SISTEMAS - INSTALACIONES - REDES

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MODEL S-5006

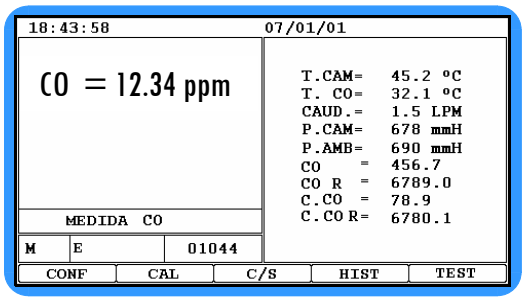
NDIR GFC CO Analyzer

Advantages – Features

- **Automatic** Temperature and Pressure Correction
- **Concentrations** in mg/m^3, ppm.
- **Autorange** or operator adjustable.
- **Modular Electronics** common with SIR Models:
  -S-5001 SO_2. -S-5014 O_3.
  -S-5012 NO_x. -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.
  - •Alarms 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.

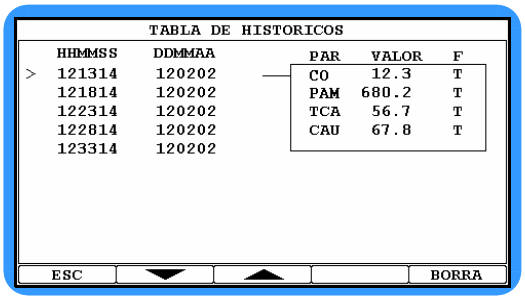
SERVICE CAPABILITIES AND EXTERNAL CONTROL

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.

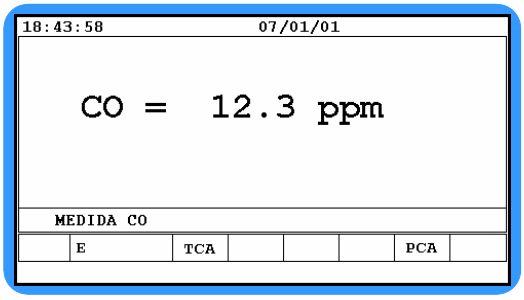


GRAPHICS SCREEN.-
- Simultaneous Graphics of up to four parameters.
- Selectable integration periods 5, 10, 15, 30, 60 min.
- Selection cursor, date, time, value, measuring ranges.

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

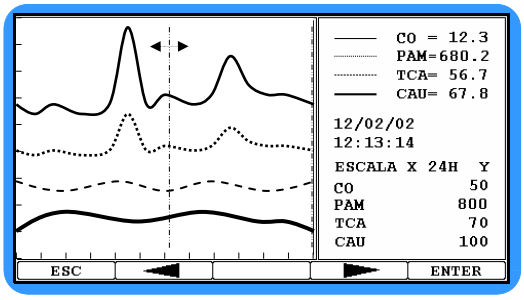


ALARMS TABLE.-
- Automatic generation of alarms of selectable parameters: data, diagnostics, external sensors.

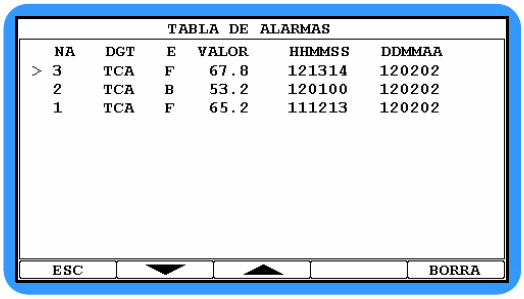


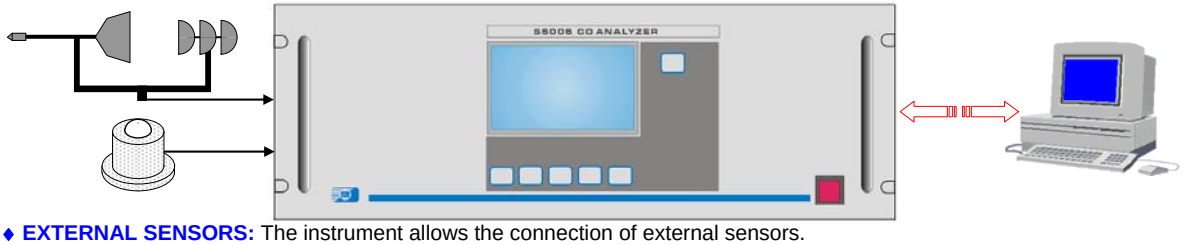
DIAGNOSTICS SCREEN.-
- Powerful diagnostic software, determination of possible faults.
- The anomalous parameter is shown with an arrow.
- Continuous Quality Control.

