

details

ARGUS[®] 145

ADSL2/2+, G.SHDSL (2-/4-wire)*, ISDN*, POTS*
Triple Play: VoIP*, IPTV/VoD/MDI*, download Test
(Version: 03 / 2008)

One tester for all requirements

- **ADSL** modem (ATU-R) emulation, including bridge mode
- **G.SHDSL** modem (STU-R) emulation*, including bridge mode for 2-wire-lines* and 4-wire-lines*, supports SHDSL.bis*
- **ATM / IP** layer tests by ATM / IP Ping and VPI/VCI scan
- **Download** test for throughput determination (HTTP, FTP up/do.)
- **VoIP** emulation*, incl. real acoustics at xDSL and Ethernet
- **IPTV**: IP video tests (IPTV-, VoD tests, STB emulation)*, including IPTV online trace using WINanalyse*, determination of the MDI (Media Delivery Index) at xDSL and Ethernet
- **ISDN**: full-featured ISDN BRI S/T interface tester* (TE sim.), passive D channel monitoring, ISDN BRI NT simulation*
- ISDN BRI U interface* (2B1Q or 4B3T)
- **POTS**: powerful POTS tester with CLIP display*
- 2-wire high-Z monitor with voltage measurement, DTMF and CLIP decode*
- **RC measuring**, including loop length calculation
- **VDSL2** connection parameters display report via ARGUS[®]33*
- easy-to-operate, user defined and predefined test scenarios
- lightweight, internally rechargeable AA batteries / mains powered
- fully automated access test and test reports for documentation
- free software updates by download from www.argus.info
- rugged and ergonomic handheld design
- USB interface to a PC
- compatible with WINanalyse* / WINplus



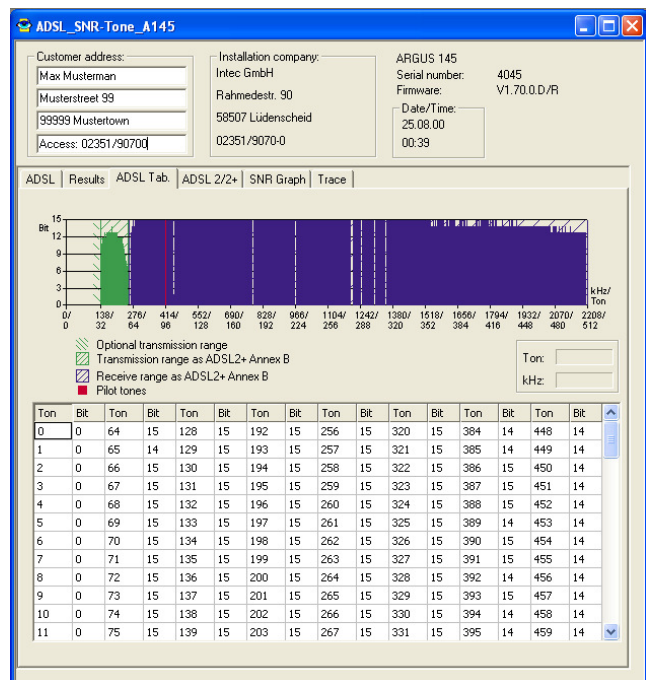
ARGUS[®]145 allows the installer to confirm that the promised xDSL* service is being properly delivered to the subscriber. Determine the xDSL* Quality-of-Service automatically within seconds by receiving the connection rates and noise margins from the DSLAM at the customer. Check through the network if the wiring does allow DSL service by connecting the rechargeable battery powered ARGUS[®] at various points at the end point, at the junction box, at the cross boxand optimise the local loop. Ping the service provider to proof internet connectivity, test the xDSL modem by IP ping via its ethernet port and support xDSL modem bridge mode.

See immediately the DSL transmission spectrum on the graphics screen of ARGUS[®]145 and find degraded spectral regions by interfering noise sources.

In addition to the widespread function of verifying the subscribers xDSL supply, the ARGUS[®]145 checks further services; it allows ISDN testing at BRI S/T* (TE/NT*) and U interfaces* in a TE or leased line operation mode, also POTS* tests are possible.

For testing higher layers and for evaluating audio and video data a full VoIP phone emulation* and a IPTV analysis feature* are available (Triple Play functions).

All other impairments of the local loop will be detected by the RC measuring function.



