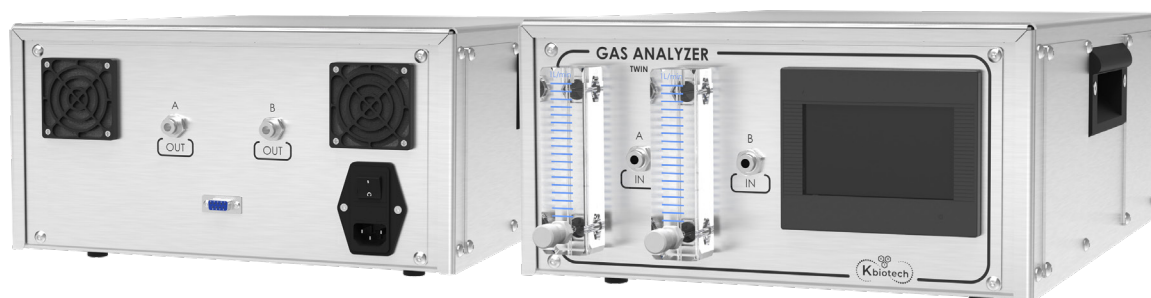


KG-FERM GAS ANALYZER

DATASHEET



REAL-TIME GAS MONITORING MODULE

The KG-Ferm Gas Analyzer is an integrated module designed for real-time monitoring of key process gases in bioreactor exhaust streams. Available in single and twin configurations, it enables the simultaneous measurement of up to four gases (CO_2 , O_2 , CH_4 , and H_2S) providing accurate and continuous data essential for the optimization of fermentation and bioprocess control.

Based on advanced NDIR (non-dispersive infrared) and ECD (fuel cell) sensor technologies, KG-Ferm ensures high precision in detecting gas concentrations and dynamics, allowing detailed analysis of oxygen uptake and carbon dioxide evolution. This data supports efficient regulation of aeration and substrate feeding strategies, directly enhancing process yield and stability.

The system includes an integrated pump with a $0.45 \mu\text{m}$ filter, 5" touchscreen panel, and 4–20 mA output for seamless connection to process control units. Fully managed via BIOFlex, the module allows configuration of thresholds and cascade-based recipes. Designed for versatility, KG-Ferm is ideal not only for bioreactors and fermenters but also for landfill gas monitoring, anaerobic digestion, water treatment, and CDM projects delivering precise, reliable, and real-time insight into critical process gases.

K-GASFERM	Single	Twin
Rack module	Biobench series single channel	Biobench series double channel
Display	5" Touchscreen	5" Touchscreen
Rotameter range*	0.1 – 1 L/min	n°2 0.1 – 1 L/min
Pump*	1.5 L/min	n°2 1.5 L/min
Filter	PTFE $0.45 \mu\text{m}$, PP 50 mm housing	n°2 PTFE $0.45 \mu\text{m}$, PP 50 mm housing
IN - gas connection	Included, 2 m silicon tube 3×6	n°2 Included, 2 m silicon tube 3×6
IN - gas manometer	Included	n°2 Included
OUT - gas	Included	n°2 Included
Response Time	$T_{90} = < 4$ seconds	$T_{90} = < 4$ seconds
Operating Temp	0 – 45°C	0 – 45°C
Operating Pressure	Calibrated for 1013 mbar	Calibrated for 1013 mbar
Signal Output	4–20 mA option / Rs 485 modbus	4–20 mA option / Rs 485 modbus
Save data format	.csv	.csv

* Optional

CONFIGURATION O2 SENSOR

Zirconia O2 Sensors

Fast response zirconium dioxide (ZrO₂) sensor in conjunction with the OXY-LC oxygen sensor interface board. Long life, non-depleting technology, Integral heating element, High accuracy, Linear output signal.

CONFIGURATION CO2 SENSOR

Infrared CO2 sensors

High accuracy, good long term stability, negligible cross sensitivity, small size and low power requirement. A New Generation of gas sensor, fast, accurate and reliable key features. Analogue Electronics, Long Term Stability, Robust Construction, Gold Plated Optical Reflector, Quenching of fluorescence with temperature.

SENSOR	O ₂	CO ₂
Range Obtainable	0.1 – 25% 0.1 – 100%	0–3000 ppm 0–3% 0–10%
Accuracy	±0.5% of range	±3% of range
Zero stability	±0.5% of range (over 12 months)	±3% of range (over 12 months)
Resolution	±0.01% of range	±0.1% of range
Repeatability @ Zero	–	±0.5% of range
Repeatability @ Span	±1.5%	±1.5%
Response Time	T ₉₀ ≤ 4 seconds	T ₉₀ = 30 seconds
Operating Temp / Gas Temp	0 – 200°C	0 – 100°C
Operating Pressure	Calibrated for 1013 mbar	Calibrated for 1013 mbar
Power Requirements	15V DC (24V DC for linearised versions)	15V DC (24V DC for linearised versions)
Power Consumption	0.6 W	0.9 W
Warm-up Time	2 minutes (initial)	5 minutes (initial)
Humidity	Measurements unaffected by 0–95% RH, non-condensing	Measurements unaffected by 0–95% RH, non-condensing
Output	4–20 mA (linear version)	4–20 mA (linear version)

Rev. 0125