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WA73A-455

2-CH MIL-STD-1553A/B Bus Simulator Module



✪ Features

Two independent channels
Emulates a 1553 Bus Controller (BC), Remote Terminal (RT), or acts as a 1553 Bus Monitor
All 1553 parameters are programmable
Extensive Error Insertion and Error Detection, under program control, on any word or message
Programmable output level and input threshold

The WA73A-455 MIL-STD-1553A/B Bus Simulator Module allows a system controller in an ATE system to communicate with and test devices that conform to the MIL-STD-1553A/B data bus used in military aircraft and communications systems. Each of the WA73A-455's two channels operate as two separate and independent channels with their own VXIbus logical address, interrupts, and complete set of controls and indicators. As a result, each channel of the WA73A-455 is truly an independent instrument, and, therefore, individually programmable.

The WA73A-455 offers three modes of operation for each channel:

- 1553 Bus Controller (BC) Simulator
- 1553 single or multiple Remote Terminal (RT) Simulator
- 1553 Bus Monitor

In the Bus Controller Simulator Mode, each channel of the WA73A-455 has the ability to communicate with any or all of the 32 remote terminals (31 plus broadcast mode) specified by MIL-STD-1553 A/B. The system controller loads the module with a bus controller message sequence list and data lists for each RT to be addressed. When instructed to do so by the system controller, the selected WA73A-455 channel transmits pre-programmed messages to the proper RT(s). Any response data received from the RT is stored in on-module memory for that channel.

In the RT Simulator mode, each channel of the WA73A-455 simultaneously emulates any or all of the different RTs. The system controller pre-loads the WA73A-455 with the appropriate response data and status words for each simulated RT. Data received for the 1553 bus by the WA73A-455 is stored in on-module memory for later evaluation.

In the Bus Monitor mode, the selected channel of the WA73A-455 module assumes an essentially passive role; it simply observes and stores all bus traffic. Up to 30K data, command, or status words can be stored in channel memory for later evaluation.

The WA73A-455 allows the introduction of controlled errors into the transmitted data stream of each channel to provide worst-case testing of 1553 bus devices. These include incorrect parity, erroneous 1553 Manchester encoding, zero crossing errors of 150 ns, dropped data bits, inter-word data gaps, incorrect or invalid 1553 sync patterns, incorrect RT response times, incorrect number of data bits per word, incorrect number of words per message, invalid signal levels, and common mode signal injection.

On received data, the WA73A-455 distinguishes between incorrect transition time errors, Manchester errors, dropped data-bit errors, bit count errors, parity errors, incorrect sync errors, terminal response time errors, inter-word data-gap errors, word count errors, and message format errors such as incorrect RT address, missing RT response, invalid status words, invalid mode code usage, and invalid broadcast mode usage.

BITE: Although the WA73A-455 self-test capability is invoked with a single command, each channel is tested independently. Visual Built-In-Test Equipment (BITE) for each channel is provided by a separate set of indicators that provide status information, including address, power, failures, programming errors, 1553 bus communication, mode of operation, and pattern recognition. A TEST command provides a complete RAM and ROM self-test for each channel.

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