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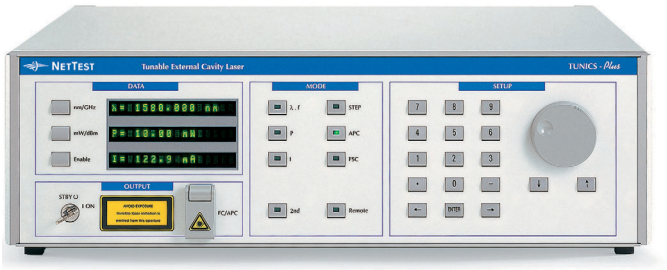
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Find the *Exfo / NetTest / Photonetics TUNICS-Plus* at our website: ***Click HERE***

Tunics Plus

Tunable External Cavity Laser



KEY FEATURES

- Broad spectral coverage
- High output power
- Active control for mode-hop-free operation
- Wide, fast, truly continuous tunability
- Affordable price
- Wavelength monitoring

Tunics Plus is a general-purpose benchtop "work-horse" tunable laser, offering the basic features of the Tunics prime benchtop models.

Broad Spectral Coverage

With up to 150 nm of tuning range, Tunics Plus is available in eight different versions from 1240 to 1640 nm.

High Output Power

Up to +10 dBm for the Tunics Plus 10 model eases the power budget and provides high-dynamic range measurements.

Active Control for Mode-Hop-Free Operation

For ultimate performance, Tunics Plus features a proprietary active control that ensures perfect mode-hop-free operation and accurate wavelength sweep over its entire tuning range.

Wide, Fast and Truly Continuous Tunability

Extremely smooth scans up to 150 nm, with 1 pm resolution, allow a fine analysis over a wide spectral range.

Affordable Price

With its affordable price and state-of-the-art high-performance, Tunics Plus should equip the bench of each and every contributor in the field of optical fiber communications.

Wavelength Monitoring

By connecting part of the light to a wavelength meter, Tunics Plus is able to internally adjust the output wavelength to the required wavelength within the wavelength meter accuracy. This function can be activated from the keyboard or through GPIB. It is compatible with wavelength meters providing RS 232-C remote control (contact us for compatible wavelength meters list).

Sweeping Mode Option

As an option, Tunics Plus features sweeping mode. This mode delivers a continuous variation of the wavelength at a constant, selectable rate to enable a fast and uninterrupted measurement.

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Specifications

	Tunics Plus O	Tunics Plus E	Tunics Plus S/WB	Tunics Plus S
Tuning Characteristics				
Wavelength range (mode hop free)				
• P = 0 dBm	1240-1310 nm	1360-1430 nm	1390-1540 nm	1430-1530 nm
• P = 3 dBm		1380-1410 nm	1420-1520 nm	
• P = 6 dBm				1440-1500 nm
• P = 8 dBm			1440-1510 nm	1450-1490 nm
• P = 10 dBm				
Absolute wavelength accuracy[1]	±0.04 nm	±0.04 nm	±0.04 nm	±0.04 nm
Tuning repeatability (typ.)	±0.005 nm	±0.005 nm	±0.005 nm	±0.005 nm
Wavelength setting resolution	0.001 nm	0.001 nm	0.001 nm	0.001 nm
Optical frequency fine tuning	±2 GHz	±2 GHz	±2 GHz	±2 GHz
Tuning speed (typ.)	1 s (100 nm)	1 s (100 nm)	1 s (100 nm)	1 s (100 nm)
Laser Output Characteristics				
Power stability[2]	±0.01 dB	±0.01 dB	±0.01 dB	±0.01 dB
Side mode suppression ratio[3]	> 45 dB	> 45 dB	> 45 dB	> 45 dB
Signal to source spontaneous-emission ratio[4]	> 55 dB	> 55 dB	> 55 dB	> 55 dB
Relative intensity noise[3, 5]	-145 dB/Hz (typ.)	-145 dB/Hz (typ.)	-145 dB/Hz (typ.)	-145 dB/Hz (typ.)
Sweeping Mode Option Characteristics				
Mode hop free range	Whole wavelength range for each specified power	Whole wavelength range for each specified power	Whole wavelength range for each specified power	Whole wavelength range for each specified power
Scan speed	Adjustable from 1 to 100 nm/s	Adjustable from 1 to 100 nm/s	Adjustable from 1 to 100 nm/s	Adjustable from 1 to 100 nm/s
Power flatness during scan (typ.)	±0.25 dB	±0.25 dB	±0.25 dB	±0.25 dB
Power repeatability from scan to scan (typ.)[6]	±0.05 dB	±0.05 dB	±0.05 dB	±0.05 dB
Interfaces				
Optical connector	FC-APC	FC-APC	FC-APC	FC-APC
Output fiber	SMF-28™	SMF-28™	SMF-28™	SMF-28™
Output isolation	35 dB	35 dB	35 dB	35 dB
Return loss	60 dB	60 dB	60 dB	60 dB
Remote control	RS-232 C and IEEE-488.1	RS-232 C and IEEE-488.1	RS-232 C and IEEE-488.1	RS-232 C and IEEE-488.1
Low frequency modulation	10 kHz to 8 MHz	10 kHz to 8 MHz	10 kHz to 8 MHz	10 kHz to 8 MHz
High frequency modulation	30 kHz to 1 GHz	30 kHz to 1 GHz	30 kHz to 1 GHz	30 kHz to 1 GHz
Environment				
Operating temperature range	+15 to +30°C +60 to +85°F	+15 to +30°C +60 to +85°F	+15 to +30°C +60 to +85°F	+15 to +30°C +60 to +85°F
Power supply	100 to 240 V 50 to 60 Hz	100 to 240 V 50 to 60 Hz	100 to 240 V 50 to 60 Hz	100 to 240 V 50 to 60 Hz
Dimensions (W x H x D) in mm[3]	448 x 133 x 370	448 x 133 x 370	448 x 133 x 370	448 x 133 x 370
Weight	12.5 kg	12.5 kg	12.5 kg	12.5 kg

Notes

Unless otherwise specified, specifications are given after 30 minutes warm-up.

