GALVANIC APPLIED SCIENCES INC.

903W H_2S ANALYZER

Multi-range

H_2S Specific

Smooth Operation

Over-range

Rapid Response

Easy to Use

Superior Accuracy

Self-Diagnostics

Low Operation Costs

Fully Configurable

Low Maintenance Costs

Remote Diagnostics

FEATURES

Galvanic's 903 W H_2S Analyzer is designed to measure H_2S in gaseous streams. The detection system is based on the highly accurate and specific lead acetate tape method. The 903's patented analysis algorithm improves repeatability and linearity, while also increasing dynamic range without the need for dilution. This analyzer will support ranges up to 0-2000 ppm without dilution.

Optical Tape Counter

Optical tape counter ensures exact spacing of stains as well as keeping track of tape consumption. Tape life of 5-14 weeks can be expected, depending on the application.

Advanced Digital Sensor at Measurement Point

AD converter is located at the sensor increasing further accuracy by eliminating noise associated with transmitting analog signals.

Proprietary Humidifier

Unique humidifier design using permeable membrane reduces dead volume providing faster response time.

Hazardous Area

Certified to CSA (C/US) Class 1, Div 2 Groups B,C, and D, T3

Intrinsically Safe (IS) Keypad

16 button IS keypad allows user to configure and monitor.

USB Port

Compatible with current laptops with no need for serial adapter.

128 x 64 LCD Screen

Large LCD screen provides information at a glance.

Dual Redundant Power Supply

All units capable of running on AC or DC power, or DC-backed AC power.

No Cross-Interferences

Specific measurement of H_2S with no interferences from sulfur species or the gas matrix.

Rapid Alarm

Responds in less than 20 seconds when H_2S levels exceed pre-set levels.

Superior Accuracy

Linearity and repeatability of ±1% on ranges up to 0-2000 ppm. Advanced electronics and patented algorithm provide superior measurement to competing analyzers.

High Sensitivity

Sensitivity as low as 10ppb.

Extended Range

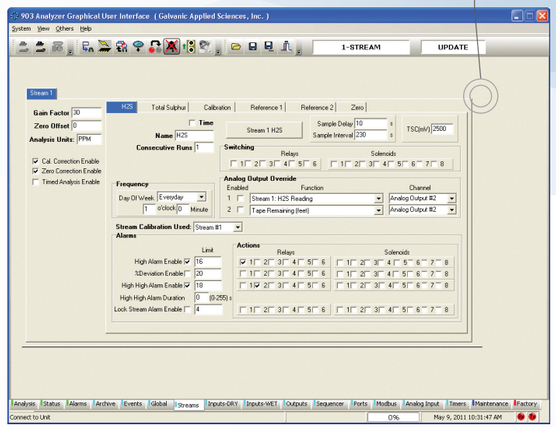
Measures H_2S up to 2,000 ppm without adding a dilution system.

Over-Range Capability

Wide dynamic range provides measurement of H_2S levels well past the instrument's set range.

User Friendly Software

Easy-to-use Windows-based PC software with graphical user interface for monitoring and analyzer configuration. Can be used while laptop is connected to front of analyzer or remotely via serial link or ethernet.



Indicator Lights

10 LED indicator lights provide quick status.

Galvanic TAPE ASSURANCE SYSTEM

Galvanic's ISO 9001-2001 quality assured tapes work together with a specially designed mechanical and optoelectronic system to ensure smooth and continuous operation.

Enhanced Data-Logging (512 kb)

Up to 10 months of data-logging provides user complete audit trail for troubleshooting and report generation.

Advanced Diagnostics

Feedback from microprocessors mounted on sensor block provide detailed diagnostics information such as sensor status, tape movement, tape length remaining, and temperature.

Field Programmable Memory

Easy to upgrade analyzer firmware with laptop via USB port or network connection.

