

Optical Fibre Assemblies



Optical fibre patchcords are a defining factor in ensuring your network performs to the highest level.

A patchcord can be split into three crucial components:

- Connector
- Cable
- Manufacturing process

These three areas all contribute to the performance of a patchcord, but above all the manufacturing process is the one that defines the performance of the assembly.

Whilst the cable and connectors used in HellermannTyton optical fibre patchcords are

the best available, it is our expertise in production that sets our products apart.

HellermannTyton can offer virtually any fibre optic cable assembly using Biconic and SMA through ST, and SC to today's small form factor (SFF) connectors like the LC, MU or MT-RJ. If you have a fibre network, no matter what the technology, HellermannTyton can offer you a solution to your problem.

The FibreBand range of patchcords has grown through the years, from every day standard lengths to special products to meet your needs. From industry standard 62.5/125 multimode to 9/125 singlemode right the way up to state of the art OM3 50/125 cable assemblies, HellermannTyton can supply them all.

Multimode Duplex Optical Fibre Assemblies



SC – SC Multimode Duplex
3mm Yellow Cable,
Beige connector
Black and Red boots
0.5–10m



ST – ST Multimode Duplex
3mm Yellow Cable,
Metal connector
Black and Red boots
0.5–10m



MT-RJ – MT-RJ Multimode Duplex
Mini Zip Grey Cable,
Black connector
Black boots
0.5–10m



LC – LC Multimode Duplex
2mm Orange Cable,
Beige connector
White boots
0.5–10m



FC – FC OM3 Multimode Duplex
3mm Purple Cable,
Metal connector
Black boots
0.5–10m



MT-RJ – MT-RJ OM3 Multimode Duplex
Mini Zip Purple Cable,
Black connector
Black boot
0.5–10m

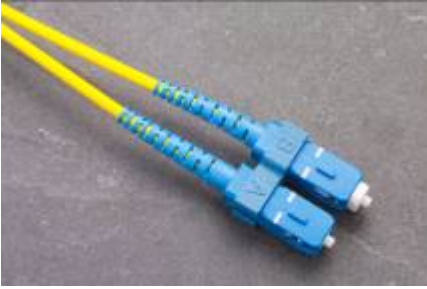


SC – SC OM3 Multimode Duplex
3mm Purple Cable,
Beige connector
Beige boots
0.5–10m

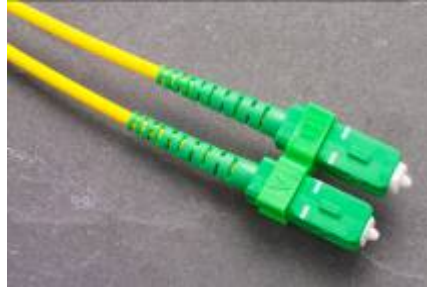


ST – ST OM3 Multimode Duplex
3mm Purple Cable,
Metal connector
Black and Red boots
0.5–10m

Singlemode Duplex Optical Fibre Assemblies



SC – SC Singlemode Duplex
3mm Yellow Cable,
Blue connector
Blue boots
0.5–10m



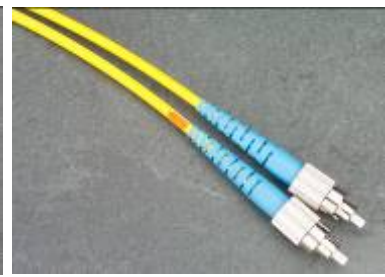
SC – SC APC Singlemode Duplex
3mm Yellow Cable,
Green connector
Green boots
0.5–10m



ST– ST Singlemode Duplex
3mm Yellow Cable,
Metal connector
Red & Blue boots
0.5–10m



LC– LC Singlemode Duplex
2mm Yellow Cable,
Blue connector
White boots
0.5–10m



FC– FC Singlemode Duplex
3mm yellow Cable,
Metal connector
Blue boots
0.5–10m



FC– FC APC Singlemode Duplex
3mm yellow Cable,
Metal connector
Black boots
0.5–10m

