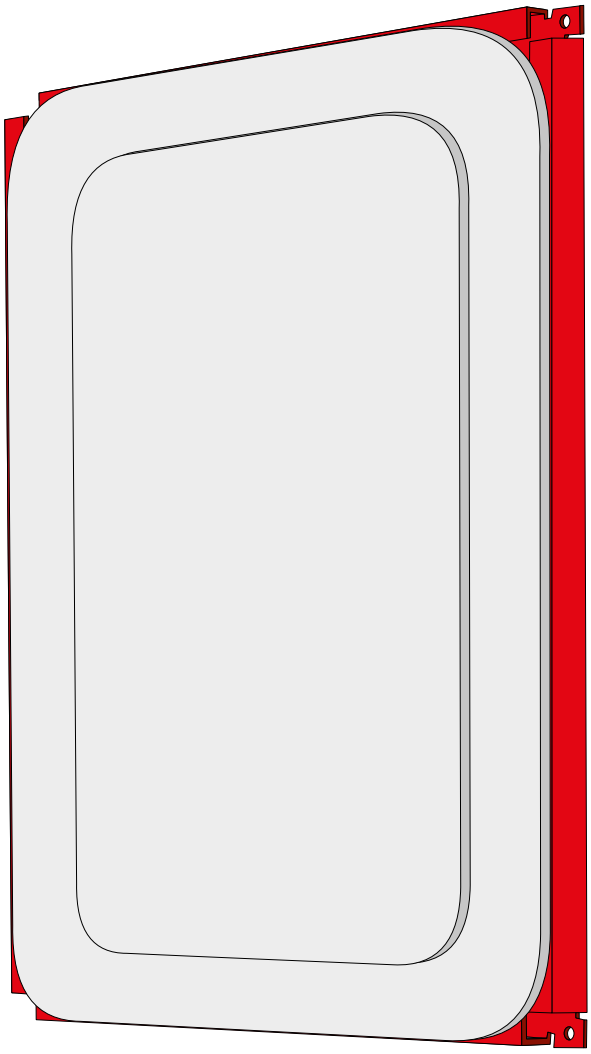
Installation guide (drywall method) for Amina Edge7*i*, 5*i* and 3*i* tape and fill seam style loudspeakers



amina®

THE INVISIBLE SPEAKER CO.

V4 June 2021

Amina Edge*i* Fully Concealed Loudspeakers

The Amina Edge*i* series of Loudspeakers are designed to deliver best in class audio performance in fully concealed in-wall and in-ceiling applications, preserving the interior aesthetic of any space.

The Edge7*i* and 5*i* products feature the revolutionary Amina ToneRelief® technology that facilitates improved bass reproduction.

Drywall installation

This installation guide describes fully the installation of the Amina Edge*i* loudspeaker into cavity stud walls or ceilings using drywall construction techniques.

This method must not be used to install Edge*i* speakers into other wall types.

⚠ This method must not be used to install Edge*i* speakers into any surface that will be fully skimmed with plaster.

Refer to www.aminasound.com to download installation guides for installation of the Edge*i* speaker into other wall types.

What's in the box

The following items are included with each Amina Edge*i* loudspeaker -

Single:

1 x Amina Edge*i* loudspeaker
1 x installation template
1 x quick reference installation guide
4 x Flange head fixing screws
1 x set 1mm shims
1 x set 2mm shims

Pair:

2 x Amina Edge*i* loudspeakers
1 x installation template
1 x quick reference installation guide
8 x Flange head fixing screws
2 x sets 1mm shims
2 x sets 2mm shims

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Contents

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Caution: Read before installing this product

This manual contains detailed instructions required to install your Amina Edge*i* Invisible Loudspeaker into a cavity wall constructed from drywall sheet using a BackboxCV housing.

CAUTION:

The installation guide included with a BackboxCV describes the different installation steps required for other models of Amina Invisible loudspeakers. Refer only to the Installation steps in this guide when installing an Edge*i* loudspeaker.

WARNING:

No attempt should be made to install a BackboxCV within existing building structures unless you are certain that no electric cables, water pipes, gas pipes or supporting joists will be cut through.

FIRE PROTECTION:

When making an intrusion into an internal wall or ceiling to install an Amina loudspeaker be sure to check the appropriate regulations pertaining to the required fire rating. Depending on the location of the intrusion and the applicable regulations it may be necessary to build in or install additional fire rated components or products to surround the speaker and back box. Amina Technologies take no responsibility for the correct specification and installation of any such fire protection system that is required behind their loudspeakers.

FIRE RESISTING INSTALLATION:

NOTE: Where building regulations state that an installation must comply with fire resisting standard BS476 Pt. 21: Timber floors, refer only to the instructions in the separate Fire Resisting Installation guide.

METAL FRAME CEILINGS:

When installing in metal frame (MF) ceilings (& walls), please ensure the assembled metal frame is fully solid and secure and that all metal mating joints are mechanically fixed or bonded together. Metal joints that are not tightly fixed have the potential to generate spurious buzzing noises as the two free edges rub against each other when activated by the acoustic energy generated by the Amina Loudspeaker. All debris, loose screws, excess materials etc, should be removed from above the ceiling to avoid unwanted rattles.

CLEANLINESS DURING INSTALLATION:

Always install the speaker when the general environment is clean and dust free. Keep each speaker protected in its shipping carton until cutting work is complete and the installation room has been cleaned down thoroughly. Never expose the rear of the loudspeaker to an environment containing airborne metallic particles and dust, as these will be attracted to the speakers high power magnet causing damage to the loudspeaker.

MAGNETIC FIELDS:

This speaker contains powerful neodymium magnet structures. High magnetic fields can be harmful to wearers of pacemakers and other similar implant devices.

Implant device wearers should keep at least 30cm (12") from the speaker during installation or use.

Installers must advise this caution when handing over a new installation.

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Caution: Read before installing this product

WALL OR CEILING CONSTRUCTION QUALITY

- Check the construction quality of the wall or ceiling *before* installing Amina speakers.

  Amina speakers must be mounted to wall-board that is securely fixed at regular intervals to a supporting framework of studs.

  If the wall-board is not securely fixed and there is any clearance between the wall-board and studs, the speakers will excite vibration and buzzing between the wall-board and supporting framework.

  If tests show that the wall-board is not securely fixed then it is essential to remedy this problem before commencing speaker installation.

SPEAKER PROTECTION:

Amina loudspeakers should be installed with an APUiC or other suitable electrical overload protection device. These devices help ensure the loudspeaker operates reliably for many, many years ahead, by limiting and protecting against temporary excessive audio signals that could damage the product.

Common sense should always prevail though. Your product should never be operated at repeated or consistently excessive audio levels. Never operate your Amina speakers at a level where audio reproduction appears distorted.

For the ultimate in protection, Amina recommend using the Amina A100Q digital amplifier to drive your loudspeakers. It prevents unwanted and excessive electrical energy from reaching the speaker whilst allowing it to perform at its very best at all times.

Please read carefully before installing this product

- To ensure correct installation, please read this guide carefully and keep in a safe place for future reference.
- Install this product in a cool, dry, clean place - away from direct sunlight, cold bridges and heat sources, strong vibration forces, chemical fumes, dust and moisture (steam).
- Do not expose this product to sudden temperature changes or locate it in an environment with high humidity. This is to prevent condensation forming inside which may cause damage to the product.

  NOTE: The product can be installed in bathrooms and wet rooms (typically ceilings) as when plastered over and painted the product is situated in the dry cavity ceiling space. The above warnings apply to the conditions in that cavity space.
- Do not clean this product with chemical solvents as this may cause damage to the finish. Use a clean, dry or damp cloth.
- After installation, avoid pushing on the wall or ceiling surface immediately in front of the speaker. Excessive excursion, whilst unlikely to damage the speaker, will undoubtedly crack the plaster around its perimeter.
- Do not attempt to modify or repair the product. Contact your distributor or Amina if a fault should occur.
- The rear of the product should not be subject to chemical cleaning and should not be painted in any way.
- Ensure that all installation mounting surfaces are able to support the weight of the BackboxCV with that of your chosen speaker.
- You will require a minimum cavity depth of 75mm behind the plasterboard to allow the use of a BackboxCV.
- Prior to taping and filling the seam and applying the final, fine surface finish, wipe the front panel surface clean with a damp cloth.

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Environmental

- Before installing, ensure that the building is environmentally sealed, de-humidified to a maximum of RH50%, and at a stable temperature of at least 16 degrees centigrade (61 degrees Fahrenheit)
- This product should not be used with single thick coat plaster solutions or with other finishing methods that take days (rather than hours) to dry out.
- Please be aware that when this product is directly fitted into a solid brick, block or concrete wall structure (e.g. when using the solid wall backbox) vibrational energy is inevitably transferred into the solid wall structure. This energy can travel for some considerable distance up, down and along the structure. It is therefore recommended the product be fitted within acoustically isolated stud walls or ceiling sections where possible. The use of the product directly embedded in solid walls is not recommended in multi occupancy buildings.
- Please be aware that when this product is fitted in simple (stud or rafter with plasterboard/floorboard attached on either side) stud walls or wooden rafter ceiling/ floor structures, vibrational energy is inevitably transferred into the building structure. This energy can travel for some considerable distance up, down and along the structure. It is therefore recommended the product be fitted within acoustically isolated stud walls or ceiling sections where possible. Special care should be taken when installing the product in multi occupancy buildings.
- Completed and fully dried plaster surfaces should be finished with permeable coatings / materials, to allow moisture in that coating or the adhesives used to apply those materials, to dry into the environment, rather than trap moisture in the speaker.
- During installation take care to use appropriate and suitable joint filling compounds to fill the gap between speaker and the surrounding surface. This gap should be no less than 2mm and no more than 5mm in width.

  Inappropriate compounds used in such a joint can shrink and crack excessively and lose strength.

  Allow the joint to dry thoroughly before applying surface skim coats, as shrinking in the joint depth whilst drying could create a very slight embossed outline in the finished and decorated surface.

  NOTE: The joint may take several days to dry fully.
- As a general rule in the construction industry, any drying process should be gradual rather than forced with excessive heat, otherwise materials can lose strength and can crack.
- Amina Technologies take no responsibility for inappropriate use of materials and environmental conditions under which they are applied.

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Sound in your Home:

Amina products are widely applied in whole house audio systems and multichannel home cinemas to create the very best entertainment source whilst not impinging on the design of your home.

Never imagine though that sound reproduction is isolated to one room only and will not be heard elsewhere in the home. Sound from any audio source (a person talking, a conventional speaker, a TV or an Amina speaker) will transfer in air through open doors, ventilation structures, gaps under doors etc, to other areas of the house. Sound will also pass mechanically through the structure of the building (a good example is the central heating boiler. Most homeowners know exactly when it is on!) to other areas quite some distance away.

Whole house/multi-room audio systems are designed to give you the very best audio experience in the space/room you might occupy at any one moment. This does not mean to say that occupiers of other rooms will not hear some of that sound at the same time. They are more than likely to experience it in some lesser level and lesser quality than the intended room.

