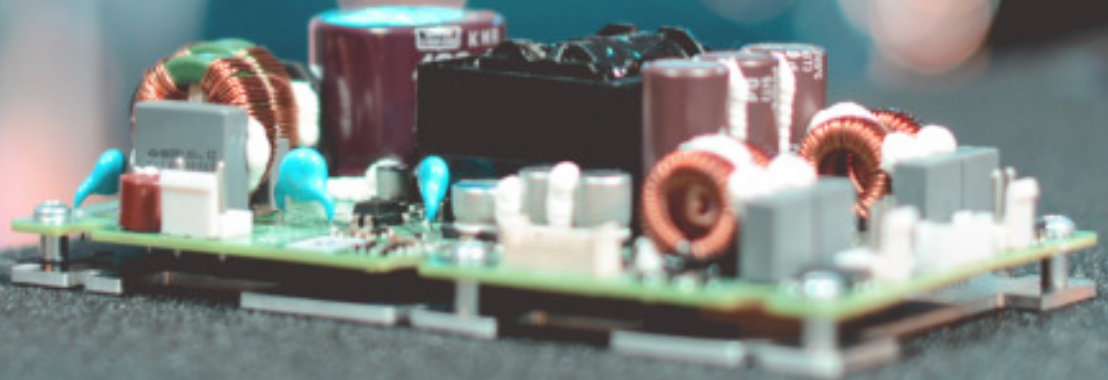




ICEpower **AS Series**



AS Series



Dear audio manufacturer

In an increasingly competitive, fast paced world, cost and time to market is becoming ever more important. Besides manufacturing cost, product development, logistics and quality costs in many cases contribute significantly to the total cost. In order to provide audio manufacturers with a competitive edge, the ICEpower AS Series has been designed with attention to cost through the entire product life cycle.

For example, to speed up your time to market and reduce your product development cost, we have added all system and housekeeping functions onto the AS modules so you don't need to spend time and money developing them yourself.

Logistics

Stocking and managing the logistics of delivering a product is expensive. To keep your stock and logistics cost to a minimum, the AS Series is designed with a Universal Mains power supply, eliminating the need to

stock both 115V and 230V versions of your product, thereby halving your necessary stock and saving you money.

Quality

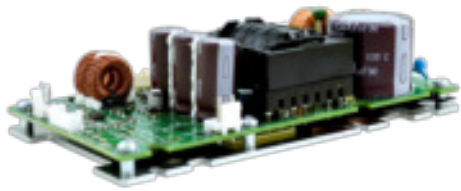
A product that fails at the end user is expensive. The costs associated with loss of reputation, repairing, replacing or even recalling the product can be significant. The AS Series has been developed with the highest attention to quality to ensure long product life, excellent reliability and very low field failure rates. When developing products with the AS Series, you don't need to worry about quality costs.

Sound

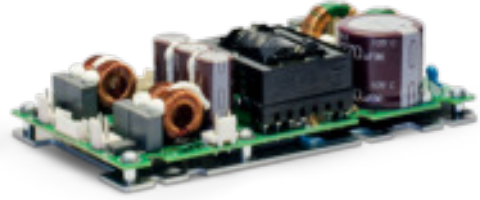
So, hasn't all this focus on cost comprised the audio performance? Absolutely not. True to the ICEpower brand promise, the AS Series class D amplifiers are based on proprietary ICEpower class D technologies, ensuring crisp, clear and delicate audio reproduction with a tightly controlled bass response.

Want to listen for yourself? Please contact us at info@icepower.dk to order a sample. We look forward to hearing from you.

AS Series



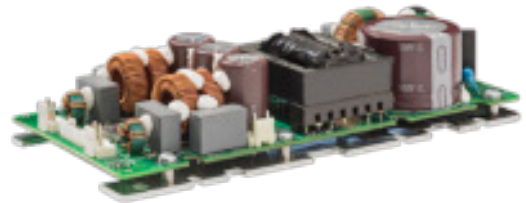
100AS1



100AS2



200AS1



200AS2



300AS1



300A1



700AS1



700AS2



1200AS1



1200AS2

AS Series Overview

The ICEpower AS Series consists of intelligent audio power conversion solutions designed particularly for highly competitive consumer and professional audio applications. The series includes both 1 and 2 channel modules of 100 W, 200 W, 300 W, 700 W and 1200 W. The key distinguishing qualities of these modules are excellent audio performance, a wide array of features, flexibility and application convenience.

Amplifiers

All modules in the AS Series combine high performance class D amplifiers with a universal mains switch mode power supply with standby functionality, auxiliary power supplies, wake on signal sense, 5 V and 12 V triggers, status LED indicators and a DC-bus output for powering additional ICEpower 300A1 amplifiers.

Basically everything needed for a bass or guitar amplifier, a subwoofer, an active loudspeaker or a high-end amplifier.

Design

The 300A1 module is essentially the amplifier part of the 300AS1. It is designed to be a “hanger” module, that can be powered from the DC-bus output of the 300AS1, 700AS1/2 or 1200AS1/2. This means that a combination of these modules can be used to create anything from a subwoofer to a stereo amplifier or a 2- or 3-way active loudspeaker. This is what we call design flexibility.

All the AS amplifier modules are based on patented ICEpower modulation and control techniques. This enables excellent audio performance and high efficiency in an ultra-compact and lightweight package.

A full overview of features and specifications is on page 14.

