Quickstart LubCos H_2O

V1.1.12
29616800

Read the safety instructions and operating instructions in the manual prior to commissioning!

For any questions please contact:

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The device complies with CE requirements

Read the safety instructions and operating instructions prior to commissioning!

Note: Illustrations do not always precisely correspond to the original. No legal claim can be derived due to incorrect information. Product design is subject to change without notice.

1. Quick Start

The steps that must be executed for commissioning the oil quality sensor **LubCos H_2Oplus II** are described below. The following components are necessary for this:

1. PC/laptop with RS232 connection, or alternatively a USB connection, that serves as the measurement computer.
2. Oil quality sensor **LubCos H_2Oplus II** (order number: SCSO 100-1010)
3. Sensor cable to RS232 (order number: SCSO 100-5030)
4. Power supply unit incl. rubber connector (order no. SCSO 100-5080)
5. Software LubMon**PC**$_{light}$ (www.argo-hytos.com)
6. In addition for connection via USB: USB to RS232 converter with associated driver software (order number: SCSO 100-5040)
7. Optional adapter for return line (order number: SCSO 100-5070)

The **LubMonPC**$_{light}$ software can be downloaded from the web site **www.argo-hytos.com**.

The components must be prepared as follows:

A) Software installation LubMonPC$_{light}$

1. Unpack the **LubMonPClight.zip** file on your computer.
2. Prior to starting **LubMonPClight.exe** installation of the LabVIEW Runtime Engine is required. This engine can also be downloaded from the download area of ARGO-HYTOS (www.argo-hytos.com).

C) Sensor connection for data acquisition via USB

3. Connect the sensor cable to the sensor with the M12 connector.
4. Connect the 9-pin D-sub connector of the cable to the appropriate serial interface of the USB to RS232 converter.

5. Connect the power supply unit and the sensor cable.
6. Now properly connect your power supply unit to the line voltage via the rubber connector. Your sensor is now ready for operation.

D) Sensor connection for data acquisition via RS232

7. Connect the sensor cable to the sensor with the M12 connector.
8. Connect the 9-pin D-sub connector of the cable to the appropriate serial interface of your PC/laptop.
9. Connect the power supply unit and the sensor cable.
10. Now properly connect your power supply unit to the line voltage via the rubber connector. Your sensor is now ready for operation.

E) Start the software

11. LubMon**PC**$_{light}$ can be started by double clicking on the **LubMonPClight.exe** file.
12. Select the serial interface (COM) to which you have connected the sensor on the computer. If you are not using a USB to RS232 converter, this is usually COM 1.
13. If you are using a USB to RS232 converter a new virtual COM port will be created. Select this COM port. If necessary you can check the allocation of the virtual COM port in the Windows Device Manager.
14. The incoming data as well as the identification of the sensor are displayed on the left side of the window. The data can be visualized on the right side of the window in a diagram.

2. Technical data

Sensor data	Range	Unit
Max. operating pressure	10	bar
Operating temperature, fluid[1)]	-20...100[2)]	°C
Ambient conditions, operation: Temperature Humidity	 -20…80 0…95	 °C % r.H.
Ambient conditions, storage: Temperature Humidity	 -20…80 0…95	 °C % r.H.
Hydraulic fluid	HLP, HLPD, HVLP (gem. DIN 51524) HETG, HEES, HEPR (gem. DIN ISO 15380)	
Moistened materials	Aluminum, HNBR, Epoxy	
Power supply[3)]	9…33	V
Current consumption	<25 typ.; <60 max.	mA
Output Current outputs (2x)[4)] Interfaces Optical signal[9)]	 4…20 RS232 LED	 mA
Connecting dimensions Threaded connection Electrical connection 8-pole connector	 G ¾ M12 x 1	
Measurement range Rel. humidity Temperature	 0…100 -20…120	 % °C
Measurement resolution Rel. humidity Temperature	 1 0,1	 % r.H. K
Measurement accuracy[7)] Rel. humidity[8)] Temperature[8)]	 ± 3 ± 2	 % FS[6)] % FS[6)]

Table: 2.1: Technical data

[1)] permanently
[2)] short term 120 °C
[3)] Automatic shut down at U < 8 V and U > 36 V, for Load-Dump impulse over 50V is an extern protection needed
[4)] Outputs IOut1 and IOut2 are configurable (cmp. interface configuration chapter in the manual)
[6)] Full Scale
[7)] Factory calibration
[8)] Calibrated in air at 25°C
[9)] Option, not used at the moment

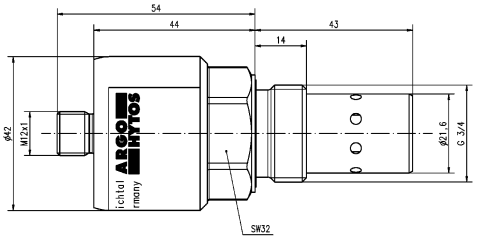


Fig. 2.1: Dimensional drawing

3. Installation

The sensor is designed as a screw-in sensor with 3/4" thread. Ideally the sensor is installed in hydraulic circuits in the tank or in the return line. For gear units with forced flush the sensor can also be arranged in the flush line. Always comply with maximum permissible pressures and temperatures when placing the sensor (see section 2).

Screw the sensor into a prepared receptacle in the tank, or in the return line. For installation in the return line, the return adapter (order number SCSO 100-5070) can also be used (see.: Fig. 3.1). The seal on the oil side is a profile sealing ring. To ensure correct seal the sealing surface of the sensor receptacle must be especially prepared and have a maximum roughness value of Rmax= 16. Sensor tightening torque is 45 Nm ±4.5 Nm.

