Agilent 1200 Infinity Series

Specification Compendium



Agilent Technologies

Notices

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Manual Part Number

01200-90010 Rev. K

Edition

12/2013

Printed in Germany

Agilent Technologies
Hewlett-Packard-Strasse 8
76337 Waldbronn

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Agilent 1290 Infinity Quaternary Pump (G4204A)

Table 1 Physical Specifications

Type	Specification	Comments
Weight	15.2 kg (33.4 lbs)	
Dimensions (height × width × depth)	200 x 345 x 435 mm (8 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	220 VA / 180 W / 615 BTU/h	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 2 Performance specifications

Type	Specification	Comments
Hydraulic system	Dual pistons in series pump with proprietary servo-controlled variable stroke design, power transmission by ball screws, smooth motion control of pistons for active damping.	
Settable flow range	0.001 —5 mL/min, in 0.001 mL/min increments.	Executed in 300 pL/st ep increments
Flow precision	≤0.07 % RSD or 0.01 min SD, whatever is greater (0.2 —5.0 mL/min).	Based on retention time at constant room temperature.
Flow accuracy	±1 % or ± 10 µL/min, whatever is greater.	Pumping degassed H_2O at 10 MPa (100 bar)
Maximum operating pressure	Operating range up to 120 MPa (1200 bar), up to 2 mL/min, ramping down to 80 MPa (800 bar) up to 5 mL/min.	
Pressure pulsation	<1 % amplitude or < 0.5 MPa (5 bar), whatever is greater.	At 1 mL/min water
Compressibility compensation	Automatic, pre-defined, based on mobile phase selection.	
Gradient formation	Low pressure quaternary mixing	
Delay volume	Standard configuration: <350 µL With optional V380 Jet Weaver: <500 µL	
Composition range	Settable range: 0 – 100 %	Recommended range: 1 – 99 % or 5 µL/min per channel, whatever is greater.
Composition precision	<0.15 % RSD, or 0.02 min SD, whatever is greater (1 mL/min).	Based on retention time at constant room temperature
Composition accuracy	±0.40 % absolute (1 – 99 % B, 0.5 – 2.0 mL/min with water/caffeine tracer, 400 bar)	

Table 2 Performance specifications

Type	Specification	Comments
Integrated degassing unit	Number of channels: 4 Internal volume per channel: 1.5 mL	
Control	Agilent ChemStation for LC (C.01.04 or above) OpenLAB (A.04.04) Masshunter (B.05.01 or above)	
Local control	Agilent Instant Pilot (G4208A) (B.02.08 or above)	
Communications	Controller-area network (CAN), RS232C, APG remote: ready, start, stop and shutdown signals, LAN	
Safety and maintenance	Extensive diagnostics, error detection and display through Agilent LabAdvisor, leak detection, safe leak handling, leak output signal for shutdown of the pumping system. Low voltage in major maintenance areas.	
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of seal wear and volume of pumped mobile phase with pre-defined and user settable limits and feedback messages. Electronic records of maintenance and errors.	
Housing	All materials recyclable.	

Agilent 1290 Infinity Binary Pump (G4220A)

Table 3 Physical Specifications

Type	Specification	Comments
Weight	21.8 kg (48 lbs)	
Dimensions (height × width × depth)	240 x 345 x 435 mm (9.3 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	350 VA / 270 W / 922 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 4 Performance specifications

Type	Specification	Comments
Hydraulic system	Two dual pistons in series pumps with proprietary servo-controlled variable stroke design, power transmission by ball screws, smooth motion control of pistons for active damping.	
Settable flow range	Setpoints 0.001 —5 ml/min, in 0.001 ml/min increments.	Executed in 300 pl/step increments
Flow precision	≤0.07 % RSD or 0.005 min SD, whatever is greater (0.2 —5.0 ml/min).	Based on retention time at constant room temperature.
Flow accuracy	±1 % or 10 µl/min, whatever is greater.	Pumping degassed H_2O at 10 MPa (100 bar)
Pressure operating range	Operating range up to 120 MPa (1200 bar), up to 2 ml/min, 80 MPa (800 bar) at 5 ml/min.	
Pressure pulsation	<1 % amplitude or < 0.5 MPa (5 bar), whatever is greater.	At 1 ml/min water
Compressibility compensation	Automatic, pre-defined, based on mobile phase selection.	
Gradient formation	High pressure binary mixing.	
Delay volume	Jet Weaver V35: <45 µl Jet Weaver V100: <75 µl	JetWeaver generally recommended. For applications requiring lowest delay volumes, JetWeaver can be removed out of the flow path. Delay volume is then solely determined by the volume of the connection capillary.
Composition range	Settable range: 0 – 100 %	Recommended range: 1 – 99 % or 5 µl/min per channel, whatever is greater.

Table 4 Performance specifications

Type	Specification	Comments
Composition precision	<0.15 % RSD, or 0.01 min SD, whatever is greater.	0.2 —5.0 ml/min; based on retention time at constant room temperature
Composition accuracy	±0.35 % absolute (5 – 95 %, 0.2 – 5.0 ml/min)	Water/caffeine tracer
Solvent selection valve	Default	Standard part of the pump
Integrated degassing unit	Number of channels: 2 Internal volume per channel: 1.5 mL	
Control	Agilent ChemStation for LC (B.04.02 or above) EZChrom Elite (3.3.2 SP1 or above) OpenLAB (3.3.2 SP3) Masshunter (B.02.01 SP1 or above)	
Local control	Agilent Instant Pilot (G4208A) (B.02.08 or above)	
Communications	Controller-area network (CAN), RS232C, APG remote: ready, start, stop and shutdown signals, LAN	
Safety and maintenance	Extensive diagnostics, error detection and display (through Agilent Lab Advisor), leak detection, safe leak handling, leak output signal for shutdown of the pumping system. Low voltage in major maintenance areas.	
GLP features	Early maintenance feedback (EMF) for continuos tracking of instrument usage in terms of purge valve switches and volume of pumped mobile phase with pre-defined and user settable limits and feedback messages. Electronic records of maintenance and errors.	
Housing	All materials recyclable.	

Agilent 1290 Infinity Binary Pump (G4220B)

Table 5 Physical Specifications

Type	Specification	Comments
Weight	21.8 kg (48 lbs)	
Dimensions (height × width × depth)	240 x 345 x 435 mm (9.3 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	350 VA / 270 W / 922 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 6 Performance specifications

Type	Specification	Comments
Hydraulic system	Two dual pistons in series pumps with proprietary servo-controlled variable stroke design, power transmission by ball screws, smooth motion control of pistons for active damping.	
Settable flow range	Setpoints 0.001 —2 ml/min, in 0.001 ml/min increments.	Executed in 300 pl/step increments
Flow precision	≤0.07 % RSD or 0.005 min SD, whatever is greater (0.2 —2.0 ml/min).	Based on retention time at constant room temperature.
Flow accuracy	±1 % or 10 µl/min, whatever is greater.	Pumping degassed H_2O at 10 MPa (100 bar)
Pressure operating range	Operating pressure range 120 MPa (1200 bar), up to 2 ml/min.	
Pressure pulsation	<1 % amplitude or < 0.5 MPa (5 bar), whatever is greater.	At 1 ml/min water
Compressibility compensation	Automatic, pre-defined, based on mobile phase selection.	
Gradient formation	High pressure binary mixing.	
Delay volume	Jet Weaver V35: <45 µl Jet Weaver V100: <75 µl	JetWeaver generally recommended. For applications requiring lowest delay volumes, JetWeaver can be removed out of the flow path. Delay volume is then solely determined by the volume of the connection capillary.
Composition range	Settable range: 0 – 100 %	Recommended range: 1 — 99 % or 5 µl/min per channel, whatever is greater.
Composition precision	<0.15 % RSD, or 0.01 min SD, whatever is greater.	0.2 —5.0 ml/min; based on retention time at constant room temperature

Table 6 Performance specifications

Type	Specification	Comments
Composition accuracy	±0.35 % absolute (5 – 95 %, 0.2 – 5.0 ml/min)	Water/caffeine tracer
Solvent selection valve	Default	Standard part of the pump
Integrated degassing unit	Number of channels: 2 Internal volume per channel: 1.5 mL	
Control	Agilent ChemStation for LC (B.04.02 or above) EZChrom Elite (3.3.2 SP1 or above) OpenLAB (3.3.2 SP3) Masshunter (B.02.01 SP1 or above)	
Local control	Agilent Instant Pilot (G4208A) (B.02.08 or above)	
Communications	Controller-area network (CAN), RS232C, APG remote: ready, start, stop and shutdown signals, LAN	
Safety and maintenance	Extensive diagnostics, error detection and display (through Agilent Lab Advisor), leak detection, safe leak handling, leak output signal for shutdown of the pumping system. Low voltage in major maintenance areas.	
GLP features	Early maintenance feedback (EMF) for continuos tracking of instrument usage in terms of purge valve switches and volume of pumped mobile phase with pre-defined and user settable limits and feedback messages. Electronic records of maintenance and errors.	
Housing	All materials recyclable.	

Agilent 1260 Infinity Binary Pump (G1312B)

Table 7 Physical Specifications

Type	Specification	Comments
Weight	15.5 kg (34 lbs)	
Dimensions (height × width × depth)	180 x 345 x 435 mm (7 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	220 VA, 74 W / 253 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 8 Performance Specifications of the Agilent 1260 Infinity Binary Pump (G1312B)

Type	Specification	Comments
Hydraulic system	Two dual piston in series pumps with servo-controlled variable stroke drive, power transmission by gears and ball screws, floating pistons	
Setable flow range	Set points 0.001 – 5 mL/min, in 0.001 mL/min increments	
Flow range	0.05 – 5.0 mL/min	
Flow precision	≤0.07 % RSD or ≤0.02 min SD, whatever is greater	based on retention time at constant room temperature
Flow accuracy	± 1 % or 10 µL/min, what ever is greater	pumping degassed H_2O at 10 MPa (100 bar)
Pressure operating range	Operating range 0 – 60 MPa (0 – 600 bar, 0 – 8700 psi) up to 5 mL/min	
Pressure pulsation	< 2 % amplitude (typically < 1.3 %), or < 0.3 MPa (3 bar), whatever is greater, at 1 mL/min isopropanol, at all pressures > 1 MPa (10 bar, 147 psi) *Low delay volume configuration:* < 5 % amplitude (typically < 2 %)	
Compressibility compensation	Pre-defined, based on mobile phase compressibility	
Recommended pH range	1.0 – 12.5 , solvents with pH < 2.3 should not contain acids which attack stainless steel	
Gradient formation	High-pressure binary mixing	
Delay volume	*Standard delay volume configuration:* 600 – 800 µL, (includes 400 µL mixer), dependent on back pressure *Low delay volume configuration:* 120 µL	measured with water at 1 mL/min (water/caffeine tracer)
Composition range	settable range: 0 – 100 % recommended range: 1 – 99 % or 5 µL/min per channel, whatever is greater	

Table 8 Performance Specifications of the Agilent 1260 Infinity Binary Pump (G1312B)

Type	Specification	Comments
Composition precision	< 0.15 % RSD or < 0.04 min SD whatever is greater	at 0.2 and 1 mL/min; based on retention time at constant room temperature
Composition accuracy	± 0.35 % absolute, at 2 mL/min, at 10 MPa (100 bar)	(water/caffeine tracer)
Control	Agilent control software (e.g. ChemStation, EZChrom, OL, MassHunter)	
Local control	Agilent Instant Pilot	Revision B.02.00 or above
Analog output	For pressure monitoring, 1.33 mV/bar, one output	
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN optional	
Safety and maintenance	Extensive support for troubleshooting and maintenance is provided by the Instant Pilot, Agilent Lab Advisor, and the Chromatography Data System. Safety-related features are leak detection, safe leak handling, leak output signal for shutdown of pumping system, and low voltages in major maintenance areas.	
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of seal wear and volume of pumped mobile phase with pre-defined and user settable limits and feedback messages. Electronic records of maintenance and errors	
Housing	All materials are recyclable	

NOTE

For use with flow rates below 500 µl/min or for use without damper and mixer a vacuum degasser is required.

All specification measurements are done with degassed solvents.

Agilent 1260 Infinity Binary Pump VL (G1312C)

Table 9 Physical Specifications

Type	Specification	Comments
Weight	15.5 kg (34 lbs)	
Dimensions (height × width × depth)	180 x 345 x 435 mm (7 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	220 VA, 74 W / 253 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 10 Performance Specification Agilent 1260 Infinity Binary Pump VL (G1312C)

Type	Specification	Comments
Hydraulic system	Two dual piston in series pumps with servo-controlled variable stroke drive, power transmission by gears and ball screws, floating pistons	
Setable flow range	Set points 0.001 – 5 mL/min, in 0.001 mL/min increments	
Flow range	0.05 – 5.0 mL/min	
Flow precision	≤0.07 % RSD, or ≤0.02 min SD whatever is greater, based on retention time at constant room temperature	
Flow accuracy	±1 % or 10 µL/min whatever is greater, pumping degassed H_2O at 10 MPa (100 bar)	
Pressure operating range	Operating range up to 40 MPa (400 bar, 5880 psi) up to 5 mL/min	
Pressure pulsation	< 2 % amplitude (typically < 1.3 %), or < 0.3 MPa (3 bar) whatever is greater, at 1 mL/min isopropanol, at all pressures > 1 MPa (10 bar, 147 psi)	
Compressibility compensation	User-selectable, based on mobile phase compressibility	
Recommended pH range	1.0 – 12.5 , solvents with pH < 2.3 should not contain acids which attack stainless steel	
Gradient formation	High-pressure binary mixing	
Delay volume	600 – 900 µL (includes 400 µL mixer), dependent on back pressure	
Composition range	settable range: 0 – 100 % recommended range: 1 – 99 % or 5 µL/min per channel, whatever is greater	

Table 10 Performance Specification Agilent 1260 Infinity Binary Pump VL (G1312C)

Type	Specification	Comments
Composition precision	< 0.15 % RSD or < 0.04 min SD, whatever is greater, at 0.2 and 1 mL/min; based on retention time at constant room temperature	
Composition accuracy	± 0.5 % absolute	(water/caffeine tracer)
Control	Agilent control software (e.g. ChemStation, EZChrom, OL, MassHunter)	
Local control	Agilent Instant Pilot	
Analog output	For pressure monitoring, 2 mV/bar, one output	
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN optional	
Safety and maintenance	Extensive diagnostics, error detection and display through Agilent LabAdvisor, leak detection, safe leak handling, leak output signal for shutdown of the pumping system. Low voltage in major maintenance areas.	
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of seal wear and volume of pumped mobile phase with pre-defined and user settable limits and feedback messages. Electronic records of maintenance and errors	
Housing	All materials are recyclable	

NOTE For use with flow rates below 500 µL/min a vacuum degasser is required.

Agilent 1260 Infinity Bio-inert Quaternary Pump (G5611A)

Table 11 Physical Specifications

Type	Specification	Comments
Weight	14.5 kg (32 lbs)	
Dimensions (height × width × depth)	180 x 345 x 435 mm (7.0 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	180 VA, 110W / 375 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 12 Specifications - Agilent 1260 Infinity Bio-inert Quaternary Pump (G5611A)

Type	Specifications
Hydraulic system	Dual-piston in-series pump with proprietary servo-controlled variable-stroke drive, floating pistons and active inlet valve, integrated 4-channel degassing unit
Setable flow range	0.001 – 10 mL/min, in 0.001 mL/min increments
Recommended flow range	0.2 – 10 mL/min
Flow precision	< 0.07 % RSD, or < 0.02 min SD whichever is the greater, based on retention time at constant room temperature
Flow accuracy	± 1 % or 10 µL/min whichever is the greater
Pressure	Operating range up to 60 MPa (600 bar, 8700 psi) up to 5 mL/min Operating range up to 20 MPa (200 bar, 2950 psi) up to 10 mL/min
Pressure pulsation	< 2 % amplitude (typically < 1.3 %), at 1 mL/min isopropanol, at all pressures > 1 MPa (10 bar)
Compressibility compensation	User-selectable, based on mobile phase compressibility
Recommended pH range	1 – 13 , short term 14[1]
Gradient formation	Low pressure quaternary mixing/gradient capability using proprietary high-speed proportioning valve. Delay volume 600 – 900 µL, dependent on back pressure.
Composition range	0 – 95 % or 5 – 100 %, user selectable
Composition precision	< 0.2 % RSD, at 0.2 and 1 mL/min
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN optional
Materials in flow path	Titanium, Gold, Platin-Iridium, Sapphire, PEEK, PTFE
Active seal wash	Included

[1] For solvent compatibility, refer to section "Solvent information for parts of the 1260 Infinity Bio-inert LC system" in the manual

Agilent 1260 Infinity Quatenary Pump (G1311B)

Table 13 Physical Specifications

Type	Specification	Comments
Weight	14.5 kg (32 lbs)	
Dimensions (height × width × depth)	180 x 345 x 435 mm (7 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	180 VA, 110W / 375 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 14 Performance Specifications Agilent 1260 Infinity Quaternary Pump (G1311B)

Type	Specification
Hydraulic system	Dual piston in series pump with servo-controlled variable stroke drive, power transmission by gears and ball screws, floating pistons
Setable flow range	Set points 0.001 – 10 mL/min, in 0.001 mL/min increments
Flow range	0.2 - 10.0 mL/min
Flow precision	≤0.07 % RSD, or ≤0.02 min SD whatever is greater, based on retention time at constant room temperature
Flow accuracy	± 1 % or 10 µL/min whatever is greater, pumping degassed H_2O at 10 MPa (100 bar)
Pressure operating range	Operating range up to 60 MPa (600 bar, 8700 psi) up to 5 mL/min Operating range up to 20 MPa (200 bar, 2950 psi) up to 10 mL/min
Pressure pulsation	< 2 % amplitude (typically < 1.3 %), or < 0.3 MPa (3 bar, 44 psi), whatever is greater, at 1 mL/min isopropanol, at all pressures > 1 MPa (10 bar, 145 psi)
Compressibility compensation	User-selectable, based on mobile phase compressibility
Recommended pH range	1.0 - 12.5, solvents with pH < 2.3 should not contain acids which attack stainless steel
Gradient formation	Low pressure quaternary mixing/gradient capability using proprietary high-speed proportioning valve
Delay volume	600 – 900 µL, dependent on back pressure; measured with water at 1 mL/min (water/caffeine tracer)
Composition range	0 - 95 % or 5 - 100 %, user selectable
Composition precision	< 0.2 % RSD or < 0.04 min SD, whatever is greater, at 1 mL/min; based on retention time at constant room temperature
Integrated degassing unit	Number of channels: 4 Internal volume per channel: 1.5 mL
Control	Agilent control software (e.g. ChemStation, EZChrom, OL, MassHunter)
Local control	Agilent Instant Pilot
Analog output	For pressure monitoring, 2 mV/bar, one output

Table 14 Performance Specifications Agilent 1260 Infinity Quaternary Pump (G1311B)

Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN optional
Safety and maintenance	Extensive diagnostics, error detection and display through Agilent LabAdvisor, leak detection, safe leak handling, leak output signal for shutdown of the pumping system. Low voltage in major maintenance areas.
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of seal wear and volume of pumped mobile phase with pre-defined and user settable limits and feedback messages. Electronic records of maintenance and errors
Housing	All materials are recyclable

NOTE For use with flow rates below 500 µL/min a vacuum degasser is required.

Agilent 1260 Infinity Quaternary Pump VL (G1311C)

Table 15 Physical Specifications

Type	Specification	Comments
Weight	14.5 kg (32 lbs)	
Dimensions (height × width × depth)	180 x 345 x 435 mm (7 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	180 VA, 110W / 375 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 16 Performance Specification Agilent 1260 Infinity Quaternary Pump VL (G1311C)

Type	Specification
Hydraulic system	Dual piston in series pump with servo-controlled variable stroke drive, power transmission by gears and ball screws, floating pistons
Settable flow range	Set points 0.001 – 10 mL/min, in 0.001 mL/min increments
Flow range	0.2 – 10.0 mL/min
Flow precision	≤0.07 % RSD, or ≤ 0.02 min SD whatever is greater, based on retention time at constant room temperature
Flow accuracy	± 1 % or 10 µL/min whatever is greater, pumping degassed H_2O at 10 MPa (100 bar)
Pressure operating range	Operating range up to 40 MPa (400 bar, 5880 psi) up to 5 mL/min Operating range up to 20 MPa (200 bar, 2950 psi) up to 10 mL/min
Pressure pulsation	< 2 % amplitude (typically < 1.0 %), or < 0.3 MPa (3 bar, 44 psi), whatever is greater, at 1 mL/min isopropanol, at all pressures > 1 MPa (10 bar, 145 psi)
Compressibility compensation	User-selectable, based on mobile phase compressibility
Recommended pH range	1.0 – 12.5 , solvents with pH < 2.3 should not contain acids which attack stainless steel
Gradient formation	Low pressure quaternary mixing/gradient capability using proprietary high-speed proportioning valve
Delay volume	600 – 900 µL, dependent on back pressure; measured with water at 1 mL/min (water/caffeine tracer)
Composition range	0 – 95 % or 5 – 100 %, user selectable
Composition precision	< 0.2 % RSD or <0.04 min SD, whatever is greater, at 1 mL/min; based on retention time at constant room temperature
Integrated degassing unit	Number of channels: 4 Internal volume per channel: 1.5 mL
Control	Agilent control software (e.g. ChemStation, EZChrom, OL, MassHunter)
Local control	Agilent Instant Pilot
Analog output	For pressure monitoring, 2 mV/bar, one output

Table 16 Performance Specification Agilent 1260 Infinity Quaternary Pump VL (G1311C)

Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN optional
Safety and maintenance	Extensive diagnostics, error detection and display through Agilent LabAdvisor, leak detection, safe leak handling, leak output signal for shutdown of the pumping system. Low voltage in major maintenance areas.
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of seal wear and volume of pumped mobile phase with pre-defined and user settable limits and feedback messages. Electronic records of maintenance and errors
Housing	All materials are recyclable

Agilent 1260 Infinity Isocratic Pump (G1310B)

Table 17 Physical Specifications

Type	Specification	Comments
Weight	11 kg (25 lbs)	
Dimensions (height × width × depth)	180 x 345 x 435 mm (7.0 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	180 VA, 55 W / 188 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 18 Performance Specification Agilent 1260 Infinity Isocratic Pump (G1310B)

Type	Specification
Hydraulic system	Dual piston in series pump with servo-controlled variable stroke drive, power transmission by gears and ball screws, floating pistons
Setable flow range	Set points 0.001 – 10 mL/min, in 0.001 mL/min increments
Flow range	0.2 – 10.0 mL/min
Flow precision	≤ 0.07 % RSD, or ≤ 0.02 min SD whatever is greater, based on retention time at constant room temperature
Flow accuracy	±1 % or 10 µL/min whatever is greater, pumping degassed H_2O at 10 MPa (100 bar)
Pressure operating range	Operating range up to 60 MPa (600 bar, 8700 psi) up to 5 mL/min Operating range up to 20 MPa (200 bar, 2950 psi) up to 10 mL/min
Pressure pulsation	< 2 % amplitude (typically < 1.3 %), or < 0.3 MPa (3 bar), whatever is greater, at 1 mL/min isopropanol, at all pressures > 1 MPa (10 bar, 147 psi)
Compressibility compensation	User-selectable, based on mobile phase compressibility
Control	Agilent control software (e.g. ChemStation, EZChrom, OL, MassHunter)
Local control	Agilent Instant Pilot
Analog output	For pressure monitoring, 1.33 mV/bar, one output
Communications	Controller-area network (CAN), RS-232C, APG remote: ready, start, stop and shut-down signals, LAN optional
Safety and maintenance	Extensive diagnostics, error detection and display through Agilent LabAdvisor, leak detection, safe leak handling, leak output signal for shutdown of the pumping system. Low voltage in major maintenance areas.
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of seal wear and volume of pumped mobile phase with pre-defined and user settable limits and feedback messages. Electronic records of maintenance and errors
Housing	All materials are recyclable

NOTE For use with flow rates below 500 µL/min a vacuum degasser is required.

