

ARGUS® 155

TRIPLE PLAY + xDSL COMBI TESTER

**VDSL
VECTORING**

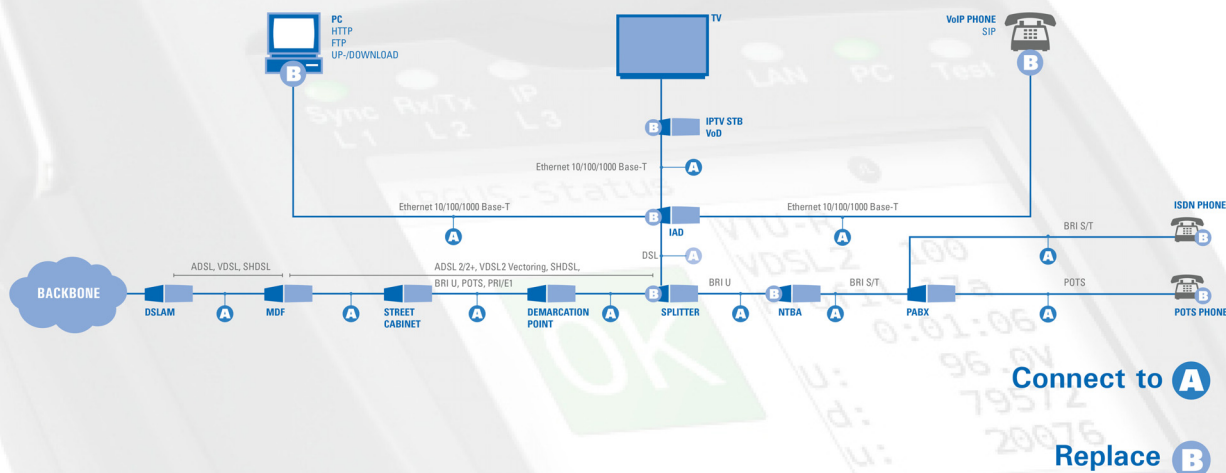


- ADSL
- VDSL
- SHDSL
- GigE
- ISDN
- POTS
- Cu
- TDR
- Copper Box
- Data
101101011011
- IP TV
- Vo IP
- MOS
- PESQ
- PC
- USB
- WLAN

intec

GESELLSCHAFT FÜR
INFORMATIONSTECHNIK mbH

Where to use the ARGUS?



The compact all-rounder

Universal xDSL + GigE + ISDN + Triple Play test set

As a latest generation high-end combi tester, the ARGUS 155 contains an extremely powerful ADSL/VDSL chipset that meets today's demanding technical requirements. The ARGUS 155 is the only handheld tester and analyzer to integrate VDSL2 (all profiles and Vectoring), ADSL (Annex A, B, J, L, M) and SHDSL (2, 4 and 8 wire), Ethernet, ISDN PRI/E1, BRI/S/T/U and POTS interfaces in a single measurement device - without having to swap modules.

Gigabit Ethernet interface and tests

Thanks to its Gigabit Ethernet interface (GigE), the ARGUS 155 achieves a download speed of multiple 100 Mbit/s with HTTP and FTP downloads, such as is already standard with fiber optic modems (ONT) on the LAN interface. If the Ethernet cabling is faulty, the ARGUS 155 can immediately locate the source of the fault by means of cabling tests (Ethernet TDR) via the GigE interface. This makes it possible, for instance, to detect shorts, opens or mismatches, but also the delay or polarity of the wire pairs, among other things.

Copper test set (Cu tests)

Copper tests (Cu tests) for physical line qualification without synchronization with the DSLAM are always included. If necessary, these tests can also be considerably extended in the field by simply connecting the compact ARGUS Copper Box via USB, thus enabling all important electrical parameters such as voltage, current, isolation resistance, LCL, NEXT and many more, to be automatically and quickly determined via tip, ring and ground. The TDR (Time Domain Reflectometer) function makes it possible to measure line lengths and trace sources of faults. A high-impedance connection enables a Line Scope to display the time and frequency domains (FFT) in real time. The optional Active Probe II, which is required for this, can be connected to an existing DSL connection and switched between symmetrical and asymmetrical operation.

SHDSL interface

Flexible expansion capabilities mean that the existing interfaces can be extended with additional functions, as required. For example, the SHDSL interface also operates in SHDSL.bis as well as optionally in ATM, TDM or EFM modes.

Triple Play Quality and IPv6

The ARGUS 155 tests the quality of VoIP, IPTV and data services parallel over xDSL and Ethernet with optional Triple Play test functions. Thanks to its integrated handset, it can simulate not only terminal equipment such as a telephone, PC or STB, but can also determine all relevant quality parameters and evaluate voice quality according to the MOS method. It tests IPTV suitability by means of a stream analysis, a VoD test or a channel scan. Several of these IP tests can also be performed using the new, more powerful IPv6 protocol.

