



Portable O₂-Analyser BA 4000 Inj.

The portable Bühler O₂ analyser model BA 4000 Inj. is a special unit for determining oxygen in low gas volumes. This analyser is a modification of the BA 4000, primarily used in the food industry to analyse small residual amounts in modified atmosphere packaging, bottles or tins. The O₂ content in insulating glass panes can also be determined. We offer two versions:

The BA 4000 Inj. GV is used for volumes > 35 ml.

The BA 4000 Inj. KV is used for gas volumes < 35 ml. This analyser is operated by an external vacuum pump. There are different puncturing devices available, depending on the type of packaging.

The optional pressure gauge allows for comparison measurements in vacuum packaging. With the electronic correction when using the pressure gauge, no zero gas is required for zero gas calibration. In addition, the zero point may be corrected between N₂ and CO₂.

Paramagnetic cell measuring principle

Long measuring cell life

O₂ analysis in modified atmosphere packaging

Easy to use

Quick, accurate and reliable O₂ analysis

Optional pressure gauge



Measuring with the BA 4000 Inj.

The device has a tube equipped with an injection needle at its end. To check a package, apply a self-adhesive piece of rubber to the package to be tested. Depending on the equipment version, this adhesive septum is used to evacuate the analyser or to seal off atmospheric air. With the BA 4000 Inj. KV, the injection needle is now inserted into the rubber piece until the side bore in the needle is covered. After evacuating, the injection needle is pushed all the way through the rubber piece and into the package.

Residual gas flows from the package through the needle and into the measuring cell in the analyser and the measurement can be read on the analyser display. Switch the toggle switch at the front of the unit to display the internal pressure when using the optional pressure gauge. These values can be used to calculate the actual O₂ concentration.

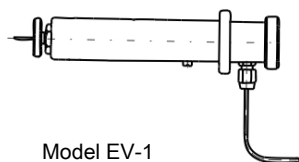
On the BA 4000 Inj. GV version the needle is inserted all the way through the rubber piece and sample gas extracted from the package by switching on the internal pump.

Technical Data

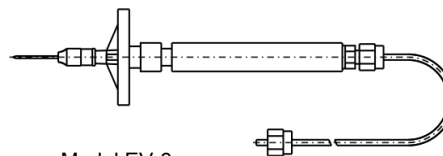
Technical Data	
Measuring component:	Oxygen
Measuring range (specify when ordering):	0 ... 25 Vol. %
Measuring principle:	paramagnetic cell measuring principle
Measuring Data	
Accuracy:	0.1 % O ₂ absolute
Reproducibility:	± 0.05 % O ₂
Response time:	T ₉₀ < 10 s
Zero drift:	± 0.1 Vol.% O ₂ per week
Sensitivity drift:	± 1% of measuring span per week
Gas inlet conditions	
Gas temperature:	+5 °C to 40 °C
Sample gas conditioning	
Dew point:	at least 5 °C below ambient temperature
Dust particles:	Equipment filter with replaceable 8µ filter element
Calibration	
Zero point:	with nitrogen (technically pure), optionally with vacuum
Endpoint:	with ambient air or test gas, depending on the measuring range
Climatic conditions	
Ambient temperature:	+10 °C to 45 °C
Transport and storage temperature:	-25 °C to 65 °C
Relative humidity:	< 75 % annual average
Measurement output	
Current signal:	4...20 mA (max. 400 Ω)
Voltage signal:	0...1 V (min. 1 k Ω) optional
Displays	
Measurement display:	LCD 3½ digits
Power supply	
Wall power supply:	100-240 V, 50/60 Hz
Construction	
Housing:	Aluminium housing with handle
Housing protection class:	IP20 (standard)
Dimensions (h x w x d):	145 x 182 x 240 mm (standard housing)
Weight	approx. 4.5 kg

Puncture devices

- EV-1** Puncture device for single-hand operation. Suitable for sampling gas from soft packaging of modified atmosphere packed products.
- EV-3** Puncture device with fixed needle. Suitable for sampling gas from soft packaging of modified atmosphere packed products. The additional fine mesh filter also makes it suitable for sampling packages with powdered products, e.g. coffee.
- Water Stop fine mesh filter** For protecting the measuring cell when analysing moist gasses (bottles, tinned foods). Filters particles, the special coating retains water liquids and aerosols.

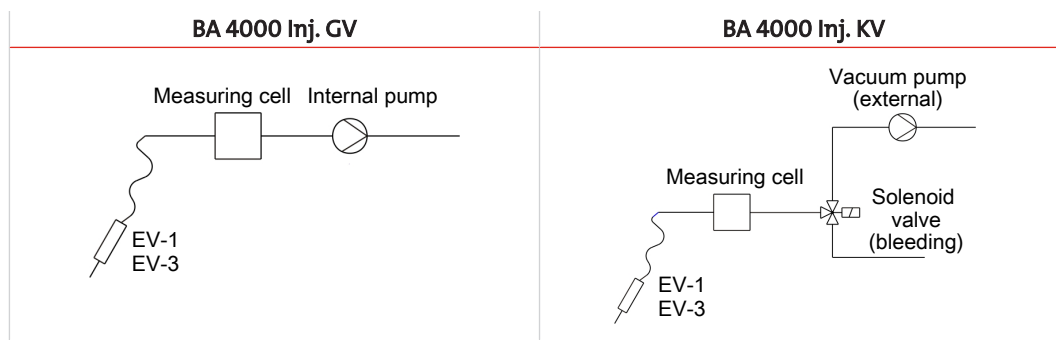


Model EV-1
for soft packaging



Model EV-3
for soft packaging

Flow charts



Ordering instructions

Device model

Item no.	Description
55 11 399	BA 4000 Inj. GV
55 11 5991	BA 4000 Inj. KV

Accessories

Item no.	Description
65 70 520	Vacuum pump 230 V
65 70 521	Vacuum pump 115 V
55 11 0994	Pressure gauge
65 71 999	EV-1
65 70 9021	EV-3
65 70 901	Needles for EV-3
65 70 9012	Needles for EV-1
65 70 970	Septum for EV-3 (1 m)
65 70 971	Septum for EV-3 (10 m)
65 70 9471	Septum for EV-1 (33 m)
65 70 9033	Pre-filter for EV-3
65 70 975	Water Stop fine mesh filter
55 11 0992	Wall power supply for GV 100-240 V AC, 12 V DC
91 12 000014	Wall power supply for KV 100-240 V AC, 15 V DC