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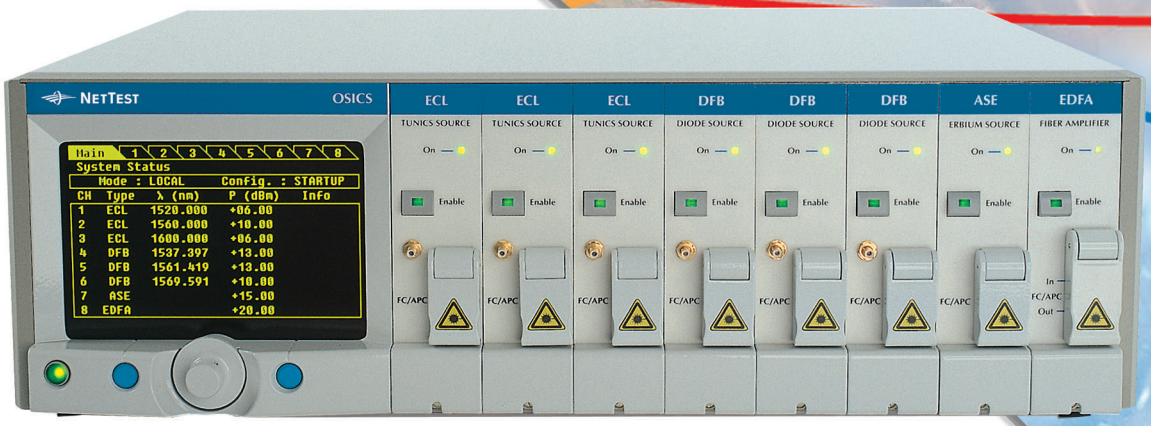
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OSICS



8-Channel Modular Platform for DWDM Testing

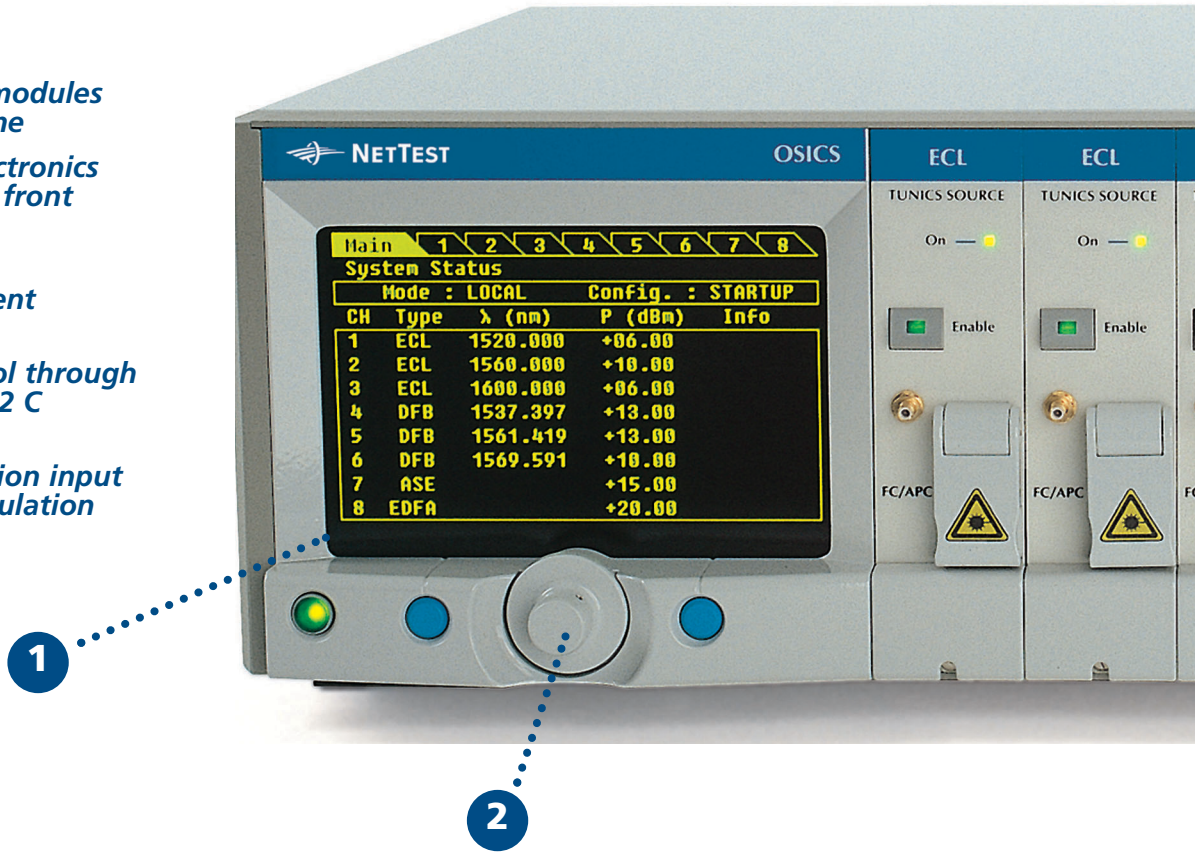
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NETTEST

