We produce fluid power **solutions**

ARGO HYTOS

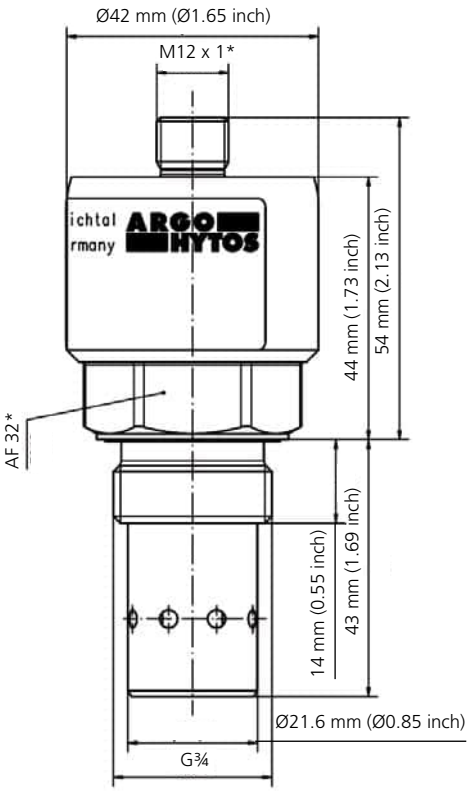
Sensors & Measurement

Oil Condition Sensors
Particle Counting
Visualization
Monitoring and Guidance
Oil Diagnostic Systems

LubCos H_2O

Continuous Oil Condition Monitoring

LubCos H_2O



* mm

Dimensions

Description

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 thus directly displays the saturation degree in the water:

- 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 direct warning.

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 up to the saturation limit.

The measuring values are given by RS 232 and the analogue outputs.

Design characteristics

The sensor is provided with a G¾ thread and can be integrated in the tank or via adapter in lines.
Communication with the sensor either takes place over a serial interface or over two analog outputs (4 ... 20 mA).

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)
Operating conditions		
Temperature[1]	-40 ... +105 (-40 ... +221	°C °F)
Rel. humidity[1]	0 ... 100	% r.H. (non-condensing)
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 (Sn60Pb40,Sn96,5Ag3CuO,5NiGe), aluminum oxide, glass (DuPont QQ550)	
Protection class[2]	IP67	
Power supply[3])	9 ... 33	V
Power input	max. 60	mA
Output		
Power output (2x)[4]	4 ... 20	mA
Accuracy power output[5]	± 2	%
Interface	RS 232	-
Connections		
Threaded connection	G¾	inch
Tightening torque of threaded connection	45 ±4.5	Nm
Electrical connection	M12 x 1, 8-pole	-
Tightening torque M12-connector	0.1	Nm
Measuring range		
Rel. humidity	0 ... 100	%
Temperature	-20 ... +85 (-4 ... +185	°C °F)
Measuring accuracy		
Rel. humidity	1	% r.H.
Temperature	0.1	K
Measuring accuracy[6]		
Rel. humidity (10 ... 90%)[7]	±3	% r.H.
Rel. humidity (<10%, >90%)[7]	±5	% r.H.
Temperature	±2	K
Response time humidity measurement (0 to 100%)	<1	min
Weight	115	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 air at room temperature

Order code

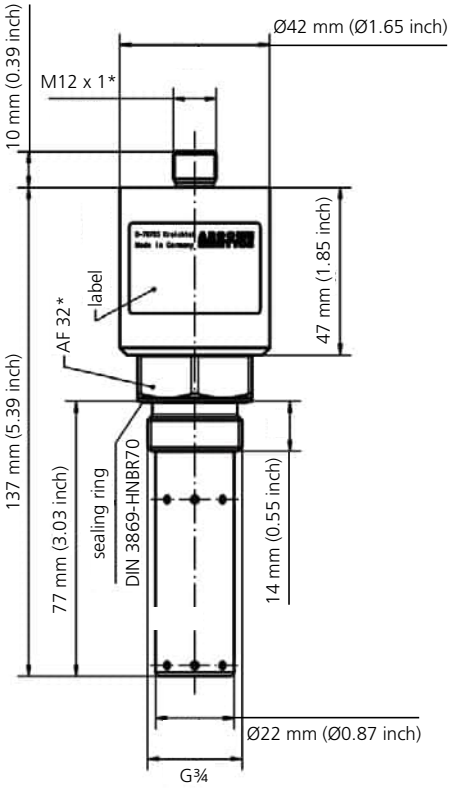
LubCos H_2O	SCSO 300-1000

Accessories	
Screw-in block for mounting in a return line, connection G¾	SCSO 100-5070
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	SCS0 900-1000