Agilent 1260 Infinity Preparative Pump (G1361A)

Table 19 Physical Specifications

Type	Specification	Comments
Weight	15.0 kg (33 lbs)	
Dimensions (height × width × depth)	200 x 345 x 440 mm (8 x 13.5 x 18 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	250 VA / 210 W / 717 BTU	Maximum
Ambient operating temperature	4–40 °C (39–104 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 20 Performance Specification Agilent 1260 Infinity Preparative Pump

Type	Specification
Hydraulic system	Dual pistons in parallel
Settable flow range	0.001 – 100 mL/min
Recommended flow range	2.0 – 100 mL/min
Flow precision	< 0.5 % RSD
Pressure range	20 – 400 bar (5880 psi) system pressure
Compressibility compensation	User-selectable, based on mobile phase compressibility
Recommended pH range	1.0 – 12.5 , solvents with pH < 2.3 should not contain acids which attack stainless steel
Control and data evaluation	Agilent ChemStation for LC and LC/MS
Communications	Controller-area network (CAN), RS-232, APG Remote: ready, start, stop and shut-down signals, CAN-DC OUT, LAN optional
Safety and maintenance	Extensive diagnostics, error detection and display (through Agilent ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of seal wear and volume of pumped mobile phase with user-settable limits and feedback messages. Electronic records of maintenance and errors.
Housing	All materials recyclable.

Agilent 1260 Infinity Capillary Pump (G1376A)

Table 21 Physical Specifications

Type	Specification	Comments
Weight	17 kg (38 lbs)	
Dimensions (height × width × depth)	180 x 345 x 435 mm (7 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	220 VA / 75 W / 256 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 22 Performance Specification Agilent 1260 Infinity Capillary Pump (G1376A)

Type	Specification
Hydraulic system	Two independent pump channels, each with two pistons in series. One proprietary servo-controlled variable stroke drive per channel. Floating pistons, active inlet valves, solvent selection valves (two solvents per pump channel), electronic flow control for flow rates up to 100 µL/min
Settable column flow range	0.01 – 20 µL/min 0.01 – 100 µL/min (with the extended flow range kit) 0.001 – 2.5 µL/min (with the electronic flow control bypassed)
Recommended column flow range	1 – 20 µL/min 10 – 100 µL/min (with extended flow range kit) 0.1 – 2.5 mL/min (with the electronic flow sensor bypassed)
Column flow precision	< 0.7 % RSD or 0.03 % SD (typically 0.4 % RSD or 0.02 min SD), at 10 µL/min and 50 µL/min column flow (based on RT, default setting)
Optimum composition range	1 – 99 % or 5 µL/min per channel (primary flow), whatever is greater
Composition precision	< 0.2 % SD, at 10 µL/min(20 µL flow sensor), 50 µL/min (100 µL flow sensor), minimum primary flow/pump channel is 5 µL/min, primary flow 500 – 800 µL/min
Delay volume	Typically 3 µL from the electronic flow control to the pump outlet for flow rates up to 20 µL/min Typically 12 µL from the electronic flow control to the pump outlet for flow rates up to 100 µL/min For flow rates up to 100 µL/min and electronic flow control active: primary flow path 180 – 480 µL without mixer, 600 – 900 µL with mixer (system pressure dependant) Typically 180 – 480 µL (system pressure dependent) without mixer for flow rates up to 2.5 mL/min (Mixer delay volume 420 µL)
Pressure range	20 – 400 bar (5880 psi) system pressure
Compressibility compensation	User-selectable, based on mobile phase compressibility
Recommended pH range	1.0 – 8.5 , solvents with pH < 2.3 should not contain acids which attack stainless steel. Upper pH range is limited by fused silica capillaries.

Table 22 Performance Specification Agilent 1260 Infinity Capillary Pump (G1376A)

Type	Specification
Control and data evaluation	Agilent Control Software (Chemstation, EZ-Chrom, OL, etc.)
Analog output	For pressure monitoring, 2 mV/bar, one output
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN optional
Safety and maintenance	Extensive diagnostics, error detection and display (though Instant Pilot and Data System), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of seal wear and volume of pumped mobile phase with user-settable limits and feedback messages. Electronic records of maintenance and errors.
Housing	All materials recyclable.

Agilent 1260 Infinity Nanoflow Pump (G2226A)

Table 23 Physical Specifications

Type	Specification	Comments
Weight	17 kg (38 lbs)	
Dimensions (height × width × depth)	180 x 345 x 435 mm (7 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	220 VA / 75 W / 256 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 24 Performance Specification Agilent 1260 Infinity Nano Pump (G2226A)

Type	Specification
Hydraulic system	Two independent pump channels, each with two pistons in series. One proprietary servo-controlled variable stroke drive per channel. Floating pistons, active inlet valves, solvent selection valves (two solvents per pump channel), electronic flow control for flow rates up to 4 µL/min
Settable column flow range	0.01 – 4 µL/min
Recommended column flow range	0.1 – 1 µL/min
Optimum composition range	1 – 99 %or 5 µL/minper channel (primary flow), whatever is greater
Composition precision	< 0.2 %SD, at 500 nL/min, minimum primary flow/pump channel is 5 µL/min, primary flow 500 – 800 µL/min
Delay volume	Typically 300 nLfrom the electronic flow control to the pump outlet For flow rates up to 4 µL/minand electronic flow control active: primary flow path 180 – 480 µL; system pressure dependent (default settings; calculated volume) Typically 180 – 480 µL(system pressure dependent) for flow rates up to 2.5 mL/min. (default settings; calculated volume)
Pressure range	20 – 400 bar(5880 psi) system pressure
Compressibility compensation	User-selectable, based on mobile phase compressibility
Recommended pH range	1.0 – 8.5 , solvents with pH < 2.3 should not contain acids which attack stainless steel. Upper pH range is limited by fused silica capillaries.
Control and data evaluation	Agilent Control Software (ChemStation, EZ-Chrom Elite, OpenLAB CDS, etc.)
Analog output	For pressure monitoring, 2 mV/bar, one output
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN optional
Safety and maintenance	Extensive diagnostics, error detection and display (though Instant Pilot and Data System), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.

Table 24 Performance Specification Agilent 1260 Infinity Nano Pump (G2226A)

Type	Specification
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of seal wear and volume of pumped mobile phase with user-settable limits and feedback messages. Electronic records of maintenance and errors.
Housing	All materials recyclable.

Agilent 1220 Infinity LC Pump

Table 25 Physical Specifications

Type	Specification	Comments
Weight	30 kg (66 lbs)	
Dimensions (height × width × depth)	640 × 370 × 420 mm (25.2 × 14.6 × 16.5 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	240 VA / 210 W / 717 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 26 Performance Specifications Agilent 1220 Infinity LC Pump

Type	Specification
Hydraulic system	Dual plunger in series pump with proprietary servo-controlled variable stroke drive, floating plungers and passive inlet valve
Settable flow range	0.001 – 10 mL/min, in 0.001 mL/min increments
Flow range	0.2 – 10.0 mL/min
Flow precision	≤0.07 % RSD, or < 0.02 min SD whatever is greater, based on retention time at constant room temperature
Flow accuracy	± 1 % or 10 µL/min whatever is greater; degassed H_2O, 80 – 100 bar, 1 mL/min, at constant ambient temperature
Pressure	Operating range 0 – 60 MPa (0 – 600 bar, 0 – 8820 psi) up to 5 mL/min Operating range 0 – 20 MPa (0 – 200 bar, 0 – 2950 psi) up to 10 mL/min
Pressure pulsation	< 2 % amplitude (typically < 1.3 %), at 1 mL/min isopropanol, at all pressures > 1 MPa (10 bar)
Compressibility compensation	User-selectable, based on mobile phase compressibility
Recommended pH range	1.0 – 12.5 , solvents with pH < 2.3 should not contain acids which attack stainless steel
Gradient formation (optional)	Low pressure binary mixing/gradient capability using proprietary high-speed proportioning valve
Delay volume	600 – 900 µL, dependent on back pressure; measured with water at 1 mL/min (water/caffeine tracer)
Composition range	0 – 95 % or 5 – 100 , user selectable
Composition precision	< 0.2 % RSD or < 0.4 min SD, whatever is greater, at 1 mL/min; based on retention time at constant room temperature

Agilent 218 Solvent Delivery Module

Physical Specifications

Table 27 Specifications Agilent 218 Purification Solution

Type	Specification
Rated voltage	100 – 240 VAC (90 – 264 Absolute), 50 – 60 Hz The Agilent 218 Purification Solution[1] may be wired for either: • 115 V ±10 % , 50 /60 Hz single phase • 230 V ±10 % , 50 /60 Hz single-phase
Weight	23.6 kg(52.0 lb)
Dimensions (height x width x depth)	197 x 292 x 464 mm (7.8 x 11.5 x 18.3 in)
Line voltage	115 – 230 V ±10 %
Line frequency	50 – 60 Hz
Power consumption	550 VA
Ambient operating temperature	3 – 40 °C
Humidity	20 – 80 %
Operating altitude	up to 2000 m
	The 218 System Pump is suitable for indoor use only and is classified Pollution degree 2 and Installation Category II (EN 61010-1).

1 All power supplies should be single phase AC, 3 wire system (active, neutral, ground) and should be terminated at an appropriate connection receptacle that is within reach of the system power cable.

Performance Specifications

Table 28 Performance specifications Agilent 218 Purification Solution

Type	Specification
Display	Backlit LCD with 2 lines, 48 characters
Programs	Up to 100 methods with unlimited timed events
Interface	• Digital serial input/output channel (RS-422) • 3 programmable contact-closure relay outputs • 5 contact-closure inputs • 1 analog input (-0.5 V to +2.5 V), 18-bit A/D converter • 1 programmable analog output (0 – 10 V)
Flow Accuracy	1 % of selected flow rate or 0.05 % of maximum flow, whichever is larger (0.1 % for 5 mL/min heads)
Flow Reproducibility	0.1 % of selected flow or 0.05 % of maximum flow, whichever is larger (0.01 % for 5 mL/min heads)
Connections	• 1/4-28 inlet flanged or gripper-type fitting • 1/4-28 outlet for nut and ferrule
Fluid Path	316 stainless steel, titanium, sapphire or ceramic, ruby, PCTFE, PTFE, or HDPE

Table 29 Pressure limits pump heads

Nominal flow (mL/min)	Range (mL/min)	SST and Titanium (pressure maximum)	PEEK (pressure maximum)
10	0.01 – 10	8700 psi 600 bar 60.0 MPa	4000 psi 275 bar 27.6 MPa
25	0.025 – 25	6000 psi 414 bar 41.4 MPa	4000 psi 275 bar 27.6 MPa
100	0.1 – 100	4000 psi 275 bar 27.6 MPa	2000 psi 137 bar 13.8 MPa
200	0.2 – 200	3500 psi 241 bar 24.1 MPa	N/A

Table 30 Performance specifications pressure modules

Description/wetted materials	Inlet fittings (in)	Outlet fittings (in)	Max. pressure (psi)	Max. flow rate (mL/min)
10 mL/min , Titanium, FEP	¼-28	¼-28	8700	10
50 mL/min , Titanium, FEP	¼-28	¼-28	6000	50
100 mL/min , Titanium, FEP	¼-28	¼-28	1200	100
10 mL/min , PEEK, FEP	¼-28	¼-28	4000	10
50 mL/min , PEEK, FEP	¼-28	¼-28	4000	50
100 mL/min , PEEK, FEP	¼-28	¼-28	2000	100
200 mL/min , Titanium, FEP	¼-28	¼-28	400	200 [1]

[1] Uses 0.318 cm (1/8 in.) ID tubing.

Agilent SD-1 Isocratic Solvent Delivery Module

Physical Specifications

Table 31 Specifications Agilent SD-1 Purification Solution

Type	Specification
Rated voltage	100 – 240 VAC (90 – 264 Absolute), 50 – 60 Hz
Weight	34 kg(75 lbs)
Dimensions (height x width x depth)	267 x 406 x 559 mm (10.5 x 16 x 22 in)
Power consumption	1000 VA
Ambient operating temperature	4 – 40 °C
Humidity	20 – 80 %
Operating altitude	up to 2000 m
	The module is suitable for indoor use only and is classified Pollution degree 2 and Installation Category II (EN 61010-1).

Performance Specifications

Table 32 Performance specifications Agilent SD-1 Purification Solution

Type	Specification
Display	Backlit LCD with 4 lines, 160 characters

Interface	• 1 digital serial input/output channel (RS-422)
	• 6 contact-closure relay outputs (1 A, 24 V)
	• 5 high-speed CMOS contact-closure logic inputs
	  • high: 3.5 – 6.5 V
	  • low: –1.5 – 1 V1.5
	  • max. input voltage 25 V
	  • min. input voltage –20 V
	  • min. on time for recognition 48.9 ms
	• 1 programmable analog (D to A) output (0 – 10 V)
	• 12 bit
	• Absolute maximum error ±4.1 mV
	• Test load impedance 100 kΩ
	• 2 analog (A to D) inputs (–0.5 – 2.5 V)
	• 60 Hz max. sample rate combined

CPU Board Voltages	• 5 V (4.75 – 5.25 V) • –15 V • 15 V • 48 V
RAM Backup Battery Voltage	• 3.1 – 3.3 V

Table 33 Pressure limits pump heads

Nominal flow	Range	Maximum pressure	Maximum pressure
200 mL/min	0.01 – 200 mL/min	41.4 MPa 414 bar	6000 psi
500 mL/min	0.02 – 500 mL/min	17.2 MPa 172 bar	2500 psi
800 mL/min	0.02 – 800 mL/min	10.3 MPa 103 bar	1500 psi
3.2 L/min	0.1 – 3200 mL/min	2.6 MPa 26 bar	375 psi

Table 34 Performance specifications pressure modules

Pump head	Material in fluid contact	Inlet fittings (flatbottomed)	Outlet fittings (ferrule)
200 mL/min	Titanium, sapphire, ruby, FEP, PEEK, ETFE, UHMWPE, NiMo28, TZP Zirconia	½—13 in	¼—28 in
500 mL/min	Titanium, sapphire, ruby, FEP, PEEK, ETFE, UHMWPE, NiMo28, TZP Zirconia	½—13 in	¼—28 in
800 mL/min	Titanium, sapphire, ruby, FEP, PEEK, ETFE, UHMWPE, NiMo28, TZP Zirconia	½—13 in	¼—28 in
3.2 L/min	Titanium, sapphire, ruby, FEP, PEEK, ETFE, UHMWPE, NiMo28, TZP Zirconia	½ in	¼ in

2
Injectors and Fraction Collectors

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Agilent 1290 Infinity Autosampler (G4226A)

Table 35 Physical Specifications

Type	Specification	Comments
Weight	15.5 kg (34.2 lbs)	
Dimensions (height × width × depth)	200 x 345 x 440 mm (8 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	200 VA / 200 W / 683 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 36 Performance specifications G4226A

Type	Specification	Comment
Injection range	0.1 – 20 µL in 0.1 µL increments 0.1 – 40 µL in 0.1 µL increments if 40 µL loop is installed 0.1 – 120 µL in 0.1 µL increments with 1290 Infinity large volume injection kit (hardware modification required) pressure range up to 1200 bar 0.1 – 100 µL in 0.1 µL increments with 100 µL upgrade kit (G4214A) (hardware modification required) up to 600 bar	
Precision	Typically <0.25 % RSD from 5 – 20 µL, Typically <0.5 % RSD from 2 – 5 µL volume, Typically <0.7 % RSD from 1 – 2 µL volume.	Measured with injections of benzylalcohol.
Pressure range	Up to 1200 bar Up to 600 bar	with 1290 Infinity large volume injection kit installed with 100 µL upgrade kit (G4214A) installed
Sample viscosity range	0.2 – 5 cp	
Sample capacity	Capacity 2 x well plates (MTP) + 10 x 2 mL vials, 108 x 2 mL vials in 2 x 54 vial plate plus 10 additional 2 mL vials, 30 x 6 mL vials in 2 x 15 vial plate, 100 Micro vial tray, plus 10 additional 2 mL vials, 54 Eppendorf tubes (0.5/1.5/2 mL) in 2 x 27 Eppendorf tube plate.	Also compatible with the Agilent 1200 Series sample capacity extension for further expansion of the sample capacity.
Injection cycle time	Typically <21 s using following standard conditions: Default draw speed: 100 µL/min Default eject speed: 100 µL/min Injection volume: 5 µL	

Table 36 Performance specifications G4226A

Type	Specification	Comment

Carry Over	Typically <0.004 %	Using the following conditions:
		• Column: Agilent ZORBAX SB-C18, 2.1 x 50 mm 1.8 µm (827700-902)
		• Mobile Phase:
		  ◦ A: 0.1 % TFA in water
		  ◦ B: 0.1 % TFA in Acetonitrile
		• Isocratic : % B=35 %
		• Flow rate: 0.5 mL/min
		• Temperature: 25 °C
		• Wavelength: 257 nm
		• Sample: 1200 ng/µL Chlorhexidine for UV, 240 ng/µL Chlorhexidine for MS (dissolved with mobile phase A), 1 µL injected and measured both on Agilent 6410 QQQ and G4212A DAD
		• Wash solution: H_2O with 0.1 % TFA (5 s)

Control and data evaluation	Agilent ChemStation for LC EZChrom Elite Mass hunter Lab Advisor	B.04.02 or above 3.3.3 or above B.02.01 sp1 or above B.01.03 or above
Local Control	Agilent Instant Pilot (G4208A)	B.02.08 or above
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, optional four external contact closures and BCD vial number output.	

Table 36 Performance specifications G4226A

Type	Specification	Comment
Safety and maintenance	Extensive diagnostics can be done with the help of the Control Module and Agilent LabAdvisor Diagnostic Software, error detection and display (through Instant Pilot and Diagnostic Software), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage with user-settable limits and feedback messages. Electronic records of maintenance and errors.	
Housing	All materials recyclable.	
Metering device	Metering pump in high pressure flow path	

Agilent 1290 Infinity LC Injector HTS (G4277A)

Table 37 Physical Specifications

Parameter	Requirements
LC Injector HTC	
Height	648 mm (25.5 in)
Depth	385 mm (15.2 in)
Width	545 mm (21.5 in)
Weight	8 kg (18 lbs.) without accessories
LC Injector HTS	
Height	648 mm (25.5 in)
Depth	385 mm (15.2 in)
Width	828 mm (32.6 in)
Weight	10 kg (22 lbs.) without accessories

Table 38 Specifications

Type	Specification
System	XYZ robot with syringe-only concept, no tubing in sample path
Sample capacity	**HTC Sample capacity** Up to 24 shallow well-plates (96 or 384) Up to 12 deep well-plates (96 or 384), or 648 2 mL vials Up to 12 shallow well-plates (96 or 384), thermostatted Up to 6 deep well-plates (96 or 384), or 324 2 mL vials, thermostatted **HTS Sample capacity** Up to 24 shallow well-plates (96 or 384) Up to 18 deep well-plates (96 or 384), or 972 2 mL vials Up to 12 deep well-plates (96 or 384), or 648 2 mL vials, thermostatted
Syringe Size	100 µL
Loop sizes for DLW and maximum pressure rating	2 µL (standard) 1200 bar max., 5 µL, 10 µL, 20 µL1000 bar max., 50 µL and 100 µL 600 bar max.
Minimum Sample Volume	1 µL from a 3 µL sample in 1 mL tapered micro vial in liquid injection mode
Injection volumes	Up to 100 µL with standard setup, up to 5 mL with additional hardware
Injection precision	<0.5 % with 100 µL syringe and 2 µL loop, overfill 7 µL
LC Injector	1 electrically actuated fast switching 6-port valve from Rheodyne (1200 bar)
Needle, syringe valve cleaning	Dynamic load and wash (DLW) principle: two different solvents Other wash options are available
Carryover	Typically < 0.004 % with DLW Method: Chlorohexidine, 0.6 mg/L dissolved in H_2O : ACN = 90 :10 , 0.1 % TFA Blank Solution: H_2O : ACN = 90 :10 , 0.1 % TFA
Local control	Handheld control panel with 4 function keys, graphical LCD display
Electronic control	• 2 RS232C ports • 3 TTL inputs • 1 opto-coupler input • 2 relay outputs
Thermal control	4 – 40 °C (settable)

Table 39 Operating and Environmental Requirements

Parameter	Requirements
Operating Temperature Range	4 to 40 °C (39 to 104 °F)
Maximum Relative Humidity	75 %, non-condensing
Bench Space	At least 24 cm (10 in.) at the rear. Access to power switch(es) and power cord(s). Clean, level and smooth surface. Solid bench plate.
Vibration	Negligible
Static electricity	Negligible

Table 40 Electrical Specifications

Parameter	Requirement
Protection Class[1]	Class I
Over Voltage Category[2]	Category II
Pollution Degree[3]	2
Moisture Protection[4]	Normal (IPX0)
Voltage	36 VDC
Current	3.2 A
Fuse	T6.3 A/250 V
System Power Supply	
Input line voltage	Grounded AC, 100 to 240 V
Input line frequency	50 /60 Hz
Input power	4 A
Output voltage	36 VDC
Output current	4.16 A

1 Protection class describes the insulating scheme used in the instrument to protect the user from electrical shock. Class I identifies a single level of insulation between live parts (wires) and exposed conductive parts (metal panels), in which the exposed conductive parts are connected to a grounding system. In turn this grounding system is connected to the third pin (ground pin) on the electrical power plug.

