

OXIGENO DISUELTO

Sistema autolimpiable

DPF
sensors

Dissolved Oxygen
Autoclean system

Install & forget



- Applications:
 - water treatment
 - activated sludge
 - de-nitrification
 - fish pond

The on-line monitoring system is designed for the continuous measurement of oxygen gas in solution.

The full scale operating range of the system may be selected by the user for 0-20.00 PPM or 0-40.00 PPM, and the sensing system will operate on water streams with temperature from 0 to 50 °C.

The measured dissolved oxygen concentration is displayed on a backlit liquid crystal display on the front of the instrument. The D.O. monitor is well suited for wastewater treatment aeration tanks, effluent monitoring, or stream monitoring.

The basic sensing element used in the D.O. monitor is a galvanic membraned sensor assembly that automatically delivers high pressure air to the tip of the sensor to effectively blast accumulated growth from the membrane.

The system includes two main components and fittings:

- OD 8112 D.Oxygen assembling with cleaner
- OD 8182 D.Oxygen sensor with cleaner nozzle
- Installation accessories
- Spares

For special applications, the D.O monitor can be supplied without the cleaner, and the customer will provide the pressure air to the sensor.

Submersible sensors are designed for direct immersion in an aeration tank or flowing stream.

A 15 m cable is potted into the top section of the sensor assembly, and connects directly to the D.O. monitor. A separate tubing connection located at the top of the sensor assembly is provided for connection of a 15 m length of plastic tubing between the sensor and the monitor.

The D.O. sensor assembling is mounted to a 1" pipe using a special mounting adapter.

The 1" pipe is attached to the tank handrail with a bracket assembly that holds the sensor at a slight angle in the tank.

Once installed and placed into operation, the Autoclean D.O. sensor will provide months of reliable D.O. measurement in almost any application. Sensor should be checked for build-up after the first 3 months to verify that the cleaner is keeping the membrane clean.

However, sensor maintenance intervals of 6 months or more are likely in most aeration tanks.

The sensor cleaning frequency is user programmable, and units are shipped with a default cleaning frequency of once every 24 hours.

This frequency has proven sufficient for most aeration applications, but can be increased if needed for a specific application.

A cleaning frequency of more than every 2 hours is not recommended.



System installation

The installation of the auto-clean D.Oxygen system is quick and simple. A special mounting adapter connects the sensor to standard 1" conduit or pipe, and another adapter provides secure connection of the pipe to a standard handrail system.

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OD 8112

Autoclean D.Oxygen monitor



In this control box are installed the OD 7685.010 monitor and the cleaner consisting of compressor, reservoir and solenoid.

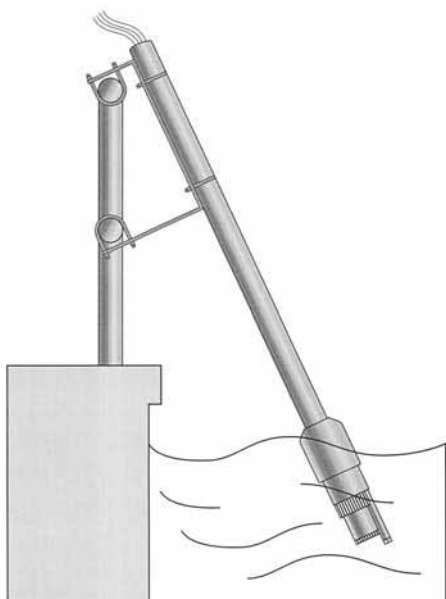
Air pressure: 3 bar

Dimensions: 376 x 306 x 207 mm

Protection: IP 65

Power: 220 Vac 50/60 Hz 150 VA

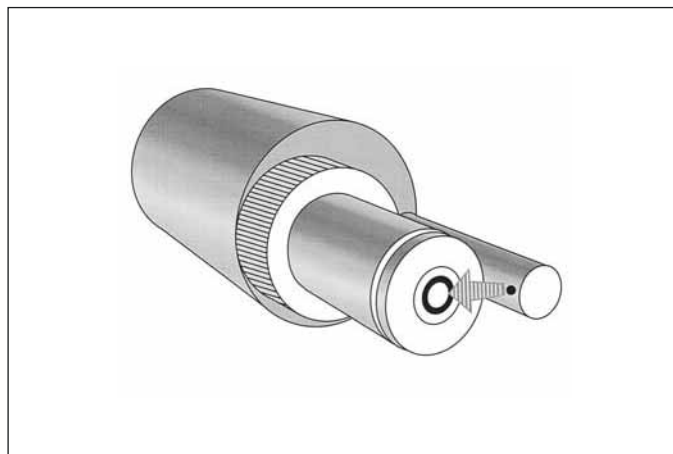
OD 7685.010 specifications are described on the page related to the instrument.



Typical installation of the immersion probe

OD 8182

Autoclean D.Oxygen probe



The probe is equipped with a galvanic membraned sensor and a RTD temperature element.

A titanium nozzle injects the pressure air for the membrane cleaning.

The package includes the connecting cable and:

- 0012.020007 DO sensor
- 0012.040003 Assembled Lead electrode
- 0012.050001 Kit of 10 membranes 5 mils
- 0012.090007 Electrolyte bottle 120 cc. (4 OZ)
- 0012.050014 Screw and OR Kit
- 0012.440040 33 m PVC tubing

Specifications

Submersible type with top holder and screw-in sensor

Response time 90% in 180 s with 5 mil membrane

Temp. sensor Pt100 integral to sensor

Temp. limits -5 to +55 °C

Connections 5 wires cable, 15 m (150 m max)

15 m flexible tubing 1/4"-3/8"

Materials Noryl and stainless steel

Accessories

Choose one of the following accessory for the installation

0012.450043

Adapter for extension pipe

0012.000624

Swivel mounting including 0012.450043 adapter

ST 6115

Optical dissolved oxygen

2-wire 4/20 mA transmitter



This unique submersible probe has been designed to measure dissolved oxygen based on fluorescent technology.

The measuring system consists of:

- optical device complete with a layer of fluorescent material,
- electronic circuit with an exciting beam for the fluorescence detection,
- built-in 2-wire 4/20 mA transmitter;
- digital input for calibration and configuration
- nozzle for the autoclean by external pressure air

The automatic temperature compensation is done internally by means of a built-in sensor.

Thanks to its 4/20 mA isolated output, the probe can be directly connected to a PLC or data logger, without using amplifiers or other devices.

The probe can be connected to B&C Electronics controller BC7635, which provides the power to the probe, the measuring readout, 2 set-points and an alarm, the hold during the cleaning cycle.

The most common applications of this probe include: water quality monitoring, municipal and industrial water treatment and aquaculture.

Principle of operation

A light beam of a specific wavelength is sent to a special fluorescent layer in contact with the sample. The absorbed light energy is partially released as a light pulse with an higher wavelength. This phenomena is called fluorescence.

If oxygen molecules are in contact with the sensing layer, the fluorescing is reduced (quenching).

By measuring the amount of quenching it is possible to determine the oxygen concentration.

The advantages of this measuring method are the absence of electrolyte and membrane, the possibility to measure the oxygen concentration in water or in air, and a good sensitivity in a low oxygen concentration.

Specifications

Measuring method: optical

Scale: 0-20 ppm

Sensitivity: +/- 0,5 % of the scale

Response time: 95% in < 60 seconds

Power supply: 9/36 Vdc

Isolated output: 4/20 mA current Loop

Load: 600 Ω max. at 24 Vdc

Temperature compensation: automatic

Room temperature: -5/50 $^{\circ}\text{C}$

Max. pressure: 10 Bar at 25 $^{\circ}\text{C}$

Length: 180 mm

Diameter: 62.5 mm

Body: PVC

Cable: 10 m (100 m max.)

Installation: submersible

Autoclean: by pressure air 3 bar max

Protection: IP 68

Sensing element life: 1 year, protected from light replaceable by customer



example of application with BC 7635 controller

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OD 7685.010

Autoclean Dissolved Oxygen controller



Add the following to the common Features/Specifications of the 7685 Series shown overleaf

- Applications:
 - water treatment
 - activated sludge
 - de-nitrification
 - fish pond
- Input from galvanic cell
- Scales: PPM - mg/l - % air sat. - mmHg
- Autoranging
- Temperature readout in °C or °F
- Dual filter software
- Calibration parameters display
- Dual set-point and alarm conditions display
- Autocalibration in air
- Automatic or manual temperature compensation
- Pressure, R.H., salinity compensation
- Dual isolated output:
 - 0/20 mA or 4/20 mA selectable
 - programmable input on the span
- Automatic or manual operation
- Dual set-point with hysteresis, delay, and min/max programmable functions
- Autoclean relay and holding function for input and outputs
- Automatic overload protection and reset
- Extractable terminal block
- 96x96 (1/4 DIN) housing

Specifications

* Galvanic cell
membrane: 1 mil - 2 mil - 5 mil (5 mil standard)
cable length: 15 m

* Scales
0/400 - 0/200.0 - 0/20.00 mmHg
0/400 - 0/200.0 - 0/20.00 % air saturation
0/40.0 - 0/20.0 PPM - 0/2000 PPB
0/40.0 - 0/20.00 mg/l - 0/2000 µg/l

* Software filter 90% RT: 0.4/50.0 s
Zero: ± 1 mV
Sensitivity: 62.5/212.5 %

Temperature
measuring and compensation range: +2/+52 °C or 28,4/125,5 °F
Zero: ± 2 °C or ±3,6 °F
Input: Pt100 3 wires

