



Avionics Fiber Optic Cables
for Commercial and Defense Aircraft



FIBER OPTIC CABLE SOLUTIONS
for Optimal Performance in Challenging Conditions

High reliability, Long lifetime, High strength,
Light weight, Wide temperature ranges

**FlightLinx[®], FlightGuide[®]
and Avioptics[®] Fiber Optic Cables**

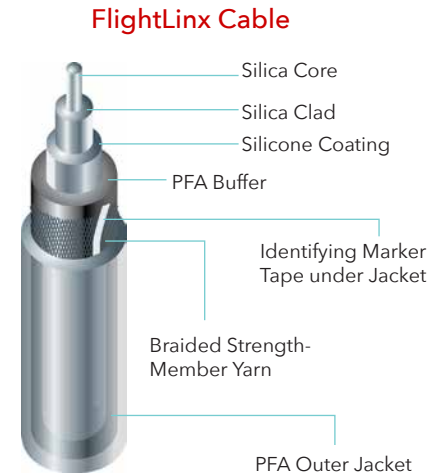
www.ofsoptics.com

FlightLinx®

Designed for use in commercial aircraft, FlightLinx 62.5 µm Cable meets or exceeds the requirements of ARINC 802, Appendix C (MGT) for tight buffered cables used in commercial aircraft. This tight buffered simplex cable design allows for easier termination and installation. The high performing construction starts with premium quality OFS optical fiber coated with silicone for cushioning during bend. The type of silicone OFS uses stripes easily with standard mechanical strip tools; leaving no residue. The PFA material used for the buffer and jacket provides chemical resistance. The braided glass and aramid yarn allows for high reliability during bend.

Marker tape is under the outer jacket and legible through the jacket, protecting the marking from wear and chemical exposure.

For increased bandwidth OFS now offers FlightLinx 50 µm OM3 Cable and FlightLinx Bend Optimized Single-Mode Fiber Optic Cable with identical construction.



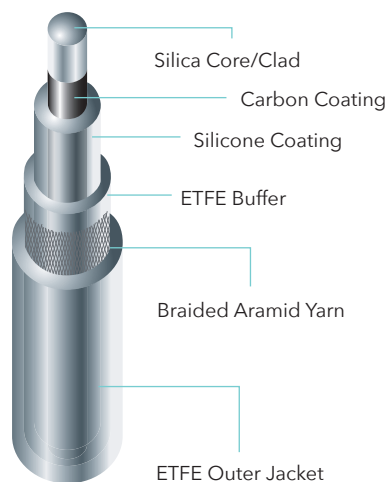
	FlightLinx 50 µm OM3	FlightLinx 62.5 µm	FlightLinx Bend-Optimized Single-mode
Fiber Geometries			
Operating wavelength			1310 / 1550 nm
Core diameter	50 ± 3 µm	62.5 ± 3 µm	
Cladding diameter	125 ± 1 µm	125 ± 1 µm	125 ± 1 µm
Numerical aperture	0.200 ± 0.015	0.275 ± 0.015	
Coating material	Silicone	Silicone	Silicone
Coating diameter	400 ± 25 µm	400 ± 25 µm	400 ± 25 µm
Buffer material	Black PFA	Black PFA	Black PFA
Buffer diameter (Tight Buffer)	900 ± 50 µm	900 ± 25 µm	900 ± 50 µm
Optical Properties			
Attenuation	@ 850 / 1300 nm @ 1310 / 1550 nm	≤ 5.0 / 3.0 dB/km	≤ 4.0 / 2.0 dB/km ≤ 1.0 / 0.70 dB/km
Bandwidth	@ 850 nm @ 1300 nm	≥ 2000 MHz-km EMB ≥ 500 MHz-km EMB	≥ 160 MHz-km OFL ≥ 500 MHz-km OFL
Macrobend performance @ 1550 nm			1 turn on 10 mm bend radius mandrel ≤ 0.2dB
Modefield diameter @ 1310 / 1550 nm			8.9 ± 0.4 µm / 10.0 ± 0.5 µm
Fiber cutoff wavelength			1260 ± 50 nm
Cable Design			
Cable construction		Tight-Buffered Simplex with braided strength member	
Outer cable diameter		1.8 ± 0.1 mm	
Cable weight		≤ 4.0 kg/km	
Outer jacket material		PFA	
Outer jacket color		Light purple	
Installation and Usage Specifications			
Maximum installation tensile load		19.3 lbs. (86 N)	
Maximum operating tensile load		9.7 lbs. (43 N)	
Minimum bend radius operation		8 mm	
Minimum bend radius installation		25 mm	
Cable tensile strength & elongation		< 3% elongation @ 35 kg load	
Operating temperature		-55 to +200 °C	
Storage temperature		-55 to +85 °C	
Flammability, Smoke, Toxicity			
Flammability: FAR 25.869			
Time to extinguish / Maximum burn length		0 seconds / < 1.5 inches	
Smoke density: Ds @ 20 minutes		< 23.5	
Toxicity: Flaming mode		HCN	CO NOX SO HF HCL
ppm @ 20 minutes		<10	161 11 36 <25 <3
Order by Part Number	C24712	C22251	C24895

