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 is 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	UNIT
			MAX			
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 accept 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 channel. 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	Not used, should be put in OFF mode	ON	Test mode, not used
		OFF	Normal

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

The remote control functions list in table3.

Table3. Remote key functions

Key name	**function**	**Display**
POWER	Enter the standby or wake up	. for stand by
MUTE	Mute enter/exit	--- , when mute
VOL+/VOL-	Volume increase/decrease	
CH+/CH-	Channel switch up/down	
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-11 =Vocal E-12 =Hip-Hop E-13 =Dialog E-14 =Bass-Boost #1 E-15=Bass-Boost #2 E-16 =Bass-Boost #3	E-xx (x means value, same as below)
MODE	Setup the crossover frequency 000 = pass through 080 = 80Hz etc (range from 80 to 360hz)	xxx

MIX	Switch the left and right channel on output	1-2 or 2-1
DFT	Restore the default configuration	DFT
TONE	Enter /exit bass volume mode	B-xx
F1	Checking EQ	
F2	Checking Channel number	
F3	Adjust the brightness of display	

4. Installation

PCB Size: 135*105mm

5. Q&A