ARGUS®

Copper line testing with ARGUS

all-in-one device:

- ADSL modem
- VDSL modem
- SHDSL modem
- Line qualification
- TDR
- Copper Box
- Line Symmetry

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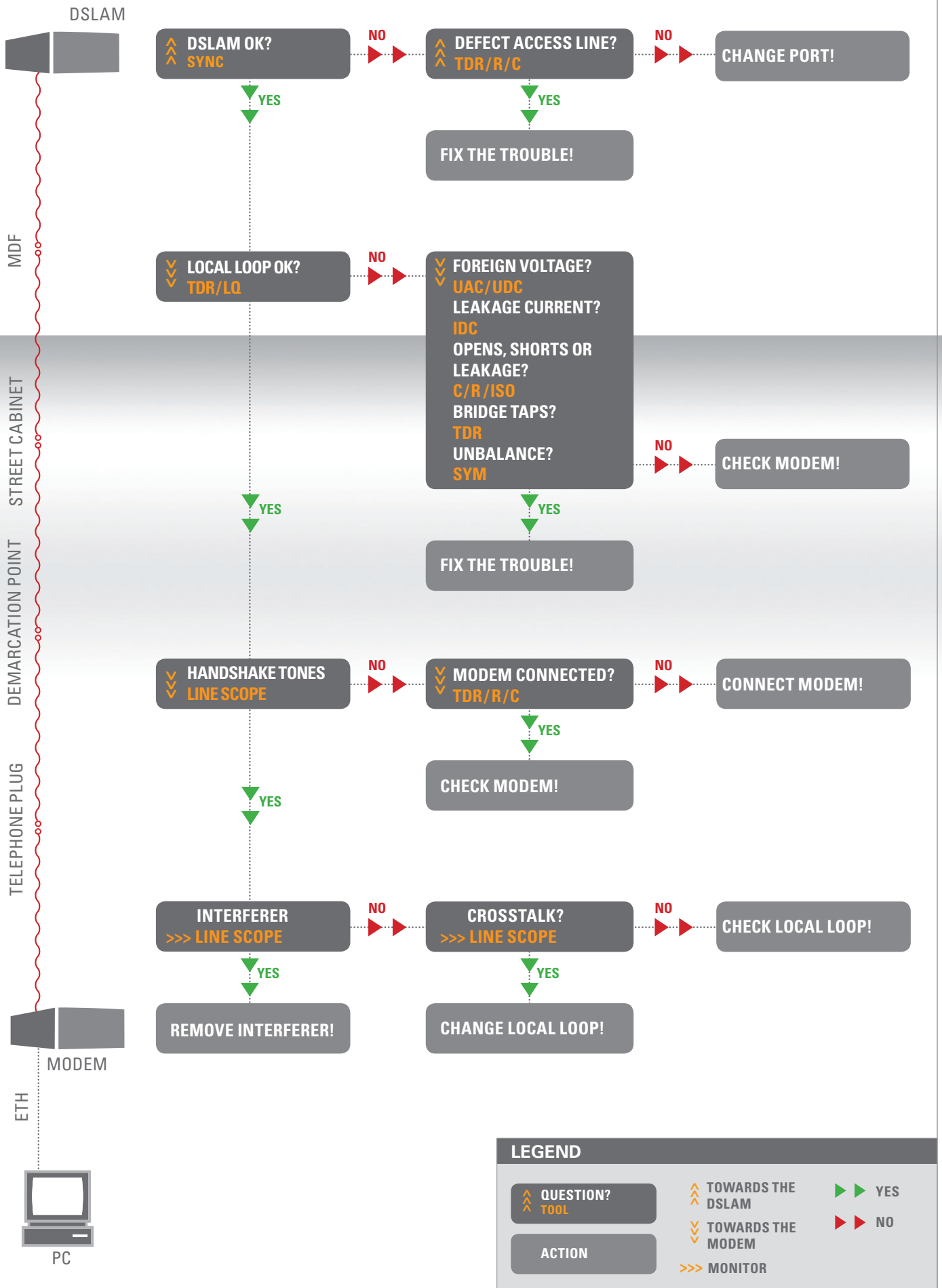VDSL
SHDSL
GigE
SFP
ISDN
POTS
Cu
TDR
LQ
Copper Box
Data 101101011011
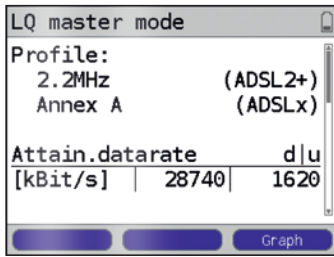IP TV
Vo IP
MOS
PC
USB

ARGUS® 165
ARGUS® 155
ARGUS® 152

intec

GESELLSCHAFT FÜR
INFORMATIONSTECHNIK mbH

Local loop troubleshooting with ARGUS!

