



## UltraTrace-PPT

Ultra high sensitivity, Maximum Performance Mass Spectrometer

### UltraTrace-PPT

*From ESS Ltd*

UltraTrace-PPT from ESS is the flagship instrument of our product range and gives a level of sensitivity and accuracy that is unbeatable and unparalleled. Designed specifically for ultra low level detection of organic components, UltraTrace-PPT offers the user True parts per trillion level detection.

ESS uses a linked hybrid technique which combines the class leading EcoSys-P Mass Spectrometer with a Thermal Desorber. This method allows for rapid pre-concentration of sample gas with subsequent injection into the Mass Spectrometer, allowing organic compounds (e.g. Benzene, Toluene, etc.) to be detected at levels as low as **100 ppt (parts per trillion)**.

For ultimate flexibility, the EcoSys-P can be easily removed from the system for operation as a stand-alone mass spectrometer if required.

#### **Typical Application Areas:**

- **Ambient Air VOC's**
- **Fugitive Emissions monitoring**
- **Contamination Detection in Food Grade / Medical Grade Gases**
- **Personnel Exposure risk monitoring**

Gas entering the Thermal Desorber is stored on a cooled tube containing an adsorbent material. The volume stored is carefully controlled by Mass-Flow controllers. Sample to the MS is 'stepped' depending upon stored volume. Hence the greater stored volume, the lower the detection limits. Typically storing for 2 minutes gives c. 100 ppt volatile detection.

Sample gas is transmitted from the TD to the MS via the high sensitivity membrane inlet of the EcoSys-P. This, in turn, passes directly into the ultra-gas tight ion source, where ionisation takes place. Thereafter sample gas is speciated by the quadrupole mass filter.

For non-organic species, these can be analysed directly by the mass spectrometer using a bypass arrangement for direct transfer into the EcoSys-P.

For applications that do not require these extreme detection capabilities, the EcoSys-P can be used as a stand-alone MS, or easily removed to give the flexibility of a portable option.



#### **ESS Ltd**

GeneSys House | Denton Drive | Northwich | Cheshire | CW9 7LU UK

Tel: +44 (0)1606 49400 | Fax: +44 (0)1606 330937

Email: [sales@essco.com](mailto:sales@essco.com)

Web: [www.essco.com](http://www.essco.com)



## Ultratrace-PPT

Apart from having a cryogen-free thermal desorption system, Ultratrace-PPT offers several other advantages, such as:

- **Wireless remote operation option**
- **Multiple Point Sampling- fully user adjustable - Up to 64 Sample points**
- **Unique data file for each sample point**
- **Automatic calibration option**
- **Long Distance sampling**
- **Unattended operation**
- **Removable EcoSys-P Mass Spectrometer**

Notable users include the Government of Singapore EPA (Jurong Island), Budweiser, Guinness, Queensland EPA (Australia).



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Web: [www.essco.com](http://www.essco.com)