

MAGIC Audio Codec

MAGIC DC7 XIP/XIP RM

MAGIC AC1 XIP/XIP RM

Hardware/Software Manual



Preliminary

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Hardware/Software Manual

MAGIC DC7 XIP/XIP RM

MAGIC AC1 XIP/XIP RM

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Software Registration. Please select as product

MAGIC DC7 XIP

or

MAGIC AC1 XIP

and enter your contact details. You need to indicate a
valid **email address** at least.

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INTRODUCTION

The *MAGIC DC7/AC1 XIP* system is implemented as portable audio codec with an external power supply plug and has analogue and optional digital AES/EBU Audio interfaces.

The variation *MAGIC DC7/AC1 XIP RM* however is realised as 19" system and has an integrated power supply.

Available as a special version is the unit *MAGIC AC1 XIP TI* (although as RM-Version). In contrary to the standard systems this unit has a special signal processing module, that makes the usage of the highly efficient **HE-AAC-V2** algorithm possible. But with that system an ISO/MPEG Layer 2/3 encoding is no longer possible. However, an ISO/MPEG Layer 2/3 Decoding will still be supported continues. A typical practise case for that system is the transmission of highquality audio signals over for example UMTS-networks.

All systems have an ISDN, an X.21 and a LAN interface, which can be used for the upcoming standard *Audio over IP* as well as for system control.

The configuration of the systems can be carried out via the Windows application software included in delivery or via the front keypad of the unit. Optionally there are two variations of *MAGIC DC7/AC1 Keypad* with different functional ranges for separate operation without PC available.

S A F E T Y

Introduction

The unit described has been designed to the latest technical parameters and complies with all current national and international safety requirements. It operates on a high level of reliability because of long-term experience in development and constant and strict quality control in our company.

In normal operation the unit is safe.

However - especially if daily routine and technical errors coincide - some potential sources of danger for person, material and optimal operation remain.

This manual therefore contains basic safety instructions that must be observed during configuration and operation. It is essential that the user reads this manual before the system is used and that a current version of the manual is always kept close to the equipment.

General safety requirements

To keep the technically unavoidable residual risk to a minimum, it is absolutely necessary to observe the following rules:

- Transport, storage and operation of the unit must be under the permissible conditions only.
- Installation, configuration and disassembly must be carried out only by trained personal on the basis of the respective manual.
- The unit must be operated by competent and authorised users only.
- The unit must be operated in good working order only.
- Any conversions or alterations to the unit or to parts of the unit (including software) must be carried out by trained personnel authorised by the manufacturer. Any conversions or alterations carried out by other persons lead to a complete exemption of liability.
- Only specially qualified personnel is authorised to remove and override safety measures, and to carry out the maintenance of the system.
- External software is used at one's own risk. Use of external software can affect the operation of the system.
- Use only tested and virus-free data carriers.

Text Conventions

In this manual the following conventions are used as text markers:

Accentuation: productnames or important terms

LCD TEXT: Labelling on the front display of the system

PC Text: Labelling in the PC Software

OPERATING MODE Chosen main operating mode

TIP

The symbol **TIP** marks information which facilitates the operation of the system in its daily use.

NOTE

The symbol **Note** marks general notes to observe.

ATTENTION



The symbol **Attention** marks very important advice that is absolutely top observe. In case of non-observance malfunctions and even system errors are possible.

1 CONSTRUCTION

The functions of the *MAGIC DC7 XIP* are implemented in a single unit. The *MAGIC AC1 XIP* is additionally equipped with a module for MPEG Coding. The system is designed for mounting in a half 19" rack (1 U).

Optionally, a *MAGIC Audio Codec DUAL 19" Mounting Kit* (ID: 800212) is available for the installation of two *MAGIC DC7/AC1 XIP* systems next to each other.

The *MAGIC AC1 XIP RM* version is carried out as 19" x 1 U unit and has an integrated power supply.

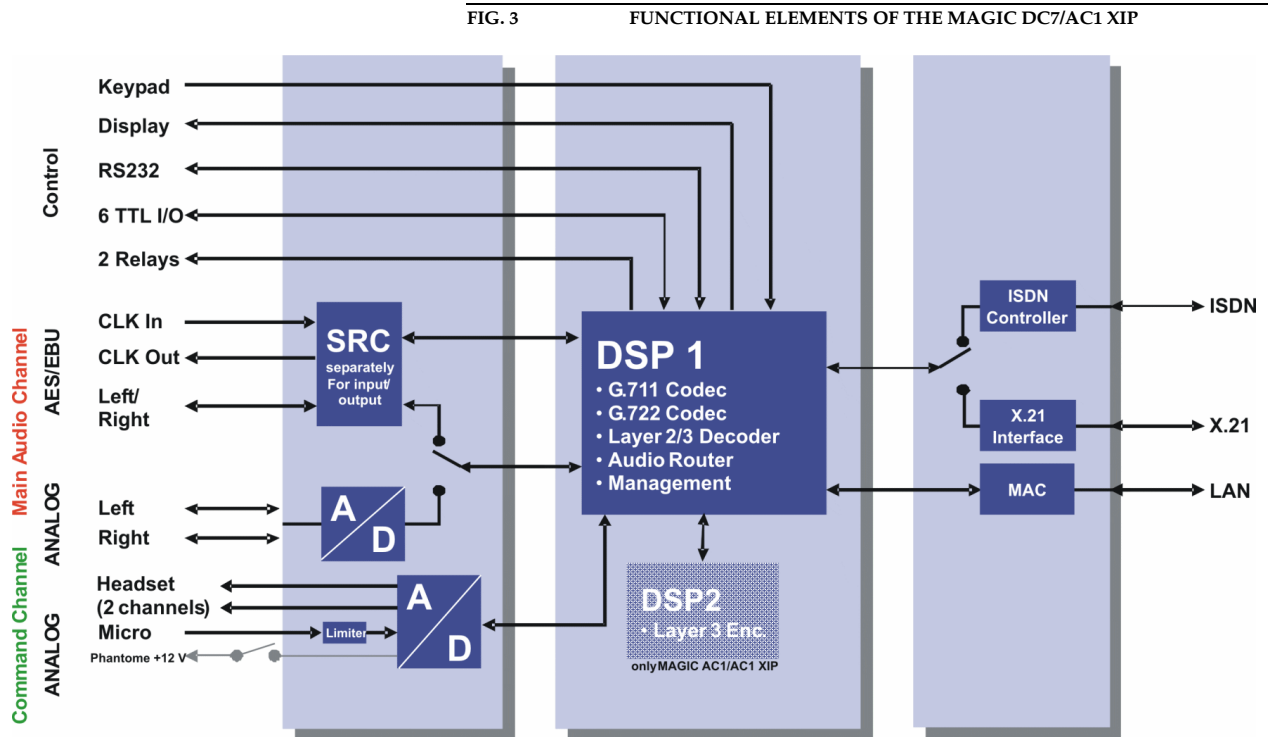
FIG. 1 FRONT SIDE: MAGIC AC1 XIP



FIG. 2 FRONT SIDE: MAGIC AC1 XIP RM



The functional elements of the system are pictures in Fig. 3.



2.1

Functionality

The *MAGIC DC7/AC1 XIP* system incorporates an *ISDN* telephone interface as well as an *X.21* network interface and an additional *LAN* interface. The operating mode can be configured by software. If the *ISDN interface* is used, depending on the operating mode two independent channels are available that can be used independently from each other.

The complete signal processing is taken over by two digital signal processors. In this way the following functions are realized.

DSP1:

- G.711 Audio encoding and decoding
- G.722 Audio encoding and decoding
- ISO/MPEG Layer II/III Decoder
- digital Audio router, digital Audio mixer (optional)
- Signalling management (J.52, proprietary modes)
- Control of the complete system (Keypad, display, relays, TTL, RS232)

DSP2:

- ISO/MPEG Layer III encoder (only for MAGIC AC1 XIP)
- ISO/MPEG Layer II encoder (only for MAGIC AC1 XIP)
- standard

Via the main Audio channel the high quality Stereo or Mono Audio signal is inserted or output analogue or digitally. At the same time, the command channel can be used in parallel. If the optionally digital AES/EBU Audio interface is used, two separate Sample Rate Converters are available for automatic clock synchronisation. For external clocking a clock input and a clock output are available.

Additionally, the Audio Codec incorporates a Headset interface for stereo tone or Dual Channel tone with a microphone input, Limiter and 12 V phantom power which can be switched off.

By the integrated Audio router all input and output signals can be configured freely. If you use the optional Software Plug In *MAGIC DC7/AC1 Mixer Tool*, all signals can be mixed in a flexible way.

The configuration and operation can be carried out via the *front keypad* and the illuminated *display*.

Configuration and control is especially comfortable with the *MAGIC DC7/AC1 XIP Windows PC software* which is included in delivery and which communicates with the system via the RS232/LAN interface.

The basic operating functions like accepting a call, dropping a connection and establishing a connection with a pre-programmed number can be carried out via six programmable *TTL* contacts. Two *relays* are available for status indication.

Optionally, the system can also be operated separately via the *MAGIC DC7/AC1 Keypad* that can be connected to the RS232 interface instead of the *PC Software*.

2.2

AutoDynamicSync (ADS)

The systems *MAGIC DC7 XIP* and *MAGIC AC1 XIP* actively support the user in the synchronisation of the Audio signal, even when it is unknown which Audio Codec is used at the remote station.

With the new function *AutoDynamicSync (ADS)* the system can synchronize itself to most Audio codecs from all kind of producers. For further details have a look CHAPTER A1, Page 137.

3 PUTTING THE MAGIC DC7/AC1 XIP INTO OPERATION

3.1 Mounting

With its dimensions ($W \times H \times D$) of 220 mm \times 44,5 mm (1 U) \times 220 mm the *MAGIC DC7/AC1 XIP* System can be used either as desktop device or mounted in 19 inch racks. Corresponding 19" mounting brackets are included in delivery. Optionally, a mounting kit (order number 800212) to install two *MAGIC DC7/AC1 XIP* next to each other¹ is available.

Dimensions of the *RM* variation are ($W \times H \times D$) 440 mm \times 44,5 mm (1 U) \times 220 mm. For that system 19" mounting brackets are included in delivery too.

When mounting the unit please keep in mind that the bending radius of the connected cables is always greater than the minimum allowed value.

When the *MAGIC DC7/AC1 XIP* Audio Codec is installed, please make sure that there is sufficient ventilation: it is recommended to keep a spacing of ca. 3 cm from the openings. In general, the ambient temperature of the system should be within the range of +5°C and +45°C. These threshold are especially to observe if the system is inserted in a rack. The system works without ventilation.

TIP

The temperature of the system can be indicated on the display (*MENU STATUS INFORMATION*)

During operation humidity must range between 5% and 85%.

ATTENTION Incorrect ambient temperature and humidity can cause functional deficiencies



Operation outside the threshold values indicated above leads to a loss of warranty claim.

3.2 Connection to the mains voltage

The system can be operated with mains voltage in the range from 90 V to 253 V via the external power supply included in delivery respectively with the internal power supply. The line frequency can vary from 45 Hz to 65 Hz. The maximum power consumption is 15W. The rack must be earthed according to the VDE regulations. The earthing can be carried out via the earthing screw on the back side of the unit.

The unit does not have a circuit closer and a circuit breaker. After plugging in the external power supply the system boots within a few seconds. In stand-by mode the AVT logo is shown on the display².



¹ Likewise the *MAGIC DC7/AC1 XIP* can be combined with the product *MAGIC TH2/MAGIC TH2 POTS*.

3.3 Earthing of the system

For EMC reasons an earthing via the earthing screw must be carried out in either case.

ATTENTION Earthing



A lacking earthing can cause functional deficiencies within the unit. Because of the “pending” potential, unlike the protective earth conductor potential, slight electric shocks can occur by touching the rack. These are absolutely not dangerous, however they can be avoided totally by earthing.

3.4 Operational elements on the front side

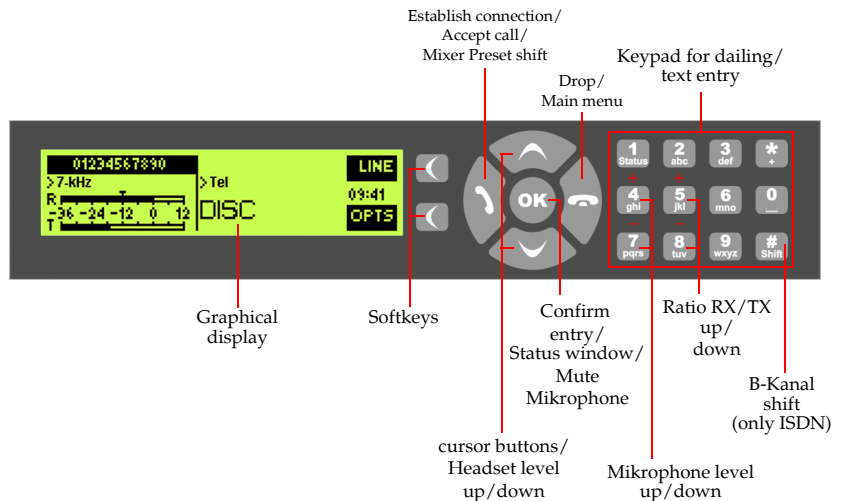
The system has an illuminated graphical display with a resolution of 160 x 32 pixel and 19 operating buttons.

On the right next to the display there are two softkeys whose current functions are indicated on the display. In the middle there are two cursor buttons (upwards/downwards), two buttons for accepting/dropping calls as well as an **OK** button. The numerical pad supports in addition to the numerical characters **0...9**, the *****- and **#**-key. For text entries the numerical pad can also be used as a normal keypad.

During a connection additional functions are possible that are explained in chapter 5 - “Operation via display and keypad”.

The operation is similar to standard mobile telephones.

FIG. 4 OPERATIONAL ELEMENTS ON THE FRONT SIDE



² Depending on the delivery status all menus are possibly displayed in German. The configuration of the menu language is described in CHAPTER 5.1.2.

3.5 Operating modes of the system

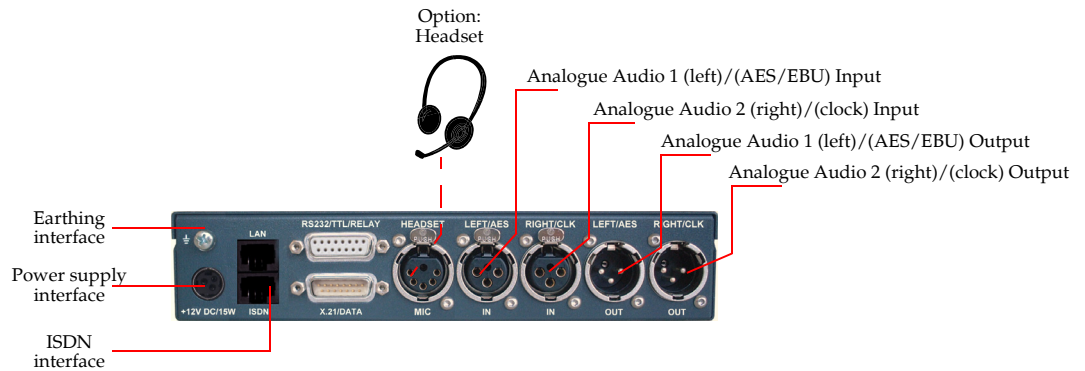
The figures below show the systems in different operating modes and their wiring.

3.5.1 ISDN operation

In the ISDN operating mode two independent B channels are available which can be used separately for mono transmissions or in combination for a stereo transmission.

For live reports a professional Headset can be connected.

FIG. 5 MINIMUM WIRING FOR ISDN OPERATION

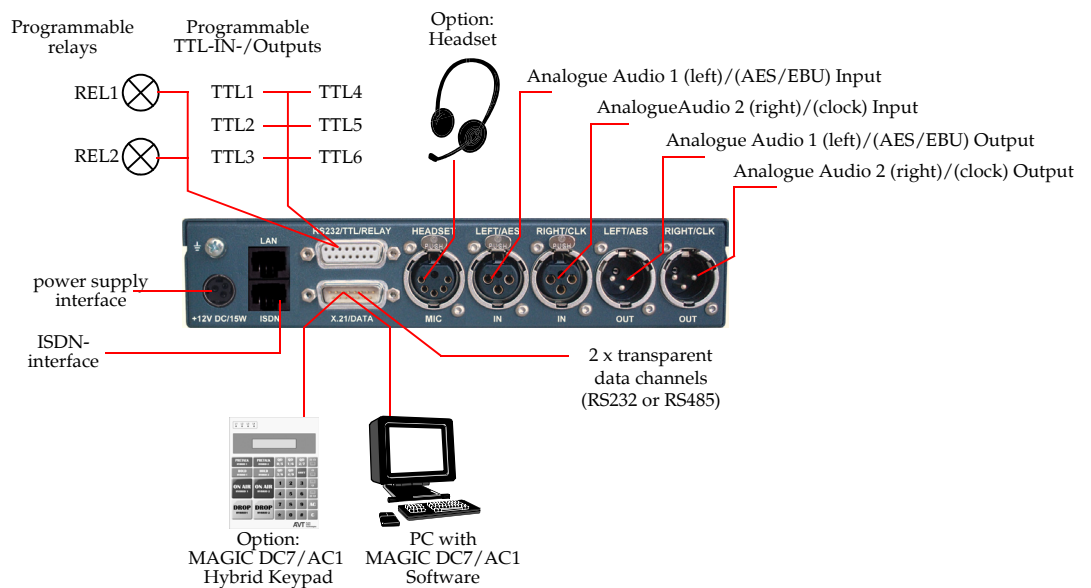


The maximum wiring with all options is shown in Fig. 6. Via the RS232 control interface a PC with *MAGIC DC7/AC1 XIP Software* or a *MAGIC DC7/AC1 Keypad* can be connected as alternative to the operation by the front keypad and display.

TIP

If the PC software and the keypad are used simultaneously, the LAN interface can be used for PC control.

FIG. 6 MAXIMUM WIRING FOR ISDN OPERATION



4 WINDOWS PC SOFTWARE

The configuration of the system is especially comfortable with the Windows PC Software included in delivery.

4.1 Hardware requirements

The PC must meet the following minimum requirements:

- IBM PC AT, IBM PS/2 or 100% compatible
- Pentium Prozessor (> 1GHz) recommended
- Windows 2000/XP
- 12 MB available hard disc space
- Screen resolution with 800 x 600 Pixels
- LAN interface for configuration (alternatively also possible with RS232)
- Microsoft, IBM PS/2 or 100% software compatible mouse

4.2 User Registration

To get information about the latest software always automatically, please register on our homepage:

<http://www.avt-nbg.de>

First select the menu item **Service** and then choose **Software Registration**.
Select as product

MAGIC DC7/DC7 XIP

or

MAGIC AC1/AC1 XIP

and enter your contact details. You need to indicate a valid e-mail adress at any rate.

4.3 Installing the Windows PC Software

Please insert the CD (430227) included in delivery in your CD-ROM drive. The software automatically starts your internet browser. Possible safety warnings can be ignored for the moment.

Please note also the **Release Letter** that will inform you about the latest functions and about the corrected bugs.

Please press under **Software Updates** the **MAGIC DC7 & AC1/XIP**¹ button. Subsequently the setup program is executed.

Alternatively, you can install the software directly from the CD. You will find the installation file **setup.exe** in the folder **Software\MAGIC DC7 & AC1 - XIP** on the CD.

Please follow the instructions of the installation routine.

After the installation the software can be started by clicking on the **MAGIC DC7, AC1 & AC1 XIP** symbol on the desktop.

Connect the system via the LAN interface with your network. If you do not have a network you can also connect the unit to your PC directly via a so called cross over network cable.

Alternatively, you have also the possibility to connect your PC with the system via a serial 1:1 cable (only PIN 2 and PIN 3 are used, PIN 5=ground) by the adapter cable (plug data 1/use PC).

Setting a LAN or a COM interface is described below (see CHAPTER 4.7.1, Page 41).

4.4 Software update from the internet

Software updates can be downloaded from our homepage

<http://www.avt-nbg.de>

free of charge. Please go to our **Service** section on our webpage and select **Software Download**. Under **MAGIC Audio Codecs** please download the file with the order number **490196**. When the download is completed, execute setup and follow the instructions.

In addition to the PC Software, the setup also includes the **Firmware** for the system. If it also has to be updated, the **MAGIC DC7 & AC1 XIP** Software displays an error message when it is started. The instructions for a Firmware update are described in CHAPTER 4.8.6, Page 95.

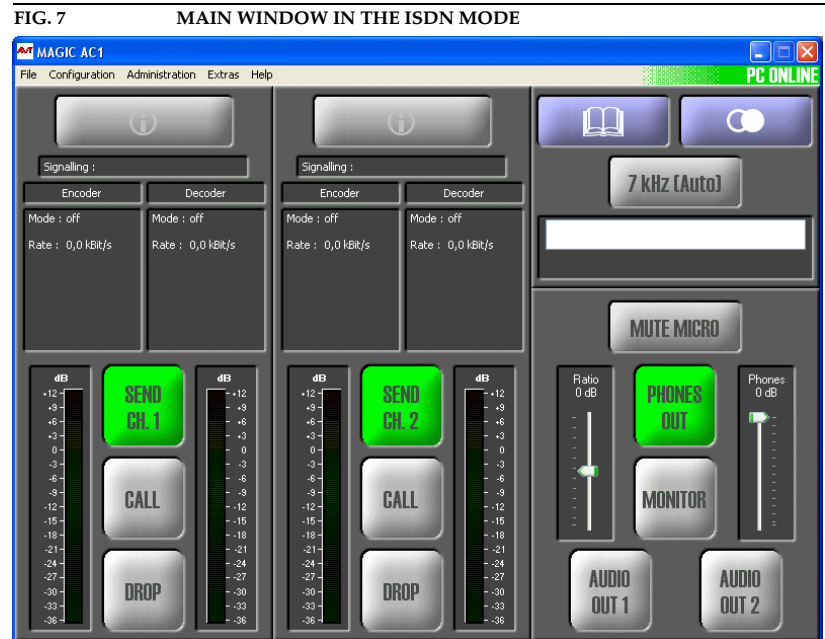
¹ If you have the optional MAGIC DC7 & AC1/XIP LAN license (Id-Nr. 430260), please install the MAGIC DC7 & AC1/XIP LAN version.

4.5 Operation via the Windows PC Software

In the following chapter all functions of the PC Software are described in detail.

4.5.1 The MAGIC DC7/AC1 XIP main window

After starting the *MAGIC DC7/AC1 XIP Software* the main window (in the ISDN mode) is automatically displayed.



The connection status between the PC and the system is displayed in the upper right corner of the window:



PC ONLINE: Connection to the PC is ok



PC OFFLINE or **NO CONNECTION:** Connection to the PC is faulty



The following status messages are also possible:



PC ONLINE ALARM: An alarm has occurred (see **System Monitor**, blinking green-darkgreen)



ISDN REMOTE: A remote connection is established (blinking red-white)



ISDN REMOTE ALARM: An alarm in the remote system has occurred (blinking blue-darkblue)



WRONG APPLICATION: You are using the software with the wrong unit (e.g. *MAGIC TH2*)



BOOT MODE: No valid firmware on the system (orange). Please download the latest software (see CHAPTER 4.8.6).

TIP

If you click on the status message, the **System Monitor** is displayed which shows the system status in detail (see CHAPTER 4.9.1).

HINWEIS

If the connection is faulty, please check the following points:

- external power supply of the system is plugged in (display is available)
- network cable or serial 1:1 connecting cable is connected to the PC and the system
- right IP address and right Control Port or COM Port and right baud rate are selected in the software (**Configuration** → **Control Interface**, see Page 41)

4.5.2**Connection status**

Via the connection status you get detailed information about the current transmission separately for transmit and receive direction.

FIG. 8 DISPLAY OF THE CONNECTION STATUS

Displayed are:

- the signalling mode (**Signalling**)
 - Telephone
 - SRT (Statistical Recovered Timing)
 - MPEG 64 kBit/s unframed
 - J.52
 - Bonding
 - CCS-L2
 - Fixed Multiplex
- the operating mode (**Mode**)
 - Coding algorithm (G.711, G.722, ISO/MPEG Layer 2/3, Standard/Enhanced apt-X, AAC-LD)
 - Coding mode (Mono, Dual Channel, Stereo, Joint Stereo)
 - Sampling frequency (16 kHz, 24 kHz, 32 kHz, 48 kHz)
- the bit rate (**Rate**) for the Audio transmission
- the data (**Data**) for J.52 transmissions
 - Gross data rate
 - Net data rate
- the **PAD** data rate (Program Associated Data) within the MPEG data stream
 - Net data rate
- in the **LAN** or **LAN/SIP** operating mode
 - Jitter

4.5.3

Operating elements

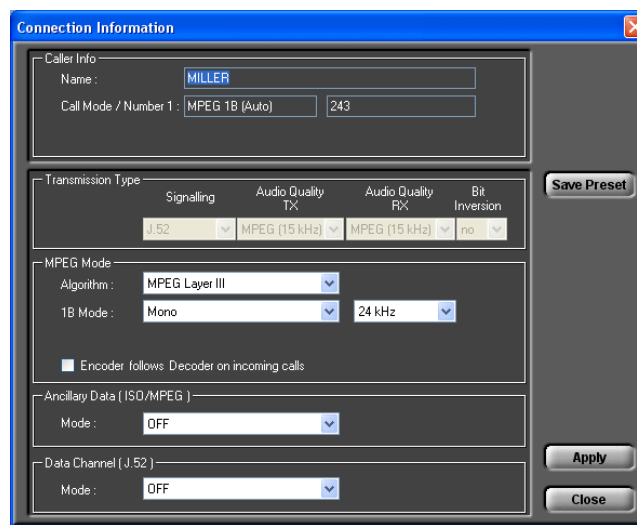
Info button

The **Info** button can signalize three situations:



- **grey**: There is no connection
- **yellow**: Incoming or outgoing call. If a telephone book entry exists for the caller, the corresponding name is displayed. If you click on the **Info** button details of the connection information are displayed (**Connection Information**).
- **green**: Existing connection. If you click on the **Info** button details of the connection information are displayed (**Connection Information**).

FIG. 9 CONNECTION INFORMATION



- Under **Caller Info** the telephone book entry - if available - for that caller is displayed. Otherwise you only can see the calling number if it is transmitted.
- The type of the current transmission is displayed under **Transmission Type** (further details you will find from page 80 onwards). Parameters which cannot be changed for this connection are displayed dimmed.
- If the transmission is an ISO/MPEG connection, the Audio parameters are additionally displayed under **MPEG Mode**. These parameters can also be changed **during** a connection. Changeable settings are displayed. Additionally you can select if the encoder should work with the same parameters as the decoder. In this case, please activate the option **Encoder follows Decoder on incoming calls**.
- ISO/MPEG connections and/or J.52 connections allow additionally the transmission of transparent data channels in parallel, which can be configured under **Ancillary Data (ISO/MPEG)** respectively **Data Channel (J.52)** (for further details please see from page 77 onwards).
- You can save changes as new transmission modes. Please press the button **Save Preset**. The new mode can be found under **Configuration** → **MA-GIC DC7/AC1 XIP** → **Transmission** → **User Defined**, where you can



also check or change settings. When you want to establish a connection, you can select the new transmission mode directly from the front keypad of the system or in the PC software.

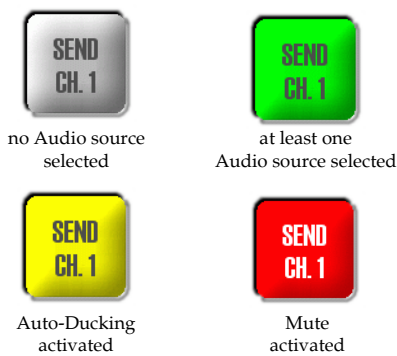


- Changes are applied by pressing the **Apply** button.
- Close the window with **Close**.

Selection of the Audio sources for the transmit direction

By pressing the button **SEND CH.1** respectively **SEND CH.2** the window, in which the Audio sources (**Audio Source**) for the transmit direction can be selected, is opened.

Depending on the configuration of the Audio mixer, the **SEND CH.** button can have the following colours:



grey: No Audio source is selected for the transmit direction. The remote side would hear nothing.

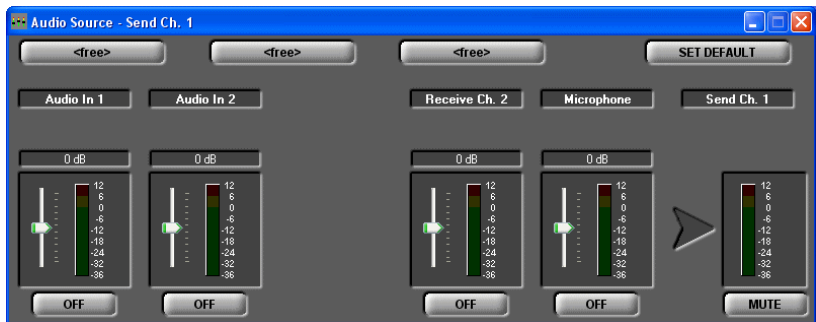
green: At least one Audio source is activated.

blinking in red: The **Mute** function is enables for the selected channel. The remote side would hear nothing.

yellow: The **Auto-Ducking** function (see PAGE 74) is enabled.

Depending on the transmission procedure, the available levels are displayed. Details for the operation of the Audio mixer can be found under CHAPTER 4.5.3.1.

FIG. 10 AUDIO MIXER TRANSMIT DIRECTION



CALL/ACCEPT/CONNECT button

grey: With the **CALL** button, the connection can be established after the calling number has been entered and the mode has been selected.

blinking in yellow: An incoming call can be accepted with the **ACCEPT** button if the auto answer is disabled.

green: The connection is established. If you click on the **CONNECT** button and the **Security** option is enabled, a control panel is displayed (see CHAPTER 10).



DROP button

grey: With the **DROP** button you can disconnect a connection.

blinking in yellow: Incoming or outgoing call can be rejected or stopped.

Telephone book



By clicking on the **Telephone book** button, the phone book is opened. Details can be found in CHAPTER 4.5.3.2 from Page 35.

Redailling



Via the **Redailling** function, the ten most recently dialled calling numbers are available. After pressing the key, a context menu is displayed with all existing entries. Together with the calling number, the transmission mode (**Transmission Mode**) which was used is also saved. If you want to call a displayed number with a different transmission mode, you must re-enter the calling number and the desired transmission mode.

With **Cancel** you can close the context menu without making a call.

Transmission mode



With the **Transmission mode** button you select the desired transmission parameters for your connection, which you can set under **Transmission Modes** in the software (see CHAPTER 4.7.2.2.1, Page 61).

Basically in the delivery status the following modes are displayed:

- **Telephone**
- **7-kHz (Auto)**
- **MPEG 1B (Auto)**
- **MPEG 2B (Auto)**

If you configured your own transmission modes (see **User Defined Transmission Modes**, CHAPTER 4.7.2.2.2, Page 65), these modes are also displayed if you click on the transmission mode button.

With **Cancel** you can close the context menu without changing the transmission mode.

NOTE

Further details about the transmission modes can be found in the chapter „The AutoDynamicSync procedure“ from Page 137.

When a connection is dropped, the system is automatically reset to the default transmission mode, if you have set a default transmission mode under **Configuration** → **MAGIC DC7/AC1** → **Transmission Modes** → **Default Audio Mode** → **Mode**. If you have selected the option **Off**, the last selected mode is activated.

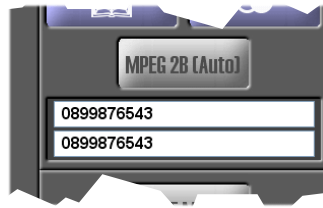
TIP

You should select one of the **Auto Modes** as default transmission mode, since only in this way you can be sure that the automatic synchronisation procedure (**ADS**) is used when there is an incoming call.

Manual Dialling

Via the entry fields for the calling number, you can dial manually instead of using the telephone book. Depending on the operating mode, one or two fields are available.

FIG. 11 MANUAL DIALLING



TIP

You can copy a phone number with **<CTRL>+<c>** and paste it with **<CTRL>+<v>**.

For the entry field, all numeric characters '0'...'9' as well as the characters '*' and '#' are allowed. The length of the calling number must **not be more than 20 characters**.

With a '-' (e.g. "-123") placed in front of the calling number you can temporarily suppress the prefix number for getting an outside line (see also Page 49, Prefix Number)

Mute microphone



By clicking on the **MUTE MICRO** button, the microphone connected to the headset interface is muted.

grey: Mute function is not active

blinking red: Mute function is active. Additionally in the Audio mixer **MUTED** is displayed at the microphone level.

Headphones Output (Phones Out)

Via the button **PHONES OUT** you select the Audio signals which you want to hear at the headphones if connected.

NOTE

If the fee-based option *Mixer Tool Plug-In* (order number 430201) is not enabled to your system, you can select only one signal from the sources.

Depending on the configuration of the Audio mixer, the **PHONES OUT** button can be displayed in the following colours:



grey: No Audio source is activated. In that case nothing could be heard at the headphones output.

green: At least one Audio source is activated.

blinking in red: The **Mute** function is enabled. In that case nothing could be heard at the headphones output.

Please consider also the configuration possibilities of the headphones interface Page 73, which allow an allocation of the left and right channel.

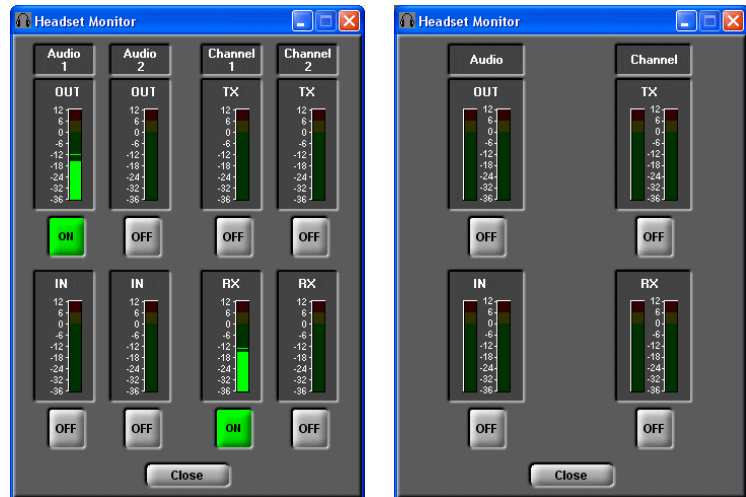
FIG. 12 AUDIO MIXER HEADPHONES OUTPUT



Monitor

By pressing the **MONITOR** button the window **Headset Monitor** is opened with which you can monitor all Audio inputs and outputs.

FIG. 13 HEADSET MONITOR



Display with two independent mono channels

Display during a stereo transmission

NOTE

If the fee-based option *Mixer Tool Plug-In* (order number 430201) is not enabled for your system, you can only monitor one signal at a time.



Depending on the selected transmission mode the display is adjusted (see Fig. 13). With the **ON/OFF** button you can activate/deactivate monitoring for a signal.

With **Close** you can close the window.



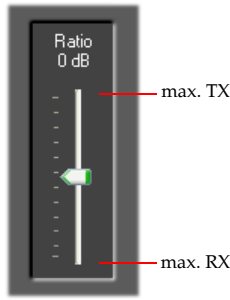
When the **Headset Monitor** window is opened, the **MONITOR** button is displayed in **red** to indicate that currently you are not listening to the Audio signal which you have selected for the headphones under **PHONES OUT** (see PAGE 30) If the window is closed the button is displayed in **grey**.

Transmit-receive level/ratio for the headphones

Via the **Ratio** level meter you can set the **level ratio for the headphone output** between the transmitted and the received Audio signal.

The ratio can be adjusted within the range **0...+16 dB**. If you select **TX+16 dB** your transmitted signal is amplified to the maximum and if you select **RX+16 dB** the received signal is amplified to the maximum.

Especially for live reporting, in this way you can adjust the levels as you like.



Headphones volume

With the **Phones** level meter the volume of the headphones is selected.

The level can be adjusted within the range of **0...-40 dB**.



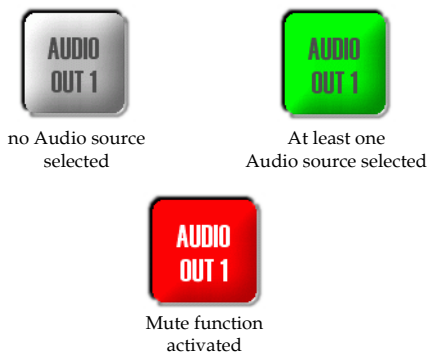
Selection of the Audio sources for the Audio output

By pressing the **AUDIO OUT 1** respectively **AUDIO OUT 2** button the window for the selection of the **Audio Source for the Audio output** is opened.

NOTE

If the fee-based option *Mixer Tool Plug-In* (order number 430201) is not enabled for your system, you can only select one Audio source for the Audio output.

Depending on the configuration of the Audio mixer, the **AUDIO OUT** button can be displayed in the following colours:



grey: No Audio source is activated. In that case, nothing can be heard.

green: At least one Audio source is activated.

blinking in red: The **Mute** function is activated for the selected channel. In that case, nothing can be heard at the remote side.

Depending on the transmission procedure, the available level meters are displayed. Details about the configuration of the Audio mixer can be found in CHAPTER 4.5.3.1.

FIG. 14 AUDIO MIXER AUDIO OUTPUT



4.5.3.1 Audio mixer to select sources and output equipment

MAGIC DC7/AC1 provides an integrated Audio mixer which allows you to configure Audio sources and output devices according to your requirements.

NOTE

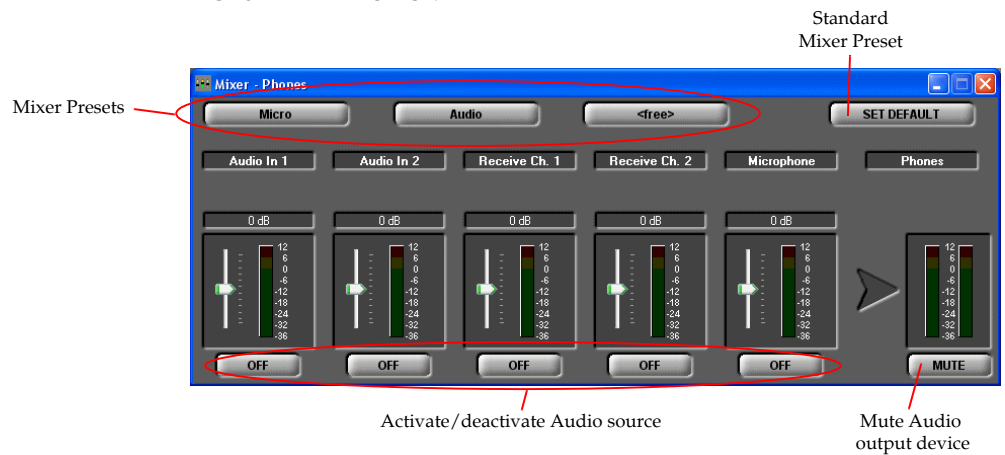
If the fee-based option *Mixer Tool Plug-In* (order number 430201) is not enabled, you can always select only one signal for an output device at a time.

The Audio mixer can be configured either via the overview matrix which opens via *Extras* → *Audio Mixer* (see CHAPTER4.9.3, Page 102) or via the respective **Audio output device**:



- SEND CHANNEL 1/2
- AUDIO OUT 1/2
- PHONES OUT

FIG. 15 AUDIO MIXER



Depending on the selected transmission mode, the following **Audio sources** are available:

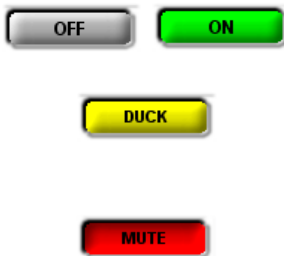
- Audio In 1/2
- Receive Channel 1/2 (received signal)
- Microphone

Each of these Audio sources has a digital level setting which allows an increasing or decreasing of the level of 16 dB.

With the button **ON/OFF** you can activate or deactivate each Audio source for the Audio output device.

For the Audio output device **SEND CHANNEL 1/2** it is possible to activate the Auto-Ducking functionality for the Audio source **Audio In 1/2** if the *Mixer Tool Plug-In* option is enabled.

Each Audio output device can be switched off by pressing the **MUTE** button.



Mixer Presets

In the system, up to three **Mixer Presets** can be saved and reloaded by a key-press.

NOTE

The loading of a Mixer Preset applies to **all** Audio sources and devices, even if they are currently not displayed.

Please follow the instructions below:

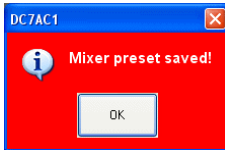
- Adjust the Audio mixer for all Audio sources and output devices according to your requirements.
- Press one of the **Mixer Preset** buttons for about two seconds. The dialog for the entry of a Preset Name is displayed. The length of the names must not exceed 8 characters.

FIG. 16 ENTRY OF A PRESET NAME



- After the **OK** button is pressed a confirmation is displayed that the **Mixer Preset** has been saved successfully.

FIG. 17 MIXIER PRESET SAVED



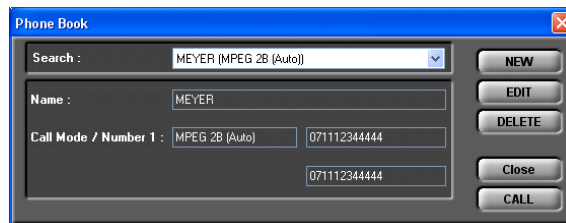
- To reload a mixer configuration, please click on the **Mixer Preset** button for a second.
- To reset the system to the default setting, please click on the **SET DE-FAULT** button. The mixer is configured in the following way:
 - All levels to 0 dB
 - Receive Channel 1 → Audio Out 1
 - Recieve Channel 2 → Audio Out 2
 - Audio In 1 → Send Channel 1
 - Audio In 2 → Send Channel 2

That means, the received signal is available at the Audio output and the signal from the Audio input is transmitted to the remote side.

4.5.3.2 Telephone book

By pressing the telephone book button the telephone book dialogue is opened.

FIG. 18 TELEPHONE BOOK DIALOGUE



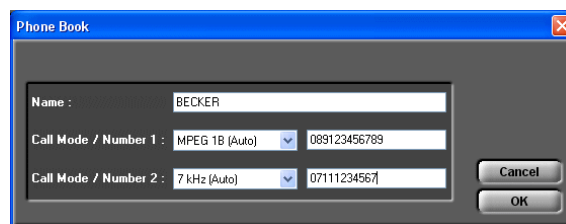
You can search for an already existing entry via the DropDown list **Search** or you simply enter the first characters of the name you are looking for. A search for calling numbers is not possible.

In the detailed view below, the **Name**, the **Call Mode** (transmission mode) and the calling numbers (**Number 1/2**) are displayed.



A new entry can be created with **NEW**.

FIG. 19 NEW TELEPHONE BOOK ENTRY



At first enter the **name** of the caller you want to add. The length of the name is limited to 20 characters.

Under **Call Mode/Number 1** you need to select the transmission mode at first which is to be used when dialling and then enter the calling number.

If you select a 1 B transmission mode you can configure a second completely independent connection for the second channel (**Call Mode/Number 2**). However as transmission mode you can only select **Telephone** or **7-kHz (Auto)**. In this way you have the possibility to call two participants at the same time via one telephone book entry.

TIP

You can copy a calling number with **<CTRL>+<c>** and paste it with **<CTRL>+<v>**.

For the entry field, all numeric characters **0'...'9'** as well as the characters **'*** and **'#'** are allowed. The length of the calling number must **not exceed 20 characters**.

With a **'-'** placed in front off the calling number (e.g. **,-123''**) you can suppress the prefix number for getting an outside line temporarily (see also Page 49, Prefix Number).

With **OK** the entry is saved, with **Cancel** you can cancel the entry at any time.

NOTE

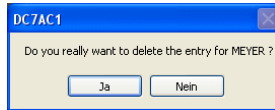
Please notice that the telephone book entries are stored in the system and not on the PC. Via the menu **File** → **Phone Book** → **Import/Export** you can also load a telephone book from your PC or save a phone book on your PC.



An already existing entry can be edited with the **EDIT** button.

To delete a telephone book entry, please press the **DELETE** button. To avoid that entries are deleted by accident, you have to confirm your selection.

FIG. 20 CONFIRMATION TO DELETE AN ENTRY



With **Close** you can close the dialogue without any further action.

To establish a connection with a telephone book entry directly, please press **CALL**.

4.6 Menu File

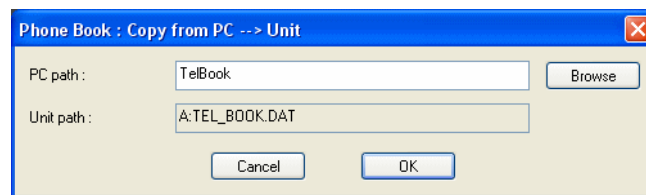
Under the Menu File you can find all functions for the import/export of system files.

4.6.1 Submenu Phone Book

To import a telephone book from the PC please select **File** → **Phone Book** → **Import**.

With **Browse** you can search for the telephone book which you want to import. The file extension for a telephone book is **' .csv'**. Such a file can be edited with e.g. MS® EXCEL.

FIG. 21 IMPORT OF A TELEPHONE BOOK



File format (example):

```
DC7AC1;3;2
Name;Call Mode 1;Call Mode 2;Config File;Number 1;Number 2
JERRY LEE;8;0;;160;
ULRIKE LAUTERBACH;2;0;;141;
AVT SUPPORT;0;0;MUSICTAX;123456;
DIANA EL-TATTAN;1;0;;123;
WOLFGANG PETERS;0;0;DEMO;130;131
```

```
;Presets
1;MUSICTAX;17;0201031F016800670069006C007A82980C
1;DEMO;17;0201031F016800670069006C007A829108
```

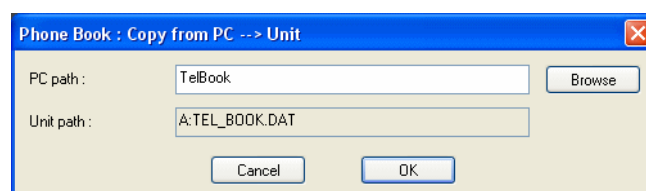
Attention: The first two lines form the header and must not be missing. The lines „Presets“ are only available, if you work with **Transmission Modes**.

Possible values for Call Mode 1/2:

Wert	Call Mode 1	Call Mode 2
0	configuration file used	no connection
1	Telephone	Telephone
2	7 kHz	7 kHz
8	MPEG 1B	-
9	MPEG 2B	-

To export a telephone book please go to **File** → **Phone Book** → **Export**. The file is saved with the extension **' .csv'**. The desired directory path can be selected via **Browse**.

FIG. 22 EXPORT OF A TELEPHONE BOOK



4.6.2 Submenu Operation Settings Presets

Via the selection **Import**, the import of a **Presets** from a data carrier (disk, USB stick etc.) is possible. The file extension of the configuration file is always **.pst**. After clicking on the button the file browser is opened, by which the desired file can be selected.

With **Export All** you save all already existing preset configurations in a directory of your choice. For each preset, a file with the extension **.pst** is generated.

The functions are identical with the **Import** and **Export All** functions under **Configuration** → **Presets** → **Manage Presets** (see CHAPTER 4.7.3.2).

4.6.3 Submenu User Transmission Modes

The option **Import** allows you to import a **User Transmission Modes** from a data carrier (disk, USB stick etc.). The file extension is always **.tmm**. After clicking on the button the file browser is opened by which the desired file can be selected.

With **Export All** all already existing **User Transmission Modes** are saved in a directory of your choice. For each mode a file with the extension **.tmm** is generated.

4.6.4 Submenu System Settings

With the selection **File** → **System Settings** → **Import** you can import the complete system configuration from a data carrier. The file extension of the system configuration file is always **.tcg**.

The following settings are imported:

- **System Settings** (see CHAPTER 4.7.2.3)
- All **Operation Settings** (see CHAPTER 4.7.2.1)
- All user-defined **Transmission Modes** (see CHAPTER 4.7.2.2.2)
- All **Mixer Presets** (see CHAPTER)

Correspondingly, via **File** → **System Configuration** → **Export** the complete system configuration can be saved. The storage location and position can be chosen by yourself.

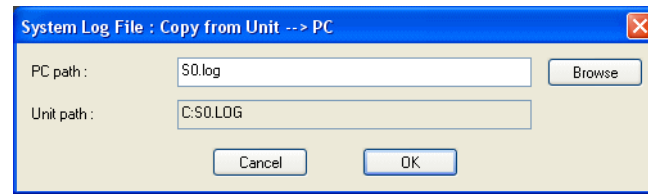
NOTE

Please note that the telephone book is **not** saved with the system configuration.

4.6.5 System Log File

With the selection **File** → **System Log File** → **Export** you save the internal ISDN Log file of the *MAGIC DC7/AC1* system. The file is saved with the extension **.log**. The desired directory path can be selected with **Browse**.

FIG. 23 EXPORT THE ISDN LOG FILE



NOTE

A Log file is only generated in the system, if the function **System Logfile** (CHAPTER 4.9.1, Page 99) has been activated in the **System Monitor**.

Afterwards the file can be opened and analysed with the optional **ISDN S₀ Monitor** (see CHAPTER 8.2, Page 130).

4.6.6 Submenu Exit

Via the submenu **Exit** you can close the *MAGIC DC7/AC1* software.

4.7 Menu Configuration

4.7.1 Submenu Control Interface

Preferably, the system is configured and operated via the LAN interface. Alternatively you can use the RS232 interface.

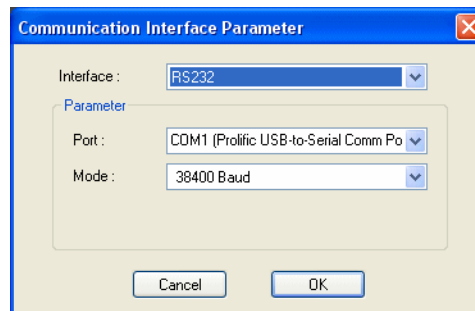
Select under **Configuration** → **Control Interface** the option **Configuration**.

RS232

If you want to use the RS232 interface, connect the serial RS232 interface (via enclosed adapting cable DATA1/PC) with a 1:1 connecting cable with your PC.

Please select now under **Interface** → **RS232**. Under **Parameter** → **Port** the **COM-Port** of your PC, which is connected with the system and under **Mode** the desired baud rate (standard: **38400 Baud**).

FIG. 24 RS232 INTERFACE PARAMETER



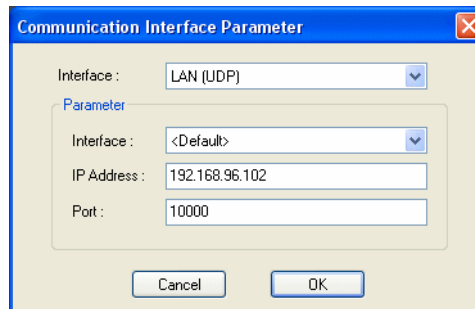
NOTE

Instead of the PC you can connect the optional *MAGIC Keypad Basic/Advanced* to the serial interface of the system. Only by using the LAN interface the PC software and the keypad can be used at the same time.

LAN/UDP

For controlling the system via the LAN interface please select **Interface** → **LAN/UDP**.

FIG. 25 LAN/UDP PARAMETER



Under **Parameter** → **Interface** edit **<Default>**. If there should be more than one network interface card in your PC, select the desired one.

The standard **IP Address** of the system is **192.168.96.102** and the standard control **Port 10000**.

To enable a connection with your PC, you have to be in the same **subnet**. Enter an IP address at your system from your subnet¹ appropriately or activate - to get the correct settings automatically - **DHCP** (Dynamic Host Configuration Protocol), if a DHCP server² is available.

To change the IP address manually at the system³, press the softkey **MENU** → **SYSTEM SETTINGS** → **LAN SETTINGS** → **IP ADDRESS**. Enter now the desired IP address. When entering manually you have to be sure that the IP address is not already used by another unit⁴.

NOTE

Maybe further settings are necessary (e.g. sub-net mask, standard: 255.255.255.000). In that case please contact your network administrator, who can tell you the correct settings or you use DHCP.

You can activate DHCP at system via **MENU** → **SYSTEM SETTINGS** → **LAN SETTINGS** → **DHCP**.

TIP

You can identify the assigned or manually set IP address - if there is actually no Audio connection - by pressing the phone key **↵**. The current IP address is displayed.

Set the assigned or set IP address under **IP Address**.

Control Interface List

If you want to manage multiple units via the PC software, you can enter all systems by selecting **Parameter** → **Control Interface List**. There you can enter systems that are connected via the LAN interface as well as via the RS232 interface. These are comfortable selectable via **Configuration** → **Control Interface**.

NOTE

Please consider that at the same time there is always only one PC connection, to one system possible.

To create a new list entry press **New**. The settings for the RS232 respectively LAN parameter can be made as per description above. Additionally you can give the list entry a **Name**.

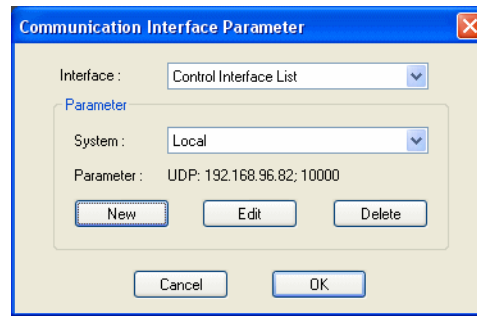
¹ You can identify your own subnet as follows: Under *Windows XP* click **Start** → **Execute ...**. In the commandline enter **cmd** and in the next input window enter **ipconfig**. Your IP address is displayed (e.g. 192.168.12.35). According to that your subnet would be 192.168.12.xxx.

² Generally you can activate DHCP (like e.g. the AVM Fritz!Box) even with a normal router.

³ To set the menu language into German, please follow the instructions on Page 107, Setting the menu language.

⁴ Whether the IP address is already used in the network, you can control as follows: Under *Windows XP* click **Start** → **Execute ...**. In the commandline enter **cmd** and in the next input window enter **ping xxx.xxx.xxx.xxx**. The xxx stands for the IP address that has to be checked.

FIG. 26 CONTROL INTERFACE LIST PARAMETER



By the key **Edit** you can edit the currently selected entry. With **Delete** you can cancel the list entry.

4.7.2 Submenu **MAGIC DC/AC1 XIP**

Via the submenu **MAGIC DC7/AC1 XIP** the system can be configured completely.

After the configuration has been changed, the following options are available:

- With **OK** the configuration dialogue is closed and all settings are saved and applied to the system.
- The function **Apply Now** allows you to save the current settings without closing the configuration dialogue.
- **Cancel** cancels all settings made.

The configuration differentiates between **System Settings**, which usually do not have to be changed during the operation and the actual **Operation Settings** for the current operational case. The Operation Settings also include the **Transmission Modes**. The System Settings cannot be saved as **Preset** (see CHAPTER 4.7.3) - whereas Operation Settings can be saved as Preset.

For clarification:

A **Preset** includes **all** settings under **Operation Settings** and **Transmission Modes**. Various **Presets** can be saved in the system and loaded by the user.

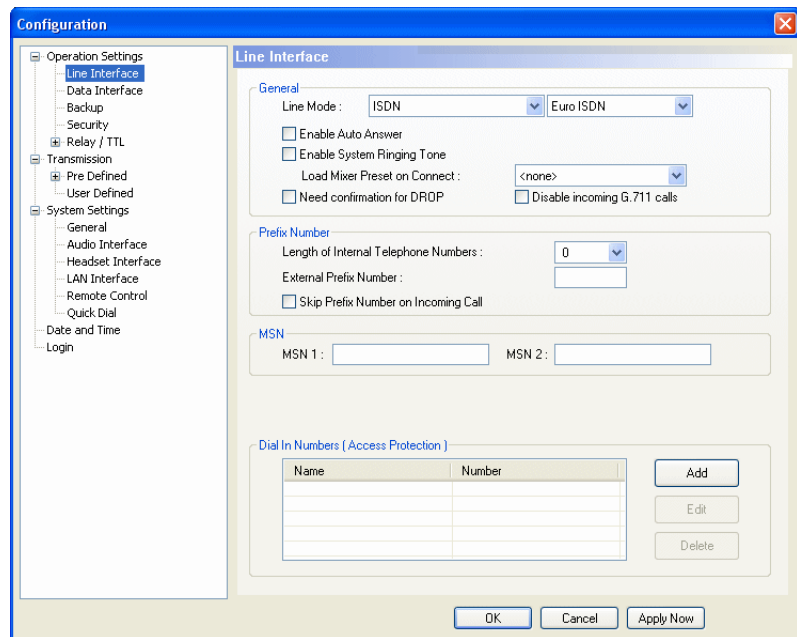
4.7.2.1 Operation Settings

All settings made under **Operation Settings** can be saved as **Preset**.

4.7.2.1.1 Line Interface

The menu item **Line Interface** allows a configuration of the ISDN, X.21 and LAN interface.

FIG. 27 LINE INTERFACE



General

- Under **Line Mode** you select the line interface which you want to use. The following options are possible:
 - **ISDN**: The system is connected to the ISDN network and two independent channels are available. Up to two independent Audio signals can be transmitted simultaneously.
 - The following ISDN protocols are available:

EURO ISDN

USA ISDN (N-1)

Japanese ISDN

Therewith you can use the unit at almost every ISDN connection worldwide. Merely older ISDN or special private branch exchange protocols are not supported.

NOTE

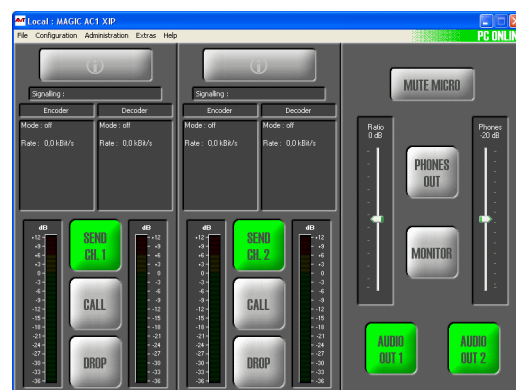
For the configuration of the Audio coding parameters please look under **Transmission** (see CHAPTER4.7.2.2, Page 60).

- **ISDN leased line**: The system is connected to the ISDN network and two independent channels are available. In contrast to the dial up ISDN mode, in the ISDN leased line mode no dialling information is transmitted. As soon as you connect the system to an ISDN leased line and press the **Call** key (on both sides), a connection is established.

NOTE

Please consider that no calling numbers can be entered in this mode. For the configuration of the Audio coding parameters please look under **ISDN Transmission Modes** (see CHAPTER4.7.2.1.7, Page 59).

FIG. 28 MAIN WINDOW IN THE ISDN LEASED LINE MODE

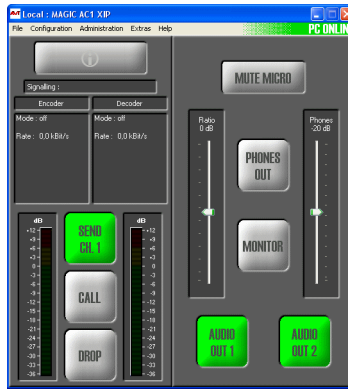


- **ISDN leased line (B1/B2 only)**: Same functionality as above, except that only B channel 1 (**B1**) or B channel 2 (**B2**) is analysed.

NOTE

Please notice that only one channel is displayed in the main window. Additionally, no calling numbers can be entered in this mode. For the configuration of the Audio code parameters please look under **ISDN Transmission Modes** (see CHAPTER4.7.2.1.7, Page 59).

FIG. 29 MAIN WINDOW IN THE ISDN LEASED LINE B1/B2 MODE

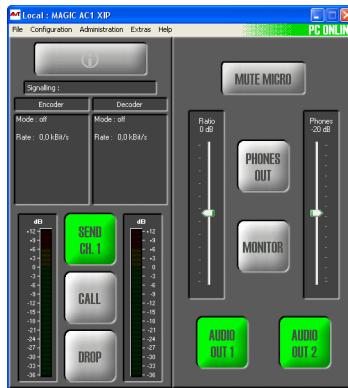


- **X.21 (8...384 kbit/s)**: The system is connected to a X.21 leased line. The clock is delivered from the transmission system. The data rate is identified automatically.
For a connection you have to press the **Call** key on both sides.

NOTE

Please notice, that no calling numbers can be entered in this mode. No further settings are needed for establishing a connection. For the configuration of the Audio coding parameters please look under **X.21 Transmission Modes** (see CHAPTER4.7.2.1.8, Page 59).

FIG. 30 MAIN WINDOW IN THE X.21 MODE

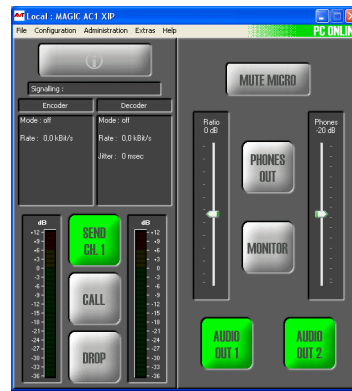


- **LAN**: The Audio transmission is realised via a non-switched LAN line, wherefor only the IP address has to be entered at the remote station.
For a connection you have to press the **Call** key on both sides.

NOTE

Please notice that a variable IP address can be entered. Therefore configure the LAN/SIP mode. For the configuration of the Audio coding parameters please look under **LAN Transmission Modes** (see CHAPTER4.7.2.1.9, Page 59).

FIG. 31 MAIN WINDOW IN THE LAN MODE



- **LAN/SIP:** The Audio transmission is realised according to the new *N/ACIP Audio over IP Standard* of the EBU. The operation is almost identical to the **ISDN** operating mode. For establishing a connection you have to enter the calling number (if using a SIP server) or the IP address of the remote station. Operationally the system performs over a non-switched LAN connection, for that the IP address of the remote station needs to be entered only.

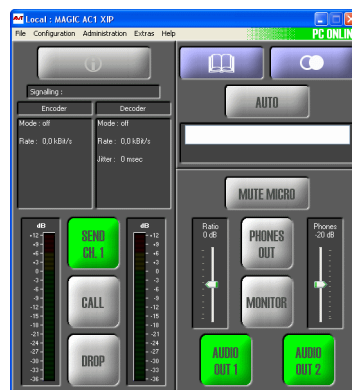
NOTE

Please notice that currently only one simultaneous Audio connection - in contrary to ISDN - is possible.

For the configuration of the Audio coding parameters please look under **Transmission** (see CHAPTER4.7.2.2, Page 60).

For the settings of the required connection parameters please look under **SIP Parameters** (see CHAPTER4.7.2.1.2, Page 53).

FIG. 32 MAIN WINDOW IN THE LAN/SIP MODE



The following configuration possibilities depend on the chosen line operation mode:

- ISDN, LAN/SIP**
 - With the function **Enable Auto Answer** you can enable the system to accept the calls automatically.
- ISDN LEASED LINE, X.21, LAN**
 - **Auto Connect on Power On:** If it is enabled, the connection is established automatically when switching on the power supply. If the option is disabled, press the **Call** button to establish a connection.
- ISDN, LAN/SIP**
 - If the automatic answer is enabled, an answering delay of **0 ... 31** seconds can be set up via the scroll bar **Delay**. The standard value is **0 s**.
- ISDN, LAN/SIP**
 - An acoustical call signal at the system can be enabled by the function **Enable System Ringing Tone**.

ISDN, LAN/SIP

- Via **Load Mixer Preset on Connect** you can load a previously saved mixer setting automatically as soon as the connection is established. If you do not want to use that function please choose **<none>**. Please also consider the remarks in CHAPTER 4.8.7, **Submenu Create 15-kHz Telephone Mixer Presets**.

ISDN, ISDN LEASED LINE, X.21, LAN, LAN/SIP

- With the option **Need confirmation for DROP** a confirmation query is displayed at first before you can drop. The query is displayed on the unit as well as on the PC software.

ISDN

- The function **Disable incoming G.711 calls** avoids that the system can be called with a normal phone. The enabling is especially reasonable with an automatic ISDN backup (see CHAPTER 4.7.2.1.4), because misdirected calls from partners (e.g. because of a wrong dialling), which could block the system, can be avoided.

ISDN**NOTE****Prefix Number**

The following settings are only necessary, if the system is operated with a PABX.

- Under **Length of Internal Telephone Numbers** you indicate the length of your internal telephone numbers. In this way the prefix number is dialled automatically, if the length of the calling number exceeds the length of internal telephone numbers you indicated here.
If you do not want to use this function or if you use the system with a main connection, please enter a **0** into the respective field.

Examples: Length of internal telephone numbers: 3
Entered calling number: 130
It is dialled: 130

Length of internal telephone numbers: 3
Entered calling number: 5271130
It is dialled: **0** 5271130

TIP

To skip the automatic prefix number temporarily, you can place a „-“ in front of the calling number (e.g. „-130“).

- Under **External Prefix Number** you enter the external prefix number which you must dial to get an outside line. In most cases it is **0**.

ATTENTION

You must enter the external prefix number at any case if you operate the system with a PABX since only in this case the system waits for a dial tone. Without an external prefix number, the calling number is transmitted too fast and the connection cannot be established.

- Some PABXs transmit the calling number with prefix number to the system. If you want to transfer the displayed calling number without the prefix number directly into the telephone book, you can enable the function **Skip prefix number on incoming call**.

ISDN**MSN (Multiple Subscriber Number)**

Usually the entry of a MSN is not necessary. However, if several systems are operated with one ISDN interface, you can allocate a certain calling number to a certain system by entering a MSN. If you order an ISDN connection in Germany, in general you will get three MSN, which you can use for your connected units.

Example: A telephone, an ISDN PC card and a *MAGIC DC7/AC1 XIP* system unit are operated with one ISDN interface. From your network provider you got the following MSN: 5271011, 5271012, 5271013.

Without a MSN entry, all three units respond to the incoming call - no matter which of the three calling numbers was dialled. However, if a different MSN is allocated to each unit, the system only responds if exactly this MSN was dialled by the caller. If you enter e.g. the MSN '5271013' for the *MAGIC DC7/AC1 XIP system*, the system will only signal the call, if the caller dialled '5271013'. However, precondition for this example is that you enter the same MSN for **MSN 1** and **MSN 2**.

Enter the desired MSN under **MSN 1** respectively **MSN 2**. Of course, the same MSN can be allocated for both B channels. Please notice that a MSN is always entered **without** an area code.

NOTE

Some PABX require the entry of a **MSN** since otherwise no operation is possible.

If you cannot establish a connection between *MAGIC DC7/AC1 XIP system* and a partner system, but you are sure that the ISDN line is working, you should try whether it works after entering a MSN.

ISDN**Dial In Numbers (Access Protection)**

Via the **Dial In Numbers** function an access protection for the system can be activated. All calling numbers which are entered in the list can establish a connection with the system. Please enter **Name** and **Number** for each list entry.

NOTE

Please consider that only numeric characters which are actually entered are analyzed, i.e. if you only enter „130“, all participants with a calling number which ends with „130“ are allowed to call the system.

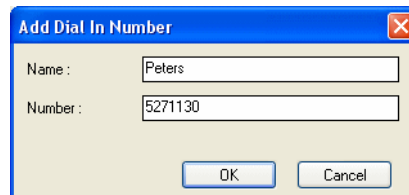
The total character length of all entered telephone numbers must not be higher than 127. With an average length of a telephone number of 12 characters about 10 calling numbers can be entered.

For this functionality the calling numbers of the participants in the list needs to be transmitted (CLIP^a function).

^a Calling Line Identification Presentation

- With **Add** you can create a new entry.

FIG. 33 ADD A NEW ENTRY



- The button **Edit** allows to edit already existing entries.
- With **Delete** an entry can be deleted. For safety reasons you must confirm that you really want to delete the entry.

LAN Parameter

LAN, LAN/SIP

- **Decoder Buffer Mode:** The Audio transmission via IP networks with UDP¹ requires a buffer in the decoder because of different delays (jitter) of the individual IP packages in the network. The buffer administration should be set by default to **Automatic** mode. For safety reasons, the buffer at the automatic buffer administration is bigger than possibly necessary. If you know the parameters from your network provider and a delaying time is guaranteed to you, you can set the buffer administration to **Fixed**. Thereby the total delay of the Audio transmission can be optimized.

LAN, LAN/SIP

- **Decoder Buffer Size:** If the **Decoder Buffer Mode** is set to **Fixed**, you can set the buffer size in a range of **20 ... 2000 ms**.

ATTENTION



If a loss of packages should occur (see CHAPTER4.9.1, Page 98), please try at first whether it can be avoided with a bigger buffer.

LAN, LAN/SIP

- **Encoder Packet Size:** For an optimization of the total delay the size of the packages can be adapted in the encoder. Whereby with bigger packages the IP overhead will be minimized. However, therefore the total delay increases and with a loss of a big package the interference can be heard much more clearly. You can set the package sizes in a range of **5 ... 50 ms**. The standard value is **20 ms**.

NOTE

If you are using the ISO/MPEG Layer 2/3 algorithm the package size is set by default internally always fix to 24 ms.

LAN

- **Remote IP Address:** In the LAN operation mode you can enter the IP address of the remote station here (z.B. 192.168.12.15).

¹ UDP = User Data Protocol: minimum, connectionless network protocol

4.7.2.1.2 SIP Parameters

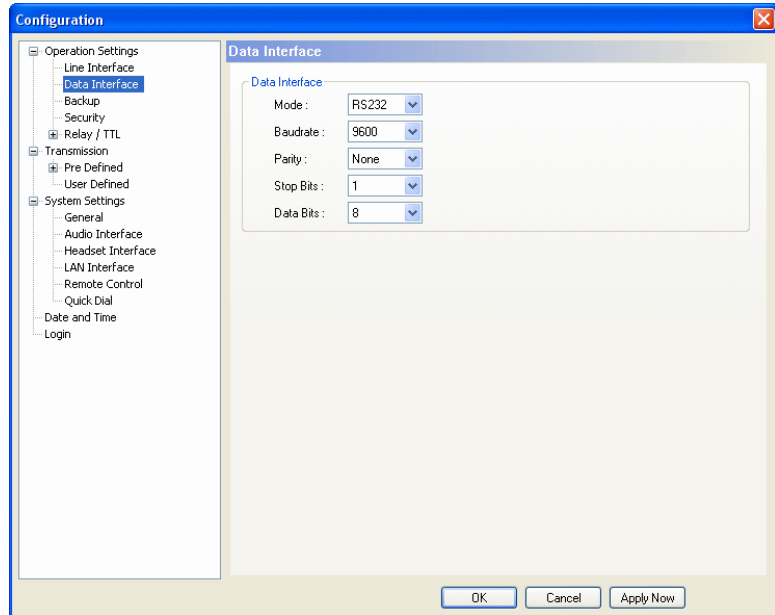
4.7.2.1.3 Data Interfaces

Under **Data Interfaces** you can configure the available data interface which allows a transmission of transparent data in parallel to the Audio signal.

NOTE

It depends on the selected Audio **Transmission Mode** (see CHAPTER Fig. 38) if a data transmission is possible.

FIG. 34 CONFIGURATION OF THE DATA INTERFACE



The configuration options for the **Data Interface** must match with the settings of the corresponding data source.

- Via the drop down list **Mode** you can select the interface type **RS232** or **RS485**.

The **RS232** interface can be used with a maximum cable length of 15 m and is available at many data end devices. The transmission is unsymmetrical, i.e. only one wire is used for the transmit and one for the receive channel. The procedure is more interference-prone and limits the maximum cable length.

In contrast to this, the **RS485** works with symmetrical transmission (one pair of wires each for transmit and receive direction), whereby the transmission is less interference-prone and cable length of maximum 100m are possible.

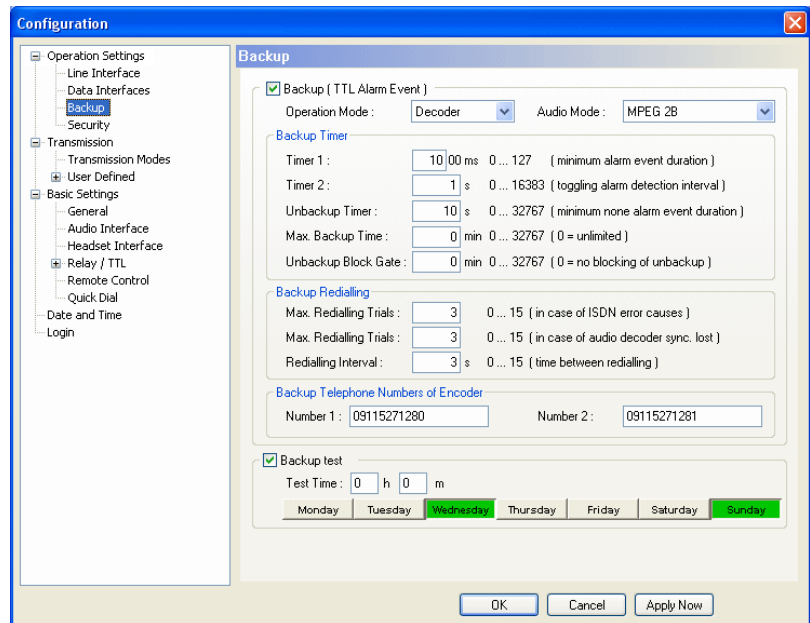
- As baud rates the values **300, 1200, 2400, 4800, 9600, 19200** and **38400** can be adjusted.
- Under **Parity** you select the desired parity **None**, **Even** and **Odd**.
- The number of the **Stop Bits** can be set to **1** or **2**.
- The number of the **Data Bits** can be set to **8** or **9**.

4.7.2.1.4 Backup

MAGIC AC1 offers the possibility to use the system as ISDN backup Audio codec.

Under **Backup** you find a variety of parameters to adjust the backup functionality to your requirements.

FIG. 35 CONFIGURATION OF BACKUP FUNCTION



- To activate the backup function, please enable the checkbox **Backup (TTL Alarm Event)**. The backup is triggered by a TTL Pin (e.g. error output of an external system) (see CHAPTER 4.7.2.3.4, configuration of a TTL signal: **Backup Alarm Signal**).
- Under **Operation Mode** you decide if the system works as **Encoder** or **Decoder**. In the backup mode, the system works with a fixed multiplexing scheme without *Capability Exchange* of the J.52 to guarantee that the connection is established as fast as possible. The backup is always triggered by the decoder side (e.g. at the transmission side).

With the selection **Encoder** you simply switch on the fixed multiplexing scheme. Except the **Audio Mode**, no further parameters can be configured. This operating mode should be selected, if the system is installed e.g. in the studio.

With the selection **Decoder** all available parameters can be configured. This operating mode should be selected, if the system is installed e.g. at a transmission side.

- Under **Audio Mode** you set the number of the B channels for the backup connection and the signalling.
 - **MPEG 1B**: Fixed multiplexing scheme according to J.52 with one B channel. The Audio data rate is 62,4-kbit/s.
 - **MPEG 2B**: Fixed multiplexing scheme according to J.52 with two B channels. The Audio data rate is 124,8-kbit/s.
 - **MPEG 1B Unframed**: The transmission is made without J.52 signalling with one B channel. The Audio data rate is 64-kbit/s.

Backup Timer

The timing of the backup can be adjusted with the following timers:

- **Timer 1** (Minimum alarm event duration) in milliseconds: Under this setting you can select the minimum duration of a TTL alarm to trigger a backup. This is to avoid that a backup is established because of very short disturbances.

The timer can be configured within the range of **0 ... 12700** ms in steps of 100 ms.
- **Timer 2** (Toggling alarm detection interval) in seconds: This timer ensures that a backup is also triggered when the alarm signal is „toggling“. If the alarm signal is detected for a second time within the selected interval, the backup connection is established in any case.

The timer can be configured within the range of **0 ... 16383** sec in steps of 1 second.
- **Unbackup Timer** (Minimum none alarm event duration) in seconds: With this timer you can configure the maximum time during which no alarm must occur before the backup connection is released.

The timer can be configured within the range of **0 ... 32767** sec in steps of 1 second.
- **Maximum Backup Time** in minutes: Via this timer the maximum backup time can be selected. The backup connection is dropped after this time, even if the alarm signal still exists.

The timer can be configured within the range of **0 ... 32767** min in steps of 1 minute. If you select the setting **0**, the backup time is unlimited.
- **Unbackup Block Gate** in minutes: If a second backup connection is established within the selected time interval, the backup connection is **not** disconnected automatically anymore. In this case, the backup connection has to be dropped manually (by pressing the **DROP** button) or it is dropped after the maximum backup time the latest. In this way, we want to make sure that a connection which is sporadically disturbed does not trigger a backup connection and backup disconnection permanently.

The timer can be configured within the range of **0 ... 32767** min in steps of 1 minute. If you select the setting **0**, this function is deactivated and the backup connection is dropped automatically as soon as all criteria are met.

Backup Redialling

Different redialling options are available:

- **Maximum Redialling Trials** (in case of ISDN error causes): Under this setting you can adjust how often the decoder tries to redial, if the connection could not be established because of an ISDN error, such as e.g. „Busy“ or „No route“, etc.

The number of redialling trials can be adjusted within the range of **0 ... 15**.
- **Maximum Redialling Trials** (in case of audio decoder synchronisation lost): Under this setting you can adjust how often the decoder tries to redial, if the connection can be established but the decoder does not synchronize.

The number of redialling trials can be adjusted within the range of **0 ... 15**.

- The pause between two redialling attempts can be configured with the parameter **Redialling Interval**.
The timer can be adjusted within the range of **0 ... 15** sec in steps of 1 seconds.

Backup Telephone Numbers of Encoder

The calling number of the backup encoder (e.g. in the studio) you enter under **Number 1** and **Number 2** (at the setting **MPEG 2B**).

Backup Test

To ensure that the ISDN connection and the Audio Codec work correctly, a **Backup Test** can be done. Please activate the relevant option for this.

- Under **Test Time** you enter the time when the backup test shall be done.
The entry has to be made in the 24h notation (e.g. 19h 25m).
- The weekdays (**Monday ... Sunday**) on which the test shall be done can be selected by clicking on the relevant weekday button.

4.7.2.1.5

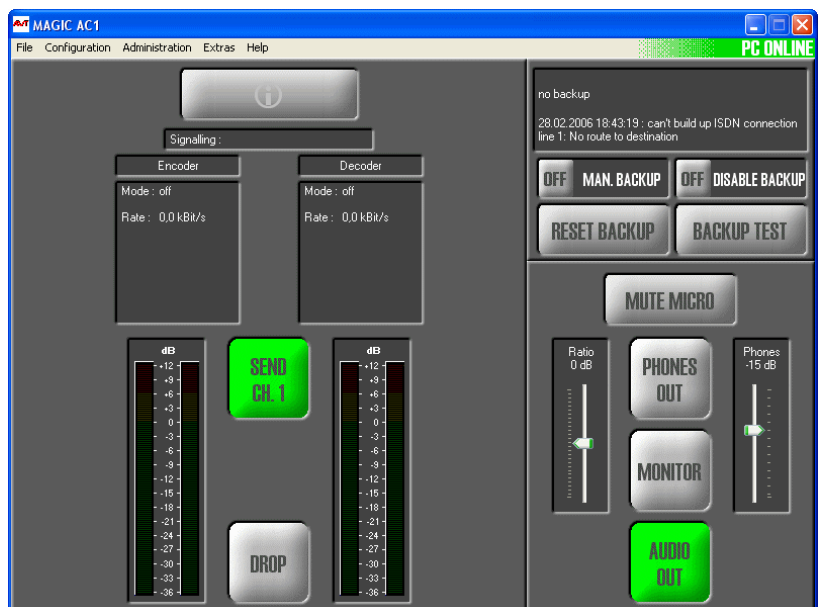
Functions in the main window with activated backup

The main window is adjusted according to your configuration if the backup is activated.

In the operating mode **Encoder**, only the operating elements for the calling number entry and the selection of the transmission type is displayed. The info field indicates the backup encoder configuration.

In the operating mode **Decoder**, the same operating elements do not apply.

FIG. 36 MAIN WINDOW FOR ACTIVATED DECODER



Additionally, an information window is displayed which informs you about the backup status. Further operating elements are available:

- **Man. Backup ON/OFF**: Via this button, a backup can be triggered manually e.g. for maintenance.

- **Disable Backup ON/OFF:** This button allows you to switch off the backup function temporarily.
- **Reset Backup:** By clicking on this button, all backup timers are reset and if a connection exists, it is dropped.
- **Backup Test:** Via this button, a backup test can be done. The result is displayed in the information field.

4.7.2.1.6 Security**NOTE**

This configuration dialogue is only available, if the fee-based option *Security* (order number 430240) is enabled. Details concerning this option can be found under CHAPTER 10, Page 135.

4.7.2.1.7 ISDN Transmission Modes**4.7.2.1.8 X.21 Transmission Modes****4.7.2.1.9 LAN Transmission Modes**

4.7.2.2 Transmission

Under **Transmission** all Audio and data parameters concerning the transmission can be configured.

In delivery status, four standard **Transmission Modes** are available:

- **Telephone**: Audio transmission with 3,1-kHz (G.711). On the second B channel an independent telephone or 7-kHz connection can be established.
- **7-kHz (Auto)**: Audio transmission with 7-kHz (G.722). The two standard signalling procedures *ITU-T J.52* (often also named *H.221*) and *SRT* (Statistical Recovered Timing) are supported. On the second B channel an independent telephone or 7- kHz connection can be established.
- **MPEG 1B (Auto)**: Audio transmission with ISO/MPEG Layer III or optionally Layer II (order number 450305) and a data rate of 64-kbit/s (1 B). For the signalling, the most important procedures are available. On the second B channel an independent telephone or 7- kHz connection can be established. However, a second MPEG connection cannot be established.
- **MPEG 2B (Auto)**: Audio transmission with ISO/MPEG Layer III or optionally Layer II (order number 450305) and a data rate of 128-kbit/s (2 B). For the signalling, the most important procedures are available.

NOTE

The standard transmission modes work with **AutoDynamicSync (ADS)**, which guarantees an automatic synchronisation - also with systems from other manufacturers. Further details can be found in CHAPTER A1, Page 137.

You can create further user defined transmission modes according to your requirements under **User Defined**. These transmission modes are also available when the system is controlled via the front keypad and display.

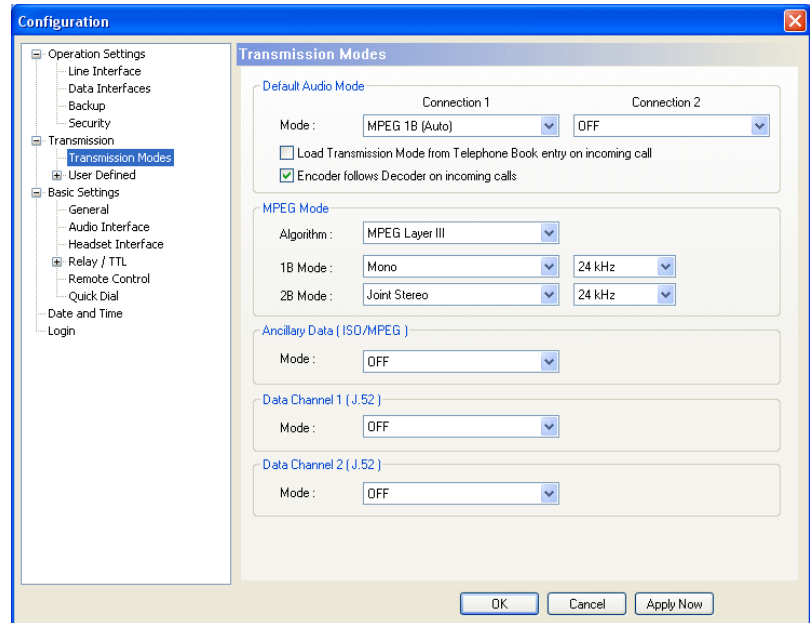
4.7.2.2.1 Transmission Modes

Via the configuration menu **Transmission Modes** you can configure all parameters for the Audio transmission and the transparent data transmission.

TIP

In contrary to *AutoDynamicSync (ADS)* (see CHAPTERA1, Page 137), you enforce the transmission mode. If you know which system and which transmission procedure is used at the remote side, you should work with a defined **Transmission Mode** to avoid missynchronisations.

FIG. 37 TRANSMISSION MODES



Default Audio Mode

- With **Default Audio Mode** you define the transmission mode for each B channel which is to be displayed by default. Under **Mode** the four standard modes (**Telephone**, **7-kHz (Auto)**, **MPEG 1B (Auto)**, **MPEG 2B (Auto)**) as well as all user defined modes for **Connection 1** are available. If you select **OFF**, the most recently used mode is always displayed first.

NOTE

Restrictions **Connection 2**:

If you have selected the B mode **MPEG 2B** for **Connection 1**, it is not possible to select a mode for **Connection 2**.

If you have selected a 1 B channel MPEG mode for **Connection 1**, only the **Telephone** and **7-kHz** modes can be selected for **Connection 2**.

- If the option **Load Transmission Mode from Telephone Book entry on incoming call** is enabled, the transmission mode which is saved together with the caller number of the incoming call in the telephone book is loaded automatically (see CHAPTER, Page 29).

- With the option **Encoder follows Decoder on incoming calls** you make sure that the encoder works with the same settings (such as e.g. Audio codec algorithm and sampling frequency) as the decoder.

TIP

Since some codecs only allow the same parameters in transmit and receive direction, this setting should be always enabled to guarantee maximum compatibility.

This setting only refers to incoming calls. If you establish a connection yourself, you can select different parameters for Encoder and Decoder if the called end support this configuration.

MPEG Mode

Under **MPEG Mode**, you configure the transmission parameters for the ISO/MPEG Layer III or Layer II (option) Audio coding algorithm.

- **Algorithm:** Please select the desired coding algorithm **Layer III** or **Layer II**.

NOTE

Layer II is only available, if the fee-based option **ISO/MPEG Layer II Upgrade** (order number 450305) is enabled.

We recommend - if possible - to use Layer III, since at data rates of maximum 128-kbit/s this algorithm provides much better quality as Layer II does. Layer II should only be selected if the remote side can only decode Layer II signals.

- **1 B Mode:** Under this setting you can configure the Audio mode (**Stereo, Joint Stereo, Dual Channel, Mono**) and the sampling frequency (**16-kHz, 24-kHz, 32-kHz, 48-kHz**), if only one B channel (64-kbit/s) is used for an MPEG connection.
- **2 B Mode:** Under this setting you can configure the Audio mode (**Stereo, Joint Stereo, Dual Channel, Mono**) and the sampling frequency¹ (**16-kHz, 24-kHz, 32-kHz, 48-kHz**), if two B channels (64-kbit/s) are used for an MPEG connection.

¹ If Layer II is used, depending on the signalling not all sampling frequencies are available.

Ancillary Data (ISO/MPEG)

ATTENTION



In the following, all available transparent data channels are described. Two physically independent interfaces can be configured according to your requirements.

Since the implementation of the data channels is not completely defined, they usually work only between systems from the same manufacturer.

The usage of an ISO/MPEG Audio coding algorithm¹ allows a transmission of a transparent inband data channel (**Ancillary Data**). The data is included in the MPEG data stream.

NOTE

Please consider that in this way the full bit rate is no longer available for the Audio signal. The Audio quality is reduced depending on the ancillary data rate. Special attention should be paid to the fact that the size of the data channel is dynamic: If data is available, a channel with the needed band width is opened. If no data is to be transmitted, all available bits are used for the Audio coding.

The maximum data rate can be selected under **Configuration** → **Data Interfaces** (see CHAPTER4.7.2.1.2, Page 53).

In maximum 15% of the gross MPEG data rate can be used for ancillary data. (e.g. at 128-kbit/s → maximum ancillary data rate: 19,2-kbit/s)

- Under **Mode** you decide which physical interface **ON - using Data Interface 1** or **ON - Using Data Interface 2** is used for the ancillary data. Please select **OFF**, if you do not want to transmit ancillary data.

Data Channel 1/2 (J.52)

ATTENTION



If you already use an interface for **Ancillary Data**, you must deactivate the data interface which is used under **Data Channel 1/2 (J.52)** by selecting **OFF**.

In addition to the transmission of **Ancillary Data** in the MPEG data stream, a further transparent data channel (**LSD Low Speed Data**) can be used when the **ITU-T Standards J.52** is used. For transmitting LSD, a channel with fixed band width is opened in parallel to the Audio signal.

NOTE

If you selected **7-kHz** as Audio mode, you can use one transparent data channel for each B channel independently from each other.

¹ The transmission of Ancillary Data is currently only possible with ISO/MPEG Layer III.

- The actual available data rate depends on the number of the B channels used and the **Mode** setting. Please select **OFF**, if you do not want to use the data channel.

TAB. 1 BIT RATE IN THE J.52 DATA CHANNEL

Mode Data Channel 1/2	Number of B-Kanäle	Bit Rate MPEG Audio	Bit Rate Data channel
LOW	1	56-kbit/s	6,4-kbit/s
	2	112-kbit/s	12,8-kbit/s
HIGH	1	48-kbit/s	14,4-kbit/s
	2	96-kbit/s	28,8-kbit/s

The actual bit rates are displays in the main window:

- **Rate:** actual Audio data rate
- **Data:** band width J.52 data channel and actual net bit rate (**x kbit/s net**)
- **PAD:** actual net bit rate (**x kbit/s net**) Ancillary Data

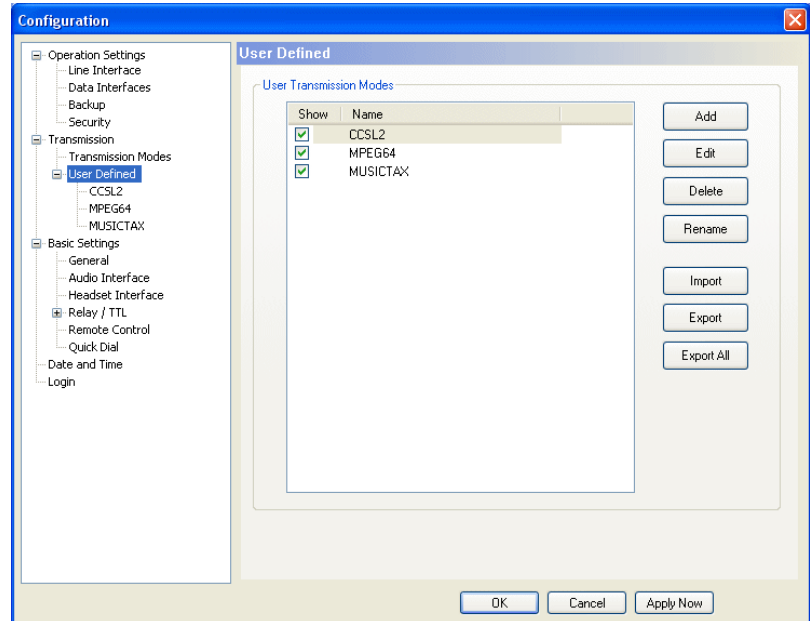
FIG. 38 DISPLAY OF THE BIT RATES IN THE MAIN WINDOW



4.7.2.2.2 User Defined

The configuration **User Defined** allows you to generate your own transmission modes. These user defined modes are displayed when a call is established via the front keypad and display (see CHAPTER5.2.1, Page 109) as well as in the main window of the PC software.

FIG. 39 USER DEFINED TRANSMISSION MODES



User Transmission Modes

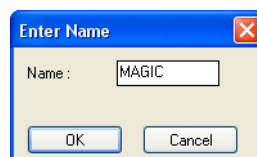
In the list **User Transmission Modes**, all already created transmission modes are displayed.

NOTE

Up to 20 different modes can be saved.

- Via the checkbox **Show** you can decide if the selected transmission mode is to be displayed in the PC software or/and in the front display of the system. If you display too many entries, the selection of the transmission mode becomes very unclear for the user - especially when using the front display - therefore you should not display modes that are not required.
- Under **Name**, the name of the transmission mode is displayed. The length of the name must not exceed eight characters.
- With **Add** a new transmission mode can be created. After entering the name, the configuration dialogue (see PAGE 66) is displayed.

FIG. 40 ENTER A NAME



- The **Edit** button allows you to edit the selected transmission mode.

- With **Delete** you can delete a mode which is not required anymore. You have to confirm if you really want to delete the mode.
- To change the name of a transmission mode, you have to press the button **Rename**. The length of the name must not exceed eight characters.
- Via the function **Import** you can load a transmission mode from a data carrier.

NOTE

During the installation common transmission modes for a variety of Audio codecs from other manufacturers are saved in the directory

<Installation directory>\transmissionmodes

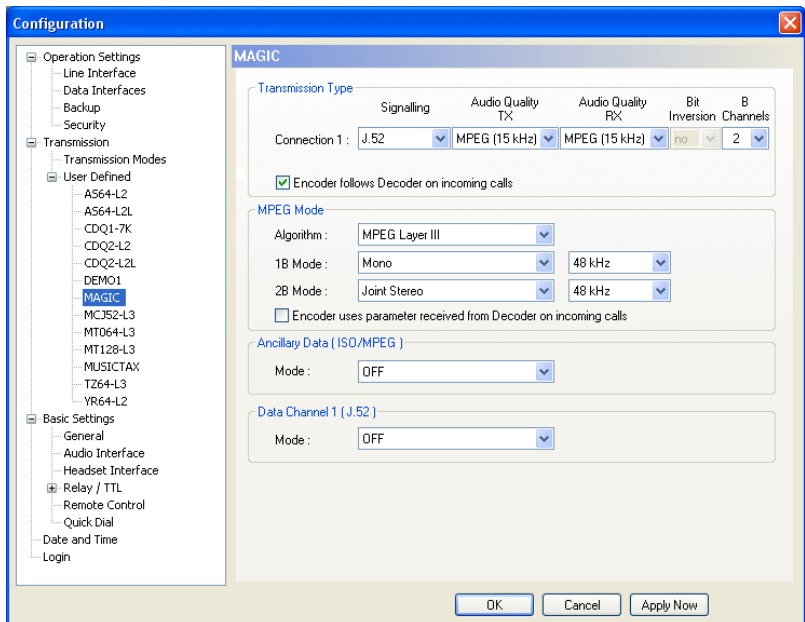
Further details concerning the transmission modes can be found in CHAPTER A2, Page 139.

Via the file browser you select the file which you want to import. Transmission mode files have the extension **.tmm**.

- With **Export** you can store individual modes on a data carrier. Via **Browse** you select the storage location.
- To store all modes on a data carrier, please use the function **Export All**. Afterwards select the desired target directory. Each mode is saved in a separate file.

If you create a new transmission mode or if you edit an existing one, the configuration dialogue is displayed.

FIG. 41 CONFIGURATION DIALOGUE USER DEFINED TRANSMISSION MODES



Transmission Type

First select the transmission type for **Connection 1**:

- Under **Signalling** the following procedures are available:

- **Telephone:** Normal telephone connection with 3,1-kHz band width in transmit and receive transmission.
- **J.52:** IUT-T Standard, which allows a so-called Capability Exchange¹ and a permanent delay compensation² when 2 B channels are used. Depending on the implementation, transparent data channels can be also transmitted. An unsymmetrical Audio transmission (e.g. MPEG with 2 B in transmit direction, 7-kHz in receive direction) is also possible. This procedure is supported by several manufacturers (e.g. MAYAH Centauri). For *MAGIC DC7/AC1* this procedure is set by default.
- **OFF:** No signalling is used. The encoded Audio data is transmitted without any further framing. With this way of signalling only one B channel can be used. The procedure is possible with almost every Audio codec on the market.
If **G.722 (7-kHz)** is selected as Audio quality (see below), the so-called *SRT* procedure (*Statistical Recovered Timing*) is used when no signalling is selected.
- **MusicTaxi:** This proprietary signalling is used by Audio codecs from the company Orban (former Dialog4) and has been also implemented by some other manufacturers for compatibility reasons. 2 B channels can be transmitted. The Audio transmission is symmetrical, i.e. the same coding algorithm must be used in transmit and receive direction.
- **CCS-L2:** A further proprietary signalling from the company Musicam USA (in Europa formerly CCS). The procedure supports only a symmetrical Audio transmission with ISO/MPEG Layer II with up to 2 B channels. Therefore, the fee-based option *ISO/MPEG Layer II Upgrade* (order number 450305) is required to use this signalling.
- Under **Audio Quality TX** you select the Audio quality for the transmit direction. Depending on the selected **Transmission Type** the following settings are available:
 - **G.722 (7-kHz)**
 - **MPEG (15-kHz)**
- The Audio quality in receive direction (**Audio Quality RX**) can only be selected for the transmission type **J.52**, since all other procedures only allow a symmetrical Audio transmission. The following options are available³:
 - **G.722 (7-kHz)**
 - **MPEG (15-kHz)**
- The setting **Bit Inversion** allows an inversion of the encoded Audio signal and is only available when **OFF** is selected as signalling type.

NOTE

If you defined only a 1B connection for **Connection 1**, you can define additionally a **Telephone** or **7-kHz (Auto)** connection for the second B channel. So you can establish connections with two different algorithms to two different partners at the same time.

¹ Capability Exchange: At the beginning of the connection, the systems exchange information about how many B channels are possible, which Audio coding algorithms and specific codec parameters are available etc. After this exchange, the best possible transmission mode is set automatically. However, you have also the possibility to force a certain procedure, e.g. when you only need a 7-kHz connection.

² B channels are routed separately in the ISDN network. When Audio signals are transmitted with 128-kbit/s, the two B channels have to be set together at the same time at the receiver which is done by delay compensation. This procedure is called Inverse Multiplexing. If B channels are routed in the network because of line errors during the connection, an Audio transmission with a static delay compensation, which was measured at the beginning of the connection, would not work any longer. J.52 adapts the delay compensation dynamically and is protected from delay variations.

- With the option **Encoder follows Decoder on incoming calls** you ensure that the Encoder always works with the same settings (such as e.g. Audio coding algorithm and sampling frequency) as the Decoder does.

TIP

Since some Audio Codecs only allow the same parameters in transmit and receive direction, this setting should be always enabled to guarantee maximum compatibility.

This setting only refers to incoming calls. If you establish a connection yourself, you can select different parameters for Encoder and Decoder if the called end supports the configuration.

MPEG Mode

Identical settings as under **Transmission Modes** → **MPEG Mode** (see PAGE 62).

Ancillary Data (ISO/MPEG)

Identical settings as under **Transmission Modes** → **Ancillary Data (ISO/MPEG)** (see PAGE 63).

Data Channel 1/2 (J.52)

Identical settings as under **Transmission Modes** → **Data Channel 1/2 (J.52)** (see PAGE 63).

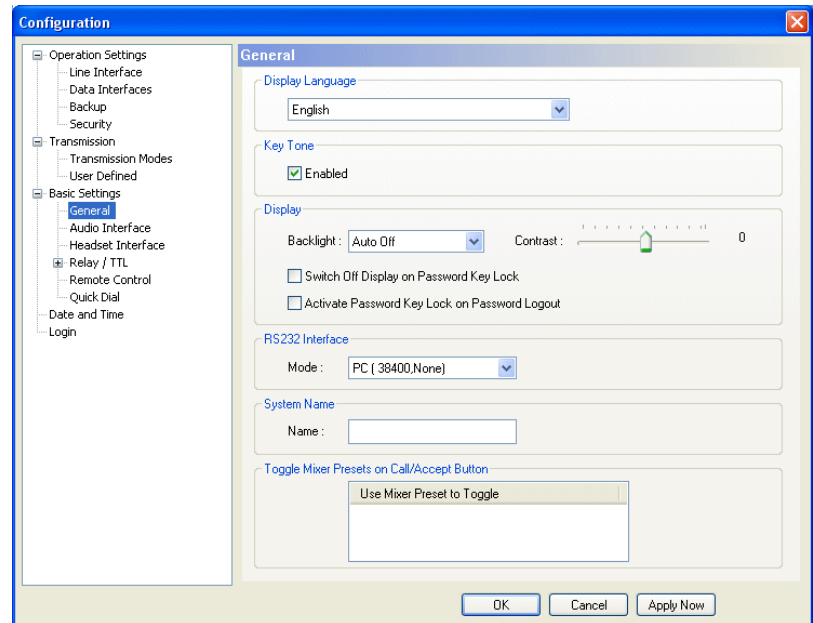
³ If you select G.722 (7-kHz), the system signals to the remote side that only a 7-kHz Decoder is available, also you have an MPEG Decoder with MAGIC AC1. In this way, the remote side is forced to encode with 7-kHz.

4.7.2.3 System Settings

NOTE All settings made under **System Settings** cannot be saved as **Preset** (see CHAPTER 4.7.3.3).

4.7.2.3.1 General

FIG. 42 GENERAL SETTINGS



Display Language

- Currently **English** and **German** are supported as display languages.

Key Tone

- To activate the key tone for the system, please select the check box **Enabled**.

Display

- The **Display** has a backlight. Under **Backlight** you can set it on permanently if you select **On**. If **Auto off** is selected, the backlight is automatically turned off **60** seconds after the last keystroke. The backlight can be activated again by pressing any key (e.g. **OK**).

NOTE

Please notice that if the key lock is enabled (see CHAPTER 5.1.1), the backlight is not activated before you press the key sequence **MENU ***.

- With the slide controller **Contrast** you can set the desired contrast for the display within the range of **-16 ... 15**. The default setting is 0.

NOTE

A user or administrator password must be entered under **Login** (see CHAPTER 4.7.2.5) to use the following functions.

- If the option **Switch Off Display on Password Key Lock** is selected, the display is automatically switched off after 60 seconds after logging out. Any key stroke activates the display. A dialling is possible.
- If the function **Activate Password Key Lock on Password Logout** is enabled, the key lock is automatically activated 60 seconds after logging out. Next to the clock a key symbol is displayed. In addition to the configuration lock by entering a password under **Login**, dialling via the numerical keypad is no longer possible.

RS232 Interface

If you want to operate the system with a PC or with a *MAGIC DC7/AC1 Keypad*, you need to configure the data rate of the interface. The following five baud rates are available: **PC & Keypad (9600, None)**, **PC (19200, None)**, **PC (38400, None)**, **PC (57600, None)**, **PC (115200, None)**. The default setting is **PC (38400, None)**.

NOTE


The *MAGIC DC7/AC1 Keypad* supports only a baud rate of 9600 Baud. Therefore, if you use the keypads, always select **PC & Keypad (9600, None)**. This baud rate can also be selected if a PC is used.

If a PC is connected via the RS232 interface, the selected baud rate must be identical with the baud rate of the COM interface. (see CHAPTER 4.7.1).

System Name

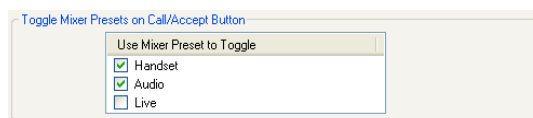
Under **System Name** you can enter a name for the system. The name is displayed in the headline of the PC software as well as in the optional software plug-in *MAGIC DC7/AC1 LAN* (see CHAPTER 9) which allows a simultaneous control of up to 10 systems.


Toggle Mixer Presets on Call/Accept Button

The function **Toggle Mixer Presets on Call/Accept Button** allows a fast switching between maximum three Mixer Presets by pressing the  button on the front key pad.

All already existing Mixer Presets are displayed in the list.

FIG. 43 SELECTION OF THE MIXER PRESETS



By activating the checkbox you select which Mixer Presets are loaded when the  button is pressed.

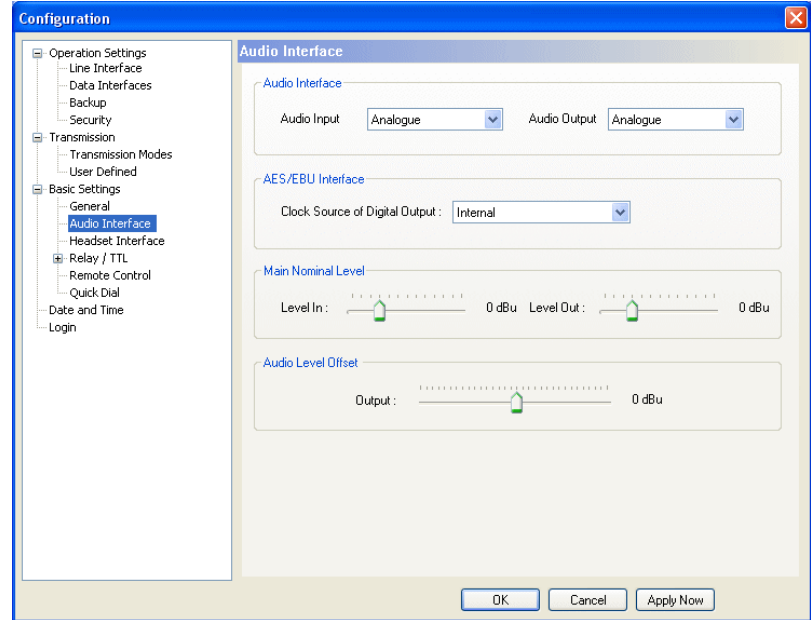
NOTE

Please consider also the function for the emulation of the 15-kHz/PKI 7-kHz ISDN Telephone (see CHAPTER 4.8.7).

4.7.2.3.2 Audio Interface

MAGIC DC7/AC1 supports analogue as well as optional digital AES/EBU-Audio interfaces (order number 430230). If the digital interface is used, separate Sample Rate Converters for input and output are available which supersedes external adjustments for different digital sources.

FIG. 44 CONFIGURATION OF THE AUDIO INTERFACES



Audio Interface

- The operating modes **analogue** or **digital** can be individually adjusted for the **Audio Input** and **the Audio Output**.

AES/EBU Interface

- If you select the option **digital** for the output, the configuration for the **AES/EBU Interface** is displayed. Under **Clock Source of digital output** the following settings are available:
 - **Internal:** The AES/EBU output clock is adapted to the internal system clock.
 - **External:** The AES/EBU output clock is adapted to the external clock which is supplied by the **Audio 2/CLK IN** interface. The clock frequency of the supplied clock needs to be 48-kHz.
 - **Recovered:** The AES/EBU output clock is recovered from the digital input signal of the **Audio 1/AES IN** interface. This configuration should be selected if you use the digital input of the system. In this way, a synchronous working of the transmission chain is ensured.

NOTE

An AES/EBU input always works with recovered clock. Therefore, only a configuration of the output is required.

For clock synchronisation with other systems, you can use the clock output **Audio 2/CLK OUT**. The clock frequency of the output clock is 48-kHz.

Main Nominal Level

- If you select the analogue mode for input or output, the corresponding slide controller is displayed to set the nominal Audio level of the XLR Audio interfaces (**Main Nominal Level**). The main nominal level can be adjusted separately for the input (**Level In**) and for the output (**Level Out**) within a range of **-3 ... +9 dBu** in steps of 1-dB. The headroom is **6 dB**. If you want to have the maximum level of 15 dBu for the system, you need to set 9 dBu as main nominal level. The default setting is 0 dBu.

Audio Level Offset

- Via the scroll bar **Audio Level Offset** you can adjust the Audio **Output** signal within the range of **-16 ... +15 dBu** digitally in 1-dB steps. The default setting is 0 dBu.

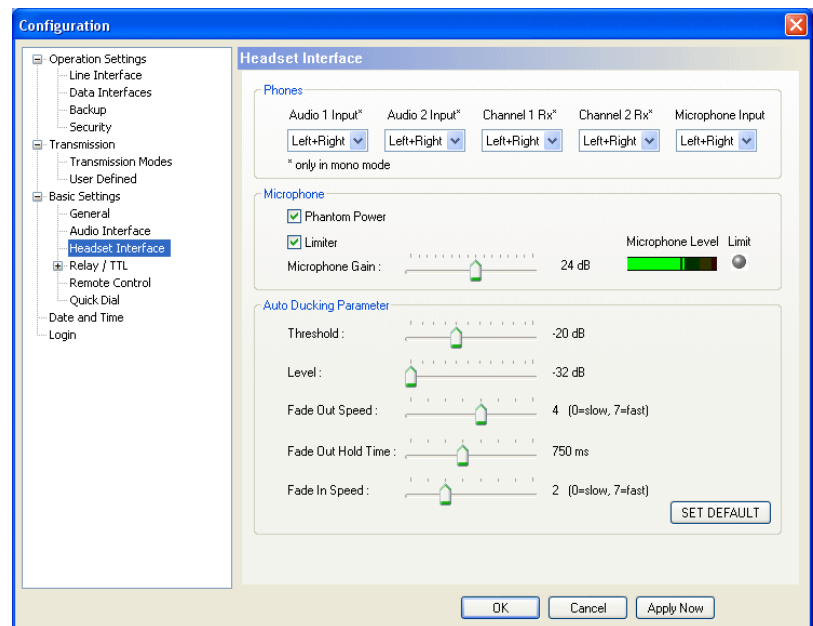
NOTE

Changing the **Audio Level Offset** is only seldom required if e.g. the signal of the remote side is always much too loud or much too low. Please note that if the Audio level Offset is increased, the headroom is decreased correspondingly.

4.7.2.3.3 Headset Interface

MAGIC DC7/AC1 provides a headset interface to connect a standard professional headset (e.g. beyerdynamic DT291 PV).

FIG. 45 CONFIGURATION OF THE HEADSET INTERFACE



Phones

Via the setting **Phones** you configure the Audio signal assignment of the headphones.

- For all available signal sources **Audio 1 Input**, **Audio 2 Input**, **Channel 1 Rx**, **Channel 2 Rx** and **Microphone Input** you can decide if you want to hear the signal - as soon as it is activated - either on both channels (**Left+Right**) of the phones or only on the **Left** or **Right** channel of the phones.

Reasonable application are Live reports of commentators or translations of interpreters: For example, the original signal of the speaker (e.g. via **Audio 1 Input** or **Channel 1 Rx**) is available on the left channel and the interpreter's own translated signal (e.g. via **Microphone Input**) is available on the right channel for checking purposes.

NOTE

The settings for the different signal sources apply only for transmissions in mono. During a stereo transmission, the left channel is always available on the left earphone and the right channel is always available on the right earphone. The microphone signal is generally only available in Mono.

Microphone

Under **Microphone** you configure the microphone input of the headset interface.

- If your microphone requires phantom power, you can activate it via the option **Phantom Power**. A voltage of 12V is applied to the microphone wires.

- To avoid an overdrive of the system, the microphone input has a switchable **Limiters**.
- Via **Microphone Gain** you can adapt the sensitivity of your microphone to the limiter. The gain can be set within the range of **0 ... +45 dB** in 1-dB steps. For a simple adaptation you should use the **Microphone Level**. When the setting is optimal, the **Limiters** LED should never be illuminated or only for a short time. The setting **Limiters** is not relevant for the level setting.

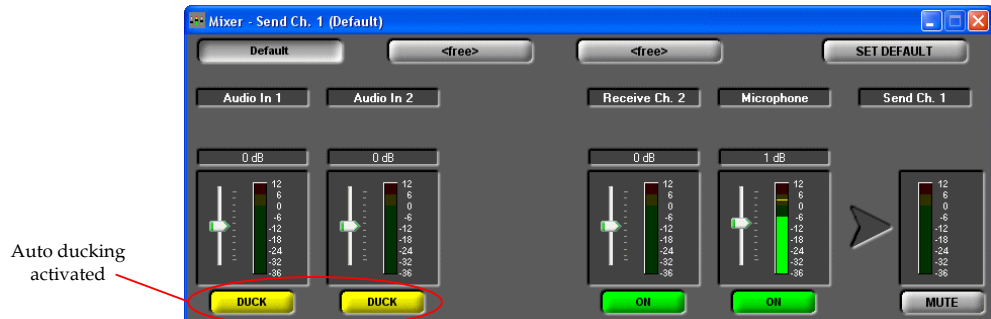
Auto Ducking Parameter

NOTE

This function is only available if the fee-based option **Mixer Tool Plug-In** (order number 430201) is enabled.

For the two Audio inputs, the Auto ducking function can be activated if the microphone is used. As soon as you talk into the microphone, the level of the Audio inputs is turned down automatically.

FIG. 46 ACTIVATED AUTO DUCKING IN THE AUDIO MIXER



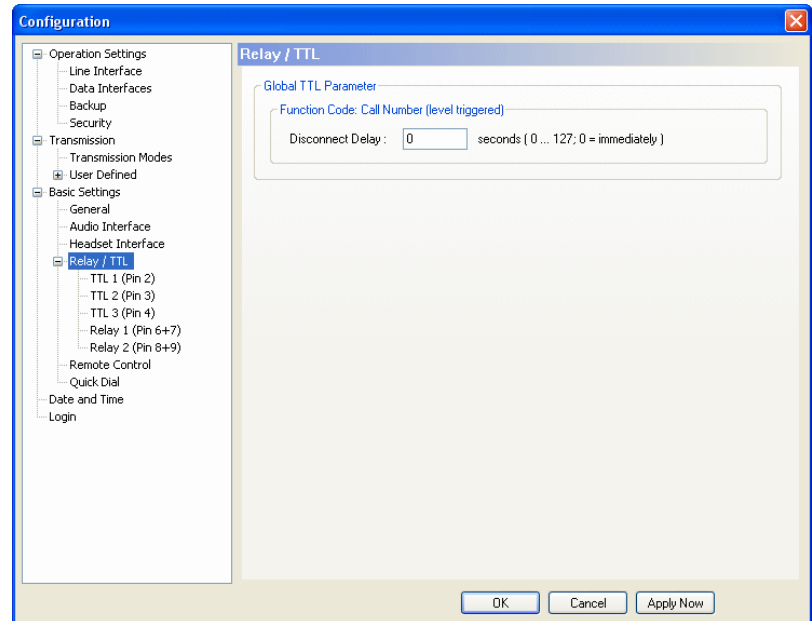
The following parameters can be changed to adjust the Auto ducking behaviour:

- **Threshold:** Via this setting you select the threshold value at which the reducing of the Audio input level starts. Available range: **-32... 0 dB** in 1-dB steps. Default setting: -20 dB.
- **Level:** This setting defines the level to which the Audio input level is to be reduced. Available range: **-32... 0 dB** in 1-dB steps. Default setting: -32 dB.
- **Fade Out Speed:** Here you select the speed with which the Audio input signal is turned down. Available range: **0 (slow) ... 7 (fast)**. Default setting: 4.
- **Fade Out Hold Time:** This value defines the minimum time during which the Audio input signal is faded out. If nobody talks into the microphone any longer, the signal is faded in again after the time you set here. Available range: **0 ... 1750 ms**. Default setting: 750 ms.
- **Fade In Speed:** Here you select the speed with which the Audio input signal is faded in. Available range: **0 (slow) ... 7 (fast)**. Default setting: 2.
- The button **Set Default** resets all parameters to the default settings.

4.7.2.3.4 Relay/TTL

The *MAGIC DC/AC1 System* has *three GPIO Pins* (TTL) which can be programmed individually as input or output. Additionally, two *relays* are available.

FIG. 47 GLOBAL SETTINGS



Under **Relay/TTL**, general parameters for the GPIO contacts can be configured.

Global TTL Parameter

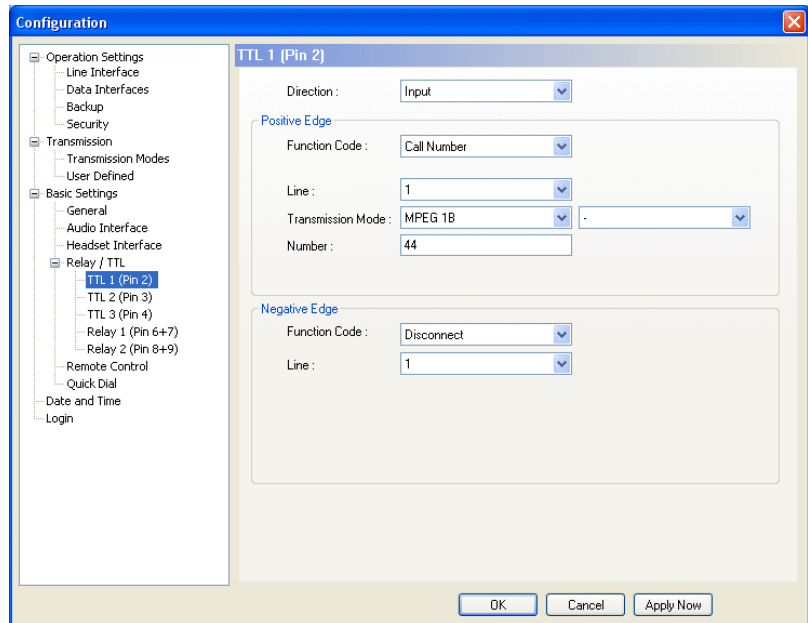
- For the function **Function Code: Call Number (level triggered)** (see PAGE 77) you can program a delay for the disconnection within the range of **0...127** seconds. If you select **0**, the connection is dropped immediately. This setting is helpful, e.g. if you realized an automatic dialling via VOX control. If nobody is speaking, the connection would be dropped immediately by default. If you have set a delay, short breaks in the speech/Audio signal do not result in an immediate disconnection.

The functionality of a TTL Pin - **Input** or **Output** - can be selected with the option **Direction**.

The following description applies to all three configuration windows **TTL1 (Pin 2)**, **TTL2 (Pin 3)** and **TTL3 (Pin 4)**.

TTL Pin as Input

FIG. 1 TTL PIN AS INPUT



If you use a TTL Pin as **Input**, you can program two different functions when the edges change:

- **Positive edge:** The event is triggered when the voltage at the TTL Pin changes from 0V to +5V.
- **Negative edge:** The event is triggered when the voltage at the TTL Pin changes from +5V to 0V.
- The following **Function Codes** are programmable:
 - - (Not used): No function, the PIN is not used. This option is to be selected for remote control via the function **Output** → **Remote TTL Input** (see PAGE 79).
 - **Call Number:** With this function you can establish a connection with a certain calling **Number**. With **Line** you select the line (**1** or **2**) on which the connection is to be established (only in the **ISDN** operating mode). Under **Transmission Mode** you select the desired mode for the transmission.

– **Call Number (level triggered):**

Same function as above, however, except that here the level is analyzed and not the edge.

TIP

With this function, you can configure an automatic redialling to ensure that the partner is automatically re-dialled if there is an unexpected disconnection. Please configure this function under **Positive edge**. Since the TTL Pin has a 5V level by default, a connection to the given number is established immediately.

Attention: This function can only be ended by setting the Pin to the 0V level or switching off this function via the configuration.

- **Disconnect:** By enabling this function a connection on the indicated line (**1** or **2**) can be disconnected.
- **Load Preset:** Via this function you can load a Preset which you must indicate under **Preset**.
- **Backup Alarm Signal:** With this function it is possible to feed in an external TTL alarm signal whereby an ISDN backup (see CHAPTER4.7.2.1.4, Page 55) is established.
- **Backup Disable:** Via this external control signal you can avoid that an ISDN backup is established although the **Backup Alarm Signal** is active (see CHAPTER4.7.2.1.4, Page 55).
- **Set Information Base Entry:** Spezial function for projects.
- **String Command:** Spezial function for projects.

Example:

With **TTL1** a call is to be accepted on line 1. The system is to be configured automatically to the **MPEG 1B** Mode. After the conversation is over, the connection is to be dropped also with **TTL1**.

Programming:

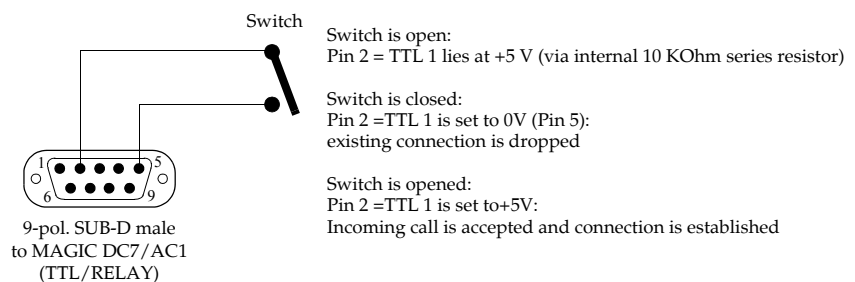
Positive egde:

Function Code: Call Number
Line: 1
Transmission Mode: MPEG 1B
Phone Number: -

Negative egde:

Function Code: Disconnect
Line: 1

FIG. 49 FUNCTION SEQUENCE OF THE EXAMPLE



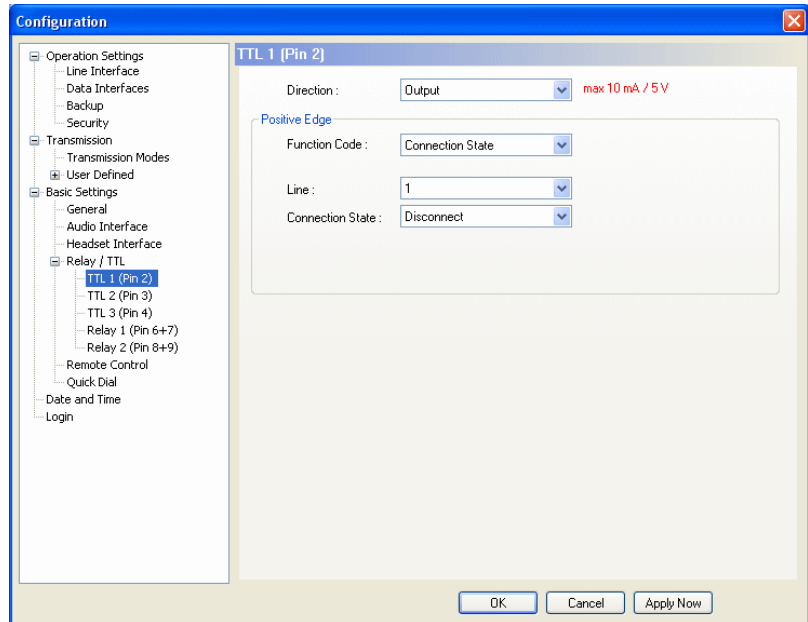
TTL Pin as Output

ATTENTION



Please note that the maximum switching current is 10 mA and the maximum switching voltage is 5V per TTL output.

FIG. 50 TTL-PIN AS OUTPUT



If an TTL Pin is configured as an **Output**, the event is signalled when the voltage at the TTL Pin changes from 0V to +5V.

Under **Positive edge** you can select the following **Function Codes**:

- **Fixed Low (0V)**: The TTL Pin is fixed to 0V.
- **Fixed High (5V)**: The TTL Pin is fixed to +5V.
- **PC Controlled**: Special function for projects.
- **Connection State**: Via this function you can signal the connection state of a line. Please select the desired connection state under **Connection State**. The following options are available:
 - **Disconnect**
 - **Call Out**
 - **Call In**
 - **Connect**
 - **Call Setup**

Under **Line** (only in the operation mode **ISDN**) you can select the line which connection state you want to signal. Besides line **1** and line **2** you can monitor the connection status of both lines if you select **All**. As soon as one of the two lines meets the criteria, the signal is triggered at the TTL Pin.

- **Information Base Entry**: Special function for projects.

- **System Alarm Pending:** This function signals a pending system alarm (see CHAPTER 4.9.1).
- **Remote TTL Input:** If this function is selected, you can signal the TTL status of the selected **Remote TTL input** Pin (**1, 2, 3**) of the remote system. In this way remote systems can be controlled remotely or information about the hardware status can be transmitted. On the remote side the function **Input → -** (not used) must be programmed for the corresponding TTL Pin to enable remote control. If the TTL Pin of the remote side is configured as output, the status of the Pin is transmitted.
- **Inverted Remote TTL Input:** Same function as above, except that here the inverted signal is transmitted.
- **Remote PC Controlled:** Special function for projects.
- **MPEG Decoder synced:** If the ISO/MPEG Audio decoder is synchronized, the TTL Pin is set.
- **Backup Established:** If you activated the backup function of the system (see CHAPTER4.7.2.1.4, Page 55), you can signal the backup status (Backup established yes/no) via this function.
- **Backup Error:** If you activated the backup function of the system (see CHAPTER4.7.2.1.4, Page 55) and the backup could not be established for some reason, the TTL Pin is set. The Pin is also set when the **Backup Test** failed (see PAGE 57).

Relay

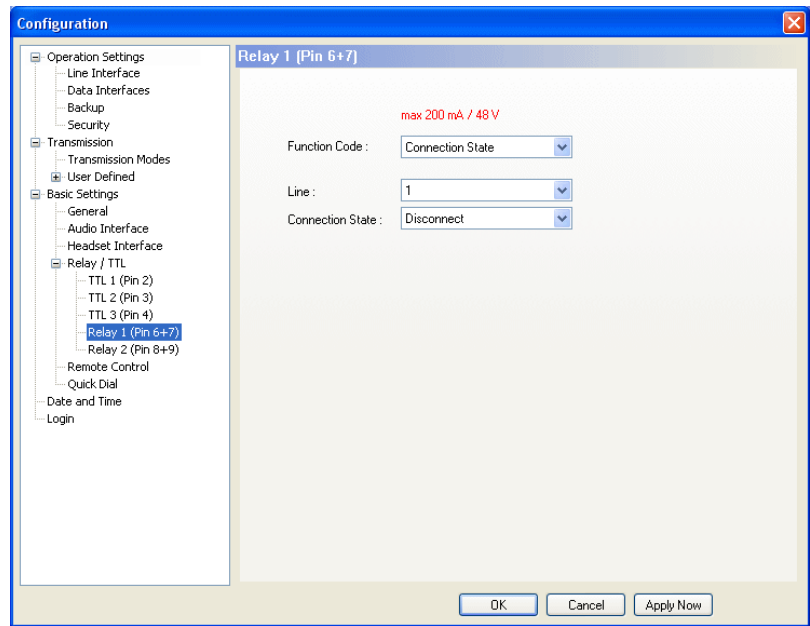
ATTENTION



Please note the maximum switching current is 200 mA and the maximum switching voltage is 48V per relay output.

The following description is valid for both configuration windows **Relay 1 (Pin 6+7)** and **Relay 2 (Pin 8+9)**.

FIG. 51 RELAY



The functions for programming the relays are identical with the function codes for the TTL output. The following options (**Function Code**) are available:

- **Always open:** The relay contacts are always open.
- **Always closed:** The relay contacts are always closed.

All further function codes are explained under **TT Pin as Output** (Page 78).

4.7.2.3.5 Remote Control

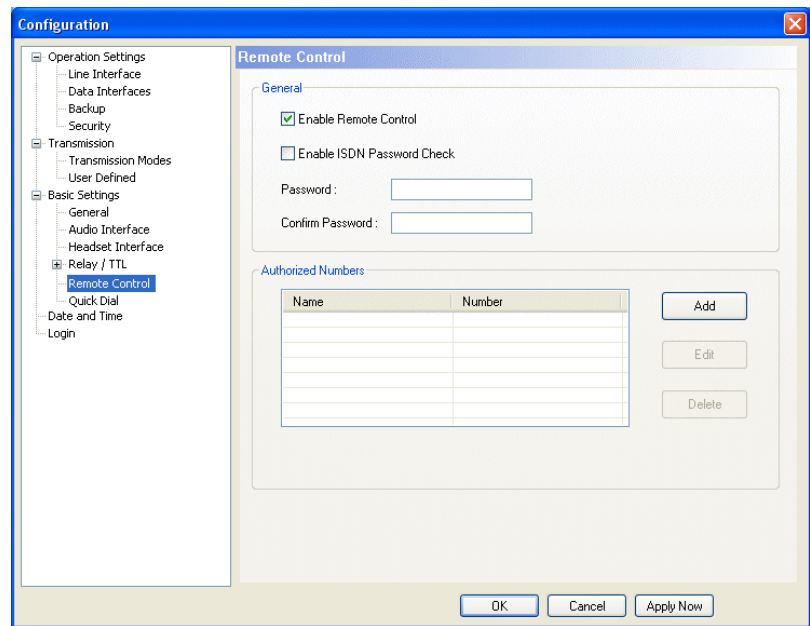
General

To allow remote control for the system (see CHAPTER8, Page 127), you must activate the function **Enable Remote Control**.

ATTENTION

Without any further security measures, anybody who knows the calling number of the system and has the fee-based *Option: Remote Control Software & ISDN Monitor Plug-In* can control the system remotely. Therefore, please activate the security system described below at any rate.

FIG. 52 REMOTE CONTROL



By assigning a password, the caller needs to authorise himself first before can control the system remotely. The password check can be done in two different ways:

- If the option **Enable ISDN Password Check** is activated, the password check is done in the D channel (signalling channel) of the ISDN connection. If the password does not matches, the caller is rejected immediately without establishing a connection¹. If the password check is successful, the call is accepted automatically, even if the automatic answer of calls is **not** enabled (see Page 47, **Enable Auto Answer**).

NOTE

The password check in the D channel is only available if the feature **sub addressing** is enabled for the ISDN connection.

- If this function is not supported by the ISDN connection, the password check is not done before the connection has been established. A call to a system which is to be controlled remotely **must be accepted manually**, if the automatic answer of calls is not activated (see Page 47, **Enable Auto Answer**).

¹ In this case, the caller does not have to pay any connection charges.

The password has to be entered under **Password** and confirmed by retyping it under **Confirm Password**.

Authorized Numbers

Via the function **Authorized Numbers** a remote control access protection can be realized. Only persons whose number is entered in the list can control the system remotely. Please enter **Name** and calling **Number** for each list entry.

NOTE

Please consider that only numerical characters which are actually entered are analysed, i.e. if you only enter „130“, all participants with a calling number which ends with „130“ are allowed to call the system.

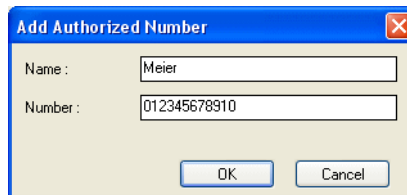
The total character length of all entered telephone numbers must not be higher than 127. With an average length of a telephone number of 12 characters about 10 calling numbers can be saved.

For this functionality the calling number of the participants in the list needs to be transmitted (CLIP^a function).

^a Calling Line Identification Presentation

- With **Add** you can add a new entry.

FIG. 53 ADDING AN ENTRY

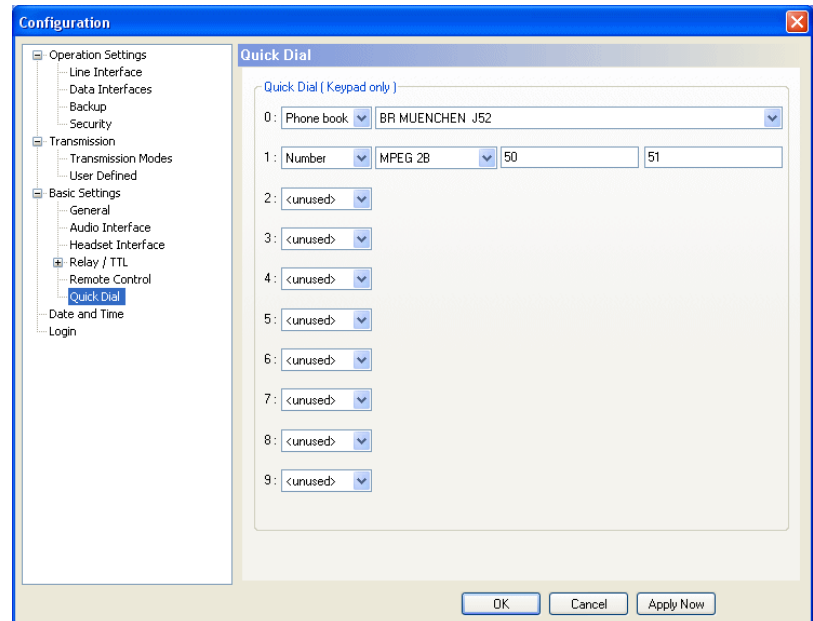


- The button **Edit** allows to edit an already existing entry.
- With **Delete** an entry can be deleted. For safety reasons you must confirm that you really want to delete the entry.

4.7.2.3.6 Quick Dial

The system allows you to call directly up to ten partners via the numerical keys 0 ... 9 of the front display. The quick dial keys can be programmed via the menu **Quick Dial**.

FIG. 54 QUICK DIAL



Please assign an already existing **Phone Book** to a key or define a new **Number** with a selected **Transmission Mode** (see CHAPTER4.7.2.2.1, Page 61).

NOTE

The quick dial functionality can only be used on the system. The PC software has no quick dial keys.

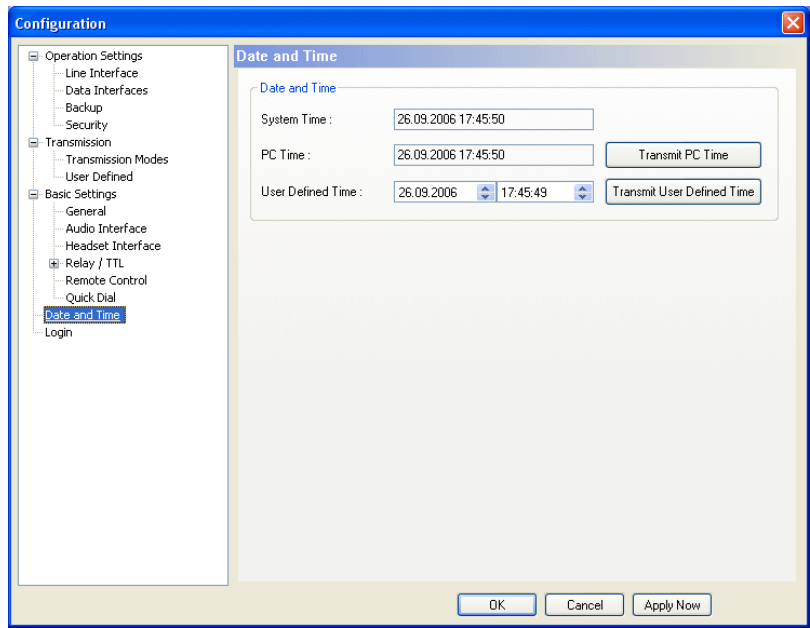
4.7.2.4 Date and Time

Via the dialogue **Date and Time** you can programm the system date and time.

Via the button **Transmit PC Time** you can synchronise the system time with the PC time.

The button **Transmit User Defined Time** allows you to set a different time. This function is helpful, if you want to use the system later on e.g in a different time zone.

FIG. 55 DATE AND TIME



ATTENTION



During a power breakdown the integrated system clock is buffered by an internal battery^a. The life time of a battery is typical ca. 7 years. The replacement should only be done by the AVT Service.

^a Type: 3V Lithium Battery Renata CR1220

4.7.2.5 Login

To protect the system from reconfiguration, two password levels with different user rights are available.

ATTENTION



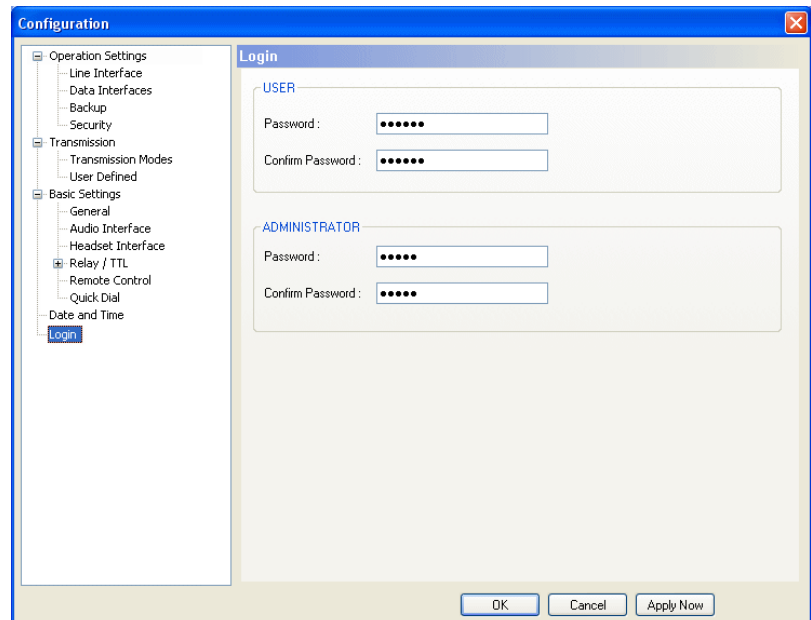
The entered passwords are stored in the system. Take care in entering a password. If you forget your password, the system can only be unlocked by the AVT Service.

- Under **USER** you can assign the User **Password**. For safety reasons the password needs to be confirmed under **Confirm Password**.
- Under **ADMINISTRATOR** you can assign the Administrator **Password**. For safety reasons the password needs to be confirmed under **Confirm-Password**.

NOTE

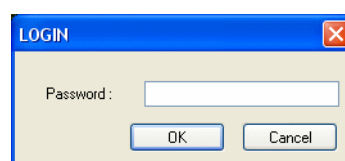
It is not differentiated between upper and lower case when a password is entered.

FIG. 56 LOGIN



As soon as you assigned a password, a login window is automatically displayed when you click on a menu which is protected by a password. Please enter the user or the administrator password.

FIG. 57 PASSWORD-LOGIN



The user and administrator rights are allocated in the following way:

- (1) Only **Administrator Password** configured: Password is required for changes in the configuration. Immediately available menus:
 - **Configuration** → **Presets** → „**Preset Name**“
 - **Extras** → **System Monitor**
- (2) Only **User-Password** configured: The password is always required. After the password has been entered, all menus are available. Immediately available menus:
 - **Extras** → **System Monitor**
- (3) **User and Administrator Password** configured: A password is always required.
 - **User Password** is entered:

Under **Configuration** → **Configuration** → **Login** only the **USER-Password** can be changed.

With **Configuration** → **Presets** the desired preset can be loaded.

Immediately available menus:

 - **Extras** → **System Monitor**

Administrator Password is entered: All menus are available.

NOTE

Please notice also the effect on the possibilities for configuration, if a password is assigned (see CHAPTER A1).

4.7.3 Submenu Presets

Via **Presets** you can save, load and edit configuration presets.

4.7.3.1 Save as ...

Via the option **Save as ...**, the current configuration can be saved as **Preset** under any name (max. 8 characters). Special characters and space characters are **not** allowed. Please make sure that you use clear-cut names, otherwise an error message is displayed asking you if you want to overwrite the already existing preset.

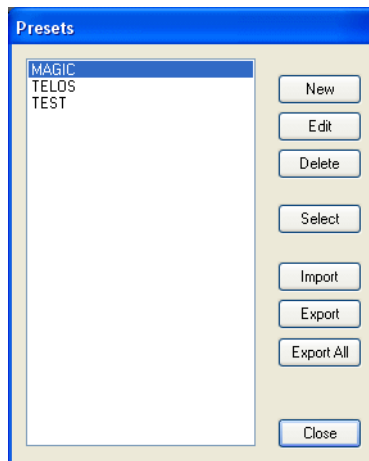
FIG. 58 SAVE PRESET



4.7.3.2 Manage Presets

You can manage your created **Presets** via the menu **Configuration** → **Presets** → **Manage Presets**.

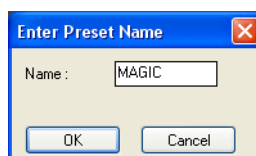
FIG. 59 MANAGE PRESETS



In the list, all already created configuration presets (operation mode) are displayed.

With the **New** button, a new configuration can be created. The current configuration of the system is not changed or loaded. First enter a reasonable name.

FIG. 60 CREATE A NEW PRESET



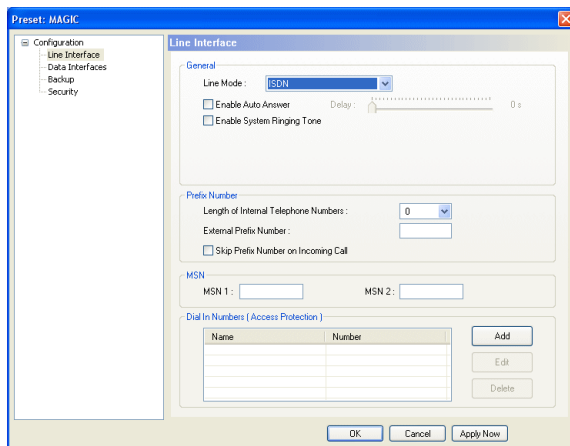
NOTE

The length of the name must not exceed 8 characters. Special characters and space characters are **not** allowed. Please make sure that you use clear-cut names, otherwise an error message is displayed asking you if you want to overwrite the already existing preset.

Now, the configuration dialogue is opened to edit the **Presets**. The current configuration is always displayed as basis of the **Presets**, which can be adapted according to your requirements. The following settings can be saved in a Preset:

- Line Interface (see PAGE 44)
- SIP Parameters (see PAGE 53)
- Backup (see PAGE 55)
- Security (see PAGE 59)
- Display of the bit rates in the main window (see PAGE 64)

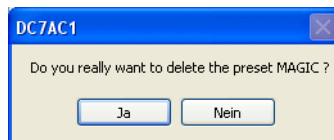
FIG. 61 EDIT PRESET



The **Edit** button allows you to edit the configuration which is currently selected in the list. The current configuration of the system is not changed or loaded.

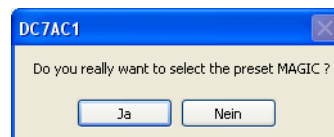
With the **Delete** button you can delete the configuration which is currently selected. A confirmation is required.

FIG. 62 CONFIRMATION TO DELETE A PRESET



To activate a confirmation selected from the list, please press the **Select** button. For safety reasons a confirmation is required.

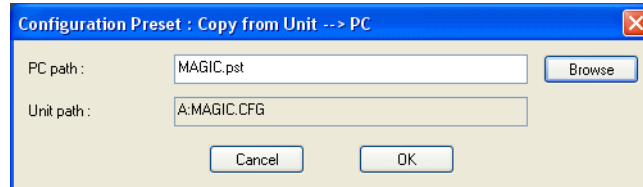
FIG. 63 CONFIRMATION TO ACTIVATE A PRESET



The **Import** button allows you to import a configuration preset from a data carrier (disk, USB stick etc.). The file extension of a preset file is always **.pst**. After clicking on the Import button, the file browser is displayed via which the desired file can be selected.

It is also possible to export configurations to a data carrier. The **Export** button saves the configuration preset selected from the list as **.pst** file. After clicking on the Export button, the file browser is displayed via which the desired storage location can be selected with **Browse**.

FIG. 64 EXPORT A PRESET



With **Export All** you can save all configurations displayed in the list in a direction of your choice. For each configuration an individual file with the extension **.pst** is generated.

TIP

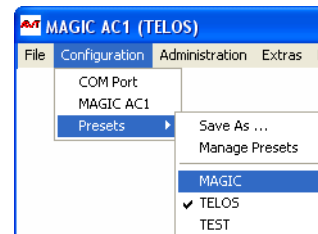
If you have to configure several systems in the same way, please save the complete system configuration with **File → Complete System Configuration → Export** (see CHAPTER 4.6.4). Please note that the telephone book is not saved with the configuration.

4.7.3.3

Activate a Preset

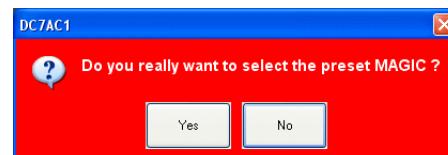
All presets are displayed under **Configuration → Presets → „Preset Name“** and can be activated by simply clicking on them.

FIG. 65 ACTIVATE A PRESET



For safety reasons a confirmation is required.

FIG. 66 CONFIRMATION TO ACTIVATE A PRESET

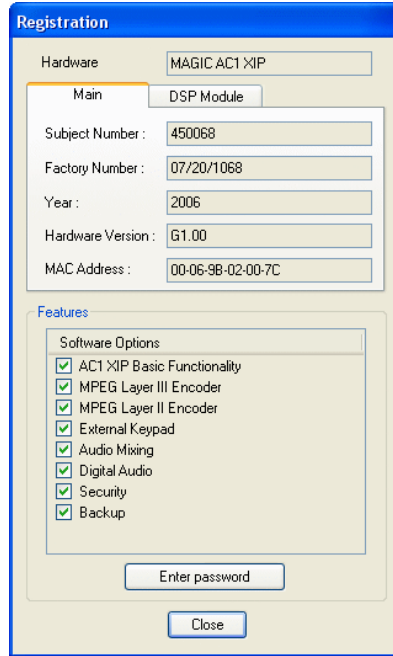


4.8 Menu Administration

4.8.1 Submenu Registration

Via the submenu **Registration** you can check the activated Firmware options.

FIG. 67 REGISTRATION



Under **Hardware** the system type (here: **MAGIC AC1 XIP**) is displayed. On the tab **Main** all relevant features for identification like **Subject Number**, **Factory Number**, **Year**, **Hardware Version** as well as the **MAC Address** are displayed.

Under the **DSP Module** tab you find the identification features for the DSP module (only **MAGIC AC1 XIP**).

Under **Features** all available software options are listed.

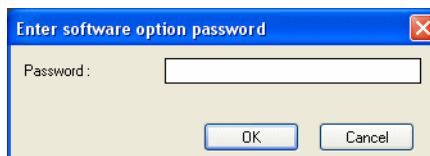
Upgrade of Firmware Options

NOTE

We need the serial number (**Factory Number**) of the system for an upgrade. Please read out the serial number **always** from the **Registration**, since the serial number on the system label could be different.

To activate further **Firmware options** later, please enter the password, which you received from us, in the dialogue which opens when you click on the button **Enter Password**.

FIG. 68 PASSWORD ENTRY



4.8.2 Submenu USB Dongle Information

NOTE

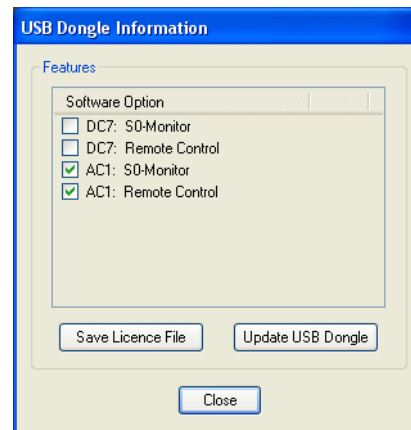
The submenu **USB Dongle Information** is only displayed if the USB dongle for fee-based options is connected to the PC.

In the window **USB Dongle Information** you see the PC software options which are enabled for your system.

NOTE

Please consider that we differentiate between PC software options (e.g. S₀ monitor) and Firmware options (e.g. Mixer Tools).

FIG. 69 USB DONGLE INFORMATION



Upgrade for PC Software Options

If you want to activate further **PC options** later, please press the button **Save Licence File**, whereby the current licence is stored in a file.

The standard name is **LicenceInfo.c2v**, the storage location can be chosen by yourself.

With the file **LicenceInfo.c2v** - which you send us e.g. per email to **support@avt-nbg.de** - we can activate the upgrade.

Afterwards, we send you the file **LicenceUpdate.v2c**, which you can load to your system by clicking on the **Update USB Dongle** button.

After checking successfully the new function is available.

NOTE

In Fig. 69 you can see that in a USB dongle several system versions can be managed. For example, if you want to control **MAGIC DC7 and MAGIC AC1** systems remotely, it is possible with **one** USB dongle, if the options are activated for it.

4.8.3 Submenu Remote Control

NOTE

The submenu **Remote Control** is only available, if you have the fee-based *Option: Remote Control Software & ISDN Monitor Plug-In* (see CHAPTER 8) is enabled and the USB dongle is plugged in.

Further details concerning the functions **Remote Control** can be found under CHAPTER 8.1, Page 127.

4.8.4 Submenu File System

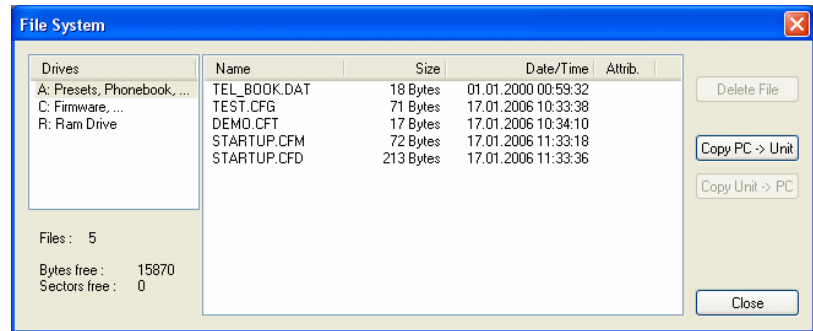
By selecting the submenu **File System** the file directory of the system (similar to the harddisk of a PC) is displayed.

ATTENTION



Please do not carry out any actions under **File System** unless our support asked you to. All user import/export functions can be found under the menu **File** (see CHAPTER 4.6).

FIG. 70 SUBMENU FILE SYSTEM



Via the button **Delete File** the currently selected file is deleted from the system.

ATTENTION



Do not delete a file unless our service told you to delete the file. Otherwise a malfunction of the system can occur.

The button **Copy PC -> Unit** allows you to copy a file from a PC to the system.

ATTENTION



Please use only the function **Firmware Download** (see CHAPTER 4.8.6) respectively the import functions in the menu **File** (see CHAPTER 4.6) to copy files to the system.

The button **Copy Unit -> PC** allows you to copy a file from the system to the connected PC.

ATTENTION

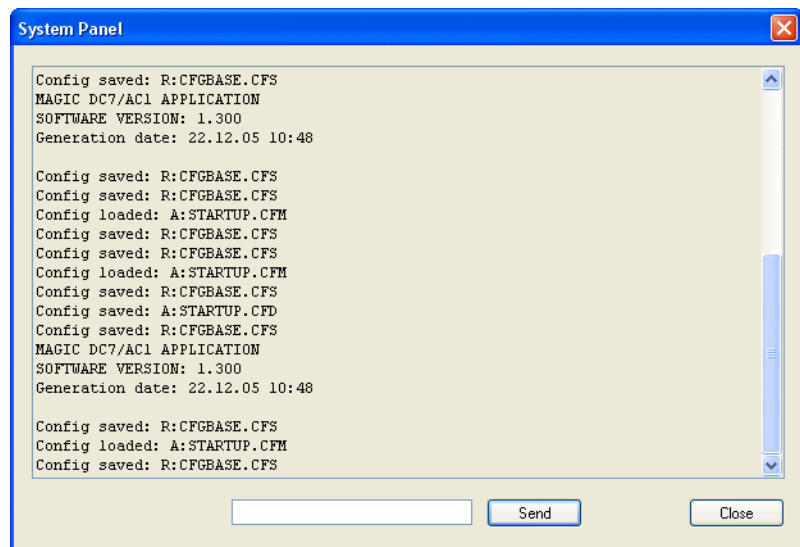


Please use only the export functions under the menu **File** (see CHAPTER 4.6) to copy files to a PC.

4.8.5 Submenu System Panel

The **System Panel** is only for service purposes. Please only enter commands in the prompt, if our support ask you to do so.

FIG. 71 SUBMENU SYSTEM PANEL



4.8.6 Submenu Firmware Download

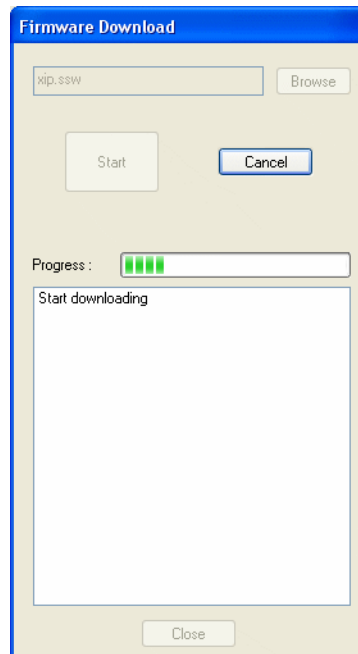
The firmware required for the *MAGIC DC7/AC1 XIP* system is always included in the PC software. Via the **Firmware Download** the firmware can be comfortably loaded on the system.

With the **Browse** button you select the firmware file. The file is always stored in the directory in which you installed the *MAGIC DC7/AC1 XIP* application. The standard installation directory is:

C:\Programme\MAGIC DC7, AC1 & AC1 XIP

The name of the firmware file is „*xip.ssw*“.

FIG. 72 FIRMWARE DOWNLOAD



Please press the **Start** button to load the firmware on your system. The **Progress** bar shows the status of the download. After about three minutes the download will be finished. If the download had been successful, a message is displayed. After a confirmation the system executes a reset.

NOTE

If a download had been faulty, you can simply switch off the unit and then switch it on again. The new software is only written in the flash memory, if a download had been successful. Otherwise the old firmware is maintained.

Submenu Create 15-kHz Telephone Mixer Presets

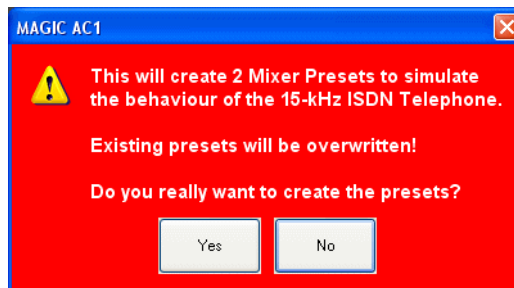
The function **Create 15-kHz Telephone Mixer Presets** allows you to work with the *MAGIC DC7/AC1 XIP* almost as with the *15-kHz ISDN Telephone* respectively, the old *PKI 7-kHz ISDN Telephone*. These systems offered a simple switching between the handset and the Audio interface with only one key-stroke. First the user could talk to his partner via the telephone handset and then start an external Audio transmission by pressing the Audio button at the telephone.

This functionality is also offered, if two Mixer presets (see CHAPTER, Page 34) are created. One preset is used to switch to a handset or headset and a second preset is used to switch to the Audio inputs/outputs. The presets can be adjusted according to your requirements later on.

First, please create the two presets by selecting the submenu **Create 15-kHz Telephone Mixer Presets**.

Since already existing mixer presets are overwritten by this action, a warning is displayed.

FIG. 73 WARNING WHEN MIXER PRESETS ARE CREATED



If you agree to create the presets (**YES**), the mixer presets **Handset** and **Audio** are created.

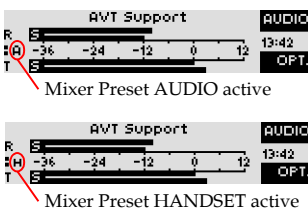
TIP

The settings of both mixer presets can be controlled and changed via the submenu **Extras** → **Audio Mixer**.

The switching between the two mixer presets during a connection is made by pressing the **↵** button.

Please assign the two mixer presets to the **↵** button by clicking on them (**Handset** and **Audio**) under **Configuration** → **MAGIC AC1 XIP (MAGIC DC7)** → **System Settings** → **General** → **Toggle Mixer Presets on Call/Accept Button**.

In the front display of the system, the first character of the currently activated mixer preset is displayed.



NOTE

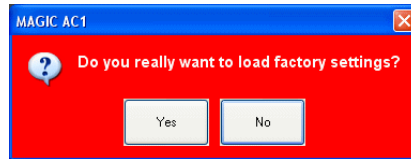
Please note that depending on the microphone you use, in certain cases you must activate the phantom power and the limiter via **Configuration** → **MAGIC AC1 XIP (MAGIC DC7)** → **System Settings** → **Headset Interface** (see CHAPTER 4.7.2.3.3).

4.8.8 Submenu Set Factory Settings

Via the submenu **Factory Settings** all settings are reset to the factory settings.

For safety reasons a confirmation is required.

FIG. 74 CONFIRMATION TO SET FACTORY SETTINGS



NOTE

The telephone book, presets, transmission modes and mixer settings are not deleted.

4.9

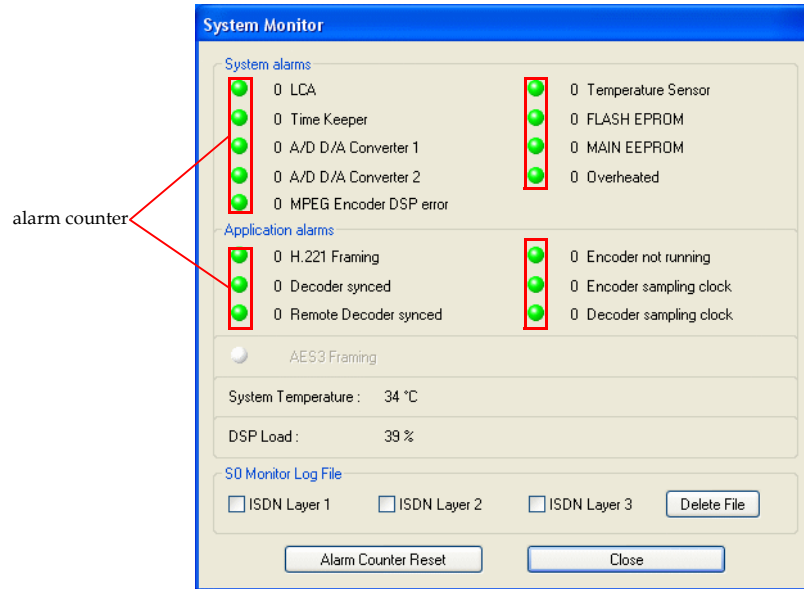
Menu Extras

4.9.1

Submenu System Monitor

Via the menu **System Monitor** you receive all information about the status of the system.

FIG. 75 SUBMENU SYSTEM MONITOR



- Under **System alarms** all possible system alarms are displayed. A red LED signals a currently existing alarm. It is also displayed how often the alarm occurred since the unit has been switched on. You can reset the alarm counter by pressing the **Alarm Counter Reset** button.

NOTE

If an alarm occurs several times or for a longer period of time, please disconnect the system from electricity. If you switch on the unit and the alarm occurs again, there is probably a hardware defect.

The following alarms are signalled:

- **LCA (Logic Cell Array):** The communication with a programmed component is faulty.
- **TIME KEEPER:** The communication with the integrated time keeper is faulty.
- **A/D D/A Converter 1:** The communication with the first AD/DA converter is faulty.
- **A/D D/A Converter 2:** The communication with the second AD/DA converter is faulty.
- **MPEG Encoder DSP error:** The communication with the DSP module is faulty (only *MAGIC ACT*).
- **Temperature Sensor:** The communication with the temperature sensor is faulty.
- **FLASH EPROM:** The communication with the non-volatile memory is faulty. Settings cannot be stored or read.
- **MAIN EEPROM:** The communication with the non-volatile memory is faulty. Settings cannot be stored or read.

- **Overheated:** The system sets this alarm, if the system temperature is higher than 57°C. Please disconnect the system from electricity or cool down the ambient air temperature.

TIP

You can also configure a system alarm as relay output (see PAGE 75).

- Under **Application alarms** all possible application alarms are displayed. A red LED signals a currently existing alarm. It is also displayed how often the alarm occurs since the unit has been switched on. You can reset the alarm counter by pressing the **Alarm Counter Reset** button .
 - **H.221 Framing:** If the ITU-T J.52 inband signalling is used, faulty H.221 frames are displayed and filed.
 - **Decoder synced:** This alarm occurs if the local decoder is not synchronized.
 - **Remote Decoder synced:** This alarm signals that the remote decoder is not synchronized. It is only analysed if the ITU-T J.52 signalling is used between **MAGIC** Audio codecs.
 - **Encoder not running:** This alarm occurs, if the communication with the DSP module is faulty.
 - **Encoder sampling clock:** This alarm is currently not analyzed.
 - **Decoder sampling clock:** This alarm occurs when in the ISO/MPEG data stream a sampling frequency of 44,1-kHz is signaled. This sampling frequency cannot be decoded by the **MAGIC AC1 XIP**.
 - If the optional, digital Audio input is selected, but no digital Audio signal is connected to **AUDIO1/AES/LEFT IN**, the **AES3 Framing** alarm occurs.
 - The actual system temperature can be found under **System Temperature**. The temperature is measured in °C. A normal system temperature lies around 30...40°C.
 - Under **DSP Load** the load of the system is displayed. A normal DSP load is 30...60%.
- Under **System Logfile** a detailed ISDN logfile can be generated.
 - **ISDN Layer 1:** Physical Layer: All messages which concern the physical activation/deactivation of the ISDN interface are saved in Layer 1.
 - **ISDN Layer 2:** Data Link Layer: The data link layer is responsible for packing the data from the physical layer into frames. It can detect and/or correct errors and manages the data flow between nodes. This layer is only to be activated for logging if problems are supposed to occur. Please notice that if it is activated every 8 seconds an entry is generated and therefore the memory is filled very fast.
 - **ISDN Layer 3:** Network Layer: The network router handles the routing of the data (sending it in the right direction to the right destination on outgoing transmission and receiving incoming transmissions at the packet level). For the logfile, this layer is the most important one since all connection data is recorded here.
 - The logfile can be deleted by pressing the **Delete File** button. For safety reasons a confirmation is required.

The system stores all messages of the activated **ISDN Layer**. The internal memory capacity is 128-kByte¹. The data is stored in a cyclic way.

NOTE

The data can be analyzed with the *Option: Remote Control Software & ISDN Monitor Plug-In* (see CHAPTER 8.2, Page 130). Our support is also able to read the data remotely. If you experience problems with your ISDN connection, please activate the desired ISDN layer of the system logfiles enabling us to analyze them.

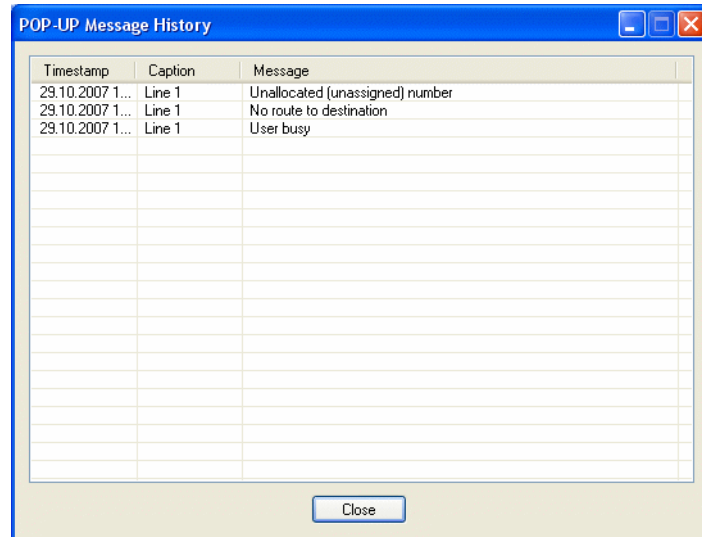
¹ An entry in the ISDN protocol is about 15-Byte on average.

4.9.2 POP-UP Message History

All error messages, which are displayed as so called POP windows, can be displayed via the submenu **POP-UP Message History**.

Here, every **Message** since the program started is shown. The column **Timestamp** shows the time when the error occurred. In the column **Caption** you can find information about where the error occurred (here e.g. Line 1)

FIG. 76 SUBMENU POP-UP MESSAGE HISTORY

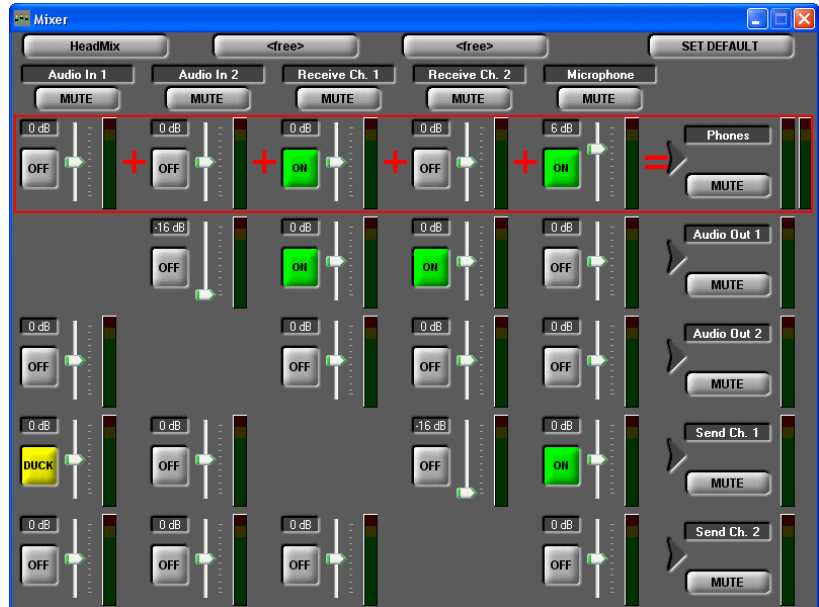


4.9.3 Submenu Audio Mixer

Via **Extras** → **Audio Mixer** you can display an overview of the Audio mixer settings. The settings are displayed as matrix. All Audio sources in one line which are marked with **ON** are mixed to the desired Audio output equipment.

For each source the Audio level can be adjusted individually within the range of **-16...+16 dB**.

FIG. 77 AUDIO MIXER - GENERAL OVERVIEW



The **MUTE** function is available for each Audio source and each Audio output device separately.

Likewise, all **Mixer Presets** can be selected and controlled.

With the **SET DEFAULT** button the mixer is reset to the default settings:

- all levels to 0-dB
- Receive Channel 1 → Audio Out 1
- Receive Channel 2 → Audio Out 2
- Audio In 1 → Send Channel 1
- Audio In 2 → Send Channel 2

4.9.4 Relay/TTL Control Flag

Via the submenu **Relay/TTL Control Flag** you can control a relay or TTL output with the PC software. The subselection **Local** controls the output of your system, with **Remote** you can control the output of the remote station.

NOTE

The function **Remote** is only available between **AVT MAGIC DC7/AC1 XIP** systems and only, if you use **J.52** as transmission mode.

For using this function the following settings are required:

First, select the panel to configure the relay respectively the ZTTL contacts with **Configuration** → **MAGIC AC1 XIP (MAGIC DC7)** → **Operation Settings** → **Relay/TTL**. Select the the desired pin **TTL 1..6** respectively the desired **Relay 1/2**.

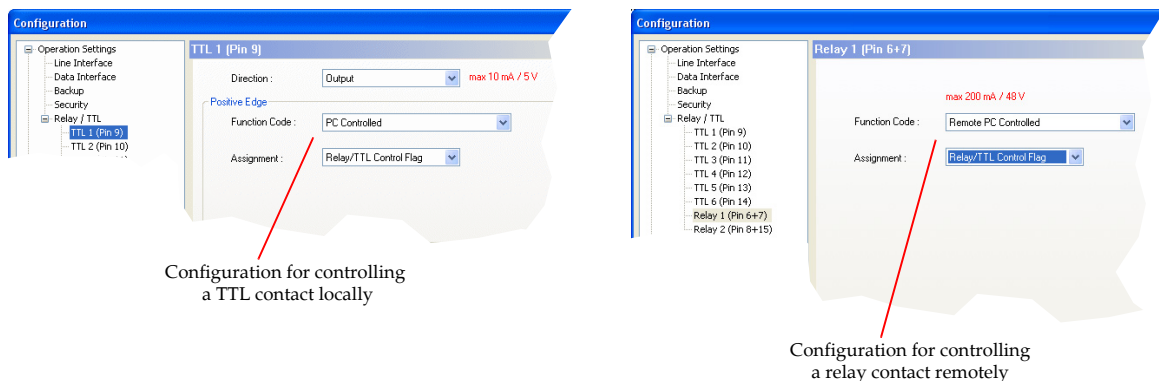
If you want to control a TTL pin, set the field **Direction** on **Output**. This setting is not necessary, if you select a relay.

As **Function Code** select **PC Controlled**, if you want to control the output locally via the submenu **Extras** → **Relay/TTL Control Flag** → **Local** from your PC.

If that output shall be controlled from the remote station via the submenu **Extras** → **Relay/TTL Control Flag** → **Remote**, please select respectively the setting **Remote PC Controlled**.

Under **Assignment** you always select the setting **Relay/TTL Control Flag**.

FIG. 78 RELAY/TTL CONTROL FLAG CONFIGURATION



4.9.5 Submenu S₀ Monitor

NOTE

The submenu **S₀ Monitor** is only displayed if the fee-based *Option: Remote Control Software & ISDN Monitor Plug-In* (see CHAPTER 8) is enabled and the USB dongle is plugged in.

Further details concerning the functions of the S₀ Monitor can be found under CHAPTER 8.2, Page 130.

4.10 Menu Help

4.10.1 Submenu About MAGIC DC7/AC1 XIP

In the **About MAGIC DC7/AC1 XIP** dialogue, you can find the software versions of the PC software (**PC Version**) and of the system (**Firmware Version**). Furthermore you can find our contact information.

FIG. 79 SUBMENU ABOUT MAGIC DC7/AC1 XIP



In this chapter all basic configurations for the operation of the *MAGIC DC7/AC1 XIP* system are explained. An overview of the menu structure you will find in the annex under CHAPTER A1.

A few configuration possibilities are not adjustable on the unit. Also all configurations can be comfortably made via the *MAGIC DC7/AC1 XIP Software* included in delivery.

NOTE

For the details of most functions please see the PC Software description from CHAPTER 4.

5.1

Basic configuration

In the following some basic configuration of *MAGIC DC7/AC1 XIP* are described in detail. The configurations for *MAGIC DC7 XIP* and *MAGIC AC1 XIP* only differ in a few aspects. Major differences are marked in the text.

NOTE

All menus can be reached directly via a *QuickMenu key* sequence. For this purpose each menu item is marked with a cypher in the upper left corner (in the example on the left it is e. g. 3). To reach a certain menu directly please enter from the main menu the key sequence *MENU <DIGIT> <DIGIT>* whereby <digit> marks the respective menu reference number. Please notice that the menu reference number can change depending on the configuration.

Menu reference number



5.1.1

Keypad lock

To avoid that keypads are pressed accidentally, you can enable a keypad lock. For activation please press the *MENU* key followed by the *★* (star) button. If the keypad lock is enabled, the display illumination is turned off immediately.

The keypad lock is deactivated by entering the key sequence *MENU ★* once more.


With activated keypad lock a key symbol will be shown besides the clock.




5.1.2

Setting the menu language

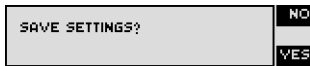
In delivery status *ENGLISH* is selected as standard menu language. In order to select *GERMAN* as menu language, please follow the instructions below:

NOTE

If you are not in the main menu please press the  key first.

First press the softkey  *MENU* and select *SYSTEM SETTINGS* using the softkey  *SELECT*. Press the cursor key  once until the option *LANGUAGE* is displayed in the menu. Via the *SELECT* softkey you directly reach the options for the





desired language. With the help of the cursor keys \wedge and \vee please choose the language and press again **SELECT**.

Please confirm your entry by pressing the **OK** button or the **OK** softkey.

To get back to the main menu, please press the PHONE key. Now you are asked if you want to **SAVE SETTINGS?** Via the **YES** softkey the settings are stored permanently in the system.

NOTE

If you press **NO**, all settings that you have made are lost when the unit is switched off.

5.1.3

Setting the Audio interface: Analogue or digital (optional)

NOTE

You can only activate the digital AES/EBU interface if that option (order number 430230) is unlocked in the unit.

MAGIC DC7/AC1 XIP incorporates analogue as well as digital Audio interfaces which you can adjust separately. The digital *AES/EBU interfaces* have integrated *sample Rate Converters* to adjust the digital Audio source to the transmission clock. Additionally, clock inputs/outputs are also available. To configure the Audio interface please follow the instructions below:

NOTE

If you are not in the main menu please press the PHONE key first.




- First press the softkey MENU and select **SYSTEM SETTINGS** via the softkey SELECT .
- With the use of the **SELECT** softkey you reach the option **AUDIO SETTINGS**.
- Using the cursor keys \wedge and \vee please mark the option **AUDIO INPUT** or **AUDIO OUTPUT** and press again **SELECT**. Now the options **ANALOGUE** and **DIGITAL** are displayed.
- Select the desired interface with the cursor keys \wedge and \vee and by pressing the softkey **SELECT**.
- Confirm your entry by pressing the **OK** button or the softkey **OK**.
- To get back to the main menu please press the PHONE button. Now you are asked if you want to **SAVE SETTINGS?** Via the softkey **YES** the setting is stored permanently in the system.

5.2 Working with the MAGIC DC7/AC1 XIP ISDN

In the next chapters basic functions like establishing a connection, dropping a connection, accepting calls etc. by using the ISDN interface are described in detail.

NOTE



If you are not in the main menu please press the  button first. From the main menu you reach the status window via the **OK** button.


5.2.1 Calling a partner



From the main menu just enter the phone number with the buttons **0...9**. The input field for the phone number is displayed automatically after entering the first cypher. A phone number has to have 20 cyphers maximum.

With the softkey **DELETE** wrong entries can be corrected.

The cursor keys  and  allow you to select a transmission mode **TELEPHONE, 7-KHZ G.722 AUTO** (*MAGIC AC1 XIP* additionally: **15-KHZ 1B AUTO, 15-KHZ 2B AUTO**), as well as all defined transmission modes (see CHAPTER 4.7.2.2.2). As soon as the partner accepts the call, the system tries to synchronise the Audio signal in the selected Audio mode.

The connection is established by entering the calling number and pressing the phone key .

ATTENTION



Information about the synchronization procedure **ADS** can be found in CHAPTER A1.

Under the softkey **OPT.** (options) the entered phone number can be saved in a phone book (see CHAPTER 5.3.1, Page 112) or stored as Quick Dial number (see CHAPTER 5.3.2, Page 112).

5.2.2 Using both B channels

In the **ISDN** operating mode two independent Audio codecs respectively a Stereo ISO/MPEG transmission with 128-kBit/s are available because of the two B channels. The following modes are possible:

TAB. 2 COMBINED OPERATING MODES	
B channel 1	B channel 2
Modes of the MAGIC DC7 XIP	
Telephone	Telephone
7-kHz G.722	Telephone
7-kHz G.722	7-kHz G.722
Telephone	7-kHz G.722
Additional modes with the MAGIC AC1 XIP	
15-kHz 1B	Telephone
15-kHz 1B	7-kHz
	15-kHz 2B

Call to two different partners with 64-kbit/s each

Press **SHIFT (#)** in order to establish a second independent 64-kbit/s connection in parallel to the first channel. The chosen channel will be shown by an inverted display of the phone number respectively of the name. All other operating steps are identical to the operating with only one partner. Please notice that there is only one telephone or 7-kHz Audio connection possible for the second independent channel. Switching the channel can be done everytime.

NOTE

Before dropping one connection please make sure that you have chosen the right channel.

Call to a partner with 128-kbit/s

If you want to establish a 2B connection with 128-kbit/s to a remote station it can be necessary to dial another phone number for the second B channel as for the first one. To enter a second phone number please press **OK** button after entering the first phone number and enter the second phone number.

NOTE

If you choose **15-KHZ 2B AUTO** (only **MAGIC AC1 XIP**) as transmission mode you usually have to enter the phone number only once. The system establishes two connections with the same phone number automatically. If the phone numbers are meant to be different for the first and the second B channel in a Stereo connection, you can press the **OK** button for entering a second phone number. Alternatively it is also possible to enter both phone numbers separated by the ***** key („+“ character is displayed). It is also sufficient to enter as second number only the difference to the first phone number.

Examples:

0123456789+0123456790
0123456789+90

The connection is established after the entry of the calling numbers by pressing the telephone receiver button **⏏**.

5.2.3

The Status display - Operation during a connection

After the telephone receiver button is pressed the partner is called and the status window is displayed automatically.

TIP

The status window can always be reached by pressing the **OK** button.

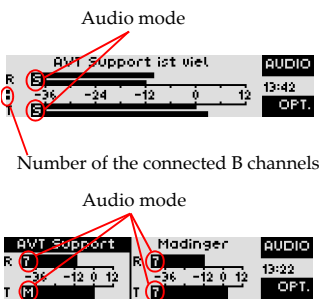
During a Stereo connection the number of the connected B channels is displayed with points on the left to the level indication.

In the **ISDN** operating mode the window will be splitted if two independent-connections have been established.

To switch between the two connections, please press the **SHIFT** key (**#**). The name of the selected channel is displayed inversely.

An outgoing call is signaled by **SELECT...** The dialled number (or the name if a phone book entry is selected) is displayed in the first line.

When the connection is established the level indication for the incoming signal (**R**eceive) and the outgoing signal (**T**ransmit) is displayed.




If the Audio connection is synchronised the corresponding Audio coding algorithm is displayed for each channel:

- **T** Telephone 3.1-kHz
- **7** G.722 7-kHz
- **M** ISO/MPEG Mono
- **S** ISO/MPEG Stereo
- **P** No Synchronisation

By pressing the softkey **AUDIO** you reach the options for the Audio sources (see CHAPTER 5.3.4) via which all Audio signals can be selected.

With the use of the softkey **OPT.** the displayed phone number can be stored and it is also possible to directly switch into the phone book.

5.2.4 Dropping a connection

The connection is dropped by pressing the telephone receiver button . If no further connection exists the main menu is displayed after a few seconds.

NOTE


Before dropping one connection please make sure that you have chosen the right channel.


5.2.5 Accepting a call

If the **MAGIC DC7/AC1 XIP** receives a call, it is automatically signaled in the status window by **CALL**. The phone number will be displayed in the upper line when it is transmitted. When a phone book entry exists instead of the phone number the name will be displayed.

NOTE

Additionally, a system ringing tone can be enabled.

The call can be directly accepted with the telephone receiver button .

If you want to reject the call, please press the following telephone receiver button .

NOTE

Alternatively, you can also enable the function to take calls automatically with the setting **MENU → OPERATION SETTINGS → ISDN → AUTOMATIC ANSWERING**.

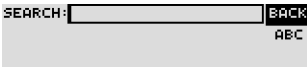
ATTENTION



Notes to the process of synchronisation **ADS** you can find in CHAPTER A1, Page 137.

5.3 Comfort Functions

5.3.1 Redailing



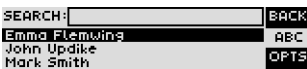
You reach the redailing function by pressing again the telephone receiver button for the line on which no connection currently exists. The recently called partners are displayed in a list. In the input field **SEARCH** you can search for a certain partner or select a partner from the list using the cursor keys and .

To call a partner please press again the telephone receiver button . When re-dailing, automatically the transmission mode is adjusted which was chosen by entering the phone number.

NOTE

To enter alphabetic characters you can use the alphanumeric keypad. You reached the desired character by pressing the respective key several times. To type e. g. 'K' you need to press the button 'S' twice. Wrong entries can be corrected with the help of the softkey **DELETE**. To switch between upper and lower case please press the **SHIFT** key. The display changes from **ABC** to **abc**.

5.3.2 Using the phone book



The system incorporates a comfortable phone book function. You reach the phone book from the main menu via the softkey **NAME**.

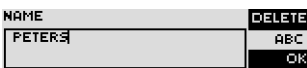
In th input field **SEARCH** you can search for a certain partner. As soon as you enter a character the correspondening phone book entries are filtered out.

Alternatively, you can select a partner from the list using the cursor keys and .

By the softkey **OPT.** (options) the following functions, which you can select via the softkey **SELECT** are realized:

- **NEW ENTRY:** With this function you create a new phone book entry. First enter the name and confirm your entry with **OK**.

Afterwards enter the phone number from your partner and confirm again with **OK**.
- **EDIT:** With this function you edit already existing phone book entries.
- **DISPLAY:** The selected telephone book entry is displayed with name and phone number.
- **DELETE ENTRY:** The selected telephone entry is deleted. For saftey reasons you are asked if you really want to delete the entry.
- **SAVE AS QUICK DIAL:** Your 10 most important phone numbers can be programmed as Quick Dailing numbers on the numerical keys '0' ... '9'. Please select the key from the list on which you want to programme the phone number.



- In order to activate a Quick Dialing number just press from the main menu the desired Quick Dial key for at least 3 seconds. The connection to the partner is established automatically.

TIP

Likewise the configuration menus the telephone book functions can also be reached directly by the *QuickBook* function. Press the key sequence: **NAMES OPT. <DIGIT>**

Example: **SAVE AS QUICK DIAL- NAMES OPT. 5**

5.3.3

Working with Presets

The *MAGIC DC7/AC1* XIP differentiates between **SYSTEM SETTINGS** and **OPERATION SETTINGS**.

System settings are such settings that do not change during normal operation like e. g. language, date/time etc. These parameters can not be saved as **PRESET** since a configuration is usually only required when the system is put into operation.

Operation settings like e.g. the line interface **ISDN** or **LAN**, Ringing tone, etc., need to be reconfigured depending on the application. To easily recall recurring configurations you can store up to 10 **PRESETS**.

You reach the menu for the **PRESETS** by pressing the **MENU** softkey once, the cursor key \curvearrowright twice and by pressing the softkey **SELECT** once as confirmation.

In the insert field **PRESETS** you can search for a certain **PRESET**. As soon as you enter a character, the corresponding entries of the Preset list are filtered out.

Alternatively, you can select a configuration with the cursor keys \curvearrowleft and \curvearrowright from the list.

If you now press the **OK** button the selected **PRESET** is loaded immediately.

By the softkey **OPT.** (Options) the following functions which you can select via the softkey **SELECT** are realized:

- **LOAD:** The stored **PRESET** is loaded.
- **NEW:** With the help of this function you can create a new **PRESET**. All current Operation Settings are stored as basic and can be adjusted afterwards.
- **SAVE:** The selected **PRESET** is overwritten with the current Operation Settings. For safety reasons a confirmation is required
- **DELETE PRESET:** The currently selected **PRESET** is deleted. For safety reasons a confirmation is required.
- **LOAD STANDARD SETTINGS:** This function resets the system into the standard settings. Presets, user defined transfer modes, Audio Presets and the telephone book are not deleted.

NOTE

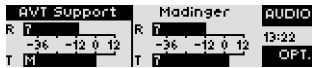
If the **PRESET** has changed, you are asked if you want to **SAVE SETTINGS** when you leave the Preset menu. Via the **YES** softkey the configuration is stored permanently in the system. This **PRESET** is loaded automatically by the system after the unit is connected with the power supply.

TIP

A Preset can be programmed as Quick Dialing key via PC Software. That enables an especially comfortable Preset loading.



5.3.4 Configuration of the Audio sources



When a connection exists, the **AUDIO** function is automatically assigned to the upper softkey via which all Audio sources can be configured. Via the integrated Audio router, each Audio input can be routed to each Audio output and the headset according to your equipments.

TIP

The configuration of the Audio sources is especially comfortable via the **Audio Mixer** of the PC Software (see CHAPTER 4.9.3).

After the **AUDIO** softkey has been pressed, all available Audio configurations are displayed:

- **MICROPHONE AMPLIFYING:** The microphone amplifying can be adjusted in a range from 0 ... 45 dB. Additionally, a level indicator is displayed. If the integrated limiter responds (if it has been activated (**MENU** → **SYSTEM SETTINGS** → **HEADSET** → **MICROPHONE LIMITER**)), on the right besides the level indicator an exclamation mark is displayed. Note that maybe you have to activate the phantom supply for the microphone (**MENU** → **SYSTEM SETTINGS** → **HEADSET** → **PHANTOM POWER**).

TIP

During a connection the microphone amplifying can be raised and lowered by the keys **4** and **7** comfortably.

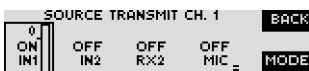
- **RATIO RX/TX:** The headset volume ratio of the received and transmit signals can be adjusted in the range of RX+16 ... TX+16 dB.

TIP

During a connection the volume ratio **RATIO RX/TX** can be quickly adjusted by the keys **5** and **8**.

- **SOURCE HEADSET:** see below
- **SOURCE AUDIO OUTPUT 1:** see below
- **SOURCE AUDIO OUTPUT 2:** see below
- **SOURCE TRANSMIT CH. 1:** see below
- **SOURCE TRANSMIT CH. 2:** see below
- **HEADSET MONITOR.** This option allows you to monitor both Audio output and both transmit signals.

Please select the desired Audio interface with the cursor keys **▲** and **▼** and press the softkey **SELECT**.



Afterwards all available Audio sources for the selected Audio interface are displayed. The Audio interface can be selected by pressing **SHIFT** button (**#**). The currently selected interface is marked by a frame. Via the **MODE** softkey you can activate (**ON**) or deactivate (**OFF**) the interface. If an interface is activated, the current level of the Audio source is displayed and can be adjusted with the cursor keys **▲** and **▼** within the range of -16 dB ... +16 dB.

When one of the transmit signal sources (e.g. **SOURCE TRANSMIT CH. 1**) the option **Auto Ducking (DCK)** is additionally available. In this configuration, the Audio signal of the Audio inputs is treated automatically according to the selected Auto Ducking Parameters if the microphone input is used.

NOTE

If the software option **Mixer Tool Plug-In** (see CHAPTER 7) is not enabled for your system, you can always activate only one Audio source at a time.

Additionally, you can load or save the Audio interface settings with the options **LOAD AUDIO PRESET** and **SAVE AUDIO PRESET**. In total, three presets can be used.

The Audio interface setting which is stored under the **STANDARD PRESET** is loaded automatically when the system is switched on.

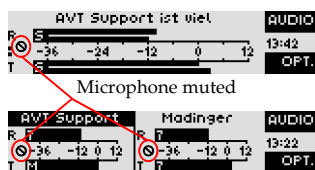
With the selection **DEFAULT SETTINGS**, all Audio interfaces are reset to the delivery status:

- output 1 = receive signal 1 (RX1)
- output 2 = receive signal 2 (RX2)
- transmit signal 1 = input 1 (IN1)
- transmit signal 2 = input 2 (IN2)
- all other sources are deactivated

NOTE

When a Stereo transmission (only **MAGIC AC1 XIP**) is made, the inputs and outputs are combined correspondingly and controlled jointly.

Mute microphone



The microphone can be muted during a connection by pressing the **OK** button. By pressing the button a second time, you deactivate the muting. In the status window, a blinking symbol is displayed on the left side next to the level meter.

NOTE

If connections with two different partners are established, the microphone is always muted for **both** connections.

Adjust headphones level

If a headphone is connected to the headset interface, you can adjust the headphones level with the cursor keys **^** and **v** within the range of -40 dB ... 0 dB **during** a connection.

Adjust microphone amplifying


If a microphone is used at a headset interface you can vary the microphone amplifying **during** a connection with the keys **4** or **5** within the range of 0 ... 45 dB.

Adjust the headset volume ratio of the receive and transmit signals


When a headset is connected to a headset interface, you can control the volume ratio of the receive and transmit signal with the keys **5** and **8** within a range of RX+16 ... TX+16 dB **during** the connection.

Switch from Audio mixer presets

The system allows to store three different Audio mixer presets wherein all level adjustments and activation status of all Audio interfaces are saved.

During a connection you can switch between the saved Audio mixer presets by pressing the phone button .

Display connection parameters

If the **STATUS** key () is pressed **during** a connection, the Audio transmission parameters are displayed in detail.

Pressing it a second time the parameters of an optionally configured data transfer, that is possible parallel to the Audio transfer, are displayed.

Display system information

If **no** connection exists, you can display the following information by pressing the phone button :

- system name (see Page 70, **Configuration** → **MAGIC DC7/AC1 XIP** → **System Settings** → **General** → **System Name**)
- Adjusted or by DHCP assigned IP address
- In the LAN/SIP mode, whether the registration had been successful or not

Particularly, when multiple units are used at one station, systems are easy to identify. In combination with the optional **MAGIC DC7/AC1 XIP LAN** software (order number 430260, see Page 133) this name is displayed in the equipment list.

6.1 MAGIC DC7/AC1 Keypad Basic

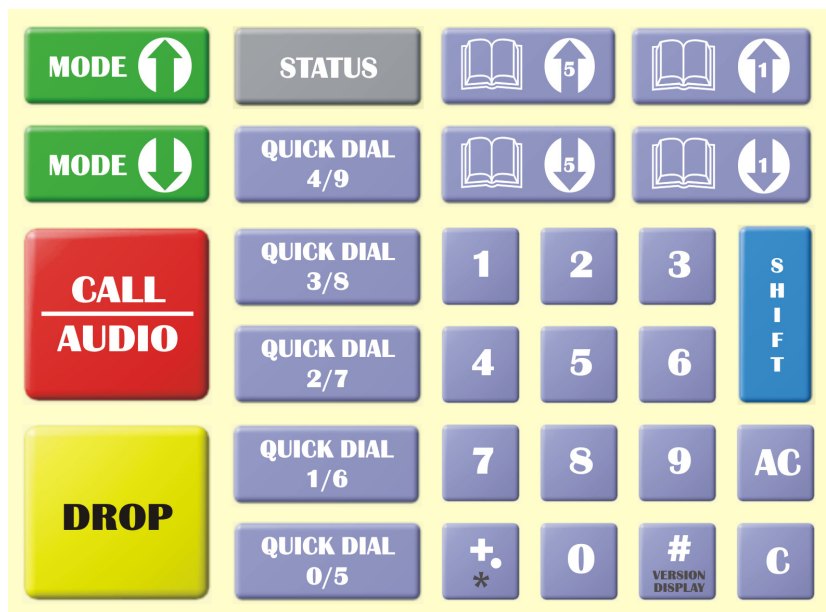
The optional *MAGIC DC7/AC1 Keypad Basic* (order number 800210) allows a comfortable and simple handling of the system for users, who do not want to use a PC for controlling the Audio codec and who want to use the system offset.

NOTE

To use the keypad with *MAGIC DC7/AC1 XIP*, you need to configure the interface parameters of the RS232 interface in the following way: **9600 Baud, no parity**.

The following figure shows the operating elements of the keypad.

FIG. 80 KEY ASSIGNMENT MAGIC DC7/AC1 KEYPAD BASIC



Please connect the 9 pole SUB-D connector of the *MAGIC DC7/AC1 Keypad* with the *RS232* interface (see CHAPTER 4.3, Page 146) of the *MAGIC DC/AC1 XIP* system. Since the *MAGIC DC7/AC1 Keypad* requires its own power supply, you must connect the 230V external power supply included in the delivery with a power socket and the 6 pole Mini-DIN female of the external power supply with the 6-pole Mini-DIN connector (violet) of the breakout cable. The 8 pole Mini-DIN connector (black or white) must be plugged into the socket *MAGIC DC7/AC1 Keypad*. If everything is connected correctly the display is now illuminated. After switching on the system¹, e.g. the status message on the left hand side is displayed after booting.

**DISCON. 7 KHZ G.7
INTERFACE: ISDN**




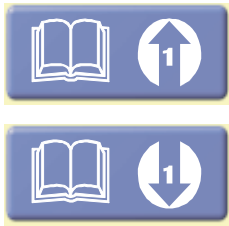



¹ If the system was already switched on, please press the „C“ or „AC“ button once.

6.2

Functions of the Keypad

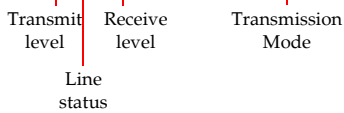
Below the functions of the keypad are listed in table form.

TAB. 3 FUNCTIONS OF KEYS









Key	Function
	Numerical block to enter the calling number 0..9 or IP address.
	<p>+ key to enter two calling numbers for one 2 B connection (Example: 0945612345+56).</p> <p>If you enter an IP address, every octet can be separated with that key, so it stands for the dot in the IP address. (Example: 192+168+96+17)</p> <p>When the SHIFT button (^ symbol in the display) is pressed, the * symbol can be used to enter special functions at a telephone system.</p>
	<p># key to enter special functions at a telephone system.</p> <p>When the SHIFT button (^ symbol in the display) is pressed, the current firmware VERSION of the system is displayed, if no connection exists.</p> <p>If a connection exists and the SHIFT button (^ symbol in the display) is pressed, the display switches between calling number and level meter in the second line. The SHIFT mode is left automatically after the key is pressed.</p>
	Via these keys, a telephone book entry can be selected in steps of 1.
	Via these keys, a telephone book entry can be selected in steps of 5.
	By pressing the button AC the entered calling number is deleted completely.
	By pressing the button C the last numerical character of the entered calling number is deleted.

DISCON. TELEPHONE
5271130

DISCON. 7 KHZ G.7
SW-VERSION: 1.322
CONNECT TEL



TAB. 3 FUNCTIONS OF KEYS

Key	Function
 	<p>The MODE key allows you to select the Transmission Modes.</p>
	<p>To establish a connection, please enter first the desired calling number. Then, select the required transmission mode with the MODE buttons. By pressing the button CALL the calling number is dialed.</p> <p>If the calling number consists of more than 8 numerical characters, the last eight characters plus a „.“ placed in front are displayed.</p> <p>If you press this button again during a connection, it can be switched between the preciously defined AUDIO Mixer Presets. The selected mixer preset is displayed by the first alphabetical character in the name of the mixer preset.</p>
	<p>By pressing the button DROP the connection is dropped.</p>
	<p>By pressing the button STATUS all connection parameters of the Audio connection are displayed (e.g. coding algorithm, bit rate). Pressing the button again, the parameters of an optionally configured data transmission, which is in parallel possible to the Audio transmission.</p>
 	<p>By pressing the QUICK DIAL keys a previously saved calling number is dialed or a stored configuration (preset) is loaded.</p> <p>Storing Quick Dial numbers (QD): Please enter the calling number you want to be saved via the numerical block 0..9. Then, press the desired QUICK DIAL button. On the display the message STORE QD: QD/C appears. Now press the same QUICK DIAL button again. To cancel the saving press the C button.</p>
	<p>With the SHIFT button you reach the „second level“ functions of keys (grey labeling) respectively the „second quick dialling“ level.</p> <p>If SHIFT is activated, the ^ symbol is displayed.</p>

DISC 15K. | CONN 7 K.
|. 78772245

DISCON. 15KHZ 1B
STORE QD: PRESS QD/C

6.3 MAGIC DC7/AC1 Keypad Advanced

The optional *MAGIC DC7/AC1 Keypad Advanced* (order number 800230) allows additionally a comfortable handling of the integrated Audio mixer in contrary to the basic version.

NOTE

To use the keypad with *MAGIC DC7/AC1 XIP*, you need to configure the interface parameters of the RS232 interface in the following way: **9600 Baud, no parity**. With the *Quick Menu* function you reach the setting of the RS232 parameters directly via the key sequence **MENU 13**. Please select **KEYPAD 9600, NO**

The following figure shows the operating elements of the keypad.

FIG. 81 KEY ASSIGNMENT MAGIC DC7/AC1 KEYPAD ADVANCED



Please connect the 9 pole SUB-D connector of the *MAGIC DC7/AC1 Keypad* with the RS232 interface (see CHAPTERA4.3, Page 146) of the *MAGIC DC/AC1 XIP* system. Since the *MAGIC DC7/AC1 Keypad* requires its own power supply, you must connect the 230V external power supply included in the delivery with a power socket and the 6 pole Mini-DIN female of the external power supply with the 6 pole Mini-DIN connector (violet) of the breakout cable. The 8 pole Mini-DIN connector (black or white) must be plugged into the socket *MAGIC DC7/AC1 Keypad*. If everything is connected correctly the display is now illuminated. After switching on the system¹, e.g. the status message on the left hand side is displayed after booting.

**DISCON. 7 KHZ G.7
INTERFACE: ISDN**

¹ If the system was already switched on, please press the „C“ or „AC“ button once.

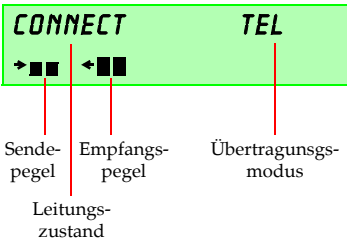
Functions of the Keypad

Below the functions of the keypad are listed in table form.

TAB. 4 FUNCTIONS OF KEYS	
Key	Function
	<p>Numerical block to enter the calling number 0..9.</p> <p>When the SHIFT button (^ symbol in the display) is pressed, a saved quick dial number QD0... QD9 is called. If no calling number is programmed, the message NO QD ASSIGNED! (No quick dial number assigned!). The SHIFT mode is left automatically after a quick dial key is pressed.</p>
	<p>* key to enter a special function at a telephone system.</p> <p>When the SHIFT button (^ symbol in the display) is pressed, the current firmware VERSION of the system is displayed. The SHIFT mode is left automatically after the key is pressed.</p>
	<p># key to enter a special function at a telephone system.</p> <p>When the SHIFT button (^ symbol in the display) is pressed, the display switches between calling number and level meter in the second line. The SHIFT mode is left automatically after the key is pressed.</p>
	<p>Via these keys, a telephone book entry can be selected. The cursor can be moved up and down in steps of 1.</p> <p>When the SHIFT button (^ symbol in the display) is pressed, the cursor moves in steps of 5. The SHIFT mode is left automatically after the key is pressed.</p>
	<p>By pressing the button AC the entered calling number is deleted completely.</p>
	<p>By pressing the button C the last numerical character of the entered calling number is deleted.</p>
	<p>The button MODE 1 allows you to select the Transmission Modes for the first connection. To select the next available mode, please press the key again (see CHAPTER4.7.2.2.1, Page 61).</p>
	<p>The button MODE 2 allows you to select the transmission mode <i>telephone</i> or <i>7-Hz</i> for the second connection. A second connection is only possible, if for the first connection only one B channel is used (see CHAPTER4.7.2.2.1, Page 61).</p>
	<p>To establish a connection, please enter first the desired calling number. Then, select the required transmission mode with the MODE 1/2 buttons. By pressing the button CALL 1/2 the calling number is dialed.</p> <p>If the calling number consists of more than 8 numerical characters, the last eight characters plus a „.“ placed in front are displayed.</p>
	<p>By pressing the button DROP 1 respectively DROP 2, connection 1 or connection 2, respectively, is dropped.</p>

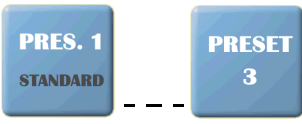






DISCON. TELEPHONE
5271130

DISCON. 7 KHZ G.7
SW-VERSION: 1.322
























DISC 15K. | CONN 7 K.
|.78772245

TAB. 4 FUNCTIONS OF KEYS

Key	Function
<p>DISCON. 15KHZ 1B PRESET LOAD OKI</p> 	<p>With the PRESET 1... PRESET 3 buttons, predefined Audio mixer configurations can be loaded (see CHAPTER4.9.3, Page 102).</p> <p>When the SHIF button (^ symbol in the display) is pressed, the STANDARD configuration for the Audio mixer is loaded by pressing the PRESET 1 button. If no Preset is defined, the message CANNOT LOAD PRESET1 is displayed. The SHIFT mode is left automatically after the key is pressed.</p>
<p>DISCON. 15KHZ 1B STORE PRES.: PRES./C</p> 	<p>To save an Audio mixer preset or a quick dial number, respectively, please use the button STORE PRESET QD.</p> <p>Saving a PRESET: First please define the desired Audio mixer settings with the buttons for the Audio interface (e.g. AUDIO OUT 1) and the Audio source (e.g. SELECT RX1). Press the STORE PRESET QD button. The message STORE PRES.: PRES./C is displayed. Now press the desired preset button PRESET 1... PRESET 3. To cancel the saving process please press the C button.</p> <p>Saving a quick dial number (QD): First please enter the calling number, which you want to save as quick dial, via the 0...9 buttons. Press the STORE PRESET QD button. The message STORE QD: QD/C is displayed. Now, please press the desired quick dial key QDD... QD9. To cancel the saving process please press the C button.</p>
<p>DISCON. 15KHZ 1B STORE QD: PRESS QD/C</p> 	<p>With the SHIFT/OK button you reach the „second level“ functions of keys (grey labelling) or you can go back to the standard display, respectively.</p> <p>If SHIFT is activated, the ^ symbol is displayed.</p>
<p>DISCON. 15KHZ 1B ^ STORE QD: PRESS QD/C</p> 	<p>Via the AUDIO OUT 1 or the AUDIO OUT 2 button, respectively, you select the Audio sources which are to be available at the output of the Audio interface Audio 1 or Audio 2, respectively.</p> <p>The following Audio sources can be selected via the Audio source keys (dark blue):</p> <ul style="list-style-type: none"> • RX1: receive signal connection 1 • RX2: receive signal connection 2 • MIC: local microphone signal <p>Please note, that several Audio sources can only be selected at the same time for one Audio interface, if the fee-based Option: Mixer Tool Plug-In (see CHAPTER7, Page 125) is enabled. Otherwise, the Audio source which you selected most recently is activated.</p>
<p>DISCON. 15KHZ 1B STORE QD: PRESS QD/C</p> 	<p>Via the AUDIO TX 1 or the AUDIO TX 2 button, respectively, you select the Audio sources which are to be activated for the Audio transmission.</p> <p>The following sources can be selected via the Audio source keys (dark blue):</p> <ul style="list-style-type: none"> • IN1: Audio input signal Audio 1 • IN2: Audio input signal Audio 2 • MIC: microphone signal <p>Please note, that several Audio sources can only be selected at the same time for one Audio interface, if the fee-based Option: Mixer Tool Plug-In (see CHAPTER7, Page 125) is enabled. Otherwise, the Audio source which you selected most recently is activated.</p>
<p>SELECT OUT1 SOURCE: RX1 RX2</p> 	<p>Via the AUDIO TX 1 or the AUDIO TX 2 button, respectively, you select the Audio sources which are to be activated for the Audio transmission.</p> <p>The following sources can be selected via the Audio source keys (dark blue):</p> <ul style="list-style-type: none"> • IN1: Audio input signal Audio 1 • IN2: Audio input signal Audio 2 • MIC: microphone signal <p>Please note, that several Audio sources can only be selected at the same time for one Audio interface, if the fee-based Option: Mixer Tool Plug-In (see CHAPTER7, Page 125) is enabled. Otherwise, the Audio source which you selected most recently is activated.</p>
<p>SELECT TX1 SOURCE: IN1 MIC</p> 	<p>Via the AUDIO TX 1 or the AUDIO TX 2 button, respectively, you select the Audio sources which are to be activated for the Audio transmission.</p> <p>The following sources can be selected via the Audio source keys (dark blue):</p> <ul style="list-style-type: none"> • IN1: Audio input signal Audio 1 • IN2: Audio input signal Audio 2 • MIC: microphone signal <p>Please note, that several Audio sources can only be selected at the same time for one Audio interface, if the fee-based Option: Mixer Tool Plug-In (see CHAPTER7, Page 125) is enabled. Otherwise, the Audio source which you selected most recently is activated.</p>

TAB. 4 FUNCTIONS OF KEYS

SELECT PHONES SRC:
RX1 INT MIC

Key	Function
     	<p>Via the PHONES button, you select the Audio sources which you want to hear on the headphones.</p> <p>The following sources can be selected via the Audio source keys (dark blue):</p> <ul style="list-style-type: none"> • RX1: receive signal connection 1 • RX2: receive signal connection 2 • INT1: Audio input signal 1 • INT2: Audio input signal 2 • MIC: microphone signal <p>Please note, that several Audio sources can only be selected at the same time for one Audio interface, if the fee-based <i>Option: Mixer Tool Plug-In</i> (see CHAPTER7, Page 125) is enabled. Otherwise, the Audio source which you selected most recently is activated.</p>
     	<p>With the MONITOR button you can monitor all Audio signals of the system via the headphones. The Audio signals are available in their actual levels.</p> <p>The following sources can be selected via the Audio source keys (dark blue):</p> <ul style="list-style-type: none"> • RX1: receive signal connection 1 • RX2: receive signal connection 2 • INT1: Audio input signal 1 • INT2: Audio input signal 2 • MIC: microphone signal <p>Please note that only one Audio source at a time can be selected for the monitoring.</p>
 	<p>The RATIO level buttons allow you to adapt the transmit/receive signal level ratio of the headphones within the range of -16-dB ... +16-dB.</p>
 	<p>Via the PHONES level buttons you can adjust the headphones level within the range of -40-dB ... 0-dB.</p>
 	<p>Via the AUDIO IN level button you can vary the Audio input level within the range of -16-dB ... +16-dB.</p>
 	<p>Via the MICRO level button you can adjust the microphone amplifier within the range of -16-dB ... +16-dB.</p>
	<p>The MUTE MICRO button mutes the microphone. A blinking M is displayed (in first line on the right side).</p>

SELECT MONITOR SRC:
MONITOR: MIC

DISCON. 15KHZ 1B
PHONES LEVEL: -20 DB

DISCON. 15KHZ 1B
MIC LEVEL: 0 DB

DISCON. 15KHZ 1B **M**
INTERFACE: ISDN

6.5

ISDN alarm messages in the display

If the connection cannot be established, ISDN provides a variety of alarm messages. Please have a look at the table below for an explanation. The LCD display indicates the relevant B channel first followed by the alarm message.

TAB. 5 ISDN ALARM MESSAGES

Alarm message	Description
Unassigned number	The number is not known by the ISDN network. Please check your entry.
No route	Usually, the ISDN network is overloaded when this alarm message occurs.
Normal call clearing	The connection has been dropped.
User busy	The remote side is busy.
No user responding	The partner is not responding. Maybe the call was made with the wrong service indicator.
Call rejected	The call was rejected. Maybe the remote side rejected your call.
Number changed	The number you called has been changed.
Destination out of order	The remote side is not ready. Maybe the system is turned off.
Invalid number format	Invalid number format.
No channel available	Maybe both B channels are already busy (also with e.g. other systems connected to the ISDN bus).
Network out of order	Please check your ISDN connection.
Service indicator error	The required service indicator is not available.
ISDN error: x	General ISDN error because of reason x.

The fee-based option *Mixer Tool Plug-In* (order number 430201) allows you to mix all available Audio signals. Without this option, you can only switch between the Audio output devices and the Audio sources so that only one input or output, respectively, is active at a time.

The **Auto Ducking** function is also only available if this option is enabled (see Auto Ducking Parameter, Page 74).

8 OPTION: REMOTE CONTROL SOFTWARE & ISDN MONITOR PLUG-IN

The fee-based *MAGIC DC7/AC1 Remote Control Software & ISDN Monitor Plug-In* (order number 430199) enables you to access the *MAGIC DC7/AC1* System from any PC with an integrated ISDN card. A local *MAGIC DC7/AC1* System is not required. The software option is protected by an USB dongle . A special highlight is the integrated *ISDN S₀ Monitor* which allows a detailed analysis of the D channel - locally as well as remotely.

8.1 Remote configuration of a MAGIC DC7/AC1 XIP System

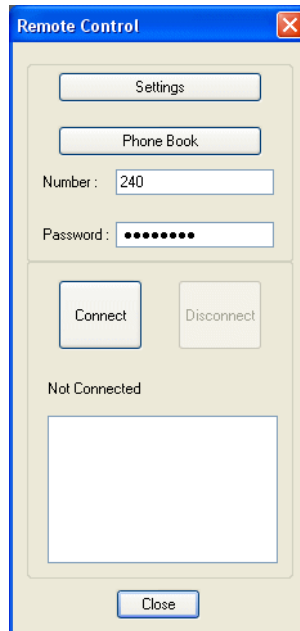
NOTE

The remote control function is only available in the **ISDN** operating mode. The USB Dongle included in delivery must be connected to your PC and an ISDN card^a needs to be installed.

^a We recommend to use an ISDN card from the company AVM (e.g. Fritz!Card)

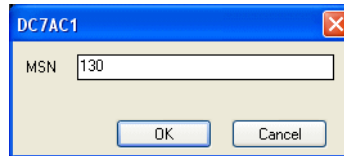
The remote control function can be activated via the menu **Administration** → **Remote Control**.

FIG. 82 REMOTE CONTROL



Under **Settings**, please enter your **own MSN** if required. The MSN is only necessary, if you operate several systems at your ISDN bus. However, some PABXs always require the entry of an MSN.

FIG. 83 MSN SETTINGS FOR REMOTE CONTROL



Under **Number** you enter the calling number of the remote system which you want to control remotely or you select a number from the phone book by pressing the **Phone Book** button.

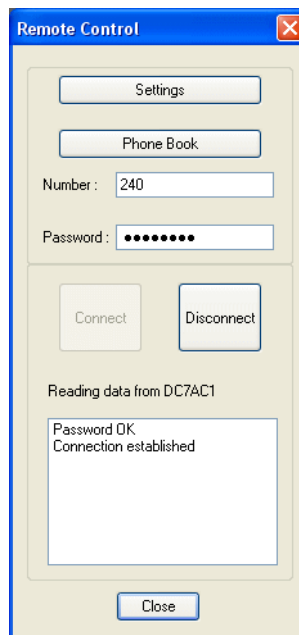
If the remote side is protected by a remote password, you need to enter this password under **Password** to get access to the remote system (see CHAPTER 4.7.2.3.5).

ATTENTION

If the remote system is additionally protected by authorised calling numbers, you must access the remote side by the ISDN line whose calling number is entered in the list. The transmission of the calling number has to be enabled for this line.

The connection with the remote side is established by pressing the **Connect** button and dropped by pressing the **Disconnect** button. The connection status is displayed in the status window below. If the connection has been established successfully, the message **Remote control online** is displayed (see figure below). Now you can close the **Remote Control** window.

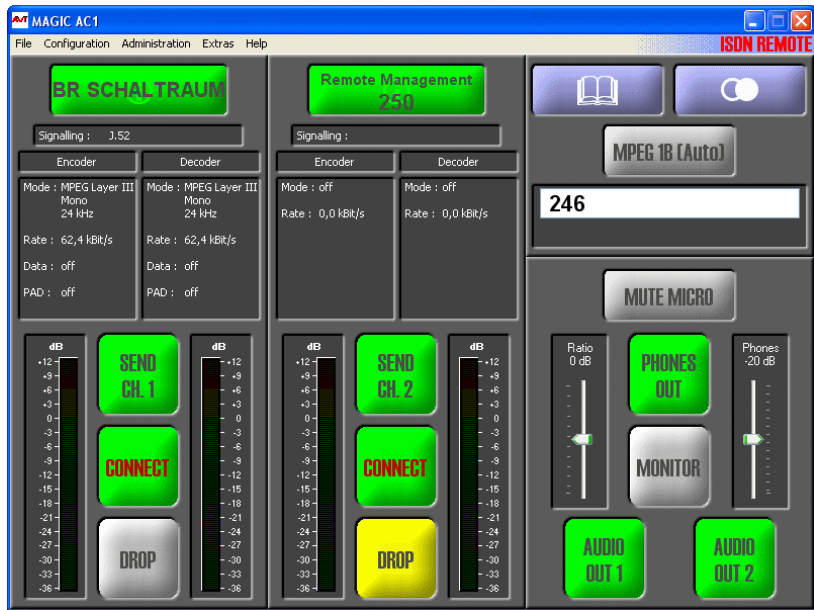
FIG. 84 REMOTE CONTROL ONLINE



The **MAGIC DC7/AC1** System can now be controlled and configured as usual. Please note that one of the two B channels is busy with the remote control so that the user can only work with one channel. The remote side can stop the remote control at any time.

The main window of the **MAGIC DC7/AC1** Software displays the existing connection under the name **Remote Management** on both sides. To stop the remote control, please press the **DROP** button blinking in yellow or open the **Remote Control** window and press the button **Disconnect**.

FIG. 85 DISPLAY DURING REMOTE CONTROL



NOTE

For security reasons, the settings for **Remote Control** (see CHAPTER 4.7.2.3.5) and **Login** (see CHAPTER 4.7.2.5) are not visible on the remote side and cannot be changed.

8.2 The integrated S₀ Monitor

The integrated **S₀ Monitor** allows a detailed analyse of the D channel protocol.

FIG. 86 S₀ MONITOR USER (USER VIEW)

Timestamp	Err	S0	CR	USER	NETWORK	Content
14.03.05 14:25:01.708		0	2	SETUP		Info Trans Cap Transfer Rate Called Party Number
14.03.05 14:25:01.899		0	2		CALL PROCEEDING	Information channel selection
14.03.05 14:25:02.376		0	2		ALERTING	B1 Channel
14.03.05 14:25:04.359		0	2		CONNECT	Date/Time Presentation indicator Connected Number
14.03.05 14:25:04.364		0	2	CONNECT ACKNOWLEDGE		14.03.05 14:09 presentation allowed
14.03.05 14:25:10.506		0	2	DISCONNECT		109
14.03.05 14:25:10.613		0	2		RELEASE	Cause Class Cause Number Cause message
14.03.05 14:25:10.617		0	2	RELEASE COMPLETE		Normal Call Clearing Normal Event
14.03.05 14:25:14.007		0	3	SETUP		Normal Event Cause Class Cause Number Cause message
14.03.05 14:25:14.206		0	3		CALL PROCEEDING	Normal Call Clearing
14.03.05 14:25:14.596		0	3		ALERTING	Normal Event
14.03.05 14:25:18.398		0	3		CONNECT	Info Trans Cap Transfer Rate Called Party Number Information channel selection
14.03.05 14:25:18.403		0	3	CONNECT ACKNOWLEDGE		216 B2 Channel
14.03.05 14:25:28.113		0	3		DISCONNECT	Date/Time Presentation indicator Connected Number
14.03.05 14:25:28.117		0	3	RELEASE		14.03.05 14:10 presentation allowed 216
14.03.05 14:25:28.161		0	3		RELEASE COMPLETE	Cause Class Cause Number Cause message
						Normal Event 16 Normal Call Clearing Normal Event 16 Normal Call Clearing Normal Event 16 Normal, unspecified

- The D channel protocol can be analyzed **Online** or via the **System Log File** stored in the system. You can select the desired operating mode under **Navigation**. **Stop** stops the current logging.
- The option **Display** switches between the **User**, **Layer 2** and **Layer 3** display. The **User** view displays a summary of the most important information. Of course, for experts the options **Layer 2** and **Layer 3** are also informative.
- Errors in the log file are displayed red-shaded. Via the button **Go to Error** the next error in the log file is displayed.
- The button **set** resets the display window.
- With the use of the **Export** key the log file can be exported in the currently selected read-out as RTF (Rich Text Format). This file can be read with MS WORD for instance.
- Via the **Open** button a previously stored log file can be opened and analysed offline.
- By pressing the button **Save** the current log file is stored as binary file.
- In the line **HEX** the binary data of the currently selected log file line is displayed in hexadecimal form.

- Using **Filter** you can filter the log file for certain criteria. **S0** selects the ISDN interface of the system. For the **MAGIC DC7/AC1** this value must always be „0“ respectively be empty since the system incorporates only one ISDN interface..

Using the filter **CR** (Call Reference) you can display all available entries for a transaction. Additionally, the colour in which the entries are displayed is changes for each new Call Reference.

FIG. 87 S₀ MONITOR LAYER 2 DARSTELLUNG

Timestamp	Err	S0	Direction	SAPI	TEI	C/R	Frame Type	P/F	N(S)	N(R)	Content
14.03.05 17:45:23.929	0		Ntw->Usr	0	64	0	RR	0		18	
14.03.05 17:45:25.387	!	0	Ntw->Usr	0	127	1	UI	0			
14.03.05 17:45:25.715	!	0	Ntw->Usr	0	127	1	UI	0			
14.03.05 17:45:25.736	0		Ntw->Usr	0	127	1	UI	0			
14.03.05 17:45:25.740	0		Usr->Ntw	0	64	0	INFO	0	18	14	
14.03.05 17:45:25.753	0		Ntw->Usr	0	64	0	RR	0		19	
14.03.05 17:45:26.886	!	0	Ntw->Usr	0	127	1	UI	0			
14.03.05 17:45:27.206	!	0	Ntw->Usr	0	127	1	UI	0			
14.03.05 17:45:28.706	!	0	Ntw->Usr	0	127	1	UI	0			
14.03.05 17:45:33.371	0		Ntw->Usr	0	64	1	INFO	0	14	19	
14.03.05 17:45:33.371	0		Usr->Ntw	0	64	1	RR	0		15	
14.03.05 17:45:33.379	0		Usr->Ntw	0	64	0	INFO	0	19	15	
14.03.05 17:45:33.391	0		Ntw->Usr	0	64	0	RR	0		20	
14.03.05 17:45:35.852	0		Ntw->Usr	0	64	1	INFO	0	15	20	
14.03.05 17:45:35.852	0		Usr->Ntw	0	64	1	RR	0		16	
14.03.05 17:45:35.856	0		Usr->Ntw	0	64	0	INFO	0	20	16	
14.03.05 17:45:35.873	0		Ntw->Usr	0	64	0	RR	0		21	
14.03.05 17:45:43.869	0		Ntw->Usr	0	64	1	RR	1		21	
14.03.05 17:45:43.869	0		Usr->Ntw	0	64	1	RR	1		16	
14.03.05 17:45:51.878	0		Ntw->Usr	0	64	1	RR	1		21	
14.03.05 17:45:51.878	0		Usr->Ntw	0	64	1	RR	1		16	
14.03.05 17:45:59.887	0		Ntw->Usr	0	64	1	RR	1		21	
14.03.05 17:45:59.887	0		Usr->Ntw	0	64	1	RR	1		16	
14.03.05 17:46:07.896	0		Ntw->Usr	0	64	1	RR	1		21	
14.03.05 17:46:07.896	0		Usr->Ntw	0	64	1	RR	1		16	
14.03.05 17:46:15.905	0		Ntw->Usr	0	64	1	RR	1		21	
14.03.05 17:46:15.905	0		Usr->Ntw	0	64	1	RR	1		16	
14.03.05 17:46:23.915	0		Ntw->Usr	0	64	1	RR	1		21	
14.03.05 17:46:23.915	0		Usr->Ntw	0	64	1	RR	1		16	
14.03.05 17:46:31.922	0		Ntw->Usr	0	64	1	RR	1		21	
14.03.05 17:46:31.923	0		Usr->Ntw	0	64	1	RR	1		16	
14.03.05 17:46:39.931	0		Ntw->Usr	0	64	1	RR	1		21	
14.03.05 17:46:39.932	0		Usr->Ntw	0	64	1	RR	1		16	
14.03.05 17:46:47.940	0		Ntw->Usr	0	64	1	RR	1		21	
14.03.05 17:46:47.940	0		Usr->Ntw	0	64	1	RR	1		16	
14.03.05 17:46:55.949	0		Ntw->Usr	0	64	1	RR	1		21	
14.03.05 17:46:55.949	0		Usr->Ntw	0	64	1	RR	1		16	

FIG. 88 S₀ MONITOR LAYER 3 DARSTELLUNG

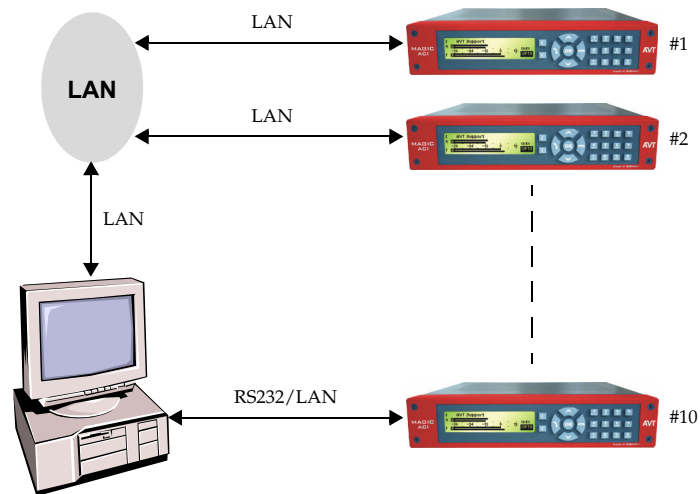
HEX: 02 81 18 1C 08 01 51 4D 08 02 81 90

Filter: [] []

Timestamp	Err	SO	CR	Direction	Message Type	Octet	BitMuster	Content	Expression
						2	00000001	IE Length	1 Octet(s)
						3		IE Content	0x81
						1	10100001	Information Element	Sending Complete
14.03.05 17:45:23.916		0	81	Usr->Ntw	ALERTING				
14.03.05 17:45:25.387	!	0		Ntw->Usr				(L) ERROR	
								Invalid Layer 3 PDU	Invalid Protocol Discriminator: ISDN 1TR...
								Invalid D-channel data	Content: 0x02 FF 03 41 01 12 05 18 01 8...
14.03.05 17:45:25.715	!	0		Ntw->Usr				(L) ERROR	
								Invalid Layer 3 PDU	Invalid Protocol Discriminator: ISDN 1TR...
								Invalid D-channel data	Content: 0x02 FF 03 41 01 13 05 18 01 8...
14.03.05 17:45:25.736		0	82	Ntw->Usr	SETUP	1	00000100	Information Element	Bearer Capability
						2	00000011	IE Length	3 Octet(s)
						3	1	Extension Bit	Not Continued
							_00	Coding Standard	CCITT Standardized Coding
							_10000	Info Trans Cap	3.1 KHz Audio
						4	1	Extension Bit	Not Continued
							_00	Transfer Mode	Circuit Mode
							_10000	Transfer Rate	64 KBit/s
								Additional Attributes	Structure: 8 KHz Integrity, Configuration: P...
						5	1	Extension Bit	Not Continued
							_01	Layer Identification	User Info Layer 1 Protocol
							_00011	L1 Protocol Id.	Rec. G.711 A-law
						1	00011000	Information Element	Channel Identification
						2	00000001	IE Length	1 Octet(s)
						3	1	Extension Bit	Not Continued
							_0	Interface ID Present	Interface Implicitly Identified
							_0	Interface Type	Basic Interface
							_0	Spare	0
							_1	Preferred/Exclusive	Exclusive: only the indicated channel is a...
							_0	D-Channel Indicator	The Channel Identified is not the D-channel
							_10	Information channel selection	B2 Channel
						1	00011110	Information Element	Progress Indicator
						2	00000010	IE Length	2 Octet(s)
						3	1	Extension Bit	Not Continued
							_00	Coding Standard	CCITT Standardized Coding
							_0	Spare	0
							_0001	Location	Private Network serving the Local User

The fee-based option *MAGIC DC7/AC1 LAN* (order number 430260) allows you to control and monitor up to ten *MAGIC DC7/AC1 XIP Systems* within a network.

FIG. 89 APPLICATION WITH MAGIC DC7/AC1 XIP LAN



The systems can be connected either directly via several serial interfaces or via LAN converters.

FIG. 90 WINDOW TO CONTROL SEVERAL AUDIO CODECS

List of the available MAGIC DC7/AC1 XIP



On the left side of the main window, each Audio codec installed within the network is displayed. In the status line, the name of the codec (see Page 70, System Name) and the PC status is displayed. Below, two fields inform you about the current connection status of the two available B channels. If a connection exists, the calling number and the coding procedure used are displayed.

FIG. 91 INFO FIELD OF ONE AUDIO CODEC



The detailed view and the control and configuration view you reach by clicking on the desired codec on the left side.

10 OPTION: SECURITY

The newly developed *AutoDynamicSync (ADS)* procedure allows an automatic synchronisation of almost all available Audio codecs on the market.

The procedure differentiates between outgoing and incoming calls:

Outgoing call

When an outgoing call is made, the caller selects the desired configuration when he enters the calling number. In this way, the desired Audio quality, the number of B channels and the signalling procedure is set. Since, usually the caller knows which Audio codec he calls on the remote side, a certain Audio transmission quality can be forced in this way. If, contrary to the expectations the remote side uses a non-matching procedure, the ADS automatically searches for an ISO/MPEG frame or a G.722 signal.

ADS recognizes ISO/MPEG frames with 64-kBit/s, Layer III oder Layer II (if the option is enabled), any sampling frequency (also half sampling frequencies such as 16-kHz and 24-kHz, except 22,05-kHz and 44,1-kHz) and any mode (Mono, Dual Channel, Stereo, Joint Stereo). Additionally, an inverted ISO/MPEG signal is also decoded correctly.

If instead of a ISO/MPEG frame a G.722 signal is found, the synchronisation procedures according to H.221/H.242 and SRT (Statistical Recovered Timing) are supported.

In this way, it is ensured that at least a connection in 7-kHz quality is established.

Incoming call

If there is an incoming call, the calling Audio codec is recognised fully automatically. The procedure works with 1 B channel as well as 2 B channel connections. For accepting the call, you should configure the Audio codec to a mode marked with .

TIP

Since some Audio codecs do not support different transmission parameters in transmit and receive direction, *MAGIC DC7/AC1* can synchronise them.

To ensure that the encoder uses the same transmission mode as the decoder for incoming call, you should activate the option **Encoder follows Decoder on incoming calls**.

For outgoing calls, you can still select the transmission mode.

A 2 LIST OF THE TRANSMISSION MODES

During the installation various standard transmission modes are saved in the directory

<Installation directory>\transmissionmodes

The following configurations are set for the transmission parameters after a certain transmission mode has been loaded:

TAB. 6 PREDEFINED TRANSMISSION MODES

Name	Signalling	Audio Quality		Bit Inversion	B Channels	MPEG Algorithm	1B Mode	2B Mode	Note
		TX	RX						
AS64-L2	OFF	MPEG (15-kHz)	-	no	-	MPEG Layer II	Mono/48-kHz	-	AETA Scoopy
AS64-L2L	OFF	MPEG (15-kHz)	-	no	-	MPEG Layer II	Mono/24-kHz	-	AETA Scoopy
CDQ1-7K	OFF	G.722 (7- kHz)	-	no	-	-	-	-	CDQ1000
CDQ2-L2	OFF	MPEG (15-kHz)	-	no	-	MPEG Layer II	Mono/48-kHz	-	CDQ Prima
CDQ2-L2L	OFF	MPEG (15-kHz)	-	no	-	MPEG Layer II	Mono/24-kHz	-	CDQ Prima
MAGIC	J.52	MPEG (15-kHz)	MPEG (15-kHz)	-	2	MPEG Layer III	Mono/48-kHz	Joint St./48-kHz	MAGIC, MAYAH Centauri
MCJ52-L3	J.52	MPEG (15-kHz)	G.722 (7- kHz)	-	2	MPEG Layer III	Mono/48-kHz	Joint St./48-kHz	MAGIC + Kommandokanal
MT064-L3	Musictaxi	-	-	-	1	MPEG Layer III	Mono/48-kHz	-	MusicTaxi
MT128-L3	Musictaxi	-	-	-	2	MPEG Layer III	Mono/48-kHz	Joint St./48-kHz	MusicTaxi
PKI15KHZ	J.52	MPEG (15-kHz)	MPEG (15-kHz)	-	2	MPEG Layer III	Mono/48-kHz	Joint St./48-kHz	PKI 15-kHz ISDN Telefon
PKI-7KHZ	J.52	G.722 (7- kHz)	G.722 (7- kHz)	-	1	-	-	-	PKI 7-kHz ISDN Telefon
SRT-7KHZ	OFF	G.722 (7- kHz)	-	no	-	-	-	-	7-kHz allgemein (z.B. Glensound)
TLS64-L2	OFF	MPEG (15-kHz)	-	no	-	MPEG Layer II	Mono/48-kHz	-	TELOS
TLS64-L3	OFF	MPEG (15-kHz)	-	yes	-	MPEG Layer II	Mono/48-kHz	-	TELOS
TLS128L2	CCS-L2	-	-	-	2	MPEG Layer II	Mono/48-kHz	Joint St./48-kHz	TELOS
TZ64-L3	OFF	MPEG (15-kHz)	-	yes	-	MPEG Layer III	Mono/48-kHz	-	TELOS
YR64-L2	OFF	MPEG (15-kHz)	-	no	-	MPEG Layer II	Mono/48-kHz	-	YOUCOM Reporter
YR64-L2L	OFF	MPEG (15-kHz)	-	no	-	MPEG Layer II	Mono/24-kHz	-	YOUCOM Reporter

A 3 TROUBLE SHOOTING

Problem	Possible cause
The external MAGIC DC7/AC1 keypad does not display anything	Press the AC button at the MAGIC DC7/AC1 keypad. If there is still nothing displayed, disconnect the keypad from the power supply for at least 5 seconds and try it again. Have you entered the right baud rate (see PAGE 117)?

A 4 INTERFACES

A4.1 **MAGIC DC7/AC1 XIP**

The interfaces of the system are shown in Fig. 92.

FIG. 92 REAR VIEW OF THE MAGIC DC7/AC1 XIP AUDIO CODEC

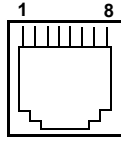


All interfaces are described below.

A4.2 Network interfaces

A4.2.1 S₀ interface

This interface supports two B channels in ISDN lines with EURO ISDN (DSS-1) protocol.



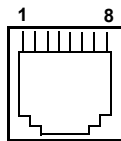
TAB. 8 PIN ASSIGNMENT: S₀ INTERFACE (LINE ISDN)

Socket: Western (8-pin) RJ45

Pin	Signal	Elektrical characteristics
1	not used	Recommendation: I.430
2	not used	Data rate: B channel: 2x64-kbit/s D channel: 16-kbit/s
3	TX a Data out a	
4	RX a Data in a	
5	RX b Data in b	
6	TX b Data out b	
7	not used	
8	not used	

A4.2.2 LAN interface

Via this interface you have the possibility to control the system as well as transmit Audio signals.



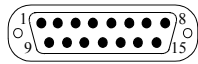
TAB. 9 PIN ASSIGNMENT: LAN INTERFACE

Socket: Western (8-pin) RJ45

Pin	Signal	Elektrical characteristics
1	TX+ Data out +	Recommendation: IEEE 802.3/Ethernet
2	TX- Data out -	Data rrate (automatical): 10BaseT (10-Mbit/s) 100BaseTX (100-MBit/s)
3	RX+ Data in +	
4	not used	Recommended: CAT5
5	not used	Maximum cable length: 100m
6	RX- Data in -	
7	not used	
8	not used	

A4.2.3 X.21 interface

The X.21 interface is realised as DCE (Data Communications Equipment).



TAB. 10 PIN ASSIGNMENT: X.21 INTERFACE

Connector: 15-pin SUB-D

Pin	Signal	Direction	Electrical characteristics
1	Schirm		Type: DCE with Gender Changer
2	TX a Transmit Data a	input	
3	CTL a Control a	input	Level: V.11, symmetric
4	RX a Receive Data a	output	Data rates: 8, 16, 24, 32, 40, 48, 56, 64, 80, 96, 112, 128, 144, 160, 192, 224, 256, 320, 384-kbit/s
5	IND a Indication a	output	
6	SCLK a Signal Element Timing a	output	
7	BCLK a ^a Byte Timing a	output	Maximum cable length: 100 m
8	GND Masse		
9	TX b Transmit Data b	input	
10	CTL b Control b	input	
11	RX b Receive Data b	output	
12	IND b Indicate b	output	
13	SCLK b Signal Element Timing b	output	
14	BCLK b ^a Byte Timing b	output	
15	nicht benutzt		

^a usually it will not be used

A4.3 Control and data interfaces

A4.3.1 CTRL/DATA/TTL/RELAY interface

This interface is multiple occupied and allows several functions:

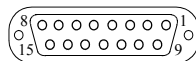
- 2 x RS232/RS485 (switchable) for transparent data transmission
- Alternatively, the RS232 can be used for controlling the system
- 6 x TTL input/output, programmable
- 2 x relay output, programmable

The RS232 interface is used to configure and operate the *MAGIC DC7/AC1 XIP* System with a PC. For a connection to the PC you need a connection cable, where Pin 2 and Pin 3 are *not* crossed. Additionally, a Pin 5 GND has to be connected.

NOTE

Please note that the function - input or output - of the Pins RXD1/2 and TXD1/2 are determined by the interface type DCE or DTE. The labelling of the Pin is always RXD for Pin 2 and TXD for Pin 3.

For both data interfaces RXD serves always as receive path and TDX serves always as transmit path.



TAB. 11 PIN ASSIGNMENT: CTRL/DATA/TTL/RELAY INTERFACE

Socket: 15-pin SUB-D

Pin	Signal	Direction	Electrical characteristics
1	RXD2 ^a RS232/RS485 Data (a)	output/E-A ^b	PC interface RS232: Type (Pin 2, 3): DCE ^c Level: V.24 Data rate: max. 115200 Baud Range: max. 15 m Protocol: 1 start bit 8 data bit 1 stop bit
2	RXD1 ^a RS232/RS485 Data (a)	output/E-A ^b	
3	TXD1 ^d RS232/RS485 Data (b)	input/E-A ^b	
4	TXD2 ^d RS232/RS485 Data (b)	input/E-A ^b	
5	GND		
6	RELAY 1 (A)	output	RS232/RS485 data interface: Level: V.24 (RS232) V.11 (RS485) Data rate: max. 115200 Baud Range: max 15m (RS232) max. 100 m (RS485) Protocol: 1 start bit 8 data bit 1/2 stop bit Parity adjustable
7	RELAY 1 (B)	output	
8	RELAY 2 (A)	output	
9	TTL1	input/output	TTL interface: Capacity of the TTL outputs: Maximum voltage: 5V Maximum current: 10mA Relay interface: Capacity of the relays: Maximum voltage: 48V Maximum current: 200mA
10	TTL2	input/output	
11	TTL3	input/output	
12	TTL4	input/output	
13	TTL5	input/output	
14	TTL6	input/output	
15	RELAY 2 (B)	output	

^a ATTENTION: on this Pin the MAGIC DC7/AC1 XIP **transmits** data

^b E-A: input and output at RS485 (bus interface)

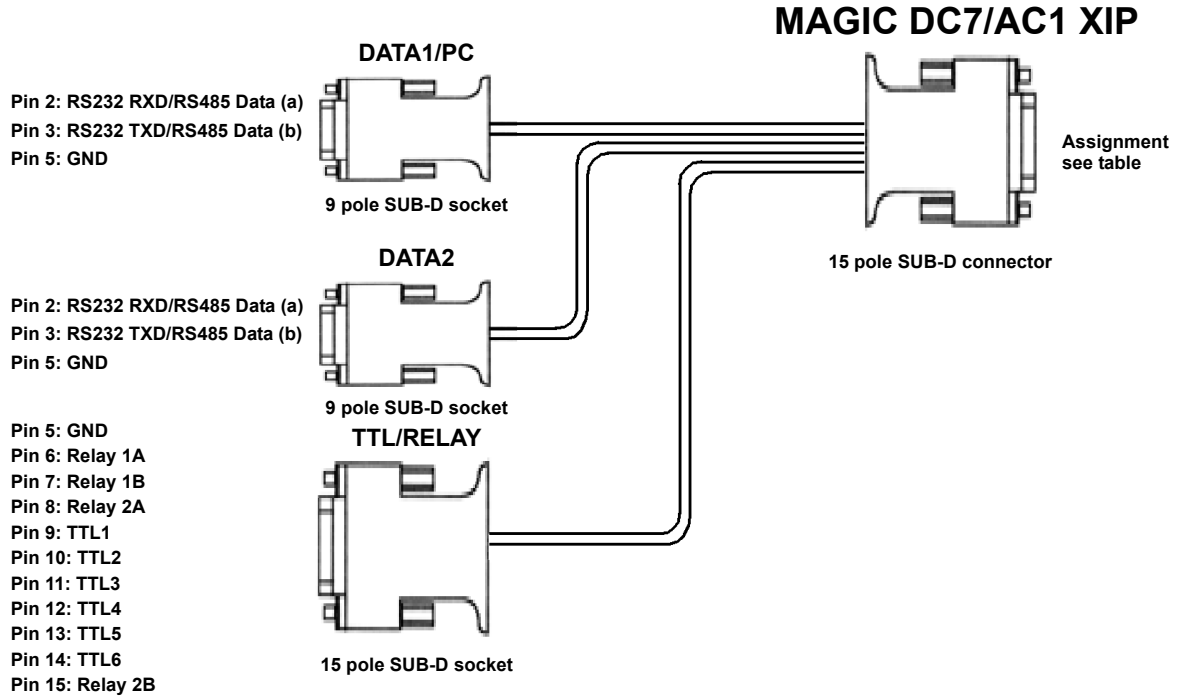
^c DCE = Data Communication Equipment

^d ATTENTION: on this Pin the MAGIC DC7/AC1 XIP **receives** data

A4.3.2 Assignment of the CTRL/DATA/TTL/RELAY adapter cable

The adapter cable is available under the order number 490130.

FIG. 93 ADAPTER CABLE CTRL/DATA



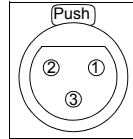
A4.4

Audio interfaces

The system incorporates analogue and optional digital AES/EBU Audio interfaces. For switching you can use display and keypad or the PC software.

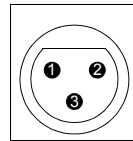
A4.4.1

Analogue Audio interface



TAB. 12 PIN ASSIGNMENT: ANALOGUE INPUT (AUDIO 1/2 IN)

Socket: 3 pole XLR		
Conne- tion	Signal	Electrical characteristics
1	GND	Input level: adjustable -3 +9 dBu
2	AUDIO IN a	Impedance: > 25 kΩ
3	AUDIO IN b	Head room: 6 dB



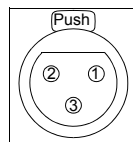
TAB. 13 PINBELEGUNG: ANALOGER AUSGANG (AUDIO 1/2 OUT)

Socket: 3 pole XLR		
Conne- tion	Signal	Electrical characteristics
1	GND	Output level: adjustable -3 +9 dBu
2	AUDIO OUT a	Impedance: < 50 Ω
3	AUDIO OUT b	Head room: 6 dB

A4.4.2

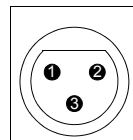
Digital AES/EBU Audio interface

The *MAGIC DC7/AC1* System incorporates one optional digital AES/EBU interface. The input as well as the output has its own sample rate converter providing that a digital source with 32, 44.1 or 48-kHz can be connected directly. For external clocking (only 48-kHz) the word clock input or output may be used.



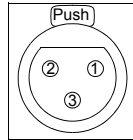
TAB. 14 PIN ASSIGNMENT: DIGITAL INPUT (AES IN)

Socket: 3 pole XLR		
Conne- tion	Signal	Electrical characteristics
1	GND	IEC-958
2	AUDIO IN a	
3	AUDIO IN b	



TAB. 15 PIN ASSIGNMENT: DIGITAL OUTPUT (AES OUT)

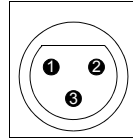
Connector: 3 pole XLR		
Conne- tion	Signal	Electrical characteristics
1	GND	IEC-958
2	AUDIO OUT a	
3	AUDIO OUT b	



TAB. 16 PIN ASSIGNMENT: CLOCK INPUT (CLK IN)

Socket: 3 pole XLR

Connection	Signal	Electrical characteristics
1	GND	TTL
2	CLOCK IN	
3	not used	



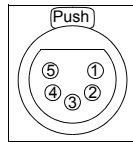
TAB. 17 PIN ASSIGNMENT: CLOCK OUTPUT (CLK OUT)

Connector: 3 pole XLR

Connection	Signal	Electrical characteristics
1	GND	TTL
2	CLOCK OUT	
3	not used	

A4.5

Headset/Micro Audio interface



TAB. 18 PIN ASSIGNMENT: HEADSET/MICRO AUDIO INTERFACE

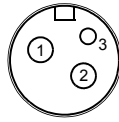
Socket: 5 pole XLR

Pin	Signal	Electrical characteristics
1	MIKROPHON a / +12V phantom power	Microphone level:adjustable 0... 45 dB
2	MIKROPHON b	
3	GND	
4	HEADSET right channel	
5	HEADSET left channel	

A4.6

Power supply interface

The power supply is connected via an external power supply.



TAB. 19 PIN ASSIGNMENT: POWER SUPPLY

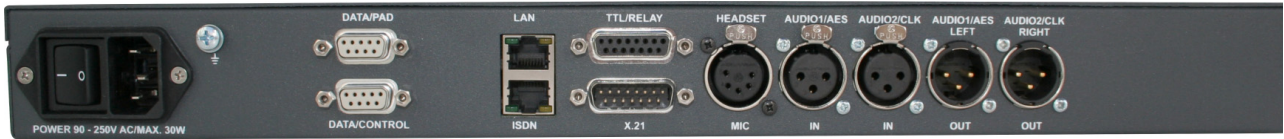
Socket: KYCO KPJ-S3

Conne- tion	Signal	Electrical characteristics
1	GND	Voltage: +12V
2	+12V	Power: max. 15W
3	not used	

A4.7 MAGIC DC7/AC1 XIP RM

Additionally, for the RM version the CTRL/DATA/TTL/RELAY interface (see TAB. 11) is splitted. All other interface functions are identical.

FIG. 94 REAR VIEW MAGIC DC7/AC1 XIP RM AUDIO CODEC



A4.7.1 DATA/CONTROL & DATA/PAD interface

The DATA/CONTROL interface can be used either as control interface to the PC (RS232) or as transparent data interface (RS232/RS485, switchable).

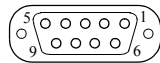
To connect a PC, a 1:1 connection cable is required, where Pin 2 and Pin 3 are not crossed. Additionally, Pin 5 has to be connected.

NOTE

Please note that the function - input or output - of the Pins RXD1/2 and TXD1/2 are determined by the interface type DCE or DTE. The labelling of the Pin is always RXD for Pin 2 and TXD for Pin 3.

For both data interfaces RXD serves always as receive path and TDX serves always as transmit path.

The DATA/PAD interface can be used as transparent RS232/RS485 data interface (switchable) only.



TAB. 20 PIN ASSIGNMENT: DATA/CONTROL & DATA/PAD INTERFACE

Socket: 9-pin SUB-D		
Pin	Signal	Electrical characteristics
1	not used	PC interface RS232: Type (Pin 2, 3): DCE ^a Level: V.24 Data rate: max. 115200 Baud Range: max. 15 m Protocol: 1 start bit, 8 data bit, 1 stop bit RS232/RS485 data interface: Level: V.24 (RS232), V.11 (RS485) Data rate: max. 115200 Baud Range: max. 15m (RS232), max. 100 m (RS485) Protocol: 1 start bit, 8 data bit, 1/2 stop bit, Parity adjustable
2	RXD1 ^b RS232/RS485 Data (a)	
3	TXD1 ^c RS232/RS485 Data (b)	
4	not used	
5	GND	
6	not used	
7	not used	
8	not used	
9	not used	

^a DCE = Data Communication Equipment

^b ATTENTION: on this Pin the MAGIC DC7/AC1 XIP transmits data

^c ATTENTION: on this Pin the MAGIC DC7/AC1 XIP receives data

A 5 TECHNICAL DATA MAGIC DC/AC1 XIP

CODING ALGORITHM

- G.711 A-Law 3,1-kHz (telephone)
- G.722 7-kHz
- ISO/MPEG Layer III 15-kHz (only MAGIC AC1)
- Optional: ISO/MPEG Layer II 15-kHz (only MAGIC AC1)

NETWORK INTERFACES

- ISDN
 - 1 x S₀ I.430 RJ45
 - Protocol DSS-1
- X.21
 - V.11 15 pole SUB-D connector
 - Data rates 64-kbit/s with J.52
 - all MPEG data rates:
8, 16, 24, 32, 40, 48, 56, 64, 80, 96, 112-kbit/s
128, 144, 160, 192, 224, 256, 320, 384-kbit/s
- LAN
 - Audio transmission: N/ACIP RJ45

CONTROL /DATA INTERFACES

- RS232 V.24 15 pole SUB-D socket
- RS485 V.11 15 pole SUB-D socket
- TTL/RELAY 15 pole SUB-D socket
 - 2 x relays programmable
max.switching capacity: 48V/200mA
 - 6 x TTL input/output programmable
max. switching capacity: 5V/10mA
- LAN RJ45

AUDIO INTERFACES

Analogue Audio 1/2:

- Electronic symmetrical input XLR socket
- Electronic symmetrical output XLR connector
- Nominal level -3 ... +9-dBu (programmable)
- Head room 6-dB
- Impedance input: > 25-k Ω
output: < 50- Ω
- Frequency response
 - G.711 50-Hz ... 3400-Hz
 - G.722 50-Hz ... 7000-Hz
 - ISO/MPEG 20-Hz ... 20000-Hz
- Linearity < 0,2-dB
- SNR < - 110-dB
- Signal noise < -80-dB
- Crosstalk Audio 1/2 > 70-dB

Headset/Microphone:

- 5 pole XLR
- Phantom power 12V
- Limiter
- Mikrophone preamplifying 0...45-dB (adjustable)

Digital Audio AES/EBU:

- Format IEC-958 AES/EBU Professional
- Symmetrical input XLR socket
- Symmetrical output XLR connector
- Impedance input: 110- Ω
output: 110- Ω
- Clock input TTL/75- Ω XLR socket
- Clock output TTL/75- Ω XLR connector
- Separate sample rate converter for input/output

DISPLAY

- graphical, resolution 160 x 32 pixel
- lighted (disengageable)

POWER SUPPLY

- MAGIC DC7/AC1 XIP: wall power supply
 - direct voltage (DC) + 12V
 - current max. 15W
- MAGIC DC7/AC1 XIP RM:integrated power supply
 - alternating voltage (AC) 90...253V
 - current max. 18W

DIMENSIONS

- XIP: H x W x D 44 x 220 x 220 mm
- XIP RM: H x W x D 44 x 19" x 220 mm

WEIGHT

- circa 1,7 kg MAGIC DC7 XIP
- circa 1,8 kg MAGIC AC1 XIP
- circa 2,4 kg MAGIC DC7/AC1 XIP RM

ADDITIONAL INFORMATION

EMV

- EN 55103

Electrical security

- EN 60950

Range of temperature

- +5 °C to 45 °C

Relative humidity

- 5% to 85%

LICENSE

- CE
- UL
- FCC

A 6 TECHNICAL DATA MAGIC DC7/AC1
KEYPAD

A6.1 Keypad

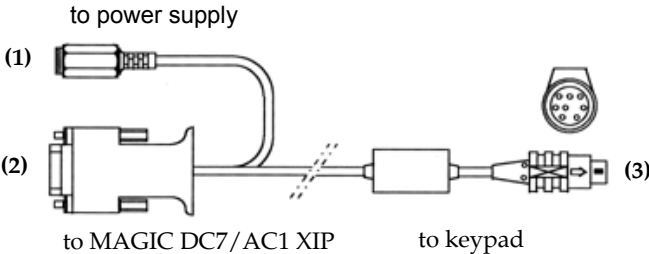
Matrix: 8 x 6
32 keys (4 quad keys, 4 double keys, 24 single keys)

A6.2 LCD Display

2 x 20 characters
illuminated

A6.3 Connecting cable

FIG. 95 CONNECTING CABLE MAGIC SYSTEM - KEYPAD

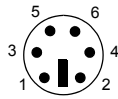


Protocol

9600 Baud
no parity

A6.4

Connection to power supply (1)



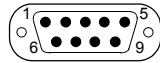
TAB. 21 PIN ASSIGNMENT: TO POWER SUPPLY

Connector: 6-pin PS/2 male

Pin	Signal	Electrical characteristics
1		Voltage: 5V
2		Power: max. 1500 mA
3	GND	
4	+5V	
5		
6		

A6.5

Connection to MAGIC DC7/AC1 (2)



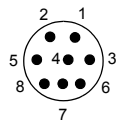
TAB. 22 PIN ASSIGNMENT: CONNECTION TO MAGIC DC7/AC1 XIP

Connector: 9-pin SUB-D male

Pin	Signal	Electrical characteristics
1		Baudrate: 9600 Baud
2	RXD	Parität: keine
3	TXD	
4		
5	GND	
6		
7		
8		
9		

A6.6

Data connection to Keypad (3)



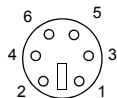
TAB. 23 PIN ASSIGNMENT: DATA CONNECTION TO KEYPAD

Connector: 8-pin MINI-DIN male

Pin	Signal	Electrical characteristics
1		Baud rate: 9600 Baud
2	RX Data	Parity: keine
3	GND	
4		
5	+ 5V	
6		
7		
8	TX Data	

A6.7

External power supply



TAB. 24 PIN ASSIGNMENT: POWER SUPPLY

Connector: 6-pin PS/2 socket

Pin	Signal	Electrical characteristics
1		Voltage: 5V
2		Power: max. 1500 mA
3	GND	
4	+5V	
5		
6		

A 7 GENERAL

A7.1

Order numbers

MAGIC DC7 XIP	800214
MAGIC DC7 XIP RM	800215
MAGIC AC1 XIP	800232
MAGIC AC1 XIP RM	800234

Accessories

MAGIC DC7/AC1 KeypadBasic	800210
MAGIC DC7/AC1 Keypad Advanced	800230
Headset beyerdynamic DT291	717123
Handset with 5 pole XLR connector	800235
MAGIC DC7/AC1 DUAL 19" Mounting kit ¹	800212
MAGIC Rechargeable Battery Set ²	800270
MAGIC Rechargeable Battery	800271
Data Adapter Cable DC7 XIP/AC1 XIP ³	490130

Software Options

AES/EBU Interface Licence	430230
MAGIC DC7/AC1 Mixer Tool Software Plug-In	430201
MAGIC DC7/AC1 Remote Contr. & ISDN Monitor Plug-In ⁴	430199
ISO/MPEG LAYER 2 Upgrade (only MAGIC AC1 XIP)	450305
ISO/MPEG LAYER 3 Upgrade (only MAGIC AC1 XIP)	450307
Standard apt-X Basic (1. Kanal)	450308
Standard apt-X Extension (2. Kanal)	450309

¹ only necessary for incorporating two units in parallel

² charging device and cable included

³ 1 x RS232/RS485 Control/Data (SUB-D 9 pole), 1 x RS232/RS485 Data (SUB-D 9 pole), 1 x Relay/TTL (SUB-D 15 pole)

⁴ For the software dongle an ISDN PC card and at least one USB interface are required.

Enhanced apt-X Basic (1. channel)	450312
Enhanced apt-X Extension (2. channel)	450313
AAC-LD	?
MAGIC DC7/AC1 LAN ¹	430260

¹ USB interface is required for the software dongle

A7.2 **Scope of delivery**

- MAGIC DC7 XIP or MAGIC AC1 XIP
 - CD Windows PC Software 430227
 - External power supply¹
 - Input: 100 - 240V/24W, 50 - 60-Hz
 - Output: 12V
 - Self adhesive feet
 - Adapter cable (CTRL/DATA/TTL/RELAY) 490130
 - 19" Mounting brackets
 - Manual
 - 1 x S₀ cable

A7.3 **Declaration of conformity**

You will find the declaration of conformity at the end of this manual.

¹ not at the RM version

A 8 SERVICE INFORMATION

A8.1 Software Updates

Free Software updates you will find on our homepage under

<http://www.avt-nbg.de>

Go to **Service** and click on the menu item **Software-Download**.

The identity number of the **MAGIC DC7/AC1 XIP Update Software** is:

430196

A8.2 Support

You can contact our support hotline during the normal office hours between 09.00h - 17.00h under the following telephone number:

+49 911 5271 160

or via email:

support@avt-nbg.de

To deal with your problem efficiently please note the factory number of the unit as well as the software version that you are using.

A8.3 Repairs

If, contrary to expectations, your unit is defective please fill in the attached status report and send the unit to the following address:

**AVT Audio Video Technologies GmbH
- Repairs -
Nordostpark 12
D-90411 Nürnberg
Germany**

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CE-Konformität

DECLARATION OF CONFORMITY

Name des Anbieters: AVT Audio Video Technologies GmbH
Supplier's name:

Anschrift des Anbieters: Nordostpark 12
Supplier's address: D-90411 Nürnberg

erklärt, dass das Produkt
declares, that the product

Produktname(n): MAGIC DC7 XIP / MAGIC AC1 XIP
Product name(s): MAGIC DC7 XIP RM / MAGIC AC1 XIP RM

mit den Vorschriften folgender Europäischer Richtlinien übereinstimmt:
conforms to the standards of the following European directives:

Nummer/Text: EN 60950 A4 Gerätesicherheit
Number/title:

Die Übereinstimmung wird nachgewiesen durch vollständige Einhaltung folgender Normen:
The conformity is evidenced by strictly meeting the following standards:

Harmonisierte Normen: EN 55022, EN 55024,
Harmonized Standards: EN 300386,
FCC Part 15 B

Ort, Datum: Nürnberg, 25.01.2007
Place, date:

Name(n): Wilfried Hecht
Name:

Rechtsverbindliche Unterschrift(en):
Legally binding signatures:



Telefon: +49 911 5271-0
Phone:

Diese Erklärung beinhaltet keine Zusicherung von Eigenschaften.
This declaration includes no warranty of properties.

Die Sicherheitshinweise der mitgelieferten Produktdokumentation sind zu beachten.
The safety instructions specified in the product documentation delivered must be observed.

