

PORTABLE GC

*For IH, Environmental , Process & Stack
Monitoring, Building security*

NEW



Model 312 GC with **Embedded Intel PC, Windows 10 OS**, PeakWorks Software, Remote Control (worldwide for Troubleshooting, Training etc.)

ppb to % Levels of VOC's, S cpds, LNG, fixed gases

Benzene, VC, H₂S, 1,3 BD, Methane, LNG, Nitro cpds, explosives, Sulfur & Phosphorus Cpds., Nerve gases, Hydrocarbons, SF₆, PH₃, AsH₃, NH₃, Air, Water, IH, Process, Stacks, & Building security

Introduction

PID Analyzers offers a new lightweight portable GC for environmental, quality control, natural gas... applications. The GC is extremely easy to use with its 7" VGA Color touch screen programming. It has significant data storage capability in a 2 GByte smart card, & a choice one of our excellent GC detectors. The 312 will go anywhere with its light weight & rechargeable battery. The GC is powered by a Pentium PC with Windows XP (embedded) operating system and PeakWorks chromatography software. This new gas chromatograph is the Model 312.

Other Portable Analyzers include the Model 102+ PID with up to 3 additional sensors (EC, IR, CG..).

Principle of Operation

The principle of operation is gas chromatography with a series of detectors that can be easily interchanged allowing the GC to be used for a variety of applications in the field or the lab. The detector electronics are compact & modular and the detector can be changed by removing the column, connector and two screws. There are only three sets of electronics for the five detectors, so an upgrade only requires the purchase of a second or third detector and second electronics pkg. PeakWorks is a dual channel system.

The GC will accomodate packed (1/8" or 1/16"), capillary (0.53 or 0.32 m id) or PLOT columns by any manufacturer on a 3.5: diameter spool) and a optional heated injector is used for liquid samples.

The algorithms for data processing were taken from our powerful PeakWorks program and are incorporated in the embedded software.

Applications

- PID**-VOCs, aromatics, unsaturated HC, S compounds and inorganic gases (H₂S, AsH₃, PH₃, NH₃...). It is an ideal detector for environmental analysis, and QC with its low ppb to % detection range; also fenceline, water, soil, field measurements...
- TCD**-hydrocarbons, inorganic & fixed gas response make this detector ideal for applications such as QC, natural gas analysis, LPG analysis, process streams, gas or liquid analysis... in the lab or field- ppm to 100%
- FUV**-hydrocarbons, inorganic & fixed gas response at levels 10-100 times lower than the TCD- also H₂O, O₂, N₂O at ppb to ppm levels
- FID**-Responds to all hydrocarbons including methane- environmental field measurements, landfill gases, oil patch monitoring...
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Features-

Embedded Pentium PC with 10" Color Monitor & Windows 10

- Color Screen** Programming provides convenience & ease of use
- Mini keyboard to change parameters
- Rugged case for field operations
- Gas or liquid samples
- Battery or line operation
- Interchangeable Detectors expand the applications
- Choose from the following detectors:
PID, TCD, Far UV, FID, or FPD; single or dual detectors

PeakWorks Chromatography Software- Integration: Reintegration, Area or height, tangent skimming or baseline projection. Very easy to calibrate & use; Ideal for unskilled operators as a result of methods.

GC Analyzers, Options & Applications

Brief Specifications

GC Detectors available: PID, FID, FPD (S or P), FUV, & TCD

Measurement mode: Manual or Continuous, Syringe or 10 port valve

Battery life- NiMH 6-8 hours

Temperature range- 30-60°C on battery; 30-100°C on line or 12 VDC

Zero drift- Automatic zero

Span drift- less than 1% every month with calibration

Wide range of response- from ppb to 100 %

PC: 1.66 GHz pentium

Readout- 10" Color VGA Monitor with touch screen (1024 x 760 resolution)

Storage device: 32 Gbyte solid State Drive, **Internet connectivity**

Operating System: **Windows 10**

Standard outputs: 1 RS232; USB ports, 0-10V anal bluetooth, WiFi

Enclosure: Heavy duty plastic Dimensions: 18.75" L x 13.75" W x 7.5" H

Weight: 27 pounds

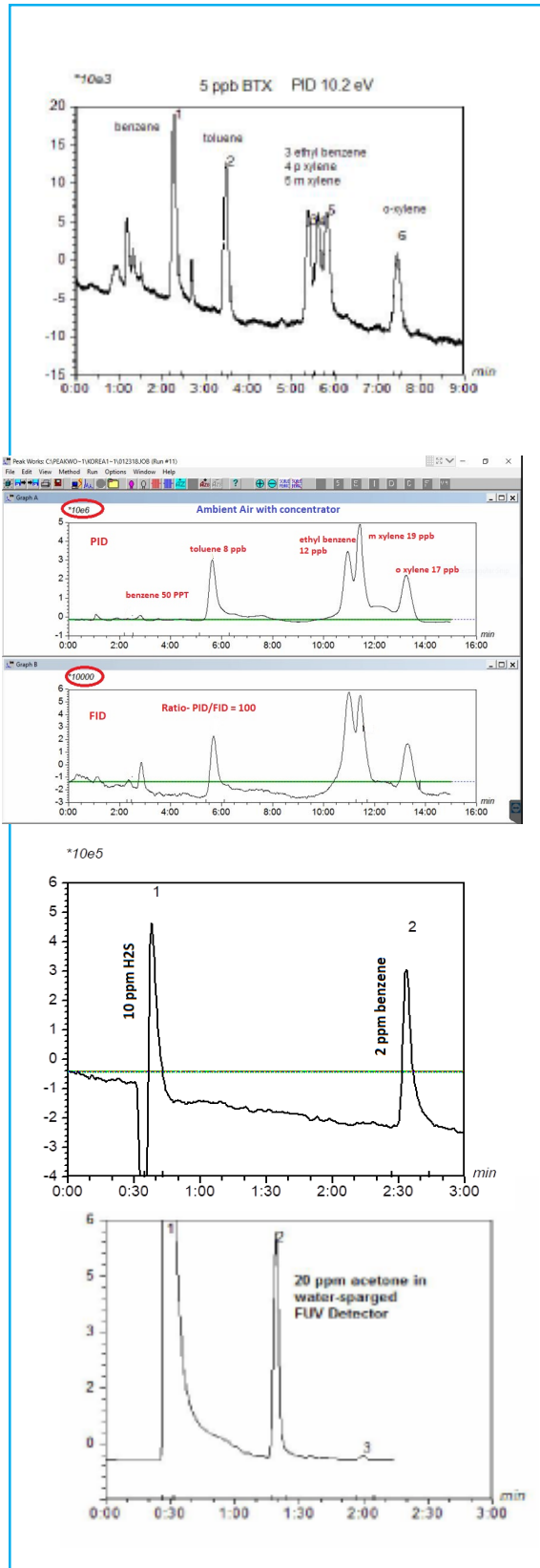
Power requirements- 90-240

VAC-1 amp; 12 VDC

The base Model 312 comes with syringe injection, oven, power supplies & Pentium PC with Windows 10 OS. **Remote operation** & PeakWorks chromatography software in a rugged plastic case.

Options

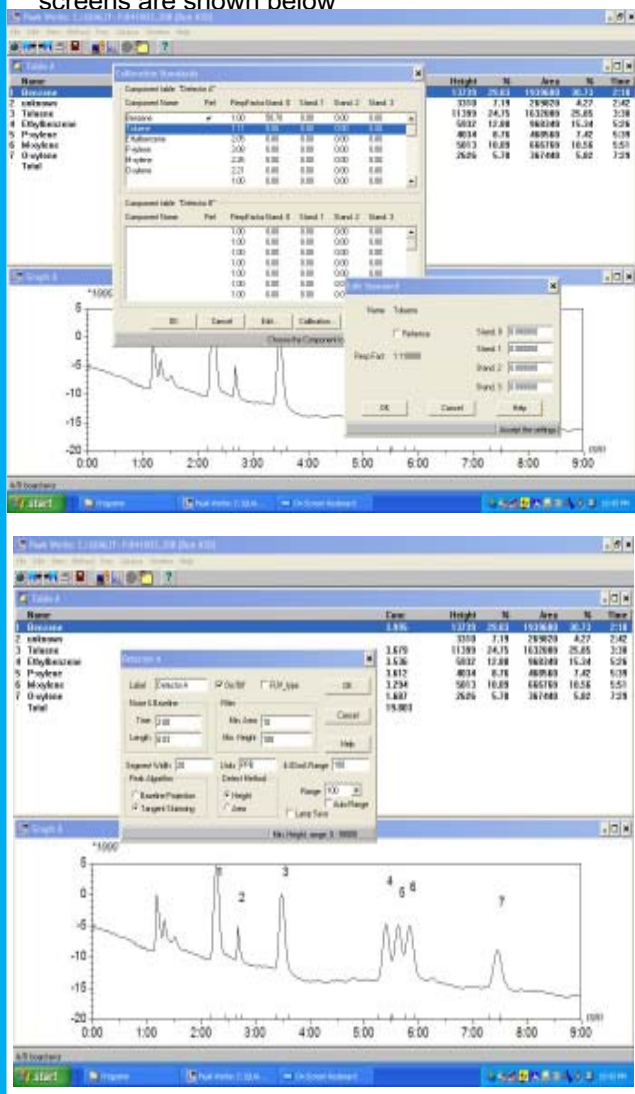
- Choice of detector (with electronics- for PID, TCD, FID, FPD(S/P) or FUV
- Refill adapter for on board gas cylinder



PeakWorks Chromatography Software

PeakWorks™

PeakWorks™ is PID's chromatography software. The data system utilizes a 16 bit ADC and is written in 32 bit C++ language. The calibration screen and detector/integration screens are shown below



PeakWorks Controls/Functions

PeakWorks for Windows has been used on our Portable and Process GCs for more than a decade. The software is written in 32 bit C++ and works seamlessly in **Windows 10 OS**. The Model 312 has a **10" Touch Screen** for programming.

The analog signal from the GC detector/amplifier goes to the ADC board where it is converted to digital format. The signal is processed by PeakWorks and the retention time (identifies the compound) and the peak height/peak area determines the concentration after calibration.

The following menus are available: File, Edit, View, Method, Run, Options, Window, Help

File-Save job, chromatogram as rtf file, exit

Edit-for editing

View-Expand screen or peak, view one or more peaks in chromatogram

Method-Setup detector range and integration parameters, Setup Components- retention time, response factors, peak windows..., Setup Calibration- single or 4 point for each component

Run- Calibrate, Acquire, Continuous or Manual Run, Remote start, Save calibration results

Options- setup communications

Window-Tile window vertically or horizontally, chart and/or graph

Help-provides help functions for operating PeakWorks

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WHAT IS NEW WITH PID ANALYZERS GC312?



FEATURES OF NEW PC IN THE 312GC

- FASTER INTERNAL PC
- **WINDOWS 10** OPERATING SYSTEM
- 2 GBYTES OF ROM
- SOLID STATE DRIVE WITH 32 GBYTES RAM
- 10" HIGH RESOLUTION HDMI COLOR TOUCH SCREEN
- BLUETOOTH CAPABILITY
- WIFI
- REMOTE MINI BLUETOOTH KEYBOARD/MOUSE

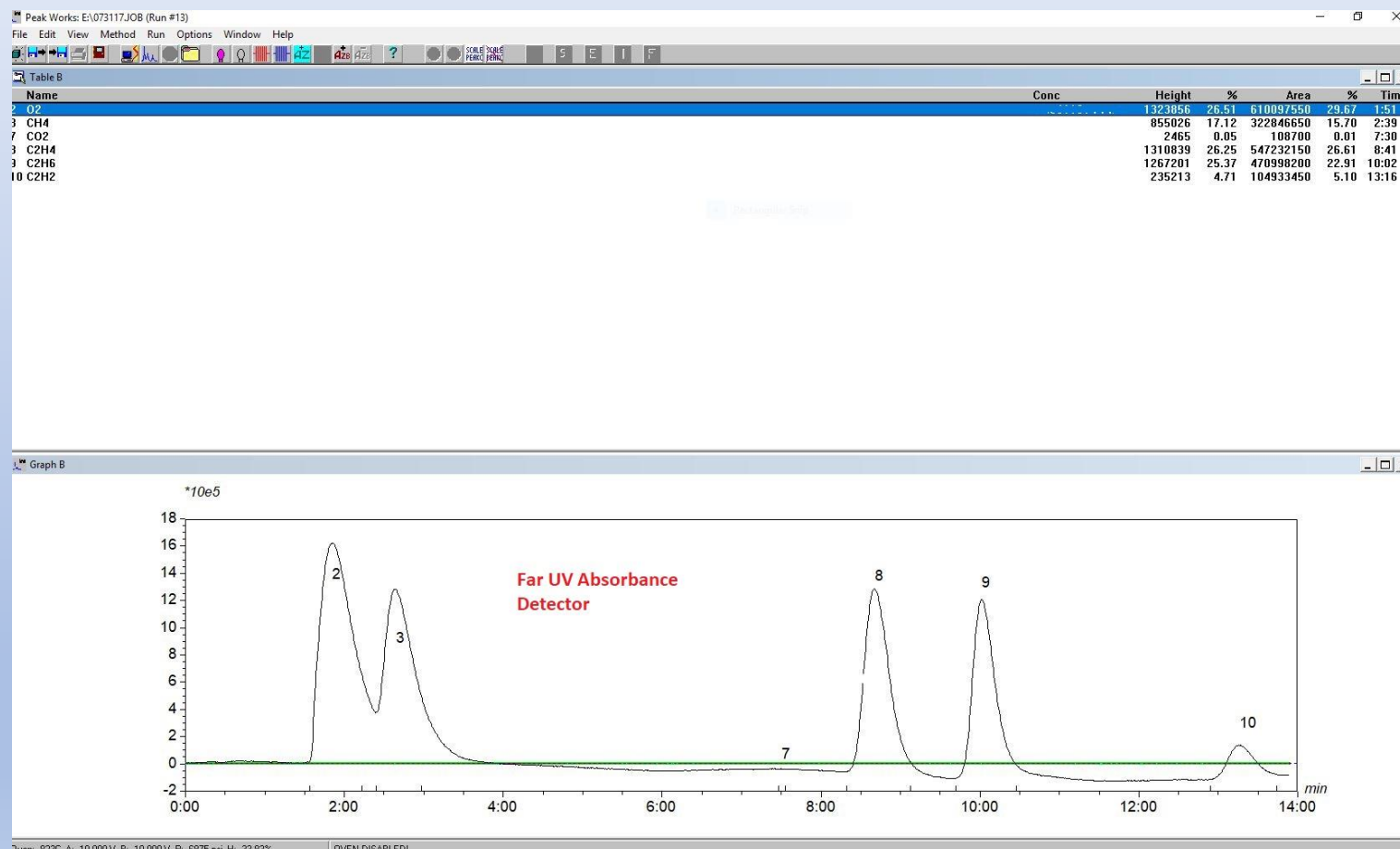
312 SENSORS

- PRESSURE
- OVEN TEMPERATURE
- TEMPERATURE OUT OF RANGE
- DETECTOR OUTPUT VOLTAGES
- RANGE
- LAMP OUT
- ALARMS (OPTIONAL)
- BAD CALIBRATION

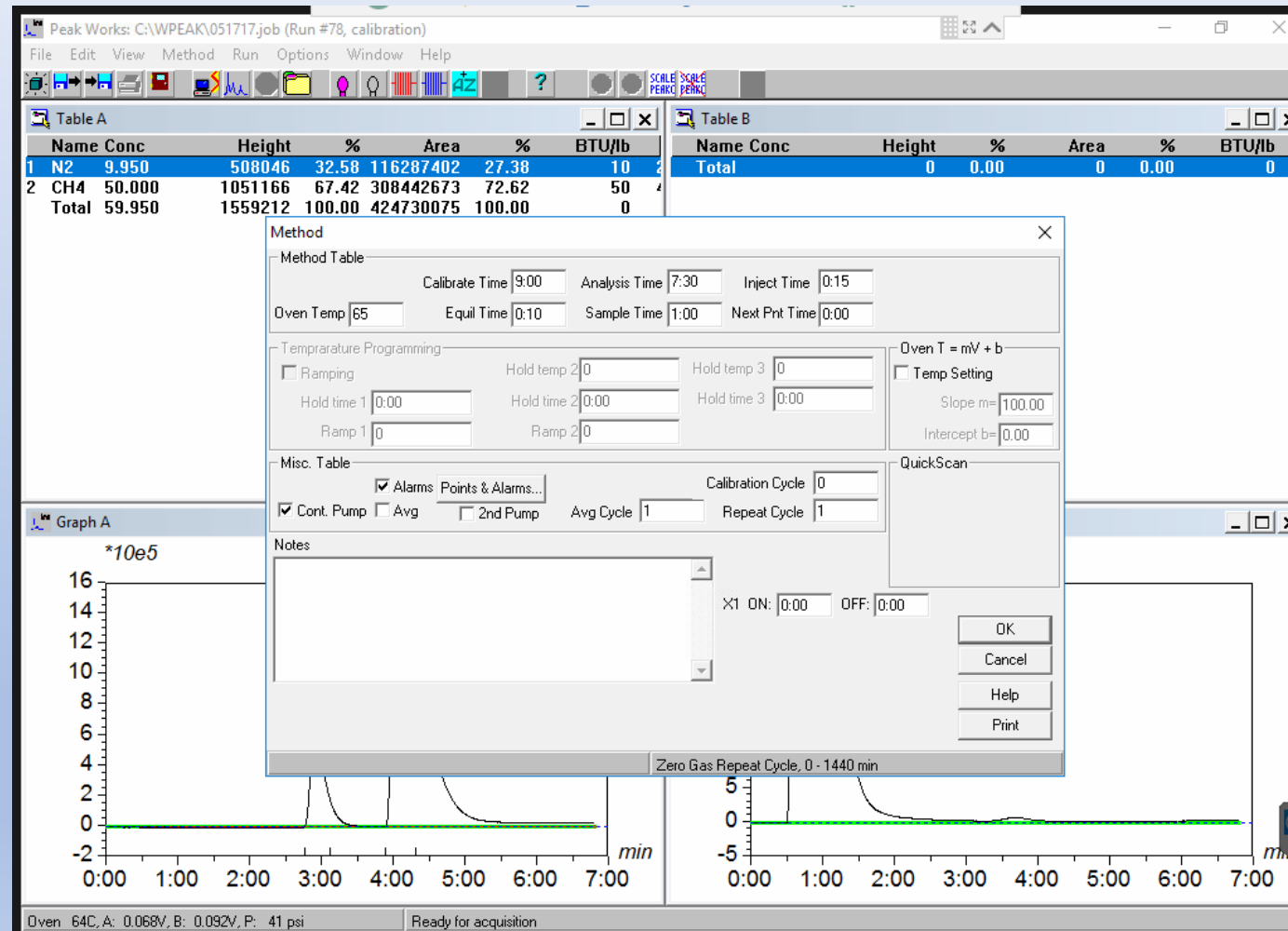
NEW REMOTE CAPABILITIES

- IPHONE OR ANDROID CAN BE USED AS A REMOTE KEYBOARD
- WITH AN INTERNET CONNECTION, THE 312 CAN BE CONTACTED *ANYWHERE IN THE WORLD* FOR TRAINING, SERVICE, HELP WITH APPLICATIONS OR OPERATIONS, SOFTWARE UPGRADES ...
- THE 312 CAN BE ACCESSED BY A PC IN A CONTROL ROOM, IN A SUPERVISORS OFFICE OR FOR SERVICE FROM LOCAL DISTRIBUTOR OR PID ANALYZERS

