

DDC520



Digmoda® DDC520 Two-Channel Plate Amplifier with Integral D-Pro DSP

In today's cost-conscious marketplace, powered loudspeaker systems are often the first choice for production studios, sound-reinforcement operators and high-end consumers. Loudspeaker manufacturers have several available options. Source a conventional amplifier and hope that it provides the flexibility you need. Or maybe design your own amplifier modules. Alternately, why not take advantage of an all-digital solution from KSC Industries – in other words, a Digmoda® Class-D Plate Amplifier with an integral DSP section– and one that provides affordable, simple-to-fabricate designs for your customers. Existing loudspeaker systems also can benefit from Digmoda's D-Pro™ DSP to fine-tune the system's frequency response and/or add specific characteristics for a target marketplace or end user. There is, quite literally, unlimited potential for improvement.

KSC Digmoda Digital Plate Amplifiers offer original equipment manufacturers a unique, easily implemented solution. Our Class-D Plate Amplifiers with user-programmable D-Pro Digital Audio Processor can turn any studio monitor or sound-reinforcement loudspeaker into a better sounding, self-contained, active system that extends your market opportunities.

The **DDC520 Two-Channel Plate Amplifier** is the ideal choice for fabricating traditional bi-amped loudspeaker systems. The unit features a 500W section for powering a low-frequency driver, and a 250W section to be used for either combination or separate MF/HF drivers. Programmable DSP lets you tailor the output of each of these three sections to match the precise requirements of the chosen loudspeaker components, including crossover frequencies, overall equalization, component-overload protection, level trims and time-alignment delays.

KSC's built-in **D-Pro Digital Audio Processing System** consists of two components: a Windows® XP-compatible **D-Pro Software Application** which, via an easy-to-use Graphical User Interface, lets OEM users adjust each system parameter; and a **DP Series Digital Audio Processor (DAP) Module** included within each plate amplifier that utilizes up to 16 Bi-quad filters per channel to provide the necessary ultra-precision, 24-bit/96 kHz DSP functions to implement the system settings developed by the D-Pro Software. During manufacturing, you simply connect a PC or laptop to the plate amplifier via a USB port, and load the relevant crossover, EQ, overload protection and delay settings into the amplifier's non-volatile flash memory. **It couldn't be easier.**

- **Reduced Time to Market ...**

New and updated products can be designed and put into production in a fraction of the time required with conventional amplifier designs and analog components.

- **No Tolerance Stack ...**

All-digital D-Pro circuits are totally predictable and produce results accurate to a fraction of a dB at any crossover frequency, bandwidth and level adjustment. Ultra-accurate results are just a keystroke away.

- **More Granular System Performance ...**

Because they are generated with all-digital precision, D-Pro crossovers, dynamics and EQ circuits are surgically accurate, which translates to tight, predictable response across the entire frequency range.

- **One SKU Fits All ...**

Any Digmoda Plate Amplifier can be used within a number of different loudspeaker models, with configuration-specific D-Pro system settings to suit different drivers and cabinet designs.

Consider the many practical and financial advantages of the Digmoda Plate Amplifiers:

- Speed up system development and evaluation.
- Eliminate component errors via all-digital circuitry.
- Add enhanced systems performance.
- Dramatically reduce inventory.
- Utilize side-chain processing.

The **DDC520 Two-Channel Plate Amplifier** combines a 500W section for powering a LF driver and a 250W section for either a combination MF/HF driver or, for example, separate MF and HF drivers via a passive crossover. The unit is designed to mount into a rear-panel cutout on the loudspeaker cabinet. The plate amplifier is secured to the enclosure via screws that connect through the rear panel to the amplifier's aluminum enclosure, with a supplied rubber gasket ensuring an air-tight fit. Only 2.5 inches of depth is required within the speaker cabinet, making it suitable for even slim-line designs.

For ultra-precision audio quality, we use only Class-D Power Amplifiers with analog feedback. To ensure audiophile-quality, Digmoda Class-D circuits utilize a proprietary topology that converts a low-level analog signal into a high-power pulse-width modulated (PWM) output. All our models are more than 80% efficient, thanks to a highly-evolved Class-D design and power supplies. They produce very little heat – a useful feature for plate amplifiers.

The Company

KSC Industries enjoys a 35-year reputation as a leading US-based OEM supplier of design, development and manufacturing resources for the loudspeaker industry. The Digmoda Professional Power Amplifier Systems with integral D-Pro DSP filters, crossovers and delay enable loudspeaker manufacturers to create and voice self-powered loudspeaker systems. The combination of powerful, easy-to-use D-Pro calibration software, coupled with fully configurable onboard signal processing, significantly reduces product development time by allowing an OEM manufacturer to eliminate frequency-response, time, phase and power anomalies in real time. Once completed, system settings are simply and easily loaded into the plate amplifier's non-volatile flash memory during loudspeaker production. A complete line of Digmoda Plate Amplifiers is available in a variety of power-delivery levels and configurations.

Key Digmoda Series

"Top Five" Benefits:

1. One-stop, all-digital Power Amplifier and Signal Processing solution.
2. Integral DSP functions for digital crossovers, system equalization and driver protection.
3. Interactive Windows® D-Pro Software Application for real-time system adjustment.
4. High-efficiency switching power supply for high-power density and small form factor.
5. Global feedback for high damping factors, producing ultra-precise control of transducers.

Physical Dimensions

- Weight: 9.65 lbs/4.38 kg; 12.75 lbs/5.78 kg (boxed).
- Dimensions: 18.58 x 7.00 x 2.52 in (H x W x D); 47.19 x 17.78 x 6.40 cm.
- Cutout Hole: 17.66 x 6.09 in (H x W) with 0.1 in corner radius; 44.86 x 15.57 cm with 0.25 cm corner radius.



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Input/Output Connections

- Single six-way Molex connector on rear of amplifier chassis for individual loudspeaker drivers.
- Line-level Audio-In via industry-standard XLR connectors on front of chassis (pin #2 Hot).
- Front-panel Signal-Overload Indicator and Power-on LEDs.
- Input sensitivity: Average 1.28V RMS variance
- Input impedance: 36 k Ω , balanced; 18 k Ω , unbalanced.
- DAP Communications Port via bi-directional USB connector for DSP adjustments.
- Power In/Out via industry-standard PowerCon® lockable connectors; available as 115V or 230V.

Audio Specifications				
Parameter	Conditions	Typical	Maximum	Unit
THD+N in 4 Ω (AES17 filter)	f = 40 Hz, Po = 1W	0.009	0.011	%
	f = 1 kHz, Po = 1W	0.019	0.024	
THD+N in 8 Ω (AES17 filter)	f = 40 Hz, Po = 1W	0.007	0.009	%
	f = 1 kHz, Po = 1W	0.013	0.016	
Maximal THD+N in 4 Ω (AES17 filter) -10dBFS	f = 40 Hz	0.006	0.008	%
	f = 1 kHz	0.010	0.013	
Maximal THD+N in 8 Ω (AES17 filter) -10dBFS	f = 40 Hz	0.006	0.008	%
	f = 1 kHz	0.010	0.013	
THD+N Low Level in 4 Ω	f = 40 Hz, 100 mW	0.02	-	%
	f = 1 kHz, 100 mW	0.07	-	
THD+N Low Level in 8 Ω	f = 40 Hz, 100 mW	0.02	-	%
	f = 1 kHz, 100 mW	0.05	-	
Nominal Voltage Gain (A _v)	f = 40 Hz	29.92	-	dBV
	f = 1 kHz	29.98	-	
Frequency Response (Po = 1W)	20 Hz - 100 kHz	± 0.5	± 1	dB
	100 Hz - 20 kHz	± 0.5	± 1	
Common Mode Rejection (CMR)	20 Hz - 20 kHz	-55	-	dB
Signal to Noise Ratio in 4 Ω (SNR)	0db=1% THD, 40 Hz	-135	-	dB
	0db=1% THD, 1 kHz	-110	-	
Signal to Noise Ratio in 8 Ω (SNR)	0db=1% THD, 40 Hz	-136	-	dB
	0db=1% THD, 1 kHz	-105	-	
Input Impedance (Z _{in})	Unbalanced	18	-	k Ω
	Balanced	36	-	
Input Sensitivity in 4 Ω (Balanced) (V _{in})	f = 40 Hz, 500W	1.43	-	Vms
	f = 1 kHz, 225W	0.99	-	
Input Sensitivity in 8 Ω (Balanced)	f = 40 Hz, 250W	1.42	-	Vms
	f = 1 kHz, 112W	0.95	-	
DC Output Offset in 4 Ω (DC _{off})	Low channel	3.0	-	mVms
	High channel	4.3	-	
DC Output Offset in 8 Ω (DC _{off})	Low channel	9.5	-	mVms
	High channel	4.3	-	
Input Clipping (V _{inclip})	f = 1 kHz	12	-	dBu
Damping Factor (DC _{clip})	f = 100 kHz, R _L = 8 Ω	2000	-	-

Power Specifications				
Parameter	Conditions	Typical	Maximum	Unit
Max output power 1% THD+N (P _e) (AES17 filter)	R _L = 4 Ω , 40 Hz	500	-	W
	R _L = 2.7 Ω , 1 kHz	250	-	
THD+N in 8 Ω 1% THD+N (P _e) (AES17 filter)	R _L = 8 Ω , 40 Hz	250	-	W
	R _L = 8 Ω , 1 kHz	112	-	
Power Draw at Idle P _{idle}	Idle (225VAC/60 Hz)	25	-	W