SFP+ and XFP Transceivers for CWDM/DWDM Wavelengths

Omnitron Small Form Pluggable 10 Gigabit SFP+ and XFP optical transceivers are interchangeable compact fiber connectors that enable a single network device to connect to a wide variety of fiber optic cable types and distances.

Omnitron CWDM/DWDM Optical Transceivers are used to customize iConverter[®], OmniConverter[®] and RuggedNet[®] products to meet specific networking protocols and media requirements. They support single-mode dual fiber applications with Coarse Wave Division Multiplexing (CWDM) and Dense Wave Division Multiplexing (DWDM) wavelengths.

CWDM/DWDM Optical Transceivers increase network capacity by transmitting multiple data channels using separate optical wavelengths on the same fiber pair.

CWDM Optical Transceivers support wavelengths 1270nm to 1610nm in 20nm increments. The CWDM wavelengths are compliant to the ITU G.694 CWDM standard.

DWDM Optical Transceivers support wavelengths between 1525–1565 nm (C band) with 100GHz spacing.

Optical Transceivers reduce network equipment inventories by eliminating the need to maintain surplus units/ devices of various fiber types for network repairs or upgrades. They also enable network upgrades by providing interchangeable fiber connectors that can easily adapt to and modify any existing network. For example, a media converter that was originally used in a single-mode network can be reconfigured to operate over a CWDM/DWDM network by simply replacing the pluggable optical transceiver.

Based on the MSA SFF-8472 standard, CWDM/DWDM Optical Transceivers support digital diagnostic capabilities, providing enhanced diagnostic information to assist network administrators with network maintenance and management. When used in iConverter modules managed by Omnitron's NetOutlook[®] SNMP Network Management Software with intuitive Graphical User Interface or third party SNMP software, CWDM/DWDM Optical Transceivers can collect enhanced, real time optical diagnostic information including fiber optic TX and RX power, voltage and transceiver temperature.

By providing compact physical size and the ease of interchangeability, Omnitron Optical Transceivers provide a cost-effective and flexible solution for fiber optic network design.



KEY FEATURES

- Omnitron Optical Transceivers enable flexible fiber and copper connectivity
- Compatible with iConverter, OmniConverter and RuggedNet 10G media converter, switches and Network Interface Devices that support SFP+ and XFP transceivers
- Supports Coarse Wave Division Multiplexing optics
- Supports standard wavelengths in the spectrum defined by ITU-T G.694.2
- Supports Dense Wave Division Multiplexing (DWDM) optics
- Supports standard channels in the spectrum defined by ITU Grid C-Band, 100GHz - spacing
- Compliant with MSA SFF-8472 standard, which provides interoperability with other network devices
- Compliant with IEEE 802.3ae 10 Gigabit Ethernet specifications
- Digital Diagnostic capability
- Compliant with RoHS, WEEE and REACH
- Low EMI metal enclosure
- Case Operating Temperature: Commercial (0° C to +70° C) and Industrial (-40° C to +85° C)
- One (1) Year Warranty and free 24/7 Technical Support



