OPCom Particle Monitor

Continuous Oil Condition Monitoring

OPCom Particle Monitor

140.3 mm (5.52 inch)
89 mm (3.50 inch)

x

M6 x 7*

G¼   G¼

12 mm (0.47 inch)
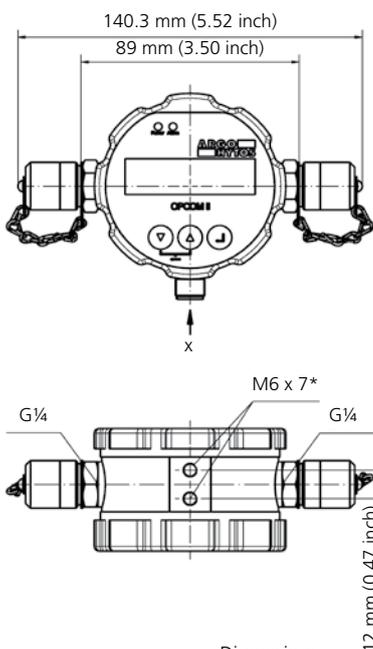
* mm   Dimensions

Description

Application area

The OPCom Particle Monitor is a compact particle measurement device for continuous monitoring of contamination and wear in hydraulic fluids and lubricants.

Performance features

Recognizing changes

Particle monitors precisely display any change in contamination of a system. Thus you can react quickly with an increase in particle concentration and countermeasures can be taken. Subsequent damages are minimized and costs are reduced.

High pressure range

The OPCom Particle Monitor is designed for operating with high pressure. Thus it can directly be mounted to a pressure line.

Intuitive operating

The OPCom Particle Monitor is equipped with an intensely illuminated graphic display and a keypad by which you may set up all required adjustments. The menu navigation is made up intuitively and logically.

Wide communication possibilities

The OPCom Particle Monitor exports data to a serial interface or optionally to a CAN-Bus (CANopen + SAE J1939). In parallel, the configurable 4 - 20 mA interface can be connected. Over a digital alarm output you will be warned when limits are exceeded or fallen below. Readings can run time-controlled, manually or started and stopped over a digital input. The data can also be stored on the integrated memory unit.

Design characteristics

The fluid side, the OPCom Particle Monitor is equipped with two Minimess connections to connect the sensor generally in the off-line circuit to the system. The electrical connection is installed via an 8-pole M12 x 1 circular plug. The integrated data memory allows data recording over a longer period. Besides all its technical functions, the OPCom Particle Monitor scores by its compact and optical design.

Measuring principle

The OPCom Particle Monitor is an optical particle monitor which works to a so-called light extinction principle. This means that particles are classified within a measuring cell with the help of a laser regarding their size and quantity. The device is calibrated to ISO 11943. It calculates and displays results according to ISO 4406:99, SAE AS 4059, NAS 1638 und GOST 17216. More details and conversion tables: see manual.

Software

A PC-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.

Versions

The OPCom Phosphate Ester version has specially been developed for use in phosphate ester fluids. This version is delivered without Minimess couplings.
Another variant is the OPCom without display.

Warnings

› Avoid contact of phosphate ester fluids with the housing of the device.
› Device can contain remains of the calibration fluid.

Technical data

Sensor data	Size	Unit
Max. operating pressure		
dynamic	420 (6090)	bar (psi)
static	600 (8700)	bar (psi)
Permissible flow rate	50 ... 400	ml/min
Operating conditions		
Temperature	-20 ... +85 (+4 ... +185	°C °F)
Rel. humidity	0 ... 100	% r.H. (non-condensing)
Display readable up to	+60 (+140	°C °F)
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) phosphate ester[*1]	
Wetted materials	Stainless steel, sapphire, chrome, FFKM[*1], NBR[*2], Minimess coupling[*2]: zinc/nickel	
Protection class[1]	IP67	-
Power supply	9 ... 33	V
Power input	max. 0.3	A
Max. power consumption	2	W

Sensor data	Size	Unit
Output		
Power output[2]	4 ... 20	mA
Accuracy power output[2]	± 2	%
Interfaces	RS 232/CANopen/ SAE J1939	-
Alarm contact	Open Collector	-
Digital input for start and stop		
Power supply	9 ... 33	V
Data memory	3000	data records
Connecting dimensions		
Fluid connections	G¼ Minimess[*2] M16x2	inch -
Electrical connection	M12 x 1, 8-pole	-
Tightening torque M12-connection	0.1	Nm
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 accuracy		
Particle measurement (in calibrated area)	±1	ordinal number (OZ)
Weight	~720	g

