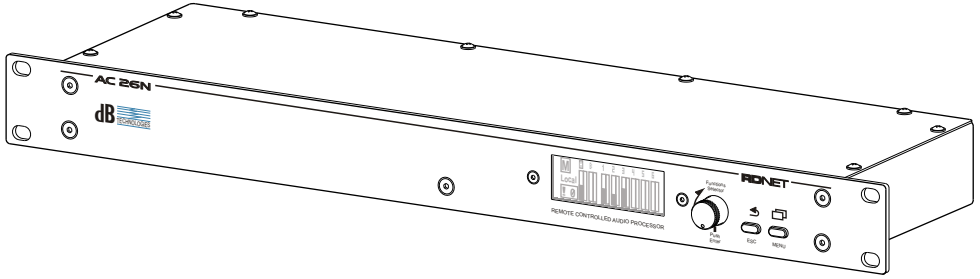
AC 26N

REMOTE CONTROLLED AUDIO PROCESSOR

RDNET



MANUALE D'USO - Sezione 1
USER MANUAL - Section 1
BEDIENUNGSANLEITUNG - Abschnitt 1
CARACTERISTIQUES TECHNIQUES - Section 1

CE

Cod. 420120204 Rev 2.0

dB TECHNOLOGIES
THE SOUND OF EXPERIENCE

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INTRODUCTION

AC26N is a digital sound processor for the management of audio systems, designed for fixed and touring installations. AC26N uses the most modern technology with 28/56 bit processors and high performance 24 bits AD/DA converters.
The functions available in the processor are: input and output levels, delay, polarity, 12 equalization bands for each input and output channel, multiple crossover and high performance limiter.
The control resolution of the filters is 1Hz. Inputs and outputs can be set according to many configurations to meet any need.
AC26N can be controlled in real time and each one of its parameters can be configured on the front panel, and through a computer by means of an intuitive graphical interface, accessible through the software DVA Network and a dedicated RDnet or USB network connection.
The CPU and DSP software update, via PC, allows to keep the device up to date. It is possible to save and recall 32 preset configurations.

Package Contents:

- AC26N
- Operating manual
- Software CD
- Power cord.

Characteristics

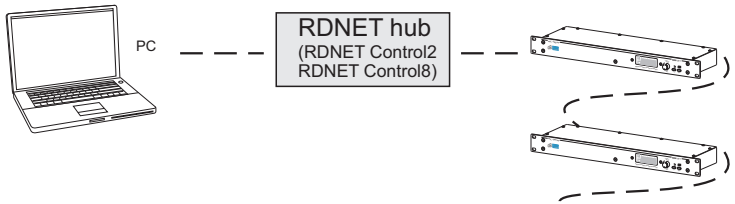
- 2 Inputs and 6 Outputs with flexible routing
- AES/EBU addressable stereo inputs and outputs
- 28/56 bit DSP
- BURR-BROWN high performance 24 bit A/D converters
- Frequency resolution of the filters: 1 Hz
- 12 parametric equalizers for each input and output
- 2 crossover filters for each output, with selectable slope 12/24/48 dB/oct
- High performance DRC multi configuration, for limiter/compression configuration of each input and output
- Adjustable level in dB, polarity and delay, for each input and output
- Firmware Update via PC
- Graphic LCD Display
- 32 pre-sets can be stored by the user
- USB interface for configuration and control via computer
- RDnet interface that allows to control up to 256 remote devices

DVA Network

The AC26N is equipped with proprietary network interface, called RDNET, for PC interface through a device (RDNET control).
For this purpose, a proprietary communication protocol has been developed for receiving and sending data; this connection permits real-time monitoring of the diffuser parameters, such as output power, amplifier temperature, limiter status, etc...
It is also possible to select various equalizations or create new ones, set the desired volume levels using the specific plug-in.



It is recommended to download DVA Network free software directly from dB Technologies (www.dbtechnologies.com) in the special section «Software & Controller»



DVA USB Manager

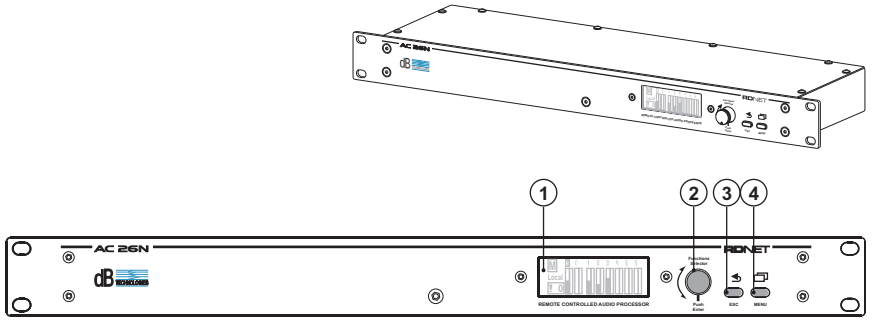
The firmware of the amplifier module can be updated via the USB port.
To make this update possible and simple, a dedicated program has been developed.



It is recommended to download DVA USB Manager free software directly from dB Technologies (www.dbtechnologies.com) in the special section «Software & Controller»



FUNCTIONS FRONT PANEL



CONTROLS AND FUNCTIONS

1) **DISPLAY**
The graphic LCD display allows to view and edit the AC26N information without a computer.
The display contrast can be set within the main menu.

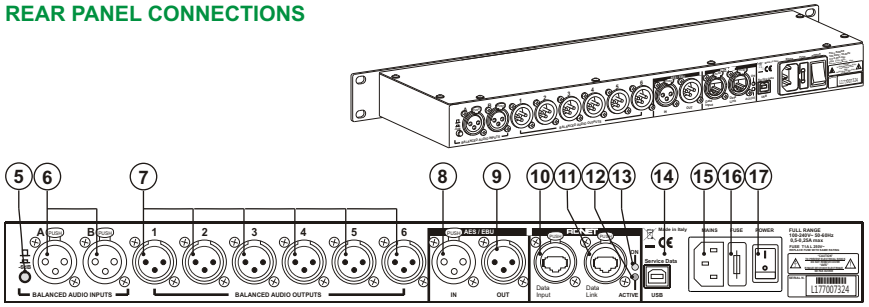
2) **"Functions Selector" and "Push Enter" KNOB**
This control allows to move, select and change the parameters within the displayed menus.
Rotation of the knob (Function Selector)
- it allows to browse the menu pages;
- it allows to change the selected parameters

Push the knob (Push Enter)
- it allows to select/confirm the parameters

3) **ESC button**
This control allows to exit the displayed menus or to return to the previous view.

4) **MENU button**
This control allows to directly access the main menu

REAR PANEL CONNECTIONS



CONTROLS AND FUNCTIONS

5) -6dB SELECTOR
This selector allows to reduce all the analog XLR [6] input levels by 6 dB at the same time to compensate for the high output levels on the mixers or other audio devices.
When the input signal level bar on the display [1] remains always at full scale, this means that the input signal level is excessive and a -6 dB attenuation is recommended.
In the Option menu it is possible to check when the selector is activated

6) INPUT CONNECTORS "A" AND "B"
Inputs balanced at line level.
Capable to accept XLR male connectors

7) OUTPUT CONNECTORS "1", "2"," 3", "4", "5" AND "6"
Outputs balanced at line level.
Capable to accept XLR famale connectors

⚠ Be careful to correctly connect each output to each speaker or amplifier, according to the settings of each channels, to avoid damages and malfunctions

"AES/EBU" Section

8) INPUT CONNECTOR
In addition to the analog audio inputs, a SPDIF-AES/EBU (AES3) digital audio input is also provided. It can be selected via the setup menu.
Such input requires a balanced connection trough an XLR connector with a 110 ohm twisted 3-wires cable.

9) "OUT" OUTPUT CONNECTOR
This connector allows to forward audio signals available at the digital or analog inputs or outputs. The source must be set by means of the Option menu
The connection must comply with the same standard of the input [8]

RDNET Section

10) DATA INPUT CONNECTOR
Data input RJ45 connector.

11) "DATA LINK" OUTPUT CONNECTOR
RJ45 connector for data output used for serial link in cascade.

12) "ON" INDICATOR LIGHT
This green indicator turns on only when the AC26N has recognized the RDNET main unit and it is connected to it via computer.

13) "ACTIVE" INDICATOR LIGHT
This yellow indicator flashes when data transmission between RDNET and the device is active.

14) USB connector
This USB connector (type B) allows to connect the processor to a compute, to check and update the firmware via a dedicated program (DVA Network)

15) "MAINS" POWER CONNECTION
It allows to connect the provided power cord

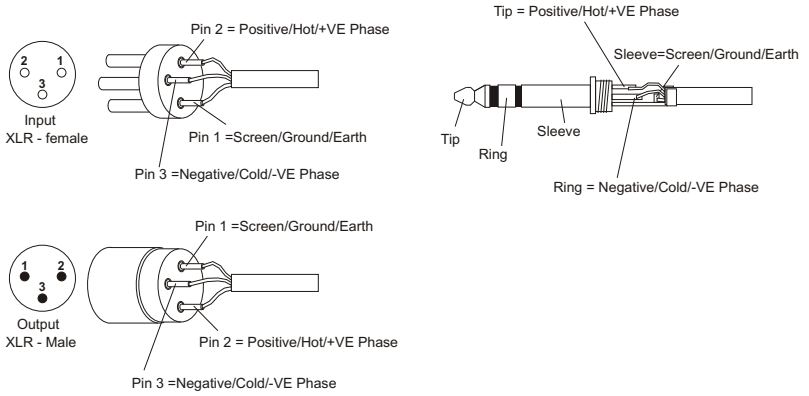
16) FUSE HOLDER "FUSE"
Main power supply fuse housing

17) "POWER" MAIN SWITCH
This switch allows to switch on and off the device

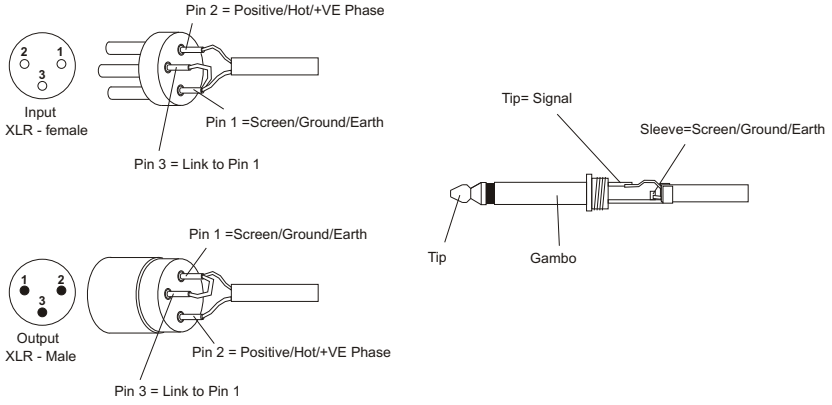
CONNECTIONS

Analog Audio Connections

Balanced connections allow to minimize the cable induced noise, so cable can be longer.
Such connections may be used both on inputs and outputs.
XLR connector must be cabled with pin 1 to ground, pin 2 to hot (+) and pin 3 to cold (-).
With shielded cables, connect the shield to pin 1.
XLR-XLR e XLR-Jack 1/4"(6,3 mm) connection cables can be used to connect the AC26N.

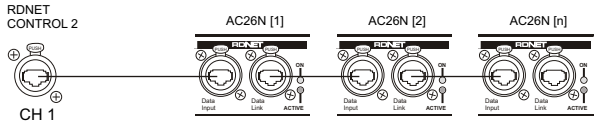


The unbalanced connections can also be used. However, the cable induced noise increases and cable length must not exceed 5 meters.
Such connections may be used both on inputs and outputs.
Unbalanced connection may lower the level of the input signal up to 6dB; in order to overcome this drawback, connect pin 3 to ground, although this can increase the noise.



Digital Audio Connections (AES/EBU)
AES/EBU (AES3 protocol) is and a balanced input, electrically insulated by means of a transformer. It allows carrying two audio channels in a single two-wires shielded cable. The cable characteristics are: twisted, 3 poles, impedance 100 ohm, shielded, equipped with XLR connector (AES3 standard)

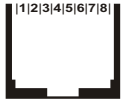
RDnet
Each RDNet port on Control 2 and Control 8 can be connected to maximum 32 cascade-connected compatible devices.
In the example below, the control unit RDNET CONTROL 2 port is connected to the DATA INPUT of an AC 26N, whose parallel DATA LINK output is sent to the input of the next AC26N.
In the example, [n] is a number between 3 and 32 (maximum limit for the devices connected to a sub-network)



The overall length of a CAT5 sub-network cable cannot exceed 900 meters.

The connector must be connected as follows:

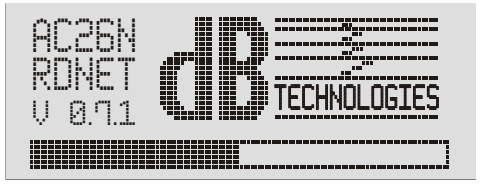
1 - Available for other functions (for example: audio +)
2 - Available for other functions (for example: audio -)
3 - Available for other functions (for example: analog ground)
4 - digital ground
5 - digital ground
6 - Available for other functions (for example: power supply)
7 - RS 485A
8 - RS 485 B



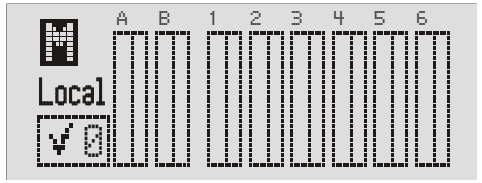
RJ 45

POWER ON

When the device is turned on, the initialization procedure starts. It lasts few seconds. The display shows the device model, the company logo and a program loading progress bar.



At the end of the installation process the display shows the Meters menu. For further details about the indications, refer to the paragraph MENU DESCRIPTION - METERS.



AC26N is now ready for use

CONFIGURATION AND DISPLAY

To access the main menu window, press the MENU key located on the device front panel.
In any page of the menu, press the ESC button to return to the previous screen

MAIN MENU



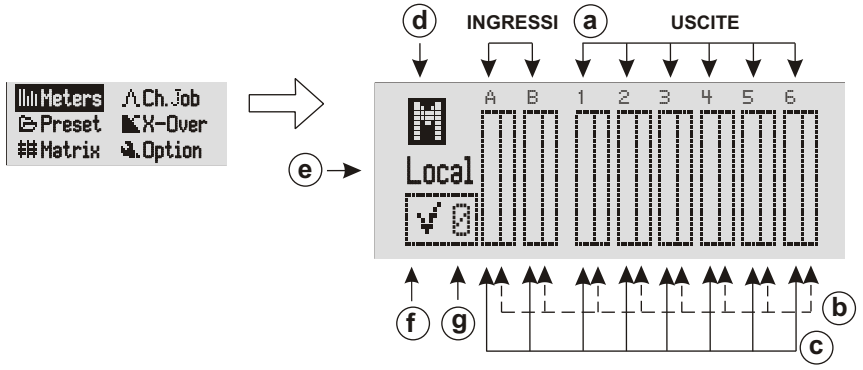
There are six menus in the processor. They show and/or configure the system parameters. The main menus are:

Meters	Input and output levels display; program in progress display, quick muting
Preset	Store, save, and delete the system configurations
Matrix	Select the outputs according to the input signal
Ch. Job	Configuration of each individual channel
X-Over	Configuration of the cut-off frequency and the types of filters for each output
Option	Assignment of the inputs and outputs, display contrast, firmware version, inputs and other options

The menus and the individual options displayed can be selected by rotating the knob "FUNCTION SELECTOR" (⟨) .
To access the selection, highlight the desired parameter and press the "Push Enter" (|) knob.
The same procedure should be adoptd to select and/or change the options inside each menu entry.

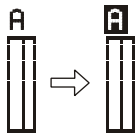
MENU DESCRIPTION - "Meters"

This window allows to view the configuration and the general conditions of the inputs and outputs, the version of the program used, the program status and how the system is driven.



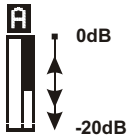
a) INPUT AND OUTPUT CHANNELS

The input and output connectors are identified by the same information provided on the screen printing located on the device rear side.
With digital input signals, the indications A and B concern the input.
By rotating the knob FUNCTION SELECTOR [2], input channels, output channels and general muting indications are cyclically scrolled (d); the selected channel is highlighted.

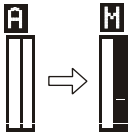


b) BAR COMPRESSION LEVEL / CHANNEL MUTING

SIGNAL COMPRESSION
Signal compression is displayed by the vertical scrolling (top to down) of the right bar

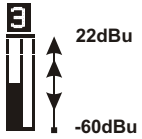


MUTE
Each channel can be individually muted.
Select the channel and press the Push Enter knob [2] to confirm the change of status.
The indication of the channel will be replaced by the letter M and the bar will be completely highlighted.
To restore normal operation, repeat the actions described above.



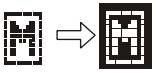
c) SIGNAL LEVEL BAR

The level indication for each channel is provided by scrolling the left bar.



d) GENERAL MUTING

It is possible to mute all the inputs and outputs simultaneously.
Rotate the knob FUNCTION SELECTOR, select the letter M and press the Push Enter knob.
To restore normal operation, repeat the actions described above.
The general mute has the highest priority with respect to the muting of individual channels



e) CONTROL MODE

It shows how the AC26N is used and/or to which devices it is connected.

Local = stand-alone usage
No connection to an external device
NET = directly connected to dedicated RDnet network and to computer
USB = directly connected to another computer via USB cable

f) SETTING STATUS INDICATION

This indication shows if the loaded program was amended in one or more parameters with respect to the last saving operation.

= original program

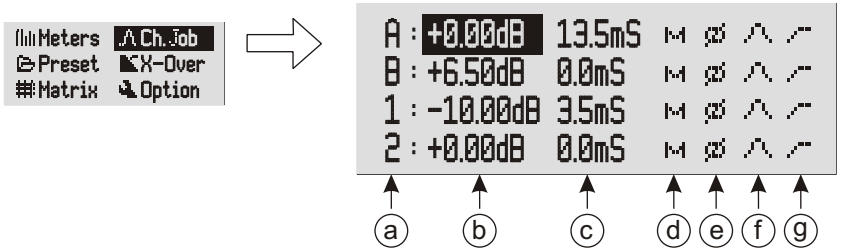
= program with modified parameters

g) SET PROGRAM

The number shows the program that is loaded and used by the system, with reference to the saving position. Refer to the “Preset” menu for further details.

MENU DESCRIPTION - CH. JOB

This window allows to view the configuration of each individual channel



a) INPUT AND OUTPUT CHANNELS

The input and output connectors are identified by the same information provided on the screen printing located on the device rear side.

b) SIGNAL LEVEL

It shows the signal gain The increased signal intensity is expressed in decibels (dB). Such parameter can be selected in the range from -80.00 dB to +20.00 dB in steps of 0.01 dB.
An increase of 6 dB is approximately equal to doubling - in a linear scale - the signal voltage level
If the gain exceeds 0 dB the signal is amplified, while if the gain is lower than 0 dB the signal is attenuated.

c) SIGNAL DELAY

The reproduced audio signal may be delayed to perform an acoustic alignment. This compensates for the different positions of the speakers during the installation and the sound reproduction; it is expressed in ms. The parameter can be selected in the range from 0.0 ms to 72.9 ms in steps of 0.1 ms.
The following formula can be used to align an audio signal:

Delay = (GAPx1000)/344

Delay = ms (in milliseconds)
GAP = distance between speaker and reference point (in meters)
Speed of sound = 344 m/s

d) MUTE

Each channel can be individually muted. The same command can be activated in the Meters Menu.



NOTE: The general mute has the highest priority with respect to the muting of individual channels.

e) Phase

It performs a phase rotation of 180° with respect to the input signal.
Such phase rotation allows the optimization, in special way for low frequencies in complex installations.

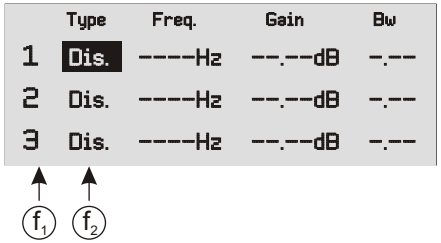


f) EQUALIZATION

This control opens the menu controlling the single channel equalization. It is mainly used to correct one or more frequencies that must be reduced or increased.

The AC26N manages 12 filters for each individual channel input and output, with three different kinds of configuration:

- PEQ Equaliser (peaking equalizer); ideal to identify, isolate and correct only a certain range of frequencies.
  All frequencies pass, only those around the centre frequency are increased and decreased, for a given bandwidth and set gain.
- High-shelf Equalizer. All frequencies pass, but frequencies above the selected cut-off frequency are increased or attenuated by the given gain.
- Low-shelf Equalizer. All frequencies pass, but frequencies below the selected cut-off frequency are increased or attenuated by the given gain.



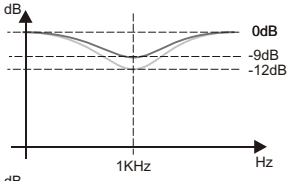
f_1 Numbering of the 12 available filters for the specific input or output

f_2 Displays the kind of filter:

Dis.	Switched off (not present)
PEQ	Peaking equlizer
Sh. H	High-shelf Filter
Sh. L	Low-shelf Filter

Examples: PEQ Peaking equlizer

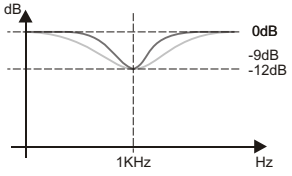
Type	Freq.	Gain	Bw
PEQ	1000Hz	-12.00dB	1.00
PEQ	1000Hz	-9.00dB	1.00



NOTE

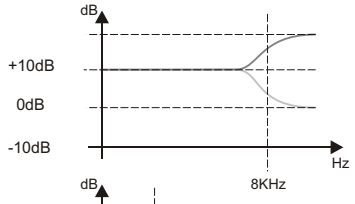
The parameter Bw defines the range of frequencies close to the set frequency where the filter is activated; the greater the value of Bw, the wider is the frequencies range (1 Bw = 1 octave).

Type	Freq.	Gain	Bw
PEQ	1000Hz	-12.00dB	1.00
PEQ	1000Hz	-12.00dB	5.00



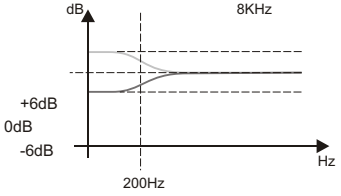
Sh. H Filtro high-shelf

Type	Freq.	Gain
Sh. H	8000Hz	-10.00dB
Sh. H	8000Hz	+10.00dB



Sh. L Filtro low-shelf

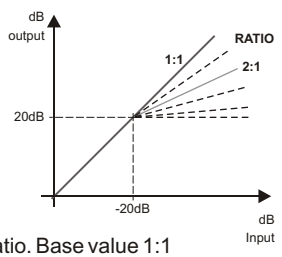
Type	Freq.	Gain
Sh. L	200Hz	-6.00dB
Sh. L	200Hz	+6.00dB



g) COMPRESSION

This control opens the menu controlling the compression for the single channel.





g1) Threshold

Identifies the starting threshold for the compression ratio. Base value 1:1

g2) Ratio

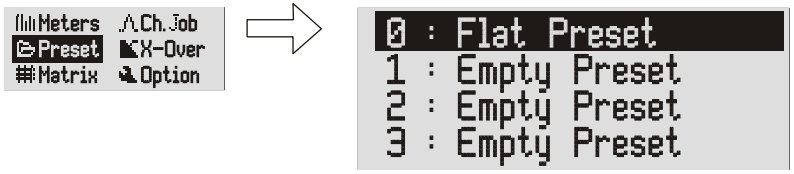
Indicates the conversion ratio between input and output signal.

g3) Post Gain / Attach / Release / Hold

These data are in function of the conversion ratio to achieve:
Post Gain is the output gain
Attach is the attack time
Release is the release time
Hold is the holding time

MENU DESCRIPTION - PRESET

This window allows to store up to 32 configurations in the AC26N.
The manufacturer provides the system with a program set and saved in position 0, that is not possible to overwrite.



0...32	Indicates the location where the configuration is saved. This number also appears in the window Meters in position (g). The program in use can be displayed at any time by the user
Empty Preset	It is the name associated with the location number when no setting is saved (empty)
Local preset	It is the name associated with the location number when a setting is saved. NOTE = It is possible to save a setting with the desired name, up to 16 letters, only via the computer interface

When a program is selected, the following window is displayed:

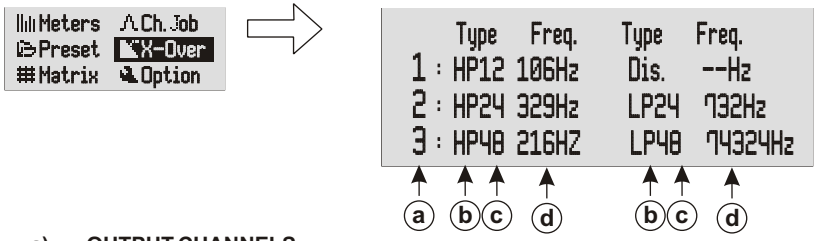


The name of the assigned program is displayed.
3 possible choices are available when working on the application:

Save	The program is saved in the AC 26N memory
Del	The program is deleted
Load	The program is loaded and ready to be used

MENU DESCRIPTION - X-OVER

This window allows to select for each output a low pass filter, a high pass filter, or create a band-pass filter via the combination of both.
The available filter is a Linkwitz-Riley, where it is possible to select slopes of 12 dB/oct, 24 dB/oct or 48 dB/oct and their cut-off frequency.



a) OUTPUT CHANNELS
The output connectors are identified by the same information provided on the screen printing located on the device rear side.

b) CROSSOVER FILTER
Select the filter according to needs. It is possible to select:

Dis. No filter enabled

HP High-pass filter: set it to allow only the part of audio signal above the cut-off frequency

LP Low-pass filter: set to allow only the part of audio signal below the cut-off frequency

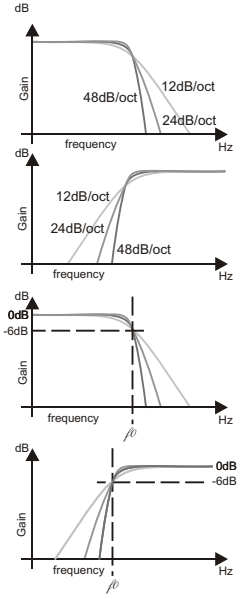
Filter configuration	Low-pass	High-pass	
Nothing	Dis.	Dis.	
High-pass	HP	Dis.	
Low-pass	Dis.	LP	
Band-pass	HP	LP	

c) ATTENUATION SLOPE
Select the attenuation slope of the audio signal on the basis of the desired attenuation.
The higher the attenuation slope, at the same cut-off frequency, the greater the signal selection.
It is possible to select:

12 equal to 12 dB/oct

24 equal to 24 dB/oct

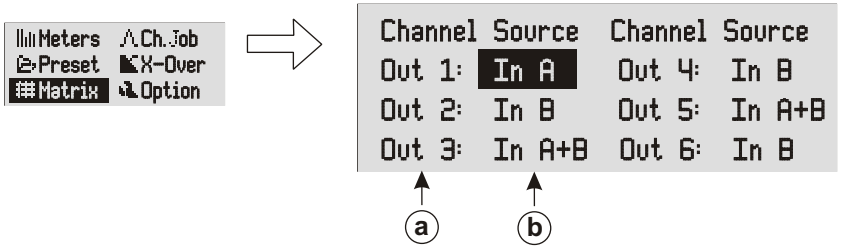
48 equal to 48 dB/oct



d) CUT-OFF FREQUENCY
To set the passing frequency for the lower frequencies only (low-pass filter) or the higher frequencies only (high-pass filter).
The choice of the cut-off depends on the desired sound reproduction
The unit of measurement used is Hz.

MENU DESCRIPTION - MATRIX

For each output, it allows to select the input signal to use as the source.



a) OUTPUT CHANNELS
Identification of the output channel to set

b) IDENTIFICATIONS OF THE INPUTS
It selects the type of signal to match each output, as needed. It is possible to select:

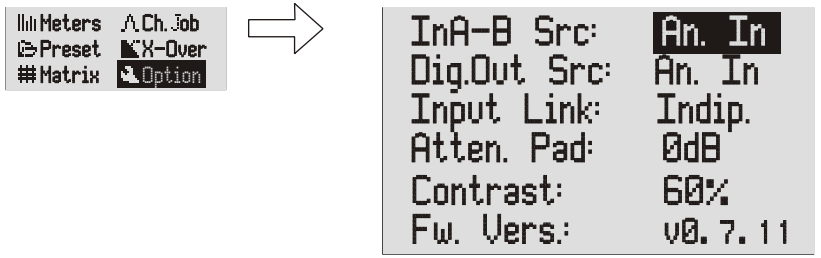
In A Associated with the input signal “A”

In B Associated with the input signal “B”

In A+B Associated with the algebraic sum of the two input signals “A” and “B”

MENU DESCRIPTION - OPTION

Allows to display the system settings, such as the allocation of the inputs and outputs, attenuation, display contrast and firmware version



InA-B Src
This option allows to set the type of input audio signal.

An. In = Analog audio signals (inputs A and B)

Dig.In = Digital audio signals (AES/EBU input)

Dig.Out Src
This option allows to select the audio source that will be forwarded to the connector AES/EBU OUT (digital output)

An. In = Audio signals available at analog inputs

Dig. In = Audio signals available at digital inputs

OUT 1-2 = Audio signals available on outputs 1 and 2

OUT 3-4 = Audio signals available on outputs 3 and 4

OUT 5-6 = Audio signals available on outputs 5 and 6

Input Mode
It allows to configure the inputs.

Indip. = They are independent, not subject to constraints of any kind between them

Linked = They are connected and work in stereo mode
Compressors, filters, delays, volume... are identical for the two channels

Atten. Pad
It shows how to set the -6 dB switch located on the rear side [Ref. 5]. It is necessary to activate this selector when the analog input levels are too high. The selector can be activated only by means of the button; the menu is for display only.

0 dB = Selector not activated.
The input signals are the same as the input source

-6 dB = Selector activated.
The input signals are attenuated by -6 dB with reference to the inner processor

Contrast
Allows to adjust the LCD display contrast to compensate for the brightness difference at the installation sites. Greater display brightness allows to navigate correctly and quickly within the menu.
The manufacturer output setting is 60%

10% More bright ← 60% → More dark 100%

Fw. Vers.
It shows the processor firmware version

TECHINICAL SPECIFICATION

AUDIO PERFORMANCE

Frequency Response:	+/- 0.1dB (20 to 30kHz)
Dynamic Range:	116dB typ
CMMR:	> 60dB (50 to 10kHz)
Crosstalk:	< -100dB
Distortion:	0.002% (1kHz @+4dBu)

DIGITAL AUDIO PERFORMANCE

Processor:	DSP 28/56-bit
Data processing Frequency:	24-bit BURR BROWN
Analog converters:	24-bit BURR BROWN
Propagation Delay:	1.5ms
Storing configurations:	32 preset

CONTROLS

Display:	LCD grafico
Buttons/Controls	ESC - MENU - FUNCTIONS SELECTION ENTER

INPUTS/OUTPUTS

Analog Input	n°2 x XLR (3 pole female)
Input impedance:	>10KOhm
Maximum Level	+21dBu senza PAD +27dBu con PAD
Analog Output	n°6 x XLR (3 pole male)
Output impedance:	50Ohm
Maximum Level	+21dBu
Type:	Balanced
Digital Input	n°1x XLR (3 pole female)
Type:	SPDIF-AES/EBU (AES3)
Digital Output	n°1x XLR (3 pole male)
Type:	Compliant with the input standard
RDnet Inputs/Output	n°2 x XLR RJ45 (CAT 5 cable)
USB	Tipo B

SOUND CONTROL PARAMETERS

Gain	-80dB a +20dB step 0,1dB
Delay	
Input	0 a 72,9mS step 0,1 mS
Output	0 a 340mS step 0,1mS
Phase Rotation	0° - 180°

COMPRESSION

Threshold	-80dB a +20dB step 0,1dB
Ratio	1:1 a Inf:1 step 0.01
Output gain	0dB a 40dB step 0,1dB
Attack time	1mS a 1000mS step 0,1mS
Release time	1mS a 1000mS step 0,1mS
Hold time	1mS a 1000mS step 0,1mS

EQUALIZERS

12 equalizers for each input and output	
Type:	PEQ (parametrico) Hi-shelf Lo-sheft
Frequency	20Hz a 20KHz step 1Hz
Gain	-30dB a +15dB step 0,01dB
Band	0.05dB a 2dB step 0,01dB (only with PEQ)

CROSSOVER FILTERS

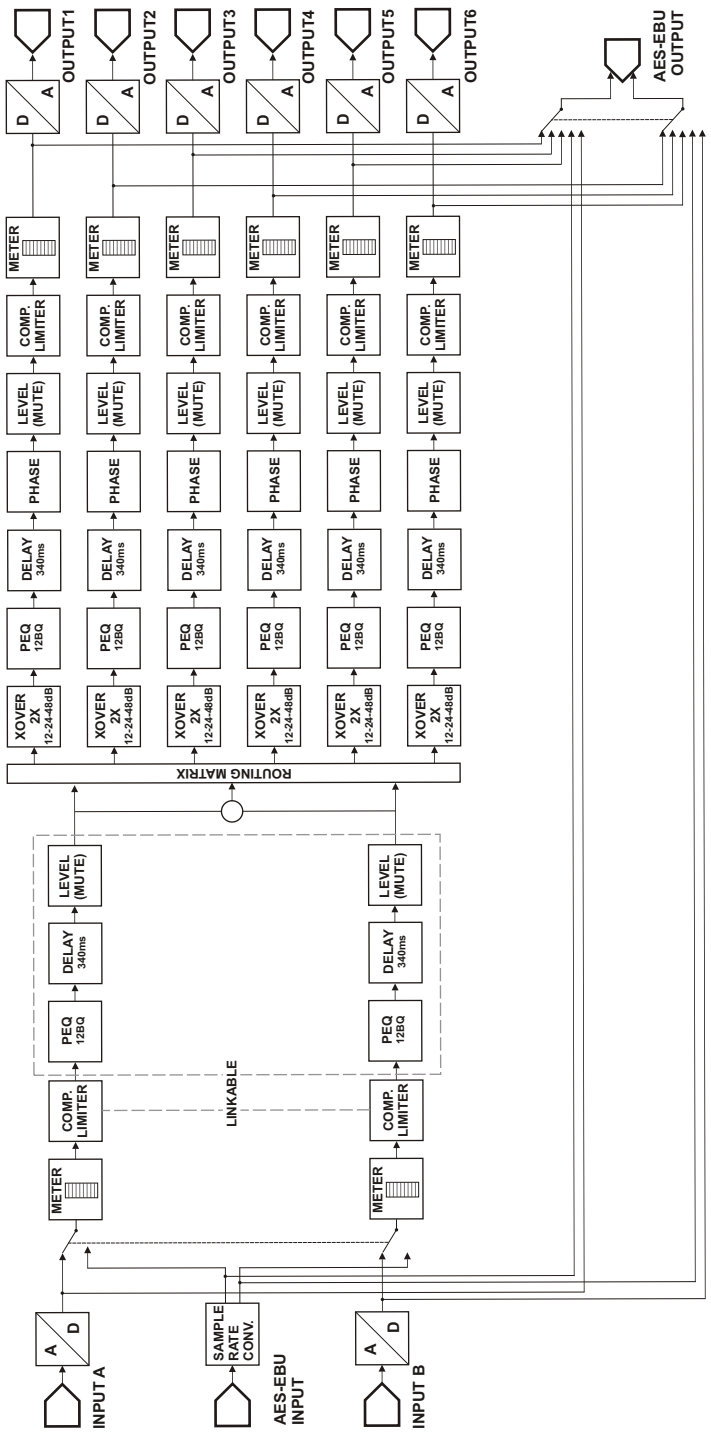
Filter	Linkwitz Riley
Type:	HP High-pass LP Low-pass
Slope	12dB/oct - 24dB/oct - 48dB/oct
CUT-OFF FREQUENCY	5Hz a 20KHz passo 1Hz