Please remember therefore that it is not always possible to enjoy the full capabilities of your audio system when other members of the household want to remain undisturbed.

Sound in your Work or Leisure Environment:

Amina products are widely applied in prestigious retail, hotel, board room, restaurant, office, spa and other leisure facilities.

The Amina Active Sound Board technology creates an incredibly even level of sound across an entire space.

This creates an entertaining yet naturally comfortable sound field for users and occupiers.

At the same time the physical embodiment of the speaker is totally unobtrusive, allowing interior designers complete freedom from technology.

It is possible to dramatically reduce the number of audio sources required to fill your venue using Amina invisible loudspeakers when compared to the quantity of conventional cone loudspeakers required for the same space, perhaps by a factor of 4. Please contact the Amina specification team for help and guidance.

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Message from the Managing Director

Congratulations and thank you for purchasing an Amina Technologies high performance invisible loudspeaker.

At Amina we are proud of being at the forefront of flat panel loudspeaker technology. All the components that make up your loudspeaker have been developed specifically to provide the ultimate in sound quality and reliability, whilst allowing you to decorate, furnish and enjoy your home in any way you wish without any visible 'clutter' created by your audio system.

At the heart of an Amina loudspeaker is our high performance vibrational panel driver, featuring a unique high power neodymium magnet motor system. This enables the product to provide high quality, high loudness levels from such a compact design. Please take a moment to read this guide which will help you achieve the best possible performance from your product.

Thank you and enjoy listening.

Richard Newlove

Founder - Amina Technologies Ltd

About the Manufacturer

Amina Technologies Ltd is the world's leading designer and manufacturer of truly invisible loudspeaker solutions. Our flat panel loudspeakers have been used in a wide range of both commercial and residential applications for over twenty two years.

Luxurious hotels & spas, exclusive retail outlets and stunning private residences have all benefitted from using Amina invisible loudspeakers, not only for its' incredible aesthetic quality, but for its' absolute ability to reproduce sensationally clear audio across any space. Amina has created the very best discrete audio solution for architects, interior designers and design conscious clients.

See our website for more details about Amina and a selection of prestigious projects completed using our products.

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Introduction

Thank you for purchasing Amina Edge*i* series invisible loudspeakers. Properly installed, these loudspeakers will provide high quality sound for many years, even decades, to come.

Installation options

Installation is straightforward, but should only be attempted by professional building trades with plastering experience and who have completed an Amina installation training course.

Amina loudspeakers can not be mounted into a wall without the correct fixing accessories, supplied by Amina for each wall type.

Please read the instructions carefully, particularly the Installation section which contains important advice to select the correct wall-mounting accessories.

This manual should then be read in conjunction with the associated manual supplied with your mounting accessory.

Unpacking

Unpack the unit.

Check that your carton contains the correct number of items - a single speaker, or two if ordered as a pair.

Retain this Installation Guide. If you pass the unit on to a third party make sure you pass on the Installation Guide.

Packaging

CAUTION:

Take care when removing the loudspeakers from the carton.

The packaging for Amina Edge*i* loudspeakers has been carefully designed to protect the product during transit. Please retain it in the unlikely event you need to return the product to your dealer or to Amina. Please recycle the packaging should you wish to dispose of it.

The outer carton is made up of 80% recycled board.

Compatibility

This installation guide covers installation of -

Amina Edge5*i* and Edge7*i* Invisible loudspeakers within a BackboxCV345 into cavity walls of drywall, dryline construction.

Amina Edge3*i* Invisible loudspeakers within a BackboxCV300 into cavity walls of drywall, dryline construction.

Other installation guides are available at www.aminasound.com for installing Edge*i* series loudspeakers into walls built with other construction methods.

Always choose the installation guide that matches the speaker and wall type for your installation.

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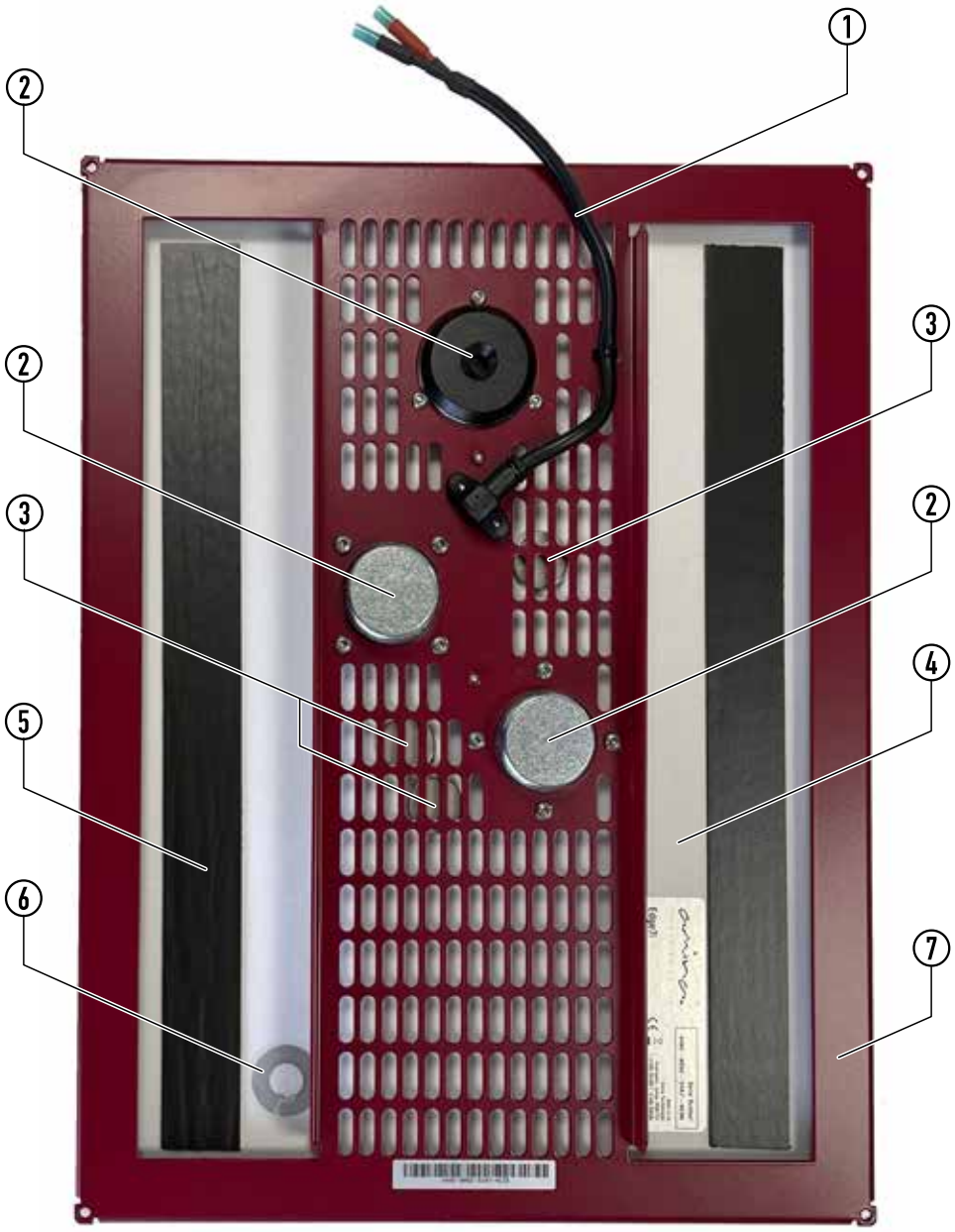
Overview



1. Electrical connection (to an amplifier, via APUiC)
2. High power neodymium magnet structures
3. Mechanical tuning devices
4. Active panel surface
5. Tonerelief technology
6. Electronic identification label
7. Aluminium chassis

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Setup tips

APUiC protection

Amina loudspeakers must be used with an APUiC protection device or another protection device, approved by Amina. Please refer to the instructions supplied with the APUiC devices and full warranty information for further details.

Alternatively, use the Amina A100Q digital amplifier for the best protection and acoustic performance.

Installation Backboxes

Amina Edge*i* loudspeakers have been designed for optimum sound quality when installed with the Amina BackboxCV. We recommend that they are used wherever possible in a cavity type installation.

Wall or Ceiling Placement

Amina loudspeakers are suitable for both wall and ceiling installations. When the most uniform audio coverage in a room is required, space the loudspeakers evenly in the ceiling. However, if the room has a height greater than 6m (19'), Amina suggests installing them in the walls at a height of around 1.8m (6').

In dedicated listening rooms where loudspeakers are used in stereo or multi channel systems, position them in the walls so that the centre point of the speaker is approximately 1 – 1.8m (3.5 - 6') from the floor. This will give excellent results, but don't worry, if this is not possible to achieve in your room, the audio characteristics of Amina loudspeakers make exact positioning according to stereo, 5.1 and 7.1 conventions far less critical.

Audio Characteristics

Amina loudspeakers generate sound in a similar way to an acoustic musical instrument. The speaker's front face is effectively the "musical" soundboard and the sound waves generated from it are diffuse and are dispersed over a very wide angle. This means that loudspeaker positioning is far less critical than with conventional loudspeakers. Additionally, just like the acoustic musical instrument, Amina loudspeakers have excellent room filling abilities.

Amina loudspeakers are planar devices and this feature is further enhanced when flush mounted into your wall or ceiling. Being planar (or flat) means that the audio's arrival time to the listener is the same for all frequencies, i.e. there is very little phase distortion. Therefore Amina loudspeakers (and other planar devices such as electrostatic loudspeakers) can reproduce subtle nuances on a recording with incredible accuracy.

In addition to the above characteristics, the radiating surface of an Amina speaker is very stiff and undergoes very small amounts of movement in order to generate high sound pressure levels. This means that the loudspeakers are inherently "fast" making them highly articulate loudspeakers.

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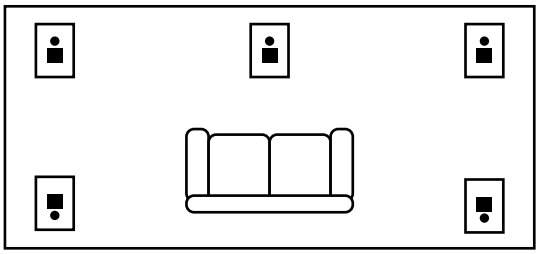
Setup tips

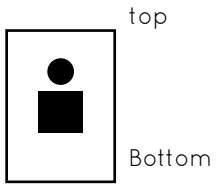
Speaker Orientation

Amina loudspeakers can be installed either in portrait or landscape orientations. Typically the spacing between wall joists will dictate portrait orientation and Amina have optimised the dispersion characteristics for this setup. Therefore when installing into walls Amina suggest portrait orientation for best sound quality.

For all-over sound enveloping lifestyle listening from a ceiling mounted installation the orientation of the speaker is not crucial.

For critical listening from ceiling mounted installations, e.g. a 5.1 surround system, ensure that the orientation of all loudspeakers are the same relative to the main listening position and position the top of the speaker closer to the wall boundary.





