The conductivity sensor for sanitary use

Alfa Laval conductivity sensor

Application

The Alfa Laval conductivity sensor is designed to fulfill the demands of conductivity sensors in Sanitary and pharmaceutical production
Main features are:

- Wetted parts in AISI316L, stainless steel or PEEK
- Compact, food compatible, hygienic design
- Process temperature -20...130°C
- 4 configurable measuring ranges
- Adjustable, active temperature compensation
- Insensitive to polarization, adhesion and solids
- LCD display for conductivity and temperature
- 4... 20 mA output for conductivity and temperature

Standard range

The Alfa Laval conductivity sensor is a sensor for inductive measurement of conductivity. The compact design in all stainless steel enables installation in pipes from DN40 and upwards. Precise, configurable temperature compensation and remote setting of the four pre-configured measuring ranges make the Alfa Laval conductivity sensor ideal for a wide range of conductivity measurements. The integrated display for mS/cm and °C offers the user instant local supervision, which is an advantage e.g. in manually operated cleaning systems.

A high operating temperature limit is an advantage in SIP systems. The optimized flow geometry and the fast response time make the Alfa Laval conductivity sensor particularly suitable in applications for separation of medias and measurements of cleaning agents in CIP equipment. The accuracy is excellent even at very low conductivity and flow rates.

Working principle

Inductive conductivity measurement is based on the principle of a transformer. The primary side of the transformer is controlled by an AC voltage generator. The liquid flowing through the channel bore (3) in the measuring head and forms a conductor loop, which links between the primary side of the transformer (1) and the secondary side of the transformer (2).

The output current is proportional with the conductivity of the media. Signal conditioning, amplification and conversion provide a 4...20 mA signal output from the galvanically isolated D/A converter.

The fast-response temperature sensor in the tip (4) compensates for the temperature in the liquid resulting in maximum accuracy and reliability.
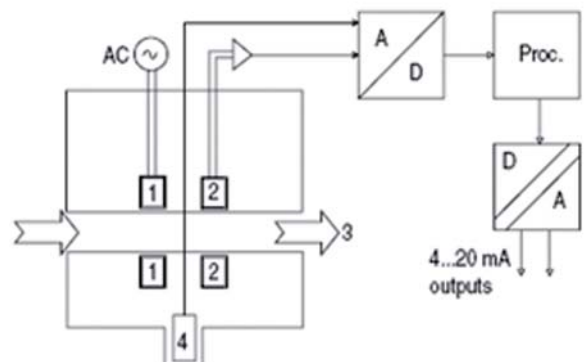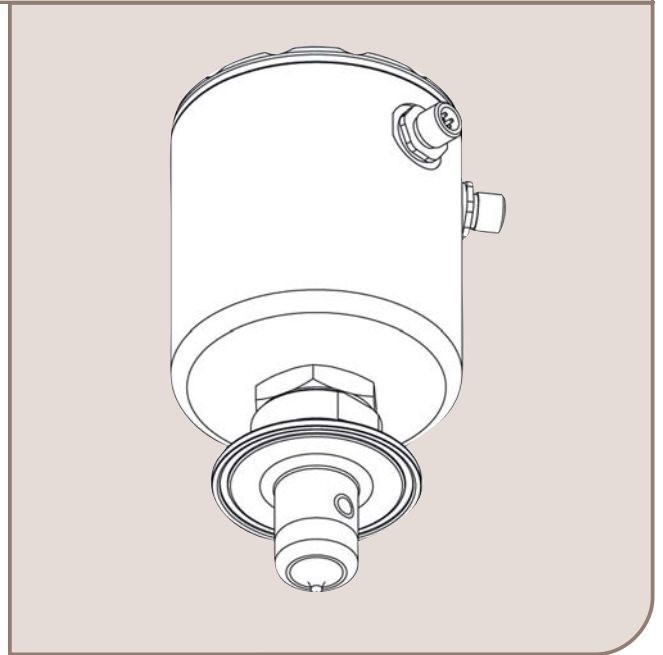
Technical data

Conductivity
Measuring range: . . . . .0 to 999 mS/cm

Resolution

Range		Resolution
0 to 0.5	mS/cm	0.001 mS/cm
0 to 1	mS/cm	0.001 mS/cm
0 to 2	mS/cm	0.010 mS/cm
0 to 3	mS/cm	0.010 mS/cm
0 to 5	mS/cm	0.010 mS/cm
0 to 10	mS/cm	0.100 mS/cm
0 to 20	mS/cm	0.100 mS/cm
0 to 30	mS/cm	0.100 mS/cm
0 to 50	mS/cm	0.100 mS/cm
0 to 100	mS/cm	1.000 mS/cm
0 to 200	mS/cm	1.000 mS/cm
0 to 300	mS/cm	1.000 mS/cm
0 to 500	mS/cm	1.000 mS/cm
0 to 999	mS/cm	1.000 mS/cm

