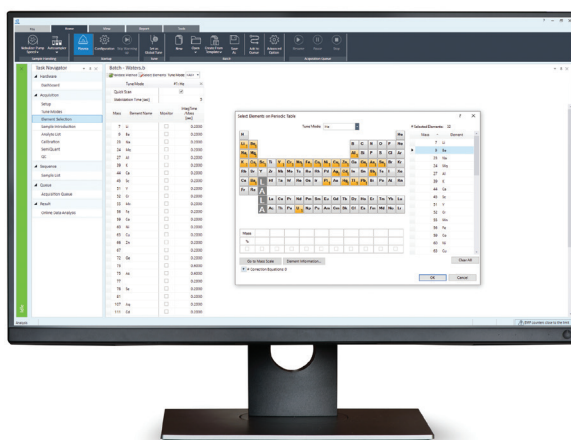


# Specifications for Agilent ICP-MS MassHunter 5.1

For the Agilent 7700, 7800, 7850 & 7900 ICP-MS  
and 8800 & 8900 ICP-QQ Systems



## Introduction

Agilent ICP-MS MassHunter 5.1 is the latest version of the simple, intuitive, and powerful ICP-MS Workstation software.

Significant features in version 5.1 include a color-coded instrument status indicator, intuitive task navigator, an early maintenance feedback (EMF function), and enhancements for the IntelliQuant semiquantitation function. Additional features include prerun and postrun performance tests—be confident that the instrument is ready for analysis. These features are contained in a completely redesigned user interface (UI), optimized for ease of use and greater sample and instrumental insights.

ICP-MS MassHunter 5.1 controls instrument configuration, method setup, data acquisition, processing, and reporting. The software ships with all new instruments, and is compatible with Microsoft Windows 10 (64 bit).

ICP-MS MassHunter 5.1 is not compatible with Windows 7.

Existing Agilent ICP-MS instruments can be upgraded to version 5.1 of the ICP-MS MassHunter software with or without the Agilent-supplied PC bundle.

ICP-MS MassHunter 5.1 is supplied in five different variants, each one for a different instrument model:

Variant Number	Instrument Model
#001	7700
#002	8800
#003	7900
#004	7800
#005	8900
#006	7850

The core software functionality of ICP-MS MassHunter can be extended with the purchase of additional software modules including:

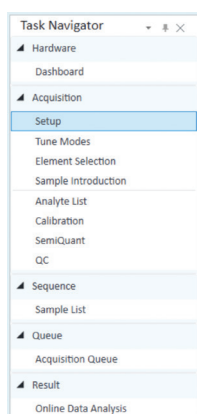
Software module	Part Number
Advanced acquisition module <sup>1</sup>	(G5713A)
Single nanoparticle module <sup>2</sup>	(G5714A)
Chromatographic module	(G7205C)
Intelligent sequencing module	(G7206C)
User access control	(G7207C)

Extra user licenses can be purchased to permit installation on up to three other offline computers—any optional components can also be used with the offline licenses.

## Features of ICP-MS MassHunter 5.1

### New user interface

ICP-MS MassHunter 5.1 introduces a redesigned workflow-focused user interface (UI) that reduces operator training requirements and simplifies all aspects of routine and advanced ICP-MS operation and data analysis. The addition of a ribbon bar menu and task navigator simplifies the UI without compromising features. ICP-MS MassHunter is easier to use and learn than ever before.



**Figure 1.** The task navigator provides an intuitive means of instrument control, sample measurement, and data analysis.

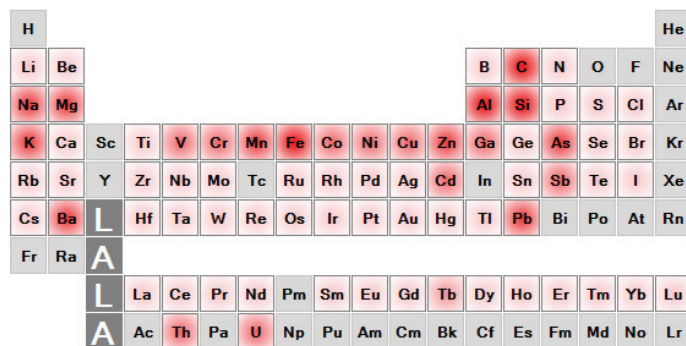
<sup>1</sup> Advanced Acquisition is no longer needed for high-resolution (narrow peak) quadrupole mode – typically used for half-mass doubly charged ion correction.  
<sup>2</sup> If 100 μs dwell time is desired for a 7800 or 7850 ICP-MS, use part number G5718A