REMOTE FUV SCREEN FROM VOC (11 COMPONENTS) COAL MINE SAFETY UNIT IN CHINA



312 METHOD CAN BE CHANGED REMOTELY AT ANY SITE IN THEWORLD WITH INTERNET



REMOTE 312 SCREEN

PRIVACY

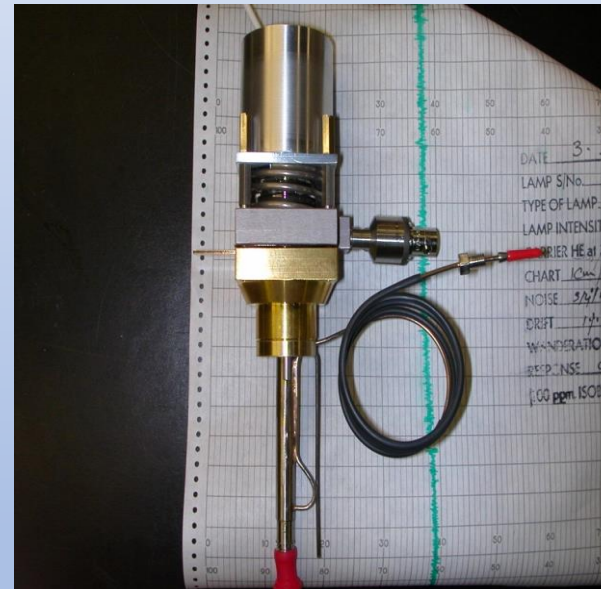
- REMOTE PC CAN BE TURNED **ON/OFF** BY CUSTOMER

DETECTORS

Types of Detectors Available

- PID-photoionization detector
 - Any compound with an IP <10.6 eV alkanes > C₄, olefins, aromatics, H₂S, NH₃, AsH₃ ... Widest dynamic range of any GC detector 2 x 10⁷
- FID-flame ionization detector
 - Selective for hydrocarbons-sub ppm to low%
- TCD-thermal conductivity detector
 - Universal for hydrocarbons and fixed gases- low ppm to 100%
- FPD-flame photometric detector
 - Selective for sulfur and phosphorus compounds-ppb to ppm
- FUV- far UV absorbance detector
 - nearly universal detector- sub ppm to low %

PID and FPD Detectors



APPLICATIONS

- ppb BTEX in ambient air
- Benzene at ppt levels at fence lines of refineries and chemical plants
- PEL sub ppm ETO sterilization
- Beverage gases ppb BTEX in CO₂
- H₂S & CS₂ in air and stack gases
- CH₄, CO₂ & H₂S in landfill gases
- Freons in air
- ppb Sulfur compounds in ambient air or stacks
- Greenhouse gases N₂O, CO₂ & CH₄
- Non methane hydrocarbons
- PEL of arsine
- Toxics in air
- PEL of VOC's in air

