

PRODUCT DATASHEET

# Spark H<sub>2</sub>O in CO<sub>2</sub> Trace Level Moisture Analyzer



## The compact and affordable Spark H<sub>2</sub>O in CO<sub>2</sub> offers:

- Powerful, proven Cavity Ring-Down Spectroscopy (CRDS) technology
- Freedom from calibration
- Extremely low cost of ownership
- Ethernet, 4–20 mA and RS-232 connectivity
- Fast response with low gas consumption
- Wide-range H<sub>2</sub>O analysis in pure CO<sub>2</sub>: 550 ppb to 600 ppm!
- NOW INCLUDED: **Speed+ performance upgrade** – intelligent dynamic data processing boosts analyzer's speed of response while maintaining low noise performance



For the first time, powerful advanced spectroscopy is available at a popular price for a host of applications, from quality assurance to cylinder filling, as well as welding, medical, industrial and high-purity gas production; bulk delivery and distribution transfer points; and more. Say goodbye to cumbersome, complex, costly and labor-intensive 20<sup>th</sup> century technology. Gone is the need for calibration, spare parts, limited measurement ranges, and worries about drift and downtime. Plus, it's a joy to start up and to operate.

The original maker of CRDS analyzers, Tiger Optics has been serving users worldwide for over a dozen years. We are in HyCO plants, with our Class I, Div 2 rated CO-rect analyzer; in nuclear plants, where we are Safety Integrity Level One (SIL 1) approved; and we are widely used in semiconductor fabs for bulk and specialty monitoring, in addition to tool-mounted process control and QA/QC of purifiers and gas delivery systems. We are the designated standard under SEMI F112-0613 for determining moisture dry-down characteristics of such systems. Tiger Optics was used by NIST to name the new hydrogen chloride protocol for continuous emissions monitoring, and we now measure HCl in stack gas at coal-fired utilities.

Put a little Spark in your life!





## Performance

<b>Operating range:</b>	See table on next page
<b>Detection limit (LDL, 3<math>\sigma</math>/24h):</b>	See table on next page
<b>Precision (1<math>\sigma</math>, greater of):</b>	$\pm 0.75\%$ or 1/3 of LDL
<b>Accuracy (greater of):</b>	$\pm 4\%$ or LDL
<b>Speed of response:</b>	< 3 minutes to 90%
<b>Environmental conditions:</b>	10°C to 40°C 30% to 80% RH (non-condensing)
<b>Storage temperature:</b>	-10°C to 50°C

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## Gas Handling System and Conditions

<b>Wetted materials:</b>	316L stainless steel, 10 Ra surface finish
<b>Gas connections:</b>	1/4" male VCR inlet and outlet
<b>Inlet pressure:</b>	10 – 125 psig (1.7 – 9.6 bara)
<b>Flow rate:</b>	~1.4 slpm
<b>Sample gases:</b>	Most inert, toxic, and passive matrices
<b>Gas temperature:</b>	Up to 60°C

