# ARGUS 44 Manual

(This manual applies for ARGUS44s beginning with serial number 3000 )

Version: 3.20

# 1 Introduction

The **ARGUS 44** is a compact combi-tester for ADSL, ISDN (U-interface optional) and POTS.
It can be used to measure all of the relevant up and downstream line parameters and presents a graphic display of the bit distribution, depending on the version, for both ADSL-over-Pots and ADSL-over-ISDN.
The ARGUS 44 is also a comprehensive ISDN tester complete with a D-channel monitor. When used on a 2-wire interface, it supports high-impedance monitoring with voltage measurement (with an automatic check for interference voltage).
On POTS accesses, the ARGUS 44 can also simulate a POTS terminal.

An optional IP ping function and an Ethernet interface with an Ethernet through-mode can be added to enable the ARGUS 44 to also test Internet connections. With these, the tester can exchange data packets with Internet providers to determine the transmission quality of Internet connections. The option(s) extend the testers with support for a whole range of additional test functions, which include among others a trace-route function for displaying all of the routers involved and ADSL data throughput tests for the TFTP and http protocols. A TCP/IP dump includes the IP data and thus permits the user to perform an IP protocol analysis.

If you use the ARGUS on a BRI in an ISDN system whose specifications deviate from the (DIN ETS 300 102) standard (e.g. some networked PBXs), you must take these manufacturer-specific modifications into account. In such cases, please contact the distributor of your ISDN PBX for assistance.

An overview of some important ARGUS functions:

- **ADSL Test**

Displays the connection's most important upstream/ downstream parameters.

Displays the upstream/downstream ATM cell errors and - in conjunction with an Alcatel ATU-C - bit error statistics

Displays the maker of the ATU-C.

Optional: Trace route test

Optional: Download test

Optional: ATM OAM ping test

Optional: VPI/VCI scan test

Optional: Ethernet / LAN extension

Optional: OAM loop

Optional: FTP upload

Optional: ATM BERT

- **Protocol Recognition and B-Channel Test**

After you select the operation mode, the ARGUS will automatically determine the protocol used by the access under test and will then test the availability of the B-channels.

- **Telephony Function**

Can a telephone call be placed from this access to every other number and/or can this access receive a call?

- **Automatic ISDN Service Check**

Does the tested access support connections with the most important services, such as, ISDN telephone service, Group 4 - Facsimile or data transmission at 64 kbit/s etc.?

- **Bit Error Tests - BERT (evaluation in accordance with G0.821**

Performs a BERT in an extended call to itself via a loopbox or in end-to-end operation. The ARGUS will, if needed, handle the loopbox function itself.

- **Automatic Supplementary Services Test**

The ARGUS automatically tests the supplementary services made available by the exchange.

- **Leased Line Tests – tests permanent circuits with BERT and speech**

- **Automatic detection of the MSN of the access under test**

- **Automatic and Manual X.31 Test**

- **CF Interrogation**

The ARGUS will check, whether a call diversion has been setup on the access under test. The ARGUS can setup or clear down call diversions in the exchange.

- **D-channel monitoring on the Basic Rate Interface**

All of the D-channel signals are captured and passed to the serial interface.
When passively monitoring, the ARGUS does not affect Layer 1.

- **Layer 1 and Bus Feed Test**

Measures and evaluates the phantom feed and the levels of the ISDN send and receive signals of the NTBA or PBX.

- **Testing Features with the Keypad**

Supports manual tests in the so-called keypad mode. If the network supports this feature, the user can send a command sequence and can then test service features in a dialog.

- **POTS (analog) Functionality**

Tests CLIP and other Caller-ID services in accordance with ETS 300 659/778.

- **POTS - Line Monitoring (passive listening-in)**

- **POTS - Voltage and Polarity Measurement**

- **The Access Acceptance Report**

When the ARGUS is linked to a PC via the serial interface, it is, as an example, possible to create and print a comprehensive test report on the PC.

Should you have any further questions, please contact us:

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## 2 Safety Instructions

The ARGUS may only be used with the included accessories. Usage of other accessories may lead to erroneous measurements and may even cause damage to the ARGUS and the connected installation.

The ARGUS is only to be used in accordance with the instructions in this documentation. Any other usage may result in bodily injury and destruction of the ARGUS.

- To prevent electrical shocks or damage to the ARGUS, do not connect it to lines with voltages in excess of 100 V!

- Never attempt a measurement with the case open!

- The ARGUS is not watertight. Protect the ARGUS from exposure to water!

- Before replacing the battery(see page 16 Replacing the accumulators), disconnect all the test leads and switch the ARGUS off.

  Make certain that the polarity is correct when connecting the batteries!

# 3 Technical data

***Dimensions / Weight***

*Height 229 mm*

*Width 72 mm*

*Depth 35 mm*

*Weight 350 g (without accumulators and protective case)*

***Keypad***

*21 Keys*

***LCD display***

*LCD display with switchable background lighting*

*4 lines with 16 characters*

***Memory***

*EEPROM Non-volatile memory: 16 K Byte*

*Flash program memory: 2 Mbyte*
*S-RAM: 512 Kbytes*

*with the optional IP test function an additional*

*Flash program memory: 4 Mbyte*
*SDRAM: 16 Mbyte*

***Inputs / Outputs***

*1 RJ45 for BRI, ADSL or analog (POTS)*

*1 jack for an external power supply*

*1 RJ-11 for the serial interface*

*1 RJ-45 10BaseT Ethernet (optional)*

***Temperature Ranges***

*Ambient-temperature:*

*0 ℃ to +50 ℃*

*Operating temperature:*

*-5 ℃ to +55 ℃*

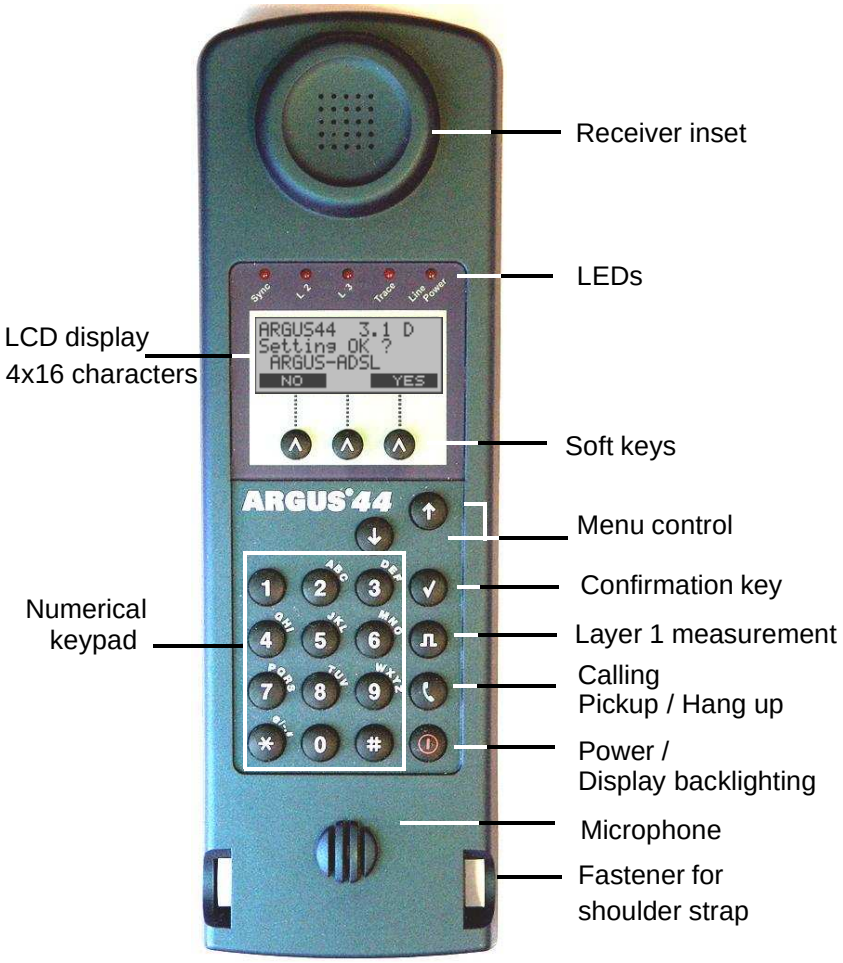
***Power Supply***

*NiMH rechargeables*

*or*

*9 V, plug-in power supply*

## 4 Operation - a brief guide




**Power Key:**

- Switch the ARGUS ON
- To start up again after a power down
- to switch on the display backlighting
  In battery mode to save power, the backlighting will switch off automatically after 5 seconds.
- To switch the ARGUS OFF
  (must be pressed somewhat longer)

**Confirmation key:**

- Select menu or continue

**Menu control:**

- Open the menu list
- Scroll through lists
- Select a menu
- Select a function in an open menu

**Telephony**

- Pickup or hang up
- Simplified overlap signalling: press the telephone key twice.

**Layer 1 measurement:**

start the Layer 1 measurement (Level/Voltage)


**Number Pad:**

- Entry of the digits 0....9 and of the special characters *, # (e.g. the call number or numerical entry in a function)
- Direct function call

**Softkeys:**

The function of the 3 softkeys varies with the situation. The current function of each softkey is shown in the highlighted fourth line of the display.

**Connectors on the end:**


- **9 V-**

  Connection for the external power supply.
  If the plug-in power supply is connected, the ARGUS will disconnect the accumulators and, when it is switched off, the ARGUS will automatically recharge the accumulators (see Page 203).

- **Line**

  Pin Assignment
  3/4/5/6 **BRI**
  7/8 **POTS, ADSL**

- Connection for a BRI network
- Connection for a POTS (analog network)
- Connection for the ADSL network

- **10BaseT (optional Ethernet/LAN extension)**

- Connection to the PC's network card via the X-crossed patch cable
  (Access mode: **PC-ARGUS-ADSL** (modem replacement or through mode) )
- Connection to the Ethernet interface of the ADSL modem via the 1:1 patch cable
  (Access mode: **ARGUS-Modem-ADSL** (PC replacement mode))

- **V.24**

- Serial interface to connect a PC

**Replacing the accumulators**

The battery compartment for the three accumulators (rechargeable batteries) is located on the back of the case. Unscrew the screws to remove the cover of the case and insert the accumulators in accordance with the polarity marking.

Use only the accumulators included in the package. The current state of the charge will (if the ARGUS is not connected to the power supply) be displayed graphically.

In the LCD display, a battery symbol will begin to blink, when there is still approximately 15 minutes reserve. During this period, it is possible that there may be audible interference and in rare cases even malfunctions (see “Accu servicing” on page 203.).

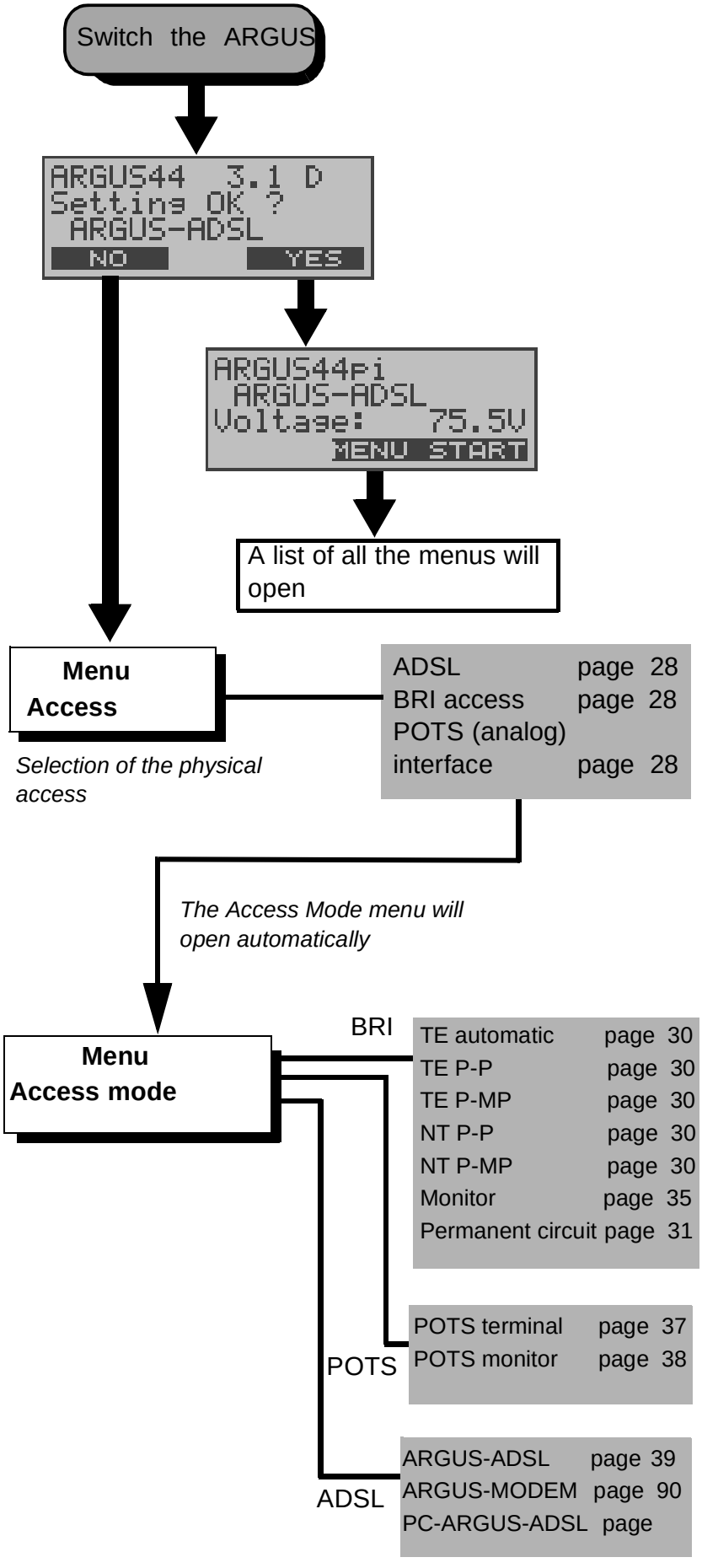
**Power Down**

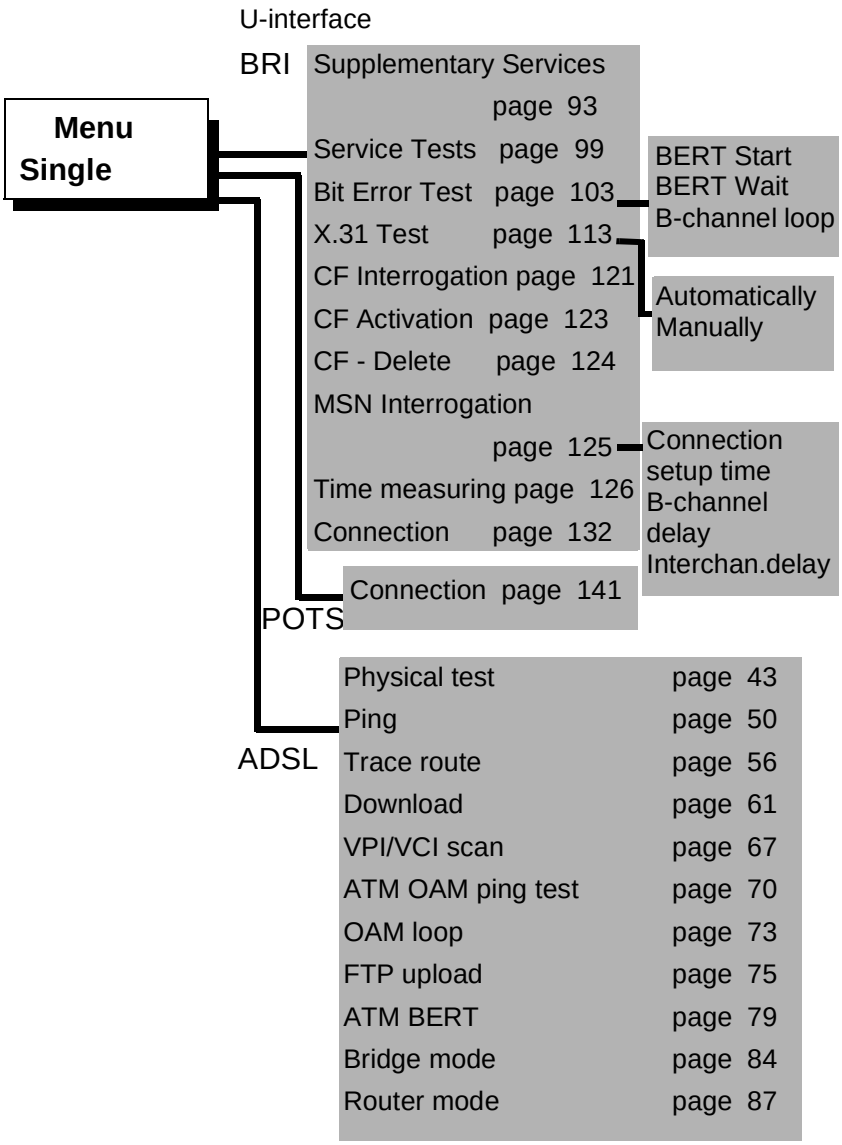
In accu/battery operation, if the ARGUS is idle for 15 minutes, it will automatically switch to the power-down mode (power-down).
The ARGUS will remain in power-down mode until the Power-Key is pressed again.

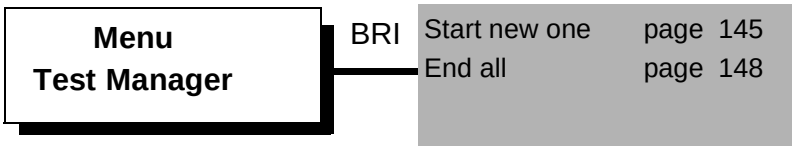
Reasonably enough, the ARGUS will **not** enter power-down mode during a test (e.g. Loopbox) or when it is in Trace mode.

As an alternative, it is possible to operate the ARGUS using the included power supply. If the ARGUS is connected to the plug-in power supply, it will automatically disconnect the accumulators and will - reasonably enough - not enter power-down mode.

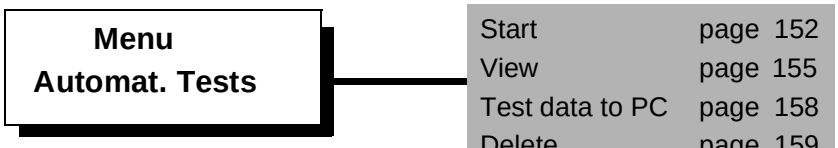
## 5 Menu Hierarchy



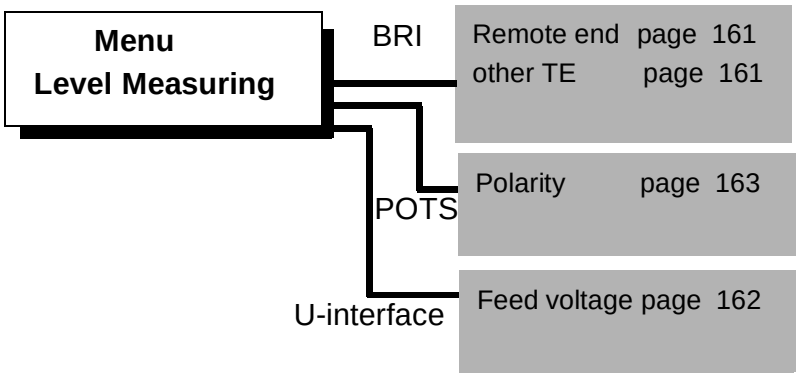



*Management of multiple, simultaneous and independent tests/ connections*




*The ARGUS will automatically execute the test sequence and save the results in its internal Flash*




**Menu**
**L1 Status**

*The ARGUS displays the current status of Layer 1 on the BRI access:*

**Menu**
**Configuration**

*The ARGUS can be configured to suit your special requirements.*
*The parameters are clearly organized in submenus (e.g. the ISDN parameters are in the ISDN submenu)*
*The default (factory) settings can be restored by selecting "Reset".*

Trace/Remote page 165
ADSL profile page 166
- Physic. line
- Protocol
- PPP
- PPTP
- Ping
- Trace route
- Download
- VPI/VCI scan
- ATM OAM ping
- FTP upload
- ATM BERT
- ATM
- LAN
- WAN
- Router
- DNS Server
- Profile name

ISDN page 179
- L1 permanent?
- Protocol
- Alerting mode
- Clock mode
- BRI termination
- Call parameter

- Services
- Call accepted
- Voice coding
- DTMF / Keypad
- Dest. no. MSN

BERT page 184
- BERT duration (time)
- Error level
- HRX value
- Bit pattern

POTS page 163
- POTS dial
- POTS CLIP
- DTMF parameter
- FLASH time

Unit: page 194
- Menu language
- LCD contrast
- Date / Time
- Baud rate
- Alarm
- Software option

Call numbers page 197

Reset page 199

**Menu**
**Accu servicing**

Charging page 203
Discharging page 203

## 6 Start-Up

Using the included cable, connect the ARGUS to the access to be tested.

**Power Key**: Switch the ARGUS on.


The ARGUS displays the access and mode parameters which were last selected.

**Displayed in the first line:**
The software version number: 3.0 and country code (in the example d = Deutschland)
The state of the accumulator charge (if it is not connected to the plug-in power supply)

**Displayed in the third line:**

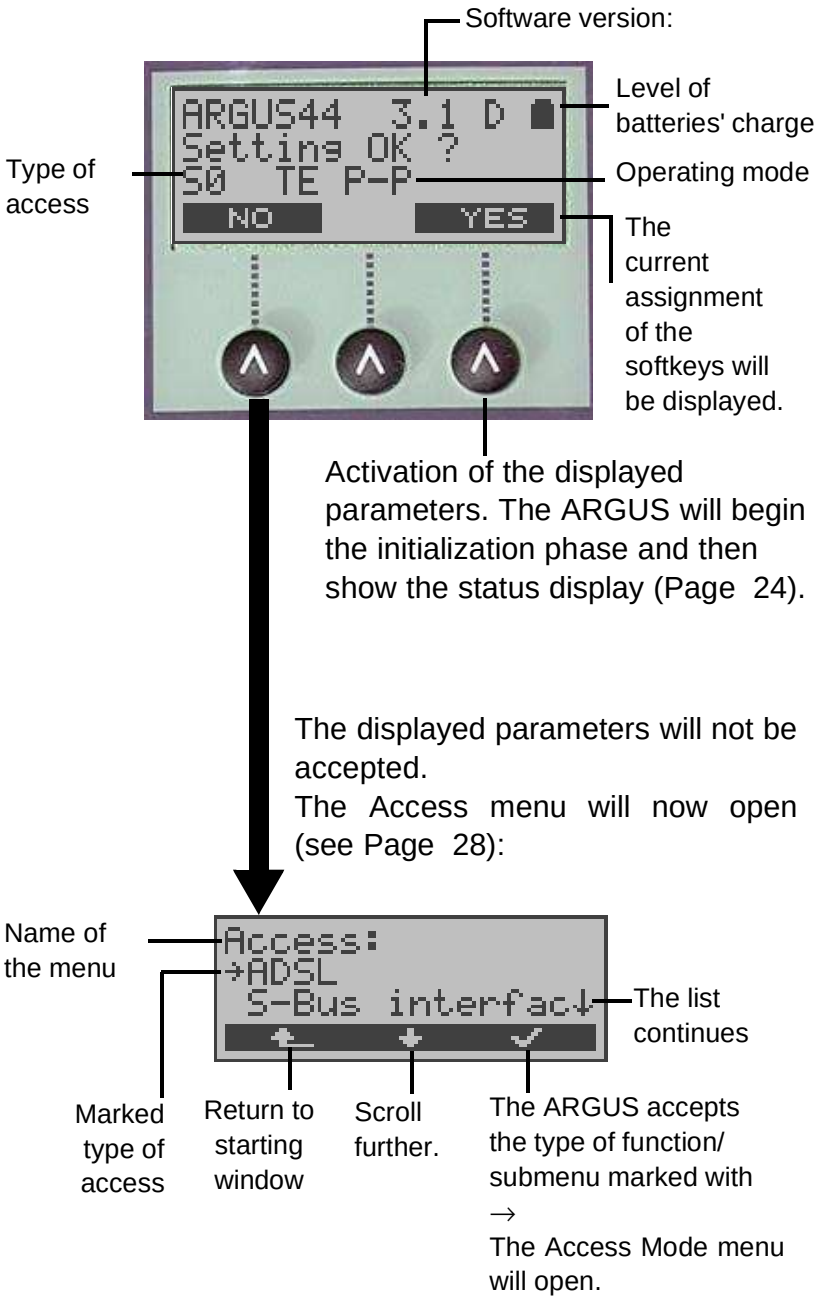
| | | |
|---|---|---|
| Type of access: | ADSL, BRI or POTS | |
| Operating mode: | TE = TE Simulation<br>NT = NT Simulation (optional)<br>Perman.swit.<br>Monitor<br>Terminal (only on a POTS (analog) access) | |
| Access modus ADSL: | ARGUS-ADSL<br>PC-ARGUS-ADSL<br>ARGUS-MODEM-ADSL | <br>(optional)<br>(optional) |
| Bus configuration: | P-P = point-to-point<br>P-MP= point-to-multipoint | |

**Displayed in the fourth line:**

The fourth line displays the current assignment of the three softkeys below.
The ARGUS is in largest part operated with the two ↓ ↑ -Keys, the confirmation key ✓ and the three softkeys.

On the following pages, only the softkey's meaning in the respective context is shown - enclosed in brackets **< >** , e.g. < **NO**>.

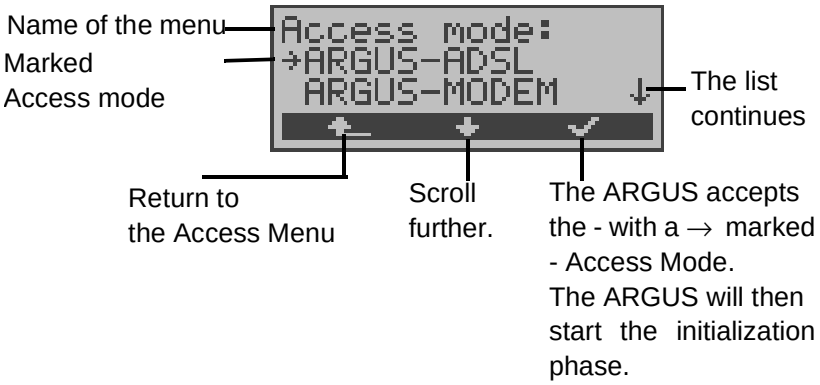
The softkeys < ✓ > and < ↓ > serve the same functions as the ✓ confirmation key and the arrow key on the ARGUS keypad.




Using the ↓ ↑-Keys or the < ↓ > softkey, select the physical access corresponding to that of the access under test.

The **Access Mode menu will open automatically** (see Chap. 8 page 30)**.**

Example - on an ADSL access:




**Initializing the ARGUS:**

**- Operating the ARGUS on a BRI or U-Interface access (optional):**

The ARGUS will first setup Layer 1. While Layer 1 is being setup, LED Sync over the display will blink. If the ARGUS cannot setup Layer 1, it will display the message "**No Net**".

As soon as Layer 1 is successfully setup, the Sync LED will light continuously.

When the ARGUS is operated on a U-interface access, it can take up to 2.5 minutes to activate Layer 1.

Once Layer 2 has been setup LED L2 will light.

If both modes (P-P / P-MP) are found when Layer 2 on the D-channel is checked, the mode must be selected manually (see Page 30).

If everything has been correctly detected, the ARGUS will display the access type (S0, a/b, ADSL) and access mode (TE, NT). Additionally, a qualitative assessment of the level will be displayed.

The ARGUS will automatically determine the protocol (in both TE and NT mode) or use the manually selected protocol (see on page 179 “Configuration: ISDN”) . On a bilingual access, the ARGUS will use the DSS1 protocol.

LED L3 will light after the ARGUS has setup Layer 3.
At the same time the ARGUS will start the B-channel test.

The results will be displayed on the ARGUS. If an error occurs in the B-channel test (e.g. access is not plugged-in), the ARGUS will - depending on the class of error - either repeat the initialization or show an error message ((see page 215 ARGUS Error Messages)).

The ARGUS will then idle in the Status display.

**Status display example:**


The ARGUS displays the type of access (BRI), the availability of the B-channels (B12), a level evaluation (OK),
the access mode (TEs), the bus configuration (P-MP) and the protocol (DSS1).
If you press the <**RESTART**> softkey, the B-channel test will be repeated.

The ARGUS in its Main menu

The test found that it is a BRI multiple device access using the DSS1 protocol

**Shown on the second line in the display:**

The availability of the B-channels:

| | |
|---|---|
| B12 | both channels are available |
| B1- | only B-channel 1 is available |
| B-2- | only B-channel 2 is available |
| B-- | no B-channel available |

If only one B-channel is available, this can have an impact on the service check and the testing of the supplementary services.

Level evaluation on a BRI:

| | |
|---|---|
| OK | the level is in order |
| << | the level is too low |
| >> | the level is too high |
| -- | no level |

**Shown on the third line in the display:**

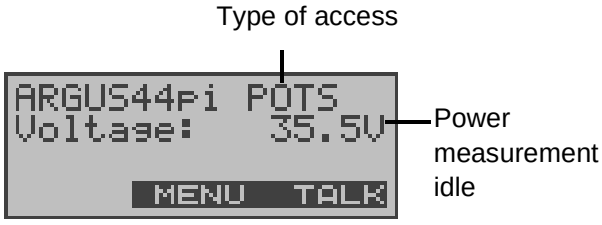
Access Mode:
TEs = TE Simulation Slave Mode (see Page 181)
TEm = TE Simulation Master Mode
NTs = NT Simulation Slave Mode (optional)
NTm = NT Simulation Master Mode (optional)

Shown for the bus configuration (D-channel Layer 2 mode):
P-P = point-to-point
P-MP = point-to-multipoint

It must be mentioned again, that the ARGUS only determines the general bus status once when switched on or when the ARGUS first connected.
On the other hand, the status of the protocol stacks for Layer 1, 2 and 3 will be continually monitored and displayed.

**- Operating the ARGUS on a POTS access**

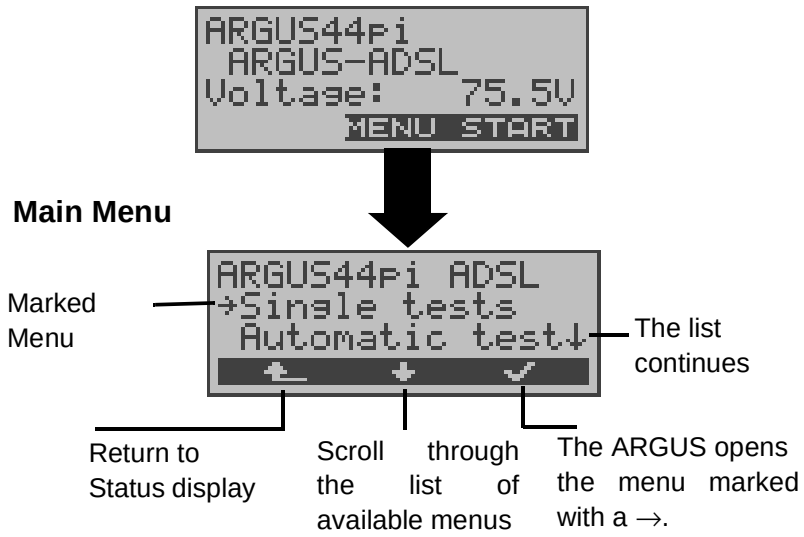
The following will be displayed:




**- Operating the ARGUS on an ADSL access**

**ARGUS - Main menu**

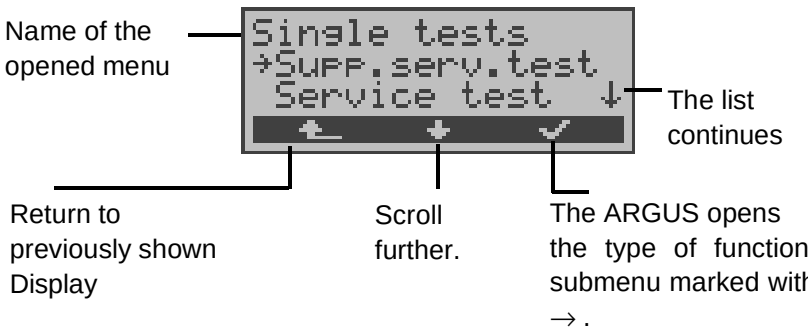
**Status display**




In the Main menu, you can scroll through the available menus with the <↓ > key:

| **BRI access (U-interface optional)** | **POTS access** | **ADSL access** |
|---|---|---|
| **Single Tests** | **Single Tests** | **Single Tests** |
| **Test Manager** | **Automat.Tests** | **Automat.Tests** |
| **Automat.Tests** | **Level Measuring** | **Level Measuring** |
| **Level Measuring** | **Configuration** | **Configuration** |
| **L1 Status** | **Access** | **Access** |
| **Configuration** | **Accu servicing** | **Accu servicing** |
| **Access** | | |
| **Accu servicing** | | |

With the <✔>, you can open the menu currently marked with the → (in the example Single Tests).




**Using the numeric keys to start a function:**

Using the digit keys, you can start important ARGUS functions directly, regardless of the currently active menu level.

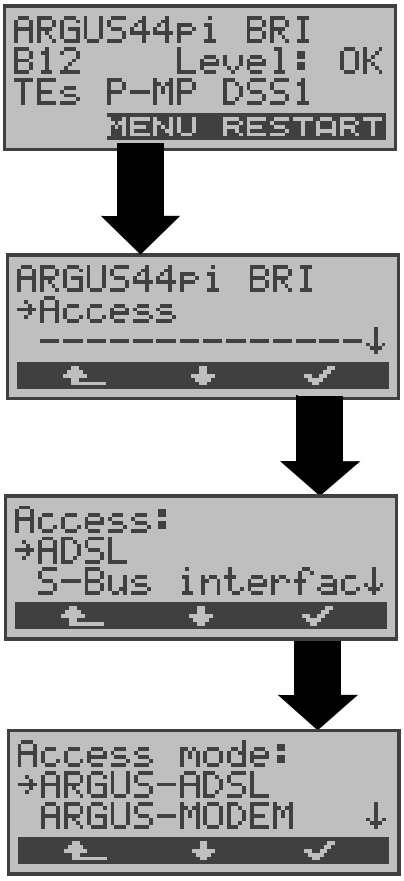
**Numeric key 2** Start Service Test
**Numeric key 3** Start Supplemental Service Test
**Numeric key 4** Start Auto. Test
**Numeric key 6** Start Test Manager
**Numeric key 7** Entry of your own and remote call numbers in the speed-dialing memory
**Numeric key 8** Trace ON/OFF
**Numeric key 9** Start Bit Error Rate Test (BERT)

If a function is called where the ARGUS expects the entry of a digit, pressing a number key will be interpreted as the expected input.

# 7 Setting the type of access

If the parameters displayed at power on are not accepted, the Access menu will open automatically.
However, you can also open the Access menu at any time from the Main menu.
In the Access menu, the user must select the type of physical access to which the ARGUS is connected. When the ARGUS is restarted, the settings used last will be suggested as the default.

Status display




If you press the **<RESTART> softkey,** the B-channel test will be repeated.

Open the **Main menu**

Using the **< ↓ >** select the **Access** menu

Open the **Access** menu

Using the **< ↓ >** select the type of access
(e.g. ADSL)

Confirm the access

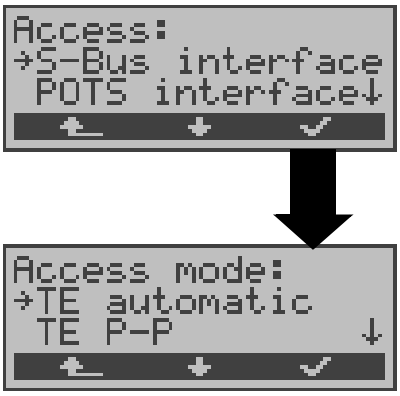
The **Access Mode** menu will open automatically.

The following applies for all displays: If you press the

**<** ↰ **>**, the ARGUS will return to the previous display.

## 7.1 Operation on a U-interface access (optional)

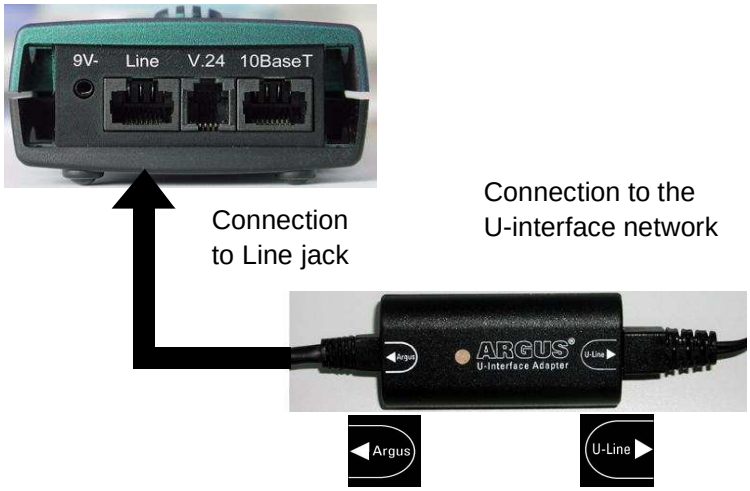
To test a U-interface access, the ARGUS is connected to the U-interface access using the U-interface adapter.




As the physical access, select **BRI** in the Access menu.

The Access Mode menu will open automatically: In the case of a U-interface access, you must choose - as Access Mode - TE Automatic, TE P-P, TE P-MP or permanent circuit.

**Connection of the ARGUS to a U-interface access:**




**What the LED on the U-Interface Adapter indicates:**

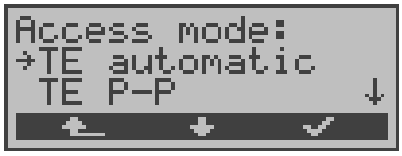
LED is red: not activated, e.g. cable not connected correctly

LED flashing slowly - once per second - (green/red): U-interface is activated; the ARGUS, however, is deactivated

LED flashing quickly - twice per second - (green/red): ARGUS activated, U-interface still deactivated

LED is green: everything correct

# 8 Select the Access Mode

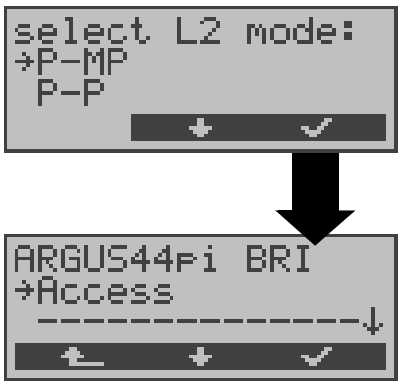



The Access Mode menu is **not** selectable from the Main menu.
It opens automatically once the physical access is selected in the Access menu.

## 8.1 Level measurement on a BRI or U-Interface

### 8.1.1 TE-Simulation mode

**TE automatic**
On a BRI or U-interface access, the ARGUS will automatically determined the D-channel Layer 2 mode (PP or P-MP). If the ARGUS determines that the access supports both modes, the following Configuration menu will open:




Using the <↓>, select the desired **L2 mode**.

**Confirm the selected L2 mode**

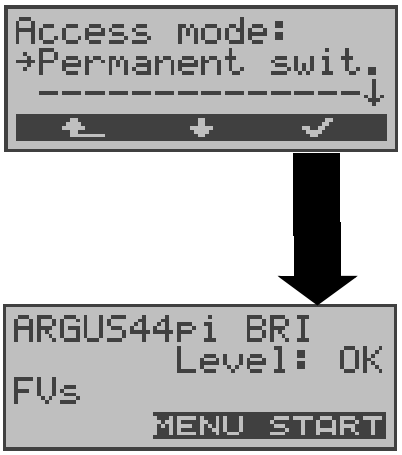
The ARGUS will return to the Main menu.

