SISTEMAS - INSTALACIONES - REDES

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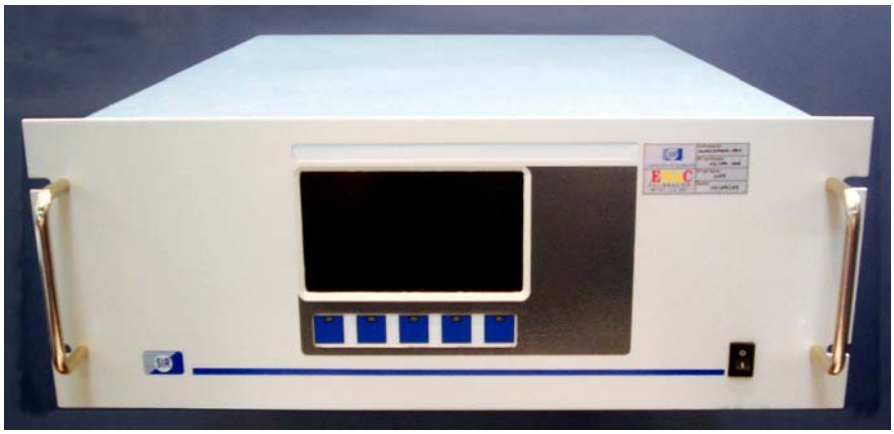
MODEL S-5001

UV Fluorescence SO_2 Analyzer (H_2S optional)



Advantages – Features

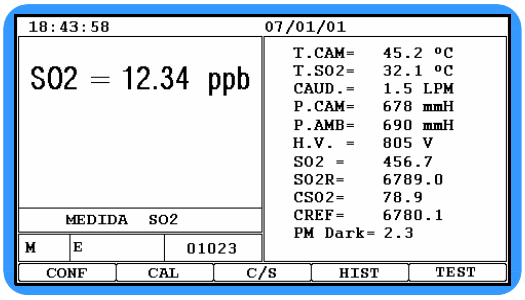
- **UV Lamp extended life.**
- **Automatic Temperature and Pressure Correction**
- **Concentrations in ppb, µg/m^3, ppm.**
- **Autorange or operator adjustable.**
- **Modular Electronics common with SIR Models:**
  -S-5012 NO_x. -S-5014 O_3.
  -S-5006 CO. -S-5000 Multi-Gas Calibrator.
- **Automatic zero correction.**
- **External Sensors can be logged, data can be: stored and presented in graphical and tabulated formats.**
- **Electronic Diagnostic Transducers.**
- **Internal Datalogger and Memory.**
- **Graphical Screen with simultaneous presentation of Concentrations and Diagnostics.**
- **Bi-directional Communication for External Control, "RS232/RS485".**
- **Calibration: manual, automatic and remote.**
- **Dedicated Menus and Graphical Screen allowing total external control:**

  - Configuration
  - Calibrations
  - Graphics
  - Zero/Span
  - Diagnostics
  - Data History
  - Alarm History
  - Test of elements

- **Powerful Calibration and Maintenance Menus (protected by password).**
- **Calibration not only for the pollutans but also for internal electronics of functional parameters.**
- **Multi-tasking software allows viewing test variables while operating.**
- **Adaptive filtering selectable.**
- **Continuous self checking with warning alarms and table of alarms history.**
- **Signals Generation for checking Data Acquisition Channels.**
- **Options:**
  - **PCMCIA Board.**
  - **Internal Span.**
  - **H_2S Measurement.**

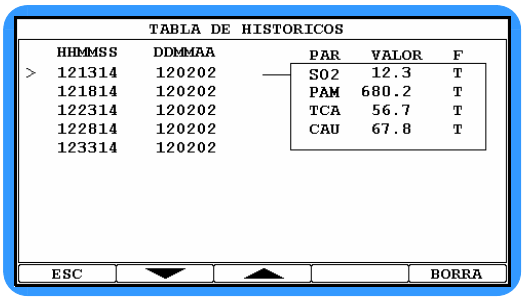
SERVICE CAPABILITIES AND EXTERNAL CONTROL

MAIN SCREEN.- Simultaneous display of:
- Date and Time.
- Concentrations and Units.
- Internal valves status.
- Activated digital inputs.
- Up to six alarm conditions.
- Current measurement phase.
- Backlight, automatic activation.

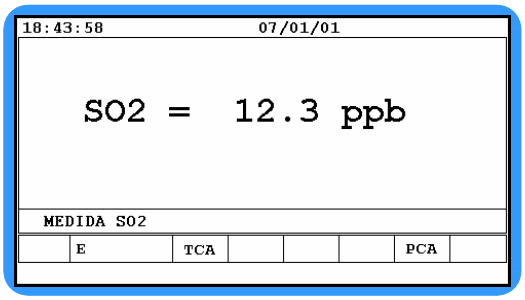


GRAPHICS SCREEN.-
- Simultaneous Graphics of up to four parameters.
- Selectable integration periods 5, 10, 15, 30, 60 min.
- Selection cursor, date, time, value, measuring ranges.