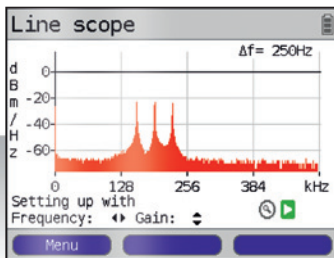**REPORT: "NO SYNCHRONIZATION BETWEEN MODEM AND DSLAM!"**

DSLAM

MDF

STREET CABINET

DEMARCATION POINT

TELEPHONE PLUG

ETH

MODEM

PC

DSLAM OK? SYNC — NO → **DEFECT ACCESS LINE?** TDR/R/C — NO → **CHANGE PORT!**

YES ↓

FIX THE TROUBLE!

LOCAL LOOP OK? TDR/LQ — NO → **FOREIGN VOLTAGE?** UAC/UDC **LEAKAGE CURRENT?** IDC **OPENS, SHORTS OR LEAKAGE?** C/R/ISO **BRIDGE TAPS?** TDR **UNBALANCE?** SYM — NO → **CHECK MODEM!**

YES ↓ — YES ↓

FIX THE TROUBLE!

HANDSHAKE TONES LINE SCOPE — NO → **MODEM CONNECTED?** TDR/R/C — NO → **CONNECT MODEM!**

YES ↓

CHECK MODEM!

INTERFERER >>> LINE SCOPE — NO → **CROSSTALK?** >>> LINE SCOPE — NO → **CHECK LOCAL LOOP!**

YES ↓ — YES ↓

REMOVE INTERFERER! — **CHANGE LOCAL LOOP!**

LEGEND

QUESTION? TOOL

ACTION

∧∧ **TOWARDS THE DSLAM**

∨∨ **TOWARDS THE MODEM**

>>> **MONITOR**

▶▶ **YES**

▶▶ **NO**

Sync/Line Qualification

LQ master mode

Profile:
2.2MHz   (ADSL2+)
Annex A   (ADSLx)

Attain.datarate   d|u
[kBit/s] | 28740 | 1620

Graph

Sync/LQ-Slave   Sync/LQ-Master

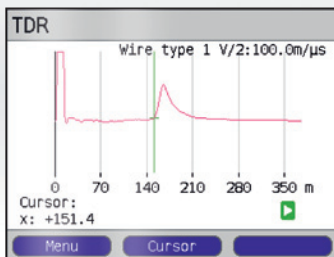DSLAM   <<<   <<<   MODEM
         >>>   >>>

Synchronization with the DSLAM and OK/FAIL evaluation of the bit rate. If there ist no remote end, use the Line qualification* to estimate the bit rate in master/slave mode.

Line Scope

Line scope   Δf= 250Hz

dBm/Hz   0   -20   -40   -60

0   128   256   384   kHz

Setting up with
Frequency: ◄► Gain: ▲▼

Menu

Active Probe II

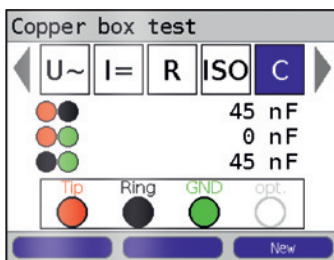DSLAM   <<<   <<<   MODEM
         >>>   >>>

Real-time Line Monitoring up to 30 MHz in frequency and time domain e. g. for detecting handshake tones, noise, cross talk or temporary interference. Use the Active Probe and switch between symmetrical and asymmetrical mode to hide the useful signal so that only the noise is displayed.
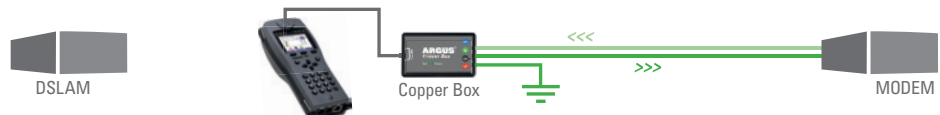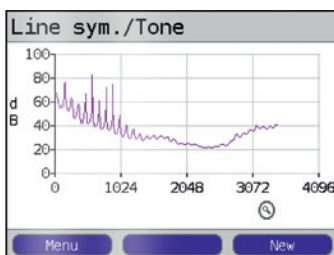
TDR

TDR   Wire type 1 V/2:100.0m/µs

0   70   140   210   280   350 m

Cursor:
x: +151.4

Menu   Cursor

Bridged Tap

Open   <<<   <<<   Open
DSLAM   MODEM
>>> Loose Contact   >>>

Time-Domain Reflectometer for measuring loop length and locating wiring issues like bridged taps, loose contacts or shorts. Adapt the impedance* of the TDR to the impedance of the line or use preconfigurable wire type profiles with a preset VoP.

