

Simplex Fiber Cable

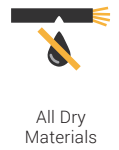
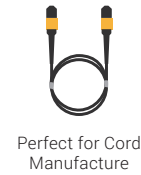
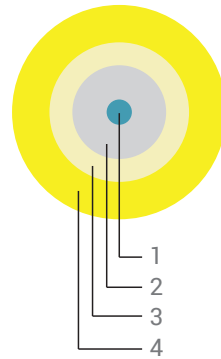
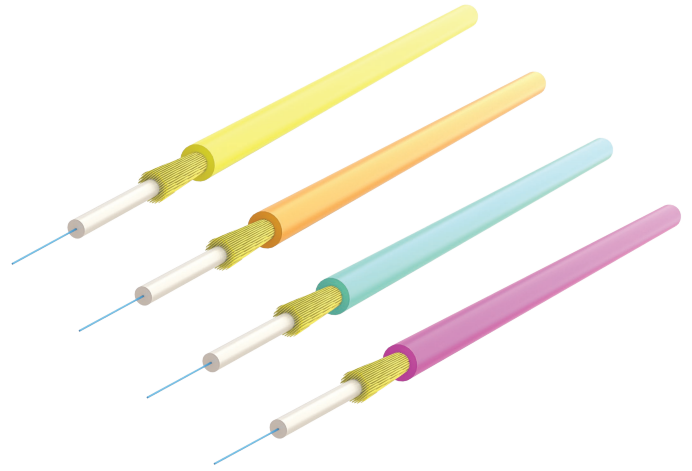
Design Type I-V(ZN)H Indoor

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 Fiber	SM or MM (250 μ)
2 Semi-Tight Buffer Tube	900μ LSZH
3 Strength Member	Aramid yarn
4 Outer Jacket	LSZH



Sheath Marking

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Cable Printing	Manufacturer name, fiber count, fiber type, product code, cable type, date, meter marking	

Optical Characteristics and Physical Properties

Fiber Type		SM	OM1	OM2	OM3	OM4
Jacket Color		Yellow	Orange	Orange	Aqua	Violet
Core Diameter (μm)		9.0 ±0.5	62.5 ±2.5	50 ±2.5	50 ±2.5	50 ±2.5
Cladding Diameter (μm)		125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0
Primary Coating Diameter (μm)		245 ±10	245 ±10	245 ±10	245 ±10	245 ±10
Attenuation (max. in cable) (dB/km)	@1310 nm	≤ 0.40	-	-	-	-
	@1550 nm	≤ 0.30	-	-	-	-
	@850 nm	-	≤ 3.4	≤ 3.0	≤ 3.0	≤ 3.0
	@1300 nm	-	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
Bandwidth (overfilled)	@850 nm	-	200 Mhz*km	500 Mhz*km	1500 Mhz*km	3500 Mhz*km
	@1300 nm	-	500 Mhz*km	500 Mhz*km	500 Mhz*km	500 Mhz*km
Serial Ethernet 1 Gigabit	@850 nm	-	-	-	1000 meters	1040 meters
	@1300 nm	-	-	-	600 meters	600 meters
Serial Ethernet 10 Gigabit	@850 nm	-	-	-	300 meters	550 meters
	@1300 nm	-	-	-	300 meters	300 meters

Mechanical and Environmental Properties

Test	Test Conditions	Type	Value	Unit	Method
Semi Tight Diameter	-	All types	0.9	mm	IEC 60811-203
Approx. Cable Diameter/ Approx. Cable Weight	-	1.8mm 2.0mm 2.7mm	3.5 4.1 7.4	kg/km	IEC 60811-203
Max. Tensile Strength	During installation	1.8 / 2.0	200	N	IEC 60794-1-2 E1
	In service		100		
	During installation	2.7	400	N	IEC 60794-1-2 E1
	In service		200		
Min. Bending Radius	During installation	1.8 / 2.0	50	mm	IEC 60794-1-2 E11
	In service		25		
	During installation	2.7	50	mm	IEC 60794-1-2 E11
	In service		25		
Crush Resistance	Short term	1.8 / 2.0	3000	N/dm	IEC 60794-1-2 E3
	Long term		1000		
	Short term	2.7	4000	N/dm	IEC 60794-1-2 E3
	Long term		1000		
Impact Resistance	Wp=0.5J	1.8 / 2.0	3	impact	IEC 60794-1-2 E4
	Wp=1.0J	2.7	20		
Repeated Bending	r=25mm	All types	5000	cycles	IEC 60794-1-2 E6
Temperature Range	During installation		-10 to +50		
	In service	All types	-25 to +70	°C	IEC 60794-1-22 F1
	In storage		-40 to +70		

Combustion Properties

Fiber Type	Test Conditions	Type	Value	Unit	Result	Method
Fire Load	-	1.8	0.07	Mj/m	-	-
		2.0	0.08			
		2.7	0.15			
Fire Propagation	On a vertical single cable	All types	-	-	passed	IEC 60332-1-2
Smoke Density		All types	-	-	passed	IEC 61034-2
Halogen Acid Gas	Jacket material	All types	-	-	passed	IEC 60754-1
Degree of Acidity	Jacket material	All types	-	-	passed	IEC 60754-2

Cable Coding System

I - 01 - SX - 20 - S9H - A2 - H - YE

Type	Fiber Count	Cable Type	Diameter	Buffer Type	Fiber Type	Sheath Mat.	Color
Indoor: I	1 Fiber: 01	Simplex: SX	1.8 mm: 18 2.0 mm: 20 2.7 mm: 27	S-Tight 900µm: S9H Tight 900µm: T9H	SM G.657 A2: A2 SM G.657 B3: B3 MM G.651 OM1: M1 MM G.651 OM2: M2 MM G.651 OM3: M3 MM G.651 OM4: M4	LSZH: H	Yellow: YE A2 Yellow: YE B3 Orange: OG M1 Orange: OG M2 Aqua: AQ M3 Violet: VT M4

