DCX.Mixer

Remote control software for DCX2496

STUTE Engineering

1. Introduction

Note: A free demo is available in our web download section.

1.1 Application

The "DCX.Mixer" provides the user interface, like a gain slider or the mute switches. The "DCX.Server" controls the DCX 2496 via a RS232 or USB-RS232 interface.

Note: "DCX.Mixer" is able to control up to 16 cascaded DCX2496 devices. Read the Behringer DCX manual to get more details. DCX2496 LE models are not supported (no RS232/RS485 interface).

Mode "Remote": Remote control of DCX2496 with 2 PCs, e.g. DCX2496 with "DCX.Server" software at the stage and "DCX.Mixer" or "DCX.Client" software device, at the monitor position in the hall.

Mode "Direct": Control the DCX2496 with a single PC, e.g. prepare the DCX2496 settings in the studio. "DCX.Mixer / DCX.Client" and "DCX.Server" are installed at the same PC.

1.2 Important

- Follow the instructions in the "DCX.Server" manual
- Incorrect DCX2496 settings can damage your audio system or cause hearing damage
- You use the software at your own risk
- Mute the DCX2496 outputs during the transmission of the complete configuration or stop the audio playback.
- Protect the unauthorized control with a password.
- Do not close the "DCX.Server" software and do not switch off the "DCX.Server" computer while a data transfer to the DCX2496 is running!

1.3 Styles

The software provides 3 styles for the user interface. You change the style via the software setup: header menu / file / app setup / select "app style".

1.4 Language

The interface is available in German and English. Based on the language set in the operating system, the language is selected automatically.

2. Connection to DCX2496

2.1 Preparation

- Connect the Behringer DCX2496 with the DCX.Server PC to the RS232 or USB-RS232 interface
- Power on the DCX2496
- **Check in the SETUP of the DCX2496 whether "PC => Link" and "Device ID =1" is set!**
- Start "DCX.Server" software. Select the COM port (RS232)
  - ▪ Read more in the "DCX.Server" user manual

2.2 Connection

- Start "DCX.Mixer".
- "DCX.Mixer" searches automatically the "DCX.Server", wait 5-15 sec
- When the "DCX.Server" is found, the „Mixer" screen is displayed (see page 5)
- Select the DCX2496 device ID, default "1"
  - ▪ How do you find the correct DCX Id => See DCX2496, button „SETUP", page 6
  - ▪ DCX.Mixer: Or press "Search…" (search the ID)
- Press "Connect" to connect the "DCX.Mixer" with the DCX2496 and read the settings
- After successful reading the "DCX.Mixer" screen displays the DCX2496 settings

2.3 Control a second DCX2496 device

- Go back to "Mixer" screen via "Mixer" button in the footer
- Select another DCX2496 device ID in the header
- Press "Connect"

Note: The 2nd DCX2496 must be connected to the first one via RS485 from the DCX2496 rear side. See Behringer DCX2496 manual for correct device settings.

2.4 Network

- The displayed DCX.Server IP address / Port must be the same in "DCX.Mixer" setup. Enable the "input manually" option (Setup, IP address) and add the DCX.Server IP manually, in case of connection issues.
- Allow the network connection via the PC firewall (DCX.Server ↔ DCX.Mixer), TCP/IP and UDP

