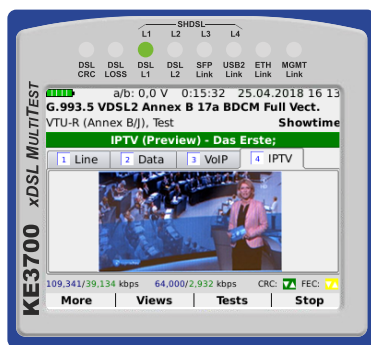
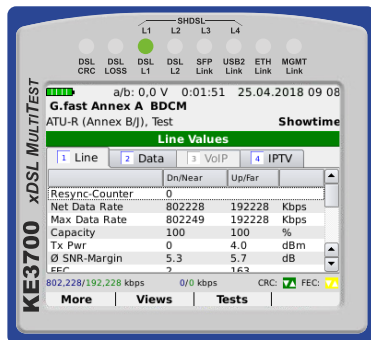


# Next-Generation-xDSL Multitester

The **All-in-One solution** for measurements in the broadband network



## KE3700



### At a glance

- ADSL-ADSL2+, VDSL2, VDSL2 (Vectoring/Super Vectoring), xDSL-Bonding and G.fast with Auto Services Detection
- SHDSL support, 2 to 8 wires
- SFP port for Digital Diagnostic Mode, optical level/power meter, triple play tests, GPON-ONT
- Maximum Throughput Rates for Performance Measurements in Gigabit Networks
- VoIP tests incl. SIP trunk and Multi-Calling with extensive statistics
- IPTV tests with IPTV scan and pre-view image as well as statistics
- Wi-Fi connectivity and triple play tests (data, VoIP, IPTV) with web browser
- ISDN U<sub>K0</sub>/S<sub>0</sub>/S<sub>2M</sub> and Analogue Test Handset Function
- Copper test (KECT), DC measurements, resistance fault localization (RFL), TDR measurements, remote control KE905 line change-over switch
- High frequency measurements for line qualification up to 31 MHz

The **KE3700 xDSL MULTITEST** is the ideal tool for service technicians of network operators and ITC specialists - for testing tasks of current and future broadband technologies. The new version 2 contains several improvements compared to its predecessor, including more powerful hardware and optimized edge protection.

A versatile and revolutionary multitester for broadband services ADSL1/2/2+/SHDSL/VDSL2, VDSL2 vectoring, for the new technologies Super Vectoring (Vplus) Bandplan 35b Annex Q and G.fast as well as for GPON and Ethernet PtP in FTTH networks.

The modular concept of the KE3700 offers the user the possibility to combine the functions of several test devices, such as xDSL tester, VoIP/ISDN/Analogue test telephone, IPTV tester and cable fault measuring device in one housing. This modular technology ensures a high degree of future and investment security and allows the technician, even after purchasing the KE3700, to individually adapt the device to the requirements of the market.

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 xDSL autotest function enables automatic synchronisation, the at-a-glance display guarantees a clear display of the test-relevant line and service parameters without laborious scrolling or time-consuming menu changes. The large colour display of the KE3700 is protected by safety glass and can even be read in sunlight.

Measured values are displayed clearly 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 KE3700 for verification.

Equipped with the copper test module, automatic measuring sequences can be created in the KE3700, 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.



# Options

## xDSL

- ADSL – ADSL2+ Annex B/J
- VDSL2 incl. VDSL2 Vectoring, Super Vectoring (Vplus) Profile 8a/b/c/d, 12a/b, 17a, 30a, 35b

## DSL Highspeed

- Super Vectoring (Vplus), ITU-T G.993.2 Annex Q up to 35 MHz
- G.fast ITU-T G.9700/G.9701 up to 106 MHz
- ADSL2+ and VDSL2 Bonding (ITU-T G.998.1/2/3)

## SHDSL 2- to 8-wire

- Ethernet First Mile (EFM), TDM and ATM support
- Modem (STU-R) and DSLAM emulation (STU-C)

## VoIP tests

- VoIP connections over xDSL and Ethernet
- SIP Trunk and QoS support
- Multi Calling – up to 10 VoIP calls simultaneously
- Extensive VoIP statistics