Drop Fiber Cable 2.4 mm

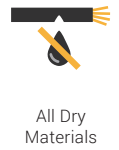
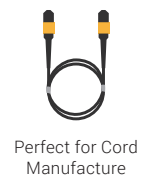
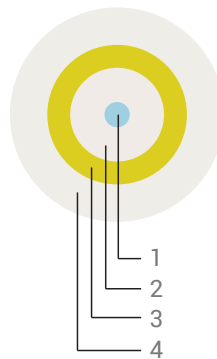
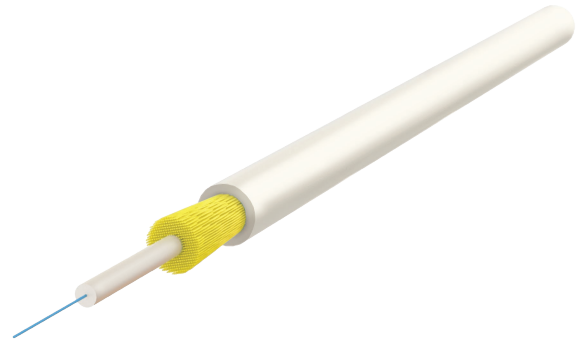
Design Type I-V(ZN)H Indoor 2.4 mm

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 Fiber	SM (250 μ)
2 Semi-Tight Buffer Tube	900μ LSZH
3 Strength Member	Aramid yarn
4 Outer Jacket	LSZH



Sheath Marking

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Cable Printing	Manufacturer name, fiber count, fiber type, product code, cable type, date, meter marking	

Optical Characteristics and Physical Properties

Fiber Type	ITU-T G.657 B3		
Jacket Color	-	Ivory	
Mode Field Diameter (μm)	@1310 nm	8.8 ±0.4	
	@1550 nm	9.8 ±0.5	
Cladding Diameter (μm)	-	125 ±0.7	
Primary Coating Diameter (μm)	-	242 ±5	
Attenuation (max. in cable) (dB/km)	@1310 nm	≤ 0.35	
	@1550 nm	≤ 0.21	
Attenuation with Bending (dB/km)	1 turn on 10 mm radius mandrel	@1550 nm	≤ 0.05
		@1625 nm	≤ 0.1
	1 turn on 7.5 mm radius mandrel	@1550 nm	≤ 0.08
		@1625 nm	≤ 0.15
	1 turn on 5.0 mm radius mandrel	@1550 nm	≤ 0.15
		@1625 nm	≤ 0.25

Mechanical and Environmental Properties

Test	Test Conditions	Value	Unit	Method
Tube Diameter	-	0.9	mm	IEC 60811-203
Cable Diameter	-	2.4 ±0.1	mm	IEC 60811-203
Approx. Weight	-	6.0 ±0.5	kg/km	-
Max. Tensile Strength	During installation	400	N	IEC 60794-1-2 E1
	In service	200		
Min. Bending Radius	During installation	5.0	mm	IEC 60794-1-2 E11
	In service	7.5		
Crush Resistance	Short term	400	N/dm	IEC 60794-1-2 E3
	Long term	200		
Impact Resistance	Wp=1.0 J	3	impact	IEC 60794-1-2 E4
Repeated Bending	r=25mm	5000	cycles	IEC 60794-1-2 E6
Temperature Range	During installation	-10 to +60	°C	IEC 60794-1-22 F12
	In service	-25 to +70		
	In storage	-25 to +70		

Combustion Properties

Fiber Type	Test Conditions	Value	Unit	Result	Method
Fire Load	-	0.17	Mj/m	-	-
Fire Propagation	On a vertical single cable	-	-	passed	IEC 60332-1-2
Smoke Density	-	-	-	passed	IEC 61034-2
Halogen Acid Gas	Jacket material	-	-	passed	IEC 60754-1
Degree of Acidity	Jacket material	-	-	passed	IEC 60754-2

Cable Coding System

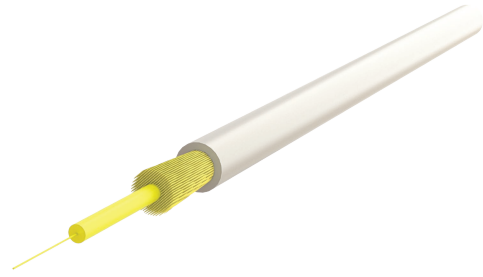
Type	Fiber Count	Cable Type	Diameter	Buffer Type	Fiber Type	Sheath Mat.	Color
Indoor: I	1 Fiber: 01	Simplex: SX	2.4 mm: 24	S-Tight 900µm: S9H Tight 900µm: T9H	SM G.657 B3: B3	LSZH: H	Ivory: IV B3

Drop Fiber Cable 2.7 mm

Design Type I-V(ZN)H Indoor 2.7 mm

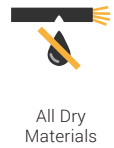
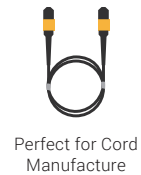
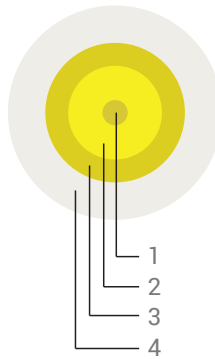
Properties

- 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 Fiber	SM (250 μ)
2 Semi-Tight Buffer Tube	900μ LSZH
3 Strength Member	Aramid yarn
4 Outer Jacket	LSZH



Sheath Marking

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Cable Printing	Manufacturer name, fiber count, fiber type, product code, cable type, date, meter marking	

