ARGUS® 145

SHDSL – COMBI TESTER

SHDSL

ETH

ISDN

POTS

Data
101101011011

IP
TV

Vo
IP

MOS

PESQ

PC

USB

intec
GESELLSCHAFT FÜR
INFORMATIONSTECHNIK mbH

ARGUS® 145

Where to use the ARGUS?

Connect to Ⓐ
Replace Ⓑ
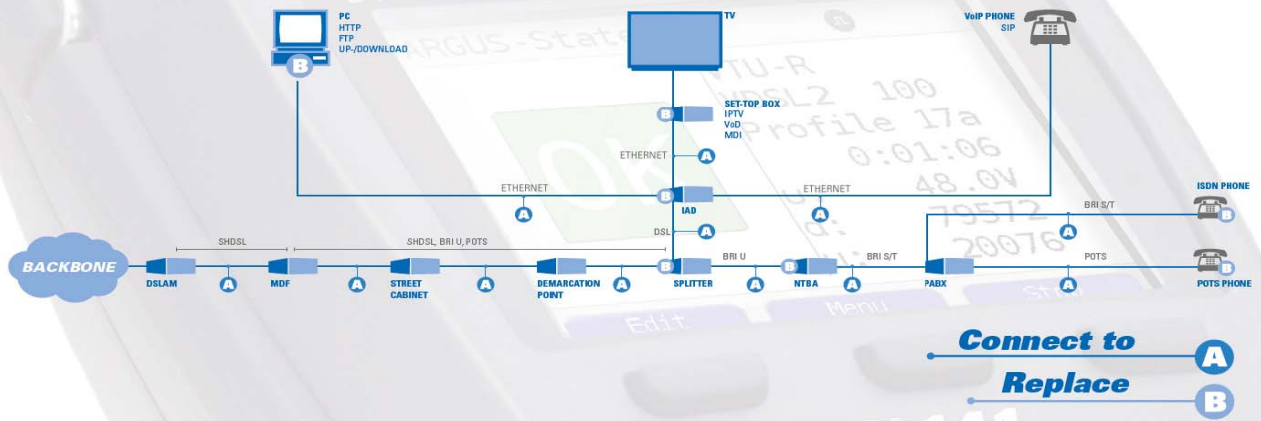
The compact all-rounder

The ARGUS®145 tests SHDSL and Ethernet - with no module swapping. This convenient all-rounder does cover all kind of SHDSL interfaces (2, 4 and 8 wire with support for SHDSL.bis - Enhanced SHDSL and EFM) and - if desired – also Ethernet, POTS and ISDN; all integrated into a single device.

Lineman's handset for POTS, ISDN and VoIP

In addition to its functionality as an advanced analog handset with caller ID and passive monitor mode and as a comprehensive ISDN tester, it also offers support for testing VoIP via SHDSL interfaces and on Ethernet. Besides simulating a SIP terminal, it also provides extensive QoS parameters and evaluates voice quality in accordance with proven techniques, like MOS or PESQ*.

IPTV and Data service testing

When it is used to simulate a set-top box, the ARGUS®145 can also assess IPTV and Video on Demand data streams for determine IPTV quality is Service parameters (QoS) like the Media Delivery Index (MDI).

The ARGUS®145 is also well equipped for checking Internet connections as it has IP ping and trace route functions as well as upload and download tests. Rounding out the package, the ARGUS®145 can operate in SHDSL bridge and router mode and can also perform an IPTV online trace when used together with the WINanalyse software e.g. in modem through mode.

Resistance and capacitance measurements are available to check the physical characteristics of the subscriber's line and to determine the distance to a open or a short.

In view of the above set of features, it is obvious that the ARGUS® 145 offers an extensive range of measurement functions for use on the various interfaces. Nonetheless, it should not be overlooked that this broad range of features has been packed into an extremely small and handy device; one that is not only extremely compact and convenient to use on location - wherever that location might be - but also ready for use in no time due to it's short start-uptime.

