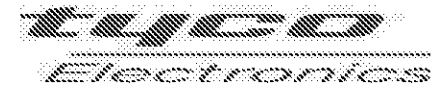
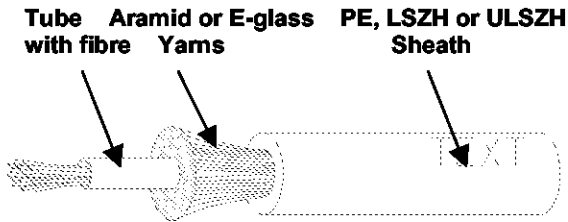


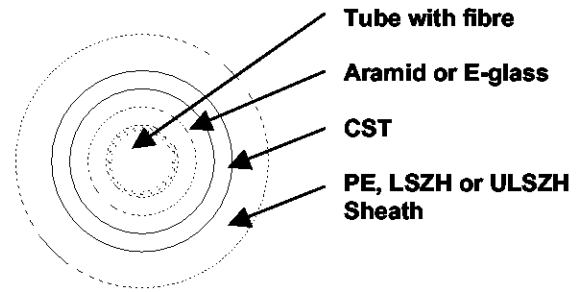
# Fibre Optic Loose Tube Cables (1 - 24 Fibers)



Up to 24 fibre loose tube cable



Up to 24 fibre armoured mono-tube



## Description:

TYCO ELECTRONICS **Mono-tube** cables designs contain all the fibres within a 2.8mm single tube construction up to 16 fibres. For cables up to 24 fibres a larger 4.0mm single tube construction is used. All of the individually coloured primary coated 250µm fibres are contained within a single gel filled or dry filled polymeric loose tube, which is then strengthened with either **Aramid** strength members, or **E-glass** yarns for rodent protection. Alternative armoured single tube constructions are available with either corrugated steel tape (CST) or Glass Reinforced Plastic armouring (GRP). The armoured constructions are ideal for direct burial in the ground and other external applications where improved protection is required, whilst the standard design can be installed within ducts, or used for structured wiring systems within networks.

## Standards Compliance:

TYCO ELECTRONICS cables are designed and manufactured with our dedicated modern facilities and all activities are controlled within ISO 9000 systems. All our products have undergone extensive type approval testing to IEC 60794 (EN 187 000) and IEC 60793 (EN 188 000) using the latest testing facilities.

TYCO ELECTRONICS cables are designed and tested to conform to the fiber and cable performance requirements of, ISO 11801, and TIA/EIA B. The optical fibre specifications are guaranteed installed minimum performance (subject to correct installation and environment). If a higher performance fibre is required please contact our local sales team. Accordingly, the cables meet or exceed all of the performance requirements for current and proposed applications such as IEEE 802.3 Ethernet (including 10-Gigabit Ethernet).

## Standard Specification (Text in brackets [...] requires a choice):

All mono-tube cable constructions consist of [one, two, four, six, eight, twelve, sixteen & twenty-four] primary coated 250µm [singlemode, 50/125µm or 62.5/125µm] fibers. Each construction incorporates colour-coded fibres reinforced by aramid yarn strength members and over-sheathed with [ULSZH/ LSZH] material for indoor/outdoor applications meeting IEC fire performance requirements, or [Low/High Density Polyethylene] material for external applications. Alternative designs include [corrugated steel tape & glass reinforced plastic] armouring for rodent protection and direct burial. The following optional designs are available on request:

- Alternative diameters and installation tensions
- Chemical resistant sheaths available
- E-glass yarns to provide rodent protection.
- Gel free tubes for clean installation.
- Sheath and tubes in a wide range of colours.

The cable shall comply with the relevant performance requirements listed in the Performance Characteristics table. The temperature ratings for storage, shipping, installation and operation shall comply with the Temperature Ratings table (see performance and temperature charts)

## Cable Print:

Cables will be marked with the following print:-

TYCO ELECTRONICS OPTICAL CABLE [Tyco part number] FIBRE COUNT X FIBRE TYPE [Fibre classification] [Sheath Type] [Job number] [Meter mark]

e.g. TYCO ELECTRONICS OPTICAL CABLE X-XXXXXXX-X 4 x 62.5/125 OM1 ULSZH 12345 XXXXm

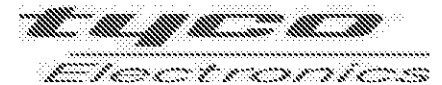
## Shipping and Packaging:

The cable will be shipped on a wooden reel. The cable length billing and shipping tolerances are -0%/+10%.

