



903 H₂S AND TOTAL SULPHUR ANALYSER

Multi-range

H₂S Specific

Smooth Operation

Over-range

Rapid Response

Easy to Use

Superior Accuracy

Self-Diagnostics

Low Operation Costs

Low Maintenance Costs

Fully Configurable

Remote Diagnostics

FEATURES

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 ensuring 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.

Explosion Proof Design

Certified to CSA (C/US) Class 1 Div. 1 or Class 1 Div. 2 electrical specifications for use in hazardous areas.

Indicator Lights

10 LED indicator lights provide quick status.

Dual Redundant Power Supply

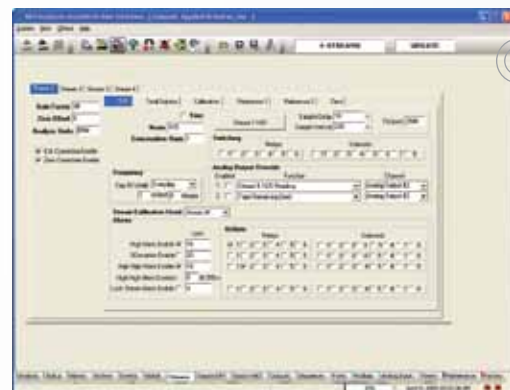
All units capable of running on AC or DC power, or DC-backed AC power.

Total Sulphur (option)

Capable of measuring total sulphur with the addition of furnace.

User Friendly Software

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



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.

Fully Configurable System

Analyser can be customized to customer specific requirements. Configurable features include stream switching (on demand or timed sequence), automatic calibration, multi mode H₂S - total sulphur measurement, reference and zero gas test, and multi-ranging.

Advanced Diagnostics

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

Field Programmable Memory

Easy to upgrade analyser firmware with PC via USB port or network connection.

Other Options

- > **Custom Shelters:** Galvanic offers complete analyser shelters from sun shades to complete buildings.
- > **Hydrogen shut-off:** Allows for automatic hydrogen shut off to total sulphur oven when analyser is monitoring H₂S.
- > **Additional Stream(s):** Can analyse up to 4 streams.
- > **Custom Sample Systems:** Galvanic designs custom sample systems for customer's specific requirements.



Intrinsically Safe (IS) Keypad

16 button IS keypad allows user to configure and monitor unit without opening explosion proof enclosure.

Ethernet Communication

Allows units to connect into Ethernet-based networks providing remote operation and diagnostics capability.

128 x 64 LCD Screen

Large LCD screen on front of analyser provides information at a glance.

USB Port

Compatible with current PCs with no need for serial adapter.

No Cross-Interferences

Specific measurement of H₂S with no interferences with other sulphur species or additional constituents in the gas.

Rapid Alarm

Responds in less than 20 seconds when H₂S 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 analysers.

High Sensitivity

Sensitivity as low as 10ppb.

Multi-Range Capability

Able to monitor H₂S and Total Sulphur at different ranges. One analyser can thus provide measurements for two or more differing ranges saving the need for additional instruments.

Extended Range

Measures H₂S up to 2,000 ppm without adding a dilution system.

Over-Range Capability

Wide dynamic range provides measurement of H₂S levels well past the instrument's set range.

BENEFITS

- H₂S specific measurement
- Rapid response to both increasing or decreasing H₂S levels
- Low operation and maintenance costs
- Superior precision and accuracy
- Exceptional wide dynamic range
- Unique over-range and multi-range measurement
- Smooth, continuous operation from Galvanic TAPE ASSURANCE SYSTEM
- Uninterrupted operation with dual-redundant AC and DC power supply
- Remote diagnostics via serial or Ethernet communications
- Self-diagnostics for troubleshooting
- Variety of interface and connection options
- CSA certified to meet hazardous area classifications
- Analysis according to ASTM methods D4084-94, D4323-97 and D4468-95

APPLICATIONS

- Natural Gas Processing**
 - > H₂S 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**
 - > H₂S in Fuel Gas (EPA Reporting)
- Petrochemical Feedstock**
 - > Catalyst Protection
 - > Product Quality
- Fuel Cell**
 - > PPB measurement of H₂S and Sulphur
- Emission Monitoring**
 - > Stack Analysis

SPECIFICATIONS

Galvanic's 903 H₂S Analyser is an online instrument designed to measure hydrogen sulphide (H₂S) and / or total sulphur in gaseous streams. A single analyser can be configured to monitor up to four (4) streams. The instrument's advanced digital colorimetric sensor measures the rate of darkening caused by the reaction of H₂S on white tape impregnated with lead acetate in accordance with ASTM methods D4084-94, D4323-97 and D4468-95.

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 3 mins.

Functions

Streams	One (1) stream (standard), with up to 4 streams (optional). Each stream includes: H ₂ S analysis run, zero run, reference1 run, reference2 run, calibration run and total sulphur run (optional).
Multi-Range	Each stream can have separate calibration coefficient and range of measurement. Please consult factory for details.
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
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Instrument Specifications

Size	28"Hx16"Wx16"D
Weight	Class 1, Div 2 version: 40 lbs Class 1, Div 1 version: 80 lbs
Power Consumption	10W @ 24VDC 250W @ 120 AC (Total sulphur option)
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 1, Group B,C&D Class 1, Div 2, Group B,C&D
Ambient Temp.	10-50°C (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 ₂ S and total sulphur 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 ₂ S concentration data logs. 512 Kbytes non-volatile memory for data logging and audit trail.

Options

Total sulphur 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)

ISO 9001:2000



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