DCX.Mixer setup screen and DCX.Server
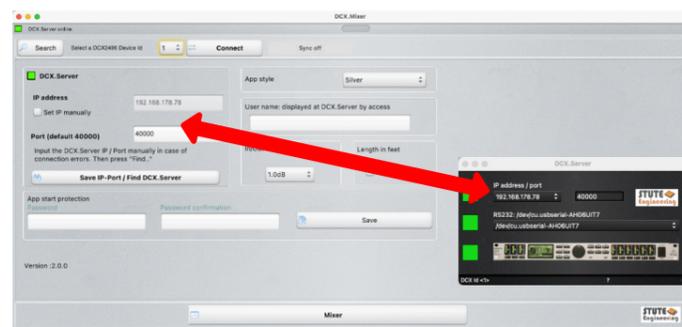
3. Screen "Mixer"
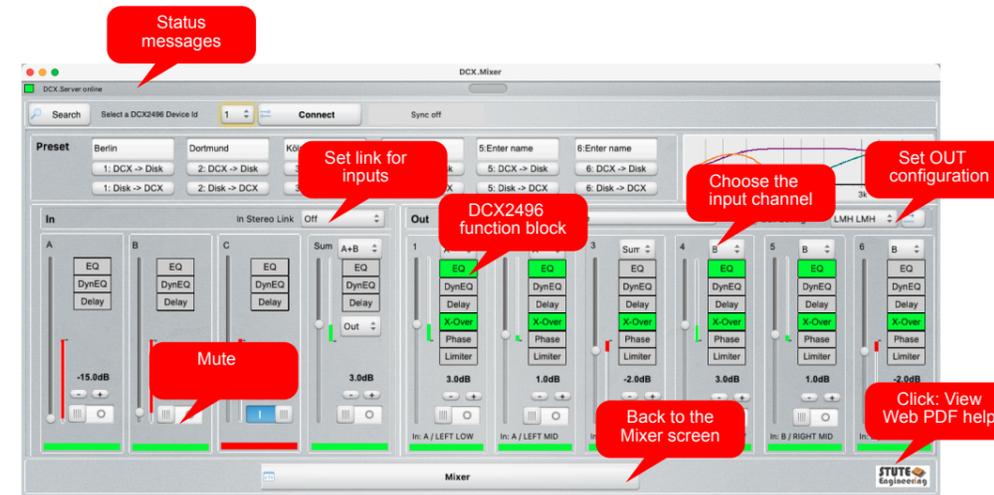
Note: For a detailed description of the DCX function blocks, please refer to the DCX2496 manual.

The Mixer screen summarises the settings of the DCX2496 very efficiently. The status of all main functions is displayed: Here you can see at a glance the levels to the inputs and outputs, which channels are muted or which functions (EQ, X-OVER,...) are active. You can also access the settings for the functions directly by clicking on the rectangles. Via the mouse wheel you activate or deactivate the function.

3.1 At a glance

- Adjust the gain of Input and Output: Move the slider or press the +/- buttons or use the mouse wheel
  - ▪ Note: The gain step rate (0.1dB, 0.5dB or 1dB) is defined in the program "Setup"
- Mute a I/O channel, press the switch to mute or un-mute the channel. The coloured rectangle below shows the status (red = muted)
- Switch a DCX2496 function on / off via the mouse wheel over the function name from the function block, like "EQ" or "Phase"
- Open the details screen for a DCX2496 block via mouse click into a block, like EQ. Details are displayed for the selected block and channel
- Transfer changes (level, mute...) to several DCX2496s simultaneously ("Synchronize" function)
- Mute / un-mute all outs with one click
- Store / Re-store DCX2496 settings from one of 6 named presets or files

3.2 Set DCX2496 "Out configuration"

- Checkbox "Out Config": enable / disable the out stereo link
- List box "LMH LMH": Select a link schemata
- Press the button on the right to transfer one or both settings to the DCX2496

3.3 Screen zoom / position

Select a screen corner to resize the screen size of the DCX.Mixer software. Select with the mouse the header to move the position. Both are stored and used for the next program start (only MS-Windows and macOS).

4. Control the DCX2496 function blocks

Note: For a detailed description of the function blocks, please refer to the DCX2496 manual.

4.1 EQ

Switch EQ on or off for the selected channel

Select a EQ number

List of all active EQ for the selected channel

Select a DCX2496 I/O channel

Control the 9 equalizer for each input and output channel.

- Select first a DCX2496 channel in the header
  - A,B,C = Input A,B,C, S = Sum, 1..6= Output 1..6. The active channel is displayed red
- Select the EQ number
- Select a EQ parameter, like "Gain". The "0" set the gain to zero = off

Press "Mixer" in the footer to jump back to the "Mixer" screen.