## Part Numbers:

Drawing no	114-92006	Drawn	G. Briscoe	29.03.04	Revision Record	Drawing Location:
Name	Customer Drawing	Checked	D. Walker	29.03.04	B - JZ00-0008-04	
Revision	B	Approved	A. Gibbons	29.03.04	A - ORIGINAL	Sheet 1 of 5

# Fibre Optic Loose Tube Cables (1 - 24 Fibers)



## Universal Loose Tube Cables (2 to 24 F)

Description	Sheath type	Part Number		
		50/125µm	62.5/125µm	9/125µm
2F	Ulszh	Y-1593090-X	Y-1593091-X	0-1593092-6
4F	Ulszh	Y-1593093-X	Y-1593094-X	0-1593095-6
6F	Ulszh	Y-1593096-X	Y-1593097-X	0-1593098-6
8F	Ulszh	Y-1593099-X	Y-1593100-X	0-1593101-6
12F	Ulszh	Y-1593105-X	Y-1593106-X	0-1593107-6
16F	Ulszh	Y-1593108-X	Y-1593109-X	0-1593110-6
24F	Ulszh	Y-1593042-X	Y-1593043-X	0-1593044-6

### Y- -X Bandw. Cat

4- -1	400/600	OM1
2- -1	500/500	OM2
0- -1	600/1200	OM2
8- -1	1500/500	OM3

### Y- -X Bandw. Cat

2- -3	160/500	-
0- -3	200/600	OM1

## External Loose Tube Cables (2-24F)

Description	Sheath Type	Part Number		
		50/125µm	62.5/125µm	9/125µm
2F	Ldpe	Y-1593132-5	Y-1593133-5	0-1593134-5
4F	Ldpe	Y-1593135-5	Y-1593136-5	0-1593137-5
6F	Ldpe	Y-1593138-5	Y-1593139-5	0-1593140-5
8F	Ldpe	Y-1593141-5	Y-1593142-5	0-1593143-5
12F	Ldpe	Y-1593147-5	Y-1593148-5	0-1593149-5
16F	Ldpe	Y-1593150-5	Y-1593151-5	0-1593152-5
24F	Ldpe	Y-1593195-5	Y-1593196-5	0-1593197-5

### Y- Bandw. Cat

4-	400/600	OM1
2-	500/500	OM2
0-	600/1200	OM2
8-	1500/500	OM3

### Y- Bandw. Cat

2-	160/500	-
0-	200/600	OM1

## Corrugated Steel Tape Armoured Mono-tube Cables (2-24F)

Description	Sheath Type	Part Number		
		50/125µm	62.5/125µm	9/125µm
2F	Ldpe	Y-1594294-5	Y-1594300-5	0-1594288-5
4F	Ldpe	Y-1594295-5	Y-1594198-5	0-1594289-5
6F	Ldpe	Y-1594296-5	Y-1594258-5	0-1594290-5
8F	Ldpe	Y-1594297-5	Y-1594301-5	0-1594291-5
12F	Ldpe	Y-1594298-5	Y-1594302-5	0-1594292-5
16F	Ldpe	Y-1594299-5	Y-1594303-5	0-1594293-5
24F	Ldpe	Y-1594035-5	Y-1594036-5	0-1594037-5

### Y- Bandw. Cat

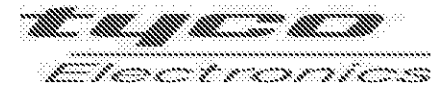
4-	400/600	OM1
2-	500/500	OM2
0-	600/1200	OM2
8-	1500/500	OM3

### Y- Bandw. Cat

2-	160/500	-
0-	200/600	OM1

<b>Drawing no</b>	114-92006	<b>Drawn</b>	G. Briscoe	29.03.04	<b>Revision Record</b>	<b>Drawing Location:</b>
<b>Name</b>	Customer Drawing	<b>Checked</b>	D. Walker	29.03.04	B - JZ00-0008-04	
<b>Revision</b>	B	<b>Approved</b>	A. Gibbons	29.03.04	A - ORIGINAL	<b>Sheet 2 of 5</b>

# Fibre Optic Loose Tube Cables (1 - 24 Fibers)



## Mechanical Performance Specifications:

All TYCOELECTRONICS cables are designed and tested using our dedicated modern facilities and all activities are controlled within ISO 9000 systems

