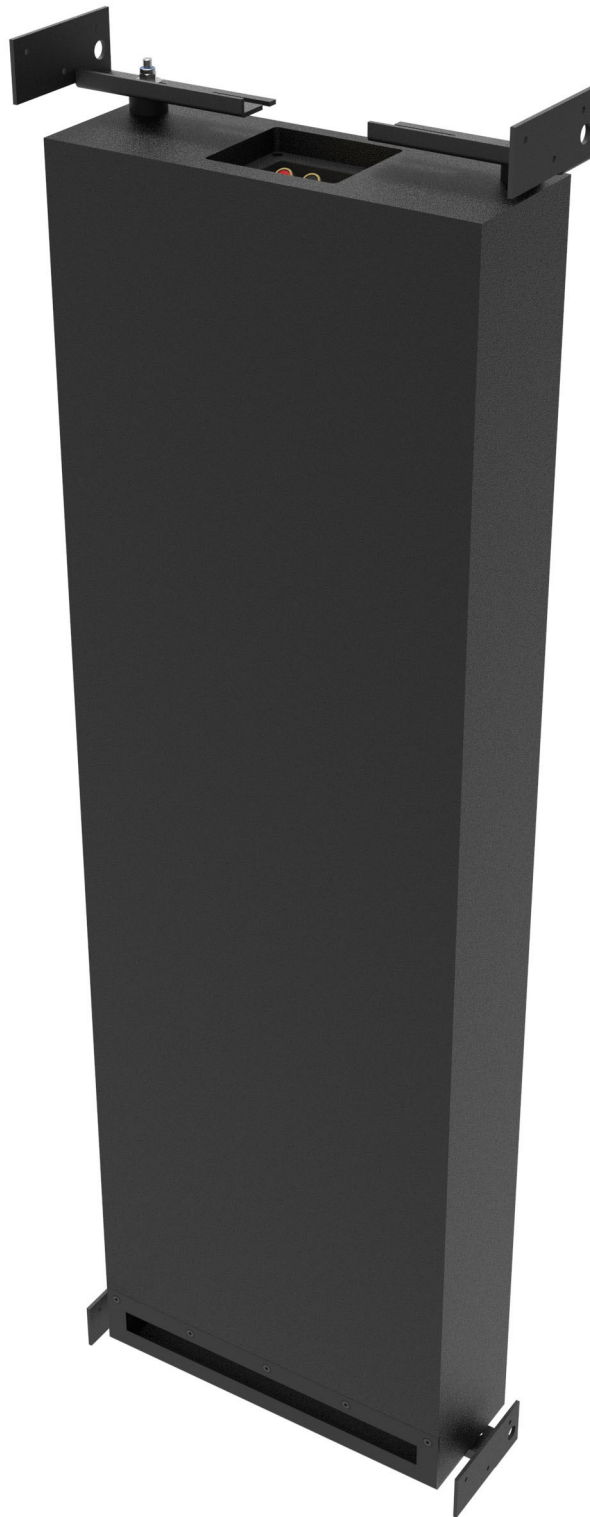

Installation Manual & User Guide

ALF100CV

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, 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 ALF100CV is a large item. Two people are recommended to handle the ALF100CV during installation.

Repair

In the unlikely event that your ALF100CV 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 ALF100CV into a cavity wall or ceiling.



WARNING:

No attempt should be made to install an ALF100CV 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 ALF100CV 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 does not accept responsibility for the accurate specification and installation of any required fire protection system surrounding their subwoofers.



METAL FRAME CEILINGS:

The ALF100CV is solidly constructed from high quality birch ply and its design topology keeps kinetic energy produced in the cabinet to a minimum. When installing in metal frame (MF) ceilings (& walls), ensure that the assembled metal frame is securely anchored and all metal mating joints are either mechanically fixed or bonded together. Loose or inadequately fixed metal joints can produce unwanted buzzing noises as the edges rub against each other should they be activated by the acoustic energy from the ALF100CV cabinet itself. Additionally, remove any debris, loose screws, excess materials, etc, from above the ceiling to prevent unwanted rattles.



CLEANLINESS DURING INSTALLATION:

Always install the ALF100CV when the general environment is clean and dust free. Keep the ALF100CV 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 ALF100CV.
- Surrounding wallboard should be securely fixed at regular intervals to a supporting framework of studs.
- If the wallboard is not securely fixed and there is any clearance between the wall-board and studs, the ALF100CV may excite vibration and buzzing between the wallboard and supporting framework.
- If tests show that the wallboard is not securely fixed then it is essential to remedy this problem before commencing installation.

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.
- Amina Technologies does not accept responsibility for the improper use of materials and the environmental conditions in which they are utilised.

Sound in your Home

Amina products are widely applied in whole house audio systems and multi-channel 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 ALF100CV subwoofer can be used with all types of loudspeaker technology to create an amazing depth of sound without disturbing the aesthetic of your space. Combining the ALF100CV with Amina's Sound Board based loudspeaker technology creates an incredibly even level of sound across an entire space, producing 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.

E: specification@aminasound.com

Message from the Managing Director

Congratulations and thank you for purchasing an Amina Technologies high-performance Invisible subwoofer.

At Amina, we take great pride in being at the forefront of fully Invisible audio solutions. Every component that makes up your subwoofer has been meticulously developed to provide the ultimate experience in sound quality and reliability. This allows you to decorate, furnish, and enjoy your home in any way you desire, without any visible 'clutter' created by your audio system.

At the heart of the Amina ALF100CV subwoofer is a high performance, low-height, high-power, 10-inch conventional drive unit. This enables the ALF100CV 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 assist you in achieving the best possible performance from your product.

Thank you and enjoy listening!

Richard Newlove Managing Director/
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 Invisible 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.

W: www.aminasound.com

Introduction

Invisible speaker systems

The Amina ALF100CV 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 ALF100CV 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 ALF100CV is a passive subwoofer and therefore requires an external amplifier to drive it.

The ALF100CV 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.

Please keep the packaging. If you need to dispose of it, ensure you do so in compliance with recycling regulations applicable in your area.

Contents

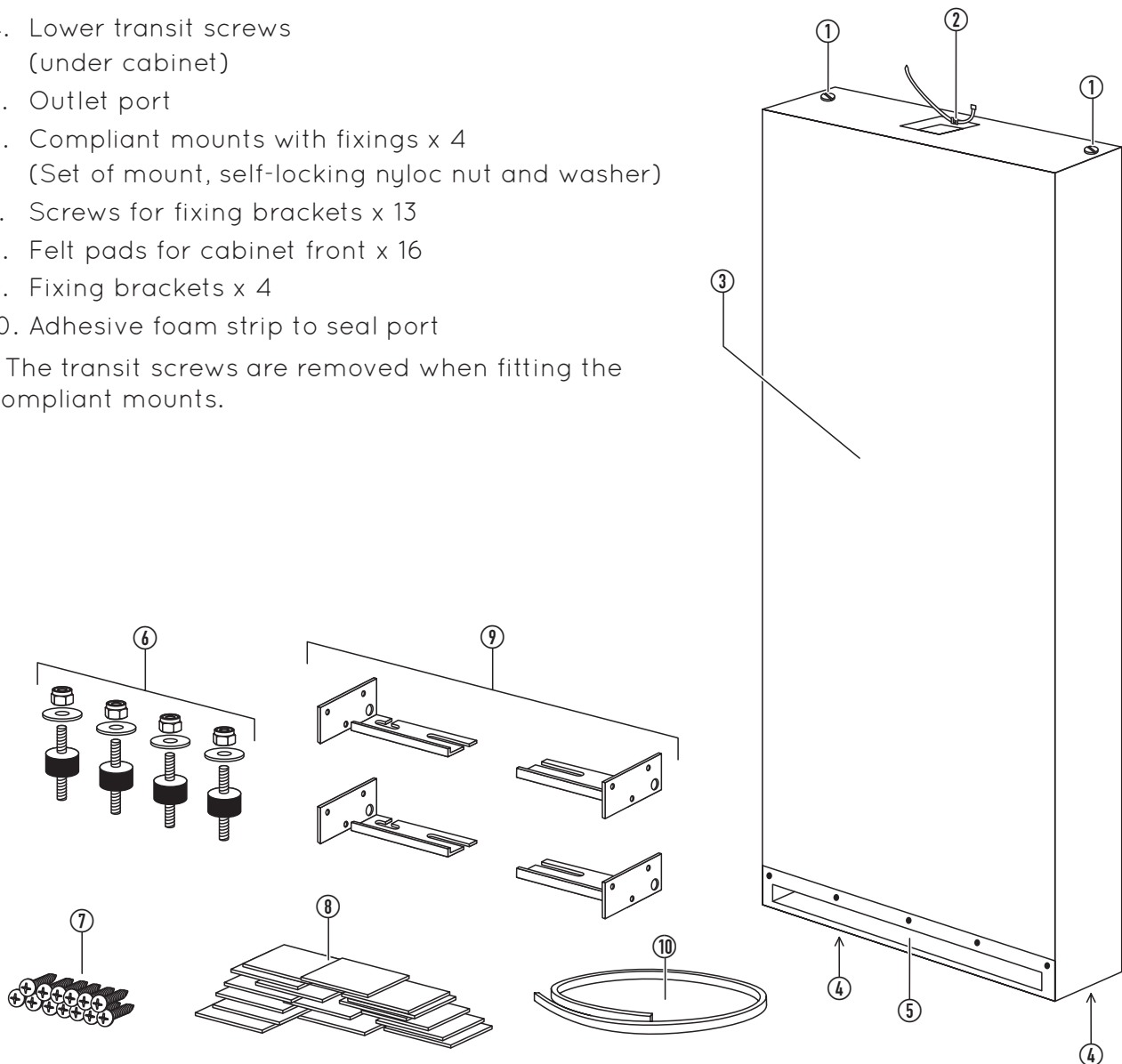
The carton should contain all of the components shown in the image below.

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

Components

1. Transit screws*
2. Terminal panel with cable tie
3. ALF100CV Cabinet
4. Lower transit screws (under cabinet)
5. Outlet port
6. Compliant mounts with fixings x 4 (Set of mount, self-locking nyloc nut and washer)
7. Screws for fixing brackets x 13
8. Felt pads for cabinet front x 16
9. Fixing brackets x 4
10. Adhesive foam strip to seal port

* The transit screws are removed when fitting the compliant mounts.



Planning the Installation

Choosing a location

The best location for the ALF100CV 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 ALF100CV 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 ALF100CV 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.

Wall installation height

The ALF100CV may be installed at any height within a wall, but for best performance and easiest installation, it is highly recommended to position the ALF100CV low in the wall.

Ceiling installation

When installing the ALF100CV in ceilings, we recommend placing it close to a side wall, as the port opening will be visible.

Metal framed walls and ceilings

Wooden frame construction is preferred where possible for a new build installation.

The ALF100CV is also suitable for retro-fit installation in metal framed walls and ceilings, provided that there is adequate depth available for the installation.

Ensure appropriate fixings are used to securely attach the brackets to the metal frames. In the case of suspended ceilings, make sure the fixings are strong enough to support the weight of the ALF100CV cabinet.

Vibration

During installation, remember that the ALF100CV 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 ALF100CV or to wrap them in adhesive, acoustic foam to reduce the possibility of vibration.

Free standing

In addition to in-wall or in-ceiling installations, the ALF100CV may be installed as a free-standing subwoofer, concealed behind or under furniture.

Planning the Installation

Plan the wiring

Before proceeding to install the ALF100CV and any system speakers, we recommend you plan the system wiring. In larger systems it may be advisable to sketch a schematic.

System amplifier(s)

The ALF100CV 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 ALF100CV.



Password protection for the DSP settings is required to prevent any unauthorised changes which may damage the ALF100CV.

The use of non-DSP amplifiers with a wideband response and not applying the required DSP settings, or using DSP settings that deviate from the recommendations, will void the warranty and could potentially result in damage to the ALF100CV.

Required DSP parameters

Maximum output - 200W//4Ω (28Vrms)

High pass filter - 30Hz*

Low pass filter/crossover - 120Hz 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 ALF100CV will deliver excellent performance without any other 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 ALF100CV within a speaker system.

Free-Standing installations

The next sections of this installation guide can be skipped if the ALF100CV is to be installed as a free-standing subwoofer.

Click here to skip forward to the section for free-standing installation.



Continue to the next page for all in-wall or in-ceiling installations.

Mounting Brackets

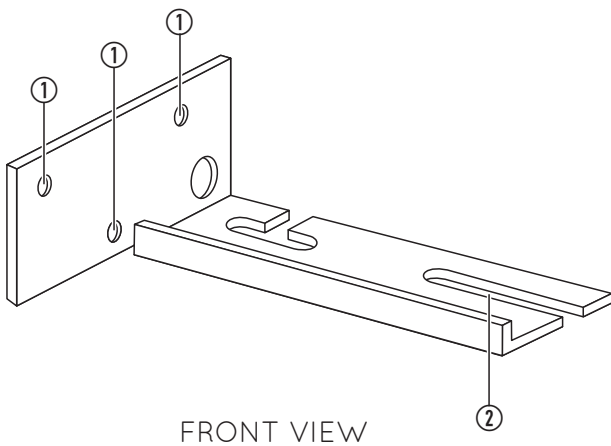
Adjustable brackets are used to mount the ALF100CV to studs, joists or from suspended ceiling fittings.

The brackets are fitted to the wall/ceiling before the cabinet is installed.

The cabinet mounting studs are fixed to the brackets with nuts and washers. A 10mm open-ended spanner will be required to tighten the mounting nuts.

Stud or joist fixing

For stud/joist fixing the brackets include three side mounting holes and an elongated slot to enable width adjustable mounting of the ALF100CV cabinet isolation mounts.



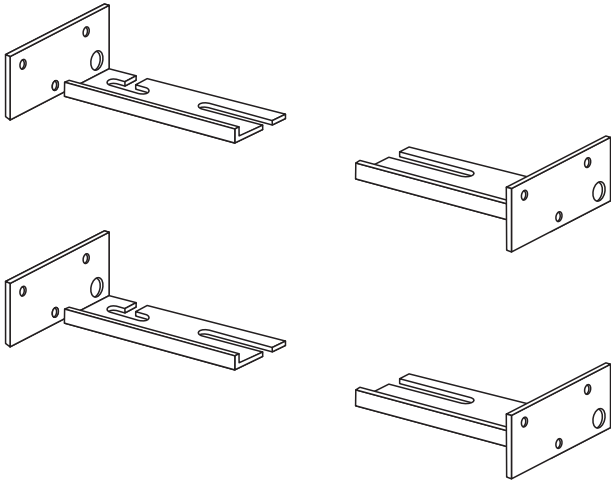
1. Side mounting holes for stud fixing.
2. Elongated slot for cabinet mounting.

Mounting Brackets

Mounting to studs or joists

The brackets can be flipped to whichever orientation provides the easiest installation in the available space.

This configuration, where the upper brackets have the same orientation as the lower is recommended for both wall and ceiling installations.

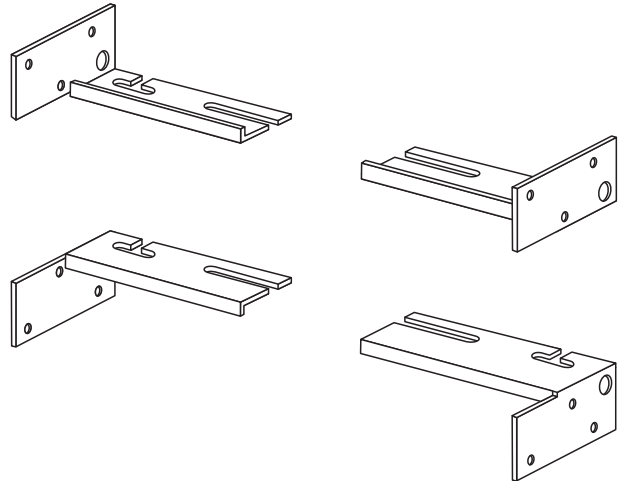


The lower brackets are fixed initially and provide a low base fixing, enabling the base of the ALF100CV to sit low in the wall or close to the edge of a ceiling.

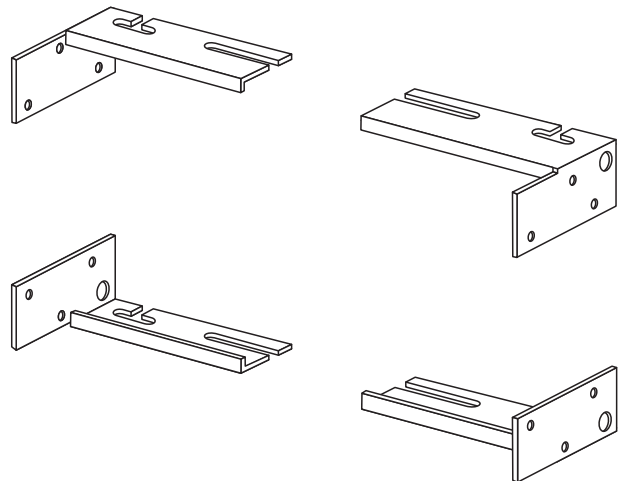
The fixings are easy to access from above the brackets.

With this configuration in a wall installation, the upper brackets are removed during installation of the ALF100CV cabinet.

This configuration places all bracket fixing screws outside the boundary of the cabinet and is recommended for wall or ceiling installations where port position near the floor or edge of the ceiling is not that critical.



This configuration should not be used in wall installations as the top brackets must be fitted before the cabinet. It is only recommended for ceiling installations where the length space is limited for other bracket orientations.

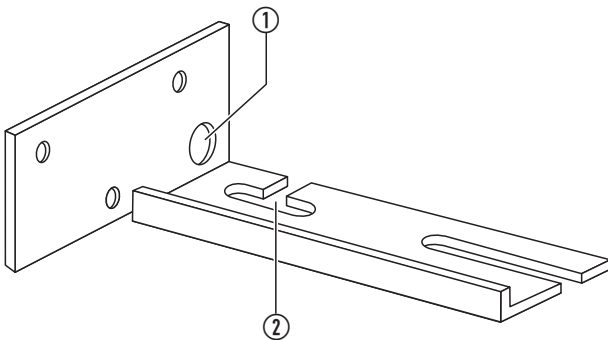


Mounting Brackets

Suspended fixing

The ALF100CV may also be mounted, suspended from studs fixed directly to a ceiling. This will be necessary when the ceiling construction cannot support the weight of the ALF100CV, and/or is made from steel studs.

For suspended ceilings, the brackets include a single fixing hole for a suspending stud and a keyhole slot to support the cabinet.



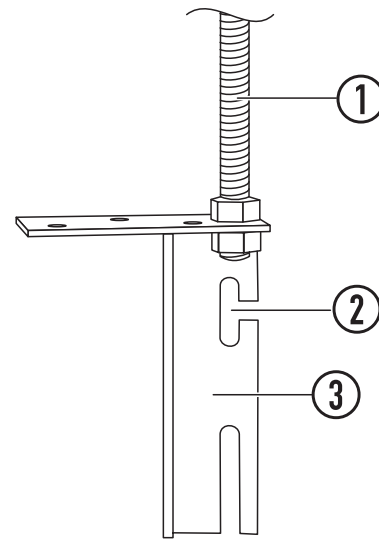
1. Hole for suspending stud.
2. Keyhole slot for cabinet mounting.

Mounting to ceiling studs



CAUTION: When using this mounting method ensure that the ceiling construction and suspension fixings are rated for the suspended weight (14kg / 30lbs 14oz) of the ALF100CV.

The drawing below shows the general arrangement of the brackets when mounted to studs fixed directly to a ceiling.



1. Support bolts from ceiling.
 2. Keyhole slot for suspended mounting.
 3. Bracket.
- Skip now to page 21 for more instructions to fit the brackets in a suspended ceiling installation.

Fitting the Brackets

Stud/Joist new build

Depth

The ALF100CV can be mounted in a wall or ceiling, providing that, for wall installation, the stud wall is constructed from 5" timber which gives an internal depth for installation of the ALF100CV of at least 115mm.

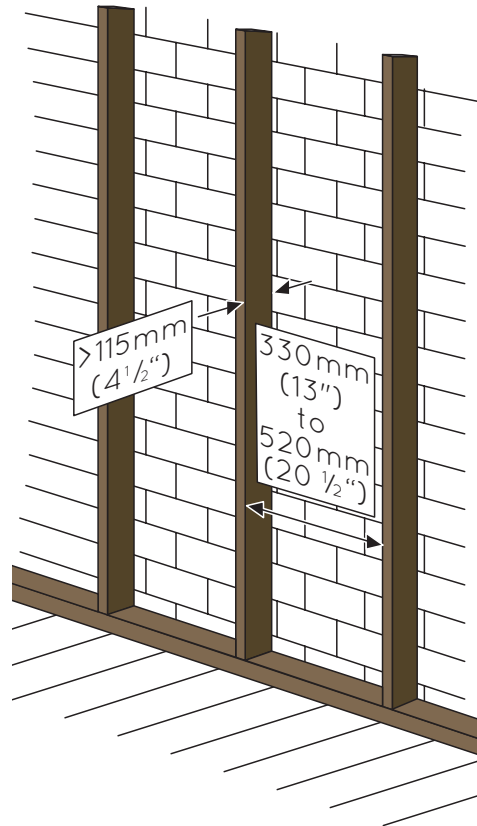
The drawing shows the critical dimensions when installing the ALF100CV in-wall.

The same minimum depth constraint of 115mm (4 1/2") applies to ceiling installation. The depth of joists used in the construction of ceilings will generally accommodate this depth.

