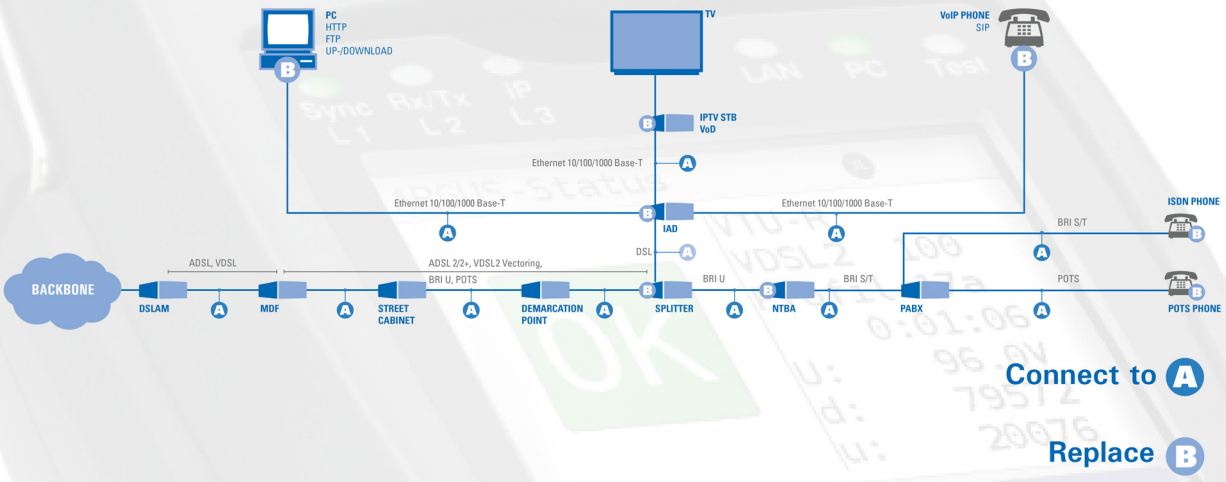
# ARGUS® 152

VDSL + ADSL COMBI TESTER


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

intec
GESELLSCHAFT FÜR
INFORMATIONSTECHNIK mbH

# Where to use the ARGUS?




**The VDSL + ADSL universal test set**
Compact, lightweight and robust: The ARGUS 152 multifunction tester checks interfaces and services quickly and reliably - and at a very reasonable price. VDSL2 (incl. Vectoring) , ADSL, Ethernet, ISDN (BRI S/T/U) and POTS, as well as the physical condition of the local loop, can be easily tested without having to swap modules.

**Gigabit Ethernet interface and tests**
A new high-quality ADSL/VDSL chipset with improved efficiency ensures that the ARGUS 152 delivers high-performance testing and rapid analysis. In addition to resistance, capacitance and voltage measurement, the ARGUS 152 features, when using its Gigabit Ethernet interface, an optional HTTP download, which enables speeds with multiple 100 Mbit/s on the protocol level. The ARGUS 152's Ethernet cabling tests make it possible to detect shorts, opens or mismatches, but also the delay or polarity of the wire pairs, among other things.

**Physical analysis of the local loop**
On request, the universal tester can also be extended on an individual basis, thus offering the user a high degree of flexibility. For instance, additional copper tests (Cu tests) can be used to assess line quality, even without synchronization with the DSLAM. 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 and NEXT (at 1 MHz), and many more, to be automatically and quickly determined via tip, ring and ground. The optional Active Probe II can even be used to carry out high-impedance measurements on an existing DSL connection, without creating interference on it.

To quickly identify any asymmetries between the wires, if required, a symmetry test compares the balance over the whole DSL frequency spectrum (up to 30 MHz) between the tip wire and the ring wire with reference to ground. In the event of damage, the integrated TDR (Time Domain Reflectometer) function can be used to measure line lengths and trace sources of faults, such as bridged taps. Moreover, if required, an Advanced TDR function (Adv. TDR) can be integrated, with which line lengths and sources of faults can be detected even more accurately.

