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Maxum edition II



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The Joining Of Two Powers

- Siemens - the chromatograph leader in the German chemicals industry ...
- Applied Automation - the world-wide chromatograph leader in hydrocarbon processing measurement ...
- 2*40 years experience are now joined together!
- THE RESULT - The most powerful and versatile process gas chromatograph ever!



Maxum edition II !

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SAA and the Maxum edition II - Powerful and Versatile!

- Siemens Applied Automation
 - Complete Solutions Provider
 - Complete solutions - for all needs - from one company
 - Complete solutions - for every application - from one product
- Our customer receives the benefits -
One supplier and one product line means:
 - Reduced cost of project planning
 - Reduced cost of procurement
 - Reduced cost for consistent engineering
 - Reduced cost of maintenance training
 - Reduced cost of spare parts



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For the PGC 302 User - How Does Maxum edition II Compare?

What is new?

- New electronics, electronic pressure and temperature control
- Powerful new software including EZChrom
- Extensive networking ability
- Multiple-cell TC detectors and parallel chromatography
- Larger volume airless oven zones
- Air bath oven, Programmed Temperature and sub-ambient temperature GC

What has stayed the same?

- Airless oven capabilities (but with larger internal volume)
- Independent dual ovens
- Externally mounted detector configurations
- All previous detector technologies
- Live switching
- CENELEC and other European certifications
- Wall mounting patterns



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For the Maxum User - How Does Maxum edition II Compare?

What is new?

- Airless oven options
 - Dual independent zones
- Higher oven operating temperatures available
- Additional detector technologies
 - FPD, ECD, HID, ELCD
 - Heated detectors

What has stayed the same?

- Air bath oven options
- Multiple cell TC detectors
- All electronics and spare parts
- Software
- Electronic pressure and temperature control
- All network capabilities and methods
- Wall mounting patterns and utility connections



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The Maxum edition II - Powerful and Versatile Technology

- Ovens
- Detectors
- Valves and Application Tools
- Electronics
- Software
- Inputs, Outputs and Reports
- Human Interface and Workstation

More capability
than any other
Process Chromatograph
in the world!

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A Choice In Analytical Ovens



Airless



Air Bath



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A Comparison Of Benefits

■ Airless

- Lowest operating cost; saves nearly \$500 (500 Euro) per year
- Reduced electrical power consumption and air conditioning load
- Suitable for remote installations
- Fully independent dual ovens with separate oven doors
- Higher maximum operating temperature capability
- Higher oven temperature capabilities at same T-ratings

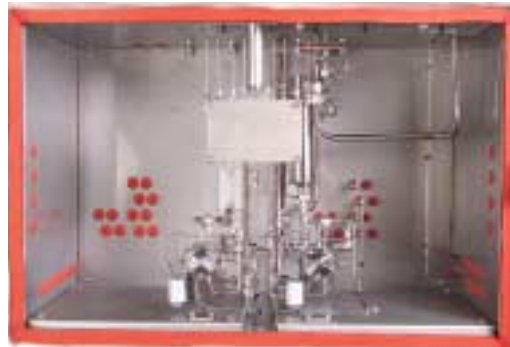
■ Air bath

- Large, spacious compartment for easy maintenance and complex applications
- Fast warm up and stabilization time
- Programmed Temperature configuration available
- Sub-ambient operation with vortex cooling available
- Split oven configuration makes two temperature zones available for one or more applications



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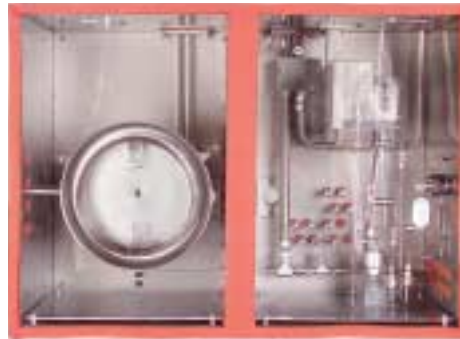
Oven Configuration



Single Air Bath



Split Air Bath



Programmed Temperature



Sparger

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Oven Configurations Cont.



Dual Airless



Single Airless

Some configurations
also available with
Vortex Cooling for sub-
ambient temperature
operation.