The instructions and illustrations that follow give general advice and guidance for installation in a 5" stud wall. Each building and location may require a slightly different approach to preparing the cavity and making good the wall afterwards.

Width

The adjustable bracket mounting system enables the ALF100CV to fit into a width range of 330mm to 520mm between studs/joists.



Fitting the Brackets

Stud/Joist retrofit

Ceilings

Ceiling joists will generally include enough depth to accommodate the ALF100CV.

Walls

The ALF100CV will require a minimum installation depth of 115mm (4 1/2") which is greater than that available within a standard 4" stud wall.

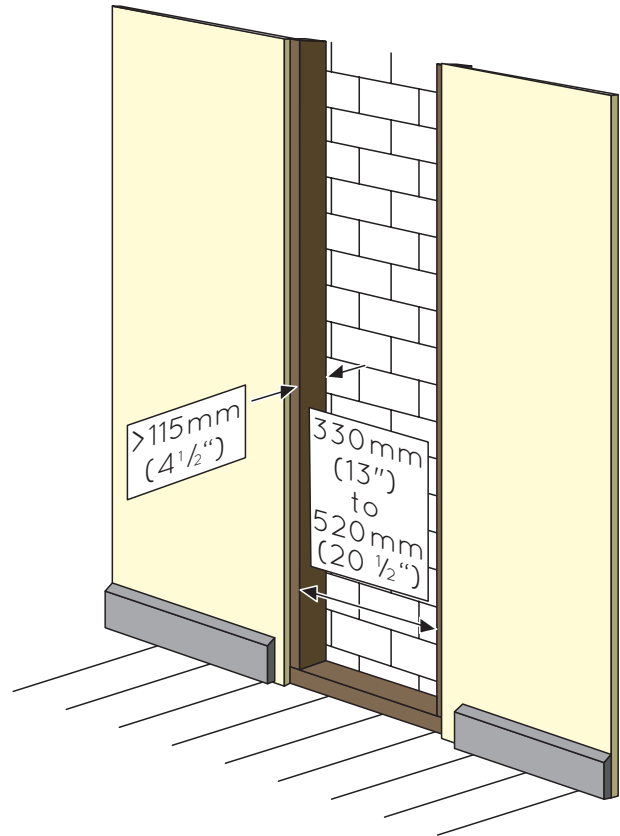
When installing the ALF100CV where there is an existing 4" stud wall, the recommended option is to dismantle the wall and re-construct it with 5" timber to create the correct depth for the ALF100CV. Where it is not possible to re-construct the complete wall, sections may be built out with 5" stud to accommodate the ALF100CV(s).

Preparation

Each building and location may require a slightly different approach to preparing the opening for an ALF100CV and making good the wall/ceiling afterwards. Use these general instructions as guidance for a retro-fit installation of the ALF100CV into an existing cavity wall or ceiling.

NOTE: The ALF100CV is not suitable for retro-fit into walls of solid construction.

- Locate the studs either side of the area where the ALF100CV will be mounted.
- Remove any skirting that passes across the mounting area.
- Remove all plasterboard from between the studs/joists and a further 12mm (1/2") or so each side to provide a seat for the repair panel.
- Check that the cavity dimensions meet the requirements in the drawing.



Fitting the Brackets

Stud/Joist base brackets

The ALF100CV is supplied with 4 x mounting brackets. These are pre-fitted into the wall/ceiling cavity before the subwoofer is mounted.

- Determine the position of the port at the base of the subwoofer.

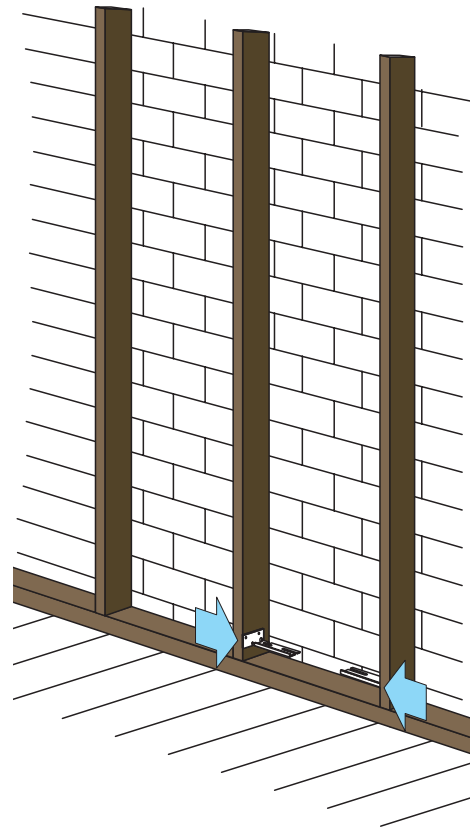
In a wall this will generally be positioned low, at skirting level. In a ceiling it will probably be close to the edge of the ceiling as the port vent will be visible.

Base bracket position

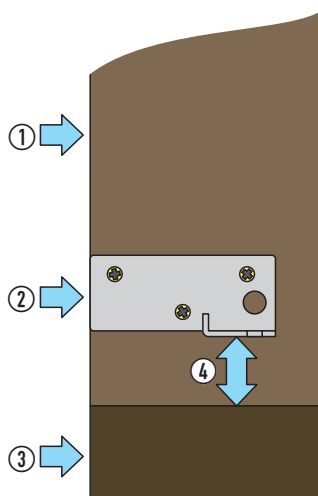
The drawings on this page show the correct position of the base bracket with respect to a typical wall and ceiling installation.

Key to the drawings

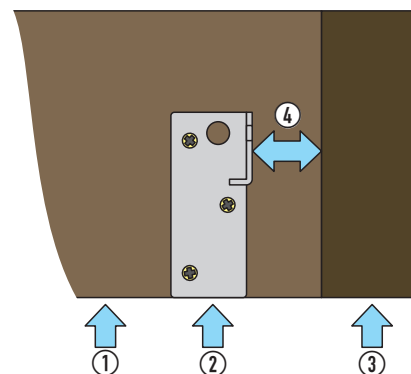
1. Front face of the stud (wall) or downward face of the joist (ceiling).
 2. The front edge of the base bracket aligns with the edge of the stud/joist.
 3. Foot plate of wall.
 4. Minimum clearance of 40mm for access to the fixings for the mounting studs.
- Observing the front edge alignment and minimum clearance requirements above, mark the positions then screw the brackets for the base of the subwoofer into place.



Base brackets fitted into a wall opening



Base bracket alignment in a wall



Base bracket alignment in a ceiling

Fitting the Brackets

Stud/Joist top brackets

Top bracket fitting

Once the base bracket is fitted, the brackets may be positioned for the top (terminal panel) end of the subwoofer.

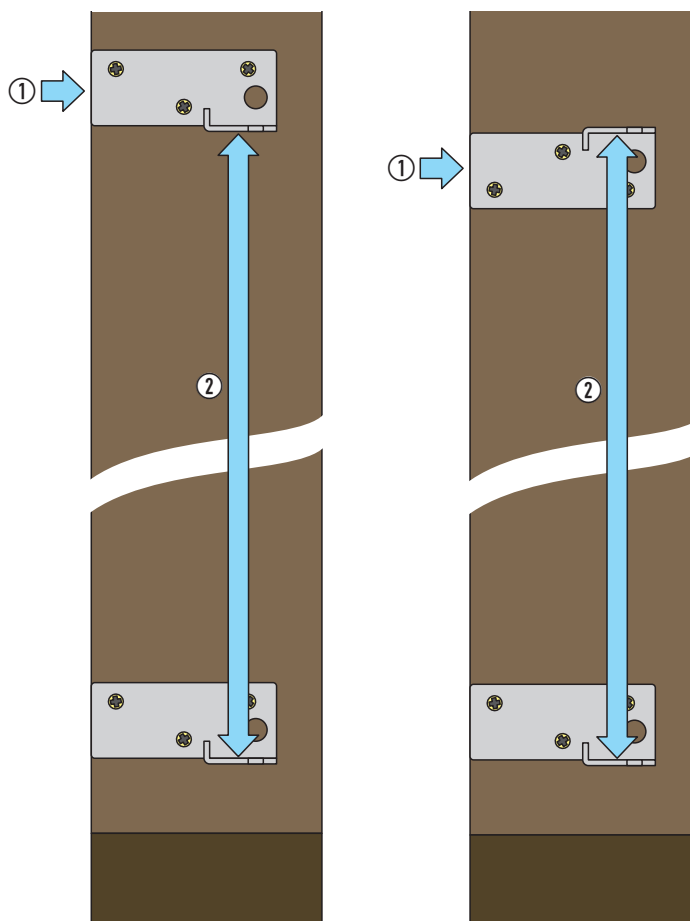
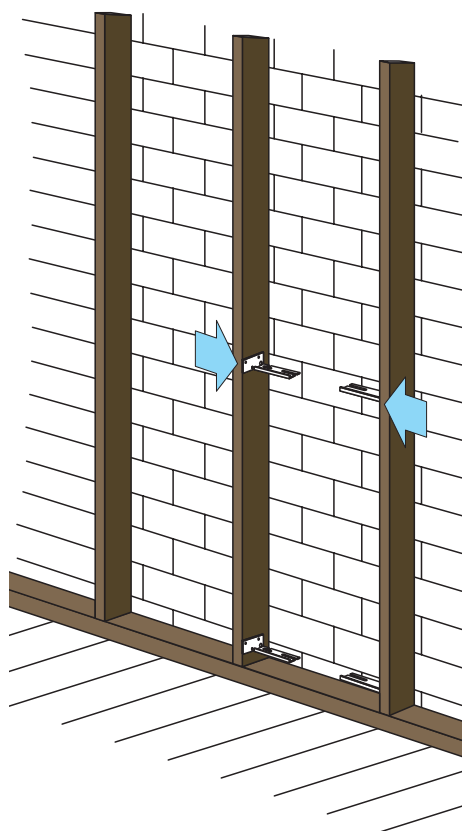
The image on the right shows all four brackets fixed to the studs in a typical wall installation. The bracket positioning requirements are the same for ceiling installations.

Top bracket position

The top bracket height must be set so that the bracket mounting faces are 1035mm (40³/₄"") apart. Refer to the drawings at the bottom of the page which show two alternative bracket orientations in a wall installation and the spacing required between the bracket inner faces.

The clearance shown is the same for a ceiling installation.

- Observing the front edge alignment and spacing requirements above, mark the positions then screw the brackets for the base of the subwoofer into place.



Key to the drawings

1. The front edge of the top bracket aligns with the edge of the stud/joist.
2. A clearance of 1035mm (40³/₄"") is required between the inner faces of the top and bottom brackets.

