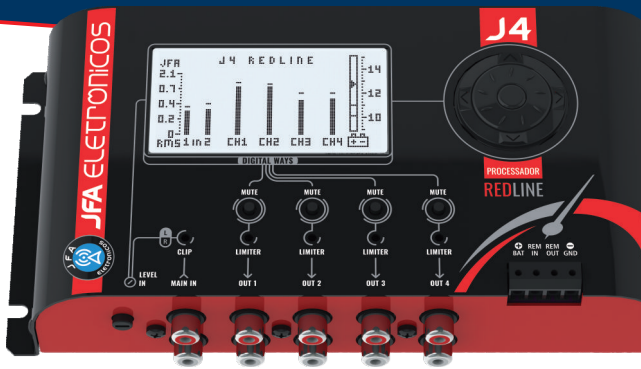
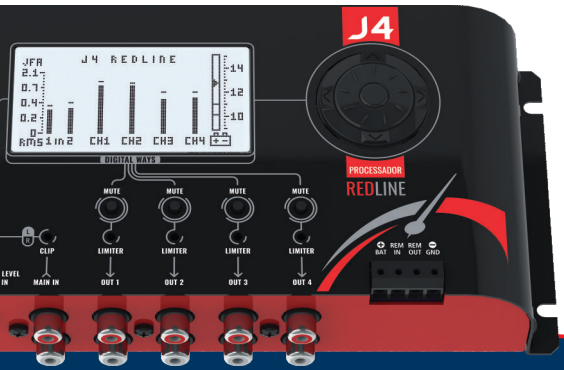
J4 REDLINE AUDIO PROCESSOR

JFA ELETRONICOS

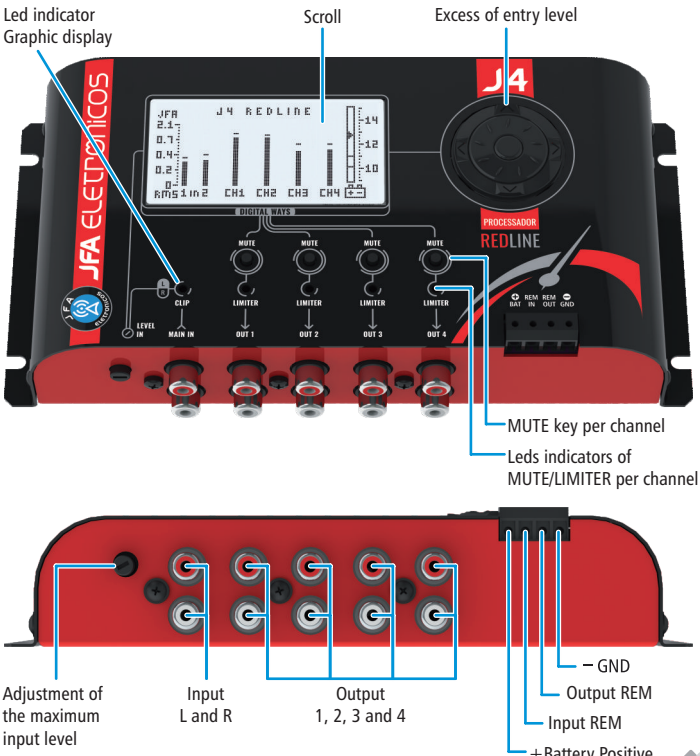




INSTRUCTION MANUAL

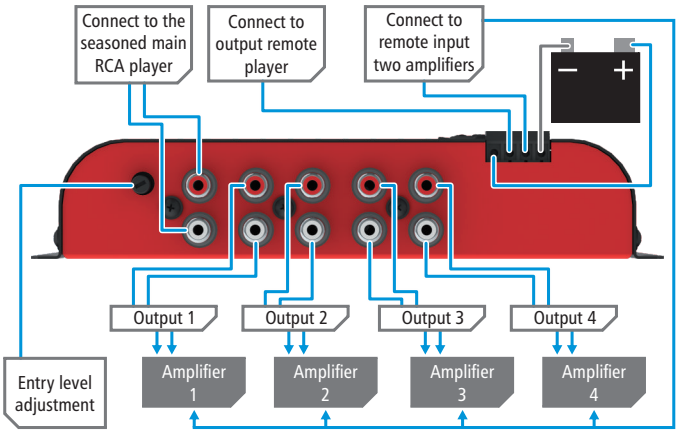
PRESENTATION

The J4 REDLINE Processor is a digital audio processor with 2 inputs and 4 outputs, which make it possible to configure independently. It has a display for real-time visualization of the input and output levels, simulating the function of an oscilloscope, and a potentiometer to adjust the maximum input audio level.
The model also has a voltmeter on its screen.