**TE P-P or TE P-MP**
Afterwards, the access and the protocol stack will be initialized in accordance with the selected setting. The ARGUS will then jump to the Main menu.

### 8.1.2 NT-Simulation mode (optional)

**NT P-P or NT P-MP**
Afterwards, the access and the protocol stack will be initialized in accordance with the selected setting. The ARGUS will then jump to the Main menu.

### 8.1.3 Permanent circuit




With the <↓ >, select **Permanent switch**.

Access mode confirmed

The ARGUS is now switched to Permanent circuit mode (the display shows FV [Festverbindung]) and will open the Status display.

Besides dial-up connections to any subscriber, ISDN also supports the use of permanent circuits switched to a specific remote location.

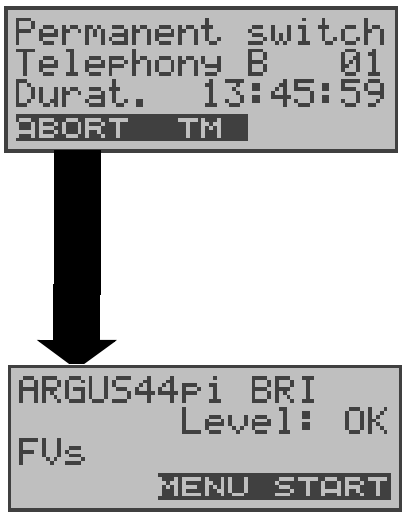
These permanent circuits are available after setting up Layer 1, in other words after synchronizing both terminals by exchanging HDLC-frames.

The location where the clock is generated can be selected (see page 181 Clock mode).

As a quick test of a permanent circuit, you can simply call the opposite end using a selected B-channel.
However, for a more revealing test of a permanent circuit, you should perform a bit error rate test.
Both ends of the permanent circuit must use the same channel.

**Telephony on permanent circuits**

The function can be started with the  -Key or via the selection **Phone / connec.** in the **Single tests** menu (see page 132 Connection).
After the B-channel for the permanent circuit is selected, the telephone connection will be setup automatically:




The ARGUS displays the B-channel used (e.g. B01) and the duration of the permanent circuit.
Use the **< TM >** softkey to start the Test Manager (see Page 144)

**Terminate the permanent circuit**

The ARGUS will open the Status display

**BERT on permanent circuits**

A number of variations are possible in testing permanent circuits with the bit error rate test.

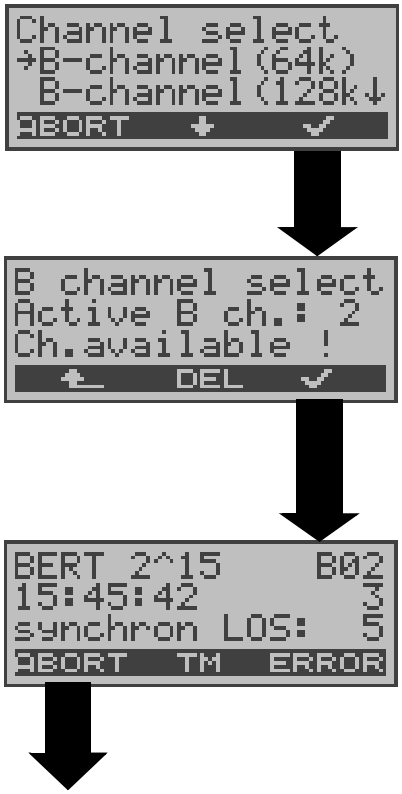
In the simplest case, a B-channel loop will be set up at the remote end.
Start the BERT from the Single tests **menu** / **Bit error test** *submenu* / **BERT start** (see page 105 Start BERT). After selection of the channel to be tested (B-channel or D-channel), the ARGUS will send the test pattern, receive it back and evaluate it accordingly.

The displays and operation are, in largest part, similar to those of a BERT on a dial-up connection (see page 103 Bit error test), you simply need not enter call numbers or select a service.

In the case of a BRI access in end-to-end mode (see “Bit

error test" on page 103 and on page 111 "Bert wait"), it is also possible to run a BERT in the D-channel.

In this case, the channel select window will open:




With the **<↓>,** select the channel

Confirming a B-channel (e.g 64k)

Enter the B-channel on the keypad.

Confirm the selected channel and start the BERT.

The ARGUS will display
- the channel / bit rate used (e.g. B02)
- the remaining test time in Hours: Minutes: Seconds (e.g. 15:24:12)
- the bit errors that have occurred (e.g. 3)
- Synchronicity of the bit pattern (synchron)
- the LOS-counter (e.g. 5)

.

Use the **<ERROR >** softkey to insert artificial bit errors to test the reliability of the BERT.

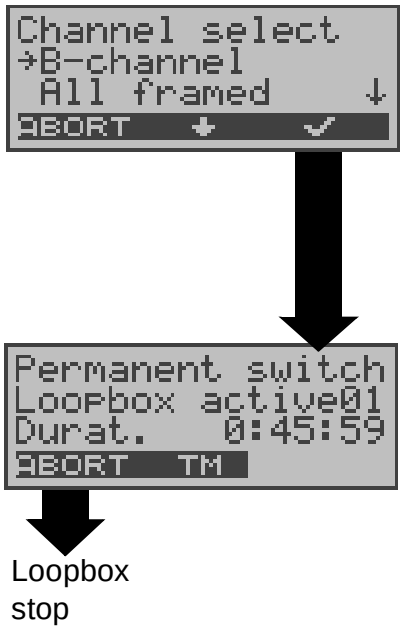
BERT stop

Use the <**TM**> softkey to start the Test Manager (Page 144).

Once it is over, the ARGUS will display the results of the BERT
(see "Start BERT" on page 105.).

**Loopbox with a permanent circuit**

A loopbox can be setup for the permanent circuit by selecting in the **Single tests** menu / **Bit error test** submenu / the **B-channel LOOP** (see Page 112).



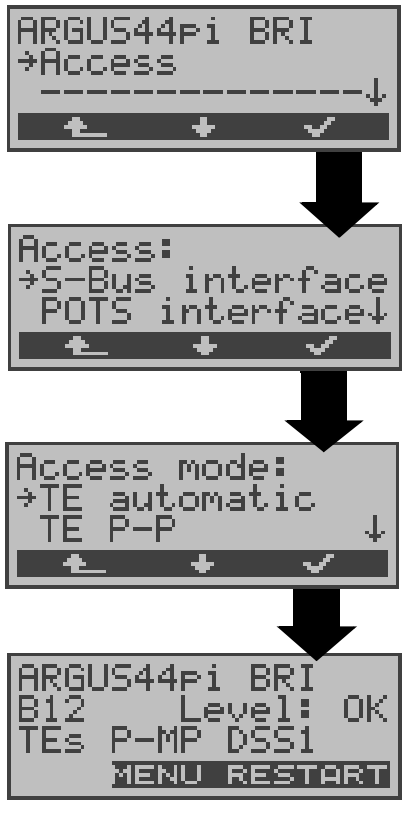

The Channel select window will open:

When selecting a B-channel, the B-channel select window will open in which you must enter the desired B-channel. If "All framed" is selected, both B-channels and the D-channel will be looped.

Activate loopbox

The ARGUS will display the channel used (B01) and the amount of time (h:min:sec) that the Loopbox has been active.

**Switching from permanent circuit mode**




Using the **<↓>** select the **Access** menu

Using the **<↓>,** select the desired access.

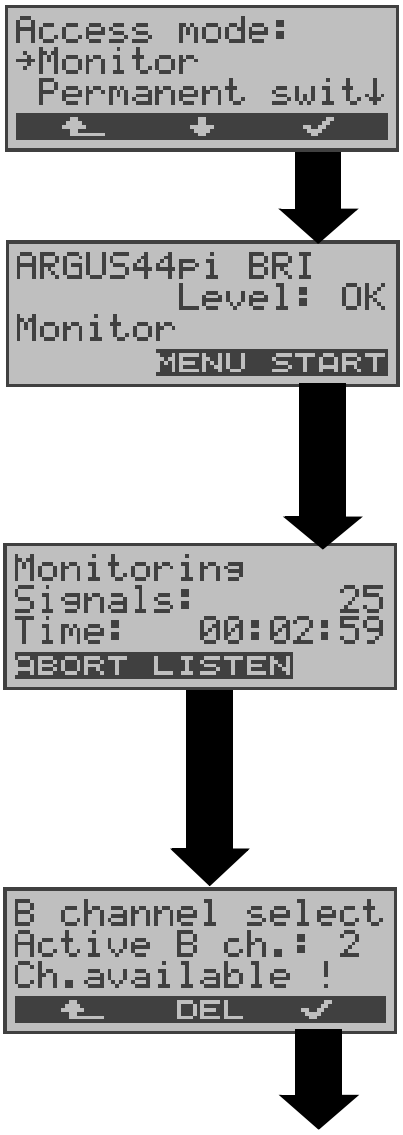
Using the **<↓>**, select the desired Access mode (e.g. TE automatic).

Confirm the selected access mode

The ARGUS will open the Status display

### 8.1.4 Monitor

The ARGUS accepts all of the D-channel signals from the BRI access and sends these D-channel signals over the serial interface to a PC which must be running ARGUS WINplus or WINAnalyse. Neither the S-Bus nor Layer 1 are influenced.




Using the **<↓>**, select **Monitor**.

Confirm the selected access mode

The ARGUS evaluates the level on the NT-side: OK, << (too low), >> (too high), _ (no level)

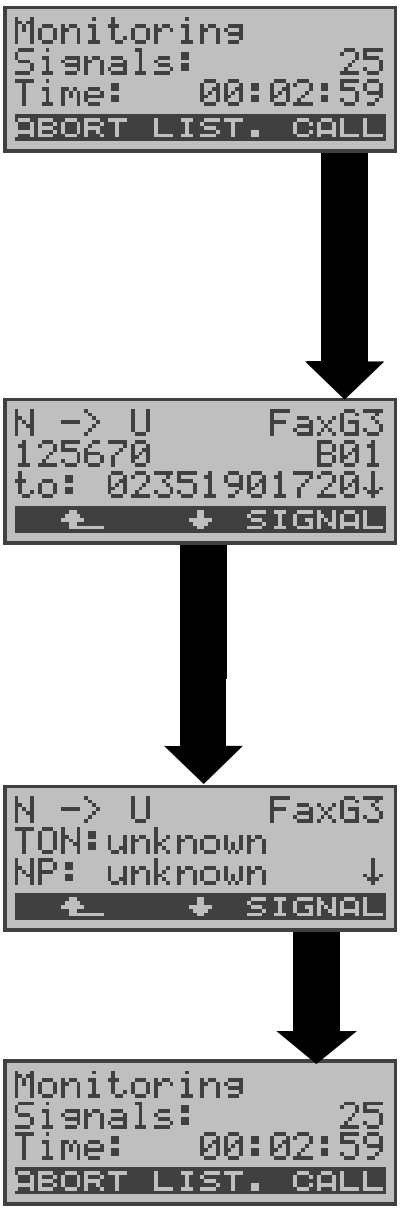
**Start monitoring**
The Trace LED lights.

The ARGUS displays the number of recorded signals (e.g. 25) and the recording time in h:min:sec.
Select **< ABORT>**: Stop monitoring.

**Listening-in on voice data**

The B-channel select dialog will open:
Enter the B-channel. The ARGUS will switch the handset to this B-channel.
It is now possible to listen to the voice data (in the direction Network ---> User).

**Parallel call display while monitoring**



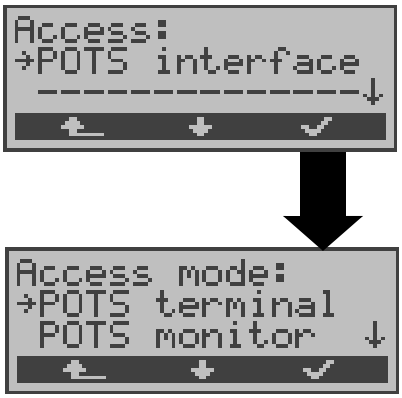

While monitoring, the ARGUS will search all of the D-channels signals sent for a SETUP. If a SETUP is detected, the <**CALL**> softkey will be displayed.

Display the call parameters of the last SETUP received.

The ARGUS displays the call direction (**N**et -> **U**ser), the service (e.g. FaxG3), the own number (e.g. 125670), the channel used (e.g. B01) and the destination number (e.g. 02351 901729).

Display of other parameters: Sub-address (SUB) , User-User-Info (UUI), DSP messages (if existent), Type of Number (T.O.N) , Numbering Plan (NP).

## 8.2 Operation on a POTS (analog) access




Using the **< ↓ >** , select **POTS interface**.

Confirm the access

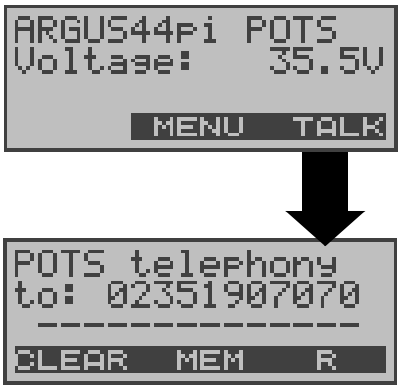



Using the **< ↓ >,** select the **Access mode** menu.

With the **< ✔ >**, confirm the selected **Access mode.**

### 8.2.1 POTS terminal

The Argus behaves like a POTS (analog) terminal.

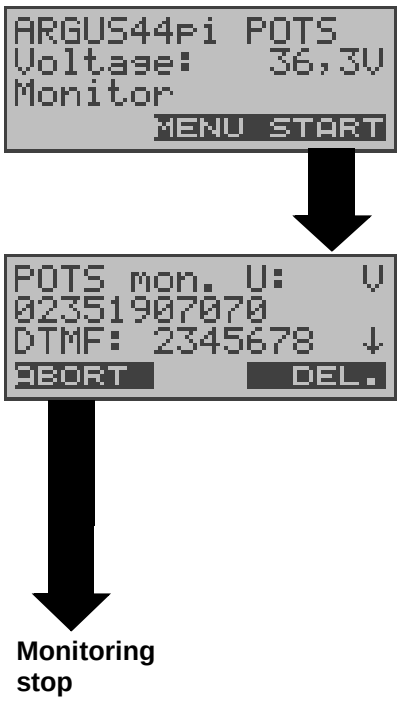



If you press **<MENU>**, the ARGUS will return to the Main menu**.**

**Setup the connection**
See Page 141

### 8.2.2 POTS monitor

Essentially, the POTS (analog) monitor provides a high impedance tap that does not influence the interface. You can listen to the line with the integrated handset without having the ARGUS send on the interface.




The ARGUS displays the voltage level on the line when it is "on hook“ (not busy).

**Start monitoring**

The ARGUS displays the voltage (when "off hook"), the number of the caller (if CLIP is supported) and the DTMF characters dialed by both telephone subscribers and the SMSs received (optional).
Any received DTMF-characters will be appended to the line, which will shift left for each character once it is full.

An incoming call will be signalled acoustically.
Press the ↓-Key to display additional information, if available on the access (e.g. advice of charges).
Press **<DEL>** to clear the display.

# 9 ADSL Tests

The ARGUS supports a variety of access types:

**ARGUS ADSL:** Connection of the ARGUS directly to the ADSL access (before or after the splitter). The ARGUS replaces both the modem and the PC.

**PC-ARGUS-ADSL (optional):** Insertion of the ARGUS between the ADSL access and the PC. The ARGUS replaces the ADSL modem (Modem replacement mode).

**ARGUS-MODEM (optional):** Connection of the ARGUS to the ADSL modem. The ARGUS replaces the PC (PC replacement mode).

Depending on the access mode selected (and the protocol), the following ADSL tests are supported:

| **Access mode** | |
|---|---|
| **ARGUS-ADSL** (PC-Modem replacement mode) | - Physical test<br>- Ping test<br>- Trace route test<br>- Download test<br>- VPI/VCI scan<br>- ATM OAM ping<br>- OAM loop<br>- FTP upload<br>- ATM BERT |
| **ARGUS-MODEM** (PC replacement mode) | - Ping test<br>- Trace route test<br>- Download test<br>- FTP upload |
| **PC-ARGUS-ADSL** (Modem replacement mode) | - Physical test<br>- Bridge mode<br>- Router mode |

The ARGUS displays the results during the test.
If desired, the ARGUS will save the test results (even if the test is aborted) together with the date and time in its internal Flash memory.
The saved results can later be sent to a PC or viewed on the display.

The ARGUS supports the following ADSL modes (depending on the national variant and the installed options)

| | **ADSL Mode** | **Standard** |
|---|---|---|
| - | Annex B (DT) | T-DSL (UR2) |
| - | Annex B (ETSI) | ETSI DTS |
| - | Annex A auto | automatic Annex A detection |
| - | ANSI T1.413 | ANSI T1.413.2 |
| - | G.Lite | ITU-T G.992.2 |
| - | G.DMT | ITU-T G.992.1 |

We must point out that the ARGUS records and stored data (e.g. in tracing IP data). The user must comply with the statutory regulations governing the collection and storage of such data and his obligation to give notice in this connection.

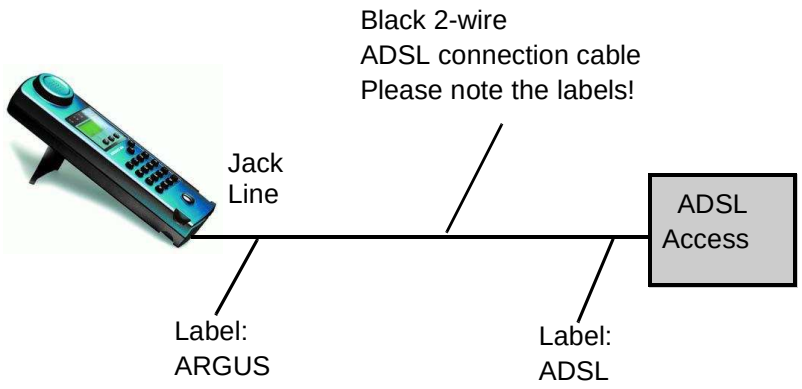
## 9.1 The ARGUS in Access Mode

### Access Mode: ARGUS-ADSL

Using the ADSL 2-wire connection cable, the ARGUS is connected directly to the ADSL access (either before or after the splitter). In this case, the ARGUS replaces both the modem and the PC.

In the ARGUS-ADSL access mode, the following tests can be performed:

- **Physical test**
- **Ping test**
- **Trace route test**
- **Download test**
- **VPI/VCI scan test**
- **ATM OAM ping**
- **OAM loop**
- **FTP upload**
- **ATM BERT**

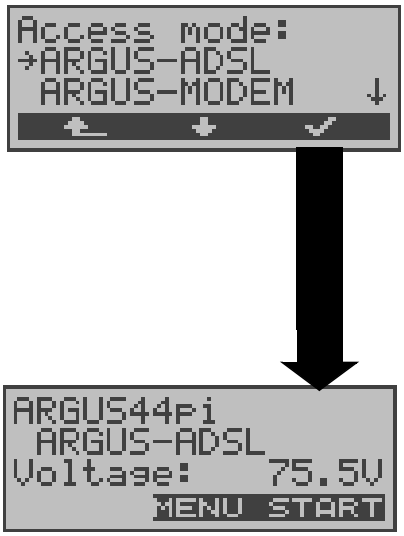



**Setting the device to the ARGUS-ADSL access mode:**


In the Main menu, use the **<↓>** to select the **Access** menu.


Using the **<↓>**, select ADSL.

The Access mode menu will open automatically.




Using the **<↓>**, select **ARGUS-ADSL**.

If you press the < ↵ >, the ARGUS will return to the previous display.

The ARGUS will open the Status display

The ARGUS will display the selected access mode, ARGUS-ADSL, and the DC voltage on the access interface.

**If the ARGUS is not yet active,** you must first select a test and start it.
(see the next pages).

### 9.1.1 Physical test ( ADSL line test )

The ARGUS will setup an ADSL connection and determine all of the relevant ADSL line parameters.
The ARGUS displays the results during the test and saves them in the internal Flash memory when the test is finished or aborted.

**Parameter settings:**
In the physical test, the ARGUS uses the following parameters that are saved in the ADSL profile (see Page 166):
- Physic. line: ADSL mode, Link-up time, Rated value, SNR margin DS, Shutdown mode

The ARGUS
Status display

If you press **Menu**, the ARGUS will open the Main menu. Press <**START**> to open the ADSL profile menu

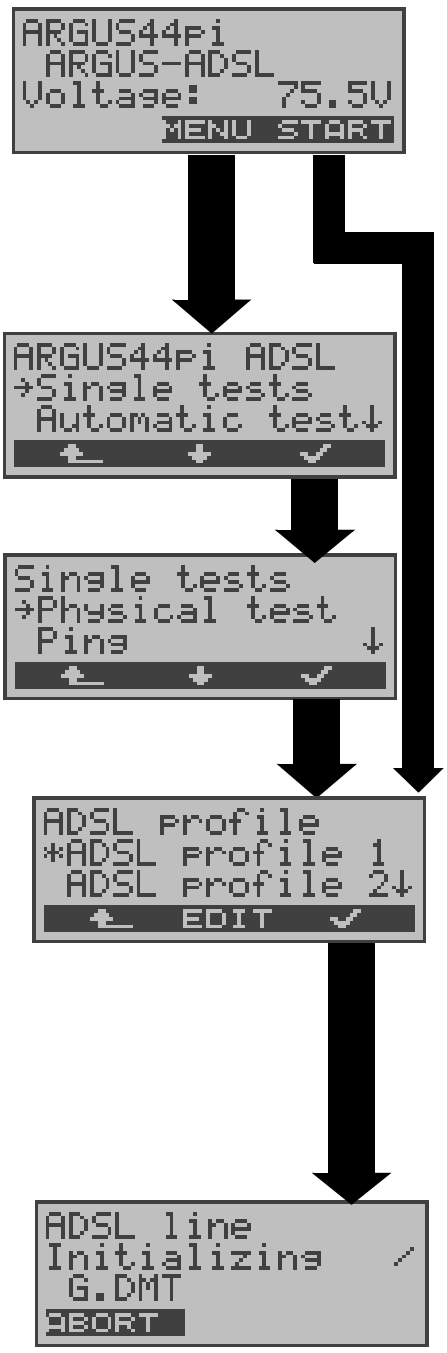
Using the **<↓ >** , select the **Single tests** menu.

Open the Single tests menu

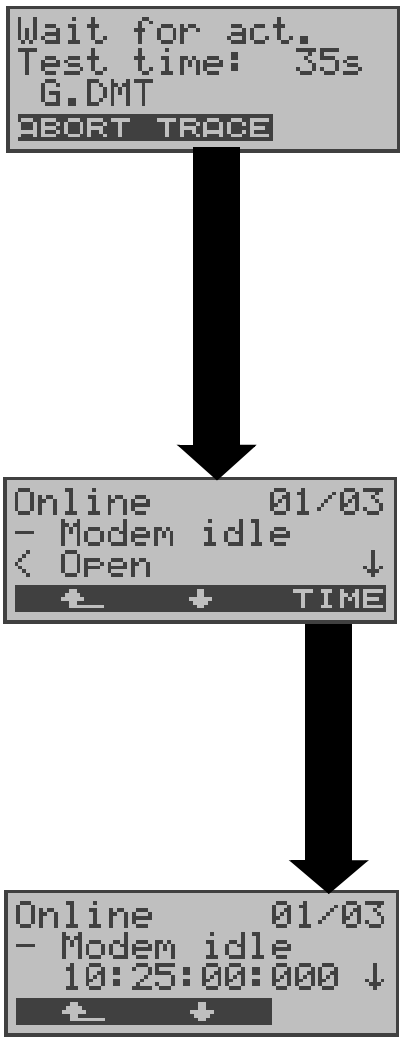
Using the **<↓ >** , select **Physical test**.

The ADSL profile window will open.

Using the **<↓>**, select ADSL profile.
If you press on **<EDIT**>, the ARGUS will open the settings menu for the profile. In this menu, you can adjust the parameters of the selected profile to suit the respective test situation (see “Configuring ADSL profiles” on page 166).



The ARGUS synchronises itself with the DSLAM.




While the ARGUS is attempting to setup the ADSL connection, the "SYNC“ LED will flash .

The ARGUS displays the current setup time (in the example: 35 seconds) and the ADSL mode (e.g. G.DMT).

Display trace data

The ARGUS records and displays the commands, which are received or sent by the ADSL modem and modem status:

**<**= command from ARGUS

**>** = command from modem

**-** = modem status

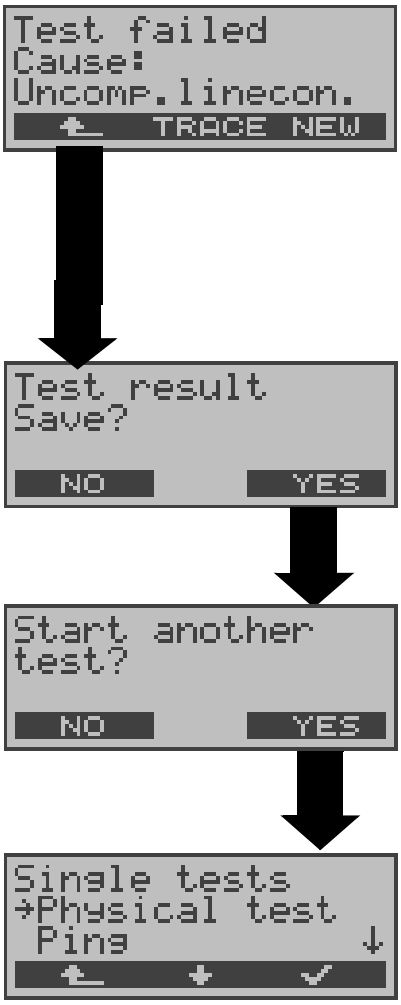
Using the **<↓>**, scroll through

Display timestamp

Time that the command was received

If you press the < ↵ >, the ARGUS will return to the previous display.

If the connection is not successfully setup within a specific time (a maximum of 2 periods of 4 minutes = “Time out”) or if an error occurs during the setup, the ARGUS will display a corresponding error message (see “Error message: ADSL connection” on page 217):




Press **< TRACE>** to have the ARGUS display the recorded trace data.
If you press **<NEW>** the ARGUS will make another attempt to setup the ADSL connection.

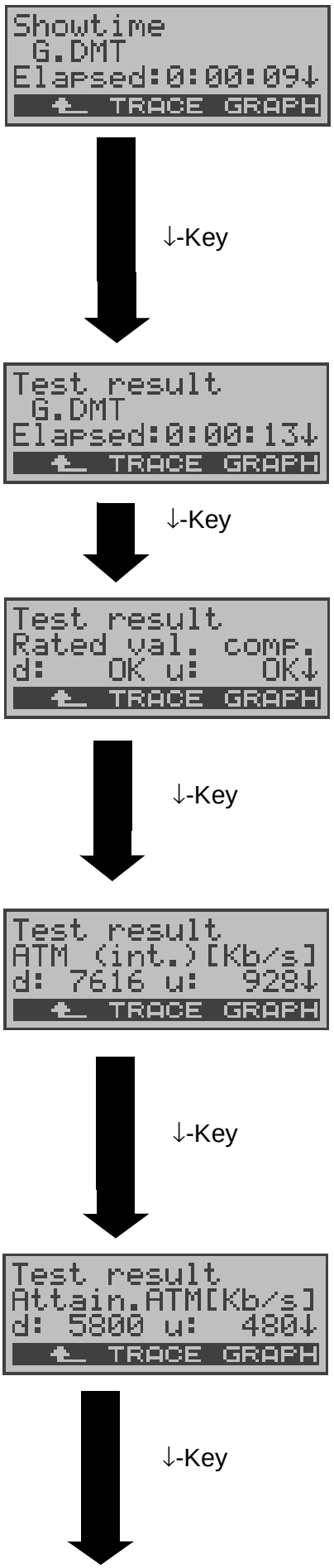
The ARGUS saves the recorded trace data in its internal Flash memory (Page 149).

A new test can be started afterwards without reinitializing the ADSL test software.

Once the connection has been setup (Sync LED ON constantly), the ARGUS will determine the ADSL line parameters.
After the period set for the test has elapsed (see “Link-Up Time” on page 168 ), the ARGUS will automatically clear down the connection ( unless: the test time has been set to "continuous", in which case the test must be terminated manually by pressing <ABORT>).

The ARGUS will display the already determined results during the test.

Once the test is over, the ARGUS will automatically open the results display:




The test has run for 9 seconds.
Use the **<↓ >**-Key to scroll through the results.
Use the **<↑ >**-Key to scroll back.
Press on **<TRACE>** to view the trace data.
Press <**GRAPH**> to view the bit distribution (Page 49)

**Viewing the results**

The ARGUS displays the ADSL mode (in this example G.DMT) and the current duration of the test.

**Rated value comparison:**

The rated value, which was set for the bit rate, is compared with the rate actually achieved (see Page 168)

d: Downstream

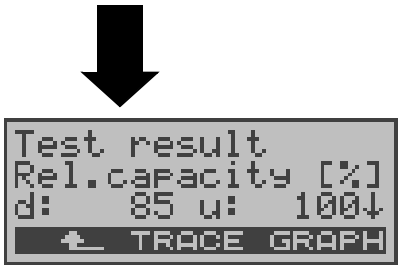
u: Upstream

**ATM:**

Actual usable ATM data rate in kBit/s for downstream and upstream. The ARGUS will indicate which mode is configured in DSLAM (Interleaved or Fast Mode) by appending either "int." (for interleaved) or "fast" (for Fast Mode).

**Attainable ATM**

This is the theoretically attainable ATM data rate in kBit/s.




**Relative Capacity Occupation**
Displays the upstream and downstream line load.

↓-Key


**Line Rate**
This is the gross data rate, which is calculated from the bits/tone spectrum. In contrast to the ATM data rate, this value also includes the overhead for the ATM header, additional framing bits and checksums.
This value is always higher than the ATM data rate!

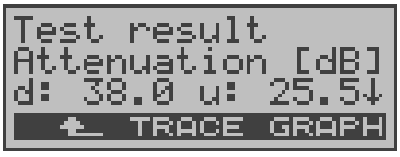
↓-Key


**Noise margin (SNR margin)**
Signal-to-noise ratio in dB for the upstream / downstream transmission
The SNR margin or Noise margin - is a measure (in dB) of how much additional noise the transmission can withstand and still achieve a BER (Bit Error Rate) of $10^{-7}$.

↓-Key

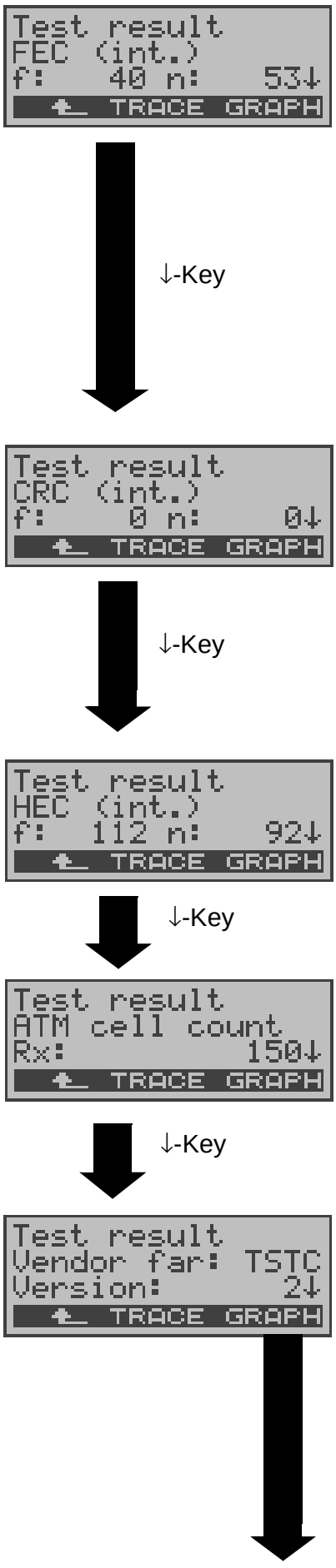

**Output power**
The output power in dBm for the upstream and downstream transmission

↓-Key




**Attenuation**
The line's attenuation in dB over the entire line for upstream and downstream transmissions

↓-Key




**Forward Error Correction**
The FEC shows the number of transmission errors corrected by using the ATM cell checkbytes.
f (far): Errors that the DSLAM has detected and informed the ARGUS.
n (near): Errors which were detected by the ARGUS in the blocks it received.

**Cyclic Redundancy Check**
The superframe checksum sent from the opposing end does not match the one calculated locally. Possible cause: Fault on the line.

**Header Error Checksum**
The HEC shows the number of ATM cells with bad header checksums.

**ATM Cell count**
Counter for the sent (Tx) and received (Rx) ATM cells

**Vendor far**
The hexadecimal ID number for the manufacturer of
representation (see “Vendor identification numbers” on page 208)
**SW version** on the ATU-C side
(Only returned in ANSI mode)


**Bit distribution**

i.e. bits transported per carrier frequency
(y-axis: bits per carrier frequency (tones);
x-axis: carrier frequency)
Based on the bit distribution, it is possible to detect line disturbances (e.g. HDB3, HDSL, RF.....)

↓-Key


Return to the ADSL line parameters

e.g. Vendor far

Close the results display


Press <**YES**> to have the ARGUS save the result in the first available record in the Flash memory (see Page 149).


Press <**EDIT>** to edit the parameters of the displayed ADSL profile (see Page 166)

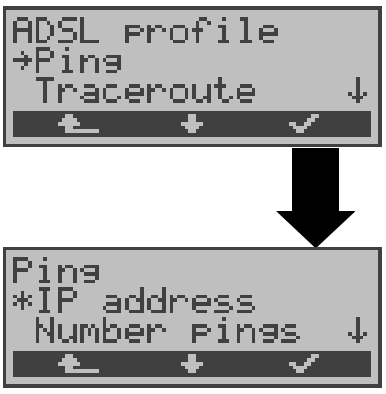

Any ADSL test desired can be started without reinitializing the ADSL test software.

### 9.1.2 Ping test

In the Ping test, the ARGUS checks whether it is possible to setup a connection to an Internet Service Provider (ISP) via the DSLAM and ATM network: The ARGUS sends a test packet to a predefined IP address (remote site) and then waits for a packet in reply.
Based on the received packet, it is possible to evaluate the ATM network availability and delay. It is also possible to determine the network's maximum data packet size.

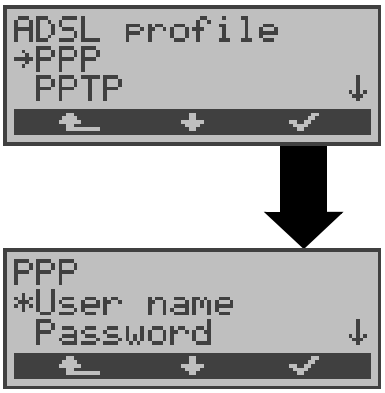
The following parameters (which are stored in the ADSL profile, see Page 166) are required for the Ping test:

**Protocol independent parameters**




**Ping - Parameter**
- IP address:
  Address of remote site
- Number of pings:
  Number of test packets sent by ARGUS
- Pause:
  Pause between sending two test packets
- IP packet size:
  Size of the test packet
- Fragmentation:
  Sets the fragmentation of the test packet

(see “Ping:” on page 171)



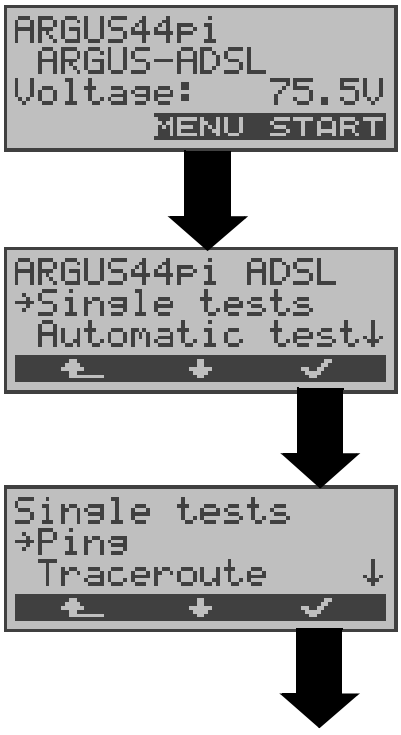

**PPP parameters**
- User name for the Internet connection
- Password

(see “PPP:” on page 170)

**Protocol dependent parameters**

| **Protocol** | PPPoE / PPPoA | | IPoA / EoA |
|---|---|---|---|
| **Parameter** | ATM<br>- VPI / VCI<br>- Encapsulation | | ATM<br>- VPI / VCI<br>- Encapsulation |
| | PPP<br>- User name<br>- Password | | |
| | ADSL mode | | ADSL mode |
| | | | WAN:<br>- IP mode (Static IP)<br>- own IP address<br>- IP network mask<br>- remote IP address |
| | | | DNS server:<br>- DNS Server 1<br>- DNS Server 2 |

## Starting a Ping test:




ARGUS displaying Status

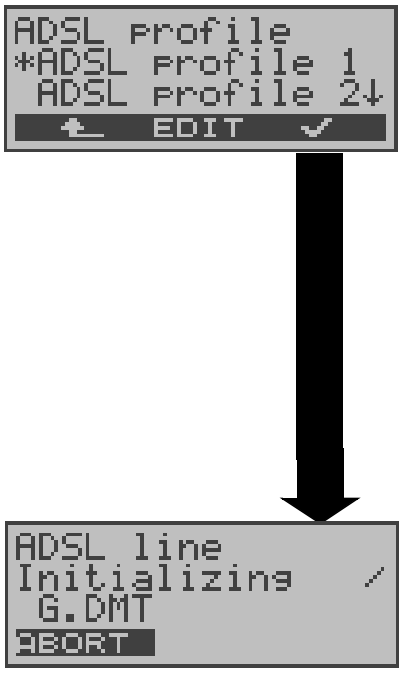
The ARGUS will return to the Main menu.

Using the **<↓>** , select the **Single tests** menu.

Open the Single tests menu

Using the **<↓>** , select **Ping test**.

The list of ADSL profiles will open.

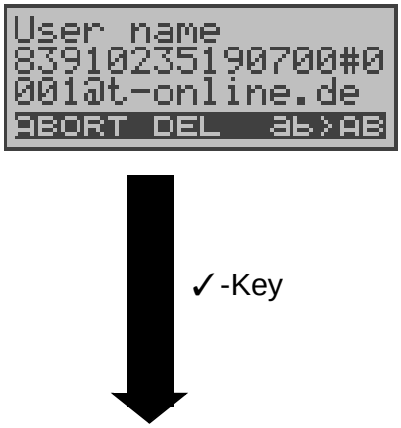



Using the **<↓>**, select an ADSL profile.
(The default profile is marked with an "*".)

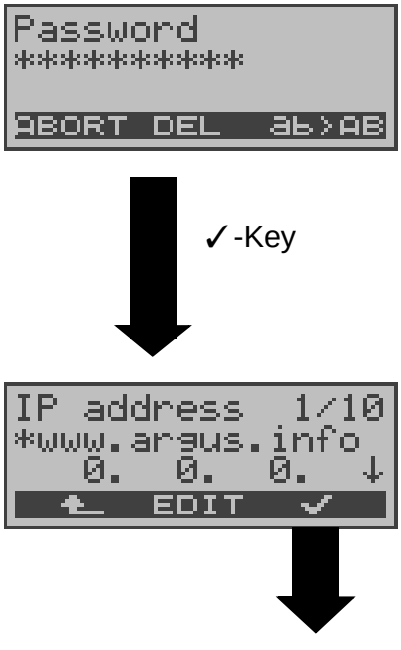
If you press on **<EDIT**>, the ARGUS will open the settings menu for the profile. In this menu, you can change the parameters (see “Configuring ADSL profiles” on page 166).

Confirm selection of profile.