Fitting the Brackets

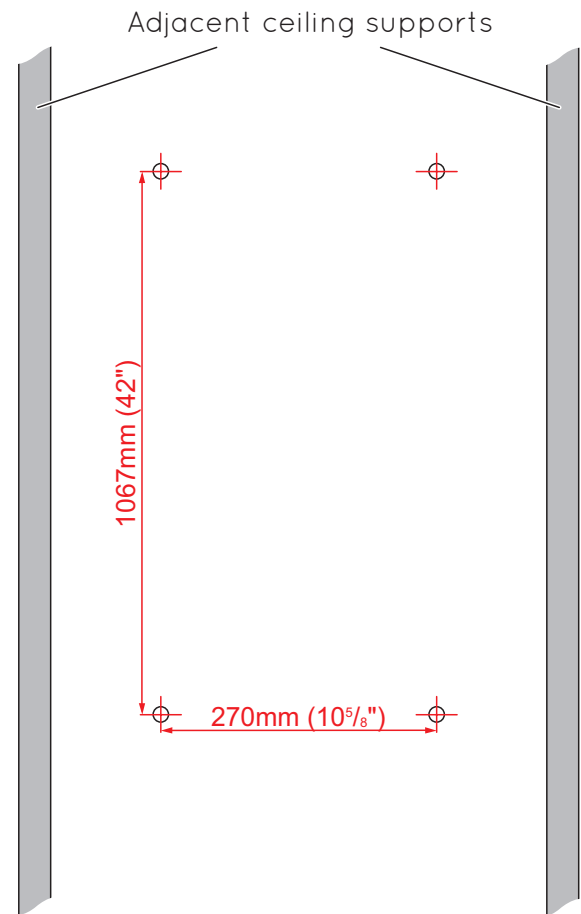
Suspended ceilings

In a suspended ceiling installation, the four brackets are fitted to stud hangers.

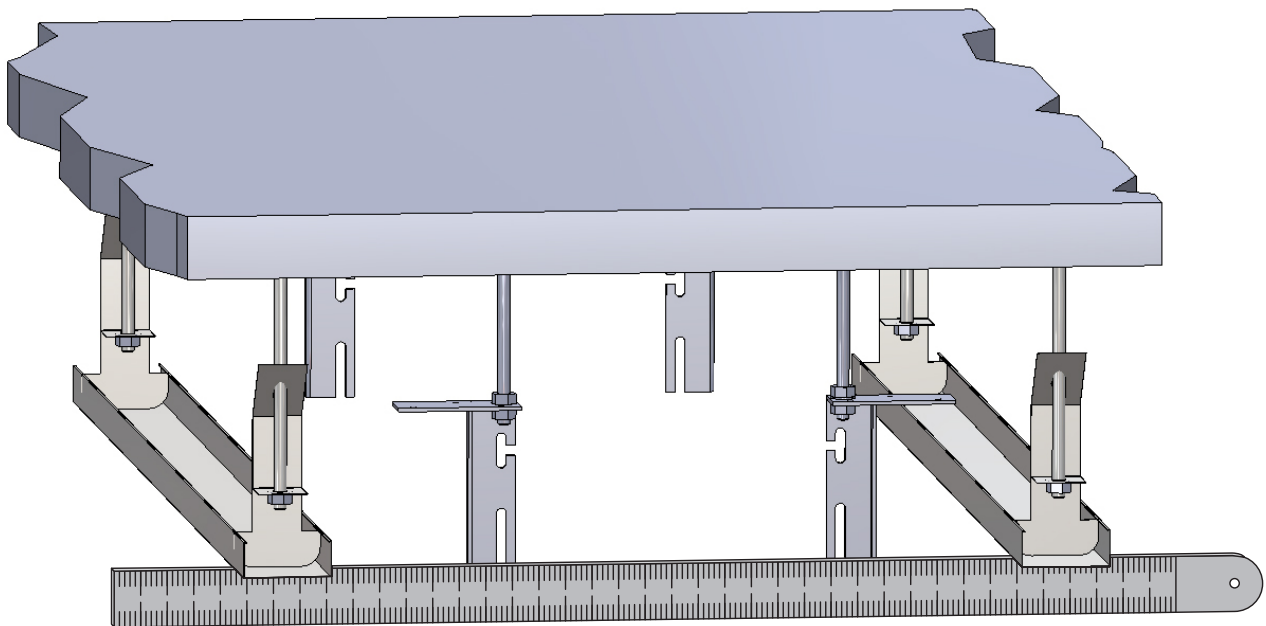
- Fix four stud hangers to the ceiling with the spacing shown in the drawing opposite.

The drawing view is looking up at the ceiling.

Where possible, position the studs centrally between adjacent ceiling supports to allow good access when fitting the ALF100CV cabinet.



- Mount a bracket onto each stud as shown below, locking the height of each bracket initially so it is level with the adjacent ceiling supports.



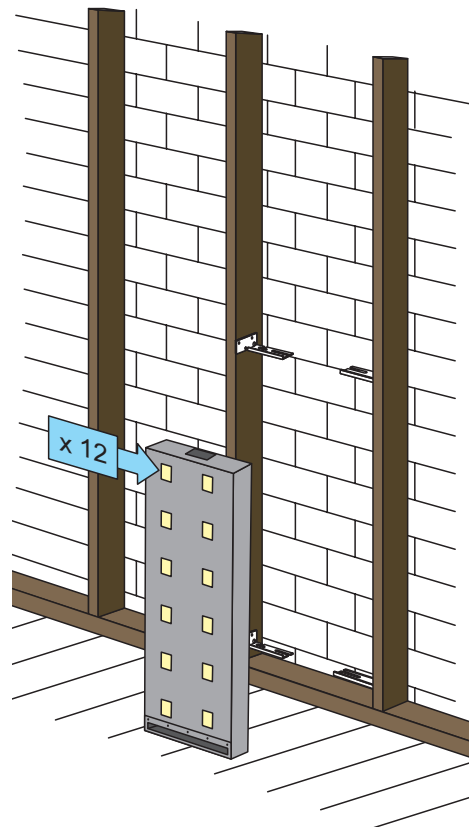
Installation

Preparing the cabinet

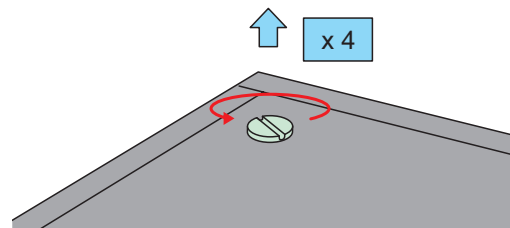
Once the brackets are fixed, the ALF100CV cabinet can be prepared for installation.

NOTE: Installation into a stud wall is shown in the image, but cabinet preparation methods are the same for walls or ceiling installations.

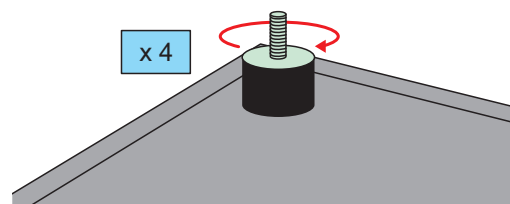
- Stick 12 of the self-adhesive felt pads to the front face of the cabinet in an even pattern as shown.
These will provide damping to reduce the possibility of vibration between the cabinet front and the inner face of the panel that conceals the ALF100CV.



- Remove the four transit screws from the upper and lower faces of the cabinet.



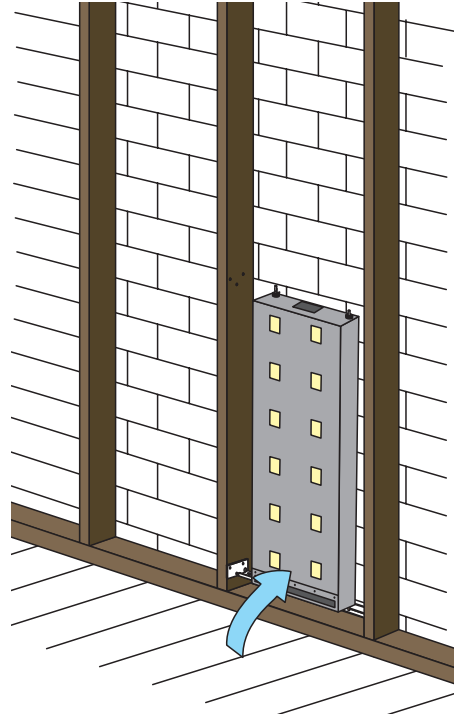
- Screw the four compliant mounts into the exposed threads.



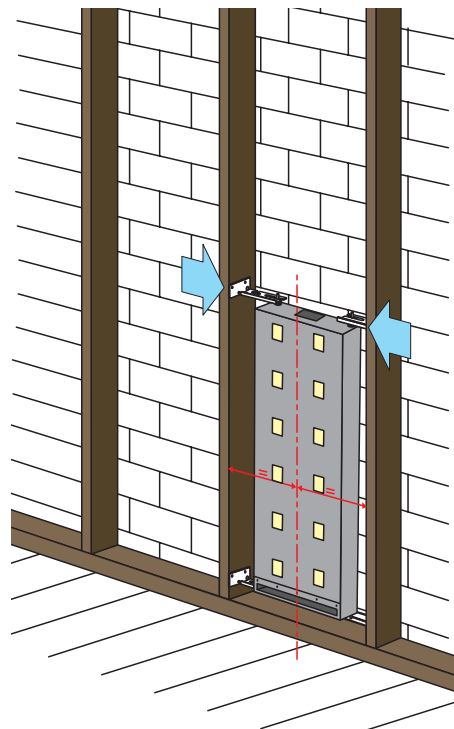
Installation

Fitting the cabinet (wall)

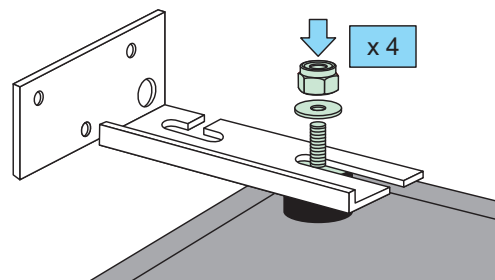
- Remove the top brackets.
- Place the ALF100CV cabinet onto the lower brackets, engaging the mounting studs into the slots in the brackets.



- Re-fit the top brackets to hold the cabinet into the wall.
- Centre the cabinet in the opening.
This will help to position the port opening when the wall is rebuilt.



- Fit and tighten the nuts and washers for the mounting studs.
Cabinet installation is now complete.



