

HYDAC INTERNATIONAL



AquaSensor AS 1000

Description

The AquaSensor AS 1000 is the culmination of the continued development of the successful AS 2000 series for online detection of water in oils, particularly as an OEM sensor for condition monitoring. It measures the water content relative to the saturation concentration (saturation point) and transmits the saturation level as a 4 ... 20 mA signal.

As an alternative, the AS 1000 is equipped with two parameterizable switch outputs. These are factory-set to switch at a saturation level of 60% (SP 2 - warning) and 80% (SP1 - alarm).

In addition the AS 1000 measures the temperature of the fluid and also transmits this as a 4 .. 20 mA signal.

The AS 1000 therefore enables hydraulic and lubrication oils to be monitored accurately, continuously and online.

Applications

- Mobile hydraulics
- Hydraulic and lubrication systems in industry

Advantages

- Reliable on account of its compact, rugged design
- Cost-effective sensor, also for use in OEM applications
- Not necessary to calibrate sensor to different types of oil
- Pressure-resistant, even with pulsations
- Wide fluid temperature range
- Early detection of water problems thus preventing faults and unnecessary interruption to operations.

Technical specifications

Input data	
Saturation level	0 ... 100 %
Temperature	-25 ... 100 °C
Operating pressure	-0.5 ... 50 bar
Pressure resistance	max. 630 bar
Flow velocity	max. 5 m/s
Parts in contact with fluid	Mechanical connection: Stainless steel / Vacuum-metallized ceramic Seal: Viton or EPDM for each type
Output data	
Analogue output - Saturation level - Pin 2:	
Analogue signal	4 ... 20 mA (corresponds to 0 ... 100 %) ohmic resistance ≤ 500 Ω
Calibration accuracy	≤ ± 2 % Full Scale maximum
Accuracy when measuring in fluid	≤ ± 3 % Full Scale typical
Pressure dependence	± 0.2 % Full Scale bar
Analogue output - Temperature - Pin 4:	
Analogue signal	4 ... 20 mA (corresponds to -25 ... +100 °C) ohmic resistance ≤ 500 Ω
Calibration accuracy	≤ ± 2 % Full Scale maximum
Switch output - Saturation level - Pin 2:	
Version (parameterisable)	PNP transistor output SP1 N/O / N/C Factory setting: N/C
Assignment (parameterisable)	Saturation level or temperature Factory setting: saturation level, alarm at 80%
Switch current	maximum 1 A
Switch output - Saturation level - Pin 4:	
Version (parameterisable)	PNP transistor output SP2 N/O / N/C Factory setting: N/C
Assignment (parameterisable)	Saturation level or temperature Factory setting: saturation level, alarm at 60%
Switch current	maximum 1 A
Digital output - Pin 5:	
HSI	HYDAC Sensor Interface
Ambient conditions	
Nominal temperature range (saturation)	0 ... +90 °C
Storage temperature range	-40 ... +100 °C
Flow velocity	< 5m/s
Fluid temperature range	-40 ... +125 °C
Viscosity range	1 ... 5000 mm ² /s
Fluid compatibility	mineral oil based fluids, synthetic and natural esters
CE mark	EN 61000-6-1 / 2 / 3 / 4
Protection class to DIN 40050	IP 67
Other data	
Supply voltage	12 ... 32 V DC
Residual ripple of supply voltage	≤ 5 %
Mechanical connection	G3/8 A DIN 3852
Torque value	25 Nm
Electrical connection	M 12x1, 5 pole
Weight:	≈ 145 g

Note: reverse polarity protection, short circuit protection provided.

MODEL CODE

AS 1 X 0 8 - C - 000

Type

AS = AquaSensor

Measuring range

1 = 1000 Series

Medium

0 = Mineral oils

1 = Phosphate ester (HFD-R)

Mechanical connection

0 = G3/8 A DIN 3852

Electrical connection8 = male connection M12x1, 5-pole
(connector not supplied)**Signal technology**

C = Output 1 Pin 2 saturation level (4 .. 20 mA)

Output 2 Pin 4 temperature (4 .. 20 mA)

2 = 2 switching outputs

Modification number

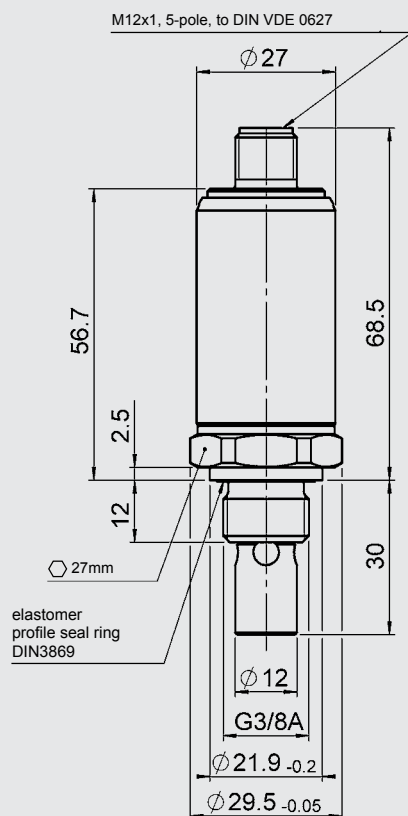
000 = standard

Items supplied

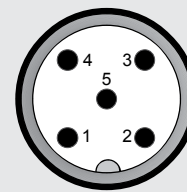
- AquaSensor
- Operating manual

NOTE

On units with a different modification number, please read the label or the technical amendment details supplied with the unit.

Dimensions**NOTE**

The information in this brochure relates to the operating conditions and applications described. For applications or operating conditions not described, please contact the relevant technical department. Subject to technical modifications.

Pin connections

Pin	AS 1X08-C	AS 1X08-2
1	Voltage supply 12 .. 32 VDC	
2	Saturation level 4 .. 20 mA	SP1
3	GND supply voltage	
4	Temperature 4 .. 20 mA	SP2
5	HSI*	

* HSI = HYDAC Sensor Interface

Accessories**ZBE 08**

Female connector, right-angled, 5-pole, M12x1 → open end

ZBE 08S-02

Female connector, right-angled, with 2 m cable, screened, 5-pole, M12x1 → open end

ZBE 08S-05

Female connector, right-angled, with 5 m cable, screened, 5-pole, M12x1 → open end

ZBE 08S-10

Female connector, right-angled, with 10 m cable, screened, 5-pole, M12x1 → open end

ZBE 47S-05

Female connector, straight, with 5 m cable, screened, 5-pole, M12x1 → open end

ZBE 47S-10

Female connector, straight, with 10 m cable, screened, 5-pole, M12x1 → open end

Display and read-out options

The following interface adapters are available to interpret the AS1000:

- CSI-B-2 (Condition Sensor Interface)
- SMU1000 Series (Sensor Monitoring Unit)

The measured data can be evaluated and displayed as spreadsheets or graphically using:

- FluMoS (FluidMonitoring Software)
- FluMoT (FluidMonitoring Toolkit)

Information on other read-out options can be found on our website at www.hydac.com or please contact your HYDAC representative.

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