

OMA-300 Process Analyzer

Applied Analytics Data Sheet No. DS-001A



A window into your process since 1994.

The OMA Process Analyzer continuously measures chemical concentrations and physical properties that can be correlated from the 200-1100 nm (UV-Vis / SW-NIR) absorbance spectrum.

Model OMA-300 deploys the OMA design in the standard wall-mounted enclosure format.

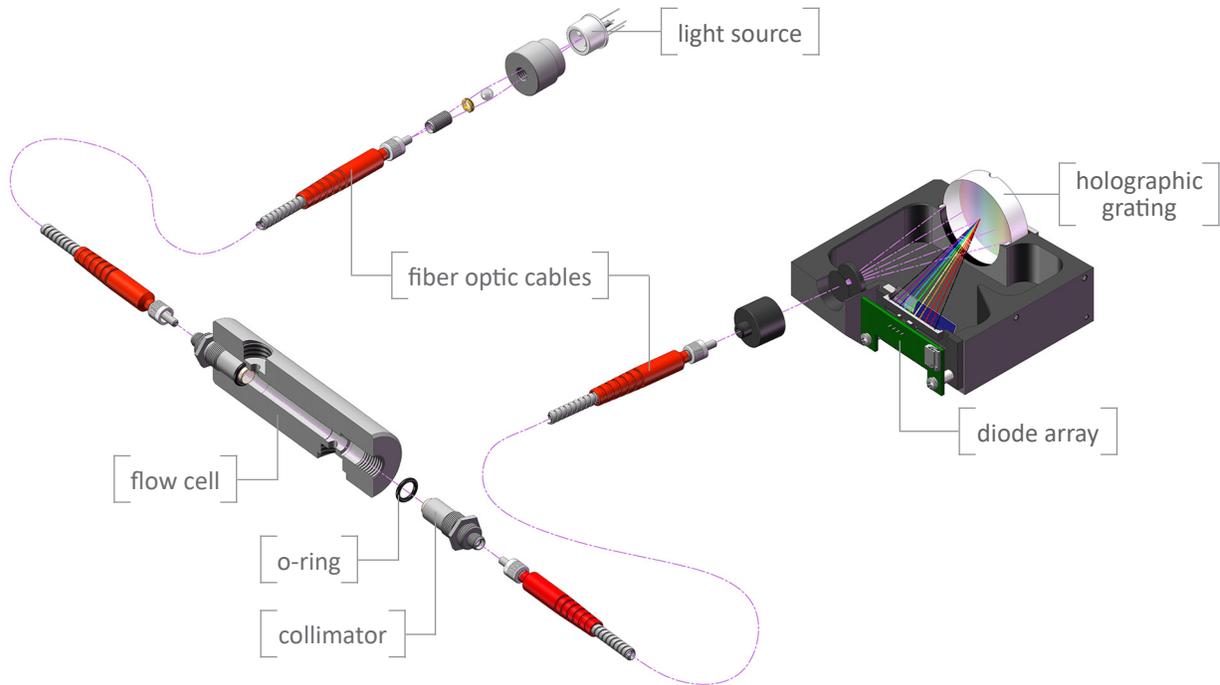
Features

- » Continuously measures up to 5 chemicals' concentrations in a liquid or gas process stream
- » Totally solid state build with no moving parts — modern design for low maintenance
- » Ultra-safe fiber optic design with dedicated sample flow cell — no sample fluid in analyzer enclosure
- » Decades of field-proven performance in the world's harshest industrial environments

