OPCom FerroS

Continuous Oil Condition Monitoring

OPCom FerroS

Ø35 mm (Ø1.38 inch)

M12x1*

D-76703 Kreichtal
Made in Germany

31 mm (1.22 inch)

16 mm (0.63 inch)

88 mm (3.46 inch)

31 mm (1.22 inch)

Ø29.5$^{\pm0.3}$ mm (Ø1.16$^{\pm0.01}$ inch)

G1

Ø40$^{+0.5}$ mm (Ø1.57$^{+0.02}$ inch)
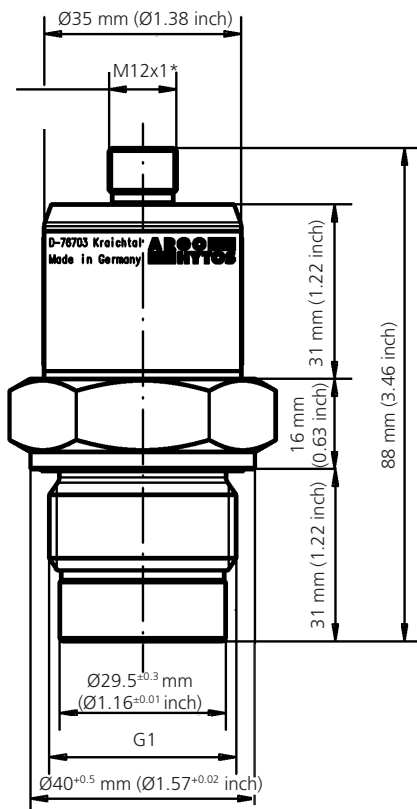
* mm   Dimensions

Description

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).

Sensor data	Size	Unit
Max. operating pressure	20 (290)	bar (psi)
Operating conditions		
Temperature	-40 ... +85	°C
	(-40 ... +185	°F)
Humidity [1]	0 ...100	% r.H.
Min. distance for attraction of fine particles (1g) in oil with		
Kin. viscosity <100mm²/s	~9.0	mm
Kin. viscosity 300mm²/s	~7.5	mm
Kin. viscosity 500mm²/s	~7.0	mm
Min. necessary flow velocity for automatic cleaning process	0.05	m/s
Max. flow velocity	1.0	m/s
Compatible fluids	mineral oils (H, HL, HLP, HLPD, HVLP) synthetic esters (HETG, HEPG, HEES, HEPR), polyalkylen glycols (PAG), zinc and ash-free oils (ZAF), polyalphaolefins (PAO)	
Wetted materials	aluminum, polyamide (PA6 GF30), HNBR, epoxy resin	
Protection class [2]	IP 67	
Power supply	22 ... 33	VDC%
Power input	max. 0.5	A
Output		
Output analogue [3]	4 ... 20	mA
Accuracy of power output [4]	±2	%
Interface digital	RS 232/ CANopen/ SAE J1939	-
Connection		
Threaded connection	G1	inch
Tightening torque thread	50 ±5	Nm
Electrical connection	M12 x 1, 8-pole	-
Tightening torque M12-plug	0.1	Nm
Measuring range		
Fine particles	0 ... 100	%
Coarse particles	1 ... 10	-
Measuring resolution		
Fine particles	0.1	%
Coarse particles	1	-
Repeat accuracy		
Fine particles	±5	%
Weight	~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

OPCom FerroS	SPCO 500-1000

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