



ContaminationSensor CS1500 series

Description

The ContaminationSensor CS1500 is used to continuously monitor the particle contamination in fluids. The cleanliness class results can be displayed according to ISO/SAE or ISO/NAS classifications. Using the latest technologies, combined with more than 20 years of tried-and-tested engineering, we can now provide the user with a small and robust sensor. Operating the sensor with mobile terminal devices is easy and intuitive thanks to the new digital interface.

We are now also expanding its field of application with new industry-standard communication interfaces.

Applications

- Hydraulic and lubrication systems in industrial and mobile applications

Advantages

- Early detection of critical machine conditions
- Continuous oil condition monitoring
- Condition-based maintenance planning
- Straightforward operation & integration into industrial control systems
- Safe operation thanks to smart features such as turbidity detection (beta validation)
- Rapid creation of measurement reports
- Price-performance ratio

Technical data

General information	
Smart features	Display of the last 10 events as a histogram via the digital user interface Adaptive measuring cycles for high-cleanliness fluids and changing measuring conditions. Continuous self-diagnosis - with fault indication via LED, display and a digital interface
Digital interface	Wireless configuration and operation via smartphone Visualisation of measured data and sensor status Cleanliness limit value wizard Creation of reports in PDF format
Display (only for CS152X)	LED, 6-digits, 17 segments each
Measured variables	ISO classes (> 4 µm > 6 µm > 14 µm > 21 µm) only ISO code in the display (>4µm >6µm >14µm) SAE (SAE AS 4059) or ISO classes (> 2 µm > 5 µm > 15 µm > 25 µm) only ISO code in the display (> 2 µm > 5 µm > 15 µm) NAS (NAS 1638)
Service variables	Flow status indicator Drive (%) Temp (°C) or (°F)
Installation position	No restrictions (recommended: vertical flow direction)
Ambient temperature range	-30 °C ... 80 °C / -22 °F ... 176 °F
Storage temperature range	-40 °C ... 80 °C / -40 °F ... 176 °F
Relative humidity	Max. 95 %, non-condensing
Seal material	FPM for CS15X0 EPDM for CS15X1
Protection class	III (safety extra-low voltage)
Protection class	IP67 (with connector screwed in place)
Weight	1.3 kg
Hydraulic data	
Measuring range	From 20 to 32,000,000 particles per 100 ml, corresponding to ISO class 5 to 25
Accuracy	± ½-ISO class in the range ISO13/11/10 to 23/21/18
Operating pressure	Max. 350 bar / 5075 psi
Hydraulic connection	Pipe or hose connection (A,B): Thread G¼, ISO 228 or flange connection (C,D): DN 4
Permitted measurement flow rate	30 ... 500 ml/min
Permitted viscosity range	1 ... 1000 mm²/s
Media temperature range	0 ... 85 °C / 32 ... 185 °F
Electrical data	
Supply voltage	24 V DC ± 10 %, residual ripple < 10 %
Power consumption	5W plus connected loads - switching output / analogue output

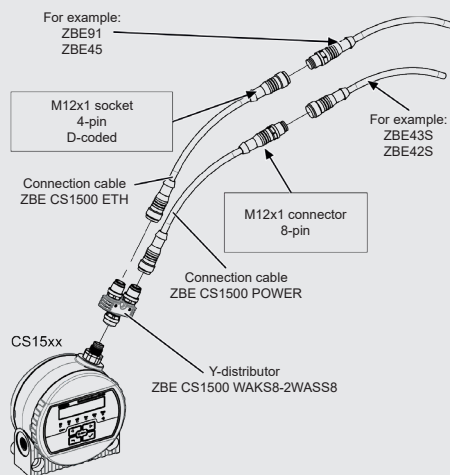
Scope of supply

- ContaminationSensor
- Calibration certificate and instructions available as a digital download from the life cycle record
- 2 x O-ring (only for version with flange connection)