## Universal Loose Tube Mechanical Specifications

Fiber Count	Nominal O.D. mm	Sub Units		Minimum Bend Radius		Nominal Weight kg/km	Rated Tensile Load	
		N <sup>o</sup> .	O.D. mm	Install mm	Long Term mm		Install N	Long Term N
2-fiber	6.4	1	2.8	140	130	48	1250	650
4-fiber	6.4	1	2.8	140	130	48	1250	650
6-fiber	6.4	1	2.8	140	130	48	1250	650
8-fiber	6.4	1	2.8	140	130	48	1250	650
12-fiber	6.4	1	2.8	140	130	48	1250	650
16-fiber	6.4	1	2.8	140	130	48	1250	650
24-fiber	7.5	1	4.0	150	140	62	1250	650

## External Mono-Tube Mechanical Specifications

Fiber Count	Nominal O.D. mm	Sub Units		Minimum Bend Radius		Nominal Weight kg/km	Rated Tensile Load	
		N <sup>o</sup> .	O.D. mm	Install mm	Long Term mm		Install N	Long Term N
2-fiber	8.4	1	2.8	170	150	64	2200	1100
4-fiber	8.4	1	2.8	170	150	64	2200	1100
6-fiber	8.4	1	2.8	170	150	64	2200	1100
8-fiber	8.4	1	2.8	170	150	64	2200	1100
12-fiber	8.4	1	2.8	170	150	64	2200	1100
16-fiber	8.4	1	2.8	170	150	64	2200	1100
24-fiber	9.2	1	4.0	185	160	74	2200	1100

## Corrugated Steel Tape Armoured Mono-Tube Mechanical Specifications

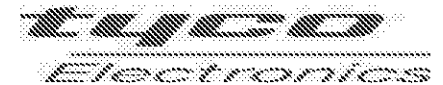
Fiber Count	Nominal O.D. mm	Sub Units		Minimum Bend Radius		Nominal Weight kg/km	Rated Tensile Load	
		N <sup>o</sup> .	O.D. mm	Install mm	Long Term mm		Install N	Long Term N
2-fiber	10	1	2.8	170	150	97	1200	600
4-fiber	10	1	2.8	170	150	97	1200	600
6-fiber	10	1	2.8	170	150	97	1200	600
8-fiber	10	1	2.8	170	150	97	1200	600
12-fiber	10	1	2.8	170	150	97	1200	600
16-fiber	10	1	2.8	170	150	97	1200	600
24-fiber	10.5	1	4.0	185	160	107	1200	600

## Temperature Ratings

IEC Rating	Operation	Installation
Low Smoke Zero Halogen	-20°C to +70°C -4°F to +158°F)	-20°C to +70°C (-4°F to +158°F)

Drawing no	114-92006	Drawn	G. Briscoe	29.03.04	Revision Record		Drawing Location:	
Name	Customer Drawing	Checked	D. Walker	29.03.04	B - JZ00-0008-04			
Revision	B	Approved	A. Gibbons	29.03.04	A - ORIGINAL			Sheet 3 of 5

# Fibre Optic Loose Tube Cables (1 - 24 Fibers)



## Optical Cable Specifications (1% proof test on all fibres)

The Fibre specification meets the requirements of ISO 11801, and TIA/EIA B. The optical fibre specifications are guaranteed installed minimum performance (subject to correct installation and environment conditions). If a higher performance fibre grade is required, please contact our local sales teams.

Multimode Fibres	Maximum Attenuation (db/km)			
	Loose Tubes		Tight Buffered	
	850 nm	1300 nm	850 nm	1300 nm
50/125	3.5	1.5	3.5	1.5
62.5/125	3.5	1.5	3.5	1.5
Singlemode	1310 nm	1550 nm	1310 nm	1550 nm
9/125	0.45	0.4	0.5	0.45

## Optical Performance Characteristics

It is TYCOELECTRONICS policy to offer a wide range of options to suit the individual needs of each APPLICATION. The tables below show the main fibre options, but as new fibre grades are continually developed please ask if you require a fibre not shown.

