



OPERATIONS MANUAL

b40 series

b40
b41
b42
b43
b44
b45

4ch digital audio toolbox

b43



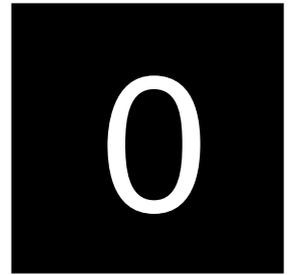
release 2.1.1

jünger audio

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FOREWORD



Thank you for buying and for using the 4-channel Digital Audio Toolbox b43.

Not only you have acquired the latest generation of digital dynamic range processing, but also a piece of equipment which is unique in its design and specification.

Please read this manual carefully to ensure you have all the information you need to use the 4-channel Digital Audio Toolbox b43.

The unit was manufactured to the highest industrial standards and went through extensive quality control checks before it was supplied.

If you have any comments or questions about installing, setting-up or using the b43, please do not hesitate to contact us.

The information contained in this manual is subject to change without notice.

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FUNCTION DESCRIPTION

2

The programmable digital audio toolbox b43 is a professional studio device for simple processing of 4 digital audio channels.

It is easy to change, to process and to rearrange up to 4 signals with the audio toolbox b43. Level corrections for stereo or quad mixes, channel swapping, fades - efficient and fast done with the toolbox b43. It is not necessary to use a production mixer for duplication, dubbing or simple editing - b43 has the functionality. The four channel configuration matches the audio capability of Digital VTR's. B43 can be used as remotable and programmable audio breakout box in digital video systems.

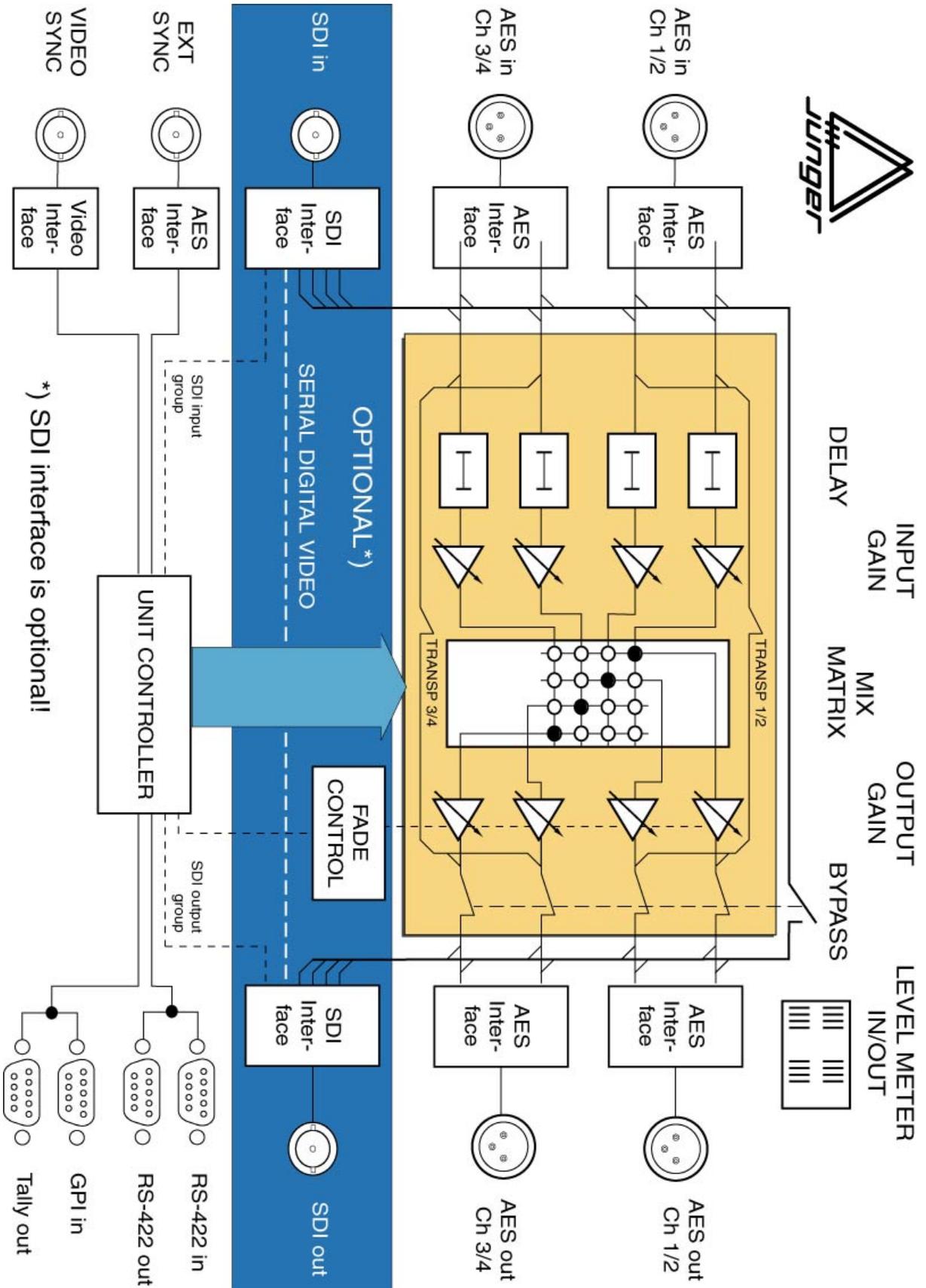
The unit is easy to operate and requires only a limited number of settings for fast and efficient audio production.

- 4 channel programmable digital audio toolbox
- user friendly preset and recall system
- 4 x 4 mix-matrix
- input and output gain control, automated fader function
- audio delay, level/overload display
- pairwise bit transparent mode input to output
- extern sync mode, AES/EBU or VIDEO (or SDI if optional SDI-interface is present)
- RS-422 interface for serial remote
- GPI interface for parallel remote control, tally output

2.1 BASIC DESCRIPTION

2. FUNCTION DESCRIPTION

2.2 BLOCK DIAGRAM



All signal processing is done in the digital domain by Texas Instruments floating point signal processors. The use of 32 bit word length for calculation ensures that there is no deterioration in signal quality, even if an audio signal with a maximum word length of 24 bit is input into the processing of the unit.

GAIN means linear amplification of input or output signals. The input or output gain can be changed in steps of 0.1 dB, within a range from -15...+15 dB.

Adjustment of GAIN is channel independent.

Setting the matrix means to set or to reset the crosspoints of the 4x4 mix-matrix. Because this matrix is a mix-matrix each output line can be the sum of up to all four input lines. Amplifying and mixing the input signals can make OVERLOAD! If an Overload appears, the output level display shows the corresponding „OVER“-message.

A fade is started automatically every time, if a matrix point is modified. This fade is a linear change of input gain from current value to infinity (or the other way) at a specific time (FADE TIME).

fader function each recall of preset is starting fade in or fade out depending on matrix setting
set of matrix point > fade in
reset of matrix point > fade out,

If at an output line the input crosspoints of different channels become set and reset at the same time a linear crossfade is made between these input signals.

FADE TIME adjustable fade time (0 .. 5 sec)

For each input channel there is an audio delay available. The delay is adjustable between 0 and 160 ms in steps of 1 ms. The delay can be used to give a correction if the audio signals are in the right timing.

