

PRODUCT DATASHEET

Spark™ CH₄, CO₂, C₂H₂, Spark+™ CO

Trace Level Analyzers for
Light Carbon Contaminants



Compact, affordable and powerful, the Spark family for non-H₂O contaminants brings you:

- Part-per-billion (ppb) level sensitivity for CO, CO₂, CH₄ and C₂H₂
- Wide measurement range
- Drift-free performance & immunity to vibration
- No spectral interference
- Standalone or rack-mountable
- Lowest cost of ownership & simple operation
- Serani™ Max interface software for remote analyzer control & data analysis
- **NOW INCLUDED: Speed+ performance upgrade** – intelligent dynamic data processing boosts analyzer's speed of response while maintaining low noise performance



Simple, Drift-Free Contaminant Detection Beyond Moisture

With the Spark analyzer family, powerful advanced spectroscopy is available at a popular price for a host of applications, from process control and quality assurance in Air Separation Plants to refineries and hydrogen plants. Other applications include monitoring of cylinder filling, bulk delivery and distribution transfer points, as well as welding, medical, industrial and high-purity gas production, and more. Part-per-billion level sensitivity and high-ppm ranges make the Spark an ideal trace gas detection solution for these industrial gas applications.

Say goodbye to cumbersome, complex, costly and labor-intensive mid-20th century technology. Gone is the need for calibration, spare parts,

limited measurement ranges, and worries about drift and downtime usually associated with NDIRs and GCs. And without the need for H₂ fuel gas and with plug-and-play installation within minutes, the Spark is a faster and safer alternative to FIDs. In addition, the Spark has the lowest cost of ownership in the industry.

The Spark™ CH₄, CO₂, C₂H₂ and Spark+™ CO perfectly complement our popular Spark™ H₂O trace moisture analyzer to utilize powerful, drift-free and hassle-free Cavity Ring-Down Spectroscopy technology for all your critical contaminants.





Performance

Operating range:	See tables on next page
Detection limit (LDL, 3σ/24h):	See tables on next page
Precision (1σ, greater of):	$\pm 0.75\%$ or 1/3 of LDL
Accuracy (greater of):	$\pm 4\%$ or LDL
Speed of response:	< 1 minute to 90%
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
Inlet pressure:	10 – 125 psig (1.7 – 9.6 bara)
Flow rate:	~0.7 slpm (in N ₂), gas-dependent
Sample gases:	Most inert and passive matrices
Gas temperature:	Up to 60°C

Dimensions & Weight

Standard sensor:	H x W x D 8.73 x 8.57 x 23.6 in (222 x 218 x 599 mm)
Sensor rack (fits up to two sensors):	H x W x D 8.73 x 19.0 x 23.6 in (222 x 483 x 599 mm)
Standard sensor weight:	32 lbs (14.5 kg)

Electrical and Interfaces

Platform	Max Series analyzer
Alarm indicators:	2 user programmable, 1 system fault, Form C relays
Power requirements:	90 – 240 VAC, 50/60 Hz
Power consumption:	40 Watts max.
Signal output:	Isolated 4–20 mA per sensor
User interfaces:	5.7" LCD touchscreen. 10/100 Base-T Ethernet. USB, RS-232, RS-485. Modbus TCP (optional)
Data storage:	Internal or external flash drive
Certification:	CE Mark



Spark CH₄ Performance, CH₄

	Range	LDL (3σ)	Precision (1σ) @ zero
In Nitrogen:	0 – 80 ppm	7.5 ppb	2.5 ppb
In Oxygen:	0 – 50 ppm	6 ppb	2.0 ppb
In Clean Dry Air (CDA):	0 – 80 ppm	7.5 ppb	2.5 ppb
In Argon:	0 – 70 ppm	6.5 ppb	2.2 ppb
In Helium:	0 – 50 ppm	6 ppb	2.0 ppb
In Hydrogen:	0 – 80 ppm	7.5 ppb	2.5 ppb

Spark+ CO Performance, CO

	Range	LDL (3σ)	Precision (1σ) @ zero
In Nitrogen:	0 – 2000 ppm	120 ppb	40 ppb
In Oxygen:	0 – 1800 ppm	110 ppb	40 ppb
In Clean Dry Air (CDA):	0 – 2000 ppm	120 ppb	40 ppb
In Argon:	0 – 1600 ppm	100 ppb	35 ppb
In Helium:	0 – 1800 ppm	110 ppb	40 ppb
In Hydrogen:	0 – 2500 ppm	150 ppb	50 ppb

Spark+ CO with Turbo Mode (see page 5)

	Range	LDL (3σ)	Precision (1σ) @ zero
In Nitrogen:	0 – 2000 ppm	360 ppb	120 ppb
In Oxygen:	0 – 1800 ppm	330 ppb	110 ppb
In Clean Dry Air (CDA):	0 – 2000 ppm	360 ppb	120 ppb
In Argon:	0 – 1600 ppm	300 ppb	100 ppb
In Helium:	0 – 1800 ppm	330 ppb	110 ppb
In Hydrogen:	0 – 2500 ppm	450 ppb	150 ppb

Spark C₂H₂ Performance, C₂H₂

	Range	LDL (3σ)	Precision (1σ) @ zero
In Nitrogen:	0 – 80 ppm	8 ppb	3 ppb
In Oxygen:	0 – 70 ppm	7 ppb	2.5 ppb
In Clean Dry Air (CDA):	0 – 80 ppm	8 ppb	3 ppb
In Argon:	0 – 80 ppm	8 ppb	3 ppb

Spark CO₂ Performance, CO₂

	Range	LDL (3σ)	Precision (1σ) @ zero
In Nitrogen:	0 – 1500 ppm	250 ppb	80 ppb
In Oxygen:	0 – 1200 ppm	220 ppb	75 ppb
In Clean Dry Air (CDA):	0 – 1500 ppm	250 ppb	80 ppb
In Argon:	0 – 1200 ppm	220 ppb	75 ppb
In Helium:	0 – 1200 ppm	220 ppb	75 ppb
In Hydrogen:	0 – 2000 ppm	400 ppb	140 ppb



Analyzer Upgrades

Add more value your Spark analyzer with these powerful options:

Serani™ Max Analyzer Interface Software

- Connect to your analyzer remotely from your computer via Ethernet (Windows XP or higher required)
- Data recording, plotting and analysis in real-time with the click of a button
- One-step data collection and other service function shortcuts



Turbo Mode (Spark+ CO only)

- Special software option to dramatically increase speed of response
- Fast process monitoring with $T_{90} < 10$ seconds
- This option makes the analyzer a drift-free, maintenance-free replacement for traditional NDIR systems



Annual Performance Verification

- Low-cost and easy remote verification process, with no need to return the analyzer to the factory
- Annual verification by Tiger Optics ensures that your analyzer continues to meet its original specifications
- Up-to-date Verification Certificate to comply with your QA/QC standards



Installation & Commissioning Package

- On-site analyzer installation and start-up by Tiger Optics trained personnel
- Ensuring correct installation helps prevent future issues with the analyzer or your sampling system
- Gain peace of mind and save money in the long run



GAIN REAL-TIME INSIGHT INTO YOUR PROCESS

Process Insights delivers premium analytical sensors, analyzers, instrumentation, software and solutions that are mission-critical to keep your operations, personnel, and the environment safe. Our commitment to customer satisfaction is evident through our diverse range of products, programs, and services, designed to accommodate various budgets and application needs.

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