



FMSS SERIES

Moisture and temperature sensor

Excessive water content in hydraulic fluids and lubricants can negatively impact their properties, leading to system malfunctions, operational disruptions, and damage.

The FMSS Moisture Sensor provides precise measurements of oil temperature and relative humidity, allowing for direct assessment of water saturation level.

A reading of 0% indicates completely dry oil, while a reading of 100% indicates that the oil is fully saturated with water. Any additional water will appear as free water.

The FMSS is designed to respond rapidly to changes in temperature and relative humidity. It can be mounted either on the pressure line or on the reservoir.

The measured values can be continuously recorded and retrieved through a serial interface or two 4...20 mA current outputs. To facilitate data recording, setting and analysis, a software is available for download on our website at www.filtrec.com.

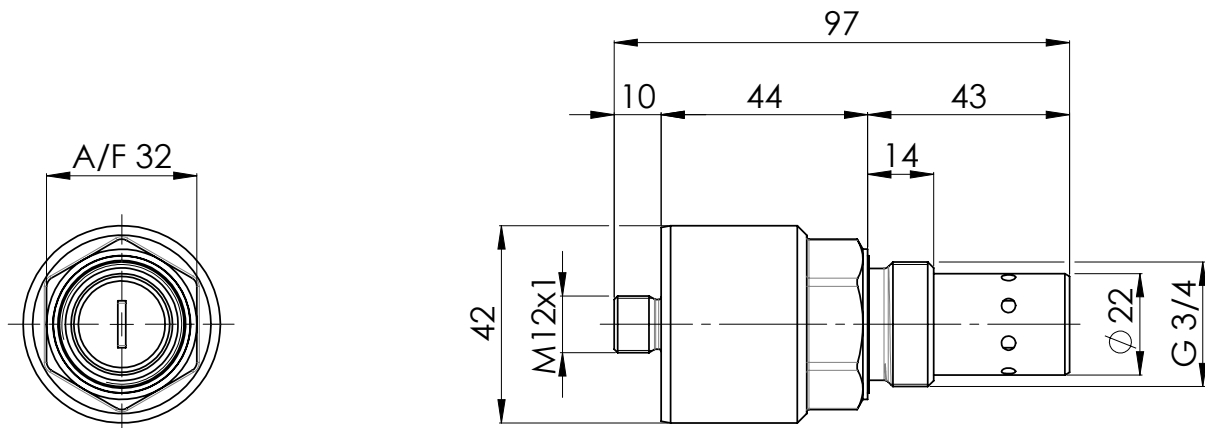


MAX OPERATING PRESSURE:	50 bar
FLUID CONNECTIONS:	G 3/4"
ELECTRICAL CONNECTION:	M12x1 - 8 pole
MATERIALS:	aluminum, HNBR, polyurethane and epoxy resin, chemical nickel / gold, soldering tin, aluminum oxide, glass
PROTECTION CLASS:	IP67
ANALOG OUTPUT:	4...20 mA
TEMPERATURE RANGE:	-20 °C + 120 °C
FLUID COMPATIBILITY:	mineral oils (H, HH, HM, HL, HV, HLP, HLPD, HVLP), synthetic esters (HETG, HEPG, HEES, HEPR), polyalkylenglycols (PAG), zinc and ash-free oils (ZAF), polyalphaolefins (PAO)

The sensor is supplied complete with an Operating Manual and can only be used by authorized operators who have read and understood all of its contents.

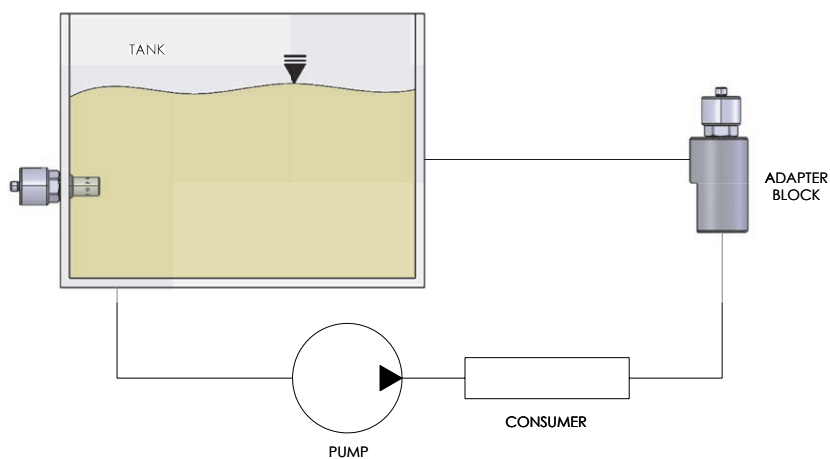
The FMSS moisture and temperature sensor is certified