Initializing the ARGUS

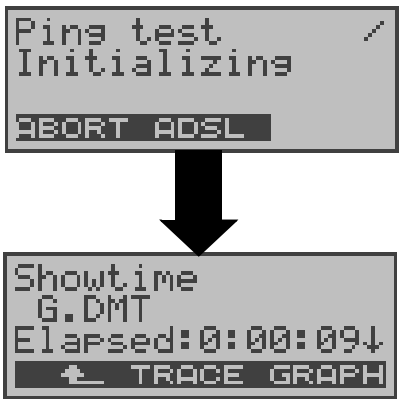



At first, the ARGUS will display the user name stored for the ADSL profile.
If necessary, change the user name
(for instructions, see Page 170)




If you change the user name, you must enter the password again (see Page 170).
The changes are placed in temporary storage. The ADSL profile is not modified.

The ARGUS displays the IP address stored in the ADSL profile.
To select the IP address for the Ping, use the **<↓>** (The default address is marked with an "*".)
Press **<EDIT**> if you want to change the IP address. (see Page 171).



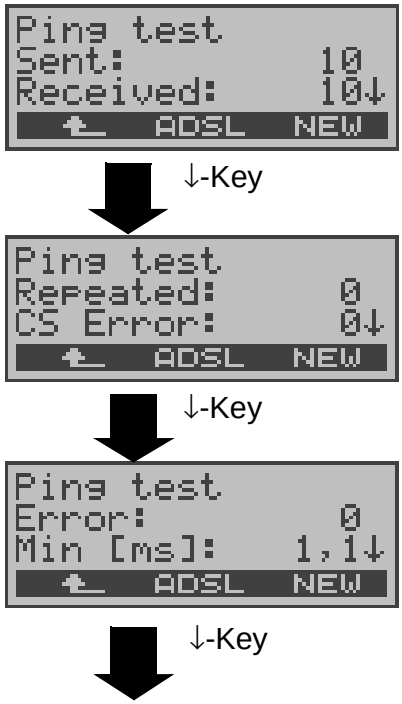

Initialising the test software

Press the <**ADSL**> or Level-Key to
display the ADSL mode,
ADSL line parameters (scroll through with the ↓-Key),
trace data ( <**TRACE**>),
bit distribution (<**Graphic**>).

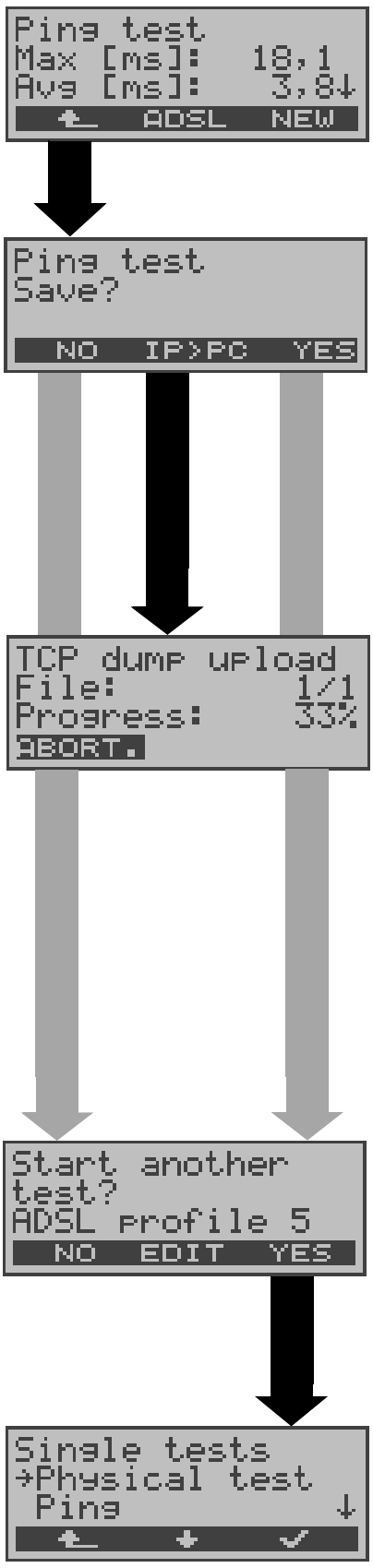
The ARGUS will start the Ping test

**Ping test**


During the test, the ARGUS will display the current number of test packets sent and the number of packets received in reply.
Depending on the access mode and protocol, the LAN, WAN, PPP and ATM statistics will also be displayed (scroll through with the ↓-Key)
If you press <**ADSL**>, the ADSL line parameters will be displayed.
Press <**ABORT**> to cancel the test. The ARGUS will display the results collected thus far and will inquire whether to save them.




Once the test is over, the ARGUS will automatically open the results display:
The ARGUS will display
- Number of packets sent
- Number of packets received
- Number of packets sent again
- Checksum errors
- Faulty received packets
- Min packet round-trip delay
- Max packet round-trip delay
- Average packet round-trip delay
- Statistics.




Press the <**ADSL**> or Level-Key to display the ADSL mode, ADSL line parameters. (see Page 43). Press <**NEW**> to start a new Ping test.

**Saving a Ping test**

Press <**YES**> to have the ARGUS save the result in the first available record in the Flash memory.
(see “Automatic Test” on page 149 and Display saved results on page 155)

The ARGUS will send the trace file to the connected PC, which must be running WINplus or WINanalyse.
The data will be saved in the standard "libpcap" format and can be decoded with a freeware tool, such as Etherreal.
(In the example, 33% of the data was already uploaded to the PC.)

Press <**EDIT>** to edit the parameters of the displayed ADSL profile
(see “Configuring ADSL profiles” on page 166)

Any ADSL test desired can be started without reinitializing the ADSL test software.

**Ping Test – Error messages**


If an error occurs, the ARGUS will stop the test and display an error message.
Press <**NEW**> to start a new Ping test.

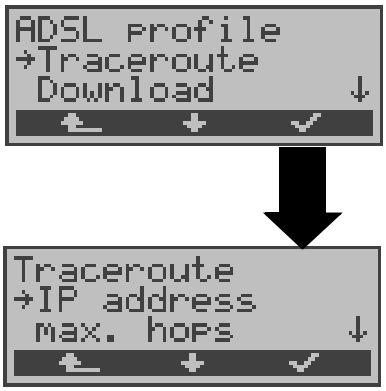
For a description of the error messages, please see the appendix.

### 9.1.3 Trace Route - Test

In a Trace Route test, the ARGUS sends a test packet and then displays a list of all of the network nodes (hops) and their response times on the way to the destination address. This information can then be used to precisely locate delays in the network.

The following parameters (which are stored in the ADSL profile, see Page 166) are required for the Trace Route test:

**Protocol independent parameters**




- IP address:
  IP address of the destination node
- Maximum hops:
  Maximum number of network nodes, traversed on the route
- Probes:
  Number of attempts to reach a network node
- Timeout:
  Maximum time to wait for an answer from a network node

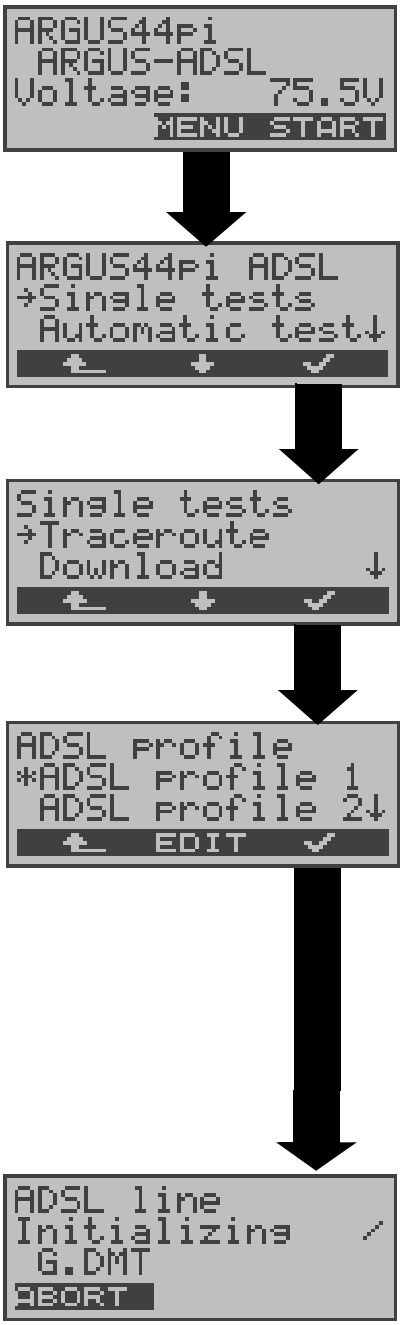
(see “Traceroute:” on page 172)

**Protocol dependent parameters**

| **Protocol** | PPPoE / PPPoA | IPoA / EoA |
|---|---|---|
| **Parameter** | ATM<br>- VPI / VCI<br>- Encapsulation | ATM<br>- VPI / VCI<br>- Encapsulation |
| | PPP<br>- User name<br>- Password | |
| | ADSL mode | ADSL mode |

| | | | |
|---|---|---|---|
| | | | WAN:<br>- IP mode (Static IP)<br>- own IP address<br>- IP network mask<br>- remote IP address |
| | | | DNS server:<br>- DNS Server 1<br>- DNS Server 2 |

### Trace Route Test - starting




ARGUS displaying Status

The ARGUS will return to the Main Menu

Using the **<↓>** , select the **Single tests** menu.

Open the Single tests menu

With the **<↓>**, select **Traceroute**

The list of ADSL profiles will open.

Using the **<↓>**, select an ADSL profile (The default setting is marked with an "*").
If you press **<EDIT>**, the ARGUS will open the settings menu for the profile. In this menu, you can change the parameters (see “Configuring ADSL profiles” on page 166).

Initializing the ARGUS


✓-Key

At first, the ARGUS will display the user name stored for the ADSL profile.
Change the user name if necessary (for instructions, please see Page 170)


✓-Key

If you change the user name, you must enter the password again (see Page 170). The changes are placed in temporary storage. The ADSL profile is not modified.


The ARGUS displays the IP address stored in the ADSL profile.
To select the IP address for the Ping, use the **<↓>** (The default address is marked with an "*".)
Press **<EDIT>** if you want to change the IP address.
(see Page 171).


Initialising the test software
The Traceroute test will start automatically after the initialisation.

**Trace route test**


The ARGUS displays the current hop and probe (2 -1: 2nd hop and 1st probe), the current response time of the hop to the current probe (0.022 seconds) and the IP address of the current hop (in the example: 192.168.4.253).

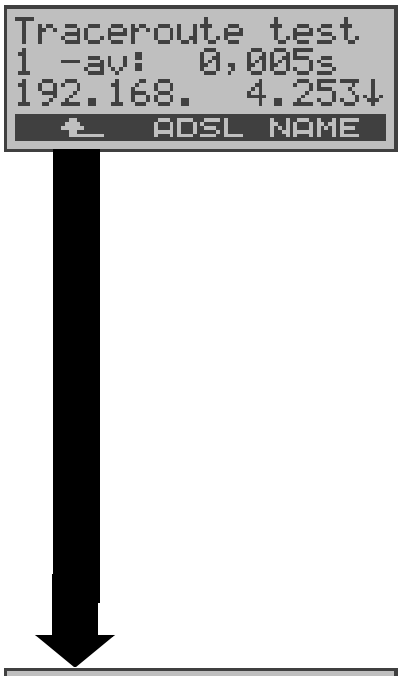
Depending on the access mode and protocol, the LAN, WAN, PPP and ATM statistics will also be displayed (scroll through with the ↓-Key)

Press <**ABORT**> to cancel the test. The ARGUS will display the results of the test thus far

and inquire whether to save them.


Display of the ADSL mode, ADSL line parameters... (see Page 43)

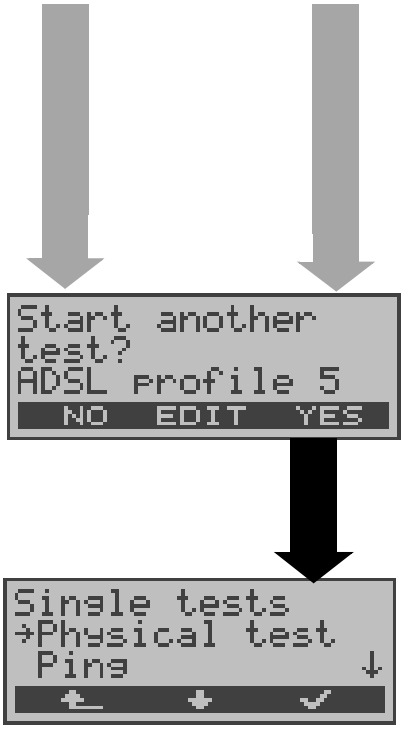
At the end of the test, the ARGUS will display the test results:




The ARGUS displays all of the hops and the average response time (calculated for all probes) and - depending on the access - the LAN, WAN, PPP and ATM statistics.
In this example: 1st hop (**1** -av) with the average response time of 0.005sec (1 -**av**) and the IP address 192.168.4.253
Use the ↓-Key to scroll through the results.
Press <**NAME**> to display the IP address of the hop as a name (if possible).


**Traceroute result - saving**
Press <**YES**> to have the ARGUS save the result in the first available record in the Flash memory.
(see “Automatic Test” on page 149 and Page 155)


The ARGUS will send the trace file to the connected PC, which must be running WINplus or WINanalyse.
The data will be saved in the standard "libpcap" format and can be decoded with a freeware tool, such as




Etherreal.
(In the example, 33% of the data was already uploaded to the PC.)

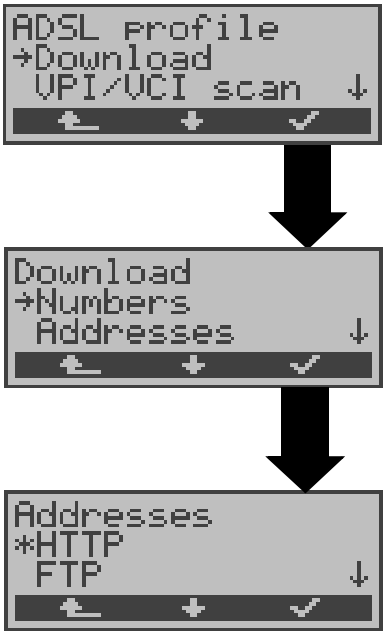
Press <**EDIT>** to edit the parameters of the displayed ADSL profile
(see “Configuring ADSL profiles” on page 166)

Any ADSL test desired can be started without reinitializing the ADSL test software.

### 9.1.4 Download Test

In the Download test, the ARGUS will attempt to download data from a web site or file. The Argus will display the current download rate and once the test is over the average speed (g.g. in the case of multiple download attempts).
The following parameters (which are stored in the ADSL profile, see Page 166) are required for the Download test:

**Protocol independent parameters**




- Number:
  How often the data from "Source“ address should be downloaded
- Address:
  First select the type of "Source“ address: HTTP (Websites or files) or FTP (files)
  Afterwards, you can enter a "Source“ address as a URL (see “Download :” on page 173)

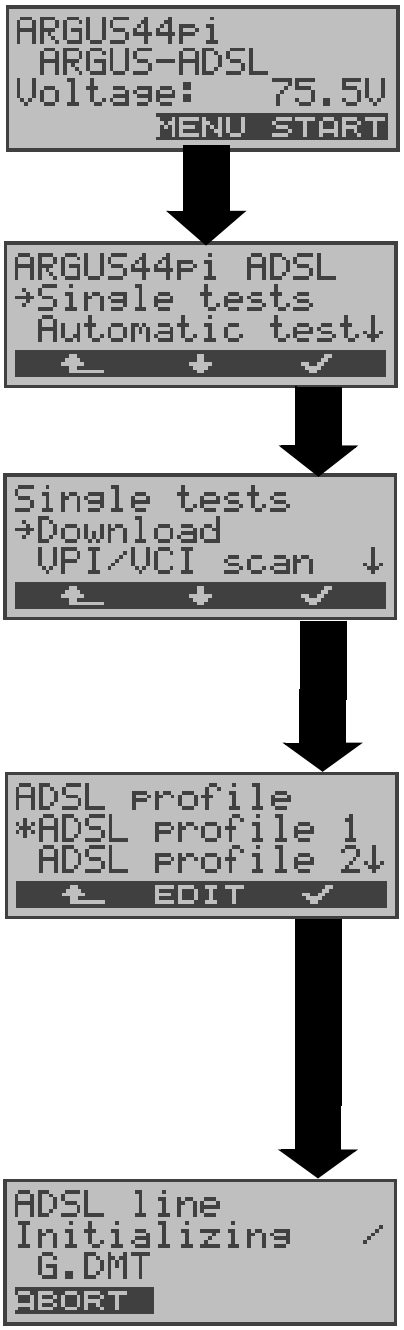
If an alias www address is entered as the "Source" address (e.g. www.argus.info/web/download/software/Software32.ZIP), the ARGUS will "only" load the HTML pages during the Download test (in the example ca. 600 bytes). The ARGUS does not evaluate the HTML code, so any link to a "true“ www address (e.g. www.isdntester.com) will be ignored. In this case, the ARGUS will not display an error message since the "Source“ address specified will have been loaded without error.
When entering the "Source“ address make certain that you use the correct notation (e.g. www.isdntester.com/web/download/software/Software32.ZIP), otherwise the ARGUS will report an Error 301 (Moved Permanently) or Error 404 (Not Found).

In the case of a Download test of less than 10 seconds, it is not possible to accurately determine the transmission speed.

**Protocol dependent parameters**

<table>
<tr><td>Protocol</td><td colspan="2">PPPoE / PPPoA</td><td>IPoA / EoA</td></tr>
<tr><td rowspan="5">Parameter</td><td colspan="2">ATM<br><br>- VPI / VCI<br>- Encapsulation</td><td>ATM<br><br>- VPI / VCI<br>- Encapsulation</td></tr>
<tr><td colspan="2">PPP<br><br>- User name<br>- Password</td><td></td></tr>
<tr><td colspan="2">ADSL mode</td><td>ADSL mode</td></tr>
<tr><td></td><td></td><td>WAN:<br><br>- IP mode (Static IP)<br>- own IP address<br>- IP network mask<br>- remote IP address</td></tr>
<tr><td></td><td></td><td>DNS server:<br><br>- DNS Server 1<br>- DNS Server 2</td></tr>
</table>

## Download test - starting




ARGUS displaying Status

Using the **<↓>** , select the **Single tests** menu.

Open the Single tests menu

With the **<↓>**, select **Download**.

Open the list of ADSL profiles.

Using the **<↓>**, select an ADSL profile.
The parameters in the selected profile will be used in the Download test.
Press <**EDIT**> to edit the profile (see Page 166)

Initializing the ARGUS


✓-Key

At first, the ARGUS will display the user name stored for the ADSL profile.
If necessary, change the user name (for instructions, see Page 170)


✓-Key

If you change the user name, you must enter the password again (see Page 170). The changes are placed in temporary storage. The ADSL profile is not modified.


Use the ↓ -Key to select the type of "Source“ address (in the example, HTTP)

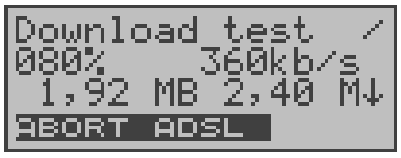

The ARGUS displays the address stored in the profile.
Use the ↓-Key to select an address to serve as the "Source“ address (The default setting is marked with an "*").
Press <**EDIT**> if you want to change the address.


Initialisation of the test software

**Download test**


↓-Key

The Download test will start automatically.
The ARGUS displays the following during the test:
In the example, the first download of a total of three attempts (1/3) is shown. 73% of the data has already been loaded.
The current download rate is 360 kBits per second.




Thus far 1.92 MB has been downloaded. The total file size is 2.4 MB.
Use the ↓-Key to scroll down to view how long the download has been in process.
(in h.min.sec:msec) and the time remaining until it will be done.

Depending on the access mode and protocol, the LAN, WAN, PPP and ATM statistics will also be displayed (scroll through with the ↓-Key)

**Download test**
**Result**


At the end of the test, the ARGUS will automatically display the result.
The ARGUS will display
- the achieved average speed of the download process (323.38 kb/s)
- the minimum download rate (20.00 kb/s)
- the max download rate
- size of the file downloaded
- the average time for a download
- statistics

(scroll with the ↓ -Key).
Press <**NEW**> to start a new Download test (without reinitialising).

Press <**YES**> to have the ARGUS save the result in the first available record in the Flash memory.
(see “Automatic Test” on page 149 and Page 155)
Press <**IP>PC>** to upload the trace file to the PC.
The data will be saved in the standard "libpcap“ format

and can be decoded with freeware tools, such as Etherreal.

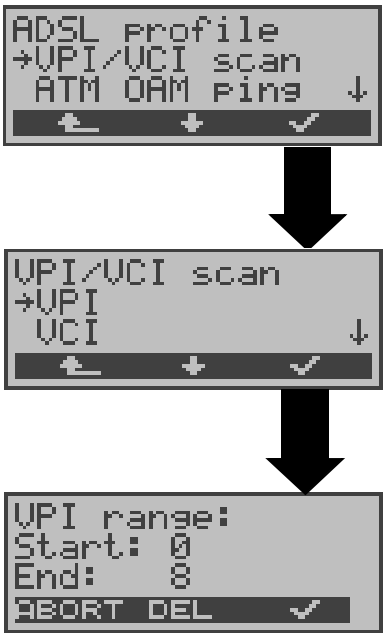
Press <**EDIT>** to edit the parameters of the displayed ADSL profile
(see “Configuring ADSL profiles” on page 166)
Any ADSL test desired can be started without reinitializing the ADSL test software.

### 9.1.5 VPI/VCI scan test

In the VPI/VCI scan test, the ARGUS checks which VPI/ VCI combinations are active on the access under test: The ARGUS will send a test packet for each of the possible VPI / VCI combinations and wait for a packet in response.

The following parameters (which are stored in the ADSL profile, see Page 166) are required for the VPI / VCI scan test:

**VPI/VCI scan test parameters:**




- VPI:
Sets the limits of the VPI range checked by the ARGUS.

- VCI:
Sets the limits of the VCI range checked by the ARGUS.

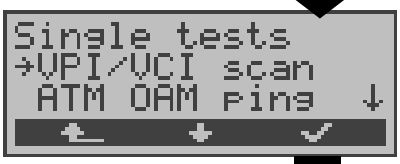
- Number of pings:
Sets the number of test packets to be sent by the ARGUS.

- Timeout:
Sets the maximum time to wait for a response from an ATM network node.
(see “VPI/VCI scan:” on page 174)

## VPI/VCI scan test - starting


ARGUS displaying Status


Using the **<↓>** , select the **Single tests** menu.




Using the **<↓>**, select **VPI/ VCI Scan**.

Open the list of ADSL profiles.


Using the **<↓>**, select an ADSL profile.
The parameters in the selected profile will be used in the VPI/VCI scan test.
Press <**EDIT**> to edit the profile (see Page 166)

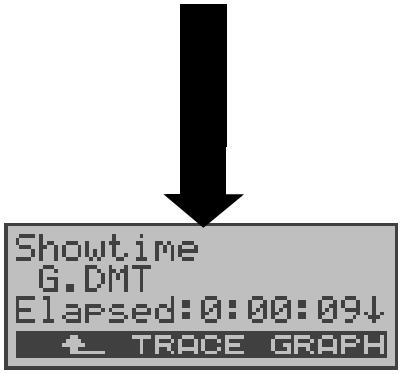

Initializing the ARGUS


Initialisation of the test software

**VPI/VCI scan test**


The VPI/VCI scan test starts automatically.
The ARGUS will display the currently tested VPI/VCI combination.

Depending on the access mode and protocol, the LAN, WAN, PPP and ATM statistics will also be displayed (scroll through with the ↓-Key)




Select <**ABORT**> : The test will be cancelled, the ARGUS will display the results collected thus far and will inquire whether to save them.

Display the ADSL mode, ADSL line parameters... (see Page 43).


Once the test is over, the ARGUS will automatically open the results display:

The ARGUS will display the VPI/VCI combinations that are active on the access under test and the statistics (scroll through using the ↓-Key) .
Press <NEW> to start a new test.


**VPI/VCI scan results - saving**

Press <**YES**> to have the ARGUS save the result in the first available record in the Flash memory (see “Automatic Test” on page 149 and Page 155).

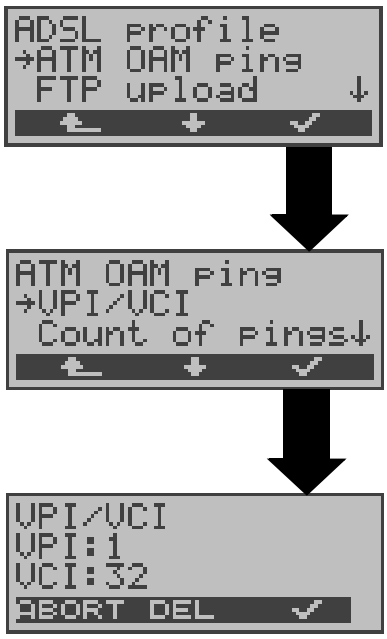

Press <**EDIT>** to edit the parameters of the displayed ADSL profile
(see “Configuring ADSL profiles” on page 166)

Any ADSL test desired can be started without reinitializing the ADSL test software.

### 9.1.6 ATM OAM ping test

In the ATM OAM ping test, the ARGUS checks the availability of individual ATM network nodes or an ATM subnet.

The following parameters (which are stored in the ADSL profile, see Page 166) are required for the ATM OAM ping test:




- VPI: Entry of the VPI

- VCI: Entry of the VCI

- Number of pings:
  Number of test packets that the ARGUS sends

- Timeout:
  Maximum time to wait for answer from an ATM network node

- OAM cell type

(see “ATM OAM ping:” on page 174)

## Start ATM OAM ping test


ARGUS displaying Status

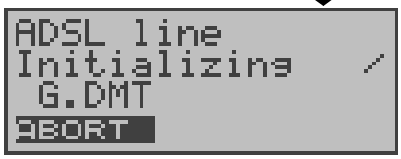

Using the **<↓>,** select the **Single tests** menu.


Using the **<↓ >**, select **ATM OAM ping test**.

Open the list of ADSL profiles.


Using the **<↓>**, select an ADSL profile.
The parameters in the selected profile will be used in the ATM ping test.
Press <**EDIT**> to edit the profile (see Page 166)

Initializing the ARGUS



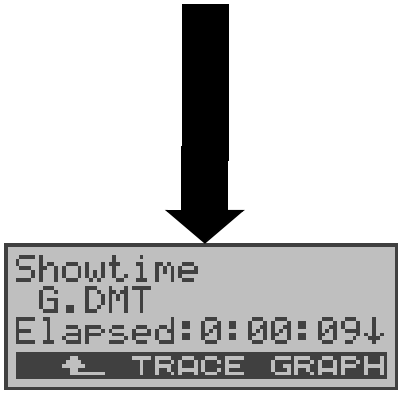

Initialisation of the test software


**The ATM OAM ping test will start automatically.**

**ATM OAM ping test**


The ARGUS will display the current number of test packets sent and packets received in response.

Depending on the access mode and protocol, the LAN, WAN, PPP and ATM statistics will also be displayed (scroll through with the ↓-Key)

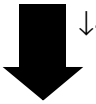



Press <**ABORT**> to cancel the test. The ARGUS will display the results collected thus far and will inquire whether to save them.

display the ADSL mode, ADSL line parameters... (see Page 43).


Once the test is over, the ARGUS will automatically open the results display:
The ARGUS will display
- Number of packets sent
- Number of packets received
- Number of packets lost
- Min packet round-trip delay
- Max packet round-trip delay
- Average packet round-trip delay
- LAN, WAN, PPP and
- ATM statistics.

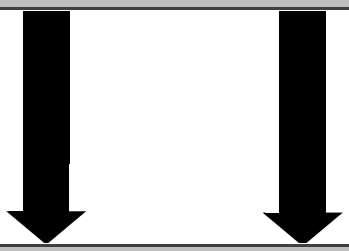
(Scroll through with the ↓-Key.)
Press <**NEW**> to start a new ATM OAM ping test.






**ATM OAM ping results saving**

Press <**YES**> to have the ARGUS save the result in the first available record in the Flash memory (see “Automatic Test” on page 149 and Page 155).




Press <**EDIT>** to edit the parameters of the displayed ADSL profile (see Page 166)

Any ADSL test desired can be started without reinitializing the ADSL test software.

### 9.1.7 OAM loop

In this mode of operation, the ARGUS loops all OAM cells of the remote end.


Status display


Using the **<↓>** , select the **Single tests** menu.


Using the **<↓>**, select **OAM loop**.


Using the **<↓>**, select the ADSL profile
.Press <**EDIT**> to edit the profile (see Page 166)


Synchronisation with the DSLAM and initialisation of the test software


**OAM loop active.**
The duration of the OAM loop will be displayed in hr:min:sec.
Use <**ADSL**> display the ADSL line parameters... (see Page 43).
Select <**ABORT**> to stop the OAM loop.

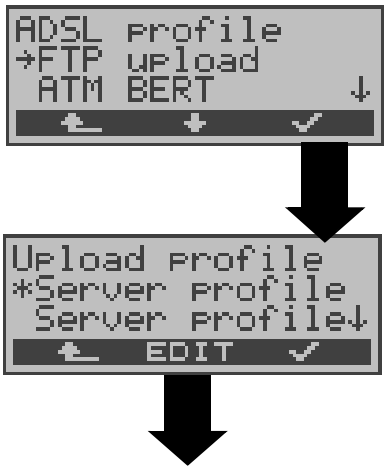

Press <**EDIT**> to edit the parameters of the displayed ADSL profile (see Page 166)

Any ADSL test desired can be started without reinitializing the ADSL test software.

### 9.1.8 FTP upload test

In the FTP upload test, the ARGUS sends the data in a file to a server.
The Argus will display the current upload rate and once the test is over the average speed (g.g. in the case of multiple upload attempts).
Three user-defined "Server Profiles" can be created for the FTP upload test ( see Page 174) :

**Protocol independent parameters**




Editing the parameters

- Destination:
  Entry of the server address
- Filename:
  The filename under which file sent will
  be saved on the server
- File size
  The size of the file sent in bytes
- User name for the FTP server
- Password for the FTP server
- Number
  Number of uploads

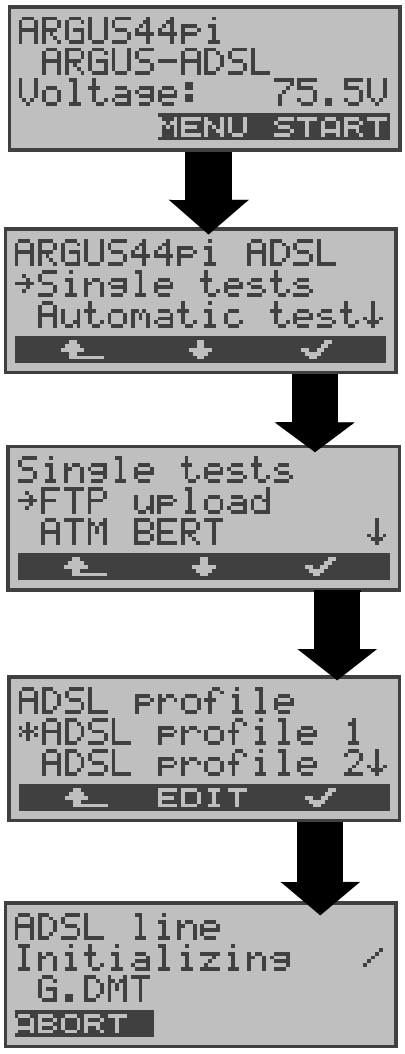
In the case of an upload test of less than 10 seconds, it is not possible to accurately determine the transmission speed.

**Protocol dependent parameters**

| **Protocol** | PPPoE / PPPoA | IPoA / EoA |
|---|---|---|
| **Parameter** | ATM<br>- VPI / VCI<br>- Encapsulation | ATM<br>- VPI / VCI<br>- Encapsulation |
| | PPP<br>- User name<br>- Password | |
| | ADSL mode | ADSL mode |

| | | | |
|---|---|---|---|
| | | | WAN:<br>- IP mode (Static IP)<br>- own IP address<br>- IP network mask<br>- remote IP address |
| | | | DNS server:<br>- DNS Server 1<br>- DNS Server 2 |

## FTP upload test - starting




Status display

Using the **<↓>,** select the **Single tests** menu.

Using the **<↓ >**, select **FTP upload**.

Using the **<↓>**, select the ADSL profile.
Press <**EDIT**> to edit the profile (see Page 166)

Synchronisation with the DSLAM and initialisation of the test software


✓-Key

The ARGUS will display the user name stored for the ADSL profile.
If necessary, change the user name
(for instructions, see Page 170)


✓-Key

If you change the user name, you must enter the password again (see Page 170).
The changes are placed in temporary storage. The ADSL profile is not modified.

**FTP upload test**

After successfully initialising the test software, the FTP upload test is started automatically.
The ARGUS displays the following during the test:
In the example, the first upload of a total of three attempts (1/3) is shown. 25% of the data has already been sent.


↓-Key

The current upload rate is 5.62 MBits per second.
Use the ↓-Key to scroll down to view the byte currently being sent, the total file size, how long the transfer has been in process (in hr:min:sec:msec) and the remaining time for the transfer.
Depending on the access mode and protocol, the LAN, WAN, PPP and ATM statistics will also be displayed (scroll through with the ↓-Key)

**Further test results**


At the end of the test, the ARGUS will open the results display.
The ARGUS will display
- the achieved average speed of the Uploads (in kb/s)
- the minimum upload rate (in kb/s)
- the maximum upload rate
- the size of the file sent
- the average time for an upload
- statistics

(scroll with the ↓ -Key).
Press <**NEW**> to start a new upload test (without reinitialising).


**FTP upload - saving**
Press <**YES**> to have the ARGUS save the result in the first available record in the Flash memory
(see “Automatic Test” on page 149 and Page 155)
Press <**IP>PC** >to upload the trace file to the PC.
The data will be saved in the standard "libpcap" format and can be decoded with a freeware tool, such as Etherreal.


Any ADSL test desired can be started without reinitializing the ADSL test software.

Editing the parameters

### 9.1.9 ATM BERT

The ATM BERT (Bit Error Rate Test) serves to check the transmission quality of the ADSL line. In an ATM BERT, the ARGUS sets up an ADSL connection and sends a bit pattern via a virtual ATM channel that must be looped at the remote end.
The ARGUS compares the data received with the known data sent.

During the test, the ARGUS counts the bit errors and after the test is done it calculates the bit error rate as well as other characteristic values (see Page 105). In addition the ARGUS displays ATM cell statistics.

**Protocol independent parameters** (see Page 175)**:**

- Duration of the BERT (default setting = 1 minute)
- ADSL mode
- VPI / VCI: Configuration of the virtual channel and the virtual path in the ATM cells
- Bit pattern: Selection of the bit pattern
- Error level: Level used to evaluate the "acceptable" bit error rate
- HRX value
- data rate (upstream)

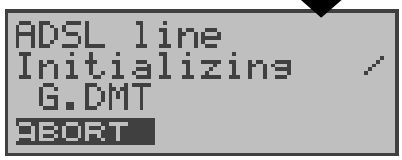
## ATM BERT - starting


**Status display**


Using the **<**↓,**>**select the **Single tests** menu.


Using the **<**↓ **>** , select **ATM BERT**.


Using the **<**↓**>**, select the ADSL profile.
Press <**EDIT**> to edit the profile (see Page 166)



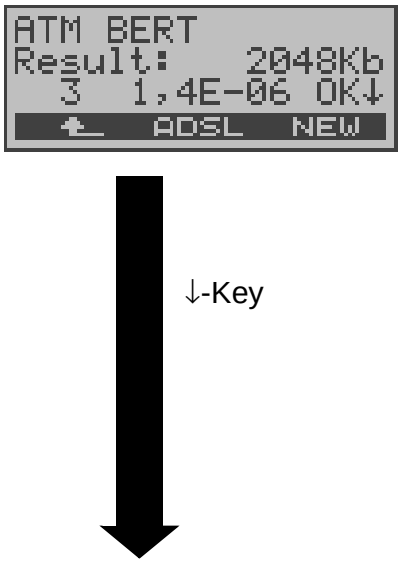

Synchronisation with the DSLAM and initialisation of the test software

**ATM BERT**


After successfully initialising the test software, the ATM BERT is started automatically.
During the test, the display shows:
Remaining test time in hr:min:sec, bit errors (in this case 0), synchronicity of the bit pattern, LOS-counter
Use the ↓-Key to scroll to the ATM statistics

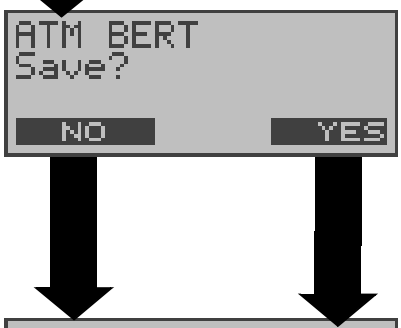
Using <**ERROR**> generates a bit error artificially.

**0 -Key:** Restarts the BERT. The test time and number of bit errors will be reset.




After the test is completed, the ARGUS will display the following test results:
Transferred data in KBit (e.g. 2048 KB, K= 1024* bits),
The number of bit errors (e.g.3),
The bit error rate (e.g. 1.4E-06 = $1.4 \cdot 10^{-6}$ = 0.0000014),
The evaluation of the results depends on the error threshold (in this case, OK).
Use <**ADSL**> display the ADSL mode,
ADSL line parameters... (see Page 43).
Use <**NEW**> to start a new ATM BERT.


Use the ↓ -Key to scroll to other results:
ATM cells (Rx: received cells, Tx: sent cells) OAM cells, User VCC, CRC32 errors , AAL5 PDVs, unmapped cells, VCI unm., VPI unm.




**ATM BERT - saving**
Press <**YES**> to have the ARGUS save the result in the first available record in the Flash memory (Page 149 and Page 155).


Press <**EDIT**> to edit the parameters of the displayed ADSL profile
(see Page 166)

Any ADSL test desired can be started without reinitializing the ADSL test software.

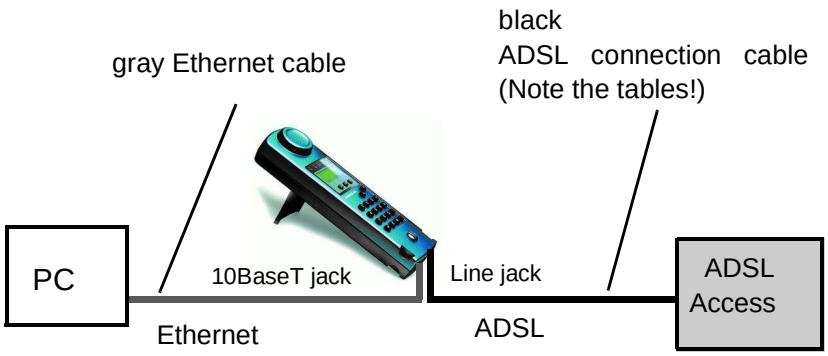
## 9.2 The ARGUS in Modem Replacement Mode

### Access Mode: PC-ARGUS-ADSL (optional)

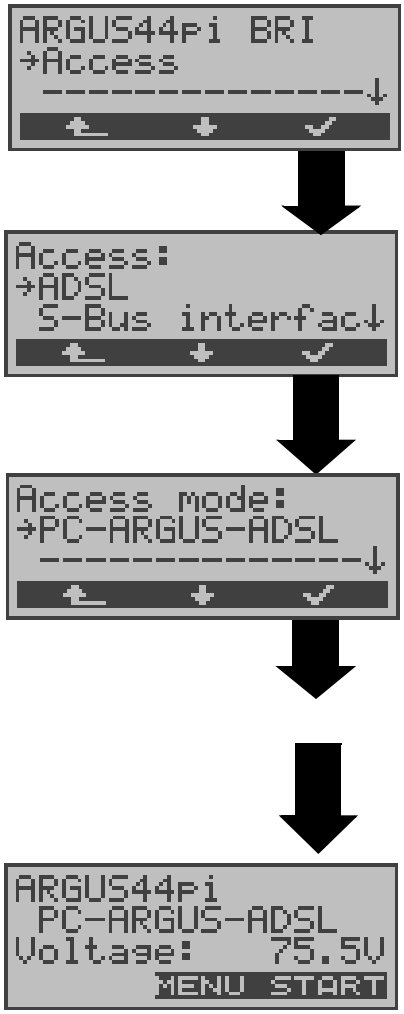
The ARGUS is connected to the PC with the (x-crossed) Ethernet cable and to the ADSL access with the black ADSL cable (Ethernet-LAN extension).
In this case, the ARGUS replaces the ADSL modem.