Boundary Loading

It is possible to increase the low frequency output of Amina loudspeakers by positioning them close (50mm - 150mm) to the corners of a room. This can be useful when no additional subwoofer (e.g. ALF40, ALF80, ALF120, ALF1000) is used.

System Requirements

From a system compatibility point of view your speaker (and it's accompanying APUiC protection unit) can be treated like any conventional low impedance (4-8 ohm) loudspeaker. Amina recommends you use a good quality amplifier so as to avoid driving them with high levels of distortion, which at best, will provide poor sound quality and at worst may permanently damage the loudspeaker. Amina also recommend you connect your loudspeakers to your amplifier with at least 16AWG OFC (oxygen free) cable (14AWG for long runs) to avoid any chance of reduced efficiency and restricted audio bandwidth.

For 2.1, 5.1, 7.1 and other multi-channel systems, always use the amplifier's crossover settings to divert frequencies below 100Hz to your subwoofer. This will improve the dynamic range and power handling of the system. (APUiC devices should still be used).

IMPORTANT: Amina loudspeakers are highly revealing of any shortcomings in the source or amplifier. Please be aware that some low cost zone amplifiers will produce high amounts of distortion well within their operating range and this will be ruthlessly revealed by Amina loudspeakers.

Sound Transmission

As with any speaker designed to be fixed to a structure within a wall or ceiling, careful consideration should be given to sound transmission into adjacent rooms or properties. We recommend specialist advice is taken if sound transmission into adjacent rooms needs to be minimised. Please talk to the Amina technical team for advice on reducing sound transmission as a starting point.

100/70V Option

For multi-speaker commercial installations, please contact Amina for their range of loudspeakers supplied with 100V or 70V line transformers fitted.

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Installation

IMPORTANT: Read this section carefully before attempting to install an Amina Edge*i* loudspeaker.

To avoid any possible damage to Amina invisible loudspeakers they must be mounted and connected using the correct accessories, supplied by Amina. The tables to follow list these accessories.

Mounting accessories

This installation guide covers the fixing of an Edge*i* loudspeaker into a cavity wall constructed from Drywall panels.

Required mounting accessories will be -

Edge7*i* or Edge5*i* speaker.....BackboxCV345

Edge3*i* speaker BackboxCV300

All speakers.....Shims

Type	Application	Image
BackboxCV345 For cavity walls and ceilings	Used to install Edge7*i* and 5*i* loudspeakers in cavity walls and ceilings to reduce airborne sound generation from the rear of the speaker and create optimum acoustic cavity.	
BackboxCV300 For cavity walls and ceilings	Installation Backbox that is compatible with the chassis of Edge3*i* speakers.	
Shims	Various thicknesses available to align the speaker with the front of non-standard plasterboard structures or for retrofit installations.	

Refer to the Installation guide supplied with the above mounting accessories for detailed fitting instructions of the accessory together with how the loudspeaker is used within it.

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Installation

Speaker protectors

Amina APUiC series speaker protectors are specifically designed to work with Amina invisible loudspeakers. They provide essential safe operating functions and include protection elements that constantly monitor the power fed to the speaker keeping it within safe limits should the need arise.

An Amina speaker protector should be wired in-line with each Amina speaker, preferably in an accessible place, allowing this device to be replaced as necessary.

There are three types of protector.

⚠ APUiC devices are designed to work with a single speaker. Never connect more than one speaker onto a single APUiC protection device.

However, common sense should always prevail. Your product should never be operated at repeated or consistently high audio levels. Never operate your Amina speaker at a level where audio reproduction appears distorted.

For the ultimate in protection and performance, use the Amina A100Q multi-channel amplifier with in-built digital protection circuitry.

Refer to the table on the next page for more detail of protection options for short to medium periods of time.

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Installation

Speaker protectors

There are four types of protector.

Type	Application	Image
APU-RS8iC	Flexible 8 channel crossover and protection unit in a 1U case for optional rack mounting. Provides protection for installations of up to 8 Amina Edge*i* loudspeakers of any type.	
APU-RS16iC	16 channel crossover and protection unit in a single 1U case. Provides protection for up to 16 Amina Edge*i* loudspeakers of any type.	
APUiC	Single channel crossover and protection for wiring in-line with each Amina speaker. APUiC crossovers are available in different versions and must be ordered to match the speaker being installed.	
A100Q amplifier* **Ultimate speaker protection** ***AVAILABLE FROM LATE 2021**	Absolute protection of a loudspeaker is possible by sensing and controlling output voltages within the amplifier driving that loudspeaker. The Amina A100Q amplifier integrates clean and powerful amplification (4 channels at 100W each) with sophisticated digital sensing and control technology to deliver the ultimate protection for your Amina invisible speaker. It both prevents excessive audio signals from ever reaching the speakers whilst allowing them to perform at their absolute peak at all times. This is achieved thanks to some clever internal digital signal processing software that knows exactly how to get the best from each speaker.	

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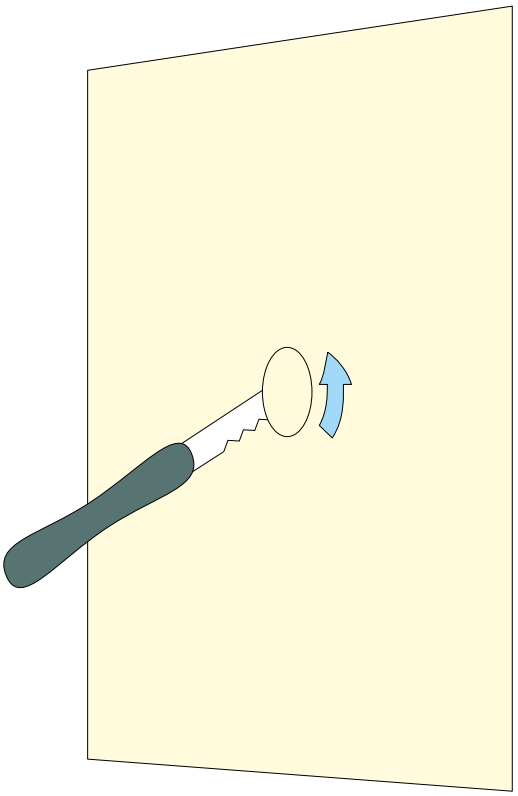
Installation

Cutting the opening for the BackboxCV



IMPORTANT:

The BackBoxCV must be fixed to the plasterboard only. Never attach directly to the stud work or near supporting structure.

Locating joist work

When you have chosen your speaker locations, and before cutting into the plasterboard, it is important that you locate the position of the wall studs.

Ensure the spacing between them is at least 5mm greater than the width of your Amina Edge*i* speaker.

The following method is highly recommended to measure the distance between the joists.

Check the width between the joists

Using a padsaw or sharp knife, cut a hole in the centre of the area where the speaker will mount.

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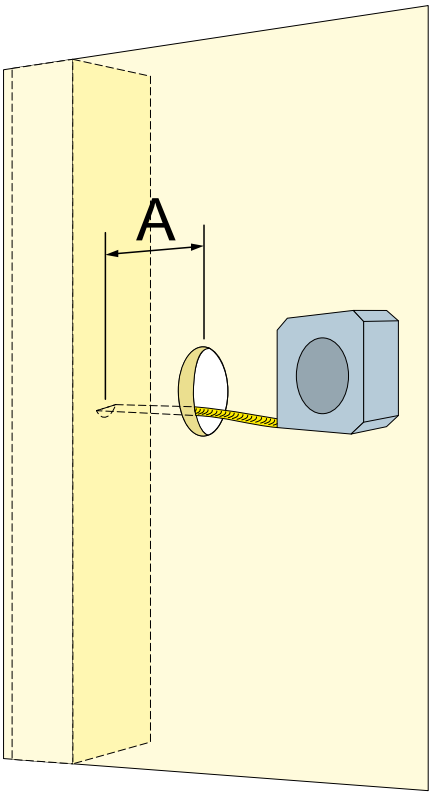
Installation

Cutting the opening for the BackboxCV

Check width between the joists

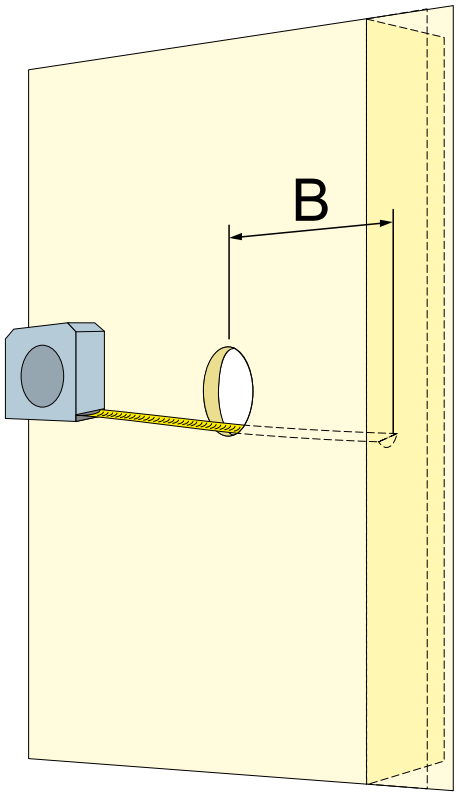
Measure from the centre of the opening to the joist on the left (A in the top image) and the joist on the right (B in the bottom image).

From these measurements you can establish the width and centre of the space between the joists.



The total distance A + B must be greater than -

- 305mm (12") for BackboxCV300 or
- 350mm (13 3/4") for BackboxCV345



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Installation

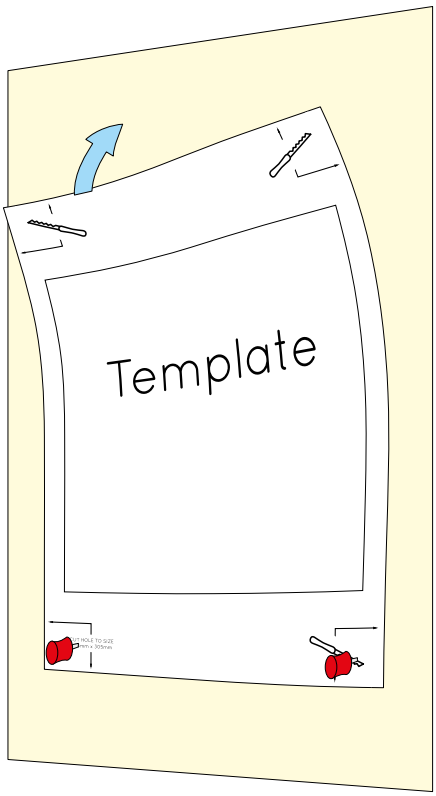
Cutting the opening for the BackboxCV

IMPORTANT:

We strongly advise that joists are not cut to make space for the backbox. Any activity of this sort may well influence the structural integrity of your property.

