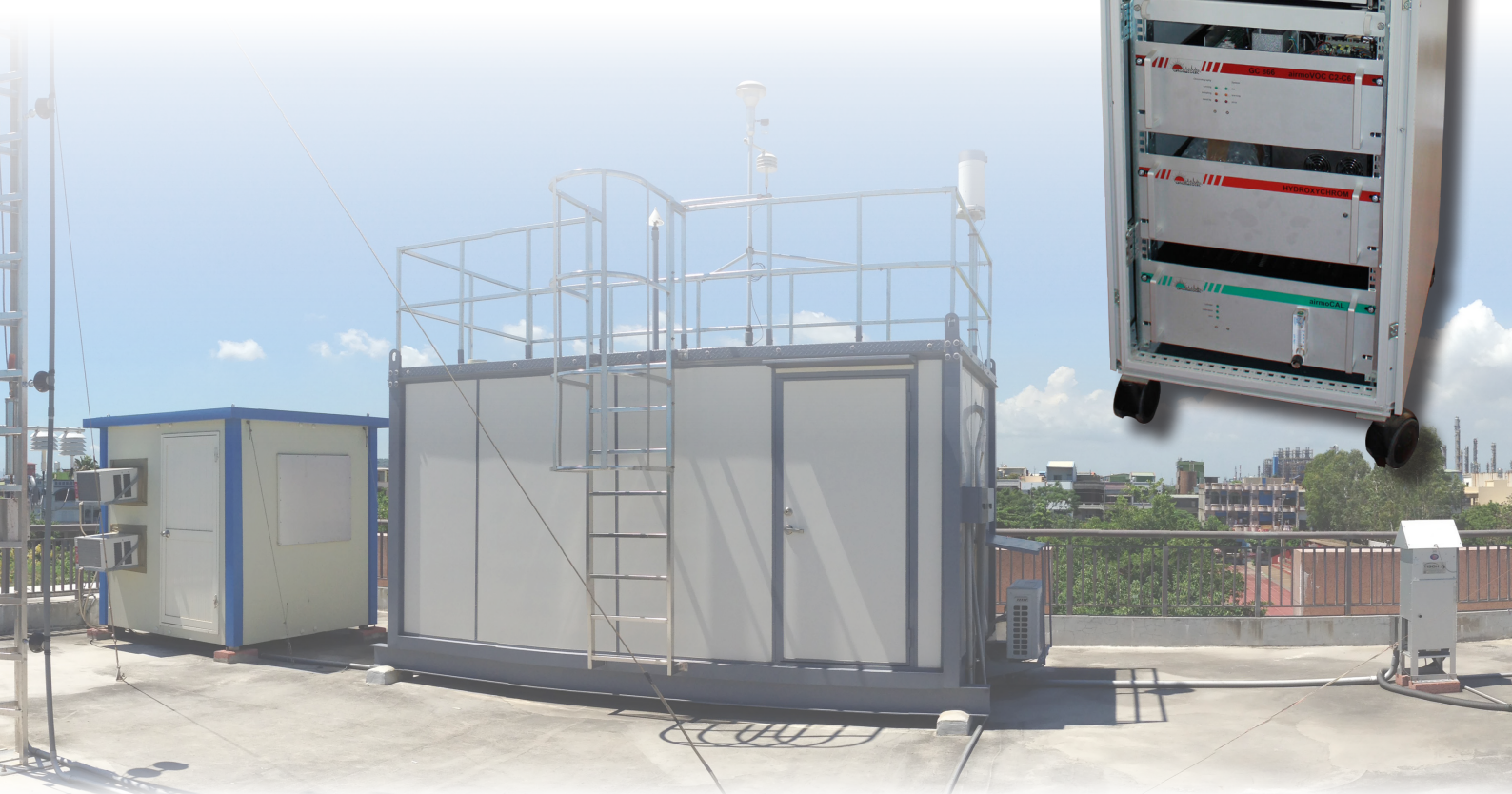


# ONLINE ANALYSIS OF VOLATILE ORGANIC COMPOUNDS BY autoGC-MS

TURNKEY STAND-ALONE SOLUTION

MONITORING OF UP TO 123 COMPOUNDS  
WITH EXPERTISE IN AMBIENT AIR FROM  
CITIES OR INDUSTRIAL AREAS



**OZONE PRECURSORS : VOCs FROM PAMS, TO14, TO15, OVOCs INCLUDING  
BTEX, HALOGENATED VOCs DIOXINS PRECURSORS AND SOLVENTS  
S VOCs: PAHs, PCBs**

