OSICS Multifunction Platform Catalogue



- **OSICS Mainframe**
- **Compact Tunable Lasers**
- **Compact Transmission Lasers**
- **Broadband Light Sources**
- **Passive Optical Functions**
- **Test Systems**

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OSICS Multifunction Platform

8-Channel Multifunction Platform



The OSICS multifunction modular platform offers the highest flexibility and largest choice of pluggable modules required in fiber-optic component and system testing, particularly for DWDM system evaluations.

OSICS Mainframe

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

Compact Tunable Lasers

OSICS T100
Ultra-low SSE tunable external cavity lasers (step mode).

OSICS ECL 1560
Standard tunable external cavity lasers (step mode).

Compact Transmission Lasers

OSICS TLS-AG
Narrow linewidth tunable lasers for coherent transmission.

OSICS DFB
Distributed feedback laser diodes for CWDM, DWDM and LANWDM.

Broadband Light Sources

OSICS SLD
Superluminescent light emitting diodes.

Accessories

Jumpers and cover plates.

Key Features

- **Affordable Price**, even if you start with a single module
- **Ease of Use**
- **24/7 Use for Manufacturing**
- **Largest Choice of Laser Sources**

Passive Optical Functions

OSICS SWT, OSICS SWT APC
Optical shutters and switches.

OSICS ATN-HP
High power optical attenuators.

OSICS BKR
Variable back reflectors.

Test Systems

OSICS FBL
Full-band tunable laser from 1260 to 1680 nm (step mode).

OSICS WDM
WDM comb of 8 transmission lasers (DFB, TLS-50 or TLS-AG) with a Mux/Demux.

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OSICS Mainframe

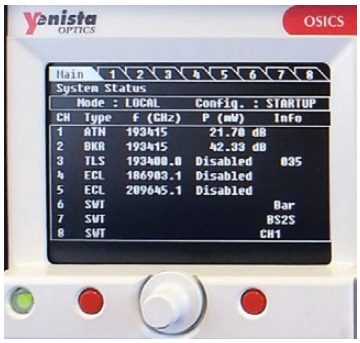
8-Channel Mainframe

The OSICS Mainframe can host up to eight pluggable modules for matching your particular test applications.

It is easy-to-use thanks to the front panel interface that offers direct control of the eight modules. Moreover, the mainframe is reliable and cost effective for laboratory use as well as for 24/7 use in manufacturing plants.



Front Panel



The front panel interface of the mainframe comprises a display and rotary knob allowing easy navigation in the module tabs.

They enable fast setup and control of the parameter values. During normal operation, the parameters of all the modules are displayed simultaneously in the main tab and updated in real-time.

Rear Panel



Connectors for remote operation are located at the back panel of the mainframe: USB-B for RS 232 communication, GPIB for IEEE 488 communication and SubD-9 for interlock.

There are also 18 BNC connectors for different purposes. The first is for synchronization of the mainframe and the second for application of an external modulation signal to the mainframe.

In addition, there are two BNC connectors per module: one for monitoring of power, current, and temperature and the other for an analog modulation output signal. Such a pair is only operating if supported by the module.

Specifications

Dimensions (W x H x D)	448 x 145 x 387 mm
Power Supply	100 to 240 V, 50 to 60 Hz
Weight (without module)	7.2 kg
Available Versions	Bench-top/Rack-mount

Contacts

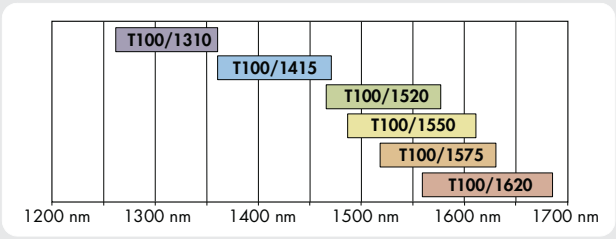
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OSICS T100
Tunable Laser Module



OSICS T100 are cost effective, external cavity tunable lasers modules utilizing **Yenista**'s patented T100 cavity. This gives a minimum of 100 nm tuning range with narrow linewidth, high output power and ultra-low optical noise. This low noise significantly increases the dynamic range of a measurement.
Its kinematic chain has been designed for step-by-step wavelength tuning.



Overview of Available Models

Key Features

- Narrow linewidth
- External cavity design
- O, E, S, C, L & U bands
- ≥ 100 nm step-by-step tuning
- +6 dBm output power
- Ultra-low SSE noise
- Digital Modulation up to 1 MHz
- Easy front panel or remote control

		T100 1310	T100 1415	T100 1520	T100 1550	T100 1575	T100 1620
Wavelength Range (nm)	P= 3 dBm	1260–1360	1360–1470	1465–1575	1490–1610	1520–1630	1560–1680
	P= 6 dBm	1290–1340	1390–1445	1495–1555	1520–1590	1540–1610	1580–1660
SSSER		> 90 dB / 0.1 nm typical					
Side Mode Suppression Ratio*1		≥ 45 dB					
Stability*2*3	Wavelength	±0.01 nm/h (±0.01 nm / 24 h typical)					
	Output Power	±0.01 dB/h (±0.01 dB / 24 h typical)					
Relative Intensity Noise*4		<-140 dB/Hz					
Spectral Width (FWHM)		150 kHz typical (coherence control off)					
		> 100 MHz (coherence control on)					
Wavelength Setting Accuracy*3		±0.2 nm					
Wavelength Setting Repeatability		±0.01 nm typical					
Wavelength Setting Resolution		0.01 nm (0.001 nm option R)					
Tuning Speed (step-by-step)*5*6		10 nm/s typical					
Analog Modulation		50 Hz to 50 MHz (external)					
Digital Modulation		50 Hz to 1 MHz (internal & external)					
Output Fiber Type		SMF or PMF (option M)					
Output Connector		FC/APC narrow key					
Laser Safety Classification		Class 1M					

All specifications are given after 60 minutes warm-up and apply for wavelengths not equal to any water absorption line.