Accessories

- Y-adapter, female, male/male, M12x1-pin, 8/8, item no. 6261914
- Connector socket shielded, female 8-pin to 4-pin, D-coded, M12x1, item no. 4823333
- Connector socket shielded, female 8-pin to 8-pin, A-coded, M12x1, item no. 4823335
- Connector socket with 2 m cable, shielded, 8-pin, open end M12x1, item no. 6052697
- Connector socket with 2 m cable, shielded, 8-pin, open end M12x1, item no. 3281220
- Additional accessories in catalogue and sensor instructions
- Connection kit CS15XX-0
Art. no. 4869065
Consisting of:
ZBE CS1500 ETH
(Art. No. 4823333),
ZBE CS1500 POWER
(Art. No. 4823335),
Y-splitter WAKS8-2WASS8
(Art. no. 6261914)

Connection example CS15xx-0-...
with connection kit



Interface depending on type

Connection plug	Plug-in connector M12x1, 8-pin, male, in accordance with VDE0627 or IEC61984 Plug-in connector M12x1, 5-pin, male, in accordance with VDE0627 or IEC61984
Ethernet interface	ModBus TCP, HTTP
RS485 (2-wire)	ModBus RTU or HSI (HYDAC proprietary protocol)
HSI (single wire)	HYDAC proprietary protocol
Analogue output (2-conductor technology)	4 to 20 mA output (active): max. load 500 Ω Accuracy: $\pm 1\%$ FS
Switching output	p-, n-switching or push-pull, parametrisable, switching current < 300 mA

Model code

Type

CS = ContaminationSensor

Series

1 = 1000 series,
4 particle size channels

Coding of the contamination

5 = ISO 4406 : 1987 : > 2 μm , > 5 μm , > 15 μm , > 25 μm
NAS 1638: Switchable between 2-5 μm , 5-15 μm ,
15-25 μm , > 25 μm
ISO 4406 : 1999 / SAE AS 4059 : switchable between
> 4 $\mu\text{m}_{(c)}$, > 6 $\mu\text{m}_{(c)}$, > 14 $\mu\text{m}_{(c)}$, > 21 $\mu\text{m}_{(c)}$

Options

1 = without display
2 = with display (display can be rotated continuously 270°)

Media

0 = Mineral oil based with FPM seal
1 = Phosphate ester with EPDM seal

Communication interfaces

0 = Plug connector M12x1, 8-pin
Ethernet / ModBus TCP
Limit value switching output
1 = Plug connector M12x1, 8-pin
RS485 / HSI or RS485 /
ModBus RTU (configurable)
Limit value switching output
Analogue output (4 to 20 mA)

Hydraulic connection

0 = Pipe or hose connection
1 = Flange connection

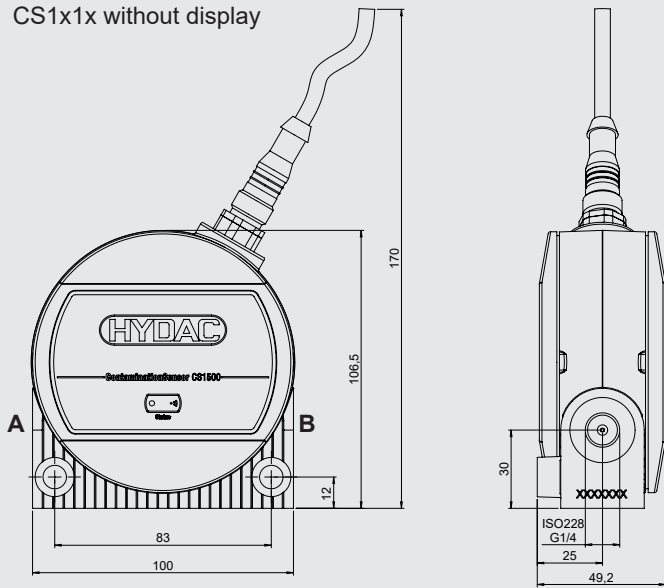
Modification number

000 = Standard
TXXX = Technical modification
CXXX = Customer-specific modification

