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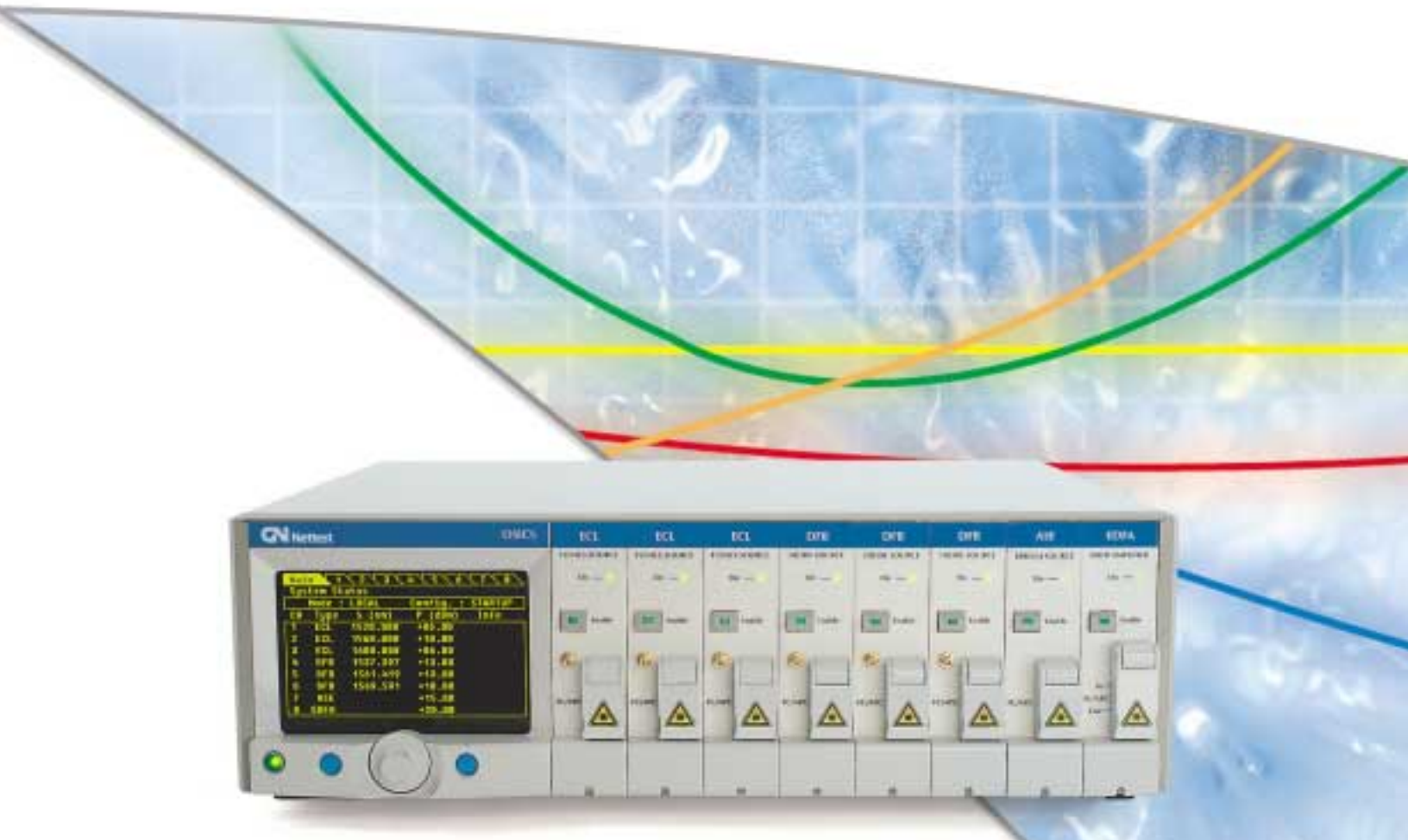
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OSICS



8-Channel Modular Platform for DWDM Testing

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8-Channel Modular Platform



Mix and Match 8 Optical Sources and Amplifiers

OSICS

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

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 various laser diode sources. In addition, OSICS is also capable of hosting OSICS-EDFA, erbium-doped fiber amplifier modules.

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.

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Tunable External Cavity Laser Module

OSICS-ECL

- > State-of-the-art TUNICS external cavity design
- > Complete coverage of the C- and L-band
- > High output power (+6 or +10 dBm) over the entire range
- > Remarkable wavelength stability, ±0.01 nm / 24 h (typ.)
- > Outstanding power stability, ±0.01 dB / 24 h (typ.)