*1: Measured over a 0.1 nm bandwidth ±1nm from the signal.
*2: At constant temperature.
*3: Measured at 0 dBm output power.
*4: RIN within the range 100 MHz–3 GHz measured at +3 dBm output power with RBW = 30 kHz.
*5: With the high resolution option (R) the tuning speed is 2.5 nm/s typ.
*6: The kinematic chain of the laser does not allow for swept operation.

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OSICS ECL 1560
Tunable Laser Module



The OSICS ECL 1560/P6 module is a cost effective external cavity tunable laser using TUNICS technology.

Its kinematic chain has been designed for step-by-step wavelength tuning.

The OSICS platform provides front panel and remote control interfaces.

Key Features

- Narrow linewidth
- External cavity design
- C & L bands
- 80 nm step-by-step tuning
- +6 dBm output power
- Digital Modulation up to 1 MHz
- Easy front panel or remote control

Specifications

Wavelength Range (nm)	P = +0 dBm	1520–1600
	P = +6 dBm	1530–1580
Signal to Source Spontaneous Emission Ratio*1		≥ 45 dB / 0.1 nm typical
Side Mode Suppression Ratio		≥ 45 dB
Stability*2 *3	Wavelength	±0.01 nm/h (±0.01 nm / 24 h typical)
	Output Power	±0.01 dB/h (±0.01 dB / 24 h typical)
Relative Intensity Noise*4		<-140 dB/Hz
Spectral Width (FWHM)		150 kHz typical (coherence control off)
		>100 MHz (coherence control on)
Wavelength Setting Accuracy*3		±0.2 nm
Wavelength Setting Repeatability		±0.01 nm typical
Wavelength Setting Resolution		0.01 nm (0.001 nm option R)
Tuning Speed (step-by-step)*5*6		10 nm/s typical
Analog Modulation		50 Hz to 50 MHz (external)
Digital Modulation		50 Hz to 1 MHz (internal & external)
Output Fiber Type		SMF or PMF (option M)
Output Connector		FC / APC narrow key
Laser Safety Classification		Class 1M

All specifications are given after 60 minutes warm-up and apply for wavelengths not equal to any water absorption line.

*1: Measured over a 0.1 nm bandwidth ±1 nm from the signal.
*2: At constant temperature.
*3: Measured at 0 dBm output power.
*4: RIN within the range 100 MHz–3 GHz measured at +3 dBm output power with RBW = 30 kHz over 1530–1580 nm.
*5: With the high resolution option (R) the tuning speed is 2.5 nm/s typical.
*6: The kinematic chain of the laser does not allow for swept operation.

Contacts

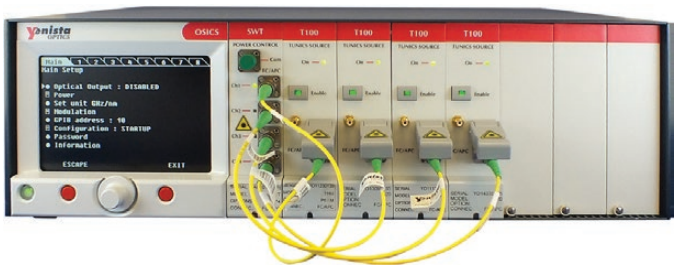
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OSICS FBL

Full-Band Tunable Laser

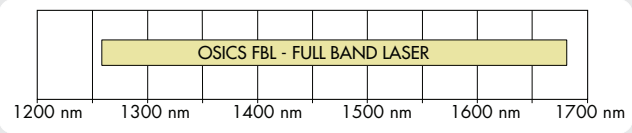
The OSICS FBL is a unique tunable laser system that covers the full telecom wavelength range, from 1260 nm to 1680 nm, in a single unit. The output is SSE free with power of at least 0 dBm. The system consists of four OSICS T100 modules integrated with an optical switch. The single fiber output combined with **Yenista**'s proven OSICS platform means reliable, fully automated test systems can be easily established.



Key Features

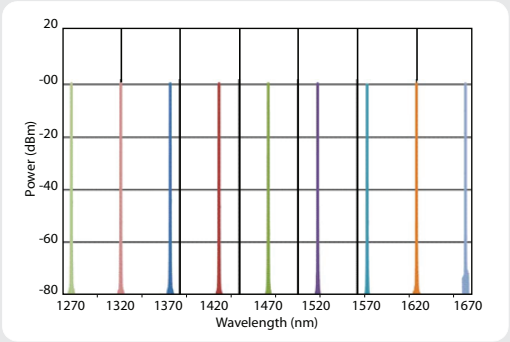
1260 nm to 1680 nm

All telecom wavelength bands (O, E, S, C, L and U) are supported with a single fiber output. This is particularly useful for silicon photonics, CWDM, PON and photonic crystal characterization. It also allows automated testing over the entire wavelength range.



90 dB/0.1 nm Ultra-low Optical Noise

Yenista's unique T100 cavity eliminates the broadband spontaneous emission (SSE) that is normally present in an external cavity laser's output. The OSICS T100 has one of the lowest figures of merit for SSE of any tunable laser on the market and gives a dramatic improvement in a measurement's dynamic range.



Modular Flexibility

The modular design means a partial system can be purchased initially. This can then be upgraded at a later date thus staggering capital expenditure. The system is also compatible with legacy OSICS modules. These can be integrated into the system if available.

User Friendly Control Interface

The front panel interface is a real benefit in a laboratory environment. The display shows, at a glance, the settings of all installed modules and alleviates the need for a separate control PC.

Stable Output

The OSICS FBL has benefited from **Yenista**'s experience in developing high performance tunable lasers. The optical design ensures both output power and wavelength are stable with excellent repeatability.

Proven Reliability

The OSICS platform and the opto-mechanics in the full-band tunable laser are well established and widely used in critical test environments in the telecoms industry.
Recent innovations have optimized performance whilst maintaining the design of the critical kinematic chain which is essential for reliable operation.