2 Over Voltage category II pertains to instruments that receive their electrical power from a local level such as an electrical wall outlet.

3 This is a measure of pollution on electrical circuits that may produce a reduction of the dielectric strength or surface resistivity. Degree 2 refers to normally only non-conductive pollution. Occasionally, however, a temporary conductivity caused by condensation must be expected.

4 Normal (IPX0) – IPX0 means that there is NO Ingress Protection against any type of dripping or sprayed water. The X is a place holder to identify protection against dust if applicable.

Agilent 1290 Infinity LC Injector HTC (G4278A)

Table 41 Physical Specifications

Parameter	Requirements
LC Injector HTC	
Height	648 mm (25.5 in)
Depth	385 mm (15.2 in)
Width	545 mm (21.5 in)
Weight	8 kg (18 lbs.) without accessories
LC Injector HTS	
Height	648 mm (25.5 in)
Depth	385 mm (15.2 in)
Width	828 mm (32.6 in)
Weight	10 kg (22 lbs.) without accessories

Table 42 Specifications

Type	Specification
System	XYZ robot with syringe-only concept, no tubing in sample path
Sample capacity	**HTC Sample capacity** Up to 24 shallow well-plates (96 or 384) Up to 12 deep well-plates (96 or 384), or 648 2 mL vials Up to 12 shallow well-plates (96 or 384), thermostatted Up to 6 deep well-plates (96 or 384), or 324 2 mL vials, thermostatted **HTS Sample capacity** Up to 24 shallow well-plates (96 or 384) Up to 18 deep well-plates (96 or 384), or 972 2 mL vials Up to 12 deep well-plates (96 or 384), or 648 2 mL vials, thermostatted
Syringe Size	100 µL
Loop sizes for DLW and maximum pressure rating	2 µL (standard) 1200 bar max., 5 µL, 10 µL, 20 µL1000 bar max., 50 µL and 100 µL600 bar max.
Minimum Sample Volume	1 µL from a 3 µL sample in 1 mL tapered micro vial in liquid injection mode
Injection volumes	Up to 100 µL with standard setup, up to 5 mL with additional hardware
Injection precision	<0.5 % with 100 µL syringe and 2 µL loop, overfill 7 µL
LC Injector	1 electrically actuated fast switching 6-port valve from Rheodyne (1200 bar)
Needle, syringe valve cleaning	Dynamic load and wash (DLW) principle: two different solvents Other wash options are available
Carryover	Typically < 0.004 % with DLW Method: Chlorohexidine, 0.6 mg/L dissolved in H_2O : ACN = 90 :10 , 0.1 % TFA Blank Solution: H_2O : ACN = 90 :10 , 0.1 % TFA
Local control	Handheld control panel with 4 function keys, graphical LCD display
Electronic control	• 2 RS232C ports • 3 TTL inputs • 1 opto-coupler input • 2 relay outputs
Thermal control	4 – 40 °C (settable)

Table 43 Operating and Environmental Requirements

Parameter	Requirements
Operating Temperature Range	4 to 40 °C (39 to 104 °F)
Maximum Relative Humidity	75 %, non-condensing
Bench Space	At least 24 cm (10 in.) at the rear. Access to power switch(es) and power cord(s). Clean, level and smooth surface. Solid bench plate.
Vibration	Negligible
Static electricity	Negligible

Table 44 Electrical Specifications

Parameter	Requirement
Protection Class[1]	Class I
Over Voltage Category[2]	Category II
Pollution Degree[3]	2
Moisture Protection[4]	Normal (IPX0)
Voltage	36 VDC
Current	3.2 A
Fuse	T6.3 A/250 V
System Power Supply	
Input line voltage	Grounded AC, 100 to 240 V
Input line frequency	50 /60 Hz
Input power	4 A
Output voltage	36 VDC
Output current	4.16 A

1 Protection class describes the insulating scheme used in the instrument to protect the user from electrical shock. Class I identifies a single level of insulation between live parts (wires) and exposed conductive parts (metal panels), in which the exposed conductive parts are connected to a grounding system. In turn this grounding system is connected to the third pin (ground pin) on the electrical power plug.

2 Over Voltage category II pertains to instruments that receive their electrical power from a local level such as an electrical wall outlet.

3 This is a measure of pollution on electrical circuits that may produce a reduction of the dielectric strength or surface resistivity. Degree 2 refers to normally only non-conductive pollution. Occasionally, however, a temporary conductivity caused by condensation must be expected.

4 Normal (IPX0) – IPX0 means that there is NO Ingress Protection against any type of dripping or sprayed water. The X is a place holder to identify protection against dust if applicable.

Agilent 1290 Infinity Thermostat (G1330B)

Physical Specifications

Table 45 Physical Specifications

Type	Specification	Comments
Weight	20.7 kg (46 lbs)	
Dimensions (height × width × depth)	140 × 345 × 435 mm (5.5 × 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	260 VA / 210 W / 717 BTU	Maximum
Ambient operating temperature	4 to 40 °C (39 to 104 °F)	See warning "Hot rear panel" on page 62
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

WARNING

Hot rear panel

Using the module at high environmental temperatures may cause the rear panel to become hot.

➔ Do not use the module at environmental temperatures higher than 50 °C (122 °F)

Performance Specifications

Table 46 Performance specifications Agilent 1290 Infinity Thermostat

Type	Specification
Temperature range	Settable from 4 °C to 40 °C in 1 ° increments
Temperature accuracy at ambient temperatures < 25 °C and humidity < 50 %	3 °C to 8 °C at a setpoint of 4 °C*
Temperature accuracy at ambient temperatures <30 °C and humidity <60 %	3 °C to 9 °C at a setpoint of 4 °C*

* Measurement conditions:

G1329B:

with 100-Vial Tray in vial location 2,10,92 and 100 vials filled with water

G1367A/G1367B/G1367C/G1377A/G1367E/G5667A/G2258A/G4226A:

For vials: Using the Thermostattable Tray (G1329-60011) or 100 Micro-Vial (G4226-60021) in vial location 1,10,23,25,45,75,91 and 100

For well plates: Standard Tray (G2258-60011) for two Well Plates loaded with two Agilent 96 Well Plate (5042-1386)

Agilent 1260 Infinity Bio-inert High-Performance Autosampler (G5667A)

Table 47 Physical Specifications

Type	Specification	Comments
Weight	15.5 kg (35 lbs)	
Dimensions (height × width × depth)	200 x 345 x 440 mm (8 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	200 VA / 200 W / 683 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 48 Specifications - Agilent 1260 Infinity Bio-inert High-Performance Autosampler (G5667A)

Type	Specification
Injection range	0.1 – 100 µL in 0.1 µL increments. Up to 40 µL with reduced injection volume kit (hardware modification required). Up to 1500 µL with multiple draw (hardware modification required)
Precision	Typically < 0.25 % RSD from 5 – 100 µL. Typically < 0.5 % RSD from 2 – 5 µL. Typically < 0.7 % RSD from 1 – 2 µL volume. Measured with injections of caffeine in water
Injection Accuracy	1 % (10 µL, n=10)
Pressure range	Up to 600 bar (8700 psi)
Sample viscosity range	0.2 – 5 cp
Sample capacity	2 x well plates (MTP) + 10 x 2.0 mL vials 108 x 2 mL vials in 2 x 54 vial plate plus 10 additional 2 mL vials 30 x 6 mL vials in 2 x 15 vial plate plus 10 additional 2 mL vials 54 Eppendorf tubes (0.5/1.5/2 mL) in 2 x 27 Eppendorf tube plates
Injection cycle time	Typically < 17 s using the following standard conditions: Default draw speed: 100 µL/min. Default eject speed: 100 µL/min. Injection volume: 5 µL
Carry-over	Typically <0.004 % For measurement conditions see [1], [2], [3]
pH-range	1 – 13 (short term 14[4])
Sample cooling	Optional with G1330B 4 – 40 °C
Materials in flow path	Upstream of sample-introduction: • titanium, gold, PTFE, PEEK, ceramic Downstream of sample-introduction: • PEEK, ceramic
GLP features	Early maintenance feedback (EMF), electronic records of maintenance and errors
Communications	Controller-area network (CAN). RS232C, APG-remote standard, optional four external contact closures and BCD vial number output

Table 48 Specifications - Agilent 1260 Infinity Bio-inert High-Performance Autosampler (G5667A)

Type	Specification
Safety features	Extensive diagnostics can be done with the help of the Control Module and Agilent LabAdvisor Diagnostic Software, leak detection and safe leak handling, low voltages in maintenance areas, error detection and display
Metering device	Metering pump in high pressure flow path

[1] Chromatographic conditions: Column: Agilent ZORBAX SB-C18, 2.1 x 50 mm1.8 µm (p/n 827700-902); mobile phase: A: 0.1 % TFA in water, B: 0.1 % TFA in acetonitrile; isocratic : %B=35 %; flow rate: 0.5 mL/min; temperature: 30 °C

[2] UV-detection: Sample : 1200 ng/µl chlorhexidine (dissolved in mobile phase A), 1 µL injected and measured on G4212A DAD (10 mm cell); Wavelength: 257 nm +/- 4 nm; ref. 360 nm +/- 16 nm; slit 4 nm, 10 Hz

[3] MS-detection: Sample : 50 ng/µl chlorhexidine (dissolved in mobile phase A), 1 µL injected and measured on Agilent 6460 QQQ (in specified conditions); MRM 1: 505.5 → 170 (CE: 36 V); MRM 2: 505.5 → 201.2 (CE: 20 V); fragmentor: 150 V, delta EMV(+): 200 V

[4] For solvent compatibility, refer to section "Solvent information for parts of the 1260 Infinity Bio-inert LC system" in the manual

Agilent 1260 Infinity High Performance Autosampler (G1367E)

Table 49 Physical Specifications

Type	Specification	Comments
Weight	15.5 kg (35 lbs)	
Dimensions (height × width × depth)	200 x 345 x 440 mm (8 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	200 VA / 200 W / 683 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 50 Performance Specifications (G1367E)

Type	Specification	Comment
Injection range	0.1 – 100 µL in 0.1 µL increments. Up to 40 µL with reduced injection volume kit (hardware modification required). Up to 1500 µL with multiple draw (hardware modification required).	
Precision	<0.25 % from 5 – 40 µL <0.5 % from 2 – 5 µL <0.7 % from 1 – 2 µL <1.5 % from 0.5 – 1 µL	
Injection Accuracy	1 % (10 µL, n=10)	
Pressure range	Up to 600 bar (8700 psi)	
Sample viscosity range	0.2 – 5 cp	
Sample capacity	Capacity 2 x well plates (MTP) + 10 x 2 ml vials, 108 x 2 ml vials in 2 x 54 vial plate plus 10 additional 2 ml vials, 30 x 6 ml vials in 2 x 15 vial plate, 100 Micro vial tray, plus 10 additional 2 ml vials, 54 Eppendorf tubes (0.5/1.5/2 ml) in 2 x 27 Eppendorf tube plate.	Also compatible with the Agilent 1200 Series sample capacity extension for further expansion of the sample capacity.
Injection cycle time	Typically <21 s using default conditions and injection vomlume of 5 µL	
Carry Over	Typically <0.004 %	For measurement conditions see [1], [2], [3]
Control and data evaluation	Agilent ChemStation for LC EZChrom Elite MassHunter TOF/QTOF and QQQ	B.04.02 SP1 DSP3 or above 3.3.2 SP2 or above B.04.00 or above B.03.01 SP2 or above
Local Control	Agilent Instant Pilot (G4208A)	B.02.11 or above

Table 50 Performance Specifications (G1367E)

Type	Specification	Comment
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, optional four external contact closures and BCD vial number out.	
Safety and maintenance	Extensive support for troubleshooting and maintenance is provided by the Instant Pilot, Agilent Lab Advisor, and the Chromatography Data System. Safety-related features are leak detection, safe leak handling, leak output signal for shutdown of pumping system, and low voltages in major maintenance areas.	
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage with user-settable limits and feedback messages. Electronic records of maintenance and errors.	
Housing	All materials recyclable.	
Metering device	Metering pump in high pressure flow path	

[1] Chromatographic conditions: Column: Agilent ZORBAX SB-C18, 2.1 x 50 mm1.8 µm (p/n 827700-902); mobile phase: A: 0.1 % TFA in water, B: 0.1 % TFA in acetonitrile; isocratic : %B=35 %; flow rate: 0.5 mL/min; temperature: 30 °C

[2] UV-detection: Sample : 1200 ng/µL chlorhexidine (dissolved in mobile phase A), 1 µL injected and measured on G4212A DAD (10 mm cell); Wavelength: 257 nm +/- 4 nm; ref. 360 nm +/- 16 nm; slit 4 nm, 10 Hz

[3] MS-detection: Sample : 50 ng/µL chlorhexidine (dissolved in mobile phase A), 1 µL injected and measured on Agilent 6460 QQQ (in specified conditions); MRM 1: 505.5 → 170 (CE: 36 V); MRM 3: 505.5 → 201.2 (CE: 20 V); fragmentor: 150 V, delta EMV(+): 200 V

Agilent 1260 Infinity High Performance Micro Autosampler (G1377A)

Table 51 Physical Specifications

Type	Specification	Comments
Weight	15.5 kg (35 lbs)	
Dimensions (height × width × depth)	200 x 345 x 440 mm (8 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	300 VA / 200 W / 683 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 52 Performance Specifications

Type	Specification
GLP features	Early maintenance feedback (EMF), electronic records of maintenance and errors
Communications	Controller-area network (CAN). RS232C, APG-remote standard, optional four external contact closures and BCD vial number output
Safety features	Leak detection and safe leak handling, low voltages in maintenance areas, error detection and display
Injection range	0.01 – 8 µL in 0.01 µL increments with the small loop capillary 0.01 – 40 µL in 0.01 µL increments with the extended loop capillary
Precision	Typically < 0.5 % RSD of peak areas from 5 – 40 µL Typically < 1 % RSD from 1 – 5 µL Typically < 3 % RSD from 0.2 – 1 µL
Pressure range	Up to 400 bar (5880 psi)
Sample viscosity range	0.2 – 5 cp
Sample capacity	2 × well-plates (MTP) + 10 × 2 mL vials 108 x 2 mL vials in 2 x 54 vial plate plus 10 additional 2 mL vials 30 x 6 mL vials in 2 x 15 vial plate plus 10 additional 2 mL vials 54 Eppendorf tubes (0.5 /1.5 /2 mL) in 2 x 27 Eppendorf tube plate
Injection cycle time	Typically < 30 s using following standard conditions: • Default draw speed: 4 µL/min • Default eject speed: 10 µL/min • Injection volume: 0.1 µL
Carry-over	Typically < 0.05 % using the following conditions: • Column: 150 x 0.5 mm Hypersil ODS, 3 µm • Mobile phase: Water/Acetonitrile = 85 /15 • Column Flow rate: 13 µL/min • Injection volume: 1 µL caffeine (=25 ng caffeine), 1 µL water to test carryover • Outside wash of needle before injection: 20 s with water using flush port

Agilent 1260 Infinity Standard Autosampler (G1329B)

Physical Specifications

Table 53 Physical Specifications

Type	Specification	Comments
Weight	14.2 kg (32 lbs)	
Dimensions (height × width × depth)	200 × 345 × 435 mm (8 × 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	300 VA / 200 W / 683 BTU	Maximum
Ambient operating temperature	0-55 °C (32-131 °F)	See warning "Hot rear panel" on page 72
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

WARNING

Hot rear panel

Using the module at high environmental temperatures may cause the rear panel to become hot.

➔ Do not use the module at environmental temperatures higher than 50 °C (122 °F)

Performance Specifications Standard Autosampler

Table 54 Performance Specifications Agilent 1260 Infinity Standard Autosampler (G1329B)

Type	Specification
Pressure	Operating range 0 - 60 MPa (0 - 600 bar, 0 - 8850 psi)
GLP features	Early maintenance feedback (EMF), electronic records of maintenance and errors
Communications	Controller-area network (CAN), RS232C, APG-remote standard, optional four external contact closures and BCD vial number output
Safety features	Leak detection and safe leak handling, low voltages in maintenance areas, error detection and display
Injection range	0.1 - 100 µL in 0.1 µL increments (recommended 1 µL increments) Up to 1500 µL with multiple draw (hardware modification required)
Replicate injections	1 – 99 from one vial
Precision	Typically < 0.25 % RSD of peak areas from < 5 µL to 100 µL Typically < 1 % RSD of peak areas from 1 µL to 5 µL
Minimum sample volume	1 µL from 5 µL sample in 100 µL microvial, or 1 µL from 10 µL sample in 300 µL microvial
Carryover	Typically < 0.1 %, < 0.05 % with external needle cleaning
Sample viscosity range	0.2 – 50 cp
Sample capacity	100 × 2 mL vials in 1 tray 40 × 2 mL vials in ½ tray 15 × 6 mL vials in ½ tray (Agilent vials only)
Injection cycle time	50 s for draw speed 200 µL/min, ejection speed 200 µL/min, injection volume 5 µL
Metering device	Metering pump in high pressure flow path

Agilent 1260 Infinity Preparative Autosampler (G2260A)

Physical Specifications

Table 55 Physical Specifications

Type	Specification	Comments
Weight	14.2 kg (32 lbs)	
Dimensions (height × width × depth)	200 × 345 × 435 mm (8 × 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	300 VA / 200 W / 683 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

WARNING

Hot rear panel

Using the module at high environmental temperatures may cause the rear panel to become hot.

➔ Do not use the module at environmental temperatures higher than 50 °C (122 °F)

Performance Specifications Preparative Autosampler

Table 56 Performance Specifications Agilent 1260 Infinity Preparative Autosampler (G2260A)

Type	Specification
Pressure	Operating range 0 - 40 MPa (0 - 400 bar, 0 - 5800 psi)
GLP features	Early maintenance feedback (EMF), electronic records of maintenance and errors
Communications	Controller-area network (CAN). GPIB (IEEE-448), RS232C, APG-remote standard, optional four external contact closures and BCD vial number output
Safety features	Leak detection and safe leak handling, low voltages in maintenance areas, error detection and display
Injection range	0.1 - 900 µL in 0.1 µL increments (recommended 1 µL increments) Up to 1800 µL with multiple draw (hardware modification required) Up to 5000 µL with multiple draw (hardware modification required)
Replicate injections	1 – 99 from one vial
Precision	Typically < 0.5 % RSD of peak areas from 5 µL to 2000 µL Typically < 1 % RSD of peak areas from 2000 µL to 5000 µL Typically < 3 % RSD of peak areas from 1 µL to 5 µL
Minimum sample volume	1 µL from 5 µL sample in 100 µL microvial, or 1 µL from 10 µL sample in 300 µL microvial
Sample viscosity range	0.2 – 50 cp
Sample capacity	100 × 2 mL vials in 1 tray 15 × 6 mL vials in ½ tray (Agilent vials only)
Injection cycle time	Typically 50 s, depending on draw speed and injection volume

Agilent 1260 Infinity Dual-Loop Autosampler (G2258A)

Table 57 Physical Specifications

Type	Specification	Comments
Weight	14 kg (29.8 lbs)	
Dimensions (height × width × depth)	200 × 345 × 440 mm (8 × 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	260 VA / 210 W	Maximum
Ambient operating temperature	4 – 40 °C (39 – 131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 58 Performance Specifications Agilent 1260 Infinity Dual-Loop Autosampler, Preparative Scale

Type	Specification
GLP features	Early maintenance feedback (EMF), electronic records of maintenance and errors
Communications	Controller-area network (CAN). RS232C, APG-remote standard, optional: four external contact closures and BCD vial number output optional: LAN communication card
Instrument control	Agilent ChemStation software Agilent HT Purification SW Agilent G4208A Instant Pilot
Safety features	Leak detection and safe leak handling, low voltages in maintenance areas, error detection and display
Injection modes	Partial loop filling Complete loop filling
Injection range	0.1 – 5000 µL in 0.1 µL increments Recommended injection range 10 – 5000 µL
Area precision Complete loop fill	Typically < 0.5 % RSD, (50 µL loop, overfill factor 3 or greater)
Area precision Partial loop fill	Typically < 1.0 % RSD, (5000 µL loop, 1000 µL injection volume, draw/eject speed 20 mL/min)
Carry-over	< 0.1 % with rinse factor > 3 (see test method listing)
Draw/eject speed	max. 50 mL/min (selectable in 1 µL/min steps)
Loop size	max. loop size 5 mL (selectable range: 5 µL - 50000 µL)
Sample viscosity range	0.2 – 5 cP
Injection volume	Selectable range: 0 – 50000 µL in 0.1 µL steps Recommended range: 10 – 5000 µL in 1 µL steps
Temperature controlled version with G1330B	Temperature range of sample compartment: 4 – 40 °C

Table 58 Performance Specifications Agilent 1260 Infinity Dual-Loop Autosampler, Preparative Scale

Type	Specification
Sample capacity	2 × well-plates (MTP) + additional 10 × 2 mL vials
Supported sample plates	Any combination of 2 of the following plates: 96 well plate (shallow/deep/conical) 54 x 2 mL vial plate 15 x 6 µL vial plate 27 x Eppendorf plate for Eppendorf tubes of 0.5 mL, 1.5 mL or 2.0 mL Maximum plate height with plate tray G2258-60001: 50 mm

NOTE Vial septa and closing mats must be pre-slit.

