**OADM**

- **Wideband version:**
  - Adds and drops wideband 1310 nm.
  - The express-channel may transfer up to 8 CWDM channels.
- **CWDM version:**
  - Adds and drops CWDM channels.
  - Delivered with 1 or more CWDM channels.

**Description**
The OADM is delivered as 1U panel or as modules for 1U/3U modular panel. They are based on reliable passive technology and are delivered with SC or LC interface with PC or APC polished connectors.

**Modules**
The modules are inserted in a 1U or 3U panel (see separate data sheet for details). The 3U panel may be populated with up to 12 modules, the 1U panel with up to 3 modules, and they may be placed in any order in the panel. This ensures a flexible and modular system with simple access to adding modules at a later stage and also offers high density with the panel fully equipped. Each module is complete with components for two-way communication, terminated in LC connectors at the front. The panel is intended for mounting in 19” racks.

**1U panel**
This is a panel for mounting in 19” or metric racks. The panel may offer high density, but do not offer any good possibilities for later expansion within the same panel. Each panel is complete with components for two-way communication, terminated in SC or LC connectors at the front.

The panel is ready to be installed in 19” racks. By turning the mounting bracket it may also be installed in a metric rack. When the panel is to be placed in a 19” rack the bracket may be moved about 2 cm forward if needed. In this way the panel moves 2 cm further back in the rack. This gives more room in front of the panel, which may be beneficial for instance if the distance to the rack door is short.

**Add/Drop patch cord**
This is a patch cord with an integrated add or drop element. It may be used in both directions, but contains only one branch so it will work either as an add or as a drop. 2 patch cords put together will give add/drop in one direction, 4 patch cords makes up both directions. It is well suited when there is no room for a panel, but it will make it more difficult to track where the signal are running compared to using a panel. It may be delivered with SC or LC connectors.

**System description**
Passive multiplexers/de-multiplexers for CWDM or WDM are a reliable and reasonable method for transferring several wavelengths/signals over the same fibre (wavelength multiplexing). In this way you may increase the capacity of existing fibre-cable significantly. Combined with OADM you may add or drop wavelengths on the way between the end points. Combined with OADM you may add or drop separate wavelengths between end-points. A big advantage of using passive wavelength multiplexing is also that the method is protocol- and bitrate independent.
OADM units may be delivered both for wideband 1310 and for CWDM-channels. When adding or dropping CWDM wavelengths (1 or more at the time), use OADM for CWDM. If a standard 1310 signal (not a 1311 CWDM signal) is to be added/dropped you need extra bandwidth and the OADM for for wideband 1310 must be used.

Also OADM units for DWDM-wavelengths may be delivered on request.

If you want to combine 1310 and CWDM you may make a connection as shown in the example below. Observe that the express channel (in->out) for wideband 1310 is limited to 1460-1620nm, while the OADM for CWDM covers the whole wavelength range of 1260-1620nm. The example shows three OADM branches (with example wavelengths), but you may have as many branches as you need as long as you do not exceed your link-loss budget (every OADM adds some loss).

An add/drop patch cord contains only one branch so it will work either as an add or as a drop. Connecting several patch cords will give you the functionality you want. If you want add/drop in both directions you connect 2 and 2 patch cords as shown below, xxxx is the wavelength added or dropped.

The figure below illustrates the available wavelengths in a standard CWDM system and also how the wideband 1310 and DWDM wavelengths fit in. Observe that 1310 indicates the wideband version (+/- 50 nm), while 1311 indicates the CWDM version (+/- 6.5 nm).
Specifications

Dimensions (HxWxD):
- Panel: 44 x 484 (19") x 240 mm
- Module: 130 x 35 x 210 mm

Weight:
- Panel: Ca. 2 kg
- Module: 0.2 - 0.5 kg

Operating temperature:
- -40 °C to 85 °C

OADM w/wideband 1310:
- Insertion loss express (in->out)*: < 1.3 dB
- Insertion loss add/drop*: < 1.5 dB
- Express wavelength: 1460-1620 nm
- Centre wavelength: 1310 nm (+/- 50 nm)

