

Next-Generation-xDSL Multitester

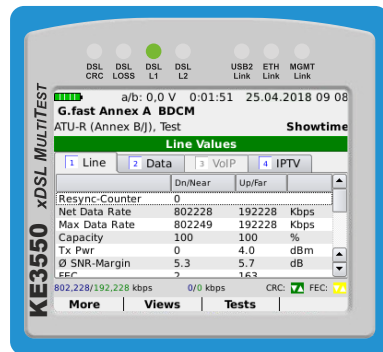
Ready for **All-IP!**

The entrance for measurements in the broadband network



telecroatian network

KE3550



At a glance

- ADSL-ADSL2+, VDSL2, VDSL2 (Vectoring/Super Vectoring), xDSL-Bonding and G.fast with auto service detection
- Maximum transfer rates for performance measurements in gigabit networks
- VoIP test incl. SIP trunk and Multi-Calling with extensive statistics
- IPTV test with preview image and statistics as well as IPTV channel scan
- Wi-Fi connectivity and Wi-Fi testing for triple play tests (data, VoIP, IPTV) and web browser
- ISDN U_{k0}/S_0 and Analogue Test Phone Function
- Coppertest (KECT), AC/DC measurements, resistance fault localization (RFL), TDR measurements
- High frequency measurements for line qualification up to 31 MHz
- Compatible with KE905 Remote for performing automated cable test sequences

The **KE3550 xDSL MULTI TEST** is the multifunctional and modular test instrument at an affordable price. Even in the basic version, the KE3550 offers ICT specialists and service technicians a comprehensive range of features, making it the perfect companion in copper-bound broadband networks, with numerous expansion options.

In addition to ADSL1/2/2+ and VDSL2 including VDSL2 vectoring, the base configuration of the KE3550 also supports the latest VDSL2 standard SuperVectoring (VDSL 35b). At the press of a button, the connection to the respective service is started, which significantly speeds up and simplifies measurement applications. Optionally, the KE3550 can be extended to test G.fast.

The KE3550's modular platform supports additional functions such as ISDN and analogue test phone, Triple Play tests for IPTV and VoIP suitability as well as the possibility to perform extensive copper tests up to 31 MHz. This modular technology ensures a high degree of future and investment security and enables the technician to individually adapt the KE3550 to the requirements of the market, even after purchase.

Thanks to the intuitive operation and the ability to perform several tests in parallel, fault diagnosis in the network is carried out as quickly as possible. Service malfunctions caused by faults in the external cabling, the internal cabling or, for example, defective customer equipment, can be reliably pinpointed. The integrated high-performance battery ensures long use in the field.

Measured values are clearly displayed in tabular form and optionally also graphically and can be stored for documentation and managed with the supplied KE-Manager software. The transfer of the measurement results is also possible through the QR code display. Stored measurements can be retrieved and viewed in detail directly in the KE3550 for verification.

Equipped with the copper test module, automatic measuring sequences can be created in the KE3550, which considerably simplifies the measuring processes of the technicians in the field. In combination with the KE905 Remote, the necessary switches at the remote end are carried out automatically, there is no need for an additional person and the measuring insert is noticeably shortened.



Optionen

xDSL

- ADSL–ADSL2+ Annex B/J or Annex A/M
- VDSL2 incl. VDSL2 Vectoring, profiles 8a/b/c/d, 12a/b, 17a, 30a
- ADSL2+ and VDSL2 Bonding Annex A (ITU-T G.998.1/2/3)
- Super Vectoring (VDSL 35b), ITU-T G.993.2 Annex Q up to 35 MHz
- G.fast ITU-T G.9700/G.9701 up to 106 MHz
- Modem and router replacement mode
- Terminal mode for Triple Play tests (Data/VoIP/IPTV)
- IP speed test with automatic server search, iPerf speed test
- Time Trace for graphical representation of selected parameters

VoIP

- VoIP connections via xDSL/ETH/WLAN
- SIP Trunk and QoS support
- Multi Calling – up to 10 VoIP calls simultaneously
- Extensive VoIP statistics

IPTV

- IPTV connections via xDSL/ETH/WLAN
- Extensive IPTV statistics
- Preview function and Multistreaming
- IPTV channel scan with display of the switching time

Wi-Fi

- 2,4/5 GHz incl. SMA antenna (management interface) and Dualband Wi-Fi US
- Wi-Fi scan (SSID), send channel, signal strength, signal quality
- Graphical channel and access point overview
- Wi-Fi monitor (client scan)
- Triple Play tests (Data/VoIP/IPTV)
- IP speed test with automatic server search, iPerf speed test

Gigabit Ethernet port

- IP speed test with automatic server search, iPerf speed test
- Triple Play tests (Data/VoIP/IPTV)

