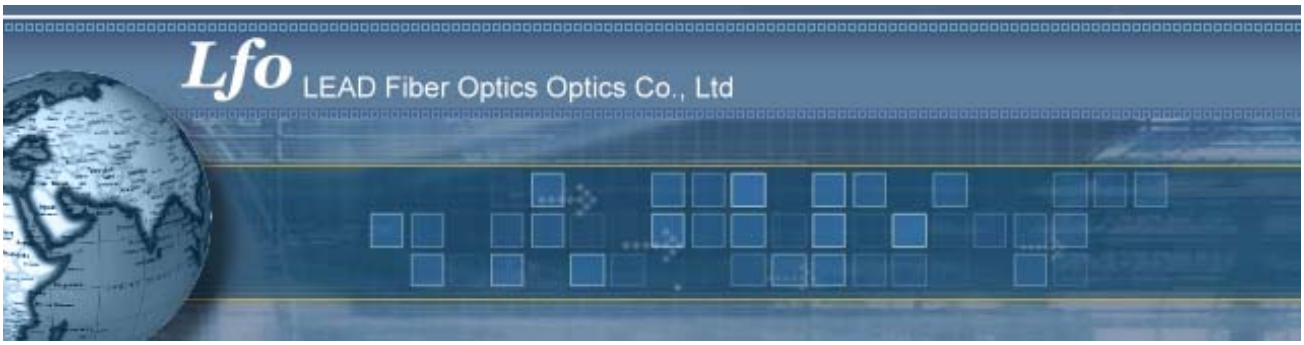

LEAD Fiber Optics
PRODUCT CATALOGUE

CWDM Module

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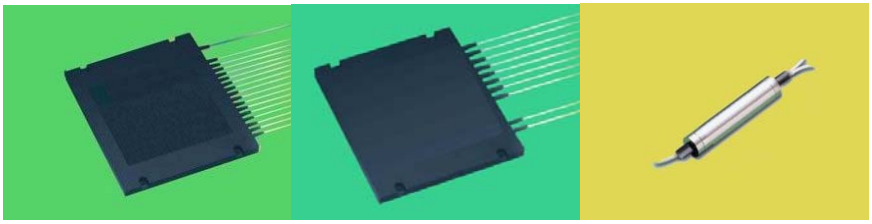
CWDM Module



CWDM modules (Coarse Wave Division Multiplexing) combine or split up to 16 wavelengths into a single fiber. CWDM technology uses ITU standard 20nm spacing between the wavelengths, from 1270nm to 1610nm.

CWDM Modules utilize thin-film coating and micro optics package technology. They are available in two main configurations: CWDM Multiplexer/Demultiplexer (Mux/Demux) modules and CWDM Add/Drop Multiplexer (OADM) modules.

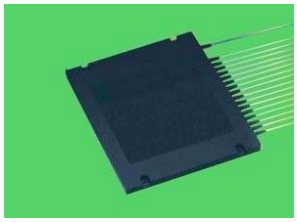
CWDM Mux/Demux Modules are available in 4, 8 and 16 channel configurations. These modules passively multiplex the optical signal outputs from 4 or more electronic devices, send them over a single optical fiber and then de-multiplex the signals into separate, distinct signals for input into electronic devices at the other end of the fiber optic link.

CWDM Add/Drop multiplexer Modules provide the ability to add or drop a single wavelength or multi-wavelengths from a fully multiplexed optical signal. This allows intermediate locations between remote sites to access the common, point-to-point fiber segment linking them. Wavelengths not dropped, pass-through the OADM and continue on in the direction of the remote site. Additional selected wavelengths can be added or dropped by successive OADMS as needed.

CWDM Add/Drop Multiplexer Unit allows a single channel (CWDM Wavelength) to be inserted /extracted from the composite CWDM trunk. There are two versions of the OADM, one does Add/Drop in both directions, the second does Add/Drop in a single direction.

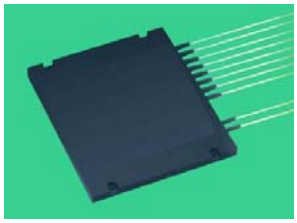
We provide CWDM module with various kinds of **connectors** and **cable** length and optional stainless tube package or standard box package to meet your requirement. We offer 1x2, 1x4, 1x8,...up to 1x6 CWDM Module. Our CWDM modules are configured by number of channels for any customer -specify channel plan, and can be integrated with taps and detectors for a complete CWDM solution.