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Detector Technology

- 7 different detector technologies are available
 - 4- and 8-cell Thermal Conductivity with thermistors
 - 2-cell Thermal Conductivity with filaments
 - Flame Ionization - and - FID combined with Filament TCD
 - Flame Photometric
 - Electron Capture
 - Helium Ionization
 - Electrolytic Conductivity

- Modules available per oven
 - Up to 3 modules in single air bath oven
 - Up to 2 modules in air less ovens (one module in each oven)



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External Mounting /Non-TC Detectors

- Independently controlled detector temperatures
- Ability to close couple detectors to columns (especially PTGC)
- Ability to run higher oven temperatures
- Uses less space inside the oven
- Easier access for service
- Maintain detectors without losing oven temperature



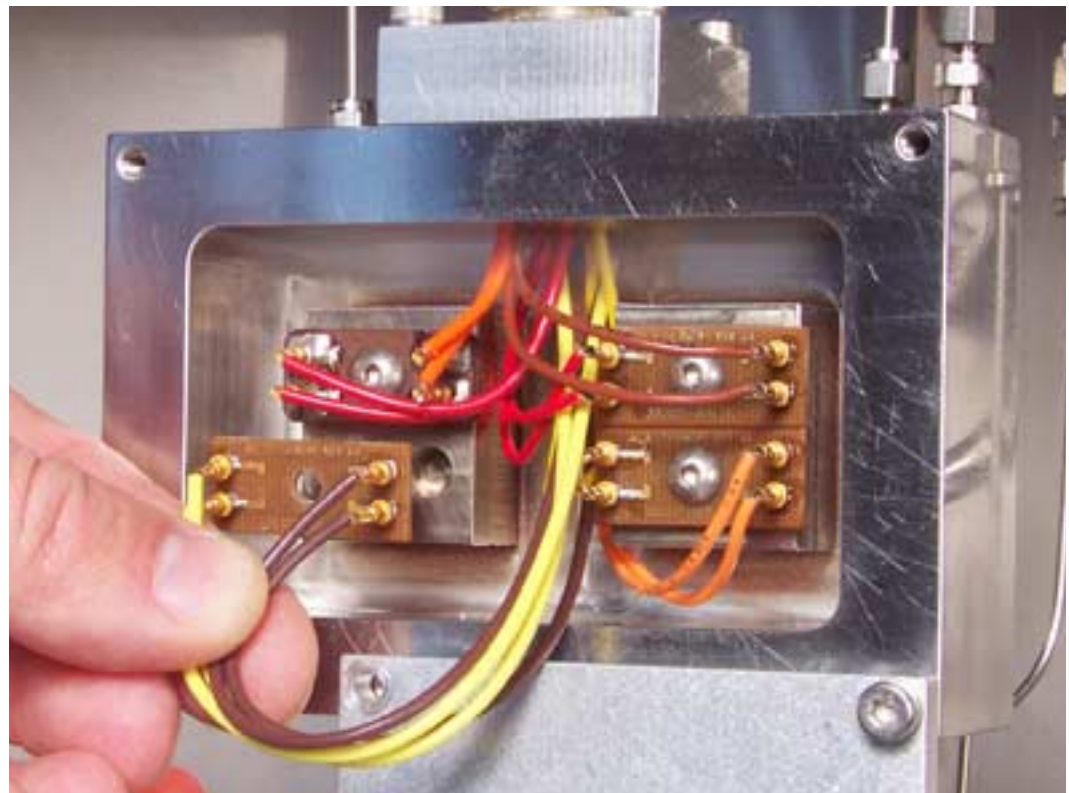
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Detector Technology - TCD

- 4 and 8 cell thermistors
 - Front access
 - Push in connectors
 - Thermal Isolation with TCD island