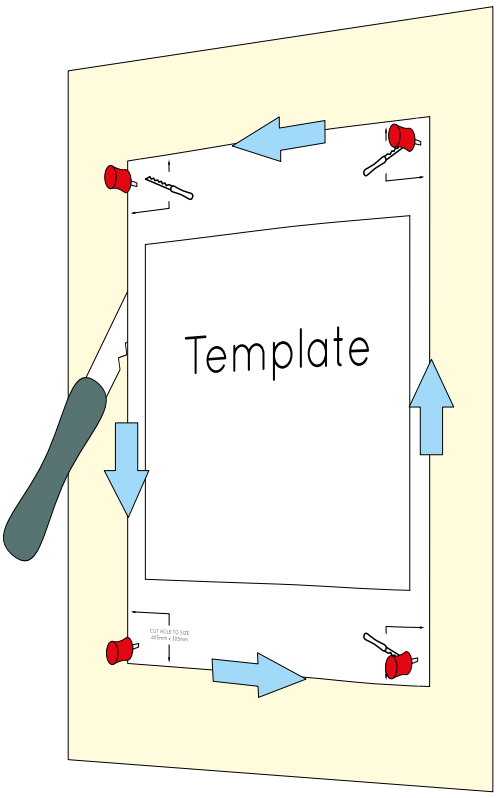
Fix the template to the wall

The speaker is supplied with a template. Tape or pin the template to the wall in the space between the joists.



Cut around the template

Cut around the mark on the template using a knife or padsaw.



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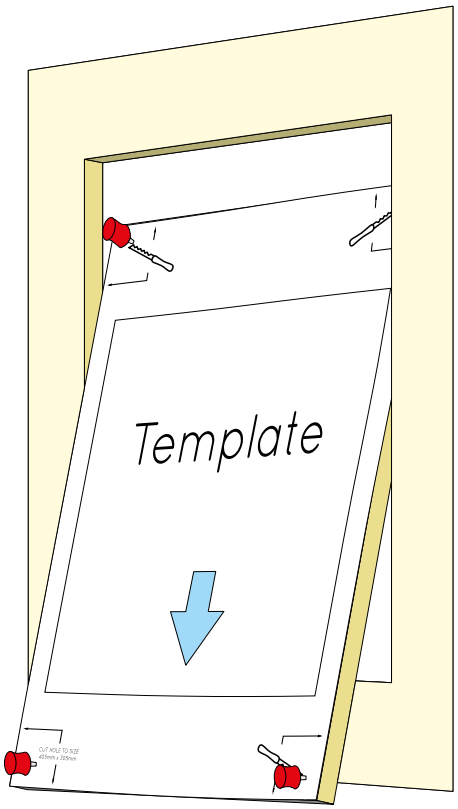
Installation

Cutting the opening for the BackboxCV



Remove the cut section

Lift out the cut section of the wall.

Check the size of the opening.

This should measure -

BackboxCV345..... 455x 350mm
(17 7/8" x 13 3/4")

BackboxCV300 ..... 405 x 305mm
(15 7/8" x 12")

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Installation

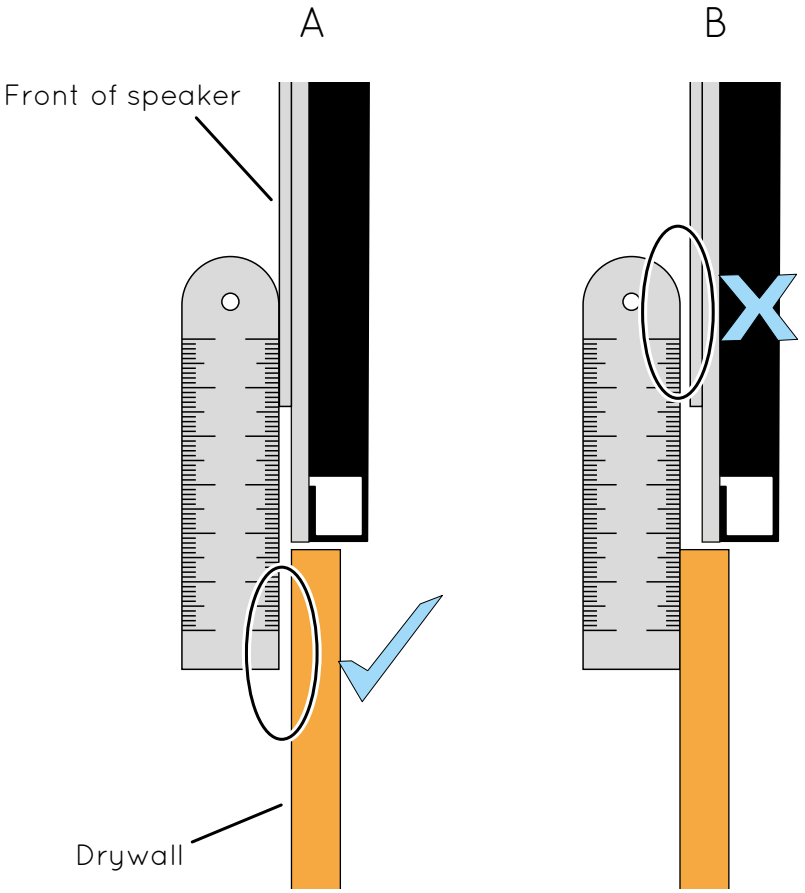
Using shims

Shims may be required to achieve the correct alignment for the front of the speaker before plastering.

Refer to the cross-section diagrams below.

When correctly aligned, the raised front of the Edge*i* speaker should stand slightly proud of the wall by 0mm - 0.8mm (image A).

The raised front of the speaker should never be aligned behind the face of the wall (image B).



If the drywall is 12.5mm (1/2") thick, then no shims will be required.

If the drywall is thicker, then correct alignment is achieved by sticking shims to the back of the speaker frame.

This section explains how to measure and apply the shims, if required.

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Installation

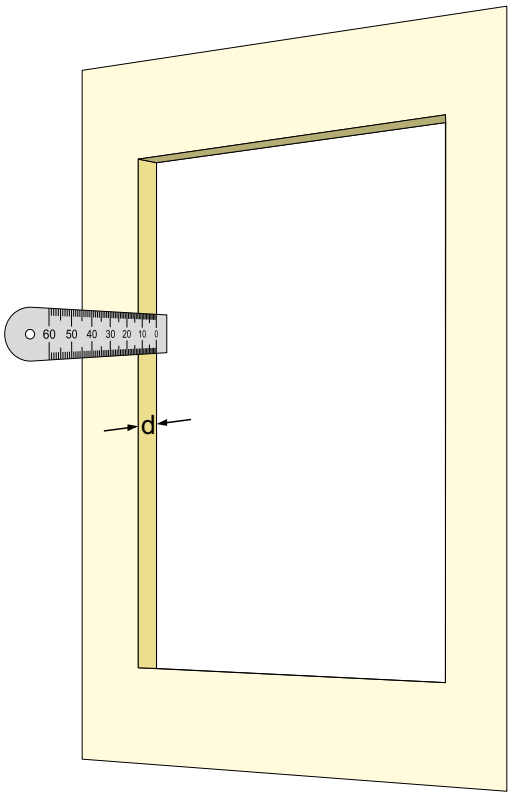
Using shims

Check if shims are required

Measure the thickness of the drywall (d).

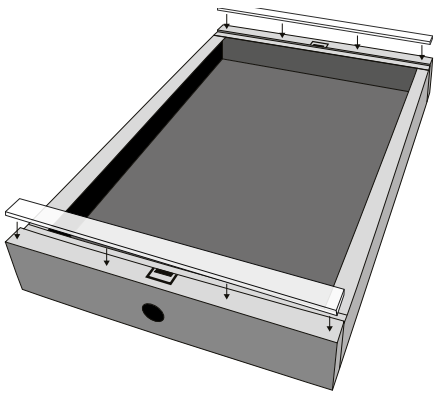
Referring to the table below, check if any shims will be required.

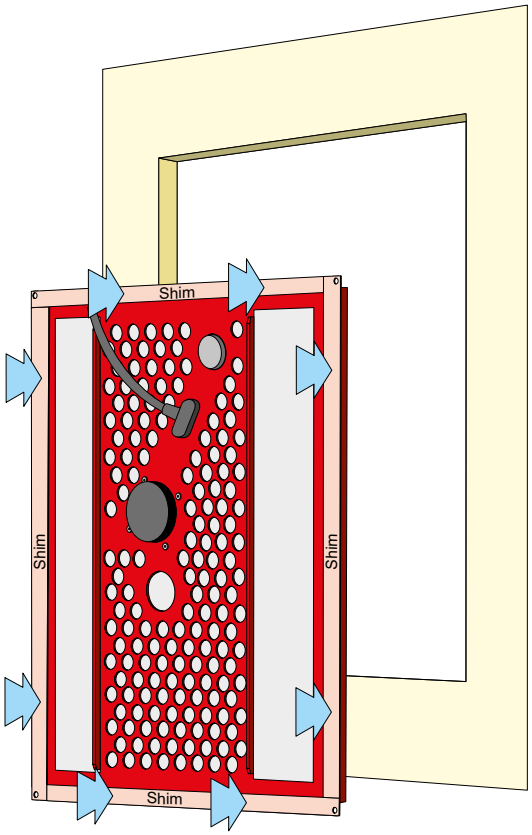
d	Shim
12.0 - 13.0mm ($^{15}/_{32}$" - $^{33}/_{64}$")	-
13.0 - 14.0mm ($^{33}/_{64}$" - $^{35}/_{64}$")	1mm (0.040")
14.0 - 15.0mm ($^{35}/_{64}$" - $^{19}/_{32}$")	2mm (0.080")
15.0 - 16.0mm ($^{19}/_{32}$" - $^{5}/_{8}$")	3mm (0.120")



Fixing the shims

If shims are required, fix the shims to the speaker chassis as shown.





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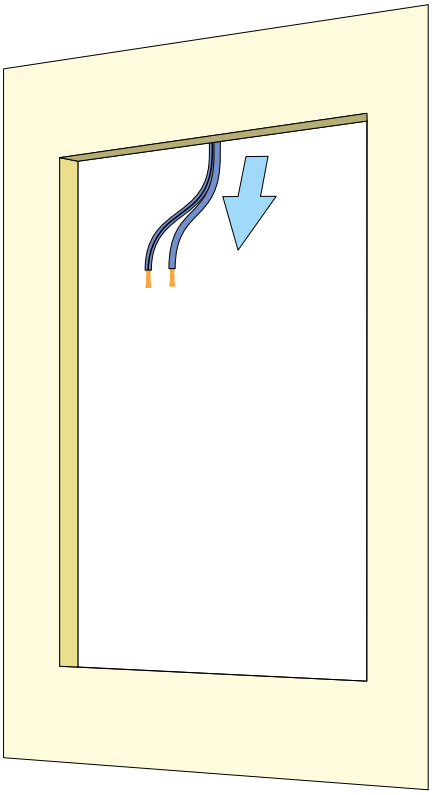
Installation

Fitting the BackboxCV

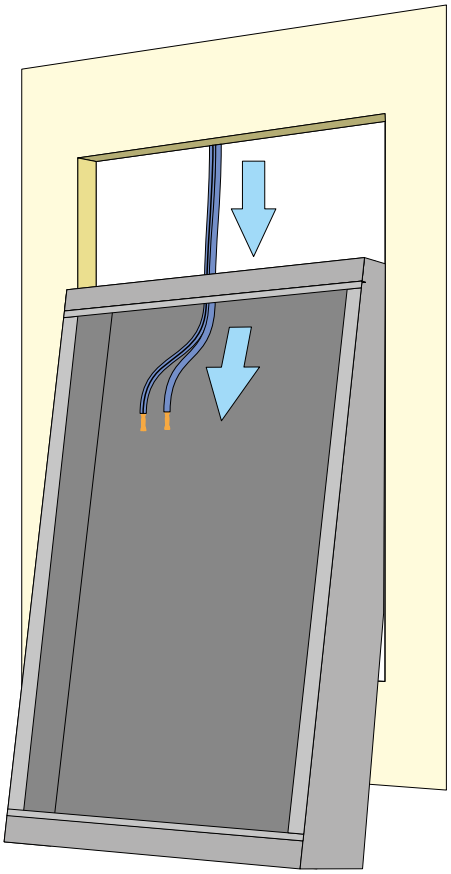
Feed the cable

Feed the cable from the amplifier to the opening where the BackboxCV will fit.