Typical Applications: Communications • Navigation • Displays • Cabin systems • In-flight entertainment

NOTE:

All testing for FlightLinx 62.5 µm was performed in accordance with ARINC 802 specifications by independent testing laboratories. A full qualification report is available upon request. Cables have been tested up to 200 °C. The operating temperature ranges are general guidelines. Consult with our Technical Sales department to determine the optimal coating and jacketing material for your specific application. 1.860.678.6636.

FlightGuide Cable



FlightGuide®

FlightGuide Cables are designed for use in military aircraft. The high performing construction starts with premium quality OFS fiber coated with carbon for increased reliability followed by silicone for cushioning during bend. The ETFE material used for the buffer and jacket provides abrasion and chemical resistance. The braided aramid yarn results in high tensile strength.

Carbon Coating

Carbon used as a primary coating dramatically increases the reliability of fibers. The carbon hermetically seals the glass surface and impedes the slow crack growth caused by moisture ingress. The fatigue factor (n-value), a measure of the fatigue resistance, is increased to greater than 100 as opposed to 20 for non-carbon coated fiber. The fiber is then able to operate for an increased lifetime or at a higher stress level for the same lifetime than a non-carbon coated fiber. Carbon is applied to a thickness of 300 - 400 Angstroms.

		FlightGuide 50 μm OM3	FlightGuide 62.5 μm	FlightGuide Bend-Optimized Single-mode
Fiber Geometries				
Core diameter		50 \pm 3 μm	62.5 \pm 3 μm	
Cladding diameter		125 \pm 1 μm	125 \pm 1 μm	125 \pm 1 μm
Numerical aperture		0.200 \pm 0.015	0.275 \pm 0.015	
Coating Type I		Carbon	Carbon	Carbon
Coating Type II		Silicone	Silicone	Silicone
Coating Type II Diameter		450 \pm 25 μm	450 \pm 25 μm	450 \pm 25 μm
Buffer		ETFE	ETFE	ETFE
Buffer Diameter		900 \pm 50 μm	900 \pm 50 μm	900 \pm 50 μm
Optical Properties				
Attenuation	@ 850 nm	\leq 6.0 dB/km	\leq 6.0 dB/km	
	@ 1300 nm	\leq 4.0 dB/km	\leq 4.0 dB/km	
	@ 1310 nm			\leq 1.2 dB/km
	@ 1550 nm			\leq 1.0 dB/km
Bandwidth	@ 850 nm	\geq 2000 MHz-km EMB	\geq 160 MHz-km OFL	
	@ 1300 nm	\geq 500 MHz-km EMB	\geq 300 MHz-km OFL	
Macrobend performance @ 1550 nm				1 turn on 10 mm bend radius mandrel \leq 0.2dB
Mode field diameter	@ 1310 nm			8.9 + 0.4 μm
	@ 1550 nm			9.7 + 1.0 μm
Fiber cutoff wavelength				1260 + 50 nm
Cable Design				
Outer cable diameter		1.8 \pm 0.1 mm	1.8 \pm 0.1 mm	1.8 \pm 0.1 mm
Cable weight		4.0 kg/km	4.0 kg/km	4.0 kg/km
Outer jacket material		ETFE	ETFE	ETFE
Standard jacket color		Orange	Slate	Yellow
Installation and Usage Specifications				
Maximum installation tensile load		90 lbs. (400 N)	90 lbs. (400 N)	90 lbs. (400 N)
Maximum operating tensile load		30 lbs. (133 N)	30 lbs. (133 N)	30 lbs. (133 N)
Minimum bend radius operation		8 mm	8 mm	8 mm
Minimum bend radius installation		25 mm	25 mm	25 mm
Operating temperature		-55 to +165 $^{\circ}\text{C}$	-55 to +165 $^{\circ}\text{C}$	-55 to +165 $^{\circ}\text{C}$
Storage temperature		-55 to +85 $^{\circ}\text{C}$	-55 to +85 $^{\circ}\text{C}$	-55 to +85 $^{\circ}\text{C}$
Order by Part Number:		C25964	C10028	C25364