LubCos H_2O+ II

Continuous Oil Condition Monitoring

LubCos H_2O+ II



* mm

Dimensions

Description

Application area

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

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 inleakage, 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 physical oil characteristics as well as its periodic change: Temperature, relative oil humidity and water activity resp., relative dielectric number (relative permittivity) and conductivity of the fluid.
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

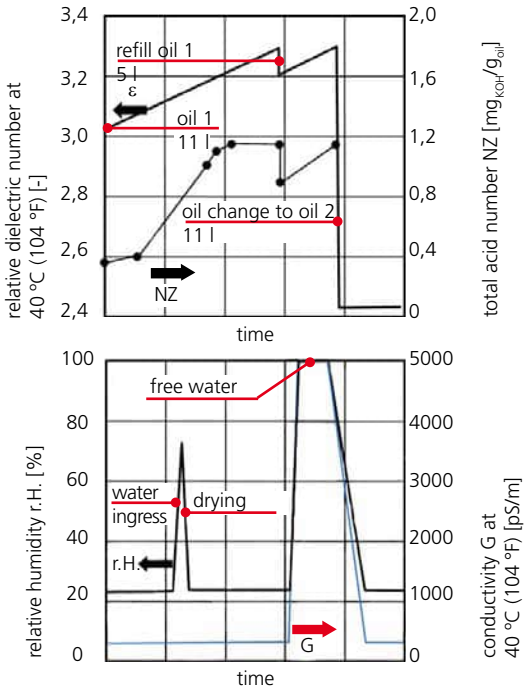
The sensor is provided with a G¾ thread and can be integrated in the tank.
The communication with the sensor either takes place over a serial RS 232 interface, two analogue outputs (4 ... 20 mA) or CANopen.
In order to also enable a long-term record of data up to half a year, the sensor is provided with 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.

Application example

By using the sensor different changes of the oil condition can be detected. The following example shows a typical course of relative dielectric number, conductivity and relative humidity during various changes of the condition in the system. By means of the characteristics, different oil types may be differed, oil refreshing and oil change can be detected and the relative humidity, free water as well as the deterioration and deterioration rate can be defined respectively.



Technical data

Sensor data	Size	Unit
Max. operating pressure	50 (725)	bar (psi)
Operating conditions		
Temperature[1]	-20 ... +85 (-4 ... +185	°C °F)
Rel. humidity[1]	0 ... 100	% r.H. (non-condensing)
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 (Sn96,5Ag3CuO,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

Sensor data	Size	Unit
Output		
Power output (2x)[4]	4 ... 20	mA
Accuracy power output[5]	± 2	%
Interfaces	RS 232/CANopen	-
Connections		
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
Measuring range		
Rel. dielectric number	1 ... 7	-
Rel. humidity	0 ... 100	% r.H.
Conductivity	100 ... 800,000	pS/m
Temperature	-20 ... +85 (-4 ... +185	°C °F)
Measuring resolution		
Rel. dielectric number	$1*10^{-4}$	-
Rel. humidity	0.1	% r.H.
Conductivity	1	pS/m
Temperature	0.1	K
Measuring accuracy[6]		
Rel. dielectric number[7]	rel. ±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
Response time humidity measurement (0 to 100%)	<10	min
Weight	140	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 H_2O+ II	SCSO 100-1010
LubCos H_2O+ II SAE J1939	SCSO 100-1010J

