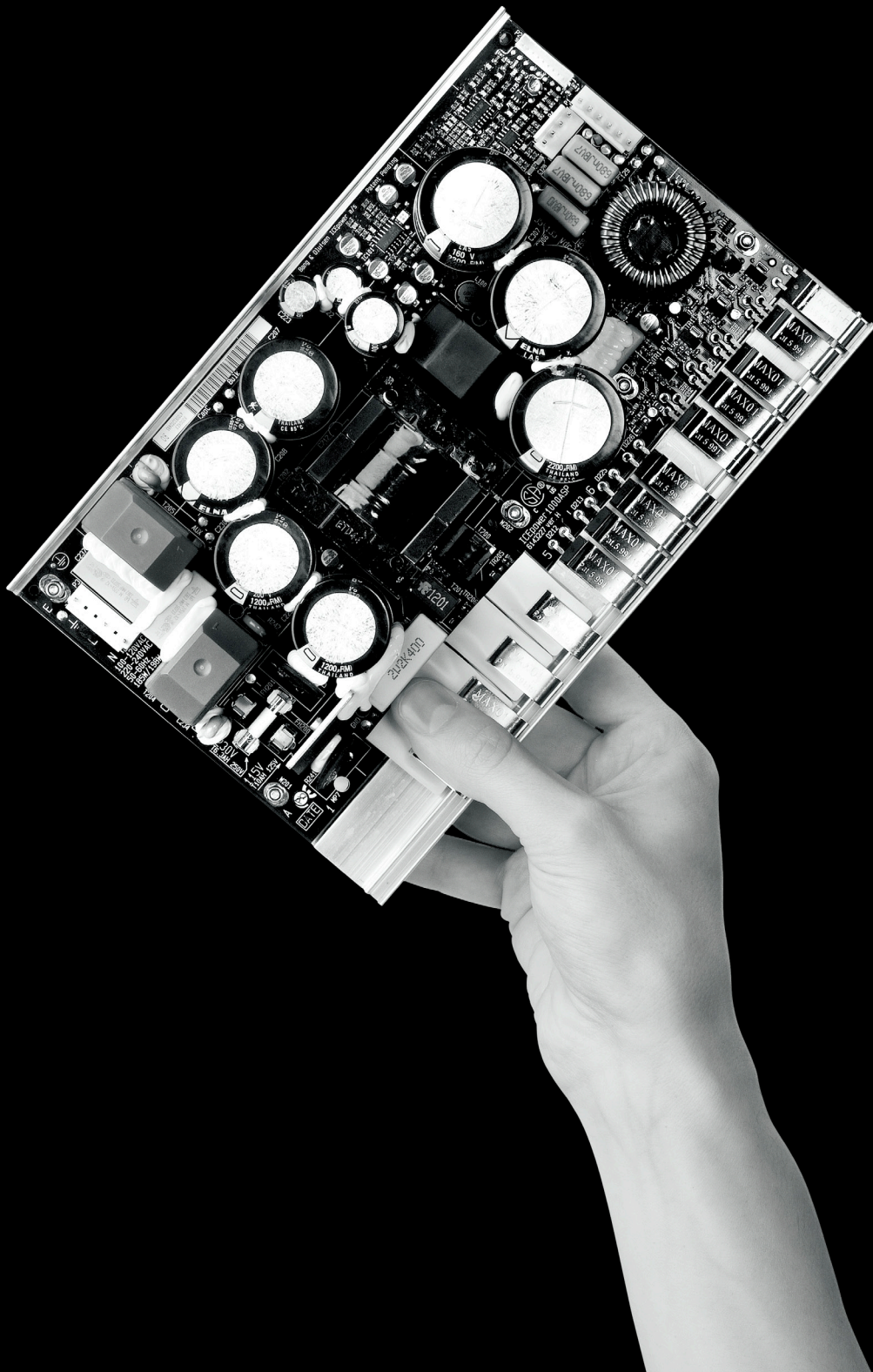
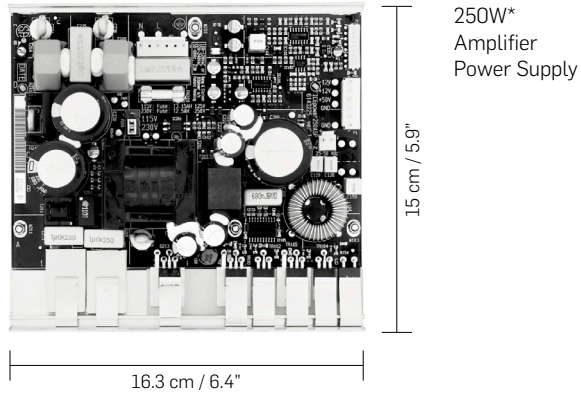


