

# ARGUS<sup>®</sup> 145<sup>PLUS</sup>

TRIPLE PLAY AND xDSL-TESTER



VDSL

ADSL

SHDSL

ETH

ISDN

POTS

DATA  
101101011011

IP TV

VO IP

MOS

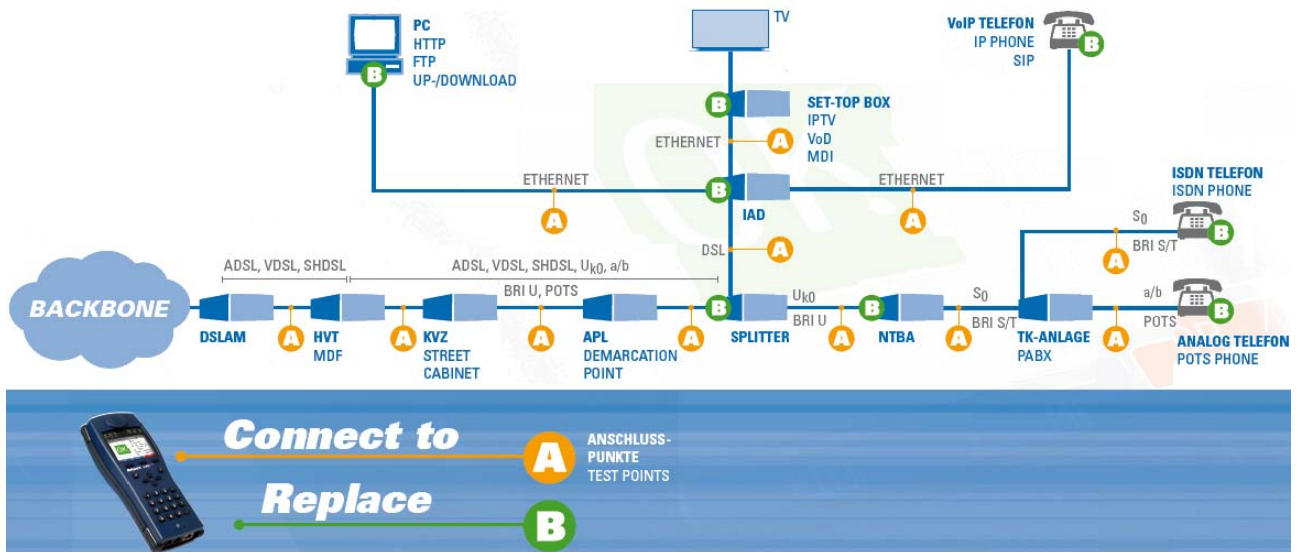
PESQ

PC

USB

**intec**

GESELLSCHAFT FÜR  
INFORMATIONSTECHNIK mbH



### The compact all-rounder

The ARGUS<sup>®</sup>145<sup>PLUS</sup> tests VDSL2, ADSL, SHDSL, Ethernet and ISDN (BRI S/T and U interface) and POTS as well - with no module swapping. This convenient all-rounder with a colour display offers support for VDSL2 (all profiles), ADSL (Annex A, B and M) and SHDSL (2, 4, and 8 wire with support for SHDSL.bis - Enhanced SHDSL - and EFM) if desired, Ethernet, ISDN (BRI S/T and U interface - 2B1Q or 4B3T) and even POTS; all integrated into a single device. Separate chipsets for ADSL, VDSL2 and SHDSL ensure optimum performance on all of these accesses.

In addition to its functionality as an analog handset and as a complete ISDN tester, it also offers support for testing VoIP via all the various xDSL interfaces and Ethernet. Besides simulating a terminal, it also offers extensive statistic functions and evaluates voice quality in accordance with various proven techniques, e.g. MOS or PESQ.

In addition, the tester includes support for determining the Media Delivery Index (MDI) and, when it is used to simulate a set-top box, the ARGUS<sup>®</sup>145<sup>PLUS</sup> can also be used to assess IPTV and Video on Demand data streams. The ARGUS<sup>®</sup>145<sup>PLUS</sup> 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<sup>®</sup>145<sup>PLUS</sup> can operate in xDSL bridge and router mode and can also perform an IPTV or xDSL online trace when it is used together with the WINanalyse software. Resistance and capacitance measurements are available to check the physical characteristics of the subscriber's line.