Easy operation

The large 320 x 240 pixel colour display and an intuitive menu structure, among other things, guarantee user-friendly operation. A high-performance Li-Ion battery pack ensures long operating times in the field.

intec Gesellschaft für Informationstechnik

With over 25 years of experience in this sector, intec GmbH can be considered to be one of the leading providers of xDSL, ISDN and IP-measurement technology in Europe.

The ARGUS product range provides a convenient solution for commissioning and troubleshooting on xDSL and ISDN 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 90,000 times.

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

VDSL2, ADSL2+, SHDSL multi-pair, Gigabit Ethernet, ISDN (BRI S/T/U, PRI E1), POTS, Copper (Cu) and Triple Play services tester

ARGUS®155 is a compact universal all-in-one handheld device for testing all common telecom interfaces.

Broadband interfaces:

- Synchronisation with DSLAM (xTU-C) and evaluation of all relevant line parameters and error counters
- Including bridge, router and PC replacement modes
- **ADSL2/2+** + modem simulation, ADSL tester, ATU-R
 - Supports ITU-T G.992.5 et alii; Annex A+B+J,+L+M; INP, SRA
 - Display of Bits, SNR, QLN and Hlog/tone graphs
- **VDSL2** modem simulation, VDSL tester, VTU-R
 - Supports ITU-T G.993.2 (8, 12, 17, 30 MHz + var. bandplans)
 - Supports ITU-T G.998.4, G.INP (Retransmission)
 - Supports ITU-T G.993.5, G.vector (Vectoring)
 - Display of Bits, SNR, QLN and Hlog/tone and stream graphs
- **G.SHDSL** modem simulation, STU-R and STU-C
 - Connection dial-up incl. Line Probing (PMMS) acc. to ITU
 - Available for SHDSL 2-, 4-, 6- and 8-wire interfaces
 - Supports ITU-T G.991.2, G.hs, ETSI 101524, G.SHDSL.bis
 - Supports the following TC sub layers: ATM, EFM, TDM
- **Ethernet** interface for Triple Play and Ethernet testing
 - 1 Gigabit Ethernet test interface (10/100/1000 BT), RJ-45
 - Supports Ethernet terminal mode (PC replacement)
- **LTE** extension*, incl. LTE scanner and data tests

Triple Play testing via xDSL and Ethernet:

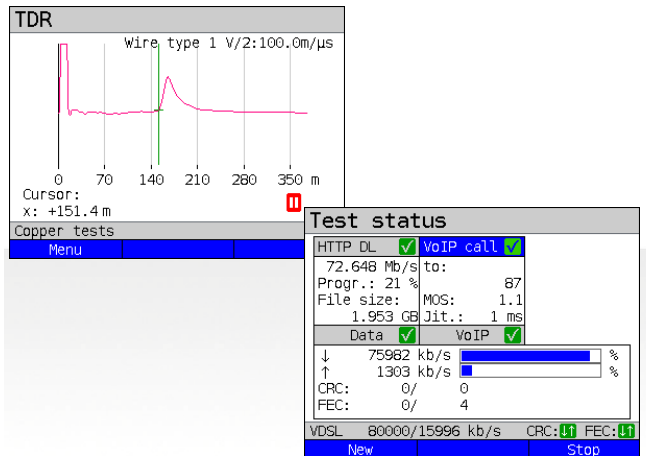
- **ATM layer** tests when using ADSL2/2+ and SHDSL ATM
 - ATM OAM ping and ATM OAM cell loop, VPI/VCI scan
- **Data:** testing the data throughput (IPv4 and IPv6)
 - IP ping and trace route tests (BRAS info, PPP trace, VLAN)
 - HTTP- and FTP download tests with multiple 100 Mbit/s
 - FTP server test, up-/download from ARGUS to ARGUS
- **Voice:** testing of VoIP connections based on SIP, IPv4/IPv6
 - VoIP terminal simulation, incl. acoustics (various codecs)
 - OK/FAIL evaluation and display of quality parameters
 - Evaluation of the VoIP speech quality (QoS) according to:
 - MOS_{CQE} (ITU-T P.800) based on E model (ITU-T G.107)
 - PESQ (ITU-T P.862) in combination with PESQ server SW
- **Video:** testing IPTV and VoD services (STB mode)
 - Stream request (set-top box mode), IPTV channel scan
 - OK/FAIL evaluation and display of quality parameters (QoS)

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 tablet
- **Update Tool** to carry out FW updates for free
- **WINplus** PC software for generating, saving, archiving and printing test reports and for configuring the ARGUS®
- **WINanalyse** PC software for analysis (including WINplus)
 - ISDN D channel clear text decoding for protocol analysis

Further highlights:

- WLAN extension for transferring test results to systems of an electronic order processing system, access point mode (browsing, download) and remote control via smartphone
- Graphical ADSL and VDSL long-term trace in the device
- Free firmware and software updates via www.argus.info/en



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
 - PRI/E1 interface acc. to ITU-T I.431, TE and NT modes
 - D channel monitoring on BRI and PRI interfaces
 - Testing of BRI S/T and PRI leased lines (E1/ 2 Mbit/s)
 - E1 BERT simultaneously using all B channels (MegaBERT)
 - Auto. testing of services and suppl. services, BERT etc.
 - 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
 - Evaluation of the speech quality directly on POTS:
 - Via PESQ* (ITU-T P.862) + MOS_{LQO}* w/ PESQ server SW*