(ADSL2+ access test report viewed by WINplus)

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ARGUS®145 - ADSL2+ / ADSL2 / ADSL interface functions

- ATU-R simulation for ADSL2+, ADSL2, ADSL
- Standards supported: ANSI T1.413.2, ITU-T G.992.1 (G.DMT) Annex A / B, ITU-T G.992.3 Annex A / B / L (Reach Extended) / Appendix 1, ITU-T G.992.5
- Versions available for: ADSL over POTS (Annex A) and ADSL over ISDN (Annex B) are both available in the same tester
- Automatically measures and displays the following upstream / downstream parameters of the line:
 - ATM maximum bit rates
 - ATM fast or interleaved bit rate
 - line bit rate and relative capacity
 - on-screen bits/tone and SNR/Tone histogram of the carrier load
 - noise margin
 - output power
 - attenuation
- ADSL cell and bit error statistics (upstream / downstream):
 - CRC (Cyclic Redundancy Check)
 - FEC (Forward Error Correction)
 - HEC (Header Error Checksum)
 - Fast / interleaved bit error
 - Fast / interleaved errored seconds
- Timestamped on-screen event trace
- PASS/FAIL result according to user defined QoS thresholds
- ARGUS®145 also displays the manufacturer of the ATU-C
- Build-in POTS microfilter (minisplitter)
- Graphical preparation of ADSL synchronisation loss and error counters above the time using WINanalyse*

ARGUS®145 - G.SHDSL-2-wire* and SHDSL-4-wire* interface

- Standards supported:
 - ITU-T G.991.2 (G.SHDSL, Annex A, B), ETSI 101524 (ETSI-SDSL), supports SHDSL.bis (Enhanced SHDSL)
- STU-R simulation (acts like CPE), STU-C simulation
- DSLAM-SDSL / G.SHDSL ATM operation
- Full support of all "ARGUS®145 ATM- /IP functions"
- Switch-over and autom. detection of the wire pairs
- Works also in bridge or router mode (only STU-R ATM)
- Stores access test reports for documentation
- Voltage measurement
- Repeater count (displays parameters per section, too)
- Automatically measures and displays the following upstream / downstream parameters of one or both lines:
 - bit rate: 144 kbps - 2320 (4608) kbps in 8 kbps steps
 - Signal-to-Noise-Ratio and attenuation
 - Receiver (Rx) gain and transmit (Tx) power
- Error counters:
 - Code/CRC
 - Errored Seconds (ES)
 - Severely Errored Seconds (SES)
 - Loss of Sync Word Seconds (LOSWS)
 - Unavailable Seconds (UAS)

ARGUS®145 - ATM tests

- OAM F5 loopback support
- VPI/VCI scan returns list of available VPI/VCI
- ATM Ping (end-to-end or segmented)
 - min., max. and average delay
 - selectable number of PINGS
- ATM statistics
 - Rx/Tx total cell and OAM/AAL cell counters
 - Rx-CRC error counter
 - counter for unmapped cells, displays last unmapped VPI/VCI
- Setup multiple VCs (virtual channel)

ARGUS®145 - IP functions

Test the internet connectivity to the ISP and the real download rates:

- Protocols:
 - PPPoE, PPPoA, IP over ATM, Ethernet over ATM, IP, PPTP
- Display of PPP assignments: local/remote IP address, DNS
- VLAN support (VLAN ID configurable)
- User selectable WAN or default WAN MAC address
- DNS client / server mode (DNS relaying), support of two DNS
- DHCP client / server
- NAT/PAT address resolution (NAT can also be disabled)
- DHCP, PPP (IPCP) and static IP addressing
- PAP or CHAP authentication
- PING test for response time analysis:
 - display of sent, received and lost packets, min/max/average time, errors
 - user defined IP packet size, delay time, number of PINGS or endless mode
- Traceroute function for extended PING analysis with hop count, IP address of hop and name lookup, delay per hop
- Download test by HTTP / FTP; Upload test by FTP
- Recording of internet login sequence and other IP tests on PC in PCAP file format for protocol analysis



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ARGUS®145 - VoIP phone emulation*

