

D-series

CLASS-D POWER AMPLIFIER

Order ref: 172.106UK (D600)

172.110UK (D1000)

User Manual



Version 2.0



Caution: Please read this manual carefully before operating
Damage caused by misuse is not covered by the warranty

Introduction

Thank you for choosing a Citronic D-series power amplifier as part of your sound reinforcement system. Custom class-D circuit design provides an efficient amplifier within a compact and lightweight form factor. Please read this manual fully and follow the instructions to achieve the best results from your amplifier and to avoid damage through misuse.

Warning

To prevent the risk of fire or electric shock, do not expose any of the components to rain or moisture. If liquids are spilled on the casing, stop using immediately, allow unit to dry out and have checked by qualified personnel before further use. Avoid impact, extreme pressure or heavy vibration to the case. No user serviceable parts inside – Do not open the case – refer all servicing to qualified service personnel.

Safety

- Check for correct mains voltage and condition of IEC lead before connecting to power outlet.
- Ensure speaker leads are good condition with no shorted connections or damaged plugs.
- Check that the impedances of speaker loads do not exceed the minimum stated load for the amplifier.
- Do not allow any foreign objects to enter the case or through the ventilation grilles.

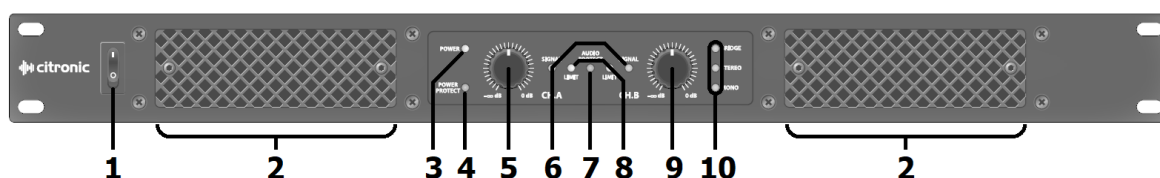
Placement

- Keep out of direct sunlight and away from heat sources.
- Keep away from damp or dusty environments.
- When rack-mounting, ensure adequate support for the base of the amplifier and firm fixings for the front.
- Ensure adequate airflow and do not cover cooling vents at the front and rear of the amplifier.
- Ensure adequate access to controls and connections.

Cleaning

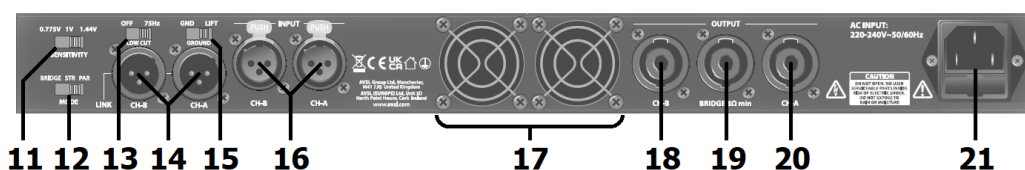
- Use a soft cloth with a neutral detergent to clean the casing as required.
- Use a vacuum cleaner to clear ventilation grilles of any dust or debris build-ups.
- Do not use strong solvents for cleaning the unit.

Front Panel



- | | |
|---|-----------------------------------|
| 1. Power on/off switch | 6. Signal present indicators |
| 2. Cooling vents – do not cover or obstruct | 7. Audio Protect indicator |
| 3. Power on indicator | 8. Audio Limiter indicators |
| 4. Power Protect indicator | 9. CH.B output level control |
| 5. CH.A output level control | 10. Amplifier operating mode LEDs |

Rear Panel



- | | |
|--|--|
| 11. Input sensitivity switch 0.775V / 1.00V / 1.44V | 17. Cooling fan vents – do not cover or obstruct |
| 12. Amplifier mode switch – Bridge / Stereo / Parallel | 18. CH.B stereo or parallel output - SPK connector |
| 13. 75Hz low cut filter on/off switch | 19. Bridge mono output - SPK connector - 8Ω min. |
| 14. CH.A+B signal link out (XLR balanced/unbalanced) | 20. CH.A stereo or parallel output - SPK connector |
| 15. Ground Lift switch | 21. IEC mains power inlet & fuse holder |
| 16. CH.A+B signal input (XLR balanced/unbalanced) | |

Operation

Connect speaker cabinets to channel outputs (18, 20) using good quality Speakon® leads and ensure that the combined load on each channel is no lower than 4Ω.

For speaker loads connected in parallel... $1/\text{speaker impedance} + 1/\text{speaker impedance}... = 1/\text{TOTAL impedance}.$

Therefore, for 2 x 8Ω speakers... $1/8 + 1/8 = 1/4$

(so the combined impedance is **4Ω**)

The rear panel has a Mode switch (12), which determines the way that the amplifier operates, indicated by 3 LEDs on the front panel (10). The standard operating mode is **STR** (stereo), with each input feeding its relevant speaker output.