### IntelliQuant analysis for ICP-MS

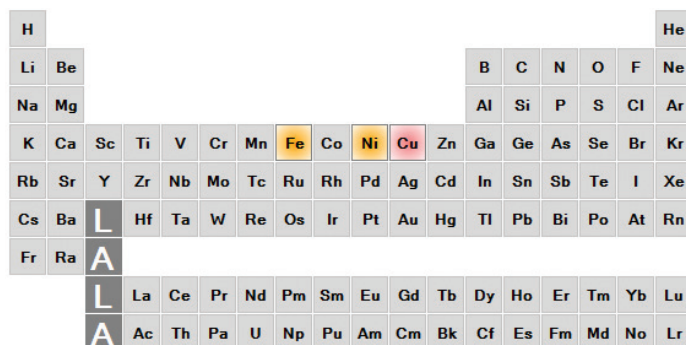
IntelliQuant takes only two seconds to capture the complete mass spectrum of a sample. This data is used to create a periodic table “heat map” showing the semiquantitative concentrations of each element in the sample. Switch the display to show potential interferences—IntelliQuant uses an extensive database to calculate possible interference ions based on the element concentrations in each sample.

IntelliQuant automatically assigns calibration, internal standards, and blank solutions to the semiquantitative calculation. Additionally, IntelliQuant calculates the total matrix solids (TMS) for each sample. Similar to TDS, TMS is an estimate of the total dissolved matrix levels in the samples—excluding typical acid and anion elements.

IntelliQuant requires no setup or extra solutions as it uses the same calibration standards prepared for the quantitative analysis. The automatic calibration routine is further enhanced to provide reliable calibration across a greater number of scenarios.



**Figure 2a.** Concentration smart view feature of IntelliQuant displays the relative concentration of all measurable elements in each sample, using a color-coded heat map on the periodic table.



**Figure 2b.** The IntelliQuant function can create a color-coded representation of possible interferences within a sample; this is based upon each sample's unique element make-up.

## IntelliQuant Assistant for 8900 ICP-QQQ

The IntelliQuant Assistant function makes method setup simple for ICP-QQQ operators. Using the knowledge gained from years of ICP-QQQ research and manufacturing, IntelliQuant Assistant distills method development to a few simple questions about your samples and which elements you want to measure.

IntelliQuant Assistant selects the most appropriate set of instrument and elemental conditions based on operator inputs. It makes setup of ICP-QQQ methods fast and easy—just like having an expert by your side.

## Preset methods and guided method development

Preset methods offer users of all experience levels a shortcut to the regulated or standard method of choice (e.g. EPA200.8/EPA6020; ChP; USP<232>/ICH Q3D). Virtually no user input or advanced knowledge is required when using these features.

To create a nonstandard method, the guided method development feature in ICP-MS MassHunter can be used. Based on the answers to a few simple questions, ICP-MS MassHunter creates a method optimized to the lab's requirements.

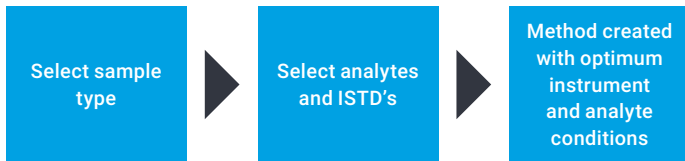


Figure 3. Guided method development features offer simple workflow, enabling fast and easy ICP-MS and ICP-QQQ method development.

## Half-mass correction for M<sup>+</sup> ions

Included as standard, “narrow peak” high-resolution quadrupole mode allows the measurement of odd-mass doubly charged ions. These ions can then be used as real-time references for data correction, significantly reducing or eliminating the interferences from doubly charged ions.

The Method Wizard automates setup for half-mass corrections, meaning little user knowledge is needed.

## Instrument status indicator

The instrument status indicator provides an at-a-glance view of the current state of the instrument. It uses color-coded status alerts—instrument offline, not ready, ready, error, warning, and running a procedure (e.g. sample batch or autotuning function).

The indicator is easy to see from a distance and is as simple as “green is good.”

## Smart EMF (early maintenance feedback)

The EMF function indicates when maintenance tasks should be done or planned. EMF monitors multiple metrics and organizes them into a priority of action first, using traffic-light colored indicators. There are also options for user-definable activities, and all meters are customizable to the specific needs of the lab.

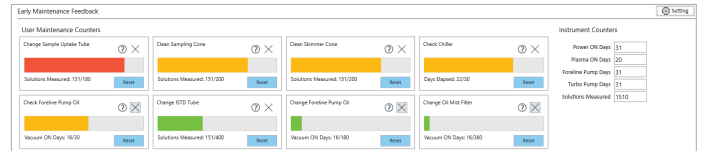


Figure 4. Smart EMF uses simple green, amber, red indicators.

## Postrun performance test

How can you know if your instrument is fit for purpose at the beginning of the day before turning it on? This question is quickly answered using the performance checks built into ICP-MS MassHunter 5.1. A postrun performance check verifies the instrument condition at the end of a sample run. Performance is measured against minimum criteria and provides meaningful feedback (e.g. my instrument is good to go, or some maintenance is required). Know the performance before you turn it on!

## Outlier conditional formatting

Outlier conditional formatting (OCF) offers a simple yet useful means to review data. OCF allows you to filter data based on its “flag” status. If the samples without flags need to be reported or exported, OCF can display samples ready for reporting. Conversely, flagged sample filtering displays samples with either specific or all outliers.

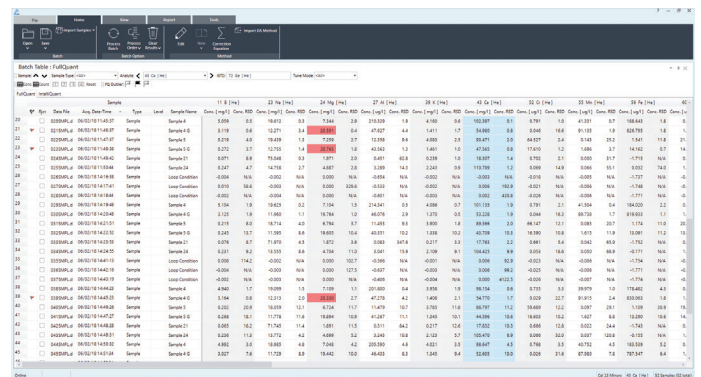


Figure 5a. Full analysis dataset displaying all sample results.

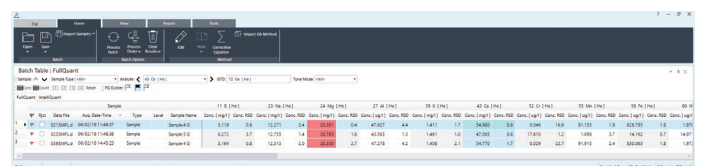


Figure 5b. OCF filtered dataset displaying only samples with outliers. The color-coded cells highlight the item and flag reason.

## Compliance

Agilent provides several options to assist with compliance with electronic records regulations, depending upon the needs of the laboratory. Agilent SDA is used for small labs or those labs wanting a flexible single PC solution. Agilent OpenLab Server/ECM XT are fully scalable software products for medium to large corporations. ICP-MS MassHunter 5.1 takes advantage of features in these compliance products, including:

### *SDA backup scheduler*

The SDA backup scheduler operates as a Windows service (meaning a user does not need to be logged in) and will act according to the selected time/date without any further user intervention. Backup scheduling is flexible and straightforward, offering monthly, weekly, or daily (including selected daily) options.

### *ECM data migration utility*

For those laboratories upgrading their compliance solution to Agilent OpenLab Server from legacy systems, a data migration tool has been developed to simplify the migration process for these older data systems. This stand-alone tool allows offline migration of older data to the latest format.

### *Improvements in audit trails*

Audit trails include more information in their entries, making it easier and faster to understand the meaning of the entry.

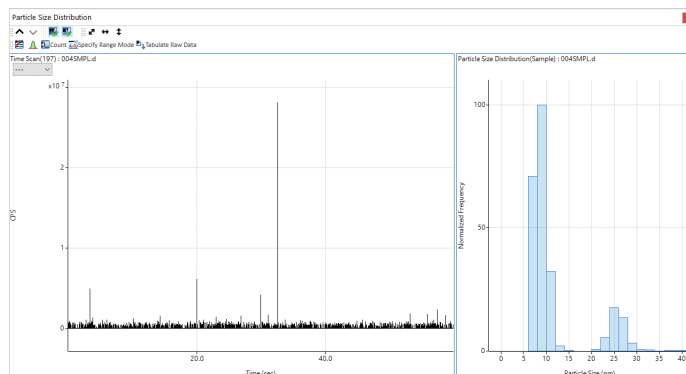
### *User Access Control*

- The control panel handles user management and data security, including:
- Configuring authentication provider
- Creating users and groups
- Assigning roles
- Recording system activity log

## Single nanoparticle/cell module

The optional Single Nanoparticle (sNP) module automates the method setup for data acquisition and analysis of nanoparticles, both in single-particle mode and field-flow fractionation mode. The Single Nanoparticle module is compatible with the 7700, 7800, 7850 and 7900 ICP-MS, and the 8800 and 8900 ICP-QQQ. The 7900 and 8900 instruments include 0.1 ms (100  $\mu$ s) dwell time acquisition with no settling time for single isotope determinations. The 100  $\mu$ s dwell time and zero settle time in single isotope mode capability is optional on the 7800 and 7850 instruments.

ICP-MS MassHunter 5.1 includes the ability to swap between weighted and non-weighted bin-size display for the signal distribution chart, making it simple to find the



**Figure 6.** Single-particle application module displaying two distinct distributions of gold nanoparticles (~9 and 25 nm) measured on the 7850 ICP-MS with the fast time-resolved analysis option.

optimum threshold value. The sNP data analysis module features a unique, automated algorithm optimized to find small nanoparticles, particularly in samples with high ionic backgrounds.

