



CyberSecurity & Future-Proof Architecture –
100% ROI in Less Than One Year

MGA 1200CS™ Process Mass Spectrometer

schneider-electric.processautomation



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Schneider
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MGA 1200CS™ (CyberSecure)

NextGen Process Mass Spectrometer Monitoring

The MGA 1200CS process mass spectrometer is a fixed magnetic sector analyzer that provides rapid, accurate and stable real-time analysis of up to 16 gas components in significantly less than 1 second. The optional Phoenix multi-stream sampler provides fast-purging stream selection for 16, 32, 50 or 100 streams. The unique combination of parallel spectrum processing and rapid stream selection makes this the world's fastest available process gas analyzer with new stream analysis data provide every 2-3 seconds.



Designed with IIoT in mind, the control architecture is based on the Modicon M580 ePAC programmed with EcoStruxure Control Expert software. The Magelis touch-screen HMI provides full support for secure role-based access permissions and stored audit trails for end-to-end cybersecurity.

The hazardous area compliant HMI provides full access to system configuration, real-time data, stored data, system status and diagnostics. The native ethernet control architecture provides industrial connectivity for SCADA, DCS, SIS and Data Historians.

MGA APPLICATIONS

Ammonia

- > Precise HN ratio
- > Steam/carbon ratio
- > Methane slippage
- > Inert gas buildup
- > Catalyst activity

Biotech/Pharmaceuticals

- > Fast & precise OUR, CER, RQ in fermentation
- > Greater precision available in cell culture
- > Up to 100 reactors monitored at 3 second intervals

Ethylene Oxide

- > Precise carbon balance
- > Precise oxygen balance
- > Selectivity near real-time

Ethylene Cracking

- > High-speed cracking severity measurements
- > Multiple furnace capability
- > 3 second interval between furnaces

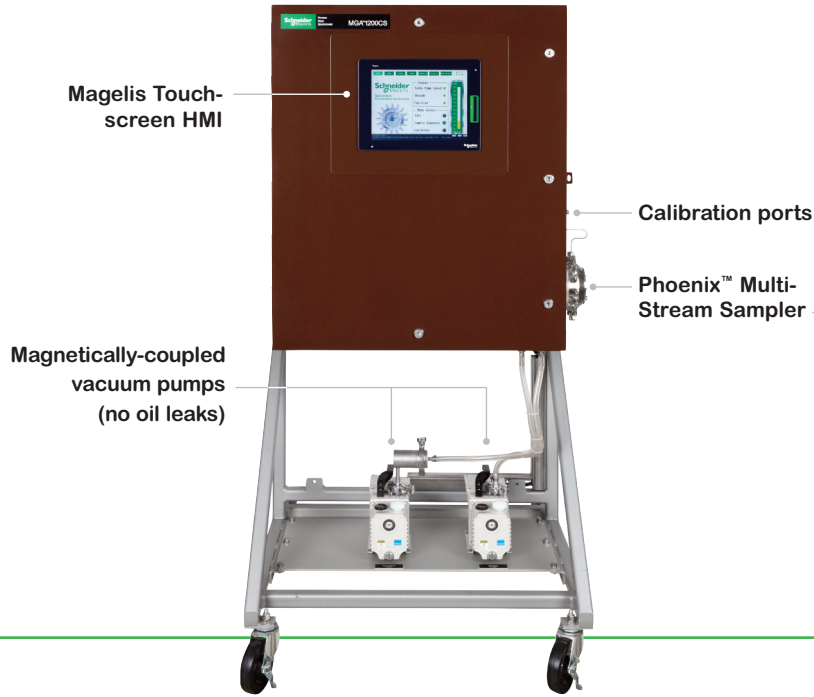
Steel Processing

- > Blast furnace top gas
- > Blast furnace burden probes
- > Steel converter gas analysis
- > Fuel gas mixing control

