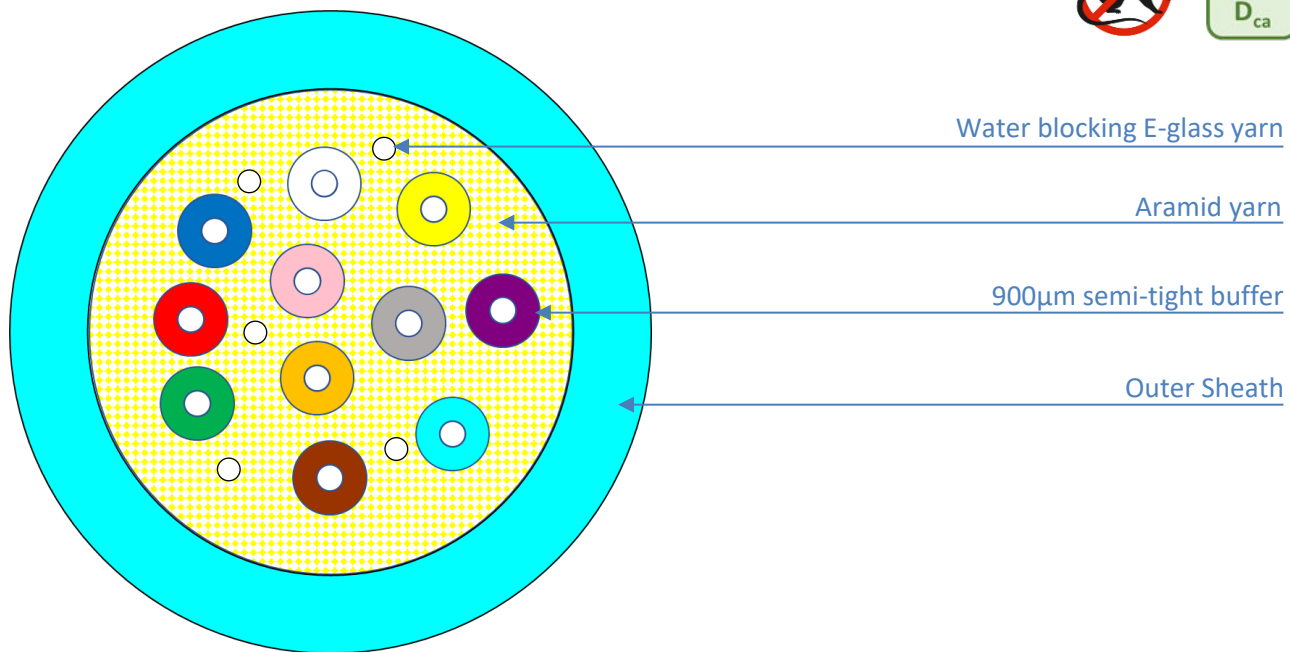


AXAI-I/O-W MULTIPURPOSE CABLE

900µm BUFFERED FIBER, IN/OUTDOOR (OUTDOOR IN DUCTS)

Indoor/outdoor universal distribution cable constructed of 900µm semi-tight buffered fibers, surrounded by water blocking e-glass yarn and aramid yarn strength members, jacketed in an LSZH outer jacket. Somewhat rodent resistant with the use of E-glass yarn



1. APPLICATION / CONSTRUCTION

Identification	AXAI-I/O-W SM 4/8/12/24/48, SM G.652.D + G.657.A1 (MFD 9,2µm) AXAI-I/O-W MM 4/8/12/24/48, OM3/OM4/OM5 BIF (Bend Intensive Fiber)		
Application	<ul style="list-style-type: none"> - Combined indoor and outdoor installations (Outdoor in ducts) - Fiber backbone in riser and horizontal configurations - Somewhat rodent resistant with the use of e-glass yarn 		
Configuration	<ul style="list-style-type: none"> - 900µm semi-tight buffer fiber - Cable core: Dry, with water blocking yarn. E-glass yarn for rodent resistance - Additional strength member: Aramid yarn - Outer sheath: UV-stabilized, FRLSZH 		
Temperature Range	Storage and transport -40 ~ +70°C	Installation -20 ~ +60°C	Operation -40 ~ +70°C
Standards	IEC 60794-1, IEC 60794-2, IEC 60794-2-20, EN 50173-1, ISO/IEC 11801		
CPR Class	Dca s1d1a1 (EN50575:2014+A1:2016)		
DoP	231158-01/02		
Notified Body	1014		

2. MECHANICAL CHARACTERISTICS

Number of fibers	4	8	12	24	48
Outer diameter (Nominal)	5,0	5,5	6,0	8,0	10,0
Max tensile load (N)	450	700	900	1400	1600
Weight kg/km	30	38	53	85	140
Torsion	5x ±1 turn				
Crush resistance N/10 cm	750 N (mandrel/plate)				
Bending radius (Dynamic)	20 x OD				
Bending radius (Static)	10 x OD				

See point 6: Test Methods. Sizes and values without tolerances are nominal values

2. FIRE CHARACTERISTICS

Flame retardant (EN/IEC 60332-3-24)	Yes
Halogen free (IEC 60754-2)	Yes
Low smoke (IEC 61034-2)	Yes
Reaction to fire (EN 13501-6)	Dca
Smoke development class (EN 13501-6)	s1
Flaming droplets (EN 13501-6)	d1
Acidity (EN 13501-6)	a1

3. MARKINGS

Fiber colors	1	2	3	4	5	6	7	8	9	10	11	12
	White	Red	Yellow	Green	Blue	Grey	Brown	Black	Violet	Aqua	Orange	Pink
												
	13	14	15	16	17	18	19	20	21	22	23	24
	White	Red	Yellow	Green	Blue	Grey	Brown	Black	Violet	Aqua	Orange	Pink
												
	25	26	27	28	29	30	31	32	33	34	35	36
	White	Red	Yellow	Green	Blue	Grey	Brown	Black	Violet	Aqua	Orange	Pink
												
	37	38	39	40	41	42	43	44	45	46	47	48
	White	Red	Yellow	Green	Blue	Grey	Brown	Black	Violet	Aqua	Orange	Pink
												

NOTE! Fibers 13-24, 25-36 and 37-48 are separated by different distance between the markings.

Outer Sheath SM 9/125 OS2: Yellow, black jet print marking with 1-meter intervals:

Fiberworks AXAI-I/O-W <n> G.652D+G.657A1 CPR DCA s1d1a1 <batch ID> <meter marking>

<n> = Fiber qty.

Outer Sheath MM 50/125 OM3: Aqua, black jet print marking with 1-meter intervals:

Fiberworks AXAI-I/O-W <n> 50/OM3 BIF CPR DCA s1d1a1 <batch ID> <meter marking>

<n> = Fiber qty

Outer Sheath MM 50/125 OM4: Erika Violet, black jet print marking with 1-meter intervals:

Fiberworks AXAI-I/O-W <n> 50/OM4 BIF CPR DCA s1d1a1 <batch ID> <meter marking>

<n> = Fiber qty

Outer Sheath MM 50/125 OM5: Lime Green, black jet print marking with 1-meter intervals:

Fiberworks AXAI-I/O-W <n> 50/OM5 BIF CPR DCA s1d1a1 <batch ID> <meter marking>

<n> = Fiber qty

4. OPTICAL FIBER CHARACTERISTICS

4.1 Single mode

Standard	ITU-T G.652.D + G.657.A1 (MFD 9.2µm @ 1310nm)		
Optical	Fiber attenuation, cabled	1310 nm: ≤0,36dB/km	1383 nm: ≤0,36dB/km
		1550 nm: ≤0,22dB/km	1625 nm: ≤0,24dB/km
	Mode Field Diameter (MFD)	1310 nm: 9,2 ±0,4µm	1550 nm: 10,4 ±0,5µm
	Zero dispersion wavelength	1300~1324 nm	
	Zero dispersion slope	≤0,092 ps/nm ² ·km	
	Polarization mode dispersion (PMD)	≤0,1 ps/√km	
	Cut-off wavelength	≤1260 nm	
Geometric	Outer diameter (uncolored)	245 ± 10 µm	
	Cladding diameter	125 ± 0,7 µm	
	Core/clad concentricity error	≤0,6 µm	
	Cladding non-circularity	≤1,0 %	
Mechanical	Proof stress	≥0,69 Gpa	

