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ABE_1000

BIOGAS ANALYSER

Brochure

❖ Principal characteristics

- **ABE_1000** analyser for methane (CH4) Carbon oxide (CO2) Carbon monoxide (CO) and oxygen in biogas.
  Measure camps 0-100% in volume for CH4 0-100% in volume for CO2, 0-10000 ppm for CO, 0-25% in volume for O2.

❖ Oxygen sensory

Utilized sensory (max 250) of electrochemical type; utilize an alkaline material insensible to carbon anhydride (gas who poison traditional electrochemical sensory, reducing theirs during). Operative life of sensory change favourably of percentage of oxygen measured (whit air to 20,93% of oxygen, standard during of sensory is of 2 years), whit percentage of oxygen less of 5%, it augments until 4/5 years (in case of clean and not damp gas).

❖ Methane Sensory, Carbon Anhydride, Carbon Monoxide

The sensory utilize a source of impulsive emission of infrared to low temperature. Methane, Carbon Anhydride and Carbon Monoxide, presents an high coefficient of absorbition of infrared light, the sensory read this attenuation when inside of measures room, are the gas in question and it's possible draw the concentration of respective gas.

❖ Options

Code	Describing
ABE_1000	Analyser for oxygen, methane, carbon anhydride, carbon monoxide
ABE_550	Thermo capacity measurer 0-1000 sscm
ABE_551	Radio transmitter with capacity until 600m
ABE_552	Stabilization system of device's temperature
ABE_553	Software for configuration and dates reading on PC
ABE_554	Sensory for reading of absolute press ion
ABE_555	Sensory for reading of differential pressure
ABE_556	Condense presence sensory on analyse line
ABE_557	Aspiration pump for biogas managing directly by analyser
ABE_558	Analyse scanner on more lines (maximum 8).
ABE_559	Frigo Peltier for gas cooling
ABE_560	Calibration analyser automatic system

- **ABE_550** Thermic sensory of capacity, it permits the visualization of biogas flux value. Possibility to impost, threshold values and unchain alarm in case of insufficient flux for the analysis.

- **ABE_551** Pair of radio transmitters, they permit to transfer dates between PC and controller as far as 600 meters distance.

- **ABE_552** Temperature sensory, it is utilised for gas temperature stabilization. For augment the precision of analyse reading and avoid the formation of condense inside circuits.

- **ABE_553** Software for Microsoft Windows 2000, XP for controller configuration and transfer dates compatibles Microsoft Excel or database Microsoft Access.

- **ABE_554** Pressure sensory, it permits pressure visualisation in a measure room. It is utilize for measure compensation acting as pressure.

- **ABE_556** Sensory for presence of condense in circuit, it unchains alarm for defender the sensory.

- **ABE_557** Aspiration pump for biogas directly managing by controller.

- **ABE_558** Scanning of more lines test (Max 8), made by electro valves.

- **ABE_559** Static refrigerator (peltier) for gas cooling to remove aqueous vapour in the gas.

- **ABE_560** Option for automatic tare of controller. Each tare time layer during the configuration (it has need of sample gas cylinders).

❖ Thermic capacity sensory (ABE_550)

Thermic capacity sensory measure the capacity of gas flux in analyse in cm3/minute. The value read is memorized and visualized on trend.
Sensory has a scale from 0 to 200 cm^3/minute.
Minimum flux value (laying in configuration), cause alarm of flux want. Follow the alarm, system stopped analyse and it ask again the staff interview, is necessary an immediately interview to verify the cause of problem (ex. tubes obstruction, pump broken, etc.).

❖ Radio transmitters (ABE_551)

By option ABE_551 the connection between analyser and pc can be also wireless until a 600 metres distance. Each unit can function also like signal repeater, augmenting transmission distance. One receiver can read until 32 analysers scattered on all surface of analyse place.

❖ Temperature sensory (ABE_552)

Electronic temperature sensory with function camp from 0° C to 100° C. Signal is utilized for pilot by PID control a power exit witch stabilise container's temperature. PID parameters are modifiable in configuration like also temperature referent. Factory configuration is fixed to 25°C. Constant temperatures permit a best precision of measure. Option advised in case of external installation of instrument, to avoid that low temperatures make some condense problem or ice inside pipelines.

