



DCX-36 MKII

ORDERCODE D2023



SHOWELECTRONICS FOR PROFESSIONALS

Congratulations!

You have bought a great, innovative product from DAP Audio.

The DAP Audio DCX-36 MKII brings excitement to any venue. Whether you want simple plug-&-play action or a sophisticated show, this product provides the effect you need.

You can rely on DAP Audio, for more excellent audio products.

We design and manufacture professional audio equipment for the entertainment industry.

New products are being launched regularly. We work hard to keep you, our customer, satisfied.

For more information: iwant@dap-audio.info

You can get some of the best quality, best priced products on the market from DAP Audio.

So next time, turn to DAP Audio for more great audio equipment.

Always get the best -- with DAP Audio !

Thank you!



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WARNING

**FOR YOUR OWN SAFETY, PLEASE READ THIS USER MANUAL CAREFULLY
BEFORE YOUR INITIAL START-UP!**

Unpacking Instructions

Immediately upon receiving this product, carefully unpack the carton and check the contents to ensure that all parts are present, and have been received in good condition. Notify the dealer immediately and retain packing material for inspection if any parts appear damaged from shipping or the carton itself shows signs of mishandling. Save the carton and all packing materials. In the event that a fixture must be returned to the factory, it is important that the fixture be returned in the original factory box and packing.

Your shipment includes:

- DAP DCX-36 MKII
- 1x USB cable – 1,40m
- 1x IEC Power cable - 1,75m
- User manual



CAUTION!

Keep this system away from rain and moisture!



SAFETY INSTRUCTIONS

Every person involved with the installation, operation and maintenance of this system has to:

- be qualified
- follow the instructions of this manual



**CAUTION! Be careful with your operations.
With a dangerous voltage you can suffer
a dangerous electric shock when touching the wires!**



Before you initial start-up, please make sure that there is no damage caused by transportation. Should there be any, consult your dealer and do not use the system.

To maintain perfect condition and to ensure a safe operation, it is absolutely necessary for the user to follow the safety instructions and warning notes written in this manual.

Please consider that damages caused by manual modifications to the system are not subject to warranty.

This system contains no user-serviceable parts. Refer servicing to qualified technicians only.

IMPORTANT:

The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual or any unauthorized modification to the system.

- Never let the power-cord come into contact with other cables! Handle the power-cord and all connections with the mains with particular caution!
- Never remove warning or informative labels from the unit.
- Never use anything to cover the ground contact.
- Do not connect this system to a dimmerpack.
- Do not switch the system on and off in short intervals, as this would reduce the system's life.

- Do not open this device. Risk: hazardous radiation exposure.
- Only use system indoor, avoid contact with water or other liquids.
- Avoid flames and do not put close to flammable liquids or gases.
- Always disconnect power from the mains, when system is not used. Only handle the power-cord by the plug. Never pull out the plug by tugging the power-cord.
- Make sure you don't use the wrong kind of cables or defective cables.
- Make sure that the signals into the device are balanced, otherwise hum could be created.
- Make sure you use DI boxes to balance unbalanced signals; All incoming signals should be clear.
- Make sure that the available voltage is not higher than stated on the rear panel.
- Make sure that the power-cord is never crimped or damaged. Check the system and the power-cord from time to time.
- Always operate the unit with the AC ground wire connected to the electrical system ground.
- Do not drive the inputs with a signal level bigger, than required to drive the equipment to full output.
- In typical use, Please set the volume to 0dB position.
- Extreme frequency boosts in connection with a high input signal level may lead to overdriving your equipment. Should this occur, it is necessary to reduce the input signal level by using the INPUT control.
- For replacement use fuses of same type and rating only.
- Avoid ground loops! Always be sure to connect the power amps and the mixing console to the same electrical circuit to ensure the same phase!
- If system is dropped or struck, disconnect mains power supply immediately. Have a qualified engineer inspect for safety before operating.
- If the system has been exposed to drastic temperature fluctuation (e.g. after transportation), do not switch it on immediately. The arising condensation water might damage your system. Leave the system switched off until it has reached room temperature.
- Repairs, servicing and electric connection must be carried out by a qualified technician.
- WARRANTY: Till one year after date of purchase.

OPERATING DETERMINATIONS

This system is not designed for permanent operation. Consistent operation breaks will ensure that the system will serve you for a long time without defects.

If this system is operated in any other way, than the one described in this manual, the product may suffer damages and the warranty becomes void.

Any other operation may lead to dangers like short-circuit, burns, electric shock, etc.


You endanger your own safety and the safety of others!

Improper installation can cause serious damage to people and property !

Connection with the mains

Connect the device to the mains with the power-plug.

Always pay attention, that the right color cable is connected to the right place.

International	EU (including UK) From April 2004	North America	Pin
L	Brown	Black	Phase
N	Blue	White	Neutral
	Green/Yellow	Green	Protective Earth

Make sure that the device is always connected properly to the earth!

Return Procedure

Returned merchandise must be sent prepaid and in the original packing, call tags will not be issued. Package must be clearly labeled with a Return Authorization Number (RMA number). Products returned without an RMA number will be refused. Highlite will not accept the returned goods or any responsibility. Call Highlite 0031-455667723 or mail aftersales@highlite.nl and request an RMA prior to shipping the fixture. Be prepared to provide the model number, serial number and a brief description of the cause for the return. Be sure to properly pack fixture, any shipping damage resulting from inadequate packaging is the customer's responsibility. Highlite reserves the right to use its own discretion to repair or replace product(s). As a suggestion, proper UPS packing or double-boxing is always a safe method to use.

Note: If you are given an RMA number, please include the following information on a piece of paper inside the box:

- 1) Your name
- 2) Your address
- 3) Your phone number
- 4) A brief description of the symptoms

Claims

The client has the obligation to check the delivered goods immediately upon delivery for any shortcomings and/or visible defects, or perform this check after our announcement that the goods are at their disposal. Damage incurred in shipping is the responsibility of the shipper; therefore the damage must be reported to the carrier upon receipt of merchandise.

It is the customer's responsibility to notify and submit claims with the shipper in the event that a fixture is damaged due to shipping. Transportation damage has to be reported to us within one day after receipt of the delivery.

Any return shipment has to be made post-paid at all times. Return shipments must be accompanied with a letter defining the reason for return shipment. Non-prepaid return shipments will be refused, unless otherwise agreed in writing.

Complaints against us must be made known in writing or by fax within 10 working days after receipt of the invoice. After this period complaints will not be handled anymore.

Complaints will only then be considered if the client has so far complied with all parts of the agreement, regardless of the agreement of which the obligation is resulting.

Description of the device

Features

The DCX-36 MKII is a professional crossover:

- Active frequency filter with slopes up to 48 dB/octave split up the audio-signal into different frequency bands
- 5 basic configurations
- 5-band parametric EQ per output
- Up to 7 ms signal delay for the inputs and outputs adjustable
- Delay displayed in milliseconds, meters, feet and frame/second
- Output limiter with adjustable limits and automatic attack and release settings as overload protection for your amplifying system
- Lock-function for protecting the program settings
- Phase Invert switch per output
- USB interface for remote control including PC software
- 2x XLR Input and 6x XLR Output
- Clip LED
- Software included for easy set-up with DCX-36 MKII

Overview

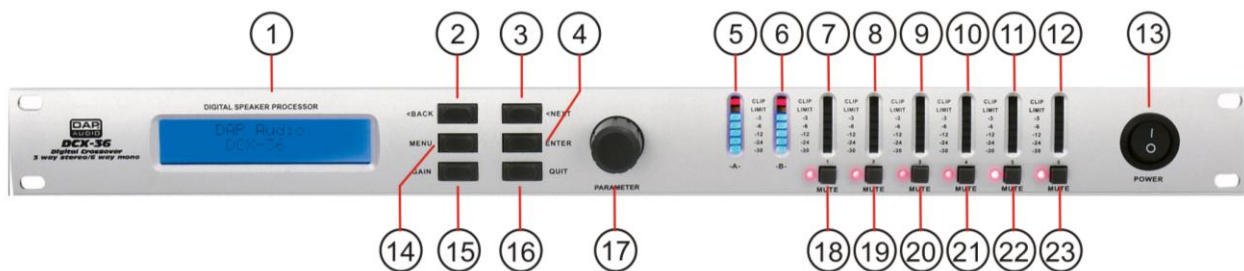


Fig. 1

- | | |
|-----------------------|-----------------------------------|
| 1. LCD-Display | 13. Power ON/OFF |
| 2. Back Button | 14. Menu Button |
| 3. Next Button | 15. Gain Button |
| 4. Enter Button | 16. Quit Button |
| 5. Input A VU-meter | 17. Parameter Knob |
| 6. Input A VU-meter | 18. Output 1 Mute button plus LED |
| 7. Output 1 VU-meter | 19. Output 2 Mute button plus LED |
| 8. Output 2 VU-meter | 20. Output 3 Mute button plus LED |
| 9. Output 3 VU-meter | 21. Output 4 Mute button plus LED |
| 10. Output 4 VU-meter | 22. Output 5 Mute button plus LED |
| 11. Output 5 VU-meter | 23. Output 6 Mute button plus LED |
| 12. Output 6 VU-meter | |