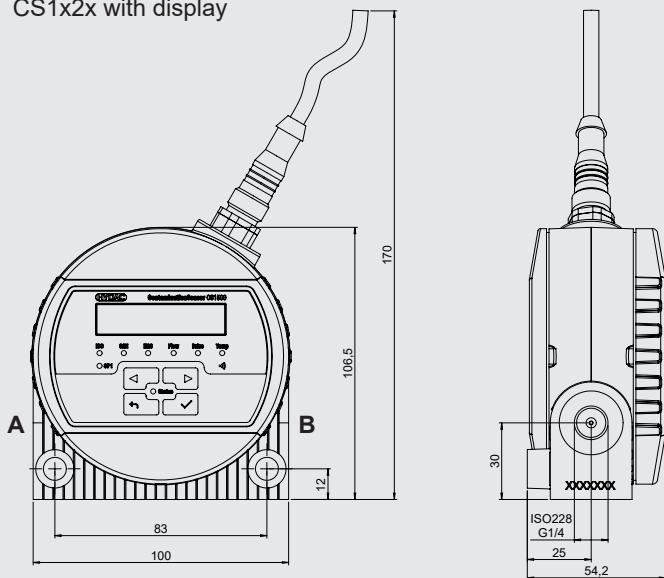
CS 1 5 2 0 - 0 - 0 - XXX

Dimensions

CS1x1x without display

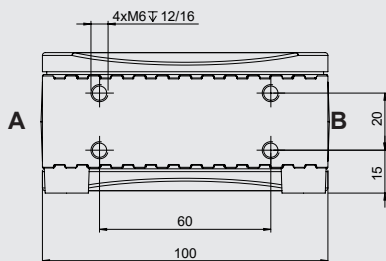


CS1x2x with display

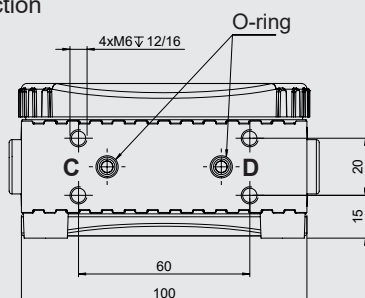


View of underside

Pipe or hose connection

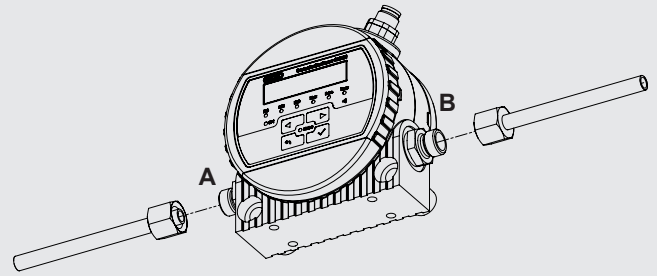


Flange connection

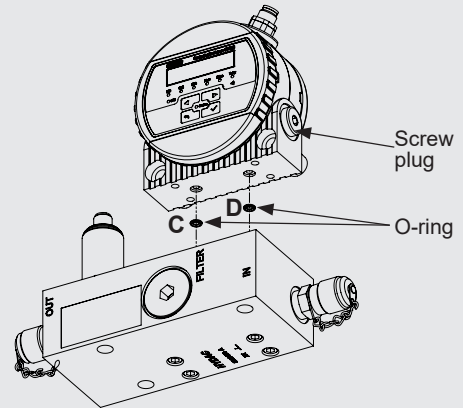


Hydraulic connection types

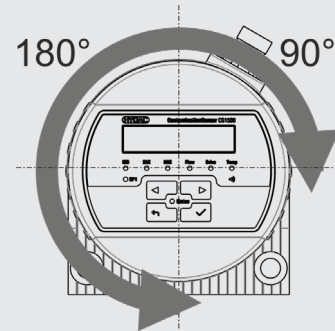
Pipe or hose connection



Flange connection

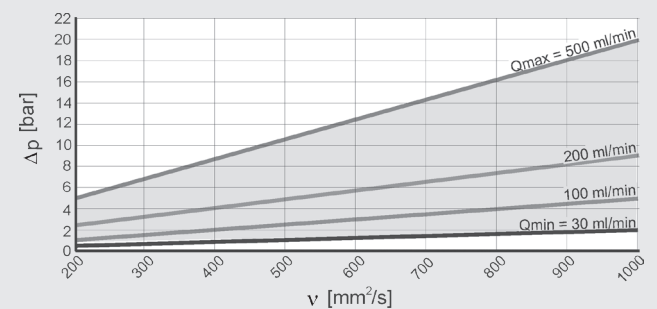
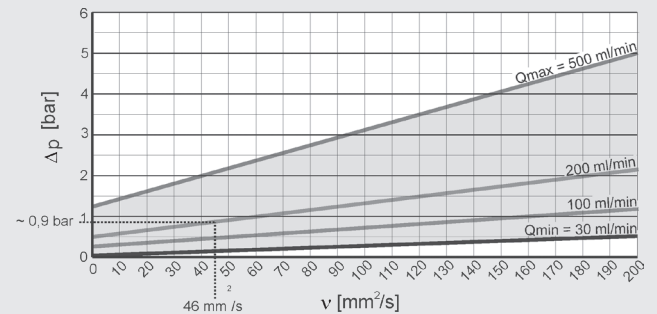


Display rotation



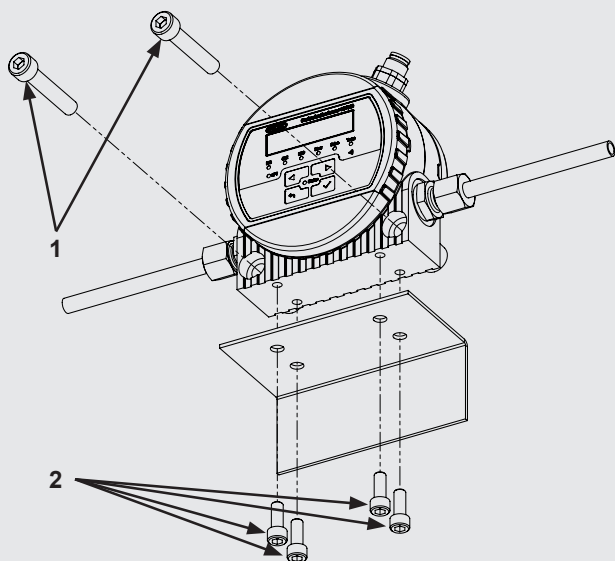
Pressure viscosity range

Δp : Pressure
