

atmosFID

atmosFID Total VOC Analyser

Total VOC Analyser Flame Ionisation Detector Analyser

The atmosFID Total VOC Analyser is designed for Continuous Emissions Monitoring (CEM) of gaseous VOC emissions from a wide range of sources – waste incineration, combustion sources, paint shops and manufacturing processes. As a 19" rack analyser it can be provided in a complete fixed emissions system from Protea, or can be used as a standalone analyser.

With quick measurement time and a complete heated sample path at 300°C, the atmosFID can also operate as a process control, indoor VOC detector or automotive emissions tester.

The compact and robust design includes an embedded touchscreen interface for both gas reading and also detailed diagnostic information.

atmosFID CEM with FTIR

atmosFID can be provided alongside Protea's atmosFIR FTIR analyser to give a complete gaseous CEM system.

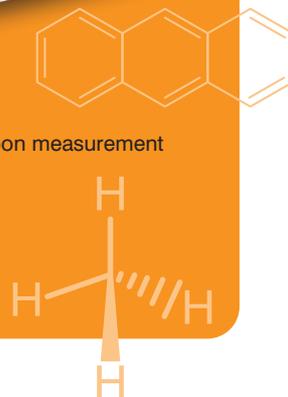
Seamless integration with the FTIR analyser, both in terms of hardware and software, allows for a one-stop solution for all common emissions gases from a single UK-manufacturer. PAS-Pro software operates the CEM and provides measurement, control and status of both the FTIR and FID in the one interface. atmosFID can be independently calibrated (zero and span) whilst the FTIR is operating, and vice-versa.

As the atmosFIR FTIR analyser measures stack moisture (H₂O) and Oxygen (O₂), correction to reporting conditions of the FID readings can be made.

PAS-Pro allows for integration with stack flow measurements, so Mass Emission of VOC in various units can be set-up. PAS-Pro relays Total VOC concentration and all FID parameters over OPC, Modbus and Profibus protocols.



- * MCERTS/EN 14181 certified FID
- * Total VOC and Non-Methane Hydrocarbon measurement
- * Low certification range – 0-15mg/m³
- * High maximum range – 0-10,000mg/m³
- * Quick warm-up time (15 mins)

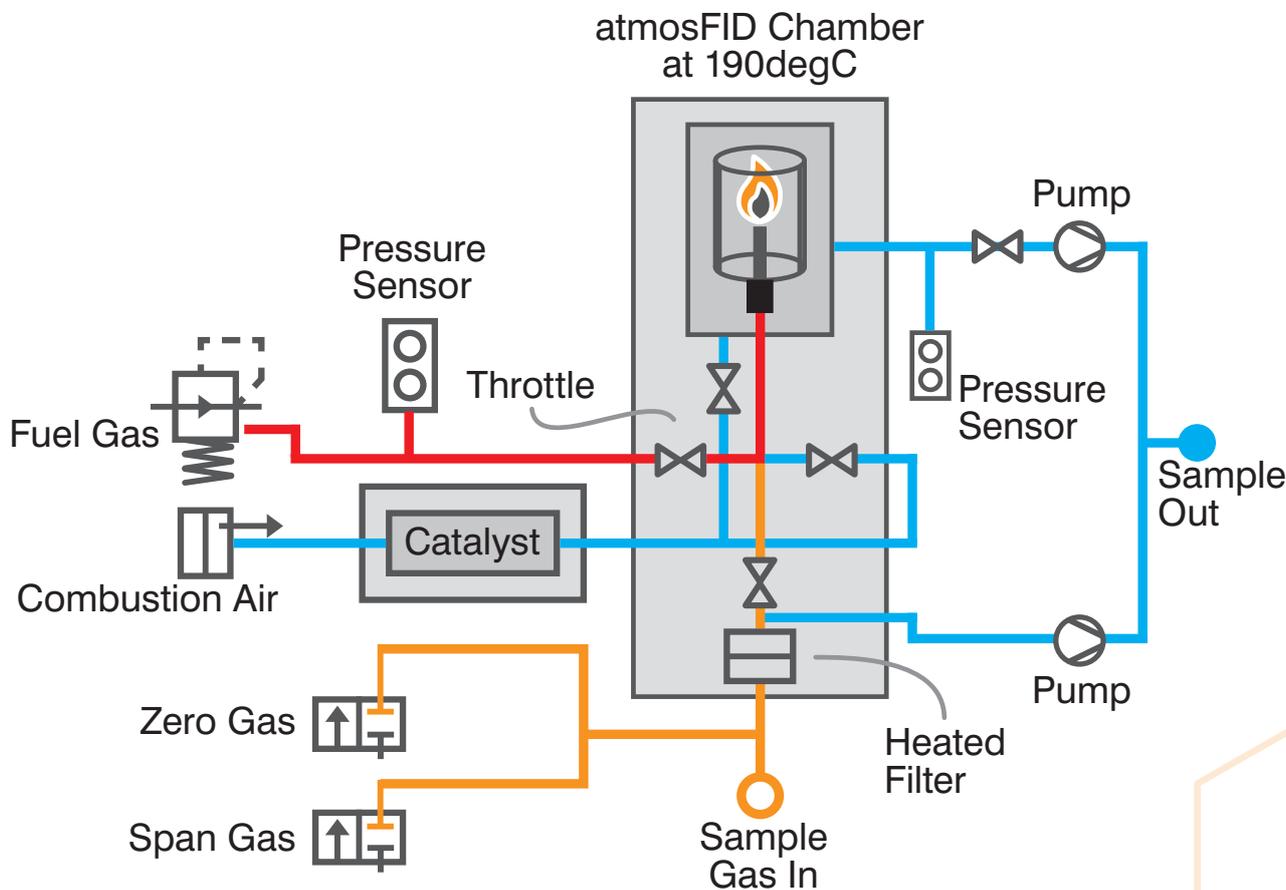


Protea FTIR and FID analysers are combined in full CEM with sampling system control and data reporting.