Agilent 1260 Infinity Bio-inert Analytical-scale Fraction Collector (G5664A)

Table 59 Physical Specifications

Type	Specification	Comments
Weight	13.5 kg (29.8 lbs)	
Dimensions (height × width × depth)	200 x 345 × 440 mm (8 x 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	180 VA / 180 W / 239 BTU	Maximum
Ambient operating temperature	4 - 40 °C (39 - 104 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 60 Specifications - Agilent 1260 Infinity Analytical Bio-inert Fraction Collector (G5664A)

Type	Specifications
Delay volume	Approximately 50 µL
Maximum system flow	10 mL/min
Fraction containers	Shallow or deep well plates up to 48 mm height (96 or 384 format) Test tubes up to 48 mm height Autosampler Vials (2 mL and 6 mL) Eppendorf safe-lock tubes (0.5 mL, 1.5 mL , 2.5 mL)
Fraction trays	**Full trays (cover complete fraction collector)** 4 well plates 40 x 20 mL test tubes (30 mm od, 48 mm height) 60 x 15 mL test tubes (25 mm od, 48 mm height) 126 x 8 mL test tubes (16 mm od, 48 mm height) 215 x 5 mL test tubes (12 mm od, 48 mm height) **Trays with possibiity to add 1 aditional half tray** 2 well plates + 10 x 2 mL vials (+ one possible additional half tray) 100 x 2 mL vials (+ one possible additional half tray) **Half trays (up to 3 per fraction collector)** 15 x 6 mL vial 40 x 2 mL vial **Plates for well plate trays (2 or 4 per fraction collector depending on well plate tray)** Eppendorf safe-lock tubes (27 x 0.5 mL, 1.5 mL or 2.5 mL) 24 test tubes (18 mm OD) 54 x 2 mL vial 15 x 6 mL vial
Cooling	Optional
Trigger modes	Time slices and peak (threshold, up-/downslope, upper threshold and timetable), Boolean logic for different detector signals, combination of different modes, manual trigger (supported with Agilent 1200 Series Instant Pilot)
Trigger source	Agilent 1200 Infinity Series VWD, MWD and DAD detectors, Agilent 6100 Series Quadrupole LC/MS, ELSD, FLD, RID, third party detectors (require UIB)
Diverter valve	3/2 valve, switching time < 100 ms
Max. pressure	6 bar (diverter valve)

Table 60 Specifications - Agilent 1260 Infinity Analytical Bio-inert Fraction Collector (G5664A)

Type	Specifications
Environment	4 – 55 °C constant temperature, < 95 % humidity (non-condensing)
Materials in flow path	PEEK, Ceramic, PTFE
pH range	1 – 13 (short term 14)[1]

[1] For solvent compatibility, refer to section "Solvent information for parts of the 1260 Infinity Bio-inert LC system" in the manual

NOTE Only one type of well-plates can be used at a time in one tray.

Agilent 1260 Infinity Preperative-scale Fraction Collector (G1364B)

Table 61 Physical Specifications

Type	Specification	Comments
Weight	13.5 kg (29.8 lbs)	
Dimensions (height × width × depth)	200 × 345 × 440 mm (8 × 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	200 VA / 180 W	Maximum
Ambient operating temperature	4–40 °C (39–104 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 62 Performance Specifications Agilent 1260 Infinity Preparative-Scale Fraction Collector (G1364B)

Type	Specification
Trigger modes	Time slices, Peak (threshold, up- / downslope), Timetable (combination of time intervals and peak) and Manual trigger (supported only with Agilent Instant Pilot G4208A) Agilent 1260 Infinity DAD/MWD detectors (G1315C,D and G4212B/G1365C,D), the Agilent 1260 Infinity Fluorescence Detector (G1321A) and the Agilent G1946C/D, G1956A/B LC-MSD are fully supported Other detectors can be used but are not supported for fraction collection.
Operating modes	Discrete fractions: default mode for all vessels. The flow is diverted to waste, while moving from one vessel position to the next vessel position Continuous flow: optional, available only when using well plates. It is possible to move from one well plate position to the next one without diverting the flow into the well plate to waste
Fraction capacities and trays	4 x well-plates full tray (MTP)[1] (for use with deep well plates, only) 2 × well-plates std. tray (MTP) (for use with deep well plates, only) + 10 × 2 mL vials[1] (+ 1 half tray) 100 x 2 mL in std. tray (+ 1 half tray)[1] 3 x 40 x 2 mL in half tray[1] 3 x 15 x 6 mL in half tray[1] Full tray with 40 test tubes (30 mm OD, max. height 100 mm, ~45 mL/ tube) Full tray with 60 test tubes (25 mm OD, max. height 100 mm, ~25 mL/ tube) Full tray with 126 test tubes (16 mm OD, max. height 100 mm, ~12 mL/ tube) Full tray with 215 test tubes (12 mm OD, max. height 100 mm, ~7 mL/ tube) Installed trays are automatically detected and identified. For the with uncapped vials, tests tubes and well plates, only!
Test tube / plate sizes	Minimum 48 mm to 100 mm maximum
Maximum tube volume	ca. 45 mL
Maximum flow rate	100 mL/min (depending on viscosity and generated back pressure, max. 6 bar at the diverter valve)

Table 62 Performance Specifications Agilent 1260 Infinity Preparative-Scale Fraction Collector (G1364B)

Type	Specification
Delay volumes [µl]	Fraction collector inlet to diverter valve: ~500 (typical, depends on length of the tubing) Diverter valve: ~15 Diverter valve to needle: ~110 Needle: ~5
Delay calibration sensor	Single wavelength absorbance detector working at 654 nm, consisting of a LED and a photo diode
Diverter valve	3/2 Diverter valve with low internal volume (15 µL), switching time < 100 ms, maximum operating pressure 6 bar
Cooling	Optional (with additional G1330B), performance depending on ambient conditions and the volume of collected fractions
Maximum capacity	3 fraction collectors in parallel plus one recovery fraction collector connected via 12-Position, 13-Port Selector valve (PN G1160A)
GLP features	Early maintenance feedback (EMF), electronic records of maintenance and errors
Interfaces	Controller-area network (CAN). Optional; LAN or external contacts interface RS232C, APG-remote (for remote start / stop signals to / from other modules) Interface to G1330B Thermostat CAN-DC-out for operation of Agilent approved external devices like valves
Safety features	Leak detection and safe leak handling, error detection and display, exhaust fan for fume extraction of hazardous vapors

[1] Vials can be used as recommended by Agilent Technologies *but must be uncapped*. Only the 96 deep well-plates can be used (*without closing mats*).

NOTE Only one type of well-plates can be used at a time in one tray.

Agilent 1260 Infinity Analytical-scale Fraction Collector (G1364C)

Table 63 Physical Specifications

Type	Specification	Comments
Weight	13.5 kg (29.8 lbs)	
Dimensions (height × width × depth)	200 × 345 × 440 mm (8 × 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	200 VA / 180 W	Maximum
Ambient operating temperature	4–40 °C (39–104 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 64 Performance Specifications Agilent 1260 Infinity Analytical-scale Fraction Collector (G1364C)

Type	Specification
Trigger modes	Time slices, Peak (threshold, up- / downslope), Timetable (combination of time intervals and peak) and Manual trigger (supported only with Agilent Instant Pilot G4208A) Agilent 1260 Infinity DAD/MWD detectors (G1315C,D and G4212B/G1365C,D), the Agilent 1260 Infinity Fluorescence Detector (G1321A) and the Agilent G1946C/D, G1956A/B LC-MSD are fully supported Other detectors can be used but are not supported for fraction collection.
Operating modes	Discrete fractions: default mode for all vessels. The flow is diverted to waste, while moving from one vessel position to the next vessel position Continuous flow: optional, available only when using the deep well plates. It is possible to move from one well plate position to the next one without diverting the flow into the well plate to waste Needle into location: Needle pushes into the vessel as deep as specified, for the use with capped vials and test tubes and well plates with closing mats Droplet setup mode: The tip of the fraction collector needle will initially move down to the bottom of the well. Then it will slowly move upwards while the fraction is collected. The droplet setup mode enables the fraction collector to collect small fractions without bubbles.

Table 64 Performance Specifications Agilent 1260 Infinity Analytical-scale Fraction Collector (G1364C)

Type	Specification
Fraction capacities and trays	4 x well-plates full tray (MTP)[1] 2 x well-plates std. tray + 10 funnels with external containers[1] (+ 1 half tray) 2 × well-plates std. tray (MTP) + 10 × 2 mL vials[1] (+ 1 half tray) 100 x 2 mL in std. tray (+ 1 half tray)[1] 3 x 40 x 2 mL in half tray[1] 3 x 40 funnels in half tray 3 x 15 x 6 mL in half tray[1] Full tray with 40 test tubes (30 mm OD, max. height 48 mm, ~20 mL/ tube) Full tray with 60 test tubes (25 mm OD, max. height 48 mm) Full tray with 126 test tubes (16 mm OD, max. height 48 mm) Full tray with 215 test tubes (12 mm OD, max. height 48 mm) Installed trays are automatically detected and identified. Installed plates and vials can be detected when operating in the needle into location mode. Max. height can be extended by using the short needle assembly (Analytical needle assembly Other descriptions: Needle assembly analytical scale (20 mm needle); short needle assembly (G1364-87202))
Maximum tube / plate height	48 mm with long needle assembly (Analytical needle assembly Other description: Needle assembly analytical scale (50 mm needle) (G1367-87200))
Maximum tube volume	ca. 20 mL with 48 mm test tubes, ca. 30 mL with 75 mm test tubes or unlimited, if funnels are used with external containers.
Maximum flow rate	10 mL/min (depending on viscosity and generated back pressure, max. 6 bar at the diverter valve). The analytical scale fraction collector can be modified for flow rates > 10 mL/min.
Delay volumes [µl]	Fraction collector inlet to diverter valve: ~50 (typical, depends on length of the tubing) Diverter valve: ~15 Diverter valve to needle: ~10 Needle: ~4
Delay calibration sensor	Single wavelength absorbance detector working at 654 nm, consisting of a LED and a photo diode

Table 64 Performance Specifications Agilent 1260 Infinity Analytical-scale Fraction Collector (G1364C)

Type	Specification
Diverter valve	3/2 Diverter valve with low internal volume (15 µL), switching time < 100 ms, maximum operating pressure 6 bar
Cooling	Optional (with additional G1330B), performance depending on ambient conditions and the volume of collected fractions
Maximum capacity	3 fraction collectors in parallel plus one recovery fraction collector connected via 12-Position, 13-Port Selector valve (G1160A)
GLP features	Early maintenance feedback (EMF), electronic records of maintenance and errors
Interfaces	Controller-area network (CAN). Optional; LAN or external contacts interface RS232C, APG-remote (for remote start / stop signals to / from other modules) Interface to G1330B Thermostat CAN-DC-out for operation of Agilent approved external devices like valves
Safety features	Leak detection and safe leak handling, error detection and display, exhaust fan for fume extraction of hazardous vapors

[1] Vials and well-plates and capped vials and well plates with closing mats can be used as recommended by Agilent Technologies.

NOTE Only one type of well-plates can be used at a time in one tray.

Agilent 1260 Infinity Micro-scale Fraction Collector (G1364D)

Table 65 Physical Specifications

Type	Specification	Comments
Weight	13.5 kg (29.8 lbs)	
Dimensions (height × width × depth)	200 × 345 × 440 mm (8 × 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	200 VA / 180 W	Maximum
Ambient operating temperature	4–40 °C (39–104 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 66 Performance Specifications Agilent 1260 Infinity Micro-Scale Fraction Collector/Spotter (G1364D)

Type	Specification
Trigger modes	Time slices, Peak (threshold, up- / downslope), Timetable (combination of time intervals and peak) Agilent 1260 Infinity UV-Vis detectors DAD G1315C/D and G4212B, MWD G1365 C/D are fully supported Other detectors can be used (UIB required) but are not supported for fraction collection
Operating modes	Above location Into location Liquid contact control: The tip of the fraction collector capillary will initially move down to the bottom of the well. Then it will slowly move upwards while the fraction is collected. The liquid contact control enables the micro collector/spotter to collect fractions down to 2 µL without bubbles.
Fraction vessel capacities and trays	• 4 x well-plates full tray (MTP) with: 384 or 96-well plates (standard and conical shape) or 4 x 27 eppendorf tubes (0.5 , 1.5 , 2.0 mL) • 2 × well-plates std. tray (MTP) + 10 × 2 mL vials (+ 1 half tray) with: 384 or 96-well plates (standard and conical shape) or 2x 27 eppendorf tubes (0.5 , 1.5 , 2.0 mL)
Minimum fraction volume	Typically 2 µL (depending on the fraction collection container)
Maximum flow rate	100 µL/min
Delay volumes [µl]	25 µm ID fraction collector capillary: ~0.25 50 µm ID fraction collector capillary: ~1 100 µm ID fraction collector capillary: ~4
Cooling	Recommended (with additional G1330B)
Maximum capacity	2 micro collector/spotters in parallel connected via 2-Position, 6-Port micro valve (G1162A)
GLP features	Early maintenance feedback (EMF), electronic records of maintenance and errors

Table 66 Performance Specifications Agilent 1260 Infinity Micro-Scale Fraction Collector/Spotter (G1364D)

Type	Specification
Interfaces	Controller-area network (CAN). Optional; LAN or external contacts interface, RS232C, APG-remote (for remote start / stop signals to / from other modules) Interface to Thermostat CAN-DC-out for operation of Agilent approved external devices like valves
Safety features	Leak detection and safe leak handling, error detection and display, exhaust fan for fume extraction of hazardous vapors

NOTE Only one type of well-plates can be used at a time in one tray.

Agilent 1260 Infinity Chip Cube MS Interface (G4240A)

Table 67 Physical Specifications

Type	Specification	Comments
Weight	14 kg (31 lbs)	
Dimensions (height × width × depth)	359 × 349 × 298 mm (14.1 x 13.7 x 11.7 inch)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	80 W	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 80 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 68 Performance Specifications

Type	Specification	Comment
GLP features	Number of injection on chip Chip operation time First date of operation Latest date of operation	
Communication	Controller-area-network (CAN), RS 232C, APG remote standard	
Safety features	Enclosure with interlock system, low voltage in maintenance areas, flammability protection, error detection	
Recommended pH-range	1.0 – 8.5	Solvents with pH < 2.3 should not contain acids which attack stainless steel. The high pH range is limited due to the use fused silica capillaries.
Materials in use	Bio-compatible materials	SST, fused silica, zirconium oxide

Agilent 1220 Infinity LC Autosampler

Table 69 Physical Specifications

Type	Specification	Comments
Weight	30 kg (66 lbs)	
Dimensions (height × width × depth)	640 × 370 × 420 mm (25.2 × 14.6 × 16.5 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	240 VA / 210 W / 717 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 70 Performance Specifications Agilent 1220 Infinity LC Autosampler

Type	Specification
Pressure	Operating range 0 – 60 MPa (0 – 600 bar, 0 – 8820 psi)
Injection range	0.1 – 100 µL in 0.1 µL increments Up to 1500 µL with multiple draw (hardware modification required)
Replicate injections	1 – 99 from one vial
Precision	< 0.25 % RSD from 5 – 100 µL, < 1 % RSD 1 – 5 µL variable volume
Minimum sample volume	1 µL from 5 µL sample in 100 µL microvial, or 1 µL from 10 µL sample in 300 µL microvial
Carryover	Typically < 0.1 %, < 0.05 % with external needle cleaning
Sample viscosity range	0.2 – 50 cp
Sample capacity	100 × 2 mL vials in 1 tray 40 × 2 mL vials in ½ tray 15 × 6 mL vials in ½ tray (Agilent vials only)
Injection cycle time	Typically 50 s depending on draw speed and injection volume

Agilent 410 Autosampler

Physical Specifications

Table 71 Specifications Agilent 410 Autosampler

Type	Specification	Comments
Rated Voltage	115 / 230 VAC ± 15 %, 50 / 60 Hz	
Power consumption	200 VA	
Weight	19 kg (42 lb)	
Weight (with cool option)	21 kg (46 lb)	
Dimensions (height x width x depth)	340 x 300 x 500 mm (13.4 x 11.8 x 19.7 in)	
Ambient operating temperature	10 – 40 °C	
Humidity	20 – 80 %	
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2	For indoor use only.

Performance Specifications

Table 72 Performance specifications Agilent 410 Autosampler

Type	Specification
Sample capacity	Standard tray: • 84 vials of 1.5 mL (Std) • 3 vials of 10 mL (LSV)
Vial dimensions (cap included)	Maxmimum vial height: 47 mm Minimum vial height: 32 mm
Loop volume	1 – 5000 µL
Dispenser syringe	250 µL (standard) or 1000 µL or 2500 µL
Vial detection	Missing vial detection by vial sensor.
Headspace pressure	Built-in compressor
Switching time injection valve	Electrically < 100 ms
Piercing precision needle	± 0.6 mm
Wash solvent	External wash solvent bottle
Wetted parts in flow path	SS316, PTFE, ETFE, VESPEL, Glass. Optional: PEEK
Reproducibility	• RSD: 0.3 % for full loop injections • RSD: 0.5 % for partial loopfill injections, injection volumes > 10 µL • RSD: 1 % for µL pick-up injections, injection volumes > 10 µL
Memory effect	< 0.05 % with programmable needle wash
Column oven	Built-in thermostat

Table 72 Performance specifications Agilent 410 Autosampler

Type		Specification
	Range	($T_{ambient}$+5 °C) - 60 °C
	Accuracy	± 1 °C (measured in the center)
	Dimensions (height x width x depth)	300 x 25 x 25 mm (11.8 x 1 x 1 inch)
Fuses - 115 VAC		two 5.0 A T-fuses (slow, ¼" x 1¼", UL/CSA)
Fuses 230 VAC		two 2.5 A T-fuses (slow, 5 x 20 mmmm, IEC 127)

Table 73 Programming specificatios

Type	Specifications
Methods	9 programmable methods
Injection method	Injection modes: • Full loop injection • Partial loopfill injection • µL pick-up injection
Injection volume	1 – 5000 µL, with 1 µL increment • Full loop injection: max. 5000 µL • Partial loopfill injection: max. 2500 µL • µL pick-up injection: max. 2477
Injections per vial	max. 9 injections
Analysis time	max. 9 h59 min59 s
Wash	Progammable: • Wash betwenn injections • Wash betwenn vials • Wash between series
Mix	max. 15 programmable steps
Timed events	Programmable: • 4 x AUX-1 ON/OFF • 4 x AUX-2 ON/OFF • Initial oven setpoint • 2 x new oven setpoint
Series	9 programmable series
Priority	Programmable

Table 74 Communication specifications

Type	Specification	
Outputs	Inject marker	(Relay & TTL)
	2 Auxillary outputs	(Relay)
	Alarm outputs	(Relay)
Inputs	Next injection input	(TTL)
	Freeze input	(TTL)
	Stop input	(TTL)
Serial communication port	RS422	

Table 75 Options - User installable

Type	Specification
Large capacity tray	96 vials of 1.5 mL (STD, 12 mm o.d.)
Large volume tray	24 vials of 10 mL (LSV, 22 mm o.d.)
PC Control	OpenLAB CDS Workstation

Agilent 440 Fraction Collector

Physical Specifications

Table 76 Physical specifications

Type	Specification
Weight	18 kg (34 lb)
Dimensions (height x width x depth)	510 mm x 490 mm x 285 mm (21 in x 20 in x 12 in)
Line voltage	100 – 240 VAC (tested 90 – 264 VAC)
Line frequency	50 – 60 Hz ±1 Hz
Power consumption	75 W; 100 VA
Ambient operating temperature	10 – 35 °C (50 – 95 °F)
Operating humidity (%RH) non-condensing	8 – 80
Operating altitude	0 – 3050 m (0 – 10000 ft)
Safety standards (EN 61010-1): IEC, CSA, UL	• Installation category II • Pollution degree 2 • Equipment class I

Performance Specifications

Table 77 Performance specifications

Type	Specification
Number of fraction racks	1 – 3
Typical number of tubes/vial	21 – 200
Maximal tube height:	150 mm
Available rack types[1]	• 21 x 30 mmOD tubes • 24 x 25 mm OD tubes • 40 x 20 mm OD tubes • 60 x 16 mm OD tubes • 90 x 13 mm OD tubes • 128 x 15 mm OD (4 mL vials) • 200 x 12 mm OD (2 mL vials)

[1] Optional overlays are available for the Type 40 and 60 racks. These allow smaller diameter tubes to be used in the racks. For example, the overlay for the Type 40 racks enables the same rack for 20 mm OD tubes to be used for 18 mm OD tubes. The overlays fit onto the top and center of the racks to hold the tubes securely in place. The rack overlays for the fraction collector are also numbered to ensure the correct location of samples in the rack. Note: The rack overlays are designed for use with tubes that do not fit snugly into the racks. If the fit of the tube is 'sloppy' the probe may not center over the tube properly. This can affect the accuracy of sample delivery and cause spills.



3
UV-Detectors

Agilent 1290 Infinity Variable Wavelength Detector (G1314E) 104
Agilent 1260 Infinity Variable Wavelength Detector (G1314F) 109
Agilent 1260 Infinity Variable Wavelength Detector VL+ (G1314C) 113
Agilent 1260 Infinity Variable Wavelength Detector VL (G1314B) 117
Agilent 1220 Infinity LC Variable Wavelength Detector 121
Agilent 1220 Infinity LC Diode Array Detector 125
Agilent 1290 Infinity Diode Array Detector (G4212A) 128
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Agilent 1200 Infinity Series High Dynamic Range Diode Array Detector Solution 138
Agilent 1260 Infinity Diode Array Detector VL+ (G1315C) 140
Agilent 1260 Infinity Diode Array Detector VL (G1315D) 145
Agilent 1260 Infinity Multiple Wavelength Detector (G1365C) 150
Agilent 1260 Infinity Multiple Wavelength Detector VL (G1365D) 155
Agilent 325 UV/VIS Dual Wavelength Detector 160

Agilent 1290 Infinity Variable Wavelength Detector (G1314E)

Table 78 Physical Specifications

Type	Specification	Comments
Weight	11 kg (25 lbs)	
Dimensions (height × width × depth)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	220 VA, 85 W / 290 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Performance Specifications G1314E

Table 79 Performance Specifications G1314E

Type	Specification	Comments
Detection type	Double-beam photometer	
Light source	Deuterium lamp	
Wavelength range	190 – 600 nm	The UV-lamp is equipped with RFID tag that holds lamp typical information.
Short term noise	± $0.15 \cdot 10^{-5}$ AU at 230 nm	Under specified condtions. See "Specification Conditions G1314E" on page 108 below the table.
Drift	< $1 \cdot 10^{-4}$ AU/h at 230 nm	Under specified condtions. See "Specification Conditions G1314E" on page 108 below the table.
Linearity	> 2.5 AU (5 %) at 265 nm	Under specified condtions. See "Specification Conditions G1314E" on page 108 below the table.
Wavelength accuracy	± 1 nm	Self-calibration with deuterium lines, verification with holmium oxide filter
Maximum data rate	160 Hz	
Band width	6.5 nm typical	

Table 79 Performance Specifications G1314E

Type	Specification	Comments
Flow cells	Standard: 14 µL volume, 10 mm cell path length and 40 bar (588 psi) pressure maximum High pressure: 14 µL volume, cell path length and 400 bar (5880 psi) pressure maximum Micro: 2 µL volume, 3 mm cell path length and 120 bar (1760 psi) pressure maximum Semi-micro: 5 µL volume, 6 mm cell path length and 40 bar (588 psi) pressure maximum	All flow cells have RFID tags for unambitious identification. Can be repaired on component level
Electronic Temperature Control (ETC)	For improved baseline stability in instable environment.	
Control and data evaluation	Agilent ChemStation B.03.02 SR1 or above Instant Pilot (G4208A) with firmware B.02.07 or above	Control and data evaluation Control only
Time programmable	Wavelength, Reference and Sample scan, balance, steps,lamp on/off	
Spectral tools	Stop-flow wavelength scan	
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 – 2 AU, one output	
Communications	LAN card integrated on main board, Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals	
Safety and maintenance	Extensive diagnostics, error detection and display (through Instant Pilot and Data System), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	

Table 79 Performance Specifications G1314E

Type	Specification	Comments
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-settable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with built-in holmium oxide filter. RFID for electronics records of flow cell and UV lamp conditions (path length, volume, product number, serial number, test passed, usage)	
Housing	All materials recyclable.	