In view of the above set of features, it is obvious that the ARGUS 145 plus offers an extensive range of measurement functions for use on all of the current interfaces. Nonetheless, it should not be overlooked that this extensive set 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.

### Easy operation

The ARGUS<sup>®</sup>145<sup>PLUS</sup> is also extremely easy to use. It has a large (320 x 240 pixels) colour display, uses softkeys and has not only a USB client but also a USB host interface, which can be used to connect a USB stick for example. The tester has two Ethernet interfaces and uses a high-powered, long-life lithium-ion battery pack.

### About us

intec Gesellschaft für Informationstechnik mbH is developing high-quality products for the international telecommunications market for more than 20 years and is one of the leading suppliers of xDSL, ISDN and IP measurement technology in Europe today. The successful ARGUS measurement equipment enables its users to conveniently and safely commission and troubleshoot xDSL and ISDN accesses as well as those services that are based on these interfaces such as VoIP and IPTV.

ARGUS testers are designed to meet the day-to-day needs of staff in the field; consequently intec engineers focus on ensuring high-quality measurement in a compact device that is exceptionally uncomplicated to use. The portfolio of ARGUS testers, software and analysers benefits from continual further development and is kept up-to-date with support for the latest standards for all the common access types and protocols as well as for the newest features of the Next Generation Networks (NGN) and Triple Play.

Throughout the world, numerous telecommunication companies have come to appreciate and rely on the advantages offered by intec equipment; to name just a few Deutsche Telekom, Saudi Telecom, Telefonica, KPN, British Telecom and Telekom Austria.

## VDSL2, ADSL, SHDSL multi-pair, Ethernet, ISDN, POTS, copper and Triple Play tester

ARGUS®145 PLUS is a compact all-in-one handheld tester for testing all common customer interfaces

### WAN/LAN interfaces:

- **ADSL2/2+** modem simulation, ATU-R
  - Supports amongst others the ITU-T G.992.3, Annex A, B, M
  - Including bridge, router and PC replacement mode
  - Separate ADSL chipset for best performance
- **VDSL2** modem simulation, VTU-R
  - Supports the ITU-T G.993.2 (all profiles and bandplans)
  - Including bridge, router and PC replacement mode
  - Separate VDSL2 chipset for best performance
- **SHDSL** modem simulation, STU-R and STU-C
  - For SHDSL-2-, 4- and 8-wire interfaces available
  - Supports the ITU-T G.991.2, SHDSL.bis (Enhanced SHDSL - ESHDSL) and EFM
  - Including bridge, router and PC replacement mode
  - Separate SHDSL chipset for best performance
- **Ethernet** interfaces for test and management purposes
  - Two Ethernet interfaces supporting 10/100 Base-T
  - PC replacement operation mode

### Triple Play testing

via ADSL, VDSL2, SHDSL multi-pair and Ethernet:

- **ATM layer** tests when using ADSL and ADSL2/2+
  - ATM-OAM ping and ATM-OAM cell loop, VPI/VCI scan
  - ATM-BERT (bit error rate test on ATM layer)
- **Data:** testing the data throughput using real data rates
  - IP tests incl. IP ping, trace route test (with DHCP, VLAN)
  - Download tests for throughput determination (HTTP download, FTP up- and download)
- **Voice:** testing of VoIP (Voice over IP) connections
  - VoIP terminal simulation, including acoustics (misc. codecs)
  - OK / FAIL evaluation and display of all relevant quality parameters
  - Evaluation of speech quality:
    - MOS<sub>CQE</sub> acc. ITU-T P.800, E model based acc. ITU-T G.107
    - PESQ, acc. ITU-T P.862 in combination with ARGUS®SQT server software
- **Video:** testing IPTV and VoD services, incl. STB emulation
  - OK / FAIL evaluation and display of all relevant quality parameters
  - Includes an IPTV online long-term trace in combination with WINanalyse software
  - Determination of MDI (Media Delivery Index) acc. RFC 4445

### Documentation and analysis:

- **Documentation** of all parameters in test reports (in device and on PC) after executing automatic access tests
- **Data transfer** to the PC via USB client interface using Mini-USB
- **WINanalyse** PC software for configuration and documentation
  - Graphical online long-term trace of xDSL interfaces and IPTV
  - ISDN D channel clear text decoding



