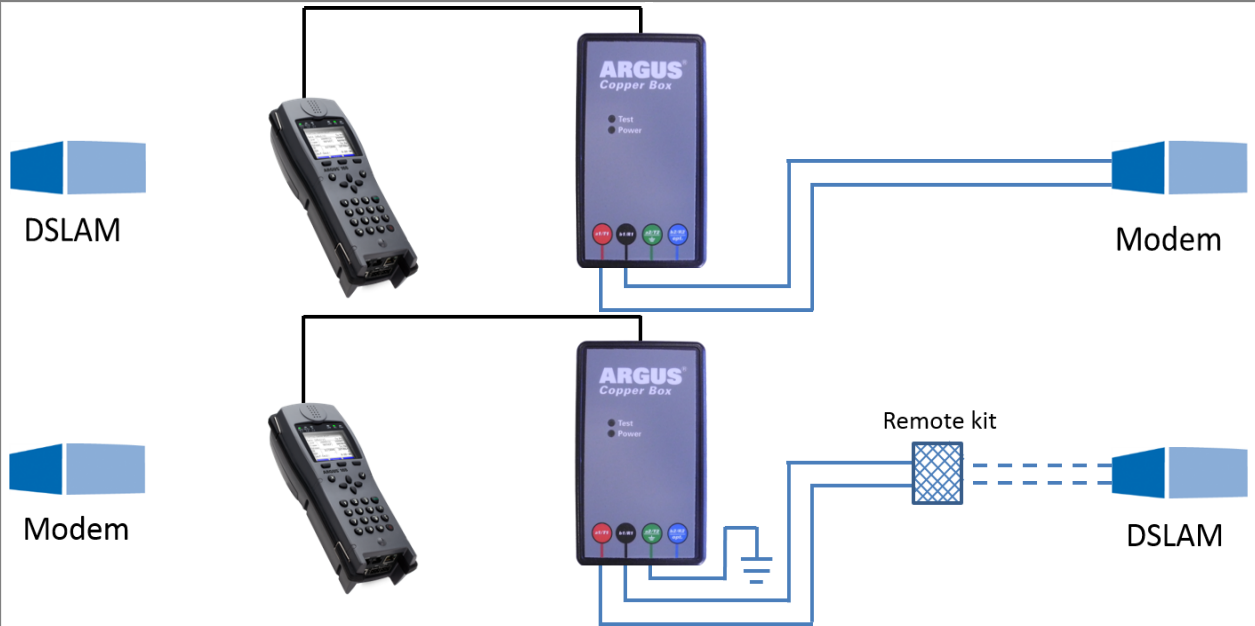


ARGUS[®] COPPER BOX

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- U=
- U~
- C Sym
- C
- Iso
- R Sym
- R
- I=
- LCL
- NEXT
- USB
- opt.
- LED



ARGUS Copper Box v3

The ARGUS Copper Box is Intec's expansion for the ARGUS 15x and ARGUS 16x xDSL combi testers. With this USB Box, it is possible to, on the one hand, detect dangerous voltages and currents before they can cause harm and, on the other hand, safely determine the physical characteristics of the line. This latter feature is of particular advantage when it is not possible to synchronize a DSL line or when the data rate achieved on a line is so low that there is reason to suspect that asymmetry (an unbalance), interference or mechanical issues are causing problems on it.

The compact Copper Box is attached to an ARGUS tester using its USB host interface. Using the ARGUS's graphical user interface, the user can select the Copper Box and quickly and easily perform all the supported measurements.

The ARGUS Copper Box has three standard banana jacks plus support for an additional connection for customer-specific requirements. To ensure safety in both the lab and the field, the standard jacks are equipped to accept 4 mm shrouded banana plugs.

