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DRM Technic

Suppliers of Gas Analysis Equipment

**BA5000 Analyser
IR-Sensitive, Oxygen, H₂S**

BA5000 GAS ANALYSER FOR IR-SENSITIVE GASES, OXYGEN AND H₂S

The BA5000 Gas Analyser can measure up to 4 gas components (3 infrared gases, plus O₂). For Oxygen analysis, it can be equipped with either an electrochemical or paramagnetic measuring cell.

It is specified for use in emission measurement systems and for process and safety monitoring



FEATURES

**19" Rack Mounting or Portable Configurations Available | Large Backlit LCD | RS 485
Two Measurement Ranges per Gas Component | Three Binary Inputs and Eight Relay Outputs
Simple, Fast User Programming | Automatic Correction of Atmospheric Pressure Variations**

SPECIFICATIONS

Product No.	BA5000
Components Measured	Up to three of the following simultaneously - CO, CO ₂ , NO, SO ₂ , CH ₄ ; plus O ₂
Analog Outputs	Up to 4, floating, 0/2/4 to 20 mA, linearised
Serial Interface	RS 485
Warm-up Time	Approx. 5 min.; max. accuracy achieved after approx. 45 minutes
AUTOCAL Function	Automatic analyser calibration with ambient air; cycle time adjustable
Dimensions	170 x 465 x 392 mm (portable); 177 x 483 x 360 mm (19" rack mounting)
Weight	Approx. 10 kg
Fittings	Tube diameter 6mm or 1/4"
Protection Degree	IP 21 (EN 60529)
Power Supply	100 /120/230 V AC; 50/60 Hz
Power Consumption	Approx. 50 VA
Sample Gas Pressure	0.5 to 1.5 bar absolute
Sample Gas Flow	66 to 120 l/h (1.1 to 2 l/min)
Sample Gas Temp.	0 to 50 °C
Sample Gas Humidity	< 90% RH; dependant on measuring task
Ambient Temp.	+5 to +45 °C (operation); -20 to +60 °C (transport and storage)
Pressure Variations	700 to 1200 mbar

CONTACT US: DRM Technic, 4 Cherry Orchard, Newcastle-under-Lyme, Staffordshire, UK, ST5 2UB

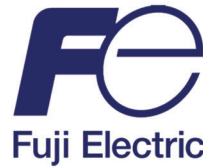
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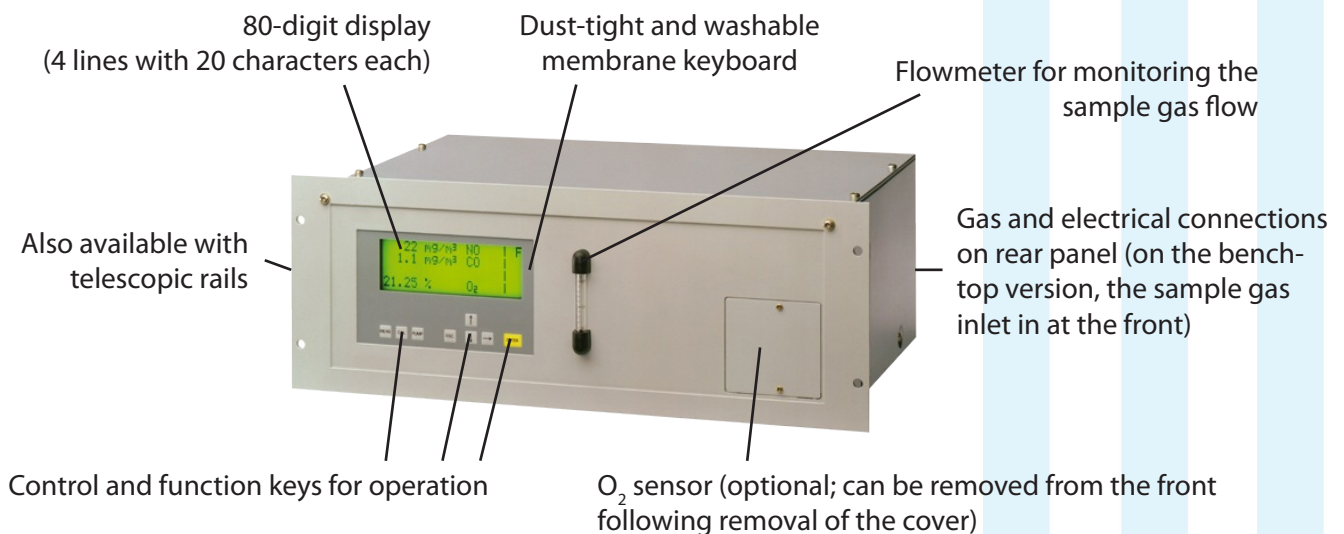


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BA5000 DESIGN (AS A 19" RACK UNIT)



GENERAL INFORMATION

DESIGN

19" rack (4 HU) | Flow Indicator for sample gas on front plate |
Gas connections for sample gas inlet and outlet as well as zero gas | Pipe diameter 6mm or 1/4"

DISPLAY AND CONTROL PANEL

Operation based on NAMUR recommendation | Simple, fast parameterisation and commissioning of analyser |
Large, backlit LCD for measured values | Menu-driven inputs for parameterisation, test functions and calibration |
User help in plain text | 6-language operating software

INPUTS/OUTPUTS

Three binary inputs for sample gas pump on/off, triggering of autocal and synchronisation of several devices |
Eight relay outputs can be freely configured for fault, maintenance request, maintenance switch, limits,
measuring range identification, and external solenoid valves | Galvanically isolated analogue outputs |
Eight additional binary inputs and relay outputs (optional)