- includes own acoustics (several codecs supported)
- Simulation of incoming and outgoing SIP-calls
- Auto Answer mode of incoming calls, answer type: echo test
- configureable simulation parameter:
 - STUN-server
 - codec (choice and priority)
 - SIP registrar server
 - SIP useragent name
 - SIP authentication domain/realm
- displayed results of the simulation:
 - STUN-server
 - incoming and outgoing call, display of call progress
 - name, alias and IP address of the remote station
 - call duration
 - codec / rate
 - packet delay, packet jitter, packet loss
- Displays VoIP statistics, SIP status log

ARGUS®145 - IP video tests* (IPTV, VoD, MDI, Online Trace)

- Broadcast TV (UDP or RTP): IGMP (Internet Group Management Protocol) version 1-3 selectable
- Video-on-Demand: RTSP (Real Time Streaming Protocol), MMS, HTTP, FTP
- Set-Top-Box (STB) emulation with source IP address and port selectable, adjustable MAC address and DHCP support
- Packet statistics: received / jitter current/max / RTP OOS (Out of Sequence)
- Determination of the MDI (Media Delivery Index), according RFC 4445 in passive bridge or router mode (OK/Fail evaluation)
- IPTV online trace, trace of all important parameters, including graphical preparation using WINanalyse*

Broadcast TV

- Video Quality of Service
 - Pass/Fail display, channel scan and channel zapping time
 - Continuity error current/max, PCR jitter current/max
 - IGMP latency
- Transport stream analysis and statistics
 - Sync errors, error indication, continuity error
 - Video / Audio / Data / Unknown: packets / bytes / bit rate (curr, avg, min, max), PCR jitter current/max
 - IGMP latency
- Transport stream PID: Video / Audio codec / Data / Unknown

Video on Demand (VoD)

- VoD Stream informations display
 - Pass/Fail display
 - Audio: Codec, Codec Description, Audio Channels, Audio Sample Rate, Audio Bits Per Sample, Audio Bit Rate
 - Video: Codec, Resolution, General Duration, General Author, Meta Title, Meta Author, Meta Copyright
- Transport stream analysis and statistics
 - Total: packets / bytes / bit rate (curr, avg, min, max)

ARGUS®145 - Ethernet functions

- Ethernet (10/100BaseT) interface
- Tests on Ethernet port of DSL modem as Ethernet TE (PC replacement mode): see IP functions
- G.SHDSL* and ADSL modem replacement mode (bridge mode)
 - Bridge mode for PPPoE, Bridged Ethernet
 - Router mode for PPPoE, PPPoA, IPoA, EoA
 - + DHCP client/server and DHCP auto mode or static IP addresses
 - + User defined DHCP address range and lease time
 - + Support of DNS relaying
 - PC replacement mode (ARGUS does replace the user's PC), with protocol PPTP support
 - Recording of internet login sequence and other IP tests on PC in PCAP file format for protocol analysis

ARGUS®145 - BRI S/T interface functions*

- BRI interface in accordance with ITU-T I.430
- TE/NT* simulation and D channel passive monitoring
- Automatic detection of access configuration and protocol:
 - Point-to-point (P-P) or point-to-multipoint (P-MP)
 - Protocols: DSS1
- Supported Protocols:
 - DSS1, Cornet-T / N / NQ, QSIG, VN4
- Display of Layers 1-2-3 and the B-channel status (availability)
- D-channel monitor with online output for PC decode
- Automatic ISDN services test
 - for DSS1: auto. tests of CLIP, CLIR, COLP, COLR, HOLD, TP, CFU, CFB, CFNR, AOC-D/E, CCBS, CCNR, CW, MCID, ECT, 3PTY, DDI, MSN, SUB, UUS, CUG, support of keypad protocol
- Telephone functions with the call hotkey
 - call number memory for numbers or keypad protocol commands, X.31 test number, own number
 - displays for incoming calls: calling and called number, B-channel, ISDN service, type of number and numbering plan, display info elements, SUB address and UUS-1 data
 - displays during call: AOC-D in currency or charging units, display info elements
 - at end of call: AOC-E in currency/ charging units
 - clearing cause by number/text incl. location
- Selectable B-channel, en-bloc or overlap signalling
- Measurement of call setup time
- Selectable call parameters for outgoing calls
 - type of number and numbering plan
 - screening and presentation indicator
- Terminal simulation for different ISDN bearer and tele services
- Bus status test with interrogation, display and clearing of the active call diversions CFU, CFB, CFNR for all services
- Automatic X.31 test:
 - automatic detection of the TEIs activated in the packet handler
 - simulation of X.31 terminal to X.25 network

