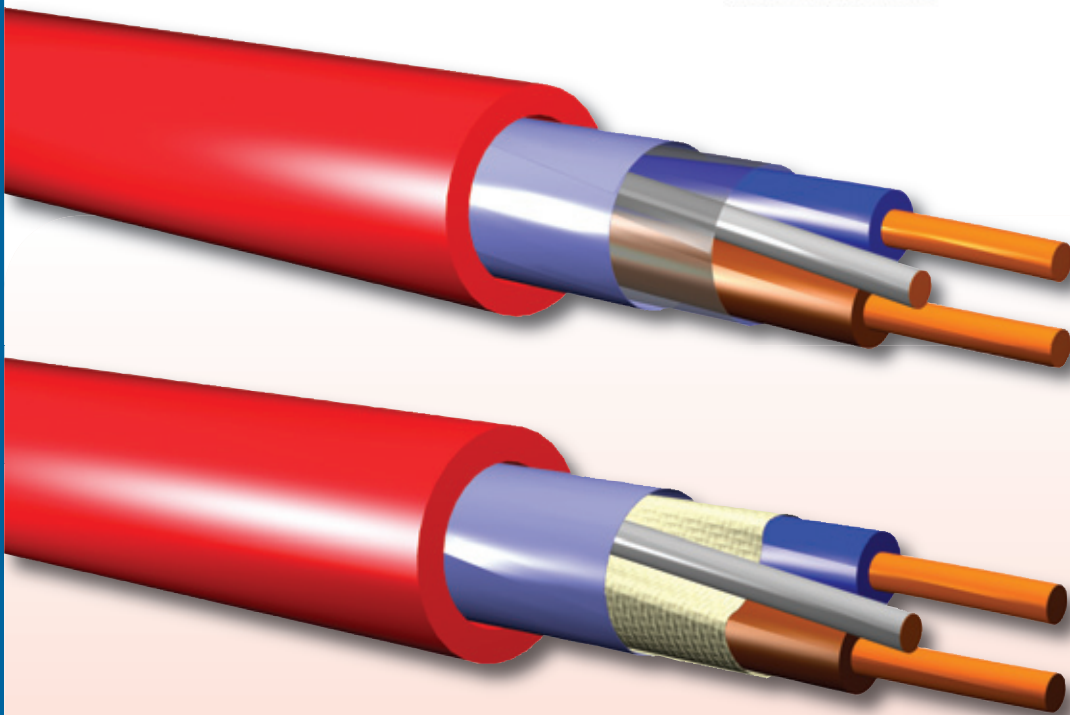




# **FIRESAFE**

## **CABLES**



**Firesafe TW100**

**Firesafe TW950s**

**Firesafe TW950e**

**Firesafe OPTI**

**T: 01246 858000**

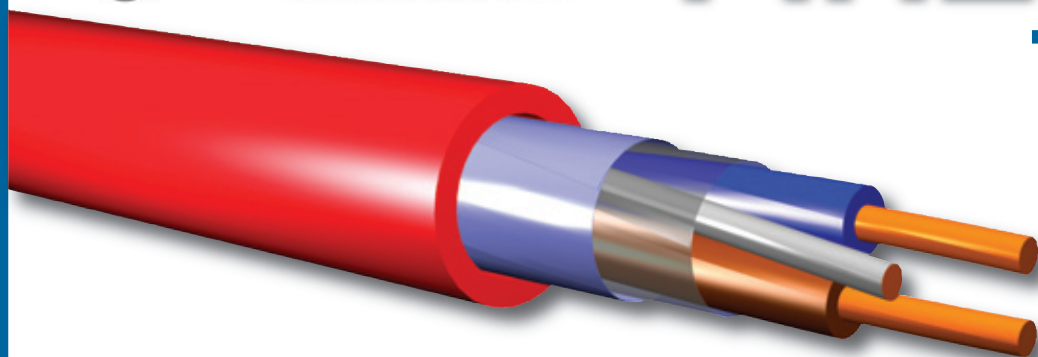
**F: 01246 858001**

**[www.tratos.co.uk](http://www.tratos.co.uk)**



# FIRESAFE

## TW950s



### Construction

- 1 - Plain Annealed Copper Conductor
- 2 - Silicone Insulated
- 3 - Tinned Annealed Copper Drain Wire
- 4 - Electrostatic Screen
- 5 - Thermoplastic LSZH Sheath

### Sheath Colours Available:

Red or White standard; Black, other colours and external grade available to order.

### Core Colours:

- 2 core and Earth: Brown & Blue
- 3 core and Earth: Brown, Black & Grey
- 4 core and Earth: Brown, Blue, Black & Grey



FIRESAFE TW950s fire resistant cable has been designed to meet the latest standards for fire detection and alarm systems in BS5839 Part 1 standard grade and for use in emergency lighting BS5266 Part 1 and is manufactured and tested to BS7629.

Applications include public buildings, schools, hospitals, department stores, cinemas, hotels, theatres, computer centres etc.

### Approvals

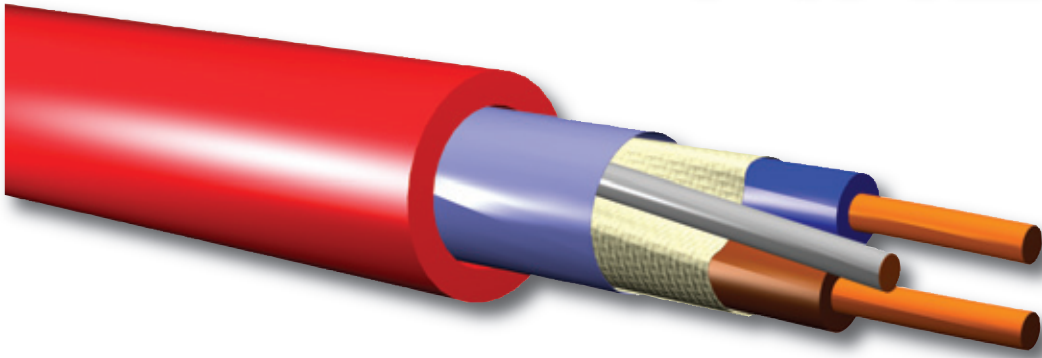
1. In meeting the requirements of BS7629, the FIRESAFE TW950 cables listed met the requirements of smoke density of BS7622-2:1993, fire resistance requirements CWZ in Clause 11 of BS6387:1994 and achieved less than 0.5% HCl on the (outer covering, binder tape & insulation) when tested in accordance with BS6425-1:1990.
2. The duration of 30 minutes when tested in accordance with BS8434-1:2003 is achieved by 15 minutes for the fire and impact phase and an additional 15 minutes for the fire, impact and water phase as described in Clause 26.2d of BS5839-1:2002.
3. The FIRESAFE TW950 cables listed conform to BS7629, met Class PH30 when tested in accordance with EN 50200:2000 and met the 30 minute duration when tested in accordance with BS8434-1:2003 and hence met the requirements for a standard fire resistant cable as described in Clause 26.2 of BS5839-1:2002.

**For technical details see tables page 6**



# FIRESAFE

## TW950e



### Construction

- 1 - Plain Annealed Copper Conductor
- 2 - Silicone Insulated
- 3 - Mica Glass Fibre Wrap
- 4 - Tinned Annealed Copper Drain Wire
- 5 - Electrostatic Screen
- 6 - Thermoplastic LSZH Sheath

### Sheath Colours Available:

Red or White standard; Black, other colours and external grade available to order.

### Core Colours:

- 2 core and Earth: Brown & Blue
- 3 core and Earth: Brown, Black & Grey
- 4 core and Earth: Brown, Blue, Black & Grey



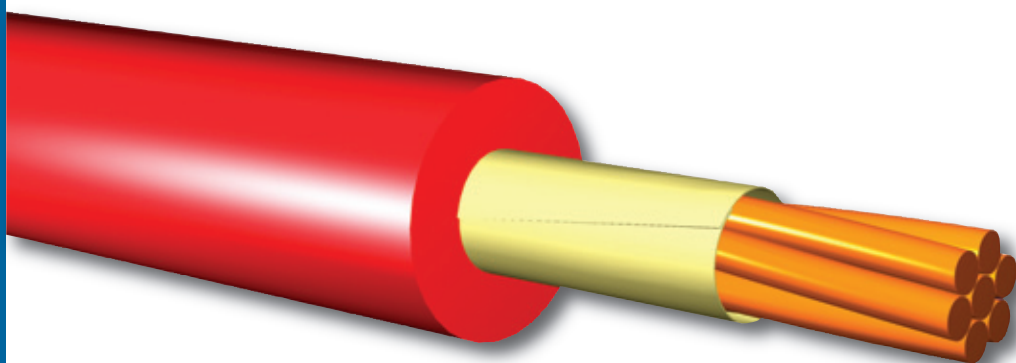
FIRESAFE TW950e is an "Enhanced" fire resistant cable that is recommended for systems needing to operate fully during a fire for longer periods than those normally required for single phase evacuation of a building.

This may include high rise buildings that do not have sprinkler systems and have passed evacuation arrangements, or large premises where areas remote from the fire could remain occupied on the condition the fire does not damage cables serving the alarm system in those areas.

### Approvals

1. In meeting the requirements of BS7629 (Incorporating Amendments Nos. 1 & 2), the FIRESAFE TW950e cables listed met the requirements of smoke density of BS EN 50268-2:2000, fire resistance requirements CWZ in Clause 11 of BS6387:1994 and achieved less than 0.5% HCl on the (outer covering, binder tape & insulation) when tested in accordance with BS EN 50267-2-1:1999.
2. The duration of 120 minutes when tested in accordance with BS8434-1:2003 is achieved by 60 minutes for the fire and impact phase and an additional 60 minutes for the fire, impact and water phase as described in Clause 26.2e of BS5839-1:2002
3. The FIRESAFE TW950e cables listed conform to BS7629 (Incorporating Amendments Nos. 1 & 2), met Class PH120 when tested in accordance with EN 50200:2000 and met the 120 minute duration when tested in accordance with BS8434-2:2003 and hence met the requirements for a standard fire resistant cable as described in Clause 26.2 of BS5839-1:2002.

**For technical details see tables page 7**



### Construction

- 1 - Plain Annealed Copper Conductor
- 2 - Mineral Ceramic Fire Resistant Tape
- 3 - Cross Linked Mineral Insulation

### Colours Available:

Red, Black, Blue, Yellow, Brown, Green/Yellow, other colours available on request.



FIRESAFE TW100 is designed for surface wiring installations where a fire situation may pose a major hazard and the maintenance of circuit integrity is a requirement, and where there is little risk that mechanical damage to the cable may occur.

FIRESAFE TW100 is also suitable for installations in onerous conditions where the cable is protected in metal conduit or trunking.

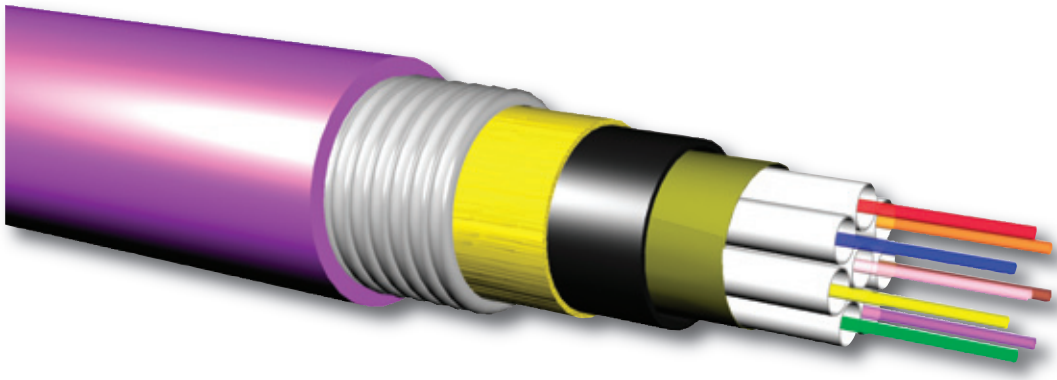
### Manufactured in accordance with the following standards

Fire Resistance:	Meets the requirements of IEC 331 and BS 6387 C, W and Z when tested in steel conduit
Smoke Emission:	Complies with low smoke emissions as of BS 7211
Acid Gas:	Meets acid gas emissions of BS EN 50267 with an HCL level <0.5%

### Voltage and Temperature Rating

Temperature Rating: -25°C up to +90°C  
Voltage: 450/750V

**For technical details see tables page 7**



### Construction

- 1 - 62.5/125 Multimode Fibres
- 2 - Jelly Filled Loose Tube
- 3 - Fire Resistant Wrapping
- 4 - Polyethylene Inner Sheath
- 5 - Aramidic Strength Member
- 6 - Corrugated Steel Tape
- 7 - Low Smoke Zero Halogen Outer Sheath



### Colours Available:

Violet or other colours available to order.

FIRESAFE Opti has been designed for use in areas where optical fibre cables are required to operate in the event of a fire.

For use in railway and highways tunnels, mass transit underground systems, metro lines, ducts and public buildings.

### Testing

Standard CEI IEC 60331-11 Ed. 1999 equivalent CEI 20-36/1-1 Ed. 1 2003-03:

Test for electric cables under fire conditions Part 11 apparatus fire alone at flame temperatures of at least 750°C.

Standard CEI OEC 60331-25 Ed. 1999 equivalent CEI 20-36/2-5 Ed. 1 2002-03:

Test for electrical cables under fire conditions – circuits integrity part 25 procedures and requirements optical fibre cables.

**For technical details see tables page 8**



Glands



P Clips



2 Way Saddles

## Accessories

Cable Size	Gland (pack of 10)	P Clip (pack of 50)	2 Way Saddle (pack of 50)
2 core & earth 1.0mm <sup>2</sup>	TW 251	TW 26L	TW 272L
2 core & earth 1.5mm <sup>2</sup>	TW 251	TW 28L	TW 302L
2 core & earth 2.5mm <sup>2</sup>	TW 251	TW 32L	TW 342L
2 core & earth 4.0mm <sup>2</sup>	TW 252	TW 37L	TW 462L
3 core & earth 1.0mm <sup>2</sup>	TW 251	TW 28L	TW 302L
3 core & earth 1.5mm <sup>2</sup>	TW 251	TW 30L	TW 342L
3 core & earth 2.5mm <sup>2</sup>	TW 252	TW 34L	TW 322L
3 core & earth 4.0mm <sup>2</sup>	TW 252	TW 43L	TW 462L
4 core & earth 1.0mm <sup>2</sup>	TW 251	TW 30L	TW 342L
4 core & earth 1.5mm <sup>2</sup>	TW 251	TW 34L	TW 342L
4 core & earth 2.5mm <sup>2</sup>	TW 252	TW 37L	TW 422L
4 core & earth 4.0mm <sup>2</sup>	TW 254	TW 51L	TW 542L
7 core & earth 1.0mm <sup>2</sup>	TW 251	TW 37L	TW 382L
7 core & earth 1.5mm <sup>2</sup>	TW 252	TW 40L	TW 422L
7 core & earth 2.5mm <sup>2</sup>	TW 254	TW 43L	TW 462L
12 core & earth 1.5mm <sup>2</sup>	TW 254	TW 67L	TW 592L
12 core & earth 2.5mm <sup>2</sup>	TW 255A	TW 75L	TW 752L
19 core & earth 1.5mm <sup>2</sup>	TW 255A	TW 67L	TW 752L
19 core & earth 2.5mm <sup>2</sup>	TW 255	TW 79L	TW 932L

All accessories available in red or white, other colours to order.

## Cables - Table 1

FIRESAFE TW950s

Cores	Size (mm <sup>2</sup> )	Stranding	Insulation Thickness	Earth Wire (mm)	Overall Diameter (mm)	Weight (Kg/Km)
2	1.0	1/1.13	0.6	1/1.13	7.5	74
2	1.5	1/1.38	0.7	1/1.38	8.4	94
2	2.5	7/0.67	0.8	7/0.67	10.3	143
2	4.0	7/0.85	0.8	7/0.85	11.6	206
3	1.0	1/1.13	0.6	1/1.13	7.9	88
3	1.5	1/1.38	0.7	1/1.38	9.0	123
3	2.5	7/0.67	0.8	7/0.67	11.1	191
3	4.0	7/0.85	0.8	7/0.85	12.5	263
4	1.0	1/1.13	0.6	1/1.13	8.7	109
4	1.5	1/1.38	0.7	1/1.38	9.8	146
4	2.5	7/0.67	0.8	7/0.67	12.0	233
4	4.0	7/0.85	0.8	7/0.85	14.0	320
7	1.5	1/1.38	0.7	1/1.38	12.1	230
7	2.5	7/0.67	0.8	7/0.67	14.5	462
12	1.5	1/1.13	0.7	1/1.13	15.9	365
12	2.5	7/0.67	0.8	7/0.67	19.1	680
19	1.5	1/1.13	0.7	1/1.13	18.3	540
19	2.5	7/0.67	0.8	7/0.67	23.0	1095
27	1.5	1/1.13	0.7	1/1.13	20.3	878
27	2.5	7/0.67	0.8	7/0.67	26.9	1412