4.2 Multi mode

Standard		ITU-T G.651, ISO/IEC 11801, IEC 60793-2-10		
Fiber type		50/OM3 BIF ¹⁾	50/OM4 BIF ¹⁾	50/OM5 BIF ¹⁾
Attenuation	850nm	≤2,4dB/km	≤2,4dB/km	≤2,4dB/km
	953nm	-	-	≤1,7dB/km
	1300nm	≤0,6dB/km	≤0,6dB/km	≤0,6dB/km

Overfilled Modal Bandwidth	850nm	≥1500MHz·km	≥3500MHz·km	≥3500MHz·km
	953nm	-	-	≥1850MHz·km
	1300nm	≥500MHz·km	≥500MHz·km	≥500MHz·km
Effective Modal Bandwidth	850nm	≥2000MHz·km	≥4700MHz·km	≥4700MHz·km
	963nm	-	-	≥2470MHz·km
Macro bending loss ²⁾				
2 Turns @ 15mm radius	850nm	≤0,1dB		
	1300nm	≤0,3dB		
2 Turns @ 7,5mm radius	850nm	≤0,2dB		
	1300nm	≤0,5dB		
Geometric				
Outer diameter (uncolored)		245 ± 10 µm		
Cladding diameter		125 ± 1.0 µm		
Core/clad concentricity error		≤0,6 µm		
Cladding non-circularity		≤1,0 %		
Mechanical				
Proof stress		≥0,69 Gpa		

¹⁾ BIF: Bend Insensitive Fiber.

²⁾ The launch condition loss measurement fulfills that described in IEC 61280-4-1

5. TYPICAL MAXIMUM TRANSMISSION DISTANCE, MULTIMODE FIBERS

	50/OM3	50/OM4	50/OM5
100Gb/s WDM ³⁾	-	-	150mtr
40Gb/s WDM ³⁾	-	-	440mtr
40GBASE-SR4 ⁴⁾	140mtr	170mtr	200mtr
100GBASE-SR10 ⁴⁾	140mtr	170mtr	200mtr
10GBASE-SR	300mtr	550mtr	-
1000BASE-SR	1000mtr	1100mtr	-

³⁾ Support distance with SWDM transceivers: <http://www.swdm.org/msa/>.

⁴⁾ Max. cable attenuation of 3.0dB/km @850nm. Max. total splice/conn. loss 1,0dB and VCSELs max
RMS spectral width ≤0,45nm

6. TEST METHODE

Test	Conditions	Acceptance criteria
Tensile strength IEC 60794-1-2 E1	Tensile load: see Point 3 Sample length: ≥ 50 m Test duration: 1 min	- Fiber strain ≤0.6% - No damage to outer jacket and inner elements
Crush resistance IEC 60794-1-2 E3	Crush: see Point 3 Test duration: 5 min	- Additional attenuation: ≤0.1dB after test - No damage to outer jacket and inner elements

	Number of tests: 3	
Impact IEC 60794-1-2 E4	Impact Energy: 1J R=300 mm Impact points: 3 Impact number: 1	- No obvious additional attenuation - No damage
Repeated bending IEC 60794-1-2-E11A	Bend radius: 15x cable ϕ Turn number: 4 Cycles: 3	- No obvious additional attenuation - No damage
Torsion IEC 60794-1-2 E7	Sample length: 2 m: Angles: $\pm 180^\circ$ Cycles: 10	- No obvious additional attenuation - No damage
Temperature cycling IEC 60794-1-2 F1	Steps: $-30^\circ\text{C}\sim+60^\circ\text{C}$ 12 hours Cycles: 2	- $\Delta\alpha \leq 0.15$ dB/km - Attenuation reversible - No damage
Water penetration IEC 60794-1-2 F5	Sample length: 3 m Water column height: 1 m Duration: 24 h	- No water leak through the open end in 24 h
Filling compound flow IEC 60794-1-2-E14	Sample length: 0.2 m 60°C Duration: 24 h	- No compound flow from the cable in 24 h