Specification Conditions G1314E

ASTM: “Standard Practice for Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.

Reference conditions: Standard flow cell, path length 10 mm, flow 1 mL/min LC-grade methanol.

Noise:

± $0.15 \cdot 10^{-5}$ AU at 230 nm, TC 2 s

RT = 2.2 * TC

Linearity:

Linearity is measured with caffeine at 265 nm.

NOTE The specification are based on the the standard RFID tag lamp (G1314-60101) and may be not achieved when other lamp types or aged lamps are used.

ASTM drift tests require a temperature change below 2°C/hour (3.6°F/hour) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift.

Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1°C/hour (1.8°F/hour). Turbulences around one minute or less can be ignored.

Performance tests should be done with a completely warmed up optical unit (> one hour). ASTM measurements require that the detector should be turned on at least 24 hours before start of testing.

Agilent 1260 Infinity Variable Wavelength Detector (G1314F)

Table 80 Physical Specifications

Type	Specification	Comments
Weight	11 kg (25 lbs)	
Dimensions (height × width × depth)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	220 VA, 85 W / 290 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Performance Specifications G1314F

Table 81 Performance Specifications G1314F

Type	Specification	Comments
Detection type	Double-beam photometer	
Light source	Deuterium lamp	
Wavelength range	190 – 600 nm	The UV-lamp is equipped with RFID tag that holds lamp typical information.
Short term noise	± $0.25 \cdot 10^{-5}$ AU at 230 nm	Under specified condtions. See "Specification Conditions G1314F" on page 112 below the table.
Drift	< $1 \cdot 10^{-4}$ AU/h at 230 nm	Under specified condtions. See "Specification Conditions G1314F" on page 112 below the table.
Linearity	> 2.5 AU (5 %) at 265 nm	Under specified condtions. See "Specification Conditions G1314F" on page 112 below the table.
Wavelength accuracy	± 1 nm	Self-calibration with deuterium lines, verification with holmium oxide filter
Maximum data rate	80 Hz	
Band width	6.5 nm typical	
Flow cells	Standard: 14 µL volume, 10 mm cell path length and 40 bar (588 psi) pressure maximum High pressure: 14 µL volume, cell path length and 400 bar (5880 psi) pressure maximum Micro: 2 µL volume, 3 mm cell path length and 120 bar (1760 psi) pressure maximum Semi-micro: 5 µL volume, 6 mm cell path length and 40 bar (588 psi) pressure maximum	All flow cells have RFID tags for unambitious identification. Can be repaired on component level

Table 81 Performance Specifications G1314F

Type	Specification	Comments
Electronic Temperature Control (ETC)	For improved baseline stability in instable environment.	
Control and data evaluation	Agilent ChemStation B.04.02 SP2 or above Instant Pilot (G4208A) with firmware B.02.11 or above	Control and data evaluation Control only
Time programmable	Wavelength, Reference and Sample scan, balance, steps,lamp on/off	
Spectral tools	Stop-flow wavelength scan	
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 – 2 AU, one output	
Communications	LAN card integrated on main board, Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals	
Safety and maintenance	Extensive support for troubleshooting and maintenance is provided by the Instant Pilot, Agilent Lab Advisor, and the Chromatography Data System. Safety-related features are leak detection, safe leak handling, leak output signal for shutdown of pumping system, and low voltages in major maintenance areas.	
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-settable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with built-in holmium oxide filter. RFID for electronics records of flow cell and UV lamp conditions (path length, volume, product number, serial number, test passed, usage)	
Housing	All materials recyclable.	

Specification Conditions G1314F

ASTM: “Standard Practice for Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.

Reference conditions: Standard flow cell, path length 10 mm, flow 1 mL/min LC-grade methanol.

Noise:

± $0.25 \cdot 10^{-5}$ AU at 230 nm, TC 2 s

RT = 2.2 * TC

Linearity:

Linearity is measured with caffeine at 265 nm.

NOTE The specification are based on the the standard RFID tag lamp (G1314-60101) and may be not achieved when other lamp types or aged lamps are used.

ASTM drift tests require a temperature change below 2°C/hour (3.6°F/hour) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift.

Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1°C/hour (1.8°F/hour). Turbulences around one minute or less can be ignored.

Performance tests should be done with a completely warmed up optical unit (> one hour). ASTM measurements require that the detector should be turned on at least 24 hours before start of testing.

Agilent 1260 Infinity Variable Wavelength Detector VL+ (G1314C)

Table 82 Physical Specifications

Type	Specification	Comments
Weight	11 kg (25 lbs)	
Dimensions (height × width × depth)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	220 VA, 85 W / 290 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Performance Specifications G1314C

Table 83 Performance Specifications G1314C

Type	Specification	Comments
Detection type	Double-beam photometer	
Light source	Deuterium lamp	
Wavelength range	190 – 600 nm	
Short term noise (ASTM)	<± $0.5 \cdot 10^{-5}$ AU at 254 nm	See "Specification Conditions" on page 116
Drift	$3 \cdot 10^{-4}$ AU/h at 254 nm	See "Specification Conditions" on page 116.
Linearity	> 2 AU (5 %) upper limit	See "Specification Conditions" on page 116.
Wavelength accuracy	± 1 nm	Self-calibration with deuterium lines, verification with holmium oxide filter
Maximum data rate	55 Hz	
Band width	6.5 nm typical	
Flow cells	Standard: 14 µL volume, 10 mm cell path length and 40 bar (580 psi) pressure maximum High pressure: 14 µL volume, 10 mm cell path length and 400 bar (5800 psi) pressure maximum Micro: 1 µL volume, 5 mm cell path length and 40 bar (580 psi) pressure maximum Semi-micro: 5 µL volume, 6 mm cell path length and 40 bar (580 psi) pressure maximum	Can be repaired on component level
Control and data evaluation	Agilent ChemStation for LC	

Table 83 Performance Specifications G1314C

Type	Specification	Comments
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 to 2 AU, one output	
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN (optional)	
Safety and maintenance	Extensive diagnostics, error detection and display (through Agilent ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-settable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with built-in holmium oxide filter.	
Housing	All materials recyclable.	

Specification Conditions

ASTM: “Standard Practice for Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.

Reference conditions: Standard flow cell, path length 10 nm, flow 1 mL/min LC-grade methanol.

Noise:

<± $0.5 \cdot 10^{-5}$ AU at 254 nm, TC 2 s, ASTM

RT = 2.2 * TC

Linearity:

Linearity is measured with caffeine at 265 nm.

NOTE The specifications are based on the standard lamp (G1314-60100) and may be not achieved when other lamp types or aged lamps are used.

ASTM drift tests require a temperature change below 2 °C/hour (3.6 F/hour) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift.

Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1 °C/hour (1.8 F/hour). Turbulences around one minute or less can be ignored.

Performance tests should be done with a completely warmed up optical unit (> two hours). ASTM measurements require that the detector should be turned on at least 24 hours before start of testing.

Time Constant versus Response Time

According to ASTM E1657-98 „Standard Practice of Testing Variable-Wavelength Photometric Detectors Used in Liquid Chromatography” the time constant is converted to response time by multiplying by the factor 2.2.

Agilent 1260 Infinity Variable Wavelength Detector VL (G1314B)

Table 84 Physical Specifications

Type	Specification	Comments
Weight	11 kg (25 lbs)	
Dimensions (height × width × depth)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	220 VA, 85 W / 290 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Performance Specifications G1314B

Table 85 Performance Specifications G1314B

Type	Specification	Comments
Detection type	Double-beam photometer	
Light source	Deuterium lamp	
Wavelength range	190 – 600 nm	
Short term noise (ASTM)	<± $0.5 \cdot 10^{-5}$ AU at 254 nm	See "Specification Conditions" on page 120
Drift	$3 \cdot 10^{-4}$ AU/h at 254 nm	See "Specification Conditions" on page 120.
Linearity	> 2 AU (5 %) upper limit	See "Specification Conditions" on page 120.
Wavelength accuracy	± 1 nm	Self-calibration with deuterium lines, verification with holmium oxide filter
Maximum data rate	13 Hz	
Band width	6.5 nm typical	
Flow cells	Standard: 14 µL volume, 10 mm cell path length and 40 bar (580 psi) pressure maximum High pressure: 14 µL volume, 10 mm cell path length and 400 bar (5800 psi) pressure maximum Micro: 1 µL volume, 5 mm cell path length and 40 bar (580 psi) pressure maximum Semi-micro: 5 µL volume, 6 mm cell path length and 40 bar (580 psi) pressure maximum	Can be repaired on component level
Control and data evaluation	Agilent ChemStation for LC	

Table 85 Performance Specifications G1314B

Type	Specification	Comments
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 to 2 AU, one output	
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN (optional)	
Safety and maintenance	Extensive diagnostics, error detection and display (through Agilent ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-settable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with built-in holmium oxide filter.	
Housing	All materials recyclable.	

Specification Conditions

ASTM: “Standard Practice for Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.

Reference conditions: Standard flow cell, path length 10 nm, flow 1 mL/min LC-grade methanol.

Noise:

<± $0.5 \cdot 10^{-5}$ AU at 254 nm, TC 2 s, ASTM

RT = 2.2 * TC

Linearity:

Linearity is measured with caffeine at 265 nm.

NOTE The specifications are based on the standard lamp (G1314-60100) and may be not achieved when other lamp types or aged lamps are used.

ASTM drift tests require a temperature change below 2 °C/hour (3.6 F/hour) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift.

Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1 °C/hour (1.8 F/hour). Turbulences around one minute or less can be ignored.

Performance tests should be done with a completely warmed up optical unit (> two hours). ASTM measurements require that the detector should be turned on at least 24 hours before start of testing.

Time Constant versus Response Time

According to ASTM E1657-98 „Standard Practice of Testing Variable-Wavelength Photometric Detectors Used in Liquid Chromatography” the time constant is converted to response time by multiplying by the factor 2.2.

Agilent 1220 Infinity LC Variable Wavelength Detector

Table 86 Physical Specifications

Type	Specification	Comments
Weight	30 kg (66 lbs)	
Dimensions (height × width × depth)	640 × 370 × 420 mm (25.2 × 14.6 × 16.5 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	240 VA / 210 W / 717 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Performance Specifications Agilent 1220 Infinity LC VWD

Table 87 Performance Specifications Agilent 1220 Infinity LC VWD

Type	Specification	Comments
Detection type	Double-beam photometer	
Light source	Deuterium lamp	
Wavelength range	190 – 600 nm	
Short term noise (ASTM)	<± $0.25 \cdot 10^{-5}$ AU at 230 nm	See "Specification Conditions" on page 124
Drift	< $1 \cdot 10^{-4}$ AU/h at 230 nm	See "Specification Conditions" on page 124
Linearity	> 2 AU (5 %) upper limit	See "Specification Conditions" on page 124
Wavelength accuracy	± 1 nm	Self-calibration with deuterium lines, verification with holmium oxide filter
Maximum data rate	80 Hz	
Band width	6.5 nm typical	
Flow cells	Standard: 14 µL volume, 10 mm cell path length and 40 bar (580 psi) pressure maximum High pressure: 14 µL volume, 10 mm cell path length and 400 bar (5800 psi) pressure maximum Micro: 1 µL volume, 5 mm cell path length and 40 bar (580 psi) pressure maximum Semi-micro: 5 µL volume, 6 mm cell path length and 40 bar (580 psi) pressure maximum	Can be repaired on component level
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 to 2 AU, one output	

Table 87 Performance Specifications Agilent 1220 Infinity LC VWD

Type	Specification	Comments
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN (optional)	
Safety and maintenance	Extensive diagnostics, error detection and display (through Agilent ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-settable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with built-in holmium oxide filter.	
Housing	All materials recyclable.	

NOTE ASTM: “Standard Practice for Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.Reference conditions: cell path length 10 mm, response time 2 s, flow 1 mL/min LC-grade methanol. Linearity measured with caffeine at 272 nm.

Specification Conditions

ASTM: “Standard Practice for Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.

Reference conditions: Standard flow cell, path length 10 nm, flow 1 mL/min LC-grade methanol.

Noise:

<± $0.5 \cdot 10^{-5}$ AU at 254 nm, TC 2 s, ASTM

RT = 2.2 * TC

Linearity:

Linearity is measured with caffeine at 265 nm.

NOTE The specifications are based on the standard lamp (G1314-60100) and may be not achieved when other lamp types or aged lamps are used.

ASTM drift tests require a temperature change below 2 °C/hour (3.6 F/hour) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift.

Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1 °C/hour (1.8 F/hour). Turbulences around one minute or less can be ignored.

Performance tests should be done with a completely warmed up optical unit (> two hours). ASTM measurements require that the detector should be turned on at least 24 hours before start of testing.

Time Constant versus Response Time

According to ASTM E1657-98 „Standard Practice of Testing Variable-Wavelength Photometric Detectors Used in Liquid Chromatography” the time constant is converted to response time by multiplying by the factor 2.2.

Agilent 1220 Infinity LC Diode Array Detector

Table 88 Physical Specifications

Type	Specification	Comments
Weight	30 kg (66 lbs)	
Dimensions (height × width × depth)	640 × 370 × 420 mm (25.2 × 14.6 × 16.5 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	240 VA / 210 W / 717 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Performance Specifications Agilent 1220 Infinity LC DAD

Table 89 Performance Specifications

Type	Specification	Comments
Detection type	1024-element diode array	
Light source	Deuterium and tungsten lamps	The UV-lamp is equipped with RFID tag that holds lamp typical information.
Number of signals	8	
Maximum sampling rate	80 Hz	
Short term noise (ASTM) Single and Multi-Wavelength	< ± $0.7 \cdot 10^{-5}$ AU at 254/4 nm and 750 nm, TC 2 s	see *"Specification Conditions"* below
Drift	< $0.9 \cdot 10^{-3}$ AU/h at 254 nm	see *"Specification Conditions"* below
Linear absorbance range	> 2 AU (5 %) at 265 nm	see *"Specification Conditions"* below
Wavelength range	190 – 950 nm	
Wavelength accuracy	± 1 nm	Self-calibration with deuterium lines, verification with holmium oxide filter
Slit width	1, 2, 4 , 8, 16 nm	Programmable slit
Diode width	< 1 nm	
Flow cell	Standard: 13 µL volume, 10 mm cell path length and 120 bar (1740 psi) pressure maximum	The flow cell is equipped with RFID tags that hold cell typical information. pH range 1.0—9.5
Time programmable	Wavelength, polarity, peak width, lamp bandwidth, autobalance, wavelength range, threshold, spectra storage mode	

Specification Conditions

ASTM: “Standard Practice for Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.

Reference conditions: Standard flow cell, path length 10 nm, flow 1 mL/min LC-grade methanol.

Noise:

<± $0.5 \cdot 10^{-5}$ AU at 254 nm, TC 2 s, ASTM

RT = 2.2 * TC

Linearity:

Linearity is measured with caffeine at 265 nm.

NOTE The specifications are based on the standard lamp (G1314-60100) and may be not achieved when other lamp types or aged lamps are used.

ASTM drift tests require a temperature change below 2 °C/hour (3.6 F/hour) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift.

Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1 °C/hour (1.8 F/hour). Turbulences around one minute or less can be ignored.

Performance tests should be done with a completely warmed up optical unit (> two hours). ASTM measurements require that the detector should be turned on at least 24 hours before start of testing.

Time Constant versus Response Time

According to ASTM E1657-98 „Standard Practice of Testing Variable-Wavelength Photometric Detectors Used in Liquid Chromatography” the time constant is converted to response time by multiplying by the factor 2.2.

Agilent 1290 Infinity Diode Array Detector (G4212A)

Table 90 Physical Specifications

Type	Specification	Comments
Weight	11.5 kg (26 lbs)	
Dimensions (height × width × depth)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	160 VA / 130 W / 444 BTU	Maximum
Ambient operating temperature	4–40 °C (39–104 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Performance Specifications G4212A

Table 91 Performance Specifications G4212A

Type	Specification	Comments
Detection type	1024-element photodiode array	
Light source	Deuterium lamp	Equipped with RFID tag that holds lamp typical information.
Wavelength range	190 – 640 nm	
Short term noise (ASTM) Single and Multi-Wavelength	< ± 3 × 10^{-6} AU at 230 nm/4 nm, with 10 mm Max-Light cartridge cell Typically < ± 0.6 × 10^{-6} AU/cm at 230 nm/4 nm, with 60 mm Max-Light cartridge cell	see *"Specification Conditions"* below
Drift	< 0.5 × 10^{-3} AU/hr at 230 nm	see *"Specification Conditions"* below
Linear absorbance range	> 2.0 AU (5 %) at 265 nm	see *"Specification Conditions"* below
Wavelength accuracy	± 1 nm	After recalibration with deuterium lines
Wavelength bunching	2 – 400 nm	Programmable in steps of 1 nm
Slit width	1, 2, 4, 8 nm	Programmable slit
Diode width	~ 0.5 nm	
Signal data rate	up to 160 Hz	
Spectra Data rate	up to 160 Hz	

Table 91 Performance Specifications G4212A

Type	Specification	Comments
Flow cells	Max-Light Cartridge Cell (10 mm, V(σ) 1.0 µL) (G4212-60008), Max-Light Cartridge Cell (60 mm, V(σ) 4.0 µL) (G4212-60007), HDR Max-Light Cartridge Cell (3.7 mm, V(σ) 0.4 µL) (G4212-60032) ULD Max-Light Cartridge Cell (10 mm, V(σ) 0.6 µL) (G4212-60038) Max-Light Cartridge Cell Bio-inert (10 mm, V(σ) 1.0 µL) (G5615-60018) Max-Light Cartridge Cell Bio-inert (60 mm, V(σ) 4.0 µL) (G5615-60017) Max-Light Cartridge Test Cell (G4212-60011)	70 bar (1015 psi) Maximum Operating Pressure (MOP)[1] 150 bar (2175 psi) Maximum Incidential Pressure (MIP)[2] pH range 1.0 —12.5 (solvent dependent) available as standard and bio-inert versions. Cartridge type, equipped with RFID tags that holds cell typical information.
Local Control	Agilent Instant Pilot (G4208A)	B.02.11 or above
Test and troubleshooting software	Agilent LabAdvisor	B.01.03 SP4 or above
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 – 2 AU, one output	
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN	
Safety and maintenance	Extensive support for troubleshooting and maintenance is provided by the Instant Pilot, Agilent Lab Advisor, and the Chromatography Data System. Safety-related features are leak detection, safe leak handling, leak output signal for shutdown of pumping system, and low voltages in major maintenance areas.	

Table 91 Performance Specifications G4212A

Type	Specification	Comments
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-setable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with the emission lines of the deuterium lamp.	
Housing	All materials recyclable.	

[1] Maximum Operating Pressure (MOP): The maximum pressure at which the system can operate continuously under normal conditions.

[2] Maximum Incidential Pressure (MIP): The maximum pressure which the system can experience during a short time.

Specification Conditions

ASTM: “Standard Practice for Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.

Reference conditions:

- Wavelength: 230 nm/4 nm with Reference Wavelength 360 nm/100 nm, Slitwidth 4 nm, TC 2 s, (or with RT = 2.2 * TC), ASTM
- Max-Light Cartridge Cell (10 mm, V(σ) 1.0 µL) (G4212-60008) with flow of 0.5 mL/min LC grade water or Max-Light Cartridge Test Cell (G4212-60011)

Linearity:

Linearity is measured with caffeine at 265 nm/4 nm with slit width 4 nm and TC 1 s (or with RT 2 s) with Max-Light Cartridge Cell (10 mm, V(σ) 1.0 µL) (G4212-60008) > 2.0 AU (5 %) [typical 2.5 AU (5 %)] .

NOTE The specifications are based on the standard RFID tag lamp (5190-0917) and may be not achieved when other lamp types or aged lamps are used.

ASTM drift tests require a temperature change below 2 °C/hour (3.6 F/hour) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift.

Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1 °C/hour (1.8 F/hour). Turbulences around one minute or less can be ignored.

Performance tests should be done with a completely warmed up optical unit (> two hours). ASTM measurements require that the detector should be turned on at least 24 h before start of testing.

Time Constant versus Response Time

According to ASTM E1657-98 „Standard Practice of Testing Variable-Wavelength Photometric Detectors Used in Liquid Chromatography” the time constant is converted to response time by multiplying by the factor 2.2.

Agilent 1260 Infinity Diode Array Detector (G4212B)

Table 92 Physical Specifications

Type	Specification	Comments
Weight	11.5 kg (26 lbs)	
Dimensions (height × width × depth)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	160 VA / 130 W / 444 BTU	Maximum
Ambient operating temperature	4–40 °C (39–104 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Performance Specifications G4212B

Table 93 Performance Specifications G4212B

Type	Specification	Comments
Detection type	1024-element photodiode array	
Light source	Deuterium lamp	Equipped with RFID tag that holds lamp typical information.
Wavelength range	190 – 640 nm	
Short term noise (ASTM) Single and Multi-Wavelength	< ± 3 × 10^{-6} AU at 230 nm/4 nm, with 10 mm Max-Light cartridge cell Typically < ± 0.6 × 10^{-6} AU/cm at 230 nm/4 nm, with 60 mm Max-Light cartridge cell	see *"Specification Conditions"* below
Drift	< 0.5 × 10^{-3} AU/hr at 230 nm	see *"Specification Conditions"* below
Linear absorbance range	> 2.0 AU (5 %) at 265 nm	see *"Specification Conditions"* below
Wavelength accuracy	± 1 nm	After recalibration with deuterium lines
Wavelength bunching	2 – 400 nm	Programmable in steps of 1 nm
Slit width	4 nm	Fixed slit
Diode width	~ 0.5 nm	
Signal data rate	80 Hz	
Spectra Data rate	80 Hz	

Table 93 Performance Specifications G4212B

Type	Specification	Comments
Flow cells	Max-Light Cartridge Cell (10 mm, V(σ) 1.0 µL) (G4212-60008), Max-Light Cartridge Cell (60 mm, V(σ) 4.0 µL) (G4212-60007), HDR Max-Light Cartridge Cell (3.7 mm, V(σ) 0.4 µL) (G4212-60032) ULD Max-Light Cartridge Cell (10 mm, V(σ) 0.6 µL) (G4212-60038) Max-Light Cartridge Cell Bio-inert (10 mm, V(σ) 1.0 µL) (G5615-60018) Max-Light Cartridge Cell Bio-inert (60 mm, V(σ) 4.0 µL) (G5615-60017) Max-Light Cartridge Test Cell (G4212-60011)	70 bar (1015 psi) Maximum Operating Pressure (MOP)[1] 150 bar (2175 psi) Maximum Incidential Pressure (MIP)[2] pH range 1.0 —12.5 (solvent dependent) available as standard and bio-inert versions. Cartridge type, equipped with RFID tags that holds cell typical information.
Local Control	Agilent Instant Pilot (G4208A)	B.02.11 or above
Test and troubleshooting software	Agilent LabAdvisor	B.01.03 SP4 or above
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 – 2 AU, one output	
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN	
Safety and maintenance	Extensive support for troubleshooting and maintenance is provided by the Instant Pilot, Agilent Lab Advisor, and the Chromatography Data System. Safety-related features are leak detection, safe leak handling, leak output signal for shutdown of pumping system, and low voltages in major maintenance areas.	

