

FPI 100

Fabry-Perot Interferometer and Detector Unit

Confocal scanning interferometer

The Fabry-Perot Interferometer FPI 100 comprises a confocal scanning interferometer and a photodetector unit in a single, compact and rugged device.

Scanning Fabry-Perot interferometers are established tools for measuring and controlling the spectral characteristics of continuous wave (CW) lasers. When high resolution, as well as fast and convenient operation, is required, the confocal interferometer design is the most appropriate solution.

The FPI 100 is available with different mirror sets and photo detectors for wavelength ranges between 330 and 1700 nm. The standard mirror reflectivity is 99.9 %, other reflectivities are available upon request. The customer can choose between two models with free spectral ranges (FSR) of 1.0 GHz or 4.0 GHz. For both models, typical finesse values of about 1000 are attained. This translates into a spectral resolution of 1 MHz or 4 MHz for the two versions, respectively.



Scanning Fabry-Perot interferometer and detector unit.

Mirror exchange kit.

Photo diode exchange kit.

Options

Mirror exchange kit	Quick adaptation to new wavelength ranges Six different mirror sets available for wavelengths 330 .. 1700 nm
Photo diode exchange kit*	Matches the diode sensitivity to the incident light wavelength Two models available for wavelengths 330 .. 1100 nm or 600 .. 1700 nm Auto-aligned unit with built-in focusing lens
Photo diode amplifier unit (PDA-S)*	6-step adjustable gain up to 10^7 V/A Maximum bandwidth 30 kHz
Scanning option*	Stand-alone scan generator miniScan (see page 51) Piezo element in FPI can also be driven with SC 110 module (see page 34)
Fiber coupler kit	Fast exchange of laser source using an FC/APC style connector
Thermo kit	Active thermal control for FPI 100 Recommended when the FPI 100 is used for relative frequency locking

*Photo diode exchange kits, miniScan and photo diode amplifier units are general laser accessories and can be purchased and used independently of the FPI 100.

Key features

- Convenient mode analysis of diode lasers
- Various mirror sets available for 330 .. 1700 nm
- Free spectral range 1 GHz or 4 GHz, finesse > 400 (typ. 1000)
- Reduction of short-term linewidth of diode lasers possible (please inquire)

FPI 100

Fabry-Perot Interferometer and Detector Unit

FPI 100 Base Units						
Article number	Wavelength range	FSR	Finesse		Resolution Typ.	Aperture
			Spec.	Typ.		
FPI 100-0355-y	330 ... 380 nm	y = 1: 1 GHz y = 4: 4 GHz	> 200	1000	1 or 4 MHz	7 mm
FPI 100-0400-y	380 ... 430 nm		> 300			
FPI 100-0500-y	430 ... 660 nm		> 400			
FPI 100-0750-y	615 ... 885 nm		> 400			
FPI 100-0980-y	825 ... 1200 nm		> 400			
FPI 100-1500-y	1200 ... 1700 nm		> 500			
FPI 100-xxxx	User specific		User specific			

Base unit includes Piezo stack for scanning, mirror set and photodiode for the chosen wavelength, post and post mount.
Not included: photo diode amplifier unit, thermo kit or fiber coupler.

Options and accessories for upgrade or wavelength adaptations of existing FPI 100 Base Units

Drivers and detectors		
Article number	Description	Specifications
SC 110	Scan unit	Voltage ramp 0 .. +150 V
PDA-S	Photo diode amplifier unit	Variable gain (3.3 x 10 ⁴ V/A to 1 x 10 ⁷ V/A), 6 levels, 30 kHz bandwidth, DC and AC BNC outputs, mains supply adapter
miniScan 102	Scan unit with integrated photo diode amplifier	Voltage ramp 0 .. +100 V Variable gain (3.3 x 10 ⁴ V/A to 1 x 10 ⁷ V/A), 6 levels, 30 kHz bandwidth

Mirror exchange kits			
Article number	Description	Min.	Typ.
FPI-MEXCK 0355	330 ... 380 nm	R > 99.8 %	R ≈ 99.9 %
FPI-MEXCK 0400	380 ... 430 nm		
FPI-MEXCK 0500	430 ... 660 nm		
FPI-MEXCK 0750	615 ... 885 nm		
FPI-MEXCK 0980	825 ... 1200 nm		
FPI-MEXCK 1500	1200 ... 1700 nm		

Photo diode exchange kits		
Article number	Description	Wavelength coverage
FPI-PD-EXCK VIS	Photo diode VIS	330 - 1100 nm
FPI-PD-EXCK NIR	Photo diode NIR	600 - 1700 nm

Thermokit	FPI-Thermokit	Includes thermal packaging (TEC), DTC 100
Fiber coupler kit	FPI-FCK FC/APC	Standard socket type FC/APC

We also offer other fiber accessories. Please inquire.