

# Mercury Stack Gas Monitor SM-4 mobile

## EMISSIONS MONITORING SYSTEMS

The Mercury Stack Gas Monitor SM-4 mobile is meant for automatic monitoring of total mercury emissions (CEM) at different sites.

The SM-4 mobile was developed on the basis of the well proven Mercury Stack Gas Monitor SM-4. Its measurement principle and technique, its thermocatalytic reactor, the detector and the sample probe are identical with those of the stationary SM-4.

### SPECIFIC FEATURES

- Modular construction: easy to transport
- Quickly dismantled and reassembled
- Sample dilution directly at the probe: eliminates interference with virtually any sample matrix
- Maintenance free low temperature converter directly at stack: no transport of ionic mercury thus minimizing mercury adsorption
- Detects total mercury (elemental, ionic and bound mercury)
- Extremely wide range of measurement: 0,05 bis 1000  $\mu\text{g}/\text{m}^3$
- Heated particle filter with automatic cleansing
- Length of sample line up to 100 meters
- Automatic calibration for elementary and ionic Hg
- Automatic quality control (QAL3) during operation
- Maintenance free



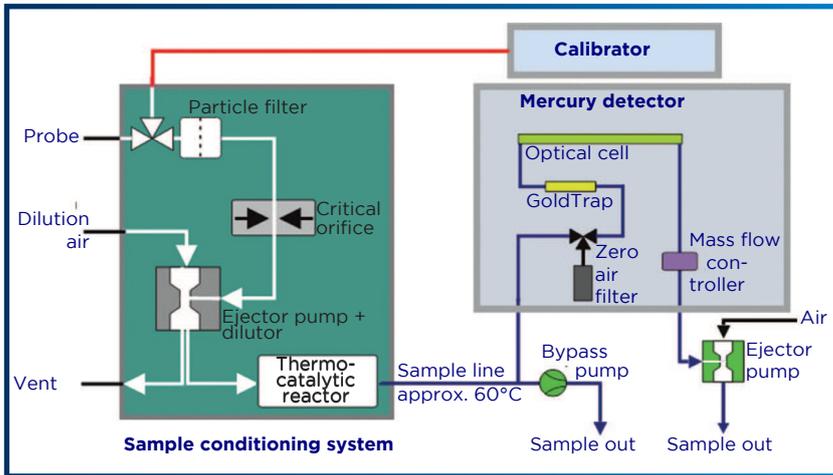
SM-4 Mobile:

Designed for accurate and reliable measurement of very low mercury concentrations in flue gases within complex matrices ( $\text{SO}_2$ ,  $\text{NO}_x$ ,  $\text{HCl}$ , etc.)

### APPLICATIONS

- Coal fired power plants
- Waste incineration plants
- Sewage sludge incineration plants
- Cement kilns
- Method 30A applications
- Testing of stationary CEMs
- Optimizing of mercury control technologies
- Recording of Hg-emission situations as well as determination of the efficiency of Hg-reduction techniques





Mercury Stack Gas Monitor SM-4 mobile: Schematic flow diagram

**TECHNICAL SPECIFICATIONS**

Measuring principle:	Dilution probe with thermocatalytic converter at stack, Amalgamation (MI GoldTrap), Cold Vapor Atom Absorption Spectrometry (CVAAS), Wavelength = 253,7 nm
Measuring range:	0,05 µg/m <sup>3</sup> to 500 µg/m <sup>3</sup> Hg
Detection limit:	0,0001 µg/m <sup>3</sup> (Detector); < 0,01 µg/m <sup>3</sup> (System) µg/m <sup>3</sup>
Response time:	Typically 180 sec.
Max. sample temperature:	200°C
Operating temperature:	-5 °C to 40 °C
Sample line length:	up to 100 m
Air consumption:	peak 35 l/min, 6 bar
Signal outputs:	<ul style="list-style-type: none"> <li>• analogue: 4-20 mA (500 Ω max.)</li> <li>• serial: RS 232</li> <li>• Modbus RTU/RS485 (option)</li> <li>• Ethernet (option)</li> </ul>
Status outputs:	3 x pairs of relay contacts (dry contacts)
Remote access:	Modem and SM-4 software (option)
Power supply:	230 V / 50 Hz; (110 V / 60 Hz option)
Power consumption:	<ul style="list-style-type: none"> <li>• Analyzer cabinet: 450 VA;</li> <li>• Air conditioning cabinet: 1000 VA;</li> <li>• Heated sample line: 30 VA per meter</li> </ul>
Calibration:	<ul style="list-style-type: none"> <li>• automatic, with built in calibration gas generator for elementary Hg (option)</li> <li>• automatic, with built in calibration gas generator for ionic Hg (option)</li> <li>• manual, with built in heated fitting for feed of externally provided calibration gas (e.g. HOVACAL®)</li> </ul>
Dimensions (WxDxH cm):	<ul style="list-style-type: none"> <li>• Analyzer cabinet: 60 x 60 x 60</li> <li>• Air conditioning cabinet: 60x60x73</li> <li>• Probe: 38 x 34 x 75</li> <li>• Probe controller: 44 x 27 x 48</li> </ul>
Weight:	<ul style="list-style-type: none"> <li>• Analyzer cabinet: 50 kg</li> <li>• Air conditioning cabinet: 50kg</li> <li>• Probe converter unit: 28kg;</li> <li>• Probe controller: 14 kg</li> </ul>



Due to its modular design, the Mercury Stack Gas Monitor SM-4 mobile can easily be transported, assembled and disassembled. It is the ideal solution for the determination of total vapor phase mercury emissions at varying sites.



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