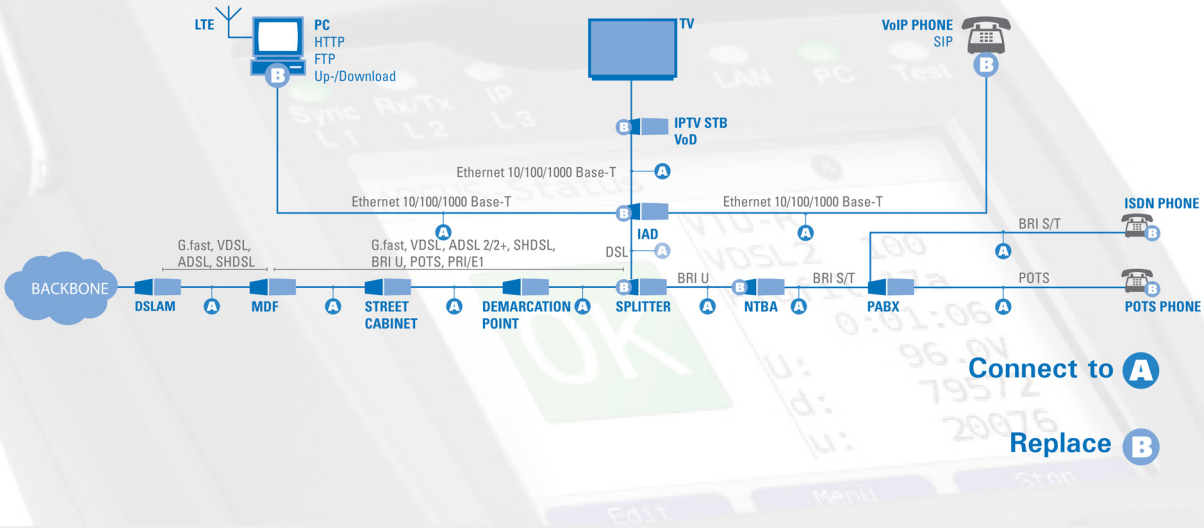
ARGUS® 156

x D S L - T E S T E R

G.fast
VDSL
ADSL
SHDSL
GigE
LTE
ISDN
POTS
Cu
TDR
Copper Box
Data 10110101011
IP TV
Vo IP
PESQ
USB
WLAN

intec
GESELLSCHAFT FÜR
INFORMATIONSTECHNIK mbH

Where to use the ARGUS?



The handy all-rounder for SHDSL measuring
The ARGUS 156 triple-play and xDSL combi tester is a low-cost, hand-held device for all xDSL interfaces, such as G.fast, VDSL (super vectoring + profile 35b bonding), ADSL and SHDSL.

It is the ideal entry-level meter for high-end SHDSL measuring technology and for servicing and commissioning business and backbone accesses through a combination of E1 interface (PRI) and SHDSL-TDM/ATM/EFM.

Interfaces and tests flexibly expandable
The built-in interfaces can be flexibly expanded as needed to add additional functions, for instance telephony (ISDN/POTS), copper (TDR, DMM etc.) or wireless (WLAN, LTE). Triple-play testing (Data, VoIP and IPTV) is also available as an option).

Your advantage
As a handy all-rounder with a wide range of interfaces and expansion options, the ARGUS 156 is the ideal mix of an all-in-one and single-interface tester.

intec Gesellschaft für Informationstechnik mbH
intec Gesellschaft für Informationstechnik mbH has been successfully developing products for the international telecom markets for 30 years. Meanwhile specialized in high-quality telecommunication measuring devices, we belong to the leading suppliers of xDSL, IP and fiber optic measuring technology in Europe and beyond.
The ARGUS product range provides a convenient solution for commissioning and troubleshooting on xDSL and Ethernet connections. Specifically designed for user requirements in daily, praxis-related operations for international network operators, service providers and installation companies.
The ARGUS measuring devices have already been purchased more than 100,000 times.
Our customers have appreciated the quality of our products and services for many years. In the last 20 years alone, we have delivered more than 100,000 ARGUS testers worldwide – many of them to international companies such as Deutsche Telekom, KPN or Austria Telecom.