Easy operation

The ARGUS®145 is also extremely easy to use. It has a large (128 x 64 pixels) display, uses context specific soft keys and has a USB client interface. The tester operates on high performance field-replacable standard AA cells.

About us

With more than 20 years of experience, intec Gesellschaft für Informationstechnik mbH is one of the leading suppliers of xDSL, ISDN and IP measurement technology in Europe. With the ARGUS range, intec is offering a convenient setup and troubleshooting solution for xDSL and ISDN connections.

Developed specifically for the needs of the users of international network operators, service providers and installation companies on a daily basis, more than 60 000 ARGUS measuring devices have already been sold.

Companies such as Deutsche Telekom, Vodafone, Telefonica, KPN, British Telecom, Telecom Italia and Telekom Austria are putting their faith in the quality of "Made in Germany" intec products.

ARGUS® 145

SHDSL, Ethernet and Triple Play combi tester

ARGUS®145 is a compact handheld tester for testing the most common business customer interfaces:

SHDSL-2-, 4- and 8-wire* interface
- Standards supported:
  - ITU-T G.991.2 (G.SHDSL, Annex A, B, F (.bis) and G (.bis)),
  - ETSI 101524 (ETSI-SDSL),
  - supports SHDSL.bis (Enhanced SHDSL)
  - supports ITU-T G.994.1 (G.hs) and PHY aggregation function (PAF) in accordance with EFM acc. to IEEE 802.3ah (2004)
  - supports TDM and EFM (L1) sync mode
- Full support of all "ARGUS®145 ATM- /IP functions"
- Manual switch-over and automatic detection of the wire pairs
- Works also in bridge or router mode (only STU-R ATM)
- Stores access test reports for documentation
- Measures the DC voltage directly on the line
- Repeater count (displays parameters per section, too)
- Automatically measures and displays the following upstream / downstream parameters of one or more lines:
  - bit rate: 144 kbps – 2304 kbit/s (5696 kbit/s) in 8 kbit/s steps
  - Signal-to-Noise-Ratio and attenuation
  - Receiver (Rx) gain and transmit (Tx) power
- Error counters:
  - Code/CRC, Errored Seconds (ES), Serverely Errored Seconds (SES), Loss of Sync Word Seconds (LOSWS), Unavailable Seconds (UAS)

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, OAM/AAL cell and Rx-CRC error counters
  - counter for unmapped cells, displays last unmapped VPI/VCI
  - Setup multiple VCs (virtual channel)

STU-R IP functions
Check internet connectivity to ISP at real download rates:
- Protocols: PPPoE, PPPoA, IP over ATM, Ethernet over ATM, IP
- 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 mode
- 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 Tx, Rx and lost packets, min/max/avg. time, errors
  - user defined IP packet size, delay time, number of PINGs or endless mode
- Trace route 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

ARGUS 145 operating modes

Framing Mode	ATM			EFM	TDM
	L1 sync	ATM	IP	L1 sync	L1 sync
STU-R					
2-wire	x	x	x	x	x
4-wire	x	x	x	x	x
8-wire	x*	-	x	x	x
STU-C					
2-wire	x	x	-	-	x
4-wire	x	x	-	-	x
8-wire	x*	-	-	-	
STU-R router & bridge					
2-wire	x	x	x	-	-
4-wire	x	x	x	-	-
8-wire	-	-	-	-	-

* IMA only

VoIP phone emulation* (on Eth., SHDSL 2- and 4-wire)
- Includes own acoustics (several codecs supported)
- Simulation of incoming and outgoing SIP-calls
- Auto Answer mode of incoming calls, answer type: echo test
- Some of the configurable parameters:
  - STUN server and codec (choice and priority)
  - SIP registrar server, user agent name, authentication domain
- 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, jitter and loss
- Displays VoIP statistics, SIP status log, MOS value in acc. with ITU-T P.800 and R factor/E model in acc. with ITU-T G.107