4.2 DEQ

Switch DEQ on or off for the selected channel

Select a DCX2496 I/O channel
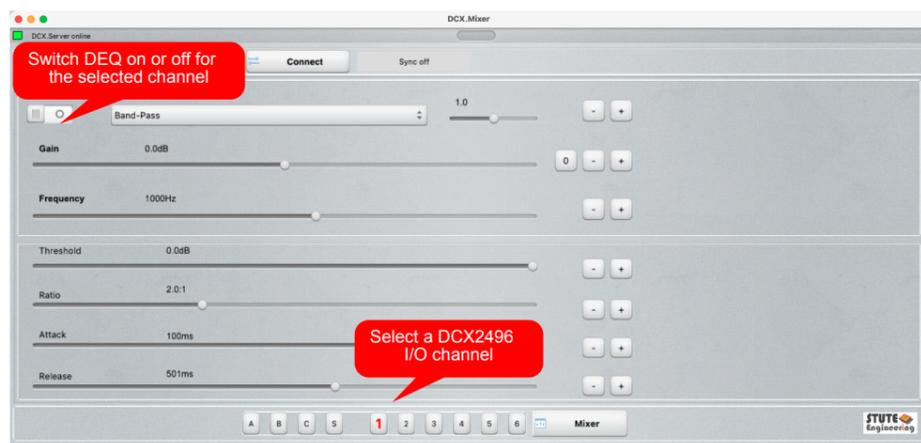
Control the dynamic equalizer for each input and output channel.

- Select first a DCX2496 channel in the header
  - A,B,C = Input A,B,C, S= Sum, 1..6= Output 1..6. The active channel is displayed red
- Select a DEQ parameter, like "Gain"

Press "Mixer" in the footer to jump back to the "Mixer" screen

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4.3 X-OVER

Cut-off frequency

Filter type

Type and cut-off per channel

Select a DCX2496 Out channel
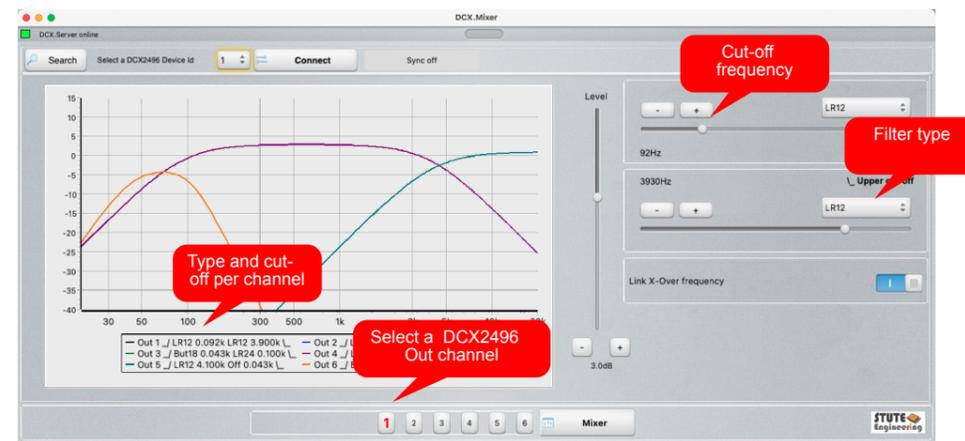
Control the cut-off frequencies, filter types and delays for the outputs 1 to 6.

- Select first a DCX2496 channel in the header: 1..6 = Output 1..6.
  - The active channel is displayed red
- Select a parameter, like "Gain"
- Note: "Link X-Over" on synchronizes the linked channels
  - Example: Out config "LMH LMH" => Modification of channel 1 modifies also channel 4 (see "Mixer" screen)

Press "Mixer" in the footer to jump back to the "Mixer" screen. The chart is a schematic view for the gain and cut-off frequencies.