CONNECTING DIAGRAM

Connect the power cables according to the diagram below.
Check out the example of how the outputs can be configured, remembering that the outputs can be configured in other ways.



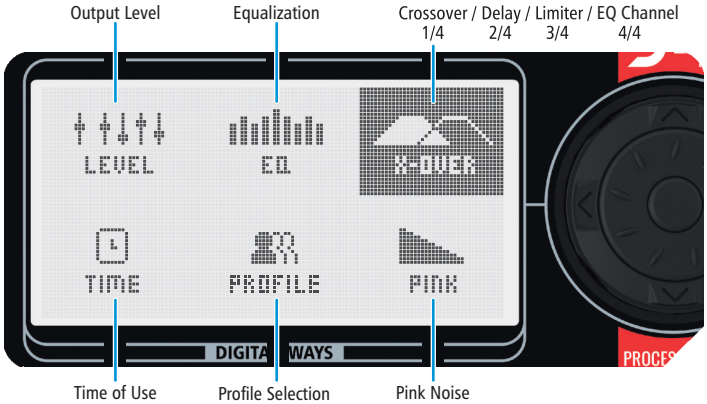
IMPORTANT RECOMMENDATIONS:
The recommended wiring gauge is 1.5mm² for the positive-negative wires and 0.50mm² for the remote wires. The J4 REDLINE Processor should be fixed on a stable and easily accessible base (support) away from heat sources. It is not recommended to install the product on the sides of loudspeakers, due to vibration. Do not fix directly on the Vehicle Housing.
Never power the J4 REDLINE Processor from the original vehicle wiring. To avoid noise pickup, use shielded signal cables. They must not pass together to the power lines and must be as short as possible. Observe the cable crossing points. Sharp edges of Ataria or living corners can cut them, causing future problems.
The J4 REDLINE Processor must be connected before the amplifiers. If this procedure is not followed, damage to the speakers may occur. For the purpose of safe activation of the amplifiers the J4 REDLINE Processor has a REMOTE OUT output, which sends the +12V signal seconds after the crossover is triggered.

IMPORTANT: Any connection in the power, input or output connectors must be made only with the device switched off.

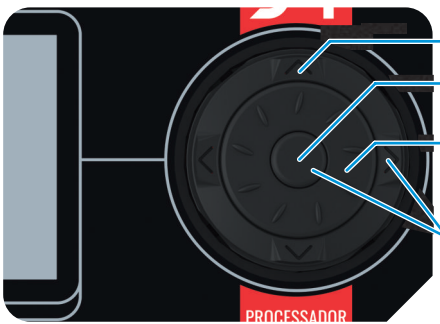
GRAPHICAL DISPLAY AND NAVIGATION SYSTEM

We recommend that, when working with the J4 REDLINE Processor, always keep the instruction manual handy so that you can consult it whenever necessary.

