Ripening agents are used to speed up fruit ripening, allowing many fruits to be picked prior to being fully ripe, since many ripe fruits do not ship well. For example, bananas are picked when green and artificially ripened after shipment, by being gassed with the ripening agent Ethylene. In nature, Ethylene is produced and released by rapidly-growing plant tissues, such as the tips of roots, flowers, and damaged tissue. This hormone promotes the starch in the fleshy part of the fruit to be converted to sugar. DPS has configured the Ethylene GC Analyzer Systems to detect this hormone in the air surrounding the fruit. Our Air Concentrator automatically samples and traps the Ethylene, which is then detected by the sensitive FID detector in the 1-5 parts per billion (ppb) levels. The Series 600 GC is for analyses in the lab, or use the Portable Companion 1 GC Systems for analyses right where the samples are taken. The fully integrated Ethylene Analyzer GC Analyzer Systems are small and lightweight and all DPS systems are modular for expandability, upgrades, and easy service.

Available Configurations Include:

600-C-051 - Series 600 Ethylene GC Analyzer (FID, Air Concentrator, 30m)
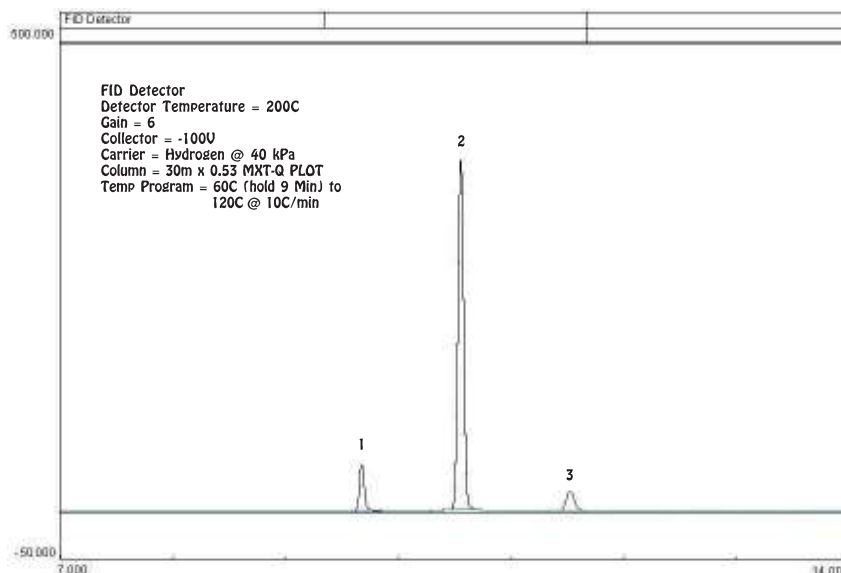500-C-051 - Companion 1 Ethylene GC Analyzer (FID, Air Concentrator, 30m)
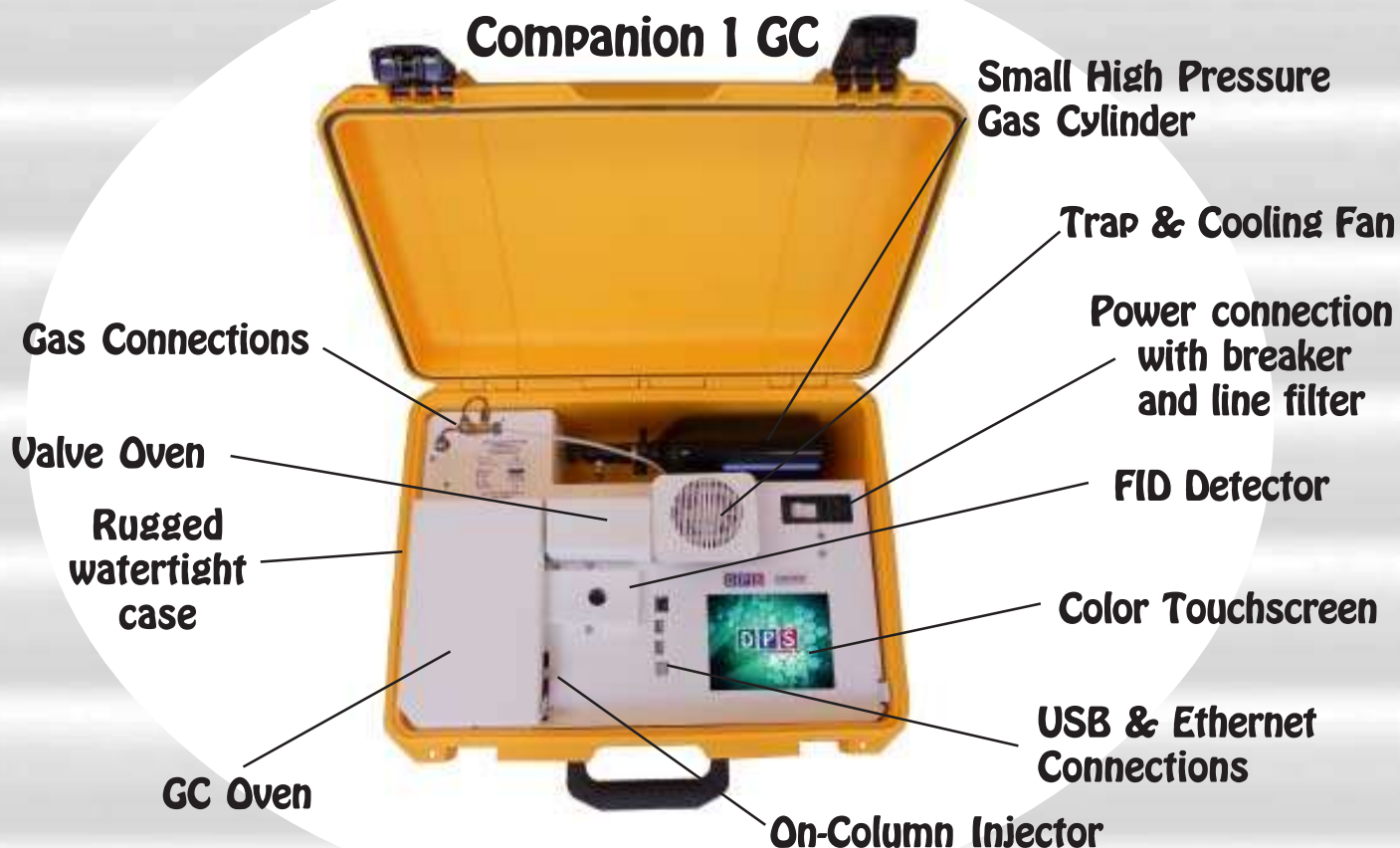
Series 600 GC