Applications

Telecom System & Component Testing

The ultra-low SSE is a big advantage and enables repeatable high dynamic range measurements. Production environments benefit from the proven reliability and easy to use interface.

Material Characterization

Ideal for photonic crystal and fiber characterization.

Sensors & Spectroscopy

The wavelength can be modulated to scan across a gas line for gas sensor research and spectroscopy.

Scientific Research & Development

Extensive input and output ports provide added flexibility and satisfy a wide range of test requirements.

Specifications

Wavelength	Tuning Range	1260 to 1680 nm
	Setting Resolution	0.01 nm
	Absolute Accuracy	±0.2 nm
	Repeatability	±0.01 nm typical
	Stability*1*2	±0.01 nm / h (±0.01 nm / 24 h typical)
	Tuning Speed	10 nm/s
Power	Output Power Over Full Tuning Range	> 0 dBm
	Accuracy*3	±0.2 dB
	Stability*1*2	±0.01 dB / h (±0.01 dB / 24 h typical)
	Analog Modulation	50 Hz to 50 MHz (external)
	Digital Modulation	50 Hz to 1 MHz (internal & external)
	Relative Intensity Noise*2*4	–145 dB/Hz typical
Spectrum	Side Mode Suppression Ratio*5	> 45 dB
	Signal to Source Spontaneous Emission Ratio*6	> 90 dB / 0.1nm typical
	Spectral Width (FWHM)	Coherence Control off: 150 kHz typical Coherence Control on: >100 MHz
Interfaces	Output Fiber Type	SMF or PMF (option)
	Output Connector	FC/APC
	Output Isolation	35 dB
	Control	Front panel, USB-B (for RS-232C communication), GPIB (for IEEE-488.2 communication *7)
Operating Conditions	Temperature Range	+15 to +30 °C (+59 to +86 °F)
	Power supply	100 to 240 V a.c. / 50 to 60 Hz / 60W
	Laser safety classification	Class 1M
Size	Dimensions (W x D x H)	448 x 370 x 133 mm
	Weight	13.1 kg

All specifications are given after 60 minutes warm-up, and apply for wavelengths not equal to any water absorption line.

*1: At constant temperature.
*2: Measured at 0 dBm output power.
*3: Not calibrated above 1660 nm.
*4: Measured at 100 MHz.
*5: Includes suppression of the output of non-selected laser modules.
*6: Measured over a 0.1 nm bandwidth ±1nm from the signal.
*7: Tested & validated with National Instruments GPIB Board.

Additional OSICS Modules

The OSICS Full Band Laser uses five slots of the OSICS mainframe. The three spare slots can be used to support additional modules. These can be attenuators or switches to create a complete test system, or additional lasers and light sources.

The OSICS mainframe will identify the modules installed and display the setting for each module on the front panel. All modules can be controlled from the front panel or through the GPIB or RS-232C interfaces.



T100	Low noise, external cavity laser
TLS-50	ITU grid locked tunable laser
TLS-AG	Tunable laser for coherent systems
DFB	Distributed feedback laser
ATN-HP	Variable optical attenuator
BKR	Variable optical backreflector
SWT	A variety of optical switches
SLD	Superluminescent light source

OSICS TLS-AG
Low Linewidth WDM Tunable Laser Source



The OSICS TLS-AG modules are tunable laser sources with high output power and low linewidth thanks to external cavity design. The wavelength can be tuned to any wavelength in C or L band.

With more than +13 dBm (20 mW) output power, plus high power and wavelength stability, this is the ideal laser **for coherent WDM transmission testing**.

Specifications

	Wide C-band	Wide L-band
Grid Selection	Adjustable to any wavelength grid (ITU-T 100 GHz, 50 GHz and arbitrary grid)	
Frequency/ Wavelength Range	196.275–191.125 THz 1527.41–1568.57 nm	191.100–186.200 THz 1568.77–1610.06 nm
Output Power	20 mW (+13 dBm)	
Power Range (typ.)	+6 to +13.5 dBm	
Relative Frequency (Wavelength) Accuracy (typ.)	±0.5 GHz (±4 pm)	
Absolute Frequency (Wavelength) Accuracy (typ.)*1	±1.5 GHz (±12 pm)	
Frequency Setting Resolution*2	Down to 1 MHz	
Tuning Speed*3	20 s (typ. between two channels)	
Power Stability*2	±0.03 dB	
Absolute Output Power Deviation Across Tuning Range	±0.2 dB	
Instantaneous Linewidth (FWHM)	< 100 kHz	
SBS Suppression Ability*4	Yes	
Side Mode Suppression Ratio	50 dB (typ.)	
SSER (typ.)*5	60 dB	
RIN*6	< -150 dB/Hz	
Operating Temperature Range	+15 to +35 °C (+59 to +95 °F)	
Optical Interface	FC/APC connector on PMF PER > 20 dB	
Control interface	Status LED, laser on/off button	
Dimensions (WxHxD) & Weight	35 x 130 x 250 mm (single slot), 1 kg	
Laser Safety	Class 1 M	

*1: ±2.5 GHz (±22 pm) end of life.
*2: At a constant temperature.
*3: 30 s max, including power stabilization
*4: At a dither frequency of 20.8 kHz and a FM p-p modulation width from 0 to 1000 MHz.
*5: Integrated over a 0.1 nm band.
*6: RIN within the range 100 MHz–20 GHz measured at 10 dBm output power with RBW = 30 kHz

Key Features

- **SBS suppression**
- **Turn on and off the laser in one click**
- **Selection of pre-configured channel or any wavelength in the covered wavelength range**
- **High power: +13 dBm**
  Ideal for optical amplifier testing or WDM test-beds.
- **Low linewidth: < 100 kHz**
  Ideal for use as local oscillator in coherent transmission.
- **Polarization maintaining output** for use with external modulator
- **No spectral gap between C- and L-band** range of modules
- **Handy Operation**
  The platform user-friendly interface allows direct adjustment of the laser from the front panel, as well as simultaneous display of all power and wavelength values on the OSICS front panel.

