Датчики хлора, кислорода Oxymax W COS41

Техническая информация

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Россия +7(495)268-04-70 Казахстан +7(7172)727-132 Киргизия +996(312)96-26-47

эл.почта: ehr@nt-rt.ru || сайт: https://endcounters.nt-rt.ru/

Level | Pressure | Flow | Temperature | Liquid Analysis | Registration | Systems Components | Services | Solutions

Technical Information

Oxymax W COS41

Potentiostatic amperometric two-electrode sensor
Long-term stable sensor for water and wastewater applications

Application

The continuous measurement of the dissolved oxygen concentration is very important in many areas of water management:

- Sewage treatment plants:
  Oxygen measurement and regulation in the activated sludge basin for a highly efficient biological cleaning process
- Water monitoring:
  Oxygen measurement in rivers, lakes or seas as an indicator of the water quality
- Water treatment:
  Oxygen measurement for status monitoring of drinking water for example (oxygen enrichment, corrosion protection etc.)
- Fish farming:
  Oxygen measurement and regulation for optimum living and growth conditions

Your benefits

- Maximum measurement accuracy:
  - Long maintenance intervals
  - Intelligent sensor self monitoring
- Membrane covered sensor, i.e.:
  - high O_2 selectivity
  - Minimum maintenance effort
  - Minimum calibration effort thanks to simple calibration in air

Function and system design

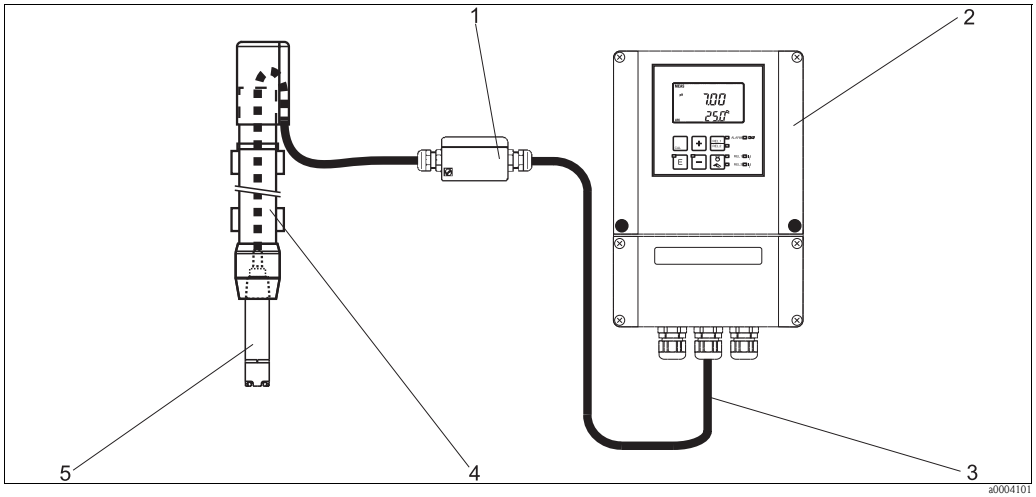
Measuring principle

The oxygen molecules diffused through the membrane are reduced to hydroxide ions (OH-) at the cathode. Silver is oxidized to silver ions (Ag+) at the anode (this forms a silver halogenide layer).
A current flows due to the electron donation at the cathode and the electron acceptance at the anode. Under constant conditions, this flow is proportional to the oxygen content of the medium.
This current is converted in the transmitter and indicated on the display as an oxygen concentration in mg/l, as a saturation index in % SAT or as an oxygen partial pressure in hPa.

