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› HP Agilent 1100 Series MWD HPLC System User Manual

Agilent Technologies 1100 Series MWD

HP Agilent 1100 Series MWD HPLC System User Manual

Model: 1100 Series MWD

1. INTRODUCTION

This manual provides essential information for the proper installation, operation, and maintenance of the HP Agilent 1100 Series MWD High-Performance Liquid Chromatography (HPLC) System. The Agilent 1100 Series MWD (Multiple Wavelength Detector) HPLC system is designed for precise and reliable analytical separations in various laboratory environments.



Figure 1.1: Agilent 1100 Series branding on a system component, indicating the model.

Familiarity with this manual will ensure optimal performance and longevity of your instrument. Please read all instructions carefully before operating the system.

2. SYSTEM OVERVIEW

The HP Agilent 1100 Series MWD HPLC system typically consists of several modular components working in conjunction to perform chromatographic separations. These may include a degasser, pump, autosampler, column compartment, and a multiple wavelength detector (MWD).



3. SETUP AND INSTALLATION

3.1 Unpacking and Inspection

- Carefully unpack all components and accessories.
- Inspect for any visible damage incurred during shipping. Report any damage immediately to the carrier and supplier.
- Verify that all items listed on the packing slip are present.

3.2 Site Preparation

- Ensure the installation site is level, stable, and free from vibrations.
- Provide adequate ventilation and maintain a stable ambient temperature (typically 15-35°C).
- Ensure access to appropriate power outlets (e.g., 100-240V AC, 50/60 Hz).

3.3 Component Connection

- Stack modules in the recommended order (e.g., degasser on top, then pump, autosampler, column compartment, detector).
- Connect fluidic lines (solvent inlet, pump outlet, autosampler inlet/outlet, column, detector inlet/outlet, waste).
- Connect communication cables (LAN or GPIB) between modules and to the control computer.
- Connect power cords to each module and to a grounded power source.

3.4 Software Installation

Install the Agilent ChemStation or OpenLAB CDS software on the control computer following the provided software installation guide. This software is essential for system control, data acquisition, and analysis.

4. OPERATING INSTRUCTIONS

4.1 Powering On the System

- Ensure all fluidic and electrical connections are secure.
- Turn on the power switch for each HPLC module, typically starting from the detector and working backwards to the degasser.
- Launch the Agilent control software on the computer.

4.2 Software Interface and Method Creation

The software interface allows for comprehensive control of the HPLC system. You can define methods, run sequences, and analyze data.

