

# **Optical Passive Product Map**

Open Optical Network Device Explore

- Passive WDM Systems
- **Fiber Optic Splitters**
- Fast Fiber Connectors
- LC/VSFF/MTP Patch Cables
- MTP Cables Assembly
- MTP Attachment

# **Passive WDM Systems**

### **5G OMUX**

GIGALIGHT's 5G OMUX products are specially designed for 5G fronthaul. These modules are based on the thin-film filter (TFF) technology, and are compliant with telecommunication standards, providing a high-capacity and low-cost transmission solution for 5G operators. The 5G OMUX series include 3 types of CWDM, LWDM and DWDM, with 6- or 12-wavelength optional, and support single fiber bidirectional transmission for 3 or 6 channel services. In addition, a variety of packages can be customized, such as blade type and Mini LGX cassette.





#### **ID** 5G CWDM OMUX

Parameter	CWDM6	CWDM12			
Center Wavelength (nm)	1271~1371	1271~1371、1471~1571			
Center Wavelength Deviation (nm)		±1.5			
1dB Passband Width (nm)		≥13			
Pass Band Flatness (dB)		≤0.5			
Channel Insertion Loss (dB)	≤2.1	≤2.5			
Adjacent Channel Isolation (dB)		≥25			
Non-adjacent Channel Isolation (dB)		≥30			
Wavelength Thermal Stability (nm/°C)		≤0.002			
Insertion Loss Thermal Stability (dB/°C)		≤0.007			
Package	Blade				
*Note: Other wavelength combinations (up to	8 wavelength	ns) and package forms are			

#### **5G LWDM OMUX**

Parameter	LWDM6	LWDM12				
Center Wavelength(nm)	1286.66~1309.14	1269.23~1318.35				
Center Wavelength Deviation (nm)	±0.5					
1dB Passband Width (nm)	≥2.3					
Passband Flatness (dB)	≤0.5					
Adjacent Channel Isolation (dB)	≥25	dB				
Non-adjacent Channel Isolation (dB)	≥3	0				
Wavelength Thermal Stability(nm/C)	≤0.0	02				
Insertion Loss Thermal Stability(dB/°C)	≤0.007					
Package	Blade	Mini LGX				

#### **▶** 5G DWDM OMUX

Parameter	DWDM6	DWDM12			
Center Wavelength (nm)	1542.94~1546.92	1547.72~1556.55			
Channel Spacing (nm)		0.8			
0.5dB Passband Width (nm)	ITU±0.11				
Passband Flatness (dB)		≤0.5			
Link Loss (dB)	≤4.3	≤4.7			
Adjacent Channel Isolation (dB)		≥25			
Non-adjacent Channel Isolation (dB)		≥35			
Wavelength Thermal Stability (nm/°C)		≤0.002			
Insertion Loss Thermal Stability (dB/°C)		≤0.007			
Package		Mini LGX			

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### **AAWG**

GIGALIGHT's AAWG products are based on the arrayed waveguide grating technology, and includle 50GHz, 100GHz and 75GHz series. These modules adopts excellent industrial structural design, featuring ultra-low insertion loss, ultra-high thermal stability and unparalleled reliability. They are compliant with carrier-grade reliability standards, and can be customized in 19" rack-mount and standard metal modules and other various packages, providing a low-cost solution with high bandwidth capacity for high-speed and large-capacity transmission applications such as metro and long-haul DCI.







AAWG Number of Channels		32/4	0/48		64	80/	96	
Operating Wavelength (nm)				(	C-band			
Channel Spacing (GHz)		10	00		75	50	)	
Wavelength Accuracy (nm)		±0.	.05		±0.05	±0.04		
Passband Type	Gaus	sian	Flat	Тор	Flat Top	Flat	Гор	
1dB Channel Passband (nm)	≥0	.2	≥0.	.38	≥0.3	≥0.	.2	
3dB Channel Passband(nm)	≥0	.4	≥0.	.58	≥0.55	≥0.	4	
Passband Flatness (dB)	≤1	.5	≤0	.5	≤0.5	≤1.	5	
Insertion Loss Level	Тур.	Min.	Тур.	Min.	Тур.	Тур.	Min.	
Channel Insertion Loss (dB)	≤4.0	≤3.5	≤6.5	≤5.0	≤6.0	≤7.0	≤6.0	
Insertion Loss Uniformity (dB)					≤1.5			
Adjacent Channel Crosstalk (dB)	≥2	6	≥2	23	≥8	≥8 ≥26		
Non-adjacent Channel Crosstalk (dB)	≥2			26	≥30 ≥26		5	
Total Crosstalk (dB)		≥2	21		≥5	≥20	)	
Return Loss					≥40			
PDL (dB)	≤0.7	≤0.6	≤0.5	≤0.4	≤0.7	≤0.	7	
Polarization Mode Dispersion (ps)					≤0.5			
Dispersion (ps/nm)		±2	20		±35	±30	)	
Operating Temperature (°C)					-5~+75			
Storage Temperature (°C)					-40 ~ +85			
Package	19" Rack	Mount or Sta	andard Meta	l Module	19" Rack Mount	19" Rack Moun	t (interleaved)	

# Fiber Optic Splitters

### **PLC Splitters**

GIGALIGHT's PLC splitter is manufactured based on silicon optical planar waveguide technology. It has the characteristics of small size, high reliability, wide operating wavelength range, and high channel consistency. It is widely used in PON networks to achieve optical signal power splitting. GIGALIGHT's PLC splitters include 1×N and 2×N series, optional with various packages, such as bare fiber, mini module, ABS box, blade, LGX cassette, rack mount, wall mount etc. In addition, GIGALIGHT also provides special applications with PM PLC splitters, which adopt polarization-maintaining fibers to achieve polarization-maintaining coupling and light splitting.

#### Highlights

- Ultra-wide operating wavelength range
- Low insertion loss and good channel uniformity
- High reliability and stability
- Low PDL, WDL and TDL • High return loss and directivity







# **▶** Bare Fiber, Mini Module, and ABS Box

PLC Splitter	1×2	1×4	1×8	1×16	1×32	1×64	2×2	2×4	2×8	2×16	2×32	2×64
Operating Wavelength (nm)		1260~1650										
Fiber Type						G657A or cust	tomized ***					
Insertion Loss (dB) Class S*	≤4.0	≤7.3	≤10.5	≤13.7	≤16.9	≤21.0	-10	-7.6	-110	-14.4	-175	-21.0
Insertion Loss (dB) Class P*	≤3.8	≤7.1	≤10.2	≤13.5	≤16.5	≤20.5	≤4.0	≤7.6	≤11.0	≤14.4	≤17.5	≤21.0
Insertion Loss Uniformity (dB)	≤0.4	≤0.6	≤0.8	≤1.2	≤1.5	≤2.0	≤0.6	≤1.0	≤1.2	≤1.5	≤1.8	≤2.2
Return Loss (dB)						≥55	5					
PDL (dB)	≤0.2	≤0.2	≤0.2	≤0.25	≤0.3	≤0.35	≤0.2	≤0.2	≤0.3	≤0.3	≤0.4	≤0.4
Directivity (dB)						≥55	5					
WDL (dB)	≤0.3	≤0.3	≤0.3	≤0.5	≤0.5	≤0.5	≤0.3	≤0.4	≤0.5	≤0.5	≤0.5	≤0.5
TDL (dB)	≤0.4	≤0.4	≤0.4	≤0.5	≤0.5	≤0.5	≤0.4	≤0.4	≤0.4	≤0.5	≤0.5	≤0.5
Operating Temperature (°C)						-40 ~ -	+85					
Storage Temperature (°C)						-40 ~ -	+85					
Bare Fiber Dimension L×W×H (mm)**	40×4×4	40×4×4	40×4×4	50×4×4	50×7×4	60×12×4	40×4×4	50×4×4	50×4×4	50×7×4	60×7×4	60×12×4
Mini Module Dimension L×W×H (mm)**	50×7×4	50×7×4	60×7×4	60×12×4	80×20×6	N/A	60×7×4	60×7×4	60×7×4	60×12×4	80×20×6	N/A
ABS Box Dimension L×W×H (mm)**	100×80×10	100×80×10	100×80×10	120×80×18	140×115×18	140×115×18	100×80×10	100×80×10	100×80×10	120×80×18	140×115×18	140×115×18

Dimensions of the module section only, excluding fibers and connectors \*GIGALIGHT can provide Mini Module and ABS Box PM PLC splitters with polarization maintaining fiber (1×N series only)

