

# NAV-TV

INTERFACING THE FUTURE

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**DSP12A-A2B**

**Ford A<sup>2</sup>B<sup>®</sup> to 12-channel Analog & Digital sound processor**

**NTV-KIT889**

**A<sup>2</sup>B<sup>®</sup>** Automotive  
Audio Bus



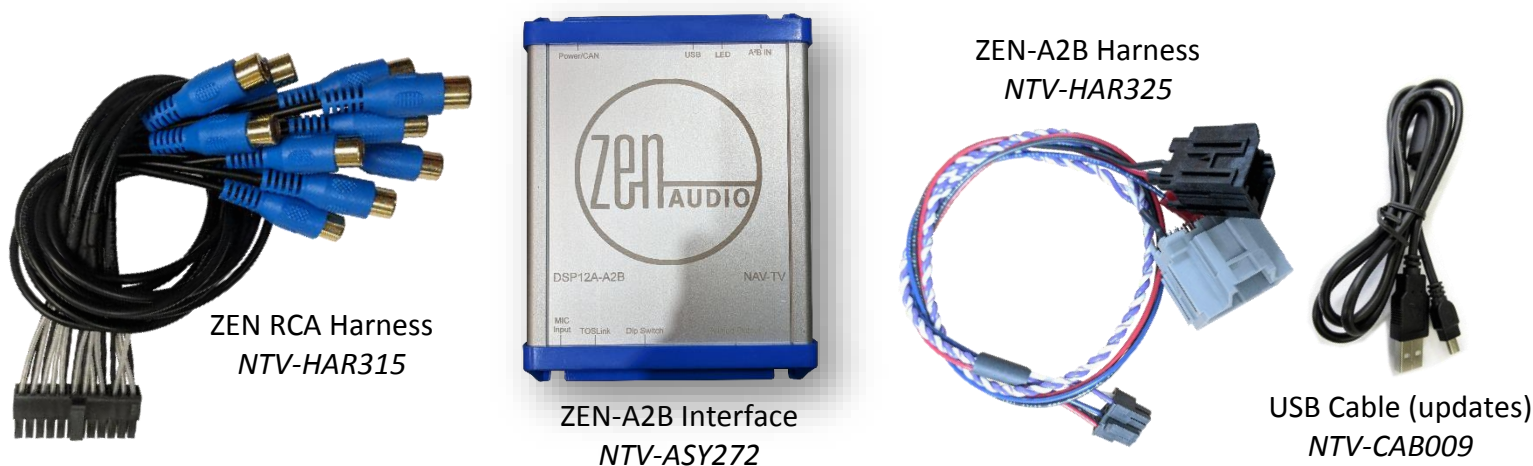
A<sup>2</sup>B<sup>®</sup> is a registered trademark of Analog Devices Inc.

**WARNING:** Due to the complexity and sensitivity of the OEM Ford A<sup>2</sup>B®, the ZEN-A2B must be used with amplifiers that are grounded directly to the battery. The resistance to (true battery) ground of the Amplifier(s) must not exceed 1 ohm, otherwise you will likely experience performance issues with the ZEN-A2B.