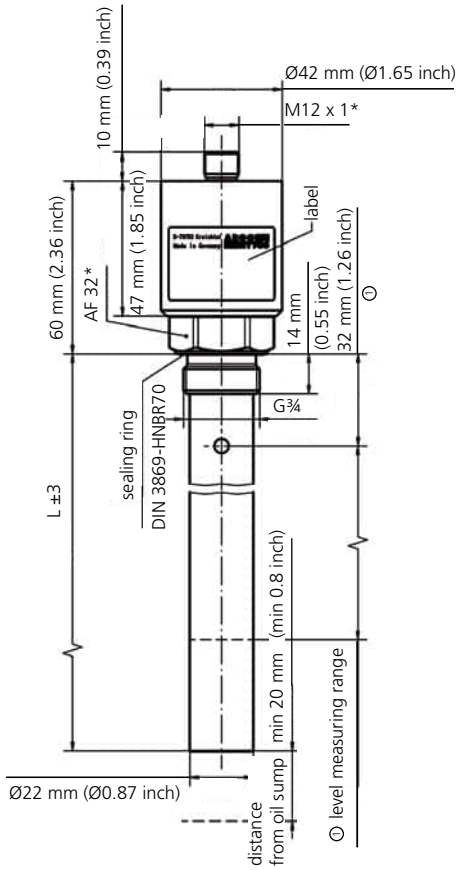
Accessories

Screw-in block for mounting in a return line, connection G¾	SCSO 100-5070
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

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 inleakage, 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 G¾ 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)
Operating conditions		
Temperature[1]	-20 ... +85 (-4 ... +185	°C °F)
Rel. humidity[1]	0 ... 100	% r.H. (non-condensing)
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 (Sn96,5Ag3CuO,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
Output		
Power output (2x)[4]	4 ... 20	mA
Accuracy power output[5]	± 2	%
Interfaces	RS 232/ CANopen/ (SAE J1939 on request)	-
Connections		
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
Measuring range		
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)
Measuring resolution		
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
Measuring accuracy[6]		
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

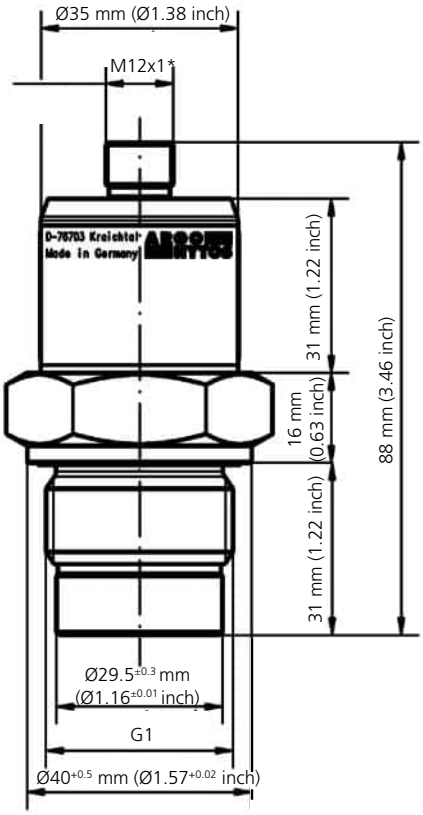
LubCos Level 200, length 200 mm (7.87 inch)	SCSO 150-1200
LubCos Level 375, length 375 mm (14.76 inch)	SCSO 150-1375
LubCos Level 615, length 615 mm (24.21 inch)	SCSO 150-1615

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

OPCom FerroS

Continuous Oil Condition Monitoring

OPCom FerroS



* 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).

Technical data

Sensor data	Size	Unit
Max. operating pressure	20 (290)	bar (psi)
Operating conditions		
Temperature	-40 ... +85 (-40 ... +185	°C °F)
Humidity [1]	0 ...100	% r.H.
Min. distance for attraction of fine particles (1g) in oil with		
Kin. viscosity <100mm²/s Kin. viscosity 300mm²/s Kin. viscosity 500mm²/s	~9.0 ~7.5 ~7.0	mm mm 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] Accuracy of power output [4] Interface digital	4 ... 20 ±2 RS 232/ CANopen/ SAE J1939	mA % -
Connection		
Threaded connection Tightening torque thread Electrical connection Tightening torque M12-plug	G1 50 ±5 M12 x 1, 8-pole 0.1	inch Nm - Nm
Measuring range		
Fine particles Coarse particles	0 ... 100 1 ... 10	% -
Measuring resolution		
Fine particles Coarse particles	0.1 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

