

# Agilent 1200 Series Specification Compendium

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This compendium includes the specifications of all Agilent 1200 Series Modules.

The specifications can be printed separately for every single module as a specification sheet.





## Pumping Systems

### G1310A Isocratic Pump

#### Performance Specifications

**Table 1** Performance Specification Agilent 1200 Isocratic Pump

Type	Specification
Hydraulic system	Dual piston in series pump with proprietary servo-controlled variable stroke drive, floating pistons and active inlet valve
Setable flow range	0.001 – 10 ml/min, in 0.001 ml/min increments
Flow range	0.2 – 10.0 ml/min
Flow precision	$\leq 0.07\%$ RSD, or $\leq 0.02$ min SD whatever is greater, based on retention time at constant room temperature
Flow accuracy	$\pm 1\%$ or 10 $\mu$ l/min whatever is greater
Pressure	Operating range 0 – 40 MPa (0 – 400 bar, 0 – 5880 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 %), at 1 ml/min isopropanol, at all pressures > 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
Control and data evaluation	Agilent ChemStation for LC
Analog output	For pressure monitoring, 2 mV/bar, one output
Communications	Controller-area network (CAN), GPIB, RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN optional
Safety and maintenance	Extensive diagnostics, error detection and display (through control module and 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.

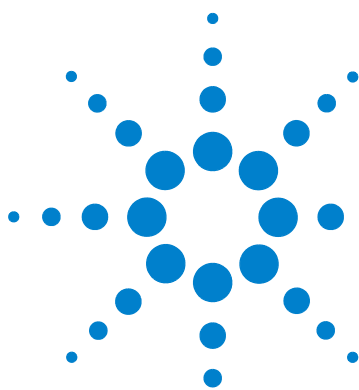


## Physical Specifications

**Table 2** Physical Specifications

Type	Specification	Comments
Weight	11 kg (25 lbs)	
Dimensions (height × weight × depth)	140 × 345 × 435 mm (5.5 × 13.5 × 17 inches)	
Line voltage	100 – 120 or 220 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	220 VA	Maximum
Ambient operating temperature	4 – 55 °C (41 – 131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	< 95 %, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the isocratic pump
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2	





## Pumping Systems

### G1311A Quaternary Pump

#### Performance Specifications

**Table 3** Performance Specification Agilent 1200 Quaternary Pump

Type	Specification
Hydraulic system	Dual plunger in series pump with proprietary servo-controlled variable stroke drive, floating plungers and active inlet valve
Setable flow range	0.001 – 10 ml/min, in 0.001 ml/min increments
Flow range	0.2 – 10.0 ml/min
Flow precision	$\leq 0.07\%$ RSD, or $\leq 0.02$ min SD whatever is greater, based on retention time at constant room temperature
Flow accuracy	$\pm 1\%$ or 10 $\mu$ l/min whatever is greater
Pressure	Operating range 0 – 40 MPa (0 – 400 bar, 0 – 5880 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 %), at 1 ml/min isopropanol, at all pressures > 1 MPa (10bar)
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 800 – 1100 $\mu$ l, 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
Control and data evaluation	Agilent ChemStation for LC
Analog output	For pressure monitoring, 2 mV/bar, one output
Communications	Controller-area network (CAN), GPIB, RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN optional
Safety and maintenance	Extensive diagnostics, error detection and display (through control module and Agilent ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.



**Table 3** Performance Specification Agilent 1200 Quaternary Pump(continued)

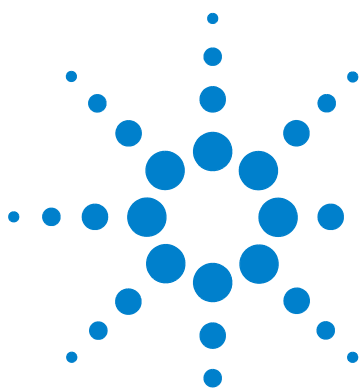
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of seal wear and volume of pumped mobile phase with user-settable limits and feedback messages. Electronic records of maintenance and errors.
Housing	All materials recyclable.

## Physical Specifications

**Table 4** Physical Specifications

Type	Specification	Comments
Weight	11 kg (25 lbs)	
Dimensions (height × weight × depth)	140 × 345 × 435 mm (5.5 × 13.5 × 17 inches)	
Line voltage	100–120 or 220–240 VAC, ± 10%	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5%	
Power consumption	220 VA	Maximum
Ambient operating temperature	4–55 °C (41–131 °F)	
Ambient non-operating temperature	-40–70 °C (-4–158 °F)	
Humidity	< 95%, at 25–40 °C (77–104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the quaternary pump
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2	





## Pumping Systems

### G1312A Binary Pump

#### Performance Specifications

**Table 5** Performance Specification Agilent 1200 Binary Pump

Type	Specification
Hydraulic system	Two dual piston in series pumps with proprietary servo-controlled variable stroke drive, floating piston design and active inlet valve
Setable flow range	Setpoints 0.001 – 5 ml/min, in 0.001 ml/min increments
Flow range	0.1 – 5.0 ml/min
Flow precision	$\leq 0.07\%$ RSD, or $\leq 0.02$ min SD whatever is greater, based on retention time at constant room temperature
Flow accuracy	$\pm 1\%$ or 10 $\mu$ l/min whatever is greater
Pressure	Operating range 0 400 bar (0 – 5880 psi) up to 5 ml/min
Pressure pulsation	< 2 % amplitude (typically < 1 %), at 1 ml/min isopropanol, at all pressures > 1 MPa
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 180 – 480 $\mu$ l without mixer, 600 – 900 $\mu$ l with mixer, dependent on back pressure
Composition range	1 – 99 % or 5 $\mu$ l/min per channel, whatever is greater
Composition precision	$\pm 0.5\%$ absolute
Composition accuracy	$\pm 0.15\%$ RSD, at 1 ml/min
Control and data evaluation	Agilent ChemStation for LC
Analog output	For pressure monitoring, 2 mV/bar, one output
Communications	Controller-area network (CAN), GPIB, RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN optional
Safety and maintenance	Extensive diagnostics, error detection and display (through handheld controllers G4208A, G1323B and Agilent ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.



**Table 5** Performance Specification Agilent 1200 Binary Pump(continued)

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.

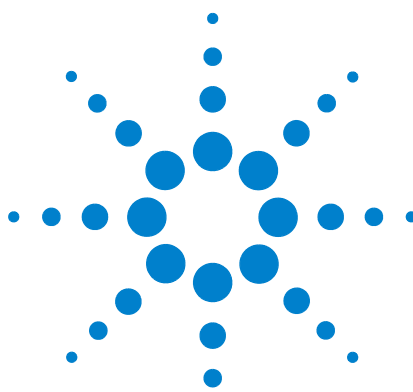
## Physical Specifications

**Table 6** Physical Specifications

Type	Specification	Comments
Weight	15.5 kg (34 lbs)	
Dimensions (height × weight × depth)	180 × 345 × 435 mm (7 × 13.5 × 17 inches)	
Line voltage	100 – 120 or 220 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	220 VA	Maximum
Ambient operating temperature	4 – 55 °C (41 – 131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	< 95 %, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the binary pump
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2	







## Pumping Systems

### G1312B Binary Pump SL

#### Performance Specifications

**Table 7** Performance Specifications of the Agilent 1200 Series Binary Pump SL

Type	Specification	Comments
Hydraulic system	Two dual piston in series pumps with proprietary servo-controlled variable stroke drive, floating piston design and active inlet valve	
Settable flow range	Setpoints 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	measured with water
Pressure	Operating range 0 – 600 bar (0 – 7800 psi) up to 5 ml/min	
Pressure pulsation	<b>Standard delay volume configuration:</b> < 2% amplitude (typically < 1%) <b>Low delay volume configuration:</b> < 5% amplitude (typically < 2%)	at 1 mL/min water, at all pressures > 1 MPa
Compressibility compensation	Automatic, 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	<b>Standard delay volume configuration:</b> 600-800 µl, dependent on back pressure (includes 400 µl mixer) <b>Low delay volume configuration:</b> 120 µl	measured with water
Composition range	settable range: 0 – 100% recommended range: 1 – 99% or 5 µl/min per channel, whatever is greater	
Composition precision	< 0.15 % RSD	at 1mL/min
Composition accuracy	± 0.35% absolute	(water/caffeine tracer)
Control	Agilent ChemStation for LC (32-bit) G4208A Handheld Controller EZ Chrom Elite	Revision B.02.00 or above



**Table 7** Performance Specifications of the Agilent 1200 Series Binary Pump SL(continued)

Type	Specification	Comments
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 LC Diagnostics), 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 pre-defined and user-settable limits and feedback messages. Electronic records of maintenance and errors.	
Housing	All materials recyclable.	

