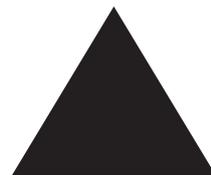


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# Installation Manual & User Guide

# ALF100SM

Subwoofer



# AMINA

IMMERSIVE INVISIBLE SOUND

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## Caution

### Read this section before operating your unit

To ensure optimal performance, 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 and heat sources, vibration, dust and moisture.

Do not expose this unit 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 unit.

Do not clean this unit with chemical solvents as this may damage the finish. Use a clean, dry or damp cloth.

Do not attempt to modify or repair the unit.

Contact your distributor or manufacturer if a fault should occur.

Ensure that any fixing structures will support the weight of this product.

The ALF100SM is a large item. Two people are recommended to handle the ALF100SM during installation.

## Repair

In the unlikely event that your ALF100SM needs repair work, contact your supplier or your local distributor.

## Caution: Read before installing this product

This manual contains detailed instructions required to install your Amina ALF100SM into a cavity wall or ceiling.



### WARNING:

*No attempt should be made to install an ALF100SM within existing building structures unless you are certain that no electric cables, water pipes, gas pipes or load-bearing joists will be cut through.*

### FIRE PROTECTION:

*When making an intrusion into an internal wall or ceiling to install an ALF100SM 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 subwoofer. Amina Technologies take no responsibility for the correct specification and installation of any such fire protection system that is required behind their loudspeakers.*



### 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 ALF100SM subwoofer. All debris, loose screws, excess materials etc, should be removed from above the ceiling to avoid unwanted rattles.



### CLEANLINESS DURING INSTALLATION:

Always install the ALF100SM when the general environment is clean and dust free. Keep the ALF100SM protected in its shipping carton until cutting work is complete and the installation room has been cleaned down thoroughly.

### WALL OR CEILING CONSTRUCTION QUALITY

- Check the construction quality of the wall or ceiling *before* installing the ALF100SM.

Surrounding wall-board should be 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 ALF100SM may 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 installation.

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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)
- 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, acoustic 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.
- During installation take care to use appropriate and suitable joint filling compounds to fill the gap between ALF100SM and the surrounding surface. This gap should be no less than 2mm ( $1/16$ "") and no more than 5mm ( $3/16$ "") 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.

Combining the ALF100SM with Amina Active Sound Board loudspeaker 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 and subwoofer 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 and subwoofers 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 subwoofer.

At Amina we are proud of being at the forefront of fully discreet audio solutions. All the components that make up your subwoofer 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 the Amina ALF100SM subwoofer is a very high performance, low height, high power, 10 inch conventional drive unit. This enables the ALF100SM to produce high quality, high pressure sound levels of bass frequency audio, capable of filling large spaces. 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 and subwoofer solutions. Our flat panel loudspeakers have been used in a wide range of both commercial and residential applications since 1999.

Luxurious hotels & spas, exclusive retail outlets and stunning private residences have all benefitted from using Amina invisible loudspeakers and subwoofers, not only for their incredible aesthetic quality, but for their 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

## Invisible speaker systems

The Amina ALF100SM is a passive subwoofer designed to partner the range of Amina invisible, in-wall panel speaker systems in applications such as home cinema systems and large room, high pressure stereo systems.

## Applications with in-wall, in-ceiling or free-standing conventional speakers

The ALF100SM can also be installed to partner conventional loudspeakers. Home Cinema systems may benefit particularly from the space saved by the use of concealed subwoofers.

## Choosing an amplifier

The ALF100SM is a passive subwoofer and therefore requires an external amplifier to drive it.

The ALF100SM does not include a crossover so the audio system must include a DSP (Digital Signal Processor) to enable the required protection to be applied. This can be achieved with a DSP equipped amplifier, or with an external DSP processor like the MiniDSP feeding a non-DSP amplifier.

## Unpacking

Unpack the unit.

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

Retain the packaging. If you dispose of it, do so having regard to any recycling regulations in your area.

## Contents

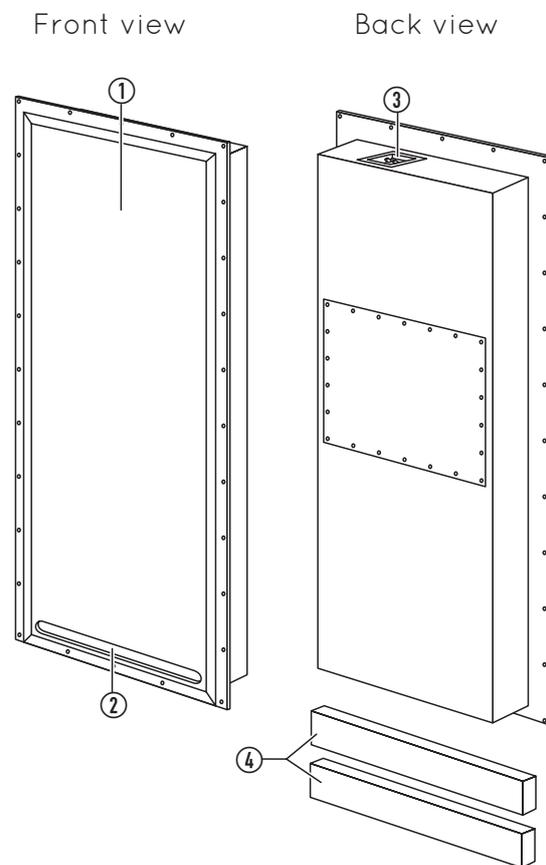
The carton should contain:

- ALF100SM subwoofer
- 2 x 18mm plywood noggins
- 28 x countersunk fixing screws

If any items are missing or damaged, contact your supplier immediately.

## Subwoofer

1. Cabinet
2. Outlet port
3. Terminal panel
4. 18mm plywood noggins



### NOTE:

To complete installation of the ALF100SM you may also require -

28 x countersunk, self-drilling fixing screws, suitable to fix a product of this weight to a metal frame studwork.

Foam tape or sealant to seal around the port area behind any skirting board.

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# Installation

## Choosing a location

The best location for the ALF100SM will always be close to the in-wall speakers it will partner, particularly where the listening position is not fixed (for example, offices, demonstration areas etc). A close location to the speakers will ensure that the path lengths to the listener are similar, maintaining a good volume balance between the speakers and the sub.

However, as the low frequency bass sound from the ALF100SM is not directional, some flexibility is possible when the listening position is fixed and known (for example, seated in front of a screen). In this case the ALF100SM can be installed further from the speakers if required. After installation, the levels of sound from the speakers and subwoofer can be balanced to give equal volumes at the listening position.

As a general rule subwoofers placed close to a corner of the room will tend to be more efficient and generate louder bass energy across the room.

## Vibration

During installation, remember that the ALF100SM produces deep bass sound that can excite vibration in pipes and wires within the wall/ceiling and also in structure fitted items such as lights.

It is good practice to securely fix wiring and pipes that run in cavities close to an ALF100SM or to wrap them in adhesive, acoustic foam to reduce the possibility of vibration.

# Planning the installation

## Plan the wiring

Before proceeding to install the ALF100SM and any system speakers, plan the system wiring. In larger systems it may be advisable to sketch a schematic.

## System amplifier(s)

The ALF100SM must be driven by a DSP (Digital Signal Processing) amplifier or a non-DSP amplifier with an external DSP processor such as the MiniDSP.

The minimum DSP specification should include -

- High Pass Filter and Low Pass Filter (or crossover) with a slope of at least 24dB/ oct. A slope of 48dB/ oct. is preferred where possible.
- Power limiting.
- 5+ bands of parametric equalisation (PEQ).
- Time delay function.
- Phase reverse function.
- Password protection to prevent the settings from being changed or removed.

