1. Overview

DDX320 board is a digital amplifier with S/PDIF digital audio input and output directly to speakers. The volume/channel and other configuration can be easy controlled by a rotary encoder or a remote controller, and value/state will be displayed on the LED module panel. All functions are handled by the MCU on board.

2. Electrical specifications

Operating conditions Vcc=DC 28V, Tamb = 25°C unless otherwise specified

Table1. Specifications list

PARAMETER	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Vcc (Power supply voltage)	AC (dual rail) DC		12 15	20 28	26 36	V V
Po (Output power)	2.0 channel	RL = 8Ω, VCC = 35 V RL = 6Ω, VCC = 36 V RL = 4Ω, VCC = 30V		75 100 65		W W W
	Woofer	RL = 8Ω, VCC = 35 V RL = 4Ω, VCC = 35V		80 160		W W
SNR				100		dB
SR Sample rate			32		192	kHz
Resolution				24		bit

3. Function Description

3.1 Inputs

3.1.1 Coaxial (CH-1,2) and Optical(CH-3,4) inputs

Up to 192kHz/24bit S/PDIF signal can be accepted.

3.1.2 External (CH-5~8)inputs

The board accepts another 4x inputs, by setting the SW-1 on. See Table2 for details. Inputs 5 and 6 are S/PDIF mode and Inputs 7~8 are CMOS mode.

3.2 Outputs

The output can be setup for 2.0 or 2.1 channels. See Table2 for details. The subwoofer output is not active when 2.0 mode.

3.3 Hardware setup

Some functions can be configured or switch on/off by DIP-4 switch on board list in Table2.

Table2. DIP- 4 switch description

SWITCH NUMBER	NAME	STATE	DESCRIPTION
1	8/4 x inputs	ON	Up to 8 inputs, external inputs active

		OFF	Up to 4 inputs
2	Display dimming	ON	Display auto off after 5sec
		OFF	Display always keep on
3	2.0/2.1 output mode	ON	Output 2.0 mode
		OFF	Output 2.1 mode
4	+10dB	ON	Maximum volume up to 10dB
		OFF	Normal with volume of 0dB max

3.4 Display and Control

3.4.1 display.

DDX320 use a 4 digital 7-segment LED display. The LED will display volume/channel/EQ/bass volume and bass crossover frequency. LED will be auto off when DIP-4 switches set to OFF (details in Table2).

3.4.2 Control by rotary encoder(we call it EC in short below)

- Volume adjustment: turn the EC to left or right to control volume down or up.
- Channel switching: press the EC button to control the channel switch from CH1 to CH3 by cycling.
- Standby/Wake-up: press the EC button up to 3 sec to enter the standby mode or back to active (ON) state.

3.4.3 Control by a remote controller

After remote learning, some advanced functions like EQ and display brightness can be used by remote.

Follow these steps to enter remote learning mode.

1. Power off.
2. Press and hold on the rotary button during power on.
3. Release the button until display 000
4. Use a remote to enter keys. The number on display will automatic added when key enter. Please follow table 3 for key sequence. The number will back to 000 when press any key after EEE for a new learning cycle.
5. Press the rotary button to exit learning mode.
6. The new remote can be used, and all keys will be remembered after power off.

Note: not all keys needed to set. Press one key twice to jump the un-used key.

The remote control functions list in table3.

Table3. Remote key functions

Key number	Key name	function	Display
111	POWER	Enter the standby or wake up	. for stand by
222	MUTE	Mute enter/exit	--- , when mute
444/333	VOL+/VOL-	Volume increase/decrease	
666/555	CH+/CH-	Channel switch up/down	
777	EQ	Preset EQ: E--- =EQ bypass E-00=EQ Flat E-01 = Flat E-02 =Rock E-03 =Soft Rock E-04=Jazz E-05 =Classical E-06 =Dance E-07=Pop E-08 =Soft E-09 =Hard E-10 =Party	E-xx (x means value, same as below)

		E-11 =Vocal E-12 =Hip-Hop E-13 =Dialog E-14 =Bass-Boost #1 E-15=Bass-Boost #2 E-16 =Bass-Boost #3	
888	MODE	Setup the crossover frequency 000 = pass through 080 = 80Hz etc (range from 80 to 360hz)	XXX
999	MIX	Switch the left and right channel on output	1-2 or 2-1
AAA	DFT	Restore the default configuration	DFT
BBB	TONE	Enter /exit bass volume mode	B-xx
CCC	F1	Checking EQ	
DDD	F2	Checking Channel number	
EEE	F3	Adjust the brightness of display	

7. Installation

PCB Size: 135*105mm

8. Q&A