# ICEpower A & ASP Series

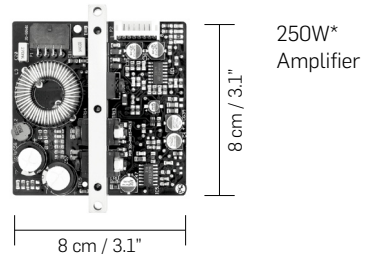


# Power & Size

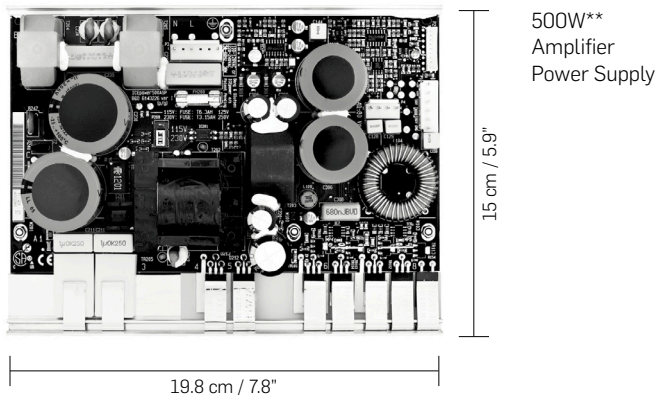
### ICEpower250ASP



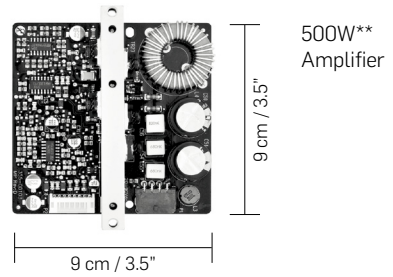
### ICEpower250A



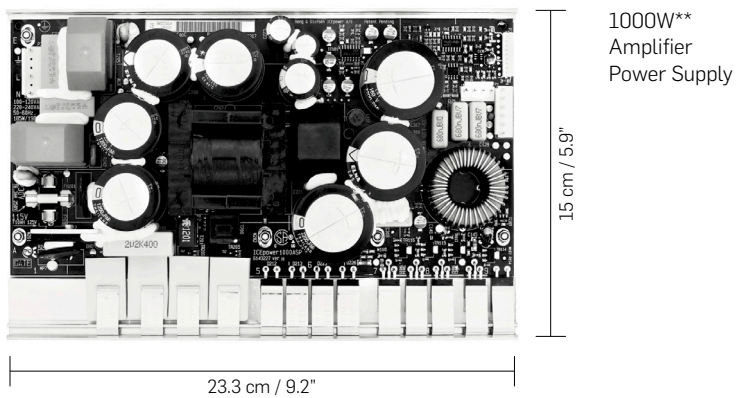
### ICEpower500ASP



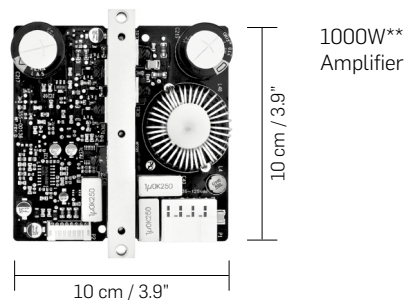
### ICEpower500A



### ICEpower1000ASP



### ICEpower1000A



\* Power ratings at 2.7Ω, 0.01% THD+N, 1kHz

\*\* Power ratings at 4Ω, 0.01% THD+N, 1kHz

# Dear Audio Manufacturer

Life on the road is tough. Also for gear. Public Address speakers for live concerts are being punished by serious mechanical vibration and shock while being trucked around, hand carried and dropped during concert setup and rigging. Still, they are expected to perform flawlessly, reliably and without failure, while being pushed to the limits during an entire concert, in all kinds of weather. Failure at a live performance is not an option.

Developing a reliable amplifier and power supply that can withstand life on the road, which you can trust to work every single time you rig up a concert, is a challenge.