Specifications Broadband Interfaces:

General:		Application, Settings + Results:	
G.fast Tester G.fast	G.fast Modem Simulation, FTU-R, CPE G.fast Bridge + G.fast Router ITU-T G. 9700/9701 (Profiles 106a, 212a) Time Division Duplexing (TDD)	**G.fast / VDSL / ADSL** • Net Data Rate [kBit/s] • Attainable Data Rate [kBit/s] • Relative Capacity [%] • SNR Margin / Loop Attenuation [dB] • Signal Attenuation [dB] • Output Power [dBm] • Interleave Delay [ms] • Impulse Noise Protection [Symbols] • FEC + CRC, Far/Near [Errors] • ES, SES, LOSS + UAS, Far/Near [sec] • Reset / Resync [Number] • Bitswap Events • Seamless Rate Adaption (SRA) • Retransmission (G.INP) • Vendor, Far/Near [Name] • Version, Far/Near [Number] • Modem Trace • Bits/SNR/QLN/Hlog Tone/Freq. Graphs • OK/Fail Evalution: Bitrate, CRC, FEC • DC Voltage, UDC	**G.fast / VDSL** • Showtime No Sync [Number] • Seamless Rate Adaption (SRA) • Data Transmission Unit (DTU) • INP REIN + INP SHINE [Symbols] • Expected Throughput Rate (ETR) [kBit/s] • Electrical Length @1 MHz [dB] • EFM Statistics: Frames + Bytes **VDSL** • Vectoring Mode • Graphic Long-time Trace In ARGUS **ADSL** • Latency Mode • Graphic Long-time Trace In ARGUS
VDSL Tester VDSL	VDSL2 Modem Simulation, VTU-R, CPE VDSL2 Bridge + VDSL2 Router ITU-T G.993.2 (Profiles 8, 12, 17a, 30a) ITU-T G.993.2 Annex Q (Profile 35b), Super Vectoring (Vplus) ITU-T G.993.5, G.vector (Vectoring) ITU-T G.998.4, G.INP (Retransmission) ITU-T G.998.2, G.bond (Bonding)		
ADSL Tester ADSL	ADSL Modem Simulation, ATU-R, CPE ADSL Bridge + ADSL Router ITU-T G.922.1, Annex A+B (ADSL) ITU-T G.992.2, Annex A (G.lite) ITU-T G.992.3, Annex A+B+L+M (ADSL2) ITU-T G.922.5, Annex A+B+J+M (ADSL2+)		
SHDSL Tester SHDSL	SHDSL Modem Simulation, STU-R, CPE SHDSL Terminal Device SHDSL Bridge + SHDSL Router SHDSL DSLAM Simulation, STU-C ITU-T G.991.2, Annex A+B+F+G (G.SHDSL) ETSI TS 101 524 V 1.2.1 (ETSI SHDSL) ETSI TS 101 524 V 1.2.2 (E.SHDSL.bis) ITU-T G.994.1 (G.hs) SHDSL 2, 4 and 8 Wire	• TC Sublayer: ATM, TDM, HDLC, EFM • Independent TC (ITC) • Line Probing (PMMS) • Data Rate/Line [kBit/s] • Resync/Line [Number] • Used Wire Pair/Line • SNR Margin/Line [dB] • SNR/Line + Attenuation/Line [dB]	• Output Power/Line [dBm] • CRC/Line, Far/Near [Errors] • LOSWS, ES, SES, US • Display of EFM States/Line • Graphic Long-time Trace In ARGUS • EFM Statistics: Frames + Bytes • ATM: OAM Cells, User VCCs, AAL5 PDUs • Parameters/Segment (for SRU)
GigE Tester GigE	Ethernet According to IEEE 802.3 10/100/1000 Base-T (RJ45/8P8C)	• Link Status / Autonegotiation, Far/Near • Auto-MDI(X) Function • Speed (10, 100, 1000 Mbit/s) • Duplex Mode (Full, Half) / Flow Control	• Polarity/Wire Pair (+/-) • Pair skew/Wire Pair [ns] • Frames, Bytes (Rx/Tx) [Number] • Errors, Collisions [Number]
LTE Scanner LTE	LTE Tester Via LTE USB Stick • Long Term Evolution (3.9G) • 800, 1600 and 2600 MHz 2 x Ext. Antenna Connection (CRC-9)*	• Automatic Frequency Band Selection • SIM and PIN Necessary* • LTE Provider [Name] • Frequency (d/u) / Frequency Band [MHz] • Codes and IDs: MCC, MNC, TAC, GCID	• EARFC (EUTRA abs. RF channel no.) • Signal Strength (RSRP) [dB] • Signal Quality (RSRQ) [dB] • SNR Margin (SINR) [dB] • Color Evaluation of RSRP, RSRQ, SINR
WLAN Scanner WLAN	WLAN Tester WLAN Access Point Mode IEEE 802.11a/b/g/n (2,4 GHz) IEEE 802.11ac (5 GHz)* Via WLAN USB Stick • Internal FPC Antenna or • External Antenna (RP SMA Socket)* WEP To WPA2 Enterprise	• Access Point Mode (WLAN Router) WLAN for Smartphones/Laptops for: - Downloading via xDSL/Ethernet - Browsing via xDSL/Ethernet • WLAN Scan (WLAN Terminal) • Counter: Found Access Points • List: Found Access Points • Number 2.4 GHz / 5 GHz Networks	• Network/Name (SSID) • Signal Strength (RSSI) [dBm] • Signal Quality [%] • MAC Address of AP • Used Channel/Frequency • Used Protocol • Negotiated Encryption / Authentification - Group Cipher / Pairwise Cipher
WLAN spectrum analysis	• optional: ARGUS 2G4 Scope graph. WLAN spectrum analysis for 2.4 GHz for the specific WLAN troubleshooting (e.g. Bluetooth, motion sensor, microwave oven etc.)		