[1] After self calibration

[2] Over one hour at a constant temperature and after 1 hour warm-up

[3] Measured with 0 dBm output power

[4] Spontaneous emission measured on a 0.1 nm bandwidth at ±1 nm from the signal

[5] Measured at an electrical frequency of 100 MHz

[6] Over 100 scans at constant temperature

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Specifications

	Tunics Plus SC	Tunics Plus 10 High Power	Tunics Plus CL	Tunics Plus CL/WB
Tuning Characteristics				
Wavelength range (mode hop free)				
• P = 0 dBm	1470-1570 nm	1500-1600 nm	1525-1625 nm	1490-1640 nm
• P = 3 dBm				
• P = 6 dBm	1480-1560 nm	1510-1580 nm	1540-1620 nm	1520-1630 nm
• P = 8 dBm	1510-1550 nm		1560-1600 nm	1540-1610 nm
• P = 10 dBm		1530-1570 nm		
Absolute wavelength accuracy[1]	±0.04 nm	±0.04 nm	±0.04 nm	±0.04 nm
Tuning repeatability (typ.)	±0.005 nm	±0.005 nm	±0.005 nm	±0.005 nm
Wavelength setting resolution	0.001 nm	0.001 nm	0.001 nm	0.001 nm
Optical frequency fine tuning	±2 GHz	±2 GHz	±2 GHz	±2 GHz
Tuning speed (typ.)	1 s (100 nm)	1 s (100 nm)	1 s (100 nm)	1 s (100 nm)
Laser Output Characteristics				
Power stability[2]	±0.01 dB	±0.01 dB	±0.01 dB	±0.01 dB
Side mode suppression ratio[3]	> 45 dB	> 45 dB	> 45 dB	> 45 dB
Signal to source spontaneous-emission ratio[4]	> 55 dB	> 55 dB	> 55 dB	> 55 dB
Relative intensity noise[3, 5]	-145 dB/Hz (typ.)	-145 dB/Hz (typ.)	-145 dB/Hz (typ.)	-145 dB/Hz (typ.)
Sweeping Mode Option Characteristics				
Mode hop free range	Whole wavelength range for each specified power	Whole wavelength range for each specified power	Whole wavelength range for each specified power	Whole wavelength range for each specified power
Scan speed	Adjustable from 1 to 100 nm/s	Adjustable from 1 to 100 nm/s	Adjustable from 1 to 100 nm/s	Adjustable from 1 to 100 nm/s
Power flatness during scan (typ.)	±0.25 dB	±0.25 dB	±0.25 dB	±0.25 dB
Power repeatability from scan to scan (typ.)[6]	±0.05 dB	±0.05 dB	±0.05 dB	±0.05 dB
Interfaces				
Optical connector	FC-APC	FC-APC	FC-APC	FC-APC
Output fiber	SMF-28™	SMF-28™	SMF-28™	SMF-28™
Output isolation	35 dB	35 dB	35 dB	35 dB
Return loss	60 dB	60 dB	60 dB	60 dB
Remote control	RS-232 C and IEEE-488.1	RS-232 C and IEEE-488.1	RS-232 C and IEEE-488.1	RS-232 C and IEEE-488.1
Low frequency modulation	10 kHz to 8 MHz	10 kHz to 8 MHz	10 kHz to 8 MHz	10 kHz to 8 MHz
High frequency modulation	30 kHz to 1 GHz	30 kHz to 1 GHz	30 kHz to 1 GHz	30 kHz to 1 GHz
Environment				
Operating temperature range	+15 to +30°C +60 to +85°F	+15 to +30°C +60 to +85°F	+15 to +30°C +60 to +85°F	+15 to +30°C +60 to +85°F
Power supply	100 to 240 V 50 to 60 Hz	100 to 240 V 50 to 60 Hz	100 to 240 V 50 to 60 Hz	100 to 240 V 50 to 60 Hz
Dimensions (W x H x D) in mm[3]	448 x 133 x 370	448 x 133 x 370	448 x 133 x 370	448 x 133 x 370
Weight	12.5 kg	12.5 kg	12.5 kg	12.5 kg

Notes

Unless otherwise specified, specifications are given after 30 minutes warm-up.

1 After self calibration

2 Over one hour at a constant temperature and after 1 hour warm-up

3 Measured with 0 dBm output power

4 Spontaneous emission measured on a 0.1 nm bandwidth at ±1 nm from the signal

5 Measured at an electrical frequency of 100 MHz

6 Over 100 scans at constant temperature

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Ordering Information

Model name Tunics Plus O or **E** or **S** or S/WB or **SC** or **CL** or CL/WB or **P10**
Please specify the model name followed by the options:
Example: **Tunics Plus E/M**

Options

Use the following code references that correspond to the available options:

Code	Description
M	Polarization maintaining output fiber (orientation TE in slow axis, in line with connector key)
SW	Sweeping mode

Accessories

Use the following descriptions that correspond to the available accessories:

Description

- LabView driver for Tunics Plus
- Fiber optic jumper FC-APC/FC-APC
- Fiber optic jumper FC-APC/FC-PC
- Polarization maintaining fiber optic jumper FC-APC/FC-APC
- Polarization maintaining fiber optic jumper FC-APC/FC-PC
- Carrying case

Each benchtop instrument is delivered as standard with a FC-APC/FC-PC fiber optic jumper.



All TUNICS models comply with IEC 60825-1 and FDA (21CFR Subchapter J) laser safety standards. The proprietary configuration of Tunics is patented. (US patents # 5,594,744 and # 5,802,085 and # 6,252,718 B1 and # 6,324,193 B1, and # 6,339,609 B2)

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