Backside

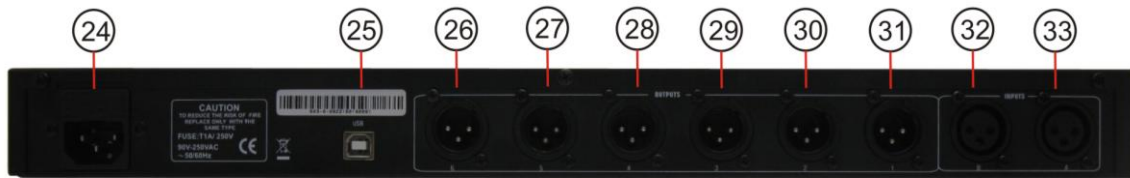


Fig. 2

24. IEC Connector + Fuse

25. USB-Port

26. Output 6 XLR Male Socket

27. Output 5 XLR Male Socket

27. Output 4 XLR Male Socket

28. Output 3 XLR Male Socket

28. Output 2 XLR Male Socket

29. Output 1 XLR Male Socket

30. Input B XLR Female Socket

31. Input A XLR Female Socket

Installation

Remove all packing materials from the DCX-36 MKII. Check that all foam and plastic padding is removed. Screw the equipment into a 19" rack. Connect all cables.

Always disconnect from electric mains power supply before cleaning or servicing.

Damages caused by non-observance are not subject to warranty.

Set Up and Operation

Before plugging the unit in, always make sure that the power supply matches the product specification voltage. Install this device on a flat surface, not bending or curved.

Do not supply power before all components of the system are set up and connected properly.

Main Menu

Press the **Menu (14)** button, to enter the main menu. Select the desired submenu by pressing the **Back (2)** or **Next (3)** buttons and confirm your setting with the **Enter (4)** button.

Xover submenu

1. Load a crossover

Select the desired program via the **Parameter (17)** knob and confirm with the **Enter (4)** button. You can only choose from already stored programs.

2. Design a crossover

Select the desired setting via the **Parameter (17)** knob and confirm with the **Enter (4)** button.

DCX-36 MKII: Stereo 2-way, mono 3-way, mono 4-way

Stereo-Link

Only for stereo programs.

The stereo link links two outputs depending on the crossover type.

3. Store a crossover

You can save up to 10 programs. Press the **Enter (4)** button for saving. Select the desired program number via the **Parameter (17)** knob. In order to move the cursor (e.g. for entering the next letter or correcting the last letter), press the **Back (2)** or **Next (3)** buttons.

Confirm your entry by pressing the **Enter (4)** button.

4. Erase a crossover

Select the desired program via the **Parameter (17)** knob and confirm with the **Enter (4)** button.

Safety options

The DCX-36 MKII offers you the possibility to protect your settings from any unauthorized access.

1. Change only:

The parameters can be viewed but not be changed. Mute is possible.

2. Changes + View:

The parameters cannot be viewed and not be changed. Mute is possible.

3. Changes + Mute:

The parameters can be viewed. Changes and mute are not possible.

4. Everything:

Everything is locked, nothing can be viewed and mute is not possible.

In order to unlock:

A) Push the **Back (2)** or **Next (3)** buttons, shift the cursor, turn round the PARAM to change the character.

B) Push the **Enter (4)** button, confirm your password and the display shows.

Enter Security Code
[1 2 3 4]

C) Repeat step A and push the **Enter (4)** button.

D) System is locked when the password is the same, or the locking operation is invalid.

System menu

1. Input option

Switch the stereo link between channels A and B, ON or OFF.

2. Wake-up Time

With this menu, you can adjust the way the DCX-36 MKII reacts after turning on.

3. Fade-in

When turning on, the outputs slowly increase to the preset output volume.

Mute Hold: all output remains muted.

4. Delay Time / Distance

You can adjust the delay in: milli seconds (ms)/ meters (m)/ feet (ft)

Interface menu

Interface-Setup

Baud-Rate: Here, you can adjust the transmission speed of the USB port. Press the **Enter (4)** button.

You can select 2400, 4800, 9600, 19200, 38400.

Remote ID: you can only enter this menu after having confirmed the baud-rate with the **Enter (4)** button .

Here, you can adjust the device's ID between 1 and 32.

Parameter Menu

Press the **Gain (15)** button in order to enter the Parameter menu.

1. Input Gain

Via the **Parameter (17)** knob, you can adjust the input sensitivity between -40 dB and + 6 dB in 0.5 dB steps. The display shows if the inputs are linked with each other (e.g. Input A&B). For linked inputs, the gain is adjusted for both inputs.

Press the **Next (3)** button in order to jump to the next parameter.

2. Output Gain

Via the **Parameter (17)** knob, you can adjust the output volume between -40 dB and + 6 dB in 0.5 dB steps. By pressing the **Gain (15)** button, you can change to Output 2 etc.

The display shows if the inputs are linked with each other (e.g. OP 1&4). For linked inputs, the parameters are adjusted for both inputs.

3. Polarity-function

The polarity of every output can be inverted. If the polarity of a linked output will be inverted, the polarity of the other channel will also be inverted.

4. Delay

With the delay, it is possible to compensate differences in the running distances between different speaker-systems or speaker-systems at different installation spots.

The delay can be adjusted for both inputs and all outputs between 0 and 7 ms in 0.5 ms steps.

How to calculate the delay-time:

The delay-time T equals the distance in meters (D) divided by the speed of sound (C).

$$T=D/C$$

How to calculate the speed of sound: $C=20.6 * (273 + ^\circ\text{C})$ in meter per second.

5. Hi-pass/Lo-pass

Hi-pass filter for passing higher frequencies.

Lo-pass filter for passing lower frequencies.

If several parameters are displayed, you can switch from parameter to parameter by pressing the **Parameter (15)** knob.

The active parameter is marked with a hook.

Adjust the crossover frequency and the filter type via the Parameter knob.

6. Equalizer

There are five parametric equalizers per output.

The individual equalizer band can be deactivated by pressing the **Enter (4)** button (Bypass). The symbol in the upper right corner of the display changes to =.

If the equalizer is activated, you can adjust the frequency (20 Hz to 20 kHz), the Q-factor (0.5 to 10) and the gain (± 12 dB, ± 1 dB).

By pressing the **Parameter (17)** knob, you can jump to the next parameter.

Additionally, you can switch the equalizers to shelving characteristic. Set the gain to 0 dB.

If you select a Q-factor below 0, you can choose between Hi-shelf and Lo-shelf.

7. Limiter

The DCX-36 MKII features a limiter-function with independent limiters (one per output).

The limiter serves as an additional clipping protection to avoid speaker damage. The signal level is always limited to the adjusted threshold-level.

In most cases, it is sufficient to adjust the threshold-value to the clipping level of the connected amplifier. Nevertheless make sure that the amplifier does not distort.

Via the **Parameter (17)** knob, you can adjust the limiter between -20 and + 15 dB.

If the limiter will be adjusted to e.g. +2,0 dB the output signal level Limit corresponds to +2 dB and the levels -2, -6, -12 and -20 dB correspond -1, -4, -8 and -12 dB.

Attack

You can adjust the Attack-time between 1 and 100 ms.

Hold

You can adjust the Hold-time between 0 and 100 ms.

Decay

You can adjust the Decay-time between 10 and 1000 ms.

8. Name

Via the **Parameter (17)** knob, you can select the best suitable name from a preset name list.

9. Source

Via the **Parameter (17)** knob, you can check the input sources Input A, Input B or Input A+B but not change it.

Software DCX


Installing the DCX software

Make sure the DCX-36 MKII is **not** connected to your computer.

Insert the CD in your computer. First you have to Install the Driver software by clicking on **DL2303_Profile_DriverInstaller_1025.EXE**.

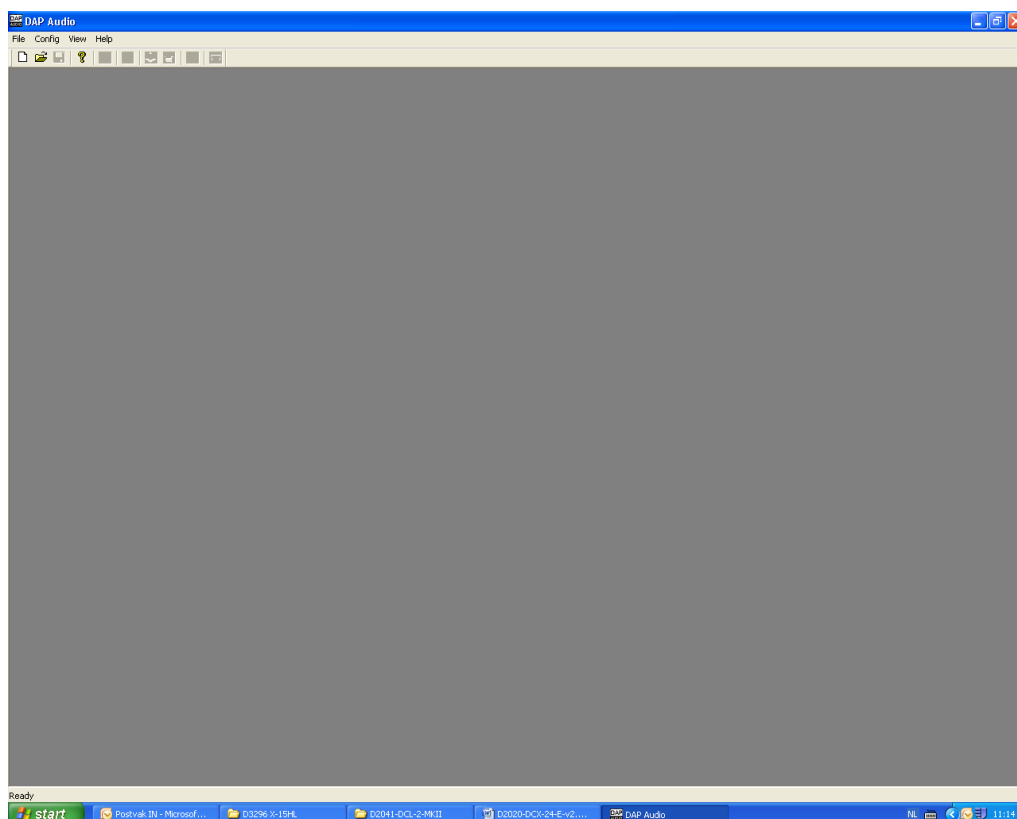
Next you have to install the DCX software by clicking on **DCXSetup_V13.EXE**.

Now connect the DCX-36 MKII via a USB-cable to your computer.

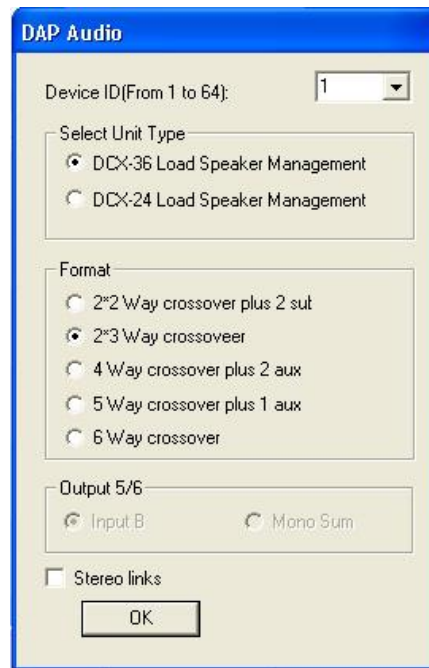
Start up the DCX software by double Clicking the DCX  icon on your desktop. If you start up the DCX software for the first time, most likely you'll get the message shown below.



In this case press the OK button. The program will start up. Your screen will look like the figure below.

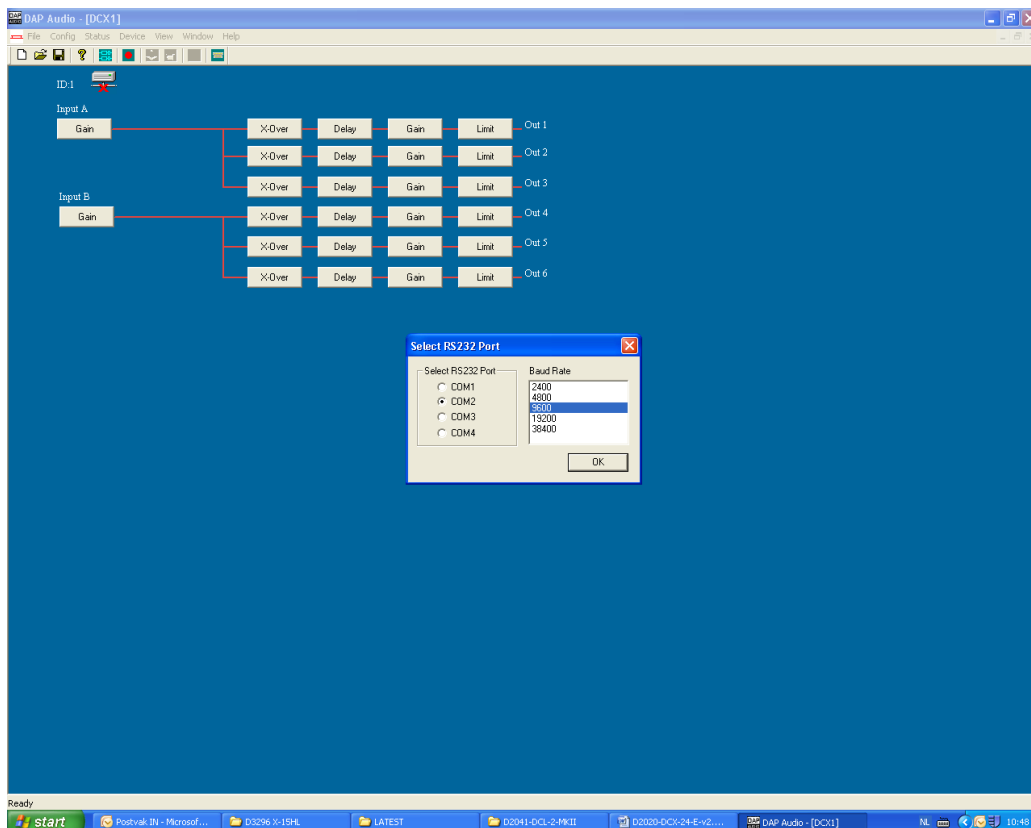


Go to the **File** menu and select **new**.



Select the proper Unit and the desired configuration. Make sure the Device ID matches the ID in your DCX-36 MKII (factory set to 1).

Now press OK and select **RS232** in the **Config** menu. Your screen will look as the figure below.




The DCX USB-driver emulates a RS-232 port, make sure that the Com port number you set up is not in conflict with any existing real Com ports.

Editing

The red cross in the connect icon in the upper left corner



indicates that the PC software is not connected with the DCX-36 MKII.

To go online either click on the **connect**  button in the toolbar or go to **Status** and select **On line**. The red cross will disappear if the software is online with your DCX-36 MKII.

Important!

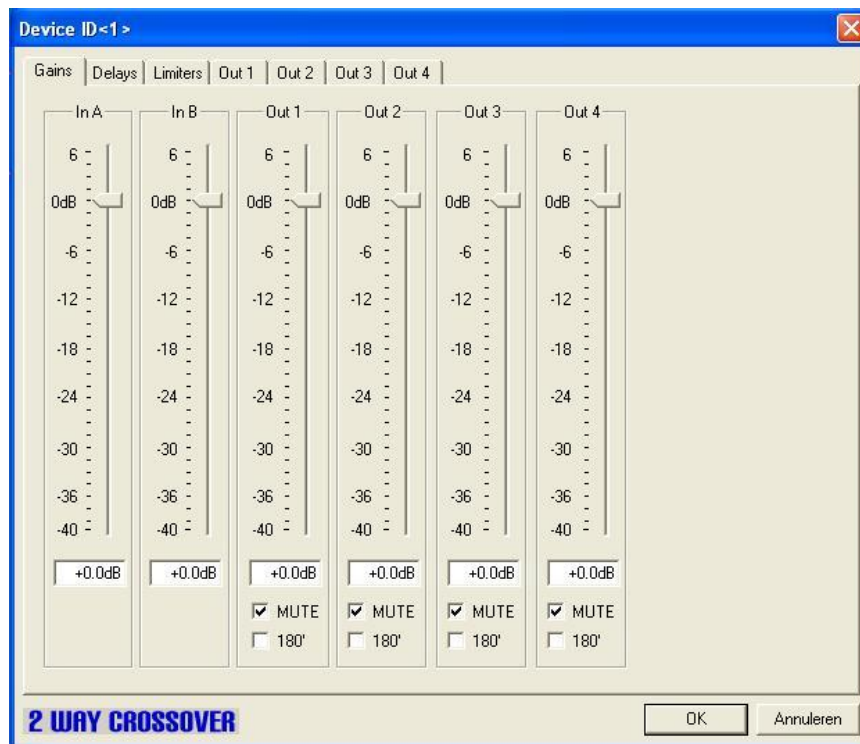
If you want to use the DCX software for real-time editing, you'll have to store the new settings to the DCX-36MKII first.

