Wilcoxon
SENSING TECHNOLOGIES

an Amphenol Company

New product introduction

883M digital triaxial accelerometer and temperature sensor

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883M product overview
Triaxial MEMS accelerometer and temperature sensor

- Up to **5kHz high-frequency response**
- **IP67 design**, operates in harsh environments with excellent durability and reliability
- **Modbus RTU communication protocol** over an RS-485 serial bus ensures stable data transmission
- **Digital output** of vibration spectrum, time waveforms, and 12 frequency bands, facilitating machine fault diagnosis
- Frequency bands align with international standards for machine vibration measurement
  - **ISO 10816-3** and **ISO 20816-3** standards for mechanical vibrations
  - **ISO 17243** machine tool spindle vibrations
- **Condition monitoring applications**: balance-of-plant, process monitoring, energy, automated equipment, semiconductor manufacturing

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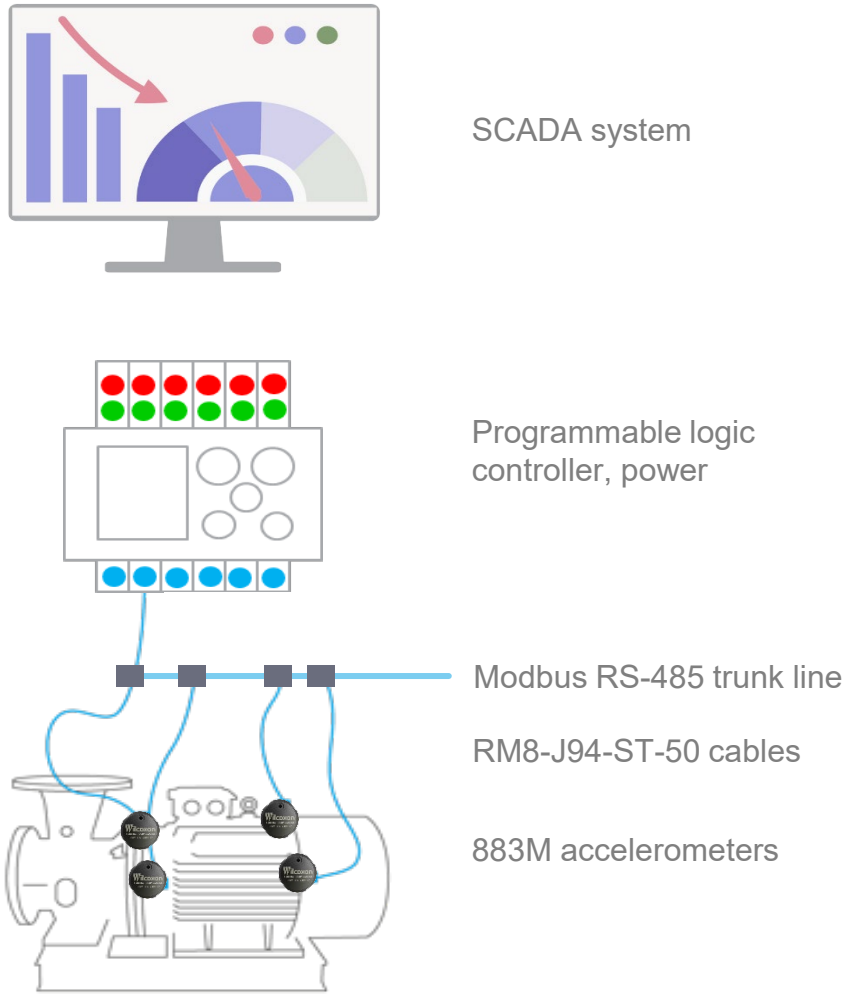
Deployment architecture
Connected via SCADA system



Specifications

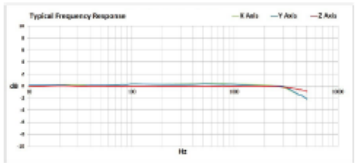
[Click to download](#)