ORDERING INFORMATION

		Fiber CWDN	I SFP+s su	oporting 10	Gigabit Eth	nernet netwo	ork protoco	bl		
Model	Spec. Distance (km)	Wavelength (nm)	Center Wavelength (nm)	Min. Tx Power (dBm)	Max. Tx Power (dBm)	Min. Rx Sensitivty (dBm)	Max. Rx Power (dBm)	Min. Attenuation (dBm)	Link Budget (dBm)	
73λλΕ-1t	10	1270 to 1610	1271 to 1611	-6	-0.5	-14.4	0.5	-	8.4	
73λλΕ-2t	40	1270 to 1330	1271 to 1331	1	5	-15	0	5	16	
73λλΕ-2t	40	1470 to 1610	1471 to 1611	-1	3	-16	-1	4	15	
ITU-T G.652 sin	ngle-mode fiber o	optic cable is not of more information	optimized for CW	DM wavelengths	from 1360nm to	1460nm due to high	gh attenuation.	Register to acces	s the white paper	
Base Model N	umber: 73λλE-x	t								
Select the mo	del from ordering	table above.								
Add the wave	ength (λλ) and o	perating temperat	ure range (t) to th	ne model type sel	ected.					
Wavelength O	otions (λλ):									
27 (1270nm)		35 (1350nm)		43 (1430nm)		51 (1510nm)		59 (1590nm)		
29 (12	90nm)	37 (13	70nm)	45 (1450nm)		53 (1530nm)		61 (1610nm)		
31 (13	10nm)	39 (13	90nm)	47 (1470nm)		55 (1550nm)				
33 (13	30nm)	41 (14	10nm)	49 (14	190nm)	57 (15	70nm)			
For $73\lambda\lambda$ -1t, wavelengths 1270 to 1610 are only available at 10km distance.										
Case Operatin	a Temperature (Ontions (t):		ly available at 4	ustance (1	550 to 1450 are ii	ot avaliable).			
<leave blank<="" td=""><td>> = Commercial t</td><td>emperature (0 to</td><td>70°C)</td><td></td><td>Z = Industrial</td><td>temperature (-40</td><td>to 85°C)</td><td>o vorifi<i>u</i></td><td></td></leave>	> = Commercial t	emperature (0 to	70°C)		Z = Industrial	temperature (-40	to 85°C)	o vorifi <i>u</i>		
End user needs	to ensure case	temperature is not	exceeded for the	e model purchase	ed.	on an models. Co		o veniy.		
Contact Omnitr	on for other fiber	options.								
		Fiber CWDI	M XFPs sup	porting 10	Gigabit Eth	ernet netwo	rk protoco	I		
Model	Spec. Distance (km)	Wavelength (nm)	Center Wavelength (nm)	Min. Tx Power (dBm)	Max. Tx Power (dBm)	Min. Rx Sensitivty (dBm)	Max. Rx Power (dBm)	Min. Attenuation (dBm)	Link Budget (dBm)	
75λλ-1t	10	1270 to 1610	1271 to 1611	-3	1	-14	0.5	0.5	11	
75λλ-2t	40	1270 to 1330	1271 to 1331	1	5	-15	0	5	16	
75λλ-2t	40	1470 to 1610	1471 to 1611	-1	4	-16	-1	5	15	
75λλ-2LHt	70	1470 to 1610	1471 to 1611	0	4	-23	-7	11	23	
ITU-T G.652 sin titled "CWDM D	ngle-mode fiber of esign Guide" for	optic cable is not of more information	optimized for CW	DM wavelengths DM network over	from 1360nm to	1460nm due to high	gh attenuation.	Register to acces	s the white paper	
Base Model Nu	umber: 75λλ-xt	or 75λλ-2LHt								
Select the mo	del from ordering	table above.								
Add the wave	ength (λλ) and o	perating temperat	ure range (t) to th	e model type sel	ected.					
Wavelength O	otions (λλ):			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
27 (12	70nm)	35 (13	50nm)	43 (14	130nm)	51 (15	10nm)	59 (15	90nm)	
27 (1270nm) 29 (1290nm)		37 (1370nm)		45 (1450nm)		53 (1530nm)		61 (1610nm)		
31 (1310nm)		39 (1390nm)		47 (1470nm)		55 (1550nm)				
33 (13	30nm)	41 (14	10nm)	49 (14	00nm) 57 (1570nm)					
For 75λλ-1t, wa	avelengths 1270	to 1610 are only	available at 10k	m distance.						
For 75λλ-2,t wa For 75λλ-2LHt,	avelengths 1270 wavelengths 14	to 1330 and 147 470 to 1610 are o	0 to 1610 are on nly available at	ly available at 4 70km distance.	0km distance (13	350 to 1450 are n	ot available).			
Case Operatin	g Temperature (Options (t):								

<leave blank> = Commercial temperature (0 to 70°C)

Not available on all models. Contact Omnitron to verify.