Distributed Feed Back Laser Diode Module

OSICS-DFB

- > More than 100 wavelengths on the ITU-T grid in the C- and L-band, and a 1310 nm model
- > Wide wavelength tuning over 1.8 nm (typ.)
- > High output power, +13 dBm
- > Remarkable wavelength stability, ±0.005 nm / 24 h (typ.)
- > Outstanding power stability, ±0.01 dB / 24 h (typ.)
- > High absolute wavelength accuracy, ±30 pm

Amplified Spontaneous Emission Source Module

OSICS-ASE

- > Two superluminescent broadband fiber source versions in the 1.55 µm window
- > Near-gaussian spectrum for ASE-IN version
- > +15 dBm output power for ASE-SP version
- > Excellent power stability, ±0.015 dB/h
- > Ideally suited for spectral characterization of passive components

Erbium-Doped Fiber Amplifier Module

OSICS-EDFA

- > High saturated output power, +17 dBm
- > Low noise figure, 4.5 dB (typ.)
- > High gain, 35 dB small signal @ 1530 nm

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.

OSICS-ECL		ECL-1520	ECL-1560	ECL-1600
Wavelength range	P = 0 dBm	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.

Distributed Feed Back Laser Diode Module

OSICS-DFB



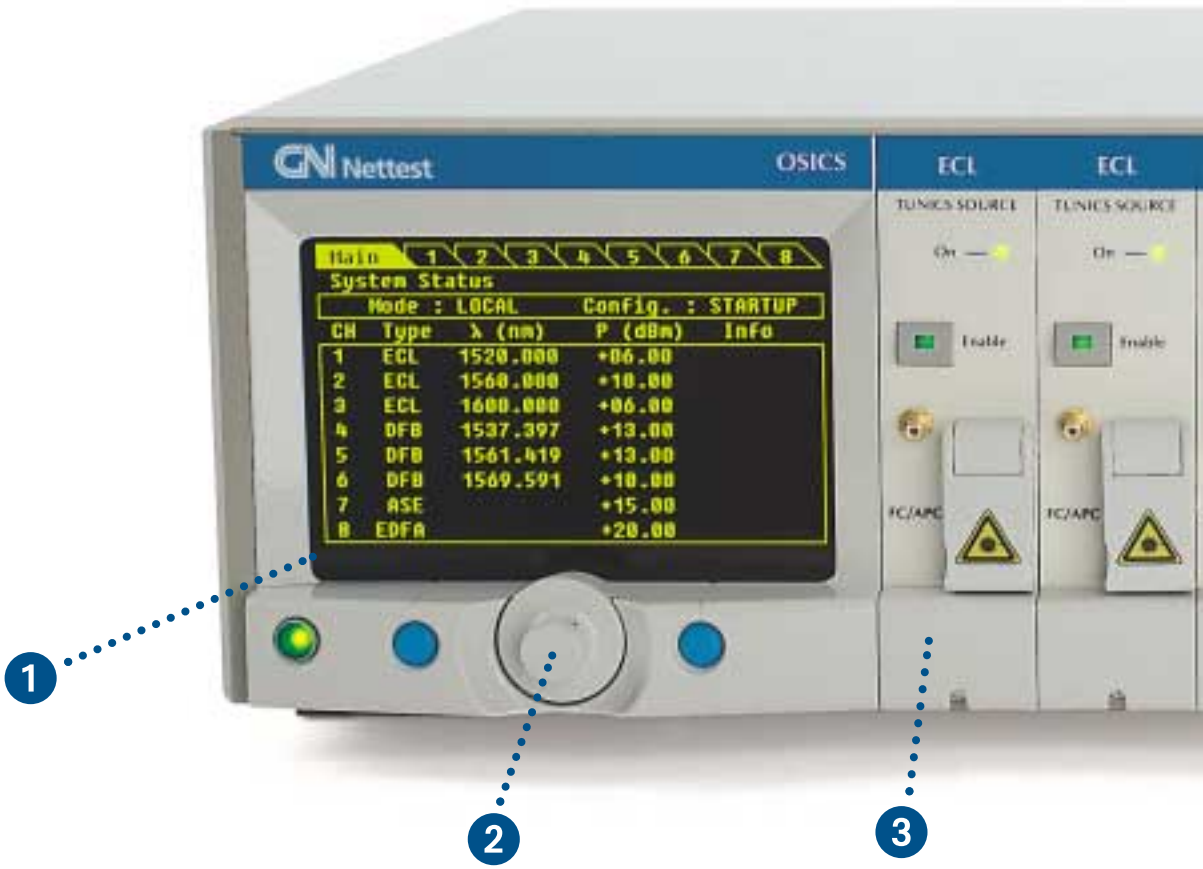
The DFB modules are high-performance Distributed Feed Back laser diodes. The user-defined wavelengths can be chosen on the ITU-T grid in the C- or L-band. OSICS-DFB offers more than +13 dBm of optical power coupled in a polarization maintaining fiber (except for module 1310) with a remarkable 5 pm wavelength 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.