## IPTV tests

- IPTV connections over xDSL and Ethernet
- Extensive IPTV statistics
- Preview function and multistreaming
- IPTV scan

## Wi-Fi tests

- 2.4/5 GHz incl. SMA antenna
- WPA/WPA2, WEP, WPS
- Wi-Fi scan (SSID), transmission channel, signal strength
- Triple Play tests (Data/VoIP/IPTV) directly via the device

## Gigabit ethernet ports

- Copper RJ45
- SFP (optical fibre) power meter, Digital Diagnostic Mode
- GPON ONT modem emulation

## ISDN/Analogue test telephone

- ISDN  $S_0/U_{K0}$ /analogue
- $S_{2M}$  for PMX connections
- Extensive measurement options
- BER test (Bit error rate test)
- D-channel monitoring

## Coppertest with KECT

- Telco multimeter measurements for troubleshooting: Current, voltage, insulation, resistance and capacitance, symmetry
- Prequalification of the twisted pair up to 31 MHz: Impedance measurement, reflection and unbalance loss, LLC, NEXT measurement, receive level and spectrum, broadband noise and pulse noise
- Line analysis and automated measuring process
- Remote: KE905 Remote unit for (remote) switching directly via control commands
- TDR measurements for precise cable fault localization up to 6 km
- RFL measurement: Resistance error localization via 2- and 3-wire method