End user needs to ensure case temperature is not exceeded for the model purchased. Contact Omnitron for other fiber options.

In most case, a CWDM network design will include multiplexers and/or add/drop devices. These devices will have insertion loss. When selecting a CWDM SFP+ or XFP transceiver, select the model that will meet the link budget of the network design. The link budget includes multiplexer, add/drop devices and the loss across the fiber. Always add an additional 3dBm to the link budget for a safety margin. Register to access the white paper titled "CWDM Design Guide" for more information on designing CWDM network over single-mode fiber.



ORDERING INFORMATION

		Fiber DWDM	I SFP+ suppor	ting 10 Gig	gabit Ethei	rnet networ	k protocol		
Model Spec. (km)		Channel # (100GHz Spacing)	Wavelength (nm)	Min. Tx Power (dBm)	Max. Tx Power (dBm)	Min. Rx Sensitivty (dBm)	Max. Rx Power (dBm)	Min. Attenuation (dBm)	Link Budget (dBm)
76λλE-2t	76λλΕ-2t 40		1563.05 to 1528.77	-1	4	-16	0.5	4	15
76λλE-3t	80	18 to 61	1563.05 to 1528.77	-1	3	-24	-7	10	23
Base Model N	lumber: 76λλΕ	-xt							
Select the mo	odel from orderir	ng table above.							
Add the chan	nel number (λλ)) and operating temp	perature range (t) to the	ne model type s	elected.				
Wavelength o	ptions - Chann	el # (wavelength,)	.λ):						
18 (156:	3.05nm)	27 (15	55.75nm)	36 (154	8.51nm)	45 (154	I.35nm)	54 (153-	4.25nm)
19 (1562.23nm)		28 (15	54.94nm)	37 (154	7.72nm)	46 (1540.56nm)		55 (1533.47nm)	
20 (1561.42nm)		29 (1554.13nm)		38 (1546.92nm)		47 (1539.77nm)		56 (1532.68nm)	
21 (1560.61nm)		30 (1553.33nm)		39 (1546.12nm)		48 (1538.98nm)		57 (1531.90nm)	
22 (1559	9.79nm)	31 (1552.52nm)		40 (1545.32nm)		49 (1538.19nm)		58 (1531.12nm)	
23 (1558	8.98nm)	32 (15	51.72nm)	41 (1544.53nm)		50 (1537.40nm)		59 (1530.33nm)	
24 (1558	8.17nm)	33 (15	50.92nm)	42 (154	3.73nm)	51 (153)	5.61nm)	60 (152	9.55nm)
25 (155	7.36nm)	34 (15	50.12nm)	43 (1542.94nm)		52 (1535.82nm)		61 (1528.77nm)	
26 (1556	6.55nm)	35 (154	19.32nm)	44 (154	2.14nm)	53 (153	5.04nm)		,
Case Operatir	ng Temperature	Options (t):	, ,			1 ×	,	1	
<leave blank<="" td=""><td>c> = Commercia</td><td>I temperature (0 to 2</td><td>70°C)</td><td></td><td>Z = Industria</td><td>al temperature (-4</td><td>) to 85°C) Contact Omnitro</td><td>n to verify.</td><td></td></leave>	c> = Commercia	I temperature (0 to 2	70°C)		Z = Industria	al temperature (-4) to 85°C) Contact Omnitro	n to verify.	
End user need	s to ensure case	e temperature is not	exceeded for the mo	del purchased.					
Contact Omnit	ron for other fibe	er options.							
		Fiber DWDI	W XFP support	ina 10 Gia	abit Ether	net network	protocol		