If you want to edit a program stored in the DCX-36 MKII, you'll have to press the **Refresh** button in the **Memory** window first, in order to sync the DCX-software with your DCX-36 MKII.

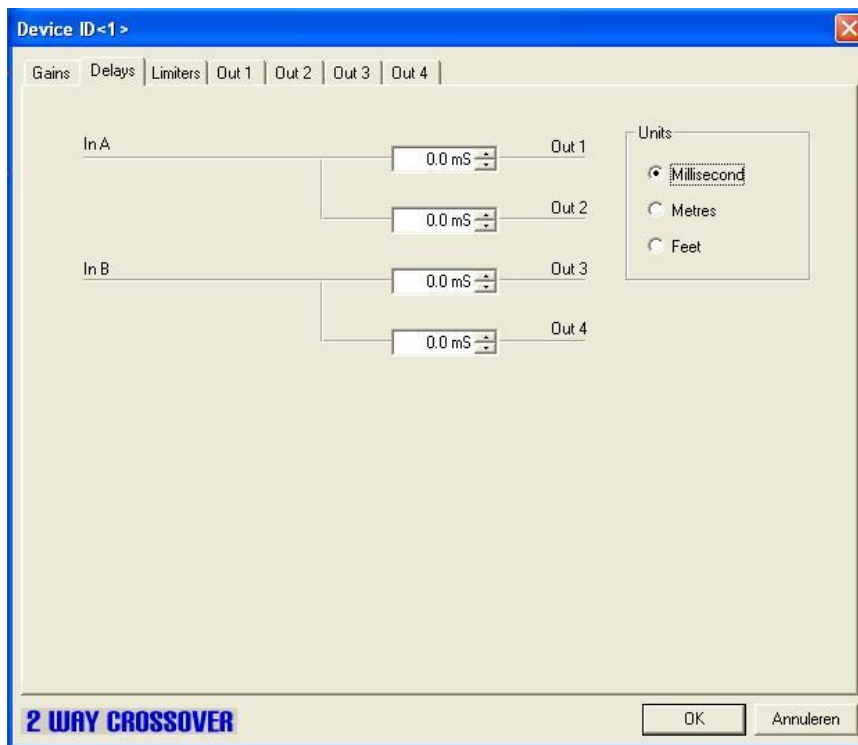
Select the desired program

and click on the **Recall** button. Now you are able to edit a stored program in real-time. For more info see page 16.

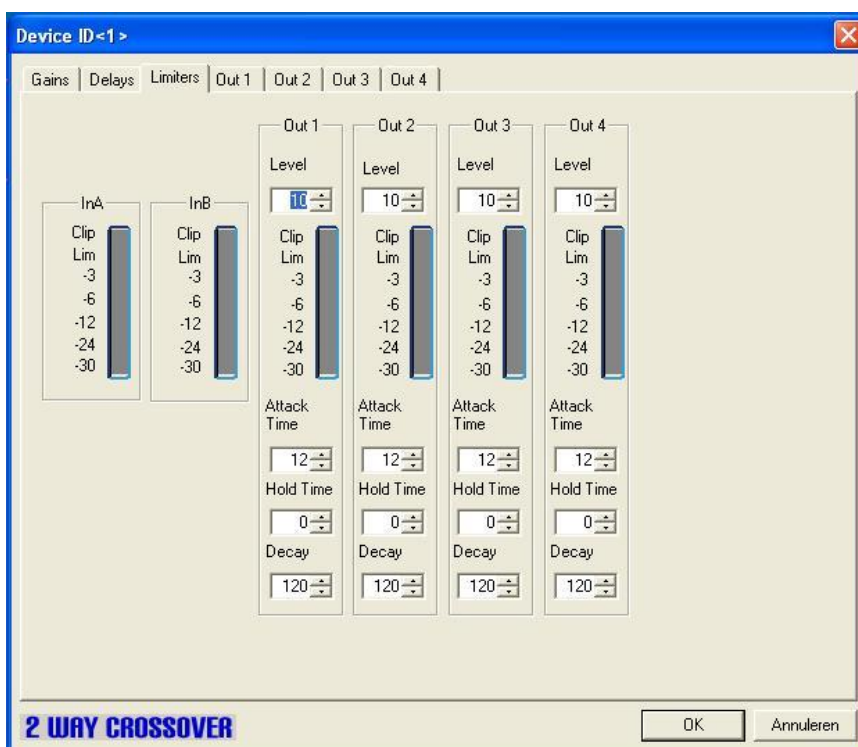
Double clicking on one of the blocks (in this case, the gain block) opens the setting screen. The tabs allow you to change the settings of the other blocks.