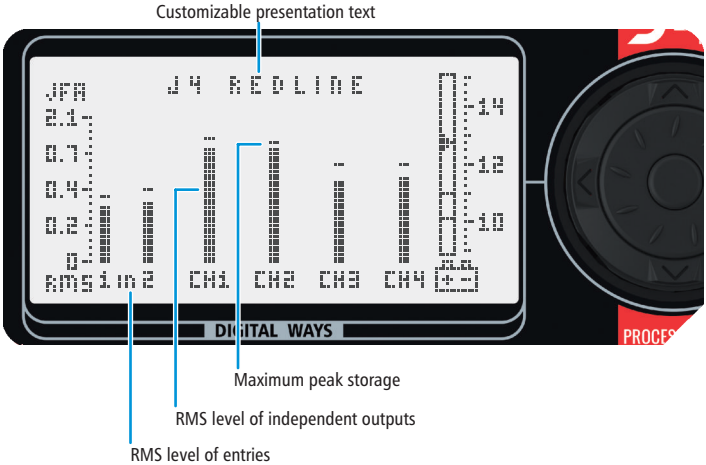
HOME MENU



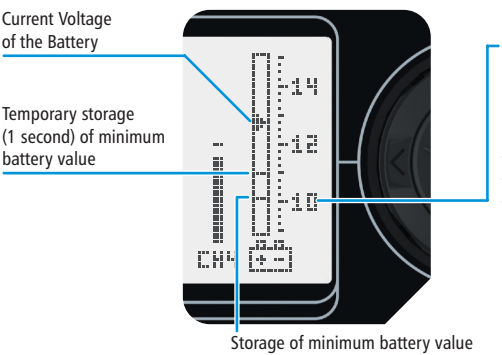
SCROLL NAVIGATION



LEVEL METER



VOLTMETER FUNCTION

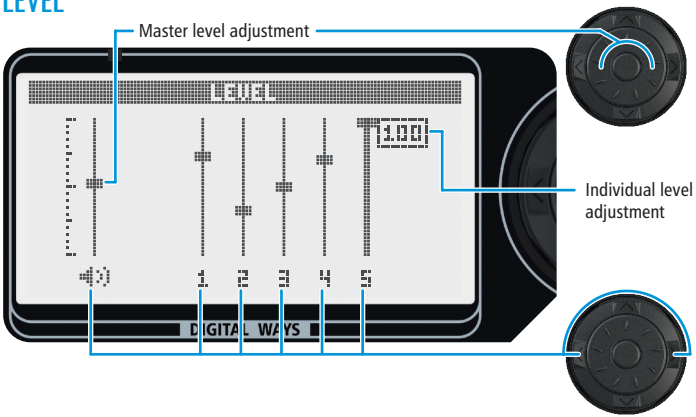


LOW VOLTAGE PROTECTION

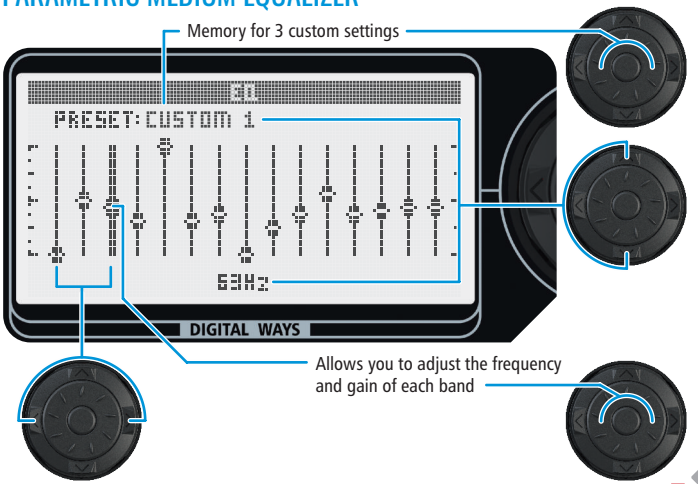
If the battery voltage is less than or equal to 10V for more than 1 second, the MUTE function is triggered at all outputs.

Note: The user can manually remove the MUTE.

