

DATA SHEET

ABB Ability™ Smart Sensor

Condition monitoring for pumps



The ABB Ability™ Smart Sensor converts traditional pumps into smart, wirelessly connected devices. It enables you to monitor the health of your pumps, identify inefficiencies and improve reliability and safety.

Intended use

- Centrifugal or vortex pumps
- Fluid type: water or wastewater
- The driving motor's frame size must be supported by the ABB Ability™ Smart Sensor, i.e. up to 450 mm (IEC) or equivalent
- Direct online or variable-speed driven

ABB Ability™ Smart Sensor gateway

Automatically collects data from a high number of Smart Sensors and transmits the data to the cloud for processing.

Gateway specifications

Range	Approx. 50 m (can vary in an industrial environment depending on facility layout)
Power supply	Power supply over ethernet port
Certifications	1879 FCC, CSA, CE
Radio frequency	ISM band, 2.402-2.480 GHz
Data transfer	WiFi, LAN 4G/LTE USB dongle
Environment	Operating temperature: -40 °C to +65 °C

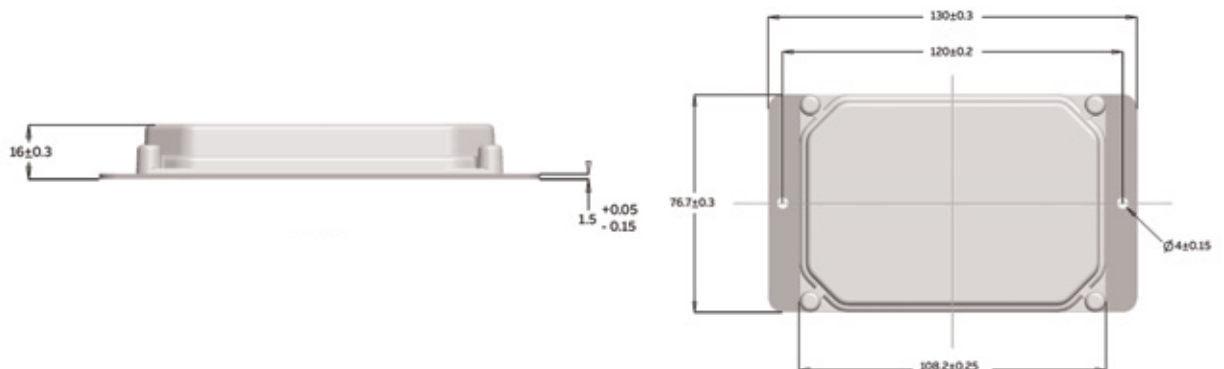
Health parameters

- Overall condition
- Overall vibration (velocity rms)
- Bearing condition
- Misalignment
- Unbalance
- Looseness
- Blade problems
- Cavitation (under development)
- Flow turbulence (under development)
- Skin temperature (degrees)

Operating parameters

- Radial vibration (velocity rms)
- Tangential vibration (velocity rms)
- Axial vibration (velocity rms)
- Speed (rpm)
- Operating hours
- Number of starts

SPECIFICATIONS	
Temperature measurement	
Measurement range	-40 °C to +85 °C
Resolution	0.05 °C
Accuracy (baseplate temperature)	+/-0.5 °C
Vibration measurement (overall velocity values)	
Amplitude range	0.04 - 700 mm/s (25 Hz)
Frequency range	10 Hz - 1 kHz
Wireless communication	
Network / radio standard	Bluetooth® 4.0 / IEEE 802.15.1
Frequency	2.4 GHz, license free ISM band
Range	With mobile phone: 1 - 10 m With gateway: approx. 50 m (can vary in an industrial environment depending on the facility layout)
Power	
Battery type (not replaceable)	3.0 V Lithium Permanganate (LI-MnO4) button cell CR2477N
Estimated battery lifetime	Batteries have a design life of 5 years. Expect 3 - 5 years depending on usage, settings and temperatures
Measured skin temperature (°C)	+40 °C +70 °C
Battery life in years, sensor in default configuration	approx. 5 approx. 3
Default configuration: Sensor measures once per hour and stores data to memory. Stored data must be collected at least monthly with a Bluetooth® mobile device or gateway.	
Environmental	
Temperature	Operation: -40 °C to +80 °C Storage: +10 °C to +25 °C
IP class	IP66 (dust-tight and resistant to powerful water jetting)
Vibration (of mounted surface)	<15 g at 100 Hz
Certification/Standards	
CE, FCC, UL, C-UL	
Safe areas only; no hazardous area certification	
Physical	
Weight	0.26 kg
Case material	Stainless steel/Thermoplastic
Mounting	On housing above drive-end bearing of the pump (the bearing closest to the motor when seen from the pump), parallel to pump shaft; ensure good contact Ensure that correct mounting kit is used; ready-made mounting kits might not be available for all kinds of pumps



For more information please visit:
new.abb.com/motors-generators/service

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