

Bioprocess and Monitoring

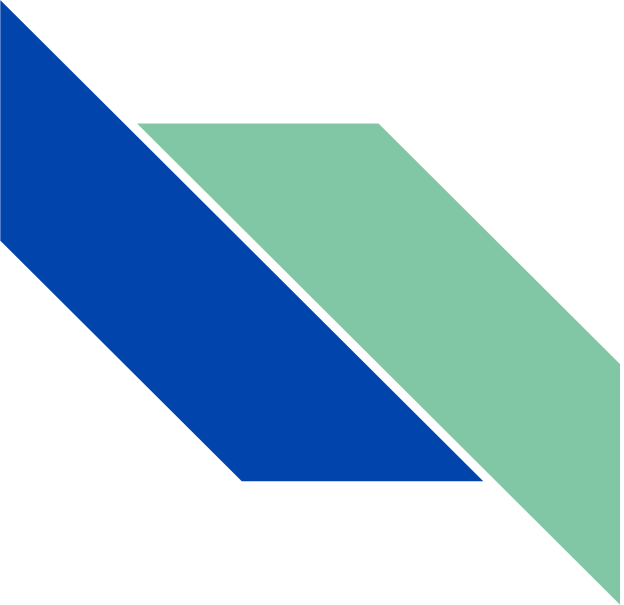
AF Sensor 4-20 mA



Vinci Life Science Applied SA
+41 91 630 0115
Head office: Via Cantonale, 69 - 6805 Mezzovico
Production Site: Via Penate, 16 - 6850 Mendrisio

Product Specifications

Lenght	Variable
Operating principle	Potentiometric
Protocol communication	4-20 mA
Resolution	ON/OFF



Bioprocess and Monitoring Pressure Sensor 4-20 mA



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Product Specifications

Measuring principle:	Absolute and gauge pressure
Supply voltage:	10...30 VDC
Reference accuracy:	0.3%
Long term stability:	0.2% of URL/year
Process temperature:	-10°C...+100°C / +135°C for 1h
Ambient temperature:	-40°C...+85°C
Measuring cell:	+400mbar...+40 bar
Max overpressure limit:	160 bar (2400psi)
Process connection:	Threads: G1, M24
Process connection hygienic:	DIN 11851, clamps, universal adapter

Communication:	4-20 Ma
Certificates/Approvals:	ATEX, FM, CSA, IEC Ex, NEPSI, EAC
Hygienic approvals:	3A,EHEDG, EG1935/2004

Specifications are subject to change without notice

Spec. Version A



Bioprocess and Monitoring Conductivity Sensor

4-20 mA



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Product Specifications

α-length	120mm - 225mm - 325mm - 425mm
Parameter	Conductivity (4-Pole)
Electrical Connector	VP8
Sensor Output Arc:	4-20 mA
Measurement Principle	pole contacting
Measuring Range	1 μS/cm to 300 mS/cm
Accuracy	at 25 °C ± 3 % at 1 μS/cm to 100 mS/cm, ± 5 % at 100 to 300 mS/cm
Cell Constant	0.36 /cm
Temperature Sensor	NTC 22 kOhm
Configurable Values	Conductivity: μS/cm, mS/cm; Temperature: °C, °F, K

Diameter	12 mm
Process Connection	PG13,5
Wetted Parts	Stainless Steel 1.4435 PEEK (Polyetheretherketone) EPDM (Ethylene propylene elastomer) Surface Quality of Steel Ra < 0.4 µm (N5, electropolished)
Analog Interface 1	4 to 20 mA for conductivity, programmable
Analog interface 2	4 to 20 mA for Temp., programmable
Baud Rate	4800, 9600, 19200, 38400, 57600, 115200 Bd
Operating Voltage	7 to 30 VDC max. 150 mW
Certificate	Yes, with calibrated cell constant
ATEX Approval	No
IECEx Approval	No
Autoclavable	Yes, max. Temperature 130 °C

CIP	Yes
Steam Sterilizable	Yes, max. Temperature 140 °C
Operating Temperature Range	0 to 110 °C
Pressure Range	bar g 0 to 20 bar (130 °C)