LEVEL

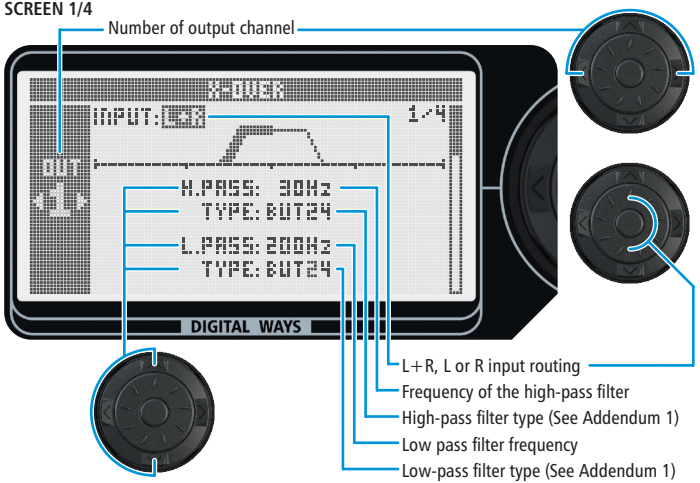


PARAMETRIC MEDIUM EQUALIZER

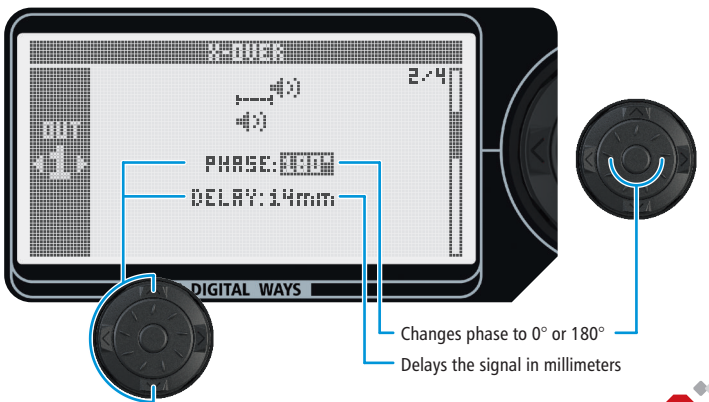


X-OVER

SCREEN 1/4

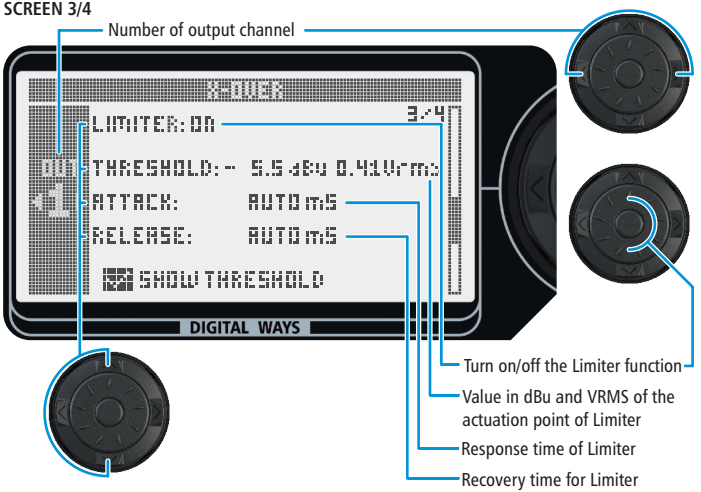


SCREEN 2/4

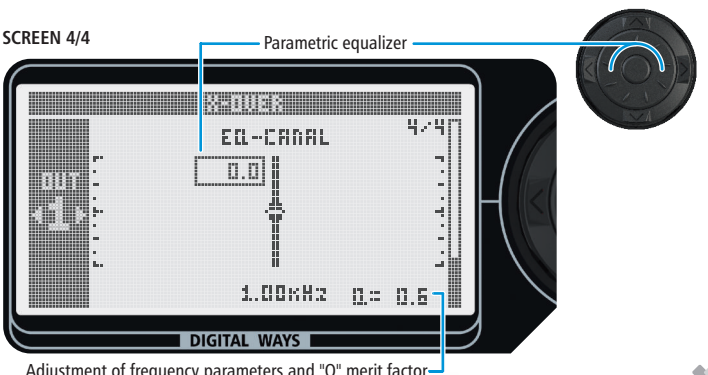


X-OVER

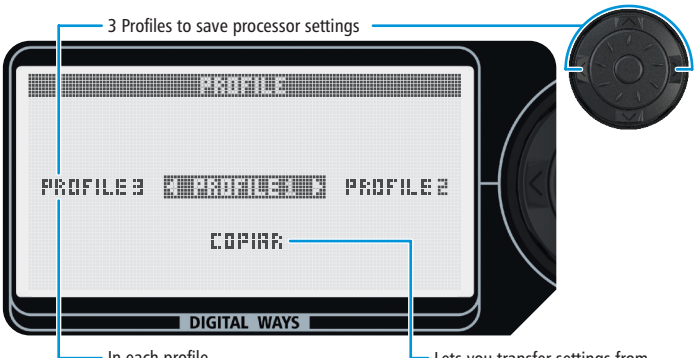
SCREEN 3/4

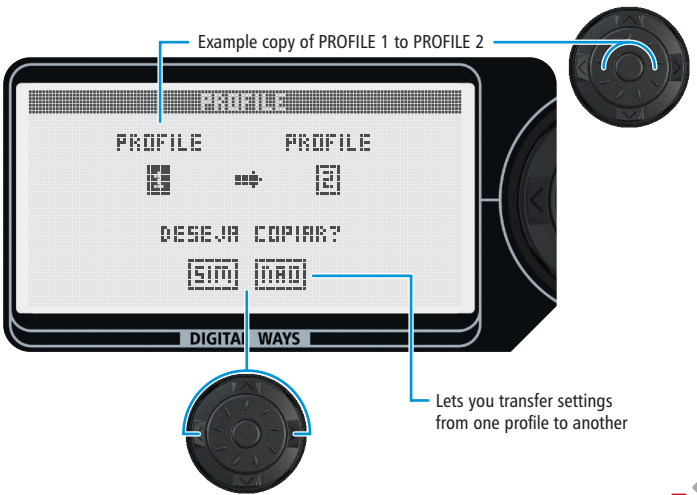


SCREEN 4/4

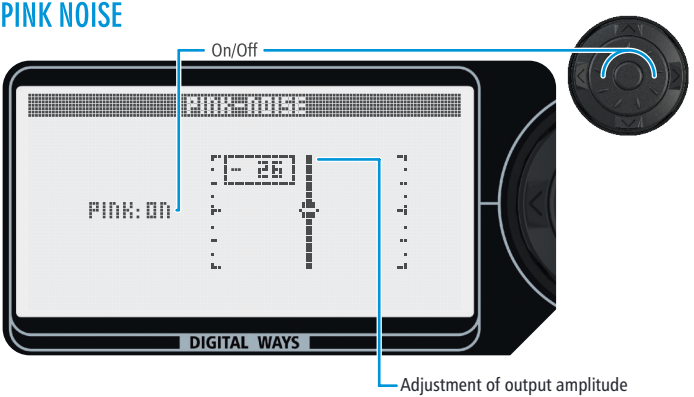


PROFILE