50/125 Multi-mode Fibres	Bandwidth (MHz x Km)		Max Link Length For 1Gbit/s (m)		Max. Attenuation Per Fibre (db/km) (Incoming Fibre)		Diameter (µm)		
	850nm	1300nm	850nm	1300nm	850nm	1300nm	Core	Cladding	Coating
EN 50173/ISO 11801									
<b>OM1</b>	400	600	500	550	≤2.4	≤0.6	50 ± 3	125 ± 2	245 ± 10
<b>OM1</b>	400	800	500	550	≤2.4	≤0.6	50 ± 3	125 ± 2	245 ± 10
<b>OM2</b>	500	500	550	550	≤2.4	≤0.6	50 ± 3	125 ± 2	245 ± 10
<b>OM2</b>	600	1200	600	600	≤2.4	≤0.6	50 ± 3	125 ± 2	245 ± 10
<b>OM2 Laser Optimised</b>	600	1200	750	2000	≤2.4	≤0.6	50 ± 3	125 ± 2	245 ± 10
<b>OM3 (Values for 10 Gbit/s)</b>	1500	500	300	-	≤2.7	≤0.7	50 ± 3	125 ± 2	245 ± 10

62.5/125 Multi-mode Fibres	Bandwidth (MHz x Km)		Max Link Length For 1Gbit/s (m)		Max. Attenuation Per Fibre (db/km)		Diameter (µm)		
	850nm	1300nm	850nm	1300nm	850nm	1300nm	Core	Cladding	Coating
EN 50173/ISO 11801									
-	160	200	220	-	≤2.8	≤0.1	62.5 ± 3	125 ± 2	245 ± 10
-	160	500	220	-	≤2.8	≤0.1	62.5 ± 3	125 ± 2	245 ± 10
<b>OM1</b>	200	500	300	550	≤2.8	≤0.1	62.5 ± 3	125 ± 2	245 ± 10
<b>OM1</b>	200	600	300	550	≤2.8	≤0.1	62.5 ± 3	125 ± 2	245 ± 10
<b>OM2 Laser Optimised</b>	250	800	400	1000	≤2.8	≤0.1	62.5 ± 3	125 ± 2	245 ± 10

9/125 Single-Mode Fibres	Chromatic Dispersion		Cut-off Wavelength (nm)	Point Discontinuity (db/km)	Max. Attenuation Per Fibre (db/km)		Diameter (µm)		
	1310nm	1550nm			850nm	1300nm	Core	Cladding	Coating
EN 50173/ISO 11801									
<b>OS1 Standard</b>	≤3.5	≤18	≤1260	≤0.1	≤0.38	≤0.24	9.2 ± 0.4	125 ± 1	245 ± 5

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<b>Name</b>	Customer Drawing	<b>Checked</b>	D. Walker	29.03.04	B - JZ00-0008-04	
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# Fibre Optic Loose Tube Cables (1 - 24 Fibers)



<b>OS1 Low attenuation</b>	≤3.5	≤18	≤1260	≤0.1	≤0.33	≤0.21	9.2 ± 0.4	125 ± 1	245 ± 5
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## Appendix: Optical Fiber Specifications

### Materials:

The optical fiber shall be ultra-pure silica glass with a diameter of 125µm surrounded with an acrylate coating to a diameter of 250µm. Optical fibers are silica glass surrounded by acrylate coating. The tight-buffer material is a flame rated PVC. Strength members are aramid yarns. Central members are glass-reinforced plastic (GRP). Cable and sub-unit jackets are flame-rated Low Smoke Zero Halogen

### Description:

TYCO ELECTRONICS fiber optic cables contain optical fibers for use in all optical fiber applications – local area networks (LANs), wide area networks (WANs), and many others. TYCO ELECTRONICS optical fibers support a complete range of applications including Ethernet, Fast Ethernet, Gigabit Ethernet, 10Gigabit Ethernet, FDDI and many others.

### Standards Compliance:

TYCO ELECTRONICS fibers are designed and tested to conform to the fiber performance requirements of the TIA/EIA B, ISO 11801. Accordingly, the fibers meet or exceed all of the performance requirements for current and proposed applications such as Ethernet (including 10 Gigabit Ethernet), ATM, Fibre Channel, FDDI and others. Singlemode, 50/125µm, (850nm laser-optimized 50/125µm) and 62.5/125µm fibers are all available. Optical fibers with different performance specifications, if needed, are also available.

Specifications subject to change without notice.

All stated mechanical specifications unless otherwise stated are considered nominal and are subject to normal manufacturing tolerances.

On the web: <http://www.tycoelectronics-fibreable.co.uk>

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<b>Drawing no</b>	<b>114-92006</b>	<b>Drawn</b>	G. Briscoe	29.03.04	<b>Revision Record</b>	<b>Drawing Location:</b>
<b>Name</b>	Customer Drawing	<b>Checked</b>	D. Walker	29.03.04	B - JZ00-0008-04	
<b>Revision</b>	B	<b>Approved</b>	A. Gibbons	29.03.04	A - ORIGINAL	<b>Sheet 5 of 5</b>