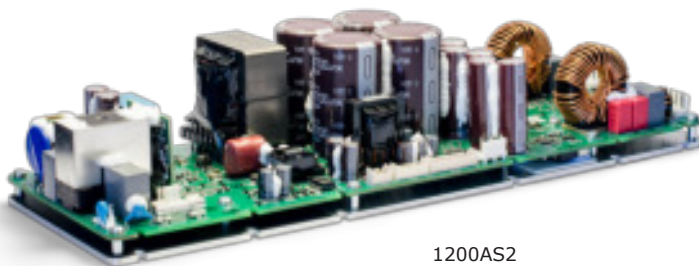
Application Convenience

The ability to bring new products to the market fast, with a minimum of development investment required, is key to surviving in an increasingly competitive global market.

Using an ICEpower amplifier and power supply module is a turn-key approach to product development, that frees up your development resources. This enables you to focus on developing product features that truly differentiate your product rather than spending time on developing amplifiers and power supplies.

To deliver on this promise, the ICEpower AS Series is designed to require no additional heat sinking and is pre-approved for Safety, EMC and RoHS compliance with all certificates available through ICEpower.

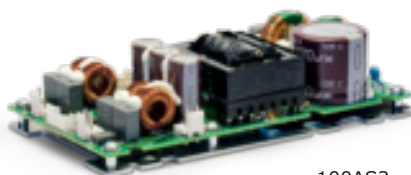
The fact that no upfront investments are required for product development means that using an ICEpower standard module secures cost competitiveness even at low manufacturing volumes.



1200AS2



300A1



100AS2



200AS2

Applications

The rich feature set and superb audio performance of the AS Series make the modules a perfect match for subwoofers, active loudspeakers and high-end consumer and professional audio applications.

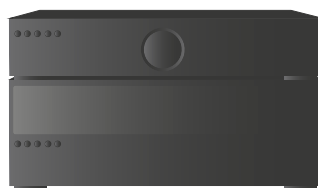
The typical applications include:

- **Subwoofers**
- **High-end stereo and multi-channel amplifiers**
- **Active 2- and 3- way speakers**
- **Bass amplifiers**
- **Guitar amplifiers**
- **PA speakers and line arrays**

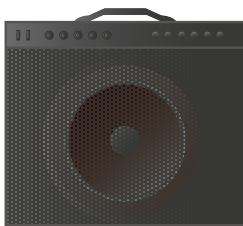
Perfect for:



Subwoofers



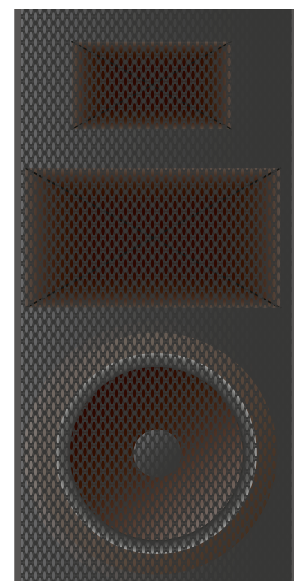
High-end stereo and
multi-channel amplifiers



Bass & Guitar amplifiers



Active 2- and
3- way speakers



PA speakers and
line arrays

Size and Power

ICEpower 100AS1

Amplifier and power supply
100W @ 1 % (20hz - 20kHz, 4Ω)

1 x 100
watt



ICEpower 100AS2

Amplifier and power supply
2 x 100W @ 1 % (20hz - 20kHz, 4Ω)

2 x 100
watt



ICEpower 200AS1

Amplifier and power supply
200W @ 1 % (20hz - 20kHz, 4Ω)

1 x 200
watt



ICEpower 200AS2

Amplifier and power supply
2 x 200W @ 1 % (20hz - 20kHz, 4Ω)

2 x 200
watt



ICEpower 300AS1

Amplifier and power supply
300W @ 1 % (20hz - 20kHz, 4Ω)

1 x 300
watt



ICEpower 300A1

Amplifier
300W @ 1 % (20hz - 20kHz, 4Ω)

1 x 300
watt



1 x 700
watt

ICEpower 700AS1

Amplifier and power supply
700W @ 1 % (20hz - 20kHz, 4Ω)



2 x 700
watt

ICEpower 700AS2

Amplifier and power supply
2 x 700 W @ 1 % (20hz - 20kHz, 4Ω)



1 x 1200
watt

ICEpower 1200AS1

Amplifier and power supply
1 x 1200 W @ 1 % (20hz - 20kHz, 4Ω)







































2 x 1200
watt

ICEpower 1200AS2

Amplifier and power supply
2 x 1200 W @ 1 % (20hz - 20kHz, 4Ω)