Order code

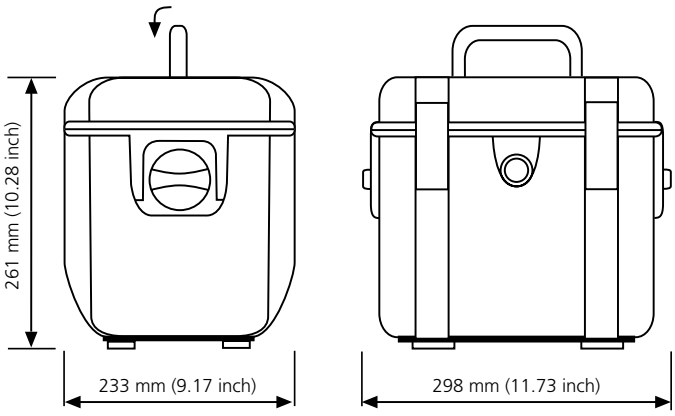
OPCom FerroS	SPCO 500-1000
Accessories	
Complete data cable set, 5 m (16 ft) length	SCSO 100-5030
Data cable with open ends, 5 m (16 ft) length	SCSO 100-5020
Contact box for connection of a data cable	SCSO 100-5010
USB adapter - RS 232 serial	PPCO 100-5420
Power supply	SCSO 100-5080
Ethernet - RS 232 gateway	SCSO 100-5100
Display and storage device LubMon Visu	SCSO 900-1000

Portable Particle Monitor

OPCom Portable Oil Lab

Particle Counting - The Easy Way

OPCom Portable Oil Lab



Dimensions

Description

Mobile oil laboratory for oil cleanliness and condition monitoring - easy, compact and cost-efficient

The OPCom Portable Oil Lab is a mobile oil laboratory for service, with which the oil cleanliness and the oil condition in hydraulic and lubrication systems can be measured quickly and easily.

Sampling can be carried out directly via a pressure line or via the integrated pump. Measurement can be effected either manually or automatically in an adjustable time interval.

The OPCom Portable Oil Lab enables particle measuring according to the latest standard and displays the cleanliness classes according to ISO 4406:1999, SAE AS4059, NAS 1638 and GOST 17216. In addition, the relative humidity and oil temperature are displayed. Optionally, further information on the oil condition, taken from the conductivity and polarity of the oil, can be shown via the integrated display.

All functions of the OPCom Portable Oil Lab can intuitively be operated via the integrated keypad. The internal data memory allows saving of more than 1250 data records, which may comfortably be transferred to a processor via USB adapter or SD card. Furthermore, the OPCom Portable Oil Lab includes an integrated printer to print any data record on the spot.

The real-time clock, integrated in the OPCom Portable Oil Lab, adds a time-stamp to all measured data in order to facilitate a later allocation. The measured data can additionally be marked with a freely definable indication of the measuring point.

The integrated powerful battery is available in two capacity classes and allows operation of several hours. The used battery is characterized by a low self-discharge, long operating state as well as a recharging of less than one hour. The compact particle counter is supplied with a power supply, hoses and couplings. Amongst others, the OPCom Portable Oil Lab can additionally be delivered together with a convenient carrying bag with separated pockets for hoses and samples as well as for the recharger and other accessories.

The portable oil service device OPCom portable Oil Lab offers an intelligent and cost-efficient possibility for monitoring of your system and oil parameters.