PAR (parallel) mode sums both inputs together in mono so that each amplifier channel receives a mix of both inputs.

Also, both channels can be combined to drive a single load at higher power by selecting **BRIDGE** mode. In this mode, the output is delivered to the Bridge speaker connector (19) on the rear panel instead of the CH.A and CH.B connectors.

WARNING – The minimum load impedance for BRIDGE mode is 8Ω.

Above the Mode switch is a Sensitivity switch (11), which has 3 settings for different input levels.

The standard setting is 0.775V and settings for 1.0V and 1.44V are for higher level inputs, reducing the input sensitivity. (0.775Vrms @ 0dB is standard line level)

The Low-Cut switch, when set to "75Hz", (13) filters out the audio below 75Hz, reducing wasted power capacity where the speakers cannot reproduce these low frequencies.

Alongside the Low-Cut switch is a Ground switch, which isolates the signal ground from the case earth when set to the "LIFT" position. This can be useful in situations where there may be hum caused by ground loops. If this does not improve any noise issues, it should be set to the "GND" position by default.

Connect audio signals from the mixer or other line level source to the XLR connectors (16) on the rear panel using good quality screened signal leads. Depending on output level of the mixer, select the appropriate sensitivity on the rear panel. Wiring for balanced or unbalanced inputs are as follows...

Signal hot +	Signal cold -	Ground (GND)	Unbalanced wiring
Pin 2	Pin 3	Pin 1	Pin 3 + Pin 1 both ground

Each channel input also has a corresponding XLR line output (14) for linking onto further amplifiers if required.

Connect the amplifier to a mains supply (21), ensuring the IEC lead is earthed, in good condition and connected securely. With Channel A + B controls (5, 9) turned fully down, switch on the power to the amplifier (1). This unit has a "soft-start" function which makes some checks before engaging power to the amplifier circuitry, which may take a few seconds.

With an audio source playing into the amplifier, gradually increase the amplifier's channel output level controls (5, 9) to the required setting (normally full) and then gradually increase the signal level from the mixer or sound source until sound can be heard through the speakers and then continue increasing up to the required level.

In normal operation, the Power LED (3) will be lit, and the Signal LEDs (6) will light when an input signal is present.

If the input signal is overloading the amplifier, the internal limiters will activate, indicated by the Limit LEDs (8).

If the limiter LEDs are lighting more than briefly on the loudest parts of the audio, it is advisable to reduce the input gain.

The D-series amplifiers also have inbuilt protection circuitry. In case of a power fault, the circuitry will shut down and the Power Protect LED (4) will light. If there is a fault in the audio signal, the outputs will be muted, and the Audio Protect LED (7) will light.

Before powering down, turn the channel gain controls fully down to avoid loud noises when switching off.

Specifications

Model	D600	D1000
AVSL ref.	172.106UK	172.110UK
Power supply	200-240Vac, 50/60Hz (IEC)	
Fuse	T8AL 250V	T10AL 250V
Output: RMS @ 4Ω	2 x 300W	2 x 500W
Output: RMS @ 8Ω	2 x 150W	2 x 300W
Bridge power: RMS @ 8Ω	600W	1000W
Amplifier: construction	Class-D	
Frequency response	20Hz-20kHz ±0.5dB	
Signal connection	L+R XLR female inputs, L+R XLR male outputs (through)	
Speaker connection	L+R SPK connectors (+1 for Bridge mode)	
Input sensitivity	0.775V - 1.0V - 1.44V switchable	
Dimensions	482 x 245 x 44 mm (1U)	
Weight	3.77kg	3.93kg

Troubleshooting

No power light on either channel	Ensure IEC inlet is connected to mains and lead is in good condition
	Ensure mains outlet is switched on
Power lights on but no other LEDs and no output	Check input signal and connection leads
	Ensure channel gain controls are not turned fully down
Power light and Signal LEDs are lit but no output	Check speaker cabinets are in good working order
	Check speaker leads are in good condition and connected properly
Power or Audio Protect LED is lit and there is no output	Switch off and disconnect from mains
	Check speakers are in good working order and not shorted out (using a multi-tester)
	After checking all connected items, power up again
	If still in Protect Mode, switch off again and refer to qualified service personnel
Output is very distorted and "LIMIT" LEDs are lighting continuously	Ensure cooling vents are clear and amplifier is not overheated
	Check the speaker impedance is not below 4Ω per channel (8Ω if bridged)
	Turn down the input level from audio source
Output is working but at very low level	Turn down channel output level controls
	Ensure input source is at line level
	Switch the Sensitivity setting to a lower voltage
	Increase input level from audio source
	Turn up channel output level controls



Disposal: The "Crossed Wheelie Bin" symbol on the product means that the product is classed as Electrical or Electronic equipment and should not be disposed with other household or commercial waste at the end of its useful life. The goods must be disposed of according to your local council guidelines.

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