In the PC-ARGUS-ADSL access mode, the following tests can be performed:

**- Physical test (ADSL line test)**
**- Bridge mode**
**- Router mode**




**Setting the device to the PC-ARGUS-ADSL access mode**




In the Main menu, use the **<↓>** to select the **Access** menu.

Open the **Access** menu

Using the **<↓>**, select ADSL.

The Access Mode menu will open automatically:

**PC-ARGUS-ADSL**

the ARGUS will jump to the status display

The ARGUS displays the access mode and DC voltage on the access under test.

**If the ARGUS is not yet active,** you must first select a test and start it (see the following pages).

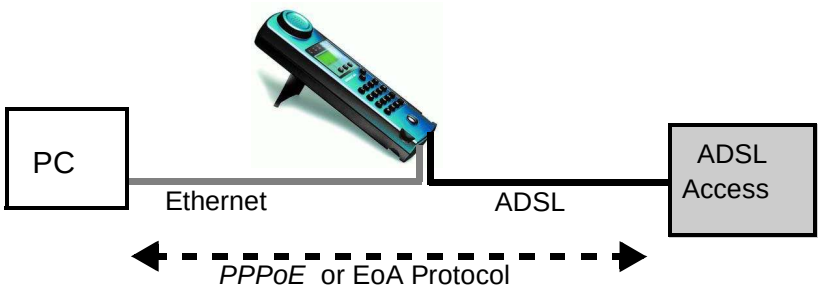
### 9.2.1 Physical test (ADSL line test)

The ARGUS will setup an ADSL connection and determine all of the relevant line parameters (see “Physical test ( ADSL line test )” on page 43).

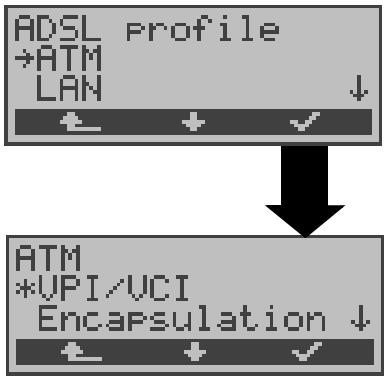
The following parameters must be set in the ADSL profile for the physical test (see “Configuring ADSL profiles” on page 166):
- Physic. line: ADSL mode, Link-up time, Rated value, SNR margin DS, Shutdown mode

### 9.2.2 Bridge mode

In Bridge mode, the ARGUS acts like an ADSL modem, i.e. the ARGUS passively passes all packets from the Ethernet side to the ADSL access (and vice versa). In this case, the PC is responsible for setting up the connection.




**Setting the parameters:**




In addition to the physical parameters (Physic. line), Bridge mode also requires that the two ATM parameters
- VPI/VCI (Page 176) and
- Encapsulation (Page 176)

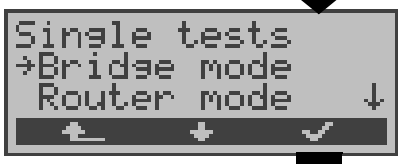
be set.

**Bridge mode - setting:**


Status display

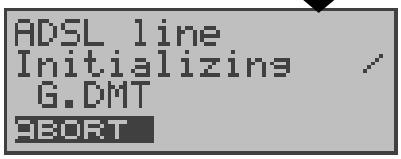

Using the **<↓>,** select the **Single tests** menu.

Open the **Single tests** menu



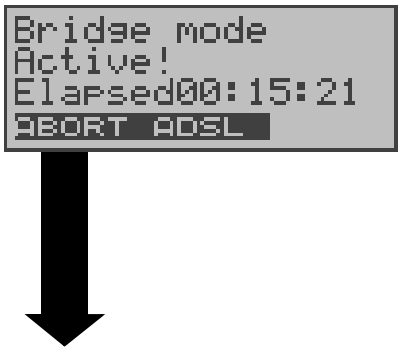

Using the **<**↓>, select **Bridge mode**.


Using the **<**↓>, select an **ADSL profile**.
Press <**EDIT**> to modify the parameters.




Initializing the ARGUS


Initialising the software



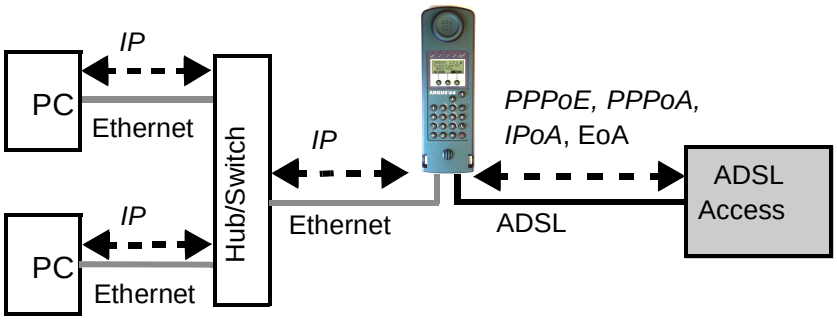

Press the <**ADSL**> or Level-Key to
display the ADSL mode,
ADSL line parameters... (see “Physical test ( ADSL line test )” on page 43).

Deactivate Bridge mode.


Use <**IP>PC**> to download the two trace files (LAN and WAN side) to the PC.
The data will be saved in the standard "libpcap" format and can be decoded with a freeware tool, such as Etherreal.

### 9.2.3 Router Mode

In Router mode, the ARGUS replaces not only the modem but also the router. In this case, several PCs (connected via a hub/switch) can access the connection to the network provider.
The network IP addresses can either be assigned statically or the ARGUS can serve as a DHCP server and assign IP addresses to the connected PCs.




**Protocol dependent parameters**

Parameter settings in an ADSL profile, see Page 166

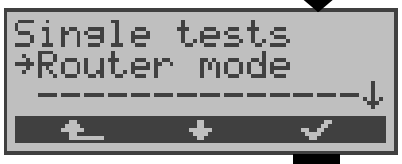
| **Protocol** | PPPoE / PPPoA | IPoA / EoA |
|---|---|---|
| **Parameter** | ADSL mode | ADSL mode |
| | ATM:<br>- VPI / VCI<br>- Encapsulation | ATM:<br>- VPI / VCI<br>- Encapsulation |
| | PPP:<br>- User name<br>- Password | |
| | LAN:<br>- IP mode<br>- own IP address<br>- IP network mask | LAN:<br>- IP mode<br>- own IP address<br>- IP network mask<br>- IP mode<br>- DHCP server<br>- DHCP timeout |

| | | |
|---|---|---|
| | | WAN:<br>- IP mode (Static IP)<br>- own IP address<br>- IP network mask<br>- remote IP address<br>- DHCP timeout |
| | | DNS server:<br>- DNS Server 1<br>- DNS Server 2 |

**Router mode - setting:**

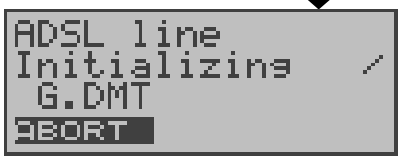

Status display: The ARGUS displays the access mode and the DC voltage on the access under test.


Use the **<↓>** to select the **Single tests** menu.



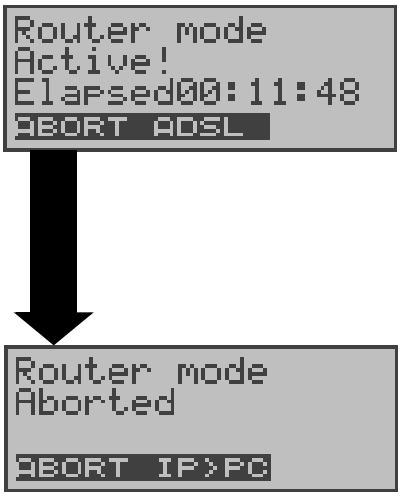

Using the **<↓ >**, select **Router mode**.


Using the **<↓ >**, select the **ADSL profile**.
Press <**EDIT**> to modify the parameters.




Initialising the ARGUS


Initialising the software




Press the <**ADSL**> or Level-Key to
display the ADSL mode, ADSL line parameters... (see “Physical test ( ADSL line test )” on page 43).

Deactivating Router mode

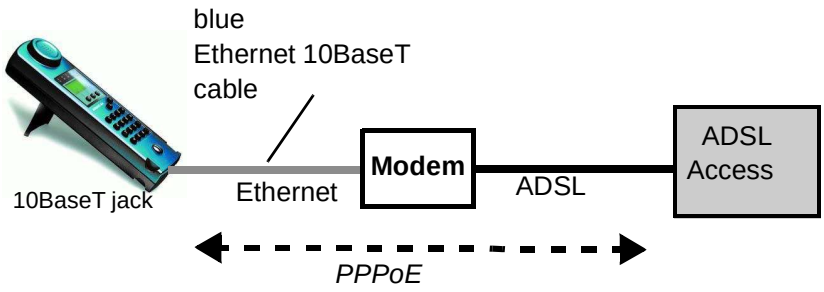
Use <**IP>PC**> to download the two trace files (LAN and WAN side) to the PC.
The data will be saved in the standard "libpcap" format and can be decoded with a freeware tool, such as Etherreal.

## 9.3 The ARGUS in PC Replacement Mode

### Access Mode: ARGUS-MODEM (optional)

In PC replacement mode, the ARGUS serves as a replacement for the PC and is connected to the ADSL modem's Ethernet interface with the Ethernet cable (blue) (Ethernet-LAN extension).

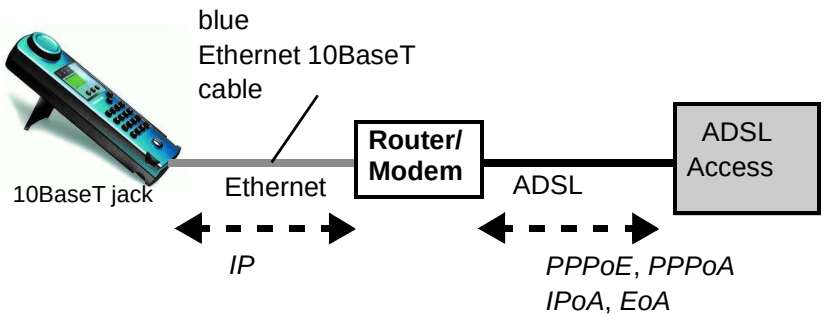
**Connection to the modem:**




ADSL profile settings:

- Protocol: PPPoE
- PPP parameters: User name and Password

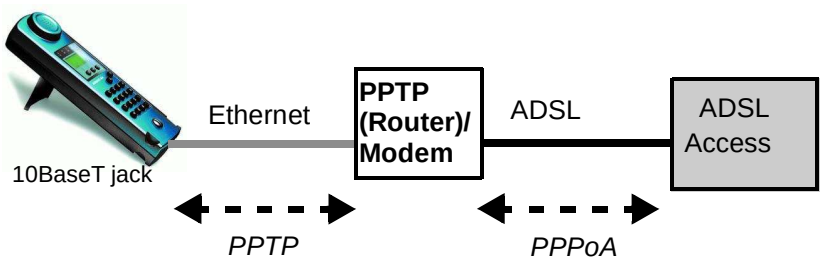
**Connection to the router/modem:**




ADSL profile settings:

- Protocol: IP
- LAN: IP mode, own IP address (Static IP), IP netmask (Static IP), Gateway-IP (Static IP under PPoE and PPPoA)
- DNS server: DNS Server 1 (Static IP under PPoE), DNS Server 2 (Static IP under PPoE)

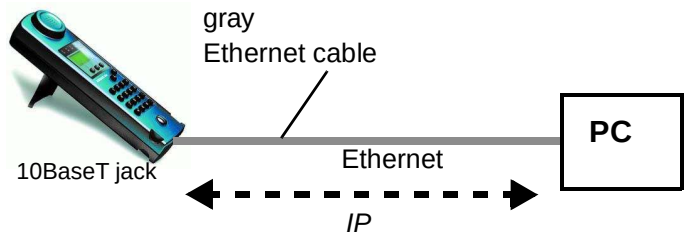
**Connection to a PPTP router/modem:**




ADSL profile settings:

- Protocol: PPTP
- PPTP: IP address of the PPTP modem
- PPP: User name and Password

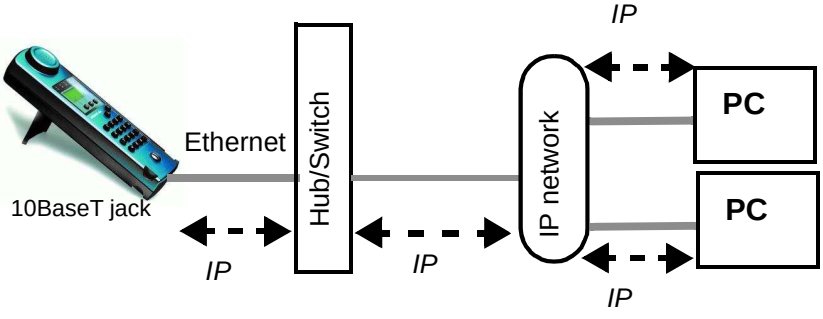
**Connection to PC via IP**




ADSL profile settings:

- Protocol: IP
- LAN: IP mode, own IP address (Static IP), IP netmask (Static IP), Gateway-IP (Static IP)
- DNS server: DNS Server 1, DNS Server 2

**Connection to IP network**



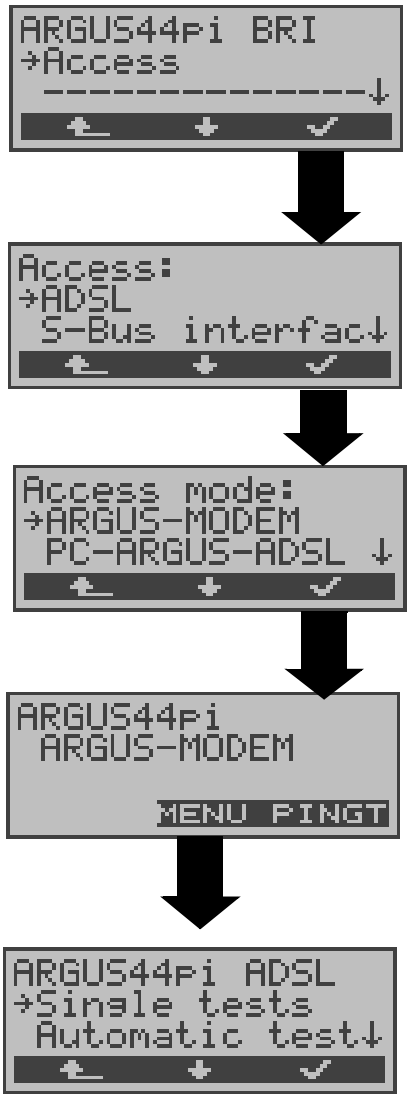
**ADSL profile parameter settings:**

- Protocol: IP
- LAN: IP mode, own IP address (Static IP), IP netmask (Static IP), Gateway-IP (Static IP)
- DNS server: DNS Server 1, DNS Server 2

In the ARGUS-MODEM access mode, the following tests can be performed:

**- Ping test (see Page 50)**
**- Trace route test (see Page 56)**
**- Download test (see Page 61)**
**- FTP upload test (see Page 75)**

## ARGUS-MODEM access mode settings




Using the **<↓>** in the Main menu, select the **Access** menu.

Open the **Access** menu

Using the **<↓>**, select ADSL.

The Access Mode menu will open automatically:
Using the **<↓>**, select **ARGUS-MODEM**.

confirm

The ARGUS will open the Status display
Press <**NEW**> to start a new Ping test (see Page 50).

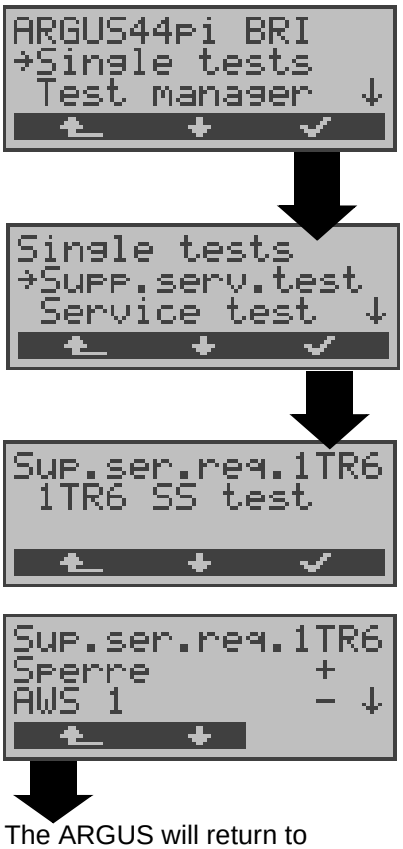
In the Single tests menu, start additional tests

# 10 Tests on an ISDN Access

## 10.1 Test the Supplementary Services

The ARGUS checks whether the access under test supports supplementary services in 1TR6 or DSS1 protocol.

### 10.1.1 Suppl.serv.test for the 1TR6 protocol




Using the **<↓>** in the Main menu, select the **Single tests** menu

Open the **Single tests** menu

Using the **<↓>**, select **Supp.serv.test**.

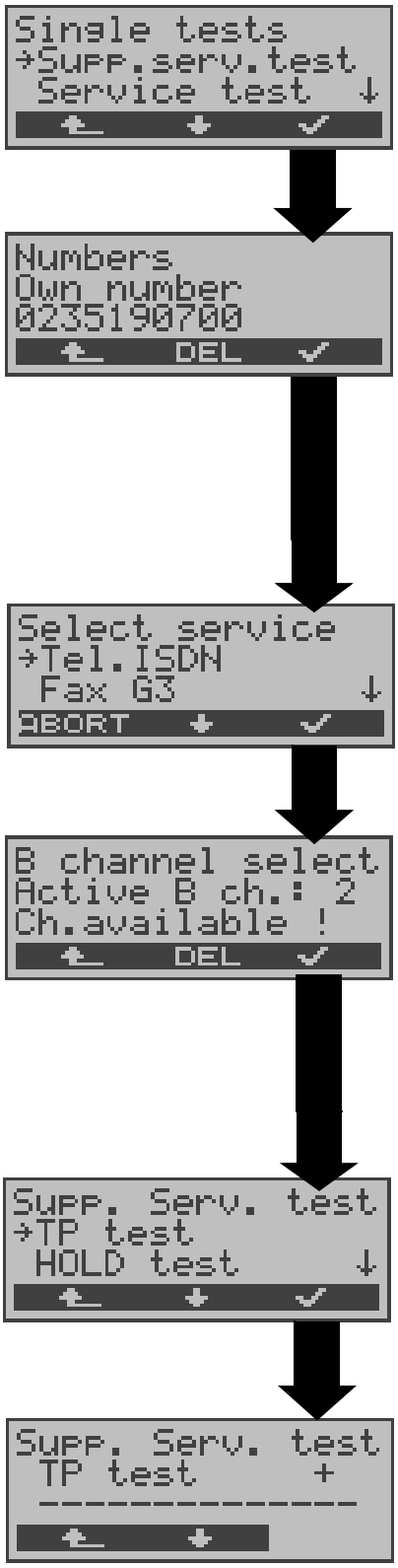
**Start test**

The test results are displayed automatically:
**+** = suppl. service supported
**-** = suppl. service not supported
Using the **<↓>**, scroll through the test results

The ARGUS will return to the

| | |
|---|---|
| **Sperre** | Blocking enabled for outgoing calls |
| **AWS1** | Call forwarding type 1 enabled (continuous) |
| **AWS2** | Call forwarding type 2 enabled (case by case) |
| **Anschluss GBG** | Access belongs to a Closed Users Group |
| **Geb.anzeige** | Advice of charge |
| **Rufnummern-Id** | Setup call number identifier<br>- against malicious calls |

### 10.1.2 Suppl.service interrogation in DSS1




In the Single tests menu, Using the **<↓>, select** Supp.serv.test.

Use the keypad to enter the "Own number" or select it (the number of the access under test) from the speed-dialing memory (see Page 197). The ARGUS will test the availability of the supplementary service (in part by placing a call to itself).

Using the **<↓>** , select the service which should be used for the supplementary services test.

Confirm the service

Enter the B-channel on the keypad. By default, the channel last used will be suggested. If you enter an *, the ARGUS will choose any B-channel that is free.

Confirm the B-channel

Using the **<↓,>** select the supplementary service (e.g. TP) that you want the ARGUS to check whether the access under test supports.

**Start test**

The ARGUS will automatically display the test results:
**+** = suppl. service supported
**-** = suppl. service not supported
Using the **<↓,>** scroll through the test results.

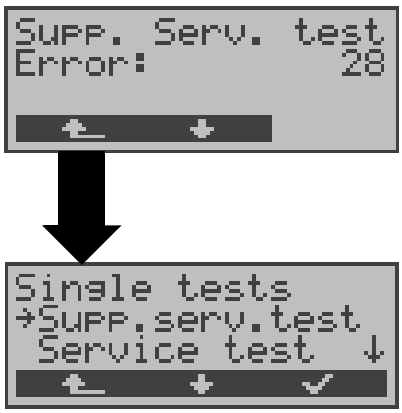
If you press the **<** ↵ **>**, the ARGUS will return to the previous display (this applies for all displays)

| **Test** | **Comments** |
|---|---|
| **TP** | The ARGUS tests the **TP** (Terminal Portability) supplementary service by making a self call. |
| **HOLD** | The ARGUS tests the **HOLD** supplementary service by making a self call. |
| **CLIP**<br>**(CLIP, CLIR, COLP, COLR )**<br>  | In this test, the ARGUS checks whether the 4 supplementary services **CLIP**,**CLIR**, **COLP** and **COLR** are supported. To do so, the ARGUS will setup as many as three calls to itself.<br>**CLIP**: Will the calling subscriber's number be displayed at the called subscriber?<br>(**t** = CLIP temporarily available<br>**p** = CLIP permanently available)<br>**CLIR:** Will the display of the calling subscriber's number at the called subscriber be suppressed or is it possible to temporarily suppress the display?<br>If the ARGUS displays an *, it is not possible to determine the availability of the service, since no CLIP has been setup.<br>(**t** = CLIR temporarily available<br>**p** = CLIR permanently available)<br>**COLP:** Will the call number of the subscriber who answered be displayed on the caller's phone?<br>**COLR:** Will the display of the call number of the subscriber who answered be suppressed on the caller's phone or is it possible to temporarily suppress the display?<br>If the ARGUS displays an *, it is not possible to determine the availability of the service, since no COLP has been setup.<br><br>The suppl. services pairs CLIP and CLIR as well as COLP and COLR will be tested. If CLIR or COLR is setup permanently, it is **not** possible to make a clear assessment. |
| **DDI** | Can a caller directly dial in to an extension on the PBX access under test? |
| **MSN** | Is the supplemental service MSN available? |

| | |
|---|---|
| **CF**<br>**(CFU, CFB, CFNR)**<br>  | In this test, the ARGUS checks the 3 supplementary services **CFU**, **CFB and CFNR** one after the other to determine whether they are supported on the access under test.<br>**CFU:** Can this access immediately forward an incoming call?<br>**CFB:** Can this access forward an incoming call when it is busy; in other words does it support Call Forwarding Busy?<br>**CFNR:** Can this access forward an incoming call when it is not answered?<br>The CF test attempts to setup a call diversion to the call number that is in the memory location for “remote call number 1” (see “Saving Call Numbers” on page 197). The CF test cannot be performed, if this location does not contain a valid call number to which it is possible to divert a call. |
| | |
| **CW** | Does the access under test support call waiting? |
| **CCBS** | Will the access under test automatically recall a remote subscriber, if the number called was busy? |
| **CCNR** | Will the access under test automatically recall a remote subscriber if the call was not answered? |
| **MCID** | Does the access tested allow identification of malicious callers (call tracing)? |
| **3pty** | Does the access under test support a three-party conference call?<br>For this test, you need the assistance of a remote subscriber, whose call number must be entered. |
| **ECT** | Is an explicit call transfer supported by the access under test?<br>For this test, you need the assistance of a remote subscriber, whose call number must be entered. |

| | |
|---|---|
| **AOC** | The ARGUS checks whether the charges can be sent to the access under test. The test uses a call to oneself to check both AOC-D (AOC during a call) and AOC-E (AOC at the end of a call). |
| **SUB** | A call is made to oneself and answered to check the transfer of the sub-address in both directions.<br>Are sub-addresses supported on the access under test? |
| **UUS** | Does the access under test support the transfer of user data? |
| **CUG** | The ARGUS then uses a self call to check whether the access under test belongs to a closed user group. |

### 10.1.3 Error messages




If an error occurs during the Supplementary Services Tests or if it is not possible to setup a call, the ARGUS will display the corresponding error code (e.g. 28).
Use the **<↓>**to scroll further.

In the example, the error belongs to the error class "wrong or invalid number".
In the table below, you will find that this is an error from the network and that it reports that the call number was incomplete or in the wrong call number format (see “CAUSE-Messages – DSS1 Protocol” on page 211.).

Distributing the error codes into error classes:

| Error class | Description | Cause (from network) 1 TR6 | Cause DSS1 | Cause ARGUS internal |
|---|---|---|---|---|
| A | No or another access | — | — | 201,204,205, 210,220 |
| B | Wrong or invalid number | 53, 56 | 1,2,3,18,21 22,28,88 | 152,161,162, 199 |
| C | One or more B-channels busy | 10,33,59 | 17,34,47 | — |
| D | Wrong service | 3 | 49,57,58,63 65,70,79 | — |

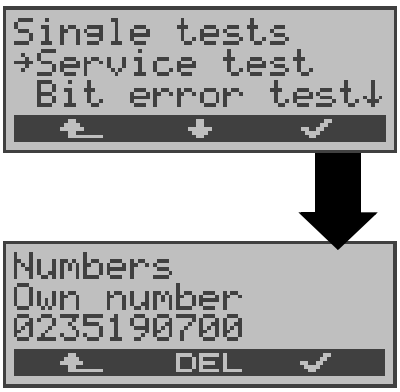
For further information regarding error codes:“ARGUS Error Messages” on page 215, “CAUSE-Messages – DSS1 Protocol” on page 211 and “CAUSE-Messages – 1TR6 Protocol” on page 213.

## 10.2 Service check

The ARGUS checks, which of the following services are supported by the access under test:

| Service | Name in the ARGUS display / abbreviation |
|---|---|
| Language | **Language / Lang** |
| Unrestricted Digital Information | **UDI 64kBit / UDI 64** |
| 3.1 kHz Audio | **Tel.analog / Tel.** |
| 7 kHz Audio | **7 kHz audio / 7 kHz** |
| Unrestricted Digital Information with tones / Display | **UDI+TA / UDI TA** |
| Telephony | **Tel.ISDN / Tel.** |
| Facsimile Group 2/3 | **Fax G3 / FaxG3** |
| Facsimile Group 4 Class 1 | **Fax G4 / FaxG4** |
| Teletex service basis and mixed mode and facsimile service Group 4 Classes II and III | **Mixed Mode / Mixed** |
| Teletex Service basis mode | **Teletex / Ttx64** |
| International inter working for Videotex | **Videotex** |
| Telex | **Telex** |
| OSI application according to X.200 | **OSI** |
| 7 kHz Telephony | **Tel.7kHz / Tel7k** |
| Video Telephony, first connection | **Videotel.1 / Vid.1** |
| Video Telephony, second connection | **Videotel.2 / Vid.2** |
| Three user-specific services (optional) (see “Services” on page 182.) | **Userspec.1 / Userspec.2 / Userspec.3 /** |

The test runs automatically.
For each service, the ARGUS will place a call to itself (to the access under test). However, the call will not be answered so no charges will be incurred.




In the Single tests menu, use the **<↓>** to select **Service check**

Enter the **Own number** of the access under test

There are PBXs that use separate call numbers for incoming and outgoing calls.
In this case, for the Service checks, you can enter a **"remote"** call number that corresponds to the "own" number that is not stored in the ARGUS.

If the Service check should extend outside of the local exchange, it is possible to perform the Service check in an **end-to-end mode**.
In this case, you **must** enter the remote call number for a second terminal device.

The ARGUS will then automatically check whether the remote terminal can accept the call under the various services – in other words, whether it is "compatible" with these services.

In the test results, the second part (second +, - or *) refers to the answer from the **remote** exchange.

**Test results:**


The ARGUS will display the results of the test once it is done.
Use the **<↓>** to scroll through the test results.
The ARGUS makes a distinction between outgoing calls (the first +, - or *) and incoming calls (the second +, - or *).
**+** = Service supported
**-** = Service not supported

***** A definite statement cannot be given, see the adjacent error code for the reason.

**Interpreting the test results:**

| Displayed | Description |
|---|---|
| **+ +** | The self call functions OK or the remote end can take the call for this service |
| **+ -** | Call was sent successfully, however, it was rejected on the remote end due to missing authorization. (Error class D in a B-channel message e.g. in a SETUP_ACK or CALL_SENT) |
| **-** | An outgoing call with this service is not possible (Error class D without a B-channel message) |
| **+ *** | Call was sent successfully, the call back or call to the remote end failed (e.g., remote end busy or no B-channel available for the call back). (Error class B, C or E in a B-channel message) |
| ***** | Wrong number, no B-channel available or other error (Error class B, C or E without a B-channel message) |

If the outgoing call is not successful, it is **not** possible to make a statement about an incoming call. Therefore, you will never see “- +” or “- *” on the display.

**Example:**


For outgoing, the Fax G3 service is OK. No statement is possible about incoming.
The error code 63 indicates the cause of the error which has occurred
(see tables in appendix).
In this case, it is recommended that you have someone place a call to the access under test using this service.
Fax G4 service is supported in both directions.

If an error of error class A occurs (see “Error messages” on page 98.) the Service test will be aborted.

An error of any other error class will coded in decimal (in the example above 63), assigned to the respective service and then displayed.

## 10.3 Bit error test

The bit error rate test (BERT = Bit Error Rate Test) serves to check the transmission quality of the access circuit.

As a rule, the network operator will guarantee an average error rate of $1 \times 10^{-7}$, in other words in long-term operation 1 bit error in 10 million transmitted bits. A higher bit error rate will be especially noticeable in transmitting data.

The application program detects the errors in the data blocks transmitted and requests that the remote partner send them again, which reduces the effective throughput of the ISDN connection.

In the bit error test, the tester establishes an ISDN connection to a remote tester or places a call to itself, sends a standardized (quasi-) random number string and compares the received data with that which was sent. The individual bit errors are summed and depending on the test procedure and equipment evaluated in accordance with the ITU Guideline G.821.

During the test, the ARGUS counts the bit errors and after the test is done it calculates the bit error rate and other parameters in accordance with G.821.
Since the bit error test checks both B-channels in both directions at the same time, both B-channels are required.

As a rule, the quality of the network operator's access circuits is quite good. Therefore, no bit errors should occur in a 1-minute test.

However, if an error occurs, the test should be repeated with a measurement time of 15 minutes to achieve higher statistical precision. The access circuit is heavily distorted, if more than 10 bit errors occur within a test period of 15 minutes.

Contact the network operator or the supplier of the PBX equipment and ask them to test your access circuit.

The BERT can be performed in three different ways:

1. **BERT in an extended call to oneself**

   A remote number is not needed, since the ISDN connection is setup to oneself. In this case, the ARGUS requires two B-channels for the test.

2. **BERT with a loopbox**

   A loopbox (e.g., another member of the ARGUS family of testers at the remote end) is required.
   The test uses one B-channel.

3. **BERT end-to-end**

   This test requires a waiting remote tester such as an ARGUS in the **BERT wait mode** (see Page 111). A bit pattern is sent to this tester.

   Independent of the received bit pattern, the remote tester uses the same algorithm to generate the bit-pattern that it sends back.

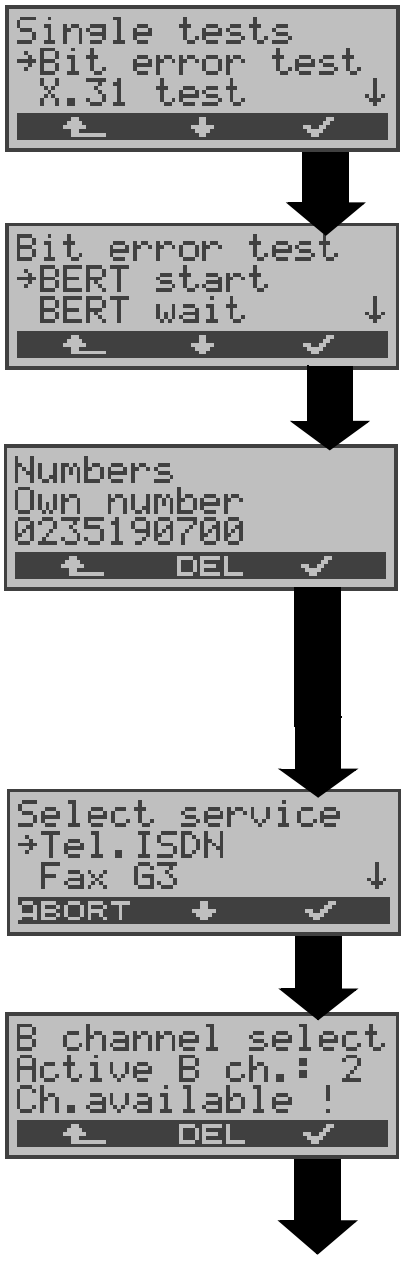
   Therefore, both directions are tested independently.

### 10.3.1 Start BERT

The following parameters are required for the BERT:

- **Duration of the BERT** (default setting = 1 minute)
- **Error level**: If the bit error rate exceeds this limit, the ARGUS will display the test result NO. If the bit error rate is less than this limit, the ARGUS will display an OK (default setting = $10^{-05}$)
- **HRX value** in % (hypothetical reference connection see ITU-T G.821) (default setting = 15%)
- **Bit pattern**, which will be sent during the test (default setting = $2^{15}$-1)

The parameters can be set individually and saved (see Configuration menu Page 184).




In the Single tests menu, use the **<**↓> to select **Bit error test**.

Use **<**↓> to select **BERT start**.

Enter your **Own number** to perform the BERT in an extended call to oneself (2 B-channels).
or
a **remote number** for a BERT to a loopbox (1 B-channel) or end-to-end

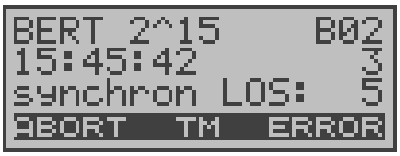
Confirm the number

Using the **<**↓,**>**select the service which should be used for the BERT.

Confirm the service

Enter the B-channel on the keypad (first press <**DEL**>). If you enter an *, the ARGUS will choose any B-channel that is free.

**BERT start**




After the ARGUS has setup the connection and synchronized the send and receive directions, it will display the bit pattern, the B-channel used (e.g. B02) , the remaining test time in h:min:sec, the number of bit errors that have occurred (e.g. 3), the synchronicity of the bit pattern (synchronous or asynchronous) and the LOS-counter.

If you press **<ERROR>**, the ARGUS will generate an artificial bit error, which can be used to test the reliability of the measurement (in particular for end-to-end tests).

Using the **<TM> softkey,** Start Test Manager (see Page 144)

Press **<ABORT>** to stop the BERT

**0 -Key:** Restarts the bit error test. The test time and number of bit errors will be reset.

When a bit error is detected, this will be signaled by a brief alarm; in the event that the synchronisation is lost, a constant alarm will sound ((see page 196 Alarm bell)).


After the test time is over, the ARGUS will display the cause and the location which initiated the disconnect.
If the test ran normally, the ARGUS will display “Active clearing” on this line.

**The test results display:**
The bit pattern (e.g. 2^15),
B-channel used (e.g. 02),
Transferred data in KBit (e.g. 10309 KB, K= 1024* bits),
The number of bit errors (e.g.10),
The bit error rate (e.g. 9.7E-07 = $9.7 \cdot 10^{-7}$ = 0.00000097),
The evaluation of the results depends on the error threshold (OK).
<**MENU**>: The ARGUS returns to the BERT menu.

Display of other characteristic values (in accordance with ITU-T G.821)
All values are given in percentages.
The ARGUS evaluates whether the test results satisfy the limits specified in the CCITT G.821 with consideration of the reference connection HRX (displaying OK or NO).
↓ -Key: Scroll

<**MENU**>: The ARGUS returns to the BERT menu.

**HRX** Defines the hypothetical reference connection

**EFS** ***Error Free Seconds***
All the seconds in which no error occurred.

**ES821** ***Errored Seconds***
All the seconds in which one or more errors occurred.

**SES821** ***Severely Errored Seconds***

All the seconds in which the bit error rate is>$10^{-3}$.
In one second, 64,000 bits are transferred, thus **B**it**ER**ror=$10^{-3}$ equates to 64 bit errors.

**US** ***Unavailable Seconds***

All the sequentially adjacent seconds (at least 9 sec) in which **BER**>$10^{-3}$.

**AS** ***Available Seconds***

All the sequentially adjacent seconds (at least 9 sec) in which **BER**<$10^{-3}$.

**DM** ***Degraded Minutes***

All the minutes in which the bit error rate is>$10^{-6}$. In one minute, 3,840,000 bits are transferred, thus a BER = $10^{-6}$ corresponds to 3.84 bit errors (3 errors = NO (no DMs), 4 errors = OK (DM)).

**LOS** ***Loss of Synchronisation***

Synchronisation is lost at an error rate> or = 20% within a second. The absolute number of synchronisation losses will be shown.

### 10.3.2 BERT - saving

The ARGUS can store the results of several BERTs.
The ARGUS saves the results together with the date, time and call number of the access under test (if this number has been entered as the "own" number in the speed-dialing memory) under the next free record number (see Page 149).
If all of the records are used, the ARGUS will return to the Autom. Test dialog and request permission to overwrite the oldest test results.

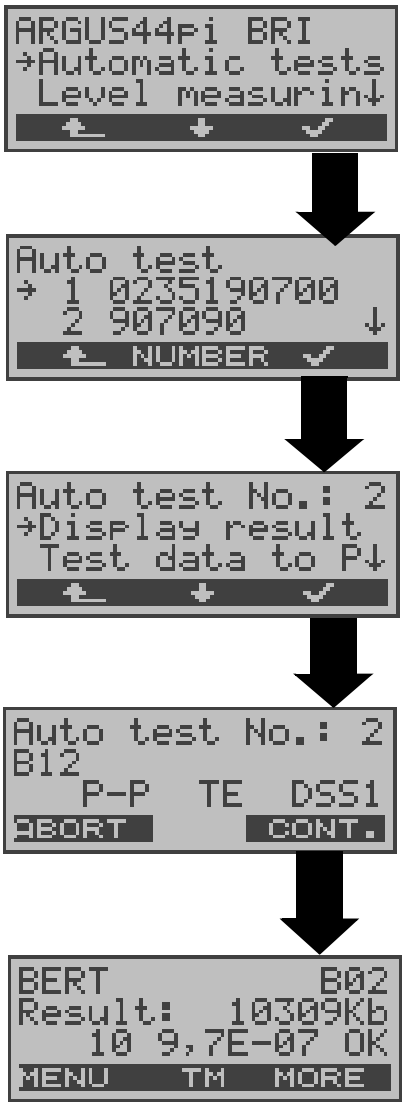

Press the .