4.4 Limiter, Delay, Phase

Switch on or off

Select a DCX2496 Out channel

Control of "Limiter", "Delay" and "Phase" per output channel 1..6.

- Select first a DCX2496 channel in the header: 1..6 = Output 1..6.
  - The active channel is displayed red
- Select a parameter, like "Phase"

Press "Mixer" in the footer to jump back to the "Mixer" screen.

4.5　Preset
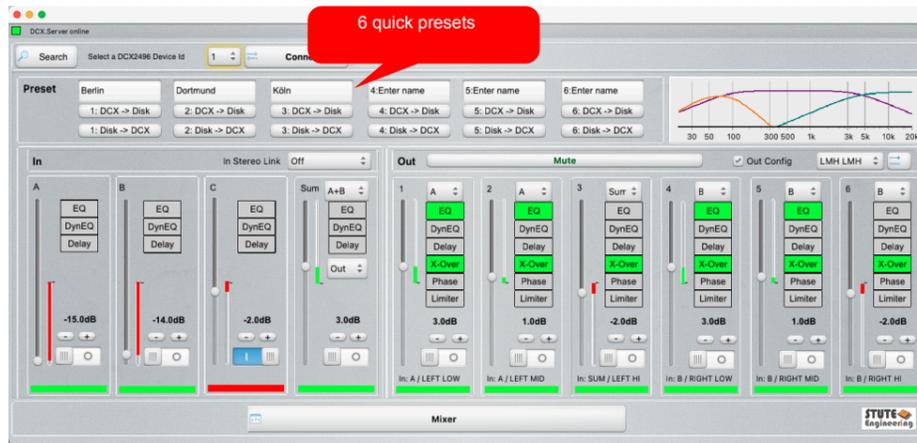
With the presets you have an easy way to save the settings of the DCX2496 on the PC and transfer them back to the same or other DCX2496 when needed.

4.5.1　6 quick presets

- Press "DCX => Disk" to store the current DCX2496 settings at your PC
- Press „Disk => DCX" to transfer the settings to the DCX2496
- Enter in the text box above the buttons a short description

4.5.2　File

macOS / MS-Windows

- Header menu, choose "Setting"
- Select "DCX => Disk" to store the current DCX2496 settings at your PC in a file
  - Input a file name
- Press „Disk => DCX" to transfer the settings to the DCX2496 from a file
  - Select a file from the dialogue

Note: Files and presets are saved in user document folder - sub folder "DCX.Mixer"

Android

- Press button "ToDisk" to store the current DCX2496 settings at your PC in a file
  - Input a file name
- Press button „ToDCX" to transfer the settings to the DCX2496 from a file
  - Select a file from the dialogue

4.6　Synchronize

Changes, such as level or cut-off frequency, are transmitted simultaneously to several DCX2496s. To do this, the settings of the DCX2496 must be synchronized in advance. The device ID selected in the header serves as a copy master for the "slaves" (slaves follow the master. **Settings of the slaves are overwritten!**).

Open the screen: macOS/MS-Windows menu "Sync / Configuration". Android button "Sync" in footer
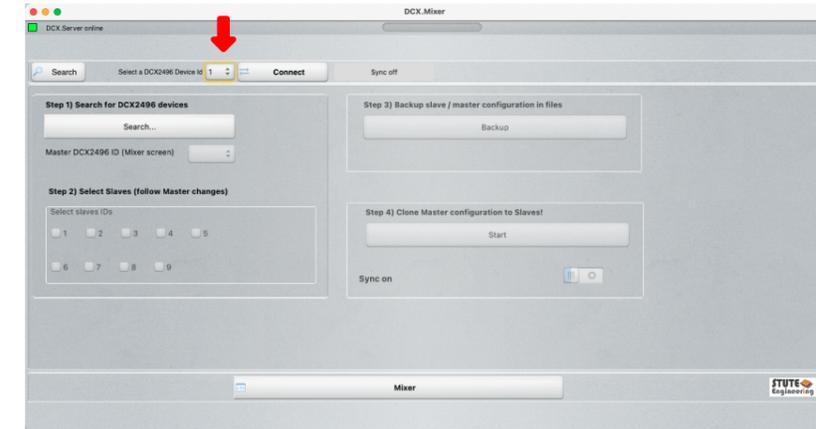
The following steps are required:

1. Determine available DCX2496 ID
2. Select the IDs for synchronization
   2.1. Panel shows only the available ones. The Master ID is gray and not selectable.
   2.2. A maximum of 2 IDs can be selected
   2.3. DCX2496 ID 10..16 are not selectable
3. Save settings of the slaves in files (2syncfile.dcc, 3syncfile.dcc..., Xsyncfile.dcc X =Device ID). The configuration of the slaves can then be restored later
4. Transfer the master configuration to the slaves

Switch on synchronization. The "Mixer" screen is displayed. In the header, "Sync" shows which DCX2496 IDs are being synchronized. Changes to the setting are now transferred simultaneously to the selected DCX2496.
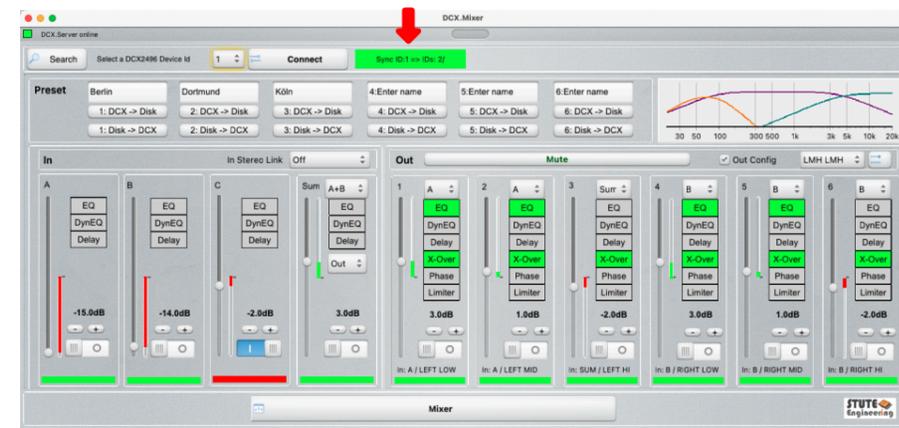
Note: Several DCX2496 must be connected via the RS485 bus on the back of the DCX2496 device. The first DCX2496 is connected to the DCX.Server PC via RS232 and the other DCX2496 via RS485 bus (rear of DCX2496) to the first one. Further details can be found in the "DCX.Server" or "DCX2496" manual.

4.7 Setup
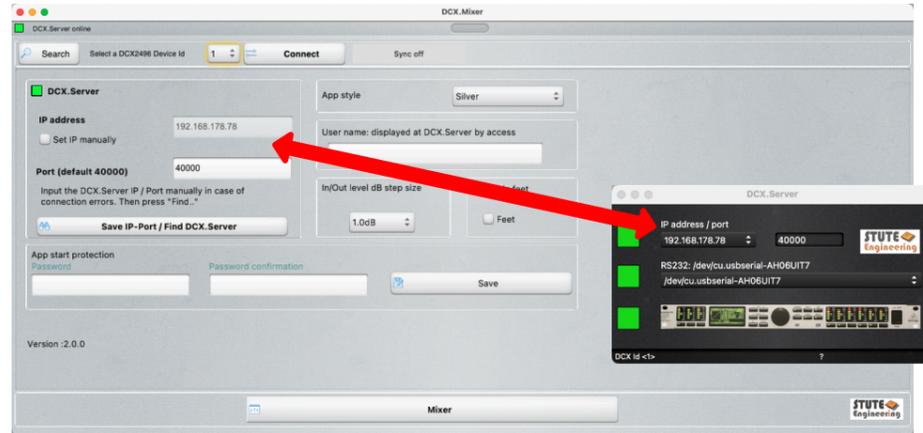
DCX.Mixer and DCX.Server

MS-Windows/ macOS: Press in the header menu "File / App setup" to view the setup screen.

