

RADATOX™
OPTICAL FIBER CABLES
RADIATION-RESISTANT
APPLICATIONS





RADATOX™

RADIATION-RESISTANT AP

APPLICATIONS

Designed for space and nuclear applications that require:

- ↗ Weight saving,
- ↗ Immunity to electromagnetic interference,
- ↗ High data rate.

ADVANTAGES

- ↗ Lightweight.
- ↗ Electromagnetic immunity.
- ↗ Tight structure to optimize mechanical and optical performances as well as better connection.
- ↗ Resistance to harsh environment.
- ↗ Tensile strength : > 200 N.
- ↗ UV laser marking.
- ↗ Operating temperatures: -60 to 135 °C.
- ↗ Bend radius: 12.5 mm.
- ↗ Very low shrinkage allowing very stable performance after cabling.
- ↗ Easy cable stripping.
- ↗ Made in France.
- ↗ Compatible with:
 - MIL-DTL-38999 optical connectors,
 - SC, FC, LC, ST, ...
 - Axon' optical Micro-D connectors.

Why optical fiber cables ?

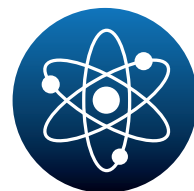
Compared with electrical high-data rate links, optical fiber cables are totally immune to EMI and the integrity of signals is not affected by electrical noise in the environment.

The optical fiber is by nature a perfect electrical insulator, unaffected by discharges and does not carry them (no cross-talk possible).

The optical fiber is specially designed to resist high irradiation, which avoids fiber opacification. Easy to integrate, Axopt™ optical cables are compatible with standard optical contacts and Micro-D connectors.



SPACE



NUCLEAR

OPTICAL FIBER CABLES

APPLICATIONS

RADATOX™ OPTICAL FIBER CABLE

The optical fibre has a radiation resistance of 1 Mrad.
An optical fiber version with a radiation resistance of 200 MRad is also possible.

Normative qualification tests

- Outgassing tests according to ECSS-Q-ST-70-02 specification.
- Measurements of radiation-induced attenuation after gamma irradiation at 1 MRad based on ECSS-Q-ST-70-06C specification.
- Thermal and mechanical tests.
- The Radatox™ material itself has a 200 MRad radiation resistance and a very high ATOX (Atomic Oxygen) resistance.

SINGLE FIBER OPTIC CABLES MULTIMODE 50/125 1.8 MM SPACE

SPACE & PF71368

① FIBER	core/cladding	Silica Graded Index Multimode 50/125	125 ± 2 µm
	primary buffer	High temperature Acrylate	245 ± 15 µm
② BUFFER	ETFE (Black)		0.90 ± 0.05 mm
③ BRAIDED SHIELD	Aramid Strength Member		1.15 mm nom.
④ OUTER JACKET	RADATOX® (white)		1.80 ± 0.1 mm
ATTENUATION	At 850 nm		5.0 dB/km max
	At 1300 nm		3.0 dB/km max
-	Numerical aperture		0.20 ± 0.015
BANDWIDTH	At 850 nm		1500 MHz.Km min
	At 1300 nm		500 MHz.Km min
OPERATING TEMPERATURE		-60°C to 135°C	

Space cables also available with optical fibre 9/125 & 62.5/125.

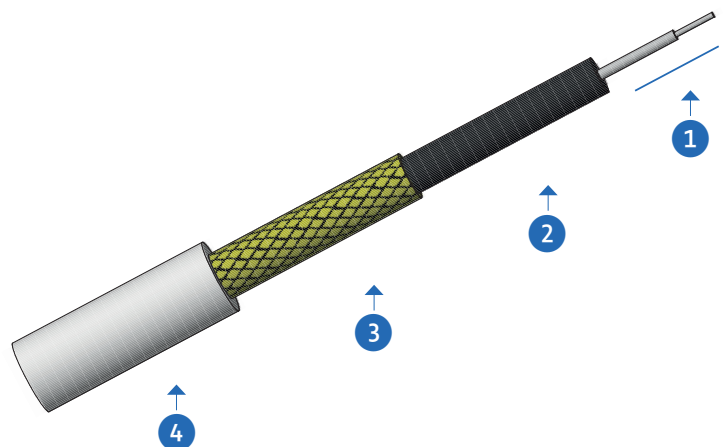
RADATOX™ PROTECTION AGAINST OXYGEN ATOMIC & RADIATION

Materials used on spacecraft exteriors are exposed to a variety of environmental threats that can cause significant degradation.

In Low Earth orbit (LEO), these threats include radiation, ultraviolet (UV) radiation, thermal cycling, micrometeoroids, orbital debris impact, and especially **atomic oxygen (ATOX)**.

In order to limit the effects of ATOX which erodes and damages materials including polymer insulated wires and cables, Axon' Cable has developed a new electrical insulation system called Radatox™.

- **10 times** more resistant to ATOX compared to typical perfluoropolymers (FEP, PFA, PTFE) which are highly sensitive to the combined effects of ATOX, UV, radiation and thermal cycling, limiting their use for long lifetime missions.
- 40% mass saving compared to solutions such as FEP, PFA or PTFE.
- Proven by independent laboratories to have superior ATOX performance.



INTERNATIONAL PRESENCE

SUBSIDIARIES

» AUSTRALIA

AXON' CONNECT PTY LTD
MELBOURNE
TEL.: +61 417 284 674
e-mail: sales.australia@axon-cable.com

» BRAZIL

AXON' CABLE INDUSTRIA E COMÉRCIO LTDA
RIO DE JANEIRO
TEL.: +55 21 3596-8002
e-mail: salesbrazil@axon-cable.com

» CANADA

AXON' CÂBLAGE INC./AXON' WIRING INC.
MONTREAL, QUEBEC
TEL.: +1 514-898-2044
e-mail: sales@axoncable.com

» CHINA

AXON' INTERCONNECT LTD
SHUNDE, GUANGDONG
TEL.: +86 757-2838-7200
e-mail: sales@axon-interconnect.com

» GERMANY

AXON' KABEL GMBH
LEONBERG
TEL.: +49 7152-97992-0
e-mail: sales@axon-cable.de

» HUNGARY

AXON' KÁBELGYÁRTÓ KFT.
KECSKEMÉT
TEL.: +36 76 508 195
e-mail: axon@axon-cable.hu

» INDIA

AXON' INTERCONNECTORS & WIRES PVT LTD
BANGALORE
TEL.: +91 (0) 806 816 2966
e-mail: sales@axon-cable.in

DHRUV AXON' INTERCONNECT PRIVATE LTD
e-mail: sales@dhuvcable.in

» JAPAN

AXON' CABLE JAPAN OFFICE
NAGANO
TEL./FAX: +81 2 6217 6728
e-mail: axon-japan@axon-cable.com

» LATVIA

AXON' CABLE SIA
DĀUGAVPILS
TEL.: +371 6540 78 91
e-mail: axon@axoncable.lv

» MEXICO

AXON' INTERCONEX, S.A. DE C.V.
QUERÉTARO
TEL.: +52 44 2215 2713
e-mail: axon-mexico@axoncable.com.mx

» SINGAPORE

AXON' CONNECT PTE LTD
SINGAPORE
TEL.: +65 6250 3169
e-mail: sales.singapore@axon-cable.com

» SPAIN

AXON' CABLE SPANISH OFFICE
MADRID
TEL.: +34 911.30.91.23
e-mail: axon-spain@axon-cable.com

» UNITED KINGDOM

AXON' CABLE LTD
DUNFERMLINE
TEL.: +44 1383 421500
e-mail: sales@axon-cable.co.uk

» USA

AXON' CABLE INC.
SCHAUMBURG
TEL.: +1 847 230-7800
e-mail: sales@axoncable.com



Axon' Cable is a global leader in the design and manufacture of high-performance interconnect solutions for a wide range of industries, including aerospace, defence, medical, and industrial markets. Since 1965, Axon' Cable has established itself as a trusted partner to its customers by providing innovative solutions that meet their most demanding requirements. From custom-designed cables and connectors to cable assemblies and harnesses, Axon' Cable's expertise and state-of-the-art manufacturing facilities enable it to deliver reliable, high-quality products that are optimized for performance and reliability. With a commitment to excellence and a focus on customer satisfaction, Axon' Cable is dedicated to driving innovation and advancing the state-of-the-art in interconnect technology.

HEADQUARTERS

» FRANCE

» AXON' CABLE S.A.S.

2 Route de Châlons en Champagne
51210 MONTMIRAIL
TEL.: +33 3 26 81 70 00
sales@axon-cable.com



www.axon-cable.com

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