

MULTIGAS NDIR ANALYSER FOR LOW RANGES MOD. ENOX 5



- It performs up to 5 contemporary measurements freely configurable among different gases and ranges
- For each of the 5 measurements, two ranges with automatic switches are available
- High sensibility sensor with correlation analysis (GFC)
- No periodic calibration needed due to automatic zero calibration
- 600 mm long optical path or expanded to 1.400 mm (DPB version)
- Touchscreen LCD display with all measuring and service indications
- Automatic room temperature and cross sensitivity compensation
- Automatic and continuous flow control
- Fault and service warnings for each gas
- 2 configurable measure alarms for each gas
- Ethernet communication on protocol Modbus TCP
- Expansion pack for I/O hard-wired analog ó digital available
- Expansion pack with self- alignment
- Small dimensions
- QAL1 Certification according to EN 14181 and EN 14956 basing on procedures described in EN 15267- 3 in progress at TUV SUD Munchen

Overview

The analyzer is housed in a steel box suitable for 19". 3 vertical units high rack mounting. On the rear panel the connector for digital and analogical input and output, RJ45 for ethernet connection, the filtered power connection with switch and fuses and the stainless steel fittings for sample inlet and outlet are located.

Measurement display and instrument control are performed using the touch-screen display.

Technical description

The Enox multigas analyzer is an industrial photometer based on the non dispersive photometry in the far infrared for the contemporary measure of several gases.

The main feature of this analyzer model DPB (Double Path Beam) is to have a long optical path to obtain very high sensitivity which can guarantee the declared performance even on very low ranges that now days are required.

Special attention has been paid to carry out one analyzer able to have high accuracy in the measure of NO and NO₂ with performances are comparable with the ones of more expensive analyzers.

The technology used is based on correlation filters (GFC). A high stability sensor, working at a very low temperature (-35 °C) and the GFC technology ensure a nearly fully immunity to cross sensitivity, high stability and sensitivity.

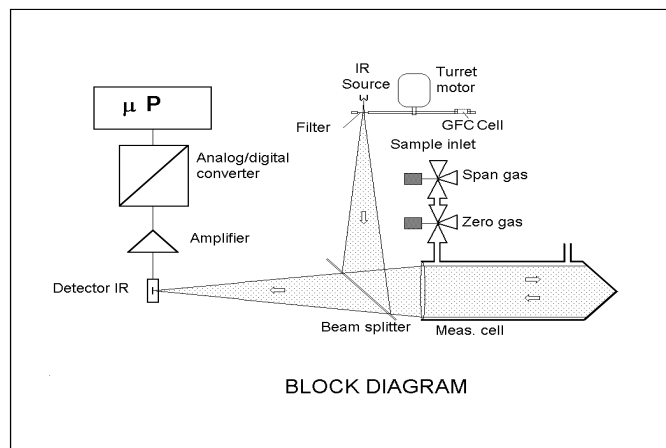
The measuring principle, the optical bench and the automatic and accurate compensation of room temperature variations enable to avoid the expensive and complicated automatic calibrations, which are anyway possible.

A large back lighted graphic display continuously shows measured gases value (including a large bar graph), alarms, service requirements, faults (separated for each gas) and the alarms from the sampling system. All alarms have the acknowledgement routine. All anomaly messages are reported on the display for the immediate knowledge of any malfunctioning. Relays contacts enable all the diagnostic to be retransmitted.

This instrument has been designed to be user friendly and reduce as much as possible the costs of the analysis system in which it will be used.

It is predisposed to perform both NO_x as NO₂ expression and recalculation of gases to reference O₂.

