

# General Specifications

## SM31 Series Dissolved Oxygen Sensor

The measurement of Dissolved Oxygen is one of the key analysis methods to monitor. Biotechnical processes, but most users complain of unreliable sensor performance, high maintenance requirements and therefore high costs or a short lifetime. The new SM31 Dissolved oxygen sensor is designed to meet the severe requirements of the Biotechnology industry in terms of long term stability and low maintenance.

Most low maintenance dissolved oxygen sensors operate on the principle of the reduction of oxygen at the surface of a noble metal electrode, the cathode, but this design can exhibit problems during calibration including interference from other substances. In the SM31 electrode, the sensor is covered with a gas permeable membrane to address these problems. The unique technology of the membrane is the real secret to achieving the desired quality of DO measurement.

The SM31 Dissolved Oxygen sensor is a membrane covered polarographic sensor. Normally these sensors utilize TEFLON or FEP material, which features high selectivity towards Oxygen. For Biotechnical applications this material is not suitable due to mechanical deformation of the membrane in the vigorously agitated reactors or during steam sterilization. Other models use silicone rubber which has excellent elastic properties but poor oxygen selectivity. The SM31 features a laminated membrane with a thin layer of TEFLON for high selectivity and fast response, silicone rubber for elasticity and steel mesh for mechanical stability



### FEATURES

- Fast response
- Low maintenance
- Long lifetime
- Minimal flow sensitivity
- Short polarisation time
- Steam sterilizable
- Polarographic sensor compatible with Yokogawa DO402 Dissolved Oxygen Analysers

### SYSTEM CONFIGURATION

<p>Sensors</p>	<p>Connecting Equipment</p>	<p>Fittings</p>	<p>Converters</p>	<p>Receivers</p>
<p>Cable</p>	<p>Cleaning Systems</p> <p>Brush, Chemical</p>	<p>Cable</p>	<p>Miscellaneous</p>	<p>Accessories</p>

