

# 3M™ EVM Series

*Particulate, VOC, and IAQ monitoring all in one portable instrument*



## What is the EVM series?

- Portable-area monitoring instrument with a laser-photometer that measures and stores concentration levels of total airborne-dust over time
- PID for VOC Measurements
- Indoor Air Quality Monitor
- Measures up to 8 different parameters simultaneously



## What does the EVM do?

### *Overview of measurements*

- Particulates (mass concentration)
- Volatile Organic Compounds (PID)
- Toxic Gas
- Carbon Dioxide
- Relative Humidity
- Temperature
- Dew Point
- Air Velocity (with optional accessory)



# Common Applications

- Work Site Monitoring
- Air Quality Assessments
- Military Site Evaluation
- Construction/Mining Site Monitoring
- Regulatory Compliance (LEEDS Screening)
- Time-History Assessment
- Emissions Sampling
- Area Industrial Hygiene Surveying
- Toxicology & Epidemiology Studies
- Exceedance Indicator



# Why use the EVM?

## ■ It's all about Detection and Protection

- *Determine when workers may need to use PPE from potential air-borne particulate pollutants that may be present from industrial processes (such as sanding, cutting, crushing, grinding, and transportation).*
- *Detect high concentrations of flammable dust or fibers.*
  - *NFPA-654 - Standard for prevention of fire and dust explosion*
- *Identify potential areas of high concentrations of air pollutants such as toxic gas, VOC's and Carbon Dioxide.*
- *Provides information on adequacy of air handling / building ventilation systems.*



## New features available

- Support for a Parts Per Billion (PPB) Photo ionization (PID) sensor – Revision R10K and later.
- Added Auto-Run with Date, Day of the Week, and Timed run modes – Revision R10M and later.
- Added molecular weight to log files allowing QSPII to convert between PPB(PPM) and  $\mu\text{g}/\text{m}^3$ ( $\text{mg}/\text{m}^3$ ). Used for the LEED initiative – Revision R10R and later.
  - Note: <http://questtechnologies.com/support/qsp2.aspx> is a good source for firmware update information.

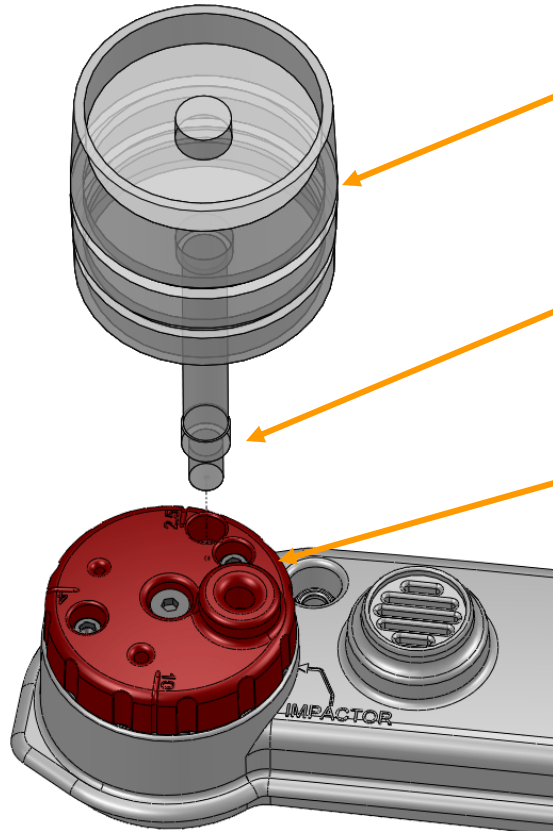
# EVM and keypad explained



# Overview of sensors



# Particulates Zero Calibration



**Zero/HEPA filter example**

Used for particulate zero cal.

**Zero Filter with coupler and vent opening**

Insert the Zero Filter via the black coupler into the hole near the label "2.5" vent opening.

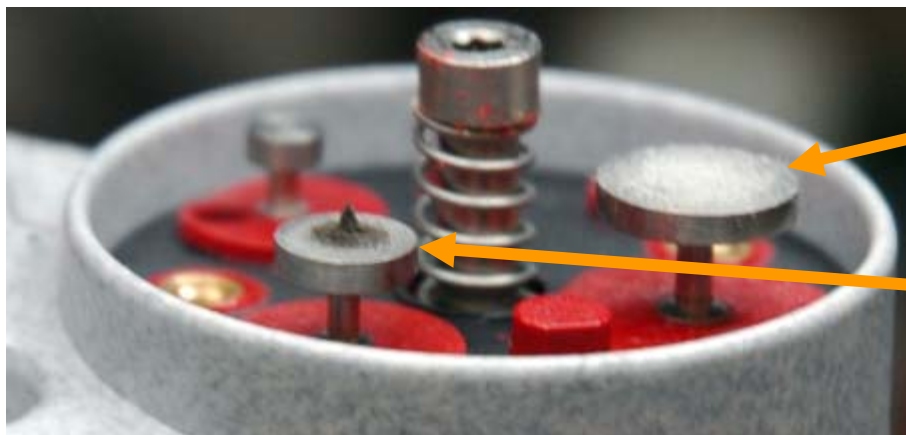
**Turret**

Turn the turret so "PM" appears on the display of the EVM. The raised section will align with the "impactor" text.



