

# ATDAC -10S (10S3, 10S7) USER MANUAL



**Description:**

ATDAC-10S is a high performance Digital To Analog Converter/Preamplifier.

**Models Line:**

- ATDAC-10S - based on AK4490 DAC chip.
- ATDAC-10S3 - based on AK4493 DAC chip.
- ATDAC-10S7 - based on AK4497 DAC chip.

**Main features:**

- High quality analogue sound
- Very low distortions
- Ultra low jitter audio clock oscillators
- USB High Speed Input with galvanic isolation
- SPDIF/TOSLINK inputs with FIFO jitter reduction (Dr. JKill)
- Auxiliary analogue input for additional sound sources
- Digital Filters Switch, separately for each sample rate
- Infra Red Remote control
- Touch control from the front panel
- Sample rate, digital filter, source input LED indication
- Automatic standby if no input signal with auto recovery
- External amplifier control (dry contact)
- Very easy user configuration and device' firmware upgrade (DFU)

**Options:**

- Analogue volume control
- Headphone amplifier

**Disclaimer:**

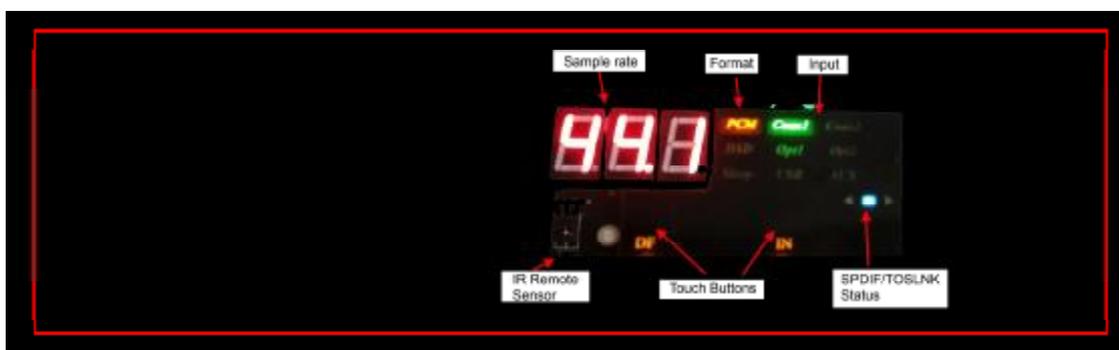
For devices with specially ordered configuration some difference with this user manual are possible.

## Technical characteristics:

- SPDIF/TOSLINK format: PCM 44.1/16-192/24
- USB PCM Format: 44.1/16-384/32
- USB DSD Format: 64-128 (DoP) or 64-256 (Native)
- Output Voltage: 2Vrms
- Output impedance: <50 Ohm
- THD: 0.00008%
- IMD: 0.00008%
- SNR: 118dB
- Channels crosstalk: >110dB @ 15kHz
- Auxiliary analogue input nominal voltage: 0.9Vrms (can be changed per user request)
- Auxiliary analogue maximum voltage: 3.0Vrms
- External amplifier control dry contact: 50VDC max (open), 30mA max (closed).
- Power: 115VAC or 230VAC (user's choice before ordering )
- Power consumption: <12W (<4W in standby)

## Front Panel:

Front Panel indication and control:

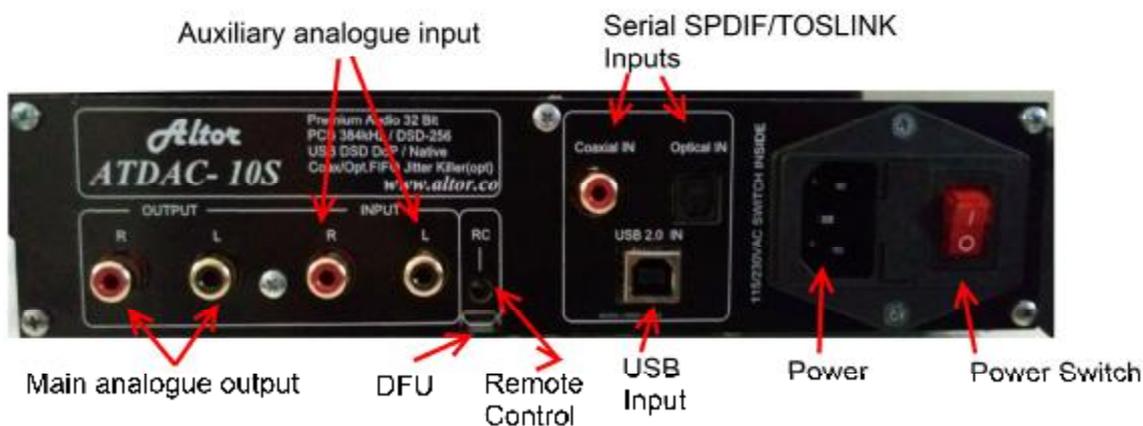


SPDIF/TOSLINK Status: 3 LED (<| [] |>) indicates the status of the serial input and FIFO Buffer.

