

MIRAND Audio USB DAC V1.0 User Manual.

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## General description

The MIRAND Audio USB DAC V1.0 is a spinoff from PhiSon Audio design done by Sonny and Philip Andersen. It is for USB only and support PCM 384 KHz/32Bit and DSD/DOP 64,128 and 256. There is no up sampling. Most playback software has DSP features that makes SRC possible.

The DAC is the AKM AK4490 from their Veritas series, used by many like Lindeman, Esoteric to name a few.

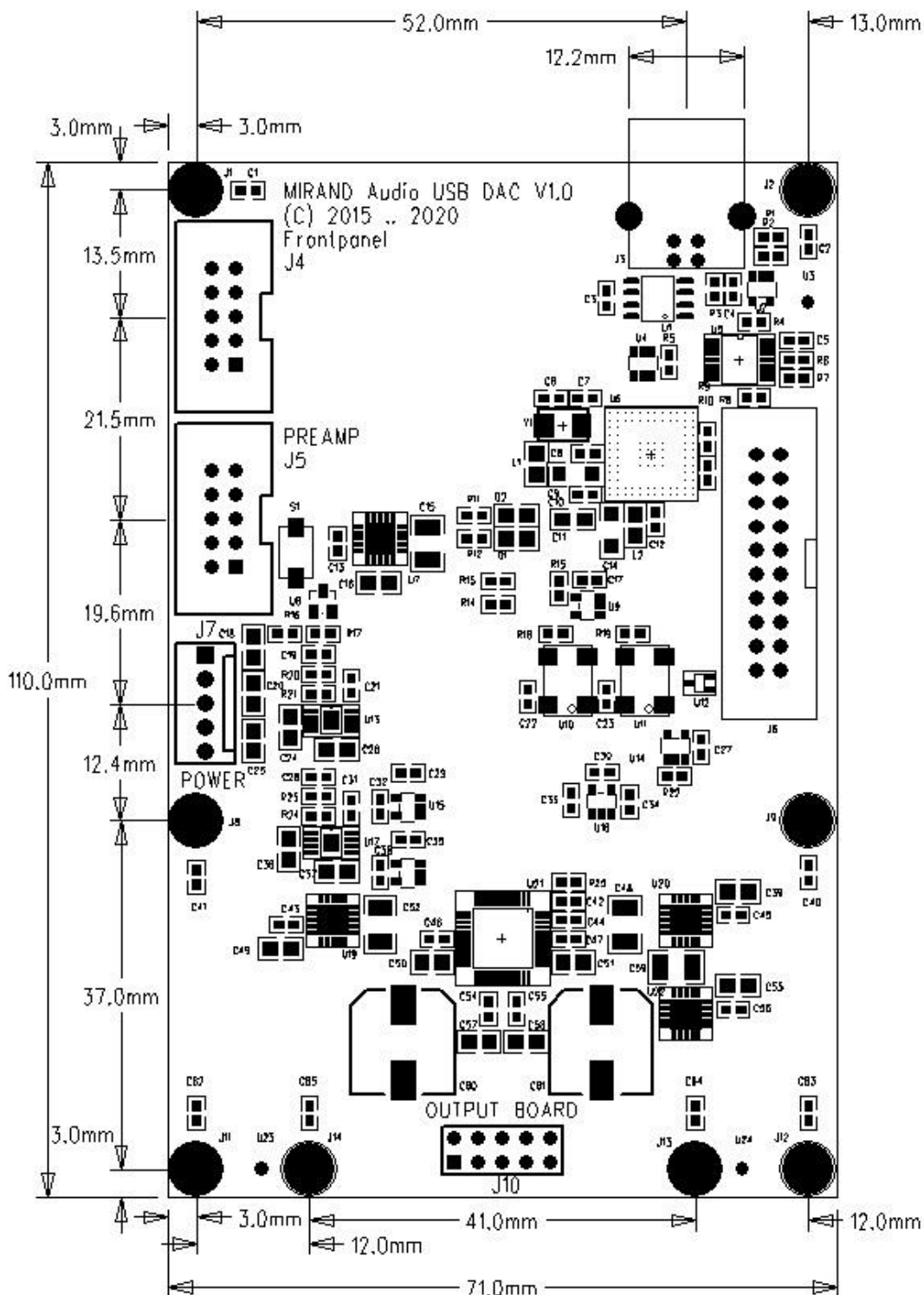
Output stage is mounted on top making it possible for the user to make their own output stage.