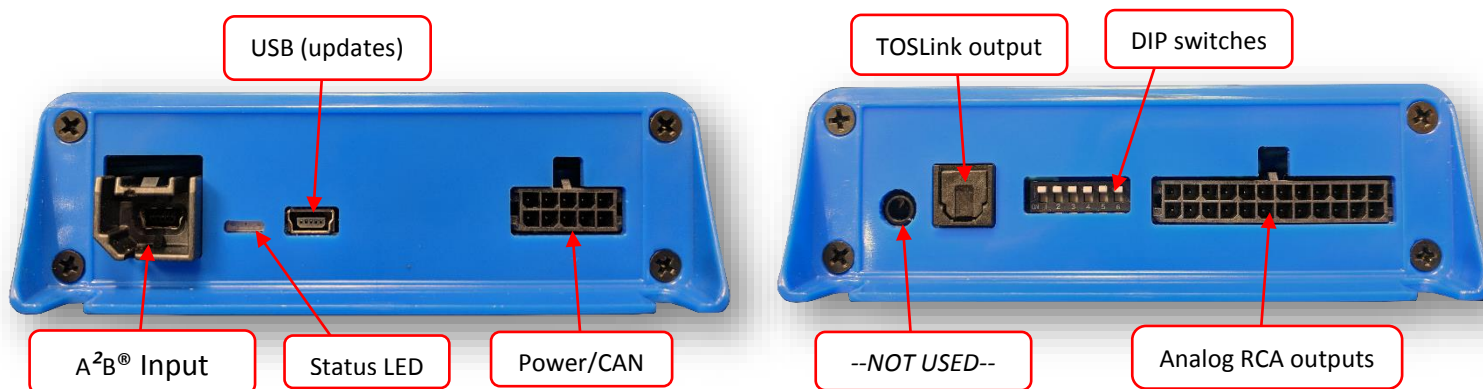
## Overview

The ZEN-A2B processor seamlessly converts 2018+ Ford factory A<sup>2</sup>B® (Automotive Audio Bus) to 12-channel analog RCA and TOSLink output. Adding aftermarket amplifiers to the OE B&O or Revel amplified SYNC3 system has never been so simple and seamless. This kit integrates with the OEM A<sup>2</sup>B® bus to retain volume control, full fade and balance (analog only), treble, mid-range, bass control & Bluetooth voice calls with no external speaker (true OEM integration). *NOTE: 2018 vehicles not equipped with a factory B&O or Revel amplified system are not equipped with A<sup>2</sup>B® bus and do not require this interface.*

## Kit Content



## ZEN-A2B overview



## ZEN-A2B Compatibility SYNC3)

*NOTE: All vehicles require SYNC3, this interface only applies to vehicles equipped with A<sup>2</sup>B® (B&O or Revel Amplifiers)*

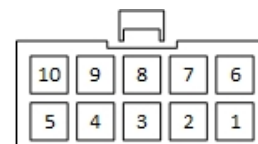
Year(s)	Make	Model	NOTE:
2017+	Ford	F150, Escape, Raptor	With B&O
2018+	Ford	Expedition	With B&O

## ZEN-A2B Installation

- For ZEN-A2B installations, the factory amplifier must be removed and the ZEN-A2B can be installed into its place. If this vehicle is not amplified from factory then this interface is not needed.
- After locating the factory amplifier, disconnect it entirely as it will no longer be in use. With the vehicle off, connect the provided ZEN-A2B harness to the (previously removed) OEM amplifier connectors (gray & black). Below is a pin out chart (just for reference):

- Connect the OEM A<sup>2</sup>B® (USB) connector removed from the OEM amplifier to the **A2B IN** port on the ZEN-A2B.

Pin #	Description	Color
1	Ground (-)	Black
2	Remote Output	Blue
5	CAN HI	Violet/White
6	Constant 12v (+)	Yellow
10	CAN LO	Violet



**Wire Side  
(HAR325)**

- Connect the **blue** wire (PIN 2) to the remote input on the amplifier\*.

**\*If installing more than one amplifier/DSP, a relay must be used for reliable turn-on (ZEN output: 500mA max).**

**\*Remote wire note: the ZEN-A2B (green LED) will turn on after the car is unlocked, but the blue remote wire will not output 12v until the key and radio are ON.**



- Adjust dip-switch settings for the desired options:

	Time Alignment	Attenuation	TOSLink Fader Control*	Loudness	Global Chime routing**	
Position	DIP 1	DIP 2	DIP 3	DIP 4	DIP 5	DIP 6
<b>UP</b> (off)	Front Row	Full Scale output (0 dB)	TOSLink front channel only; fade control active	Loudness OFF	OEM chime function. Front = Front doors, Rear = Rear doors	OFF
<b>DOWN</b> (on)	Driver Focused	-7 dB output	TOSLink fader free (OEM fader disabled)	Loudness ON	Front chimes: RCA 5 & 6 Rear chimes: RCA 9 & 10	OFF

\*When DIP 3 is ON, front and rear chimes mixed into TOSLink output

\*\*When DIP 5 is ON, factory chimes are **stripped** from all other channels, including TOSLink.

- If using analog RCAs for signal to the amplifier, connect according to the reference chart below.

**WARNING: Do not connect RCA cables to this interface until all amplifiers/external processors are properly grounded. Failure to do this may cause damage to the interface and VOID the warranty!**

RCA	1	2	3	4	5	6	7	8	9	10	11	12
Channel	Left Front	Right Front	Left Front	Right Front	Left Front	Right Front	Left Rear Door	Right Rear Door	Left Rear Center	Right Rear Center	Center	Sub

- If using TOSLink for signal to the amplifier, connect the cable to the TOSLink port shown on page 2.