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One Instrument Fulfills All Needs of DWDM Systems

- *Full control of 8 modules in a 19" mainframe*
- *Sophisticated electronics and user friendly front panel*
- *Built-in software for driving different types of modules*
- *Instrument control through IEEE-488 or RS 232 C interface*
- *External modulation input and internal modulation capabilities*



1. *Large screen display to easily set and control the parameters of the plug-in modules*
2. *Rotating knob to navigate the OSICS software*
3. *Protective connector cover*
4. *Enable key*

Available modules:

OSICS-ECL tunable external cavity laser module
OSICS-DFB distributed feed back laser diode module
OSICS-ASE broadband amplified spontaneous emission module
OSICS-EDFA erbium-doped fiber amplifier module

Mix and Match Up to 8 Modules

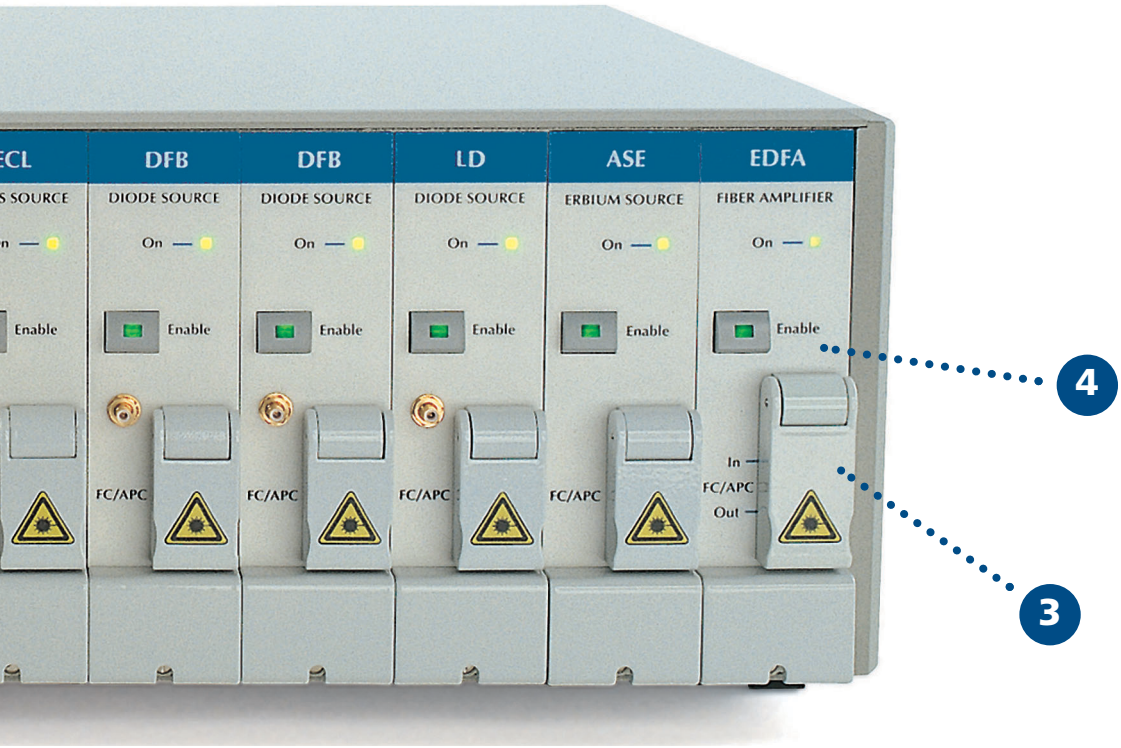
The OSICS platform offers the highest flexibility and largest choice of plug-ins required in fiber-optic system testing, particularly for Dense Wavelength Division Multiplexing (DWDM).