Measuring system

A complete measuring system comprises at least:
- Oxygen sensor
- Transmitter, e.g. Liquisys M COM223/253
- Special measuring cable
- Assembly, e.g. flow assembly COA250, immmersion assembly CYA611 or retractable assembly COA451

Optional:
- Universal suspension assembly support CYH101 for immersion operation
- Junction box VBM (with cable extension)
- Automatic spray cleaning system Chemoclean



Measuring system (example)

1 Junction box VBM (optional)
2 Transmitter Liquisys M COM253
3 Special measuring cable
4 Immersion assembly
5 Oxygen sensor

Input

Measured variable

dissolved oxygen [mg/l, ppm, % SAT or hPa]

Measuring range

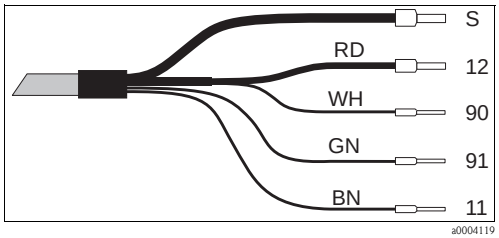
with Liquisys M COM 223/253-DX/DS:
0.05 ... 20.00 mg/l (ppm)
0.00 ... 200 % SAT
0 ... 400 hPa

Wiring

Electrical connection

Direct connection to the transmitter

The sensor is connected using a special measuring cable. The wiring diagram is contained in the Operating Instructions of the COM223/253-DX/DS transmitter.

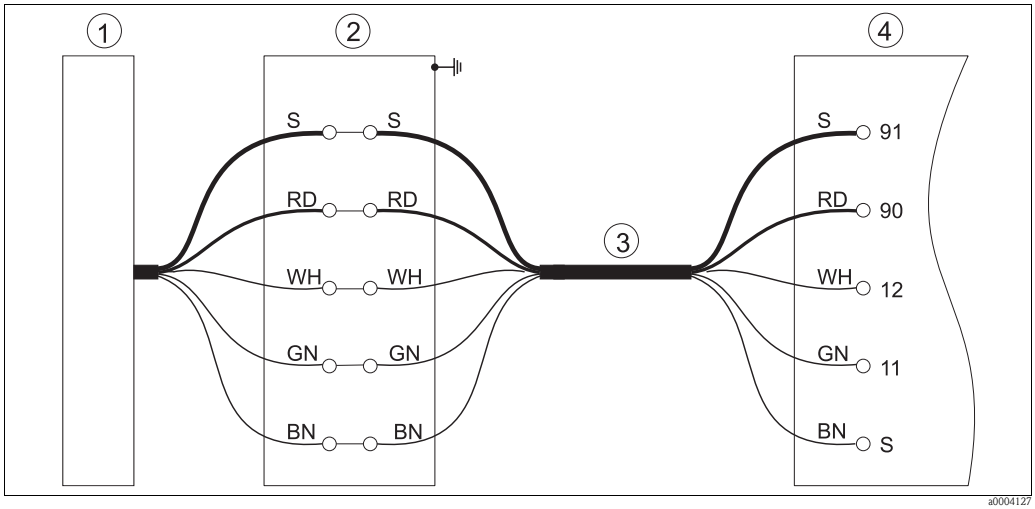


Special measuring cable CYK71

Terminal	Assignment
S	Outer shield
12	Active inner shield (NTC)
90	Cathode
91	Anode
11	NTC temperature sensor

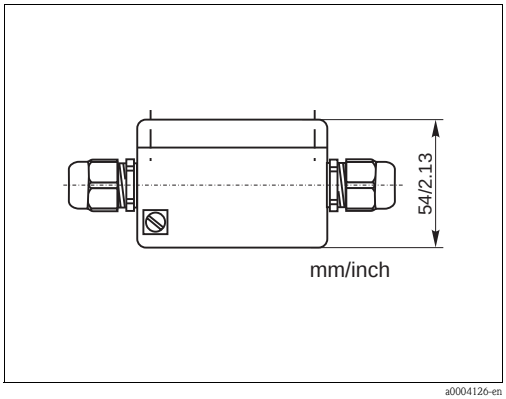
Connection with cable extension

To lengthen the sensor connection beyond the length of the fixed cable, you require a junction box VBM. The connection is lengthened to the transmitter using the special measuring cable CYK71.