## ICP Go

ICP Go is a browser-based simple interface for routine analyses in labs. This optional software can control the 7700, 7800, 7850 and 7900 ICP-MS and 8900 ICP-QQQ instruments directly from a browser (Chrome or Edge) enabled device. ICP Go does not require an internet or network connection to work directly on the instrument control PC. If connected to an internal network, remote access to ICP Go is possible with Windows, macOS, Android, and iOS devices<sup>3</sup>. For complete peace of mind, access to ICP Go controlled instruments from outside of the company network is not possible without using a VPN client.

## Additional features

### Instrument control, start-up, and optimization

ICP-MS MassHunter 5.1 provides full control of supported ICP-MS and ICP-QQQ instruments, including configuration, start-up, and optimization procedures, and automated, unattended system shutdown at the end of a sequence.

Features include:

- Fast and reproducible autotuning, with tune status and current signal display
- Easy setup and configuration of mainframe options and connected peripherals
- Comprehensive diagnostic and early maintenance feedback (EMF) tools
- “Simulator mode” permits simulation of a fully functional online instrument for training and troubleshooting purposes

<sup>3</sup> Check with your Agilent representative for exact requirements.

- A start-up routine that performs a system optimization and performance checks that run under consistent conditions following plasma ignition
- A "history view" allows simple monitoring of variations in instrument performance and tuning parameters over time. This records start-up AND end of run performance reports.

### Batch and queue

A batch within the ICP-MS MassHunter software contains all the information and settings required to set up, run and report a sample batch. Sample introduction, tune, cell gas modes and settings, acquisition masses and integration times, internal standards, sample list, calibration parameters, and QC settings are contained with the sample data.

Batches can be created from:

- A preset method
- An existing batch
- A template
- Method Wizard

Method templates contain a complete configuration of any specific method, whether provided by Agilent, custom prepared, or prepared by the laboratory. Everything needed for the analysis is contained within a batch template; even specific samples can be predefined, and their related custom reports. The templates have small file sizes (typically less than 500 KB) and can easily be transferred between instruments or even laboratories. Templates also form the basis for method setup, operation, and analysis in ICP Go.

The Method Wizard guides a user through the required steps when creating an analysis batch. Answering a few straightforward questions about the samples, internal standard and analyte elements (there are many predefined lists to help), it then creates the best method for the analysis.

The queue is an interactive schedule of tasks assigned to the instrument for automated, sequential execution. The queue manages all hardware and acquisition tasks, including:

- Recommended maintenance actions (if any) from the previous end of queue performance verification
- Start-up optimization and performance verification
- Acquisition and analysis of a sample batch or batches (multiple sample batches can be queued for sequential analysis)
- A custom rinse can be added after the batch, and a "tube saver" function can be used to improve the life of connected peristaltic pump tubing
- End of queue performance verification and recommended actions (if any)
- Automated shutdown

### Data acquisition

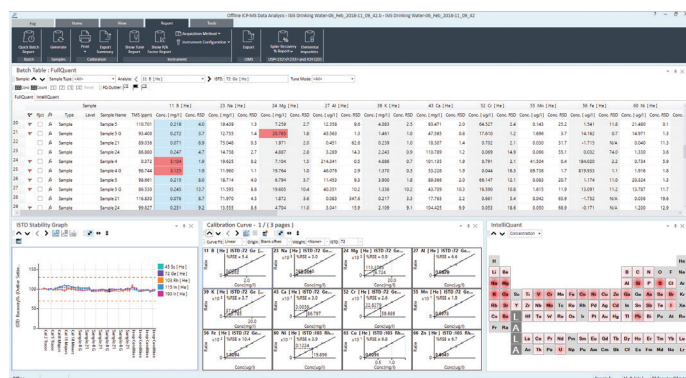
ICP-MS MassHunter 5.1 performs predefined analysis using settings defined in the Batch/Tune conditions, including multilevel aerosol dilution with HMI or UHMI.

Features include:

- Advanced rinse programs including pre-emptive rinse and intelligent rinse
- IntelliQuant for fast screening analysis is integrated into the acquisition and data analysis pane
- Acquisition modes include spectrum, isotope analysis, time-resolved analysis (TRA), and Fast TRA<sup>4</sup>
- Time-resolved acquisition supports continuous runs of more than 24 hours for laser imaging, with no limit on the number of TRA elements
- Integrated instrument and run control for Agilent 7890 GC and common 1200 Series LC modules (see the table on page 10)

### Data analysis and reporting

ICP-MS MassHunter uses a flexible, interactive display of results that is updated in real-time during analysis, as shown in Figure 7.

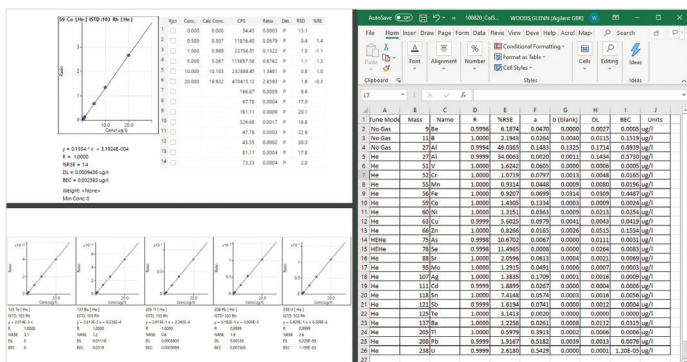


**Figure 7.** The data analysis window displaying the data table (top), internal standard stability (bottom, left), calibration graphs (bottom, middle) and IntelliQuant Periodic Table display (bottom right).

- Display functionality includes:
  - Batch-at-a-glance view, showing analyte results, internal standard recoveries and stability plots, spectra or chromatograms, QC charts and calibration information for an entire batch or selected samples in a single view; IntelliQuant Periodic Table smart view can also be displayed.
  - Outlier flags and LabQC functions are provided, and the screen layout can be switched between built-in and customized views.

<sup>4</sup> Some features may require the Advanced Acquisition option.

- Calibration modes such as:
  - External calibration<sup>5</sup>
  - Method of standard additions (MSA)
  - Semiquantitative calibration
  - Isotope ratio<sup>6</sup>
  - Isotope dilution<sup>6</sup>



**Figure 8.** Examples of calibration reports including detailed, summary, and summary without graphics.

- Data analysis view is consistent for spectrum data and optional chromatographic and nanoparticle modules. This feature makes understanding the data and learning the software a simple task.
- Recalibrations performed during the sequence are applied automatically to subsequent samples, including converting standard addition calibration to external calibration, isotope ratio mass bias correction, and IntelliQuant calibration update.
- Up to five user-definable QC sample types, plus spike and reference samples; includes plotting and user-defined action on QC failure.
- Advanced tools for spectrum interpretation and IntelliQuant analysis, including potential interference flags, spectral overlay, and automated isotopic template update.
- Isotope ratio/isotope dilution analysis (included in the Advanced Acquisition option for 7850 and 7900).

The data (entire table or selected samples) may be reported directly to print/file, or easily exported to Excel<sup>7</sup>, text or CSV file formats. Other spreadsheet programs are also supported via CSV file export.

<sup>5</sup> Calibration curve fit options include linear, linear through zero, linear through the blank, weighted least squares, log and second order.

<sup>6</sup> Included in Advanced Acquisition software option for the 7800 and 7900

<sup>7</sup> 32-bit Excel 2019 supported. It is the user's responsibility to supply Excel 2019, but is not needed for any base functionality

<sup>8</sup> Compatibility list is provided towards the end of this document

A built-in, user-configurable laboratory information management system (LIMS) export tool permits simple export of selected data to LIMS via a comma or tab-separated text file. Many LIMS systems can read ICP-MS MassHunter data files directly.

## Optional Software

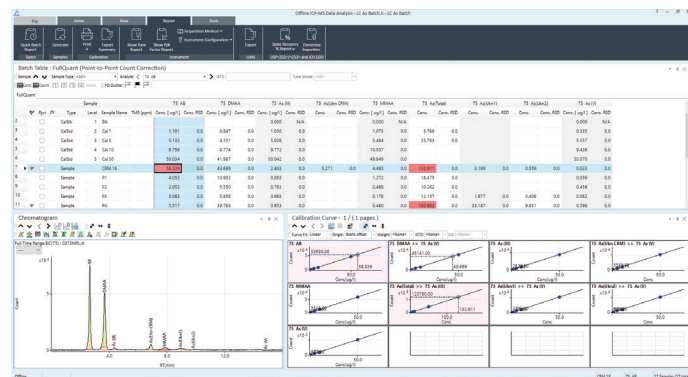
Optional modules are available to further enhance MassHunter for application and/or compliance-specific solutions:

### Chromatographic module

The chromatographic module (G7205C) provides full-function, integrated control for Agilent LC- and GC-ICP-MS systems<sup>8</sup>, and comprehensive chromatographic data analysis with advanced integration tools. Functionality for LC-ICP-MS users includes support for the 1260 and 1290 Infinity multi-sampler (G7167A/B).

A parameter-less integrator (Agile2 integrator) automatically adjusts to peak widths, shapes, and baseline noise to correctly integrate almost any chromatographic peak with minimal user input.

The chromatographic data analysis pane is analogous to the spectrum data analysis pane and includes the current chromatogram display, quantitative results, outlier functions, and calibration information.