The protection parameters required by Amina are listed in the next section. These settings will prevent over-driving and set the bandwidth to the rated frequency range for the ALF100SM.



Password protection for the DSP settings is required to prevent any unauthorised changes which may damage the ALF100SM.

The use of non-DSP amplifiers with a wideband response, failure to apply the required DSP settings or using DSP settings that deviate from the recommendations will void the warranty and may result in damage to the ALF100SM.

## Required DSP parameters

Maximum output - 200W//4Ω (28Vrms)

High pass filter - 30Hz\*

Low pass filter/crossover - 160Hz or below\*

\*Steeper rate filters are preferred as they will filter out less of the usable frequency range; a minimum of 24dB/octave is required, and 48dB/octave is preferred.

## Optimisation

With the above DSP parameters in place the ALF100SM will deliver excellent performance without additional adjustments, but additional filtering and time alignment may further improve overall system performance.

When the installation is completed, refer to the 'Sound Optimisation' section for additional DSP settings that can improve performance and refine integration of the ALF100SM within a speaker system.

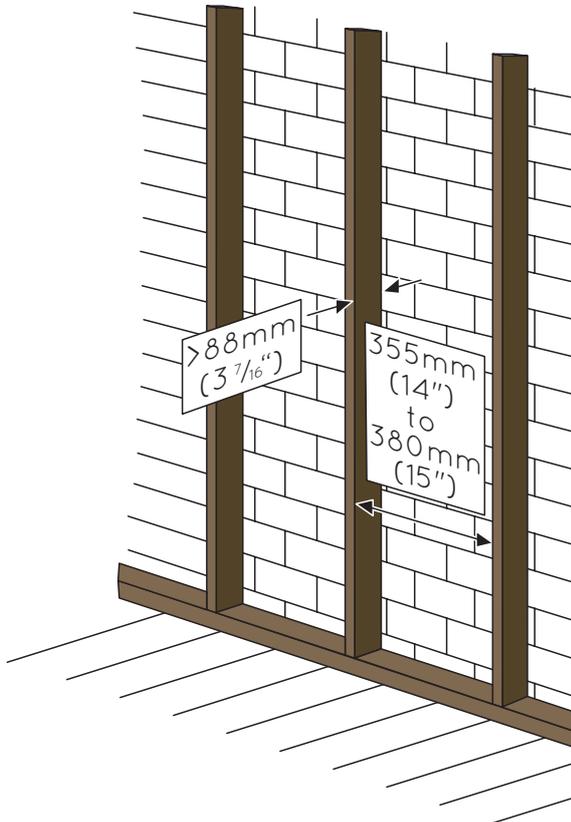
# Installation

## Critical dimensions when constructing a new cavity wall

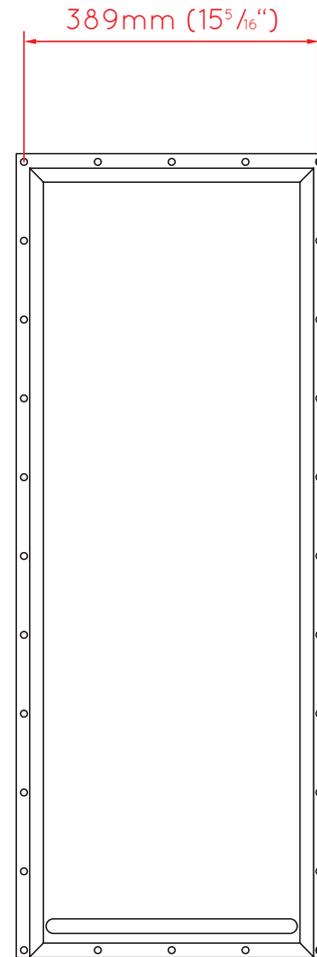
The ALF100SM mounts in-wall, in the space between two nominal 100mm (4") studs, placed on 400mm (16") stud-wall centres.

The depth of the ALF100SM is 88mm ( $3\frac{7}{16}$ ") so ensure that the cavity depth from the front of the studs is equal to or greater than this minimum.

The drawing below shows the critical stud spacing dimensions of 355mm (14") to 380mm (15") when constructing a stud wall where the ALF100SM will be installed.



NOTE: The fixing centre width is 389mm ( $15\frac{5}{16}$ "). Following the critical stud spacing dimensions will ensure that there is enough stud face available to make a secure fixing.



# Installation

## Critical dimensions for a retrofit installation

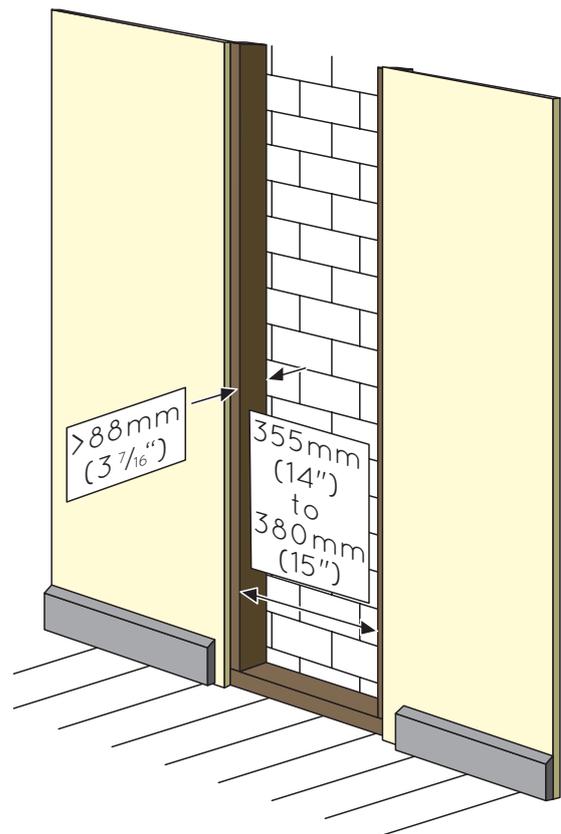
Each building and location may require a slightly different approach to preparing the opening for an ALF100SM and making good the wall afterwards. Use these general instructions as guidance for a retro-fit installation of the ALF100SM into an existing cavity wall.

NOTE: The ALF100SM is not suitable for retrofit into walls of solid construction.

- Locate the studs either side of the area where the ALF100SM will be mounted.
- Remove any skirting that passes across the mounting area.
- Remove all plasterboard from between the studs and a further 5mm ( $\frac{3}{16}$ "") each side to a width of 410mm ( $16\frac{1}{8}$ "") to provide a seat for the ALF100SM front panel.

- Check that the cavity dimensions meet the requirements below. The width between the studs must be as shown to provide a mounting surface for the ALF100SM.

*If your inter-stud width is greater than 380mm (15"), pack the studwork with additional timber lengths to narrow the opening to 380mm (15").*



# Installation

## Clean out the cavity

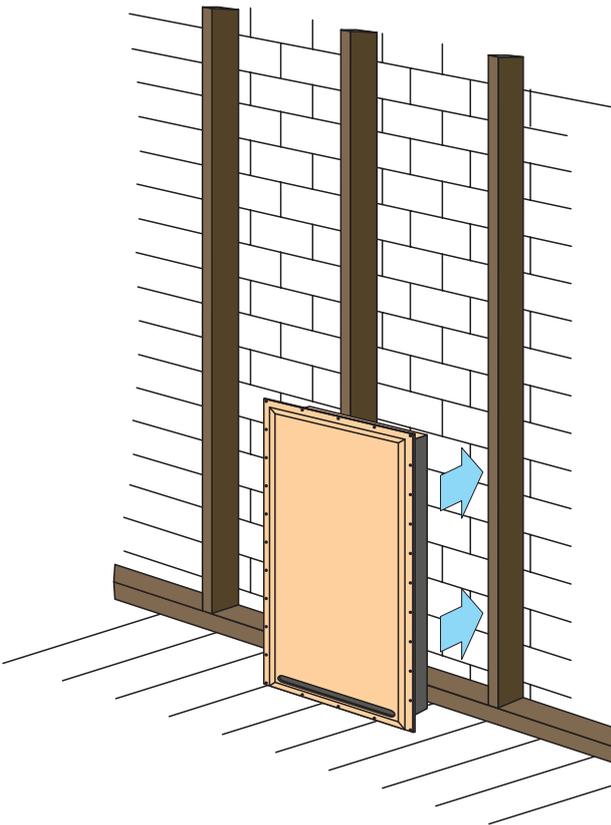
Before proceeding with installation, thoroughly clean out the cavity.