OADM w/ 1 CWDM-channel:
- Insertion loss express (in->out)*: < 1.3 dB
- Insertion loss add/drop*: < 1.5 dB
- Centre wavelength: 1311, 1471, 1491, 1511, 1531, 1551, 1571, 1591 or 1611 nm (+/- 6.5 nm)

OADM w/ 4 CWDM-channels:
- Insertion loss express (in->out)*: < 0.5 dB + N x 0.5 dB
- Insertion loss add/drop*: < 1.2 dB + (N-1) x 0.5 dB
- Centre wavelength: 1471/1491/1511/1531 or 1551/1571/1591/1611 or 1471/1491/1591/1611

* Insertion loss in 1 panel (included connectors)

Add/Drop patch cord:
- Insertion loss express (in->out)*: < 1.0 dB
- Insertion loss add/drop*: < 1.2 dB
- Centre wavelength: 1271, 1291, 1311, 1331, 1351, 1371, 1391, 1411, 1431, 1451, 1471, 1491, 1511, 1531, 1551, 1571, 1591 or 1611 nm (+/- 6.5 nm)

* Insertion loss included connectors
### Overview of the OADM units

#### OADM w/wideband 1310

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPM76/OADM-1310-WB</td>
<td>Add/Drop node, 1260-1360</td>
</tr>
</tbody>
</table>

![Image of FPM76/OADM-1310-WB](image)

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![Image of FP65/OADM-1310-WB](image)

#### OADM w/1 CWDM-channel

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<tr>
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<tr>
<td>FPM76/OADM-1531*</td>
<td>Add/Drop node, 1531*</td>
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![Image of FPM76/OADM-1531](image)

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<td>Add/Drop node, 1531*</td>
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![Image of FP65/OADM-1531](image)

#### OADM w/4 CWDM-channels

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<tbody>
<tr>
<td>FPM76/4xOADM-1471*</td>
<td>OADM 1471/1491/1591/1611*</td>
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![Image of FP65/4xOADM-1471](image)

*example channel(s) - others may be used*
Article numbers

1U Panel:
FP65/OADM-1310/WB-Sxxx Add / Drop node, 1260-1360 nm
FP65/OADM-yyyy-Sxxx Add/Drop node, yyyy nm
FP65/4xOADM-1471-Sxxx* OADM 1471/1491/1591/1611

Modules:
FPM76/OADM-1310/WB-Sxxx Add / Drop node, 1260-1360 nm
FPM76/OADM-yyyy-Sxxx Add/Drop node, yyyy nm
FPM76/4xOADM-1471-Sxxx* OADM 1471/1491/1591/1611

yyy = 1471, 1491, 1511, 1531, 1551, 1571, 1591 eller 1611
xxx = connector type in front of the panel/module:
  SC = SC/PC (not available for modules)
  SCA = SC/APC (not available for modules)
  LC = LC/PC
  LCA = LC/APC

* No. of channels and wavelength added/dropped may be chosen freely.
Other combinations of both the 1U panel and the modules may be available on request.
OADM for DWDM-channels may also be available on request.

Add/Drop patch cord:
8-OADM/yyyy-Sxxx Add / Drop patch cord, yyyy nm, xxx
8-OADM/1310/WB-Sxxx Add / Drop patch cord, 1261-1361 nm, xxx

yyy = 1271, 1291, 1311, 1331, 1351, 1371, 1391, 1411, 1431, 1451, 1471, 1491, 1511, 1531, 1551, 1571, 1591 eller 1611
xxx = connector type in front of the panel/module:
  SC = SC/PC
  SCA = SC/APC
  LC = LC/PC
  LCA = LC/APC

Accessories
FP70301 Cable guide, 0,5U
FP70360 Cable guide, 1U
FP70325 Storage unit, 2U
02/NCD513 Cable guide II
FP70333 Cover, 3U
FP70334 Cover, 4U

Only for modules:
FPM76100 Panel, modular, 12-slot, 3U
FPM76105 Panel, modular, 3-slot, 1U
FPM76106 Lid, 1U panel
FPM76190 Blanking plate, 1-slot