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Waters 2424 Evaporative Light Scattering Detector

The Waters 2424 Evaporative Light Scattering (ELS) Detector has been specifically designed to complement Waters HPLC Systems for monitoring compounds with poor to no Ultraviolet/Visible response and analytes that do not ionize well in mass spectrometry. The 2424 ELS Detector design allows for a wide range of applications including open access environments, is stackable, and requires no extra bench space. This detector can be operated in stand-alone mode as well as under Empower™ 2 and MassLynx™ software environments.

OPERATING SPECIFICATIONS

Nebulizers	
High-flow rate (standard with detector)	300 to 3000 μ L/min, 1.80 L/min at 25 psi
Optional low-flow rate	50 to 500 μ L/min, 0.77 L/min at 25 psi

Temperature control	
Nebulizer heater power	0% to 100%
Nebulizer cooler	On/off
Drift tube	5.0 to 100.0 $^{\circ}$ C; 0.1 $^{\circ}$ C increments, feedback accuracy to 0.1 $^{\circ}$ C
Gas supply	Nitrogen, to be supplied at least 65 psi

Keypad	24 keys
Display	128 x 64, backlit
Gain setting	0 to 1000

OPTICAL COMPONENT SPECIFICATIONS

Optics	Heated optics bench (constant 50 $^{\circ}$ C)
Light source	Tungsten halogen polychromatic front mounted, pre-aligned, user installable

Lamp on/off timer	Lamp history by hours and ignitions based on serial number with lamp hours
Lamp calibration	Pre-aligned assembly
Lamp normalization	On demand and at startup diagnostic corrects for lamp signal output decrease
Detector	Photomultiplier tube
PMT calibration	Based on individual PMT
Voltage range	0 to 1250 VDC

DATA

Range	0.1 to 2000.0 LSU full scale
Attenuation settings	10 to 2000 LSU full scale; 10 to 2000 mV
Filter setting	Hamming, 0.0 to 5.0 s
RS232 output	Used for service diagnostics only

PROGRAMMABILITY

Stand-alone programmability	Fully time-programmable 10 stored methods up to 50 events per method
Software compatibility	MassLynx™ 4.1 Software and Empower™ 2 Software 32-bit digital data

ELECTRICAL SPECIFICATIONS

Analog data output signal range	-0.1 V to +2.0 VDC fully attenuated
Digital data	32 bit digital data, 80 Hz using ethernet connection
Analog outputs	Two (2) outputs, output 1 can monitor LSU units only; output 2 can monitor temperature of nebulizer, drift tube, CHM (if present), gas pressure, 0 to 2 volts, with user programmable voltage or data offset
Input voltage range	85 to 264 VAC
Input frequency range	47 to 63 Hz
Max VA input	200 VA
Inputs	Lamp on/off, Inject start, Chart mark, Auto zero
Outputs	Stop flow, switches pump flow off/on gas pressure fault. Programmable contact closure enabled by time or threshold signal

PHYSICAL/ENVIRONMENTAL SPECIFICATIONS

Dimensions	Width: Height: Depth: 28.4 cm (11.2 in.) 20.3 cm (8.0 in.) 52.1 cm (20.5 in.)
Weight	14.7 kg (32.5 pounds)
Operating	20% to 95%, non-condensing

humidity range	
Operating temperature range	4.0 to 30.0 °C (39.2 to 86.0 °F)
Compliance	CE Mark CSA C-tick and UL



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