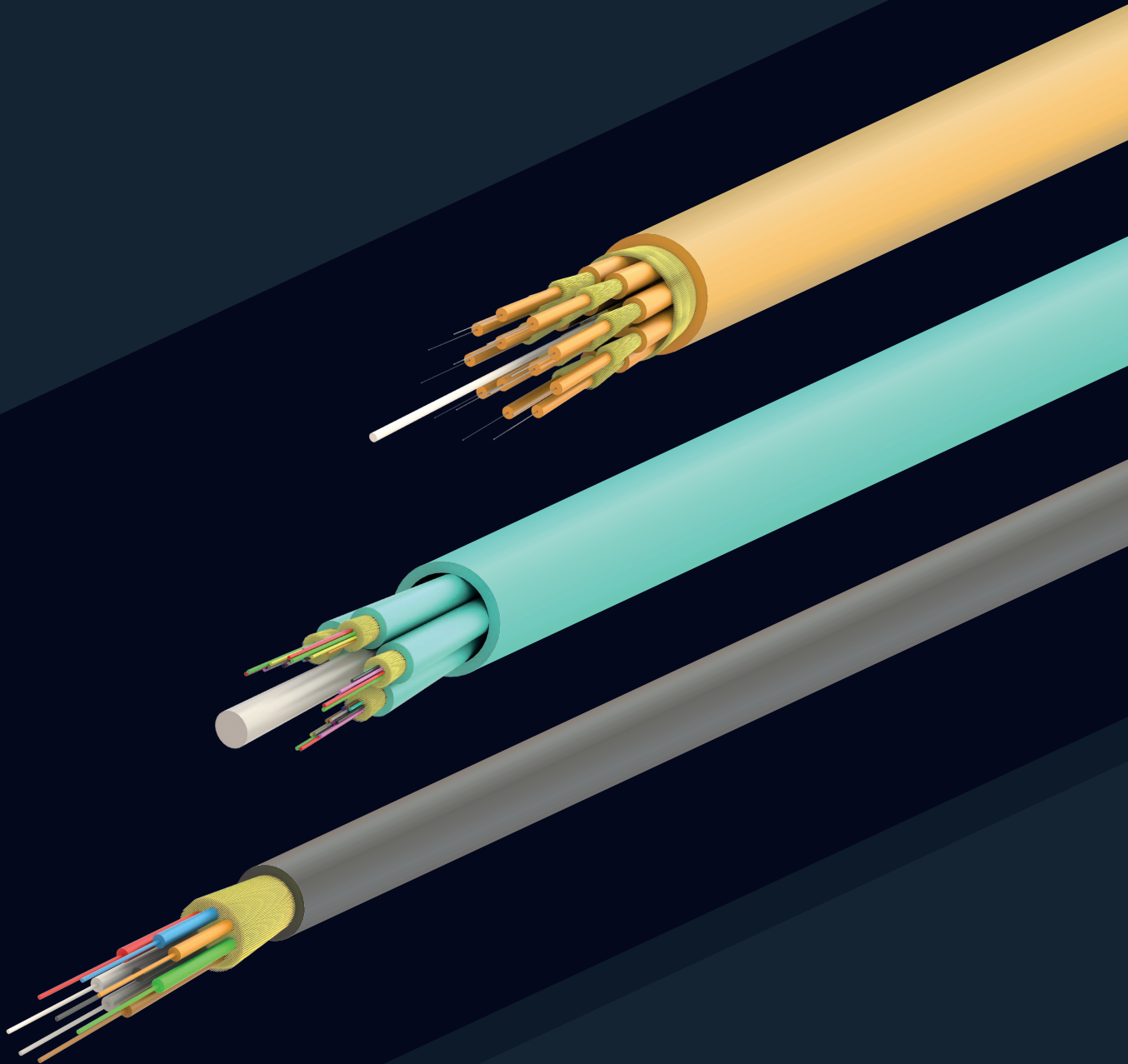




# FIBER OPTIC CABLES



# SPECIAL



Founded in 2003, SAMP Technology offers cutting-edge products and services in the fields of telecommunication infrastructure and data center by producing in line with the expectations and needs of its customers.

With more than 20 years of experience, SAMP Technology has become one of the important suppliers of Europe in terms of capacity, technology and innovation by continuously investing in production, technology, R&D and people.

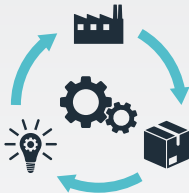
SAMP Teknoloji produces high performance fiber optic cables, fiber optic cable assemblies, data center infrastructure products and structured cabling solutions in its two factories located in the Gosb/Gebze industrial zone.

SAMP also has a ministry-approved research and development center since 2017.



### **20+ Years' Experience**

With more than 200 employees and 2 factories, we have achieved several significant projects in telecommunication fiber optic infrastructure.



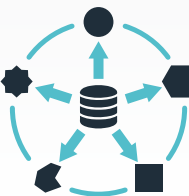
### **World Class Production**

With systematic and scientific methods, we always focus on reaching the highest quality in our fiber optic cable production and assembly lines.



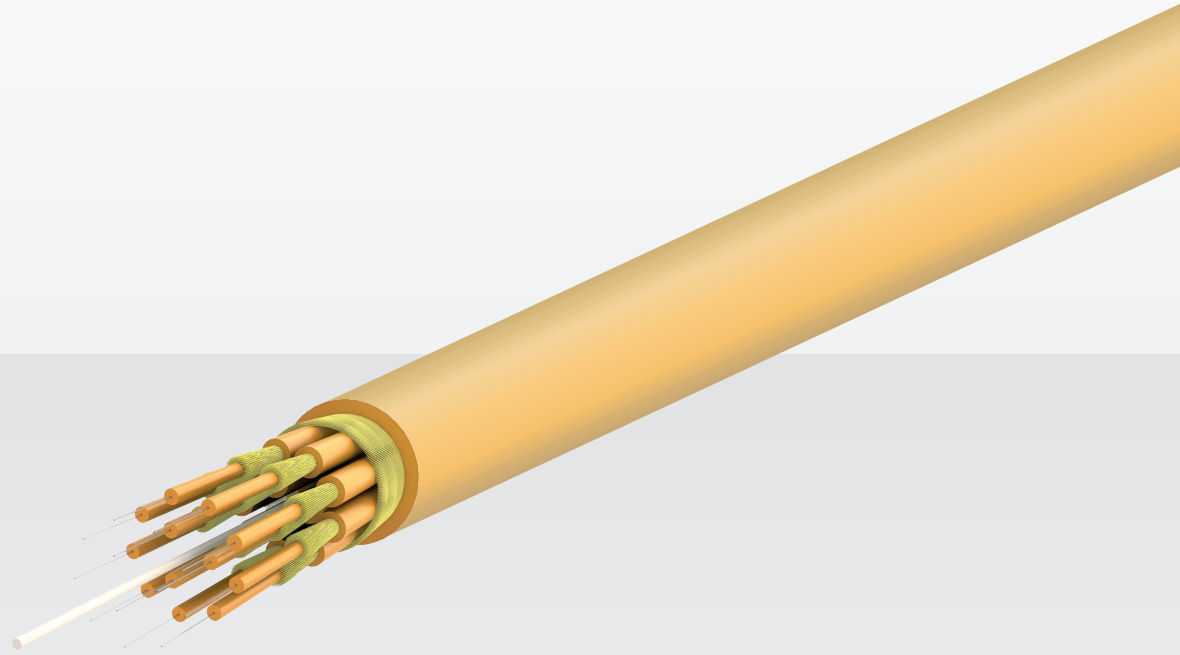
### **Connecting Continents**

An advantageous shipping location, at the intersection of Asia, Europe and the Middle-East.



### **Innovative Solutions**

We are passionate about responding to customer demand and keeping pace with the ever-evolving telecommunication and fiber optic technologies.