Optical Characteristics and Physical Properties

Fiber Type	ITU-T G.657 A2	
Jacket Color	-	Ivory
Mode Field Diameter (μm)	@1310 nm	8.8 ±0.4
	@1550 nm	9.8 ±0.5
Cladding Diameter (μm)	-	125 ±0.7
Primary Coating Diameter (μm)	-	242 ±7
Attenuation (max. in cable) (dB/km)	@1310 nm	≤ 0.35
	@1550 nm	≤ 0.22
Attenuation with Bending (dB/km)	1 turn on 10 mm radius mandrel @1550 nm	≤ 0.1
	@1625 nm	≤ 0.2
	1 turn on 7.5 mm radius mandrel @1550 nm	≤ 0.5
	@1625 nm	≤ 1.0
	1 turn on 5.0 mm radius mandrel @1550 nm	-
	@1625 nm	-

Mechanical and Environmental Properties

Test	Test Conditions	Value	Unit	Method
Tube Diameter	-	0.9	mm	IEC 60811-203
Cable Diameter	-	2.7	mm	IEC 60811-203
Approx. Weight	-	7.0	kg/km	-
Max. Tensile Strength	During installation	400	N	IEC 60794-1-2 E1
	In service	200		
Min. Bending Radius	During installation	7.5	mm	IEC 60794-1-2 E11
	In service	10		
Crush Resistance	Short term	4000	N/dm	IEC 60794-1-2 E3
	Long term	1000		
Impact Resistance	Wp=1.0 J	20	impact	IEC 60794-1-2 E4
Repeated Bending	r=25mm	5000	cycles	IEC 60794-1-2 E6
Temperature Range	During installation	-10 to +50	°C	IEC 60794-1-22 F12
	In service	-25 to +70		
	In storage	-25 to +70		

Combustion Properties

Fiber Type	Test Conditions	Value	Unit	Result	Method
Fire Load	-	0.17	Mj/m	-	-
Fire Propagation	On a vertical single cable	-	-	passed	IEC 60332-1-2
Smoke Density	-	-	-	passed	IEC 61034-2
Halogen Acid Gas	Jacket material	-	-	passed	IEC 60754-1
Degree of Acidity	Jacket material	-	-	passed	IEC 60754-2

Cable Coding System

I - 01 - SX - 27 - S9H - A2 - H - IV							
Type	Fiber Count	Cable Type	Diameter	Buffer Type	Fiber Type	Sheath Mat.	Color
Indoor: I	1 Fiber: 01	Simplex: SX	2.7 mm: 27	S-Tight 900µm: S9H Tight 900µm: T9H	SM G.657 A2: A2	LSZH: H	Ivory: IV A2

Duplex Fig8 Fiber Cable 1x2

Design Type I-V(ZN)H Indoor

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

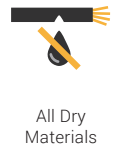
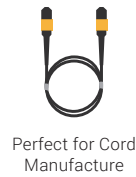
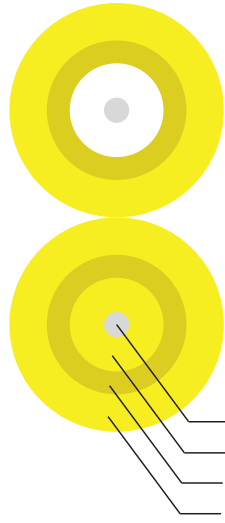
1 Fiber	SM or MM (250 μ)
2 Semi-Tight Buffer Tube	900μ LSZH
3 Strength Member	Aramid yarn
4 Inner Jacket	LSZH

Sheath Marking

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Cable Printing	Manufacturer name, fiber count, fiber type, product code, cable type, date, meter marking	

Optical Characteristics and Physical Properties

Fiber Type		SM	OM1	OM2	OM3	OM4
Jacket Color		Yellow	Orange	Orange	Aqua	Violet
Core Diameter (μm)		9.0 ±0.5	62.5 ±2.5	50 ±2.5	50 ±2.5	50 ±2.5
Cladding Diameter (μm)		125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0
Primary Coating Diameter (μm)		245 ±10	245 ±10	245 ±10	245 ±10	245 ±10
Attenuation (max. in cable) (dB/km)	@1310 nm	≤ 0.40	-	-	-	-
	@1550 nm	≤ 0.30	-	-	-	-
	@850 nm	-	≤ 3.4	≤ 3.0	≤ 3.0	≤ 3.0
	@1300 nm	-	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
Bandwidth (overfilled)	@850 nm	-	200 Mhz*km	500 Mhz*km	1500 Mhz*km	3500 Mhz*km
	@1300 nm	-	500 Mhz*km	500 Mhz*km	500 Mhz*km	500 Mhz*km
Serial Ethernet 1 Gigabit	@850 nm	-	-	-	1000 meters	1040 meters
	@1300 nm	-	-	-	600 meters	600 meters
Serial Ethernet 10 Gigabit	@850 nm	-	-	-	300 meters	550 meters
	@1300 nm	-	-	-	300 meters	300 meters



Mechanical and Environmental Properties

Test	Test Conditions	Type	Value	Unit	Method
Approx. Cable Diameter	-	1.8x3.7mm	6.6	kg/km	IEC 60811-203
Approx. Cable Weight	-	2.0x4.1mm	9.0		
Max. Tensile Strength	During installation	All Types	400	N	IEC 60794-1-2 E1
	In service		200		
Min. Bending Radius	During installation	All Types	50	mm	IEC 60794-1-2 E11
	In service		25		
Crush Resistance	Short term	All Types	4000	N/dm	IEC 60794-1-2 E3
	Long term		1000		
Impact Resistance	Wp=0.74J	All Types	40	impact	IEC 60794-1-2 E4
	Wp=1J		20		
Repeated Bending	r=25mm w=0.5 kg	All Types	5000	cycles	IEC 60794-1-2 E6
Temperature Range	During installation	All types	-10 to +50	°C	IEC 60794-1-22 F1
	In service		-25 to +70		
	In storage		-40 to +70		

Combustion Properties

Fiber Type	Test Conditions	Type	Value	Unit	Result	Method
Fire Load	-	1.8x3.7	0.13	Mj/m	-	-
		2.0x4.1	0.22			
		2.7x5.5	0.34			
Fire Propagation	On a vertical single cable	-	-	-	passed	IEC 60332-1-2
Smoke Density	Jacket material	All types	-	-	passed	IEC 61034-2
Halogen Acid Gas	Jacket material	All types	-	-	passed	IEC 60754-1
Degree of Acidity	Jacket material	All types	-	-	passed	IEC 60754-2

Cable Coding System

I - 02 - ZX - 2041 - S9H - A2 - H - YE

Type	Fiber Count	Cable Type	Diameter	Buffer Type	Fiber Type	Sheath Mat.	Color
Indoor. I	2 Fibers: 02	Duplex: ZX	1.8x3.7 mm: 1837 2.0x4.1 mm: 2041	S-Tight 900µm: S9H Tight 900µm: T9H	SM G.657 A2: A2 SM G.657 B3: B3 MM G.651 OM1: M1 MM G.651 OM2: M2 MM G.651 OM3: M3 MM G.651 OM4: M4	LSZH: H	Yellow: YE A2 Yellow: YE B3 Orange: OG M1 Orange: OG M2 Aqua: AQ M3 Violet: VT M4

Duplex Fig0 Fiber Cable 1x2

Design Type I-V(ZN)H Indoor

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

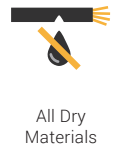
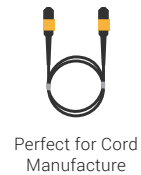
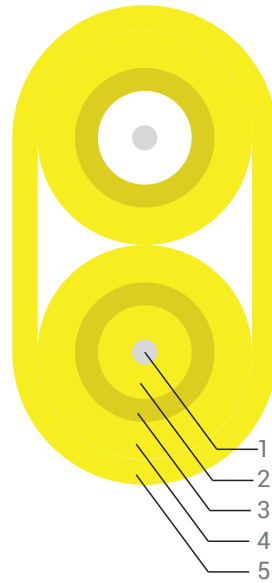
1 Fiber	SM or MM (250 μ)
2 Semi-Tight Buffer Tube	900μ LSZH
3 Strength Member	Aramid yarn
4 Inner Jacket	LSZH
5 Outer Jacket	LSZH

Sheath Marking

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Cable Printing	Manufacturer name, fiber count, fiber type, product code, cable type, date, meter marking	

Optical Characteristics and Physical Properties

Fiber Type		SM	OM1	OM2	OM3	OM4
Jacket Color		Yellow	Orange	Orange	Aqua	Violet
Core Diameter (μm)		9.0 ±0.5	62.5 ±2.5	50 ±2.5	50 ±2.5	50 ±2.5
Cladding Diameter (μm)		125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0
Primary Coating Diameter (μm)		245 ±10	245 ±10	245 ±10	245 ±10	245 ±10
Attenuation (max. in cable) (dB/km)	@1310 nm	≤ 0.40	-	-	-	-
	@1550 nm	≤ 0.30	-	-	-	-
	@850 nm	-	≤ 3.4	≤ 3.0	≤ 3.0	≤ 3.0
	@1300 nm	-	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
Bandwidth (overfilled)	@850 nm	-	200 Mhz*km	500 Mhz*km	1500 Mhz*km	3500 Mhz*km
	@1300 nm	-	500 Mhz*km	500 Mhz*km	500 Mhz*km	500 Mhz*km
Serial Ethernet 1 Gigabit	@850 nm	-	-	-	1000 meters	1040 meters
	@1300 nm	-	-	-	600 meters	600 meters
Serial Ethernet 10 Gigabit	@850 nm	-	-	-	300 meters	550 meters
	@1300 nm	-	-	-	300 meters	300 meters



Mechanical and Environmental Properties

Test	Test Conditions	Value	Unit	Method
Sub-unit Diameter	-	2.0	mm	IEC 60811-203
Cable Diameter	-	3.1x5.2	mm	IEC 60811-203
Approx. Weight	-	18	kg/km	-
Max. Tensile Strength	During installation	400	N	IEC 60794-1-2 E1
	In service	200		
Min. Bending Radius	During installation	50	mm	IEC 60794-1-2 E11
	In service	25		
Crush Resistance	Short term	7000	N/dm	IEC 60794-1-2 E3
	Long term	5000		
Impact Resistance	Wp=1.0 J	20	impact	IEC 60794-1-2 E4
Repeated Bending	r=25mm	5000	cycles	IEC 60794-1-2 E6
Temperature Range	During installation	-10 to +50	°C	IEC 60794-1-22 F12
	In service	-25 to +70		
	In storage	-25 to +70		

Combustion Properties

Fiber Type	Test Conditions	Value	Unit	Result	Method
Fire Load	-	0.33	Mj/m	-	-
Fire Propagation	On a vertical single cable	-	-	passed	IEC 60332-1-2
Smoke Density	-	-	-	passed	IEC 61034-2
Halogen Acid Gas	Jacket material	-	-	passed	IEC 60754-1
Degree of Acidity	Jacket material	-	-	passed	IEC 60754-2

Cable Coding System

I - 02 - DX - 3152 - S9H - A2 - H - H - YE

Type	Fiber Count	Cable Type	Diameter	Buffer Type	Fiber Type	Sheath Mat.	Sheath Mat.	Color
Indoor: I	2 Fibers: 02	Duplex Fig 0: DX	3.1x5.2 mm: 3152	S-Tight 900µm: S9H Tight 900µm: T9H	SM G.657 A2: A2 SM G.657 B3: B3 MM G.651 OM1: M1 MM G.651 OM2: M2 MM G.651 OM3: M3 MM G.651 OM4: M4	LSZH: H	LSZH: H	Yellow: YE A2 Yellow: YE B3 Orange: OR M1 Orange: OR M2 Aqua: AQ M3 Violet: VI M4

Duplex Round Fiber Cable 1x2

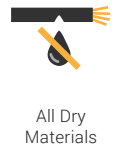
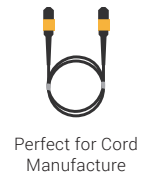
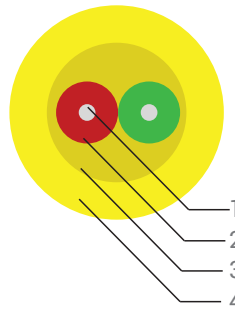
Design Type I-V(ZN)H Indoor

Properties

- Metal free indoor cable
- Completely dry design
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- Low fire load for high safety requirements
- Jacket material in accordance with UL 94V-0

Cable Construction

1 Fiber	SM or MM (250 μ)
2 Semi-Tight Buffer Tube	600μ LSZH
3 Strength Member	Aramid yarn
4 Inner Jacket	LSZH



Sheath Marking

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Cable Printing	Manufacturer name, fiber count, fiber type, product code, cable type, date, meter marking	

Optical Characteristics and Physical Properties

Fiber Type		SM	OM1	OM2	OM3	OM4
Jacket Color		Yellow	Orange	Orange	Aqua	Violet
Core Diameter (μm)		9.0 ±0.5	62.5 ±2.5	50 ±2.5	50 ±2.5	50 ±2.5
Cladding Diameter (μm)		125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0
Primary Coating Diameter (μm)		245 ±10	245 ±10	245 ±10	245 ±10	245 ±10
Attenuation (max. in cable) (dB/km)	@1310 nm	≤ 0.40	-	-	-	-
	@1550 nm	≤ 0.30	-	-	-	-
	@850 nm	-	≤ 3.4	≤ 3.0	≤ 3.0	≤ 3.0
	@1300 nm	-	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
Bandwidth (overfilled)	@850 nm	-	200 Mhz*km	500 Mhz*km	1500 Mhz*km	3500 Mhz*km
	@1300 nm	-	500 Mhz*km	500 Mhz*km	500 Mhz*km	500 Mhz*km
Serial Ethernet 1 Gigabit	@850 nm	-	-	-	1000 meters	1040 meters
	@1300 nm	-	-	-	600 meters	600 meters
Serial Ethernet 10 Gigabit	@850 nm	-	-	-	300 meters	550 meters
	@1300 nm	-	-	-	300 meters	300 meters

Mechanical and Environmental Properties

Test	Test Conditions	Value	Unit	Method
Tight Diameter	-	0.6	mm	IEC 60811-203
Cable Diameter	-	2.1	mm	IEC 60811-203
Approx. Weight	-	4.3	kg/km	-
Max. Tensile Strength	During installation	300	N	IEC 60794-1-2 E1
	In service	150		
Min. Bending Radius	During installation	10	mm	IEC 60794-1-2 E11
	In service	15		
Crush Resistance	Short term	5000	N/dm	IEC 60794-1-2 E3
	Long term	900		
Impact Resistance	Wp=0.5 J	3	impact	IEC 60794-1-2 E4
Repeated Bending	r=25mm	5000	cycles	IEC 60794-1-2 E6
Temperature Range	During installation	-10 to +50	°C	IEC 60794-1-22 F12
	In service	-25 to +70		
	In storage	-25 to +70		

Combustion Properties

Fiber Type	Test Conditions	Value	Unit	Result	Method
Fire Load	-	0.11	Mj/m	-	-
Fire Propagation	On a vertical single cable	-	-	passed	IEC 60332-1-2
Smoke Density	-	-	-	passed	IEC 61034-2
Halogen Acid Gas	Jacket material	-	-	passed	IEC 60754-1
Degree of Acidity	Jacket material	-	-	passed	IEC 60754-2

Cable Coding System

I - 02 - RD - 21 - T6H - A2 - H - YE

Type	Fiber Count	Cable Type	Diameter	Buffer Type	Fiber Type	Sheath Mat.	Color
Indoor. I	2 Fibers: 02	Round Duplex: RD	1.8x3.7 mm: 1837 2.0x4.1 mm: 2041	Tight 600µm: T6H	SM G.657 A2: A2 SM G.657 B3: B3 MM G.651 OM1: M1 MM G.651 OM2: M2 MM G.651 OM3: M3 MM G.651 OM4: M4	LSZH: H	Yellow: YE A2 Yellow: YE B3 Orange: OG M1 Orange: OG M2 Aqua: AQ M3 Violet: VT M4

Distribution Cable up to 24 Fibers

Design Type I-(ZN)H Indoor 3.0 mm

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 Fiber	SM or MM (250 μ)
2 Strength Member	Aramid yarn
3 Outer Jacket	LSZH



Sheath Marking

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Cable Printing	Manufacturer name, fiber count, fiber type, product code, cable type, date, meter marking	

Optical Characteristics and Physical Properties

Fiber Type		SM	OM1	OM2	OM3	OM4
Jacket Color		Yellow	Orange	Orange	Aqua	Violet
Core Diameter (μm)		9.0 ±0.5	62.5 ±2.5	50 ±2.5	50 ±2.5	50 ±2.5
Cladding Diameter (μm)		125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0
Primary Coating Diameter (μm)		245 ±10	245 ±10	245 ±10	245 ±10	245 ±10
Attenuation (max. in cable) (dB/km)	@1310 nm	≤ 0.40	-	-	-	-
	@1550 nm	≤ 0.30	-	-	-	-
	@850 nm	-	≤ 3.4	≤ 3.0	≤ 3.0	≤ 3.0
	@1300 nm	-	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
Bandwidth (overfilled)	@850 nm	-	200 Mhz*km	500 Mhz*km	1500 Mhz*km	3500 Mhz*km
	@1300 nm	-	500 Mhz*km	500 Mhz*km	500 Mhz*km	500 Mhz*km
Serial Ethernet 1 Gigabit	@850 nm	-	-	-	1000 meters	1040 meters
	@1300 nm	-	-	-	600 meters	600 meters
Serial Ethernet 10 Gigabit	@850 nm	-	-	-	300 meters	550 meters
	@1300 nm	-	-	-	300 meters	300 meters

