Agilent 1290 Infinity II Diode Array Detector

Data Sheet

Product Description

The Agilent 1290 Infinity II Diode Array Detector (DAD) is based on the Agilent Max-Light cartridge cell with optofluidic waveguides that improve light transmission to near 100% efficiency without sacrificing resolution caused by cell dispersions effects. With typical detector noise levels of < ± 0.6 µAU/cm the revolutionary 60 mm flow cell gives up to 10 times higher sensitivity than detectors with conventional flow cells. Any compromising refractive index and thermal effects are almost completely eliminated, resulting in significantly less baseline drift for more reliable and precise peak integration. For ultrafast separations, the 1290 Infinity II DAD offers multiple wavelength and full spectral detection at sampling rates up to 240 Hz.

Features

- Universal Agilent Max-Light standard cartridge cell with 10 mm optical path length provides high sensitivity (noise: < ±3 µAU) and low peak dispersion for 2.1, 3 and 4.6 mm id columns.
- Programmable slit from 1 to 8 nm provides optimum incident light conditions for rapid optimization of sensitivity, linearity and spectral resolution.
- Multiple wavelength and full spectral detection at high sampling rate of 240 Hz, keeping pace with fastest possible analysis speed.
- More reliable and robust peak integration process due through less baseline drift.
- Full spectral detection for compound identification by spectral libraries or verification of the separation quality with peak purity analysis for ultrafast LC. Simultaneous detection of up to 8 signals for increased sensitivity and selectivity.
- Wide linear range (typically up to 2.5 AU)- for reliable, simultaneous quantification of primary compounds, by-products and impurities.
- Upgrade option to 1290 Infinity II HDR DAD solution provides 30x wider linear range for samples with widely different concentration levels.
- Radio frequency identification (RFID) technology for flow cells and lamp provide new levels of data security and traceability.
- Next generation of electronic temperature control (ETC) provides maximum baseline stability and practical sensitivity under fluctuating ambient temperature and humidity conditions.

Specifications

Table 1 Physical Specifications

Type	Specification	Comments
Weight	11.5 kg (25.4 lbs)	
Dimensions (height × width × depth)	140 x 396 x 436 mm (5.5 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	110 VA, 100 W	
Ambient operating temperature	4 – 40 °C (39 – 104 °F)	
Ambient non-operating temperature	-40 – 70 °C (-40 – 158 °F)	
Humidity	< 95 % r.h. at 40 °C (104 °F)	Non-condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15092 ft)	For storing the module
Safety standards: IEC, EN, CSA, UL	Installation category II, Pollution degree 2	For indoor use only.

Table 2 Agilent 1290 Infinity II Diode Array Detector (G7117B) Performance Specifications

Feature	Specification
Detector type	1024-element diode array
Light source	Deuterium
Number of signals	8
Maximum sampling rate	240 Hz (both spectra and signals)
Short-term noise	with 10 mm Max-Light cartridge cell: $<\pm 3 \cdot 10^{-6}$ AU at 230/4 nm, slit width 4 nm, TC 2 s, ASTM with 60 mm Max-Light cartridge cell: $<\pm 0.6 \cdot 10^{-6}$ AU/cm at 230/4 nm, slit width 4 nm, TC 2 s, ASTM
Drift	$<0.5 \cdot 10^{-3}$ AU/h at 230 nm
Linearity	>2.0 AU (5 %) at 265 nm Typically 2.5 AU (5 %)
Wavelength range	190 – 640 nm

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Feature	Specification
Wavelength accuracy	±1 nm, self-calibration with deuterium lines
Wavelength precision	<±0.1 nm
Slit width	Programmable: 1, 2, 4, 8 nm
Diode width	~0.5 nm
Wavelength bunching	Programmable, 2 – 400 nm, in steps of 1 nm
Spectral tools	Data analysis software for spectra evaluation, including spectral libraries and peak purity functions
Flow cells	User-exchangeable, self-aligning cartridge cells with RFID tags. Max-Light Cartridge Cell (Standard): 10 mm, σ_V = 1.0 µL Max-Light Cartridge Cell (High Sensitivity): 60 mm, σ_V = 4 µL Max-Light Cartridge Ultra Low Dispersion (ULD) Cell: 10 mm, σ_V = 0.6 µL Max-Light Cartridge High Dynamic Range (HDR) Cell: 3.7 mm, σ_V = 0.8 µL Maximum Operating Pressure (MOP)[1]: 70 bar Maximum Incidental Pressure (MIP)[2]: 150 bar
Analog output	Recorder/integrator: 100 mV or 1 V, output range 0.001 – 2 AU, one output
Communications	LAN, controller-area network (CAN), ERI: ready, start, stop and shut-down signals
GLP features	Data recovery card to prevent data losses. RFID for electronics records of flow cell and UV lamp conditions (path length, volume, product number, serial number, test passed, usage) Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user settable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with deuterium lines.
Safety and maintenance	Extensive diagnostics, error detection and display through Agilent Instant Pilot and Agilent Lab Advisor software. Leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.
Others	Second generation of Electronic temperature control (ETC) for the complete optical unit

1 Maximum operating pressure (MOP): Maximum pressure at which a system can operate continuously under normal conditions.

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

Ordering Details

Description	Part Number
1290 Infinity II Diode Array Detector	
240 Hz data rate, programmable slit Includes 10 mm Max-Light cartridge cell	G7117B
Replace cell with high-sensitivity cell, 60 mm	G7117B #030
Add high-sensitivity flow cell	G7117B #031
Replace cell with high-dynamic-range (HDR) flow cell, 3.7 mm	G7117B #034
Replace cell with ultralow-dispersion (ULD) flow cell, 10 mm	G7117B #035
Add ultralow-dispersion (ULD) flow cell 10 mm	G7117B #036
Add test cell	G7117B #040

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