OSICS-DFB	C- and L-band	1310
Center wavelength[1]	1527.2-1610.05 nm	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]	±0.005 nm / h (±0.005 nm / 24 h typ.)	
Output power	+10 dBm (option +13 dBm)	+3 dBm
Power stability[2] [3]	±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 center wavelength is user-selected at time of order on the ITU-T grid, using the following format: OSICS-DFB-XXX.X where XXX.X is the frequency in THz.
(2) After warm-up, for +10 dBm output power.
(3) At a constant temperature.
(4) Measured at an electrical frequency of 100 MHz.

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One Instrument Fulfills All Needs Required In DWDM Test Systems



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. *OSICS-ECL tunable external cavity laser module*
4. *OSICS-DFB distributed feed back laser diode module*
5. *OSICS-ASE broadband amplified spontaneous emission module*
6. *OSICS-EDFA erbium-doped fiber amplifier module*
7. *Protective connector cover*
8. *Enable key*

Full Control of 8 Modules using Osics Mainframe

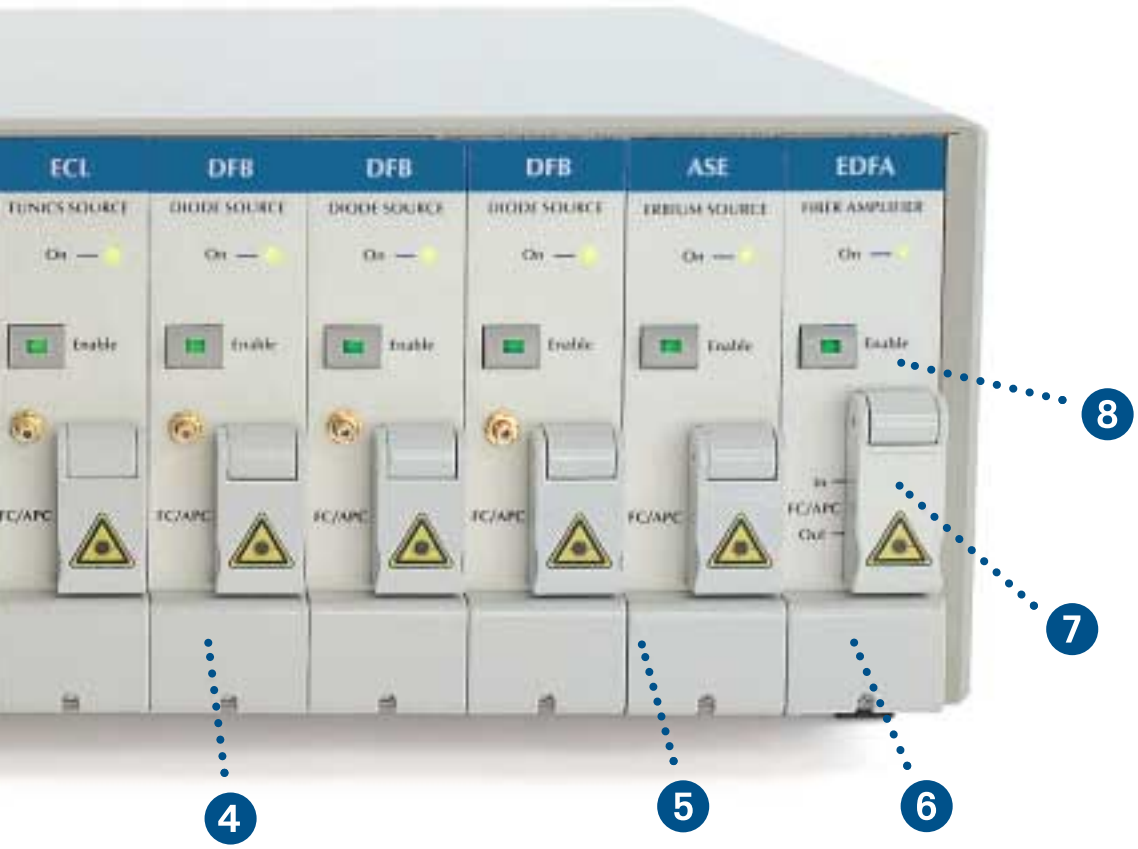
OSICS features 8 slots for the various modules in a 19" mainframe. The sophisticated electronics, with its user-friendly front-panel controls and sets their parameters. Specific software is built-in in order to drive four different types of modules: a tunable external cavity laser, a DFB laser, a broadband ASE source, and an erbium-doped fiber amplifier. Up to 8 of these modules can be mixed and matched in the OSICS mainframe.