**NOTE: both Analog and Digital output sound simultaneously, regardless of which type is used.**

## ZEN-A2B General Installation Notes

### • **Tuning tips:**

1. Before beginning tuning process (especially with external EQ/Processors), set Bass & Treble on the head unit for each source to flat (0).
2. *Begin with amplifier/EQ gains all the way **down**.*
3. *With dynamic music playing, adjust the radio volume to maximum.*
4. *Adjust the amplifier/EQ gains to desired maximum level.*

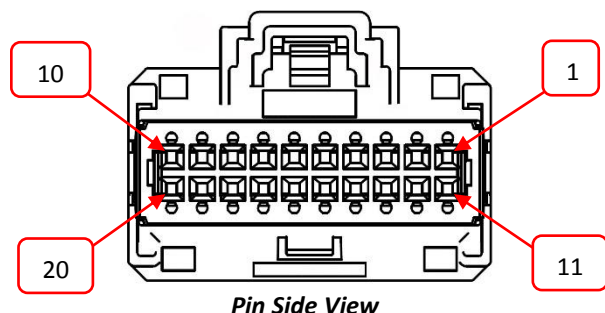
## Multi-Color LED Status Indication



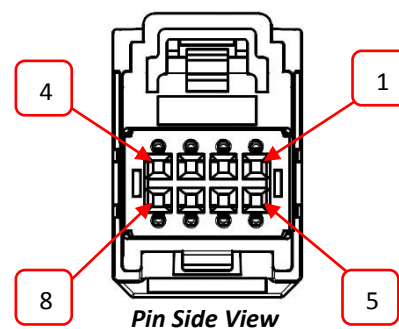
LED Status	Indication
<i>Solid Red</i>	A <sup>2</sup> B Active
<i>Solid Green</i>	CAN Active
<i>Green + Red (yellow)</i>	A <sup>2</sup> B + CAN Active
<i>Blue/Violet/White</i>	Amp command
<i>Blinking Red</i>	<i>Clipping</i> (beyond maximum digital signal level achieved)
<i>Blinking Blue</i>	PC Link with app (future use)

## OEM Ford B&O amplifier connector pin out

Pin #	Description	Color
1	CAN HI	Green/Blue
4	Center Channel (-)	Gray/Yellow
5	Subwoofer COIL 1 (-)	Gray
6	Right Front Door (-)	White/Orange
7	Left Front Door (-)	White/Brown
8	Right Rear Door (-)	Brown/Blue
9	Subwoofer COIL 2 (-)	Yellow
10	Left Rear Door (-)	Brown/Yellow
11	CAN LO	White/Green
14	Center Channel (+)	Green
15	Subwoofer COIL 1 (+)	Green/Violet
16	Right Front Door (+)	White/Violet
17	Left Front Door (+)	White
18	Right Rear Door (+)	Brown/White
19	Subwoofer COIL 2 (+)	Violet/Orange
20	Left Rear Door (+)	White/Green