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Detector Technology – FD

- 2 and 4 Cell
 - 2 cell available
 - 4 cell future
 - High temp applications



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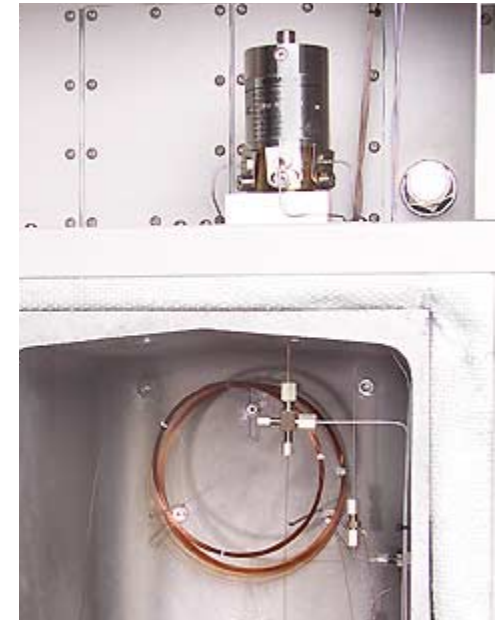
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Detector Technology - FID

- Externally Mounted
 - Provides for additional oven space
- Heated
- Spark ignition
- Setup
 - Fuel 25 – 45 cc
 - Combustion Air 300 – 500 cc
 - Makeup Air 20 – 40 cc



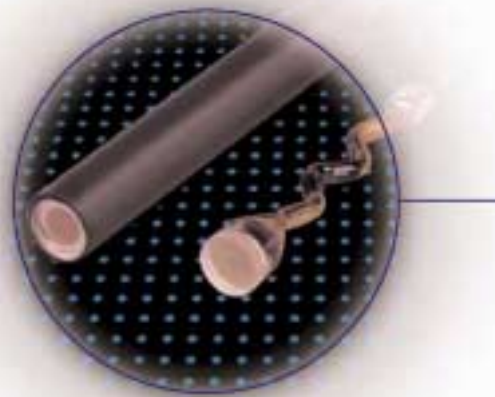
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Detector Technology - FPD

- New externally mounted chamber
- Heated
- New Channel Photo Multiplier Tube
 - No voltage adjustment



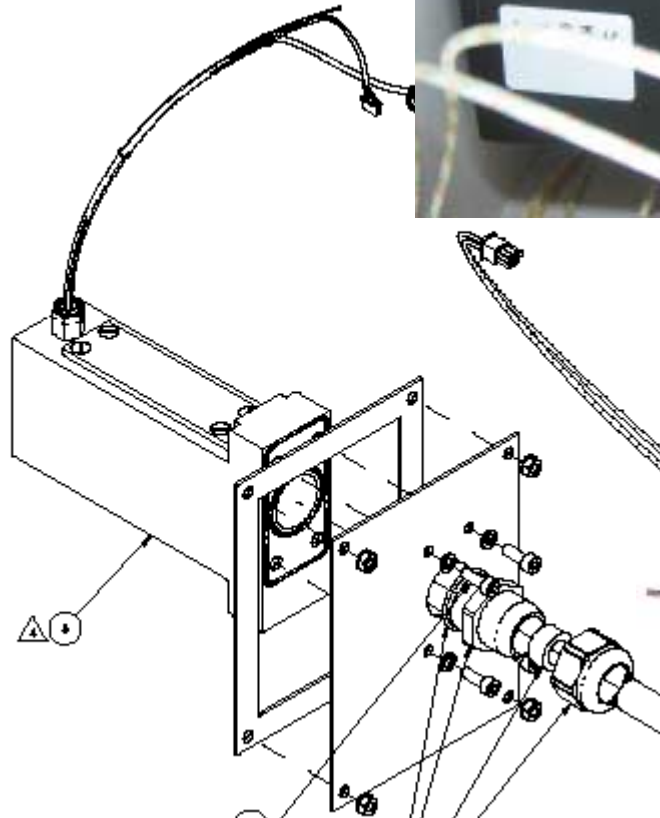
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Detector Technology – FPD cont.