Table 93 Performance Specifications G4212B

Type	Specification	Comments
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-setable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with the emission lines of the deuterium lamp.	
Housing	All materials recyclable.	

[1] Maximum Operating Pressure (MOP): The maximum pressure at which the system can operate continuously under normal conditions.

[2] Maximum Incidential Pressure (MIP): The maximum pressure which the system can experience during a short time.

Specification Conditions

ASTM: “Standard Practice for Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.

Reference conditions:

- Wavelength: 230 nm/4 nm with Reference Wavelength 360 nm/100 nm, Slitwidth 4 nm, TC 2 s, (or with RT = 2.2 * TC), ASTM
- Max-Light Cartridge Cell (10 mm, V(σ) 1.0 µL) (G4212-60008) with flow of 0.5 mL/min LC grade water or Max-Light Cartridge Test Cell (G4212-60011)

Linearity:

Linearity is measured with caffeine at 265 nm/4 nm with slit width 4 nm and TC 1 s (or with RT 2 s) with Max-Light Cartridge Cell (10 mm, V(σ) 1.0 µL) (G4212-60008) > 2.0 AU (5 %) [typical 2.5 AU (5 %)] .

NOTE The specifications are based on the standard RFID tag lamp (5190-0917) and may be not achieved when other lamp types or aged lamps are used.

ASTM drift tests require a temperature change below 2 °C/hour (3.6 F/hour) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift.

Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1 °C/hour (1.8 F/hour). Turbulences around one minute or less can be ignored.

Performance tests should be done with a completely warmed up optical unit (> two hours). ASTM measurements require that the detector should be turned on at least 24 h before start of testing.

Time Constant versus Response Time

According to ASTM E1657-98 „Standard Practice of Testing Variable-Wavelength Photometric Detectors Used in Liquid Chromatography” the time constant is converted to response time by multiplying by the factor 2.2.

Agilent 1200 Infinity Series High Dynamic Range Diode Array Detector Solution

Table 94 Performance Specifications of the HDR-DAD solution

Type	Specification	Comments
Detection type	1024-element photodiode array	
Light source	Deuterium lamp	equipped with RFID tag that holds lamp typical information.
Number of signals	8	
HDR-DAD Maximum sampling rate	80 Hz	
Short term noise	< ± $0.85 \cdot 10^{-6}$ AU/cm Typically < ± $0.60 \cdot 10^{-6}$ AU/cm	at 230 /4 nm, slit width 4 nm, TC 2 s, ASTM
Drift	< $0.5 \cdot 10^{-3}$ AU/h	at 230 nm
Linearity	> 5.4 AU (5 %) Typically 6.7 AU (5 %)	at 265 nm
Wavelength range	190 – 640 nm	
Wavelength accuracy	± 1 nm	self-calibration with deuterium lines
Slit width	Programmable: 1 , 2 , 4 , 8 nm Fixed slit: 4 nm	(with 1290 DAD) (with 1260 DAD)
Diode width	~ 0.5 nm	
Wavelength bunching	2 – 400 nm	programmable in steps of 1 nm
Flow cells	Max-Light Cartridge Cell (60 mm, V(σ) 4.0 µL) (G4212-60007) HDR Max-Light Cartridge Cell (3.7 mm, V(σ) 0.4 µL) (G4212-60032)	70 bar (1015 psi) Maximum Operating Pressure (MOP)[1] 150 bar (2175 psi) Maximum Incidential Pressure (MIP)[2] cartridge type, equipped with RFID tags that holds cell typical information.

Table 94 Performance Specifications of the HDR-DAD solution

Type	Specification	Comments
Spectral tools	Data analysis software for spectra evaluation, including spectral libraries and peak purity functions	
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 – 2 AU, one output	
Communications	LAN, controller-area network (CAN), RS-232C, APG Remote: ready start, stop and shut-down signals	
GLP features	RFID for electronics records of flow cell and UV lamp conditions (path length, volume, product number, serial number, test passed, usage) Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user settable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with deuterium lines.	
Safety and maintenance	Extensive diagnostics, error detection and display through Agilent Instant Pilot and Agilent Lab Advisor software. Leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	
Others	Electronic temperature control (ETC) for the complete optical unit	

1 Maximum Operating Pressure (MOP): The maximum pressure at which the system can operate continuously under normal conditions.

2 Maximum Incidential Pressure (MIP): The maximum pressure which the system can experience during a short time.

Agilent 1260 Infinity Diode Array Detector VL+ (G1315C)

Table 95 Physical Specifications

Type	Specification	Comments
Weight	11.5 kg (26 lbs)	
Dimensions (height × width × depth)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	160 VA / 160 W / 546 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Performance Specifications G1315C

Table 96 Performance Specifications G1315C

Type	Specification	Comments
Detection type	1024-element photodiode array	
Light source	Deuterium and tungsten lamps	The UV-lamp is equipped with RFID tag that holds lamp typical information.
Data rate	up to 80 Hz	
Wavelength range	190 – 950 nm	
Short term noise (ASTM) Single and Multi-Wavelength	< ± $0.7 \cdot 10^{-5}$ AU at 254 and 750 nm	see *"Specification Conditions"* below
Drift	< $0.9 \cdot 10^{-3}$ AU/h at 254 nm	see *"Specification Conditions"* below
Linear absorbance range	> 2 AU (5 %) at 265 nm	see *"Specification Conditions"* below
Wavelength accuracy	± 1 nm	Self-calibration with deuterium lines, verification with holmium oxide filter
Wavelength bunching	1 – 400 nm	Programmable in steps of 1 nm
Slit width	1, 2, 4 , 8, 16 nm	Programmable slit
Diode width	< 1 nm	

Table 96 Performance Specifications G1315C

Type	Specification	Comments
Flow cells	Standard: 13 µL volume, 10 mm cell path length and 120 bar (1740 psi) pressure maximum Standard bio-inert: 13 µL volume, 10 mm cell path length and 120 bar (1740 psi) pressure maximum Semi-micro: 5 µL volume, 6 mm cell path length and 120 bar (1740 psi) pressure maximum Micro: 2 µL volume, 3 mm cell path length, 120 bar (1740 psi) pressure maximum Semi-nano: 500 nL volume, 10 mm cell path length and 50 bar (725 psi) pressure maximum Nano: 80 nL volume, 6 mm cell path length and 50 bar (725 psi) pressure maximum High pressure: 1.7 µL volume, 6 mm cell path length and 400 bar (5800 psi) pressure maximum Prep SST: 3 mm cell path length and 120 bar (1740 psi) pressure maximum Prep Quartz:0.3 mm cell path length and 20 bar (290 psi) pressure maximum Prep Quartz: 0.06 mm cell path length and 20 bar (290 psi) pressure maximum	All flow cells are equipped with RFID tags that hold cell typical information. pH range 1.0—9.5 (12.5 solvent dependent with bio-inert version)
Time programmable	Wavelength, polarity, peak width, lamp bandwidth, autobalance, wavelength range, threshold, spectra storage mode	
Spectral tools	Data analysis software for spectra evaluation, including spectral libraries and peak purity functions	

Table 96 Performance Specifications G1315C

Type	Specification	Comments
Control and data evaluation	Agilent ChemStation for LC (32-bit)	For 1260 systems: • Revision B.04.02 DSP2 or above For 1100/1200 systems: • Revision B.01.03 or above
Local Control	Agilent Instant Pilot (G4208A)	For 1260 systems: • B.02.11 or above For other systems: • B.02.09 or above
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 – 2 AU, two outputs	
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN	
Safety and maintenance	Extensive diagnostics, error detection and display (through control module and ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	
GLP features	RFID for electronics records of flow cell and UV lamp conditions (path length, volume, product number, serial number, test passed, usage) Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-setable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with built-in holmium oxide filter.	
Housing	All materials recyclable.	
Others	Electronic temperature control (ETC) for the complete optical unit	

Specification Conditions

ASTM: “Standard Practice for Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.

Reference conditions: cell path length 10 mm, wavelength 254 and 750 nm with reference wavelength 360 nm/100 nm, slit width 4 nm, time constant 2 s (equal to response time 4 s), flow 1 mL/min LC-grade Methanol.

Linearity: Linearity is measured with caffeine at 265 nm/4 nm with slit width 4 nm and TC 2 s (or with RT 4 s) with 10 mm pathlength.

For environmental conditions refer to *"Environment"*.

NOTE The specifications are based on the standard RFID tag lamp (2140-0820) and may be not achieved when other lamp types or aged lamps are used.

NOTE Mobile devices used close to the intstrument could affect the detector's short term noise level.

ASTM drift tests require a temperature change below 2 °C/hour (3.6 °F/hour) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift. Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1 °C/hour (1.8 °F/hour). Turbulences around one minute or less can be ignored.

Performance tests should be done with a completely warmed up optical unit (> two hours). ASTM measurements require that the detector should be turned on at least 24 h before start of testing.

Time Constant versus Response Time

According to ASTM E1657-98 „Standard Practice of Testing Variable-Wavelength Photometric Detectors Used in Liquid Chromatography” the time constant is converted to response time by multiplying by the factor 2.2.

Agilent 1260 Infinity Diode Array Detector VL (G1315D)

Table 97 Physical Specifications

Type	Specification	Comments
Weight	11.5 kg (26 lbs)	
Dimensions (height × width × depth)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	160 VA / 160 W / 546 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Performance Specifications G1315D

Table 98 Performance Specifications G1315D

Type	Specification	Comments
Detection type	1024-element photodiode array	
Light source	Deuterium and tungsten lamps	The UV-lamp is equipped with RFID tag that holds lamp typical information.
Data rate	up to 20 Hz	
Wavelength range	190 – 950 nm	
Short term noise (ASTM) Single and Multi-Wavelength	< ± $0.7 \cdot 10^{-5}$ AU at 254 and 750 nm	see *"Specification Conditions"* below
Drift	< $0.9 \cdot 10^{-3}$ AU/h at 254 nm	see *"Specification Conditions"* below
Linear absorbance range	> 2 AU (5 %) at 265 nm	see *"Specification Conditions"* below
Wavelength accuracy	± 1 nm	Self-calibration with deuterium lines, verification with holmium oxide filter
Wavelength bunching	1 – 400 nm	Programmable in steps of 1 nm
Slit width	1, 2, 4 , 8, 16 nm	Programmable slit
Diode width	< 1 nm	

Table 98 Performance Specifications G1315D

Type	Specification	Comments
Flow cells	Standard: 13 µL volume, 10 mm cell path length and 120 bar (1740 psi) pressure maximum Standard bio-inert: 13 µL volume, 10 mm cell path length and 120 bar (1740 psi) pressure maximum Semi-micro: 5 µL volume, 6 mm cell path length and 120 bar (1740 psi) pressure maximum Micro: 2 µL volume, 3 mm cell path length, 120 bar (1740 psi) pressure maximum Semi-nano: 500 nL volume, 10 mm cell path length and 50 bar (725 psi) pressure maximum Nano: 80 nL volume, 6 mm cell path length and 50 bar (725 psi) pressure maximum High pressure: 1.7 µL volume, 6 mm cell path length and 400 bar (5800 psi) pressure maximum Prep SST: 3 mm cell path length and 120 bar (1740 psi) pressure maximum Prep Quartz:0.3 mm cell path length and 20 bar (290 psi) pressure maximum Prep Quartz: 0.06 mm cell path length and 20 bar (290 psi) pressure maximum	All flow cells are equipped with RFID tags that hold cell typical information. pH range 1.0—9.5 (12.5 solvent dependent with bio-inert version)
Time programmable	Wavelength, polarity, peak width, lamp bandwidth, autobalance, wavelength range, threshold, spectra storage mode	
Spectral tools	Data analysis software for spectra evaluation, including spectral libraries and peak purity functions	

Table 98 Performance Specifications G1315D

Type	Specification	Comments
Control and data evaluation	Agilent ChemStation for LC (32-bit)	For 1260 systems: • Revision B.04.02 DSP2 or above For 1100/1200 systems: • Revision B.01.03 SR-2 / B.02.01 SR-2 or above
Local Control	Agilent Instant Pilot (G4208A)	For 1260 systems: • B.02.11 or above For other systems: • B.02.09 or above
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 – 2 AU, two outputs	
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN	
Safety and maintenance	Extensive diagnostics, error detection and display (through control module and ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	
GLP features	RFID for electronics records of flow cell and UV lamp conditions (path length, volume, product number, serial number, test passed, usage) Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-setable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with built-in holmium oxide filter.	
Housing	All materials recyclable.	
Others	Electronic temperature control (ETC) for the complete optical unit	

Specification Conditions

ASTM: “Standard Practice for Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.

Reference conditions: cell path length 10 mm, wavelength 254 and 750 nm with reference wavelength 360 nm/100 nm, slit width 4 nm, time constant 2 s (equal to response time 4 s), flow 1 mL/min LC-grade Methanol.

Linearity: Linearity is measured with caffeine at 265 nm/4 nm with slit width 4 nm and TC 2 s (or with RT 4 s) with 10 mm pathlength.

For environmental conditions refer to *"Environment"*.

NOTE The specifications are based on the standard RFID tag lamp (2140-0820) and may be not achieved when other lamp types or aged lamps are used.

NOTE Mobile devices used close to the intstrument could affect the detector's short term noise level.

ASTM drift tests require a temperature change below 2 °C/hour (3.6 °F/hour) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift. Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1 °C/hour (1.8 °F/hour). Turbulences around one minute or less can be ignored.

Performance tests should be done with a completely warmed up optical unit (> two hours). ASTM measurements require that the detector should be turned on at least 24 h before start of testing.

Time Constant versus Response Time

According to ASTM E1657-98 „Standard Practice of Testing Variable-Wavelength Photometric Detectors Used in Liquid Chromatography” the time constant is converted to response time by multiplying by the factor 2.2.

Agilent 1260 Infinity Multiple Wavelength Detector (G1365C)

Table 99 Physical Specifications

Type	Specification	Comments
Weight	11.5 kg (26 lbs)	
Dimensions (height × width × depth)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	160 VA / 160 W / 546 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Performance Specifications G1365C

Table 100 Performance Specifications G1365C

Type	Specification	Comments
Detection type	1024-element photodiode array	
Light source	Deuterium and tungsten lamps	The UV-lamp is equipped with RFID tag that holds lamp typical information.
Data rate	up to 80 Hz	
Wavelength range	190 – 950 nm	
Short term noise (ASTM) Single and Multi-Wavelength	< ± $0.7 \cdot 10^{-5}$ AU at 254 and 750 nm	see *"Specification Conditions"* below
Drift	< $0.9 \cdot 10^{-3}$ AU/h at 254 nm	see *"Specification Conditions"* below
Linear absorbance range	> 2 AU (5 %) at 265 nm	see *"Specification Conditions"* below
Wavelength accuracy	± 1 nm	Self-calibration with deuterium lines, verification with holmium oxide filter
Wavelength bunching	1 – 400 nm	Programmable in steps of 1 nm
Slit width	1, 2, 4 , 8, 16 nm	Programmable slit
Diode width	< 1 nm	

Table 100 Performance Specifications G1365C

Type	Specification	Comments
Flow cells	Standard: 13 µL volume, 10 mm cell path length and 120 bar (1740 psi) pressure maximum Standard bio-inert: 13 µL volume, 10 mm cell path length and 120 bar (1740 psi) pressure maximum Semi-micro: 5 µL volume, 6 mm cell path length and 120 bar (1740 psi) pressure maximum Micro: 2 µL volume, 3 mm cell path length, 120 bar (1740 psi) pressure maximum Semi-nano: 500 nL volume, 10 mm cell path length and 50 bar (725 psi) pressure maximum Nano: 80 nL volume, 6 mm cell path length and 50 bar (725 psi) pressure maximum High pressure: 1.7 µL volume, 6 mm cell path length and 400 bar (5800 psi) pressure maximum Prep SST: 3 mm cell path length and 120 bar (1740 psi) pressure maximum Prep Quartz:0.3 mm cell path length and 20 bar (290 psi) pressure maximum Prep Quartz: 0.06 mm cell path length and 20 bar (290 psi) pressure maximum	All flow cells are equipped with RFID tags that hold cell typical information. pH range 1.0—9.5 (12.5 solvent dependent with bio-inert version)
Time programmable	Wavelength, polarity, peak width, lamp bandwidth, autobalance, wavelength range, threshold, spectra storage mode	
Spectral tools	Data analysis software for spectra evaluation, including spectral libraries and peak purity functions	

Table 100 Performance Specifications G1365C

Type	Specification	Comments
Control and data evaluation	Agilent ChemStation for LC (32-bit)	For 1260 systems: • Revision B.04.02 DSP2 or above For 1100/1200 systems: • Revision B.01.03 or above
Local Control	Agilent Instant Pilot (G4208A)	For 1260 systems: • B.02.11 or above For other systems: • B.02.09 or above
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 – 2 AU, two outputs	
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN	
Safety and maintenance	Extensive diagnostics, error detection and display (through control module and ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	
GLP features	RFID for electronics records of flow cell and UV lamp conditions (path length, volume, product number, serial number, test passed, usage) Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-setable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with built-in holmium oxide filter.	
Housing	All materials recyclable.	
Others	Electronic temperature control (ETC) for the complete optical unit	

Specification Conditions

ASTM: “Standard Practice for Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.

Reference conditions: cell path length 10 mm, wavelength 254 and 750 nm with reference wavelength 360 nm/100 nm, slit width 4 nm, time constant 2 s (equal to response time 4 s), flow 1 mL/min LC-grade Methanol.

Linearity: Linearity is measured with caffeine at 265 nm/4 nm with slit width 4 nm and TC 2 s (or with RT 4 s) with 10 mm pathlength.

For environmental conditions refer to *"Environment"*.

NOTE The specifications are based on the standard RFID tag lamp (2140-0820) and may be not achieved when other lamp types or aged lamps are used.

NOTE Mobile devices used close to the intstrument could affect the detector's short term noise level.

ASTM drift tests require a temperature change below 2 °C/hour (3.6 °F/hour) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift. Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1 °C/hour (1.8 °F/hour). Turbulences around one minute or less can be ignored.

Performance tests should be done with a completely warmed up optical unit (> two hours). ASTM measurements require that the detector should be turned on at least 24 h before start of testing.

Time Constant versus Response Time

According to ASTM E1657-98 „Standard Practice of Testing Variable-Wavelength Photometric Detectors Used in Liquid Chromatography” the time constant is converted to response time by multiplying by the factor 2.2.

Agilent 1260 Infinity Multiple Wavelength Detector VL (G1365D)

Table 101 Physical Specifications

Type	Specification	Comments
Weight	11.5 kg (26 lbs)	
Dimensions (height × width × depth)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	160 VA / 160 W / 546 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Performance Specifications G1365D

Table 102 Performance Specifications G1365D

Type	Specification	Comments
Detection type	1024-element photodiode array	
Light source	Deuterium and tungsten lamps	The UV-lamp is equipped with RFID tag that holds lamp typical information.
Data rate	up to 20 Hz	
Wavelength range	190 – 950 nm	
Short term noise (ASTM) Single and Multi-Wavelength	< ± $0.7 \cdot 10^{-5}$ AU at 254 and 750 nm	see *"Specification Conditions"* below
Drift	< $0.9 \cdot 10^{-3}$ AU/h at 254 nm	see *"Specification Conditions"* below
Linear absorbance range	> 2 AU (5 %) at 265 nm	see *"Specification Conditions"* below
Wavelength accuracy	± 1 nm	Self-calibration with deuterium lines, verification with holmium oxide filter
Wavelength bunching	1 – 400 nm	Programmable in steps of 1 nm
Slit width	1, 2, 4 , 8, 16 nm	Programmable slit
Diode width	< 1 nm	

Table 102 Performance Specifications G1365D

Type	Specification	Comments
Flow cells	Standard: 13 µL volume, 10 mm cell path length and 120 bar (1740 psi) pressure maximum Standard bio-inert: 13 µL volume, 10 mm cell path length and 120 bar (1740 psi) pressure maximum Semi-micro: 5 µL volume, 6 mm cell path length and 120 bar (1740 psi) pressure maximum Micro: 2 µL volume, 3 mm cell path length, 120 bar (1740 psi) pressure maximum Semi-nano: 500 nL volume, 10 mm cell path length and 50 bar (725 psi) pressure maximum Nano: 80 nL volume, 6 mm cell path length and 50 bar (725 psi) pressure maximum High pressure: 1.7 µL volume, 6 mm cell path length and 400 bar (5800 psi) pressure maximum Prep SST: 3 mm cell path length and 120 bar (1740 psi) pressure maximum Prep Quartz:0.3 mm cell path length and 20 bar (290 psi) pressure maximum Prep Quartz: 0.06 mm cell path length and 20 bar (290 psi) pressure maximum	All flow cells are equipped with RFID tags that hold cell typical information. pH range 1.0—9.5 (12.5 solvent dependent with bio-inert version)
Time programmable	Wavelength, polarity, peak width, lamp bandwidth, autobalance, wavelength range, threshold, spectra storage mode	
Spectral tools	Data analysis software for spectra evaluation, including spectral libraries and peak purity functions	

Table 102 Performance Specifications G1365D

Type	Specification	Comments
Control and data evaluation	Agilent ChemStation for LC (32-bit)	For 1260 systems: • Revision B.04.02 DSP2 or above For 1100/1200 systems: • Revision B.01.03 SR-2 / B.02.01 SR-2 or above
Local Control	Agilent Instant Pilot (G4208A)	For 1260 systems: • B.02.11 or above For other systems: • B.02.09 or above
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 – 2 AU, two outputs	
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN	
Safety and maintenance	Extensive diagnostics, error detection and display (through control module and ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	
GLP features	RFID for electronics records of flow cell and UV lamp conditions (path length, volume, product number, serial number, test passed, usage) Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-setable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with built-in holmium oxide filter.	
Housing	All materials recyclable.	
Others	Electronic temperature control (ETC) for the complete optical unit	

Specification Conditions

ASTM: “Standard Practice for Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.

