS and threshold monitoring for M2M applications.
The "3D ACC" can be attached to "MOM 485" dataloggers or to the "MOM RS485i" USB interface using up to 1200 m RS485 cable.

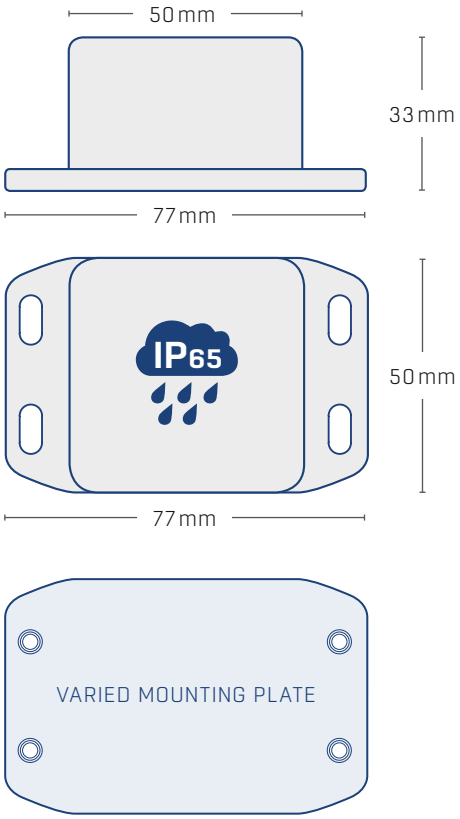
Using our free datalogging software, the sensor data can be recorded as standard CSV format.

☑ follows VDI 3834 low-frequency monitoring of Wind Turbines (S-H-M)



3D ACC

SMART INTELLIGENT SENSOR



▷ "3D ACC" SENSOR FEATURES

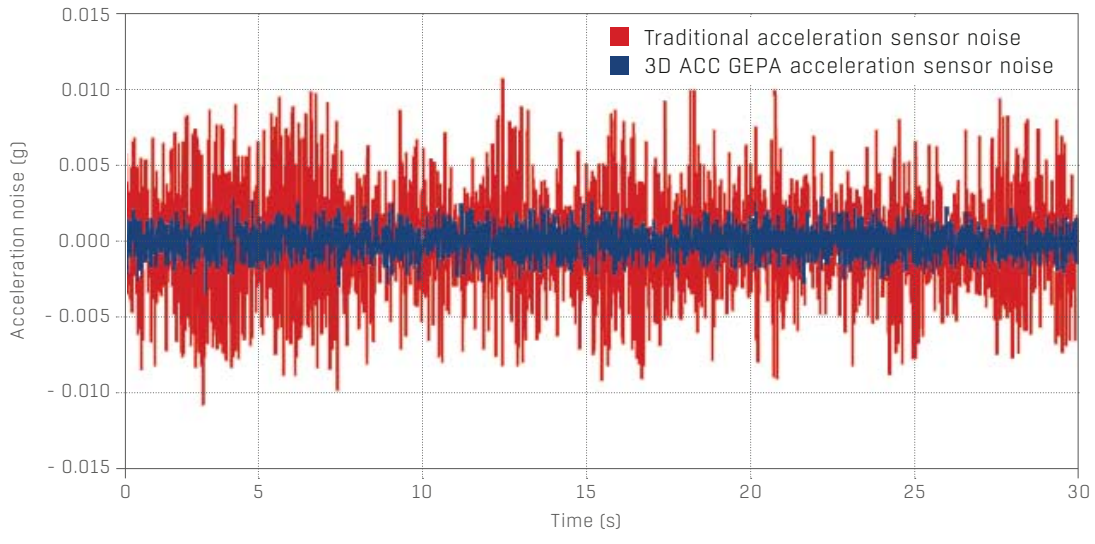
- 3-axis acceleration sensor – 16-bit resolution
- 360° 3-axis inclination sensor with 0.000001° resolution
- extended temperature range -20°C to + 60 °C
- Low noise – ca. 0.87 mg RMS typ. @ 100 Hz ODR
- Down to 0.02 mg resolution
- Capable of < 0.1 Hz frequency response
- Up to 17.5 bits resolution in high-resolution mode
- 10.000 g (typ) shock survival
- Wide supply voltage range: 3.8 V – 15.0 V
- +/- 2 g to +/- 16 g nominal full-scale range
- RS485 interface Binary or ASCII protocol
- Low-profile PCB can be integrated into custom product
- Customer-specific firmware available
- Standard M12 sensor connector with up to 1200 m of cable
- Free & open-source datalogging software available
- IP65 flange aluminium enclosure

