LANchecker 100

Handheld Ethernet Analyzer

Key Features

- Autotest function for rapid and efficient testing of 10/100 Mbps networks acc. to IEEE 802.3u 100BASE-TX and 10BASE-T
- **Active performance and connection tests up to maximum net load**
- Comprehensive network statistics
- Automatic detection and configuration of remote unit for one-man operation
- LAN traffic simulation up to maximum network load
- Checking LAN safety functions by simulation of detective data packets
- Integrated wiring and length tests of transmission lines
- Easy one-hand operation with few buttons
- Robust design for field use

Application

The LANchecker 100 provides everything you need for practical measurement during startup operation, acceptance testing and maintenance of 10 Mbps Ethernet and 100 Mbps Fast Ethernet networks. The LANchecker 100 is a portable LAN testing device that can be used in a variety of ways when measuring LANs and is thus an indispensable aid for startup operation, network optimization, maintenance and troubleshooting. The highly sophisticated monitor records all network data and events. During a test operation, it runs as a background process and provides comprehensive network statistics as well as a log of MAC and IP addresses with a detailed analysis. The built-in traffic and error generator simulates stress situations and tests the protection features of the LAN components by displaying errors.

Transmission test with auto configuration

To test the connection quality between two LAN connection points, two LANchecker devices are required. The remote device is automatically detected by the master unit and configured accordingly. Thus, a second person is not needed to operate the remote device. The LMK-2 LAN Test Set is the preferred solution for conducting timesaving measurements. It contains two LANchecker 100 with all accessories at an attractive price.

New

- Throughput test
- Traffic generation up to 100%, also with VLAN extended frames
- Traffic and error simulation in router networks
- Active Partner Link State Test
- IP Ping to remote LANchecker
- IP capability for all transmission tests
- Advanced remote control for most of LANchecker setups

Measuring with automatic test sequence saves time

With Auto Test you can record the network performance by simply pressing a button. Echoes, collisions, and round-trip delay are then measured with a configurable automatic test sequence and assessed as either passed or failed. Up to 512 event logs can be saved along with date, time test number and a comment.

Designed to be highly economical

The LANchecker 100 is an economical portable LAN testing device that fulfils the requirements of modern, on site testing equipment. Due to its versatility, there is no need for additional equipment. The following features have proven to be especially practical for daily testing:

- Multiple use within one LAN
- Fixed address assignment in the pool (alias)
- Measured values can be stored
- Printout of measured values
- Serial interface for data transfer
- External data processing in standard spreadsheet applications (CSV format)
- Export and import of address lists
- Fast update through software download

Cable testing

The LANchecker 100 checks the proper pin assignment and the through-connections as well as the cable length to a connected LAN device or a second LANchecker 100 used as a remote station.