8. LOGISTICS

Cable type	Weight (nominal), drum included	
	500 mtr. drum	2 km drum
G4	20 kg	65 kg
G8	26 kg	81 kg
G12	32 kg	111 kg
G24	48 kg	175 kg
G48	75 kg	285 kg

Dimensions is including protection. Cable ends are sealed with cap. Other delivery lengths available on request, minimum qty. might apply.

9. ORDERING INFORMATION

Enr.	Product code	Product	Fiber Qty.	Fiber type	Category (fiber)
	K-AXAI-Y-7A1-G04-5H	G4 AXAI-I/O-W, G652.D+G.657.A1, 500 MTR. TROMMEL	4	SM 9/125	OS2
	K-AXAI-Y-7A1-G08-5H	G8 AXAI-I/O-W, G.652.D+G.657.A1, 500 MTR. TROMMEL	8	SM 9/125	OS2
	K-AXAI-Y-7A1-G12-5H	G12 AXAI-I/O-W, G.652.D+G.657.A1, 500 MTR. TROMMEL	12	SM 9/125	OS2

	K-AXAI-Y-7A1-G24-5H	G24 AXAI-I/O-W, G.652.D+G.657.A1, 500 MTR. TROMMEL	24	SM 9/125	OS2
	K-AXAI-Y-7A1-G48-5H	G48 AXAI-I/O-W, G.652.D+G.657.A1, 500 MTR. TROMMEL	48	SM 9/125	OS2
	K-AXAI-A-OM3-G04-5H	G4 AXAI-I/O-W, OM3 BIF, 500 MTR. TROMMEL	4	MM 50/125	OM3
	K-AXAI-A-OM3-G08-5H	G8 AXAI-I/O-W, OM3 BIF, 500 MTR. TROMMEL	8	MM 50/125	OM3
	K-AXAI-A-OM3-G12-5H	G12 AXAI-I/O-W, OM3 BIF, 500 MTR. TROMMEL	12	MM 50/125	OM3
	K-AXAI-A-OM3-G24-5H	G24 AXAI-I/O-W, OM3 BIF, 500 MTR. TROMMEL	24	MM 50/125	OM3
	K-AXAI-A-OM3-G48-5H	G48 AXAI-I/O-W, OM3 BIF, 500 MTR. TROMMEL	48	MM 50/125	OM3
	K-AXAI-M-OM4-G04-5H	G4 AXAI-I/O-W, OM4 BIF, 500 MTR. TROMMEL	4	MM 50/125	OM4
	K-AXAI-M-OM4-G08-5H	G8 AXAI-I/O-W, OM4 BIF, 500 MTR. TROMMEL	8	MM 50/125	OM4
	K-AXAI-M-OM4-G12-5H	G12 AXAI-I/O-W, OM4 BIF, 500 MTR. TROMMEL	12	MM 50/125	OM4
	K-AXAI-M-OM4-G24-5H	G24 AXAI-I/O-W, OM4 BIF, 500 MTR. TROMMEL	24	MM 50/125	OM4
	K-AXAI-M-OM4-G48-5H	G48 AXAI-I/O-W, OM4 BIF, 500 MTR. TROMMEL	48	MM 50/125	OM4
	K-AXAI-L-OM5-G04-5H	G4 AXAI-I/O-W, OM5 BIF, 500 MTR. TROMMEL	4	MM 50/125	OM5
	K-AXAI-L-OM5-G08-5H	G8 AXAI-I/O-W, OM5 BIF, 500 MTR. TROMMEL	8	MM 50/125	OM5
	K-AXAI-L-OM5-G12-5H	G12 AXAI-I/O-W, OM5 BIF, 500 MTR. TROMMEL	12	MM 50/125	OM5
	K-AXAI-L-OM5-G24-5H	G24 AXAI-I/O-W, OM5 BIF, 500 MTR. TROMMEL	24	MM 50/125	OM5
	K-AXAI-L-OM5-G48-5H	G48 AXAI-I/O-W, OM5 BIF, 500 MTR. TROMMEL	48	MM 50/125	OM5
1025466	K-AXAI-Y-7A1-G04-2K	G4 AXAI-I/O-W, G652.D+G.657.A1, 2 KM TROMMEL,	4	SM 9/125	OS2
1025467	K-AXAI-Y-7A1-G08-2K	G8 AXAI-I/O-W, G.652.D+G.657.A1, 2 KM TROMMEL	8	SM 9/125	OS2