Model	Spec. Distance (km)	Fiber DWDI Channel # (100GHz Spacing)	Wavelength (nm)	ing 10 Gig ^{Min.} Tx Power (dBm)	Abit Ether Max. Tx Power (dBm)	net network Min. Rx Sensitivty (dBm)	Max. Rx Power (dBm)	Min. Attenuation (dBm)	Link Budget (dBm)
Model 77λλ-2t	Spec. Distance (km) 40	Fiber DWDI Channel # (100GHz Spacing) 18 to 61	Wavelength (nm) 1563.05 to 1528.77	ing 10 Gig Min. Tx Power (dBm) -1	Max. Tx Power (dBm) 4	Min. Rx Sensitivty (dBm) -16	Max. Rx Power (dBm) 0.5	Min. Attenuation (dBm) 4	Link Budget (dBm) 15
Model 77λλ-2t 77λλ-3t	Spec. Distance (km) 40 80	Fiber DWDI Channel # (100GHz Spacing) 18 to 61 18 to 61	W XFP support Wavelength (nm) 1563.05 to 1528.77	ing 10 Gig Min. Tx Power (dBm) -1 0	Max. Tx Power (dBm) 4	Min. Rx Sensitivty (dBm) -16 -24	Max. Rx Power (dBm) 0.5	Min. Attenuation (dBm) 4 12	Link Budget (dBm) 15 24
Model 77λλ-2t 77λλ-3t Base Model N	Spec. Distance (km) 40 80 umber: 7722-x	Fiber DWDI Channel # (100GHz Spacing) 18 to 61 18 to 61	Wavelength (nm) 1563.05 to 1528.77 1563.05 to 1528.77	ing 10 Gig Min. Tx Power (dBm) -1 0	Max. Tx Power (dBm) 4 5	Min. Rx Sensitivty (dBm) -16 -24	Max. Rx Power (dBm) 0.5 -7	Min. Attenuation (dBm) 4 12	Link Budget (dBm) 15 24
Model 77λλ-2t 77λλ-3t Base Model N Select the model N	Spec. Distance (km) 40 80 Iumber: 77\lambda -x-x- odel from orderir	Fiber DWDI Channel # (100GHz Spacing) 18 to 61 18 to 61 tt to table above.	Wavelength (nm) 1563.05 to 1528.77 1563.05 to 1528.77	ing 10 Gig Min. Tx Power (dBm) -1 0	Max. Tx Power (dBm) 4 5	Min. Rx Sensitivty (dBm) -16 -24	Max. Rx Power (dBm) 0.5 -7	Min. Attenuation (dBm) 4 12	Link Budget (dBm) 15 24
Model 77λλ-2t 77λλ-3t Base Model N Select the mo Add the chan	Spec. Distance (km) 40 80 Iumber: 77λλ-x odel from orderir nel number (λλ)	Fiber DWDI Channel # (100GHz Spacing) 18 to 61 18 to 61 tt ng table above.	Wavelength (nm) 1563.05 to 1528.77 1563.05 to 1528.77	ing 10 Gig Min. Tx Power (dBm) -1 0	Max. Tx Power (dBm) 4 5	Min. Rx Sensitivty (dBm) -16 -24	Max. Rx Power (dBm) 0.5 -7	Min. Attenuation (dBm) 4 12	Link Budget (dBm) 15 24
Model 77λλ-2t 77λλ-3t Base Model N Select the mo Add the chan Wavelength o	Spec. Distance (km) 40 80 Iumber: 77λλ-x odel from orderir nel number (λλ) ptions - Chann	Fiber DWDI Channel # (100GHz Spacing) 18 to 61 18 to 61 tt ng table above. and operating temp el # (wavelength.)	Wavelength (nm) 1563.05 to 1528.77 1563.05 to 1528.77	ing 10 Gig Min. Tx Power (dBm) -1 0	Max. Tx Power (dBm) 4 5 elected.	Min. Rx Sensitivty (dBm) -16 -24	Max. Rx Power (dBm) 0.5 -7	Min. Attenuation (dBm) 4 12	Link Budget (dBm) 15 24
