

ARGUS[®] COPPER BOX

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

intec

GESELLSCHAFT FÜR
INFORMATIONSTECHNIK mbH

Connection example 1:



Connection example 2:



The ARGUS Copper Box

The ARGUS Copper Box is intec's expansion for the ARGUS 152, ARGUS 155 and ARGUS 165 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 **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.
- **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.
- **Loop resistance measurements** can be used to detect short-circuits as well as to estimate the line length.
- **Isolation resistance measurements** can be used to detect damaged cable isolation, moisture in the cables or oxidized contacts.
- **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.

- **Symmetry measurement:** 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.

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 200 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 adapters and all their features. Consequently, the testers need not be sent in to have these additional features added. If the USB Box is not needed, it can be stored in the protective bag together with the tester.

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

The USB cable is permanently attached to the Copper Box to ease its use in even tight quarters. The cable's strain relief is very sturdy so the Copper Box can be used hanging from its cable even if the cable is stressed. The standard equipment includes three high-quality connection cables and is delivered together with an manual.

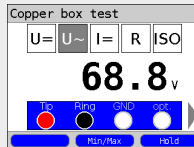
ARGUS Copper Box to assess the physical quality of the local loop

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

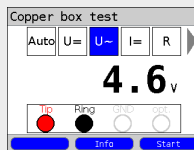
• DC voltage; U_{DC} (U =):

- Measuring Range 1 : 0.01 V to 220 V
- Resolution: Range 1: 0.01 V to 9.99 V; 0.01 V
Range 2: 10 V to 220 V; 0.1 V
- Accuracy: $\pm (1 \% + 1 \text{ Digit})$



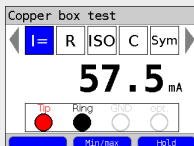
• AC voltage; U_{AC} (U ~):

- Measuring Range: 0.01 V to 210 V (RMS, for Sinus, 50 Hz)
- Resolution: Range 1: 0.01 V to 0.09 V; 0.01 V
Range 2: 0.1 V to 9.9 V; 0.01 V
Range 3: 10 V to 210 V; 0.1 V
- Accuracy: Range 1: $\pm (1 \% + 2 \text{ Digits})$
Range 2: $\pm (2 \% + 1 \text{ Digit})$
Range 3: $\pm (1 \% + 1 \text{ Digit})$



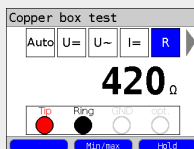
• DC current; I_{DC} (I =):

- Measuring Range: 0.1 mA to 99.9 mA
- Resolution: 0.1 mA to 99.9 mA, 0.1 mA
- Accuracy: $\pm (1.6 \% + 1 \text{ Digit})$



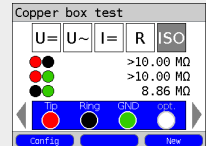
• Loop resistance; R:

- Measuring Range: 0.1 Ω to 20 M Ω , (8 V, max. 30 mA)
- Resolution: Range 1: 0.1 Ω to 99.9 Ω ; 0.1 Ω
Range 2: 100 Ω to 999 Ω ; 1 Ω
Range 3: 1 k Ω to 9.99 k Ω ; 10 Ω
Range 4: 10 k Ω to 99.9 k Ω ; 0.1 k Ω
Range 5: 100 k Ω to 999 k Ω ; 1 k Ω
Range 6: 1 M Ω to 9.99 M Ω ; 10 k Ω
Range 7: 10 M Ω to 20 M Ω ; 100 k Ω
- Accuracy: Range 1: $\pm (2.5 \% + 2 \text{ Digits})$
Range 2: $\pm (2.5 \% + 1 \text{ Digit})$
Range 3: $\pm (1.5 \% + 1 \text{ Digit})$
Range 4 - 7: $\pm (1 \% + 1 \text{ Digit})$



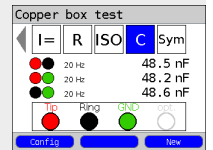
• Isolation resistance; Iso:

- Measuring Range: 0.1 k Ω to 1 G Ω (with 100 V, max. 2 mA)
- Resolution: Range 1: 0.1 k Ω to 99.9 k Ω ; 0.1 k Ω
Range 2: 100 k Ω to 999 k Ω ; 1 k Ω
Range 3: 1 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 1 G Ω ; 1 M Ω
- Accuracy: Range 1 - 3: $\pm (1 \% + 1 \text{ Digit})$
Range 4: $\pm (4 \% + 1 \text{ Digit})$
Range 5: $\geq \pm (6 \% + 1 \text{ Digit})$



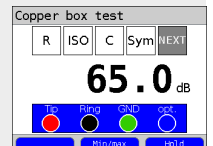
• Capacitance; C

- Measuring Range: 0.01 nF to 8 μ F
- Resolution: Range 1: 0.01 nF to 99.99 nF; 0.01 pF
Range 2: 100 nF to 999.9 nF; 0.1 nF
Range 3: 1 μ F to 8 μ F; 1 nF
- Accuracy for 20 Hz: Range 1: $\pm (2 \% + 2 \text{ Digits})$
Range 2 - 3: $\pm (2 \% + 1 \text{ Digit})$
- Accuracy for 120 Hz: Range 1 - 3: $\pm (3 \% + 1 \text{ Digit})$



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

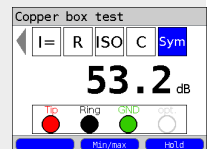
- Measuring Range: 0 dB to 60 dB
- Resolution: 0 dB to 60 dB; 0.1 dB
- Accuracy: $\pm (1 \% + 1 \text{ Digit})$



• Symmetry measurement (at 1 MHz); Sym:

- Measuring Range: 0 dB to 65 dB
- Resolution: Range 1: 0 dB to 55 dB; 0.1 dB
Range 2: 55 dB to 65 dB; 0.1 dB
- Accuracy: Range 1: $\pm (1.5 \text{ dB} + 1 \text{ Digit})$
Range 2: $\pm (3 \text{ dB} + 3 \text{ Digits})$

*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).



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:** fullfils 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. 190 g (0.42 lbs)

Standard package:

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

ARGUS Copper Box (incl. protective cover)

Order number: 015095



ARGUS Copper Box is available with the following basic packages:

ARGUS 152 ADSL Annex B + J

Order number: 115232

ARGUS 152 ADSL Annex A + L + M

Order number: 115202

ARGUS 152 ADSL Annex A + B + J + L + M

Order number: 115252

ARGUS 152 VDSL2

Order number: 115272

ARGUS 155 ADSL Annex B + J

Order number: 115532

ARGUS 155 ADSL Annex A + L + M

Order number: 115502

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

Order number: 115552

ARGUS 155 VDSL2

Order number: 115602

ARGUS 155 SHDSL-2-w

Order number: 115632

ARGUS 155 ISDN PRI/E1

Order number: 115662

ARGUS 165 GigE + ADSL Annex B + J

Order number: 116530

ARGUS 165 GigE + ADSL Annex A + L + M

Order number: 116500

ARGUS 165 GigE + ADSL Annex A + B + J + L + M

Order number: 116550

ARGUS 165 GigE + SHDSL 2-w

Order number: 116580

ARGUS 165 GigE + VDSL2

Order number: 116570

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



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