Copper Box

Copper box test

◄ U~ | I= | R | ISO | C ▶

45 nF
0 nF
45 nF

Tip   Ring   GND   opt.

New

DSLAM   <<<   MODEM
Copper Box   >>>

The ARGUS Copper Box supports voltage (AC/DC), current, loop and isolation resistance as well as capacitance measurements. Connect the Copper Box to the ARGUS USB port and easily detect foreign voltages, opens, shorts, earth faults between Tip, Ring and Ground.

Line Symmetry

Line sym./Tone

100
80
dB 60
40
20
0

0   1024   2048   3072   4096

Menu   New

DSLAM   <<<   MODEM
         >>>

Check the capacitive balance of the line using the Copper Box capacitance measurement or its symmetry check at a frequency of 1 MHz. Use the wideband line symmetry test to analyze the longitudinal balance at every tone of the DSL frequency spectrum (30 MHz).*
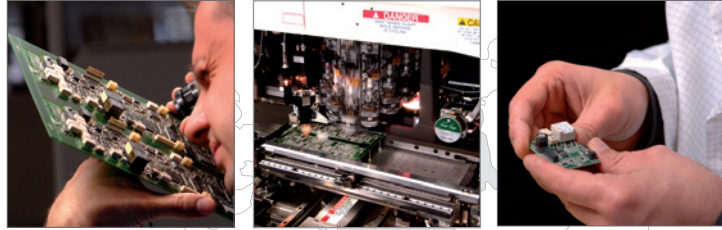
* ARGUS 152 only

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In use throughout Europe

intec Gesellschaft für Informationstechnik mbH is developing products for the international telecommunications market for 25 years and is one of the leading suppliers for xDSL, ISDN and IP measurement technology in Europe today.

With the aid of ARGUS measurement equipment, users can conveniently and safely commission and troubleshoot xDSL and ISDN accesses as well as inspect services like VoIP and IPTV based hereon. ARGUS testers are designed to meet the day-to-day needs of the field staff; consequently intec engineers focus on ensuring high-quality measurements combined with simply and convenient operation.

The portfolio of ARGUS testers, software and analyzers benefits from a continuous development and is kept up-to-date with support for the current standards for all the common access types and protocols as well as for the features of the Next Generation Networks (NGN) and Triple Play services. 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.

ARGUS® MADE IN GERMANY

ARGUS overview

	165	155	152	42 plus	141	42 basic	125	3u NT	3u plus	3u basic
VDSL2	● [3]	● [3]	● [3]		●					
ADSL [1]	● [3]	● [3]	● [3]	●	●	●	● [3]			
SHDSL	● [3]	● [3]								
ETH 10/100 BT	●	●	●	●	●		●			
ETH 1000 BT (Cu)	●	●	●							
SFP (FTTx)	●									
BRI U	●	●	●	●			●	●	●	●
BRI S/T TE/LL	●	●	●	●			●	●	●	●
BRI S/T NT/	●	●					●	●	●	
PRI/E1	●	●					●			
POTS	●	●	●	●			●	●	●	●
RC	●	●	●	●			●	●	●	
Line Scope	●	●	●							
TDR	●	●	●							
Probe	●	●	●							
Line qualification			●							
Adv. Copper-Tests			●							
Copper Box	●	●	●							
Bridge	●	●	●	●	●	●	●			
Router	●	●	●	●	●		●			
IP-Tests	●	●	●	● [2]	●	●	●			
Down-/Upload	●	●	●	● [2]	●		●			
IPTV	●	●	●	●	●		●			
VoIP+MOS	●	●	●	●	●		●			
	165	155	152	42 plus	141	42 basic	125	3u NT	3u plus	3u basic

● inclusive   ● optional   ● minimum one DSL interface is part of the standard package

[1] Annex may vary depending on country
[2] On request
[3] Online trace in combination with WINanalyse