Specifications Protocol + IP Tests (Triple Play):

General:	Applications, Settings + Results:	
Protocol Tests	• Configurable MAC Address • Use of Virtual Lines (VL): Maximum Flexibility as Well as Control and Priorization under Real Conditions by Several VLs simultaneously • One VL/Service Each (Data, VoIP, IPTV, opt.) • VL Configurable in Profiles (20) - IP, PPPoE via xDSL, G.fast + Eth (PPTP) - EoA, IPoA, PPPoA via ADSL - VPI/VCI, VLAN (Modus, ID, Prio., TPID) - PPP Profiles (Username, Password) • IP Version (IPv4, IPv6, Dual) + DHCP	• Display of BRAS Information - AC Name, Service Name, Session ID • Display of PPP Information - PPP Packets/Bytes (Tx/Rx) - PPP Trace (PPP Commands, Time) • Display of IP Information - IPv6: Global Unicast/Link Local Address - IPv4: Assigned IP, Gateway, DNS • Recording of a Data Log for Evaluation on PC (e. g. Wireshark)
Data Tests (Data Tester) PC/Terminal Simulation IP Ping Test Traceroute Test http Up-/Download Test ftp Up-/Download Test ftp Server Test Textbrowser	• Memory with up to 10 IP Addresses, IPv4/6 Address as Number or Name • Number of Pings, Pause Configurable (Ping), Packet Size + Fragmentation Configurable • Traceroute: Max. Hops, Probes + Timeout Conf. • Down-/Upload Server Profiles (10): Server Addr., File Name/Size, Number, Number of Parallel Downloads Configurable - FTP: Username + Password • Display Results IP-Ping - Display of Packets (Tx/Rx/repeated) - Checksum Error [Number] - Error Packets [Number] - Round Tripe Time (min/max/avg) [ms] • Display Results Traceroute	• Display Results Traceroute - Current Hop + Probe / List of Hops - Response Time of Hops [s] - IP Address of Current Hops • Display Results Down-/Upload - Current/Total Number [Number] - Already Loaded Data [%] - Average Speed [Mbit/s] - Loaded Bytes [MB] • Transfer Time/Remaining Time [h:min:s]
VoIP Tests (VoIP Tester) IP Telephone Simulation Testing of VoIP Connections incl. Acoustics (dif. Codecs) MOS Evaluation (ITU-T P.800) PESQ Analysis (ITU-T P.862)* - Additional Server Software Necessary Call Generator (up to 30 Calls)	• Configuration in VoIP Profiles (20): SIP Username, Password, Registrar Server, Out-bound Proxy/SBC, Domain, Listen + Remote Port, Authentification, Caller ID, User Agent, Qualify, Process of Registration • Phone Settings: RTP Port Area, Silence Detection, Jitterbuffer, Codecs, DTMF • STUN Server • MOS Threshold for OK/Fail Evaluation • VoIP QoS, Layer 3 Diffserv: RTP/SIP: ToS, DSCP • VoIP QoS, Layer 2 VLAN Prio.: RTP/SIP: VLAN Prio. • Codecs: G.726 (16/24/32/40), G.729 (A/B), G.711 (a-law/µ-law), G.722 • Display of Own Number, Number of Called Person	• Duration of Connection [h:min:s] • MOS Plain Text Evaluation, According