Reference conditions: cell path length 10 mm, wavelength 254 and 750 nm with reference wavelength 360 nm/100 nm, slit width 4 nm, time constant 2 s (equal to response time 4 s), flow 1 mL/min LC-grade Methanol.

Linearity: Linearity is measured with caffeine at 265 nm/4 nm with slit width 4 nm and TC 2 s (or with RT 4 s) with 10 mm pathlength.

For environmental conditions refer to *"Environment"*.

NOTE The specifications are based on the standard RFID tag lamp (2140-0820) and may be not achieved when other lamp types or aged lamps are used.

NOTE Mobile devices used close to the intstrument could affect the detector's short term noise level.

ASTM drift tests require a temperature change below 2 °C/hour (3.6 °F/hour) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift. Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1 °C/hour (1.8 °F/hour). Turbulences around one minute or less can be ignored.

Performance tests should be done with a completely warmed up optical unit (> two hours). ASTM measurements require that the detector should be turned on at least 24 h before start of testing.

Time Constant versus Response Time

According to ASTM E1657-98 „Standard Practice of Testing Variable-Wavelength Photometric Detectors Used in Liquid Chromatography” the time constant is converted to response time by multiplying by the factor 2.2.

Agilent 325 UV/VIS Dual Wavelength Detector

Physical Specifications

Table 103 Specifications Agilent 325 Detector

Type	Specification	Comments
Rated Voltage	100 – 240 VAC ±10 %, 50 /60 Hz ±1 Hz single phase	
Power consumption	130 VA	Maximum
Ambient operating temperature	10 – 35 °C (50 – 95 °F)	
Ambient non-operating temperature	-20 – 65 °C (-4 – 149 °F)	
Ambient laboratory temperature	20 – 25 °C (68 – 77 F) ± 2 °C (35.6 F)	
Humidity	5 – 95 %	
Operating altitude	2000 m (6562 feet)	
Weight	15.5 kg (34.2 lbs)	
Weight (Packed)	21 kg (46.3 lbs)	
Size (height x width x depth)	212 x 296 x 475 mm (8.3 x 11.7 x 18.7 in)	
Packaged Size (height x width x depth)	385 x 460 x 775 mm (15.2 x 18.1 x 30.5 in)	
Safety standards: IEC, CSA, UL	Overvoltage Category II, Pollution Degree 2	For indoor use only.

Performance Specifications

Table 104 Performance specifications Agilent 325 Detector

Type	Specification
Diagnostics	Built-in self-test and diagnostics
Time programming	• Time programmable wavelength • Recorder attenuation • Auto-zero • Response time (programmable at time = zero only) • Peaksense • Timeslice • Pulse and external event relays • Method storage
Wavelength	UV (Deuterium) lamp and visible (quartz halogen) lamp, 190 – 900 nm
Flowcell	Optional • 9 x 0 mm • 9 x 1 mm • 4 x 0 mm • 4 x 0.15 mm • 4 x 0.25 mm
Pressure	69 bar (1000 psi) maximum on flowcells
Response time	0.05 s, 0.5 s, 1.0 s, 2.0 s
Spectral bandwidth	5 nm
Recorder output	1 V FS
Data System output	1 V FS
Peak sensing	The following events will activate the Peak Sense relay and generate event marks on the recorder chart: • Peak Start • Peak End • Valley • Time Slice • Pulse

Table 104 Performance specifications Agilent 325 Detector

Type	Specification
External communication	To other instruments using synchronization cables.
Mains inlet coupler	3/2 A 120/150 VAC 50 – 60 Hz IEC type
Mains power cord	• Australia: 10 A250 VAC complies with AS3112 • USA: 10 A125 VAC complies with NEMA 5-15P • Europe: 6 A250 VACcomplies with CEE7 sheet vii or NFC61.303VA
Rear connectors	• J1 Comm: Ethernet TCP/IP RJ-45 type connector (system connection) • J14 Analog out: female 9-pin D-range connector • J4 Relay out: female 15-pin D-range connector • P9 Sync signals: male 15-pin D-range connector • J10 Sync signals: female 9-pin D-range connector
Contact closure outputs	• 4 time progammable external event relays • 1 peak sense relay • 3 synchronization signals (READY OUT, START OUT, FAULT OUT)
Contact closure inputs	• 3 synchronization signals (READY IN, START IN, FAULT IN) • LAMP OFF and AUTO-ZERO
Bus communication	The Agilent 325 UV/VIS Dual Wavelength Detector will communicate with OpenLAB by means of Ethernet.
Fuses	T3.15AH250V (5 x 20 mm) IEC 127 Sheet 5[1] (5 x 20 mm)

[1] Fuse information on the rear of the instrument is the most up-to-date.



4
Special Detectors

Agilent 1260 Infinity Fluorescence Detector (G1321B SPECTRA) 164
Agilent 1260 Infinity Fluorescence Detector (G1321C) 168
Agilent 1260 Infinity Refractive Index Detector (G1362A) 172
Agilent 1260 Infinity Evaporative Light Scattering Detector (G4260B) 175
Agilent 1290 Infinity Evaporative Light Scattering Detector (G4261B) 178

Agilent 1260 Infinity Fluorescence Detector (G1321B SPECTRA)

Table 105 Physical Specifications

Type	Specification	Comments
Weight	11.5 kg (26 lbs)	
Dimensions (height × width × depth)	140 x 345 × 435 mm (7 x 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	180 VA / 70 W / 239 BTU	Maximum
Ambient operating temperature	0 – 40 °C (32 – 104 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 106 Performance Specifications Agilent 1260 Infinity Fluorescence Detector (G1321B)

Type	Specification	Comments
Detection type	Multi-signal fluorescence detector with rapid on-line scanning capabilities and spectral data analysis	
Performance specifications	Single wavelength operation: • RAMAN (H_2O) > 500 (noise reference measured at signal) Ex=350 nm, Em=397 nm, dark value 450 nm, standard flow cell • RAMAN (H_2O) > 3000 (noise reference measured at dark value) Ex=350 nm, Em=397 nm, dark value 450 nm, standard flow cell Dual wavelength operation: RAMAN (H_2O) > 300 Ex 350 nm, Em 397 nm and Ex 350 nm, Em 450 nm, standard flow cell.	see note below this table
Light source	Xenon Flash Lamp, normal mode 20 W, economy mode 5 W, lifetime 4000 h	
Pulse frequency	296 Hz for single signal mode 74 Hz for economy mode	
Maximum data rate	74 Hz, 145 Hz	145 Hz with firmware A.06.54 and above
Excitation monochromator	Range: settable 200 nm - 1200 nm and zero-order Bandwidth: 20 nm (fixed) Monochromator: concave holographic grating, F/1.6, blaze: 300 nm	
Emission monochromator	Range: settable 200 nm - 1200 nm and zero-order Bandwidth: 20 nm (fixed) Monochromator: concave holographic grating, F/1.6, blaze: 400 nm	
Reference system	in-line excitation measurement	

Table 106 Performance Specifications Agilent 1260 Infinity Fluorescence Detector (G1321B)

Type	Specification	Comments
Timetable programing	up to 4 signal wavelengths, response time, PMT Gain, baseline behavior (append, free, zero), spectral parameters	
Spectrum acquisition	Excitation or Emission spectra Scan speed: 28 ms per datapoint (e.g. 0.6 s/spectrum 200 – 400 nm, 10 nm step) Step size: 1 – 20 nm Spectra storage: All	
Wavelength characteristic	Repeatability +/- 0.2 nm Accuracy +/- 3 nm setting	
Flow cells	Standard: 8 µL volume and 20 bar (2 MPa) pressure maximum, fused silica block Optional: • Fluorescence cuvette for offline spectroscopic measurements with 1 mL syringe, 8 µL volume • Bio-inert: 8 µL volume and 20 bar (2 MPa) pressure maximum, (pH 1–12) • Micro: 4 µL volume and 20 bar (2 MPa) pressure maximum	
Control and data evaluation	Agilent ChemStation for LC, Agilent Instant Pilot G4208A with limited spectral data analysis and printing of spectra	
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range > 100 LU, two outputs	100 LU is the recommended range, see *"FLD Scaling Range and Operating Conditions"*
Communications	Controller-area network (CAN), RS-232C, LAN, APG Remote: ready, start, stop and shut-down signals	

Table 106 Performance Specifications Agilent 1260 Infinity Fluorescence Detector (G1321B)

Type	Specification	Comments
Safety and maintenance	Extensive support for troubleshooting and maintenance is provided by the Instant Pilot, Agilent Lab Advisor, and the Chromatography Data System. Safety-related features are leak detection, safe leak handling, leak output signal for shutdown of pumping system, and low voltages in major maintenance areas.	
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-settable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy, using the Raman band of water.	
Housing	All materials recyclable.	
Environment	0 – 40 °C constant temperature at <95 % humidity (non-condensing)	
Dimensions	140 mm x 345 mm x 435 mm (5.5 x 13.5 x 17 inches) (height x width x depth)	
Weight	11.5 kg (25.5 lbs)	

Agilent 1260 Infinity Fluorescence Detector (G1321C)

Table 107 Physical Specifications

Type	Specification	Comments
Weight	11.5 kg (26 lbs)	
Dimensions (height × width × depth)	140 x 345 × 435 mm (7 x 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	180 VA / 70 W / 239 BTU	Maximum
Ambient operating temperature	0 – 40 °C (32 – 104 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 108 Performance Specifications Agilent 1260 Infinity Fluorescence Detector (G1321C)

Type	Specification	Comments
Detection type	One signal wavelength (excitation and emission)	Programmable single wavelength (excitation and emission) fluorescence detector
Performance specifications	Single wavelength operation: • RAMAN (H_2O) > 500 (noise reference measured at signal) Ex=350 nm, Em=397 nm, dark value 450 nm, standard flow cell • RAMAN (H_2O) > 3000 (noise reference measured at dark value) Ex=350 nm, Em=397 nm, dark value 450 nm, standard flow cell	see note below this table
Light source	Xenon Flash Lamp, normal mode 20 W, economy mode 5 W, lifetime 4000 h	
Pulse frequency	296 Hz for single signal mode 74 Hz for economy mode	
Maximum data rate	74 Hz	
Excitation monochromator	Range: settable 200 nm - 1200 nm and zero-order Bandwidth: 20 nm (fixed) Monochromator: concave holographic grating, F/1.6, blaze: 300 nm	
Emission monochromator	Range: settable 200 nm - 1200 nm and zero-order Bandwidth: 20 nm (fixed) Monochromator: concave holographic grating, F/1.6, blaze: 400 nm	
Reference system	in-line excitation measurement	
Timetable programing	up to 4 signal wavelengths, response time, PMT Gain, baseline behavior (append, free, zero), spectral parameters	

Table 108 Performance Specifications Agilent 1260 Infinity Fluorescence Detector (G1321C)

Type	Specification	Comments
Wavelength characteristic	Repeatability +/- 0.2 nm Accuracy +/- 3 nm setting	
Flow cells	Standard: 8 µL volume and 20 bar (2 MPa) pressure maximum, fused silica block Optional: • Fluorescence cuvette for offline spectroscopic measurements with 1 mL syringe, 8 µL volume • Bio-inert: 8 µL volume and 20 bar (2 MPa) pressure maximum, (pH 1–12) • Micro: 4 µL volume and 20 bar (2 MPa) pressure maximum	
Control and data evaluation	Agilent ChemStation for LC, Agilent Instant Pilot G4208A with limited spectral data analysis and printing of spectra	
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range > 100 LU, two outputs	100 LU is the recommended range, see *"FLD Scaling Range and Operating Conditions"*
Communications	Controller-area network (CAN), RS-232C, LAN, APG Remote: ready, start, stop and shut-down signals	
Safety and maintenance	Extensive support for troubleshooting and maintenance is provided by the Instant Pilot, Agilent Lab Advisor, and the Chromatography Data System. Safety-related features are leak detection, safe leak handling, leak output signal for shutdown of pumping system, and low voltages in major maintenance areas.	

Table 108 Performance Specifications Agilent 1260 Infinity Fluorescence Detector (G1321C)

Type	Specification	Comments
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-settable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy, using the Raman band of water.	
Housing	All materials recyclable.	
Environment	0 – 40 °C constant temperature at <95 % humidity (non-condensing)	
Dimensions	140 mm x 345 mm x 435 mm (5.5 x 13.5 x 17 inches) (height x width x depth)	
Weight	11.5 kg (25.5 lbs)	

Agilent 1260 Infinity Refractive Index Detector (G1362A)

Table 109 Physical Specifications

Type	Specification	Comments
Weight	17 kg (38 lbs)	
Dimensions (height × width × depth)	180 x 345 × 435 mm (7 x 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	160 VA / 65 W / 222 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 110 Performance Specifications Agilent 1260 Infinity Refractive Index Detector

Type	Specification	Comments
Detection type	Refractive Index	
Refractive index range	1.00 - 1.75 RIU, calibrated	
Measurement range	+/- 600 x 10^{-6} RIU	
Optical zeroing		via set screw
Optics temperature control	5 °C above ambient to 55 °C	
Sample cell	volume 8 µL maximum pressure 5 bar (0.5 Mpa) maximum flow rate 5 mL/min	
Valves	Automatic purge and automatic solvent recycle	
Volumes	Inlet port to sample cell 62 µL, inlet port to outlet port 590 µL	
Liquid contact materials	316 stainless steel, PTFE and quartz glass	
pH range	2.3 - 9.5	
Performance specifications	Short term noise < +/- 2.5 x 10^{-9} RIU Drift < 200 x 10^{-9} RIU/h	see note below this table
Time programmable parameters	polarity, peak width	
Maximum data rate	37 Hz	
Detector zero	automatic zero before analysis	
Control and data evaluation	Parameter entry, signal display, on-line help and diagnostics with the Agilent 1260 Infinity Control Module. Optional PCMCIA card for method, sequence and logbook storage and transfer. Agilent ChemStation for LC PC based software for control and data evaluation.	

Table 110 Performance Specifications Agilent 1260 Infinity Refractive Index Detector

Type	Specification	Comments
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range selectable, one output	
Communications	Controller-area network (CAN), LAN, RS-232C, APG Remote: ready, start, stop and shut-down signals	
Safety and maintenance	Extensive diagnostics, error detection and display (through control module and ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage with user-selectable limits and feedback messages. Electronic records of maintenance and errors. Automated operational qualification/performance verification (OQ/PV).	
Housing	All materials recyclable.	
Environment	0 to 55 °C constant temperature at < 95% humidity (non-condensing)	
Dimensions	180 mm x 345 mm x 435 mm (7 x 13.5 x 17 inches) (height x width x depth)	
Weight	17 kg (38 lbs)	

NOTE Based on ASTM method E-1303-95 Practice for Refractive Index Detectors used in Liquid Chromatography. Reference conditions; optics temperature 35 °C, response time 4 s, flow 1.0 mL/min LC-grade Water, restriction capillary, column compartment temperature 35 °C, Agilent on-line degasser G1322A, pump and thermostatted column compartment. Instrument equilibrated for 2 hours.

Agilent 1260 Infinity Evaporative Light Scattering Detector (G4260B)

Table 111 Physical Specifications

Type	Specification	Comments
Weight	11 kg	
Dimensions (height × width × depth)	415 x 200 x 450 mm (16.3 x 7.9 x 17.7 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	150 W (max)	Maximum
Ambient operating temperature	10–35 °C (50–95 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 80 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Performance Specifications

The instrument is suitable for indoor use only and is classified suitable under the following categories (EN 61010-1):2010

- Installation category II
- Pollution degree 2
- Safety class 1

Table 112 Performance Specification of the ELS Detector

Type	Specification
Light Source	
G4260B	LED 480 nm (Class 1 LED product)
G4261B	LASER 405 nm, 10 mW (Class 3B)
Detector	PMT with digital signal processing
Nebuliser	OFF, 25 – 90 °C
Evaporator	
Non-cooled	OFF, 25 – 120 °C
Cooled	OFF, 10 – 80 °C
Gas Flow Range	0.9 – 3.25 SLM (controlled gas shut-off)
Short Term Noise	for G4260B <0.2 mV, for G4261B <0.1 mV under specified condtions. See "Specification Conditions G4260B/G4261B" on page 177.
Drift	For both modules <1 mV/h under specified condtions. See "Specification Conditions G4260B/G4261B" on page 177.
Operating Pressure	60 – 100 psi (4 – 6.7 bar)
Eluent Flow range	0.2 – 5.0 mL/min
Digital Output	10, 40 or 80 Hz (24 bit)
Analogue Output	0 – 1.25 V FSD
Communication	Ethernet Serial (RS232) Remote Start Input Pump Stop: 1 Contact closure
PC control (software)	ELSD driver for Rev B ChemStation (RC.NET driver) ELSD driver for OpenLAB ChemStation edition ELSD driver for OpenLAB EZChrom edition ELSD Dimension Software
Remote operation	Remote Start Input
Safety features	Gas shut off Valve, Leak Detection, Laser Interlock

Specification Conditions G4260B/G4261B

ASTM: “Evaporative Light Scattering Detectors Used in Liquid Chromatography”.

Table 113 Reference conditions

Gas flow	1.6 SLM
Neb temperature	40 °C
Evaporator temperature	40 °C
PMT Gain	1
Data Rate	40 Hz
Smoothing	G4260B: (30) G4261B: (1)
Light Source intensity	100 %

ASTM drift tests require a temperature change below 2 °C/h (3.6 °F/h) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift. Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1 °C/h (1.8 °F/h). Turbulences around one minute or less can be ignored. ASTM measurements require that the detector should be turned on enough time before start of testing.

Agilent 1290 Infinity Evaporative Light Scattering Detector (G4261B)

Table 114 Physical Specifications

Type	Specification	Comments
Weight	13 kg	
Dimensions (height × width × depth)	415 x 200 x 450 mm (16.3 x 7.9 x 17.7 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	150 W (max)	Maximum
Ambient operating temperature	10–35 °C (50–95 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 80 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Performance Specifications

The instrument is suitable for indoor use only and is classified suitable under the following categories (EN 61010-1):2010

- Installation category II
- Pollution degree 2
- Safety class 1

Table 115 Performance Specification of the ELS Detector

Type	Specification
Light Source	
G4260B	LED 480 nm (Class 1 LED product)
G4261B	LASER 405 nm, 10 mW (Class 3B)
Detector	PMT with digital signal processing
Nebuliser	OFF, 25 – 90 °C
Evaporator	
Non-cooled	OFF, 25 – 120 °C
Cooled	OFF, 10 – 80 °C
Gas Flow Range	0.9 – 3.25 SLM (controlled gas shut-off)
Short Term Noise	for G4260B <0.2 mV, for G4261B <0.1 mV under specified condtions. See "Specification Conditions G4260B/G4261B" on page 180.
Drift	For both modules <1 mV/h under specified condtions. See "Specification Conditions G4260B/G4261B" on page 180.
Operating Pressure	60 – 100 psi (4 – 6.7 bar)
Eluent Flow range	0.2 – 5.0 mL/min
Digital Output	10, 40 or 80 Hz (24 bit)
Analogue Output	0 – 1.25 V FSD
Communication	Ethernet Serial (RS232) Remote Start Input Pump Stop: 1 Contact closure
PC control (software)	ELSD driver for Rev B ChemStation (RC.NET driver) ELSD driver for OpenLAB ChemStation edition ELSD driver for OpenLAB EZChrom edition ELSD Dimension Software
Remote operation	Remote Start Input
Safety features	Gas shut off Valve, Leak Detection, Laser Interlock

Specification Conditions G4260B/G4261B

ASTM: “Evaporative Light Scattering Detectors Used in Liquid Chromatography”.

Table 116 Reference conditions

Gas flow	1.6 SLM
Neb temperature	40 °C
Evaporator temperature	40 °C
PMT Gain	1
Data Rate	40 Hz
Smoothing	G4260B: (30) G4261B: (1)
Light Source intensity	100 %

ASTM drift tests require a temperature change below 2 °C/h (3.6 °F/h) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift. Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1 °C/h (1.8 °F/h). Turbulences around one minute or less can be ignored. ASTM measurements require that the detector should be turned on enough time before start of testing.



5
Thermostatted Column Compartment

Agilent 1290 Infinity Thermostatted Column Compartment (G1316C) 182
Agilent 1260 Infinity Thermostatted Column Compartment (G1316A) 184
Agilent 1220 Infinity LC Column Oven 186

Agilent 1290 Infinity Thermostatted Column Compartment (G1316C)

Table 117 Physical Specifications

Type	Specification	Comments
Weight	11.2 kg (22 lbs)	
Dimensions (height × width × depth)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	320 VA / 150W / 512 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 118 Performance Specifications Thermostatted Column Compartment

Type	Specification	Comments
Temperature range	10 degrees below ambient to 100 °C up to 80 °C: flow rates up to 5 ml/min up to 100 °C: flow rates up to 2.5 ml/min	
Temperature stability	± 0.05 °C	
Temperature accuracy	± 0.8 °C ± 0.5 °C	 With calibration
Column capacity	Three 30 cm	
Warm-up/cool-down time	5 min from ambient to 40 °C 10 min from 40 – 20 °C	
Dead volume	1.6 µl low dispersion heat exchanger 3 µl left heat exchanger 6 µl right heat exchanger	i.d. 0.12 mm (capillary kit available) i.d. 0.17 mm (standard)
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN via other modules	
Safety and maintenance	Extensive support for troubleshooting and maintenance is provided by the Instant Pilot, Agilent Lab Advisor, and the Chromatography Data System. Safety-related features are leak detection, safe leak handling, leak output signal for shutdown of pumping system, and low voltages in major maintenance areas.	
GLP features	Column-identification module for GLP documentation of column type	
Housing	All materials recyclable.	

NOTE All specifications are valid for distilled water at ambient temperature (25 °C), set point at 40 °C and a flow range from 0.2–5 ml/min.

Agilent 1260 Infinity Thermostatted Column Compartment (G1316A)

Table 119 Physical Specifications

Type	Specification	Comments
Weight	11.2 kg (22 lbs)	
Dimensions (height × width × depth)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	320 VA / 150W / 512 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 120 Performance Specifications Thermostatted Column Compartment

Type	Specification	Comments
Temperature range	10 degrees below ambient to 80 °C up to 80 °C: flow rates up to 5 mL/min	
Temperature stability	± 0.15 °C	
Temperature accuracy	± 0.8 °C ± 0.5 °C	With calibration
Column capacity	Three 30 cm	
Warm-up/cool-down time	5 minutes from ambient to 40 °C 10 minutes from 40 – 20 °C	
Dead volume	3 µL left heat exchanger 6 µL right heat exchanger	
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN via other 1260 Infinity module	
Safety and maintenance	Extensive diagnostics, error detection and display (through Instant Pilot and Agilent data system), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	
GLP features	Column-identification module for GLP documentation of column type.	
Housing	All materials recyclable	

NOTE All specifications are valid for distilled water at ambient temperature (25 °C), set point at 40 °C and a flow range from 0.2 –5 mL/min.

