MTP® Cabling Overview

MTP cabling architectures utilise varying cable and patchcord configurations as defined in TIA-568-C.0-2. These cables vary by gender, fibre orientation and pair management.

AFL manufactures a large and varied range of MTP cable assemblies to suit:

- 10 Gig backbone and extension cables
- 40/100 Gig backbone and patchcord cables
- 10 Gig/Fibre Channel MTP to LC hybrid cables
- 40 Gig MTP to 10 Gig LC patchcords

The low 10/40/100 Gig channel loss requirements of ISO/IEC 11801 demand high performance connectivity is used. AFL only use the US Conec MTP Elite connector to ensure the lowest possible connector insertion losses.

Numerous cable options are available with the most popular being the 3 mm round mini cable. Other options include ruggedized round mini, metallic armoured round mini, coloured sheaths and different sheath types.

Features and Benefits

- MTP Elite connectors for low link/channel loss performance
- TIA-568 based pair flipped or parallel optics cables for standards compliance and traceability
- Round mini cable construction offers reduced raceway usage and looming neatness
- MTP connectors supplied with push/pull tabs for ease of handling
- MTP connector endface geometry compliance to IEC standards for enhanced intermateability and interoperability
- Large range of cable colours for circuit ID options
- Bundled cable option allows for ease of handling and installation of multiple 12/24F cables

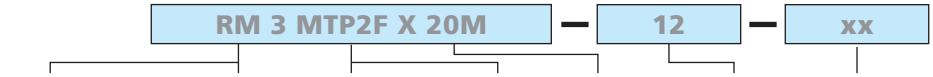
MTP is a registered trademark of US Conec, Ltd.

MTP® Cabling Overview

Manufacturing Options MTP® – MTP® Cables

CABLE				
Fibre Type	**Fibre Count**	**Cable Type**	**Sheath**	**Colour**
OM4 (MM 50/125 µm Bend Tolerant (BT))	12-144	Round Mini (3 mm) Metallic Armoured Round Mini Ruggedised Round Mini	PVC, LSZH or Plenum	Aqua
OM3 (MM 50/125 µm)				Aqua
OS2 (SM 9/125 µm)				Yellow
OM1 (MM 62.5/125 µm)				Orange
OM5 (WBMMF 50/125 µm)				Lime Green (Chartruese)
BUNDLED CABLES				
For 24-144 fibre counts, multiples of 12F or 24F RM and RRM cables are bundled together in a RoHS/LSZH compliant polyester braided over-sleeving. This creates a highly flexible, low friction resilient over-sheath with excellent installation and mechanical properties.				
CONNECTORS				
MTP Elite Low Loss	Female or Male with Push/Pull tabs			
	PC Polish (Multimode) or APC Polish (Singlemode) 12 or 24 fibre			
ADDITIONAL OPTIONS				
Protective light duty hauling mechanisms (RRM cables only), Custom labelling, Custom pair cross, straight through or gender configurations, Coloured cable or coloured braided over-sleeving.				
PART NUMBER				

Backbone and interface cables



Cable Type
RM – Round Mini
RMA – Metallic Armoured Round Mini
RRM – Ruggedised Round Mini
RMB – Round Mini Bundled
RRMB – Ruggedised Round Mini Bundled

Fibre Type
1 – 9/125 µm SM OS2
3 – 50/125 µm MM OM3
4 – 50/125 µm MM OM4 BT
5 – 50/125 µm MM OM5
6 – 62.5/125 µm MM OM1

Connector A and B
MTPF (MM female)
MTPFA (SM female angled)
MTPM (MM male)
MTPMA (SM male angled)
(If both ends are the same use one connector reference only)
MTP2 24F MTPE connector

Pair Cross
X-Crossover

Length (m)

Fibre Count
12
24
48

Options
Light duty hauling mechanism (RRM cables only)
Custom labelling
Coloured cable
Coloured braided over-sleeving
Connectivity method

MTP® Cabling Overview

Manufacturing Options MTP® Heavy Duty Fanouts

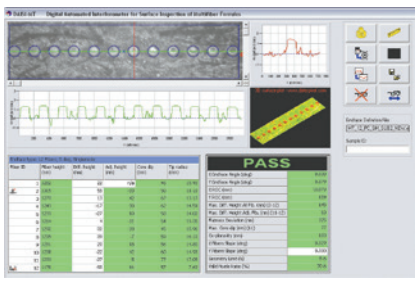
CABLE			
Fibre Type	**Fibre Count**	**Cable Type**	**Colour**
OS2 (SM 9/125 µm)	12-144	Round Mini (3 mm)	Yellow
OM1 (MM 62.5/125 µm)			Orange
OM3 (MM 50/125 µm)			Aqua
OM4 (MM 50/125 µm Bend Tolerant (BT))			Aqua
OM5 (WBMMF 50/125 µm)			Lime Green (Chartruese)
CONNECTORS			
MTP Elite Low Loss	Female or Male with Push/Pull tabs		
	PC Polish (Multimode) or APC Polish (Singlemode)		
Hybrid Options	SC, Low Loss LC (Typ 0.2 dB @ 850 nm), Extra Low Loss LC (Typ 0.15 dB @ 850 nm)		
ADDITIONAL OPTIONS			
Custom Breakout lengths, Oversleeving, Cable drums, Staggered connectors, Custom labelling, Coloured cable and over-sleeving, Coloured braided over-sleeving.			
ACCESSORIES			
MTP 6 port mounting bracket loaded with	• 6 aqua MTP adapters (MTP-MNTGBRKT-6AQ) • 6 black MTP adapters (MTP-MNTGBRKT-6BK)		
MTP 1 port mounting bracket loaded with	• 1 aqua MTP adapter (MTP-MNTGBRKT-1AQ) • 1 black MTP adapter (MTP-MNTGBRKT-1BK)		
PART NUMBER			