Mechanical and Environmental Properties

Test	Test Conditions	Type	Value	Unit	Method
Jacket Diameter	-	All types	3.0	mm	-
Approx. Weight	-	All types	8.0	kg/km	-
Max. Tensile Strength	During installation	All types	200	N	IEC 60794-1-2 E1
	In service		100		
Min. Bending Radius	During installation	All types	20	mm	IEC 60794-1-2 E11
	In service		10		
Crush Resistance	Short term	All types	1000	N/dm	IEC 60794-1-2 E3
	Long term		100		
Impact Resistance	Wp=0.5 J	All types	50	impact	IEC 60794-1-2 E4
Temperature Range	During installation	All types	-10 to +50	°C	IEC 60794-1-22 F12
	In service		-10 to +60		
	In storage		-20 to +70		

Combustion Properties

Fiber Type	Test Conditions	Value	Unit	Result	Method
Fire Load	-	0.17	Mj/m	-	-
Fire Propagation	On a vertical single cable	-	-	passed	IEC 60332-1-2
Smoke Density	-	-	-	passed	IEC 61034-2
Halogen Acid Gas	Jacket material	-	-	passed	IEC 60754-1
Degree of Acidity	Jacket material	-	-	passed	IEC 60754-2

Cable Coding System

I - 24 - MF - 30 - M4 - H - VT						
Type	Fiber Count	Cable Type	Diameter	Fiber Type	Sheath Mat.	Color
Indoor: I	4 Fiber: 04 8 Fiber: 08 12 Fiber: 12 24 Fiber: 24	Multi Fiber: MF	3.0 mm: 30	SM G.657 A2 : A2 SM G.657 B3 : B3 MM G.651 OM1: M1 MM G.651 OM2: M2 MM G.651 OM3: M3 MM G.651 OM4: M4	LSZH: H	Yellow: YE A2 Yellow: YE B3 Orange: OG M1 Orange: OG M2 Aqua: AQ M3 Violet: VT M4

Mini Breakout Cable up to 24 Fibers

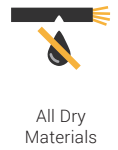
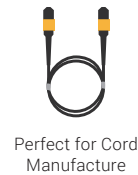
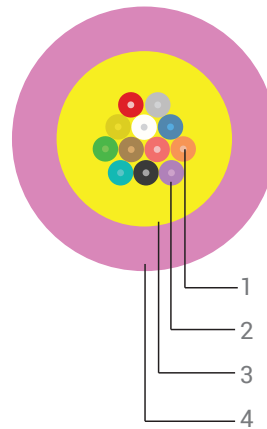
Design Type I-V(ZN)H Indoor

Properties

- Metal free indoor and outdoor 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

Cable Construction

1 Fiber	SM or MM (250 μ)
2 Tight Buffer Tube	900μ LSZH
3 Strength Member	Aramid
4 Outer Jacket	LSZH



Sheath Marking

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Cable Printing	Manufacturer name, fiber count, fiber type, product code, cable type, date, meter marking	

Optical Characteristics and Physical Properties

Fiber Type		SM	OM1	OM2	OM3	OM4
Jacket Color		Yellow	Orange	Orange	Aqua	Violet
Core Diameter (μm)		9.0 ±0.5	62.5 ±2.5	50 ±2.5	50 ±2.5	50 ±2.5
Cladding Diameter (μm)		125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0
Primary Coating Diameter (μm)		245 ±10	245 ±10	245 ±10	245 ±10	245 ±10
Attenuation (max. in cable) (dB/km)	@1310 nm	≤ 0.40	-	-	-	-
	@1550 nm	≤ 0.30	-	-	-	-
	@850 nm	-	≤ 3.4	≤ 3.0	≤ 3.0	≤ 3.0
	@1300 nm	-	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
Bandwidth (overfilled)	@850 nm	-	200 Mhz*km	500 Mhz*km	1500 Mhz*km	3500 Mhz*km
	@1300 nm	-	500 Mhz*km	500 Mhz*km	500 Mhz*km	500 Mhz*km
Serial Ethernet 1 Gigabit	@850 nm	-	-	-	1000 meters	1040 meters
	@1300 nm	-	-	-	600 meters	600 meters
Serial Ethernet 10 Gigabit	@850 nm	-	-	-	300 meters	550 meters
	@1300 nm	-	-	-	300 meters	300 meters

Mechanical and Environmental Properties

Test	Test Conditions	Type	Value	Unit	Method
Tight Diameter	-	All types	0.9	mm	IEC 60811-203
Approx. Cable Diameter - Weight	-	4 Fibers	4.6 - 16	mm - kg/km	IEC 60811-203
		6 Fibers	5.2 - 20		
		8 Fibers	5.8 - 31		
		12 Fibers	6.5 - 42		
		24 Fibers	8.0 - 55		
Max. Tensile Strength	During Installation	All types	800	N	IEC 60794-1-2 E1
	In Service		500		
Min. Bending Radius	During Installation	All types	15xD	mm	IEC 60794-1-2 E11
	In Service		10xD		
Crush Resistance	ShortTerm	All types	4000	N/dm	IEC 60794-1-2 E3
	LongTerm		1500		
Impact Resistance	Wp=2.21J	All types	100	Impact	IEC 60794-1-2 E4
Repeated Bending	r=40mm, weight=1kg	4 Fibers	1000	cycles	IEC 60794-1-2 E6
	r=50mm, weight=1kg	6-24 Fibers	2000		
Temperature Range	During installation	All types	-10 to +50	°C	IEC 60794-1-22 F1
	In service		-20 to +70		
	In storage		-25 to +70		