 ν : Viscosity



Installation types (examples)

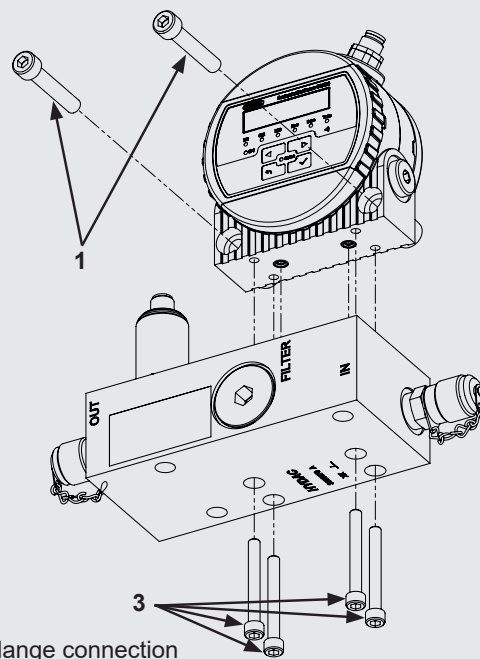
Wall or console mounting



for pipe or hose connection

- 1: with 2 x M8 (ISO 4762) or
2, 3: with 4 x M6

Mounting to flange plate,
mounting plate or control manifold



for flange connection

User interface

Try out our new digital user interface:
cs1500.hydac.com



Remarks

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

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

Subject to technical modifications.

HYDAC FILTER SYSTEMS GMBH
Industriegebiet
66280 Sulzbach / Saar
Germany
Tel.: +49 6897 509-01
E-mail: filtersystems@hydac.com
www.hydac.com