Wire the BackboxCV

Feed the wire through the cable grommet in the wall of the BackboxCV.



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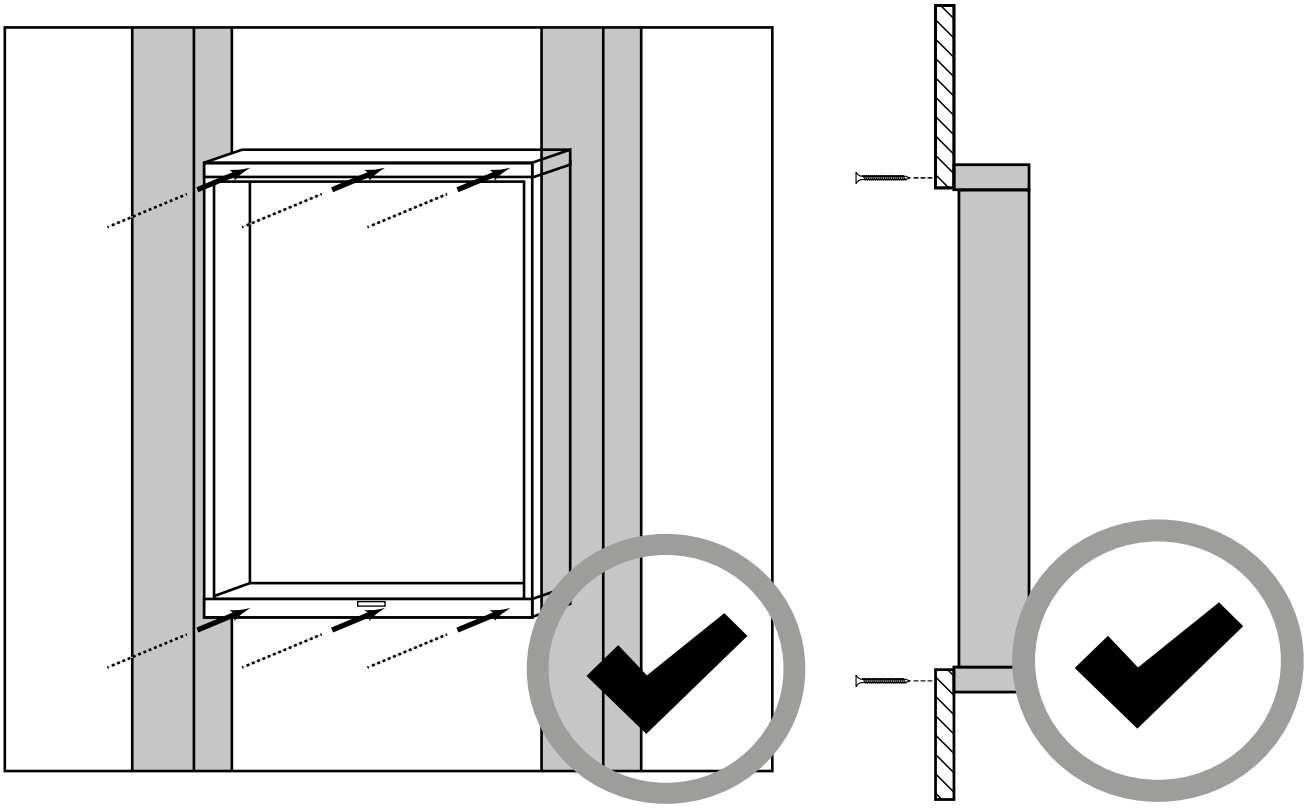
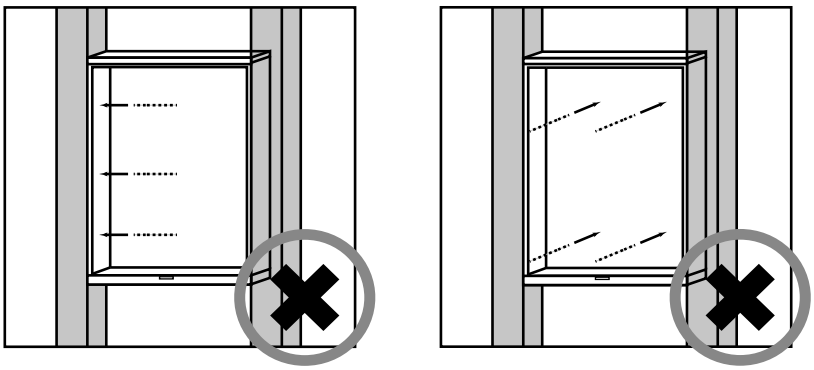
Installation

Fitting the BackboxCV



IMPORTANT:

The BackBoxCV **must** be fixed to the plasterboard only. **Never** attach directly to the stud work or near supporting structure as shown in the images below.



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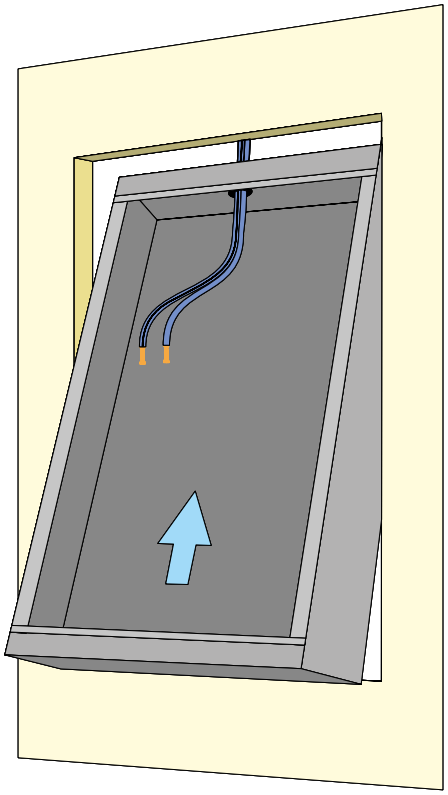
Installation

Fitting the BackboxCV

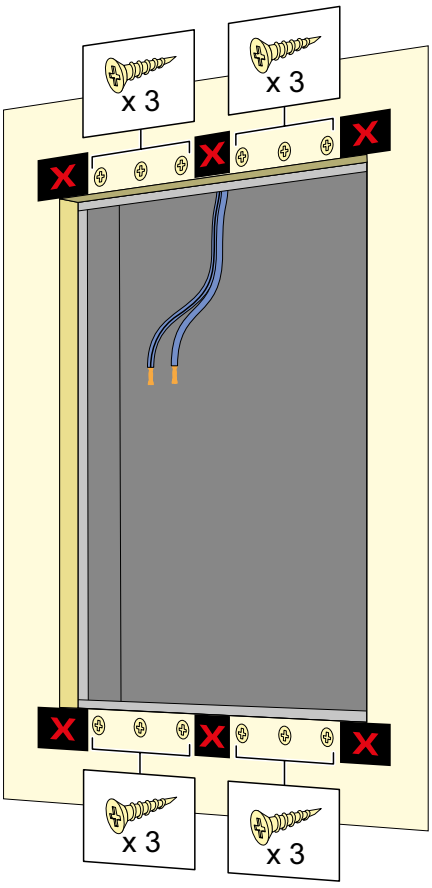
Hold the BackboxCV in place

Feed the BackboxCV into the cavity behind the opening as shown.



Secure the BackboxCV

Holding the BackboxCV in position, screw through the wall to secure the BackboxCV with 12 screws.



CAUTION:

Avoid fitting screws through the keep-out areas shown when screwing the BackboxCV to the wall.

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Installation

Wire up the speaker

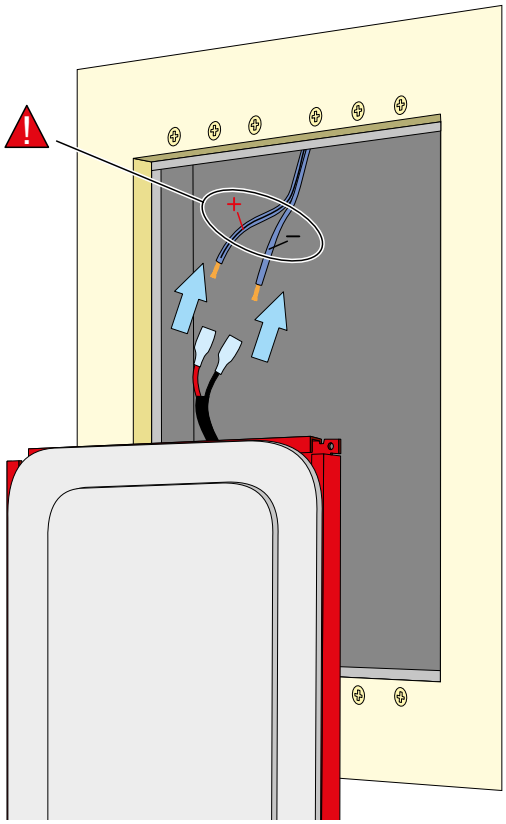
Prepare the wires

Trim back excessive wire.

Twist the ends of the wires and push them into the crimp terminations of the speaker wires.

Red is positive (+)

Blue is negative (-)

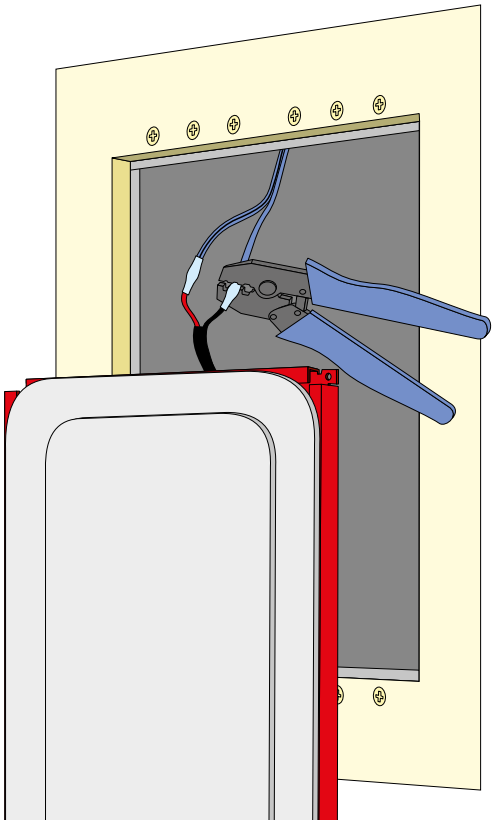


CAUTION:

Ensure that the polarity markings on the wire (a stripe or rib to indicate the positive) connects to the red speaker wire.

