



## **DWDM-8C / DWDM-8C-MkII**

8 channel 100GHz DWDM C-band multiplexer  
and demultiplexer with upgrade port

### **User manual**

Rev. C

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## Revision history

Current revision of this document is the uppermost in the table below.

Rev.	Repl.	Date	Sign	Change description
C	B	2015-12-03	OEH	Adding information on MkII changes
B	1	2015-06-10	MB	Template update; DoC removed
1	0	2011-09-23 2012-05-18	AA / JRW	New template.
0	-	2007-08-29	OEH	Initial version.

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## 1 Product overview

The Flashlink DWDM-8C(-MkII) is a set of optical modules for multiplexing and demultiplexing 100GHz spaced DWDM (Dense Wavelength Division Multiplexed) signals. The modules are divided into multiplexers and de-multiplexers, which form a complimentary pair. There are a total of 5 different pairs, each with their own set of wavelengths and an upgrade port. By use of the upgrade port, up to 40 optical signals can be run over a single fiber. The units are passive and all-optical devices, requiring no power supply or control. Any number of channels can be used to transport signals in one direction with the rest of the channels transporting signals in the other direction. The units can be cascaded through the upgrade ports in any order. However, one end should be cascaded in opposite order compared to the other, for optimum performance.

An additional filter pair called DWDM-8C-13-MkII is available for use with DWDM-8C-2-MkII, to fill out the C1551 passband when upgrading a CWDM-18 to have more than 18 available wavelengths (up to 33 channels available in total). Information about this, including connection diagrams, is available in the DWDM-8C-13-MkII user manual.

Additionally, Nevion has a non-modular 40 channel DWDM filter for long-haul applications which require lower loss.

The MkII version of all of Nevions passive optics are fully compliant with both the FR-2RU-10 and the FR-202.

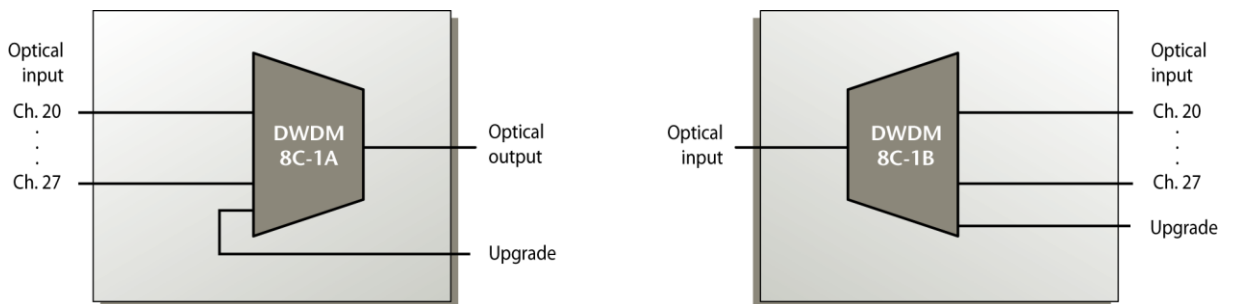


Figure 1: DWDM-8C block diagram

## 2 Specifications

### 2.1 Optical specifications

Number of channels	Up to 40
Available wavelengths	See section 2.2
Connector	SC/UPC
Insertion loss (one matched pair, including connectors)	4.5dB max
Insertion loss (common to upgrade)	0.8dB max
Channel Spacing	100GHz
Passband	+/- 15.0GHz
Adjacent Channel Isolation	25dB min
Non-Adjacent Channel Isolation	40dB min
Directivity	45dB min
Return loss	45dB min
PDL	0.25dB max
Operating Temperature	0 – 55 °C
Storage Temperature	-40 – 85 °C
Optical Power	300mW max

