

SpaceWire Lab Cables

STAR-Dundee’s SpaceWire Lab Cables have been designed to be easy to use in the laboratory while giving similar performance to standard SpaceWire cables. The innovative connector assembly uses captive jack screws, allowing the connector to be fully mated before the jack screws are screwed home. This makes mating and de-mating the connectors much easier; ideal for the lab.



Figure 1: Innovative Connector Assembly on SpaceWire Lab Cable

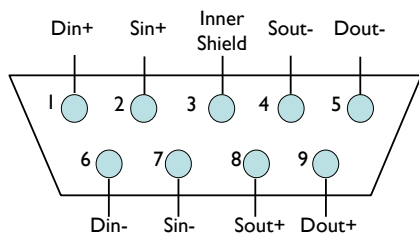
Cable

The cable used in our cable assemblies was specially designed to have similar electrical properties to “true” SpaceWire cable while being substantially cheaper. Each twisted pair has 100 ohm differential impedance and an individual shield. The overall cable has an outer shield. The SpaceWire Lab Cable electrical properties are listed in the table below.

SpaceWire Lab Cable Electrical Properties	
Differential Impedance	100 Ohms Nominal @ TDR
Mutual Capacitance	14 pF/ft Nominal
Velocity of Propagation	71% Nominal
Time Delay Skew (Between Pairs)	30 ps/ft Maximum
Conductor DC Resistance	0.064 Ohms/ft Nominal at 20°C
Temperature Range	-10°C to 80°C

Connectors

The connector used for the SpaceWire Lab Cable Assembly is the 9-pin micro-miniature D-type male connector, as defined in the SpaceWire standard. Commercial versions of this type of connector are used. The pin out of the connector is illustrated in Figure 2.



Viewed from rear of receptacle or front of plug.

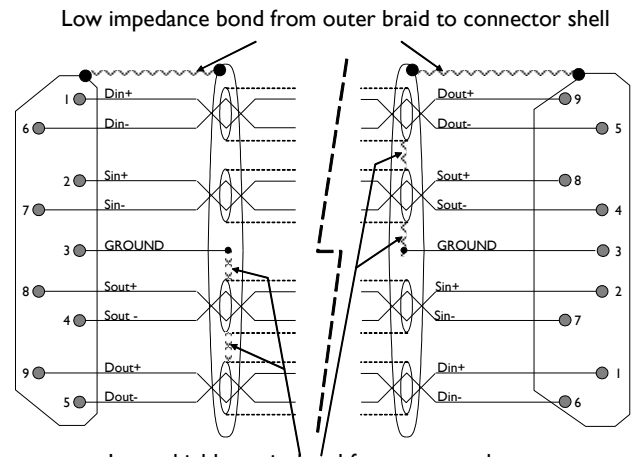
Figure 2: SpaceWire Connector

There is no metal backshell used for the connector.

To ease handling of the finished cable assembly, captive jack posts are used. The jack posts are loose within their captive housing to allow the connector to be fully mated before the jack screws are tightened. The jack screws have hex heads to enable a ball-head screwdriver to be used to tighten them. This again eases handling of the cable assembly.

Cable Assembly

The wiring of the SpaceWire Lab Cable Assembly is the same as defined in the SpaceWire standard. The inner shields of the Dout and Sout twisted pairs are connected to pin three of the connectors using the inner shield drain wire. The outer shield drain wire is bonded to the connector shell. There is no metal backshell. The cable is retained using potting to reduce the overall cost.



Inner shields are isolated from one another. Inner shields around Sout and Dout pairs are connected together and to pin 3 of connector.

Figure 3: SpaceWire Cable Assembly Wiring Diagram

Ordering information

SpaceWire Lab cables are available in several standard sizes:

Length	Order Code
0.5 m	Cable 0.5 m
1 m	Cable 1 m
2 m	Cable 2 m
3 m	Cable 3 m
5 m	Cable 5 m
10 m	Cable 10 m

We normally keep these cable lengths in stock.

Contact Details

STAR-Dundee Ltd
 STAR House, 166 Nethergate,
 Dundee, DD1 4EE, Scotland, UK
 Tel: +44 1382 201 755 Fax: +44 1382 200 793
 Email: enquiries@star-dundee.com
 Web: http://www.star-dundee.com