EXTERNAL SENSORS
- It is possible to connect external sensors.
- The **D**atalogger and **M**emory are configurable.

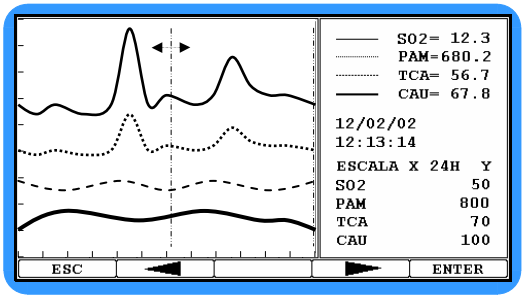


ALARMS TABLE.-
- Automatic generation of alarms of selectable parameters: data, diagnostics, external sensors.

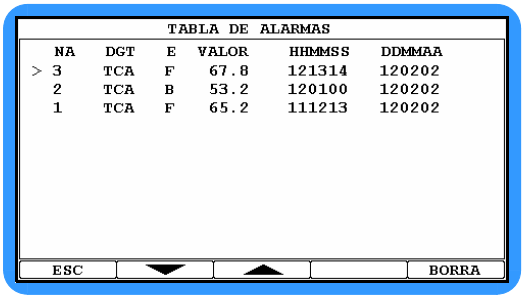


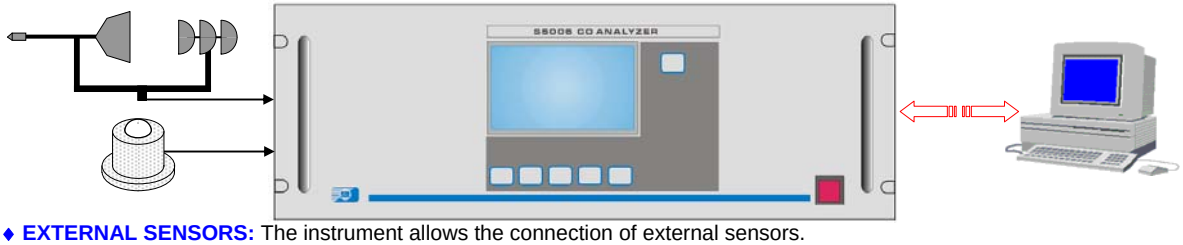
DIAGNOSTICS SCREEN.-
- Powerful diagnostic software, determination of possible faults.
- The anomalous parameter is shown with an arrow.
- Continuous Quality Control.

SERVICE AND CALIBRATION.-
- Authorization through a password.



DATA HISTORY.-
- Automatic generation of tables for the selected parameters: data, diagnostics, external sensors.
- Selectable integration periods: 5, 10, 15, 30, 60 min.
- Cursor for quick reference to date.
- Indication of: - Parameter. - Date.
  - Value. - Time.
  - Operative conditions (flag).





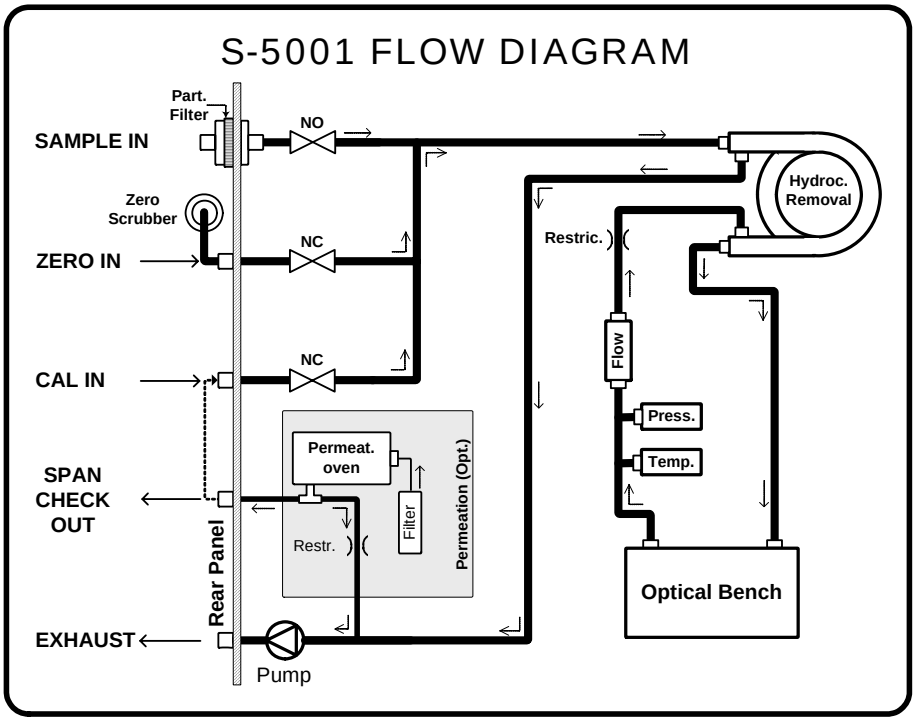
♦ **EXTERNAL SENSORS:** The instrument allows the connection of external sensors.
♦ **EXTERNAL CONTROL:** All the operations of the analyzer can be set up externally.