[1] With screwed-on connector
[2] Output IOut is freely configurable (see interfaces and communication commands)
[3] From software version 2.02.15 upwards

[*1] only applies to phosphate ester version
[*2] only applies to OPCom Particle Monitor & OPCom without display

Order code

OPCom Particle Monitor	SPCO 300-1000
OPCom Particle Monitor for phosphate ester	SPCO 300-2000
OPCom Particle Monitor without display	SPCO 300-1200

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

Minimess connection with volume flow limiting*[2]

Pressure range 1:	2 … 50 bar (29 … 725 psi)	SPCO 300-5105
Pressure range 2:	50 … 400 bar (725 … 5800 psi)	SPCO 300-5140

Minimess connection with control loop*[2]	SPCO 300-5100

*[1] only applies to phosphate ester version
*[2] only applies to OPCom Particle Monitor & OPCom without display

LubMon Visu

Continuous Oil Condition Monitoring

LubMon Visu
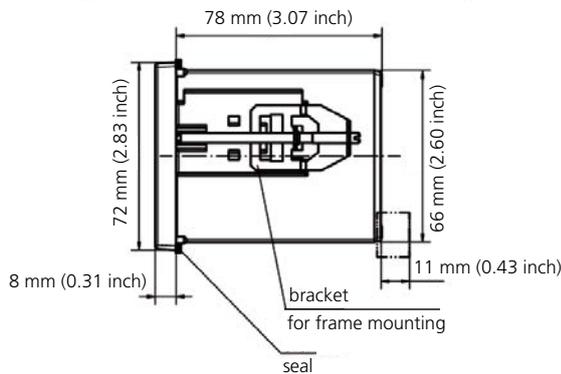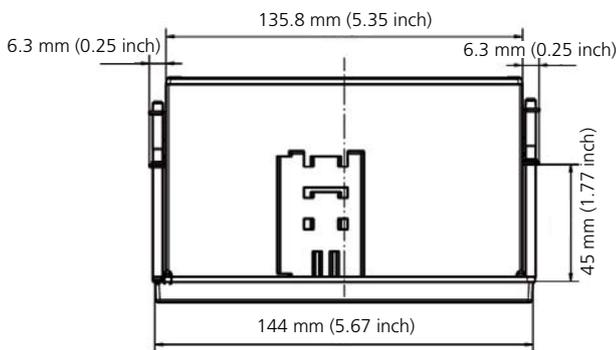
Description

Application area

LubMon Visu is a display unit, suitable for panel-mounting, with integrated data memory for connection of various sensors. ARGO-HYTOS offers a wide range of compatible sensors for monitoring of hydraulic and lubricating fluids. These are amongst others particle monitors, temperature, humidity and oil aging sensors as well as sensors for monitoring of the filter lifetime. Furthermore, any sensor with analogue current output may be connected e. g. for pressure or filter monitoring.

Performance features

Two sensors with serial interface as well as two sensors with analogue interface may additionally be attached to the LubMon Visu. The recorded measured values are collected in the data memory and may be copied onto a SD-memory card if desired. By means of the integrated display, the current measured values as well as the stored data may be indicated with timestamp. Navigation through the data and the operating menu is carried out over six keys at the front side of the module. Besides of the graphical display, alarms and status information are shown by four LEDs.

Communication with a processor or a SPS is effected by USB 2.0 or optionally by Ethernet. In order to activate the switch signals, there are also three potential-free switch contacts available. Optionally the printer, listed under accessories, may be connected to the module.

Design characteristics

LubMon Visu is designed for panel-mounting. Cabling is effected by the plug at the back side of the device. The sensors are supplied with power by the connecting plugs also.

