D3200 Owner's Manual

AMBISONIC SYSTEMS

Intended to alert the user to the presence of uninsulated: dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

Intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

CAUTION: Risk of electrical shock — DO NOT OPEN!

CAUTION: To reduce the risk of electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

WARNING: To prevent electrical shock or fire hazard, this apparatus should not be exposed to rain or moisture, and objects filled with liquids, such as vases, should not be placed on apparatus. Before using this apparatus, read the operating guide for further warnings.

Protective earthing terminal. The apparatus should be connected to a mains socket outlet with a protective earthing connection.

IMPORTANT SAFETY INSTRUCTIONS

WARNING: When using electrical products, basic cautions should always be followed, including the following:

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding plug. The wide blade or third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point they exit from the apparatus.
11. Only use attachments/accessories provided by the manufacturer.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. Never break off the ground pin. Write for our free booklet "Shock Hazard and Grounding." Connect only to a power supply of the type marked on the unit adjacent to the power supply cord.
15. If this product is to be mounted in an equipment rack, rear support should be provided.
16. This electrical apparatus should not be exposed to dripping or splashing and care should be taken not to place objects containing liquids, such as vases, upon the apparatus.
17. The on/off switch in this unit does not break both sides of the primary mains. Hazardous energy can be present inside the chassis when the on/off switch is in the off position. The mains plug or appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.

18. Exposure to extremely high noise levels may cause a permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the following permissible noise level exposures:

Duration Per Day In Hours	Sound Level dBA, Slow Response
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25 or Less	115

According to OSHA, any exposure in excess of the above permissible limits could result in some hearing loss. Earplugs or protectors to the ear canals or over the ears must be worn when operating this amplification system in order to prevent a permanent hearing loss, if exposure is in excess of the limits as set forth above. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels such as this amplification system be protected by hearing protectors while this unit is in operation.

SAVE THESE INSTRUCTIONS!

FCC Compliancy Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, that may cause undesired operation.

Warning: Changes or modifications to the equipment not approved by Ambisonic Systems LLC can void the users authority to use the equipment.

Note - This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures.

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

Introduction / Features

AmbiSonic's Model D3200 amplifier has been designed and engineered to deliver the best possible "Audiophile" quality sound. Utilizing high speed class D topology, dramatically reducing weight, and offering excellent reliability and thermal efficiency. Ultra low noise fan operation, allows the amplifier to be placed within critical listening environments. The D3200 offers great flexibility with multiple modes of operation including 70v. See Bridge Mode page 11.

Features:

- Full featured Digital Signal Processor (DSP).
- Network Capability for multiple units and remote control
- ASC Console Software PC Control
- High power Tri-Amp DSP amplifier
- Advanced audiophile UMAC™ class D by Pascal™
- UREC™ SMPS with universal mains and regulated secondary voltages
- Mixed-mode 64 bits digital processing optimized for high performance audio
- DSP control via Ethernet connection, bundled Windows™ and MacOS™ DSP control SW
- 24bit/96kHz ADC/DAC, low 0.6ms latency
- Front panel LCD display and DSP controls
- Advanced cooling optimized for class D amplifiers
- Fan suspension and dual mode fan control for extra quiet operation
- 2 analog inputs/outputs and digital AES/EBU input/output
- Maximum input level: +22dBu
- Front panel standby switch and multifunctional status LED
- External AC/DC trigger control for flexibility in installations

Front Panel Controls & Indicators

1 **Power Switch / On-Off**
(See additional info ACS Console Software Manual)

2 **Menu Button (DSP Navigation)**

3 **Exit Button (DSP Navigation)**

4 **Select Knob (DSP Navigation)**
(Note" When input Ch 1 & Ch 2 are Linked, this Knob becomes an Input Gain Control for both channels when not used for Navigation) This control is always active unless front panel access has been denied in either user level or locked level access rights. See ASC Console Manual.