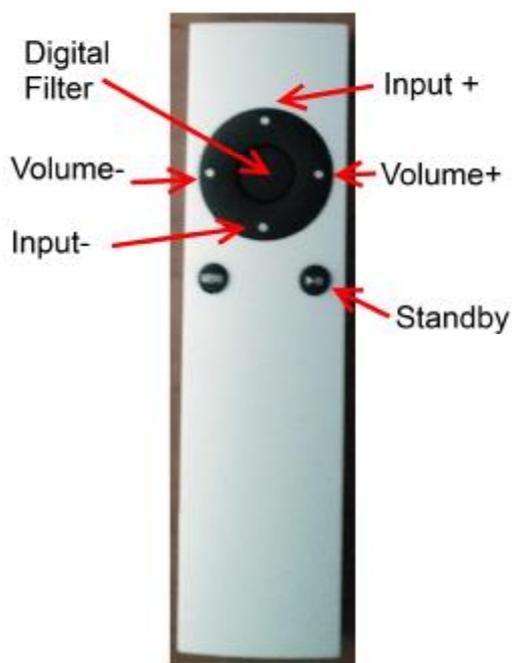
If there is no valid signal, the middle LED ([]) flash. It lit continuously during the normal Play. If because of a difference between the ATDAC and the Source clock frequencies FIFO buffer will overload, some corrections will be provided. This will indicate by the edge LEDs (<| and |>). Each Stop condition start FIFO operation from the beginning. So, if you see correction and hear the sound degradation - simply make Stop and then Play again. Usually, the FIFO depth is enough for one CD and even more and you will not see the FIFO overloading.

**Back Panel:**

Back Panel connections:



**Remote Control:**



First press of volume or digital filter control keys indicates the current setting for 1 sec. Next press will change the corresponding value. You can do it by single or continuous presses. Mention that Standby key do nothing for USB/SPDIF/TOSLINK inputs during the Play. Just from the Stop mode you can enter standby.

**Operation:**

**Input switch:**

You can change the source input from the front panel, also from the Remote Control Unit. Input changing is sequential, in one direction from the front panel, and bidirectional from the Remote Control Unit. The last input is remembered and restored after next power up or wake up from standby.

The sequence can be changed by user. Also the input you never used can be avoided.

**Digital Filter switch:**

This feature allow the user to choose between various types of the digital filters (sharp/slow roll-off, long/short delay, etc.) according to his/her sound preferences.

ATDAC-10S remember the digital filter mode separately for each PCM/DSD sample rate.

It is not recommended to use  $DF > 4$  for 44/48kHz because of a high frequency degradation.

**Volume control:**

Basic version has only digital volume control. We do not recommend to use it, because of a sound quality degradation, but sometimes it is useful. Digital volume control not influence to the auxiliary analogue input.

If you not use it, keep it at maximum value (0dB).

If your device is equipped with the analogue volume control (option), you can use it for all inputs.

You can change the volume from the Remote Control Unit only. The last volume setting is remembered and restored after next power up or wake up from standby.

**Using auxiliary analogue input:**

Auxiliary analogue input is intended for using with different analogue sources, like turntable phono stage or cellular phone. Remember that digital volume control does not work in this mode!

**Standby:**

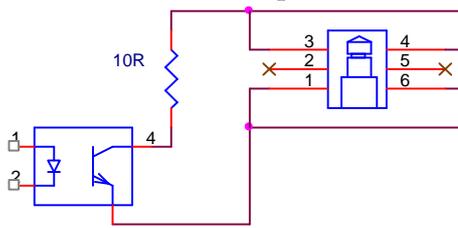
If auxiliary analogue input is active, device enter standby mode after a long time (24h by default).

With USB/SPDIF/TOSLINK inputs, device enter standby mode (after 2min by default) if there is no valid signal presents and wake up immediately when the signal become valid.

Due to a low device' power consumption it is not mandatory to switch the power of by the main switch at the back panel. Use can use it just for a long period of non using.

**Using external amplifier control:**

ATDAC-10S have galvanic isolated digital (dry contact, i.e. - open collector) output which is dedicated to control the external amplifier. Dry contact is closed (short) if ATDAC-10S is not in standby. 3.5mm Jack is used for connection. See below the electrical schematic of this output.



**Cable recommendations:**

Use only high quality cables according your preferences and possibilities!

Specially pay attention to the input cables:

USB cable: - do not use thin and very long cables. 0.5-1m is the reasonable length.

SPDIF cable: not all regular interconnect RCA cables are capable to operate in high frequencies.

Optical TOSLINK cable: not enough quality cable may not operate in 192kHz or even at 96kHz sample rate. Also for some cheap cables degradation with time (aging) was observed.

**Change configuration and firmware upgrade (DFU):**

Sometimes the user wants to change the behavior of his device.

ATDAC-10S has parameters block, which can be downloaded to PC or uploaded from PC to device.

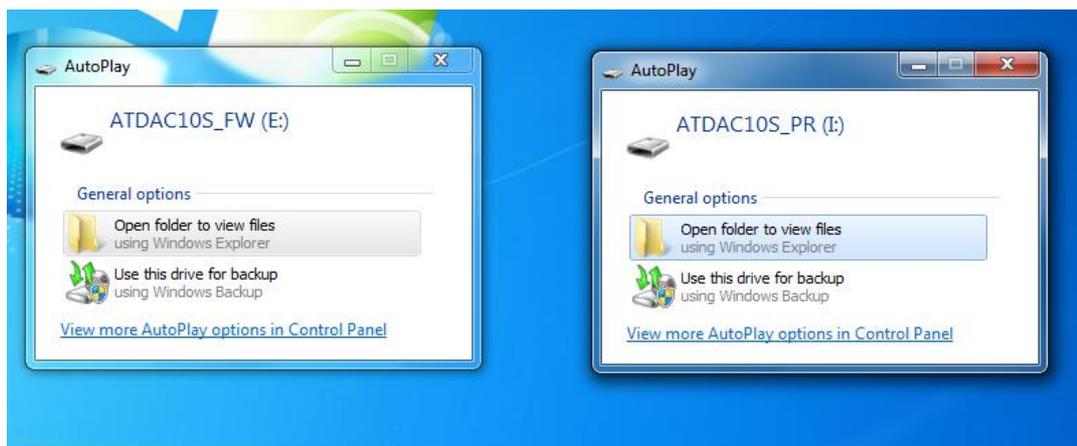
Using the special configuration PC software, it is possible to change for example - standby parameters (timeouts), inputs order, inputs using, etc. (about this software read it's own user manual).

Also sometime we can find a bug in device firmware and want to update it. To do this you have to obtain the file with the new firmware from us.

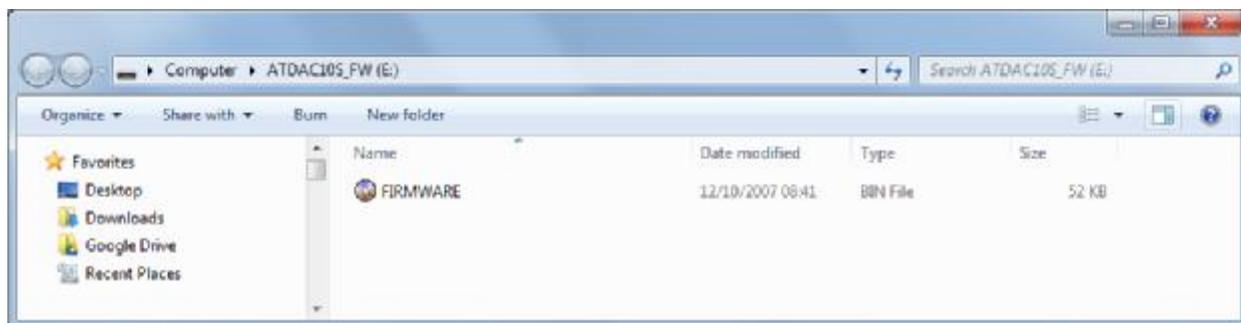
With ATDAC-10S it is very easy and there is no special software required!

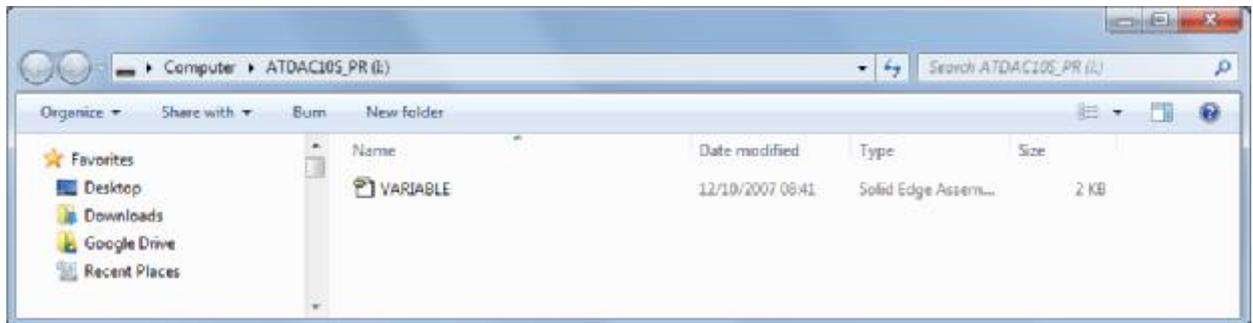
Just connect your PC to device! (micro-USB connector in the middle of back panel).

You will see 2 new external discs:



with 1 file on each: firmware.bin and variable.cfg:





You can use any file manager (Windows Explorer, Total Commander, FAR, etc.) to work with these files. You need only 2 operation: delete, read (for configuration file only) and write. Then disconnect the device from PC.

**Remember:**

*To write the new file - please previously delete the old one!*

*If you make a mistake and want to write the file again, disconnect device from PC and connect again!*