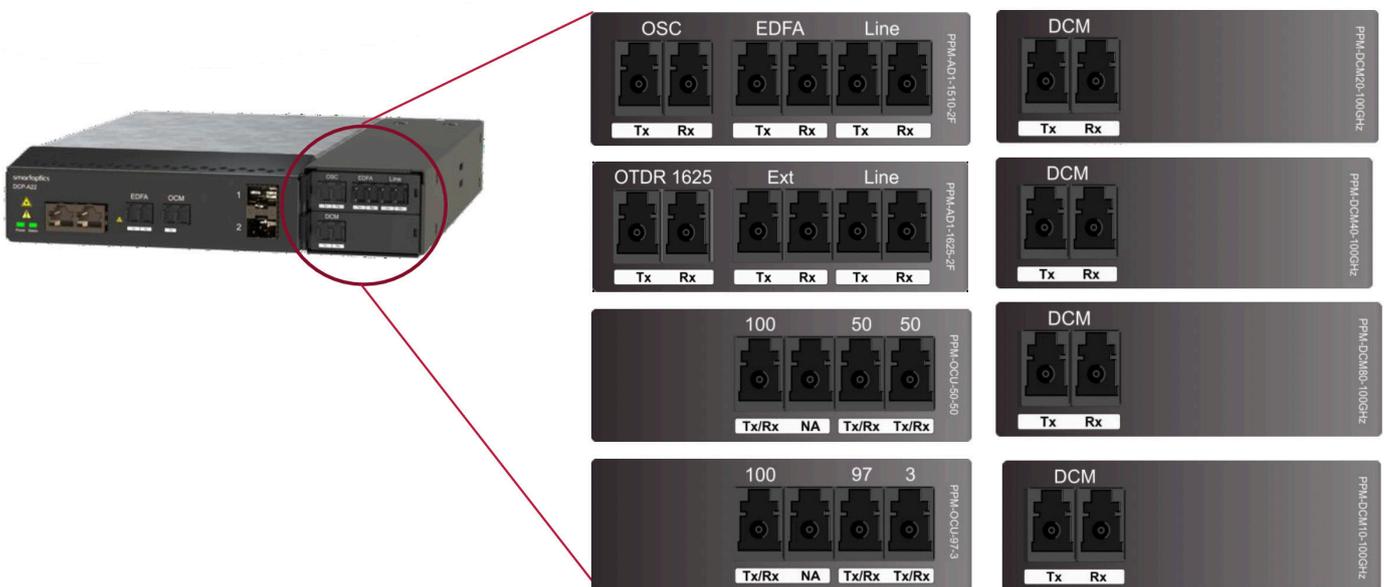


DATASHEET

# 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 Reflector (OTDR) application, PPM-AD1-1625-2F
- A 10km Dispersion Compensation Module (DCM), PPM-DCM10-100GHz
- 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.

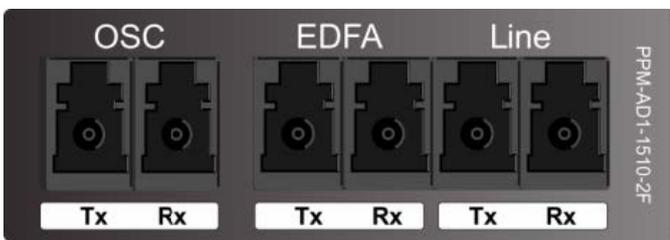
See separate documentation on DCP-F-A22, DCP-F-R22 and DCP-F-DE22 for more information on how these PPM modules are used in different applications.

## 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-DCM10-100GHZ	Passive Plug-in Module (PPM) 10km Dispersion Compensation Module (DCM) 100GHZ
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

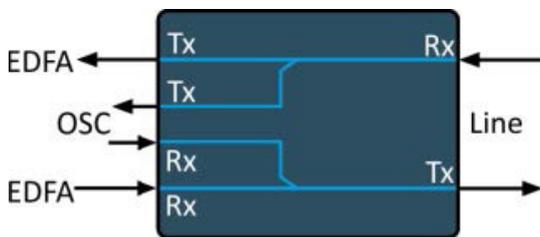
\*\* The "PPM-DUMMY" is a cover plate for slots that are not equipped with a PPM module.

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

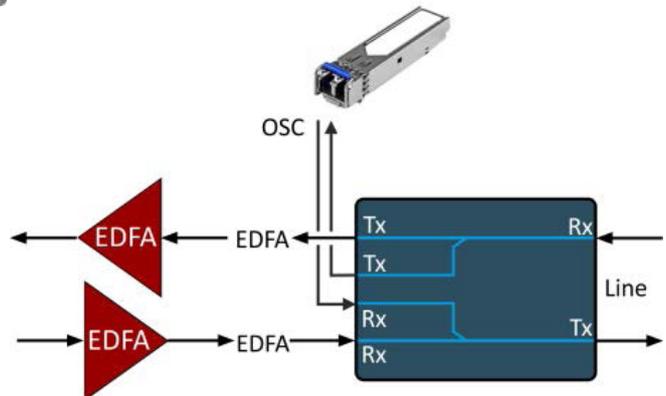


The OSC Add/drop filter is intended to enable insertion of an OSC channel between the optical amplifier (EDFA) and the line fiber.

