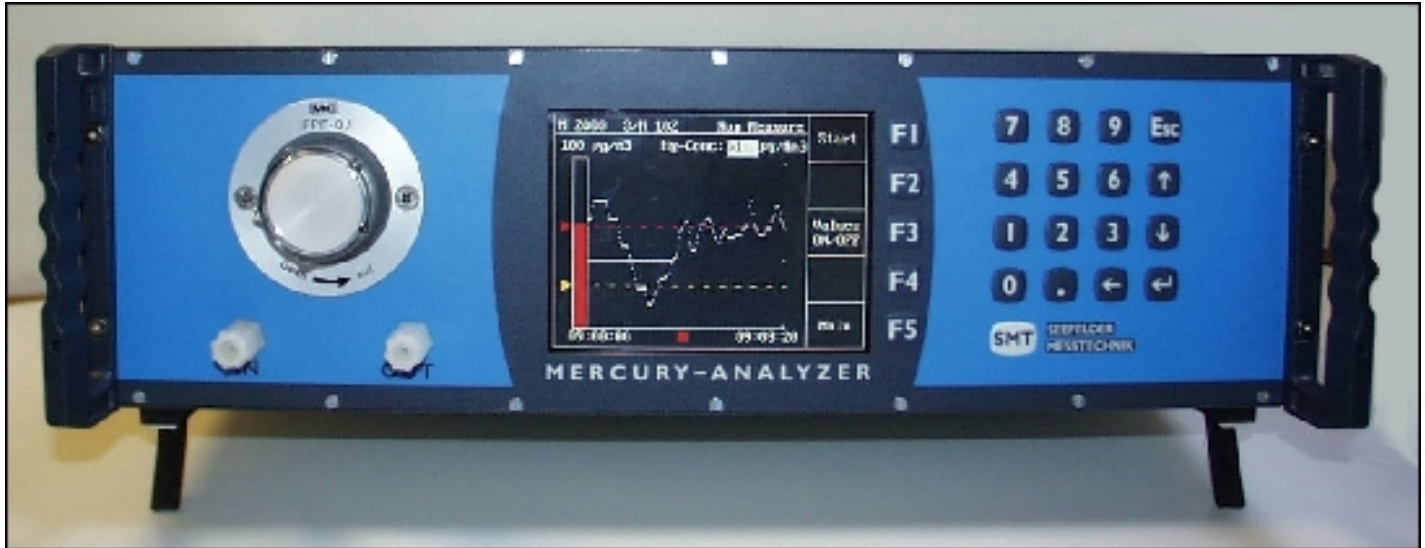


Continuous Measurement of Mercury in Ambient Air, Workplace Environments and Process Streams



Special Features

- ✓ Continuous real-time online operation
- ✓ Easy to operate, self-explaining software
- ✓ Auto-zero for precise measurement
- ✓ Available for tabletop, 19" rackmount and mobile use
- ✓ Measurement range of 0.1 to 2000 µg/m³ (non-linear compensation in high measuring range)
- ✓ Temperature control for light-source and cuvette
- ✓ Unique electrodeless mercury lamp with long lifetime (over 20,000 hours)
- ✓ Wide range power supply (90 - 265 VAC/VDC, 12 VDC)
- ✓ Graphic TFT-display and one-touch keypad
- ✓ External Keyboard and VGA monitor, remote control by modem possible
- ✓ Approved for EMC and low-voltage directives (CE)
- ✓ Main component ("heart") of a complete range of mercury analysers for gases, liquids, solids
- ✓ RS 232 and 4-20 mA or 0-10 V analogue outputs
- ✓ Self-diagnosis, status outputs, printer port

Measuring Principle

The measuring principle used in the HG - MONITOR 3000 is based on the resonance absorption of mercury atoms at a wavelength of 253.7 nm. It exploits the high vapor pressure of mercury and the fact that except for the noble gases, Mercury is the only element that has monoatomic vapor at room temperature.