COMMUNICATION

RS485 present in basic unit (connection from the rear) | Available options: RS485/RS232 Converter;
RS485/Ethernet Converter; RS485/USB converter; incorporation in networks via PROFIBUSS DP/PA interface;
SIPRO GA software as service and maintenance tool

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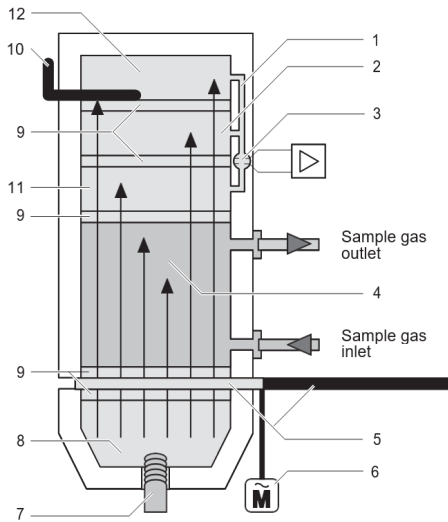


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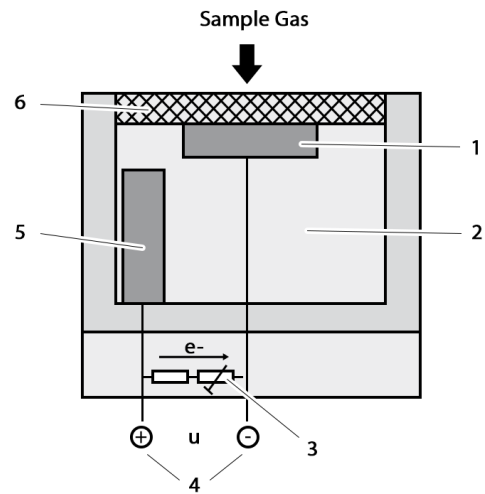
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COMBUSTION GASES INFRARED MEASUREMENT PRINCIPLE



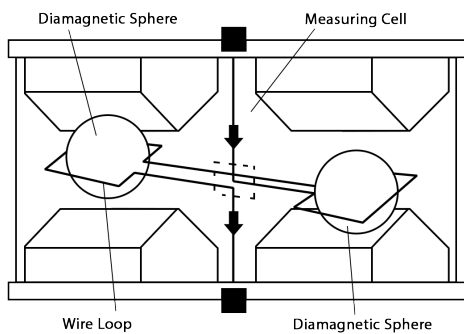
- | | |
|---------------------------|---------------------------|
| 1 - Capillary | 7 - IR source |
| 2 - Second detector layer | 8 - Reflector |
| 3 - Microflow sensor | 9 - Window |
| 4 - Sample cell | 10 - Slide |
| 5 - Chopper wheel | 11 - First detector layer |
| 6 - Chopper motor | 12 - Third detector layer |

OXYGEN (O₂) ELECTROCHEMICAL MEASUREMENT PRINCIPLE

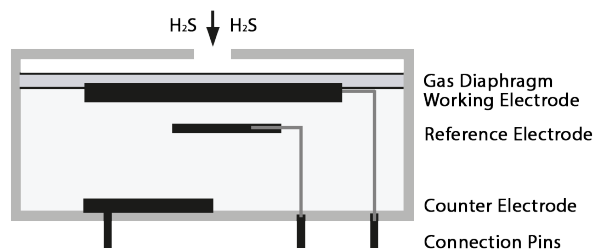


- 1 - Gold cathode
- 2 - Electrolyte (acetic acid)
- 3 - Thermistor and load resistor for temperature compensation
- 4 - Signal output
- 5 - Lead anode
- 6. Oxygen diffusion membrane made of FEP

OXYGEN (O₂) PARAMAGNETIC MEASURING PRINCIPLE



HYDROGEN SULPHIDE (H₂S) ELECTROCHEMICAL MEASUREMENT PRINCIPLE



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TECHNICAL DATA OF INFRARED MEASUREMENT

Measuring Ranges	Dependent on application
Influencing Variables	Drift with auto-cal: negligible Drift without auto-cal: < 2% of smallest measurement range / week
Response Time (T ₉₀)	Dependent on dead time and selectable damping
Damping	Adjustable from 0 to 99.9 sec (Electrical Time Constant)
Output Signal Noise	< ± 1% of smallest possible measurement range
Display Resolution	Dependent on select measuring range
Output Signal Resolution	< 0.1 % of output signal span
Characteristic	Linearised
Linearisation Error	< 1% of full-scale value (in largest measurement range) < 2% of full-scale value (in smallest measurement range)
Repeatability	≤ 1% of smallest measurement range

TECHNICAL DATA OF OXYGEN MEASUREMENT WITH ELECTROCHEMICAL SENSOR

Measuring Ranges	0 ... 5% or 0 ... 25% O ₂ , programmable
Influencing Variables	Drift with auto-cal: negligible Drift without auto-cal: typical 1% O ₂ / year in air
Residual Gases	Residual gases containing heavy metals, H ₂ S and halogens result in analyser failures; O ₂ concentration < 0.5 % are only permissible for a short time
Output Signal Noise	< 0.5% of Full-Scale Value
Response Time (T ₉₀)	Dependent on dead time and selectable damping
Display Resolution	< 0.2% of full-scale value
Output Signal Resolution	< 0.2 % of output signal span
Service Life	Approx. 2 years with 21% O ₂
Repeatability	≤ 0.05% O ₂

ESSENTIAL CHARACTERISTICS

Near maintenance free w/ maintenance request alert | Automatic atmospheric pressure variation corrections
 Calibration only required every 12 months | Sample gas flow monitoring w/ error messages
 Two freely configurable undershooting and overshooting limit values per component
 Two measuring ranges per component can be set within specified limits

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