In case that the input signal (audio pair 1/2 or/and 3/4) is not audio (but AC-3, Dolby E, MPEG..) the input can be feeded directly to the related output bit transparent (no bit changes). The unit is switching to *transparent* automatically if “*non audio*” flag in the Channel Status Bit of the AES signal is set. Otherwise transparent mode can be set manually by the user.

**2.3
AUDIO SIGNAL
PROCESSING**

**2.3.1
GAIN**

**2.3.2
SETTING THE
MATRIX**

**2.3.3
FADER FUNCTION**

**2.3.4
DELAY**

**2.3.5
TRANSPARENT
MODE**

2. FUNCTION DESCRIPTION

2.4 LEVEL DISPLAY

There are two level displays available - input level and output level display (For all four channels). The audio level is displayed as bargraph. This display is not scaled. Two segments are appr. 2dB of audio level. The level display gives information about the existence and the size of the audio signals.

I 1: |||||

I 2: |||||

I 3: |||

I 4: |||||

I = input level

O = output level

Only the output level display can show an overload. If an overload appears, the output level display shows the corresponding „OVER“-message.

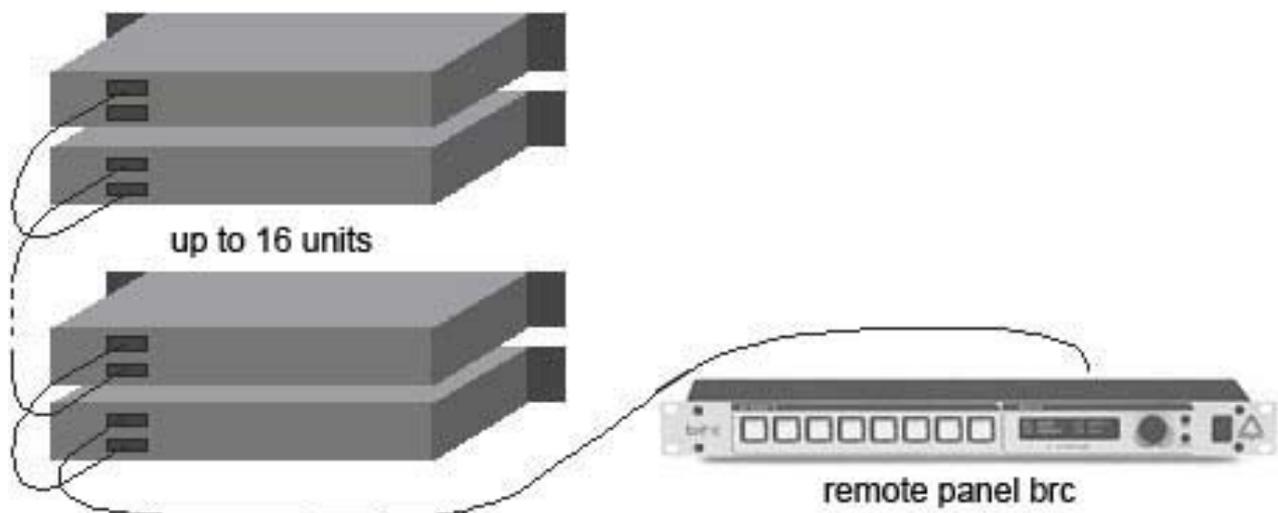
2.5 REMOTE SYSTEM

The digital audio toolbox b43 is fitted with an serial remote interface in RS-422 format.

Every device needs a device address to be registered in a remote system. The address can be selected with the ADDR switch on the rear panel. 16 addresses are selectable (0..F). The changed address is valid with next power-on reset.

Up to 16 toolboxes b43 can be controlled from one remote panel.

Device model name and device address are to recognize using the remote protocol of serial remote interface by an automation system or by PC. With it various boxes can be combined in one remote system or remote chain. However a maximum of 16 devices per model can be controlled in one chain.



INSTALLATION



The digital audio toolbox b43 was carefully packed in the factory and the packaging was designed to protect the equipment from rough handling. Please examine carefully the packaging and its contents for any signs of physical damage, which may have occurred in transit.

3.1 UNPACK THE UNIT

The digital audio toolbox b43 is a device under the safety category *Schutzklasse 1* in keeping with the VDE 0804 standards and may only be used with power supply installations built according to regulations.

3.2 POWER SUPPLY

Check the voltage details printed at the rear panel are the same as your local mains electricity supply.

The digital audio toolbox b43 is equipped with standard connectors (see also chapter 3).

3.3 CONNECTIONS

Before connecting the digital audio toolbox b43 switch the power off at all connected units.

The digital audio toolbox b43 is made as standard 19" unit (EIA format). It occupies 1 RU (44 mm height) space in a rack.

3.4 RACK MOUNTING

Please allow at least additional 3" depth for the connectors on the rear panel.

When installing the unit in a 19" rack the rear side of the unit needs some support, especially for mounting in flight cases.

3.5 OPERATION SAFETY

The digital audio toolbox b43 should not be installed near units which produce strong magnetic fields or extreme heat. Do not install the filter processor directly above or below power amplifiers.

If, during operation, the sound is interrupted or displays no longer illuminate, or if abnormal odor or smoke is detected immediately disconnect the power cord plug and contact your dealer or Jünger Audio.

3.6 SYNCHRONIZATION OF DIGITAL OUTPUT

The digital audio toolbox b43 has a digital signal output only. To the problem-free combination of following digital devices, the digital signal processing can be locked to an external clock reference. The selection of the corresponding input is made in the SYNC MODE menu. If the chosen sync input is connected with the sync signal, this signal is used for synchronization automatically. The digital output signal can be clocked with the following clock frequencies:

- CH 1/2** locks with the clock frequency of the input signal at digital input CH 1/2 (AES/EBU, 48 kHz)
- EXT SYNC** locks with the clock frequency at the external sync input (AES/EBU, 48 kHz)
- VIDEO** locks with the clock at the Video sync input (internal 48 kHz)
- SDI VIDEO** locks with the clock at the SDI input (internal 48 kHz)

Both digital outputs CH 1/2 and CH 3/4 are locked with same clock frequency.

Note: SDI sync is available only if SDI interface is installed!

**3.7
REMOTE
CONTROL**

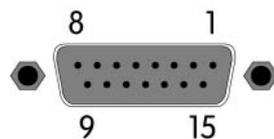
**3.7.1
GPI REMOTE
CONTROL
(PARALLEL
REMOTE)**

The digital audio toolbox b43 can be remote-controlled by means of parallel GPI contacts.

