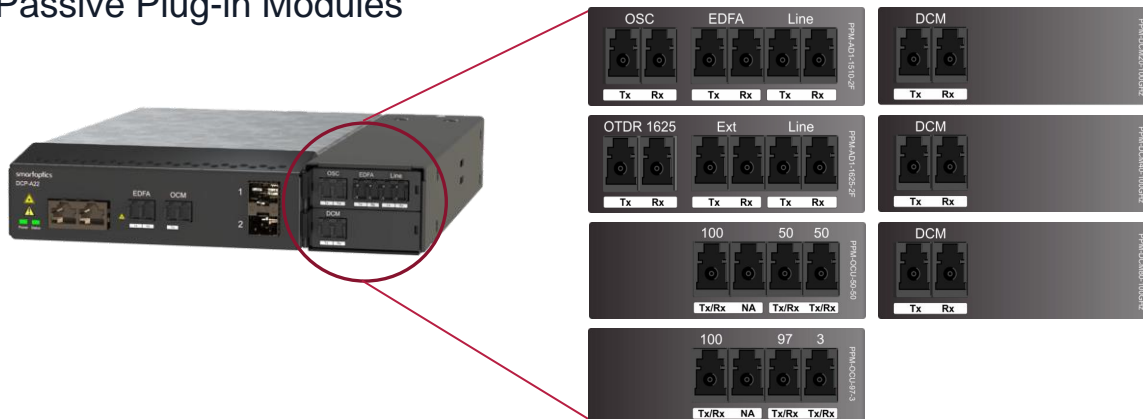


DCF-F PPM MODULES

Passive Plug-in Modules



OVERVIEW

The DCP-F-A22, DCP-F-R22 and DCP-F-DE22 are members of the DCP-F family that is designed for maximum configuration flexibility with the active units available as individual modules plugged directly into the standard Smartoptics DCP-2 chassis, each module occupying one slot. The DCP-F modules also have two internal expansion slots for optional Passive Plug-in Modules (PPM). There are five versions available:

- A 1ch 1510nm Add/drop filter for Optical Supervisory Channels (OSC), PPM-AD1-1510-2F
- A 1ch 1625nm Add/drop filter for Optical Time Domain Reflectometer (OTDR) applications, PPM-AD1-1625-2F
- A 20km Dispersion Compensation Module (DCM), PPM-DCM20-100GHz
- A 40km Dispersion Compensation Module (DCM), PPM-DCM40-100GHz
- A 80km Dispersion Compensation Module (DCM), PPM-DCM80-100GHz
- A 50/50 Optical Coupler Unit (OCU), PPM-OCU-50-50
- A 97/3 Optical Coupler Unit (OCU), PPM-OCU-97-3

Each of the modules are further described below.

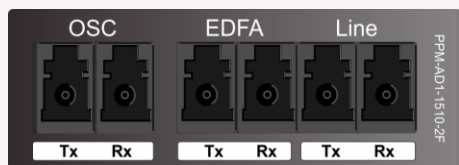
See separate documentation on DCP-F-A22, DCP-F-R22 and DCP-F-DE22 for more information on how these PPM modules are used in different applications.

ORDERING INFORMATION

| Part number | Description |
|------------------|---|
| PPM-AD1-1510-2F | Passive Plug-in Module (PPM) OSC add/drop filter 1510nm |
| PPM-AD1-1625-2F | Passive Plug-in Module (PPM) OSC add/drop filter 1625nm |
| PPM-DCM20-100GHz | Passive Plug-in Module (PPM) 20km Dispersion Compensation Module (DCM) 100GHz |
| PPM-DCM40-100GHz | Passive Plug-in Module (PPM) 40km Dispersion Compensation Module (DCM) 100GHz |
| PPM-DCM80-100GHz | Passive Plug-in Module (PPM) 80km Dispersion Compensation Module (DCM) 100GHz |
| PPM-OCU-50-50 | Passive Plug-in Module (PPM) 50/50 Optical Coupler (OCU) |
| PPM-OCU-97-3 | Passive Plug-in Module (PPM) 97/3 Optical Coupler (OCU) |
| PPM-DUMMY | Passive Plug-in Module (PPM) Dummy unit |

The "PPM-DUMMY" is a cover plate for slots that are not equipped with a PPM module.

