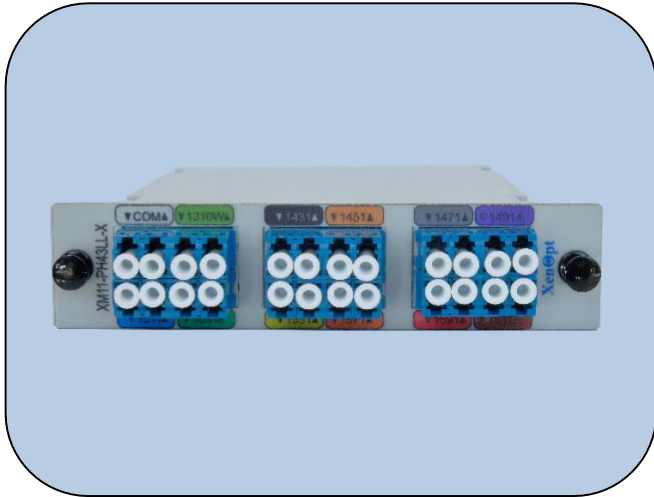




CWDM Dual Fiber series

passive optical components

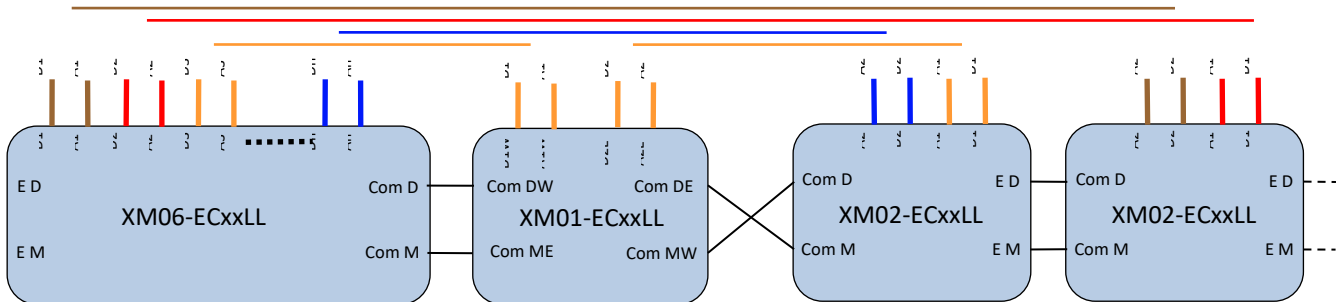
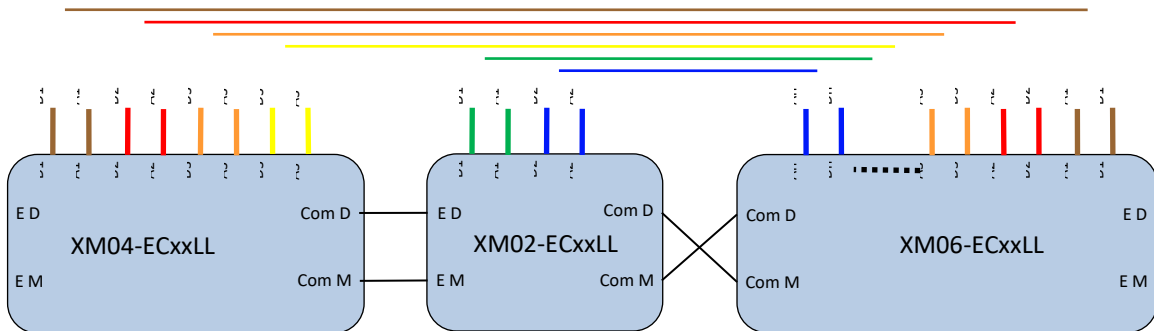


Features:

- Optimized for dual fiber applications
- Simplified component interconnection system using standard dual patch cords eliminates most interconnection errors
- Up to 18 bidirectional channels using all 18 standard CWDM wavelengths
- Very low inter-channel attenuation ripple
- Modular design enables later expansion
- Lower attenuation models available on request
- Optimized versions for CPRI/OBSAI connections

Typical Applications:

- Optimization of fiber use in fiber based data transfer
- Concurrent transmission of different data formats i.e. Ethernet, Fiber Channel, TDM
- Out of band monitoring, fiber integrity and performance monitoring
- Multiple CPRI / OBSI channels transported on top of colorless legacy connections



Description:

CWDM Dual Fiber series is a series of passive optical components optimized for use in dual fiber CWDM transmission systems. Depending on fiber characteristics it enables transfer of up to 18 bidirectional channels over a fiber pair using low cost CWDM transponders. Standard single mode fiber G.652, that exhibits watermark peak attenuation, still allows transfer of at least 12 bidirectional channels and even more on shorter distances. All components are add/drop type (OADM) so they can be daisy-chained. System using multiple wavelength ranges can be easily integrated using standard components. Each bidirectional data channel uses a same wavelength on both fibers, each transferring data in one direction. Standard components that are typically available from stock provide 2, 4 and 6 standard consecutive CWDM channels packed in 1U LGX box or 8 channels in 2U LGX box or 1U rack mountable enclosure.

Filter construction is such that it balances the attenuation on all used wavelength, so that very little attenuation ripple between channels is present (typ. <0.3dB). Wavelengths exhibiting higher attenuations are in standard versions typically packed separately, so that easier optimization of total system attenuation is possible.

In custom versions any combination of wavelengths is possible. In addition to standard CWDM filters, wideband filters that support concurrent transmission of (existing) non CWDM optical signals using FP lasers are also available. See more about these versions in separate document “*WDM components for mobile backhaul applications*”. Additional 1625nm or 1650nm test channel that enables OTDR testing of optical line while it is being used for data transmission is also available.