## Installation height

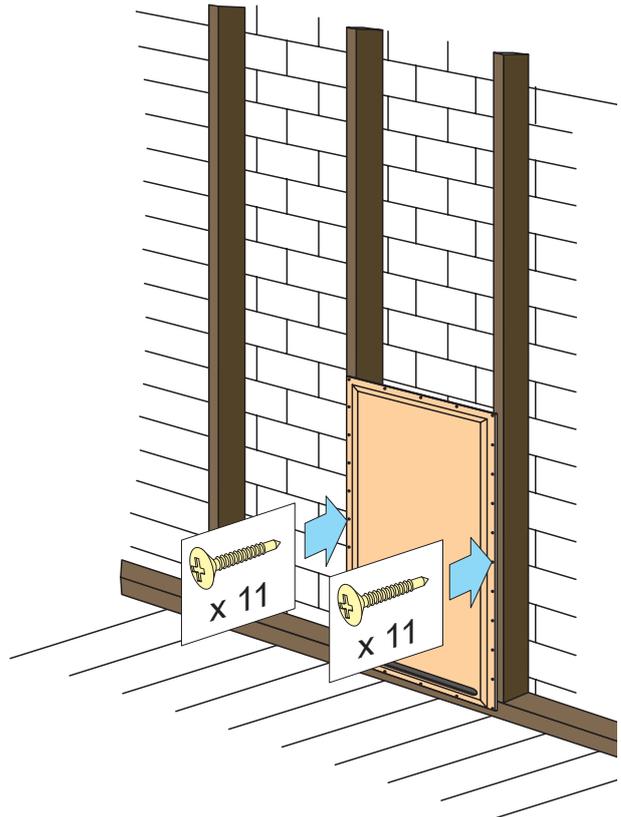
The ALF100SM may be installed at any height within the wall, but for best performance and easiest installation, it is highly recommended to stand the ALF100SM on the bottom plate. In this case the lower cabinet fixings will be fixed to the bottom plate.

## Bottom plate installation

- Lift the ALF100SM into position on the bottom plate.
- Check that the cabinet fixing screws will land on the studs either side.



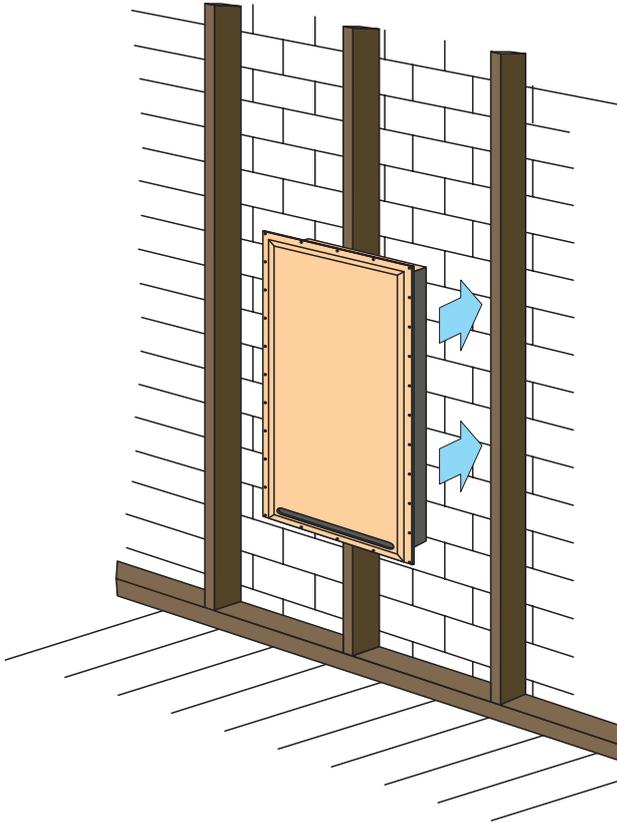
- Fix the ALF100SM cabinet in place with 22 screws, 11 each side.
- The fixing screws supplied are for wooden studwork. If you are fixing to a metal frame you will need use alternative self-drilling fixing screws (not supplied).



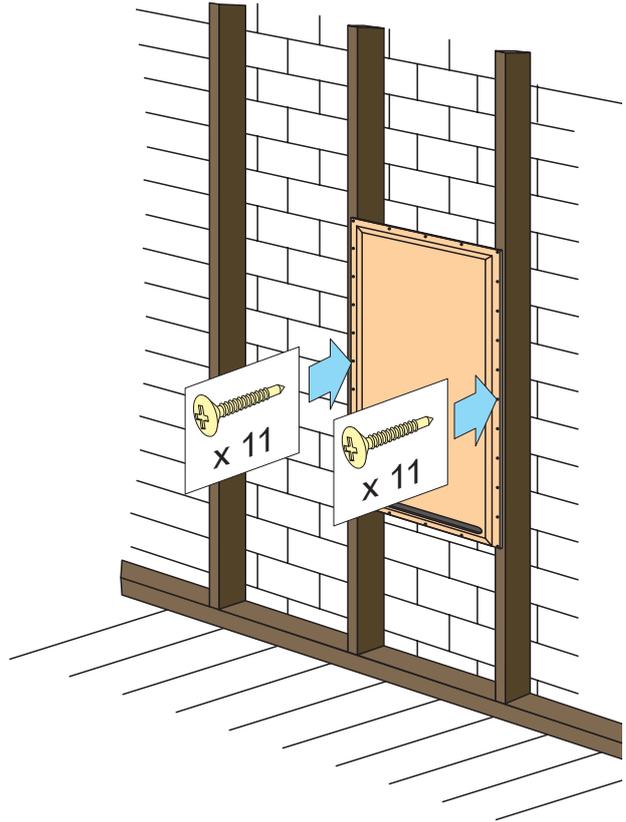
# Installation

## Raised installation

- With assistance to support the cabinet, raise the ALF100SM into your preferred position on the wall.
- Check that the cabinet fixing screws will land on the studs either side.



- Fix the ALF100SM cabinet in place with 22 screws, 11 each side.
- The fixing screws supplied are for wooden studwork. If you are fixing to a metal frame you will need use alternative self-drilling fixing screws (not supplied).



NOTE: With raised installation the port outlet will be visible in the wall.

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# Installation

## Ceiling installation

Ensure the ceiling is capable of supporting the weight of the ALF100SM, especially if this is a metal frame (MF) ceiling structure.

As with wall installation, the ALF100SM can be installed between any set of rafters. If necessary, pack the bay to create an opening of 380mm (15"), then follow the instructions in the previous section to screw the long sides of the cabinet in place.