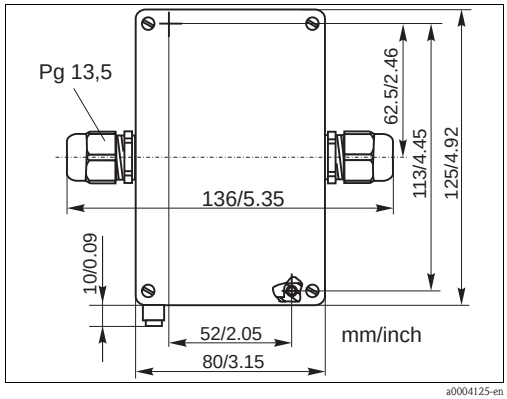


Connection via junction box VBM

1 Sensor
2 Junction box
3 Extension cable
4 Transmitter



Junction box VBM, side view



Junction box VBM, top view

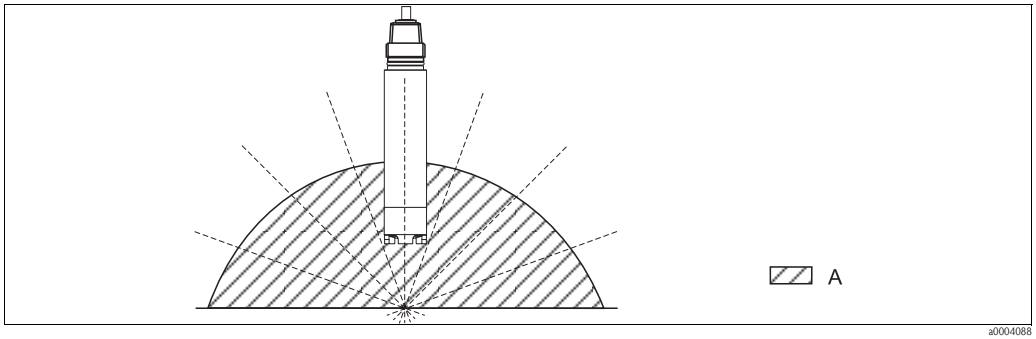
Performance characteristics

Response time	T_{90}: 3 minutes T_{99}: 9 minutes (each at 20 °C (68 °F))
Reference operating conditions	Reference temperature: 25 °C (77 °F) Reference pressure: 1013 hPa (15 psi)
Signal current in air[1)]	approx. 300 nA
Zero current	zero current free
Measured value resolution	0.01 mg/l (0.01 ppm)
Maximum measured error	±1 % of measured value[2)]
Long-term drift	with permanent polarization: < 1 % per month
Influence of medium pressure	Pressure compensation not necessary
Polarization time	< 60 minutes
Oxygen intrinsic consumption	Approx. 90 ng/h in air at 25 °C (77 °F)

Installation

Angle of installation

The sensor can be installed up to the horizontal in an assembly, support or a suitable process connection. Other angles are not permissible. Do **not** install the sensor overhead.



Angle of installation

A Permissible installation positions: 0 ... 180 °, overhead installation is not permitted

Note!
Make sure you comply with the instructions for installing sensors. You will find them in the Operating Instructions for the assembly used.

1) For the reference operating conditions indicated
2) In accordance with IEC 746-1 at nominal operating conditions

Environment

Ambient temperature range

–5 to 50 °C (20 to 120 °F)

Storage temperature

filled with electrolyte: –5 to 50 °C (20 to 120 °F)
without electrolyte: –20 to 60 °C (0 to 140 °F)

Ingress protection

- Fixed cable versions:
  IP 68 (10 m (33 ft) water column at 25 °C (77 °F) in 30 days)
- Top 68 plug-in head versions:
  IP 68 (1 m (3.3 ft) water column at 50 °C (122 °F) in 7 days)