# airmOzone + DET QMS

## VOCs monitoring with speciation at ppt level

*The airmOzone + DET QMS from CHROMATOTEC® offers continuous, online analysis of volatile organic compounds from concentrations as low as 1 ppb in indoor or outdoor ambient air.*

*All compounds from C2 to C12 are analyzed by the autoGC MS and unknown compounds are identified by our VistaMS software comparing automatically obtained mass spectrum to embedded NIST library down to sub ppb level.*

*Specific configuration for linear hydrocarbons up to C16 or gaseous PAHs are analyzed using airmoVOC C6C16 expert + DET QMS.*

*The system uses proven autoGC technology and process quadrupole mass spectrometer developed and improved over 35 years for ozone precursor analysis in ambient air. The quality and performance of our systems has been recognized worldwide with recognition from Standard Organisations such as TUV, MCerts and Chinese Pattern approval.*

### **Air quality monitoring station for VOCs:**

The airmOzone® + DET QMS has been developed to monitor all available VOCs founded in ambient air from cities or industrial areas.

The system can be used to continually analyze and identify with expertise the compounds on fixed station or on a mobile station such as mobile van thanks to the inbuilt gas generators and calibrator.

The integrated software Vistachrom and VistaMS transfers all results and information through to a host system automatically.

For specific industrial area airmoVOC expert application 624 + DET QMS can be the right solution to monitor chemical solvents in ambient air.

### **Indoor air monitoring: airmoTWA**

Monitoring Airborne Molecular Contamination in indoor cleanroom air by chromatotec GCMS dedicated to this application airmoTWA composed by one airmoVOC expert + DET QMS which monitor and record high or low concentrations or a large

number of molecules specific to these process.

Moreover, its security system allows setting alarms to inform on important changes of the surrounding atmosphere and track the origin of the contamination via speciation and expertise.

### **Air quality monitoring station for SVOCS:**

The airmoVOC C6C16 + DET QMS is used to monitor high carbon VOCs up to the semi volatile hydrocarbons in industrial site, tropical forest and on site under decontamination.

With detection limit as low as 1 ppt for Benzene or Naphthalene the system can measure gaseous PAHs in ambient air in continue up to Fluorene and linear alcanes up to N-Hexadecane.

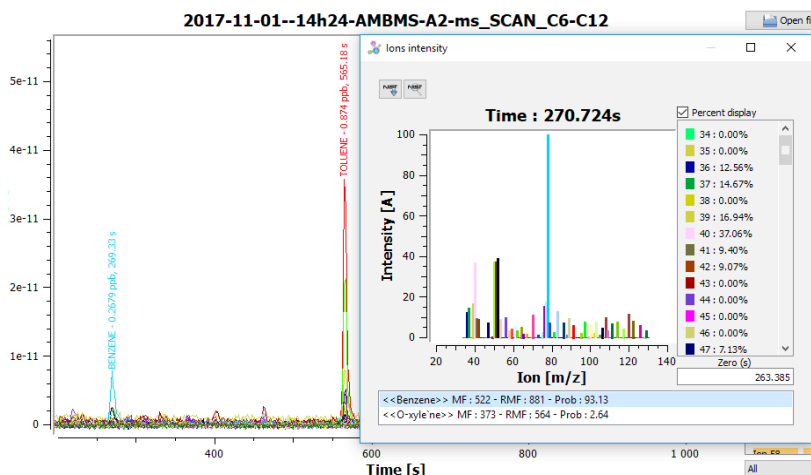
The fully automatic and in filed system allow to detect such compounds thanks to internal sampling line and ultra-high sensitivity.

For analysis of only semi volatile compounds the airmoC10C20+ expert with DET QMS is available.

# Features & benefits of the airmOzone + DET QMS system

## FID and MS detection

The use of our micro FID and process MS ensures no interference of results and high expertise by combining the long term stability and linearity of FID and the expertise in term of identification of the MS. The only gas required by the system is a feed of Hydrogen and zero air provide by inbuilt ultra-high purity chromatotec gas generators.



## Internal multipoint calibration system

All airmOzone + DET QMS system are supplied with airmoCAL MFC: internal calibration by permeation tube, cylinder inlet and MFC for dilution of the cylinder or the permeation tube. Results are thus automatically validated. No external calibration cylinders are required for operation.

