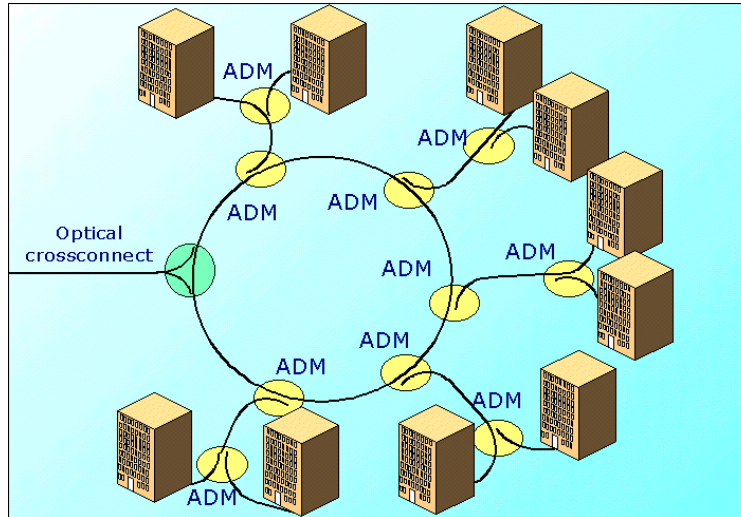# Multiplexers for DWDM-Systems

Application

DWDM- technology, (*Dense Wavelength Division Multiplex*) was introduced to increase the capacities of data transfer in optical metro networks. There exist several optical channel spacing of i.e. 200 GHz, 100 GHz and 50 GHz to transmit as many as possible channels.

The key components of that technology are the various optical add-drop-multiplexers (*OADM*) which whether combine several channels to an optical bus or drop out one or more channels of a data stream.
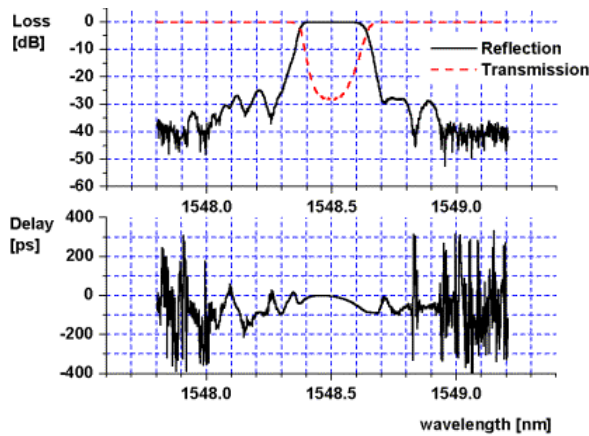
Using these multiplexers it is possible to route the direction of each channel within an optical network. The high flexibility of that component allows to expand or to reconfigure a DWDM-metro system.

The advantages of these multiplexers are a high flexibility, a low insertion loss (*IL*) and a low polarization dependent loss (*PDL*). On the other hand these components are completely passive components. The OADM's are temperature stabilized and show an excellent long term stability.
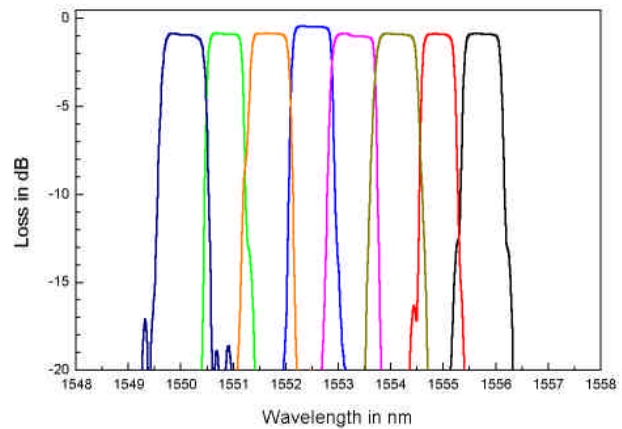
Specification

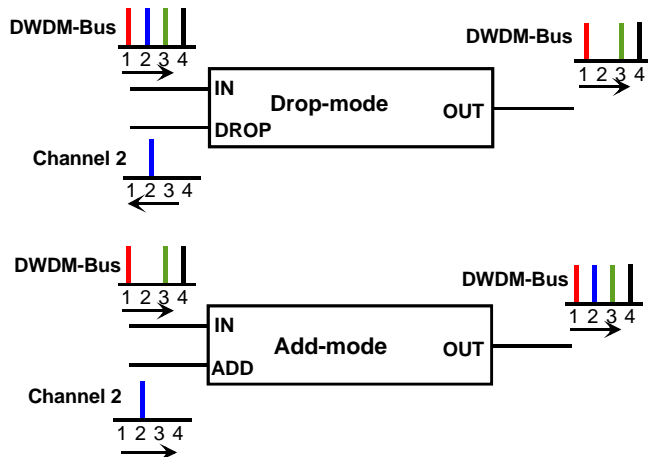|	
Wavelength range	1200 nm .. 1650 nm
Channel spacing	200 GHz, 100 GHz, 50 GHz
Modulation bandwidth (@-1dB)	>90 GHz, >45 GHz, >23 GHz
Isolation	>30dB
Insertion loss	<1 dB
PDL	<0.5 dB
PMD	<1.5ps/channel
Temperature dependence	<1pm/K (degC)
Connectors	FC/PC, FC/APC, ST, SC, SC/APC

Typical filter response

Example: Loss and Delay of a 50 GHz OADM

Example: 100 GHz channel spacing, 8 channels

The Multiplexer is based on athermal fiber Bragg gratings. The devices are available customized even in small quantities, so a step-to-step configuration of your optical network is possible. So it is possible to expand a network on a later time.

Function	Housing

The OADM works as an add- or as a drop- element (add-to or drop-out of channels). Using cascades of some similar devices provides a simple option to add or drop several channels not influencing each other.
It is possible to add or drop several channels with one device, but to the same port.

- 19" rack, 3U / 8F

- 3 ports:
    1: IN
    2: ADD or DROP
    3: OUT

Custom housings are available.