Process Insights™
Premium Insights Into Process

REAL-TIME GAS ANALYZERS

PRODUCT DATASHEET

Prismatic™ 3

Multi-Species Gas Analyzer

The Prismatic 3 features:

- Simultaneous parts-per-billion detection of CO, CO_2, H_2O and CH_4
- Ideal analyzer to meet Hydrogen purity requirements of SAE J2719 and ISO 14687:2019
- Powerful Cavity Ring-Down Spectroscopy (CRDS) technology
- Low Cost of Ownership: no calibration or utility gas requirements
- Easy to install and use per ASTM Standard Test Method D7941

With the Prismatic™ 3 laser-based, multi-species trace gas analyzer, Tiger Optics takes a quantum leap forward.

The Prismatic 3 provides a critical tool for use in a variety of applications in both research and industrial settings, where real-time, on-line gas monitoring is essential. The Prismatic 3 is ideally suited for fuel-cell hydrogen purity monitoring throughout the entire hydrogen supply chain – from production to transportation and storage to the fueling station.

This compact, CRDS-based analyzer offers simultaneous detection of H_2O, CO, CO_2 and CH_4 from parts-per-billion to parts-per-million levels to ensure purity requirements in line with SAE J2719 and ISO 14687:2019.

What's more, the Prismatic 3 is very easy to install and operate with integrated touchscreen and intuitive graphical user interface to allow efficient data trending and analysis. The cost of ownership is extremely low, with no calibration, spare parts or utility gases required.

Prismatic 3 Multi-Species Gas Analyzer	
Performance	
Operating range:	See table on next page
Detection limit (LDL, 3σ/24h):	See table on next page
Precision (1σ, greater of):	± 0.75% or 1/3 of LDL
Accuracy (greater of):	± 4% or LDL
Speed of response:	< 5 minutes to 95% (in 4-channel operation)
Environmental conditions:	10°C to 40°C 30% to 80% RH (non-condensing)
Storage temperature:	–10°C to 50°C
Gas Handling System and Conditions	
Wetted materials:	316L stainless steel, 10 Ra surface finish
Gas connections:	1/4" male VCR inlet and outlet
Leak tested to:	1 x 10^{-9} mbar l / sec
Inlet pressure:	10 − 125 psig (1.7 − 9.6 bara)
Flow rate:	< 1 slpm (gas dependent)
Sample gases:	Inert gases, hydrogen and oxygen
Gas temperature:	Up to 60°C
Dimensions & Weight	
Standard sensor:	H × W × D 8.73 × 19.0 × 23.6 in (222 × 483 × 599 mm) (19" rack-mountable)
Standard sensor weight:	50 lbs (22.7 kg) estimated

Electrical and Interfaces			
Alarm indicators:	1 user programmable per channel, 1 system fault, Form C relays		
Power requirements:	90 − 240 VAC, 50/60 Hz		
Power consumption:	300 Watts max.		
Signal output:	Isolated 4−20 mA per channel		
User interfaces:	10.4” LCD touchscreen. 10/100 Base-T Ethernet. RS-232, RS-485		
Data storage:	Internal or external flash drive		
Certification:	CE Mark		
Performance in N_2	**Range**	**LDL (3σ)**	**Precision (1σ) @ zero**
Methane (CH_4):	0 − 100 ppm	100 ppb	35 ppb
Moisture (H_2O):	0 − 40 ppm	100 ppb	35 ppb
Carbon Monoxide (CO):	0 − 500 ppm	50 ppb	20 ppb
Carbon Dioxide (CO_2):	0 − 1000 ppm	200 ppb	70 ppb
Performance in H_2	**Range**	**LDL (3σ)**	**Precision (1σ) @ zero**
Methane (CH_4):	0 − 100 ppm	100 ppb	35 ppb
Moisture (H_2O):	0 − 25 ppm	100 ppb	35 ppb
Carbon Monoxide (CO):	0 − 500 ppm	50 ppb	20 ppb
Carbon Dioxide (CO_2):	0 − 1000 ppm	320 ppb	110 ppb
Performance in Ar	**Range**	**LDL (3σ)**	**Precision (1σ) @ zero**
Methane (CH_4):	0 − 90 ppm	100 ppb	35 ppb
Moisture (H_2O):	0 − 18 ppm	40 ppb	15 ppb
Carbon Monoxide (CO):	0 − 400 ppm	40 ppb	15 ppb
Carbon Dioxide (CO_2):	0 − 800 ppm	160 ppb	55 ppb
Performance O_2	**Range**	**LDL (3σ)**	**Precision (1σ) @ zero**
Methane (CH_4):	0 − 90 ppm	100 ppb	35 ppb
Moisture (H_2O):	0 − 20 ppm	50 ppb	20 ppb
Carbon Monoxide (CO):	0 − 400 ppm	45 ppb	15 ppb
Carbon Dioxide (CO_2):	0 − 850 ppm	170 ppb	60 ppb

*Higher range is available upon request.
†Due to the high abundance of CO_2 in air, purging of the analyzer housing is required to achieve specified LDL (see previous page for purge gas requirements).

Contact us for additional analytes and matrices.
U.S. Patent # 7,277,177

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GAIN REAL-TIME INSIGHT INTO YOUR PROCESS

Process Insights manufactures and delivers premium sensors, monitors, detectors, analyzers, instrumentation, and software that are mission-critical to keep your operations, personnel, and the environment safe – every day across the globe.

Get the most reliable, precision analytical technologies available on the market today. We will work to match your needs and budget, and provide the optimal, and most stable process analysis solution for your application.

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