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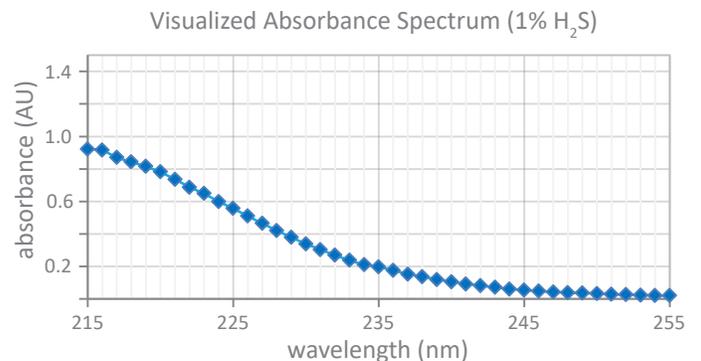
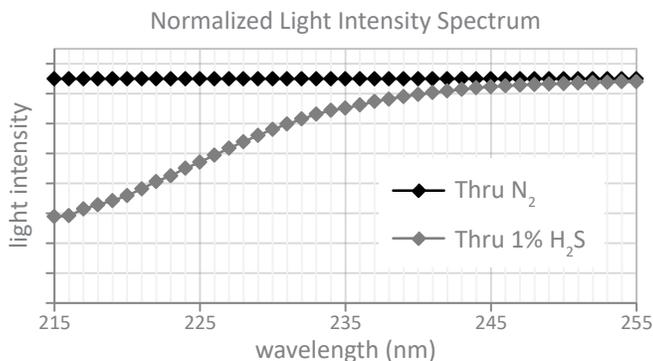
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Optical Assembly & Principle of Operation



The OMA measurement cycle is virtually instantaneous, but it can be helpful to visualize it in stages:

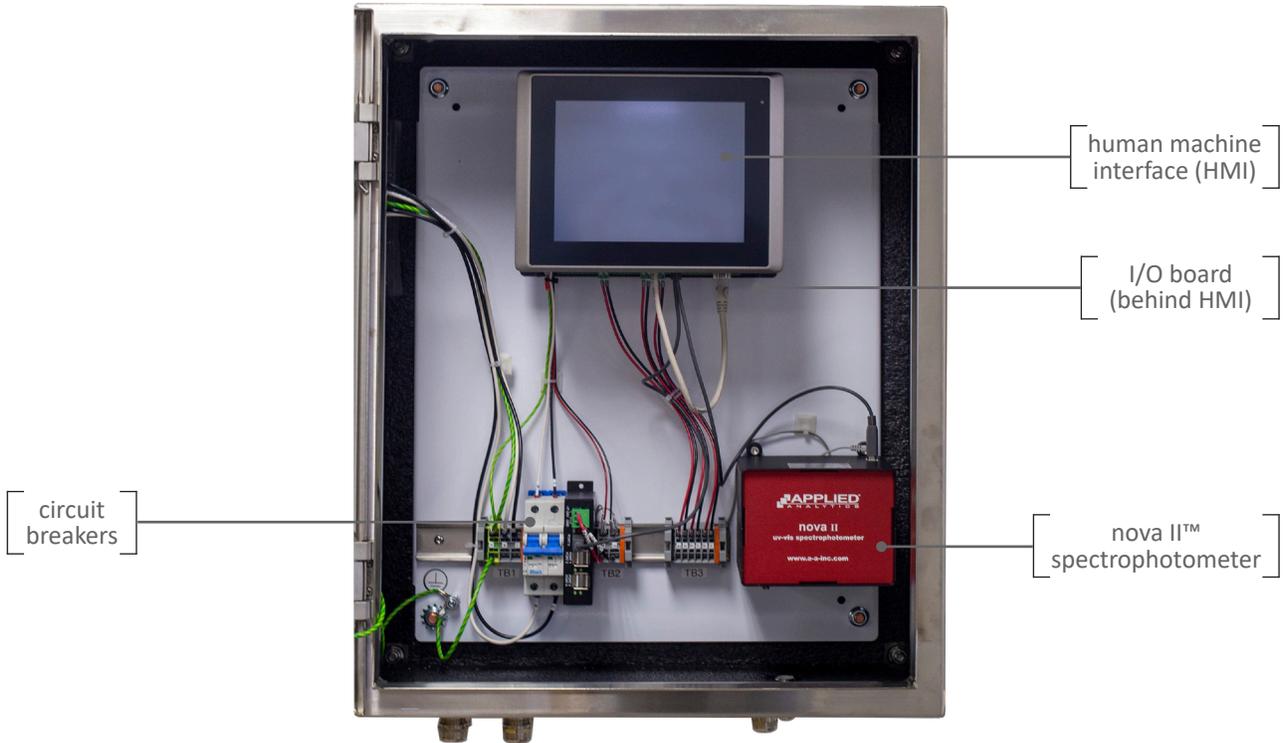
- (1) The white light signal originates in the pulsed Xe lamp that functions as the light source.
- (2) The signal travels via fiber optic cable to the flow cell. A collimator narrows the light beam.
- (3) The signal travels directly across the flow cell, interacting with the continuously drawn process sample.
- (4) The signal exits the flow cell through a collimator, now containing the distinct absorbance imprint of the current chemical composition of the sample.
- (5) The signal travels via fiber optic cable to the spectrophotometer.
- (6) The signal is dispersed by the holographic grating. Each differentiated wavelength is focused onto a designated photodiode within the diode array.
- (7) The absorbance spectrum is measured by plotting the lost light intensity at each wavelength:



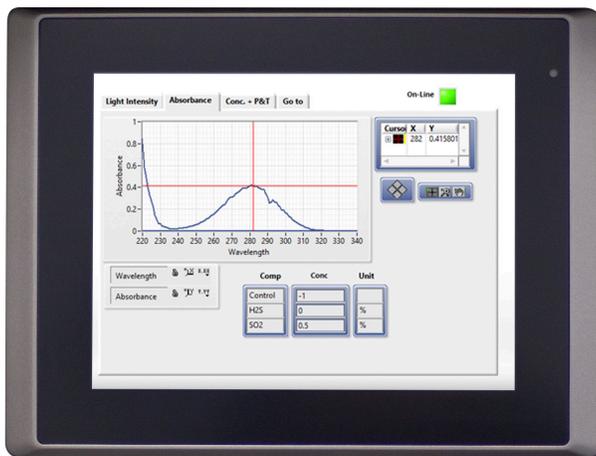
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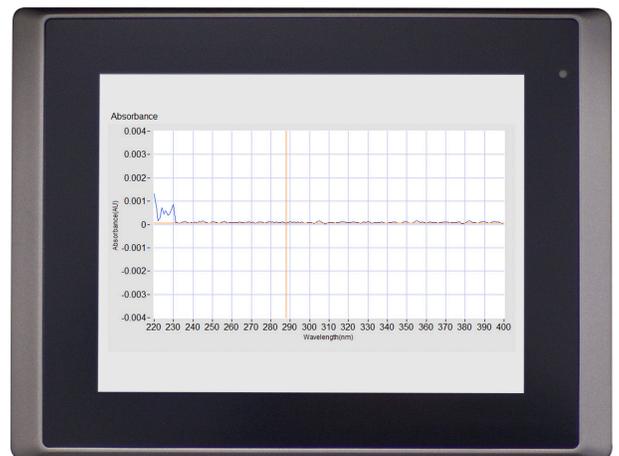
OMA Internal Components



ECLIPSE™ Software User Interface



Normal Runtime: Real-time concentration data is displayed on the home screen.



Auto Zero: Runs on custom schedule to normalize the spectrophotometer readings on zero-absorbance fluid.

