DATASHEET

SOHARD EMBEDDED SYSTEMS

SH ARCALYZER-USB

ARCNET analyzer as USB device

Scope of Application

The SH ARCALYZER-USB is a universal analyzer for ARCNET networks using bit rates from 19 kbit/s up to 10 Mbit/s.

It consists of a special hardware and an interface module to connect to ARCNET networks via coaxial, RS485 or fiber optic cables and is delivered with software for Windows 2000, XP, Vista, 7, 8, 10 and 11.

The SH ARCALYZER-USB can be used

- during the installation of networks
- for error search in existing networks and
- during development to debug products containing error-prone ARCNET interfaces.

Advantages of SH ARCALYZER-USB

Common ARCNET analyzers normally use ARCNET controller chips as e.g. the COM20020. These offer only limited functionalities. SH ARCALYZER-USB, however, uses a specially developed hardware. A 2 Mbit buffer (FIFO) on the card ensures that no data will be lost when applying high data rates and using non-real time operating systems such as Windows NT. Thanks to a fully reconfigurable logic (FPGA) the SH ARCALYZER-USB is simply updated with software to add additional functions. Thus the SH ARCALYZER-USB is easy upgradeable and future proof!

Requirements for Host Computer

CPU	Pentium processor (or equivalent to) 500 MHz or more
RAM	256 MB or more
HDD	20 MB free hard disk space
Monitor resolution	1024 x 768 or more
Interface	HiSpeed USB-Port (2.0)
Operating System	Windows 11/10/8/7

Specification

Compatibility	ANSI/ATA 878.1, USB 2.0, CE
Power consumption	< 2.5W
Temperature range, operation	0°C to +55°C
Temperature range, storage	-20°C to +85°C
Dimensions (w/h/d), in mm	106/33/125 (without connectors)
Weight	max 500g incl. packaging

Extender interface

D-sub DE9F socket
Galvanically isolated relay output
Trigger output (for use with an attached scope)
Optically decoupled trigger input
TTL trigger input
More details concerning the use of the several inputs/outputs can be found in the Windows help file of the SH ARCALYZER software.

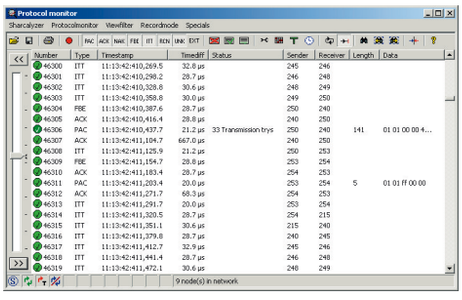
Functionality

Control Center

Control Center is main windows of SH ARCALYZER that provides access to various functions and allows to configure global settings for bitrate and timeout.

Protocol Monitor

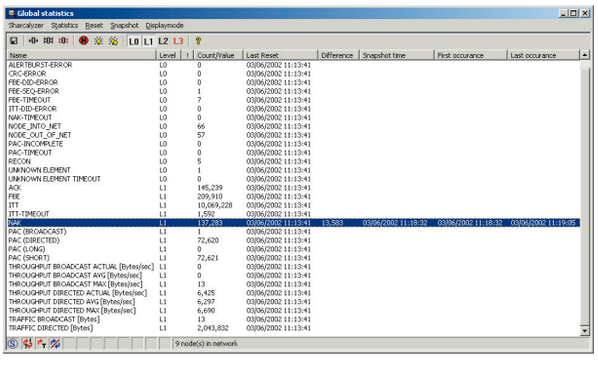
All elements of the ARCNET protocol such as ITT,



FBE, ACK, NAK, RECON and PAC will be detected, time-stamped and displayed. Extensive filters make targeted selections easy. Timeouts, CRC errors etc. will be displayed in the field ‚Status'. You see immediately how many 'attempts to send' data packets were necessary or whether a packet transmission has been interrupted. The recording of the ARCNET protocol transmission (Record file or Protocol Monitor) may be started by an external or internal trigger event. A search function for packet data has been added.

