
HP ChemStation for GC, LC, LC/MSD, CE and A/D Systems

Revision A.05.01 Enhancements

May 1997

Technical Note



General Description

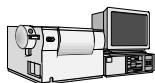
Revision A.05.01 of the HP ChemStation combines data acquisition, instrument control, and data analysis software for gas chromatography (GC), liquid chromatography (LC), liquid chromatography/mass spectrometry (LC/MS), capillary electrophoresis (CE) and analog-to-digital (A/D) conversion onto one platform.

graph (GC), liquid chromatography (LC), liquid chromatography/mass spectrometry (LC/MS), capillary electrophoresis (CE) and analog-to-digital (A/D) conversion onto one platform.

The software consists of a common core for data evaluation, sequencing, calibration, reporting and utilities. Each basic HP ChemStation software package consists of a core and an instrument control module. The control module communicates to and controls an instrument. Instrument control modules are available for all current model GCs, LCs, LC/MSDs, CEs and A/Ds. Additional software modules are available to add spectral processing, data base capability, peak deconvolution (LC/MS only) and peptide analysis (LC/MS only).

What's New

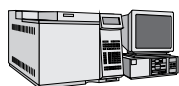
Revision A.05.01 of the HP ChemStation replaces revision A.04.02. Similar to past revisions, customers currently operating an HP ChemStation with their GCs, LCs, CEs, or A/Ds can take advantage of the new features by upgrading their software. For more details, see the configuration sections on pages 5 - 7 of this document.



Liquid Chromatography/Mass Spectrometry

The HP 1100 LC/MSD is the newest generation bench-top quadrupole mass spectrometer for liquid chromatographers. This exciting new product brings routine operation of LC/MS

systems to chromatographers. For more details on the HP 1100 Series LC/MSD refer to the product brochure, Hewlett-Packard publication number 23-5965-4769E.



Gas Chromatography

Support for the new HP 6890 detectors:

- Single/dual wavelength FPD
- HP 6890 Micro-ECD

HP 6890 Not Ready Over-Ride

- Initiate the start of a run when instrument conditions are acceptable for analysis.

Support for 3rd and 4th signal with the HP 35900C/D/E analog to digital converter on an existing GC

- Now the ability to have two additional detectors within one GC session.
- Simplified report generation.

Automatic Baseline Reset

- Digitally reset the baseline when it becomes offset, for example, by valve switching.
- Improve the accuracy of integration results.

Over-Ride Method Resolution

- Turn off Method Resolution when it isn't required.



Liquid Chromatography

Extended injection range kit

- Supports new extended injection range kit for the HP 1100 Series autosampler.



Capillary Electrophoresis

CE Vial Table

- New easy way to add vials to your system for easier method and system setup.

Balance During Run

- Time program lamp balance when running analyses.

Data Analysis

Batch Review

- Save time reprocessing large numbers of samples.
- Check calibration accuracy, instrument performance and individual integrations before approving the results.
- Automatically scan through results.
- Reprocess the entire batch with one keystroke.
- Store chromatogram specific modified integration parameters with the data file for batch review and data traceability.
- Configurable screen layout.

Peak Summing

- Group peaks within a specific time range to quantitate against a major component.

Calibration Table Calculation Options (CE only) based on

- Protein molecular weight.
- DNA base pair.
- Isoelectric point of a protein.

Calculate signals separately (multi-signal data handling)

- Ensure that the individual signals are calculated to 100 % separately for all report types.

Multiple response factors for all unknowns.

- Define separate response factors for unknowns for each signal.

Manual calibration table entry

- Create calibration tables manually based on existing knowledge of response factors.
- Sort table by peak number or by signal.
- Normalize calibration based on reference peak.

Send reports to Excel

- Automatically output reports to Excel format.

New options for reporting uncalibrated peaks

- Report separately.
- Report with calibrated peaks.
- Do not report.

Custom Reports

- Print custom reports to a file.

Peak Purity (LC, LC/MSD and CE only)

- Show all pure and impure peaks in one display.
- Visual graphics for easy interpretation.
- Set-up all spectral options in one display.

Enhanced Integrator

- Improved “Autointegrate” capability with more intelligent handling of slope sensitivity and peak width and awareness of data type (GC, LC, LC/MS, CE).
- Expansion of “Tangent skim” mode to allow for exponential, straight and standard modes.
- Improvements to “peak start/stop” times for a more predictable relationship between slope sensitivity and peak start/stop.

Method and Run Control

Store Real Time Plot parameters with method

- Enter plot parameters for chromatograms in reports and as the starting set for chromatograms displayed on the screen.
- Store this information with the method.

Operating Systems

Window NT 4.0

- Increased security, since the NTFS file system allows you to restrict access to information.
- System policies and user profiles can be used to control users' work environments over a network.
- Same user interface as Windows 95, so no special operating system user training required.

