



Contamination Sensor Module CSM Comfort series

Description

The CSM Comfort Contamination Sensor Module is the comfortable plug-and-work solution for permanently monitoring fluid status by measuring solid particle contamination and water saturation. Designed for 24/7 operation, the CSM-C can be used for all hydraulic and lubrication applications. With its own integrated power supply and multi-voltage input, the CSM-C can be used in any hydraulic conditions. This makes it the ideal tool to complement the FCU 1000 Fluid Control Unit.

The CSM-C must be placed directly on the measuring site; it can be easily connected to the customer controller (PLC) through its integrated analog output.

The SMU 1200 Sensor Monitoring Unit is designed to be used as a remote control and display accessory with reliable data storage that integrates perfectly into the housing on the CSM-C; it can also be conveniently positioned in the customer's field of view using a 10-meter connecting cable.

Applications

- Hydraulic and lubricating fluids
- Continuous 24/7 operation

Advantages

- Accessory to FCU 1000
- Continuous measurement in lubricating fluids
- Housing for use near the measuring site
- Convenient display using SMU 1200

Technical specifications

General specifications		
Measured variables	Contamination	ISO 4406, SAE AS 4059, NAS 1638
	Water content	Level of saturation
	Temperature	°C/°F
Measurement ranges	Contamination	ISO 9/8/7 - ISO 25/24/23
	Water content	0 ... 100 %
	Temperature	-25 ... 100 °C
Calibration accuracy	Contamination	± ½ ISO-Code in calibrated range of ISO 13/11/10 - ISO 23/21/18
	Water content	± max. 2% (Full scale)
	Temperature	± max. 2% (Full scale)
Display/remote control/data storage	SMU 1200 series Sensor Monitoring Unit sold separately.	
Ambient temperature range:	0 - 55 °C/32 - 131°F	
Storage temperature range	-20 - 85 °C/-4 - 185°F	
Relative humidity	Max. 90%, non-condensing	
Weight when empty	≈ 25 kg	
Protection class	IP 54	
Hydraulic specifications		
Operating mode	Pressurized operation up to 80 bar primary pressure	
Nominal operating mode	Continuous operation S1 (24/7)	
Operating pressure	P _{IN} (INLET)	-0.4 - 80 bar
	P _{OUT} (OUTLET)	80 bar
	P _{OUT} (LECKAGE)	0.5 bar
Total flow rate	≈ 180 ml/min	
Permitted operating viscosity range	10 - 3000 mm ² /s	
Permitted measurement viscosity range	10 - 1000 mm ² /s	
Permitted temperature range of fluid	0 - 85 °C/32 - 185°F	
Seal material	FKM (FPM/Viton®)	
Ports	INLET	G1/4 as per ISO 228
	OUTLET	G1/4 as per ISO 228
	LEAKAGE	G1/4 as per ISO 228
Suction strainer	400 µm, metal mesh filter	
Suction height	max. 0.5 m	
Electrical specifications		
Connection voltages	380 V, 50 Hz, 3 Ph (-10%/+10%)	
	400 V, 50 Hz, 3 Ph (-15%/+10%)	
	415 V, 50 Hz, 3 Ph (-10%/+6%)*	
	440 V, 60 Hz, 3 Ph (-10%/+10%)	
	460 V, 60 Hz, 3 Ph (-15%/+10%)	
	*As per DIN EN 60204 connection voltage must be ±10% of nominal voltage.	
Connection, male	Supply-side	3 Ph + PE, CEE as per IEC309
	Device-side	Harting Han4A
Power supply	Connection cable 10 m with main switch, device protection and phase sequence check	
Power consumption	< 200 Watt	
Digital interface (primary to SMU 1200)	Input jack M12x1, 5-pin extension cable in 2 m, 3 m, 5 m and 10 m sold separately.	
Analog interface (4 - 20 mA to customer PLC)	Input jack M12x1, 8-pin connection cable with open cable end in 2 m, 5 m and 10 m sold separately.	