Optical Fibre Assemblies

Singlemode Simplex



FC – FC APC Singlemode Simplex
3mm Yellow Cable,
Metal connector
Blue boot
0.5–10m



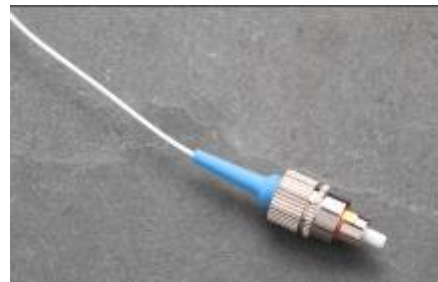
SC – SC APC Singlemode Simplex
3mm Yellow Cable,
Green connector
Green boot
0.5–10m



LC – LC APC Singlemode Simplex
2mm Yellow Cable,
Blue connector
White boot
0.5–10m



FC – FC APC Singlemode Simplex
3mm Yellow Cable,
Metal connector
Green boot
0.5–10m



FC Singlemode Pigtail
900µm White Cable,
Metal connector
Blue boot
1.5m



SC Singlemode Pigtail
900µm White Cable,
Blue connector
Blue boot
1.5m

Multimode Pigtails



ST Multimode Pigtail
900µm White Cable,
Metal connector
Black boot
1m



SC Multimode Pigtail
900µm White Cable,
Beige connector
White boot
1m

Optical Fibre Assemblies

Description

The HellermannTyton optical fibre patchcords are manufactured using the best quality components. The connectors and the cable exceeds all areas of the standards required for the assembly being produced.

Non-standard cables can be made to your own exacting standards in our ISO 9001 UK production facility. This encompasses all of the essential tools to ensure the products not only meet but also exceed the requirements laid down in IEC international standards for fibre optic terminations.

Optical Performance (Multimode)

Insertion loss: Max. 0.5 dB Typical 0.35 dB

Optical Performance (Singlemode)

Insertion loss: Max. 0.3 dB Typical 0.2 dB

Return Loss: UPC better than 50dB
APC better than 60dB

Optical Performance (MT-RJ)

Insertion loss: Max. 0.7 dB Typical 0.5 dB

Connectors

Types: FC, FC/APC, ST, SC, SC/APC, MT-RJ, MU, E2000

Mechanical

Length: 1 to 10m ± 10mm

(Other lengths available to order)

Split Length (Duplex): 150 ± 5mm

Sheath colour:	62.5/125	Yellow
	50/125	Orange
	09/125	Yellow

Intermateability

Optically and mechanically compatible with all equivalent connectors.

Compliant with IEC 874-14.

Product Packaging

Each patchcord is packaged individually and individually identified for traceability, test certification is supplied for each assembly.

(IEC 874-1 method)

Temperature Cycling

(61300-2-18)
-40 to +75°C, 40 cycles
= 0.2dB Change

High Temperature:

(61300-2-18)
70°C for 96 hours
< 0.4dB Change

Damp Heat:

(61300-2-19)
40°C at 93% RH, 96 hours
< 0.4dB Change

Vibration (Mated Pair):

(61300-2-1)
10-55 Hz, 1.5mm P to P
< 0.2dB Change

Mating Durability:

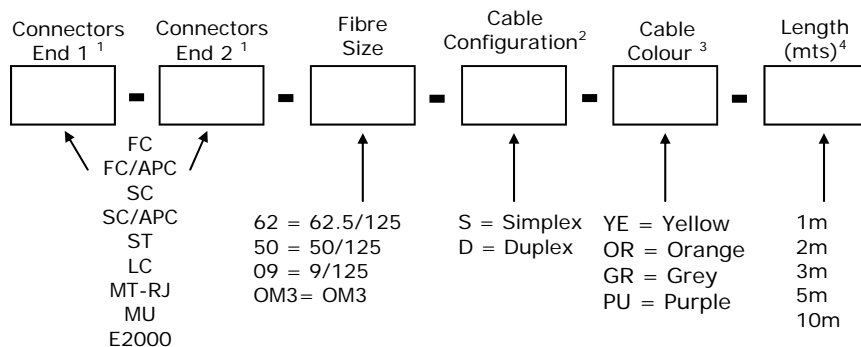
(61300-2-2)
500 mating cycles
Clean every 25
< 0.2 dB Change