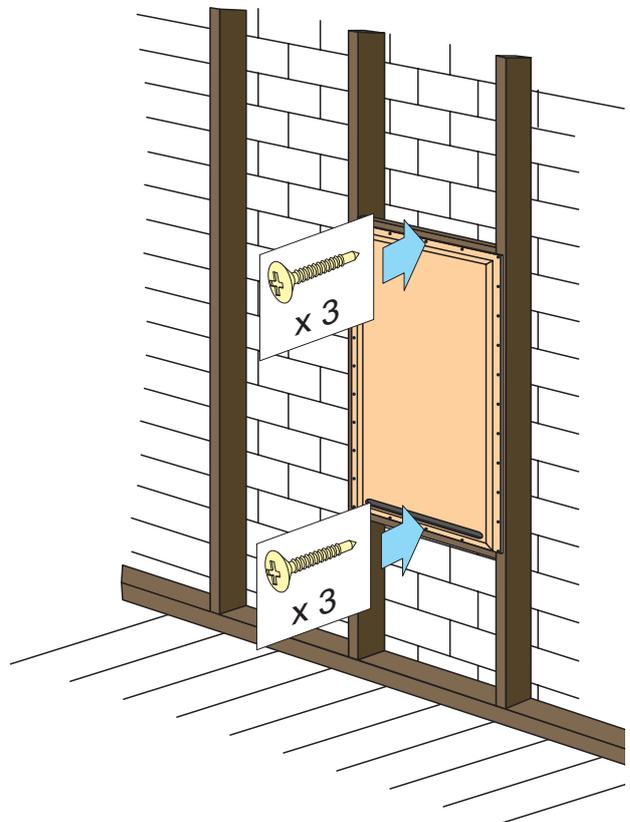
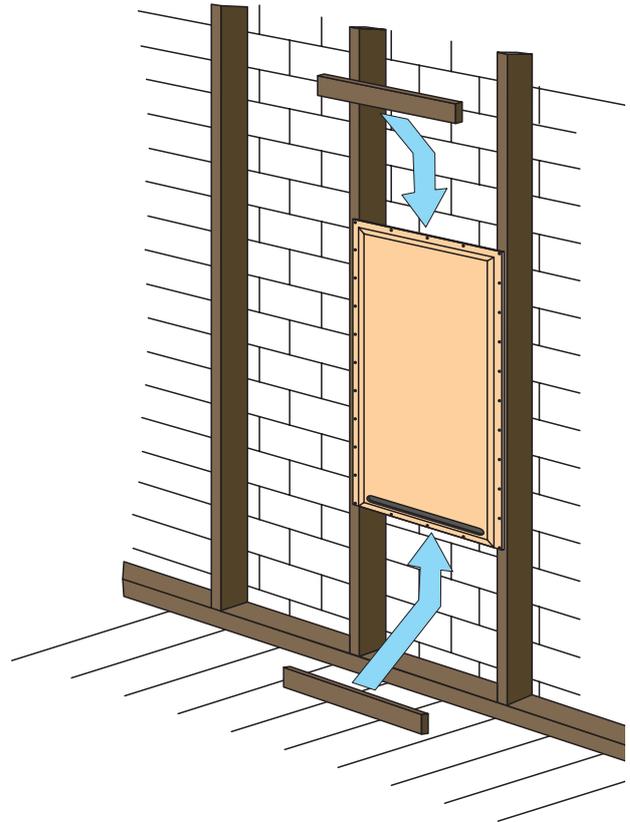
# Installation

## Fit noggins

The two supplied wooden noggins are fitted to the top of the speaker (and the bottom for raised installations) to provide a landing surface for the drywall sheet.

The supplied noggins are 18mm deep and 40mm high. If you are not using the supplied noggins, choose material with the same cross-section to ensure the terminal panel will be accessible behind the noggin.

- Fit a noggin behind the top fixing surface of the ALF100SM.
- Fix the top noggin in place with three screws as shown in the next column.
- For baseplate installations fix the lower edge of the ALF100SM to the baseplate with three screws.
- For raised installations fit the other noggin behind the lower fixing surface and fix it in place with three screws.



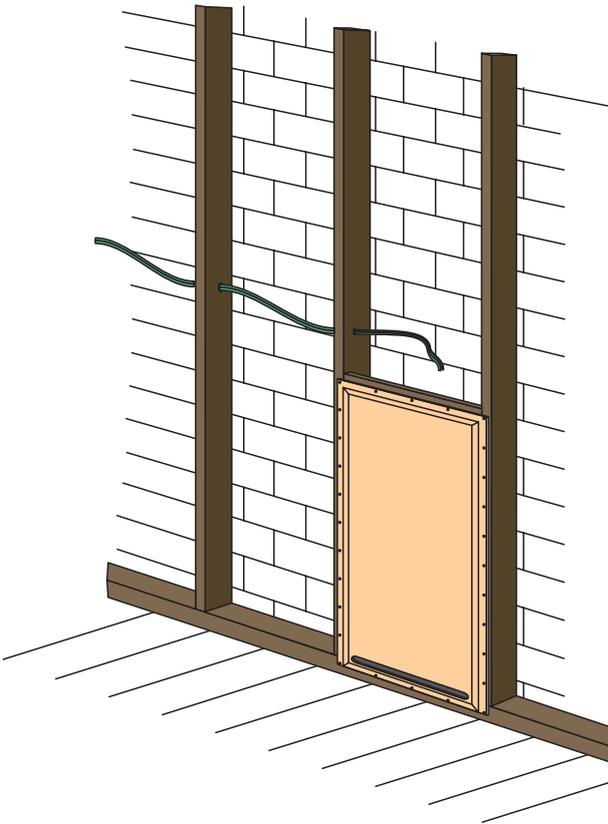
# Installation

## Route cable into the opening

- Feed the cable from the amplifier through the studwork into the opening to exit above the ALF100SM.

*2.5mm<sup>2</sup> (14AWG) stranded cable is recommended where the cable travels 15m (50 feet) or less, 4mm (12AWG) for distances over 15m (50 feet).*

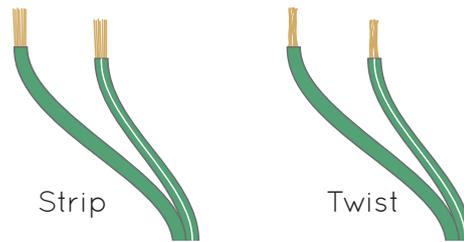
*The image shows cable feeding across from the side, but a feed down from the ceiling may be more convenient.*



## Connecting the ALF100SM

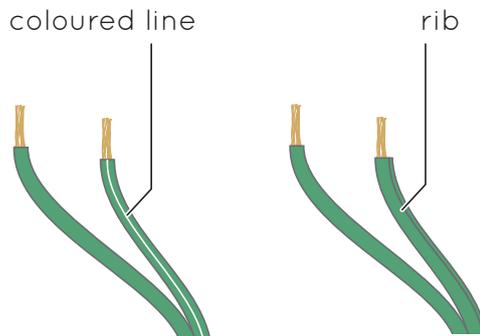
If the fit and cable dressing are correct then the ALF100SM is ready to be connected.

- Strip the cables and twist the wire ends. The cables can be connected to the terminals unterminated or by fitting pin crimp terminals. Either method is acceptable.



- Cables will be marked with a coloured line or have a moulded rib on one edge.

*By convention this wire is the + (positive) wire. The unmarked wire is the - (negative) wire.*



- Connect the cable(s) to the terminal panel, observing polarity.

---

# Installation

## Testing the ALF100SM

At this point the ALF100SM should be fully tested.



CAUTION: The ALF100SM must only be tested with DSP protection applied by using a DSP equipped amplifier, or a non-DSP amplifier with an external Digital Signal Processor. Refer to the 'Planning and Installation' section for more details.

Using an amplifier with no protection may permanently damage the ALF100SM.

- Connect the amplifier to the cable from the ALF100SM.
- If already installed, disconnect any other system speakers.
- Play a signal with high bass content.  
*A low frequency sweep test signal is also useful at this stage.*
- Increase the volume level and listen carefully for vibration or other noises.
- If you hear any vibration or noises locate the source of these and rectify the problem.
- If speakers are installed, connect them up.
- Test the complete system to confirm that the sound from the subwoofer integrates well with the other speakers.



Any vibration or other noises found during test should be investigated and cured before continuing with installation.

Please note: The ALF100SM is fitted with 2mm x 20mm ( $\frac{1}{8}$ " x  $\frac{3}{4}$ ") closed cell foam tape around the rear flange contact surface to avoid contact vibrations.

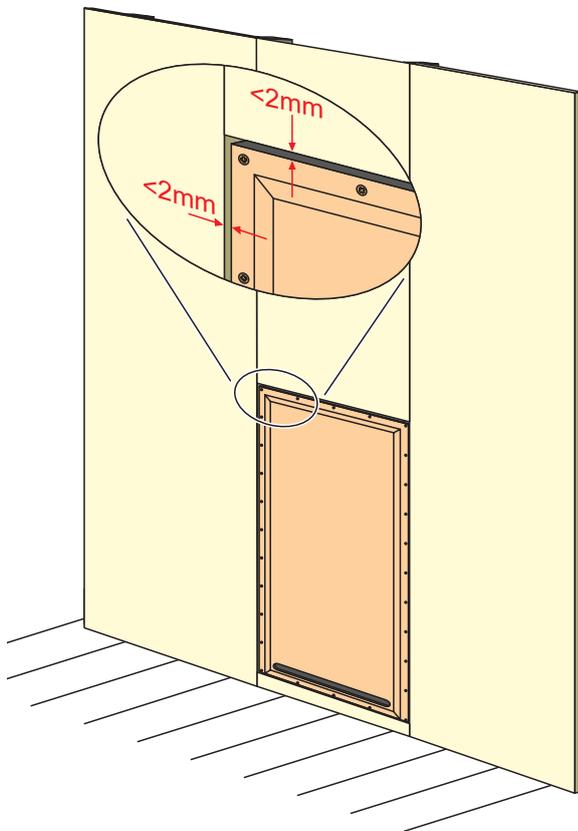
# Installation

## Making good the wall

### Preparing the wall panel

The wall may be a new build or you could have opened a cavity in an existing wall to install the ALF100SM. In either case it is now necessary to build/re-build the wall to complete the installation.

- Cut sections of wall board to complete the wall around the ALF100SM leaving a maximum gap to the cabinet of 2mm ( $\frac{3}{32}$ "") around the perimeter.

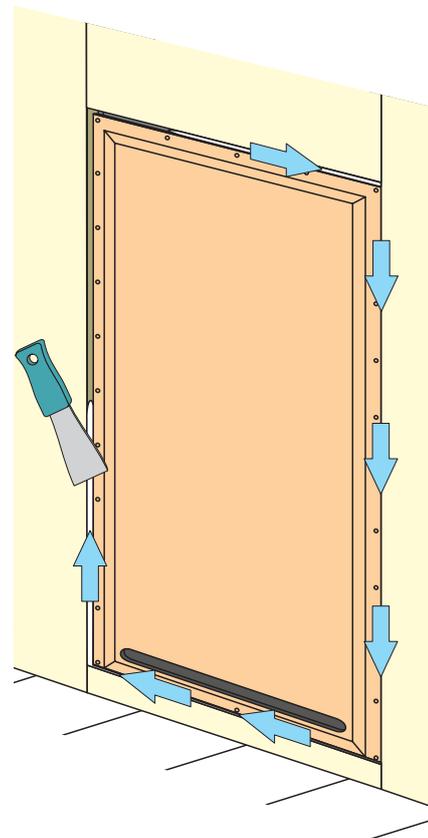


## Making good the wall

### Filling the perimeter

- Once the ALF100SM is fixed into place, the gap must be filled with plaster to bond the edge of the cabinet to the edge of the plasterboard.

*Use a low shrinkage, strong repair plaster such as British Gypsum Gyproc-Joint-Filler\*. In North America, Synco, Durabond or other similar fast setting joint compound with a working time of 20 to 40 minutes can be used.*



Ensure there is a gap of at least 2mm ( $\frac{3}{32}$ "") around the perimeter of the cabinet allowing plaster to be pushed into place.

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

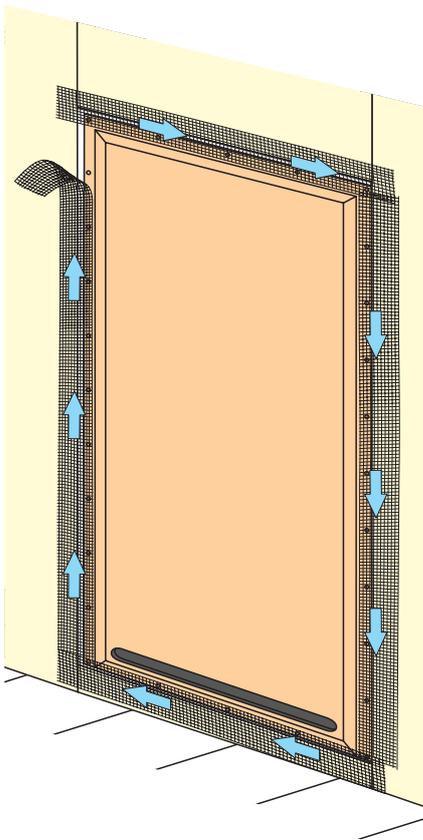
# Installation

## Making good the wall

### Taping the seam

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

*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.

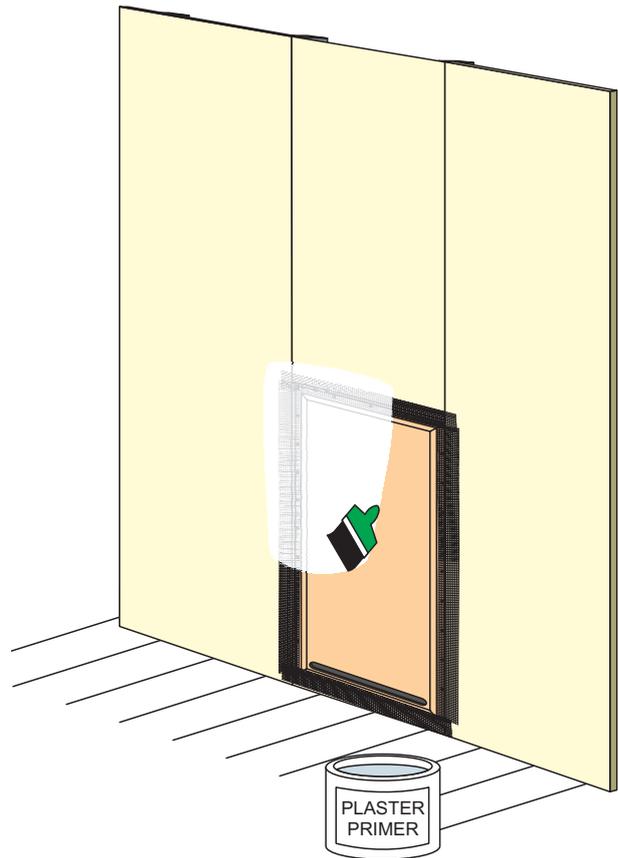


It may take some days for the perimeter fill to dry fully.