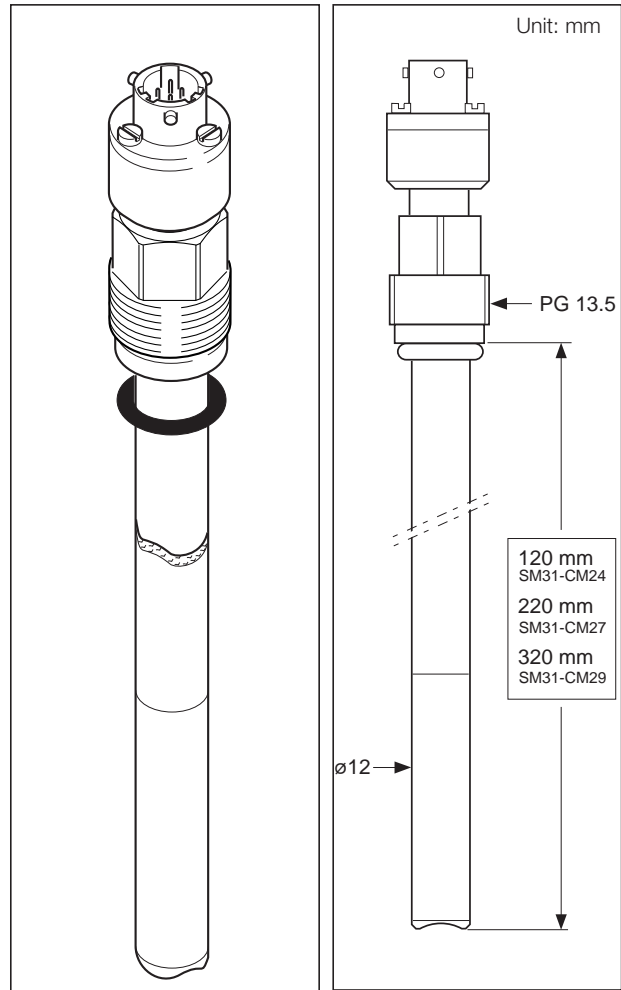
## A. SM31

### GENERAL SPECIFICATIONS

- Polarisation voltage :  $-670 \pm 50$  mV
- Current in air at 25 °C : 40-80 nA
- Current in oxygen free nitrogen :  $\leq 0.1\%$  of air current
- Response time  $t_{99\%}$  : 30-60 sec.
- Flow sensitivity :  $\leq 5\%$
- Temperature range : 0 °C to 130 °C / 32 °F to 266 °F
- Pressure range : 0 to 4 bar / 0 to 58 psi
- Drift at constant 25 °C :  $\leq 1\%$  per week
- Temperature coefficient of signal : 2,5 - 3% per °C
- Installation : PG 13,5 mm thread
- Electrical connector : Standard multipole
- Intergrated temperature sensor: : NTC.
- Outer diameter : 12 mm
- Available lengths : 120 mm, 220 mm, 320 mm
- Fittings : FF22-S24 for SM31-CM24

### MODEL AND SUFFIX CODES

Model	Suffix code	Option code	Description
SM31 .....			Electrode
	-CM24.....		Oxygen electrode 120 mm SS. 316Ti
	-CM27.....		Oxygen electrode 220 mm SS 316Ti
	-CM29.....		Oxygen electrode 320 mm SS 316Ti



SM31-CM..

## B. Direct insertion fitting FF22-S24

The FF22-S24 armature is the best selection for standard fermentation applications. It is designed for installation of the PG13,5 120mm length type sensors either pH, Redox or oxygen types into the 25mm port connection used in the Biotechnical Industry. It is easily mounted and the VITON O-rings can be exchanged without a special tool.

The revolutionary cable cap features:

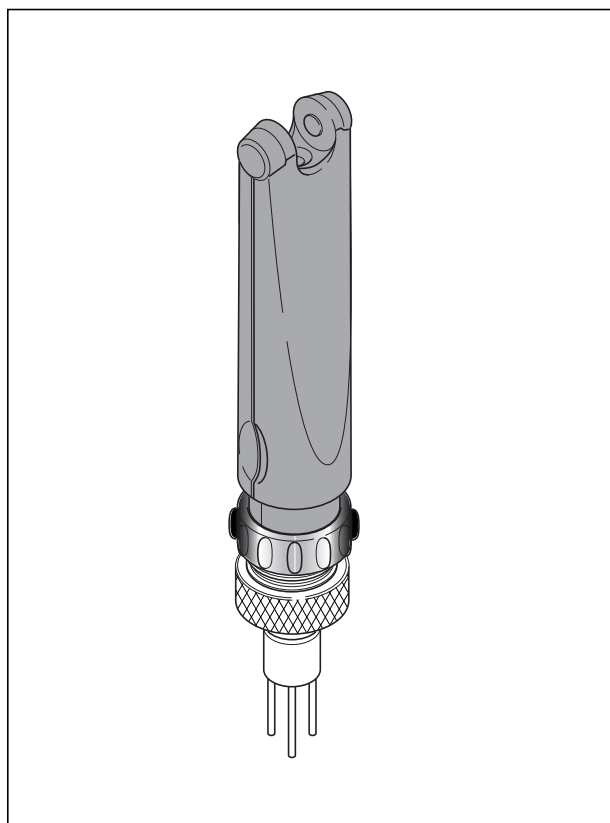
- Strain relief for the sensor cable
- Full protection against, dust, dirt, moisture and water.