5 **LCD Screen**

6 **Power / Standby Indicator**
(Green = Amplifier On)
(Red = Standby Mode)
(Orange = Power Supply RMS Limit Detected)
(Red Flashing = Protection Mode)
(Green/Orange Flashing = Over Temp Detected)
(No Indicator = No Input Power)

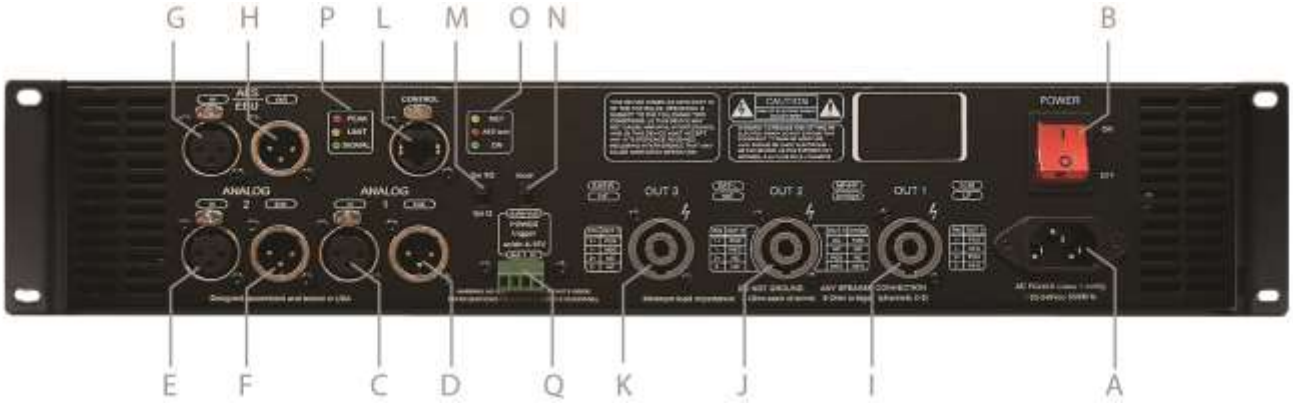
7 **Signal Indicators**
(Green (Signal) = Lights when any output level reaches 48dB below the output peak limiter threshold, or if there is -48dBu signal at any input)
(Green (-24dB) = Lights when any output level reaches 24dB below the output peak limiter threshold)
(Green (-6dB) = Lights when any output level reaches 6dB below the output peak limiter threshold

Front Panel Controls & Indicators Continued

8 **Limit Indicator**
(Orange = when any output level reaches the output peak limiter threshold, or if there is gain reduction in any output compressor)

9 **Peak Indicator**
(Red = when any output level exceeds the output peak limiter threshold by 6dB, or if there is 6dB gain reduction in any output compressor

Rear Panel Connections & Indicators



A **AC Power Inlet**
(95 -240 Vac / 50-60 Hz)

B **Main Power Switch**

C **Analog Input 1**
(3-pin XLR *(Pin 2+)*

D **Analog Link 1**
(Supplies parallel output signal for connecting multiple amplifiers)

E **Analog Input 2**
(3-pin XLR *(Pin 2+)*

F **Analog Link 2**
(Supplies parallel output signal for connecting multiple amplifiers)

G **AES/EBU Input**
(Stereo, ChA or ChB, or Mono Sum)

H **AES/EBU Output**
(Buffered and Processed output signal for connecting multiple amplifiers)

Rear Panel Connections & Indicators Continued

I **Channel 1 Speaker Output**

(4 Pin twist lock connector) *(Allows use of 4 conductor cable for high current)*

Pin	Out 1
1+	POS
1-	NEG
2+	POS
2-	NEG

J **Channel 2 Speaker Output**

(4 Pin twist lock connector)

(Allows both channels 2 & 3 on single 4 conductor cable or channels 2 & 3 in Bridged Mode)

(Note: For Bridge Mode, output channels 2 & 3 must be Linked in DSP)

See Bridge Mode, next page. See also ACS Console Manual.