IP video tests* (on Eth., SHDSL 2- and 4-wire STU-R)
- Broadcast TV (UDP or RTP): IGMP, version 1-3 selectable
- Video-on-Demand: RTSP, MMS, HTTP, FTP
- STB emulation with source IP address and port selectable, adjustable MAC address and DHCP support
- Packet statistics: received / jitter current/max / RTP OoS
- Determination of the MDI (Media Delivery Index), according to RFC 4445 in passive bridge mode (OK/Fail evaluation)
- IPTV online trace, trace of all important parameters, including a graphical preparation using WINanalyse*
- Video Quality of Service (QoS)
  - 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 (on Eth., SHDSL 2-/4-wire STU-R)
- VoD stream information display with OK/Fail evaluation
  - 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

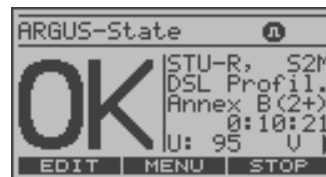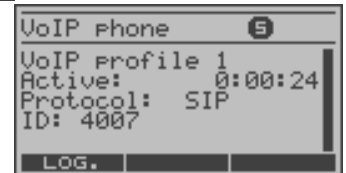**Ethernet functions**
- Ethernet (10/100BaseT) interface
- Tests on Ethernet port of DSL modem as Ethernet TE or any or any other Ethernet portother Ethernet port (PC replacement mode): see IP functions
- G.SHDSL* modem replacement mode (bridge or router mode)
  - Bridge mode for PPPoE, Bridged Ethernet
  - 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

Circuit-switched interfaces:
- ISDN: integrated comprehensive ISDN test set
  - BRI U interface (2B1Q or 4B3T) acc. to ANSI T1.601
  - BRI S/T interface acc. to ITU-T I.430, TE and NT modes
  - D channel monitoring on BRI S/T interfaces
  - Testing of BRI S/T leased lines
  - Automatic testing of services and supplementary services
  - Evaluation of the ISDN speech quality directly on BRI S/T/U: via PESQ* (ITU-T P.862) + MOS_{LQO}* w/ PESQ server SW*
- POTS: integrated comprehensive POTS butt set (analog)
  - With DTMF and CLIP display, including pulse dial mode
  - Non-intrusive high-Z monitor, incl. voltage measurement, DTMF and Clip decode
  - Evaluation of the speech quality directly on POTS: via PESQ* (ITU-T P.862) + MOS_{LQO}* w/ PESQ server SW*

RC measurement
- Loop resistance measurement, accuracy 10 %
  - Range: 100 Ohm to 20k Ohm
  - Resolution: <1k:+/- 10 Ohm, >1k:+/- 100 Ohm
- Open capacitance measurement, accuracy 10 %
  - Range: 1nF to 1µF
  - Resolution: 1nF to 1µF +/- 1/10 nF
- Including loop length calculation

intec

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Technical Features:
- Alternatively supplied from standard rechargeable batteries (AA), battery pack or mains adaptor
- Starts quickly different single tests using special hot keys
- User configurable power management
- Keypad: 18-keys, 4 cursor keys, 3 context-specific soft keys
- LC Display: 8 lines graphic display, backlit 6 LEDs to indicate the status
- Interfaces: 2 x RJ-45 line input for ADSL, Ethernet (100BaseT)
- USB and serial* interface to PC
- 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, print out and storing of automated access test

*Options:
- DSLAM-SDSL / G.SHDSL-2-wire interface
- DSLAM-SDSL / G.SHDSL-4-wire interface
- DSLAM-SDSL / G.SHDSL-8-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
- WINanalyse PC software (for D-channel decoding and graphical preparation of IPTV long-term analysis)
- Serial interface cable (USB cable in standard package incl.)
- ARGUS car charger

* We would be glad to provide further details and information about additional accessories on request.
Please ask for further extensions like ADSL interfaces and other functions.