Spark H_2O: Trace Level Moisture Analyzer
At last, measurements made easy!

GASES & CHEMICALS | CEMS | ENERGY | SEMI & HB LED | ATMOSPHERIC | LAB & LIFE SCIENCE

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 20th 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 compact and affordable Spark H_2O offers:

- Powerful, proven Cavity Ring-Down Spectroscopy (CRDS) technology
- Self-tuning and auto-calibration
- Extremely low Cost of Ownership
- Ethernet, 4–20 mA and RS-232 connectivity
- Fast response with low gas consumption
- H_2O analysis over a vast range: 12 ppb to 2000 ppm (in N_2)!

The original maker of CRDS analyzers, Tiger Optics has been serving users worldwide for over a dozen years. Nothing beats CRDS's unique combination of ease of use and excellent performance, making Tiger's analyzers a perfect solution for a variety of applications, from monitoring trace moisture in semiconductor gases in accordance with the SEMI F112 standard, to fast and effortless monitoring of tube trailer filling processes, and the analysis of gases produced in Air Separation Units. Discover the power of CRDS with the Spark!

Put a little Spark in your life!

Tiger Optics
A Process Insights Company

Spark H_2O
Trace Level Moisture Analyzer

Performance	
Operating range	See table below
Detection limit (LDL, 3σ/24h)	See table below
Precision (1σ, greater of)	± 0.75% or 1/3 of LDL
Accuracy (greater of)	± 4% or LDL
Speed of response	< 3 minutes 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	~1.0 slpm (for N_2)
Sample gases	Most inert, toxic, and
	passive matrices
Gas temperature	Up to 60°C

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

Electrical	
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
	802.11g Wireless (optional)
	RS-232
	Modbus TCP (optional)

Performance, H_2O:	Range	LDL (3σ)	Precision (1σ) @ zero
In Nitrogen	0 – 2000 ppm	12 ppb	4 ppb
In Oxygen	0 – 1000 ppm	6 ppb	2 ppb
In Argon	0 – 900 ppm	4.5 ppb	1.5 ppb
In Helium	0 – 450 ppm	3 ppb	1.0 ppb
In Hydrogen	0 – 1750 ppm	7.5 ppb	2.5 ppb
In Clean Dry Air (CDA)	0 – 1800 ppm	10 ppb	3 ppb
In Neon	0 – 450 ppm	30 ppb	10 ppb
In Krypton	0 – 1100 ppm	5.5 ppb	1.8 ppb
In Xenon	0 – 1300 ppm	7.5 ppb	2.5 ppb
In CF_4	0 – 1300 ppm	9 ppb	3 ppb
In SF_6	0 – 1300 ppm	15 ppb	5 ppb

*see Page 3 for lower pressure ranges
Contact us for additional analytes and matrices · U.S. Patent # 7,277,177

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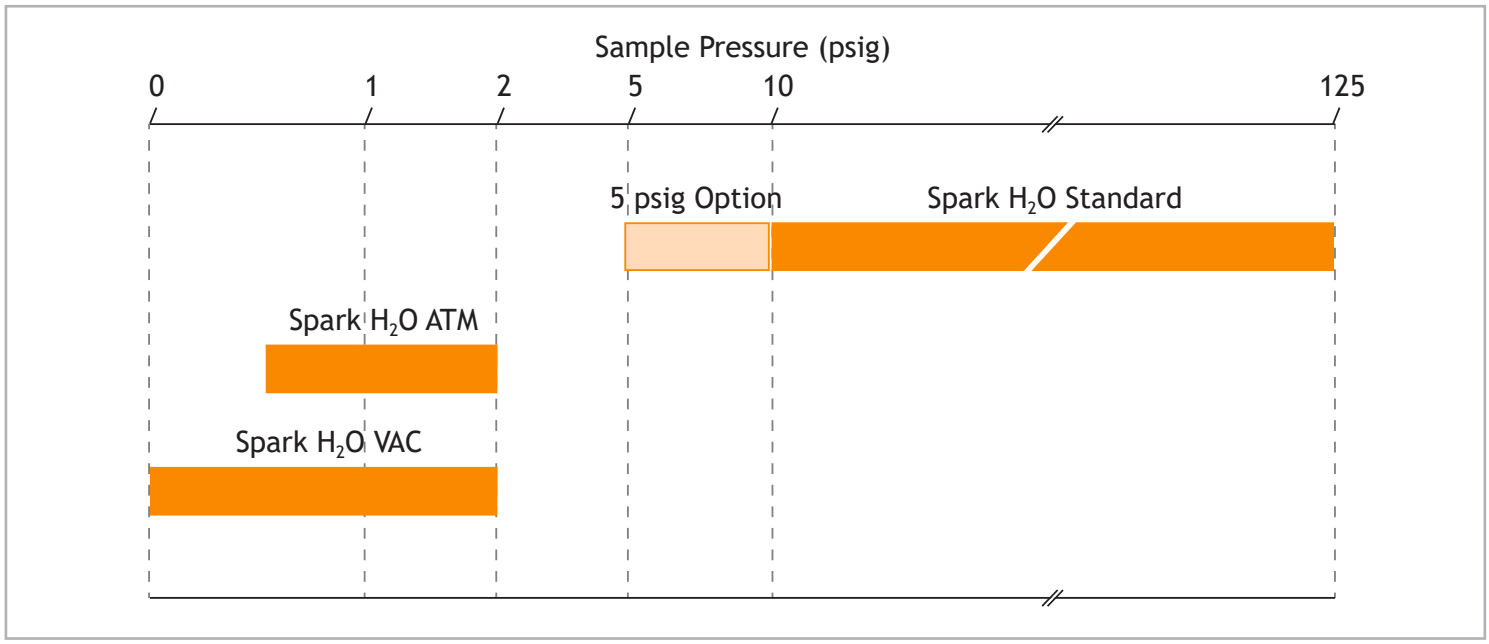
Models for Different Pressure Ranges