## Physical Specifications

**Table 8** Physical Specifications

Type	Specification	Comments
Weight	15.5 kg (34 lbs)	
Dimensions (width × depth × height)	180 × 345 × 435 mm (7 × 13.5 × 17 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz ± 5 %	
Power consumption (G1312B)	160 VA	Maximum
Ambient operating temperature	0 – 55 °C (32 – 131 °F)	.
Ambient non-operating temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	< 95%, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	storage conditions
Safety standards: IEC, CSA, UL, EN	Installation category II, pollution degree 2	





## Pumping Systems

### G1361A Preparative Pump

#### Performance Specifications

**Table 9** Performance Specification Agilent 1200 Series Preparative Pump

Type	Specification
Hydraulic system	Dual pistons in parallel
Settable flow range	0.001 – 100 ml/min
Flow precision	< 0.5 % RSD
Pressure range	20 to 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
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 control module and 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.

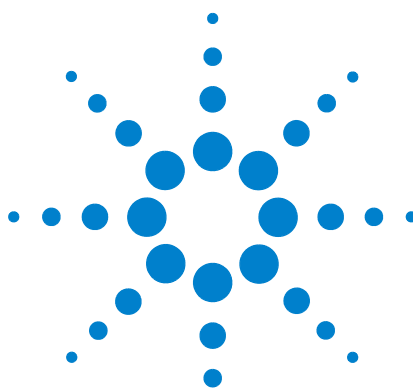


## Physical Specifications

**Table 10** Physical Specifications - Preparative Pump

Type	Specification	Comments
Weight	15.0 kg	
Dimensions (height × width × depth)	200 × 345 × 440 mm (8 × 13.5 × 18 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 – 60 Hz, ± 5 %	
Power consumption	250 VA	Maximum
Ambient operating temperature	4 – 40 °C (41 – 104 °F)	
Ambient non-operating temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	< 95 %, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the preparative pump
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2	for indoor use only!





## Pumping Systems

### G1376A Capillary Pump

#### Performance Specifications

**Table 11** Performance Specification Agilent 1200 Series Capillary Pump

Type	Specification
Hydraulic system	Two dual piston in series, with proprietary servo-controlled variable stroke drive, floating piston, active inlet valve, solvent selection valve and electronic flow control for flow rates up to 100 $\mu\text{l}/\text{min}$
Settable column flow range	0.01 – 20 $\mu\text{l}/\text{min}$ 0.01 – 100 $\mu\text{l}/\text{min}$ (with the extended flow range kit) 0.001 – 2.5 $\mu\text{l}/\text{min}$ (with the electronic flow control bypassed)
Recommended column flow range	1 – 20 $\mu\text{l}/\text{min}$ 10 – 100 $\mu\text{l}/\text{min}$ (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 % SD), at 10 $\mu\text{l}/\text{min}$ and 50 $\mu\text{l}/\text{min}$ column flow (based on RT, default setting)
Optimum composition range	1 to 99% or 5 $\mu\text{l}/\text{min}$ per channel (primary flow), whatever is greater
Composition precision	< 0.2 % SD, at 10 $\mu\text{l}/\text{min}$ (20 $\mu\text{l}$ flow sensor), 50 $\mu\text{l}/\text{min}$ (100 $\mu\text{l}$ flow sensor) and 1 ml/min (normal mode) default setting
Delay volume	Typically 3 $\mu\text{l}$ from the electronic flow control to the pump outlet for flow rates up to 20 $\mu\text{l}/\text{min}$ . Typically 12 $\mu\text{l}$ from the electronic flow control to the pump outlet for flow rates up to 100 $\mu\text{l}$ . for flow rates up to 100 $\mu\text{l}/\text{min}$ and electronic flow control active: primary flow path 180 - 480 $\mu\text{l}$ without mixer, 600 - 900 $\mu\text{l}$ with mixer (system pressure dependant) Typically 180 to 480 $\mu\text{l}$ (system pressure dependent) without mixer for flow rates up to 2.5 ml/min. (Mixer delay volume 420 $\mu\text{l}$ )
Pressure range	20 to 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 ChemStation for LC
Analog output	For pressure monitoring, 2 mV/bar, one output



**Table 11** Performance Specification Agilent 1200 Series Capillary Pump(continued)

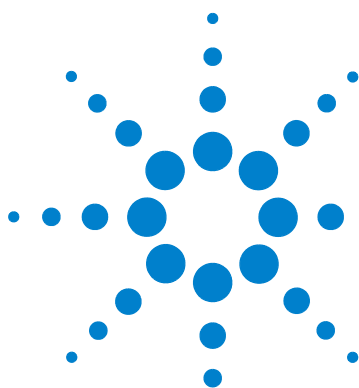
Communications	Controller-area network (CAN), GPIB, RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN optional
Safety and maintenance	Extensive diagnostics, error detection and display (through instant pilot and Agilent ChemStation), leak detection, safe leak handling, leak output signal 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.

## Physical Specifications

**Table 12** Physical Specifications

Type	Specification	Comments
Weight	17 kg (39 lbs)	
Dimensions (height × weight × depth)	180 × 345 × 435 mm (7 × 13.5 × 17 inches)	
Line voltage	100 – 120 or 220 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	220 VA	Maximum
Ambient operating temperature	4 to 55 °C (41 to 131 °F)	
Ambient non-operating temperature	-40 to 70 °C (-4 to 158 °F)	
Humidity	< 95 %, at 25 to 40 °C (77 to 104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the autosampler
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2	





## Pumping Systems

### G2226A Nano Pump

#### Performance Specifications

**Table 13** Performance Specification Agilent 1200 Series Nano Pump

Type	Specification
Hydraulic system	Two dual piston in series, with proprietary servo-controlled variable stroke drive, floating piston, active inlet valve, solvent selection valve and electronic flow control for flow rates from 0.1 to 1 $\mu\text{l}/\text{min}$
Settable column flow range	0.01 – 4 $\mu\text{l}/\text{min}$ 1 – 2500 $\mu\text{l}/\text{min}$ (with the electronic flow control bypassed)
Recommended column flow range	0.1 – 1 $\mu\text{l}/\text{min}$ 200 – 2500 $\mu\text{l}/\text{min}$ (with the electronic flow sensor bypassed)
Optimum composition range	1 to 99% or 5 $\mu\text{l}/\text{min}$ per channel (primary flow), whatever is greater
Composition precision	< 0.2 % SD, at 500 nl/min (default settings), Minimum primary flow/pump channel is 5 $\mu\text{l}/\text{min}$
Delay volume	Typically 300 nl from the electronic flow control to the pump outlet for flow rates up to 4 $\mu\text{l}/\text{min}$ . For flow rates up to 4 $\mu\text{l}/\text{min}$ and electronic flow control active: primary flow path 180 - 480 $\mu\text{l}$ ; system pressure dependent (default settings; calculated volume) Typically 180 to 480 $\mu\text{l}$ (system pressure dependent) for flow rates up to 2.5 ml/min. (default settings; calculated volume)
Pressure range	20 to 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 ChemStation for LC
Analog output	For pressure monitoring, 2 mV/bar, one output
Communications	Controller-area network (CAN), GPIB, RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN optional
Safety and maintenance	Extensive diagnostics, error detection and display (through control module and Agilent ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.



**Table 13** Performance Specification Agilent 1200 Series Nano Pump(continued)

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.

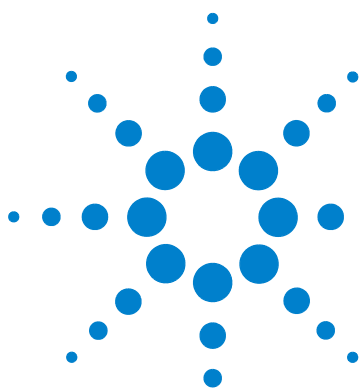
## Physical Specifications

**Table 14** Physical Specifications

Type	Specification	Comments
Weight	17 kg (39 lbs)	
Dimensions (height × weight × depth)	180 × 345 × 435 mm (7 × 13.5 × 17 inches)	
Line voltage	100 – 120 or 220 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption (apparent power)	220 VA	Maximum
Power consumption (active power)	75 W	Maximum
Ambient operating temperature	4 – 55 °C (41 – 131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	< 95 %, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the binary pump
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2	







## Injection Systems

### G1329A Autosampler 100 µl metering head

#### Performance Specifications

**Table 15** Performance Specifications Agilent 1200 Autosampler (G1329A). Valid when standard 100 µl metering head installed.