### 2.2 Channel plan

Channel plan (product suffix)	Channel (#)	Center frequency (THz)	Wavelength (nm)
1	20	192.0	1561.41
	21	192.1	1560.61
	22	192.2	1559.79
	23	192.3	1558.98
	24	192.4	1558.17
	25	192.5	1557.36
	26	192.6	1556.55
2	27	192.7	1555.75
	28	192.8	1554.94
	29	192.9	1554.13
	30	193.0	1553.33
	31	193.1	1552.52
	32	193.2	1551.72
	33	193.3	1550.92
	34	193.4	1550.12
3	35	193.5	1549.32
	36	193.6	1548.51
	37	193.7	1547.72
	38	193.8	1546.92
	39	193.9	1546.12
	40	194.0	1545.32
	41	194.1	1544.53
	42	194.2	1543.73

Channel plan (product suffix)	Channel (#)	Center frequency (THz)	Wavelength (nm)
	43	194.3	1542.94
4	44	194.4	1542.14
	45	194.5	1541.35
	46	194.6	1540.56
	47	194.7	1539.77
	48	194.8	1538.98
	49	194.9	1538.19
	50	195.0	1537.40
	51	195.1	1536.61
	5	52	195.2
53		195.3	1535.04
54		195.4	1534.25
55		195.5	1533.47
56		195.6	1532.68
57		195.7	1531.90
58		195.8	1531.12
59		195.9	1530.33

## 3 Connections

### 3.1 Mounting the DWDM-8(-MkII)

The DWDM-8C must be mounted in a Flashlink subrack. For use in the FR-202, only the DWDM-8C-MkII should be used, although it is possible to modify the FR-202 to allow inserting a DWDM-8C. Contact the support department for information about this if necessary. Mounting is done from the rear of the subrack. Do not use force when inserting the DWDM-8C(-MkII), once the module's upper rail aligns with the card rail in the subrack, it should slide easily into place. Lock it with 4 M2.5x8mm screws.

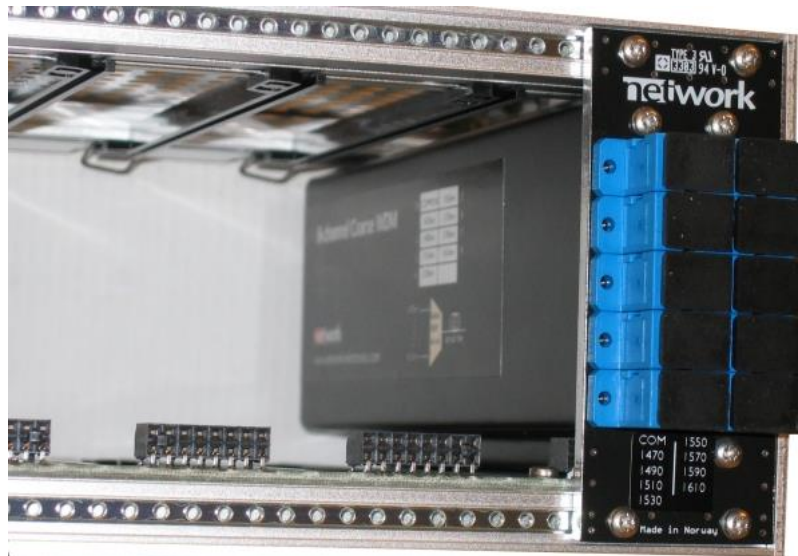


Figure 2: DWDM-8 mounted in a Flashlink subrack

### 3.2 1-8 channel system

Connect each of the optical ports to the corresponding optical port on the receiver or transmitter that matches the signal type and wavelength.

Care must be taken to stay within the power supply specification for the frame. Power supply requirements for each module are listed in that module's user manual. If the total power supply requirement for a frame exceeds the capabilities of the power supply mounted in that frame, some modules must be moved to a separate frame and power supply.