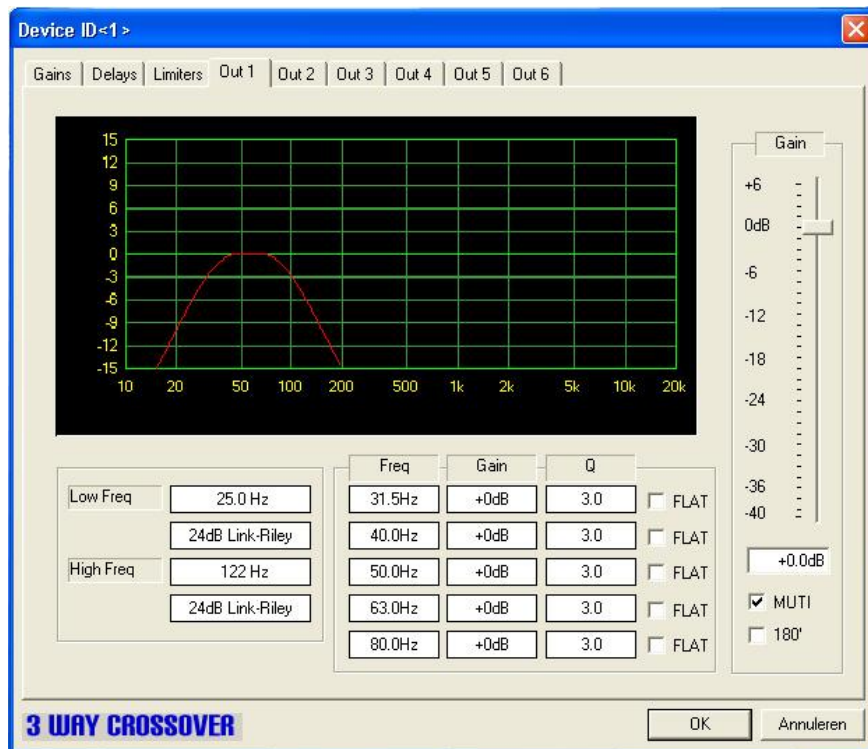
Gain settings



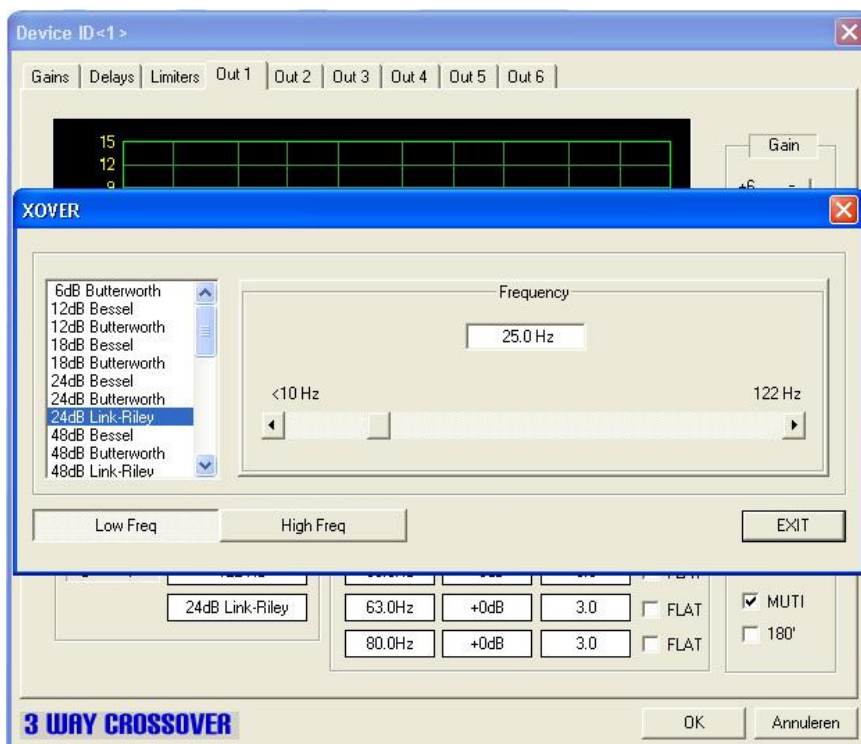
Delay Settings



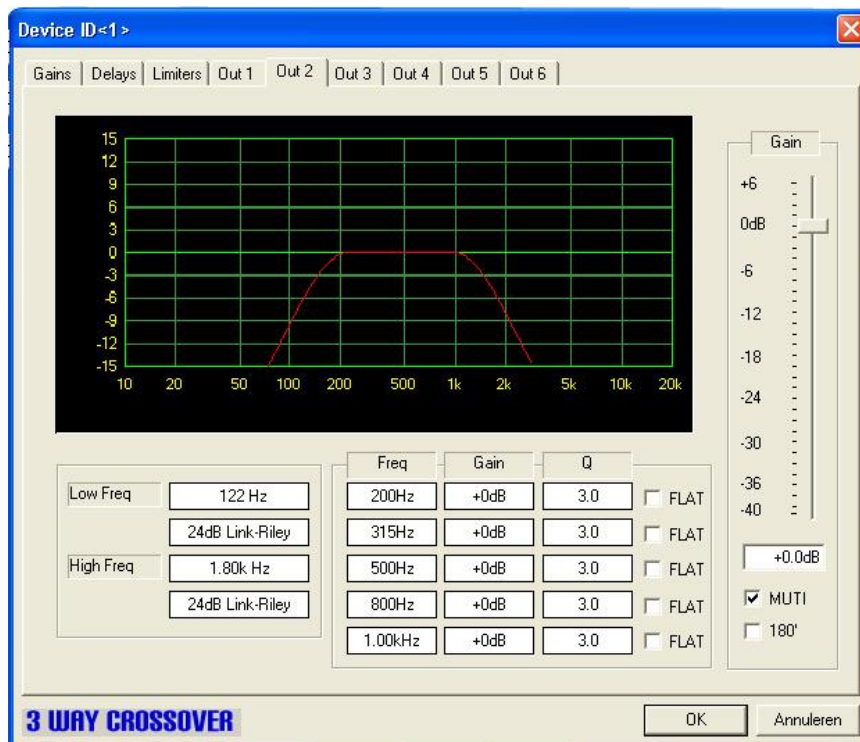
Limiter Settings



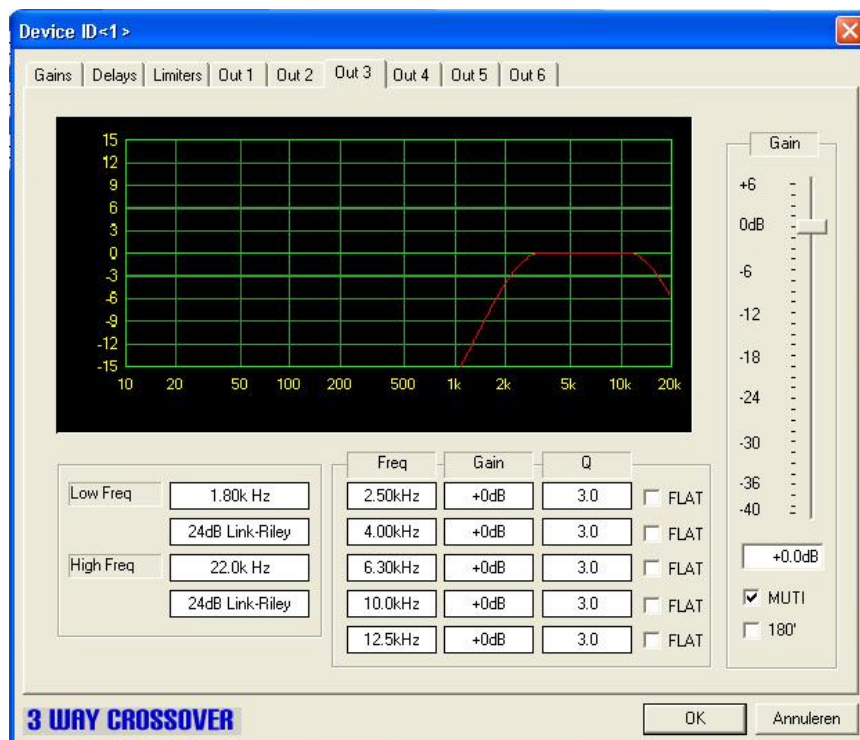
Out 1 Settings



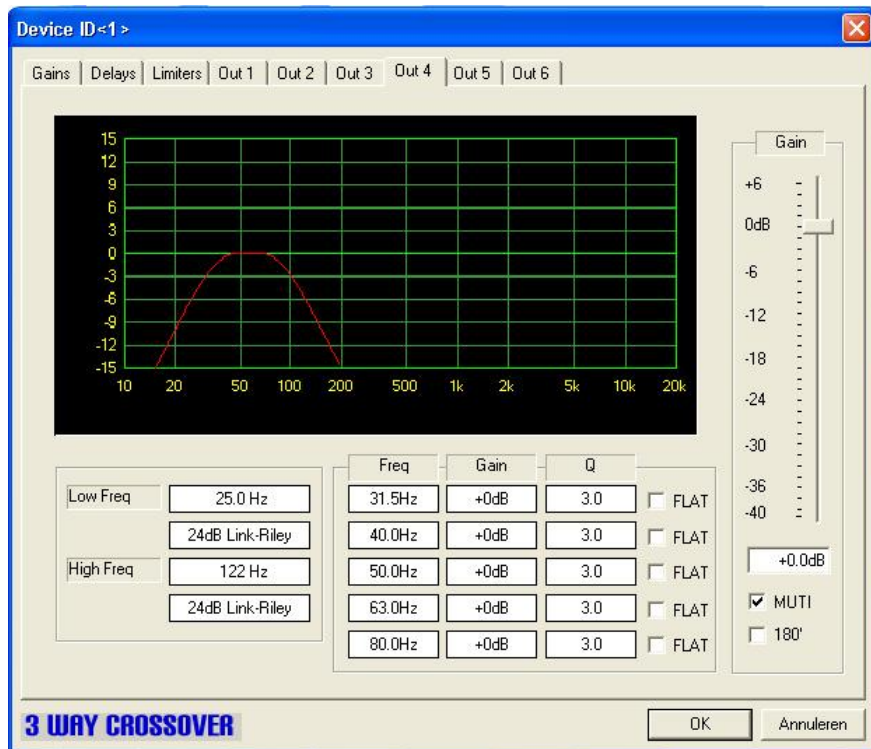
Filter Settings



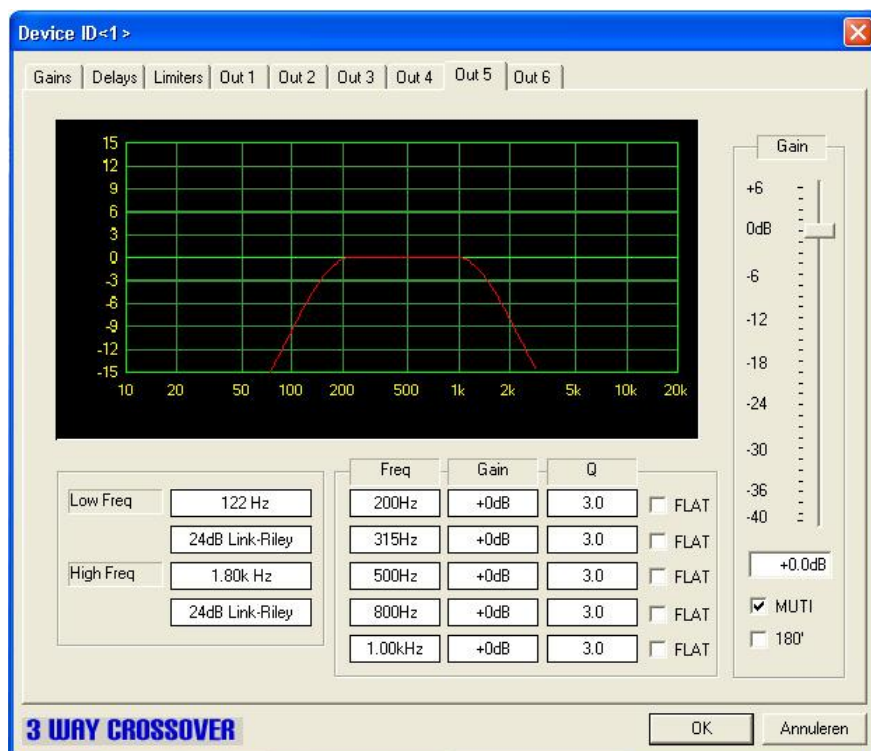
Out 2 Settings



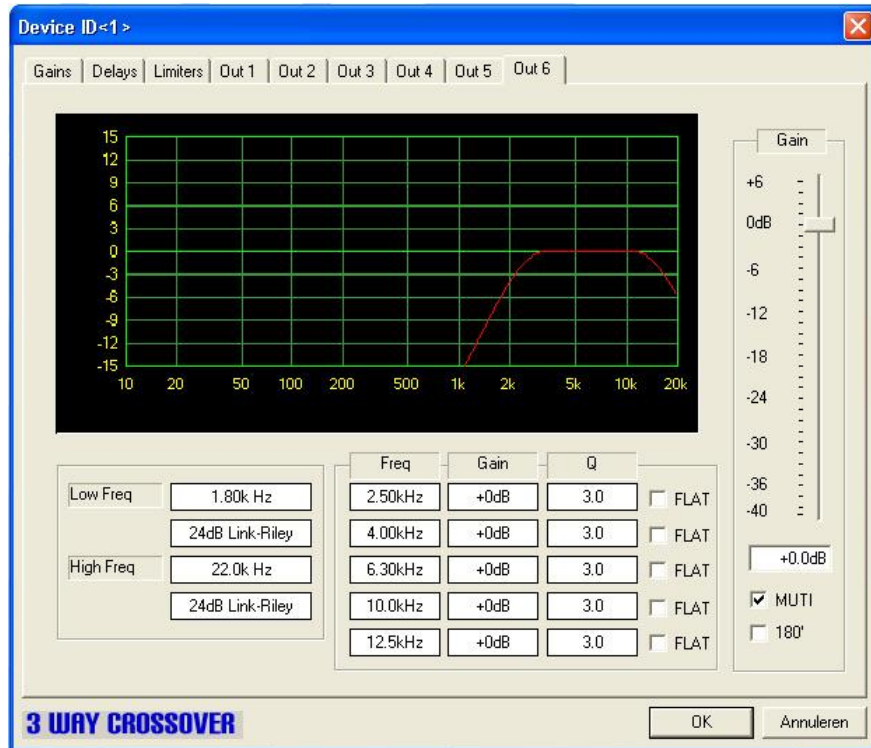
Out 3 Settings



Out 4 Settings



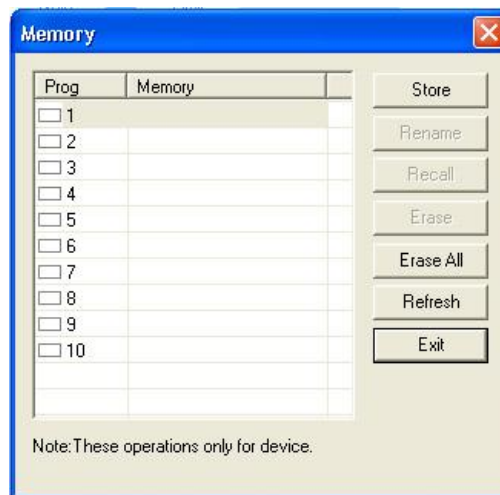
Out 5 Settings



Out 6 Settings

Memory Management

Open the **Device** menu and then select **memories**. The memory window lets you save and recall memory settings in a convenient way.



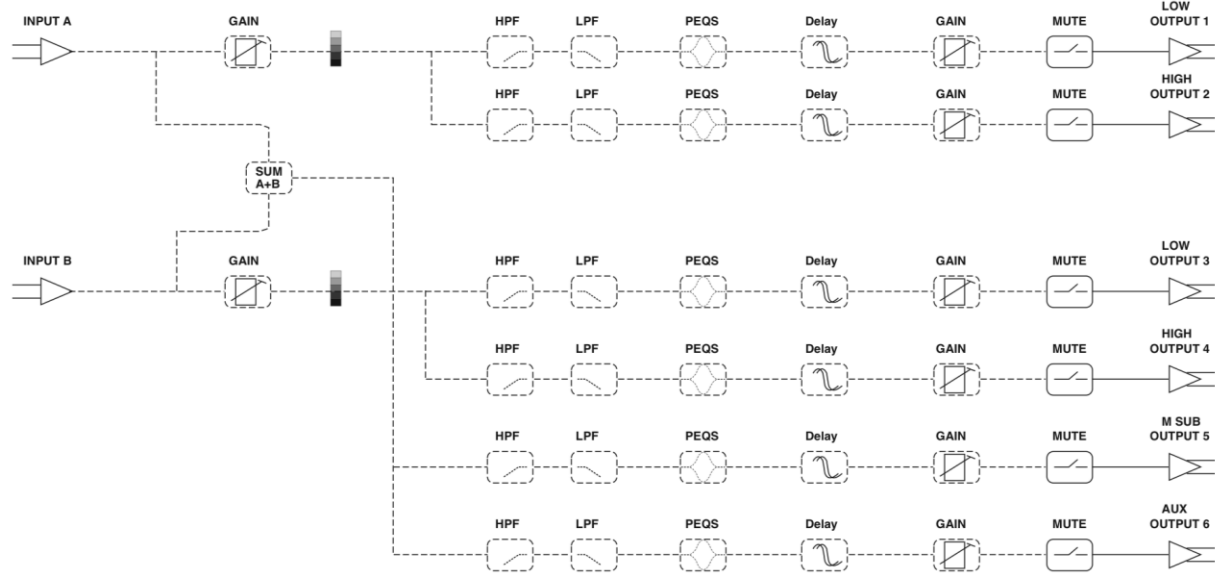
