

APPLIEDTM

ANALYTICS

OMA-300-H₂S

Hydrogen Sulfide Analyzer

Optimized for use in:

- sulfur recovery
- syngas
- flare
- flue gas
- propane
- LNG processing
- natural gas
- cooling water
- biogas & landfill
- and more at www.a-a-inc.com



Background correction is the main consideration in engineering accurate H₂S measurement. Using diode array detection, the OMA-300 H₂S exploits the full spectrum to isolate each cross-interfering stream chemical from the composite absorbance.

Many applications call for simultaneous monitoring of other sulfur compounds (SO₂, COS, and R-SH) alongside H₂S as peripheral components. Highly accurate multi-species monitoring begins with the nova-II spectrometer, where the diode array produces UV absorbance spectra in real time. AAI's proprietary over-determined regression algorithm takes the high-res spectral data and continuously outputs precise concentrations for each compound—all with unrivaled accuracy.

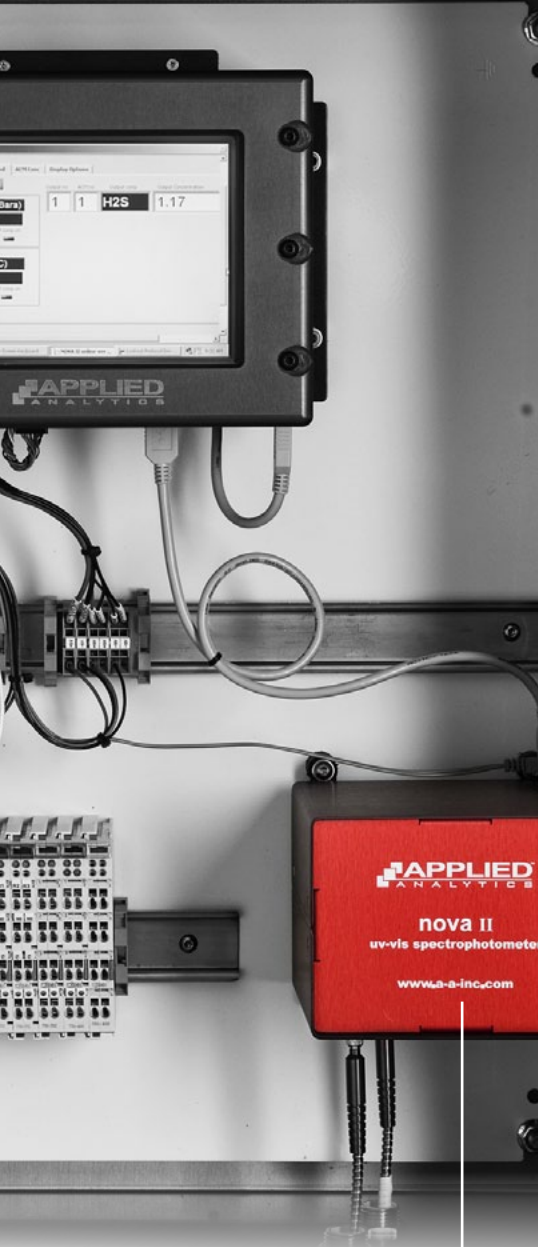
FREQUENT EXTENSIONS:

SO₂

COS

R-SH

NH₃

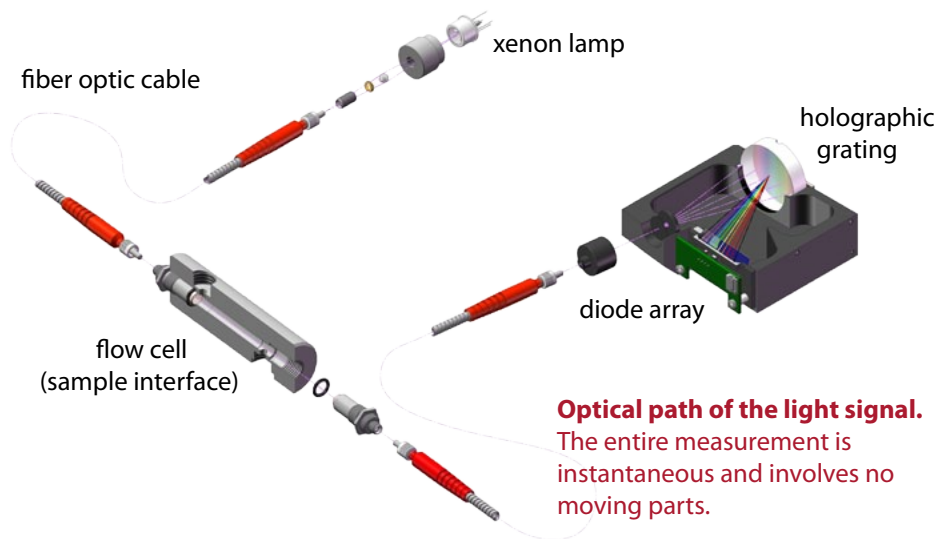


The nova-II Spectrophotometer

- UV-VIS diode array detection
1,024 photodiodes
- broad spectral response
190-800nm range
- maximal light throughput
high-grade optics, strong Xe source
- exceptional in low UV range
minimal stray light
- CMOS analog circuitry
low noise, low power consumption
- streamlined, solid state design
no mirrors or filters

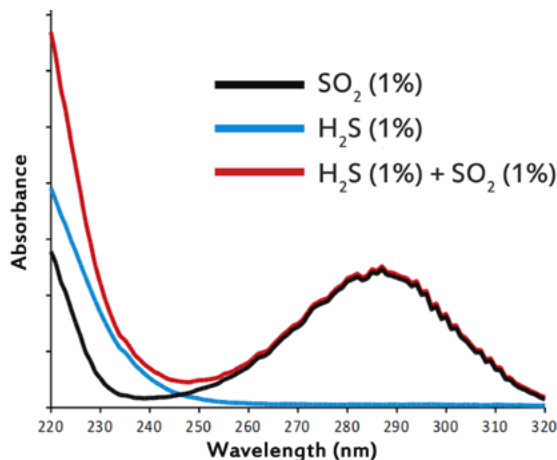
Hydrogen sulfide is notorious for being toxic to humans at 10 ppm, entirely lethal at 800 ppm, highly corrosive to metal pipelines and equipment, flammable when in excess of 4.3% by volume in air, and—with an odor threshold of less than 1 ppb—intolerable to workers and civilians alike. In modern industry, H₂S monitoring is often synonymous with safety, environmental responsibility, and quality control.

AAI's most popular system, the **OMA-300 H₂S Analyzer** continuously monitors hydrogen sulfide concentration via UV absorbance in the process stream. H₂S has distinct absorbance features in the ultraviolet range, but so do other sulfur compounds; using a proprietary Multi-Component Analysis algorithm, this analyzer isolates the precise concentration of H₂S in a stream containing interfering species (i.e. SO₂, COS, and/or R-SH).