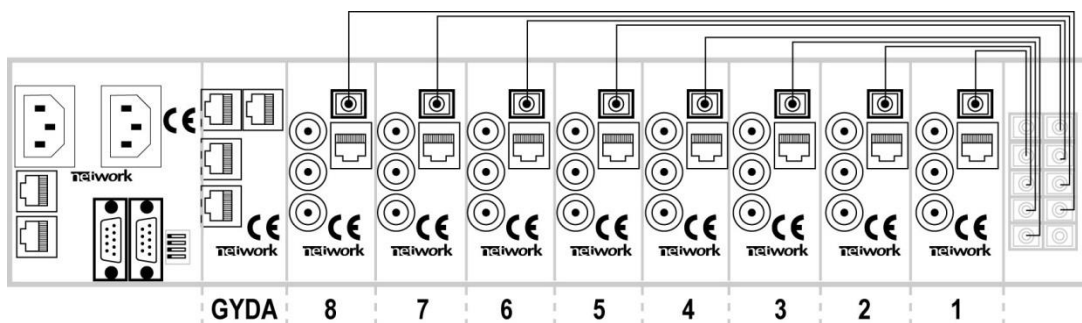


Figure 3: Interconnection of an 8 channel system

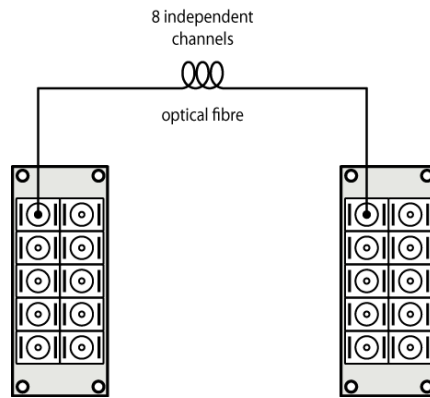


Figure 4: 8 channel filter connected to main fibre

### 3.3 9-40 channel system

Each set of 8 channels must first be connected like described in Chapter 3.2, Figure 3. Next, the frames are interconnected, endpoint “A” should be opposite of endpoint “B” for optimum performance. For endpoint “A”, the common port of module 1A would typically be the common port of the whole system, connected to the outside world. The upgrade port of module 1 would connect to the common port of module 2A, and so on. For endpoint “B”, the common port of module 5B would connect to the outside world (and thus to common port of 1A), while the upgrade port of 5B would connect to the common port of 4B.