Operating principle

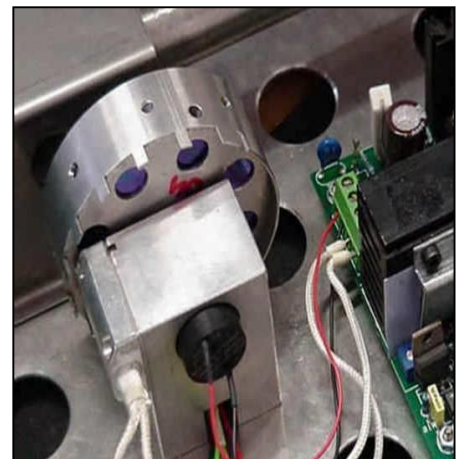


A wide band infrared radiation is emitted by a non metallic, high stability source.

For each measured gas, this radiation is brought alternatively through an interferential filter and a filter with a glass cell (GFC) filled with high partial pressure of the gas to be analyzed.

A suitable optical system drives the IR radiation inside the analysis chamber and then to the detector which receives and amplifies the two signals alternatively: one is the measure, the other is the reference. The gas concentration to be measured is proportional to the difference of the two signals.

Gases which may have a cross sensitivity with the measured gas generate the same variation on both the measure and reference signals. Therefore the measure is not affected.





Applications

The analyzer can be used for gas measuring in a wide range of industrial applications:

- Combustion control
- Measuring of emissions of boilers, furnaces, domestic and industrial incinerators, cement plants, furnaces, etc.
- Measurement of the emissions of gas engines and turbines equipped with NO_x dejection system
- Process gas analysis
- Monitoring of emissions of engines and test bench
- Analysis of gases from landfills
- Air quality in green houses, tunnels, parking
- Analysis of protection atmospheres

Technical specifications

Measured components	Up to 5 gases + CO2 Certified Ranges: 1. CO 0÷50 / 0÷300 mg/Nm ³ 2. NO 0÷50 / 0÷400 mg/Nm ³ 3. SO2 0÷50 / 0÷400 mg/Nm ³ Other lowest ranges 4. CH4 0f 50 vpm 5. CO2 0f 50 vpm 6. NO2 0f 50 mg/Nm ₃ More ranges to be prepared on request.	Display -	240X128 pixel, graphic, back lighted LCD, touchscreen integrated. It shows: - Measured values with units Bar graph for one gas - Alarms state and managing - Time to next zero and span automatic calibration if activated
		Mobile averages	Short average tunable from 1 to 120 sec. Long average tunable from 10 to 3600 sec. Automatic switching between one and the other following the switching settable criteria
Measure units	vpm, mg/m ³ , %	Serial Output	RS 485 with transmission of all measurements and alarms on expansion pack
Flow control on sample	Continuous check with alarm for flow < 0.5 l/min	Analogical Output	N. 5 4-20 mA linear isolated outputs. Max load 500 ohm on expansion pack
Digital Output	N. 1 contact for calibration N. 1 contact for solenoid valve control, in case external automatic calibration is used: 24 V 50 mA N. 16 contacts freely configurable on expansion pack	Span Calibration	Automatic available but not necessary. Tunable frequency and duration
Zero alignment	Automatic with ambient air or nitrogen. Frequency and duration are tunable	Warm up time	60s best performance with temperature stability, depending on ambient situation
Response time (T90)	Depending on settable mobile averages	Ambient conditions	Operating temperature +5f +35°C with 0.1 °C stability Transport and storing temperature -10f +60°C. Moisture: <90% RH not condensing
Sample gas conditions	pressure 20f 80 mbar flow 30f 90 Nl/h temperature +5f +50°C dew point at least 5°C lower than room temperature with 0.1 °C stability	Drift	Negligible with automatic zero calibration: <ul style="list-style-type: none"> < 2% of range without automatic zero calibration Ambient temperature: negligible and continuously controlled Atmospheric pressure: ambient pressure settable Zero: none Span about 1% of measured value for 1% of atmospheric pressure change
Performance	accuracy: 1% of full range or 1 ppm linearity: 1% of full range or 1 ppm repeatability: 1% of full range or 1 ppm		
Protection degree	IP45	Dimensions	450x132 mm. depth 430 mm. Frontal panel 485 mm Weight > 12 Kg
Power supply	110-230 V AC +/-10%, 130W max.		

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