

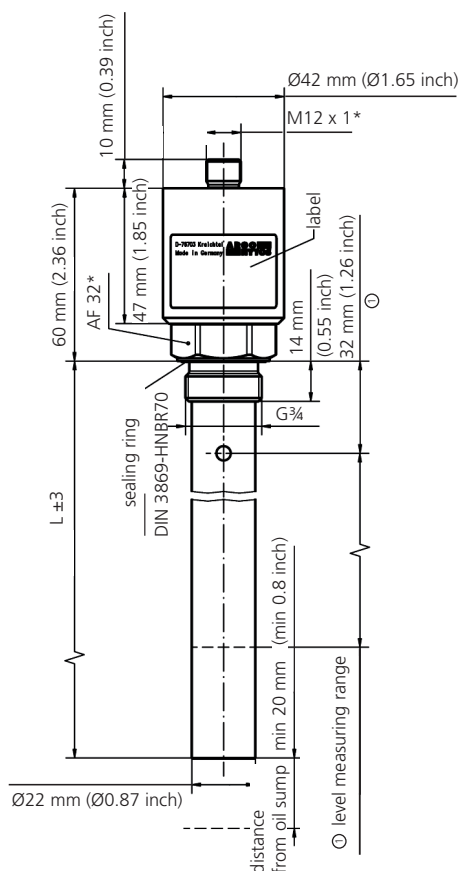
Lubricant Condition Sensor

LubCos Level

Continuous Oil Condition Monitoring



LubCos Level



* mm

Dimensions

- LubCos Level 200: L = 200 mm (7.87 inch)
measuring range = 115 mm (4.53 inch)
- LubCos Level 375: L = 375 mm (14.76 inch)
measuring range = 288 mm (11.34 inch)
- LubCos Level 615: L = 615 mm (24.21 inch)
measuring range = 515 mm (20.28 inch)

Description

Application area

Stationary screw-in sensor for continuous determination of the oil condition, humidity and temperature in hydraulic and lubricating oils as well as measuring the fluid level.

Performance features

Measurement of changes in hydraulic fluids and lubricants. Data is continuously documented, evaluated and stored. In that way deterioration and changes in the oil (e.g. water leakage, oil change, ...) can be indicated. Through this, damage can be recognized or completely avoided at an early stage. This offers the opportunity to prevent machine failures as well as to prolong maintenance and oil change intervals by means of appropriate measures. Furthermore, by monitoring the lubricant, correctly performed maintenance work and the use of the required lubricant quality may be documented.

Measuring principle

The sensor records the following different physical oil characteristics as well as its periodic change: Temperature, relative oil humidity and water activity, relative dielectric number (relative permittivity), conductivity of the fluid and fluid level respectively.

As especially the conductivity and the relative dielectric number show a strong connection to the temperature, next to the characteristic values at current temperature the sensor also sends the data at reference temperature (40 °C / 104 °F). The sensor is able to evaluate condition changes automatically.

Design characteristics

The sensor is provided with a G $\frac{3}{4}$ thread and can be integrated in the tank. The sensor that measures the oil parameters is at the end of the lance. This ensures that the sensor element is always fully immersed and the oil parameters and their changes may be correctly defined. Above the sensor element there is a special level transducer by which the filling level can be determined. Communication with the sensor either takes place over a serial RS 232 interface, two analogue outputs (4 ... 20 mA) or CANopen.

In order to also enable a long-term record of data up to half a year, the sensor is provided with an internal data storage unit.

Software

A free software for data recording and evaluation of the measured values can be downloaded from our website at www.argo-hytos.com > Products > Sensors & Measurements > Software.

Technical data

Sensor data	Size	Unit
Max. operating pressure	50 (725)	bar (psi)
<i>Operating conditions</i>		
Temperature ¹	-20 ... +85 (-4 ... +185)	°C °F
Rel. humidity ¹	0 ... 100	% r.H. (non-con- densing)
Compatible fluids	mineral oils (H, HL, HLP, HLPD, HVLP), synthetic esters (HETG, HEPG, HEES, HEPR), polyalkylenglycols (PAG), zinc and ash-free oils (ZAF), polyalphaolefins (PAO)	
Wetted materials	aluminum, HNBR, polyurethane resin, epoxy resin, chemical nickel/gold (ENIG), soldering tin (Sn96,5Ag3Cu0,5NiGe), aluminum oxide, glass (DuPont QQ550) gold, silver-palladium	
Protection class ²	IP67	
Power supply ³	9 ... 33	V
Power input	max. 0.2	A
<i>Output</i>		
Power output (2x) ⁴	4 ... 20	mA
Accuracy power output ⁵	± 2	%
Interfaces	RS 232/ CANopen/ (SAE J1939 on request)	-
<i>Connections</i>		
Threaded connection	G¾	inch
Tightening torque of threaded connection	45 ±4.5	Nm
Electrical connection	M12 x 1, 8-pole	-
Tightening torque M12-connection	0.1	Nm
<i>Measuring range</i>		
Rel. dielectric number	1 ... 7	-
Rel. humidity	0 ... 100	% r.H.
Conductivity	100 ... 800,000	pS/m
Temperature	-20 ... +85 (-4 ... +185)	°C °F
Fluid level	115/288/515 (4.53/11.34/ 20.28)	mm inch
<i>Measuring resolution</i>		
Rel. dielectric number	1*10 ⁻⁴	-
Rel. humidity	0.1	% r.H.
Conductivity	1	pS/m
Temperature	0.1	K
Fluid level	0.1	%

Sensor data	Size	Unit
<i>Measuring accuracy⁶</i>		
Rel. dielectric number ⁷	±0.015	-
Rel. humidity (10 ... 90%) ⁸	±3	% r.H.
Rel. humidity (<10%, >90%) ⁸	±5	% r.H.
Conductivity (100 ... 2000 pS/m)	±200	pS/m
Conductivity (2000 ... 800,000 pS/m)	Typ. <±10	%
Temperature	±2	K
Fluid level	Typ. <±5	%
Response time humidity measurement (0 to 100%)	<10	min
Weight	170/210/250	g

¹ Outside the specified measuring range, there are possibly no plausible measuring values to be expected

² With screwed on connector

³ Automatic switch off at U <8 V and U >36 V,
with load-dump impulses over 50V an external protection must be provided

⁴ Outputs IOut1 and IOut2 are freely configurable
(see interfaces and communication commands)

⁵ In relation to the analogue current signal (4 ... 20 mA)

⁶ Works calibration

⁷ Calibrated to n-Pentan at 25 °C (77 °F)

⁸ Calibrated to air at room temperature

Order code

LubCos Level 200, length 200 mm (7.87 inch)	SCSO 150-1200
LubCos Level 375, length 375 mm (14.76 inch)	SCSO 150-1375
LubCos Level 615, length 615 mm (24.21 inch)	SCSO 150-1615

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