Ethylene - 5 ppb

Peak	Component
1	Methane
2	Ethylene
3	Ethane

FID Detector
Detector Temperature = 200C
Gain = 6
Collector = -100V
Carrier = Hydrogen @ 40 kPa
Column = 30m x 0.53 MXT-Q PLOT
Temp Program = 60C (hold 9 Min.) to
120C @ 10C/min

Companion 1 Portable GC
(with Air Concentrator)

DPS Ethylene GC Layouts

Companion 1 GC

- Small High Pressure Gas Cylinder
- Trap & Cooling Fan
- Power connection with breaker and line filter
- FID Detector
- Color Touchscreen
- USB & Ethernet Connections
- On-Column Injector
- GC Oven
- Rugged watertight case
- Valve Oven
- Gas Connections

Series 600 GC

- Detector
- Sample Valve and Valve Oven
- Trap & Cooling Fan
- Flow Controller
- USB & Ethernet Connections
- Power connection with breaker and line filter
- EPC Inlets
- Cooling Fan
- Voltage Selection (120 or 240Vac)
- Flow Through Oven Cooling

Plumbing Diagram

Air Concentrator: The Air Sample Concentrator is built right into the GC Chassis to provide both a compact portable sample concentrator and the shortest possible sample path. The valve and sample lines are heated creating a inert sample path. The Sample Flow Controller precisely meters the amount of sample loading on the Trap.