Digital triaxial MEMS accelerometer

883M

SPECIFICATIONS

DYNAMIC	
Acceleration range	±16 g, peak
Resolution	0.488 mg
Frequency response, ± 3 dB	2 Hz - 5 kHz
Resonance frequency	6.9 kHz
FREQUENCY BAND OUTPUTS (X, Y, AND Z AXES)	
Acceleration, RMS	2 Hz - 1 kHz, 10 Hz - 5 kHz
Acceleration, peak	2 Hz - 1 kHz, 10 Hz - 5 kHz
Velocity, RMS	10 Hz - 1 kHz, 10 Hz - 5 kHz
Velocity, peak	10 Hz - 1 kHz, 10 Hz - 5 kHz
Displacement, RMS	2 Hz - 1 kHz, 10 Hz - 1 kHz
Displacement, peak	2 Hz - 1 kHz, 10 Hz - 1 kHz
OTHER OUTPUTS	
Temperature	–20° to +70° C
True peak	Fs @ 13.333 kHz
Spectrum	0 Hz - 5 kHz, 6145 lines
Time wave	13,333 samples, 1 second
Other features	crest factor standard deviation
COMMUNICATION	
Interface	RS485
Protocol	Modbus RTU
Recommended baud rate	9,600 or 115,200 bps
Max. baud rate	921,600 bps



Key features

- Triaxial MEMS accelerometer and temperature sensor
- Modbus RTU communication protocol
- Digitally outputs vibration spectrum, time waveforms, and vibration characteristic values
- Frequency bands align with ISO 10816-3 and ISO 20816-3 guidelines

Note: Due to continuous process improvement, specifications are subject to change without notice. This document is cleared for public release.

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99473 Rev.A 11/24

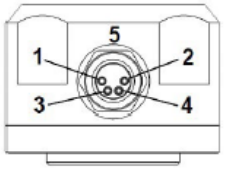
Digital triaxial MEMS accelerometer

883M

SPECIFICATIONS

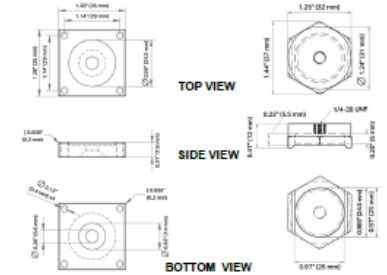
ELECTRICAL	
Power	6 - 24 VDC
LED Indicator	1 (RGB)
ENVIRONMENTAL AND MECHANICAL	
Dimensions	35mm dia. x 26 mm h
Weight	75 grams
Sealing	IP67
Case material: upper lower	A6061 aluminum 303 stainless steel
Connector	4-socket M8
Mating connector	4-pin M8
Recommended cabling	4-conductor, PVC jacket, shielded
Mounting	adhesive mount via sensor flat base screw mount adapter[1] (optional) magnet mount adapter[1] (optional)
Operating temperature	–20° to +70° C
Storage temperature	–20° to +80° C
Operating humidity	5 - 95% RH

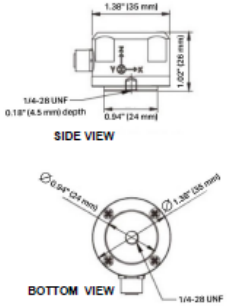
Notes: [1] Mounting adapter allows the installer to mount the sensor in a specific orientation, as required for triaxial sensors, and provides proper cable exit placement.



Connections	
Function	Connector pin
power	1
ground	2
signal +	3
signal -	4
shield	5 (housing)

SCREW MOUNT ADAPTER **MAGNET MOUNT ADAPTER**





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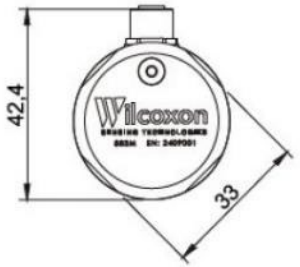
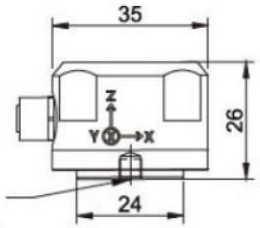
Key specifications

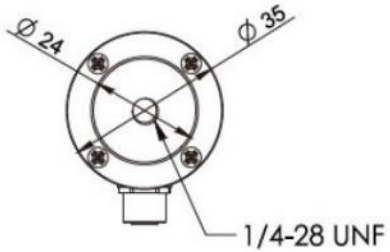


TOP VIEW



1/4-28 UNF
Effective Tapping Depth : 4.5mm

SIDE VIEW



BOTTOM VIEW

DYNAMIC	
Acceleration range	±16 g, peak
Resolution	0.488 mg
Frequency range	2 Hz – 5 kHz (± 3 dB)