If lines without a DSL receiver (e.g. in the case of a rewiring) need to be tested for their DSL suitability, the ARGUS 152 can optionally check this without any problem, even if there is no DSLAM. Regardless of line condition and length, the user can use two devices and an activated Line Qualification (LQ) function to determine data rates, even when systems consisting of a modem (xTU-R) and DSLAM (xTU-C) fail.

**Parallel Triple Play and Quality of Service (QoS)**
Easy Triple Play testing: The handheld tester also offers an optional Triple Play analysis for testing VoIP, IPTV and data services over xDSL and Ethernet. Thanks to its handset, the ARGUS 152 can simulate not only terminal equipment such as a telephone, PC or STB, but can also determine all relevant quality parameters. In this way, for example, voice quality can be evaluated according to the MOS method. Several of these IP tests can also optionally 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+, Gigabit Ethernet, ISDN, POTS, copper as well as VoIP and IPTV tester

ARGUS®152 is a compact universal handheld tester for testing all current telecom interfaces.

**Broadband interfaces:**

- Synchronisation with the DSLAM (xTU-C) and evaluation of all relevant line parameters and error counters
- Including bridge, router and PC replacement mode

- **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
- **Ethernet** interface for Triple Play and Ethernet tests
  - 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 ADSL, VDSL2 and Ethernet:**

- **ATM layer** tests when using ADSL and ADSL2/2+
  - ATM-OAM ping and ATM-OAM cell, 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 VoIP connections based on SIP, IPv4/IPv6
  - VoIP terminal simulation, incl. acoustics (various codecs)
  - OK/FAIL evaluation of the VoIP speech quality (QoS) acc. 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)

**Ethernet tests:**

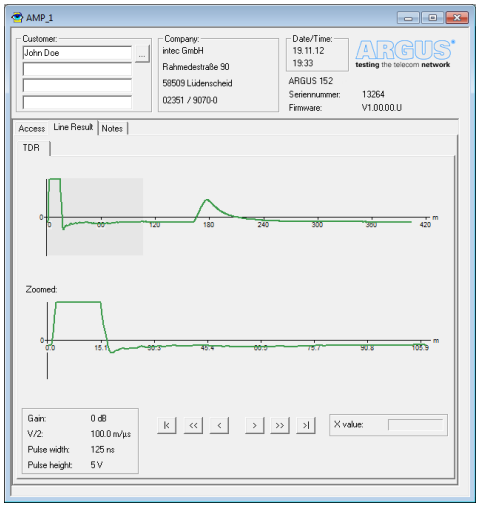
- **Ethernet TDR** for checking the Ethernet wiring

**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 in TE and NT modes
  - Testing of BRI S/T (S bus) leased lines
  - Automatic testing of services and supplementary services
  - Bit error rate testing (BERT) with various bit pattern and analysis according to ITU-T G.821 with OK evaluation
  - 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 test set (analog)
  - With DTMF and CLIP display, including pulse dial mode
  - Non-intrusive high-Z monitor, incl. voltage measurement
  - Evaluation of speech quality via the integrated acoustic
    - Via PESQ (ITU-T P.862) + $MOS_{LQO}$ w/ PESQ server SW

**Further highlights:**

- WLAN extension for transferring test results to systems of an electronic order processing system, acces 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