Crimp the wires

Crimp the wires to create an air-tight joint and complete wiring.



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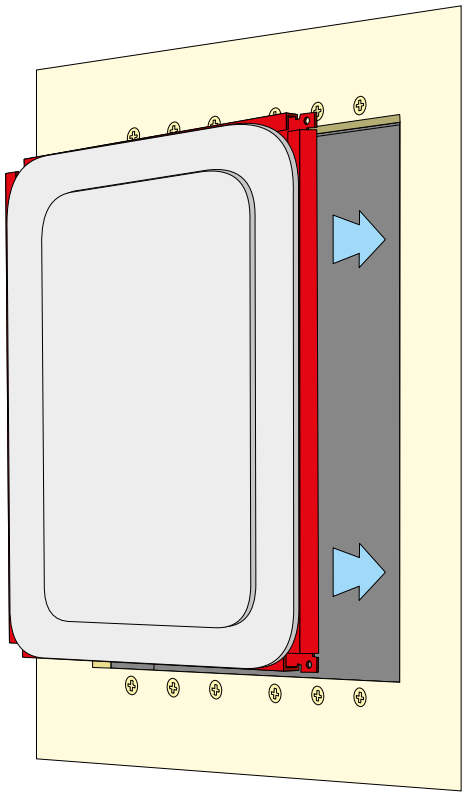
Installation

Fitting the speaker

Fit the speaker into the BackboxCV

The speaker can now be fitted into the opening in the wall to sit on the mounting flanges of the BackboxCV.



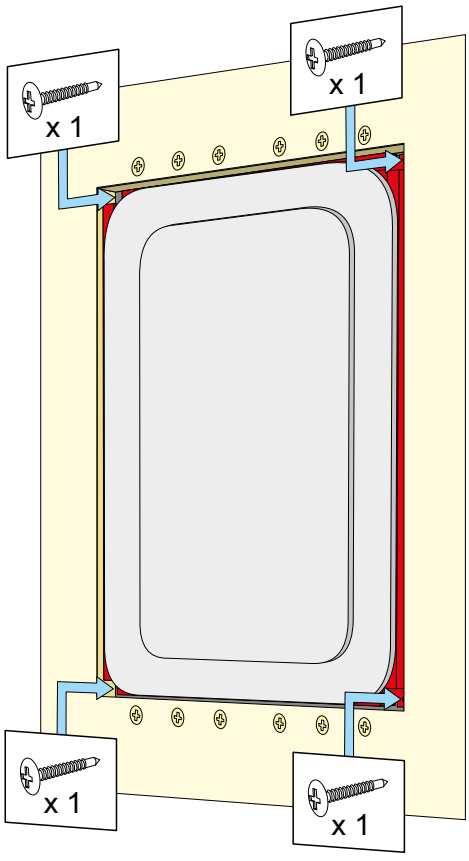
CAUTION:

Ensure that the speaker cabling is not touching any part of the speaker or the BackboxCV.

To avoid this the cable can be laid behind mineral wool, recycled cotton or other wadding.

Fix the speaker in place

Screw the speaker to the BackboxCV using the four screws supplied.



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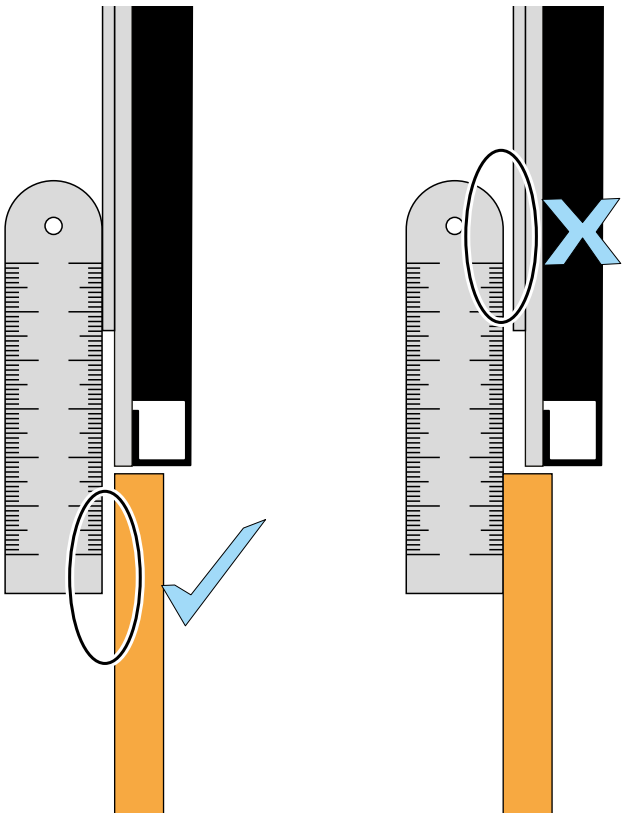
Installation

Check alignment

Check the alignment of the speaker with the wall

Before proceeding, use a straight-edge to re-check that the front face of the speaker sits slightly above the surface of the wall.

If the front face is sitting behind the wall, remove the speaker and adjust the shims until the alignment is correct.



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Testing

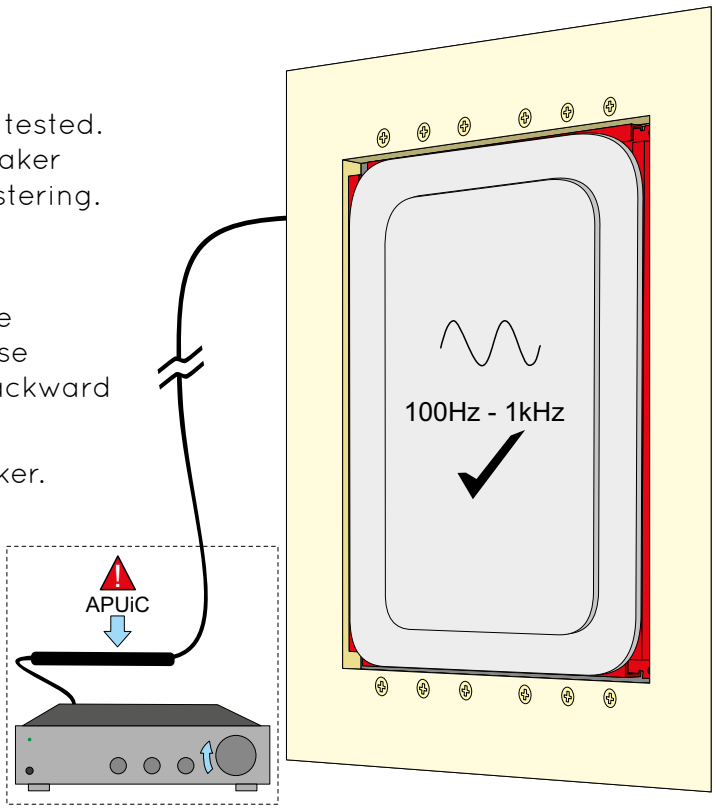
Testing the speaker

At this stage the speaker must be tested. If any problems are found the speaker can be easily removed before plastering.

CAUTION:

Do not use a battery or DC voltage supply to check continuity or phase check as there is no forward or backward movement of the panel.

DC voltage can damage the speaker.



Resistance test

Using a multimeter and without the APUiC protection device connected, check the nominal impedance (DC resistance) of the speaker at the amplifier end of the speaker cable.

Allow for approx. +10% for cable resistance. The impedance should coincide with the values on the respective loudspeaker datasheets.

If it measures significantly different, check for breaks or shorts in the cable.

CAUTION:

Connect the APUiC protection device

Once the resistance test is successfully completed, connect the APUiC protection unit at the amplifier end of the cable before proceeding with further tests.

Sweep test

Amina recommends a tone sweep be used at a moderate volume level (0.5 Vrms). Such a test will quickly highlight any buzzes or rattles that could be caused by loose screws, cables touching the speaker or loose elements/studs within the wall itself.

NOTE: A tone sweep test must be run initially as it is the most reliable test for buzz and rattle. Music tests are useful, optional tests for final confirmation.

Music test

Play music to check for buzzes and rattles during transient peaks: if these are apparent, check the above points again. The overall speaker performance must be clean and distortion free.

Problems during test

If the tests reveal any rattles or buzzes, refer to the next section for help to find the cause.

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Testing

Problems during test

if you encounter any rattling or buzzing problems during test, check the following section to resolve these issues.

CAUTION:

Never proceed with plastering until the speaker has passed both sweep and music tests.

The following list may help you trace the cause of any rattling or buzzing problems.

Insecure drywall

If the drywall is not securely fastened to the joists, this could create a buzz or a rattle. Apply more screws to secure the drywall if necessary - particularly around the speaker location.

Metal studs

If metal studs are used, ensure all crossover points within the studs are secured together. This can be achieved by applying drywall screws through the wall surface and through the metal joists.

If they are not secure this may well lead to audible vibrations and rattles.

Cable buzzing

Ensure that the speaker cable is not touching any part of the speaker (or BackboxCV) as this can lead to buzzes and rattles. To avoid this it is advised to lay the cable behind mineral wool, recycled cotton or other wadding.

Lighting fixtures

Ensure lighting fixtures, especially those closer to the loudspeakers are of a solid construction and are firmly fixed in place.

Tip

In some situations rattles and buzzes may be found to emanate from sections of walls or ceilings where it is not accessible to discover what may be causing the issue. Drilling a small hole in the plasterboard and injecting expanding foam into the cavity may solve the problem. This should only be done with extreme care.

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Finishing

Preparing the speaker for plastering

CAUTION:

Never proceed with filling until the speaker has passed both sweep and music tests.

Filling the perimeter

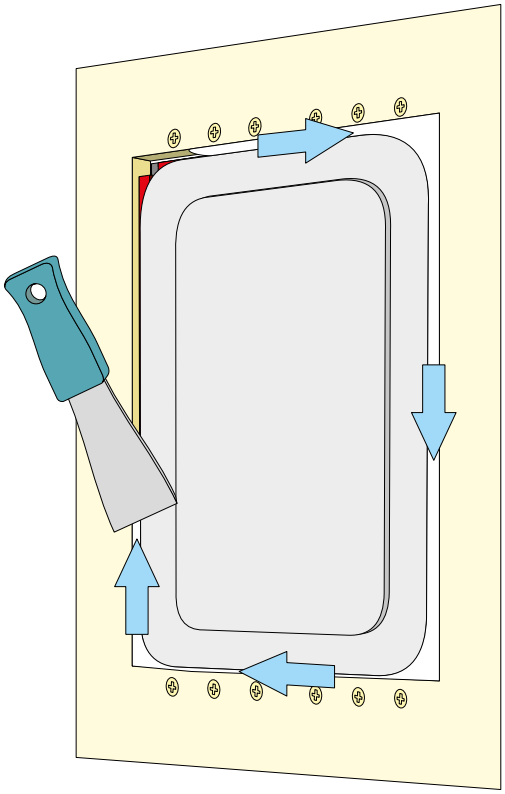
Once the speaker is fixed into place, the gap must be filled with plaster to bond the edge of the panel to the edge of the plasterboard.