The large screen displays the actual parameters of each module, which can be adjusted with the touch of a button. The instrument can also be fully controlled through the IEEE-488.2 or RS-232 C interface.

The mainframe features an external modulation input as well as internal modulation capabilities. The rear-panel of the instrument also provides electrical outputs for monitoring purposes.

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for Sources And Amplifiers



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 Interfaces		
Optical interface	ECL, ASE, EDFA	FC-APC connector on Corguide™ SMF-28 fiber
	DFB	FC-APC connector on polarization maintaining fiber
Output isolation		35 dB
Return loss		60 dB
Analog modulation	ECL, DFB	200 Hz - 1 GHz (external modulation)
Digital modulation	ECL	250 Hz - 1 MHz (internal or external)
	DFB	1 Hz - 1 MHz (internal or external)
Environment		
Operating temperature range		+15 to +35 °C (+59 to +95 °F)
Warm up time (room temperature)		1 hour (typ.)
Dimensions	(W x H x D)	35 x 130 x 250 mm³
Weight		1 kg (0.7 kg for OSICS-DFB)

OPTIONS

P6 . . . . . *High output power: +6 dBm (OSICS-ECL)*
P10 . . . . . *High output power: +10 dBm (OSICS-ECL)*
P13 . . . . . *High output power: +13 dBm (OSICS-DFB, C- and L-band)*
R . . . . . *High resolution: 1 pm resolution (tuning speed changes to 3 nm/s, OSICS-ECL)*
M . . . . . *Polarization maintaining output fiber (OSICS-ECL, orientation TE in slow axis, in line with connector key)*
L . . . . . *LabView driver (all modules)*
P . . . . . *Polarized output, the output power is reduced by 4 dB (OSICS-ASE)*
D . . . . . *50 dB minimum isolation output isolator (OSICS-ASE)*
LP . . . . . *Low polarization sensitivity of gain < 0.25 dB (OSICS-EDFA)*
J-APC . . . *Fiber-optic jumper FC-APC/FC-APC (OSICS-ECL/DFB/ASE/EDFA)*
J-PC . . . . . *Fiber-optic jumper FC-APC/FC-PC (OSICS-ECL/DFB/ASE/EDFA)*
J-APC-M . *Fiber-optic jumper FC-APC/FC-APC (polarization maintaining, OSICS-ECL/DFB)*
J-PC-M . . *Fiber-optic jumper FC-APC/FC-PC (polarization maintaining, OSICS-ECL/DFB)*

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Amplified Spontaneous Emission Source Module



OSICS-ASE

The ASE modules feature superluminescent 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 similar to GN Nettest FIBERWHITE instruments and are optimized for maximum output power and stability. ASE-SP maximizes the spectral width and power with more than +15 dBm in the 1.55 µm spectral window.

The ASE-IN version offers a near-gaussian spectrum and minimizes the coherence length of the source. Due to the nature of the source, their outputs are intrinsically unpolarized. The output isolator ensures stable operation even in the presence of a high level of reflection. When used with an optical spectrum analyzer such as WALICS or UBI-WALICS, the ASE–SP module enables direct spectral characterization of passive components in only a few seconds.

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 (6 dB typ.)	
Output polarization	unpolarized	unpolarized

(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 warm-up, for +13 dBm output power.
(4) Over 1530-1560 nm for ASE-SP.

Erbium-Doped Fiber Amplifier Module



OSICS-EDFA

The EDFA modules feature high-performance Erbium-Doped Fiber Amplifiers that operate in the 1.55 µm spectral window. This single pump version offers a remarkable +17 dBm of saturated output power. Its co-propagating pumping configuration (using 980 nm pump-diode) provides a low 4.5 dB (typ.) noise figure, regardless of signal and pump power levels.