ENVIRONMENTAL & MECHANICAL	
IP Rating	IP67
Operating temperature	-20 to +70 ˚C
Storage Temperature	-20 to +80 ˚C
Connector	M8 4-socket female

COMMUNICATION	
Interface	RS485
Protocol	Modbus RTU
Max. baud rate	921,600 bps
Recommended baud rate	9,600 or 115,200 bps

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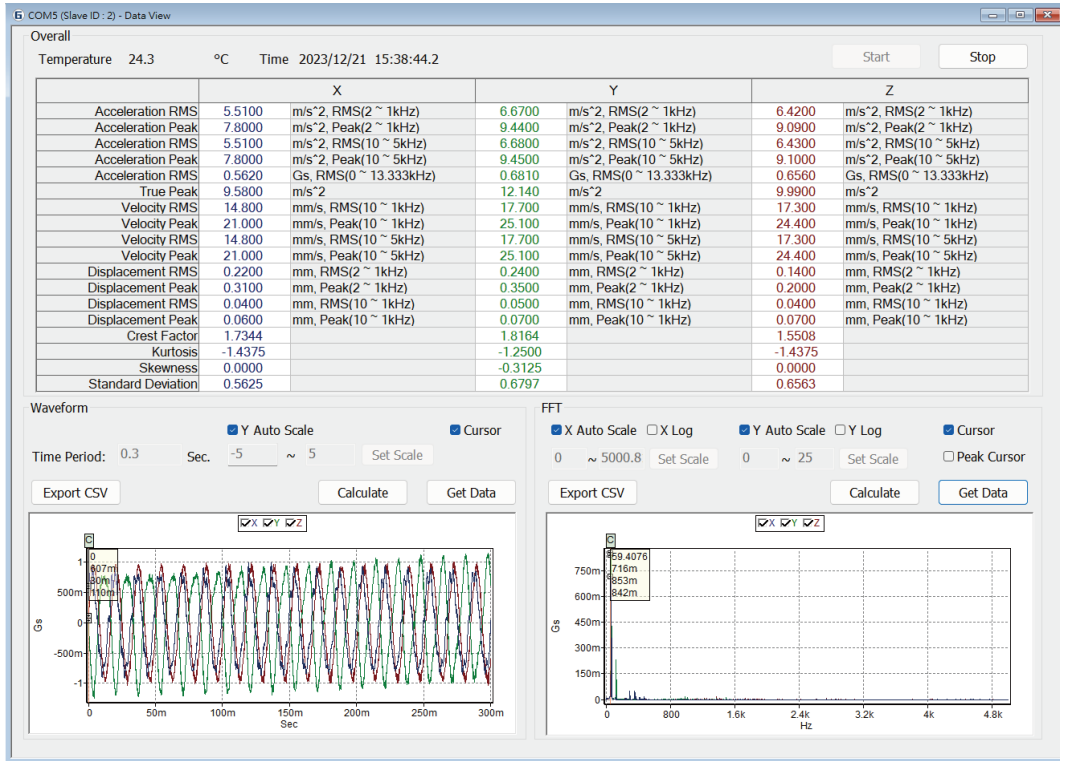
883M digital sensor
Output and programmed frequency bands

Frequency bands (X, Y, and Z axes)

- Acceleration, RMS — 2 Hz - 1 kHz, 10 Hz - 5 kHz
- Acceleration, peak — 2 Hz - 1 kHz, 10 Hz - 5 kHz
- Velocity, RMS — 10 Hz - 1 kHz, 10 Hz - 5 kHz
  - Velocity RMS 10 Hz - 1 kHz frequency band aligns with ISO 10816-3 and 20816-3 guidelines
- Velocity, peak — 10 Hz - 1 kHz, 10 Hz - 5 kHz
- Displacement, RMS — 2 Hz - 1 kHz, 10 Hz - 1 kHz
  - Displacement RMS 2 Hz - 1 kHz and 10 Hz - 1 kHz frequency bands align with ISO 20816-3 guidelines
- Displacement, peak — 2 Hz - 1 kHz, 10 Hz - 1 kHz