Image shows KE3700 with optical fibre module






Image shows KE3700 with KECT module



	Type	Description
<b>Packages</b>		
<b>TIP</b> 0.49840-90	<b>KE3700 All-IP / Wi-Fi package</b>	<b>KE3700 All-IP / Wi-Fi package contains:</b> 0.49840 <b>KE3700 Base unit</b> ADSL-ADSL2+ Annex B/J; 0.49830-20 <b>VDSL2 Vectoring / Super Vectoring</b> , profiles 8a/b/c/d, 12a/b, 17a, 30a, 35b; 0.49830-5 <b>VoIP tests</b> / 0.49830-5-10 <b>VoIP MultiCalling</b> ; 0.49830-3 <b>SFP port</b> for measurements in fibre optic networks; 0.49840-17 <b>Wi-Fi Connect</b> , 2.4 / 5 GHz incl. SMA antenna; 0.49840-17-10 <b>Wi-Fi tests</b> , terminal mode
0.49840-91	<b>KE3700 All-IP package</b>	<b>KE3700 All-IP package contains:</b> 0.49840 <b>KE3700 Base unit</b> ADSL-ADSL2+ Annex B/J; 0.49830-20 <b>VDSL2 Vectoring / Super Vectoring</b> , profiles 8a/b/c/d, 12a/b, 17a, 30a, 35b; 0.49830-5 <b>VoIP tests</b> / 0.49830-5-10 <b>VoIP MultiCalling</b> ; 0.49830-3 <b>SFP port</b> for measurements in fibre optic networks
0.49840-92	<b>KE3700 Complete package</b>	<b>KE3700 xDSL Complete package contains:</b> 0.49840 <b>KE3700 Base unit</b> ADSL-ADSL2+ Annex B/J; 0.49830-20 <b>VDSL2 Vectoring / Super Vectoring</b> , profiles 8a/b/c/d, 12a/b, 17a, 30a, 35b; 0.49830-5 <b>VoIP tests</b> / 0.49830-5-10 <b>VoIP MultiCalling</b> ; 0.49830-3 <b>SFP port</b> for measurements in fibre optic networks; 0.49830-25-4B3T <b>ISDN U<sub>K0</sub> / S<sub>0</sub></b> / analogue telephony option
0.49840-93	<b>KE3700 xDSL / LAN tester package</b>	<b>KE3700 xDSL / LAN tester package contains:</b> 0.49840 <b>KE3700 Base unit</b> ADSL-ADSL2+ Annex B/J; 0.49830-20 <b>VDSL2 Vectoring / Super Vectoring</b> , profiles 8a/b/c/d, 12a/b, 17a, 30a, 35b; 0.49830-5 <b>VoIP tests</b> / 0.49830-5-10 <b>VoIP MultiCalling</b> ; 0.49830-3 <b>SFP port</b> for measurements in fibre optic networks; 0.49420 <b>KE7200 Ethernet FlexiTest</b> Network tester with 2 remote units KE7010, PC software, test cable set and protective bag
0.49840-94	<b>KE3700 xDSL / VoIP / copper test package</b>	<b>KE3700 xDSL / VoIP / copper test package contains:</b> 0.49840 <b>KE3700 Base unit</b> ADSL-ADSL2+ Annex B/J; 0.49830-20 <b>VDSL2 Vectoring / Super Vectoring</b> , profiles 8a/b/c/d, 12a/b, 17a, 30a, 35b; 0.49830-5 <b>VoIP tests</b> / 0.49830-5-10 <b>VoIP MultiCalling</b> ; 0.49830-13 <b>KECT copper test module</b> (cable multimeter); 0.49830-13-10 <b>RF measurements</b> for line qualification up to 31 MHz
<b>xDSL Test device</b>		
0.49840	<b>KE3700</b>	xDSL Multitester, 1 GbE Interface, ADSL 1/2/2+, Annex B/J, 8 GB storage, Bluetooth
<b>xDSL / High speed options</b>		
0.49830-20	<b>VDSL2 Vectoring</b>	Upgrade VDSL2 Vectoring, Super Vectoring (Vplus) profiles 8a/b/c/d, 12a/b, 17a, 30a, 35b
0.49830-30	<b>G.fast</b>	G.fast 106 MHz (ITU-T G.9700 / G.9701)
0.49830-40	<b>Bonding</b>	xDSL Bonding (ADSL / 2 / 2+, VDSL2 profile 17a, 30a)
<b>Symmetrical DSL</b>		
0.49830-26	<b>SHDSL</b>	SHDSL 2 – 8-wire interface
<b>Digital multimeter</b>		
0.49840-12	<b>DMM</b>	Digital multimeter: Voltage, resistance, capacitance, length
<b>Copeptest upgrades</b>		
0.49830-13	<b>KECT</b>	Telco multimeter with high interference resistance, control functions for measuring aids such as KE905
0.49830-13-10	<b>HF / LQ</b>	High frequency (HF) measurements for qualification of copper lines up to 31 MHz (0.49830-13 KECT required)
0.49830-11	<b>TDR</b>	TDR up to 6 km line length at Ø 0.5 mm (0.49830-13 KECT required)
0.49830-13-20	<b>RFL</b>	Resistance error localization according to Murray and Küpfmüller, multisection support (0.49830-13 KECT required)
<b>IP service tests</b>		
0.49830-5	<b>VoIP</b>	VoIP test (terminal simulation) with display of the quality parameters required for evaluation xDSL / Ethernet
0.49830-5-10	<b>VoIP MultiCalling</b>	VoIP MultiCalling: Up to 10 parallel VoIP calls incl. statistics for xDSL / Ethernet (0.49830-5 VoIP required)
0.49830-6	<b>IPTV</b>	IPTV test (Set Top Box emulation) with display of the quality parameters required for evaluation xDSL / Ethernet
0.49830-6-10	<b>IPTV Scan</b>	IPTV channel scan with display of the switching time (0.49830-6 IPTV required)
0.49840-17	<b>Wi-Fi Connect</b>	Connectivity 2.4 / 5 GHz incl. SMA antenna, Wi-Fi scan (SSID), transmission channel, WPA, WPA2, WEP, WPS, Management
0.49840-17-10	<b>Wi-Fi Test</b>	Wi-Fi terminal device mode 2.4 / 5 GHz, performance tests, Triple Play tests (option dependent, 0.49840-17 Wi-Fi required)
<b>Telephony options</b>		
0.49830-25	<b>ISDN</b>	ISDN S <sub>0</sub> -TE, U <sub>K0</sub> (4B3T o. 2B1Q) and analogue interface with additional SFP-Port (must be activated with 0.49830-3-Soft)
0.49830-27	<b>S2M</b>	S <sub>2M</sub> Primary multiplex interface (only in conjunction with SHDSL option)
<b>Fibre / Copper module options</b>		
0.49830-3	<b>SFP-Port</b>	SFP port for SFP copper or SFP fibre transceiver, Digital Diagnostic Mode, optical level / power meter, performance tests, Triple Play tests (option dependent)
0.49830-4	<b>GPON</b>	GPON ONT, Modem emulation incl. GPON software and SFP ONT module (requires SFP port option 0.49830-3-Soft / 0.49830-3)
0.49830-3-Soft	<b>SFP activation</b>	Activation of the existing SFP port of the 0.49830-25 ISDN option (0.49830-3 SFP port option is not required)
<b>KE Manager option</b>		
0.49830-15	<b>Real time analysis</b>	Detailed viewing of a running measurement on a PC and evaluation of long-term measurements