OSC ADD/DROP FILTER (PPM-AD1-1510-2F)

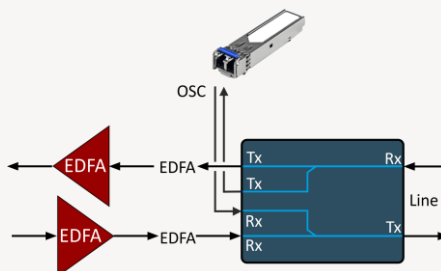


The OSC Add/drop filter is intended to enable insertion of an OSC channel between the optical amplifier (EDFA) and the line fiber.

The AD-filter operates at the CWDM channel 1511nm.

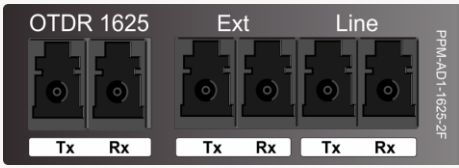


Signals entering the module are denoted "Rx".
Signals exiting the module are denoted "Tx".



| Parameter | Min | Max |
|---|--------|-----------|
| Operating range EDFA ↔ Line | 1260nm | 1620nm |
| Add/drop channel | | 1511nm |
| Channel passband | | ITU±6.5nm |
| Add/drop loss, OSC ↔ Line (Pass band) | | 0.7dB |
| Through-loss, EDFA ↔ Line (Reflection band) | | 0.5dB |
| Pass Band Isolation | 30dB | |
| Reflection Band Isolation | 12dB | |
| Ripple, passband | | 0.3dB |
| Directivity | 50dB | |
| Return loss | 45dB | |
| Max optical power | | 500mW |
| Connector type | | LC/UPC |
| Operating temperature | 0°C | +70°C |
| Storage temperature | -40°C | +85°C |

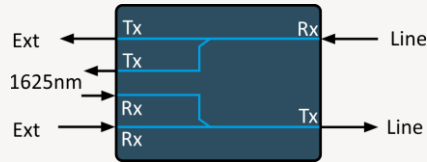
OTDR ADD/DROP FILTER (PPM-AD1-1625-2F)



The OTDR Add/drop filter is intended to enable insertion of an ODTR-signal along the line fiber to detect e.g. fiber cuts.

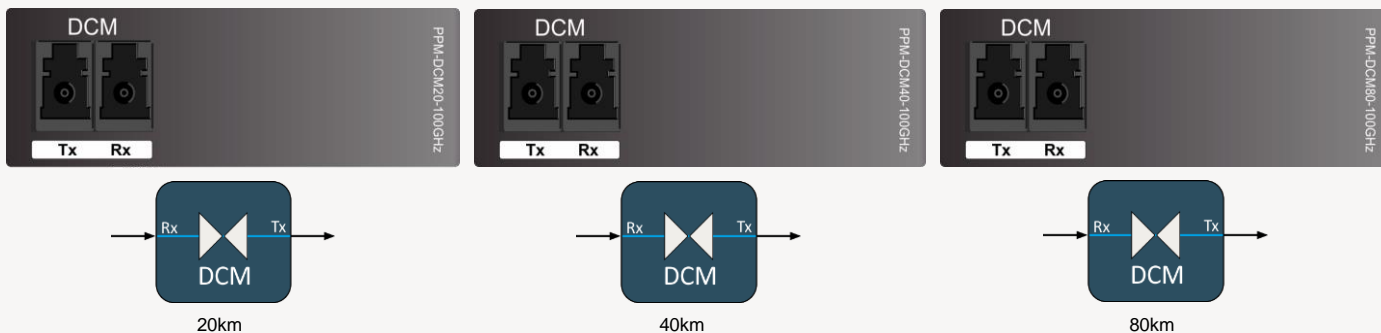
The AD-filter operates at 1625nm.

Signals entering the module are denoted "Rx".
Signals exiting the module are denoted "Tx".



| Parameter | Min | Max |
|---|--------|--------|
| Operating range Line ↔ Line | 1260nm | 1670nm |
| Add/drop channel band | 1600nm | 1670nm |
| Pass-through band | 1260nm | 1582nm |
| Add/drop loss, OTDR 1625 ↔ Line (Pass band) | | 0.7dB |
| Through-loss, Ext ↔ Line (Reflection band) | | 0.5dB |
| Isolation OTDR 1625 @ Ext | 30dB | |
| Isolation Ext @ OTDR 1625 | 26dB | |
| Directivity | 50dB | |
| Return loss | 45dB | |
| Max optical power | | 500mW |
| Connector type | | LC/UPC |
| Operating temperature | -25°C | +75°C |
| Storage temperature | -40°C | +85°C |

DCM MODULES (PPM-DCM20-100GHZ, PPM-DCM40-100GHZ & PPM-DCM80-100GHZ)



The DCM modules contain a channelized Fiber Bragg Grating (FBG) dispersion compensating component that provides the opposite dispersion of a 20km, 40km and 80km SM-fiber length, respectively.