- CPM
Channel Photo Multiplier



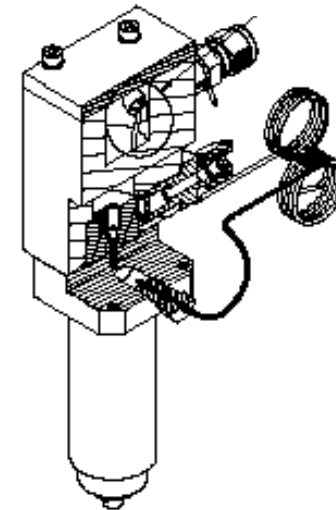
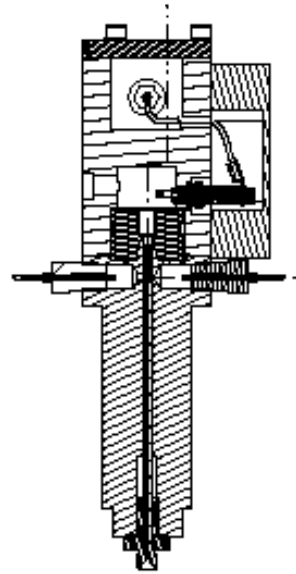
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Detector Technology – FPD cont.

- FPD
 - Carrier He or N₂
 - Fuel 68cc
 - Air 68cc
 - Quartz tube for inert surface
 - Glow Plug ignition





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Detector Technology – ECD

- General Purpose
- Used primarily for the analysis of halogenated hydrocarbons.



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Detector Technology – HID

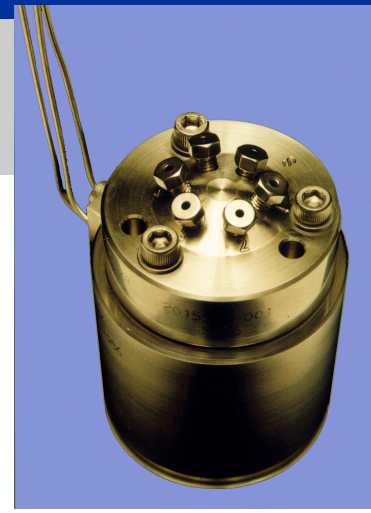
- General Purpose
- This type detector is suitable for the detection of the permanent gases, gaseous hydrocarbons and halogenated hydrocarbons (Freon).
 - Measuring range 10 – 100 vpb
 - Helium flowing through the detector as carrier gas passes the surface an electrode activated with ^3H (Tritium), beta particles exit and ionize part of the helium. Free electrons are created.



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Valve Technologies

- 10-port Plunger-less diaphragm vapor sample valve
 - Extremely high reliability and long life
 - Lowest valve count and lowest cost in applets and other vapor applications
- 6-port Diaphragm-plunger vapor or liquid sample valve
 - High reliability and low maintenance for sample injection or column switching
 - Samples high pressure and high temperature samples



Are you ready for
twice the analysis
in half the time?



We're Siemens. We can do that.

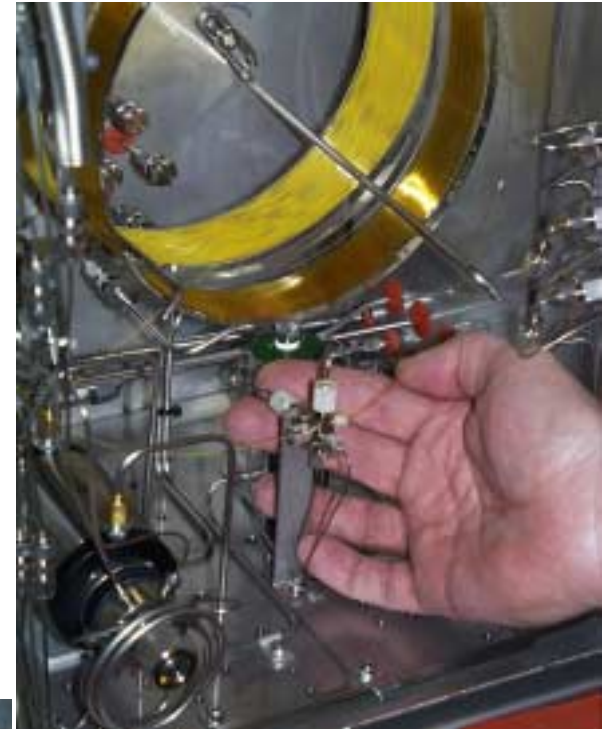
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Valve Options (continued)

- Valveless, Live column switching
 - Essentially zero dead volume for fast column switching and sample injection with capillary columns
 - No parts to fail or wear out
- Heated liquid injection valve
 - Precision sample size control and fast, clean injection
 - Ideally suited for liquid chemical analysis