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OSICS DFB DWDM
Distributed Feedback Laser



The OSICS DFB DWDM modules are based on high-performance distributed feedback laser diodes.

Specifications

Models*1	Channels		ITU-T 50 GHz grid
	Wavelength of first channel		1529.553 nm
	Wavelength of last channel		1611.787 nm
Wavelength	Channel center		Grid matched
	Tuning range*2		1.6 nm (1.8 nm typ.)
	Accuracy*3		±0.03 nm
	Stability over 1 hour*3,*4,*5		±0.005 nm
	Stability over 24 hours*3,*4,*5		±0.005 nm typ.
Power	Maximum		+13 dBm
	Stability over 1 hour*3,*4,*5		±0.01 dB
	Stability over 24 hours*3,*4,*5		±0.01 dB typ.
	Optical Isolation		> 30 dB
	RIN*6		< -140 dB/Hz
Spectrum	Laser line width		< 10 MHz
	SMSR*3		> 35 dB (45 dB typ.)
Modulation	TTL (internal & external)		1 Hz to 890 kHz
	Analog (external / front panel)		150 Hz to 150 MHz
	SBS Suppression (internal)*7	Waveform	sine
		Frequency Range	10 kHz to 100 kHz
		Modulation Depth	0 to 15%
Interfaces on Module Front Panel*8	Enable key with status LED		Power up laser
	Optical fiber		PM15
	Optical connector		FC/APC narrow key
	Fiber alignment to connector key		Slow axis
	PER (Polarization Extinction Ratio)		> 17 dB
	Electrical connector (analog modulation)		Coaxial SMB – 50 Ω
Others	Laser safety		Class 1 M
	Dimensions (WxHxD		35 x 128 x 230 mm
	Weight		1.1 kg

Key Features

- **External & Internal LF Modulation**
- **+13 dBm optical power** coupled in a polarization maintaining fiber 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
- **SBS Suppression** is available for minimizing signal degradation due to non linearity in long distance transmission experiments
- **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.



*1: See the table on following page for complete overview of selectable channels at order
*2: Location of channel center: lower boundary of the range + 0.4 nm < channel center < upper boundary of the range - 0.4 nm.
*3: After warm-up and at maximum power.
*4: At a constant temperature.
*5: Measured with an APC terminated jumper on a powermeter.
*6: RIN within the range 100 MHz–20 GHz measured at 10 dBm output power with RBW = 30 kHz.
*7: SBS = Stimulated Brillouin Scattering.
*8: See *OSICS Mainframe Data Sheet* for details on OSICS common specifications and interfaces on the rear panel.

Ordering Information

Frequency (THz)	Wavelength (nm)	Frequency (THz)	Wavelength (nm)	Frequency (THz)	Wavelength (nm)	Frequency (THz)	Wavelength (nm)	Frequency (THz)	Wavelength (nm)
186.00	1611.787	188.05	1594.217	190.10	1577.025	192.15	1560.200	194.20	1543.730
186.05	1611.354	188.10	1593.793	190.15	1576.610	192.20	1559.794	194.25	1543.333
186.10	1610.921	188.15	1593.369	190.20	1576.196	192.25	1559.389	194.30	1542.936
186.15	1610.489	188.20	1592.946	190.25	1575.782	192.30	1558.983	194.35	1542.539
186.20	1610.056	188.25	1592.523	190.30	1575.368	192.35	1558.578	194.40	1542.142
186.25	1609.624	188.30	1592.100	190.35	1574.954	192.40	1558.173	194.45	1541.746
186.30	1609.192	188.35	1591.678	190.40	1574.540	192.45	1557.768	194.50	1541.349
186.35	1608.760	188.40	1591.255	190.45	1574.127	192.50	1557.363	194.55	1540.953
186.40	1608.329	188.45	1590.833	190.50	1573.714	192.55	1556.959	194.60	1540.557
186.45	1607.897	188.50	1590.411	190.55	1573.301	192.60	1556.555	194.65	1540.162
186.50	1607.466	188.55	1589.989	190.60	1572.888	192.65	1556.151	194.70	1539.766
186.55	1607.035	188.60	1589.568	190.65	1572.476	192.70	1555.747	194.75	1539.371
186.60	1606.605	188.65	1589.146	190.70	1572.063	192.75	1555.343	194.80	1538.976
186.65	1606.174	188.70	1588.725	190.75	1571.651	192.80	1554.940	194.85	1538.581
186.70	1605.744	188.75	1588.304	190.80	1571.239	192.85	1554.537	194.90	1538.186
186.75	1605.314	188.80	1587.884	190.85	1570.828	192.90	1554.134	194.95	1537.792
186.80	1604.885	188.85	1587.463	190.90	1570.416	192.95	1553.731	195.00	1537.397
186.85	1604.455	188.90	1587.043	190.95	1570.005	193.00	1553.329	195.05	1537.003
186.90	1604.026	188.95	1586.623	191.00	1569.594	193.05	1552.926	195.10	1536.609
186.95	1603.597	189.00	1586.203	191.05	1569.183	193.10	1552.524	195.15	1536.216
187.00	1603.168	189.05	1585.784	191.10	1568.773	193.15	1552.122	195.20	1535.822
187.05	1602.740	189.10	1585.365	191.15	1568.362	193.20	1551.721	195.25	1535.429
187.10	1602.311	189.15	1584.946	191.20	1567.952	193.25	1551.319	195.30	1535.036
187.15	1601.883	189.20	1584.527	191.25	1567.542	193.30	1550.918	195.35	1534.643
187.20	1601.455	189.25	1584.108	191.30	1567.133	193.35	1550.517	195.40	1534.250
187.25	1601.028	189.30	1583.690	191.35	1566.723	193.40	1550.116	195.45	1533.858
187.30	1600.600	189.35	1583.271	191.40	1566.314	193.45	1549.715	195.50	1533.465
187.35	1600.173	189.40	1582.854	191.45	1565.905	193.50	1549.315	195.55	1533.073
187.40	1599.746	189.45	1582.436	191.50	1565.496	193.55	1548.915	195.60	1532.681
187.45	1599.320	189.50	1582.018	191.55	1565.087	193.60	1548.515	195.65	1532.290
187.50	1598.893	189.55	1581.601	191.60	1564.679	193.65	1548.115	195.70	1531.898
187.55	1598.467	189.60	1581.184	191.65	1564.271	193.70	1547.715	195.75	1531.507
187.60	1598.041	189.65	1580.767	191.70	1563.863	193.75	1547.316	195.80	1531.116
187.65	1597.615	189.70	1580.35	191.75	1563.455	193.80	1546.917	195.85	1530.725
187.70	1597.189	189.75	1579.934	191.80	1563.047	193.85	1546.518	195.90	1530.334
187.75	1596.764	189.80	1579.518	191.85	1562.640	193.90	1546.119	195.95	1529.944
187.80	1596.339	189.85	1579.102	191.90	1562.233	193.95	1545.720	196.00	1529.553
187.85	1595.914	189.90	1578.686	191.95	1561.826	194.00	1545.322		
187.90	1595.489	189.95	1578.270	192.00	1561.419	194.05	1544.924		
187.95	1595.065	190.00	1577.855	192.05	1561.013	194.10	1544.526		
188.00	1594.641	190.05	1577.440	192.10	1560.606	194.15	1544.128		