Statistics

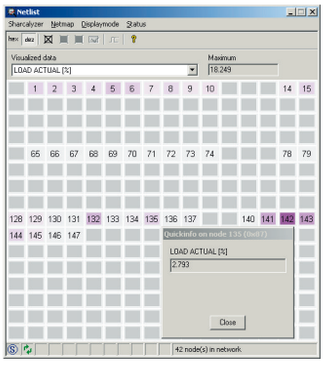
Numerous event counters offer a quick overview, e.g., of the number of reconfigurations, packets etc. There



are global counters as well as counters assigned to single nodes.

Graphic network display

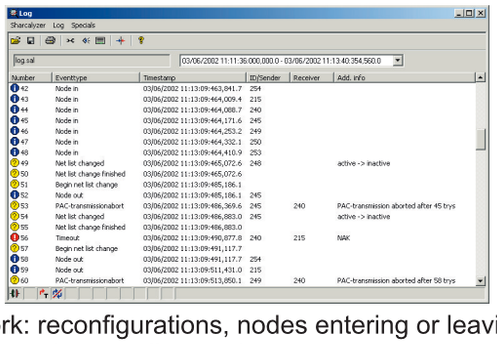
You will recognize at one glance, which nodes are currently within the network as well as their current status. The snapshot function freezes the current status. Deviations from this condition will be displayed in color so that you can see at once which nodes, e.g., leave the network and which nodes are added. Even when 'networks' comprehend only one node, its



address will be displayed. It is possible to visualize certain data in the net list, e.g. network loads when sending PACs (See pic.). Thus you will immediately recognize which nodes stress the network at which scale. In the example you perceive immediately that node No. 142 causes most traffic on the network viz. at a rate of about 18%. In 100 token cycles node 142 sends max. 18 PACs. The maximum rate is 100%, of course, which translates into one PAC per token cycle. It is also possible to visualize FBEs, PACs, NAKs and others the same way. At the time you may query the visualized value for each node individually via the quick info of this window.

Log Function

The log registers all important processes in the



network: reconfigurations, nodes entering or leaving the network, as well as various error messages.

Key features

- Identification and monitoring of the bit rate(s) used in the network and of the timeout settings of all nodes
- Recognition of faulty protocol elements
- Timestamping with a resolution of 100ns
- Recognition of node address even with only one node in the network
- Simulation mode: recorded data will be displayed in real time
- Plugin Interface: Users may visualize their data their own way. Your own plug-ins may be based on our

free-of-charge sample software.

- Packet Monitor: Packet data may be displayed in a more readable form like Word for Windows , ASCII, binary etc.
- Configurable Sound Edition: Users may configure acoustic signals (wave files) for certain events via their own soundcards. SH ARCALYZER-USB may, e.g. be configured to sound a gong at every RECON.
- Triggered Recording. It is possible to record ARCNET protocol traffic (record file or protocol monitor) depending on trigger events. Multiple triggers, triggering via external inputs (optional extenderbox required) and time-controlled recording are also possible.
- 24V output for alarms
- Trigger Signal. It is possible to configure a trigger signal at the extenderbox (optional) when particular events are being recognized so that it can be usede.g. as a trigger for a oscillograph. So you can check the type of signal of any node in the network without directly accessing this node.

Order Information

Order name	Bit rate	Short description
SH ARCALYZER-USB-K	2.5 Mbit/s	ARCNET analyzer as USB device for coaxial interface with BNC socket
SH ARCALYZER-USB-LWLSM	0..2.5 Mbit/s	ARCNET analyzer as USB device for optic fiber interface, single mode with ST socket
SH ARCALYZER-USB-LWLSMA	0..2.5 Mbit/s	ARCNET analyzer as USB device for optic fiber interface with SMA socket
SH ARCALYZER-USB-LWLST	0..2.5 Mbit/s	ARCNET analyzer as USB device for optic fiber interface with ST socket
SH ARCALYZER-USB-LWLTOS	0..2.5 Mbit/s	ARCNET analyzer as USB device for optic fiber interface with TOSLINK socket
SH ARCALYZER-USB-R	0..10 Mbit/s	ARCNET analyzer as USB device for RS-485 interface with D-Sub socket
SH ARCALYZER-USB-TWP	2.5 Mbit/s	ARCNET analyzer as USB device for TWP interface with RJ45 socket

Other ARCNET interfaces are available upon request.
User manual, USB cable and CD with drivers and analyzer software are included with "SH ARCALYZER-USB".

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