Agilent 1220 Infinity LC Column Oven

Table 121 Physical Specifications

Type	Specification	Comments
Weight	30 kg (66 lbs)	
Dimensions (height × width × depth)	640 × 370 × 420 mm (25.2 × 14.6 × 16.5 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	240 VA / 210 W / 717 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 122 Performance Specifications Agilent 1220 Infinity LC Column Oven

Type	Specification
Temperature range	5 °C above ambient to 60 °C 5 °C above ambient to 80 °C (min. FW Rev. B.06.50)
Temperature stability	± 0.15 °C, constant Composition and Flow Rate
Temperature accuracy	± 0.8 °C
Column capacity	one 25 cm column
Internal volume	6 µL



6
Degasser

Agilent 1260 Infinity Micro Degasser (G1379B) 190
Agilent 1260 Infinity Standard Degasser (G1322A) 192
Agilent 1260 Infinity High Performance Degasser Module (G4225A) 194

Agilent 1260 Infinity Micro Degasser (G1379B)

Table 123 Physical Specifications

Type	Specification	Comments
Weight	7 kg (16 lbs)	
Dimensions (height × width × depth)	80 x 345 × 435 mm (3.1 x 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	30 VA / 30 W / 102 BTU	Maximum
Ambient operating temperature	4–45 °C (39–113 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 124 Performance Specifications Agilent 1260 Infinity Vacuum Degasser

Type	Specification
Maximum flow rate	0 - 5 ml/min per channel
Number of channels	4
Internal volume per channel	Typically 1 ml per channel
Materials in contact with solvent	PTFE, FEP,PEEK
pH range	1 – 14
RS-232 output	For diagnostic purposes

Agilent 1260 Infinity Standard Degasser (G1322A)

Table 125 Physical Specifications

Type	Specification	Comments
Weight	7 kg (16 lbs)	
Dimensions (height × width × depth)	80 x 345 x 435 mm (3.1 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	30VA/30W/102BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F) [1]	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

[1] This temperature range represents the technical specifications for this instrument. The temperatures mentioned may not be suitable for all applications and all types of solvent.

Table 126 Performance Specifications Agilent 1260 Infinity Standard Degasser

Type	Specification
Maximum flow rate	10 mL/min per channel
Number of channels	4
Internal volume per channel	Typically 12 mL per channel
Materials in contact with solvent	PTFE, PEEK
pH range	1 – 14
Analog output (AUX)	For pressure monitoring, range 0 – 3 V

Agilent 1260 Infinity High Performance Degasser Module (G4225A)

Table 127 Physical Specifications

Type	Specification	Comments
Weight	5 kg (11 lbs)	
Dimensions (height × width × depth)	80 x 345 × 435 mm (3.1 x 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	30 VA / 30 W / 102 BTU	Maximum
Ambient operating temperature	0 – 55 °C (32 – 131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 128 Performance Specifications Agilent 1260 Infinity High Performance Degasser

Type	Specification
Number of solvent channels	4
Flow range	0 – 10 mL/min per channel
Internal volume per channel	0.45 mL per channel
Materials in contact with solvent	TFE/PDD Copolymer, FEP, PEEK
pH range	1 – 14

6 Degasser

Agilent 1260 Infinity High Performance Degasser Module (G4225A)



7
Valves

Agilent 1290 Infinity Flexible Cube (G4227A) 198
Agilent 1290 Infinity Valve Drive and Valve Heads (G1170A) 202

Agilent 1290 Infinity Flexible Cube (G4227A)

Table 129 Physical Specifications

Type	Specification	Comments
Weight	8.2 kg (18.1 lbs)	
Dimensions (height × width × depth)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	80 VA / 45W / 154 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 130 Performance Specifications

Type	Specification	Comment
Injection range	0.1 – 20 µL 0.1 – 40 µL 0.1 – 100 µL in 0.1 µL increments	With 20 mL loop installed With 40 mL loop installed With 100 mL loop installed (as provided by G4226A sampler)
Precision	Precision of G4226A sampler will not be influenced	
Accuracy	Accuracy of G4226A sampler will not be influenced	
Sampler pressure range	Up to 1200 bar	
Flush types available	Needle seat back-flushing Needle wash intern Needle wash extern	by G4227A Flexible Cube by G4226A sampler by G4226A sampler
Pressure range of flush pump	Up to 50 bar	
Flow rate of flush pump	Up to 4 mL/min	
Number of solvents	Up to 3 solvents	
Sample viscosity range	0.2 – 5 cp	
Flush time	Flush time depends on method-parameters used, e.g. number of solvents and selected flush-duration. Flushing is done in parallel to running analysis. Needle seat flush time to flush with 1 mL of solvent at maximum flow including solvent exchange typically requires 38 s.	
Carry over	Typically <0.001 % (10 ppm)	For measurement conditions, see [1,2,3,4]
Control and data evaluation	Agilent ChemStation for LC EZChrom Elite Masshunter	OpenLAB CDS ChemStation Edition C.01.04 OpenLAB CDS EZChrom Edition A.04.04 Masshunter B.05.01 TOF & Q-TOF Masshunter B.06.00 QQQ Modules require Firmware Set A/B/C.06.5x or higher and LC/CE Driver Version A.02.06

Table 130 Performance Specifications

Type	Specification	Comment
Local control	Agilent Instant Pilot (G4208A)	B.02.08 or later
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, optional four external contact closures and BCD vial number output.	
Safety and maintenance	Extensive diagnostics, error detection and display (through Control Module and ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage with user-settable limits and feedback messages. Electronic records of maintenance and errors.	
Housing	All materials recyclable.	

[1] Chromatographic conditions: Column: Agilent ZORBAX SB-C18, 2.1 x 50 mm 1.8 µm (827700-902); mobile phase: A: 0.1 % TFA in water, B: 0.1 % TFA in acetonitrile; isocratic : %B=35 %; flow rate: 0.5 mL/min; temperature: 30 °C

[2] Cleaning procedure: Wash solution: 2 min with water + 0.1 % TFA at 4 mL/min; needle wash with solvent A 15 s.

[3] UV-detection: Sample : 1200 ng/µl chlorhexidine (dissolved in mobile phase A), 1 µL injected and measured on G4212A DAD (10 mm cell); Wavelength: 257 nm +/- 4; ref. 360 nm +/- 16; slit 4 nm, 10 Hz

[4] MS-detection: Sample : 50 ng/µl chlorhexidine (dissolved in mobile phase A), 1 µL injected and measured on Agilent 6460 QQQ (in specified conditions); MRM 1: 505.5 → 170 (CE: 36 V); MRM 3: 505.5 → 201.2 (CE: 20 V); fragmentor: 150 V, delta EMV(+): 200 V

Table 131 Specifications Agilent Quick Change Valve Heads

Kit PN	Valve PN	Description	max. Pressure [bar]	Fittings	Port-Port Volume	Liquid Contact	pH Range
G4230A/B	5067-4107	8 pos/9 port high pressure valve head	600	10-32	0.55 µL	PEEK, SST	0-14[1]
G4230B	5067-4121	8 pos/9 port UHP valve head	1200	10-32	0.55 µL	Vespel, SST	0-10[2]
G4231A	5067-4137	2 pos/6 port valve head	600	10-32	0.51 µL	PEEK, SST	0-14[1]
G4231B	5067-4117	2 pos/6 port UHP valve head	1200	10-32	0.51 µL	Vespel, SST	0-10[2]
G4232A	5067-4144	2 pos/10 port micro valve head	600	M4	89.0 nL	PEEK, SST	0-14[1]
G4232B	5067-4118	2 pos/10 port UHP valve head	1200	10-32	0.22 µL	Vespel, SST	0-10[2]
G4234A	5067-4146	6 pos/14 port valve head for column selection	600	M4	special[3]	PEEK, SST	0-14[1]
G4234B	5067-4142	6 pos/14 port UHP valve head for column selection	1200	M4	special[3]	Vespel, SST	0-10[2]
G4235A	5067-4159	12 pos/13 port selection valve head (bio-inert)	210	10-32	16.4 µL	PEEK, Ceramic	0-14[1]
G5631A	5067-4148	2 pos/6 port valve head (bio-inert)	600	10-32	1.71 µL	PEEK, Ceramic	0-14[1]
G5639A	5067-4134	4 pos/10 port valve head for column selection (bio-inert)	600	10-32	special[3]	PEEK, Ceramic	0-14[1]

[1] incompatible with some mineral acids. For more information see Sovent Information.

[2] Incompatible with concentrated mineral acids, compatible with pH less than 10, compatible with most organics, may experience swelling with some organics containing functional groups such as nitro benzene, at elevated temperatures.

[3] pre-column volume G4234A/B: 0.51 µL, G5639A: 0.81 µL; post column volume G4234A/B: 1.28 µL, G5639A: 1.33 µL

Agilent 1290 Infinity Valve Drive and Valve Heads (G1170A)

Table 132 Physical Specifications

Type	Specification	Comments
Weight	1.9 kg (4.3 lbs)	
Dimensions (height × width × depth)	95 x 95 x 300 (3.7 x 3.7 x 11.8 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	20VA, 4W, 14BTU	
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 133 Performance Specifications Agilent 1290 Infinity Valve Drive

Type	Specification	Comments
External leak sensor	YES	Same functionality as internal sensor
Fuse	2.0 A250 V	High Breaking Capacity Fuse, exchangeable
Valve types	All Agilent Quick Change Valve heads	(refer to Table 134 on page 204)
Valve identification	By RFID tag	For valve type, pressure rating serial number, counter

Table 134 Specifications Agilent Quick Change Valve Heads

Kit PN	Valve PN	Description	max. Pressure [bar]	Fittings	Port-Port Volume	Liquid Contact	pH Range
G4230A/B	5067-4107	8 pos/9 port high pressure valve head	600	10-32	0.55 µL	PEEK, SST	0-14[1]
G4230B	5067-4121	8 pos/9 port UHP valve head	1200	10-32	0.55 µL	Vespel, SST	0-10[2]
G4231A	5067-4137	2 pos/6 port valve head	600	10-32	0.51 µL	PEEK, SST	0-14[1]
G4231B	5067-4117	2 pos/6 port UHP valve head	1200	10-32	0.51 µL	Vespel, SST	0-10[2]
G4232A	5067-4144	2 pos/10 port micro valve head	600	M4	89.0 nL	PEEK, SST	0-14[1]
G4232B	5067-4118	2 pos/10 port UHP valve head	1200	10-32	0.22 µL	Vespel, SST	0-10[2]
G4234A	5067-4146	6 pos/14 port valve head for column selection	600	M4	special[3]	PEEK, SST	0-14[1]
G4234B	5067-4142	6 pos/14 port UHP valve head for column selection	1200	M4	special[3]	Vespel, SST	0-10[2]
G4235A	5067-4159	12 pos/13 port selection valve head (bio-inert)	210	10-32	16.4 µL	PEEK, Ceramic	0-14[1]
G5631A	5067-4148	2 pos/6 port valve head (bio-inert)	600	10-32	1.71 µL	PEEK, Ceramic	0-14[1]
G5639A	5067-4134	4 pos/10 port valve head for column selection (bio-inert)	600	10-32	special[3]	PEEK, Ceramic	0-14[1]

[1] incompatible with some mineral acids. For more information see Sovent Information.

[2] Incompatible with concentrated mineral acids, compatible with pH less than 10, compatible with most organics, may experience swelling with some organics containing functional groups such as nitro benzene, at elevated temperatures.

[3] pre-column volume G4234A/B: 0.51 µL, G5639A: 0.81 µL; post column volume G4234A/B: 1.28 µL, G5639A: 1.33 µL

Shipping and Storage Temperature: -40 – 80 °C

NOTE Shipping, storing or operating this valve below 0 °C with water in the fluid passages may cause failure of the sealing surfaces.

NOTE Operating valves above their maximum pressure limit will harm them. Please set a corresponding max. pressure limit in your Chromatographic Data System if a valve is positioned in the high pressure path.



8
Miscellaneous

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Agilent 1200 Infinity Series Instant Pilot (G4208A)

Table 135 Physical Specifications

Type	Specification	Comments
Weight	0.8 kg (1.76 lbs)	
Dimensions (height × width × depth)	130 × 225 × 35 mm (5.1 × 8.9 × 1.4 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	6 W / 20.5 BTU	Maximum
Ambient operating temperature	0 – 55 °C (32 – 131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Agilent 1260 Infinity Analytical SFC System

System Specifications

Type	Specifications
Flow range	0.1 mL/min to 5 mL/min (settable), 1 mL/min to 5 mL/min (recommended)
Maximum operating pressure	600 bar
Upgrade possibility of existing 1100/1200/1260 LC	Yes
Option for SFC/UHPLC in one system	Yes
Unattended operation	Leak sensors, diagnostic software features

Agilent 1260 Infinity SFC Control Module (G4301A)

Agilent 1260 Infinity SFC Control Module

Select the laboratory bench space before your system arrives. Pay special attention to the total height requirements. Avoid bench space with overhanging shelves. Pay special attention to the total weight of the modules and solvents you have in addition to the Agilent 1260 Infinity SFC Control Module. Make sure that your laboratory bench can support this weight.

WARNING

Personal injury

The Agilent 1260 Infinity SFC Control Module module is heavy.

➔ Enlist the aid of a co-worker to share the lifting load to avoid personal injury.

Table 136 Physical Specifications (G4301A)

Type	Specification
Weight	26 kg 56 lbs
Dimensions (height × width × depth)	60 cm x 26 cm x 48 cm 23 in x 10 in x 18 in
Line voltage	100 - 240 VAC, ±10 %
Line frequency	50 - 60 Hz, ±5 %
Power consumption	700 VA Max
Operating temperature	15 - 30 °C
Non-operating temperature	-40 - 70 °C
Humidity	<95 %, at 40 °C, Non-condensing
Laboratory ventilation	minimum 6 air exchanges/hr for lab air; CO_2 monitor recommended w/ alarm @ 5000 ppm
Exhaust vent capacity	>20 L/min with sustained negative pressure
Operating altitude	up to 2000 m 6500 ft
Non-operating altitude	up to 4600 m 14950 ft
Safety standards	IEC, EN, CSA, UL Installation Category II, Pollution Degree II For Indoor Use only

The Agilent 1260 Infinity SFC Control Module is heavy (approximately 26 kg or 56 lbs). Enlist the aid of a co-worker to share the lifting load in order to avoid possible injury. It should be positioned on a sturdy bench capable of holding the total weight of the Agilent 1260 Infinity SFC Control Module plus the Agilent 1260 Infinity system.

Table 137 Chemical Specifications (G4301A)

Type	Specifications
Inlet CO_2 bulk purity	>99.99 % vapor; >99.999 % liquid
Inlet CO_2 phase	vapor from non-dip-tube high pressure cylinder; liquid from commercial CO_2 delivery system
Inlet CO_2 supply pressure	40 - 70 bar 580 - 1000 psi
Inlet CO_2 temperature	15 - 30 °C
Wash solvent	HPLC grade alcohol
Liquid coolant	30 % propylene glycol in deionized water; proprietary antioxidants; red dye added for safety
Coolant volume	< 280 mL

Table 138 Wetted Materials Specifications (G4301A)

Type	Specifications
High pressure flow path	300 and 400 series stainless steel PEEK, carbon filled PEEK PTFE, PTFE, FEP, CTFE UHMW PE ruby, sapphire, ceramic
Low pressure flow paths [waste, wash pump, leak tray]	316 stainless steel PEEK PTFE, PTFE, FEP, CTFE CPE; LDPE Tygon PVC
Vapor exhaust	Tygon PVC

Performance Specifications

Table 139 Performance Specifications (G4301A)

Type	Specifications
Hydraulic system	Single piston with proprietary motor control
Total hydraulic volume	<5 mL @ pressure <70 bar <25 mL @ pressure up to 400 bar
Chiller system	Thermoelectric cooling with secondary air/liquid cooling circuit
Back-Pressure Regulation (BPR) system	Low volume diaphragm type with proprietary drive control; replaceable BPR head assy; No recalibration required after head replacement
Chiller temperature	-20 – 9 °C
Booster pump speed range	0 – 6000 steps/sec average step rate
Booster pump pressure range	100 – 400 bar up to 5 mL/min demand
Pressure pulsation	<2 % amplitude at pump speed >300 steps/sec and outlet pressure >100 bar
BPR thermal range	40 - 70 °C 104 – 158 F
BPR thermal precision	±1 °C
BPR pressure range	100 – 400 bar
Back-pressure accuracy	±1 %
Back-pressure precision	±0.5 bar (±0.2 bar typical)
Back-pressure thermal precision	±1 °C
Control and data evaluation	Agilent ChemStation for LC with SFC Control Module driver; SFC Control Module Diagnostic Program
Analog in pressure monitoring	1 V FS; one input; range set by calibration to host pump
Communications	USB 2.0; APG Remote: ready, start, stop and shut-down signals; relay contact closure [wash pump only]

Agilent 1260 Infinity High Performance Degasser Module (G4225A)

Table 140 Physical Specifications

Type	Specification	Comments
Weight	5 kg (11 lbs)	
Dimensions (height × width × depth)	80 x 345 × 435 mm (3.1 x 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	30 VA / 30 W / 102 BTU	Maximum
Ambient operating temperature	0 – 55 °C (32 – 131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 141 Performance Specifications Agilent 1260 Infinity High Performance Degasser

Type	Specification
Number of solvent channels	4
Flow range	0 – 10 mL/min per channel
Internal volume per channel	0.45 mL per channel
Materials in contact with solvent	TFE/PDD Copolymer, FEP, PEEK
pH range	1 – 14

Agilent 1260 Infinity Diode Array Detector (G1315C) and Multiple Wavelength Detector (G1365C)

Table 142 Physical Specifications

Type	Specification	Comments
Weight	11.5 kg (26 lbs)	
Dimensions (height × width × depth)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	160 VA / 160 W / 546 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

NOTE

ASTM: “Standard Practice for Testing Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.

Reference conditions: cell path length 10 mm, time constant 1 s (equal to response time 2 s), flow 1 mL/min LC-grade Methanol, slit width 4 mm.

Linearity measured with caffeine at 265 mm.

Table 143 Performance Specifications

Type	Specification
Wavelength range	190 – 950 nm
Wavelength accuracy	±1 nm
Linearity range	2.0 AU at 265 nm
Noise, wet	±0.05 mAU under SFC conditions at 254 nm, 20 % MeOH/80 % CO_2 at optimum preconditioning temperature setting (typically between 37 °C and 40 °C for G1315C or G1365C). ±0.007 mAU under LC condition
Drift	0.9 mAU/h
Data rate	80 Hz
Cell pressure limit	400 bar
Cell path length	10 mm
Cell volume	13 µL

Agilent 1260 Infinity SFC Autosampler (G4303A)

Table 144 Physical Specifications

Type	Specification	Comments
Weight	15.5 kg (34.2 lbs)	
Dimensions (height × width × depth)	200 x 345 x 440 mm (8 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	300 VA / 200 W / 683 BTU	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 145 Performance Specifications

Type	Specification
Number of samples	100 x 2 mL vials, 30 x 6 mL vials
Injection volume	5 µL for full loop injections (5 µL loop as default) larger loops possible (10 µL, 20 µL), partial loop filling for smaller injection volumes
Injection principle	Fixed loop
Injection precision	<0.3 % RSD for 5 µL
Sample temperature control	4 – 40 °C with sample thermostat
Sample carryover	0.05 %

Agilent 1260 Infinity SFC Binary Pump (G4302A)

Table 146 Physical Specifications

Type	Specification	Comments
Weight	15.5 kg (34 lbs)	
Dimensions (height × width × depth)	180 x 345 x 435 mm (7 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	220 VA, 74 W / 253 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 147 Performance Specifications

Type	Specification
Number of co-solvents	1, with SSV pump option 3, with external SSV 12
Precision of flow rate	Same as G1312B, ≤0.07 %0.07 RSD or ≤0.02 min SD, whatever is greater based on retention time at constant room temperature
Precision of composition	Same As G1312B, <0.15 % RSD or <0.04 min SD whatever is greater

NOTE

For use with flow rates below 500 µL/min, or for use without damper and mixer, a vacuum degasser is required.

All specification measurements are done with degassed solvents.

Agilent 1290 Infinity Thermostatted Column Compartment (G1316C)

Table 148 Physical Specifications

Type	Specification	Comments
Weight	11.2 kg (22 lbs)	
Dimensions (height × width × depth)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	320 VA / 150W / 512 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 149 Performance Specifications

Type	Specification
Column	Up to 300 mm length x 4.6 mm ID (or less)
Column capacity	Up to 3, with additional 2 x TCCs up to 9
Switching valve	Optional (2/6, 2/10, 8/9, 6 column selector)
Temperature range	Ambient -10 °C to 100 °C
Column compartment temperature accuracy	±0.5 °C
Column compartment temperature stability	±0.05 °C
Active solvent pre-heating and post-conditioning	As standard
Automated method development	Optional

Agilent 1200 Infinity Series Universal Interface Box (G1390B)

Physical Specifications

Table 150 Physical Specifications

Type	Specification	Comments
Weight	0.9 kg (2 lbs)	
Dimensions (height × width × depth)	165 x 135 x 55 mm (6.5 x 5.3 x 2.2 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	140 VA	Maximum
Ambient operating temperature	4–55 °C (39–131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	For storing the module
Safety standards: IEC, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Technical and Performance Specifications

Table 151 Performance specifications

Type	Comment
High breaking capacity fuse	2.0 A, 250 V
Signal specifications:	
CAN	2-wire serial bus system
Analog-input	Input Range= -1 V to 1 V Resolution = 24 bit A/D-Converter Effective System Resolution = +/- 1 uV (rms)
GPIO	TTL compatible Input and Output Open collector characteristic Input voltage range 0 V to 5 V
Relay outputs	2 contact closure outputs and 2 double throw outputs I_{max} = 250 mA U_{max} = 30 V DC/AC The contacts are protected by a self-resetting PTC-fuse

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In This Book

The compendium contains specifications of Agilent 1200 Infinity Series modules:

- pumps
- injectors and fraction collectors
- UV-detectors
- special detectors
- thermostatted column compartments
- degassers
- valves

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Printed in Germany
12/2013

01200-90010
Rev. K

Agilent Technologies