

Jerome® 431-X
Mercury Vapor Analyzer



The Jerome 431-X mercury vapor analyzer uses a patented gold film sensor for accurate detection and measurement of toxic mercury vapor in the air. This portable hand-held unit can easily be carried to locations with mercury concerns for applications such as industrial hygiene monitoring, mercury spill clean up and mercury exclusion testing. Simple, push-button operation allows users to measure mercury levels from 0.003 to 0.999 mg/m³ in just seconds.

The gold film sensor is inherently stable and selective to mercury, eliminating interferences common to ultraviolet analyzers, such as water vapor and hydro-carbons. When the sample cycle is activated, the internal pump in the 431-X draws a precise volume of air over the sensor. Mercury in the sample is adsorbed and integrated by the sensor, registering it as proportional change in electrical resistance. The instrument computes the concentration of mercury in milligrams per cubic meter or nanograms, and displays the final result in the

LCD readout. An improved film regeneration circuit in the 431-X makes the sensor last even longer than earlier models. Additional accessories are available to customize the Jerome 431-X to meet individual application needs. An optional communications configuration allows data logging, computer interface, and dosimeter analysis capabilities. For data acquisition during portable surveys, a Jerome data logger plugs into the 431-X. Using the Jerome Communications Interface (JCI) software, the analyzer and data logger download recorded data to the computer for analysis, printout, and permanent record storage. The JCI software can also program the instrument for stand-alone monitoring. If the sensor becomes saturated while the 431-X is attached to the data logger or computer, the analyzer automatically regenerates the sensor and then resumes sampling. Jerome gold coil dosimeters, used in conjunction with a low-flow pump and a communications-configured 431-X, can provide time-weighted averages for personal mercury exposure. Analysis is quickly performed in-house with these reusable dosimeters. They can also be used as collection devices for applications such as gas stream analysis. An internal option board allows auto-zeroing, DC power operation, timed regeneration, and timed sampling during prolonged unattended sampling periods. The option board also allows external fresh air solenoid support and 4-20 mA or 0-2 V analog output. A molded hard carrying case or soft field case give added versatility and organized storage for the instrument and its accessories.

431-X Features

- Accurate analysis of mercury vapor in seconds
- Rugged and easy to operate
- Rechargeable internal battery pack for portability
- Automatic backlight for LCD during low light conditions
- Microprocessor ensures a linear response throughout the entire range of the sensor
- Survey mode for rapid source detection of mercury vapor concentrations
- Wide detection range allows multiple applications
- Pressure sensitive membrane switch operation
- Inherently stable gold film sensor

Applications

- Mercury Surveys and Soil Screening
- Spill Response
- Ensure Worker Safety
- Research Projects for Stack, Flue and Natural Gas
- Hazardous Waste Sites
- Mercury Exclusion Tests
- Monitor Disposal and Recycling of Fluorescent Lamps
- Exhaust Duct Analysis

Specifications

Resolution	0.001 mg/m ³
Detection Range	0.003-0.999 mg/m ³
Precision	5% Relative Standard Deviation at 0.100 mg/m ³
Accuracy	± 5% at 0.100 mg/m ³
Response Time	13 s in Sample Mode; 4 s in Survey Mode
Flow Rate	750 cc/min
Power Requirements	100-120 V ~ 50/60 Hz, 1 A or 220-240 V ~ 50/60 Hz, 1 A
Internal Battery Pack	Rechargeable nickel-cadmium
Environmental Range	0-40 °C, noncondensing, nonexplosive
Interfaces	RS-232 PC using JCI software
Dimensions	6in• W x 13in• L x 4in• H
Weight	7 lb
Warranty	One year, factory parts and labor
Certifications	European Communities (CE) for 220-240 V~ model only