LFO CWDM Module Series



CWDM Module(CWDM Mux/Demux Module)

The Coarse Wave Division Multiplexing (CWDM) modules combine or split up to 16 wavelengths into a single fiber. Our CWDM module features wide channel bandwidth (13nm) in ITU channel allocation. Their isolation is greater than 30dB for adjacent channels, and greater than 40dB for non-adjacent channels. They have also high thermal stability.



CWDM Add/Drop Module

The CWDM Add/Drop Module is designed to add and drop an individual channel flexibly at an optical node of a CWDM network system. Our CWDM Add/Drop Module Features Wide channel bandwidth (13nm) in ITU channel allocation. They have low insertion Loss (IL), low IL Uniformity and high Isolation. The central wavelength of each channel can be specified to one of the ITU-T grid wavelengths

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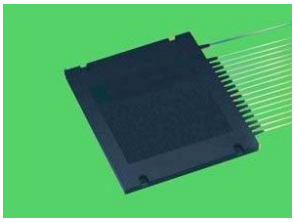
CWDM Add/Drop Unit

The CWDM Add/Drop Unit is designed to add or drop one single CWDM wavelength at any node location of the network. The central wavelength and channel spacing of this component are at ITU grid. This component is the basic building block of multiple-channel CWDM mux/demux modules. Customers can specify the central wavelength of the add/drop channel of this component.

CWDM Module

Features

- Environmentally stable
- Easy installation
- Custom-defined specifications
- Low return Loss
- Low Loss, Low cross Talk
- ITU standard



Applications

- Telecommunication
- Local area network
- CWDM & FTTH

Specifications

ITEM	VALUES	
Type	Mux	Demux
Channel	4/8/16 or Customer Specify	
Central Wavelength, nm	1311/1331/1351/1371/1391/1141/1431/1451 1471/1491/1511/1531/1551/1571/1591/1611 or customer specify	
Channel Space, nm	20	
Pass band@ 0.5dB, nm	ITU±6.5nm	
Insert Loss, dB for 4 channel	≦1.6	
Insert Loss, dB for 8 channel	≦2.8	
Insert Loss, dB for 16 channel	≦4.0	
Adjacent Channel isolation, dB	N/A	≧30
Non-adjacent Channel isolation, dB	N/A	≧40
Uniformity, dB	≦1.5 (Mux-Demux pair only)	
Directivity, dB	≧50	
Optical Input Return Loss, dB	≦45	
Polarization Dependent Loss, dB	≦0.1	
Polarization Mode Dispersion (PMD), ps	≦0.1	
Thermal Stability, dB /℃	≦0.005	
Thermal Stability Drift, pm /℃	≦5	
Max. Optical Power, mW	300	
Max. Tensile Load, N	5	
Storage Temperature, ℃	-40~85	
Operating Temperature, ℃	0~70	
Package size, mm^3	M4(1×4, 1×8 standard);M5(1×16 standard, Mux+Demux 1×8 standard), A2,A3	

CWDM Module Ordering information

WD-CM XX/XX XX XX X XX XXX(cm)

Connector(in/out)
11-ST
21-FC/PC
22-FC/APC
31-SC/PC
32-SC/APC
41-LC/PC
51-MU/PC
00-None
XX-Others

Pigtail length
050- 50cm
100- 100cm
150- 150cm
200- 200cm
000- Modulized
XXX-Others

No.of channels
04- 4 channel
08- 8 channel
16- 16 channel
XX- Others

Central wavelength
01-1511/1531/1551/1571 for 4 channels
02-1501/1521/1541/1561 for 4 channels
03-1471/1479/1511/1531/1551/1571/1591/1611 for 8 channels
04-1311/1331/1351/1371/1391/1411/1431/1451/
1471/1479/1511/1531/1551/1571/1591/1611 for 16 channels
XX- Others

Type
M-Mux
D-Demux
U-Mux/Demux
X-Others

Package option(for both ends)
C1-Coated fiber(250um)
L1-Loose tube cable (900um)
XX-Others

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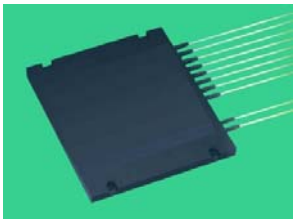
CWDM Add/Drop Module

Features

- Environmentally stable
- Easy installation
- Custom-defined specifications
- Low return Loss
- Low Loss, Low cross Talk
- ITU standard