Pin	Out 2	Out 3	Bridge
1+	POS	NC	POS
1-	NEG	NC	NC
2+	NC	POS	NC
2-	NC	NEG	NEG

K **Channel 3 Speaker Output**

(4 Pin twist lock connector)

Pin	Out 2
1+	POS
1-	NEG
2+	NC
2-	NC

L **Ethernet Network Control Connection** *(See additional info ACS Console Software Manual)*

M **Fan Mode Switch**

(Normal "Q" or Extra Quite "XQ")

N **Remote Trigger Switch**

(Local "For standard operation")

(External "For remote triggering of Standby Mode")

(See additional info ACS Console Software Manual)

Note: If no external trigger is used, the switch must be in the Local position otherwise the amplifier will not power up from Standby Mode

Rear Panel Connections & Indicators Continued

O **Rear Panel Indicators**
(Green = Front panel Power Switch On)
(Red = AES connection Locked)
(Yellow = Network connection present)

P **Rear Panel Signal Level Indicators**
(Green = Signal)
(Yellow = Limit)
(Red = Peak)

Q **External Trigger Connector**
*(*ac/dc 4 -15V)
(In and Out for multiple amplifier connections)

Bridge mode configuration:

The D3200 amplifier has multible uses for bridge mode
1) Two channel high power 8 ohm
2) Two channel 70v operation
3) 8 ohm subwoofer ch 1, mono 70v ch 2

1. To use the D3200 in two channel bridged mode, link ouput channels 2&3 in the DSP either from the front panel or via the ASC Console Software PC Control (recommended).
   Wire the speaker output cable as in the pin out chart for channel 2 bridge, channel 3 is not used.
   In bridge mode a minimum nominal imp of 8ohms must be used for both channels 1 &2 to prevent the amp modules internal current limiters from triggering the peak indicator instead of the limiter and possibly triggering protect mode.

2. When using the D3200 in two channel bridged mode for 70v operation, use the same proceedure as above and in addition set the limiter threshold to 7.15 = 70.5vrms / 98v peak for all 70v channels to pervent current limiting.

DSP Navigation

Load Preset

a) Press Menu

b) Turn Select Knob to Desired Preset

c) Press Select Knob

d) Turn Select Knob to select YES

e) Press Select Knob to Load

DSP Navigation Continued

Edit Preset

a) Press Select Knob

Turn Select Knob to choose Input or Output channels *(arrow pointing left)*
(you must be in Administator Level to access output channels)

b) Press Select Knob to *(arrow pointing right)*

c) Turn Select Knob to Select Functions

Functions:	**Parameters:**
Gain	Mute / -47.75dB to +12.00dB
Source on Input	Channels 1 &2 = Analog
	Channels 3 & 4 = AES (Stereo, ChA, ChB, Mono Sum)
Mixer on Output	Gain, Inputs 1 - 4 (Off to 0.00dB)
Delay (ms)	Inputs 0 – 1,000 / Outputs 0 – 20
LowPass	Enabled / Frequency / Type
HighPass	Enabled / Frequency / Type
PEQ 1 – 10	Frequency / Gain / Q / Type / Enabled
Compressor	Thr. / Att. / Hold / Rel. / Ratio / Gain
Limiter	Thr. / Rel.
Phase on Output	Normal / Inverted
Link	On / Off

d) Press Select Knob to Edit Function
e) Pressing the Select Knob repeatedly steps through the available Function Parameters
f) Turn Select Knob to adjust Parameters
g) Press exit button to return to Select Functions *(arrow pointing right)*
h) Turn Select Knob to select a new Function *(repeat as necessary)*

Administator Level Access

Note: When editing or creating presets you must be in Administator Level to access output channels.

a) To enter Administator Access Level, press Menu three (3) times

b) Press Select Knob to enter Administator Password (See ASC Console Manual)

c) Turn Select Knob to select first character
d) Press Select Knob to move the cursor to the next position
e) Turn Select Knob to select next character
f) Once Password has been entered, Press Menu button to enter Access Level

