Continuous
Oil Condition Monitoring

LubCos H_2O Humidity Sensor

Application area

Water is not desired in hydraulic fluids and lubricants. High concentration of water can cause severe disturbance in operation and damage.

Performance features

The LubCos H_2O measures the relative humidity of the oil and therefore displays the saturation degree in the water directly:

- 0 %: Absolutely dry oil.
- 100 %: The oil is completely saturated with water. Additional water will not be dissolved anymore and will present itself as free water.

In contrast to the humidity analysis from laboratories, where the absolute water content is defined in ppm (parts per million), the saturation limit of the oil can be determined by relative humidity measurement. The advantage of the relative humidity over the absolute water content is, that it is not necessary to know the oil or its saturation limit in order to determine if there is free or dissolved water.

Example:

- Mineral oils (e.g. HLP) have a comparatively low water absorption capacity. 500 ppm may signify that the oil is over-saturated and that free water exists.
- Ester oils (e.g. HEES) have a relatively high water capacity. 500 ppm may show that the oil is just saturated by 15 %.

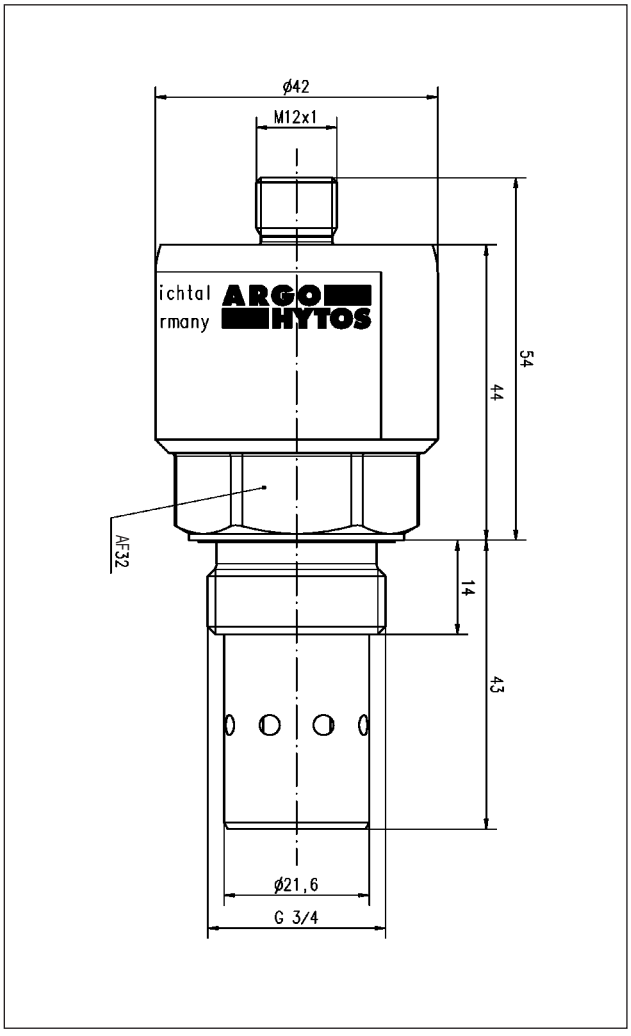
Please also note the characteristics of the relative humidity with different temperatures: Warm oil can dissolve more water than cold oil. Therefore the relative humidity of the oil increases in case of no further water supply. Hot, relatively dry oil, may suddenly keep free water if the ambient temperature cools down.

The LubCos H_2O points out the current saturation of the oil with water, independent from oil type and temperature and additionally assures operation of systems by directly warning.

Design characteristics

The sensor is provided with a G¾ thread and can be e.g. integrated in a return line or the tank.
The communication with the sensor either takes place over a serial interface or over two analog outputs (4 ... 20 mA).

LubCos H_2O



Technical data

Measuring principle

The sensor records the relative oil humidity and oil temperature. Through an oil specific calibration it is possible to calculate the absolute humidity.

The measuring values are given by RS232 and the analog outputs.

Software

A free PC-software for data recording and evaluation of the measured values can be downloaded from our website at www.argo-hytos.com within the download area.

Order code

LubCos H_2O	SCSO 300-1000

Accessories

Screw-in block for mounting in a return line, connection G3/4	SCSO 100-5070
Lance for in-tank mounting	SCSO 100-5000
Complete data cable set, 5 m length	SCSO 100-5030
Data cable with open ends, 5 m length	SCSO 100-5020
Contact box for connection of a data cable	SCSO 100-5010
USB adapter - RS232 serial	PPCO 100-5420
Power supply	SCSO 100-5080
Ethernet - RS232 gateway for connection	SCSO 100-5100
Display and storage device LubMon Visu	SCSO 900-1000

Sensor data	Size	Unit
Max. operating pressure	10	bar
Operating temperature fluid[1]	- 20 ... + 100	°C
Ambient conditions, operation, storing		
Temperature	- 20 ... + 80	°C
Humidity	0 ... 95	% r.H.
Protection class	IP 67	
Pressure fluids	Mineral oils, synthetic ester, biodegradable oils	
Wetted materials	Aluminium, HNBR, poly-	
Sealing materials	urethane resin, epoxy resin	
Power supply	9 ... 33	VDC
Output		
Power output (2x)[2]	4 ... 20	mA
Interface	RS 232	
Connection		
Threaded connection	G¾	
Electrical connection	M 12 x 1, 8-pole connector	
Measuring range[3]		
rel. humidity	0 ... 100	%
Temperature	- 20 ... +120	°C

[1] Permanently
[2] Output IOut1 and IOut2 are freely configurable (cp. interface and communication command)
[3] Additional display of temperature gradient and trend

ARGO HYTOS

We produce fluid power solutions
ARGO-HYTOS GMBH · Industriestraße 9 · 76703 Kraichtal-Menzingen · Germany
Phone: +49 7250 76-0 · Fax: +49 7250 76-199 · info@argo-hytos.com · www.argo-hytos.com

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