

# 8863

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Data sheet

2018

Rugged Oxygen analyser for  
inerting control and heavy  
duty application

## Oxygen Analyser

For safety critical  
industrial applications



Thermoparamagnetic 8863 Oxygen analyzer allows the selective analysis of the O<sub>2</sub> concentration in process gases taking advantage of its evident paramagnetic property that makes it attracted by a magnetic field.

The weatherproof and explosion proof 8863 is designed for field installation in the most severe conditions, minimizing the sample conditioning requirements.

Easy access for maintenance, selected materials and modular design makes this analyser practically indestructible and the ideal solution for safety-critical industrial applications.

# Technical Specification

## 8863 Thermoparamagnetic Analyser

### Performance Specification

Accuracy	± 1% of span (output signal). Further improvable with autocalibration.
Repeatability	± 0.3% of span (short term).
Reproducibility	24 hours: ± 1% of span.
Linearity	with control unit: better than ± 0.5% of full scale
Response Time	Initial: < 1 sec.; 90% of step-change: 30 sec. (with max. 2000 cc/min. flow rate)
Drift	Zero: max. ± 1% of span per week Span: max ± 1% of span per week (without autocalibration).
Ambient Temp. Influence (-10°C ÷ +50°C)	± 0.002% O2 per °C or ± 0.07% of measure per °C (whichever is greater)
Ambient Temp. Influence (+50°C ÷ +55°C)	- 1% of measure per °C max.
Atm. Pressure Influence	± 0.18 % of reading per hPa
Flow Rate Influence	< 0.5% of span over flow range of 250 to 1000 cc/min.
Line Voltage Influence	max. 0.02% of span, for each 1% change of power voltage.
Gas Interference	< ± 0.01% O2 reading per 1% CO2 < ± 0.07% O2 reading per 1% H2 < ± 0.007% O2 reading per 1% H2O; < ± 0.01% O2 reading per 1% SO2

### Operative Specification

Sample Requirements	Flow Rate: 250 ÷ 1000 cc/min. Pressure: 3000 Pa minimum (with filter and flow meter).
Range	Refer to ordering information
Output	non-normalized output current that functions as input of the selected ADEV control unit
Relative Humidity	90% maximum.
Operation Temperature	-10 ÷ +50°C (14 to 122 °F).
Temperature controlled	at 50°C
Storage Temperature	+70°C (158 °F) max.
Power Requirements	24 ÷ 30 Vdc, 45 VA from dedicated power supplier.
Pneumatic Connections	¼" or 6 mm OD tubing (compression fittings supplied)
Wiring Connections	General purpose: 2 openings for G 3/8" (PG 13 cable grip). Ex-Proof: 2 openings for GK 1/2" (cable grip or conduit).



### Key Applications

- Inerting Control
- Centrifuges
- Reactor Feed Gases
- Chemical & Pharmaceutical
- Power Plants & Nuclear
- Sulphur Production
- Biogas & Landfill Gas
- Steel & Metal Processing
- Solvent Recovery
- Fertilizers



### Sampling System

The 8863 needs an external sampling system able to deliver an almost clean sample gas to the analyser at the proper temperature, pressure and flow rate.

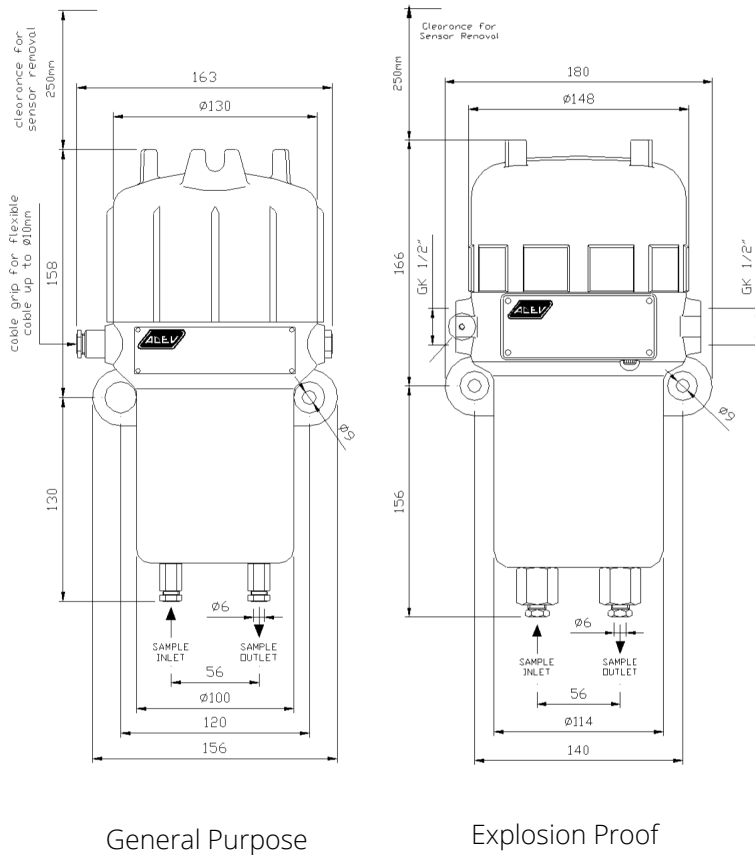
ADEV has a wide experience in process and can provide the 8863 analyser combined with a sample and condition system designed for the specific application requirements. Contact ADEV for details