## Low maintenance

The airmOzone + DET QMS is a low maintenance system offering considerable cost savings over the lifetime of the system.

Metallic capillary columns are not changed after years of operation, the process Mass Spectrometer filament life time are more than 2 years in GCMS operation mode.

## VISTACHROM and VistaMS Software

The VISTACHROM operating software developed by CHROMATOTEC® offers a user-friendly interface for easy operation and processing of data. Alarms, status reports, working parameters and all results are easily transferred through MODBUS in standard. Automatic calibration and sampling can be easily set-up and modified, directly or remotely as required. Calculation module: average, statistics, odor index...

VistaMS software is dedicated to the results from the process Mass Spectrometer and is linked to NIST library for automatic identification of unknown compounds from a targeted library\* or from the full library.

Automatic comparison between FID and MS results to provide valid data.

\*Targeted library limited to the compounds which can elute from the particular GC.

## Speciation of compounds

The airmoVOC experts autoGC offers high level speciation using hydrogen as carrier gas but in case of bad separation the process MS with VistaMS allow automatic quantification of all compounds using targeted mass by compounds.

Up to 123 VOCs can be analyzed with airmOzone + DET QMS configuration. The compounds list can be adjusted according to the customer request by selecting the best configuration between the autoGC range of instrument from CHROMATOTEC.

# Technical Specifications

<b>Molecule range</b>	<p>Capabilities of analysis:</p> <ul style="list-style-type: none"> <li>- up to 123 VOCs including PAMS 56, TO14, TO 15 molecule lists</li> <li>- Alkanes, hydrocarbons and PolyAromaticsHydrocarbons (PAHs) with airmoVOC C6C16/ MS configuration</li> <li>- Oxygenated VOCs in addition to current VOCs</li> </ul>
<b>Technologies</b>	Automatic Gas Chromatography (autoGC) and Process MS
<b>Dimensions</b>	<p>19'' cabinet :</p> <p>Height: 1800 mm (analyzer alone) / Wheels : 100mm / Lifting rings : 45 mm            Total Height : 1945 mm / Width : 600 mm / Depth: 800 mm</p>
<b>Detectors</b>	Flame Ionization Detector (FID) and Mass Spectrometer
<b>Detection limits</b>	<ul style="list-style-type: none"> <li>- Benzene or Naphtalene down to 1 ppt with Trap GC-MS/FID</li> <li>- Benzene 500 ppb with direct injection with QMS</li> </ul>
<b>Range</b>	<ul style="list-style-type: none"> <li>- ppt to ppb / 0.5 to 45 µg/m<sup>3</sup> (mCerts tests) with Trap GC-MS/FID</li> <li>- 500 ppb to % with direct injection with QMS</li> </ul>
<b>RSD</b>	<ul style="list-style-type: none"> <li>&lt; 0.3 % over 48 h on Retention Time</li> <li>&lt; 3 % over 48 h on concentration</li> </ul>
<b>Cycle Time</b>	<ul style="list-style-type: none"> <li>- 30 minutes (for very low concentrations)</li> <li>- 6 minutes (for fast analysis)</li> <li>- Few seconds with MS used in direct mode.</li> </ul>
<b>Analysis Mode</b>	<ul style="list-style-type: none"> <li>- GC / FID</li> <li>- QMS: SCAN mode / MID mode</li> </ul>
<b>Results</b>	Data storage (timestamp)
<b>Communication</b>	<ul style="list-style-type: none"> <li>- MODBUS protocol included in standard</li> <li>- 4-20mA current output (option)</li> <li>- MODBUS / JBUS or MGS1 communication protocol (option)</li> </ul>
<b>Supervisor</b>	<ul style="list-style-type: none"> <li>- Embedded industrial computer Windows® based with LCD display</li> <li>- SSD 128 Go hard disk</li> </ul>
<b>Carrier gas / Gas supply per analyzer</b>	<ul style="list-style-type: none"> <li>- H<sub>2</sub> (FID and carrier gas): 30 ml/min (inlet 2 bars; 1/16'' swagelock)</li> <li>- Air (FID): 180 ml/min (inlet 2 bars; 1/8'' swagelock)</li> <li>- Sample inlet (vacuum pump) 1/4'' swagelock</li> </ul>
<b>Power Supply</b>	230 V / 115 V (50 Hz/60 Hz) / Consumption max. 1730 Watt



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