Multiple Ranges

0 – 15mg/m³ MCERTS Certified	0 – 150mg/m³ MCERTS Certified
0 – 30mg/m³ MCERTS Certified	0 – 500mg/m³ MCERTS Certified
	0 – 10,000mg/m³ Maximum Range



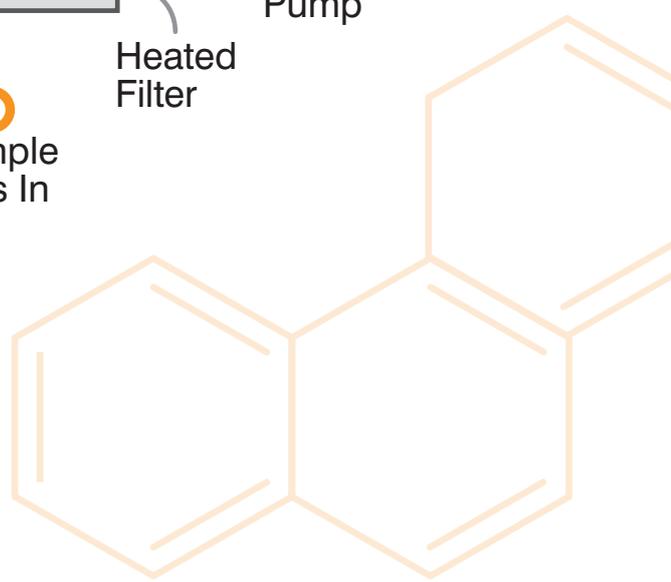
FID Principal

Within the FID analyser chamber is a Hydrogen (H₂) flame burning in an electrical field. The flame is fed by high purity fuel gas (atmosFID can use H₂ gas or a H₂/He mix) and a hydrocarbon (HC)-free combustion air. The sample gas to be analyzed is then also fed into this flame.

The hydrocarbons within the sample gas are “cracked” in the flame and the resulting HC fragments are then ionized. An ion current in the order of 10-14A is generated in the electric field; this electric current is related to a DC amplifier and gives the detection of the HC content.

The measuring method requires that the measuring signal is proportional to the number of non-oxidized carbon atoms in the sample gas. Carbon atoms that are pre-oxidized are only partially measured. This phenomenon is expressed by the response factor (RF) of various hydrocarbons. Protea can provide a complete response factor list for the atmosFID.

Only a small part of the extracted sample gas is combusted for analysis. The majority of the sample is diluted with the combustion air and is exhausted via the analyser vent.



Simple, automatic operation

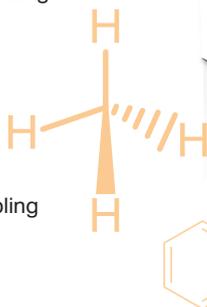
- * Automatic heating to operating temp
- * Automatic ignition of the flame
- * Automatic adjustment of operating pressures
- * Intuitive red-amber-green status
- * All temperatures and fuel pressures measured continuously
- * Electronic regulation of fuel and combustion air

atmosFID

Complete FID Solution from Protea

Protea can provide the atmosFID analyser in standard or custom integrations for a wide range of emissions and process monitoring needs. Using proven sampling system components and control that is used within our entire range of analysers, Total VOC monitoring systems can be provided that can include:

- * Multipoint systems
- * High dust systems – back purge control
- * Back-up systems, with automatic switch over
- * Fast-sampling loop systems with high flow by-pass sampling
- * Integration with IR, FTIR and TDL analysers from Protea
- * Fit for purpose heated sample lines and probes, with in-built features for dilution or calibration gas checks



Heated Stream Selection Module for Multipoint VOC measurement



Specifications

Number of Channels	2
Units	mgC/m3, ppm C1, ppm C3,
Certified Range(s)	0 to 15mg/m3 0 to 30mg/m3 0 to 150mg/m3 0 to 500mg/m3
Maximum Range	0 – 10,000mgC/m3
Repeatability	±1 % Range
Zero Drift	±1 % Range
Linearity	<2% Range
Detection Limit	0.05 mg/m3 org C
Response Time	1 second

Gas Requirements

Fuel	99.999% H2 or He/H2 mix
Fuel Consumption	35 ml/min
Combustion Air	In-built catalyst
Combustion Air Consumption	30 l/hr
Span Gas	Propane (C3H8)
Sample Flow Control	Built-In Eductor @ 190°C

Dimensions and Power

Power supply	100-250 VAC
Consumption (analyser)	350W
Max Consumption (external power e.g. heated line)	1000W
Dimensions	410 x 420 x 3U
Weight	20kg

Data and Operation

Analogue Output	4-20mA
Data Storage (Temporary)	USB Flash memory recording
Data Storage (Long Term)	PAS-Pro Continuous Emissions software running on Windows PC
Emissions Data Reporting	atmosDAHS MCERTS Data Acquisition Software



This Datasheet is a guide to the product and Protea Ltd reserve the right to modify the product without notification.