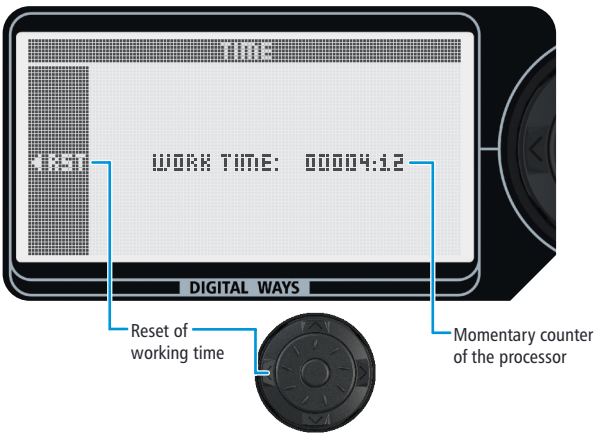

3 Profiles to save processor settings
PROFILE
PROFILE 3
PROFILE 2
COPIAR
DIGITAL WAYS
In each profile, up to 3 semi-parametric equalizations can be set
Lets you transfer settings from one profile to another


Example copy of PROFILE 1 to PROFILE 2
PROFILE
PROFILE
PROFILE
DESEJA COPIAR?
SIM
NAO
DIGITAL WAYS
Lets you transfer settings from one profile to another

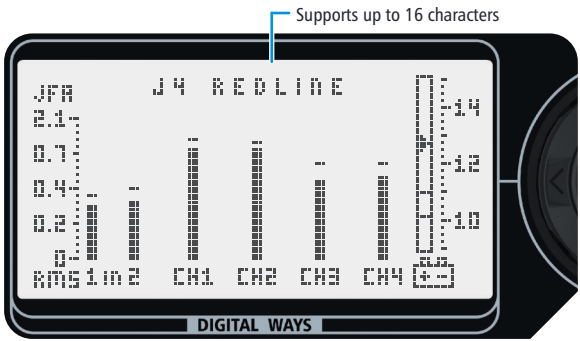
PINK NOISE



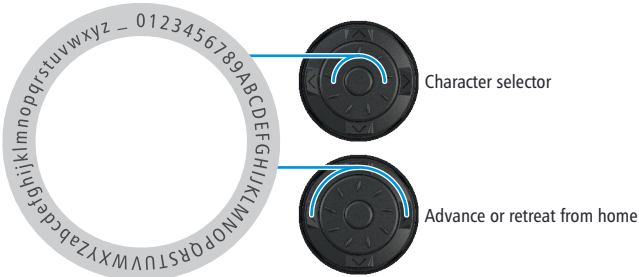
TIME



PRESENTATION TEXT CUSTOMIZABLE

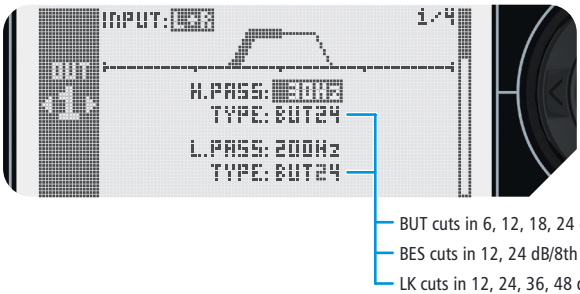


By pressing for 5 seconds on the level meter screen, enter the display text setting. To exit, simply press the centre key.



ADDENDUM 01 - X-OVER FILTER OPTIONS

The Processor has 3 filter structures for cutting in the X-OVER menu, being them,
BUT = Butte Work, BES = Bessel and LK = Link Witz, besides the option OFF = filters off.



ADDENDUM 02 - LIMIT USE OF THRESHOLD, ATTACK AND RELEASE

THRESHOLD - Defines from which level the Limiter acts.
The range can be adjusted from 0.10 to 2.18 VRMS.

ATTACK - Is the response time of Limiter. When in AUTO (recommended),
the time is defined as follows:

$$T = \left(\frac{1}{\text{Frequency L. PASS}} \right) \times 1,5$$

Example:

ADDENDUM 02 - LIMIT USE OF THRESHOLD, ATTACK AND RELEASE

RELEASE - It is the limiter recovery time. When in AUTO (recommended), this time is 16 times longer than the ATTACK time.
See table of values below:

ATTACK Fast + RELEASE Slow **(Mode AUTO of J4 Pro)**	Advantage	1 - Efficient Peak Control with discrete actuation of the audio compressor
	Desvantagem	1 - The system receives a first Peak until it enters into action
	Recomendado	1 - For all types of audio where you want a reproduction closest to the original
ATTACK Slow + RELEASE Slow	Advantage	1- Preserves the dynamics and "Robust" of the audio 2 - Discreet and smooth performance 3 - The music peaks are preserved
	Desvantagem	1 - Low protection against audio peaks
	Recomendado	1 - In audios with longer musical notes 2 - With low battery presence
ATTACK Slow + RELEASE Fast	Advantage	1 - Back firmness, impact and "punch" the audio beats
	Desvantagem	1 - The system receives a first Peak until it enters into action
	Recomendado	1 - For audios that have a following sequence of fast transients.
ATTACK Fast + RELEASE Fast	Advantage	1 - System protection against Clipp
	Disadvantage	1 - Loss of audio dynamics
	Recommended	1 - When you want more protection 2 - When you want to highlight less audible harmonics, increasing the feeling of the environment

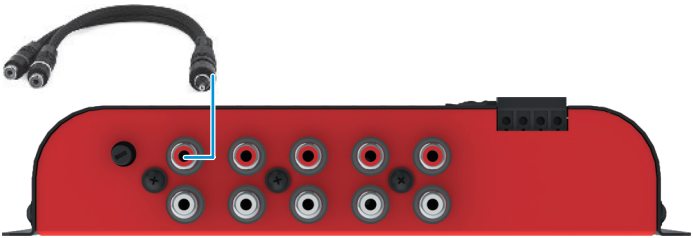
Table with suggestions of Fc cut frequencies and Attack and release times recommended by XTA (American Audio Entity).