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- BERT bit error test with evaluation in accordance with G.821
 - extended self-call or end-to-end BERT
 - two concurrent BERT on B1 and B2, loopbox function
 - displays the bit error count and remaining measuring time
 - manual injection of bit errors
 - measuring time: 1 min.- infinite
 - test pattern acc. O.150: 2E11-1, 2E15-1, user defined
 - selectable service for BERT connection
 - G.821 analysis: ES, EFS, SES, US, DM and OK evaluation
 - adjustable OK/Not-OK bit error rate threshold and evaluation
 - audible alarms for bit errors and LOS, LOS counter
- Tests of ISDN leased lines:
 - Telephone function and BERT
 - selectable B-channel, two concurrent BERT, BERT in D-channel
 - loopbox function for both B-channels
- measurement of round trip delay and interchannel delay
- Display of layer 1 info (info 0 - info 4)
- Layer 1 tests: measurement and evaluation of the phantom feed (OK, NORMAL or Restricted Power) and the L1 signal level

ARGUS®145 - U and POTS interface functions*

- U interface in accordance with ANSI T1.601
- line coding: 2B1Q or 4B3T
- test in TE mode at U interface same as at S/T
- measurement of U interface voltage
- POTS interface with DTMF and pulse dial mode, flash function (40-1000 ms), loop resistance: appr. 600 Ohm
- POTS voltage measurement incl. polarity (hook-on and hook-off)
- automatic detection of POTS interface
- CLIP, supports display of FSK and DTMF caller ID (date, time, name...), adjustable DTMF signal level, signal and interval length
- high-Z monitor with non-intrusive listen-to on POTS and U
 - online display of CLIP, date, time,... caller ID services
 - online display of DTMF dialing tones incl. A, B, C, D, *, #
- build-in POTS microfilter allows POTS operation on lines with DSL traffic

ARGUS®145 - RC measuring function

- Loop resistance measurement - accuracy 10%
 - Range: 100 Ohm ...20k Ohm
 - Resolution: <1k: +/- 10 Ohm, >1k: +/- 100 Ohm
- Open capacity - accuracy 10 %
 - Range: 1nF...1µF
 - Resolution: 1nF...1µF +/- 1/10 nF
- including loop length calculation

ARGUS®145 - Display VDSL2 parameter using ARGUS®33

- Connect ARGUS®145 using Ethernet to ARGUS®33 for displaying all of the ARGUS®33s VDSL2 connection parameters
- Test Triple Play like VoIP*, IPTV/VoD/MDI* and down- or uploads connecting ARGUS®145 as TE to ARGUS®33 in bridge mode

Technical Features:

- Alternatively supplied from standard rechargeable batteries (AA) or mains adaptor
- Start quickly different single tests using special hotkeys
- User configureable powermanagement
- Keypad: 18-keys, 4 cursor keys, 3 context-specific softkeys
- LC Display: 8 lines graphic display, backlit
- 6 LEDs to indicate status
- Interfaces: 2 x RJ-45 line input for ADSL, Ethernet (100BaseT), USB and serial* interface
- Environmental conditions:
 - Operating temperature: 0° - +50 ° C
 - Storing temperature (under shade): -15° - +70°
 - Relative Humidity: up to 95 %, non-condensing
- CE marking: complies with CE directives
- User safety: EN 61010-1, EN 60950
- Standard package: Tester incl. rechargeable batteries, plug-in power supply, cable set for ADSL, manual, carrying case, USB cable, WINplus PC software package for display, printout and storing of automated access test

*Options:

- DSLAM-SDSL / G.SHDSL-2-wire interface
- DSLAM-SDSL / G.SHDSL-4-wire interface
- SHDSL.bis support (Enhanced SHDSL)
- VoIP phone emulation
- IP video tests (IPTV, VoD, MDI, online trace)
- ISDN and POTS interface
- U interface module (2B1Q or 4B3T)
- BRI NT simulation
- BRI 128k BERT
- ARGUS®33 for testing VDSL2
- WINanalyse PC software (for D-channel decoding and graphical preparation of ADSL synchronisation loss)
- Serial interface cable (USB cable in standard package incl.)
- ARGUS car charger

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