use: remote-controlled changeover of presets

connector: D-SUB 15pin, female

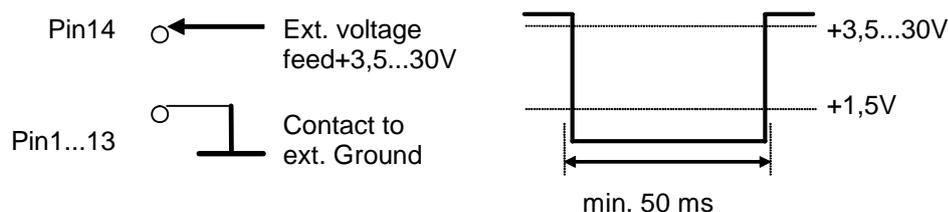
Pin assignments



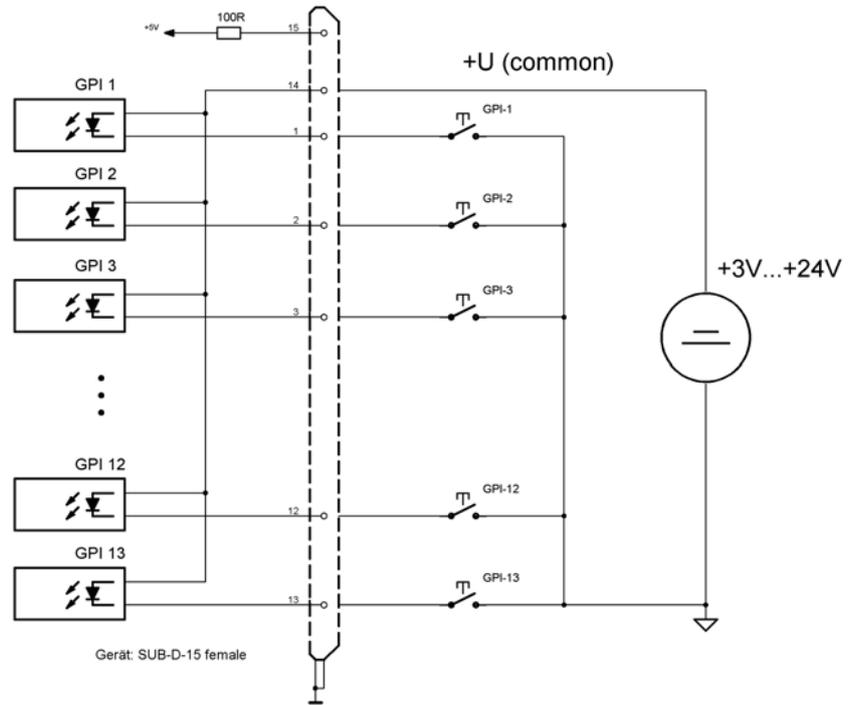
Pin	Signal name	Logic	I/O	Functions
1	PRESET1	H	I	recall preset1
2	PRESET2	H	I	recall preset2
3	PRESET3	H	I	recall preset3
4	PRESET4	H	I	recall preset4
5	PRESET5	H	I	recall preset5
6	PRESET6	H	I	recall preset6
7	PRESET7	H	I	recall preset7
8	PRESET8	H	I	recall preset8
9	MUTE	H	I	Muting outputs
10	BYPASS	H	I	bypass on
11	not used			
12	not used			
13	not used			
14	Common pin			External ground
15	+5V		O	Test power source

Electrical specification:

GPI input potential free by opto-coupler, **low active**
 On: +3.5...+30V between GPI input and pin14
 Off: less then 1.5V, min. 50ms



3. INSTALLATION



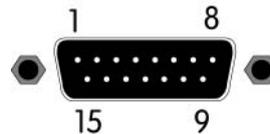
3.7.2 TALLY OUT

The digital audio toolbox b43 can transmit specific device statuses via parallel Tally lines.

use: Control of the remote-controlled changeover of presets

connector: D-SUB 15pin, male

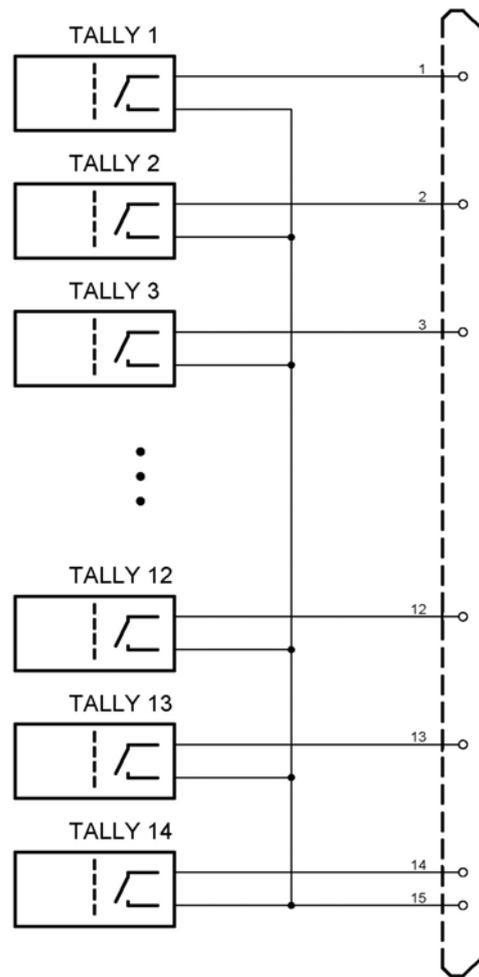
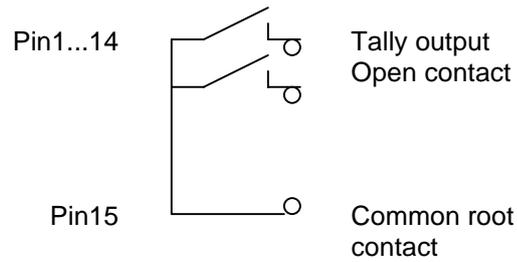
Pin assignments



Pin	Signal name	I/O	Functions
1	T1 open contact	O	preset1 recalled
2	T2 open contact	O	preset2 recalled
3	T3 open contact	O	preset3 recalled
4	T4 open contact	O	preset4 recalled
5	T5 open contact	O	preset4 recalled
6	T6 open contact	O	preset4 recalled
7	T7 open contact	O	preset4 recalled
8	T8 open contact	O	preset4 recalled
9	T9 open contact	O	mute
10	T10 open contact	O	bypass
11	T11 open contact	O	Not used
12	T12 open contact	O	Not used
13	T13 open contact	O	Not used
14	T14 open contact	O	Not used
15	root		Common root contact

Electrical specification:

Tally output type: normally open relais contacts
Contact rating: 1A 24 VDC, 0,5 A 125 VAC
 max. 30 W 62,5 VA
 max. 60 VDC, 125 VAC



Gerät: SUB-D-15 male

3. INSTALLATION

3.7.3 SERIAL REMOTE CONTROL (RS-422)

The digital audio toolbox b43 can be remote-controlled by means of serial remote RS-422.

use: remote-controlled changeover of presets

protocol: available on request

connector: D-SUB 9pin, input - female
output - male

Pin assignments

The cable is wired 1:1 completely, the shield of the cable must be connected on both ends!



Pin	Signal name	Functions
1	DSR + out	Data set ready
2	DSR - out	
3	SENSE in	Interrogation Remote
4	RXD + out	Receive data
5	RXD - out	
6	DTR + in	Data terminal ready
7	DTR - in	
8	TXD + in	Transmit data
9	TXD - in	



Pin	Signal name	Functions
1	DSR + in	Data set ready
2	DSR - in	
3	GND	GND
4	RXD + in	Receive data
5	RXD - in	
6	DTR + out	Data terminal ready
7	DTR - out	
8	TXD + out	Transmit data
9	TXD - out	

Electrical specification:

signal in-/outputs

TTL-level

LOCATION OF PARTS AND CONTROLS



All control elements give direct access.
In menu modes the LCD-panel shows specific functions.

4.1. FRONT PANEL

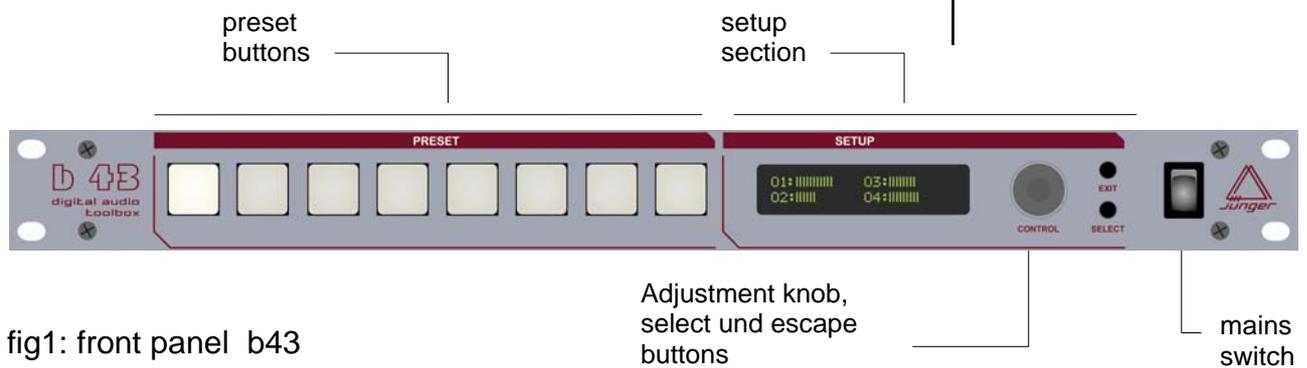


fig1: front panel b43

PRESET 1...4	selection of presets 1...4
CONTROL	selection (push) and adjustment (turn) of parameters
SELECT	selection of menus (for adjustment of parameters)
EXIT	exit of adjustment menus and return to level display

CONTROL ELEMENTS

4. LOCATION OF PARTS AND CONTROLS

4.2. REAR PANEL

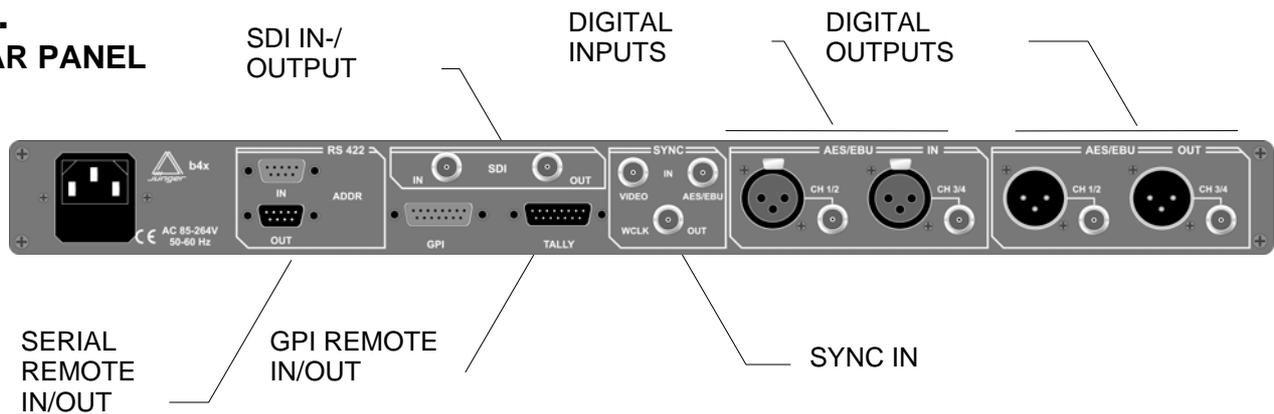


fig. 2: rear panel b43

POWER INPUT

IEC mains input connector 100-240V, 50/60 Hz with integrated fuse

REMOTE

serial remote interface RS-422

connector: 9pin SUB-D, input - female, output - male

GPI

paralle remote interface

TALLY-out open relais contact

connector: 15pin SUB-D, male

GPI-in +3,5...+30V potential-free

connector: 15pin SUB-D, female

SYNC

AES/EBU input for ext. sync signal (AES 3 format, 75 Ohm, unbal)

connector: BNC socket

VIDEO input for video sync signal (blackburst, 75 Ohm, unbal)

connector: BNC socket

W-CLOCK output for wordclock sync signal, TTL level, unbal.

connector: BNC socket

SDI IN / OUT (only if installed!)

Input/output for serial digital video (ITU-R BT.601, SMPTE 272M-A) with embedded audio

Format: 270 Mb/s, 525/625 line rate, 75 Ohm,

connector: BNC socket

DIGITAL IN

input for AES/EBU standard format

connector: XLR female panel jack

1- ground, 2-3 signal, balanced

connector: BNC socket 75 Ohm, unbalanced

DIGITAL OUT

output for AES/EBU standard format

connector: XLR male panel jack

1- ground, 2-3 signal, balanced, 4 Vpp

connector: BNC socket 75 Ohm, unbalanced, 0.5V pp

4.3 SWITCHES AND JUMPERS FOR CONFIGURATION

Some basic settings are to select by switches on the rear panel or by switches and jumpers at the internal circuit boards of the unit. These settings can occur general changes for operation and should made by qualified engineering staff only.

Rear panel

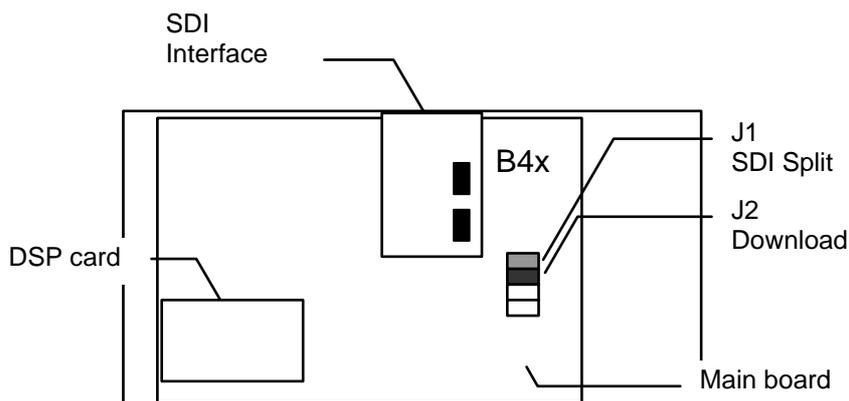
Selection of the device address for serial remote, 16 device addresses selectable
Note: Within a line of remote controlled units every device needs a different address! The selected address is valid after next power-on reset of the unit.

Internal

To set any internal jumper or switches it is necessary to open the unit.

PLEASE DO NOT MAKE ANY ALTERATIONS WITH THE MAINS STILL CONNECTED TO THE UNIT!

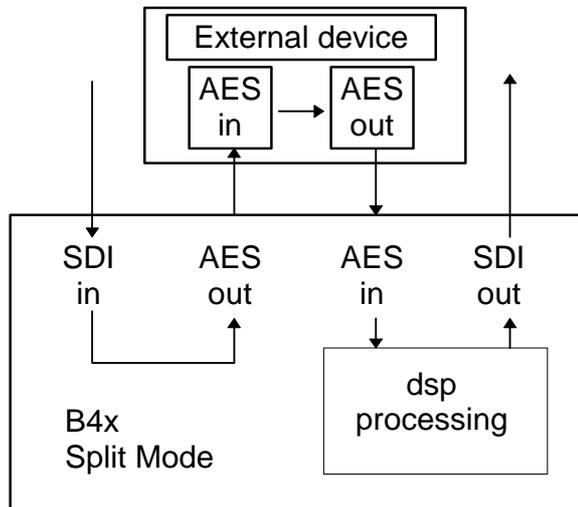
Loosen the screws on the top cover and remove. Then you can see all jumper and switches as shown in the drawing below. After setting of jumper or switches reassemble the unit in opposite order.