#### xWDM Mux/Demux

GIGALIGHT's xWDM/WDM-PON products are based on the thin-film-filter (TFF) technology, including CWDM/DWDM MUX DEMUX, CWDM/DWDM OADM, CCWDM/CDWDM MUX DEMUX and Combo WDM-PON modules. These modules adopt excellent structural industrial design, featuring ultra-low insertion loss, ultra-high thermal stability and unparalleled reliability. They are compliant with carrier-grade reliability standards, and can be customized in ABS box, LGX cassette and 1U 19" rack mount and other packages, providing a low-cost solution with high bandwidth and capacity for high-speed and large-capacity transmission applications such as metro, long-haul DCI, and WDM-PON.







CWDM/DWDM MUX DEMUX

CWDM MUX/DEMUX	2CH	4CH	8CH	16CH	18CH
Center Wavelength (nm)			1271 ~ 1611		
Channel Spacing (nm)			20		
0.5dB Passband Width (nm)			ITU±6.5		
Passband Flatness (dB)			≤0.5		
Channel Insertion Loss (dB)	≤1.2	≤1.8	≤3.0	≤3.4	≤3.7
Link Loss (dB)	≤2.1	≤2.7	≤3.9	≤4.6	≤5.3
Adjacent Channel Isolation (dB)			≥30		
Non-adjacent Channel Isolation (dB)			≥45		
PDL (dB)			≤0.2		

DWDM MUX/DEMUX	2CH	4CH	8CH	16CH
Operating Wavelength (nm)		C-ba	nd	
Channel Spacing (nm)		0.8 or	1.6	
0.5dB Passband Width (nm)		ITU±0	.11	
Passband Flatness (dB)		≤0.	5	
Channel Insertion Loss (dB)	≤1.5	≤1.8	≤2.6	≤4.2
Link Loss (dB)	≤2.7	≤3.0	≤3.8	≤5.4
Adjacent Channel Isolation (dB)		≥30	)	
Non-adjacent Channel Isolation (dB)		≥45	5	
PDL (dB)		≤0	2	

	1					1				
1CH	2CH	3CH	4CH	5CH	6CH	7CH	8CH			
	127	1~1611/ITU Grid	d (Channel Spa	cing 0.8nm or	1.6nm)					
	ITU±6.5/ITU±0.11									
	≤0.5									
≤1.2	≤1.6	≤1.8	≤2.0	≤2.2	≤2.4	≤2.8	≤3.2			
≤1.0	≤1.6	≤1.8	≤2.2	≤3.2	≤3.4	≤3.8	≤4.0			
			≥30							
			≥40							
			≤0.2/≤0.1							
		127 ≤1.2 ≤1.6	1271~1611/ITU Grid	1271~1611/ITU Grid (Channel Spai ITU±6.5/ITU±0.5 ≤0.5 ≤1.2 ≤1.6 ≤1.8 ≤2.0 ≤1.0 ≤1.6 ≤1.8 ≤2.2 ≥30 ≥40	1271~1611/ITU Grid (Channel Spacing 0.8nm or ITU±6.5/ITU±0.11 ≤0.5 ≤1.2 ≤1.6 ≤1.8 ≤2.0 ≤2.2 ≤1.0 ≤1.6 ≤1.8 ≤2.2 ≤3.2 ≥30 ≥40	1271~1611/ITU Grid (Channel Spacing 0.8nm or 1.6nm)  ITU±6.5/ITU±0.11  ≤0.5  ≤1.2 ≤1.6 ≤1.8 ≤2.0 ≤2.2 ≤2.4  ≤1.0 ≤1.6 ≤1.8 ≤2.2 ≤3.2 ≤3.4  ≥30  ≥40	1271~1611/ITU Grid (Channel Spacing 0.8nm or 1.6nm)  ITU±6.5/ITU±0.11  ≤0.5  ≤1.2 ≤1.6 ≤1.8 ≤2.0 ≤2.2 ≤2.4 ≤2.8  ≤1.0 ≤1.6 ≤1.8 ≤2.2 ≤3.2 ≤3.4 ≤3.8  ≥30  ≥40			

#### Combo WDM-PON

These modules support single-fiber bidirectional transmission through the multiplexing and demultiplexing of up to 8 wavelengths.

