MSB-RS232

recording
exploring
simulating

- OS independent real time resolution of 1µs
- Supports any baudrate from 1 Baud to 1 MBaud
- Automatic detection of baudrate and protocol
- Supports protocols with 9 data bits
- Detects invalid levels (tristate)
- Correct time relationship between all lines
- Display of real level changes RxD, TxD
- Signal switching/rerouting, data injection
- Availiable for Windows and Linux

"The perfect combination of sophisticated hardware and software analysis"

An essential tool for RS232 analysis/optimizing

As an autonomous device the MSB-RS232 analyzer gathers exact information about every line change with micro second precision, independent from the PC and its operating system.

Equipped with a multitude of visualization tools it allows a detailed view into every RS232 communication and detects conditions which can be recorded by a true 'hardware solution' only!

Features & Benefits

Simultaneous sampling of all lines by external hardware

Exact measurement of all RS232 signals with a precision of 1µs and a maximum sampling rate of 16 MHz, independent from the PC operating system. No wrong time stamps or event sequences due to delayed or not answered system interrupts (software solutions).

Any baudrate with FLEXUART

High-precise set and measurement of standard and non standard baudrates in the range from 1 Baud up to 1 MBaud with a resolution of 0.1% of value. Recording, analysis and own data injection with any, even unusual baudrate. Detection of asynchronous or drifting baudrates between sender and receiver.

Detection of invalid line levels

Recognition of open lines, stand-by conditions of the data drivers or short circuits.

Automatic protocol detection

Simple check and analysis of any communication with unknown connection parameters.

Protocol templates

Define own rules how your data shall be displayed or visualize any application specific protocols.

Data analysis in real time

Examination of the connection already while recording the data.

Framing, Parity, Break Detection

Direct analysis of error conditions and the reactions of end devices thereon.

Simplest application

Just insert the analyzer into any RS232 connection and link it via USB with your computer.

Start the software and dive into your connection.

Scope-like display of the data lines

Simultaneous display of the logical signals as well as the transferred data. That makes the error analysis and search easy for transmission errors, i.e. improper bit rates (jitter) or wrong data formats. Measuring of the real signals with the integrated bit ruler.

Integrated schematic switch editor (option)

Extends the analyzer by the capability to interactively alter the signals. Lines can be switched or rerouted and data can be injected in any line (inclusive simulation of framing and parity errors). Also break conditions can be sent.

Pattern search with regular expressions

Makes the search for any data sequences possible with wild card characters and time distances or pauses between data strings.

Integrated LevelFinder

Finds any static level, level change or error condition. Combined with the search for defined data bytes it is a precious tool to analyze hardware protocols.

Future-proof by modern FPGA technology

Integrated state of the art gate array technology allows permanent advancements and adaption to different applications. The updating is done simply at start of the software.

Compact housing with USB connector

No additional power supply necessary. Mobile operation even with laptop.

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Analyzer Software

The MSB-RS232 analyzer software uses a multi-process architecture to guarantee a high maximum in stability and scalability.
Already while recording the data can be displayed at different points in time, in different formats, and with different time resolutions (scope view). We call this concept **MultiView**, the actors **Views**.

Whether you like to compare two different points of time in your recording, or simply show the physical data signal according to the data byte sequences, just open the kind and quantity of views for your need.
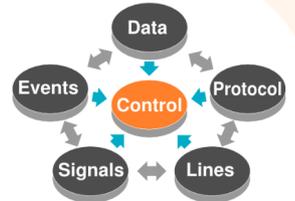
Easy to use

Views are autonomous programs which link into a current running recording and visualize data in a certain format.

The MSB-RS232 analyzer software follows the concept to offer a specially optimized display tool for each kind of examination.

Each view provides functions which represents its kind of data interpretation. Thereby the handling stays easy and clear, multiline toolbars and overload menus are avoided.

Data export

Simple copy and paste of recorded protocol or data sequences into other applications for further evaluation or documentation purposes.
Or export the data as CSV for further evaluation of the logged data in Microsoft Excel or other spread sheet programs. That makes the full toolset of these programs available for statistic examination, sorting and other calculations.

Supports several OS

Run it on your favorite OS - it's your choice!
The MSB-RS232 software is delivered as 'native binary' for Microsoft Windows and Linux. No emulation, no additional libraries, noinstallation of .NET ® or Java ®.

Language

German and English language support.

Your are looking for a special sequence, perhaps a pattern like a CMD??!. Spot on to the data tool.

Examinating or searching certain line changes or errors with the event view.

Define your own rules how you like to display the single data sequences and visualize any protocol for your own matter.

Imagine you have a jittering baudrate clock or odd data errors. This is a job for a scope like tool, examining the real signal.

Technical changes and improvements can be done without prior notice. March 2010

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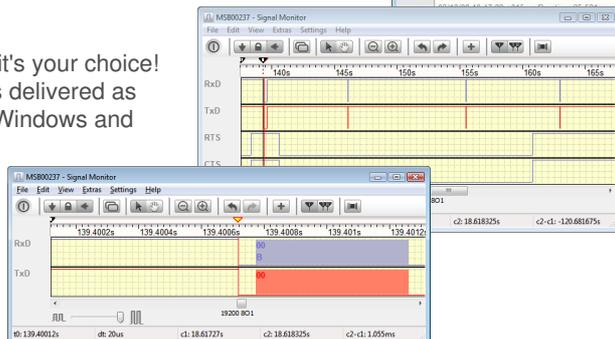
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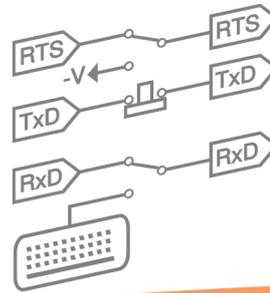
What a pure software solution cannot provide

A virtual breakout box

By breaking the interface lines and feeding them through a gate array some optional features are available. The signal do not have to be connected directly 1:1, but can be rerouted, changed and manipulated. Loop back functionality, switching, breaking and changing protocol lines are possible.