Press <**YES**> **BERT - saving**


Using the numeric keys enter the name under which the result should be saved (Default: AMP_1, AMP_2.... or the call number of the access under test if the number has been entered into the speed-dialing memory)
When the right softkey is pressed it assumes a different meaning and thus influences the entries made from the keypad (letters or digits):
**<12>ab>** : entry of the digits 0 to 9 plus * and #
**<ab>AB>** : entry of the lowercase characters and @, /,- and .
(e.g. to enter a "c“ press the "2" on the keypad three times)
**<AB>12>** : entry of the uppercase characters and @, /,- and .
To move the cursor right or left, use the ↑,↓-Keys.
Press **<DEL>** to delete the digit before the cursor.

-Key

### 10.3.3 Displaying the stored results




Using the **<↓>** in the Main menu, select **Automatic Tests** .

Use the **<↓>** to select the record with the saved BERT results

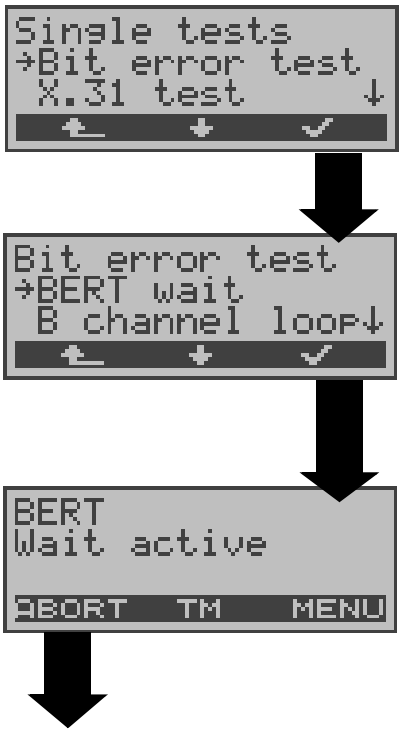
Use the **<↓>** to select **Display result**.

The ARGUS will first display the status of the access under test.

**Display of the saved results**
(see Page 155).

### 10.3.4 Bert wait

In **BERT wait** mode, the ARGUS will wait for the BERT at the remote end which is necessary for an end-to-end test:




**Operating mode BERT wait**

In the Single tests menu, using the **<↓>, select Bit error test**.

Using the **<↓>**, select **BERT wait**.

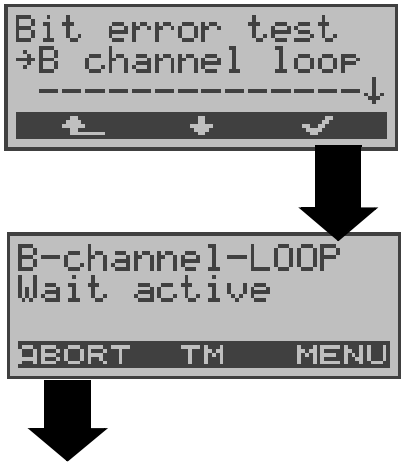
**Activate "BERT wait“**

The ARGUS first waits for a call and then sets up the connection.
During the connection, the received bit pattern will be evaluated and in addition another independent bit pattern will be sent.
If you press **<MENU>, the** ARGUS will return to the Main menu; the test "BERT wait“ remains active. In the Main menu, if <**TM>** is pressed, the ARGUS will return to the display "BERT, Wait active", seePage 148**.**
**<TM>:** Calls the Test Manager (Page 144)

The ARGUS displays that will appear are the same as those in Chapter 10.3.1 Start BERT .

### 10.3.5 B-channel loop

B-channel loop mode is required in order to run a bit error test using a loopbox at the remote end as well as to test permanent circuits.




**Operating mode B-channel**

Using the **<↓>, select B-channel LOOP**.

**Activate the "B-channel LOOP“**

The ARGUS will wait for a call. Any incoming call (regardless of the service) will be taken immediately.
The ARGUS will switch a loop back in the B-channel that is specified by the exchange and then send the received bit pattern back to the caller/sender.

If you press **<MENU>, the** ARGUS will return to the Main menu; the test "B-channel-LOOP “ remains active. In the Main menu, if <**TM>** is pressed, the ARGUS will return to "B-channel-LOOP, Wait active", see Page 148. From this menu, you can start a second B-channel loop connection (this is also possible using **<TM>** ).
**<TM>:** Call the Test Manager

If the ARGUS takes a call, it will open the B-LOOP connect. window, which is similar to the normal connection window:


**B-channel loop Connection stop**
Operating mode B-channel LOOP still active

The ARGUS will display the caller's number (e.g. 235190 700) , the B-channel used (e.g. B01) and the number dialed (e.g. 907070).
↓ -Key: Display additional information (e.g. UUS…)

**<TM>:** Open the Test Manager

**<Menu:>** The ARGUS returns to the main menu.

## 10.4 X.31 Test

The ARGUS will either perform a “Manual X.31 Test” or an “Automatic X.31 Test”:

In the case of an automatic test, the ARGUS will first setup the D-channel connection and then begin setting up the X.31 connection. Afterwards, the ARGUS will automatically clear the connection and display the results.

In the case of a manual test, the ARGUS will setup a D-channel connection and an X.31 connection. The duration of this connection is determined by the user (or the opposing end). For the duration of the connection, the ARGUS will repeatedly send a predefined data packet. The ARGUS will count all of the data packets sent and received and will display (where possible) the contents of the data packets received.

Optional: Several parameters can be configured and saved in three different X.31 profiles for the X.31 test (Page 190). Depending on the test variant, the ARGUS will retrieve and use the stored parameters. Values such as TEI and LCN will be shown as default values in the display.

### 10.4.1 Automatic X.31-Test

There are three possible variants of the Automatic X.31 Test:

**1) D-channel**

The “X.31 Automatic, D-channel” test consists of two steps:

*First step:* The ARGUS tests whether it is possible to access the X.25 service via the D-channel on the BRI access under test.
The ARGUS sequentially checks all the TEIs from 0 to 63. All the TEIs with which the X.31 service is possible on Layer 2, will be displayed.

*Second step:* For each TEI with which X.31 is possible on Layer 2, a CALL_REQ packet will be sent and then the ARGUS will wait for an answer.
Beforehand, the ARGUS will request the entry of the X.25 access number, which will be saved in speed-dialling memory under **X.31 test**

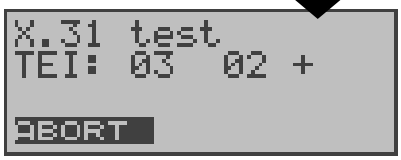
**number** (“Saving Call Numbers” on page 197). With the entry of the X.25 access number, you can - if you wish - select a logical channel (LCN) other than the default.


In the Single tests menu, use **<↓>** to select the **X.31 test**.


**Select the profile.**
Press <**EDIT**> to open the menu for editing the X.31 parameters in the profile (see Page 190).


Use **<↓>** to select **Automatically**.


Using the **<↓>, select the D channel**.




**Start test**

The test can take up to 4 minutes (a rotating bar will be displayed). Beginning on the left, the ARGUS will display the TEI currently being tested followed by the one previously tested and its result:
+ = X.31 is available for this TEI
- = X.31 is not available for this TEI


After the test is completed, the ARGUS will show whether the X.31 service is available for Layer 3 for the TEIs found in Step 1.
Using the **<↓>,** scroll through

the results.

**Test results:**

TEI 02 = the first valid TEI value is 02.

+ + = Both test steps were successful

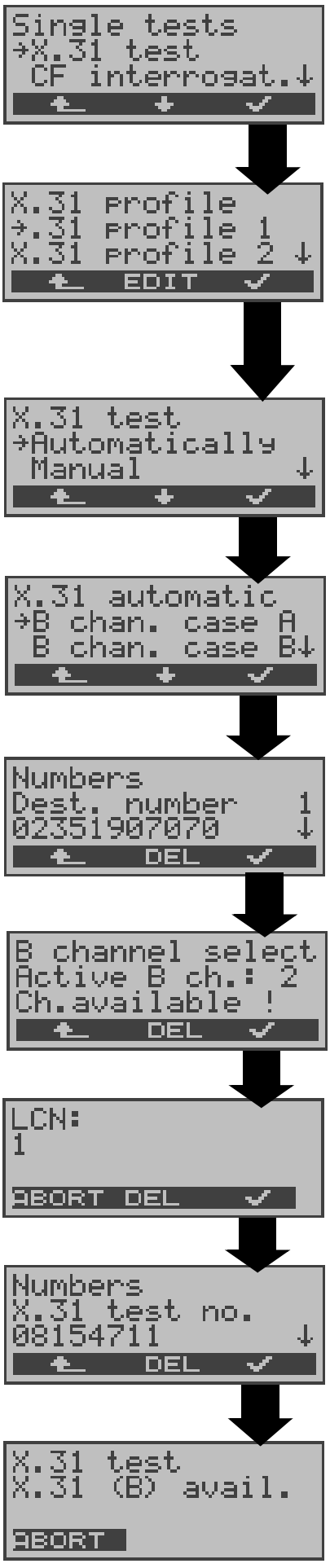
+ - = the first test step was successful, the second step not In this case, the ARGUS will display the relevant X.31 cause for the failure (in the example above: 13) and an associated diagnostic code (in the example: 67), if there is one (see “X.31 Test – Error messages” on page 216.).

If the X.31 service is not supported, the ARGUS will report "**`X.31 (D) n. impl.`**“.

**2) B-channel case A (optional)**

For this X.31 test variant, the ARGUS requires the entry of a call number for the D-channel connection, a B-channel and the X.31 number ; The ARGUS will use the number saved in profile as the default value (see Page 190) and the "X.31 test number" from the speed-dialling memory (see Page 197). ).

The ARGUS will first setup a D-channel connection and then attempt to set up a X.31 connection on the B-channel.




In the Single tests menu,
Use the **<↓> to select X.31 test**.

**Select the profile.**
Press <**EDIT**> to open the menu for editing the X.31 parameters in the profile (see Page 190).

Use **<↓>** to select **Automatically**.

Using the **<↓>, select B chan. class A**.

Entry of the call number for the D-channel connection

Selecting a B-channel

The ARGUS displays the LCN stored in the profile.
It is possible to edit the LCN from the keypad.

Display of the X.31 number from in the speed-dialing memory. It can be edited from the keypad.

**Start test**
Test successfully completed
In the event of an error, the X.31 cause and a diagnostic code will be displayed.

If the test fails, because the ARGUS cannot setup a D-channel connection, a corresponding message will be displayed.

**3) B-channel case B (optional)**

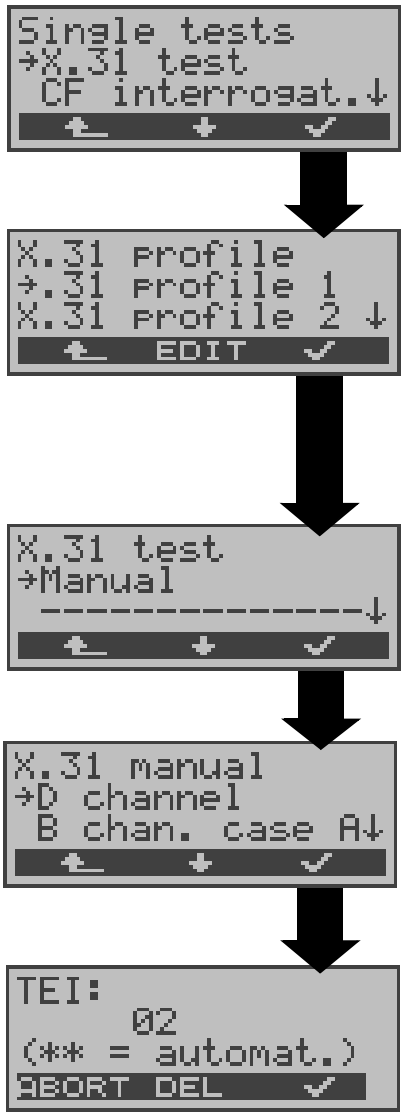
This test is identical with the “B chan. case A” test, except that it is not necessary to enter a D-channel call number.
The ARGUS will first setup a D-channel connection (via the service) and then attempt to set up a X.31 connection on the B-channel.

### 10.4.2 Manual X.31 Test

There are three possible variants of the Manual X.31 Test:

**1) D-channel**

In this test variant, the ARGUS first requests a TEI, LCN and an X.31 number (The ARGUS uses the values stored in the profile as default values - seePage 190).
If a " ****** " is entered for the TEI, the ARGUS will automatically determine a TEI.
Using the first TEI with which X.31 is possible, the ARGUS will begin to setup a connection.




In the Single tests menu, use **<↓>** to select the **X.31 test**.

**Select the profile.**
Press <**EDIT**> to open the menu for editing the X.31 parameters in the profile (see Page 190).

With the **<↓>**, select **Manual**.

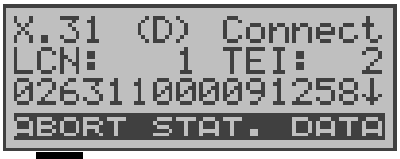
With the **<↓>, select the D-channel**.

The ARGUS displays the TEI stored in the profile.
You can edit the TEI from the keypad;
If you enter ******, the ARGUS will automatically determine a TEI.
**<DEL>:** Delete the TEI


The ARGUS displays the LCN stored in the profile.
It is possible to edit the LCN from the keypad.


Display of the saved X.31 number (speed-dialing memory). It can be edited from the keypad.

**Setup a X.31 connection**




The ARGUS will display the LCN, TEI and X.31 number (e.g. 0263110 00091258).

<**DATA**> sends predefined data packets (The number depends on the parameter "Packet number" see Page 191)

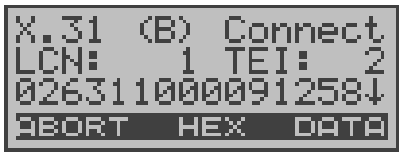
-Key to display additional information (if made available by the exchange).
Use <**STAT.**> to display L1/ L2/L3 statistics.
The display will begin with the L1 statistics.
Use <**L2**> or <**L3**> to scroll to the L2 or L3 statistics.

The connection will be maintained until the user or the opposing end clears it. When the X.31 connection is cleared, the ARGUS will automatically clear the D-channel connection.


The ARGUS saves the results.
For information on displaying the saved test results, see Page 155.

**2) B-Channel - Case A (optional)**

For this test variant, a D-channel call number and a X.31 number must be entered.
The ARGUS will first setup a D-channel connection.




Once the D-channel connection has been setup, the ARGUS will setup a X.31 connection via a B-channel:
Use the ↓ to scroll.


If the X.31 connection cannot be setup, the ARGUS will automatically clear the D-channel connection. In this case, the ARGUS will display the X.31 cause and the associated diagnostic code (see Page 216).

Once a connection has been successfully setup, the ARGUS will send the number of data packets that was set in the parameter "Packet number" Page 191.
The ARGUS will count all of the data packets sent and received and will display (where possible) the contents of the data packets received.

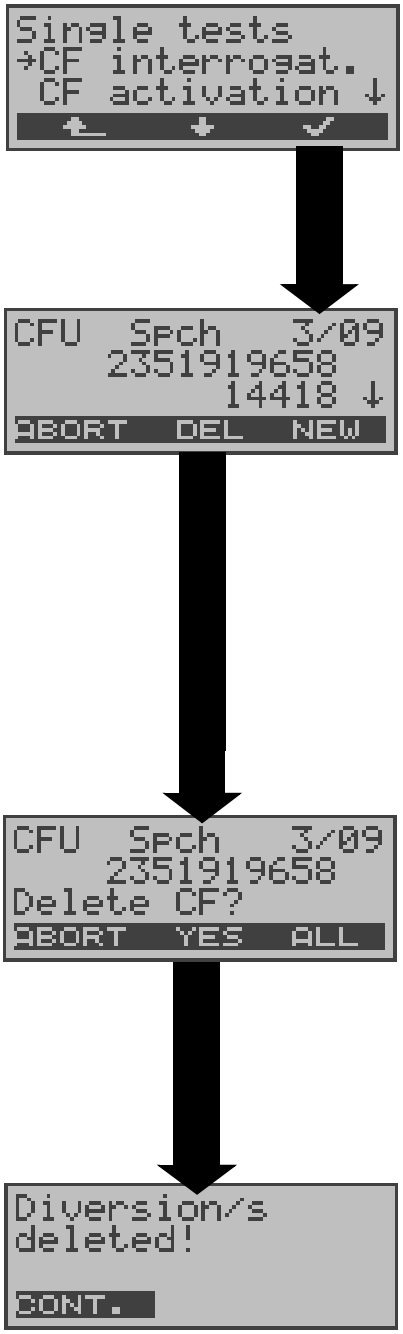
For instructions, see “1) D-channel” on page 113.

**3) B-channel case B (optional)**

This test is performed in the same way as the “B-Channel Case B” test, except that it is not necessary to enter a D-channel call number.

## 10.5 CF Interrogation

The ARGUS will check whether - for the access under test (BRI or U-Interface: optional) - a call diversion has been setup in the exchange.
The ARGUS will show the type of diversion (CFU, CFNR or CFB) and the call diversion's service. The display is limited to a maximum of 10 call diversions for all of the MSNs. The ARGUS will count any additionally setup call diversions.
Any call diversion setup in the exchange can be cleared with the ARGUS.




In the Single tests menu, use the **<↓>** to select **CF interrogat.**

**Start CF interrogation.**
The test can take several seconds.

The ARGUS displays the type (e.g. CFU) and service (e.g. Spch) of the call diversion, which in this example is the third of a total of nine found (3/09).
The number 2351919658 is diverted to 14418.
The ↓ **-**Key is used to scroll though the display.
Press **<NEW>** to repeat the CF interrogation.

**Delete call diversion**

Security query

Press **<ALL>** to delete all call diversions.

The ARGUS will delete the displayed number in the exchange.

If the call diversion cannot be cleared, the ARGUS will report: "Call **diversion not changeable!**".

Some PBXs or exchanges do not permit the use of the mechanism used (by the ARGUS) for the interrogation of the call diversions for all MSNs or they return a negative acknowledgement of the interrogation of call diversions, implying that no call diversions have been setup.

In the event of a negative acknowledgement, the ARGUS will, therefore, request that the **Own** MSN be entered.

The call diversion interrogation will be repeated **MSN-specific**.

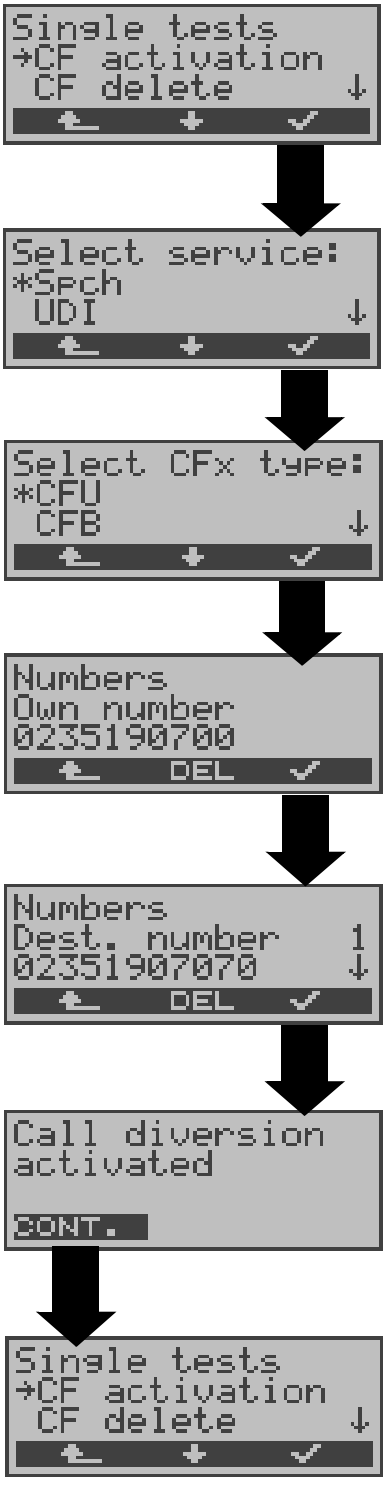
Naturally, in this case, the results of the interrogation of the call diversion only apply for the entered MSN and **not** for the entire access.

**Abbreviations used for the services and service groups on the display:**

| **Basic Service** | **Abbreviation** |
|---|---|
| All services | **All** |
| Voice (speech) | **Spch** |
| Unrestricted digital information | **UDI** |
| Audio 3.1 kHz | **A3k1H** |
| Audio 7 kHz | **A7khz** |
| Telephony 3.1 kHz | **Tel31** |
| Teletext | **TTX** |
| Fax Group 4 | **FaxG4** |
| Video syntax based | **ViSyB** |
| Video Telephony | **ViTel** |
| Telefax Groups 2/3 | **FaxG3** |
| Telephony 7 kHz | **Tel7** |
| UDI 64 kBit | **UDI** |
| Unknown Basic Service | **Unkno** |

## 10.6 CF - Activation

Using the ARGUS, call diversions can be setup in the exchange (BRI or U-Interface).




In the Single tests menu, use the **<↓>** to select **CF activation**.

Using the **<↓ >,** select the service of the call diversion (e.g. SPch).

Using the **<↓ >** select the type of call diversion (e.g. CFU).

Under "Own number", enter the number which should be diverted.
Press **<DEL**> to delete the digit before the cursor.

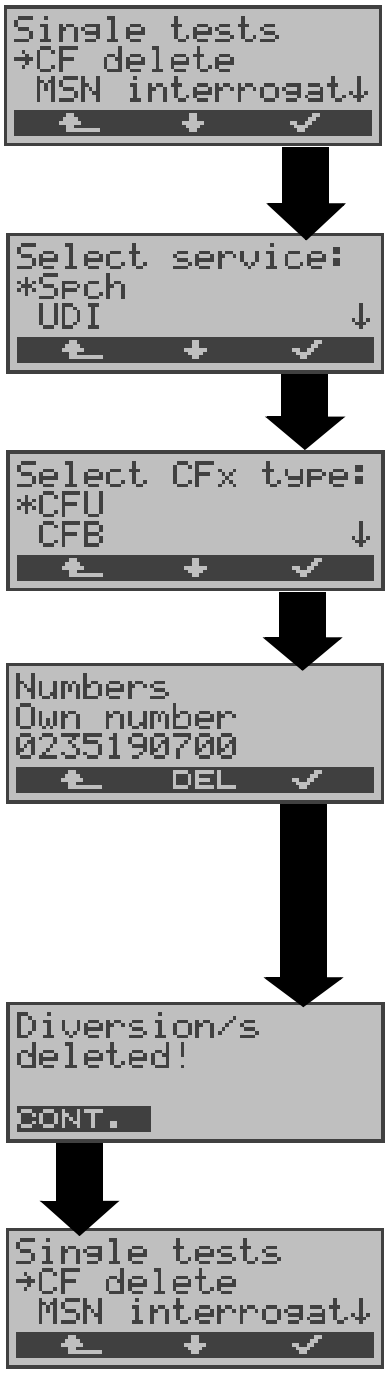
Enter the number to which calls should be diverted.

**Setup the call diversion**

The ARGUS returns to the Single tests menu.

## 10.7 CF - Delete

Using the ARGUS, selected call diversions can be deleted/ cleared in the exchange (BRI or U-Interface: optional).




In the Single tests menu, use the **<↓>** to select **CF delete**.

Using the **<↓** , select the service of the call diversion> (e.g. SPch)**.**

Using the **<↓** select the type of call diversion>(e.g. CFU)**.**

Under "Own number", enter the number which should no longer be diverted.
Press **<DEL>** to delete the digit before the cursor.

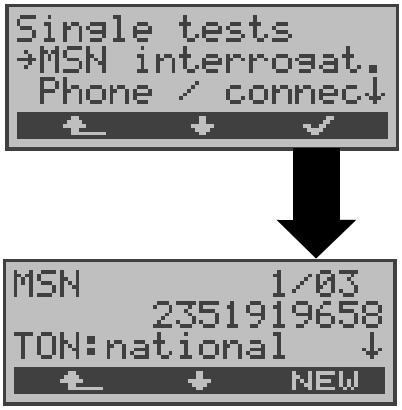
**Delete a call diversion**

## 10.8 MSN Interrogation (only BRI with DSS1)

On a P-MP access using the DSS1 protocol, the ARGUS will determine the MSNs of the access under test. It will display a maximum of 10 call numbers. Depending on the Type of Number (TON), the ARGUS will display the call numbers in different versions:

- only the MSN (without area code)
- with national area code without leading the “0”
- with country code without leading the “00”
- complete call number

In order to interrogate the MSNs, the access under test must support the supplementary service “Call Forwarding (CF)”.




In the Single tests menu, use the **<↓>** to select **MSN interrogat.**.

**Start the MSN interrogation**

In this example, the ARGUS displays the first MSN (2351919658) of a total of three found (1/03).
Using the **<↓>,** scroll through the results
Press **<NEW>** to repeat the MSN interrogation.

Due to differences in the protocol, some exchanges do not support MSN interrogation.
In this case, the ARGUS will report: MSN interrogation not possible!

## 10.9 Time measuring

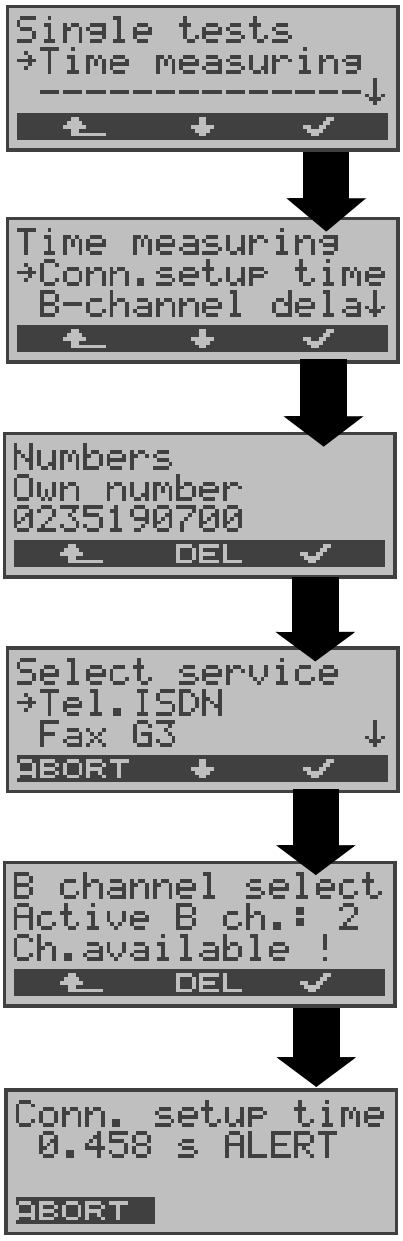
The ARGUS measures three different times:

- **Connection setup time**
- **Propagation time of the data and**
- **Transit time differential (interchannel delay) of the data in two B-channels.**

Time measurements on a BRI or U-Interface access are only possible in TE mode.

### 10.9.1 Connection setup time

The ARGUS places an outgoing call and measures the time between sending the SETUP and receiving the ALERT or CONN. The ARGUS disconnects automatically as soon as the measurement is completed.




In the Single tests menu, use the **<↓>** to select **Time measuring.**

Use the **<↓>** to select **Conn.setup time.**

Enter - or select from the speed-dialing memory - the call number for the outgoing call

Use the **<↓>** to choose **Select service.**

Enter the B-channel.

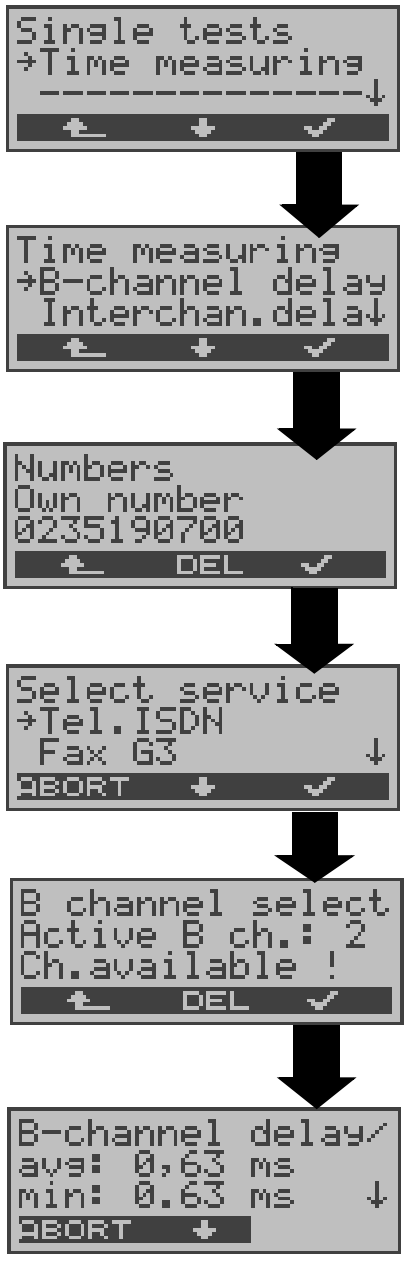
**Perform measurement**

The ARGUS will display the connection setup time in seconds and the received L3 messages (end of connection setup).

If the ARGUS cannot perform the measurement (e.g. because the call number entered was wrong or no B-channel was free) the corresponding cause will be displayed.

### 10.9.2 Time measurement: B-channel delay

The ARGUS places a call to itself (self call) or to a remote loopbox and measures the propagation delay for the data in the selected B-channel.
The ARGUS disconnects automatically as soon as the measurement is completed.




In the Single tests menu, use the **<↓>** to select **Time measuring.**

Use the **<↓>** to choose **Interchan.dela.**

Enter own number for self calls or remote number for connections to a remote loopbox.

Use the **<↓>** to choose **Select service.**

Enter the B-channel on the keypad.

**Perform measurement**

The ARGUS displays the average (avg), the shortest (min) and the longest (max) B-channel delay in msec. as well as the average B-channel delay in bits (multiples


of the time required to send a bit at 64 kBit/s).
(The time for sending 1 bit at 64 kBit/s = approx. 15.26 µs.)
Use the **<↓>** to scroll.
The measurement will be repeated in cycles.

Press <**ABORT**> **to stop the measurement.**

The ARGUS will display the last measurement.

If the ARGUS cannot perform the measurement, e.g. because the call number entered was wrong or no B-channel was free, the corresponding cause will be displayed.
When it is connected to a loopbox, if the ARGUS does not receive the data back within 13 seconds, it will display the message “No LOOP”.

### 10.9.3 Time measurement: Interchannel delay

The ARGUS establishes two separate connections to a remote loopbox. The loopbox sends the respective B-channel data back on the same channel. The ARGUS measures the propagation delay for the data on each of the B-channels and determines the difference between the two propagation delays (interchannel delay).

The ARGUS disconnects automatically as soon as the measurement is completed.


In the Single tests menu, use the **<↓>** to select **Time measuring.**

Use the **<↓>** to select **Interchan.delay.**

Enter the remote call number of the loopbox - or select it from the speed-dialing memory.

Use the **<↓>** to choose **Select service.**

**Perform measurement**

he ARGUS displays the average (avg), the shortest (min) and the longest (max) interchannel delay in msec. as well as the average interchannel delay in bits (multiples of the time required to send a bit at 64 kBit/s) - it takes 15.26 µsec to send a bit at 64 kBit/s).
Use the **<↓>**to scroll.
The measurement will be repeated in cycles (**continuous measurement**).

Press <**ABORT**> **to stop the measurement.**

The ARGUS will display the last measurement.

If the ARGUS cannot perform the measurement (e.g. because the call number entered was wrong or no B-channel was free) the corresponding cause will be displayed.

When it is connected to a loopbox, if the ARGUS does not receive the data back within 13 seconds, it will display the message “No LOOP”.

# 11 Connection

## 11.1 Setting up an ISDN connection

a) The ARGUS can setup a connection for the following services:

| Service | Name in the ARGUS display / abbreviation |
|---|---|
| Language | **Language / Lang** |
| Unrestricted Digital Information | **UDI 64kBit / UDI 64** |
| 3.1 kHz Audio | **Tel.analog / Tel.** |
| 7 kHz Audio | **7 kHz audio / 7 kHz** |
| Unrestricted Digital Information with tones / Display | **UDI+TA / UDI TA** |
| Telephony | **Tel.ISDN / Tel.** |
| Facsimile Group 2/3 | **Fax G3 / FaxG3** |
| Facsimile Group 4 Class 1 | **Fax G4 / FaxG4** |
| Teletex service basis and mixed mode and facsimile service Group 4 Classes II and III | **Mixed Mode / Mixed** |
| Teletex Service basis mode | **Teletex / Ttx64** |
| International inter working for Videotex | **Videotex / Vidtx** |
| Telex | **Telex / Telex** |
| OSI application according to X.200 | **OSI / OSI** |
| 7 kHz Telephony | **Tel.7kHz / Tel7k** |
| Video Telephony, first connection | **Videotel.1 / Vid.1** |
| Video Telephony, second connection | **Videotel.2 / Vid.2** |

Additional three user-specific services (see “Services” on page 182.)

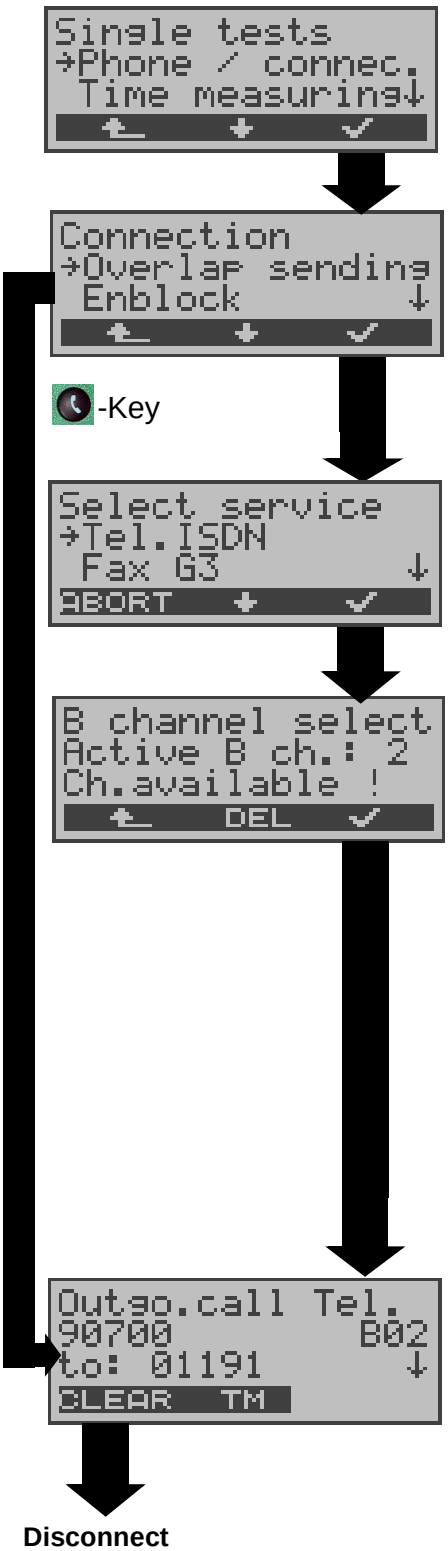
b) The integrated handset can be used as a phone during a telephone connection.

c) When an ISDN connection is setup, pressing the number keys (0-9) or the * or # will generate and send the corresponding DTMF tones.

**Procedure for an Outgoing Call (ISDN)**

**1) Overlap sending:**

In overlap sending, the digits entered for the call number are sent individually.




In the Single tests menu, use the **<↓>** to select **Phone / connec**.

Use the **<↓>** to select **Overlap sending.**

**If the** -Key is pressed the ARGUS will open the **Connection menu.**

Using the <↓> select the service that should be used for the connection.

Using the keypad, enter the B-channel (by default, the last B-channel used will be suggested)

When entering a new B-channel, first press <**DEL**>.

If you enter an *****, the ARGUS will choose any B-channel that is free.

The ARGUS will show whether the B-channel is available.

**Setup the connection**

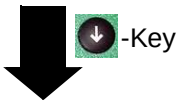
Enter the number on the keypad.

The ARGUS displays the service (e.g. Tel.), the own number (90700), the B-channel (B02) and the number called (01191).

Press the ↓-Key to view more information.

<**TM**>: the Test Manager will start (Page 144).


The connection is setup using B-channel 2.

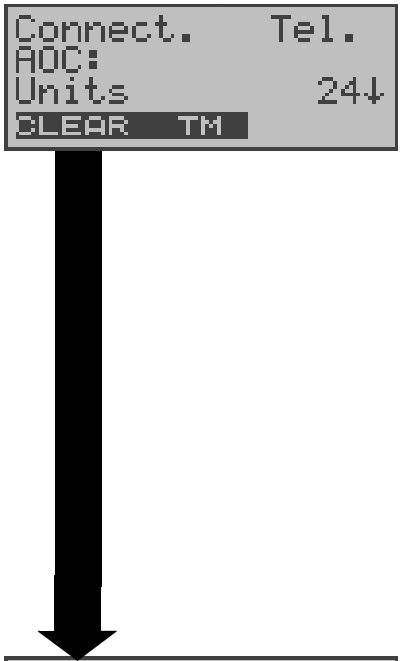



The ARGUS will display additional information (if there is any)


The ARGUS displays the sub-address of the caller (808076) and the destination number (01191).



Display of the
- User-to-User Information
- Display Information
- Type of number (T.o.n.)
- Numbering Plan (NP)


- Advice of charges:
If the charges are not given in units,
rather directly as currency, the ARGUS will display the current charges in currency.
If, in DSS1, the call charges are not provided in accordance with the ETS 300 182 standard, rather in the form of the information element DISPLAY (DSP), the ARGUS will display the DISPLAY message's character string.


**Disconnect**

The ARGUS displays the cause of the disconnect.
(see page 139 Clearing down an ISDN connection)

**Note regarding the entry of the call number**

Separate the extension from the access number with a # (e.g. 02351 / 9070-20 is entered on the ARGUS as: 023519070 #20).

For an outgoing call, the ARGUS uses the entire call number (without #) as the number called (CDPN or DAD) and, for the calling number, only the extension (DSS1-CGPN or 1TR6-OAD).

A '#' at the beginning of a call number is treated as a valid character. A '#' at the end of the own call number instructs the ARGUS to not send the caller's number for outgoing calls (CGPN or OAD).

**Simplified overlap signaling using the telephone key**

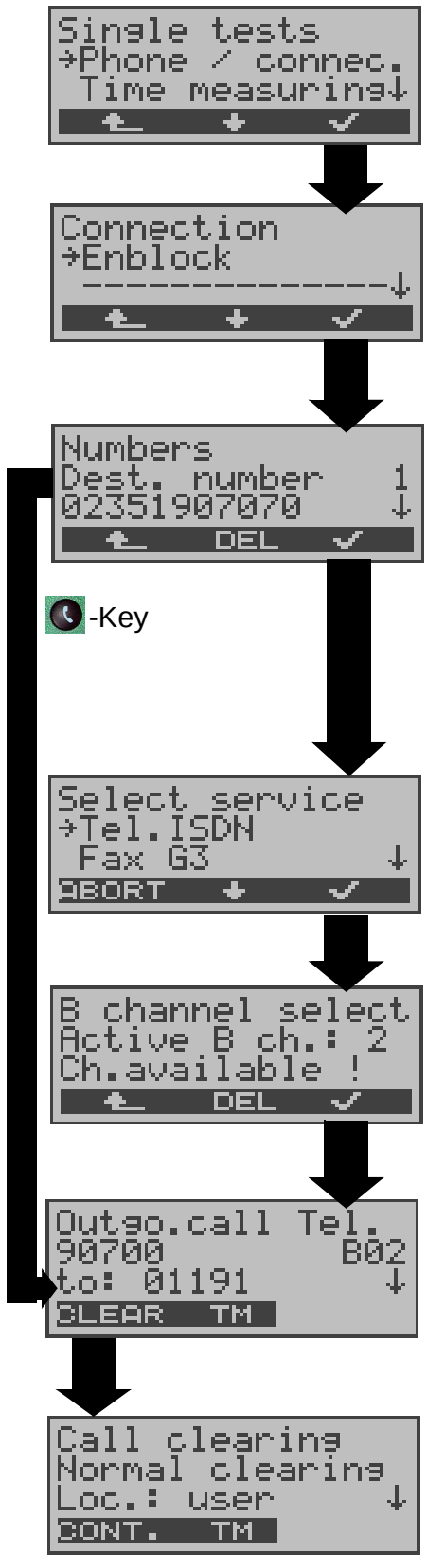
If you press the  -Key, the ARGUS will open the Connection/Overlap window directly regardless of the currently open menu.