The ICEpower ASP Series of class D amplifier and power supply modules has been developed to enable convenient development and short time to market for manufacturers of powered professional speakers.

Designed specifically with the highly demanding professional audio applications in mind, high reliability was a top priority when developing the ASP Series. This has been accomplished by building the modules around a heavy duty aluminum heat sink, capable of keeping the module cool even at high continuous output power levels. Furthermore, the heat sink provides the basis for a highly rugged mechanical construction, enabling the module to survive vibration and shocks of up to 70G.

To make sure it won't be the amplifier that causes the audience to walk out on a performance, the class D amplifiers in the modules are based on proprietary ICEpower double-loop feedback technology, enabling audio performance classes better than traditional class D amplifiers. The amplifier is combined with a beefy power supply with a high continuous output power, capable of sustaining the heaviest grungy bass notes and screaming, overdriven guitars. The result is an incredibly powerful, vibrant and clear sound stage. Don't take our word for it – order a sample and listen for yourself!

Since 2003, the ICEpower A & ASP Series has powered thousands and thousands of concerts all over the world. In fact, if you are a frequent concert-goer, chances are that you have already heard them, without even knowing it.

# A & ASP Series Overview

The ICEpower ASP Series combines a high performance class D amplifier with a switch mode power supply and is available in three power variants delivering 250W, 500W and 1000W. The built-in power supply works directly from selectable 115V/230V mains and is also capable of powering ICEpower A Series amplifiers and/or external signal conditioning circuitry, creating a compact, versatile power solution in a compact and lightweight package.

The ICEpower A Series consists of three high-performance general-purpose class D amplifiers, which are essentially the same as the amplifiers on the ASP modules. They are available in power variants of 250W, 500W and 1000W.

Both the A & ASP modules are based on patented ICEpower COM modulation and MECC control techniques. This enables excellent audio performance and high efficiency in an ultra-compact and lightweight package.

# 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 to focus on developing the product features that truly differentiate your product from your competitors rather than spending time on developing amplifiers and power supplies.

To deliver on this promise, the ICEpower A & ASP modules are pre-approved for Safety, EMC and RoHS compliance with all certificates available through ICEpower. Furthermore, the module design is very well thought through, requiring minimal design-in effort. This is due to the fact that the modules require no additional heat sinking and incorporates an auxiliary +/-12V power supply for powering low-voltage preamplifier or DSP circuitry. We also offer design-in support by ICEpower application engineers in order to speed up your development process and overcome obstacles.

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

# Applications

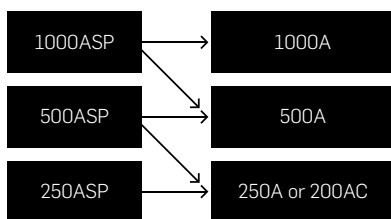
The reliability and ruggedness of the A & ASP Series makes them a great match for professional audio applications. The excellent sound quality also makes them suitable for discerning, high-end consumer audio applications. The typical applications include:

- Active speakers for professional touring, studio and installation use
- Active line arrays
- Musical instruments
- Stereo or multi-channel amplifiers: high-end and high-power systems
- Active subwoofers with high power requirements for professional and consumer use

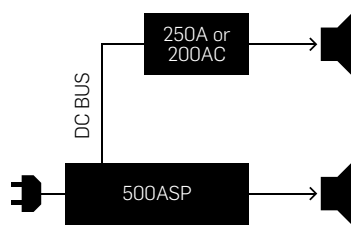
# Design Flexibility

The ASP & A modules represent a very flexible, modular approach to product development. The ASP modules includes the unique ICEpower DC hanger bus which is capable of supplying the necessary DC current to power up to two additional A- or AC- modules\* from the power supply of the ASP module. This makes it easy to develop anything from a 1-channel subwoofer to a stereo amplifier or a 2- or 3-way active loudspeaker.

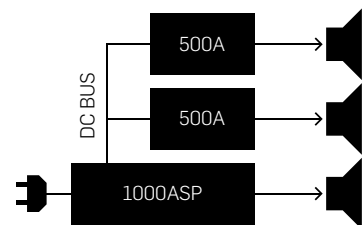
## Powering Options



## 2 – way speaker



## 3 – way speaker



\* Please visit our website [ICEpower.dk](http://ICEpower.dk) for more information on the ICEpower AC-series of amplifier and power supply modules.