Depending on your application, there are different Spark H_2O versions optimized for your sample pressure:



Spark Version	Description and Accessories	Applications	Gas Matrix†
Spark H_2O Standard	• Standard model for most gas analysis applications with >10 psig • No accessories required	• General purpose cylinder analysis	All gases listed on Page 2
→ 5 PSIG Option	• Software add-on for standard Spark • Extends low-pressure limit to 5 psig • 6–10 psig sample pressure requires external 5 psig regulator	• Lower-pressure gas filling • Pressure-restricted applications • Air separation units	N_2, O_2, Ar, and CDA
Spark H_2O ATM	• Spark model for inlet pressures between ≈0.5 psig and 2 psig • Requires external rotameter	• Low-pressure moisture generators • Glove boxes • Permeation setups	N_2 and CDA
Spark H_2O VAC	• Spark model for non-pressurized samples (0 psig to 2 psig) • Requires external metering valve and dry vacuum pump	• Atmospheric pressure chambers • Glove boxes • Permeation setups	N_2 and CDA

†Additional gas matrices on lower-pressure models may be available on request. Please contact us to discuss your requirements.

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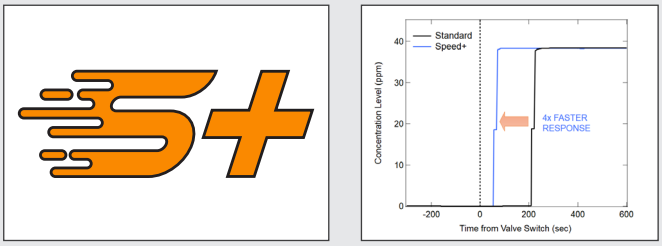
Analyzer Upgrades

Add more value your Spark analyzer with these powerful options:

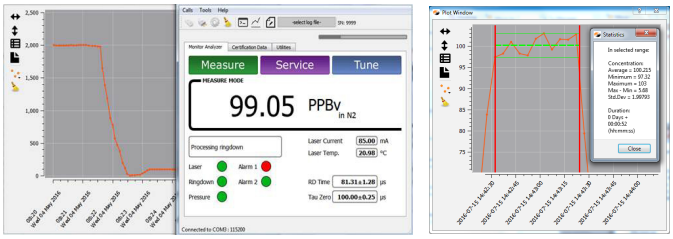
Speed+ Performance Upgrade

- Intelligent dynamic data processing boosts analyzer's speed of response while maintaining low noise performance
- Real-time process control ensures quality, as well as increased capacity to improve efficiency and profitability
- Analyze with Ease™—no manual adjustments required, Speed+ is fully automatic



Serani™ 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

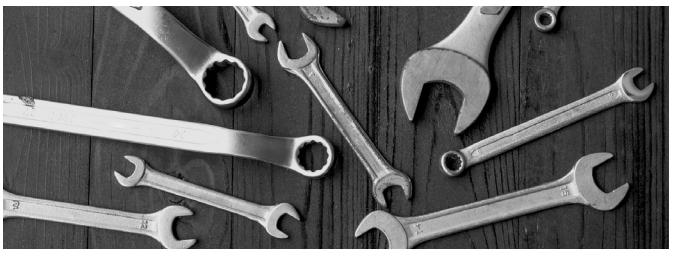


Annual Performance Verification

- 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



Tiger Optics, LLC
275 Gibraltar Road, Horsham, PA 19044
Phone: +1 (215) 656 4000 · Fax: +1 (215) 343 7168
sales@tigeroptics.com · www.tigeroptics.com

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