

# **ARGUS 44**

# **Manual**

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## 1 Introduction

The **ARGUS** is a compact all-in-one tester for ADSL, ISDN and POTS (analog) accesses.

The ARGUS Flash-ROM technology permits the user to download protocol changes or new functions from a PC into the ARGUS (free software updates are available at [www.isdntester.com](http://www.isdntester.com)).

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:

- **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 datatransmission at 64 kbit/s etc.?

- **Bit Error Tests - BERT (evaluation in accordance with G.821/G.826)**

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 and Manual X.31 Test**

- **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.

- **Line Test**

Checks the terminating resistors for the cabling of a four-wire bus.

Detects cabling problems (e.g. broken wires, short-circuits or crossed wires).

- **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**

- **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.



- **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:

**intec GmbH**  
Rahmedestr. 90  
D-58507 Lüdenscheid  
Tel.: +49 (0) 2351 / 9070-0  
Fax: +49 (0) 2351 / 9070-70



### 2 Safety Notices

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.

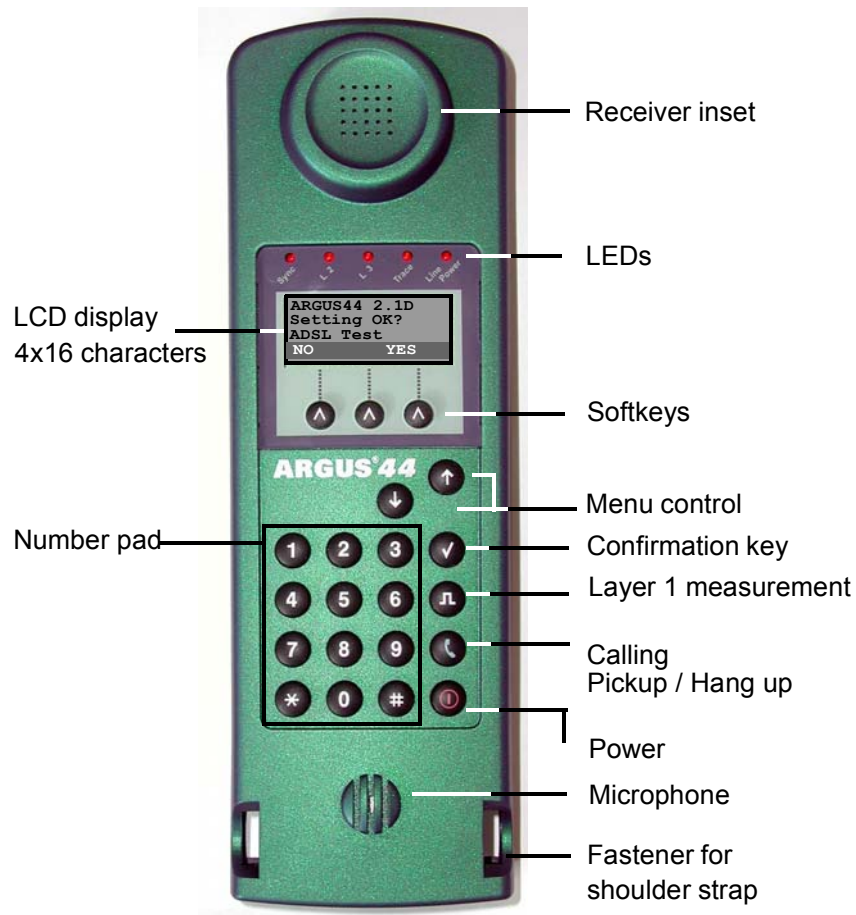
- To prevent electrical shocks or damage to the ARGUS, do not connect it to lines with voltages in excess of 100 V!
- Never attempt a measurement with the case open!
- The ARGUS is not watertight. Protect the ARGUS from exposure to water!
- Before replacing the battery(see page 15 Changing the batteries), disconnect all the test leads and switch the ARGUS off.

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

### 3 Technical Data

<p><b>Dimensions / Weight</b></p> <p>Height 229 mm</p> <p>Width 72 mm</p> <p>Depth 35 mm</p> <p>Weight 350 g (without batteries and protective case)</p> <p><b>Keypad</b></p> <p>21 Keys</p>	<p><b>Inputs / Outputs</b></p> <p>1 RJ45 for BRI, ADSL or POTS (analog)</p> <p>1 jack for an external power supply</p> <p>1 RJ45 for Line test and serial transfer</p>
<p><b>LCD display</b></p> <p>LCD display with switchable background lighting</p> <p>4 lines with 16 characters</p>	<p><b>Temperature Ranges</b></p> <p>Ambient-temperature: 0 °C to +50 °C</p> <p>Operating temperature: -5 °C to +55 °C</p>
<p><b>Memory</b></p> <p>EEPROM Non-volatile memory: 2048 Bytes</p> <p>Flash program memory: 1 Mbyte</p> <p>S-RAM: 128 Kbytes</p>	<p><b>Power Supply</b></p> <p>3 high current AA (Mignons) (e.g. Duracell Ultra) or NiMH accumulators (recommended) or 9 V, plug-in power supply or BRI feed</p>

## 4 Operation

**Power-Key:**

- To switch the ARGUS ON/OFF
- To start up again after a power down
- Switches on the display backlighting (to save power, in battery mode the backlighting is switched OFF automatically after 5sec.)
- 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



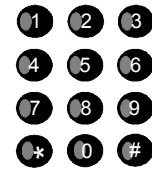
### Telephony

- 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 (see Chap. 6.3 Keys)



### 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. When the power supply is plugged into this connector, the battery will be disconnected.

- **Line**




Pin Assignment

3/4/5/6 **BRI**

7/8 **a/b (POTS / analog), ADSL**

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

- 
  - Connector for a headset
  
- **L-Test**
  - Connection for the test adapter for line tests
  - Serial interface to connect a PC or - via a serial/parallel adapter - a parallel printer

### Changing the batteries

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



You must use NiMH rechargeables or high current AA (Mignon) batteries (e.g. Duracell Ultra).

A battery symbol begins to blink in the LCD display, when there is still approximately 5 minutes reserve. Errors and malfunctions may occur during this last 5 minutes.

### Power Down

In battery operation, if the ARGUS is idle for 15 minutes, it will automatically switch to the power-down mode (power-down). From this mode, the system can only be reactivated by pressing the Power-Key. In the power-down mode, a battery will last several years. Therefore, this mode serves as an effective protection against discharging the batteries.

Naturally, when the loopback function is active on the ARGUS or it is in Trace mode, the ARGUS will not **not** switch to power-down mode.

As an alternative, it is possible to operate the ARGUS using the included power supply. When the power supply is connected, the battery is automatically disconnected.

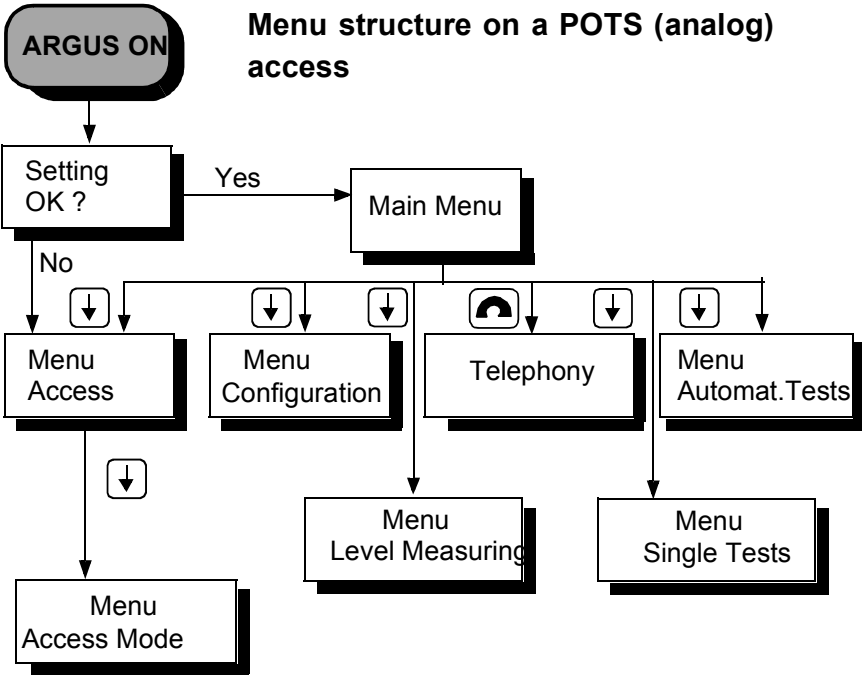
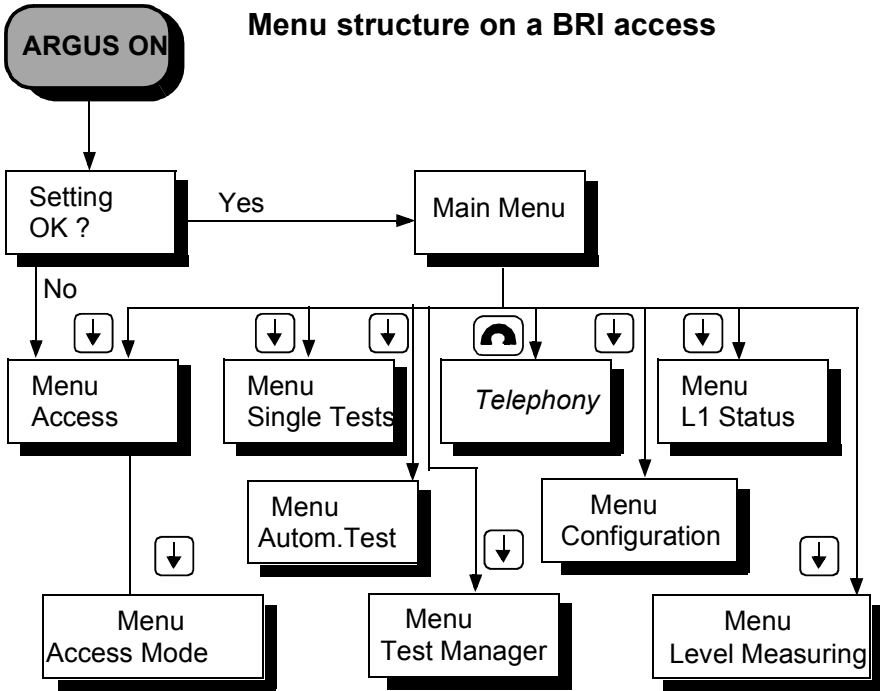
The ARGUS can also be powered from the BRI line. In this case, it does not need batteries, accumulators, or the plug-in power supply.

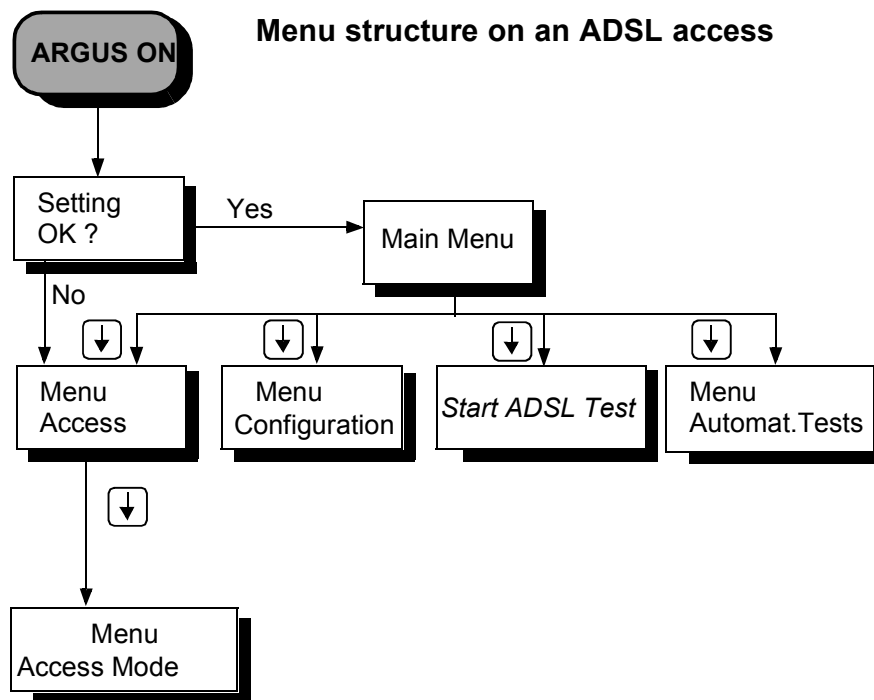
Whenever the ARGUS is powered from the plug-in power supply or the BRI line, the power-down mode is reasonably enough disabled.





5 Menu Hierarchy





### The Access Menu

Selection of the physical access:

- **Basic Rate Interface**
- **ADSL**

The ARGUS will setup an ADSL connection and display the relevant measured values in accordance with the selected ADSL mode.

- **POTS (analog) Interface**
- **Automatic**  
automatic recognition of the interface used (not for the ADSL access )
- **Line test**  
This tests the terminating resistors for the cabling of a four-wire bus. Additionally, the test also detects errors in the cabling e.g. broken wires, short-circuits and crossed wires.

### **The *Access Mode* Menu**

Dependent on the physical access selected, the *Access Mode* menu will automatically open (in the *Access menu*):

#### **Operation on a BRI Access**

- **TE Automatic (TE-Simulation automatically)**
- **TE P-P (TE-Simulation point-to-point)**
- **TE P-MP (TE-Simulation point-to-multipoint)**
- **POTS Monitor**

The ARGUS records all of the D-channel signals and passes them to the serial interface or the infrared interface. Layer 1 will not be actively affected by the monitor function.

- **Permanent circuit**  
for telephony, BERT, loopbox

#### **Operation on a POTS (analog) access**

- **POTS terminal**
- **POTS (analog) Monitor**  
High impedance tap without influencing the interface

### **The *Single Tests***

- **Supplementary Services**

Supports, for 1TR6, automatic query of the available supplementary services as well as, for DSS1, manual selection of – and then automatically run – tests of the most important supplementary services.

- **Service Tests**

Tests all of the important services by setting up a call to itself. To perform this test completely, there must be at least 2 B-channels available.

- **Bit Error Test**

Performs a simple bit error test, which can be run as either an extended call to itself, to a loopbox or “end-to-end”.

During the test, the ARGUS shows the bit errors and the remaining measurement time in seconds. The test results, the bit error rate, will be presented in exponential form. Additionally, the results will be evaluated in accordance with ITU-T G.821 and G.826.

With permanent circuits and dialup connections, the same type of BERT can be run simultaneously on the second B-channel in end-to-end operation .

- **X.31 Test**

- Automatic X.31-Test

The ARGUS will first set up a D-channel connection and then begin setting up the X.31 connection. The ARGUS will then automatically clear the connection and display the results.

- Manual X.31 Test

The ARGUS will setup a D-channel 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.

- **CF Interrogation (only on a BRI access with DSS1)**

The ARGUS checks whether call diversions are active in the exchange for the access under test (either CFU, CFNR or CFB). All currently setup call diversions will be shown on the ARGUS (maximum of 10) and can, where needed, be deactivated.

- **MSN Interrogation (only on a BRI access with DSS1)**

On a P-MP access using the DSS1 protocol, the ARGUS will determine the MSNs (a maximum of 10) of the access under test. In order to interrogate the MSNs, the access under test must support the supplementary service CF (Call Forwarding).

- **Connection**

The call will be set up to the dialed number and the ARGUS will display the number called, other information (e.g. SUB, T.o.n etc.) and the B-channel used.

In the case of the service *Telephony*, the speech channel will be switched onto either the integrated handset or an optional headset.

- **Time measuring**

The ARGUS measures the setup time, the data's propagation time and the transit time differential (interchannel delay).

### ***Test Manager Menu***

It is possible to simultaneously and independently run multiple tests (or connections). All of the tests that have been started will be administered by the Test Manager.

### ***Automatic Tests Menu***

- **Start**

The ARGUS automatically executes the test(s) on the BRI access and saves the results. Up to 20 records holding test series or measurement data from ADSL tests can be saved at any one time.

- **View**

The ARGUS displays the results of a saved test series or the measurement data from an ADSL test.

- **Test data to PC**

The test data (from the test series or an ADSL Test) that was saved on the ARGUS will be sent to the connected PC (when WINplus is started). WINplus presents the measured data in a clear test report.

- **Printing**

With a special (optional) cable, you can print a simplified test report on a Centronics printer.

- **DELETE**

The measured data from a test series or an ADSL test, which is stored in the ARGUS, will be deleted.

**Configuration Menu**

- **Trace mode**

The ARGUS outputs the recorded D-channel data directly to the connected PC.

- **Enter numbers**

Enter a maximum of ten (24 place) call numbers in the speed dialing memory. The first number in the speed-dialing memory must be the own call number of the access under test. This call number will be needed later for the service test as well as for use in all outgoing calls as your own call number (CGPN or OAD).

- **ISDN**

Settings in ISDN:

- **Protocol**

Manually switch between the 1TR6, DSS1, CorNetN, CorNetT and QSIG protocols or the automatic protocol recognition.

- **Alerting mode**

Setting to display numbers dialed after an incoming call is setup.

- **BRI termination**

Selection for connecting a terminating resistor to the BRI access.

- **Call parameter**

Two different parameters (network and user side) can be set for a call setup (in ISDN):

- **Type of Number (TON)** for the CGN or CDN element of a SETUP signal
    - **Numbering plan (NP)** for the CGN or CDN element of a SETUP signal

- **Call accepted**  
Sets, which calls the ARGUS should signal on a P-MP access: own MSN or all
  
- **Voice coding**  
Sets the coding of the voice data in the B-channel.
  
- **BERT**  
Options for the BERT
  - **BERT time**  
Set the duration of the BERT in minutes.
  
  - **HRX value**  
Set the HRX value (hypothetical reference connection see ITU-T G.821)
  
  - **Error level**  
Enter the error level for the automatic Good/Bad evaluation of the bit error test
  
  - **Bit pattern**  
Selection of the bit pattern used in the bit error test
  
- **ADSL**  
Settings for the ADSL access
  - **ADSL Mode**  
Setting the ADSL Mode
  
  - **Link-up Time (Test Duration)**  
Setting for the duration of the ADSL connection – how long the ARGUS measures the ADSL values.
  
- **POTS**  
Settings for a POTS (analog) access
  - **POTS dial**  
Specifies the analog dialing mode: DTMF or pulse dialing
  
  - **POTS CLIP**  
Set the transfer procedure used to pass the call number: FSK or DTMF

- **DTMF parameter**  
Settings for the parameters *Level*, *Duration* and *Interval* of the DTMF signals generated during POTS (analog) operation.
  
- **FLASH time**  
Set the duration of the FLASH time (40 ms to 1 second)
  
- **ARGUS**  
Settings for the ARGUS
  - **Menu language**  
Select the language to be used in the menus
  
  - **Date entry**  
Enter the date and time.
  
  - **LCD contrast**  
The contrast setting for the display
  
  - **Handset**  
Select the internal handset or an external headset
  
  - **Printer**  
Setup the printer used for the print function
  
  - **Alarm**  
Activates or deactivates the ARGUS's alarm signal (e.g.in the event of an error)
  
  - **Baud rate**  
Sets the maximum baud rate (used in linking the ARGUS to a PC)
  
- **Reset**  
Resets all of the settings to the original factory (default) settings

### **The *Level Measuring***

- **Level measuring on a BRI access**
  
- **Level measurement on a POTS (analog) access**



### **The *L1 Status* Menu**

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

### ***Telephony***

Simplified calling using the telephone key (only on a POTS or BRI access).

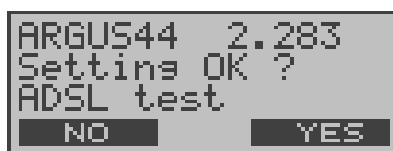
Press the telephone key twice to get a trunk (outside) line. Once the call number is entered the call will be setup.



## 6 Automatic Access Test

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

Once the ARGUS is switched on, the starting window will open displaying the access and mode parameters selected last:



### Displayed in the first line:

The software version number: 2.282

### Displayed in the third line:

Type of access: ADSL, BRI or POTS

Operating mode: TE = TE-Simulation  
Perman.swit.  
Monitor  
Terminal (only with a POTS (analog)  
access)  
Line Test

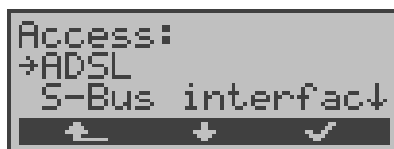
### Displayed in the fourth line:

The fourth line displays the current assignment of the three softkeys below.

If you press on **"Yes"** (= softkey on the right), the displayed parameters will be accepted and the ARGUS will be initialized.

The softkey in the middle has no function in this state.

If you press on **"No"** (=softkey on the left), changes to the displayed parameters will be discarded and the Access menu will be opened:



With the ↓ ↑-keys, specify which type of physical access is to be tested.

If “*Automatic*” is selected at this point, the ARGUS will automatically determine the physical access (BRI or analog). In this case, the ARGUS sets the BRI access to TE-mode (see Chap. 6.3.1 page 36).

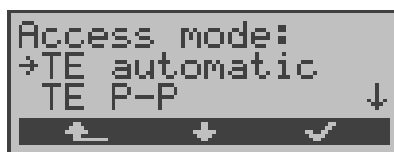


In this case, the Access Mode menu will not open, therefore functions such as the BRI Monitor and Permanent Circuit are not available.

The selected type of access will be marked on the left edge of the display with an arrow →. Press the confirmation key or the softkey on the right < ✓ > to confirm the selected type of access (see Chap. 6.2 ARGUS Operation – The Keys page 32).

Alternatively at this point, you can also select the line test and, by pressing the softkey < ✓ > on the right, directly start it (see Chap. 6.3.2 page 37).

The *Access Modemenu* will open automatically(see Chap. 7 page 41)..



Using the ↓ ↑-Keys or with the < ↓ > softkey in the middle, select the desired access mode.

The selected access mode will be marked on the left edge of the display with an arrow → (in the example: TE-automatic).

Press the confirmation key or the < ✓ > softkey on the right to confirm the selected type of access.

**Initializing the ARGUS:****- Using an ARGUS on a BRI access:**

Once the access and access mode parameters have been selected or accepted, Layer 1 will be setup. While Layer 1 is being setup, the *Sync* LED above the display will blink. If an error occurs, the message *No Net* will be displayed.

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

Once Layer 2 is successfully setup, LED L2 will light continuously.

If no error occurs, the ARGUS will display the successfully found access and access mode in the third line. Additionally, a qualitative assessment of the level will be displayed.

Now the ARGUS will determine the protocol or will set the stored protocol (see on page 135 “Manually setting the D-channel protocol:”) and will then attempt to setup Layer 3 (LED L3 will light). At the same time, the B-channel test will be started and the results will be displayed.

The ARGUS will then idle in the Main menu’s status display.

**Status display example:**

```

ARGUS44 BRI
B12      Level: OK
TEs P-MP DSS1
MENU RESTART

```

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

The bus configuration (D-channel Layer 2 Mode) is displayed in the third line:

P-P = point-to-point

P-MP = point-to-multipoint

In the example, both B-channels are available.

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.

In the example, the level is in order (the level can only be evaluated on a BRI access):

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

### The ARGUS is in TE mode.

On a bilingual access, the ARGUS uses the DSS1 protocol and thus behaves as a “DSS1 terminal”.

You can manually switch the ARGUS to the 1TR6 protocol using the *Protocol* function in the *Configuration/ISDN* menu (see “Manually setting the D-channel protocol:” on page 135.).

### - Operating the ARGUS on a POTS access

The following will be displayed:



```
ARGUS44 POTS
MENU RESTART
```

### - Operating the ARGUS on an ADSL access



```
ARGUS44 2.283
ADSL test
MENU START
```

Software version

The fourth line displays the current assignment of the three softkeys below.

To start the ADSL Test directly, press the <START> softkey on the right (see “ADSL Test” on page 51.). If the test cannot be completed without errors, the ARGUS will display an error message in accord with class of error (see “ADSL Test – Error messages” on page 53.).