Installation

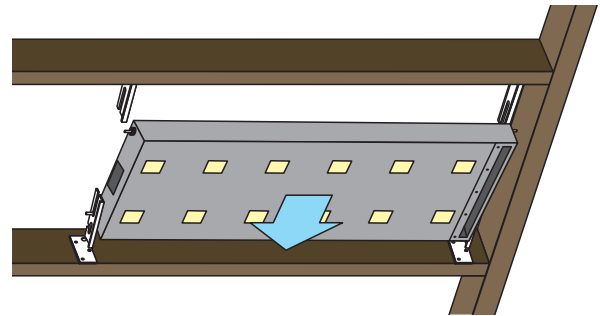
Fitting the cabinet (ceiling)



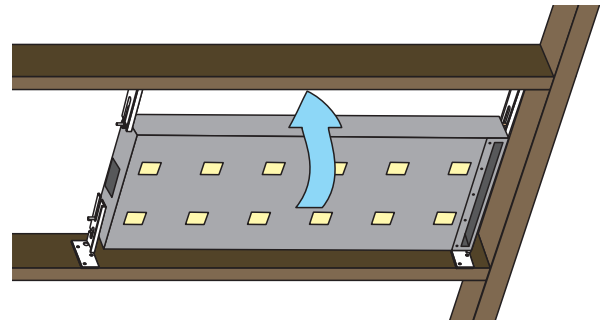
CAUTION: The ALF100CV cabinet must be supported at all times for ceiling installations until all fixings are tightened. Never leave the cabinet unsupported or partially fixed to the brackets.

Fitting the cabinet will require at least two people to raise and manoeuvre the cabinet into position.

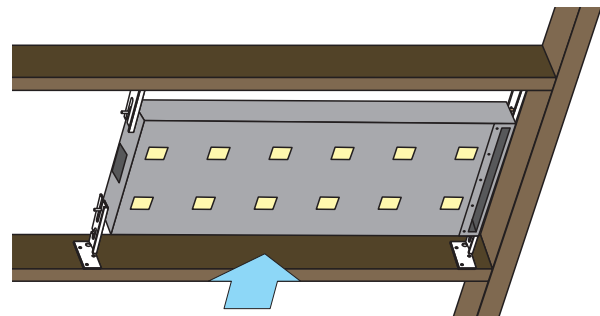
- Leaving all four brackets in position, lift the ALF100CV cabinet and engage the studs on the compliant mounts into the slots of the brackets on one side.
- Push the cabinet to that side to fully engage the studs in the slots.



- Raise the free side of the cabinet and align the free studs with the slots on the remaining two brackets.

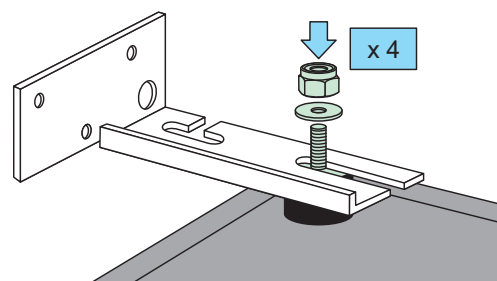


- Move the cabinet carefully to centralise its position between the joists, supported by the brackets.



- Fit and tighten the nuts and washers for the mounting studs.

Cabinet installation is now complete.



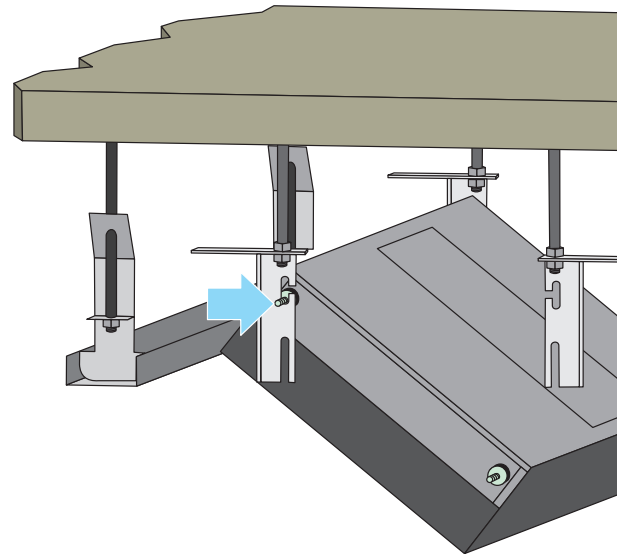
NOTE: If there is not enough width between joists to allow this installation method, follow the wall fitting instructions on the previous page to remove the top brackets, engage the base brackets, then lift the front of the cabinet and re-fit the top brackets.

Installation

Fitting the cabinet (suspended)

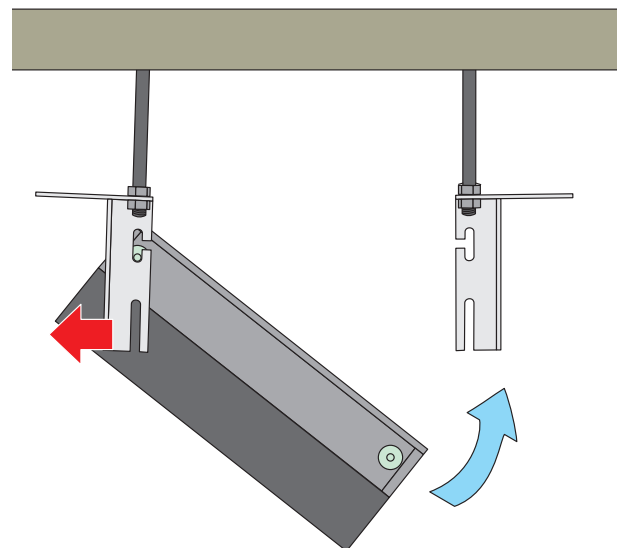
- Lift the cabinet into the position shown and fit the studs on one side into the keyhole slots as shown.

This side of the cabinet will now be supported by the brackets.

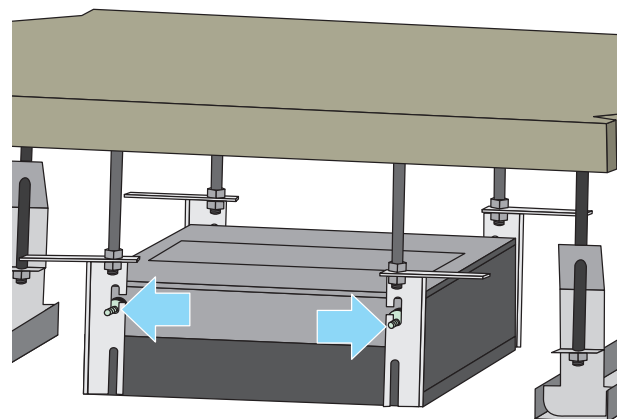


- Rotate the free side of the cabinet upwards (blue arrow) and engage the remaining two studs into their keyhole slots.

It will be necessary to push the supporting bracket outward slightly as shown (red arrow) to allow the studs to reach the keyhole slots.



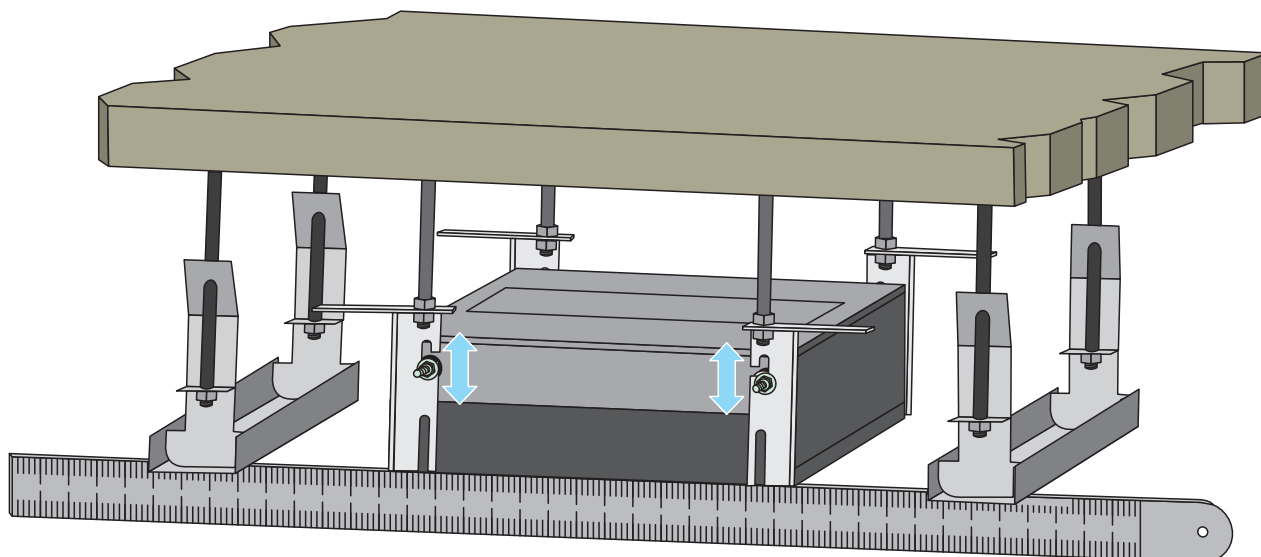
- Fit the nuts and washers to the studs to fix the cabinet securely in place.



Installation

Fitting the cabinet (suspended)

- Complete the installation by adjusting the studs in the keyhole slots to set the cabinet face height in line with the ceiling supports.



Installation

Route cable into the opening

- Feed the cable from the amplifier into the opening to exit at the top of the ALF100CV.

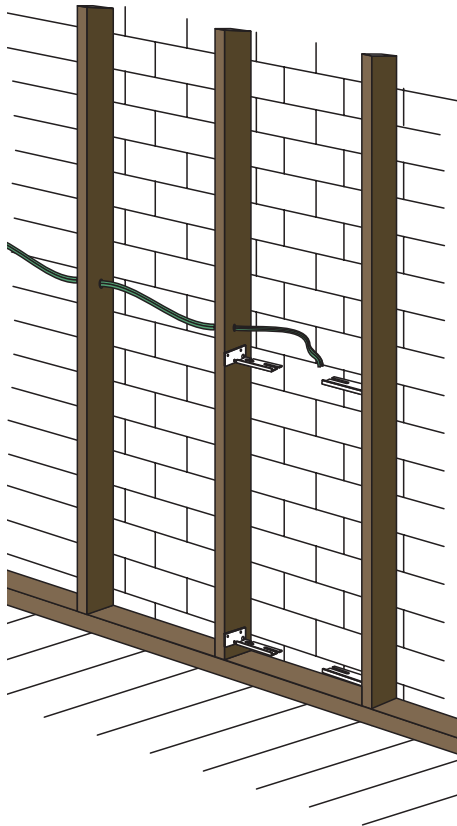
2.5mm² (14AWG) stranded cable is recommended where the cable travels 15m (50 feet) or less, 4mm (12AWG) for distances over 15m (50 feet).

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

When routing cables, ensure that the cables are tied to the structure to avoid vibrations etc.

Clean out the cavity

- Before proceeding to install the ALF100CV cabinet, thoroughly clean out the prepared cavity.