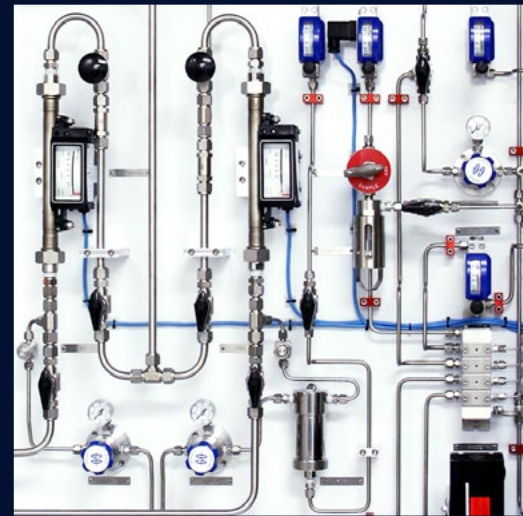
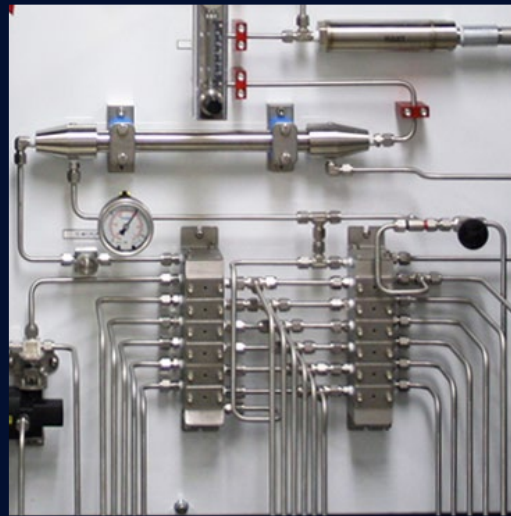
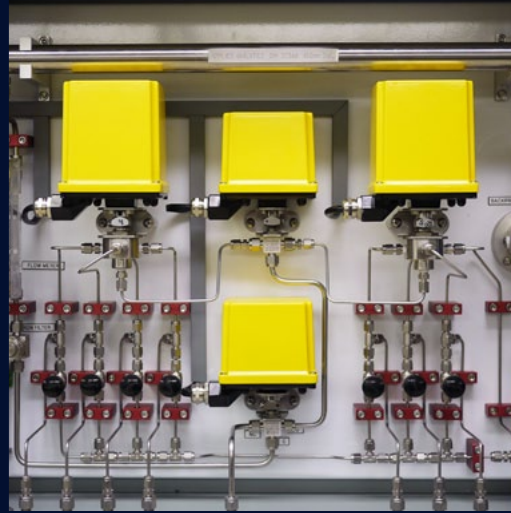
The ability to perform **Multi-Component Analysis** is, in many H₂S applications, the defining factor in functionality. The hallmark of the OMA series is interference-free analysis of multiple compounds using a single instrument. The technique treats stream absorbance like a composite image; each stream component contributes an unknown amount of its own distinctive absorbance structure to the total. To see an explanation of how the OMA-300 solves for these concentrations, please visit:

<http://www.a-a-inc.com/multi-component/>



Composite UV absorbance of H₂S and SO₂. The two compounds show interfering absorbance throughout this UV range. The OMA-300 is able to break the process absorbance spectrum down to its individual components without pyrolyzing or otherwise altering the sample.



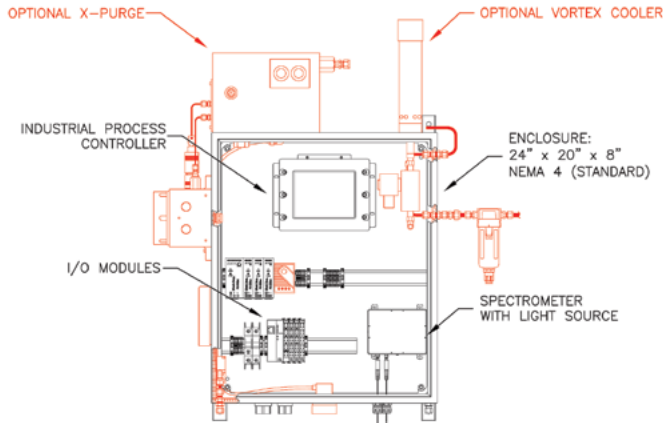


1	2	3
	5	
4	6	7

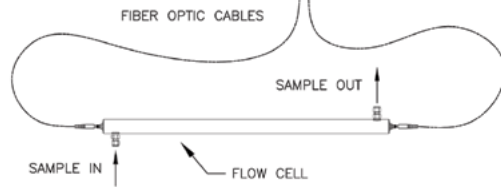
SAMPLE CONDITIONING

- 1) 0-1,000ppm H₂S in **landfill** gas.
- 2) 0-20ppm H₂S on **offshore** oil platform; built for corrosive maritime conditions.
- 3) H₂S and R-SH in a liquefied natural gas (**LNG**) stream.
- 4) H₂S in crude oil; **headspace** system measures H₂S in opaque liquids by stripping the H₂S into the gas phase.
- 5) 0-20ppmv H₂S in CO₂ stream; used in a **brewery** to measure H₂S and trace dimethyl sulfide in the CO₂ used for bottle pressurization.
- 6) 0-50,000ppm H₂S and 0-30,000ppm NH₃ in **biogas** streams.
- 7) 0-10ppm R-SH in **kerosene** streams.