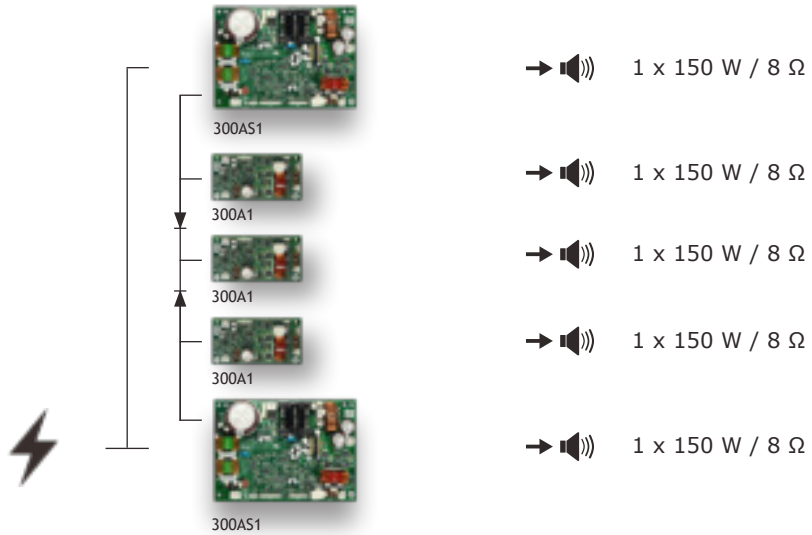
Applications

Application	Solution	Power
 <p>Active subwoofer 1 x 200 W / 4 Ω 1 x 300 W / 4 Ω 1 x 700 W / 4 Ω 1 x 1200 W / 4 Ω</p>	 —  <p>200AS1</p>	 1 x 200 W / 4 Ω
	 —  <p>300AS1</p>	 1 x 300 W / 4 Ω
	 —  <p>700AS1</p>	 1 x 700 W / 4 Ω
	 —  <p>1200AS1</p>	 1 x 1200 W / 4 Ω
 <p>Stereo amplifier 2 x 60 W / 8 Ω 2 x 120 W / 8 Ω 2 x 150 W / 8 Ω 2 x 350 W / 8 Ω 2 x 600 W / 8 Ω</p>	 —  <p>100AS2</p>	 1 x 60 W / 8 Ω  1 x 60 W / 8 Ω
	 —  <p>200AS2</p>	 1 x 120 W / 8 Ω  1 x 120 W / 8 Ω
	 —  <p>300A1</p>	 1 x 150 W / 8 Ω
	 —  <p>300AS1</p>	 1 x 150 W / 8 Ω
	 —  <p>700AS2</p>	 1 x 350 W / 8 Ω  1 x 350 W / 8 Ω
	 —  <p>1200AS2</p>	 1 x 600 W / 8 Ω  1 x 600 W / 8 Ω

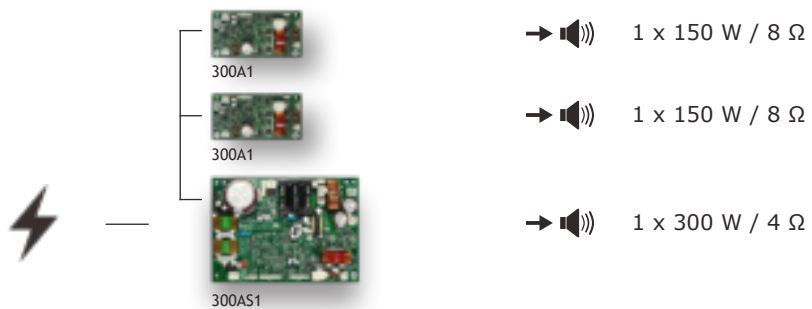
Application	Solution	Power
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Home theater amplifier
5 x 150 W / 8 Ω



3-way active speaker /studio monitor
2 x 150 W / 8 Ω
1 x 300 W / 4 Ω

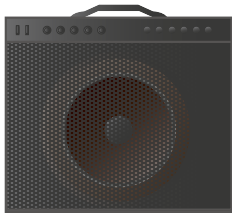


AS Series

Application

Solution

Power



Bass amplifier

1 x 100 W / 4 Ω
 1 x 200 W / 4 Ω
 1 x 300 W / 4 Ω
 1 x 700 W / 4 Ω
 1 x 1200 W / 4 Ω



—



100AS1



1 x 100 W / 4 Ω



—



200AS1



1 x 200 W / 4 Ω



—



300AS1



1 x 300 W / 4 Ω



—



700AS1



1 x 700 W / 4 Ω



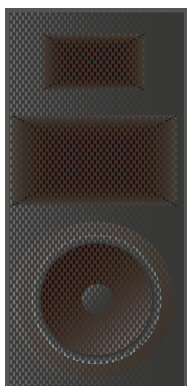
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1200AS1



1 x 1200 W / 4 Ω



Line array and PA speaker

1 x 350 W / 8 Ω
 1 x 700 W / 4 Ω
 1 x 600 W / 8 Ω
 1 x 1200 W / 4 Ω



—



700AS2



1 x 350 W / 8 Ω



1 x 700 W / 4 Ω



—



1200AS2



1 x 600 W / 8 Ω



1 x 1200 W / 4 Ω



Feature set summary

	100AS1/2	200AS1	200AS2	300AS1
Universal Mains SMPS (85 - 264 VAC, 47 Hz - 63 Hz)	✓	✓	✓	✓
ErP (1275 / 2008 / EC) compliant standby mode with less than 0.5W power consumption	✓	✓	✓	✓
+/-12 V Regulated auxillary power supply DC output	✓ (+/-17 V)	✓ (+/-17 V)	✓ (+/- 17 V)	✓ (+/-12 V)
+5 V Regulated auxillary power supply DC output	✓ (+ 7 V)	✓ (+ 7 V)	✓ (+ 8 V)	✓
Auto-start or wake up on signal (signal sense)	✓	✓	✓	✓
DC-Bus output for powering additional amplifiers	✓	✓	✓	✓
Balanced input and output	✓	✓	✓	✓
Soft start-up and mute/de-mute	✓	✓	✓	✓
Comprehensive protection scheme (thermal, over-current, high-frequency, under-voltage)	✓	✓	✓	✓
Mechanically rugged construction (Tested for 70G shocks in six directions)	✓	✓	✓	✓
Pre-approved for Safety, EMC and RoHS compliance	✓	✓	✓	✓

AS - Amplifier and Power Supply, e.g.

xxxAS1/2 - xxx W per channel, Amplifier and Power Supply 1 channel / 2 channel.

Key performance parameters

	100AS1/2	200AS1	200AS2	300AS1
Amplifier Output Power per channel 1 % THD+N, 20 Hz - 20 kHz	100 W (4Ω) 50 W (8Ω)	200 W (4Ω) 100 W (8Ω)	200 W (4Ω) 100 W (8Ω)	300 W (4Ω) 150 W (8Ω)
Amplifier Output Power per channel 10 % THD+N, 20 Hz - 20 kHz	135 W (4Ω)	255 W (4Ω)	260 W (4Ω)	380 W (4Ω)
Minimum load impedance	3 Ω	3 Ω	3,5 Ω	2.5 Ω
Maximum amplifier efficiency	-	-	-	-
Maximum total amp+psu efficiency	72 %	78 %	70 %	80 %
Supply voltage input	85-264 VAC	85-264 VAC	85-264 VAC	85-264 VAC
Peak output current	12.5 A	24 A	13 A	20 A
Dynamic range	109 dB	110 dB	110 dB	113 dB
Output referenced idle noise (A-weighted)	77 μV	92 μV	92 μV	75 μV
THD+N 1 W/1 kHz	0.005 %	0.006 %	0,005 %	0.006 %
Output impedance	200 mΩ	200 mΩ	200 mΩ	6 mΩ

Feature set summary

	300A1	700AS1/2	1200AS1/2
Universal Mains SMPS (85 - 264 VAC, 47 Hz - 63 Hz)	-	✓	✓
ErP (1275 / 2008 / EC) compliant standby mode with less than 0.5W power consumption	✓	✓	✓
+/-12 V Regulated auxillary power supply DC output	✓ (+/-12 V)	✓ (+/-15V)	✓ (+/-15V)
+5 V Regulated auxillary power supply DC output	-	✓	✓
Auto-start or wake up on signal (signal sense)	✓	✓	✓
DC-Bus output for powering additional amplifiers	✓	✓	✓
Balanced input and output	✓	✓	✓
Soft start-up and mute/de-mute	✓	✓	✓
Comprehensive protection scheme (thermal, over-current, high-frequency, under-voltage)	✓	✓	✓
Mechanically rugged construction (Tested for 70G shocks in six directions)	✓	✓	✓
Pre-approved for Safety, EMC and RoHS compliance	✓	✓	✓

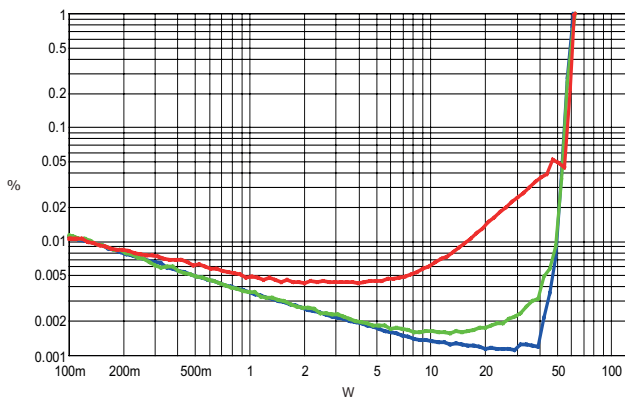
Key performance parameters

	300A1	700AS1/2	1200AS1/2
Amplifier Output Power per channel 1 % THD+N, 20 Hz - 20 kHz	300 W (4Ω) 150 W (8Ω)	700 W (4Ω) 350 W (8Ω)	1200 W (4Ω) 600 W (8Ω)
Amplifier Output Power per channel 10 % THD+N, 20 Hz - 20 kHz	380 W (4Ω)	800 W (4Ω)	1400 W (4Ω)
Minimum load impedance	2.5Ω	2.5Ω	2.7Ω
Maximum amplifier efficiency	90%	-	-
Maximum total amp+psu efficiency	-	84 %	80 %
Supply voltage input	22-55 VDC	85-264 VAC	85-264 VAC
Peak output current	20 A	30 A	38 A
Dynamic range	113 dB	117 dB	129 dB
Output referenced idle noise (A-weighted)	75 μV	70 μV	25 μV
THD+N 1 W/1 kHz	0.006 %	0.006 %	0.005 %
Output impedance	6 mΩ	7 mΩ	5 mΩ

Audio Performance

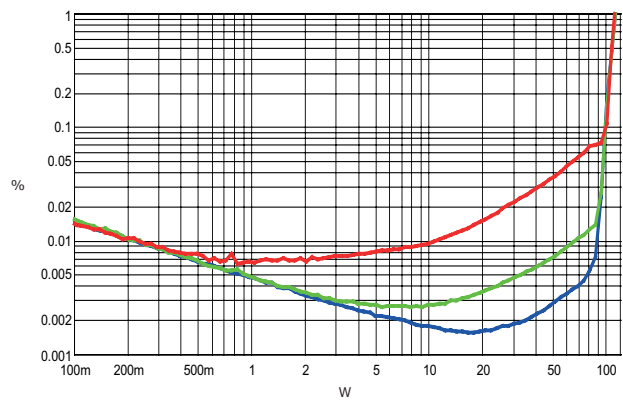
100AS1/2

100AS1/2 THD+N vs. output power



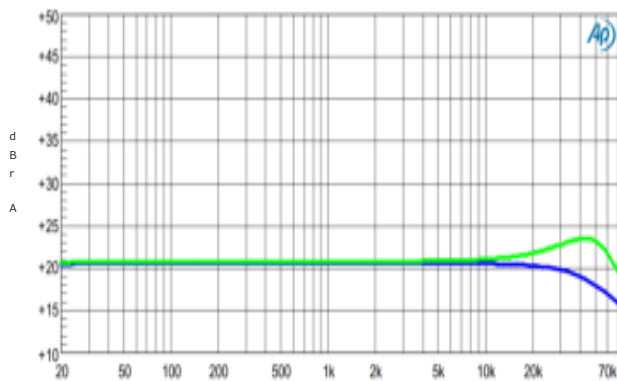
THD+N vs. P_o at 100 Hz, 1 kHz and 6.67 kHz (8 Ω), 230 Vac / 50 Hz