Operating Temperature

-40°C to +85°C

Ordering Information

To order optical fibre assemblies the HellermannTyton part number follows the



¹ Other connectors available on request.

² MT-RJ is only available in MiniZip.

³ Singlemode cable only available in yellow.

⁴ Other lengths available on request.

ISO 14001



Certificate No. EMS 504454

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ISO 9001



Certificate No. FM 34289

Mode Conditioning Patch Cord **HellermannTyton** Optical Fibre Assemblies **Network Sciences**

It is known that multimode optical fibre links that use laser based transmitters may be limited in bandwidth to values less than half those of the over-filled launch bandwidth.

The bandwidth is very low in the case of centre-launch condition. HellermannTyton Mode Conditioning Patchcords are specifically designed for launching your gigabit signal into conventional 62.5/125 (OM1) or 50/125 (OM2) fibre with very high bandwidth.

The FibreBand mode conditioning patchcords can improve the transmission bandwidth by 3 to 4 times and also greatly reduce modal noise.



Typical Application

Today's Gigabit ethernet switches use Vertical Cavity Surface Emitting Lasers (VCSEL) as the old technology LED emitters cannot produce the signals required for high bandwidth applications.

The new mode conditioning assemblies are designed for use in 62.5/125 (OM1) or 50/125 (OM2) multimode fibre optic cabling systems, where these assemblies allow long wavelength 1300nm signals to be transmitted over good quality fibre at distances of up to 550m.

The VCSEL devices used in gigabit ethernet applications are based on a singlemode launch condition and operate over both singlemode and multimode fibre. Differential mode delay (DMD) occurs when the transmitter device launches a singlemode laser signal into the centre of

the multimode fibre, resulting in the transmission of multiple signals. Such signals confuse the receiver with resultant limitations on the operating bandwidth and especially the drive distances of gigabit ethernet.

The 62.5/125 fibre will typically only allow a distance of 220-270m for Gigabit Ethernet using lower cost lasers operating at the 850nm. SX wavelength and longer distance requirements have to be met by the use of 1300nm electronics in conjunction with a Mode-Conditioning launch lead. The FibreBand Mode Conditioning cable assembly eliminates differential mode delay by moving the singlemode launch to an offset position away from the centre of the fibre where the impurities are found.

Mode Conditioning Patch Cord Optical Fibre Assemblies

Description **62.5/125 50/125**
 Operating wavelength: 1310nm
 Maximum insertion loss: 0.5dB
 Coupled power ratio (CPR) 28 to 40dB 12 to 20dB
 Back reflection: S/M channel: 30dB
 M/M channel: 20dB
 Connector finish: PC or APC
 Sheath colour: Orange (yellow for SM leg)

Temperature Cycling (61300-2-18)
 -40 to +75°C, 40 cycles
 =0.2dB Change

High Temperature: (61300-2-18)
 70°C for 96 hours
 < 0.4dB Change

Damp Heat: (61300-2-19)
 40°C at 93% RH, 96 hours
 < 0.4dB Change

Vibration (Mated Pair): (61300-2-1)
 10-55 Hz, 1.5mm P to P
 < 0.2dB Change

Mating Durability: (61300-2-2)
 500 mating cycles
 Clean every 25
 < 0.2 dB Change