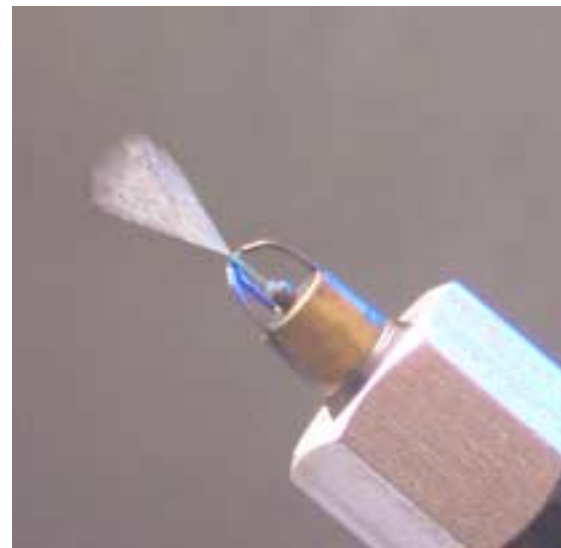
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Applications Tools

- Temperature controlled methanator
- Total sulfur liquid nebulizer
- Splitters, buffers, absorbers, focusing and all other application tools available
- All chromatographic modes supported - packed, micro-packed, and all capillary
- All application tools available in both air bath and airless ovens

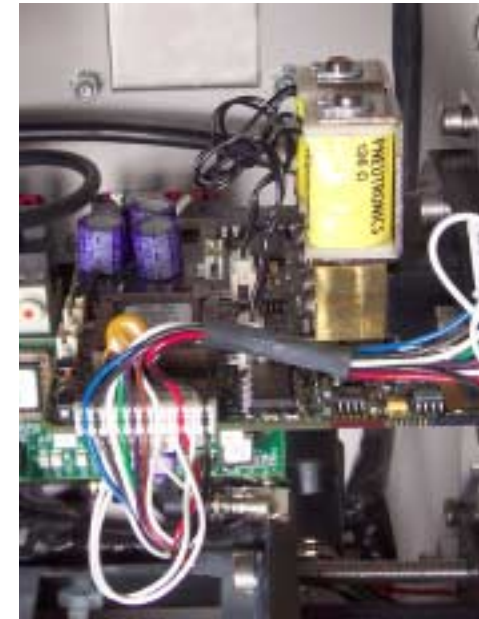




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Full Electronic Control Of All System Functions

- 8-channel Electronic Pressure Control
 - Up to 4 modules, 2 channels each
- 24-channel Solenoid Valve Control
 - Up to 3 modules, 8 solenoids per module
- 6-channel Electronic Temperature Control
 - Two channels provided with each Detector Personality Module



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Built In Maintenance Panel

- Ideal for routine maintenance, result observation and for checking system status and alarms
- Easy-to-use Menu-oriented display
- Real time chromatogram displays with time and voltage axes
- Archived chromatogram displays



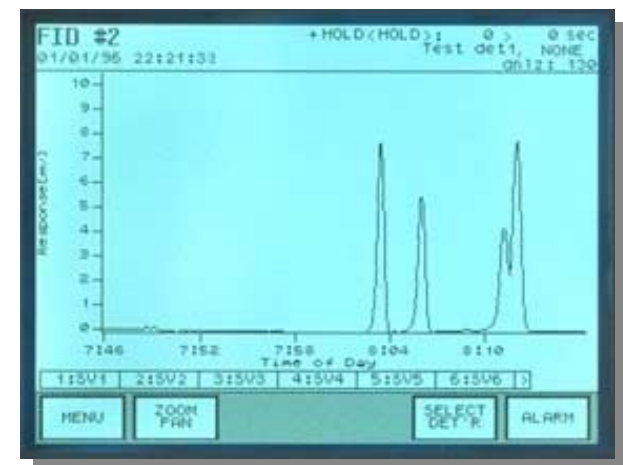
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Extensive Built-In Human Interface Functions

- Easy to use, menu based operation
- All menu selections available through 1-button short-cuts
- Full control of analyzer maintenance functions
 - Calibration, alarms and times
 - Mode control and time functions
- Real time display of chromatograms and result data
- Display of archived chromatograms and results
- Connects to other analyzers also via Ethernet network