Press the  -Key again: A dial tone will be heard and once the call number is entered, the call will be setup.

**2) Enblock**

In en-bloc signalling, the ARGUS sends the entire dialing information in one block.

The number is dialed from the call number memory (see “Saving Call Numbers” on page 197.).




In the Single tests menu, use the **<↓>** to select **Phone / connec**.

Use the **<↓>** to select **Enblock** signalling**.**

Use the -Key to select the number from the call number memory or reenter the number on the keypad.

Press <**DEL**> to delete a digit.

If the -Key is pressed the ARGUS will open the **Connection** menu.

Using the <↓>, select the service to be used for the connection.

Enter the B-channel on the keypad.
(See Overlap sending for entries)

**Start the dialing procedure**
(for more displays and information see Overlap sending)

**Disconnect**

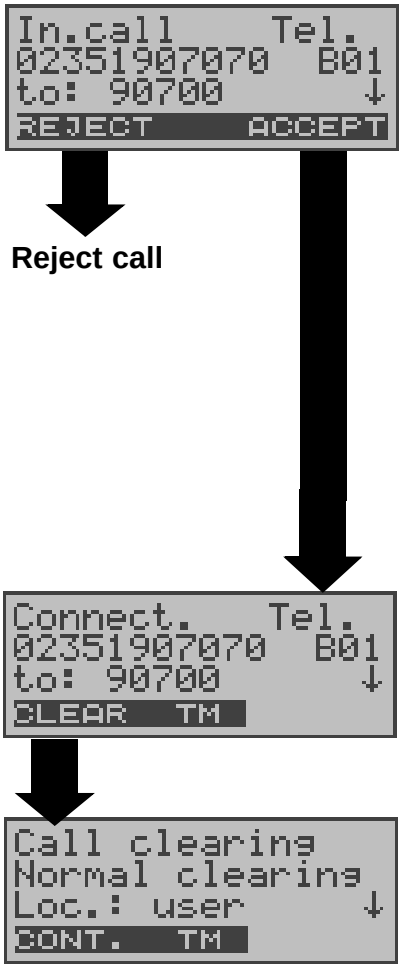
The ARGUS displays the cause of the disconnect. (see page 139 Clearing down an ISDN connection)

**Procedure for an Incoming Call (ISDN)**

An incoming call can be taken at any time even when a test (e.g. BERT) is in process (see “Simultaneously Starting Several Tests” on page 145.).

The ARGUS will signal an incoming call with an audible tone and a message on the display.

On a P-MP access, you can use the **Call acceptance** (see “Call Acceptance” on page 183.) function to configure the ARGUS to only signal incoming calls which are addressed to the MSN that corresponds to your own call number. This function can only be used when your own call number has been entered into the ARGUS’s speed-dialing memory (see “Saving Call Numbers” on page 197.) and the incoming call has a destination MSN.




The ARGUS displays the service (Tel.), the number of the caller (02351907070), the B-channel used (B01) and the number called (90700).
The ARGUS will display the complete destination number (DDI), if the Alerting mode is set to manual (see Page 180).

-Key: View additional information (if available)

**Accept the call**

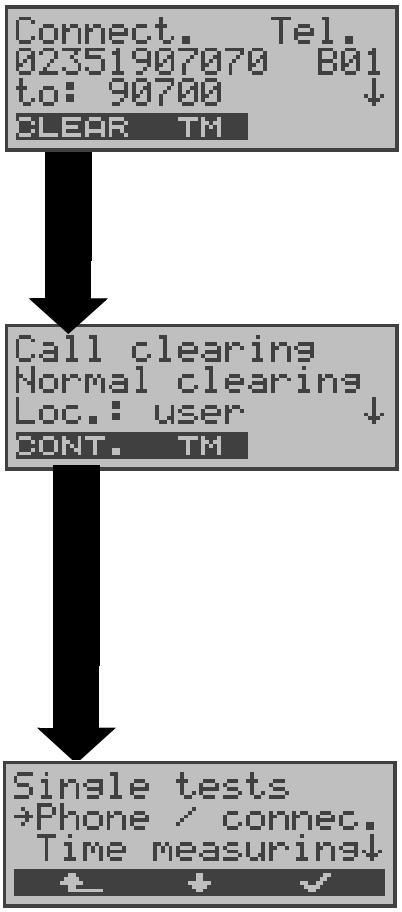
Use the <**TM**> softkey to start the Test Manager.
(see Page 144).
Use the **<↓>** to view additional information.

Clearing the connection

**Charge information in NT mode (optional):**

In NT mode, the ARGUS will – for incoming calls – send advice of charges in accordance with DSS1 as units and as currency (in Euro).

## 11.2 Clearing down an ISDN connection




To **clear down the connection**, press <**CLEAR**> or the

Press the -Key

The ARGUS will display the cause (see the table below) of the disconnect (e.g. Normal clearing) and the location where the cause occurred (e.g. subscriber).

-Key: View additional information (e.g. charges, if available)
<**TM**>: Open the Test Manager

The ARGUS returns to the Single tests menu.

The following causes are shown in clear text:

| Cause | Display | Explanation |
|---|---|---|
| **255** | Active clearing | *User actively initiated the disconnection* |
| **Long 0** | Normal clearing | *Cause element with Long 0 is mostly used by 1TR6* |
| **01** | Unalloc. number | *"No access under this call number" is signaled* |
| **16** | Norm. clearing | *Normal disconnect* |
| **17** | User busy | *The number called is busy* |
| **18** | No user respond | *No answer from the number called* |
| **19** | Call.time | *Call time too long* |
| **21** | Call reject | *The call is actively rejected* |
| **28** | Wrong number | *Wrong call number format or call number is incomplete* |

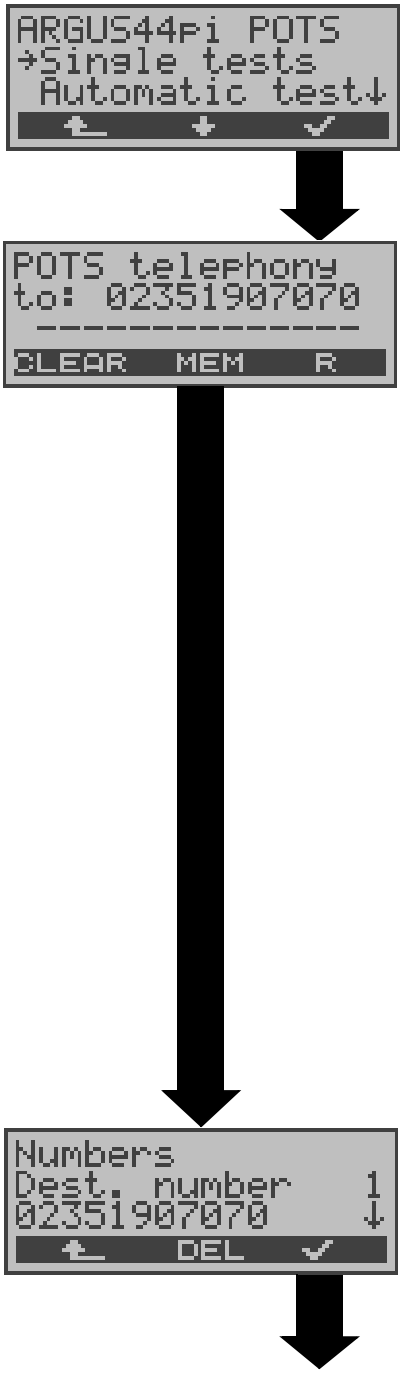
| | | |
|---|---|---|
| **31** | Norm. clearing | *Unspecified “normal class” (Dummy)* |
| **34** | No B-chan.avail. | *No circuit / B-channel available* |
| **44** | Req.chan.unavail | *Requested B-channel not available* |
| **50** | Req.fac.not subs | *Requested supplementary service (facility) not subscribed* |
| **57** | BC not authoriz. | *Requested bearer capability is not enabled* |
| **63** | Srv./opt.n.avail | *Unspecified for “Service not available” or “Option not available”* |
| **69** | Req.fac.not impl. | *Requested facility is not supported* |
| **88** | Incompat. Objectives | *Incompatible destination* |
| **102** | Timer expired | *Error handling routine started due to time-out* |
| **111** | Protocol error | *Unspecified for ”protocol error class”* |
| **127** | Interworking err | *Unspecified for “interworking class”* |

Other causes are not shown in clear text, rather as decimal codes (see Appendix C and D Page 211).

## 11.3 Operation on a POTS (analog) access

### Procedure for an Outgoing Call (POTS)

The ARGUS sets up a connection to another terminal. If the terminal is a telephone, the handset integrated in the ARGUS can be used to hold a conversation.




In the Main menu, use the **<↓> to select Single tests.**

**Setup the connection**

Enter the number on the keypad. Each of the number's digits will be dialed individually.

The ARGUS will display the number dialed.

As soon as the remote party answers, a voice connection will be set up.

The ARGUS will display the charges, if the information is available for the access under test.

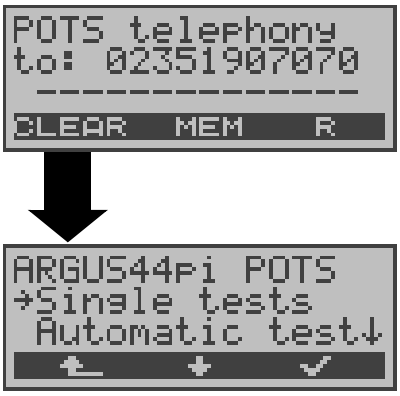
<**R**>: Generate a FLASH signal

<**MEM**>: Select the number from the call number memory or reenter the number on the keypad

Use the **<↓>** to scroll.

Press <**DEL**> to delete a digit.

The last number dialed will always be used as the default (simplified last number redial)




The ARGUS sends the complete dialing information together.

**Disconnect**

**Simplified overlap signaling using the telephone key**

If you press the -Key**,** the ARGUS will open the POTS telephony window directly from any menu. Once the call number is entered, the call will be setup.

**Procedure for an Incoming Call (POTS)**

The ARGUS signals an incoming call both audibly and on the display.


If the access supports CLIP, the ARGUS will display the number of the caller (see “POTS CLIP” on page 188).

**Accepting call**

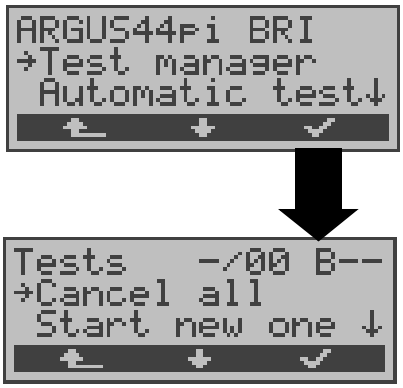
**< R>:** Generates a FLASH signal

**Disconnect**

## 12 Test Manager

The ARGUS can simultaneously start fully independent BRI access tests or “connections”.
As an example, a BERT can be run at the same time that you make a phone call. The individual tests or “connections” use resources.

All of the tests that have been started will be administered by the Test Manager. Using the Test Manager you can start new tests, switch between tests running in parallel or terminate all of the tests that are currently running.



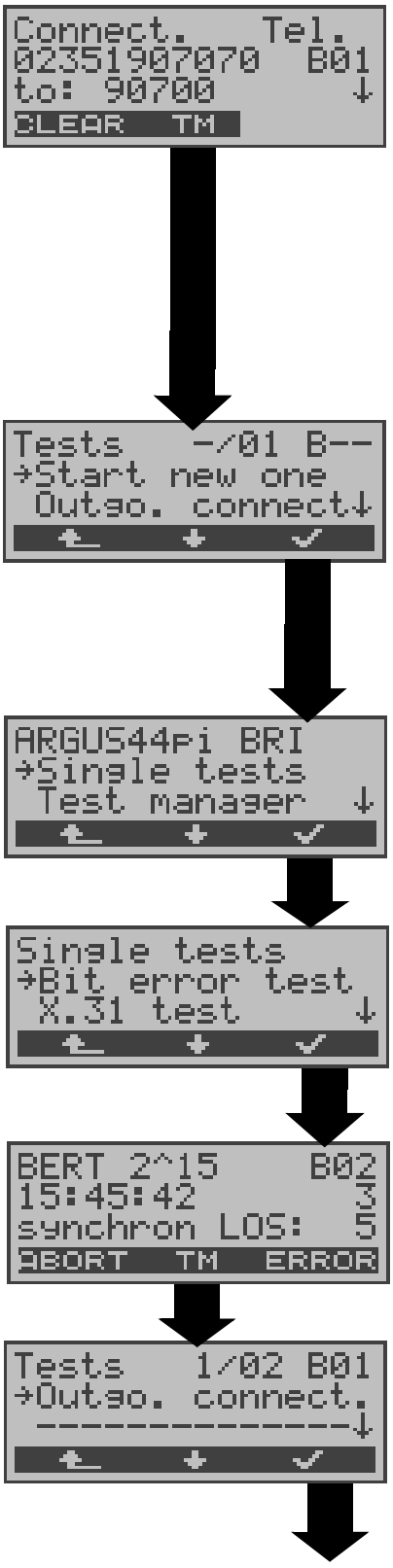

In the Main menu, use the **<↓>** to select the **Test Manager**.

Open the Test Manager

If the ARGUS is in the Connections or Single tests menu (or in a test), the Test Manager can be opened using the **6** -Key or via the <**TM**> softkey.

## 12.1 Simultaneously Starting Several Tests

**Starting a new test or connection during an existing connection**




Example:

There is a connection on B-channel 1.

During this connection, the Test Manager can be started by pressing the 6-Key or the <**TM**> softkey.

The ARGUS displays the number of existing connections (-/**01**).
Use the <↓> to select **Start new one**.

The ARGUS returns to the main menu.

Use the <↓> to select **Single tests**.

Use the **<↓ >** to select the desired test (e.g. bit error rate test) .

**Start test**
(Still connected)

For information on the operation of bit error tests, see Page 105

The ARGUS jumps to the Test Manager

Use the <↓> to select **Outgo.connect.**.
The connection was started first (**1**/02), there are 2 connections / tests (1/**02**).
The connection uses B-channel 1 (B01).


The ARGUS will return to the
Connection window.

If a test (or connection) is cancelled/cleared, the ARGUS will return to the Test Manager if there is another test (or connection) running in the background.

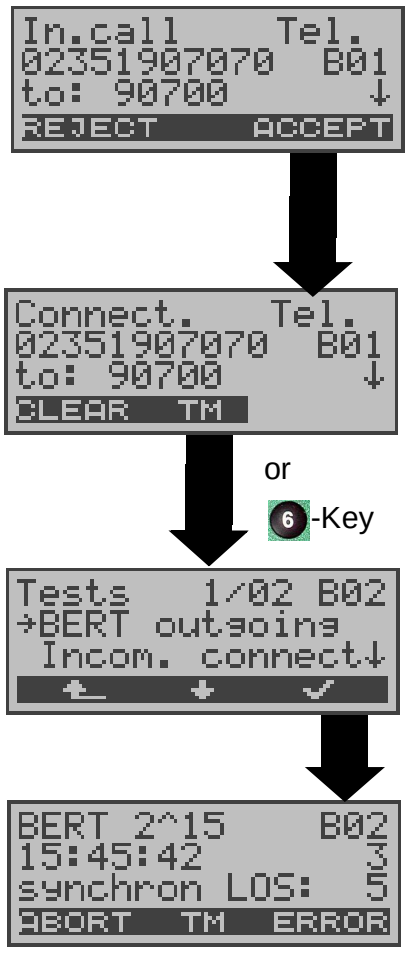
⚠ Some tests use so many resources that they cannot be run in every combination with other tests. In this case, the ARGUS will display “Test not possible at this time”.

| **Test/ Connection** | **Number of times that this test/connection can be started at the same time** | **It is possible to change to another test** |
|---|---|---|
| Incoming call | 2 | Yes |
| Outgoing call | 2 | Yes |
| BERT | 2 | Yes |
| LOOP | 2 | Yes |
| Service Tests | 1 | No |
| Suppl.serv.test | 1 | No |
| Time measurement | 1 | No |
| X.31 Test | 1 | No |
| CF Interrogation | 1 | No |
| Auto. Test | 1<br>When the Auto. Test is running all of the resources are in use and no other tests or connections are possible | No |
| BRI level | 1 | No |
| POTS voltage | 1 | No |

**Accepting an incoming call/connection when a test is running.**

The ARGUS signals an incoming call both audibly and on the display (see page 132 Setting up an ISDN connection).
The incoming call can be accepted without influencing the currently running test. If either the **B-channel loop** or **BERT wait** function is active, the call will be accepted automatically.

The manner that multiple connections are handled is illustrated in the following example of "Accepting an incoming call during a BERT", but it is identical for all other tests.




While running a BERT, the ARGUS displays a incoming call in the display.
**<REJECT>:** To reject the incoming call. The ARGUS will return to the BERT.

Accept the call

The BERT will continue in the background.

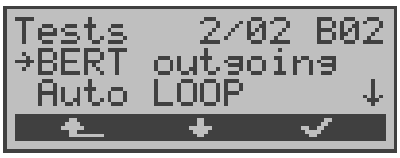
Use the <↓> to select **BERT outgoing**.

**The ARGUS jumps to the BERT**

The connection is still active in the background, the handset is still switched to the connection.

If available, the internal handset will be assigned to the currently started (voice) connection. The assignment of the handset to a given connection is also retained in the background.

## 12.2 Switching Between Tests



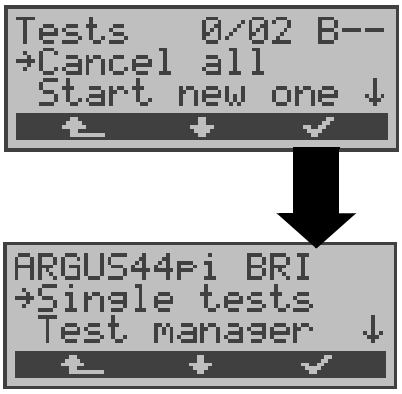

Open the Test Manager.

Using the <↓>, select the Test (Connection) that you wish to switch to.

If you press the **<✓>, the** ARGUS will open the selected test.

If you press the **<** ↵ **,** the ARGUS will return to the place from which the Test Manager was called (e.g. to a test running parallel). If no other test is running, the ARGUS will, reasonably enough, return to the Main menu.

## 12.3 Cancel All




Open the Test Manager.
Using the <↓>, select **Cancel all**.

The ARGUS will cancel all of the currently running tests and/or connections and then return to the Main menu.

# 13 Automatic Test

The ARGUS performs an automatic test series and displays the test results.

Using the Intec software, WINplus or WINanalyse, the test results can also be saved on a PC, where they can be presented in a comprehensive measurement report and printed.

The ARGUS automatically performs the following sequence of tests:

**On a BRI or U-interface access**

**(ARGUS in TE Mode)**

- Status
- Level Measuring
- Service Tests
- BERT in an extended call to oneself
- Supplementary Services Test
- CF Interrogation (Call Diversions)
- MSN Interrogation
- X.31 test

**On a BRI or U-interface permanent circuit**

- Status
- Level Measuring
- BERT in end-to-end mode (e.g. with a loopbox on the remote end)

**On an ADSL access**

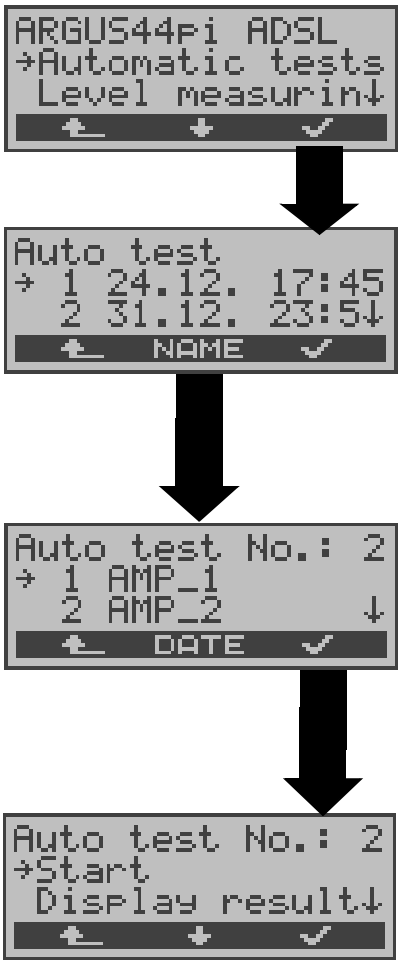
- the ARGUS will determine all of the relevant line parameters of an ADSL connection.

The ARGUS saves the test results together with the date and time (from the internal clock of the ARGUS). Additionally, settings such as your own plus a remote call number will also be saved.
The test results are not lost when the ARGUS is switched off.

The ARGUS saves the results of multiple test series (records 1,2,3...).

Each function in the Automatic tests menu refers to one of

the test series saved as a record.
Therefore, the first step will open a dialog in which you must select the desired data record.




Use the <↓> to select **Automatic tests**.

Use the ↓-Key to select the record holding the saved test results. The ARGUS will display for each record number the associated name and corresponding date and time. Empty records are labeled as "free“.

If the automatic test series is started by pressing function key 4 instead of via the Automatic tests menu, you must first enter a name for it to be saved under.


**Press numeric key 4**

Start the automatic test


-Key

Start the test series, see Page 152

Using the numeric keys enter the name under which the result should be saved (Default: AMP_1, AMP_2.... or the call number of the access under test if the number has been entered into the speed-dialing memory)

When the right softkey is pressed it assumes a different meaning and thus influences the entries made from the keypad (letters or digits):

**<12>ab>** : entry of the digits 0 to 9 plus * and #

**<ab>AB>** : entry of the lowercase characters and @, /,- and .

(e.g. to enter a "c“ press the "2" on the keypad three times)

**<AB>12>** : entry of the uppercase characters and @, /,- and .

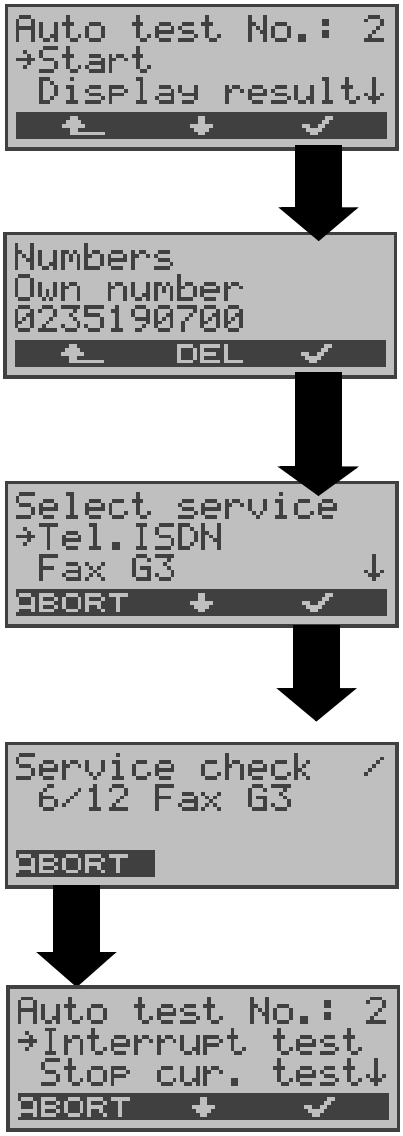
To move the cursor right or left, use the ↑,↓-Keys.

Press **<DEL>** to delete the digit before the cursor.

If all of the records have been written, you must manually select a memory location (record).

## 13.1 Automatic Start test on a BRI access

Before starting the automatic test sequence, you should check the necessary parameters (on a BRI access, e.g. the measurement time and error level for a BERT see Page 184).




Use the <↓> to select **Start**. (in the example, the new test is saved in record number 2)

**Enter Own number** - on accesses using the DSS1 protocol - also enter a **remote number**.

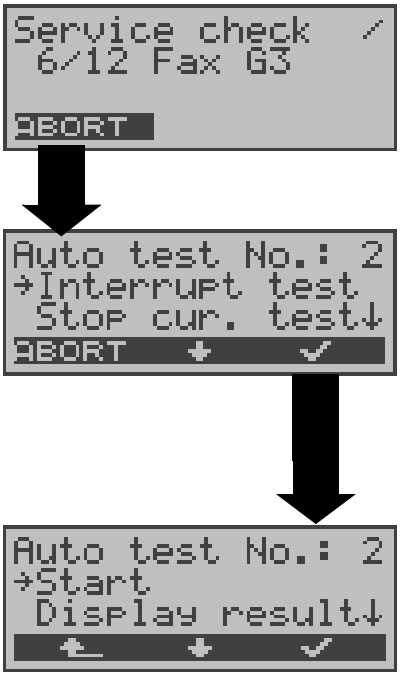
Use the <↓> to select the service. (required for the suppl.serv.test)

**Start test**

During the test series, the first three lines in the display will reflect the Single test currently being run.

To interrupt the test, press <**ABORT**>.

## Terminating the test (early):



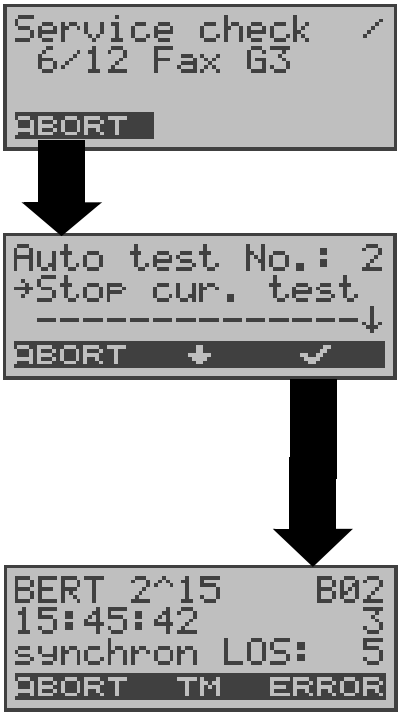

The ARGUS is running an automatic test.

**Interrupting a test**

Use the <↓> to select **Interrupt test**.
Press the **<ABORT>** softkey to restart the test.

**Interrupt test,** the test results will be lost.
Any "old" data stored under this data record number from a prior test will be retained.

## Skipping individual tests:




A single test can be skipped:
In this example, the ARGUS is running a Service check.

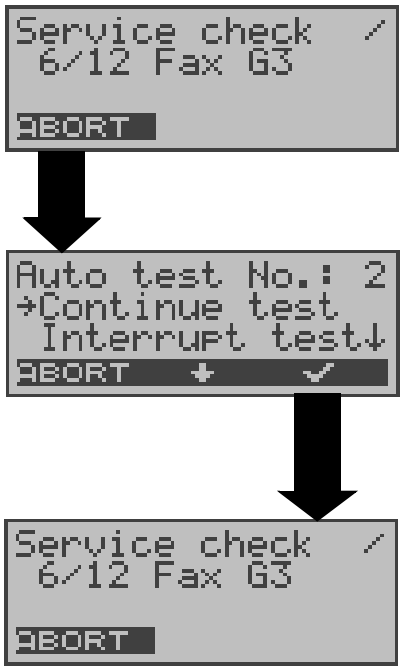
**Interrupt the Service check**

Use the <↓> to select **Stop cur. test**.
Press the **<ABORT>** softkey to restart the Service check.

**The ARGUS will skip the Service check.**

The next single test (e.g. BERT) will be started.

## Resuming a test:




An interrupted Single test can be resumed:
In this example, the ARGUS is running a Service check.

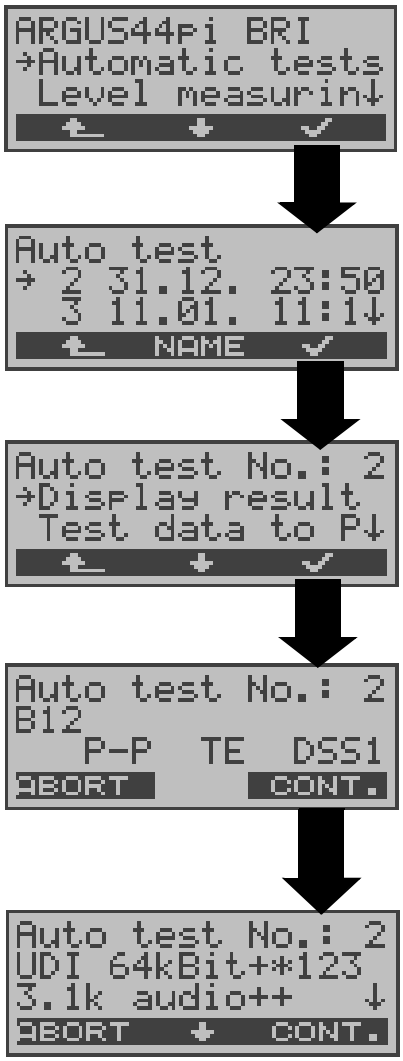
**Interrupting a test**

Use the <↓> to select **Continue test**.
Press the **<ABORT>** softkey to restart the test.
The ARGUS repeats the “disturbed“ single test (in the example: the Service check).

## 13.2 Display saved results

The saved results of the single tests run on a BRI or U-interface will be displayed in the following order:

| For: **BRI or U**-interface | **BRI or U-interface - Permanent circuit** |
|---|---|
| - State | State |
| - Level measuring | Level measuring |
| - Service Check | BERT |
| - BERT | |
| - Suppl.serv.test | |
| - X.31-Test | |
| - CF Interrogation (Call Diversions) | |
| - MSN Interrogation | |




Use the <↓> to select **Automatic tests**.

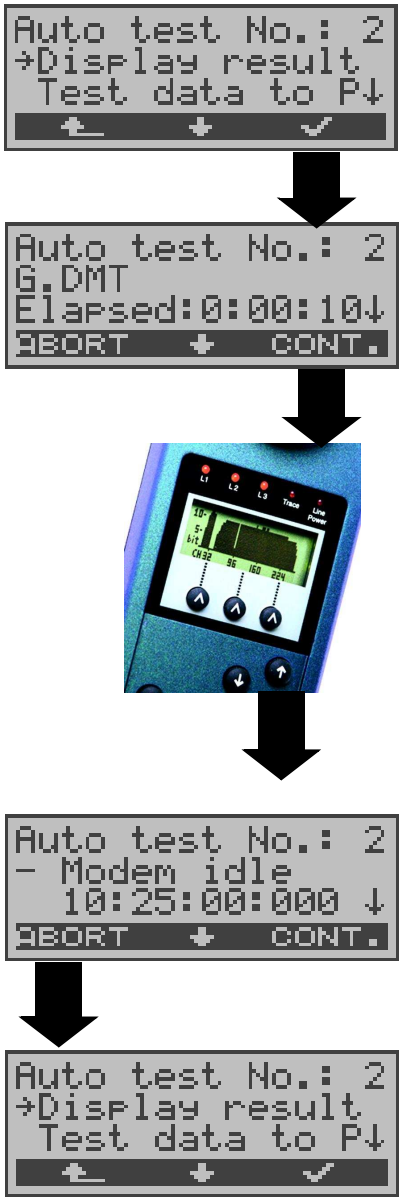
Use the ↓-Key to select the stored test.

Use the <↓> to select **Display result**.

Display the test results:
The ARGUS will first display the status of the access under test.

Display result of the next single test
e.g. display Service check.
Use the <↓> to scroll through the Single test results.
If you press **<CONT.,>** he ARGUS will display the results of the next single test.

**Display for an ADSL access physical test:**




Use the <↓> to select **Display result**.

Use the <↓> to scroll through the test results.

Bit distribution display

Measurement results on an ADSL access:
For the interpretation of the measurement data, see Page 49.

Press the ✓-Key or the softkey on the right to view the trace data

Close the results display.

**Display for an ADSL access Ping test:**


Use the <↓> to select **Display result**.


Using the <↓,>scroll through the results of the Ping test.


ADSL Status display,
Test time,
ADSL line parameters
Use the <↓>to scroll.

Bit distribution display

Press the ✓-Key or the softkey on the right to view the trace data

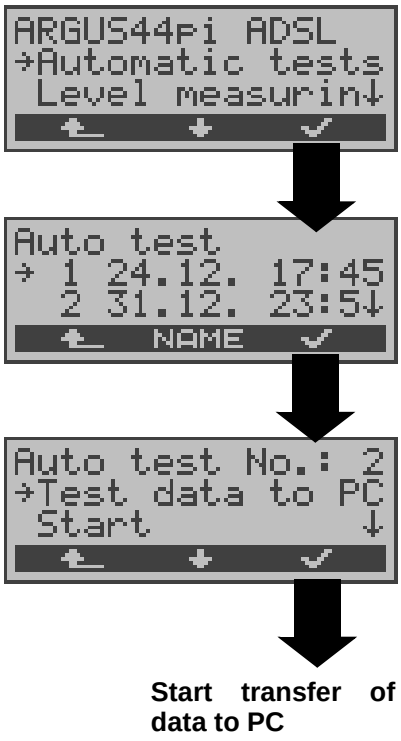

Close the results display.


The other test results (e.g.Traceroute test) are displayed in the same manner.

## 13.3 Sending the results of a tests to a PC

To visualize and archive the test results on the PC, the data records can be transferred to the PC via the serial interface using the included cable (labeled as PC Interface) (connect the cable between the ARGUS “V.24” jack ---- PC’s serial interface).

Connect the ARGUS to your PC and start the **ARGUS WINplus** program.

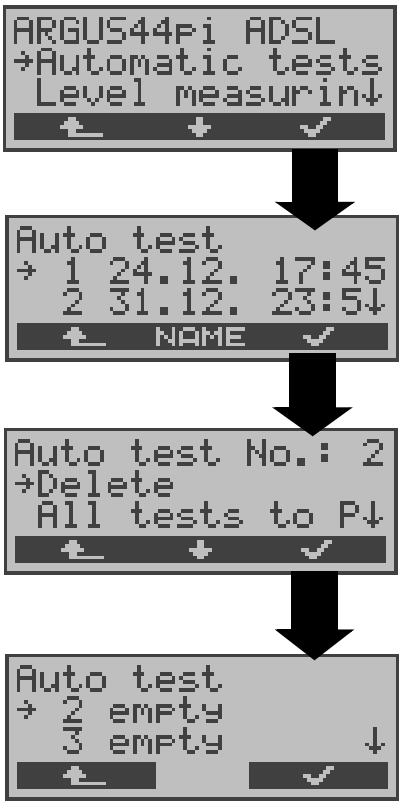



Use the <↓> to select **Automatic tests**.

Use the ↓-Key to select the record (e.g. No. 2).

Use the <↓> to select **Test data to PC**.

## 13.4 Deleting the results of a test




Use the <↓> to select **Automatic tests**.

Use the ↓-Key to select the record (e.g. No. 2).

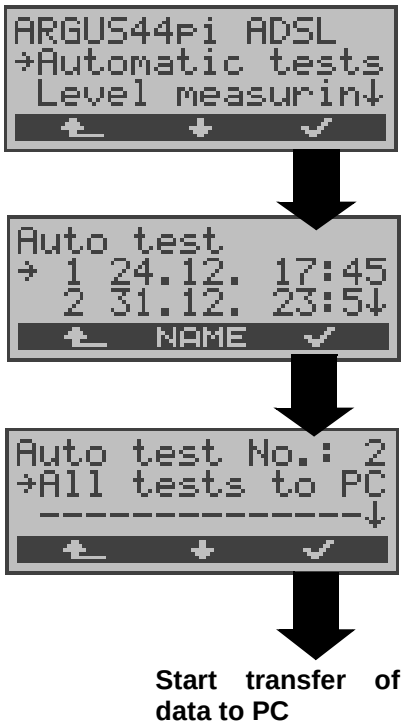
Use the<↓> to select **Delete**.

**Delete record (No. 2)**

For information on how to delete all **records**, please see on page 199 “Reset”.

## 13.5 Sending the results of all tests to a PC

The ARGUS will send the results of all of the tests to the PC at one time.




Use the <↓> to select **Automatic tests**.

Use the ↓-Key to select any record .

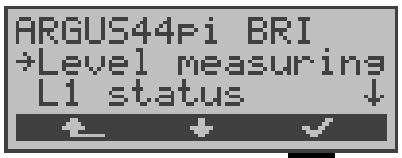
Use the<↓> to select **All test to PC**.

# 14 Level Measuring

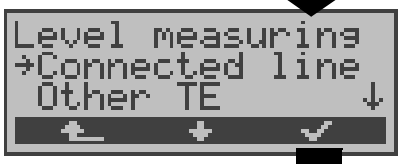
## 14.1 Level measuring on a BRI access

**Level measurement – connected line**

The ARGUS measures the level of the received useful signal. In TE mode, it also measures the phantom feed. The measurement will be updated continuously.




Use the <↓> to select **Level measuring**.




Use the <↓> to select **Connected line**.

**Start measurement**

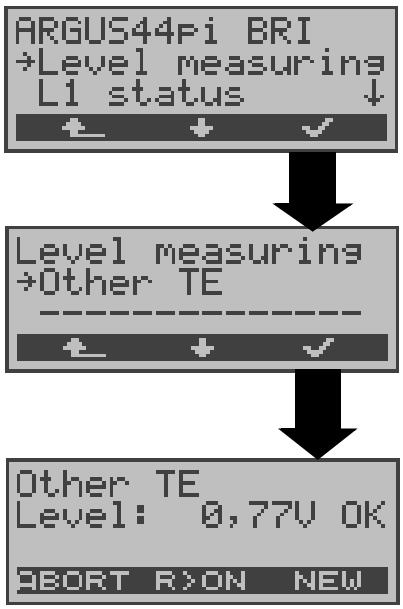

The ARGUS will display the level of the useful signal (e.g. 0.64 V) and the level of the feed (e.g. 38.2 V).
**<R>ON>**: add **100**Ω resistor
**< R>OFF>**: remove **100**Ω resistor
Press <**NEW**> to setup Layer 1 again - to ensure a reasonable measurement.

**Measurement results:**

- Evaluation of the useful signal level:
  - << level is too low
  - >> level is too high
  - OK Level is in order (0.75V $^{+20\%}_{-33\%}$ i.e. from 0.9 V to 0.5 V)
  - __ no voltage
- Evaluation of the level of the feed
- Display the type of feed:
  - NORM Normal feed (40V $^{+4.25\%}_{-13.75\%}$ i.e. from 41.7 V to 34.5 V)
  - REV_ inverted phantom feed
  - NONE no feed

**Level measurement other TE**

The ARGUS will measure the level of a terminal connected in parallel. In this case, the ARGUS is passive.
Layer 1 must be activated on the terminal.
The ARGUS updates its measurement continuously.

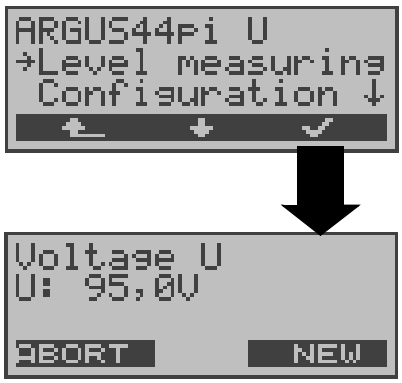



Use the <↓> to select **Level measuring**.

Use the <↓> to select **Other TE**.

The ARGUS will display the level of the useful signal (in the example 0.77 V).
**<R>ON>**: add **100**Ω resistor
**< R>OFF>**: remove **100**Ω resistor
Press <**NEW**> to setup Layer 1 again - to ensure a reasonable measurement.

**Measurement of the voltage on a U-interface access (optional)**



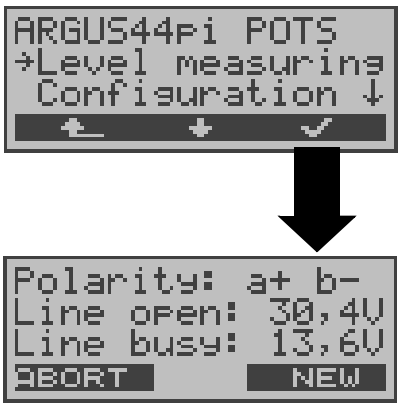

Use the <↓> to select **Level measuring**.