## Physical Specification

Wet Parts Materials	316SS, 303SS, Chromel, Platinum-Iridium, Teflon, Viton (Buna, others), Glass. Optional Hastelloy® C276
Dimensions	150 x 150 x 290 mm (general purpose ) 180 x 155 x 325 mm (explosion proof)
Weight	7 kg in general purpose housing 8,5 Kg. in explosion proof housing
Finish	Epoxy grey textured enamel
Protection	IP 65 (watertight and dust tight)

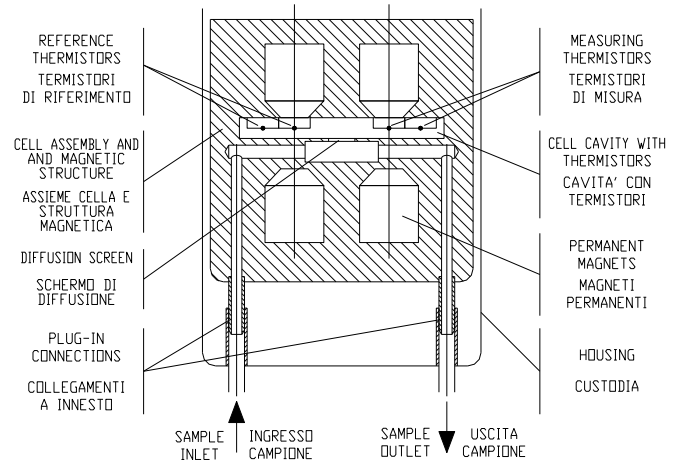
## Outline Dimensions



## Cell Assembly

The Cell Block assembly is made of stainless steel and contains the cell cavity and pole pieces which produce two powerful magnetic fields in the cavity. Associated with each field is a thermistor pair, consisting of a measuring thermistor and reference thermistor.

The measuring thermistor is mounted in the cavity within its respective magnetic zone; the corresponding reference thermistor is mounted in the cavity just outside its magnetic zone. A sample inlet port and a sample outlet port are arranged to permit a portion of the flowing sample to diffuse into the cavity, where it comes under the influence of thermal gradients and magnetic fields. The effect of the resulting thermo-magnetic action on the thermistors provides the measuring means.



## High Accuracy

The 8863 is an high accuracy analyzer with the inner sensing unit is temperature controlled in order to be completely insensitive to ambient temperature variations. There are no inner moving parts; installation position and eventual vibrations don't alter the accuracy and stability of the measure.

## ATEX

ATEX certification for Zone 1 / Zone 21. Protection mode:



II 2 G D

Ex db IIC T6 Gb  
Ex tb IIIC T85°C Db IP65

## Certificates

ATEX Certificate Number CESI 03 ATEX 130

MED Certificate Number MED 149611CS

## Very Easy Maintenance

Modular construction makes maintenance extremely easy. It's enough to unscrew the cap of the housing to have access to inner sensing unit that can be removed only by disconnecting 3 wires and unscrewing 2 screws.

## European Compliance

- Complies with Low Voltage Directive 2014/35/EU
- Complies with EMC Directive 2014/30/EU
- Complies with Directive ATEX 2014/34/EU
- Complies with Marine Equipment Directive (MED) 96 / 98 / EC as modified by Directive 2011/75 /EU (optional)



0474-13  
M.E.D. 96/98/EC

# Ordering

# Contacts



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Oxygen Analyser	8863	...	...	...	...
<b>Range</b>					
0-2%		1			
0-5%		2			
0-7,5%		3			
0-10%		4			
0-15%		5			
0-20%		6			
0-21%		7			
0-25%		8			
On spec.		9			
<b>Wet Parts Materials</b>					
316 SS			1		
Hastelloy® C276			2		
<b>Housing</b>					
General purpose IP65				G	
Explosion Proof (ATEX)					X
<b>Output Signal</b>					
Non-normalized current output *					1
4-20 mA output **					2
Special					9

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\* Sensing must be combined with an ADEV control unit

\*\* Zero & Span calibration performed by trimmers inside the housing

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