# **SPECIAL FIBER OPTIC CABLES**

## Single-mode Fiber Specifications

### Optical Characteristics of Single-mode Fiber

	Conditions	Unit	E9/125			
			G.652.D	G.657.A1	G.657.A2	G.657.B3
Attenuation typical (in cable)	1310 nm	dB/km	≤ 0.34	≤ 0.35	≤ 0.35	≤ 0.35
	1383 nm	dB/km	≤ 0.34	≤ 0.35	≤ 0.35	≤ 0.35
	1550 nm	dB/km	≤ 0.20	≤ 0.21	≤ 0.21	≤ 0.21
	1625 nm	dB/km	≤ 0.24	≤ 0.23	≤ 0.23	≤ 0.23
Attenuation maximum (in cable)	1310 nm	dB/km	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.40
	1383 nm	dB/km	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.40
	1550 nm	dB/km	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
	1625 nm	dB/km	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cable cut-off wavelength $\lambda_{cc}$	standard	nm	≤ 1260	≤ 1260	≤ 1260	≤ 1260
Chromatic dispersion	1285 - 1330 nm	ps/nm × km	≤ 3.50	≤ 3.50	≤ 3.50	≤ 3.50
	1550 nm	ps/nm × km	≤ 18	≤ 18	≤ 18	≤ 18
Zero dispersion wavelength $\lambda_0$	-	-	1300 - 1324	1300 - 1324	1300 - 1324	1300 - 1324
Zero dispersion slope S0 at $\lambda_0$	-	-	≤ 0.092	≤ 0.092	≤ 0.092	≤ 0.092
Polarisation mode dispersion	link value	ps/√km	≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
	individual	ps/√km	≤ 0.10	≤ 0.10	≤ 0.10	≤ 0.10
Mode-field diameter	1310 nm	μm	8.7 - 9.5	8.4 - 9.2	8.4 - 9.2	8.2 - 9.0
	1550 nm	μm	9.8 - 10.8	9.3 - 10.3	9.3 - 10.3	9.1 - 10.1
Macrobending loss r = 5.0 mm, 1 turn	1550 nm	dB	-	-	-	≤ 0.15
	1625 nm	dB	-	-	-	≤ 0.45
Macrobending loss r = 7.5 mm, 1 turn	1550 nm	dB	-	-	≤ 0.50	≤ 0.08
	1625 nm	dB	-	-	≤ 1.0	≤ 0.25
Macrobending loss r = 10 mm, 1 turn	1550 nm	dB	-	≤ 0.75	≤ 0.1	≤ 0.03
	1625 nm	dB	-	≤ 1.50	≤ 0.2	≤ 0.1
Macrobending loss r = 15 mm, 10 turn	1550 nm	dB	-	≤ 0.25	≤ 0.03	≤ 0.02
	1625 nm	dB	-	≤ 1.00	≤ 0.1	≤ 0.05
Macrobending loss r = 16/30 mm, 1/100 turn	1550 nm	dB	≤ 0.05	-	-	-
	1625 nm	dB	≤ 0.05	-	-	-

### Geometrical Characteristics

	Unit	E9/125			
		G.652.D	G.657.A1	G.657.A2	G.657.B3
Cladding diameter	μm	125 ± 0.7		125 ± 0.7	
Coating diameter (uncoloured)	μm	235-250		235-245	
Concentricity error core/cladding	μm	≤ 0.6		≤ 0.5	
Concentricity error cladding/coating	μm	≤ 12.0		≤ 12.0	
Cladding non-circularity	%	≤ 1.0		≤ 0.7	
Coating non-circularity	%	≤ 6.0		≤ 6.0	

## Mechanical and Environmental characteristics

	Unit	E9/125			
		G.652.D	G.657.A1	G.657.A2	G.657.B3
Tensile proof test (fiber elongation $\leq 1\%$ )	N (kpsi)	$\geq 9.0$ (100)			
Operation temperature range $-60$ to $85\text{ }^{\circ}\text{C}$ (1310, 1550 and 1625 nm)	$\Delta$ dB/km	$\leq 0.05$			
Water immersion $23\text{ }^{\circ}\text{C}$ for 30 days (1310, 1550 and 1625 nm)	$\Delta$ dB/km	$\leq 0.05$			

## Specifications

	E9/125			
	G.652.D	G.657.A1	G.657.A2	G.657.B3
Standards	ITU-T G.652.D	ITU-T G.657.A1	ITU-T G.657.A2	ITU-T G.657.B3
	IEC 60793-2-50 B-652.D	IEC 60793-2-50 B-657.A1	IEC 60793-2-50 B-657.A2	IEC 60793-2-50 B-657.B3

## Multi-mode Fiber Specifications

### Optical Characteristics of Multi-mode Fiber

	Conditions	Unit	G62.5/125	G50/125				
			OM1	OM2	OM2+	OM3	OM4	OM5
Effective Modal Bandwidth	850 nm	MHz × km	N/A	N/A	950	2000	4700	4700
Overfilled Modal Bandwidth	850 nm	MHz × km	200	500	700	1500	3500	3500
	1300 nm	MHz × km	500	500	500	500	500	500
1000BASE-SR	850 nm	m	275	500	750	1000	1100	N/S
10GBASE-SR	850 nm	m	N/S	83	150	300	550	N/S
40GBASE-SR4 / 100GBASE-SR10	850 nm	m	N/A	N/A	N/A	140	170	200
Bending loss at 850/1300 nm	r= 37.5 mm	dB	0.5/0.5	0.1/0.2				
	r= 15.0 mm	dB	-	0.1/0.3				
	r= 7.5 mm	dB	-	0.2/0.5				
Attenuation typical (in cable)	850 nm	dB/km	2.6	2.3				
	1300 nm	dB/km	0.5	0.5				
Attenuation maximum (in cable)	850 nm	dB/km	≤ 3	≤ 2.7				
	1300 nm	dB/km	≤ 1.0	≤ 1.0				
Numerical aperture	-	-	0.275±0.015	0.200 ± 0.015				

### Geometrical Characteristics

	Unit	G62.5/125	G50/125				
		OM1	OM2	OM2+	OM3	OM4	OM5
Core diameter	µm	62.5 ± 2.5	50 ± 2.5				
Cladding diameter	µm	125 ± 1	125 ± 1				
Coating diameter	µm	245 ± 7	242 ± 7				
Concentricity error core/cladding	µm	≤ 1.5	≤ 1.0				
Core non-circularity	µm	≤ 5.0	≤ 5.0				
Cladding non-circularity	%	≤ 1.0	≤ 1.0				
Coating non-circularity	%	≤ 6.0	≤ 6.0				

### Mechanical and Environmental Characteristics

	Unit	G62.5/125	G50/125				
		OM1	OM2	OM2+	OM3	OM4	OM5
Coating strip force (Typical/Peak)	N	1.0 to 3.0 / 1.3 to 8.9					
Tensile proof test at fiber elongation ≤ 1 %	N (kpsi)	≥ 9.0 (100)					
Temperature range max. Δ 0.1 dB/km 850/1300 nm	°C	-60 to +85					
Water immersion max. Δ 0.2 dB/km 850/1300 nm	-	23 °C more than 30 days					

### Specifications

Standards	G62.5/125	G50/125				
	OM1	OM2	OM2+	OM3	OM4	OM5
	IEC 60793-2-10	IEC 60793-2-10 (ITU-T G.651.1)				
	A1-OM1	A1-OM2b	A1-OM2b	A1-OM3b	A1-OM4b	A1-OM5b

# Fiber Optic Color Coding

## Fiber Color Coding

ANSI/TIA-598 (Samm Standard)

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

DIN VDE V 0888-100-1-1

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Red	Green	Blue	Yellow	White	Gray	Brown	Violet	Aqua	Black	Orange	Pink

IEC 60794-2

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Yellow	Red	White	Green	Violet	Orange	Gray	Aqua	Black	Brown	Pink

Note: If the color sequence is repeated for fibers 13-24, the fibers are marked with black stripes or dashes.

## Tube Color Coding

ANSI/TIA-598 (Samm Standard)

Number	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

Notes:

- If the color sequence is repeated for fibers 13-24, the fibers are marked with black stripes or dashes.
- If loose tubes are divided into layers, the tube colors restart from 1 for each layer.

## Color Abbreviation According to IEC-60757

Abb.	BU	OG	GN	BN	GY	WH	RD	BK	YE	VT	PK	AQ
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

## Standard Jacket Colors

Abb.	OG	GY	WH	BK	YE	VT	AQ	LG
Color	Orange	Gray	White	Black	Yellow	Violet	Aqua	Lime Green

## Fiber Optic Cable Design Coding Guide

Design Number = **A<sub>1</sub>** **B<sub>1</sub>** **C<sub>1</sub>** **D<sub>1</sub>** **E<sub>1</sub>**

Desing Number Example: 30121901

Design Code = **A<sub>2</sub>** - **B<sub>2</sub>** **C<sub>2</sub>** **D<sub>2</sub>** - **E<sub>2</sub>**

Desing Code Example: A-D1Q(ZN-GY)(SR)2Y-1D250

A <sub>1</sub>	A <sub>2</sub>	Description
1	I	Indoor
2	U	Indoor&Outdoor
3	A	Outdoor
4	IT	Indoor Breakout / Multi Tube
5	UT	Indoor&Outdoor Breakout / Multi Tube
6	AT	Outdoor Breakout / Multi Tube

B <sub>2</sub>	B <sub>1</sub>	Description
01	D1	Gel-Filled Loose Tube-PBT
02	D2	Gel-Filled Loose Tube-PC+PBT
03	D3	Gel-Filled Loose Tube-PA
04	D4	Gel-Filled Loose Tube-LSZH
05	D5	Gel-Filled Loose Tube-PBT-FR
06	B1	Gel-Free Loose Tube-LSZH
07	B2	Gel-Free Loose Tube-PP
08	B3	Gel-Free Loose Tube-LSZH (w/Aramid)
09	B4	Gel-Free Flex Tube-LSZH
10	VS9	Semi-Tight Buffer 900 mic LSZH
11	VT6	Tight Buffer 600 mic LSZH
12	VT9	Tight Buffer 900 mic LSZH
13	WS9	Semi-Tight Buffer 900 mic TPE-E
14	WT6	Tight Buffer 600 mic TPE-E
15	WT9	Tight Buffer 900 mic TPE-E
16	PS9	Semi-Tight Buffer 900 mic PA
17	PT6	Tight Buffer 600 mic PA
18	PT9	Tight Buffer 900 mic PA
19	VE9	Easy Strip Buffer 900 mic LSZH

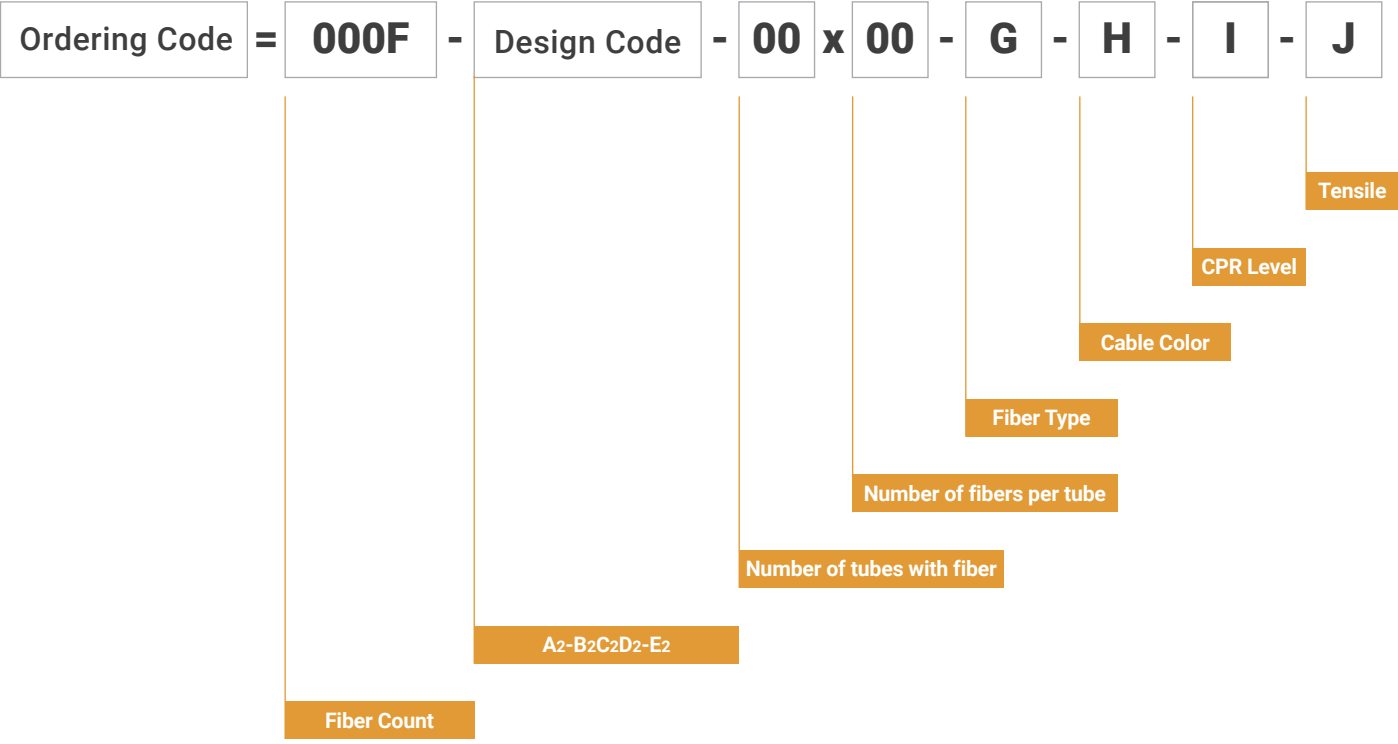
C <sub>1</sub>	C <sub>2</sub>	Description
0		Non-Loose-Tube
1	F	Gel-Filled Core
2	Q	Dry Core

E <sub>1</sub>	E <sub>2</sub>	Description
00		Non-Loose-Tube
01	1D250	1 Gel-filled Loose Tube 2.5 mm
02	1D300	1 Gel-filled Loose Tube 3.0 mm
03	6D200	6 Gel-filled Loose Tube 2.0 mm
04	8D200	8 Gel-filled Loose Tube 2.0 mm
05	12D200	12 Gel-filled Loose Tube 2.0 mm
06	18D200	18 Gel-filled Loose Tube 2.0 mm
07	18D280	18 Gel-filled Loose Tube 2.8 mm
08	24D200	24 Gel-filled Loose Tube 2.0 mm
09	6D170	6 Gel-filled Loose Tube 1.7 mm
10	8D170	8 Gel-filled Loose Tube 1.7 mm
11	12D170	12 Gel-filled Loose Tube 1.7 mm
12	24D170	24 Gel-filled Loose Tube 1.7 mm
13	6D140	6 Gel-filled Loose Tube 1.4 mm
14	8D140	8 Gel-filled Loose Tube 1.4 mm
15	12D140	12 Gel-filled Loose Tube 1.4 mm
16	24D140	24 Gel-filled Loose Tube 1.4 mm
17	24D190	24 Gel-filled Loose Tube 1.9 mm
18	1B250	1 Gel-free Loose Tube 2.5 mm
19	1B300	1 Gel-free Loose Tube 3.0 mm
20	4B200	4 Gel-free Loose Tube 2.0 mm
21	6B200	6 Gel-free Loose Tube 2.0 mm
22	6B250	6 Gel-free Loose Tube 2.5 mm

D <sub>1</sub>	D <sub>2</sub>	Description
01	Y	PVC sheath
02	H	LSZH sheath
03	2Y	PE sheath
04	4Y	PA sheath
05	11Y	PUR sheath
06	(L)2Y	Aluminium multi-layer under PE sheath
07	(SR)2Y	Corrugated steel tape reinforcement under PE sheath
08	(SR)H	Corrugated steel tape reinforcement under LSZH sheath
09	(ZN-AY)2Y	Aramid yarn under PE sheath
10	(ZN-GY)2Y	Glass yarn under PE sheath
11	(ZN-AY)H	Aramid yarn under LSZH sheath
12	(ZN-GY)H	Glass yarn under LSZH sheath
13	(ZM)H	Metallic strain relief element under LSZH sheath
14	(ZN-AY)B2Y	Aramid yarn and rodent protection under PE sheath
15	(ZN-GY)B2Y	Glass yarn and rodent protection under PE sheath
16	(ZN-AY)BH	Aramid yarn and rodent protection under LSZH sheath
17	(ZN-GY)BH	Glass yarn and rodent protection under LSZH sheath
18	(ZN-AY)(SR)2Y	Aramid yarn and corrugated steel tape under PE sheath
19	(ZN-GY)(SR)2Y	Glass yarn and corrugated steel tape under PE sheath
20	(ZN-AY)(SR)H	Aramid yarn and corrugated steel tape under LSZH sheath
21	(ZN-GY)(SR)H	Glass yarn and corrugated steel tape under LSZH sheath
22	-SH	Steel wire for aerial application
23	(ZN-2S)H	Steel strength member under LSZH sheath
24	(ZN-2S)HT	Steel strength member+steel messenger under LSZH sheath
25	(ZN-2P)H	FRP strength member under LSZH sheath
26	(ZN-2P)HT	FRP strength member+steel messenger under LSZH sheath
27	(ZN-AY)HH	Aramid yarn under double LSZH sheath
28	(ZN-GY)HH	Glass yarn under double LSZH sheath
29	(ZN-AY)H(ZN-AY)H	Aramid yarn under LSZH sheath, under, aramid yarn under LSZH sheath
30	(ZN-AY)H(ZN-GY)H	Aramid yarn under LSZH sheath, under, glass yarn under LSZH sheath
31	(ZN-GY)H(ZN-GY)H	Glass yarn under LSZH sheath, under, glass yarn under LSZH sheath
32	(ZN-GY)2Y(SR)2Y	Glass yarn under PE sheath, under, corrugated steel tape under PE sheath
33	(ZN-GY)2YT	Glass yarn under PE sheath with Steel Messenger
34	(ZN-GY)(SR)2YT	Glass yarn and corrugated steel tape under PE sheath with Steel Messenger
35	2Y(ZN-AY)2Y	PE sheath, under, aramid yarn under PE sheath
36	(ZN-AY)H(ZN-GY)BH	Aramid yarn under LSZH sheath, under, glass yarn and rodent protection under LSZH sheath
37	(ZN-AY)H(ZN-GY)H (ZN-GY)BH	Aramid yarn under LSZH sheath, under, glass yarn under LSZH sheath, under, glass yarn and rodent protection under LSZH sheath
38	(ZN-AY)11Y	Aramid yarn under PUR sheath



## Fiber Optic Cable Order Coding Guide



G	Fiber Type
2D	Single Mode G652.D
A1	Single Mode G657.A1
A2	Single Mode G657.A2
B3	Single Mode G657.B3
M1	Multi Mode G651.OM1
M2	Multi Mode G651.OM2
M3	Multi Mode G651.OM3
M4	Multi Mode G651.OM4
M5	Multi Mode G651.OM5

H	Cable Color
BK	Black
YE	Yellow
OG	Orange
AQ	Aqua
VT	Violet
WH	White
IV	Ivory
BU	Blue

I	CPR Level
	B2ca
	Cca
	Dca
	Eca
	Fca

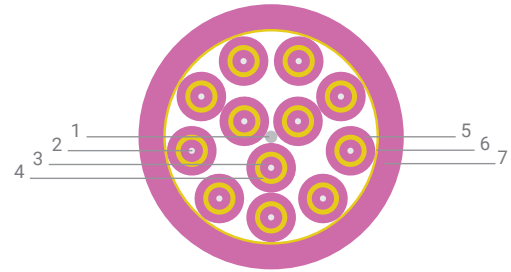
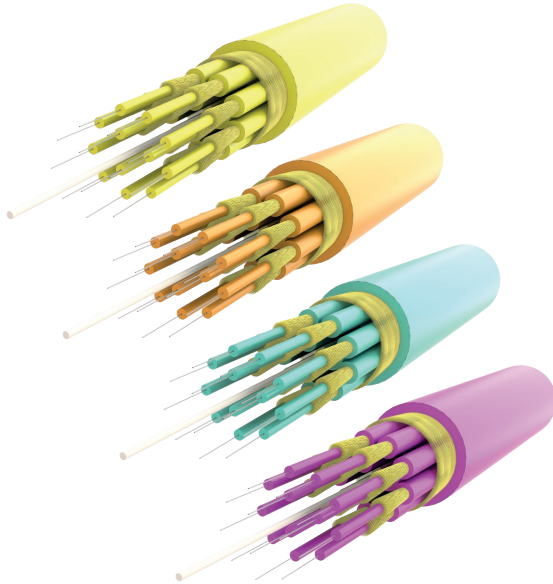
J	Tensile
	kN

**Ordering Code Example:** 012F-A-D1Q(ZN-GY)(SR)2Y-1D250-1x12-2D-BK-Fca-1.2kN

## Breakout Cable up to 24 Fibers

Design Type IT-VT9(ZN-AY)H(ZN-AY)H

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



### Properties

- Metal free indoor cable
- Completely dry design
- For direct connector assembly
- High flexibility and light weight
- Halogen free and non-corrosive fire gases
- Low fire load for high safety requirements
- Jacket material in accordance with UL 94V-0

### Cable Construction

1	Central Strength Member	FRP
2	Fiber	SM or MM (250 μ)
3	Semi-Tight Buffer Tube	900μ LSZH
4	Strength Member	Swellable Aramid Yarn
5	Inner Jacket	LSZH
6	Strength Member	Swellable Aramid Yarn
7	Outer Jacket	LSZH - FR, UV Resistant

### Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

### Mechanical Properties

Test	Conditions	Test Standard	Specified Value (According to Jacket Diameter)			
			7.2 mm	8.5 mm	10.7 mm	14.2 mm
Tensile Force	Installation	IEC 60794-1-21-E1	1300 N	1800 N	2000 N	3000 N
	In Service		600 N	1000 N	1000 N	1500 N
Crush Resistance	Installation	IEC 60794-1-21-E3	7500 N			
	In Service		2000 N			
Impact	-	IEC 60794-1-21-E4	Wp=2.21J, R:30cm, 50 impacts			
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles			
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles			
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles			

## Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-10 to +60 °C
	In Service		-25 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen, 1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	B2ca, s1a, d0, a1 (Dop)

## Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
002F-IT-VT9(ZN-AY)H(ZN-AY)H-2U200-1x2-...-...-B2ca-1.3kN	2	2	2.0	7.2	46
004F-IT-VT9(ZN-AY)H(ZN-AY)H-4U200-1x4-...-...-B2ca-1.3kN	4	4	2.0	7.2	48
006F-IT-VT9(ZN-AY)H(ZN-AY)H-6U200-1x6-...-...-B2ca-1.8kN	6	6	2.0	8.5	70
012F-IT-VT9(ZN-AY)H(ZN-AY)H-12U200-1x12-...-...-B2ca-2.0kN	12	12	2.0	10.7	105
024F-IT-VT9(ZN-AY)H(ZN-AY)H-24U200-1x24-...-...-B2ca-3.0kN	24	24	2.0	14.2	195

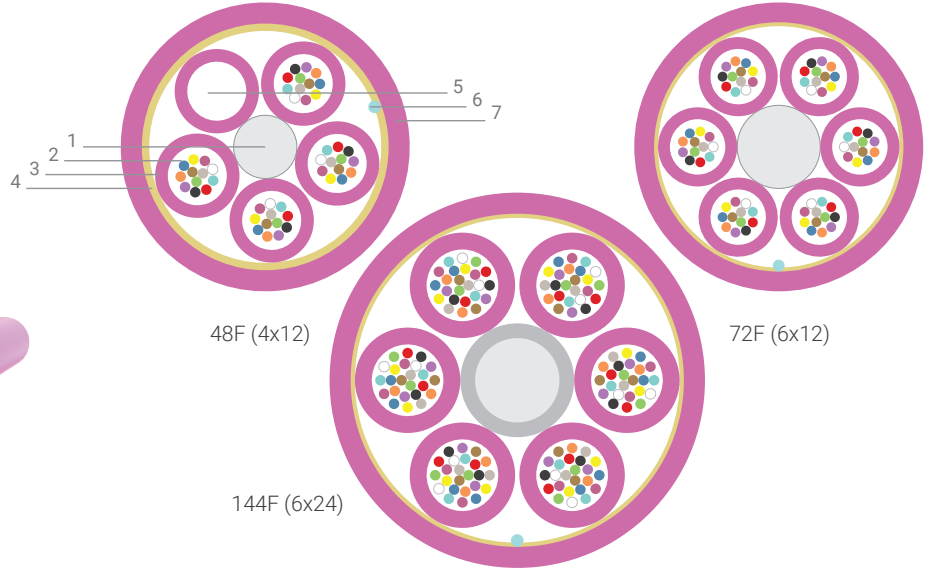
\* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

\* Sample Code: 024F-IT-V(ZN)H(ZN)H-24U200-1x24-A2-YE-B2ca-3.0kN

## Multi Dry Loose Tube Cable up to 144 Fibers

Design Type IT-B1Q(ZN-AY)H

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



### Properties

- Metal free indoor cable
- Completely dry design
- For direct connector assembly
- High flexibility and light weight
- Halogen free and non-corrosive fire gases
- Low fire load for high safety requirements
- Jacket material in accordance with UL 94V-0

### Cable Construction

1	Central Strength Member	FRP
2	Fiber	SM or MM (250 μ)
3	Loose Tube	LSZH
4	Strength Member	Aramid yarn
5	Filler Tube	LSZH
6	Ripcord	Polyester
7	Outer Jacket	LSZH - FR, UV Resistant

### Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

### Mechanical Properties

Test	Conditions	Test Standard	Specified Value (According to Jacket Diameter)		
			6.8 mm	7.3 mm	8.9 mm
Tensile Force	Installation	IEC 60794-1-21-E1	1000 N	1200 N	1200 N
	In Service		500 N	800 N	800 N
Crush Resistance	Installation	IEC 60794-1-21-E3	5000 N		
	In Service		1000 N		
Impact	-	IEC 60794-1-21-E4	Wp=1.0J, R:30cm, 50 impacts		
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles		
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles		
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles		

## Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-10 to +50 °C
	In Service		-10 to +60 °C
	Storage		-20 to +70 °C
Water Penetration	3 meter specimen, 1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	B2ca, s1a, d0, a1

## Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
048F-IT-BQ(ZN)H-5B200-4x12-...-...-B2ca-1.0kN	48	4	1	2.0	6.8	38.5
072F-IT-B1Q(ZN-AY)H-6B200-6x12-...-...-B2ca-1.0kN	72	6	0	2.0	7.3	45.0
144F-IT-B1Q(ZN-AY)H-6B300-6x24-...-...-B2ca-1.2kN	144	6	0	3.0	8.9	67.0

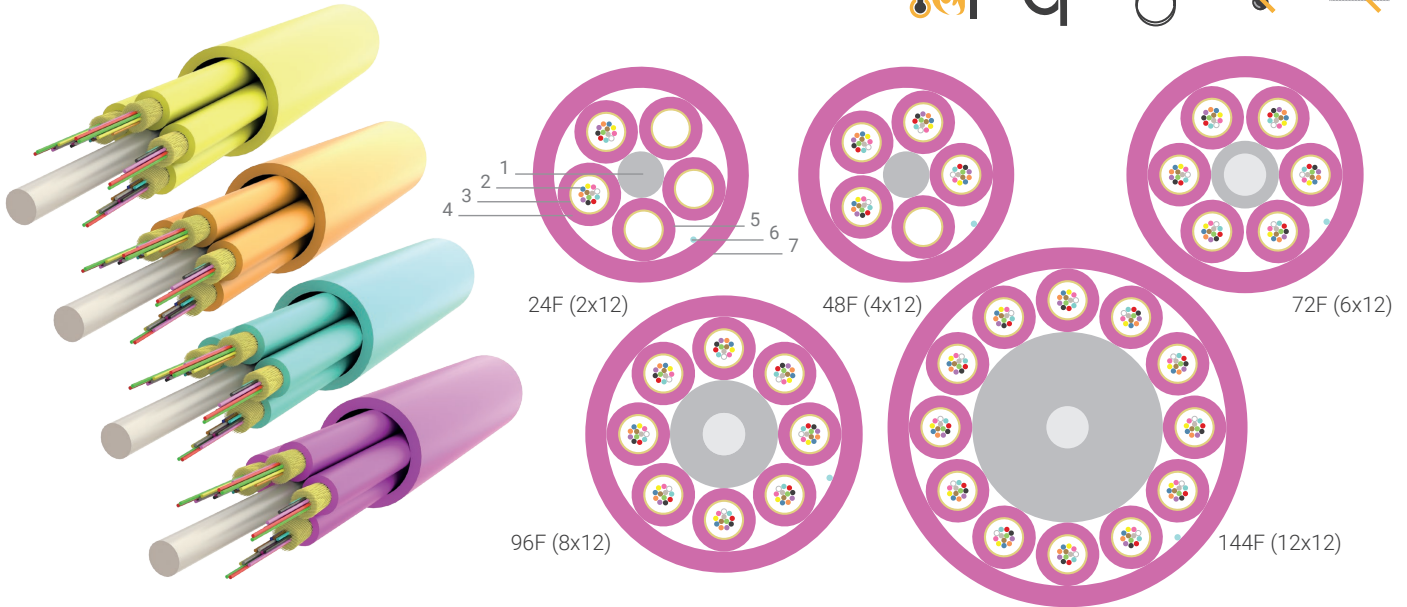
\* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

\* Sample Code: 144F-IT-B1Q(ZN-AY)H-6B300-6x24-A2-YE-B2ca-1.2kN

## Multi-Fiber Breakout Cable up to 144 Fibers

Design Type IT-B3QH

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



### Properties

- Metal free indoor cable
- Completely dry design
- For direct connector assembly
- High flexibility and light weight
- Halogen free and non-corrosive fire gases
- Low fire load for high safety requirements
- Jacket material in accordance with UL 94V-0

### Cable Construction

1	Central Strength Member	FRP
2	Fiber	SM or MM (250 μ)
3	Strength Member	Swellable Aramid yarn
4	Inner Jacket	LSZH UV Resistant
5	Filler Tube	LSZH UV Resistant
6	Ripcord	Polyester
7	Outer Jacket	LSZH - FR, UV Resistant

### Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

### Mechanical Properties

Test	Conditions	Test Standard	Specified Value (According to Jacket Diameter)			
			10.2 mm	11.2 mm	13.1 mm	17.0 mm
Tensile Force	Installation	IEC 60794-1-21-E1	2000 N			
	In Service		1500 N			
Crush Resistance	Installation	IEC 60794-1-21-E3	2200 N			
	In Service		1000 N			
Impact	-	IEC 60794-1-21-E4	Wp=1.0J, R:30cm, 20 impacts			
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles			
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles			
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles			

## Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-5 to +50 °C
	In Service		-20 to +60 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen, 1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	B2ca, s1a, d0, a1

## Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
024F-IT-B3QH-5U200-2x12-...-B2ca-1.0kN	24	2	3	3.0	10.2	93
048F-IT-B3QH-5U200-4x12-...-B2ca-1.0kN	48	4	1	3.0	10.2	95
072F-IT-B3QH-6U200-6x12-...-B2ca-1.0kN	72	6	0	3.0	11.2	115
096F-IT-B3QH-8U200-8x12-...-B2ca-1.0kN	96	8	0	3.0	13.1	136
144F-IT-B3QH-12U200-12x12-...-B2ca-1.0kN	144	12	0	3.0	17.0	275

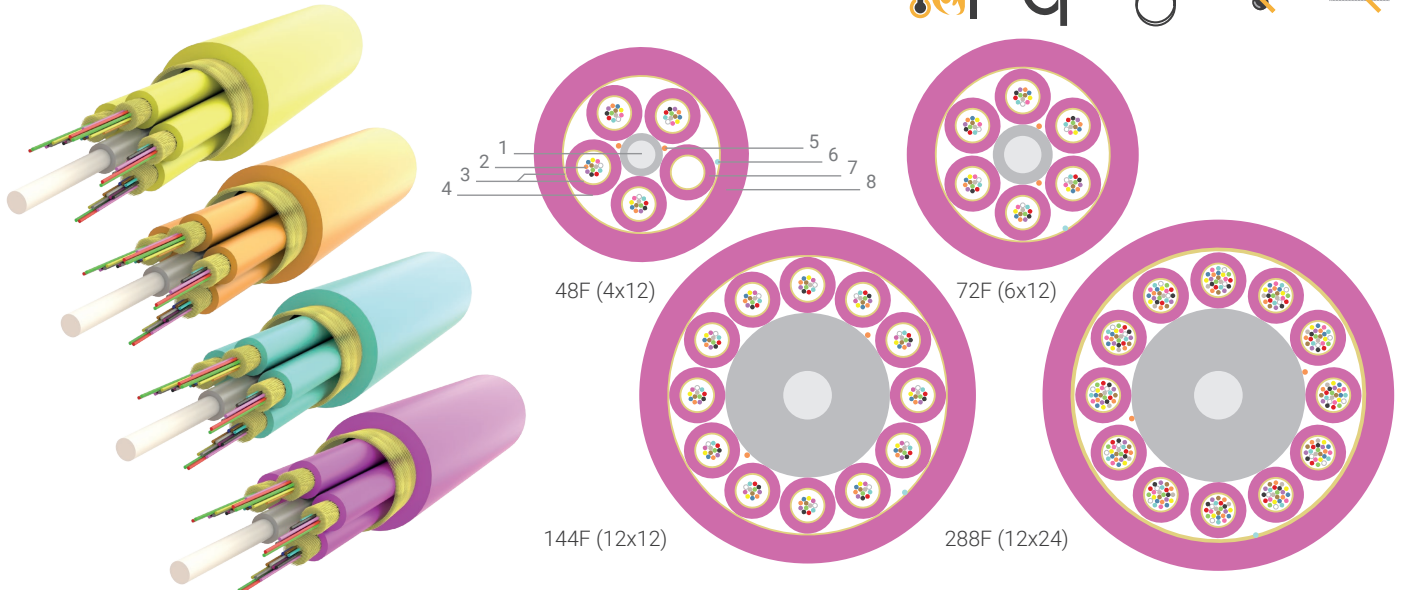
\* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

\* Sample Code: 144F-IT-B3QH-12U200-12x12-A2-YE-B2ca-1.0kN

## Multi-Fiber Breakout Cable up to 288 Fibers

Design Type **UT-B3Q(ZN-AY)H**

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



### Properties

- Metal free indoor cable
- Completely dry design
- For direct connector assembly
- High flexibility and light weight
- Halogen free and non-corrosive fire gases
- Low fire load for high safety requirements
- Jacket material in accordance with UL 94V-0

### Cable Construction

1	Central Strength Member	FRP
2	Fiber	SM or MM (250 μ)
3	Strength Member	Swellable Aramid Yarn
4	Inner Jacket	LSZH UV Resistant
5	Water Blocking Element	Water Swellable Yarn
6	Ripcord	Polyester
7	Filler Tube	LSZH UV Resistant
8	Outer Jacket	LSZH - FR, UV Resistant

### Identification

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

### Mechanical Properties

Test	Conditions	Test Standard	Specified Value (According to Jacket Diameter)			
			11.5 mm	12.4 mm	18.0 mm	18.6 mm
Tensile Force	Installation	IEC 60794-1-21-E1	1800 N	2400 N	2400 N	4000 N
	In Service		1300 N	1500 N	1500 N	3000 N
Crush Resistance	Installation	IEC 60794-1-21-E3	3000 N			
	In Service		1500 N			
Impact	-	IEC 60794-1-21-E4	Wp=2.21J, R:30cm, 20 impacts			
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles			
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles			
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles			



## Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-10 to +50 °C
	In Service		-30 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen, 1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	B2ca, s1a, d0, a1

## Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
048F-UT-B3Q(ZN-AY)H-5U200-4x12-...-...-B2ca-1.8kN	48	4	1	3.0	11.5	124
072F-UT-B3Q(ZN-AY)H-6U200-6x12-...-...-B2ca-2.4kN	72	6	0	3.0	12.4	127
144F-UT-B3Q(ZN-AY)H-12U200-12x12-...-...-B2ca-2.4kN	144	12	0	3.0	18.0	315
288F-UT-B3Q(ZN-AY)H-12U200-12x24-...-...-B2ca-4.0kN	288	24	0	3.0	18.6	350

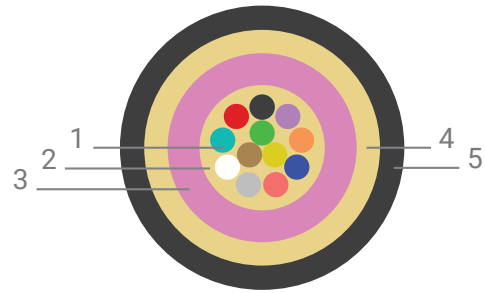
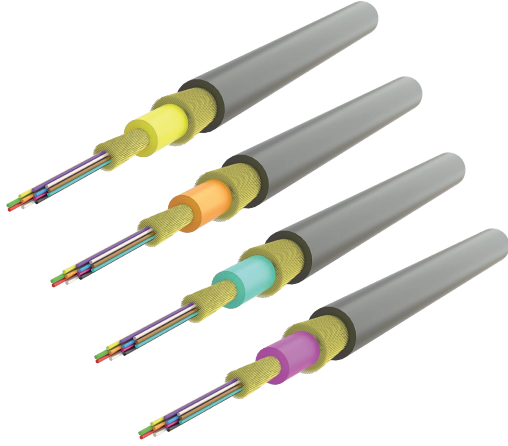
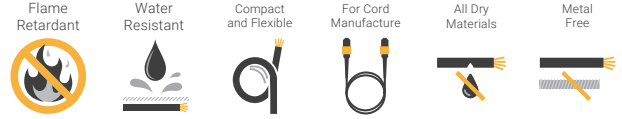
\* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

\* Sample Code: 144F-UT-(ZN)H(ZN)H-12U200-12x12-A2-YE-B2ca-2.4kN

## Ruggedized Distribution Cable up to 24 Fibers

Design Type **U-B3Q(ZN-AY)H**

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



### Properties

- Metal free universal cable with completely dry design
- Designed for direct connector assembly
- High flexibility and light weight
- Halogen free and non-corrosive fire gases
- LSZH flame retardant and self-extinguishing jacket material
- Longitudinal and transversal water resistant cable

### Cable Construction

1	Fiber	SM or MM (250 μ)
2	Strength Member	Swellable Aramid Yarn
3	Inner Jacket	LSZH - FR
4	Strength Member	Swellable Aramid Yarn
5	Outer Jacket	LSZH - FR, UV Resistant

### Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

### Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	800 N
	In Service		400 N
Crush Resistance	Installation	IEC 60794-1-21-E3	2200 N
	In Service		1100 N
Impact	-	IEC 60794-1-21-E4	Wp=2.21J, R:30cm, 50 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

## Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-10 to +50 °C
	In Service		-20 to +60 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen, 1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

## Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
004F-U-B3Q(ZN-AY)H-1U300-1x4-...-...-Eca-0.5kN	4	1	3.0	4.8	23
008F-U-B3Q(ZN-AY)H-1U300-1x8-...-...-Eca-0.5kN	8	1	3.0	4.8	23
012F-U-B3Q(ZN-AY)H-1U300-1x12-...-...-Eca-0.5kN	12	1	3.0	4.8	23
024F-U-B3Q(ZN-AY)H-1U300-1x24-...-...-Eca-0.5kN	24	1	3.0	4.8	23

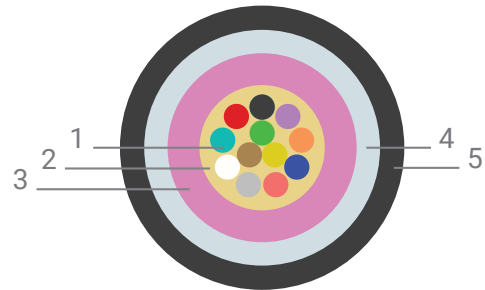
\* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

\* Sample Code: 024F-U-B3Q(ZN-AY)H-1U300-1x24-M3-BK-Eca

## Ruggedized Distribution Cable up to 24 Fibers

Design Type **U-B3Q(ZN-GY)H**

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



### Properties

- Metal free universal cable with completely dry design
- Designed for direct connector assembly
- High flexibility, light weight and rodent protection
- Halogen free and non-corrosive fire gases
- LSZH flame retardant and self-extinguishing jacket material
- Longitudinal and transversal water resistant cable

### Cable Construction

1	Fiber	SM or MM (250 μ)
2	Strength Member	Swellable Aramid Yarn
3	Inner Jacket	LSZH - FR
4	Strength Member	Swellable Glass Yarn
5	Outer Jacket	LSZH - FR, UV Resistant

### Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

### Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	800 N
	In Service		500 N
Crush Resistance	Installation	IEC 60794-1-21-E3	2200 N
	In Service		1100 N
Impact	-	IEC 60794-1-21-E4	Wp=2.21J, R:30cm, 50 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

## Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-10 to +50 °C
	In Service		-20 to +60 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen, 1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

## Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
004F-U-B3Q(ZN-GY)H-1U300-1x4-...-Eca-0.8kN	4	1	3.0	4.8	26
008F-U-B3Q(ZN-GY)H-1U300-1x8-...-Eca-0.8kN	8	1	3.0	4.8	26
012F-U-B3Q(ZN-GY)H-1U300-1x12-...-Eca-0.8kN	12	1	3.0	4.8	26
024F-U-B3Q(ZN-GY)H-1U300-1x24-...-Eca-0.8kN	24	1	3.0	4.8	26

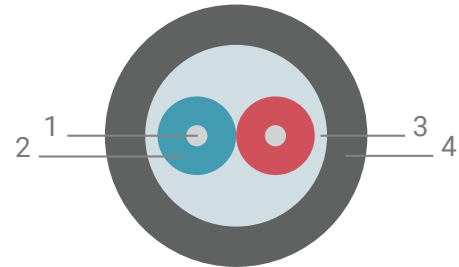
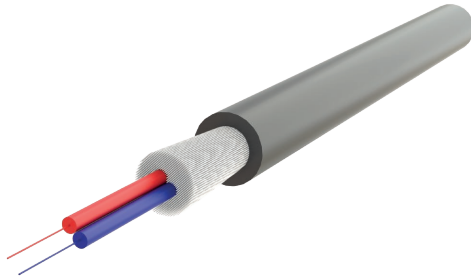
\* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

\* Sample Code: 024F-U-B3Q(ZN-GY)H-1U300-1x24-A2-BK-Eca

## Mini Breakout Cable 2 Fibers

Design Type UT-VT9(ZN-GY)BH

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



### Properties

Metal free universal cable with a completely dry design
Direct connector assembly, high flexibility and light weight
Water swellable glass yarn strength member
Rodent protected glass armour made for vertical applications
Halogen free and non-corrosive fire gases
Low fire load for high safety requirements
Jacket material in accordance with UL 94V-0
LSZH - FR, UV Resistant Outer Jacket

### Cable Construction

1	Fiber	SM or MM (250 μ)
2	Tight Buffer Tube	900μ LSZH
3	Strength Member	Swellable Glass Yarn
4	Outer Jacket	LSZH - FR, UV Resistant

### Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

### Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	800 N
	In Service		500 N
Crush Resistance	Installation	IEC 60794-1-21-E3	100 N
	In Service		70 N
Impact	-	IEC 60794-1-21-E4	Wp=2.21J, R:30cm, 50 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

## Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-40 to +70 °C
	In Service		-40 to +75 °C
	Storage		-40 to +75 °C
Water Penetration	3 meter specimen, 1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

## Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Sub Unit Diameter (mm)	Cable Diameter (mm)	Cable Weight (kg)
002F-UT-VT9(ZN-GY)BH-2U090-1x2-...-...-Eca-0.8kN	2	2	3.0	4.8	27

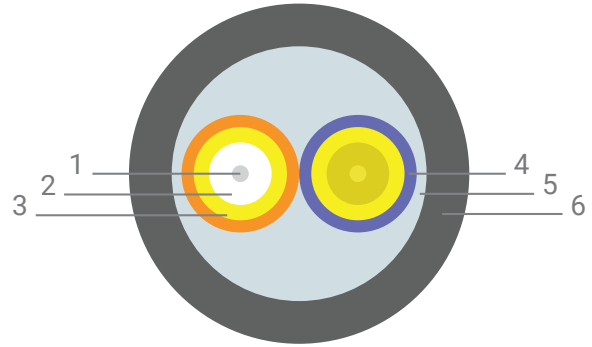
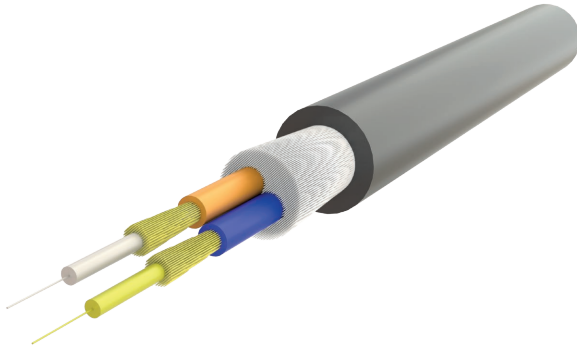
\* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

\* Sample Code: 002F-UT-VT9(ZN-GY)BH-2U090-1x2-M3-BK-Eca-0.8kN

## Breakout Cable 2 Fibers

Design Type **UT-VT9(ZN-AY)H(ZN-GY)BH**

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



### Properties

- Metal free indoor and outdoor cable
- Completely dry design
- Rodent-protected with glass-armoured
- For direct connector assembly with strain relief
- High flexibility and light weight
- Halogen free and non-corrosive fire gases
- Low fire load for high safety requirements
- LSZH - FR, UV Resistant Outer Jacket

### Cable Construction

1	Fiber	SM or MM (250 μ)
2	Tight Buffer Tube	900μ LSZH
3	Strength Member	Aramid
4	Inner Jacket	LSZH
5	Strength Member	Swellable Glass Yarn
6	Outer Jacket	LSZH - FR, UV Resistant

### Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

### Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1600 N
	In Service		800 N
Crush Resistance	Installation	IEC 60794-1-21-E3	3000 N
	In Service		1500 N
Impact	-	IEC 60794-1-21-E4	Wp=2.21J, R:30cm, 50 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles



## Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-10 to +50 °C
	In Service		-30 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen, 1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

## Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
002F-UT-VT9(ZN-AY)H(ZN-GY)BH-2U200-1x2-...-Eca-1.6kN	2	2	0	2.0	7.0	55

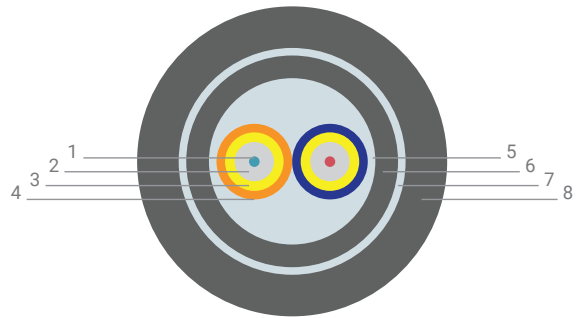
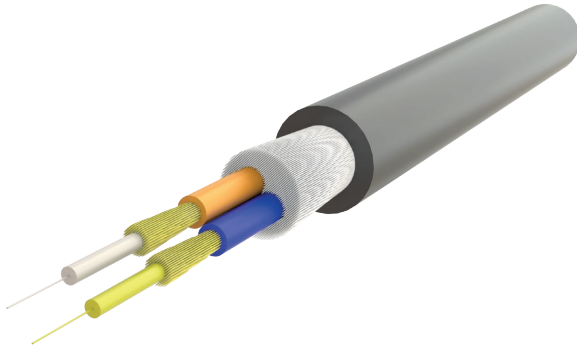
\* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

\* Sample Code: 144F-UT-(ZN)H(ZN)H-12D200-12x12-2D-BK-B2ca-2.4kN

## Ruggedized Breakout Cable | 2 Fibers

Design Type UT-VT9(ZN-AY)H(ZN-GY)H(ZN-GY)BH

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



### Properties

- Metal free indoor and outdoor cable
- Completely dry design
- Rodent-protected with glass-armoured
- For direct connector assembly with strain relief
- High flexibility and light weight
- Halogen free and non-corrosive fire gases
- Low fire load for high safety requirements
- LSZH - FR, UV Resistant Outer Jacket

### Cable Construction

1	Fiber	SM or MM (250 μ)
2	Tight Buffer Tube	900μ LSZH
3	Strength Member	Swellable Aramid
4	Sub-unit Jacket	LSZH
5	Strength Member	Swellable Glass Yarn
6	Inner Jacket	LSZH - FR, UV Resistant
7	Strength Member	Swellable Glass Yarn
8	Outer Jacket	LSZH - FR, UV Resistant

### Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

### Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	2000 N
	In Service		1500 N
Crush Resistance	Installation	IEC 60794-1-21-E3	3000 N
	In Service		1500 N
Impact	-	IEC 60794-1-21-E4	Wp=2.21J, R:30cm, 50 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

## Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	+5 to +50 °C
	In Service		-40 to +70 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen, 1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

## Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
002F-UT-VT9(ZN-AY)H(ZN-GY)H(ZN-GY)BH-2U300-1x2-...-...-Eca-2.0kN	2	2	2.0	8.2	70

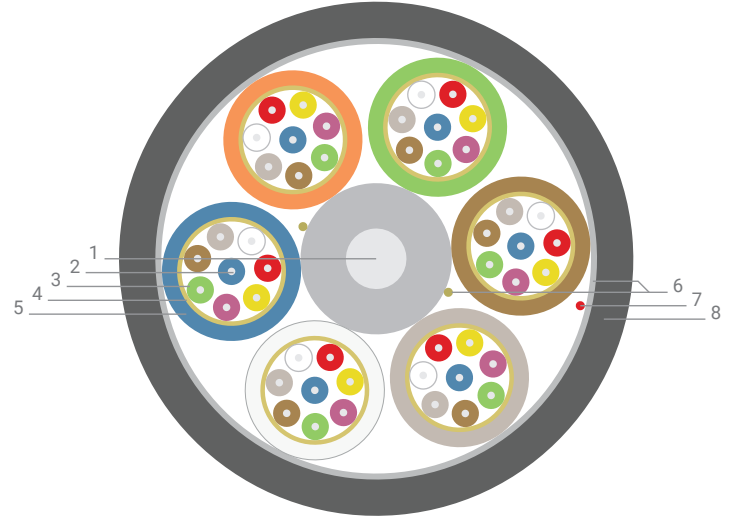
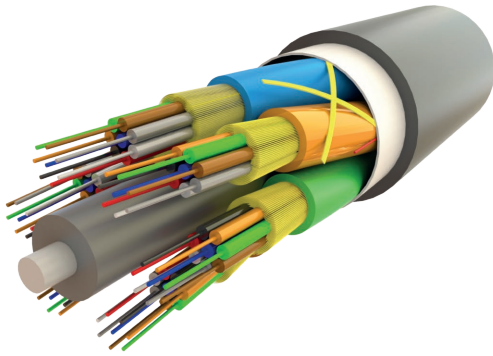
\* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

\* Sample Code: 002F-UT-VT9(ZN-AY)H(ZN-GY)H(ZN-GY)BH-2U300-1x2-M3-BK-Eca-2.0kN

## Multi-Tight Breakout Cable - 48 Fibers

Design Type **UT-VT9(ZN-AY)HH**

Standards: IEC 60794-1 / IEC 60794-6 / IEC 60793-1



### Cable Construction

1	Central Strength Member	FRP
2	Fiber	Single-mode or Multi-mode
3	Tight Buffer	LSZH
4	Strength Member	Swellable Aramid Yarn
5	Sub Unit Sheath	LSZH
6	Water Blocking	Tape & Yarn
7	Ripcord	Polyester
8	Outer Jacket	UV Resistant LSZH

### Properties

- Metal free indoor and outdoor cable with tight buffered fibers
- Aramid yarn strength member
- Halogen free and non-corrosive fire gases
- Low fire load for high safety requirements
- Longitudinal and transversal water resistant cable
- Has a ripcord for easy stripping
- Up to 48 Fiber

### Identification

Print Color	White	(length marking 1 m intervals)
Sub-Unit Identification	Tube Coloring and Fiber Coloring; According to coloring code (ANSI/TIA-598)	
Cable Printing	SAMM, Design Type, Fiber Count, Fiber Type, WO Number, Date, Meter	

### Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	4000 N
	In Service		2000 N
Crush Resistance	Installation	IEC 60794-1-21-E3	3000 N
	In Service		1500 N
Impact	-	IEC 60794-1-21-E4	Wp=2.25J, R:30cm, 10 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

## Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-20 to +60 °C
	In Service		-5 to +50 °C
	Storage		-40 to +70 °C
Water Penetration	3 meter specimen, 1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

## Ordering Codes

Order Code	Fiber Count	Tube Count	Filler Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
048F-UT-VT9(ZN-AY)HH-6U460-6x8-...-...-Eca-4.0kN	48	6	0	4.6	17	245

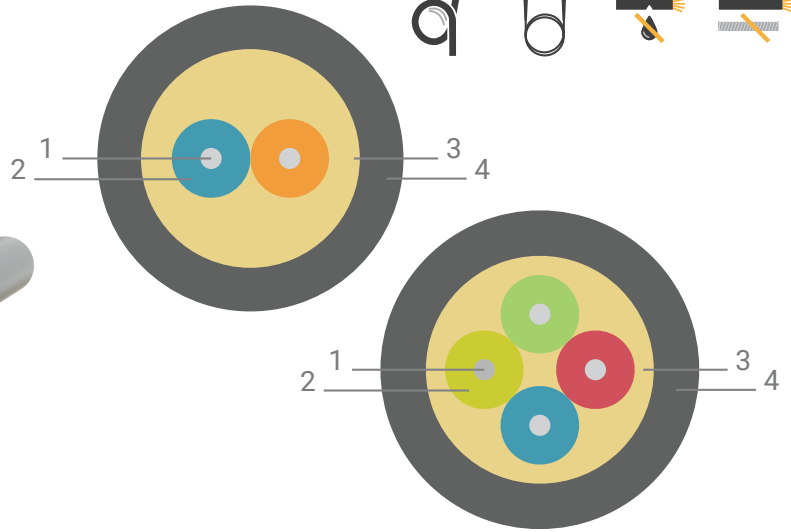
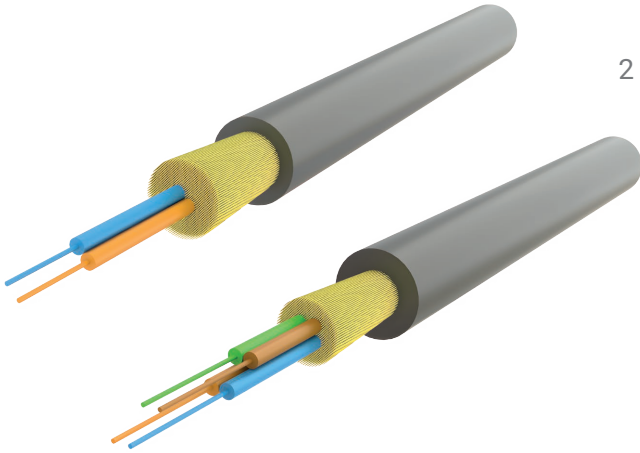
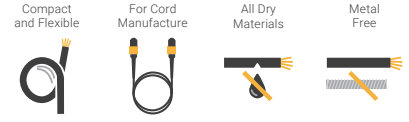
\* Available fiber types are G652.D, G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

\* Sample Code: 048F-UT-VT9(ZN-AY)HH-6U460-6x8-2D-BK-Eca-2.7kN

## Ruggedised PUR Jacket Distribution Cable | 2-4 Fibers

Design Type **UT-WT9(ZN-AY)11Y**

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



### Properties

- High tensile strength with improved crush resistance
- For direct connector assembly and easy stripping
- Excellent coiling capability
- High chemical resistance against acids and alkalis
- For high mechanical and thermal stability
- Metal free, halogen free and non-corrosive fire gases
- UV-protected, outdoor use, and high abrasion and cut resistance
- Suitable for military tactical field use

### Cable Construction

1	Fiber	Single-mode or Multi-mode 245 μ
2	Tight Buffer Tube	900μ TPE
3	Strength Member	Water Blocking Swellable Aramid yarn
4	Outer Jacket	TPU

### Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

### Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1800 N
	In Service		600 N
Crush Resistance	Installation	IEC 60794-1-21-E3	4400 N / 10 cm
	In Service		2000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=2.21J, R:30cm, 300 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles

## Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-10 to +50 °C
	In Service		-46 to +71 °C
	Storage		-54 to +85 °C
Water Penetration	3 meter specimen, 1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

## Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
002F-UT-WT9(ZN-AY)11Y-2U090-1x2-...-Eca-1.8kN	2	2	0.9	5.6	25
004F-UT-WT9(ZN-AY)11Y-4U090-1x4-...-Eca-1.8kN	4	4	0.9	5.8	25

\* Available fiber types are G657.A1, G657.A2, G651.OM2, G651.OM3, G651.OM4

\* Sample Code: 004F-UT-WT9(ZN-AY)11Y-4U090-1x4-A1-BK-Eca-1.8kN

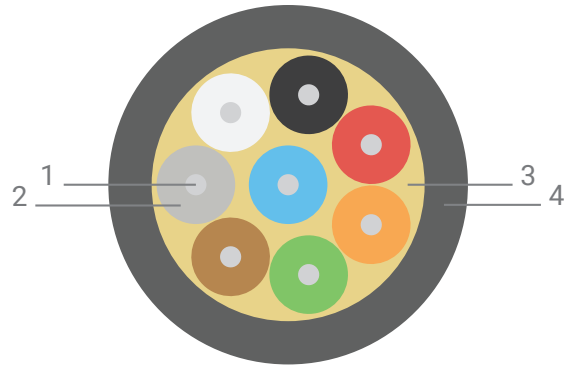
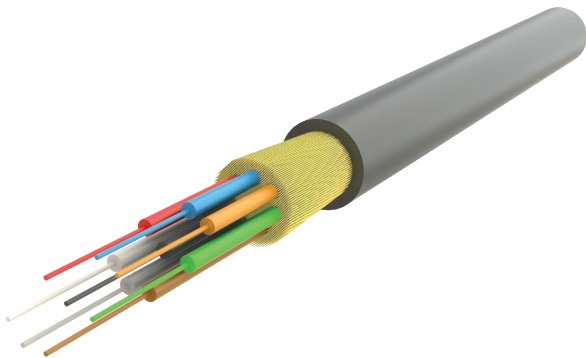
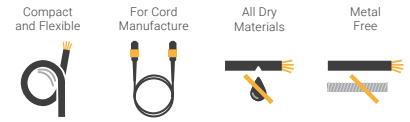
## Available Fiber Types

Fiber Type	Compliance Standards
Single Mode	9/125-A1 IEC 60793-2-50 Type B6_a1 + ITU G.657.A1
	9/125-A2 IEC 60793-2-50 Type B6_a2 + ITU G.657.A2
Multi-Mode	50/125-OM3 IEC 60793-2-10 A1a2 + ITU G.651 BendOptimized
	50/125-OM4 IEC 60793-2-10 A1a3 + ITU G.651 BendOptimized

## Ruggedised PUR Jacket Distribution Cable | 8F

Design Type **UT-WT9(ZN-AY)11Y**

Standards: IEC 60794-1 / IEC 60794-3 / IEC 60793-1



### Properties

- High tensile strength with improved crush resistance
- For direct connector assembly and easy stripping
- Excellent coiling capability
- High chemical resistance against acids and alkalies
- For high mechanical and thermal stability
- Metal free, halogen free and non-corrosive fire gases
- UV-protected, outdoor use, and high abrasion and cut resistance
- Suitable for military tactical field use

### Cable Construction

1	Fiber	Single-mode or Multi-mode 245 μ
2	Tight Buffer Tube	900μ TPE
3	Strength Member	Water Blocking Swellable Aramid yarn
4	Outer Jacket	TPU

### Identification

Print Color/Method	White / Ink-Jet	(length marking 1 m intervals)
Identification	Fiber Coloring according to coloring code ANSI/TIA-598, Jacket coloring according to SAMM color code standards	
Cable Printing	<Item Code> SAMM <Design Type> <Fiber Count> <Fiber Type> <WO-Batch No.> <CPR Class> <Meter Marking>	

### Mechanical Properties

Test	Conditions	Test Standard	Specified Value
Tensile Force	Installation	IEC 60794-1-21-E1	1800 N
	In Service		600 N
Crush Resistance	Installation	IEC 60794-1-21-E3	4400 N / 10 cm
	In Service		2000 N / 10 cm
Impact	-	IEC 60794-1-21-E4	Wp=2.21J, R:30cm, 300 impacts
Repeated Bending	-	IEC 60794-1-21-E6	R= 20 x D, 35 cycles
Torsion	-	IEC 60794-1-21-E7	L:1 m, ±180°, 10 cycles
Cable Bending	-	IEC 60794-1-21-E11A	R= 20 x D, 4 turns, 3 cycles



## Environmental Properties

Property	Conditions	Test Standard	Result / Value
Temperature Range	Installation	IEC 60794-1-22-F12	-10 to +50 °C
	In Service		-46 to +71 °C
	Storage		-54 to +85 °C
Water Penetration	3 meter specimen, 1 m water altitude	IEC 60794-1-2-F5B	No leakage in 24 hours
Fire Propagation	Vertical single cable	IEC 60332-1-2	passed
Smoke Density	-	IEC 61034-2	passed
Halogen Acid Gas	Jacket material	IEC 60754-1	passed
Degree of Acidity	Jacket material	IEC 60754-2	passed
2011/65/EC (RoHS)	-	-	compliant
(EU) No 305/2011 (CPR)	-	EN 50575	Eca

## Ordering Codes

Order Code	Fiber Count	Sub Unit Count	Tube Diameter (mm) nom.	Cable Diameter (mm) nom.	Cable Weight (kg) nom.
008F-UT-WT9(ZN-AY)11Y-8U090-1x8-...-Eca-1.8kN	8	8	0.9	6.5	30

\* Sample Code: 008F-UT-WT9(ZN-AY)11Y-8U090-1x8-A2-BK-Eca-1.8kN

## Available Fiber Types

Fiber Type	Compliance Standards
Single Mode	9/125-A1 IEC 60793-2-50 Type B6_a1 + ITU G.657.A1
	9/125-A2 IEC 60793-2-50 Type B6_a2 + ITU G.657.A2
Multi-Mode	50/125-OM3 IEC 60793-2-10 A1a2 + ITU G.651 BendOptimized
	50/125-OM4 IEC 60793-2-10 A1a3 + ITU G.651 BendOptimized





[telecom.samm.com/create-account](https://telecom.samm.com/create-account)

Create an account to receive our  
news, updates and discounts.

SAMM Teknoloji İletişim San. ve Tic. A.Ş.



## TURKIYE

### Company

SAMM Teknoloji İletişim San. ve Tic. A.Ş.

### Address

GOSB İhsandede Cd. 800. Sok No: 802,  
41400 Gebze-Kocaeli, Türkiye

### Telephone

+90 444 1 726 / +90 (262) 677 16 80  
(Fax) +90 (262) 677 16 81

### Email

info@samm.com

## GERMANY

### Company

SAMM GmbH

### Address

Niederstraße 18  
40789 Monheim/Deutschland

### Telephone

+49 176 814 655 76  
+49 176 814 655 84

### Email

de@samm.com

## Telecom Group

### Website

telecom.samm.com

### Email

telecom@samm.com



Our Website