High speed 10 Gb/s Micro-D Ethernet link for severe environments

80% connector weight and space saving with improved performance compared to RJ45 connector integrated into a MIL-DTL-38999 body.


AXOFAST® : AXON' MICRO–D CONNECTOR


RJ 45 INTO A MIL–DTL–38999 CONNECTOR

General characteristics

- Micro-D connector specially designed by AXON' for 10 GBASE-T applications, to avoid connector crosstalk and reflection,
- Excellent EMC performance on the complete assembly with 360° shield termination,
- 100% tested assembly.

Applications

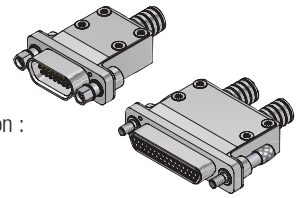
- Any on board, milaero applications where reliability and weight saving are the most important.

www.axon-cable.com
www.microd-connectors.com

axon' CABLE & INTERCONNECT

Micro-D 10 Gb/s / Ethernet

Concept



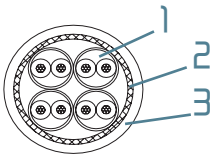
This new assembly incorporates AXON' nickel plated aluminium Micro-D connectors according to the MIL-DTL-83513 standard especially designed to meet full 360° EMC and mechanical protection : High level of shock, vibration and mechanical impact protection.

The complete system consists of:
- Ethernet Cat.6a 10 gigabits 4 twisted pair cable, using AXON' unique A-PAIR® technology,
- 15 way nickel plated aluminium Micro-D connector, 31 ways for a double assembly (8 pairs),
- RJ45/Micro-D adaptor assembly.

1 - Shielded pairs
- Conductor : AWG 2707 silver plated copper
- Insulation : a-PTFE®
- Shielding : Mylar / Alu tape

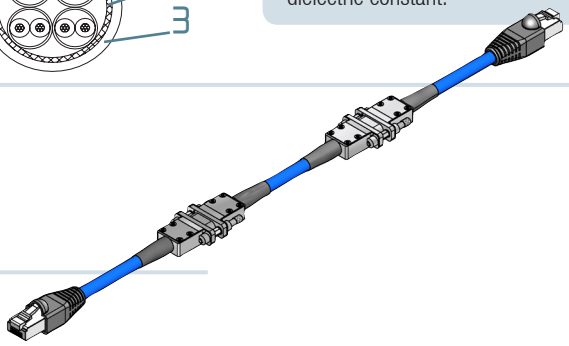
2 - Braid
- Conductor : silver plated copper

3 - Jacket : FEP, PU or 0HAL



The A-PTFE® structure

AXON's unique A-PAIR® extrusion technology combines the excellent dielectric properties of PTFE with an 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.



Assembly construction

- Maintain signal integrity,
- Possibility of double link on the same connector.

For any other length, please contact us.

Main characteristics

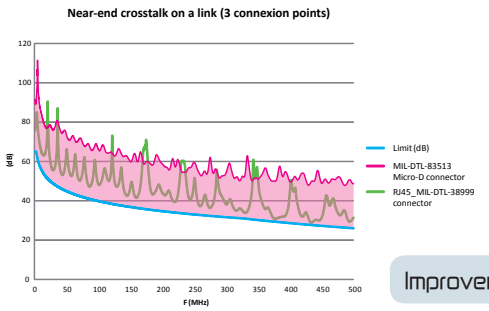
Impedance (ohms)	100 +/- 5
Capacitance (pF/m)	44
Capacitance unbalance (pF/km)	< 1600
Insulation resistance (Mohms)	> 5000
Attenuation (dB/100m)	
- 10 MHz	9.1
- 50 MHz	21
- 100 MHz	30
- 250 MHz	50
- 500 MHz	74.1
Rated temperature (°C)	-55 / +150
Min. bending radius static application (mm)	60
Min. bending radius dynamic application (mm)	90

NEXT : Near End Crosstalk (dB)	
- 10 MHz	> 60.3
- 50 MHz	> 49.8
- 100 MHz	> 45.3
- 250 MHz	> 39.3
- 500 MHz	> 34.8
Return Loss (dB)	
- 10 MHz	> 25.0
- 50 MHz	> 21.6
- 100 MHz	> 19.0
- 250 MHz	> 15.6
- 500 MHz	> 13.0
Weight (g/m)	< 60

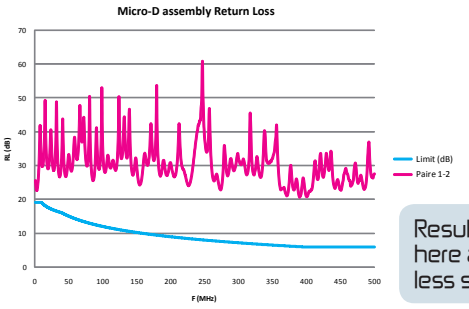
Please contact us for any information concerning environment tests.

Electrical performance

Comparison in terms of crosstalk between a solution with a RJ45 integrated into a MIL-DTL-38999 metal shell and the innovative AXON' solution using a Micro-D connector. The second graph shows Return Loss.
Electrical performance of the assembly in compliance with EIA/TIA 568 and ISO/IEC 11801 (55 m).



Improvement -17dB



Results given here are the less significant

EMI protection

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

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