### Circuit-switched interfaces:

- **ISDN:** integrated comprehensive ISDN test set
  - ISDN BRI S/T interface acc. ITU-T I.430, with support for TE and NT operation mode
  - ISDN BRI U interface (2B1Q or 4B3T), acc. ANSI T1.601
  - D channel monitoring and test of BRI S bus leased lines
  - 128 kBit BERT on BRI U and BRI S bus leased lines
  - Evaluation of speech quality directly on ISDN BRI S/T and BRI U interfaces:
    - Via PESQ (ITU-T P.862) as well as MOS<sub>LQO</sub> in combination with ARGUS®SQT server software
- **POTS:** integrated comprehensive POTS test set (analog)
  - With DTMF and CLIP display, including pulse dial mode
  - Non-intrusive high-Z monitor, incl. voltage measurement
  - Evaluation of speech quality directly on the POTS interface:
    - Via PESQ (ITU-T P.862) as well as MOS<sub>LQO</sub> in combination with ARGUS®SQT server software

### Copper testing:

- RC measurement of the two wire copper access (local loop)
- Determines the loop resistance and the open capacitance
- Determines R and C between tip and ring as well as between tip or ring and ground (TRG)
- Including a loop length calculation

### Further highlights:

- Large brilliant QVGA colour display (LCD) with 320 x 240 pixels
- Lightweight, compact and easy- to use, all necessary tests and interfaces can be combined with each other
- Intuitive menu navigation and instant readiness for operation
- Free firmware updates from [www.argus.info](http://www.argus.info)

## Technical Features:

- **Power supply** via a li-ion battery pack or via mains adaptor
- **Hotkeys** for quickly executing different single tests
- **Powermanagement**, user configureable
- **Keypad**: 18 keys, 4 cursor keys, 3 context-specific softkeys
- **LCD colour display** (QVGA - 320 x 240 pixels), backlighted
- **LEDs**: 6 LEDs to indicate the status, Ethernet ports are equipped with LEDs as well
- **CE marking**: complies with CE directives
- **User safety**: EN 61010-1, EN 60950

## Interfaces:

- **2 x RJ-45** line input
- **2 x Ethernet** (10/100 Base-T)
- **USB client** interface
- **USB host** interface
- **Headset** plug socket

## Environmental conditions:

- **Operating temperature**: 0° to +50 ° C
- **Storing temperature (under shade)**: -15° bis +70°
- **Relative humidity**: up to 95 %, non-condensing

## Dimensions:

- **Size**: H 235 mm, B 97 mm, D 55 mm
- **Weight**: ca. 800 g

## Standard package:

Argus with li-ion battery pack, mains adaptor, minimum one xDSL interface, tailored test leads for the chosen interface, WINplus PC software, manual, carrying strap in a case, Mini-USB cable

## Basic packages:

### ARGUS 145 plus ADSL Annex B

Order number: 115032

### ARGUS 145 plus ADSL Annex A

Order number: 115002

### ARGUS 145 plus ADSL Annex A + B

Order number: 115052

### ARGUS 145 plus VDSL

Order number: 115102

### ARGUS 145 plus SHDSL-2-w

Order number: 115132

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## \* Options:

### Additionally interfaces:

(every optional packet includes the necessary test leads)

#### ADSL Annex A interface

Order number: 015005 (interface)

or order number: 015045 (add. SW option)

#### ADSL Annex B interface

Order number: 015006 (interface)

or order number: 015046 (add. SW option)

#### VDSL interface

Order number: 015008

#### SHDSL-2-w interface

Order number: 015010

#### SHDSL-4-w interface

Order number: 015011

#### SHDSL-8-w interface

Order number: 015013

#### ISDN BRI S/T (TE/NT) interface

(including ISDN-128kBit-BERT and X.31)

Order number: 015015

#### POTS interface

Order number: 015016

#### ISDN BRI S/T (TE/NT) and POTS interface

Order number: 015017

#### ISDN BRI U (TE) 4B3T or 2B1Q interface

Order number: 015050 (4B3T) or 015051 (2B1Q)

### Additionally test features:

(depends on existing interface)

#### PESQ (VoIP, ISDN and POTS)

Order number: 015025

#### VoIP tests (ADSL, VDSL, SHDSL, Ethernet)

Order number: 015030

#### IPTV tests (ADSL, VDSL, SHDSL, Ethernet)

Order number: 015035

### Additionally PC software:

(for Windows operating systems):

#### WINanalyse