### Portable Analyzer Product Line

#### Measure
- VOC’s
- ppb, ppm, %
- benzene
- 1,3 BD
- ETO
- TCE
- PCE
- VCM
- THC
- O₂
- H₂S
- NH₃
- HCl
- HCN
- Cl₂
- H₂
- NO
- NO₂
- SO₂
- CO₂
- CO
- CH₄
- Hg
- CO₂
- others:
- Call us

#### Technologies
- GC, Photoionization, Combustible Gas (CG), Thermal Conductivity, UV absorbance, Infrared Absorbance, Electrochemical (>25)

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#### Models
- **Model 30 basic CO**
- **Model 40 IR CO₂**
- **Model 45 IR/EC CO₂/O₂**
- **Cell Phone Connect**
- **Model 60 PID- VOC’s**
- **Model GC121**
- **Model GC312**

**Datalogging and WiFi & Bluetooth**
**Model 30 - Economical IR CO2 - Indoor air quality analyzer for home, school rooms, HVAC check**

Parameters:  
- **IR CO₂ only**
- Dual Beam IR, 1” display
- Range to 5,000 ppm
- Diffusion based
- Weight- 0.25#
- Control by call phone

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**Model 40 -**

Parameters:  
- **IR CO₂ only**
- Dual Beam IR, 1.5” display
- Range to 5,000, 10,000 ppm
- Internal Pump- faster response
- Weight- 0.30 #
- Control by 3 button keypad or call phone
- Alarms, RH/T, IP65

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**Model 45 - Improved accuracy**

Parameters:  
- **IR CO₂ and optional O₂**
- Dual Beam IR, 2” display
- Range to 2,000, 5,000 & 10,000 ppm or % CO₂
- Internal Pump- faster response
- Weight- 0.32 #
- Control by 3 button keypad or call phone
- Alarms, RH/T, Optional O₂ or EC sensor, IP65

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**Model 60 PID for VOC’s in air & water**

Parameters:  
- **IR CO₂ and optional O₂**
- Dual Beam IR, 2” display
- Range 0-5,000 ppm
- Internal Pump- 90% response in 1 sec.
- Weight- 1.1 #
- Control by 3 button keypad or call phone
- Alarms, RH/T, Optional IR and 1 EC sensor, IP65

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**Principle of Operation- Photoionization**

The process occurs when a molecule absorbs light of sufficient energy to ionize a molecule see below:

\[ RH + hv = RH^+ + e^- \]

The ultraviolet lamp generates photons that ionize the molecule RH (above) and generates positive ions. An accelerator electrode (positively biased) pushes the ions, to the collector electrode where the current (proportional to centration) is generated, amplified and sent to the ADC.
Portable GC’s (121 & 312)

Model GC 121-Portable GC

Battery operated system (6-8 hours)
Dimensions: 10.75”L x 2.75”W X 5” H with handle
Weight: 5# with carrier gas cylinder
Detector- PID, Single Detector only 3.5” Color display
Detects ppb or ppm levels of Hydrocarbons, inorganic compounds (H₂S, NH₃, PH₃, AsH₃,,), Sulfur compounds, phosphorus compounds, etc.
1-10 compounds, 1,000 chromatograms stored
WiFi, Bluetooth, connect to cell phone, Peak Works lite chromatography software, IP65

Model GC312- Portable GC

Embedded Intel PC with Winodw 10 OS, 32 GByte Solid State Drive, Peak Works chromatography software; 10” Color Display
Battery operated system (6-8 hours)
Dimensions: 10.75”L x 2.75”W X 5” H with handle
Weight: 5# with carrier gas cylinder
Detector- PID, Single Detector only
Detects ppb or ppm levels of Hydrocarbons, inorganic compounds (H₂S, NH₃, PH₃, AsH₃,,), Sulfur compounds, phosphorus compounds, etc.
1-30 compounds, 10,000 chromatograms stored
WiFi, Bluetooth, connection to cell phone, IP65

Principle of Operation-Gas Chromatography

A gas chromatograph consists of the injector (syring or gas sampling valve), the oven with T control, the column and a detector.
A sample (gas or liquid) is injected onto a column (packed or capillary) with a flowing carrier gas (mobile phase) stream. The material in the column can be a solid or a liquid bonded to the inner diameter of the silica capillary column. The sample will be separated (depending on the interaction of the column material) by the mobile phase and oven temperature. The separated peaks will be resolved and detected by a GC detector. The time from injection to max peak is termed the retention time and is used to ID the compound. The peak height or area under the peak is integrated and after calibration, the concentration can be determined.
Applications:

PID VOC Measurements

Non-specific - M60 PID - Responds to VOC’s & inorganic hydrides
Safety,
Industrial Hygiene surveys.
Accelerants at Arson scenes,
Hazardous waste spills and site evaluations, transportation,
Total VOC’s in Air, Water and Soil
Inorganic hydrides: H₂S, NH₃, PH₃, AsH₃
Semiconductor plant leaks of PH₃, AsH₃
Mercaptans in air and water
Mercury in air or water
Headspace - VOCs in soil or water
Quality control - residual monomer in resins, residual solvents in paper or food, testing gas masks, residual gases in cylinders
Emergency response - spills from trucks & trains
Fugitive emissions - leak detection
Arson investigations - find trace accelerants
Confined space entry - health & safety

PID GC Measurements

Specific Detection - of VOC’s & inorganic hydrides (H₂S, H₂Se, NH₃, AsH₃, PH₃) at ppm to ppb levels. We do have concentrators also that will improve detection limits by 10 to 100 fold

Applications:

IR-CO₂ Measurements

- Air Quality Monitoring in:
  - Offices, homes, schools buildings,
  - Greenhouses & hydroponic gardeners
  - Breweries & Wineries
  - Marijuana growers greenhouses
  - CO₂ separation plants
  - Storage safety where CO₂ tanks are located

- Safety monitoring for CO₂ & O₂ - PEL
- M45-W Available in IP65 version
- CO₂ Analyzers are available for CO₂ levels
- Modified Atmosphere Packaging (MAP)
- Biotech - monitoring of pilot plants
- M45 is available as a Wall mount IP66 enclosure

List of Electrochemical Sensors

AsH₃, B₂H₆, CO, Cl₂, ClO₂, EtO, F₂, Formaldehyde, H₂, HCl, HCN, HF, H₂S, H₂Se, Mercaptans, NH₃, NO, NO₂, O₂, Phosgene, PH₃, SO₂, SiH₄, THT

For a complete specs on EC’s contact us