Up to 8 plug-in modules can be mixed and matched in a single OSICS mainframe, thus fulfilling all needs for applications requiring multi-wavelength sources or amplifiers.

OSICS features a complete line of modular sources including OSICS-ECL, tunable external cavity lasers with TUNICS technology; OSICS-DFB, distributed feedback laser diodes; OSICS-ASE, amplified spontaneous emission fiber sources; as well as, OSICS-EDFA, erbium-doped fiber amplifier modules.

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for Multi-Channel Testing



OSICS Platform Specifications

OSICS mainframe		
Dimensions	(W x H x D)	448 x 133 x 370 mm³
Power supply		100 to 240 V, 50 to 60 Hz
Control		Instrument front panel, RS-232 C, and IEEE-488.2
Weight (without any module)		8.1 kg
OSICS modules		
Optical interface	ECL, ASE, EDFA, DFB, 1310	FC-APC connector on Corguide™ SMF-28 fiber
	DFB (C & L band)	FC-APC connector on polarization maintaining fiber
Output isolation		35 dB (30 dB, EDFA)
Return loss		60 dB
Analog modulation	ECL, DFB	150 Hz - 1 GHz (external modulation)
Digital modulation	ECL	500 Hz - 1 MHz (internal or external)
	DFB	1 Hz - 1 MHz (internal or external)
Dimensions	(W x H x D)	35 x 130 x 250 mm³ (single slot)
Weight		1 kg (0.7 kg for OSICS-DFB)
Environment		
Operating temperature range[1]		+15 to +35 °C (+59 to +95 °F)
Warm up time (room temperature)		2 hours max (1 hour typ.)

(1) ECL module operates from +15 to 30° C (+59 to 86° F)

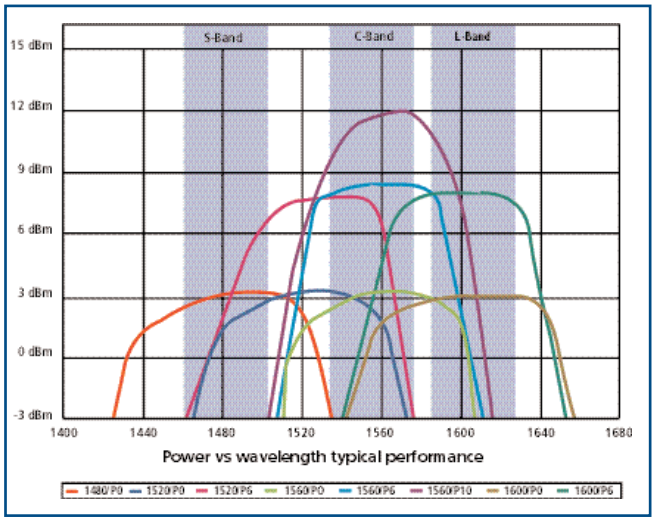
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Tunics Tunable External Cavity Laser Module

OSICS-ECL

The ECL modules are high-performance External Cavity Lasers using Tunics technology which leads to a high output power over the whole tuning range.
The precision mechanism coupled to a stepper motor allows the wavelength to be tuned over more than 80 nm. Various power and wavelength range options are available to fulfill all needs in DWDM applications from 1480 nm to 1640 nm. Each module can be controlled from the front panel of the mainframe, or through the remote interface. In addition, the modules and the mainframe offer a full suite of internal and external modulation capabilities.





