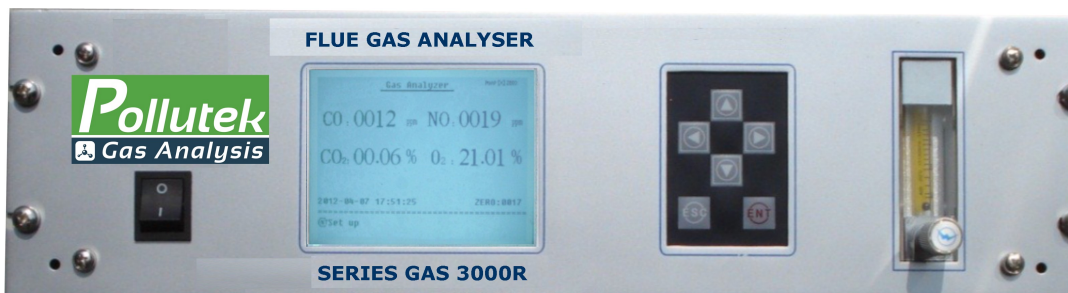


GAS 3000R Series NDIR Flue Gas Analyser

Up to 5 gases in 2 analysers
NDIR MICRO-FLOW TECHNOLOGY
Compliance to EN 15267-3

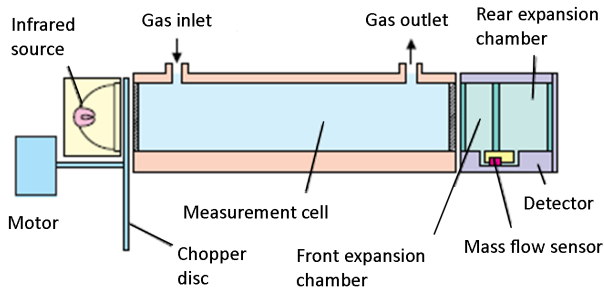


Gas measurement	NO - SO ₂ - CO - CO ₂ - O ₂	
Gas analysis principle	NO - SO ₂ - CO - CO ₂	Non-dispersive Infrared Absorption (NDIR micro-flow) No interference of water vapor on NO and SO ₂ detector
	O ₂	Galvanic fuel cell (standard) Paramagnetic detector (optional model GAS 3070R PMGO ₂)
Gas Ranges¹	NO From 0-200 ppm to 0-9999 ppm SO ₂ From 0-200 ppm to 0-9999 ppm CO From 0-200 ppm to 0-9999 ppm CO ₂ From 0-5% to 0-25% O ₂ From 0-5% to 0-25%	
	¹ intermediary measuring ranges are available, please consult us	
Display resolution	CO, NO, SO ₂ : 0.1 ppm (range < 0-500 ppm) / 1 ppm (range > 500 ppm) CO ₂ , O ₂ : 0.01%	
Repeatability	± 1% of Full Scale	
Linearity	Compliance to EN 15267-3 < ± 2% of Full Scale for CO, CO ₂ , NO and SO ₂ / < ± 0,3% for O ₂	
Zero drift	Auto-zeroing cycle after warm-up time (internal air pump and solenoid valve included) Programmable zeroing cycle by software to automatically correct the zero drift; < 10 s for NDIR micro-flow detectors/ < 30 sec for O ₂ sensor	
Response time (T_D + T₉₀)	30 minutes up to full performances	
Warm up time	30 minutes up to full performances	
Display values and units	4 digits, in ppm or mg/m ³ (for CO, NO and SO ₂) and % (for CO ₂ and O ₂)	
Calibration	5 points factory calibration / 2 points (zero and span) user calibration	
Sample gas conditions at inlet port	Flow rate	Nominal 1 L/min (min. 0.7 to max. 1.2 L/min); External gas pump required
	Pressure	20 to 50 mbar
	Temperature	Max. 50°C (NDIR detectors are integrated in a temperature controlled enclosure up to 55°C)
	Quality	Free of dust, tar, water vapor and oil traces
Operation conditions	T _{AMB}	0 to 50°C
	P _{AMB}	86 to 108kPa
	R _H	≤ 95%
Analogue outputs	4-20 mA signal per measuring channel	
Digital outputs	2 gas alarm relays per measuring channel	
Communication interface	RS232 with real time data transfer to external PC (software included)	
Mechanical	19"-3U rack enclosure, Weight : < 15kg	
	Dimensions	L487 x W457 x h 132 mm (ranges from 0-1000 ppm to 0-9999 ppm) L487 x W525 x h 132 mm (range 0-200 ppm)
Power supply	110-220 VAC - 50/60Hz	
Standard accessories	power cord; Real time data software; RS232 cable with 1xDB9 connector	
Optional accessory	Internal gas sampling pump (only for laboratory research)	

