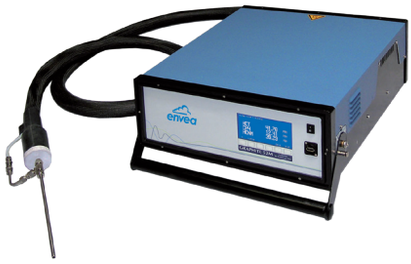
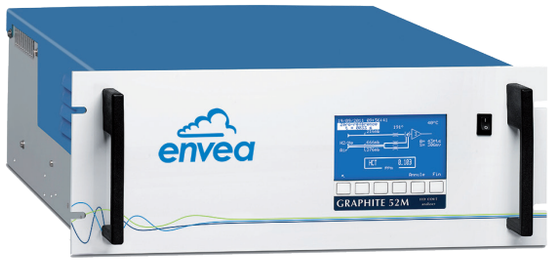
GRAPHITE 52M

Heated FID Hydrocarbons ($THC/NmHC/CH_4$) Analyzer

PROCESS & EMISSIONS MONITORING SYSTEMS

The Graphite52M is one of the sole hydrocarbons analyzers offering QAL1 certification according to EN 14181 & EN 15267-3, and to be also available in a transportable version.





SPECIFIC FEATURES:

- Uses the Flame Ionization Detection (FID) principle, a robust, reliable and accurate technology
- Up to 191°C heated detector for high concentration HC measurement
- Fuel used: mixture of H_2 & He (QAL1) or pure H_2 (optional)
- Fast response time
- High accuracy, sensitivity and stability
- High efficiency long-life catalyst
- Built-in memory for data storage
- Internal zero and air scrubber burner
- Graphic LCD Display with interactive menu driven software and enhanced speed display
- AK protocol communication (RS232)
- Built-in Ethernet TCP/IP connection, USB port and serial interface RS 232
- Response factor tested (TÜV) on more than 20 specifics HC

2 different versions:

- GRAPHITE 52M-S : THC monitoring
- GRAPHITE 52M-D : THC, NmVOC & CH_4 simultaneous monitoring

MAIN APPLICATIONS:

› Stack emission compliance & process monitoring

› Engines exhausts gas & automotive emission testing

› VOC abatment efficiency control and environmental compliance • Combustion control (Thermal or catalytic) • Scrubbers • Carbon absorbers • Monitoring of catalytic converters...

Integration example in engine exhausts gas analysis cabinet

COMPLIANCE WITH:

EU Regulation IED (WID / LCPD / MCP directives), QAL 1 certified according to EN 15267, EN 14181, compliance with EN 12619 & EN 13526, US EPA (40 CFR 60 & 75, CFR 40-1065)

MCERTs CERTIFIED EN 15267-3

U.S. EPA APPROVED 40 CFR 60 ET 75

TÜV CERTIFIED EN 15267-3

QAL1 EN 14181

QAL1 EN 15267

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Heated FID Volatile Organic Compounds Analyzer **GRAPHITE 52M**

PRINCIPLE OF OPERATION:

The gas to be analyzed is sampled with a heated pump then led to the burner supplied with a H_2/He mixture (or pure H_2 optionnaly) and air oxidizer. The separation of the hydrocarbon molecules at high temperature in the cone of the flame provides a ionizing current, with an intensity which is directly proportional to the number of atoms of carbons of the sample.

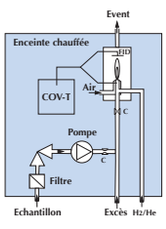
This signal is electronically processed to obtain an accurate measurement of the THC concentration.

All elements in contact with the sample located upstream the detector (pump, ionization detector, filters, tubes and capillaries, etc.) are heated to provide repeatable, reliable performance in the analysis of a wide variety of hydrocarbon concentrations. The geometry of the burner has been specially designed to obtain a linear output signal whatever the concentration measured for any measurement scale.

The GRAPHITE 52M-D holds 2 burners and thus 2 channels. The first burner, as for the GRAPHITE 52M-S version is measuring the THC (Total Hydro Carbons), where the second channel, equipped with a nMHC converter, is measuring CH_4. The D version is measuring simultaneously the THC and the CH_4 and calculates the nMHC part (THC - CH_4).

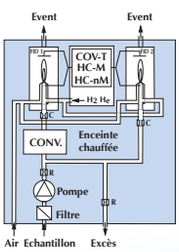
TECHNICAL SPECIFICATIONS

Ranges	0-10/100/1000/10000 ppm optionally 0-30/300/3000/30000 ppm
Noise	< 0,5% of the Full Scale (F.S.)
Accuracy	< 1% of reading between 15% and 100% of F.S.
Response time	THC: < 1,5 sec. / CH_4: < 3,5 sec.
Lower detectable limit	0.05 ppm on the 10 ppm range
Air inlet pressure	1.2 bar
H_2 / He or H_2 inlet pressure	1.2 bar
Air consumption	800 ml/min (around 48L/h)
H_2 / He or H_2 consumption	35 mL/min (around 2L/h) 70mL/min (around 4L/h) for D version
Zero drift	< 1% / 24h
Span drift	< 1% / 24h
Linearity	< 1% for a concentration between 10% and 100% of the full scale's range
Heated block temperature	up to 191°C
Sample flow rate	0.7 to 2 l/min at 20 psi
Capillary block temperature	heated up to 180°C
Converter efficiency rate	> 99%
Housing	standard 19'' - 4U rack
Dimensions	483 x 470 x 177 mm (L x W x H) 19 x 17.3 x 5.3 inches (L x W x H)
Weight	22 kg / 48 lbs
Operating temperature	+5 to +45°C
Power supply	230 VAC, 50 Hz / 115 VAC, 60Hz
Power consumption	500 VA during start up
Communication	RS232 & Ethernet (RJ45), AK protocol



GRAPHITE 52M-S :

Equipped with one burner, the GRAPHITE 52M-S allows continuous and accurate THC monitoring.



GRAPHITE 52M-D :

Equipped with two burners and a catalyser, it allows the simultaneous measurement of Total HC and CH_4. The GRAPHITE 52M-D is ideally suitable to follow the transient phenomena evolution of non methane hydrocarbons and methane.

UTILITIES:

- Span gas: C_3H_8 or CH_4
- Burner supply: H_2/He (H_2 option)
- For operation within the QAL1 certification H_2/He fuel gas mixture is required
- Comburant: dry air (supplied from external air source or from optional external air compressor)

MAIN OPTIONS :

- Portable version in «S» or «D» version
- Internal zero air catalyst converter
- External air compressor / generator
- Internal memory extension
- Heated sampling line with integrated SS 2µm dust filter (3 up to 5m). To be used with heated built-in regulator option
- ESTEL electronic board with :
  - 4 independent analog inputs
  - 4 independent analog outputs
  - 4 remote control inputs
  - 6 dry contacts outputs
- Special screenless version for engine application

RESPONSE FACTOR

Organic compounds	UBA Specifications	MCERTs Spécifications
Aliphatic hydrocarbons	0.94 - 1.03	0.90 - 1.10
Aromatic hydrocarbons	0.80 - 0.92	0.80 - 1.10
Aliphatic alcohols	0.73 - 0.94	0.70 - 1.00
Esthers and Ketones	0.70 - 0.93	0.70 - 1.00

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