

## FR-103 AUTO/CROSSCORRELATOR COMPARISON MATRIX

[All NL Crystal units offer high dynamic range (40dB)].

NL Crystal Auto/CrossCorrelators	FR-103MN	FR-103XL	FR-103HS	FR-103WS	FR-103HP
Special Design	Uniform Rotating // Mirror Assembly		High Duty Cycle // Mirror Assembly		
Resolution	1 fs <sup>(1)</sup>	1 fs <sup>(1)</sup>	1 fs <sup>(1)</sup>	< 3 fs <sup>(1)</sup>	1 fs <sup>(1)</sup>
Wavelength Range	410 - 3000 nm	410 - 3000 nm	410 - 3000 nm	410 - 3000 nm	410-5000nm
Scan Range	>60 ps	>185 ps	>60ps, >185ps	>400 ps	> 60ps
Pulsewidth Range	5 fs → 15ps	5 fs → 90ps	5 fs → 75ps	10 fs → 200ps	5 fs → 15ps
Sensitivity [(P <sub>av</sub> P <sub>pk</sub> ) <sub>min</sub> ] <sup>(2)</sup>	0.3 x (10) <sup>-7</sup> W <sup>2</sup>	(10) <sup>-7</sup> W <sup>2</sup>	0.5 x 10 <sup>-8</sup> W <sup>2</sup>	(10) <sup>-7</sup> W <sup>2</sup>	(10) <sup>-2</sup> W <sup>2</sup>
Fiber Coupled/Free-Space	Option	Option	Option	Option	Option
Interferometric/Noncollinear	Option	Option	Option	Option	Option
Minimum Input Pulse Rep Rate	4Hz <sup>(3)</sup>	4Hz <sup>(3)</sup>	5Hz <sup>(4)</sup>	5Hz <sup>(4)</sup>	5Hz <sup>(4)</sup>
Computer Data Acquisition	Option	Option	Option	Option	Option
LCD Display (640 x480 pixels)	Option	Option	Option	Option	--
Comment	Compact Design High Sensitivity	Versatile Wide Scan Range	Unprecedented Sensitivity	Ultra-wide Scan Range	Cost effective for High Power lasers

Notes:

(1) With 25 μm NL crystal thickness

(2) Noise Equivalent Signal Level with 1mm crystal and 1ps resolution

(3) Min Rep Rate: Standard: ~100kHz

With /LRR (Low Rep Rate Option): 4Hz

(4) Min Rep Rate: Standard: ~10kHz

With /SSO (Slow Scan Option): 5Hz

Two-Photon Conductivity (TPC)	FR-103PD	FR-103kHz <sup>(5)</sup>	FR-103MC <sup>(5)</sup>	FR-103TPM
Resolution	1 fs	1 fs	< 3 fs	< 3 fs
Wavelength Range <sup>(5)</sup>	500-3000nm	500-3000nm	500-3000nm	500-3000nm
Scan Range	>40 ps	40 fs → 15ps	40 ps	40 ps
Pulsewidth Range	5 fs → 10 ps	5 fs → 5 ps	10 fs → 10 ps	10 fs → 10 ps
Sensitivity <sup>(6)</sup>	(10) <sup>-4</sup> W <sup>2</sup>	(10) <sup>-6</sup> W <sup>2</sup>	(10) <sup>-6</sup> W <sup>2</sup>	(10) <sup>-6</sup> W <sup>2</sup>
Interferometric	Yes	Yes	Yes	Yes
Polarization insensitive	Yes	Yes	Yes	Yes
Fiber Coupled/Free Space	Option	Option	Option	Option
Computer Interface	Option	Option	Option	Option
Minimum Input Pulse Rep Rate	4Hz <sup>(7)</sup>	10Hz <sup>(8)</sup>	5Hz <sup>(9)</sup>	5Hz <sup>(9)</sup>
Comment	Standard TPC Unit	'Real-time' pulse monitoring	"fs Detector" OEM applications	For Two-Photon Microscopy

Notes: (5) NL crystal version optional, with wavelength range to 410nm

(6) With /1300 photosensor module

(7) With /LRR option

(8) 'Real-time' for > 100Hz

(9) Standard : ~10kHz , w/SSO: 5Hz

