Adtech SX/14 Data Link Simulator

Part Number 140101

Overview

Adtech SX Series Data Link Simulators create the same delay and error characteristics caused by long distance terrestrial and satellite data links. By providing realistic simulations of actual network conditions, they allow users to stress test equipment and network applications without the expense and inconsistency inherent with on-line testing.

Utilizing dual-channel, full-duplex interfaces, these devices provide true bi-directional testing using programmable delays, random bit errors, and burst errors. Multiple delay and error events can be programmed into complex sequences to simulate a wide variety of adverse link conditions or even specific events such as targeting line framing bits and testing CPE alarm thresholds.

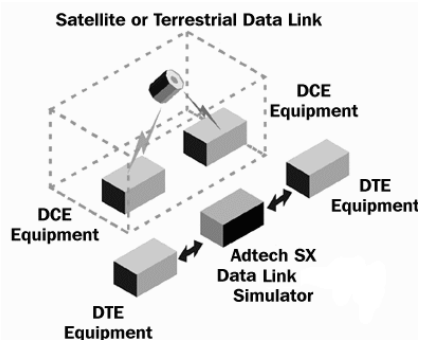
The SX/14 is Adtech's fastest and most advanced simulator supporting speeds up to SONET 155.52 Mbps. In addition to its own set of physical interfaces, the SX/14 also accepts SX/13A style physical interfaces.

Applications

Adtech Data Link Simulators can be used to test the effects of digital data links on the operation, performance, and reliability of multiplexers, bridges, encrypters, network applications, and related communications hardware and software products.

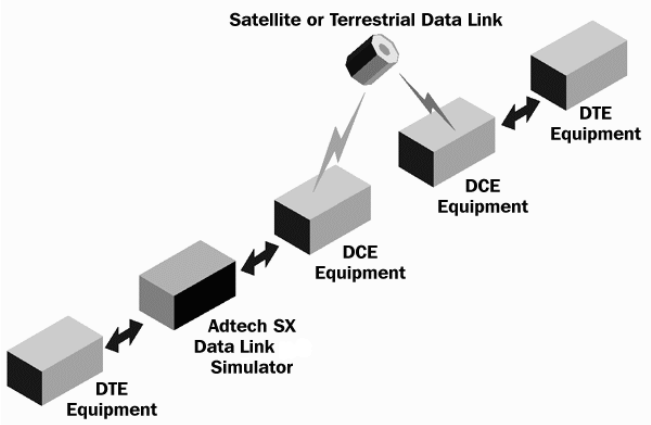
Example 1: Simulating a Data Link

When used for link simulation, these simulators connect directly between two pieces of equipment to simulate conventional data links such as satellite connections, terrestrial or data networks.



Example 2: Simulating an Additional Data Link

The simulators can also be used in line with a real data link to add additional delays or errors. This simulates the effects of adding one more link to the system.



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Hardware Description

Each SX/14 simulator is housed in a rack mountable chassis and uses interchangeable plug-in modules to support various data channel (physical) interfaces. The front panel includes an LCD display and keypads for user input and control. All front panel functions can also be accessed remotely via an optional IEEE-488 or RS-232 remote control port. Other hardware options providing additional delay and error simulation capabilities are also available.

Features and Specifications

Type of Channel
- Full-duplex digital link

Data Rates
- 100 bps to 155.52 Mbps

Error Generation
- Random (Gaussian) bit error rates from 0, 1 x 10-12 to 9 x 10-1, 1
- Logical errors, BPV or Code errors selectable for high speed interfaces
- Optional targeting of errors at specific bits and subchannels of formatted streams

Burst Error Density (errors/bit)
- Burst error rates from 0, 1 x 10-8 to 9 x 10-1, 1
- Logical errors. BPV, force to 0 or 1, or Code errors selectable for high speed interfaces
- Selectable burst length from 1 to 16,777,215 bits or from 1 to 9,999 ms
- Selectable gap between bursts from 1 to 99,999,999 ms

Burst Error modes
- Fixed gap length, fixed burst length
- Random gap length, fixed burst length
- Fixed gap length, random burst length
- Random gap length, random burst length
- Manual burst trigger, fixed burst length
- Manual burst trigger, random burst length
- Manual single bit error injection

Delay Generation
- Delays up to 10 seconds in 1 msec, 1 usec, 16 to 48 bit steps, each direction
- Displays delays in msec, usec, or bytes
- Optional targeting of delays at specific bits and subchannels of formatted streams

Low Speed Data Channel Interfaces Available
- RS-232-C
- RS-449 (RS-422-A)
- RS-423-A
- EIA-530
- V.35
- DS1 (T1) (1.544 Mbps)
- E1 (G.703 2.048 Mbps)

High Speed Data Channel Interfaces Available
- E3 (G.703 34.368 Mbps)
- T3 (44.736 Mbps)
- STS-1 (51.84 Mbps SONET)
- HSSI (up to 51.84 Mbps)
- STS-3 (155.52 Mbps SONET)
- OC-3 (155.52 Mbps SONET)

Data Channel Clocking
- Internal
- External
- Asynchronous
- Recovered

Programming
- Programmable test sequences with complex link degradations
- Up to 99 parameter steps per sequence
- step duration from 1 to 9,999,999 seconds
- All SX/14 parameters are programmable including error rates, delay and triggers
- Sequencing capabilities include manual step trigger and auto repeat

Other Built-in Features
- 8 line by 40 character LCD
- 10-year lithium battery backup for program memory
- Self test, bypass, loopback, and keyboard lock modes

Remote Control Options
- IEEE-488
- RS-232

Error Targeting Option
- Targets one of six error types into specific selected overhead bits in T1, T3, E1, E2, E3, and STS-1 data streams
- Errors can also be targeted into selected DS0 channels in T1 and E1 data streams
- Programmable User-defined pattern injection into any data stream

Extended T1/E1 Simulation Option
- Permits assigning any one of 10 definable delays to each timeslot (DS0) in T1/E1 data stream
- Permits targeting within a variety of framing formats to any desired bits in multiframe
- Each channel can be targeted independently
- Fixed, random and burst errors
- Injected errors types include logic reversals, zero insertions, one insertions

Size and Weight
- 19" wide (rack mountable)
- 5.25" high
- 14" deep
- 19 lbs
- Power Requirements
- 115 or 230 VAC +/- 10%
- 47-66 Hz

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