to E Model R Factor, ITU-T G. 107 (current/avg), MOS (current/avg/min/max/ideal) • Statistics: RTP Packets (Tx/Rx), • Error Counter: RTP Drop, RTP Error • RTP Jitter Rx (current/avg/min/max) • Lost RTP Packages (avg/min/max) • RTCP Contents: - RTP Jitter far (current/avg/min/max) [ms] - Lost RTP Packets of Remote Side - Network Delay (current/avg/min/max) [ms] • Display of Registration Details: SIP Codes, Registrar IP, Proxy, URI
IPTV Tests (IPTV Tester) IPTV STB Simulation (Settopbox) OK/Fail Evaluation IPTV Channel Scan IPTV Monitor (IPTV passive) VoD Test*	• Configuration in IPTV Profiles (up to 3): Editable Channel List (up to 250 Channels) Multicast IP + Port, Channel Name, IGMP version • Limits for IPTV OK/Fail Evaluation: IGMP Latency, Sync Error, PCR Jitter, Error Indication, CC Errors, CC Error Rate, Audio + Video Bytes, RTP Jitter, RTP Sequence Error, Current + Total RTP Loss Rate • Different VLs for IGMP + RTP • Scan Profiles (3) Configurable: max. Zapping Time • VoD Profiles (3) Configurable: Type of Stream, Server Address + Port, File Name, RTSP Type + Server Type, Jitterbuffer • Limits for VoD OK/Fail Evaluation: PCR Jitter, Continuity Error • Display of Selected IPTV Channel, Test Duration, current Bitrate, OK or Fail Evaluation	• Packets Loss (current/min/max/avg) [Number] • RTP/UDP Packet Loss Rate [%] • Delay [ms] + Delay Factor [ms] • Media Loss Rate (MLR) [%] • IP Address of Channel + Port • IGMP Latency (Activation Time) [ms] • For Correlation: xDSL CRC Counters • RTP Errors, RTP Sequence Errors • MPEG Bitrate + Packets (min/max/ …), Bytes (current/min/max/avg/Sum), PCR Jitter (current/min/max/avg) [ms], CC Errors + Error Rate (current/max) [%], Error Sync + Indication • Codecs and PIDs (Packet Identifier) • Channel Zapping Time (min/max/avg) [ms] • VoD Error Status, Container Type, Packets, Bytes, Cont. Error, Bitrate and many more

Specifications Ethernet Tests:

General:	Applications, Settings + Results:	
Ethernet Cable Tests	• Ethernet Port LED Flash	• Port LED Flash with Timing
Network Scan	• Auto Mode (manual, autom.) • Network Address + Net Mask Configurable • Display of DHCP Discovery, Gateway, DHCP + DNS Server, Net Mask, No. of Detected Clients/Subnet	• Number of Open Ports/Clients • Client Information: IP + Open Ports, MAC, Computer Name, NetBIOS Name • Display of Detected Services, e. g. Mail, Print, Web, File, Database and many more
Loop	• Layer Configurable (L1 to L3): MAC Modus (own MAC or all), VLAN Mode + ID, Prio., TPID Configurable, IP Mode and own IP Address • Loop DSL/SHDSL (ATM): VPI/VCI Configurable	• Duration of Loop [h:min:s] • Looped Packets, Looped Packets/Second [Number] • Throughput [Mbit/s] • MAC Address

