

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 449 NEMA/450 IEC or equivalent
- Direct online or variable-speed driven

ABB Ability Smart Sensor gateway

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

Gateway specifications	
Range	~150 ft. radius (obstacle dependent)
Power	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
IP rating	IP65

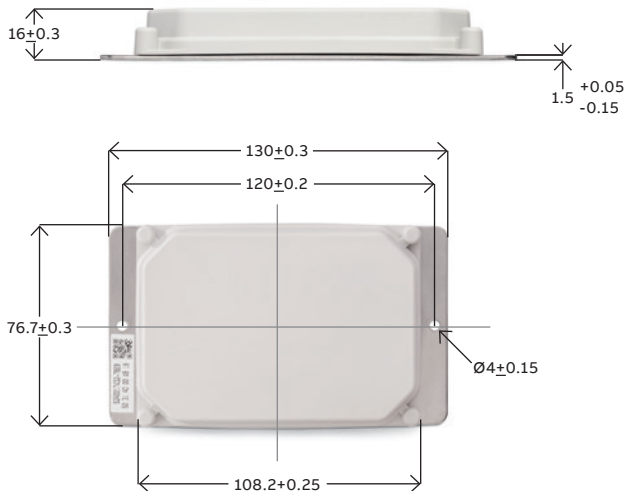
Health parameters:

- 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 ... +85°C
Resolution	0.05°C
Accuracy	+/- 0.5°C
Vibration measurement (overall velocity values)	
Amplitude range	0.04 - 700 mm/s (25 Hz)
Frequency range	10 Hz - 1 kHz
Detection type	RMS
Wireless communication	
Network standard	Bluetooth® 4.0
Radio standard	IEEE 802.15.1
Frequency	2.4 GHz, license free ISM band
Range (nominal)	With mobile phone: 1-10m/with gateway: approx. 50m (can vary in an industrial environment)
Power	
Battery type (not replaceable)	3.0 V Lithium Permanganate CR2477N / (LI-MnO4) button cell
Estimated battery lifetime	Batteries have a design life of 5 years. Expect 3-5 years depending on usage, settings and temperatures
Motor body temperature (°C) at ambient temperature of 40 °C	0° to 40° 40° to 70°
Battery life in years	5 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 : 40 °C maximum
IP class	IP66 (dust-tight and resistant to powerful water jetting)
Vibration (of mounted surface)	< 15g at 100 Hz
Certifications/Standards	
UL Safe Area, CSA, C-UL, FCC, CE	
Physical	
Weight	0.56 lbs
Case material	Stainless steel/Thermoplastic [PA6-GF30 FR(17)]
Mounting	On housing above drive-end bearing of the pump. See manual for proper mounting



Part number	Item description	List price
EM5001GW	Smart Sensor Gateway	\$1,000
EM5001A05PSP	Smart Sensor Kit with 2 year subscription (all NEMA frames)	634
3AFP9203754	Smart Sensor Kit with 2 year subscription extension	391
aAFP9127709	Smart Sensor Kit with 1 year subscription extension	205
HA6A99A01	Replacement mount	40
MJ5004A90	Loctite adhesive putty	25

For more information please visit new.abb.com/motors-generators/service/advanced-services/smart-sensor or contact your local ABB (formerly Baldor) office.

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