

Multi Component Gas Analyzer BA 3500



The central processing unit of BA 3500 communicates with up to three measuring modules, equipped with diverse measuring cells.

Different measurement combinations are possible. One channel may be equipped with a paramagnetic cell, measuring %-range Oxygen, while the second channel measures ppm-Oxygen using a Zirconia cell. Another combination may consist of IR-measuring cells, either on each measuring channel or combined with paramagnetic or Zirconia cell.

The hole unit is mounted in a 19" housing. Menu-guided operation of the BA3500 via a front-panel keypad and illuminated display allows easy configuration for various industrial process measurement applications.

- **Multi-component analyser**
- **Modular design**
- **State-of-the art technology**
- **Paramagnetic cell**
- **Zirconia cell**
- **Infra red (IR) cell**
- **19" housing, 3 HU**
- **4-20 mA output signal**
- **RS-232 interface**
- **Easy operation according to NAMUR**
- **Internal pump optional**
- **Flow control optional**
- **Automatic calibration optional**
- **High performance measurement technology**

Technical Data

Typical applications:

Gas component	Measuring principle
O ₂	Paramagnetic
O ₂	Zirconia cell
CO	NDIR - cell
CO ₂	NDIR - cell
CH ₄	NDIR - cell
SO ₂	NDIR - cell

Please consult a Buhler application specialist for other components.

Specification

	Paramagnetic	Zirconia	NDIR
Largest range	0 - 100 Vol.-%	0 - 210,000 ppm	Depends on component
Smallest range	0 - 2 Vol.-%	0 - 10 ppm	Depends on component
Zero suppression	Programmable	-	-
Accuracy	0.1 Vol.-% (absolute)	< 3 % (of measured value)	± 2 % of full scale value
Linearity fault	≤ 0.5% of range	< 0.4 ppm O ₂ ¹⁾	< 2 % of full scale value
Repeatability	± 0.03% O ₂	< 1.5 % O ₂ ¹⁾	Zero ±0.2 % Full scale value ± 1%
Detection limit	0.1% O ₂	0.1 ppm O ₂	< 1% of full scale value
Response time (T ₉₀)	< 10 sec.	< 5 sec.	10 - 15 sec.
Zero drift	< ± 0.05 Vol.-% O ₂ per week	< 0.2 ppm O ₂ per week	< 2% of full scale value per week
Span drift	< ± 0.15 % of range per week	<0.02% of range per week or 200 ppb per week ²⁾	< 2% of full scale value per week

¹⁾ range 0 - 1000 ppm

²⁾ whichever is larger

Sample Conditions

Temperature	40 °F to 105 °F
Pressure	0.15 - 2.9 psig
Flow rate	0.17 - 1.5 l/min (~ 0.5 l/min with internal pump)
Other requirements	dry, clean sample gas necessary

Environmental Conditions

Operating temperature	50 °F to 110 °F
Storage temperature	15 °F to 150 °F
Relative humidity	< 75 % rel. as annual average
Warm up time	~ 1 hour

Signal Outputs

Signal output	0 / 4 ... 20 mA for each component (load: 500 Ω)
Alarm relays	2 x limit and 1 x fault for each component (125 V AC / 2 A, 60 V DC / 2 A)
Serial interface	RS 232

Design

Case	19" housing, 3HU
Protection class	IP 21 (IP 40 optional)
Weight	ca. 10 kg (22 lb.)
Gas input	tube nipple 1/4" NPT
Gas output	tube nipple 1/4" NPT
Power supply	230 V AC - 50 / 60 Hz 115 V AC - 50 / 60 Hz
Display	illuminated LCD

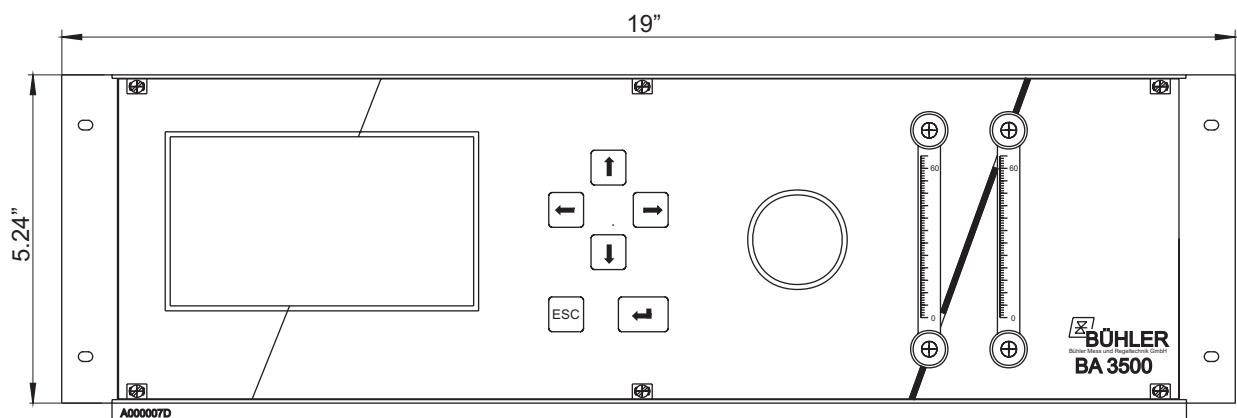
Sample wetted parts:

