

# SpaceWire Lab Cables

## CAB-Xm-YY-Z

### Overview

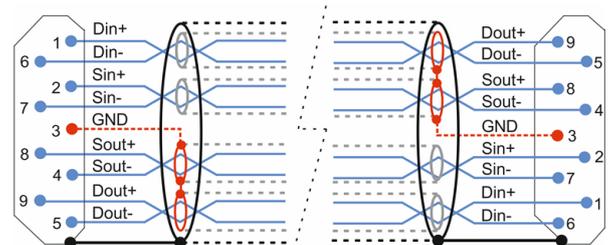
The 4Links commercial cable assemblies for SpaceWire provide a lower-cost and flexible alternative to flight cables, when used for simulation and functional test of systems that are interconnected by SpaceWire.

A range of ‘Off The Shelf’ cables gets you going fast, while the custom cable option gives you flexibility in cable length, connector types and even custom connector options. For all custom cables please contract 4Links directly.

4Links cables use the same Micro-miniature D connectors as specified in ECSS-E-ST-50-12C (and the new draft standard), but are made with a more flexible cable, with a smaller wire gauge than is specified in the SpaceWire standard. This smaller wire gauge helps to demonstrate that systems function without error under these worse conditions, providing a useful margin for operation in flight.

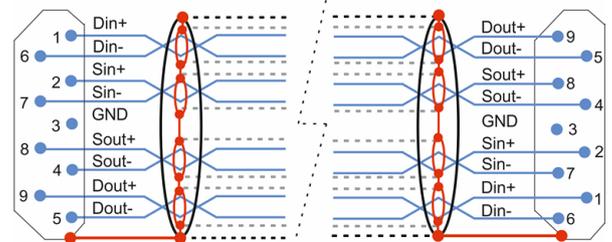
### SpaceWire Standard Type AL

This is the original SpaceWire standard cable connection (ECSS-E-ST-50-12C ) now marked as Legacy in the new draft standard (section 1.1.1.1.2).



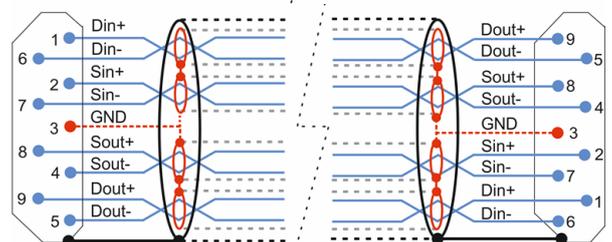
### SpaceWire Standard Type A

This is the new SpaceWire standard cable connection based on the draft standard (section 1.1.1.1.1).



### SpaceWire 4Links Special Type 323

This is a 4links special implementation of SpaceWire cable connection and can help ensure all equipment is operating with the same signal ground when used on the lab bench as it ensures the pin 3 ground is common between all connected units.



### Connector Options

BS option use a back shell with the shield braid crimped to the back shell, providing a 360° shield termination, as required by the ECSS SpaceWire standard.

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



Cable Feature	Measurement	Characteristic
Conductor type	conductor within Pair	30AWG
Differential impedance	Within Pair	100 +5Ω @TDR
Mutual Capacitance	Within Pair	46pF/m Nominal
Time Delay	Within Pair	4.7ns/m Nominal
Time Delay Skew	Within Pair	33ps/m Maximum
Time Delay Skew	Between Pairs	100ps/m Maximum
Attenuation	@10MHz	0.16dB/m
	@50MHz	0.32dB/m
	@100MHz	0.43dB/m
	@200MHz	0.62dB/m
Far End Crosstalk	@300ps risetime	1% max in 10m
Conductor Resistance	@ 20°C	0.33Ω/m Nominal
Pair Shield	Al foil, conductive side in. 30 AWG drain wire	
Outer Shield	Al foil, conductive side out. Braided 38AWG tinned copper	
Outer Jacket	Material	Super flexible PVC
	Diameter	6.2mm ±0.3mm
Certification	UL	AWM Style 20276
		80°C, 30V VW-1

## Ordering information

CAB-<Length>m-<Connector>-<Type>

Length:

Total length in meters from 0.5m to 20m

Connector:

DW Drain Wire  
BS Back Shell

Type:

323 pin 3 of connectors joined using inner shields  
Blank Original SpaceWire specification, now called AL  
A New SpaceWire specification.

## Standard Cables

A set of standard cables are available from stock.

CAB-2m-DW-A. 2m, DrainWire, Type A connection  
CAB-5m-DW-A. 5m, DrainWire, Type A connection  
CAB-2m-DW. 2m, DrainWire, Type AL connection  
CAB-5m-DW. 5m, DrainWire, Type AL connection

## Custom Cables

Custom lengths, connectors and configurations using our standard cable are available for order with a nominal 4 weeks lead-time.

For cable lengths over 20m please discuss with 4Links.

## Note

4Links commercial cables for SpaceWire are not designed for flight, nor for vacuum use.

Legal notice and disclaimer: Copyright ©2018 4Links Limited, all rights reserved. The name 4Links and the accompanying device are registered as a Trademark in the European Union and in the United States of America. The name SpaceWire was originated by the European Space Agency whose rights are acknowledged, and 4Links makes no claim to the word SpaceWire being a 4Links trademark. 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. 4Links Limited is registered in England and Wales, with Company Number 3938960.

4Links Limited, Suite AL4, Bletchley Park, Milton Keynes MK3 6EB, UK T +44 1908 642001 [www.4Links.co.uk](http://www.4Links.co.uk) [info@4Links.co.uk](mailto:info@4Links.co.uk)