THEORY OF OPERATION

SIR Model S-5001 is a Non-Pulsed U.V. Fluorescence Sulfur Dioxide Analyzer. In the analyser, optically filtered pure monochromatic U.V. light from a Zinc lamp is focused onto the SO_2 reaction chamber. This beam is of invisible U.V. light and is termed the excitation beam or sometimes the "primary beam". The intensity of the beam is directly viewed by the primary beam intensity measuring detector (control detector). The same beam is viewed at right angles by a wavelength selective photomultiplier (PM) detector which is tuned by an optical discrimination filter to reject the primary beam radiation, but to be sensitive to radiation in a discrete portion of the visible spectrum. SO_2 molecules intercepting the primary beam are U.V. energized through primary beam light absorption. These excited molecules "de-energize" themselves by re-emitting light at a higher wavelength (lower energy). The re-emitted light is given off in all directions, and a portion of it, the secondary beam, is viewed through the primary beam "blocking" filter by the photomultiplier detector.

Model S-5001uses non-pulsed U.V. radiation, which effectively doubles the detected signal as compared to a chopped light instrument, thereby significantly increasing the signal-to-noise ratio. The usual task of correcting for PM and control detector dark current normally performed by light pulsing is achieved by a microprocessorcontrolled shutter system which periodically and momentarily blocks the primary beam. This blocking is done over a short time interval relative to the non-blocked time.

All functions of Model S-5001 are under microprocessor control, and the SO_2 concentration is obtained by microprocessor computation of stored averaged values that contain information relative to the detector dark currents, scattered light values, total fluorescence signal, and lamp intensity. By making use of a sophisticated microprocessor program, the normal zero drift inherent to most SO_2 monitors is factored out by DYNAMIC ZERO STABILIZATION (DZS), a technique which correlates background radiation to source intensity changes and corrects for them by a microprocessor ratioing technique. Similarly, span drift is made virtually non-existent through the monitoring of source intensity and the use of the DZS technique resulting in an instrument of remarkable stability.



S-5001 SPECIFICATIONS

Ranges: 0-50, 500, 200 ppb, 20 ppm.
Other available.

Autorange / Adjustable Range.

Units: ppb, µg/m^3, ppm
(µg/m^3, refered to 0°C, 20°C, 25°C).

Noise: 0.2 ppb.

Lower Detectable Limit: 0.4 ppb.

Zero Drift: 0 (with autozero).
< 0.5ppb/24h (without autozero).

Span Drift: < 0.5%/ week.

Lag Time: 15 Seconds.

Rise Time: 90 Sec. (95% FS).

Fall Time: 90 Sec. (95% FS).

Precision: ± 0.5% of reading.

Linearity: ± 1% of range

Temperature Range: 5-40°C.

Flow Rate: 0.5 lpm.

Analog Outputs: 4 (Volts-mAmp). (Adjustables).

Analog Inputs: 2 (external sensors).

Digital Inputs/Outputs: 5 Status, RS232 or RS485.

Automatic: Temperature and Pressure correction.

Automatic: Zero correction.

Internal: Datalogger and Memory.

External Control and Download: RS232 or RS485.

Common Electronics: with SIR Analyzers/Calibrator.

Power: 115/220 VAC or 12VDC.

Included Items: Particulate filter.
Zero and Span Valves.

Dimensions and Weight:

Bench Mount	Rack Mount
17.8 cm (7”)	17.8 cm (7“)
43.5 cm (17”)	48 cm (19“)
59 cm (23”)	59 cm (23“)
18 Kg (40 lbs)	19 Kg (43 lbs)

OPTIONS: PCMCIA Card.
Internal Span.
H_2S measurement.

CE APPROVED
ACCORDING TO ISO/FDIS 10498: 1.999
AND 1999/30/CE DIRECTIVE
US/EPA APPROVAL EQSA-0507-166
COMPLIES WITH EN 14212:2005