Simultaneous Particulate and Gas
Concentration Measurement

Evolutionary Dual-Analysis Design

The 3M™ EVM Series monitors both particulates and air quality in one compact instrument. This durable, easy-to-use model provides simultaneous worksite area monitoring of:

- Particulate mass concentrations (0.1-10 um)
- Select volatile organic compounds*
- Relative humidity
- Temperature
- Select toxic gases*
- Carbon dioxide
- Air velocity (with purchase of optional accessory)

* Refer to Sensor Specifications chart on page 5 for details regarding toxic sensor selection. Visit www.questtechnologies.com for details regarding volatile organic compounds and toxic gas sensor selection.

From healthcare and manufacturing to construction and military applications, the EVM Series provides a lower cost of ownership by combining three instruments into one. Its user-friendly interface, proprietary dial-in rotary impactor, and advanced reporting and analysis features make it a particulate and IAQ area monitoring instrument of choice for industrial hygienists and safety professionals worldwide.

3M

EVM-7: One Solution, Multiple Measurements

Intuitive, User-Friendly Controls

Its large display and buttons, simple screens, straightforward commands and robust software solutions put all of the EVM-7's capabilities right at your fingertips.

Simultaneous Measurement of Particulate and Gas Concentrations

Reduces the need for multiple instruments and lowers the cost of ownership.

Dial-in Rotary Impactor

Twist and click selection of particulate settings: PM2.5, PM4, PM10 or TSP.*

Eliminates disassembly and reduces the need for external cyclones.

90° Light Scattering Photometer

Provides real-time measurement of particulates.

Built-in Sampling Pump for Gravimetric Analysis

Allows user to insert a 25 or 37 mm cassette to capture particulates for laboratory testing.

Within the instrument's measurement range

Durable Design For Real-World Applications

The EVM-7 is a durable yet lightweight instrument designed for real-world use. It can be tripod mounted or hand-held, making it well suited for a variety of area monitoring applications, including:

- Industrial hygiene area surveys
- LEED building clearance screening
- Construction / mining site monitoring
- Engineering studies
- Industrial fence line monitoring
- IAQ walk through and stationary studies
- Air quality assessment
- VOC screening and monitoring

Technical Features and Advanced Monitoring Capabilities

From basic to advanced monitoring, the EVM-7 has the features needed for many air quality and particulate concentration assessments. Here are just a few highlights:

- Factory calibrated to ISO 12103-1, A2 (Arizona Road Dust)

- Site correction factors for various particulates (user supplied)

- Auto run and security code protection for unattended sessions

- Carbon dioxide (CO_2) trending algorithms for calculation of room air exchange rates (with purchase of QuestSuite™ Professional II software)

- Dew point readings for analysis of airborne moisture percentage

- Smart sensors which are auto-detectable at power on

- Real-time measurement with once per second update rate

- Time history data logging

- Trend graphing for all parameters

- Standard Quest menu-driven user interface with 10 pushbuttons / 4 softkeys

- User selectable digital and analog output for external functions

- Displayed measurements of Level, Minimum, Maximum, Average, Short-Term Exposure Level (STEL) and Time Weighted Average (TWA)

Removal of the back cover allows for convenient access and customization of gravimetric filter cassette for sample collection.

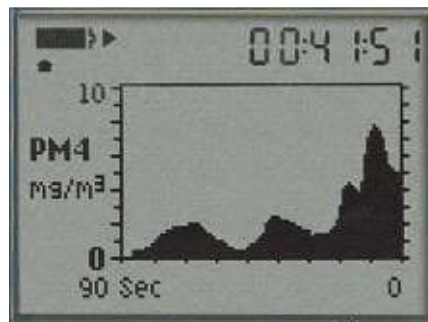Removable sensor bar provides easy access to toxic electrochemical sensors.
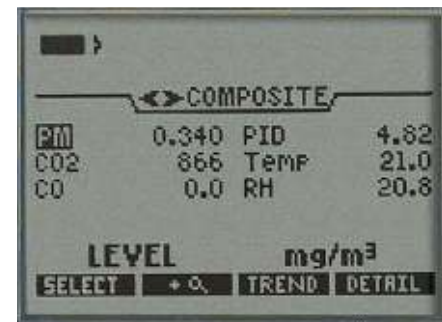
Easy-to-Read Measurement Screens

Particulate Concentrations Screen

Displays user-adjustable impactor setting and six simultaneous measurements.

Trend Screen

Provides synopsis of logged measurement values in a graphical format. Available for each parameter.

Composite Screeen

Displays available parameters for a snap-shot overview of measurement values.

EVM-3 and EVM-4 Models

Ideal for organizations that do not require the full functionality of the EVM-7

EVM-3

Specializes in real-time direct reading of particulate concentrations. This tri-sensor instrument utilizes the built-in sampling pump and dial-in impactors for real-time mass concentration readings.

EVM-3 measures:

- Particulates (mass concentration)
- Temperature
- Relative Humidity

EVM-4

Multi-sensor instrument designed for indoor air quality investigations. Simultaneously track, log and monitor multiple indoor air quality parameters, including room air exchange rates and dew point.

EVM-4 measures:

- Toxic Gas (choose from nine sensors)
- Relative Humidity
- Carbon Dioxide
- Temperature

Sensor Specifications

METHOD	BASE UNITS	DISPLAY RESOLUTION	DISPLAY RANGE	ACCURACY REPEATABILITY
PARTICULATES:				
90° Light Scattering / Integrating Photometer	mg / m^3	0.001	0.000 - 199.9	+/-15% (rel ARD*)
	ug / m^3	1	0 - 20,000	+/-15% (rel ARD*)
Particulates Size Range	µm	N/A	0.1 - 10	**
VOC: 10.6eV Photoionization Detector				
Low Sensitivity PID	select ppm or mg / m^3	0.1	0.0 - 2,000	+/-5% / 2%*** at calibration level
High Sensitivity PID	select ppm or ug / m^3	1	0 - 50,000	+/-5% / 2%*** at calibration level
CO_2:				
NDIR (Non-Dispersive Infrared)	ppm	1	0 - 20,000	+/-2% of signal +/-50 ppm between 0-2,500
TOXIC ELECTROCHEMICAL SENSOR:				
CO - Carbon Monoxide Sensor	ppm	1	0 - 1,000	+/-5% / 2% of signal
Cl_2 - Chlorine Sensor	ppm	0.1	0.0 - 20	+/-5% / 2% of signal
EtO - Ethylene Oxide Sensor	ppm	0.1	0.0 - 20	+/-5% / 2% of signal
HCN - Hydrogen Cyanide Sensor	ppm	0.1	0.0 - 50	+/-5% / 2% of signal
H_2S - Hydrogen Sulfide Sensor	ppm	1	0 - 500	+/-5% / 2% of signal
NO - Nitric Oxide Sensor	ppm	0.1	0.0 - 100	+/-5% / 2% of signal
NO_2 - Nitrogen Dioxide Sensor	ppm	0.1	0.0 - 50	+/-5% / 2% of signal
O_2 - Oxygen Sensor	%	0.1	0.0 - 30	+/-5% / 2% of signal
O_3 - Ozone Sensor	ppm	0.01	0 - 1.0	+/-10% / 2% of signal at calibration level
SO_2 - Sulfur Dioxide Sensor	ppm	0.1	0.0 - 50	+/-5% / 2% of signal
TEMPERATURE:				
Junction Diode	deg C	0.1	0.0 - 60.0	+/- 1.1 deg C
	deg F	0.1	32.0 - 140	+/- 2 deg F
RELATIVE HUMIDITY:				
Capacitive	% humidity	0.1	0.0 - 100	+/-5% RH* of signal between 10%-90%
AIR VELOCITY:				
Omni-directional Heated Thermistor Windprobe	meter/sec	0.1	0.0 - 20	+/-0.12 m/s + 4.5% of signal
	feet/min	1	0 - 3940	+/-23.6 ft/min + 4.5% of signal

*   ARD - Arizona Road Dust, RH - Relative Humidity
** The photometer can detect particulates up to 100 µm; however, accuracy is reduced for sizes greater than 10 µm.
*** Relative Isobutylene

EVM Series Specifications

GENERAL:	
DISPLAY LANGUAGES	English, French, German, Italian, Portuguese and Spanish
USER INTERFACE	10 pushbuttons and 4 softkeys, menu driven
DISPLAY TYPE	Transreflective 128 X 64 LCD with backlighting
SOFTWARE COMPATIBILITY	QuestSuite™ Professional II
STANDARDS	CE Mark and RoHS compliant
PARTICULATE IMPACTORS SIZE FRACTIONS	PM2.5, PM4, PM10 or TSP (within the instrument's measurement range)
FLOW RATE	1.67 L/min
DISPLAYED DATA:	
MEASUREMENTS	Level, Minimum, Maximum, Average, Short-Term Exposure Level (STEL), Time Weighted Average (TWA)
REAL-TIME MEASUREMENT	Once per second display update rate
TIME HISTORY DATA LOGGING INTERVALS	Seconds: 1, 5, 15, 30 / Minutes: 1, 5, 10, 15, 30, 60
TREND GRAPHING INTERVALS FOR ALL PARAMETERS	Minutes: 1.5, 3, 15 / Hours: 1.5, 3, 8, 12, 24
STATUS INDICATORS	Battery, Run, Stop, Overload and UnderRange
AVERAGING TIME	1 to 30 seconds
PHYSICAL CHARACTERISTICS:	
SIZE	19 cm X 19 cm X 7 cm (7.5" X 7.5" X 2.75")
WEIGHT	1.3 kg (2.9 lb)
HOUSING	Static dissipative ABS Polycarbonate housing
TRIPOD MOUNT	Standard photographic mount on bottom, 1/4" - 20 screw heads
OPERATING CONDITIONS:	
TEMPERATURE RANGE	0 °C to 50 °C (32 °F - 122 °F)
PRESSURE RANGE	65 kPa to 108 kPa
RELATIVE HUMIDITY RANGE	10% to 90% non-condensing
STORAGE CONDITIONS:	
TEMPERATURE	-20 °C to 60 °C (-4 °F to 140 °F)
HUMIDITY	0% to 95% RH, non-condensing
ELECTRICAL CHARACTERISTICS:	
INTELLIGENT SENSORS	Auto-detectable when inserted at power-off mode
BATTERY PACK	Rechargeable lithium-ion
BATTERY LIFE	Minimum of 8 hours under continuous operation
EXTERNAL DC POWER INPUT	10 to 16 Volt power inlet (nominal 12V DC) 1.5A
POWER ADAPTER	Universal AC adapter 100 to 240 Volt AC, 50-60 Hz

All Specifications Subject to Change

QuestSuite™ Professional II Software

It's an extremely effective "System Solution" for recording, reporting, charting and analyzing exposures to a variety of occupational and environmental hazards. With QuestSuite™ (sold separately), there are no more headaches from learning different programs or switching among multiple software applications. It's the one simple yet robust system solution for all Quest Technologies data logging instruments.

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