

DATASHEET

# ABB Ability™ Smart Sensor

## Condition monitoring solution



The ABB Ability Smart Sensor converts traditional low voltage motors into smart, wirelessly connected devices. It enables you to monitor the health of your motors, optimize efficiency and improve reliability and safety.

**Intended use:**

- 3-phase VAC induction motors
- Finned frame, TEFC (for mounting)
- Continuous or intermittent duty
- 140-440 NEMA frame size, 160-450 IEC
- Fixed frequency or VFD

**Smart Sensor Gateway**

Automatically collects data from an unlimited amount of configured Smart Sensors and transmits the data to the cloud for processing.

**Gateway specifications**

Range	~150 ft. radius (obstacle dependent)
Power	Power over ethernet port
Certifications	1879 FCC, CSA, CE
Radio frequency	ISM band, 2.402-2.480 GHz
Data transfer	WiFi, Power over ethernet (PoE), 4g/LTE USB dongle
Environment	Operating temperature: -40 C to 65 C
IP rating	IP65

**Parameters:**

**Vibration**

- Overall vibration (velocity)
- Axial vibration (velocity)
- Radial vibration (velocity)
- Tangential vibration (velocity)

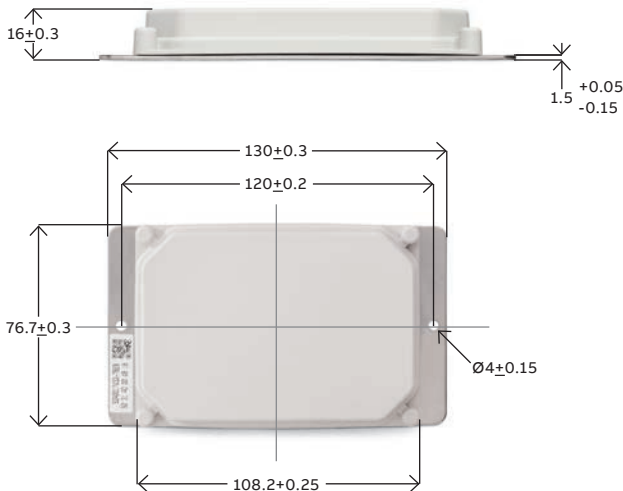
**Health**

- Bearing condition
- Misalignment
- Re-greasing

**Operating**

- Skin temperature (degrees)
- Output power (Hp/kW)
- Speed (rpm)
- Operating hours
- Number of starts

Specifications	Remarks	
<b>Temperature measurement</b>		
Measurement range	-40°C ... +85°C	
Resolution	0.05°C	
Accuracy	+/- 0.5°C	baseplate temperature
<b>Vibration measurement (overall velocity values)</b>		
Amplitude range	0.04 - 700 mm/s (25 Hz)	
Frequency range	10 Hz - 1 kHz	
Detection type	RMS	
<b>Wireless communication</b>		
Network standard	Bluetooth® 4.0	
Radio standard	IEEE 802.15.1	
Frequency	2.4 GHz, license free ISM band	
Range (nominal)	>10 m @ line-of-sight	
<b>Power</b>		
Battery type	3.0 V Lithium Permanganate (Li-MnO4) button cell	CR2477N (The battery is not user replaceable)
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		
<b>Environmental</b>		
Temperature	Operation: -40°C to +85°C Storage : 40 °C maximum	
IP class	IP66 (dust-tight and resistant to powerful water jetting)	
Vibration (of mounted surface)	< 15g at 100 Hz	
<b>Certifications/Standards</b>		
UL Safe Area, CSA, FCC, CE		
<b>Physical</b>		
Weight	0.56 lbs	
Case material	Stainless steel/Thermoplastic [PA6-GF30 FR(17)]	
Mounting	On cooling ribs of motor frame at 3, 9 or 12 o'clock position	



Part number	Item description	List price
EM5001GW	Smart Sensor Gateway	\$1,000
EM5001A04SP	Smart Sensor Kit with 2 year subscription (all NEMA frames)	640
EM5001A01SP	Smart Sensor Kit with 2 year subscription (NEMA 140-210)	584
EM5001A02SP	Smart Sensor Kit with 2 year subscription (NEMA 250-360)	584
EM5001A03SP	Smart Sensor Kit with 2 year subscription (NEMA 400-449)	584
3AFP9127708	Smart Sensor for LV Motor 2 yr. subscription extension	391
3AFP9127707	Smart Sensor for LV Motor 1 yr. subscription extension	205
HA6A99A01	Replacement mount (NEMA 140-210)	40
HA6A99A02	Replacement mount (NEMA 250-360)	40
HA6A99A03	Replacement mount (NEMA 400-449)	40
MJ5004A90	Loctite adhesive putty	25

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

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