OSICS DFB CWDM
Distributed Feedback Laser



The OSICS DFB CWDM modules are based on high-performance distributed feedback laser diodes.

20 Channels

Yenista Optics proposes all CWDM channels from 1270 nm to 1610 nm and two additional channels: the first at 1625 nm and the second at 1650 nm. The channel center of a DFB is located at ±3 nm from the grid wavelength.

Applications

CWDM

Coarse Wavelength Division Multiplexing is finding its way in many short haul applications such as transmission between antennas. The OSICS DFB CWDM modules allow to fully load the system for testing at maximum capacity.

OSC

The Optical Supervisory Channel is commonly used for communication between optical amplifiers. The 1510 nm or the 1625 nm channels are most used for this application.

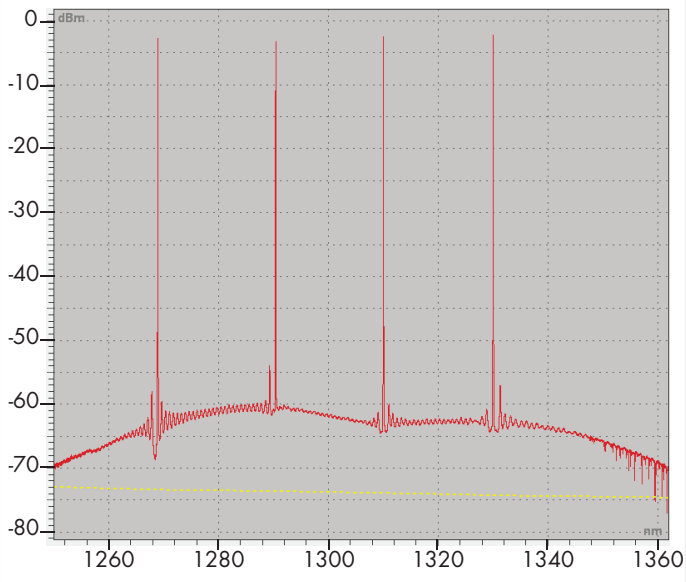
OTDR

Optical Time Domain Reflectometry uses widely spaced lasers. It is noted that 1625 nm or 1650 nm can be used when a line is in operation without disturbing traffic.



Key Features

- **Internal & External Modulation**
- **+10 dBm optical power** coupled in a polarization maintaining fiber 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.
- **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.



OSICS DFB CWDM – O-band Example

Specifications

			OSICS DFB CWDM SMF	OSICS DFB CWDM PM13	OSICS DFB CWDM PM15
Models[*1]	Channels		See channel grid in the *Ordering Information* table below		
	Grid wavelength of the first channel		1270 nm	1310 nm	1450 nm
	Grid wavelength of the last channel		1650 nm		1650 nm
Wavelength	Channel center[*2]		wavelength grid ±3 nm		
	Tuning range		1.6 nm (1.8 nm typ.)		
	Accuracy[*3]		±0.03 nm		
	Stability over 1 hour[*3,*4,*5]		±0.005 nm		
	Stability over 24 hours[*3,*4,*5]		±0.005 nm typ.		
Power	Maximum		10 mW (for channels from 1270 to 1570 nm) 8 mW (for channels from 1590 to 1650 nm)		
	Stability over 1 hour[*3,*4,*5]		±0.01 dB		
	Stability over 24 hours[*3,*4,*5]		±0.01 dB typ.		
	Optical Isolation		> 30 dB		
	RIN (Relative Intensity Noise)[*6]		< -140 dB/Hz		
Spectrum	Laser line width		< 10 MHz		
	SMSR (Side Mode Suppression Ratio)[*3]		> 30 dB (40 dB typ.)		
Modulation	TTL (internal & external)		1 Hz to 890 kHz		
	Analog (external / front panel)		150 Hz to 150 MHz		
	SBS Suppression (internal)[*7]	Waveform	sine		
		Frequency Range	10 kHz to 100 kHz		
		Modulation Depth	0 to 15%		
Interfaces on Module Front Panel[*8]	Enable key with status LED		Power up laser		
	Optical fiber		SMF	PM13	PM15
	Optical connector		FC/APC narrow key		
	Fiber alignment to connector key		n/a	Slow axis	
	PER (Polarization Extinction Ratio)		n/a	> 17 dB	
	Electrical connector (analog modulation)		Coaxial SMB – 50 Ω		
Others	Laser safety		Class 1 M		
	Dimensions (WxHxD)		35 x 128 x 230 mm		
	Weight		1.1 kg		

*1: See the table on following page for complete overview of selectable channels at order.
*2: Conditions: power at 10 dBm, CW operation, diode temperature at 25°C.
*3: After warm-up and at maximum power.
*4: At a constant temperature.
*5: Measured with an APC terminated jumper on a power-meter.
*6: RIN within the range 100 MHz–20 GHz measured at 10 dBm output power with RBW = 30 kHz.
*7: SBS = Stimulated Brillouin Scattering.
*8: See OSICS Mainframe Data Sheet for details on OSICS common specifications and interfaces on the rear panel.

