Ellisys USB Exporer 260

Multifunction USB 2.0 Test System

ellisys
Better Analysis.

Industry's First Multifunction USB 2.0 Protocol Test System with Packet Generation, Inline Error Injection and Automated Compliance Verification

Overview

The Ellisys USB Explorer 260 is a sophisticated protocol test system for USB traffic monitoring, driver and software stack debugging, protocol compliance verification and performance analysis. The EX260 can reduce your R&D development time by finding issues early and debugging more efficiently, and can improve quality and reliability by verifying compliance to the specifications.

The multifunction USB Explorer 260 can:

- analyze USB 1.1 and USB 2.0 links at any speed, including OTG and the new InterChip-USB;
- emulate USB hosts and devices;
- inject pre-defined error patterns for stress and error recovery testing; and,
- automatically verify compliance to the USB and class specifications.

Designed to be "USB 3.0-ready", it is based on Ellisys' new industry-leading hardware embedding 1 GB of memory and a high-performance custom-made processor with the processing power required to test the USB 3.0's new 5 Gbps Super-Speed mode. Super-Speed support will be provided through an optional hardware upgrade. This permits cost-effective re-use -- rather than replacement -- of the EX260 hardware as the specification evolves.

Each flexible Ellisys USB Explorer 260 hardware unit is capable of acting either as a protocol analyzer or a packet generator depending on configuration.

Configurations

The **Ellisys USB Explorer 260 Analyzer** includes Ellisys' extensive analysis features with real-time monitoring, hard-disk data streaming, in-depth class decoding, comprehensive traffic statistics, and powerful triggering and filtering.

The EX260 analyzer is based on Ellisys' renown USB analysis software that is well-proven for validating device enumeration, solving communication issues, detecting interoperability problems and optimizing performance.

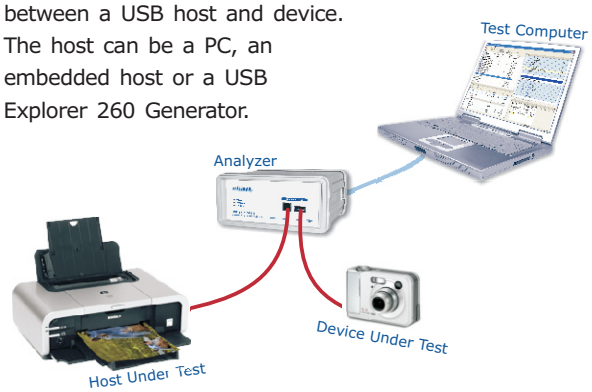
The **Ellisys USB Explorer 260 Generator** supplements protocol analysis by emulating USB devices and hosts, and by testing corner cases and recovery mechanisms. Reproducible traffic, timing and error scenarios can be created with a powerful scripting environment. Captured traffic can be replayed to test a particular situation. The Generator supports the industry's first Inline Error Injection feature to insert programmed errors between a host and device to determine the impact of transmission errors under rare conditions.

The Generator also includes the Ellisys USB Pre-Compliance Automated Testing software. This software controls a generator and an optional analyzer to automatically verify the compliance of devices against the USB specification and the classes specifications such as HID and Mass Storage.

The **Ellisys USB Explorer 260 Duo** is a flexible bundle of two full-featured units that can be used as one analyzer and one generator, two analyzers or two generators depending on your testing requirements. More convenient than having both functions on the same unit, this allows you to better share your test equipment among your R&D team.

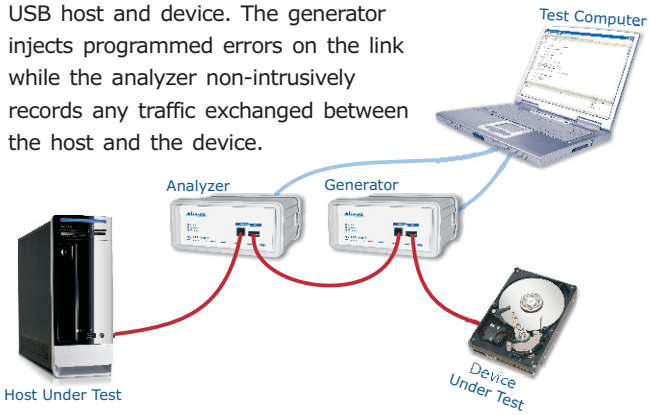
Typical Analysis Setup

The USB Explorer 260 Analyzer is connected in pass-through mode and records any traffic exchanged between a USB host and device. The host can be a PC, an embedded host or a USB Explorer 260 Generator.