Output power of OSCIS-ECL

OSICS-ECL		ECL-1480	ECL-1520	ECL-1560	ECL-1600
Wavelength range	P = 0 dBm	1440-1520 nm	1480-1560 nm	1520-1600 nm	1560-1640 nm
	P = 6 dBm (option P6)		1510-1550 nm	1530-1580 nm	1570-1620 nm
	P = 10 dBm (option P10)			1540-1580 nm	
Wavelength accuracy[1]		±0.2 nm			
Wavelength stability[1] [2]		±0.01 nm / h (±0.01 nm / 24 h typ.)			
Wavelength setting resolution		0.01 nm (0.001 nm optional)			
Tuning repeatability		±0.01 nm (typ.)			
Tuning speed		10 nm/s (typ.)			
Peak power		+3 dBm			
Power stability[1] [2]		±0.01 dB / h; ±0.01 dB / 24 h (typ.)			
Spectral width (FWHM)		150 kHz (typ.) (coherence control OFF) >100 MHz (coherence control ON)			
Side mode suppression ratio[1]		>45 dB			
Relative intensity noise[1] [3]		>145 dB/Hz (typ.)			

(1) After warm-up, for 0 dBm output power.
(2) At a constant temperature.
(3) Measured at an electrical frequency of 100 MHz.

OPTIONS

P6 . . . . . *High output power: +6 dBm*
P10 . . . . . *High output power: +10 dBm*
R . . . . . *High resolution: 1 pm resolution (tuning speed changes to 3 nm/s)*
M . . . . . *Polarization maintaining output fiber (orientation TE in slow axis, in line with connector key)*

ACCESSORIES

LabView driver for OSICS
FO Jumper FC-APC/FC-APC
FO Jumper FC-APC/FC-PC
Polarization maintaining FO Jumper FC-APC/FC-APC
Polarization maintaining FO Jumper FC-APC/FC-PC

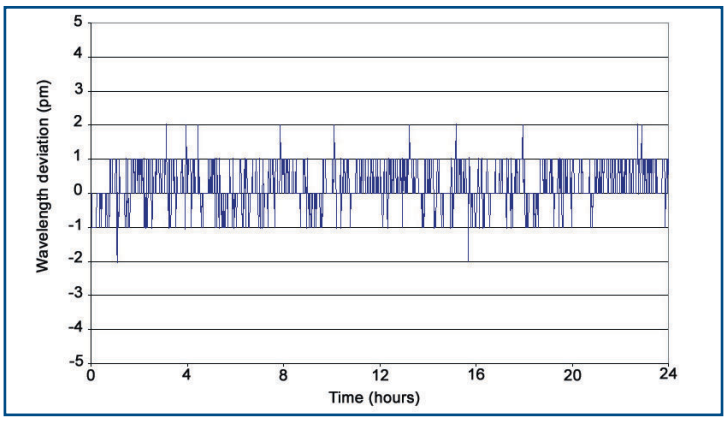
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Distributed FeedBack Laser Diode Module

OSICS-DFB



The DFB modules are high-performance Distributed Feed Back laser diodes. The user-defined wavelengths can be chosen on the ITU-T grid in the C- or L-band. OSICS-DFB offers more than +13 dBm of optical power coupled in a polarization maintaining fiber (except for module 1310) with a remarkable 5 pm wavelength stability over one hour. The internal wavelength calibration yields a 30 pm accuracy and the wavelength can be finely tuned over 1.8 nm (typ.) with the internal temperature control.
OSICS-DFB is also available at 1310 nm for channel monitoring in DWDM systems. Each module can be controlled from the front panel of the mainframe, or through the remote interface. The modules and the mainframe offer a full suite of internal and external modulation capabilities, and also feature a Brillouin effect suppression function.



