

INVISIBLE LOUDSPEAKER

# PRODUCT BROCHURE

— Invisible Sound Solutions 2017 —

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## Invisible Sound Solutions

### Why Invisible?

Increasing demand for integrated lifestyle-technology combined with the associated 'aesthetic-clutter' that it brings has led to a rise in hidden technology solutions. With 30% of brain power dedicated to visual stimulus and only 2% dedicated to audio, it is clear that the way we 'see' the sound has a huge impact on the way we perceive it. By removing the aesthetic aspect, it allows complete focus on the audio art-form as it was intended.

### How Does it Work?

With the invention of VPT (Vibrational Panel Technology), Amina has been able to take the common loudspeaker design and replace the cone with a flat panel. Instead of moving forwards and backwards visibly like a typical cone design, a VPT panel uses small vibrations to generate sound which can be heard but not seen. This allows for seamless integration of a loudspeaker into any wall, ceiling or flat decorative panel with zero visual impact.



## Acoustic and Construction Benefits



### Design & Install Flexibility

With a range of different construction methods and finishing techniques globally, Amina uses two core-technologies to allow integration of invisible loudspeakers into any room.

Both technologies are based on the principal of VPT loudspeaker design. Using an electromagnetic transducer, known as an exciter, to impart vibrational energy into a lightweight and stiff radiating panel. This vibrational energy radiates as high fidelity sound.

While it might seem like VPT loudspeakers to some extent 'reinvent the wheel', there are a number of key design and acoustic benefits to using a vibrational panel loudspeaker over a more traditional design.

### Acoustic Benefits

VPT loudspeakers provide full-bandwidth 180° dispersion and generate what is known as an incoherent-phase waveform. These dispersion characteristics allow the loudspeaker to produce smooth room-filling sound across the entire listening position. Whether used for low level background music, noise masking, foreground listening or home theatre application, Amina has a range of high fidelity invisible loudspeakers to match any scenario.

### Construction Benefits

Consisting of a flat radiating panel and a low-profile exciter system, Amina loudspeakers provide the opportunity to integrate seamlessly with the design of the property. The flat section of a wall, ceiling, or piece of furniture can be used to generate room-filling sound while becoming completely invisible once installed.

Part loudspeaker and part construction material, Amina Invisible Loudspeakers are designed to be just as much a rugged building material as they are a precise acoustic device.

Designed for acoustic excellence, engineered for construction.

## Two Core Technologies

### Drywall Loudspeakers

With cavity walls and ceilings being a staple of the construction industry globally, Edge Series loudspeakers provide a high performance solution in a lightweight and easy to install package where cavity walls and ceilings have been used.

Designed to replace a small section of plasterboard/drywall, Edge Series loudspeakers have their perimeter filled, taped and feathered in the same way that tapered-board is installed and finished. The entire wall/ceiling can then be painted and decorated, allowing the loudspeaker to become fully invisible.

The loudspeaker is only ever attached to the plasterboard itself and not the studwork, meaning that no special framing is required.



### Fully Covered Loudspeakers

Where drywall building techniques are not being used, or for where there is a specialist covering material, Mobius Series loudspeakers provide a flexible sound solution for a range of design-led finishes.

Engineered to work with the covering material, Mobius loudspeakers can be installed into a number of different materials or with a variety of finish options.

Mobius loudspeakers provide ultimate installation flexibility. Covering options include wood, leather, natural stone veneer, wet plaster skim (cavity or solid block installation) or specialist finish such as acoustic or polished plaster.



## Edge

The latest innovation in invisible speaker technology

A new revolutionary design for invisible loudspeaker technology, the Amina Edge offers smooth low frequency extension with increased power handling and sensitivity, resulting in a dynamic and engaging listening experience that has never before been heard from an invisible loudspeaker.

Building on the incredible performance of the Mobius Series, Amina Edge loudspeakers incorporate OptiDamping, OptiDrive and Reduced-Resonance Exciter technology, built into a plaster up-to design. Designed for use where there is no wet plaster skim (drywall), Edge loudspeakers have been designed much like a piece of tapered-edge plasterboard. Once filled, taped and painted, the loudspeaker becomes fully invisible. Amina Edge speakers can also be installed as post-plaster product (retrofit) where there is a full wet skim (Edge speakers should not be fully plastered over).

**Full range and specification on page 8.**



## Mobius

### Highly flexible design integration

The Mobius Series provides the greatest flexibility for interior design integration and installation of any invisible loudspeaker. Delivering incredible high frequency performance across the entire listening position, allowing for perfect reproduction with all the detail and clarity, no matter where in the space you are listening from.

Engineered to work behind a range of covering materials such as wet plaster skim (2mm), wood, leather or high pressure laminate. Mobius Loudspeakers offer the most flexible invisible audio solution available.