# ASP Series

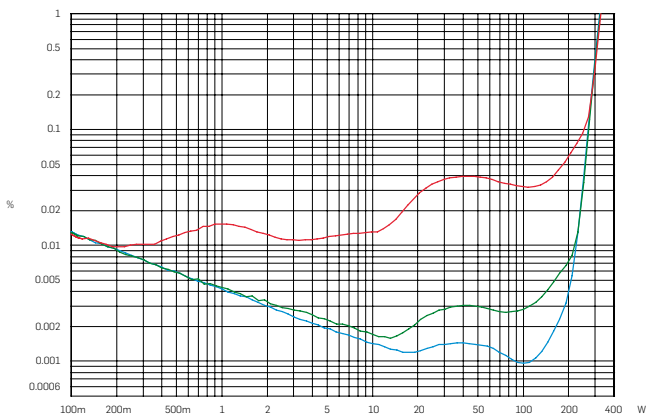
## Feature Set Summary

|  | 250ASP | 500ASP | 1000ASP |
|--|--------|--------|---------|
| Balanced input and output  | ■      | ■      | ■       |
| Soft start-up and mute/de-mute   | ■      | ■      | ■       |
| Standby mode   | ■      | ■      | ■       |
| Comprehensive protection scheme (thermal, over-current, high-frequency, under-voltage) | ■      | ■      | ■       |
| DC-Bus output for driving additional amplifier channels (A or AC Series)               | ■      | ■      | ■       |
| +/-12V Regulated auxiliary power supply  | ■      | ■      | ■       |
| Mechanically rugged construction (Tested for 70G shocks in all directions)             | ■      | ■      | ■       |
| Pre-approved for Safety, EMC and RoHS compliance                                       | ■      | ■      | ■       |

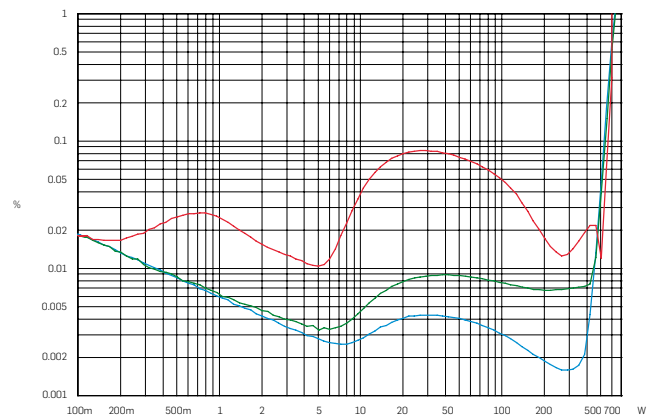
## Key Performance Parameters

|   | 250ASP                   | 500ASP                 | 1000ASP                 |
|---|--------------------------|------------------------|-------------------------|
| Output Power<br>0.1% THD+N, 1kHz          | 280W @ 2.7Ω<br>110W @ 8Ω | 500W @ 4Ω<br>250W @ 8Ω | 1100W @ 4Ω<br>525W @ 8Ω |
| Minimum load impedance                    | 2Ω                       | 2Ω                     | 2Ω                      |
| Total maximum                             | 83%                      | 83%                    | 83%                     |
| Peak output current                       | > 25A                    | > 45A                  | > 50A                   |
| Dynamic range                             | 112dBA                   | 115dBA                 | 119dBA                  |
| Output referenced idle noise (A-weighted) | 80μV                     | 80μV                   | 80μV                    |
| THD+N 1W/1kHz                             | 0.0055%                  | 0.006%                 | 0.007%                  |
| Output impedance                          | < 5mΩ @ 1kHz             | < 5mΩ @ 1kHz           | < 5mΩ @ 1kHz            |

## 500ASP THD+N vs. Output Power



THD+N vs. output power at 100Hz, 1kHz and 6.67kHz (8Ω).



THD+N vs. output power at 100Hz, 1kHz and 6.67kHz (4Ω).