4. LOCATION OF PARTS AND CONTROLS

4.4 SELECTION OF SDI SPLIT MODE

Units with SDI interface can be used in SDI split mode:
Audio in path SDI input > AES output
Audio out path SDI output > dsp processing > AES output
(see also 2.5)



The selection of split mode (SPLIT) is made by setting jumper J1 on main board of the unit.

4.5 CONFIGURATION OF SDI INTERFACE

The 4-channel processors of b40 series fitted with SDI-interface are compatible with the standard SMPTE 272M-AB. They support 48 kHz synchronous audio sampling with 20 bit word length. The standard allows up to four groups each of four mono audio channels. (Usually used by most of D-VTR's and other equipment is Group 1 with 48 kHz synchronous sampling.)

Group selection and other settings are made by the front panel switches. Therefore no switches on the SDI board has to be used.

SETUP

5

The setup or the programming of the digital audio toolbox b43 is made by adjustment of various parameters and settings.

The description is made related to the functions in the EDIT mode.

- 5.1 starting and selection of EDIT menus
- 5.2 main display
- 5.3 adjustment of setup parameters
- 5.4 storage of presets
- 5.5 edit selection menu
- 5.6 input setup menu
- 5.7 output setup menu
- 5.8 fade time
- 5.9 basic settings

5.0 DESCRIPTION OF SETUP OPERATIONS

Following syntax is used:

SYMBOL

describes
how to use
button or
rotary knob



push



turn



push + turn

ACTIVITY

describes
action or function of
button or
rotary knob

5. SETUP

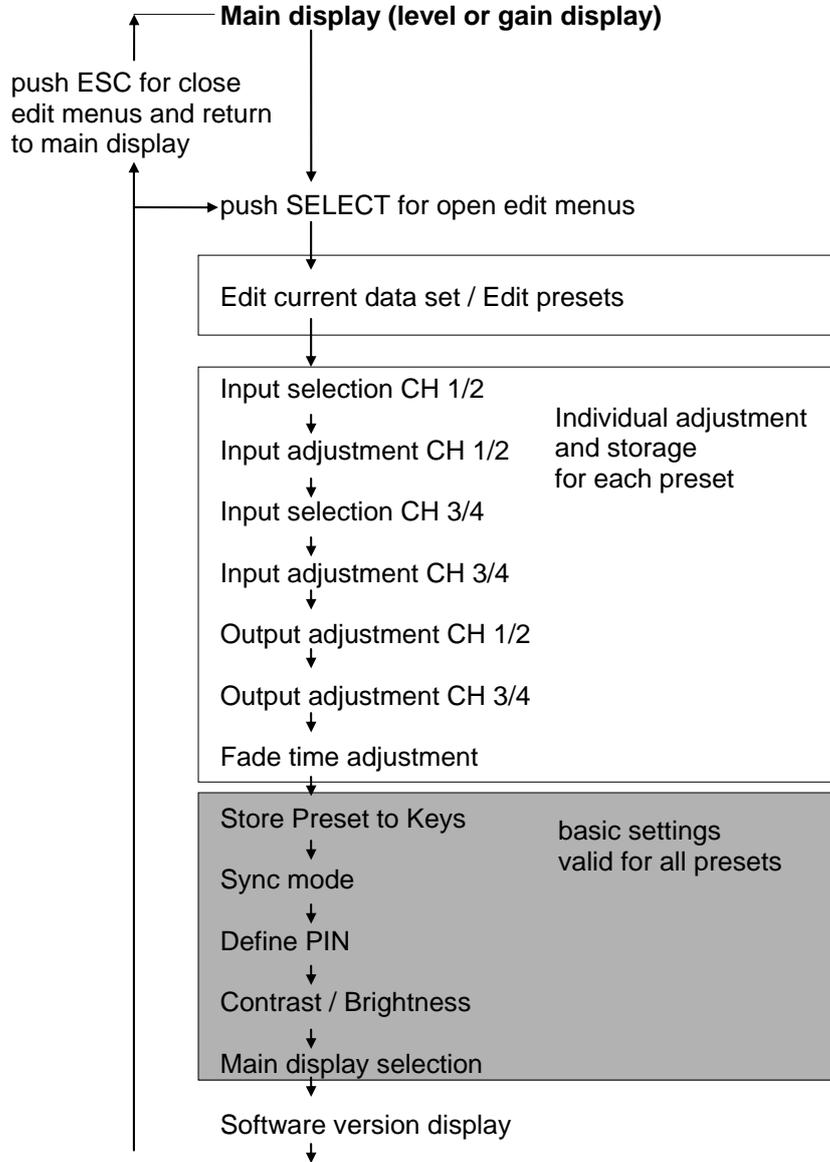
**5.1
STARTING AND
SELECTION OF
EDIT MENUS**

For opening and selection of EDIT menus.



SELECT

for opening and selection of EDIT menus



If no button more is pressed for a long time (appr. 10 sec.), the device switches automatically to the main display back.



EXIT

Reset to main display, basic settings are stored automatically
individual preset adjustments are only saved by doing „store preset keys“ (5.4)!

Main display shows either input level, output level or input gain setting for all four channels.

Audio level is displayed as bargraph. This display is not scaled. Two segments are appr. 2dB of audio level. The level display gives information about the existence and the size of the audio signals.

11: ||||| 12: |||||
 13: ||| 14: |||||

I = input level O = output level

After selection a certain setup menu by pushing SELECT button one can adjust displayed parameters.

- 

push CONTROL selection of parameter, selected parameter blinks on display
- 

turn CONTROL adjustment of selected parameter (see also parameter overview)

Each time SELECT button is pushed it opens another setup menu. After finishing of settings EXIT button switches back to main display. All basic settings are stored automatically.

Note: After finishing of adjustment of INPUT or OUTPUT parameters the EXIT button switches back to main display without permanent storage of values. If you want to store changed parameters as preset you have to store them by using „store preset key“-function (see 5.4).

All settings for INPUT and OUTPUT processing are storable into 8 individual presets.