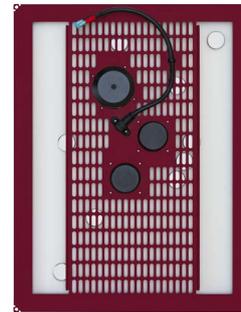
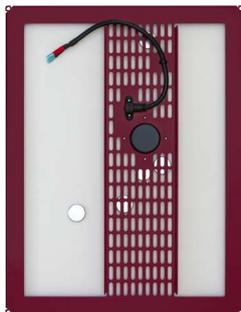
**Full range and specification on page 9.**



## Edge

A fully concealed loudspeaker designed for drywall installation where there is no wet plaster skim coat. High performance loudspeakers with increased sensitivity, low frequency extension and maximum SPL.

Tapered perimeter to be filled, taped and feathered out to surface of plasterboard and then painted over. May be fitted where there is a wet plaster skim coat, however should only be fitted as a post-plaster installation or retrofit (after ceiling has been fully plastered).

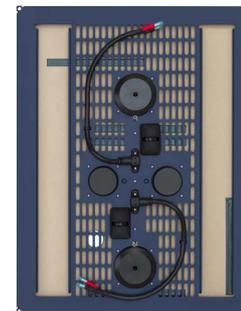
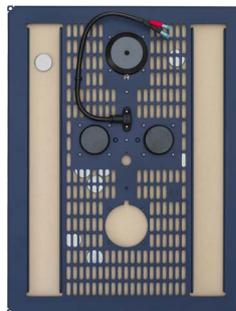


	Edge5	Edge7
Nominal Impedance	8 Ohms	4 Ohms
Power Handling (cont / peak)	50W / 100W	75W / 150W
Sensitivity (1m / 2.83Vrms)	90dB	93dB
Frequency Response ( $\pm$ 6dB)	65Hz - 20KHz	55Hz - 20KHz
Electrical Connection	Blue butt-splice crimp (14-16 AWG)	Blue butt-splice crimp (14-16 AWG)
Dimensions	450mm x 345mm x 33mm (17 <sup>3/4"</sup> x 13 <sup>5/8"</sup> x 1 <sup>5/16"</sup> )	450mm x 345mm x 31mm (17 <sup>3/4"</sup> x 13 <sup>5/8"</sup> x 1 <sup>1/4"</sup> )
Weight	1.24Kg (2lbs 12oz)	1.78Kg (3lbs 15oz)
Fixing Requirements	BackboxCV345 or Mounting Block Kit	BackboxCV345 or Mounting Block Kit
In-line Protection Unit	APUi50C	APUi70C
Rack-Mount Protection Unit	APU-RS8iC / APU-RS16iC	APU-RS8iC / APU-RS16iC
Warranty (residential / commercial)	10 Year / 5 Year	10 Year / 5 Year
	<a href="#">Edge5 Datasheet</a>	<a href="#">Edge7 Datasheet</a>

## Mobius

A fully covered invisible loudspeaker. Designed to be covered with a 2mm wet plaster skim coat or material such as wood, leather, high pressure laminate (sheet materials will require additional pre-applied wood adhesive, plaster coverings will require appropriate mounting backbox).

Specification stated with 2mm plaster covering.



	<b>Mobius5</b>	<b>Mobius7</b>	<b>MobiusDual</b>
Nominal Impedance	4 Ohms	4 Ohms	2 x 8 Ohm
Power Handling (cont / peak)	50W / 100W	75W / 150W	2 x 30W / 60W
Sensitivity (1m / 2.83Vrms)	86dB	87dB	87dB
Frequency Response ( $\pm$ 6dB)	65Hz - 30KHz	55Hz - 30KHz	105Hz-20KHz
Electrical Connection	Blue butt-splice crimp (14-16 AWG)	Blue butt-splice crimp (14-16 AWG)	2 x Blue butt-splice crimp (14-16 AWG)
Dimensions	450mm x 345mm x 31mm (17 <sup>3/4"</sup> x 13 <sup>5/8"</sup> x 1 <sup>1/4"</sup> )	450mm x 345mm x 31mm (17 <sup>3/4"</sup> x 13 <sup>5/8"</sup> x 1 <sup>1/4"</sup> )	450mm x 345mm x 35mm (17 <sup>3/4"</sup> x 13 <sup>5/8"</sup> x 1 <sup>3/8"</sup> )
Weight	1.32Kg (2lbs 14oz)	1.78Kg (3lbs 15oz)	2.1Kg (4lbs 10oz)
Fixing Requirements	BackboxCV345, BackboxSW345 or Mounting Block Kit	BackboxCV345, BackboxSW345 or Mounting Block Kit	BackboxCV345, BackboxSW345 or Mounting Block Kit
In-line Protection Unit	APUi50	APUi70C	2 x APUi30
Rack-Mount Protection Unit	APU-RS8i / APU-RS16i	APU-RS8iC / APU-RS16iC	APU-RS8i / APU-RS16i
Warranty (residential / commercial)	10 Year / 5 Year	10 Year / 5 Year	10 Year / 5 Year
	<a href="#">Mobius5 Datasheet</a>	<a href="#">Mobius7 Datasheet</a>	<a href="#">MobiusDual Datasheet</a>