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

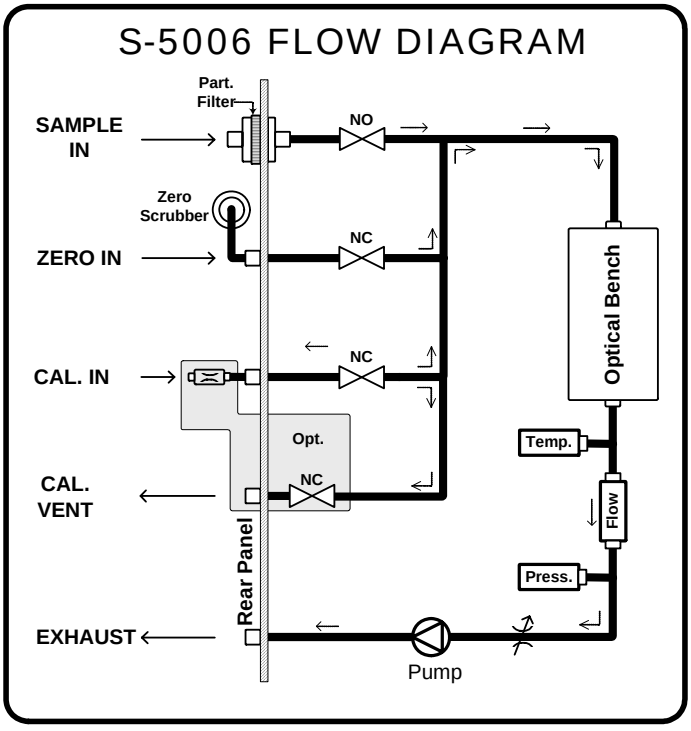
The SIR Model S-5006 is a Non-Dispersive Infrared (NDIR) Analyzer for the measurement of Carbon Monoxide concentrations in ambient air. Being a photometric device, it operates on the principle that the pollutant CO absorbs light at specific wavelengths and will decrease the intensity of a probing light beam in non-linear proportion to its concentration.

The source of wavelength specific light referred to above, is the primary device that determines the specificity of an analyzer to the pollutant it must measure. The model S-5006 employs the technique of Gas Filter Correlation (GFC). In this technique, a highly specific light probe is created by causing a beam of infrared light of narrow spectral bandwidth to be intercepted by a rotating wheel containing two different entrapped gases: carbon monoxide and nitrogen.

When the light beam is intercepted by the carbon monoxide portion of the wheel, the carbon monoxide, which is at relatively high concentration, absorbs all wavelengths that are co-specific, creating and emanating light beam that is “CO blind”. This “optically scrubbed” portion of the beam is designated the Reference beam, as compared to the nitrogen-intercepted portion of the beam, which is “CO sensitive”, and therefore is designated the Measure beam.
The single, time-shared Reference (R) and Measure (M) beam is reflected many times back and forth across the photometer chamber where more of its light energy is absorbed by sampled Gaseous CO with each traversal. In the absence of CO no attenuation of the R and M portion of the beam will occur species other than CO will cause an equal attenuation of both R and M portions of the beam. If CO is present in the air being sampled, then the beam portion generated by the CO side of the wheel will experience no attenuation, but the beam portion generated by the N2 portion of the wheel will be attenuated to the degree dictated by the level of CO concentration.

A third portion of the time-shared beam is also produced. This is the "dark portion", which is simply the period of time in the rotation of the GFC wheel in which the light beam is totally blocked off or "dark". This provides a zero light reference point to compensate for the "dark current" of the detector.

The rotation of the motor shaft determines the timing of the optical events taking place in the optical bench. In order for the measurement information to be synchronously decoded by the electronic system, the latter must be coordinated time-wise with the wheel rotation. This is done by a slotted disk mounted on the motor shaft, which interrupts an optical switch. The latter provides a signal to digital logic which then encodes the time-shared electronic analog signal of the optical probing beam. The unit's computer records the imbalance between the R and M beams portions, performs a data linearization, corrects for changes in temperature and pressure, and displays the CO content.



S-5006 SPECIFICATIONS

Ranges: 0-1, 50, 200 ppm.
Other available.

Autorange / Adjustable Range.

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

Noise: 0.02 ppm.

Lower Detectable Limit: 0.04 ppm.

Zero Drift: 0.01 ppm/24 Hrs.

Span Drift: 0.5% F.S.

Lag Time: 15 Seconds.

Rise Time: 60 Sec. (98% FS).

Fall Time: 60 Sec. (98% FS).

Precision: ± 0.1 ppm.

Linearity: ± 1%.

Temperature Range: 5-40°C.

Sample F. Rate: 1 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.

CE APPROVED
COMPLIES WITH 1999/30/CE DIRECTIVE
IN PROCESS FOR US/EPA APPROVAL
COMPLIES WITH EN 14626:2005