			3	3					
Service Channel	GPON	XG-PON1	NG-PON2	RF Video					
Uplink Wavelength(nm)	1290 ~ 1330	1260 ~ 1280	1524 ~ 1544	1550 1560					
Downlink Wavelength (nm)	1480 ~ 1500	1575 ~ 1581	1596 ~ 1603	1550 ~ 1560					
Passband Flatness (dB)		≤!	0.5						
Channel Insertion Loss (dB)	≤1.0	≤1.2	≤2.0						
Adjacent Channel Isolation (dB)		≥30							
PDI (dR)		<0.2							

#### CCWDM/CDWDM MUX DEMUX

These modules adopt free-space optical technology to achieve a smaller size and can be used in applications where space is limited, such as integration into the chassis of wavelength division equipment.









Mini 4CH CCWDM 2×4CH CCWDM 2~9CH CCWDM 10~18CH CCWDM 4CH/8CH CDWDM

CWDM MUX DEMUX	Mini 4CH	2x4CH	4CH	8CH	12CH	18CH
enter Wavelength (nm)			1270	~ 1610		
perating Wavelength (nm)			1260	~ 1620		
hannel Spacing (nm)				20		
.5dB Channel passband (nm)			ITU	±6.5		
assband Flatness (dB)	≤0.3	≤0.4	≤0.4	≤0.4	≤0.4	≤0.4
hannel Insertion Loss (dB)	≤1.5	≤1.4	≤1.2	≤1.5	≤2.0	≤2.5
djacent Channel Isolation (dB)			2	30		
Ion-adjacent Channel Isolation (dB)			2	40		
eturn Loss (dB)			2	45		
Pirectivity (dB)			2	50		
DL (dB)			≤	0.2		
olarization Mode Dispersion (ps)			≤	0.1		
ptical Power (mW)			≤	300		
perating Temperature (°C)			-5 -	~ +75		
torage Temperature (°C)			-40	~ +85		

CDL/DM MIN DEMIN	4611	0611
CDWDM MUX DEMUX	4CH	8CH
Center Wavelength (nm)	ITU±	0.07
0.5dB Passband Width (nm)	ITU±	0.11
Operating Wavelength (nm)	C-b	and
Channel Spacing (nm)	0.	.8
Channel Insertion Loss (dB)	≤1.4	≤2.0
Adjacent Channel Isolation (dB)	≥2	25
Non-adjacent Channel Isolation (dB)	≥3	35
Passband Flatness (dB)	≤0	.5
PDL (dB)	≤0	.3
Polarization Mode Dispersion (ps)	≤0	).1
Optical Power (mW)	≤5	00
Return Loss (dB)	≥4	15
Directivity (dB)	≥5	50
Operating Temperature (°C)	-5 ~	+65
Storage Temperature (°C)	-40 ~	+85
Dimension (mm)	55×2	5×6.5

#### Blade, LGX Cassette, Rack Mount and Wall Mount

32×26×8 49×25×8

PLC Splitter	1×2	1×4	1×8	1×16	1×32	1×64	2×2	2×4	2×8	2×16	2×32	2×64
Operating Wavelength		1260 ~ 1650										
Fiber Type		G657A or customize										
Insertion Loss (dB) Class S*	≤4.3	≤7.6	≤10.8	≤14.0	≤17.2	≤21.3	≤4.5	≤7.9	≤11.3	≤14.7	≤17.8	≤21.3
Insertion Loss (dB) Class P*	≤4.1	≤7.4	≤10.5	≤13.8	≤16.8	≤20.8						
Insertion Loss Uniformity	≤0.6	≤0.7	≤0.8	≤1.2	≤1.5	≤2.0	≤0.9	≤1.0	≤1.2	≤1.5	≤1.8	≤2.2
Return Loss (dB)						≥55						
PDL (dB)	≤0.2	≤0.2	≤0.2	≤0.25	≤0.25	≤0.35	≤0.3	≤0.3	≤0.3	≤0.3	≤0.35	≤0.4
Directivity (dB)						≥55						
WDL (dB)	≤0.5	≤0.5	≤0.5	≤0.8	≤0.8	≤1.0	≤0.5	≤0.5	≤0.5	≤0.8	≤0.8	≤1.0
TDL (dB)						≤0.5						
Operating Temperature (°C)						-40 ~ +85						
Storage Temperature (°C)						-40 ~ +85						
Blade Dimension L×W×H (mm)	130×100×25	130×100×25	130×100×25	130×100×25	267×100×50	N/A	130×100×25	130×100×25	130×100×25	130×100×25	267×100×50	N/A
LGX Cassette Dimension L×W×H (mm)	102×155×29	102×155×29	102×155×29	102×155×40	102×155×82	102×155×82	102×155×29	102×155×29	102×155×29	102×155×40	102×155×82	102×155×82
Rack Mount Dimension L×W×H (mm)						483×245×4	4					
Wall Mount Dimension L×W×H (mm)				(	Customized ac	cording to ins	tallation scer	arios				