## Subwoofers

Discreet integrated subwoofers using traditional subwoofer technology to add extra warmth all the way to room shaking bass for multi-channel surround sound systems. Vented through a small port opening, Amina subwoofers and bass enhancers are designed to be installed into walls, ceilings, cabinetry or even positioned in-room.

Images shown to scale.



	<b>ALF40</b>	<b>ALF80</b>	<b>ALF120</b>
Nominal Impedance	8 Ohms	4 Ohms	6 Ohm
Power Handling	60W	150W	50W
Sensitivity (1m / 2.83Vrms)	88dB	86dB	96dB
Frequency Response ( $\pm$ 6dB)	65Hz-155Hz	36Hz - 140Hz	27Hz-120Hz (with DSP filter applied)
Electrical Connection	3-way binding post	Sprung terminal binding post	Sprung terminal binding post
Dimensions	359mm x 157mm x 134mm (14 <sup>1/8</sup> " x 6 <sup>3/16</sup> " x 5 <sup>1/4</sup> "	605mm x 270mm x 156mm (23 <sup>7/8</sup> " x 10 <sup>5/8</sup> " x 6 <sup>1/8</sup> "	1605mm x 345mm x 118mm (63 <sup>3/16</sup> " x 13 <sup>1/2</sup> " x 4 <sup>3/4</sup> "
Weight	3.2Kg (7lbs 1oz)	9.2Kg (20lbs 4oz)	17.5Kg (38lbs 9oz)
Fixing Requirements	L-brackets (supplied)	L-brackets (supplied)	Felt isolation pads (supplied)
Protection / Crossover	Built-in	Built-in	External DSP required (not supplied)
Rack-Mount Protection Unit	N/A	N/A	N/A
Warranty (residential / commercial)	2 Years	2 Years	2 Years
	<a href="#">ALF40 Datasheet</a>	<a href="#">ALF80 Datasheet</a>	<a href="#">ALF120 Datasheet</a>

## Support Products

### APU-RSi(C)

Passive rack-mounted protection unit for Amina low-impedance Invisible Loudspeakers. For use in installations with higher numbers of low-impedance speakers with a centralised AV rack. Direct-to-PCB screw terminal-blocks allow for fast and easy permanent installation. Either 8 or 16 channel options available.

[Datasheet](#)



### APUi(C)

Single channel in-line protection unit for use with all low-impedance Amina loudspeakers. Connected to the output terminal of the amplifier before the loudspeaker cable to allow maximum loudspeaker performance for a lifetime. Can be easily dressed back with any cable management system.

[Datasheet](#)



### BackboxCV (cavity wall/ceiling)

Cavity wall backboxes are an easy to install mounting option for Amina loudspeakers into plasterboard cavity walls and ceilings (drywall). Creating an acoustically tuned cavity behind the speaker, ensuring both consistent loudspeaker audio quality as well as minimising rearward airborne sound transmission.

[Datasheet](#)



### BackboxSW (solid wall)

The BackboxSW provides a mounting option for solid or block walls and ceilings with Amina Invisible Loudspeakers [not suitable for installation of Edge Series loudspeakers].

[Datasheet](#)



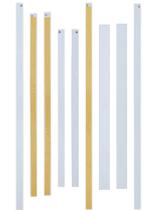
### Mounting Blocks

For use when there is insufficient cavity space for an Amina cavity backbox (less than 75mm). Allows installation of Amina loudspeakers into plasterboard with a rear cavity depth of just 30mm [rear of loudspeaker should be covered using soft insulation material where mounting blocks are used to prevent ingress of debris over time].



### Shims

Shims available to allow alignment of speaker and backbox with any thickness plasterboard other than 12.5mm (1/2") (or multi-layered build-up), ensuring that no more than 2mm plaster is applied to the front of a plaster-over loudspeaker. Shims can be used for alignment in a retrofit installation or alignment of Edge Series speakers.



### Transformers

Providing a great solution for high-end commercial installations, all Amina Invisible Loudspeakers can be supplied with high-quality toroidally wound transformers for both 100V and 70V line systems. Available in either multi-tapped or fixed power varieties for the most flexible commercial installation of Invisible Loudspeakers.

[Datasheet](#)



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