

AFI4

AFI4-###0.#0#2.0###

Overview

- All-in-One conductivity sensor
- All wetted parts in PEEK
- Compact, food-safe, hygienic design
- 3-A sanitary standards and FDA-compliant, EHEDG-certified



Technical data

Performance characteristics conductivity

Conductivity	14 selectable ranges
Min. measurable conductivity	50 µS/cm
Measuring ranges (selectable)	0 ... 500 µS/cm 0 ... 1 mS/cm 0 ... 2 mS/cm 0 ... 3 mS/cm 0 ... 5 mS/cm 0 ... 10 mS/cm 0 ... 20 mS/cm 0 ... 30 mS/cm 0 ... 50 mS/cm 0 ... 100 mS/cm 0 ... 200 mS/cm 0 ... 300 mS/cm 0 ... 500 mS/cm 0 ... 1000 mS/cm
Max. measuring span	1000 mS/cm
Min. measuring span	500 µS/cm
Max. measuring error	± 1.0 % FSR , 0 ... 1 mS/cm to 0 ... 500 mS/cm ± 1.5 % FSR , 0 ... 1000 mS/cm ± 1.5 % FSR , 0 ... 500 µS/cm
Reference conditions for max. measuring error	Sensor incl. transmitter @ 25°C ambient temperature
Reference temperature	25 °C , adjustable
Repeatability	< 0.5 % FSR , > 1 mS/cm
Compensated temperature range	-20 ... 150 °C
Temperature compensation	0.0 ... 5.0 % FSR/K , adjustable
Step response time	≤ 2.0 s
Sample time	≤ 0.4 s

Performance characteristics conductivity

Temperature coefficient (Factor of change in process temperature from 25°C)	≤ 0.1 % FSR/K
Temperature coefficient (Factor of change in process temperature from 25°C) (0 ... 500 µS / cm)	≤ 0.3 % FSR/K

Performance characteristics concentration

Concentration	4 factory set media
HNO ₃ (nitric acid)	0 ... 25 % by weight , 0 ... 80 °C 36 ... 82 % by weight , 0 ... 80 °C
NaOH (caustic soda)	0 ... 12 % by weight , 0 ... 90 °C 25 ... 50 % by weight , 0 ... 90 °C
Customer defined media	Customer defined (30 point lookup table)

Performance characteristics temperature

Temperature	Free programmable range
Measuring range	-20 ... 150 °C
Thermal response time, T ₉₀	≤ 15 s
Max. measuring error	± 0.4 K
Reference conditions for max. measuring error	Sensor incl. transmitter @ 25°C ambient temperature
Temperature coefficient (Factor of change in process temperature from 25°C)	≤ 0.05 % FSR/K

Process conditions

Process temperature	-20 ... 140 °C , permanent 140 ... 150 °C , max. t < 1 h
Process pressure	≤ 25 bar
SIP/CIP compatibility	< 60 min , @ medium temperature up to 150 °C

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Process connection

Connection variants	G 1 A hygienic
Immersion length	Refer to section "Dimensional drawings"
Wetted parts material	PEEK Natura
Surface roughness wetted parts	Ra ≤ 0.8 µm

Ambient conditions

Operating temperature range	-30 ... 80 °C , with DFON touch screen -40 ... 85 °C , without DFON touch screen
Degree of protection (EN 60529)	IP 67 IP 69K , with appropriate cable
Humidity	< 98 % RH , condensing
Insulation voltage	500 V AC
Vibration (sinusoidal) (EN 60068-2-6)	1.0 mm p-p (2 ... 13.2 Hz), 0.7 g (13.2 ... 100 Hz), 1 octave / min.

Output signal

Conductivity/Concentration	4 ... 20 mA
Temperature	4 ... 20 mA
Relays	2 relays included in the display
Current rating	100 mA , max.
Interface	With FlexProgrammer 9701

Housing

Style	FlexHousing, Ø80 mm Bottom process connection Rear process connection
Overall size	Refer to section "Dimensional drawings"
Material	AISI 304 (1.4301)

Electrical connection

Connector (available for left side)	M12-A, 4-pin, stainless steel M16x1.5, plastic M16x1.5, stainless steel M20x1.5, plastic M20x1.5, stainless steel
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Electrical connection

Connector (available for right side)	M16x1.5, plastic M16x1.5, stainless steel M20x1.5, plastic M20x1.5, stainless steel M12-A, 4-pin, stainless steel, 4 ... 20 mA output M12-A, 8-pin, stainless steel, 4 ... 20 mA + relay output
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Power supply

Voltage supply range	15 ... 35 V DC
Current consumption (no load)	150 mA , max.
Power-up time	≤ 10 s , without DFON touch screen ≤ 16 s , with DFON touch screen

Factory settings

Output mode	Conductivity
Conductivity Range 1	0 ... 200 mS/cm
Conductivity Range 2	0 ... 20 mS/cm
Conductivity Range 3	0 ... 2 mS/cm
Conductivity Range 4	0 ... 500 µS/cm
Temperature output	0 ... 150 °C
Output damping	0.00 s
Temperature compensation Range 1-4	2.00 % FSR/K
Output lower limit	3.70 mA
Output upper limit	21.00 mA

Compliance and approvals

EMC	EN 61326-1
Hygiene	3-A (74-07) EHEDG EL Class I FDA (21 CFR 177.2415)

Operating conditions

Measuring range	Max. measuring error	Conductivity	Media group	Media
0 ... 500 µS/cm	1,5 % FSR	55 nS/cm	Water	Ultra-pure water
0 ... 1 mS/cm	1,0 % FSR	1 µS/cm		Pure water
0 ... 2 mS/cm	1,0 % FSR	10 µS/cm		Process water
0 ... 3 mS/cm	1,0 % FSR	600 µS/cm	Food & Beverage	Drinking water
0 ... 5 mS/cm	1,0 % FSR			Beer
0 ... 10 mS/cm	1,0 % FSR			Milk
0 ... 20 mS/cm	1,0 % FSR			Orange juice
0 ... 30 mS/cm	1,0 % FSR	10 mS/cm	Process	Apple juice
0 ... 50 mS/cm	1,0 % FSR			Phosphoric acid
0 ... 100 mS/cm	1,0 % FSR			Hydrochloric acid
0 ... 200 mS/cm	1,0 % FSR			Sodium hydroxide
0 ... 300 mS/cm	1,0 % FSR	100 mS/cm		
0 ... 500 mS/cm	1,0 % FSR			
0 ... 1000 mS/cm	1,5 % FSR			15 mS/cm

Display

General information

Panel type	FSTN Graphical LCD	Display range	-9999 ... 99999
		Max. digit height	22 mm