# A Series

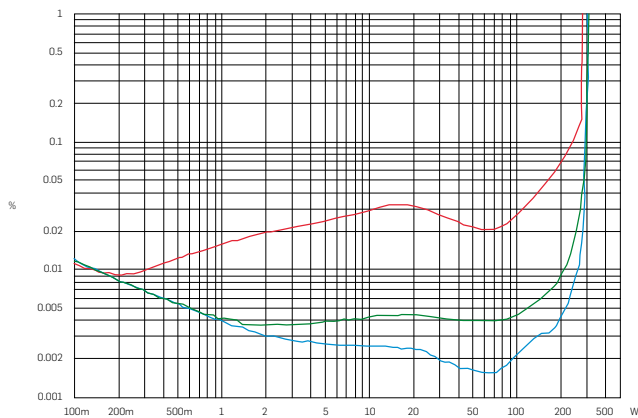
## Feature Set Summary

|   | 250A | 500A | 1000A |
|---|------|------|-------|
| Balanced input and output   | ■    | ■    | ■     |
| Soft start-up and mute/de-mute  | ■    | ■    | ■     |
| Under-voltage protection  | ■    | ■    | ■     |
| Standby mode  | ■    | ■    | ■     |
| Mechanically rugged construction<br>(Tested for 70G shocks in all directions) | ■    | ■    | ■     |
| Pre-approved for Safety, EMC and RoHS compliance                              | ■    | ■    | ■     |
| Full 20Hz – 20kHz audio bandwidth*  | ■    | ■    |       |

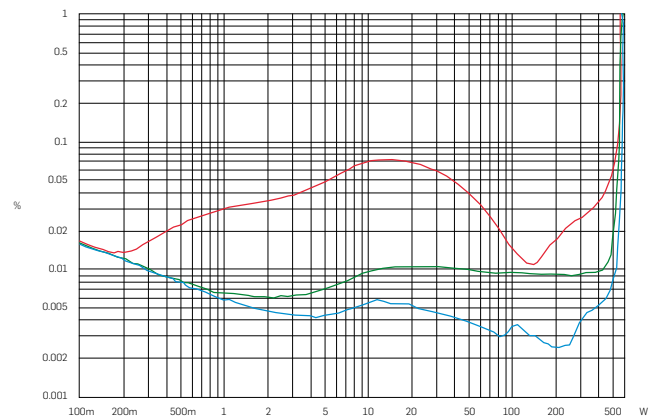
## Key Performance Parameters

|   | 250A                     | 500A                   | 1000A                   |
|---|--------------------------|------------------------|-------------------------|
| Output Power<br>0.1% THD+N, 1kHz          | 250W @ 2.7Ω<br>110W @ 8Ω | 600W @ 4Ω<br>300W @ 8Ω | 1000W @ 4Ω<br>600W @ 8Ω |
| Minimum load impedance                    | 2Ω                       | 2Ω                     | 2Ω                      |
| Total maximum                             | 93%                      | 93%                    | 93%                     |
| Peak output current                       | > 25A                    | > 45A                  | > 50A                   |
| Dynamic range                             | 112dBA                   | 117dBA                 | 120dBA                  |
| Output referenced idle noise (A-weighted) | 85μV                     | 75μV                   | 80μV                    |
| THD+N 1W/1kHz                             | 0.015%                   | 0.006%                 | 0.008%                  |
| Output impedance                          | < 5mΩ @ 1kHz             | < 5mΩ @ 1kHz           | < 5mΩ @ 1kHz            |

## 500A THD+N vs. Output Power



THD+N vs. output power at 100Hz, 1kHz and 6.67kHz (8Ω).



THD+N vs. output power at 100Hz, 1kHz and 6.67kHz (4Ω).

\* The 1000A module is intended for low frequency applications and is bandwidth limited to 3kHz (-3dB frequency).

# About ICEpower

Bang & Olufsen ICEpower is an innovative Danish company developing and manufacturing energy efficient, high performance class D audio solutions for consumer, professional, automotive and portable audio applications. Our products are based on a range of innovative, proprietary technologies that deliver the best audio performance, efficiency and power density in the industry.

The company was founded in 1999 by Bang & Olufsen and Dr. Karsten Nielsen, based on the technologies developed in a joint research project between Bang & Olufsen and the Technical University (DTU), where Karsten Nielsen managed to achieve significant improvements in efficiency and audio quality of switching technologies. Today ICEpower is a company of 40 and an independent subsidiary of Bang & Olufsen.

We are proud of the fact, that 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. 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".

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 100 loyal customers and partners all over the world. Among them are some of the world's most respected companies, such as Bang & Olufsen, Bowers & Wilkins, Pioneer, TEAC, Samsung, ASUS Computers, Sanyo and Audi.

Please visit us at [ICEpower.dk](http://ICEpower.dk) for further information about our products, our technologies and our company.

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