Specifications ISDN:

General:	Applications, Settings + Results:	
BRI U Interface ETR 80/ANSI T1.601 ISDN BRI U TE Simulation	• Line Coding: 4B3T or 2B1Q • ISDN BRI U TE Mode, ISDN BRI U Leased Line • ISDN BRI U Voltage Measurement (OK/Fail)	• Details about Tests, Functions and Results, see BRI S TE Interface • High-Impedance listening, see POTS
BRI S Interface ITU-T I.430 BRI S Terminal BRI S Telephone BRI S TE Simulation BRI S Signal Simulation BRI S Monitoring	• BRI S TE Mode, NT Mode, Leased line • BRI S Monitor Mode • Autom. Detection of Connection Configuration • L2 Mode: automatic, P-P, P-MP • Test Availability of B Channels • BRI S Level and Voltage Evaluation • Different Protocols configurable: Auto., DSS1, CorNet-N/T/NQ, QSIG, VN4 • Setting: Alerting Mode, Clocking, BRI S Connection, Call Parameters, Services, Call Acceptance, Codec (A-law/µ-law), DTMF, CUG Index, Prefix, AOC, ... • X.31 Test, configurable in Profiles (3): Packet Number, TEI, LCN, Size, Throughput, User Data, CUG/ Index, D-Bit, Facilities • Non-intrusive listening (Monitoring not active)	• Level Measurement (Bus Supply, Phantom) • Display of L1 Information (Info 0 to 4) • Display L1, L2 and L3 of B Channel Status • Bit Error Rate Test (BERT) ITU-T, G.821, Data, Time, LOS, Errors, HRX, EFS, SES and many more • Request of Supplementary Services DSS1: TP, HOLD, CLIP (CLIR, COLP, COLR), DDI, MSN, CF, CW, CCBS, CCNR, 3PTY, ECT, CUG, CD, AOC, SUB, UUS, CLIP no Screening (TE) • Service Tests: Language, DFU, Audio, Fax, Mixed, OSI, Telephony, Teletex and many more • Request of Call Forwarding (CF), Activating and Deleting • Connection: Call (Single/Block Dial) • Connection: Call Acceptance (Display of Number) • Time Measurements: Duration, Interchannel Delay • Loopbox for Leased Line
PRI interface ITU-T I.431 ITU-T G.703, HDB3-Code ETS 300 011 E1 Interface PRI TE Simulation PRI Signal Simulation PRI Monitoring	• Details about Tests, Functions und Results, see BRI S Interface • Additional Functions/Settings: L1 Alarms: CRC-4, AIS, FAS, E-Bit, A-Bit, Sax • Layer 1 Master/Slave Operation, TE/NT with Sax Instructions • D Channel Trace, TE/NT Mode in PC/ARGUS • Testing of PRI/E1 Leased Lines	• Bit Error Rate Test (BERT), ITU-T G.821 - in Extended Self Call and End-End-Distance-BERT • Display of Bit Errors and Bit Error Rate • OK/NOK Evaluation (see BRI S) • Services Configurable (see BRI S) • Manual Interspersing of Bit Errors • Bit Pattern ITU-T O.150: 2E11-1/E15-1, free • E1-BERT via all B Channels (MegaBERT)

Specifications POTS:

General:	Applications, Settings + Results:	
POTS Tester Analogue Tester POTS Butt Set POTS Terminal Simulation POTS Monitor	• Fully-fledged POTS Butt Set, POTS Phone • POTS Terminal Equipment (TE) • Analogue Phone w/ DTMF + Pulse Dial • Incl. Fully-fledged Analogue Acoustics • High-impedance Listening on POTS • Configurable DTMF Signal Level	• Voltage measurement + Display Polarity when Hook-on and Hook-off • CLIP + Caller-ID acc. ETS 300 659/778 • Supports FSK + Display of DTMF Caller ID • FLASH Function (40 up to 1000 ms)

Specifications ARGUS Copper Box:

General:	Measuring Range	Resolution	Accuracy
DC Voltage; UDC (U=): U=	• 0 V to 9.99 V • 10 V to 220 V	• 0.01 V • 0.1 V	• ± (0.5 % + 2 digits) • ± (0.5 % + 2 digits)
AC Voltage; UAC (U~): U~	• 0 V to 9.99 V • 10 V to 210 V Frequency: 10 Hz to 200 Hz; 0.2 Hz; ±(1.5 % + 2 digits), sinus	• 0.01 V • 0.1 V	• ± (2 % + 2 digits) • ± (1.5 % + 2 digits)
Capacitive Symmetry Balance; CSym: C Sym	• 10 nF to 4 µF Dielectric strength for external voltage up to 17 V DC or 17 V AC (with a load 200 kΩ)	• 0.01 nF	• relative capactiy ± 0.1 %
Capacitance; C: C	• 0.01 nF to 9.99 nF • 10 nF to 99.99 nF • 100 nF to 999.9 nF • 1 µF to 8 µF Dielectric strength for external voltage up to 17 V DC or 17 V AC (with a load 200 kΩ). Measured by film capacitors	• 0.01 nF • 0.01 nF • 0.1 nF • 1 nF	• ± (4 % + 4 digits) • ± (4 % + 4 digits) • ± (3 % + 1 digit) • ± (3 % + 1 digit)
Isolation Resistance (105 V, max. 2 mA); Iso: Iso	• 0.1 kΩ to 99.9 kΩ • 100 kΩ to 999 kΩ • 1 MΩ to 9.99 MΩ • 10 MΩ to 99.9 MΩ • 100 MΩ to 1 GΩ Dielectric strength for external voltage up to 5 V DC or 30 V AC (with a load 200 kΩ)	• 0.1 kΩ • 1 kΩ • 10 kΩ • 100 kΩ • 100 kΩ	• ± (2 % + 1 digit) • ± (2 % + 1 digit) • ± (2 % + 1 digit) • ± (5 % + 1 digit) • ± (5 % + 1 digit)
Isolation Resistance (8 V, max. 9 mA); Iso: Iso	• 0.1 kΩ to 99.9 kΩ • 100 kΩ to 999 kΩ • 1 MΩ to 9.99 MΩ • 10 MΩ to 40 MΩ Dielectric strength for external voltage up to 5 V DC or 30 V AC (with a load 200 kΩ)	• 0.1 kΩ • 1 kΩ • 10 kΩ • 100 kΩ	• ± (2 % + 1 digit) • ± (2 % + 1 digit) • ± (2 % + 1 digit) • ± (5 % + 1 digit)
Resistive Symmetry Balance; RSym: R Sym	• 10 Ω to 5 kΩ Dielectric strength for external voltage up to 30 V DC or 30 V AC (with a load 200 kΩ)	• 0.1 Ω	• 0.2 % of Rs ± 0.2 Ω
Loop Resistance; R: R	• 1 Ω to 999.9 Ω • 1 kΩ to 9.999 kΩ • 10 kΩ to 99.99 kΩ • 100 kΩ to 999.9 kΩ • 1 MΩ to 9,999 MΩ • 10 MΩ to 4.0 MΩ	• 0.1 Ω • 1 Ω • 10 Ω • 100 Ω • 1 kΩ • 10 kΩ	• ± (1 % + 3 digits) • ± (1 % + 1 digit) • ± (1 % + 1 digit) • ± (1 % + 1 digit) • ± (2 % + 1 digit) • ± (5 % + 1 digit)
DC Current; IDC (I=): I=	• 0.1 mA to 500 mA	• 0.1 mA	• ± (2.5 % + 3 digits)
Unbalance at 1 MHz; LCL: LCL	• 0 dB to 55 dB • 55.1 dB to 65 dB The length of the test leads can influence the accuracy of the measurement. Dielectric strength for external voltage up to 3 V DC or 3 V AC. At an internal resistance of the source of 1 MΩ it will be measured up to 3.5 V DC / AC.	• 0.1 dB • 0.1 dB	• ± 1.5 dB • ± 3 dB
NEXT at 1 MHz; NEXT: NEXT	• 0 dB to 65 dB Dielectric strength for external voltage up to 3 V DC or 3 V AC. At an internal resistance of the source of 1 MΩ it will be measured up to 3.5 V DC / AC.	• 0.1 dB	• ± 1dB
Remote Kit Control:	• Use ARGUS and ARGUS Copper Box to control different Remote Kits to switch the Line on the remote side.		
Other Functions:	• Autotest	• Signature detection (e. g. PPA)	• Fast cable check
Reference Conditions (calibration):	• Temperature: 23 °C ± 5 °C • Relative humidity: 50 % ± 20 % relative humidity, non-condensing		• Frequency of measurement type: 50 Hz ± 5 Hz, sinus

