

# Agilent 1260 Infinity II Quaternary Pump (G7111B)

## Physical Specifications

**Table 7** Physical Specifications

Type	Specification	Comments
Weight	17.6 kg (38.8 lbs)	
Dimensions (height × width × depth)	180 x 396 x 436 mm (7.1 x 15.6 x 17.2 inches)	
Line voltage	100 – 240 V~, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	80 VA, 65 W	
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 3000 m (9842 ft)	
Non-operating altitude	Up to 4600 m (15092 ft)	For storing the module
Safety standards: IEC, EN, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.
ISM Classification	ISM Group 1 Class B	According to CISPR 11

## Performance Specifications

**Table 8** Performance Specifications 1260 Infinity II Quaternary Pump (G7111B)

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
Recommended flow range	0.2 – 10.0 mL/min
Flow precision	≤0.07 % RSD, or ≤0.02 min SD whatever is greater
Flow accuracy	± 1 % or 10 µL/min whatever is greater, pumping degassed H <sub>2</sub> O 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 < 1.0 %), 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)
Settable composition range	0 – 100 % in 0.1 % increments
Composition precision	< 0.2 % RSD or < 0.04 min SD, whatever is greater
Integrated degassing unit	Number of channels: 4 Internal volume per channel: 1.5 mL

## 1 Pumps

### Agilent 1260 Infinity II Quaternary Pump (G7111B)

**Table 8** Performance Specifications 1260 Infinity II Quaternary Pump (G7111B)

Type	Specification
Instrument Control	Lab Advisor B.02.08 or above LC and CE Drivers A.02.14 or above For details about supported software versions refer to the compatibility matrix of your version of the LC and CE Drivers
Local Control	Agilent Instant Pilot (G4208A) B.02.20 or above
Communications	Controller-area network (CAN), Enhanced Remote Interface: ready, start, stop and shut-down signals, LAN onboard
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 II Vialsampler (G7129A)

## Physical Specifications

**Table 45** Physical Specifications

Type	Specification	Comments
Weight	19 kg (41.9 lbs)	w/o Thermostat
Dimensions (height × width × depth)	320 x 396 x 468 mm (12.8 x 15.6 x 18.4 inches)	
Line voltage	100 – 240 V~, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	350 VA / 350 W / 1195 BTU/h	
Ambient operating temperature	4 - 40 °C (39 - 104 °F), without chiller up to 55 °C (131 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F) <sup>1</sup>	Non-condensing
Operating altitude	Up to 3000 m (9842 ft)	
Non-operating altitude	Up to 4600 m (15092 ft)	For storing the module
Safety standards: IEC, EN, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.
ISM Classification	ISM Group 1 Class B	According to CISPR 11
Permitted solvents	Auto-ignition temperature ≥200 °C Boiling point ≥56 °C	

<sup>1</sup> If a sample cooler or thermostat is included the upper value for humidity can be reduced. Please check your lab conditions to stay beyond dew point values for non-condensing operation.

## Performance Specifications

**Table 46** Performance Specifications 1260 Infinity II Vialsampler (G7129A)

Type	Specification
Injection range	0.1 – 100 $\mu\text{L}$ in 0.1 $\mu\text{L}$ increments with 100 $\mu\text{L}$ up to 60 MPa 0.1 – 900 $\mu\text{L}$ in 0.1 $\mu\text{L}$ increments with 900 $\mu\text{L}$ up to 40 MPa
Precision	<0.25 % RSD of peak areas from 5 $\mu\text{L}$ to 100 $\mu\text{L}$
Pressure range	0 – 60 MPa (0 – 600 bar, 0 – 8702 psi) 0 – 40 MPa (0 – 400 bar, 0 – 5801 psi)
Sample viscosity range	0.2 – 5 cp
Sample capacity	132 x 2 mL vial (two trays default) 100 x 2 mL vial (two classic trays optional) 36 x 6 mL vials (two trays optional)
Carry over	<0.004 % (40 ppm) with needle wash
Injection cycle time	18 s for draw speed 200 $\mu\text{L}/\text{min}$ Ejection speed: 200 $\mu\text{L}/\text{min}$ Injection volume: 1 $\mu\text{L}$
Minimum sample volume	1 $\mu\text{L}$ from 5 $\mu\text{L}$ sample in 100 $\mu\text{L}$ microvial, or 1 $\mu\text{L}$ from 10 $\mu\text{L}$ sample in 300 $\mu\text{L}$ microvial.
Instrument Control	Lab Advisor B.02.07 or above LC and CE Drivers A.02.12 or above
Local control	Agilent Instant Pilot (G4208A)
Communications	Controller-area network (CAN), Local Area Network (LAN) ERI: 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 with user-settable limits and feedback messages. Electronic records of maintenance and errors.
Housing	All materials recyclable.
Metering device	Metering device in high pressure flow path