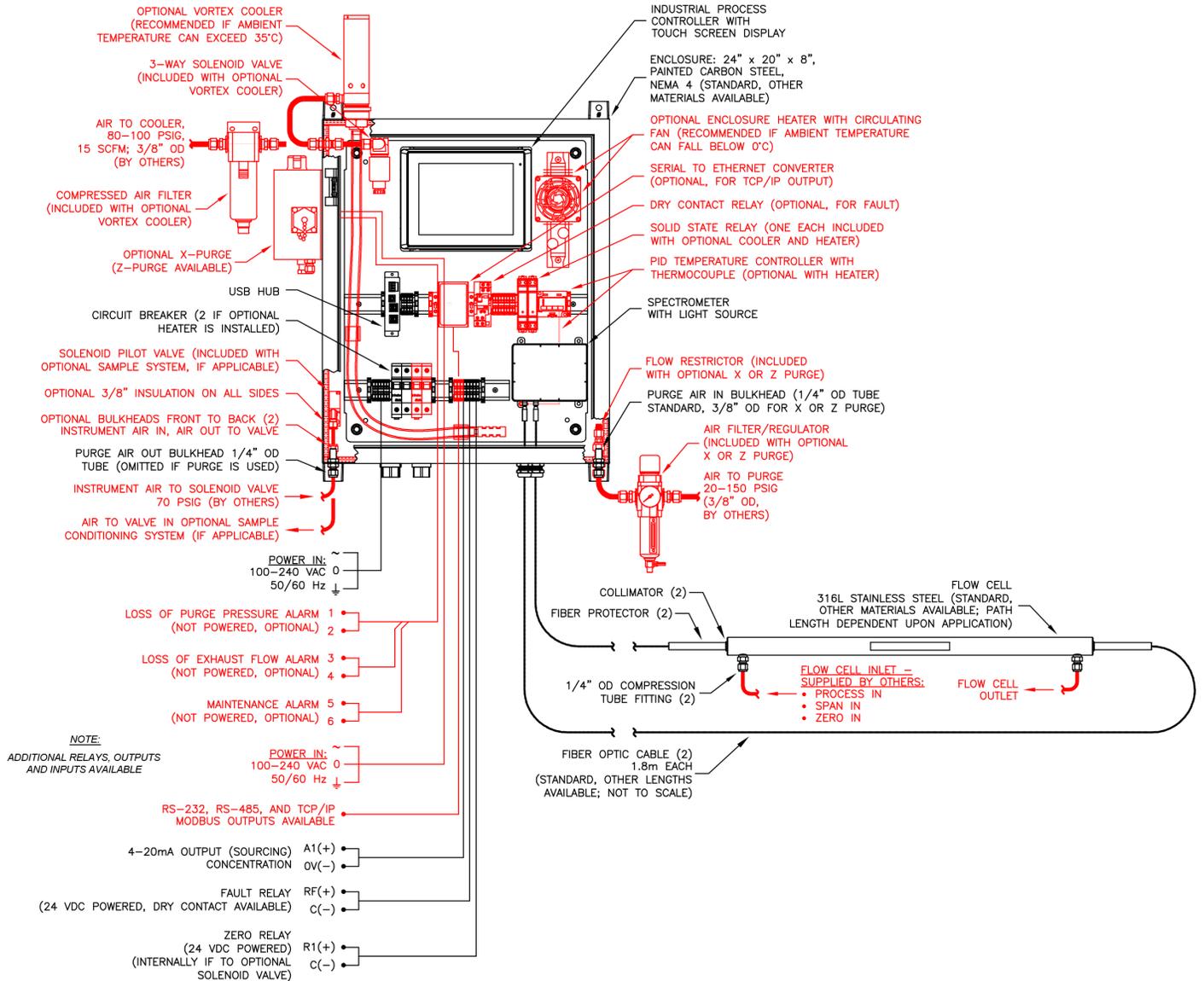
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Applied Analytics Data Sheet No. DS-001A

OMA-300 Technical Drawing

STANDARD OMA-300 ANALYZER
(DOOR WITH NEMA 4 WINDOW REMOVED FOR CLARITY)

COMMON OPTIONS SHOWN IN RED



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All performance specifications are subject to the assumption that the sample conditioning system and unit installation are approved by Applied Analytics. For any other arrangement, please inquire directly with Sales.

Subject to modifications. Specified product characteristics and technical data do not serve as guarantee declarations.

