BARTEC BENKE

Process Analyzer

Modular Gas Analyzer MGAnano VG–4

Credible Solutions for the Oil and Gas Industry

Modular Gas Analyzer MGAnano VG–4

To remain competitive, today's refiners must employ all optimization and product control techniques available. The use of online physical property analyzers is one of the key features to reach those objectives because they measure important quality properties in the process directly.

Gas chromatography (GC) is a common method used in analytical chemistry for separating and analyzing compounds that can be vaporized without decomposition. Typically the method is used to separate different analytes of a mixture and to determine their concentrations. Based upon these concentrations other parameters of a mixture can be calculated such as calorific values, Wobbe Index, theoretical vapor pressure etc.

BARTEC BENKE

Your partner for innovative system solutions.

The BARTEC BENKE specialists have many years of experience. They create system solutions that you can rely on: efficient and dependable for decades to come.

- **Handling of liquid samples**
- **Short cycle times**
- **Integrated evaporation system**
- **Modular packaged Micro–GC**
- **Certified for use in hazardous areas**
- **Network fieldbus communication**

APPLICATION

The BARTEC BENKE Modular Gas Analyzer MGAnano VG-4 is used for:

- **Blending terminals:** To optimize pipeline & terminal blending and to determine Wobbe index, calorific values and relative density alterations/optimization, vapor pressure alterations through butane or other diluents
- **Liquefied gas:** Pipeline & terminal blending for e.g. propane traders, Wobbe index, calorific values and relative density alterations through N_2 ballasting, ballasting through other gases, NGL extraction from LNG

BARTEC BENKE

Special Features:

- **Modular packaged Micro–GC MEMS technology**
- **Liquid sample handling**
- **Integrated automatic evaporation and mixing unit**
- **Available communication interfaces:**
  - Modbus/RTU, Modbus/TCP (bidirectional)
  - Remote access via Ethernet (VDSL or FOC is)
- **Short cycle times**

Norms and Standards:

Correlates with:

- **ASTM D3588**
- **DIN EN ISO 6976**

Make your decision for a strong partner!

Choose BARTEC GROUP also for:

- **Fast Loop Systems**
- **Sample Conditioning Systems**
- **Validation Systems**
- **Recovery Systems**
- **Chillers**
- **Air Conditioning Systems/HVAC**
- **Pre Commissioned Analyzer Shelters/ Turn–Key Solutions**

oil ■ gas ■ refineries ■ petrochemistry ■ chemistry

Modular Gas Analyzer MGAnano VG–4

BARTEC BENKE

EXPLOSION PROTECTION

Marking	ATEX: II 2 G IIC T4 Gb CSA C/US pending

TECHNICAL DATA

Technology	Gas chromatography (GC)
Variants	1: 1x micro GC module for gaseous sample only 2: 2x micro GC modules for gaseous sample only 3: 1x micro GC module + evaporator unit for liquid sample only
Measuring range	0.01 to 100 %, depends on application
Repeatability	≤ 1.0 % full scale
Measuring cycle	discontinious, cycle time depends on application typically: 3 min
■ **Electrical data**	
Nominal voltage	230 VAC ± 10 %, 1 phase; 50 Hz; other ratings on request
Power consumption	operation 170 W / max. 550 W
Pre–fuse	16 A
■ **Protection class**	IP 54 (NEMA 13)
■ **Ambient conditions**	
Ambient temperature	operation 5 to 40°C (41 to 104°F) storage 0 to 60°C (32 to 140°F)
Ambient humidity	5 to 80 % relative humidity, non-corrosive

Sample

Quality	filtered 2 µm, dry gas: not condensed, H2S max. 2000 ppm liquid: density (15°C/60°F) 590 to 690 kg/m³
Consumption	gas: 5 to 50 Nl/h liquid: 1 to 10 l/h (< 10 bar (145 psi) on request)
Pressure at inlet	1.5 to 2 bar (21.8 to 29 psi)
Temperature at inlet	5 to 50°C (41 to 122°F)

Utilities

■ **Instrument air**	
Consumption	
Purge	8 Nm³/h while purging (~12 min)
Operation	approx. 1 Nm³/h
Pressure at inlet	4 to 7 bar (60 to 100 psi)
Quality	humidity class 2 or better acc. to ISO 8573.1
■ **GC carrier gas**	
Type	Hydrogen, Helium, Argon
Consumption	0.03 to 0.3 Nl/h
Pressure at inlet	2 to 7 bar (30 to 100 psi)
Quality	99.999% or better
■ **Evaporator carrier gas**	
Type	Hydrogen, Helium, Argon, Nitrogen
Consumption	1 to 60 Nl/h
Pressure at inlet	3 to 10 bar (45 to 145 psi)
Quality	99.999% or better

Signal outputs and inputs

Analog outputs	on request
Digital outputs	Alarm, Ready signal, see options
Digital inputs	Reset, see options

Electrical data of signal outputs and inputs

Analog outputs	max. 8 (4 to 20 mA; 1000 Ω) active isolated on request
Digital outputs	24 VDC; max. 0.5 A
Digital inputs	high: 15 to 28 VDC / low: 0 to 4 VDC
Auxiliary power supply output	24 VDC; max. 0.8 A

Control unit

Central control unit	Industrial PC
Operating system	Windows Embedded Standard 7®
Control software	PACS

User interfaces

Display	TFT display with touch function 1024 x 768 pixel
Keyboard	virtual keyboard, controlled via TFT display with touch function

Connections

Tube fittings	Swagelok® 6 mm/12 mm/18 mm other fittings on request
Vent/Drain	open to atmosphere backpressure on request

Weight and dimensions

Weight	approx. 280 kg
Dimensions (W x H x D)	approx. 1140 x 1900 x 710 mm
Space requirements	right: 500 mm / left: 500 mm / front: 1000 mm

Optional interfaces

Analog outputs	on request
MODBUS interface	MODBUS/RTU via RS485 or RS422 or FOC is, MODBUS/TCP via FOC is
Remote access	via Ethernet (VDSL or FOC is)

Important notice MGAnano VG-4 is subject to continuous product improvement, specifications are preliminary and may be subject to change without notice. If your technical data do not comply with existing data, please contact us for technical clarification.

BARTEC BENKE GmbH
Germany
Borsigstrasse 10
D-21465 Reinbek
Tel: +49 40 72703-0
Fax : +49 40 72703-228
pat@bartec-benke.de
www.bartec-benke.de