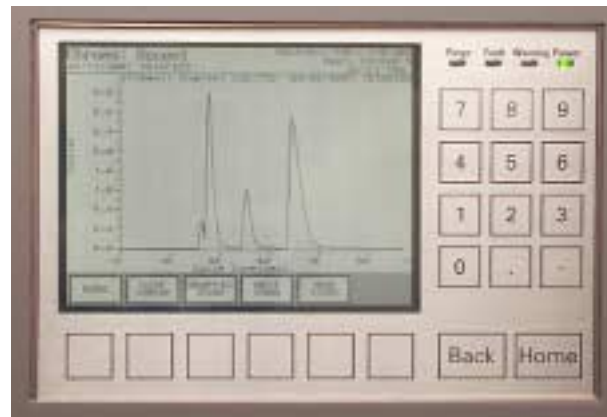
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Other Improvements To Maxum

- New MMI
- Cleaner electronics zone - better cable layout
- Large cabling connector compartment for easier maintenance
- Elimination of feed-through and more rugged detector cable connectors



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More Improvements To Maxum

- New configuration of thermistor detector for easier service access
- New thermistor bead boards with plug connectors
- Better industrial color and overall appearance
- Improved oven latch on electronic and air bath ovens with optional tool to open





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Still More Improvements To Maxum

- New Automatic Purge Control system
- ATEX 100 Certification
- Improved LIV and live switching mounting arrangements
- New, more rugged oven heater
- Improved regulator panel with isolated oven and valve air regulators
- New proportional electronics purge air valve
- Temperature controlled methanator



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A Full Range Of Input, Output and Reporting Tools

- Discrete Input and Output devices
 - GC houses 2 optional boards; 3 types available
 - 8 channel analog output
 - 4 channel digital in and 4 channel digital out
 - 2 channel each of analog in, digital in, analog out and digital out
- Local Input and Output capacity extended by CAN Extension Unit
- Local control of serial report printers
- Local output of Modbus serial communication

- In addition, all capabilities are extended by Networking

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Discrete Input & Output Channels - From GC

- GC Standard
 - 2 analog outputs
 - 4 digital outputs
 - 4 digital inputs
- 2 Optional Additional I/O Boards
 - 8 analog outputs per board
 - 4 digital inputs plus 4 digital outputs
 - 2 each analog inputs and outputs plus 2 each digital inputs and outputs
- Easy Interface to optional CAN Extension Unit
 - Up to 10 additional I/O boards
- Remote I/O via network





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Serial Communication Options

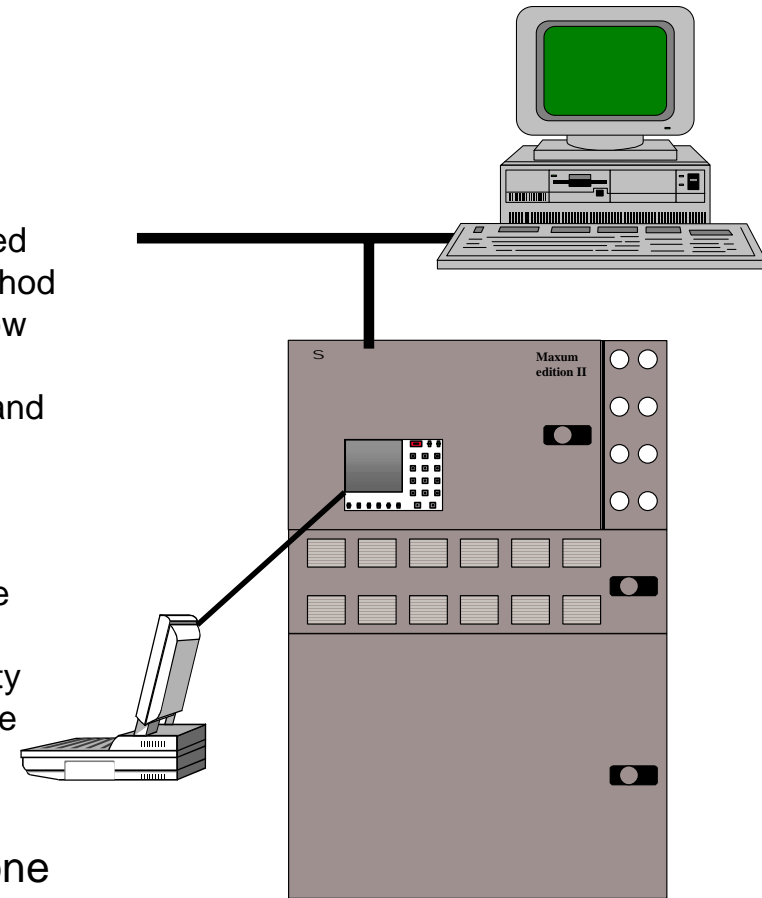
- 2 Serial channels available directly from the GC
 - RS-232
 - RS-485
- Either channel may be used for
 - serial printer output
 - Modbus communication link
- Both channels may be used
 - Mix-and-max functions
- External serial outputs available via network
 - Ethernet printer
 - External serial printer
 - Modbus
 - ODBC via Ethernet