The erbium-doped gain fiber is optimized in concentration and length for a small-signal gain in excess of 35 dB at the peak wavelength of 1530 nm and 25 dB at 1550 nm, as well as for a maximum saturated output power. It is co-doped with aluminium to obtain a flat spectral response around 1550 nm, even under low-signal conditions.

OSICS-EDFA	
Wavelength range	1525-1560 nm
Output power[1]	>+17 dBm
Small signal gain[2]	>25 dB
Noise figure	<6 dB (4.5 dB typ.)
Polarization sensivity of gain[3]	<0.5 dB
Spectral gain flatness[4]	3 dB (typ.)

(1) With 0 dBm input power at 1550 nm.
(2) With -40 dBm input power at 1550 nm.
(3) Polarization sensitivity of gain can be optionally specified at 0.25 dB (see options).
(4) For a single channel at -30 dBm input power from 1540 to 1560 nm.

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Ordering Information

Please specify the rack and/or the module type as follows:

OSICS-mainframe | For the OSICS mainframe without module

Use the following code reference that corresponds to the available OSICS-mainframe option:

L Labview driver (all modules)

WAVELENGTH MODEL

OSICS-ECL module [ ] **/Option1/Option2/...** | For the ECL module

- [1520]
- [1560]
- [1600]

Use the following code references that correspond to the available OSICS-ECL options:

P6	High output power: 6 dBm
P10	High output power: 10 dBm
R	High resolution: 1 pm
M	Polarization maintaining output fiber
J-APC	Fiber-optic jumper FC-APC/FC-APC
J-PC	Fiber-optic jumper FC-APC/FC-PC (included when delivered)
J-APC-M	Fiber-optic jumper FC-APC/FC-APC (polarization maintaining)
J-PC-M	Fiber-optic jumper FC-APC/FC-PC (polarization maintaining, included when delivered with M option)

Each OSICS-ECL module is delivered as standard with a fiber-optic jumper.

OSICS-DFB module [XXX.X THZ] **/Option1/Option2** | For the DFB module in the C- and L-band

Where **XXX.X** is the frequency in THz

OSICS-DFB module-1310/Option1/Option2 | For the DFB module at 1310 nm

Use the following code references that correspond to the available OSICS-DFB options:

P13	High output power: +13 dBm (C- and L-band)
J-APC-M	Fiber-optic jumper FC-APC/FC-APC (polarization maintaining, all models)
J-PC-M	Fiber-optic jumper FC-APC/FC-PC (polarization maintaining, all models)

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Ordering Information (cont.)

Please specify the module type as follows:

OSICS-ASE module VERSION [ ] **/Option1/Option2/…**

- [ ] **SP**
- [ ] **IN**

Use the following code references that correspond to the available OSICS-ASE options:

P	Polarized output
D	50 dB minimum isolation output isolator
J-APC	Fiber-optic jumper FC-APC/FC-APC
J-PC	Fiber-optic jumper FC-APC/FC-PC (included when delivered)
	Each OSICS-ASE module is delivered as standard with a fiber-optic jumper.

OSICS-EDFA module/Option1/Option2/… | For the EDFA module

Use the following code references that correspond to the available OSICS-EDFA options:

LP	Low polarization sensitivity of gain
J-APC	Fiber-optic jumper FC-APC/FC-APC
J-PC	Fiber-optic jumper FC-APC/FC-PC (included when delivered)

Each OSICS-EDFA module is delivered as standard with a fiber-optic jumper.

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OSICS

Photonetics now GN Nettest Photonics Division

GN Nettest A/S
Kirkebjerg Allé 90, DK- 2605 Brøndby Denmark Tel +45 72 11 22 00 Fax +45 72 11 22 10
E-mail: com@nettest.dk Web: www.gnnettest. com

GN Nettest Sales Companies
• Australia +61 39 890 6677 • Canada +1 905 479 8090 • China +86 10 64 67 88 88
• Nordic +45 72 11 23 00 • France +33 (0)1 30 08 88 88 • Germany South office +49 8191 9477 90
• Germany North office +49 5131 7017 0 • Italy +39 02 95 12 621 • Singapore +65 220 9575
• Spain +34 91 677 77 53 • Sweden +46 8 555 410 65 • UK +44 1295 26 77 55
• USA +1 978 535 73 33

GN Nettest develops, manufactures and markets advanced equipment and systems for the test and measurement of telecommunication, data communication and optical networks. We provide carriers, vendors, enterprises and research laboratories with the network testing solutions they need to troubleshoot and optimise performance in today's complex, hybrid networks and in those planned for tomorrow.

GN 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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