Temperature compensation
Internal table for each membrane type
Reference temperature: 20 °C or 68 °F
Manual compensation: 0/50.0 °C or 32/122 °F

Secondary parameters
Pressure: 500/800 mmHg
Salinity: 0/60,000 PPM
Relative humidity: 0/100 %

Analog outputs
Dual isolated for D.O and temperature

Set points
Dual with ON/OFF programmable functions

* Autoclean function
Disable - manual - auto + manual
* Repetition cycle: 0.1/24 hours
* Number of cycles: from 1 to 10
* Compressor time: 0.5/60.0 sec.
* Discharge time: 0.5/10.0 sec.
* Holding time: 0/20.0 min. (for measuring, outputs, relays)

The technical specifications may be changed without notice

Probes and accessories

This instrument uses the OD 8182 dissolved oxygen probe.

It is normally installed in the OD 8112 autoclean assembly



SI 683
D.Oxygen probe with polarographic sensor type SZ 654.1. L. 1170 mm.

ST 683
D.Oxygen probe with polarographic sensor type SZ 654.1 and microtransmitter 080610.2. Length 1200 mm.

Specifications

Body: PVC

Diameter: 34 mm.

Depth: adjustable

Operating Temperature: 40 °C max.

Options: special materials and length

Dissolved Oxygen cells



SZ 641.2 Polarographic D.O. cell with built-in Pt1000. 250 nA. Current in air at 20 °C, Temperature 0/45 °C. Epoxy body L=110 mm, D=12 mm cable 1.5m with BNC/Jack connectors. Ship with spare membrane and electrolyte.

Applications: portable instruments.



SZ 654.1 Polarographic D.O. cell with built-in Pt100. 250 nA. Current in air at 20 °C, Temperature 0/45 °C. Epoxy body L=110 mm, D=12mm, cable 5 m. Ship with spare membrane and electrolyte.

Applications: immersion and in-line, water treatment, industrial instruments.

SZ 659.R1 spare membrane/electrolyte.

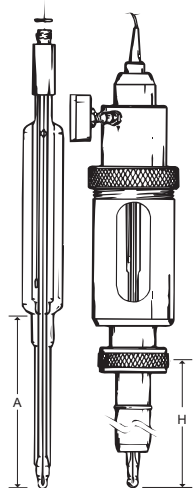


SZ 664.2 Polarographic D.O. cell with built-in Pt1000. 250 nA. Current in air at 20 °C, Temperature 0/60 °C. Epoxy body L=125 mm, D=21.5 mm, cable 5 m with BNC/Jack connectors. Ship with spare membrane and electrolyte.

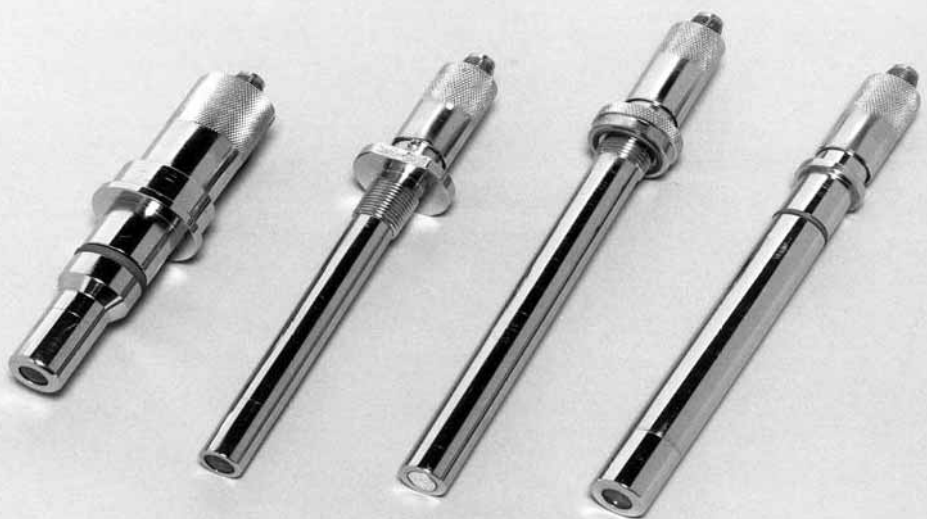
Applications: submersible, portable instruments in water treatment.

SZ 669.R1 spare membrane/electrolyte.