Model 77λλ-2t 77λλ-3t Base Model N Select the mo Add the chan Wavelength o 18 (156)	Spec. Distance (km) 40 80 Iumber: 77λλ-x odel from orderir nel number (λλ) ptions - Chann 3.05nm)	Fiber DWDI Channel # (100GHz Spacing) 18 to 61 18 to 61 tt ng table above. and operating temp el # (wavelength,) 27 (155	Wavelength (nm) 1563.05 to 1528.77 1563.05 to 1528.77 cerature range (t) to th λ):	ing 10 Gig Min. Tx Power (dBm) -1 0 en model type s 36 (154	Max. Tx Power (dBm) 4 5 elected.	Min. Rx Sensitivty (dBm) -16 -24 45 (154)	A protocol Max. Rx Power (dBm) 0.5 -7 -7	Min. Attenuation (dBm) 4 12 54 (153)	Link Budget (dBm) 15 24 4.25nm)
Model 77λλ-2t 77λλ-3t Base Model N Select the model Add the chan Wavelength o 18 (156: 19 (156)	Spec. Distance (km) 40 80 Iumber: 77λλ-x odel from orderir nel number (λλ) ptions - Chann 3.05nm) 2.23nm)	Fiber DWDI Channel # (100GHz Spacing) 18 to 61 18 to 61 tt ng table above. and operating temp el # (wavelength, 2 27 (155 28 (155)	Wavelength (nm) 1563.05 to 1528.77 1563.05 to 1528.77 operature range (t) to th λ): 55.75nm) 54.94nm)	ing 10 Gig Min. Tx Power (dBm) -1 0 ne model type so 36 (154 37 (154	Max. Tx Power (dBm) 4 5 elected. 8.51nm) 7.72nm)	Min. Rx Sensitivty (dBm) -16 -24 45 (154) 46 (154)	A protocol Max. Rx Power (dBm) 0.5 -7 -7	Min. Attenuation (dBm) 4 12 54 (153 55 (153)	Link Budget (dBm) 15 24 4.25nm) 3.47nm)
Model 77λλ-2t 777λλ-3t Base Model N Select the model of the chan Wavelength o 18 (156: 19 (156: 19 (156: 20 (156: 20 (156)))))	Spec. Distance (km) 40 80 Iumber: 77λλ-x odel from orderir mel number (λλ) ptions - Chann 3.05nm) 2.23nm) 1.42nm)	Fiber DWDI Channel # (100GHz Spacing) 18 to 61 18 to 61 18 to 61 tt ng table above. and operating temp el # (wavelength, 2 27 (155 28 (155 28 (155)	Wavelength (nm) 1563.05 to 1528.77 1563.05 to 1528.77 0	ting 10 Gig Min. Tx Power (dBm) -1 0 ne model type so 36 (154 37 (154 38 (154	Abit Ether Max. Tx Power (dBm) 4 5 elected. 8.51nm) 7.72nm) 6.92nm)	Min. Rx Sensitivty (dBm) -16 -24 45 (154) 46 (1544) 47 (153)	max. Rx Power (dBm) 0.5 -7 1.35nm) 0.56nm) 2.77nm)	Min. Attenuation (dBm) 4 12 54 (153) 55 (153) 55 (153) 56 (153)	Link Budget (dBm) 15 24 4.25nm) 3.47nm) 2.68nm)
Model 77λλ-2t 777λλ-3t Base Model N Select the model Add the chan Wavelength o 18 (156) 19 (156) 20 (156) 21 (156)	Spec. Distance (km) 40 80 lumber: 77λλ-x odel from ordering intel number (λλ) ptions - Chann 3.05nm) 2.23nm) 1.42nm) 0.61nm)	Fiber DWDI Channel # (100GHz Spacing) 18 to 61 18 to 61 18 to 61 tt ng table above. and operating temp el # (wavelength, 2 27 (155 28 (155 29 (155 29 (155 29 (155) 30 (155)	Wavelength (nm) 1563.05 to 1528.77 1563.05 to 1528.77 1563.05 to 1528.77 55.75nm) 54.94nm) 54.33mm)	ing 10 Gig Min. Tx Power (dBm) -1 0 ne model type so 36 (154 37 (154 38 (154 39 (154	Abit Ether Max. Tx Power (dBm) 4 5 elected. 