# Condition monitoring
WiMon100 wireless vibration and temperature sensor

The WiMon100 wireless vibration and temperature sensor paves the way for new and improved strategies for the maintenance of electric motors and other rotating equipment. With this sensor, the manual data collection using handheld monitoring equipment will become a thing of the past, and the range of equipment that might be condition monitored is significantly extended.

Due to the cost efficiency, small size and ease of installation and commissioning of the WiMon100 sensor, on line vibration monitoring can now be realized for all types of rotating machines. The autonomous WiMon100 unit comprises a vibration sensor, a temperature sensor, a long-life battery and communicating using WirelessHART™. WiMon100 units form a mesh communication network, if configured for routing, provide a secure, reliable and redundant path from WiMon100 sensor to a gateway and onwards to monitoring and analysis toolkits.
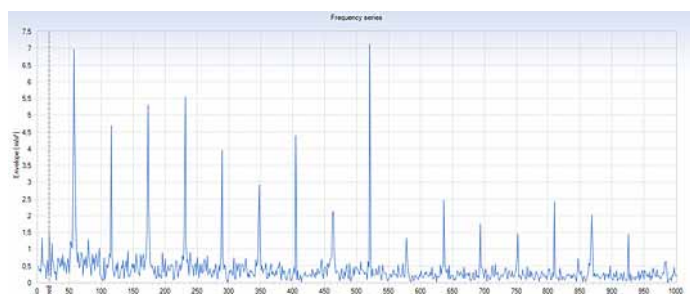
The device has an expected battery lifetime of up to five years (depending on configuration and temperature) and will reduce the cost of maintenance as well as extend the operation time of electric motors and other rotating equipment by enabling predictive maintenance. The sensor is designed for installation in harsh environments, certified for ATEX Zone 0 and is ideal for use in the offshore sector as well as in other industries. The sensor itself is optimized for non-intrusive installation.

The mounting is by means of a threaded hole which follows industry standards and allows for a wide range of mounting methods using commercially available studs or adaptors..

The WiMon 100 sensor is compatible with the WirelessHART™ infrastructure. Management and analysis is performed using the WiMon Data Manager. The WiMon Data Manager handles data acquisition and storage as well as providing a user interface for commissioning, configuration, network operation and machine supervision and analyses

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Specifications

Temperature measurement

Measurement range	-40°C .. +85°C
Resolution	0.1°C
Accuracy	+/- 2°C
Repeatability	+/- 0.2°C

Vibration measurement (overall values)

Velocity	
Amplitude range	0,2- 350mm/s (10Hz)
Frequency range	10Hz - 1kHz
Detection type	RMS
SKF Acceleration Enveloping Filter 3:	
Amplitude range	0,25 - 245m/s^2
Frequency range Acc.	500Hz - 10kHz
Detection	Peak to peak

Data processing

A/D conversion	16 bit
Sampling frequency	5,859kS/s
Sampling interval	0,7s
Uploaded waveform resolution	2048 samples / 0,7s

Wireless communication

Network standard	WirelessHART (HART 7.4)
Radio standard	IEEE 802.15.4
Frequency	2.4 GHz, licene free ISM band
Range (nominal)	>50m @ line-of-sight

Power

Battery type	3.6V AA lithium thionyl chloride (LI-SOCl2) bobbin cell
Estimated battery lifetime	Up to 5 year battery life, depending on temperature, settings and usage; see below.

Operating temperature (C)	-40° to -20°	-20° to 0°	0° to 40°	40° to 70°
Battery life in years	3	4	5	3

Note 1	Default sensor configuration: Vibration measurements (velocity and acceleration enveloping) collected every hour with static data (overall values) uploaded once per hour, and a single set of time waveforms uploaded once per 24h. Temperature measurement collected every 5 minutes with all measurements uploaded once per hour. Sensor operating as a leaf node (not routing).
Note 2	Continuous operation in the 70 to 85 °C temperature range is not recommended as it will dramatically shorten battery life.
Note 3	Operating a sensor in router mode will increase energy consumption and reduce its battery life, the extent of which depends on the number of neighboring nodes and amount of data being routed.

Environmental

Temperature	Operation: -40°C to +85°C Storage : 30°C maximum
IP class	IP66 (dust-tight and resistant to powerful water jetting)

Certification(s)

EX (Hazardous areas)	ATEX Zone 0, Ex ia IIC T4 -40°C/+85°C
Radio	ETSI EN 300 328 v.1.7.1 EN 301 489-1 v.1.9.2 EN 301 489-17 v.2.2.1

Physical

Weight	0.2 kg
Case material	Stainless steel/Thermoplastic
Mounting	1/4 28 UNF tapped hole Preferably stud mounted, mounting torque 5Nm
Dimensions	100 x 36 mm

For more information, please contact:

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