Copper tests:

- **RC measurement:** resist., capacitance, continuity check
 - Including loop length calculation (distance to open / short)
 - DC voltage measurement: up to +200 V; res.: 0.1 V; acc.: ±2 %
- **Line Scope:** real time, frequency (FFT) and time domain
 - Input impedance: 3.6 kΩ || 30 pF, adjustable gain
 - Frequency range: 20 kHz to 30 MHz; res.: 1 kHz; acc.: ±0.1 %
 - Level range: -120 to +10 dBm/Hz, res.: 0.1 dB; ±2 dB (at 0 dB)
 - Voltage range in time domain, AC: 40 V_{pp}; res.: 2 mV_{pp}
- **ARGUS Active Probe II:** high-impedance probe
 - Impedance: 70 kΩ || <1 pF; range: 10 kHz to 30 MHz (±1.5 dB)
 - Switch between sym./asymmetric measurement mode
- **TDR:** measuring line lengths and locating the faults
 - Measuring range: 3.5 up to 6000 m; res.: 0.25 %/range; ±2 %
 - Pulse width (adjustable): 15 ns to 8 μs, amplitude: 5 or 20 V
 - Velocity of propagation (VoP): 30 % up to 99.9 %
- **ARGUS Copper Box:** expanding the copper tests
 - Determines all important electric variables
 - e.g. U, I_{DC}, R, R-ISO, capacitive and resistive symmetry, capacitance, LCL and NEXT at 1 MHz for the line (Details, see ARGUS Copper Box data sheet)
 - Automatic TRG measurements (Tip, Ring, Ground)
 - Remote control of various remote kits

Ethernet tests:

- **Ethernet TDR** for checking the Ethernet wiring
 - Detecting shorts, opens and mismatches and lots more

Technical Features:

- **Power supply** by a Li-ion battery pack or mains adaptor
- **Hotkeys** for 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** with integrated earpiece and microphone
- **CE marking**: complies with CE directives
- **User safety**: fulfils EN 60950-1:2006-11
- **RoHS** conformance according to WEEE directive

Interfaces:

- **2 x RJ-45** jacks for xDSL, copper, ISDN and POTS
- **1 x Ethernet** (10/100/1000 Base-T), RJ-45 test port
- **USB client** interface (type mini B)
- **2 x USB host** interface (type A)
- **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) (incl. battery pack)

Standard package:

xDSL or PRI basic package with ARGUS®155, battery pack, mains adaptor, tailored test leads for chosen interfaces and options, Mini-USB cable, WINplus PC software (with CD and Manual), English manual, ribbon hook, hand strap and carrying case

Basic packages:

ARGUS 155 ADSL Annex A + L + M

Order number: 115502

ARGUS 155 ADSL Annex B + J

Order number: 115532

ARGUS 155 ADSL Annex A + B + J + L + M

Order number: 115552

ARGUS 155 VDSL2 (incl. Vectoring)

Order number: 115602

ARGUS 155 SHDSL-2-w

Order number: 115632

ARGUS 155 ISDN PRI/E1

Order number: 115662



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* Options:

Additional interfaces:(test leads included)

ADSL Annex A + L + M interface

Order number: 015505 (interface*) or 015545 (add. SW option*)

ADSL Annex B + J interface

Order number: 015506 (interface*) or 015546 (add. SW option*)

VDSL2 interface (incl. Vectoring)

Order number: 015508

SHDSL 2 / 4 / 8 wire interface

Order number: 015510 / 015511 / 015518

ISDN BRI U (TE) interface

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

POTS TE interface

Order number: 015516

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

Order number: 015517 (including ISDN 128kBERT and X.31)

ISDN PRI/E1 (TE/NT) interface

Order number: 015520 (incl. MegaBERT)

Additional test features: (Depends on existing interfaces)

WLAN option / WLAN kit (each incl. access point)

Order number: 015550 / 015551

PESQ (VoIP, ISDN and POTS)

Order number: 015525

IP + Download package for ISDN PRI/E1

Order number: 015523 (incl. Ethernet interface)

VoIP test (ADSL, VDSL, SHDSL, Ethernet)

Order number: 015530 (for 115662 incl. Ethernet)

IPTV / IPTV ext. (ADSL, VDSL, SHDSL, Ethernet)

Order number: 015537 / 015539 (for 115662 incl. Ethernet)

VoIP + IPTV package

Order number: 015533

TDR (Time Domain Reflectometer)

Order number: 015052

ARGUS Copper Box

Order number: 015095

ARGUS Active Probe II

Order number: 015091 (probe for Line Scope)

Additional PC software:

(for Windows operating systems)

WINanalyse download (only key)

Order number: 015062

WINanalyse (incl. CD and manual)

Order number: 015042

* We would be glad to provide further details and information about additional accessories on request.