S P E C I F I C A T I O N S



STANDARD OMA-300 H₂S ANALYZER.
COMMON OPTIONS SHOWN IN RED.



Measurement Technology	UV-VIS diode array spectrometer (nova-II)	
Light Source	Pulsed xenon lamp (~5 year lifespan)	
Sample Introduction	Flow-through cell; standard or custom-design sampling system (optional)	
Accuracy (by Range) <i>**Common ranges are provided; many alternative ranges are available.</i>	H₂S (liquid-phase) 0-10 mg/L: ±0.1 mg/L 0-100 mg/L: ±1% full scale or 0.1 mg/L* H₂S (gas-phase) 0-10 ppm (@10 bar): ±0.1 ppm 0-10 ppm (@1 bar): ±1 ppm 0-100 ppm: ±1% full scale or 1 ppm* 0-10,000 ppm: ±1% full scale 0-100%: ±1% full scale SO₂ (gas-phase) identical to H ₂ S (gas-phase)	Mercaptans/Thiols 0-10 ppm: ±1 ppm 0-100 ppm: ±1% full scale or 1 ppm* 0-10,000 ppm: ±1% full scale 0-100%: ±1% full scale COS/CS₂ 0-200 ppm: ±2% full scale or 4 ppm* (*whichever larger)
Calibration	For most applications, factory calibrated with certified calibration gases/liquids	
Verification	Easy verification/validation with gas/liquid samples or neutral density filters	
Ambient Temperature	Standard: 0 to 55 °C (32 to 131 °F) Optional: -20 to 55 °C (-4 to 131 °F)	
Sample Temperature	In situ probe: -20 to 200 °C (-4 to 392 °F) Flow-through cell: -20 to 150 °C (-4 to 302 °F)	
Sample Pressure	Flow-through cell: 206 bar (3000 psi)	
Environment	Indoor/outdoor (no shelter required)	
Size	Analyzer: 24" H x 20" W x 8" D (610mm H x 508mm W x 203mm D) Optional sampling system: 24" H x 30" W x 8" D (610mm H x 760mm W x 200mm D)	
Weight	32 lbs. (15 kg)	
Wetted Materials <i>**Alternatives available.</i>	Analyzer: K7 glass, Viton, stainless steel type 316L Optional SCS: K7 glass, Viton, stainless steel type 316L	
Outputs	One galvanically isolated 4-20mA output per component; modbus TCP/IP (optional); RS232 (optional); Fieldbus, Profibus, and HART (all optional); two digital outputs for fault and sampling system control (user programmable)	
Electrical Requirements	85 to 264 VAC 47 to 63 Hz	
Power Consumption	45 watts	
Area Classification	General Purpose (standard) / Class I, Div. 2 (optional) Class I, Div. 1 (optional) / ATEX Exp II 2(2) GD (optional)	

HEADQUARTERS

Applied Analytics, Inc.
Concord, MA, USA
Tel: (978) 287-4222
Fax: (978) 287-5222
sales@a-a-inc.com

NORTH AMERICA

Applied Analytics North America, Ltd.
Houston, TX, USA
sales@appliedanalytics.us

EUROPE

Applied Analytics Europe, SpA
Milan, Italy
sales@appliedanalytics.eu

MIDDLE EAST

Applied Analytics Middle East (FZE)
Sharjah, United Arab Emirates
sales@appliedanalytics.ae

ASIA PACIFIC

Applied Analytics Asia Pte. Ltd.
Singapore
sales@appliedanalytics.com.sg

INDIA

Applied Analytics (India) Pte. Ltd.
Mumbai, India
sales@appliedanalytics.in

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