Specifications are subject to change without notice

Spec. Version A

Bioprocess and Monitoring DO Sensor 4-20 mA



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Product Specifications

α-length 120 mm	120 mm - 160mm - 215mm - 325mm - 425mm
Parameter	DO (Optical)
Electrical Connector	VP8
Sensor Output	4-20 mA
Measurement Principle	Oxygen dependent luminescence quenching, temperature compensation
Measuring Range	4 ppb to 25 ppm (DO) 0 to 62.85 %-vol or 0 to 300 %-sat
Accuracy	at 25 °C 1 ± 0.05 %-vol; 21 ± 0.2 %-vol; 50 ± 0.5 %-vol
Drift at Room Temperature	< 1 % per week
Sensor Cap	ODO Cap H0
Temperature Sensor	NTC 22 kOhm

Configurable Values	DO: mbar; %-sat; %-vol; µg/l; mg/l; ppb/ppm (dissolved oxygen) Temperature: °C, °F, K
Diameter	12 mm
Process Connection	PG13,5
Wetted Parts	Stainless Steel 1.4435 EPDM (Ethylene propylene elastomer) Silicone - FDA 21 CFR 177.2600 VMQ (Silicone elastomer) Surface Quality of Steel Ra < 0.4 µm (N5)
Analog interface	4 to 20 mA for DO, programmable, galvanically not isolated; pulse width modulation 5 kHz
Baud Rate	4800, 9600, 19200, 38400, 57600, 115200 Bd
Operating Voltage	7 to 30 VDC max. 1 W
Response Time	t98% < 30 s at 25 °C
Certificate	Yes, with parameter settings and materials used
ATEX Approval	No

IECEX Approval	No
Autoclavable	Yes, max. Temperature 130 °C
CIP	Yes
Steam Sterilizable	Yes, max. Temperature 140 °C
Operating Temperature Range	-10 to 140 °C; the sensor provides no DO reading above 85 °C
Pressure Range	bar g -1 to 12 bar
Required Flow	None

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Spec. Version A

Bioprocess and Monitoring pH Sensor 4-20mA



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Product Specifications

a-length	120mm - 160mm - 225mm - 325mm - 425mm
Parameter	pH
Electrical Connector	VP8
Sensor Output Arc:	4-20 mA
Measurement Principle	Combination electrode; pH potential measured against reference
Measuring Range	pH 0 to 14
Sensitivity	57 to 59 mV / pH at 25 °C
Zero Point	0 ± 20 mV
pH Glass Resistance	Moderate
Membrane Shape	Spherical

Diaphragm	HP-Coatramic
Number of Diaphragms	1
Temperature Sensor	NTC 22 kOhm
Configurable Values	pH: pH, mV; Temperature: °C, K, °F
Diameter	12 mm
Process Connection	PG13,5
Wetted Parts	Glass VMQ (Silicone elastomer)
O-ring Material	FDA 21 CFR 177.2600; EG 1935/2004; USP <87>; USP <88> Class VI (121 °C)
Analog Interface 1	4 to 20 mA for pH, programmable
Analog Interface 2	4 to 20 mA for Temp., programmable
Analog Interface 1 and 2	Galvanically not isolated; pulse width modulation 3.5 kHz
Baud Rate	4800, 9600, 19200, 38400, 57600, 115200 Bd

Operating Voltage	7 to 30 VDC max. 150 mW
Certificate	es, with measured values in Buffer pH 4.01 and pH 7.00
ATEX Approval	No
Autoclavable	es, max. Temperature 130 °C
CIP	Yes
Steam Sterilizable	Yes, max. Temperature 140 °C
Operating Temperature Range	0 to 110 °C
Sample min Conductivity	100 µS/cm
Pressure Range	bar g 0 to 6 ba

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Spec. Version A



Bioprocess and Monitoring Temperature Sensor

4-20 mA



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Product Specifications

Power Supply:	10÷28 Vcc (polarity protected)
Accuracy (*):	(*) @25°C ≤ ± 0.3°C
Temperature influence (*):	(*) deviation from 20°C Maximum value between ±0.3°C/25°C and ±0.3% of span/25°C
Permitted load:	636 Ω @ 24 Vdc (RLΩ=(Vsupply – 10) / 0.022)
Sensor failure signalling:	Upper scale >21.0 mA Downscale <3.6 mA
Sensor short circuit signalling:	Fixed at lower limit of range (<3.6 mA)
Electronic board operating temperature:	-40÷80°C
Sensing element operating temperature range:	-50÷500°C
Output signal:	4-20 mA