Pressurizable and sterilizable probes



pH/ORP electrodes - D.O₂/CO₂ cells - Sterilizable for Biotechnology



ask for the specific catalog

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OD 7685

Dissolved Oxygen controller



Add the following to the common Features/Specifications of the 7685 Series shown overleaf

- Applications:
 - water treatment
 - drinking water
 - fish pond
 - food industry
 - biotechnology
- Selectable input from:
 - polarographic high/low current cells
 - galvanic cells
 - 080610.2 preamplifier
- Scales: PPM - mg/l - % air sat. - mmHg
- Autoranging
- Temperature readout
- Dual filter software
- Calibration parameters display
- Dual set-point and alarm conditions display
- Autocalibration in air
- Automatic or manual temperature compensation
- Pressure, R.H., salinity compensation
- Isolated output:
 - 0/20 mA or 4/20 mA selectable
 - programmable input on the span
- Automatic or manual operation
- Dual set-point with hysteresis, delay, and min/max programmable functions
- Alarm:
 - min/max and delay programmable
 - on set-points timing
- Autoclean relay and holding function for input and outputs

Specifications

Polarographic Cell
Low Current cell: 25/75 nA
High Current cell: 140/510 nA
* Polarization: 0/1250 mV

Galvanic Cell
Input: 17/51 mV

Selectable scales
0/200.0 mmHg D.O. partial pressure
0/200.0 % air saturation
0/20.00 PPM
0/20.00 mg/l
* Software filter 90% RT: 0.4/50.0 sec.
Zero adjustment: +/- 10%
Sensitivity adjustment: 80/170 %
Display resolution at 20°C: 1/1000

Secondary parameters
Pressure: 500/800 mmHg
Salinity: 0/60,000 PPM
Relative Humidity: 0/100 %

Temperature
Input: RTD Pt100 2/3 wires connection
Measuring and compensation range: -2/+52 °C
Resolution: ±0.1 °C
Zero adjustment: ±2 °C
Manual temp. comp: 0/50 °C

Options

The following options are available:

- 091.3713 dual analog programmable and isolated output.
The operator may select an output for temperature.
- 091.701 RS232 isolated output.
The output sends the data (E.C., °C) to the serial port of the computer.
- 091.404 24 Vac power supply

The technical specifications may be changed without notice

OD 3630

Dissolved Oxygen transmitter



- OD 7635 Dissolved Oxygen

MICROTRANSMITTERS

for industrial probes

- Suitable for 7685 Series and 565 Series
- IP 65 water-tight protection
- Water-tight output connector
- For immersion and in-line probes
- Easy installation and maintenance



080610.2

Dissolved Oxygen microtransmitter

This miniature preamplifier is realised in a water-tight enclosure with a waterproof connector for a shielded 7-wire cable for the transmission of dissolved oxygen and temperature signals.

Input comes from polarographic cells and from Pt100 devices. It is used together with the OD 7685 or OD 565.2 models in cases where there are long distances between the oxygen cell and the controller.

The transmitter can be adjusted as far as the zero point, the sensitivity and the cell polarization is concerned. The connection between the microtransmitter and the panel regulator is made using a 7-pin waterproof connector (cod. 2231520).

Specifications

Standard cables with connector are also available:
SZ 9481: 2231520 + cable length 10 m (33 feet)
SZ 9483: 2231520 + cable length 30 m (100 feet)
Recommended cable: 7 x 0.25 mm shielded

Accessories

See accessories for 080315.

OD 565.2

Dissolved Oxygen controller

- Input polarographic cell
galvanic cell (option)
microtransmitter
- Scales PPM - % air saturation - % O₂ - mmHg
- Temperature and Temperature Coefficient display
- Manual and automatic Temperature compensation



General informations

This instrument presents all the advantages of a modern and reliable measurement of dissolved oxygen in industrial plants.

Input comes either from a polarographic cell or from a microtransmitter (Galvanic cell as option).

It also features manual and automatic temperature compensation by means of a Pt100 sensor and the display and the adjustment of the temperature coefficient.

The temperature value is adjusted by the trimmer on the front panel. The temperature readout, both in manual and automatic temperature operation, is obtained by pushing a button on the front panel.

The two set-points are independent and programmable by a front-panel control with the possibility of selecting the min/max function by rear selectors and also the possibility to insert a delay up to 5 seconds.

The controller provides an output of 0/20 or 4/20 mA selectable, proportional to the meter reading, for driving a recorder or remote readout having a non-grounded input.

Specifications

Add the following to the common Specifications shown overleaf

Input:	from polarographic Qcell from microtransmitter mod. 080610 from RTD Pt100 from galvanic cell (option)
Scales:	0 to 199.9 % O ₂ (in air value 20.9) 0 to 199.9 % (in air value 100.0) 0 to 199.9 mmHg (in air value 155.5) 0 to 19.99 mg/l (in air value 9.20)
Temperature readout:	0/100.0 °C
Temp. compensation:	manual and automatic 0/100 °C
Temp. Coefficient:	0 to 5.5 %/°C
Temperature sensor:	RTD Pt 100
Cell Current in air:	30 nA (others as requested)