Technical data

Parameter	Size	Unit
Operating pressure		
High-pressure connection[1]	5 ... 320 (73 ... 4,640)	bar (psi)
With pump operation	0	bar (psi)
Viscosity range fluid[2]	5 ... 1000	mm²/s
Operating temperature range fluid	0 ... +60 (+32 ... +140)	°C (°F)
Operating conditions		
Temperature	-10 ... +60 (+14 ... +140)	°C (°F)
Rel. humidity	0 ... 95	% r.H. (non-condensing)
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	chrome, aluminum, stainless steel, Viton, steel, brass, HNBR, NBR, polyurethane resin, epoxy resin, chemical nickel/gold (ENIG), soldering tin (Sn96,5Ag3CuO,5NiGe), aluminum oxide, glass (DuPont QQ550), gold, silver-palladium, sapphire, PVC (hoses)	
Power supply device		
Power supply	24	VDC
Power consumption	max. 8	A
Power supply for the according power adaptor		
Power supply	100 ... 240	VAC (50/60 Hz)
Power consumption	max. 4	A
Power at 24VDC-output	max. 221	W
Characteristics battery		
Nominal capacity	7500	mAh
Loading time	< 1	h
Running time when measuring without pump (When measuring with pump the running time decreases depending on the oil viscosity)	> 24	h
Display particle measurement		
ISO 4406:99	0 ... 28 (calibrated area 10...22)	ordinal number (OZ)
SAE AS 4059E	000 ... 12	ordinal number (OZ)
NAS 1638 (based)[3]	00 ...12	ordinal number (OZ)
GOST 17216 (based)[3]	00 ...17	ordinal number (OZ)
Size channels	4, 6, 14, 21	µm(c)
Measuring range oil parameter		
Rel. permittivity	1 ... 7	-
Rel. humidity	0 ... 100	%
Conductivity	100 ... 800,000	pS/m
Temperature	-20 ... +120 (-4 ... +248)	°C (°F)
Measuring accuracy		
Particle measurement (within calibr. range) - ISO 4 / ISO 6	± 1	ordinal number (OZ)
Particle measurement (within calibr. range) - ISO 14 / ISO 21	± 2	ordinal number (OZ)
Rel. dielectric number[4]	± 0.015	-
Rel. humidity (10 ... 90%)[5]	± 3	% r.H.
Rel. humidity (<10%, >90%)[5]	± 5	% r.H.
Conductivity (100 ... 2000 pS/m)	± 200	pS/m
Conductivity (2000 ... 800,000 pS/m)	Typ. < 10	%
Temperature	± 2	K

Parameter	Size	Unit
Interfaces	USB-B, SD-card (SD or SD-HC in FAT/FAT16/FAT32-data format)	
Size internal data memory	1250 readings (with time stamp)	
Weight	< 10 (22)	kg (lbs)
Scope of delivery	Manual, power supply 100-240V, power cable, low-pressure hose set incl. connection couplings, high-pressure hose	

[1] Depending on the oil viscosity
[2] Depending on the permissible operating pressure
[3] From software version 1.70.15 upwards
[4] Calibrated to n-Pentan at 25 °C (77 °F)
[5] Calibrated to air at room temperature

Order code

OPCom Portable Oil Lab	PPCO 300-1000

Spare parts	
Set, cover for SD and USB	PPCO 300-5090
Hose set with couplings	PPCO 300-5050
Minimess hose 2 m (6.6 ft) M16 x 2	PPCO 100-5280
Paper rolls for thermal printer	SCSO 900-5075
Power supply	PPCO 300-5120
Power cable	PPCO 300-5130
Protection caps (2x)	PPCO 300-5080
Suction connection	PPCO 300-5060
Protective strainer	PPCO 300-5070

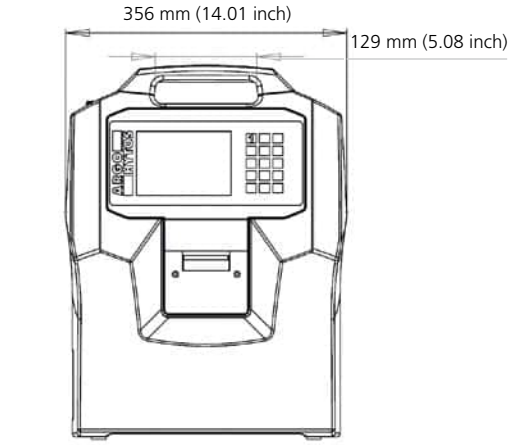
Optional accessories (not included in the scope of delivery)	
Carrier bag for accessories	PPCO 200-5020
Carrying strap	PPCO 200-5010
SD-card	SCSO 900-5050
SD-card reader	SCSO 900-5040

