GRÖGER & OBST

Online Measurement of Hydrocarbons in Gases

GO-ATC

Sampling– Processing- Analysis

ONLINE MEASUREMENT OF HYDROCARBONS IN GASES GO-ATC

The GO-ATC is an online analysis system for determination of the THC (Total Hydro Carbon) fraction of the air and other gas component of the air (optional).

This process (patent-No. 10 2009 017 932) can be used for online measurement of hydrocarbons and other chemical substances in many areas of industry and research, e.g. for ultra high purity gases and breathing gases, chemical industry, above all, petrochemical industry, ambient air monitoring, waste water treatment etc.

The GO-ATC is an online analysis system for determination of the THC (Total Hydro Carbon) fraction of the air and other gas component of the air (optional). Simultaneous online measurement of methane for the determination of the value of the NMHC (None Methane Hydrocarbons).

Unlike conventional air measurements, which determine the absolute value of the organically bound carbon in the gas flow, with this principle, the difference between the concentrations in the two gas flows is formed. The THC value is determined by measuring and calculating the CO_2 concentrations in the gas flows.

THE APPLICATION AREAS

- Immissions- and emissions control
- Industry as chemical-especially petrochemical industry
- Research institutions in the purity gas and breathing gas field
- Wastewater Treatment Technique in the wastewater sector for monitoring of methanol
- Hospitals for climate system monitoring
- Aviation for monitoring the cabin air
- Chemical laboratories
- Filter monitoring
- Clean room monitoring

ADVANTAGES

- No consumables
- No ultra high purity gases
- Low operating costs
- Resolution 0,001 mg Cx Hy
- Genuine online measurement
- No zero gas/ no burn gas
- Optional remote maintenance and data retrieval via LAN, WAN and GSM / UMTS are possible
- Safe, easy and environmentally friendly handling
- Automatic calibration

PERFORMANCE PROFIL GO-ATC

N-DIR Gas analyser	Ultramat U6
Smallest effective range GO-ATC	0,01 ppm
Admissible water content in test gas	8,00 ml/h / 500 ml/h per channel
Display	LCD
Limit values	4
Output signals	0 / 2 / 4 – 20 mA / serial interface
Operating temperature oxidation oven	1.000 °C
Temperature rise time	approx. 240 min.
T90 % time	20 seconds
Gas cooler	Peltier cooler GO-PK2
Crude gas sample flow rate	2 x 1 l min.
Power consumption	max. 2800 W
Power supply	230 V, 50 Hz
Ambient temperature	+5 to +30 °C
Dimensions (HxWxD)	1150mm x 560mm x 600mm
Weight	85 kg
Automatic zero point adjustment	Yes / automatic calibration
Materials contacting sample	Ceramic, Glass, Viton, PVC, VA

OPTIONS

- Absolute CO2 measuring device
- Device for measuring other gases
- Software
- Further options on request

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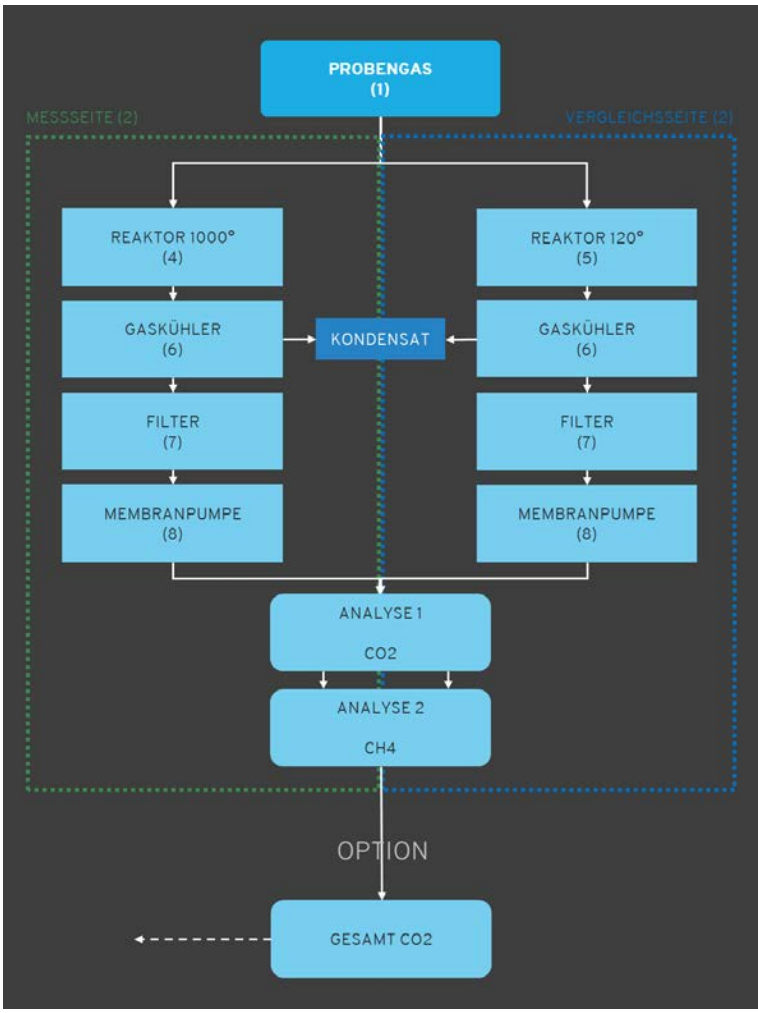
GO-ATC Analysis Technique

A gas sample (ca. 120l/h) is drawn continuously from the gas to be analysed (1). The gas flow is evenly divided between the symmetrical/parallel running Measurement (2) and Reference Channels (3). The gas flow in the measurement channel is passed through a reactor (4) which has been heated to 1.000° C and is filled with a catalytic, coated substance. In the reference channel, the gas flow is passed through a reactor (5) which has been heated to 120°C to avoid deposits of water or hydrocarbons. Subsequently, the measurement/reference gas is passed through a gas cooler (6) for drying (the resulting condensate is drained off), and afterwards it is passed through the filter (7) to remove acid and particles. Then the mass flow rate is controlled by means of a membrane pump (8) and flow control.



Analysis 1: The CO2 concentration of the gas in the test bulb is compared with the reference bulb by means of a CO2 measuring cell.

Analysis 2: Likewise, the concentration difference of CH4 (methane) is determined by comparing the reference bulb to the test bulb.

Absolute CO2 Measurement (Option)

In addition to measuring the THC, the determination of the absolute concentration of CO2 in the test gas is an optional feature. For this measurement, the gas flow is redirected from the reference bulb to the test bulb of a second test system. The measure-ment of the absolute CO2 concentration in the test gas is possible because it is compared to the reference gas in the reference channel.

Gröger & Obst

Vertriebs- und Service GmbH
Hans-Urmiller-Ring 24
82515 Wolfratshausen

+49 8171 / 9977 00
+49 8171 / 9977 12
info@groegerobst.de
www.groegerobst.de