There is added 10 Pol headers for optional front panel and Preamp module.

## Key specifications

- Supply voltage : +5.5V, +15V,-15V
- USB AUC 2 (Asynkron)
- PCM 44.KHz – 384KHz/32 bit
- DSD/DOP 64/128
- Single ended output.
- 9 Voltage regulators
- Output voltage : PCM +/-3.4Vpp, DSD +/-2.2Vpp (Volume bypass)
- Size (WxLxH): 70\*110\*30mm
- Output stage is mounted on a shield board, making it possible to make your own output stage.
- 10 Pol header for output stage has Mute, PCM/DSD signal, balanced signal left and right from DAC. +/-14VDC, 100mA powersupply for the outputstage.
- 10 Pol Front panel connector
- 10 Pol Preamp connector.

Connection diagram and mounting holes position.



## POWER input – J7

Molex KK grid connector 2.54mm mates with 22-01-2055			
PIN	Function	Description	Type
1	+5.5V	Logic Power	Power Input
2	GND	GND Terminal from Power Supply	Power Input
3	+15V	V+ for analog stage	Power Input
4	GND	GND Terminal from Power Supply	Power Input
5	-15V	V- for analog stage	Power Input

Table 1: Power input connector Specification

## Output board connector – J10

10 pol dual line header 2x5 , 2.54mm pitch – Position from lower left edge x=35.5mm, y=5mm			
PIN	Function	Description	Type
1	Right out +	Right balanced positive	Output
2	+14V	Output stage analog power	Power
3	Right out -	Right balanced negative	Output
4	/MUTE_OUT	MUTE_OUT - active low	+3.3V Logic output
5	GND	GND output stage	Power
6	DSD/PCM	DSD / PCM filter select – DSD Active high	+3.3V Logic output
7	Left out -	Left balanced negative	Output
8	+5.5V	Logic power	Power
9	Left out +	Left balanced positive	Output
10	-14V	Output stage analog power	Power

Table 2: Output board connector Specification

## Frontpanel connector – J4

10 pol dual line header 2x5 , 2.54mm pitch – Position from lower left edge x=35.5mm, y=5mm			
PIN	Function	Description	Type
1	+3.3V	Logic Power	Power
2	SDA	I2C SDA	+3.3V Logic I/O
3	GND	GND	Output
4	SCL	I2C SCL	+3.3V Logic output
5	+5.5V	Logic Power	Output
6	SW1	Input SW1	+3.3V Logic input
7	IR	Infrared port	+3.3V Logic input
8	SW2	Input SW2	+3.3V Logic input
9	SW3	Input SW3	+3.3V Logic input
10	INT	Input Interrupt	+3.3V Logic input

Table 3: Front panel connector Specification

## Preamp Connector – J5

10 pol dual line header 2x5 , 2.54mm pitch – Position from lower left edge x=35.5mm, y=5mm			
PIN	Function	Description	Type
1	+15V	+15V analog - Unregulated	Power
2	SDA	I2C SDA	+3.3V Logic I/O
3	+5.5V	Logic Power	Power
4	SCL	I2C SCL	+3.3V Logic output
5	/SPI_SS	SPI Chip select	+3.3V Logic output
6	MISO	SPI MISO	+3.3V Logic input
7	GND	GND	Power
8	MOSI	SPI MOSI	+3.3V Logic output
9	-15V	-15V analog - Unregulated	Power
10	SCK	SPI CLK	+3.3V Logic output

Table 4: Preamp connector Specification

## Absolute Maximum Ratings.

Power Input J7.

Symbol	Parameter	Min.	Max.	
+5.5V	Logic Power	+5.25	+7	V DC
+15V	+15V analog - Unregulated	+14.5	+24	V DC
-15V	-15V analog - Unregulated	-14.5	-24	V DC

Table 6: Absolute Maximum ratings

## General electrical specification.

Output board connector J10.