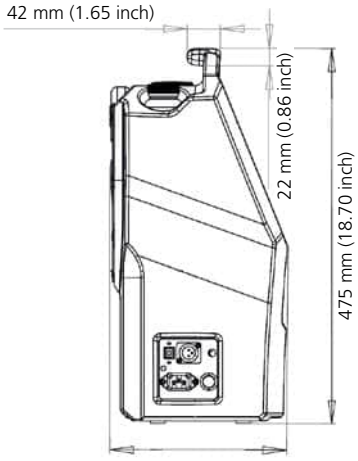
Power cable with non-European plug on demand

OPCount

Online and bottle measurement · Mobile and stationary operation · Lab quality accuracy

OPCount





Dimensions

Description

OPCount - Accurate mobile and stationary measurements

The OPCount is a particle counter, designed for stationary or mobile operation. With its touch display and keypad it can be operated intuitively.

The volumetric sensor cell and the modern and technically advanced components guarantee high resolution in combination with measuring accuracy. Each particle passing through the sensor is detected, measured and counted.

The measurement results are shown according the standards ISO 4406 and SAE AS 4059. Thanks to the 32-bit high performance control unit, flexible measurements and simultaneous storage of data from different measuring points are possible. By operating the sensor with pressure, bubble formation is prevented. The measurement results can be printed on site on the integrated printer. With the included software, the measurement data can be downloaded to a PC for further processing.

The touch display indicates the particle sizes and numbers as well as the cleanliness classes. By preset measurement profiles, online and bottle samples can quickly be measured. These profiles can be easily created and customized by the user via the touch display. To prevent incorrect or unauthorized operation, the user area of the OPCount can be protected by a password.

Via the conversational setting menu of the OPCount, multiple languages are available. German, English, French, Spanish, Portuguese, Russian, Dutch, Chinese and Finnish may be selected.

The device is delivered with a power cord, USB cable, Minimess hose incl. adapter and low pressure hose in a carrying case.

Additionally included are:

- 1 Software CD
- 1 Calibration certificate
- 1 residual oil bottle
- 2 sample bottles

Technical data

Parameter	
Operating pressure	
Low pressure	0 - 7 bar (0 - 102 psi)
High pressure	4 - 420 bar (58 - 6090 psi)
Fluid specifications	
Fluid temperatures	10 °C - 60 °C (+50 °F - +140 °F)
Viscosity range of fluid	with bottle measurement up to 200 cSt; at high pressure up to 350 cSt; at lubrication systems up to 1000 cSt
Flow rate	25 ml / min
Technical data	
Ambient temperature	5 °C - 40 °C (+41 °F - +104 °F)
Relative humidity	max. 70%
Number of channels	8 channels
Size channels	4, 6, 10, 14, 21, 25, 38, 70 µm 2, 5, 10, 15, 20, 25, 50, 100 µm*
Calibration	according to ISO 4402* / ISO 11171
Cleanliness classes	ISO 4406; NAS 1638*; SAE AS 4059; GJB 420 A and GOST 17216*
Light source	laser diode
Weight	9 kg (20 lbs)
Dimensions	475 x 356 x 225 mm (18.70 x 14.02 x 8.86 inch)
Internal data storage	4000 data records
Interface	USB
Measuring range	
ISO 4406	01 - 23
NAS 1638	00 - 12*
SAE AS 4059D	000A - 12F
GOST 17216	00 - >17*
GJB 420A	000 - >12

Parameter	
Electrical connections	
Power supply	100 - 240 Volt, 50/60 Hz 10 - 36 Volt (XLR-connection, charging of battery not possible)
Running time of battery	4 hours
Software	
Download Software	for PC safeguarding of the measurements stored in the device
Compatibility with sample fluids	Materials getting into contact with the samples: Steel 1.0161 (St37-) and 1.4571 (V4A), aluminum, borosilicate glass, polyamide, FKM. They are compatible with almost all mineral oil products. The standard version of the OPCount is not stainless and not compatible with esters or ketones as for example acetone.

* optional

Order code

OPCount	OC 1000

Accessories	
Thermal paper	OC 5310
Vacuum pump	OC 5240
Sensor cable	OC 5430