Specifications Copper Tests:

General:	Applications, Settings + Results:	
TDR Test Time Domain Reflectometer	• Determination of the Loop Length • For Identification and Detection of Shorts, Opens, Impedance Mismatch, Bridged Taps/Stubs, Moisture, Loading Coils, Loose Contacts and more • Pre-configured List of Cable Types, Velocity of Propagation (VoP): 30 % (45 m/µs) up to 99.9 % (149.7 m/µs), Line Resistance, Mutual Capacitance • Graphic Display of Reflection Course	• Measurement Range: 3.5 up to 6000 m • Res.: 0.025 % of Measurement Range; Accuracy: ±2 % • Configureable gain: -26 dB up to +44 dB • Config. Pulse: 5 ns up to 3.2 µs, Pulse Height: 5 V and 20 V • Dynamic range: 60 dB / Amplification Level • Zoom + Cursor for a Detailed Analysis • Save + Set of Reference Curve • Start/Stop Function (Realtime Mode)
Line Scope DSL Spectrum Analysis DSL Oszilloscope	• Monitoring in Time/Frequency Domain on all Types of Lines for Telecommunications as well as on active Lines with up to 200 VDC and 40 Vpp • For Identification and Detection of different Access Types • Modem Finder, via Handshake Tones • Detection of Disturbers/Disturbing Signals • Frequency Range: 20 kHz up to 35 MHz • Resolution: 67 Hz up to 8.625 kHz or 0.025 % of Measurement Range, Accuracy: ±2 dB • Config. Gain FFT: -26 dB up to +20 dB	• High-impedance or Line Termination: - Input Impedance: 3.6 kΩ, <10 pF - Switchable 100 Ω Input Resistance • Graphic Display of FFT [dBm/Hz] and of Time (Oszilloscope) • Config. X-Axis: FFT or Time [µs], Auto. Trigger in Time Domain • Zoom + Cursor for a Detailed Analysis • Save + Set of Reference Curve • Start/Stop Function (Realtime Mode) • Peak Hold Function (Min/Max Trailing) • Symmetry Toggling (see Active Probe)
ARGUS RF Current Clamp	• optional: ARGUS RF Current Clamp for non-intrusive detection of interferers (e.g. power supplies) with Line Scope (graphical) and by tone tracking	
ARGUS Active Probe II*	• ARGUS Active Probe II for Passive, High-impedance Intrusion on Active Connections (xDSL, POTS, ...) • Input Impedance: 70 kΩ, <1 pF • Frequency Range: 10 kHz bis 35 MHz	• Hiding the Useful Signal Symmetry/Asymmetry Toggling - Attenuation Symmetric: 14,5 dB • 2 x 4 mm Banana Jacks • Data Transfer to ARGUS via RJ45

Documentation and Analysis
• **Documentation** of All Parameters Recorded to Test Reports (in Device and on PC) via Automatic Access Tests
• Transfer of Test Results via **QR Code** to a Smartphone or via WLAN, ETH or DSL to Cloud (FTP Server).
• Free of Charge Firmware Updates via **Cloud** or ARGUS **Update Tool**
• WLAN Extension for Transferring Test Results to Systems of an Electronic Order Processing System, Remote Control via Smartphone.
• Free Firmware and Software Updates Available via www.argus.info