Other Options

- **Custom Shelters:** Galvanic offers complete analyzer shelters from sun shades to complete buildings.
- **Custom Sample Systems:** Galvanic designs custom sample systems for customer's specific requirements.
- **Ethernet communication**
- **Total sulfur option**

BENEFITS

- H_2S specific measurement
- Rapid response to both increasing or decreasing H_2S levels
- Low operation and maintenance costs
- Superior precision and accuracy
- Exceptional wide dynamic range
- Unique over-range capability
- Smooth, continuous operation from Galvanic TAPE ASSURANCE SYSTEM
- Optical encoder to accurately monitor tape usage
- Remote diagnostics via serial or ethernet communications
- Self-diagnostics for troubleshooting
- Variety of interface and connection options
- CSA certified for Class 1, Div 2 Groups B,C, and D, T3
- Analysis according to ASTM methods D4084-94, D4323-97 and D4468-95

APPLICATIONS

Natural Gas Processing
> H_2S Concentration at plant inlet
> Product quality at plant outlet

Natural Gas Pipelines
> Product quality at custody transfer station

Synthetic Natural Gas (e.g. Coal Gasification)
> Catalyst protection / product quality

Gas Compression (LNG, GTL & NGL)
> Catalyst protection / corrosion control
> Product quality

Refining
> H_2S in fuel gas (EPA reporting)

Petrochemical Feedstock
> Catalyst protection
> Product quality

Fuel Cell
> PPB measurement of H_2S and sulfur

Emission Monitoring
> Stack analysis

SPECIFICATIONS

Performance

Range	0-2000 ppm w/out dilution (consult factory) 0-100% w/ dilution
Low Range	0-1 ppm or less (consult factory)
Linearity	±1% of full scale
Repeatability	±1% of full scale >1ppm ±2.5% of full scale <1ppm ±2.5% of full scale >200ppm ±2% of full scale for total sulphur
Response Time	< 20 sec to alarm; 3 min to 90%
Cycle Time	Depends on range and gas concentration. Cycle time is user configurable; typical is 4 mins

Functions

Streams	One (1) stream (standard), total sulphur run (optional)
Tape Life	5-14 weeks, depending on application. Typical tape life given 3 minute cycle time is 5 weeks. Can be extended to as much 3 months at low concentration
Auto/Manual Mode	AUTO mode: analyser runs in predefined sequence MANUAL mode: user can force any stream to run

Communications / Interface

Outputs	6 - 4-20mA outputs (isolated and scaled to range) 3 - SPDT alarm relays 5 amps @ 30 VDC or 8amps @ 120/240 VAC (up to 3 more optional) 1 - 3 amp max 35 VDC or 3A 24-280 VAC Solenoid Driver (standard), up to 7 more (optional) 1 - USB port 1 - RS-232 Serial Port 1 - RS-485 isolated serial Port 1 - LAN Port for extended analog outputs 1 - Ethernet (optional) Modbus communication on all ports
Inputs	8 discrete inputs (4 - Dry contact digital inputs & 4 - wet contact digital inputs (12/24 VDC) 2 - 4-20 mA, user selected
Operator Interface	128x64 LCD Screen Handheld Keypad (Intrinsically safe keypad for D1 models) 10 visual indicators (LED) for quick status Remote PC GUI

Instrument Specifications

Size	17H" x 19W" x 9D"
Weight	Class 1, Div 2 version: 40 lbs
Power Consumption	10W
Power Input	Dual power design - Universal 90-240VAC and 10-36VDC input. Capable of being attached to redundant power supply
Electrical	CSA C/US Certified
Classifications	Class 1, Div 2, Group B,C&D, T3
Ambient Temp.	10-50ºC (without enclosure)
Electronics	- Dual processor design with intelligent colorimetric sensor. To achieve greatest sensitivity sensor uses 24 bit AD converter equipped with temperature monitor on sensor block. Sensor automatically calibrates on every cycle to prevent drift - Optical tape counter optimizes tape usage and provides exact measurement of tape used. User can program low tape alerts / alarms - Real time clock for accurate event time stamping
Software	Windows based software for configuration and monitoring. Software includes advanced configurable features for stream switching, automatic calibration, multi mode H_2S and total sulfur measurement, reference and zero gas test, and multi-ranging
Humidifier	Permeable membrane humidifier system facilitates faster response time and eliminates moisture carry-over to lead acetate tape
Memory	Field programmable memory. Firmware for unit can be upgraded in the field
Data Logging	Up to 10 months of H_2S concentration data logs. 512 Kbytes non-volatile memory for data logging and audit trail

Options

Total sulfur system, dilution system, high pressure sampling system, solar power, back panel, low pressure sensor, low hydrogen sensor, auto-cal, and enclosure / cabinets (temperature controlled enclosure)

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GALVANIC APPLIED SCIENCES INC.

7000 Fisher Road SE, Calgary, Alberta T2H 0W3
Tel: 403-252-8470 Fax: 403-255-6287 Email: info@galvanic.com

www.galvanic.com