Start measurement

The ARGUS will display the level of the feed voltage.
The measurement will be updated continuously.

## 14.2 Level measuring on a POTS access

The ARGUS measures the voltage level in both the normal case and when the line is “busy” (trunk line).



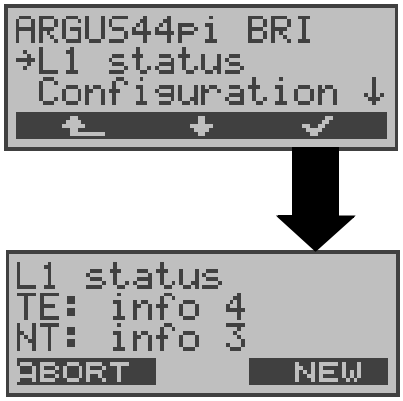

Use the <↓> to select **Level measuring**.

**Start measurement**

The ARGUS will display the polarity of the 2-wire POTS line (red plug "a"; black plug "b") as well as the "on hook" and "off hook" voltage levels. Press <**NEW**> to repeat the measurement.

## 15 The L1 status of a BRI access

The ARGUS displays the current status of Layer 1: which signal is received from the remote end (Rx) and which signal does the ARGUS send (Tx).




Use the <↓> to select **L1 status**.



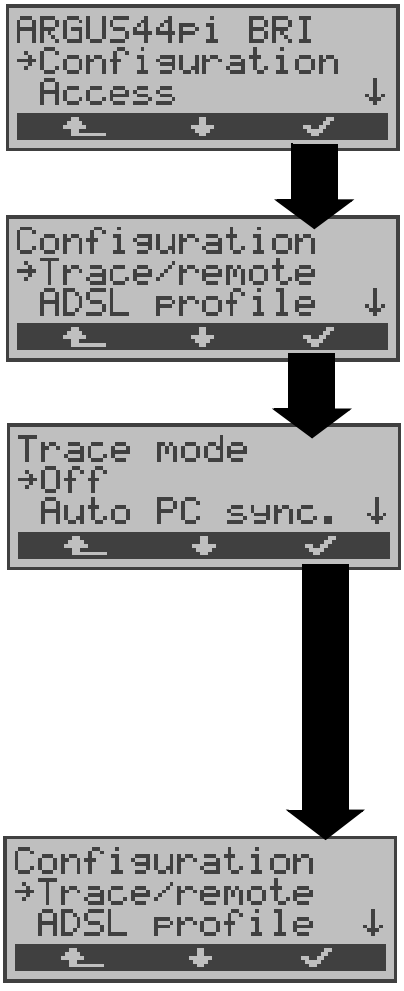

The ARGUS displays the status of Layer 1 or of the signal, which is currently being sent ( Info 0 .... Info 4). Press <**NEW**> to setup Layer 1 again if necessary.

# 16 Configuration

The ARGUS can be configured to suit your special requirements. The default (factory) settings can be restored by selecting "Reset“ (see page 199 Reset).

## 16.1 Trace/Remote

The ARGUS remains active and passes the data from the D-channel (all of the D-channel messages sent to and received from the network) online directly to the connected PC. The Remote function is optional.




In the Main menu, use the <↓> to
**Select** Configuration.

Use the <↓> to choose **Trace/remote**.

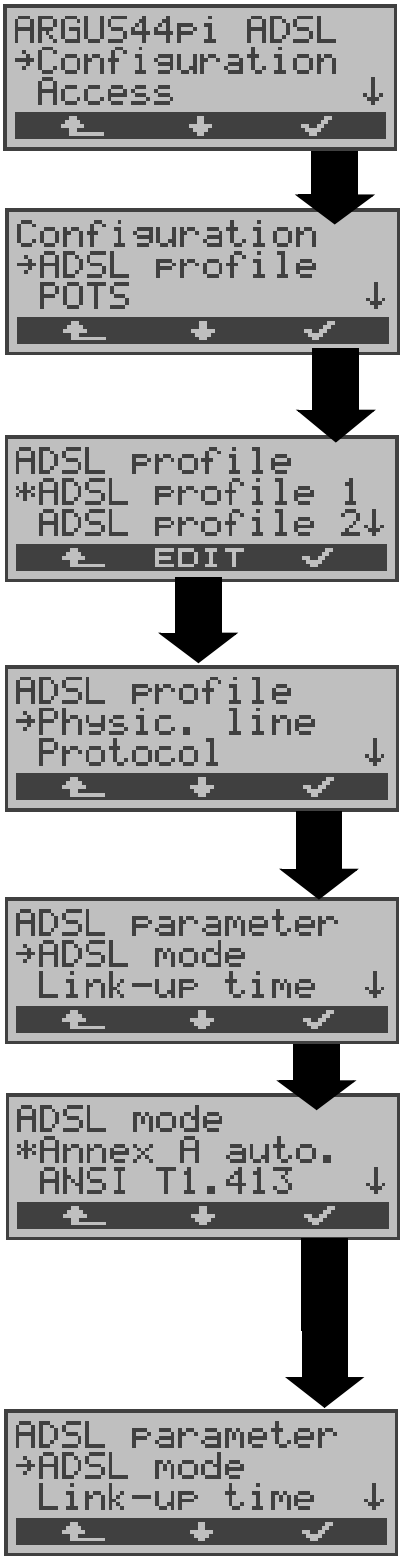
Auto PC sync.: even after it is switched on again, the ARGUS remains in Trace mode and passes D-channel data to the PC ("Trace“ LED on continuously).
PC-conn.once: the ARGUS is set to Trace mode and will pass D-channel data to the PC until it is switched off. When it is switched on again, it will not return to Trace mode.

**Confirm the entry**

If the ARGUS cannot send the data to the PC without errors, the "Trace" LED will flash at 5Hz (5 times per sec).
The currently active settings will be marked in the display with an *.

## 16.2 Configuring ADSL profiles

The ARGUS stores all of the parameters the various ADSL test varieties in the ADSL profiles. Up to 5 user-defined ADSL profiles can be created. An ADSL profile must be selected before an ADSL test run. Only those settings which are relevant will be used for the respective test situation.




In the Main menu, use the <↓> to
**Select** Configuration.

Use the <↓> to select **ADSL profile**.

Use the <↓> to select, e.g. **ADSL Profil1**.

Press <**EDIT**> to edit ADSL profile 1.

Use the <↓> to select a parameter (e.g Physic. line) of ADSL profile 1.

Display the physical line parameter
Use the <↓> to select the desired ADSL mode.

Use the <↓> to select the desired ADSL mode.

Press **< ↵ >** and the ARGUS will return to the previous display without changing this parameter in the profile.

Save this selection in the profile.

**ADSL settings:**

| **Display Name on the ARGUS** | **Comment** |
|---|---|
| **Physic. line:** | The following ADSL line parameters are grouped under this heading: |
| **ADSL mode** | Different ADSL modes can be selected depending on the national variant of the ARGUS.<br>The selected ADSL mode must be compatible to ATU-C (network-side).<br><br>ADSL Mode — Standard<br>- Annex B (DT) — T-DSL (UR2)<br>- Annex B (ETSI) — ETSI DTS<br>- Annex A auto — automatic detection<br>- ANSI T1.413 — ANSI T1.413 .2<br>- G-Lite — ITU-T G.992.2<br>- G.DMT — ITU-T G.992.1<br><br>If the ADSL mode “Annex A Auto” is selected, the ARGUS will automatically determine the configuration of the DSLAM ( G.DMT or ANSI) and set itself accordingly. |

| | |
|---|---|
| **Link-Up Time** | Once the connection to the DSLAM is setup (Sync-LED ON constantly), the ARGUS will continually measure the data for the selected period of time. During this ADSL link up time, the ARGUS will display “Showtime”. Once the measurement time has elapsed, the connection will be automatically cleared.<br><br>If the link-up time was set to “Continuous”, the connection to the DSLAM must be cleared manually.<br><br>  When the link-up time is set to “Continuous”, we recommend that you operate the ARGUS on the power supply to save the accumulators (rechargeable batteries). |
| **Rated value** | Use the keypad to enter the upstream and downstream comparison value for ATM [Kb/s]. |

| | |
|---|---|
| **SNR margin DS** | Setting for the SNR margin DS.<br><br>This parameter can be set to "6 dB" or "3 dB".<br>In the activating phase the CPE-side (Argus) requests that the CO-side (DSLAM) reduce its transmit power until the Target Noise Margin of 6 dB or 3 dB is achieved.<br>Some DSLAMs do not support this. Either they will not reduce the transmit power at all or only to a certain value, e.g. half the maximum transmit power. In this case, the current transmit power is less than the maximum. In this case the Noise Margin is still higher than the Target Noise Margin (e.g. 31 dB instead of 6 dB or 3 dB).<br><br>The "max. dB" setting<br>The max. dB setting on the CPE-side (Argus) does not influence the transmit power of the CO-side (DSLAM). The CO-side transmits at its maximum power and the Noise Margin also reaches its maximum possible value. |
| **Shutdown mode** | The type of disconnect used for the ADSL connection. |
| **Protocol:** | This setting is used to define which protocol should be used by the ARGUS in the ADSL test. |

| **PPP:** | PPP parameter for the Internet connection |
|---|---|
| **User name**<br>Entry of the assigned (by the network operator) user name.<br>  <br><br>Use the keypad to enter the user name. When the right softkey is pressed it assumes a different meaning and thus influences the entries made from the keypad (letters or digits) :<br>**<12>ab>** : entry of the digits 0 to 9 plus * and #<br>**<ab>AB>** : entry of the lowercase characters and @, /,- and . (e.g. to a "c“ press the "2" on the keypad three times)<br>**<AB>12>** : entry of the uppercase characters and @, /,- and .<br>To move the cursor right or left, use the ↑,↓-Keys.<br>Press **<DEL>** to delete the digit before the cursor.<br>✓-Key: Save user name<br>**<ABORT>** : Do **not** save user name | |
| **Password**<br>Entry of the assigned (by the network operator) password:<br>  <br><br>For instructions, see User name<br>✓-Key: Save password<br>**<ABORT>** : Do **not** save password | |
| **PPTP:** | PPTP parameter |
| **Server IP address** | Use the keypad to enter the Server IP address.<br>To move the cursor right or left, use the ↑,↓-Keys.<br>Press **<DEL>** to delete the digit before the cursor. |

| **Ping:** | |
|---|---|
| **IP address** | This is the address of the remote site.<br>The ARGUS can save up to 10 IP addresses. The saved IP addresses are available to all of the profiles. |


The ARGUS is displaying the memory location holding the first IP address of a maximum of 10 IP addresses (1/10).
Press the <↓> to scroll to the next IP address..

Open the first IP address to edit it.

The address can be entered as an IP address (number) and/or name.

Enter the name of the IP address.
Use the keypad to enter the address. Use the softkey on the right to shift the keypad (the softkey on the right assumes a different meaning when pressed):
<**12>ab>** : entry of the digits 0 to 9 plus * and #
<**ab>AB>** : entry of the lowercase characters (e.g to enter a "c" press the "2" on the keypad three times) and @, /,- and .
<**AB>12>** : entry of the uppercase characters and @, /,- and .
Press <**DEL>** to delete the digit before the cursor.

Press the <✓> to set the marked the IP address as the default address.

| | |
|---|---|
|  | Use the keypad to enter the numbers of the IP address.<br>To move the cursor right or left, use the ↑,↓-Keys.<br>Press **<DEL>** to delete the digit before the cursor. |
| **Number of pings** | Enter the number of test packets that the ARGUS should send to the IP address. If you enter "0", the ARGUS will send packets continuously until the test is stopped manually. |
| **Pause** | This setting determines the amount of time that the ARGUS will wait between sending test packets. |
| **Packet size** | This setting determines the size of the test packets.<br>By varying the size, it is possible to determine the maximum data packet size and the relationship between size and response time. |
| **Fragmentation** | This parameter sets the fragmentation:<br>**ON**: Depending on the network (or router), test packets may be divided into multiple packets.<br>**off**: Fragmentation is not permitted, i.e. the test packets may be rejected by the network (or router). In this case, the ARGUS will not receive a packet in reply.<br>**Auto**: The ARGUS determines the maximum packet size for the path to the destination address (Path-MTU) and splits the test packet into smaller packets. These can then be sent with the minimum of delay (since the network/router need not fragment the test packet). |
| **Traceroute:** | |
| **IP address** | IP address of the destination node: This can be entered as an IP number or as a name (for instructions, see Ping/ IP address). |

| | |
|---|---|
| **max. HOPS** | This sets the maximum number of hops that will be taken in the path to the destination node. |
| **Probes** | This sets the number of attempts that will be made to get a response from a network node. |
| **Timeout** | This sets the maximum amount of time that the ARGUS will wait for a response from a network node. |
| **Download :** | |
| **Qty** | This sets how often the ARGUS will download the data from the "Source“ address. |
| **Addresses** | Entry of the "Source“ addresses:<br>The ARGUS can save up to three HTTP/FTP addresses. |


Press the <↓> to select the type of "Source“ address (http or ftp). Depending on the type of server and the data: for websites, http; for files http or ftp.


The ARGUS displays the first (the first memory location) of three possible addresses.
↓ -Key: Scroll to the desired memory location [address].


Entry or editing of the address (Caution - see Page 61 regarding the entry of alias www addresses)
(for instructions, see Ping: IP address)

✓ -Key

Save address


Press the <✓> to set the top address as the default.

| **VPI/VCI scan:** | |
|---|---|
| **VPI** | This sets the VPI range, which the ARGUS should check with the VPI/VCI scan test. |
| **VCI** | This sets the VCI range, which the ARGUS should check with the VPI/VCI scan test. |
| **Number of pings** | This sets the number of test packets that the ARGUS will send. If you enter "0", the ARGUS will send packets continuously until the VPI/VCI scan test is stopped manually. |
| **Timeout** | This sets the maximum amount of time that the ARGUS will wait for a response from an ATM network node to a test packet (ping) which it sent. |
| **ATM OAM ping:** | |
| **VPI / VCI** | Entry of the VPI and VCI |
| **Number of pings** | This sets the number of test packets that the ARGUS will send. If you enter "0", the ARGUS will send packets continuously until the ATM Ping test is stopped manually. |
| **Timeout** | This sets the maximum amount of time that the ARGUS will wait for a response from an ATM network node to a test packet (ping) which it sent. |
| **OAM cell type** | F5 loopback seg (segmented)<br>F5 loopback ete (end-to-end) |
| **FTP upload:** | |
| **Upload profile:** | A total of three user-defined server profiles can created for the FTP upload test.<br>Press <**EDIT**> to release selected server profile for editing. |
| **Objectives** | Entry of the upload destination (server address) to which the ARGUS should send the data. |

| | |
|---|---|
| **Filename** | Entry of the name of the file holding the data to be sent in the FTP upload test<br>FIle will be saved on the server |
| **File size** | Sets the size of the file that the ARGUS will send in the FTP upload test |
| **User name** | Entry of the user name for the FTP server<br>(see page 170 User name)<br>Use the ✓-Key to save the user name |
| **Password**<br>  | Entry of the password for the FTP server:<br>For more information, see Page 170<br>✓-Key: Save password<br>**<ABORT>** : Do **not** save password |
| **Qty** | This sets how often the ARGUS will send the data to the destination. |
| **Profile name** | Entry of a profile name for the server profile |
| **ATM BERT** | |
| **Duration** | You can use the keypad to enter measurement times ranging from 1 minute (default setting) to 99 hours and 59 minutes (= 99:59).<br>⚠ If the time is set to 00:00 (=BERT with unlimited measurement time), the BERT **will not** stop automatically. In this case, the user must terminate the BERT by pressing the <**ABORT**> softkey. |
| **VPI / VCI** | The identifier of the virtual channel in the ATM cells - Virtual Path (Channel) Identifier |

| | |
|---|---|
| **Bit pattern** | This setting determines the bit pattern that the ARGUS will repeatedly send in an ATM BERT.<br>There are several predefined bit patterns available.<br>Additionally, it is also possible to enter a 16 bit long pattern of your choice in binary (see Page 186). |
| **Error level** | This is the level used to evaluate whether the BERT had an "acceptable" bit error rate.<br>If the BERT has a bit error rate, which exceeds this error level, the ARGUS will display a "NO" as the test result.<br>Using the keypad, this parameter can be set to any value from 01 (= $10^{-01}$) to 99 ( = $10^{-99}$).<br><br>The default threshold (error level) is $10^{-06}$. That means that, in the event that the bit error rate is less than $10^{-06}$ (one error in $10^6$ = 1,000,000 sent bits), the bit error test will be evaluated as OK. |
| **HRX value** | The HRX setting (**H**ypothetical **R**eference **C**onnections ITU-T G.821):<br>Using the keypad, you can enter a value ranging from 0 to 100 %. |
| **Data rate** | Definition of the data rate<br>To achieve meaningful results, the data rate must be the same as that set in DSLAM.<br>Default setting: 32 kbit/s |
| **ATM:** | |
| **VPI / VCI** | The identifier of the virtual channel in the ATM cells - Virtual Path (Channel) Identifier |
| **Encapsulation** | This sets the encapsulation of the packets to be sent (LLC or VC-MUX). |

| **LAN:** | |
|---|---|
| **IP mode** | This is used to set the assignment of IP addresses:<br>Static IP: fixed IP addresses<br>DHCP-Client: Assigned by the server<br>DHCP-Server: Assigned by the ARGUS<br>DHCP-Auto: The ARGUS will check whether there is a DHCP server in the network. If yes, the address will be assigned by this server. Otherwise, the ARGUS will assign the address. |
| **Own IP address** | This is the IP address (of the ARGUS) of the LAN side |
| **IP network mask** | LAN IP network mask |
| **GW-IP** | Gateway IP address in the LAN network |
| **DHCP server** | Settings for the DHCP server:<br>Start and End IP addresses<br>The period for which the IP addresses are reserved<br>Domain Name |
| **DHCP timeout** | This sets the amount of time that a client should wait for an IP address (relevant for the IP mode DHCP client) |
| **MAC address** | This displays the LAN MAC address of the ARGUS. |
| **WAN:** | |
| **IP mode** | This is used to set the assignment of IP addresses. |
| **Own IP address** | This is the IP address (of the ARGUS) of the WAN side |
| **IP network mask** | WAN IP netmask |
| **Remote IP address** | Gateway IP address in the WAN network |
| **DHCP timeout** | This sets the amount of time that a client should wait for an IP address (relevant for the IP mode DHCP client) |

**MAC address**

Display and editing of the WAN MAC address


The WAN MAC address can be changed via <**EDIT**>

Enter the new address on the keypad.

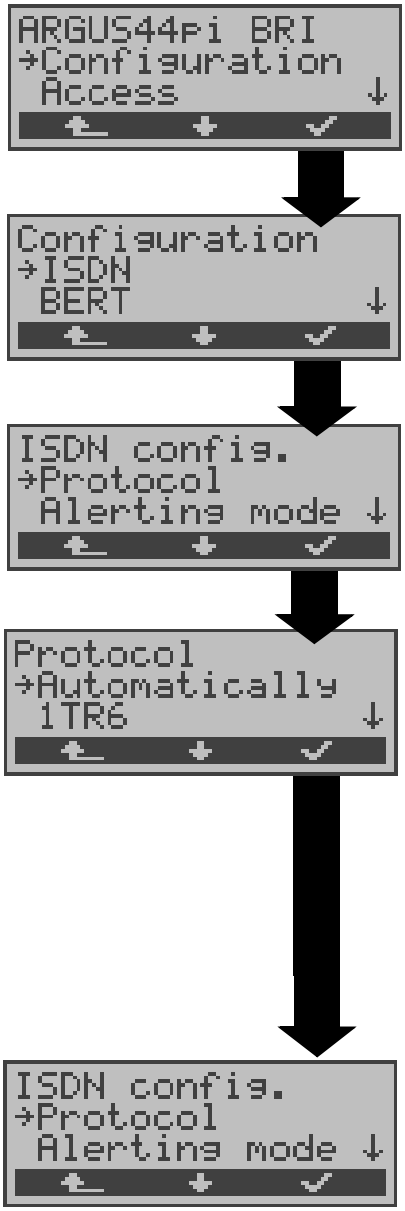
Press the ✓-Key to use the new address.

The new address is only saved temporarily and will not be available when the ARGUS is switched on again.

| | |
|---|---|
| **Router:** | NAT ON or OFF |
| **DNS server:** | |
| **DNS Server 1** | IP address of the DNS server |
| **DNS Server 2** | IP address of the DNS server |
| **Profile name:** | Enter the profile names, which should later be displayed by the ARGUS. |

## 16.3 Configuration: ISDN

The operation is the same for all configurations and will be illustrated with a single example:




In the Main menu, use the <↓> to **Select** Configuration.

Use the <↓> to select **ISDN**.

Use the <↓> to select, e.g. **Protocol**.

Use the <↓> to select the setting for the protocol (e.g. Automatically).

: The ARGUS will return to ISDN config. menu **without** changing the settings.

**Confirm the entry**

The ARGUS will return to the ISDN config. menu.

**Settings in ISDN:**

| **Display Name on the ARGUS** | **Comment** |
|---|---|
| **L1 permanent?** | On a BRI connection in NT mode, Layer 1 (L1) is permanently active. |

| | |
|---|---|
| **Protocol** | As an alternative to automatic protocol determination (setting: Automatically), you can also set the Layer-3 D-channel protocol manually.<br>This setting will be stored permanently and will also active when the tester is switched on again. |
| **Alerting mode** | You can specify whether, for an incoming call on a BRI point-to-point access, the ARGUS should only display the access number without extension or the complete number with extension.<br><br>If it is set to " **Manual**", the ARGUS will display the extension (An incoming call will be signaled. The ARGUS will send the Layer 3 message “Alert” when it accepts the call. The digits of the extension that have been sent by this point will be displayed.).<br><br>  An incoming call in the **Manual** mode must be answered within 20 seconds or it will be lost. Furthermore, you should not that the remote subscriber will not hear a ringing tone.<br>If it is set to **Automatically**, the ARGUS will only display the access number without extension or, depending on the configuration of the access in the exchange, it may not display the number called at all. |

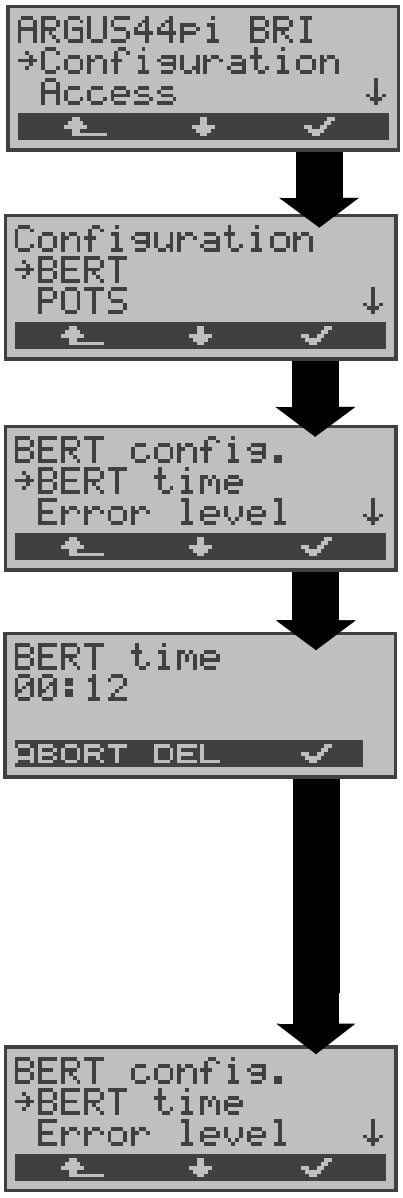
| | |
|---|---|
| **Clock mode** | This parameter sets where the clock will be generated in the case of a BRI access.<br>You can either specify that the ARGUS generates the clock (is Master) or that it is the slave of a clock generated at the other end (Slave).<br>Default setting:<br>NT mode: Master<br>TE mode / Permanent circuit: Slave<br>This setting is not saved and will be lost when the ARGUS is switched off and then back on again. |
| **BRI termination** | Independent of the operation mode (TE or NT), a terminating resistor can be switched-in on the BRI access. This setting will not be saved.<br>Default setting:<br>NT mode: Terminating resistor switched-in<br>TE mode / Permanent circuit: no terminating resistor is switched in |

| | |
|---|---|
| **Call parameter** | Two different parameters can be set for (ISDN) calls generated on both the network-side (ARGUS in NT mode) and on the user-side (ARGUS in TE mode):<br>**1. Type of number** (TON) for the CGN (=CGPN) or CDN (=CDPN) element of a SETUP signal<br>**Network-side: Net CGN TON** /<br>**Net-CDN-TON**<br>**User-side: User CGN TON** /<br>**User CDN TON**<br>**2. N**umbering **P**lan for the CGN (=CGPN) or CDN (=CDPN) element of a SETUP signal<br>**Network-side: Net-CGN-NP/**<br>**Net-CDN-NP**<br>**User-side: User CGN NP /**<br>**User CDN NP**<br><br>**Possible settings:**<br>For TON: unknown, international, national, network spec., subscriber, abbreviated.<br>For NP: unknown, ISDN/telephony, data, telex, national stand., private |
| **Services** | Up to three user-specific services (user spec.1 to user spec.3) can entered and saved. For each "user spec. service“, you must enter the info-elements BCAP, HLC and LLC in hexadecimal. To do so, use the keypad and the <A . . F> softkey (e.g. to enter a "C", press the softkey three times; for a "F", press it six times). |

| | |
|---|---|
| **Call Acceptance** | If the ARGUS is set to "only own MSN/ DDI“ and is in TE mode on a P-MP access, it will only signal those calls which placed to the MSN (on a P-P access the DDI) of the access under test.<br>If set to "all MSN/DDI“, the ARGUS signals all calls.<br>Prerequisite:<br>- the "own" number must be entered in the call number memory under "own number“ (see “Saving Call Numbers” on page 197)<br>- the incoming call must have a destination MSN<br>The default setting is "all MSN/DDI“.<br>This setting is saved permanently. |
| **Voice coding** | There are two options for coding voice data in a B-channel:<br>- A-law (default)<br>- µ-law<br>This parameter will be reset to the default setting when the ARGUS is switched off and back on again |
| **DTMF / Keypad** | DTMF or keypad setting |
| **Destination MSN** | A destination number can be entered, which the ARGUS will use for MSN interrogation (default: 0043). |

## 16.4 Configuration: BERT

The operation is the same for all configurations and will be illustrated with a single example:




In the Main menu, use the <↓> to
**Select** Configuration.

Use the <↓> to select **BERT**.

Use the <↓> to select, e.g. **BERT time**.

Use the keypad to enter the duration of the BERT.
**<DEL>**: Delete the digit before the cursor
**<ABORT>** : The ARGUS returns to the BERT config. menu without changing the settings.

**Confirm entry**

The ARGUS will return to the BERT config. menu.

**Settings for the BERT:**

| **Display Name on the ARGUS** | **Comment** |
|---|---|
| **BERT time** | You can use the keypad to enter measurement times ranging from 1 minute (default setting) to 99 hours and 59 minutes (= 99:59). |

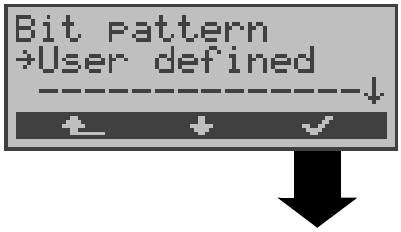
| | |
|---|---|
| | If the time is set to 00:00 (=BERT with unlimited measurement time), the BERT **will not** stop automatically. In this case, the user must terminate the BERT by pressing the <**AB0RT**> softkey. |
| **Error level** | This is the level used to evaluate whether the BERT had an "acceptable" bit error rate.<br>If the BERT has a bit error rate, which exceeds this error level, the ARGUS will display a "NO" as the test result.<br>Using the keypad, this parameter can be set to any value from 01 (= $10^{-01}$) to 99 ( = $10^{-99}$).<br><br>The default threshold (error level) is $10^{-06}$. That means that, in the event that the bit error rate is less than $10^{-06}$ (one error in $10^{6}$ = 1,000,000 sent bits), the bit error test will be evaluated as OK. |
| **HRX value** | The HRX setting (**H**ypothetical **Reference Connections**, see the ITU-T G.821):<br>Using the keypad, you can enter a value ranging from 0 to 100 %. |

**Bit pattern BRI/U**

This setting determines the bit pattern that the ARGUS will repeatedly send in a BERT.

There are several predefined bit patterns available.

(default setting = $2^{15}$-1).



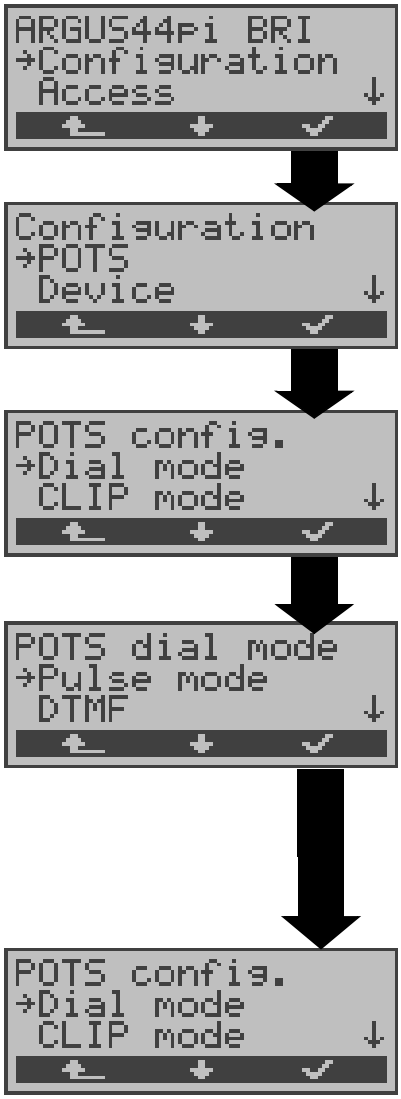

Additionally, it is also possible to enter a 16 bit long pattern of your choice in binary.


To move the cursor right or left, use the ↑,↓-Keys.
Press <**DEL**> to change [toggle] the digit before the cursor (0 to 1, 1 to 0)

Saving the bit pattern

## 16.5 Configuration: POTS

The operation is the same for all configurations and will be illustrated with a single example:




In the Main menu, use the <↓> to **Select** Configuration.

Use the <↓> to select **POTS** .

Using the <↓>, select a setting (e.g. Dial mode).

Use the <↓>-Key to select the desired dialing mode (e.g. Pulse mode).

**<** ↵ **>**: The ARGUS will return to the POTS config. menu without making any changes.

**Confirm selection**

**Settings on a POTS access:**

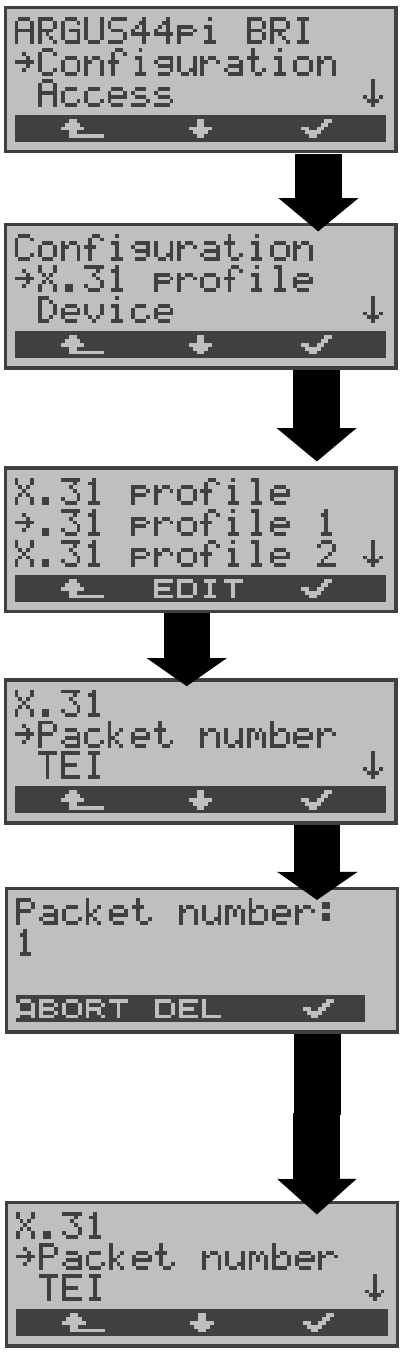
| **Display on ARGUS** | **Comment** |
|---|---|
| **Analog dial mode** | Selection of the dialing mode: DTMF or pulse dialing |

| | |
|---|---|
| **POTS CLIP** | Select the transfer procedure used to pass the call number:<br>**FSK:** CLIP via a procedure similar to a modem (for Germany and some other places in Europe)<br>**DTMF**: CLIP via DTMF (for Scandinavia and the Netherlands)<br>The ARGUS will automatically detect that a CLIP was sent using DTMF with the polarity reversal and will set itself accordingly (e.g. Netherlands). |
| **DTMF parameter** | Settings for the three parameters Level, Duration and Interval of the DTMF signals generated during POTS (analog) operation. |
| **Level** | Setting the DTMF level:<br>The level can take any value ranging from -21dB to +12 dB and can be raised (**<↑ >** or ↑-Key) or lowered (↓-Key) by 3 dB steps.<br>Default setting: 0 dB |
| **Duration** | Setting the DTMF time:<br>The duration of the signal can take a value between 40ms and 1 second (default: 80ms).<br>The value can be raised or lowered using the ↑,↓-Keys:<br>In the range 40 - 200ms in 10ms increments<br>In the range 200 - 300ms in 20ms increments<br>In the range 300 - 1000ms in 100ms increments<br>When the upper limit is reached (1000ms), the softkey **<↑>** will automatically change to a **<↓>** and vice versa when the lower limit (40ms) is reached. |

| | |
|---|---|
| **DTMF interval** | Setting the interval between two DTMF characters:<br><br>The interval between the characters can take a value between 40ms and 1 second (default: 80ms).<br>The value can be raised or lowered using the ↑,↓-Keys:<br><br>In the range 40 - 200ms: in 10ms increments<br>In the range 200 - 300ms: in 20ms increments<br>In the range 300 - 1000ms: in 100ms increments<br><br>When the upper limit is reached (1000ms), the softkey **<↑>** will automatically change to a **<↓>** and vice versa when the lower limit (40ms) is reached. |
| **Reset to** | Restores the default settings: Level = 0 dB, Time = 80 ms<br>Interval = 80 ms |
| **FLASH time** | Sets the length of a FLASH.<br>This setting is needed in order to use special features of a PBX.<br>The FLASH time can take a value between 40ms and 1s.<br>The value can be raised or lowered using the ↑,↓-Keys:<br>In the range 40 - 200ms: in 10ms increments<br>In the range 200 - 300ms in 20ms increments<br>In the range 300 - 1000ms: in 100ms increments<br><br>When the upper limit is reached (1000ms), the softkey **<↑>** will automatically change to a **<↓>** and vice versa when the lower limit (40ms) is reached. |

## 16.6 Configuration: X.31 profile

The ARGUS stores all of the parameters the various X.31 test varieties in the X.31 profiles. Up to 3 user-defined X.31 profiles can be created.




In the Main menu, use the <↓> to select **Configuration**.

Use the <↓> to select **X.31 profile**.

Use the <↓> to select a profile (e.g. X.31 profile 1).

**Edit profile 1**

Use the <↓> to select, e.g. Packet number
.

Using the keypad, enter the number of packets.
**<Press ABORT>** and the ARGUS will return to the X.31 menu without making any changes.

**Confirm selection**

| **Display on ARGUS** | **Comment** |
|---|---|
| **X.31 profile:** | |

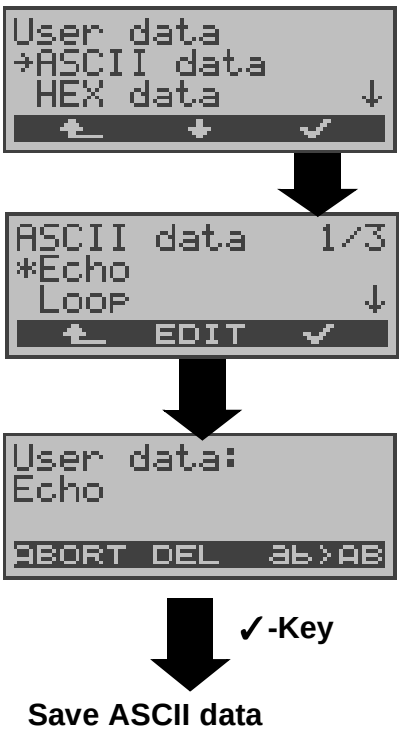
| | |
|---|---|
| **Packet number** | Number of packets sent |
| **TEI** | Entry (from the keypad) of the TEIs to be used in the X.31 test. If you enter **, the ARGUS will automatically select a TEI. |
| **LCN** | Entry (from the keypad) of the LCN to be used in the X.31 test. |
| **Packet size** | The size of the data packets (Packet size) |
| **Agree PS** | Negotiate with the network side (DCE) an agreement regarding the data packet size (Packet size).<br>If the desired data packet size is larger than the default, this parameter should be set to **on**. |
| **Window size** | Window size of Layer 3 |
| **Agree WS** | Negotiate between the terminal (DTE) and the network (DCE) an agreement regarding the window size. |
| **Throughput** | Data throughput in bits per second |
| **Agree DS** | Agreed data throughput |

**User data**

Content of the user data:

- Format setting for the user data
- Entry of the ASCII data

There are three memory locations available.




Select one of the three available memory locations for the ASCII data (in this example, the first location **1**/3)

Edit the value

Use the keypad to enter the ASCII data. When the right softkey is pressed it assumes a different meaning and thus influences the entries made from the keypad (letters or digits):

**<12>ab>** : entry of the digits 0 to 9 plus * and #

**<ab>AB>** : entry of the lowercase characters and @, /,- and .

(e.g. to enter a "c" press the "2" on the keypad three times)

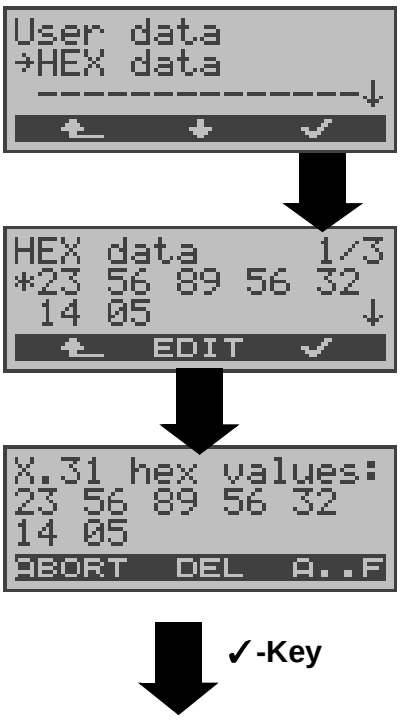
**<AB>12>** : entry of the uppercase characters and @, / ,- and .

To move the cursor right or left, use the ↑,↓-Keys.

Press **<DEL>** to delete the digit before the cursor.

