

2414 Refractive Index Detector

The Waters® 2414 Refractive Index (RI) Detector defines the standard of excellence for differential refractive index detectors. Designed to provide the highest sensitivity, stability, and reproducibility, the 2414 RI Detector is the ideal solution for the analysis and quantification of components with limited or no UV absorption, such as alcohols, sugars, saccharides, fatty acids, and polymers.



OPERATING SPECIFICATIONS¹

Refractive index range	1.00 to 1.75 RIU
Measurement range	5.0×10^{-4} RIU to 7.0×10^{-9} RIU
Linear dynamic range	$\leq 5.0\%$ over $\pm 5.0 \times 10^{-4}$ RIU
Noise ²	$\pm 1.5 \times 10^{-9}$ RIU (2 s FTC Hamming 1.0 mL/min, 100% H ₂ O) $\pm 3.0 \times 10^{-9}$ RIU 410/2410 emulation mode (1 s FTC (RC) 1.0 mL/min, 100% H ₂ O)
Drift	2.0×10^{-7} RIU/hour
Filter time constant	0.0 to 5.0 s (Hamming) 0.0 to 10.0 s (RC)
Compatible flow rate range	0.1 to 10.0 mL/min
Attenuation settings	1 to 500×10^{-6} RIU 1 to 1024 maximum in emulation mode
Temperature control	Internal oven: 30 to 55 °C (86 to 131 °F), ± 0.5 °C, settable 1 °C increments One external column heater, steel: Ambient to 150 °C (302 °F), ± 1.0 °C, settable 1 °C increments

OPTICAL COMPONENT SPECIFICATIONS

Flow cell	Fused quartz
Flow cell volume	10 μ L
Flow cell pressure limit	≤ 100 psi
Light source	LED 870 nm
Wetted materials	316 stainless steel, PTFE, PEEK, quartz

ELECTRICAL SPECIFICATIONS

Power requirements	100 to 240 VAC
Line frequency	50 to 60 Hz
Power consumption	145 VA (nominal)
Inputs	Seven event inputs
Outputs	Three outputs (2 analog and 1 event)

PHYSICAL/ENVIRONMENTAL SPECIFICATIONS

Dimensions	Width:	34.3 cm (13.5 inches)
	Height:	20.8 cm (8.2 inches)
	Depth:	61.0 cm (24.0 inches)
Weight	16.3 kg (36.0 pounds)	
Operating temperature range	15 to 40 °C (59 to 104 °F)	
Operating humidity range	20% to 80%, non-condensing	
Audible noise	<58 dBA	

ORDERING INFORMATION**PART NUMBER**

2414 Refractive Index Detector for Alliance® HPLC Systems	186241401
2414 Refractive Index Detector for ACQUITY® Arc™ Systems	176017008
Column Heating Compartment	WAT038040

1. All performance specifications are measured following a warm-up period of 2 hours with ambient $\Delta T \leq \pm 2.0$ °C/hour
2. ASTM E1303-95

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