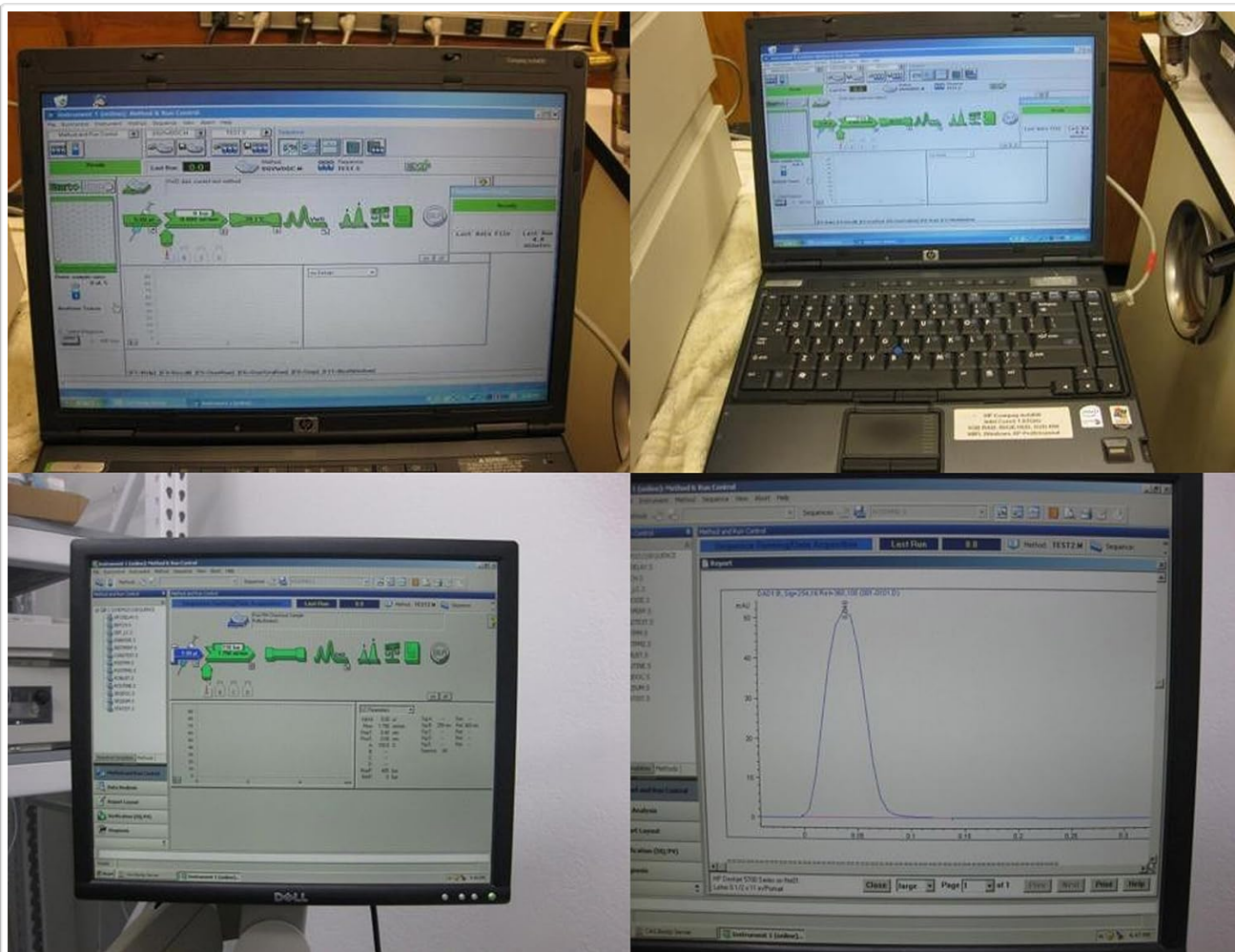


Figure 4.1: Various views of the Agilent HPLC control software interface, showing method setup and data display.

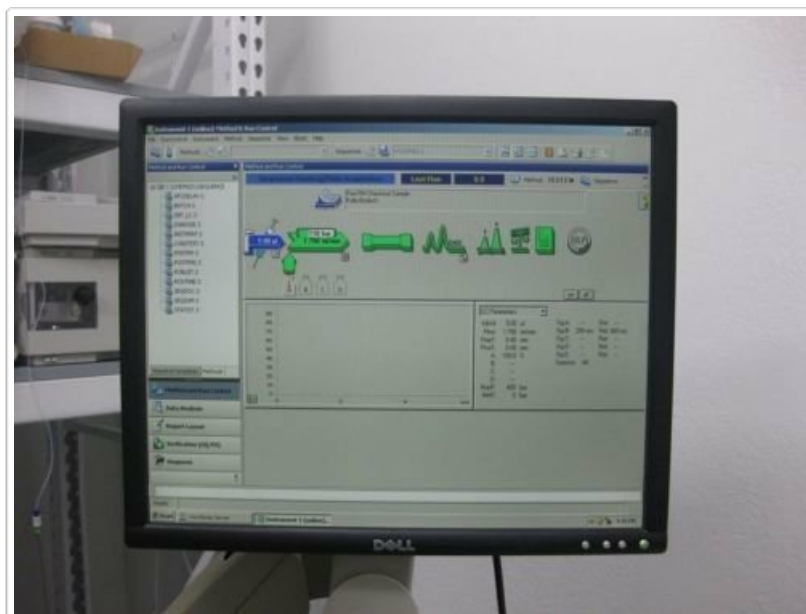


Figure 4.2: Detailed view of the Agilent HPLC software on a desktop monitor, illustrating the system configuration and parameters.