The MGA 1200CS System Advantage

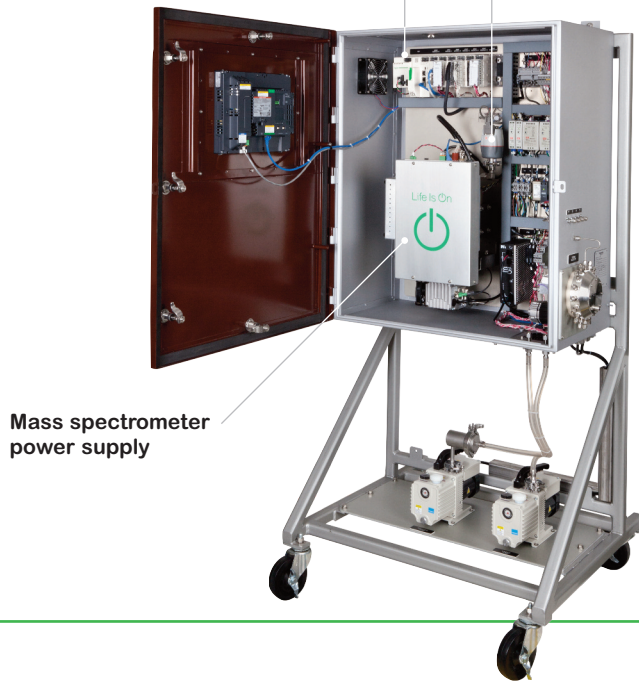
- Analyze up to 100 streams in a user-defined sequence configured at the HMI and/or in the DCS
- Rugged cybersecurity communication options standard
- Hazardous area compatible touch-screen HMI provides configuration and interrogation without opening the door or requiring a PC
- Role-based access permission standard
- Non scanning ultra fast parallel processing of spectra

MGA 1200CS Gives You the Advantage



Modicon® X/80 system

Wide-range vacuum gauge



The Phoenix™ Multi-Stream Sampler

- Zero dead volume
- <1 second flush
- Flow validation
- Very low maintenance



MGA 1200CS Value

Near real-time analysis

- Analysis speed more or less real time due to multiple collectors

Monitor Up to 16 components in a complex gas stream

- Best available measurement precision for all gases

Single analyzer to calibrate and maintain

- Reduces maintenance costs

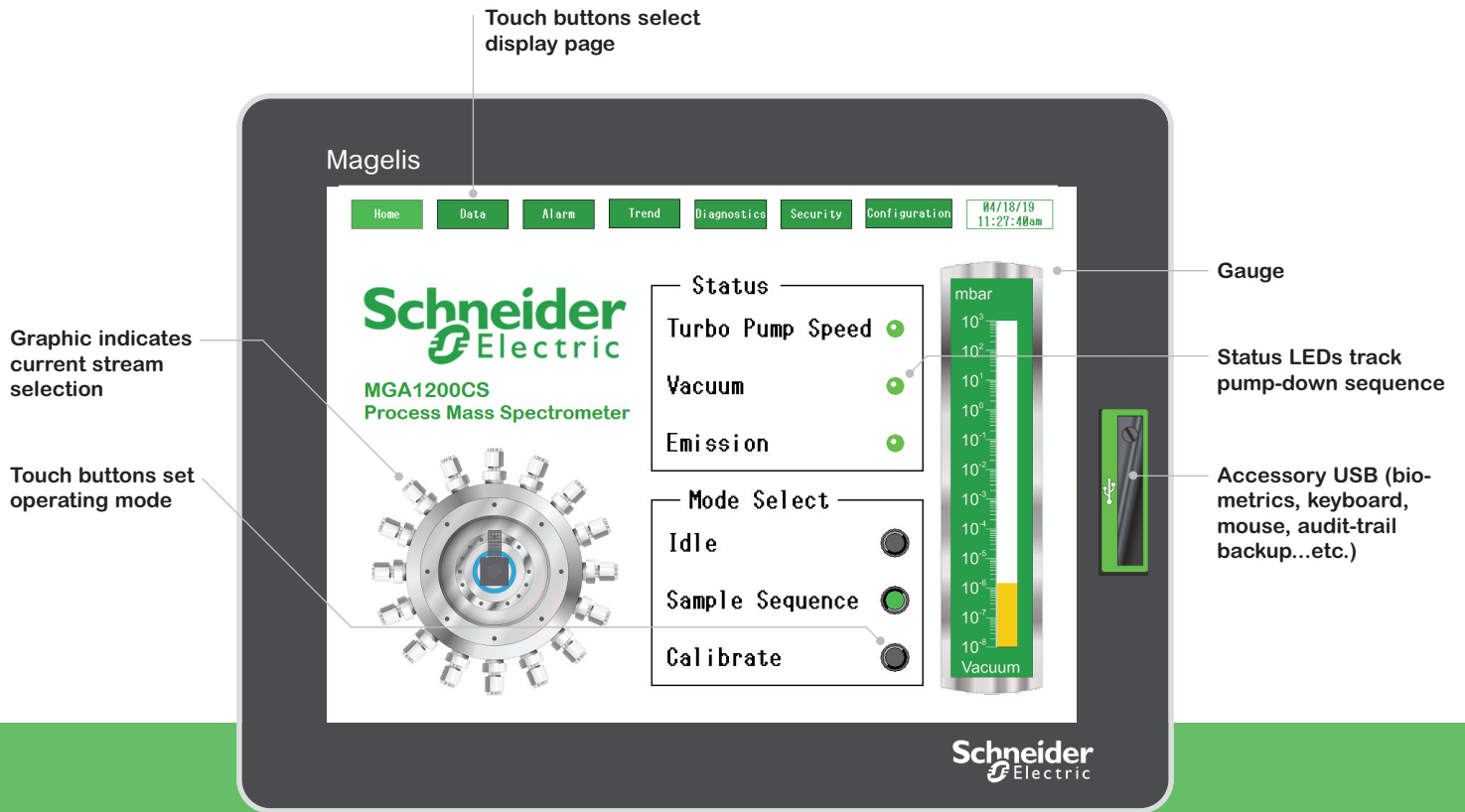
Single link data highway (Modbus, OPC, Profibus, Hart)

