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Preliminary remarks

1. The eXtended DAC200 firmware is a private project of the author.
2. The eXtended firmware is not an official T+A firmware release and it is not authorized by T+A.
3. T+A does not take any responsibility and can not give any support for this firmware.
4. If you encounter any problems with this firmware, please contact the author directly (e.g. by a personal message to user *OE333* on the Audiophile Style forum).
5. This firmware is for T+A DAC200 only – don't try to flash it on to a HA200, it will not work !!!
6. The eXtended firmware X 1.1B is based on the T+A firmware version V1.1B.
7. In the following only the differences and additions to the standard T+A firmware are described. Standard features and general operation of the DAC200 are described in the [DAC200 user manual V1.1](#)

Additional features of the eXtended firmware X1.1B

- Settings for Oversampling, analogue reconstruction filter and inverted mode are stores separately for each input
- 2nd USB input
- „Exclusive“ headphone mode with separate volume and balance settings for Headphone and Pre outputs
- Screen saver

1.) Separate OVS, WID, INV settings

The settings for oversampling (OVS), inverted mode (INV) and analogue reconstruction filter (WIDE) are stored separately for each input. The settings will be restored when the input is changed.

Note by the author: *Separate individual settings for each input have their pros and cons:*

PRO: Easily retrieve different settings for each input – e.g. for a USB source with internal upsampling: „NOS2+WIDE“ and for a red-book CD player on SP/DIF input: „BEZ2+LP60“. Switching between these inputs will automatically retrieve their individual settings for oversampling and filter.

CON: To switch generally to e.g. OVS=BEZ2, the “BEZ2” oversampling selection has to be repeated for each input – this can be quite exhausting for 12 inputs !

2) Additional USB input

The DAC200 has two physical USB input sockets. One of which is normally reserved for the T+A streamer MP200. If no MP200 is connected, the 2nd USB input can be used for connecting a second USB device.

The eXtended firmware makes the 2nd USB input available as a general USB input. This extended feature is disabled by default and it needs to be enabled if it shall be used (see “Enabling the 2nd USB input” further down below).

Switching to USB S2 input

After enabling this feature, the 2nd USB input can be selected either with the front panel „USB“ button or with the ½ key on the remote control. The front panel USB button will toggle between USB and USB S2. The ½ button on the remote will cycle through the inputs RCA → USB → USBS2.

Limitations:

The DAC200 has only one USB receiver. The USB and USB S2 inputs are connected to this receiver via a USB switch. Switching to the second USB (USB S2) input will disconnect the source device connected to the first USB input and vice versa.

Notes:

- *Switching between USB inputs will disconnect the other USB source device. This is equal to unplugging its USB cable. Maybe not all source devices will react „gracefully“ to such an unplugging event. Please check with your source devices if they handle this correctly.*
- *The 2nd USB input feature was tested with HQPlayer NAA (on a Radxa RockPi E SBC) and a PC (Audio DAW). This worked perfectly well. Both devices stopped playback when switching to the other input and playback could be restarted after coming back to the first input.*
- *If encountering transmission errors (drop-outs, pops, clicks etc.) please use a standard USB cable with specifications according to the USB.ORG standard*

Enabling the 2nd USB input

To enable the 2nd USB input, execute the following steps, using the buttons **on the front panel**:

1. Open the **System Settings** menu (MENU button long keypress)
2. Navigate to **Device Info & Service** and press **OK**
3. Navigate to **System Status**, press **OK**
4. Press the **METER** and **WIDE** buttons at the same time and keep them pressed until the number of menu items (displayed in the bottom display line) changes from 5 to 6.
5. You get an additional Menu item called „Service Menu“
6. Navigate to **Service Menu** and press **OK**
7. Navigate to menu item **USB-SYS**
8. press **OK** – the enabled/disabled indication on the right will get highlighted
9. select **“Enabled”** and press **OK** --- The 2nd USB input is now enabled
10. leave the Menu (by pressing the **MENU** button)

Important Note:

Do not change any other items in the Service Menu, as this will affect required calibration settings of the DAC200.

3.) „Exclusive“ headphone mode

The DAC200 has only one volume control. This means that if both (i.e. PRE and PHOnes) outputs are switched ON, they both will operate at the same volume setting.

The „exclusive“ phones mode of the eXtended firmware will switch OFF the PRE output when switching ON the PHOnes output and it will switch OFF the PHOnes if the PRE output is selected.

The VOLUME and BALANCE settings are saved separately for the PRE and PHOnes outputs. Volume and balance will be restored when coming back to the PRE or PHOnes output.

Note:

If the PRE output mode is set to „Line“ mode, the volume&balance only affect the PHOnes output (in line mode the volume control is bypassed for the PRE output). In this case the volume control is not needed for the PRE output and can be used exclusively for the PHOnes output.

In this „Line“ mode case PRE and PHOnes can both be switched ON at the same time and volume controls the PHO output only.

Limitations

With the „Exclusive“ headphone mode of the eXtended firmware version it is not possible to have both, the PRE and PHOnes outputs switched ON at the same time.

4.) Screen saver

OLED displays, like used in the DAC200, have a very good contrast and good readability but they have a limited life-time – especially when operated at maximum brightness. Notably if a device is left switched ON for 24/7 at high brightness levels this might become a problem.

The eXtended firmware has a Screen Saver feature which, five minutes after the last operation will turn down the brightness of the display from brightness levels 6 and 7 to level 5.

When the DAC200 is left for 2 hours without operation, the brightness will be dimmed further to level 2.

The next user operation of the DAC will restore the original brightness.

Note:

In the standard T+A firmware there is a „Temporary“ display mode which will switch OFF the display some minutes after the last operation. Also the display brightness can be set to a lower value.

These are also good ways to protect the display from wear.

Flashing the eXtended firmware

To flash the eXtended firmware on a T+A DAC200 the official T+A programming adaptor (available in the T+A webshop) or the DIY programming adaptor is required.

Additionally the eXtended firmware file "*UPD_DAC200_X11B.txt*" is required.

Informations about the DIY programming tool and the programming software can be found here:
<https://github.com/OE333/DAC200-HA200-Update-Tool/tree/main>

Contents of the above repository:

<i>/Executable</i>	Programming software for Windows 10 / 11
<i>/Original_Firmware_DAC200</i>	latest original T+A firmware for DAC200
<i>/eXtended_Firmware_DAC200</i>	extended firmware for DAC200 (<i>UPD_DAC200_X1.1B.txt</i>)
<i>/Related documents</i>	Programming instructions and DIY programming tool

For flashing the DAC200, please follow the instructions from the manual of the original T+A programming adaptor or from the "E_Link_Update_instructions.pdf" in the */Related documents* folder.

Reverting to the original standard T+A firmware

Method 1 (recommended)

If you have access to a T+A MP200 streamer, connect the DAC200 to the MP200 and perform a firmware update of the DAC200 through the firmware update procedure of the MP200. This will flash the DAC200 with the latest available standard T+A firmware.

Method 2

The standard firmware can also be restored with the help of the T+A or the DIY programming adaptor.

For reverting to the standard firmware a T+A standard firmware file ("*UPD_DAC200_Vx.xx*") is required.

For flashing the DAC200, please follow the instructions from the manual of the programming adaptor.