100AS1/2 THD+N vs. output power



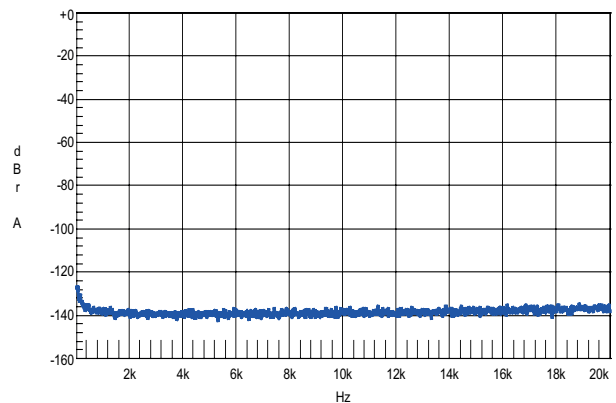
THD+N vs. P_o at 100 Hz, 1 kHz and 6.67 kHz (4 Ω), 230 Vac / 50 Hz

100AS1/2 Frequency Response



In 4 Ω , 8 Ω . Amplitude.

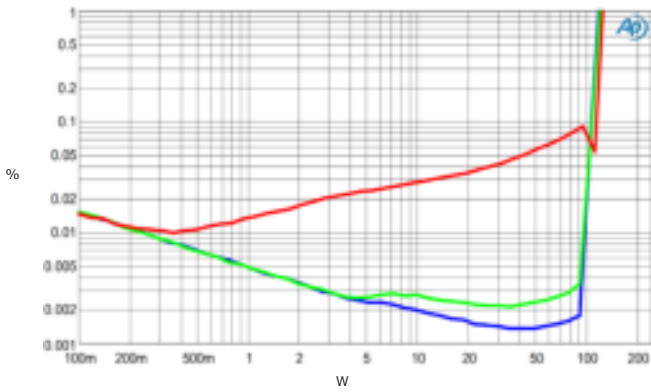
100AS1/2 Idle Noise



Idle noise 0 – 20 kHz @ 0dB = 100 W / 4 Ω

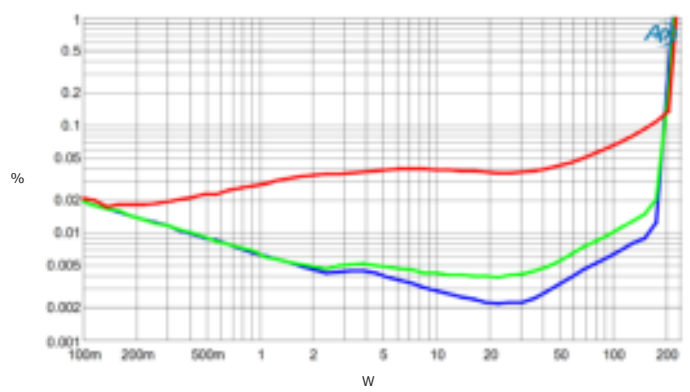
200AS1

200AS1 THD+N vs. output power



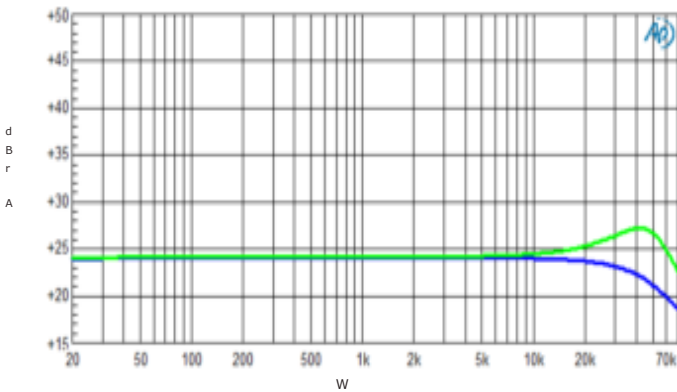
THD+N vs. power @ 100 Hz, 1 kHz, 6.66 kHz (8 Ω), 230 Vac / 50 Hz

200AS1 THD+N vs. output power



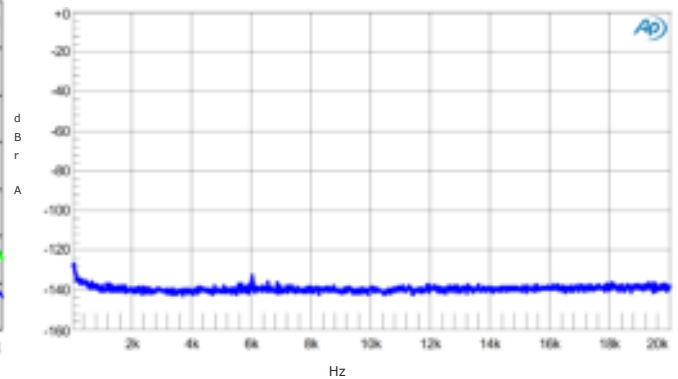
THD+N vs. power @ 100 Hz, 1 kHz, 6.66 kHz (4 Ω), 230 Vac / 50 Hz

200AS1 Frequency Response



In 4 Ω , 8 Ω . Amplitude.

200AS1 Idle Noise

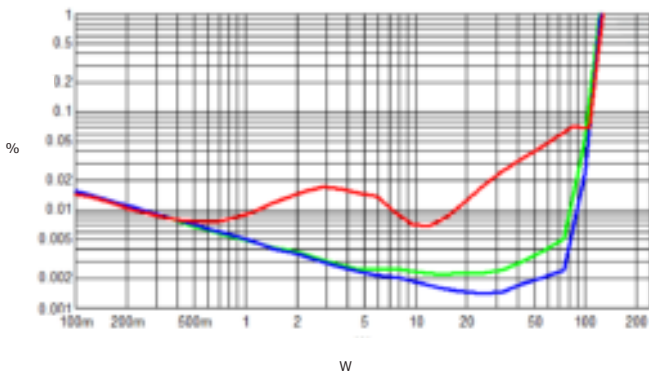


Idle noise 0 – 20 kHz @ 0dB = 200 W / 4 Ω

AS Series

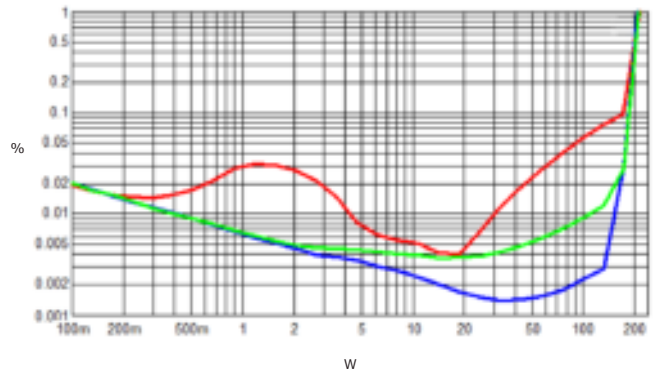
200AS2

200AS2 THD+N vs. output power



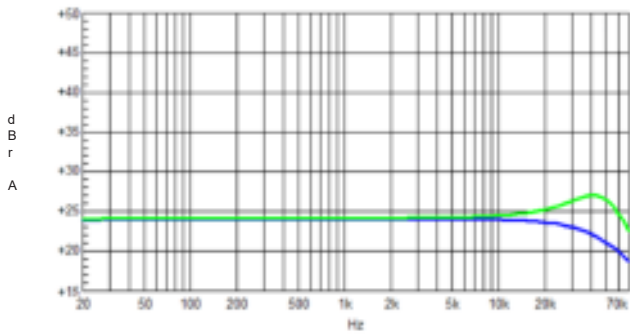
THD+N vs. Po at 100 Hz, 1 kHz and 6.67 kHz (8 Ω), 230 Vac / 50 Hz

200AS2 THD+N vs. output power



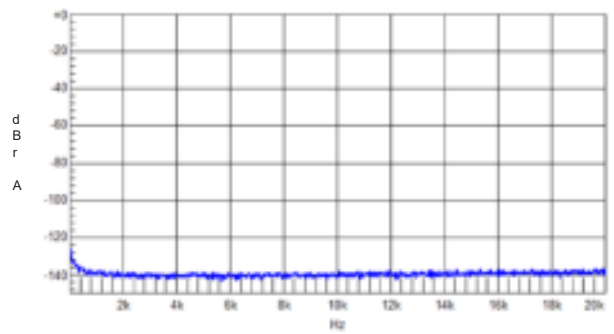
THD+N vs. Po at 100 Hz, 1 kHz and 6.67 kHz (4 Ω), 230 Vac / 50 Hz

