

Commercial Cable Assemblies for SpaceWire

CAB-xm-DW and CAB-xm-BS



Product brief

Purpose

The 4Links commercial cable assemblies for SpaceWire provide a comparatively low-cost and flexible alternative to flight cables, when used for simulation and functional test of systems that are interconnected by SpaceWire.

Benefits of 4Links commercial cables for SpaceWire include:

- Availability: Standard 2 metre lengths are held in stock, with other lengths made to order with reasonably short lead times
- Flexibility: The 4Links cables are said to be very much more flexible than flight cables
- Design guard-band: 4Links cables are made with smaller wire gauge than is specified in the SpaceWire standard. Ensuring that systems function without error under these worse conditions provides a useful guard band for operation in flight

Cable Lengths

Standard length held in stock by 4Links is 2 metres. Other lengths can be made to order with reasonably short lead times.

Connector Specification

The cables use Micro-miniature D connectors as specified in the ECSS SpaceWire standard.

Termination Specification

The **CAB-xm-DW** cables have the overall shield drain wire soldered onto the body of the connector, and then the connector assembly is potted. This version is significantly lower cost than the CAB-xm-BS cables, but there may be a possibility in some systems of RF interference leaking from the cable. The CAB-xm-DW is therefore not recommended for situations where EMC performance or testing is required.

The **CAB-xm-BS** cables use a backshell with the shield braid crimped to the backshell, providing a 360° shield termination, as required by the ECSS SpaceWire standard.

Cable Specification

Twisted Pairs - 30 AWG Shielded Pair

Differential Impedance: 100 ± 5 Ohms @ TDR

Mutual Capacitance: 46 pF/m Nominal

Time Delay: 4.7 ns/m Nominal

Time Delay Skew:

Between Pairs: 0.1 ns/m Maximum

Within a Pair: 0.033 ns/m Maximum

Attenuation:

0.16 dB/m Nominal @ 10 MHz

0.32 dB/m Nominal @ 50 MHz

0.43 dB/m Nominal @ 100 MHz

0.62 dB/m Nominal @ 200 MHz

Far-End Crosstalk: 1.0% Maximum in 10 meters @ 300 ps rise-time

Conductor DC Resistance: 0.33 Ohms/m Nominal @ 20°C

Pair Shield: Aluminium foil, Aluminium side facing in, with 30 AWG drain wire

Outer Shield:

Aluminium foil: Aluminium side facing out, 25% overlap

Braid: 38 AWG Tinned Copper, 80% coverage

Jacket: Super flexible PVC, overall diameter 6.2mm \pm 0.3mm

Safety Certification

UL Listing:

AWM Style 20276 80°C 30 Volts VW-1

Ordering information:

The x in CAB-xm-DW and CAB-xm-BS gives the length of the cable assembly in metres. For example the standard 2 metre cable with drain-wire termination is CAB-2m-DW, or a special 4.5 metre cable with backshell termination is CAB-4.5m-BS.

Note: 4Links commercial cables for SpaceWire are not designed for flight nor for vacuum.

Legal notice and disclaimer: Copyright © 2008 4Links Limited, all rights reserved. The name 4Links and the accompanying device are registered as a Trademark in the European Economic Community and registration has been applied for in other jurisdictions. The information supplied in this document is believed to be accurate at the date of issue. 4Links reserves the right to change specifications or to discontinue products without notice. 4Links assumes no liability arising out of the application or use of any information or product, nor does it convey any licence under its patent rights or the rights of others. Products from 4Links Limited are not designed, intended, authorised or warranted to be suitable for use in life-support devices or systems. Re-issue date 2008-01-28

4Links Limited, registered in England, Company number 3938960
www.4Links.co.uk
info@4Links.co.uk

Suite E U 2, Bletchley Park, Sherwood Drive
Milton Keynes, MK3 6EB, United Kingdom
T +44 1908 642001, F +44 1908 363463