8.51nm) 7.72nm) 6.92nm) 6 12nm)	Min. Rx Sensitivty (dBm) -16 -24 45 (154) 46 (154) 48 (153)	max. Rx Power (dBm) 0.5 -7	Min. Attenuation (dBm) 4 12 54 (153) 55 (153) 55 (153) 56 (153) 56 (153) 57 (153)	Link Budget (dBm) 15 24 4.25nm) 3.47nm) 2.68nm) 1 90nm)
Model 77λλ-2t 77λλ-3t Base Model N Select the model Add the chan Wavelength o 18 (156) 19 (156) 20 (156) 21 (156) 22 (155)	Spec. Distance (km) 40 80 lumber: 77λλ-x odel from orderir mel number (λλ) ptions - Chann 3.05nm) 2.23nm) 1.42nm) 0.61nm) 9.79nm)	Fiber DWDI Channel # (100GHz Spacing) 18 to 61 18 to 61 1	Wavelength (nm) 1563.05 to 1528.77 1563.05 to 1528.77 1563.05 to 1528.77 55.75nm) 54.94nm) 54.13nm) 53.33nm) 52.52nm)	ting 10 Gig Min. Tx Power (dBm) -1 0 ne model type so 36 (154 37 (154 38 (154 39 (154 39 (154	Max. Tx Power (dBm) 4 5 elected. 8.51nm) 7.72nm) 6.92nm) 6.12nm) 5.32nm)	Min. Rx Sensitivty (dBm) -16 -24 45 (154) 46 (154) 48 (153) 49 (153)	max. Rx Power (dBm) 0.5 -7 1.35nm) 0.56nm) 0.77nm) 3.98nm) 3.19nm)	Min. Attenuation (dBm) 4 12 54 (153) 55 (153) 55 (153) 56 (153) 56 (153) 57 (153) 57 (153) 57 (153)	Link Budget (dBm) 15 24 4.25nm) 3.47nm) 2.68nm) 1.90nm) 1 12nm)
Model 77λλ-2t 77λλ-3t Base Model N Select the model Add the chan Wavelength o 18 (1563) 19 (1563) 20 (156) 21 (1564) 22 (1555) 23 (1555)	Spec. Distance (km) 40 80 lumber: 77λλ-x odel from ordering nel number (λλ.) ptions - Chann 3.05nm) 2.23nm) 1.42nm) 0.61nm) 9.79nm) 8 98nm)	Fiber DWDI Channel # (100GHz Spacing) 18 to 61 18 to 61 1	Wavelength (nm) 1563.05 to 1528.77 1563.05 to 1528.77 1563.05 to 1528.77 55.75nm) 54.94nm) 54.13nm) 53.33nm) 52.52nm) 51.72nm)	ting 10 Gig Min. Tx Power (dBm) -1 0 ne model type so 36 (154 37 (154 38 (154 39 (154 39 (154 40 (154	Abit Ether Max. Tx Power (dBm) 4 5 elected. 8.51nm) 7.72nm) 6.92nm) 6.12nm) 5.32nm) 4.53nm)	Min. Rx Sensitivty (dBm) -16 -24 45 (154) 46 (154) 47 (153) 48 (153) 49 (153) 50 (153)	A protocol Max. Rx Power (dBm) 0.5 -7 1.35nm) 0.56nm) 0.56nm) 0.77nm) 3.98nm) 3.19nm) 7 40nm)	Min. Attenuation (dBm) 4 12 54 (153- 55 (153- 55 (153- 55 (153- 55 (153- 55 (153- 55 (153- 55 (153- 55 (153- 57 (153-57)))))))))))))))))))))))))))))))))))	Link Budget (dBm) 15 24 4.25nm) 3.47nm) 2.68nm) 1.90nm) 1.12nm) 0.33nm)