POWER SUPPLY	Full-range 100-240Vac 50-60Hz
DIMENSIONS	430/482x43x130mm (WxHxD) 17/19x1,7x5,1 inch. (WxHxD)
WEIGHT	1,9Kg (4,2 lbs)

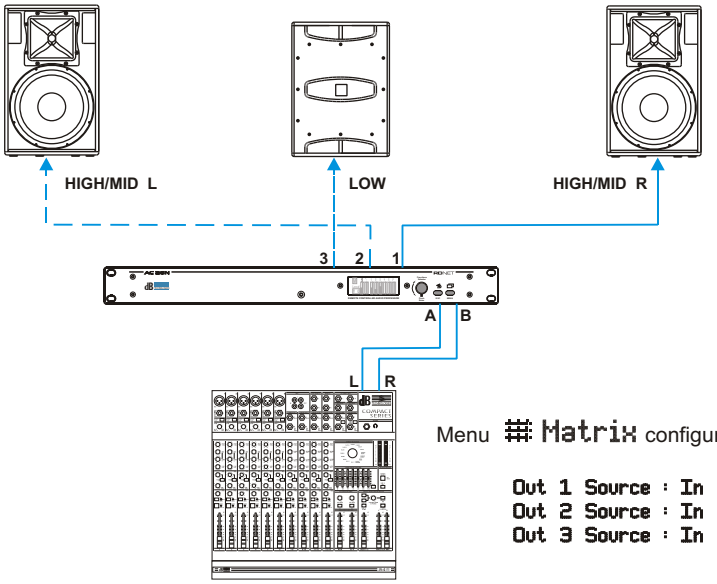
Note: Specifications subject to change without notice

EMI CLASSIFICATION
According to the standards EN 55103 this equipment is designed and suitable to operate in E3 (or lower E2, E1) Electromagnetic environments.

English
user manual



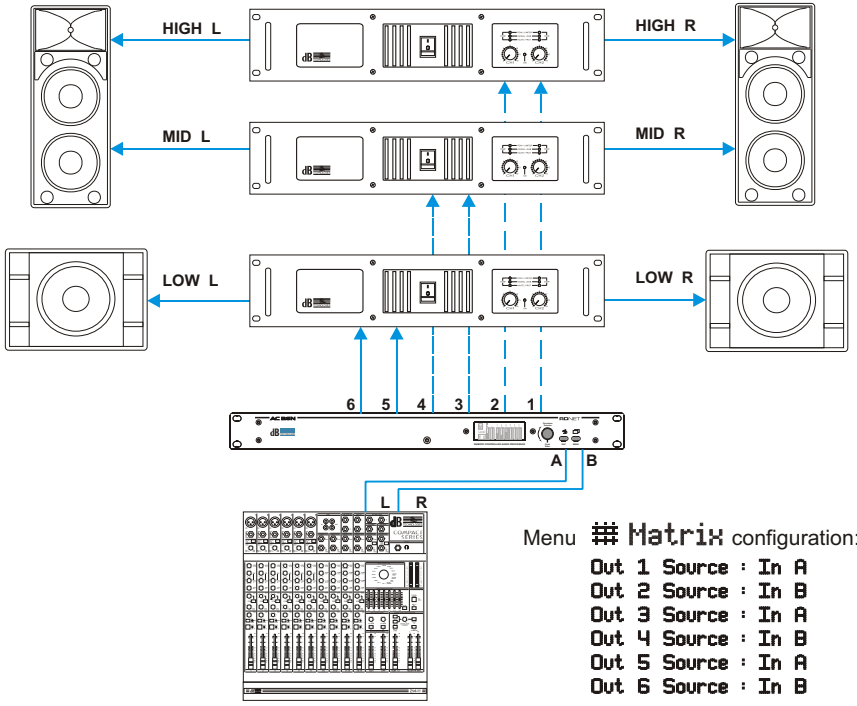
2 VIE ATTIVO
2 WAY ACTIVE



Menu ## Matrix configuration:

```
Out 1 Source : In A
Out 2 Source : In B
Out 3 Source : In A+B
```