Typical Applications: Data transmission • Communication systems • Corrosive chemical environments • Harsh environments • Aircraft sensors

NOTE:

FAR 25.869 Compliant.

The operating temperature ranges are general guidelines. Consult with our Technical Sales department to determine the optimal coating and jacketing material for your specific application. 1.860.678.6636.

Avioptics® Fiber Optic Cable

Based on standard HCS® Optical Fiber, Avioptics is configured to withstand exposure to corrosive and other chemicals, including jet fuel, oil, solvents, and hydrolytic liquids.

The step-index choice for high-performance aircraft and military vehicles, Avioptics brand simplex cable offers many advantages, including fast Crimp & Cleave termination.

Crimp & Cleave Termination

The OFS Crimp & Cleave termination process requires no epoxy or polishing and is a fast and easy alternative to the traditional epoxy polish termination method. Using the OFS Crimp & Cleave Termination Kit, the process can be completed in 3 minutes or less in the field. OFS recommends the Harsh Environment SMA for use with Avioptics Cable.

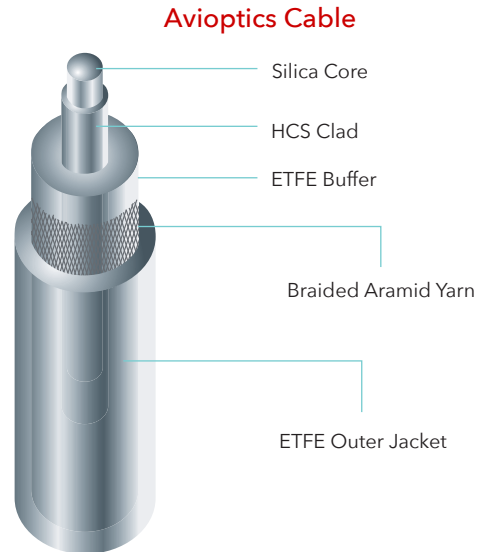
Avioptics Simplex Step-Index 200 µm	
Optical Properties	
Attenuation @ 850	≤8 db/km
Cable Design	
Fiber core diameter	200 µm ± 4 µm
Outer cable diameter	1.8 ± 0.1 mm
Cable weight	≤4.0 kg/km
Outer jacket material	ETFE
Outer jacket color	Violet
Installation and Usage Specifications	
Maximum installation tensile load	100 lbs. (445 N)
Maximum operating tensile load	30 lbs. (133 N)
Minimum bend radius operation	10 mm
Minimum bend radius installation	25 mm
Operating temperature	-65 to +125 °C
Storage temperature	-65 to +85 °C
Crimp & Cleave Compatibility	SMA Connector
Product Description Code:	HCP-M0200T-D01FS
Order by Part Number:	AC02201-10

Typical Applications

Aircraft sensors • Data transmission • Radio systems
 Communication systems • Land vehicle wire harnesses
 High temperature environments • Corrosive chemical environments
 Laser power delivery • Laser initiation Spectroscopy

NOTE:

The operating temperature ranges are general guidelines. Consult with our Technical Sales department to determine the optimal coating and jacketing material for your specific application. 1.860.678.6636.



For additional information please contact your sales representative.

You can also visit our website at www.ofsoptics.com
 or call 1-888-FIBER-HELP (1-888-342-3743) from inside the USA
 or 1-770-798-5555 from outside the USA.
 EMEA Specific: +49 (0) 228 7489 201



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