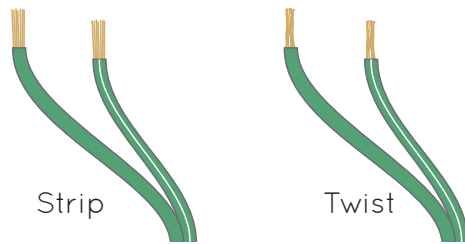


Installation

Connecting the ALF100CV

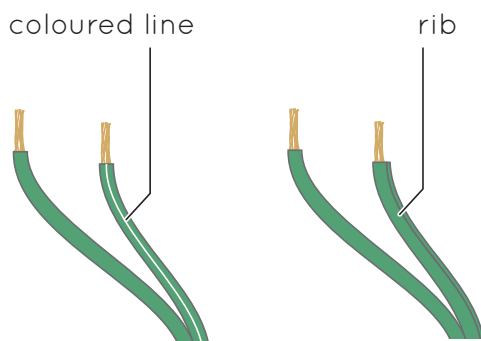
If the fit and cable dressing are correct then the ALF100CV is ready to be connected.

- 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.

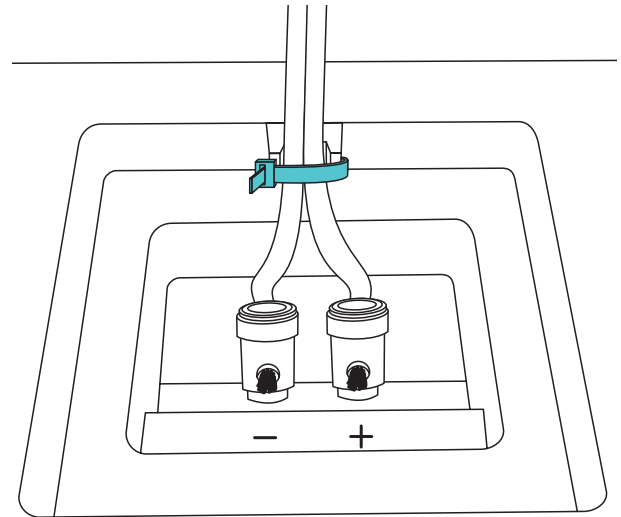


- Connect the cable to the terminal panel, observing polarity.

Securing the cable

- The cable should be secured to the terminal panel using the cable tie strain relief.

This will reduce the possibility of any movement in the cable causing the cable to disconnect.



Installation

Testing the ALF100CV

At this point the ALF100CV should be fully tested.



CAUTION: The ALF100CV 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 ALF100CV.

- Connect the amplifier to the cable from the ALF100CV.
- 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.

Installation

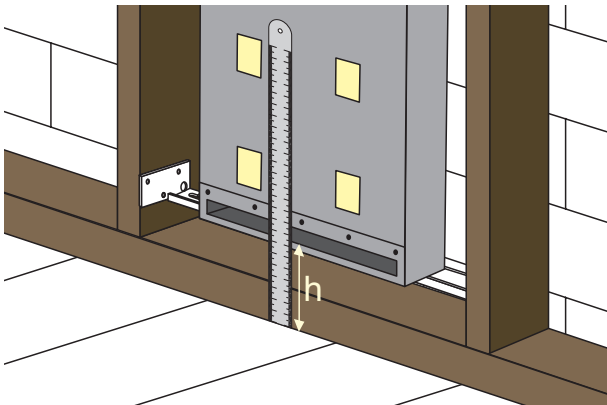
Making good the wall/ceiling

Preparing the wall/ceiling panel

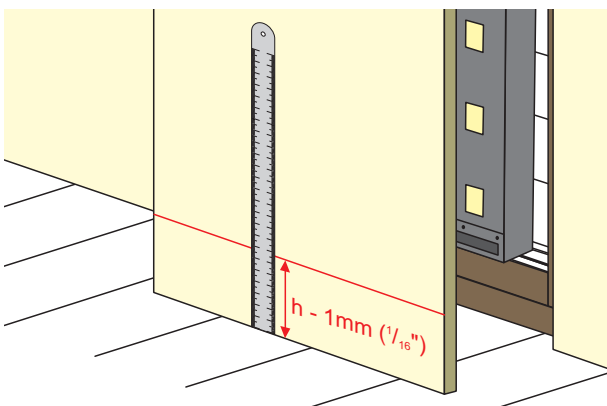
The wall/ceiling may be a new build or you could have opened a cavity in an existing wall or ceiling to install the ALF100CV. In either case, it is now necessary to build/re-build the wall/ceiling to complete the installation.

The panel that covers the ALF100CV will require an opening for the port that must be cut before this panel is fitted.

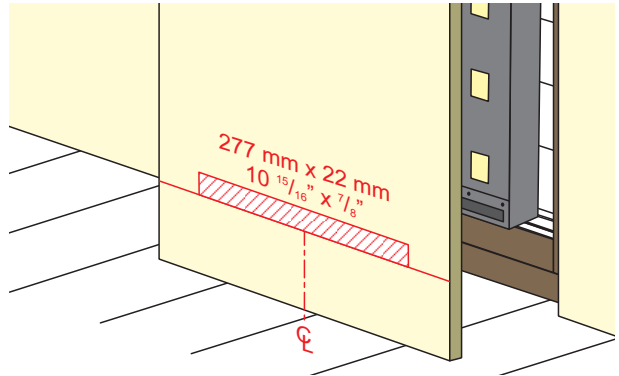
The recommended opening will be slightly offset and cut larger than the port to ensure that it does not obscure the port.



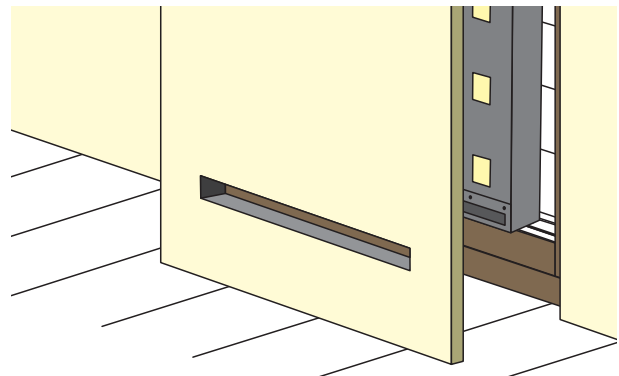
- Measure the height 'h' to the base of the port.
- Mark a reference line 1 mm ($\frac{1}{16}$ "") below this height on the wall panel that will cover the ALF100CV.



- Mark the opening for the port, centred on the panel (assumes the subwoofer is centred in the opening) and based on the reference line. The opening size should be 277 mm x 22 mm ($10\frac{15}{16}$ " x $\frac{7}{8}$ "").



- Cut the opening.



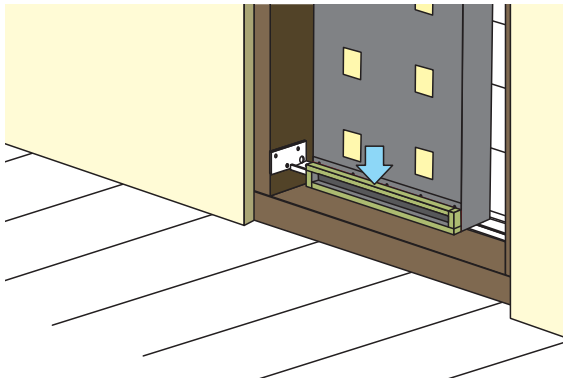
- Test fit the panel and check that the opening does not obscure the port.

Installation

Making good the wall/ceiling

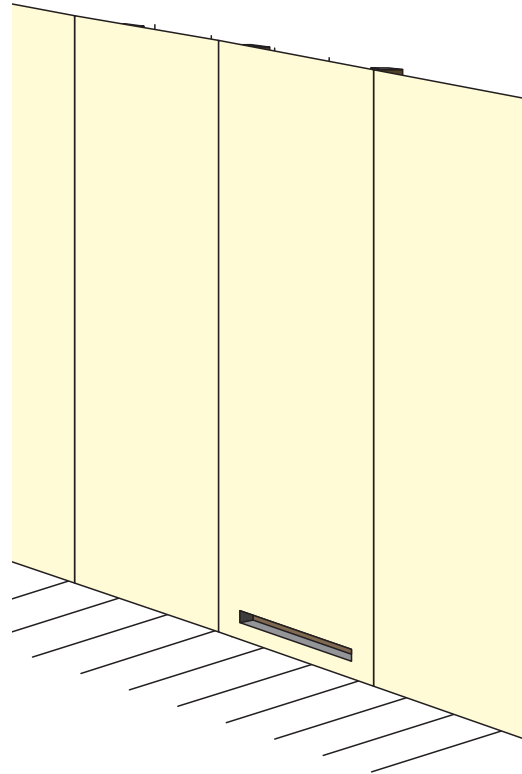
Sealing the port perimeter

- Cut foam strips from the material supplied to surround the port and fix the strips to the front of the cabinet.
The strips must touch the inner face of the wall panel to form a good air seal around the port when the wall panel is re-fitted.



Fit the covering panel

- Fit the panel that covers the ALF100CV, checking alignment between the port opening in the wall/ceiling and the port on the cabinet before fixing the panel in place.



Finishing

Drywall

As the ALF100CV is completely contained within the wall/ceiling, a drywall installation can be completed without any further work.

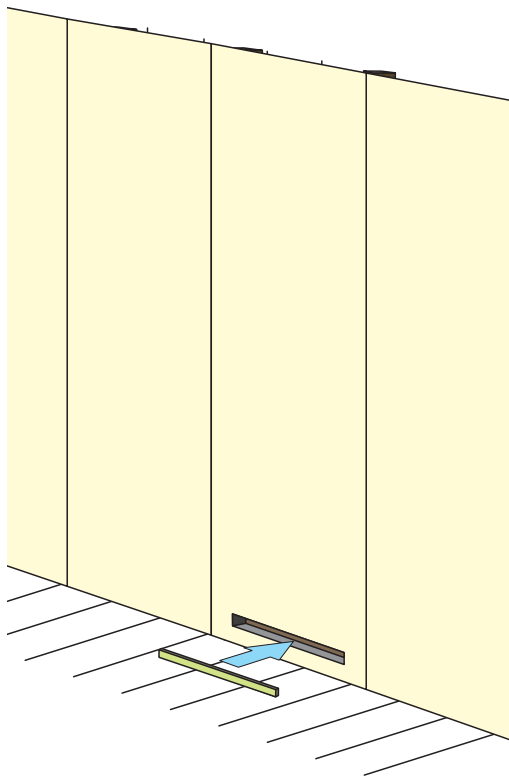
If the drywall is to be finished with a light skim coat, follow the instructions in the next section to keep the port opening clear of plaster.

