

Process Mass Spectrometer

The MGA™ iSCAN™ analyzer advances the state-of-the-art in process mass spectrometry with the first double-focusing, magnetic scanning design. Fusing mass spectrometer technology from our military and space businesses, the MGA iSCAN analyzer provides real-time multicomponent gas analysis.

- Superior stability, sensitivity, resolution and ruggedness.
- Rapid analysis time – multiple components in less than 30 seconds.
- Investigative scan provides unknown compound identification to better characterize processes.

Measures up to 40 components from low ppb to 100% for as many as 100 sampling sites.

- Mass range of 1-200 amu with 1-300 amu optional.
- Easy to use Cypress™ Windows® based software designed for use by maintenance personnel, engineers and development chemists.
- Communication options including Modbus®, Ethernet, OPC® and analog protocols.
- Optional validation assistance for 21 CFR Part 11 compliance.



M G A A P P L I C A T I O N S

Air Separation - Purity

Hydrogen
Helium
Nitrogen
Carbon Dioxide
Others

Ammonia/Urea

H₂/N₂ Converter Efficiency
Feed Gas
Reactor Efficiency
Separation

Biotech/Pharmaceuticals

Microbial Fermentation
Mammalian Cell Culture
Sterilization
Vacuum Dryer

Chemical/Petrochemical

Vinyl Chloride
Methanol
Ethanol
Polyethylene/Polypropylene

Coal Gasification Ethylene Oxide

Reactor Inlet / Outlet
Ethylene Purity

Fuel Cell Analysis-PEMFC/SOFC

Fuel Source and Converter
Emissions

Leak Detection

Hydrogen Leaks
Hazardous Gases

Liquid Natural Gas

Separation Efficiency
Feedstock

Petroleum Refining

Hydrogen Production
Reformer
Tail Gas
Flame Stack Monitoring

Steel Processing

Blast Furnace Top Gas
BOF Top Gas
Fuel Gases
Vacuum Degasser

General

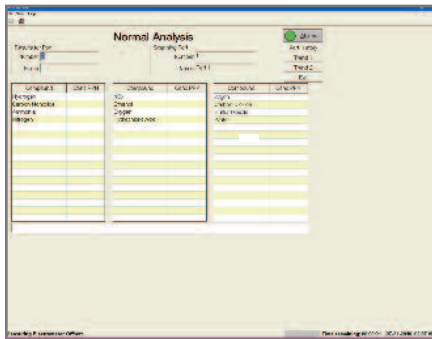
High Purity Analysis
Ambient Air Monitoring-
Low Level Toxins
Turbine Feed Gas Analysis
Batch Contamination

Cypress™ Software Power Drives the Process



Cypress™ Software – Windows® Based Cypress is designed to be an intuitive, user-friendly interface to the MGA iSCAN analyzer. It offers a stable and robust platform with easy to use, menu-driven, point and click graphical user interfaces.

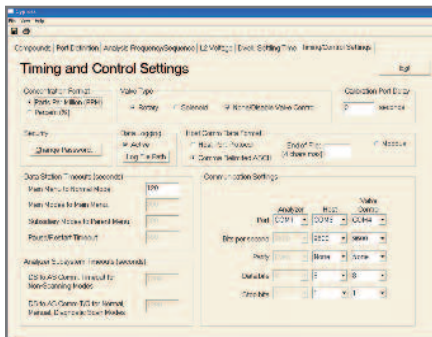
- Real-time diagnostics
- Real-time configuration changes
- Sample system controls
- Auto-restart after power failure



Real-time displays

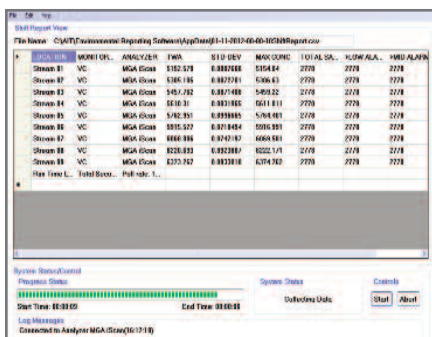
Displays up to 40 components and 100 process streams. User definable port sequence depending on operational parameters, or manually select any single stream.

- Compositional analysis
- Access to alarm conditions
- Display previous analysis of any port without affecting the current analysis
- Real-time trending



Communications

- Standard serial output, ASCII format, Modbus RTU, Bidirectional Modbus
- Other optional protocols include:
 - OPC for process control
 - 4-20 mA or 0-10 Vdc isolated analog outputs
 - Profibus



Environmental Reporting Capability

- Multiple analyzer inputs
- Multiple compound monitoring
- Time weighted averages
- Standard deviations
- Low/mid/high alarm concentration tracking
- Automatic report generations