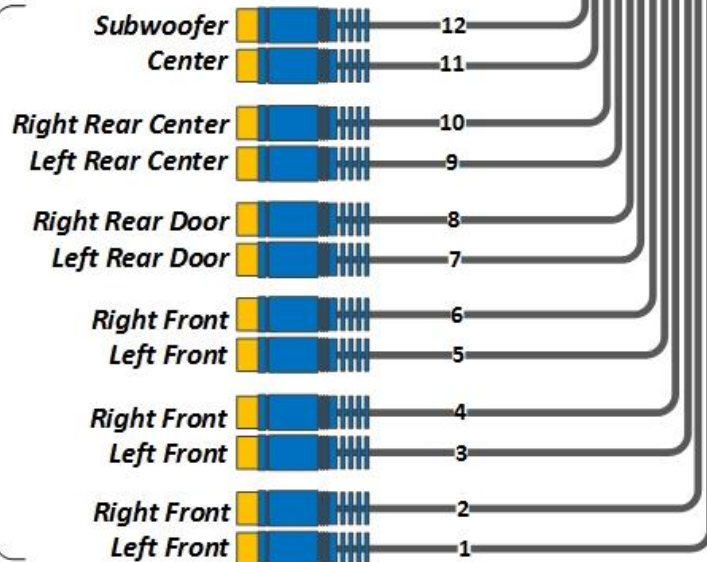
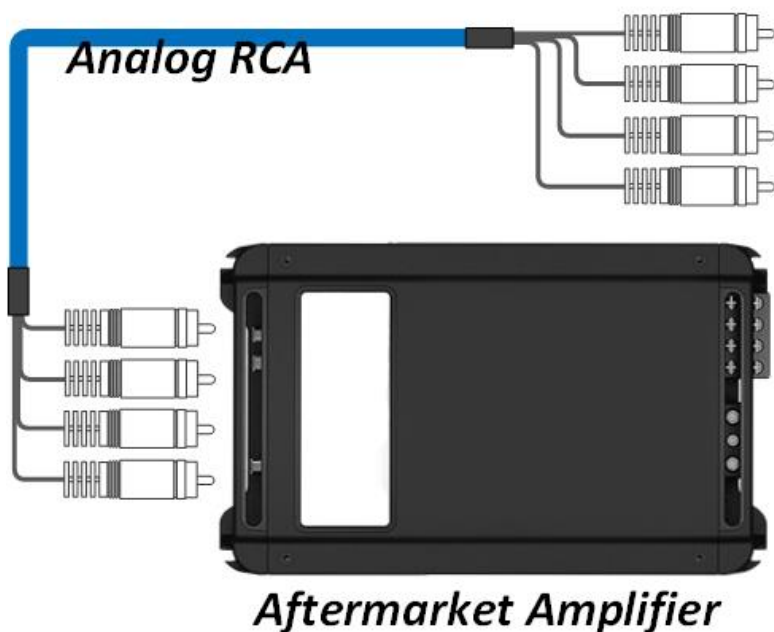
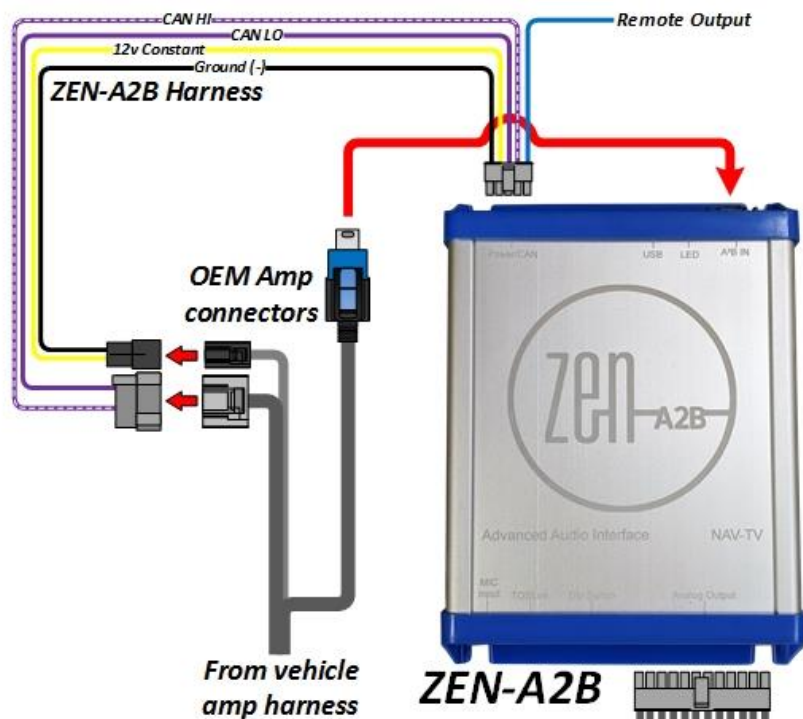
Pin #	Description	Color
1	Ground (-)	Black/Violet
2	--Not Used--	--
3	--Not Used--	Brown
4	Constant 12v (+)	Brown/Red
5	Ground (-)	Black/Violet
6	--Not Used--	--
7	--Not Used--	--
8	Constant 12v (+)	Brown/Red