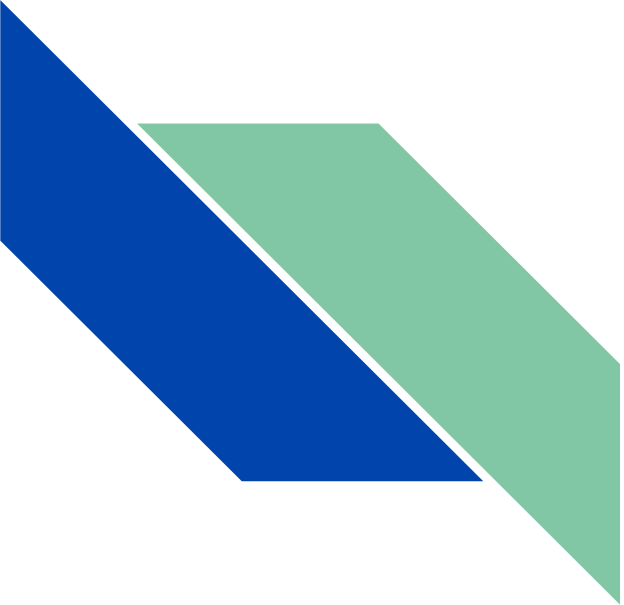
Sensing element:	pt100 Ω @ 0°C
Sheath diameter:	ø3mm – ø6mm
Sheet material:	AISI 316
Type of connector:	male 4-pin connector with M12x1 metal screw lock
International protection marking (*):	(*) According to IEC 60529 – IP65/67
Factory default ranges available:	0÷100°C / 0÷150°C / 0÷300°C / -50÷100°C / -50÷150°C / -50÷50°C

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Spec. Version A



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Bioprocess and Monitoring Exhausted Gas Sensor 4-20 mA Available for CO₂, CO, CH₄ & O₂



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Product Specifications (CO2)

Accuracy	± 2% of full scale*
Zero Stability	± 2% of range (over 12 months)
Range	Low concentration: 0-500ppm / 0-1000ppm / 0-2000ppm / 0-3000ppm / 0-5000ppm High concentration: 0-1% / 0-3% / 0-5% / 0-10% / 0-30% / 0-100%
Response Time	T90 = <30 seconds from sample inlet
Power Requirements	90 to 260 VAC 50 to 60 Hz
Power Consumption	15 W typical
Humidity	Measurements are unaffected by 0-95% RH, non condensing
Output	4-20 mA/ 0-20 mA analogue output. 11V guaranteed drive capability.
Operating Temperature	0-40°C
Operating Pressure	800-1150 mbar
Voltage free contacts rating	8A at 250V AC (resistive load) 8A at 24V DC (resistive load)
Enclosure rating	IP 54
Warm-up Time	1 min (initial) 30 min (full specification)

Product Specifications (CO)

Accuracy	± 2% of full scale*
Zero Stability	± 2% of range (over 12 months)
Range:	0-3% 0-10% 0-30% 0-100%
Response Time	T90 = <30 seconds from sample inlet
Power Requirements	90 to 260 VAC 50 to 60 Hz
Power Consumption	15 W typical
Warm-up Time	1 min (initial) 30 min (full specification)
Humidity	Measurements are unaffected by 0-95% RH, non condensing
Output	4-20 mA/ 0-20 mA analogue output. 11V guaranteed drive capability.
Operating Temperature	0-40°C
Operating Pressure	800-1150 mbar
Voltage free contacts rating	8A at 250V AC (resistive load) 8A at 24V DC (resistive load)
Enclosure rating	IP 54

Product Specifications (CH4)

Accuracy	± 2% of full scale*
Zero Stability	± 2% of range (over 12 months)
Range	0-1% / 0-5% / 0-10% / 0-30% / 0-100% / 0-100% Biogas
Response Time	T90 = <30 seconds from sample inlet
Power Requirements	90 to 260 VAC 50 to 60 Hz
Power Consumption	15 W typical
Warm-up Time	1 min (initial) 30 min (full specification)
Humidity	Measurements are unaffected by 0-95% RH, non condensing
Output	4-20 mA/ 0-20 mA analogue output. 11V guaranteed drive capability. Alarm ranges: zero to full scale. Alarm 1 relay, Alarm 2 relay and Fault relay
Operating Temperature	0-40°C
Operating Pressure	800-1150 mbar
Voltage free contacts rating	8A at 250V AC (resistive load) 8A at 24V DC (resistive load)
Enclosure rating	IP 54

Product Specifications (O2)

Power Supply	12 - 24 Vdc
Measurement range	10-1.000 ppm / 0.05-1 % / 0.05-2 % / 0.05-3 % / 0.1-25 % / 0.1-95 % / 0.1-96 %
Target Gas	Oxygen
Output	0-10V, linear 4-20 mA, linear

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Spec. Version A



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