Press the refresh button to load all DCX programs to the PC program's memory. Select a program and press the recall button if you want to edit a program by using the remote software. If you're happy with your settings, select a memory location, press store and your settings will be stored.

Click the **erase** button to erase a program you're not happy with. Or click **erase all** to erase all programs in the DCX memory.

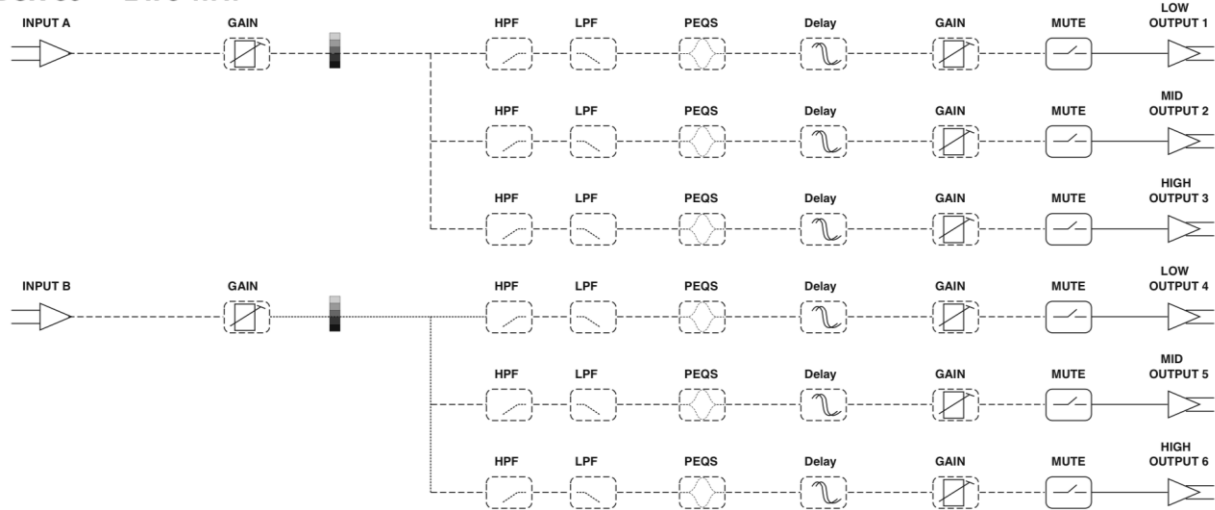
You can always save your work on computer by opening the **File** menu and selecting **Save As...**

To reload you're saved programs. Open the **File** menu and select **Open**. Select your saved .dcx file. Open the Memory window, select the program you want to sent to the DCX and press **Recall**. Now your program is DCX RAM and ready to edit. To save it, you have to click the **Store** button.