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



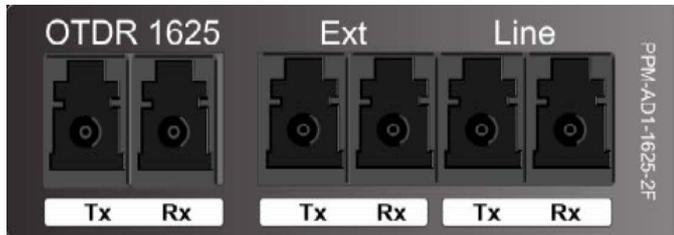
Signals entering the module are denoted "Rx".  
Signals exiting the module are denoted "Tx".



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	

Parameter	Min	Max
Max optical power		500mW
Connector type		LC/UPC
Operating temperature	0°C	+70°C
Storage temperature	-40°C	+85°C

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



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

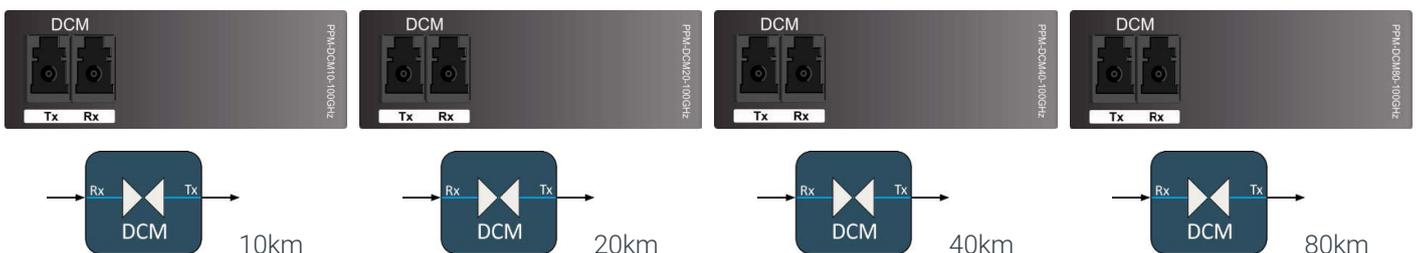
The OTDR Add/drop filter is intended to enable insertion of an OTDR-signal along the line fiber to detect e.g. fiber cuts.

The AD-filter operates at 1625nm



Parameter	Min	Max
Operating range EDFA <=> Line	1260nm	1670nm
Add/drop channel band	1600nm	1670nm
Pass-through band	1260nm	1582nm
Add/drop loss, OTDR 1625 <=> Line (Pass band)		0.8dB
Through-loss, Ext <=> Line (Reflection band)		0.6dB
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-DCM10-100GHZ, 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 10km, 20km, 40km and 80km SM-fiber length, respectively.

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

### PPM-DCM10-100GHZ

Parameter	Min	Max
Operating range	191.3THz	196.3THz
Compensating length		10km
Channel spacing		100GHz
Operation bandwidth		72GHz
Dispersion level 196.3 THz		-156ps/nm
Dispersion level 191.3 THz		-175ps/nm
Insertion loss Rx => Tx		4.5dB

### 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

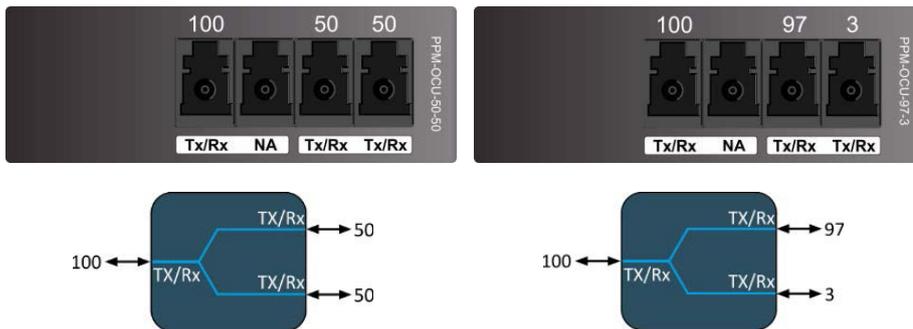
Parameter	Min	Max
Operating range	191.3THz	196.3THz
Compensating length		80km
Channel spacing		100GHz
Operation bandwidth		72GHz

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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