Android: Press the "Setup" button

- App style: Change the colour style for the screens
- User name: Displayed in DCX.Server app after connection with DCX.Mixer
- DCX.Server: IP address and port of the DCX.Server.
  - IP address:
    - „Input manually" disabled: IP should be automated set. In case of connection error enable it and enter DCX. Server IP
    - „Input manually" enabled: Input the IP from DCX.Server manually
  - Port: default 40000
- Password: Connection to a DCX2496 only possible via a password input
  - Input the password twice
  - Press "Save"
  - The password is requested after restart of DCX.Mixer
- In/Out Level dB step size: Defines the steps in dB when you change the gain for Input and Output
- Length in feet: Delay lengths are displayed in feet instead meter

5. Error handling

Message / Issue	Measure
DCX.Server offline / not found	Start DCX.Server Check DCX.Server IP address, see chapter "Setup". Enable "Input IP manually" and input the IP from DCX. Server Check IP address, see chapter 5.1 Network issues. Check the firewall settings (PC/Router). Allow the communication (UDP, TCP/IP, Port). Check: DCX.Server PC needs a wired LAN connection
RS232 interface not connected	USB-RS232 interface not connected to DCX.Server PC Wrong COM port (RS232) selected in DCX.Server
DCX2496 switched off DCX2496 offline	Switch on DCX2496 DCX2496 Id number correct (1..16). Press "Search…" Check "Port" setting at DCX2496 device
Case "Password forgotten"	Enter "Stute Engineering" to reset the password
DCX.Server software version not supported / outdated	Download the latest DCX.Server version from the internet

Important: Allow the network communication between the software DCX.Server and DCX.Client via the firewall from the DCX.Server PC. During the operation the firewall recognise the new network traffic and ask how to proceed. For a proper work allow the software communication.

5.1 Network IP address / App

Server connection not possible? Check the IP address/Port of the DCX.Server and DCX.Client / DCX.Mixer:

- Check the IP list from the DCX.Server and select a valid IP address
- Example:
  - DCX.Client computer IP: 192.168.178.44 (MS-Windows command to view the IP of the PC: cmd/ipconfig)
  - DCX.Server computer IP: 192.168.195.1 select another IP, e.g. 192.168.178.72
- Server connection not possible: Allow communication via MS-Windows PC firewall
- Check: Are the Wi-Fi settings on your tablet or PC activated?
- Check: Is the DCX.server PC connected to the network with a cable?

6.   System

6.1   Supported DCX2496 functions

Note: DCX2496 setup "Delay Link" is not supported and should be switched off.

6.1.1   Input A, B, C, Sum

•   In A/B/C/Sum: Gain, Mute, Delay, EQ 1..9, Dynamic EQ, Sum Level from In A/B/C

•   Source Sum signal: A+B, A, B, C, …

•   Adjustment "In Stereo Link": In A+ In B…

6.1.2   Output 1..6

•   Gain, Mute, Delay (long & short), EQ 1..9, Dynamic EQ,

•   X-Over incl. X-Over link, Phase, Polarity, Limiter

•   Source for Out 1..6: A,B,C, Sum

•   Adjustment "Out configuration": MONO, LMH LMH,..

6.2   System requirements

•   PC with MS-Windows 10 or higher, network access: Wi-Fi, LAN 1)

•   PC with macOS 12 or higher, network access: Wi-Fi, LAN, universal binary (ARM64 & x86_64) 1)

•   Android 10 or above tablet computer, 32 bit or 64bit , network access (Wi-Fi)

•   For DCX.Server read the corresponding manual

1)   You get the DEMO and unlimited version via our download page.

Web: http://www.Stute-Engineering.de