<sup>\*</sup> Including the insertion loss of the adapter

#### FBT Couplers

GIGALIGHT's FBT couplers are manufactured based on fused taper technology, support single-mode dual-window optical power distribution, and are widely used in passive optical networks. GIGALIGHT provides FBT couplers with 4 types of port configuration, including 1×2, 2×2, 1×3 and 3×3, which can all be customized for coupling ratio, fiber type, fiber length and fiber connector.



Specifications	FBT Coupler
Center Wavelength (nm)	1310/1550
Operating Bandwidth (nm)	±20
1×2/2×2 Port Configuration, Coupling Ratio and Corresponding Insertion Loss (dB)*	50/50≤3.8/3.8、55/45≤3.3/4.2、60/40≤2.8/4.8、65/35≤2.4/5.4、70/30≤3.1/6.0、75/25≤1.9/6.8 80/20≤1.5/7.8、85/15≤1.2/9.2、90/10≤1.0/11.3、95/5≤0.7/14.4、99/1≤0.5/22.6
1×3/3×3 Port Configuration, Coupling Ratio and Corresponding Insertion Loss (dB)*	33/33/33≤6.2/6.2/6.2、10/45/45≤11.5/4.7/4.7、20/40/40≤8.4/5.4/5.4、30/35/35≤6.2/5.6/5.6 40/30/30≤5.1/6.3/6.3、60/20/20≤3.4/8.5/8.5、70/15/15≤2.7/9.4/9.4、80/10/10≤2.0/11.6/11.6
Insertion Loss Uniformity (dB)	33/33/33≤1.4
Return Loss (dB)	≥50 (UPC) 、≥55 (APC)
PDL (dB)	≤0.2
Operating Temperature (°C)	-40~+85
Storage Temperature (°C)	-40~+85
Bare Fiber Dimension Φ×L (mm)**	2.9×50、3.05×65
Mini Module Dimension L×W×H (mm)**	96.5×12×10

<sup>\*</sup>Dimensions of the module section only, excluding fibers and connectors

# **Fast Fiber Connectors**

#### 01 Fast Fiber Connectors

GIGALIGHT provides multiple types of fast fiber connectors, of which fiber types and connector types can be customized according to specific usage scenarios to meet all optical connection requirements in the access network ODN. The fast fiber connectors adopt high-quality optical fibers and connectors. Based on the mature manufacturing process and excellent product design, they can provide end users with excellent performance and experience.