Ordering Information

	Wavelength (nm)																			
Grid	**1270**	**1290**	**1310**	**1330**	**1350**	**1370**	**1390**	**1410**	**1430**	**1450**	**1470**	**1490**	**1510**	**1530**	**1550**	**1570**	**1590**	**1610**	**1625**	**1650**
SMF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
PM13			●																	
PM15										●	●	●	●	●	●	●	●	●	●	●

OSICS DFB LANWDM
Distributed Feedback Laser



The OSICS DFB LANWDM modules are based on high-performance distributed feedback laser diodes.

Specifications

			SMF	PM13
Models	Channel 1		1295.56 nm / 231.4 THz	
	Channel 2		1300.05 nm / 230.6 THz	
	Channel 3		1304.58 nm / 229.8 THz	
	Channel 4		1309.14 nm / 229.0 THz	
Wavelength	Channel center		Grid matched	
	Tuning range*1		1.6 nm (1.8 nm typ.)	
	Accuracy*2		±0.03 nm	
	Stability over 1 hour*2,*3,*4		±0.005 nm	
	Stability over 24 hours*2,*3,*4		±0.005 nm typ.	
Power	Maximum		10 mW	
	Stability over 1 hour*2,*3,*4		±0.01 dB	
	Stability over 24 hours*2,*3,*4		±0.01 dB typ.	
	Optical Isolation		> 30 dB	
	RIN*5		< -130 dB/Hz	
Spectrum	Laser line width		< 10 MHz	
	SMSR*2		> 30 dB (40 dB typ.)	
Modulation	TTL	Internal	1 Hz to 890 kHz	
		External	16 Hz to 890 kHz	
	Analog (external / front panel)		150 Hz to 150 MHz	
	SBS Suppression (internal)*6	Waveform	sine	
		Freq.range	10 kHz to 100 kHz	
		Modulation depth	0 to 15%	
Interfaces on Module Front Panel*7	Enable key with status LED		Power up laser	
	Optical fiber		SMF	PM13
	Fiber alignment to connector key		n/a	Slow axis
	PER		n/a	>17 dB
	Optical connector		FC/APC narrow key	
	Electrical Connector		Coaxial SMB, 50 Ω	
Others	Laser safety		Class 1 M	
	Dimensions (WxHxD)		35 x 128 x 230 mm	
	Weight		1.1 kg	

Key Features

- **External & Internal LF Modulation**
- Stabilized lasers for **LR4 & ER4 testing of Silicon Photonics chips**
- **+10 dBm output power** from a single mode fiber with a stability of 0.01 dB over 1 hour
- **30 pm wavelength accuracy** and a stability of 5 pm over one hour
- **Wavelength tuning over 1.8 nm** (typ.) with the internal temperature control



*1: Location of channel center: lower boundary of the range + 0.4 nm < channel center < upper boundary of the range - 0.4 nm.
*2: After warm-up and at maximum power.
*3: At a constant temperature.
*4: Measured with an APC terminated jumper on a powermeter.
*5: RIN within the range 100 MHz–20 GHz measured at 10 dBm output power with RBW = 30 kHz.
*6: SBS = Stimulated Brillouin Scattering.
*7: See OSICS Mainframe Data Sheet for details on OSICS common specifications and interfaces on the rear panel.

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OSICS SLD
Broadband Light Source



The OSICS SLD modules are broadband light sources based on superluminescent light emitting diodes also called SLD or SLED.

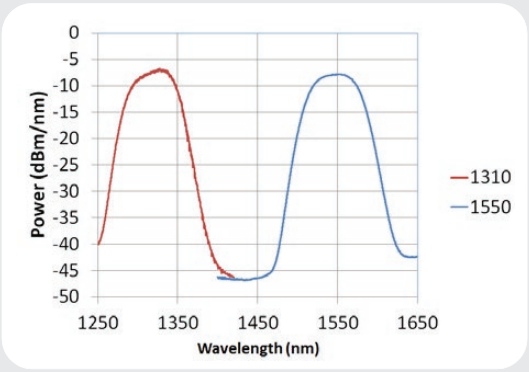
They cover a broad spectral range with total output power of 10 mW.

A monitoring photodiode guarantees excellent power stability over time.

Specifications

		OSICS SLD 1300	OSICS SLD 1550
Central Wavelength*1*2		1320 nm	1540 nm
Spectral Width*3	-3 dB (FWHM)	50 nm	
	-10 dB	80 nm	
	-20 dB	100 nm	
	-30 dB	125 nm	
Output Power	High	+10 mW	
	Low	+5 mW	
Power Stability Over Temperature Range		±0.1 dB	
Power Stability at Constant Temperature		±0.01 dB	
Optical Fiber		SMF	
Optical Interface		FC/APC connector	

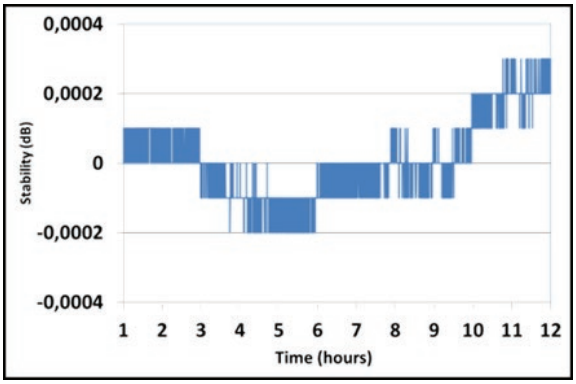
*1: Typical.
*2: ±20 nm.
*3: Guaranteed at output power = 5 mW.