## Making good the wall

### Apply plaster primer

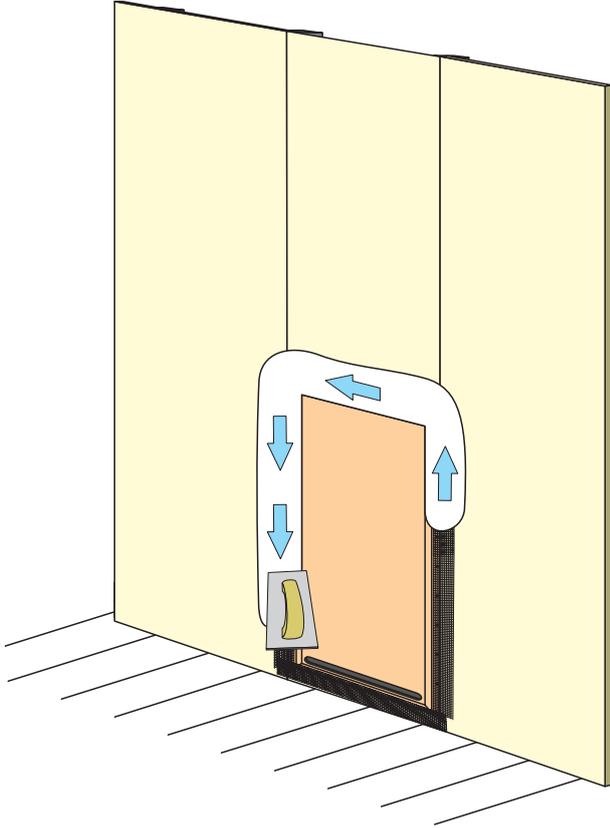
- Using a locally sourced plaster primer, apply one coat to the face of the ALF100SM.
- Allow the primer to dry.



## Finishing

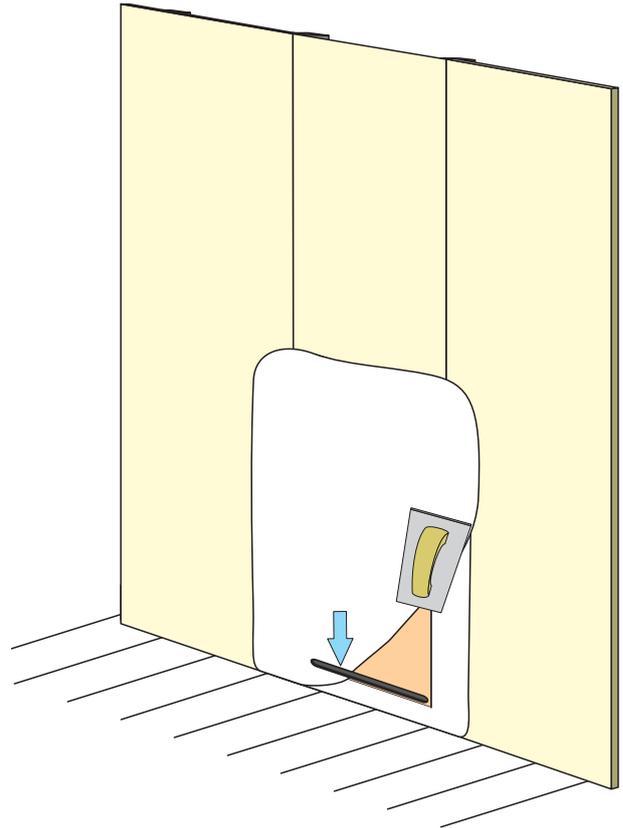
### Plaster finishing - drywall

When the perimeter fill has dried completely and taping is completed, patch-plaster the wall around the perimeter, up to the raised face of the cabinet.



### Finishing skim for drywall

- To finish a drywall 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 subwoofer to blend the cabinet appearance with the surrounding plaster.



 Keep the port area as free of plaster as possible (arrowed).

Amina recommends Toupret® readymixed fine surface filler.

Filler can be sanded/wiped smooth to achieve the correct texture.

Allow the filler to dry fully.

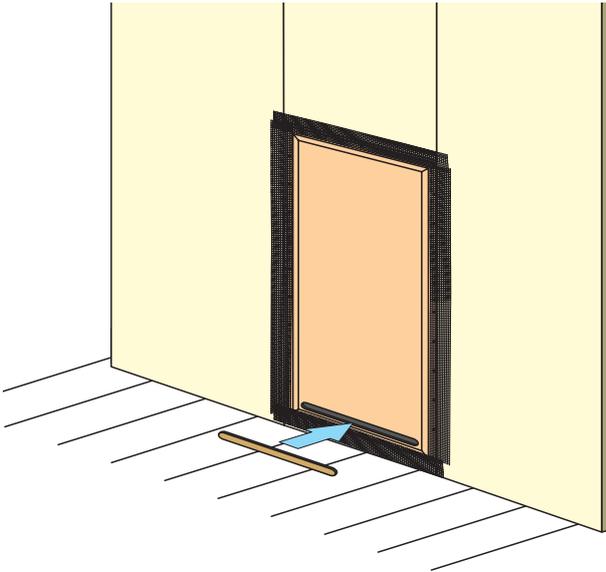
- Sand flat as required.

## Finishing

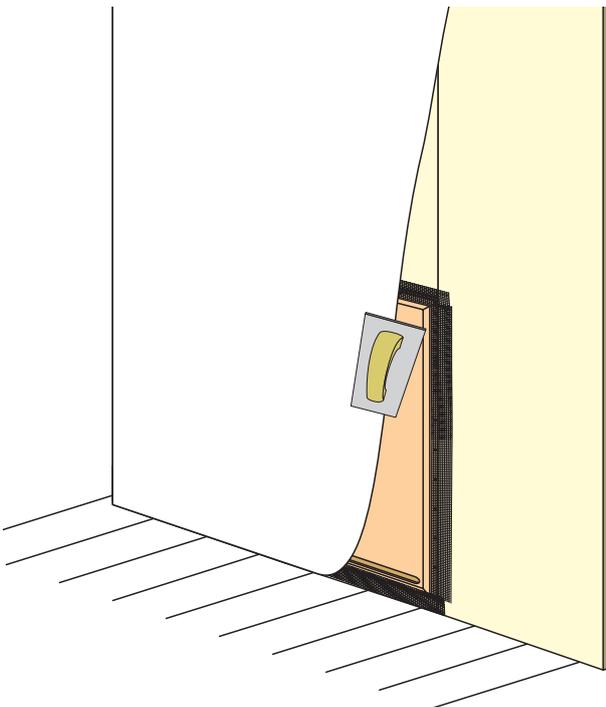
### Plaster finishing - full plaster skim coat

- Block the port to prevent plaster entering.

*The port can be blocked with cloth, bubblewrap or a shape cut from cardboard.*

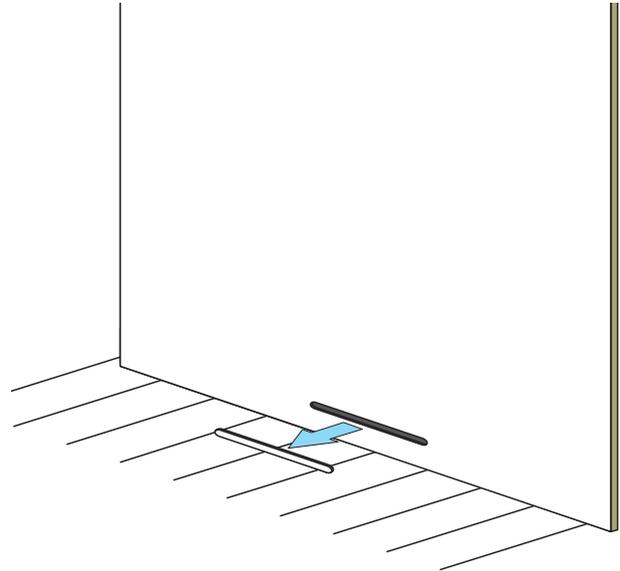


- Apply plaster skim coats to the entire wall surface and across the ALF100SM cabinet face.