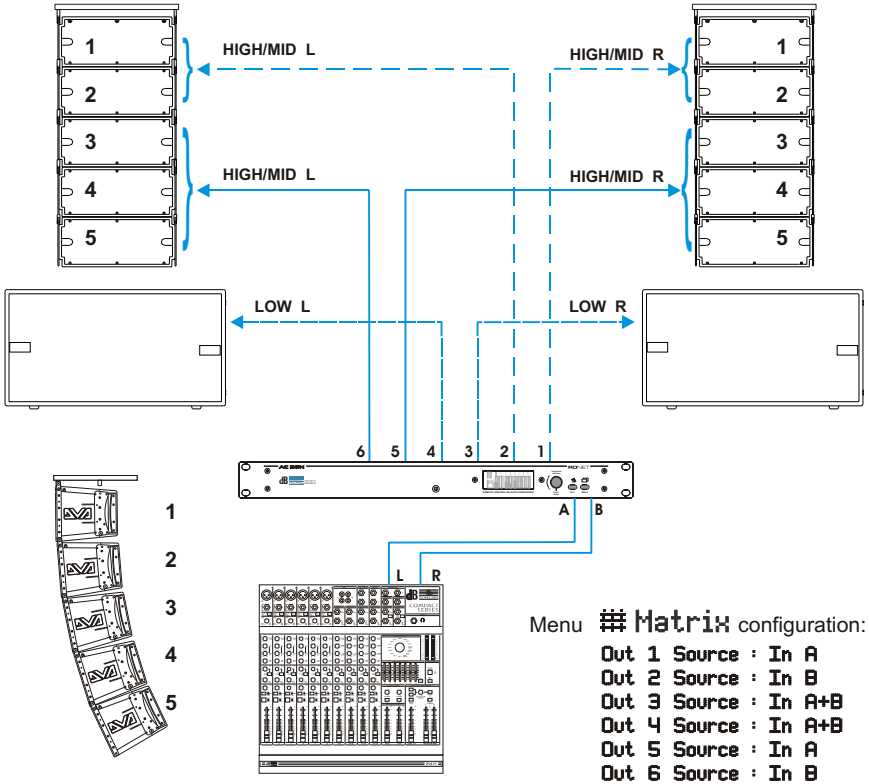
3 VIE PASSIVO
3 WAY PASSIVE



Menu ## Matrix configuration:

```
Out 1 Source : In A
Out 2 Source : In B
Out 3 Source : In A
Out 4 Source : In B
Out 5 Source : In A
Out 6 Source : In B
```

LINE ARRAY / SUB MONO ATTIVO
LINE ARRAY /SUB MONO ACTIVE



Menu Matrix configuration:

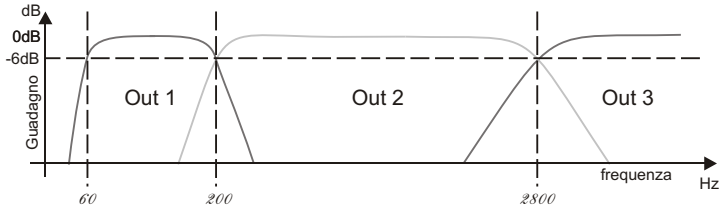
```
Out 1 Source : In A
Out 2 Source : In B
Out 3 Source : In A+B
Out 4 Source : In A+B
Out 5 Source : In A
Out 6 Source : In B
```

Esempio di un sistema a 3-vie



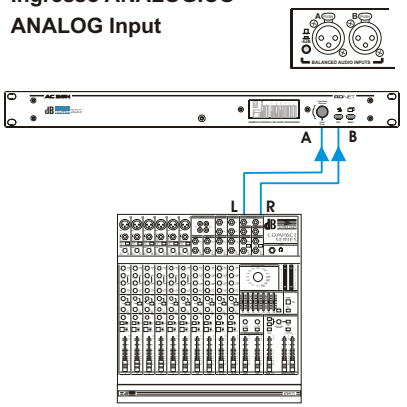
Esempio di un sistema a 3-vie

1:HP48	60Hz	LP24	200Hz
2:HP24	200Hz	LP12	2800Hz
3:HP12	2800Hz	Dis.	--Hz



INGRESSI - INPUT

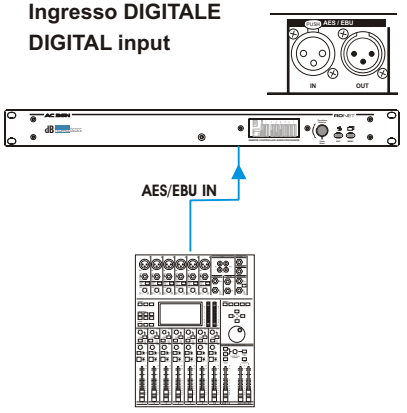
Ingresso ANALOGICO
ANALOG Input



Menu Option configuration

```
In.A-B Src : An. In
```

Ingresso DIGITALE
DIGITAL input



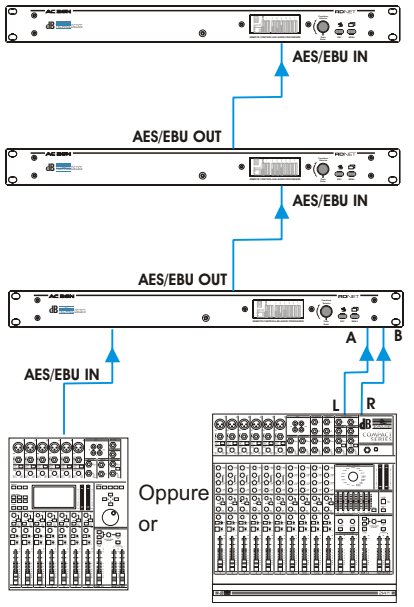
Menu Option configuration

```
In.A-B Src : Dig. In
```

Collegamento in cascata
Link connections

Menu Option configuration

```
Input type : AES
AES out : Dig. In
```




```
Input type : AES
AES out : Dig. In
```

AES/EBU IN

```
Input type : AES
AES out : Dig. In
```

Oppure
or

L/R

```
Input type : Analog
AES out : An. In
```

DIMENSIONI / DIMENSIONS
ABMESSUNGEN / DIMENSIONS