DSP Navigation Continued

Save Preset

g) Press menu button twice

h) Turn Select Knob to desired location (41 – 100)
i) Press Select Knob to enter Preset Name

j) Turn Select Knob to select first character
k) Press Select Knob to move the cursor to the next position
l) Turn Select Knob to select the next character
m) Once name has been entered, Press menu button to enter Save Preset
n) Turn Select Knob to select YES

o) Press Select Knob to Save Preset

DSP Navigation Continued

Locking

a) To enter Access Level Locked, press Menu three (3) times

b) Turn the Select Knob to Locked

c) Press Select Knob (default password is loaded)

1. To change the Password
2. Turn Select Knob to select first character
3. Press Select Knob to move the cursor to the next position
4. Turn Select Knob to select the next character

d) Press Menu

e) Press Menu again to confirm

DSP Navigation Continued

Unlocking

a) Press Menu

b) Turn Select Knob

c) Press Select Knob

c) Turn Select Knob to select first character
d) Press Select Knob to move the cursor to the next position
e) Turn Select Knob to select the next character
f) Press Menu to Unlock

Specifications

SYSTEM SPECIFICATIONS:

Output power (at 1kHz, 1% THD+N, tested with AES17 filter)

Channel 1:

1,600Wrms @ 8Ω

2,000Wrms @ 4Ω

2,500Wrms @ 4Ω on typical loudspeaker load enabled by the XPC (Excessive Power Control) circuitry

Channels 2 and 3 each:

400Wrms @ 8Ω

800Wrms @ 4Ω

Channels 1 and 2/3 bridged:

2 x 1,600Wrms @ 8Ω

2 x 1200w @ 70v

Operation voltage, Universal Mains (dual voltage auto selection): 95-240Vac, 50/60Hz

Power consumption (typical: 1/8 pink noise all channels at 8 Ohm) <500Wrms

Power consumption idle <40Wrms

Power consumption standby, at 120Vac {at 230Vac} <3Wrms {<6Wrms}

Input impedance, analog balanced 20kOhm

Input impedance, digital AES/EBU 110 Ohm

Power on/off trigger voltage, AC/DC4-15V

Dimensions, WxHxD 19”x3.5x12.25” / 482.6x88.9x311.2mm

Weight (Net) 17.6lbs / 8kg

Specifications Continued

POWER AMP SPECIFICATIONS:

Frequency response (Ch2/Ch3 at 4/8 Ω load): 20 Hz - 20 kHz ± 0.1 dB / [20 Hz - 20 kHz ± 0.2 dB]

THD+N (AES17 filter) 1kHz, 1W, RL = 8Ω 0,003%

Signal-to-Noise Ratio (A-weighted, 20 Hz - 20 kHz, 8 Ω load) > 120 dB

Dynamic Range, Un-weighted/ Weighted 118dB / 120dB

Intermodulation distortion (CCIF), Ch2/Ch3, 18kHz/19kHz Po = 10W, 8Ω 0.0008% [0.001%]

Transient Intermodulation distortion (TIM), Ch2/Ch3, Po = 10W, 8Ω 0.002% [0.003%]

Damping factor (Ch2/Ch3 at 8 Ω load, 1 kHz and below): > 1000 [>500]

Protection Circuits: Input limiter, short circuit protection, DC protection of output, under & over voltage protection, intelligent on-board mains fuse protection, power stage overload protection, temperature protection.

NOTE: *[specs for Channel 1]*

DSP FEATURES AND SPECIFICATIONS:

- Mixed-mode 64 bits digital processing
- Up to 96kHz sample rate, 24 bit conversion
- Frequency range 10Hz - 40kHz
- 120dB dynamic range
- Ethernet control interface
- Real-time configuration and monitoring via PC/MAC with numerical and graphic controls
- Front panel LCD display with controls and signal level LEDs
- 100 programmable presets, password protected access levels
- 10 parametric filters on each input and output (Bell, Shelving, Notch, HPF, LPF or Allpass filters)
- 1s delay on each input; 20ms delay on each output
- Butterworth, Bessel, Linkwitz-Riley filters up to 24dB/oct
- Zero-attack limiter and configurable true RMS compressor on each input and each output
- 180° phase control on each output
- Latency 600 microseconds only
- Advanced grouping functions
- Optional IOS application control

*All specifications are subject to change

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