☑ follows VDI 3834 low-frequency monitoring Wind Turbines

▷ "3D ACC" VARIED MOUNTING PLATE

- magnetic plate
- adhensive plate
- welding plate

"3D ACC" PROSPECTIVE NOISE FILTER ~ 0.87 mg RMS typ. @100Hz ODR



DATALOGGER & CONVERTER

COMPREHENSIVE DATA PROCESSING

▷ "MOM CUBE 485" DATALOGGER

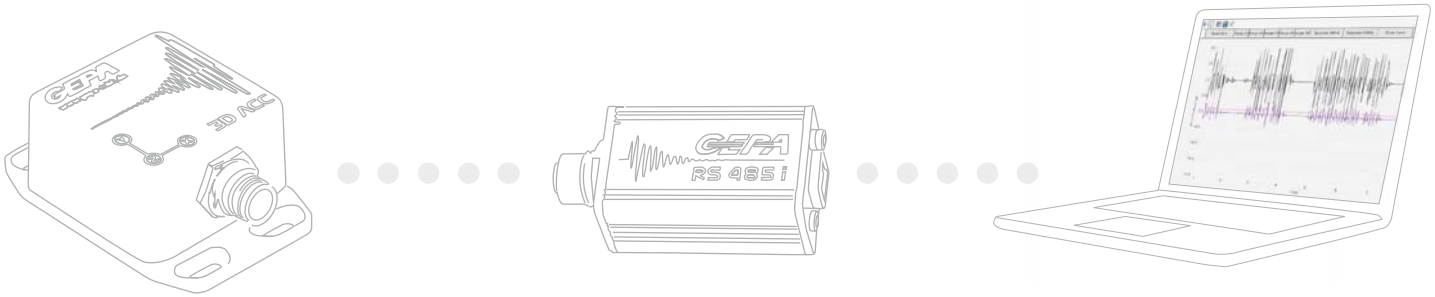
- 6 independent RS485 channels (up to 10.5 Mbit/s)
- Low power consumption
- USB, Ethernet & SD card connectivity
- Online condition monitoring
- Autonomous datalogging to SD card & external server
- Realtime threshold processing
- Webinterface with live visualization & status monitoring
- Up to 64 GiB microSDHC storage
- Specialized filesystem prevents data loss in case of powerdown
- Firmware customization available

▷ "RS485I" USB CONVERTER

- High-performance high-speed USB to RS485 adapter
- Up to 6 MBit/s symbol rate
- Low power consumption
- Intelligent, customizable firmware:
- Format conversion
- Intelligent flow control
- Threshold monitoring
- Plug & Play functionality with GEPA MOM sensors
- Multiple adapters are identifyable via individual serial numbers
- Free software available
- Sensor reset functionality
- Up to 1200 m cable length

The "RS485i" to USB converter provides a flexible solution to acquire data from GEPA mbh Sensors and other RS485-enabled sensors, featuring free software for visualization, logging and sensor parameterization.
Due to the intelligent interface, direct logging to USB sticks and hard drives is possible using the innovative one-click installation-free datalogging solution.

<Visualization, logging or parametrization of "3D ACC" Sensors by "RS485i" converter on your laptop>

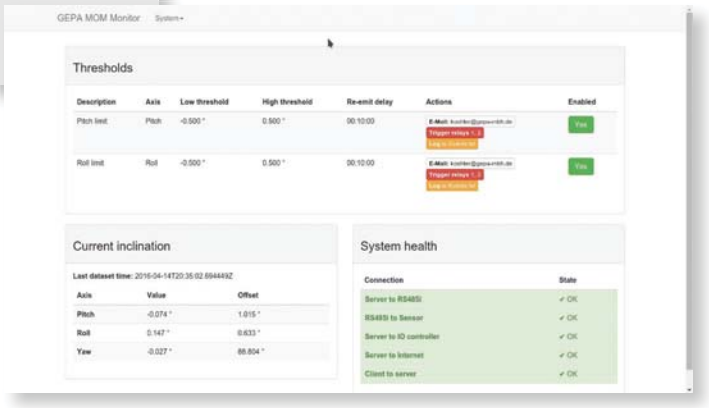


SOFTWARE & ALGORITHMS

REAL-TIME DATA ANALYSIS AND FFT

◁ **LIVE DATA VISUALISATION**

- live acceleration 1-3 aches
- live Inclination up to 0,0001°
- FFT (Fast Fourier transformation)



ONLINE INCLINATION MONITORING ▷

- Inclination & limit in real time
- self system health monitoring
- multiple alert process

MEMSENSORS REALTIME VIBRATION & TILT MONITORING SOFTWARE

Our monitoring software connects to our sensors via a RS485i/USB interface and provides true plug & play user experience by automatic configuration for any MEMSENSORS products.

By providing simultaneous datalogging and realtime visualization of both time-series and frequency components, system vibrations can be monitored during the measurement while the raw data is still available for long-term data analysis.

For "3D ACC" sensors the 3-axis inclination can also be visualized and parameterized simultaneously.

Our software also provides components for realtime threshold processing and online system monitoring, including live system health diagnostics and flexible events when any thresholds are exceeded:

- Sending one or multiple E-Mails
- Sending SMS
- Send the event to an external webservice
- Trigger an external relay, e.g. for a siren or warning light
- Log the event to a file

▷ As our software features a innovate one-click datalogging approach, even inexperienced user can use it to record acceleration and inclination data for further analysis. MEMSENSORS also offers software customization and integration in any 3rd party product.

THE COMPANY

TRADITION AND INNOVATION

The company GEPA mbH is a service provider for the industry for over 45 years successfully operating in the engineering and in the development of complete solutions for process automation and instrumentation. Well-known companies like Airbus, BMW, EADS, Siemens and many more are our satisfied customers for a long time.

GEPA-mbH, now run in its second generation, focuses on innovative solutions for industry 4.0. This entails the custom development of intelligent sensors, online measuring systems and individual ITC solutions for the M2M field.

When developing individual solutions for our clients, we focus on:

- high quality, cost-effective and functional solutions
- connecting systems and digitalisation of processes (IoT, M2M-communication)
- early application of our systems under real-life conditions
- short development periods
- maximum user friendliness
- appealing and practical product design
- flexible system architecture
- a comprehensive service for our customers

Our products and services represent reliability, quality and consistency.

WE APPRECIATE YOUR INTEREST IN OUR PRODUCTS

GEPA mbH
Postfach 400707
80707 München
Telefon +49 (0)89 63859870
Mobil +49 (0)177 6396388
krueger@gepa-mbh.de
www.gepa-mbh.de