

OSICS DFB CWDM

DISTRIBUTED FEEDBACK LASER



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

SPEC SHEET

KEY FEATURES

Internal and external modulation

10 dBm optical power

Internal wavelength calibration for 30 pm accuracy

Wavelength can be finely tuned over 1.8 nm (typical) with the internal temperature control

Front-panel control

KEY FEATURES

Internal and 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 (typical) 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.

20 CHANNELS

EXFO's module covers all CWDM channels from 1270 nm to 1610 nm plus 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 can 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.

SPECIFICATIONS

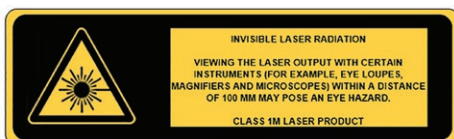
| | | OSICS DFB CWDM SMF | OSICS DFB CWDM PM13 | OSICS DFB CWDM PM15 | |
|--|---|---|------------------------|------------------------|--|
| Models ^a | Channels | See channel grid in the ordering information table below | | | |
| | Grid wavelength of the first channel (nm) | 1270 | 1310 | 1450 | |
| | Grid wavelength of the last channel (nm) | 1650 | 1310 | 1650 | |
| Wavelength | Channel center ^b | Wavelength grid ± 3 nm | | | |
| | Tuning range (nm) | 1.6 (1.8 typical) | | | |
| | Accuracy (nm) ^c | ± 0.03 | | | |
| | Stability over 1 hour (nm) ^{c, d, e} | ± 0.005 | | | |
| | Stability over 24 hours (nm) ^{c, d, e} | ± 0.005 (typical) | | | |
| Power | Maximum | 10 mW (for channels from 1270 nm to 1570 nm) 8 mW (for channels from 1590 nm to 1650 nm) | | | |
| | Stability over 1 hour (dB) ^{c, d, e} | ± 0.01 | | | |
| | Stability over 24 hours (dB) ^{c, d, e} | ± 0.01 (typical) | | | |
| | Optical isolation (dB) | > 30 | | | |
| | RIN (Relative intensity noise) (dB/Hz) ^f | < -140 | | | |
| Spectrum | Laser linewidth (MHz) | < 10 | | | |
| | SMSR (dB) ^c | > 30 (40 typical) | | | |
| Modulations | TTL (internal and external) | 1 Hz to 890 kHz | | | |
| | Analog (external/front panel) | 150 Hz to 150 MHz | | | |
| | SBS suppression (internal) ^g | Waveform | Sine | | |
| | | Frequency range (kHz) | 10 to 100 | | |
| Modulation depth (%) | | 0 to 15 | | | |
| Interfaces on module front panel ^h | 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 | | |
| | Polarization extinction ratio (PER) | n/a | > 17 dB | | |
| | Electrical connector (analog modulation) | Coaxial SMB – 50 Ω | | | |
| Others | Laser safety | Class 1 M | | | |
| | Dimensions (W x H x D) | 35 mm x 128 mm x 230 mm (1 $\frac{3}{8}$ in x 5 in x 9 in) | | | |
| | Weight | 1.1 kg (2.43 lb) | | | |

Notes

- a. See the table on following page for complete overview of selectable channels for order.
b. Location of channel center: lower boundary of the range + 0.4 nm < channel center < upper boundary of the range - 0.4 nm.
c. After warm-up and at maximum power.
d. At a constant temperature.
e. Measured with an APC terminated jumper on a power meter.

- f. RIN within the range 100 MHz–20 GHz measured at 10 dBm output power with RBW = 30 kHz.
g. SBS = Stimulated Brillouin scattering.
h. See OSICS mainframe specifications sheet for details on OSICS common specifications and interfaces on the rear panel.

LASER SAFETY



ORDERING INFORMATION

| Model selection | | | | | | | | | | | | | | | | | | | | |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ch. N° | 001 | 002 | 003 | 004 | 005 | 006 | 007 | 008 | 009 | 010 | 011 | 012 | 013 | 014 | 015 | 016 | 017 | 018 | 019 | 020 |
| 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 | | | | | | | | | | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |

ORDERING INFORMATION

OS-DFB-C-XX-XX-XX-58

Wavelength band

- F = SMF28 singlemode output fiber
- O = PM13 polarization maintaining fiber
- SCL = PM15 polarization maintaining fiber

Channel number

- Wavelength = 1250 + 20 nm x Channel number**
- 001-009 = Available for F and O wavelength bands.
Check availability if other than 003 for O wavelength band
- 010-020 = Available for F band and SCL wavelength bands

Connector

- 58 = FC/APC

Output fiber

- 00 = SMF28 singlemode output fiber (only with F wavelength band)
- P = Polarization maintaining fiber (only with O or SCL wavelength bands)

Example: OS-DFB-C-F-011-00-58

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