Configurations

GAS 3041R	NO + CO + CO ₂ + O ₂	NDIR micro-flow detectors for CO ₂ , CO, NO and SO ₂
GAS 3040R	SO ₂ + CO + CO ₂ + O ₂	O ₂ measurement by galvanic fuel cell or optional paramagnetic detector (option)
GAS 3032R	NO + CO + CO ₂	ppm measurement ranges for CO, NO and SO ₂
GAS 3032R	SO ₂ + CO + CO ₂	%vol measurement ranges for CO ₂ and O ₂
GAS 3031R	NO + SO ₂ + O ₂	
GAS 3030R	CO + CO ₂ + O ₂	Only proposed configurations are available
GAS 3021R	NO + SO ₂	Flue gas shall be measured on clean and dry gas.
GAS 3020R	1 NDIR + O ₂	The analyser must be used with a suitable gas pre-treatment system for dust filtration and gas drying
GAS 3010R	1 NDIR	

NDIR micro flow detectors



The Micro-flow bench is a significant improvement over either the single-beam or the dual-beam/single-path NDIR analysers. A single beam is passed through a sample cell where absorption by the sample of interest occurs, and that beam is then passed through a two-chamber micro-flow detector. The detector contains the gas of interest, and some energy of the IR beam is absorbed, causing pressure increases in both chambers. That pressure differential causes gas flow between the chambers. This flow is detected by a mass-flow sensor and converted to the AC signal.

Advantages of the infrared micro-flow technology

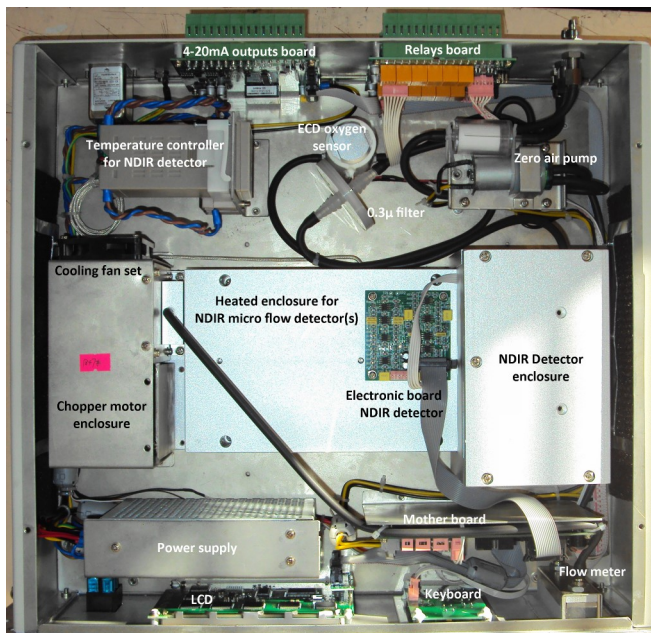
- Dual-chamber with sharp filtering at the target wavelength to provide very good resolution between CO and CO₂.
- Sensitivity to moisture is highly reduced for NO and SO₂ measures.
- Accurate ppm measurement of gases as CO, CO₂, NO and SO₂
- Less drift than other NDIR benches
- Improved temperature and pressure compensation
- Specifically designed to minimize the effect of interference gases: when these gases are present, pressures rising in the front and rear chamber of the detector cancel each other minimizing any response to the interference gases.

Successfully tested for conformity to EN15267-3 (Europe) and EPA (US) Standards

Gas	Measuring principle	Measuring ranges	Resolution	Max. linearity error Conform to EN/EPA	Highest linearity error on 7 points	EN/EPA Standards
NO	NDIR micro-flow	0-2000 ppm	1 ppm	< ± 2% FS	-0,37% FS (@ 1500 ppm)	EN 14791 / EPA 7E
SO ₂	NDIR micro-flow	0-5000 ppm	1 ppm	< ± 2% FS	-0,92% FS (@ zero point)	EPA 6C
CO	NDIR micro-flow	0-9999 ppm	1 ppm	< ± 2% FS	-0,34% FS (@ 4000 ppm)	EN 15058 / EPA 10
CO ₂	NDIR micro-flow	0-25% vol	0.01%	< ± 2% FS	-0,57% FS (@ 10% vol)	EPA 3A
O ₂	Galvanic fuel cell (1)	0-25% vol	0.01%	< ± 0.3% (EN) < ± 2% FS (EPA)	0,21% vol (@ 17,50% vol)	EN 14789

(1) The standard configuration for oxygen measurement implements a galvanic fuel cell offering these advantages: compact, short response time T_{0-90} (< 6 sec), low cost compared to paramagnetic detector, no maintenance, high precision and resolution, long life expectancy (> 3 years), immunity to vibrations, virtually no cross-interferences from other gas compounds possibly present in flue gases (CO, CO₂, SO₂, NO_x, C₃H₈, CH₄, H₂S, H₂, ...).

A Paramagnetic detector for oxygen measure is available in option as a single analyser model GAS 3070 R PMGO₂



Internal view analyser

Pollutek gas analysis supplies complete PLC controlled flue gas analysis solutions with: gas sampling probe, heated line, industrial cabinet with gas sampling, conditioning and control equipment Communication, SCADA CEM software, etc.

Please contact us for discussing your projects.



Heated gas sampling probe



H1800 mm flue gas analysis cabinet

Non contractual pictures and specifications - subject to change without prior notification - Issue -EN17v3



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