135.8 mm (5.35 inch)
6.3 mm (0.25 inch)
6.3 mm (0.25 inch)
45 mm (1.77 inch)
144 mm (5.67 inch)
78 mm (3.07 inch)
72 mm (2.83 inch)
66 mm (2.60 inch)
8 mm (0.31 inch)
11 mm (0.43 inch)
bracket
for frame mounting
seal

Dimensions

Technical data

Module data

Module data	Size	Unit
Power supply		
Voltage	9 ... 33	VDC
Power input	typ. 100	mA
	max. 300	mA
Ambient conditions		
Temperature, operation	0 ... +60	°C
	(-32 ... +140	°F)
Temperature, storing	0 ... +60	°C
	(-32 ... +140	°F)
Humidity, operation	0 ... 95	%
Humidity, storing	0 ... 95	%
Connections		
RJ45[1]	1x	
8-pole switch contact, provided with a thread	3x	
USB-B	1x	
SD-card slot	1x	
Operation		
Membrane keyboard	6	keys
Display		
Graphical display	128 x 32	pixel
Brightness	adjustable	

[1] Only available with Ethernet version

Order code

LubMon Visu, standard	SCSO 900-1000
LubMon Visu, Ethernet	SCSO 900-1010

Compatible sensors

LubCos H$_2$O	SCSO 300-1000
LubCos H$_2$O+ II	SCSO 100-1010
LubCos Level 200	SCSO 150-1200
LubCos Level 375	SCSO 150-1375
LubCos Level 615	SCSO 150-1615
OPCom	SPCO 300-1000
FerroS	SPCO 500-1000

Accessories

Connecting plug	SCSO 900-5010
Data cable with open ends, 5 m (16 ft) length	SCSO 100-5020
USB-SD card reader	SCSO 900-5040
SD-card	SCSO 900-5050
Compatible thermal printer	SCSO 900-5070
USB cable	SCSO 900-5060
Retaining clips	SCSO 900-5030

LubMon Connect

Continuous Oil Condition Monitoring

LubMon Connect

34.6 mm (1.36 inch)

85 mm (3.35 inch)

73 mm (2.87 inch)

25 mm (0.98 inch)

141 mm (5.55 inch)
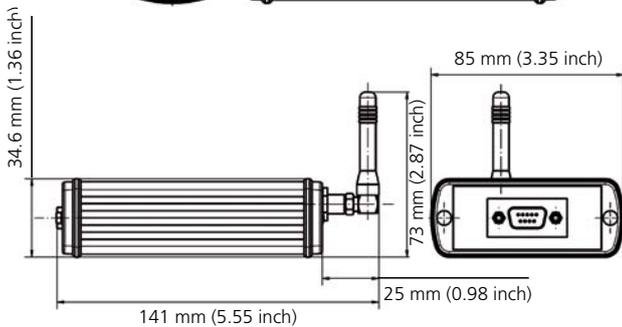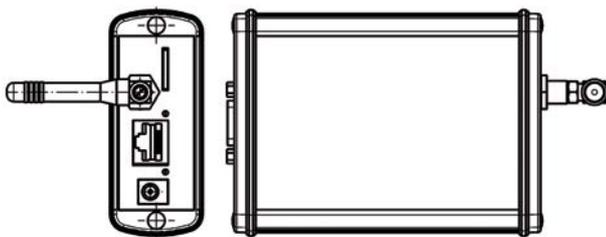
Dimensions

Application area

The LubMon Connect is a remote gateway for connection of ARGO-HYTOS sensors via a CANopen interface. The data of the connected sensors are automatically transferred to a web database and can be displayed or exported via an internet page.

By the use of the CAN Bus and the CANopen protocol, a simple and robust possibility is provided to integrate the sensors into existing systems in order to guarantee secure communication.

At the gateway an Ethernet interface and a GSM module are provided for data transfer to the internet. The communication can be carried out either via the at the location existing network or - e.g. with mobile or remote systems - also via the worldwide available GSM network.

The LubMon Connect communicates with an internet server which can store all incoming data in variable time intervals. The data can be visualized directly online in form of diagrams or exported for processing. For this purpose, a ring memory of 100,000 data sets is available.

Note: If desired, Condition Monitoring Systems with LubMon Connect and sensors may be supplied ready for connection (plug & play). For the internet portal of the LubMon Connect an annual fee shall be due.