Load Air Sample: The vacuum pump draws the sample from the inlet through the Trap and then to the flow controller and pump to limit any possible cross contamination between samples. The entire sequence of the Air Sample Concentrator is automated through the Timeline of the DPS Control Software for the analysis of one sample, or the system can be set up to run unattended 24/7, collecting and analyzing samples every hour, or so.

Inject Sample: The carrier gas sweeps the components from the trap to the analytical column.
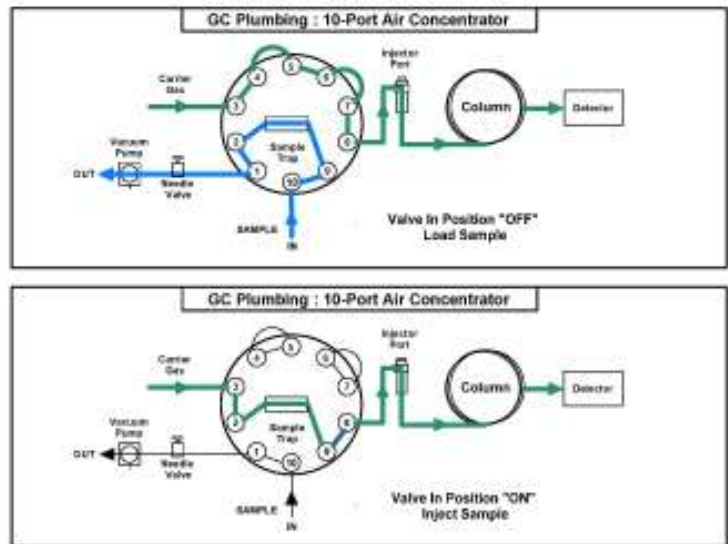
Air Concentrator
Plumbing Diagram

Results, Data & Conncetivity

Results: The Results can be saved for each sample, or they can be printed, or they can be tabulated into a .LOG file, when you are collecting a vast amount of data over a long time period. The format of the. LOG file is text, so it can be opened by any word processing program.

Data and Connectivity: The built-in computer is used to collect and store the data. Data can also be copied to a USB Stick to transfer to another computer. Data can be transferred from the built-in computer to another computer on the LAN through the Ethernet port using standard Windows protocols. Or, we can use a USB cable to connect the GC to the remote computer where the data can be collected and stored on that hard drive.

GC Control Software

Easy to learn and master using a Graphical User Interface (GUI) and Color Touch Screen.

Editors let you customize the files associated with the GC Method.

Oven Temp Program Editor

Timeline Editor

Method Name

File Selection Arrows

Navigation Buttons to Quickly jump from one screen to another. Most pages are one button away!