**<ABORT>** : do **not** save ASCII data.

- Entry of the hex data:




Select one of the three available memory locations for the hex data (in this example, the first location **1**/3)

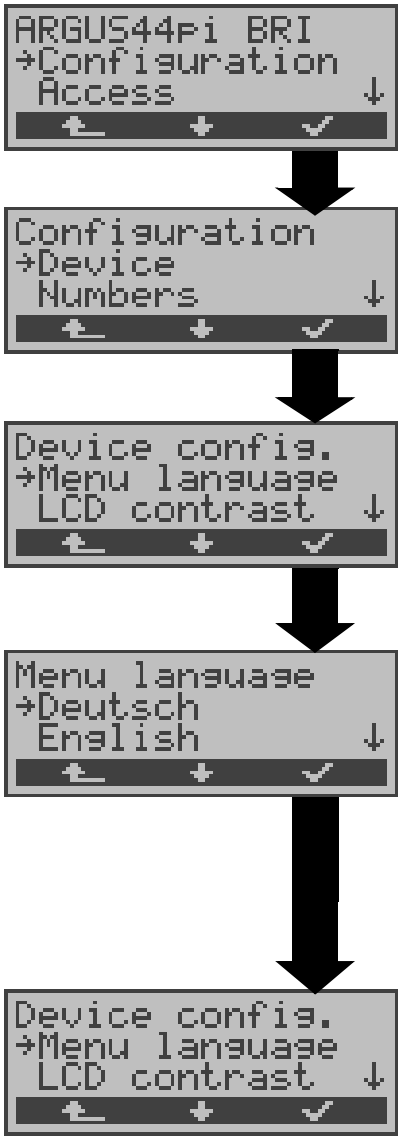
Edit the value

Use the keypad to enter the hex value. To enter the values A...F, use the softkey **<A..F>** (e.g. to enter a C, press the softkey **<A..F>** three times). To confirm the entry of the hexadecimal characters A to F press **<OK>** (the softkey in the middle changes from <**DEL**> to **<OK>)**.
Press <**DEL>** to delete the digit before the cursor.

| | |
|---|---|
| **CUG** | Closed User Group: Yes<br>No |
| **CUG Index** | Coding for Closed User Group |
| **D bit** | Local: The DCE acknowledges data packets, i.e. flow control on a local DTE-DCE path<br>end-to-end: DTE -DTE flow control |
| **Facilities** | Coding for various supplementary services |
| **Profile name** | Enter the profile names, which the ARGUS will later display. |

## 16.7 Configuration: ARGUS

The operation is the same for all configurations and will be illustrated with a single example:




In the Main menu, use the <↓> to **Select** Configuration.

Use the <↓> to select **Device**.

Using the <↓>, select a setting (e.g. Menu language).

Use the <↓> to select a language (e.g. Deutsch).

**<** ↵ **>**: The ARGUS will return to the Device config. menu without making any changes.

**Confirm selection**

**Settings on the ARGUS:**

| **Display on ARGUS** | **Comment** |
|---|---|
| **Menu language** | Selection of the menu language |

| | |
|---|---|
| **LCD contrast** | Setting the display contrast<br>(The contrast can be changed in 16 steps).<br>  |
| | Using the ↑,↓-Keys, the contrast can be increased or decreased.<br>The display shows a vertical arrow, which shows the current setting on a scale from low to high contrast. |
| **Enter date / time** | Enter the date and time.<br>(Initialisation of the internal clock) via the keypad.<br>  <br>Use the ↓ -Key to scroll to the next line.<br>The entered time will be continuously updated by the ARGUS's real time clock as long as the power is not switched off.<br>When the power is switched off (the ARGUS switched off without batteries), the clock will run a few more weeks on its internal supply. If the backup supply is exhausted, the time will be undefined and must be set again. |
| **Baud rate** | Sets the maximum Baud rate to be used by the ARGUS to communicate with a PC. |

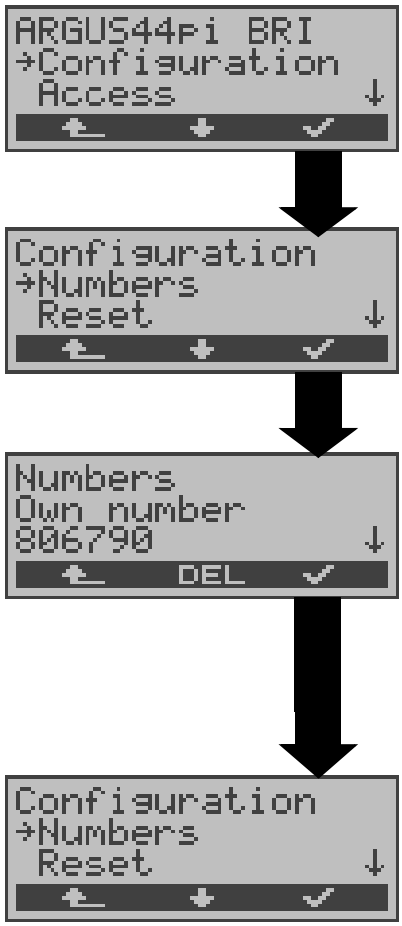
| | |
|---|---|
| **Alarm bell** | The ARGUS signals with an alarm in a variety of situations, e.g. when a bit error occurs in a BERT. When this parameter is set to "off“, all audible alarms are suppressed. |
| **Software option** | To enable a software option (e.g. additional functions), you must first enter a software key via the keypad. |

## 16.8 Saving Call Numbers

Ten call numbers with a maximum of 24-places can be entered in the speed-dialing memory.

The first speed-dial number **must** be the **own** call number of the access under test (this is especially important for the automatic Service test).

In the *Remote No.1-8* memory locations, you can save remote call numbers. In the memory location *X.31 test number* , the ARGUS expects the entry of the X.25 access number for the X.31 test (see Chap. 10.4 page 113).




In the Main menu, use the <↓>
**Select** Configuration.

Open the Configuration menu

Use the <↓> to select **Numbers**.

Using the keypad, enter the number of the access under test.
Press <**DEL>** to delete the digit before the cursor.
Using the <↓,> scroll through the speed-dialing memory.

**Save the call number.**

When entering an own call number with an extension (operation of the ARGUS on a PBX access), observe the following:
The extension is separated from the access number by a #.

For outgoing calls, the ARGUS uses the entire call number (without #) as the number called (CDPN or DAD) and, for the calling number (DSS1-CGPN or 1TR6-OAD), only the

number after the #, in other words the extension. A "#" at the beginning of a call number is treated as a valid character.

Example:
02351/9970-45 is entered as 023519970#45

If the “# “ is at the end of a number, when the number is later dialed it will be done without CGPN or OAD. This is important for some PBXs.

## 16.9 Reset

The ARGUS will reset all of the parameters to their default values.

The speed-dialing memory with the call numbers, PPP user name, PPP password, IP addresses, Download addresses and all of the test results stored in the ARGUS (e.g. Automatic test sequence) will be deleted.

The following settings are possible:

| | **Default** |
|---|---|
| Trace/Remote | Off |
| BERT time | 1 min |
| BERT error level | $10^{-06}$ |
| BERT bit pattern | $2^{11}$-1 |
| BERT-HRX | 15% |
| Bit pattern “freely-defined“ | 0000000000000000 |
| L1 permanent? | No |
| Protocol | Automatic |
| Alerting mode | Automatic |
| BRI termination | TE mode: on<br>NT mode: off |
| Call acceptance | All MSNs |
| Call parameter | depending on country version |
| Clock mode | TE mode: Slave<br>NT mode, Permanent circuit: Master |
| Voice coding | A-Law |
| DTMF / Keypad | DTMF |
| Destination MSN | 0043 |
| POTS dialing mode | DTMF |
| POTS CLIP | FSK |
| POTS AOC pulse | depending on country version |
| POTS FLASH time | 80 msec |
| DTMF parameter | 80ms/80ms/-3dB |
| Menu language | depending on country version |
| LCD contrast | Average value |
| Date | 1.1.2000 / 12:00 |
| Baud rate | 57.600 |
| Alarm bell | Off |

**X.31 profile**

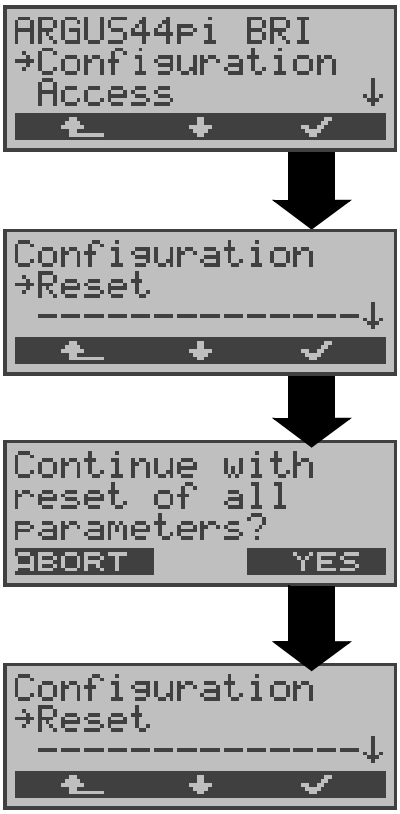
| | |
|---|---|
| Packet number | 10 |
| TEI | ** (automatically) |
| LCN | 1 |
| Packet size | 128 Bytes |
| Agree PS | No |
| Window size | 2 Packets |
| Agree WS | No |
| Throughput | 1200 bit/s |
| Agree DS | No |
| User data: | |
| Format | ASCII |
| ASCII data | Echo |
| Hex data | 1/3: 01 00 00 00 45 43 48 4F<br>2/3: 01 00 00 00 30 30 47 47 |
| CUG | No |
| CUG Index | 1 |
| D bit | Local |
| Profile name | X.31 profile 1 |

**ADSL profile:**

| | |
|---|---|
| ADSL mode | depending on the country and type of device |
| Link-Up Time | 10sec |
| Rated value | 0/0 |
| Protocol | PPPoE |
| PPTP server IP addr. | 0.0.0.0 |
| Ping IP address | 1 |
| Number of pings | 10 |
| Ping pause | 1 sec. |
| Ping packet size | 84 Bytes |
| Ping fragmentation | on |
| Traceroute IP address | 1 |
| Traceroute max. hops | 30 |
| Traceroute probes | 3 |
| Traceroute timeout | 3000 |
| Download number | 3 |
| Download address (Type) | http |
| Download address http (Index) | 1 |
| Download address ftp (Index) | 1 |

| | |
|---|---|
| VPI range in a VPI/VCI scan | 0 to 8 |
| VCI range in a VPI/VCI scan | 32 to 48 |
| Number of pings in a VPI/ VCI scan | 3 |
| Timeout in a VPI/VCI scan | 0.1 sec. |
| VPI in an ATM ping | 1 |
| VCI in an ATM ping | 32 |
| Number of pings in an ATM ping | 3 |
| Timeout in an ATM ping | 1 sec. |
| OAM cell type | F5 loopbox seg |
| FTP upload filename | file |
| FTP upload file size | 1000 Bytes |
| FTP upload number | 3 |
| ATM BERT time | 1 min |
| ATM BERT VPI/VCI | 1 / 32 |
| ATM BERT bit pattern | $2^{11} - 1$ |
| ATM BERT time | $10^{-6}$ |
| ATM BERT HRX | 30 % |
| ATM BERT data rate | 32 kbit/s |
| ATM VPI/VCI | 1/32 |
| ATM Encapsulation | LLC |
| LAN IP mode | static |
| LAN own IP address | 0.0.0.0 |
| LAN IP network mask | 255.255.255.0 |
| LAN DW-IP | 0.0.0.0 |
| LAN DHCP-Server Start / End address | 0.0.0.0 / 0.0.0.0 |
| LAN DHCP-Server Domain | none |
| LAN DHCP-Server Reserv. time | 10 hours |
| LAN DHCP-Server Timeout | 20 sec. |
| WAN IP mode | static |
| WAN own IP address | 0.0.0.0 |
| WAN IP network mask | 255.255.255.0 |
| WAN remote IP address | 0.0.0.0 |
| WAN DHCP timeout | 20 sec. |
| Router | NAT ON |

| | |
|---|---|
| DNS Server 1 | 0.0.0.0 |
| DNS Server 2 | 0.0.0.0 |




In the Main menu, use the <↓> to **Select** Configuration.

Open the Configuration menu

Use the <↓> to select **Reset**.

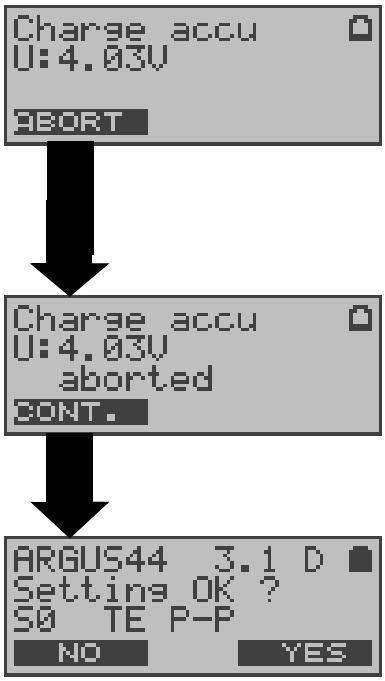
Security query

Reset to the default values

# 17 Accu servicing

### Automatic recharging of the accumulators when the ARGUS is switched on

The ARGUS automatically recharges the accumulators, if the ARGUS is connected to the plug-in power supply and the accumulator voltage is less than 3.90 volts (only use the supplied accumulators).




The LED "Line Power“ flashes while the accumulators are recharging.
If you press and hold the power switch, the ARGUS will switch off before the accumulators are recharged.
Otherwise, the ARGUS will switch itself off automatically as soon as the accumulators are recharged.

**Accu servicing**

The ARGUS will display the current charge of the accumulators, if no power supply is connected.
When the power supply is connected, the accumulators in the ARGUS can be completely discharged or immediately (without being first discharged) recharged. The discharge procedure takes up to 6 hours. The ARGUS will automatically begin recharging the accumulators after a break of about 30 minutes (depending on the capacity of the accumulators, it can take up to 7 hours to recharge them).


In the Main menu, use the <↓> to select **Accu servicing**.

Open the **Accu servicing** menu

Use the <↓> to select, for example, **Charge**.

Start charging the accumulators
(the plug-in power supply must be connected)

The ARGUS will display the level of the charge and the voltage while charging the accumulators.


**Discharging the accumulators**
The accumulators will first be fully discharged and then - after a brief pause - automatically recharged.

## 18 Testing Features with the Keypad

This feature is only relevant for a BRI access!
Some network operators do not support the standard DSS1 features, rather they expect the user to control the network via so-called keypad command sequences.

In these cases, the desired facility is usually activated by entering a series of characters and then sending these characters within a DSS1-specific protocol element. These so-called Keypad-Elements are imbedded in a SETUP message.

An outgoing call containing a keypad message is placed from the ARGUS by pressing the  -Key.

To distinguish the call from a normal call, the first character sent is the '#'. Each step is acknowledged either acoustically (handset) or via special protocol elements (cause). These causes are displayed by the ARGUS.

To simplify the use of these functions, you can use the ARGUS's speed-dialing memory.

**An example for an application:**

| | | |
|---|---|---|
| Speed-dial number 0 | 4711 | own number of the access under test |
| Speed-dial number 1 | 124527 | tel. no. of own company |
| Speed-dial number 2 | #*67# | Code for activating CFB |
| Speed-dial number 3 | ##67# | Code for deactivating CFB |
| Speed-dial number 4 | #*#67# | Code for querying CFB (interrogation) |
| Speed-dial number 5 | #*#21# | Code for querying CFU (interrogation) |
| Speed-dial number 6 | #*#61# | Code for querying CFNR(interrogation) |
| Speed-dial number 7 | *free* | |
| Speed-dial number 8 | *free* | |
| Speed-dial number 9 | *free* | |

# 19 Appendix

## A) ADSL Acronyms

| | |
|---|---|
| **ADSL** | Asymmetric Digital Subscriber Line |
| **ANT** | ADSL Network Termination Unit |
| **ANSI** | American National Standards Institute |
| **ATM** | Asynchronous Transfer Mode (network-side transmission protocol) |
| **ATU-C** | ADSL Transceiver Unit - Central Office (network-side/DSLAM) |
| **ATU-R** | ADSL Transceiver Unit - Remote (ADSL modem) |
| **BER** | Bit Error Rate |
| **CRC** | Cyclic Redundancy Check (checksum) |
| **CTRL-E** | Control External |
| **DMT** | Discrete Multi-Tone |
| **DRA** | Dynamic Rate Adaptation |
| **EOC** | Embedded Operations Channel |
| **ES** | Errored Seconds |
| **FEC** | Forward Error Correction |
| **HEC** | Header Error Control |
| **LOCD** | Loss of Cell Delineation |
| **LOF** | Loss of Frame |
| **LOP** | Loss of Power |
| **LOS** | Loss of Signal |
| **LT** | Line Termination |
| **ME** | ADSL Management Entity |
| **MIB** | Management Interface Base |
| **NIC** | Network Interface Card (network adapter card) |
| **NT** | Network Termination (network-side) |
| **OAM** | Operations, Administration and Maintenance |
| **OBC** | On Board Controller |
| **POTS** | Plain Old Telephone Service (Analog) |
| **PSD** | Power Spectral Density |
| **QOS** | Quality of service |
| **RA** | Rate Adaptation |
| **SAR** | Segmentation and Reassembly Unit |
| **SER** | Severely Errored Seconds |
| **SNR** | Signal-to-Noise Ratio |

## B) Vendor identification numbers

| | |
|---|---|
| **0000** | not allocated |
| **0001** | not allocated |
| **0002** | Westell, Inc. |
| **0003** | ECI Telecom |
| **0004** | Texas Instruments |
| **0005** | Intel |
| **0006** | Amati Communications Corp. |
| **0007** | General Data Communications, Inc. |
| **0008** | Level One Communications |
| **0009** | Crystal Semiconductor |
| **000A** | Lucent Technologies |
| **000B** | Aware, Inc. |
| **000C** | Brooktree |
| **000D** | NEC |
| **000E** | Samsung |
| **000F** | Northern Telecom, Inc. |
| **0010** | PairGain Technologies |
| **0011** | Paradyne |
| **0012** | Adtran |
| **0013** | INC |
| **0014** | ADC Telecommunications |
| **0015** | Motorola |
| **0016** | IBM Corp. |
| **0017** | Newbridge Network Corp. |
| **0018** | DSC |
| **0019** | Teltrend |
| **001A** | Exar Corp. |
| **001B** | Siemens Telecom Networks |
| **001C** | Analog Devices |
| **001D** | Nokia |
| **001E** | Ericsson Information Systems |
| **001F** | Tellabs Operations, Inc. |
| **0020** | Orckit Communications, Inc. |
| **0021** | AWA |
| **0022** | Alcatel Network Systems, Inc. |
| **0023** | National Semiconductor Corp. |
| **0024** | Italtel |
| **0025** | SAT - Société Anonyme de Télécommunications |
| **0026** | Fujitsu Network Trans. Systems |
| **0027** | MITEL |

| | |
|---|---|
| **0028** | Conklin Corp. |
| **0029** | Diamond Lane |
| **002A** | Cabletron Systems, Inc. |
| **002B** | Davicom Semiconductor, Inc. |
| **002C** | Metalink |
| **002D** | Pulsecom |
| **002E** | US Robotics |
| **002F** | AG Communications Systems |
| **0030** | Rockwell |
| **0031** | Harris |
| **0032** | Hayes Microcomputer Products, Inc. |
| **0033** | Co-optic |
| **0034** | Netspeed, Inc. |
| **0035** | 3-Com |
| **0036** | Copper Mountain, Inc |
| **0037** | Silicon Automation Systems, Ltd |
| **0038** | Ascom |
| **0039** | Globespan Semiconductor, Inc. |
| **003A** | STMicroelectronics |
| **003B** | Coppercom |
| **003C** | Compaq Computer Corp. |
| **003D** | Integrated Technology Express |
| **003E** | Bay Networks, Inc. |
| **003F** | Next Level Communications |
| **0040** | Multi-Tech Systems, Inc. |
| **0041** | AMD |
| **0042** | Sumitomo Electric |
| **0043** | Philips M&N Systems |
| **0044** | Efficient Networks, Inc. |
| **0045** | Interspeed |
| **0046** | Cisco Systems |
| **0047** | Tollgrade Communications, Inc. |
| **0048** | Cayman Systems |
| **0049** | FlowPoint Corp. |
| **004A** | I.C.COM |
| **004B** | Matsushita |
| **004C** | Siemens Semiconductor |
| **004D** | Digital Link |
| **004E** | Digitel |
| **004F** | Alcatel Microelectronics |
| **0050** | Centillium Corp. |
| **0051** | Applied Digital Access, Inc. |

**0052** Smart Link, Ltd.

## C) CAUSE-Messages – DSS1 Protocol

| Dec. | Cause | Description |
|---|---|---|
| **01** | Unallocated (unassigned) number | No access under this call number |
| **02** | No route to specified transit network | Transit network not reachable |
| **03** | No route to destination | Wrong route or routing error |
| **06** | Channel unacceptable | B-channel for the sending system not acceptable |
| **07** | Call awarded and being delivered in an established channel | Call awarded and connected in an already existing channel (e.g., X.25 SVC) |
| **16** | Normal call clearing | Normal disconnect |
| **17** | User busy | The number called is busy |
| **18** | No user responding | No terminal equipment answered (Timer NT303 / NT310 time-out) |
| **19** | No answer from user (user alerted) | Call time too long |
| **21** | Call rejected | Call rejected (active) |
| **22** | Number changed | Call number has been changed |
| **26** | Non-selected user clearing | Incoming call not awarded to this terminal |
| **27** | Destination out of order | Destination / access out of order |
| **28** | Invalid number format (address incomplete) | Wrong call number format or call number incomplete |
| **29** | Facility rejected | The facility is not offered |
| **30** | Response to STATUS ENQUIRY | Response to status enquiry |
| **31** | Normal, unspecified | Unspecified for “normal class” (Dummy) |
| **34** | No circuit / channel available | No circuit / B-channel available |
| **38** | Network out of order | Network not operational |
| **41** | Temporary failure | Network is temporarily not operational |
| **42** | Switching equipment congestion | Switching equipment is overloaded |
| **43** | Access information discarded | Access information could not be transferred |
| **44** | Requested circuit / channel not available | Requested circuit / B-channel is not available |
| **47** | Resources unavailable, unspecified | Unspecified for “resource unavailable class” (Dummy) |
| **49** | Quality of service unavailable | The requested quality of service is not available |
| **50** | Requested facility not subscribed | Requested service attribute is not subscribed |
| **57** | Bearer capability not authorized | The requested bearer capability is not enabled |
| **58** | Bearer capability not presently available | The requested bearer capability is not currently available |

| | | |
|---|---|---|
| **63** | Service or option not available | “Service unspecified or option not available class” (Dummy) |
| **65** | Bearer capability not implemented | Bearer capability is not supported |
| **66** | Channel type not implemented | Channel type is not supported |
| **69** | Requested facility not implemented | Requested facility is not supported |
| **70** | Only restricted digital information bearer capability is available | Only limited bearer capability is available |
| **79** | Service or option not implemented, service unspecified or option not implemented class” (Dummy) | Unspecified |
| **81** | Invalid call reference value | Invalid call reference value |
| **82** | Identified Channel does not exist | Requested channel is invalid |
| **83** | A suspended call exists, but this call identity does not | The call identity entered is the wrong one for the parked call |
| **84** | Call identity in use | The call identity is already in use |
| **85** | No call suspended | No call has been parked |
| **86** | Call having the requested call identity has been cleared | The parked call has been cleared |
| **88** | Incompatible destination | Incompatible destination |
| **91** | Invalid transit network selection | Invalid format for the transit network identifier |
| **95** | Invalid message, unspecified | Unspecified for “Invalid message class” (Dummy) |
| **96** | Mandatory information element is missing | Mandatory information element is missing |
| **97** | Message type non-existent or not implemented | This type of message is in this phase not permitted, not defined or not supported |
| **98** | Message not compatible with call state or message type non-existent or not implemented | The content of the message is in this phase not permitted, not defined or not supported |
| **99** | Information element non-existent or not implemented | The content of the information element is in this phase not permitted, not defined or not supported |
| **100** | Invalid information element contents | Invalid content in information element |
| **101** | Message not compatible with call state | Message not valid in this phase |
| **102** | Recovery on timer expired | Error handling routine started due to time-out |
| **111** | Protocol error, unspecified | Unspecified for “protocol error class” (Dummy) |
| **127** | Interworking, unspecified | Unspecified for “interworking class” (Dummy) |

## D) CAUSE-Messages – 1TR6 Protocol

| Dec. | Cause | Description |
|---|---|---|
| **01** | Invalid call reference value | Invalid call reference value |
| **03** | Bearer service not implemented | The service is not available in the central office or at another location in the network or the service has not been subscribed. |
| **07** | Call identity does not exist | Unknown call identity |
| **08** | Call identity in use | Call identity is already assigned to a “suspended” connection. |
| **10** | No channel available | No further B-channel is free on the subscriber's access. (only significant locally) |
| **16** | Requested facility not implemented | The entered FAC-Code is unknown in this network. |
| **17** | Requested facility not subscribed | The requested facility is not available, because the initiating or the remote subscriber is not authorized. |
| **32** | Outgoing calls barred | Outgoing calls are not possible due to the barring |
| **33** | User access busy | If the sum of the number of free B-channels, the number of occupied B-channels, the number of awarded B-channels and the number of calls without B-channel assignment equals four, new incoming calls will be cleared from the network. The calling subscriber receives a DISC with the cause “user access busy”(= first busy) and a busy signal. |
| **34** | Negative CUG comparison | Connection not possible due to negative CUG comparison |
| **35** | Non-existent CUG | This CUG (GBG) does not exist |
| **37** | Communication link as SPV not permitted | A connection is not possible, since for example, the RFNR-test was negative |
| **53** | Destination not obtainable | A connection cannot be made due to a wrong destination, service or supplementary services. |
| **56** | Number changed | Subscriber-B’s call number has changed. |
| **57** | Out of order | The remote terminal is not ready. |
| **58** | No user responding | No terminal has answered the incoming SETUP or the subscriber call was disconnected, it is assumed that someone is present (Time-out for ringing T3AA). |
| **59** | User busy | Subscriber-B is busy |
| **61** | Incoming calls barred | Subscriber-B has blocked incoming calls or the requested service is not supported by Subscriber-B. |

| | | |
|---|---|---|
| **62** | Call rejected | **To Subscriber-A:**<br>The requested connection is actively rejected by Subscriber-B (by sending a DISC as answer to the incoming SETUP). Another terminal is in the setup phase with the incoming call: The call has already been accepted by another terminal on the bus. |
| **89** | Network congestion | Network congested, e.g., switching equipment congestion, no conference set free, ... |
| **90** | Remote user initiated | Rejected or disconnected by remote end (subscriber or exchange). |
| **112** | Local procedure error | **Sent in a REL**<br>Disconnect due to local errors (e.g., not valid messages or parameters, time-out, ...).<br>**Sent in a SUSP REJ**<br>Due to another already active supplementary service, the connection may not be “suspended”.<br>**Sent in a RES REJ**<br>There is no “suspended” connection.<br>**Sent in a FAC REJ**<br>No further supplementary service request is possible, since there is still one being processed or the supplementary service requested is not available in the current state of the connection. |
| **113** | Remote procedure error | Caused by error at remote end. |
| **114** | Remote user suspended | Connection at the remote end is in the “hold” or “suspend” state. |
| **115** | Remote user resumed | Connection at the remote end is no longer in the “hold” or “suspend” or “conference” state. |
| **127** | User Info discarded locally | The message USER INFO is rejected locally. The cause is given in the message CON CON.<br>Length entry (=0)<br>Normal disconnect (e.g., in REL as answer to a DISC from subscriber or a change of service in a DISC):<br>Command to the terminal to release the B-channel. |

## E) ARGUS Error Messages

| Fault Number | Fault Class | Cause. | Description |
|---|---|---|---|
| **0** | E | Network | The network is not in a state defined for DSS1 or 1TR6. It may be that this state is normal for a PBX. |
| **1 to 127** | B,C,D,E | Network | DSS1 or 1TR6 causes |
| **150** | E | ARGUS | An error occurred during the supplementary service test. Frequent cause: No response from network |
| **152** | B | ARGUS | The CF-Test was started with the wrong own number. . |
| **153** | E | ARGUS | no HOLD is available, but HOLD is required to test the supplementary service (ECT, 3pty) |
| **154** | E | ARGUS | CLIR or COLR could not be tested, since CLIP or COLP is not available |
| **161** | B | ARGUS | The party called did not answer within the prescribed time (approx.10 sec) |
| **162** | B | ARGUS | A call was setup to a remote subscriber, instead of being setup – as was expected – to your own number. |
| **163** | E | ARGUS | The Auto-Test could not setup a connection and therefore the AOC/D supplementary service could not be tested. |
| **199** | B | ARGUS | A call number was entered. |
| **201** | A | ARGUS | Network did not confirm acceptance of the call (CONN sent, no CONN_ACK received from network) |
| **204** | A | ARGUS | - Layer 2 connection was cleared-down<br>- No response to SETUP (call setup)<br>- Layer 2 connection could not be setup |
| **205** | A | ARGUS | Reestablish the Layer 2 Connection |

| | | | |
|---|---|---|---|
| **210** | A | ARGUS | No response to the clear-down ( REL sent, no REL_CMP/REL_ACK received from network) |
| **220** | A | ARGUS | Remote end signaled that it is in State 0. |
| **245** | E | ARGUS | Keypad sent via ESC, but no response was received from network |
| **250** | E | ARGUS | FACility was sent, but no response was received from network |

### X.31 Test – Error messages

### X.31 Causes

| | | |
|---|---|---|
| **0 to 255** | Network | See ISO 8208: 1987(E)<br>Table 5- Coding of the clearing cause field in clear indication packets, page 35 |
| **257** | ARGUS | no response from network<br>(for a CALL-REQUEST or CLEAR-REQUEST) |
| **258** | ARGUS | Unexpected or wrong answer from network<br>(no CALL-CONNECTED or CLEAR-INDICATION as response to a CALL-REQUEST) |
| **259** | ARGUS | The network has indicated in a DIAGNOSTIC message that the logical channel is invalid.<br>Origin: No (=1) or a wrong LCN was set. |
| **260** | ARGUS | The Layer 2 connection was interrupted<br>e.g. by pulling the BRI plug. |
| **512** | ARGUS | It was not possible to determine an internal or external cause.<br>Origin: Layer 2 could not be setup or remote end does not support X.31 |
| **65535** | ARGUS | X.31 Layer 3 test was not performed. The error can only occur in a test log. |

### X.31 Diagnostic (only for a cause less than 256)

| | | |
|---|---|---|
| **0 to 255** | Network | See ISO 8208: 1987(E)<br>Figure 14A page 121<br>Figure 14B page 123 et seq.<br>And/or<br>CCITT Recommendation X.25, Annex E |

## F) Error message: ADSL connection

| ARGUS Error Message | Meaning of the Error Message |
|---|---|
| Incomp.linecon. | Incompatible line conditions:<br>One or more of the following conditions could not be met on the line: ATM data rate, signal-to-noise ratio or transmit power. |
| No lock possib. | No lock possible:<br>A connection to ATU-C is not possible. |
| Protocol error | An error occurred during the activation phase. |
| Message error | During the activation, a message arrived from the ATU-C side that could not be understood. (possibly the wrong format or a CRC error) |
| Spuri. ATU det. | Spurious ATU detected:<br>This error will be displayed when:<br>1. An activation signal has been detected on the line, but it is not from the ATU-C. (Fault on the line)<br>2. An error occurred before the ARGUS received a complete message with a correct CRC sum.. |
| Forced silence | The idle (silent) phase (1 minute) initiated by the ATU-C side was not kept.<br>During this period, an activation may not be initiated. |
| Unsel.op.mode | Unselectable operation mode:<br>Operation mode not supported. |
| Cancelled | The test was interrupted or timed out. |

## G) Error message: PPP connection

| **Display on ARGUS** | Description |
|---|---|
| No error | No PPPD error occurred. |
| Fatal error | Fatal PPPD error occurred.<br>Possible cause: System or memory error |
| Option erro | The PPPD options are faulty: Wrong parameters for PPP setup |
| PPP: Not root | The PPPD must be called by the Linux "root" user. |
| No PPPD support | Operating system does not support PPP connections. |
| Rec.sig.error | The PPP setup was canceled by a SIGINT, SIGTERM or SIGHUP signal, e.g. canceled by the user or because the waiting time has elapsed. |
| PPP: Port open error | PPPD communications error<br>Serial port could not be locked. |
| PPP: Port open error | PPPD communications error.<br>Serial port could not be opened. |
| Con.script err. | Error when calling the connection script. |
| PPP: Command erro | Not possible to start with the PPPD's pty option |
| Negotiation err | Cannot negotiate the network protocol for PPPD, so the remote site is not reachable. |
| Idle release | Connection was terminated, since there was no activity. |
| Time out rel | Connection was terminated, since the maximum connection time elapsed. |
| PPP Callback | Callback was initiated, an incoming call is expected soon. |
| PPP: Echo req. error | Remote site did not answer echo requests so the connection has been terminated. (PPP connections are tested at regular intervals by sending echo requests to the remote site.) |
| Hanging up rel | Disconnected by remote site. |
| Loopback erro | The setup of the PPP connection was cancelled, since a loopback was detected. |
| Init script err. | Error caused by the PPPD's init script. |
| Authent. Error | Authentication error: Wrong user name or password - rejected by remote site. |

| | |
|---|---|
| PADO timeout | No PADO packet received. |
| PADS timeout | No PADS packet received. |

## H) Error message: Download test

| Display on ARGUS | Description |
|---|---|
| Download OK | No error occurred. |
| Buffer overflow | Buffer overflow when using base64 encoding. |
| Process error | Error when setting up the Exit handler. |
| Buffer too small | Buffer too smallBuffer too small for the extra_header. |
| Continue error | Download cannot be continued without specifying a file. |
| File fstat error | File system error when calling fstat(). |
| Http redir.error | Fault: Too many HTTP redirects. |
| Http no response | No answer from HTTP server. |
| Http serv.error | HTTP server has returned an error.<br>(for details see the table below "HTTP Error Messages") |
| Http encod.error | Due to an encoding problem, data transfer with HTTP is not possible. |
| Ftp open error | Error when opening the FTP connection. |
| Ftp login error | FTP login error: Wrong user name or password or anonymous login not supported. |
| Ftp passiv err. | FTP server does not support passive transmission mode. |
| Ftp rec. error | FTP receive error. |
| File write error | File system error when calling fwrite(). |
| Network error | Network error |
| Ftp error | General FTP error. |
| URL error | Fault: No HTTP or FTP URL specified. |
| Socket error 1 | Error when opening a socket. |
| Socket error 2 | Error when connecting a socket.<br>The server's HTTP service is not available. |
| FDopen error | Error when opening a file. |
| Http Head.error | Error in the header of the requested HTTP file. |
| Ftp no file | FTP download error: No such file or directory found. |

| | |
|---|---|
| Unknown address | Unknown host address.<br>Possible cause: Error in the address entered, DNS resolution not working or network not accessible. |
| Unknown dl error | Unknown download error |

**HTTP Error Messages**

| **Display on ARGUS:**<br>**Code No.** | **Meaning** |
|---|---|
| 100 | Client should continue its request. |
| 101 | The protocol is being changed at the Client's request. |
| 200 | The Client's request has succeeded. |
| 201 | The Client's request that a new document be created was successful. |
| 202 | The Client's request has been accepted for processing. |
| 203 | The Client's request will be answered with information from a source other than the server. |
| 204 | The Client's request was successful. The server sends [no content] only the HTTP header. |
| 205 | The Client's request was successful. The server [resets content] sends a new HTTP body. |
| 206 | The Client's request was successful. The server sends only part of the requested document [partial content]. |
| 300 | The request was not precise enough so multiple documents have been returned. |
| 303 | The requested resource has been found at a different URI and should be retrieved from there. |
| 304 | The requested document has not been changed in the interim. |
| 305 | The requested document must be retrieved from a proxy instead of from the server. |

| | |
|---|---|
| 307 | The requested resource has been temporarily relocated to a different URI [temporary redirect]. |
| 400 | Syntax error in the Client's request [Client error]. |
| 401 | The request requires user authentication. |
| 402 | Payment is required to process this request. |
| 403 | The Client's request has been refused. (e.g. because authentication failed.) |
| 404 | The requested document was not found (e.g. because of an error in the URL entered or while the document is no longer available). |
| 405 | The method specified by the Client in its request is not allowed by the server. |
| 406 | The requested document in a format that is not supported by the Client. |
| 407 | The request requires that the Client authenticate itself with a proxy. |
| 408 | The Client did not place its request within the time allowed by the server [Request Timeout]. |
| 409 | Due to a conflict (e.g.another request) the Client's request cannot be completed by the server. |
| 410 | The requested URL is [gone] no longer available on the server. |
| 411 | The Client sent data to the server without a defined Content Length. |
| 412 | The preconditions in the Client's request could not be satisfied by the server. |
| 413 | The Client's request has been refused by the server because the request entity is too large. |
| 414 | The Client sent a URL to the server that is too large. (e.g. because of the form values contained.) |
| 415 | The Client's data is not supported by the server. |
| 416 | The range (in a document) requested by the Client [is not satisfiable] does not exist. |

| | |
|---|---|
| 417 | The server could not (or did not wish to) satisfy the Client's expectation given in the Expect request header field. |
| 424 | For aesthetic reasons, the requested document will not be sent by the server. |
| 500 | Due to an unexpected condition, the server cannot fulfill the Client's request (e.g. faulty configuration, missing or wrong CGI program). |
| 501 | The server does not support the function required to fulfill the Client's request. |
| 502 | The server received an invalid response from an upstream server or proxy which it accessed in attempting to fulfill the request. |
| 503 | The server is currently unable to handle the request due to a temporary overloading of the server. |
| 504 | The Client's request (of a gateway or proxy) did not receive a response within the specified time. |
| 505 | The server does not support the HTTP protocol version that was used in the Client's request. |

## I) General Error Messages

| Display on ARGUS | Description |
|---|---|
| Mode not supp. | Mode currently not supported.<br>The following modes are supported:<br>PC_REPLACEMENT_MODE,<br>PC_MODEM_REPLACEMENT_MODE,<br>MODEM_REPLACEMENT_MODE |
| Prot. not supp. | The protocol (IP, PPPoE, etc.) is not supported in the selected mode. |
| Test not supp. | The test (Ping, Traceroute, etc.) is not supported for the selected mode and protocol. |
| Unknown error | Unknown error occurred. |
| No PPP connec. | No PPP connection can be setup. (for details see Page 218) |
| Test aborted | Test aborted by user. |
| Pingstart error | Error when starting the Ping test. |
| Fault: Unexp. IP down | Unexpected termination of the PPP connection. (for details see Page 218) |
| Unexp. PING end | Unexpected termination of the Ping test. |
| Interface error | Error while starting/terminating the network interface. (for details see the error codes of the interface script) |
| Fault: TR Start | Error when starting the Traceroute test. |
| Fault: TR Packet | The test timed out since the traceroute answer packet did not arrive within the specified time. |
| DHCP timeout LAN | DHCP Client timeout (LAN) |
| DHCP NAK err LAN | The DHCP server refused the DHCP client (LAN) |
| Download timeout | Error when starting the Download test. |
| No DL answer | Error while performing the Download test (for details see Page 220). |
| MASQ error | Error while starting/terminating the routing rules. (for details see the error codes of the routing rules) |

| | |
|---|---|
| TR unreachable | The destination host cannot be reached with UDP packets from traceroute. Possible cause: Router or firewall is discarding UDP packets |
| DHCP timeout WAN | DHCP client timeout (WAN) |

## J) ARGUS Messages - Script Errors

| **Display on ARGUS**<br>**Error Code** | **Description** |
|---|---|
| 0 | No error occurred. |
| 33 | Wrong parameter. Possible parameters: PRE_UP, UP or DOWN |
| 44 | Mode not supported for selected parameter. |
| 55 | Protocol not supported for selected parameter and mode. |
| 66 | Selected modem replacement mode is not supported. Possible modes: BRIDGE or ROUTER |

## K) ARGUS Messages - Routing Rules

| **Display on ARGUS**<br>**Error Code** | **Description** |
|---|---|
| 0 | No error occurred. |
| 77 | Wrong parameter.Possible parameters: START and STOP |
| 88 | Packet filter mode is not supported. Possible modes: STRICT and ALL |
| 99 | Error in the selection of dynamic or static. Possible selections: DYNAMIC or STATIC |