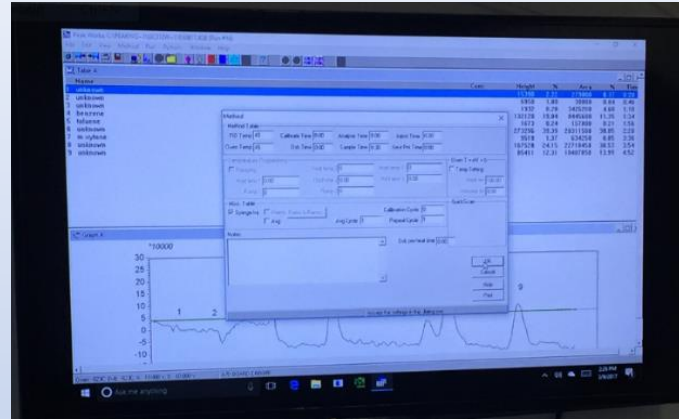
OTHER FEATURES & OPTIONS

- At midnight a new file is created as mm/dd/yy and all data is saved in that job
- All data saved (chromatograms), digital data saved in ASCII format
- Reintegration of data with different parameters
- Autoranging amplifiers
- **5 timed events** for valves, range changes, switching signals from other detectors...
- One or two detectors and one or two columns are possible combinations
- Easy to use & easy to modify
- 19" Rack of NEMA 4 Wall mount
- Direct internet connection
- OPTIONS
 - 4-20 mA
 - Modbus
 - Alarms
 - Multipoint systems (2-20)
 - Detectors

312 IMAGES



312 GC



Method Menu

Detector A

Label: **Detector A MS** ☒ On/Off ☐ log ☐ External ☐ Invert

Noise & Baseline: Time: 0.01 Length: 0.01

Filter: Min. Area: 0 Min. Height: 0 ☒ All ☐ Known

Segment Width: 10 Units: PPM

Peak Algorithm: ☐ Baseline Projection ☒ Tangent Skimming ☐ Peaks deconvolute

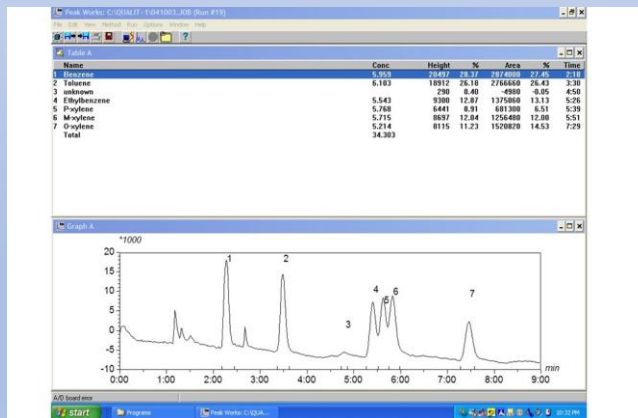
Detect Method: ☐ Height ☒ Area

☐ Lamp Save ☐ Auto Range: 100 Range_1: 10

☐ Data to Excel

OK Cancel Help

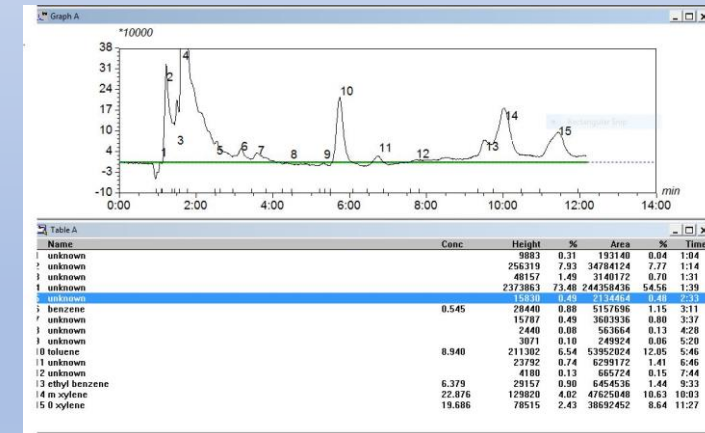
312 Detector/Integrator Menu



ppb BTX in CO₂ Beverage gas



312 Icon Menu



BTX Ambient ait ppt benzene

SUMMARY

- We developed the **first** photoionization detector for gas chromatography more than 40 years ago. It remains one of the most sensitive GC detectors with the widest dynamic range
- The 312 is one of the few portable GC's with an **internal/embedded PC** instead of a microcontroller or PLC. This means we have more internal processing capability than any other portable GC on the market and can run **Windows 10** programs
- The new **remote** features in this PC sets the GC 312 apart from any of its competition
- The **software** in this PC is very powerful and easy to use. It represents nearly 30 years of development for our GC's and we are still improving it