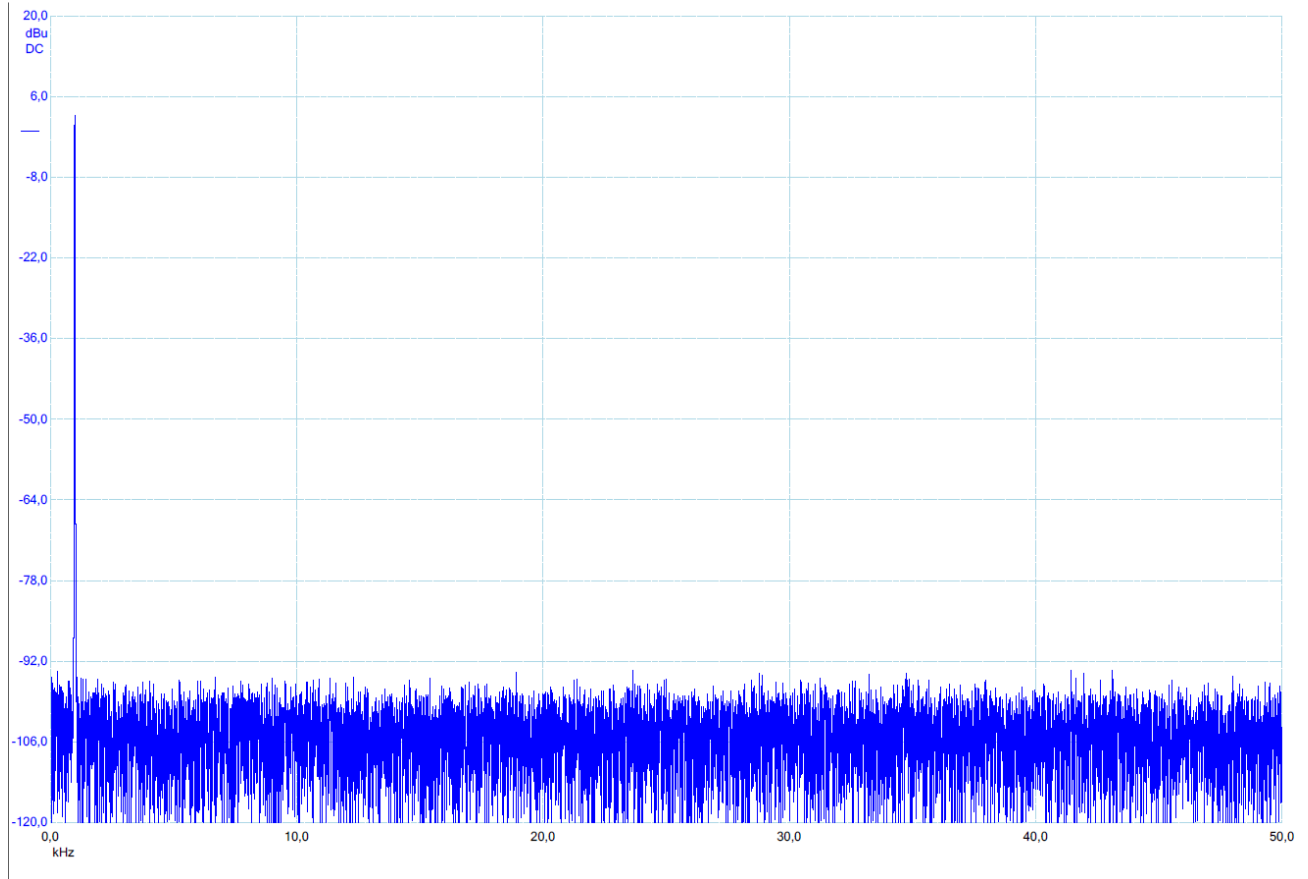
Symbol	Parameter	Max.	
+5.5V	Logic Power	500	mA DC
+14V	Output stage analog power	100	mA DC
-14V	Output stage analog power	100	mA DC
+14V	Output stage analog power	1	% tolerance
-14V	Output stage analog power	1	% tolerance

Table 6: Absolute Maximum ratings

## Cabling notes.

Always use shielded or at least twist the cables to reduce coupling as much as possible between the wires.

## Measurement 1KHz 0dB digital Signal through JRiver:



## Ordering information

Part number: USB Audio DAC V1.0

## Contact information

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