Type	Specification
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 – 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
Replicate injections per vial	1 – 99
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

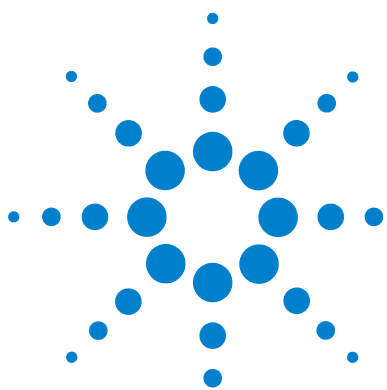


## Physical Specifications

**Table 16** Physical Specifications - Autosampler (G1329A / G2260A)

Type	Specification	Comments
Weight	14.2 kg (31.3 lbs)	
Dimensions (height × width × depth)	200 × 345 × 435 mm (8 × 13.5 × 17 inches)	
Line voltage	100 – 120 or 220 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption (apparent power)	300 VA	Maximum
Power consumption (active power)	200 W	Maximum
Ambient operating temperature	4 – 55 °C (41 – 131 °F)	<a href="#">see User Manual</a>
Ambient non-operating temperature	-40 to 70 °C (-4 to 158 °F)	
Humidity	< 95 %, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the autosampler
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2 For indoor use only	





## Injection Systems

### G1329A Autosampler 900 µl metering head

#### Performance Specifications

**Table 17** Performance Specifications Agilent 1200 standard autosampler (G1329A).  
Valid when standard 900 µl metering head installed.

Type	Specification
Pressure	Operating range 0-20 MPa (0-200 bar, 0-2950 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)
Replicate injections	1 – 99 from one vial
Precision	Typically < 0.5 % RSD of peak areas from 5 – 2000 µl, Typically < 1 % RSD of peak areas from 2000 – 5000 µl, Typically < 3 % RSD of peak areas from 1 – 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	Typically 50 s, depending on draw speed and injection volume

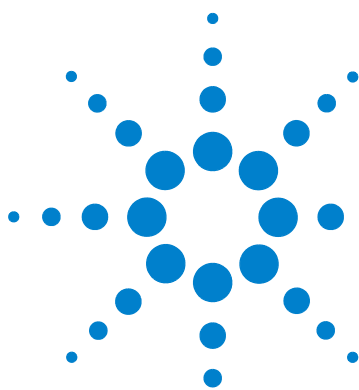


## Physical Specifications

**Table 18** Physical Specifications - Autosampler (G1329A / G2260A)

Type	Specification	Comments
Weight	14.2 kg (31.3 lbs)	
Dimensions (height × width × depth)	200 × 345 × 435 mm (8 × 13.5 × 17 inches)	
Line voltage	100 – 120 or 220 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption (apparent power)	300 VA	Maximum
Power consumption (active power)	200 W	Maximum
Ambient operating temperature	4 – 55 °C (41 – 131 °F)	<a href="#">see User Manual</a>
Ambient non-operating temperature	-40 to 70 °C (-4 to 158 °F)	
Humidity	< 95 %, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the autosampler
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2 For indoor use only	





## Injection Systems

### G2260A Preparative Autosampler

#### Performance Specifications

**Table 19** Performance Specifications Agilent 1200 Preparative Autosampler (G2260A)

Type	Specification
Pressure	Operating range 0-40 MPa (0-400 bar, 0-5800psi)
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 $\mu$ l in 0.1 $\mu$ l increments (recommended 1 $\mu$ l increments) Up to 1800 $\mu$ l with multiple draw (hardware modification required) Up to 5000 $\mu$ l with multiple draw (hardware modification required)
Replicate injections	1 – 99 from one vial
Precision	Typically < 0.5 % RSD of peak areas from 5 – 2000 $\mu$ l, Typically < 1 % RSD of peak areas from 2000 – 5000 $\mu$ l, Typically < 3 % RSD of peak areas from 1 – 5 $\mu$ l
Minimum sample volume	1 $\mu$ l from 5 $\mu$ l sample in 100 $\mu$ l microvial, or 1 $\mu$ l from 10 $\mu$ l sample in 300 $\mu$ l microvial
Carryover	Typically < 0.1 %, < 0.05 % with external needle cleaning
Sample viscosity range	0.2 – 50 cp
Sample capacity	100 $\times$ 2-ml vials in 1 tray 15 $\times$ 6-ml vials in 1/2 tray (Agilent vials only)
Injection cycle time	Typically 50 s, depending on draw speed and injection volume

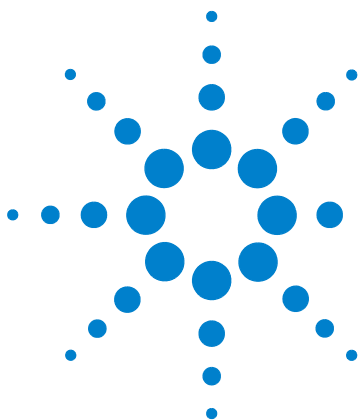


## Physical Specifications

**Table 20** Physical Specifications - sampler (G1367B/C / G1377A)

Type	Specification	Comments
Weight	15.5 kg (34.2 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 (apparent power)	300 VA	Maximum
Power consumption (active power)	200 W	Maximum
Ambient operating temperature	4 to 55 °C (41 to 131 °F)	
Ambient non-operating temperature	-40 to 70 °C (-4 to 158 °F)	
Humidity	< 95 %, at 25 to 40 °C (77 to 104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the autosampler
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2	





## Injection Systems

### G1367B High Performance Autosampler and G1367C High Performance Autosampler SL

#### Performance Specifications

**Table 21** Performance specifications Agilent 1200 Series High Performance Autosampler and Agilent 1200 Series High Performance Autosampler SL

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	0.1 – 100 $\mu$ l in 0.1 $\mu$ l increments Up to 1500 $\mu$ l with multiple draw (hardware modification required)
Precision	Typically < 0.25 % RSD from 5 – 100 $\mu$ l, Typically < 1 % RSD from 1 – 5 $\mu$ l variable volume
Pressure range	G1367B: up to 400 bar (5880 psi) G1367C: up to 600 bar (8700 psi)
Sample viscosity range	0.2 – 5 cp
Sample capacity	2 $\times$ well plates (MTP) + 10 $\times$ 2 ml vials 108 $\times$ 2-mL vials in 2 $\times$ 54 vial plate plus 10 additional 2 mL vials 30 $\times$ 6-mL vials in 2 $\times$ 15 vial plate plus 10 additional 2 mL vials 54 Eppendorf tubes (0.5/1.5/2.0mL) in 2 $\times$ 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 < 30 s using following standard conditions: Default draw speed: 200 $\mu$ l/min Default eject speed: 200 $\mu$ l/min Injection volume: 5 $\mu$ l
Carry-over	Typically < 0.01 % using the following conditions: Column: 125 $\times$ 4 mm Hypersil ODS, 5 $\mu$ m Mobile phase: Water/Acetonitrile = 80/20 Flow rate: 1 ml/min Injection volume: 1 $\mu$ l caffeine (1 mg/ml), 5 $\mu$ l water to test carryover Outside wash of needle before injection: 20 sec with water using flush port



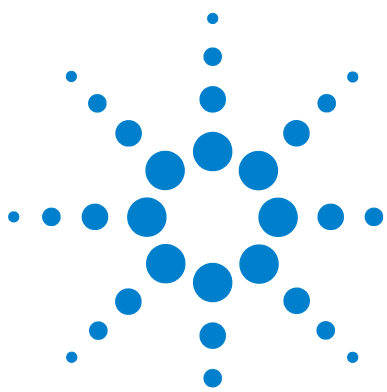
## Physical Specifications

**Table 22** Physical Specifications - sampler (G1367B/C / G1377A)

Type	Specification	Comments
Weight	15.5 kg (34.2 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 (apparent power)	300 VA	Maximum
Power consumption (active power)	200 W	Maximum
Ambient operating temperature	4 to 55 °C (41 to 131 °F)	
Ambient non-operating temperature	-40 to 70 °C (-4 to 158 °F)	
Humidity	< 95 %, at 25 to 40 °C (77 to 104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the autosampler
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2	







## Injection Systems

### G1377A Micro Well plate Sampler

#### Performance Specifications

**Table 23** Performance Specifications Agilent 1200 Series Micro Well plate sampler

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 $\mu$ l in 0.01 $\mu$ l increments with the small loop capillary 0.01– 40 $\mu$ l in 0.01 $\mu$ l increments with the extended loop capillary
Precision	Typically < 0.5 % RSD of peak areas from 5 – 40 $\mu$ l, Typically < 1 % RSD from 1 – 5 $\mu$ l Typically < 3 % RSD from 0.2 – 1 $\mu$ l
Pressure range	up to 400 bar (5880 psi)
Sample viscosity range	0.2 – 5 cp
Sample capacity	2 $\times$ well-plates (MTP) + 10 $\times$ 2 mL vials 108 $\times$ 2-mL vials in 2 $\times$ 54 vial plate plus 10 additional 2 mL vials 30 $\times$ 6-mL vials in 2 $\times$ 15 vial plate plus 10 additional 2 mL vials 54 Eppendorf tubes (0.5/1.5/2.0mL) in 2 $\times$ 27 Eppendorf tube plate
Injection cycle time	Typically < 30 s using following standard conditions: Default draw speed: 4 $\mu$ l/min Default eject speed: 10 $\mu$ l/min Injection volume: 0.1 $\mu$ l
Carry-over	Typically < 0.05 % using the following conditions: Column: 150 $\times$ 0.5 mm Hypersil ODS, 3 $\mu$ m Mobile phase: Water/Acetonitrile = 85/15 Column Flow rate: 13 $\mu$ l/min Injection volume: 1 $\mu$ l caffeine (=25ng caffeine), 1 $\mu$ l water to test carryover Outside wash of needle before injection: 20 sec with water using flush port

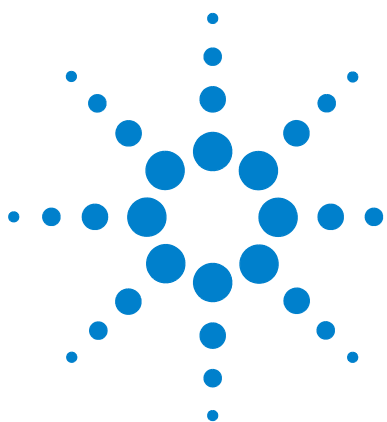


## Physical Specifications

**Table 24** Physical Specifications - sampler (G1367B/C / G1377A)

Type	Specification	Comments
Weight	15.5 kg (34.2 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 (apparent power)	300 VA	Maximum
Power consumption (active power)	200 W	Maximum
Ambient operating temperature	4 to 55 °C (41 to 131 °F)	
Ambient non-operating temperature	-40 to 70 °C (-4 to 158 °F)	
Humidity	< 95 %, at 25 to 40 °C (77 to 104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the autosampler
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2	





## UV Detectors

### G1314B Variable Wavelength Detector and G1314C Variable Wavelength Detector SL

## Performance Specifications

**Table 25** Performance Specifications Agilent 1200 Series Variable Wavelength Detector

Type	Specification	Comments
Detection type	Double-beam photometer	
Light source	Deuterium lamp	
Wavelength range	190–600 nm	
Short term noise (ASTM)	$\pm 0.75 \times 10^{-5}$ AU at 254 nm	See NOTE in manual.
Drift	$3 \times 10^{-4}$ AU/hr at 254 nm	See NOTE in manual
Linearity	> 2 AU (5%) upper limit	See NOTE in manual
Wavelength accuracy	$\pm 1$ nm	Self-calibration with deuterium lines, verification with holmium oxide filter
Band width	6.5 nm typical	
Flow cells	Standard: 14- $\mu$ l volume, 10-mm cell path length and 40 bar (588 psi) pressure maximum High pressure: 14- $\mu$ l volume, 10-mm cell path length and 400 bar (5880 psi) pressure maximum Micro: 1- $\mu$ l volume, 5-mm cell path length and 40 bar (588 psi) pressure maximum Semi-micro: 5- $\mu$ l volume, 6-mm cell path length and 40 bar (588 psi) pressure maximum	Can be repaired on component level
Control and data evaluation	Agilent ChemStation for LC	
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 – 2 AU, one output	
Communications	Controller-area network (CAN), GPIB, RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN optional	GPIB for G1314B only
Safety and maintenance	Extensive diagnostics, error detection and display (through control module and Agilent ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	



**Table 25** Performance Specifications Agilent 1200 Series Variable Wavelength Detector  
(continued)

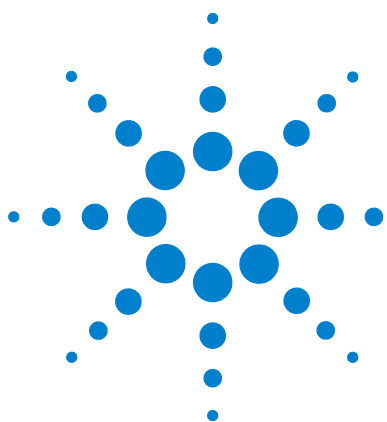
Type	Specification	Comments
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-settable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with built-in holmium oxide filter.	
Housing	All materials recyclable.	

## Physical Specifications

**Table 26** Physical Specifications

Type	Specification	Comments
Weight	11 kg 25 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	220 VA, 85 W / 290 BTU	Maximum
Ambient operating temperature	0–55 °C (32–131 °F)	
Ambient non-operating temperature	-40–70 °C (-4–158 °F)	
Humidity	< 95%, at 25–40 °C (77–104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the instrument
Safety standards: IEC, CSA, UL, EN	Installation Category II, Pollution Degree 2. For indoor use only.	





## UV Detectors

### G1315B Diode Array Detector G1365B Multiple Wavelength Detector

## Performance Specifications

**Table 27** Performance Specifications Agilent 1200 Series DAD and MWD

Type	Specification	Comments
Detection type	1024-element photodiode array	
Light source	Deuterium and tungsten lamps	
Wavelength range	190 – 950 nm	
Short term noise (ASTM) Single and Multi-Wavelength	$\pm 1 \times 10^{-5}$ AU at 254 and 750 nm	See manual
Drift	$2 \times 10^{-3}$ AU/hr at 254 nm	See manual
Linear absorbance range	> 2 AU (upper limit)	See manual
Wavelength accuracy	$\pm 1$ 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	
Flow cells	Standard: 13 $\mu$ l volume, 10 mm cell path length and 120 bar (1760 psi) pressure maximum Semi-Micro: 5 $\mu$ l volume, 6 mm cell path length and 120 bar (1760 psi) pressure maximum Micro: 2 $\mu$ l volume, 3 mm cell path length and 120 bar (1760 psi) pressure maximum High pressure: 1.7 $\mu$ l volume, 6 mm cell path length and 400 bar (5880 psi) pressure maximum 80 nano: 0.08 $\mu$ l volume, 10 mm cell path length and 50 bar (725 psi) pressure maximum 500 nano: 0.5 $\mu$ l volume, 10 mm cell path length and 50 bar (725 psi) pressure maximum	See “ <a href="#">Optimization Overview</a> ” in manual.
Control and data evaluation	Agilent ChemStation for LC	
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 – 2 AU, two outputs	



**Table 27** Performance Specifications Agilent 1200 Series DAD and MWD(continued)

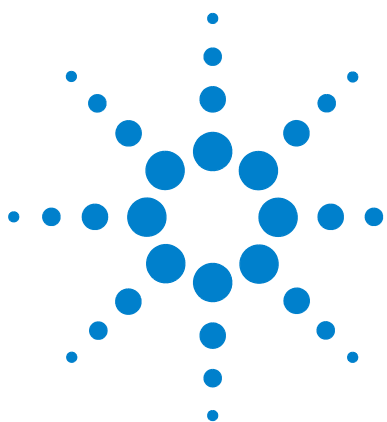
Type	Specification	Comments
Communications	Controller-area network (CAN), GPIB, RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN optional	
Safety and maintenance	Extensive diagnostics, error detection and display (through control module and ChemStation), leak detection, safe leak handling, 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 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.	

## Physical Specifications

**Table 28** Physical Specifications

Type	Specification	Comments
Weight	11.5 kg (26 lbs)	
Dimensions (width × depth × height)	345 × 435 × 140 mm (13.5 × 17 × 5.5 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz ± 5 %	
Power consumption (G1315B/65B)	300 VA / 125 W / 427 BTU	Maximum
Ambient operating temperature	0 – 55 °C (32 – 131 °F)	.
Ambient non-operating temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	< 95%, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the detector
Safety standards: IEC, CSA, UL, EN	Installation category II, pollution degree 2. For indoor use only.	





## UV Detectors

### G1315C Diode Array Detector SL G1365C Multiple Wavelength Detector SL

## Performance Specifications

**Table 29** Performance Specifications Agilent 1200 Series DAD and MWD

Type	Specification	Comments
Detection type	1024-element photodiode array	
Light source	Deuterium and tungsten lamps	The UV-lamp is equipped with I.D. tag that holds lamp typical information.
Wavelength range	190 – 950 nm	
Short term noise (ASTM) Single and Multi-Wavelength	$\pm 0.8 \times 10^{-5}$ AU at 254 and 750 nm	See note in manual
Drift	$0.9 \times 10^{-3}$ AU/hr at 254 nm	See note in manual
Linear absorbance range	> 2 AU (upper limit)	See note in manual
Wavelength accuracy	$\pm 1$ 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	
Flow cells	Standard: 13 $\mu$ l volume, 10 mm cell path length and 120 bar (1760 psi) pressure maximum Semi-Micro: 5 $\mu$ l volume, 6 mm cell path length and 120 bar (1760 psi) pressure maximum Micro: 2 $\mu$ l volume, 3 mm cell path length and 120 bar (1760 psi) pressure maximum High pressure: 1.7 $\mu$ l volume, 6 mm cell path length and 400 bar (5880 psi) pressure maximum 500 nano: 0.5 $\mu$ l volume, 10 mm cell path length and 50 bar (725 psi) pressure maximum 80 nano: 0.5 $\mu$ l volume, 10 mm cell path length and 50 bar (725 psi) pressure maximum	See “ <a href="#">Optimization Overview</a> ” in the manual All flow cells are equipped with I.D. tags that hold cell typical information.
Control and data evaluation	Agilent ChemStation for LC (32-bit)	Revision B.01.03 or above



**Table 29** Performance Specifications Agilent 1200 Series DAD and MWD(continued)

Type	Specification	Comments
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	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.	

## Physical Specifications

**Table 30** Physical Specifications

Type	Specification	Comments
Weight	11.5 kg (26 lbs)	
Dimensions (width × depth × height)	345 × 435 × 140 mm (13.5 × 17 × 5.5 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz ± 5 %	
Power consumption (G1315C/G1365C)	160 VA / 160 W / 546 BTU	Maximum
Ambient operating temperature	0 – 55 °C (32 – 131 °F)	.
Ambient non-operating temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	< 95%, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the detector
Safety standards: IEC, CSA, UL, EN	Installation category II, pollution degree 2. For indoor use only.	







## Special Detectors

### G1362A Refractive Index Detector

#### Performance Specifications

**Table 31** Performance Specifications Agilent 1200 Series Refractive Index Detector

Type	Specification	Comments
Detection type	Refractive Index	
Refractive index range	1.00 - 1.75 RIU, calibrated	
Measurement range	+/- 600 x 10 <sup>-6</sup> RIU	
Optical zeroing		via set screw
Optics temperature control	5 ° C above ambient to 55 ° C	
Sample cell	volume: 8uL maximum pressure: 5 bar (0.5Mpa) maximum flow rate: 5mL/minute	
Valves	Automatic purge and automatic solvent recycle	
Volumes	Inlet port to sample cell 62uL, inlet port to outlet port 590uL	
Liquid contact materials	316 stainless steel, teflon and quartz glass	
pH range	2.3 - 9.5	
Performance specifications	Short term noise < +/- 2.5 x 10 <sup>-9</sup> RIU Drift < 200 x 10 <sup>-9</sup> RIU/hour	see note in manual
Time programmable parameters	polarity, peak width	
Detector zero	automatic zero before analysis	
Control and data evaluation	Parameter entry, signal display, on-line help and diagnostics with the Agilent 1200 Series 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.	
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range selectable, one output	
Communications	Controller-area network (CAN), GPIB, RS-232C, LAN, APG Remote: ready, start, stop and shut-down signals	



**Table 31** Performance Specifications Agilent 1200 Series Refractive Index Detector  
(continued)

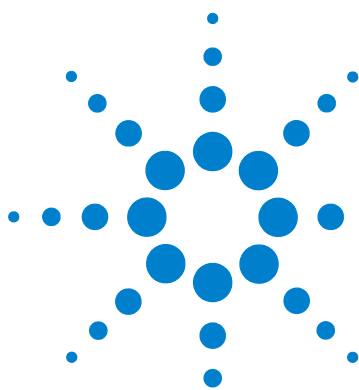
Type	Specification	Comments
Safety and maintenance	Extensive diagnostics, error detection and display (through control module and ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	
GLP features	Early maintenance 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)	

## Physical Specifications

**Table 32** Physical Specifications Agilent 1200 Series Refractive Index Detector

Type	Specification	Comments
Weight	17 kg (38 lbs)	
Dimensions (width x depth x height)	345 x 435 x 180 mm (13.5 x 17 x 7 inches)	
Line voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz ± 5 %	
Power consumption	160 VA	Maximum
Ambient operating temperature	0 – 55 ° C (32 – 131 ° F)	
Ambient non-operating temperature	-40 – 70 ° C (-4 – 158 ° F)	
Rel. Humidity	< 95%, at 25 – 40 ° C (77 – 104 ° F)	Non-condensing
Operating altitude	Up to 2000 m (6500 ft.)	
Non-operating altitude	Up to 4600 m (14950 ft.)	For storing the detector
Safety standards: IEC, CSA, UL, EN	Installation category II, pollution degree 2	For indoor use only





## Special Detectors

# G1321A Fluorescence Detector

## Performance Specifications

**Table 33** Performance Specifications Agilent 1200 Series Fluorescence Detector

Type	Specification	Comments
Detection type	Multi-signal fluorescence detector with rapid on-line scanning capabilities and spectral data analysis	
Performance Specifications	10 fg Anthracene, Ex=250 nm, Em=400 nm* <b>RAMAN single wavelength (H<sub>2</sub>O) &gt; 500</b> with Ex=350 nm, Em=397 nm, dark value 450 nm, standard flow cell time constant=4 seconds (8 seconds responsetime) <b>RAMAN dual wavelength (H<sub>2</sub>O) &gt; 300</b> with Ex=350 nm, Em=397 nm, dark value 450 nm, standard flow cell time constant=4 seconds (8 seconds responsetime)	see note below this table in manual see " <a href="#">Raman ASTM Signal-to-Noise Test</a> " in manual see " <a href="#">Raman ASTM Signal-to-Noise Test</a> " in manual
Light source	Xenon Flash Lamp, normal mode 20 W, economy mode 5 W	
Pulse frequency	296 Hz for single signal mode 74 Hz for spectral mode	
Excitation Monochromator	Range:200 nm - 700 nm and zero-order Bandwidth:20 nm (fixed) Monochromator:concave holographic grating, F/1.6, blaze: 300 nm	
Emission Monochromator	Range:280 nm - 900 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	
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	



**Table 33** Performance Specifications Agilent 1200 Series Fluorescence Detector(continued)

Type	Specification	Comments
Flow cells	Standard: 8 µl volume and 20 bar (2 MPa) pressure maximum, quartz Optional: Fluorescence cuvette for offline spectroscopic measurements with 1 ml syringe, 8 µl volume, quartz	
Control and data evaluation	Agilent ChemStation for LC, Agilent Instant Pilot G4208A or Agilent Control Module G1323B with limited spectral data analysis and printing of spectra	
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range >10 <sup>2</sup> luminescence units, two outputs	
Communications	Controller-area network (CAN), GPIB, RS-232C, LAN, APG Remote: ready, start, stop and shut-down signals	
Safety and maintenance	Extensive diagnostics, error detection and display (through Instant Pilot G4208A, Control Module G1323B 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 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 to 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)	

## Physical Specifications

**Table 34** Physical Specifications

Type	Specification	Comments
Weight	11.5 kg (26 lbs)	
Dimensions (width × depth × height)	345 × 435 × 140 mm (13.5 × 17 × 5.5 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 (-4 – 158 °F)	
Humidity	< 95%, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the detector
Safety standards: IEC, CSA, UL, EN	Installation category II, pollution degree 2. For indoor use only.	

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01200-90100

Edition: 05/06

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## Fraction Collectors

### G1364B Fraction Collector preparative scale

#### Performance Specifications

**Table 35** performance Specifications Agilent 1200 Series PREPARATIVE SCALE Autosampler (G1364B)

Type	Specification
trigger modes	Time slices, Peak (threshold, up- / downslope), Timetable (combination of time intervals and peak) and Manual trigger (supported only with G1323B Control Module) Agilent 1200 Series DAD/MWD detectors (G1315A/B/C, G1365 A/B/C), the Agilent 1200 Series fluorescence detector 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)* (for use with deep well plates, only) 2 x well-plates std. tray (MTP) (for use with deep well plates, only) + 10 x 2 ml vials* (+ 1 half tray) 100 x 2 ml in std. tray (+ 1 half tray)* 3 x 40 x 2 ml in half tray* 3 x 15 x 6 ml in half tray* 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. <b>For the with uncapped vials, tests tubes and well plates, only!</b>
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)
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



**Table 35** performance Specifications Agilent 1200 Series PREPARATIVE SCALE Autosampler (G1364B)(continued)

Type	Specification
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 G1330A 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

\* Vials can be used as recommended by Agilent Technologies (see “List of Recommended Vials and Caps” in the manual and “List of Recommended Plates and Closing Mats” in the manual) **but must be uncapped**. Only the 96 deep well-plates can be used (**without closing mats**, see “List of Recommended Plates and Closing Mats” in the manual)

## Physical Specifications

**Table 36** Physical Specifications - Autosamplers (G1364B, G1364C)

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 (apparent power)	200 VA	Maximum
Power consumption (active power)	180 W	Maximum
Ambient operating temperature	4 – 55 °C (41 – 131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	< 95 %, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the autosampler
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2. For indoor use only.	







## Fraction Collectors

### G1364C ANALYTICAL SCALE Fraction Collector

#### Performance Specifications

**Table 37** Performance Specifications Agilent 1200 Series ANALYTICAL SCALE Autosampler (G1364C)

Type	Specification
trigger modes	Time slices, Peak (threshold, up- / downslope), Timetable (combination of time intervals and peak) and Manual trigger (supported only with G1323B Control Module) Agilent 1200 Series DAD/MWD detectors (G1315A/B/C, G1365 A/B/C), the Agilent 1200 Series fluorescence detector 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.
fraction vessel capacities and trays	<ul style="list-style-type: none"> <li>• 4 x well-plates full tray (MTP)*</li> <li>• 2 x well-plates std. tray + 10 funnels with external containers* (+ 1 half tray)</li> <li>• 2 x well-plates std. tray (MTP) + 10 x 2 ml vials* (+ 1 half tray)</li> <li>• 100 x 2 ml in std. tray (+ 1 half tray)*</li> <li>• 3 x 40 x 2 ml in half tray*</li> <li>• 3 x 40 funnels in half tray*</li> <li>• 3 x 15 x 6 ml in half tray*</li> <li>• Full tray with 40 test tubes (30 mm OD, max. height 48 mm, ~20 ml vol.)</li> <li>• Full tray with 60 test tubes (25 mm OD, max. height 48 mm)</li> <li>• Full tray with 126 test tubes (16 mm OD, max. height 48 mm)</li> <li>• Full tray with 215 test tubes (12 mm OD, max. height 48 mm)</li> </ul> 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 G1364-87202
maximum tube / plate height	48 mm with long needle assembly G1367-87200 75 mm with short needle assembly G1364-87202
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.



**Table 37** Performance Specifications Agilent 1200 Series ANALYTICAL SCALE Autosampler (G1364C)(continued)

Type	Specification
delay volumes [μl]	Fraction collector inlet to diverter valve: ~50 (typical, depends on the 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
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	<ul style="list-style-type: none"> <li>- Controller-area network (CAN).</li> <li>- optional; LAN or external contacts interface</li> <li>- RS232C,</li> <li>- APG-remote (for remote start / stop signals to / from other modules)</li> <li>- Interface to G1330A Thermostat</li> <li>- CAN-DC-out for operation of Agilent approved external devices like valves</li> </ul>
safety features	Leak detection and safe leak handling, error detection and display, exhaust fan for fume extraction of hazardous vapors

\* Vials and well-plates and capped vials and well plates with closing mats can be used as recommended by Agilent Technologies (see “List of Recommended Vials and Caps” in the manual and “List of Recommended Plates and Closing Mats” in the manual)

## Physical Specifications

**Table 38** Physical Specifications - Autosamplers (G1364B, G1364C)

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 (apparent power)	200 VA	Maximum
Power consumption (active power)	180 W	Maximum
Ambient operating temperature	4 – 55 °C (41 – 131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	< 95 %, at 25 – 40 °C (77 – 104 °F)	Non-condensing

**Table 38** Physical Specifications - Autosamplers (G1364B, G1364C)(continued)

<b>Type</b>	<b>Specification</b>	<b>Comments</b>
Operating Altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the autosampler
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2. For indoor use only.	

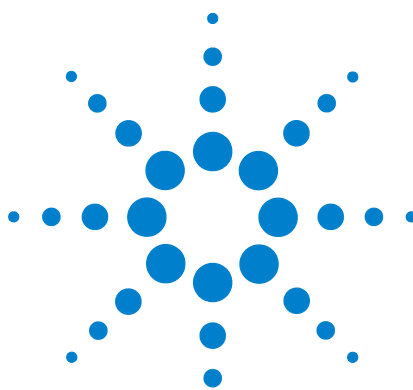
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01200-90100

Edition: 05/06

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## Fraction Collectors

### G1364D Micro Collector/Spotter

#### Performance Specifications

**Table 39** Performance Specifications Agilent 1200 Series Micro Autosampler (G1364D)

Type	Specification
trigger modes	Time slices, Peak (threshold, up- /downslope), Timetable (combination of time intervals and peak) and Agilent 1200 UV-Vis detectors DAD G1315A/B, MWD G1365 A/B are fully supported. Other detectors with appropriate delay volumes can be connected through UIB interface.
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 contact control mode enables the micro collector/spotter to collect fractions down to 2 µl in well plates or MALDI spots down to 100 nl
fraction vessel capacities and trays	<ul style="list-style-type: none"> <li>4 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), MALDI Target Plates.</li> <li>2 x well-plates std. tray (MTP) + 10 x 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),</li> </ul>
MALDI Spotting plates (pre-configured)	<ul style="list-style-type: none"> <li>96 Agilent plate for AP-MALDI</li> <li>100 Applied Biosystems, 2x96 Applied Biosystems, 192 Applied Biosystems, 400 Perseptive Biosystems</li> <li>Micromass 80/96 spots</li> <li>Bruker Anchor Chips 384/1536 spots</li> </ul>
MALDI Plate Capacity	4 (3 for Bruker Anchor Chip 1536)
Minimum fraction volume	Typically 2 µl (depending on the fraction collection container)
MALDI spot size	100-5000 nl (depending on the MALDI plate)
maximum spotting rate	20 spots/min (1spot/3s)
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: ~5
cooling	Recommended (with additional G1330B)
maximum capacity	2 micro collector/spotter connected via 2-Position, 6-Port micro valve (G1162A)



**Table 39** Performance Specifications Agilent 1200 Series Micro Autosampler (G1364D)(continued)

Type	Specification
GLP features	Early maintenance feedback (EMF), electronic records of maintenance and errors
interfaces	<ul style="list-style-type: none"> <li>- Controller-area network (CAN).</li> <li>- optional; LAN or external contacts interface</li> <li>- RS232C,</li> <li>- APG-remote (for remote start / stop signals to / from other modules)</li> <li>- Interface to G1330A Thermostat</li> <li>- CAN-DC-out for operation of Agilent approved external devices like valves</li> </ul>

## Physical Specifications

**Table 40** Physical Specifications - micro collector/spotter G1364D

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 (apparent power)	200 VA	Maximum
Power consumption (active power)	180 W	Maximum
Ambient operating temperature	4 – 55 °C (41 – 131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	< 95 %, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the autosampler
Safety standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2. For indoor use only.	





## Valves

### G1157A Agilent 1200 Series 2 position / 10 port valve

#### Performance Specifications

**Table 41** 2 position / 10 port valve

Liquid contacts	Stainless Steel and PEEK
Port size:	Accepts 10-32 male threaded fittings
Flow passage diameters:	Stator and stator face assembly 0.6-mm (0.024"), rotor seal 0.6-mm (0.024")
Volume in flow passage:	Stator (includes stator face seal) 2.1 µl/hole, rotor seal 0.7 µl/groove
Maximum pressure:	41 MPa (408 bar, 6000 psi)
Recommended flow range:	0.2 - 100 ml/min

#### Physical Specifications

**Table 42** Physical Specifications for Agilent 1200 Series Valves

Type	Specification
• Weight	1.9 Kg (4.2 lbs)
• Dimensions (height x width x depth)	92 x 84 x 200 mm (9.2 x 3.3 x 8.0 inches)
• Power supply	24 Volts DC (1.7 amps)
• Ambient operating temperature	4 to 55°C (39 to 131°F)
• Humidity	< 95%, non-condensing
• Safety Standards	IEC, CSA, UL, EN Installation category II, pollution degree 2 For indoor use only
Revision	
• Agilent 1200 Firmware	A.05.04 and higher
• Control Module Firmware G1323B	B.03.11 and higher
• Agilent ChemStation Software	A.09.03 and higher



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01200-90100

Edition: 05/06

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## Valves

### G1158A Agilent 1200 Series 2 position / 6 port valve

#### Performance Specifications

**Table 43** 2 position / 6 port valve

Liquid contacts:	Stainless steel, PEEK, and alumina ceramic
Port size:	Accepts 10-32 male threaded fittings
Flow passage diameters:	Stator and stator face assembly 0.4-mm (0.015"), rotor seal 0.5-mm (0.018")
Volume in flow passage:	Stator (includes stator face seal) 0.7 µl/hole, rotor seal 0.3 µl/groove
Maximum pressure:	41 MPa (408 bar, 6000 psi)
Recommended flow range:	0.2 - 100 ml/min

#### Physical Specifications

**Table 44** Physical Specifications for Agilent 1200 Series Valves

Type	Specification
• Weight	1.9 Kg (4.2 lbs)
• Dimensions (height x width x depth)	92 x 84 x 200 mm (9.2 x 3.3 x 8.0 inches)
• Power supply	24 Volts DC (1.7 amps)
• Ambient operating temperature	4 to 55°C (39 to 131°F)
• Humidity	< 95%, non-condensing
• Safety Standards	IEC, CSA, UL, EN Installation category II, pollution degree 2 For indoor use only
Revision	
• Agilent 1200 Firmware	A.05.04 and higher
• Control Module Firmware G1323B	B.03.11 and higher
• Agilent ChemStation Software	A.09.03 and higher



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01200-90100

Edition: 05/06

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## Valves

### G1159A Agilent 1200 Series 6 position selection valve

#### Performance Specifications

**Table 45** 6 position selection valve

Liquid contacts:	Stainless steel and PEEK
Port size:	Accepts 10-32 male threaded fittings
Flow passage diameters:	Stator 0.6-mm (0.024"), stator face assembly and rotor seal 0.4-mm (0.015")
Volume in flow passage	Angled ports 1, 2, 5 (15.6 µl) Radial ports 2, 4, 6 (18.8 µl)
Maximum pressure:	35 MPa (345 bar, 5000 psi)
Recommended flow range:	0.3 - 40 ml/min*

\* The G1159A Agilent 1200 Series 6 positions selection valve can be used at flow rates up to 100 ml/min, but without valve switching. In most cases e.g. column selection the valve switches during the postrun or prerun, when the flow can be reduced.

#### Physical Specifications

**Table 46** Physical Specifications for Agilent 1200 Series Valves

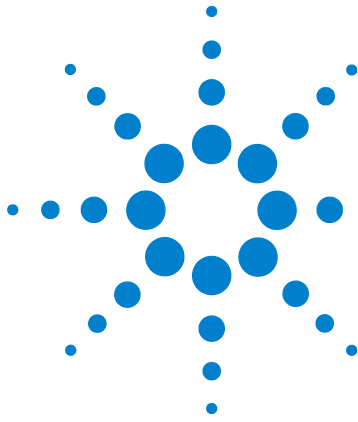
Type	Specification
• Weight	1.9 Kg (4.2 lbs)
• Dimensions (height x width x depth)	92 x 84 x 200 mm (9.2 x 3.3 x 8.0 inches)
• Power supply	24 Volts DC (1.7 amps)
• Ambient operating temperature	4 to 55°C (39 to 131°F)
• Humidity	< 95%, non-condensing
• Safety Standards	IEC, CSA, UL, EN Installation category II, pollution degree 2 For indoor use only
<b>Revision</b>	
• Agilent 1200 Firmware	A.05.04 and higher
• Control Module Firmware G1323B	B.03.11 and higher



**Table 46** Physical Specifications for Agilent 1200 Series Valves(continued)

Type	Specification
• Agilent ChemStation Software	A.09.03 and higher





## Valves

### G1160A Agilent 1200 Series 12 position/ 13 port selection valve

## Performance Specifications

**Table 47** 12 position/ 13 port selection valve

Liquid contacts:	Stainless steel and PEEK
Port size:	Accepts 10-32 male threaded fittings
Flow passage diameters:	1.0-mm (0.040")
Volume in flow passage:	Stator (includes stator face seal) 6.4 µl/hole, rotor seal 4.0 µl/groove
Maximum pressure:	21 MPa (207 bar, 3000 psi)
Recommended flow range:	0.2 - 100 ml/min (at high pressures, after the pump) 0.2 - 10 ml/min (at low pressures, in front of the pump)

## Physical Specifications

**Table 48** Physical Specifications for Agilent 1200 Series Valves

Type	Specification
• Weight	1.9 Kg (4.2 lbs)
• Dimensions (height x width x depth)	92 x 84 x 200 mm (9.2 x 3.3 x 8.0 inches)
• Power supply	24 Volts DC (1.7 amps)
• Ambient operating temperature	4 to 55°C (39 to 131°F)
• Humidity	< 95%, non-condensing
• Safety Standards	IEC, CSA, UL, EN Installation category II, pollution degree 2 For indoor use only
Revision	
• Agilent 1200 Firmware	A.05.04 and higher
• Control Module Firmware G1323B	B.03.11 and higher
• Agilent ChemStation Software	A.09.03 and higher



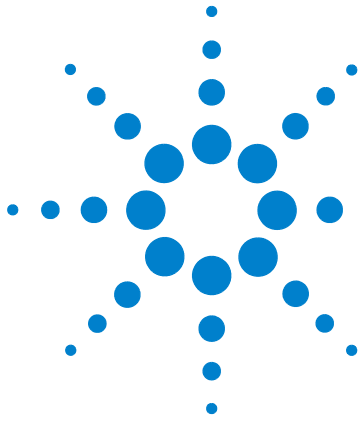
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01200-90100

Edition: 05/06

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## Valves

### G1162A Agilent 1200 Series 2 position/ 6 port micro valve

## Performance Specifications

**Table 49** 2 position/ 6 port micro valve

Liquid contacts:	DuraLife processed stainless steel (stator) and vespel (rotor seal)
Port size:	Accepts M4 male threaded fittings
Flow passage diameters:	0.20 mm (0.008")
Volume in flow passages:	70 nl port to port
Maximum pressure:	41 MPa (408 bar, 6000 psi)
Recommended flow range:	0.1 - 100 µl

## Physical Specifications

**Table 50** Physical Specifications for Agilent 1200 Series Valves

Type	Specification
• Weight	1.9 Kg (4.2 lbs)
• Dimensions (height x width x depth)	92 x 84 x 200 mm (9.2 x 3.3 x 8.0 inches)
• Power supply	24 Volts DC (1.7 amps)
• Ambient operating temperature	4 to 55°C (39 to 131°F)
• Humidity	< 95%, non-condensing
• Safety Standards	IEC, CSA, UL, EN Installation category II, pollution degree 2 For indoor use only
<b>Revision</b>	
• Agilent 1200 Firmware	A.05.04 and higher
• Control Module Firmware G1323B	B.03.11 and higher
• Agilent ChemStation Software	A.09.03 and higher



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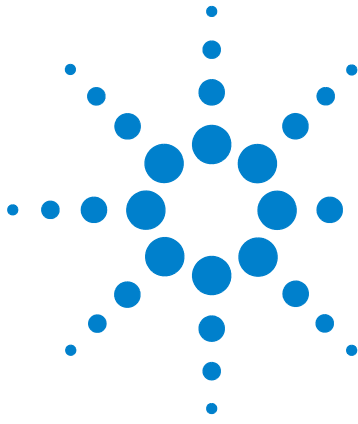


01200-90100

Edition: 05/06

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## Valves

### G1163A Agilent 1200 Series 2 position/ 10 port micro valve

## Performance Specifications

**Table 51** 2 position/ 10 port micro valve

Liquid contacts:	DuraLife processed stainless steel (stator) and vespel (rotor seal)
Port size:	Accepts M4 male threaded fittings
Flow passage diameters:	0.20 mm (0.008")
Volume in flow passages:	Stator (20° ports) 27.2 nl, (45° ports) 30.5 nl, rotor seal 25.0 nl/groove
Maximum pressure:	41 MPa (408 bar, 6000 psi)
Recommended flow range:	0.1 - 100 µl

## Physical Specifications

**Table 52** Physical Specifications for Agilent 1200 Series Valves

Type	Specification
• Weight	1.9 Kg (4.2 lbs)
• Dimensions (height x width x depth)	92 x 84 x 200 mm (9.2 x 3.3 x 8.0 inches)
• Power supply	24 Volts DC (1.7 amps)
• Ambient operating temperature	4 to 55°C (39 to 131°F)
• Humidity	< 95%, non-condensing
• Safety Standards	IEC, CSA, UL, EN Installation category II, pollution degree 2 For indoor use only
<b>Revision</b>	
• Agilent 1200 Firmware	A.05.04 and higher
• Control Module Firmware G1323B	B.03.11 and higher
• Agilent ChemStation Software	A.09.03 and higher



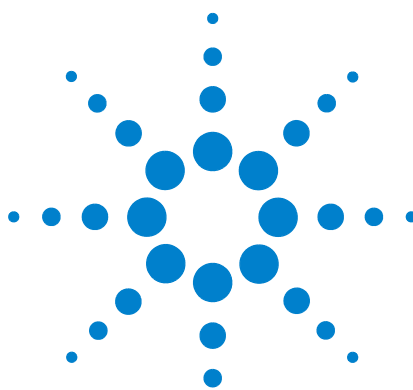
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01200-90100

Edition: 05/06

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## Miscellaneous

### G1322A Vacuum Degasser

## Performance Specifications

**Table 53** Performance Specifications Agilent 1200 Series Vacuum 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

## Physical Specifications

**Table 54** Physical Specifications

Type	Specification	Comments
Weight	7 kg (15.4 lbs)	
Dimensions (width × depth × height)	345 × 435 × 80 mm (13.5 × 17 × 3.1 inches)	
Line Voltage	100 – 120 or 220 – 240 VAC, ± 10 %	Wide-ranging capability
Line Frequency	50 or 60 Hz, ± 5 %	
Power consumption	30 W	Maximum
Ambient Operating Temperature	0 – 55 °C (32 – 131 °F)*	see <i>User manual</i>
Ambient Non-operating Temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	< 95 %, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6500 ft)	
Non-operating Altitude	Up to 4600 m (14950 ft)	For storing the instrument



**Table 54** Physical Specifications(continued)

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Safety Standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2
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\* This temperature range represents the technical specifications for this instrument. The mentioned temperatures may not be suitable for all applications and all types of solvents.