ISDN/Analogue test phone

- ISDN S_0/U_{K0} /Analogue
- Extensive measurement functions
- BER test (Bit error rate test)
- D-channel monitoring

Coppertest with KECT

- Cable multimeter measurements: Current, voltage, insulation, resistance and capacitance, symmetry
- RFL measurement: Resistance fault localization after Murray and K upfm uller
- TDR measurements for precise cable fault localization up to 6 km
- High-frequency measurements up to 31 MHz: Spectrum analysis, impedance measurement, reflection and unbalance loss (LLC), NEXT measurement, receive level, broadband noise and impulse noise
- Manual or automatable measuring sequences possible (autotest)
- Compatible with KE905 Remote, direct control of the line switch at the remote end to simplify the measurement process

Digital Multimeter (DMM)

- DMM quick test for in-house telecommunications cabling:
Voltage, resistance and capacitance



Icon	Type	Description
Bundles		
TIP 0.49815-90	KE3550 All-IP/Wi-Fi package	0.49815 KE3550 Base unit ADSL-ADSL2+ Annex A/M or B/J; VDSL2 Vectoring/Super Vectoring , Profiles 8a/b/c/d, 12a/b, 17a, 30a, 35b; 0.49830-5 VoIP tests / 0.49830-5-10 VoIP MultiCalling 0.49840-17 Wi-Fi Connect , 2.4/5 GHz incl. SMA antenna; 0.49840-17-10 Wi-Fi Tests , Terminal mode
0.49815-91	KE3550 All-IP package	0.49815 KE3550 Base unit ADSL-ADSL2+ Annex A/M or B/J; VDSL2 Vectoring/Super Vectoring , Profiles 8a/b/c/d, 12a/b, 17a, 30a, 35b; 0.49830-5 VoIP tests / 0.49830-5-10 VoIP MultiCalling
0.49815-93	KE3550 xDSL/LAN tester package	0.49815 KE3550 Base unit ADSL-ADSL2+ Annex A/M or B/J; VDSL2 Vectoring/Super Vectoring , Profiles 8a/b/c/d, 12a/b, 17a, 30a, 35b; 0.49830-5 VoIP tests / 0.49830-5-10 VoIP MultiCalling 0.49420 KE7200 Ethernet FlexiTest Network tester with 2 remote units KE7010, PC software, test cable set and protective bag
xDSL Test device		
0.49815	KE3550	xDSL Multitester, xDSL and 1 GbE interface, ADSL 1/2/2+ Annex B/J or A/M and VDSL 2 Vectoring/Super Vectoring (Profiles 8a/b/c/d, 12a/b, 17a, 30a, 35b). Incl. high-performance battery, power supply unit, test leads and bag.
Options		
0.49830-30	G.fast	G.fast 106 MHz (ITU-T G.9700/G.9701)
0.49830-40	Bonding	xDSL Bonding (ADSL/2/2+, VDSL2 profile 17a, 30a) – Annex A only
Digital Multimeter		
0.49840-12	DMM	Digital multimeter: Voltage, resistance, capacitance, length
xDSL Time Trace		
0.49840-21	Time Trace	Graphical display of parameters over the entire measurement time: Status, Sync, FEC, CRC, SNR margin, Transfer rate, Bitswap, Retransmission
Coppertest upgrades		
0.49830-13	KECT	Line multimeter with high interference resistance, control functions for measuring aids such as KE905
0.49830-13-10	HF/LQ	High frequency (HF) measurements for qualification of copper lines up to 31 MHz (0.49830-13 KECT required)
0.49830-11	TDR	TDR up to 6 km line length at Ø 0.5 mm (0.49830-13 KECT required)
0.49830-13-20	RFL	Resistance fault localization after Murray and K�upfm�uller, multisection support (0.49830-13 KECT required)
IP service tests		
0.49830-5	VoIP	VoIP tests (terminal emulation) with display of the quality parameters xDSL/Ethernet/Wi-Fi*
0.49830-5-10	VoIP MultiCalling	Up to 10 parallel VoIP calls including statistics for xDSL/Ethernet (0.49830-5 VoIP required)
0.49830-6	IPTV	IPTV tests (Set Top Box emulation) with display of the quality parameters xDSL/Ethernet/Wi-Fi*
0.49830-6-10	IPTV Scan	IPTV channel scan with display of the switching time (0.49830-6 IPTV required)
0.49840-17	Wi-Fi Connect	Wi-Fi connectivity, 2.4/5 GHz Wi-Fi management interface. Incl. SMA antenna.
0.49840-17-10	Wi-Fi Connect	Wi-Fi tests (terminal mode) 2.4/5 GHz, function and Triple Play tests (option-dependent, 0.49840-17 Wi-Fi required). Incl. Dualband Wi-Fi USB adapter.
0.49840-15	IP speed Test	Speed test with automatic server search. Display of host and target server, upload and download speed as well as ping runtime.
0.49840-23	iPerf	Definable speed test for IP networks. Support of iPerf 2 and 3 in server/client mode via xDSL, Ethernet and Wi-Fi.
0.49840-22	Trace	Packet capturing of up to 99,999 packets, evaluable via Wireshark. Available for all broadband interfaces.
Telephony upgrades		
0.49810-25	ISDN	ISDN S ₀ -TE, U _{k0} (4B3T o. 2B1Q) and analogue interface
KE Manager option		
0.49830-15	Real time analysis	Detailed viewing of a running measurement on the PC and evaluation of long-term measurements in replay mode via KE Manager





