

# MetalGuard™ Selenium

## Online Selenium Analyzer



Water and wastewater treatment applications face increasingly strict regulatory requirements to monitor discharges for metals, nutrients, and other pollutants. The stringent numerical limits for trace metal contaminants are so low that they challenge the capabilities of existing lab-based sampling and analysis technologies.

The MetalGuard™ Selenium analyzer from AMS addresses this challenge. The analyzer provides real-time, reliable, and accurate data on selenium levels, including selenite and selenate. Results are available as quick as 30 minutes or in less than two hours, with sensitivity down to 1 ppb for certain selenium species. The fully automated online analyzer is offered with an annual service contract inclusive of a 10-year warranty.

### MetalGuard™ Selenium Applications

Monitoring influent and effluent values for organic and inorganic selenium is critical to optimize selenium remediation processes in drinking water applications and industrial markets such as agriculture, fracking, mining, oil refining, power production, and smelters.

The benefits of using the MetalGuard Selenium online analyzer include:

- Help validate the performance of selenium removal systems and ensure compliance with regulatory requirements
- Obtain baseline operational data on influent and effluent contaminant levels
- Monitor critical process steps to aid in remediation process control and optimization
- Quickly detect any declining effectiveness of the remediation process and avert a regulatory breach
- Control blending schemes with multi-stream analysis
- Efficiently undertake long-term monitoring of sampling wells to ensure containment and early warning of leaching
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### MetalGuard™ Selenium Features

#### Automated online operation

- Eliminates operator variability
- Accuracy to 1 ppb or  $\pm 15\%$ , whichever is higher
- Measurement time between 30 minutes and  $< 2$  hours
- Correlation with standard method ( $\pm 15\%$ )
- Multiple streams including a grab sample port
- Self-calibrating, automated unattended operation with remote control capabilities
- Robust and stable design, regardless of sample matrix conditions
- Condition monitoring of analyzer performance is provided 24/7/365

#### Comprehensive data acquisition

- Programmable contact closure for local selenium level annunciation
- Easy-to-use front panel HMI
- Programmable on-board data acquisition

#### Low operational costs

- Replaceable reagent tray provides up to 3,000 measurements
- Employs a self-generation sensor and is auto-calibrating



# MetalGuard™ Selenium Specifications

## PERFORMANCE

Measurement Range	0 -200 ppb total selenium (without dilution). Up to 10,000 ppb with internal dilution. Dependent on sample matrix quality (which if poor would require additional hardware).
Measurement Accuracy	1 ppb or ± 15%, whichever is higher
Measurement Time	30 minutes to less than 2 hours
Sample Streams Supported	Standard configuration: 1 With optional external manifold: Fewer than 5
Sample Requirements	Temperature: 5-40°C Pressure: 5-45 psi pH range: 2-12
Sampling Scheme	Standard configuration: fast-loop, input line pumped out prior to each measurement, stagnant between measurements Optional configuration: custom plumbing on external rack

## SYSTEM

User Interface	Display: 12" touch screen industrial panel computer, 1280 x 600 resolution Dedicated function keys for: system initialization and test, automatic operation, manual maintenance, sampling and data acquisition setup
Annunciator Interface	Configurable up to 10 alarm relays, plus 24 relays to control external solenoid valves
Telemetry	Remote data access and system health monitoring
Electrical	100-130VAC, 50/60Hz (option for 200-260VAC 50/60Hz) 200W
Operating Conditions	Temperature (standard configuration): 10-30°C Temperature (with optional ambient control): -20-50°C Humidity: <95%, non-condensing
Monitor Cabinet	NEMA 12 rated Houses all electronics and measurement fluidics User-friendly, front panel HMI
Reagent Cabinet	NEMA 12 rated Houses standard reagent tray
Maintenance Schedule	Quarterly
Reagent Consumption	Standard reagent tray provides up to 3,000 measurements (Replenished monthly at continuous sampling of 4 sample streams)
Consumables	Nitrogen (electronic grade) required to purge oxygen from solution, regulated down to 10 psi. Deionized water supply provided
Dimensions	H 60", W 32", D 13"

## OPTIONS

External Rack	Houses sample manifold & sample pressure regulation and filtering Supplies waste drain connection and waste carboy
Weatherproof Enclosure	NEMA 4X system enclosure Environmentally controlled enclosure: with /air conditioner, heat
Sample Preparation	Pre-treatment module Filter system

\* Note: AMS reserves the right to change the specifications as necessary.