**Figure 9.** Chromatographic data analysis; this example shows speciation of five known and three unknown arsenic species (quantified using compound-independent calibration) the associated data, chromatogram, and calibration.

Advanced chromatographic functions include:

- Chromatographic and spectrum-based internal standard correction
- Chromatographic internal standards correct for both response and retention time drift
- Peak auto integration using global or user-selectable integration parameters per peak
- Interactive manual integration
- Snapshot data analysis of current sample during acquisition run-time
- Compound-independent calibration (CIC)
- Signal-to-noise calculation
- Automatic retention time updates.

### Intelligent sequencing, advanced real-time QC

The ICP-MS MassHunter software suite includes many QC functions, including tune checks, intelligent rinse, outlier flags, QC samples, and options for simple run-time actions on QC failure.

For advanced QC requirements (such as full compliance with US EPA methodology), the optional intelligent sequencing software module (G7206C) provides complete QC configuration and reporting tools.

Intelligent sequencing tools include the capability for multilevel QC checks and actions on failure, and support for many user-configurable sample types, including customizable report templates. Intelligent sequencing supports intelligent autodilution as an action on failure when the ESI prep**FAST** is used.

### Single nanoparticle module

The single nanoparticle module (G5714A) fully automates the task of setting up an analysis batch for nanoparticle determination, either in single-particle mode or in field-flow fractionation (FFF) mode.

The single nanoparticle module is built into the method wizard, so creating a nanoparticle method is fast and intuitive. Acquisition parameters optimized for either single particle or FFF modes are automatically set up with a few mouse clicks. Sample flow, nebulization efficiency, ionic response factor, and particle detection threshold are automatically calculated.

Features include:

- Rapid multi-element nanoparticle analysis (up to 16 elements) in a single sample analysis

- Combined nanoparticle analysis and total metal determination in a single sample analysis
- Advanced algorithm for automatic particle detection threshold

Results are displayed both in tabular format in the batch-at-a-glance view, and graphically, including particle number, particle concentration, size distribution, weight distribution, median size, ionic concentration, and background equivalent diameter. Powerful interactive data review and optimization tools simplify validation of results, and an entire batch of samples takes just seconds to process.

### Control panel

The control panel provides flexible, configurable, multilevel user access control to limit access to ICP-MS MassHunter and individual functions within the software. Permitted actions are defined for each user level in the control panel's users, groups, and roles panes; the default settings can be modified should they not suit the laboratory's need. Each permitted action can be configured to require the entry of a valid username/password combination and reason. Control panel user management is independent of Widows users/groups and includes a built-in system activity log audit trail.

With the Agilent SDA or OpenLab Server/ECM XT compliance software, the control panel option for ICP-MS MassHunter can support compliance with the US FDA's 21 CFR Part 11, EU Annex 11, and equivalent regulations in other countries and regions.

The comprehensive range of Agilent compliance software options cover a single workstation through to server-based systems suitable for medium-sized and expanding laboratories and multi-instrument, multisite, global enterprise-level operations.

### Autosamplers

The 7700, 7850 & 7900 ICP-MS, & 8800 & 8900 ICP-QQQ are compatible with the following optional autosamplers:

- Agilent SPS 4
- Agilent I-AS
- Cetac ASX-520
- Cetac ASX-110 & 110FR
- Cetac EXR-8/XLR-860

Other autosamplers such as the MVX7100 and prep**FAST** are compatible via a fully integrated MassHunter plugin<sup>9</sup>.

<sup>9</sup> Plugin software designed for versions 4.5 or earlier may not function correctly, please check with the plugin provider or your Agilent representative for advice. This may affect but is not limited to 3rd party autosamplers and Laser Ablation instruments.

## Integrated sample introduction system (ISIS)

The Agilent ISIS 2 is compatible with the 7700 and 8800 instruments only.

The Agilent ISIS 3 is compatible with the 7800, 7850, 7900 and 8900 instruments only.

## Operating system components

ICP-MS MassHunter 5.1 is compatible with:

- Microsoft Windows 10 Pro or Enterprise, 64-bit 1909, OS Build 18363, or later<sup>10</sup>
- Excel 2019 (32-bit only).
- Microsoft Edge, Google Chrome

Note: Excel is not required or included

## Optional software modules

The following ICP-MS MassHunter 5.1 optional software modules are compatible with all supported ICP-MS and ICP-QQQ instruments:

- Chromatographic module
- Intelligent sequencing module
- Single nanoparticle module
- Control panel module (user access control)
- ICP Go

## Software compatibility

Version 5.1 of the ICP-MS MassHunter software is compatible with:

- Windows 10 Pro or Enterprise (64 bit) Version 1909
- Although MassHunter does not require or ship with Microsoft Excel, it is fully compatible with 32-bit Excel 2019
- Agilent 7700, 7800, 7850 and 7900 ICP-MS and 8800 and 8900 ICP-QQQ and their associated peripherals
- Third-party autosamplers and accessories, using plugins developed by the supplier. Contact Agilent for details
- Agilent 7890 GC and 7693 autosampler when the optional chromatographic software module is installed
- Most Agilent 1100 and 1200 Series HPLC modules and peripherals when the optional chromatographic module is installed

<sup>10</sup> Check with your local Agilent representative to confirm compatibility with later builds of Windows



Software Functions	7700 and 8800	7800	7850	7900	8900
Method Wizard (guided method development)	✓	✓	✓	✓	✓
Method Wizard (automatic mode)	✗	✗	✗	✓ <sup>e</sup>	✗
Time Resolved Analysis (TRA) mode	✓	⊙	⊙	⊙	✓
Fast TRA mode	✗	○ <sup>f</sup>	○ <sup>f</sup>	⊙	✓
Nanoparticle Analysis	○	○	○	○	○
Isotope Ratio/Isotope Dilution	✓	⊙	⊙	⊙	✓
High-Resolution/Half-Mass Correction	✓	✓	✓	✓	✓
Quick Scan	✓	✓	✓	✓	✓
High Matrix Introduction (HMI)	✓	✓	✗	✗	✗
Ultra High Matrix Introduction (UHMI)	✗	✗	✓	✓ <sup>h</sup>	✓ <sup>i</sup>
Fast Cell Gas Switching	✗	✓	✓	✓	✓
Cell Gas Optimization	✓	✓	✓	✓	✓
Autotune	✓	✓	✓	✓	✓
Flexible Manual Tune	✓	✓	✓	✓	✓
Postrun Performance Verification	✓	✓	✓	✓	✓
Smart EMF	✓	✓	✓	✓	✓
Spraychamber Temperature Control	✓	✓	✓	✓	✓
H <sub>2</sub> Cell Gas Control	○/✓ <sup>i</sup>	○	○	○	✓
Third Cell Gas Control	○	○	○	○	N/A
Routine QC Control	✓	✓	✓	✓	✓
Advanced QC (Intelligent Sequencing)	○	○	○	○	○
User Access Control <sup>l</sup>	○	○	○	○	○
Chromatographic Analysis <sup>m</sup>	○	○	○	○	○
Additional offline licenses (3x)	○	○	○	○	○
ICP Go	○/✗ <sup>n</sup>	○	○	○	○
Help and Learning Center	✗ <sup>p</sup>	✗ <sup>p</sup>	✓	✓	✓
IntelliQuant	✓	✓	✓	✓	✓
IntelliQuant Assistant	✗	✗	✗	✗	✓
Outlier Conditional Formatting (OCF)	✓	✓	✓	✓	✓
Plugin compatible <sup>q</sup>	✓	✓	✓	✓	✓

✓ – included

⊙ – included as part of the Advanced Acquisition module

○ – option

✗ – incompatible

<sup>c</sup> Please check for compatibility

<sup>e</sup> With x-lens only

<sup>f</sup> Default dwell time is 3 ms; the optional 7800 upgrade (G5718A) reduces dwell time to 0.1 ms and includes the nanoparticle module

<sup>g</sup> Allows the measurement of 0.5 amu peaks for M<sup>++</sup> interference correction

<sup>h</sup> With x-lens only

<sup>i</sup> With x-lens only; not compatible with option #200

<sup>j</sup> Included with the 8800 ICP-QQQ

<sup>k</sup> Optional access control software. Required for compliance solutions

<sup>l</sup> Compatible compliance solutions:

– ECM XT 2.4 & 2.5

– OpenLab Server 2.4 & 2.5

– SDA rev. B.01.01

– OpenLab ECM 3.4.1 SP2 HF3 (supported, not tested)

– OpenLab ECM 3.5 HF2

– OpenLab ECM 3.6 Update 3

<sup>m</sup> Also allows full acquisition and control of Agilent LC systems.

<sup>n</sup> ICP Go software is not compatible with the 8800 ICP-QQQ

<sup>o</sup> (Audio: English, Chinese, Japanese, Subtitle: French, Italian, German, Spanish, Portuguese, Korean)

<sup>p</sup> e-Familiarization

<sup>q</sup> Plugins and custom scripts may not be officially supported; are provided by Agilent free of charge or can be developed by users