Combustion Properties

Fiber Type	Test Conditions	Type	Value	Unit	Result	Method
Fire Load	-	4 FO	0.4	Mj/m	-	-
		6 FO	0.7			
		8 FO	0.9			
		12 FO	1.1			
		24 FO	1.7			
Fire Propagation	On a vertical single cable	All types	-	-	passed	IEC 60332-1-2
Smoke Density	-	All types	-	-	passed	IEC 61034-2
Halogen Acid Gas	Jacket material	All types	-	-	passed	IEC 60754-1
Degree of Acidity	Jacket material	All types	-	-	passed	IEC 60754-2

Cable Coding System

I - 12 - RI - 65 - T9H - M4 - H - VT

Type	Fiber Count	Cable Type	Diameter	Buffer Type	Fiber Type	Sheath Mat.	Color
Indoor: I	4 Fiber: 04 6 Fiber: 06 8 Fiber: 08 12 Fiber: 12 24 Fiber: 24	Riser: RI	4.6 mm: 46 5.2 mm: 52 5.8 mm: 58 6.5 mm: 65 8.0 mm: 80	S-Tight 900µm: S9H Tight 900µm: T9H	SM G.657 A2: A2 SM G.657 B3: B3 MM G.651 OM1: M1 MM G.651 OM2: M2 MM G.651 OM3: M3 MM G.651 OM4: M4	LSZH: H	Yellow: YE A2 Yellow: YE B3 Orange: OG M1 Orange: OG M2 Aqua: AQ M3 Violet: VT M4

Breakout Cable up to 24 Fibers

Design Type I-V(ZN)H Indoor

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

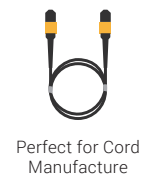
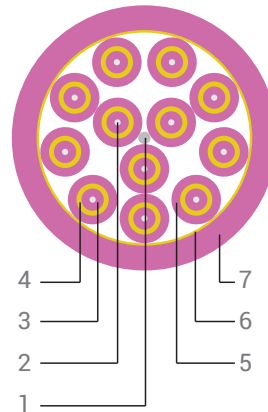
1	Central Strength Member	FRP
2	Fiber	SM or MM (250 μ)
3	Semi-Tight Buffer Tube	900μ LSZH
4	Strength Member	Swellabe Aramid Yarn
5	Inner Jacket	LSZH
6	Strength Member	Swellabe Aramid Yarn
7	Outer Jacket	LSZH - FR, UV Resistant

Sheath Marking

Print Color/Method	Black / Ink-Jet	(length marking 1 m intervals)
Cable Printing	Manufacturer name, fiber count, fiber type, product code, cable type, date, meter marking	

Optical Characteristics and Physical Properties

Fiber Type		SM	OM1	OM2	OM3	OM4
Jacket Color		Yellow	Orange	Orange	Aqua	Violet
Core Diameter (μm)		9.0 ±0.5	62.5 ±2.5	50 ±2.5	50 ±2.5	50 ±2.5
Cladding Diameter (μm)		125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0
Primary Coating Diameter (μm)		245 ±10	245 ±10	245 ±10	245 ±10	245 ±10
Attenuation (max. in cable) (dB/km)	@1310 nm	≤ 0.40	-	-	-	-
	@1550 nm	≤ 0.30	-	-	-	-
	@850 nm	-	≤ 3.4	≤ 3.0	≤ 3.0	≤ 3.0
	@1300 nm	-	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
Bandwidth (overfilled)	@850 nm	-	200 Mhz*km	500 Mhz*km	1500 Mhz*km	3500 Mhz*km
	@1300 nm	-	500 Mhz*km	500 Mhz*km	500 Mhz*km	500 Mhz*km
Serial Ethernet 1 Gigabit	@850 nm	-	-	-	1000 meters	1040 meters
	@1300 nm	-	-	-	600 meters	600 meters
Serial Ethernet 10 Gigabit	@850 nm	-	-	-	300 meters	550 meters
	@1300 nm	-	-	-	300 meters	300 meters



Mechanical and Environmental Properties

Test	Test Conditions	Type	Value	Unit	Method
Sub-unit Diameter	-	All types	2.0	mm	-
Approx. Cable Diameter - Weight	-	2F	7.2 - 46	mm - kg/km	-
		4F	7.2 - 48		
		6F	8.5 - 70		
		12F	10.7 - 105		
		24F	14.2 - 195		
Max. Tensile Strength	During installation / In service	2F	1300/600	N	IEC 60794-1-2 E1
		4F	1300/600		
		6F	1800/1000		
		12F	2000/1000		
		24F	3000/1500		
Min. Bending Radius	During installation	All types	15xD	mm	IEC 60794-1-2 E11
	In service		10xD		
Crush Resistance	Short term	All types	7500	N/dm	IEC 60794-1-2 E3
	Long term		2000		
Impact Resistance	Wp=2,21 J	All types	50	impact	IEC 60794-1-2 E4
Water Penetration	L=1m, 24 h, p<1m		passed		IEC 60794-1-2 F5A
Temperature Range	During installation		-10 to +60	°C	IEC 60794-1-22 F12
	In service	All types	-25 to +70		
	In storage		-40 to +70		

Combustion Properties

Fiber Type	Test Conditions	Type	Value	Unit	Result	Method
Fire Load	-	2 FO	1.09	Mj/m	-	-
		4 FO	1.09			
		6FO	1.72			
		12 FO	3.40			
		24 FO	4.10			
Fire Propagation	On a vertical single cable	All types	-	-	passed	IEC 60332-1-2
Smoke Density	-	All types	-	-	passed	IEC 61034-2
Halogen Acid Gas	Jacket material	All types	-	-	passed	IEC 60754-1
Degree of Acidity	Jacket material	All types	-	-	passed	IEC 60754-2