NOTE: wipe a **very thin film of silicone** grease onto the metal plates using a Q-Tips ensuring it is well greased when calibrating/logging.

# About the Impactor: Silicone grease and cleaning



Apply a thin-film of silicone grease before calibrating and measuring (on the appropriate impactor setting.)

When dust accumulates in a pyramid form on top of the impactor, this indicates cleaning is required.

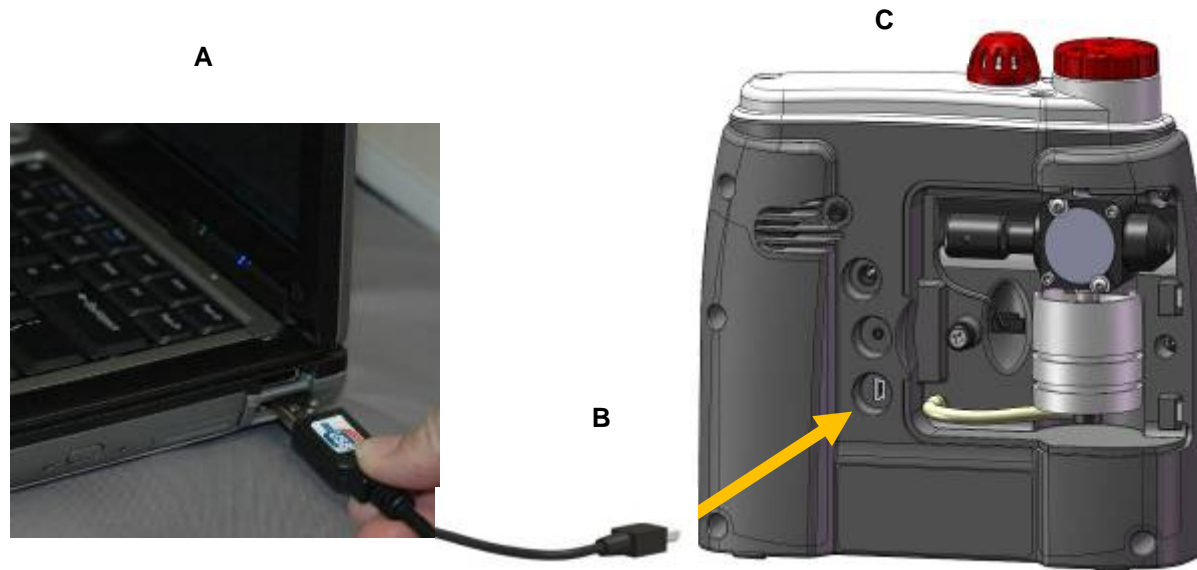
# Pump Flow Rate Calibration



Outlet: Used to connect a bubble-flow meter with tubing

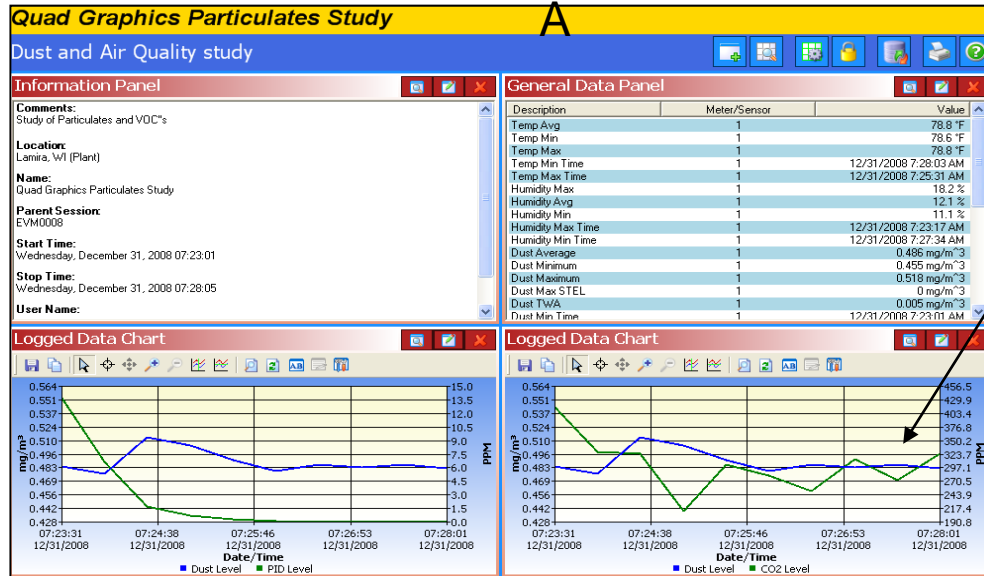
# Reviewing results

- View on the display
  - *Past measurements via the “past session summary” screen (access detail/files softkeys)*
- Quick download to QSP-II

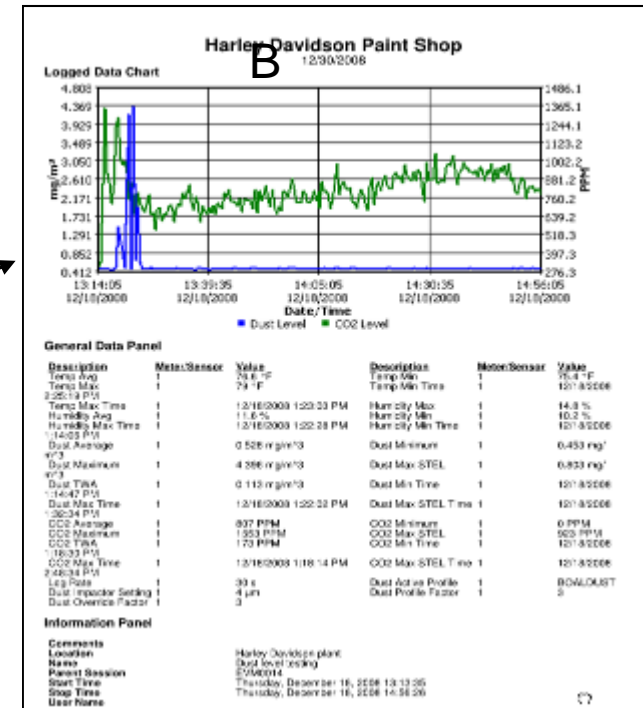


# EVM Sample data

## A. Customize what appears on charts/graphs



- ✓ Will display all parameters on one chart/graph
- ✓ Or select side-by-side charts to compare sensors (such as Dust and RH and Temp and CO2)



## B. Manage data

- ✓ Print customized reports and/or save/store data for future analysis

# EVM models explained

Models and sensors	Optional sensor accessories
<p><b><u>EVM-7 includes:</u></b></p> <ul style="list-style-type: none"> <li>✓ Particulates</li> <li>✓ Carbon monoxide (CO) or (1) selectable toxic gas</li> <li>•Selectable toxic gas sensors include:                             <ol style="list-style-type: none"> <li>1. Carbon Monoxide (CO)</li> <li>2. Chlorine (CL2)</li> <li>3. Ethylene Oxide (ETO)</li> <li>4. Hydrogen Cyanide (HCN)</li> <li>5. Hydrogen Sulfide (H<sub>2</sub>S)</li> <li>6. Nitric Oxide (NO)</li> <li>7. Nitrogen Dioxide (NO<sub>2</sub>)</li> <li>8. Oxygen (O<sub>2</sub>)</li> <li>9. Sulphur Dioxide (SO<sub>2</sub>)</li> </ol> </li> <li>✓ Volatile Organic Compounds with PID ppm or PID ppb sensor</li> <li>•ppm – parts per million (0 – 2,000 ppm)</li> <li>•ppb – parts per billion (0 – 50,000 ppb)</li> <li>✓ Relative Humidity</li> <li>✓ Temperature</li> <li>✓ Carbon Dioxide (CO<sub>2</sub>)</li> </ul>	<ul style="list-style-type: none"> <li>✓ AirProbe-10</li> </ul>
<p><b><u>EVM-4 includes:</u></b></p> <ul style="list-style-type: none"> <li>✓ Carbon monoxide (CO) or selectable toxic gas</li> <li>✓ Relative Humidity</li> <li>✓ Temperature</li> <li>✓ Carbon Dioxide (CO<sub>2</sub>)</li> </ul>	<ul style="list-style-type: none"> <li>✓ AirProbe-10</li> <li>✓ Toxic sensor/CO sensor</li> <li>✓ CO<sub>2</sub> sensor</li> <li>✓ PID sensor</li> <li>✓ Particulates</li> </ul>
<p><b><u>EVM-3 includes:</u></b></p> <ul style="list-style-type: none"> <li>✓ Particulates</li> <li>✓ Relative Humidity</li> <li>✓ Temperature</li> </ul>	<ul style="list-style-type: none"> <li>✓ AirProbe-10</li> <li>✓ Toxic sensor/CO sensor</li> <li>✓ CO<sub>2</sub> sensor</li> <li>✓ PID sensor</li> </ul>



# Reference materials/Questions?

- [www.questtechnologies.com](http://www.questtechnologies.com)
  - *EVM Page*
  - *EVM Spec. Sheet*
  - *EVM Manual*