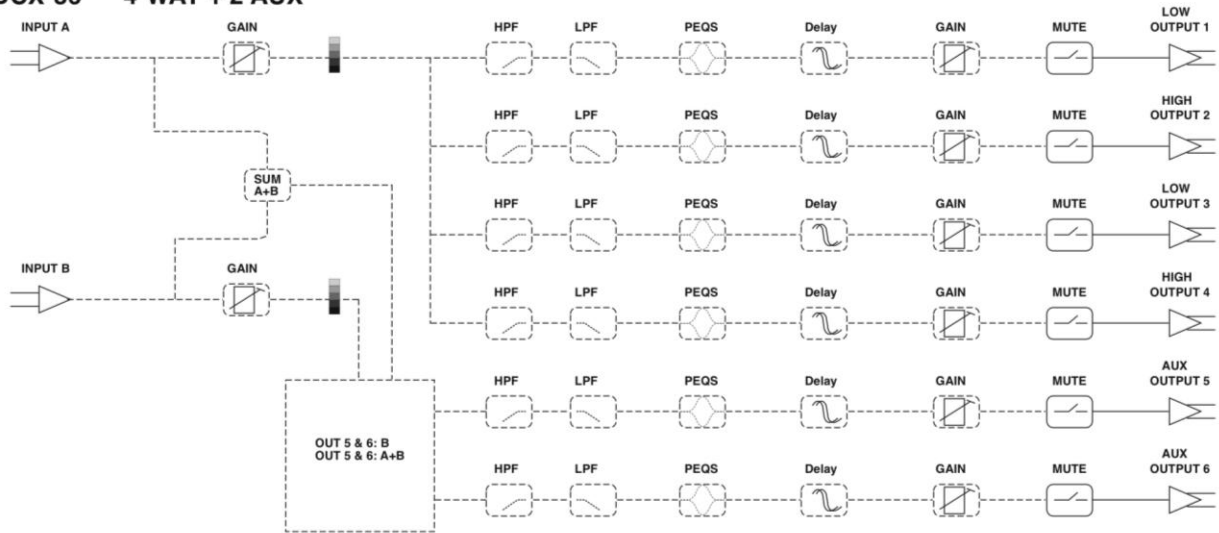
DCX-36 2 x 2-WAY + M SUB



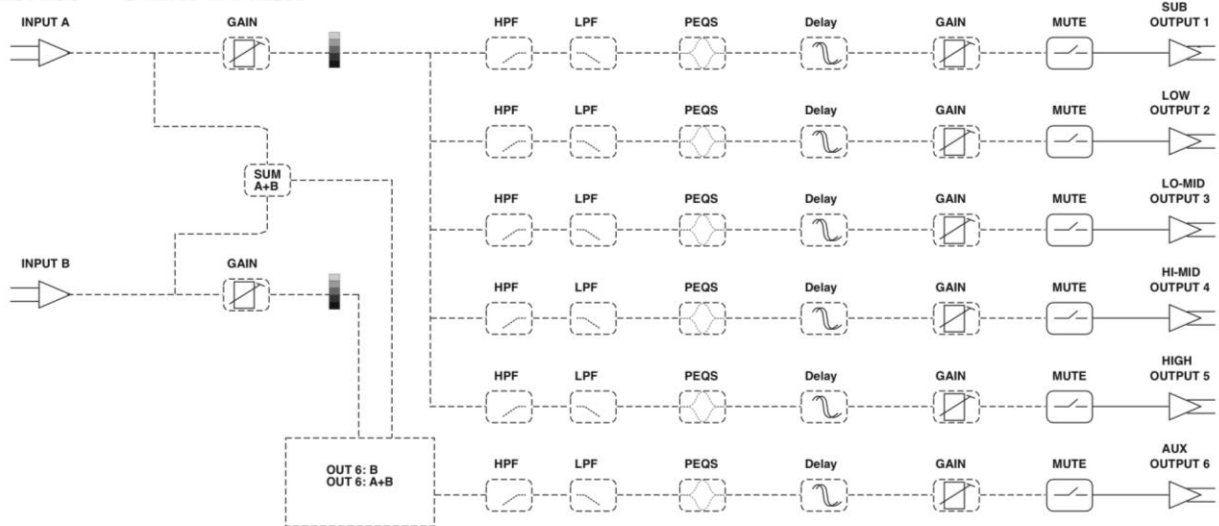
DCX-36 2 x 3-WAY



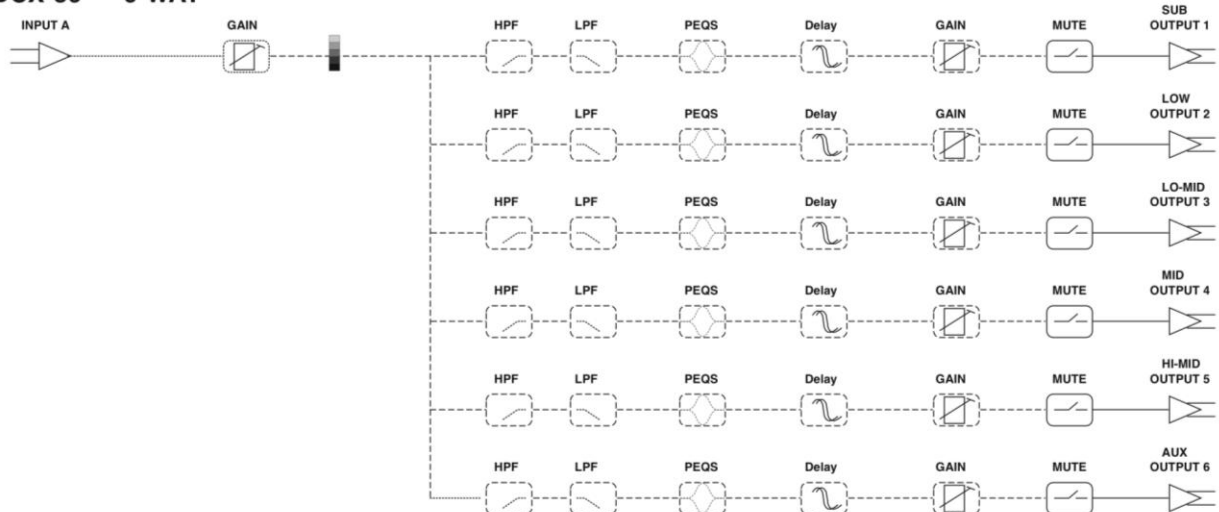
DCX-36 4-WAY + 2 AUX



DCX-36 5-WAY + 1 AUX

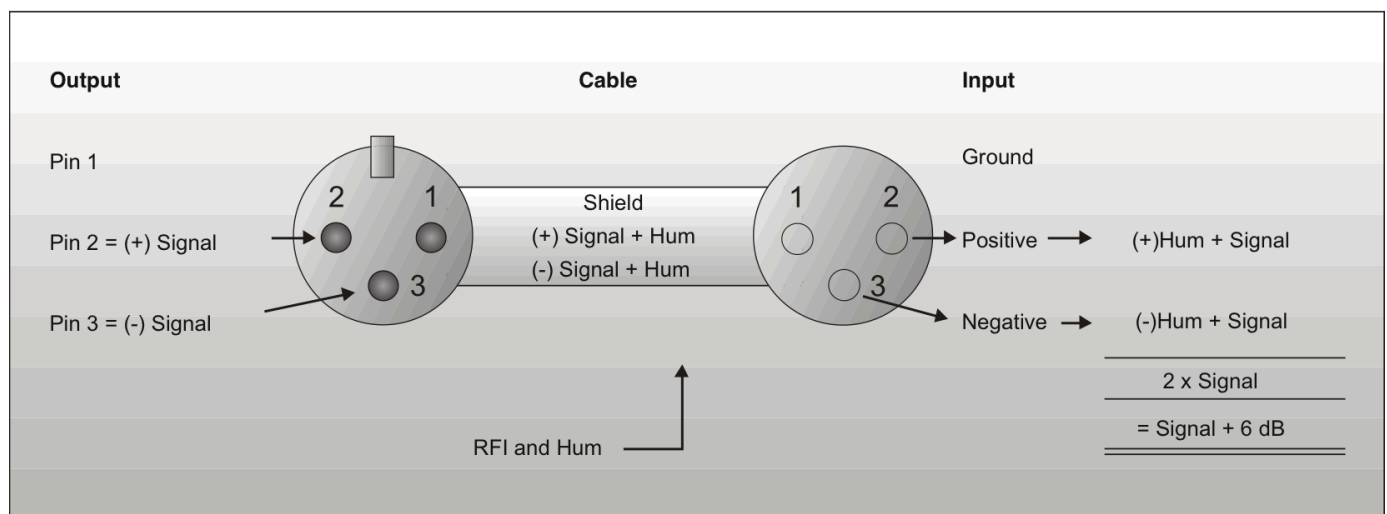
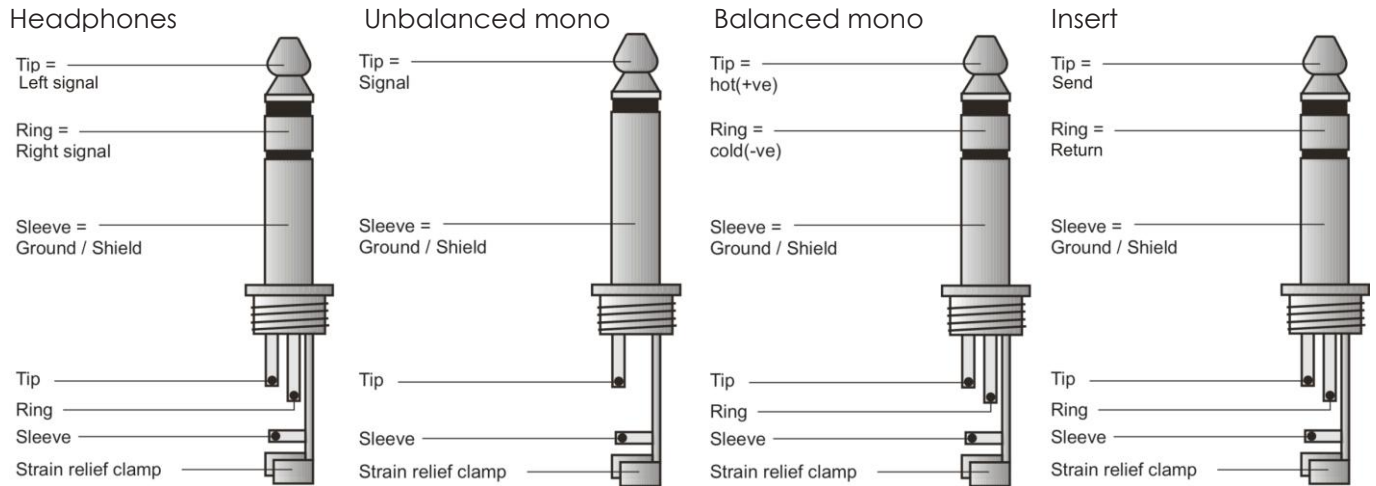