### GENERAL SPECIFICATIONS

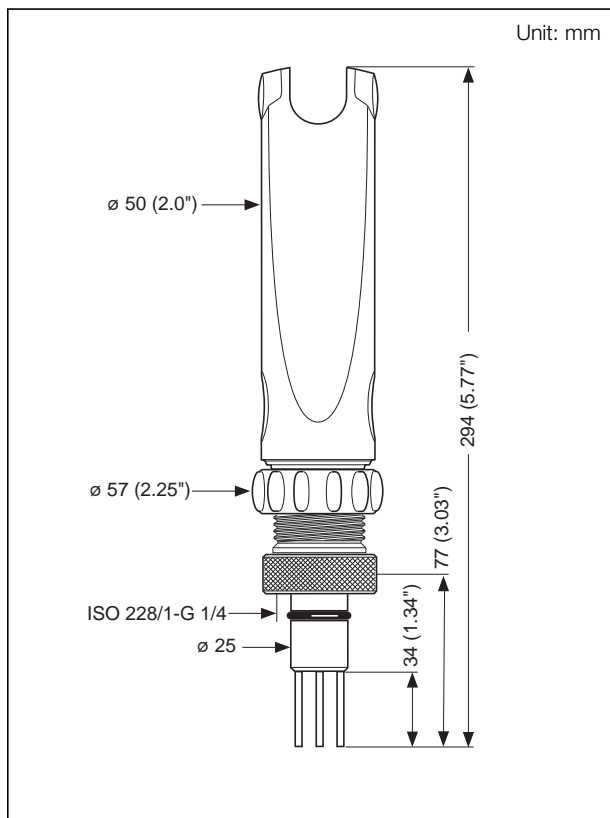
- Connection : G 1<sup>3</sup>/<sub>4</sub>" - 25 mm port size
- Total length : 294 mm
- Max. Diameter : 57 mm
- Wetted materials : Stainless Steel 1.4571; AISI 316Ti, VITON
- Temperature range : -10 °C to 130 °C/14 °F to 266 °F
- Max. pressure : 6 bar/87 psi
- Electrodes : All 120 mm length with PG13,5 thread, except the SC22-AAC54/55

### MODEL AND SUFFIX CODES

Model	Suffix code	Option code	Description
FF22.....	.....	.....	Adapter
	-S24.....	.....	For 25 mm Port, 120 mm. sensor length



FF22-S24



FF22-S24

## C. WU31

The WU31 cable is designed to match the watertight connector of the SM31 sensor and to transmit the low voltage/high impedance signal reliably. Excellent low noise specifications and high chemical resistance of the material used guarantee long service life and a stable signal.

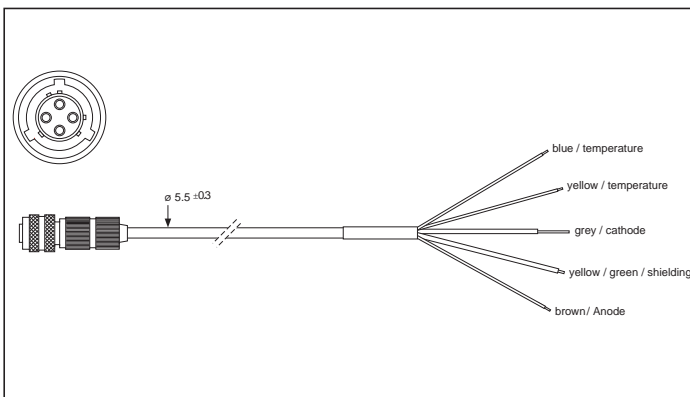
### GENERAL SPECIFICATIONS

Bending radius	: min. 40 mm (one time bending)
	: 80 mm (multiple bending)
Max. temperature	: 70 °C
Cable length	: 1,3 or 5 m.

Description	Part number	Quantity
Membrane kit	K1523DL	1
Oxylite Electrolyte 50 ml	K1523DM	1
Connector cap for Autoclavation	K1523DW	1
Service kit for FF22	K1523DP	1
O-ring 20.24 x 2.62 VITON		
O-ring 12.42 x 1.78 VITON		
Cable cap for all armatures	K1523DS	1
Cable cap nut for all armatures	K1523DX	1
O-ring VITON 11x3	51250	6
O-ring EPDM 11x3	K1500BV	6

### MODEL AND SUFFIX CODES

Model	Suffix code	Option code	Description
WU31			Cable
	-LH01		Cable length 1m..
	-LH03		Cable length 3m..
	-LH05		Cable length 5m..



Cable WU31

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