Data	Size	Unit
Ambient conditions operation		
Temperature	+5 ... +50 (+41 ... +122	°C °F)
Humidity	0 ... 95	% r.H.
Ambient conditions storing		
Temperature	0 ... +60 (+32 ... +140	°C °F)
Humidity	0 ... 95	% r.H.
Power supply	12 ... 28	VDC
Power input	max. 0.3	A
CAN interface		
Plug	SUB-D9	-
Bus speed	100 / 125 / 250 / 500	kBaud
Protocol	CANopen	
Ethernet interface		
Connection type	RJ45	-
Speed	10/100	MBit
Protocol	UDP	

Data	Size	Unit
GSM		
Aerial	Stub Antenna FME	-
Transmission power @ 850/900 MHz	2	W
Transmission power @ 1800/1900 MHz	1	W
SIM card type	standard SIM card 1.8V / 3V	-
Frequencies	850 / 900 / 1800 / 1900 (Quad-Band EGSM)	MHz

Optical indications		
Power-LED		green
Ethernet-LED		yellow

Connection diagram (example)

Internet

LubMon Connect

OPCom

a)   b)   c)   h)   l)

d)

max. 6 pressure sensors (4 ... 20mA)

g)   e)

Analogue /CAN   f)

LubCos H$_2$O+ II

LubCos Level

Analogue/CAN-node
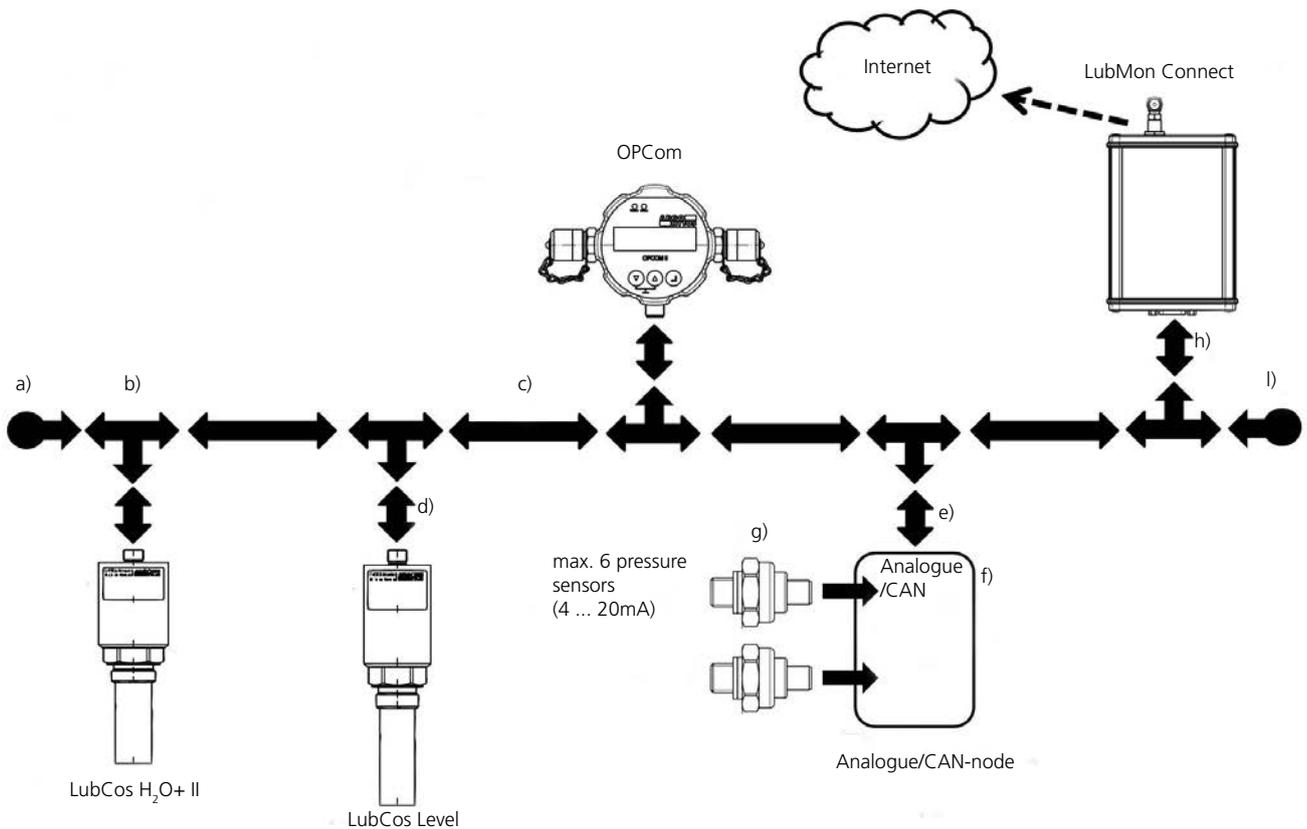
LubMon Connect	SCSO 700-1000