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Full Capability Workstation

- **System Manager**
 - Complete network overview with status
- **EZChrom**
 - Full access to embedded analyzer EZChrom method
 - Convenient multi-window chromatogram displays
 - Easy method creation and editing
- **Numerous other maintenance tools**
 - Backup, restore, update
 - Data Logger
 - APC 8.1 for compatibility with Optichrom Advance
- **Multiple workstations permitted on network; compatible with telephone or LAN connection for remote access**





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Numerous Tools For

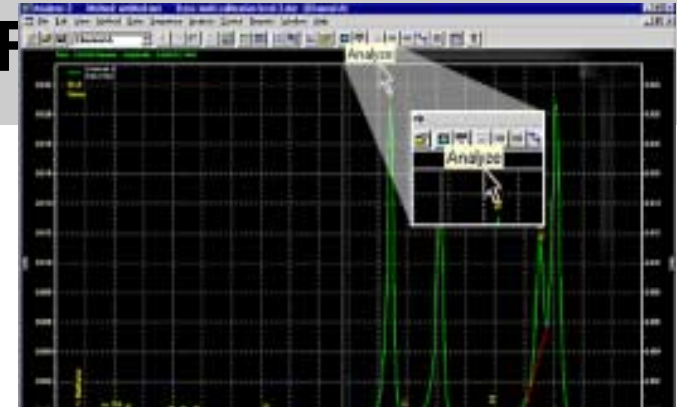
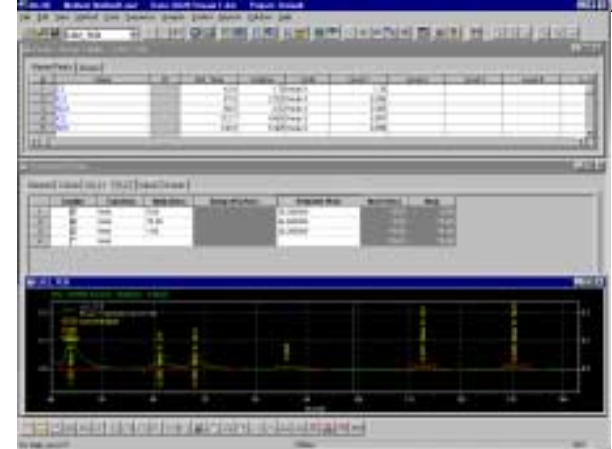
- Workstation Tools Package
 - System Manager
 - Advance EZChrom Builder
 - MMI Emulator
 - Datalogger
 - Backup and Restore
 - Version Updater
 - Modbus Map Editor and Downloader
 - PC Anywhere
- Many Optional Packages
 - MaxBasic programming editor
 - Simulated Distillation Method Builder
 - Air Monitor Reporter

```

Main Main()
Dim db As Database
Dim tbl As Table
Dim v

Set db = OpenDatabase ("localhost:8201")
' Use this if you don't want it to update
' or if you have multiple transactions
db.BeginTrans

Set tbl = db.OpenTable("stream")
tbl.MoveLast
tbl.Edit
v = "testing again"
tbl("stream_name") = v
tbl.Update
  