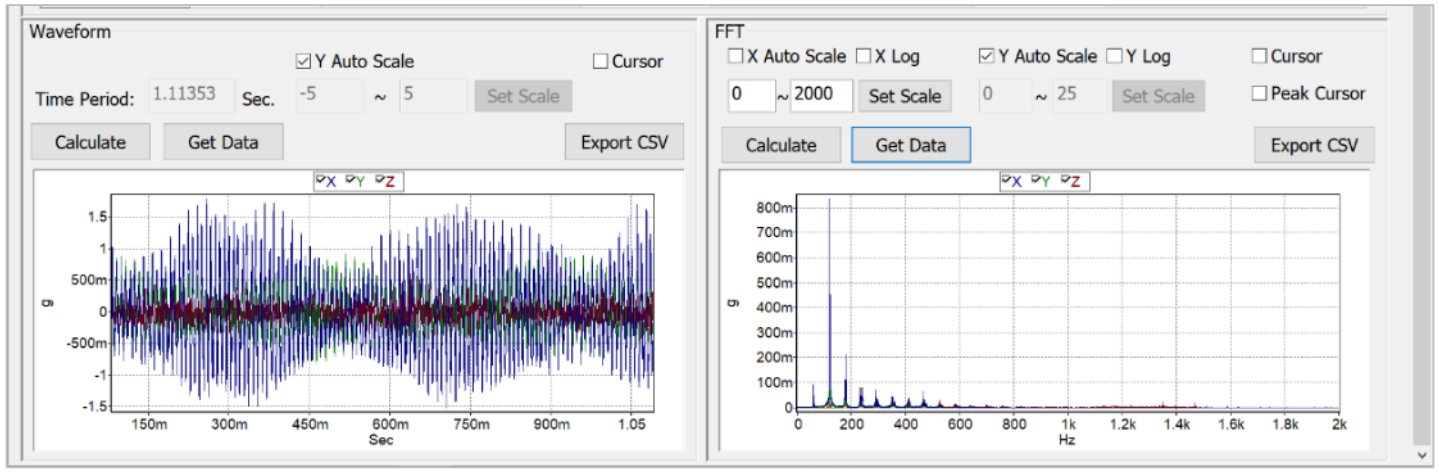
Other outputs

- Temperature sensor — –20° to +70° C
- True peak — Fs @ 13.333 kHz
- Spectrum — 0 Hz - 5 kHz, 6145 lines
- Time waveform — 13,333 samples, 13.333 kHz Fs
- Other features — crest factor, standard deviation



Key features
Measurements

- Synchronous measurement of machine vibrations in three axes and temperature
- Detection of overall of vibration acceleration, velocity, and displacement
- Extraction of time-domain waveforms and calculation of FFT spectra
- True-peak detection for real-time bearing condition monitoring
- Built-in self testing with real-time LED status indicator

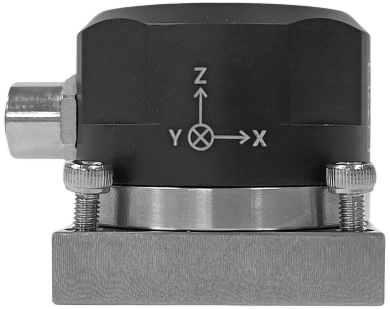


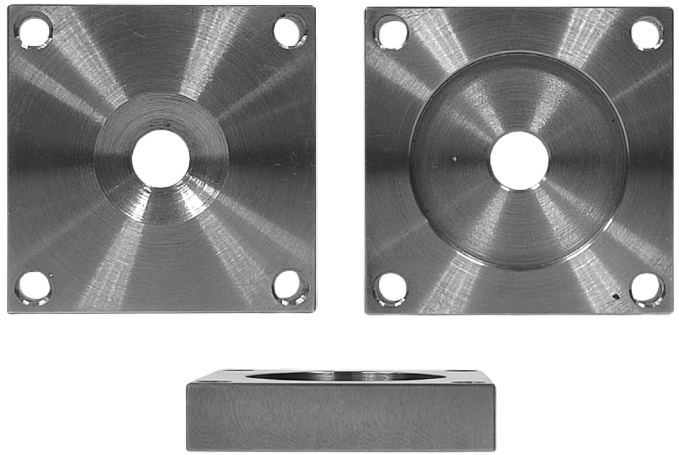
Mounting options
Adhesive, screw, or magnet mounting