Finishing

Plaster finishing - full plaster skim coat

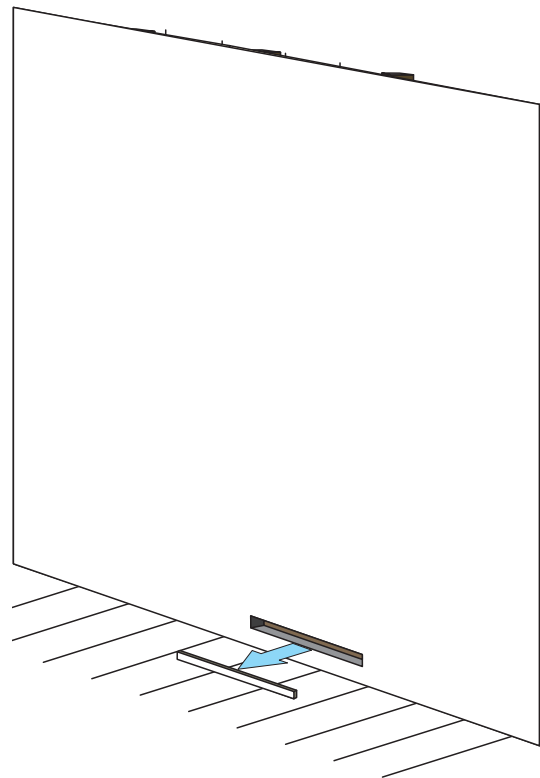
- Block the port to prevent plaster entering.

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



- With the port blocked, apply plaster skim coats to the entire wall/ceiling surface or repair panel as necessary.
Operation of the ALF100CV is not affected by plaster thickness.

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



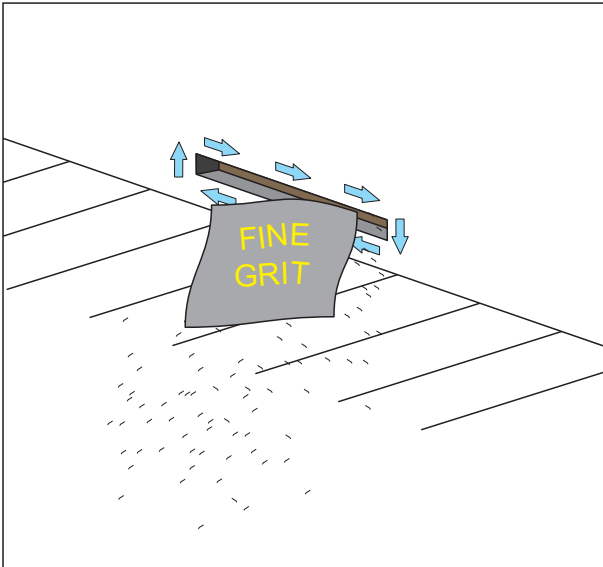
The working environment must be dry enough to allow the plaster finish coat to dry within 24 hours, not days.

Finishing

Check and sand the port area

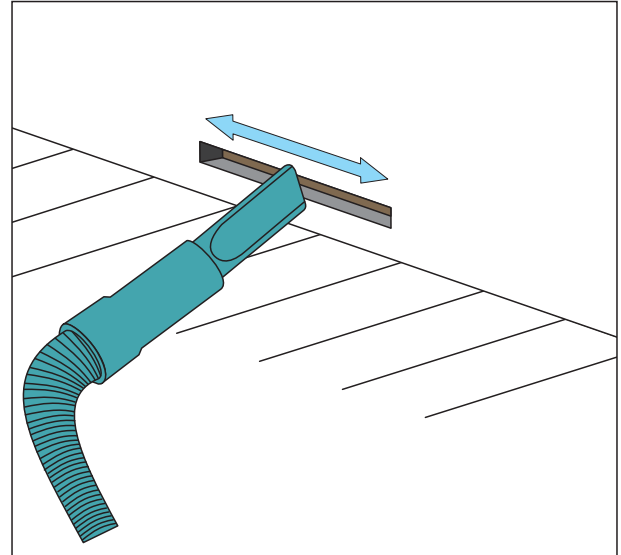
In operation, air flows at very high speed through the port and can cause whistling noises if the port exit surfaces are not completely smooth.

- 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.

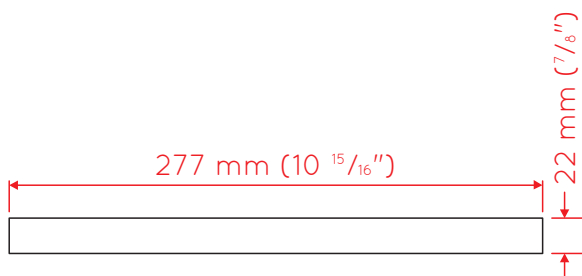


Finishing

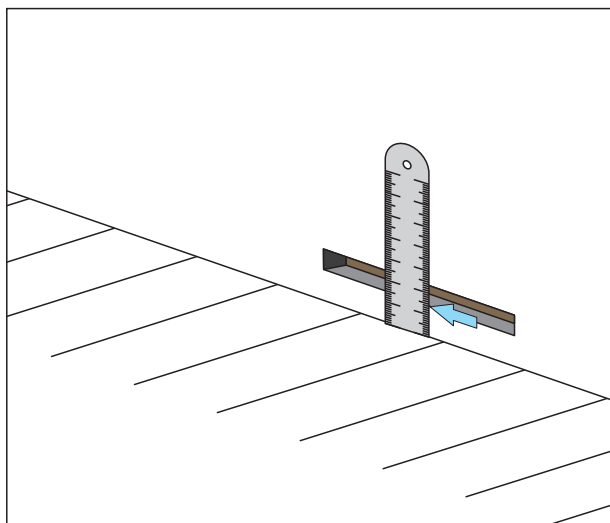
Preparing skirting

- If you are fitting skirting to a wall installation, cut a slot to allow the sound from the ALF100CV to pass through the skirting.

The recommended opening of 277 mm x 22 mm ($10 \frac{15}{16}$ " x $\frac{7}{8}$ ") is cut to the same size as the port opening in the wall.



- 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 at the measured height of the lower edge in the wall.

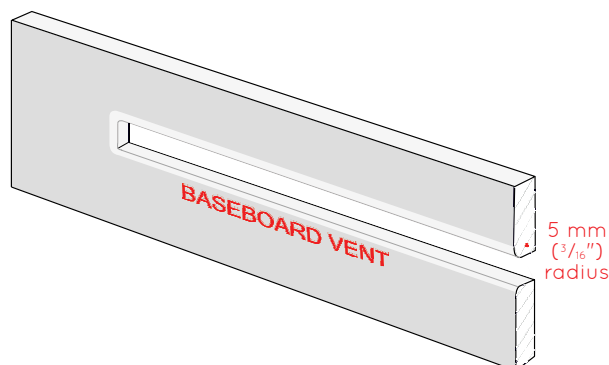


Measured height - 1mm ($\frac{1}{16}$ ")



- Cut the opening.

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



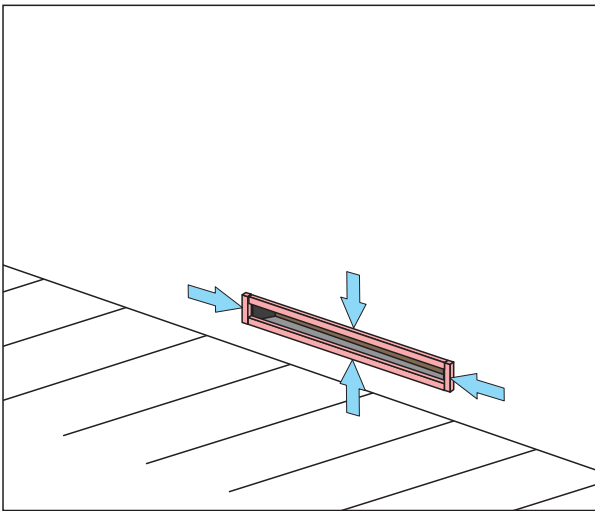
Finishing

Fitting skirting

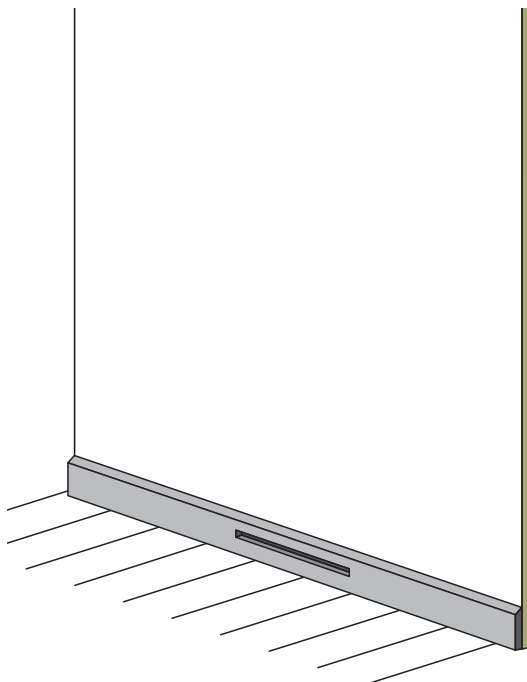
It is advisable to fit some foam strip or sealant around the port opening before fitting the skirting. This will provide an air-tight seal between the wall and the skirting and reduce the possibility of any whistling or other noises that may occur due to air passing gaps behind the skirting.

- 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.



Finishing

Testing the ALF100CV

The ALF100CV should be fully tested again at this stage.

Following the steps below, begin by connecting only the ALF100CV to easily identify and rectify any vibrations or noises. Then, reconnect the system speakers to assess and adjust the balance between the subwoofer and speakers.



CAUTION: The ALF100CV 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 ALF100CV.

- Connect the amplifier to the cable from the ALF100CV.
- 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.

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 ALF100CV 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.

Free Standing

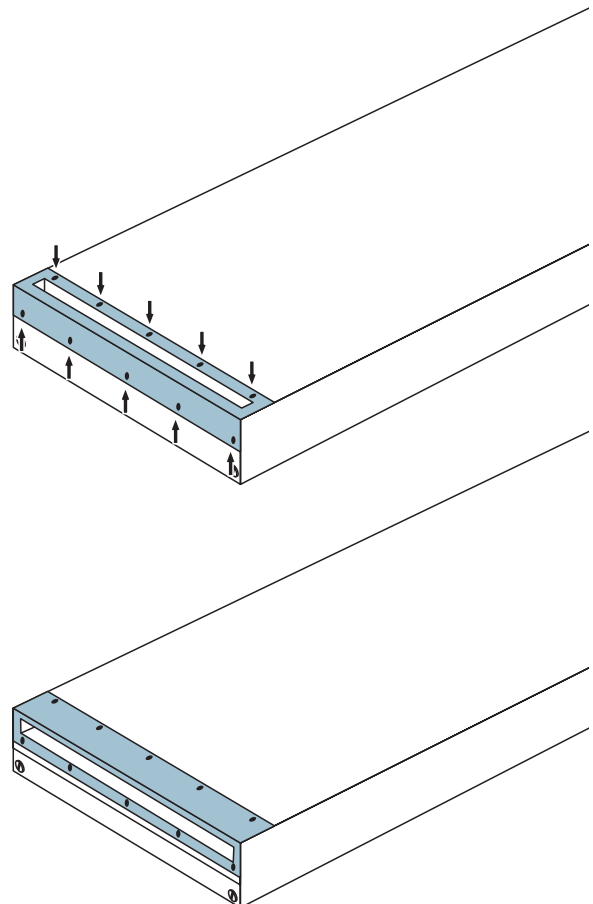
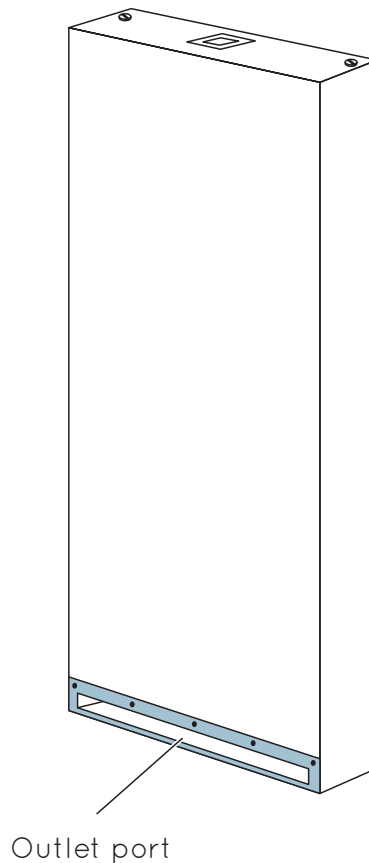
Outlet port

The bass sound from the ALF100CV exits through the outlet port slot at the base of the front of the cabinet. The outlet port is placed in this position to allow discreet in-wall installation.