Other technical characteristics of the Copper Box:

- Using the **autotest** enables you to test automatically with various predefined measurement profiles.
- Using the **DC voltage measurement**, it is possible to determine the type of access (e.g. ISDN or POTS), supply voltage and any interference voltage.
- With the **AC voltage measurement**, it is possible to detect dangerous interference voltages.
- With the aid of the **capacitive symmetry**, it is possible to detect anomalies in cabling. These anomalies can lead to signal distortion or transmission errors.
- **Capacitance measurements** will indicate any interruptions in the line and can determine the typical input capacitance of the connected equipment. Furthermore, these measurements can be used to assess whether the wire pair is unbalanced.
- **Isolation resistance measurements** can be used to detect damaged cable isolation, moisture in the cables or oxidized contacts.

- With the aid of the **resistive symmetry**, it is possible to detect anomalies in cabling. These anomalies can lead to signal distortion or transmission errors.
- **Loop resistance measurements** can be used to detect short-circuits as well as to estimate the line length.
- **DC current measurements** can be used to detect emergency, external or normal supply as well as to determine whether the line is too long or interrupted.
- **Symmetry measurement (LCL)**: This measurement at a frequency of 1 MHz can be used to assess whether the wire pair is unbalanced.
- **NEXT measurement**: Measures the Near-End Crosstalk at a frequency of 1 MHz.
- Use of the **signature detection** to evaluate the signature or PPA from the subscribers line.
- Use the **remote kit** to control the far end of the line and change it to the desired state.

All of the measurements can be performed as automatic TRG measurements (Tip (a), Ring (b), and Ground) with a high degree of accuracy.

The compact ARGUS Copper Box weighs just 160 grams and thanks to its high-quality plastic case it can shrug off being dropped as well as most impacts and other mechanical abuse. In spite of its performance and the high voltages that it applies for some measurements, the Copper Box still exhibits an exceptional operating time since it draws its power from the ARGUS tester's high-powered lithium-ion battery pack.

The Copper Box was designed with an eye to compatibility so it can be used with a number of testers. As a result, an installation team using a variety of ARGUS testers can each extend their tester's capabilities using these boxes and all their features. Consequently, the testers need not be sent in to have these additional features added. The USB Box can be tied together with the tester using a specific shock absorbing rubber jacket.

You can also use your PC to get free updates for the Copper Box quickly and easily.

The standard equipment includes three high-quality connection cables and is delivered together with a manual.

ARGUS Copper Box v3 to assess the physical quality of the local loop

All of the measurements can be performed as automatic TRG measurements (Tip (a), Ring (b), and Ground) with a high degree of accuracy.

Copper Box test functions:

• DC voltage; U_{DC} ($U =$):

- Measuring range: 0.01 V to 220 V
- Resolution: range 1: 0.01 V to 9.99 V; 0.01 V
range 2: 10.0 V to 220.0 V; 0.1 V
- Accuracy: $\pm (0.5 \% + 2 \text{ digits})$

• AC voltage; U_{AC} ($U \sim$):

- Measuring range: 0.01 V to 210.0 V (RMS, at sinus 50 Hz)
- Resolution: range 1: 0.01 V to 9.99 V; 0.01 V
range 2: 10.0 V to 210 V; 0.1 V
- Accuracy: range 1: $\pm (2 \% + 2 \text{ digits})$
range 2: $\pm (1.5 \% + 2 \text{ digits})$

*Frequency: 10 Hz to 200 Hz, 0.2 Hz; $\pm (1.5 \% + 2 \text{ digits})$, sinus

• Capacitive symmetry (balance); (C_{Sym}):

- Measuring range: 10 nF to 4 μ F
- Resolution: 10 nF to 4 μ F; 0.01 nF
- Accuracy: relative capacity $\pm 0.1 \%$

*Dielectric strength for external voltage up to 17 V DC or 17 V AC (with a load 200 k Ω)

• Capacitance; (C):

- Measuring range: 0.01 nF to 8000 nF (measuring frequency 8 Hz)
- Resolution: range 1: 0.01 nF to 9.99 nF; 0.01 nF
range 2: 10.0 nF to 99.99 nF; 0.01 nF
range 3: 100.0 nF to 999.9 nF; 0.1 nF
range 4: 1000 nF to 8000 nF; 1 nF
- Accuracy: range 1 - 2: $\pm (4 \% + 4 \text{ digits})$
range 3 - 4: $\pm (3 \% + 1 \text{ digit})$

