

Hazardous area approved sensors

CMSS 786A-IS / CMSS 786A-D2

Agency approved accelerometer, straight exit

The CMSS 786A-IS / CMSS 786A-D2 is a cost-effective sensor for use in hazardous areas typically found in the following industries:

- Oil and Gas
- Refining
- Petrochemicals

Common applications include general purpose machines such as pumps, motors, fans and gearboxes. The CMSS 786A-IS is particularly suitable for the SKF Multilog On-line System DMx since, in this case, no additional barriers are required for use in hazardous areas.

Features

- Optimal for use with SKF on-line system DMx, WMx and IMx-M when used with the appropriate safety barriers, accessories and/or methods as required by the particular hazardous area classification
- Economical, top exit design
- Rugged, corrosion resistant and hermetically sealed
- Case isolated
- Meets stringent CE, EMC requirements
- ESD protection
- Reverse wiring protection

Recommended connector/cable assembly

- CMSS 932 series

Specifications

Dynamic

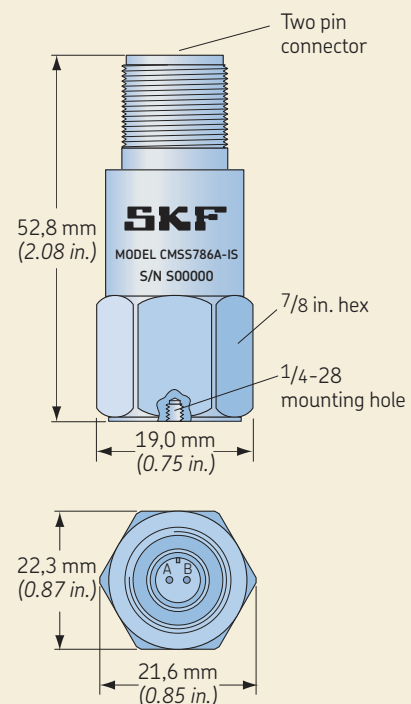
- Sensitivity: 100 mV/g
- Sensitivity precision: $\pm 5\%$ at 25 °C (75 °F)
- Acceleration range: 80 g peak
- Amplitude non-linearity: 1%
- Frequency range:
 - $\pm 5\%$: 3,0 to 5 000 Hz
 - $\pm 10\%$: 1,0 to 9 000 Hz
 - ± 3 dB: 0,5 to 14 000 Hz
- Resonance frequency, mounted, nominal: 30 kHz
- Transverse sensitivity: $\leq 5\%$ of axial
- Temperature response: See graph



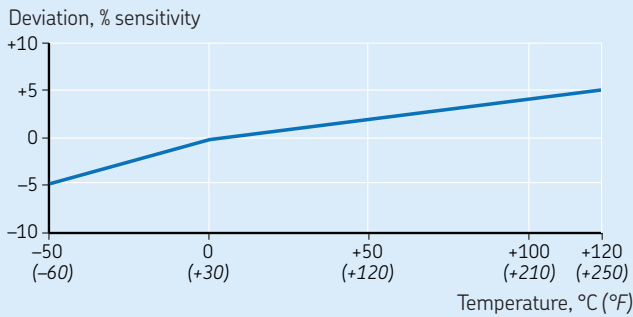
Electrical

- Power requirements:
 - Voltage source¹⁾: 18 to 30 V DC
 - Constant current diode^{1), 2)}: 2 to 10 mA
- Electrical noise:
 - Broadband:
 - 2,5 Hz to 25 kHz: 700 μ g

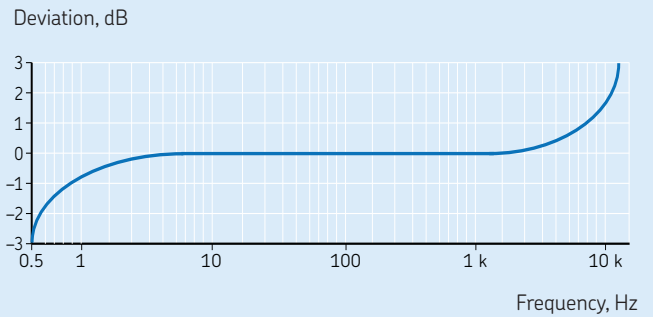
Dimensions



Typical temperature response



Typical frequency response



- Spectral:
 - 10 Hz: 10 $\mu\text{g}/\sqrt{\text{Hz}}$
 - 100 Hz: 5 $\mu\text{g}/\sqrt{\text{Hz}}$
 - 1 000 Hz: 5 $\mu\text{g}/\sqrt{\text{Hz}}$
- Output impedance: < 100 Ω
- Bias output voltage: 12 V DC
- Grounding: Case isolated (> 108 Ω at 100 V), internally shielded

Environmental

- Temperature range: -50 to +120 °C (-60 to +250 °F) operating temperature
- Vibration limit: 500 g peak
- Shock limit: 5 000 g peak
- Electromagnetic sensitivity, equivalent g, maximum: 70 $\mu\text{g}/\text{gauss}$
- Sealing: Hermetic
- Base strain sensitivity: 0,0002 g/ μstrain
- Certifications: CE, CSA and ATEX (see table)

- CE: According to the generic immunity standard for Industrial Environment EN 50082-2
 - Acceptance criteria: The generated “false equivalent g level” under the above test conditions should be less than 2 mg measured peak to peak

Physical

- Dimensions: See drawing
- Weight: 90 g (3.2 oz.)
- Case material: 316L stainless steel
- Mounting: 1/4-28 tapped hole
- Mounting torque: 2,9 Nm (24 in. lbs.)
- Connections:
 - Shell: Ground
 - Pin A: Power/Signal
 - Pin B: Common
- Mating connector: CMSS 932-68LC or CMSS 932-68TL, two pin, IP 68, locking collar or twist lock
- Recommended cable: CMSS 932-SY-XXM and CMSS 932-DY-XXM, two conductor, twisted pair, single shielded, yellow or blue

¹⁾ To minimize the possibility of signal distortion when driving long cables with high vibration signals, 24 to 30 V DC powering is recommended. The higher level constant current source should be used when driving long cables (please consult SKF).

²⁾ A maximum current of 6 mA is recommended for operating temperatures in excess of 100 °C (210 °F).

Agency approvals for hazardous area

CMSS 786A-IS



Intrinsically Safe
Class I, Zone 0, AEx / Ex ia IIC; T4



Class I, Division 1, Groups A, B, C, D
Class II, Division 1, Groups E, F, G
Class III, Division 1



ATEX Zone 0
II 1 G Ex ia IIC; T4

KEMA

Must be installed per drawing 12881.

CMSS 786A-D2



Non-incendive
Class I, Division 2, Groups A, B, C, D
Class I, Zone 2, Ex nA II; T4



ATEX Zone 2
II 3 G Ex nA II; T4

KEMA

Must be installed per drawing 13031, rev. B.

Ordering information

CMSS 786A-IS Agency approved accelerometer, straight exit (intrinsically safe (IS) rated).

CMSS 786A-D2 Agency approved accelerometer, straight exit (non-incendive rated).

- Both models with MIL-C-5015 style two pin connector. 1/4-28 and M8 mounting studs provided. A calibration data certificate with the actual sensitivity of the accelerometer is included in each package. The nominal sensitivity is etched on each unit.