Carrier Pressure 1 Editor

Keyboard
to Enter Filenames

Number Pad
for entering Values

Oven Status

Method Editor

Detector Status
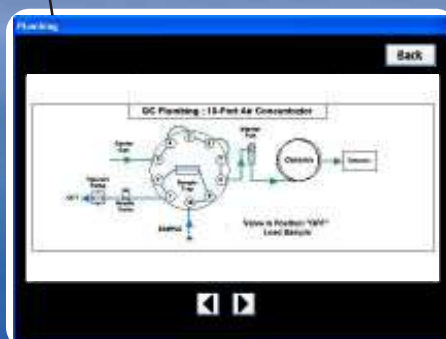
System Status
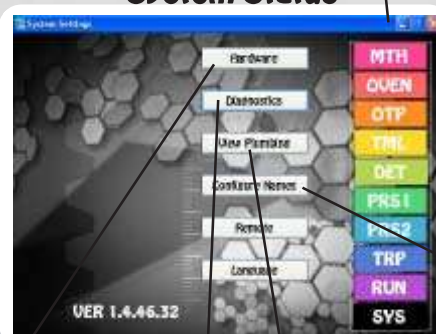
Run Status
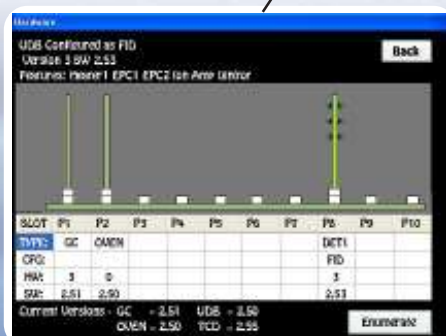
Hardware
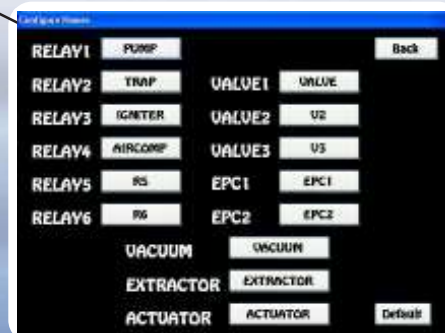
Configure Names
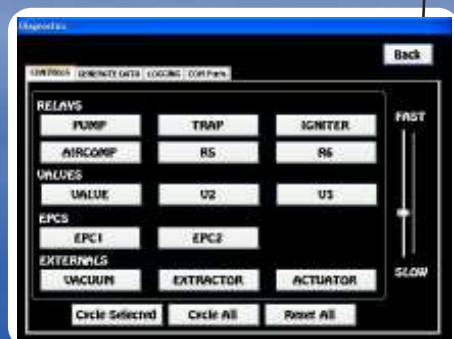
Diagnostics

Plumbing

Ethylene GC Specifications:

Electronics Module:
- Enter and store GC Methods via Color Touch Screen
- Actual and set-point display of all GC parameters
- Safety Limits on all user entered parameters
- Oven Temperature Programs (OTP) with Multiple Ramps
- Pressure Programs for Carrier Gases with Multiple Ramps
- Timeline for sequencing Relays and Valve
- Detector Control of all Parameters on one page
- Electronic Pressure Controllers (EPC's):
     Atmospheric Pressure & Temperature Compensation
     EPC Pressure Control with 0.1 kPa set-point resolution
- Plug and Play GC Control, Oven, and Detector Board
- Microprocessor Controlled
- Proprietary Digital Signal Processing
- Digital Signal Outputs for each Detector
- Universal voltage input (85 – 240 Vac) with line
     filter and breaker.

Detectors:
FID – Flame Ionization Detector (1ppb Detection Limit)
- 400 °C Temperature Limit with 0.1 °C set-point resolution
- 24-bit Digital Outputs for the detector via USB
- EPC Pressure Control with 0.1 kPa set-point resolution

Columns:
Packed, or Capillary Column

Results:
Automatically calibration corrected and reported

Series 600 Oven Module:
- Ambient to 400ºC Column Oven
- Up to 100 ºC per/min Oven Ramp
- Fast Cooldown 300 ºC to 50 ºC in 3.5 min
- 1000 watt total Heater Elements
- Temperature Ramps with 0.1 ºC set-point resolution
- 23 x 23 x 20 cm area for Glass, SS, or Capillary Columns

Companion Oven Module:
- Ambient to 325 ºC Column Oven
- Up to 80 ºC per/min Oven Ramp
- Fast Cooldown 300 ºC to 50 ºC < 4 min
- 200 watt Heater Element
- Temperature Ramps with 0.1 ºC set-point resolution
- 12.5 x 10.5 x 12.5 cm area for Packed, or Capillary Columns
- 7 amps at 48 Vdc total power consumption

Built-In Accessories:
- Air Sample Concentrator (Vacuum Pump, Flow Controller & Trap)
- Air Compressor for FID

Injectors:
- Heated On-column Injector
- Multiple Pressure Ramps with 0.1 kPa set-point resolution

Data Communications:
- Bi-directional communication with popular Data System

Network Connectivity:
- Enterprise Compatible Network GC running Windows XPe
- Ethernet Connection using Windows Network Protocol
- On Board ETX Computer for GC Control and
     Data Acquisition
- Remote Control of GC and Data Acquisition
     over LAN

Lab Quality Analyses in the Field,

"It Goes with you Anywhere!"

D P S Instruments, Inc.