

ZIRKOR 302

Zirconia Dioxide Oxygen Analyzer



The Requirements

Reliable and rapid measurement of oxygen for

- Determining reference values for other gas components, for example SO₂, NO, NH₃, NO₂,
- Optimizing combustion processes
- monitoring O₂ excess

Application Areas

- Power stations and cement plants
- Steel/iron, glass and aluminium production
- Refuse incineration plants
- Refineries, chemical and petrochemical industry
- Others e. g. pharmaceutical, paper, food, wood industry

The System

The ZIRKOR 302 Oxygen Analyzer is designed as a modular measuring system and is available in the following configurations:

- **ZIRKOR 302-P**
Analyzer with measuring gas pump and integrated control unit
- **ZIRKOR 302-E**
Analyzer with ejector and integrated control unit – operating with compressed air.

Evaluation Unit (Option)

An Evaluation Unit is available for extending the ZIRKOR 302 system up to three O₂ analyzers and can be used for remote control functions (e. g. in a control room) over a maximum distance of 1,200 m.

Installation On-Site

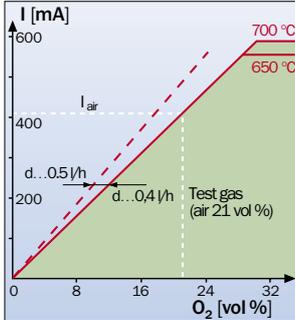
The O₂ analyzer is mounted on a flange directly on the duct wall. Various bus connections to a higher level host computer are possible. The compact O₂ analyzer is designed in line with current safety standards. As such, it does not represent a potential ignition source in the measured gas.

Key Features

- Modular design: up to 3 probes on 1 separate evaluation unit
- Short response time for process control demands
- Applicable up to 1,400 °C (2,550 °F); higher on request
- No reference gas necessary
- All gas guiding parts are heated
- Auto. test/calibration function with ambient air (20,96 %); no specific test gases needed
- No restrike into the measuring gas possible

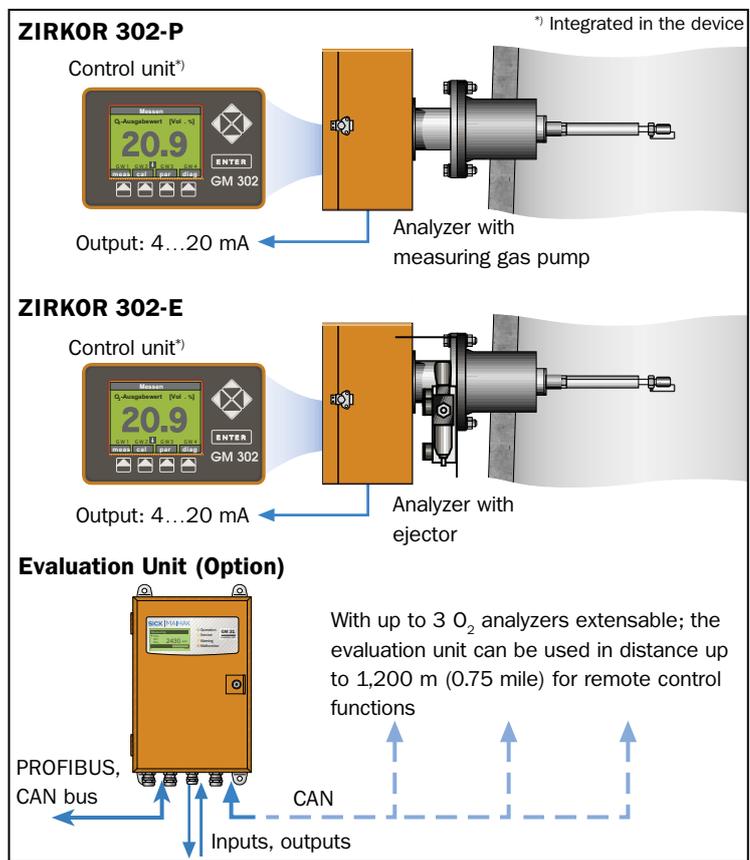
Measuring Principle

The over many years proven ZrO₂ technology offers exact measurements in accordance with the current sensor measuring principle. This means that a linear sensor signal is achieved over the total measuring range with a fixed physical zero point.



Current sensor characteristic
I ... current dep. on O₂ content
d ... quantity of measured gas

The O₂ probe contains a ZrO₂ solid electrolyte tube closed on one side. A constant measured gas flow passes through the heated solid electrolytical cell. A DC voltage is applied to the cell electrodes at $\geq 650^\circ\text{C}$ to determine the O₂ concentration. The O₂ ion current in the electrolytes is then measured. This is derived from the linear correlation betw. O₂ conc. and gas quantity passing through the cell per time constant.



Technische Data
Measuring principle
Measuring range
Accuracy
Response time
Application data
Measuring gas temperature
Measuring gas pressure
Ambient temperature
Device data
Housing construction
Protection class
Power supply
Dimensions (H x W x D)
Weight
Mounting
Interfaces and Signals
ZIRKOR 302 analyzer
<ul style="list-style-type: none"> Interfaces
<ul style="list-style-type: none"> Signals
Evaluation unit (option)
<ul style="list-style-type: none"> Interfaces
<ul style="list-style-type: none"> Signals

ZIRKOR 302		
zirconia dioxide, current sensor		
min. range: 0...10 vol%; max. range: 0...25 vol%		
$\pm 0.2\%$ (over the total measuring range)		
≤ 15 s (with measuring gas sampling equipment of 1 m/3.3 ft)		
Stainless steel probe	Inconel probe	ceramic probe
700 °C (1,290 °F)	950 °C (1,740 °F)	1,400 °C (2,550 °F)
700...1,100 hPa (280...440 in WC) for standard device; other on request		
-20...+55 °C (-4...+130 °F)		
ZIRKOR 302 (pump)	ZIRKOR 302-E (ejector)	Evaluation unit (option)
sheet steel housing	sheet steel housing	cast aluminium
IP 65/NEMA 4X	IP 65 or IP 67/NEMA 4X	IP 65 or IP 67/NEMA 4X
115/230 V AC; $\pm 10\%$; 50/60 Hz; 310 VA power consumption; sampling/filter heating ¹⁾ : 500 VA		
395 x 330 x 300 mm ³ (15.5 x 13 x 11.8 in ³)	330 x 395 x 182 mm ³ (13 x 15.5 x 7 in ³)	300 x 400 x 170 mm ³ (11.8 x 15.8 x 6.7 in ³)
27 kg (72 lb)	24 kg (64 lb)	4 kg (11 lb)
Flange tube 125 mm DN 80, PN6; ANSI B 16.5/DN 3" (150 lbs)		wall mounting
RS 232 service interface; CAN bus or RS 422; optional: PROFIBUS DP, Modbus RTU, Ethernet, Interbus S		
1 analog output: 0/4...20 mA, 500 Ω (floating output); option: 4 relay outputs 48 V AC/DC; 1 A; 60 W DC/30 W AC 4 analog outputs: 0/4...20 mA; 500 Ω (electrically isolated) 4 digital inputs: 24 V (built-in or peripheral in a cabinet used)		
RS 232 service interface; CAN bus to additional analyzers; optional: PROFIBUS		
<ul style="list-style-type: none"> 3 analog outputs : 0/4...20 mA; max. 500 Ω burden, electrically isolated; meas. value output 3 relay outputs: 48 V DC, 1 A, max. 30 W; 48 V AC, 1 A max. 60 VA; normally open contact 3 digital inputs: for floating distance contact (with 24 V) 		

¹⁾ Option

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