

SFW-C

Coarse Wavelength Division Multiplexer (CWDM)

Description:

SFW-C series Coarse Wavelength Division Multiplexer and Demultiplexer (CWDM) modules are reliable, cost effective solutions to multiservice applications. They multiply the capacity of existing singlemode fibers, by combining up to 18 ITU-T G.694.2 compatible (20 nm) channels in metropolitan, access and enterprise networks and for Cable TV applications. They are a low cost approach for systems that use uncooled laser sources, and are an alternative to more expensive DWDM components based on 100 GHz or 200 GHz channel spacing.

Features:

- High port isolation
- Custom defined specifications
- Low insertion loss
- Low polarization dependent loss
- Transmission with high directivity
- Wide spectral channels
- Environmentally stable
- Wide range of packaging types – min. bend radius protection



Applications:

- High capacity multi channels networks

Technical specifications:

Feature	Specification	Feature	Specification
<i>Channel spacing</i>	20 nm	<i>PDL</i>	≤ 0.1 dB
<i>Pass bandwidth</i>	Typ. 14 nm	<i>Max. optical power</i>	300 mW
<i>Pass band flatness</i>	0.3 dB	<i>Operating temperature</i> (Conditioned by the cable type)	-10 to +70 °C
<i>Min Isolation</i>	≥ 40 dB non-adjacent channel ≥ 30 dB adjacent channel	<i>Storage temperature</i> (Conditioned by the cable type)	-40 to +85 °C
<i>Return loss</i>	≥ 50 dB	<i>Package dimensions</i>	Refer to ord. code
<i>Directivity</i>	≥ 50 dB		

Insertion loss (dB) ¹ (without connectors)													
4 Channels		CWDM 4 + E		CWDM 6 CH		CWDM 6 + E		CWDM 8 CH		CWDM 8 + E		CWDM 16 + E	
Typ.	M+D	Typ.	M+D	Typ.	M+D	Typ.	M+D	Typ.	M+D	Typ.	M+D	Typ.	M+D
1.5	2.5	1.7	3.0	2.1	3.7	2.3	4.1	2.5	4.5	2.7	4.9	4.8	8.8

Note: 1) M+D: Insertion loss Multiplexer+ Demultiplexer

Max IL: channel 1: 0.6 dB

channel 2: 0.6 +0.4 dB

channel N: 0.6 + (N-1)x0.4 dB

Compact CWDM (Low Loss) (without connectors)				
Channel Number	4	8	8 (+E1)	8 (+E2)
<i>Insertion Loss (dB)</i>	1.0	1.5	1.5	1.5
<i>Maximum Ripple in Passband (dB)</i>	0.5			
<i>Maximum Polarization Depend Loss (dB)</i>	≤ 0,2			
<i>Maximum Polarization Mode Dispersion (ps)</i>	0.10 (GD)			
<i>Maximum Power Handling (mW)</i>	500			

Ordering Code:

(2x)¹ SFW-C - N - XXX - YYY - ZZZ/ZZZ⁴ - W(+E,+BS)⁵ (-LL)⁶

N - Number of channels
1-18

XXX - Type of device
M MUX
D DEMUX
M+D² MUX+DEMUX
AD ADD
DR DROP
A+D ADD+DROP

Sum (Σ) / Wavelength (λ)
Connector types

UPC FC/UPC
NPC FC/APC
USC SC/UPC
NSC SC/APC
NE2 E2000/APC Grade C
NE2Pxx E2000/APC Grade B, A, A+
ULC LC/UPC
NLC LC/APC
USL ST/UPC
NC No connectors

Package version I (basic)

CM3³ Cable type, metal box (up to 5 ports), 100x80x10 mm
CM4³ Cable type, metal box (up to 9 ports), 140x110x10 mm
CM5³ Cable type, metal box 140x110x20 mm
CP41 Plastic ABS box 120x80x18 mm
CP52 Plastic ABS box 144x118x10 mm

Package version II (optional)

YYY Part number of relevant ODF (f.e. **MCNP**, **TMVJ**, **ZMPJ**)
CAPM OPTOKON cassette
MPIC Wall mount MPIC unit
LGX LGX box (customized by a client)

Note:

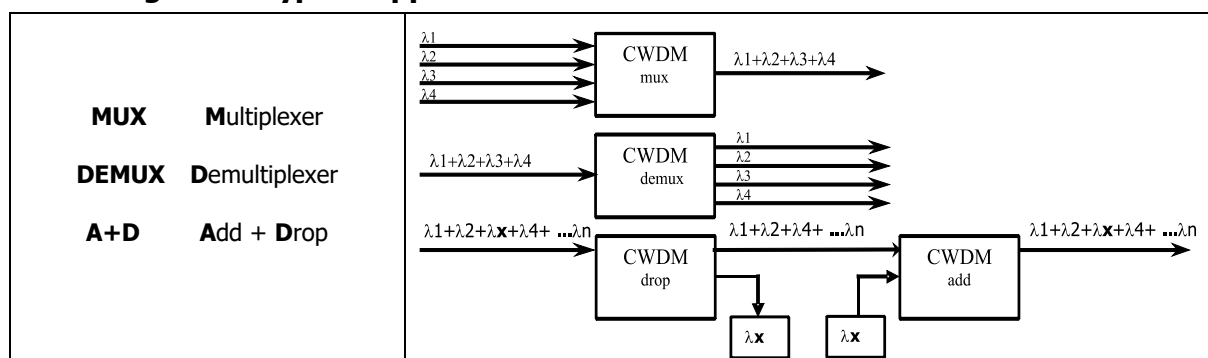
- 1) „2x“ => 2 fibers variant (two multiplexes in one package, f.e. MCNP)
- 2) MUX and DEMUX in one pack - 2 fiber variant
- 3) 2.8 mm cable diameter, standard outputs length – 1 m
- 4) First "Z" defines Σ connector/second "Z" defines λ connectors
Other connector types on request
- 5) Enumerate wavelengths (**W** = wavelength)
Examples: 31,49,51,55
47-53+E2 (consecutive channels and 1310 nm port)
47-61+BS (consecutive channels and BS port)
- 6) Low Loss module = Compact CWDM with the lowest IL ≤ 1.5 dB

W Wavelengths shortcut list

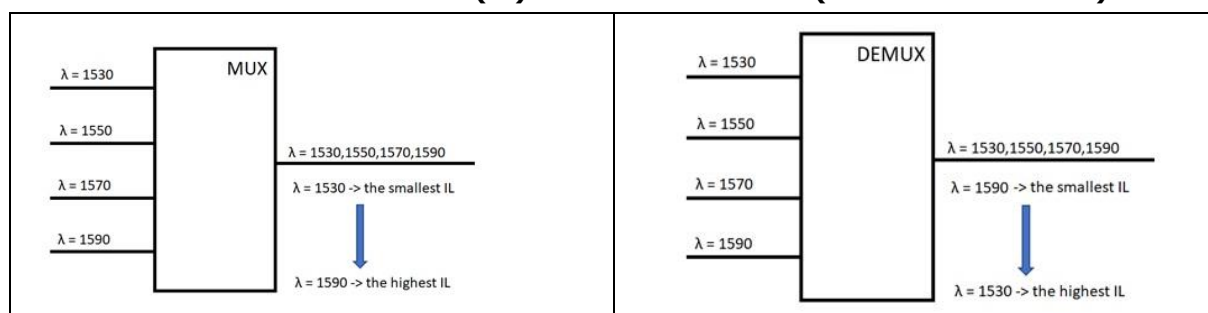
27	1270 nm	45	1450 nm
29	1290 nm	47	1470 nm
31	1310 nm	49	1490 nm
33	1330 nm	51	1510 nm
35	1350 nm	53	1530 nm
37	1370 nm	55	1550 nm
39	1390 nm	57	1570 nm
41	1410 nm	59	1590 nm
43	1430 nm	61	1610 nm

E1 Expand port, 1310 $\pm$ 7 nm
E2 Expand port, 1310 $\pm$ 50 nm
BS Port for remaining wavelengths (Band splitter)

Block diagram of typical applications:

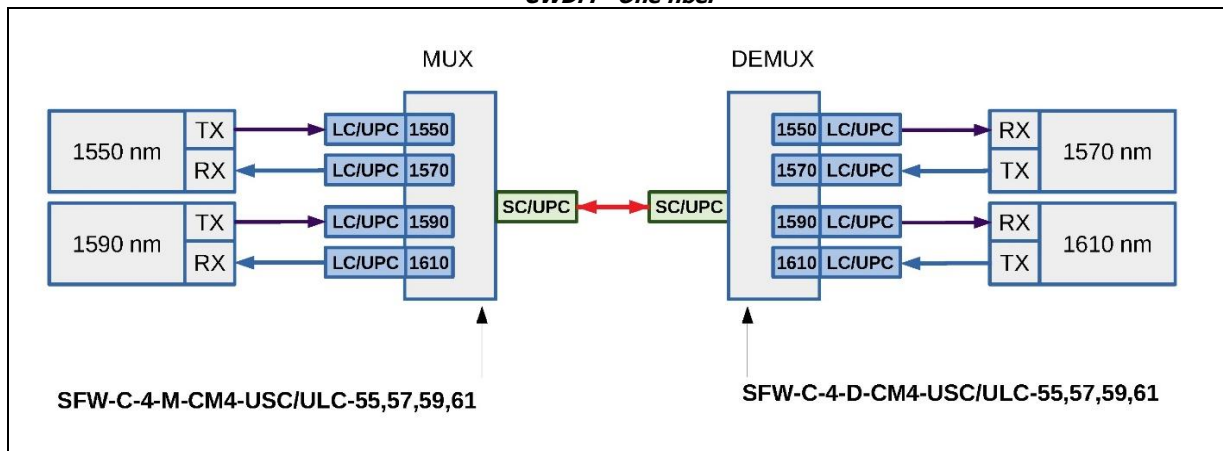


Standard schema of Insertion loss (IL) for MUX and DEMUX (4-CH CWDM Module):

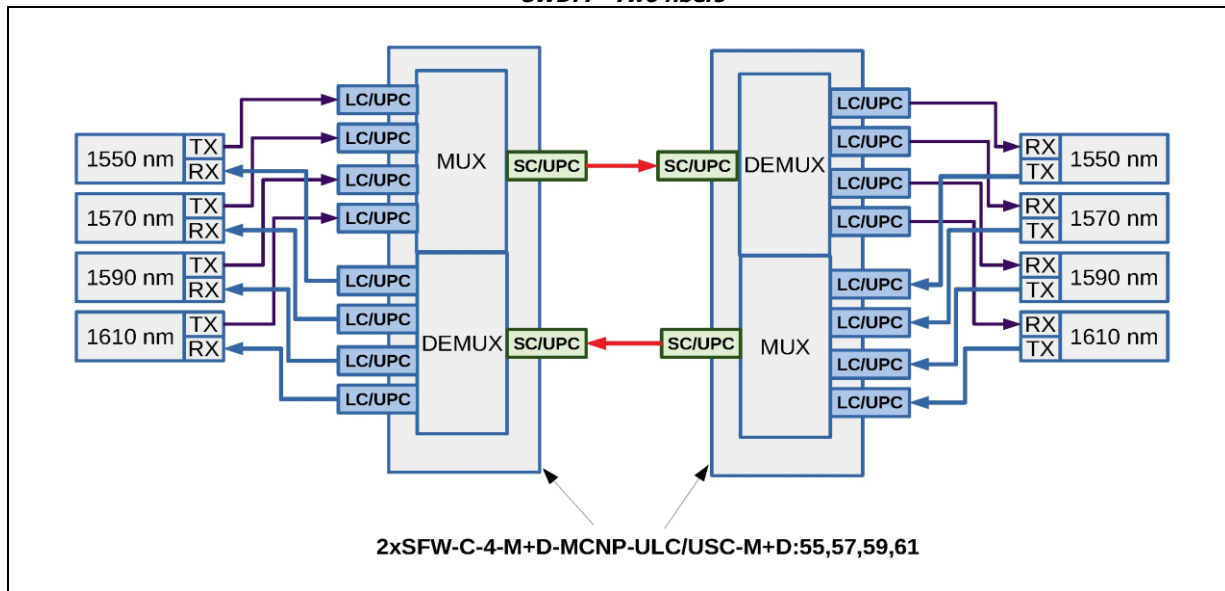


Diagrams with examples of connection and codes:

CWDM - One fiber



CWDM - Two fibers



Packaging variants:



CM4 box with cable outputs



MPIC Wall mount box



3U Rack mount chassis for 12x CAPM cassettes



1U 19" frame – MCNP type