## Miscellaneous

### G1379B Micro Vacuum Degasser

## Performance Specifications

**Table 55** Performance Specifications Agilent 1200 Micro 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

## Physical Specifications

**Table 56** Physical Specifications

Type	Specification	Comments
Weight	7 kg (15.4 lbs)	
Dimensions (width × depth × height)	345 × 435 × 80 mm (13.5 × 17 × 3.1 inches)	
Line Voltage	100 – 120 or 220 – 240 VAC, ± 10 %	Wide-ranging capability
Line Frequency	50 or 60 Hz, ± 5 %	
Power consumption	30 W	Maximum
Ambient Operating Temperature	0 – 45 °C (32 – 113 °F)*	<a href="#">see User manual</a>
Ambient Non-operating Temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	< 95 %, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating Altitude	Up to 2000 m (6500 ft)	

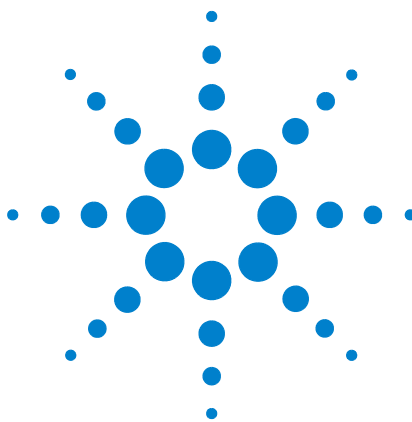


**Table 56** Physical Specifications(continued)

Non-operating Altitude	Up to 4600 m (14950 ft)	For storing the instrument
Safety Standards: IEC, CSA, UL	Installation Category II, Pollution Degree 2	for indoor use only!

\* This temperature range represents the technical specifications for this instrument. The mentioned temperatures may not be suitable for all applications and all types of solvents.





## Miscellaneous

### G1316A Thermostatted Column Compartment G1316B Thermostatted Column Compartment

## Performance Specifications

**Table 57** Performance Specifications Agilent 1200 Series Thermostatted Column Compartment G1316A/G1316B

Type	Specification	Comments
Temperature range	10 degrees below ambient to 80 °C	G1316A
	10 degrees below ambient to 100 °C	G1316B (SL)
	up to 80 °C: flow rates up to 5 ml/min	G1316A / G1316B (SL)
	up to 100 °C: flow rates up to 2.5 ml/min	G1316B (SL)
Temperature stability	± 0.15 °C	G1316A
	± 0.05 °C	G1316B (SL)
Temperature accuracy	± 0.8 °C	With calibration
	± 0.5 °C	
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	i.d. 0.17 mm
	6 µl right heat exchanger	
Dimensions (h × w × d)	140 × 410 × 435 mm	
	(5.5 × 16 × 17 inches)	
Weight	10.2 kg (22.5 lbs)	
Communications	Controller-area network (CAN), GPIB, RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN via other 1200 series module	no GPIB on G1316B SL
Safety and maintenance	Extensive diagnostics, error detection and display (through control module and Agilent ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	



**Table 57** Performance Specifications Agilent 1200 Series Thermostatted Column Compartment G1316A/G1316B(continued)

Type	Specification	Comments
GLP features	Column-identification module for GLP documentation of column type, see <a href="#">"Column-Identification System"</a> in the manual	
Housing	All materials recyclable.	

## Physical Specifications

**Table 58** Physical Specifications

Type	Specification	Comments
Weight	10.2 kg (22.5 lbs)	
Dimensions (width × depth × height)	410 × 435 × 140 mm (16.1 × 17 × 5.5 inches)	
Line Voltage	100 – 240 VAC, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	320 VA / 150 W / 512 BTU	Maximum
Ambient operating temperature	0 – 55 °C (32 – 131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	<95 %, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6500 ft.)	
Non-operating altitude	Up to 4600 m (14950 ft.)	For storing the instrument
Safety standards: IEC, CSA, UL, EN	Installation Category II, Pollution Degree 2 For indoor use only.	







## Miscellaneous

### G1330B Autosampler Thermostat

#### Performance Specifications

**Table 59** Performance Specifications Agilent 1200 autosampler thermostat

Type	Specification
Temperature range:	setable from 4°C to 40°C in 1° increments
Temperature accuracy at ambient temperatures < 25°C and humidity < 50%	-1°C to +4°C at a setpoint of 4°C
Temperature accuracy at ambient temperatures > 25°C and/or humidity > 50%	-1°C to +5°C at a setpoint of 4°C

#### Physical Specifications

**Table 60** Physical Specifications - Thermostatted Autosampler

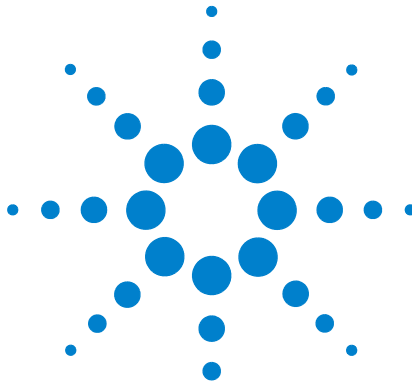
Type	Specification	Comments
Thermostat Weight	20.7 kg (45.6 lbs)	
Dimensions (height × width × depth)	140 × 345 × 435 mm (5.5 × 13.5 × 17 inches)	
Line voltage	100 – 120 or 220 – 240 VAC, ± 10 %	Automatic selection
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	Autosampler: 300 VA ALS Thermostat: 260 VA	Maximum Maximum
Ambient operating temperature	4 – 40 °C (41 – 131 °F)	see <i>User manual</i>
Ambient non-operating temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	< 95 %, at 25 – 40 °C (77 – 104 °F)	Non-condensing;
Operating Altitude	Up to 2000 m (6500 ft)	



**Table 60** Physical Specifications(continued)- Thermostatted Autosampler(continued)

Type	Specification	Comments
Non-operating altitude	Up to 4600 m (14950 ft)	For storing the autosampler
Safety standards: IEC, CSA, UL, EN	Installation Category II, Pollution Degree 2	





## Miscellaneous

### G4240A HPLC-Chip Cube Interface

#### Performance Specifications

**Table 61** Performance Specifications HPLC-Chip Cube Interface

Type	Specification	Comment
<b>GLP features</b>	Number of injection on chip Chip operation time First date of operation Latest date of operation	
<b>Communication</b>	Controller-area-network (CAN), RS 232C, APG remote standard	
<b>Safety features</b>	Enclosure with interlock system, low voltage in maintenance areas, flammability protection, error detection	
<b>Recommended pH-range</b>	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.
<b>Materials in use</b>	Bio-compatible materials	SST, fused silica, zirconium oxide

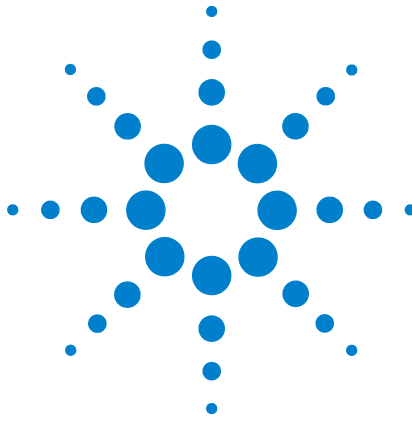


## Physical Specifications

**Table 62** Physical Specifications HPLC-Chip Cube Interface

Type	Specification	Comment
<b>Weight</b>	14 kg (31 lbs)	
<b>Dimensions</b>	349 × 298 × 359 mm (13.7 x 11.7 x 14.1 inch)	Width × depth × height
<b>Line voltage</b>	100 – 240 VAC, +/- 10%	Wide ranging capability
<b>Line frequency</b>	50 or 60 Hz, +/- 5%	
<b>Power consumption</b>	80 W	active power
<b>Ambient operating temperature</b>	5 – 40 °C (41 – 104 °F)	
<b>Ambient non-operating temperature</b>	-40 – 70 °C (-4 – 158 °F)	
<b>Humidity</b>	< 80% at 40 °C (104 °F)	non-condensing
<b>Operating altitude</b>	up to 2000m (6500 ft)	
<b>Non-operating altitude</b>	up to 4600m (14950 ft)	
<b>Safety Standards: IEC, CSA, UL</b>	Installation Category II, Pollution Degree 2	





## Miscellaneous

### Agilent Instant Pilot

## Physical Specifications

**Table 63** Physical Specifications for Agilent Instant Pilot

Type	Specification	Comments
Weight	0.8 kg (1.76 lbs)	
Dimensions (width × depth × height)	130 × 225 × 35 mm (5.1 × 8.9 × 1.4 inches)	
Line voltage	22 VDC, ± 10 %	via CAN
Power consumption	6 W / 20.5 BTU/hour	Maximum
Ambient operating temperature	0 – 55 °C (32 – 131 °F)	.
Ambient non-operating temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	< 95%, at 25 – 40 °C (77 – 104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6500 ft)	
Non-operating altitude	Up to 4600 m (14950 ft)	For storing
Safety standards: IEC, CSA, UL, EN	Installation category II, pollution degree 2. For indoor use only.	



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Part Number: 01200-90100



01200-90100

Edition: 05/06

Printed in Germany  
Agilent Technologies  
Hewlett-Packard-Strasse 8  
76337 Waldbronn, Germany