# Cables - Table 2

**FIRESAFE TW950e**

Cores	Size (mm <sup>2</sup> )	Stranding	Insulation Thickness	Earth Wire (mm)	Overall Diameter (mm)	Weight (Kg/Km)
2	1.0	1/1.13	0.6	1/1.13	7.5	74
2	1.5	1/1.38	0.7	1/1.38	8.4	94
2	2.5	7/0.67	0.8	7/0.67	10.3	143
2	4.0	7/0.85	0.8	7/0.85	11.6	206
3	1.0	1/1.13	0.6	1/1.13	7.9	88
3	1.5	1/1.38	0.7	1/1.38	9.0	123
3	2.5	7/0.67	0.8	7/0.67	11.1	191
3	4.0	7/0.85	0.8	7/0.85	12.5	263
4	1.0	1/1.13	0.6	1/1.13	8.7	109
4	1.5	1/1.38	0.7	1/1.38	9.8	146
4	2.5	7/0.67	0.8	7/0.67	12.0	233
4	4.0	7/0.85	0.8	7/0.85	14.0	320
7	1.5	1/1.38	0.7	1/1.38	12.1	230
7	2.5	7/0.67	0.8	7/0.67	14.5	462
12	1.5	1/1.13	0.7	1/1.13	15.9	365
12	2.5	7/0.67	0.8	7/0.67	19.1	680
19	1.5	1/1.13	0.7	1/1.13	18.3	540
19	2.5	7/0.67	0.8	7/0.67	23.0	1095
27	1.5	1/1.13	0.7	1/1.13	20.3	878
27	2.5	7/0.67	0.8	7/0.67	26.9	1412

# Cables - Table 3

**FIRESAFE TW100**

Conductor Size (mm <sup>2</sup> )	Stranding	Nominal Cable Diameter (mm)	Conductor Resistance (ohms @ 20°C)	Weight (Kg/Km)
1.5	7/0.53	3.30	12.1	32
2.5	7/0.67	3.75	7.41	43
4.0	7/0.85	4.30	4.61	55
6.0	7/1.04	5.00	3.08	85
10.0	7/1.35	6.80	1.83	146
16.0	7/1.70	8.00	1.15	198

# Cables - Table 4

**CURRENT AND VOLTAGE CHARACTERISTICS**

Conductor Size mm <sup>2</sup>	Enclosed Trunking				Clipped Direct			
	2 Core Cable Single Phase AC or DC		1 x 3 or 4 Core Cable Three Phase		2 Core Cable Single Phase AC or DC		1 x 3 or 4 Core Cable Three Phase	
	AMPS	MV	AMPS	MV	AMPS	MV	AMPS	MV
1.0	19	44	17	38	17	44	15	38
1.5	24	29	22	25	22	29	19	25
2.5	33	18	30	15	30	18	26	15
4.0	45	11	40	9.5	40	11	35	9.5

**CAPACITANCE / RESISTANCE**

Conductor Size mm <sup>2</sup>	Insulation Resistance @ 20°C (MΩ/Km)	Conductor Resistance @ 20°C (Ohms/Km)	Capacitance (pf/mtr) Core/Core	Capacitance (pf/mtr) Core/Core
1.0	300	18.1	95	170
1.5	280	12.1	100	180
2.5	230	7.4	110	215
4.0	200	4.6	140	260

# Cables - Table 5

**FIRESAFE OPTI**

## OPTICAL CHARACTERISTICS

Attenuation range	at 850nm at 1300nm	dB/Km	3.0/3.5 0.7/1.5
Bandwidth	at 850nm at 1300nm	MHz/Km	>160/200 >200/600
Numerical Aperture			0.275 +/- 0.015
Attenuation increase after 90 minutes Flame test and 15 minutes room Temperature (for 8 fibre)	At 1300nm	Maximum Average	+ 0.04 dB + 0.0075 dB

## PHYSICAL CHARACTERISTICS

Core diameter		Micron	
Cladding diameter		Micron	
Core/cladding concentricity error		%	
Core non circularity		%	
Cladding non circularity		%	
Coating diameter		Micron	

## GENERAL CHARACTERISTICS

Proof test		%	> 0.5
Effective group index	at 850nm at 1300nm		1.4970 1.4919
Coating stripability		N	1/5

## TECHNICAL TABLE

No. of Fibres	No. of Fibres per tube	No. of Tubes	Overall Diameter (approx) Mm	Max. pulling Load (N) Static/Dynamic	Minimum Bending Radius (mm) Static/Dynamic	Weight Kg/Km
8	1	8	20.5	3000/4000	430/350	450
16	2	8	20.5	3000/4000	430/350	450
48	6	8	20.5	3000/4000	430/350	450
72	12	6	21.5	3000/4000	430/350	450

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