Applications

- Telecommunication
- Local area network
- CWDM & FTTH

Specifications

ITEM	VALUES			
Channel No.	1/2/4/8/ or Customer Specify			
Starting Wavelength (nm)	1311/1331/1351/1371/1391/1141/1431/1451; 1471/1491/1511/1531/1551/1571/1591/1611 or customer specify			
Channel Space, nm	20			
Pass band@ 0.5dB,nm	ITU±6.5nm			
Typical Insertion Loss,	1 set of λ	2 set of λ	4 set of λ	8 set of λ
Input/Drop Channel	≦0.8	≦1.2	≦2.0	≦3.6
Add/Output Channel	≦0.8	≦1.2	≦2.0	≦3.6
Input/Output Channel	≦0.8	≦1.9	≦2.8	≦5.2
Adjacent Channel isolation, dB	≧30			
Non-adjacent Channel isolation, dB	≧40			
Uniformity, dB	≧1.5			
Directivity, dB	≧50			
Optical Input Return Loss, dB	≦45			
Polarization Dependent Loss, dB	≦0.1			
Polarization Mode Dispersion (PMD), ps	≦0.1			
Thermal Stability, dB /℃	≦0.005			
Thermal Stability Drift, pm /℃	≦5			
Max. Optical Power, mW	300			
Max. Tensile Load, N	5			
Storage Temperature, ℃	-40~85			
Operating Temperature, ℃	0~70			
Package size,mm^3	M4(1/2/4,channel standard);M5(8 channel standard), A2,A3			

CWDM Add/Drop Module Ordering information

WD-AM XX/XX/XX XX XX XX XX XXX(cm)

Connector (in/common/out)

11-ST
21-FC/PC
22-FC/APC
31-SC/PC
32-SC/APC
41-LC/PC
51-MU/PC
00-None
XX-Others

Pigtail length

050- 50cm
100- 100cm
150- 150cm
200- 200cm
000- Modulized
XXX-Others

Sets of wavelengths

01- 1 set of wavelengths
02- 2 set of wavelengths
04- 4 set of wavelengths
XX-Others

Starting wavelength

31-1310 nm	47-1470 nm
33-1330 nm	49-1490 nm
35-1350 nm	51-1510 nm
37-1370 nm	53-1530 nm
39-1390 nm	55-1550 nm
41-1410 nm	57-1570 nm
43-1430 nm	59-1590 nm
45-1450 nm	61-1610 nm

XX-Customer Specify

Channel spacing

S2- 20 nm, single directional
D2- 20 nm, dual directional
XX- Others

Cable type(for both ends)

S1-Singlemode fiber
L1-Loose tube cable (900um)
XX-Others

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CWDM Add/Drop Unit

Features

- Environmentally stable
- Easy installation
- Custom-defined specifications
- Low return Loss
- Low Loss, Low cross Talk
- ITU standard

Applications

- Telecommunication
- Local area network
- CWDM & FTTH

Specifications

ITEM	VALUES
Central Wavelength, nm	1311/1331/1351/1371/1391/1141/1431/1451 1471/1491/1511/1531/1551/1571/1591/1611 or customer specify
Pass band@ 0.5dB, nm	ITU±6.5nm or customer specify
Channel Space, nm	20
Add/Drop Channel Insertion Loss(C-P1), dB	≦0.8
Express Channel Insertion Loss(C-P2), dB	≦0.4
Add/Drop Channel Ripple, dB	≦0.3
Isolation(C-P1), dB	≦30
Isolation(C-P2), dB	≧12
Directivity, dB	≧50
Optical Input Return Loss, dB	≧45
Polarization Dependent Loss, dB	≦0.1
Polarization Mode Dispersion (PMD), ps	≦0.1
Thermal Stability, dB /℃	≦0.005
Thermal Stability Drift, pm /℃	≦5
Max. Optical Power, mW	300
Max. Tensile Load, N	5
Storage Temperature, ℃	-40℃ ~ 85℃
Operating Temperature, ℃	0℃ ~ 70℃
Package size, mm	ϕ5.5×34mm for coated fiber(250μm) ϕ5.5×39mm for Loose tube cable(900μm)

CWDM Add/Drop Unit Ordering information

WD-CU XX/XX XX XX XXX(cm)

Connector(common/output P1+P2)

11-ST
21-FC/PC
22-FC/APC
31-SC/PC
32-SC/APC
41-LC/PC
51-MU/PC
00-None
XX-Others

Center wavelength

49-1491 nm
51-1511 nm
53-1531 nm
X- Others

Package option (for both ends)

C1-Coated fiber(250um)
C2-Coated fiber(250um) w / boot
L1-Loose tube cable (900um)
L2-Loose tube cable (900um) w / boot
XX-Others

Pigtail length

050- 50cm
100- 100cm
150- 150cm
200- 200cm
000- Modulized
XXX-Others

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