If you press the <MENU> softkey, the ARGUS will return the Main menu:



```
ARGUS44 ADSL
→Start ADSL test
Automatic test↓
← ↓ ✓
```



## 6.2 ARGUS Operation – The Keys

The ARGUS is in largest part operated with the two ↓ ↑ - Keys, the confirmation key ✓ and the three softkeys.

In the status display, the <MENU> softkey will return the ARGUS to the Main menu, which includes of a list of all of the available menus.

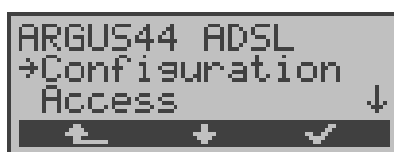
In the remaining manual, the softkeys are represented by their respective labels placed in brackets < >, thus, in the sample above, the softkey would simply be < MENU>.

The < ✓ > softkey serves the same function as the ✓ confirmation key and the < ↓ > softkey performs the same function as the corresponding arrow key on the ARGUS keypad.

Once the list is open, you can scroll through the available menus with the < ↓ > Key:

on a BRI access	POTS access	ADSL access
• <b>Single Tests</b>	• <b>Single Tests</b>	• <b>START ADSL Test</b>
• <b>Automat.Tests</b>	• <b>Automat.Tests</b>	• <b>Automat. Tests</b>
• <b>Test Manager</b>	• <b>Level Measuring</b>	• <b>Configuration</b>
• <b>Level Measuring</b>	• <b>Configuration</b>	• <b>Access</b>
• <b>L1 Status</b>	• <b>Access</b>	
• <b>Configuration</b>		
• <b>Access</b>		

A ↓ displayed after a menu indicates that this menu has further entries, which can be scrolled through using the < ↓ > Key.



With the < ✓ >, you can open the menu currently marked with the → (in the example *Configuration*).





The name of the currently opened menu will be displayed in the first line. Below this are the available functions. A ↓ on the right side of the display indicates that you can scroll through additional functions with the <↓> Key.

With the <✓>, you can open the menu currently marked with the → (in the sample *ADSL*).

With <↑> you can jump from the current display back to the previous level.

#### Function keys:

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

**Number 2 Key** Start Service Test

**Number 3 Key** Start Supplemental Service Test

**Number 4 Key** Start Auto. Test

**Number 6 Key** Start Test Manager

**Number 7 Key** Entry of your own and remote call numbers in the speed-dialing memory

**Number 8 Key** Trace ON/OFF

**Number 9 Key** 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.

#### Operation table:

Throughout the remaining manual, under each display, you will find a table that describes the operation of the ARGUS in the current situation.

On the left side of the table, you will find all of the ARGUS keys that are available for the user to press in the current state (e.g. ↓ for the ↓ Key or <↓> for the corresponding softkey).

## 6 Automatic Access Test

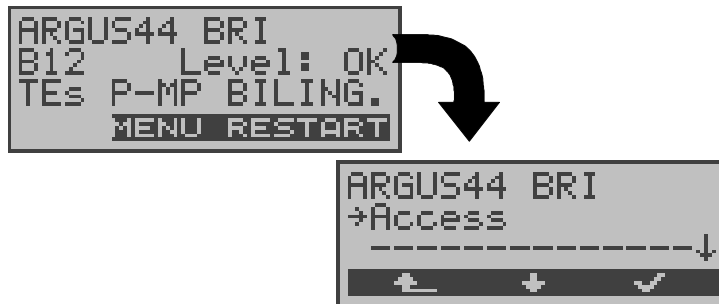
---

On the right side of the table, you will find an explanation of the function of each key in this context.

① ② ③ means that at this point the ARGUS expects  
④ ⑤ ⑥ the user to enter data on the numeric keypad  
⑦ ⑧ ⑨  
⑩ \* 0 #

### 6.3 Menu: Access

Opening the Access menu:

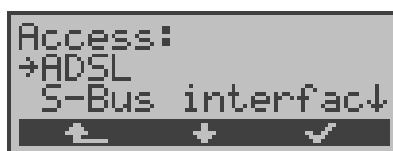


	Operation
<RESTART>	Repeat B-channel test
< MENU >	Open the <i>Main menu</i>
< ↓ >	Select the Access menu
< ✓ >	Open the Access menu
< ↶ >	Return to the status display

### 6.3.1 Selection of the physical access

In the Access menu, select the type of physical access to which the ARGUS connected. When the ARGUS is restarted, the settings used last will be suggested as the default.

If **Automatic** is selected, a fully-automatic process will be started: The ARGUS will determine whether the access is a BRI or POTS access. If it is a BRI access, the ARGUS will be set in TE mode and will automatically determine the correct access mode (PP or P-MP). The ARGUS will determine which D-channel protocol is used on the BRI access and will then perform the B-channel test. After the level has been measured (only on a BRI access), the ARGUS will return to the Main menu.



	Operation
< ↓ >	Select desired access
< ✓ >	Confirm
	If the BRI or POTS interface is selected, the Access Mode menu will open automatically.
< ↶ >	Return to the Main menu

### 6.3.2 Line Test

The ARGUS tests the terminating resistors for the cabling of a four-wire bus. Additionally, the test also detects errors in the cabling e.g. any broken wires, short-circuits and crossed wires.



Unplug the NT and all terminal equipment from the bus, before performing a line test!

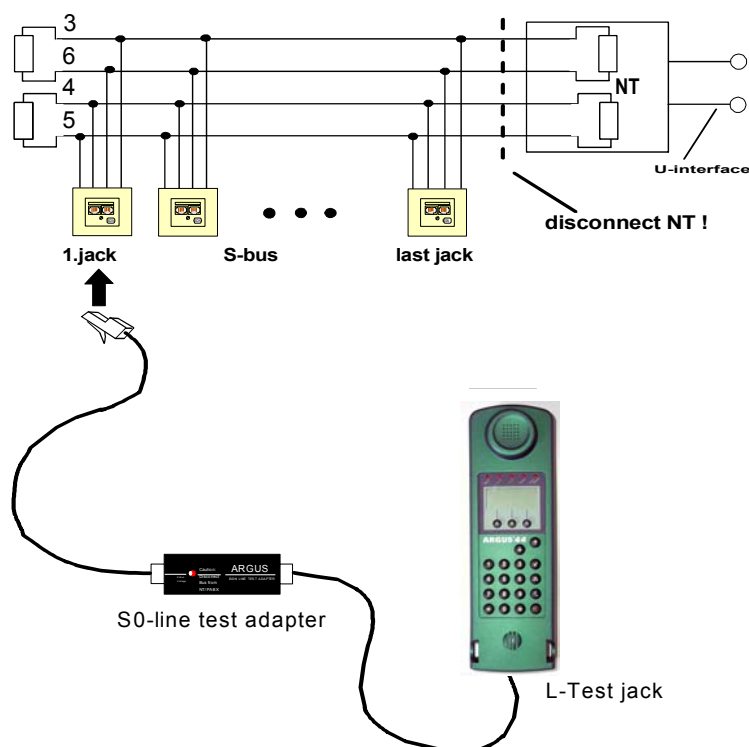
If the ARGUS detects an operator error (Line test on a fed bus), it will emit a continuous acoustic signal. In this case, to prevent the destruction of the ARGUS, the line test will **not** be started.

#### Test sequence:

To perform a thorough test of the lines, the test must be done in 2 steps.

#### First step:

Use the test adapter to connect the ARGUS to the lines to be tested. In this step, the ARGUS will determine whether or not there is a short circuit or a terminating resistor and whether there is a fault between the terminating resistor – if there is one – and the test adapter.

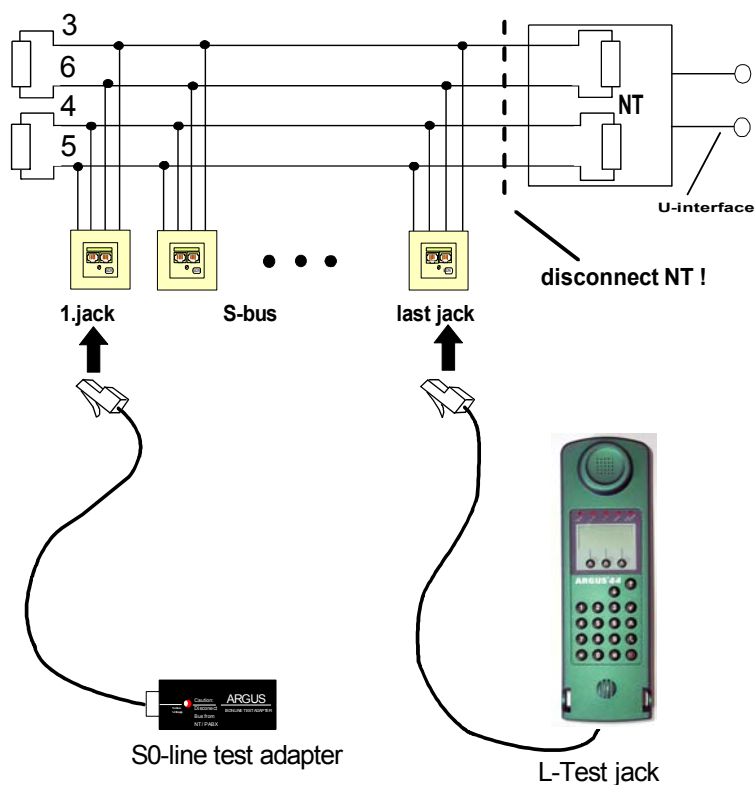


### Possible test results:

- The ARGUS has detected a short-circuit: Clear the fault and repeat the test
- The ARGUS reports that the resistance is wrong: Repeat the test from another socket, if necessary remove the terminating resistor(s)
- The ARGUS reports that the line is OK: Continue test with step 2

### Second step:

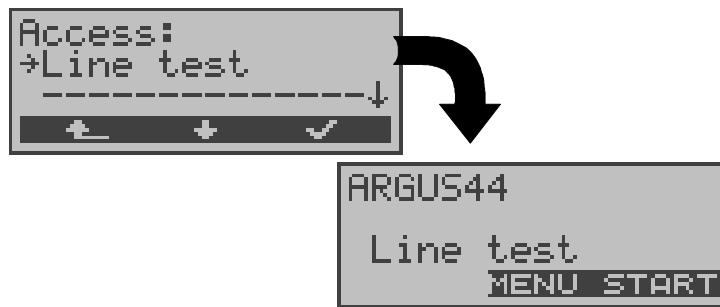
Connect the test adapter to the jack, which was tested as OK in the first step. Connect the ARGUS via its L-Test connector to the next jack on the bus.



### Possible test results:

- The ARGUS reports broken connections or crossed wires: Clear the fault and repeat the test beginning with the first step.
- The ARGUS reports that the line is OK: Connect the ARGUS (L-Test jack) to each of the sockets on the bus one after the other.

## Test steps on the ARGUS:

**Operation**

**< MENU >** Opens a list with the following menus: Access, Automatic Tests, Configuration, Start L-Test and Level Measuring.

The *Autom. Test* menu only has functions for displaying measured data and transferring it to a PC. In this menu, you cannot start an automatic test series (see Chap. 12.1 Automatic Start test on a BRI access page 121).

**< START >** **Start the Line Test**

### Sample test results – Line Test:

```
Line test
Circuit OK
Termination:100Ω
ABORT NEW
```

There is no error

```
Line test
Crossed wires:
                3><6
ABORT NEW
```

Wires  
3 and 6 are  
crossed



plexity

If the message “Crossed wires: termination wrong” appears, the measurement conditions with respect to the location of the fault or to the complexity of the fault are unfavorable.

In this case, you should change the measurement conditions in the following manner:  
Remove the terminating resistors from the bus and repeat the test.

Frequently it is enough to simply swap the test adapter and the ARGUS.

### Comments about the test results:

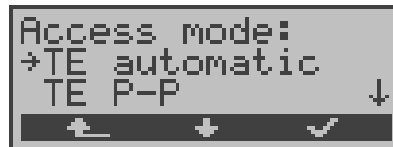
- The bus can first be considered to be free of defects, when all of the sockets have been tested as OK.
- Short-circuits are reported as a resistance value < 10 Ω.
- Crossed wires and broken connections between the test adapter and the terminating resistor cannot be found.
- The displayed test results refer to either just the bus lines between the ARGUS and the test adapter in the case of cross-wires and broken connections or the entire bus in the event of short-circuits and terminations.



## 7 Setting the Access Mode

The Access Mode menu is **not** selectable from the Main menu. It will open automatically after the physical access – the BRI or POTS interface – has been selected in the Access menu.

### 7.1 Operation on a BRI Access



< ↓ >

< ✓ >

< ↶ >

#### Operation

Select the desired *mode*.

Confirm

Return to the *Access* menu

### 7.1.1 TE-Simulation mode

#### TE automatic

On a BRI access, the ARGUS will automatically determine the access mode (PP or P-MP). If the ARGUS determines that the access supports both modes, the following Configuration menu will open:

```
select L2 mode:
→P-MP
 P-P
      +  ✓
```

#### Operation

< ↓ >

Select the desired *L2 mode*.

< ✓ >

Confirm the *L2 mode* and 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.

### 7.1.2 Permanent circuit


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.

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 Chap. 10 page 98).

After the B-channel for the permanent circuit is selected, the telephone connection will be setup automatically..

<pre>Permanent switch Telephony B 01 Durat. 13:45:59 ABORT TM</pre>	<p>Channel used</p> <p>Permanent circuit</p>
---	--

< ABORT >

< TM >

#### Operation

Terminate permanent circuit

Call the Test Manager (see "Test Manager" on page 111.)

#### ■ 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.

After selecting *BERT start* (menu *Single tests* / submenu *Bit error test* / function *BERT start* : see “*BERT start*” on page 74. ) and 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 display during and after the bit error rate test as well as the operation are in largest part similar to that of a BERT with dial-up connections (see Chap. 9.3 Bit error test page 72). The only difference is that it is not necessary to select a call number or service.

In the case of a BRI access in end-to-end mode (see “Bit error test” on page 72 and on page 79 “Bert wait”), it is also possible to run a BERT in the D-channel.

In this case, the *channel select* window will open:



	<b>Operation</b>
< ↓ >	Selecting a <i>channel</i>
< ✓ >	Confirm the selected channel and start the test. When selecting a <i>B-channel</i> , the <i>B-channel select</i> window will open to allow you to choose the desired B-channel.
< <b>ABORT</b> >	Close window and discard any selection that was made

The ARGUS displays the following during the test:

Remaining test time in h:min:sec	BERT	Dch	Channel used
Bit pattern is Synchronous	00:24:12	2	Detected Bit errors
	ABORT TM ERROR		

### Operation

- < **ERROR** > Injects an “artificially generated” bit error (to check the reliability of the test)
- < **TM** > Call the Test Manager (see “Test Manager” on page 111.)
- < **ABORT** > Test - interrupting

### ■ Loopbox on permanent circuits

It is possible to activate a loopbox (see “B-channel loop” on page 80.).

On a BRI access, the loopbox is setup for both B-channels but **not** for the D-channel.

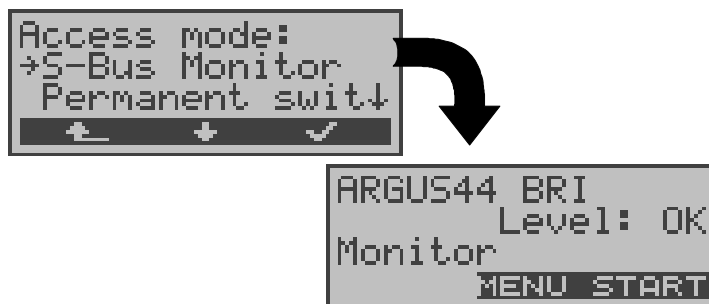
Permanent switch Loopbox active01 Durat. 0:45:59	Current running time
ABORT TM	

### Operation

- < **TM** > Call the Test Manager (see “Test Manager” on page 111.)
- < **ABORT** > End loopbox activation

### 7.1.3 BRI 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 WIN-plus or WINAnalyse. The bus and Layer 1 are not influenced by the monitoring.



After the *Monitor* function is started, the ARGUS will initially be in the Monitor mode (the monitor is not yet active): the second line shows the evaluation of the level on the NT-side (OK or << (too low), >> (too high) or \_ (no level)).

#### Operation

< MENU >

Opens a list with the following menus: *Start Monitor, Access, Automatic. Tests, Configuration, Level measuring* and *L1 status*.

The *Autom. Test* menu only has functions for displaying measurement data or transferring it to a PC. In monitor mode, you cannot start an automatic test series (see Chap. 12.1 page 121).

< START >

**Start Monitor**, automatically opens the associated display window

```
Monitoring
Signals:      25
Time:        00:02:59
ABORT LISTEN
```

- < LISTEN >** The speech path will be switched onto a B-channel: First the *B-channel select dialog* will open. Afterwards, it will be possible to listen to the voice data (in the direction Network --> User).
- < ABORT >** Deactivate the function and return to the "Monitor mode" display (not active)

When the monitor function is active, the ARGUS counts the number of incoming signals and presents this number in the second line of the display. The amount of time that has passed since the monitor was started is displayed in third line. The Trace LED is on.

The captured D-channel signals will be sent via the serial interface to the connected PC, which must be running either ARGUS WINplus or ARGUS WINAnalyse.

#### ■ Parallel call display in the BRI Monitor mode

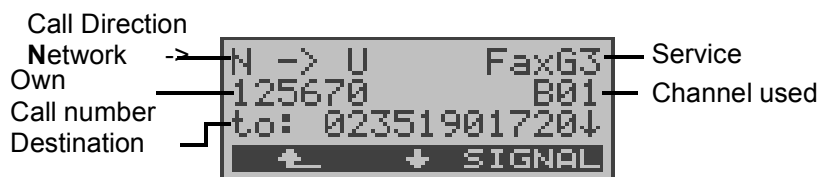
When the Monitor mode is active, the ARGUS will search all of the D-channels signals sent for a SETUP. As soon as a SETUP is found, the **CALL** softkey will appear in the Monitor window.

```
Monitoring
Signals:      25
Time:        00:02:59
ABORT LIST. CALL
```

#### Operation

- <LISTEN >** The speech path will be switched onto a B-channel: First the *B-channel select dialog* will open. Afterwards, it will be possible to listen to the voice data (in the direction Network --> User).

**< CALL >** The ARGUS displays the data for the call (incoming or outgoing). The ARGUS will automatically process the last SETUP received.



### Operation

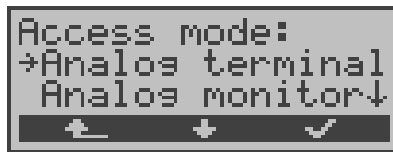
**< ↓ >** The sub-address, User-User-Info, DSP messages (if existent), Type of number (T.o.n) and Numbering Plan (NP) will be displayed in this order.

**< ABORT >** Once you leave the *Parallel Call Display* function, the ARGUS will be in the Monitoring (**not active**) mode.

**< SIGNAL >** The ARGUS switches to the **active** Monitor window. Now, if you press **< CALL >**, the ARGUS will again display the call parameters.



## 7.2 Operation on a POTS (analog) access



### 7.2.1 Analog terminal

The Argus behaves like an analog (POTS) terminal. The ARGUS will then jump to the Main menu.

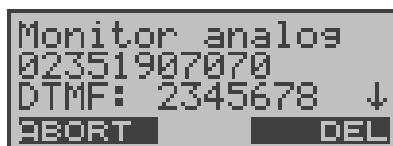
### 7.2.2 Analog monitor

Essentially, the analog (POTS) 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 or otherwise influence the interface.



Voltage level  
when "on hook"

<b>Operation</b>	
<b>&lt; MENU &gt;</b>	Opens the menu list: Access, Automatic Tests, Configuration, Level and Start Monitor. The <i>Autom. Test</i> menu only has functions for displaying measurement data or transferring it to a PC. In this menu, you cannot start an automatic test series(see Chap. 12.1 page 121).
<b>&lt; START &gt;</b>	<b>Start Monitor</b> , automatically opens a display window



	<b>Operation</b>
↓ -Key	Display further information
< DELETE >	The display will be cleared.
< ABORT >	Quits the <i>Analog Monitor</i> function.

If the access supports CLIP, the caller's number will be displayed on the second line.

The DTMF-characters dialed by both telephone subscribers will be displayed on third line.

Any additional 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.

## 8 ADSL Test

The ARGUS will setup an ADSL connection, measure the relevant ADSL data and then display the results.

The measured data can also be saved together with the date and time in the internal FLASH memory and can then be accessed whenever desired from the “Automat. Tests” “ menu (see “Display Results” on page 124.).



The ARGUS can store the measurement data from several test series (records 1,2,3,.....20).

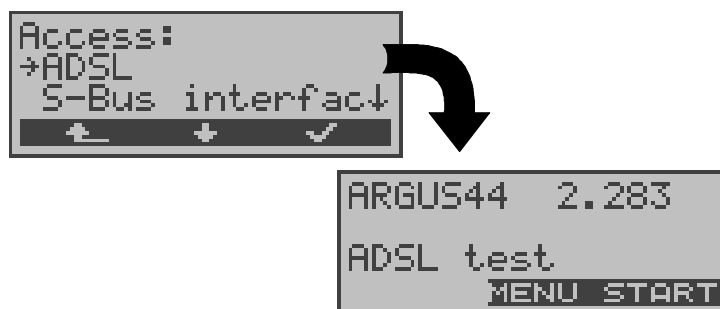
When all of the records have been used, the ARGUS will overwrite the oldest of the saved test results.

The selected ADSL mode (see “ADSL Modes” on page 149.) must be compatible to ATU-C (network-side).

**The ARGUS supports the following ADSL modes (depending on the national variant)**

- T-DSL (UR2)
- ANSI T1.413.2
- ITU-T G.992.1 (G.DMT) Annex A/B,
- ITU-T G.992.2 (G.Lite)
- ITU-T G.994.1 (G.hs)
- ETSI DTS
- Annex A Auto

### Selecting the ADSL mode



<b>&lt; MENU &gt;</b>	<p><b>Operation</b></p> <p>Opens a list with the following menus: Start ADSL-Test, Automat. Tests, Configuration and Access.</p> <p>The <i>Start ADSL Test</i> menu item - as the name says - starts the ADSL Test.</p> <p>In the <i>Autom. Test</i> (see “Automatic Test” on page 118.) menu, you can</p> <ul style="list-style-type: none"> <li>- Display the measured data,</li> <li>- Transfer it to a PC</li> <li>- Print the measured data or</li> <li>- Delete the data measured during a test series.</li> </ul>
<b>&lt; START &gt;</b>	<p><b>Start ADSL Test</b></p>

```

Activating
Test time: 35s
G.DMT
ABORT

```

The ARGUS first attempts to setup a connection. During this time, the Sync-LED will flash and the connection setup time will be displayed in seconds (in the example: Test time: 35).

If the connection is not successfully setup within a specific time (“Time out”) or if an error occurs during the setup, the ARGUS will display a corresponding error message:

```

Test failed
Cause:
Aborted
← → NEW

```

<b>&lt; ↓ &gt;</b>	<p><b>Operation</b></p> <p>The ARGUS displays the test time and other information (error messages)</p>
<b>&lt; NEW &gt;</b>	<p>Start new ADSL test</p>
<b>&lt; ↶ &gt;</b>	<p>Quit ADSL test. If desired, the test results can be saved (automatic prompt)</p>

**ADSL Test – Error messages**

<b>ARGUS Error Message</b>	<b>Meaning of the Error Message</b>
Incomp.linecon.	Incompatible line conditions: 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: 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: This error will be displayed when: 1. An activation signal has been detected on the line, but it is not from the ATU-C. (Fault on the line) 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. During this period, an activation may not be initiated.
Unsel.op.mode	Unselectable operation mode: Operation mode not supported.
Cancelled	The test was interrupted or timed out.

Once the connection is setup (Sync-LED ON constantly), the ARGUS will measure the data for the time set for the test (see page 150 Link-Up Time). Afterwards, the connection will be cleared automatically, unless the test duration was set to “continuous”.



```
Showtime
G.DMT
Elapsed: 0:00:09
└─┬─┘
  ↑  ↓
```

**Operation**

- < ↓ > Scroll through the already measured values
- < ↶ > Abort the ADSL Test, e.g. in the case of a “continuous” test period (see page 150 Link-Up Time)

**Measured Data Display:**

The ARGUS measures the following data and displays it in sequence:

- **ATM Fast            Data-rate FAST Mode**  
If the ATU-C set the transmission mode to ATM FAST, the ARGUS will show the actually useable bit rate in kBit/s downstream (d:) and upstream (u:) in FAST mode. Otherwise the result is “0”.
- **ATM Int.            Data-rate Interleaved Mode**  
If the ATU-C set the transmission mode to ATM-Interleaved, the ARGUS will show the actually useable bit rate in kBit/s downstream (d:) and upstream (u:) in DSLAM Interleaved mode. Otherwise the result is “0”.
- **Rel. capacity      Relative Capacity Occupation**  
Displays the upstream and downstream load in percent
- **Max Attain.        Maximum Attainable Line Rate**  
The line’s “Maximum Attainable” line rate is the maximum value attained for “Current Attainable” during the test.
- **Current Attain.    Current Attainable Line Rate**  
The line’s “Current Attainable” data rate is the maximum currently attainable line rate in kBit/s (total data rate).
- **Ave Attain.        Average Attainable Line Rate**  
The line’s “Average Attainable” line rate is the average of all of the “Current Attainable” values determined during the measurement.

- **Line Rate**

This value gives the current total data rate, which was calculated from the bits/tone spectrum. In contrast to the ATM data rate, this value also takes the overhead for the ATM header, additional frame bits and checksums into account. This value is always higher than the ATM data rate!
- **SNR Margin Noise margin**

Signal-to-noise ratio in dB for the upstream and downstream transmission
- **Out. Power Output power**

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

The line's attenuation in dB over the entire line for upstream and downstream transmissions
- **FEC Forward Error Correction**

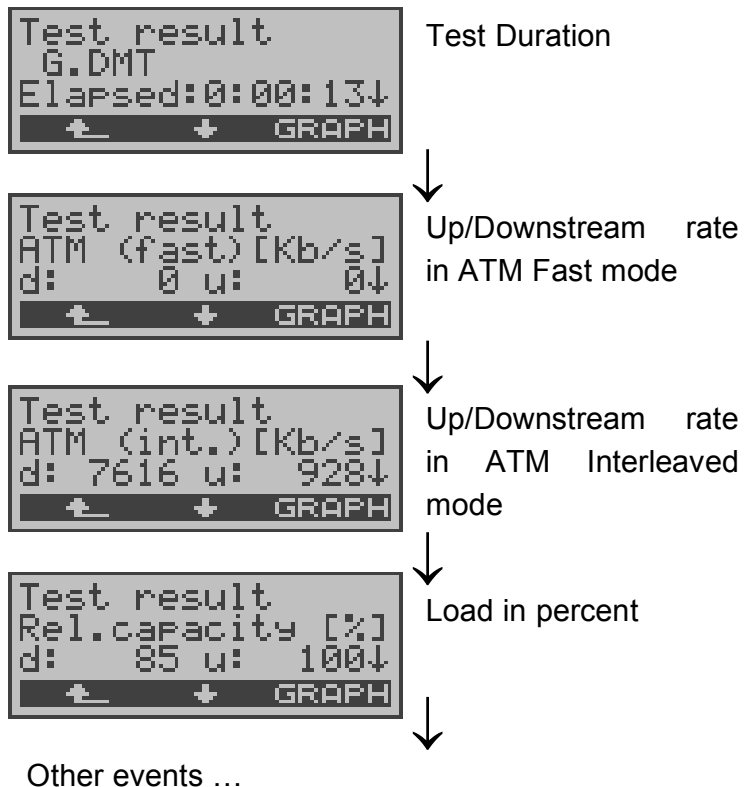
The FEC shows the number of transmission errors corrected using the ATM cell checkbytes.
- **CRC Cyclic Redundancy Check**

The superframe checksum sent from the opposing end does not match the one calculated locally. Possible cause: Fault on the line.
- **HEC Header Error Checksum**

The HEC shows the number of ATM cells with bad header checksums.
- **Vendor far**

The hexadecimal ID number for the manufacturer of ATU-C (see "Vendor identification numbers" on page 183.) (Only returned in ANSI mode)
- **Version**

The SW version of the ATU-C (only returned in ANSI mode)



**Operation**

< GRAPH > Displays the graph: Bit distribution i.e. bits transported per carrier frequency (y-axis: bits per carrier frequency (tones); x-axis: carrier frequency)

< ↓ > Displaying Other Measured Values

< ↶ > Return to ADSL Test menu

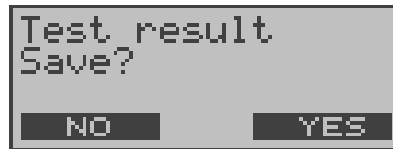
Display the “Bit Distribution” graph:





**Saving the test results:**

When closing the measurement results display, the ARGUS will query whether the test results should be saved:

**Operation**

- < **YES** > The ARGUS saves the results together with the date and time in the internal FLASH memory. The ARGUS can save the results of several test series (records 1,2,3...). The result will be saved in the first data record that is free (e.g. No.3 when the results of two tests have already been saved).
- When all of the records have been used, the ARGUS will overwrite the oldest of the saved test results.
- The test results will be retained when the ARGUS is switched off and back on again.
- < **No** > A new ADSL test will be started without initializing the ADSL test software again.

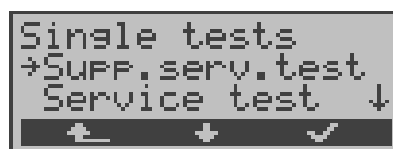
## 9 Single tests

Open the Singletest menu:



	Operation
<RESTART>	Repeat B-channel test
<MENU >	Open the <i>Main menu</i>
<↓ >	Select the <i>Single tests</i> menu
<✓ >	Open the <i>Single tests</i> menu
< ↵ >	Return to the status display

Open the functions in the Singletests menu:



	Operation
< ↵ >	Return to the Main menu
<↓ >	Mark the desired function
<✓ >	Open the function marked with the →

## 9.1 Test the Supplementary Services

The ARGUS checks, which supplementary services are supported on the BRI access being tested.

### 9.1.1 Supplementary Service Test - 1TR6

#### Description

The ARGUS checks, which of the services listed below are supported by the exchange for the BRI access (that is running the 1TR6 protocol) that is under test:

<b>Sperre</b>	Blocking enabled for outgoing calls
<b>AWS1</b>	Call forwarding type 1 enabled (continuously)
<b>AWS2</b>	Call forwarding type 2 enabled (case by case)
<b>Anschluss GBG</b>	Access belongs to a Closed Users Group
<b>Geb.anzeige</b>	Display of charges is setup
<b>Rufnummern-Id</b>	Setup call number identification - against malicious calls

```
Single tests
→SUPP.serv.test
Service test ↓
← ↓ ✓
```

< ↑ >

< ↓ >

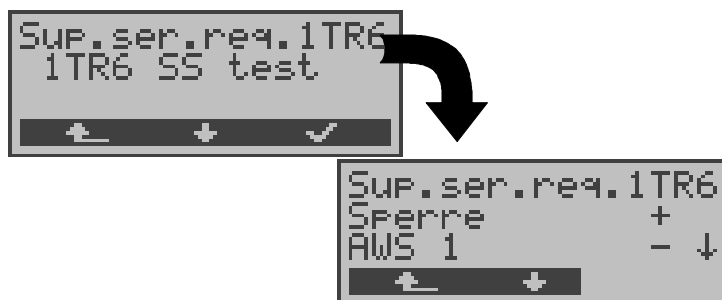
< ✓ >

#### Operation

Return to the status display

Select the *Supplementary service test*

Start *Supplementary Service test*



Operation	
< ↵ >	Abort the test Return to the <i>Single tests</i> menu
After the test is completed, the ARGUS will display the results in the second and third lines:	
< ↓ >	Scroll through the test results + means that the <b>suppl.service</b> is enabled - means that the <b>suppl.service is not enabled</b>
< ↵ >	Return to the <i>Single tests</i> menu

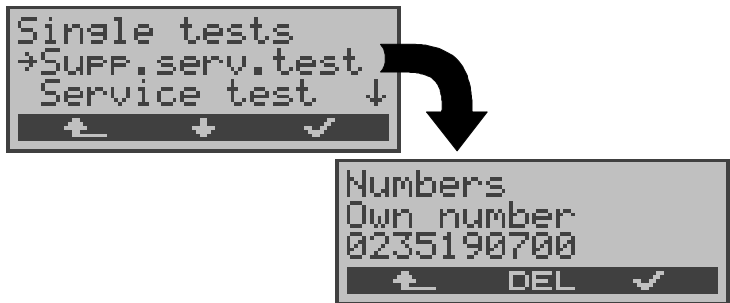
### 9.1.2 Suppl.service interrogation in DSS1

Currently, the ARGUS can individually test the following DSS1 supplementary services:

#### On a BRI access:

<b>TP</b>	Terminal Portability	Moving the terminal on the bus
<b>HOLD</b>	Hold	Hold/Broker
<b>CLIP</b>	Calling Line Identification Presentation	Display the caller's number
<b>CLIR</b>	Calling Line Identification Restriction	Suppress the caller's number
<b>COLP</b>	Connected Line Identification Presentation	Display the call number of the called subscriber with whom one is connected
<b>COLR</b>	Connected Line Identification Restriction	Suppress the number of the subscriber with whom one is connected
<b>DDI</b>	Direct dialling in	Direct dialling in to an extension on a PBX
<b>CFU</b>	Call Forwarding Unconditional	Forward all calls
<b>CFB</b>	Call Forwarding Busy	Forward calls when busy
<b>CFNR</b>	Call Forwarding No Reply	Forward calls when no answer
<b>CW</b>	Call Waiting	Call waiting
<b>CCBS</b>	Completion of Calls to Busy Subscriber	Automatic callback if party called is busy
<b>CCBS-T</b>	Completion of Calls to Busy Subscriber	Automatic callback if party called is busy ( <b>on P-P</b> )
<b>CCNR</b>	Call Complete No Response	Automatic recall, if called party does not answer
<b>CCNR-T</b>	Call Complete No Response	Automatic recall, if called party does not answer ( <b>on P-P</b> )
<b>MCID</b>	Malicious Call Identification	Identification of malicious callers (call tracing)
<b>3pty</b>	Three party	Three party conference
<b>ECT</b>	Explicit Call Transfer	Call transfer or directed call forwarding
<b>AOC</b>	Advice of Charge	Advice of charges

<b>SUB</b>	Sub-addressing	Sub-addressing is possible
<b>UUS</b>	User-to-User Signaling	Transfer of user data



	<b>Operation</b>
<  >	Return to the <i>Main menu</i>
<  >	Select the <i>Supplementary service test</i>
<  >	Confirm your selection The window, <i>Enter numbers</i> , will now open.
	Enter your <b>Own number</b> ; the suppl.services test is performed in part with a self call.
< DEL >	Delete individual digits
<  >	Confirm
<  >	Abort the test

**Select service:**

Select the service, which should be used for the entire suppl. services test:



	<b>Operation</b>
<  >	Select the <i>Service</i>

- < ✓ > Confirm the *Service* and the *B-channel select* entry dialog will open
- < ABORT > Abort the test

**Select Testählen:**

```

SUPP. Serv. test
→TP test
  HOLD test      ↓
┌───────────┴───────────┐
│ ←           ↓           ✓ │
└───────────┬───────────┘

```

- Operation**
- < ↓ > Select a test (e.g. *TP test*)
  - < ✓ > Start the test
  - < ↶ > Return to the *Single tests* menu

**■ TP Test**

The ARGUS tests the TP (Terminal Portability) supplementary service by making a self call.

```

SUPP. Serv. test
  TP test      +
  -----
┌───────────┴───────────┐
│ ←           ↓           │
└───────────┬───────────┘

```

- Operation**
- The test results are displayed in the second line:
- + = TP possible on this access
  - = TP not possible on this access
- < ↶ > Return to the *Suppl.serv.test* menu, where you can select the next type of test

**■ HOLD Test**

For this test, the ARGUS will make a self call.

- Result:
- + = HOLD is possible on this access
  - = HOLD is not possible on this access

■ **CLIP Test (CLIP / CLIR / COLP / COLR)**

For this test, the ARGUS will make up to three self calls one after the other. In this test, the ARGUS checks whether the 4 supplementary services CLIP, CLIR, COLP and COLR are supported on the access under test.

The test will be performed automatically for all four supplementary services.



Operation	
< ↓ >	Scroll through the test results
< ↑ >	Return to the <i>Suppl.serv.test</i> menu

**Test results:**

**CLIP**

Will the calling subscriber's number be displayed at the called subscriber?

- = no      += yes

**CLIR**

Will the display of calling subscriber's number at the called subscriber be suppressed or is it possible to temporarily suppress the display?

- = no      += yes      \* = no statement,  
since CLIP is not setup

**COLP**

Will the call number of the subscriber who answered be displayed on the caller's phone?

- = no      += yes

**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?

- = no      += yes      \* = no statement,  
since COLP is not setup





The suppl. services CLIP and CLIR as well as COLP and COLR will be tested in pairs. If CLIR or COLR is setup permanently, it is **not** possible to make a clear assessment.

■ **DDI Test**

**Test results:**

Can a caller directly dial in to an extension on the PBX access under test?

- = no                      += yes

■ **CF Test ( CFU / CFB / CFNR )**

This test checks whether the 3 supplementary services CFU, CFB and CFNR are supported on the access under test. The test is automatically performed for all three supplementary services.



The CF test attempts to setup a call diversion to the call number that is in the speed-dialing memory location for “destination no. 1”. 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.



**Operation**

< ↓ >      Scroll through the test results

< ↶ >      Return to the *Suppl.serv.test* menu

**Test results:**

**CFU**

Can this access immediately forward an incoming call?

- = no                      += yes

**CFB**

Can this access forward an incoming call when it is busy; in other words does it support Call Forwarding Busy?

- = no                      += yes

### **CFNR**

Can this access forward an incoming call when it is not answered?

- = no                      += yes

### ■ **CW Test**

#### **Test results:**

Does the access under test support call waiting?

- = no                      += yes

### ■ **CCBS or CCBS-T Test on a P-P Access**

#### **Test results:**

Will the access under test automatically recall a remote subscriber, if the number called was busy?

- = no                      += yes

### ■ **CCNR or CCNR-T Test on a P-P Access**

#### **Test results:**

Will the access under test automatically recall a remote subscriber if the call was not answered?

- = no                      += yes

### ■ **MCID Test**

#### **Test results:**

Does the access tested allow identification of malicious callers (call tracing)?

- = no                      += yes

### ■ **3pty Test**

#### **Test results:**

Does the access under test support a three-party conference call?

For this test, you need the assistance of a remote subscriber, whose call number must be entered.

- = no                      += yes

### ■ ECT Test

#### Test results:

Is an explicit call transfer supported by the access under test?

For this test, you need the assistance of a remote subscriber, whose call number must be entered.

- = no                      += yes

### ■ AOC Test

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).

- = no                      += yes

```

SUPP. Serv. test
AOC-D          +
AOC-E          + ↓
┌───────────┴───────────┐
└───────────┬───────────┘

```

#### Operation

Return to the *Suppl.serv.test* menu

<  >

### ■ SUB Test

A call is made to oneself and answered to check the transfer of the sub-address in both directions.

#### Test results:

Are sub-addresses supported on the access under test?

- = no                      += yes

### ■ UUS Test

#### Test results:

Does the access under test support the transfer of user data?

- = no                      += yes

### 9.1.3 Error messages

If an error occurs during a `suppl.serv.test` or if it is not possible to setup a connection, the ARGUS will display the corresponding error code (second line in display) plus the error class in clear text (third line in the display).

```

SUPP. Serv. test
Error:          28
Wrong number   ↓
  
```

In the example, an error with the code 28 has occurred. 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 177.).

Distributing the error codes into error classes:

Error class	Description	Cause work) 1 TR6	(from net- 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 181, "CAUSE-Messages – DSS1 Protocol" on page 177 and "CAUSE-Messages – 1TR6 Protocol" on page 179.

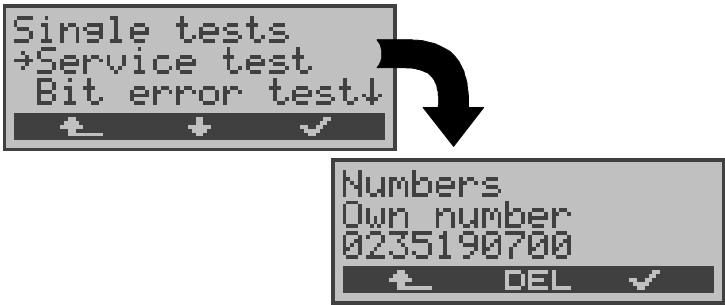
9.2 Service check

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

- Tel. analog
- Tel. ISDN (3.1 kHz)
- Tel. 7kHz
- Speech
- 7kHz Audio
- Videotext
- Fax G3
- Fax G4
- UDI 64kBit/s
- Teletext
- Videoconference 1
- Videoconference 2

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.



	Operation
< ↑ >	Return to the <i>Main menu</i>
< ↓ >	Select <i>Service check</i>
< ✓ >	Confirm your selection The window, <i>Enter numbers</i> , will now open.
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ * 0 #	Enter your <b>Own number</b> , the <i>Service check</i> is performed using a self call.
< DEL >	Delete individual digits
< ✓ >	Confirm
< ↑ >	Return to the <i>Single tests</i> menu



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.

Once the test is completed, the ARGUS will display the results:

```
Service check
Tel.analog ++
Tel.ISDN ++ ↓
← →
```

### Operation

< ↓ >

Scroll through the test results

< ↶ >

Return to the *Single tests* menu

### Interpreting 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
- \* result not definite

The reason that it is not possible to make a definite statement is given in the adjacent error code.

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 G4 service is OK. No statement is possible about incoming.

The error code 63 gives the coded cause of the error (see the table in the Appendix).

In this case, it is recommended that you have someone place a call to the access under test using this service.

- The UDI 64kBit service is possible in both directions

If an error of error class A occurs (see “Error messages” on page 68.) 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.

### 9.3 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 Guidelines G.821 and G.826.

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.

The duration of the BERT can be set in the *Configuration/BERT* (see "BERT - duration" on page 143) menu (default setting = 1 minute).

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. If more than 10 bit errors occur during this 15-minute test (call to oneself), the access circuit is too heavily distorted.

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 Chap. 9.3.2 page 79). 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.

9.3.1 BERT start



**Operation**

- < ↵ > Return to the status display
- < ↓ > Select the *Bit error test*
- < ✓ > Open the *Bit error test* menu



**Operation**

- < ↵ > Return to the *Single tests* menu
- < ↓ > Select *BERT start*
- < ✓ > Confirm your selection  
The window, *Enter numbers*, will now open.
- |   |   |   |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 5 | 6 |
| 7 | 8 | 9 |
| 0 | * | # |

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 call number  
The *Select service* window will now open.
- < ↓ > Select the service under which the connection should be setup
- < ✓ > Confirm the selection  
and the *B-channel select* dialog will open.
- < ↓ > Select B-channel for connection (enter an \* to select any free B-channel)

< ✓ >	Start the bit error test
<ABORT >	Return to the <i>Single tests</i> menu

After the ARGUS has setup the connection and synchronized the send and receive directions, it will display the B-channel used (line 1: here B02) , the remaining test time in hours:minutes:seconds, the number of bit errors that have occurred (line 2) and the synchronicity of the bit pattern (line 3 - synchronous or asynchronous).

```

BERT          B02
15:45:42      3
Synchronous
ABORT  TM  ERROR

```

<b>Operation</b>	
< ERROR >	Injects an “artificially generated” bit error, which can demonstrate the reliability of the measurements when running end-to-end tests
< TM >	Call the Test Manager (see “Test Manager” on page 111.)
0 -Key	Restart the BERT: The test time and number of bit errors will be reset.
<ABORT >	Abort the bit error test



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 167 Alarm bell).

The measurement time for the BERT can be specified with the *Configuration* function (see Chap. 15.3.1 BERT - duration page 143).

After the test is done, the ARGUS will display the cause on the second line and the location which initiated the disconnect will be shown on the third line.

If the test ran normally, the ARGUS will display “Active clearing” on this line. \*.\*

```
Call clearing
Active clearing
Loc.: user
CONT.
```

< CONT. >

**Operation**

Display the test results

```
BERT          B02
Result: 10309kB
        10 9,7E-07 OK
MENU  TM  MORE
```

< MORE >

Display additional test results

< MENU >

Return to the Bit error test menu

< TM >

Call the Test Manager (see "Test Manager" on page 111.)

**Display results:**

First line: B-channel used (in the example B-channel 2)

Second line: Transferred data in kBits (in the example 10309 kBits)

Third line: Number of the bit errors that have occurred (in the example 10)  
 Bit error rate (in the example  $9.7 \cdot 10^{-7}$  (= 0.00000097))

The evaluation of the results depends on the error threshold that you set (see "BERT - Setting the Error Level" on page 144.).

OK = bit error rate is less than the error threshold (set by the user) and NO = bit error rate is above the error threshold.

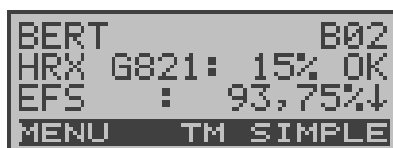
Furthermore, it is possible to display more characteristic values (<MORE> softkey), the ARGUS determines the following in accordance with the ITU-T G.821 and G.826:

- HRX** (G821 and G826)  
Defines the hypothetical reference connection  
The HRX for G.826 cannot be set separately, it corresponds to the HRX for G.821.
- EFS** **Error Free Seconds** (G.821)  
All the seconds in which no error occurred.
- ES821** **Errored Seconds** (G.821)  
All the seconds in which one or more errors occurred.
- SES821** **Severely Errored Seconds** (G.821)  
All the seconds in which the bit error rate is  $>10^{-3}$ .  
In one second, 64,000 bits are transferred, thus **Bit-Error** $=10^{-3}$  equates to 64 bit errors.
- US** **Unavailable Seconds** (G.821)  
All the sequentially adjacent seconds (at least 9 sec) in which **BER** $>10^{-3}$ .
- AS** **Available Seconds** (G.821)  
All the sequentially adjacent seconds (at least 9 sec) in which **BER** $<10^{-3}$ .
- DM** **Degraded Minutes** (G.821)  
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.
- EB** **Errored Block** (G.826)  
All the blocks with one or more errors
- ES826** **Errored Second Rate** ( G.826 )  
Seconds with at least one block error
- SES826** **Severely Errored Second Rate** (G.826)  
All of the seconds with many errors, i.e. more than 30% of the blocks have errors or at least one SDP (see below)
- BBE** **Background Block Error Rate** (G.826)  
Background block error rate: The ratio of the defective blocks to the total number of blocks in the measured period without counting the SES blocks

**SDP** *Severely disturbed Period* (G.826)

Severely disturbed period due to the occurrence of errors (LOS, LOF, AIS,.....) or an “out of service” BER  $\geq 10^{-2}$ .

All the values are displayed in % (percentages).



```
BERT          B02
HRX G821: 15% OK
EFS      : 93,75%↓
MENU      TM SIMPLE
```

Operation	
< MENU >	Return to the <i>Bit error test</i> menu
↓ -Key	Scroll through the test results
< SIMPLE >	Return to the display of the “Simple” evaluation
< TM >	Call the Test Manager (see “Test Manager” on page 111.)

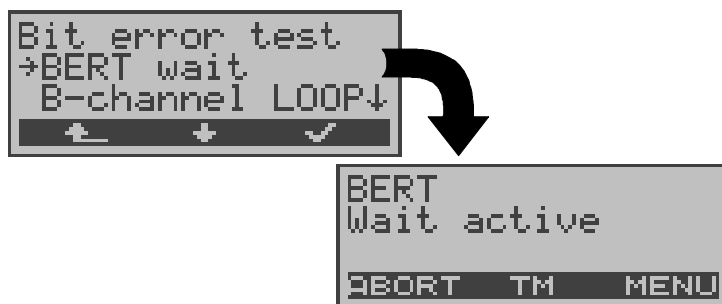
The ARGUS evaluates whether the test results satisfy the limits specified in the CCITT G.821 and G.826 under consideration of the defined hypothetical reference connection HRX (displaying OK or NO).

### 9.3.2 Bert wait

For this operation mode, it is necessary to use the *BERT start* function on the remote end in an end-to-end test.

The ARGUS first waits for a call and then sets up the connection.

During the connection, the received bit pattern will be evaluated and an additional independent bit pattern will be sent.



	Operation
< ↓ >	Select <i>BERT wait</i>
< ✓ >	Start the <i>BERT wait</i> function The ARGUS is in the active <i>BERT wait</i> mode.
< ↶ >	Return to the <i>Bit error test</i> menu
< MENU >	The ARGUS returns to the main menu.
>	
< TM >	Call the Test Manager (see "Test Manager" on page 111.)
< ABORT >	Stop the <i>BERT wait</i> function

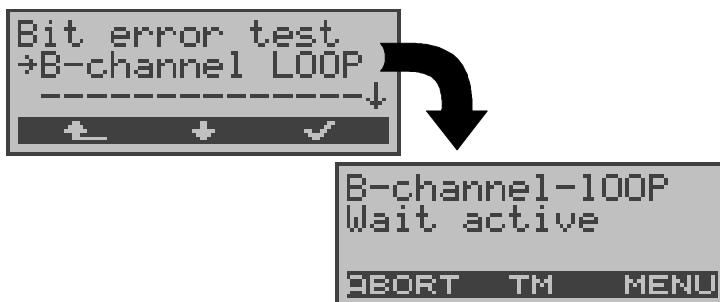
The ARGUS displays that will appear are the same as those in *Chapter 9.3.1 BERT start* .


The time shown is the current amount of time that *BERT wait* has run.

### 9.3.2.1 B-channel loop

When the B-channel loop function is active, the ARGUS will automatically take an incoming call for any service and switch a loop back in the B-channel that is specified by the exchange.

The received bit pattern will be sent back to the caller/sender.



Operation	
<  >	Return to the <i>Single tests</i> menu
< ↓ >	Select <i>B-channel loop</i>
< ✓ >	Start the <i>B-channel loop</i> function The ARGUS is waiting for a call. An incoming call will be taken immediately and switched in a loop to the appropriate B-channel. The ARGUS displays the call number and the B-channel used in the second line.
< <b>MENU</b> >	The ARGUS returns to the main menu.
< <b>TM</b> >	Calls the Test Manager see “Test Manager” on page 111.
< <b>ABORT</b> >	Quit the <i>B-channel loop</i> function

The “B-LOOP connect.” window, which is similar to the normal connection window, will open:



Own number  
Destination

```
B-channel-100P
235190700      B01
to: 907070     ↓
ABORT  TM  MENU
```

B-channel used

### Operation

- ↓ -Key      Display additional information (e.g. UUS...)
- < **MENU** >    The ARGUS returns to the main menu.
- < **TM** >      Calls the Test Manager  
see "Test Manager" on page 111.
- < **ABORT**>    **Disconnect B-channel loop**

A second B-channel loop connection can be started via the Test Manager or directly from the Main menu (see "Simultaneously Starting Several Tests" on page 112).

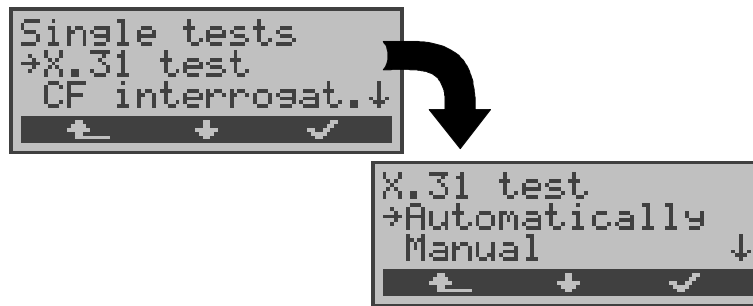
### **9.4 X.31 Test**

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. 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 pre-defined 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.

### 9.4.1 Automatic X.31-Test



Operation	
< ↓ >	Select <i>X.31 test</i>
< ✓ >	Confirm your selection
< ↶ >	Return to the <i>Main menu</i>
<hr/>	
< ↓ >	Select <i>Automatic</i>
< ✓ >	Confirm your selection
< ↶ >	Return to the <i>Single tests</i> menu

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

#### 9.4.1.1 D-Channel

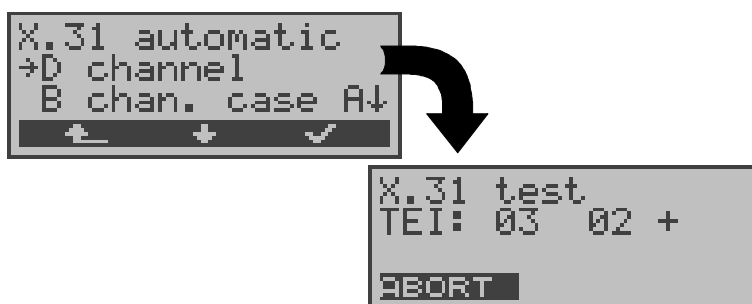
The “X.31 Automatic, D-channel” test consists of two steps:

*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 shown on the display.

*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 168). With the entry of the X.25 access number, you can - if you wish - select a logical channel (LCN) other than the default. For this purpose, append a “#” plus desired the LCN to the access number (default: LCN = 1).



	Operation
<↓>	Select <i>D-channel</i>
<✓>	Confirm your selection: The ARGUS will start the test
↶	Return to the <i>Single tests</i> menu
<p>The test can take up to 4 minutes during which the ARGUS will display a rotating bar. In the second line, beginning at the left, you will find the just tested TEI and its result:</p> <p>+ = X.31 is available for this TEI                      - = X.31 is not available for this TEI</p>	
<ABORT >	Stop the test and return to the <i>Single tests</i> menu

After the test sequence is completed, the ARGUS will show whether the X.31 service is available for Layer 3 for the TEIs found in Step 1.

```
X.31 test
TEI:02++
TEI:03+-  13  67
ABORT
```

**Operation**

&lt; ↓ &gt;

Scroll through the test results (only available when the ARGUS finds more than two TEIs)

&lt; ABORT &gt;

Return to the *Single tests* menu**Test results:**

TEI 02 = the first valid TEI value is 02.

+ + = Both test steps were successful

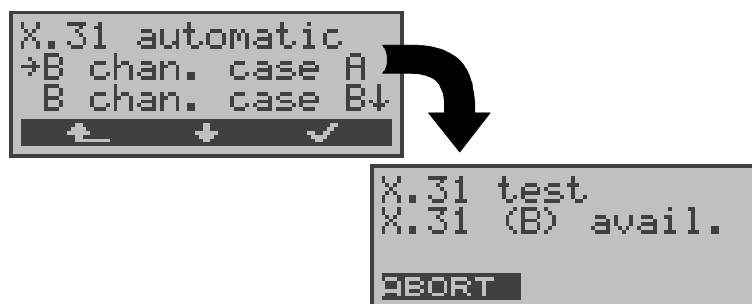
+ - = 1. test step successful, second step not. In this case, the ARGUS will display the relevant X.31 cause for the failure (in the example above: 13) and an associated diagnostic code (in the example: 67), if there is one (see "X.31 Test – Error messages" on page 182.).

If the X.31 service is not available, the ARGUS will show the message "x.31 (D) n. impl."

### 9.4.1.2 B-Channel - Case A

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 with LCN (will be saved in the speed-dialing memory as the *X.31 test number*. on page 168 “Saving Call Numbers”).

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



Operation	
< ↓ >	Select <i>B-Channel - Case A</i>
< ✓ >	Confirm your selection: The ARGUS will start the test
< ↶ >	Return to the <i>Single tests</i> menu
If the test is completed successfully, the ARGUS will display “ <b>X.31 (B) avail.</b> ”. In the event of an error, the X.31 cause and a diagnostic code will be displayed.	
< ABORT >	Return to the <i>Single tests</i> menu

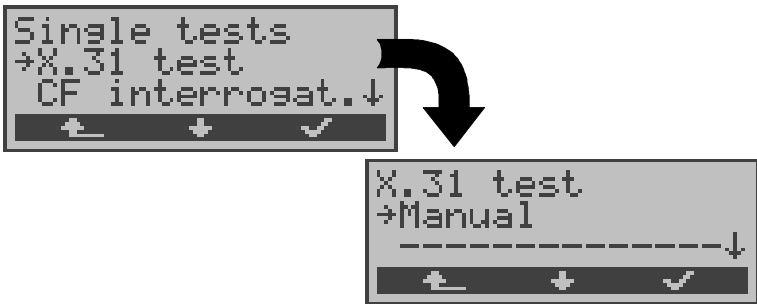
If the test fails, because the ARGUS cannot setup a D-channel connection, a corresponding message will be displayed.

### 9.4.1.3 B-Channel - Case B

This test is identical with the “B-Channel Case B” 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.

9.4.2 Manual X.31 Test



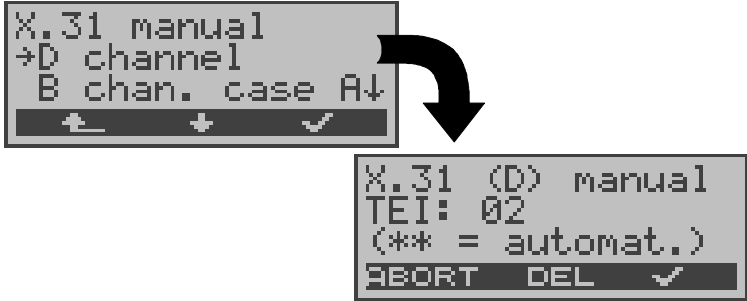
Operation	
<↓>	Select <i>X.31 test</i>
<✓>	Confirm your selection
< ↵ >	Return to the <i>Main menu</i>
<hr/>	
<↓>	Select <i>Manual</i>
<✓>	Confirm your selection
< ↵ >	Return to the <i>Single tests</i> menu

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

9.4.2.1 D-Channel:

In this test variant, the ARGUS will first request a TEI and a X.31 number with LCN (will be saved in the speed-dialling memory as the *X.31 test number*. on page 168 "Saving Call Numbers"). 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.

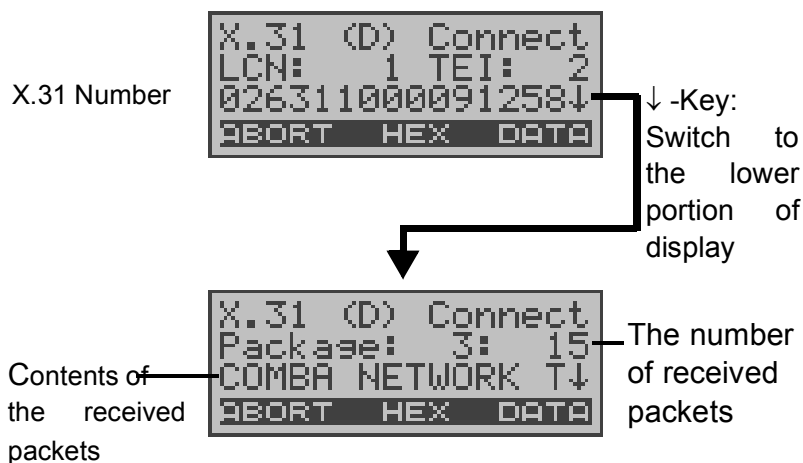


Operation
-----------

< ↓ >	Select <i>D-channel</i>
< ✓ >	Confirm your selection
↶	Return to the <i>Single tests</i> menu
⓪1 ⓪2 ⓪3 ⓪4 ⓪5 ⓪6 ⓪7 ⓪8 ⓪9 ⓪* ⓪0 ⓪#	Enter the TEI If ** is entered, a TEI will be selected automatically
< DEL >	Delete the TEI
< ✓ >	Setup a X.31 connection
< ABORT >	Return to the <i>X.31 Manual</i> submenu

Once a connection has been successfully setup, you can begin to send predefined data packets. The ARGUS will count the data packets sent and received and will display (as far as possible) the contents of the data packets received.

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.



<b>Operation</b>	
< DATA >	Sends a predefined data packet in the example: 3 packets have been sent
< HEX >	Displays the contents of the received data packet (in hexadecimal)
< ABORT >	Clear the connection



#### 9.4.2.2 B-Channel - Case A

For this test variant, a D-channel call number and a X.31 number with LCN 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:

```
X.31 (B) Connect
LCN: 1 TEI: 2
026311000091258↓
ABORT HEX DATA
```

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.

Once a connection has been successfully setup, you can begin to send predefined data packets. The ARGUS will count the data packets sent and received and will display (as far as possible) the contents of the data packets received.

```
X.31 (B) Connect
Package: 10: 23
ARGUS44 V2.28 ↓
ABORT HEX DATA
```

For further information about the display, please see “Chapter 9.4.2.1 D-Channel: ”.

#### 9.4.2.3 B-Channel - Case B

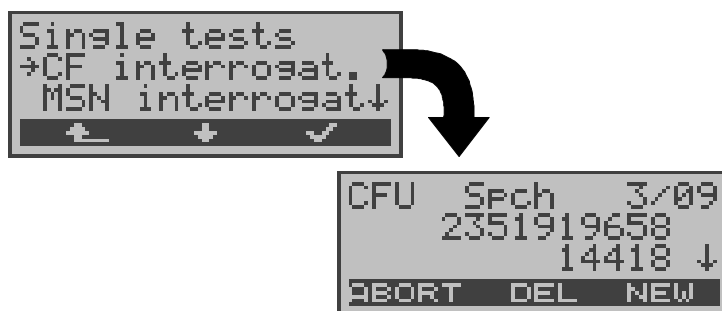
This test is identical with the “B-Channel Case B” test, except that it is not necessary to enter a D-channel call number.

### 9.5 CF Interrogation (only on a BRI with DSS1)

The ARGUS will check whether a call diversion has been setup in the exchange for the access under test.

After the test, 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.



	Operation
< ↓ >	Select <i>CF interrogation</i>
< ✓ >	Confirm your selection
< ↵ >	Return to the <i>Main menu</i>
The test can take a few seconds, during which a bar will rotate on the display.	
↓ -Key	Scroll through the test results
< DEL >	Clear the displayed call diversion in the exchange
< NEW >	Repeat the CF interrogation
< ABORT >	Close the results display and open the Single tests menu

#### Example test results:

First line: This is a CFU call diversion for the Speech service (Spch see the table page 92) It is the third call diversion shown of a total of 9 found.

Second line: Diversion to own number (in the example: 919658)

Third line: Destination number for the diversion (in the example: 14418)

### Clearing a Call Diversion

After you press <DEL>, a query will appear asking whether you are sure.

```
CFU  Sech  3/09
      2351919658
Are you sure?
ABORT      DEL
```

#### Operation

- < DELETE > The ARGUS clears the displayed call diversion in the exchange.
- < ABORT > Abort the process; the displayed call diversion will not be cleared

Once the call diversion has been successfully cleared in the exchange, the ARGUS will display:

```
Diversion
deleted!
CONT.
```

If the call diversion could not be cleared, the ARGUS will report:

```
Call diversion
not erasable!
CONT.
```



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.

Therefore, in the event of a negative acknowledgement, the ARGUS will request that you enter your **own MSN**.

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.

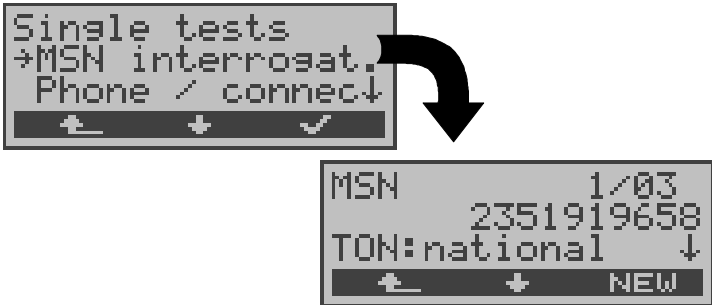
### **Abbreviations used for the services and service groups on the display:**

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

**9.6 MSN Interrogation (only on a 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.

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

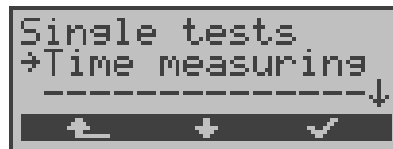


	Operation
< ↓ >	Select <i>MSN interrogation</i>
< ✓ >	Confirm your selection
< ↶ >	Return to the <i>Single tests</i> menu
< ↓ >	Scroll through the test results Depending on the Type of Number (TON), the ARGUS will display the call numbers in different versions: <ul style="list-style-type: none"><li>• only the MSN (without area code)</li><li>• with national area code without leading the "0"</li><li>• with country code without leading the "00"</li><li>• complete call number</li></ul>
< NEW >	Repeat the MSN interrogation
< ↶ >	Return to the <i>Single tests</i> menu

### 9.7 Time measuring

The ARGUS measures three different times on a BRI access:

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



< ↶ >

< ↓ >

< ✓ >

#### Operation

Return to the status display

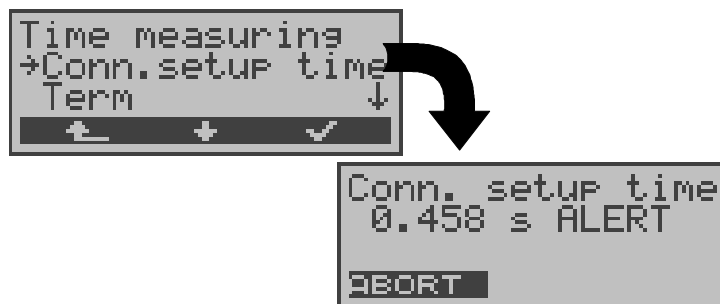
Select *Time measuring*

Open the *Time measuring* function

### 9.7.1 Connection setup time

The ARGUS places an outgoing call and measures the time between sending the SETUP and receiving the ALERT or CONN.

After the *Connection setup time* function is started, you must enter the call number, the service and the B-channel (see “Setting up an ISDN connection” on page 98.). The ARGUS disconnects automatically as soon as the measurement is completed.



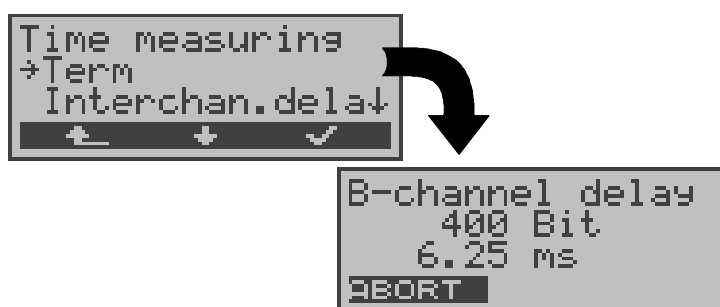
	Operation
< ↑ >	Return to the <i>Single tests</i> menu
< ↓ >	Select <i>Conn.up time</i>
< ✓ >	Open the <i>Conn.up time</i> function
In the second line of the display, the ARGUS will show the measured time in seconds (millisecond exact) and the received L3 message, which terminated the measurement time.	
< ABORT >	Quits the <i>Conn.up time function</i> , the ARGUS returns to the <i>Time measuring</i> menu

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.

### 9.7.2 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 propagation delay is given in multiples of the time required for sending one byte at 64 kBit/s and in milliseconds. (The time for sending 1 byte at 64 kBit/s = approx. 125  $\mu$ s.)

After the *B-channel delay* function is started, you must enter the call number, the service and the B-channel ( see “Setting up an ISDN connection” on page 98.). The ARGUS disconnects automatically as soon as the measurement is completed.



Operation	
< ↑ >	Return to the <i>Single tests</i> menu
< ↓ >	Select <i>B-channel delay</i>
< ✓ >	Open the <i>B-channel delay</i> function
The ARGUS displays the delay in bits (on the second line) and in milliseconds (on the third line).	
< ABORT >	Quits the <i>B-channel delay function</i> , the ARGUS returns to the <i>Time measuring</i> menu

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”.



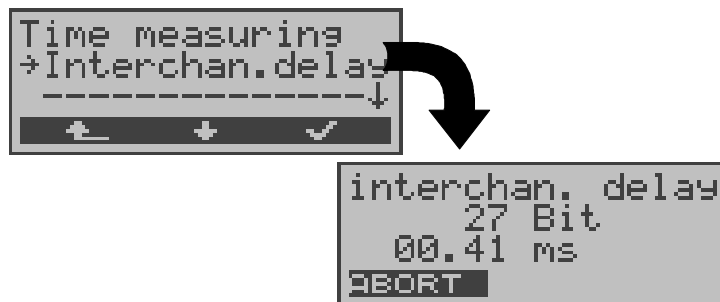
### 9.7.3 Interchannel delay




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 difference in the propagation delay (interchannel delay) is given in multiples of the time required for sending one byte at 64 kBit/s. (The time for sending 1 byte at 64 kBit/s = approx. 125  $\mu$ s.)

After the *Interchannel delay* function is started, you must enter the call number, the service and the B-channel (see "Setting up an ISDN connection" on page 98.).

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



Operation	
<  >	Return to the <i>Single tests</i> menu
<  >	Select <i>Interchan.delay</i>
<  >	Open the <i>Interchan.delay</i> function
The ARGUS shows the difference in the propagation times in bits and milliseconds.	
< <b>ABORT</b> >	Quit the <i>Interchan.delay</i> function The ARGUS returns to the <i>Time measuring</i> menu.

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.

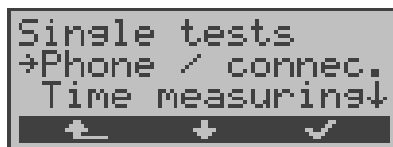
When it is connected to a loopbox, if the ARGUS does not receive the data back within 13 seconds, it will display the message "No LOOP".


## 10 Connection

### 10.1 Setting up an ISDN connection

- a) The ARGUS can setup a connection for the following services:
- Tel. analog
  - Tel. ISDN (3.1 kHz)
  - Tel. 7kHz
  - Voice
  - 7kHz Audio
  - Videotext
  - Fax G3
  - Fax G4
  - UDI 64kBit/s
  - Teletext
  - Videoconference 1
  - Videoconference 2
- b) In the case of a telephone connection, you can either use the integrated handset or attach an optional external headset.
- c) When an ISDN connection is setup, pressing the number keys (0-9) or the \* or # will generate and send the corresponding DTMF tones .

#### ■ ProcedureIncoming Call (ISDN)



	Operation
< ↓ >	Select <i>Phone / connec.</i>
< ✓ >	Confirm the selection and the <i>Connection</i> dialog will open
< ↶ >	Return to the Main menu
Alternative:  -Key	Regardless of the currently active menu level, the ARGUS will begin to setup a connection. The <i>Connection</i> dialog will now open.

- **Select or enter a call number**

The *Connection* dialog will open automatically. Here you can choose between overlap and en-bloc signaling. When overlap signaling is chosen, the digits will be individually dialed as the numberkeys are pressed. In en-block signaling, the complete dialing information will be sent in one block.

Display for “en-bloc signaling”:



↓ -Key

### Operation

Select *overlap* or *en-bloc* signaling. Overlap is used as the default to permit the simplest access to the dialing tone

< ✓ >

Confirm your selection.

or

 -Key

Select the entry mask *Select service* and the *B-channel select* will be skipped. The ARGUS will immediately display the *Outg.call* window.

<  >

Return to the *Single tests* menu

### Only with en-bloc signaling:

The speed-dialing memory, which can be used to store and dial your own plus up to 8 other call numbers, will open automatically (see “Saving Call Numbers” on page 168.).

↓ -Key

Scroll to the desired call number



or

enter the new call number.

< DEL >

Delete individual digits

<  >

Return to the *Single tests* menu

&lt; ✓ &gt;

or



-Key

The *Select service* window opens

Select the entry mask *Select service* and the *B-channel select* will be skipped. The ARGUS will immediately display the *Outg.call* window.



The extension is separated from the access number by a #. 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).

An example:


02351 / 9070-20 is entered as 023519070#20.

Call numbers can be deleted digit for digit with the < DEL >-Key (DELeTe).



#### **Simplified overlap signaling using the telephone key:**

Regardless of the currently open menu, you can quickly and easily place a call:

press the telephone key . The ARGUS will jump to the Overlap/Connect function (in the Single tests menu). Press the telephone-key again (you will hear the dialing tone). The call number can now be entered and dialed digit-by-digit. The connection will be setup.

- **Select service**



#### Operation

- < ↓ > Select the *Service*
- < ✓ > Confirm the *Service* selected and the *B-channel select* entry dialog will open
- < **ABORT** > Return to the *Single tests* menu

- **Selecting a B-channelchargesn**

B-channel 2 is available.



#### Operation

- 
- < **DEL** > Delete the *B-channel* digit-by-digit
- < ✓ > Confirm your selection and the *Outg.call* window will open
- < > Return to the *Single tests* menu

• **Connection.**

Own number  
Dialled No.

```

Outgo.call  Tel.
90700      B02
to: 01191  ↓
CLEAR TM
    
```

Service  
B-channel used



**Operation**

In overlap signaling mode, the call number can only be entered and dialed digit-by-digit (third line)

< **ABORT** > Quit the dialling procedure  
Return to the *Single tests* menu

< **TM** > Call the Test Manager (see “Test Manager” on page 111.)

The connection is setup on B-channel 2 status:

```

Connect.    Tel.
90700      B02
to: 01191  ↓
CLEAR TM
    
```

↓-Key Display additional call data e.g. charges

< **ABORT** > Disconnect  
Return to the *Single tests* menu

< **TM** > Call the Test Manager (see “Test Manager” on page 111.)

- **Display additional call data**

If the ARGUS displays a ↓ on the right on the third line, additional information about the current call can be viewed by simply pressing the ↓-Key :

- **Subaddress**

The sub-address of the caller (second line) and the dialed sub-address will be displayed.

```

Connect.      Tel.
SUB:808076
to: 01191      ↓
CLEAR TM

```

- **User-User Information**

```

Connect.      Tel.
UUI:HALLO
                ↓
CLEAR TM

```

- **Display Information**

- **Type of number (T.o.n.)**

- **Numbering Plan (NP)**

- **Advice of charge**

The up-to-date AOC information will be presented on the third line of the display as it is received. With the < ↓ > , you can scroll through additional information (if there is any).(if there are any).

```

Connect.      Tel.
Advice of charge
Units         24↓
CLEAR TM

```

Operation	
< ABORT >	Disconnect Return to the <i>Single tests</i> menu
< TM >	Call the Test Manager (see "Test Manager" on page 111.)
↓-Key	There are other displays

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 DISPLAY message's character string will be displayed.

### ■ 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 112.).

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

The number of the caller

In.call	Tel.	Service
02351907070	B01	B-channel used
to: 90700	↓	
REJECT	ACCEPT	

< ACCEPT >

or



-Key

< REJECT >

↓ -Key

#### Operation

Accept the incoming call

Reject the incoming call

Additional information is available (optional: indicated by the ↓ on the display) and can be displayed ( e.g., SUB, UUS)

The 16-digit call number (DDI) will be displayed in its entirety, as long as the “Alerting mode” in the “Parameter” menu has been set to “manual” (see Chap. 15.2.2 Alerting mode page 136).

On a P-MP access, you can use the *Call acceptance* (see “Call Acceptance” on page 140.) 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 168.) and the incoming call has a destination MSN.

After the call is accepted, the following display will appear:

```

Connect.   Tel.
02351907070 B01
to: 90700  ↓
CLEAR TM

```

#### Operation

- < **ABORT** > Disconnect  
Return to the *Single tests* menu
- < **TM** > Call the Test Manager (see "Test Manager" on page 111.)

A telephone connection to the subscriber with the call number 02351907070 now exists on B-channel 1.



If an external handset has been connected (see "Handset" on page 166. ), the following will be displayed when the call is accepted:

```

Connect.   Tel.
02351907070 B01
to: 90700  ↓
CLEAR TM INTERN

```

#### Operation

- < **INTERNAL** > Switches to the internal handset  
(necessary in order to take a call, if no headset is connected.)
- < **ABORT** > Disconnect  
Return to the *Single tests* menu
- < **TM** > Call the Test Manager (see "Test Manager" on page 111.)

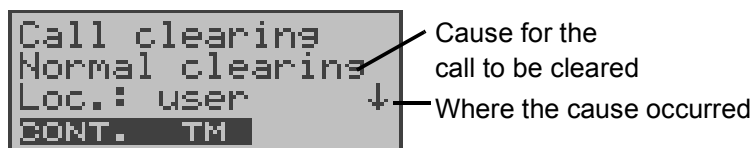
## 10.2 Setting up an ISDN connection

To clear (disconnect) the connection: press < CLEAR > or the



-Key

When the ARGUS is clearing the connection or when it has been disconnected, it will display the following:



### Operation

↓ -Key

Display further information

< TM >

Call the Test Manager (see "Test Manager" on page 111.)

< CONT. >

Return to the *Single tests* menu

If the charges are sent at the end of the connection, the charges will be displayed accordingly.

The connection has now been cleared-down and the B-channel is released.

The following causes are shown in clear text:

Cause	Display	Explanation
<b>255</b>	Active clearing	<i>User actively initiated the disconnection</i>
<b>Long 0</b>	Normal clearing	<i>Cause element with Long 0 is mostly used by 1TR6</i>
<b>01</b>	Unalloc. number	<i>"No access under this call number" is signaled</i>
<b>16</b>	Norm. clearing	<i>Normal disconnect</i>
<b>17</b>	User busy	<i>The number called is busy</i>
<b>18</b>	No user respond	<i>No answer from the number called</i>
<b>19</b>	Call.time XX	<i>Call time too long</i>
<b>21</b>	Call reject	<i>The call is actively rejected</i>

---

<b>28</b>	Wrong number	<i>Wrong call number format or call number is incomplete</i>
<b>31</b>	Norm. clearing	<i>Unspecified "normal class" (Dummy)</i>
<b>34</b>	No B-chan.avail.	<i>No circuit / B-channel available</i>
<b>44</b>	Req.chan.unavail	<i>Requested B-channel not available</i>
<b>50</b>	Req.fac.not subs	<i>Requested supplementary service (facility) not subscribed</i>
<b>57</b>	BC not authoriz.	<i>Requested bearer capability is not enabled</i>
<b>63</b>	Srv./opt.n.avail	<i>Unspecified for "Service not available" or "Option not available"</i>
<b>69</b>	Req.fac.not impl.	<i>Requested facility is not supported</i>
<b>88</b>	Incompat. Objectives	<i>Incompatible destination</i>
<b>102</b>	Timer expired	<i>Error handling routine started due to time-out</i>
<b>111</b>	Protocol error	<i>Unspecified for "protocol error class"</i>
<b>127</b>	Interworking err	<i>Unspecified for "interworking class"</i>

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

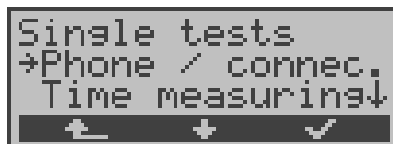
### 10.3 Operation on a POTS (analog) access

#### ■ Procedure for an Outgoing Call (POTS)

The ARGUS sets up a connection to another terminal.

If the remote terminal is a telephone, you can use the integrated handset or an optional external headset to hold a conversation with the remote party.

The charges due will be displayed, if the information is available for the access under test.




#### Operation

- < ↓ > Select *Phone / connec.*
- < ✓ > Confirm the selection and the *Connection* dialog will open
- < ↶ > Return to the Main menu



#### Simplified overlap signaling using the telephone key:

Regardless of the currently open menu, you can quickly and easily place a call:

press the telephone key . The ARGUS will jump to the Overlap/Connect function (in the Single tests menu). Press the telephone-key again (you will hear the dialing tone). The call number can now be entered and dialed digit-by-digit. The connection will be setup.



#### Operation

- < ↓ > Select overlap or en-bloc sending
- < ✓ > Confirm your selection and continue to the next display
- < ↶ > Return to the *Single tests* menu

**Only for en-bloc sending:**

&lt; DEL &gt;

&lt; ✓ &gt;

↓-Key  
or  
↑-Key

&lt; ↶ &gt;

**Operation**

Call numbers can be selected from the speed-dialing memory, entered digit-by-digit or an existing one can be modified or deleted.

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

Delete the number digit-by-digit

Confirm the number and continue to the next display

Scroll through the speed-dialing memory

Return to the *Single tests* menu

In “**overlap sending**”, the call is started immediately, the dial tone is audible and the ARGUS is displaying its dialing window. In contrast to en-bloc sending, you can now enter the call number digit-by-digit using the numeric keypad.



&lt; ABORT &gt;

&lt; ⚡ &gt;

**Operation**

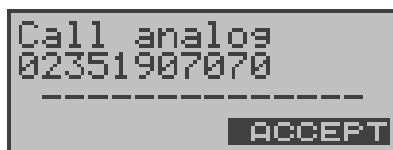
Disconnect  
Return to the *Single tests* menu

Generate a Flash signal

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

### ■ Procedure for an Incoming Call (POTS)

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



< ACCEPT >

or

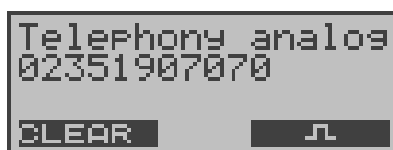


#### Operation

Accept the incoming call

If the access supports CLIP, the ARGUS will display the number of the caller on the second line (see “POTS CLIP” on page 153).

After accepting the call:



< ABORT >

Disconnect  
and return to the *Single tests* menu

< П >

Generate a FLASH signal

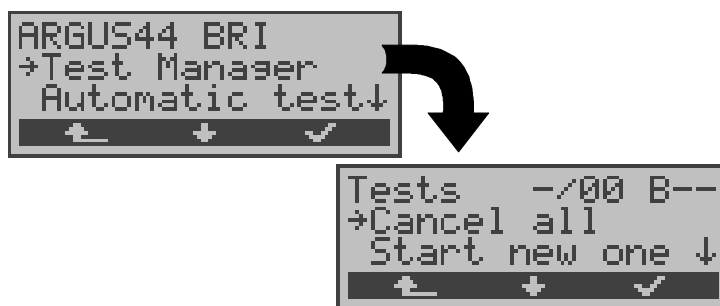
## 11 Test Manager

The ARGUS can simultaneously start BRI access tests or “connections” fully independently of each other.

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.

Calling the Test Manager in the Main menu:



Operation	
< ↓ >	Select the <i>Test Manager</i> menu
< ✓ >	Confirm your selection
< ↶ >	Return to the status display
< ↓ >	Select the desired menu item e.g. <i>Start new one</i> The ARGUS displays the number of the selected test, the number of tests started and the B-channel used by the marked test. ( -/00 B-- )
< ✓ >	Confirm
< ↶ >	Return to the Main menu

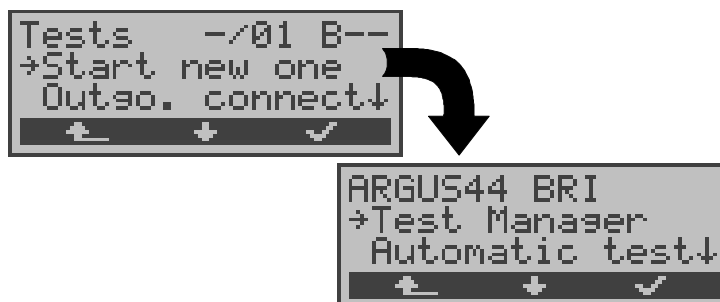


If the ARGUS is in the Connections or Single tests menu (or in a test), the Test Manager can be opened using the **6** -Key or via the **< TM >** softkey.

## 11.1 Simultaneously Starting Several Tests

### ■ Starting a new test or connection during an existing connection

The ARGUS has an existing connection (see Chap. 10.1 Setting up an ISDN connection page 98). Open the Test Manager (6-Key or < TM >).



Operation	
< ↓ >	Select the <i>Start new one</i> function
< ✓ >	The ARGUS jumps to the status display
< ↶ >	Returns to the existing connection
The ARGUS jumps to the Main menu from which you can start other tests as usual.	

Start another test, e.g. the bit error test from the Single tests / Bit error test menu (see Chap. 9.3.1 BERT start page 74). The ARGUS will perform a bit error test independent of any existing connections.

```
BERT          B02
15:45:42      3
Synchronous
ABORT TM ERROR
```

Operation	
< TM >	The ARGUS jumps to the Test Manager





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. tes t	1	no
Time measur- ing <i>Setting up call</i>	1	no
Time mea- surement <i>B-channel delay</i>	1	no
Time mea- surement <i>Interchannel delay</i>	1	no
X.31 Test	1	no
CF Interroga- tion	1	no
Auto. Test	1 When the Auto. Test is running all of the resources are in use and no other tests or connec- tions are possible	no
BRI level	1	no
Analog voltage	1	no

### ■ Accepting an incoming call/connection during a running test

The ARGUS signals an incoming call with a corresponding message on the display and an audible signal (see Chap. 10.1 Setting up an ISDN connection page 98).

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 an incoming call that arrives during a BERT, but it is identical for all other tests.

The ARGUS is performing a bit error test as an incoming call is signaled on the display:

```
In.call Tel.
02351907070 B01
to: 90700 ↓
REJECT ACCEPT
```

<b>Operation</b>	
< REJECT >	Reject the incoming call The ARGUS returns to the running test (in the example: to the BERT)
< ACCEPT >	Accept the incoming call. The ARGUS will then jump to the "Connections" dialog. The connection is active and in the foreground. The BERT continues to runs in the background and can be viewed via the Test Manager (6-Key).
6 -Key	The ARGUS jumps to the Test Manager

```
Tests 1/02 B02
→BERT outgoing
Incom. connect↓
← ↓ ✓
```

< ↓ >

< ✓ >

< ↶ >

### Operation

Select the *BERT*

The ARGUS jumps to the BERT

The ARGUS will then return to the “Connections” dialog.



If available, the internal handset will be assigned to the currently started (voice) connection. There is no support for switching the handset to another voice call. The assignment of the handset to a given connection is also retained in the background.



### 12 Automatic Test

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

With the special optional cable (RJ45 to Centronics connector), you can print out a simple test report on a Centronics printer.

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 access**

- Level Measuring
- Service Tests
- BERT in an extended call to oneself
- Suppl.serv.test (tests the supplementary services )
- X.31 Test
- Call Forwarding
- MSN Interrogation

#### **On an ISDN permanent circuit**

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

#### **On an ADSL access**

- The ARGUS determines the ADSL relevant values

The ARGUS saves the test results together with the date and time.

Additionally, for a BRI access, the ARGUS also saves settings such as your own plus the remote call number.

The test results are stored in non-volatile memory and are not lost when the ARGUS is switched off.

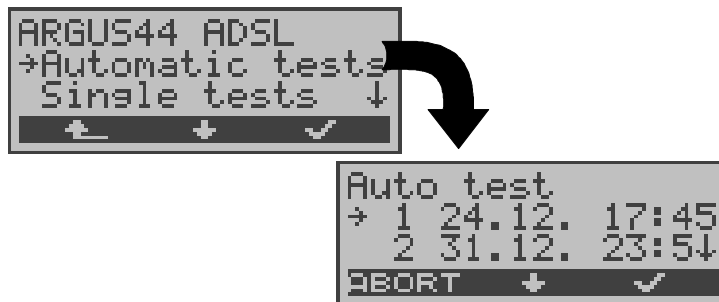


The ARGUS will save the results of several test series (records 1,2,3...20) .

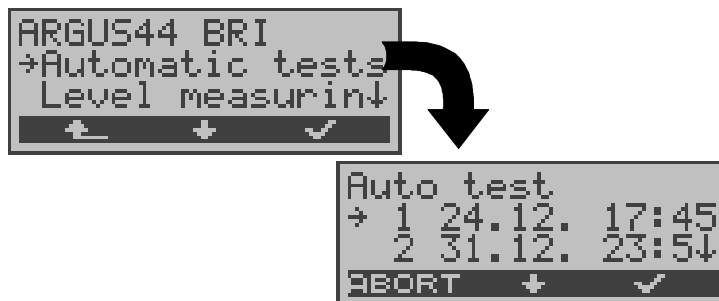
Every function in the *Automat.Tests* menu applies to a test series that was saved as a record .

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

**Displayed on an ADSL access:**



**Displayed on a BRI access:**



	Operation
< ↓ >	Select <i>Automatic Test Select</i>
< ✓ >	Confirm your selection
< ↵ >	Return to the status display
< ↓ >	Select record: Each data record (holding the results of a saved test) is identified by a sequential number plus the date and time "Free" data records have only a number.
< ✓ >	Confirm A menu with various functions for processing the selected data record will open automatically.
< ABORT >	Return to the Main menu

If function key 4 is pressed at any place in the menu to start an automatic test, a data record will be selected automatically and the Automatic test will begin immediately.

## 12 Automatic Test

---

The result will be saved in the first data record that is free (e.g. No.3 when two test series are already saved).

When all of the records have been used, the ARGUS will overwrite the oldest of the saved test results.



## 12.1 Automatic Start test on a BRI access

```
Auto test No.: 2
→Start
Display result↓
←  ↓  ✓
```

Operation	
< ↓ >	Select <i>Start</i>
< ✓ >	Confirm your selection
< ↶ >	Return to the <i>Autom. Test</i>
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ * 0 #	Enter your <b>Own number</b> <i>Only on accesses with the DSS1 protocol:</i> also enter a <b>remote call number</b>
< ✓ >	Confirm
< ↓ >	Select service (will be used for the suppl.serv.test)
< ✓ >	Start test



Before running a BERT, check and, if necessary, modify the measurement time and error level (threshold)(see Chap. 15.3.1 BERT - duration page 143).

```
Service check ✓
6/12 Fax G3
ABORT
```

During the test series, the first three lines in the display will reflect the test currently being run. If the test series is canceled (< ABORT > softkey ), another menu will open:

```
Auto test No.: 2
→Interrupt test
Stop cur. test↓
ABORT ↓ ✓
```

In this menu, you have the option of aborting the entire currently running series of tests or skipping individual test segments (e.g. service check).

■ **Cancelling the Test**

An automatic test series can be terminated before it is finished:



< ↓ >

< ✓ >

< ABORT >

**Operation**

Select *Interrupt test*

Confirm that the test should be stopped

Resume Automatic Test

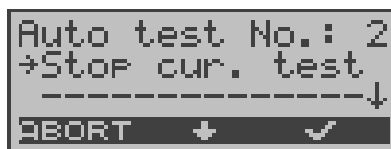


If the automatic test is interrupted, the test results gathered up to this point will **not** be saved.

Any “old” data stored under this data record number from a prior test will be retained.

■ **Test point – skipping**

Individual test points can be skipped in the following manner:



< ↓ >

< ✓ >

<ABORT >

**Operation**

Select *Stop cur. test*

The test currently being performed will be skipped (e.g. BERT) and the next test in the sequence will start.

Resume Automatic Test

**■ Continue test**

A test series, which was interrupted with <ABORT>, can be resumed. In this case, the interrupted test (e.g. BERT) will be repeated.

```
Auto test No.: 2
→Continue test
Interrupt test↓
ABORT ↓ ✓
```

&lt;↓&gt;

**Operation**Select *Continue test*

&lt;✓&gt;

In this case, the interrupted test (e.g. BERT) will be repeated and the test series resumed.

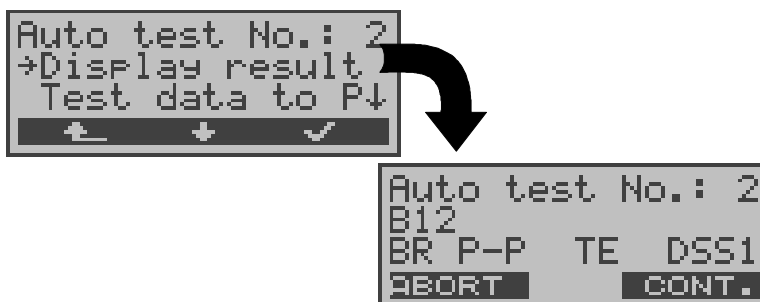
&lt;ABORT &gt;

Resume Automatic Test

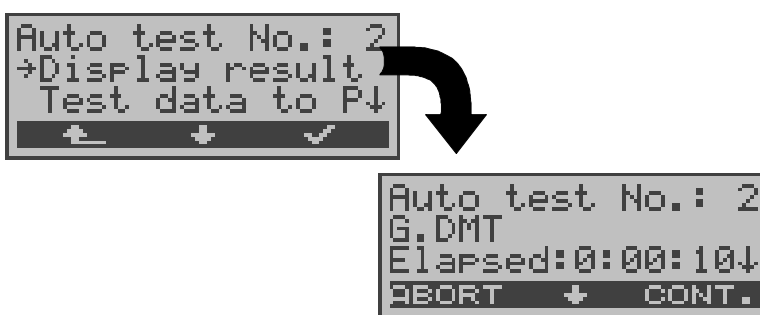
## 12.2 Display Results

The ARGUS will show the results of the Automatic Test in the display.

### Displayed on a BRI access:



### Displayed on an ADSL access:



	Operation
< ↓ >	Select <i>Display result</i>
< ✓ >	Confirm your selection
< ↶ >	Return to the menu <i>Auto. Test No.</i>
< CONTINUE >	Continue to the next results window
< ABORT >	Return to the menu <i>Auto. Test No.</i>
<b>On an ADSL access:</b>	
< CONTINUE >	Displays the graph
< ↓ >	Scroll through the measurement results
< ABORT >	Return to the menu <i>Auto. Test No.</i>

**Test results on a BRI access:**

The results of the individual tests will be displayed in the following order:

- |                               |                              |
|-------------------------------|------------------------------|
| For: <i>BRI access</i>        | <i>ISDN Permanent switch</i> |
| - State                       | - State                      |
| - Level measuring             | - Level measuring            |
| - Service Check               | - BERT                       |
| - BERT                        |                              |
| - Supplementary services test |                              |
| - CF Interrogation            |                              |
| - MSN Interrogation           |                              |
| - X.31 Test                   |                              |

```
Auto test No.: 2
Tel.ISDN    +*123
Tel.7kHz   ++   ↓
ABORT  ←  CONT.
```

**Operation**

- |            |   |
|------------|---|
| < ↓ >      | Scroll through the results of a test        |
| < CONT . > | Jump to the results of the next single test |
| < ABORT >  | Return to the <i>Autom. Test No.2</i>       |

The interpretation of the test results is described in the individual sections (e.g. in Chapter 9.2 Service check page 69) .

**Measurement results on an ADSL access:**

Interpretation of the measured data as described on page 54 "Measured Data Display:".

### 12.3 Sending Test Results 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 (connect the cable between the ARGUS "L-Test" jack ---- PC's serial interface).

Connect the ARGUS to your PC.

#### ■ Procedure on the PC

Start *ARGUS WINplus* on the PC.

Select the data record, which should be transferred to the PC (in the following example Test No.2), and then start the transfer of data:



< ↓ >

< ✓ >

< ↶ >

#### Operation

Select *Test data to PC*

Start transfer of data to PC

Return to the *Auto. Test menu*

## 12.4 Printing the test results (optional)

With a special (optional) cable, it is also possible to print a simplified test report on a Centronics printer.

Plug the matching end of the special cable into the *L-Test* jack on the ARGUS. Plug the Centronics connector into the printer.

Now select the data record that you wish to output on the connected Centronics printer (in the following example Test No.2).

```
Auto test No.: 2
*Print data
Delete          ↓
┌───────────┴───────────┐
│ ←   ↓   ✓             │
```

	Operation
< ↓ >	Select <i>Print data</i>
< ✓ >	Start printing
< ↑ >	Return to the <i>Auto. Test menu</i>

While printing, the following will be shown on the display:

```
Auto test No.: 2
Printing      /
ABORT
```

	Operation
< ABORT >	Quit printing

If an error occurs while printing, the ARGUS will show “No reply” in the second line of the display; if the data is transferred properly “Transfer OK” will be displayed.

The printer parameters can be set in the Configuration menu (see page 163 Printer).

### 12.5 Delete Test Result

The test results can be deleted individually (to delete **all** test results see on page 170 “Reset”).

Select the data record that you wish to delete (in the following example Test No.2).



< ↓ >

< ✓ >

< ↵ >

#### Operation

Select *Delete*

The deletion will begin

Return to the *Auto. Test menu*



## 13 Level Measuring



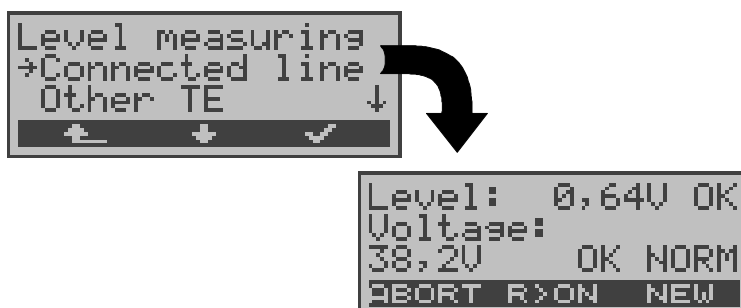
### Operation

- < ↓ > Select the *Level measuring* menu
- < ✓ > Open the *Level measuring* menu
- < ↶ > Return to the status display

### 13.1 Connected Line Level Measurement

(Only on a BRI Access)

The ARGUS measures the level of the received useful signal and the phantom feed. The measurement is updated continuously.



Operation	
< ↓ >	Select the <i>Connected line</i> (remote end)
< ✓ >	Start the <i>Connected line</i> function
< ↶ >	Return to the Main menu
< NEW >	Layer 1 will setup again to ensure a proper measurement on a Layer 1 that is not permanently active
< R>ON >	Connect
or	or
< R>OFF >	remove a 100Ω resistor.
< ABORT >	Return to the <i>Level measuring</i> menu

#### Measurement results:

First line: The level of the useful signal in volts. An evaluation of the level follows:

<< level is too low

>> level is too high

OK level is in order (0.75V <sup>+20%</sup> <sub>-.33%</sub>)

\_\_\_ no level

Third line: The level of the feed in volts. An evaluation of the level follows.

Afterwards, the type of supply will be displayed:

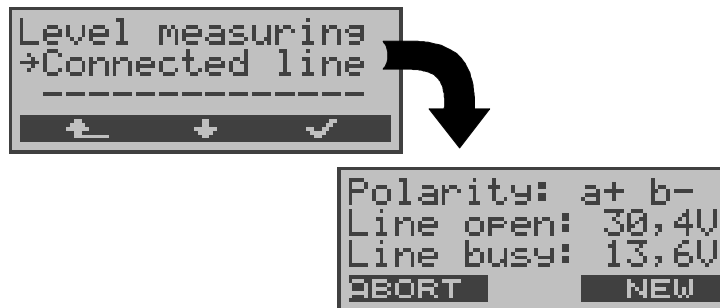
NORM normal feed (40V <sup>+4.25%</sup> <sub>-13.75%</sub>)

REV\_ inverted phantom feed

NONE no feed

### 13.2 Level measuring on an analog access

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



	Operation
< ↓ >	Select the <i>Connected line</i> (remote end)
< ✓ >	Start measurement
< ↶ >	Return to the Main menu
< NEW >	Repeat measurement
< ABORT >	Return to the <i>Level measuring</i> menu

#### Measurement results:

First line: The polarity of the analog line (2 wire)  
 Red plug: a  
 Black plug: b

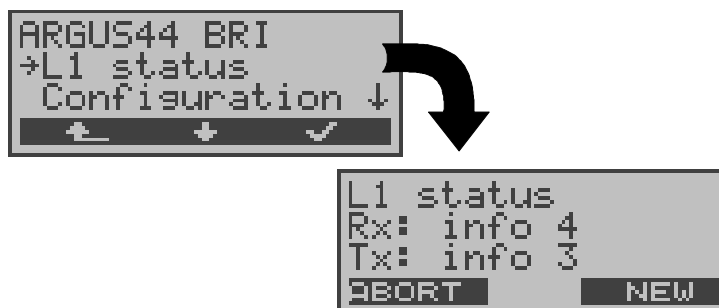
Second line: The normal voltage level

Third line: The voltage level when the line is “busy”

The measurement will be updated continuously.

## 14 L1 Status

The ARGUS displays the current status of Layer 1 on the BRI access: which signal is received from the remote end (Rx) and which signal the ARGUS sends (Tx).

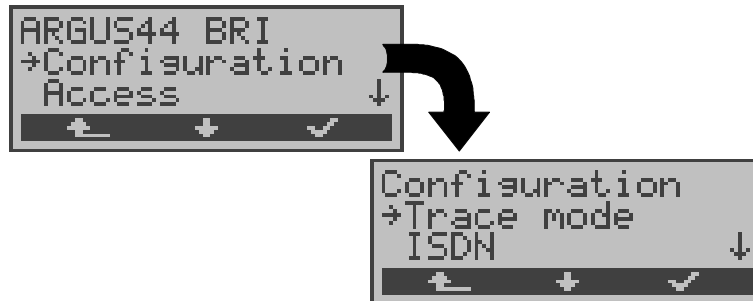


	Operation
< ↓ >	Select the <i>L1 status</i> menu
< ✓ >	Open the <i>L1 status</i> menu
< ↶ >	Return to the status display
< NEW >	Layer 1 will be setup, if it is not already
< ABORT >	Return to the Main menu

The ARGUS displays the status of Layer 1 or of the signal, which is being sent ( Info 0 .... Info 4).

## 15 Configuration

The ARGUS can be configured to suit your special requirements.



< ↓ >

< ✓ >

< ↵ >

### Operation

Select *Configuration*

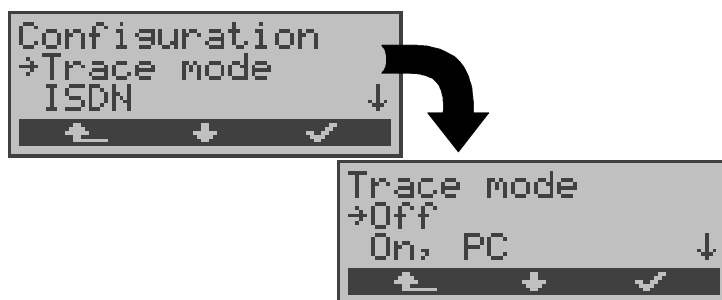
Open the *Configuration* menu

Return to the status display

### 15.1 Trace mode

The ARGUS can output all of the D-channel messages, which it sent or received, to a PC (*Trace mode: On, PC*).

When the trace mode is active, the LED labeled "Trace" will be on continuously. If the ARGUS cannot send the data to the PC without errors, the LED will flash at 5Hz (5 times per sec).



	Operation
< ↓ >	Select the <i>Trace mode</i>
< ✓ >	Open the <i>Trace mode</i> function
< ↶ >	Return to the Main menu
<hr/>	
< ↓ >	Select the Trace mode
< ✓ >	Accept settings and return to the <i>Configuration</i> menu
< ↶ >	Return to the <i>Configuration</i> menu without making the changes



The *Trace mode* setting is only saved temporarily. In other words, Trace mode is always off when the ARGUS is first switched on.

## 15.2 Configuration: ISDN



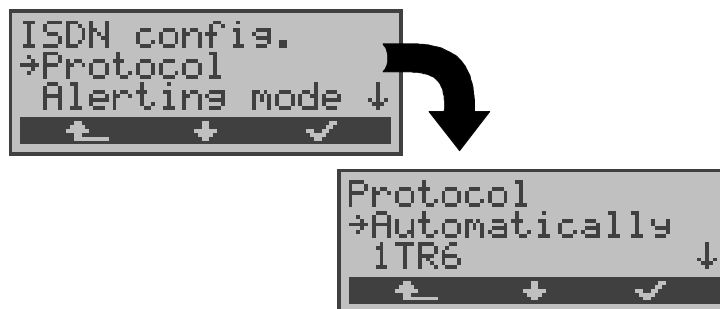
<↓>  
 <✓>  
 < ↵ >

### Operation

Select the *ISDN* configuration menu  
 Open the *ISDN* configuration menu  
 Return to the Main menu

### 15.2.1 Manually setting the D-channel protocol:

Besides automatic protocol recognition (Setting: Automatic), the ARGUS also allows you to manually set the Layer 3 D-channel protocol. The ARGUS will save the protocol setting and will use this protocol the next time that it is switched on.



<↓>  
 <✓>  
 < ↵ >

### Operation

Select the *Protocol*  
 Confirm your selection  
 Return to the *Configuration* menu

<↓>  
 <✓>  
 < ↵ >

Select the Layer 3 protocol  
 Confirm the protocol setting and return to the *ISDN* configuration menu  
 Return to *ISDN* configuration menu without changing the protocol

### 15.2.2 Alerting mode

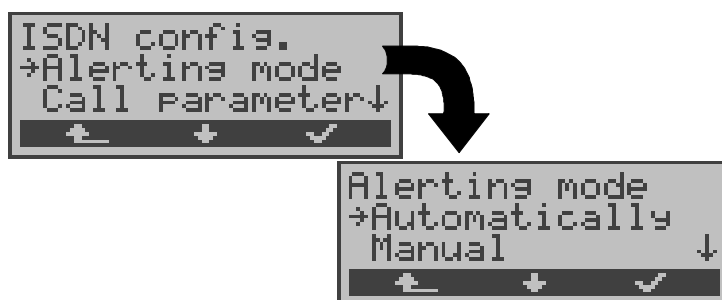
You can specify whether, for an incoming call on a BRI point-to-point access, the ARGUS should only display the access number without extension or the complete number with extension.

If you **select *Manual***, the extension can be displayed (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.).



With the *Manual* setting, an incoming call 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.

If you select ***Automatic***, 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.



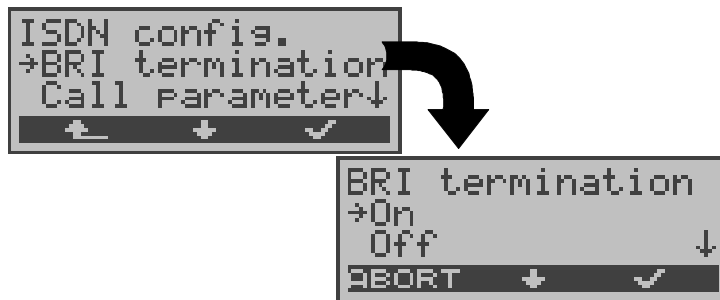
	Operation
< ↓ >	Select the <i>Alerting mode</i>
< ✓ >	Confirm your selection
< ↶ >	Return to the <i>Configuration</i> menu
< ↓ >	Select the desired alerting mode.
< ✓ >	Accept settings and return to the <i>ISDN config.</i> submenu
< ↶ >	Return to the <i>ISDN config.</i> submenu without making any changes



### 15.2.3 BRI termination

It is possible to switch-in a terminating resistor.

In the default setting, no terminating resistor is connected.



	Operation
<↓>	Select <i>BRI termination</i>
<✓>	Open <i>BRI termination</i>
< ↵ >	Return to the <i>Configuration</i> menu
<↓>	Select <i>On</i> or <i>Off</i>
<✓>	Accept settings and return to the <i>ISDN</i> configuration menu
<ABORT >	Return to the <i>ISDN</i> configuration menu without making any changes

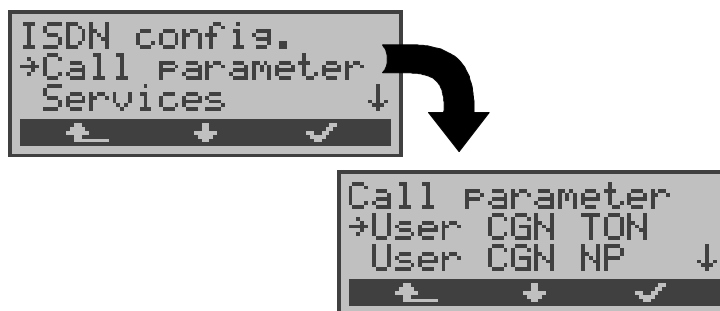


This setting will not be saved permanently. If the ARGUS is switched off, the setting will be lost.

### 15.2.4 Call parameter

Two different parameters can be set for (ISDN) calls generated on both the network-side (exchange-side or ARGUS in NT mode) and on the user-side (ARGUS in TE mode):

- **Type Of Number (TON)** for the CGN (=CGPN) or CDN (=CDPN) element of a SETUP signal
- The **Numbering Plan (NP)** for the CGN (=CGPN) or CDN (=CDPN) element of a SETUP signal



	Operation
< ↓ >	Select <i>Call parameter</i>
< ✓ >	Open the <i>Call parameter</i> menu
< ↑ >	Return to the <i>Configuration</i> menu
< ↓ >	Select desired function: <ul style="list-style-type: none"> <li>• <b>Network-side: Net CGN TON / Net CDN TON</b></li> <li>• <b>User-side: User CGN TON / User CDN TON</b></li> </ul> Set the <b>Type Of Number (TON)</b> for the CGN or CDN element of a SETUP signal <ul style="list-style-type: none"> <li>• <b>Network-side: Net CGN NP / Net CDN NP</b></li> <li>• <b>User-side: User CGN NP / User CDN NP</b></li> </ul> Set the <b>Numbering Plan (NP)</b> for the CGN or CDN element of a SETUP signal
< ✓ >	Open the selected function
< ↑ >	Return to the <i>ISDN</i> configuration menu

**Operation**

&lt; ↓ &gt;

Select the desired setting

&lt; ✓ &gt;

Accept settings and return to the *Call parameter* menu

&lt; ↶ &gt;

Return to the *Call parameter* menu without making any changes**Possible settings:**

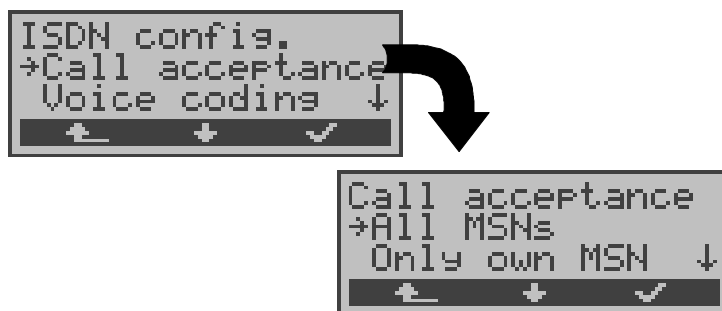
For TON: unknown, international, national, network spec., subscriber, abbreviated.

For NP: unknown, ISDN/telephony, data, telex, national stand., private

### 15.2.5 Call Acceptance

On a P-MP access, the ARGUS will signal either all incoming calls or just those calls whose destination address matches the MSN of the access under test.

The function is only available, when your own call number has been saved in the speed-dialling memory under “own number” (see Chap. 15.7 Saving Call Numbers page 168) and the incoming call has a destination MSN.



	Operation
< ↓ >	Select <i>Call acceptance</i>
< ✓ >	Open the <i>Call acceptance</i> function
< ↶ >	Return to the <i>Configuration</i> menu
< ↓ >	Select the desired setting: <b>Only own MSN:</b> The ARGUS signals the incoming call, if its destination MSN matches your “own” number. <b>All MSNs:</b> The ARGUS signals all calls
< ✓ >	Accept settings and return to the <i>ISDN</i> configuration menu
< ↶ >	Return to the <i>ISDN</i> configuration menu without making any changes

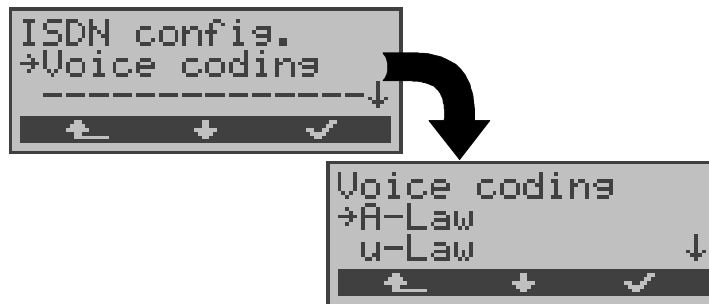
By default, this is set to *All MSNs*.

This setting will be saved permanently.

### 15.2.6 Voice coding

There are two options for coding voice data in a B-channel:

- A-Law
- $\mu$ -Law

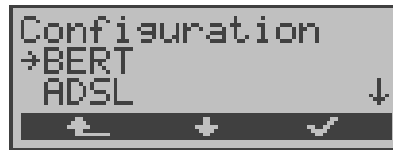


	Operation
< ↓ >	Select <i>Voice coding</i>
< ✓ >	Open the <i>Voice coding</i> function
< ↶ >	Return to the <i>Configuration</i> menu
< ↓ >	Select the desired setting: <i>A-Law</i> or <i><math>\mu</math>-Law</i>
< ✓ >	Accept settings and return to the <i>ISDN</i> configuration menu
< ↶ >	Return to the <i>ISDN</i> configuration menu without making any changes

The default setting is *A-Law*.

This setting will be saved permanently.

### 15.3 Configuration: BERT



< ↓ >

< ✓ >

< ↶ >

#### Operation

Select the *BERT* configuration menu

Open the *BERT* configuration menu

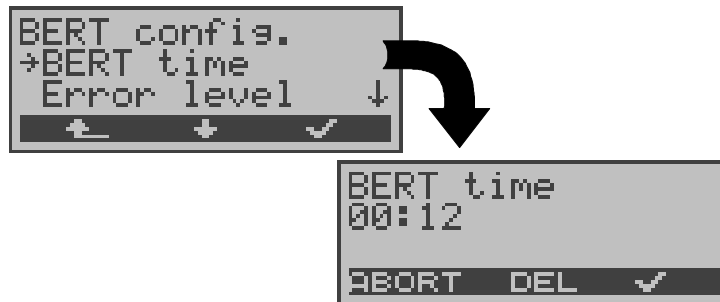
Return to the Main menu

### 15.3.1 BERT - duration

The default setting for the duration of the bit error rate test is 1 minute. The measurement time may be set to a maximum of up to 99:59 (99 hours and 59 minutes) or an unlimited time (by entering 00:00).



If an unlimited measurement time is selected, the bit error test will **not** stop automatically, rather it must be stopped by the user (see Chap. 9.3.1 page 74).

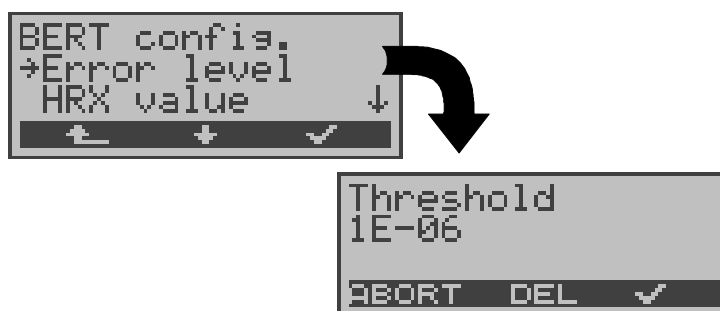


	Operation
< ↓ >	Select <i>BERT time</i>
< ✓ >	Open the <i>BERT time</i> function
< ↶ >	Return to the <i>Configuration</i> menu
< DEL >	Delete the digit before the cursor
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ * ⑩ #	Enter the desired duration of the bit error rate test
< ✓ >	Accept settings and return to the <i>BERT configuration</i> menu
< ABORT >	Return to the <i>BERT configuration</i> menu without making any changes

### 15.3.2 BERT - Setting the Error Level

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.

If the bit error rate is greater than the error level value, the ARGUS will display NO. This parameter can be set to any value from 01 (=  $10^{-01}$ ) to 99 (=  $10^{-99}$ ).

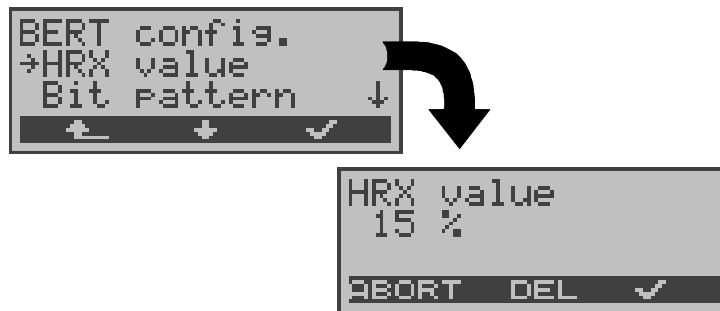


Operation	
< ↓ >	Select <i>Error level</i>
< ✓ >	Open <i>Error level</i> function
< ↶ >	Return to the <i>Configuration</i> menu
< DEL >	Delete the digit before the cursor
1 2 3 4 5 6 7 8 9 * 0 #	Enter desired value for the error level: 01 (= $10^{-01}$ ) to 99 (= $10^{-99}$ )
< ✓ >	Accept the error level (threshold) and continue to the <i>BERT</i> configuration menu
< ABORT >	Return to the <i>BERT</i> configuration menu without making any changes



### 15.3.3 HRX value

Here the HRX value is set in % (**H**ypothetical **R**eference-**C**onnections ITU-T G.821):

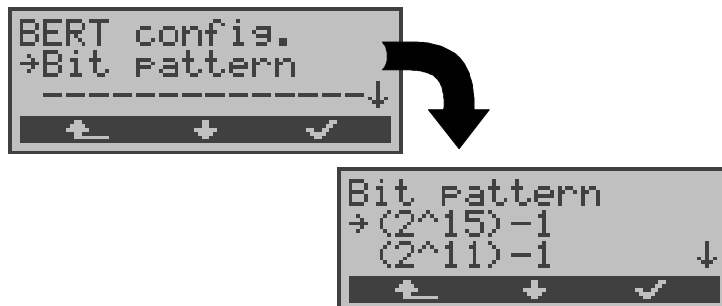


	Operation
< ↓ >	Select <i>HRX value</i>
< ✓ >	Open the <i>HRX value</i> function
< ↶ >	Return to the <i>Configuration</i> menu
< DEL >	Delete the digit before the cursor
1 2 3 4 5 6 7 8 9 * 0 #	Enter the desired <i>HRX value</i> Values from 0 to 100 %
< ✓ >	Accept the <i>HRX value</i> and return to the <i>BERT</i> configuration menu.
< ABORT >	Return to the <i>BERT</i> configuration menu without changing the <i>HRX value</i> .

### 15.3.4 Selecting the BERT bit pattern

There are two predefined bit patterns available. Additionally, it is also possible to enter a 16 bit long pattern of your choice in binary.

The default pattern is  $2^{15}-1$ .




Operation	
< ↓ >	Select the <i>Bit pattern</i> function
< ✓ >	Open the <i>Bit pattern</i> function
< ↵ >	Return to the <i>Configuration</i> menu
<hr/>	
< ↓ >	Select the desired bit pattern
< ✓ >	Accept bit pattern setting and return to the <i>BERT</i> configuration menu
< ↵ >	Return to <i>BERT</i> configuration menu without changing the bit pattern.

If a "user defined" bit pattern is selected, an entry mask will be displayed.

A 16 bit long pattern can be entered here in binary.

In the BERT, the ARGUS will either send this bit pattern cyclically or compare it with the received bit pattern.



	Operation
←	Moves the cursor to the left. The digit selected by the cursor can be directly overwritten.
	Enter the desired bit pattern in binary
< ✓ >	Accept settings and return to the <i>BERT</i> configuration menu. The entered bit pattern will be stored in the non-volatile memory (EEPROM), so that it will still be available after the ARGUS has been switched off and back on.
< <b>ABORT</b> >	Return to <i>BERT</i> configuration menu without changing the bit pattern.

## 15.4 Configuration: ADSL



< ↓ >

< ✓ >

< ↶ >

### Operation

Select the *ADSL* configuration menu

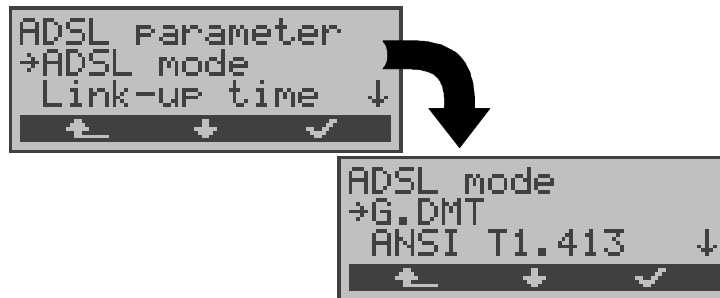
Open the *ADSL* configuration menu

Return to the Main menu

### 15.4.1 ADSL Modes

Different ADSL modes can be selected depending on the national variant of the ARGUS:

- ANSI T1.413.2
- T-DSL (UR2)
- ITU-T G.992.1 (G.DMT) Annex A / B
- ITU-T G.992.2 (G.Lite)
- ITU-T G.994.1 (G.hs)
- ETSI DTS

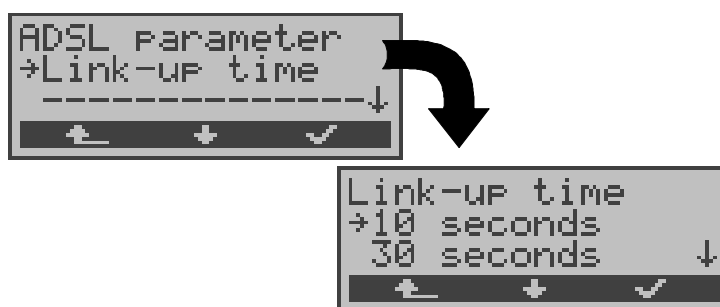


	Operation
< ↓ >	Select <i>ADSL mode</i>
< ✓ >	Open the <i>ADSL mode</i> function
< ↵ >	Return to the <i>Configuration</i> menu
< ↓ >	Select the desired ADSL mode.
< ✓ >	Confirm the selection of the ADSL mode and return to the <i>ADSL</i> configuration menu
< ↵ >	Return to the <i>ADSL</i> configuration menu without changing the ADSL mode.

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.

### 15.4.2 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.



Operation	
< ↓ >	Select <i>Link-up time</i>
< ✓ >	Open the <i>Link-up time</i> function
< ⏪ >	Return to the <i>Configuration</i> menu
< ↓ >	Select the desired measurement (link-up) time
< ✓ >	Accept the setting and return to the <i>ADSL</i> configuration menu
< ⏪ >	Return to the <i>ADSL</i> configuration menu without making any changes.

If the link-up time was set to “Continuous”, the connection to the DSLAM must be cleared manually with the < ⏪ > soft-key.



When the link-up time is set to “Continuous”, we recommend that you operate the ARGUS on the power supply to save the batteries.

In battery mode, the test will automatically quit after a short while (ca. 1 min.).

## 15.5 Configuration: POTS



< ↓ >

Select the *POTS* configuration menu

< ✓ >

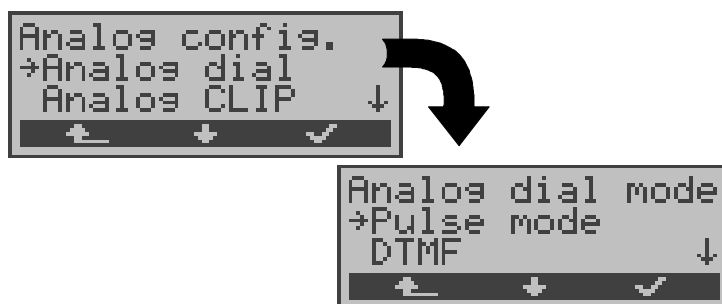
Open the *POTS* configuration menu

< ↵ >

Return to the Main menu

### 15.5.1 POTS dial mode

On an analog access, there are two methods available for dialing (DTMF and pulse dialing):



	Operation
< ↓ >	Select the <i>POTS dial mode</i> function
< ✓ >	Open the <i>POTS dial mode</i> function
< ↵ >	Return to the <i>Configuration</i> menu
< ↓ >	Mark the desired dialing mode.
< ✓ >	Confirm your entry and return to the <i>POTS</i> configuration menu
< ↵ >	Return to the <i>POTS</i> configuration menu without changing the dialing mode

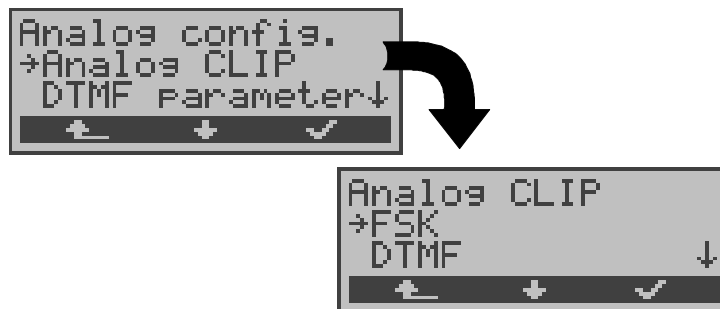


### 15.5.2 POTS CLIP

You can choose from two different methods for transferring the call number on a POTS access:

- **FSK** CLIP via a method similar to a modem:  
for Germany as well as some other parts of Europe
- **DTMF** CLIP via DTMF:  
for Scandinavia and the Netherlands

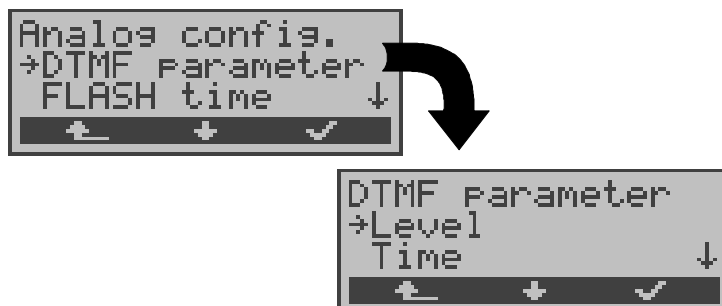
The ARGUS will automatically detect that a CLIP was sent using DTMF *with the polarity reversal* and will set itself accordingly (e.g. Netherlands).



	Operation
< ↓ >	Select the <i>POTS CLIP</i> function
< ✓ >	Open the <i>POTS CLIP</i> function
< ↶ >	Return to the <i>Configuration</i> menu
< ↓ >	Select the desired CLIP method
< ✓ >	Confirm the selection of the CLIP method and return to the <i>POTS</i> configuration menu
< ↶ >	Return to the <i>POTS</i> configuration menu without changing the CLIP method

### 15.5.3 DTMF parameter

The ARGUS can set the parameters *Level*, *Duration* and *Interval* of the DTMF signals that are generated during analog operation.

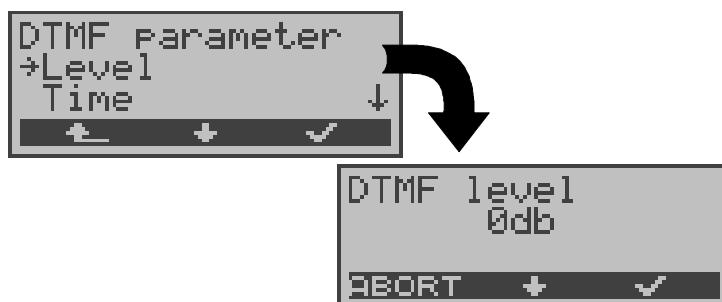


#### Operation

- < ↓ > Select the *DTMF parameter* function
- < ✓ > Open the *DTMF parameter* function
- < ↵ > Return to the *Configuration* menu

#### Setting the DTMF level:

The default value is 0dB. The level can take a value between -21dB and +12 dB and can be raised or lowered by 3dB.



#### Operation

- < ↓ > Select the *Level* function
- < ✓ > Confirm your selection
- < ↵ > Return to the *POTS* configuration menu.

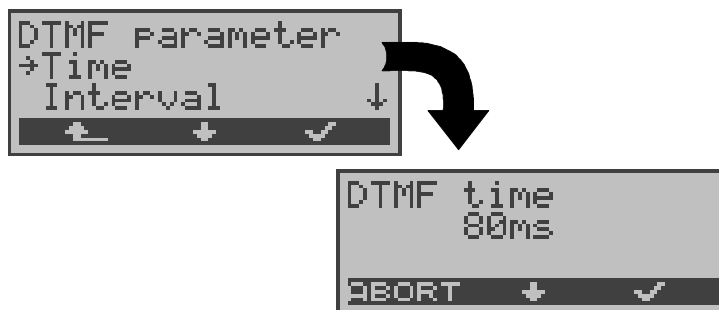
↓-Key	To lower the level by 3dB
<↑> or ↑-Key	To raise the level by 3dB
< ✓ >	Accept settings and return to the <i>DTMF parameter</i> submenu
< <b>ABORT</b> >	Return to the <i>DTMF parameter</i> submenu without making the changes

### Setting the duration of the DTMF signal:

The default setting is 80ms. The duration of the signal can take a value between 40ms and 1s. The duration can be raised or lowered using the arrow keys as follows:

In the range 40...200ms	in 10ms increments
In the range 200...300ms	in 20ms increments
In the range 300...1000ms	in 100ms increments

When the upper limit is reached (1000ms), the softkey < ↑ > will automatically change to a < ↓ > and vice versa when the lower limit (40ms) is reached.



Operation	
< ↓ >	Select the <i>Time</i>
< ✓ >	Confirm your selection
< ↑ >	Return to the <i>POTS</i> configuration menu.
↓-Key	Lower the duration
< ↑ > or ↑-Key	Increase the duration
< ✓ >	Accept settings and return to the <i>DTMF parameter</i> submenu

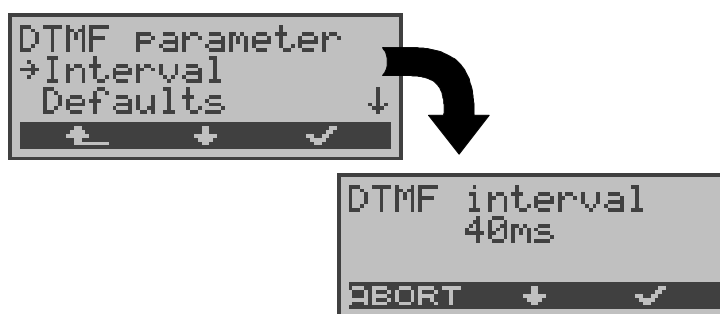
**<ABORT>** Return to the *DTMF parameter* submenu without making the changes

### Setting the interval between two DTMF characters:

The default value is 80ms. The interval between two DTMF characters can take a value between 40ms and 1s. The interval can be raised or lowered by using the arrow keys as follows:

In the range 40...200ms	in 10ms increments
In the range 200...300ms	in 20ms increments
In the range 300...1000ms	in 100ms increments

When the upper limit is reached (1000ms), the softkey **<↑>** will automatically change to a **<↓>** and vice versa when the lower limit (40ms) is reached.

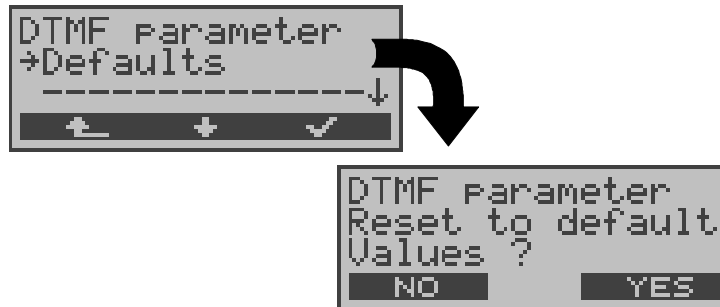


	Operation
<b>&lt;↓&gt;</b>	Select the <i>DTMF interval</i> function
<b>&lt;✓&gt;</b>	Confirm your selection
<b>&lt;↑&gt;</b>	Return to the <i>POTS</i> configuration menu.
↓-Key	Lower the <i>DTMF interval</i>
↑ or ↑-Key	Raise the <i>DTMF interval</i>
<b>&lt;✓&gt;</b>	Accept the setting and return to the <i>DTMF parameter</i> submenu
<b>&lt;ABORT&gt;</b>	Return to the <i>DTMF parameter</i> submenu without making the changes

**Restore the defaults:**

The following defaults can be restored at any time:

- Level = 0 dB
- Time = 80 ms
- Interval = 80 ms



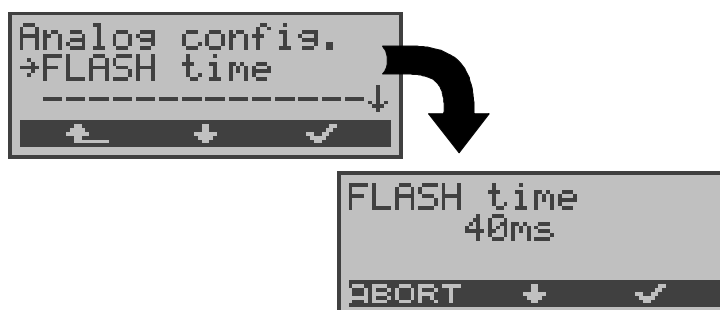
	Operation
< ↓ >	Select the <i>Defaults</i> function
< ✓ >	Confirm your selection
< ↶ >	Return to the <i>POTS</i> configuration menu.
< Yes >	Reset to default settings and return to the <i>DTMF parameter</i> menu
< NO >	Return to the <i>DTMF parameter</i> menu without resetting to the default settings

### 15.5.4 FLASH time

With this selection, you can set the length of a flash when operating on a POTS. This function is required in order to use the special features of a PBX. The FLASH time can take a value between 40ms and 1s. It can be raised or lowered using the arrow keys as follows:

In the range 40...200ms	in 10ms increments
In the range 200...300ms	in 20ms increments
In the range 300...1000ms	in 100ms increments

When the upper limit is reached (1000ms), the softkey <↑> will automatically change to a <↓> and vice versa when the lower limit (40ms) is reached.



	Operation
<↓>	Select <i>FLASH time</i> function
<✓>	Confirm your selection
<↑>	Return to the <i>Configuration</i> menu
↓-Key	Reduce FLASH time
<↑> or ↑-Key	Increase FLASH time
<✓>	Accept the FLASH time and return to the <i>POTS</i> configuration menu.
<ABORT>	Return to the <i>POTS</i> configuration menu without changing the FLASH time

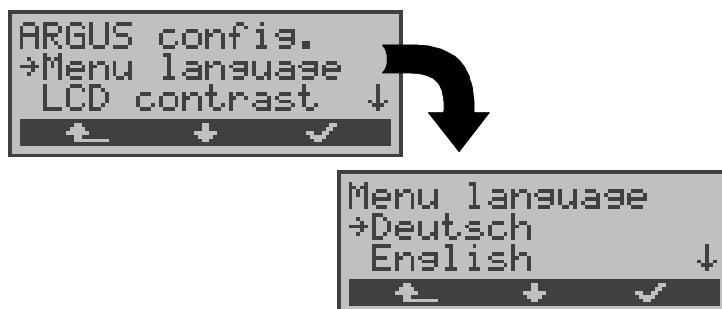
## 15.6 Configuration: ARGUS



### Operation

- < ↓ > Select the *ARGUS* configuration menu.
- < ✓ > Open the *ARGUS* configuration menu.
- < ↵ > Return to the Main menu

## 15.6.1 Selecting the menu language



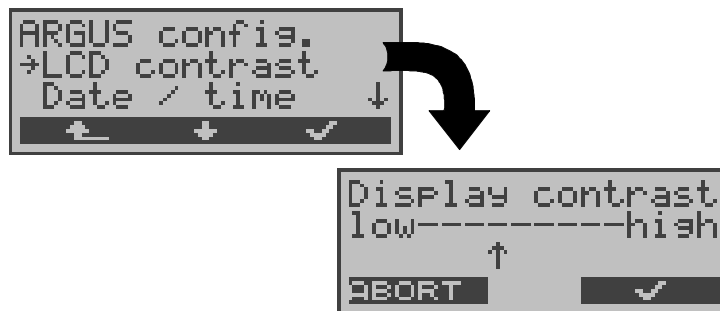
	Operation
< ↓ >	Select the <i>Menu language</i> function
< ✓ >	Open the <i>Menu language</i> function
< ↵ >	Return to the <i>Configuration</i> menu
< ↓ >	Select the desired language
< ✓ >	Confirm the selection and return to the <i>ARGUS</i> configuration menu
< ↵ >	Return to the <i>ARGUS</i> configuration menu without changing the setting.



### 15.6.2 Setting the display contrast

The contrast of the ARGUS display can be adjusted to suit the individual user. The contrast can be adjusted in 16 steps.

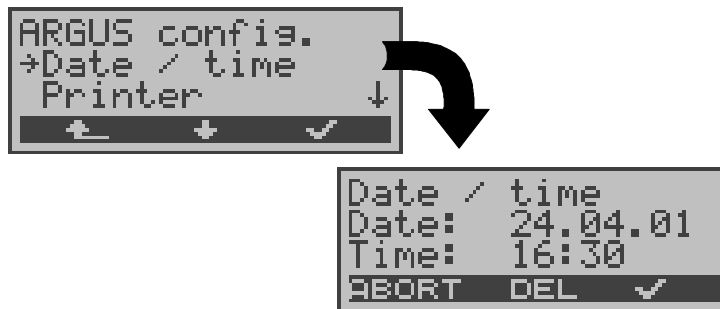
In the third line, the display shows a vertical arrow, which shows the current setting on a scale from low to high contrast.



	Operation
< ↓ >	Select the <i>LCD contrast</i> function
< ✓ >	Open the <i>LCD contrast</i> function
< ↵ >	Return to the <i>Configuration</i> menu
↓ -Key	Decrease contrast
↑ -Key	Increase contrast
< ✓ >	Change the LCD contrast and return to the <i>ARGUS</i> configuration menu.
< ABORT >	Return to the <i>ARGUS</i> configuration menu without changing the setting.

### 15.6.3 Enter date / time

The date and time can be entered to set the internal clock.



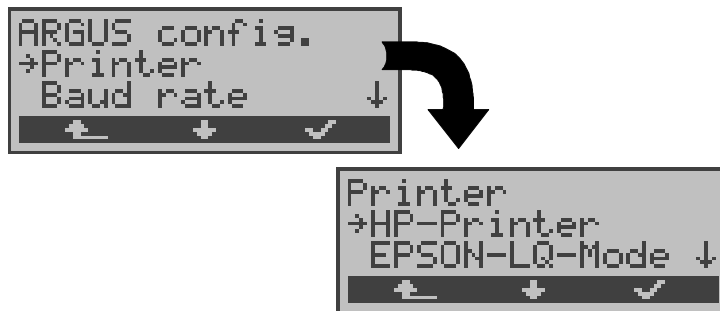
Operation	
< ↓ >	Select the <i>Date / time</i> function
< ✓ >	Open the <i>Date / time</i> function
< ↶ >	Return to the <i>Configuration</i> menu
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ * ⑪ #	Enter the desired date
↓ -Key	Switch to the Time line
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ * ⑪ #	Enter the desired time
< DEL >	Delete the digit before the cursor
< ✓ >	Confirm the entries and return to the <i>ARGUS</i> configuration menu
< ABORT >	Return to the <i>ARGUS</i> configuration menu without making the changes

The entered time will be continuously updated by the ARGUS's real time clock as long as the power is not switched off.

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.

### 15.6.4 Printer

This function is used to set the printer options. The default setting is *EPSON LQ*.



Operation	
< ↓ >	Select the <i>Printer</i> function
< ✓ >	Open the <i>Printer</i> function
< ↶ >	Return to the <i>Configuration</i> menu
<hr/>	
< ↓ >	Select desired printer
< ✓ >	Confirm the printer setting and return to the <i>ARGUS</i> configuration menu.
< ↶ >	Return to the <i>ARGUS</i> configuration menu without changing the setting.

If you wish to use a printer that is not compatible with either the HP-Laserjet or the EPSON LQ, select the *ESC sequence*.

An entry mask will open in which you can enter an ESC-sequence character-by-character, which will permit the optimum adaptation to your printer.

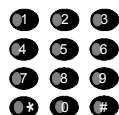
Up to 9 different ESC sequences can be entered and saved in the EEPROM in the ARGUS so that these will still be available after the ARGUS has been switched off and then back on.



Does not work with what are known as Windows printers.

```
Esc sequence 1
Enter:
#14#78#89#128
FINISH DEL ✓
```

< DEL >



< ✓ >

<EXIT>

### Operation

Delete the digit before the cursor

Enter the ESC sequence (see the information from the manufacturer of your printer) in decimal format. The character codes are each separated by a “#”.

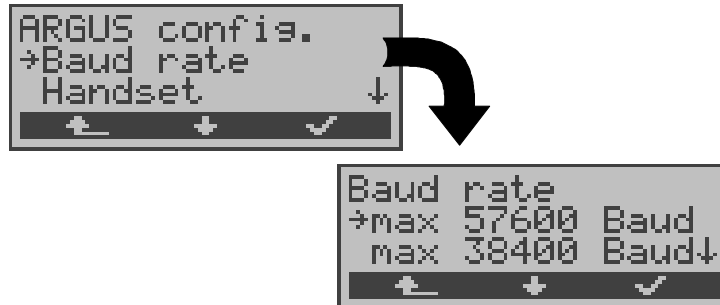
Save the entered ESC sequence in EEPROM. The display is setup for the entry of the next ESC sequence.

Return to the *ARGUS* configuration menu.

### 15.6.5 Baud rate

There is a selection of baud rates available for use when connecting the ARGUS to a PC.

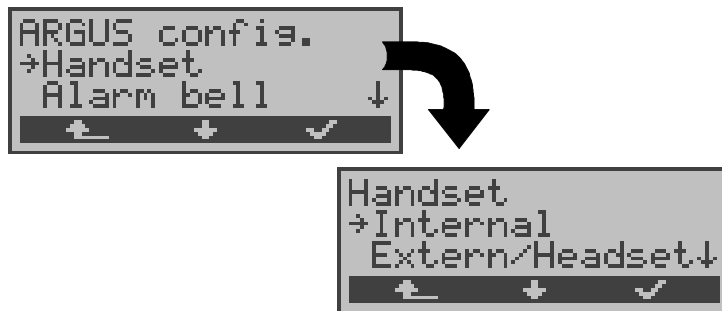
The default setting is 57600 baud.



	Operation
< ↓ >	Select the <i>Baud rate</i> function
< ✓ >	Open the <i>Baud rate</i> function
< ↶ >	Return to the Configuration menu
< ↓ >	Select the desired setting
< ✓ >	Confirm the selection and return to the ARGUS configuration menu
< ↶ >	Return to the ARGUS configuration menu without changing the setting.

### 15.6.6 Handset

The ARGUS makes a distinction between the integrated handset and an external headset:

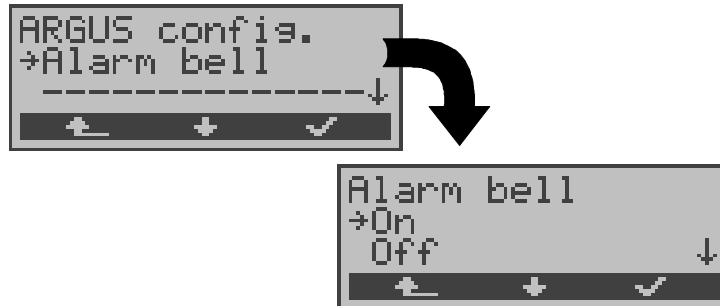


	Operation
< ↓ >	Select the <i>Handset</i> function
< ✓ >	Open the <i>Handset</i> function
< ↶ >	Return to the <i>Configuration</i> menu
< ↓ >	Select the desired handset
< ✓ >	Accept the settings and return to the <i>ARGUS</i> configuration menu
< ↶ >	Return to the <i>ARGUS</i> configuration menu without changing the setting.

With the softkey, an existing connection can be switched back and forth between an external headset and the integrated handset (see “Setting up an ISDN connection” on page 98.).

### 15.6.7 Alarm bell

The ARGUS signals with an alarm in a variety of situations, e.g. when a bit error occurs in a BERT. With the *Alarm bell* function, you can suppress all audible alarms.



	Operation
<↓>	Select the <i>Alarm bell</i> function
<✓>	Open the <i>Alarm bell</i> function
< ↵ >	Return to the Configuration menu
<hr/>	
<↓>	Select the desired setting
<✓>	Accept the settings and return to the <i>ARGUS</i> configuration menu
< ↵ >	Return to the <i>ARGUS</i> configuration menu without changing the setting.

This setting is not lost when the ARGUS is switched off and back on again.

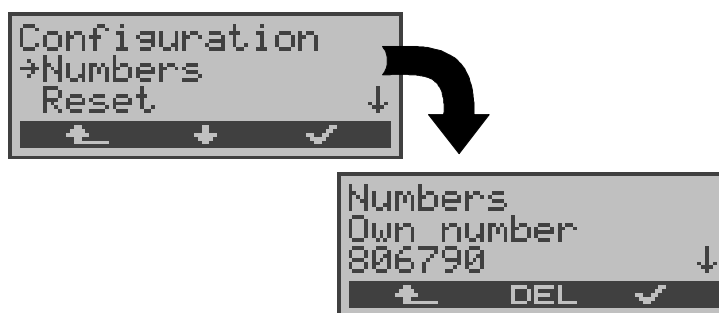
## 15.7 Saving Call Numbers

Ten call numbers with a maximum of 24-places can be entered in the speed-dialing memory.



The first 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. 9.4 page 82).



Operation	
< ↓ >	Select the <i>Enter numbers</i> function
< ✓ >	Open the <i>Enter numbers</i> function
< ↶ >	Return to the Main menu
1 2 3 4 5 6 7 8 9 * 0 #	Enter the desired number <b>The first number must be the own call number of the access under test.</b>
↓ -Key	Scroll to the next speed-dialing memory and enter the next number
< ✓ >	Save call numbers. The display is setup for the entry of the next call number.
< DEL >	Delete the digit before the cursor
↶	Return to the <i>Configuration</i> menu

When entering a 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.

An 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.

## 15.8 Reset

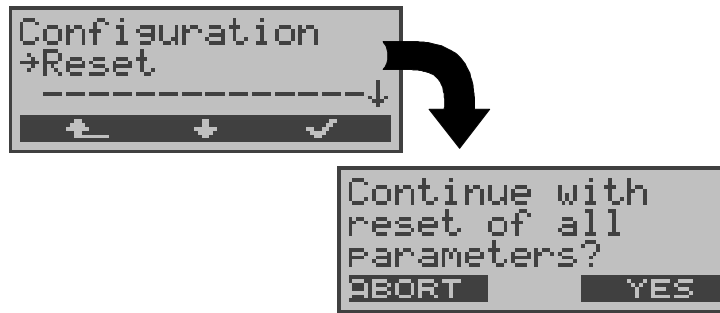
The ARGUS resets all of the settings or entries made in the *Configuration* menu back to their default values.



The speed-dialing memory and the results of all of the automatic tests and the ADSL test will be deleted.

The following settings are possible:

	<b>Default</b>
BERT time	1 min
BERT error level	$10^{-06}$
BERT bit pattern	$10^{15}_{-1}$
BERT-HRX	15%
Bit pattern	“freely- 0000000000000000 defined“
ADSL mode	depending on the country and ARGUS variant (Annex A Auto or Annex B DT)
Alerting mode	Automatic
Call acceptance	All MSNs
Voice coding	depending on country version
POTS dialing mode	DTMF
POTS CLIP	FSK
POTS FLASH time	80 msec
DTMF parameter	80ms/80ms/0dB
Menu language	depending on country version
LCD contrast	Average value
Date	1.1.2000 / 12:00
Headset	Internal
Printer	EPSON LQ
ESC sequence (Printer)	none




Operation	
<↓>	Select the <i>Reset</i> function
<✓>	Open the <i>Reset</i> function
< ↵ >	Return to the Main menu
< YES >	After prompting you to confirm that you are sure, the ARGUS will reset all of its settings.
< ABORT >	Return to the <i>Configuration</i> menu without resetting the parameters.

## 16 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		<i>free</i>
Speed-dial number 8		<i>free</i>
Speed-dial number 9		<i>free</i>

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**17 Appendix**
**A) Acronyms**

<b>3PTY</b>	Three party service / Three party conference
<b>AI</b>	Action Indicator
<b>AOC</b>	Advice of Charge
<b>AOC-D</b>	Advice of Charge Charging information during the call and at the end of the call
<b>AOC-E</b>	Advice of Charge Charging information at the end of the call
<b>AWS</b>	Call Forwarding (Anrufweilerschaltung)
<b>BC</b>	Bearer Capability
<b>BER</b>	Basic Encoding Rules / Bit Error Rate
<b>BERT</b>	Bit Error Rate Test
<b>CALL PROC</b>	CALL PROCeeding message
<b>CCBS</b>	Completion of Calls to Busy Subscriber
<b>CCNR</b>	Call Complete No Response Automatic Callback if the called party did not answer
<b>CD</b>	Call Deflection
<b>CDPN</b>	CalleD Party Number
<b>CF</b>	Call Forwarding
<b>CFB</b>	Call Forwarding Busy Forward calls when busy
<b>CFNR</b>	Call Forwarding No Reply Forward calls when no answer
<b>CFU</b>	Call Forwarding Unconditional Forward all calls
<b>CGPN</b>	CallinG Party Number
<b>CLIP</b>	Calling Line Identification Presentation Display caller's number
<b>CLIR</b>	Calling Line Identification Restriction Suppress display of the caller's number
<b>COLP</b>	Connected Line Identification Presentation Display the number of the party called
<b>COLR</b>	Connected Line Identification Restriction Suppress the display of the number of the party with whom one is connected
<b>CONN</b>	CONNect Message

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<b>CONN ACK</b>	CONNect ACKnowledge Message
<b>CR</b>	Call Reference
<b>CT</b>	Call Transfer
<b>CUG</b>	Closed User Group
<b>CW</b>	Call Waiting Call waiting
<b>DAD</b>	Destination Address (1TR6)
<b>DDI</b>	Direct Dialling In Direct dialling in to an extension on a PBX
<b>DISC</b>	DISConnect Message
<b>DM</b>	Supplementary services (Dienstmerkmal)
<b>DTMF</b>	Dual Tone Multi Frequency
<b>EAZ</b>	Terminal Ident. No. (Endgeräteauewahlziffer - 1TR6)
<b>ECT</b>	Explicit Call Transfer Call transfer or directed call forwarding
<b>E-DSS1</b>	European Digital Subscriber Signalling System Number 1
<b>GBG</b>	Closed user group (CUG) (Geschlossene Benutzer Gruppe)
<b>HLC</b>	High Layer Compatibility
<b>HOLD</b>	Call Hold Hold
<b>ISDN</b>	Integrated Services Digital Network
<b>INFO</b>	INFORmation Message
<b>LAPD</b>	Link Access Procedure for D-channels channels
<b>LCN</b>	Logical channel number Channel number in X.25
<b>LLC</b>	Low Layer Compatibility
<b>MCID</b>	Malicious Call Identification
<b>MSN</b>	Multiple Subscriber Number
<b>NSF</b>	Network Specific Facilities
<b>NT</b>	Network Termination
<b>OAD</b>	Origination Address (1TR6)
<b>PD</b>	Protocol Discriminator
<b>REL</b>	RELease Message
<b>REL ACK</b>	RELease ACKnowledge Message
<b>REL COMPL</b>	RELease COMPLete Message
<b>SCI</b>	Sending Complete Indication
<b>SIN</b>	Service Indicator (1TR6)
<b>SUB</b>	Sub-addressing / Sub-addressing is possible

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<b>SUSP</b>	SUSPend Message
<b>TE</b>	TErminAl, Terminal Equipment
<b>TEI</b>	TErminAl Endpoint Identifier
<b>TP</b>	TErminAl Portability Moving the terminal on the bus
<b>UUS</b>	USeR-to-USeR Signalling Transfer of user data

## B) ADSL Acronyms

<b>ADSL</b>	Asymmetric Digital Subscriber Line
<b>ANT</b>	ADSL Network Termination Unit
<b>ANSI</b>	American National Standards Institute
<b>ATM</b>	Asynchronous Transfer Mode (network-side transmission protocol)
<b>ATU-C</b>	ADSL Transceiver Unit - Central Office (network-side/DSLAM)
<b>ATU-R</b>	ADSL Transceiver Unit - Remote (ADSL modem)
<b>BER</b>	Bit Error Rate
<b>CRC</b>	Cyclic Redundancy Check (checksum)
<b>CTRL-E</b>	Control External
<b>DMT</b>	Discrete Multi-Tone
<b>DRA</b>	Dynamic Rate Adaptation
<b>EOC</b>	Embedded Operations Channel
<b>ES</b>	Errored Seconds
<b>FEC</b>	Forward Error Correction
<b>HEC</b>	Header Error Control
<b>LOCD</b>	Loss of Cell Delineation
<b>LOF</b>	Loss of Frame
<b>LOP</b>	Loss of Power
<b>LOS</b>	Loss of Signal
<b>LT</b>	Line Termination
<b>ME</b>	ADSL Management Entity
<b>MIB</b>	Management Interface Base
<b>NIC</b>	Network Interface Card (network adapter card)
<b>NT</b>	Network Termination (network-side)
<b>OAM</b>	Operations, Administration and Maintenance

<b>OBC</b>	On Board Controller
<b>POTS</b>	Plain Old Telephone Service (Analog)
<b>PSD</b>	Power Spectral Density
<b>QOS</b>	Quality of service
<b>RA</b>	Rate Adaptation
<b>SAR</b>	Segmentation and Reassembly Unit
<b>SER</b>	Severely Errored Seconds
<b>SNR</b>	Signal-to-Noise Ratio



## C) CAUSE-Messages – DSS1 Protocol

<b>Dec. Cause</b>	<b>Description</b>
<b>01</b> Unallocated (unassigned) number	No access under this call number
<b>02</b> No route to specified transit network	Transit network not reachable
<b>03</b> No route to destination	Wrong route or routing error
<b>06</b> Channel unacceptable	B-channel for the sending system not acceptable
<b>07</b> Call awarded and being delivered in an established channel	Call awarded and connected in an already existing channel (e.g., X.25 SVC)
<b>16</b> Normal call clearing	Normal disconnect
<b>17</b> User busy	The number called is busy
<b>18</b> No user responding	No terminal equipment answered (Timer NT303 / NT310 time-out)
<b>19</b> No answer from user (user alerted)	Call time too long
<b>21</b> Call rejected	Call rejected (active)
<b>22</b> Number changed	Call number has been changed
<b>26</b> Non-selected user clearing	Incoming call not awarded to this terminal
<b>27</b> Destination out of order	Destination / access out of order
<b>28</b> Invalid number format (address incomplete)	Wrong call number format or call number incomplete
<b>29</b> Facility rejected	The facility is not offered
<b>30</b> Response to STATUS ENQUIRY	Response to status enquiry
<b>31</b> Normal, unspecified	Unspecified for "normal class" (Dummy)
<b>34</b> No circuit / channel available	No circuit / B-channel available
<b>38</b> Network out of order	Network not operational
<b>41</b> Temporary failure	Network is temporarily not operational
<b>42</b> Switching equipment congestion	Switching equipment is overloaded
<b>43</b> Access information discarded	Access information could not be transferred
<b>44</b> Requested circuit / channel not available	Requested circuit / B-channel is not available
<b>47</b> Resources unavailable, unspecified	Unspecified for "resource unavailable class" (Dummy)
<b>49</b> Quality of service unavailable	The requested quality of service is not available
<b>50</b> Requested facility not subscribed	Requested service attribute is not subscribed
<b>57</b> Bearer capability not authorized	The requested bearer capability is not enabled
<b>58</b> Bearer capability not presently available	The requested bearer capability is not currently available

---

<b>63</b>	Service or option not available	"Service unspecified or option not available class" (Dummy)
<b>65</b>	Bearer capability not implemented	Bearer capability is not supported
<b>66</b>	Channel type not implemented	Channel type is not supported
<b>69</b>	Requested facility not implemented	Requested facility is not supported
<b>70</b>	Only restricted digital information bearer capability is available	Only limited bearer capability is available
<b>79</b>	Service or option not implemented, service unspecified or option not implemented class" (Dummy)	Unspecified
<b>81</b>	Invalid call reference value	Invalid call reference value
<b>82</b>	Identified Channel does not exist	Requested channel is invalid
<b>83</b>	A suspended call exists, but this call identity does not	The call identity entered is the wrong one for the parked call
<b>84</b>	Call identity in use	The call identity is already in use
<b>85</b>	No call suspended	No call has been parked
<b>86</b>	Call having the requested call identity has been cleared	The parked call has been cleared
<b>88</b>	Incompatible destination	Incompatible destination
<b>91</b>	Invalid transit network selection	Invalid format for the transit network identifier
<b>95</b>	Invalid message, unspecified	Unspecified for "Invalid message class" (Dummy)
<b>96</b>	Mandatory information element is missing	Mandatory information element is missing
<b>97</b>	Message type non-existent or not implemented	This type of message is in this phase not permitted, not defined or not supported
<b>98</b>	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
<b>99</b>	Information element non-existent or not implemented	The content of the information element is in this phase not permitted, not defined or not supported
<b>100</b>	Invalid information element contents	Invalid content in information element
<b>101</b>	Message not compatible with call state	Message not valid in this phase
<b>102</b>	Recovery on timer expired	Error handling routine started due to time-out
<b>111</b>	Protocol error, unspecified	Unspecified for "protocol error class" (Dummy)
<b>127</b>	Interworking, unspecified	Unspecified for "interworking class" (Dummy)

## D) CAUSE-Messages – 1TR6 Protocol

<b>Dec. Cause</b>	<b>Description</b>
<b>01</b> Invalid call reference value	Invalid call reference value
<b>03</b> 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.
<b>07</b> Call identity does not exist	Unknown call identity
<b>08</b> Call identity in use	Call identity is already assigned to a "suspended" connection.
<b>10</b> No channel available	No further B-channel is free on the subscriber's access. (only significant locally)
<b>16</b> Requested facility not implemented	The entered FAC-Code is unknown in this network.
<b>17</b> Requested facility not subscribed	The requested facility is not available, because the initiating or the remote subscriber is not authorized.
<b>32</b> Outgoing calls barred	Outgoing calls are not possible due to the barring
<b>33</b> 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.
<b>34</b> Negative CUG comparison	Connection not possible due to negative CUG comparison
<b>35</b> Non-existent CUG	This CUG (GBG) does not exist
<b>37</b> Communication link as SPV not permitted	A connection is not possible, since for example, the RFNR-test was negative
<b>53</b> Destination not obtainable	A connection cannot be made due to a wrong destination, service or supplementary services.
<b>56</b> Number changed	Subscriber-B's call number has changed.
<b>57</b> Out of order	The remote terminal is not ready.
<b>58</b> 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).
<b>59</b> User busy	Subscriber-B is busy
<b>61</b> Incoming calls barred	Subscriber-B has blocked incoming calls or the requested service is not supported by Subscriber-B.

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<b>62</b>	Call rejected	<b>To Subscriber-A:</b> 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.
<b>89</b>	Network congestion	Network congested, e.g., switching equipment congestion, no conference set free, ...
<b>90</b>	Remote user initiated	Rejected or disconnected by remote end (subscriber or exchange).
<b>112</b>	Local procedure error	<b>Sent in a REL</b> Disconnect due to local errors (e.g., not valid messages or parameters, timeout, ...). <b>Sent in a SUSP REJ</b> Due to another already active supplementary service, the connection may not be "suspended". <b>Sent in a RES REJ</b> There is no "suspended" connection. <b>Sent in a FAC REJ</b> 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.
<b>113</b>	Remote procedure error	Caused by error at remote end.
<b>114</b>	Remote user suspended	Connection at the remote end is in the "hold" or "suspend" state.
<b>115</b>	Remote user resumed	Connection at the remote end is no longer in the "hold" or "suspend" or "conference" state.
<b>127</b>	User Info discarded locally	The message USER INFO is rejected locally. The cause is given in the message CON CON. Length entry (=0) Normal disconnect (e.g., in REL as answer to a DISC from subscriber or a change of service in a DISC): Command to the terminal to release the B-channel.

## E) ARGUS Error Messages

<b>Error Number</b>	<b>Error Class</b>	<b>Cause</b>	<b>Description</b>
<b>0</b>	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.
<b>1 to 127</b>	B,C,D,E	Network	DSS1 or 1TR6 causes
<b>150</b>	E	ARGUS	An error occurred during the supplementary service test. Frequent cause: no response from network
<b>152</b>	B	ARGUS	The CF-Test was started with the wrong own number.
<b>153</b>	E	ARGUS	no HOLD is available, but HOLD is required to test the supplementary service (ECT, 3pty)
<b>154</b>	E	ARGUS	CLIR or COLR could not be tested, since CLIP or COLP is not available
<b>161</b>	B	ARGUS	The party called did not answer within the prescribed time (approx.10 sec)
<b>162</b>	B	ARGUS	A call was setup to a remote subscriber, instead of being setup – as was expected – to your own number.
<b>163</b>	E	ARGUS	The Auto-Test could not setup a connection and therefore the AOC/D supplementary service could not be tested.
<b>199</b>	B	ARGUS	A call number was entered.
<b>201</b>	A	ARGUS	Network did not confirm acceptance of the call (CONN sent, no CONN_ACK received from network)
<b>204</b>	A	ARGUS	- Layer 2 connection was cleared-down - No response to SETUP (call setup) - Layer 2 connection could not be setup
<b>205</b>	A	ARGUS	Reestablish the Layer 2 Connection

<b>210</b>	A	ARGUS	No response to the clear-down ( REL sent, no REL_CMP/REL_ACK received from network)
<b>220</b>	A	ARGUS	Remote end signaled that it is in State 0.
<b>245</b>	E	ARGUS	Keypad sent via ESC, but no response was received from network
<b>250</b>	E	ARGUS	FACility was sent, but no response was received from network

### X.31 Test – Error messages

#### X.31 Causes

<b>0 to 255</b>	Network	See ISO 8208: 1987(E) Table 5- Coding of the clearing cause field in clear indication packets, page 35
<b>257</b>	ARGUS	no response from network (for a CALL-REQUEST or CLEAR-REQUEST)
<b>258</b>	ARGUS	Unexpected or wrong answer from network (no CALL-CONNECTED or CLEAR-INDICATION as response to a CALL-REQUEST)
<b>259</b>	ARGUS	The network has indicated in a DIAGNOSTIC message that the logical channel is invalid. Cause: No (=1) or a wrong LCN was set.
<b>260</b>	ARGUS	The Layer 2 connection was interrupted e.g. by pulling the BRI plug.
<b>512</b>	ARGUS	It was not possible to determine an internal or external cause. Cause: Layer 2 could not be setup or remote end does not support X.31
<b>65535</b>	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)

<b>0 to 255</b>	Network	See ISO 8208: 1987(E) Figure 14A page 121 Figure 14B page 123ff And/or CCITT Recommendation X.25, Annex E
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**F) Vendor identification numbers**

<b>0000</b>	not allocated
<b>0001</b>	not allocated
<b>0002</b>	Westell, Inc.
<b>0003</b>	ECI Telecom
<b>0004</b>	Texas Instruments
<b>0005</b>	Intel
<b>0006</b>	Amati Communcations Corp.
<b>0007</b>	General Data Communications, Inc.
<b>0008</b>	Level One Communications
<b>0009</b>	Crystal Semiconductor
<b>000A</b>	Lucent Technologies
<b>000B</b>	Aware, Inc.
<b>000C</b>	Brooktree
<b>000D</b>	NEC
<b>000E</b>	Samsung
<b>000F</b>	Northern Telecom, Inc.
<b>0010</b>	PairGain Technologies
<b>0011</b>	Paradyne
<b>0012</b>	Adtran
<b>0013</b>	INC
<b>0014</b>	ADC Telecommunications
<b>0015</b>	Motorola
<b>0016</b>	IBM Corp.
<b>0017</b>	Newbridge Network Corp.
<b>0018</b>	DSC
<b>0019</b>	Teltrend
<b>001A</b>	Exar Corp.
<b>001B</b>	Siemens Telecom Networks
<b>001C</b>	Analog Devices
<b>001D</b>	Nokia
<b>001E</b>	Ericsson Information Systems
<b>001F</b>	Tellabs Operations, Inc.
<b>0020</b>	Orckit Communications, Inc.
<b>0021</b>	AWA
<b>0022</b>	Alcatel Network Systems, Inc.
<b>0023</b>	National Semiconductor Corp.
<b>0024</b>	Italtel

<b>0025</b>	SAT - Société Anonyme de Télécommunications
<b>0026</b>	Fujitsu Network Trans. Systems
<b>0027</b>	MITEL
<b>0028</b>	Conklin Corp.
<b>0029</b>	Diamond Lane
<b>002A</b>	Cabletron Systems, Inc.
<b>002B</b>	Davicom Semiconductor, Inc.
<b>002C</b>	Metalink
<b>002D</b>	Pulsecom
<b>002E</b>	US Robotics
<b>002F</b>	AG Communications Systems
<b>0030</b>	Rockwell
<b>0031</b>	Harris
<b>0032</b>	Hayes Microcomputer Products, Inc.
<b>0033</b>	Co-optic
<b>0034</b>	Netspeed, Inc.
<b>0035</b>	3-Com
<b>0036</b>	Copper Mountain, Inc
<b>0037</b>	Silicon Automation Systems, Ltd
<b>0038</b>	Ascom
<b>0039</b>	Globespan Semiconductor, Inc.
<b>003A</b>	STMicroelectronics
<b>003B</b>	Coppercom
<b>003C</b>	Compaq Computer Corp.
<b>003D</b>	Integrated Technology Express
<b>003E</b>	Bay Networks, Inc.
<b>003F</b>	Next Level Communications
<b>0040</b>	Multi-Tech Systems, Inc.
<b>0041</b>	AMD
<b>0042</b>	Sumitomo Electric
<b>0043</b>	Philips M&N Systems
<b>0044</b>	Efficient Networks, Inc.
<b>0045</b>	Interspeed
<b>0046</b>	Cisco Systems
<b>0047</b>	Tollgrade Communications, Inc.
<b>0048</b>	Cayman Systems
<b>0049</b>	FlowPoint Corp.
<b>004A</b>	I.C.COM
<b>004B</b>	Matsushita



<b>004C</b>	Siemens Semiconductor
<b>004D</b>	Digital Link
<b>004E</b>	Digitel
<b>004F</b>	Alcatel Microelectronics
<b>0050</b>	Centillium Corp.
<b>0051</b>	Applied Digital Access, Inc.
<b>0052</b>	Smart Link, Ltd.

## **G) Package contents**

Included in the package are:

- ARGUS including batteries
- ARGUS ISDN-Test Adapter
- BRI connecting cable
- Serial cable Type P2
- ADSL and POTS cable (banana plug)
- 9V plug-in power supply
- Shock-absorbing PVC jacket
- User's Guide
- WINplus CD
- Guarantee card & registration
- ARGUS carrying case with strap