200AS2 Frequency Response



In 4 Ω , 8 Ω . Top - amplitude.
Bottom - phase

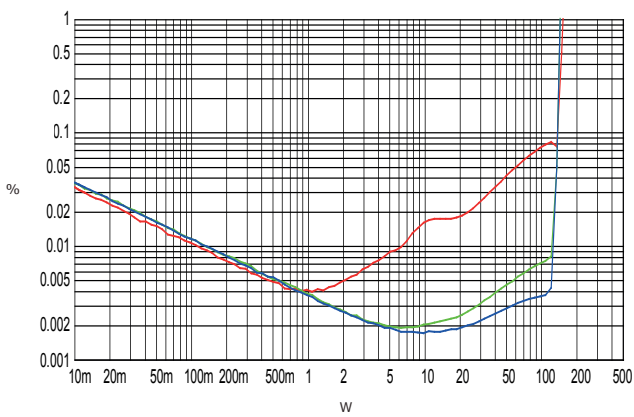
200AS2 Idle Noise



Idle noise 0 - 20 kHz @ 0dB = 200 W / 4 Ω

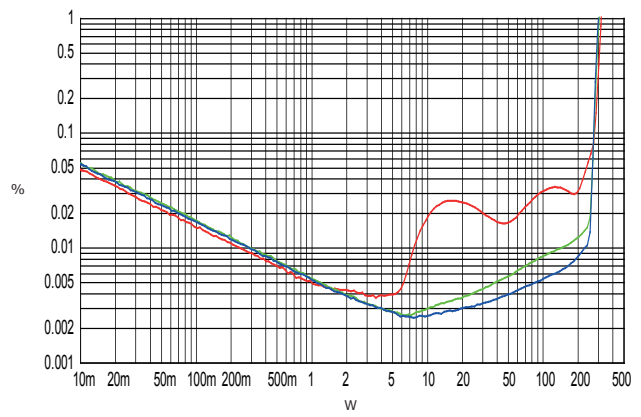
300AS1/A1

300AS1/A1 THD+N vs. output power



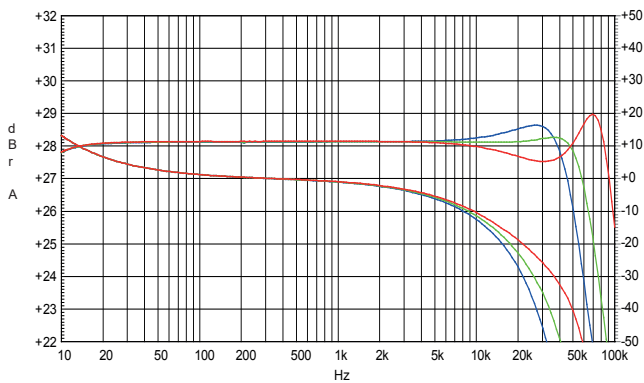
THD+N vs. P_o at 100 Hz, 1 kHz and 6.67 kHz (8 Ω), 230 Vac / 50 Hz

300AS1/2 THD+N vs. output power



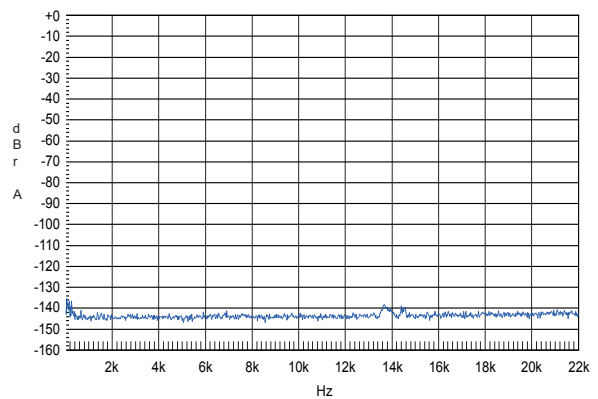
THD+N vs. P_o at 100 Hz, 1 kHz and 6.67 kHz (4 Ω), 230 Vac / 50 Hz

300AS1/A1 Frequency Response



In 4 Ω , 8 Ω and open load. Top - amplitude. Bottom - phase

300AS1/A1 Idle Noise

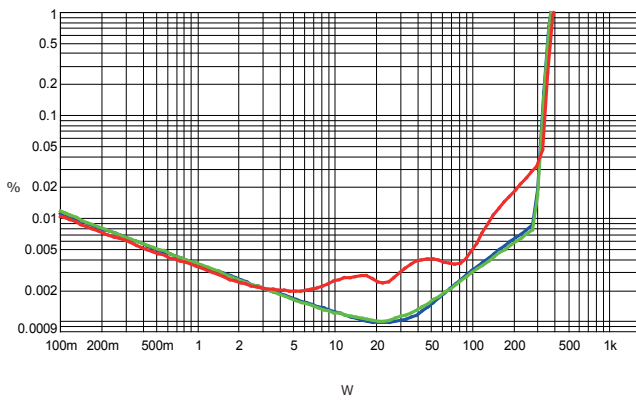


Idle noise 0 - 20 kHz @ 0dB = 300 W / 4 Ω

AS Series

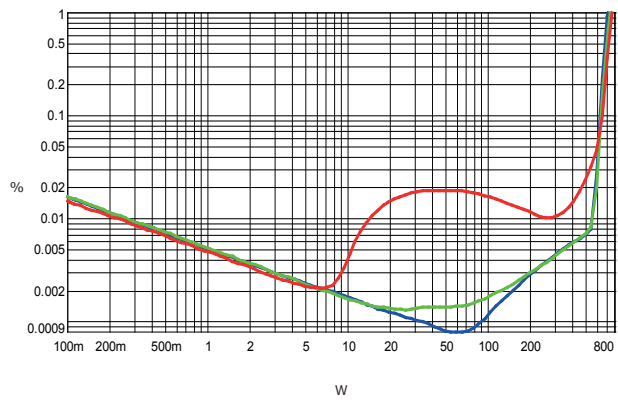
700AS1/2

700AS1/2 THD+N vs. output power



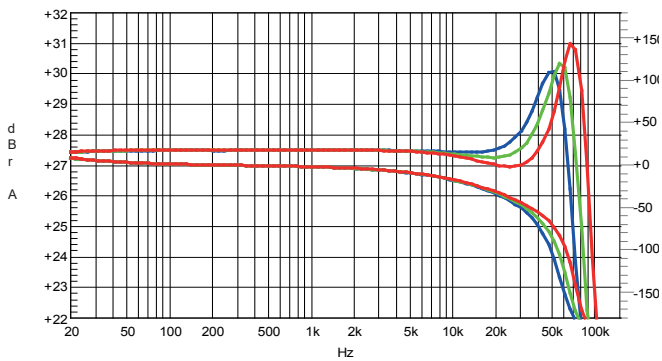
THD+N vs. P_o at 100 Hz, 1 kHz and 6.67 kHz (8 Ω), 230 Vac / 50 Hz