RM 3 MTP2F LC 2M – 12 – xx

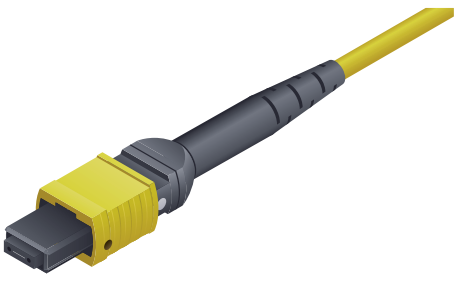
Cable Type	Fibre Type	Connector A	Connector B	Total Length (m)	Fibre Count	Options
RM – Round Mini	1 – 9/125 µm SM OS2	MTPF (MM female)	SC		12-144	Light duty hauling mechanism (RRM cables only)
RRM – Ruggedised Round Mini	3 – 50/125 µm MM OM3	MTPFA (SM female angled)	LCLL—LC Low Loss		8	Custom labelling
RMB – Round Mini Bundled	4 – 50/125 µm MM OM4 BT	MTPM (MM male)	LCELL—LC Extra Low Loss			Coloured cable
RRMB – Ruggedised Round Mini Bundled	5 – 50/125 µm MM OM5	MTPMA (SM male angled)				Coloured braided over-sleeving
	6 – 2.5/125 µm MM OM1	MTP2 24F MTPE connector				Connectivity method

Technical Information

CONNECTIVITY METHODS		
AFL's MTP cabling solution can be configured to suit the connectivity methods as defined in TIA-568-C or custom configurations as required. Pair crossovers (pair flips) are recommended for duplex circuits. A number of configuration options are available for parallel optics applications.		
MTP® ELITE CONNECTOR OPTICAL PERFORMANCE		
	Multimode 850 nm (PC Polish)	**Singlemode 1310 nm (APC Polish)**
Typical Insertion Loss	0.35 dB	0.35 dB
Typical Return Loss	≥ 20 dB	≥ 60 dB
MTP® ELITE CONNECTOR AND POLISHING STANDARDS		
MTP connectors comply with Focis 5 and the relevant subsets of IEC 61754-7		



Interferometer view of MTP connector end face geometry



MTP® Cabling Overview

Technical Information

MALE / FEMALE MTP® ELITE CONNECTOR CONFIGURATION
MTP products can be manufactured as either male or female AFL supplies as standard: MTP cassettes manufactured as male (pinned) MTP – MTP pre-terminated cables manufactured as female both ends MTP fanouts manufactured as both male (pinned) and female Variations can be manufactured upon request, please specify at time of order

ISO IEC 11801 AND TIA-568-C CHANNEL ATTENUATION AND DISTANCES		
ISO IEC 11801 defines maximum optical channel attenuation as follows:		
	OM4 50/125 µm LOMMF	
	Max Channel Attenuation	**Maximum Channel Distance**
Ethernet 10GBASE-S	2.9 dB	400 m
Ethernet 40GBASE-SR4	1.5 dB	150 m
Ethernet 100GBASE-SR10	1.5 dB	150 m
10G Fibre Channel	2.9 dB	400 m

PHYSICAL CABLE CHARACTERISTICS			
Cable Type	**Diameter (mm)**	**Weight (kg/km)**	**Max Long Term Tensile Load (N)**
RM – Round Mini 12F	3	8.1	80
RM – Round Mini 12F	2	4	75
RM – Round Mini 24F	3	8.5	80
RRM – Ruggedised Round Mini 12F	4.5	20	200

BUNDLED ROUND MINI (BASED ON 12F 3 MM ROUND MINI SUB-UNITS)		
Cable Type	**Diameter (mm) approx.**	**Weight (kg/km)**
RMB – Round Mini 3 mm Bundled 48F	8	46
RMB – Round Mini 3 mm Bundled 72F	9	64
RMB – Round Mini 3 mm Bundled 96F	10	82
RMB – Round Mini 3 mm Bundled 144F	10	118

MTP Cabling System Accessories

AFL offers a wide range of accessories to suit the installation, testing and patching of MTP cabling systems. These include:

- Connector video inspection equipment
- Connector cleaning products
- A range of LC patchleads specifically designed to suit high density patching

AFL is also pleased to offer an extensive range of installation and testing documentation. Please contact us for further information.

In conjunction with our CBPs (Certified Business Partners) a 20 year Certified System Guarantee is also available to approved installations.