



— **MILITARY**
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Cat. 6a RJ45 solutions for reliable 10 Gb ethernet cable & interconnect for severe environments

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Cat. 6a RJ45 solutions for reliable 10 Gb ethernet

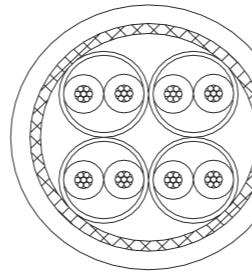
» STRUCTURE

Cable construction

THE A-PTFE® STRUCTURE

AXON's unique extrusion A-PAIR® technology combines the excellent dielectric properties of both PTFE and air through an optimised alveolar structure. PTFE is a high performance insulating material known for its resistance to high temperatures (-200°C to +260°C) : its hot and cold temperature stability, water and UV light resistance, and its low dielectric constant.

Right through from manufacture of conductor to finished assembly, AXON' offers a complete system.

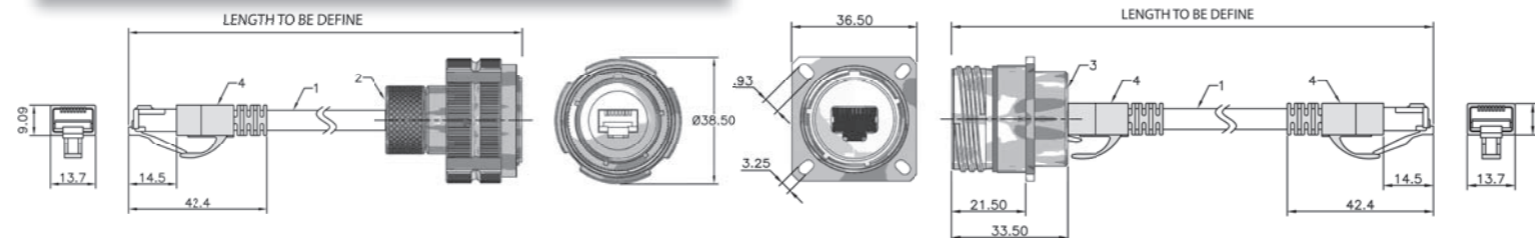


Assembly construction

The assembly consists of :

- Ethernet Cat. 6a 10 Gigabit twisted pair cable,
- Connector to meet most demanding conditions.

ASSEMBLY CONSTRUCTION



1 : cable with 4 pairs - 2 male : 38999 Series III - 3 receptacle : 38999 Series III - 4 : shielded RJ 45

AXON' REFERENCE			ELECTRICAL CHARACTERISTICS	CABLE COMPOSITION														GENERAL CHARACTERISTICS	
Cat.	P/N	DESIGNATION		IMPEDANCE ± 10 ohms	INNER CONDUCTOR				DIELECTRIC		OUTER CONDUCTOR ON EACH PAIR		NUMBER OF PAIRS	OVERALL BRAIDED SHIELD			JACKET		WEIGHT g/m
				MATERIAL	AWG	COMPOSITION (mm)	∅ (mm)	MATERIAL	∅ (mm)	MATERIAL	∅ (mm)	MATERIAL		AWG	∅ (mm)	MATERIAL	∅ (mm)		
Cat. 6a	P542808	Cable ethernet 4 pairs FEP	100	SPC	2707	7 x 0.142	0.42	a-PTFE®	0.95	POLYESTER / ALUMINIUM FOIL	1.90	4	SPC	38	5.00	FEP	5.85	53	-60/+125°C
Cat. 6a	P542809	Cable ethernet 4 pairs PU	100	SPC	2707	7 x 0.142	0.42	a-PTFE®	0.95	POLYESTER / ALUMINIUM FOIL	1.90	4	SPC	38	5.00	POLYURETHANE	7.20	64	-40/+125°C
Cat. 6a	P542810	Cable ethernet 4 pairs 0 HALOGEN	100	SPC	2707	7 x 0.142	0.42	a-PTFE®	0.95	POLYESTER / ALUMINIUM FOIL	1.90	4	SPC	38	5.00	POLIAX®	6.00	48	-40/+125°C
Cat. 5e	P542264	Cable ethernet 2 pairs FEP	100	SPC	2707	7 x 0.142	0.42	a-PTFE®	0.95	POLYESTER / ALUMINIUM FOIL	1.90	2	SPC	38	4.05	FEP	4.65	31	-60/+125°C

» CONCEPT

The new AXON' RJ45 system incorporates a 38999 Series III derived metal shell with full 360° EMC and mechanical protection and has been specifically designed to meet the requirements of high speed Ethernet connections where reliability through environmental sealing and full mechanical protection are required :

- High levels of shock, vibration and mechanical impact protection.
- MIL-DTL-38999 Series III derived polarized metal shell with fast and secure vibration proof coupling.
- Aluminium, Nickel Bronze and Stainless Steel options.

Typical applications for 38999 Series III aluminium connections are military, avionics, space and marine equipment.

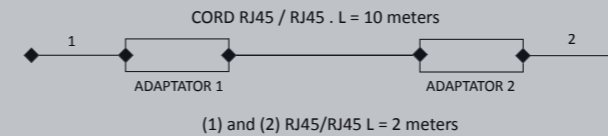


Z₁ MEASUREMENT

STIRRED MODE CHAMBER

» ELECTRICAL PERFORMANCE

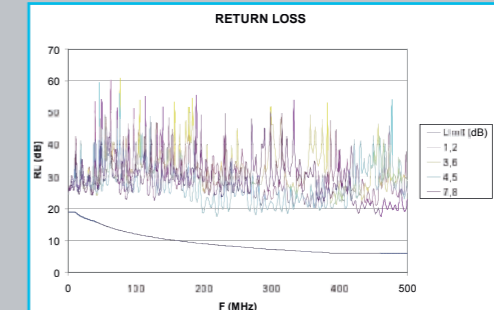
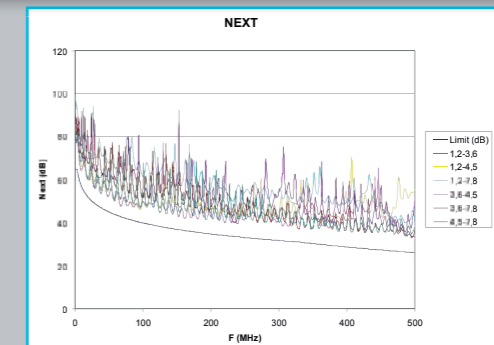
The graphs on the right show Return Loss and NEXT (Near End Crosstalk) performance on a short assembly whose composition is defined below. Over a short length these 2 parameters are critical and the plots demonstrate conforming performance :



» EMI PROTECTION

AXON's dedicated team of engineers in the field of EMI protection have developed simulation software to predict the Transfer Impedance (or shield efficiency) of a connector, a cable or a complete assembly during the design phase prior to any manufacture commencing.

Product tested in AXON's Stirred Mode Chamber and Transfer Impedance Test Bench validate the simulated performance.



CONDITIONS OF MEASUREMENT
Test device : Fluke DTX1800 - Measurement method : Channel Measure type cat6a, 10 Gigabits Ethernet

CONNECTOR MATERIAL AND PLATING

- Aluminium Alloy 6262R - Cadmium, olive drab (5 - 10 µm) QQ-P-416, Type II, Class 3 over electroless nickel (2.5 - 7.5 µm) (500 hours salt spray finish)
- Aluminium Alloy 6262R - Electroless nickel, MIL-C-26074, Class 4, Grade B
- Aluminium Bronze NES833

