

CMSS-ONL-1000-2

Metal particle sensor



Combining vibration and oil monitoring provides valuable information for the protection of your assets. Both vibration and oil monitoring have unique capabilities to analyze machine problems and prevent failures.

The metal particle sensor provides continuous analysis of gearbox, bearing or motor oil. It increases reliability of analysis results by providing accurate information on wear rates.

The metal particle sensor, together with the SKF Multilog On-line System IMx, provides information on particle type, size and count rate per minute. Combining this information with vibration data can give a precise location of the damage.

The sensor is easy to integrate with the SKF Multilog IMx by using Modbus RTU; the system provides a trend for each size and type of particle. Using derived POINTs in SKF Multilog IMx allows metal particle sensor data to be applied in mathematical formulas; this can, for example, bring more powerful analysis data by displaying the total number of particles or estimated weight of debris.

Features

- Reliable detection of component damage
- Easier to estimate wear rate and remaining life
- 4 to 20 mA outputs
 - Particles per minute
 - Particle mass per hour
- Supports Modbus communications
- Extended functionality with SKF Multilog IMx by classifying particles by size and type
 - Fe particles divided into 10 sizes from 1 200 to 40 μm
 - Non-Fe particles divided into 10 sizes from 1 200 to 135 μm
- Robust cast iron enclosure, providing strength and electromagnetic shielding



Specifications

- Particle speed: 1,3 to 21,0 l/min (0.34 to 5.55 gal/min) constant flow ^{1) 2)}
- Detection limits:
 - Ferrous: 40 µm (0.00157 in.) ²⁾
 - Non-ferrous metallic: 135 µm (0.00531 in.) ²⁾
- Fluid compatibility: Mineral, synthetic oils and water/oil emulsions
- Wetted surface materials: PEEK, FKM, Aluminium
- Maximum fluid pressure: 20 Bar (1 MPa)
- Permitted fluid temperatures: -20 to +85 °C (-5 to +185 °F)
- Ambient operating temperature: -20 to +70 °C (-5 to +158 °F)
- IP rating: IP 67
- Weight: 3 kg (6.6 lb.)

¹⁾ Signal output reduces with the speed of the particle; slower flow rates are optimum. Volumes quoted are for the metal particle sensor bore and minimal pipework (10 mm diameter and 0,5 m long) equating to 54 ml.

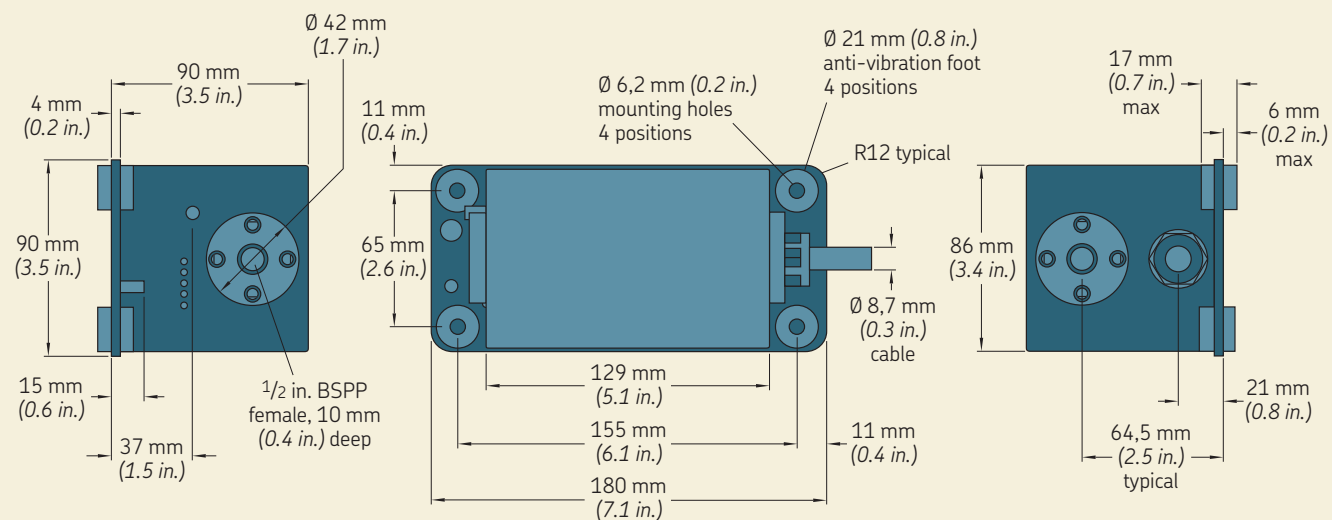
²⁾ Constant flow rate 0,3 m/s, iron metal (electrolytic) 99,99% Fe purity – spherical particle. The metal particle sensor will not detect combined Fe in a non-magnetic compound (for example, rust).

- Outputs:
 - Particles per minute: 4 to 20 mA (Scale 0 to 1 000 ppm)
 - Particle mass per hour: 4 to 20 mA (Scale 0 to 99999999 µg/h)
 - RS485: Two wire half duplex (SKF Multilog IMx-S, IMx-C, IMx-W, IMx-T)
- Power input: 24 V DC (18 to 30 V)
- Power consumption: 0,7 A
- Fuse rating: 1 A quick blow
- Cable length: 2 m (6.6 ft.)
- Cable specification (ensure appropriate approvals relevant to installation):
 - Screened
 - CSA: 0,22 mm (0.008 in.) ¹⁾, 1 A
 - AC: 440 V
 - Maximum: 70 °C (160 °F)
- For extension purposes:
 - RS485: Twisted pair cable, shielded; minimum 0,22 mm (0.008 in.) ¹⁾
 - 4 to 20 mA current loops: Four wires (2 x 2); minimum 0,22 mm (0.008 in.) ¹⁾
- Maximum cable lengths:
 - RS 485: 1 000 m (3 281 ft.) maximum (shielded and twisted pair cable)
 - 4 to 20 mA current loops: 10 m (32.8 ft.) recommended

Ordering information

- Metal particle sensor [CMSS-ONL-1000-2]

Dimensions



Please contact:

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Patents: US 4,768,380 · US 5,633,811 · US 5,679,900 · US 5,845,230 · US 5,852,351 · US 5,854,553 · US 5,854,994 · US 5,870,699 · US 5,907,491 · US 5,992,237 · US 6,006,164 · US 6,124,692 · US 6,138,078 · US 6,199,422 · US 6,202,491 · US 6,275,781 · US 6,301,514 · US 6,437,692 · US 6,489,884 · US 6,513,386 · US 6,633,822 · US 6,789,025 · US 6,792,360 · US 7,103,511 · US 7,697,492 · WO/2003/048714

PUB CM/P8 13423/1 EN · February 2014