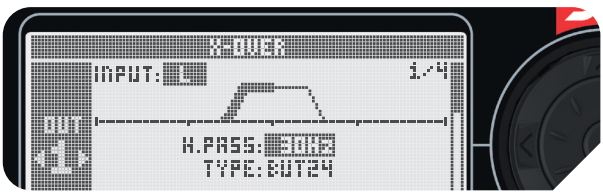
Lower Court Frequency Fc, in Hz, from Crossover	Time Attack (Mili seconds)	Release Time = 16 x Attack time
<10 a 31	45	720
31 a 63	16	256
63 a 125	8	128
125 a 250	4	64
250 a 500	2	32
500 a 1000	1	16
1000 a 2000	0,5	8
2000 a 32000	0,3	4

ADDENDUM 03 - AUDIO NOISE

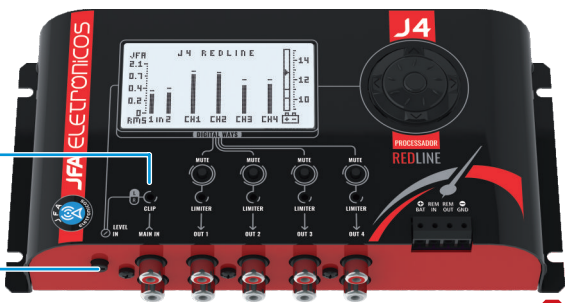
To decrease the noise level, we suggest the following processor configuration/settings.

1- Merge the player's L and R channels into a Y cable and enter the processor's L channel. Place the input routing in the L channel (screen ¼).





2- Put the player to play at a volume close to maximum, and keep the adjustment of the input gain as much as possible, without lighting the input clipping led.

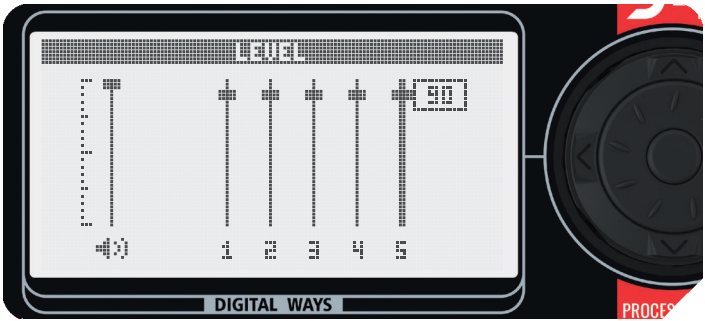


Input CLIPP LED

Adjustment of the maximum input level

ADDENDUM 03 - AUDIO NOISE

3- Level screen
-Keep Master gain at 100%.
-Put channel gain at 90%.
With the player close to the maximum volume and the gain of the amplifier at least, increase the gain of the amplifier until reaching the maximum power.
If necessary, fine-tune the channel gain by maintaining its value between 80 and 100%.



4- Make a unique power supply for the 12V direct processor of the battery poles.

TECHNICAL CHARACTERISTICS

Input channels	2
Output channels	4
Frequency response	20Hz to 20kHz
Master semi-parametric equalizer	15 bands -10 to +10dB
Parametric equalizer per channel	1 band -12 to +12dB
DSP, 24-bit hi-pass and low-pass filter	20Hz to 20KHz, (off/6/12/18/24/36 and 48dB/8°)
Total Harmonic Distortion (THD)	0.002% at 1kHz
Signal/Noise Ratio from 20Hz to 30kHz	>90dB
Phase	0 and 180°
Delay	0 to 287cm
Maximum level of entry	0,62VRMS/ 10KΩ (with aj. input at most)
Maximum level of output	4,6VRMS / 47Ω
Bar Graph	0 to 2.1VRMS with "hold peaks"
Dimensions in millimetres (L x A x P)	202 x 103 x 43
Weight in grams	480

TECHNICAL CHARACTERISTICS OF THE GRAPHIC SCREEN

Display resolution	128 x 64 dots	
Level	Audio = 0,04 to 2,1Vrms	Voltmeter = 9 to 15Vdc
Function peaks "hold"	1 second (Maximum audio)	-Show minimum pressure for 1s -Stores the minimum voltage
Resolution of the measures	Up to 0,4VRMS - 40mVrms >0,4 <=0,7Vrms - 60mVrms >0,7Vrms - 280mVrms	250mV*
Precision	>95%	>97%*
Sampling frequency	33Hz	33Hz