KE3550

Conformance

ADSL1/2/2+

ITU-T G.992.5 (ADSL2+ incl. Annex A, B, J, M),
ITU-T G.992.3 (ADSL2 incl. Annex A, B, J, L),
ITU-T G.992.1 (G.DMT incl. Annex A, B, J)
ATIS/ANSI T1.413 Issue 2
IEEE 802.3ah (PTM)
ITU-T G.998.1/2 (Bonding)

VDSL2

ITU-T G.993.2 Annex A, B (Vectoring)
ITU-T G.998.1/2 (Bonding with Profile 17a)
Profiles: 8a/b/c/d, 12a/b, 17a, 30a and 35b (Annex Q)
Band Plan: 997, 998, US0
IEEE 802.3ah (PTM)

G.fast

ITU-T G.9700/ G.9701

DSL parameters

Maximum achievable bit rates	Attenuation/Bin (Hlog/bin), QLN/Bin, SNR/Bin
Actual achieved bit rates	Provider code, revision
Actual achieved bit rates on bundled lines	Interleave depth
Latency mode: Fast, Interleaved	Interleave delay
Data mode: ATM, PTM	Bit Swapping
Capacitance (%)	INP, G.INP
Signal-to-noise ratio (SNR)	Vectoring
Output level	Operation modes: PTM, ATM
Attenuation	LOSS, FEC, CRC, HEC, LOF, LOM, SES, UAS, ES
Bits/bin	LATN per Band, SATN per Band

Test interfaces

ADSL 1/2/2+/VDSL2/VDSL2-Vectoring/Super Vectoring/G.fast w/ auto detect.	Ethernet 10/100/1000
Ethernet 10/100/1000 management port	Web browser for service confirmation

Encapsulation

RFC 2684 with support for Bridged Ethernet (IPoE), IPoA (RFC 1577), PPPoE (RFC 2516), PPPoA/LLC and PPPoAVC-MUX (RFC 2364)

Operation modes

DSL terminal, router and modem mode
Transit mode with modem substitution (DSL/Ethernet)
Ethernet terminal mode

Login format

Username and password with PAP/CHAP

Connection options

VoIP autoconfiguration at BNG	NAT
DHCP 60 autoconfiguration	VLAN ID, VLAN tag
LAN/WAN state	VPI/VCI
DNS, Gateway	IPv4 and IPv6
DHCP Client/Server, DHCP provider class	Signal strength

Ping test

Ping destination address: Gateway, IP address or URL
Number of pings: 1 to 9999, unlimited
Packet size: 56 to 2048 Bytes (default value 56)
Timeout/Interval: 0 to 2000 seconds
Results: Packets sent/recieved, average round-trip delay in ms

Traceroute test

Traceroute target: Gateway, IP address or URL
Timeout: in seconds, default value 1 s, up to 120 s
Number of hops: 1 to 100 (default value 30)
Results: Specification of the IP address of the hop and round-trip delay in ms

FTP/HTTP data rate test*

Address: IP or URL	* Perform up to 10 tests simultaneously
Direction: Upload and /or download up to 800 MBit/s	
Results: Time, transmitted kB, rate in kBit/s	
Bookmarks: User-definable	

Software options

VoIP test: Single, Multicall, QoS, SIP trunk, DSL and Ethernet Codecs: iLBC, G.711 A-law, G.711 μ -law, G.722, GSM, L16, Speex Results: MOS, R factor, Latency jitter, Packets (loss, sent)	IPTV test: Video standards: MPEG2, MPEG4 part 2 and 10, DSL and Ethernet Programmable channel list, analyses up to zu 10 streams simultaneously Results: MOS, R factor, Latency jitter, Packets, Preview image
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Interface options

xDSL Bonding module
KECT Copper qualification up to 31 MHz with telco multimeter
TDR error detection/location
ISDN U_{ko}/S_o/Analogue interface
Wi-Fi interface 2.4/5 GHz, 802.11b,g,n

Display

3,5" TFT display, RGB 240 x 320, sunlight-readable

Power supply

Extra powerful LiPo battery

Dimension

230 x 110/90 x 70 mm

Weight

1100 g

Housing

Impact resistant ABS with fall protection and highly impact resistant plexiglass display cover

Menu languages



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