❖ Supervision software (ABE_553)

Possibility of direct connector between analyser and PC for configuration, transfer or memorized data. The software is realized for Windows 2000 or XP, with ".net" technology.
For more information of pack, make referred to software manual.

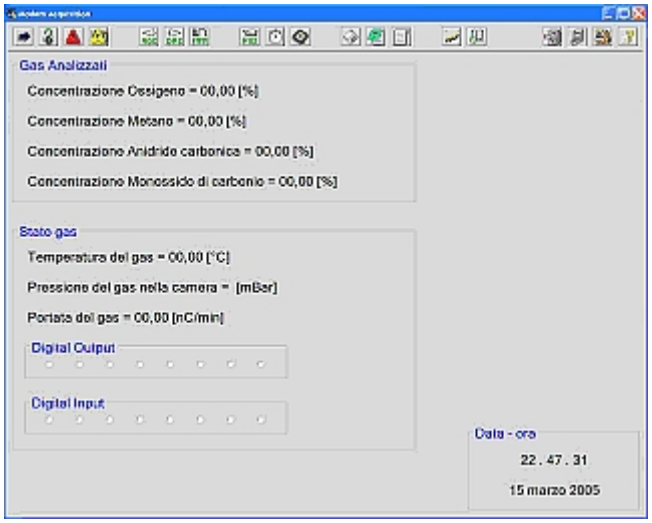

Fig.1 configuration software

The software permits reading and configuration of function parameters of instrument and the visualization of reading in a numeric and in a graphic trend form.

Analyser has 2 serial com 232 standard, first (main com) is galvanic insulated. The isolation permits the connection with external instruments that can be in a different potential.
On this com is connected supervision system, installable on a personal computer (ABE_553).

- **Absolute pressure sensory (ABE_554)**

Electric sensory for measure of atmospheric pressure has reading from 750 to 1050 mBar and precision of 0,5 mBar.
Presence of this sensory, permit to memorize the pressure value and its comparison with another greatness to verify the relations between pressure and oxygen concentration.

- **Condense sensory (ABE_556)**

The condense sensory permit to verify the presence of condense inside the analyser's pipelines, this cause an alarm signal, if analyser has option ABE_557 the pump came off, if has the option ABE_558 the electro valves come closed. This option permit to protect the sensory that is damage by water.

- **Pump of biogas suction (ABE_557)**

The option manages the command of a membrane pump pilot directly by taste on keyboard.
The pump permits to take away the gas from depression collectors until 200 mBar. Working pump time is memorized in a not volatile memory, each 5000 working hours is utilized an alarm that ask the preservation of pump.

- **Scanner of analyse on more lines (ABE_558)**

System permits the pilotage of maximum 8 electro valves. The open sequence active the exhaust electro valve that send the gas from first line directly to exhaust line for the wash time laid in configuration; this operation permit to remove the condense in the filter and to faster the phase of filling of analyser with new line gas.
In the end of wash phase, start the phase of analyse, the electro valve close itself, the gas across the analyser that look the reading values. Then, the reading values at the moment come memorized in the log variable and cycle start back.

❖ **Static refrigerator for gas cooling (ABE_559)**

The refrigerator is realized by 3 cells “peltier” that permit to reduce the gas temperature until 2° C, this operation permits the remover of main gas condense.
If it’s utilized with option ABE_552 that stabilise container temperature to 25° C, are removed the possibility that inside the sensory is formed some condense.
The refrigerator has a double exchanger, the gas are cooling by exit gas that in this phase warm itself; that permit to reduce the electric consumption and obtain an exit gas not damp but in a temperature superior of 2° C.

❖ **Automatic calibration (ABE_560)**

This option permit the automatic calibration of analyser in a regular break for obtain stabilise measures.
In configuration it impost the time of automatic calibration, after this time the valve of zero gas open itself, after washing time is made the zero procedure, then it open the valve that send span gas to analyser, after washing time come asked span routine that receive a new value.
In the end of span phase, start back normal working of analyser.