In-room installations are also possible where the ALF100CV can be concealed under, behind or within furniture. In cases where the ALF100CV may be installed horizontally, laid flat, the position of the outlet port may be moved from the supplied position at the base of the tall, front face of the cabinet (shown on the right) to the end face of the cabinet.

Re-positioning the outlet port

- Lay the ALF100CV on its back face.
- Undo the ten screws (arrowed) securing the outlet port.
This will require a 2.5mm hex allen key)
- Rotate the outlet port to position it at the end of the cabinet as shown below.
- Re-fit the screws.



Free Standing

Finishing

In free-standing installations, where the cabinet is completely hidden, the ALF100CV may be installed without any surface finish.

For installations where parts of the cabinet are visible the surface of the cabinet may be finished as required to complement the room decor.

Paint finishing

Paint finishing is recommended. Paint finishing will not affect the acoustic performance of the ALF100CV in any way.

- For best results paint the cabinet after re-positioning the port (if this is necessary) and before adding the felt pads to the cabinet surface.

Vinyl wrapping

Vinyl wrapping is also a finishing option.

- As with paint finishing, wrap the cabinet after re-positioning the port and before adding the felt pads to the cabinet surface.

When vinyl wrapping the cabinet, avoid wrapping the removable port feature of the cabinet as any loose vinyl edges close to the port may cause vibration or buzzing.

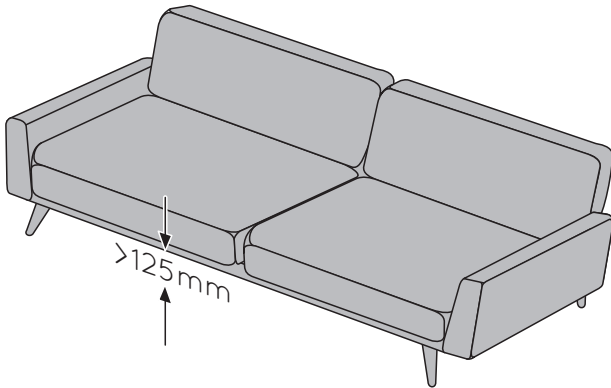
Free-standing

Horizontal use

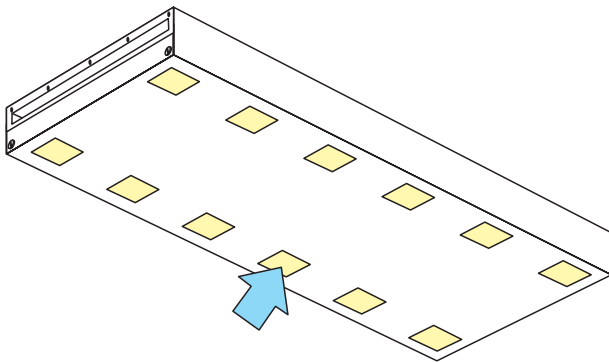
The ALF100CV is suitable for horizontal use, laid on its back underneath furniture.

If you are considering this arrangement, always check the following points -

- Check that a clearance greater than 125mm from the floor exists to accommodate the ALF100CV.



- The outlet port has been moved to the end of the cabinet (refer to the previous page).
- The outlet port vents into free air and is not obstructed by a wall or furniture.
- Felt pads (supplied) are fixed to the back of the cabinet that stands on the floor.



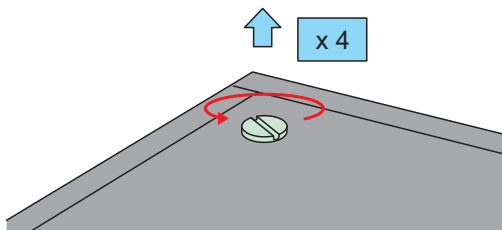
- Ensure that the cable(s) to the amplifier are fixed to stable surfaces and will not be a trip hazard.

Free-standing

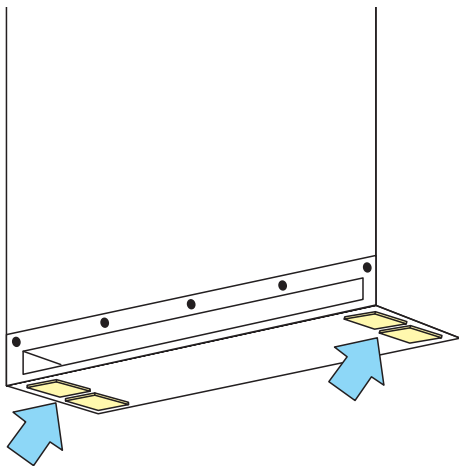
Vertical use

In some rooms it may be possible to stand the ALF100CV vertically behind furniture. If you are considering this arrangement, always check the following points -

- The port is positioned on the front face as supplied for in-ceiling/in-wall installations.
- The transit screws are removed, but the compliant mounts should not be fitted for free-standing installations.



- The outlet port vents into free air and is not obstructed by a wall or furniture.
- Four felt pads are fitted to the end of the cabinet that stands on the floor.



- The ALF100CV is secured to a fixed surface, such as bracketed to a wall, to ensure there is no danger of it toppling and causing damage or injury.
- Ensure that the cable(s) from the subwoofer to the amplifier are fixed to stable surfaces and will not be a trip hazard.

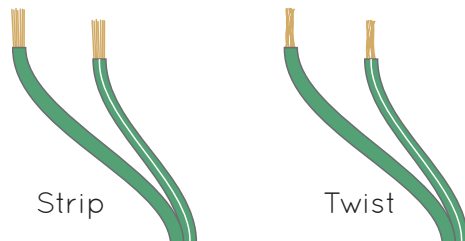
Free-standing

Connecting the ALF100CV

- Once the cabinet has been prepared and placed in position, route the cable from the amplifier to the ALF100CV.

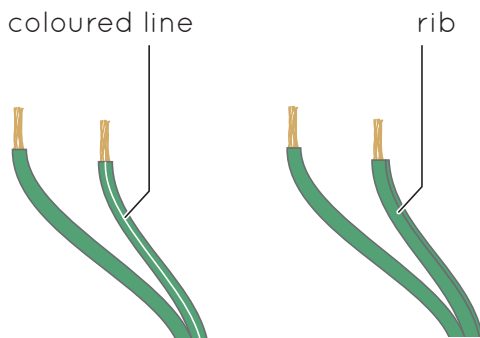
Ensure that the cable is secured to walls or floors to prevent it becoming a trip hazard etc.

- 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.

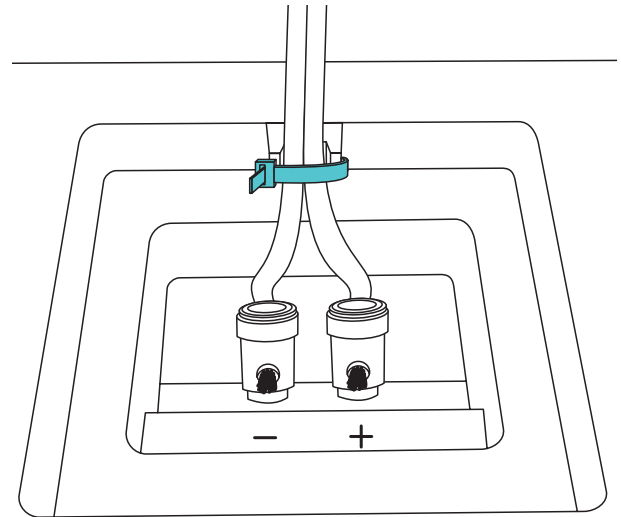


- Connect the cable to the terminal panel, observing polarity.

Securing the cable

- The cable should be secured to the terminal panel using the cable tie strain relief.

This will reduce the possibility of any movement in the cable causing the cable to disconnect.



Free-standing

Testing the ALF100CV

The installation can be tested once the ALF100CV has been placed in position and cabling is connected from the amplifier.

Following the steps below, begin by connecting only the ALF100CV to easily identify and rectify any vibrations or noises. Then, reconnect the system speakers to assess and adjust the balance between the subwoofer and speakers.



CAUTION: The ALF100CV 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 ALF100CV.

- 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 from adjacent furniture etc, 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.

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 ALF100CV, it is advisable to experiment with connecting the ALF100CV 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 ALF100CV are very simple, so check for a settings error or possible fault with the source or amplifier before investigating connections at the ALF100CV.
Imbalance between ALF100CV and the system speakers	If the bass sound from the ALF100CV 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 ALF100CV (or just one ALF100CV 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 ALF100CV 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):	1000mm (39 3/8") x 310mm (12 3/16") x 109mm (4 5/16")
Port dimensions:	20mm (13/16") x 274mm (10 3/4")
Port location:	Front or End, 18mm (11/16") from short edge
Weight:	14kg (30lbs 14oz)
Design:	Bandpass
Power Handling:	200W continuous
Nominal Impedance:	4 Ohms
Frequency Response:	28Hz - 160Hz (-6dB)
Sensitivity:	90dB 1m/2.83Vrms (half space)
Maximum Short term SPL:	110dB @ 1m (half space)
Connection:	Push button spring terminals

Warranty

The ALF100CV is designed to operate reliably for many years. Correctly installed and in accordance with these instructions, Amina warranties the ALF100CV 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 ALF100CV.



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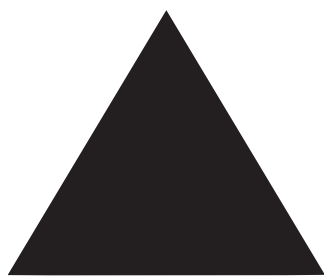
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IMMERSIVE INVISIBLE SOUND

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