Material	O ₂ -%	O ₂ -Traces	NDIR
PVDF	✓		
Glass	✓		
Stainless steel 1.4571	✓	✓	
Stainless steel 1.4301		✓	✓
Gold	✓		
Viton	✓	✓	✓
Platinum-Iridium	✓		
Epoxy resin	✓	✓	
Zirconia dioxide		✓	
Aluminium			✓

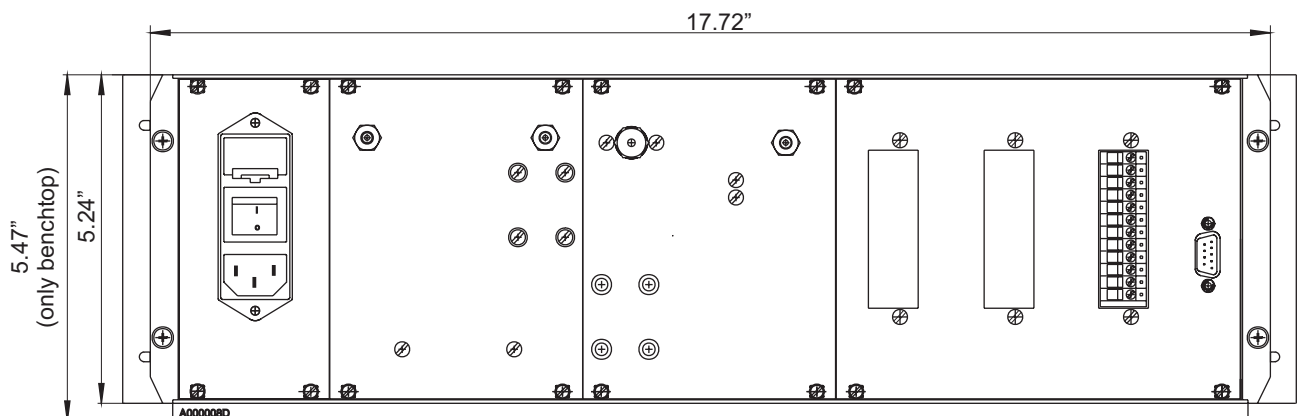
Options:

- Barometric pressure compensation for paramagnetic module
- Pressure compensation for NDIR
- Flow meter
- Internal pumps
- Separated sample gas channels
- Automatic calibration for max. 2 modules

Drawings:



Front view



Rear view

Ordering BA 3500:

Company Name
Address

Phone
Fax
Application

Power supply

- 230 V, 50 / 60 Hz
 115 V, 50 / 60 Hz

Case

- 19" housing
 benchtop

Measuring component	Smallest range	Largest range	Needed range (module 1)
CO ₂	50 ppm	100 %	
CO	1000 ppm	10 %**	
NO	2000 ppm	100 %	
SO ₂	200 ppm	100 %	
CH ₄	3000 ppm	4 %**	
Propan	500 ppm	1 %**	
O ₂ (paramagn.):	2 %	100 %	
O ₂ (ZrO ₂):	10 ppm	210000 ppm	

** Flammable components have to be below LEL (low explosion limit)

Measuring component	Smallest range	Largest range	Needed range (module 2)
CO ₂	50 ppm	100 %	
CO	1000 ppm	10 %**	
NO	2000 ppm	100 %	
SO ₂	200 ppm	100 %	
CH ₄	3000 ppm	4 %**	
Propan	500 ppm	1 %**	
O ₂ (paramagn.):	2 %	100 %	
O ₂ (ZrO ₂):	10 ppm	210000 ppm	

** Flammable components have to be below LEL (low explosion limit)

Measuring component	Smallest range	Largest range	Needed range (module 3)
CO ₂	50 ppm	100 %	
CO	1000 ppm	10 %**	
NO	2000 ppm	100 %	
SO ₂	200 ppm	100 %	
CH ₄	3000 ppm	4 %**	
Propan	500 ppm	1 %**	
O ₂ (paramagn.):	2 %	100 %	
O ₂ (ZrO ₂):	10 ppm	210000 ppm	

** Flammable components have to be below LEL (low explosion limit)

	Pump	Flow meter	For module number
1. Channel	<input type="checkbox"/> yes <input type="checkbox"/> no	<input type="checkbox"/> yes <input type="checkbox"/> no	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
2. Channel	<input type="checkbox"/> yes <input type="checkbox"/> no	<input type="checkbox"/> yes <input type="checkbox"/> no	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3

Automatic calibration : yes no

Further options and notes: