User Manual

DCA™ Digital Cinema Amplifiers

• DCA1222
• DCA1622
• DCA2422
• DCA3022
• DCA3422
• DCA1824
• DCA1644

DCA™ 数字影院功放大器
Important Safety Precautions & Explanation of Symbols

1. Read these instructions.
2. Keep these instructions.
3. Read all warnings.
4. Follow all instructions.
5. WARNING: To prevent fire or electric shock, do not expose this equipment to rain or moisture. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings.
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 prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit your outlet, consult an electrician for the replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at points where it exits from the apparatus.
11. Use only attachments/accessories specified by QSC Audio Products, LLC.
12. Use only with hardware, brackets, stands, and components sold with this apparatus or by QSC Audio Products, LLC.
13. Unplug the apparatus during lightning storms or when unused for long periods of time.
14. 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.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in this manual.

The lightning flash symbol next to the OUTPUT terminals of the amplifier are intended to alert the user to the risk of hazardous energy. Output connectors that could pose a risk are marked with the lightning flash. Do not touch output terminals while the amplifier power is on. Make all connections with amplifier turned off.

The lightning flash with arrowhead symbol within an equilateral triangle is 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 humans.

CAUTION: REDUCE THE RISK OF ELECTRIC SHOCK. DO NOT REMOVE THE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.

WARNING: To prevent fire or electric shock, do not expose this equipment to rain or moisture.

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重要的安全预防措施和符号说明

1. 阅读这些说明。
2. 保存这些说明。
3. 阅读所有警告。
4. 遵守所有说明。
5. 警告：为避免火灾或触电，不要将设备暴露于雨或潮湿环境中。请不要在靠近水的地方使用本设备。
6. 只能用于布放。
7. 不要在通风口附近使用。
8. 不要在可能产生过热的设备附近，如散热器、热调节装置、炉子或其他设备（包括放大器）。
9. 清除任何可能被插入的物体的安全性，插入插头有两个叶片，一个较短，另一个较短，插入插头有两个叶片，一个较短。插入较短叶片或两者不是为了人身安全而安。如果该插座和设备不匹配，请使用适合其他插座的插座。
10. 防止电缆被损坏或拉紧，尤其是在连接电源插座及其与设备的连接点。
11. 仅使用 QSC Audio Products, LLC 规定的附件或配件。
12. 仅使用原始设备或由 QSC Audio Products, LLC 出售的硬件、支架、支架和元件。
13. 在雷电发生期间或长时间不用时，请拔下本设备的插头。
14. 由合格人员进行维护。如果本设备损坏，必须进行维护，如接触线或插头损坏，拨打客服电话

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等边三角形内的惊叹号是提醒用户手册中重要的操作和维护（维修）说明。

放大器输出端旁边的闪电符号警告用户有触电危险。有可能造成危险的输出连接器都标有闪电符号。放大器打开时切勿接触输出端子，进行所有操作之前先关闭放大器。

等边三角形内的闪电符号警告用户该产品外壳内有非绝缘“危险”电压，会对人体产生电击危险。

小心：为避免电击危险，请不要拆下盖子。内部无用户可以维修的零件。请洽合格的专业人士进行维修。

警告：为避免电击危险，请不要让此设备暴露或受潮。

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for Model PLX, DCA, and CX Professional Power Amplifiers

Including the models PLX1202, PLX1602, PLX2402, PLX3002, PLX3402, DCA1222, DCA1622, DCA2422, DCA3022, DCA3422, CX1002, CX1003, CX1004, CX1022, CX3022V, CX3022V, and CX1202V

QSC Audio Products, LLC, declares as its sole responsibility that the above named products are in compliance with the Council Directive 89/336/ EEC on the harmonization of the laws of the Member States relating to electromagnetic compatibility, as well as requirements of the harmonized product standards EN55013-1:1997 (Emissions) and EN55103-2:1997 (Immunity), which include:

EN55013, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, AND EN61000-4-11.

QSC Audio Products, LLC, further declares as its sole responsibility that the above named product is in compliance with the Council Directive 73/22/EEC of 19 February 1993 on the harmonization of the laws of the Member States relating to electrical equipment for use within certain voltage limits and the Council Directive 93/68/EEC of 22 July 1993 which amends the previously mentioned directive, as well as requirements of the harmonized product standard EN 50081, related to safety requirements for mains operated electronic and related apparatus for household and similar general use.

Manufacturer: QSC Audio Products, LLC
1075 MacArthur Blvd.
Costa Mesa, California 92628
USA

Signed: Patrick H. Quilter, VP/Engineering; David W. Ishmael, Sr. Sustaining Engineer

Date: 1 September 1999

Year of marking: 98

FCC INTERFERENCE STATEMENT:

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 to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the 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.
Specially designed for cinema applications, the **DCA Series Digital Cinema Amplifiers** combine QSC’s PowerLight technology and a refined audio structure to provide studio-quality performance with touring-quality reliability. These fan-cooled, 2-RU, amps provide unprecedented power in a strong, compact chassis.

In addition to the five two-channel models, two new full-featured four-channel models offer very compact solutions for multi-channel cinema audio amplification. The four channels of the DCA 1624 and DCA 1644 are arranged so that like the two-channel versions, they can be operated in parallel and bridged mono, pairing Channel 1 with Channel 2, and Channel 3 with Channel 4.
### INTRODUCTION

#### Features
- Five 2-channel and two 4-channel models
- Barrier strip and Neutrik Speakon™ output connectors
- Zero inrush current to prevent tripping circuit breakers at turn-on
- Data port for crossovers and monitoring
- Independent, user-defeatable clip limiters
- Fully selectable low-frequency filter-ing; choice of 30 or 50 Hz roll-off
- Stereo (dual-channel), parallel-input, or bridged mono operating modes
- Balanced inputs: XLR¹, ¼” [3.5 mm] TS¹ and “Euro-style” detachable terminal blocks
- Recessed, detented gain controls with security cover
- Front panel LED indicators for power, signal, -20 and -10 dB, clip/protect, parallel inputs, and bridged mono mode
- QSC’s exclusive high-performance PowerLight switching technology power supply

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<td>DCA1872</td>
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</tr>
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<td>DCA1844</td>
<td>4</td>
<td>225 W</td>
<td>450 W</td>
<td>—</td>
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*20 Hz-20 kHz @ 1% THD

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### 简介

- 五个双声道和两个四声道型号
- 屏蔽带和 Neutrik Speakon™ 输出端连接器
- 零漏电流，以防止在打开时触发断路器
- 用于接线和监视的数据端
- 独立和用户可控的削波限制器
- 完全可选低频滤波：30 或 50 Hz 滚降选择
- 立体声（双声道）、并行输入或单声道单声道模式
- 平衡输入端：XLR，¼” [3.5 mm] TS 和“欧式”可接线端等式
- 带有安全盖的凹进式平缓增益控制器
- 电源、信号、-20 和 -10 dB、削波/保护、并行输入端和桥式单声道模式的前面板 LED 指示灯
- 采用 QSC 专有高性能 PowerLight 开关技术的电源

*仅限双声道型号*
**Front panel**

1. Power switch
2. Cooling vents
3. Gain control (1 per channel)
4. *CLIP, -10 dB, -20 dB* and *SIGNAL* indicator LEDs, all channels
5. *POWER, BRIDGE, and PARALLEL* indicator LEDs
6. Handles
7. Security panel

**简介**

1. 电源开关
2. 散热口
3. 增益控制器（每声道 1 个）
4. 削波 -10 dB, -20 dB 和信号指示灯 LED，所有声道
5. 电源、桥接 和 并行 指示灯 LED
6. 把手
7. 安全面板
**Rear panel**

1. Terminal block inputs
2. DataPort
3. XLR inputs
4. Configuration switch
5. Configuration switch chart
6. TRS inputs
7. Speaker output, Channel 1 plus Channel 2 (4-wire)
8. Speaker output, Channel 2
9. Barrier strip outputs
10. Cooling air inlet vents
11. Serial number label
12. IEC connector for AC power cable

**Four-channel models**

1. 接线盒输入端
2. 数据端
3. XLR 输入端
4. 配置开关
5. 配置开关示意图
6. TRS 输入端
7. Speaker 输出端、声道 1 和声道 2 (4 线路)
8. Speaker 输出端、声道 2
9. 屏蔽线输出端
10. 散热空气进气口
11. 机架号标签
12. AC 电源线的 IEC 连接器
FEATURES & SETUP

Clip limiter

Description
When the audio signal drives the amp’s output circuit beyond its power capability, it clips, flattening the peaks of the waveform. The clip limiter detects this and quickly reduces the gain to minimize the amount of overdrive. To preserve as much of the program dynamics as possible, limiting occurs only during actual clipping.

Each channel has its own clip limiter, and you can switch it on or off independently, as shown at left.

When to use it
When driving full-range speakers, clip limiting reduces high frequency distortion caused by bass overloads. It also protects high frequency drivers from excess overdrive and harsh clipping harmonics.

We recommend using the clip limiters in all cinema applications.

CAUTION: Clip limiting reduces extreme overdrive peaks, allowing a higher average signal level without audible distortion. However, increasing the gain with the clip limiter engaged, until clipping is again audible, can double the average output power. Be careful not to exceed the power rating of your speakers.

削波限制器

说明
当音频信号驱动的放大器输出电路超过其电源容量时，它将削波，使波形变平。削波限制器检测到此情况并快速降低增益，以尽量减少过载。为尽可能多地保留程序动态，限制仅在实际削波期间发生一次。

每个声道都有自己的削波限制器，可以独立地打开或关闭，如左图所示。

何时使用
驱动全频扬声器时，削波限制器降低音过载造成的高频失真，还能使高频驱动器免受过度超频驱动和苛刻的削波损害。

我们建议在所有影院应用中使用削波限制器。

小心，削波限制器降低极端过载峰值，允许提高平均信号水平，而不产生音质失真。但如果通过使用削波限制器提高增益，直至可以再次听到削波为止，则可能会将平均输出功率增加一倍。请注意不要超过扬声器的额定功率。
**Input filter**

**Description**

The low-frequency (LF) filter rolls off signals below either 30 Hz or 50 Hz. This improves bass performance by limiting sub-audio cone motion, making more power available for the speakers' rated frequency range.

The filter settings for each channel are controlled individually through the DIP switch settings shown. When the filter is turned off, a 5 Hz rolloff protects against DC or deep sub-audio inputs.

**When to use it**

As a rule, your speakers will sound better with proper filtering. Unless you already have filtering in a preceding device, match the setting to the low frequency rating of your speakers. Vented (bass reflex, ported, etc.) speakers are especially sensitive to cone over-exursion at frequencies below their rated limit.

The 50 Hz filter works well with most compact full-range speakers, such as surround systems. It has a slight boost at 100 Hz for greater fullness. The 30 Hz filter is intended for woofers and large full-range screen channel speakers. The "off" position should be used only for subwoofer systems capable of response below 30 Hz, or if preceding devices such as crossovers already provide adequate filtering.
**Parallel input mode**

**Description**

The "Parallel Input" switches let you operate the amplifier in parallel mode, delivering the same signal to two channels without using a Y-cable. Each channel drives its own speaker load, with independent gain, filtering, and clip limiting.

Set switch positions 4, 5, and 6 "ON" to couple the inputs together. **Turn the switches off for stereo, bi-amping, or other 2-channel modes.** The yellow **PARALLEL** LED indicator on the front panel warns you when the switches are set to parallel.

**1 signal / 2 channels**

Parallel the inputs when you need to drive two amplifier channels with one input signal (parallel mode) while keeping separate control of both channels’ gain, filtering, and limiting, such as in a surround system.

On four-channel DCA models, the upper set of parallel input DIP switches join Channels 1 and 2 in parallel, and the lower set join Channels 3 and 4.

**1 signal / 4 channels**

Four-channel models can be operated in parallel, with channels 1 and 2 and/or 3 and 4 linked together.

To operate all four channels in parallel, run a pair of wire jumpers between the corresponding + and - inputs of Channel 2’s and Channel 3’s detachable terminal blocks. Set both of the amp’s DIP switches to “Parallel inputs.” Use Channel 1 as the signal input.

Route the four amplifier channel outputs to their respective speaker loads. The load impedances do not have to be the same on all channels.

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**功能与设置**

**并行输入模式**

**说明**

使用“并行输入”开关可以在并行模式中对放大器进行操作。无需使用Y型电缆即可将相同信号发送到两个声道。每个声道均通过独立的增益、滤波和限幅来驱动其自身的扬声器负载。

将开关位置 4, 5 和 6 设置为“开启”，使输入成对。对于立体声、双放大器或其他双声道模式，请关闭开关。前面板上的黄色并行 LED 指示灯将开关设置为并行时向您发出警告。

**1 信号 / 2 声道**

需要使用单个输入信号驱动两个放大器声道（并行模式），同时保持对两个声道的增益、滤波和限制的控制（比如环绕声系统中）时，请使输入端保持并行。

在四声道 DCA 型号上，上方组合的并行输入 DIP 开关将声道 1 和声道 2 并行合并起来；下方组合则将声道 3 和声道 4 合并起来。

**1 信号 / 4 声道**

四声道型号可以将声道 1 和 2 和/或 3 和 4 连接起来，以并行方式进行操作。

要以并行方式操作所有四个声道，请在声道 2 和声道 3 的隔离连接盒的对应 + 和 - 输入端之间布留一对跳线。将两个放大器的 DIP 开关设置为“并行输入”，使用声道 1 作为信号输入端。

将四个放大器的声道输出都连接到各自的扬声器负载。所有声道上的负载阻抗无需相同。
**FEATURES & SETUP**

**Parallel input mode** (continued)

**Branching to other amps**

In addition to parallel mode, you can parallel the inputs in bridged mono mode to carry the signal to additional amplifiers through the unused extra input jacks. This is often called a "daisy-chain." See page 14 for an explanation of amp operating modes.

With two-channel models you can use any of the three ways shown at left to patch between amplifiers. Four-channel models have only terminal block inputs.

**NOTE:** If you’re using a balanced signal, use only balanced patch cables; even one unbalanced cable will unbalance the entire signal chain, possibly causing hum.

**NOTE:** Turn off the "Parallel Inputs" switches when feeding two separate signals to the two channels.

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**功能与设置**

**并行输入模式**（续）

**分接到其他放大器**

除了并行模式，您还可以在桥式单声模式中使输入保持并行。您还可以通过未使用的额外输入插孔将信号传输到其他放大器，这通常称为“菊花链”。请参阅第14页有关放大器操作模式的说明。

通过双声道型号，您可以使用左图所示的任何三种方式之一来在放大器之间进行连接。四声道型号只有接线盒输入端。

**注：**如果您使用平衡信号，请仅使用平衡连接线缆；即使是一根非平衡线缆也将使整个信号链失去平衡，甚至可能导致嗡嗡声。

**注：**在向双声道输入两个独立的信号时，请关闭“并行输入”开关。
FEATURES & SETUP

Bridge mono mode

Description
Bridge mono mode combines the power of two amplifier channels (Channels 1 & 2, and/or 3 & 4) into one speaker load, resulting in twice the voltage swing, four times the peak power, and approximately three times the sustained power of a single channel. This mode uses the input, gain control, input filter, and clip limiter of Channel 1 or Channel 3; Channel 2’s or Channel 4’s have no effect.

The BRIDGE LED on the front panel indicates when the amp is in bridged mono mode.

When to use it
Use bridged mono to deliver the power of two channels to a single 8- or 4-ohm load, such as a subwoofer. Set switch position 7 to “BRIDGE MONO ON.” Use Channel 1’s or Channel 3’s input, and connect the speaker as shown.

Bridged mono 桥式单声

To patch the signal to additional amplifiers, use the parallel input switches described on page 10.

To speaker Vers l’enceinte
Zum Lautsprechersystem Z la bocina

功能与设置

桥式单声模式

说明
桥式单声模式将放大器两个声道（声道 1 和 2 和/或 3 和 4）的功率组合到一个扬声器负载中，产生相当于单个声道两倍的电压摆幅、四倍的峰值功率和三倍的持续功率。这种模式将使用声道 1 或声道 3 的输入端口、增益控制、输入滤波器和抑制限制器；声道 2 或声道 4 的相应设备没有效果。

前面板的桥式 LED 指示放大器何时处于桥式单声模式。

何时使用
使用桥式单声模式将双声道的功率传递到单个 8-或 4 欧姆负载，比如亚低音扬声器。将开关位置 7 设置为“打开桥式单声”，使用声道 1（或声道 3）的输入端口，并按图所示连接扬声器。
Bridge mono mode (continued)

**BRIDGED-MONO PRECAUTIONS:**

This mode puts a high demand on the amplifier and speaker. Excessive clipping may cause protective muting or speaker damage. Be sure the speaker has a sufficient power rating.

Output voltages greater than 100 Volts are available between the amplifier's bridged terminals. Class 3 wiring methods, as specified in accordance with national (NEC) and local codes, must be used to connect the loudspeaker.

**DCA3022, DCA3422:**

Class 3 wiring shall be used for bridged mono outputs.

**DCA1222, DCA1622, DCA2422, DCA1824, DCA1644:**

Class 2 wiring shall be used.
FEATURES & SETUP

What are the differences among Stereo, Parallel Input, and Bridge Mono modes?

Stereo mode
This is the "normal" way of using the amplifier, in which each channel is fully independent. Separate signals connect at the inputs, the gain knobs control their respective channels, and separate speakers connect to each output.

Examples:
- Two-channel (stereo) or multi-channel playback.
- Bi-amped operation, with the low frequencies in Channel 1 (or 3) and the highs in Channel 2 (or 4).

Parallel input mode
This mode is just like Stereo mode, except that the inputs for Channels 1 and 2 or 3 and 4 are internally connected together. A signal into any input jack will therefore drive both channels directly. Each channel's gain control still functions as usual, and each channel feeds its own speaker load.

You can patch the input signals to additional amplifiers by using any of the remaining input jacks.

Example:
- One surround channel signal driving both channels, with independent gain control for each speaker system.

功能与设置

立体声、并行输入或桥式单声操作模式之间有何区别？

立体声模式
这是使用放大器的“标准”方式，其中每个声道完全独立。各种信号在输入端处连接，增益旋钮控制各自的声道，各个扬声器连接至输出端。

示例：
- 双声道（立体声）或多声道播放。
- 双放大器操作，声道 1（或 3）使用低频，声道 2（或 4）使用高频。

并行输入模式
此模式类似于立体声模式，但声道 1 和声道 2 或者声道 3 和 4 的输入端是内部相连的，一个输入任何输入端的信号因此将直接驱动两个声道。每个声道的增益控制器仍像往常一样工作，并且每个声道驱动其各自的扬声器负载。

示例：
- 一个环绕声道信号驱动两个声道，每个扬声器系统都具有独立的增益控制器。

并行输入模式
此模式类似于立体声模式，但声道 1 和声道 2 或者声道 3 和 4 的输入端是内部相连的。一个输入任何输入端的信号因此将直接驱动两个声道。每个声道的增益控制器仍像往常一样工作，并且每个声道驱动其各自的扬声器负载。

示例：
- 双声道（立体声）或多声道播放。
- 双放大器操作，声道 1（或 3）使用低频，声道 2（或 4）使用高频。
**Bridge Mono mode**

This mode combines the full power capabilities of both channels into a single speaker system. The amplifier internally re-configures so that both channels operate as a unit. This delivers double the output voltage, resulting in four times the peak power and three times the sustained power into a single 8- or 4-ohm speaker load. The Bridge Mono mode section on page 11 describes the special speaker connection used.

**Examples:**
- Driving a single 8-ohm speaker with the combined 4-ohm power of two channels.
- Driving a single 4-ohm speaker with the combined 2-ohm power of both channels.

**Precautions:**
- Bridge Mono mode makes it possible to drive thousands of watts into a single speaker. AC current consumption will usually be higher. Avoid excessive signal level, and make sure the wiring and speaker can handle the power.
- If the load is less than 4 ohms, or prolonged overloads occur, the amplifier will probably mute for several seconds during peaks.
- Do not use 2-ohm loads.

*Minimum bridge mono load on DCA1644 is 8 ohms.*

![Diagram of Bridge Mono mode](image)

SEE THE ADDITIONAL BRIDGE MONO MODE WARNINGS ON PAGE 11.
INSTALLATION

Use four screws and washers when mounting the amplifier to the front rack rails.

Support the amp at the rear also, especially in mobile and touring use; rear rack mounting ear kits are available from QSC's technical services department or by special order from your dealer or distributor.

安装

使用四颗螺钉和垫圈将放大器安装到前机架导轨上。

还需在后方对放大器进行支撑，尤其是在移动使用中；QSC 技术服务部提供后机架安装件，也可从您的经销商或分销商处特别订购。
CONNECTIONS

Inputs

Each channel has an active balanced “Euro-style” terminal block input with an impedance of 20k ohms balanced or 10k ohms unbalanced. Two-channel models also have XLR and 1/4-inch TRS jacks wired in parallel to the terminal block input.

Balanced signals are less prone to AC hum, but unbalanced signals can be suitable for short cable runs. The signal source’s output impedance should be less than 600 ohms to avoid high frequency loss in long cables.

Connections

连接

输入端

每个声道都具有活动的平衡“欧标”接线盒输入端。该输入端带有20k 欧姆的平衡阻抗或10k 欧姆的非平衡阻抗。双声道型号还具有并行连接到接线盒输入端的XLR和1/4 英寸(6.3 毫米) TRS 插孔。

平衡信号不容易产生交流杂声，但非平衡信号适合短电缆布线。信号源的输出阻抗应低于600 欧姆才能避免长电缆中的高频损耗。
**Inputs (continued)**

**Balanced inputs.** Use the XLR or 1/4-inch (6.3 mm) TRS input jacks, or the detachable terminal blocks.

**Unbalanced inputs.** Connect the unused side of the balanced input to ground, as shown at left. A tip-sleeve 1/4-inch (6.3 mm) connector will correctly terminate the unused side of the input without modification.

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**CONNECTIONS**

**Inputs**

**Balanced inputs.** Use the XLR or 1/4-inch (6.3 mm) TRS input jacks, or the detachable terminal blocks.

**Unbalanced inputs.** Connect the unused side of the balanced input to ground, as shown at left. A tip-sleeve 1/4-inch (6.3 mm) connector will correctly terminate the unused side of the input without modification.

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**Terminal block balanced**

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**Terminal block unbalanced**
CONNECTIONS

Speakon™ Outputs (two-channel models)

The two-channel DCA amplifiers offer a choice of output connections: two Neutrik NL4MD Speakon jacks and a banana strip with screw terminals.

The Speakon connector is designed specifically for high-power speaker connections. It locks in place, prevents shock hazard, and assures the correct polarity.

The upper Speakon jack has both Channel 1 and Channel 2 outputs, so it is especially useful for parallel, bi-amp, or bridged mono operation (see bridged mono operating precautions on page 13). The other Speakon carries only Channel 2’s output. See the illustrations at left.

For easier insertion, use the newer-style NL4FC Speakon connectors with quicklock thumb latches.

Speaker cabling

Larger wire sizes and shorter lengths minimize both loss of power and degradation of damping factor. Do not place speaker cables next to input wiring.

OUTPUT TERMINAL SAFETY WARNING! Do not touch output terminals while amplifier power is on. Make all connections with amplifier turned off. Risk of hazardous energy!

Speakon™ 连接

双声道DCA放大器提供以下输出连接选择：两个Neutrik NL4MD Speakon插孔和一个带有螺丝端子的香蕉插头。

Speakon连接器专为高功率扬声器而设计。它锁定到位，可防止冲击危险，并确保极性正确。

上面的Speakon插孔同时具有声道1和声道2输出端，因此对于并行、双放大器或桥式单声模式操作特别有用（请参见第13页上的桥式单声模式操作注意事项）。另一个Speakon提供声道2输出端。请参见左侧的插图。

请使用新的NL4FC Speakon连接，该连接器拥有快速锁定的指接柱，可以更方便地进行插接。

扬声器布线

更粗的电缆和较短的长度可以减少功率损失和阻尼因数的降低。不要将扬声器电缆靠近输入电缆。

输出端子安全警告！放大器电源打开时勿接触输出端子。进行所有连接之前先关闭放大器电源。电击危险！
**CONNECTIONS**

**Barrier strip outputs**
(all models)

Turn the amplifier off before touching the output connections. Use spade lugs with insulated barrels to prevent electric shock. Close the shroud over the screw terminals before turning the amplifier on again.

**OUTPUT TERMINAL SAFETY WARNING!** Do not touch output terminals while amplifier power is on. Make all connections with amplifier turned off. Risk of hazardous energy!

Connections for stereo and parallel operations.

The special high-current design of the DCA1222 allows it to drive load impedances as low as 1.6 ohms (equivalent to five 8-ohm speakers in parallel) per channel, or 3.2 ohms bridged. The minimum load impedance of the DCA 1644 is 4 ohms per channel, or 8 ohms bridged.

Connections for bridged mono operation. See bridged mono operating precautions on page 11.

**Speaker cabling**

Larger wire sizes and shorter lengths minimize both loss of power and degradation of damping factor. Do not place speaker cables next to input wiring.

**Speaker monitor**

Each channel has an extra screw terminal, which is a monitor output for use with a cinema monitor panel. The monitor panel is usually located within the same rack as the amps.

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**连接**

**屏蔽带输出端**
(所有型号)

请在接触输出端前关闭放大器。请使用具有绝缘套管的扁平接线片，以防止触电。再次打开放大器前请紧住螺丝端子。

输出端子安全警告！放大器电源打开时切勿接触输出端子。进行所有连接之前应该关闭放大器电源。电击危险！

立体声和并行操作的连接。

DCA1222 的特别高电流设计使其能够驱动每个声道低至 16 欧姆（或桥式模式的 32 欧姆）的负荷阻抗（相当于并行模式的五个 8 欧姆扬声器）。DCA1644 的最低负载阻抗为 4 欧姆（声道）或 8 欧姆（桥式模式）。

桥式单声道的连接，请参阅第 11 页上的桥式单声道操作注意事项。

**扬声器布线**

更粗的电缆和更短的长度能使功率损耗和阻尼系数的降低最小。更粗的电缆和更短的长度能使功率损耗和阻尼系数的降低最小。

**扬声器监听**

每个声道具有额外监听端子。它是与影院监视器面板联接使用

**的监听输出端。监视面板通常与放大器位于相同的机架内。**
CONNECTIONS

Operating voltage
(AC mains)

The power cord is removable and attaches to the IEC connector on the rear panel. Use the cord supplied with the amplifier, or an equivalent. Make sure you connect the amplifier to the correct AC line voltage, which is shown on the serial number label. Connecting to the wrong line voltage is dangerous and may damage the amplifier.

DataPort

The amplifier features a DataPort, which connects to a QSC Control MultiSignal Processor, DCM Digital Cinema Monitor, or other QSC cinema accessories via the HD-15 connector.

Accessories

Cinema accessories for the DCA amplifiers include crossover and filter modules that mount directly to the rear panel of a two-channel amplifier.

These accessories include the XC-3, a 2-way crossover; the SF-3 Subwoofer Filter; and the LF-3 Low-Frequency filter. You can use these accessories in various combinations with your amplifiers to create 2-way, 3-way, and 4-way (3-way plus subwoofer) active systems.

Other accessories for all DCA amps are the DCM Digital Cinema Monitors, which provide DSP crossover, EQ, filtering, and output monitoring functions for an entire cinema sound system. Contact QSC Audio (http://www.qscaudio.com) for details.

连接

操作电压
(AC电源)

电源线可以拔下，也可以连接到后面板上的 IEC 连接器。请使用放大器随附的电源线或同类型电源线。确保将放大器连接到正确的交流线电压，如序列号标签上所示。如果连接到错误的线电压，则非常危险，并可能会损坏放大器。

数据端口

放大器具有一个通过 HD-15 连接器连接到 QSC Control 多信号处理器、DCM 数码影院监视器或其他 QSC 影院附件的数据端口。

附件

DCA 放大器的影院附件包括分频和滤波器模块。这些模块直接安装在放大器的后面板上。

这些附件包括 XC-3（一个双向分频器）、SF-3 低音扬声器滤波器和 LF-3 低频滤波器。您可以将这些附件与放大器进行各种形式的组合，以创建 2 路、3 路和 4 路（3 路加上低音扬声器）系统。

所有 DCA 放大器的其他附件都包含 DCM 数码影院监视器，这些监视器为整个影院音效系统提供 DSP 分频器、EQ、滤波和输出功能。有关详细信息，请联系 QSC Audio（http://www.qscaudio.com）。
OPERATION

AC power switch
Before applying power, check all connections and turn down the gain controls. The "soft start" sequence starts with the POWER indicator LED at half brightness. A couple seconds later the fan starts and the amplifier cycles through one second of protective muting, indicated by the CLIP LEDs glowing bright red. The POWER indicator then changes to full brightness and the amplifier is ready.

LED indicators
At full brightness, the green POWER LED indicates that the amplifier is operating. Half brightness means the amp is in its startup sequence.
As the signal increases, the green SIGNAL, -20dB, and -10dB LED indicators light respectively at 0.1%, 1% and 10% of full power.
The red CLIP LED indicator flashes during overload (clipping). A bright, steady glow indicates protective muting. If this occurs during use, see Troubleshooting.
The yellow BRIDGE LED indicates the amp is in bridged mono mode.
The yellow PARALLEL LED indicates the Parallel Input switches are set.

Gain controls
The gain controls are detented for repeatable adjustment. The actual voltage gain of the amplifier is shown in dB. Maximum gain is 40x, or +32 dB.

交流电源开关
接通电源前，请检查所有连接，并关闭增益控制器。“软启动”顺序从一半亮度的电源指示灯LED开始。几秒钟后风扇启动，并且放大器会经过一秒钟的保护性静音，如红色发光的削波LED所指示。然后电源指示灯将变为全亮度，放大器至此已就绪。

LED 指示灯
在全亮度下，绿色电源LED表示放大器正在运行中。一半亮度表示放大器处于启动过程中。
随着信号的增强，绿色信号、-20dB 和 -10dB LED指示灯将依次在接通电源后的 0.1%、1% 和 10% 时点亮。
过载时，红色LED削波指示灯会闪烁（正在削波）。明亮稳定发光表示处于保护性静音模式中。如果使用中发生此情况，请参阅"故障排除"部分。
黄色桥接LED表示放大器处于桥接单声模式。
黄色并行LED表示设置了并行输入开关。

增益控制器
使用增益控制器可进行重复调整。放大器的实际电压增益以dB为单位显示，最大增益为 40 倍或 +32 dB。
Security panel
After setting the gain controls, you can install the security panel to prevent tampering and accidental misadjustment.

Installing the security panel
1. Use a 9/64" or 3.5 mm hex key to back the screw out several turns.
2. Slide the right end of the security panel just under the screw head.
3. There are tabs on the left end of the security panel. Insert them into the keyed portion of the rightmost ventilation slots, then slide the panel to the right so it locks in the slot.
4. Now insert the tabs on the right end of the security panel into the pair of slots at that end, then tighten the screw to secure the panel. Do not overtighten.

Removing the security panel
1. Use an angle 9/64" or 3.5 mm hex key to back the screw out several turns.
2. Use a small flat screwdriver to lift the right end of the security panel so that its tabs are free of the slots in the front panel.
3. Slide the security panel to the left until you can lift the left end free of the slots, then slide the panel to the left to remove it from behind the screw.

安全面板
设置增益控制后，就可以安装安全面板，以防止误用和意外错误调整。

安装安全面板
1. 使用 9/64 英寸或 3.5 毫米六角扳手将螺丝松开几圈。
2. 将安全面板右端滑动到刚好螺丝头下方。
3. 安全面板的左端上有接口。将接口插入最右端通风槽的控制部分，然后将面板向右滑动，以使其锁定在插槽中。
4. 现在，将安全面板右端的接口插入右端的那对插槽，然后拧紧螺丝，以固定面板。不要拧得过紧。

拆除安全面板
1. 使用 9/64 英寸或 3.5 毫米的六角扳手将螺丝松开几圈。
2. 使用小扁平螺丝刀撬开安全面板右端，以使其接口脱离前面板中的插槽。
3. 将安全面板向左滑动，直到可以左端移离插槽，然后将面板向左滑动，以将其从螺丝后方拆除。
**Fan cooling**

The fan varies speed automatically to maintain safe internal temperatures and minimize noise. Keep the front and rear vents clear to allow full air flow.

Hot air exhausts out the front of the amp so it does not heat the interior of the rack. Make sure that plenty of cool air can enter the rack, especially if there are other units which exhaust hot air into it.

**Safe operating levels**

The amp’s protective muting system guards against excessive internal temperatures. With normal ventilation and 4- to 8-ohm loads, the amplifier will handle any signal level including overdrive—but make sure that the speakers can handle the full power! However, lower load impedances and higher signal levels produce more internal heating. Into 2-ohm loads, frequent or prolonged clipping (indicated by constant flashing of the red CLIP LED) may trigger power cutback or even protective muting.

**Bridge mono mode** doubles the output impedance of the amp; 4 ohms (DCA1644; 8 ohms) is the minimum load impedance. Heavy clipping may cause muting. If this happens, see Troubleshooting, page 25.

---

**Operation**

**Ventilation**

The fan varies speed automatically to maintain safe internal temperatures and minimize noise. Keep the front and rear vents clear to allow full air flow.

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---

**Operation**

**Cooling**

The fan varies speed automatically to maintain safe internal temperatures and minimize noise. Keep the front and rear vents clear to allow full air flow.

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A small passive system
小型被动系统

A typical 2-way system
典型 2 向系统
A typical 3-way system

Going 3 ways with a single 4-channel amplifier

采用具有单个 4 声道放大器的 3 向系统
A Typical 2-way system with Dolby Digital - Surround X

带有多利比数字 - 环绕 EX 的典型 2 向系统
TROUBLESHOOTING

Problem: no sound

Indication: POWER indicator not lit

- Check the AC plug.
- Confirm that the AC outlet works by plugging in another device. If too many amplifiers are used on one outlet, the building's circuit breaker may trip and shut off power.
- An overload in bridged mono mode may cause the amplifier to click off for three seconds, indicated by the half-bright POWER LED, followed by a normal restart cycle. Check the load impedance (4 ohms minimum), or reduce signal level. CLIP LED glowing bright red indicate a thermal shutdown.
- An amplifier which keeps shutting off may have a serious internal fault. Turn it off, remove AC power, and have the amplifier serviced by a qualified technician.

Indication: signal LED not lit

- If the green POWER indicator LED is at full brightness, yet the signal LEDs indicate no signal, check the input. Make sure the signal source is operating and try another input cable. Connect the source to another channel or amplifier to confirm its operation.

问题：没有声音

现象：电源指示灯未亮

- 检查 AC 插头。
- 通过插入另一个设备，确认交流电源插座可用。如果在一个插座上使用过多放大器，所在建筑的断路器可能会断开并关闭电路。
- 桥式单声模式中的过载可能导致放大器断开三秒钟，如一个亮度的电源 LED 所示，接着开始正常的重启过程。请检查负载阻抗（至少 4 欧姆），或降低信号水平。剪切 LED 以红色发出，这表示热关机。
- 如果放大器经常关闭，则可能是内部出现严重故障。请关闭放大器，断开交流电源，由合格的技术人员对放大器进行维修。

现象：信号 LED 指示灯不亮

- 如果绿色的电源 LED 指示灯全亮度发光，而信号 LED 指示灯不指示信号，请检查输入端。确保信号源正在工作，换一根输入电缆再试。将信号源连接到另一个声道或放大器，确认其正常工作。
TROUBLESHOOTING

No sound (continued)

Indication: signal LEDs responding to signal level

- If the green SIGNAL, -20 dB, and -10 dB indicators are lighting normally, the fault is somewhere between the amp and the speaker. Check the speaker wiring for breaks. Try another speaker and cable.

INDICATION: CLIP LEDs bright and steady

The amplifier is in protective muting.

- One second of muting is normal when the amp is turned on or off.
- Overheating will cause protective muting. The fan will be running at full speed and the chassis will be hot to the touch; sound should resume within a minute as the amplifier cools to a safe operating temperature. Check for proper ventilation. If the fan isn’t running at all, the amplifier requires servicing.

INDICATION: Clip LED flashing

- If the red CLIP indicator flashes when signal is applied, the amplifier output may be shorted. Check the speaker wiring for stray strands or breaks in the insulation.

故障排除

没声音（续）

现象：信号 LED 指示灯对信号水平有反应

- 如果绿色的信号、-20 dB 和 -10 dB 指示灯正常亮起，则可能是放大器与扬声器之间的某个位置出现故障。请检查扬声器接线是否断开，用另一个扬声器和线缆试一下。

现象：削波 LED 指示灯发光且稳定

放大器处于保护性静音模式中。

- 打开或关闭放大器时，会出现一秒钟的静音，这是正常现象。
- 过热会导致保护性静音。风扇将全速运行，底盘发烫，声音应
该在放大器冷却到安全工作温度一分钟内恢复。检查保证正
常通风。如果风扇完全没有运行，则放大器需要维修。

现象：削波 LED 指示灯闪烁

- 如果输入信号时红色削波指示灯闪烁，可能是放大器输出短
路。检查扬声器导线有无缠绕或绝缘损坏。
TROUBLESHOOTING

Problem: distorted sound

INDICATION: CLIP LED flashing
- If the red CLIP indicator flashes before all three signal indicators do, the load impedance is abnormally low or shorted. Unplug each speaker one by one at the amplifier. If the CLIP LED goes out when you disconnect a cable, that cable or speaker is shorted. Try another cable and speaker to locate the fault.

Indication: CLIP Indicator not flashing
- This could be caused by a faulty speaker or loose connection. Check the wiring and try another speaker.
- The signal source may be clipping. Keep the amplifier gain controls at least halfway up so that the source does not have to be overdriven.

Problem: no channel separation
- Check the yellow PARALLEL or BRIDGE MONO LEDs on the front panel, which indicate the switch settings on the back of the amplifier. Neither should be lit in dual-channel, bi-amp, or stereo use where different signals go to each channel. Make sure the "Parallel Input" and "Bridge Mode" switches are OFF.
- Make sure other equipment in the signal path, such as mixers, preamps, etc., are set for stereo, not mono.

Problem: sliders不只是

Problem: no volume control

Problem: no sound output

Problem: no power to amplifier

Problem: speakers not playing

Problem: no power to speakers

Problem: no sound coming out of speakers

Problem: no sound coming through speakers
TROUBLESHOOTING

Problem: hum
- The PowerLight supply eliminates internal hum fields, but AC transformers in other devices may cause hum. Move cabling and signal sources to identify “hot spots” in the system. Cables with faulty shielding are a frequent entry point for hum.

Problem: hiss
- Unplug the amplifier input to confirm that the hiss is coming from the source or a device upstream; erratic or popping noises indicate an electronic fault in the offending unit.
- To keep the normal noise floor low, operate the primary signal source at full level, without clipping, and avoid boosting the signal further between the source and the amplifier.

Problem: squeals and feedback
- Microphone feedback should be controlled with mixer controls. If noise continues to build up with zero mic gain, there is a serious fault in the signal processors or cables. Working in succession from the signal source towards the amplifier, check each device in the signal path by reducing its gain or unplugging it.

问题: 噪声
- Powerlight电源去除了内部噪音磁场，但其他设备的AC转换器可能会导致噪声。移动电缆和信号源，识别系统中的“热点”。噪声经常从保护层有缺陷的线接触处进入。

问题: 嘀嗒声
- 排除放大器输入端。检查噪声声是来自源还是来自设备上游，奇怪的声音或咔咔声说明该故障单元中的电子出现问题。
- 要保持较低的正常高有噪声水平，请在完整级别上操作主要信号源而无需削波，并避免将信号提高到源与放大器之间的更深处。

问题: 刺耳声和回声
- 应通过滤波器控件来控制麦克风的回声。如果将麦克风增益调至零时，噪声依然持续，则说明信号处理器或线缆有严重故障。持续从信号源到放大器作用时，请通过减小其增益或将其拔掉的方式检查信号路径中的每个设备。
INNER WORKINGS

An impressive amount of technology is packed "under the hood" of a DCA Series amplifier. Thousands of watts of power flow inches away from state-of-the-art low noise inputs. Precise circuit layout and thorough protection assure that all of this activity occurs smoothly and safely. So, what actually happens when you turn on the power switch?

**Soft Start Sequence.** The first task is to charge the primary energy reservoir without drawing a large surge current. A special inrush limiter allows just enough current to charge the energy bank in three seconds. Meanwhile, a low-power switching supply provides power to start up the main supply. After three seconds, a relay bypasses the inrush limiting and full power operation is enabled. The audio circuitry mates for one second to eliminate start-up thumps. When the red **Clip** lights go out, the amplifier is ready for action.

**PowerLight Technology.** High current switching devices draw over 10,000 watts of peak power from the main energy reservoir which is replenished directly from the AC line for maximum stiffness. Conventional amplifiers must isolate the energy bank with a large AC transformer, which weakens the flow of current, allows greater sag under load, and produces hum. The PowerLight supply performs voltage conversion at a very high frequency, allowing better coupling through a much smaller isolation transformer.

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**内部工作元件**

DCA 系列放大器的“罩壳下”包含相当多的技术。数千瓦的功率将逐渐通过最先进的低噪音降压输入。精确的电路布局和彻底的保护可保证所有活动顺利和安全地进行。因此，当您打开电源开关时，实际上会发生什么呢?

软启动顺序。第一个任务是为主要电能池充电，而不吸收大量电流。特别的插入限制器使刚好足够的电流对电能池充电三秒钟。同时，低功率开关电源为主电源提供启动电源。三秒钟后，电源器绕过插入限制并启动全功率操作。音频电路静音一秒钟，以消除启动噪音。红色削波指示灯熄灭时，放大器就准备好开始工作了。

PowerLight 技术。高电流切换设备从主电能池吸收超过 10,000 瓦的峰值功率，主电能池则直接从 AC 线路提供能量，以保持最大电容。传统放大器必须使用大型 AC 变压器隔离电能池。这时抑制电流，使电流在负载下进一步降低。并产生噪声。PowerLight 电源用超高频执行变压，通过更小的隔离变压器实现更好的耦合。
**INNER WORKINGS**

**High Performance Audio.** High speed power transistors convert this DC power into the full range audio output which drives the speakers. High-current design and special dual-sense output feedback corrects errors on both sides of the speaker terminals, improving damping and control of speaker motion. The power devices are directly mounted to isolated heat sinks, which form a short, wide air tunnel in front of the fan for optimum cooling.

A thermal sensor embedded in each channel’s heat sink monitors the temperature and controls fan speed, thermal shutdown, and bias control, assuring maximum audio clarity at all temperatures and signal levels. A circuit monitors transistor dissipation and triggers protective cutback only when actually needed.

The output circuitry is actively clamped during clipping for smooth and very fast recovery. The clamp also feeds a proportional clip limiter, which actually senses the depth of clipping and responds accordingly.

The balanced inputs use premium 0.1% precision resistors for very high noise rejection. The precision components used in the input filters and all other circuitry ensure accurate performance.

**Shutdown.** The amplifier mutes as soon as power is shut off, preventing turn-off noises. Serious faults trigger a shutdown of the power supply; the high-switching frequency cuts off power within microseconds to limit damage.

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**内部工作元件**

高性能音频。高速功率晶体管可以将此 DC 电源转换为驱动扬声器的全频音频输出。高电流设计和特别的双传感器输出反馈可纠正扬声器两侧的误差，改进扬声器运行的阻尼和控制。电源设备直接安装在隔离的热交换器上方，在风扇前方形成短而宽的气流通道，从而实现最佳散热效果。

每个声道的热交换器中嵌入的热传感器都可以监控温度并控制风扇速度、热量降低和偏压控制，确保在所有温度和信号水平下的最大音频清晰度。还有一个电路用于监视晶体管散热，并只在实际需要时才触发保护性降低。

输出电路在削波期间得到自动控制，以实现顺利和非常快速的恢复。削波电路还可使送到比例斜率限制器，这实际上感应到削波深度并相应地做出响应。

平衡输入端使用顶级 0.1% 精确电阻，可杜绝大部分噪音。输入滤波器和所有其他电路中使用的精确组件可确保精确的性能。

在电源关闭后，放大器处于静音状态，从而避免关闭噪音。严重故障将触发电源关闭；高开关频率可在几微秒内切断电源，以限制损坏程度。
## SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>DCA1222</th>
<th>DCA1622</th>
<th>DCA2422</th>
<th>DCA3022</th>
<th>DCA3422</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OUTPUT POWER in watts</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTC: 20 Hz–20 kHz @ 0.03% THD, all channels driven</td>
<td>170</td>
<td>250</td>
<td>375</td>
<td>500</td>
<td>650</td>
</tr>
<tr>
<td>8 ohms per channel</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>FTC: 20 Hz–20 kHz @ 0.03% THD, all channels driven</td>
<td>230</td>
<td>450</td>
<td>625</td>
<td>825</td>
<td>1050</td>
</tr>
<tr>
<td>4 ohms per channel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EIA: 1 kHz @ 1% THD, one channel driven</td>
<td>150</td>
<td>300</td>
<td>425</td>
<td>575</td>
<td>750</td>
</tr>
<tr>
<td>8 ohms per channel</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>DINA Mono:</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>16 ohms, 20 Hz–20 kHz, 0.1% THD</td>
<td>360</td>
<td>575</td>
<td>800</td>
<td>1050</td>
<td>1350</td>
</tr>
<tr>
<td>8 ohms, 20 Hz–20 kHz, 0.1% THD</td>
<td>650</td>
<td>1000</td>
<td>1350</td>
<td>1800</td>
<td>2100</td>
</tr>
<tr>
<td>4 ohms, 1 kHz, 1% THD</td>
<td>1200</td>
<td>1600</td>
<td>2400</td>
<td>3000</td>
<td>3400</td>
</tr>
<tr>
<td><strong>DYNAMIC HEADROOM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distortion</td>
<td>&lt; 0.01%</td>
<td>&lt; 0.01%</td>
<td>&lt; 0.02%</td>
<td>&lt; 0.02%</td>
<td>&lt; 0.02%</td>
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<tr>
<td><strong>FREQUENCY RESPONSE</strong></td>
<td></td>
<td></td>
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<tr>
<td>20 Hz–20 kHz, ≤0.15 dB</td>
<td>-3 dB points: 5 kHz and 100 kHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[at 10 dB below rated output power]</td>
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<tr>
<td><strong>DAMPING FACTOR</strong></td>
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<tr>
<td>&gt; 500 @ 8 ohms</td>
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</tr>
<tr>
<td><strong>NOISE</strong> (unweighted 20 Hz to 20 kHz, below rated output)</td>
<td>108 dB</td>
<td>197 dB</td>
<td>108 dB</td>
<td>107 dB</td>
<td>107 dB</td>
</tr>
<tr>
<td><strong>VOLTAGE GAIN</strong></td>
<td>40×[32 dB]</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>INPUT SENSITIVITY, V RMS</strong></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Full rated power @ 8 ohms</td>
<td>1.0v (+2.2 dBu)</td>
<td>1.2v (+3.9 dBu)</td>
<td>1.5v (+5.5 dBu)</td>
<td>1.7v (+6.8 dBu)</td>
<td>1.9v (+7.7 dBu)</td>
</tr>
<tr>
<td>Full rated power @ 4 ohms</td>
<td>0.6v (+1.3 dBu)</td>
<td>1.1v (+3.2 dBu)</td>
<td>1.3v (+4.6 dBu)</td>
<td>1.5v (+5.7 dBu)</td>
<td>1.7v (+6.6 dBu)</td>
</tr>
<tr>
<td><strong>INPUT IMPEDANCE</strong></td>
<td>10K ohms unbalanced</td>
<td>20K ohms balanced</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong># OF CHANNELS</strong></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>CONTROLS</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Front: AC switch, Ch. 1 and Ch. 2 gain knobs with 21 detents</td>
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<td></td>
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<tr>
<td>Rear: 19-position DIP switch</td>
<td></td>
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</tr>
<tr>
<td><strong>INDICATORS</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>POWER: Green LED</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CLIP: Red LED, 1 per channel</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PARALLEL: Yellow LED</td>
<td>-10 dB</td>
<td>Green LED, 1 per channel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRIDGED: Yellow LED</td>
<td>-20 dB</td>
<td>Green LED, 1 per channel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIGNAL: Green LED, 1 per channel</td>
<td></td>
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</tr>
<tr>
<td><strong>CONNECTORS</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Input: XLR and 1/4” (6.3 mm) TRS, tip and pin 2 positive; detachable “Euro-style” terminal blocks</td>
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<tr>
<td>Output: Barrier strip and Neutrik Speakon™</td>
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<tr>
<td>HD-15 female connector for QSCControl, DCM Digital Cinema Monitor, or accessories (XC-3, LF-3, or SF-3)</td>
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</tr>
<tr>
<td><strong>COOLING</strong></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Forced-air, with variable-speed fan: back-to-front air flow</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>AMPLIFIER PROTECTION</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Full short circuit, open circuit, thermal, ultrasonic, and RF protection</td>
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<tr>
<td>Stable into reactive or mismatched loads</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>规格</td>
<td>DCA1222</td>
<td>DCA1622</td>
<td>DCA2422</td>
<td>DCA3022</td>
<td>DCA3422</td>
</tr>
<tr>
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</tr>
<tr>
<td>输出电源 (AC)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>FTH；60 Hz-20 kHz ⊕ 0.03% THD</td>
<td>170</td>
<td>250</td>
<td>375</td>
<td>500</td>
<td>650</td>
</tr>
<tr>
<td>全声波驱动</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>每声道 1 欧姆</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 Hz-20 kHz ⊕ 0.05% THD</td>
<td>250</td>
<td>450</td>
<td>625</td>
<td>825</td>
<td>1050</td>
</tr>
<tr>
<td>全声波驱动</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>每声道 4 欧姆</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GND；1 kHz ⊕ 1% THD，大单相驱动</td>
<td>190</td>
<td>300</td>
<td>425</td>
<td>575</td>
<td>750</td>
</tr>
<tr>
<td>每声道 8 欧姆</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>每声道 4 欧姆</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>每声道 2 欧姆</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>桥式输出</td>
<td>360</td>
<td>575</td>
<td>800</td>
<td>1050</td>
<td>1350</td>
</tr>
<tr>
<td>16 欧姆，60 Hz-20 kHz，0.1% THD</td>
<td>650</td>
<td>1000</td>
<td>1350</td>
<td>1800</td>
<td>2100</td>
</tr>
<tr>
<td>8 欧姆，60 Hz-20 kHz，0.1% THD</td>
<td>1200</td>
<td>1600</td>
<td>2400</td>
<td>3000</td>
<td>3400</td>
</tr>
</tbody>
</table>

动态范围
-2 dB ⊕ 4 欧姆
失真
-0.1% ⊕ 4 欧姆
频率响应
-3 dB 点：5 Hz 至 100 kHz
阻尼因数
> 1000 ⊕ 8 欧姆
嗓音（未受权 20 Hz 到 20 kHz，低于规定输出）
电压增益
40 dB (32 dB)
输入灵敏度，V RMS
1.0 V ⊕ 2.2 dBU
0.9 V ⊕ 3.2 dBU
0.8 V ⊕ 3.3 dBU
0.7 V ⊕ 3.4 dBU
0.6 V ⊕ 3.5 dBU
0.5 V ⊕ 3.6 dBU
10K 欧姆（不平衡）
20K 欧姆（平衡）

声道数
1

控件
前控；AC 开关
后控；DIP 开关

指示灯
电源：绿色指示灯
打开：黄色指示灯 -10 dB
桥接：黄色指示灯 -20 dB
信号：绿色指示灯

连接器
输入：XLR 和 1/4 英寸（6.3 毫米）TRS
输出：屏蔽和 Neutrik Speaker™

冷却
强制气流，变速风扇，后方两侧加垫

放大器保护
全功能的短路、开路、过热和 RF 防护

DCA1222 DCA1622 DCA2422 DCA3022 DCA3422
### SPECIFICATIONS

<table>
<thead>
<tr>
<th>DCA1624</th>
<th>DCA1644</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OUTPUT POWER in watts</strong>&lt;br&gt; FTC, 20 Hz–20 kHz @ 0.03% THD, all channels driven</td>
<td>145</td>
</tr>
<tr>
<td>8 ohms per channel</td>
<td></td>
</tr>
<tr>
<td>FTC, 20 Hz–20 kHz @ 0.01% THD, all channels driven</td>
<td>240</td>
</tr>
<tr>
<td>4 ohms per channel</td>
<td></td>
</tr>
<tr>
<td>FTC, 20 Hz–20 kHz @ 1% THD, all channels driven</td>
<td></td>
</tr>
<tr>
<td>4 ohms per channel</td>
<td></td>
</tr>
<tr>
<td>EIA, 1 kHz @ 1% THD, one channel driven</td>
<td>450</td>
</tr>
<tr>
<td>8 ohms per channel</td>
<td></td>
</tr>
<tr>
<td>4 ohms per channel</td>
<td></td>
</tr>
<tr>
<td>2 ohms per channel</td>
<td></td>
</tr>
<tr>
<td><strong>Bridge Mono.</strong></td>
<td></td>
</tr>
<tr>
<td>16 ohms, 20 Hz–20 kHz, 0.1% THD</td>
<td>300</td>
</tr>
<tr>
<td>8 ohms, 20 Hz–20 kHz, 0.1% THD</td>
<td>500</td>
</tr>
<tr>
<td>4 ohms, 1 kHz, 1% THD</td>
<td>900</td>
</tr>
<tr>
<td>(both channel pairs driven, 4Ohm models)</td>
<td></td>
</tr>
<tr>
<td><strong>DYNAMIC HEADROOM</strong></td>
<td>2 dB @ 4 ohms</td>
</tr>
<tr>
<td><strong>DISTORTION</strong></td>
<td>&lt; 0.01%</td>
</tr>
<tr>
<td><strong>SMpte IM</strong></td>
<td>&lt; 0.01%</td>
</tr>
<tr>
<td><strong>FREQUENCY RESPONSE</strong></td>
<td>3 dB points: 5 Hz and 100 kHz</td>
</tr>
<tr>
<td>20 Hz–20 kHz, ±0.15 dB</td>
<td>&gt; 500 @ 8 ohms</td>
</tr>
<tr>
<td>(at 10 dB below rated output power)</td>
<td>106 dB</td>
</tr>
<tr>
<td><strong>DAMPING FACTOR</strong></td>
<td>40× (32 dB)</td>
</tr>
<tr>
<td><strong>NOISE</strong> (unweighted 20 Hz to 20 kHz, below rated output)</td>
<td>0.3 mV (0.18 dBu)</td>
</tr>
<tr>
<td><strong>VOLTAGE GAIN</strong></td>
<td>0.80 V (±0.3 dBu)</td>
</tr>
<tr>
<td><strong>INPUT SENSITIVITY, V RMS</strong></td>
<td>10K ohms unbalanced</td>
</tr>
<tr>
<td>full rated power @ 8 ohms</td>
<td>20K ohms balanced</td>
</tr>
<tr>
<td>full rated power @ 4 ohms</td>
<td></td>
</tr>
<tr>
<td><strong>INPUT IMPEDANCE</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong># OF CHANNELS</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>CONTROLS</strong></td>
<td>Front: AC switch, Ch. 1–4 gain knobs with 21 detents</td>
</tr>
<tr>
<td><strong>INDICATORS</strong></td>
<td>Rear: two 10-position DP switches</td>
</tr>
<tr>
<td><strong>POWER</strong></td>
<td>Green LED</td>
</tr>
<tr>
<td><strong>PARALLEL</strong></td>
<td>Yellow LED</td>
</tr>
<tr>
<td><strong>BRIDGED</strong></td>
<td>Yellow LED</td>
</tr>
<tr>
<td><strong>SIGNAL</strong></td>
<td>Green LED</td>
</tr>
<tr>
<td><strong>CONNECTORS</strong></td>
<td>Input: Detachable &quot;Euro-style&quot; terminal blocks (1 per channel)</td>
</tr>
<tr>
<td><strong>Cooling</strong></td>
<td>Output: Two barrier strips</td>
</tr>
<tr>
<td><strong>COOLING</strong></td>
<td>Two HD-15 female connector for QSC Control or DCM Digital Cinema Monitor</td>
</tr>
<tr>
<td><strong>AMPLIFIER PROTECTION</strong></td>
<td>Forced-air, with variable-speed fan, back-to-front air flow</td>
</tr>
<tr>
<td></td>
<td>Full short circuit, open circuit, thermal, ultrasonic, and RF protection</td>
</tr>
<tr>
<td></td>
<td>Stable into reactive or mismatched loads</td>
</tr>
<tr>
<td>规格</td>
<td>DCA1624</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
</tr>
<tr>
<td>输出电枢EI</td>
<td></td>
</tr>
<tr>
<td>ELC: 20 HZ-20 KHz @ 0.05% THD.</td>
<td>145</td>
</tr>
<tr>
<td>全声道驱动</td>
<td></td>
</tr>
<tr>
<td>每声道4欧姆</td>
<td>240</td>
</tr>
<tr>
<td>ELC: 20 HZ-20 KHz @ 0.1% THD.</td>
<td></td>
</tr>
<tr>
<td>全声道驱动</td>
<td></td>
</tr>
<tr>
<td>每声道4欧姆</td>
<td>450</td>
</tr>
<tr>
<td>开关</td>
<td></td>
</tr>
<tr>
<td>16欧姆，20 HZ-20 KHz，0.1% THD</td>
<td>300</td>
</tr>
<tr>
<td>8欧姆，20 HZ-20 KHz，0.1% THD</td>
<td>500</td>
</tr>
<tr>
<td>4欧姆，1 KHZ，1% THD</td>
<td>900</td>
</tr>
<tr>
<td>(驱动两个声道对，4声道型)</td>
<td></td>
</tr>
<tr>
<td>动态范围</td>
<td></td>
</tr>
<tr>
<td>失真</td>
<td></td>
</tr>
<tr>
<td>SMPTE-A</td>
<td>&lt; .01%</td>
</tr>
<tr>
<td>信噪比</td>
<td></td>
</tr>
<tr>
<td>20 HZ-20 KHz，±0.15 DB</td>
<td>&lt; 0.1%</td>
</tr>
<tr>
<td>&gt; 500 @ 4欧姆</td>
<td>106 DB</td>
</tr>
<tr>
<td>全频段功率</td>
<td>100 DB</td>
</tr>
<tr>
<td>频率响应</td>
<td>40 × (32 DB)</td>
</tr>
<tr>
<td>增益</td>
<td>0.93V (+1.6 DBU)</td>
</tr>
<tr>
<td>输入阻抗</td>
<td>0.78V (+0.3 DBU)</td>
</tr>
<tr>
<td>输入阻抗</td>
<td>10K欧姆（不平衡）</td>
</tr>
<tr>
<td>输出阻抗</td>
<td>20K欧姆（平衡）</td>
</tr>
<tr>
<td>声道数</td>
<td>4</td>
</tr>
<tr>
<td>输入</td>
<td></td>
</tr>
<tr>
<td>前部：AC开关，声道1-4增益旋钮，带有21个卡销</td>
<td></td>
</tr>
<tr>
<td>后部：两个10位置DIP开关</td>
<td></td>
</tr>
<tr>
<td>指示灯</td>
<td>电源：绿色指示灯，增益</td>
</tr>
<tr>
<td>开口：黄色指示灯，-10 DB</td>
<td>绿色指示灯，每声道1个</td>
</tr>
<tr>
<td>电位器：黄色指示灯，-20 DB</td>
<td>绿色指示灯，每声道1个</td>
</tr>
<tr>
<td>信号：绿色指示灯，每声道1个</td>
<td></td>
</tr>
<tr>
<td>连接器</td>
<td>输入：可隔离“欧式”接线端子（每声道1个）</td>
</tr>
<tr>
<td>输出：两条屏蔽线</td>
<td></td>
</tr>
<tr>
<td>冷却</td>
<td></td>
</tr>
<tr>
<td>放大器保护</td>
<td></td>
</tr>
</tbody>
</table>
## SPECIFICATIONS

<table>
<thead>
<tr>
<th>LOAD PROTECTION</th>
<th>DCA1222</th>
<th>DCA1622</th>
<th>DCA2422</th>
<th>DCA3022</th>
<th>DCA3422</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turn-on/tum-off muting, DC-fault power supply shutdown, clip limiting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OUTPUT CIRCUIT TYPE</td>
<td>AB</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>AB: Class AB complementary linear output</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H: Class A complementary linear output with Class H 2-step high efficiency circuit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### DIMENSIONS
- 19.0" (48.3 cm) wide, 3.5" (8.9 cm) tall (2 rack spaces)
- 14.0" (35.6 cm) deep (rack mounting to rear support ears)

### WEIGHT
- Shipping: 26.2 lbs (11.9 kg)  Net: 22.2 lbs (10.1 kg)

Available for 120 or 220–240 VAC, 50/60 Hz

### POWER CONSUMPTION @ 120 VAC
(both channels driven)

Multiply currents by 0.5 for 230V units

<table>
<thead>
<tr>
<th>T</th>
<th>0.8 A</th>
<th>0.8 A</th>
<th>0.9 A</th>
<th>0.9 A</th>
<th>0.9 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>3.6 A</td>
<td>3.6 A</td>
<td>5.6 A</td>
<td>5.6 A</td>
<td>5.6 A</td>
</tr>
<tr>
<td>M</td>
<td>6.0 A</td>
<td>6.0 A</td>
<td>8.0 A</td>
<td>8.0 A</td>
<td>8.0 A</td>
</tr>
</tbody>
</table>

### POWER CONSUMPTION NOTES

1/8 power with pink noise represents typical program with occasional clipping.

1/3 power with pink noise represents severe program with heavy clipping.

Continuous sine wave at 1% clipping.

* Thermal or overcurrent cutback limit duration.

US patents pending

**SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE**
## 规格

<table>
<thead>
<tr>
<th>功能</th>
<th>DCA1222</th>
<th>DCA1622</th>
<th>DCA2422</th>
<th>DCA3022</th>
<th>DCA3422</th>
</tr>
</thead>
<tbody>
<tr>
<td>负载保护</td>
<td>打开/关闭静音，DC放电</td>
<td>AB</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>输出电路类型</td>
<td>AB</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>尺寸</td>
<td>AB；AB 类辅助性输出</td>
<td>H；AB 类辅助性输出，使用 H 类 2 步降频电路</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>重量</td>
<td>35 英寸（89 厘米）高，3.5 英寸（89 厘米）高（双机架空间）</td>
<td>140 英寸（356 厘米）高（机架安装用竖直支架）</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>电源要求</td>
<td>适用于 120 或 220-240 VAC，50/60 Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 功耗@120 VAC (双声道驱动)

- 将 230V 单元的电流乘以 0.5

### 功耗说明

1. 1/3 功率，表示偶尔驱动的典型程序。
2. 1/3 功率，表示正常使用频率的典型程序。
3. 1% 频率时连续按压键。
4. 热量流过电话号码键时运行时间。

美国专利号

产品规格如有变更恕不另行通告。
SPECIFICATIONS

LOAD PROTECTION
Turn-on/turn-off muting, DC-fault power supply shutdown, clip limiting

OUTPUT CIRCUIT TYPE
AB

DIMENSIONS
AB: Class AB complementary linear output
H: Class AB complementary linear output with Class H 2-step high efficiency circuit

WEIGHT

POWER REQUIREMENTS

POWER CONSUMPTION @ 120 VAC
(both channels driven)

Multiply currents by 0.5 for 230V units

POWER CONSUMPTION NOTES

1/3 power with pink noise represents typical program with occasional clipping.

1/3 power with pink noise represents severe program with heavy clipping.

Continuous sine wave at 1% clipping.

Thermal or overcurrent cutback limits duration.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE
规格

DCA1824

负载保护
打开/关闭输出。DC故障时电源关闭，削波限制

输出电路类型 AB

AB：AB 类辅助线性输出

H：AB 类辅助线性输出，使用 H 类 2 步阶高频电路

尺寸

特性

电源要求

功耗@230 VAC
（双声输出）

将 230V 单元的电流乘以 0.5

功耗说明

1/3 功率，刺耳噪音表示偶尔削波的典型程序。
1/3 功率，刺耳噪音表示重度削波的严重程序。
1% 削波时连续会放波。

产品规格如有改变恕不另行通告。
Disclaimer

QSC Audio Products, LLC is not liable for any damage to speakers, amplifiers, or any other equipment that is caused by negligence or improper installation and/or use of the DCA amplifier.

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QSC Audio Products, LLC ("QSC") guarantees its products to be free from defective material and/or workmanship for a period of three (3) years from date of sale, and will replace defective parts and repair malfunctioning products under this warranty when the defect occurs under normal installation and use - provided the unit is returned to our factory or one of our authorized service stations via pre-paid transportation with a copy of proof of purchase (i.e., sales receipt). This warranty provides that the examination of the return product must indicate, in our judgment, a manufacturing defect. This warranty does not extend to any product which has been subjected to misuse, neglect, accident, improper installation, or where the data code has been removed or defaced. QSC shall not be liable for incidental and/or consequential damages. This warranty gives you specific legal rights. This limited warranty is freely transferable during the term of the warranty period.

Customer may have additional rights, which vary from state to state.

In the event that this product was manufactured for export and sale outside of the United States or its territories, then this limited warranty shall not apply. Removal of the serial number on this product, or purchase of this product from an unauthorized dealer, will void this limited warranty.

Periodically, this warranty is updated. To obtain the most recent version of QSC's warranty statement, please visit www.qscaudio.com.

Contact us at 800-854-4079 or visit our website at www.qscaudio.com.

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