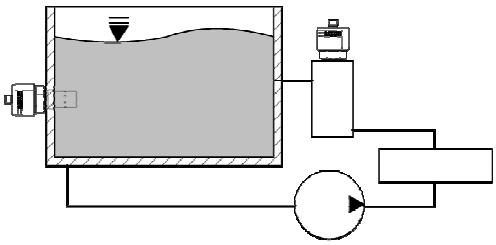


Fig. 3.1: Installation of a sensor in an oil tank or a line adapter

To ensure correct function comply with the following guidelines relative to install position and location of the sensor:

- The measurement should always be taken at a point that is characteristic for the system being monitored.
- The sensor should be installed at a point where the medium is sufficiently mixed
- For a tank installation ideally the sensor is mounted in the vicinity of the return line or flush line.
- Ensure that the sensor is completely covered with oil in all operating situations of the system. Pay particular attention to the floating volume of the tank or a possible diagonal position. Foam formation in the tank should be avoided.
- When installing in the return line or flush line do not allow the flush line to run empty in any operating situation.
- To avoid thermal influences to the extent possible the sensor should not be installed in the immediate vicinity of hot components and parts (e.g. motors).
- If the oil in the tank is not sufficiently mixed, it is possible that free water can settle on the floor of the tank. Consequently the sensor at position 1 would not detect the water. In thisspecial case installation position 2 would be recommended (see: Fig. 3.2).

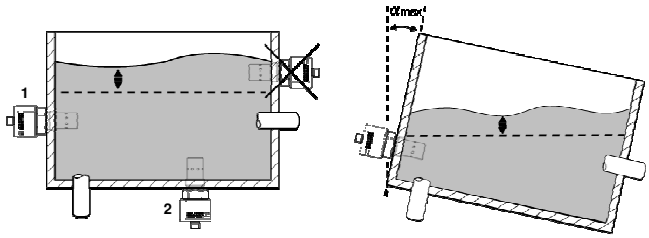


Fig. 3.2: Installation example of correct and incorrect mounting of the sensor in an oil tank

4. Electrical connection

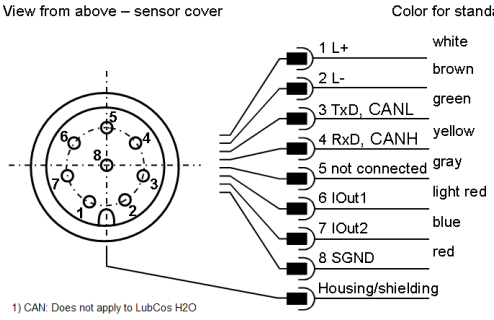
Only a qualified electrician should install the device. Comply with national and international guidelines for setting up electrical equipment.

Power supply in accordance with EN50178, SELV, PELV, VDE0100-410/A1.

Improper electrical connection of the sensor can damage the device!

De-energize the system for the installation and connect the device as follows:

View from above – sensor cover



Color for standard cable

1 L+	white
2 L-	brown
3 TxD, CANL	green
4 RxD, CANH	yellow
5 not connected	gray
6 IOut1	light red
7 IOut2	blue
8 SGND	red
Housing/shielding	

1) CAN: Does not apply to LubCos H2O

Fig. 4.1: Pin assignment, view from above the sensor

The sensor cable must be shielded. To achieve IP67 degree of protection, only use suitable connectors and cable. The tightening torque for the connector is 0.1 Nm.

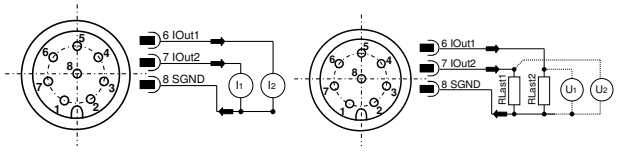


Fig. 4.2: Measuring the analog 4..20 mA outputs with and without load resistors

In order to measure the currents of the analog current output, a load resistor must be connected to each output as shown in Fig. 4.2. The load resistor should be less than 100 ohm for 12 V power supply and less than 400 ohm for 24 V the power supply.

Value X	Range	Unit equation	Formul
T in °C	-20°C...120°C	$X/°C = \frac{U/V}{R/\Omega} \cdot 8750\,(°C/A) - 55\,°C$	*(4-1)*
RH in %	0%...100%	$X/\% = \frac{U/V}{R/\Omega} \cdot 6250\,(\%/A) - 25\,\%$	*(4-2)*

Table 4.1: Calculation of the measurement values

I_{out} in mA	4	12	20
T in °C	-20	50	120
RH in %	0	50	100

Table: 4.2: Scaling of the current outputs for PLC calibration

5. Communication

Interface parameters of RS232:

- Baud rate: 9600
- Data bits: 8
- Parity: none
- Stop bits: 1
- Flow controll: none

#	Command format	Meaning	Reply format
1	RVal[CR]	Reading all measured values with subsequent check sum (CRC)	$ Time:x.xxx[h];T:xx.x[°C]; ....;CRC:x[CR][LF]
2	RID[CR]	Reading of identification with subsequent check sum (CRC)	$ARGO-HYTOS;LubCosH2O; SN:xxxxx;...;CRC:x[CR][LF]
3	RCon[CR]	Reading of configuration parameters with subsequent CRC	$AO1:x;AO2:x;…; CRC:x[CR][LF]

Table: 5.1: Reading commands