*Dielectric strength for external voltage up to 17 V DC or 17 V AC (with a load 200 k Ω)

*Measured by film capacitors

• Isolation resistance; (Iso.):

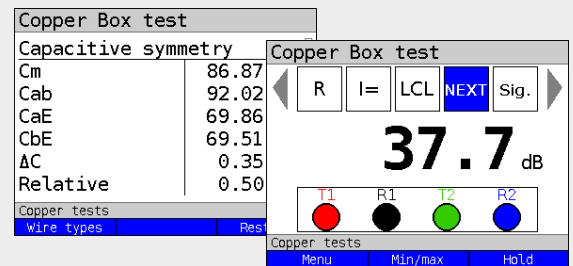
- Measuring range: 0.1 k Ω to 999.9 M Ω (105 V, max. measuring current 2 mA)
- Resolution: range 1: 0.1 k Ω to 99.9 k Ω ; 0.1 k Ω
range 2: 100.0 k Ω to 999.0 k Ω ; 1 k Ω
range 3: 1.0 M Ω to 9.99 M Ω ; 10 k Ω
range 4: 10 M Ω to 99.9 M Ω ; 100 k Ω
range 5: 100 M Ω to 999.9 M Ω ; 100 k Ω
- Accuracy: range 1 - 3: $\pm (2 \% + 1 \text{ digit})$
range 4 - 5: $\pm (5 \% + 1 \text{ digit})$

*Dielectric strength for external voltage up to 5 V DC or 30 V AC (with a load 200 k Ω)

• Isolation resistance; (Iso.):

- Measuring range: 0.1 k Ω to 40 M Ω (mit 8 V. max. measuring current 9 mA)
- Resolution: range 1: 0.1 k Ω to 99.9 k Ω ; 0.1 k Ω
range 2: 100.0 k Ω to 999.0 k Ω ; 1 k Ω
range 3: 1.0 M Ω to 9.99 M Ω ; 10 k Ω
range 4: 10.0 M Ω to 40.0 M Ω ; 100 k Ω
- Accuracy: range 1 - 3: $\pm (2 \% + 1 \text{ digit})$
range 4: $\pm (5 \% + 1 \text{ digit})$

*Dielectric strength for external voltage up to 5 V DC or 30 V AC (with a load 200 k Ω)



• Resistive symmetry balance; (R_{Sym}):

- Measuring range: 10 Ω to 5 k Ω
- Resolution: 10 Ω to 5 k Ω ; 0.1 Ω
- Accuracy: $\pm 0.2 \% \text{ des } R_{Loop} \pm 0.2 \Omega$

*Dielectric strength for external voltage up to 30 V DC or 30 V AC (with a load 200 k Ω)

• Loop resistance; (R):

- Measuring range: 0.1 Ω to 40 M Ω (13 V, max. measuring current 15 mA)
- Resolution: range 1: 0.1 Ω to 999.9 Ω ; 0.1 Ω
range 2: 1.000 k Ω to 9.999 k Ω ; 1 Ω
range 3: 10.00 k Ω to 99.99 k Ω ; 10 Ω
range 4: 100.0 k Ω to 999.9 k Ω ; 100 Ω
range 5: 1.000 M Ω to 9.999 M Ω ; 1 k Ω
range 6: 10.0 M Ω to 40.0 M Ω ; 10 k Ω
- Accuracy: range 1: $\pm (1 \% + 3 \text{ digits})$
range 2 - 4: $\pm (1 \% + 1 \text{ digit})$
range 5: $\pm (2 \% + 1 \text{ digit})$
range 6: $\pm (5 \% + 1 \text{ digit})$

*Dielectric strength for external voltage up to 3.5 V DC or 30 V AC (with a load 200 k Ω)

• DC current; I_{DC} ($I =$):