- 

push SELECT selection of storing preset key menu
- 

push PRESET 1...8 storage of current settings into preset 1...8

5.2 MAIN DISPLAY

5.3 ADJUSTMENT OF SETUP PARAMETERS

5.4 STORAGE OF PRESETS

5. SETUP

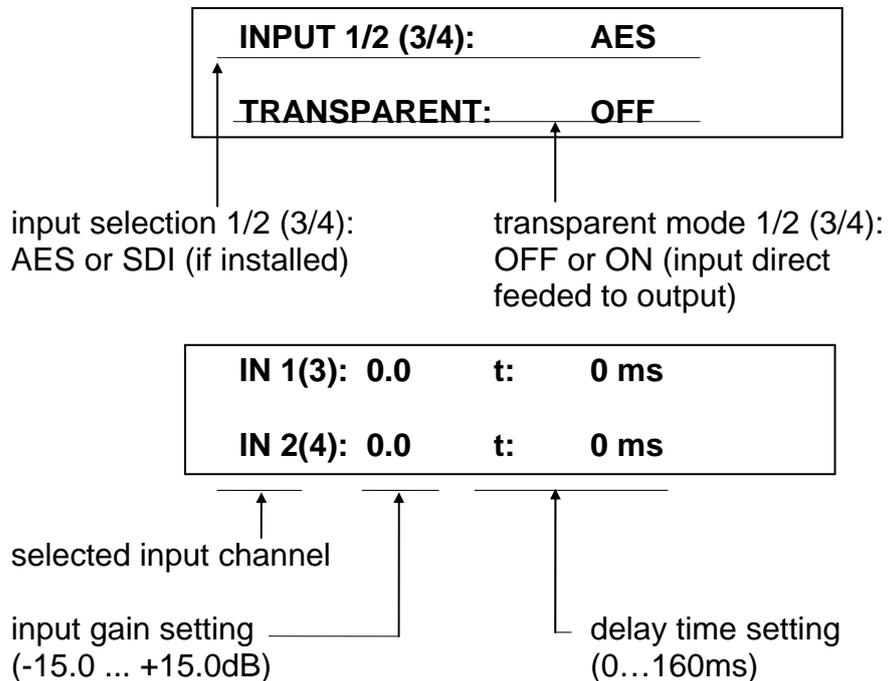
5.5 EDIT SELECTION MENU

In this menu it can be selected if either the running parameter set will be changed or if an already saved preset will be edited. Turn the control knob to change the selection. Push the knob to ENTER the selection and to go to the next menu.

Adjusting the current parameter set is immediately proceeded by the DSP and therefore an audible change of the processing. Editing already existing presets is just changing the saved data of the related preset. Done changes will be first time valid with the next recall of the preset.

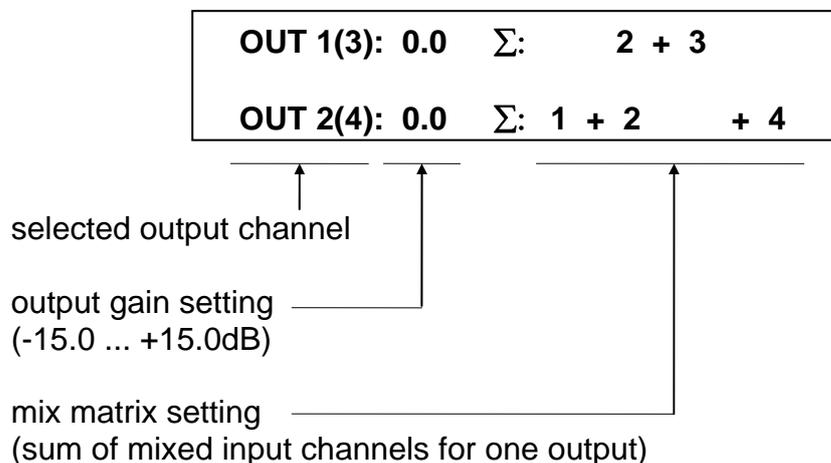
5.6 INPUT SETUP MENU

There are four windows showing the selection and the settings either for input channels 1/2 or for input channels 3/4.



5.7 OUTPUT SETUP MENU

There are two windows showing the settings either for output channels 1/2 or for output channels 3/4.



Note: After finishing of adjustment of current INPUT or OUTPUT parameters the EXIT button switches back to main display without permanent storage of values. If you want to store changed parameters as preset you have to store them by using „store preset key“-function (see 5.4).

FADE TIME menu

FADE IN adjustment of fade in time (0 .. 5 sec)
 FADE OUT adjustment of fade out time (0 .. 5 sec)

fader function *each recall of preset is starting a fade in or a fade out of audio depending on matrix setting*
 set a matrix point > fade in
 reset a matrix point > fade out,
 therefore crossfades are possible.

INPUT/SYNC menu

SYNC MODE definition of sync source signal

CH 1/2	sync on digital input ch 1/2
EXT	sync on external sync input
VIDEO	sync on video input (only if unit is fitted with video interface board)
SDI	locks with the clock at the SDI input (internal 48 kHz)

Note: SDI sync is available only if SDI input is active!

DEFINE PIN

Setting a PIN number to prevent unauthorized change of any setting.

DISPLAY menu

CONTRAST display contrast adjustment 00-07
 BRIGHTNESS display brightness adjustment 00-07

MAINDISPLAY menu

selection of display mode of main display

INPUT GAIN 1...4 display of input gain parameter ch 1...4
 LEVEL METER display of input level ch 1...4 or display of output level ch 1...4 (see 5.2)

5.8

FADE TIME

5.9

BASIC SETTINGS

OPERATION

6

The use of the digital audio toolbox b43 is very easy. Only a few settings are necessary in order to be able to work with the device.

The description is made related to the functions.

6.1 working with preset

6.2 recall of presets

6.0 DESCRIPTION OF OPERATION

Following syntax is used:

SYMBOL

describes
how to use
button or
rotary knob



push



turn



push + turn

ACTIVITY

describes
action or function of
button or
rotary knob

6. OPERATION

6.1 WORKING WITH PRESETS

The digital audio toolbox b43 is a programmable mix matrix.

The device is operated by recalling presets. It has four preset buttons with which the appropriate preset is called on in each case. In a preset, matrix configuration and all parameters which can be adjusted at the device are contained. Therefore, one will normally define four matrix configurations, to store them as presets. The desired channel configuration can then be activated fast and simply by calling the corresponding preset (at the device or by external control).

6.2 RECALL OF PRESETS



PRESET 1...8

recall of programmed adjustments
of preset 1...8

BOOT DISPLAY AND TROUBLE SHOOTING



display	meaning / explanation
TOOLBOX	display of model
B43	display of type
ADR. xx	address of device for serial remote control
C: x.x	display of loaded controller software version
D: x.x	display of loaded dsp software version

7.1 BOOT DISPLAY

display	error / message	remedies
NO SYNC	no sync at digital input!	<ul style="list-style-type: none"> ■ connect the digital input or sync input (selectable in SYNC menu) with valid input signal ➤ CH 1/2: sync on DIGITAL IN CH 1/2 ➤ EXT: sync on SYNC AES/EBU ➤ SDI: sync on SDI input
NO SDI!	SDI input selected, no valid SDI signal received!	<ul style="list-style-type: none"> ■ check the availability of SDI data stream or <ul style="list-style-type: none"> ■ select another input

7.2 ERROR MESSAGES AND TROUBLE SHOOTING

**7.3
INITIALIZATION
THE UNIT**

Should have remained the device no more operable and/or in the program execution stand, recommends itself an initialization the device.

During initialization, all storage areas important for the program and registers are loaded with the factory setup and the program is restarted.

Any button is to be held pressed in order to initialize the device during switch-on of the device until the program started. To the start of the program and at the completion of the displays (how described in 7.1), the device is ready for operation with the factory setup.

After an initialization of the device, all user presets and adjustments are erased and/or overwritten by the factory setup!

APPLICATION NOTES



In digital video recording technology four digital audio channels are the standard configuration. This channel capacity is used increasingly in production and post-production for surround sound, providing mix options and for multi-lingual productions.

Quite often it is necessary to make corrections or changes to the audio which until now required the use of an expensive digital audio mixer. These tasks can now be easily solved with the Jünger Audio range of digital audio toolboxes. Simple processing for up to four digital audio signals may be carried out quickly and efficiently.

Using the SDI versions (SDI=Serial Digital Interface, digital component video format with 270Mb/s transmission) b40 series can process embedded audio.

