



# **BASELINE<sup>®</sup> piD-TECH<sup>®</sup> eVx<sup>™</sup>** **OEM PHOTOIONIZATION SENSORS**

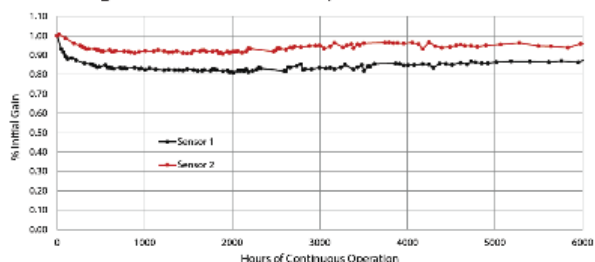
Total Volatile Organic Compound Measurement



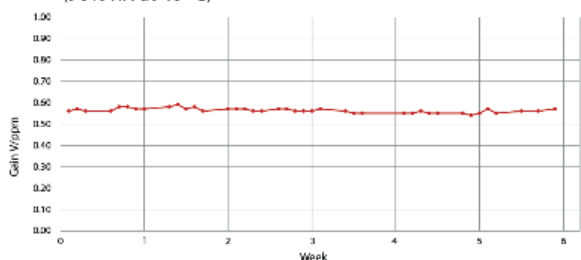
# BASELINE® piD-TECH® eVx™ OEM PHOTOIONIZATION SENSORS



Long-life in continuous operation



Stable Gain in High Humidity Environments  
(90% RH at 40 °C)



As one of the most widely used gas detection techniques, the Photoionization Detector (PID), in general, is commonly applied in both portable and fixed instruments for detection of a wide variety of organic compounds and some inorganic gases in ambient air.

MOCON's patented, award-winning Baseline® piD-TECH® eVx™ plug-in sensor provides complete photoionization detection capabilities and is designed to be mechanically similar with major brands of electrochemical sensors. Outstanding features make the piD-TECH® line of sensors the right choice for OEM manufacturers looking to include VOC detection capabilities in their handheld, mobile, or fixed devices.

Offering better value and design flexibility for OEM markets, and incorporating state of the art technology that cannot be matched in the marketplace.

Our dedicated sensor engineers will assist you in integrating our intrinsically safe PID sensor into your products, reducing the time and high cost associated with product development.

## Unlimited Applications

- Industrial hygiene & safety monitoring
- Confined space entry
- Homeland security & Federal Customers
- Low concentration leak detection
- Sick building syndrome
- Electronics manufacturing
- OSHA, NIOSH, EPA
- Waste disposal
- Military operations
- Storage locations
- Hazmat sites & spills
- Indoor air quality
- Fenceline monitoring
- Soil contamination & remediation
- Emergency Services

## Features & Benefits

- Designed for use in intrinsically safe circuits:
  - UL, CAN/CSA, ATEX, IECEx certified
- Integral Shielding
- 4P cell platform compatible
- Lamp re-ignition circuit for fast, repeatable & dependable startup
- Reliable long lamp life:
  - Guaranteed 6,000 *continuous* hours
- Internal, inupt voltage regulation for greater signal stability
- Dual filter technology protects from aerosols & particulates
- Negligible temperature response
- Guard electrode curtails humidity effects
- Rapid response & greater baseline stability
- Easily cleaned & field serviced

# piD-TECH® eVx™ - 10.6 eV

All concentrations as isobutylene



**Green**  
Part No: 045-010  
Range: >10,000 ppm  
MDQ: 500 ppb  
T90: < 5 sec (typical)



**Purple**  
Part No: 045-011  
Range: >2,000 ppm  
MDQ: 100 ppb  
T90: < 5 sec (typical)



**Red**  
Part No: 045-012  
Range: >200 ppm  
MDQ: 10 ppb  
T90: < 5 sec (typical)



**Yellow**  
Part No: 045-013  
Range: >20 ppm  
MDQ: 1.5 ppb  
T90: < 12 sec (typical)



**Blue**  
Part No: 045-014  
Range: >2 ppm  
MDQ: 0.5 ppb  
T90: < 12 sec (typical)

## Specifications

### Technical Specifications

<b>WEIGHT</b>	< 8 grams
<b>PACKAGE TYPE</b>	4P cell dimensional profile
<b>SERVICEABLE PARTS</b>	Lamp, detector cell, filters (2), cap, spacer
<b>LAMP LIFE</b>	6000 hours
<b>ONBOARD FILTERS</b>	Removes liquids / particles
<b>WARRANTY PERIOD</b>	2 years, not including consumables

### Electrical Characteristics

<b>SUPPLY VOLTAGE</b>	3.2 V to 5.5 V (input voltage regulator included)
<b>CURRENT</b>	≤ 38 mA @ 22°C ± 2°C
<b>OUTPUT SIGNAL</b>	0.045 V to 2.5 V linear

### Operating Specifications

<b>TEMPERATURE RANGE</b>	-20 C to 60 C (-4 F to 140 F)
<b>RELATIVE HUMIDITY RANGE</b>	0 to 90% non-condensing
<b>HUMIDITY RESPONSE</b>	< 1% of full scale @ 90% relative humidity
<b>HUMIDITY QUENCHING EFFECT</b>	< 15% @ 90 relative humidity