MODEL CODE

CSM-C - 1 - 3 - 2 - 0 - N060 - AS - 0

Type

CSM-C = Contamination Sensor Module - Comfort

Series

1 = 4 particle channels

Solid matter contamination coding

3 = ISO4406:1987; NAS1638
2-5 µm, 5-15 µm, 15-25 µm, >25 µm
switchable to
ISO4406:1999; SAE AS4059 (D)
> 4 µm(C), > 6 µm(C), > 14 µm(C), > 21 µm(C)

Housing

2 = for stationary use

Media

0 = mineral and synthetic oils
compatible with FKM (FPM / Viton®) seals

Nominal voltage

N060 = 400 V, 50 Hz, 3 Ph/460 V, 60 Hz, 3 Ph (-15%/+10%)

Integrated sensor

AS = Aqua Sensor - AS 1000 series

Power supply adapter

0 = standard

Includes

- CSM-C
- Power supply
- Operating and maintenance instructions
- Calibration certificate

Accessories

SMU Sensor Monitoring Unit

for display/remote control/data storage

- SMU 1260-TU-00
Part No. 346 7005
- SMU 1270-TU-00
Part No. 370 4282

Digital interface

- Extension cable, length 2 m
ZBE30-02, Part No. 6040851
- Extension cable, length 3 m
ZBE30-03, Part No. 6053924
- Extension cable, length 5 m
ZBE30-05, Part No. 6040852
- Extension cable, length 10 m
ZBE30S-10, Part No. 3729098

Software

- FluMoS Professional
(Fluid Monitoring Software)
Part No. 3141522
- FluMoT (Fluid Monitoring Toolkit)
Part No. 3355177

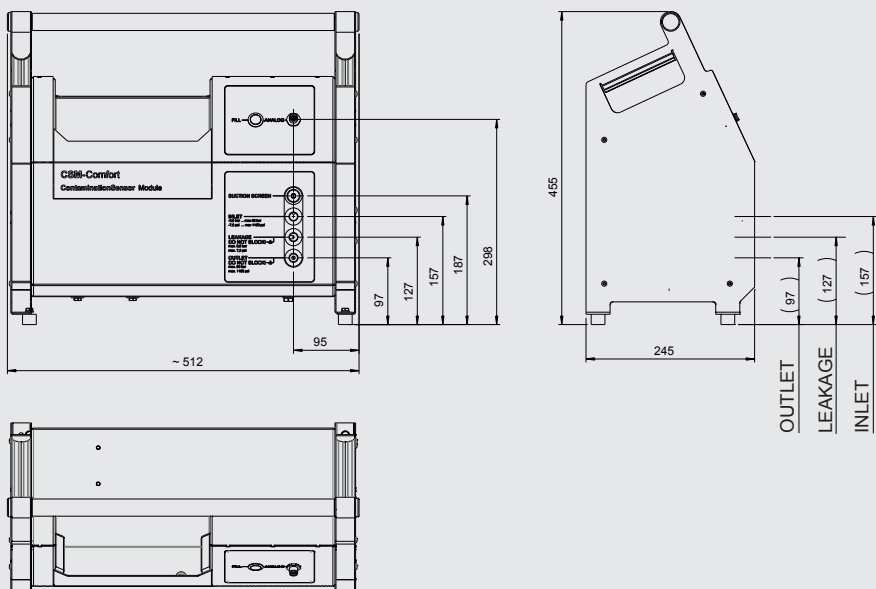
Analog interface

- Connection cable, length 2 m
ZBE48S-02, Part No. 6072261
- Connection cable, length 5 m
ZBE48S-05, Part No. 6070712
- Connection cable, length 10 m
ZBE48S-10, Part No. 6072262

Hydraulic

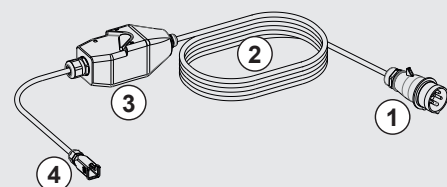
- INLET pressure hose
with threaded connection for
measurement coupling type 1620,
length 2m, Part No. 635820
- INLET threaded coupling,
Part No. 629477
- OUTLET/LEAKAGE return hose, open
end, length 2m, Part No. 92649
- OUTLET/LEAKAGE threaded
coupling, Part No. 633244

Dimensions



(All dimensions in mm)

Power supply



- 1 - CEE connection plug, as per IEC309
- 2 - Cable, length 10 m
- 3 - Main switch with device protection and phase sequence check
- 4 - Connection plug to the CSM-C (Harting Han4A)

Note

The information in this brochure relates to the operating conditions and applications described.

For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

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