**Copper testing:**

- **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:** high performance real time line monitor with display of frequency domain (FFT) and time domain
  - Input impedance: 2 kΩ || 10 pF, adjustable gain
  - Frequency range: 10 kHz to 30 MHz; res.: 0.5 kHz; acc.: ±0.1 %
  - Level range: -130 to -2 dBm/Hz, res.: 0.1 dB, ±2 dB (at 0 dB)
  - Voltage range in time domain, AC: 16.5 $V_{pp}$; resolution: 0.2 $mV_{pp}$
- **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:** Time Domain Reflectometry function for measuring line lengths and locating the faults
  - Measuring range: 1 up to >6,000 m; res.: 0.025 %/range; ±1 %
  - Pulse width (adjustable): 5 ns to 6 µs, amplitude: 7 V
  - Velocity of propagation (VoP): 30 % up to 99.9 %
- **Line Qualification:** Qualifying local loops
  - DSL data rate estimation, idealized with slave + master
  - Bandwidth (ADSL, VDSL2) + bandplan (VDSL2) configurable
  - Sender, Tx power: 12 dBm, 6 dBm, 0 dBm, configurable
  - Receiver (Rx), sensitivity: up to -150 dBm/Hz
  - Frequency range: 4,3125 kHz up to 30 MHz (±2 dB)
  - Impedance: 100 Ω, 120 Ω and 135 Ω, configurable
  - Supports Bits, SNR, QLN and Hlog per tone diagrams
  - WB symmetry measurement
- **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

**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
- **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

## Technical features:

- **Power supply** by 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-specific softkeys
- **LCD colour display** (QVGA - 320 x 240 pxs.), backlit
- **LEDs:** 6 LEDs to indicate the status + Ethernet LEDs
- **Handset** with integrated earpiece and microphone
- **CE marking:** complies with CE directives
- **User safety:** fulfils EN 60950-1:2006-11
- **RoHS** conformance acording to WEEE directive

### Interfaces:

- **2 x RJ-45** jacks for xDSL, copper tests, POTS and ISDN
- **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** plug socket (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:** < 780 g (1.72 lbs) (ARGUS incl. battery pack)

### Standard package:

ARGUS®152 with Li-Ion battery pack, mains adaptor, minimum one DSL interface w/ test leads for this interface, mini USB cable, RC measurement, WINplus PC software (online) printed user manual, ribbon hook, hand strap and carrying case

### Basic packages:

**ARGUS 152 ADSL Annex A + L + M**
Order number: 115202

**ARGUS 152 ADSL Annex B + J**
Order number: 115232

**ARGUS 152 ADSL Annex A + B + J + L + M**
Order number: 115252

**ARGUS 152 VDSL2 (incl. Vectoring)**
Order number: 115272


### *Options:

**Additional interfaces:** (test leads included)
**ADSL Annex A + L + M interface**
Order number: 015205 (interface) or 015245 (extension)
**ADSL Annex B + J interface**
Order number: 015206 (interface) or 015246 (extension)
**VDSL2 interface (incl. Vectoring)**
Order number: 015208
**POTS interface / ISDN BRI S/T TE interface**
Order number: 015216 / 015215
**ISDN BRI U (TE) interface**
Order number: 015051 (2B1Q) or 015050 (4B3T*)
**ISDN BRI S/T TE and POTS interface**
Order number: 015217
**ISDN BRI S/T NT (incl. Monitor, 128kBERT, X.31)**
Order number: 015219

**Additional test features:** (depends on existing interface)
**WLAN option / WLAN kit (each incl. access point)**
Order number: 015255 / 015251
**PESQ (VoIP, ISDN and POTS)**
Order number: 015227
**IP Download package**
Order number: 015229
**VoIP test (via ADSL, VDSL, Ethernet)**
Order number: 015230
**IPTV / IPTV ext. (via ADSL, VDSL, Ethernet)**
Order number: 015237 / 015239
**VoIP + IPTV package**
Order number: 015233
**TDR (Time Domain Reflectometer)**
Order number: 015052
**ARGUS Active Probe II**
Order number: 015091 (for Line Scope)
**ARGUS Copper Box**
Order number: 015095
**Line qualification (LQ) / Adv. copper tests (incl. Adv. TDR)**
Order number: 015261 / 015262
**Line qualification + Advanced copper tests**
Order number: 015260

**Additional PC software:** (for Windows operating systems)
**WINplus (incl. CD and Manual)**
Order number: 010012
**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.

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