   <b>KE3700</b>		
<b>Conformance</b> 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	
<b>DSL parameters</b>	Maximum achievable bit rates Actual achieved bit rates Actual achieved bit rates on bundled lines Latency mode: Fast, Interleaved Data mode: ATM, PTM Capacitance (%) Signal-to-noise ratio (SNR) Output level Attenuation Bits/bin	Attenuation/Bin (Hlog/bin), QLN/Bin, SNR/Bin Provider code, revision Interleave depth Interleave delay Bit Swapping INP, G.INP Vectoring Operation modes: PTM, ATM LOSS, FEC, CRC, HEC, LOF, LOM, SES, UAS, ES LATN per Band, SATN per Band
<b>Test interfaces</b>	ADSL 1/2/2+/VDSL2/VDSL2-Vectoring/Super Vectoring/G.fast w/ auto detect. Ethernet 10/100/1000 management port	Ethernet 10/100/1000 Web browser for service confirmation
<b>Encapsulation</b>	RFC 2684 with support for Bridged Ethernet (IPoE), IPoA (RFC 1577), PPPoE (RFC 2516), PPPoA/LLC and PPPoA/VC-MUX (RFC 2364)	
<b>Operation modes</b>	DSL terminal, router and modem mode Transit mode with modem substitution (DSL/Ethernet) Ethernet terminal mode	
<b>Login format</b>	Username and password with PAP/CHAP	
<b>Connection options</b>	VoIP autoconfiguration at BNG DHCP 60 autoconfiguration LAN/WAN state DNS, Gateway DHCP Client/Server, DHCP provider class	NAT VLAN ID, VLAN tag VPI/VCI IPv4 and IPv6 Signal strength
<b>Ping test</b>	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	
<b>Traceroute test</b>	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	
<b>FTP/HTTP data rate test*</b>	Address: IP or URL Direction: Upload and /or download up to 800 MBit/s Results: Time, transmitted kB, rate in kBit/s Bookmarks: User-definable	* Perform up to 10 tests simultaneously
<b>Software options</b>	<b>VoIP test:</b> Single, Multicall, QoS, SIP trunk, DSL and Ethernet Codecs: iLBC, G.711 A-law, G.711 $\mu$ -law, G.722, GSM, L16, Speex Results: MOS, R factor, Latency jitter, Packets (loss, sent)	<b>IPTV test:</b> 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
<b>Interface options</b>	xDSL Bonding module SHDSL 2- to 8-wire interface KECT Copper qualification up to 31 MHz with telco multimeter TDR error detection /location SFP port for copper, fibre (second GbE port) or GPON (ONT), Slide-in modules optionally available ISDN U <sub>ko</sub> /S <sub>o</sub> /Analogue interface S <sub>20</sub> , primary multiplex interface Wi-Fi interface 2.4/5 GHz, 802.11b,g,n	
<b>Bluetooth</b>	Bluetooth modul for headset connection and data transfer, Class 2	
<b>Display</b>	3,5" TFT display, RGB 240 x 320, sunlight-readable	
<b>Power supply</b>	Extra powerful LiPo battery	
<b>Dimension</b>	230 x 110/90 x 70 mm	
<b>Weight</b>	1100 g	
<b>Housing</b>	Impact resistant ABS with fall protection and highly impact resistant plexiglass display cover	
<b>Menu languages</b>	