OSCIS-DFB wavelength stability

OSICS-DFB	C- and L-band	1310
ITU-T wavelength	1527.2-1610.05 nm(1)	1310 nm ±25 nm
Wavelength tuning range	1.6 nm (1.8 nm typ.)	1.6 nm (1.8 nm typ.)
Wavelength accuracy(2)	±0.03 nm	±0.03 nm
Wavelength stability(2) (3) (5)	±0.005 nm / h (±0.005 nm / 24 h typ.)	
Output power	+13 dBm	+3 dBm
Power stability(2) (3) (5)	±0.01 dB / h (±0.01 dB / 24 h typ.)	
Spectral width (FWHM)	<30 MHz	<30 MHz
Side mode suppression ratio(2)	>40 dB	>32 dB
Relative intensity noise(2) (4)	>145 dB/Hz (typ.)	>145 dB/Hz (typ.)

(1) The ITU-T wavelength is user-selected at time of order on the ITU-T grid, using the following format:
OSICS-DFB-XXX.XX where XXX.XX is the frequency in THz.
(2) After warm-up, for P_{max} output power.
(3) At a constant temperature.
(4) Measured at an electrical frequency of 100 MHz.
(5) Measured with an APC connector on the powermeter side.

ACCESSORIES

LabView driver for OSICS
FO Jumper FC-APC/FC-APC
FO Jumper FC-APC/FC-PC
Polarization maintaining FO Jumper FC-APC/FC-APC
Polarization maintaining FO Jumper FC-APC/FC-PC

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Amplifier Spontaneous Emission Source Module

OSICS-ASE



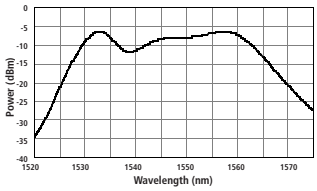
The ASE modules feature broadband sources based on the Amplified Spontaneous Emission (ASE) of an Erbium-doped fiber. An internal proprietary spectral shaping provides two versions : ASE-SP, and ASE-IN.

The designs are optimized for maximum output power and stability. ASE-SP maximizes the spectral width and power to more than +15 dBm in the 1.55 µm spectral window. The optional flat spectrum version: ASE-SP/F provides 1 dB (typ.) flatness over 1528-1565 nm.

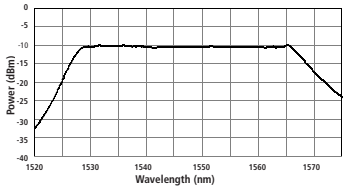
ASE-IN, dedicated to interferometric measurements, offers a near-gaussian spectrum and minimizes the coherence length of the source.
Due to the nature of the sources, their outputs are intrinsically unpolarized.
The output isolator ensures stable operation even in the presence of a high level of refelection.
When used with an optical spectrum analyzer, the ASE sources enable direct spectral characterization of passive components in only a few seconds.

(Measurement condition: 0.5 nm resolution bandwidth)

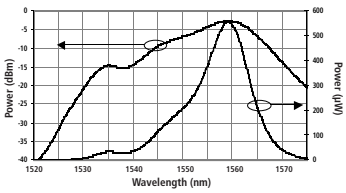
ASE-SP



ASE-SP-F



ASE-IN



OSICS-ASE	ASE-SP	ASE-IN	
Spectral range[1]	1530-1565 nm	1545-1565 nm[2]	
Output power	>+15 dBm	>+13 dBm	
Power stability[3]	<±0.015 dB / h	<±0.015 dB / h	
Spectrum flatness[4]	<8 dB		
Output polarization	unpolarized	unpolarized	
Module width	single slot	single slot	

(1) 10 dB below maximum power.
(2) The corresponding coherence length (half width at 50% visibility) is less than 80 µm.
(3) At a constant temperature, after 1 hour warm-up for the minimum guaranteed output power.
(4) Over 1530-1560 nm for ASE-SP, optional flat spectrum (see options).