Optical Spectrum

Key Features

- **High Output Power:**
  +10 dBm
- **Excellent Power Stability**
  A monitoring photodiode inside the module allows power for real-time feedback enabling an extremely stable output power. This avoids frequent referencing during component testing.
- **Isolation**
  The module comprises an isolator to maintain power stability even in the presence of back reflections from a test set-up.
- **Broad Wavelength Range**
  ~150 nm range with a spectral power density higher than -40 dBm/nm.



Power stability over 12 hours

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OSICS SWT

Optical Switch and Shutter

OSICS SWT is a full suite of fiber optic switch and shutter modules based on optical prism technology. These modules are perfect modules for use in laboratory or manufacturing environment to automate test set-ups and reduce measurement uncertainties due to optical connections.



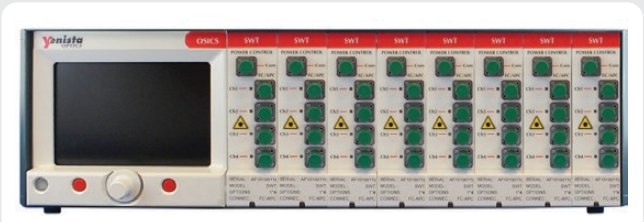
Specifications

	SMF*1	PMF
Available Configurations	1x1; 2x(1x1); 1x2; 1x4; 2x2	
Spectral Range (nm)	1260–1630	1480–1630*2 1240–1510*3
Insertion Loss*4*5	≤ 1 dB	≤ 1.5 dB
Polarization Dependent Loss*4	PDL ≤ 0.1 dB	PER ≥ 20 dB
Repeatability*5	≤ 0.005 dB	≤ 0.01 dB
Return Loss*4	> 55 dB	
On/Off ratio (1x1 Shutter Only)	≥ 80 dB	
On/Off ratio (2x(1x1) Shutter Only)	≥ 65 dB	
Crosstalk*5	≥ 55 dB	
Switching Time	30 ms typ.	
Guaranteed Lifetime (number of cycle)	> 10^8	
Input/Output Fiber Type	SMF-28 fiber	PM15 or PM13
Connector Type*6	FC/APC narrow key	
Dimensions W x H x D	35 x 128 x 230 mm (1.4 x 5.0 x 9.0 in)	
Weight	1 kg (2.21 lb)	
Temperature Range	+15 to +35 °C (+59 to +95 °F)	

*1: Specifications apply for wavelengths not equal to any water absorption line
*2: On PM15.
*3: On PM13.
*4: Typical values including connectors.
Maximum insertion loss is 1.4 dB for SMF and 2.0 dB for PMF.
*5: On the whole wavelength range.
*6: For PMF, slow axis is aligned to the connector key.

Key Features

- Low insertion and polarization dependent loss
- Excellent repeatability
- High optical isolation
- Low back reflection
- Broad spectral range
- Switch time of 30 ms
- Single slot module



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OSICS SWT APC

Optical Switch with Power Control



The OSICS SWT APC is an optical switch module that comes in a 1x2 or 1x4 configuration: one common output channel and two or four input channels.

A monitoring photodiode checks the optical output power of the module.

Specifications

	OSICS SWT APC
Spectral Range (nm)	1250-1650 nm
Insertion Loss*1*2	< 1.5 dB
Polarization Dependent Loss*1*3	< 0.1 dB
Repeatability*2*4	±0.02 dB
Return Loss*1	> 50 dB
Crosstalk*2	> 50 dB
Optical Input/Output Connectors (Module Front Panel)	FC/APC narrow key
Automatic Power Control	Yes (with OSICS T100 & ECL)
Input/Output Fiber Type	SMF-28 fiber
Synchronization (mainframe)	BNC connector N2: 50 ms TTL pulses
Dimensions W x H x D	35 x 128 x 230 mm (1.4 x 5.0 x 9.0 in)
Weight	1 kg (2.21 lb)
Temperature Range	15-35 °C

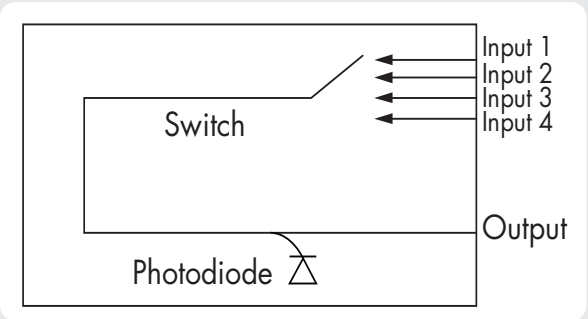
Specifications apply for wavelengths not equal to any water absorption line.

*1: Including connectors.
*2: On the whole wavelength range.
*3: At 1550 nm.
*4: At constant temperature, over 100 successive cycles.

Various Setup Types

The OSICS SWT APC module is fully bi-directional. It may be used in various setup types, for instance:

- **In a common configuration**, it allows you to direct a laser signal from the common input to either output channels
- **In a reverse configuration**, your can direct one of the input channels to the common output channel and use the monitoring photodiode.
- **In an OSICS T100 & ECL driver** configuration, you can control from one to four T100 & ECL modules with the OSICS SWT GUI. The Automatic Power Control automatically adjusts the output power of the input laser so you can get out of the switch the exact selected power by compensating any loss due to connection between laser and switch.



OSICS SWT APC Module Principle

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OSICS ATN-HP
Variable Optical Attenuator



The OSICS ATN-HP module integrates industry standard attenuator components. It combines a 60 dB attenuation range and operates throughout a large wavelength range.