Device Specifications	
Technical Features:	
• **Power Supply**	Li-Ion Battery Pack or Mains Adaptor
• **Hotkey**	Quick Start of Various Tests
• **Power Management**	User Configurable
• **Keypad**	18 Keys, 4 Cursor Keys, 3 Context-Sensitive Softkeys
• **LCD Colour Display**	QVGA - 320 x 240 Pixels, Backlit
• **6 LEDS**	Indicating the Status + Ethernet Port LEDs
• **Handset**	Integrated Earpiece and Microphone
• **CE Marking**	Complies with CE Directives
• **User Safety**	Fulfills EN 60950-1:2006-11
• **RoHS Conformance**	Conformance According to WEEE Directive
Interfaces:	
• **RJ-45**	For xDSL, G.fast, ISDN and POTS
• **Ethernet**	10/100/1000 Base-T, RJ-45 Test Ports
• **USB Client Interface**	Type Mini B
• **2x USB Host Interface**	Type A
• **WLAN**	IEEE802.11a/b/g/n
• **Headset**	Jack (TRS 2.5 mm, approx. 3/32")
Environmental Conditions:	
• **Operating Temperature**	0 °C (+32 °F) up to +50 °C (+122 °F)
• **Storing Temperature**	-20 °C (-4 °F) up to +60 °C (+140 °F)
• **Relative Humidity**	Up to 95 %, Non-Condensing
Dimensions:	
• **Size**	H x W x D: 235 x 97 x 65 mm (9.25 x 3.8 x 2.56 in)
• **Weight**	approx. 810 g (1.79 lbs, ARGUS incl. Battery Pack)

Standard Package:	
xDSL Basic Package (incl. GigE Use) with Bridge/Router Mode, IP Tests (IP Ping, IP Traceroute), IPv6, Line Scope, Text Browser, Cloud Services, WINplus PC-Software (Download Version), Carrying Case (Large), Lithium-Ion Battery Pack, Mini USB Cable, Test Leads, Mains Adaptor, Carrying Strap, Hand Strap, English Manual and Menu Map	
Basic Package:	
• **ARGUS 156 VDSL2 (inkl. Profile 35b / Super Vectoring)**	Order Number 115402
• **ARGUS 156 SHDSL 2-Wire**	Order Number 115422
• **ARGUS 156 ISDN PRI TE/NT/Monitor**	Order Number 115452
Additional Interfaces: (Test Leads Included)	
• **G.fast Interface 106 MHz / 212 MHz**	Order Number 015413 / 015416
• **VDSL2 Bonding (up to Profile 35b)**	Order Number 015409
• **VDSL2 Interface (incl. Profile 35b / Super Vectoring)**	Order Number 015408
• **ADSL Annex A + L + M Interface**	Order Number 015405
• **ADSL Annex B + J Interface**	Order Number 015406
• **SHDSL 2-Wire Interface**	Order Number 015412
• **SHDSL 4-Wire Interface**	Order Number 015414
• **SHDSL 8-Wire Interface**	Order Number 015418
• **POTS TE Interface**	Order Number 015415
• **ISDN BRI S/T (TE/NT/Monitor) Interface**	Order Number 015419
• **ISDN BRI U (TE) Interface**	Order Number 015471 (2B1Q) or 015470 (4B3T*)
• **ISDN PRI/E1 (TE/NT) Interface**	Order Number 015420
Additional Test Features: (Depends on Existing Interface)	Order Number 015459
• **WLAN Option**	Order Number 015459
• **ARGUS 2G4 Scope**	Order Number 000240
• **LTE Option**	Order Number 015456
• **PESQ (VoIP)**	Order Number 015427
• **VoIP Test (ADSL, VDSL2, SHDSL, Ethernet)**	Order Number 015430
• **IPTV Test / IPTV ext. (ADSL, VDSL2, SHDSL, Ethernet)**	Order Number 015437 / 015439
• **VoIP + IPTV Package (ADSL, VDSL2, SHDSL, Ethernet)**	Order Number 015433
• **TDR (Time Domain Reflectometer)**	Order Number 015451
• **ARGUS Active Probe II**	Order Number 015091
• **ARGUS Copper Box**	Order Number 015098
• **ARGUS RF Current Clamp**	Order Number 000265
• **WINanalyse License (Download Version)**	Order Number 016562
* We would be glad to provide further details and information about additional accessories on request.	

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