```

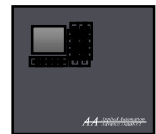





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Versatile and Open Networking

- All Maxum edition II chromatographs connect to a high speed network
 - Direct GC-to-GC communications; no PC or other “network controller” device required
 - Direct GC-to-Output communications; no PC or network server used in the output system
- Three communication options available to allow systems to be designed for lowest cost and highest performance
 - Ethernet
 - DataNET
 - Data Hiway
- Same system as Maxum; full backwards connectivity to Optichrom Advance



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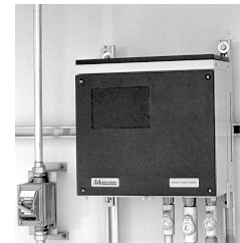
Network Options For Best Price / Performance

- Ethernet
 - Fast; low cost; compatible with all 3rd party Ethernet systems world wide
 - Compatible with many types of media including wire, fiber optics, telephone, wireless and more
- DataNET
 - Highly secure; redundant communications; medium speed
 - Compatible with Belden 9182 twisted pair wire or fiber optics
 - Interconnects with Ethernet
- Data Hiway
 - Low speed; redundant communications
 - Provides backwards compatibility with Optichrom Advance
 - Interconnects with Ethernet or DataNET

Ethernet Hub



DataNET Hub



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Variety Of Network Products and Equipment

- Network Access Unit provides external connection to the system
 - Housing for discrete Inputs and outputs
 - Modbus and printer serial connections
 - Optional Man-Machine Interface maintenance panel
- CAN Extension Unit provides additional housing for discrete inputs and outputs
- DataNET and Ethernet Hubs allow unlimited expansion of these networks
- Advance Network Gateway permits interconnection of older, slower Data Hiway with Ethernet or DataNET



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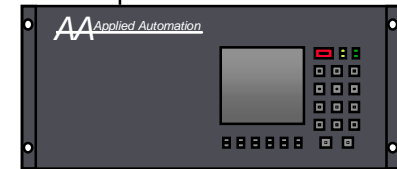


Network Access Unit

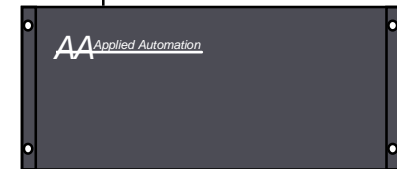
- For remote maintenance access
 - Same display as Maxum GC
 - Real-Time chromatograms
 - Chromatogram recorder output
- Centralized I/O capability
 - Up to 7 I/O boards
 - Can connect to CEU for 10 additional I/O boards
- Serial Output Port
 - Modbus link to DCS Systems

Network

NAU

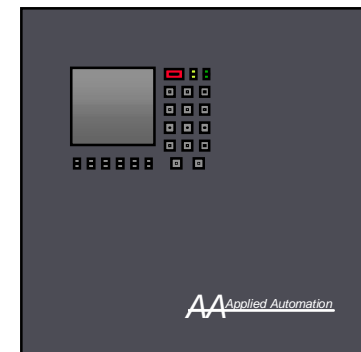


CEU



Rack or Wall mount.

NAU





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Network Advantages

- TCP/IP software ensures open communications ability with all Local and Wide Area Networks (LAN/WAN)
- Virtually unlimited addressing space permits creation of Maxum systems of any size
- Secure network structure permits easy field change and expansion
- Direct Ethernet connection to other computers using ODBC
- Access to remote Modbus and 4 other Optichrom serial communication protocols



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Workstation Software

- New Releases
- Product Features
- Product Pricing

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Workstation Software - New Releases

- Workstation Tools; Version 3.2b
- MaxBasic Editor; Version 1.0
- SimDis Builder; Version 1.0
- Air Monitor and Reporter; Version 1.0

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Workstation Tools; Version 3.2b

- System Manager
 - Network Monitor
 - Alarm and Status Display
 - Real Time Result Monitor
 - Database Editor
 - Backup and Restore
 - Upgrade Downloader
 - Modbus Map Downloader
- EZChrom
 - Chromatogram Display
 - Method Builder
- ODBC Client



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The Best In Process Chromatography



Maxum edition II
from Siemens Applied Automation

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