DURAG GROUP

ProCeas® CO_2 contaminants

Gas purity analyzer for Carbon Capture Utilization and Storage (CCUS)

- Measurement compliant with Northern Lights specifications
- On-line, real-time, direct multi-contaminant monitoring
- Reliable measurement, interference-free, no calibration required
- Precise measurement in all conditions, including wet and dry CO_2 streams

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PROCEAS® CO_2 contaminants

Carbon capture processes produce CO_2 streams containing trace impurities such as sulfur compounds, oxygen, nitrogen oxides, moisture, ammonia, etc. These contaminants impact the physical and chemical properties of CO_2, affecting transport and storage. Impurities accelerate corrosion in pipelines and storage sites, increasing costs and environmental risks. Additionally, they can hinder CO_2 injection efficiency in geological formations, threatening the long-term success of carbon capture projects.

Trace gas analysis enables fast, reliable, and precise online monitoring of CO_2 purity, allowing industries to implement effective purification strategies. Traditional methods often lack accuracy and efficiency. ProCeas®, developed by AP2E (part of DURAG GROUP), utilizes patented OFCEAS® technology for ultra-sensitive, real-time trace gas detection. With superior precision and stability, ProCeas® enables compliance with stringent CO_2 purity standards, optimizing carbon capture and storage applications.

FEATURES

- Wide, dynamic measuring range
- Highest selectivity without cross-interference
- Multi-points measurements possible with a single device for optimized costs (multiplexing optional)
- Patented OFCEAS® + LPS® technologies for ultra-accurate, real-time measurements
- No zero gas or carrier gases required, reducing operational complexity
- Available in pressurized enclosure (ATEX, IECEx, cUL)

BENEFITS

- **Enhanced accuracy:** ProCeas® ensures precise trace gas measurement for proactive CO_2 purity management
- **Improved efficiency:** Real-time monitoring and detection of contaminants enables quick corrective actions, reducing downtime and optimizing processes
- **Cost savings:** Helps preventing corrosion, reducing maintenance costs, and extending infrastructure lifespan
- **Environmental protection:** Ensuring CO_2 purity improves injection efficiency, prevents leaks, and safeguards storage integrity.

TECHNICAL DATA

Gas	Range (ppm)	LoD (ppm)	Northern Lights specifications (ppm)
H_2O	0 ... 300	0.1	≤30
O_2	0 ... 100	0.2	≤10
SO_2	0 ... 1500 0 ... 3000	1	≤10
NO	0 ... 500 0 ... 1000	0.1	N/A
NO_2	0 ... 150 0 ... 500	0.2	N/A
NO_x	0 ... 1500	0.1	≤1.5
H_2S	0 ... 200	0.05	≤9
N_2O	0 ... 30 0 ... 100	0.2	N/A
CO	0 ... 200	1	≤100
NH_3	0 ... 3 0 ... 10	0.05	≤10
CH_4	0 ... 100	0.2	≤100
CH_2O	0 ... 40	0.05	≤ 20
CO_2	0 ... 100 %	0.1 %	>99.81 %

Linearity: <1% of reading
Repeatability: 3 x LOD or ± 0,5% relative
LoD: 3σ over a period of 60 s, σ: Standard deviation
Other parameters or ranges on request

Measuring system	
Technology	Patented OFCEAS® (Optical Feedback Cavity Enhanced Absorption Spectroscopy) combined with LPS® (Low Pressure Sampling)
Power supply	110 ... 230 VA, 50 ... 60 Hz
Power consumption	150 VA max, 80 VA stabilized (per rack / wall mounted configuration)
Ambient conditions	• Rack version: +10 ... +35°C / +50 ... +95°F • Wall mounted: up to -10 ... +60°C / +14 ... +140°F
Housing	• 19'' 4U rack for cabinet integration • Wall-mounted: Stainless Steel enclosure Dimensions 800x600x250mm (without purge controller) • Cabinet: 24U. Others on request
Protection rating	• 19'' 4U rack: IP32 • Wall mounted: IP65 • Cabinet: IP54
Sampling line	Depends on the process conditions and installation configuration. Recomended: standard, not heated line. Optional traced line, temperature maintained at max 80 °C
Sampling	Process connection: 1/4'' Stainless Steel Sampling probe: consisting of sample filter and sonic nozzle. Material: Inconel 600
Communication interfaces	• USB ports • Modbus TCP/IP, RS232, RS485 (RJ45), VGA. • Remote access via Ethernet • Analog I/O optional

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