Operation of the ALF100SM is not affected by plaster thickness.

When the plaster has begun to set, remove the blockage from the port opening.



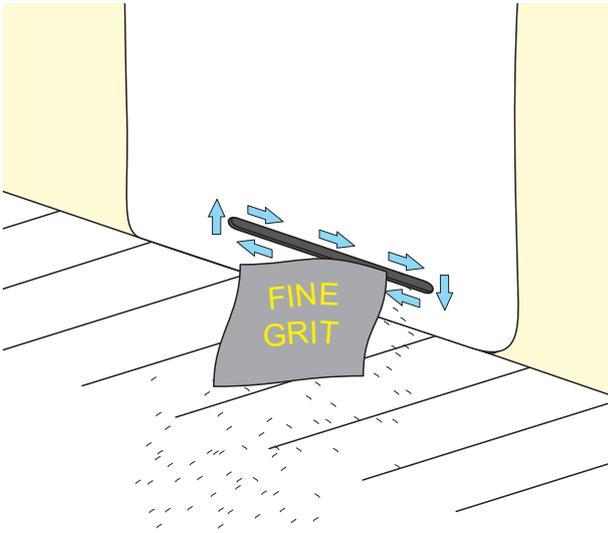
The working environment must be dry enough to allow the plaster finish coat to dry within 24 hours, not days.

## Finishing

### Check and sand the port area

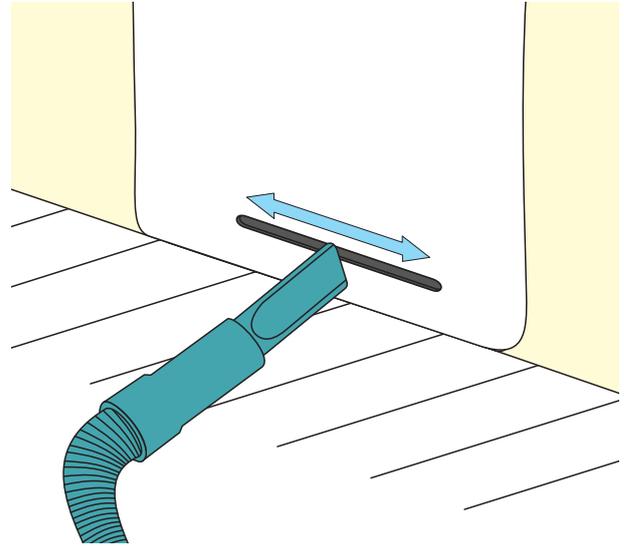
In operation, air flows at very high speed through the port and can cause whistling noises if the port exit surfaces are not completely smooth.

- Sand or file around the port perimeter to remove any plaster that may have adhered around the port opening during installation.



### Vacuum the port

- When the perimeter of the port is completely smooth, use a vacuum cleaner to remove any dust that may have entered into the port.

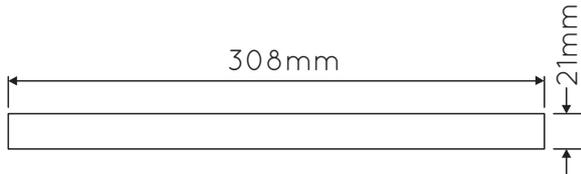


# Finishing

## Preparing skirting

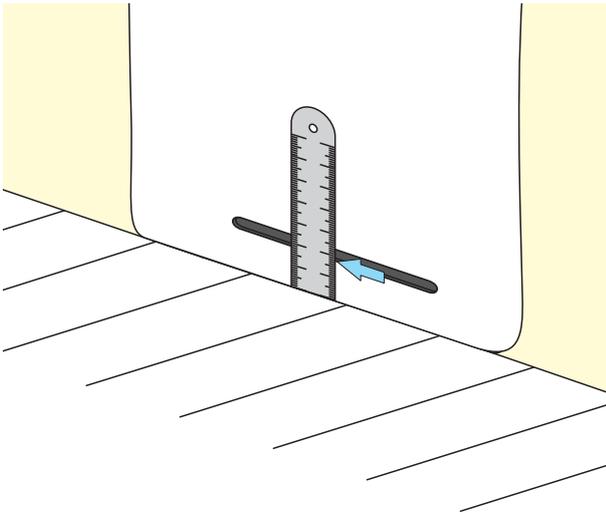
- If you are fitting skirting to the wall, cut a slot to allow the sound from the ALF100SM to pass through the skirting.

The port opening size for the skirting is recommended as 308mm x 21mm (12<sup>1</sup>/<sub>8</sub>" x 7<sup>7</sup>/<sub>8</sub>").



The recommended size above is 1mm (1/32") larger than the ALF100SM port to ensure that the port is not obstructed.

- Measure the height of the bottom edge of the port opening above the floor surface.



- Mark up the opening on the skirting, setting the bottom edge of the opening 1mm (3/64") lower than the measured height of the lower edge in the wall.

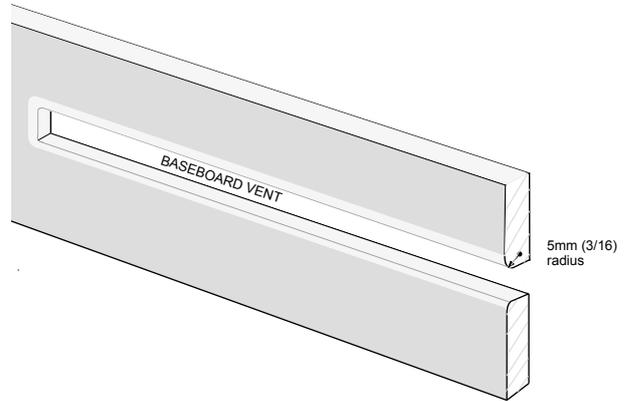


Measured height - 1mm (3/64")



- Cut the opening.

- Using a 5mm (3/16") radius router bit, rout around the outside profile of the slot as shown in the section view below to reduce port noise.



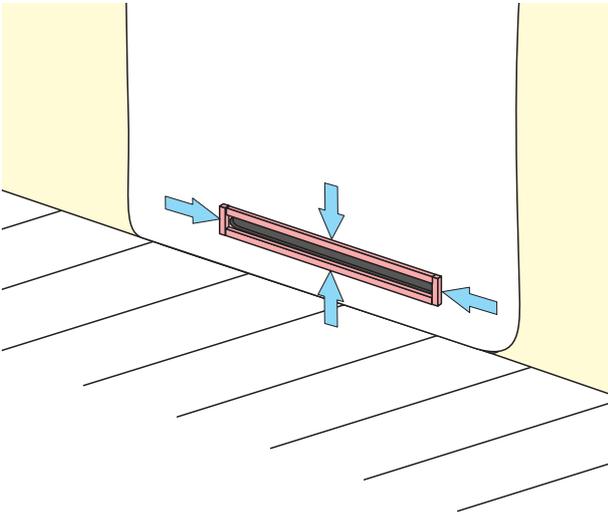
## Finishing

### Fitting skirting

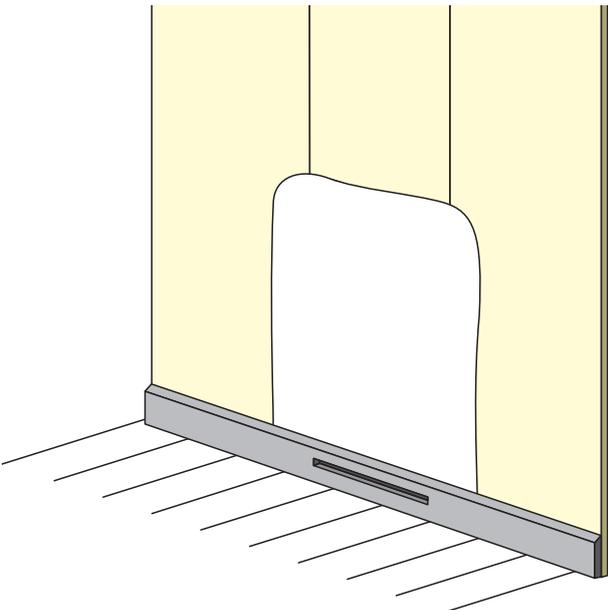
It is advisable to fit some foam strip or sealant around the port opening before fitting the skirting. This will provide an air-tight seal between the wall and the skirting and reduce the possibility of any whistling or other noises that may occur due to air passing gaps behind the skirting.