Process

Process temperature

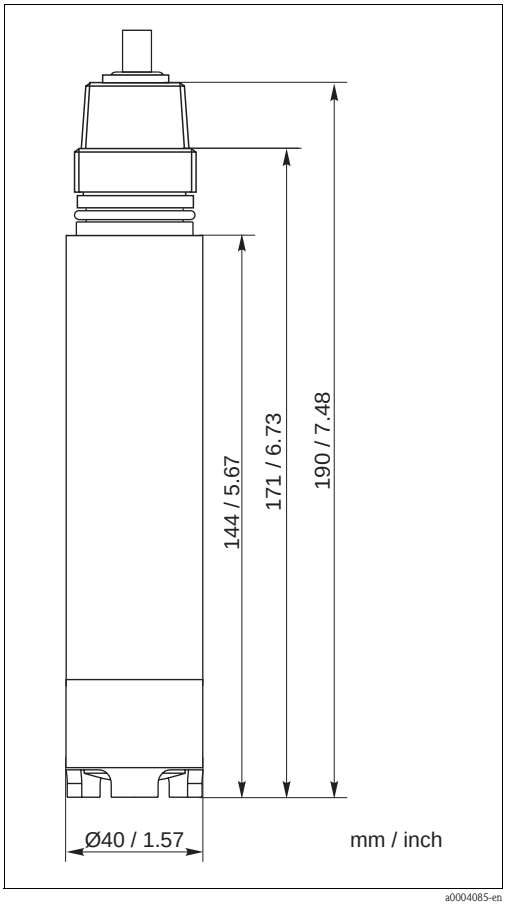
–5 to 50 °C (20 to 120 °F)

Process pressure

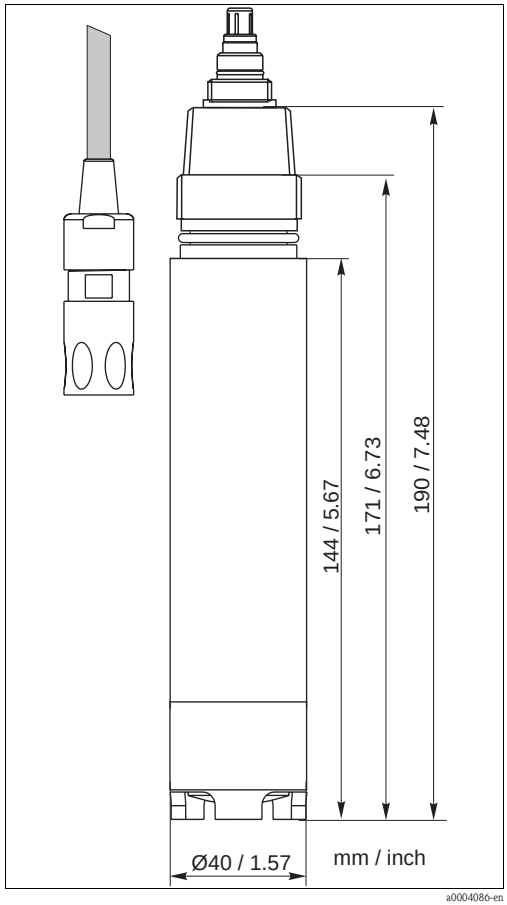
max. 10 bar (145 psi) permissible overpressure
Underpressure operation is not permissible.

Mechanical construction

Design, dimensions



Fixed cable version



TOP68 version

Weight

with cable length 7 m (23 ft): 0.7 kg (1.5 lbs.)
with cable length 15 m (49 ft): 1.1 kg (2.4 lbs.)
with TOP68 plug-in connection: 0.3 kg (0.66 lbs.)

Material	Sensor shaft:	POM
	Membrane cap:	POM
	Cathode:	Gold
	Anode/Reference electrode:	Silver / silver bromide
Process connection	G1 and NPT ¾"	
Maximum cable length	max. 50 m (164 ft)	
Membrane thickness	approx. 50 µm	
Electrolyte	Alkaline electrolyte	

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