Signals entering the module are denoted "Rx". Signals exiting the module are denoted "Tx".

PPM-DCM20-100GHZ

| Parameter | Min | Max |
|----------------------------|----------|-----------|
| Operating range | 191.3THz | 196.3THz |
| Compensating length | | 20km |
| Channel spacing | | 100GHz |
| Operation bandwidth | | 72GHz |
| Dispersion level 196.3 THz | | -310ps/nm |
| Dispersion level 191.3 THz | | -356ps/nm |
| Insertion loss Rx ⇒ Tx | | 3dB |

PPM-DCM40-100GHZ

| Parameter | Min | Max |
|----------------------------|----------|-----------|
| Operating range | 191.3THz | 196.3THz |
| Compensating length | | 40km |
| Channel spacing | | 100GHz |
| Operation bandwidth | | 72GHz |
| Dispersion level 196.3 THz | | -619ps/nm |
| Dispersion level 191.3 THz | | -711ps/nm |
| Insertion loss Rx ⇒ Tx | | 3dB |

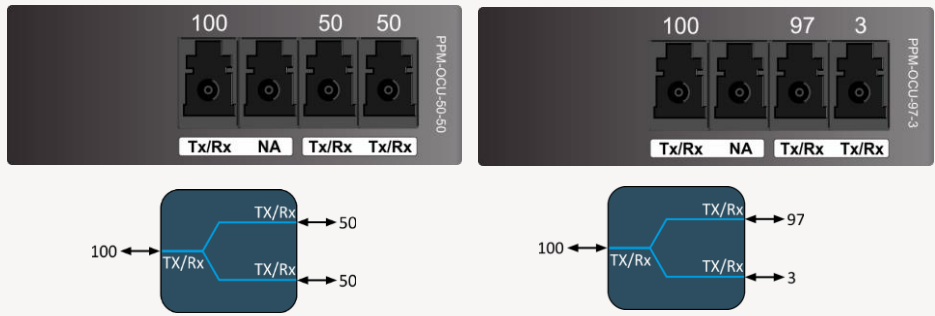
PPM-DCM80-100GHZ

| Parameter | Min | Max |
|----------------------------|----------|------------|
| Operating range | 191.3THz | 196.3THz |
| Compensating length | | 80km |
| Channel spacing | | 100GHz |
| Operation bandwidth | | 72GHz |
| Dispersion level 196.3 THz | | -1238ps/nm |
| Dispersion level 191.3 THz | | -1423ps/nm |
| Insertion loss Rx ⇒ Tx | | 3dB |

GENERIC FOR ALL PPM-DCMxx-100GHZ MODULES

| Parameter | Min | Max |
|-----------------------|-------|--------|
| Connector type | | LC/UPC |
| Operating temperature | 0°C | +55°C |
| Storage temperature | -40°C | +85°C |

OCU MODULES (PPM-OCU-50-50 & PPM-OCU-97-3)



The OCU modules are C-band optical couplers where the signal is split or combined with the ratio 50% - 50% and 97% - 3%, respectively. The 97/3-coupler is intended for cases where a smaller portion of the optical signal is to be connected to e.g. an Optical Channel Monitoring (OCM) function.

PPM- OCU-50-50

| Parameter | Min | Max |
|--------------------------|--------|--------|
| Passband | 1526nm | 1570nm |
| Coupling ratio | | 50/50 |
| Insertion loss, 100 ⇔ 50 | | 3.4dB |
| Connector type | | LC/UPC |
| Operating temperature | 0°C | +70°C |
| Storage temperature | -40°C | +85°C |

PPM- OCU-97-3

| Parameter | Min | Max |
|--------------------------|--------|--------|
| Passband | 1526nm | 1570nm |
| Coupling ratio | | 97/3 |
| Insertion loss, 100 ⇔ 97 | | 0.3dB |
| Insertion loss, 100 ⇔ 3 | | 16.6dB |
| Connector type | | LC/UPC |
| Operating temperature | 0°C | +70°C |
| Storage temperature | -40°C | +85°C |

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