## Certifications & Approvals

<b>USA</b>	UL 913, 8 <sup>th</sup> Edition. Intrinsically Safe Apparatus and Associated Apparatus for use in Class I, II, and III, Division 1, Hazardous (Classified) Locations
<b>EUROPE</b>	ATEX directives: EN 60079-0:2018, EN 60079-11:2012; (EX) II 1 G Ex ia IIC Ga, -20 °C - 60 °C ATEX certificates: DEMKO 13 ATEX 1304446U Rev. 6; C E 0539
<b>OTHER</b>	IECEx Standards: 60079-0 Ed. 7; 60079-11 Ed. 6; Certificate IECEx UL 13.0050U Issue: 6; CAN/CSA C22.2 No.157-92
<b>PATENTS</b>	US Pat 6,646,444 Japan Pat 3,793,757

# piD-POD® Flow-Through Enclosure



The Baseline piD-POD® from MOCON allows for sample path integration of a Baseline piD-TECH® eVx™ photoionization sensor into existing gas monitoring instrumentation without extensive engineering expense.

The piD-POD® is a direct way for OEMs to provide a total volatile organic compound (TVOC) measurement into their instrument design.

Compact and economical, the piD-POD® has no moving parts and consists of a cylindrical housing which accommodates the piD-TECH eVx photoionization sensor and inlet/outlet sample ports.

It is engineered for inlet flows of up to 300 cc/min. and comes equipped with a PCB-mounted connector with mating adapter.

<b>PART NO.</b>	043-370
<b>INLET PRESSURE</b>	0 to 60 psi
<b>INLET FLOW</b>	0 to 300 cc/min
<b>POWER</b>	3.2 to 5.5 V DC
<b>OUTPUT</b>	0 to 2.5 V DC*
<b>WEIGHT</b>	40 g (1.41 oz) with PID sensor

### Features & Benefits

- Maintains all of the performance specifications of the piD-TECH eVx photoionizations sensor
- Cap threaded for easy mounting
- 1/4-28 UNF sample inlet/outlet ports
- PCB mounted connector with mating connect included
- piD-TECH eVx sensors sold separately, allowing user to choose sensitivity & lamp energies

# BASELINE® piD-TECH® eVx™ OEM PHOTOIONIZATION SENSORS

PRODUCT BROCHURE

## Volatile Organic Compound (VOC) Measurement

Volatile Organic Compounds (VOC's) are potentially dangerous compounds created by industrial and natural processes that vaporize under normal atmospheric conditions. VOC levels are much higher in indoor environments as they can be emitted by many manufactured products such as carpet, paint and cleaning supplies. Outdoor sources can include landfills, industry, and hydrocarbon emissions.

Prolonged human exposure to VOC's have been known to cause respiratory problems, cancer and neurological damage. Environmental damage can include air, water, and soil pollution.



## Ionization Potentials & Response Factors

The sample gas is exposed to an ultraviolet light from a lamp which ionizes the target gases to be detected by the instrument and reported as a concentration. VOC's with an ionization potential (IP) less than the eV of the lamp will be detected by photoionization.

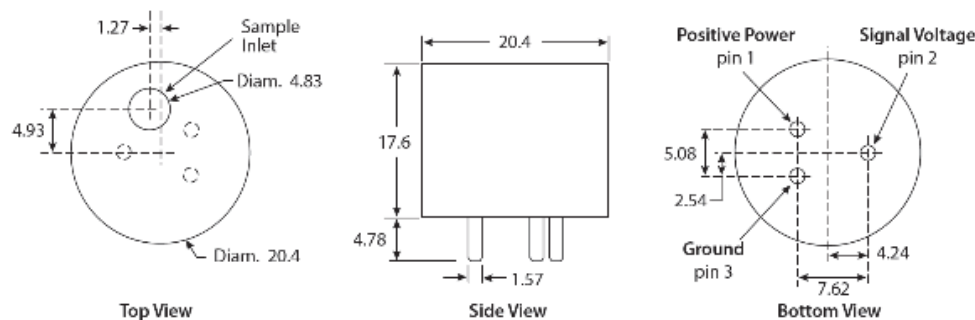
The ratio between the sensitivity of isobutylene to that of a target compound is called a response factor (RF). For example, the Baseline piD-TECH® eVx™ sensor from MOCON has a typical sensitivity of 1 mV/ppm for isobutylene and 2 mV/ppm for benzene. That means that benzenes RF is equal to 0.53.

The RF allows the user to measure the concentration of various gases without actually calibrating the sensor with the target gas. A comprehensive list of ionization potentials and response factors is available from MOCON, Baseline products at your request.

## Common VOC's

	COMPOUND	IONIZATION POTENTIAL	RESPONSE FACTORS*
DETECTABLE	NAPHTHALENE	8.12	0.37
	BENZENE	9.25	0.53
	ACETONE	9.69	1.2
	ETHYLENE	10.5	10.1
NON-DETECTABLE	OXYGEN	12.08	-
	HYDROGEN	15.43	-
	NITROGEN	15.58	-

\*All response factors based upon Isobutylene



## Mechanical Specifications

Dimensions are in millimeters (+/- 0.1)

Use of socketed connection is required. Soldering or cutting the connection pins may permanently damage the sensor and void the warranty.