Cable Coding System

I - 12 - B20 - 107 - T9H - M4 - H - H - VT

Type	Fiber Count	Cable Type	Diameter	Buffer Type	Fiber Type	Sheath Mat.	Sheath Mat.	Color
Indoor: I	2 Fibers: 02 4 Fibers: 04 6 Fibers: 06 12 Fibers: 12 24 Fibers: 24	Breakout 2mm: B20	7.2 mm: 72 7.2 mm: 72 8.5 mm: 85 10.7 mm: 107 14.2 mm: 142	S-Tight 900µm: S9H Tight 900µm: T9H	SM G.657 A2: A2 SM G.657 B3: B3 MM G.651 OM1: M1 MM G.651 OM2: M2 MM G.651 OM3: M3 MM G.651 OM4: M4	LSZH: H	LSZH: H	Yellow: YE A2 Yellow: YE B3 Orange: OG M1 Orange: OG M2 Aqua: AQ M3 Violet: VT M4

Multi Dry Loose Tube Cable up to 144 Fibers

Design Type I-BQ(BN)H Indoor



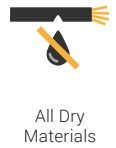
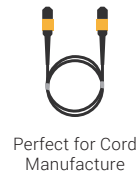
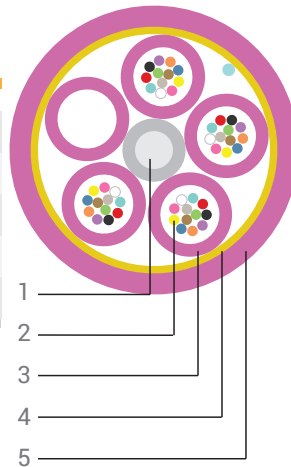
Properties

- 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 Outer Jacket | LSZH - FR, UV Resistant |



Sheath Marking

- | | | |
|--------------------|---|--------------------------------|
| Print Color/Method | Black / Ink-Jet | (length marking 1 m intervals) |
| Cable Printing | Manufacturer name, fiber count, fiber type, product code, cable type, date, meter marking | |

Optical Characteristics and Physical Properties

Fiber Type		SM	OM1	OM2	OM3	OM4
Jacket Color		Yellow	Orange	Orange	Aqua	Violet
Core Diameter (μm)		9.0 ±0.5	62.5 ±2.5	50 ±2.5	50 ±2.5	50 ±2.5
Cladding Diameter (μm)		125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0	125 ±5.0
Primary Coating Diameter (μm)		245 ±10	245 ±10	245 ±10	245 ±10	245 ±10
Attenuation (max. in cable) (dB/km)	@1310 nm	≤ 0.40	-	-	-	-
	@1550 nm	≤ 0.30	-	-	-	-
	@850 nm	-	≤ 3.4	≤ 3.0	≤ 3.0	≤ 3.0
	@1300 nm	-	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
Bandwidth (overfilled)	@850 nm	-	200 Mhz*km	500 Mhz*km	1500 Mhz*km	3500 Mhz*km
	@1300 nm	-	500 Mhz*km	500 Mhz*km	500 Mhz*km	500 Mhz*km
Serial Ethernet	@850 nm	-	-	-	1000 meters	1040 meters
	@1300 nm	-	-	-	600 meters	600 meters
Serial Ethernet	@850 nm	-	-	-	300 meters	550 meters
	@1300 nm	-	-	-	300 meters	300 meters

Mechanical and Environmental Properties

Test	Test Conditions	Type	Value	Unit	Method
Tube Diameter	-	4x12-6x12	2.0	mm	-
		6x24	3.0		
Approx. Cable Diameter - Weight	-	4x12	6.8 - 38.5	mm-kg/km	-
		6x12	7.3 - 45.0		
Max. Tensile Strength	During installation / In service	4x12	1000/500	N	IEC 60794-1-2 E1
		6x12	1200/800		
		6x24	1200/800		
Min. Bending Radius	During installation	All types	15xD	mm	IEC 60794-1-2 E11
	In service		10xD		
Crush Resistance	Short term	All types	5000	N/dm	IEC 60794-1-2 E3
	Long term		1000		
Impact Resistance	Wp=1.0 J	All types	50	impact	IEC 60794-1-2 E4
Water Penetration	L=1m, 24 h, p<1m	All types	passed		
Temperature Range	During installation		-10 to +50	°C	IEC 60794-1-22 F12
	In service		-10 to +60		
	In storage		-20 to +70		

Combustion Properties

Fiber Type	Test Conditions	Type	Value	Unit	Result	Method
Fire Load	-	4x12 FO	1.72	Mj/m	-	-
		6x12 FO	3.40			
		6x24 FO	4.10			
Fire Propagation	On a vertical single cable	All types	-	-	passed	IEC 60332-1-2
Smoke Density	-	All types	-	-	passed	IEC 61034-2
Halogen Acid Gas	Jacket material	All types	-	-	passed	IEC 60754-1
Degree of Acidity	Jacket material	All types	-	-	passed	IEC 60754-2

Cable Coding System

Type	Fiber Count	Cable Type	Diameter	Tube Type	Fiber Type	Sheath Mat.	Color
Indoor: I	48 Fiber: 48 72 Fiber: 72 144 Fiber: 144	Distribution: DI	6.8 mm: 68 7.3 mm: 73 8.9 mm: 89	Multi Dry Loose Tube: MDL	SM G.657 A2: A2 SM G.657 B3: B3 MM G.651 OM1: M1 MM G.651 OM2: M2 MM G.651 OM3: M3 MM G.651 OM4: M4	LSZH: H	Yellow: YE A2 Yellow: YE B3 Orange: OG M1 Orange: OG M2 Aqua: AQ M3 Violet: VT M4