Operating Temperature
 -40°C to +85°C

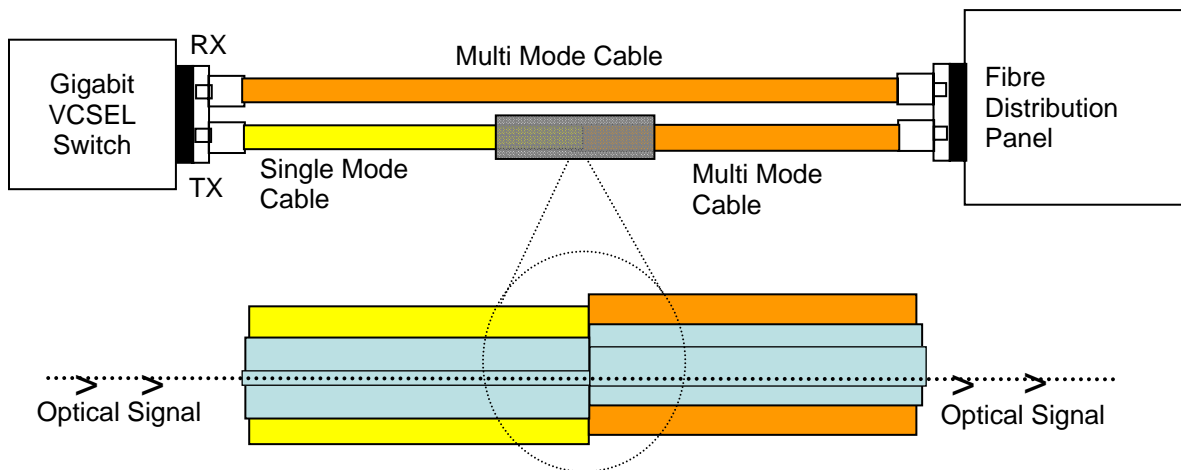
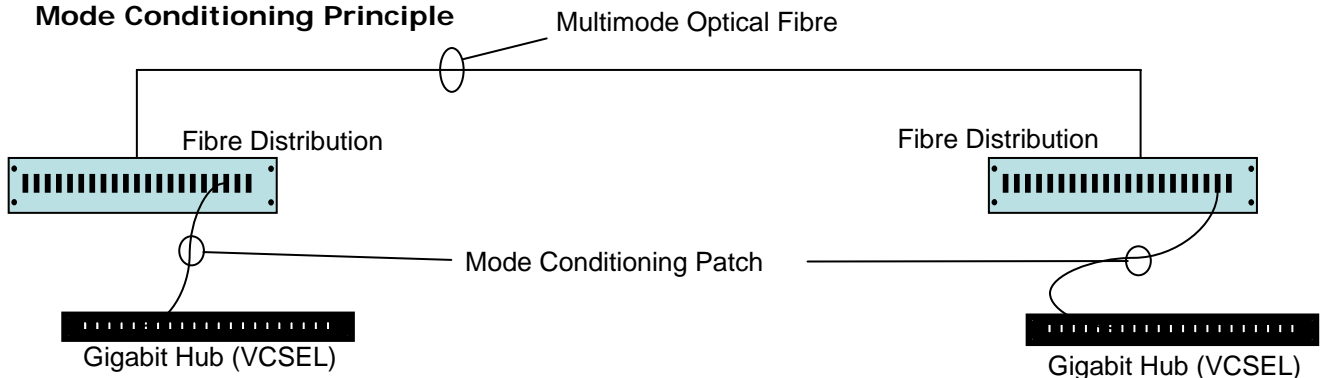
Connectors available
 Types: FC, FC/APC, ST, SC, SC/APC, LC, MT-RJ, MU

Length: 2m ± 10mm
 Other lengths available to order

For full information on the FibreBand connectors used on the HellermannTyton patch cords, please contact us for a connector data sheet.

Product Packaging
 Each patch cord is packaged individually and individually identified for traceability, test certification is supplied for each assembly.

Mode Conditioning Principle



ISO 14001



Certificate No. EMS 504454

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