- Much more stable than Windows 3.1x.

Windows 95

- Same as previous revision.

Windows 3.1X

- No longer supported.
- Present users of HP ChemStation will need to upgrade their systems to Windows 95 or Windows NT 4.0.

For additional information see section *Which Operating System is best for the HP ChemStation* on page 6.

Compatibility

HP ChemStation Revision A.05.01 is backwards compatible with all data, methods, sequences, spectral libraries and report templates used with revision A.04.xx.

Supported Hardware

- HP 5890 Series II GC (HP 5890A GCs will need to be upgraded to HP 5890 Series II. For details contact your local HP sales office.).
- HP 6890 GC.
- HP 1050 Series HPLC systems.
- HP 1090 L/M Series HPLC systems.

- HP 1090 L/M Series II.
- HP 1100 Series HPLC systems.
- HP 1046A fluorescence detector.
- HP 1049A electrochemical detector.
- HP G1600A ^{3D}Capillary Electrophoresis system.
- HP 35900C/D/E A/D converters (35900D A/D converters will

only be supported under Windows 95 with the A.05.01 version. Support is planned on NT in future revision.)

- HP 1100 Series LC/MSD.
- 18594B and G1512A ALS controllers (18594A will need to be upgraded to G1512A).
- 19405A/B event control module.

Network Compatibility

The software has been successfully tested for compatibility with HP's ChemLAN and LanManager networking products, Novell Netware, Microsoft Windows 95 and Windows NT 4.0 environments. The software will run at the same time as other network software and computer applications written for, and adhering to, the recommended practices of the

Microsoft Windows operating environments. These products enable the HP ChemStation to share physical devices such as printers and plotters with other laboratory computers as well as sharing information such as data files and methods.

The HP ChemStation software may be installed on a suitable network server and downloaded onto the client PCs as required. Each client specific configuration ensures a suitable environment for different techniques and individual users while the centralized software installation relieves the burden of managing many copies of

Year 2000 Ready

- Necessary changes have been implemented to prepare for the Year 2000.

- For additional details, refer to the Technical Note *HP ChemStations for GC, LC, LC/MSD*,

CE and A/D Systems and the Year 2000, HP publication number 12-5965-6126E.

Minimum PC Configuration

Windows 95 based systems:

- HP Vectra Pentium 75 MHz
- Super VGA display (800 x 600 resolution)
- 300 MB hard disk
- CD-ROM drive

Minimum memory specifications:

- 24 MB RAM for a single instrument configuration,
- plus 4 MB RAM for every additional instrument configured,
- plus 4 MB RAM for additional applications such as DAD spectral evaluation or the HP ChemStore database application.

Windows NT 4.0 based systems:

- HP Vectra Pentium 90 MHz
- Super VGA display (800 x 600 resolution)
- 500 MB hard disk
- CD-ROM drive

Minimum memory specifications:

- 32 MB RAM for a 2D single instrument configuration,
- plus 8 MB RAM for every additional instrument configured,
- 48 MB RAM for a 3D single instrument configuration (LC, LC/MSD or CE),
- plus 8 MB RAM for additional applications such as the HP ChemStore database application.

Note:

A maximum of four instruments may be interfaced to each HP ChemStation. There are only these exceptions:

- *Only two diode array detector instruments (LC or CE) may be interfaced per PC system.*
- *When using HP ChemStore database software, a maximum of three instruments are supported on the PC system*
- *When an HP ChemStation is used to control the HP 1100 Series LC/MSD module (optionally with one HP 1100 Series or HP 1090 Series II HPLC), no additional instruments are supported on the PC system.*

Recommended PC Configuration

Windows NT based system

- HP Vectra 133 MHz Pentium (single instrument configurations)
- HP Vectra 166 MHz Pentium (multiple instrument configurations or configurations with a LC/DAD or a LC/MSD detector)

- Super VGA display (at 1024 x 768 resolution)
- 1280 MB hard disk
- CD-ROM drive

Memory specification:

- 30 % over minimum listed above

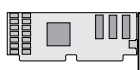
Note:

If you plan to install Windows NT 4.0, all PC hardware and peripherals must be listed in the Microsoft Windows NT Hardware Compatibility List (HCL), available from Microsoft under <http://www.microsoft.com/ntserver>. Pentium Pro based processors are not recommended.

IEEE-488 HP-IB Support Matrix



82335I IEEE-488 Card



82341C IEEE-488 Card

• Windows 95

Supports all instruments *except* HP 1100 Series LC/MSD.

• Windows 95

Supports all instruments *except* HP 1040 DAD, HP 1090 L/M, HP 1090 L/M Series II, and HP 1100 Series LC/MSD.

• Windows NT 4.0

Supports all instruments.

For additional compatibility matrix issues, please see tables 1 and 2 on page 7.