## Supported Agilent LC and GC systems (full integration and control)

Agilent LC Module	Part Number
1260 Isocratic Pump	G1310B
1200 Binary Pump	G1312A
1260 Binary Pump SL	G1312B
Solvent Selection Valve	G1312B, #031
1260 Binary Pump VL	G1312C
1290 Binary Pump	G4220A
1290 Binary Pump VL	G4220B
1260 Infinity SFC Binary Pump	G4302A
1100 Quaternary Pump	G1311A
1260 Quaternary Pump	G1311B
1260 Quaternary Pump VL	G1311C
1290 Infinity Quaternary Pump	G4204A
1260 Infinity bio-inert, Ti Head, Fe-Free Quaternary Pump VL	G5611A
1100 Standard ALS	G1313A
1200 Standard ALS	G1329A
1260 Standard ALS SL	G1329B
1260 SFC Standard ALS	G4303A
1260 Infinity II Vialsampler	G7129A
Integrated Column Compartment	G7130A
1100 microplate ALS	G1367A
1200 High Performance ALS	G1367B
1200 High-Performance ALS SL	G1367C
1200 High-Performance- ALS SL Plus	G1367D
1260 Infinity High-performance ALS SL	G1367E
1290 Infinity ALS	G4226A
Bio-Inert LC metal-free ALS	G5667A
1290 Infinity Thermostat	G1330B
1260 Infinity Multisampler	G7167A
1290 Infinity II Multisampler	G7167B
1260 Low Flow High-Performance Sampler	G1377A
1260 Cap-LC Pump	G1376A
1260 nanoLC Pump	G2226A
1260 Low Flow Sampler	G1389A
1290 Infinity Thermostatted Column Compartment	G1316A
1290 Infinity Thermostatted Column Compartment SL	G1316B
1290 Infinity Thermostatted Column Compartment SL Plus	G1316C
1260 Infinity Micro Degasser (no software control)	G1379B

Agilent LC Module <sup>p</sup>	Part Number
7890A GC system	G3440A
7890B GC system	G3440B
7693B Auto injector module	G4513A
7693 Auto injector autosampler tray module	G4514A

<sup>p</sup> GC Firmware must be version A.01.11.1 or later for direct support from ICP-MS MassHunter

## Ordering information

ICP-MS MassHunter ships as standard with all new instruments. Control PC must meet the minimum specifications and it is strongly recommended to use the Agilent tested PC bundle to ensure supported compatibility.

There are two upgrade options for earlier versions of ICP-MS MassHunter:

Part Number	Description
G7212D	MassHunter Software Upgrade PC bundle – Includes: PC Printer Monitor Installation & Familiarization
G7213D	MassHunter Software Upgrade (no PC bundle)

Please check with your Agilent representative for up-to-date information regarding ordering and options

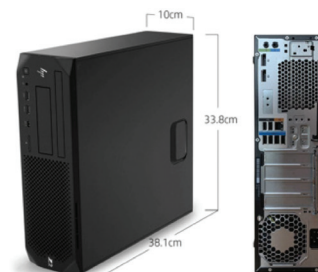
## Microsoft Excel and Office compatibility

Although it is not required for correct operation, 32-bit Excel 2019 is directly supported by Agilent ICP-MS MassHunter software.

Please note that Office 365 is NOT supported (Specifically Excel 365).

Non-Microsoft Office and Spreadsheet applications (e.g. OpenOffice, LibreOffice) may also be used. The data export function to these programs is via a CSV file and therefore, some configuration of these applications may be necessary. QC functions are not supported by these applications.

ICP-MS MassHunter is tested and supported on the model listed below, or on models shipped later.	
PC specifications	HP Z2 G4 (Small Form Factor)
Processor Type	Intel® Core i5 9500 (9 MB cache, 6-core)
Processor Speed	3.0 GHz (4.4 GHz max Turbo)
RAM	8 GB (DDR4-2666)
Hard Disk	500 GB SATA (7200 rpm)
Optical Drives	9.5 mm Slim DVD Writer
Graphics	Integrated Intel UHD Graphics 630
Audio	Integrated Conexant CX20632 5.1 HDA codec
Communications	LAN – Integrated Intel I219LM PCIe GbE Controller 2x RS-232 Serial Port (rear)
Ports	5x USB 3.0 (1 front, 4 rear) 3x USB 2.0 (1 front, 2 rear)
Accessories	Keyboard and Optical Mouse
Operating System	Windows 10 Professional, 64 bit (English/Japanese/Chinese)
Monitor	HP E223 21.5" IPS widescreen LCD panel (resolution 1920 x 1080)
Laser Printer	(English/Chinese) HP LaserJet M507 (600 sheets tray capacity / 35 ppm) (Japanese) Canon LBP221



The ICP-MS is connected to the Workstation PC using the LAN port of the PC. If a second LAN connection is required (for example to connect the PC to a company network or to control an Agilent LC or GC system) a LAN switch (switching hub) such as the HP Pro Curve Network Switch (G2402A) is strongly recommended. While it is possible to use a second LAN card, certain configurations can cause communication problems and are therefore not supported.

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This information is subject to change without notice.

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Printed in the USA, December 11, 2020  
5991-4070EN