1025468	K-AXAI-Y-7A1-G12-2K	G12 AXAI-I/O-W, G.652.D+G.657.A1, 2 KM TROMMEL	12	SM 9/125	OS2
1025460	K-AXAI-Y-7A1-G24-2K	G24 AXAI-I/O-W, G.652.D+G.657.A1, 2 KM TROMMEL	24	SM 9/125	OS2
1025470	K-AXAI-Y-7A1-G48-2K	G48 AXAI-I/O-W, G.652.D+G.657.A1, 2 KM TROMMEL	48	SM 9/125	OS2
1025471	K-AXAI-A-OM3-G04-2K	G4 AXAI-I/O-W, OM3 BIF, 2 KM TROMMEL	4	MM 50/125	OM3
1025472	K-AXAI-A-OM3-G08-2K	G8 AXAI-I/O-W, OM3 BIF, 2 KM TROMMEL	8	MM 50/125	OM3
1025473	K-AXAI-A-OM3-G12-2K	G12 AXAI-I/O-W, OM3 BIF, 2 KM TROMMEL	12	MM 50/125	OM3
1025474	K-AXAI-A-OM3-G24-2K	G24 AXAI-I/O-W, OM3 BIF, 2 KM TROMMEL	24	MM 50/125	OM3
1025475	K-AXAI-A-OM3-G48-2K	G48 AXAI-I/O-W, OM3 BIF, 2 KM TROMMEL	48	MM 50/125	OM3
1025476	K-AXAI-M-OM4-G04-2K	G4 AXAI-I/O-W, OM4 BIF, 2 KM TROMMEL	4	MM 50/125	OM4
1025477	K-AXAI-M-OM4-G08-2K	G8 AXAI-I/O-W, OM4 BIF, 2 KM TROMMEL	8	MM 50/125	OM4
1025478	K-AXAI-M-OM4-G12-2K	G12 AXAI-I/O-W, OM4 BIF, 2 KM TROMMEL	12	MM 50/125	OM4
1025479	K-AXAI-M-OM4-G24-2K	G24 AXAI-I/O-W, OM4 BIF, 2 KM TROMMEL	24	MM 50/125	OM4
1025480	K-AXAI-M-OM4-G48-2K	G48 AXAI-I/O-W, OM4 BIF, 2 KM TROMMEL	48	MM 50/125	OM4
1025481	K-AXAI-L-OM5-G04-2K	G4 AXAI-I/O-W, OM5 BIF, 2 KM TROMMEL	4	MM 50/125	OM5
1025482	K-AXAI-L-OM5-G08-2K	G8 AXAI-I/O-W, OM5 BIF, 2 KM TROMMEL	8	MM 50/125	OM5
1025483	K-AXAI-L-OM5-G12-2K	G12 AXAI-I/O-W, OM5 BIF, 2 KM TROMMEL	12	MM 50/125	OM5
1025484	K-AXAI-L-OM5-G24-2K	G24 AXAI-I/O-W, OM5 BIF, 2 KM TROMMEL	24	MM 50/125	OM5
1025485	K-AXAI-L-OM5-G48-2K	G48 AXAI-I/O-W, OM5 BIF, 2 KM TROMMEL	48	MM 50/125	OM5

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