Which Operating System is Best for the HP ChemStation?

Users of HP ChemStations should read this section in detail to understand the requirements for upgrading their system.

If you currently use Windows 3.1x you *must* select one of these upgrade paths if you want to upgrade to revision A.05.01 of the HP ChemStation.

Use table 1 and the HP-IB compatibility overview in tables 2 and 3 to assist you in determining what software and computer

hardware changes may need to be made.

Generally, the three areas of consideration are:

- PC hardware requirements,
- operating system compatibility and requirements, and
- HP-IB interface card compatibility.

In addition to deciding whether to upgrade your HP ChemStation software to the latest revision, you also need to understand that

depending on your existing configuration, an operating system and/or computer hardware configuration change may be required as well. Regardless of the operating system chosen, you must make sure the target computers and all their hardware devices (such as video cards, network adapters, etc.) meet the hardware requirements for that operating system. Usually your existing hardware inventory determines which operating system may be deployed.

From Microsoft
Windows 3.1/3.11

➔ to Windows 95

Current users of HP ChemStation with MS-Windows 3.1/3.11

- meet PC requirements for Windows 95 (see page 5)
- purchase Windows 95
- purchase HP ChemStation upgrade product (G1656A)

➔ to Windows NT 4.0

- meet PC requirements for Windows NT 4.0 (see page 5)
- purchase Windows NT 4.0
- purchase new HP-IB interface card (82341C)
- purchase HP ChemStation upgrade product (G1656A)

From Microsoft
Windows 95

➔ to Windows 95

Current users of HP ChemStation with MS-Windows 95

- meet PC requirements for Windows 95 (see page 5)
- purchase HP ChemStation upgrade product (G1656A)

➔ to Windows NT 4.0

- meet PC requirements for Windows NT 4.0 (see page 5)
- purchase Windows NT 4.0
- purchase new HP-IB interface card (82341C)
- purchase HP ChemStation upgrade product (G1656A)

Table 1
Operating system upgrade/installation paths for analytical systems

Take the following points into consideration when making your decision.

Windows 95

- has less demanding PC hardware requirements than Windows NT 4.0,
- is generally compatible with most existing computer hardware and includes the associated drivers,
- is recommended if it is already in operation in your laboratory and works fine, or
- you depend on older MS-DOS programs and 16-bit Windows device drivers.

Windows NT 4.0

- has higher hardware requirements than Microsoft Windows 3.11 or Windows 95,
- provides increased security - the NTFS systems allows you to restrict access to information,
- may be recommended by your corporate IT department as the "preferred" operating environment.

Windows 95			
Instrument Type	HP 82335I	HP 82341C	
HP 5890 GC Series II	Yes	Yes	
HP 6890 GC	Yes	Yes	
HP 1050 Series HPLC	Yes	Yes	
HP 1090 L/M HPLC	Yes	No	
HP 1040 DAD	Yes	No	
HP 1090 Series II L/M	Yes	No	
HP 1100 Series HPLC	Yes	Yes	
HP 1046A FLD	Yes	Yes	
HP 1049A ECD	Yes	Yes	
HP 3DCE (G1600A)	Yes	Yes	
HP 35900C/D/E	Yes	Yes	
HP 1100 LC/MSD (G1946A)	No	No	

Table 2
Windows 95: HP-IB and Analytical Hardware Compatibility Matrix

Note:
Users of the HP ChemStation with the HP 35900D A/D converters should note that the HP 35900D A/D converters will

Windows NT 4.0			
Instrument Type	HP 82335I	HP 82341C	
HP 5890 GC Series II	No	Yes	
HP 6890 GC	No	Yes	
HP 1050 Series HPLC	No	Yes	
HP 1090 L/M HPLC	No	Yes	
HP 1040 DAD	No	Yes	
HP 1090 Series II L/M	No	Yes	
HP 1100 Series HPLC	No	Yes	
HP 1046A FLD	No	Yes	
HP 1049A ECD	No	Yes	
HP 3DCE (G1600A)	No	Yes	
HP 35900C/D/E	No	Yes	
HP 1100 LC/MSD (G1946A)	No	Yes	

Table 3
Windows NT: HP-IB and Analytical Hardware Compatibility Matrix

only be supported under Windows 95 with revision A.05.01. Support of this card on Windows NT 4.0 will be announced later this year.

Software Upgrades

To upgrade an HP ChemStation for GC, LC, CE and A/D to the current revision (A.05.01), order the HP ChemStation software revision upgrade (G1656A). For additional details, contact your local HP sales office. All upgrade installations require the licence number of the existing software. This

upgrade does not include installation or familiarization services or Microsoft products. These will need to be purchased separately, along with any additional computer hardware and HP-IB interface cards.



For more information on our
products and services, visit our
worldwide website at
<http://www.hp.com/go/chem>

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