

MAGIC ACip3

Quick Start Guide

Version: 1.30
Date: 05.12.2018

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- AVT MAGIC ACip3
 - Line Interface
 - 3x Ethernet 100 Mbit/s
 - E1 balanced (optional)
 - Control Interface
 - 3x Ethernet 100 Mbit/s
 - 6x Relay
 - 6x TTL IO
 - Audio
 - 1x Analog Stereo
 - 2x Digital Stereo (optional switchable to 1x additional Analog Stereo)
 - Data
 - 2x RS232
 - Redundant power supply
 - 100 V – 230 V AC
 - 12 V DC

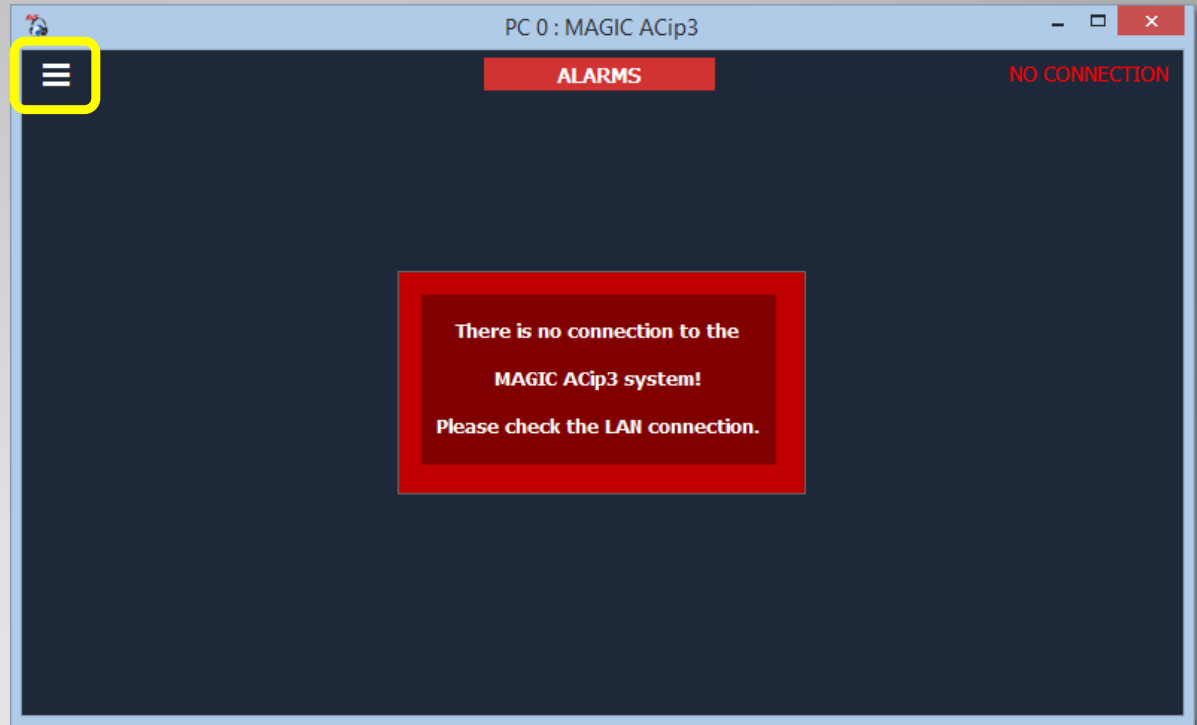
Interfaces

- Signalling
 - Audio over IP (AoIP/SIP)
 - IP leased line
 - E1 (optional)

- Codecs
 - Standard
 - G.711
 - G.722
 - OPUS
 - PCM 16/20/24 Bit
 - ISO/MPEG-2 Layer 2
 - Optional:
 - ISO/MPEG-2 Layer 3
 - Enhanced apt-X 16/24 Bit
 - AAC-LD, AAC-ELD
 - AAC-LC
 - HE-AAC v1/v2

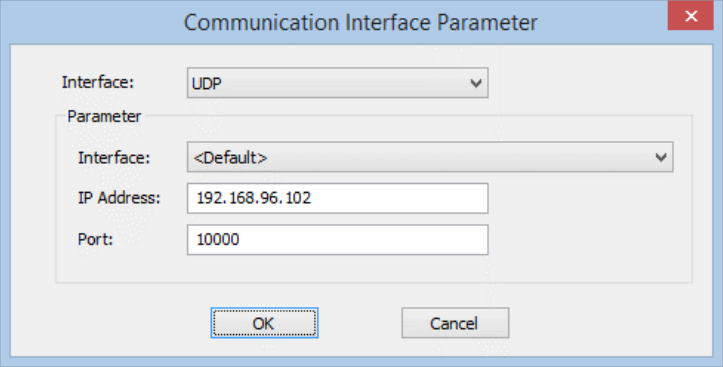
Features

- Run the “MAGIC ACip3” application as Administrator.
- Click the menu button in the top left corner.
- Open “Configuration → Control Interface”.



First Start

- Enter the IP address of the MAGIC ACip3. (Default: 192.168.96.102)



Communication Interface Parameter

Interface: UDP

Parameter

Interface: <Default>

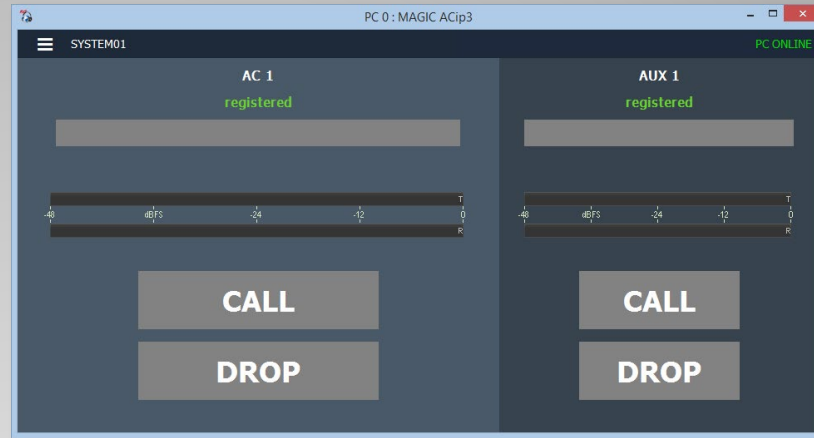
IP Address: 192.168.96.102

Port: 10000

OK Cancel

Control Interface

- Connection to the MAGIC ACip3 is fully established when “PC ONLINE” shows up in the top right corner.
- Codec channels offer high quality audio transmission.
- AUX channels offer HD Voice audio transmission.
- AC2 and AUX2 are optional (2-Channel Software Option).



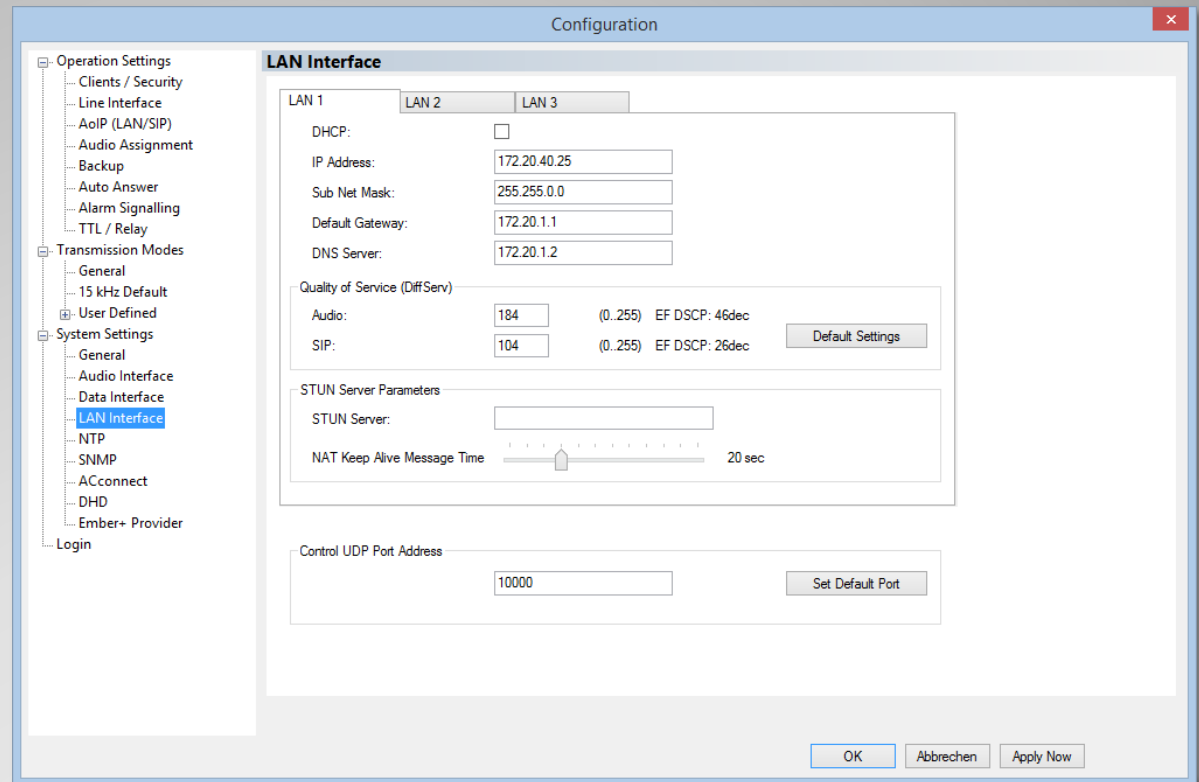
Main Panel

- Click the menu button in the top left corner.
- Open “Configuration → System”.



Configuration

- Select page “LAN Interface”.
- SIP registration needs valid entries for:
 - IP Address
 - Sub Net Mask
 - Default Gateway
 - DNS Server
- Services (SIP, DHD, Ember+, SNMP, ...) can be assigned to any LAN interface individually on their respective settings page.
- PC control works on all LAN interfaces simultaneously.



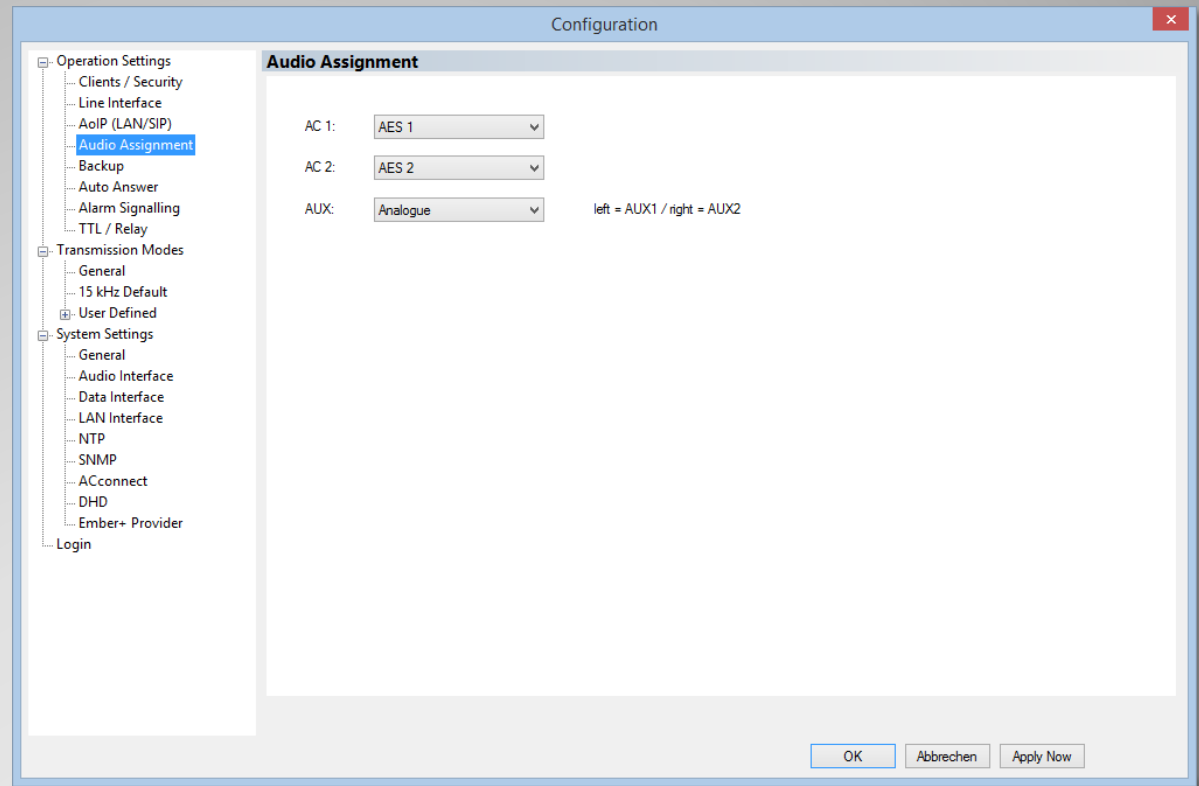
Configuration LAN Interfaces

- Select page “Audio Interface”.
- Select a “Mode”:
 - 2x Analogue
 - 1x Analogue + 2x AES/EBU
- "Analogue 1":
Setting the input and output levels
- "Analogue 2":
Only available in "2 x Analogue" mode
 - The second analogue audio interface is available with hardware version 3.0 and higher.
- "AES/EBU Interface":
Selection of the clock source for the digital output

The screenshot displays the 'Audio Interface' configuration window. On the left, a navigation tree shows 'System Settings' > 'Audio Interface' selected. The main window has a 'Mode' dropdown menu set to '1x Analogue + 2x AES/EBU'. Below this, there are tabs for 'Analogue 1' and 'Analogue 2'. The 'Analogue 1' tab is active, showing a section for 'Main Nominal Level of XLR Analogue 1 and 2' with four sliders: 'Level In Left' (6 dBu), 'Level In Right' (6 dBu), 'Level Out Left' (6 dBu), and 'Level Out Right' (6 dBu). Below this is a 'Headroom' slider set to 9 dB. The 'Headphone' section has a 'Gain Out' slider set to 23 dB. The 'AES/EBU Interface' section has a 'Clock Source of Digital Output' dropdown set to 'Internal'. A 'Default Settings' button is located at the bottom right of the configuration area. At the very bottom of the window, there are three buttons: 'OK', 'Abbrechen', and 'Apply Now'.

Configuration Audio Interface

- Select page "Audio Assignment".
- Assign an audio interface to each channel.
- If "AES/EBU and Analogue" is selected under Audio Interface > Mode, 3 x Audio stereo interfaces are available for selection.
- If "2 x Analogue" is selected under Audio Interface > Mode, only 2 analogue stereo interfaces can be assigned to the codecs.
- This example shows the following configuration:
 - AC 1: AES 1
 - AC 2: AES 2
 - AUX 1: Analogue left
 - AUX 2: Analogue right

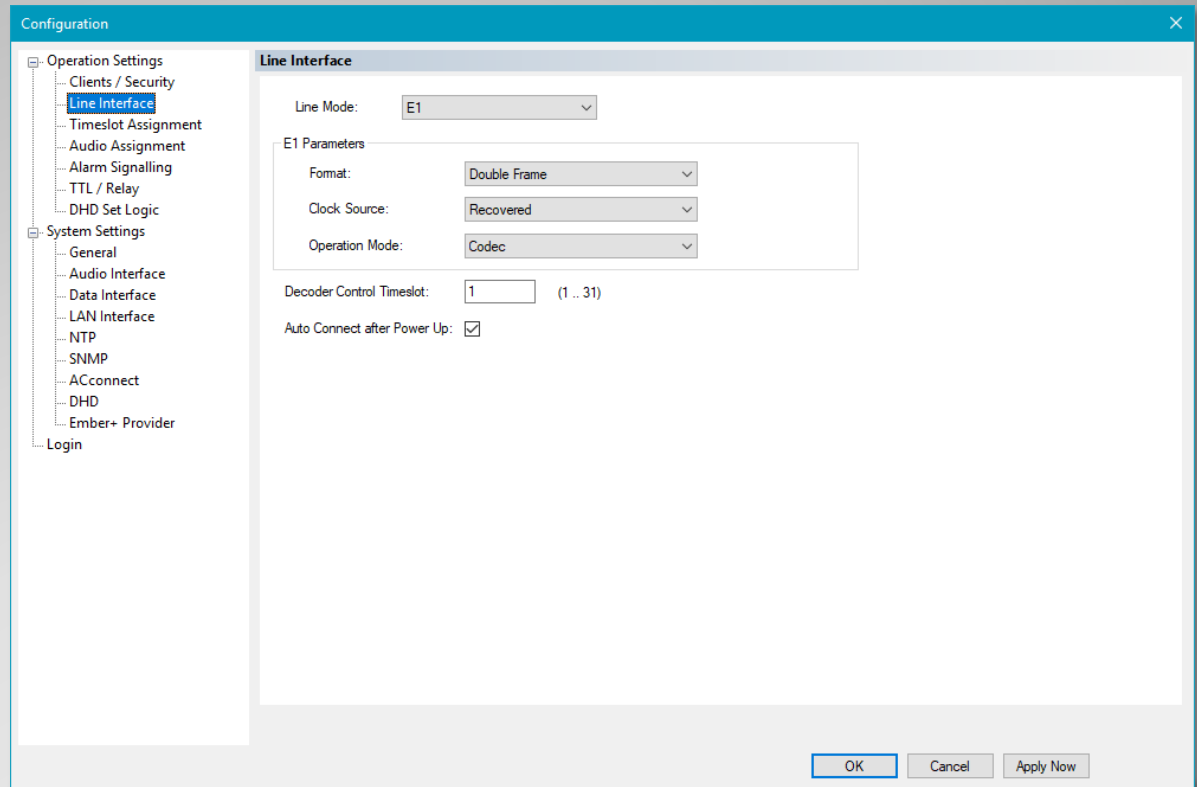


Configuration Audio Assignment

- The MAGIC ACip3 is optionally available with a balanced E1 interface.
- It can be operated unidirectional as encoder or decoder and bidirectional as codec.
- The encoder is configured in detail with codec algorithm and parameters and E1 timeslots.
- The encoder configuration is transmitted to the decoder in the “Signalling Timeslot”.
- On the decoder, enter the number of the signalling timeslot in the “Decoder Control Timeslot” configuration.
- On connection build-up, the decoder receives the encoder configuration and configures itself automatically.

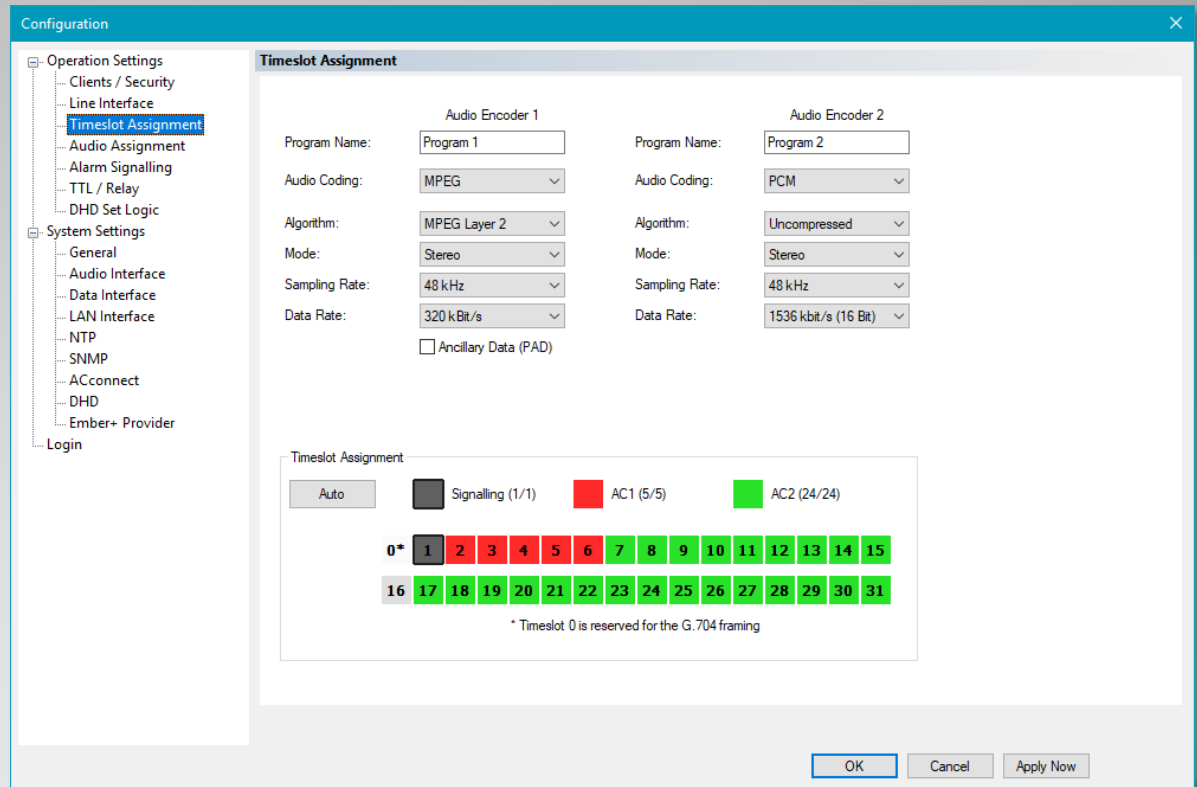
E1

- Select page “Line Interface”.
- Choose Line Mode “E1”.
- Select an Operation Mode:
 - Encoder
 - Decoder
 - Codec
- Enter the number of the “Signalling Timeslot” of the Encoder on the other end in “Decoder Control Timeslot”.



Configuration E1

- Select page “Timeslot Assignment”.
- Enter a Program Name.
- Select a “Coding Algorithm” and set the parameters.
- Assign the timeslots.
 - Click “Signalling”, “AC1” or “AC2”
 - Click the numbered boxes to add or remove timeslots.
 - Check the braces for the number of assigned / required timeslots.
- Use the button “Auto” to assign the timeslots automatically in ascending order.
- The buttons “OK” and “Apply Now” are disabled as long as the timeslot assignment is insufficient.

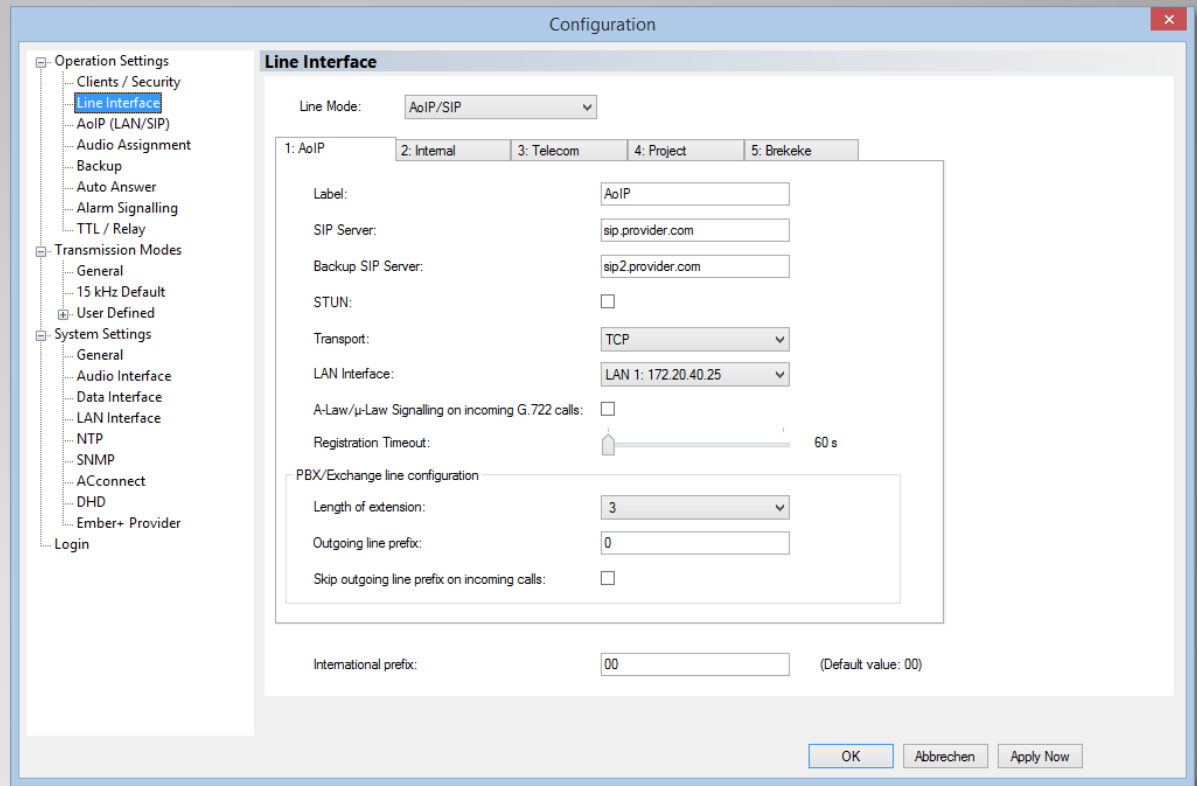


Configuration Timeslot Assignment

- All three ethernet interfaces of the MAGIC ACip3 are suitable for AoIP.
- The MAGIC ACip3 can handle up to five SIP servers.
- Every channel can register with five different SIP accounts. These accounts are active simultaneously. Any incoming call on any of the accounts can be accepted.
- Choose one of the five SIP accounts of a channel when dialling out.
- At connection build-up, the calling party announces the desired codec for the connection.
- Additionally it announces G.711 (telephone quality) and G.722 (HD-Voice) as fall-back options if the called party doesn't support the desired codec.
- The called party selects the codec for the connection.
- Both directions use identical algorithms and codec parameters.

AoIP (LAN/SIP)

- Select page “Line Interface”.
- Choose Line Mode “AoIP/SIP”.
- Enter up to 5 SIP Servers.
- Choose TCP or UDP for SIP transport protocol.
- Assign the SIP server to a LAN interface.



Configuration SIP Servers

- Select page “AoIP (LAN/SIP)”.
- Enter up to 5 Numbers per Channel.
- Click on a SIP server to select one of the five SIP servers configured on page “Line Interface”.

The screenshot shows the 'Configuration' window for 'AoIP (LAN/SIP)'. The left sidebar contains a tree view with the following items: Operation Settings, Clients / Security, Line Interface (selected), Audio Assignment, Backup, Auto Answer, Alarm Signalling, TTL / Relay, Transmission Modes (General, 15 kHz Default, User Defined), System Settings (General, Audio Interface, Data Interface, LAN Interface, NTP, SNMP, ACconnect, DHD, Ember+ Provider, Login).

The main configuration area is titled 'AoIP (LAN/SIP)' and includes tabs for 'AC 1', 'AC 2', 'AUX 1', and 'AUX 2'. Below the tabs is a 'Label:' input field. A table lists the configured SIP servers:

SIP Server	User Name	User Authentication	Password	Audio UDP Port	Display Name
1: AoIP	55590411		*****	5004	
2: Internal	401		*****	5024	Production
3: Telecom	5271160		*****	5044	
4: Project	1337		*****	5064	
SIP Server 5				5084	

Below the table are three configuration sections:

- Encoder Packet Size (Payload Time):** A slider set to 10 msec, with options for G.711, G.722, PCM, and aptX.
- Decoder Parameters:** Includes a 'Buffer Mode' dropdown set to 'Automatic' and a 'Buffer Size' slider set to 200 msec.
- Registration delay between SIP lines:** A slider set to 0 msec.

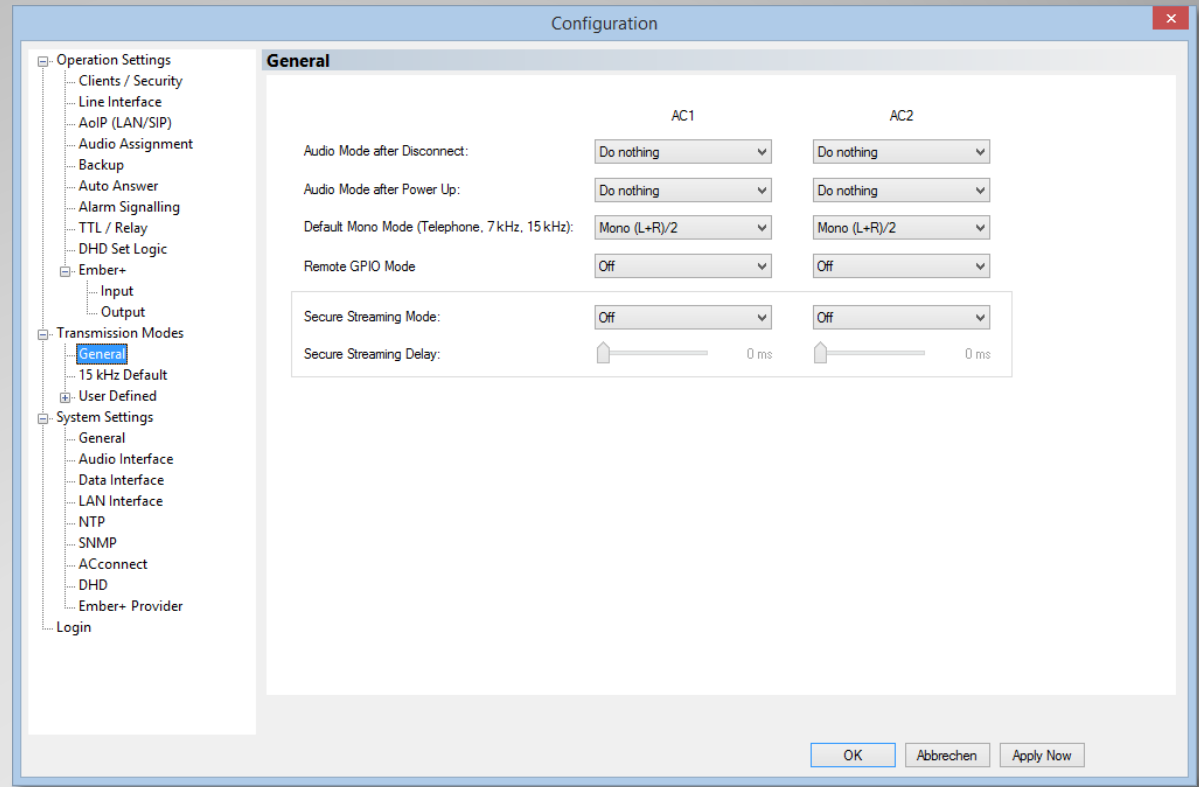
At the bottom right of the window are three buttons: 'OK', 'Abbrechen', and 'Apply Now'.

Configuration AoIP Numbers

- A transmission mode is made up of an algorithm and its parameters.
- There are three default transmission modes for 3.1 kHz, 7 kHz and 15 kHz calls.
- Configure up to 30 user defined modes.
- Select one of the transmission modes when dialling a number.
- AoIP calls always allow G.711 and G.722 in addition to the chosen transmission mode. This way the connection will be established even if the remote station doesn't support the desired high quality audio codec.

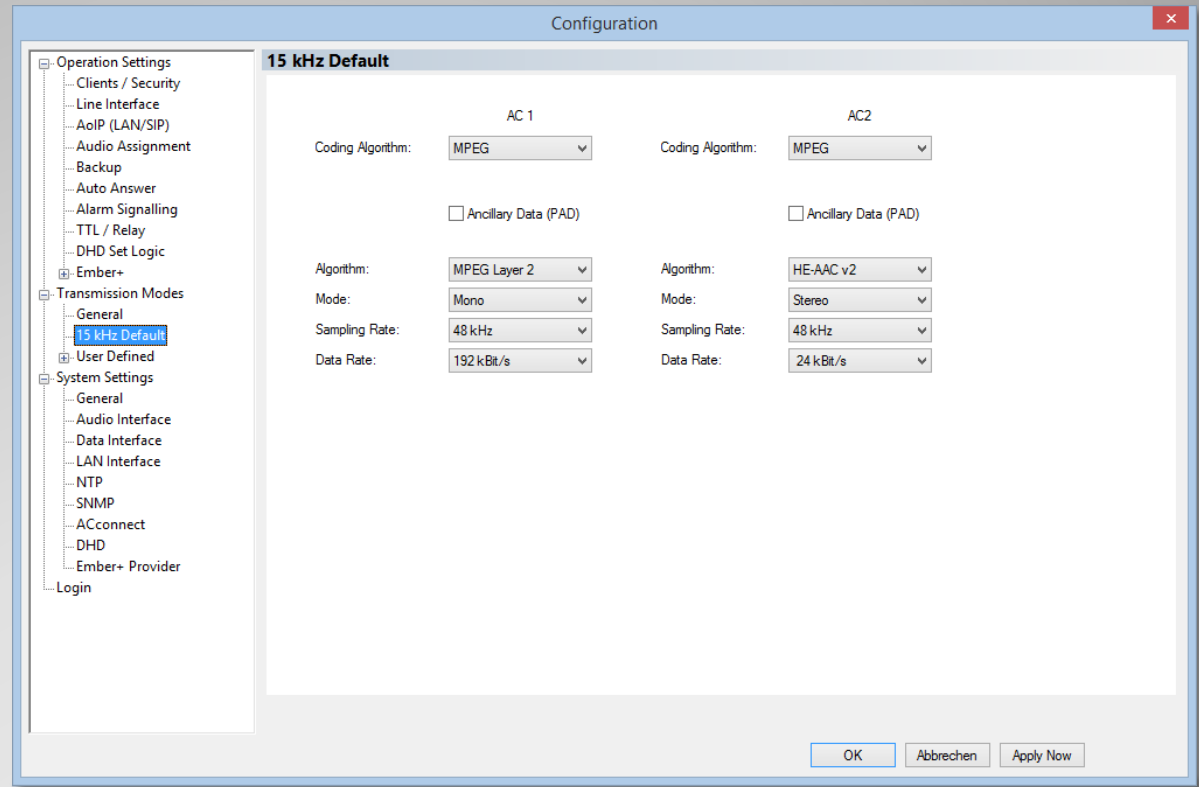
Audio Codecs

- Select page “General” from the “Transmission Modes” branch.
- Set the default Mono Mode.



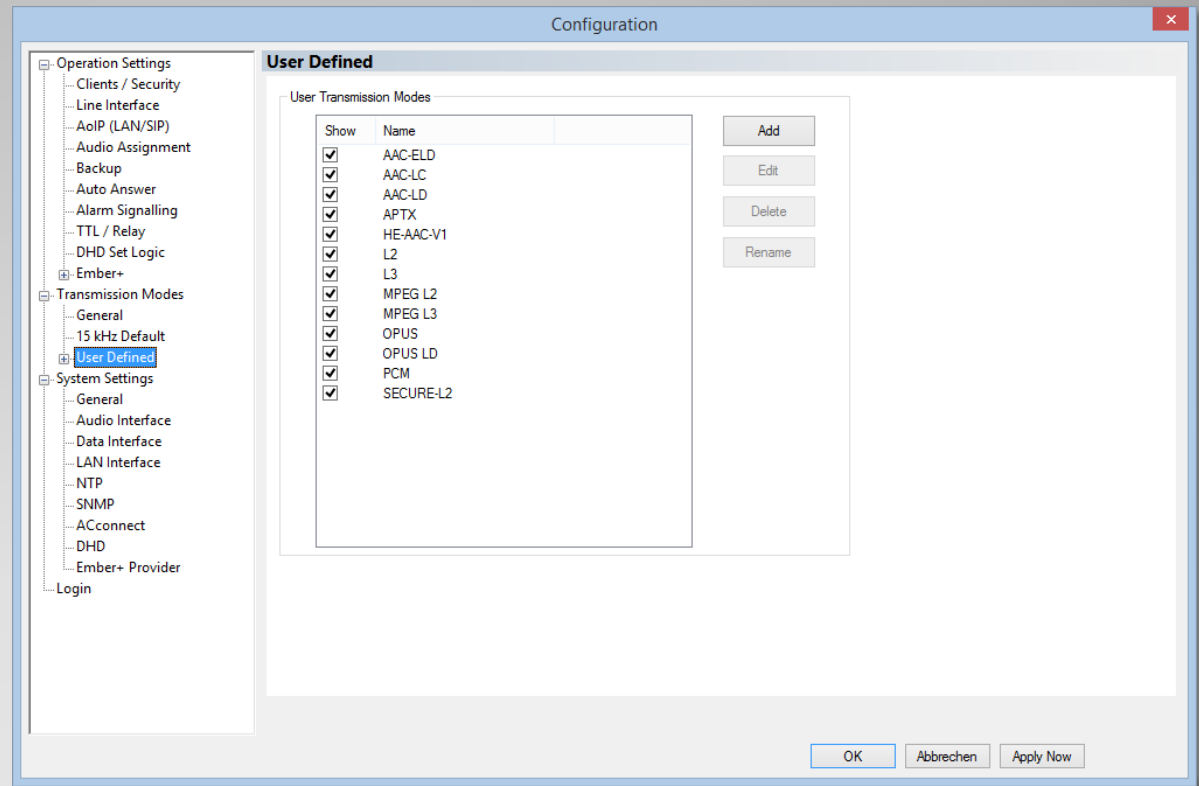
Transmission Modes (General)

- Select page “15 kHz Default” from the “Transmission Modes” branch.
- Select a “Coding Algorithm” and set the parameters.



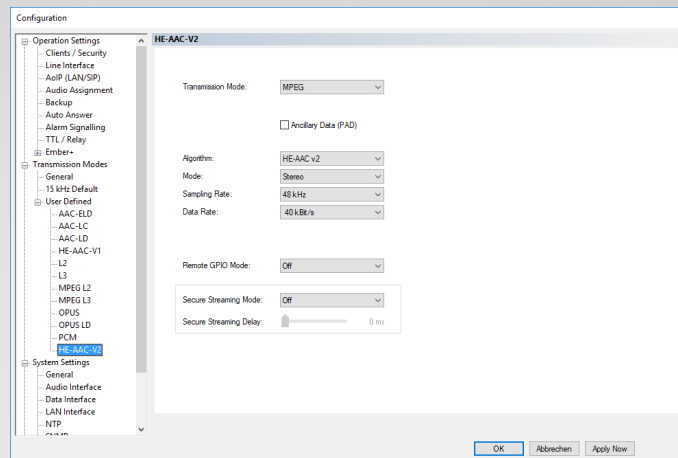
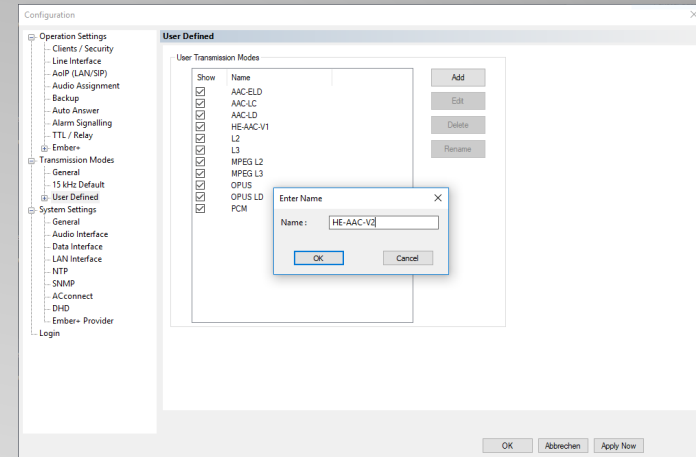
Default 15 kHz Transmission Mode

- Select page “User Defined” from the “Transmission Modes” branch.
- Manage up to 30 transmission modes.
- Check “Show” to present the transmission mode on the front display.



User Defined Transmission Modes (1)

- Use „Add“ to define a new transmission mode.
- First enter a name for the new transmission mode.
- Click „OK“ and select an algorithm and set up its parameters.
- Secure streaming transmits a parallel audio stream with adjustable delay. Works with AVT codecs only.



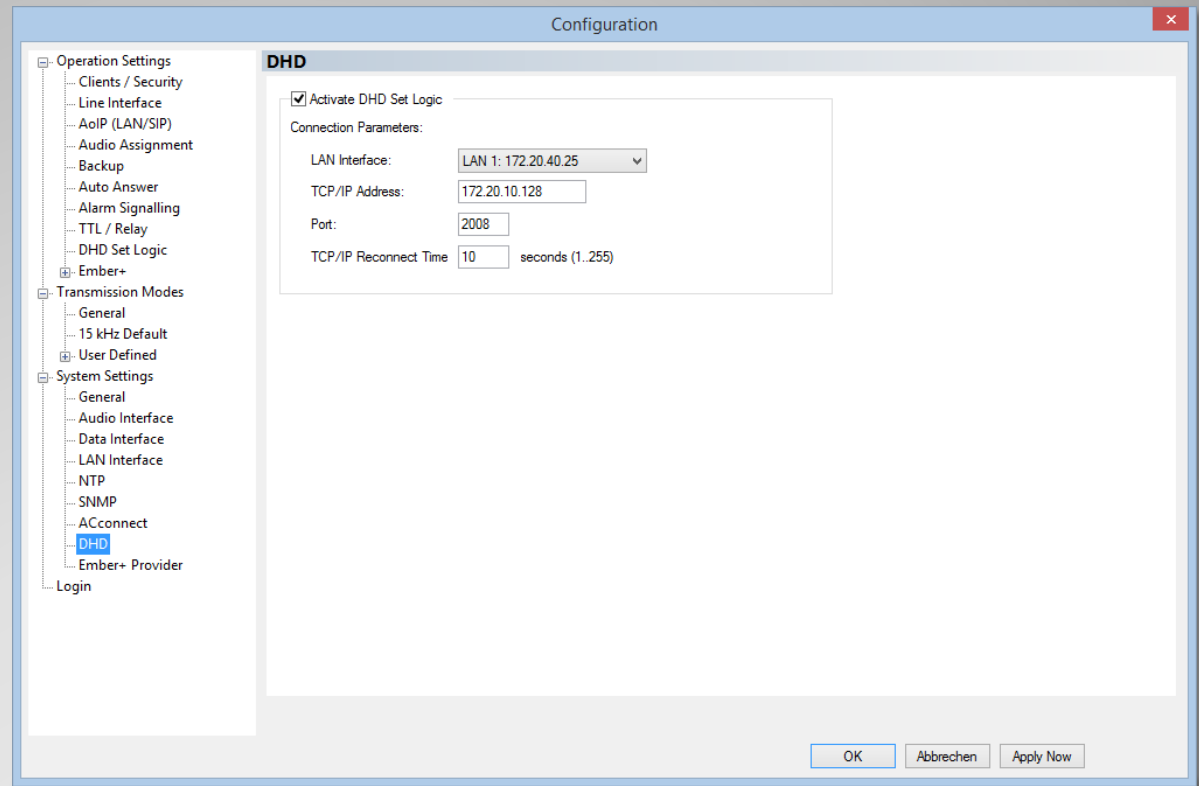
User Defined Transmission Modes (2)

- Select page “TTL/Relay”.
- Double-click any entry to chose one of the predefined functions.

Pin	Dir.	Function 1 (Positive Edge)	Function 2 (Negative Edge)
TTL 1 (Pin 2)	In	Accept Incoming Call:AC 1	Disconnect:AC 1
TTL 2 (Pin 3)	In	Accept Incoming Call:AC 2	Disconnect:AC 2
TTL 3 (Pin 4)	In	-	-
TTL 4 (Pin 14)	In	-	-
TTL 5 (Pin 15)	In	-	-
TTL 6 (Pin 16)	In	-	-
Relay 1 (Pins 5->17+18)	Out	Connection State:AC 1.:Connect	-
Relay 2 (Pins 19->6+7)	Out	Connection State:AC 2.:Connect	-
Relay 3 (Pins 8->20+21)	Out	Always Open	-
Relay 4 (Pins 22->9+10)	Out	Always Open	-
Relay 5 (Pins 11->23+24)	Out	Always Open	-
Relay 6 (Pins 25->12+13)	Out	Always Open	-

Configuration TTL/Relay

- Select page “DHD” from the “System Settings” branch.
- Activate DHD Set Logic.
- Enter the IP address of the DHD core.



Configuration DHD (1)

- Select page “DHD Set Logic” from the “Operation Settings” branch.
- Double-click any entry to change the function.

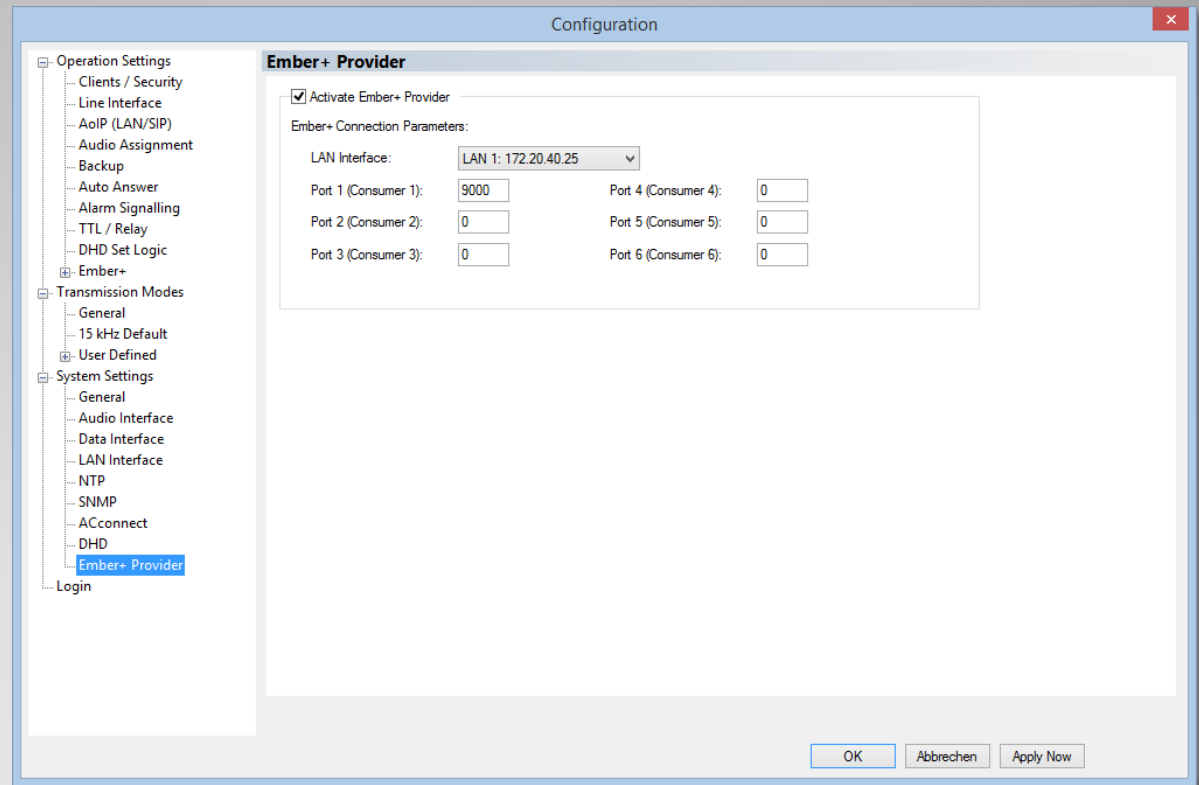
The screenshot shows a software configuration window titled "Configuration". On the left is a tree view of settings, with "DHD Set Logic" selected under "Operation Settings". The main area displays a table for "DHD Set Logic" configuration.

##	Alias	ID	Dir.	Function 1 (Positive Edge)	Function 2 (Negative Edge)
1	Call Out	15	In	Connect:AC 1:15 kHz Call:5551831	-
2	Disc AC1	22	In	Disconnect:AC 1	-
3		0	In	-	-
4		0	In	-	-
5		0	In	-	-
6		0	In	-	-
7		0	In	-	-
8		0	In	-	-
9		0	In	-	-
10		0	In	-	-
11		0	In	-	-
12		0	In	-	-
13		0	In	-	-
14		0	In	-	-
15		0	In	-	-
16		0	In	-	-
17		0	In	-	-
18		0	In	-	-
19		0	In	-	-
20		0	In	-	-
21		0	In	-	-
22		0	In	-	-
23		0	In	-	-

At the bottom of the window are three buttons: "OK", "Abbrechen", and "Apply Now".

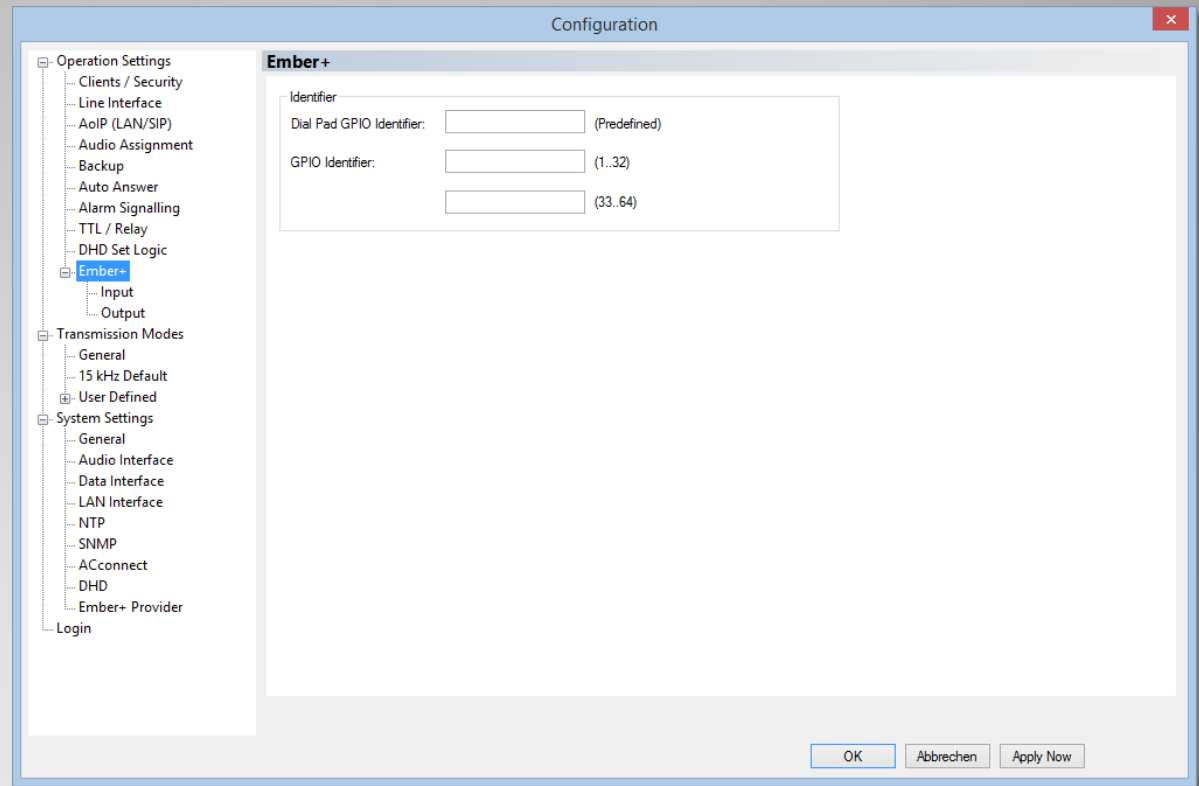
Configuration DHD (2)

- Select page “Ember+ Provider” from the “System Settings” branch.
- Activate Ember+ Provider.
- Up to 6 Ember+ Consumer can connect to the MAGIC ACip3.
- Enter a Port number to start the server.
(Recommended: Ports 9000-9005)



Configuration Ember+ (1)

- Select page “Ember+” from the “Operation Settings” branch.
- Enter distinct identifiers for
 - Dial Pad
 - GPIO 1...32
 - GPIO 33...64
- Enter these identifiers in Ember+ consumers connected to the MAGIC ACip3.



Configuration Ember+ (2)

- Select page “Input” from the “Ember+” branch.
- Double-click any entry to change the function.

The screenshot shows a software configuration window titled "Configuration". On the left is a tree view with the following structure:

- Operation Settings
 - Clients / Security
 - Line Interface
 - AoIP (LAN/SIP)
 - Audio Assignment
 - Backup
 - Auto Answer
 - Alarm Signalling
 - TTL / Relay
 - DHD Set Logic
 - Ember+
 - Input** (highlighted)
 - Output
 - Transmission Modes
 - General
 - 15 kHz Default
 - User Defined
 - System Settings
 - General
 - Audio Interface
 - Data Interface
 - LAN Interface
 - NTP
 - SNMP
 - ACconnect
 - DHD
 - Ember+ Provider
 - Login

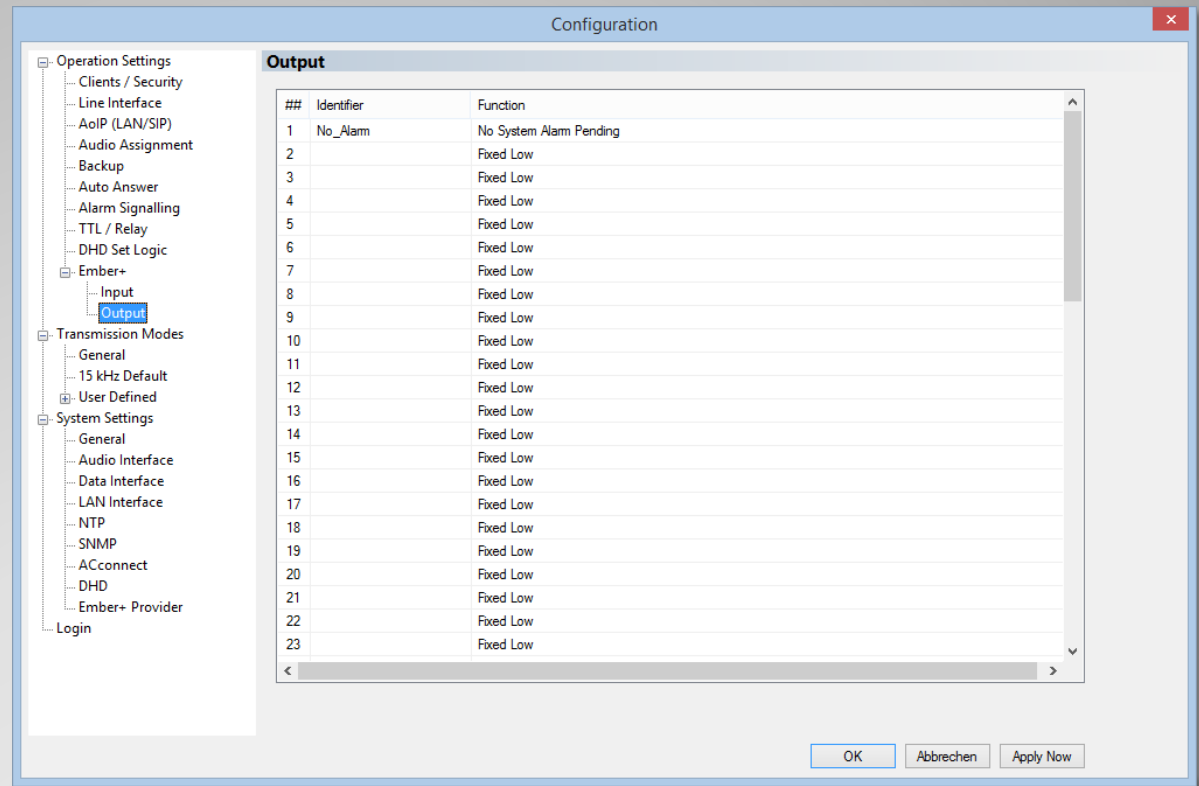
The main area of the window is titled "Input" and contains a table with the following data:

##	Identifier	Function 1 (Positive Edge)	Function 2 (Negative Edge)
1	Call_Out	Connect:AC 1:15 kHz Call:5551831	-
2		-	-
3		-	-
4		-	-
5		-	-
6		-	-
7		-	-
8		-	-
9		-	-
10		-	-
11		-	-
12		-	-
13		-	-
14		-	-
15		-	-
16		-	-
17		-	-
18		-	-
19		-	-
20		-	-
21		-	-
22		-	-
23		-	-

At the bottom right of the window are three buttons: "OK", "Abbrechen", and "Apply Now".

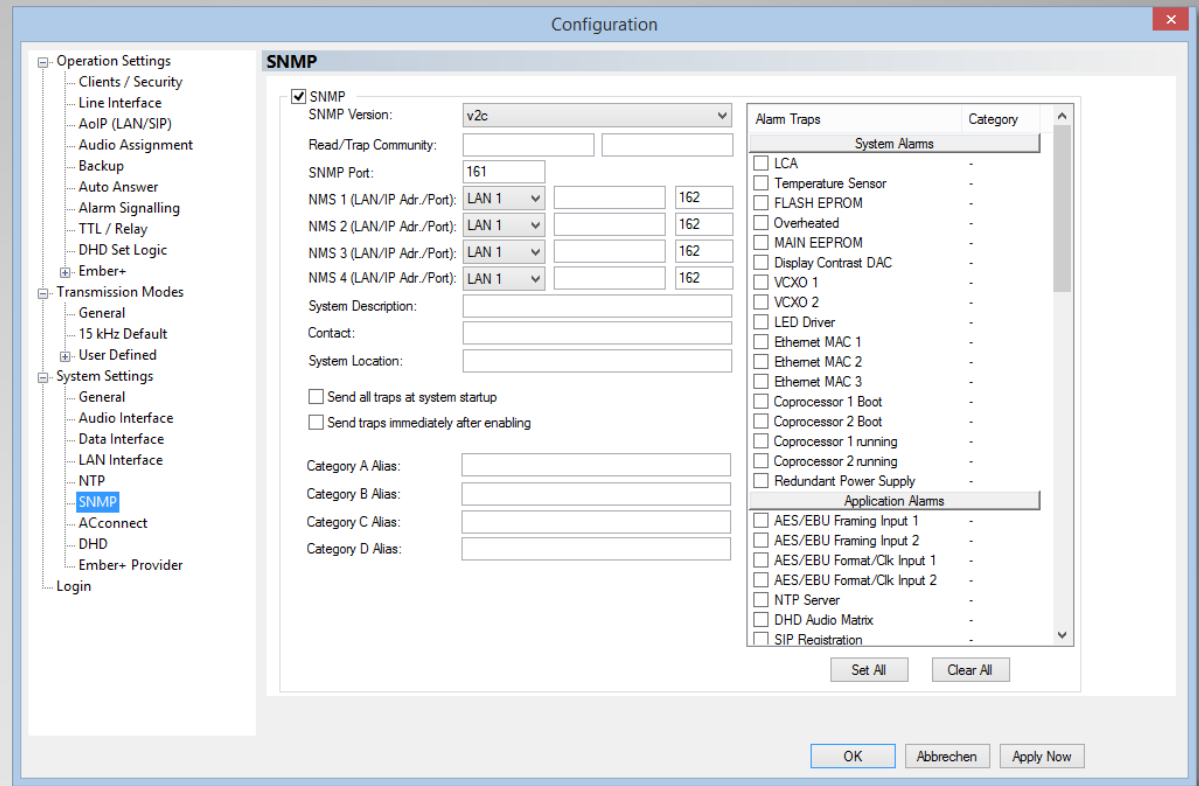
Configuration Ember+ Inputs

- Select page “Output” from the “Ember+” branch.
- Double-click any entry to change the function.



Configuration Ember+ Outputs

- Select page “SNMP”.
- MIBs are located in the MAGIC ACip3 program folder.



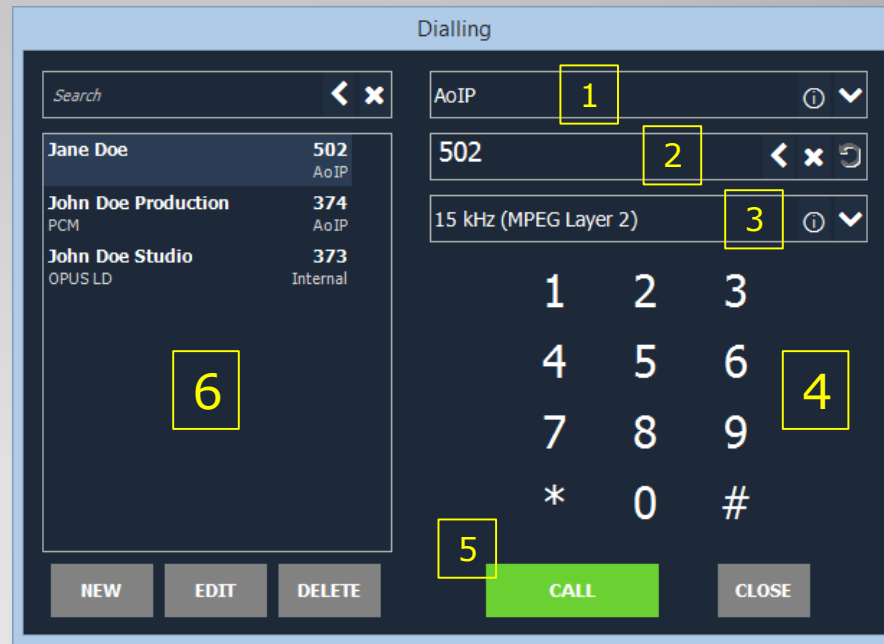
Configuration SNMP

- Check SIP registration status of every line:
 - **invalid**: No account is registered.
 - **registered**: Some accounts are not registered.
 - **registered**: Every account is registered.
- Click on register status to check which accounts are registered as seen on channel AC1.
- For detailed registration status information open “Menu → System Monitor → SIP Monitor”.



Main Panel

- Click the “CALL” button on the main panel.
- 1: Choose a SIP server.
- 2: Enter a phone number or choose one from the redial list (↺).
- 3: Choose a transmission mode.
- 4: Type a phone number.
- 5: Call out.
- 6: Manage the phonebook stored on the MAGIC ACip3.



Dial a Number

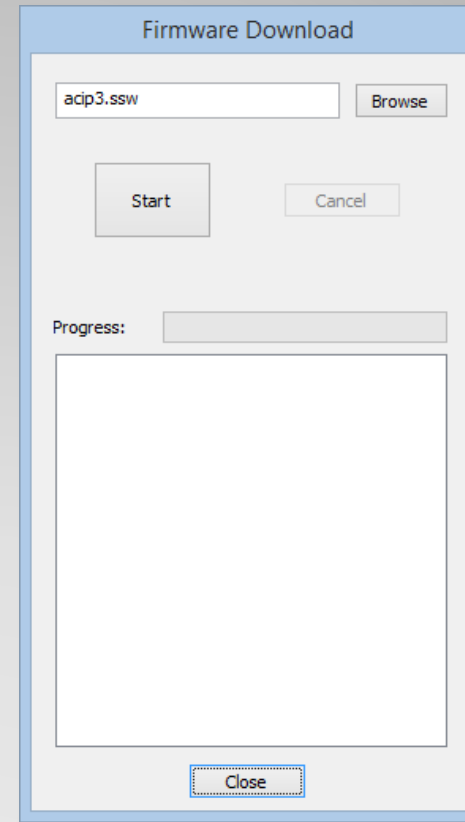
- Connection to “502” established.
- Own SIP server and number is shown above the called number.
- Quality indicator:

HQ	15 kHz
HD	7 kHz
SD	3.1 kHz
- Click the quality indicator to get detailed codec information.



Connection Status

- Click the Menu button and open “Administration→Firmware Download”.
- Click “Start” to download the firmware file which is placed in the MAGIC ACip3 program folder during installation.



Firmware update

- Click the menu button and open “Administration→Registration”.
- The registration window shows hardware version, serial number, MAC addresses and analogue audio interface calibration values.
- The “Features” list shows available and activated software options.

The screenshot shows a 'Registration' window with two main sections: 'Main' and 'Features'.

Hardware: MAGIC ACip3

Main:

- Subject Number: 450119
- Factory Number: 14/35/0907
- Year: 2014
- Hardware Version: G1.00
- MAC Address: 00-06-9B-02-0F-2A
- MAC Address 2: 00-06-9B-02-0F-2B
- MAC Address 3: 00-06-9B-02-0F-2C
- Analogue Audio 1 In: -0,22 dB (left) | -0,23 dB (right)
- Analogue Audio 1 Out: 0,06 dB (left) | 0,03 dB (right)

Features:

Software Options

<input checked="" type="checkbox"/> MAGIC ACip3 Basic	
<input checked="" type="checkbox"/> Number of PC licenses	10
<input checked="" type="checkbox"/> E1/2M Interface	
<input checked="" type="checkbox"/> Backup	
<input checked="" type="checkbox"/> Distribution (up to 50 channels)	
<input checked="" type="checkbox"/> 2-Channel	
<input checked="" type="checkbox"/> MPEG Layer 2 Codec	
<input checked="" type="checkbox"/> MPEG Layer 3 Codec	2
<input checked="" type="checkbox"/> AAC LD Codec (Low Delay)	2
<input checked="" type="checkbox"/> AAC ELD Codec (Enhanced Low Delay)	2
<input checked="" type="checkbox"/> AAC LC Codec (Low Complexity)	2
<input checked="" type="checkbox"/> HE-AAC v1 Codec (High-Efficiency v1)	2
<input checked="" type="checkbox"/> HE-AAC v2 Codec (High-Efficiency v2)	2
<input checked="" type="checkbox"/> Enhanced aptX Codec	2

Buttons: Enter password, Close

Registration and Software Options

- Click the menu button in the top left corner.
- Open “System Monitor”.
- System alarms turn red when there is an internal hardware problem.
- Application alarms turn red when there is a problem with data processing.

The screenshot shows the 'System Monitor' window with the following sections:


- System alarms:** A list of 12 items, each with a green indicator light, including LCA, MAIN EEPROM, Temperature Sensor, LED Driver, VCXO 1, Coprocessor 1 Boot, Coprocessor 2 Boot, Ethernet MAC 1, Ethernet MAC 3, Overheated, FLASH EPROM, Display Contrast DAC, Redundant Power Supply, VCXO 2, Coprocessor 1 running, Coprocessor 2 running, and Ethernet MAC 2.
- Application alarms:** A list of 6 items, each with a green indicator light, including AES/EBU Input 1, AES/EBU Input 2, SIP Registration, DHD Audio Matrix, Decoder 1 Sync, and Decoder 2 Sync.
- System State:** Shows System Temperatur at 48 °C and DSP Load at 22 %.
- Data Interface state:** Lists RS232 1 and RS232 2, both at 9600 Baud, 8N1, with TX and RX rates of 0 Bit/s.
- Ethernet state:** Lists LAN 1, LAN 2, and LAN 3, all at 100 MBit/s, full duplex. TX and RX rates are shown for each.
- IP Transmission Jitter:** Set to OFF.
- IP Packet Loss Counter:** Shows 0 for Decoder 1 and 0 for Decoder 2, with a Counter Reset button.
- Remote GPIO Reception:** Shows AC1 and AC2, both set to OFF.
- Connected Ember+ Consumer:** Shows 1: 172.20.225.1:58627.
- Footer:** Last Counter Reset: 24.06.2014 05:47:40. Buttons for Alarm Counter Reset, SIP Monitor, and Close.

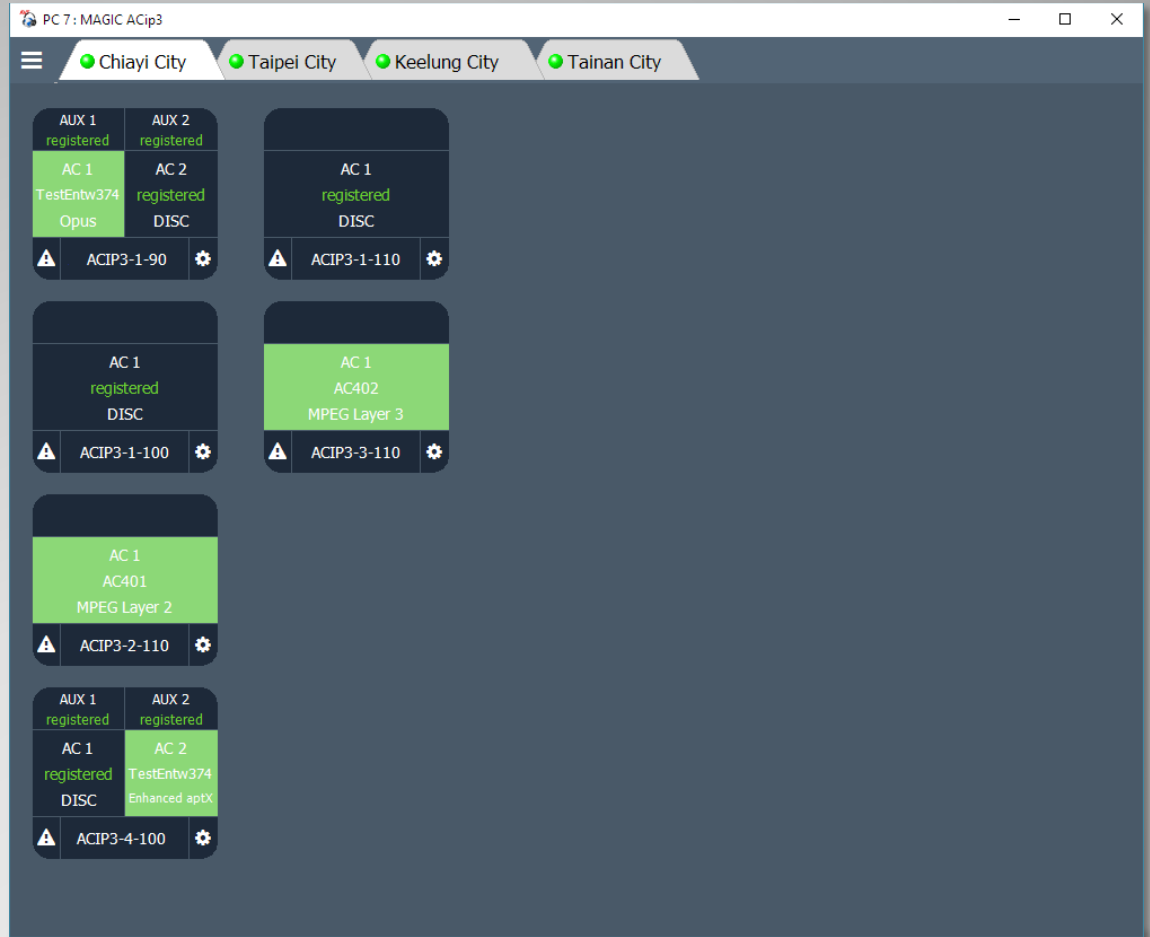
System Monitor

- Click the “SIP Monitor” button in System Monitor.
- Get a detailed registration status of every SIP account.
- Click “Test” to start registration.

SIP User	Main SIP Server	Backup SIP Server
AC1-AoIP: 55590411	<input type="button" value="Test"/> Registration successful.	<input type="button" value="Test"/> No IP address available
AC1-Internal: 401	<input type="button" value="Test"/> Registration successful.	<input type="button" value="Test"/> No IP address available
AC1-Telecom: 5271160	<input type="button" value="Test"/> Registration rejected by SIP server. User not found.	<input type="button" value="Test"/> No IP address available
AC1-Project: 1337	<input type="button" value="Test"/> Registration successful.	<input type="button" value="Test"/> No IP address available
AC1:	<input type="button" value="Test"/> No IP address available	<input type="button" value="Test"/> No IP address available
AC2-Internal: 402	<input type="button" value="Test"/> Registration successful.	<input type="button" value="Test"/> No IP address available
AC2-AoIP:	<input type="button" value="Test"/> Registration successful.	<input type="button" value="Test"/> No IP address available
AC2-AoIP:	<input type="button" value="Test"/> Not executed.	<input type="button" value="Test"/> No IP address available
AC2-AoIP:	<input type="button" value="Test"/> Not executed.	<input type="button" value="Test"/> No IP address available
AC2-AoIP:	<input type="button" value="Test"/> Not executed.	<input type="button" value="Test"/> No IP address available
AUX1-Internal: 403	<input type="button" value="Test"/> Registration successful.	<input type="button" value="Test"/> No IP address available
AUX1-AoIP:	<input type="button" value="Test"/> Not executed.	<input type="button" value="Test"/> No IP address available
AUX1-AoIP:	<input type="button" value="Test"/> Not executed.	<input type="button" value="Test"/> No IP address available
AUX1-AoIP:	<input type="button" value="Test"/> Not executed.	<input type="button" value="Test"/> No IP address available
AUX1-AoIP:	<input type="button" value="Test"/> Not executed.	<input type="button" value="Test"/> No IP address available
AUX2-Internal: 404	<input type="button" value="Test"/> Registration successful.	<input type="button" value="Test"/> No IP address available
AUX2-AoIP:	<input type="button" value="Test"/> Not executed.	<input type="button" value="Test"/> No IP address available
AUX2-AoIP:	<input type="button" value="Test"/> Not executed.	<input type="button" value="Test"/> No IP address available
AUX2-AoIP:	<input type="button" value="Test"/> Not executed.	<input type="button" value="Test"/> No IP address available
AUX2-AoIP:	<input type="button" value="Test"/> Not executed.	<input type="button" value="Test"/> No IP address available

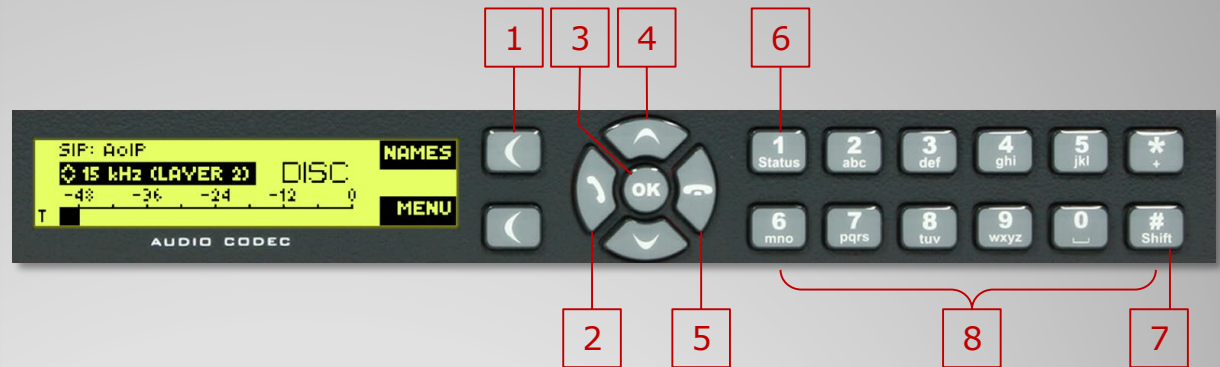
SIP Monitor

- Run the “MAGIC ACip3 Multi Control” application as Administrator.
- Open “Menu → Configuration → Control Interface” to enter up to 99 MAGIC ACip3 Codecs.
- Click on a MAGIC ACip3 codec to open a detailed View.
- Click the configuration icon () of a MAGIC ACip3 codec to enter its configuration.



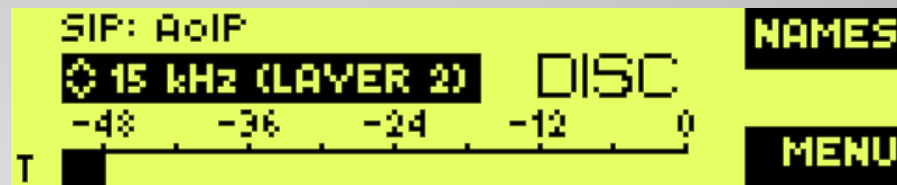
Multi Control Software

- 1: Soft key
 - Function is shown next to it on the display.
- 2: Call
- 3: OK
 - Switch between channels.
 - Press for more than one second to switch to AUX channels.
- 4: Arrows
 - Navigate menus and lists.
 - Change audio levels.
- 5: Hang up
 - Disconnect.
 - Go back to start screen.
- 6: Status
 - Get detailed status if channel is connected.
- 7: '#'
 - Select SIP server in start screen or two channel screen.
- 8: Alphanumeric pad
 - Dial numbers
 - Enter text.



Front key pad

- The start screen shows channel AC1.
- First line shows Line Mode and selected SIP server. Change SIP server with '#'-Key.
- Second line shows current transmission mode. Change it with UP and DOWN arrow keys.
- Press "OK" to switch to second channel.
- Press "OK" for more than one second to switch to AUX channels.
- Press "Names" to access the internal phonebook.
- Press "Menu" to access the configuration.
- Type a number to enter the "DIAL screen".



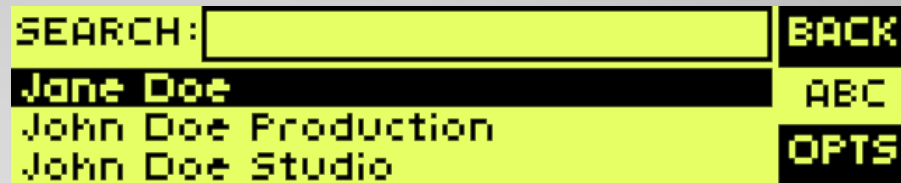
Front Display - Start Screen

- The two channel screen shows channels AC1 and AC2.
- First line shows the selected SIP server. Change it with '#'-Key.
- Press "Nam" to access the internal phonebook.
- Press "OK" to switch between channels.
- Press "OK" for more than one second to switch to AUX channels.
- Type a number to enter the DIAL screen.



Front Display - 2 Channels in DISC

- The phonebook screen shows an alphabetically sorted list of all entries.
- Start typing to filter the list.
- Press “Opts” to view, add, edit and delete entries.
- Press the Call-button to initiate the call.



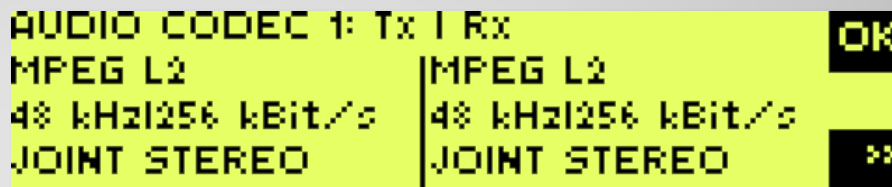
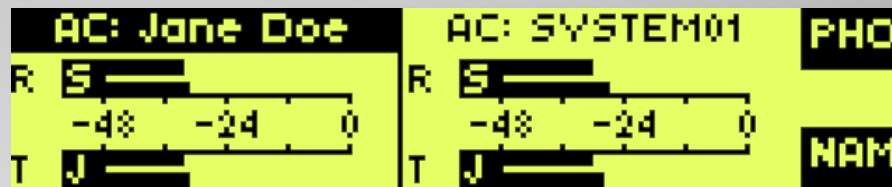
Front Display – Phone Book

- When in “start screen” or “two channel screen” select a SIP server using the ‘#’-key.
- Start typing the phone number to enter the “dial screen”.
- Use the arrow keys to change the transmission mode.
- Press the Call-button to initiate the call.



Front Display – Dial a Number

- During a connection the front display shows RX and TX audio levels.
- Press the “1/Status” button to see
 - Status codec 1
- Press the bottom soft key for information on:
 - Status codec 2
 - PAD TX / RX
 - IP statistic decoder 1
 - IP statistic decoder 2
 - LAN state



Front Display - CONNECT

- Audio adapter cable

Digital interface	Analogue interface
AES 1 IN	Analog 2 right IN
AES 1 OUT	Analog 2 right OUT
AES 2 IN	Analog 2 left IN
AES 2 OUT	Analog 2 left OUT

- Pin assignment digital AES audio interface

Pin	Signal digital	Signal analogue
1	AES 1 IN +	Right IN +
2	AES 1 IN -	Right IN -
3	AES 2 IN +	Left IN +
4	AES 2 IN -	Left IN -
5	AES 1 IN +	Right OUT +
6	AES 1 IN -	Right OUT -
7	AES 2 IN +	Left OUT +
8	AES 2 IN -	Left OUT -
9	GND	GND
10	CLOCK IN/OUT	CLOCK IN/OUT
11-15	GND	GND

Audio Interface Assignment