



**DuTCH.audio MCC1 monitor-controller**

# ***DuTCH.audio MCC1 manual***

(v1.01 03-03-2025)



***Thank you for purchasing the DuTCH audio MCC1 monitor-controller.  
In this manual we will explain how this device works and how to use it.***

## ***Important Safety Instructions:***

**Please follow these precautions when using this product:**

- Read and keep these instructions.
- Heed all warnings and follow all instructions.
- Dangerous voltage lives inside this machine. Opening is only allowed by qualified service personnel.
- Unplug this machine during lightning storms or when unused for long periods of time.
- Do not use this machine near water or outside.
- Clean only with a dry, soft cloth. Do not spray any liquid cleaner onto the cabinet, as this may lead to dangerous shocks.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other machines (including amplifiers) that produce heat. Avoid exposure to direct sunlight.
- This machine typically runs slightly warm when operated. Install in a normal ventilated area. If the product will be used in a rack, make certain there is sufficient air movement within the rack. Preferably offer some empty rack space above the unit and do not place it on top of hot equipment.
- Refer all servicing to qualified service personnel. Servicing is required when the machine has been damaged in any way, such as when the powersupply plug is damaged, liquid has been spilled or objects have fallen into the machine, the machine has been exposed to rain or moisture, does not operate normally, or has been dropped.
- **WARNING:** To reduce the risk of fire or electric shock, do not expose this machine to rain or moisture.

# Introduction:

**The MCC1 is a classy Monitor Controller crafted for transparency, durability, and ease of use in mind.**

## Attenuator design

The MCC1, short for Monitor Controlled Computer 1 is designed around a fully passive 64-step attenuator, with 1dB per step, and uses a parallel relay-ladder design. Unlike a typical serial attenuator or potentiometer, the parallel ladder configuration maintains a consistent impedance across its entire range, making it much more transparent, recallable and precise.

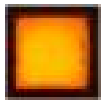
## Functionality

The MCC1 is equipped with 4 balanced inputs, 3 balanced outputs and a balanced pre-attenuator direct-out (*also serves as a talkback out*). It features a class-A headphone amp, high-quality pushbuttons, a central encoder with a large, solid aluminum knob, and a full-color display. The MCC1 can be controlled remotely via a web interface from any (*mobile*) device connected to your network and supports user presets and user-defined names for inputs and outputs.

# Frontpanel and usage:

On the frontpanel you will find all pushbuttons for inputs, outputs and other functions. In the center the full color display and main encoder find their place and on the far right, the headphones level and its TRS jack output.

## Input 1-4



All 4 inputs have their own pushbutton which light up yellow when activated. Input 1 and 2 are fully passive, just relays. Input 3 and 4 come with an active gain trim ( $\pm 10\text{dB}$  in  $0.1\text{dB}$  per step). By pushing and holding the button for input 3 and/or 4 for 2 seconds, you will enter the gain menu. Using the encoder, the level can be set to your liking. After setting the level you can exit the menu and the gain setting will be saved and showed in the bottom row on the display.

\* Input names can be programmed in the user-menu.

## Mute L, Mute R and dim/save



By pressing the 'mute L' and/or 'mute R' you will mute the audio on either the left, right or both channels. Headphones will continue to work. When you press the 'dim' button, the sound will be dimmed to a user defined level which can be set in the user menu. The dim button also acts as a save button (*press and hold for 2 seconds*) for saving presets.

## Display, attenuator and encoder



The full-color display presents all relevant information, like attenuator gain (step value, SPL, and bar graph), input/output names, gain trim values, and more. The central encoder not only adjusts the attenuator gain but also allows you to modify all menu settings.

### Display Top Row > User-Presets:

The MCC1 features 10 user presets, displayed in the top row. To select a preset, press the encoder (which turns the top row green), then turn the encoder to choose the desired preset and press it to confirm.

Saving a preset is simple: Select the preset where you want to store your settings. Adjust the input, output, attenuator gain, mono/diff, and any other settings you'd like. Then, press and hold the 'dim/save' button for 2 seconds. It will flash red to confirm that the settings have been saved.

*NOTE: Clicking the encoder twice will bring you back instantly to the last selected preset.*

#### **Display Centre > Attenuator values:**

The current attenuator step value is displayed in the center of the screen, ranging from 00 to 64. The default setting is 48, which provides a great starting point with a good balance of steps and optimal signal-to-noise ratio. However, you can adjust it to any value you prefer.

Below the step value the SPL-value is shown which can be set to your liking per selected output in the user-menu. This will give you a good guide-line on how loud you are monitoring.

Beneath the SPL value, a bar graph shows the attenuator level. The louder the sound, the more the bar turns green, offering a quick, visual overview of the current attenuator setting.

#### **Display Centre > Input/Output selection:**

Right under the bar graph you will see the current input (*left*) to output (*right*) selection giving you a quick graphical overview (*example: input1 -> output2*) of the selected inputs and outputs.

#### **Display Bottom row > Input/output gain values:**

The bottom row displays the current gain settings for the selected input and output. Inputs 1 and 2 are passive, indicated by "PASV" in the center. When input 3 or 4 is selected\*, the gain value for that input appears on the left, such as +3.2dB. On the right, the output gain for output 3\*\* is shown, for example, as -0.3dB.

*\* Input gain for input 3 and 4 can be set by pressing and holding the button, gain menu opens.*

*\*\* Output gain for output 3 can be set in the usermenu.*

### **Menu and diff/swapLR**



The 'mono/menu' button serves two functions: pressing it activates mono mode, which sums the left and right channels which sends the mono signal to the outputs and headphone amp. By pressing and holding the button for 2 seconds, you will access the user menu.

The 'diff/swapLR' button serves two functions: pressing it, the left channel will be \*polarity flipped. Combined with the mono button you can listen to just the diff/side channel.

When pressing and holding the 'diff/swapLR' button for 2 seconds, both left and right will be swapped. The button blinks red indicating that LR are swapped.

*\* The diff function only works with balanced signals because of its passive nature.*

### **Output 1-3**



Each of the 3 outputs has its own pushbutton, which lights up green when activated. Output 1 and 2 are fully passive, just relays. Output 3 comes with an active gain trim named digital gain in the user menu (*+/- 10db in 0.1dB per step*). It's also possible to set different attenuator gains for all 3 outputs, even left and right can be set differently per output using the output menu in the user menu.

*\* Output names can be programmed using the user-menu.*

### **Headphones amp**

The headphone amp is a powerful yet clean, transistor-based design. It operates before the attenuator, meaning the selected input goes directly to the amp, and the attenuator settings

won't affect the headphone signal. When the attenuator is set to 00, the headphone amp is muted. Typically, you may want to use the L and R mute buttons to listen exclusively to the headphone output. Mono, swapLR, and diff settings will also apply to the headphone output.

## Rearpanel:



On the rearpanel you will find 4 stereo balanced inputs, talkback, 3 balanced stereo outputs, a stereo direct output, a RJ45 network connector and a power input.

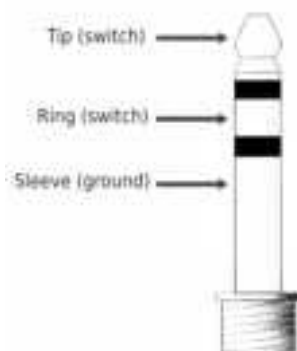
- Input 1 and 2 are fully passive balanced Neutrik XLR's
- Input 3\* and 4 are 6.3mm Neutrik jack with analog trims ( $\pm 10\text{dB}$  in  $0.1\text{dB}$  per step)
- Talkback 6.3mm Neutrik TRS jack connectors for mic and footpedal
- Output 1 and 2 are fully passive balanced Neutrik XLR's
- Output 3 with analog trim ( $\pm 10\text{dB}$  in  $0.1\text{dB}$  per step) balanced Neutrik XLR's
- Buffered direct output Neutrik XLR's for metering (also used as talkback output)\*\*
- RJ45 network connector
- Power input using our high quality external SMPS PSU\*\*\*

\* optional RIAA phono pre-amp available for input 3.

\*\* the direct out is trimmed to unity-gain but can be calibrated with internal trimmers.

\*\*\* always connect the power-connector to the unit first before powering the PSU.

## Talkback:



When the talkback is activated using the external switch, the mic input signal is sent to the direct output and at the same time attenuates (*step 25 is default*) or mutes (*can be set in the user-menu*) output 1-3. When the button is released, talkback will be switched off again.

The mic input gain can be set in the usermenu ( $\pm 10\text{dB}$  in  $0.1\text{dB}$  per step).

The switch input uses the tip and ring of a balanced 6.3mm TRS jack connector. (ground connection is optional). Any footswitch or other switch can be used to activate the talkback function.

# User menu:

## Main menu:

You can enter the user menu by pressing and holding the 'mono/menu' button for 2 seconds. By using the encoder you will scroll through the various menu-items and by pressing the encoder you will enter the submenu or confirm a setting.

## Settings:

### Inputs:

Mode: exclusive or free.

- Exclusive only allows to select one input at a time. (*default*)
- Free makes you select multiple inputs at once.

Input 1-4: 'name' lets you set the name on the display for the selected input

### Outputs:

Mode: exclusive, 1 or 2 optional 3 or free.

- Exclusive only allows to select one output at a time.
- 1 or 2 optional 3 sets output 3 to be selected separately from out 1 or 2 (for using a subwoofer out for instance)
- free makes you select multiple outputs at once.

output 1-3:

- Name: lets you set the display name for the selected input.
- SPL at 0dBvU: Sets the SPL level when the attenuator is set to 64/fully open
- Attenuator trim L/R: sets the offset for left and right channelsp
- Attenuator shift: sets the attenuator offset for both L and R
- Digital gain (*output 3*) sets the output level of the active stage +/-10dB in 0.1dB per step

### Dim level:

- sets the preset gain value (*attenuator step value 00-64*) for the dim button.

### Talkback:

Input level: sets the gain of the mic input active stage +/-10dB in 0.1dB per step

Monitor level: sets the step to where the outputs will be set to from 00 to 64

### Network:

mode: change network from DHCP to static (*manual IP setup*)

IP: sets IP address (*for instance 192.168.1.100*)

Netmask: sets subnetmask (*for instance 255.255.255.0*)

Gateway: sets gateway (*for instance 192.168.1.1*)

DNS: sets DNS (*for instance 192.168.1.10*)

\* NOTE: When using the remote web interface the MCC1 needs an internet connection and a fixed IP address is useful.

### Recall on startup:

enables or disables last settings state. Default is enabled.

### Preset:

Within the presets menu you can set the names for the presets (10 presets in total) which will show up on the top row of the display. Presets contain settings which you make with various input, output, mono, dif, lrsrap etc configurations.

Presets can also be easily selected in the remote webinterface.

### Status:

Shows the current IP address (*DHCP or static*)

### Factory reset:

Clears the memory and reverts to initial settings

### **Reboot:**

Reboots the computer interface of the MCC1.

### **Exit menu:**

Exits menu and reverts back to default state.

*\* NOTE: more options will be added to the user menu and other functions with upcoming firmware updates.*

## **External/remote control:**



The MCC1 can be controlled externally from any (mobile) device connected to the same network as the MCC1. When using your mobile phone or tablet you can use your web-browser and connect to the IP address of the MCC1\*. The IP address can be easily found back in the user-menu. Go to the user menu (press and hold mono/menu for 2 seconds) and go to

status. This will show the IP address of the MCC1 which will look something like this: 192.168.1.20. You might want to make a DHCP reservation or use a fixed IP address for an easy connection. Also make sure there is an internet connection since the MCC1 remote control relies on an external webserver.

*\* Some web-browsers might automatically revert to `https://[IPaddress]` which will give you some 'unreachable error' message. In that case you need to type in the address like this instead `http://[IPaddress]`*

*NOTE: The functionality of the external/remote control is still in development at this moment but it will soon be a full-blown remote control. Functionality will be automatically added when we update the webservices.*

## **Technical:**

### **Specifications:**

- Input resistance: 10Kohm
- Output resistance: between 0 and 4.5Kohm (depending on attenuator setting)
- Dynamic range: >110dB(A)
- Max input gain input 1/2: >+24dBu
- Max input gain input 3/4: +24dBu
- Input voltage external PSU 100 to 240VAC 50/60HZ.
- Power consumption approx 8 watt
- Unit size: standard 1u 19 inch, depth 25cm
- Weight: approx 2kg

*Specifications subject to change because always improving.*

### **Some notes:**

The audio path of the MCC1 is primarily built around passive circuitry (*relays and resistors*), essentially making it a direct signal path. In most cases, this results in excellent performance and near-perfect transparency. However, there may be occasional instances where certain monitors or amps may not be compatible with this passive design. In such rare cases, it's recommended to use output 3, as it features an active gain stage which also functions as a buffer.

## *Service and warranty:*

- We offer a standard 2-year limited warranty on all of our products.
- In the event that you or a third party has (partly) altered or repaired anything, the warranty will expire, and you will be held responsible for the damages caused by any possible malfunctioning of the product. Warranty repairs are only made by us or by a workshop we agree upon.
- We are not responsible for any malfunction of or damage caused by parts that are not produced by DuTCH.audio.
- If you choose to ship back a faulty unit to us you must contact us before you do so. We need the serial number (located on the back of the unit) to handle the repair and if warranty is still valid.
- The product should be returned in it's original package or packed in such a way that it is not damaged during the shipment with extra support for the rack ears. We are not to be held responsible for any damages during the shipment.
- The customer always pays the shipping cost to us.
- The customer is responsible for the product until it is delivered to us
- If we find that the product is flawless the customer will be charged 200 euro to cover our costs for examination and handling. The return costs will also be charged.



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