700AS1/2 THD+N vs. output power



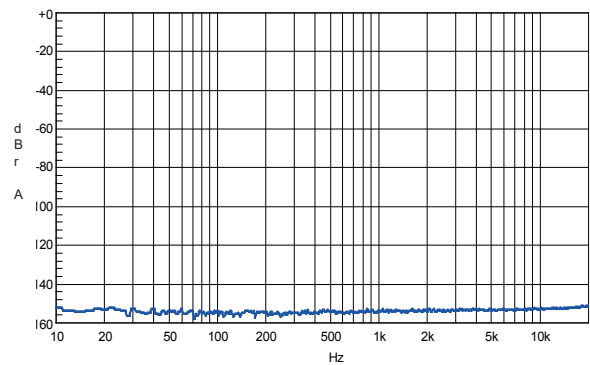
THD+N vs. P_o at 100 Hz, 1 kHz and 6.67 kHz (4 Ω), 230 Vac / 50 Hz

700AS1/2 Frequency Response



In 4 Ω , 8 Ω and open load. Top - amplitude. Bottom - phase

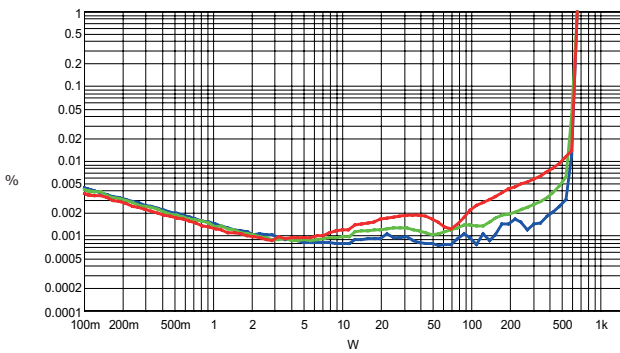
700AS1/2 Idle Noise



Idle noise 0 - 20 kHz @ 0dB = 700 W / 4 Ω

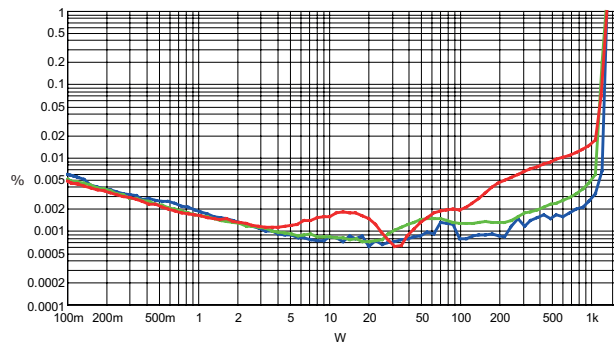
1200AS1/2

1200AS1/2 THD+N vs. output power



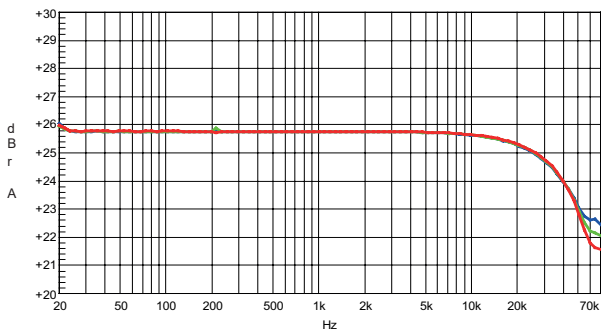
THD+N vs. P_o at 100 Hz, 1 kHz and 6.67 kHz (8 Ω), 230 Vac / 50 Hz

1200AS1/2 THD+N vs. output power



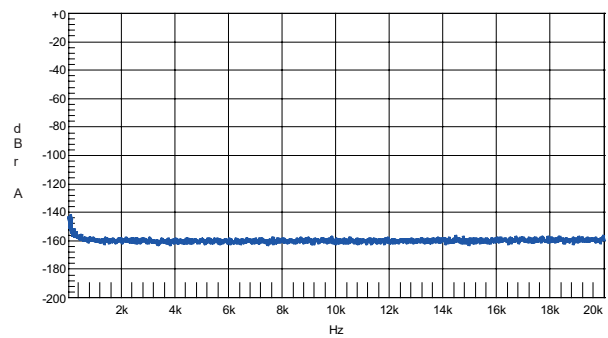
THD+N vs. P_o at 100 Hz, 1 kHz and 6.67 kHz (4 Ω), 230 Vac / 50 Hz

1200AS1/2 Frequency Response



In 4 Ω , 8 Ω and open load. Amplitude.

1200AS1/2 Idle Noise



Idle noise 0 – 20 kHz @ 0dB = 1200 W / 4 Ω

About ICEpower

ICEpower is an innovative Danish sound house and supplier of superior audio solutions based on world class technologies and competences within class D amplifiers, switch mode power supplies, digital signal processing and system design.

Our products are based on a range of innovative, proprietary technologies that deliver the best audio performance, efficiency and power density in the industry. Our technologies have raised the efficiency of audio amplifiers and power supplies from 50-70 %, possible with traditional analogue technologies, to 80-95 % – making audio devices “greener”. ICEpower was one of the first companies to pioneer the audio industry’s change from analogue technologies to highly efficient switching technologies, bringing about a true paradigm shift in the industry.

Today, we continue our focus on enhancing the efficiency, audio performance and power density in the audio power conversion chain. We work hard to stay on the forefront of technological development in our niche, continuously working to enhance our technological portfolio through in-house development, academic collaboration and partnerships with other industry players.

Since our establishment, we have cooperated with over 500 loyal customers and partners all over the world. Among them are some of the world’s most respected companies.

Please visit us at ICEpower.dk for further information about our products, our technologies and our company.

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