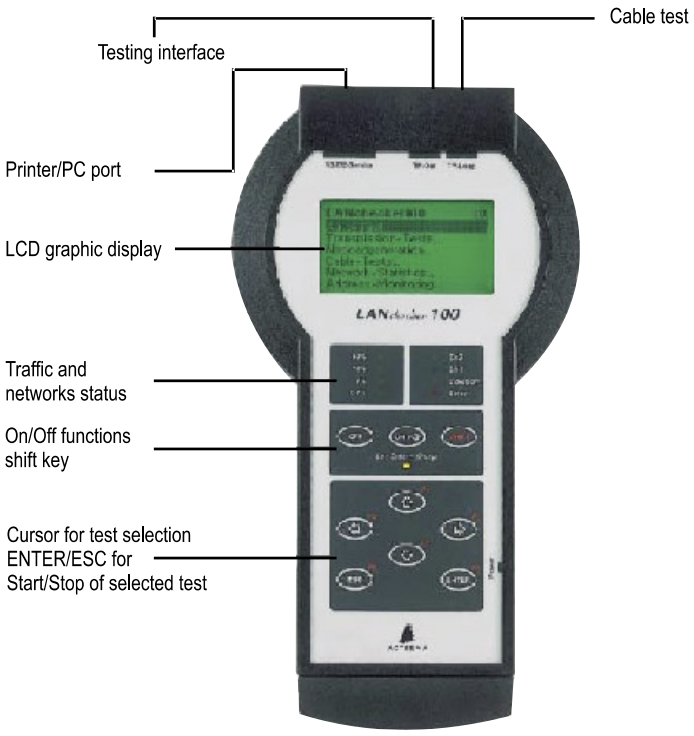


Figure 1: Only a few buttons are rquired to opeate th e LANchecker 100

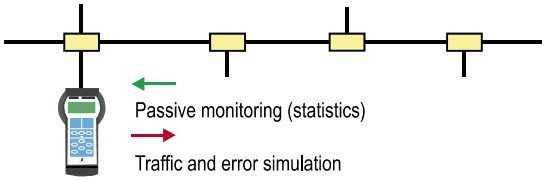


Figure 2: Single-end test with one LANchecker 100

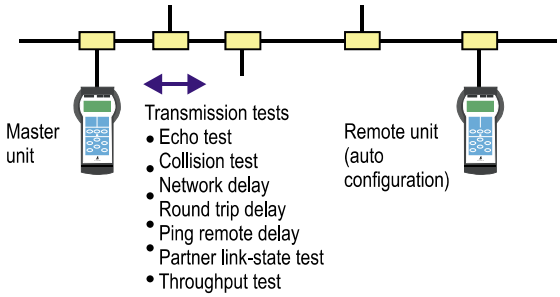
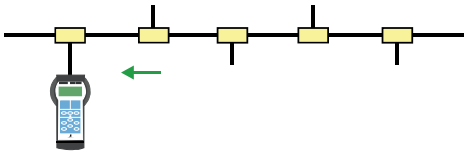
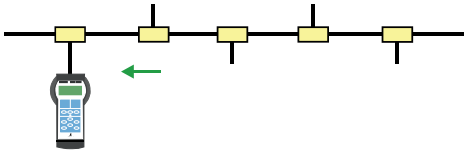
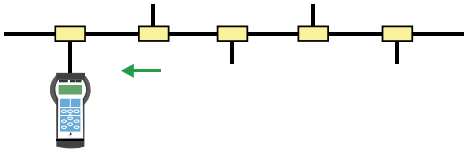
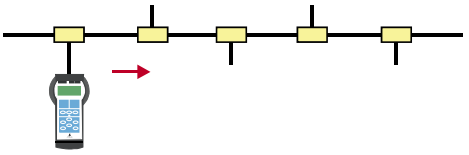
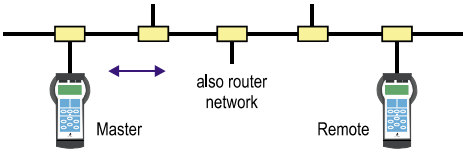


Figure 3: Dual-end test with two LANchecker 100 units

Test configurations and functions

Test	Test configuration	Test function	
Link protocol test	Single-end test with one LANchecker 100 	Link status	Display of current link settings: – 10/100 Mpbs – HDX/FDX
		Link partner	Testing the acceptable link setting of a connected LAN or USER: –10/100 Mbps – HDX/FDX – Autonegotiation
		Link settings	Link setting on LANchecker 100: – Automatic – Auto/10/100 Mbps/HDX/FDX
Network statistics	Single-end test with one LANchecker 100 	Monitoring	Statistics with value and diagram display: – Net load, data quantity in kbit – Number of transmitted packets – Collisions/collision rate – Broadcast/broadcast rate – CRC alignment errors – Too longs – Spikes – Excessive/late collisions – Receive errors/packet loss – Link changes
Address monitoring	Single-end test with one LANchecker 100 	Monitoring	Recording MAC addresses – Data packets without errors – Broadcasts/multicasts – Data packets with CRC alignment errors – Too long data packets Recording the destination address – Of one single source address Recording of IP addresses – Active addresses in test interval – Active scanning of IP addresses in subnet and of a special IP address
Traffic and error simulation	Single-end test with one LANchecker 100 	Simulation	Generated traffic – Adjustable up to 100 % – Packet length selectable to 1518 bytes – Destination and source addresses selectable – Extended frames and overlength up to 2034 bytes Generated errors – Continuous collisions – Jabber – Errored packets with/without SFD (Start Frame Delimiter)
Link performance test	Dual-end test with two LANchecker 100 	Transmission tests (Auto test)	– Echo test (analysis of transmitted packets, packet loss, test duration) – Collisions test (analysis of transmitted packets, packet loss, test duration) – Round trip delay (delay analysis) – Partner link test (active) – IP Ping to remote LANchecker – Throughput test
Ping test	Single-end test with one LANchecker 100 and one IP capable terminal for retransmission of transmitted data (ICMP echo)	Transmission test	Evaluation: – Transmitted packets – Packet loss – Response time
Cable test	Single-end test with one LANchecker 100 (for two remote measurement points a second unit is required)	Continuity/ length tests	– Length approximation to a connected LAN equipment (hub, switch, bridge, PC, etc.) – Pin assignment check

