

COMPACT EMBEDDED STANAG3910 INTERFACES



The STANAG3910/EFEX bus is the core Avionics Databus Interface on-board the Eurofighter aircraft. Data transmission is at 20Mb/sec over a fiber optical high speed network using a Star coupled topology. The Rafale aircraft also uses STANAG3910 but with an electrical implementation.

STANAG3910 also encompasses the legacy MIL-STD-1553 bus for the low speed (LS) interface. Operating in tandem STANAG3910/EFEX offers increased bandwidth and throughput for avionics applications.

With the exception of the Fiber Optical Front End (FOFE) the available integrated electronics components required to build such an interface or test equipment can be significantly reduced. Full test and simulation interfaces come in a variety of form factors such as PCI/PCIe and CPCI/PXle take full advantage of SoC (System on a Chip) technologies and low power devices driving down the size and weight but with an increased MTBF.

With a scalable hardware / software design concept, this has facilitated a further scaled down interface for embedded applications. For example, on board system interfaces will only need operate as a remote terminals or bus controller and Bus Monitor with no error injection and fixed bus coupling. In fact, such a design has already been implemented for a Eurofighter operational STANAG3910/EFEX interface for a customer specific STANAG3910/EFEX interface FOFE module.

This has led to the creation of an industry standard form factor based on XMC with a small footprint of 149mm x 74mm well suited to embedded applications with an operating temperature range of -40 to +85°C. A PrEN3715 interface connects to the STANAG3910 physical bus I/O e.g. to an external FOFE module. All interfaces are routed to a robust 68-pin SCSI connector including the dual redundant STANAG3838/MIL-STD-1553B bus signals, a TTL-trigger I/O, IRIG-B time code and 8x discrete I/O's. Signal access is via the P16 rear I/O XMC connector with a VITA 46.9 x8d, x12d and x24s signal mapping. All this is in compliance with the XMC/PCIe standards, XMC single lane, 2.5Gb/s PCI Express V2.0 compliant and compatible to higher versions. \\

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