Accuracy: . . . .±1% of selected measuring range
Repeateability: . . . . .0.2% of FS

Temperature
Measuring range: . . . .-20 to 140 °C.
Resolution: . . . . .0.1 °C.
Accuracy: . . . .≤±0.2 °C. betwen 20 and 50 °C.
≤±1.5 °C.betwen -20 and 140 °C.
Repeateability: . . . . .0.2% of FS

Certificates
- CE marked
- 3.1 certificate (option)
- 3A certificate (option)

Mechanical data

Process connections
Process connections: . . . . .Clamp DN 50 (ISO2852)/clamp DN 51 (DIN32676)

Materials
Wetted parts: . . . . .AISI 316 and PEEK
Fieldhouse . . . . .AISI 304

Operating temperature
Wetted parts: . . . .-20 to 130 °C (140°C < 1 hour)
Field house: . . . .-20 to 60 °C.

Protection class IP67
Max media pressure: . . . . .10 bar

Weight
Conductivity sensor: . . . . .approx. 1500 gr.

Electrical data
Both output signals are as standard galvanicaliy isolated from the power supply. Adjustment of measuring range and local readout of conductivity and temperature is done via jog wheel and LCD display I field housing. Range selection can also be done remotely.

Power supply: . . . . .12-36 Vdc
Power consumption max: . . . . .180 mA
Output conductivity: . . . . .4-20 mA, max. load 500 Ohm,
Output temperature: . . . . .4-20 mA, max. load 500 Ohm,
Connection: . . . . .M12 or M16 cable gland
Response time: . . . .<3 ms

99.9 mS/cm 139.9 °C	0.001 mS/cm 000.1 °C
Max. indication	Min. indication

LCDisplay

Jog shuttle
PUSH: SW version
TURN: Select menu
PUSH: Config menu
TURN: Select option
           Left: Decrease
           Right: Increase

Refer to installation manual

Electrical connections

18...36Vdc (+) — 1   4 — mS/cm (+)
mS/cm (-) — 2   3 — 18...36Vdc (-)

1: Brown
2: White
3: Blue
4: Black

R1 — 1   4 — °C (+)
°C (-) — 2   3 — R2

1	2	3	4	5	6	7	8
+	-	+	-	+	-	R2	R1

Remote range control
See table

18...36 Vdc

4...20 mA [°C]

4...20 mA [mS/cm]
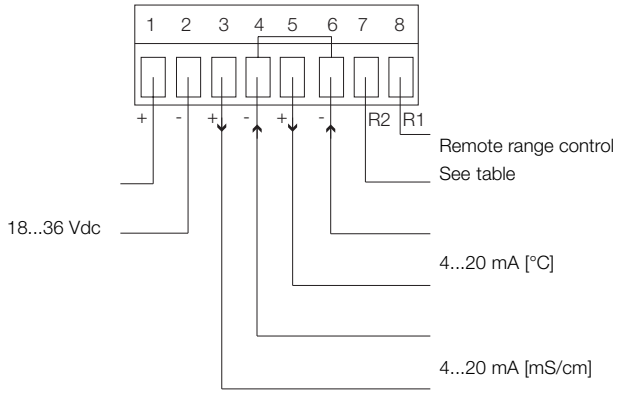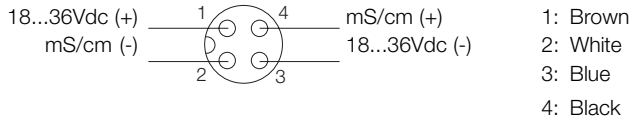
Dimensional drawing

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ø25.5

TD 530-027
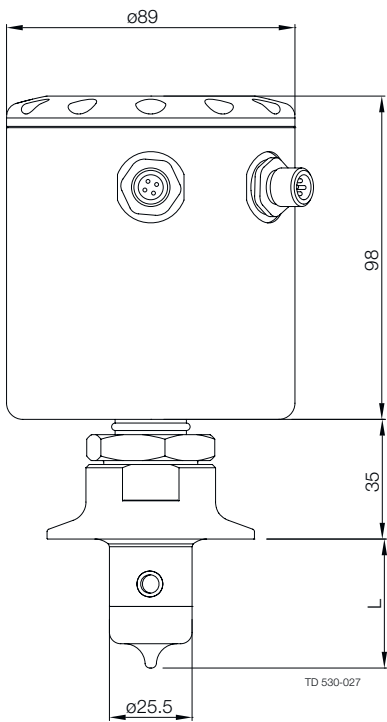
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are continually updated on our website.
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access the information direct.