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## Dimensions & Weight

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

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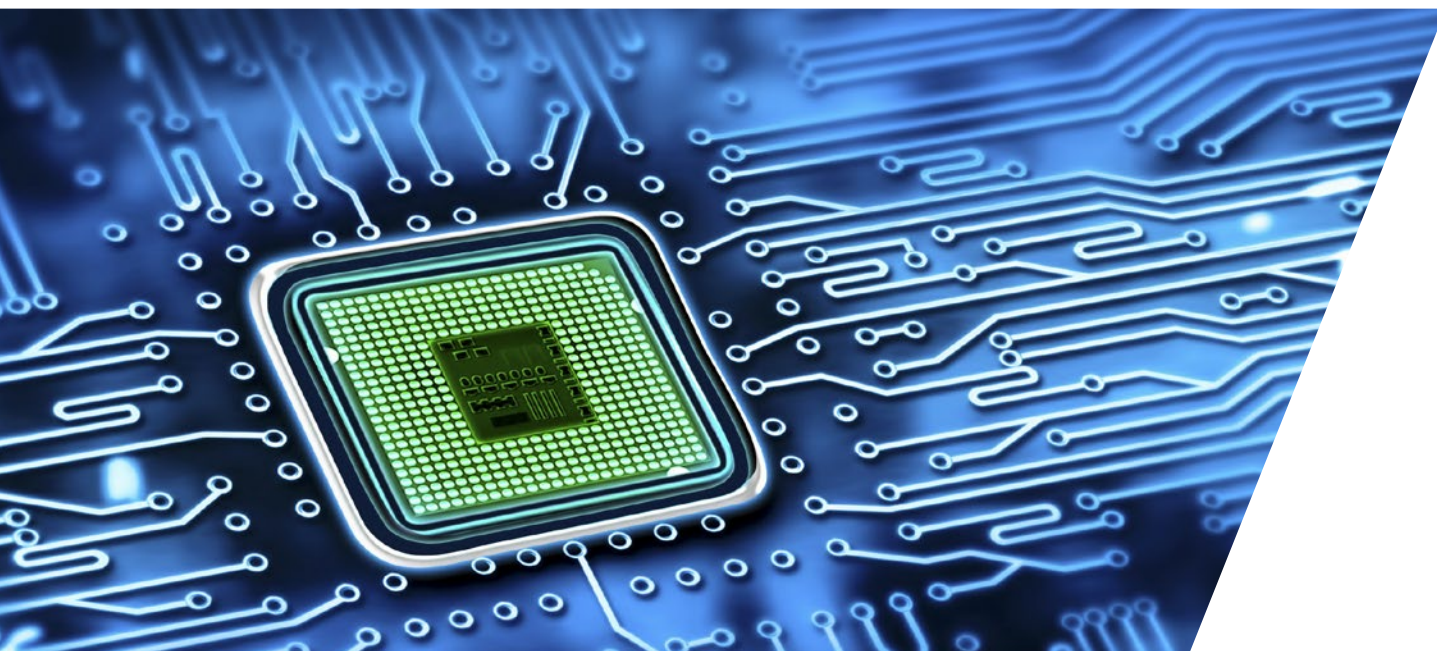
## Electrical and Interfaces

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

## Performance, H<sub>2</sub>O

	Range	LDL (3 $\sigma$ )	Precision (1 $\sigma$ ) @ zero
<b>In Carbon Dioxide:</b>	0 – 600 ppm	550 ppb	180 ppb
<b>In Nitrogen:</b>	0 – 500 ppm	7.5 ppb	2.5 ppb
<b>In Oxygen:</b>	0 – 250 ppm	7.5 ppb	2.5 ppb
<b>In Argon:</b>	0 – 200 ppm	6 ppb	2.0 ppb
<b>In Helium:</b>	0 – 125 ppm	4 ppb	1.3 ppb
<b>In Hydrogen:</b>	0 – 400 ppm	6 ppb	2.0 ppb
<b>In Clean Dry Air (CDA):</b>	0 – 450 ppm	7.5 ppb	2.5 ppb
<b>In Carbon Monoxide:</b>	0 – 480 ppm	7 ppb	2.5 ppb

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

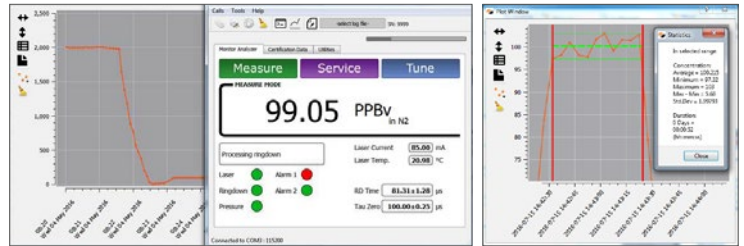


## Optional Packages

Customize your Spark H<sub>2</sub>O in CO<sub>2</sub> analyzer with these powerful add-ons:

### Serani™ Max Analyzer Interface Software

- Connect to your analyzer remotely from your computer via Ethernet or RS-232 (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



### 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



## PREMIUM INSIGHTS – GAIN REAL-TIME INSIGHT INTO YOUR PROCESS

Process Insights' products and solutions deliver innovative and differentiated analysis and measurement solutions and technologies that add high value to our customers and protect the environment.

Our commitment is to deliver smart and affordable innovation that optimizes process, improves safety, and transforms our world.

## CENTERS OF EXCELLENCE

PROVIDING PROVEN SOLUTIONS FROM A GLOBAL TECHNOLOGY LEADER



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