Specifications

Network standards

10 Mbps Ethernet	IEEE802.3 10BASE-T
100 Mbps Fast-Ethernet	IEEE802.3u 100BASE-TX

Measurement interface

Media access	RJ-45 (Cat. 5), socket
Selectable modes	Nway< autonegotiation, 100BASE-TX, full/half duplex, 10BASE-T, full/half duplex
Cable test	RJ-45 (Cat. 5), socket

PC/Printer interface Serial

	9-pin D-sub socket, shielded
Electrical properties	V.24/V.28
Baud rate/data bits/stop bits	9600/8/1
Parity	none, no handshake

Transmission test

Auto test/single test	echo, collision, RTP, IP ping, ping remote LANchecker, Partner link state test, throughput test

Traffic simulation

	select. destination/source address
Traffic (MAC and IP)	up to 100% adjustable
Packet length	64, 128, 256, 512, 1024, 1518 bytes adjustable and overlength max. 2034 bytes
VLAN	IEEE802.1Q, 802.1p and Ipv4-TOS

Error simulation

Generation of continuous collisions	duration: 1 to 30 s
Jabber	duration: 1 to 5 s
Generation of errored data packets	
w/o SFD	selectable packet length 3 to 2047 bytes selectable packet rate 1, 10, 100, 1000/s
with SFD	selectable preamble 1 to 8 bytes selectable packet length 4 to 2038 bytes
CRC	OK/Error
Alignment	OK/Error

(SFD = Start Frame Delimiter)

Network statistics

(runs in background during test, switchable to numerical value display or diagram)

Value display	values in current measuring interval, totalled values, total rate in %
Statistics evaluation	net load, packets, collisions, collision rate, broadcast, broadcast rate, CRC alignment errors, toolongs, spikes, excessive collisions, late collisions, receive errors, packet loss, link

Address monitoring

Monitoring Ethernet MAC addresses

- MAC addresses in valid data packets
- MAC addresses in broad/multicasts
- MAC addresses in packets with CRC/alignment errors
- MAC addresses in overly long data packets
- Destination of a source address

Monitoring of IP source addresses

- Monitoring active IP addresses in measuring interval
- Active scanning of IP addresses in subnetwork (max. 1024 per scan)
- Scanning of a single IP address

Partner link state test

	10 Mbps, 100 Mbps, HDX, FDX
Link state	Output of current link settings
Link partner	Testing possible link settings of connected LANs/Users
Link setup	automatic, auto/10/100 Mbps, auto/HDX/FDX

Cable test checking pin assignment

length approximation

Display

LCD graphic display, 128 × 64 pixel (71.6 × 40 mm) switchable background lighting

LED status indicators for traffic, data sent, link, collisions, network errors, battery status

Alarm

audible beeper, configurable for network errors

General data

Power supply

Battery operation	rechargeable battery pack (NiMH)
Autonomy	typ. 3 h
with background lighting activated	typ. 2 h
Mains operation	plug-in power supply unit/ charger, automatic switching to trickle charging when battery is full

Ambient temperature

Operating temperature	–5 to +55°C
Storage and transport	–40 to +70°C

Dimensions

(w × h × d) in mm	142 × 61 × 265

Weight

(without/with plug-in power supply	770 g/950 g

Ordering information

CO1000/00	**LANchecker 100** Basic unit for 10/100 Mbps including operating manual German/English, brief operating instructions German/ English
CO1000/05	**LMK-1 LAN Test Set** With 1 x LANchecker 100, cable set, operating manual German/English, brief operating instructions German/ English
CO1000/10	**LMK-2 LAN Test Set** With 2 x LANchecker 100, cable set, operating manual German/English, brief operating instructions German/ English
Additional documentation	
consisting of:	– Operating manual German/ English – Brief operazting instructions German/English – 3.5" disk with software upgrade
Spare cable set	
consisting of:	– 2 m Twisted Pair, 1:1 – 2 m Twisted Pair, 1 × 1, marked in red – 3 m RS232 cable for serial interface, 1:1, 9-pin D-Sub, m/f

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