

# Mercury Vapor Monitor VM-3000

## AIR QUALITY MONITORING

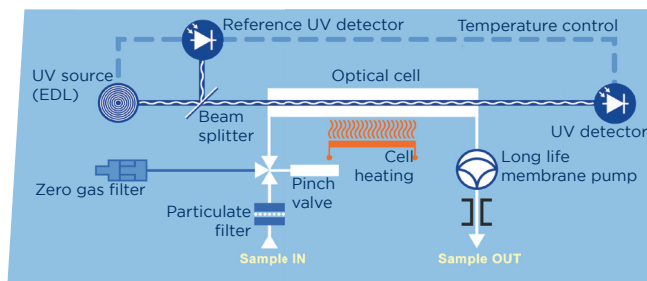
The VM-3000 is a continuous real-time measurement analyzer for mercury in air and other gases - in the laboratory as well as in industrial and mobile applications.

### MAIN APPLICATIONS

- Work place monitoring
- Exhaust air monitoring in mercury recovery plants
- Emissions monitoring
- Quality control of industrial gas
- Investigation of contaminated sites
- Environmental monitoring
- Hazardous waste inspection
- Research and science
- Detector and analyzer for laboratory applications



The Mercury Vapor Monitor VM-3000 is one of the backbones of our modular system for mercury analysis.



VM-3000 Flowchart

### MEASURING PRINCIPLE

The mercury concentration is measured in an optical cell made of fused silica. A maintenance-free membrane pump continuously feeds the sample gas to the optical cell where UV absorption is measured at a wavelength of 253.7 nm. This so-called cold vapor atomic absorption spectroscopy (CVAAS) measuring method is extremely sensitive for mercury determination and has been used successfully for many years. In contrast to the occasionally propagated atomic fluorescence spectroscopy (AFS) method it is low in interference and requires neither an amalgamation step nor expensive noble gases as carriers.

### SPECIFIC FEATURES

- Easy to operate
- Direct reading mercury vapor meter
- Proven reliable detection method: UV absorption (CVAAS)
- Measuring ranges 0.1 - 100 / 0 - 1000 / 0 - 2000 µg/m<sup>3</sup>
- Sensitivity: 0.1 µg/m<sup>3</sup>
- Automatic zero adjustment
- Integrated battery for mobile operation (option)
- Integrated data logger (option)
- Metal housing with sturdy handle (Rack version with mounting brackets for 19" racks as an option)
- Membrane pump with long service life
- Input filter with teflon membrane
- Factory-calibrated
- Stable optical bench

## OPTIONS AND EXTENSIONS

- Software update and a reaction unit turn the VM-3000 into a laboratory unit for liquid samples and digested solids (= LabAnalyzer 254).
- Dustproof model
- Multiplexer operation
- 12 V DC-model: it can be run on external or internal battery power as well as 110 - 230 V AC mains power.

## TECHNICAL SPECIFICATIONS

Measuring principle:	UV absorption (CVAAS), wavelength = 253.7 nm
UV source:	Electrodeless low-pressure mercury lamp (EDL)
Stabilization method:	Reference beam method
Optical cell:	Fused silica (Suprasil) l = 230 mm heated, approx 45°
Measuring ranges:	<ul style="list-style-type: none"> <li>• 0.1 - 100 µg/m<sup>3</sup> (0.01-10 ppb)</li> <li>• 0 - 1000 µg/m<sup>3</sup> (0-100 ppb)</li> <li>• 0 - 2000 µg/m<sup>3</sup> (0-200 ppb)</li> </ul>
Sensitivity:	0.1 µg/m <sup>3</sup> (0.01 ppb)
Response time:	< 1 second, real time measurement
Alarm:	on exceeding maximum concentration, 3 levels programmable
Status alarms:	<ul style="list-style-type: none"> <li>• measuring cell polluted</li> <li>• battery state (option)</li> <li>• UV lamp exhausted</li> </ul>
Display:	Graphical LC Display with background illumination
Signal outputs:	<ul style="list-style-type: none"> <li>• analogue: 4...20 mA</li> <li>• serial: RS 232 / USB</li> </ul>
Data storage:	Internal data logger for up to 15000 measurements (option)
Software for data transfer:	Mercury Instruments „Hg-Transfer“ included on delivery, export of data: EXCEL® and ASCII format
Power supply:	<ul style="list-style-type: none"> <li>• 110 - 230 VAC/50 - 60 Hz;</li> <li>• internal 12 V DC battery pack (option)</li> </ul>
Power consumption:	100 VA
Dimensions (WxHxD):	45 x 14 x 33 cm
Weight:	approx. 7,8 kg (without battery pack)

Product developed and manufactured in Germany by:

Mercury Instruments GmbH Analytical Technologies  
Liebigstr. 5  
D-85757 Karlsfeld, Germany

+ 49 (0)8131 505720  
mail.mi@envea.global

(part of the ENVEA Group)



Representantes / Distribuidores Exclusivos

Argentina

Tel: (+54 11) 5352 2500  
Email: info@dastecsr.com.ar  
Web: www.dastecsr.com.ar

Uruguay www.dastecsr.com.uy

Paraguay www.dastecsr.com.py



Extension: Rapid mercury determination in the laboratory with the Mercury LabAnalyzer 254



Option: Due to the great demand the VM-3000 with dustproof enclosure is now available in our regular product line. It is meant for stationary wall or stand mounting in areas soiled by particulate matter.



Multiplexer operation

The VM-3000 can be combined with a multiplexer unit for automatic monitoring of several different measurement points.

See information about the Mercury Monitoring System (MMS) in a special brochure.

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