Terminal connections are designed so that standard dual LC SM patch cords can be used to connect to standard transponder equipment (i.e. SFP).

Devices are installed in standard LGX module that snaps into 1U or 2U rack mount bracket. Up to three LGX modules can be inserted in single 1U rack mount bracket. There is also a selection of unmanaged transponder modules that can be installed in place of LGX module. Managed transponders must be installed in separate rack mount enclosure.

Ordering:**XMnn-ECxxLb**

- n** number of add/drop channels
- b** type of enclosure (L – LGX, R – 1U rack mountable box)

XM02-ECxxLL	2 wavelengths dual fiber OADM, east-west, 1U LGX box
XM04-ECxxLL	4 wavelengths dual fiber OADM, single direction, 1U LGX box
XM08-ECxxLL	8 wavelengths dual fiber OADM, single direction in 2U LGX
XM08-ECxxLP	8 wavelengths dual fiber OADM, single direction in 1U rack mountable box

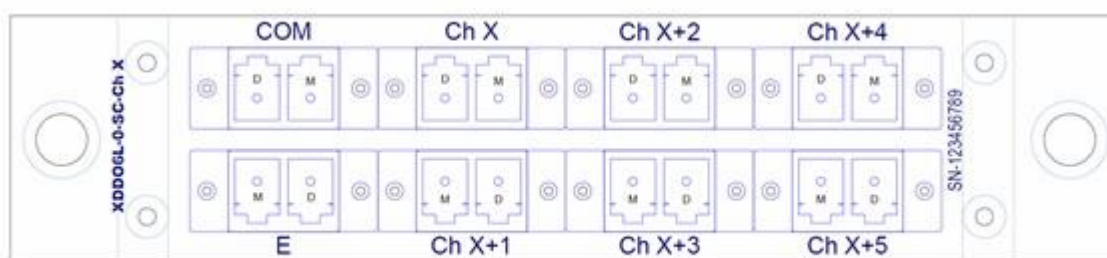
If wavelengths are all sequential **xx** is replaced by middle two digits of lowest wavelength of component. If wavelengths are not sequential **xx** is replaced with list of middle digits of all wavelengths separated by »/«.

Any combination of standard CWDM (*ITU-T G.694.2*) wavelengths combinations can be ordered with delivery time of up to 6 weeks (4 weeks typical) for standard CWDM channels and up to 8 weeks for combinations with custom wideband filters.

Here are some examples of typical devices that are usually available from stock in limited quantities:

XM08-EC47LP	8 wavelengths OADM 1471 to 1611 in 1U rack mount box
XM06-EC47LL	6 wavelengths OADM 1471 to 1571 in 1U LGX box
XM04-EC47LL	4 wavelengths OADM 1471 to 1531 in 1U LGX box
XM04-EC55LL	4 wavelengths OADM 1551 to 1611 in 1U LGX box
XM02-EC59LL	2 x 2 wavelengths west-east OADM 1591, 1611 in 1U LGX box
XM02-EC47LL	2 x 2 wavelengths west-east OADM 1471, 1491 in 1U LGX box
XM02-EC47LL	2 wavelengths OADM 1471, 1491 in 1U LGX box
XM02-EC51LL	2 wavelengths OADM 1511, 1531 in 1U LGX box
XM02-EC55LL	2 wavelengths OADM 1551, 1571 in 1U LGX box

Typical connections layouts:



Optional accessories

- XM01 19" rack mounting bracket accommodates up to 3 LGX modules in 1U height
- XM01R 19" rack mounting bracket accommodates up to 3 LGX modules in 2U height, recessed
- XM02R 19" rack mounting bracket accommodates up to 6 LGX1 modules or 3 LGX2 modules in 2U height, recessed
- XM01B blank panel for 19" rack mounting bracket
- XM01G1 Cable guide bracket enables guiding and fixing of all optical cables when installed with rack mount bracket

Optional Services:

- Optical fiber measurements and qualification
- Design and integration of complete system including active equipment
- Custom configurations and OEM production is possible for orders with typically at least 10 equal components.

Technical Specifications

	2 ch	4 ch	6ch	8 ch	10 ch
Express Channel pass band	1331 to 1611 nm				
Add Drop Channel	1271 to 1661 nm				
Bandwidth @ -0.5dB	≥ 15 nm				
IL @ Express Channel	≤ 1.1 dB	≤ 1.8 dB	≤ 2.4 dB	≤ 3.2 dB	≤ 4.0 dB
Express Channel Isolation	≥ 15 dB				
ILmax @ Add/Drop (component pair)	≤ 1.8 dB	≤ 2.5 dB	≤ 3.3 dB	≤ 4.1 dB	≤ 4.9 dB
ILmax @ Add/Drop (single component)	≤ 1.2 dB	≤ 2.0 dB	≤ 2.7 dB	≤ 3.5 dB	≤ 4.1 dB
Add-Drop Channel Ripple (A/B component pair)	≤ 0.3 dB				
Polarization Dependent Loss (dB)	≤ 0.10 dB				
Add Drop Channel Isolation (Adjacent)	≥ 30 dB				
Add Drop Channel Isolation (Non Adjacent)	≥ 40 dB				
Return Loss	≥ 45 dB				
Directivity	≥ 50 dB				
Optical Power Handling	≥ 500 mW				
Operating Temperature	0 to +70 °C				
Storage Temperature	-40 to +85 °C				
Connector Type	LC				
Packaging Dimension	1U Aluminum LGX Box (130mm x 127mm x 30mm)			1U LGX box w. 4xFC adapters or 1U rack mountable	

NOTES:

IL and PMD includes connector loss.

Different packing and lower Insertion loss versions are available on request.

To find out more, please contact: