

MAGIC TH6 POTS

MAGIC TH6 ISDN

Telephone Hybrids

Hardware/Software Manual



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INTRODUCTION

MAGIC TH6 is a digital Telephone Hybrids for six caller lines. The system is available as *MAGIC TH6 POTS* or *MAGIC TH6 ISDN*. *MAGIC TH6* is a DSP - not PC - based product and provides a highly reliable hardware platform.

MAGIC TH6 POTS incorporates six POTS line interfaces, two analogue Audio inputs and outputs, four digital AES3 inputs and outputs available on two physical AES3 interfaces and two Handset/Headset interfaces. For control the unit provides two RS232/RS485 interfaces for the connection of remote keypads, a LAN interface for the connection of up to four PCs and a GPIO interface.

Instead of six POTS interfaces, *MAGIC TH6 ISDN* incorporates three ISDN BRI S₀ interfaces for six caller lines. All remaining interfaces are identical with the ones of *MAGIC TH6 POTS*.

The *MAGIC TH6* systems have an integrated 230 V AC power supply with standard connector, a front keypad with display and eight LEDs on the front side of the unit.

MAGIC TH6 POTS and *MAGIC TH6 ISDN* can accept up to six calls and can provide the caller signals at the Audio outputs as individual Audio signals or as mixed Audio signals. Caller conferences are possible in Pretalk and in On Air status. Both *MAGIC TH6* systems have integrated echo cancellers for each individual caller line. A manual level control as well as an Automatic Gain Control (AGC) for each caller line can be used.

Both systems can be upgraded to *Voice over IP Telephone Hybrids* with the *Extension for Voice over IP (ID: 430374)*. It is not necessary to change the hardware for this upgrade. The extension is simply a software option which is activated by a password. With the optional *HD Voice Upgrade (ID: 430466)* the *MAGIC TH6* Telephone Hybrids can even establish and receive calls in 7-kHz quality in the VoIP operating mode.

Another remarkable feature of the systems is the *Pretalk Streaming Upgrade (ID: 430464)*. With Pretalk Streaming, the Pretalk Audio signal can be transmitted via LAN from the telephone hybrid to a PC workplace. The user works with a USB headset and with the *MAGIC TH6 PC Software*. No additional Audio cabling is required. This feature is especially helpful if there are not enough Audio interfaces available for the application or if the Pretalk location is far away from the telephone hybrid. Maximum, four Pretalk Streaming licences can be activated in the system.

With the optional *DTMF Tone Analyzer Plug-In (ID: 430441)* it is possible to analyze DTMF tones which are received from the callers. Three operating modes are available: Standard, Game Show and Event Mode.

S A F E T Y

Introduction

The *MAGIC TH6* 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 case of normal operation the unit is safe.

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

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 as low as possible, 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 personnel on the basis of the respective documentation.
- 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 from our company or authorised by our company.
Any conversions or alterations carried out by other persons lead to a complete exemption of liability.
- The removal or disabling of safety facilities, the clearing of faults and errors, and the maintenance of the equipment must be carried out by specially qualified personnel only.
- Non-system software is used at one's own risk. The use/installation of non-system software can adversely affect the normal functioning of the system software.
- Use only tested and virus-free data carriers.

Conventions

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

Emphasis: Product names or important terms

LCD TEXT: Labelling on the front display of the system

PC Text: Labelling in the PC software

TIP

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

NOTE

The symbol **NOTE** labels general notes to observe.

ATTENTION



The symbol **ATTENTION** labels very important advice that is absolutely to observe. In case of non-observance disfunctions and even system errors are possible.

The functions of the *MAGIC TH6* are implemented in a single unit. The system is designed for mounting in a 19" rack (1 U) or as a table top unit.

FIG. 1 FRONT VIEW: MAGIC TH6 TELEPHONE HYBRID



2.1

Mechanical Design

The **MAGIC TH6** Telephone Hybrids incorporate a main board, a power supply with connector, a display, a keypad and 8 LEDs. All components are mounted in a 19" housing, 1 U high with the dimensions (W x H x D) 434 mm x 44,5 mm x 252 mm. Both **MAGIC TH6** systems can be installed as a table top unit or, using the 19" angles that are included in the delivery, in 19" racks. Sufficient ventilation is ensured by ventilation holes located at the bottom and top of the housing.

Fig. 2 shows the rear view of **MAGIC TH6 POTS**, Fig. 3 shows the rear view of **MAGIC TH6 ISDN**.

FIG. 2 REAR VIEW OF MAGIC TH6 POTS



FIG. 3 REAR VIEW OF MAGIC TH6 ISDN



2.2

Functionality

MAGIC TH6 is a digital telephone hybrid for six caller lines with various Audio and control interfaces.

The complete signal processing is taken over by a digital *signal processor*. In this way the following functions are carried out:

- G.711 Audio encoding and decoding
- six independent *Echo Cancellers* for each line
- six independent *AGCs* (Automatic Gain Control)
- six independent *Expanders* (to suppress spurious signals)
- control of the complete system (Keypad, Display, Relay, TTL, RS232, LAN)

The **MAGIC TH6** systems can be operated with the **MAGIC TH6 PC Software** which is optimised for touchscreen control. One Windows PC Software licence is included in the delivery. For additional workplaces, e.g. to implement a Screener - Presenter application or to share the MAGIC TH6 between two studios, up to three further **Windows PC software licences (ID: 430375)** can be purchased.

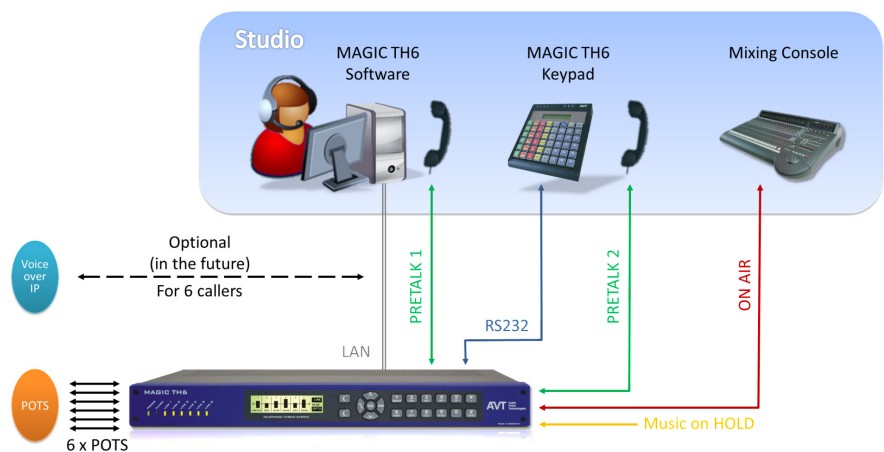
Additionally, the operation can be carried out via up to two external **MAGIC TH6 Keypads (ID: 801051)** which can be connected to the RS232 interface.

Most 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. Four relays are available for status indication.

MAGIC TH6 provides the following operation modes:

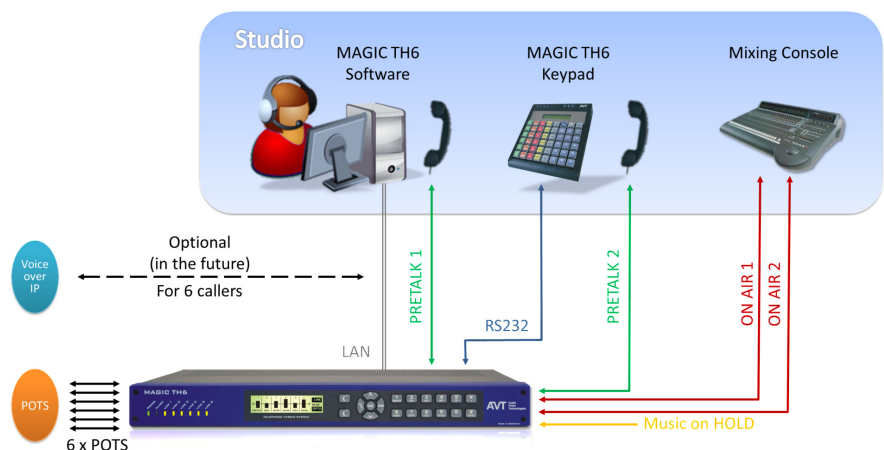
- One Fader operation: One On Air Audio signal is received from a single caller or it is the mixed signal of callers switched in conference.

FIG. 4 ONE FADER OPERATION MODE APPLICATION



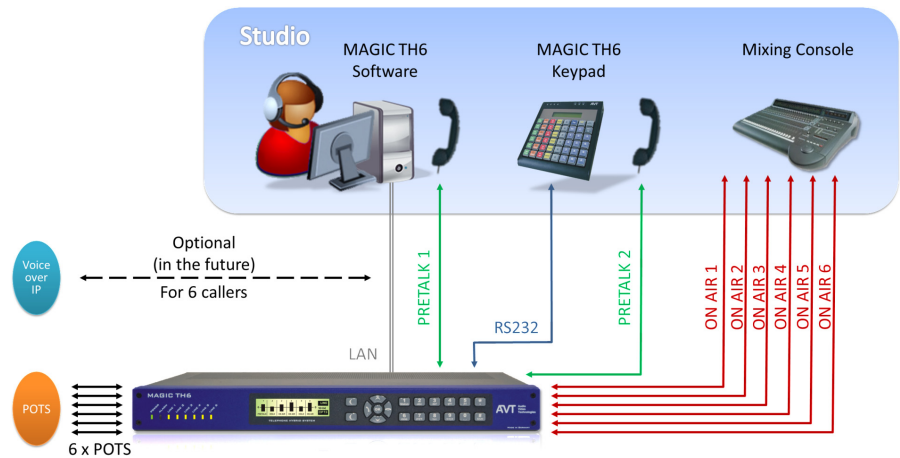
- Two Fader operation: Two separate ON AIR Audio signals: Two separate caller signals or two separate caller conferences.

FIG. 5 TWO FADER OPERATION MODE APPLICATION



- Six Fader operation: Six separate ON AIR Audio signals: Separate Audio interface for each caller.

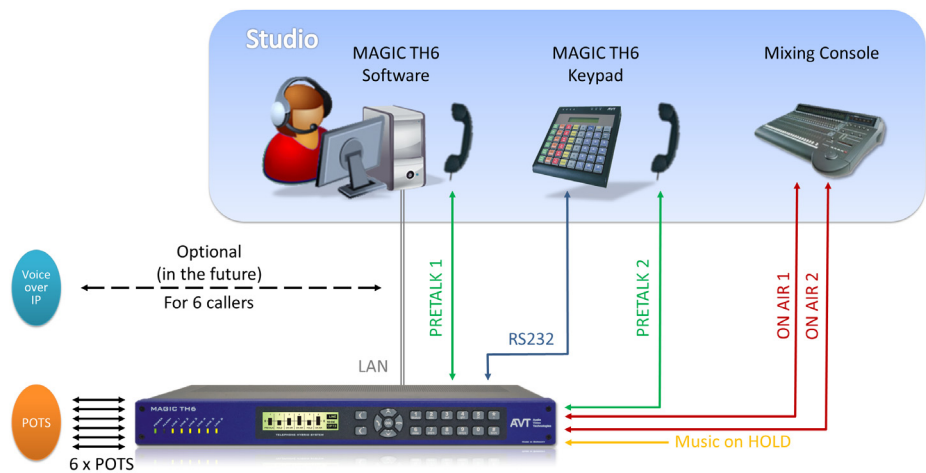
FIG. 6 SIX FADER OPERATION MODE APPLICATION



2.2.1 One Studio Solution

MAGIC TH6 supports a one studio solution. All control units such as external keypads and up to four PCs with *MAGIC TH6* software are controlling the same ON AIR Audio lines. Each control unit can have its own PRETALK interface.

FIG. 7 ONE STUDIO SOLUTION APPLICATION

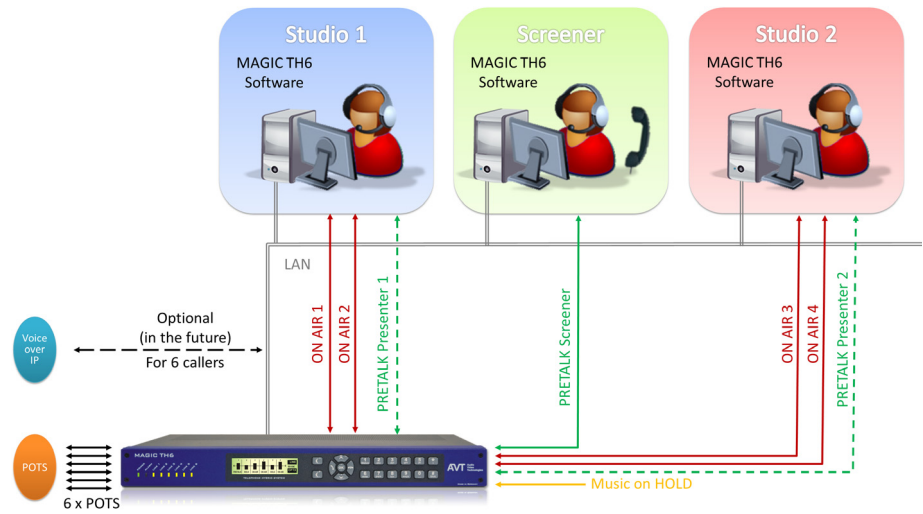


2.2.2 Two Studio Solution

MAGIC TH6 also supports a two studio solution. For each studio an external keypad and up to two PCs with a *MAGIC TH6 Software* can control the *MAGIC TH6 Telephone Hybrid*. For each studio separate ON AIR Audio lines can be configured. They can only be controlled by the keypad and PCs with

the *MAGIC TH6 Software* which are configured for the studio. In the HOLD status each studio can take the caller in PRETALK or ON AIR. Each control unit can have its own PRETALK interface.

TAB. 1 TWO STUDIO SOLUTION APPLICATION



3.1

Mounting

With its dimensions (W × H × D) of 434 mm × 44,5 mm (1 U) × 252 mm the *MAGIC TH6* system can be either used as desktop device or mounted in a 19" rack. The corresponding 19" mounting brackets are included in delivery.

The dimensions given above are valid for the table top version with no feet. If *MAGIC TH6* is to be inserted into a rack, it should be remembered that the bending radius of the cables should always be greater than the minimum allowed value.

When the *MAGIC TH6* Telephone Hybrid is installed, please make sure that there is a sufficient air 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 limits are especially to observe if the system is inserted in a rack. The system works without any ventilation.

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

NOTICE

Incorrect ambient temperature and humidity can cause functional deficiencies.

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

The *MAGIC TH6* must therefore be operated within the specified limits.

3.2

Connection to the mains voltage

The integrated power supply of the *MAGIC TH6* can be operated on a voltage (mains) between 100 V and 240 V. The mains frequency can vary between 50 Hz and 60 Hz. The maximum power consumption is a maximum of approx. 14 W.



After switching on, the display flashes for approx. 1 second and an internal reset is triggered. This is indicated by a switched off display. After approx. 10 seconds, the unit is operational and the display should indicate „AVT MAGIC TH6“.

3.3

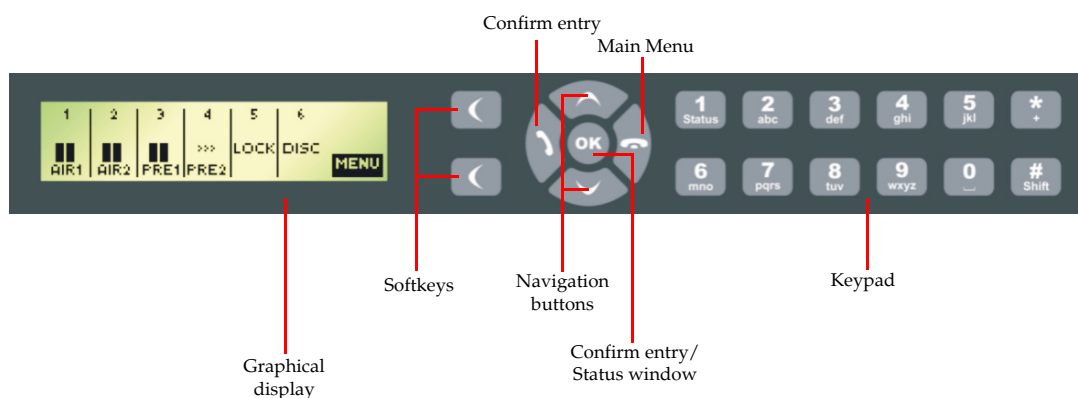
Operating elements on the front side

The system has an illuminated graphical display with a resolution of 160 × 32 pixels 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 buttons for navigation (selection upwards/downwards), two buttons for accepting/drop-

ping calls as well as an **OK** button. The numerical pad supports in addition to the numerals **0...9** also the '*' and '#' button. For entering a text the numerical pad can also be used as a normal keypad.

FIG. 8 OPERATING ELEMENTS ON THE MAGIC TH6 FRONT SIDE



3.4

Display, Keypad and LEDs

MAGIC TH6 (see FIG. 9) contains a graphical display, a keypad and 8 x LEDs on the front side. If the unit is switch on, the LED "POWER" lights in green colour. The LED "ALARM" lights in red colour if an internal alarm occurs. In case of an incoming call the corresponding "LINE 1" to "LINE 6" LED is flashing and after call acceptance the LED lights in yellow colour.

FIG. 9

FRONT VIEW OF MAGIC TH6



FRONT DISPLAY AND KEYPAD OPERATION

In this chapter, you will find the most important settings for the **MAGIC TH6** system which can be made via the front keypad and display. An overview of the menu structure can be found in the annex under CHAPTER A1.

All configurations can also be set comfortably via the **MAGIC TH6 Software** included in delivery.

NOTE

For details concerning most functions please see CHAPTER 5 (Operation via Windows PC Software).

4.1

Basic configurations

Below, some specific basic configurations of the **MAGIC TH6** are described in detail.

NOTE

All menus can be reached directly via a **Quick Menu** key sequence. Each menu item is marked with a numeral in the upper left corner (in the example on the left it is **3**). To get from the main menu directly to a specific menu, please enter the key sequence **MENU <DIGIT> <DIGIT>**, in which <Digit> marks the respective reference number of the menu. Please notice that the reference number can change in accordance with the configuration.

Menu reference number



To move up or down in a menu you can use the cursor keys **▲** and **▼**. To select a menu please press the **SELECT** softkey.

To get back to the main menu, please press the **☎** key. If you have made any changes in the configuration, you are asked if you want to **SAVE SETTINGS?** Via the **YES** softkey the settings are stored in the system. If you select **NO**, your changes will be disregarded.

4.1.1

Setting the menu language

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

NOTE

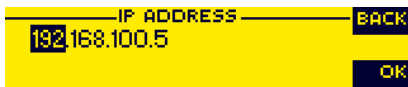
If you are not in the main menu, please press the **☎** key first.

- First press the **MENU** softkey and select **SYSTEM SETTINGS**.
- Go to the submenu **GENERAL** and select to **LANGUAGE** to reach the options for the language. With the help of the cursor keys **▲** and **▼** please choose your language and press again **SELECT**.

4.1.2 Configuration of the LAN interface

To configure the LAN interface follow the instructions below:

- Press the **MENU** softkey and select **SYSTEM SETTINGS**.
- Go to the submenu **LAN SETTINGS** and select **IP ADDRESS**. Now you can enter the IP address for the system by using the numerical keys 0...9 of the keypad. Press **OK** to confirm your entry.



If necessary, the **SUBNET MASK**, **DEFAULT GATEWAY** and **DNS SERVER** can be changed in the same way in the submenu **LAN SETTINGS**.

NOTE

Please ask your network administrator for the correct settings.

4.1.3 Working with Presets

The **MAGIC TH6** differentiates between **SYSTEM SETTINGS** and **OPERATION SETTINGS**.

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

Operation settings 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 **▼** three times 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 with the help of the alphanumerical keypad of the system, the corresponding entries of the Preset list are filtered out.

Alternatively, you can select a preset with the cursor keys **▲** and **▼** from the list.

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

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

- **LOAD**: The selected 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**: The currently selected Preset is deleted. For safety reasons a confirmation is required.

- **LOAD FACTORY SETTINGS:** This function resets the system into the standard settings. Presets 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 in the system. This Preset is loaded automatically by the system after the unit is connected with the power supply.

4.1.4**RS232 Interfaces**

MAGIC TH6 provides two RS232 interfaces:

RS232 interface 1 is always configured for the connection of an external keypad with the following parameters 9,600 bit per second, 8 data bits, no parity and cannot be changed.

RS232 interface 2 can be configured for the connection of an external keypad or a PC.

- To configure the RS232 interface 2 press the **MENU** softkey and select **SYSTEM SETTINGS**.
- Go to the **GENERAL** submenu and select **RS232/KEYPAD 2 (PC)**. Now you can select the required baudrate and parity.

NOTE

If you configure the RS232/Keypad 2 interface for the use with a PC, the PC control via the LAN interface will be deactivated.

The *MAGIC TH6 Windows PC Control Software* is included in delivery and provides a user-friendly configuration and operation of the system.

5.1

Hardware requirements

The PC must meet the following minimum requirements:

- IBM PC AT, IBM PS/2 or 100% compatible
- Pentium Processor (> 500 MHz) recommended
- Windows XP Professional
- Approx. 600-Kbytes available RAM
- 5 MB available hard disk space
- Screen resolution 800 x 600 pixel
- LAN interface
- Microsoft, IBM PS/2 or 100 % software compatible mouse

5.2

User Registration

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

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

Go to **Create an account** under the **Log In** section and enter your name and email address. Define a user name and click on **Register**. You will receive a confirmation email that includes a link which allows you to activate your account.

5.3

Installing the Windows PC software

Please insert the CD included in delivery in your CD-ROM or DVD drive. The software automatically starts your internet browser. Possible safety warnings can be ignored for the moment. Under the Software Updates heading click on *MAGIC TH6*. This opens a download window. Click on **Save to Disk**. The software is now downloaded into the sub directory previously selected on your PC to receive downloads. Select the directory into which the software has been downloaded and double-click on the AVT Setup file to open the *MAGIC TH6* Setup Wizard.

FIG. 10 SETUP WIZARD



Please follow the instructions of the installation routine. Subsequently, the setup program is executed.

After installation the software can be started by clicking on the MAGIC TH6 desktop icon.

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.

How to configure the LAN interface is described below (see CHAPTER 5.6, Page 41).

Alternatively, you can also use the RS232 interface and a serial 1:1 cable (only Pin 2 and Pin 3 are used, Pin 5=Ground) to connect your PC with the system.

5.4

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 **Download** section and select **Software**. Under **MAGIC TH6** please download the file with the ID number **430378**. 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 TH6** Software displays an error message when it is started. The instructions for a Firmware update are described later on (see CHAPTER 5.7.4, Page 87).

Operation via the Windows PC Software

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

5.5

The MAGIC TH6 main window

After starting the *MAGIC TH6 Software*, the main window is displayed automatically (see Fig. 11).

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



PC ONLINE: Connection is okay.



PC OFFLINE: Connection with PC is faulty

The Following further status messages are possible:



PC ONLINE ALARM:
see **System Monitor**



WRONG APPLICATION:
You are using the wrong software, e.g. for *MAGIC TH2plus*.



BOOT MODE: There is no valid firmware on the system. Please execute a firmware download (see CHAPTER 5.7.4, Page 87).

NOTE

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

- Power supply cable of the system is plugged in and unit is switched on (display available)
- LAN or serial 1:1 cable is connected with PC and system
- Correct IP Address and Port are selected (if LAN interface is used)
- COM port and correct baud rate are selected in the software (if RS232 interface is used)



With the button **LOCK ALL** you can lock all caller lines. The hybrid does not accept any call. The caller hears the busy signal. Only outgoing calls are possible. The locking is indicated by a purple coloured **LOCK** button. To unlock the lines, press the button a second time. To unlock only one caller line, press the **DROP/LOCK** button of the caller line.

NOTE

You can disable the lock function under **System Settings → Line Interface → General**. After enabling the option **Disable lock function**, the button **LOCK ALL** will not be displayed and you will also not be able to lock single lines.

5.5.1.3

Caller data fields

On the left side of each caller line the caller data fields are displayed. The following entry fields are shown:

- **Name**
- **First Name**
- Telephone **Number**
- **Information**

If you want to enter or change the caller information, just click on the desired field and enter the new information.



Additionally, the **Male/Female/?** button and the **Positive/Negative/Neutral/?** button are displayed next to the caller data fields. By clicking on the buttons you can change the setting.

NOTE

If a caller is already in the database and the telephone number is transmitted, you will see all available information immediately when a call is coming in.

5.5.1.4

Status keys: PRETALK, HOLD, ON AIR, DROP

Via the keys **PRETALK**, **HOLD**, **ON AIR** and **DROP** the line status is selected.



If the **PRETALK** button is indicated in green colour, the caller of the selected caller line has been switched in the PRETALK mode and can communicate via the configured PRETALK Audio interface (e.g. Handset/Headset or Audio interface).

This button can only be used if you have assigned an Audio interface to **PRETALK PC 1, 2, 3** or/and **4** in the configuration under **Operation Settings → Mode & Audio → Audio Line Assignment**. Otherwise the button is displayed inverted and cannot be used.



The caller is in HOLD status, if the **HOLD** button is indicated in orange colour. The caller receives the HOLD signal which can be the ON AIR program or an external HOLD signal. Alternatively, an Audio sequence stored previously in the system (**Recorded Hold Signal**) can also be used as HOLD signal (see CHAPTER 5.6.4.1.2, Page 47).



If the caller has been switched to the ON AIR status, the **ON AIR** button is indicated in red colour and the caller signal is available at the ON AIR Audio line interface.



If you have selected a **Two Faders** Mode or the **Six Faders** Mode in the configuration under **Operation Settings** → **Mode & Audio** → **Mode**, the ON AIR buttons are displayed as ON AIR **1** and **2** in the **Two Faders** Modes and as ON AIR **1...6** in the **Six Faders** Mode.

TIP

Via the menu **Operation Settings** → **Mode & Audio** you can also define your own label for the PRETALK, HOLD and ON AIR buttons under **Audio Line Assignment** → **Custom Label**.



Via the **DROP** key the connection to the caller can be dropped. If no connection exists the line is locked by pressing the **DROP** key. The button turn purple and is labelled with **LOCK**. In this case the caller hears the **Busy** signal. The line is unlocked by pressing the key again. Outgoing calls are still possible in the locked status.



When there is an *incoming* call, *all* keys are displayed in yellow and blinking. Each of these keys can be selected. In this way, you can switch a caller directly to **ON AIR** for instance.

In contrast to this, when there is an *outgoing* call, the keys **PRETALK**, **HOLD** and **ON AIR** are displayed yellow and static whereas the key **DROP** is displayed yellow and blinking. Only the **DROP** button can be selected to stop the outgoing call.

5.5.1.5

HD Voice and Voice Disguise



If the fee-based **HD Voice Upgrade (ID: 430466)** has been activated and the system is used in the Voice-over-IP operating mode, this status key shows that the connection has been established with G.722 in 7-kHz quality.



If the red **VD** button is displayed on the right side of each caller line, the Voice Disguise function is activated. This function distorts the caller signal so that he/she cannot be recognised. Voice Disguise can be activated or deactivated under the submenu **Mode & Audio Line** (see CHAPTER 5.6.4.1.1, Page 44).

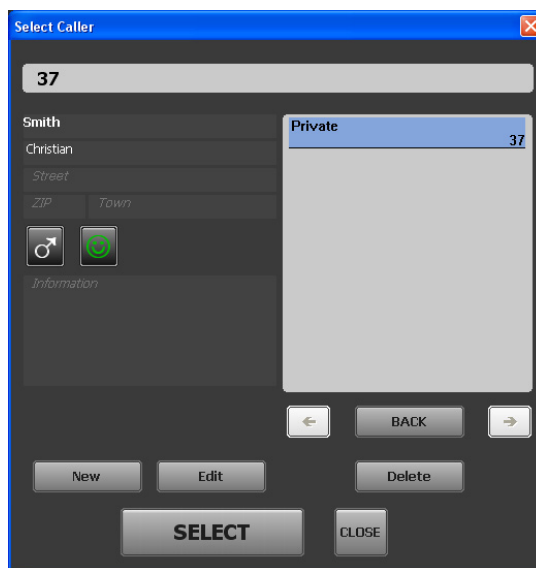
5.5.1.6

Caller Screening



If you click on the **Assign** button which is displayed next to the telephone number of the caller, the **Select Caller** window is opened. The **Assign** button works only during incoming calls, outgoing calls and an existing connection.

FIG. 13 SELECT CALLER WINDOW



If there is already an existing database entry for the telephone number with which the connection is established, all available information will be displayed. To add or change information, please press the **Edit** button. The **Edit Caller Entry** window is displayed where you can edit the database entry.

Alternatively, you can also search the database for a last name, first name or a telephone number using the search field at the top of the **Select Caller** window. All matching entries are immediately displayed on the right side of the window. To view the details of an entry, just click on the corresponding name or number. To select the database entry for your current caller, please press the **Select** button.

To create a new entry, click on the **New** button. The **Edit Caller Entry** is opened where you can enter the caller details.

To delete the currently displayed entry, please press the **Delete** button.

5.5.1.7 Telephone Book/Manual Dialing

To open the Telephone Book you must click on the **PRETALK, HOLD** or **ON AIR** button of one of the caller lines when no connection is established.

The **Dialing** window is opened. Via this window, you can dial out manually or use an existing telephone book entry.

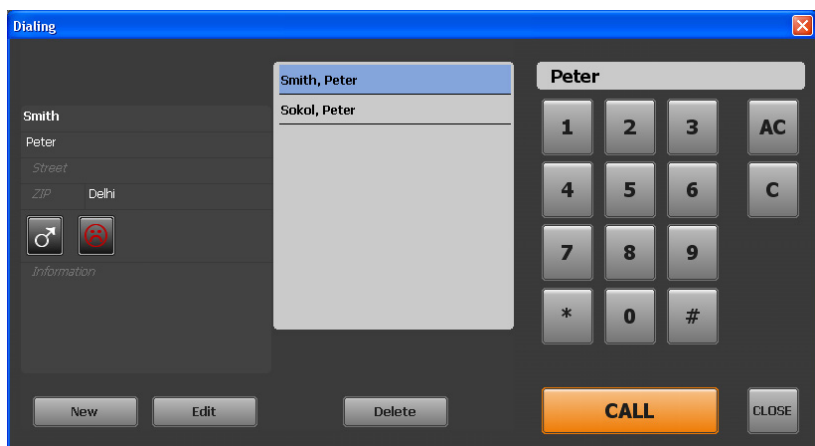
To dial out manually, use the numerical buttons and click on **CALL**. The **CALL** button is displayed in the colour of the Audio line (green = Pretalk, orange = Hold, red = ON AIR) on which the connection will be established (depends on which button you clicked to open the **Dialing** window).

FIG. 14 DIALING WINDOW



To search for a telephone book entry, enter the number or the name of the caller into the **Search** field. The matching entries are displayed in the middle of the window. You can select the desired entry with your mouse to be displayed on the left side.

FIG. 15 SEARCH TELEPHONE BOOK



To call the selected entry click on **CALL**. The **CALL** button is displayed in the colour of the Audio line (green = Pretalk, orange = Hold, red = ON AIR) on which the connection will be established (depends on which button you clicked to open the **Dialing** window)

To delete the selected entry, click on **Delete**.

To edit the selected entry, click on **Edit**.

To create a new entry, click on the **New** button. The **Edit Caller Entry** is opened where you can enter the caller details.

FIG. 16 EDIT CALLER ENTRY

Now you can enter **Name**, **First Name**, **Street**, **ZIP** (Postal Code) and **Town**. For each caller you can save up to three numbers. The labels for the number types can be defined under **Operation Settings** → **Database** → **Telephone Book**. You can assign the buttons **Male/Female/?** and **Positive/Negative/Neutral/?** to the caller and enter information in the **Information** field.

To save the entry, click on **OK**. To cancel the entry, click on **Cancel**.

5.5.1.8 Call Forwarding



The **MAGIC TH6** uses the **ECT (Explicit Call Forwarding)** procedure. With the call forwarding button, you can forward a call to any telephone number. Just press the call forwarding button when a call is coming in or during an established connection. The **Dialing** window will be opened and you can enter a telephone number manually or select a number from the telephone book. Confirm your entry with the **Call** button. As soon as you drop the connection, the caller is forwarded to the desired telephone number.

NOTE

Before you drop the caller, you have the possibility to talk to the call forwarding destination.

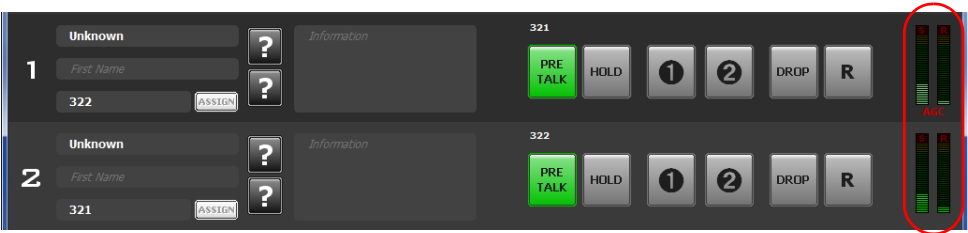


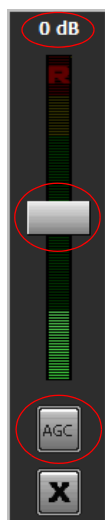
If no connection is established, the call forwarding button is displayed inverted and cannot be used.

5.5.1.9 Level meter and control

For each caller line the transmitted Audio signal (**S** = send) as well as the received caller signal (**R** = receive) are displayed via separate level meters.

FIG. 17 LEVEL METER





By clicking on the level indication, a bigger level meter for the received signal appears. It displays the received Audio signal level on the top of the field as a value in dB. A white pointer can be moved to adjust the amplification and to control the received Audio signal level.

For each caller line you can switch on an Automatic Gain Control (AGC). This can be selected in the configuration under **System** → **Operation Settings** → **Signal Processing** or you simply use the **AGC** button below the level control of each caller line.

To close the window for the level control of the received signal, please press the **X** button.

NOTE

If the **Automatic Gain Control (AGC)** is activated, AGC is displayed in red on the level meter of the respective caller line as well as on the AGC button. The colour of the pointer for adjusting the volume of the caller signal also changes from white to red.

5.5.1.10

Record button (Pretalk Streaming Clients only)

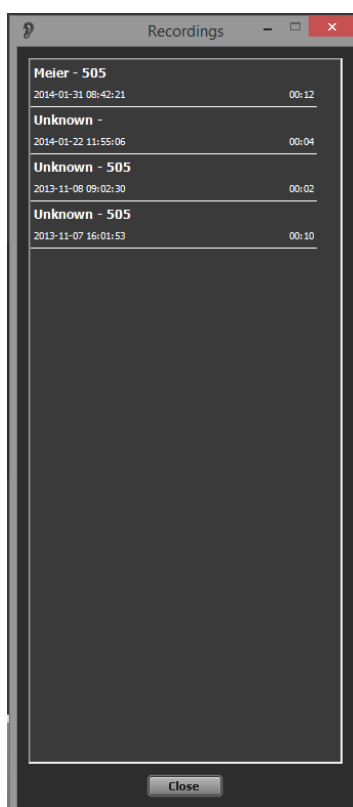


If the fee-based *Pretalk Streaming Upgrade (ID: 430464)* is enabled and your PC is configured for Pretalk Streaming, the **Record** button will be displayed in the user interface.

With the **Record** button you can record the caller's Audio signal when he is switched to Pretalk. Just press the button and the recording will start. The button turns red during a recording. To stop the recording, just press the **Record** button a second time and the Audio file (.wav) will be saved on your PC.

To display all recorded Audio files, please press the arrow button next to the **Record** button. The window **Recordings** will be opened. To listen to a recording, you just need to click on the respective entry.

FIG. 18 RECORDINGS



NOTE

To configure Pretalk Streaming for your PC-Client, you need to select an **IP Stream** as Pretalk source for your PC under **Operation Settings → Mode & Audio Line** (see CHAPTER 5.6.4.1.1, Page 44) and configure the Audio input/output for Pretalk Streaming under **Local Settings → Pretalk Streaming** (see CHAPTER 5.6.7.2, Page 81). Here you can also select where you want to save the recordings. Please ensure also that the correct **Pretalk Steraming Udp ports** are entered under **System Settings → LAN Interface** (see CHAPTER 5.6.4.2.8, Page 70).

5.5.1.11 Night Service button

The **Night Service** button is only available if you have configured the Night Service under **Operation Settings → Night Service** (see CHAPTER 5.6.4.1.6, Page 52). If the Night Service is switched on, calls will be automatically forwarded to a preselected phone number. To switch it off, press the **Night Service** button again or use the **Switch Off** button of the Night Service window.

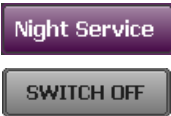
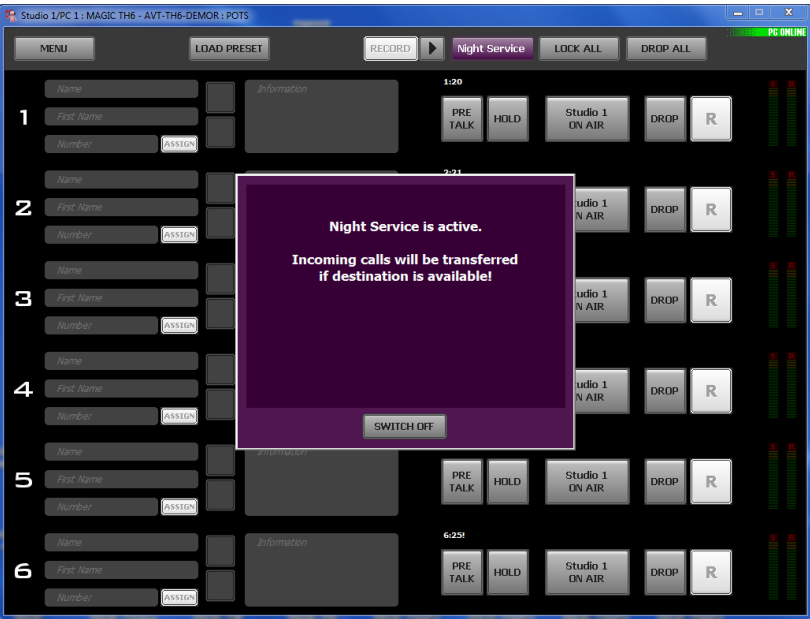


FIG. 19 NIGHT SERVICE SWITCHED ON



5.5.1.12 Load Preset button

After selecting the **LOAD PRESET** button a list of all available Presets will be displayed. If a Preset is selected, the corresponding configuration will be loaded in **MAGIC TH6**.



5.5.1.13 Reset DTMF button

The **RESET DTMF** button is only displayed if the fee-based option **DTMF Tone Analyzer Plug-In (ID: 430441)** is available and if you have selected **Standard** or **Game Show** under **Configuration → DTMF Settings**. Further details you will find in CHAPTER 6, Page 93.



5.5.1.14 Send DTMF tones

To send DTMF tones to a partner please press the respective status key (**Hold**, **Pretalk** or **ON AIR**) and use the numerical pad, i.e. if the caller is currently ON AIR, press the **ON AIR** button. You can only send DTMF tones during a connection.

FIG. 20 SEND DTMF

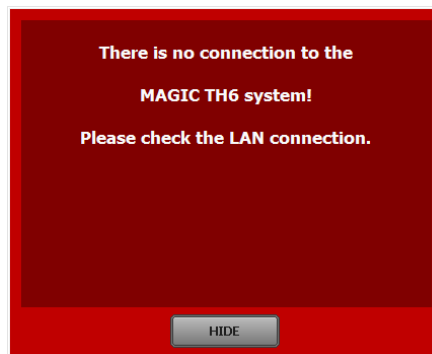


5.5.1.15 Alarm Info button

ALARM INFO

If the **ALARM INFO** button is displayed, an alarm has occurred. After pressing the **ALARM INFO** button a red window with all existing alarms is displayed. Using the button **HIDE** the windows can be closed.

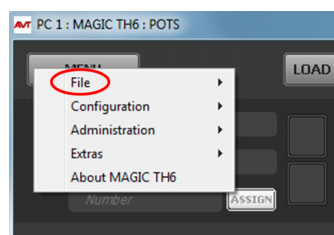
FIG. 21 ALARM WINDOW (EXAMPLE)



5.6

Menu File

FIG. 22 MENU FILE



5.6.1

Submenu System Settings

Via the submenu **System Settings** you can import or export system settings.

With the selection **File** → **System Settings** → **Import** you can import a complete system configuration (all settings made under **System Settings: General, Line Interface, MSN, POTS Phone Numbers, POTS interface: Outside Line, POTS Interface: PABX, VoIP(LAN/SIP), Audio Interface, LAN Interface, VLAN** and **Quick Dials**) from a data carrier. The file extension is always **.TH6**.

With the selection **File** → **System Settings** → **Export** you can save your current system settings. You can select the storage location for the file.

5.6.2

Submenu Exit

Via the submenu **Exit** you exit the **MAGIC TH6** software.

5.6.3

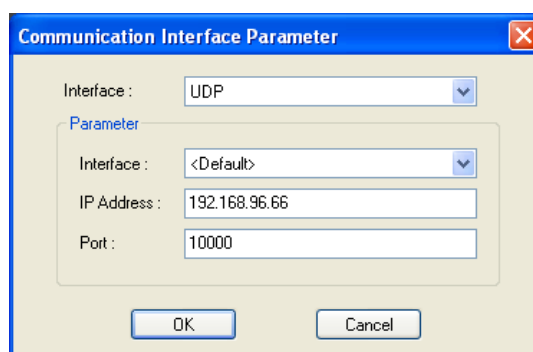
Submenu Control Interface

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

LAN Interface (UDP)

To use the LAN interface for control, please select **UDP** under **Interface**.

FIG. 23 LAN PARAMETERS



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


The standard **IP Address** of the system is **192.168.96.66** and the standard control **Port 10000**.

To enable a connection with your PC, you have to be in the same **subnet**. Therefore, please enter an IP address from your subnet¹ or activate **DHCP** (Dynamic Host Configuration Protocol) to get the correct settings automatically (if a DHCP Server is available) (see CHAPTER 5.6.4.2.8, Page 70).

To change the IP address on the front keypad of the system, press the softkey **MENU** → **SYSTEM SETTINGS** → **LAN SETTINGS** → **IP ADDRESS**. Enter now the desired IP address. When entering it manually you have to be sure that the IP address is not already used by another unit².

Please enter the correct IP address of the system under **IP Address** and the correct Port under **Port**.

TIP

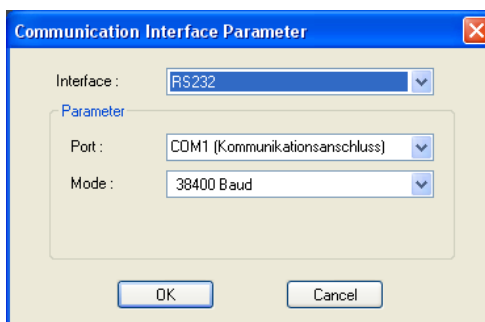
The currently allocated IP address of the system can be displayed by pressing the telephone button  on the front keypad of the system twice if currently no Audio connection is established.

RS232

If you want to use the RS232 interface, connect the serial RS232 interface via 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 must be configured.

If the selected COM port is already busy, an error message will be displayed. Then select another open COM port. The default Baud rate in the system is **38400 Baud**.

FIG. 24 RS232 PARAMETER.



NOTE

Instead of the PC you can also connect the optional **MAGIC T6 Keypad** to the serial interface of the system (see CHAPTER 7, Page 97).

¹ In this way you can find out your own subnet: Under **Windows XP** click on **Start** → **Execute ...**. Enter **cmd** in the command line. An entry window is displayed in which you must enter **ipconfig**. Your IP address is displayed (e.g. 192.168.12.35). Your subnet is accordingly 192.168.12.xxx.

² To check if the IP address is already used in the network, follow the instructions: Under **Windows XP** click on **Start** → **Execute ...**. Enter **cmd** in the command line. An entry window is displayed in which you must enter **ping xxx.xxx.xxx.xxx**. Whereas xxx stands for the IP address you want to check.

ATTENTION

If you connect your PC via RS232, the LAN interface of the **MAGIC TH6** will be disabled for control. In this way, you can only connect one PC to the system.

Control Interface List

If you want to manage several units with the PC Software or you want to connect to one system via different control ports, e.g. as PC 1 and PC 2, you can use the option **Control Interface List**. As in a telephone book different control interfaces can be preconfigured and selected in a simple manner. In the following example a **MAGIC TH6** can be controlled over its LAN interface. For control purposes the UDP parameters are displayed

To create a new list entry, press the **New** button. Please enter the settings for the LAN or RS232 parameters as described above. Additionally, you can enter a **Name** for the list entry. The new entry will be displayed as a button in the main window of the **MAGIC TH6**, e.g. if you create an entry with the name PC 1, the corresponding button will be displayed.

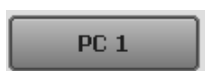
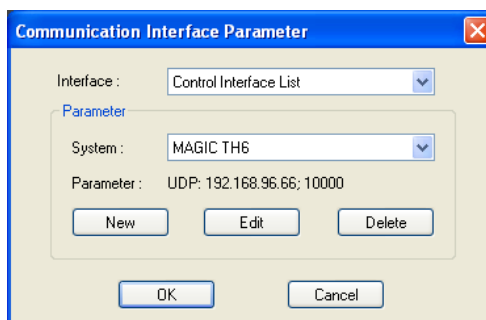


FIG. 25 CONTROL INTERFACE LIST PARAMETER



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

5.6.4 Submenu System

In the submenu System the *MAGIC TH6* and both **Operation Settings** and **System Settings** can be configured. System Settings are permanent settings whereas Operation Settings can be stored in a Preset and can be changed by loading a Preset.

5.6.4.1 Operation Settings

Under the menu **Operation Settings** the following submenus are available:

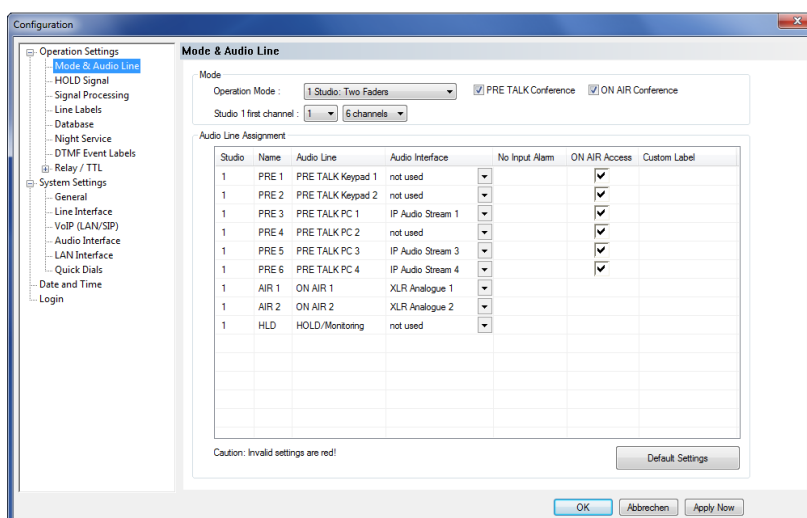
- **Mode & Audio Line**
- **HOLD Signal**
- **Signal Processing**
- **Line Labels**
- **Database**
- **Night Service**
- **DTMF Event Labels** (requires optional *DTMF Tone Analyzer Plug-In*)
- **Relay/TTL**

The configuration is saved by selecting the **OK** button. The command **Apply Now** only causes the transmission of the configuration from the PC to the *MAGIC TH6* but does not store the configuration. The command **OK** also closes the window of the PC software.

5.6.4.1.1 Mode & Audio Line

Under **Mode & Audio Line** you can select the operating mode for the system, define if you work with one or two studios, enable the conference mode for Pretalk and ON AIR and assign the Audio lines.

FIG. 26 MODE & AUDIO LINE



Mode

- Under **Operation Mode** you can select your mode of operation for the **MAGIC TH6**:
 - **1 Studio: One Fader:** one ON AIR Audio line is configured for the connection to the mixing console. If the conferencing option is enabled, all callers are mixed together and are available as common Audio output signal. The return signal from the mixing console shall contain the Audio signal of the program presenter without caller signals. The mix minus signals for all callers are generated in the **MAGIC TH6** and provided as individual return signals to the callers. This mode provides a single **ON AIR** button.
 - **1 Studio: Two Faders:** two ON AIR Audio lines are configured for the connection to the mixing console. The callers can be switched to the separate ON AIR lines ON AIR 1 or ON AIR 2. If the conferencing option is enabled, all callers who are switched to the ON AIR 1 status are mixed together and provided as a common signal to the mixing console. The same is true for callers who are switched to the ON AIR 2 line. The return signals from the mixing console shall contain the Audio signal of the program presenter without caller signals. The mix minus signals for all callers are generated in the **MAGIC TH6** and provided as individual return signals to the callers. This mode provides two ON AIR buttons **ON AIR 1** and **ON AIR 2**
 - **1 Studio: Six Faders:** six ON AIR Audio lines are configured for the connection to the mixing console. Each caller is switched to separate ON AIR line and provided on the ON AIR 1 to ON AIR 6 Audio lines to the mixing console. The return signals from the mixing console shall contain the Audio signal of the program presenter without caller signals. This mode is indicated by the six ON AIR buttons **ON AIR 1** to **ON AIR 6**.
 - **2 Studios: One Fader:** same as the **1 Studio: One Fader mode** but the caller lines can be split between two studios; you will have a separate On Air line for Studio 1 and a separate Audio line for Studio 2.
 - **2 Studios: Two Faders:** same as the **1 Studio: Two Faders mode** but the caller lines can be split between two studios; you will have two separate On Air lines for Studio 1 and two further separate Audio lines for Studio 2.
- To allow Pretalk or/and ON AIR conferences, the options **PRE TALK Conference** or/and **ON AIR Conference** must be enabled. If you do not activate these options, only one caller is allowed to be in Pretalk or/and ON AIR at a time. As soon as a second caller is switched to Pretalk or ON AIR, the first caller is automatically switched to HOLD.
- To call out without signalling the phone number to the partner, you can select the option **Anonymous Calling**.
- **Studio 1 first channel:** Here you can select how many channels you would like to display for Studio 1 and which channel should be the first.
- **Studio 2 first channel** (only displayed if you have selected an operating mode with two studios): Here you can select how many channels you would like to display for Studio 2 and which channel should be the first.
- **Voice Disguise:** The **Voice Disguise** function distorts the caller signal so that he/she cannot be recognised. If you activate this feature, it applies to all caller lines. The red Voice Disguise button will be displayed on the right side of each caller line (see Page 34). You can configure the sound of the Voice Disguise function under **Signal Processing** (see CHAPTER 5.6.4.1.3, Page 48).

Audio Line Assignment

- Under **Audio Line Assignment** you can assign the Audio interfaces to the ON AIR, PRETALK and HOLD.
- In the column **Name** you can see which name is displayed on the front display of *MAGIC TH6* if the corresponding Audio line has switched a caller to Pretalk, On Air or Hold.
- The column **Audio Line** shows the available Pretalk and On Air Audio lines (**ON AIR 1...6**, **PRETALK PC 1 ...4**, **PRETALK KEYPAD 1, 2** and **HOLD/Monitoring**). If a caller is switched to one of these Audio lines by a user, the other users who are working with the PC Software will see the corresponding name displayed on the Pretalk and ON AIR buttons.

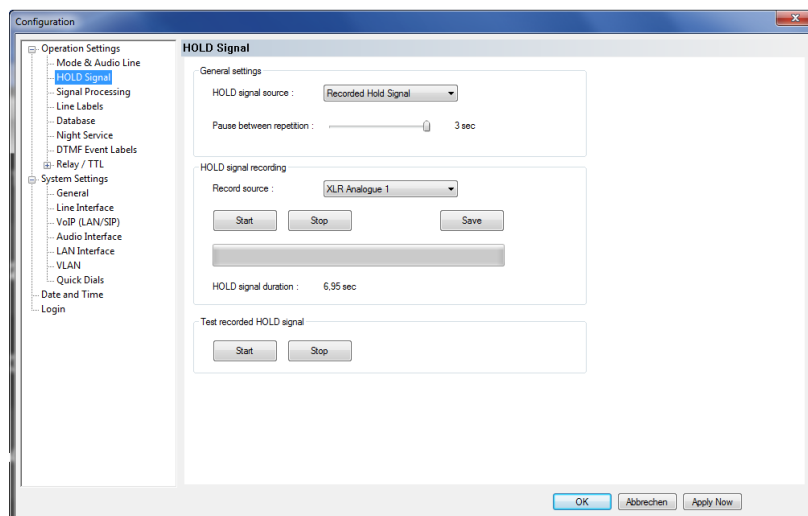
Example: User 1 is working with the Audio line **PRETALK PC 1**. If he switches a caller to Pretalk, user 2 who is working with a second PC will see **PRETALK PC 1** displayed on the Pretalk button. On the front display of the system **PRE4** will be shown.

- In the column **Audio Interface** you can select which Audio interface is to be assigned to which Audio line. If you do not want to use an Audio line, select **Not used** in the column **Audio Interface**. The following Audio interfaces can be selected:
 - **Handset 1** (only for Pretalk)
 - **Handset 2** (only for Pretalk)
 - **XLR Analogue 1**
 - **XLR Analogue 2**
 - **AES/EBU 1 left**
 - **AES/EBU 1 right**
 - **AES/EBU 2 left**
 - **AES/EBU 2 right**
 - **IP Audio Stream 1...4** (only for Pretalk; *Pretalk Streaming Upgrade (ID: 430464)* required)
- If you have selected a digital Audio line for **ON AIR**, **PRETALK** or **HOLD**, you can decide *not* to receive an alarm if there is no Audio signal available at the AES/EBU input. In this case, please enable **No Input Alarm**.
- To allow a control unit - external Keypad or PC - to put the callers to On Air, please enable the checkbox **ON AIR Access**.
- If you want to assign a different name to the Audio line to be displayed in the PC Software, you can enter a new name under **Custom Label**.
- To select the default settings for your selected operating mode, please click on **Default Settings**. For safety reasons you must confirm that you really want to select the default settings.

5.6.4.1.2 HOLD Signal

Via this submenu the **HOLD Signal** can be configured.

FIG. 27 HOLD SIGNAL



General settings

- Under the setting **HOLD signal source** you can select which **HOLD** signal you want to use.

With the option **ON AIR** the ON AIR signal is used as **HOLD** signal.

If you select **Recorded Hold Signal**, the caller hears the Audio signal stored in the system.

If you have configured an interface as Hold input under **Operation Settings** → **Mode & Audio Line** (see CHAPTER 5.6.4.1.1, Page 44), you can also select this interface e.g. **XLR Analogue 1** for an external Hold signal.

- With the use of the slide control **Pause between repetition** you can set the pause between the repetitions of the recorded signal. The pause time ranges from **0 to 3 sec**.

HOLD signal recording

- Under **Record source** you can select the signal source via which the HOLD signal is recorded. It can be any of the Audio interfaces, such as Handset, XLR Analogue 1 etc.
- Via the button **Start** you start the recording. With **Stop** the recording is stopped. With **Save** the recorded signal is saved in the permanent memory (FLASH-EPROM) of the system.
- The duration of the recorded HOLD signal is displayed under **HOLD signal duration**. The maximum duration of a recorded signal is 16 seconds.

Test recorded HOLD signal

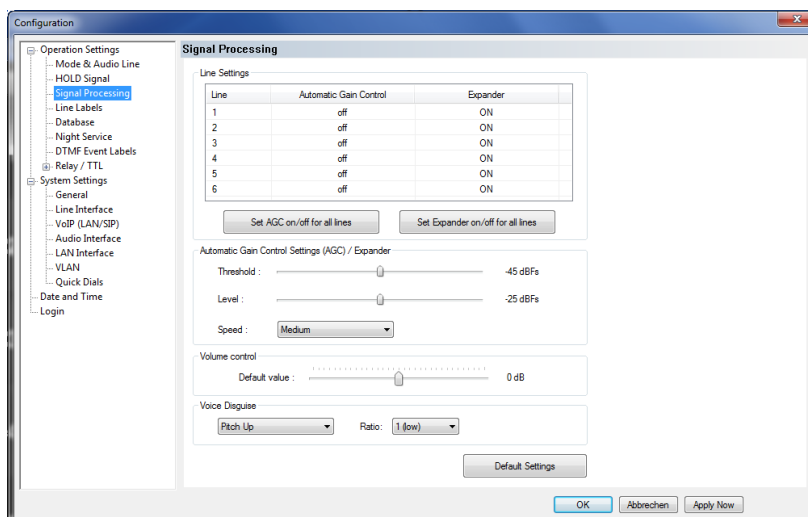
- To test the recorded signal it can be played back. The button **Start** starts the play-back of the recording and by **Stop** it is stopped. The same Audio interface is used as for the recording.

5.6.4.1.3 Signal Processing

In this submenu the **Signal Processing** functions can be configured:

- **AGC** (Automatic Gain Control)
- **Expander**
- **Echo Celler**
- **Voice Disguise**

FIG. 28 SIGNAL PROCESSING



Line Settings

- A separate Automatic Gain Control (**AGC**) can be switched on for all six channels.

ATTENTION



An Automatic Gain Control is reasonable if you do not have the possibility for Pretalk during which the level can be adjusted.

But: An AGC is no wizard. Extremely low callers cannot be boosted boundlessly. Extremely loud callers cannot be toned down boundlessly.

Please select the desired line. To switch off the **AGC** select **Off**. To switch it on select **On**.

FIG. 29 CONFIGURATION AGC

The screenshot shows a window titled 'Line Settings' with a table and two buttons below it.

Line	Automatic Gain Control	Expander
1	ON	off
2	ON	off

Below the table are two buttons: 'Set AGC on/off for all lines' and 'Set Expander on/off for all lines'.

Via the button **Set AGC on/off for all lines** you can switch on respectively switch off the **AGC** for all lines.

- An **Expander** tones down the caller signal automatically, if its level falls below a certain threshold value. The aim is to completely filter out background noises of callers who are not currently speaking.

To activate the **Expander** select the desired line with your mouse. To switch off the **Expander** select **Off**. To switch it on select **On**.

Via the button **Set Expander on/off for all lines** you can switch on respectively switch off the **Expander** for all lines.

Automatic Gain Control Settings (AGC)/Expander

The correct functioning of the **AGC** can be optimised via several parameters.

- **Threshold:** The **AGC** does not start before the signal exceeds the threshold value set here. The default setting is **-45 dBfs**.
- **Level:** The level set here corresponds to the average desired level. Please consider sufficient head room. The default setting is **-24 dBfs**.
- **Speed:** Depending on the desired speed of the level adjustment (**Slow**, **Medium** or **Fast**) you can adjust the setting of the AGC speed. The faster the AGC must work the more noticeable are the inconsistencies. If the selected speed is too slow, the caller signal is too low or too loud on average. The default setting is **Medium**.
- With the use of the key **Default Settings** the AGC will be switched off and the **Expander** will be activated.

Volume Control

Under **Volume Control** you can select the **Default Value** for the volume control within the range of **-16 ... +16 dB**.

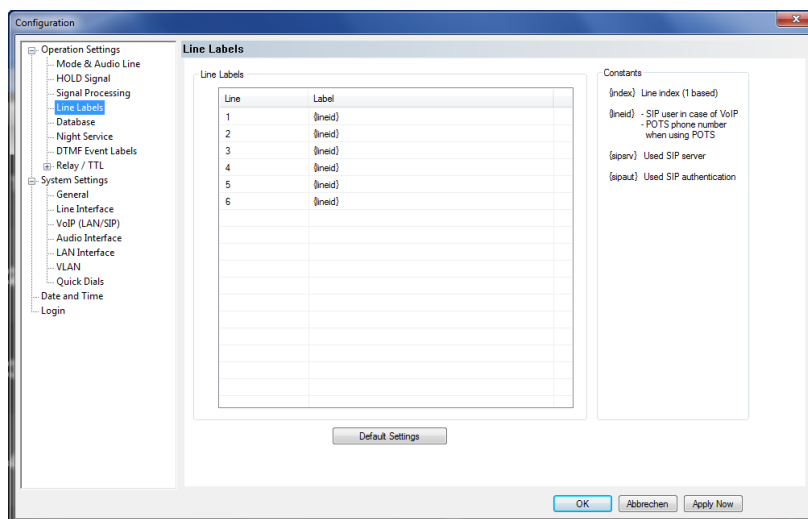
Voice Disguise

With the Voice Disguise dropdown lists it is possible to adjust the style of the Voice Disguise function. You can choose if the caller voice is pitched up or pitched down and set the **Ratio** from **1 (low)** to **4 (high)**. Voice Disguise can be activated under **Operation Settings** → **Mode & Audio Line** (see CHAPTER 5.6.4.1.1, Page 44).

5.6.4.1.4 Line Labels

Under **Line Labels** you can define if you want to display an individual label for each caller line.

FIG. 30 LINE LABELS



You can enter a line label for each **Line**. You can choose to use a text entry (e.g. Game Show, Call Out Line etc.) or you can work with the available **Constants**. It is also possible to mix a text entry with a constant or to use two constants in combination. The available options are:

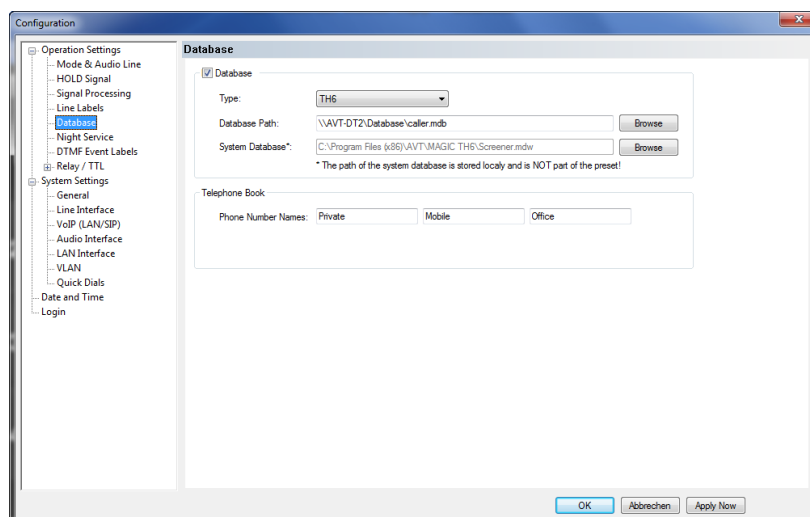
- **{index}**: This constant will display the number of the caller line
- **{lineid}**: In case you are working with POTS, the constant will display the POTS phone number which you have entered under the menu **POTS Phone Numbers** for the line. If you are working with ISDN, it will display the MSN which you have entered under the menu **MSN**. If you are working in VoIP mode, it will display the SIP user name that has been entered under **VoIP (LAN/SIP) → User Name**.
- **{sipsrv}**: This constant only makes sense in VoIP Mode. It will display the SIP Server that is used for the caller line.
- **{sipaut}**: This constant only makes sense in VoIP Mode. It will display the SIP Authentication that is used for the caller line.

The **Default Settings** button sets all line labels to **{lineid}**.

5.6.4.1.5 Database

MAGIC TH6 can work with a caller database where you can save telephone numbers and caller information. If a telephone number is stored in the database, the caller information such as e.g. the caller's name will be immediately displayed when a call is coming in and the number is transmitted.

FIG. 31 Database



- To enable the use of a database, please select **Database** and enter the correct path under **Database Path**. Via **Browse** you can search for the correct folder.
- The path of the **System Database** is usually entered automatically when the software is installed. By default, the file **Screeener.mdw** is saved in the installation directory. If you do not have a write permission for the installation directory, you must change the path of the **System Database** to a directory for which you have a write permission. Otherwise, you will not be able to use the database.

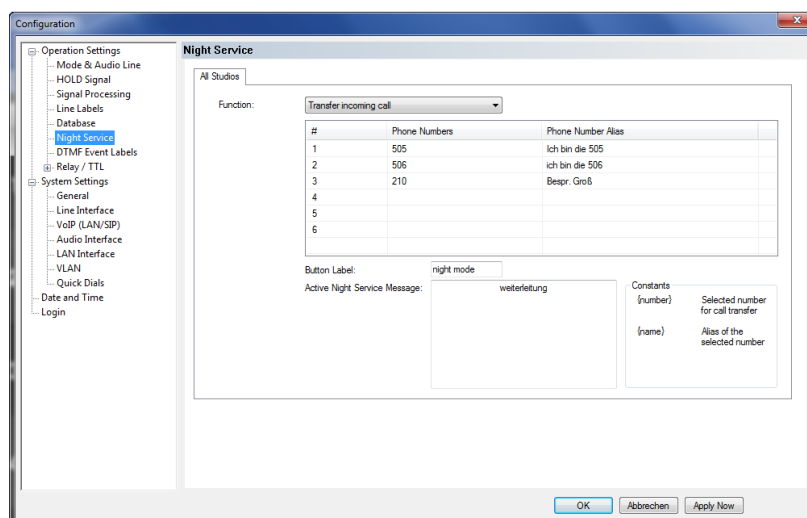
Telephone Book

Under **Phone Number Names** you can define which number types (e.g. Private, Office, Mobile Phone etc.) will be available in the telephone book. You can enter maximum three names.

5.6.4.1.6 Night Service

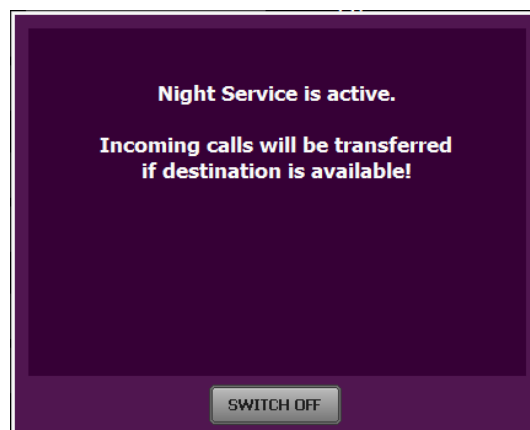
If nobody is in the studio to answer calls, e.g. during the night, you can activate the so-called Night Service to forward the call automatically.

FIG. 32 NIGHT SERVICE



- To activate the Night Service function, please select **Transfer Incoming Call** under **Function**.
- In the table below the **Function** dropdown list you can enter up to six **Phone Numbers**. These telephone numbers can be selected for call forwarding when the Night Service button is pressed. If you enter only one telephone number, there will be no selection, of course. Under **Phone Number Alias** you can enter an alias for each telephone number.
- By default, the button for switching on/off the Night Service is labelled with **Night Service**. Under **Button Label** you can enter a user-defined name.
- **Active Night Service Message**. If you want to display a customised message if the Night Service is active, you can enter it here. Two constants are available for this message. **{number}** displays the selected phone number for call forwarding and **{name}** display the Phone Number Alias of the selected phone number.

FIG. 33 NIGHT SERVICE STANDARD MESSAGE



5.6.4.1.7

DTMF Event Labels

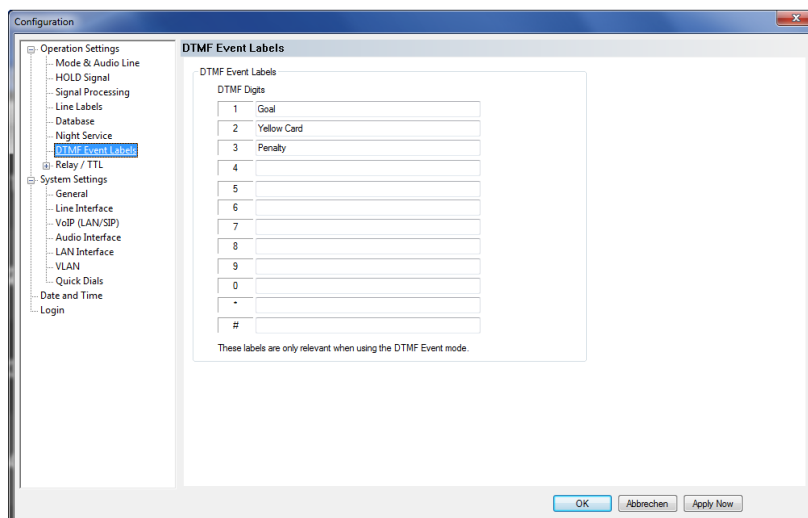
NOTE

This menu will only be displayed if the fee-based **DTMF Tone Analyzer Plug-In** software option (see CHAPTER 6, Page 93) is enabled in your system.

DTMF Event Labels

Under **DTMF Event Labels** you can define the so-called Event Labels for the **DTMF Event Mode**.

FIG. 34 DTMF EVENT LABELS



The **DTMF Event Mode** is described in detail in CHAPTER 6 (see Page 93).

5.6.4.1.8

Relay / TTL

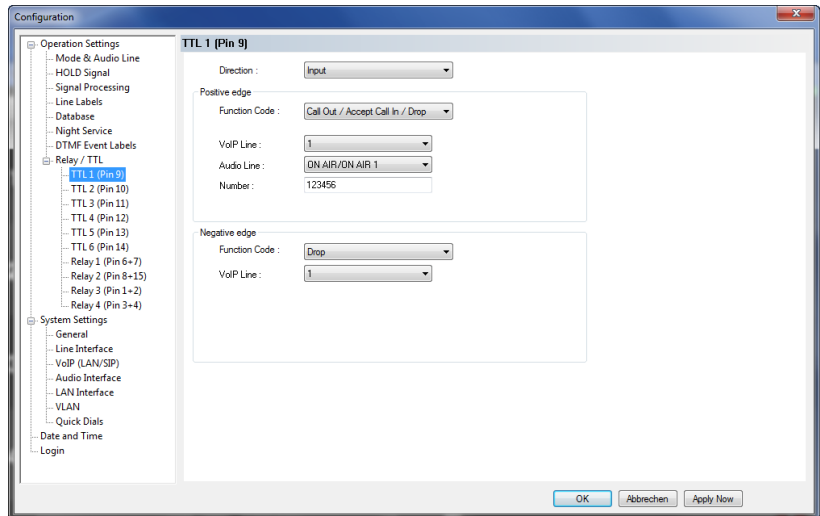
The **MAGIC TH6** system incorporates six **GPIO** Pins (TTL) which can be programmed separately as input or output. Additionally, four **Relays** are available.

The operating mode of a TTL Pin - **Input** or **Output** - is selected via the option **Direction**.

The following specification accounts for all configuration windows **TTL1**, **TTL2**, **TTL3**, **TTL4**, **TTL5** and **TTL6**.

TTL Pin as input

FIG. 35 TTL PIN AS INPUT



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

- **Positive edge:** The event is activated when the voltage on the TTL Pin changes from 0V to +3.3V.
- **Negative edge:** The event is activated when the voltage on the TTL Pin changes from +3.3V to 0V.

The following functions can be configured (**Function Code**):

- **- :** No function, the Pin is not used.
- **Call Out/Accept Call In/Drop:** Via this function you can establish a connection to a certain **Phone Number**, accept an incoming call or drop a call. Under **POTS Line/ISDN Line** you select the line (**1, 2, 3, 4, 5** or **6**) on which the connection is established. Under **Audio Line** you select the Audio line that is activated when the call is accepted.
- **Call Out (Level Trig.):** Same function as above, however, except that here the level is analysed and not the edge (level triggered).
- **Drop:** If you activate this function, a connection on the selected line (**1, 2, 3, 4, 5** or **6**) can be dropped.
- **Set Audio Line:** This function allows you to switch a caller to a predefined **Audio Line**. Under **POTS Line/ISDN Line** you must indicate which caller line you want to use (**1, 2, 3, 4, 5** or **6**).
- **Lock Audio Line (Level Trig.):** With this function you can lock an **Audio Line**. Under **POTS Line/ISDN Line** you must indicate which caller line (**1, 2, 3, 4, 5** or **6**) is locked for the **Audio line**. This function is level triggered.
- **Load Preset:** Via this function it is possible to load a preset which you have to select under **Preset**.
- **Set Information Base Entry:** Special function for projects.
- **String Command:** Special function for projects.

- **Suppress Ring Tone (Level Trig.):** This function allows you to suppress the ring tone for an incoming call.
- **Connect via DTMF/Accept Call In: ...**

Example 1:

You want to accept a call on line 1 with TTL 1. The caller is to be switched directly in the *ON AIR* mode. After the conversation has been finished the connection is to be cleared with TTL 1.

Programming:

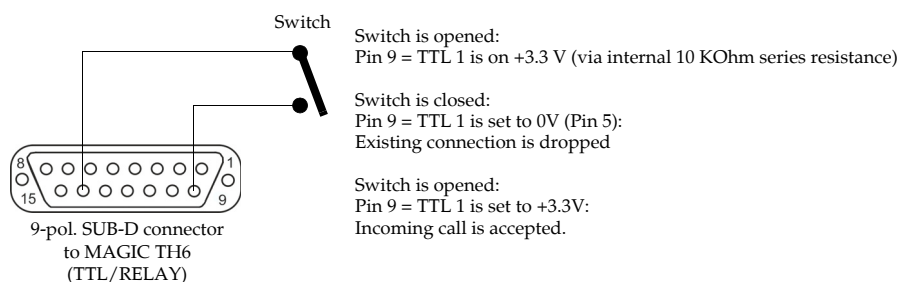
Positive egde:

Function Code: Call Out/Accept Call In/Drop
 Audio Line: ON AIR
 Line: Line 1
 Phone Number: -

Negative egde:

Function Code: Drop
 Line: Line 1

FIG. 36 SEQUENCE OF EVENTS FOR THE EXAMPLE 1

**TTL Pin as Output****ATTENTION**

Please pay attention to the maximum switch current of 10 mA respectively the maximum switch voltage of 3.3V per TTL output.

If a TTL Pin is configured as **Output**, the event is signalised as change of voltage on the TTL Pin from 0V to +3.3V.

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

- **Fixed Low:** The TTL Pin is set to 0V permanently.
- **Fixed High:** The TTL Pin is set to +3.3V permanently.
- **Connection Status:** Via this function you can signal the connection status of a line. Select the connection status under **Connection Status**. The following options are possible:
 - **Disconnect**
 - **Calling**
 - **Incoming call**
 - **Connect**

Under **POTS Line/ISDN Line** you select if you want to signal the status of Line **1**, Line **2**, Line **3**, Line **4**, Line **5**, Line **6** or all lines (**Any**). If you select **Any**, the signal is set on the TTL Pin as soon as one of the lines has the predefined status.

- **Audio Line:** With this function you can signal when a caller is switched to a certain Audio line. Please select under **Audio Line** the desired Audio line. Under **POTS Line/ISDN Line** you select if you want to signal the status of Line **1**, Line **2**, Line **3**, Line **4**, Line **5**, Line **6** or all lines (**Any**). If you select **Any**, the signal is set on the TTL Pin as soon as one of the lines has been set to the predefined Audio line.
- **ON AIR:** If you select this function, it is signalled when a caller is switched to ON AIR. Under **POTS Line/ISDN Line** you select if you want to signal the ON AIR status of Line **1**, Line **2**, Line **3**, Line **4**, Line **5**, Line **6** or all lines (**Any**). If you select **Any**, the signal is set on the TTL Pin as soon as one of the lines is switched to ON AIR.
- **PRETALK:** If you select this function, it is signalled when a caller is switched to Pretalk. Under **POTS Line/ISDN Line** you can select if you want to signal the Pretalk status of Line **1**, Line **2**, Line **3**, Line **4**, Line **5**, Line **6** or all lines (**Any**). If you select **Any**, the signal is set on the TTL Pin as soon as one of the lines is switched to Pretalk.
- **Ringling/Connected State:** Toggeling of voltage when a call is coming in (e.g. for flashing light). When the connection is established, the TTL Pin is set.
- **Called Number:**
- **Information Base Entry:** Special function for projects.
- **Any System Alarm Pending:** This function signals any system alarm.
- **Application Alarm Pending:** If you enable this function, you can select under **Alarm** which Application Alarm you want to signal.
- **DTMF Digit Received:**
- **ON AIR by Terminal:**

If you select the option **Inverted**, which is displayed next to the function code, the inverted signal is transmitted.

Relay

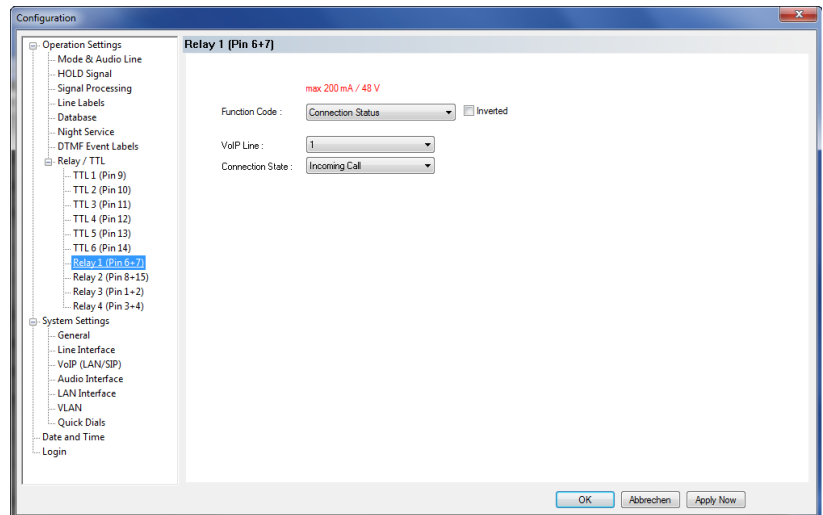
ATTENTION



Please pay attention to the maximum switch current of 200 mA respectively the maximum switch voltage of 48V per relay output.

The following description applies for the configuration windows **Relay 1**, **Relay 2**, **Relay 3** and **Relay 4**.

FIG. 37 RELAY



The functions for programming the relays are identical with the function codes for the TTL output. The following **Function Codes** 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 TTL Pin as Output on Page 55.

5.6.4.2 System Settings

System Settings are permanent settings and cannot be changed by loading Presets. However, you can import and export System Settings, e.g. to configure several systems in the same way very easily. The following submenus can be configured under the **System Settings** menu.

- **General**
- **Line Interface**
- **POTS Interface**
- **Audio Interface**
- **LAN Interface**
- **Short Cuts**

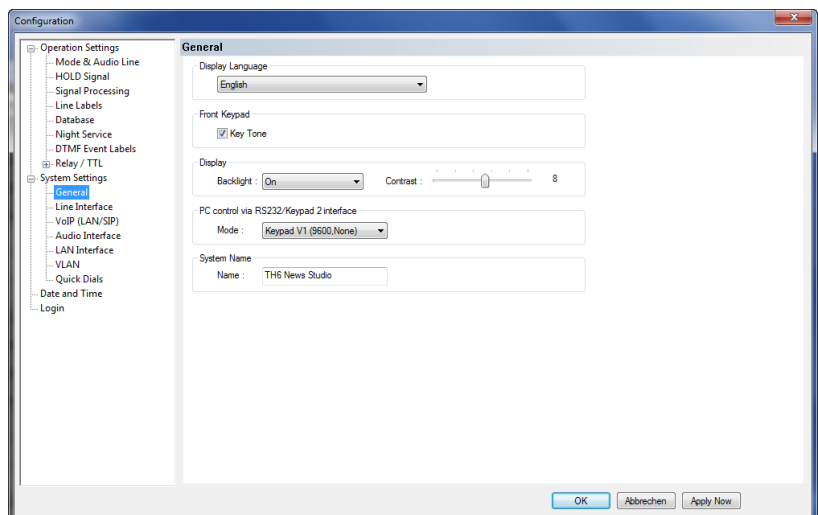
The configuration is saved by selecting the **OK** button.

The command **Apply Now** only causes the transmission of the configuration from the PC to the **MAGIC TH6** but does not store the configuration. The command **OK** also closes the window of the PC software.

5.6.4.2.1 General

In the **General** submenu basic settings can be configured.

FIG. 38 GENERAL



Display Language

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

Front Keypad

- To activate the key tone, check the **Enabled** box.

Display

- The **Display** has a backlight. Under the setting **Backlight** you can switch it **ON** permanently. If you select the option **Auto** the backlight is turned off automatically 60 seconds after the last keystroke. The backlight is activated again by pressing any key (e.g. **OK**).

NOTE

Please note that if the keypad lock is activated, the backlight is only switched on after pressing the key sequence **MENU ***.

- Via the slide control **Contrast** you can adjust the contrast for the display within the range **0 ... 15**. The default setting is **0**.

PC control via RS232/Keypad 2

- If you want to operate the system with the PC via RS232 or you want to use a **MAGIC TH6 Keypad** on the RS232 interface 2, you must set the data rate in accordance with the interface. There are five baud rates available: **Keypad (9600 Baud, None)**, **PC (19200 Baud, None)**, **PC (38400 Baud, None)**, **PC (57600, None)** and **PC (115200, None)**.

NOTE

The **MAGIC TH6 Keypad** supports only the baud rate 9600 Baud. Therefore, please select the option **Keypad (9600 Baud, None)** if you use a keypad.

If you connect a PC via the RS232 interface, the selected baud rate must correspond with the baud rate of the COM interface (CHAPTER 5.6.3, Page 41). Please note that the LAN interface is deactivated if you use the RS232 interface for PC control.

System Name

- Under **Name** you can assign a name to your system.

5.6.4.2.2 Line Interface

Here you can select the line interfaces that you want to use. The available options depend on your system version.

FIG. 39 LINE INTERFACE - POTS

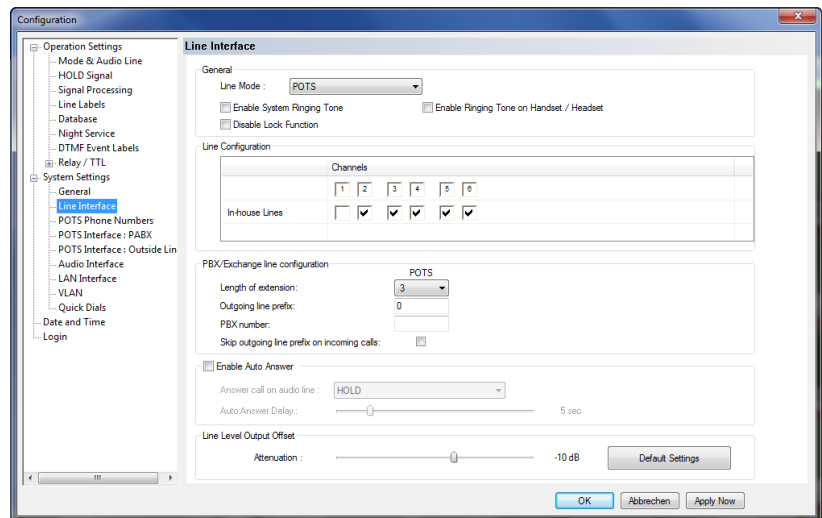
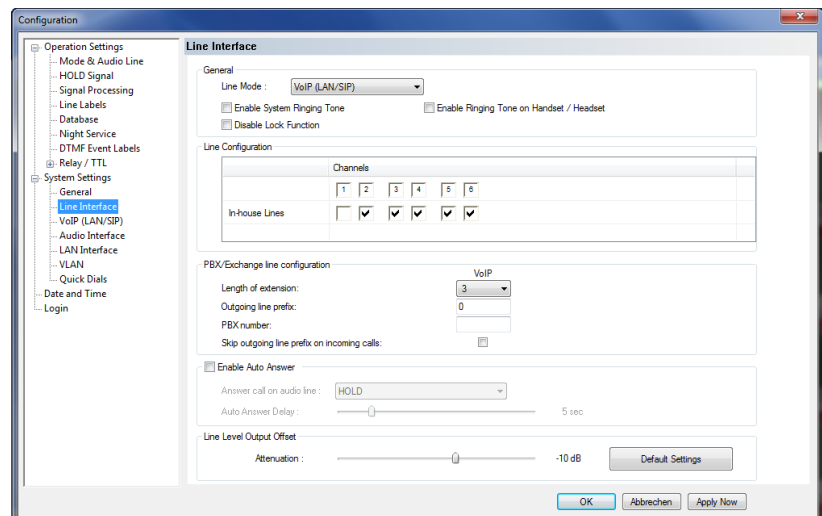


FIG. 40 LINE INTERFACE - VOIP (LAN/SIP)



General

- Under **Line Mode** you can configure the operating mode for your **MAGIC TH6**. The following interfaces can be selected:
 - **POTS** (*MAGIC TH6 POTS* version)
 - **ISDN** (*MAGIC TH6 ISDN* version)
 - **VoIP (LAN/SIP)** (requires optional *Extension for Voice over IP, ID 430374*)

ISDN

- If you use the *MAGIC TH6 ISDN* and select the **ISDN mode**, you can configure which **ISDN Protocol** you want to use. The following options are available:
 - **Euro ISDN**
 - **USA ISDN (NI-1)**
 - **Japanese ISDN**
- It is possible to activate a ring tone for incoming calls via the function **Enable System Ringing Tone**.
- If you select **Enable Ringing Tone on Handset/Headset** incoming calls can be signalled via the Pretalk Audio line if a telephone handset or headset is connected.
- If you activate the function **Disable Lock Function**, caller lines cannot be locked for incoming calls. The **LOCK ALL** button will not be displayed.

Line Configuration

Please select which lines are so-called **In-house lines**, i.e. lines that are connected to a PBX. If you operate the system with main lines only, you do not need to select anything.

PBX/Exchange line configuration

- Under **Length of extension** the length of your internal telephone numbers is set. Subsequently, the prefix number is automatically dialled first if the length of the telephone number exceeds the length specified in this setting.
If you do not want to use this function or if you operate the system with an outside line, enter **0**.

Examples:

Length of extension: 3
Entered telephone number: 130
Dialling: 130

Length of extension: 3
Entered telephone number: 5271130
Dialling: 0 5271130

- Under **Outgoing line prefix** please enter the prefix number that you need to get an external line. In most cases it is **0**.

ATTENTION

You need to enter the prefix number at any rate if you work with a private branch exchange because otherwise the system does not wait for the free-line signal. Without dialling the prefix number at a private branch extension the telephone number is transmitted too fast and no connection can be established.

- **PBX number**: Please enter your PBX number, i.e. the number which is common to all your in-house lines.
- Some private branch exchanges transmit telephone numbers with the prefix number to the system. If you enable the function **Skip outgoing line prefix on incoming calls**, you can save a displayed number in the phone book without prefix number since the prefix number of the displayed number is deleted automatically.

Auto Answer

- You can enable the system to accept incoming calls automatically. For this function please activate the option **Enable Auto Answer**.
- Under **Answer call on audio line** you can select the Audio line to which the caller will be switched after he has been accepted by the system.
- To delay the automatic answer of an incoming call, the option **Auto Answer Delay** is available. You can adjust the setting within the range of **0 sec** and **31 sec**.

Line Level Output Offset

- Under **Attenuation** you can adjust the **Line Level Output Offset** within the range of **- 16 dB ... 0 dB**. The default setting is **-6 dB**.

ISDN**5.6.4.2.3****MSN****NOTE**

An MSN can only be set if you are working with a **MAGIC TH6 ISDN** system and the ISDN operating mode is selected (see CHAPTER 5.6.4.2.2, Page 60). If you have not selected **ISDN** as your operating mode, this menu item is not displayed.

Normally, an MSN entry is not necessarily required. However, if you operate further units on your ISDN interface, you can allocate a certain number to a certain unit by an MSN entry. When you order an ISDN user port in Germany, you usually receive three MSNs, which you can use for your connected units.

NOTE

Some PABX require the entry of MSNs.

MSN Mode

- If you activate the function **Display called number on incoming call**, the MSN dialled by the caller is displayed.

NOTE

This function will not work with PABXs that require the entry of MSNs.

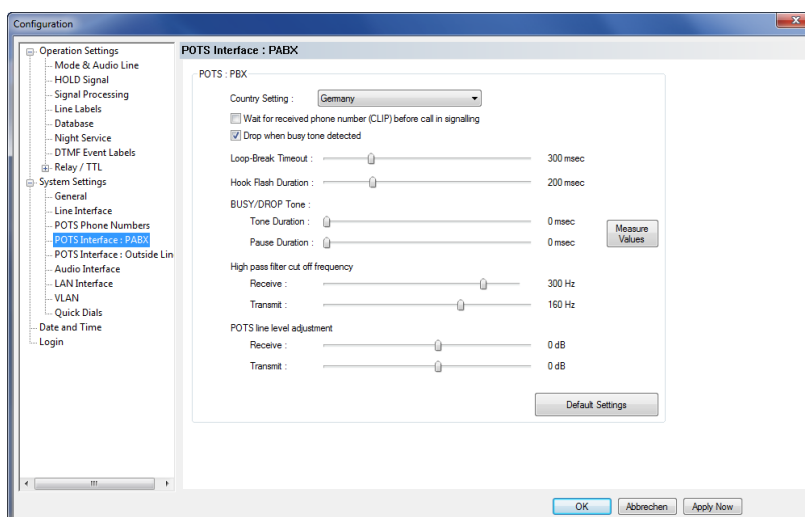
- If the option **Show calling number additional to called number on display on incoming call** is enabled, the telephone number of the caller is displayed in addition to the MSN.

Called Number Labels

- Under **Called Number Labels** you can define labels for up to four MSNs. These labels will be displayed if the caller dialled the MSN entered here.

POTS**5.6.4.2.4****POTS Interface: PABX****NOTE**

This menu can only be displayed if you are working with a *MAGIC TH6 POTS* system and the *POTS* operating mode is selected (see CHAPTER 5.6.4.2.2, Page 60).

FIG. 41 POTS INTERFACE: PABX**POTS: PABX**

Under **Country Setting** you can select which country-specific POTS interface you use.

NOTE

This setting is important for the Audio quality. The impedance of the POTS interface may vary from country to country and the Echo Canceller of the system can only work correctly if the right Country Setting is selected. If your PABX has been manufactured in a different country, you should also try the origin country as Country Setting.

TIP

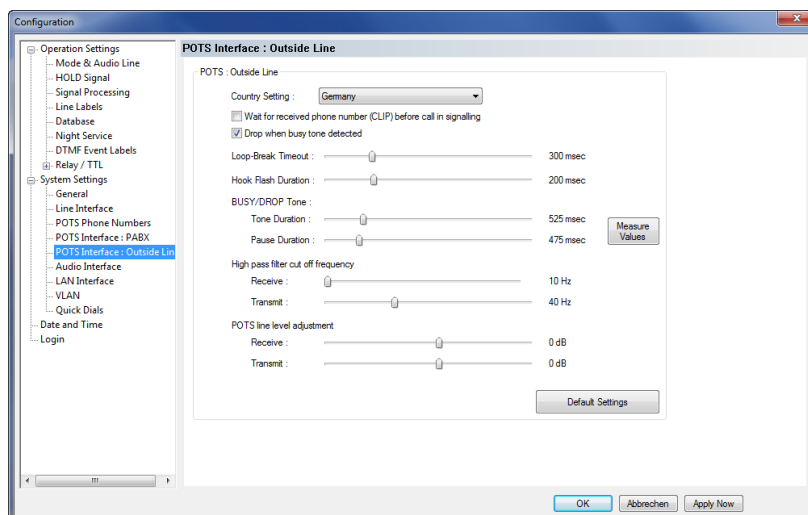
If you want to connect the *TCU-100/121 GSM Adapter* (ID: 490135) to one of the POTS interfaces of *MAGIC TH6*, please select **GSM Adapter: TCU-100E** as **Country Setting**.

- The function **Wait for received phone number (CLIP) before call in signalling** allows you to decide whether you want to see an incoming call immediately displayed or if you want to wait until the telephone number of the caller is transmitted. The signalling of the telephone number will take 2 - 3 ringing tones.
- If you want to drop the connection when the system detects a busy tone on the called end, you can select **Drop when busy tone detected**.
- Under **Loop-Break Timeout** you must select the time the system needs to eliminate loop-break disturbances to answer a call. Usually, values from 300 msec to 500 msec should be sufficient. If you have problems with these values, you should select a higher one.
- The **Hook Flash Duration** depends on your PABX or outside line and is required for call forwarding.

- The Busy/Drop Tone may vary from country to country. Therefore, you can measure the values with the function **Measure Values** under **BUSY/DROP Tone**. In this way you make sure that the system recognises when a call is dropped or when the line is busy.
To measure the Busy/Drop tone you just need to e.g. call a busy line *on caller line 1* and press the button **Measure Values**.
- Under **High pass filter cut off frequency** you can select different filter values for **Receive** and **Transmit** direction to eliminate disturbances in the telephone signal. All signal parts below the selected frequency are eliminated. The recommended setting is **300 Hz** for both directions.
- Under **POTS line level adjustment** you can adjust the level for the telephone signal separately for the Receive and Transmit direction.

POTS**5.6.4.2.5****POTS Interface: Outside Line****NOTE**

This menu can only be displayed if you are working with a **MAGIC TH6 POTS** system and the **POTS** operating mode is selected (see CHAPTER 5.6.4.2.2, Page 60).

FIG. 42**POTS INTERFACE: OUTSIDE LINE**

For configuration see **POTS Interface: PABX** (see CHAPTER 5.6.4.2.4, Page 64).

The parameters for the VoIP Line interface have to be configured.

FIG. 43 VOIP (LAN/SIP)

Line	SIP Server	Use STUN	User Name	User Authentication	Password	Audio UDP Port	Display Name
Line 1	192.168.10.32	<input type="checkbox"/>	701			5004	ABC
Line 2	192.168.10.32	<input type="checkbox"/>	702			5005	
Line 3	192.168.10.32	<input type="checkbox"/>	703			5006	
Line 4	192.168.10.32	<input type="checkbox"/>	704			5007	
Line 5	192.168.10.32	<input type="checkbox"/>	705			5008	
Line 6	192.168.10.32	<input type="checkbox"/>	706			5009	

STUN Server Parameters

STUN Server:

NAT Keep Alive Message Time: 20 sec

VoIP Parameters

Payload Time: 10 msec

Quality of Service (DiffServ)

Voice: 0 (0, 255) EF DSCP: 0dec

SIP: 0 (0, 255) EF DSCP: 0dec

Default Settings

OK Abbrechen Apply Now

For each caller line the following parameters must be entered in the table:

- IP address or name of the SIP server under **SIP Server**.
- If a firewall is in operation **Use STUN** must be selected.
- The own VoIP number must be entered under **User Name**.
- A few SIP Server require a so-called **User Authentication**.
- A password is required for the registration by the SIP server. It must be provided by the service provider. Enter in field **Password**.
- The **Audio UDP Port** will be given by the system as 5004 to 5009, but can be modified.
- In the field **Display Name** a name can be entered which is transmitted to the connected partner.

STUN Server Parameters

If a STUN sever is selected in the table, the STUN server parameters must be entered in the field **STUN Server Parameters**.

- IP address or name of the **STUN Server**.
- Selection of the **Nat Keep Alive Message Time** which is the repetition time for the telegrams to the STUN server. The message time is given by the STUN server.

VoIP Parameters

- Please select the correct **Payload Time** of your network. The standard setting is usually 20 msec.

NOTE

A higher payload time means a higher delay.

Quality of Service (DiffServ)

- If your network (provider) offers quality of service (QoS), please enter the right values under **Voice** and **SIP**.

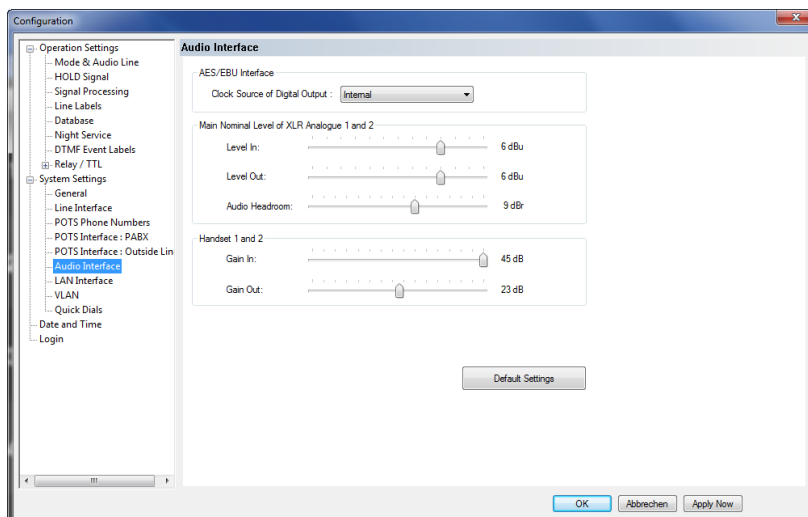
TIP

The values entered by pressing the **Default Settings** button are typically used for Voice and SIP packets.

5.6.4.2.7 Audio Interface

MAGIC TH6 supports analogue as well as digital AES/EBU Audio interfaces. If the digital Audio inputs are used, a Sample Rate Converter is available so that external adjustments are not required if there are different digital sources and drains.

FIG. 44 AUDIO INTERFACE



Mode

- The operating mode **analogue** or **digital** can be set separately for the **Audio Input** and the **Audio Output**.

POTS, VOIP

AES/EBU Interface

- If the **digital** output is selected, the configuration for the **AES/EBU Interface** is displayed. Under **Clock Source of digital output** you can select the following options:
 - Internal:** The AES/EBU output clock is derived from the internal system clock.
 - External:** The AES/EBU output clock is derived by the external clock connected via the **AES/EBU/CLK adapter cable**. The clock rate of the connected clock must be 48-kHz.
 - Recovered:** The AES/EBU output clock is derived from the digital input signal of the interface. This configuration is usually to be selected if you use the digital input of the system. In this way a synchronous functioning of the transmission chain is ensured

ISDN

NOTE

If you are using *MAGIC TH6* ISDN in the ISDN operating mode, the clock of the AES/EBU output is derived from the ISDN clock. Therefore, if the ISDN Mode is selected, this settings will not be displayed.

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

Main Nominal Level of XLR Audio 1 and 2

- If you use the **analogue** input or the output, the corresponding slide control for adjusting the nominal Audio level of the **ON AIR** interface is displayed. The nominal level can be adjusted separately for the input (**Level In**) and the output (**Level Out**) in the range of **-3 ... +9 dBu** in 1 dB steps.

Handset 1 and 2

- If you use a handset for Pretalk, you can adjust the settings for the level under **Handset 1 and 2**. You can set the Audio level separately for the input (**Gain In**) and the output (**Gain Out**) within the range of **0 ... +45 dBu** in 1 dB steps.

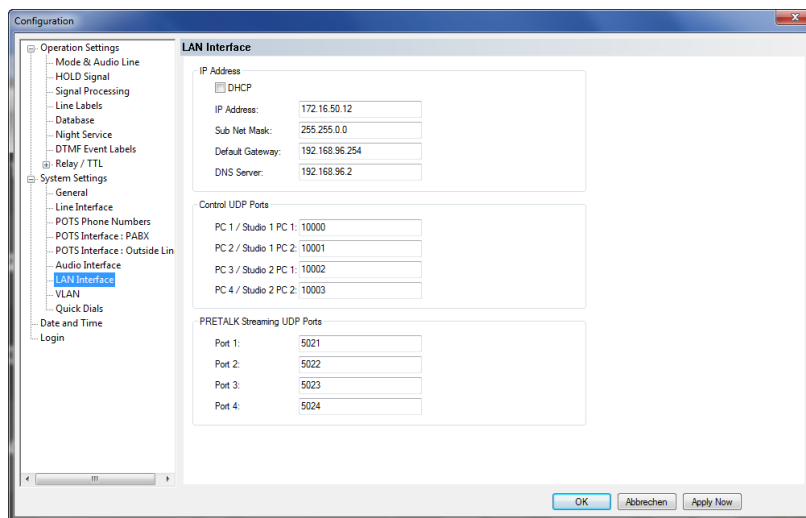
Audio Headroom

Here you can adjust the Audio headroom within the range of **0 ... +15 dBr**.

5.6.4.2.8 LAN Interface

Under **LAN Interface** the configuration of the LAN Interface and the entry of the control ports can be made.

FIG. 45 LAN INTERFACE



IP Address

- To automatically get the correct LAN settings for your system, you can activate the option **DHCP** (Dynamic Host Configuration Protocol), if a DHCP Server is available.

Alternatively, you can also adjust the settings manually.

- You can enter or change your **IP Address** and **Sub Net Mask**¹. The standard sub net mask is **255.255.0.0**.

TIP

To connect the system with your PC, **MAGIC TH6** and your PC have to be in the same subnet.

- If you are using an external VoIP provider or a SIP server which is not part of your network you have to enter the **Default Gateway**.
- Enter the IP address of your **DNS Server** if you are using host names.

NOTE

In case of any doubts, please contact your network administrator for the correct LAN settings.

¹ In this way you can find out your own subnet: Under Windows XP click on *Start* → *Execute...* Under Windows 7 click on *Start* → *Search...* Enter *cmd* in the command line/search field. An entry window is displayed in which you must enter *ipconfig*. Your IP address is displayed (e.g. 192.168.12.35). Your subnet is accordingly 192.168.12.xxx

Control UDP Ports

- Under **Control UDP Ports** you must enter the Port Addresses of the PCs that are connected to the *MAGIC TH6*. You can have access to the system simultaneously via maximum **four** PCs.

NOTE

You can only use more than one PC, if you have more than one *MAGIC TH6 Software Licence* (fee-based, ID: 430375).

PRETALK Streaming UDP Ports

- Under **PRETALK Streaming UDP Ports** you must enter the Port Addresses which are used for Pretalk Streaming.

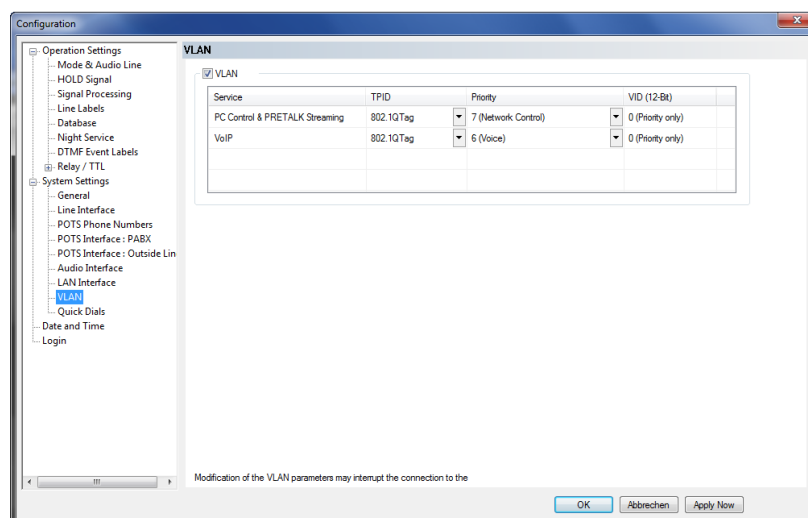
NOTE

For Pretalk Streaming you need the optional *Pretalk Streaming Upgrade* (fee-based, ID: 430464, maximum four licences).

5.6.4.2.9 VLAN

In case of using a VLAN for your VoIP network you can enable the VLAN tagging of the system under **System Settings** → **VLAN**.

FIG. 46 VLAN



You can configure the VLAN settings separately for

- **PC Control & PRETALK Streaming** and
- **VoIP**

You need to enter the **TPID** (tagging) as well as the **Priority** and the VLAN ID (**VID (12-Bit)**).

TIP

In case of using a VLAN for your VoIP telephone network, you should select the **802.1Q Tag** under **TPID** and **Priority 6 (VOICE)** for **VoIP**. The correct VLAN ID is managed by your network administrator. Please ask him for details.

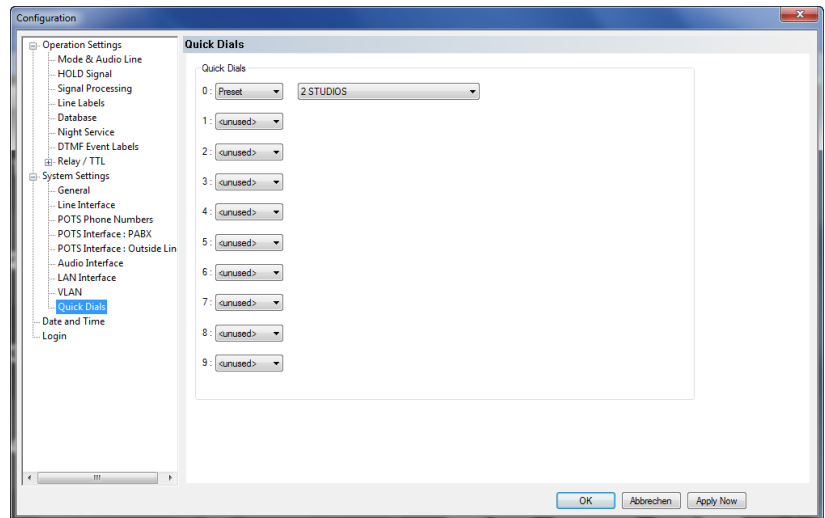
NOTE

If you configure wrong settings you will lose the connection to the system. In this case you can reset your VLAN configuration via the front panel of the system.

5.6.4.2.10 Quick Dials

Up to 10 Quick Dial keys **0 ... 9** can be programmed in the system.

FIG. 47 QUICK DIALS



- You can program a **Preset** as Quick Dial. Please select the desired Preset from the list.

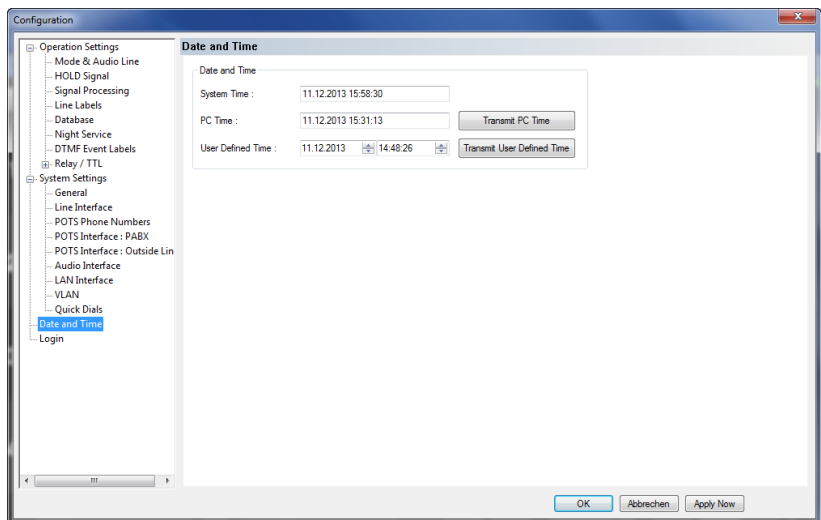
5.6.4.3

Date and Time

This submenu can be used to set time and date of the clock component in *MAGIC TH6*.

- Under **Date and Time** you can program 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 e.g in a different time zone.

FIG. 48 DATE AND TIME.



ATTENTION



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

5.6.4.4

Login

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

ATTENTION

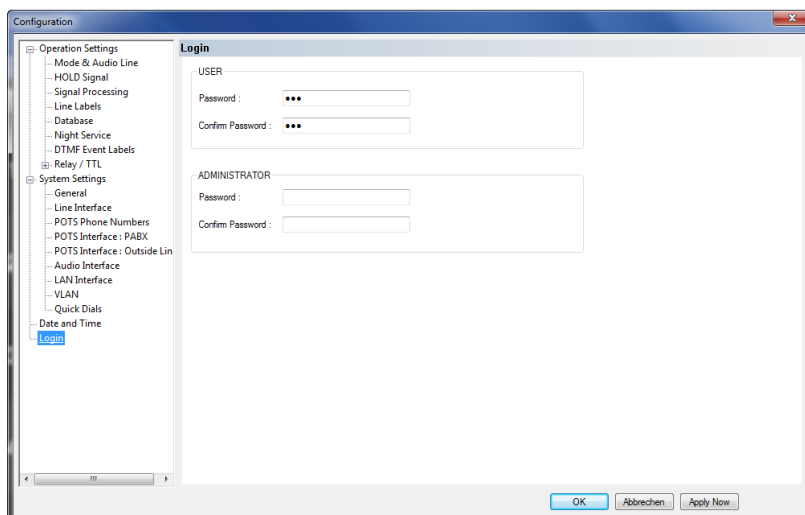
The entered password is saved in the system. If you have forgotten your password, only the AVT Service can reactivate the system.

- Under **USER** you assign the user **Password**. For safety reasons you must confirm the password under **Confirm Password**.
- Under **ADMINISTRATOR** you assign the Administrator **Password**. For safety reasons you must confirm the password under **Confirm Password**.

NOTE

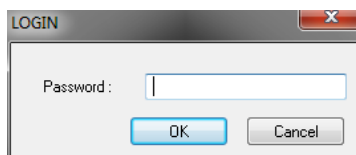
There is no differentiation between upper and lower case for the password entry.

FIG. 49 LOGIN



When you have assigned a password, the window for the password entry is automatically displayed when you click on a menu with password protection. Please enter the User Password or the Administrator Password.

FIG. 50 PASSWORD LOGIN



The authorisation levels are defined as follows:

- (1) Only **Administrator Password** is configured: The password must be entered for configuration changes. Immediately available menus:

- **Configuration → Presets → „Configuration Name“**
 - **Extras → System Monitor**
- (2) Only **User Password** is configured: The password must always be entered. Afterwards all menus are available. Immediately available menu:
- **Extras → System Monitor**
- (3) **User Password** and **Administrator Password** are configured: The password must always be entered.
- **User Password** is entered:
Under **Configuration → Configuration → Login** the **USER** password can now be changed.
Via **Configuration → Presets** the desired configuration can be loaded.
Immediately available menu: **Extras → System Monitor**
 - **Administrator Password** is entered: All menus are available.

NOTE

Please pay attention to the configuration options of the system if a password is assigned (see CHAPTER A1).

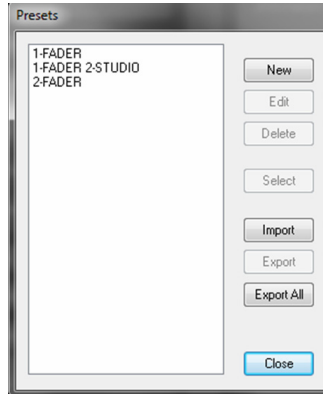
5.6.5 Submenu Presets

Via **Presets** you can edit, delete or load already existing Presets or create new ones.

5.6.5.1 Manage Presets

Your created **Presets** can be managed via the menu **Configuration → Presets → Manage Presets**.

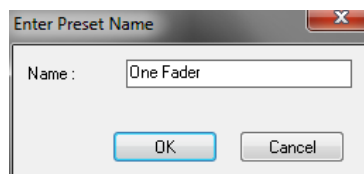
FIG. 51 MANAGE PRESETS



All already existing Presets are displayed in the list.

- With the use of the **New** button you create a new Preset. The current configuration of the system is not changed by this function. First, select a meaningful name. The length of the name must not surpass eight characters. Special characters are **not** allowed. Please mind that you use unique names.

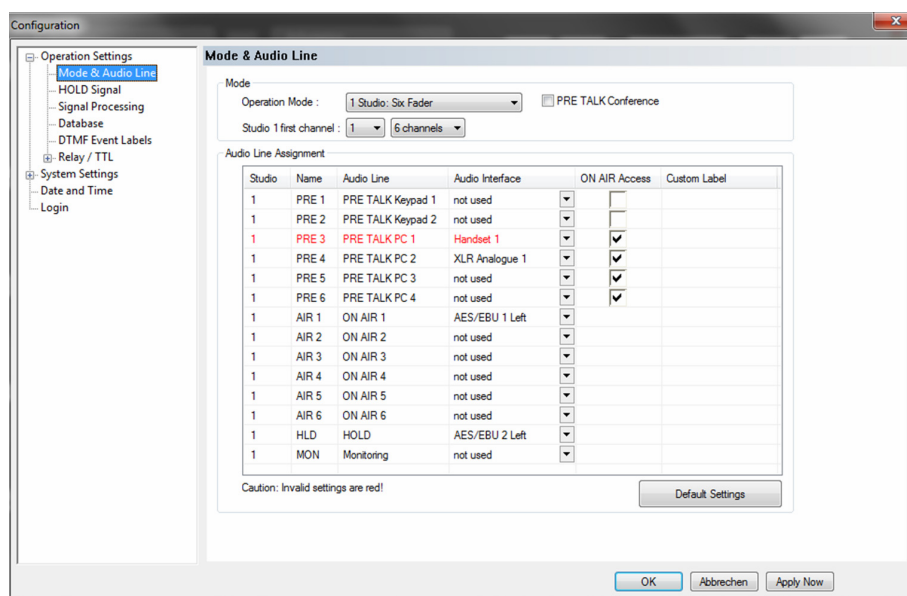
FIG. 52 NEW CONFIGURATION



Subsequently, the configuration dialogue is opened to edit the **Preset**. The current configuration is always displayed as basis of a **Preset** which you can adjust according to your wishes. The following configurations can be saved as Preset:

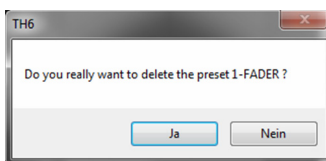
- **Mode & Audio Line** (see Page 44)
- **HOLD Signal** (see Page 47)
- **Signal Processing** (see Page 48)
- **Database** (see Page 50)
- **Relay / TTL** (see Page 53)

FIG. 53 EDIT PRESET



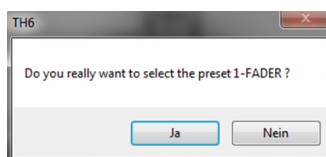
- By using the button **Edit** the currently selected Preset can be edited. The current configuration of the system is not changed with this function.
- Via the button **Delete** the Preset selected from the list is deleted. For safety reasons you have to confirm your selection.

FIG. 54 CONFIRMATION TO DELETE A PRESET



- To activate a Preset selected from the list, press the **Select** button. For safety reasons you have to confirm your selection.

FIG. 55 CONFIRMATION TO LOAD A PRESET



- Via the button **Import** a Preset can be imported from a data carrier (disk, USB stick etc.). The file extension of the Preset file is always **.T2P**. A click on the button opens the file browser in which the desired file can be selected.
- Likewise, it is possible to export Presets to a data carrier. The button **Export** saves the Preset selected from the list as **.T2P** file. By clicking on the button the file browser is opened and you can choose the location where the file is saved.

- With **Export All** all Presets displayed in the list are saved in a directory of your choice. A separate data file with the file extension **.T2P** is generated for each Preset.

TIP

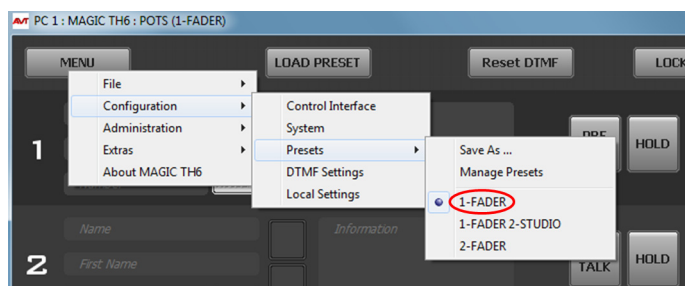
If you need to configure several systems in the same way, set up one system first and export all Presets to a disk. To configure all further systems easily, import the Presets from the disk.

5.6.5.2

Activation of a Preset

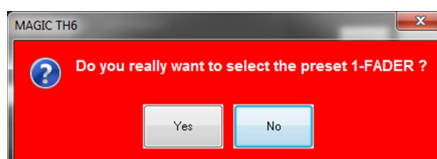
All Presets are displayed under **Configuration** → **Presets** → „Preset Name“ and can be activated with a click.

FIG. 56 LOAD PRESET



For safety reasons a confirmation is required.

FIG. 57 CONFIRMATION LOAD PRESET

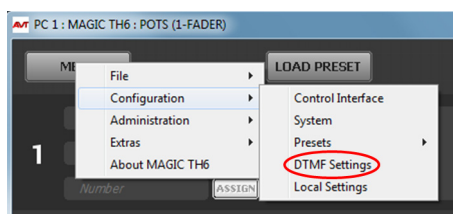


5.6.6

Submenu DTMF Settings (Option)

The menu **DTMF Settings** is only displayed if the fee-based option **DTMF Tone Generation & Analyzer Plug-In (ID: 430441)** is available. Further details you will find in CHAPTER 6, Page 93.

FIG. 58 SUBMENU DTMF SETTINGS

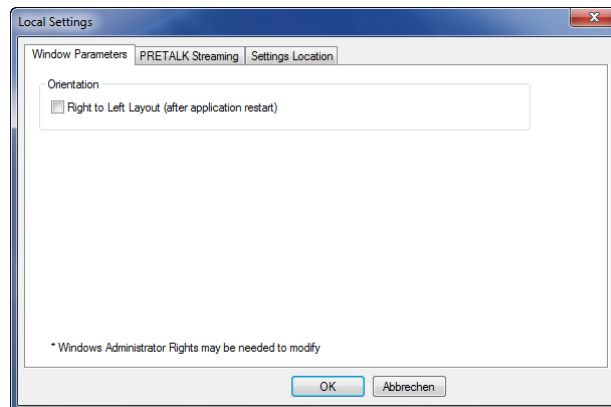


5.6.7 Submenu Local Settings

Under **Local Settings** you can decide where you want to store the settings of your configuration. Additionally, you can change the layout of the user interface. Furthermore, the settings for your Pretalk Streaming Client can be configured here (optional *Pretalk Streaming Upgrade ID 430464* is required).

5.6.7.1 Window Parameters

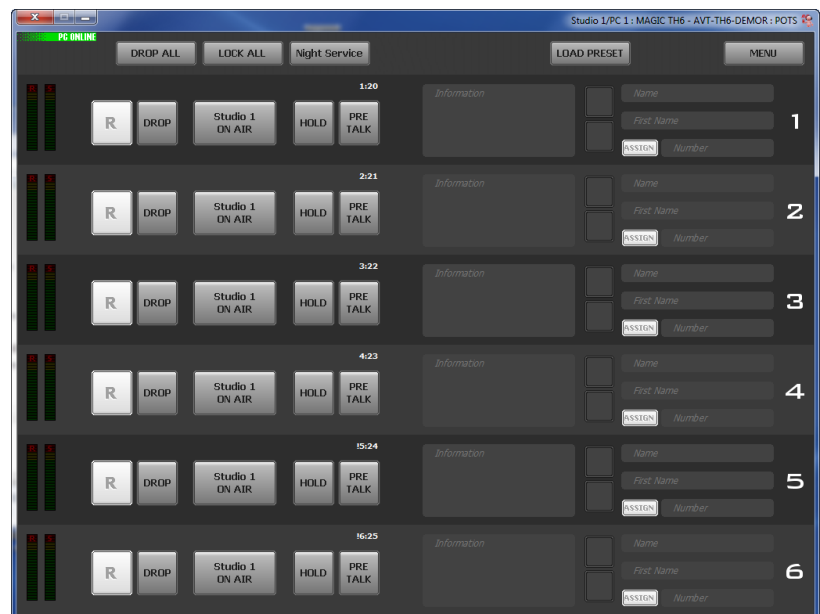
FIG. 59 LOCAL SETTINGS - WINDOW PARAMETERS



Orientation

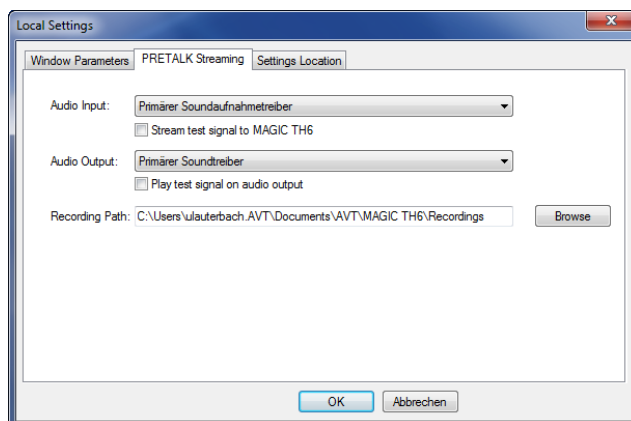
- Under **Orientation** you can select the option **Right to Left Layout (after application restart)** to display the layout of the user interface from right to left instead of left to right. This setting will only be applied after you closed and restarted the *MAGIC TH6 Software*.

FIG. 60 PC SOFTWARE - RIGHT TO LEFT DISPLAY



5.6.7.2 PRETALK Streaming

FIG. 61 LOCAL SETTINGS - PRETALK STREAMING

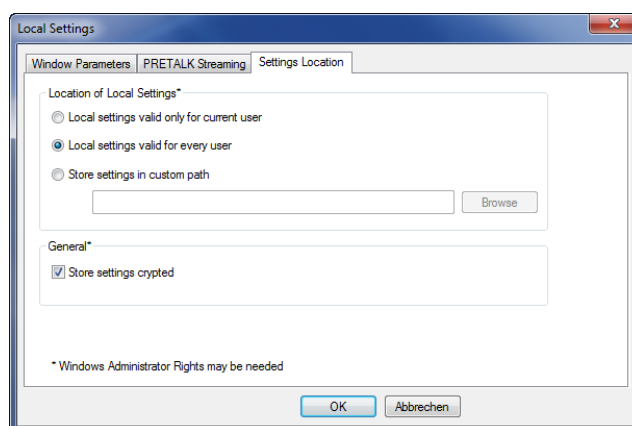


If the fee-based *Pretalk Streaming Upgrade (ID: 430464)* is enabled and you have configured Pretalk Streaming for your PC, you can select here which **Audio input** and **Audio output** you want to use (e.g. the one of your PC or of an external USB headset etc.) To verify if the settings for the Audio input are correct you can **Stream a test signal to MAGIC TH6**. To check if the Audio output is set correctly, you can use the function **Play test signal on Audio output**.

Under **Recording Path** you can define where you want to store the Pretalk Streaming recordings. How to record a caller's signal is described under **Record button (Pretalk Streaming Clients only)** on Page 38.

5.6.7.3 Settings Location

FIG. 62 LOCAL SETTINGS - SETTINGS LOCATION



Location of Local Settings

- To store your settings only for the current user, select the option **Local settings only valid for current user**.

- To store the settings globally for all users, select the option ***Local settings valid for every user.***
- Alternatively, you can select the option ***Store settings in custom path*** to define a specific folder in which your settings are stored.

General

- To store your settings encrypted, you can activate the option ***Store settings crypted.***

5.7

Menu Administration

5.7.1

Submenu Registration

The serial number of the system as well as the enabled options are displayed under the submenu **Registration**.

FIG. 63 SUBMENU REGISTRATION

The screenshot shows a 'Registration' window with the following fields and options:

- Hardware:** MAGIC TH6 POTS
- Main:**
 - Subject Number: 450080
 - Factory Number: 10/32/1003 (highlighted with a red box and an annotation: "This number is required to enable software options")
 - Year: 2010
 - Hardware Version: 2.00
 - MAC Address: 00-06-9B-02-03-8C
- Features:**
 - Software Options:**
 - ☒ MAGIC TH6 Basic Functionality
 - ☒ DTMF
 - ☒ VoIP
 - ☒ HD Voice
 - ☒ Number of PC licenses: 4
 - ☒ Number of PRETALK Audio Streams: 4

Buttons at the bottom: 'Enter password' and 'Close'.

The system data includes the following information:

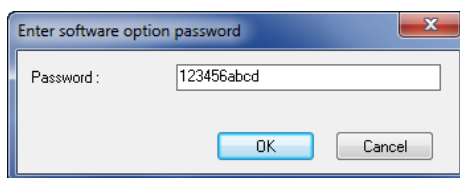
- **Subject Number**
- **Factory Number**
- **Year** of production
- **Hardware Version**
- **MAC Address**

If new software upgrades are available, passwords to open the functions can be entered.

Features

- Under **Features** the available and activated **Software Options** of the **MAGIC TH6** are displayed. The options listed here can be activated via a password. This password is assigned according to the **Factory Number**. If you bought an option supplementarily, please enter the password that you received from us under **Enter software option password**.

FIG. 64 PASSWORD ENTRY TO ENABLE AN OPTION



Subsequently, the system executes a warm start. Afterwards, the functions are activated.

ATTENTION Please enter the password carefully.



If you enter a wrong password **three times**, you must switch off the system and switch it on again.

5.7.2

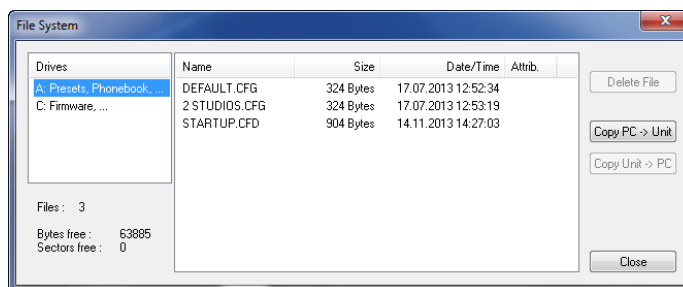
Submenu File System

By selecting the sub menu **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.

FIG. 65 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 5.7.4, Page 87) respectively the import function in the menu **File** (see CHAPTER 5.6, Page 41) 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

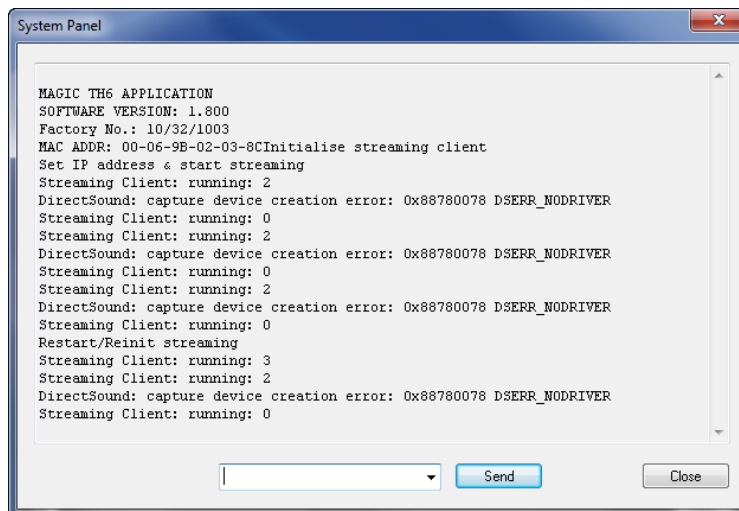
Please use only the export function under the menu **File** (see CHAPTER 5.6, Page 41) to copy files to a PC.

5.7.3

Submenu System Panel

In the **System Panel** special debug commands can be entered and is only for service purposes. Please enter only commands in the prompt, if our Support requests it from you.

FIG. 66 SUBMENU SYSTEM PANEL



5.7.4

Submenu Firmware Download

The required firmware for the *MAGIC TH6* system is always included in the PC software: Via the **Firmware Download** you can comfortably download the firmware on your system.

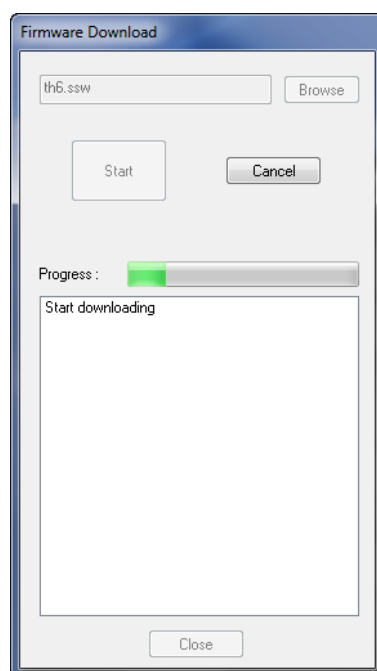
By using the **Browse** button you select the firmware file. It is always located in the same directory in which you installed the *MAGIC TH6* application. The standard installation directory is:

C:\Program Files\MAGIC TH6

The file name of the firmware is „**th6.ssw**“.

FIG. 67

SUBMENU FIRMWARE DOWNLOAD



Please press the **Start** button to download the firmware. The **Progress** bar displays the progress of the download. The process is finished after about three minutes. If the download was successful, a corresponding message is displayed. After your confirmation the system is reset.

NOTE

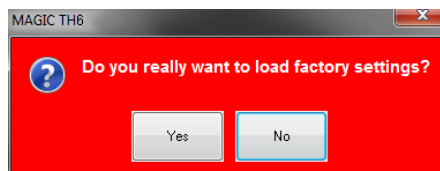
If the download was not successful, you can simply switch off the unit and switch it on again. The new software is only written in the flash memory if the download was successful. Otherwise the old firmware is maintained.

5.7.5 Submenu Factory Settings

By using the submenu **Factory Settings** a setting of basic parameters will be done and the system can be reset to the initial state.

For safety reasons you have to confirm your selection.

FIG. 68 CONFIRMATION LOAD FACTORY SETTINGS



5.8

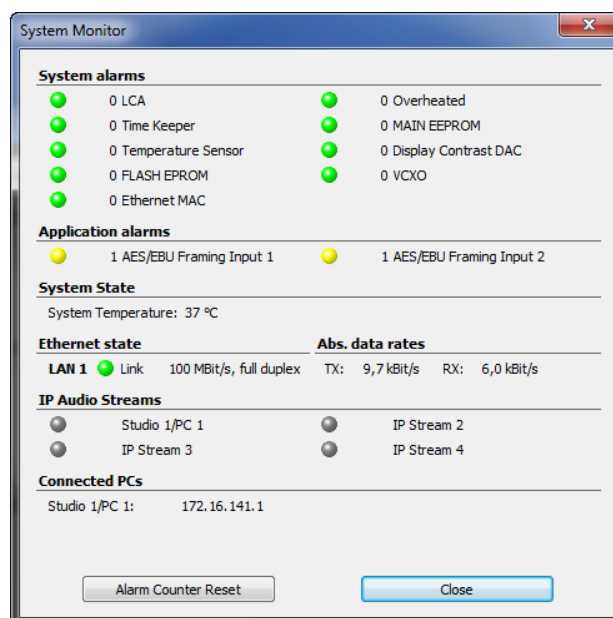
Menu Extras

5.8.1

Submenu System Monitor

In the menu **Extras** a system monitor is available. Via the menu **System Monitor** you receive information about the system status.

FIG. 69 SUBMENU SYSTEM MONITOR



- Under **System alarms** all potential system alarms are displayed. A red LED signalises a currently existing alarm. The error counter shows how often the alarm occurred after the unit has been connected to power.

NOTE

If an alarm occurs frequently or over a longer period disconnect the unit from electricity. If the error occurs again after switching on, there is probably a hardware defect.

The following errors are signalised:

- **LCA:** The communication with a programmable component is faulty.
- **Time Keeper:** The communication with the integrated clock module is faulty.
- **Temperature Sensor:** The communication with the temperature sensor is faulty.
- **FLASH EPROM:** The communication with the permanent memory is faulty. Configurations cannot be saved or read anymore.
- **Ethernet MAC:** The initialization of the ethernet module has failed.
- **Overheated:** The system sets this alarm if the system temperature is higher than 57°C. Disconnect the unit from electricity or cool down the ambient temperature.
- **MAIN EPROM:** The communication with the permanent memory is faulty. Configurations cannot be saved or read anymore.

- **Display Contrast DAC:** The communication with the display contrast DAC is faulty.
- **VCXO:** The communication with the voltage-controlled oscillator is faulty.

TIP

A system alarm can also be configured as relay output (see Page 55).

- Under **Application alarms** you will find all potential application alarms. A red LED signalises a currently existing alarm. The error counter shows how often the alarm occurred after the unit has been connected to power.
 - **AES3 Framing Input 1/2:** If one of the digital Audio inputs has been selected in the configuration dialogue, but no digital Audio signal is available at the AES/EBU interface 1 or 2, the AES3 Framing Input 1 or 2 alarm will be set.
 - **Ethernet Mode Supported:** The Ethernet Mode alarm will be set if your ethernet mode is not supported by the system. This is the case for a 10 Mbit/s half duplex connection. Our recommendation is 100 Mbit/s full duplex.
 - **AES3 External Clock:** Currently not applicable.
- The actual system temperature is displayed in °C under **System Temperature**.
- **Ethernet status** shows information about your ethernet connection.
- Under **Abs. data rates** the absolute data rates of your ethernet connections are displayed. **TX** stands for transmit direction and **RX** for receive direction.
- Under **Ethernet physical flags** the following ethernet flags are displayed:
 - **Extended**
 - **Auto**
 - **Negot.**
 - **Jabber**
 - **Remote Fault**
- All details concerning the LAN and IP settings are displayed under **IP details**.
 - **IP Address**
 - **Sub Net Mask**
 - **Default Gateway**
 - **DNS Server**
 - **DHCP state**
 - **STUN state**
- The IP address of the Control PC connected to the system is shown under **Connected PCs**.

5.9

Menu About MAGIC TH6

In the **About MAGIC TH6** dialogue you find the version of the PC software (**PC Version**) and the **Firmware Version**. Besides, you can find our contact details there.

FIG. 70 SUBMENU ABOUT MAGIC TH6



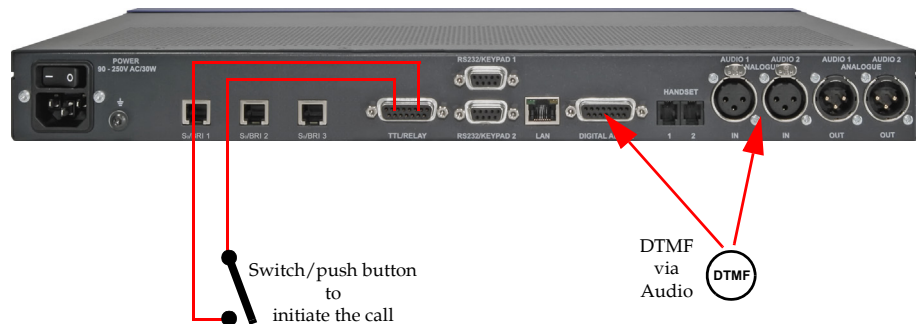
With the fee-based option *DTMF¹ Tone Analyser Plug-In* you have the possibility to analyse DTMF tones. The sending of DTMF tones is a standard feature and is included in the delivery scope.

6.1 DTMF system functions

6.1.1 DTMF call initiation via the Audio inputs

You can also initiate a call using DTMF tones via the Audio inputs of the system. You simply need to send the DTMF tones from an external DTMF generator to the Audio input of the *MAGIC TH6*. To signal the system that the number is complete, you need to send the dialling command via a TTL Pin (see Page 54, TTL Pin as input → Connect via DTMF/Accept Call In).

FIG. 71 DTMF CALL INITIATION VIA THE AUDIO INPUTS



¹ DTMF = Dual Tone Multi-Frequency

6.2

DTMF PC Software functions

6.2.1

DTMF Modes

To activate the PC DTMF function, select **Standard**, **Game Show** or **Event Mode** under **Mode** and press **OK**. Subsequently, the DTMF buttons are displayed in the main window.

FIG. 72 DTMF SETTINGS

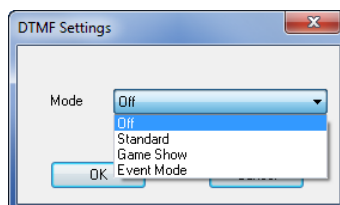
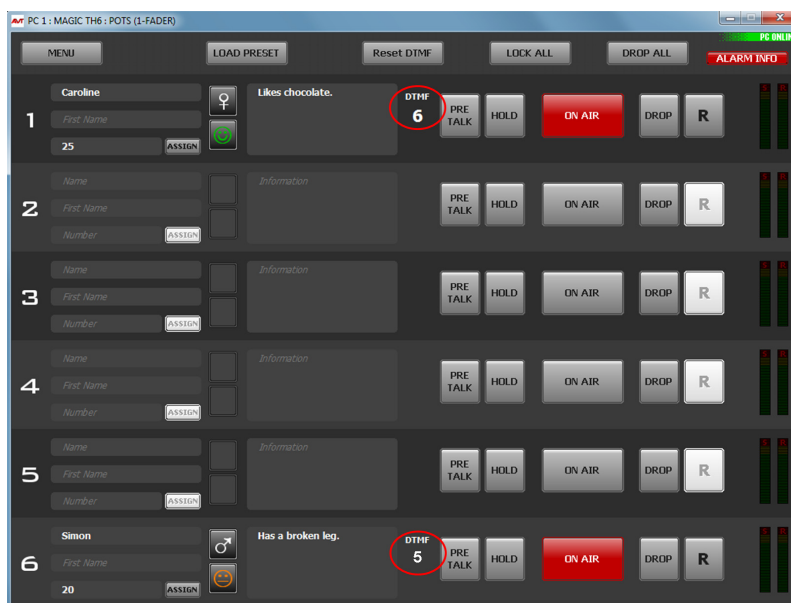


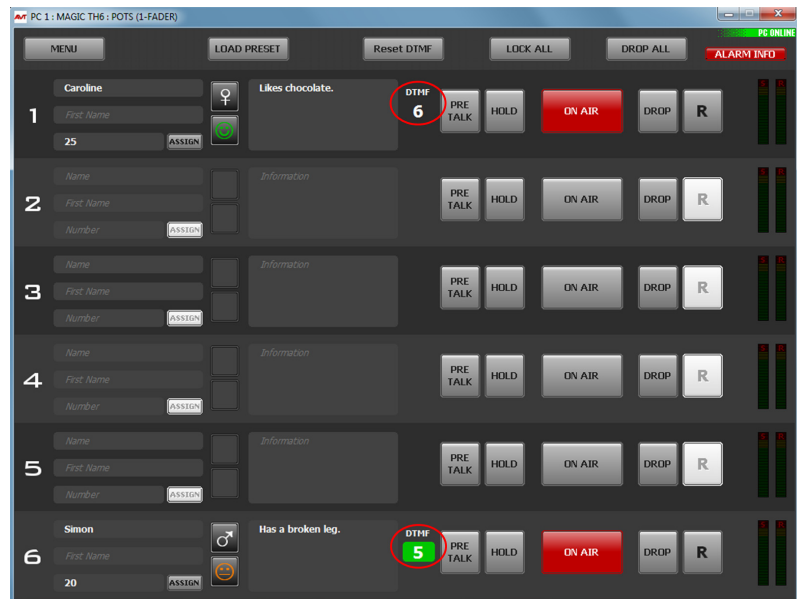
FIG. 73 DTMF STANDARD MODE



- (1) **Standard:** In the Standard Mode received DTMF tones will be displayed beside the PRETALK key on each line. The received value will not be modified, just as received. New received DTMF tones overwrite displayed DTMF tones. The button **RESET DTMF** resets the display.
- (2) **Game Show:** This configuration is useful if you play a game with two partners at the same time, in which you ask a question and the partners give their answers by pressing a key on their telephones. The partner who pressed the key first is displayed via a field marked in green and the cypher pressed. In this way, it is easy to determine who was the first to give the right answer. A re-pressing of a key on the telephones of the partners is ignored by the system. A new analysis is not carried out before the button **RESET DTMF** is used and the display has been reset.

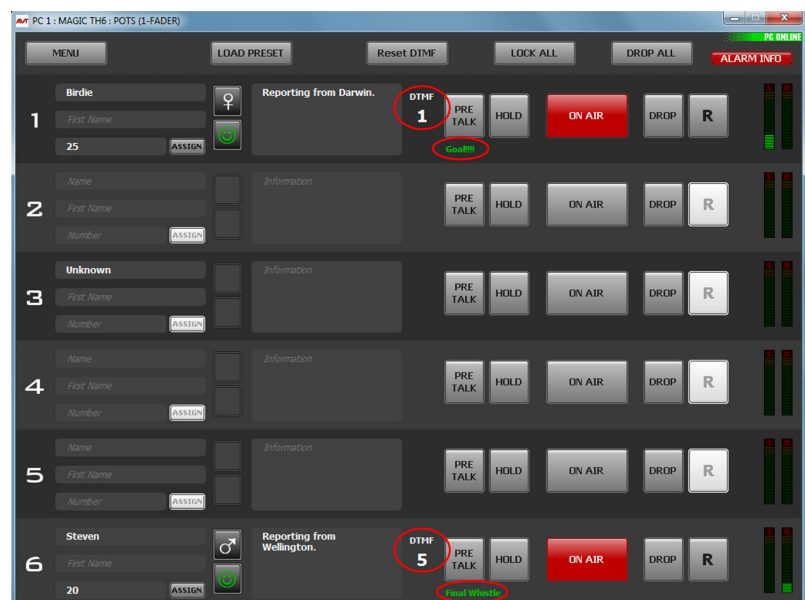
Reset DTMF

FIG. 74 DTMF GAME SHOW MODE



- (3) **Event Mode:** This Mode should be selected if you want the callers to signal you an event, e.g. you have two reporters in line commenting different sport matches. As soon as something important happens, you want to put the respective reporter On Air. If you select the Event Mode, you can define in the configuration so-called **DTMF Event Labels** for the number keys **0 - 9** and the special keys **#** and *****; e.g. **1** stands for **Goal**, **2** stands for **Penalty** etc. (see CHAPTER 5.6.4.1.7, Page 53). These labels will be displayed in addition to the DTMF tone received and the presenter can decide if he wants to switch the caller On Air.

FIG. 75 DTMF EVENT MODE



6.2.2

Configuration Event Labels

A label can be adjusted to each DTMF tone. For this purpose the following table can be used.

FIG. 76 DTMF EVENT LABELS

The screenshot shows a software configuration window titled "Configuration". On the left is a tree view with categories: "Operation Settings" (containing Mode & Audio Line, HOLD Signal, Signal Processing, Database, and DTMF Event Labels), "Relay / TTL", "System Settings" (containing General, Line Interface, POTS Interface : PBX, Audio Interface, LAN Interface, Quick Dials, Date and Time, and Login), and "DTMF Event Labels" (which is currently selected). The main area of the window is titled "DTMF Event Labels" and contains a section "DTMF Digits" with a list of 12 items, each with a numeric digit in a box and a text input field to its right. The items are: 1 (Goal!!!!), 2 (Red Card), 3 (Yellow Card), 4 (Foul), 5 (Final Whistle), 6, 7, 8, 9, 0, *, and #. Below this list is a note: "These labels are only relevant when using the DTMF Event mode." At the bottom right of the window are three buttons: "OK", "Abbrechen", and "Apply Now".

DTMF Digits	Label
1	Goal!!!!
2	Red Card
3	Yellow Card
4	Foul
5	Final Whistle
6	
7	
8	
9	
0	
*	
#	

These labels are only relevant when using the DTMF Event mode.

OK Abbrechen Apply Now

The optional *MAGIC TH6 Keypad* can be used for simple system control if no PC is available. *MAGIC TH6* provides two RS232 interfaces for the connection of external Keypads so that two workplaces can be implemented.

- RS232/KEYPAD 1 interface
- RS232/KEYPAD 2 interface

NOTE

RS232 interface 1 is always configured for the connection of an external keypad with the following parameters 9,600 bit per second, 8 data bits, no parity and cannot be changed.

RS232 interface 2 can be configured for the connection of an external keypad or a PC. To use the keypad with the *MAGIC TH6 via RS232 interface 2*, you must set the parameters for the RS232 interface to 9600 Baud, no parity. If you use the *QuickMenu* function you reach the settings of the RS232 parameters directly via the key sequence **MENU 13 4**. Please select **KEYPAD 9600, NONE**.

FIG. 77 MAGIC TH6 KEYPAD



FIG. 78 REAR VIEW OF MAGIC TH6 POTS



FIG. 79 REAR VIEW OF MAGIC TH6 ISDN



The keypad provides all basic control functions of the *MAGIC TH6* software without screening information.

Please connect the 9-pole SUB-D connector of the *MAGIC TH6 Hybrid Keypad* with the RS232 interface of the *MAGIC TH6* System. Since the *MAGIC TH6 Hybrid Keypad* requires its own power supply, please plug in the external power supply included in delivery and connect the 6-pole Mini-DIN socket of the external power supply with the 6-pole Mini-DIN connector of the *MAGIC TH6*. If everything is connected correctly, the display is illuminated. The connection state of all lines is displayed after booting.

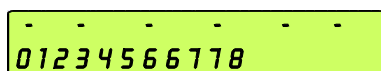
7.1

LCD Display

The LCD Display with 2 x 20 characters generally displays information about the current connection status of the available channels in the first line. The following indications are possible:

TAB. 2 OVERVIEW OF THE STATUS INDICATIONS

Display	Meaning
> >	Outgoing call
< <	Incoming call
-	No connection
RI	Caller is in On Air mode
HO	Caller is in Hold mode
PR	Caller is in Pretalk mode
LO	Line is locked



NOTE

If a telephone number is entered it will be displayed in the second line. The phone number can be entered with the keys 0...9.

The cypher last entered can be deleted by pressing the **C** button.
The entire entry is deleted by pressing the **AC** button.

If there is a connection error, the ISDN provides various alarm messages. Please see the following table for their meanings. The LCD display shows the relevant B channel first followed by the alarm message.

TAB. 3 ISDN ALARM MESSAGES

Alarm message	Description
Unass. number	The number is not recognised by the ISDN. Please check your entry.
No route	No route. When this message appears the ISDN is normally overloaded. Please dial again.
Normal disc.	The connection has been cleared.
User busy	The number called is busy.
No user resp.	The called number is not responding. Possibly the wrong number was dialled.
Call rejected	The call was rejected. Possibly the partner has rejected your call.
Number chang.	The dialled number has been changed.
Destin. error	The called end is not operational. Maybe the unit is switched off.
Inval. number	Invalid Number.













TAB. 3 ISDN ALARM MESSAGES

Alarm message	Description
No line avai.	No B channel available.
No Network	No ISDN available. Check your ISDN line.
Netw. failure	Temporary ISDN failure.
Congestion	ISDN network error. Maybe the wrong ISDN protocol is selected.
Bearer capab.	The wanted service is not available.
Bearer serv.	The wanted service is not implemented.
Remote disc.	Connection has been dropped by the partner
Procedure er.	Remote or local ISDN procedure error.
Cannot dial	System cannot dial.

7.2

Keypad Functions

Below you will find the keypad functions listed in table form.




TAB. 4 KEYPAD FUNCTIONS	
Function key	Description
	After pressing the key the last cypher of an entry is deleted. Partly, this key is used to terminate an operation.
	By pressing this key you can delete the entire entry.
 - - 	Via the keys 0...9 it is possible to enter a phone number. The connection is established by pressing the button PRETALK, HOLD or ON AIR of the respective channel. If you press the FUNCTION key (Fn) and a number key, you can use the respective QuickDial key.
 	The keys '*' and '#' are mostly used for special functions in connection with a private branch exchange. If you press the SHIFT key and #, the software version of the Keypad is displayed.
	This key allows you to redial the last called number.
	The DROP ALL/LOCK ALL key drops all connections. To make sure this key was not pressed accidentally, you have to confirm that you really want to drop all lines. If you press the SHIFT key and this key, you can lock all caller lines. To unlock all caller lines, you must press SHIFT and DROP ALL/LOCK ALL again.
	The FUNCTION key allows you to use the QuickDial Keys QD0 - QD9. They can be programmed via the Windows PC Software (see CHAPTER 5.6.4.2.10, Page 73). If the Fn key is pressed, the character 'F' is displayed in the upper right corner.
	The OK/SHIFT key allows a shifting to the 2 nd level. If the OK/SHIFT key is pressed, the character '^' is displayed in the upper right corner. SHIFT + 1: Activation to send DTMF tones on line 1 SHIFT + 2: Activation to send DTMF tones on line 2 SHIFT + 3: Activation to send DTMF tones on line 3 SHIFT + 4: Activation to send DTMF tones on line 4 SHIFT + 5: Activation to send DTMF tones on line 5 SHIFT + 6: Activation to send DTMF tones on line 6 A dot is shown next to the line status if DTMF transmission is enabled. To deactivate the transmission of DTMF tones, you must press SHIFT + the respective number key again. SHIFT + DROP ALL: LOCK ALL LINES SHIFT + #: Show software version of the Keypad
	This button drops the connection of the respective channel. There is no request for confirmation. If no connection exists, the line can be locked by pressing the key. Now the status LO is displayed. The line is unlocked by pressing the key a second time.
	The caller on the respective channel is set in the PRETALK mode. This means he will be available on the Pretalk interface that has been defined for the Keypad in the PC Software (see CHAPTER 5.6.4.1.1, Page 44). It can be a handset/headset or an Audio interface. In POTS mode, it can also be an analogue telephone.

REALLY? -> DROP ALL
CANCEL? -> C

- - - - - F

- - - - - ^

TAB. 4 KEYPAD FUNCTIONS

Function key	Description
	<p>The caller is set in the HOLD mode.</p> <p>The signal which the caller listens to in this status can be set via the PC Software (see CHAPTER 5.6.4.1.2, Page 47).</p>
	<p>The caller on the corresponding channel is set in the ON AIR mode.</p> <p>The caller signal can be heard on the corresponding Audio line output which has been defined in the PC Software (see CHAPTER 5.6.4.1.1, Page 44).</p>
	<p>The caller is forwarded to the number which was configured for Call Forwarding.</p>

A 1 MENU STRUCTURE

On the following pages you will find the complete menu structure if you select **ENGLISH** as your menu language.

From the main menu you reach the phone book directly via the softkey **NAMES**. If you use the softkey **MENU** you go to the configuration of the system.

The configuration menu again is divided into five submenus:

- **SYSTEM SETTINGS**
- **OPERATION SETTINGS**
- **PRESETS**
- **STATUS INFORMATION**
- **LOGIN**

NOTE

Please notice that some menu items may not be displayed depending on the selected operating mode.

If you use an Administrator and/or a User Password, the display looks as it is described below:

- (1) Only **Administrator Password** configured: The password must be entered for changes to the **SYSTEM SETTINGS** and **OPERATION SETTINGS** only. Immediately available menus:
 - **PRESETS**
 - **STATUS INFORMATION**
 - **LOGIN**
- (2) Only **User Password** configured (instead of **MENU**, **LOGIN** is displayed): The password must always be entered. Subsequently, all menus are available.
- (3) **Administrator** and **User Password** configured (instead of **MENU**, **LOGIN** is displayed):
 - **User Password** is entered: The menus **PRESETS**, **STATUS INFORMATION** and **LOGIN** are available
 - **Administrator Password** is entered: All menus are available.

NOTICE

There is no differentiation between upper and lower case for the password entry.

A1.1

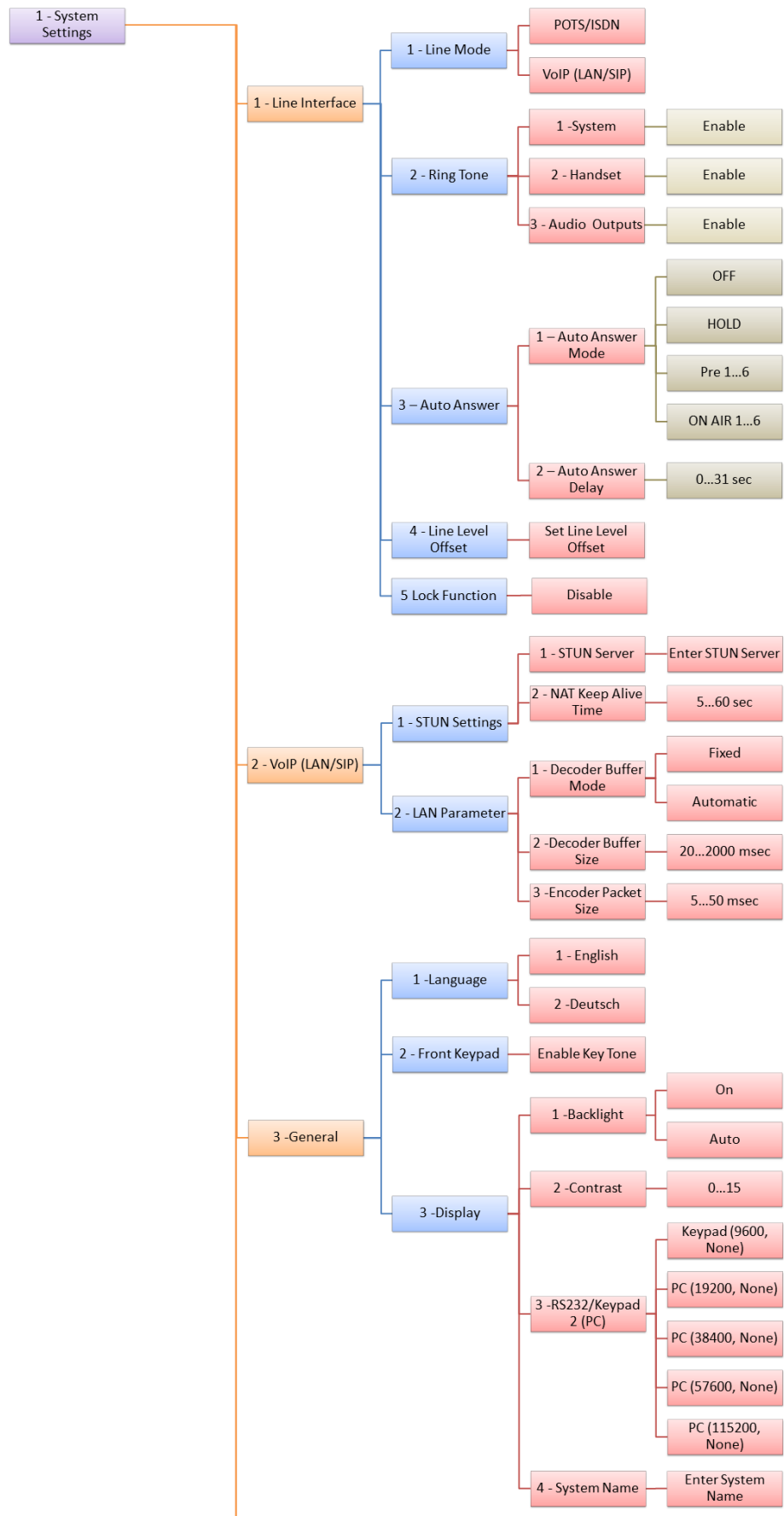
System Settings - POTS

t.b.d.

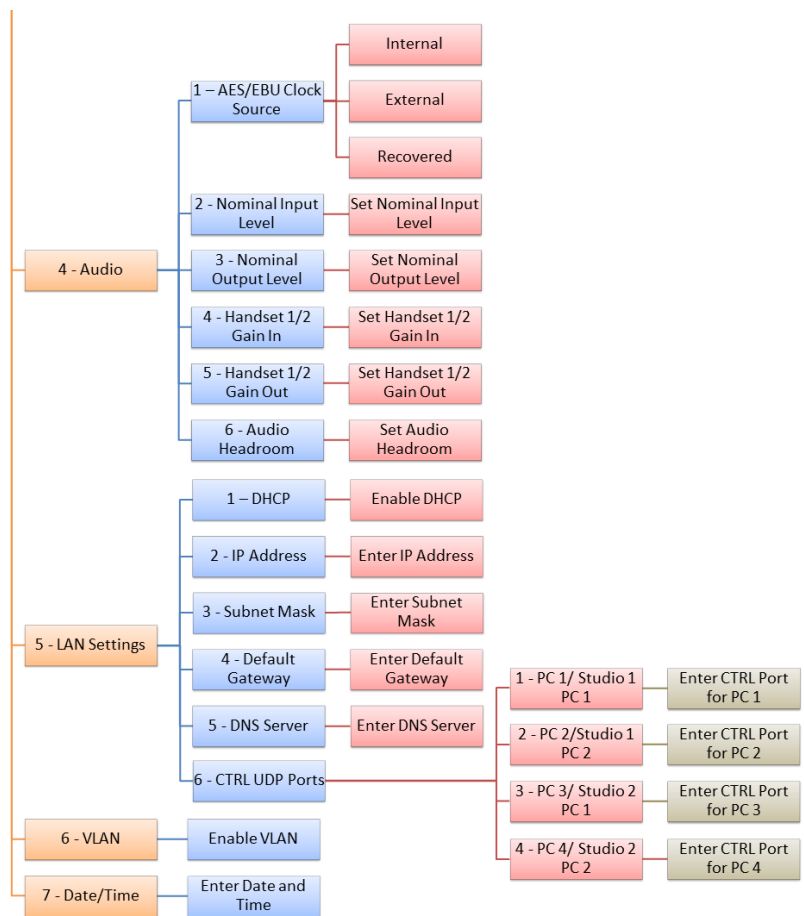
A1.2

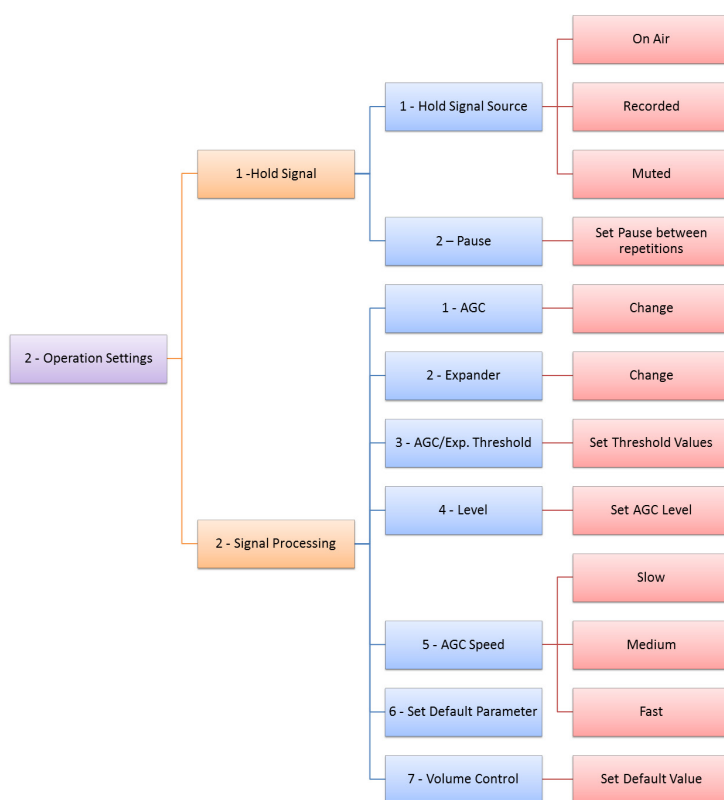
System Settings - ISDN

t.b.d.



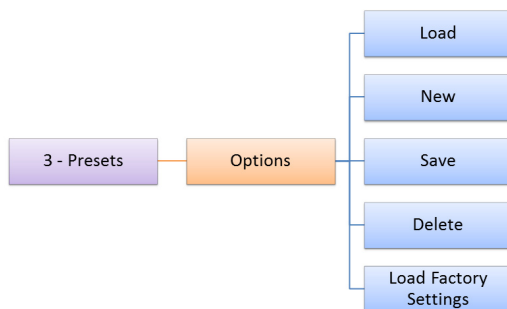
See next page

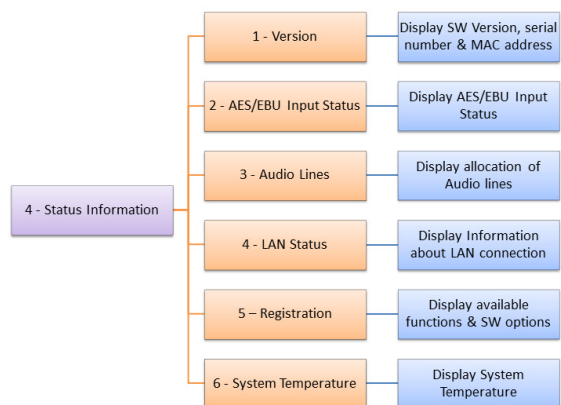


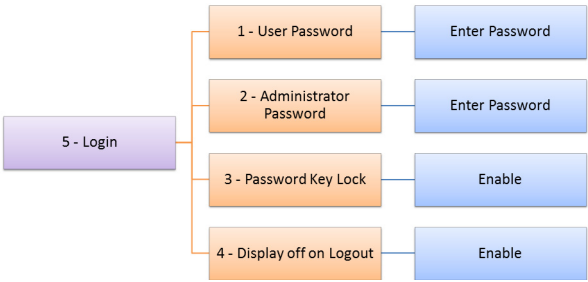


A1.5

Presets - All Operating Modes







A 2 I N T E R F A C E S

The interfaces of the systems are pictured in Fig. 80 and Fig. 81.

FIG. 80 REAR VIEW OF THE MAGIC TH6 ISDN TELEPHONE HYBRID



FIG. 81 REAR VIEW OF THE MAGIC TH6 POTS TELEPHONE HYBRID



All interfaces are described below.

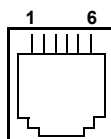
A2.1

Line interfaces

A2.1.1

POTS Interfaces (MAGIC TH6 POTS only)

MAGIC TH6 POTS provides 6 x POTS interfaces using RJ11 connectors. The pin assignment is shown in TAB. 5.



TAB. 5 PIN ASSIGNMENT: POTS LINE INTERFACE

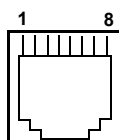
Socket: Western (6 pin) RJ11

Pin	Signal	Description
1		
2		
3	TIP	Transmit/Receive +
4	RING	Transmit/Receive -
5		
6		

A2.1.2

ISDN BRI Interfaces (MAGIC TH6 ISDN only)

MAGIC TH6 ISDN provides 3 x ISDN BRI S_0 interfaces using RJ45 connectors. The interfaces support six B channels in ISDN networks with the EURO ISDN (DSS-1), the US National-1 or the Japanese ISDN Protocol. The pin assignment is shown in TAB. 6.



TAB. 6 PIN ASSIGNMENT: ISDN LINE INTERFACE

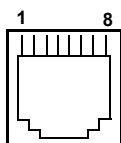
Socket: Western (8 pin) RJ45

Pin	Signal	Description
1		
2		
3	TX+ Data in +	Transmit +
4	RX+ Data in +	Receive +
5	RX- Data out-	Receive -
6	TX- Data out -	Transmit -
7		
8		

A2.1.3

LAN Interface

Via this interface you can control the system via a PC. For the LAN interface a RJ45 socket is used. If the fee-based software option *Extension for Voice over IP (ID: 430374)* is enabled, you can connect your system to a LAN network for VoIP. The pin assignment of the socket is shown in TAB. 7



TAB. 7 PIN ASSIGNMENT: LAN INTERFACE (CONTROL + VOIP)

Socket: Western (8 pin) RJ45

Pin	Signal	Description
1	TX+ Data out +	Transmit +
2	TX- Data out -	Transmit -
3	RX+ Data in +	Receive +
4		
5		
6	RX- Data out -	Receive -
7		
8		

A2.2 PRETALK interfaces

A2.2.1 HANDSET 1 & 2 interfaces

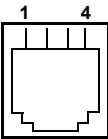
Two Handset interfaces are available at the rear side of the *MAGIC TH6*. To these interfaces you can connect a telephone handset/headset for the PRETALK. The pin assignment of the Connectors are shown in TAB. 8.

ATTENTION Pin assignment not standardised



Please note that the pin assignment of the telephone receivers is not standardised. Additionally, it is important to consider the correct polarity of the Phantom Power.

MAGIC TH6 Telephone Handsets and *MAGIC TH6 Telephone Headsets* are optionally available.



TAB. 8 PIN ASSIGNMENT: HANDSET/HEADSET INTERFACE (HANDSET)

Socket: Western (4 pin) RJ10

Pin	Signal	Description
1	HANDSET IN a/+5V phantom power	Microphone: Impedance: ~ 2kOhm
2	HANDSET OUT b (GND)	Sensitivity: ~ -60 dB @ 1-kHz
3	HANDSET OUT a	Telephone receiver: Impedance: ~ 150 Ohm
4	HANDSET IN b	Sensitivity: ~ 97 dB @ 1-kHz

A2.3

Audio interfaces

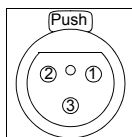
The system incorporates analogue and digital AES/EBU Audio interfaces. The interfaces can be configured via the front display and keypad or via the PC software.

A2.3.1

Analogue Audio interfaces

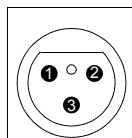
MAGIC TH6 provides two analogue Audio (Audio 1, Audio 2) inputs and outputs.

For the inputs XLR sockets and for the outputs XLR connectors are available. The pin assignments of the sockets and connectors are shown in TAB. 9 and TAB. 10.



TAB. 9 PIN ASSIGNMENT: ANALOGUE INPUT (AUDIO 1/2 IN)

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



TAB. 10 PIN ASSIGNMENT: ANALOGUE OUTPUT (AUDIO 1/2 OUT)

Connector: XLR		
Pin	Signal	Electrical characteristics
1	Analogue GND	Outgoing level: adjustable -3 +9 dBu
2	AUDIO OUT a	Impedance: 50 Ω
3	AUDIO OUT b	Head room: 6 dB

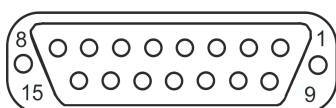
A2.3.2

Digital AES/EBU Audio interfaces

The *MAGIC TH6 Telephone Hybrid* provides four digital Audio inputs and outputs which are physically two AES/EBU interfaces.

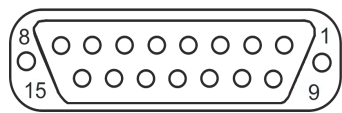
A 15-pin Sub-D socket provides the digital AES/EBU interfaces. As an option an adapter cable with XLR and BNC connectors can be provided (*AES/EBU/CLK Adapter Cable, ID 490171*).

The input has a digital sample rate converter providing that a digital source with 32, 44.1 or 48-kHz can be connected directly. For external clocking (48-kHz only) the word clock input or output may be used. The pin assignment of the 15-pin Sub-D socket is shown in TAB. 11.



TAB. 11 PIN ASSIGNMENT: DIGITAL AUDIO INTERFACE AES/EBU 1-2

Socket: 15-pin Sub-D		
Pin	Signal	
1	AES 1	IN/P
2	AES 1	IN/N
3	AES 2	IN/P
4	AES 2	IN/N
5	AES 1	OUT/P
6	AES 1	OUT/N
7	AES 2	OUT/P
8	AES 2	OUT/N
10	CLK	IN/OUT



TAB. 11 PIN ASSIGNMENT: DIGITAL AUDIO INTERFACE AES/EBU 1-2	
Socket: 15-pin Sub-D	
Pin	Signal
9, 11 ... 15	GND

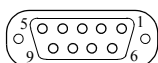
A2.4 Control Interfaces

A2.4.1 LAN interface

Please see A2.1.3, Page 115.

A2.4.2 RS232/Keypad Interface

The RS232/Keypad interfaces 1 and 2 are developed for the connection of *MAGIC TH6 Keypads* to operate the *MAGIC TH6 Telephone Hybrid*. Both interfaces have the same functionality and can be used at the same time to operate the *MAGIC TH6*. For each interface a separate 9-pin Sub-D socket is available. The pin assignments of the two 9-pin Sub-D sockets are shown in TAB. 12 and TAB. 12.



TAB. 12 PIN ASSIGNMENT: RS232/KEYPAD 1 INTERFACES

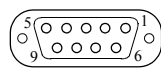
Socket: SUB-D (9 pin)	
Pin	Function
1	nc
2	TxD1
3	RxD1
4	nc
5	GND
6	nc
7	nc
8	nc
9	nc

TAB. 13 PIN ASSIGNMENT: RS232/KEYPAD 2 INTERFACE

Socket: SUB-D (9 pin)	
Pin	Function
1	nc
2	TxD2
3	RxD2
4	nc
5	GND
6	nc
7	nc
8	nc
9	nc

A2.4.3 TTL/RELAY interface

The TTL/Relay interface is implemented as a 15 plug connector socket. It provides six TTL inputs and four Relay outputs. Via this interface external control signals can be used. The pin assignment of the plug connector socket is shown in TAB. 14.



TAB. 14 PIN ASSIGNMENT: TTL/RELAY INTERFACE		
Socket: SUB-D (9 pin)		
Pin		
1	Relay	3/ A
2	Relay	3/ B
3	Relay	4/ A
4	Relay	4/ B
5	GND	
6	Relay	1/ A
7	Relay	1/ B
8	Relay	2/ A
9	TTL1	
10	TTL 2	
11	TTL 3	
12	TTL 4	
13	TTL 5	
14	TTL 6	
15	Relay	2/ B

A 3 TECHNICAL DATA MAGIC TH6

CODING ALGORITHMS

- G.711 A-Law 3,1-kHz (telephone algorithm)
- G.722 (7-kHz, optional with HD Voice Upgrade in VoIP mode)

LINE INTERFACES:

MAGIC TH6 POTS

- POTS
 - 6 x POTS RJ11
- LAN
 - 1 x LAN RJ45

MAGIC TH6 ISDN

- ISDN
 - 3 x S_0 I.430 RJ45
 - Protocol DSS-1, NI-1, Japanese ISDN
- LAN
 - 1 x LAN RJ45

PRETALK INTERFACES

- Handset/Headset interface
 - 2 x Handset/Headset RJ10

CONTROL INTERFACES

- LAN RJ45
- RS232 V.24 9 pin SUB-D socket
- TTL/RELAY 15 pin SUB-D socket
 - 4 x Relay Capacity 48V/200mA function can be programmed
 - 6 x TTL Input/Output function can be programmed

Capacity 3.3V/10mA

AUDIO INTERFACES

Analogue Audio 1/2:

- Electronically balanced input XLR female
- Electronically balanced input XLR male
- Nominal level -3 ... +9 dBu (can be programmed)
- Head room 0 ... 15 dBr (can be programmed)
- Impedance Input: > 25 k Ω
Output: 50 Ω
- Frequency response 50 Hz ... 3400 Hz
- Signal to Noise Ratio > 80 dB
- Noise - 92 dB

Digital Audio AES/EBU:

- Format IEC-958 AES/EBU Professional
- Balanced input XLR female
- Balanced output XLR male
- Impedance Input: 110 Ω
Output: 110 Ω
- Clock input TTL/75 Ω XLR female
- Clock output TTL/75 Ω XLR male
- Separate Sample Rate Converter for Inputs

Handset/Headset:

- Electronically balanced input RJ10 socket
- Electronically balanced output RJ10 socket
- Input amplifier ~ 10 dB
- Gain In 0 ... +45 dB (can be programmed)
- Gain Out 0 ... +45 dB (can be programmed)
- Impedance Input: > 25 k Ω
Output: < 50 Ω

SIGNAL PROCESSING

- AGC per channel, configurable
- Level adjustment control during connection: -16 dB ... +16 dB
- Echo Canceller per channel (100 msec echo cancelling time)
- Expander per channel, configurable

DISPLAY

- graphical resolution 160 x 32 Pixel
- illuminated (can be switched off)

POWER SUPPLY

Integrated power supply

- | | |
|----------------------------|-----------|
| - alternating voltage (AC) | 90...253V |
| - current | max. 15W |

DIMENSIONS

H x W x D

- 44,5 x 434x 252 mm

WEIGHT

- ca. 3,7 kg

ADDITIONAL INFORMATION**EMC**

- EN 55103

Electric safety

- EN 60950

Temperature Range

- +5 °C to 45 °C

Relative humidity

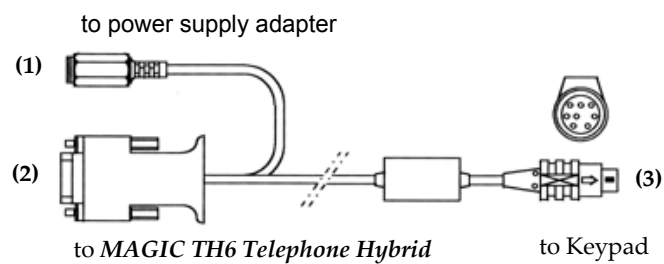
- 5% is 85%

A4.1

Keypad

Matrix: 8 x 6
(48 single keys)

FIG. 82 CONNECTING CABLE MAGIC SYSTEM - KEYPAD

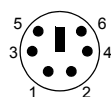


Protocol:

9600 Baud
no parity

Connection to external power supply adapter (1):

6-pol. Mini-DIN connector

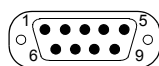


Assignment:

Pin 3: GND (Ground)
Pin 4: +5V

Connection to *MAGIC TH6* (2):

9-pol. SUB-D connector



Assignment:

Pin 2: RXD
Pin 3: TXD
Pin 5: GND (Ground)

Connection to keypad (3):

8-pol. MINI DIN connector

Assignment:

Pin 2:	clock
Pin 3:	+5V
Pin 4:	Data
Pin 5:	GND (Ground)

A4.2

LCD Display

2 x 20 characters

illuminated

A5.1

Order numbers

MAGIC TH6 POTS Telephone Hybrid	801050
MAGIC TH6 ISDN Telephone Hybrid	801060

Accessories

MAGIC TH6 Hybrid Keypad	801051
MAGIC TH6 Telephone Handset with Handset Rest	801052
MAGIC TH6 Telephone Headset Mono Aural	801053
MAGIC TH6 Telephone Headset Bin Aural	801054
MAGIC TH6 Volume Adapter	801055
Telephone Headset Mono Aural USB ¹	802006
Wireless Telephone Headset Mono USB ¹	802007

Software Options

MAGIC TH6 Control (one is included in delivery, 4 max.)	430375
MAGIC TH6 Extension for Voice over IP	430374
MAGIC TH6 HD Voice Upgrade ²	430466
MAGIC TH6 DTMF Tone Analyzer Plug-In	430441
Pretalk Streaming Upgrade	430464

Cables

AES/EBU/CLK Adapter Cable	490171
---------------------------	--------

¹ Requires optional PRETALK Streaming Upgrade (430464)

² Requires optional Extension for Voice over IP (430374)

A5.2

Scope of delivery

- MAGIC TH6 POTS Telephone Hybrid
 - CD Windows PC Software
 - Self adhesive feet
 - 19'' Mounting brackets
 - Manual
 - 6 x POTS telephone cable
- MAGIC TH6 ISDN Telephone Hybrid
 - CD Windows PC Software
 - Self adhesive feet
 - 19'' Mounting brackets
 - Manual
 - 3 x S₀ cable

A5.3

Declaration of conformity

The declaration of conformity you will find at the end of this manual.

A 6

SERVICE INFORMATION

A6.1

Software Updates

On our homepage you can download software updates for free. Go to

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

and select **Download - Software**.

A6.2

Support

You can contact our Support Hotline during the normal office hours between 09.00h - 17.00h (GMT+1) under the following telephone number:

+49 911 5271 160

or via E-Mail under

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 use.

A6.3

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 Nuernberg
Germany**

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CE-Konformität

DECLARATION OF CONFORMITY

Name des Anbieters:

Supplier's name:

AVT Audio Video Technologies GmbH

Anschrift des Anbieters:

Supplier's address

Nordostpark 12

90411 Nürnberg, Germany

erklärt, daß das Produkt

declares, that the product

Produktname(n):

Product name(s):

MAGIC TH6 POTS Telefonhybrid 801050

MAGIC TH6 ISDN Telefonhybrid 801060

MAGIC TH6 POTS Telephone Hybrid 801050

MAGIC TH6 ISDN Telephone Hybrid 801060

mit den Vorschriften folgender Europäischer Richtlinien übereinstimmt:

conforms to the standards of the following European directives:

Nummer/Text:

Number/title:

EN 60950 A4 Gerätesicherheit

Die Übereinstimmung wird nachgewiesen durch vollständige Einhaltung folgender Normen:

The conformity is evidenced by strictly meeting the following standards:

Harmonisierte Normen:

Harmonized Standards:

EN 55022, EN 55024,

EN 300386,

FCC Part 15 B

Ort, Datum:

Place, date:

Nürnberg, 07.12.2010

Name(n):

Name:

Wilfried Hecht

Rechtsverbindliche Unterschrift(en):

Legally binding signatures:

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Phone:

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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.

