

EtherSpaceLink ESL-RG201

EtherSpaceLink test and monitoring equipment for aerospace



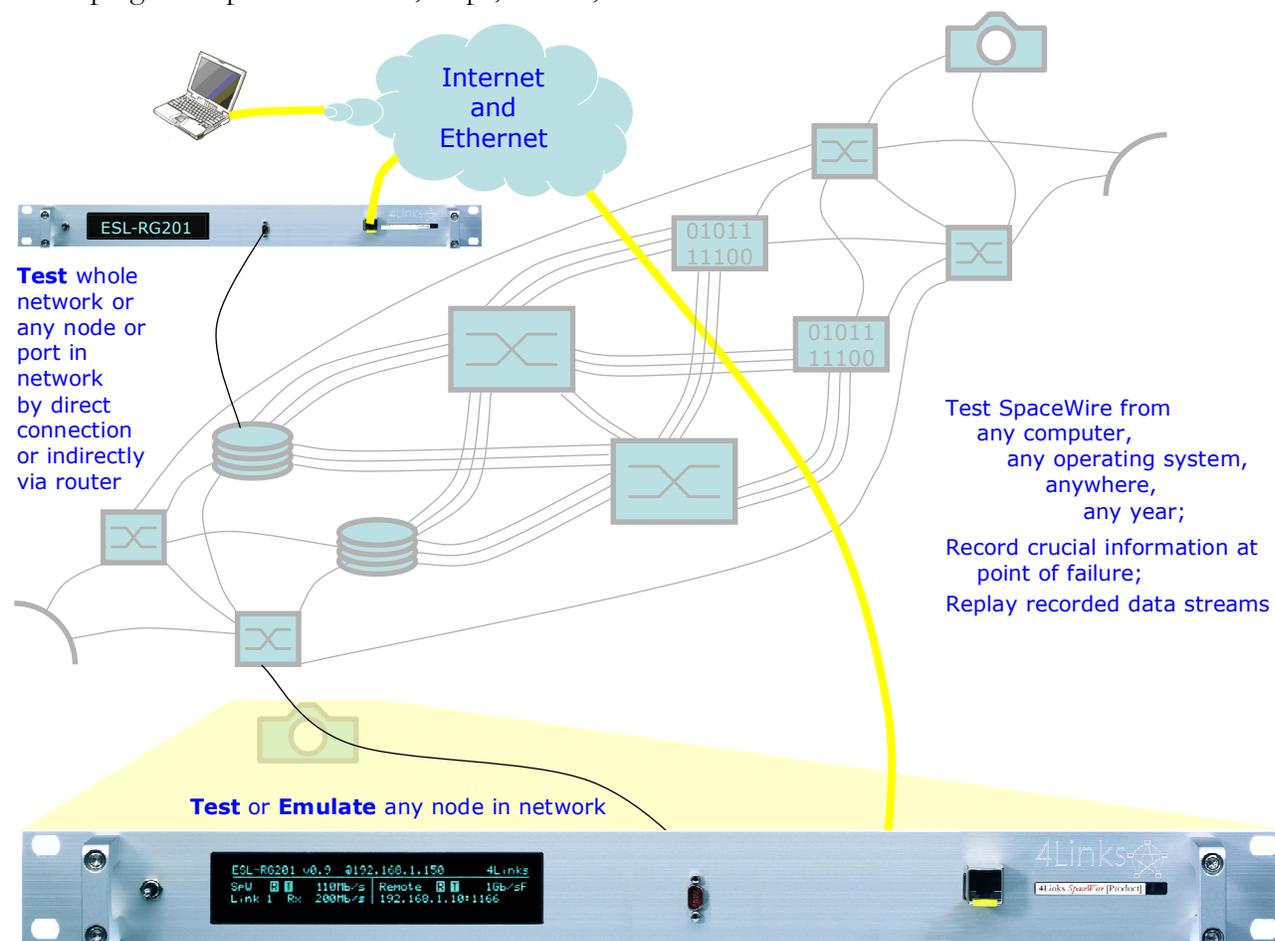
Product brief

Test, control, and simulation interface to SpaceWire from Ethernet and Internet

Fast/Gbit Ethernet; One 200Mbits/s SpaceWire Link

The 4Links ESL-RG201 EtherSpaceLink, an upgrade of the ESL-RF201, provides a simple interface from software on a local or remote computer to test, monitor or control SpaceWire chips, boards, subsystems or systems. A seamlessly integrated set of diagnostic options makes the unit ideal for modelling, developing and debugging SpaceWire hardware and software. TCP/IP and 10/100/1000 full duplex Ethernet make this interface independent of the computer used for testing, its operating system, its distance from the equipment under test, and the year in which the testing is performed.

The full EtherSpaceLink family of products can be used for testing, monitoring, analyzing, validating, modelling and emulating any element in a SpaceWire network. Like other members of the family, the ESL-RG201 has the ability to set the link speed with a resolution of 1Mbit/s or less up to 200Mbits/s, has Gbit Ethernet and enhanced protection of equipment under test. Other family members include multiple SpaceWire ports up to 400Mbits/s and have the ability for the same hardware platform to perform different functions such as routing switch, monitor/analyzer or recorder, and to do link or network validation. Where a single link need to be tested, the ESL-RG201 is extremely useful for developing new SpaceWire cores, chips, boards, and instruments.





Test SpaceWire from
any computer,
any operating
system,

Because almost every computer and every operating system is able to connect to Ethernet and to the Internet Protocol, the ESL-RG201 can test, control and monitor SpaceWire nodes and networks from the computer and operating system of the user's choice.

anywhere,

Using the Internet Protocols allows testing of SpaceWire to be done remotely from the equipment under test. This can be from an engineer's desk (outside the clean room) or from across continent or ocean.

any year

While PCs need to be replaced every few years, projects can last a decade or more. Ethernet and IP allow the use of the test equipment throughout the project, even as the computers and OS are changed.

Record crucial
information at point
of failure

From a user program, the complete data stream in both directions can be recorded to a file for off-line analysis. If the Error Waveform option is purchased, detailed information from before, during and after a SpaceWire protocol error is also recorded to a file for display as a waveform file with full decode of bits and SpaceWire characters.

Replay recorded data
streams

A recorded data stream can be replayed either with the transmit and receive directions as recorded or with the directions reversed. So the equipment at both ends of a SpaceWire link can be tested with the diagnostics available from the ESL-RG201 before the two ends are brought together.

Detect and diagnose

The EtherSpaceLink products have detected anomalies in SpaceWire designs that had passed many months of rigorous simulation. The diagnostic options, including time tags and error waveforms as well as the ability to record and replay data streams, have been instrumental in quickly locating the cause of these anomalies.

Protect

Test and simulation equipment must protect flight equipment from any possible damage caused by the test equipment. The ESL-RG201 protects flight equipment with five layers of current and voltage protection.

Choose the options
required

ER: Error Reporting,
EW: Error Waveforms, displaying the captured waveform with full SpaceWire protocol decode
TC: Time Codes, including the extra time codes used by NASA
TT: Time Tags, to a resolution of 100ns.

Update throughout the
project life cycle

The function of the ESL-RG201 is defined by a plug-in memory card which can be updated to provide additional options and/or enhancements to the ESL-RG201.

Alternative products

The ESL-RG401/8 provides an enhanced SpaceWire interface (to 400Mbits/s) to one out of eight ports. It is available on a variety of different platforms, whose memory cards can be changed to provide different test functions in the same hardware. With this increased reconfigurability, the ESL-RG401/8 may cost less than the ESL-RG201 over the life of a project.

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