PRESS RELEASE

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For Immediate Use

Machine health: Bosch Rexroth offers an easy way to analyze vibrations

Rexroth latest sensor solution IVAS lays smart foundations for achieving increased machine availability with efficient vibration analyses.

- Edge analytics: root mean squares of vibrations that are easy to read via CAN bus
- Complete stack for end-to-end solutions for condition monitoring
- Flexible connection to various different cloud front ends
- Highly sensitive measurement of structure-borne noise with extra-wide frequency spectrum

Efficient module for achieving increased vehicle and machine availability: the smart sensor package IVAS, by Bosch Reroth, combines modern sensor technology and edge processing to form an intelligent vibration analysis solution. (Image source: Bosch Rexroth AG)

Bosch Rexroth's compact sensor package delivers valuable live information to help ensure increased machine availability in off-highway applications as well as in agricultural facilities and industrial plants. IVAS uses modern sensor technology and edge analytics to work out the relevant structure-borne noise properties of rotating components for further analysis in control units, master computers or the cloud.

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In accordance with the smart data principle, only relevant properties are transmitted to a cloud solution. Reroth's IVAS can be seamlessly connected to various different front ends via a connectivity control unit and corresponding software in order to monitor machine health. As part of such an overall solution, anomalies are made visible and further trend analyses provide an opportunity, for example, to optimize maintenance processes and the handling of spare parts.

As part of the integrated analysis functions, the automatic frequency analysis eliminates a major hurdle that would otherwise hinder measurements of structure-borne noise from being carried out. Because IVAS writes the root mean squares of the vibrations in the form of a message that is easy to read on the CAN bus, technicians no longer need to assess large amounts of raw data using external Fourier transforms. Instead, they can directly assign frequency anomalies to individual cases of damage and define the next steps to be taken.

Complete stack for a diverse range of applications

IVAS is suitable for analyzing the vibrations of rotating systems, from typical off-highway components such as hydraulic pumps right through to fixed industrial or agricultural applications. Depending on requirements, IVAS can be both an enabler and part of an end-to-end solution. Bosch Rexroth, together with Bosch, provides a complete stack for this consisting of various different modules. It covers sensor hardware and embedded software including a connectivity control unit as well as edge analytics and cloud services.

Seamless connection to cloud front ends

In a typical deployment scenario, the information gathered and pre-assessed by IVAS is transmitted via a connectivity control unit to a cloud solution. Where necessary, vehicle data and trends can be visualized and sensors and other IoT devices can be managed there. Information can be retrieved from other cloud solutions, via the REST interface for example.

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Efficient sensor cube with CAN interface

Bosch Rexroth deploys the Bosch Group's cutting-edge MEMS technology for the IVAS sensor and achieves optimum performance values. For high precision measurements of structure-borne noise the little cube, measuring 36x36x34.1 mm³ and featuring a 5-pin M12 CAN interface, houses a temperature sensor, a 1-axis accelerometer with 20-kHz bandwidth and sensitivity of 200 mg as well as a 3-axis accelerometer with 3-kHz bandwidth and sensitivity down to 0.06 mg. When it is connected, protection class IP67 ensures reliable operations under off-highway conditions. The measurement range of the temperature sensor runs from -40 °C to 105 °C.

To learn more about Bosch Rexroth, visit: www.boschrexroth-us.com

About Bosch Rexroth:
As one of the world's leading suppliers of drive and control technologies, Bosch Rexroth ensures efficient, powerful and safe movement in machines and systems of any size. The company bundles global application experience in the market segments of Mobile Applications, Machinery Applications and Engineering, and Factory Automation. With its intelligent components, customized system solutions and services, Bosch Rexroth is creating the necessary environment for fully connected applications. Bosch Rexroth offers its customers hydraulics, electric drive and control technology, gear technology and linear motion and assembly technology, including software and interfaces to the Internet of Things. With locations in over 80 countries, more than 32,300 associates generated sales revenue of roughly 6.2 billion euros ($7.3 billion) in 2018.

To learn more, please visit www.boschrexroth-us.com.

About Bosch:
The Bosch Group is a leading global supplier of technology and services. It employs roughly 410,000 associates worldwide (as of December 31, 2018). According to preliminary figures, the company generated sales from operations of 77.9 billion euros ($92 billion) in 2018. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building

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Technology. As a leading IoT company, Bosch offers innovative solutions for smart homes, smart cities, connected mobility, and connected manufacturing. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to deliver innovations for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiary and regional companies in 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. The basis for the company's future growth is its innovative strength. At 125 locations across the globe, Bosch employs some 69,500 associates in research and development.

Additional information is available online at www.bosch.com, www.iot.bosch.com, www.bosch-press.com, www.twitter.com/BoschPresse.

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