

Bioprocess and Monitoring Cell Density Sensor Modbus 485



Vinci Life Science Applied SA
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Production Site: Via Penate, 16 - 6850 Mendrisio

Product Specifications

α -length	120mm - 225mm - 325mm - 425mm
Parameter	Total Cell Density
Electrical Connector	VP8
Sensor Output Arc:	Modbus
Measurement Principle	Transmission and Reflection (including temperature compensation, daylight filter and subtraction)
Wavelength	860 nm
Measuring Range	e.g. 0-200g/l cell dry weight yeast 0-4 AU 0-30'000 NTU
Accuracy at 25 °C	Resolution: 0.05 g/l (0-10 g/l); 0.5 % (> 10 g/l) cell dry weight yeast Reproducibility: ± 1 % Linearity: $< \pm 1\%$ of respective measuring range (specific to application with off-line correlation)
Temperature Sensor	NTC 22 kOhm
Configurable Values	TCD: PCV, AU, arb. Unit, NTU, g/l, CFU, e6 cells/ml, OD Temperature: K, °C, °F

Diameter	12 mm
Process Connection	PG13,5
Wetted Parts	Stainless Steel 1.4435 Sapphire glass EPDM (Ethylene propylene elastomer) Surface Quality of Steel Ra < 0.4 µm (N5)
Digital Interface	RS485 Modbus (max. 31 addresses)
Baud Rate	4800, 9600, 19200, 38400, 57600, 115200 Bd
Operating Voltage	+10 to +27 VDC
Optical Path	Length 5 mm
ATEX Approval	No
IECEX Approval	No

Autoclavable	Yes
CIP	Yes
Steam Sterilizable	Yes, max. Temperature 140 °C
Storage Conditions	-20 °C to 45 °C
Operating Temperature Range	0 to 140 °C; the sensor provides no TCD reading above 80 °C.
Pressure Range	bar g 0 to 12 bar
Protection Rating	IP 68

Specifications are subject to change without notice

Spec. Version A

Bioprocess and Monitoring CO2 Sensor Modbus 485



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Product Specifications

A -Length:	120 mm – 160mm – 225mm – 325mm – 425mm
Parameter	DCO ₂
Electrical Connector:	VP8
Sensor Output:	Modbus 485
Measurement Principle:	Non-dispersive Infra-Red (NDIR) absorption of wavelength selective for CO ₂ ;
Measuring Range:	5 - 1000 mbar or 0.5 - 100 % vol or 7.5 - 1500 mg/L in liquid phase at 101.3 kPa and 25°C
Accuracy at 25 °C	±5 mbar (5-100 mbar); ±5% (> 100 mbar)
Temperature	NTC 22 kOhm
Configurable Values CO ₂ :	mbar, mmHg, hPa, %-vol, %-sat, µg/l ppb, mg/l ppm (dissolved CO) Temperature: K, °C,
Diameter	12 mm

Process Connection	PG13,5
Wetted Parts	Stainless Steel 1.4435 EPDM (Ethylene propylene elastomer) Silicone - FDA 21 CFR 177.2600 Surface Quality of Steel Ra < 0.4 µm (N5)
Digital Interface	RS485 Modbus (max. 31 addresses)
Baud Rate	4800, 9600, 19200, 38400, 57600, 115200 Bd
Operating Voltage	+10 to +27 VDC
Certificate	Yes, factory test with CO ₂ certified gas
Hygienic Design Approval	EHEDG approved. EL Class I. (Test executed with Hamilton hygienic socket)
ATEX Approval	No
IECEx Approval	No
Autoclavable	Yes

CIP 8	Yes
Steam Sterilizable	es, max. Temperature 140 °C
Operating Temperature Range	-10 to 140 °C; the sensor provides no CO ₂ reading above 60 °C
Pressure Range	bar g -1 to 12 bar
Protection Rating	IP 68

Specifications are subject to change without notice

Spec. Version A



Bioprocess and Monitoring Conductivity Sensor Modbus 485



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Product Specifications

α-length	120mm - 225mm - 325mm - 425mm
Parameter	Conductivity (4-Pole)
Electrical Connector	VP8
Sensor Output Arc:	Modbus 485
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)
Digital Interface	RS485 Modbus (max. 31 addresses)
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 140 °C
Pressure Range	bar g 0 to 20 bar (130 °C)

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Spec. Version A

Bioprocess and Monitoring DO Sensor Modbus 485



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Product Specifications

α-length 120 mm	120 mm - 160mm - 215mm - 325mm - 425mm
Parameter	DO (Optical)
Electrical Connector	VP8
Sensor Output	Modbus 485
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)
Digital Interface	RS485 Modbus (max. 31 addresses)
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 Modbus 485



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Product Specifications

a-length	120mm - 160mm - 225mm - 325mm - 425mm
Parameter	pH
Electrical Connector	VP8
Sensor Output Arc:	Modbus 485
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)
Digital Interface	RS485 Modbus (max. 31 addresses)
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	Digital interface: 0 to 140 °C
Sample min Conductivity	100 µS/cm
Pressure Range	bar g 0 to 6 ba

Specifications are subject to change without notice

Spec. Version A



Bioprocess and Monitoring Exhausted Gas Sensor Modbus 485

Available for H2



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Product Specifications

Sensor	Thermal conductivity sensor
Accuracy	±2 %
Repeatability	±1%
Stability	±1%/7d
Response time	T90<60s (after preheating enough)
Calibration period	Once a year
Inlet and outlet	¼" NPT threads, standard ¼" dia 6mm quick- release connector
Dimensions	WxHxL 144mm x 295mm x 144mm
Power supply	AC85 - 264V, 50/60Hz
Consumption	Less than 15VA
Range	0-99.999%
Working temperature	Operating: +5 / + 45°C Storing: -5 / + 50°C

Working humidity	<90%RH
Intake pressure	atmospheric conditions $\pm 10\%$
Intake flow	200-400 ml/min
Communication	RS485 / RS232
Output mode:	4-20 mA - 0-20 mA - 0-1V - 0-5V - 0-10V - 1-5V can be set freely

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