Wipe away filler from the panel surface (both the outer perimeter and raised sections).

Use a low shrinkage, strong repair plaster such as British Gypsum Gyproc-Joint-Filler* or other similar joint compound.

Ensure there is a gap of at least 2mm around the perimeter of the speaker allowing plaster to be pushed into place.

*NOTE: Gyproc Easi-Fill dries to a much softer state and should not be used.



Taping the seam

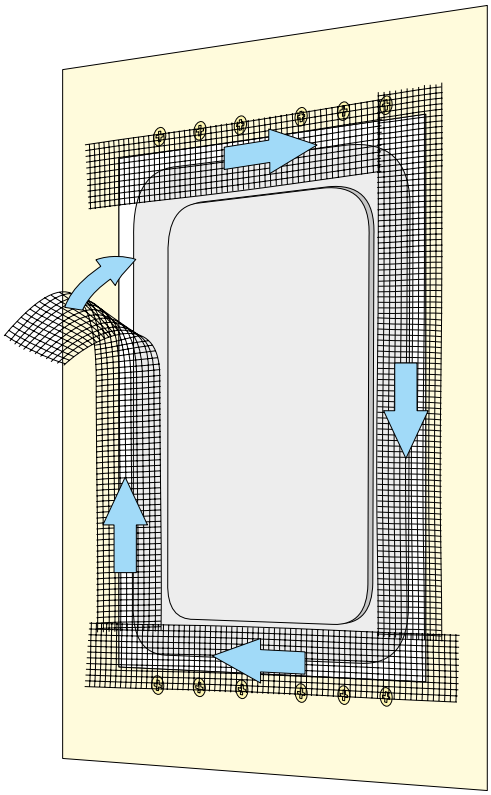
Allow the filler to dry completely then apply 50mm (2") plaster jointing scrim tape to the border as shown.

Paper tape can also be used. Use usual methods to apply paper tape (wetted if necessary and set into wet joint compound).

Care should be taken that the paper tape is completely covered and embedded in the compound to avoid resonance or becoming a diaphragm.

NOTE: Place the joint scrim as close to the raised front surface as possible.

It may take some days for the perimeter fill to dry fully.



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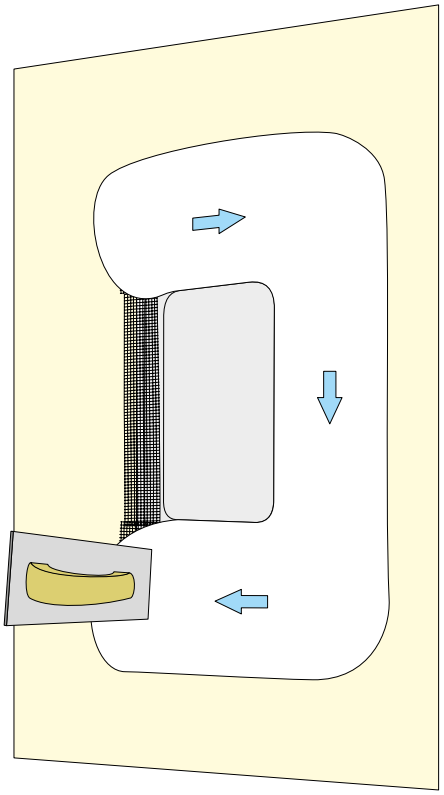
Finishing

Filling the seam

Feathering the panel edge

Fill the seam to the edge of the raised section using low shrinkage, strong repair plaster such as British Gypsum Gyproc joint filler or other similar compound. Feather out across the surrounding surface.

NOTE: Amina *do not* recommend Gyproc Easi-Fill products for this stage.



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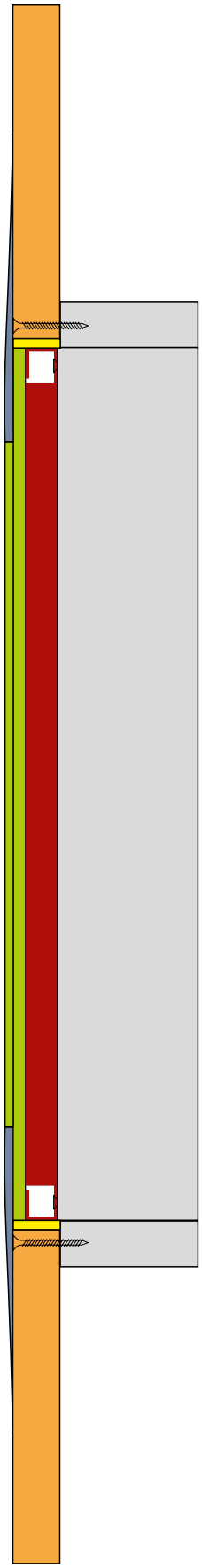
Finishing

Cutaway view

This cutaway view shows a section through the finished skim in the area shown.

- Wall
- Seam fill and feather out
- Speaker panel
- Perimeter fill
- Speaker chassis
- BackboxCV



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Finishing

Finishing

To finish the installation, a very light coat of fine surface filler, less than 0.5mm (1/64”) may be used over the entire front surface of the speaker to blend the panel appearance with the surrounding plaster.

Amina recommends Toupret® ready-mixed fine surface filler.

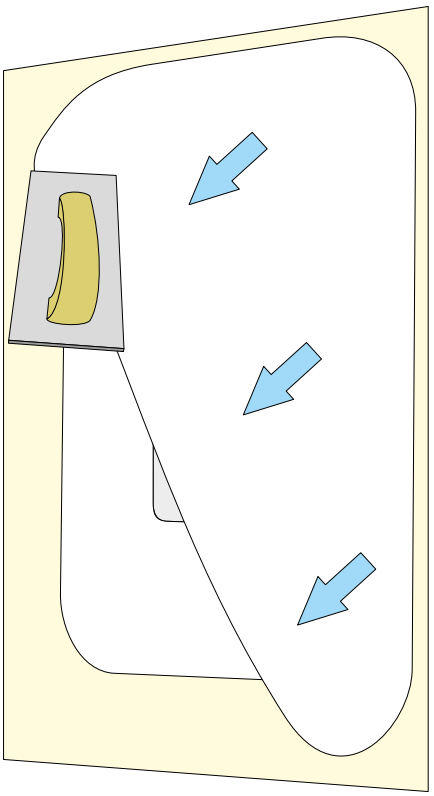
Filler can be sanded/wiped smooth to achieve the correct texture. Care should be taken not to sand any exposed paper panel surface.

CAUTION:

The working environment must be dry enough to allow the plaster finish coat to dry within hours, not days.

Allow the filler to dry fully.

Sand flat as required.



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Decorating

Drying

Allow your plasterwork to dry completely.

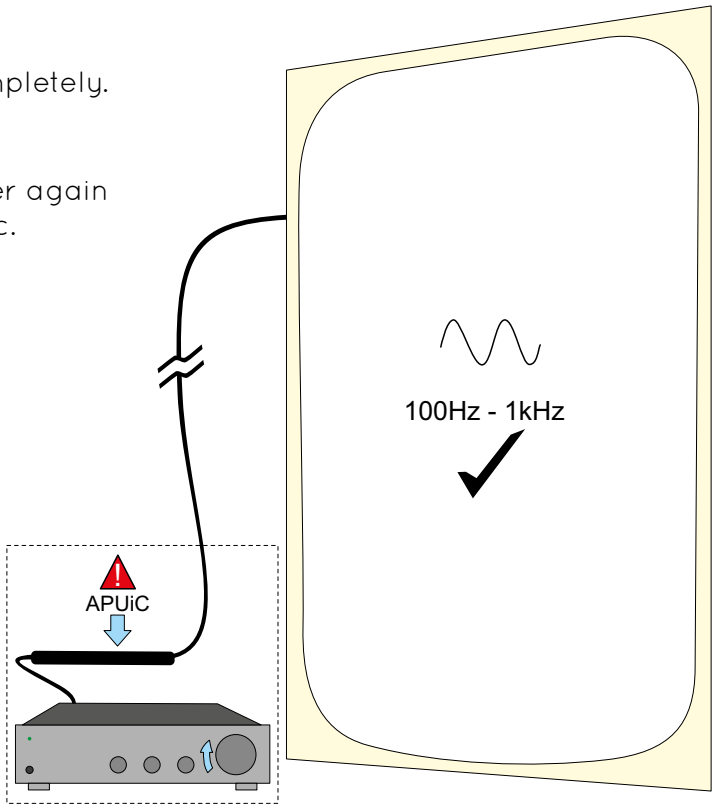
Re-test

Before decorating, test the speaker again with a frequency sweep and music.

CAUTION:

Do not use a battery or DC voltage supply to check continuity or phase check as there is no forward or backward movement of the panel.

DC voltage can damage the speaker.



You can then paint the surface or hang wallpaper in the usual manner.

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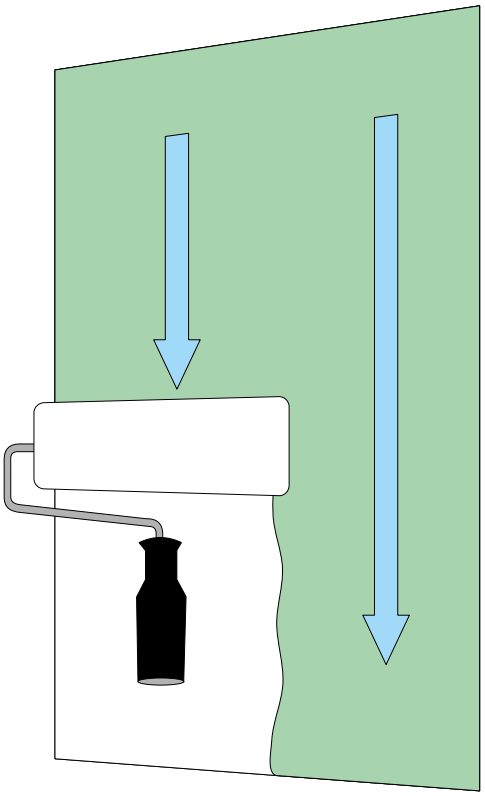
Decorating

Decorating

Amina Invisible speakers have been optimised for three coats of emulsion paint once plastered. Additional coats will cause very small reductions in the maximum sound pressure levels achievable.

Completed and fully dried plaster surfaces should be finished with permeable coatings / materials to allow moisture in that coating or the adhesives used to apply those materials, to dry into the environment quickly.



CAUTION:

Non-permeable coatings

Oil based coatings and other non-permeable surfaces will trap moisture in the plaster surface for many days and even weeks. This has the potential to work its way back to the Amina loudspeakers exposing them to an unacceptably damp environment for an extended period.

The use of impermeable coatings and materials should be considered carefully and with caution. Bare plaster surfaces must be pre-treated with a primer / sealing coat that is permeable during its drying process. The entire surface must then be fully dry (this may take some weeks) before applying the impermeable coating or material.

Ensure the building is environmentally sealed, de-humidified (to a max of RH 50%) and at a standing temperature of at least 16°C (61°F).

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Final Test

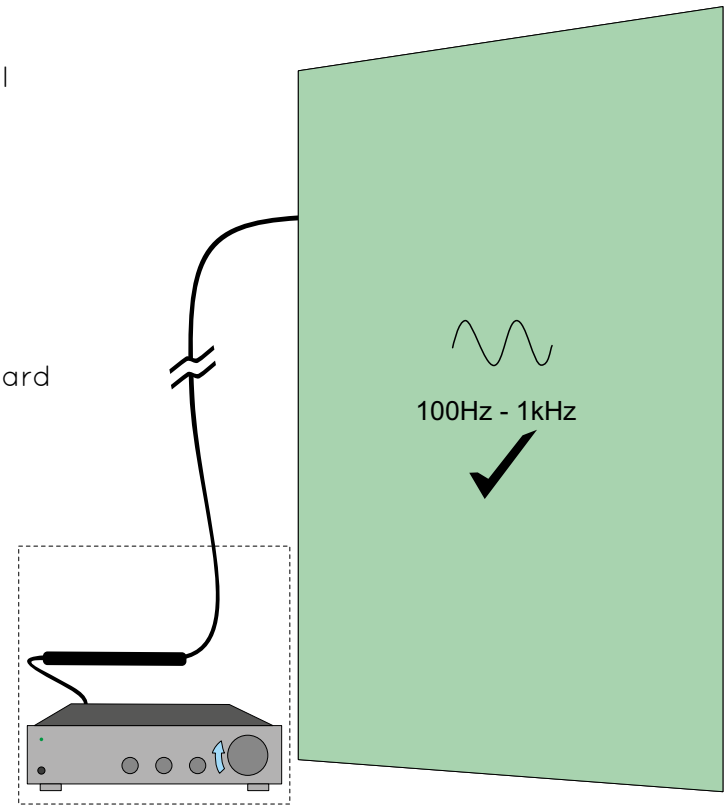
Checking the completed installation

With decorating completed, run a final test of all the speakers in the system independently.

CAUTION:

Do not use a battery or DC voltage supply to check continuity or phase check as there is no forward or backward movement of the panel.

DC voltage can damage the speaker.



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Maintenance and cleaning

Once your speaker is plastered into your wall or ceiling, it requires no physical maintenance. Your wall or ceiling can be cleaned with products appropriate to the finish finally applied to the plaster surface.

Re-decoration

The wall or ceiling can be painted or redecorated any number of times, but please be aware that sound output will reduce very slightly with each coat.

Extreme care should be taken when removing wallpaper type coverings to ensure the panel surface is not damaged.

If damage to the plaster work occurs, use repair plaster to restore the plaster surface prior to re-decorating. Amina Technologies Ltd recommends British Gypsum Gyproc-Joint-Filler as a repair plaster.

Avoid pushing the wall or ceiling surface immediately in front of the speaker.

Excessive excursion, whilst unlikely to damage the speaker, will undoubtedly cause the plaster to crack around its perimeter.

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Accessories

Subwoofers

ALF40

40W compact, passive bass enhancer with unique adjustable port design allowing the product to be installed within joinery, behind kick boards or within ceilings or other voids.

Highly discreet, high quality bass enhancement is achieved with only a small opening for the port required within the room.

ALF80

150W passive subwoofer with unique adjustable port design allowing the product to be installed within joinery, behind kick boards or within ceilings or other voids. Highly discrete, powerful and deep bass response is achieved with only a small opening for the port required within the room.

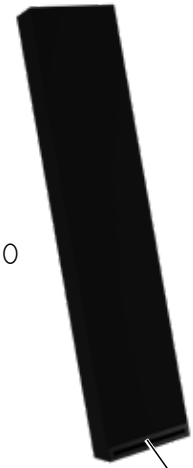
ALF120

Amina have developed an astonishing subwoofer technology dubbed 'distributed transmission line' (DTL), which allows the design of a subwoofer thin enough to be built into a stud wall, venting through a simple slot in the skirting board, to create an impressively low 27Hz audio output at 111dB loudness using only 50W of power.

ALF40

ALF80

ALF120



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Troubleshooting

Thorough testing of the loudspeakers should be carried out both prior to and after plastering to avoid time consuming repairs or modifications at a later stage. Should you encounter any problems at either of the test stages the following guide is designed to help determine possible problem areas.

CAUTION:

Do not use a battery or DC voltage supply to check continuity or phase check as there is no forward or backward movement of the panel.

DC voltage can damage the speaker.

Advice for testing

- When testing always use a basic sound system (amp, source, loudspeakers) to eliminate the possibility of faults with other, more sophisticated components, such as control systems.
- Test at low and medium volumes and be careful not to exceed the specific speaker model's recommended power. Using tone sweeps or music as test material, listen for distortion, buzzing or rattles at appropriate levels. Using test discs or music, confirm that all channels are in-phase.
- Ideally professional test equipment should be used to record a full frequency response of the loudspeaker before and after plastering.

No or low sound output

- Check continuity of all cables.
- Check that all cables and connections are made correctly, are intact and that all channels have the correct polarity (+ to + and - to - from amp to speaker).
- APUiC is an in-line HP filter and over-voltage protection unit that protects the speaker, and is designed to reset automatically when voltage is reduced. APUiC may fail if exposed to extreme power levels for extended periods of time, and present a constant high impedance or open circuit, protecting the loudspeaker panel. To check, bypass the APUiC and test the speaker at low volume or meter as below. If speaker works or measures properly, replace the APUiC by ordering an appropriate replacement from Amina.
- Using an impedance meter, check the nominal impedance of the speaker (APUiC must not be connected) both at the loudspeaker and the amp end of the cable. Do these measurements match each other? (Allowing for the small impedance increase of less than 1 ohm along the wire length) Do they match the stated nominal impedance on the loudspeakers specification label? If the nominal impedance, measured at the loudspeaker is dramatically different to the product's stated impedance, a speaker driver may be open circuited or short circuited. If so, the product may need to be returned to Amina for repair or replacement.
- If the nominal impedance at the end of the cable is very different to the impedance at the speaker, check your cables. Cuts or nicks in the cable along its length can dramatically increase impedance or create a short circuit, dramatically lowering the impedance.

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Troubleshooting

Distortion, buzzing or rattles at modest volumes

- Try to identify the location of the buzz or rattle. It may be caused by a loose screw or other mechanical object. Check the wall or ceiling and speaker assembly and ensure screws and fixings are tight.
- If the rattle persists, remove the speaker from the wall and check your wiring to the product. Ensure that wires, with the speaker in the final location, are not resting against the speaker or backbox (if used), causing vibrations.
- With no audio signal applied, lightly push the speaker face in and out at its centre. Listen carefully for rubbing on the driver, which may sound like scratching. This may indicate the speaker has been over driven and subsequently damaged. The speaker will need to be sent to Amina for repair or replacement.

Low level, distortion with volume turned up/intermittent high volume/ low volume/distortion

APUiC might be over-driven or has been subjected to abuse. Reduce power level into APUiC, and see if sound returns to normal levels. If problem persists, change APUiC out with appropriate replacement.

Very low output after speaker passes electrical tests

- With no audio signal applied, lightly push the panel in and out at its center. Listen carefully for rubbing voice coils on the driver, which may sound like scratching. This may indicate the speaker has been over driven and subsequently damaged. The speaker will need to be sent to Amina for repair.

Distortion at higher volume levels

- Diffuse source panel loudspeakers of this type have an extremely fast response, articulating the signal from your audio system very accurately. Take your system back to the bare minimum (amplifier, source and loudspeakers) to eliminate distortions introduced by other components.
- When using your amplifier at maximum power levels, or if the input of your amplifier is being overloaded, the signal level may be ‘clipping’. With some conventional loudspeakers this may not be evident, but with a diffuse source panel speaker you are much more likely to hear the distortion. Consider adjusting or upgrading your system.

⚠ *NOTE: Excessive pressure on the front of the speaker panel may cause cracking in the plaster which may need to be filled.*

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Specifications

Amina Edge*i* series - Plaster up to products

Model number	Edge5*i*	Edge7*i*
Dimensions	450mm x 345mm x 36mm (17¾" x 13⅝" x 1½")	450mm x 345mm x 36mm (17¾" x 13⅝" x 1½")
Weight	1.30kg (2lbs 14oz)	1.80kg (3lbs 15oz)
Nominal impedance	4Ω	4Ω
Frequency response	55Hz to 25kHz (-6dB)	50Hz to 27kHz (-6dB)
Sensitivity (@1m/2.83Vrms)	90dB	90dB
In-line protection unit (single channel)	APUi50C_2	APUi70C_2
In-line protection unit (multi-channel)	APU-RS8iC / APU-RS16iC	
Fixing requirement	Amina BackboxCV345 / Basic fixing kit	
Power handling (continuous)	50W	75W
Power handling (peak)	100W	150W
Operating temperature range	16°C - 40°C (61°F - 104°F)	
Manufacturer warranty	10 years	

Model number	Edge3*i*
Dimensions	400mm x 300mm x 36mm (15¾" x 11¹³⁄₁₆" x 1½")
Weight	1kg (2lbs 3oz)
Nominal impedance	8Ω
Frequency response	90Hz to 25kHz (-6dB)
Sensitivity (@1m/2.83Vrms)	86dB
In-line protection unit (single channel)	APUi30C
In-line protection unit (multi-channel)	APU-RS8iC / APU-RS16iC
Fixing requirement	Amina BackboxCV300 / Basic fixing kit
Power handling (continuous)	30W
Power handling (peak)	60W
Operating temperature range	16°C - 40°C (61°F - 104°F)
Manufacturer warranty	10 years

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Warranty information

Limited Warranty:

Amina loudspeakers are designed to operate reliably for many years. Correctly installed in accordance with these instructions, Amina warranties the loudspeakers against defective materials and manufacturing workmanship for a period of ten years.

At the end of the speaker's useful life and in compliance with the European directive on waste electrical and electronic equipment (WEEE), this product is to be returned to your supplier, or directly to Amina for recycling. If you have any questions please contact Amina Technologies Ltd.

* Please refer to our full warranty statement for details, available on our website, or alternatively contact us via email.

UK CA CE RoHS Compliant

Important Note: This product has not been tested to European Construction Products Regulations EN 54-24 and therefore must not be used in voice evacuation systems located within the European Union.

Copyright information

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