Adtech SX/12 Data Link Simulator

Part Number 120100 SX/12-0 Data Channel Simulator Mainframe
Part Number 120101 SX/12-1 Data Channel Simulator Mainframe
Part Number 120102 SX/12-2 Data Channel Simulator Mainframe

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.

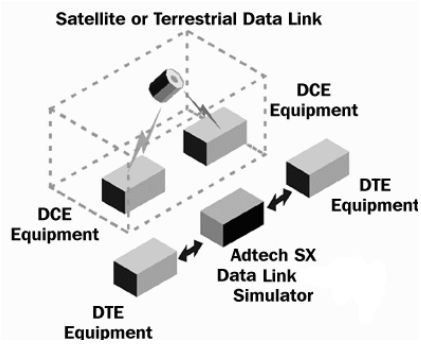
Utilizing dual-channel, full-duplex interfaces, these devices provide true bi-directional testing using programmable delays, random bit errors, and burst errors. Multiple delay and error events can be programmed into complex sequences to simulate a wide variety of adverse link conditions or even specific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

Adtech's lowest priced simulator model, the SX/12, is available in three versions supporting link speeds up to 8.448 Mbps.

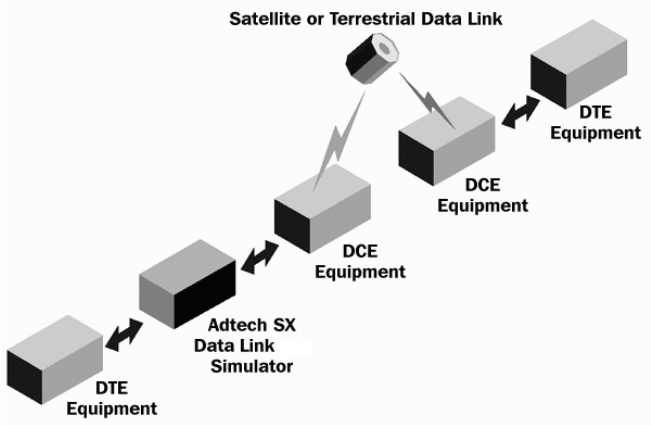
Applications

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/12 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

There are three different versions of the SX/12. All function identically except for the maximum link speed each version supports. An Extended T1/E1 Simulation option is available for the SX/12-1 and SX/12-2 versions. This factory installed hardware option provides additional delay and error simulation parameters for T1 (1.544 Mb/s) and E1 (G.703 2.048 Mbps) data streams.

Versions

Note: All SX/12 versions are factory upgradeable.

- SX/12-0 Data Link Simulators (supports link speeds up to 100 kbps)
- SX/12-1 Data Link Simulators (supports link speeds up to 2.048 Mbps)
- SX/12-2 Data Link Simulators (supports link speeds up to 8.448 Mbps)

Type of Channel

- Full-duplex digital link

Error Generation

- Random (Gaussian) bit error rates from 0, 1 x 10-9, 2 x 10-9, 3 x 10-9, ... 9 x 10-1, 1
- Optional targeting of errors at specific bits and subchannels of formatted streams.

Burst Error Generation

- Burst error rates from 9 x 10-1 to 1.0 x 10-9
- 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

Delay Generation

- Delays up to 10 seconds in 1 ms or 8 bit steps
- Optional targeting of delays at specific subchannels of formatted streams

Available Interfaces

- RS-232-C
- RS-449 (RS-422-A)
- V.35
- DS1 (T1) (1.544 Mbps)*
- G.703 (E1, 2.048 Mbps)*
- G.703 (E2, 8.448 Mbps)**

** available for SX/12-1 and SX/12-2 versions*

*** available for SX/12-2 version*

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/12 parameters are programmable including error rates, delays and triggers
- Sequencing capabilities include manual step trigger and auto repeat

Other Built-in Features

- 2 line by 40 character LCD
- 7-year lithium battery backup for program memory
- Self test, bypass, loopback, and keyboard lock modes

Remote Control Options

- IEEE-488
- RS-232

Extended T1/E1 Simulation Option

Note: SX/12-1 and SX/12-2 only

- 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
- Permits targeting of overhead bits: framing, signaling, CRC, etc.
- Fixed, random and burst errors
- Injected errors types include are logic reversals, zero insertions, one insertions

Size and Weight

- 19" wide (rack mountable)
- 3.5" high
- 12" deep
- 11.5 lbs

Power Requirements

- 115 or 230 VAC +/- 10%
- 48-66 Hz

ADTECH™

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