- Fix the foam strip to the wall around the opening.

*Choose a strip thickness that will just compress behind the skirting when fitted.*



- Fit the skirting.



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# Finishing

## Testing the ALF100SM

The ALF100SM should be fully tested again at this stage, preferably as a system with any speakers, before decorating the wall.



CAUTION: The ALF100SM must only be tested with DSP protection applied by using a DSP equipped amplifier, or a non-DSP amplifier with an external Digital Signal Processor. Refer to the 'Planning and Installation' section for more details.

Using an amplifier with no protection may permanently damage the ALF100SM.

- Connect the amplifier to the cable from the ALF100SM.
- Disconnect any other system speakers.
- Play a signal with high bass content.  
*A low frequency sweep is also a useful test signal at this stage.*
- Increase the volume level and listen carefully for vibration or other noises.
- If you hear any vibration or noises locate the source of these and rectify the problem.
- Connect up the system in-wall or free-standing speakers.
- Test the complete system to confirm that the sound from the subwoofer integrates well with the other speakers.

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# Finishing

## Decorating

When decorating the room ensure that materials used in decoration extend only to the edge of the port and that the port opening is kept completely clear of any obstructions.

The performance of the ALF100SM will not be affected when decorating the wall with paints, papers or fabrics, however when decorating consider any requirements for Amina invisible speakers that may be installed in-wall in the same room.

## Sound optimisation

At the completion of installation, some time spent fine-tuning the DSP amplifier settings can bring benefits to the sound of the installed system.

### Filtering / equalisation

The basic limiter and filter settings listed in the 'Planning the Installation' setting must always be in place.

Amina also publishes optimisation files which can provide an excellent starting point for equalisation depending on the acoustic environment.

Additional filtering should be primarily subtractive in nature since large boosts in low frequencies have the potential to override power limiting settings or reduce the overall sensitivity of the subwoofer.

### Phase

When setting up any speaker system that includes the ALF100SM, it is advisable to experiment with connecting the ALF100SM in reverse phase with respect to the other system speakers.

- To do this, take a seat in a good listening position and play a short passage of music which includes some bass energy.
- Reverse the + and - wires where they connect to the amplifier, or use DSP to reverse the phase.
- Repeat the listening test with the same passage of music.

*Reverse-phase connection can sometimes result in better integration and slightly higher sound pressure level through the "cross-over" region.*

- Repeat the listening test until you can determine the best phase setting.

*Using pink noise can be a good way of judging the difference between the in-phase and reverse-phase connections.*

### Time alignment

In multi-channel audio systems with loudspeakers and subwoofers at different distances from the main listening position, sound from each channel will arrive at the listening position at slightly different points in time.

The standard method for improving system synchronisation and ultimately intelligibility is with the use of time delays. This can be achieved by using DSP settings to slightly delay the sound from sources of sound closer to the listening position so that the time of arrival at the main listening position matches that from the furthest sound source.

A one meter difference will require approximately 2.92ms of delay (0.029 ms per cm), and one foot of difference will require 0.89 ms of delay (0.075 ms per inch). The speed of sound varies slightly with temperature and elevation - these examples are given at room temperature, at sea level.

## Troubleshooting

Symptom	Solution
No sound	The connections to the ALF100SM are very simple, so check for a settings error or possible fault with the source or amplifier before investigating connections at the ALF100SM.
Imbalance between ALF100SM and the system speakers	If the bass sound from the ALF100SM is not in balance with the system speakers, check the subwoofer level settings in the DSP configuration software. Ensure that the DSP placement settings (corner, flat wall etc) have been correctly set.
Vibration (in-wall)	If the vibration occurs after completion of installation, disconnect the system speakers and run only the ALF100SM (or just one ALF100SM at a time where there are more than one). Use a slow frequency sweep (from a PC signal generator or test CD) to identify the problem frequency that excites the vibration. Set this frequency to excite the vibration continually, then locate the source by listening closely to the vibrating area. The source may be a loose wire or pipe in a cavity that should be tied down or foam wrapped, or a wall fitted item such as a light.
	If the source of vibration appears to be the wall itself, apply pressure to where the drywall touches the studs around the ALF100SM and listen for changes that may indicate insecure fixing of the drywall to the stud. Screws can be added in any locations where vibration can be detected.

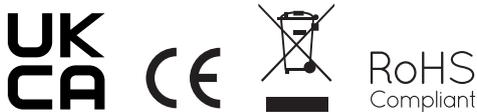
If you cannot resolve the problem, contact your supplier.

## Specifications

Dimensions (H x W x D):	1066mm (42") x 409mm (16 <sup>1/8</sup> ") x 99mm (3 <sup>15/16</sup> ")
Port dimensions:	20mm (13/16") x 307mm (12 <sup>3/32</sup> "), corners rounded 10mm (3/8")
Port location:	Front, 20mm (13/16") from short edge
Weight:	20kg (44lbs 2oz)
Design:	Bandpass
Power Handling:	200W continuous
Nominal Impedance:	4 Ohms
Frequency Response:	30Hz - 160Hz (-6dB)
Sensitivity:	90dB 1m/2.83Vrms (half space)
Maximum Short term SPL:	110dB @ 1m (half space)
Connection:	Push button spring terminals

## Warranty

The ALF100SM is designed to operate reliably for many years. Correctly installed and in accordance with these instructions, Amina warrants the ALF100SM against defective materials and workmanship for a period of three years. Amina does not warrant, nor is at any time responsible for the finishes of the ALF100SM.



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## Contact information

### Amina Technologies Ltd

#### UK and headquarters

Cirrus House, Glebe Road, Huntingdon

Cambridge, PE29 7DL, UK

T: +44 (0)1480 354390

E: [info@aminasound.com](mailto:info@aminasound.com) - general enquiries and career opportunities

E: [support@aminasound.com](mailto:support@aminasound.com) - expert advice

E: [sales@aminasound.com](mailto:sales@aminasound.com) - sales team

W: [www.aminasound.com](http://www.aminasound.com)

Registered in the UK, company no: 3656822

#### US

Fort Lauderdale

FL33312

U.S.A.

T: +1 866 462 6462

E: [orders@aminasound.com](mailto:orders@aminasound.com) - contact for the United States

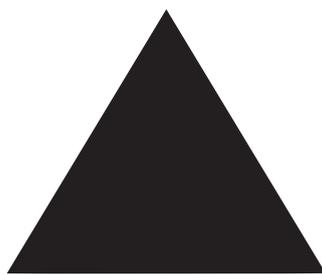
#### China

No. 28, Jinyuan Zhongxin

Min Hang

Shanghai

T: +86 021 648 86031



**AMINA**

**IMMERSIVE INVISIBLE SOUND**

Amina Technologies Ltd  
Cirrus House, Glebe Road  
Huntingdon, Cambs, PE29 7DL England  
T: +44 1480 354390  
W: [www.amina.co.uk](http://www.amina.co.uk) / E: [inspired@amina.co.uk](mailto:inspired@amina.co.uk)  
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