## ZEN-A2B System Layout (analog)

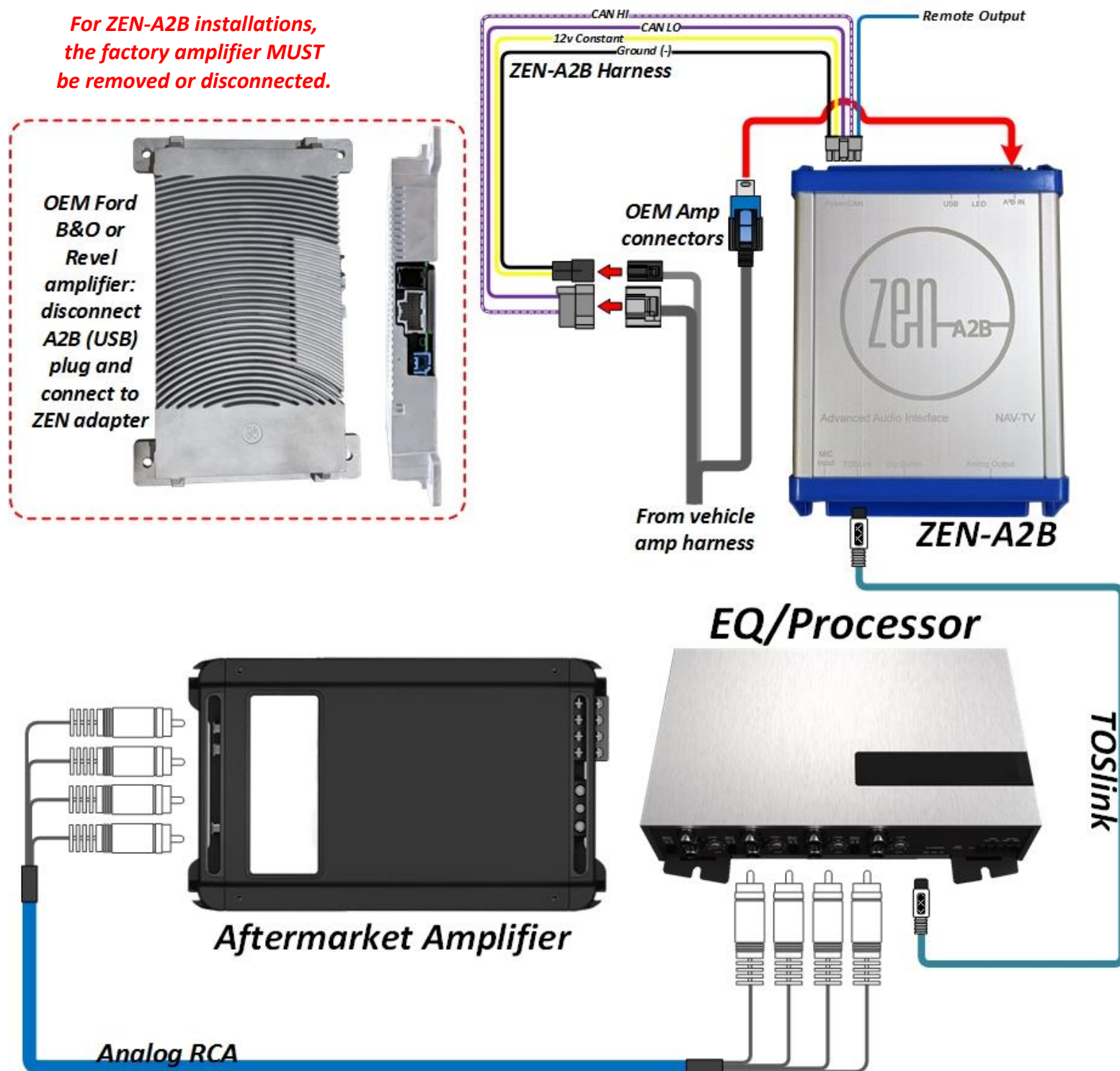
**For ZEN-A2B installations, the factory amplifier MUST be removed or disconnected.**

**OEM Ford B&O or Revel amplifier: disconnect A2B (USB) plug and connect to ZEN adapter**



## ZEN-A2B System Layout (digital TOSLink)

**For ZEN-A2B installations,  
the factory amplifier MUST  
be removed or disconnected.**



## ZEN-A2B Technical Specifications

<i>Hardware &amp; Software</i>	
Current HW version:	--2r0--
Current SW version:	ZEN-A2B-2.0.12-6-26-18.enc
Compatible SW (update) OS:	Windows 7 (64 bit), 8, 10
<i>INPUT</i>	
Digital Input	A <sup>2</sup> B Twisted Pair
<i>OUTPUT</i>	
Digital Outputs:	TOSLink
Digital Outputs supported:	24bit/48kHz
Frequency Response (digital):	18Hz – 24kHz
Analog Outputs:	12 channels (RCA)
Output Voltage <i>Peak</i> :	6v
Output Voltage <i>RMS</i> :	2.1v
Analog Output Type:	Single-Ended
S/N Ratio (analog):	114dB
Frequency Response (analog):	18Hz – 24kHz
THD+N @ -1dBFS	-94dB
DAC	48kHz 32bit
DSP	32bit Floating Point
Delay (Time Alignment)	Selectable
<i>Power Supply</i>	
Current Consumption Stand-by	<1 mA
Current Consumption Operational	350 mA MAX
Operational Voltage	7V – 20V DC
Amp Turn-On Output	Automatic
Amp Turn-On Voltage	V-batt
Amp Turn-On Current Limitation	500mA
<i>Other</i>	
Dimensions:	4"x5"x1 3/8"
Weight:	10 oz
Country of Origin:	USA

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