- Simplifies communication to host computer

Improved measurement precision for all components

- Provides tighter process control

MGA 1200CS HMI Home Screen



Touch-Screen HMI – provides robust and versatile access to system status, analytical data, stream alarms, system configuration, extensive diagnostics, and role-based secure access control for analyzer tuning. The analytical data can be immediately interrogated using both tabular and historical trend presentations. Diagnostic data are presented in a root-cause manor to simplify troubleshooting. Multiple languages are supported. The Magelis HMI also supports ancillary equipment such as secure data backup and biometric interfaces.

Specifications

Analyzer Type

- Multi-Collector, Fixed Magnet Mass Spectrometer

Control Architecture

- Modicon X80 I/O control system configured with cybersecure M580 ePAC (dual ARM processors running EcoStruxure Control Expert software)
- Magelis GTU touch-screen Smart Display for configuration, data review, diagnostics and troubleshooting. HMI includes the Premium BOX with RISC CPU running Vijeo Designer run time
- Available biometrics interface, Wireless LAN and additional backup storage.

Inlet type

- Temperature controlled micro-capillary and bypass – configurable for desired flow range

Sample flow

- Auto-validated 100 – 1,000 milliliters per second (typical). Higher and lower flow options available

Sample Streams

- Options for 1, 16, 32, 50 or 100 streams, Flushing times < 2seconds (typical, application dependent)

Ion Source

- Enclosed Electron Impact with Dual Filaments, temperature controlled

Detectors

- Up to 16 Faraday cups

Gases Monitored

- Up to 16, factory configured

Vacuum System

- User-serviceable multi-stage turbomolecular Pump - 85 litres per second pumping speed (N2)
- Dual magnetically-coupled rotary vane pumps
- Wide-range vacuum gauge (10^{-9} - 1,000 mbar)

Precision

- <0.1% relative for 4 Hz measurement cycle (typical, application dependent) Higher precision available for slower data production rates

Linearity

- <1% relative over 2 decades of measurement (typical, application dependent)

Dynamic Range

- 100ppm – 100% (typical, application dependent)

Stability

- <1% relative over one week (typical, application dependent)

Communications

- Native TCP/IP Modbus with Achilles L2 cybersecurity for IIoT
- Ethernet 10BASE-T/100BASE-TX/1000BASE-T
- RS-232C, RS-422
- Available: OPC UA, PROFIBUS, HART... others on request.

Rated Voltage/Power

- 120 VAC 50/60 Hz, or 240 VAC 50/60 Hz, 800 VA

Operating Temperature

- 0-30°C (32-100°F)

Ingress Protection

- NEMA 4X, IP66

Instrument Dimensions

- MGA 1200CS:
approximate dimensions are configuration dependent
 - Height with transport wheels: 67.5" (171.5 cm)
 - Height without wheels: 62" (157.5 cm)
 - Width: 30" (76.2 cm)
 - Depth: 25" (63.5 cm)
 - Weight: 265 lbs (120 kg)

Experience

Our staff of applications experts provide feasibility and calibration services that set the worldwide standard. We also provide system integration and post-installation support to ensure your success. Schneider Electric offers annual hardware maintenance and calibration modeling service support contracts.

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