- Measuring range: 0.1 mA to 499.9 mA
- Resolution: 0.1 mA to 499.9 mA; 0.1 mA
- Accuracy: $\pm (2.5 \% + 3 \text{ digits})$

• Unbalance at 1 MHz; (LCL):

- Measuring range: 0.1 dB to 65.0 dB
- Resolution: range 1: 0.1 dB to 55.0 dB; 0.1 dB
range 2: 55.1 dB to 65.0 dB; 0.1 dB
- Accuracy: range 1: $\pm 1.5 \text{ dB}$
range 2: $\pm 3 \text{ dB}$

*The length of the test leads can influence the accuracy of the measurement. Therefore, this information applies to a measurement without test leads (short measurement adapter).

*Dielectric strength for external voltage up to 3 V DC or 3 V AC. At an internal resistance of the source of 1 M Ω it will be measured up to 3.5 V DC / AC.

• Near-End crosstalk at 1 MHz; (NEXT):

- Measuring range: 0,1 dB to 65.0 dB
- Resolution: 0.1 dB to 65.0 dB; 0,1 dB
- Accuracy: $\pm 1 \text{ dB}$

*Dielectric strength for external voltage up to 3 V DC or 3 V AC. At an internal resistance of the source of 1 M Ω it will be measured up to 3.5 V DC / AC.

• *Reference conditions (calibration):

- Temperature: 23 $^{\circ}$ C $\pm 5 \text{ }^{\circ}$ C
- Relative humidity: 50 % $\pm 20 \%$ relative humidity, non-condensing
- Frequency of measurement type: 50 Hz $\pm 5 \text{ Hz}$, sinus

Technical Features:

- **Power supply** via USB host of the ARGUS
- **Keypad** via 4 cursor keys and 3 softkeys of the ARGUS
- **2 LEDs** indicating status
- **CE marking:** complies with CE directives
- **User safety:** fullfills EN 60950-1:2006-11
- **RoHS** conformance accoring to WEEE directive

Interfaces:

- **4 x 4 mm banana jacks** (for all-included test leads)
- **USB-Host** interface (Type A)

Environmental conditions:

- **Operating temperature:** 0 °C to +50 °C (32 °F to 122 °F)
- **Storing temperature:** -20 °C to +50 °C (-4 °F to 122 °F)
- **Relative humidity:** up to 95 %, non-condensing

Dimensions:

- **Size:** H 125 mm, W 74 mm, D 22 mm (4.92 x 2.91 x 0.87 in)
- **Weight:** ca. 160 g (0.35 lbs)

Standard package:

ARGUS Copper Box incl. three all-insulated banana jacks (red, black, green) and english Manual

ARGUS Copper Box (incl. rubber jacket)

Order number: 015098 (for ARGUS 151, ARGUS 152, ARGUS 155)

ARGUS Copper Box (incl. rubber jacket)

Order number: 015099 (for ARGUS 162, ARGUS 165)



intec

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ARGUS Copper Box is available with the following basic packages:

ARGUS 151 VDSL (incl. Vectoring)

Order number: 115302

ARGUS 151 ADSL Annex A + L + M

Order number: 115312

ARGUS 152 ADSL Annex A + L + M

Order number: 115202

ARGUS 152 VDSL2 (incl. Vectoring)

Order number: 115272

ARGUS 155 ADSL Annex A + L + M

Order number: 115502

ARGUS 155 VDSL2 (incl. Vectoring)

Order number: 115602

ARGUS 155 SHDSL-2-w

Order number: 115632

ARGUS 155 ISDN PRI/E1

Order number: 115662

ARGUS 162 ADSL Annex A + L + M

Order number: 116202

ARGUS 162 VDSL2 (incl. Vectoring)

Order number: 116272

ARGUS 165 GigE + ADSL Annex A + L + M

Order number: 116502

ARGUS 165 GigE + VDSL2

Order number: 116572

ARGUS 165 GigE + SHDSL 2-w

Order number: 116582

Accessories ARGUS Copper Box:

NEXT cable (green / blue, twisted)

Order number: 015296

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