

## HOT FID VOC MONITOR MODEL THC 110

**For continuous emissions and process monitoring**



- **Proprietary micro FID detector**
- **Discrete sampling**
- **Low volume sample**
- **High active range**

### FID DETECTOR

The detector is an heated carbon atom counter. Sample is introduced into a micro flame lighted by hydrogen and air (1:10 ratio), where the electrical charges generated by the oxidation of  $C_x$  to CO are proportional to the hydrocarbon content in the sample. Actual carbon concentration is computed out of calibration employing a traceable reference gas mixture. The electrical charges are collected by two polarised electrodes and converted by an electrical circuit into an electronic signal.

### DESCRIPTION

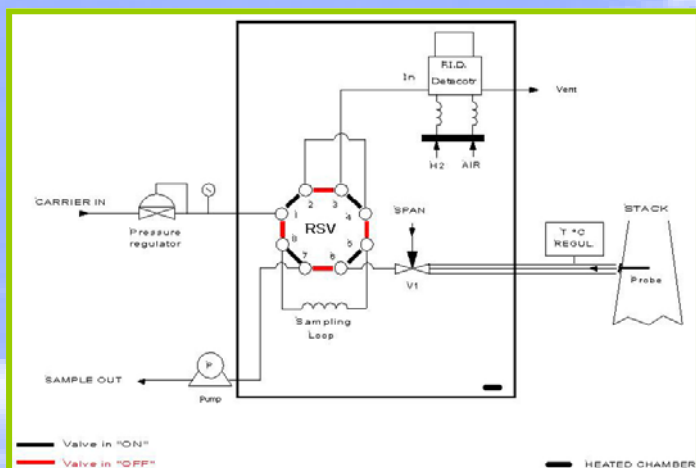
The PCF's Mod. 110 VOC Hot FID monitor is a discrete sampling instrument intended for continuous measurements of volatile organic compounds both in emission and process applications.

The exclusive measuring system includes an eight port rotation valve (RSV), that cyclically performs injection into the analytical circuit of a constant amount (e.g. 0.6 ml) of sample gas.

The hot sampled gas is first balanced against atmospheric pressure to guarantee repeatable sampling, independent from pressure conditions.

All analytical items are assembled in a temperature controlled environment (170°C), that avoids any condensation of high temperature boiling compounds. Sample is continuously pulled by an air pump or, for heavy applications, by an air ejector, located downstream of the sampling valve. In the phase 1, "sampling mode", the sampling loop is filled with a renewed sample gas, while in the successive phase 2, "injection mode", the fixed quantity of sampled gas is brought to the detector by a dry and clean carrier gas, HC free air supply. The measuring cycle swaps alternatively between the sampling and injection mode. An exclusive, specially studied and developed sampling system avoids most of frequently occurring problems in field emission monitoring of volatile organic carbon, whenever the sampled gas is compressed into the measuring circuit, i.e. condensation of high temperature boiling compounds; circulation of high quantities of sample inside the measuring frequently causing problems of clogging and corrosion, the quantity of wet and aggressive sample is reduced of a

fraction of 1/100, at least; use of expensive, high maintenance heated head sampling pump. An heated valve in front of the rotation valve allows the switching from the measuring mode to the calibration mode. Eventually this same valve may be moved up to the top of trace heated sample line.



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## TECHNICAL SPECIFICATIONS :

Measuring ranges	: 0-100/1,000/10,000 ppm/mgNm <sup>3</sup> (other ranges optional, up to 100%)
Background noise	: 0,5% full scale
Lower Detectable Limit (LDL)	: 1% full scale
Zero stability (24 hours)	: < 0,1 ppm
Span drift (24 hours)	: < 0,2 ppm
Measuring cycle	: 30 seconds (up to 2000)
Response time	: 30 seconds
Linearity	: ±1% full scale
Precision	: ± 1% full scale
Sample flow rate	: 500 ml/min (not related to measurement)
Operating temperature range	: 0 – 40 °C
Display	: LCD digital display
Instrument controls	: on front panel and or from remote control
Analogue outputs	: 0-1 Vdc or 4-20 mA (selectable)
Serial output	: RS 232 (9 pin connector)
Zero drift	: automatic compensation
Zero/Span check	: set from front panel and/or remote control
Services	Hydrogen : 30 ml/min Pure Air : 300 ml/min
Suggested calibration gas cylinder	: 60 mg/Nm <sup>3</sup> of C <sub>3</sub> H <sub>8</sub> , air balance
Sampling device	: either membrane pump or air ejector (specify in order)
Bench top mounting	: standard 19" rack and/or transportable bench top
Dimensions	: 480x250x560 mm (19"x10"x22" WxHxD), 5U
Weight	: 10 Kg
Standard power supply	: 220/110 Vac 50/60 Hz (to be specified in order)
Power consumption	: 600 VA (heat traced line excluded)
Pneumatic connections	: 1/4" or 4/6 mm and 1/8" or 1/2 mm

## HOW TO ORDER:

CODE NUMBER	DESCRIPTION
041-5001	mod. THC 110, Hot FID VOC monitor, 220 Vac 50 Hz
041-5002	mod. THC 110, Hot FID VOC monitor, 110 Vac 60 Hz
052-1001	HG 200 hydrogen generator
048-0001	Mod. 9588 UPP air generator
041-5011	Calibration gas cylinder
042-1001	Heat traced line (specify length)
042-1002	Heat traced line temperature control
041-1113	Mod. THC 110 expendables kit
041-1114	Mod. THC 110 spare parts kit

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