OPCom FerroS
Continuous Oil Condition Monitoring

Application area
The OPCom FerroS is an intelligent sensor for determination of the condition of hydraulic and lubricating systems based on ferromagnetic wear particles. The sensor is a screw-in / immersion sensor and is designed for continuous monitoring of ferromagnetic contamination in oil.

Performance features
The sensor measures the wear of mechanical components by detecting ferromagnetic particles. The number of particles is continuously recorded and evaluated by an inductive measuring principle. Transfer is effected via digital and analogue interface. Recognition of wear and damage at an early stage allows planning of servicing measures and machine failures can be minimized.

Measuring principle
The sensor records the number of ferromagnetic particles accumulating at the permanent magnet at the sensor head. In this regard, the sensor can distinguish between fine particles in the micrometer range and coarse ferromagnetic fragments in the millimeter range. According to the output signal of 0 ... 100% the distribution of ferromagnetic particles at the sensor surface can be read off. Furthermore, the sensor may compensate the magnetic field of the permanent magnet, whereupon the particles are released from the sensor head (automatic cleaning process). With the time intervals between two cleaning processes, a change in wear can be assumed.

Design characteristics
The sensor is provided with a G1" thread and can directly be integrated in a gearbox or in the lubricating circuit. The communication with the sensor either takes place over a serial RS 232 interface, CAN (CANopen or SAE J1939) or via an analog output (4 ... 20mA).
## Technical data

<table>
<thead>
<tr>
<th>Sensor data</th>
<th>Size</th>
<th>Unit</th>
</tr>
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<tbody>
<tr>
<td>Max. operating pressure</td>
<td>20 (290)</td>
<td>bar (psi)</td>
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### Operating conditions

| Temperature | Humidity | Min. distance for attraction of fine particles (1g) in oil with Kin. viscosity <100mm²/s | Kin. viscosity 300mm²/s | Kin. viscosity 500mm²/s | Min. necessary flow velocity for automatic cleaning process | Max. flow velocity | Compatible fluids | Wetted materials | Protection class² | Power supply | Power input | Output analogue³ | Accuracy of power output⁴ | Interface digital | Connection | Measuring range | Measuring resolution | Repeat accuracy | Weight |
|-------------|---------|---------------------------------|--------------------------|--------------------------|----------------------------|-----------------|-----------------|----------------|----------------|------------|-------------|----------------|------------------|---------------------|---------------|-------------|----------------|---------------------|----------------|--------|
| -40 ... +85°C | 0 ... 100% r.H. | ~9.0 mm | ~7.5 mm | ~7.0 mm | 0.05 m/s | 1.0 m/s | mineral oils (H, HL, HLP, HLPD, HVLP), synthetic esters (HETG, HEPG, HEES, HEPR), polyalkylen glycols (PAG), zinc and ash-free oils (ZAF), polyalphaolefins (PAO) | aluminium, polyamide (PA6 GF30), HNBR, epoxy resin | IP 67 | 22 ... 33 VDC% | max. 0.5 A | 4 ... 20 mA | ±2 % | RS 232/ CANopen/ SAE J1939 | threaded connection | G1 inch | 0 ... 100 % | 0 ... 100 % | 0.1 Nm | 0.1 % | 1 % | ±5 % | ~190 g |

1 Non-condensing
2 With screwed-on connector
3 Output is freely configurable (see interface and communication commands)
4 In relation to digital output value

## Order code

<table>
<thead>
<tr>
<th>OPCom FerroS</th>
<th>SPCO 500-1000</th>
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### Accessories

- Complete data cable set, 5 m (16 ft) length: SCSO 100-5030
- Data cable with open ends, 5 m (16 ft) length: SCSO 100-5020
- Contact box for connection of a data cable: SCSO 100-5010
- USB adapter - RS 232 serial: PPCO 100-5420
- Power supply: SCSO 100-5080
- Ethernet - RS 232 gateway: SCSO 100-5100
- Display and storage device: LubMon Visu: SCSO 900-1000

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