The standard allows up to four groups each of four mono audio channels. Usually used by most of D-VTR's and other equipment is Group 1 with 48 kHz synchronous sampling. Synchronous means that the audio clock is genlocked to the associated video. Each channel can have up to 20 bits of resolution per audio sample.

The 4-channel processors of b40 series fitted with SDI-interface are compatible with the standard SMPTE 272M-AB. They support 48 kHz synchronous audio sampling with 20 bit word length.

The Jünger Audio SDI interface provides for one group of four audio channels to be extracted from or inserted into the SDI data stream. To address a specific channel group the group selection is possible (see 4).

The b40 provides an optional SD- or HD-SDI board. When you switch on the device the plugged in interface will be indicated in the display

FEATURES

- Bypass relay for SDI IN >SDI OUT
- Bit transparent for coded data streams (e.g. DOLBYE/20bit)
- De-embedder: user selectable de-embedding of one group
- Embedder: user selectable embedding to one of 4 groups
- SDI-SYNC: SDI input can be the clock source of the device

8.1 B40 SERIES WITH SDI-INTERFACE

8. APPLICATION NOTES

**8.2
BASIC WORKING
MODES WITH SDI**

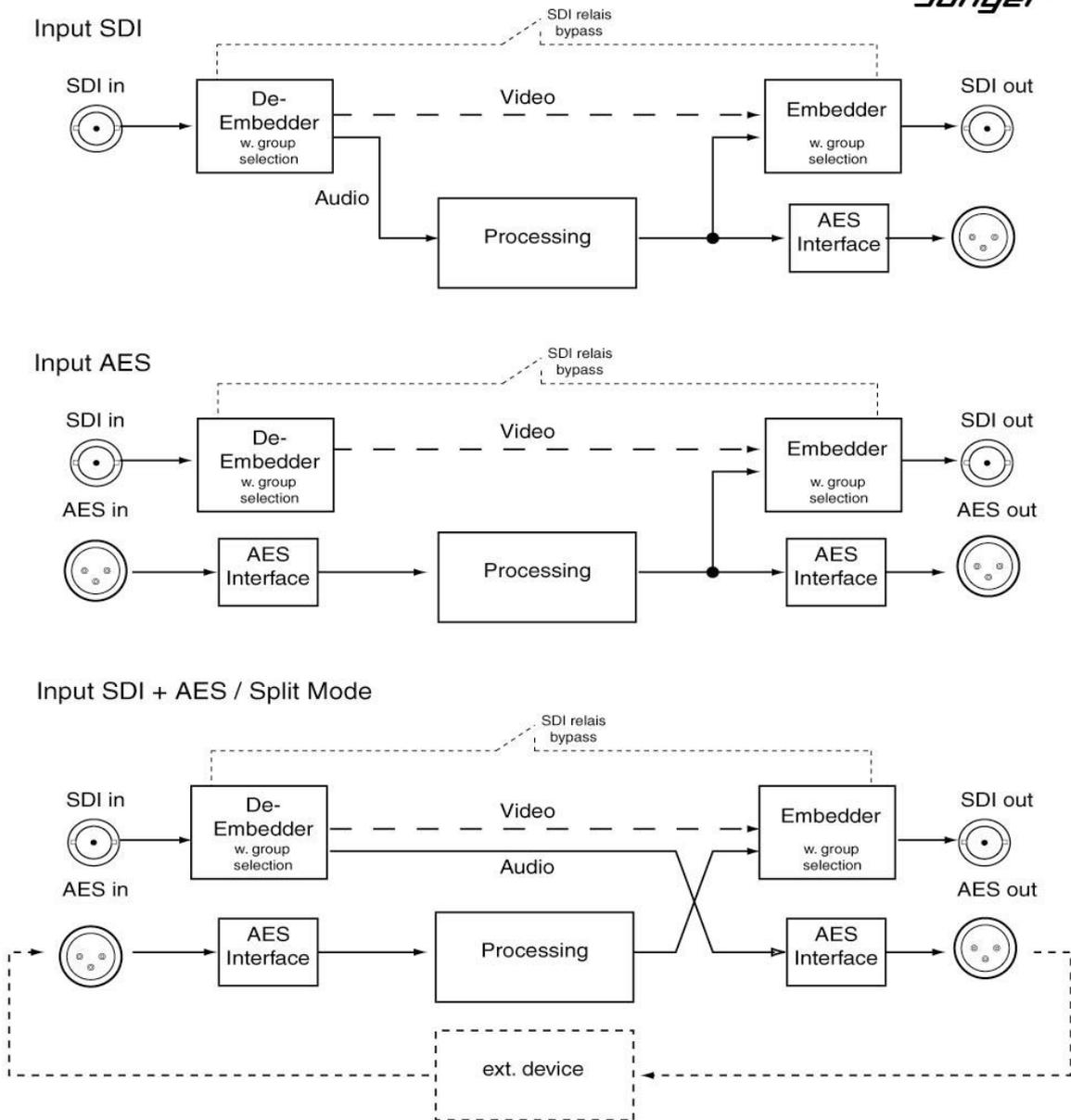
- For HD-SDI: Multi-Format HD/SD operation with auto detection

For the basic working mode the input of the digital audio processing can be selected between AES/EBU or SDI (serial digital video with embedded audio). The processed signals are present at both outputs always - at AES/EBU and SDI.

There are two additionally working modes using the SDI interface. SDI Bypass is bypassing the SDI data stream. In this case only extracted audio is processed and available at AES output. In Split Mode the audio path is splitted. Embedded audio can be processed with external equipment via AES interface.

Following illustration shows working modes:

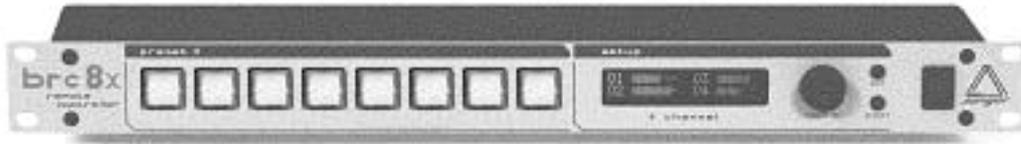
b40 series - Basic modes with SDI



The Digital Audio Toolbox b43 can be used remote controlled by the programmable remote control panel brc.

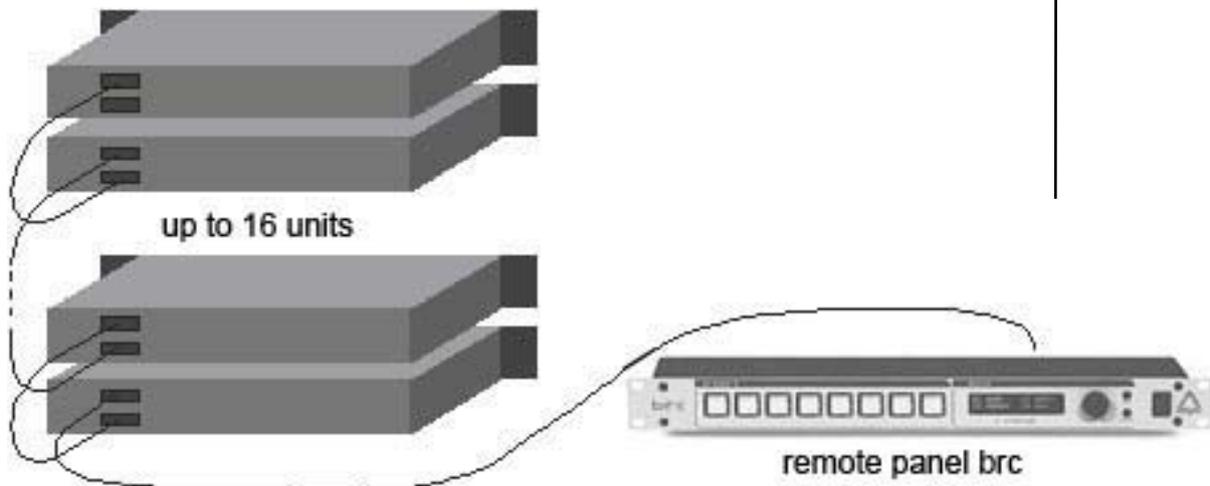
8.3 REMOTE CONTROL

Fig . 8.1: programmable remote control brc



All settings of the b43 toolbox can be made on the front panel of the box or via the edit menus of brc remote control. Working with the brc remote control panel means rapid changes of preprogrammed presets by pushing one button only.