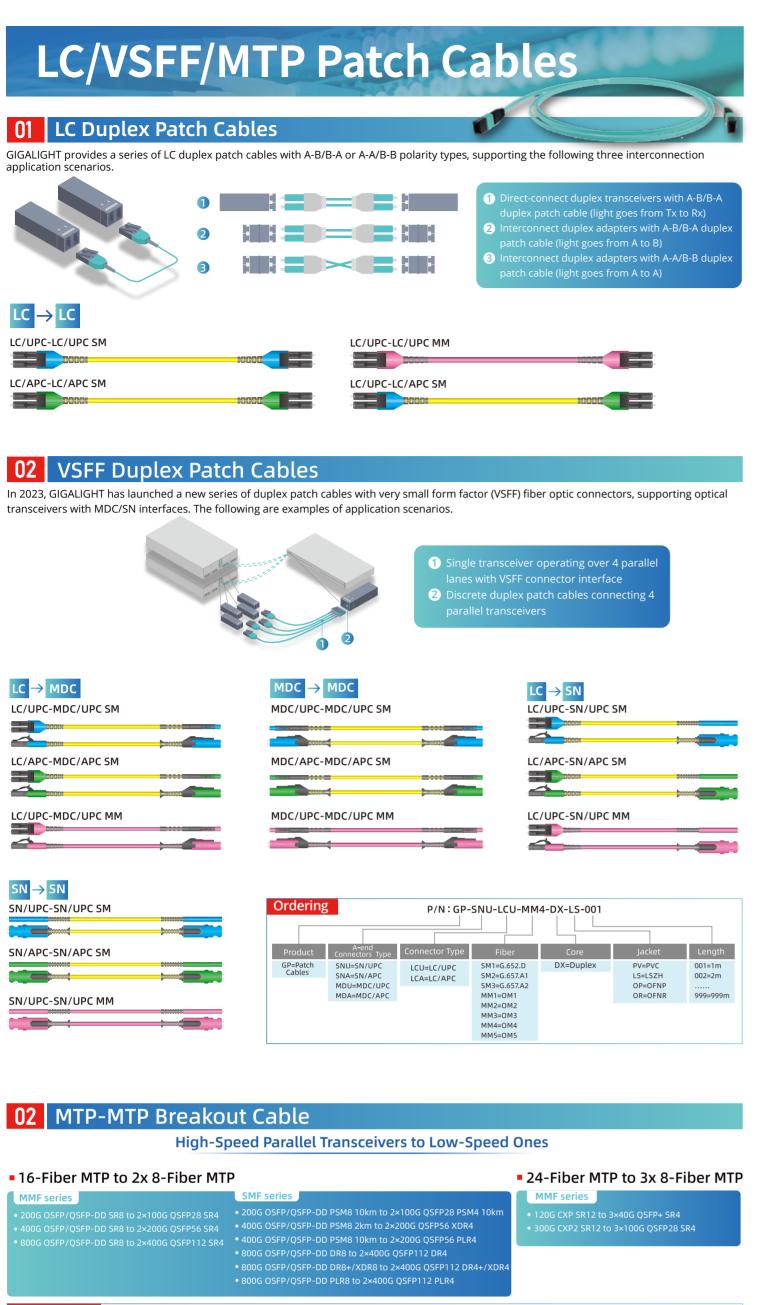
#### Highlights

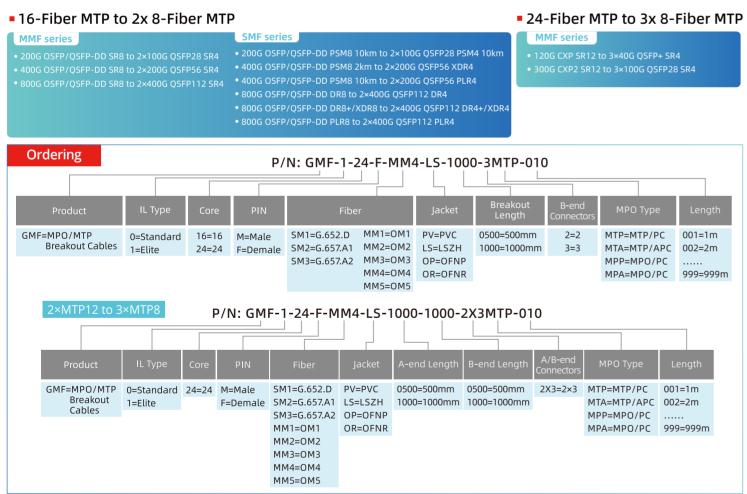
- Small and portable
- Directly connected to ONU
- Elastically fixed axially to avoide wrong connection
- High tensile strength (>100N), no other protection is required • Easy and fast installation, average connection time of 100s, high success rate
- Precision ceramic components with coaxial auto-centering and outstanding durable optics • Triple clamps with bare fiber, tight buffers and cables, etc., can be used as patch cords
- Integrated protection of the housing withstands harsh user environments





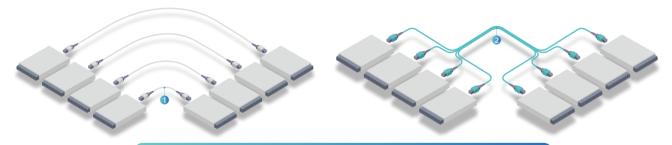








GIGALIGHT provides Base-8, Base-12 and Base-24 MTP trunk cables, including discrete series (8/12/24 fibers) and integrated series (16 to 288 fibers).



1 Discrete MTP trunk cable (equivalent to a single MTP patch cable)2 Integrated MTP trunk cable (integrated by more than two MTP patch cables)