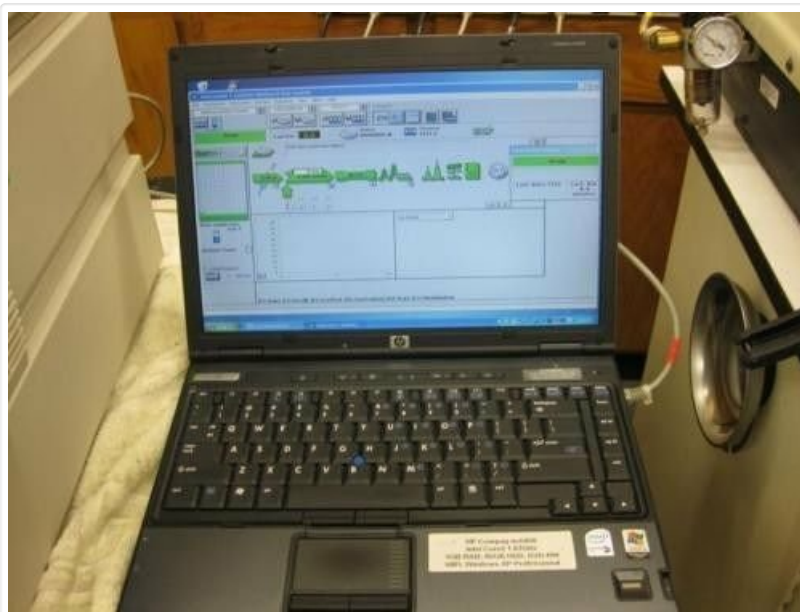


Figure 4.3: The Agilent HPLC software interface as seen on an HP laptop, showing active method parameters.

- **Solvent Preparation:** Prepare mobile phases using HPLC-grade solvents and degas them thoroughly.
- **Priming the System:** Use the software to prime the pump with fresh mobile phase to remove air bubbles.
- **Method Setup:** Define parameters such as flow rate, mobile phase composition (isocratic or gradient), injection volume, column temperature, and detector wavelengths (for MWD).
- **Sequence Creation:** Create a sequence of samples, standards, and blanks for automated analysis.

4.3 Running Samples

- Place prepared samples in the autosampler tray.
- Start the sequence from the software. The system will automatically inject samples, perform separation, and acquire data.
- Monitor the chromatogram and system pressure during the run.

4.4 Data Analysis and Reporting

- After data acquisition, use the software's data analysis features to integrate peaks, quantify analytes, and generate reports.
- Save all raw data and processed results.

4.5 Shutting Down the System

- Flush the system with a suitable solvent (e.g., water/methanol) to remove buffers or aggressive mobile phases.
- Reduce flow rate to a minimum or turn off the pump.
- Exit the software and turn off power to each module.

5. MAINTENANCE

Regular maintenance is crucial for the longevity and optimal performance of your HPLC system.

5.1 Daily Maintenance

- Check solvent levels and replenish as needed.
- Inspect for leaks at fittings and connections.
- Empty waste bottles.

5.2 Weekly Maintenance

- Clean the exterior of the modules with a damp cloth.
- Inspect and clean solvent inlet filters.
- Flush the system with a strong solvent to prevent build-up if using buffers.

5.3 Monthly/Quarterly Maintenance

- Replace pump seals and check valves (refer to specific module manuals for detailed instructions).
- Clean or replace autosampler syringe and rotor seal.
- Perform detector lamp intensity check and replace if necessary.
- Calibrate the autosampler and detector if required.

5.4 Column Care

- Always use a guard column to protect the analytical column.
- Store columns properly in their storage solvent when not in use.
- Avoid sudden pressure changes or mechanical shocks to the column.

6. TROUBLESHOOTING

This section provides guidance for common issues encountered during HPLC operation. For complex problems, refer to the detailed troubleshooting guides in individual module manuals or contact Agilent support.

6.1 Common Issues and Solutions

- **No Flow/Low Flow:** Check solvent levels, degasser function, pump prime, and for blockages in tubing or filters.
- **High Backpressure:** Check for column blockage, clogged frit, or tubing restrictions. Flush or replace column/frit if necessary.
- **Leaks:** Inspect all fittings and connections. Tighten or replace ferrules/fittings as needed.
- **Baseline Noise/Drift:** Ensure proper mobile phase degassing, stable temperature, clean detector flow cell, and functional lamp.
- **Poor Peak Shape/Retention Time Variability:** Check column condition, mobile phase pH, flow rate accuracy, and autosampler injection reproducibility.

6.2 Error Messages

Refer to the software's help documentation or the specific module's manual for detailed explanations of error codes and recommended corrective actions.

7. SPECIFICATIONS

Attribute	Value
Model	1100 Series MWD HPLC System
Manufacturer	Agilent Technologies
ASIN	B01J930G20
Package Dimensions (Approx.)	100 x 80 x 70 inches
First Available Date	July 28, 2016

Note: Specific performance specifications (e.g., flow rate range, pressure limits, detector sensitivity) are detailed in the individual module manuals.

8. WARRANTY AND SUPPORT

Specific warranty details for the HP Agilent 1100 Series MWD HPLC System are not provided in this general manual. Please refer to your purchase documentation or contact Agilent Technologies directly for warranty information and technical support.

For technical assistance, service, or to order spare parts, please contact Agilent Technologies customer support or your local authorized service provider. Always provide your instrument's serial number when seeking support. You may find additional resources and documentation on the official Agilent Technologies website www.agilent.com

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question