Inline Error Injection Setup

A USB Explorer 260 Generator and USB Explorer 260 Analzyer are connected in pass-through mode between a USB host and device. The generator injects programmed errors on the link while the analyzer non-intrusively records any traffic exchanged between the host and the device.



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Analyzer Applications

- USB host and device traffic monitoring
- Drivers and software stacks debugging
- Passive protocol compliance verification
- Performance analysis

Generator Applications

- USB host and device traffic emulation
- Error recovery mechanisms testing
- Active protocol compliance verification
- Stress testing

Analyzer Features

- Analyses links non-intrusively
- Transfers analyzed data in real-time for virtually unlimited recording time
- Highlights protocol errors and interoperability issues
- Efficiently decodes all requests and data structures

Generator Features

- Generates arbitrary packets with precise timing control
- Injects errors to test error recovery mechanisms
- Uses exported scripts from analyzer to play back all kind of scenarios
- Powerful scripting environment with integrated editor and debugger

Technical Specifications

Analyzer Characteristics

- Supported specifications: USB 1.0, 1.1, 2.0, OTG and IC-USB (ready for USB 3.0)
- Supported link speeds: 1.5, 12 and 480 Mbit/s with automatic discovery (designed for up to 5 Gbps)
- Timestamp accuracy: 16.67 ns precision
- Low-level errors: detection of bit-stuffing, CRC-5 and CRC-16 errors
- Bus states: detection and measurement of Reset, Suspend, Keep Alive and High-Speed Handshake states

Generator Characteristics

- Supported specifications: USB 1.0, 1.1, 2.0, OTG and IC-USB (ready for USB 3.0)
- Supported link speeds: 1.5, 12 and 480 Mbit/s (designed for up to 5 Gbps)
- Supported modes: host, device and inline error injection
- Timing accuracy: 16.67 ns precision

Embedded Memory

- 1 GByte of FIFO memory
- Analyzed data is stored in a highly optimized format
- Analyzed data is downloaded in real time through USB 2.0 High-speed connection

Connectors

- Link Under Test: USB 1.0, 1.1 and 2.0, OTG and IC-USB, all speeds supported
- Computer: Certified USB 2.0 High-speed
- Auxiliary Equipment: Supports connection of the Trigger board or other extension boards

Power Supply

- No external power supply needed (USB bus powered)
- 500 mA during normal operation
- 500 µA when suspended

Front-panel Indicators

- Power: analyzer powered on
- Activity: traffic detected
- Trigger: trigger event detected

Enclosure

- 150 x 120 x 65 mm (5.9 x 4.7 x 2.5")
- 850 g (1.9 lbs)

Hardware Upgrade

- The decoding engine is automatically updated with each software release (no user intervention required)
- The hardware is designed to support changes in the specification (with hardware upgrades)
- The motherboard supports more than 5 Gbps of throughput

Product Warranty

- Two years warranty

Ordering Information

Description	Code
USB Explorer 260 Analyzer (includes 1 hardware unit with USB analysis option, 1 CD-ROM, 2 USB cables and 1 carrying case)	USBEX260A
USB Explorer 260 Generator (includes 1 hardware unit with USB generation option, 1 CD-ROM, 2 USB cables and 1 carrying	USBEX260G
USB Explorer 260 Duo (includes 2 full-option hardware units both able to operate as either analyzer or generator, compliance verification, 2 CD-ROMs, 4 USB cables and 2 carrying cases)	USBEX260DUO
IC-USB Analysis Probe (includes 1 probe to connect on inter-chip USB board; requires a US Explorer 260 Analyzer unit)	USBEX260A-IC

Options Chart

	Analyzer	Generator	Duo
Hardware units	**1**	**1**	**2**
USB analysis	**yes**		**yes**
USB generation		**yes**	**yes**
USB compliance		**yes**	**yes**

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