Architectural and Engineering Datasheet: Invisible Plaster-over Loudspeaker

AIW5X

Application:
Flush mounted into walls and ceilings (cavity or solid construction types) and skimmed over for a truly invisible audio solution be it multi-room audio or home cinema.

Environment:
Interiors, exteriors, wet rooms (bathrooms, kitchens, pool areas and steam rooms).

Optional Accessories:
- Backbox SW: metal back box for easy installation in solid and block wall types.
- Backbox FS: aluminium back box for cavity ceilings/walls. Provides additional sound proofing.
- 100T or 70T: for 100 (or 70) volt line industrial and commercial installations.
- Wood: adhesive film layer for installation into wooden/MDF structures

Zero visual impact, easily installed, wide bandwidth, high power, highly dynamic, wide dispersion, loudspeaker system.

The Amina AIW5X is a totally invisible full range loudspeaker designed to be used in residential or commercial installations. It is ideal where high clarity, wide and evenly distributed sound is required along with the ability to achieve top quality wall or ceiling finishes of all kinds.

Using Distributed Mode technology the AIW5X works just like a natural musical instrument creating a large, vibrating soundboard. It shares the musical instruments ability to generate high sound pressure levels over wide areas and with even distribution. The vibrating area of the speaker is flat and has been designed specifically to be embedded behind a surface plaster skim or a thin veneer of wood or fibreboard.

Due to their wide dispersion of sound, positioning the AIW5X in a room is much less critical compared with conventional loudspeakers. Also, the number of loudspeakers required in any one space is dramatically reduced (up to 4 to 1) resulting in reduced installation cost and complexity.

The vibrating panel surface of the AIW5X is composed of an absorbent paper skin providing high bond adhesion to wet plaster – similar to the surface of plasterboard/dry wall/gypsum. Once plastered over with a standard 2mm high quality finish skim coat (accepts many plaster types including polished ones), the wall or ceiling surface can then accept paint, wallpaper, flock, leather or textured finishes.

The AIW5X is supplied with all fixing blocks required for 12.5mm thickness dry walls or ceilings. Fixings for alternative board thicknesses are available on request. A quick installation process is made possible because this lightweight loudspeaker is attached to the plasterboard and not to any rear structural sections. The consistency of stud work spacing is therefore made irrelevant.

Metal back-boxes are available for pre-installation in solid walls or for providing additional sound proofing in cavity walls or ceilings.

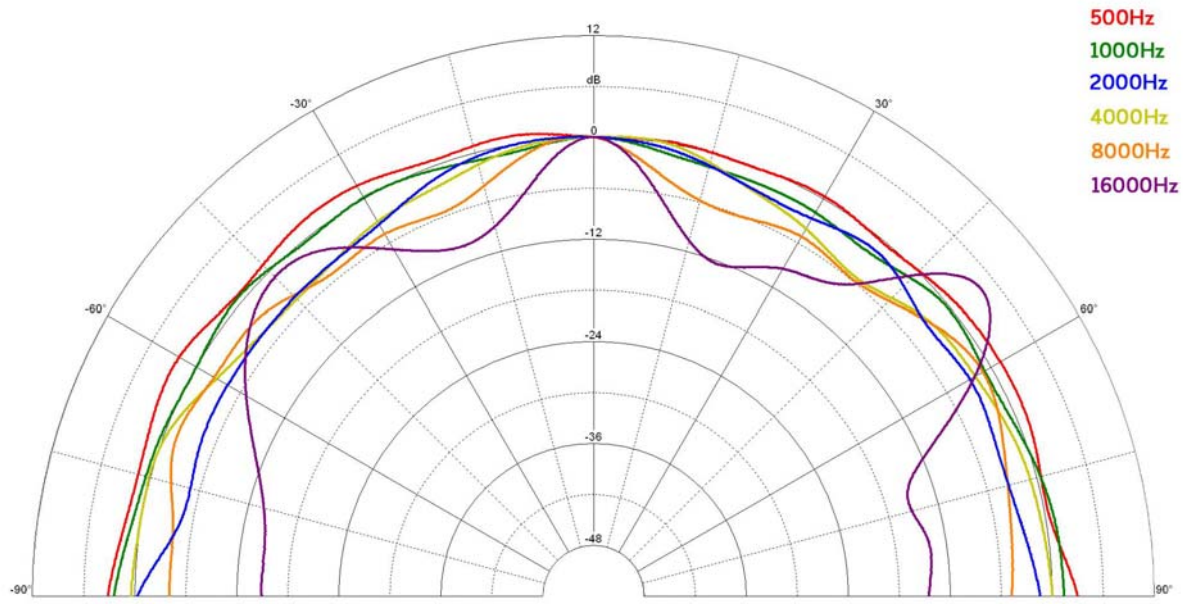
The Amina AIW5X allows the ultimate in AV entertainment and communication systems to be achieved with zero aesthetic impact on room design and decoration.

Warranty:
The product is maintenance free and is designed to operate reliably for many decades. Correctly installed and operated in accordance with this specification, Amina warranties the AIW5X against defective materials and workmanship for a period of 10 years.