OVERALL DIMENSIONS

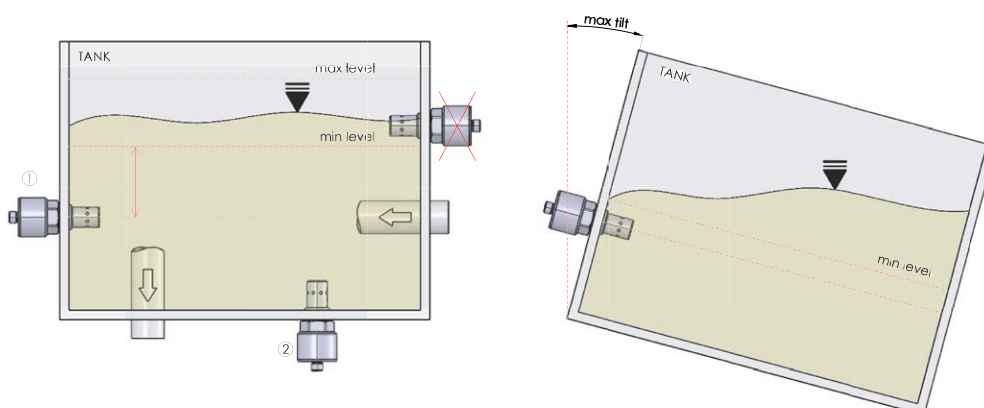


CONNECTING SCHEME

For further information on installation and electrical connection, please refer to the manual.



Mounting of a sensor in a oil tank or using the adapter block



Installation example of correct and incorrect mounting of the sensor in an oil tank

TECHNICAL INFORMATION

Sensor Data	Size	Unit
Max Operating Pressure	50	bar
Operating conditions		
Temperature ¹⁾	-20 ... 120	°C
Relative humidity ¹⁾	0 ... 100	% r H. (non-condensing)
Compatible liquids	mineral oils (H, HH, HL, HM, HV, HLP, HLPD, HVLP)	
	synthetic esters (HETG, HEPG, HEES, HEPR)	
	polyalkyleneglycols (PAG)	
	zinc and ash-free oils (ZAF)	
	polyalphaolefins (PAO)	
Wetted Materials	aluminum, HNBR, polyurethane resin, epoxy resin, chemical nickel / gold (ENIG), soldering tin (Sn60Pb40, Sn96,5Ag3Cu0,5NiGe), aluminum oxide, glass (DuPont QQ550)	
Protection class ²⁾	IP67	
Power supply ³⁾	9 ... 33	V
Current consumption	Max. 60	mA
Output		
Current output (2x) ⁴⁾	4...20	mA
Accuracy current output ⁵⁾	±2	%
Interfaces	RS232	-
Connecting dimensions		
Threaded connection	G ^{3/4} "	Inch
Tightening torque connection thread	45 ±4,5	Nm
Electrical connection	M12x1, 8-pole	-
Tightening torque M12 connector	0,1	Nm
Measuring range		
Rel. humidity	0...100	% r.H.
Temperature	-20...120	°C
Measuring resolution		
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

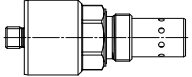
4) Outputs IOut1 and IOut2 are freely configurable (see operating manual)

5) In relation to the analogue current signal (4 ... 20 mA)

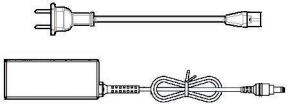
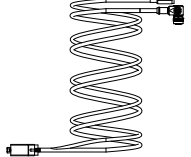
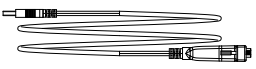

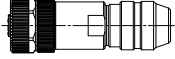
6) Works calibration

7) Calibrated to air at room temperature

ORDERING INFORMATION

DESCRIPTION	CODE	ORDER PART NUMBER	DRAWING
Moisture and temperature sensor	FMSS01S0	04.006.00188	

ACCESSORIES

DESCRIPTION	CODE	ORDER PART NUMBER	DRAWING
Universal power supply Input range: 100...240VAC 50/60Hz Output voltage: 24VDC / max. 0,63A / 15W Temperature range in operation: 0...40°C Compatible with data cable FMSA04S0 Supply line: Euro power cord 2-pole, 1.5m	FMSA01S0	04.006.00190	
Data cable for computer connection Side 1: M12 8-pole, 90° angled, IP67 Side 2: D-Sub connector 9-pole with separate DC Plug for power supply Length: 5m, shielded Temperature range -25°C...90°C Oil-resistant	FMSA04S0	04.006.00191	
Adapter USB - RS232 serial Side 1 (PC): USB A plug Side 2 (periphery): D-Sub connector 9-pole Length: 1.8m Incl. driver CD for Windows 98 / ME / 2000 / XP / Win 7 / Win 8	FMSA05S0	04.006.00194	
Data cable with open ends Side 1: M12 8-pole, 90° angled, IP67 Side 2: open Length: 5m, shielded Temperature range -25°C...90°C Oil-resistant	FMSA03S0	04.006.00192	
Sensor connector M12 8-pole, straight, IP67 Suitable for cable diameter 6...8 mm Temperature range -20°C ... 85°C Oil-resistant	FMSA02S0	04.006.00193	
Sensor adapter block for pipe installation Line connectors 3/4" Material: Aluminum Pressure range: up to 50bar Oil-resistant	FMSA06S0	04.006.00375	