10 Gb/s MICRO-D/ETHERNET LINK

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.

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
# 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 adapter assembly.

### 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

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impedance (ohms)</td>
<td>100 +/- 5</td>
</tr>
<tr>
<td>Capacitance (pF/m)</td>
<td>44</td>
</tr>
<tr>
<td>Capacitance unbalance</td>
<td>&lt; 1600</td>
</tr>
<tr>
<td>Insulation resistance (Mohms)</td>
<td>&gt; 5000</td>
</tr>
<tr>
<td>Attenuation (dB/100m)</td>
<td>- 10 MHz: 9.1</td>
</tr>
<tr>
<td></td>
<td>- 50 MHz: 21</td>
</tr>
<tr>
<td></td>
<td>- 100 MHz: 30</td>
</tr>
<tr>
<td></td>
<td>- 250 MHz: 50</td>
</tr>
<tr>
<td></td>
<td>- 500 MHz: 74.1</td>
</tr>
<tr>
<td>Rated temperature (°C)</td>
<td>-55 / +150</td>
</tr>
<tr>
<td>Min. bending radius static application (mm)</td>
<td>60</td>
</tr>
<tr>
<td>Min. bending radius dynamic application (mm)</td>
<td>90</td>
</tr>
</tbody>
</table>

## Electrical performance

Comparison in terms of crosstalk between a solution with a RJ45 integrated into a MIL-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).

![Near-end crosstalk on a link (3 connection points)](chart1.png)

Near-end crosstalk on a link (3 connection points):
- Improvement -17dB

![Micro-D assembly Return Loss](chart2.png)

Micro-D assembly Return Loss:
- 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.