Technical Specifications:

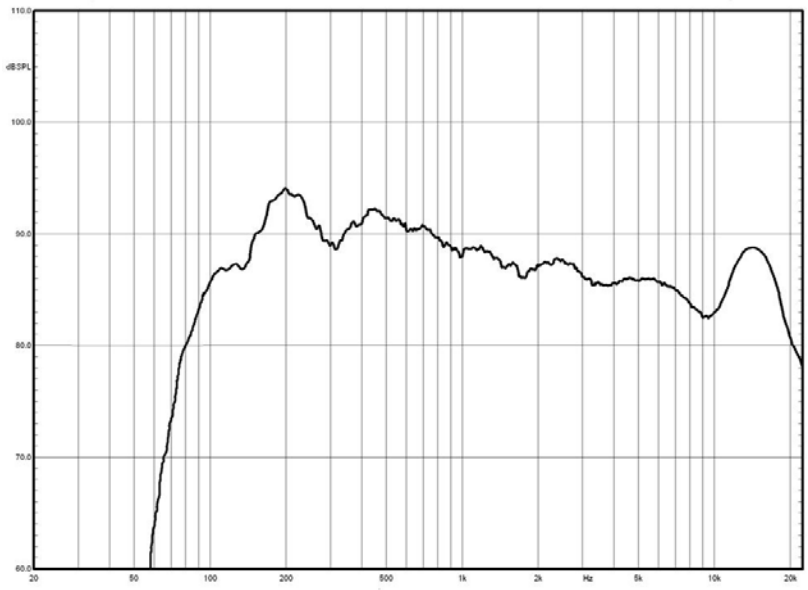
Dimensions:	450mm x 345mm x 38mm
Weight:	1760g
Impedance:	Nominal 8 ohms (min. impedance - 5ohms with APU connected)
Frequency Response:	80Hz ~ 20KHz / 100Hz ~ 20KHz (-6dB points)
Dispersion Angle (HxV):	180° x 180° (6dB)
Active radiating area:	155250mm ^{2}
Power Handling:	80W Max (APU must be used)
Operating temperature range:	5°C - 35°C
Sensitivity:	88dB @ 1metre/1W (with 2mm plaster skim)
MAX SPL:	105dB @ 1metre/80W (with 2mm plaster skim)
Electrical Connection:	Professional insulated butt splice, accepts 1.5mm - 2.6mm conductor diameters. (requires professional crimp tool)
Manufacturer:	Amina Technologies Ltd
Model:	AIW5X
Construction:	Powder coated aluminium frame structure. Aluminium honeycomb core, doped paper skin, composite active panel.
Installation detail:	See Amina AIWX Series installation guide
Fixings provided:	suitable for 12.5mm thick dry wall board (others available on request)
Required filtering/protection:	AIW5X must be used with the supplied APU (Amina Protection Unit)

Polar Response: (measured in portrait orientation)



Plaster-In-Wall Loudspeakers

Concealed Audio Solutions with inspirational results



Frequency Response,
On-Axis

Architects & Engineering Specification:

The concealed loudspeaker shall be a high power, full range device producing, once fixed into a cavity wall or ceiling, frequencies ranging from 100Hz up to 20kHz (-6dB points) . The active radiating surface area of the loudspeaker shall be 155250 mm2. Further acoustic contribution shall possibly be made by the surrounding plasterboard structure, but to a much smaller degree. The resulting acoustic dispersion shall be over 180 degrees creating a highly effective means of covering large spaces with sound. The loudspeaker, installed with a 2mm final skim of multi-finish plaster, shall have a sensitivity of 88dB (1m/1w) with a maximum power handling of 80w and an impedance of 8 ohms. The maximum sound pressure available from the loudspeaker shall be 105dB measured at 1m with 80w of power applied. The loudspeaker shall be suitable to be driven with an amplifier rated between 10w and 80w per channel. The product shall be supplied with a dedicated in-line protection unit featuring an 18dB/octave high-pass filter and thermal, self resetting fuse which must be used with the loudspeaker.

The loudspeaker shall consist of a powder-coated aluminium frame, an aluminium honeycomb core/paper skin active surface and four electro-mechanical drive devices giving overall dimension of 450mm x 345mm x 38mm, of which only 25.5mm protrudes behind standard 12.5mm thick plasterboard. The loudspeaker shall include all the required fixing blocks for 12.5mm thick dry wall board. The fixing method shall not require any direct anchorage to structural work, but fix directly to the plasterboard with all levels established by the fixing blocks supplied. For different plasterboard thickness', correct size fixing blocks shall be available from the factory. The cavity depth required behind the plasterboard shall be 40mm or more. The paper skin of the composite panel shall provide a high bond surface structure for excellent adhesion to plaster skims. The loudspeaker shall weigh 1760g and be fully RoHS compliant.

Once plastered in position the product shall be compliant with class 1 surface spread of flame requirements.

The loudspeaker shall have an insulated butt splice crimp connection method, creating a reliable and permanent insulated electrical connection within the cavity wall. The connection shall be suitable for cable conductor diameters of 1.5mm to 2.6mm.

The loudspeaker shall be available optionally with high quality torroidal transformers, ready fitted within the form factor already specified, in a variety of power ratings, for both 70v and 100v line multi speaker systems.

There shall be a backbox available to allow the loudspeaker to be easily installed into solid construction type walls/ceilings.

There shall be a backbox available to provide additional sound proofing from the loudspeaker in plasterboard walls/ceilings

The loudspeaker shall be the Amina Technologies Ltd AIW5X or equivalent.

European Union WEEE regulations:
The product is fully RoHS compliant, eliminating to a minimum the use of hazardous materials within its manufacture. At the end of its useful life it should be returned to the manufacturer for recycling according the European Union's WEEE directive

All products are subject to change without notification. E&OE

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