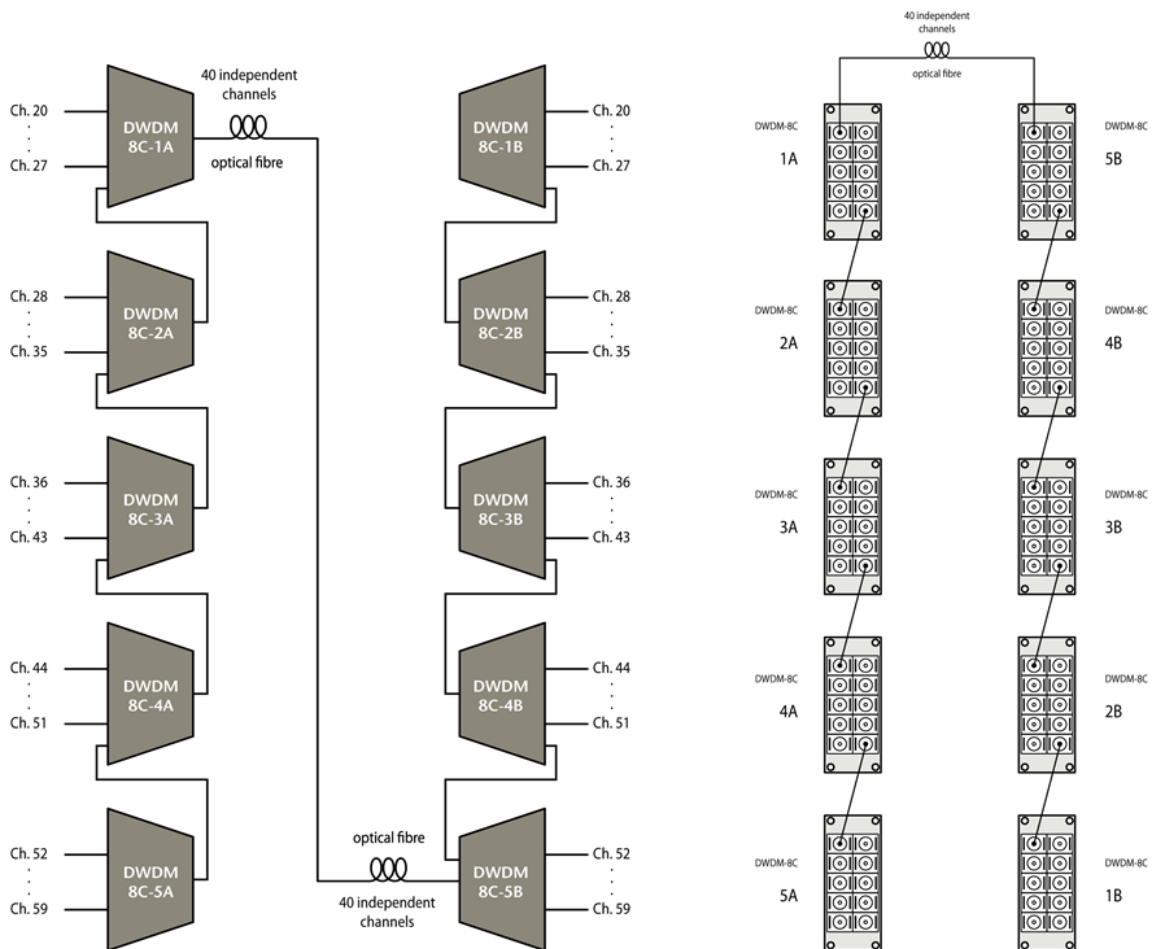


Figure 5: Optimal interconnection of a 40 channel system



This way, the insertion loss can be considered to be identical for all channels in a 40 channel system. If the system is set up in a different way, some channels will see less insertion loss, while others see more. This limits the optical budget. If the optical budget is not a limiting factor, the system can be connected in any way, since all modules come with an upgrade port.

## General environmental requirements for Nevion equipment

1. The equipment will meet the guaranteed performance specification under the following environmental conditions:
  - Operating room temperature            °C to 50°C  
range:
  - Operating relative humidity range:   <90% (non-condensing)
  
2. The equipment will operate without damage under the following environmental conditions:
  - Temperature range:                    -10°C to 60°C
  - Relative humidity range:              <95% (non-condensing)

## **Product Warranty**

The warranty terms and conditions for the product(s) covered by this manual follow the General Sales Conditions by Nevia, which are available on the company web site:

[www.nevia.com](http://www.nevia.com)

## Appendix A Materials declaration and recycling information

### A.1 Materials declaration

For product sold into China after 1st March 2007, we comply with the “Administrative Measure on the Control of Pollution by Electronic Information Products”. In the first stage of this legislation, content of six hazardous materials has to be declared. The table below shows the required information.

組成名稱 Part Name	Toxic or hazardous substances and elements					
	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr(VI))	多溴联苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
DWDM-8C	○	○	○	○	○	○
DWDM-8C-MkII	○	○	○	○	○	○

O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.

X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.

This is indicated by the product marking:



### A.2 Recycling information

Nevion provides assistance to customers and recyclers through our web site <http://www.nevion.com/>. Please contact Nevion’s Customer Support for assistance with recycling if this site does not show the information you require.

Where it is not possible to return the product to Nevion or its agents for recycling, the following general information may be of assistance:

- Before attempting disassembly, ensure the product is completely disconnected from power and signal connections.
- All major parts are marked or labeled to show their material content.
- Depending on the date of manufacture, this product may contain lead in solder.
- Some circuit boards may contain battery-backed memory devices.