OPTIONS

P *. . . . . Polarized output, the output power is reduced by 4 dB. Extinction ratio > 30 dB over spectral range*
F *. . . . . Flat spectrum (ASE-SP), spectrum flatness < 2 dB over 1528-1565 nm, output power > +10 dBm*

ACCESSORIES

FO Jumper FC-APC/FC-APC
FO Jumper FC-APC/FC-PC (delivered as standard with each module)

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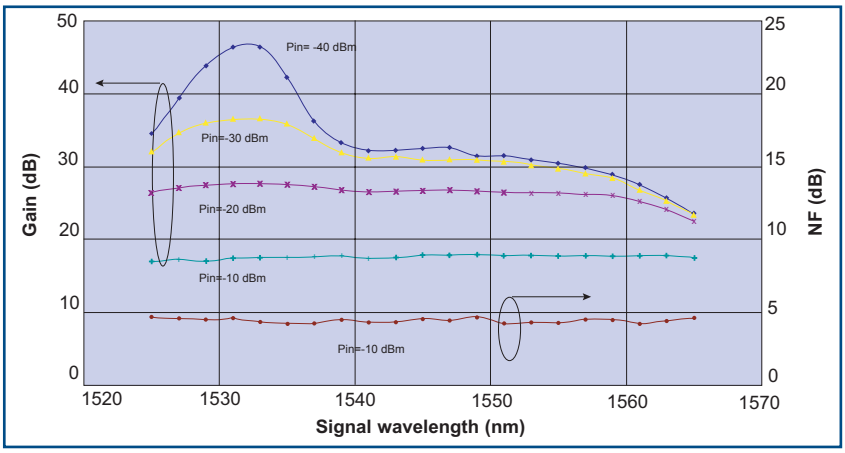
Erbium-Doped Fiber Amplifier Module

OSICS-EDFA

The EDFA modules feature high-performance Erbium-Doped Fiber Amplifiers that operate in C band.

The EDFA-C17 is a single pump version that offers remarkable +17 dBm of saturated output power across the C-Band. The Erbium-doped gain fiber is optimized in concentration and length for low 4.5 dB(typ.) noise figure and small-signal gain in excess of 25 dB at 1550 nm.





Gain and Noise Figure vs wavelength for OSICS-EDFA-C17 (single channel operation)

OSICS-EDFA[1]	EDFA-C17
Wavelength range	1525-1565 nm
Output power[2]	> +17 dBm
Small signal gain[3]	> 25 dB
Noise figure(4)	< 6 dB (4.5 dB typ.)
Polarization sensitivity of gain(5)	<0.5 dB
PMD(6)	< 1 ps
Module width	single slot

(1) Specifications defined for single channel operation
(2) With 0 dBm input power at 1550 nm.
(3) With -40 dBm input power at 1550 nm.
(4) For -5 dBm input power at 1550 nm.
(5) With -40 dBm input power at 1550 nm.
(6) With interferometric method.

OPTIONS

LP *. . . . . Low polarization sensitivity of gain < 0.25 dB*

ACCESSORIES

FO Jumper FC-APC/FC-APC
FO Jumper FC-APC/FC-PC (delivered as standard with each module)

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OSICS

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NetTest undertakes a continuous and intensive product development program to ensure that its instruments and systems perform to the highest technical standards. As a result, the specifications in this document are subject to change without notice.





All OSICS modules comply with IEC 60825-1 and FDA (21CFR Subchapter J) laser safety standards. The proprietary configuration of OSICS is patented. (US patents # 5,594,744 and # 5,802,085)

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