

PCF Elettronica S.r.l.

Hot FID VOC monitor

Model THC-110

For continuous emission and process monitoring



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 sways alternatively between the sampling and injection mode.

An exclusive, specially studied and developed, sampling system

FID detector

The detector is an heated carbon atom counter. Sample is introduced into a micro flame fed 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 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. THC 110 Hot FID VOC 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 (RSV2), 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 (up to 200°C), that avoids any condensation of high temperature boiling compounds.

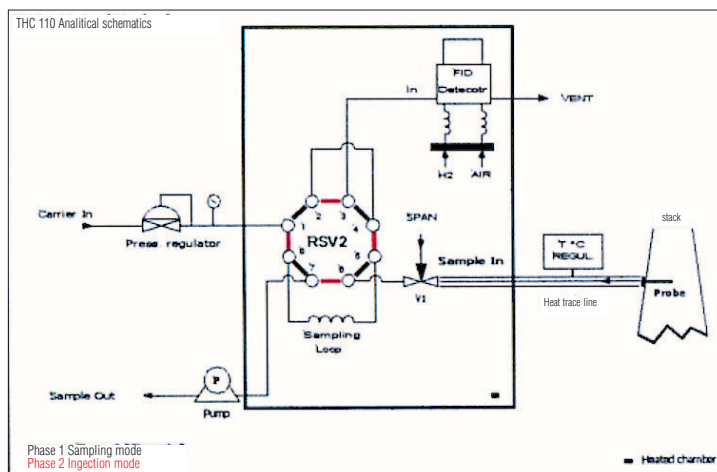
Sample is continuously pulled by an air pump or, for heavy applications, by an air ejector, located at the back of the sampling valve.

In the phase 1, "sampling mode", the sampling

avoids most of frequently occurring problems in field emission monitoring of volatile organic compounds, 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 to 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.



TECHNICAL SPECIFICATIONS

- Detector : Hot Flame Ionisation Detector (FID)
- Selectable measuring ranges : n. 3, e.g. 0-100/1,000/10,000 ppm or mg/Nm³
(other ranges optional, up to 100%)
- Background noise : 0.5 % full scale
- Lower Detectable Limit (LDL) : 1% full scale
- Precision : ± 1% full scale
- Linearity : ± 1% full scale
- Zero drift (24 hours) : < 0,1 ppm
- Span drift (24 hours) : < 0,2 ppm
- Measuring cycle : 30 seconds (up TO 2000)
- Response time : 30 seconds
- Sample flow rate : ≅ 500 ml/min
- Operating temperature range : 0-40°C
- Zero drift : automatic compensation, with alarm status
- Zero/Span check : from front panel and/or from remote control
- Display : LCD digital display (2 X 40 characters)
- Analogue outputs : 0-10 Vdc or 4-20 mA
- Serial Output : RS - 232 (9 pin connector)
- Services
 - Hydrogen : 30 ml/min
 - Air : 300 ml/min
 - Service Air : 4 - 5 bar
- Thermostated chamber : controlled up to 200°C with safety alarm for
out of temperature condition
- Sampling valve : Mod. RSV 108-8 high temperature valve
- General alarm : for flame out, temperature and zero alarm
- Alarm on set value : One, SPDT
- Suggested calibration mixture : 20 ppm C₃H₈ air balance
- Mounting : standard 19" rack or bench top configuration
- Dimensions : 480 x 250 x 560 mm
(19" x 10" x 22" + HXWXD) 5U
- Weight : 15 Kg (fully equipped)
- Standard power supply : 220/110 Vac 50/60 Hz
(to be specified in order)
- Power consumption : 400 W (heat traced line excluded)
- Heat traced line : 80 W/m
- Pneumatic connections : 1/4", 4/6 and 1/2 mm tubes

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	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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