How it works

Imagine the switch option as a kind of patch panel between the inputs and outputs of port A and B. On this you can place switches, inverters and further elements and wire them to the connectors of both ports. But with the difference, that you do not use real wires and switches. You only place and connect them virtually on a drawing area.

Advanced Features

Line inverting
Inverter elements allow the purposeful negation of each data/signal line.

Data injection
Input any desired data sequences, also binaries.

Simulate transmission errors
Send data together with a framing or parity error, send break.

Data probe of any line
Free selection of lines, which are interpreted as data transmission signal.
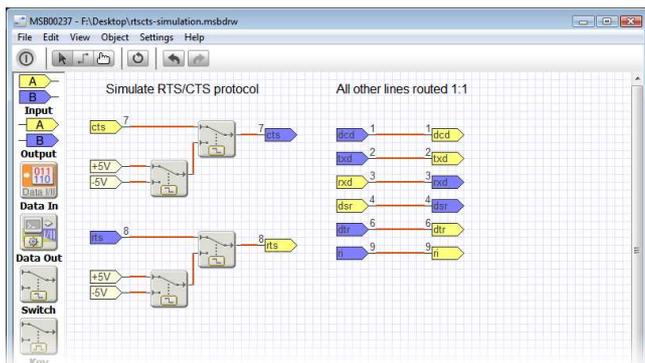
Automatic protocol scanner for baudrate, databits, parity

The MSB-RS232 analyzer contains a so called **FLEXUART** core, an specially developed decoder hardware, for the serial data transmission which allows not only the measuring of any baud-rate in the range of 1...1MBaud but also the detection of the used protocol.

How can it help?

Sometimes the real data format is not known if you have older devices for which the interface descriptions got lost.

Or you are not sure if the sender really adds the correct parity bit. You always should verify the data structure before starting the examination of the communication.
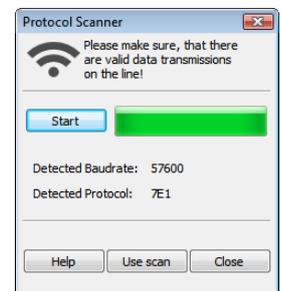
Simply insert the analyzer into the active connection, press 'scan' and after having decoded some characters you will get information about the probable data format.

Working with any baudrate

By the feature to log data at any baudrate you can also check connections at uncommon transmission rates which sometimes are used inside systems, where the available system clock is directly divided to the baud clock.
The resulting baud rate is not a multiple of 9600, but any other, which can not be correctly decoded by PC communication ports.

When using the **switch option** you are also able to send data at varying baud rates to the devices. Simply to check their ability to deal with not perfect data transmissions.

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Optional extensions

SwitchOption
A virtual breakout box with the ability to influence (switch, break) lines, inject data, simulate protocols/errors and reroute signal pins. This function can be enabled by option key at any time.

W232-Cable
Extention of the MSB-RS232 analyzer capabilities by uninterruptible analysis, siehe separate data sheet.

Availability and price

This article is exclusively available at www.iftools.com. Complete price MSB-RS232 analyzer including CDROM, 2m RS232 and 2m USB cable: **349 €**

Optional Switchoption: **99 €**
W232 cable: **39 €**

(All prices plus tax if applicable)

Technical data

Baudrates	High-precise setting and measuring of standard and non-standard baudrates in the range from 1 Baud to 1MBaud with a resolution of 0.1% of the set resp. measured value (FLEXUART).
Data formats	Parameter for TxD, RxD: 5 to 9 data bits, parity off, even, odd, constant 0 or constant 1.
Logical line state	Logical level 1 (V-), 0 (V+), invalid (-1.3V <In <+1.3V)
Time resolution	All lines are exactly sampled and marked with 1µs time stamps, independent of the OS of the PC.
Signal levels	Standard RS232 level ±3V to ±25 V, ESD protected inputs 5kOhm
Jacks	Standard D-Sub 9pin male / female connectors.
Intern connections	All connections from A and B are connected via high speed drivers and can be separately switched.
Logic mode	Every RS232 input can be seen as a logic input with a trigger level of 1.3V, 5kOhm impedance.
Recording capacity	Depending on free hard disk space, maximum 4 GByte.
Cache	512 kB internal cache memory for buffering of measuring data when recording data with high transfer rates.
Status LEDs	Leds for displaying of: red: recording status and buffer load, green: RxD and TxD data flow.
Power supply	The analyzer is directly supplied from the USB cable. The consumption is about 200mA. USB Ground is the same as RS232 Ground. No external power supply necessary.
Operating Systems	Windows 2000, XP, Vista. All Linux with kernel from 2.4.18 and installed Gtk2 libraries (standard).
Dimension	100mm x 50mm x 25mm (Length, width, height). Weight ca. 100g.

Requirements

Graphical display	Graphic boards and monitor with at least 1024x768 pixel resolution and 16 bit color depth or more.
Disk space	50 MByte empty space for the software installation plus additional space for the recording files.
Memory	128 MByte or more.
USB connector	One empty USB 1.1 or 2.0 connector (full speed).

Scope of delivery

Analyzer	MSB-RS232 analyzer device.
Cable	RS232 cable, 2m, 1:1, 9Pol DSub-Connectors male/female. USB cable 2m.
Software	CD for Windows and Linux, Manual as PDF document in German and English.

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