As part of a test set-up, ATN modules can be used to equalize channels and to reach low power levels without modifying source signal-to-noise ratio. This is especially useful for optical amplifier characterization.

The ability to receive up to 2 W input power allows to use the module in large channel count DWDM test-beds.

Specifications

	SMF	PMF
Wavelength Range	1250–1650 nm	1440–1650 nm*1 1250–1510 nm*2
Attenuation Range	IL to 60 dB typ.	
Calibrated Range	Up to 40 dB at 1310 nm and 1550 nm	Up to 40 dB at 1550 nm*1, 1625 nm*1 and 1310 nm*2
Attenuation Accuracy (typ.)*3	±0.3 dB	
Insertion Loss (IL)	< 2 dB (1 dB typ.)	
Attenuation Setting Resolution	0.1 dB	
Polarization Dependent Loss*4	< 0.1 dB	
PER	n/a	≥ 18 dB
Return Loss*5	> 50 dB	
Maximum Input Power	2 W (+33 dBm)	
Optical Connectors*6	FC/APC narrow key	

Specifications apply for wavelengths not equal to any water absorption line.

*1: On PM15 fiber.
*2: On PM13 fiber.
*3: Inside calibrated range.
*4: Total PDL including both FC-APC connectors.
*5: RL at 1550 nm for SMF & PM15, RL at 1310 nm for PM13.
*6: PMF: slow axis is aligned to the connector key.

Key Features

- **2 W Input Power**
  for optical amplifier testing or multi-wavelength attenuation.
- **60 dB Attenuation Range with 0.1 dB Resolution**
  The large attenuation range capability allows to adapt to any set-up with a single instrument.
- **Real-time and Easy Operation**
  The platform user-friendly interface allows real-time adjustment of the attenuation. Each module attenuation can be read at any time on the OSICS front panel.
- **Low Return Loss**
  There is no more need to use additional optical isolator in front of the attenuator to avoid perturbations to your lasers stability thanks to the low return loss of the OSICS ATN-HP.
- **Single-slot Module Inside the OSICS Platform**
  You will benefit from all OSICS platform capabilities: remote commands, ability to host up to 8 modules including DFBs, high performances tunable laser sources, optical switches, etc.

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OSICS BKR
Variable Back Reflector



The OSICS BKR module integrates a variable reflector that can be set from 3 to 55 dB and operates throughout a large wavelength range.

The OSICS BKR emulates reflectance that normally occurs from all optical interfaces within fiber optic systems.

It is the perfect tool in R&D to test transponder prototypes and see how their operation is affected by undesired back reflection. It could also be used in large PON/WDM test-bed to stress transmitters and receivers in the system.

Specifications

	OSICS BKR
Wavelength Range	1250–1650 nm on SMF 1240–1520 nm on PMF
Reflectance Range	Up to 55 dB
Calibrated Range	Up to 40 dB at 1310 and 1550 nm
Reflectance Accuracy (typ.)*1	±0.3 dB
Insertion Loss	≤ 4 dB (3 dB typ.)
Reflection Setting Resolution*2	0.02 dB
Polarization Dependent Loss	0.2 dB
Speed	0.1 second / 3 dB (typ.)
Maximum Input Power	0.2 W (+23 dBm)
Optical Connectors	FC-APC on SMF-28 FC-APC on PMF PM13

All specifications are tested at 23°C +/- 2°C; optical connector included.

*1: Inside calibrated range and up to 35 dB.
*2: From 1 to 10 dB; 0.1 dB for 10 to 40 dB.



OSICS BKR Module Principle

Key Features

- **55 dB Reflection Range with 0.1 dB Resolution**
  The large reflection range capability allows to adapt to any set-up with a single instrument.
- **Real-time and Easy Operation**
  The platform user-friendly interface allows real-time adjustment of the reflectance. Each module reflectance can be read at any time on the OSICS front panel display.
- **Single-slot Module Inside the OSICS Platform**
  You will benefit from all OSICS platform capabilities: remote commands, ability to host up to 8 modules including DFBs, high performance tunable laser sources, optical switches, etc.

Applications

- **Simulation of cumulated reflection from unmated connectors (PON, WDM systems)**
  The large reflection range capability allows to adapt to any set-up with a single instrument.
- **Component testing (transmitters, receivers, laser diode, isolator, ...)**
  Used with a bit-error-rate tester, it allows testing return loss sensitivity of individual components.
- **Laser development and production**
- **OTDR testing**

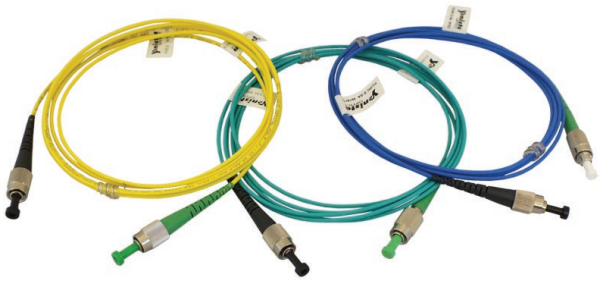
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OSICS Accessories

Yenista Optics provides various accessories for the OSICS multifunction platform.



Jumpers

SMF and PMF jumpers are available with FC/PC, FC/APC, SC/PC and SC/APC connectors. They are compatible with the instruments.

Special OSICS Jumpers

0.3 meters long SMF jumpers with FC/APC connectors on both sides are adapted to make connections between modules located in the same OSICS mainframe. They are well suited for building compact test systems such as the OSICS Full Band Laser.

Others Jumpers

2.0 meters long SMF and PMF (PM13 and PM15) jumpers are also available:

- FC/APC-SC/APC
- FC/PC-SC/PC
- FC/APC-SC/PC
- FC/PC-SC/APC
- FC/APC-FC/APC
- FC/PC-FC/PC
- FC/APC-FC/PC



Cover Plates

Cover plates are available for mounting onto empty OSICS module slots for electrical safety.



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