UNICA 4 Channel Cloud Based Amplifier Platform User Guide

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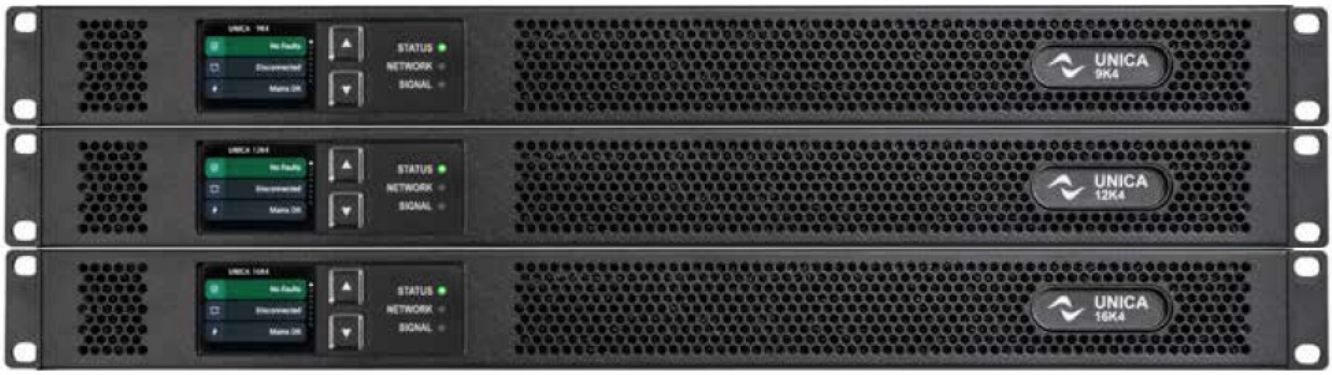
Unica™

UNICA 4 Channel Cloud Based Amplifier Platform



Product Information

UnicaTM 4-Channel Cloud Based Amplifier Platform

The UnicaTM Series is a compact, 1RU amplifier platform designed for installed applications. It features 4 output

channels with 9kW, 12kW, and 16kW total power models, offering high power density. The amplifier can drive Lo-Z and 70/100V lines seamlessly, delivering up to 5200W @ 4 ohms for the 16kW model. It operates worldwide (100-240VAC) with single-stage power factor correction (PFC) and Smart Rails Management (SRM) for efficient power supply adaptation.
The platform includes Powersoft's next-generation DSP for advanced processing and audio performance. It supports various network topologies with 1Gb Ethernet ports, DanteTM, and AES67 compatibility. The front panel display provides local monitoring, while PoE input ensures quick recovery during mains loss and continuous loudspeaker testing without mains power. Cloud connectivity via UniversoTM enables remote monitoring and control from any device worldwide.

Specifications:

Channel Handling:

- Number of output channels: 4
- Number of input channels: 4 Hi-Z or Lo-Z (bridgeable per channel pair)

Audio:

- Default gain: 32 dB
- Input sensitivity:
  - 9K4: 3.0 Vrms, 11.8 dBu
  - 12K4: 3.5 Vrms, 13 dBu
  - 16K4: 3.9 Vrms, 14 dBu
- Output noise floor (Analog Input):
  - 9K4: -72 dBV(A) typical
  - 12K4: 113.6 dB(A)
  - 16K4: 114.8 dB(A)
- Output noise floor (DanteTM/AES67 Input):
  - -76 dBV(A) typical
  - 9K4: 117.6 dB(A)
  - 12K4: 118.8 dB(A)
  - 16K4: 120 dB(A)
- Max input level: >+24 dBu
- Frequency Response: 20 Hz – 20 kHz +0.0 dB/-1.0 dB @ 8 ohms

Product Usage Instructions

Installation:

1. Ensure proper ventilation for the amplifier to prevent overheating.
2. Connect the amplifier to the power source within the specified voltage range (100-240VAC).
3. Connect the input channels based on your setup requirements.

Configuration:

1. Use the front panel display to monitor the operating status of the amplifier.

2. Configure network settings using the available Ethernet ports for remote access.

Maintenance:

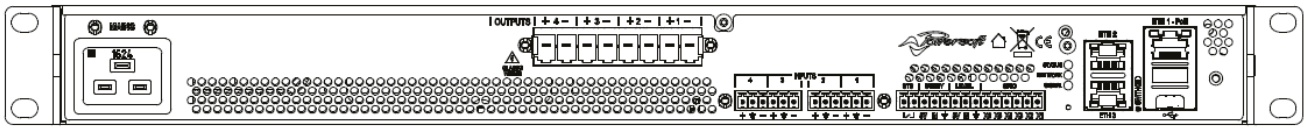
- Regularly check and clean the amplifier vents to maintain optimal performance.
- Update firmware as recommended by the manufacturer for improved functionality.

Frequently Asked Questions (FAQ):

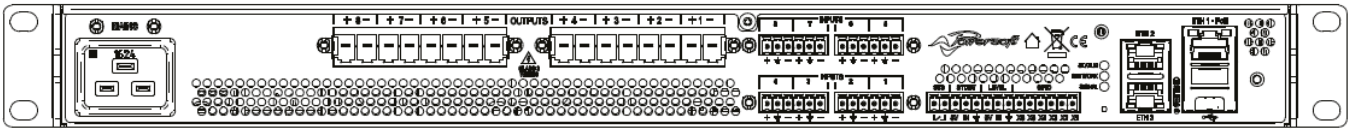
- Q: Can the UnicaTM amplifiers be used in cruise ships?
  A: Yes, UnicaTM Series amplifiers are suitable for use in cruise ships among other applications like theatres, performance venues, and more.
- Q: How can I monitor the amplifier remotely?
  A: You can utilize cloud connectivity via UniversoTM to remotely monitor and control the amplifier from any device worldwide.

OVERVIEW

4-Channel Cloud Based Amplifier Platform



8-Channel Cloud Based Amplifier Platform



INTRODUCTION

4-Channel Cloud Based Amplifier Platform

The UnicaTM Series is a compact, 1RU amplifier platform developed primarily for installed applications. The 4-channel version includes 9kW, 12kW, and 16kW total power models, making UnicaTM one of the most power-dense solutions available. The output channels can drive Lo-Z and 70/100V lines seamlessly, delivering up to 5200W @ 4Ω for the 16kW model, when asymmetrically loaded. The power supply allows worldwide operation (100-240VAC), and it is equipped with the latest generation of single-stage power factor correction (PFC). The proprietary Smart Rails Management (SRM) allows the supply rails to adapt in real time to the required output voltage to maximize efficiency and reduce idle losses.
UnicaTM platform features Powersoft's next-generation DSP for state-of-the-art processing and audio performance. The three 1Gb Ethernet ports, along with the native DanteTM and AES67 support allow for different network topologies including daisy-chain and DanteTM redundant.
The front panel display allows quick access to the amplifier operating status information for local monitoring. The PoE (Power over Ethernet) input allows for short recovery time in case of mains loss, as well as testing and monitoring loudspeakers 24/7 without the need for mains power.
Lastly, UnicaTM Series amplifiers natively support cloud connectivity for remote monitoring and control from any device anywhere in the world via UniversoTM, the Powersoft cloud platform interface.

- Medium to large-scale venues
- Main systems, central or distributed, subwoofers, hi-Z/lo-Z
- Mission critical applications
- Theatres, performance venues
- Houses of worship
- Convention centres
- Business centres
- Cruise ships

8-Channel Cloud Based Amplifier Platform

The UnicaTM Series is a compact, 1RU amplifier platform developed primarily for installed applications. The 8-channel version includes 2kW, 4kW, and 8kW total power models, making UnicaTM one of the most power-dense solutions available.
The output channels can drive Lo-Z and 70/100V lines seamlessly, delivering up to twice the rated power when asymmetrically loaded, resulting in 2000W @4Ω for the 8kW model. The power supply allows worldwide operation (100-240VAC), and it is equipped with the latest generation of single-stage power factor correction (PFC). The proprietary Smart Rails Management (SRM) allows the supply rails to adapt in real time to the required output voltage to maximize efficiency and reduce idle losses.
UnicaTM platform features Powersoft's next-generation DSP for state-of-the-art processing and audio performance. The three 1Gb Ethernet ports, along with the native DanteTM and AES67 support allow for different network topologies including daisy-chain and DanteTM redundant.
The front panel display allows quick access to the amplifier operating status information for local monitoring. The PoE (Power over Ethernet) input allows for short recovery time in case of mains loss, as well as testing and monitoring loudspeakers 24/7 without the need for mains power.
Lastly, UnicaTM Series amplifiers natively support cloud connectivity for remote monitoring and control from any device anywhere in the world via UniversoTM, the Powersoft cloud platform interface.

- Medium to large-scale venues
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- Mission critical applications
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- Business centres
- Cruise ships

FEATURES

4-Channel Cloud Based Amplifier Platfor

8-Channel Cloud Based Amplifier Platform

Specifications

4-Channel Cloud Based Amplifier Platfor

Channel Handling

Number of output channels	4 Hi-Z or Lo-Z (bridgeable per ch. pair)	Phoenix PC 5/8-STF1-7,62
Number of input channels		
Analog	4	Phoenix MC 1,5/6-ST-3,81
Dante™/AES67	4	3 x RJ45

Audio

Default gain		32 dB	
	9K4	12K4	16K4
Input sensitivity	3.0 V_{rms} 11.8 dBu	3.5 V_{rms} 13 dBu	3.9 V_{rms} 14 dBu
Output noise floor (Analog Input)	-72 dBV(A) typical		
SNR (Analog Input)	113.6 dB(A)	114.8 dB(A)	116 dB(A)
Output noise floor (Dante™/AES67 Input)	-76 dBV(A) typical		
SNR (Dante™/AES67 Input)	117.6 dB(A)	118.8 dB(A)	120 dB(A)
Max input level	>+24 dBu		
Frequency Response	20 Hz - 20 kHz +0.0 dB/-1.0 dB, @ 8 Ω		
Crosstalk	<-80dB typical, 20Hz to 1 kHz range <-60dB @20kHz typical		
Input impedance	20 kΩ balanced		
THD+N (from 0.1 W to Half Power)	< 0.05%		
SMPTE IMD (from 0.1 W to Half Power)	< 0.01%		
Damping factor	>2500 20Hz to 500 Hz		

DSP	
AD converters	24 Bit Tandem™ @ 48 kHz 130 dB(A) Dynamic Range - 0.00005 % THD+N
DA converters	24 Bit Tandem™ @ 48 kHz 132 dB(A) Dynamic Range - 0.00003 % THD+N
Latency	2.6 ms analog Input to amplifier Output
Onboard memory	Store and recall up to 50 amplifier snapshot
Delay	2 s (input) + 100 ms (output) for time alignment
Equalizer	Raised-cosine, custom FIR, parametric IIR: peaking, hi/lo-shelving, all-pass, band-pass, band-stop, hi/lo-pass
Crossover	linear phase (FIR), Butterworth, Linkwitz-Riley, Bessel: 6 dB/oct to 48 dB/oct (IIR)
Limiters	RMS voltage, RMS current, Peak limiter, TruePower™, Dynamic EQ
Damping control	Active DampingControl™
Loudspeaker diagnostic	Pilot tone monitoring, average impedance monitoring, load impedance measurement
Startup time	<10 s <0.5 s (with PoE backup power)

Construction	
Dimensions	489 x 400 x 44.3 (WxDxH) mm 19.3 x 15.8 x 1.7 (WxDxH) in
Weight	8 Kg (17.6 lb)

Data subject to change without notice.

Output Stage		9K4	12K4	16K4	
Commercial total rated power		9000	12000	16000	W
Maximum output power	per channel @ 100 V (symmetrical)*	2250	3000	4000	W
	per channel @ 70 V (symmetrical)*	2000	2500	3000	W
	per channel @ 16 Ω (symmetrical)*	900	1100	1300	W
	per channel @ 8 Ω (symmetrical)*	1600	2000	2500	W
	per channel @ 4 Ω (symmetrical)*	2250	3000	4000	W
	per channel @ 2 Ω (symmetrical)*	2000	3000	4000	W
	per bridged pair @ 8 Ω (symmetrical)*	4500	6000	8000	W
	per bridged pair @ 4 Ω (symmetrical)*	4000	6000	8000	W
	per channel @ 100 V (asymmetrical)**	3200	4000	5000	W
	per channel @ 70 V (asymmetrical)**	2500	3000	3500	W
	per channel @ 16 Ω (asymmetrical)**	900	1100	1400	W
	per channel @ 8 Ω (asymmetrical)**	1600	2000	2700	W
	per channel @ 4 Ω (asymmetrical)**	3200	4000	5200	W
	per channel @ 2 Ω (asymmetrical)**	2500	3500	4500	W
Maximum unclipped output voltage		170	195	220	V_{peak}
Maximum output current		60	70	80	A_{peak}

*: Available by driving and loading all the channels symmetrically.
**: Maximum power-sharing capacity per channel

Power & Thermal			9K4	12K4	16K4	
@ 115 V	Idle	Power	55	55	55	W
		Current Draw	0.65	0.65	0.65	A_{rms}
		Thermal Loss	190	190	190	BTU/h
	1/8 Power @ 4Ω	Power	1463	1951	2600	W
		Current Draw	13.1	17.5	23.2	A_{rms}
		Thermal Loss	1147	1528	2046	BTU/h
@ 230 V	Idle	Power	62	62	62	W
		Current Draw	0.52	0.52	0.52	A_{rms}
		Thermal Loss	211	211	211	BTU/h
	1/8 Power @ 4Ω	Power	1450	1940	2550	W
		Current Draw	6.6	8.8	11.6	A_{rms}
		Thermal Loss	1108	1500	1875	BTU/h
Power supply			Universal regulated switch mode with PFC and SRM			
Nominal voltage			100-240 VAC @ 50-60 Hz (400 VAC surge)			
Operating Voltage			80-265 VAC @ 50-60 Hz			
AC Mains connector			IEC C20 inlet (20 A max) region-specific power cord provided			
Eco Mode consumption			35 W			
Standby consumption			20 W Typical, CPU fully functional			
PoE Input			Class 4 or higher			

Networking	
Network	3 x Gigabit Ethernet ports RJ45 connectors
Network modes	Switched Mode, Split-Redundant Mode
Remote interface	ArmoníaPlus™, Universo™

8-Channel Cloud Based Amplifier Platform

Channel Handling

Number of output channels	8 Hi-Z or Lo-Z (bridgeable per ch. pair)	Phoenix PC 5/8-STF1-7,62
Number of input channels		
Analog	8	Phoenix MC 1,5/6-ST-3,81
Dante™/AES67	8	3 x RJ45

Audio

Default gain	32 dB
Input sensitivity	2.84 Vrms / 11.3 dBu
Output noise floor (Analog Input)	-72 dBV(A) typical
SNR (Analog Input)	112 dB(A)
Output noise floor (Dante™/AES67 Input)	-76 dBV(A) typical
SNR (Dante™/AES67 Input)	116 dB(A)
Max input level	>+24 dBu
Frequency Response	20 Hz - 20 kHz +0.0 dB/-1.0 dB, @ 8 Ω
Crosstalk	<-80dB typical, 20Hz to 1 kHz range <-60dB @20kHz typical
Input impedance	20 kΩ balanced
THD+N (from 0.1 W to Half Power)	< 0.05%
SMPTE IMD (from 0.1 W to Half Power)	< 0.01%
Damping factor	>2500 20Hz to 500 Hz

DSP	
AD converters	24 Bit Tandem™ @ 48 kHz 130 dB(A) Dynamic Range - 0.00005 % THD+N
DA converters	24 Bit Tandem™ @ 48 kHz 132 dB(A) Dynamic Range - 0.00003 % THD+N
Latency	2.6 ms analog Input to amplifier Output
Onboard memory	Store and recall up to 50 amplifier snapshot
Delay	2 s (input) + 100 ms (output) for time alignment
Equalizer	Raised-cosine, custom FIR, parametric IIR: peaking, hi/lo-shelving, all-pass, band-pass, band-stop, hi/lo-pass
Crossover	linear phase (FIR), Butterworth, Linkwitz-Riley, Bessel: 6 dB/oct to 48 dB/oct (IIR)
Limiters	RMS voltage, RMS current, Peak limiter, TruePower™, Dynamic EQ
Damping control	Active DampingControl™
Loudspeaker diagnostic	Pilot tone monitoring, average impedance monitoring, load impedance measurement
Startup time	<10 s <0.5 s (with PoE backup power)

Construction	
Dimensions	489 x 400 x 44.3 (WxDxH) mm 19.3 x 15.8 x 1.7 (WxDxH) in
Weight	7.9 Kg (17.4 lb)

Data subject to change without notice.

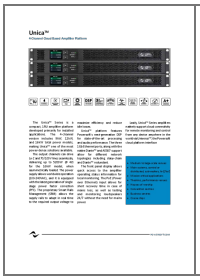
Output Stage		2K8	4K8	8K8	
Commercial total rated power		2000	4000	8000	W
Maximum output power	per channel @ 100 V (symmetrical)*	250	500	800	W
	per channel @ 70 V (symmetrical)*	250	500	1000	W
	per channel @ 16 Ω (symmetrical)*	250	500	650	W
	per channel @ 8 Ω (symmetrical)*	250	500	1000	W
	per channel @ 4 Ω (symmetrical)*	250	500	1000	W
	per channel @ 2 Ω (symmetrical)*	250	500	1000	W
	per bridged pair @ 8 Ω (symmetrical)*	500	1000	2000	W
	per bridged pair @ 4 Ω (symmetrical)*	500	1000	2000	W
	per channel @ 100 V (asymmetrical)**	500	1000	2000	W
	per channel @ 70 V (asymmetrical)**	500	1000	1500	W
	per channel @ 16 Ω (asymmetrical)**	500	500	750	W
	per channel @ 8 Ω (asymmetrical)**	500	1000	1500	W
	per channel @ 4 Ω (asymmetrical)**	500	1000	2000	W
	per channel @ 2 Ω (asymmetrical)**	500	1000	1000	W
Maximum unclipped output voltage			160		V_{peak}
Maximum output current		30	40	48	A_{peak}

*: Available by driving and loading all the channels symmetrically.
**: Maximum power-sharing capacity per channel

Power & Thermal			2K8	4K8	8K8	
@ 115 V	Idle	Power	65	65	65	W
		Current Draw	0.707	0.707	0.707	A_{rms}
		Thermal Loss	222	222	222	BTU/h
	1/8 Power @ 4Ω	Power	406	729	1380	W
		Current Draw	3.61	6.44	12	A_{rms}
		Thermal Loss	532	781	1297	BTU/h
@ 230 V	Idle	Power	73	73	73	W
		Current Draw	0.605	0.605	0.605	A_{rms}
		Thermal Loss	249	249	249	BTU/h
	1/8 Power @ 4Ω	Power	412	724	1360	W
		Current Draw	2.24	3.51	6.1	A_{rms}
		Thermal Loss	553	764	1228	BTU/h
Power supply			Universal regulated switch mode with PFC and SRM			
Nominal voltage			100-240 VAC @ 50-60 Hz (400 VAC surge)			
Operating Voltage			80-265 VAC @ 50-60 Hz			
AC Mains connector			IEC C20 inlet (20 A max) region-specific power cord provided			
Eco Mode consumption			43 W			
Standby consumption			20 W Typical, CPU fully functional			
PoE Input			Class 4 or higher			

Networking	
Network	3 x Gigabit Ethernet ports RJ45 connectors
Network modes	Switched Mode, Split-Redundant Mode
Remote interface	ArmoníaPlus™, Universo™

Documents / Resources

	UNICA 4 Channel Cloud Based Amplifier Platform [pdf] User Guide 9K4, 12K4, 16K4, 4 Channel Cloud Based Amplifier Platform, 4 Channel Amplifier Platform, Cloud Based Amplifier Platform, Cloud Based Amplifier, Amplifier Platform, Amplifier

References

- Powersoft - Driving Human Audio Experience
- User Manual