## Physical Specifications of the Sample Cooler

Cooling unit is designed as vapor-compression refrigeration system. Contains fluorinated greenhouse gas (refrigerant) according to the Kyoto protocol. For specifications of refrigerant, charge capacity, carbon dioxide equivalent (CDE), and global warming potential (GWP) see instrument label.

**Table 47** Physical Specification of the Sample Cooler

Type	Specification	Comments
Weight	< 6 kg	
Dimensions (height × width × depth)	205 mm x 340 mm x 370 mm	
Refrigerant gas	HFC-134a (0.042 kg)	Ozone depletion potential (ODP) = 0
Supply voltage	24 VDC (nominal)	
Current	10 A max.	
Ambient operating temperature	4 – 40 °C (39.2 – 104 °F)	
Ambient non-operating temperature	-40 – 70 °C (-20 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 3000 m (9842 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	
Safety standards: IEC, EN, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.
ISM Classification	ISM Group 1 Class B	According to CISPR 11

## 2 Injectors

### Agilent 1260 Infinity II Vialsampler (G7129A)

**Table 48** Performance Specifications Agilent 1290 Sample Cooler

Type	Specifications
Operating principle	High performance, low-energy consumption micro-compressor based cooler with ozone-friendly HFC-134a coolant (42 g), user-upgradable.
Temperature range	from 4 °C to 5 °C below ambient
Temperature settable	from 4 – 40 °C in 1 ° increments
Temperature accuracy (<25 °C, <50 % r.H.)	2 °C to 6 °C at a setpoint of 4 °C

## Specifications of the Sample Thermostat

The sample thermostat is designed as a combination of a heater and vapor-compression refrigeration system. It uses non-Freon refrigerant (isobutane). This material is harmless to the environment and does not affect the ozone layer and global warming but it is combustible. Please adhere to the warnings listed in the manual.

**Table 49** Physical Specifications of the Sample Thermostat

Type	Specification	Comment
Weight	<6 kg	
Dimensions (height x width x depth)	205 mm x 340 mm x 370 mm	
Refrigerant gas	R600a (0.030 kg)	Ozone depletion potential (ODP) =0 Global warming potential (GWP) =3
Supply voltage	24VDC (nominal)	
Current	10 A max.	
Ambient operating temperature	4 – 40 °C (39.2 – 104 °F)	
Ambient non-operating temperature	-40 – 70 °C (-20 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 3000 m (9842 ft)	
Non-operating altitude	Up to 4600 m (15091 ft)	
Safety standards: IEC, EN, CSA, UL	Installation category II, Pollution degree 2	For indoor use only
ISM Classification	ISM Group 1 Class B	According to CISPR 11



## 2 Injectors

### Agilent 1260 Infinity II Vialsampler (G7129A)

**Table 50** Performance Specifications for the Sample Thermostat

Type	Specifications
Operating principle	High performance, low-energy consumption micro-compressor based cooler with natural R600a coolant (Butane 30 g), user-upgradable
Temperature range	from 4 – 40 °C
Temperature settable	from 4 – 40 °C in 1 ° increments
Temperature accuracy (<25 °C, <50 % r.H.)	2 – 6 °C at a setpoint of 4 °C

#### NOTE

Minimum firmware revision for the sample thermostat is D.07.22.

Minimum LC driver revision for the sample thermostat is A.02.14.

# Agilent 1260 Infinity II Multiple Wavelength Detector (G7165A)

## Physical Specifications

**Table 89** Physical Specifications

Type	Specification	Comments
Weight	12 kg (26.5 lbs)	
Dimensions (height × width × depth)	140 x 396 x 436 mm (5.5 x 15.6 x 17.0 inches)	
Line voltage	100 – 240 V~, ± 10 %	Wide-ranging capability
Line frequency	50 or 60 Hz, ± 5 %	
Power consumption	110 VA / 100 W	
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 3000 m (9842 ft)	
Non-operating altitude	Up to 4600 m (15092 ft)	For storing the module
Safety standards: IEC, EN, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.
ISM Classification	ISM Group 1 Class B	According to CISPR 11

## Performance Specifications

**Table 90** Performance Specifications 1260 Infinity II Multiple Wavelength Detector (G7165A)

Type	Specification
Detection type	1024-element photodiode array
Light source	Deuterium and tungsten lamps
Data rate	up to 120 Hz
Wavelength range	190 – 950 nm
Short term noise (ASTM) Single and Multi-Wavelength	$< \pm 0.7 \cdot 10^{-5}$ AU at 254 and 750 nm
Drift	$< 0.9 \cdot 10^{-3}$ AU/h at 254 nm
Linear absorbance range	$> 2$ AU (5 %) at 265 nm
Wavelength accuracy	$\pm 1$ nm
Wavelength bunching	1 – 400 nm
Slit width	1, 2, 4, 8, 16 nm
Diode width	$< 1$ nm

## Agilent 1260 Infinity II Multiple Wavelength Detector (G7165A)

**Table 90** Performance Specifications 1260 Infinity II Multiple Wavelength Detector (G7165A)

Type	Specification
Flow cells	<p>Standard: 13 <math>\mu</math>L volume, 10 mm cell path length and 120 bar (1740 psi) pressure maximum</p> <p>Standard bio-inert: 13 <math>\mu</math>L volume, 10 mm cell path length and 120 bar (1740 psi) pressure maximum</p> <p>Semi-micro: 5 <math>\mu</math>L volume, 6 mm cell path length and 120 bar (1740 psi) pressure maximum</p> <p>Micro: 2 <math>\mu</math>L volume, 3 mm cell path length, 120 bar (1740 psi) pressure maximum</p> <p>Semi-nano: 500 nL volume, 10 mm cell path length and 50 bar (725 psi) pressure maximum</p> <p>Nano: 80 nL volume, 6 mm cell path length and 50 bar (725 psi) pressure maximum</p> <p>High pressure: 1.7 <math>\mu</math>L volume, 6 mm cell path length and 400 bar (5800 psi) pressure maximum</p> <p>Prep SST: 3 mm cell path length and 120 bar (1740 psi) pressure maximum</p> <p>Prep Quartz: 0.3 mm cell path length and 20 bar (290 psi) pressure maximum</p> <p>Prep Quartz: 0.06 mm cell path length and 20 bar (290 psi) pressure maximum</p> <p>SFC Flow Cell: Light path 10 mm, Pressure Rating 400 bar, Internal Volume 13 <math>\mu</math>L</p> <p>SFC Flow Cell LD: Light Path 3 mm, Pressure Rating 400 bar, Internal Volume 2 <math>\mu</math>L</p>
Time programmable	Wavelength, polarity, peak width, lamp bandwidth, autobalance, wavelength range, threshold, spectra storage mode
Instrument Control	Lab Advisor B.02.08 or above LC and CE Drivers A.02.14 or above
Local Control	Agilent Instant Pilot (G4208A)
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 – 2 AU, two outputs
Communications	Controller-area network (CAN), USB Extended Remote Interface (ERI): ready, start, stop and shut-down signals

### 3 UV-Detectors

#### Agilent 1260 Infinity II Multiple Wavelength Detector (G7165A)

**Table 90** Performance Specifications 1260 Infinity II Multiple Wavelength Detector (G7165A)

Type	Specification
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-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.
Others	Second generation of Electronic temperature control (ETC) for the complete optical unit