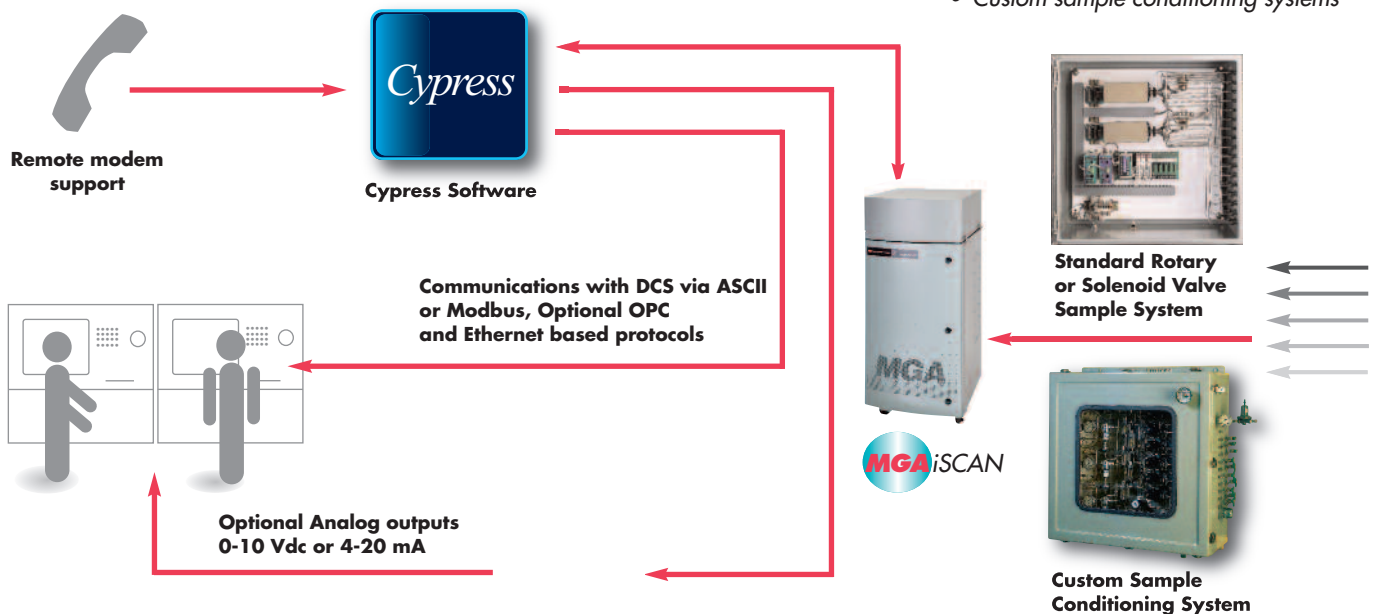
Interface Solutions

AIT understands that in order for an on-line analyzer to produce reliable results, it must be properly interfaced to the process streams as well as the control system. This is why AIT has engineered scalable solutions to provide turnkey sample systems and communications protocols to ensure that your MGA system produces results you can trust.

Customized Sample Interfaces

The MGA iSCAN analyzer is easily integrated to a variety of accessories providing turnkey system solutions including:

- Multi-point stream switching systems
 - Rotary or solenoid valve based
 - Configurable for up to 100 sampling sites
- Custom sample conditioning systems



Features

Magnetic sector mass spectrometer

Double-focusing design

Magnetically scanned

Electron multiplier (Optional) and electrometer detector channels

Reactive Gas Inlet and ion source (Optional)

Software configurable for analyzing up to 40 compounds

Optimized sample path

Turbomolecular pump

Modular layout

Benefits

Proven superior stability and high sensitivity

High resolution and specificity in separating masses

Consistent sensitivity over a 2-200 amu mass range

High dynamic range for detecting compounds at ppb to % levels with superior analysis

Measures reactive gases

Easily programmed for specific applications

Real-time compositional analysis

Long life with rapid vacuum pumpdown time

Simplified maintenance

Value

Better characterization of processes with less frequent calibration

Improved product quality

Provides application versatility

Provides application versatility

Provides application versatility

Comprehensive monitoring for tighter process control

Rapid identification of process changes

Continuous use with minimal maintenance

Lowest cost of ownership



Specifications

Spectrometer:

- Double-focusing, magnetically scanned design
- Mass range: 1-200 amu (1-300 amu optional)
- Number of filaments: 2
- Maximum no. of compounds: 40
- Maximum no. of sample valves under software control: 100

Performance

- Dynamic range: 20 ppb to 100% with optional electron multiplier
700 ppm to 100% w/o optional electron multiplier
- Drift: 1 hour ±0.1% of full scale
1 day ±0.24% of full scale
1 month ±1.0% of full scale

Sample Conditioning Requirements

- Temperature: 20-120°C
- Particles: 2 microns or less
- Condensables: None, must be removed prior to entry into MGA

Sample Inlet Requirements

- Minimum/maximum flow: 0.25-1 Liters/min
- Max supply pressure: 0.5 psig/34 mBar (gauge)
- Discharge pressure: Local ambient

Ambient Environment Conditions

- Temperature: 20-40°C
- Humidity: <80%

Area Classification

- Standard: General purpose
- Optional: Air conditioned or vortex cooled
- Hazardous area options: ATEX zone 1 or 2

Utility Requirements

- Line voltage: 115/230 Vac ±10%, 50/60 Hz
- Power: 950 VA
- Instrument air cooling (purged): 425 liters/min. (226 liters/min.)

Communications

- Standard: RS 232/422 serial communications, modbus RTU, Modbus TCP/IP
- Optional: Analog (0-10 Vdc or 4-20 mA)
- Optional: Serial Modbus RTU and Ethernet OPC, Profibus

Physical Dimensions

- Analyzer cabinet size: 60"H x 22"W x 23"D
152cm x 56cm x 58cm
- Weight: 440 lb/200 kg

MGA Advantage

- Easily configurable to meet changing application needs
- Designed to monitor reactive gases
- Scalable sample interface solutions
- Global applications and after-market support

Contact Us

- Windows software upgrades
- Annual maintenance and emergency service contracts
- OEM Certified spare parts
- Trade-in or buyback programs
- Monthly system rentals

AIT also offers the MGA™1200EC™ as well as a broad line of accessories to insure customers get a targeted solution.