Accessories	
Fixing clamp LM Connect short side	SCSO 700-5010
Fixing clamp LM Connect long side	SCSO 700-5020
Subscription for one-year-use LM Connect	SCSO 700-5030
SMS card, 50 pcs. LM Connect	SCSO 700-5040
a) CAN terminator female	SCSO-700-5160
b) CAN T-connector	SCSO 700-5140
c) CAN cable standard 2 m (6.6 ft)	SCSO 700-5120
d) CAN sensor cable	SCSO 700-5110
e) CAN cable open leads 0.3 m (1 ft)	SCSO 700-5130
f) Analogue CAN adapter LM Connect	SCSO 700-5060
g) PSC pressure sensor	PSC 400-1843 PSC 250-1843 PSC 100-1843 PSC 010-1713
h) Sub-D CAN adapter LM Connect	SCSO 700-5050
i) CAN terminator male	SCSO 700-5150

Supported sensors	
LubCos H$_2$O+ II	SCSO 100-1010
LubCos Level 200	SCSO 150-1200
LubCos Level 375	SCSO 150-1375
LubCos Level 615	SCSO 150-1615
OPCom	SPCO 300-1000
FerroS	SPCO 500-1000

LubMon PC*light*
Continuous Oil Condition Monitoring
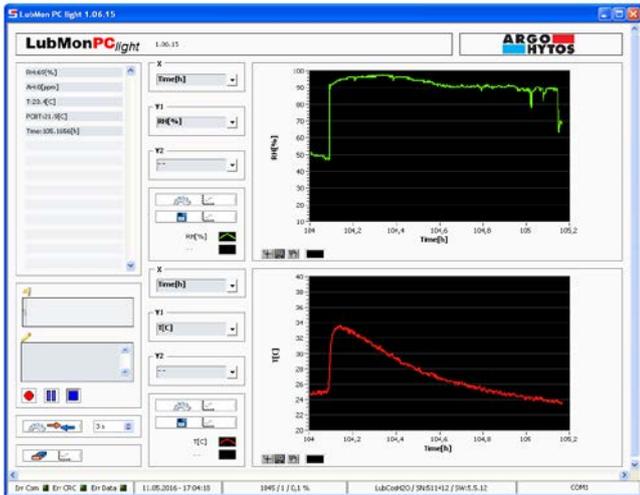
LubMon PC*light*

Description

Application area

The software LubMon PC*light* allows recording, storing and visualizing the incoming data from the condition sensors.

Performance features

The scope of operation of the LubMon PC*light* is specified below:

Communication

› communication optionally over RS 232 journal or TCP/IP
› free selection of IP-address, port number and COM-Port
› free adjustability of the sampling rate

Graphical visualization of the measured data

› two diagrams with respectively two y-axis and one x-axis
› flexible axis assignment
› logarithmic and linear axis display
› diverse zoom and formatting options
› list display of the currently measured data and units

Storing

› start/stop-function for automatic storing
› storing in .txt-format with header for series of measurement and labeling of the units
› recording of the current timestamp

Others

› intuitive operation

System requirements

The software is written in NI-LabVIEW. For operation, the current runtime environment LabVIEWRun-Time Engine and the NI.Visa Runtime Engine are necessary. This can optionally be down-loaded together with the program in packet.
The system requirements apply to the requirements of the runtime environment.
The following operating systems are supported:
from Windows 2000 on.

Software

The software can be downloaded from our website at www.argo-hytos.com > Products > Sensors & Measurements > Software.

LubMonPC *light*	available at www.argo-hytos.com

Supported sensors	
LubCos H$_2$O	SCSO 300-1000
LubCos H$_2$O+ II	SCSO 100-1010
LubCos Level 200	SCSO 150-1200
LubCos Level 375	SCSO 150-1375
LubCos Level 615	SCSO 150-1615
OPCom	SPCO 300-1000
OPCom FerroS	SPCO 500-1000

Accessories	
Contact box for connection of a data cable, M12 x 1, 8-pin	SCSO 100-5010
Data cable with open ends (5 m / 16 ft)	SCSO 100-5020
Complete data cable set, M12 x 1, 8-pin, (5 m / 16 ft)	SCSO 100-5030
USB adapter - RS 232 serial	PPCO 100-5420
Power supply	SCSO 100-5080
Ethernet - RS 232 gateway for sensor connection	SCSO 100-5100