Technical Data	
General	
Measurement Principle	Dispersive UV-Vis / SW-NIR absorbance spectrophotometry
Detector	nova II™ Spectrophotometer Data sheet: http://aai.solutions/documents/AA_DS201A_novall.pdf
Spectral Range	200-800 nm (UV-Vis model) or 400-1100 nm (SW-NIR model)
Light Source	Standard: pulsed xenon lamp with average 5 year lifespan (dependent on application)
Fiber Optic Cables	Standard: 600 µm core 1.8 meter fiber optic cables (qty = 2) Data sheet: http://aai.solutions/documents/AA_DS206A_FiberOptics.pdf
Sample Medium	Gas or liquid
Sample Introduction	Standard: stainless steel 316L flow cell with application-dependent path length Options in data sheet: http://aai.solutions/documents/AA_DS207X_FlowCell_All.pdf
Sample Conditioning	Custom design if necessary
Analyzer Calibration	If possible, analyzer is factory calibrated with certified calibration fluids; no re-calibration required after initial calibration; measurement normalized by Auto Zero
Reading Verification	Simple verification with samples and self-check diagnostic
Human Machine Interface	Applied Analytics standard HMI: industrial controller with touch-screen LCD display Data sheet: http://aai.solutions/documents/AA_DS202A_HMI.pdf
User Interface	ECLIPSE™ Runtime Software Data sheet: http://aai.solutions/documents/AA_DS203A_Eclipse.pdf
Data Storage	Data Storage Solid State Drive Data sheet: http://aai.solutions/documents/AA_DS203A_Eclipse.pdf
Enclosure	Standard: wall-mounted, carbon steel NEMA 4 enclosure Options in data sheet: http://aai.solutions/documents/AA_DS401X_Enclosures.pdf
Available Certifications	Standard: General Purpose Available Options: ATEX, IECEx, EAC, PESO <i>Please inquire with your sales representative for additional certifications (CSA, FM etc.).</i>
Measuring Parameters	
Photometric Accuracy	±0.004 AU at 220 nm
Response Time	1-5 seconds
Sensitivity	±0.1 % full scale
Sample Conditions	
Sample Temperature	Standard: -20 to 70 °C (-4 to 158 °F) Optional: up to 150 °C (302 °F) with cooling extensions Contact AAI for temperatures above 150 °C (302°F)
Sample Pressure (max)	Using immersion probe: 100 bar (1470 psig) Using standard flow cell: 206 bar (3000 psi)

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Ambient Conditions	
Analyzer Environment	Indoor/Outdoor (no shelter required)
Ambient Temperature	Standard: 0 to 35 °C (32 to 95 °F) Optional: -20 to 55 °C (-4 to 131 °F) <i>To avoid radiational heating, use of a sunshade is recommended for systems installed in direct sunlight.</i>
Physical Specifications	
Dimensions	Analyzer: 24" H x 20" W x 8" D (610mm H x 508mm W x 203mm D) SCS (if included): custom size
Weight	Analyzer: 32 lbs. (15 kg) SCS (if included): variable depending on custom build
Wetted Materials	Standard: K7 glass, Viton, stainless steel 316L <i>Various custom materials available — please inquire.</i>
Utility Requirements	
Electrical Requirements	85 to 264 VAC 47 to 63 Hz
Power Consumption	45 watts
Outputs/Communication	
Outputs	1x galvanically isolated 4-20mA analog output per measured analyte 2x digital outputs for fault and SCS control Optional: Modbus TCP/IP; RS-232; RS-485; Fieldbus; Profibus; HART; more
I/O Electronics	Voltage/Current Interface Module (i.e. I/O Board) Data sheet: http://aai.solutions/documents/AA_DS205A_VCIM.pdf
Datalogging	Optional alarm log including concentration alarms, power loss alarms, low pressure alarms and more (additional hardware may be required)



www.aai.solutions

Headquarters

Applied Analytics, Inc.
Burlington, MA, USA
sales@aai.solutions

North America Sales

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

Brazil Sales

Applied Analytics do Brasil
Rio de Janeiro, Brazil
vendas@aadbl.com.br

Europe Sales

Applied Analytics Europe, AG
Genève, Switzerland
sales@appliedanalytics.eu

Middle East Sales

Applied Analytics Oil & Gas Operations, L.L.C.
sales@appliedanalytics.ae

India Sales

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

Asia Pacific Sales

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

China Sales

Applied Analytics China Limited
China
sales@appliedanalytics.cn

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