DCX-36 6-WAY

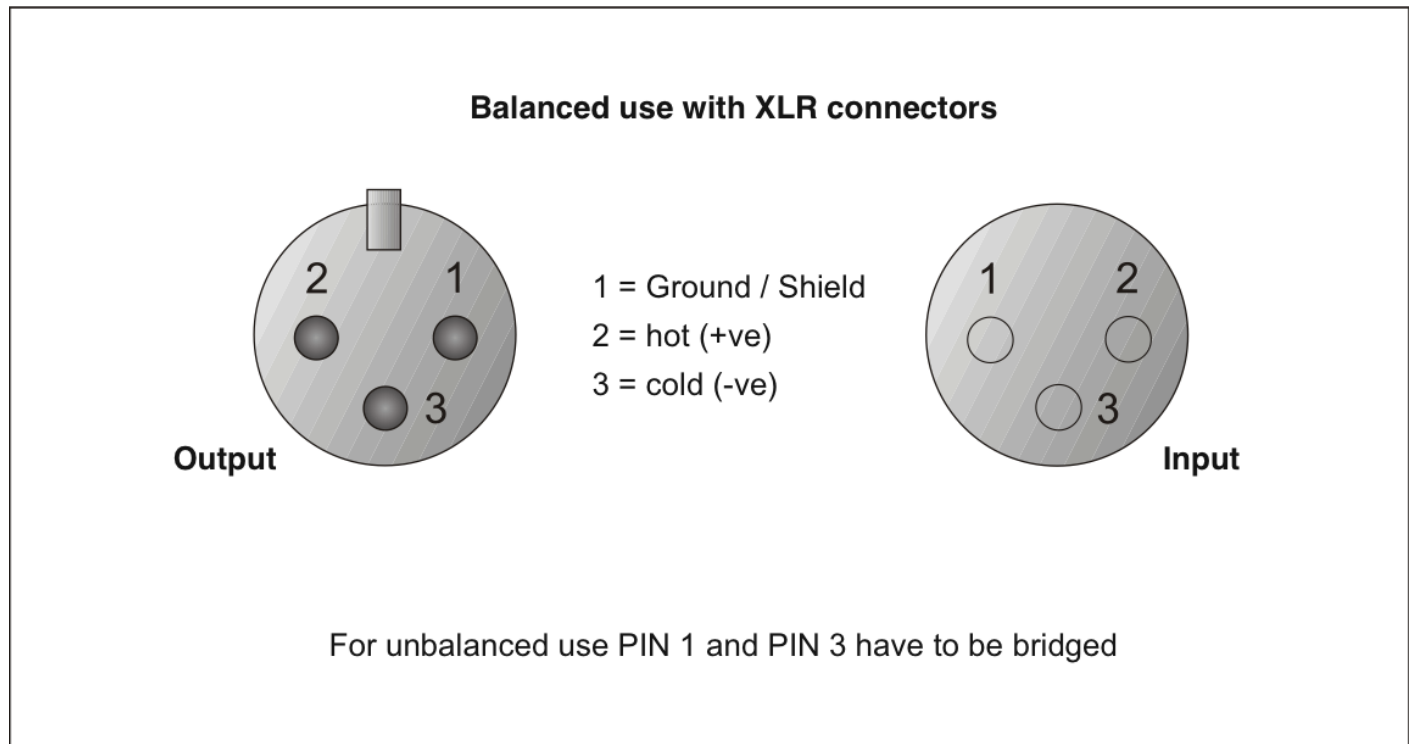


Connection Cables

Take care of your cables, always holding them by the connectors and avoiding knots and twists when coiling them: This gives the advantage of increasing their life and reliability. Periodically check your cables. A great number of problems (faulty contacts, ground hum, discharges, etc.) are caused entirely by using unsuitable or faulty cables.



Compensation of interference with balanced connections



Maintenance

The DAP Audio DCX-36 MKII requires almost no maintenance. However, you should keep the unit clean. Disconnect the mains power supply, and then wipe the cover with a damp cloth. Do not immerse in liquid. Do not use alcohol or solvents.

Keep connections clean. Disconnect electric power, and then wipe the connectors with a damp cloth. Make sure connectors are thoroughly dry before linking equipment or supplying electric power.

Replacing a Fuse

Power surges, short-circuit or inappropriate electrical power supply may cause a fuse to burn out. If the fuse burns out, the product will not function whatsoever. If this happens, follow the directions below to do so.

1. Unplug the unit from electric power source.
2. Insert a flat-head screwdriver into a slot in the fuse cover. Gently pry up the fuse cover.
3. Remove the used fuse. If brown or unclear, it is burned out.
4. Insert the replacement fuse into the holder where the old fuse was. Reinsert the fuse cover. Be sure to use a fuse of the same type and specification. See the product specification label for details.

Troubleshooting

DAP Audio DCX-36 MKII

This troubleshooting guide is meant to help solve simple problems.

If a problem occurs, carry out the steps below in sequence until a solution is found. Once the unit operates properly, do not carry out following steps.

1. If the device does not operate properly, unplug the device.
2. Check the power from the wall, all cables etc.
3. If all of the above appears to be O.K., plug the unit in again.
4. If you are unable to determine the cause of the problem, do not open the device, as this may damage the unit and the warranty will become void.
5. Return the device to your Dap Audio dealer.

Product Specifications

Power: 90 – 240 Vac, 50/60 Hz
Dimensions : 483 x 165 x 44.5 mm (LxWxH)
Weight : 1.86 kg

Inputs

Inputs: 2 active, balanced
Input Impedance: 10 KOhm
CMRR: > 50 dB (30 Hz – 20 KHz)
Frequency response: 15Hz – 20 KHz (+/- 0.25dB)
15Hz – 40 KHz (+/- 3dB)
Input Gain Range: -40 dB – +6 dB $\pm 0,5$ dB

Outputs

Outputs: 4 active, balanced with automatic correction for unbalanced loading
Output Impedance: <50 Ohm (electronically balanced)
Output Gain Range: -40 dB – +6 dB $\pm 0,5$ dB
Maximum output level: +20dBu
Distortion: 0,005%, 20Hz – 20Khz
S / N Ratio: > 112dB (22 Hz – 22 KHz)
Channel separation: 80 dB (30 Hz – 20 KHz)
Crossover frequency: 15 Hz - 20 kHz
Maximum output level: $V_{pp} = 7,6V$
THD %: <0.005%
Latency: 180 μs

Delay

Delay-time: 0 – 7 ms

Parametric Equalizer Filter

Gain: ± 12 dB in 1 dB steps
Central Frequency: 20 Hz – 20 KHz 31 ISO Bands Q Value: 0,5 – 10

Shelving Equalizing

Lo-shelf: 20 Hz – 1 KHz
Hi-shelf: 1 KHz – 20 KHz
Shelf Gain: ± 12 dB in 1 dB steps

Hi-Pass Filter/ Lo-Pass Filter HPF & LPF

Frequency (Hi-Pass): < 10 Hz – 16 KHz
Frequency (Lo-Pass): < 35 Hz – 22 KHz
Response Curve: Butterworth 6 dB, 12 dB, 18 dB, 24 dB, 48 dB
Bessel 12 dB, 18 dB, 24 dB, 48 dB
Linkwitz-Riley 24 dB, 48 dB

Limiter Level

Attach Time: 1 – 100 ms
Holding Time: 0 – 100 ms
Decay Time: 10 – 1000 ms

Input LED: -30 dB, -24 dB, -12 dB, -6 dB, -3 dB, Limit, Clip
Output LED: -30 dB, -24 dB, -12 dB, -6 dB, -3 dB, Limit, Clip



Design and product specifications are subject to change without prior notice.



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