Functionality

The sample gas is continuously fed via a dust filter into the optical cuvette of the HG - MONITOR 3000. Here an absorption measurement of the radiation emitted by a UV light source (253.7 nm Hg line) is carried out. The intensity of the UV lamp is continuously measured via a reference beam and the measurement is corrected accordingly to compensate for possible fluctuations of the light source.

UV Light Source

The HG - MONITOR 3000's UV source is a low-pressure mercury discharge lamp with high-frequency excitation. This method yields extreme-narrow-band emission lines, which are congruent with the absorption lines of the mercury atoms. This provides improved detection sensitivity and a lower cross-sensitivity compared to other light sources. The lamp has a much longer service life than other UV lamps. The lamp unit is temperature-stabilized.

Easy Operation

The HG - MONITOR 3000 is micro-processor-controlled. After it is switched on the device automatically calibrates itself and then switches to measuring mode. Inputs can be made via the waterproof membrane keyboard. The following parameters are menu-adjustable:

- Display of ug/m³ or ppb
- Conversion to standard conditions
- Time interval for printer output
- Alarm level and prelim level
- 3 time intervals for computation of mean value
- Measuring range 0...20, 0...100, 0...1000, 0...2000 ug/m³ (ranges are user programmable)

Fields of Application

- Mercury in air
- Mercury in gases such as H₂, N₂ and Natural Gas.
- Work-place monitoring
- 2 adjustable TLV (Threshold Limit Value) monitoring
- Measurement of mercury in exhaust air
- Ambient air screening at ground level
- Detector for amalgam technology

HG - MONITOR 3000

Data Display and Output

The mercury concentration is displayed on a 4-line display and is also outputted to a printer interface and an RS-232 interface. The output is adjusted for pressure and temperature. Mean values over programmable periods of time (e.g. half-hour mean values) can also be calculated. The pressure and temperature of the sample gas can be displayed by pressing a button. An analog output signal is also available for connecting to a data acquisition system or a chart recorder.

Self-diagnostics system

The built-in processor constantly monitors the functions of vital components of the HG - MONITOR 3000. If a fault occurs the user is warned via the display and via a separate output signal.

Technical Specifications

MEASURING METHOD	Cold Vapor Atomic Absorption
WAVELENGTH	254 nm
UV LAMP	Temperature-controlled high frequency excitation lamp
CUVETTE	230 mm, quartz glass
MEASURING RANGES (GASEOUS PHASE)	0-20, 0-100, 0-1000, 0-2000 ug/m ³ (ranges are user programmable) ppb display at choice
ACCURACY	± 2 % at 100 ug/m ³
SENSITIVITY	0.1 ug/m ³
TEMP/PRESSURE COMPENSATION	as option
RESPONSE TIME	Selectable, 0 / 1 / 5 / 30 Seconds
CALIBRATION	Factory-calibrated
ALARM	2 levels programmable, over full scale
MEAN VALUE	3 different mean values programmable, selectable between 0-999 min
OUTPUT SIGNALS	Analog : 0-10 V (optionally 4...20 mA) Digital : Centronics and RS 232~ Status : (Alarm and Error Message)
DISPLAY	TFT color graphic display with background illumination
PUMP	Membrane pump, ~ 1.5 l/min
FILTER	Dust filter, easy exchange of cartridges
POWER SUPPLY	90 - 240 VAC at 50 / 60 Hz, 12 VDC
OPERATING TEMPERATURE	32 to 113 °F (0 to 45 °C)
DIMENSIONS	(Width x Height x Depth) without handle 18 in x 5.2 in x 13 in (449 mm x 133 mm x 331 mm) Standard with handle, optional version: 19" chassis unit
WEIGHT	12.5 kg

HG - ANALYZER 254NE	Batch Measurement of Mercury in Water, Sludge, Soil, Suspensions and Food
HG - MONITOR 3000	Continuous Measurement of Mercury in Air, Workplace Environments and Process Streams
HG - MAT 1	Continuous Measurement of Mercury in Water and Industrial Liquid Wastes
HG - CEM	Continuous Measurement of Mercury in Stack and Source Emissions without Reagents
HG - MPLEX 4/8	Multiplexer for 4 to 8 individual sampling lines with permanent purging of non sampled lines