Model 77λλ-2t 77λλ-3t Base Model N Select the model Add the chain Wavelength o 18 (1563) 19 (1562) 20 (156) 21 (1560) 23 (1556) 23 (1556) 24 (1556)	Spec. Distance (km) 40 80 lumber: 77λλ-x odel from ordering nel number (λλ.) ptions - Chann 3.05nm) 2.23nm) 1.42nm) 0.61nm) 9.79nm) 8.98nm) 8 17nm)	Fiber DWDI Channel # (100GHz Spacing) 18 to 61 18 to 61 18 to 61 18 to 61 18 to 61 18 to 61 20 18 to 61 18 to 6	Wavelength (nm) 1563.05 to 1528.77 1563.05 to 1528.77 1563.05 to 1528.77 55.75nm) 54.94nm) 53.33nm) 52.52nm) 51.72nm) 50.92nm)	ting 10 Gig Min. Tx Power (dBm) -1 0 ne model type so 36 (154 37 (154 38 (154 39 (154 39 (154 40 (154 41 (154 41 (154	Abit Ether Max. Tx Power (dBm) 4 5 elected. 8.51nm) 7.72nm) 6.92nm) 6.12nm) 5.32nm) 4.53nm) 3.73nm)	Min. Rx Sensitivity (dBm) -16 -24 45 (154) 46 (154) 47 (153) 48 (153) 49 (153) 50 (153) 51 (153)	<pre>Max. Rx Power (dBm) 0.5 -7 1.35nm) 0.56nm) 0.56nm) 0.56nm) 0.77nm) 3.98nm) 3.19nm) 7.40nm) 0.61nm)</pre>	Min. Attenuation (dBm) 4 12 54 (153- 55 (153- 55))))))))))))))))))))))))))))))))))	Link Budget (dBm) 15 24 4.25nm) 3.47nm) 2.68nm) 1.90nm) 1.12nm) 0.33nm) 9.55nm)
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Model 77λλ-2t 77λλ-3t Base Model N Select the model Add the chain Wavelength o 18 (156) 20 (156) 21 (156) 23 (155) 24 (155) 25 (155) 26 (155)	Spec. Distance (km) 40 80 lumber: 77λλ-x odel from ordering intel number (λλ.) ptions - Chann 3.05nm) 2.23nm) 1.42nm) 0.61nm) 9.79nm) 8.98nm) 8.17nm) 7.36nm) 6.55nm)	Fiber DWDI Channel # (100GHz Spacing) 18 to 61 18 to	Wavelength (nm) 1563.05 to 1528.77 1563.05 to 1528.77 1563.05 to 1528.77 55.75nm) 54.94nm) 54.13nm) 53.33nm) 52.52nm) 51.72nm) 50.92nm) 50.92nm)	ting 10 Gig Min. Tx Power (dBm) -1 0 e model type s 36 (154 37 (154 38 (154 39 (154 40 (154 41 (154 41 (154 42 (154 43 (154 43 (154	Abit Ether Max. Tx Power (dBm) 4 5 elected. 8.51nm) 7.72nm) 6.92nm) 6.12nm) 5.32nm) 4.53nm) 3.73nm) 2.94nm) 2.14nm)	Min. Min. Rx Sensitivty (dBm) -16 -24 45 (154) 46 (154) 47 (153) 48 (153) 49 (153) 50 (153) 51 (153) 52 (153)	A protocol Max. Rx Power (dBm) 0.5 -7	Min. Attenuation (dBm) 4 12 54 (153) 55 (153) 55 (153) 55 (153) 56 (153) 57 (153) 58 (153) 59 (153) 59 (153) 59 (153) 60 (152) 61 (152)	Link Budget (dBm) 15 24 4.25nm) 3.47nm) 2.68nm) 1.30nm) 1.12nm) 0.33nm) 9.55nm) 8.77nm)
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In most case, a DWDM network design will include multiplexers and/or add/drop devices. These devices will have insertion loss. When selecting a DWDM SFP+ or XFP transceiver, select the model that will meet the link budget of the network design. The link budget includes multiplexer, add/drop devices and the loss across the fiber. Always add an additional 3dBm to the link budget for a safety margin.

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CWDM/DWDM Optical SFP+/XFP Transceivers