

# PCF Elettronica S.r.l.

## VOC/THC portable gas chromatographic analyser

### Model 9388

For both continuous source and ambient monitoring



#### NEW!

PCF's Model 9388 VOC/THC portable gas chromatographic analyser features two extractable memory cards, of which the first one is used to set cycle programs intended to change analytical conditions as to carry out by a suitable column specific hydrocarbons analysis, while the second card is dedicated to data acquisition that lately may be acquired and managed by a PC in laboratory. Such a versatile instrument is suggested for measuring at emissions VOC /THC as well as specific hydrocarbons by direct sampling from chimney or stack or, through a heat traced line, up to 40 m distance. The detector is a carbon atom counter. Sample is introduced into a micro flame fed by hydrogen and air, where the electrical charges generated by the oxidation of  $C_x$  to CO are proportional to the hydrocarbon content in the sample. Actual concentration is computed out of a calibration by

reference gas mixture.

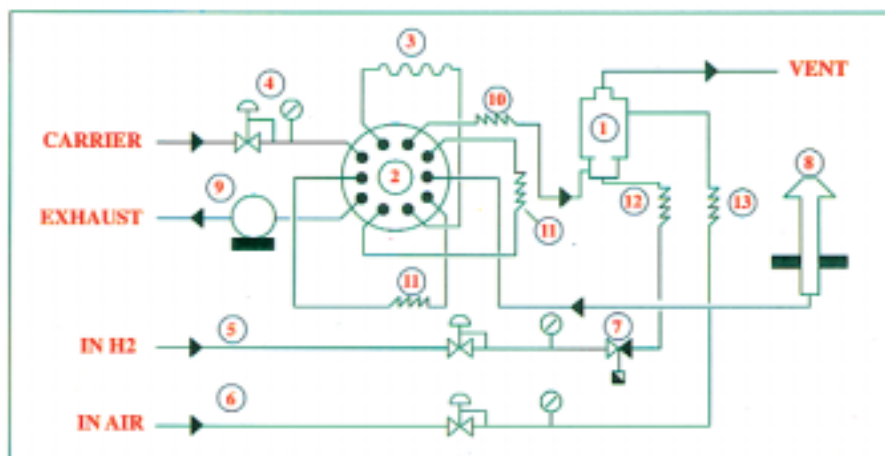
The electrical charges are collected by two polarised electrodes and converted by an electrical circuit into an electronic signal.

#### Description

PCF's Mod. 9388 is intended for measurements of reactive hydrocarbons in ambient air and/or source gas by subtracting from the total concentration of hydrocarbons the methane fraction. As the catalytic separation is not always efficient, the separation

technique is based on the chromatography.

A sample pump on the back of the pneumatic circuit fills a calibrated capillary of about 0.6 ml, whose volume normalised against the atmospheric pressure in order to have high reproducibility samples is injected via a 10 port rotation valve into a chromatographic column filled with PQS or a most suitable substrate that allows separation of methane fraction from the total hydrocarbons. The separated  $CH_4$  is sent to FID detector whose response is memorised by the in built micro processor. In the repair phase of the 10 port rotation valve a second sample is subsequently introduced into the FID detector to measure the total quantity of hydrocarbons (THC); the relevant electronic signal is also memorised by electronics. By subtracting the signal attributed to methane fraction from the signal of total hydrocarbons the value of hydrocarbon less methane fraction in the sample is computed.



In built zeroing of the instrument, before each measuring cycle, guarantees an high zero drift stability.

All three electronic signals are visible on display as well as available on the analogue outputs of the instrument. An INTEL 80C195 microprocessor manages all functions relative to analytical sequences as well as data management.

The in built self diagnostic software package also controls

- The operative parameters as well as the alarms status.

- The instrument pre-conditioning phase.
- The flame switching ON automatic procedure.
- Automatic alarm in case of flame OUT or hydrogen leak conditions.

The alphanumeric display with four lines and 40 characters per line shows the three measured values as ppm and/or mg/m<sup>3</sup> as well as any occasional system failure status.

Through the firmware recorded on EEPROM located on the card inserted from the front panel, the

instrument can easily be set for specific hydrocarbon, e.g. benzene, toluene, styrene etc., up to maximum of six species. The chance of replacing the program card as well as the chromatographic column makes Model 9388 the best solution for monitoring any type of polluting hydrocarbon species. Measured and status data are recorded on a second 64 K PCB card. The latter inserted in a PC allows any type of data management and memorisation

### TECHNICAL SPECIFICATIONS

- Measuring ranges (CH<sub>4</sub>/THC/NMHC) : 0-10 ppm      0-100 ppm or mg/m<sup>3</sup>  
: 0-100 ppm      0-1,000 ppm or mg/m<sup>3</sup>  
: 0-1000 ppm      0-10,000 ppm or mg/m<sup>3</sup>  
(further ranges on request)
- Background noise : 0,01 ppm
- Lower Detectable Limit (LDL) : < 1% full scale
- Zero stability (24 hours) : ± 0.5%
- Span drift (24 hours) : ± 1%
- Measuring cycle : from 20 up to 180 sec. max.
- Response time : from 20 up to 180 sec. max.
- Linearity : better than 1% full scale
- Precision : ± 1%
- Sample flow rate : 600 cc/min
- Operating temperature : 5 – 40 °C
- Digital display : 4 x 40 characters LCD
- Analogue outputs for each component : 0-10 VDC      4-20 mA (selectable)
- Serial output : standard RS 232, 9 pin connector
- Zero drift : self compensated
- Zero/Span control : set from front panel and/or remote control
- Services : Hydrogen : 30 ml/min  
Air : 300 ml/min
- Calibration, by traceable gas cylinder : 3 ppm CH<sub>4</sub> + 1 ppm C<sub>3</sub>H<sub>8</sub>, air balance
- Mounting : transportable
- Dimensions : 150x216x360 mm (6"x8.5"x 14", HxWxD)
- Weight : 8.5 Kg
- Standard power supply : 220/110 Vac, 50/60 Hz, 24 Vdc (from battery) 300 VA (to be specified in order)
- Pneumatic connections : 1/4" or 4/6 plastic or SS tubings

### **How to order**

Code number	Description
041 - 4001	Mod. 9388, portable VOC/THC.CH <sub>4</sub> monitor, 220 Vac 50 Hz
041 - 4002	Mod. 9388, portable VOC/THC/CH <sub>4</sub> monitor, 110 Vac 60 Hz
041 - 4031	Mini cylinder carrying basket (three cylinders)
041 - 4013	Hydrogen cylinder, 10 l with pressure reducer
041 - 4012	Pure air cylinder, 10 l with pressure reducer
041 - 4011	Calibration gas cylinder, 10 l with pressure reducer
041 - 4021	Expendables kit
041 - 4022	Spare parts kit

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