Adhesive mount
883M*

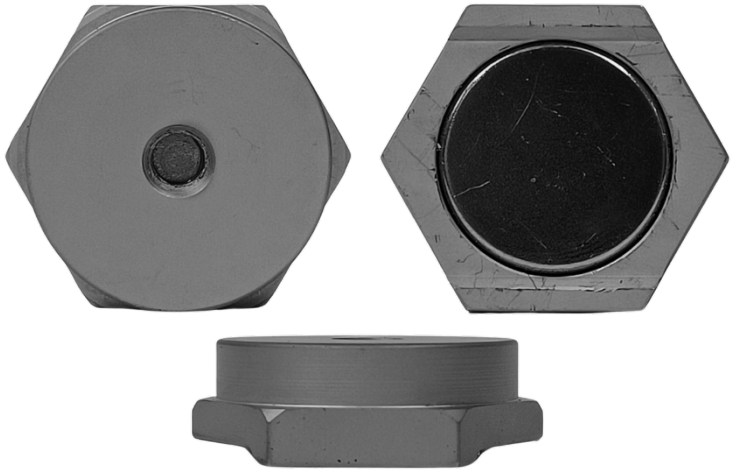
*No mounting adapter or adhesive included. The sensor’s flat bottom surface can be used to adhere the sensor to the structure.

Screw mount
883M-SMA





Magnet mount
883M-MMA



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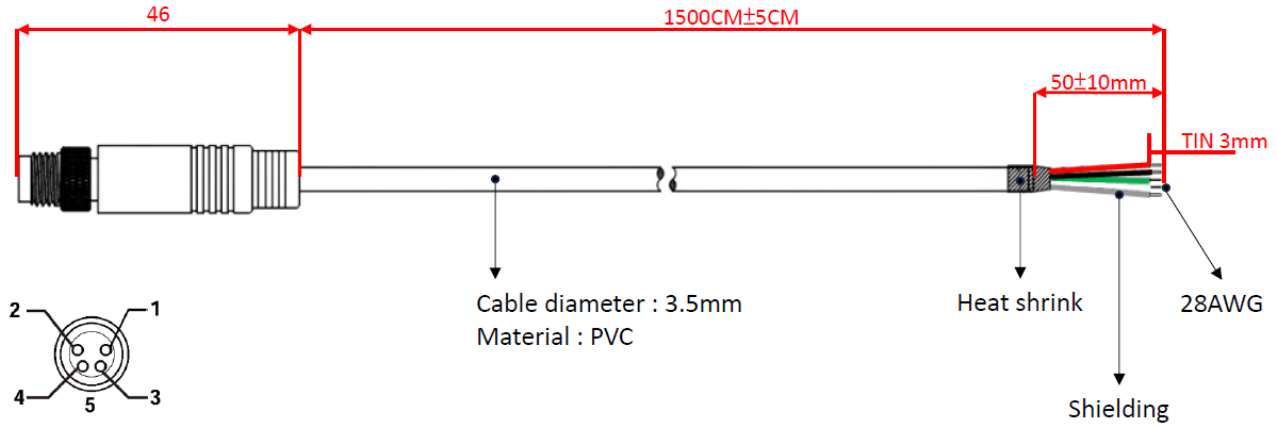
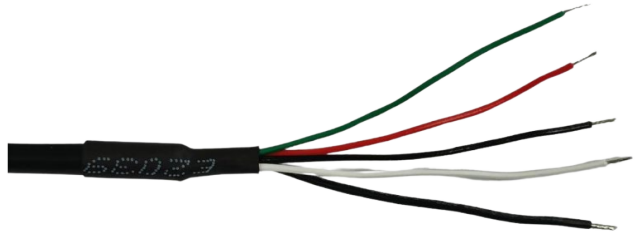
Compatible cable, included
RM8-ST-J94-50

- M8 4-pin (male) sensor connector, brass, -20 to +80 ºC, IP67
- 4-conductor UL 2725 cable with black, PVC jacket, foil shielded, 28 AWG (3.5 mm diameter), -10 to +80 ºC
- Stripped and tinned, heat shrink
- 50 ft (15 m) length standard
- CE, RoHS2.0 and REACH compliant





Applications

- **Rotating machinery**: motors, fans, blowers, pumps, compressors, etc.
- **Transmission systems**: gearboxes, couplings, bearings, etc.
- **Manufacturing equipment**: CNC machines, conveyor belts, etc.
- **HVAC systems**: compressors, cooling towers, cranes, lifting equipment, road rollers, etc.

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Thank you

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Download the user manual
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