Fig . 8.2: installation with remote control brc



features of brc:

- universal remote control panel (RS-422)
- remote operation of several units (up to 16 devices from B40 series 2nd generation)
- remote panel is detecting connected units
- remote control panel brc8x as programmable control unit with "one touch" access of presets by hot keys
- 19" case, 1RU, only 75 mm depth!

9. TECHNICAL SPECIFICATIONS

AUDIO :

audio data format : 20 Bit, transparent for C-Bit and U-Bit according to AES3
audio sample rate : 48 kHz synchronous to video-carrier
latency : (deembedder + embedder)
SD : < 2,6 msec

GENERAL :

power supply : +5V DC
consumption : approx. 500 mA
temperature : 10°C to 40°C
humidity : 90%, non condensing

HD-SDI

technical specifications

VIDEO :

standard:	SMPTE 299M	1,485 Gbit	HD-SDI
	SMPTE 272M–A, C	270 Mbit	SD-SDI
connection:	BNC, 75 Ohm, coaxial		
signal level:	800mV ±10%		
equalisation:	130m (Belden 1694A, 1.485GHz)		
	300m (Belden 8281 , 270 MHz)		
return loss:	>15 dB (1.485 GHz)		

supported video standards:

HD 720/60	SMPTE 296M	HD 1080/25	SMPTE 274M
HD 720/50	SMPTE 296M	HD 1080/24	SMPTE 274M
HD 720/30	SMPTE 296M	HD 1080/50	SMPTE 295M
HD 720/25	SMPTE 296M	HD 1035/60	SMPTE 260M
HD 720/24	SMPTE 296M		
HD 1080/60	SMPTE 274M	SD 525/59.94	SMPTE 125M
HD 1080/50	SMPTE 274M	SD 625/50	SMPTE 125M
HD 1080/30	SMPTE 274M		

all HD-standards are supported also with their 1/1001-frame-rates

AUDIO :

audio data format : 24 Bit, transparent for C-Bit and U-Bit according to AES3
audio sample rate : 48 kHz synchronous to video-carrier (SD and HD)
32 kHz ... 48 kHz asynchronous to video-carrier (HD only)
latency : (deembedder + embedder)
HD : < 800µsec
SD : < 2,6 msec

GENERAL :

power supply : +5V DC
consumption : approx. 1.000 mA
dimension : 3RU, 4HP, 160mm depth (EUROPA size pcb)
temperature : 10°C to 40°C
humidity: 90%, non condensing

SYNC IN
AES/EBU

connector : BNC, 75 Ohm, coaxial
level : 0,5 ... 2 Vpp
input format : AES professional, AES consumer

VIDEO

connector : BNC, 75 Ohm, coaxial
level : 0...1 Vpp
input format : Blackburst or PAL/NTSC composite video

sync
in- / outputs

REMOTE

serial remote interface RS-422 in/out

level : TTL
connector : 9 pin SUB-D male/female

GPI parallel remote

level : +3...+30V, H-active, optocoupler
connector : 15 pin SUB-D female

Tally Out

level : normally closed relais contacts
Contact rating: 1A 24 VDC, 0,5 A 125 VAC
max. 30 W 62,5 VA
max. 60 VDC, 125 VAC
connector : 15 pin SUB-D male

remote control

general

power consumption : appr. 15 VA
dimensions : 19", 1 RU, 250 mm depth
weight : appr. 5 kg
optional : programmable remote control brc8x

10

WARRANTY AND SERVICE INFORMATION

JÜNGER AUDIO grants a two-year
warranty on the

4-channel digital audio toolbox b43

If the unit has to be serviced, please send
it, ideally in the original box, to:

JÜNGER AUDIO - Studioteknik GmbH

Justus-von-Liebig-Str. 7

D - 12489 Berlin
GERMANY

Tel.: (*49) -30-677721-0
Fax.: (*49) -30-677721-46



KONFORMITÄTSERKLÄRUNG

DECLARATION OF CONFORMITY

Geräteart : **4ch digital toolbox**
Type of equipment : **4ch digital toolbox**

Produkt / Product : **b43**

Das bezeichnete Produkt stimmt mit den Vorschriften folgender EU-Richtlinie(n) überein:
The aforementioned product complies with the following European Council Directive(s):

89/336/EWG (geändert durch 91/263/EWG und 92/31/EWG)
(changed by 91/263/EEC and 92/31/EEC)
Richtlinie der Rates zur Angleichung der Rechtsvorschriften der Mitgliedsstaaten über die elektromagnetische Verträglichkeit
Council Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility

73/23/EWG (geändert durch 93/68/EWG)
(changed by 93/68/EEC)
Richtlinie des Rates vom 19. Februar 1973 betreffend elektrische Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen
Council Directive of February 19th 1973 concerning electrical equipment for operation within certain voltage limits

Zur vollständigen Einhaltung dieser Richtlinie(n) wurden folgende Normen herangezogen:
To fully comply with this(these) Directive(s), the following standards have been used:

EN 55022 : 1987
EN 50082-1 : 1993
EN 60065 : 2002

Dieser Erklärung liegen zugrunde : Prüfbericht(e) des EMV-Prüflabors
Interne Vorschriften zur Sicherheits-Prüfung
This certification is based on : Test report(s) generated by EMC-test laboratory
Internal regulations for safety check

MEB Messelektronik Berlin : Kalibrier- und Prüflabor
accredited EMC laboratory

Aussteller / Holder of certificate : Jünger Audio Studioteknik GmbH
Justus-von-Liebig-Strasse 7
D - 12489 Berlin

Berlin, 18.03.2003
(Ort/Place) (Datum/Date) (Herbert Jünger, Geschäftsführer/Managing Director)



professional audio products

digital dynamics processors d01, d02
accent1, accent2

digital filter processor e07

surround products multichannel digital
dynamics processor ORION
5.1 level controller 206

digital voice processing voice and monitor processor v01
digital voice processor v02
dual channel voice processor v03
digital voice processor v05

digital desktop mixer mix4

transmission signal processing digital transmission processor d07
digital transmission limiter mpx01

4channel processors b40series digital audio toolbox b40
digital audio limiter b41
digital dynamics processor b42
digital audio toolbox b43
SDI audio converter / router b44
digital audio delay b45

digital audio
modular processing system C8000

SDI interface modules SDI20

jünger audio

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