

# INSTRUCTION GUIDE

Amina Technologies Ltd

**Model: ACPT554E**

amina compact pro panel loudspeaker



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*amina*®  
TECHNOLOGIES Ltd

# Thank you for purchasing an Amina™ Technologies product

If this product does not reach you in the condition you expect, please contact your supplier immediately.

Please spend a few minutes reading this guide, which has been written to help you get the most from your purchase.

**Warning: Never connect this product directly to the mains electrical supply!**

**Fragile Electronic Equipment:** This Amina™ product is a sensitive piece of electronic equipment. Take great care of it. Damage will occur with harsh treatment.

**Unpacking:** Unpack your Amina™ Compact Pro Panel loudspeaker with care. Check the product, and in the event of transit damage, immediately inform your supplier. We suggest retaining your packaging to transport the product safely at a later date.

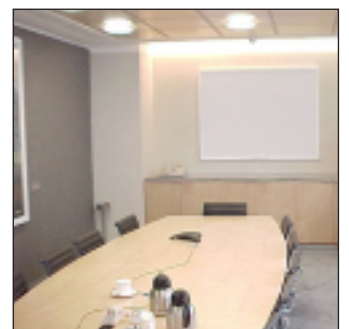
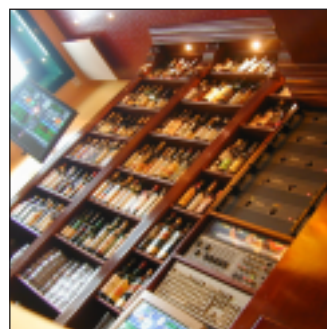
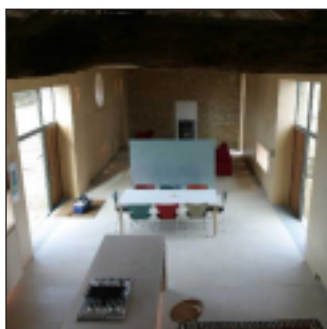
**Please Note:** In order to protect this device from excessive low frequency energy, this product must be used in conjunction with a brick wall (at least 36dB/Octave) high pass filter set at 150Hz or higher.

This product utilises the revolutionary NXT™ vibrating soundboard technique to reproduce high quality, high clarity, highly intelligible sound, even in acoustically reflective areas where conventional cone loudspeaker systems generally under perform.

Before installation you should be aware of the basic characteristics of the NXT™ SurfaceSound™ technology. This will help you to get the best results from the product and enable long term, reliable operation in your chosen application.

Please note that this NXT™ based product by itself is not a direct replacement for a conventional full range loudspeaker system. In 'hi-fi' listening applications a low frequency driver or sub bass may be required to 'lift' the bottom end of the frequency spectrum. This is easily done as the direction of such low frequencies are not detected by the human ear, allowing such a device to be placed in the most convenient and unobtrusive of locations.

**Applications: bars,  
sound reinforcement,  
conferencing applications**



## NXT Acoustic Characteristics:

### **Characteristic 1 – Sound radiates in all directions:**

Sound dispersion from an Amina™ NXT™ product is generally spherical in shape across most of the frequencies it reproduces. The positioning of the product is therefore much less critical than with conventional cone loudspeakers. There is no need to angle the product to a specific direction, its height is far less relevant, and it can be placed in any orientation or plane. Please note that low frequencies are further reduced when listening 'edge-on' to the panel.

### **Characteristic 2 – The sound pressure level fall off is more gradual off-axis and in a bounded space:**

Sound pressure level (S.P.L.) from a conventional cone loudspeaker falls off dramatically as the listener moves away from the speaker. This is more true than ever when listening 'off-axis' to the cone speaker. However the S.P.L. fall off from an NXT™ based product is much less severe with distance, especially when listening off axis. (In fact, the larger the NXT™ panel area, the greater the distance it is possible to move away from the panel (or 'source') without showing an appreciable loss in S.P.L.) The situation improves further when an NXT™ panel is used in an acoustically reflective bounded environment. Here the reflected energy is generally constructive, contributing to the overall S.P.L., generating very even 'sound-fill' across a given bounded space.

**Characteristic 3 – Radiated sound energy is random, diffuse and highly disperse:** Conventional cone loudspeakers radiate sound energy that is phase related. Reflections from boundaries are highly correlated with the energy from the original source. Additions and cancellations occur helping to create a variety of problems including room response, reverberation, poor intelligibility and feedback when used with open microphone channels.

The radiated sound from an Amina™ NXT™ panel is essentially random in nature, non-correlated and significantly less phase related. Reverberation effects, room response and microphone feedback are reduced & intelligibility is generally greatly improved.

### **Characteristic 4 – Visual appearance can be matched to the surrounding decoration:**

Aesthetically the concept of a thin flat panel allows greater creativity in visually disguising the product to merge into the background. The surface of this Amina™ NXT™ panel can be painted (most paints should be compatible – if in doubt please ask your supplier for a sample of panel material to test), flocked or can have a graphic applied to change its appearance. Please note that Amina™ cannot accept responsibility for the long term stability of the surface with coatings applied.

## Amina™ bespoke service:

Amina™ provide a bespoke service of printing, laminating and mounting any image onto the surface of a panel, to order. Please ask your supplier for details. Amina™ can also provide a full custom service, designing and making any size and shape panels according to client specifications.

## Applications:

Amina™ Compact Pro NXT™ panels are ideally suited for foreground, public address, background music, sound reinforcement and conferencing applications. When supplemented with bass enhancement the panels can also be applied effectively in high quality music reproduction applications.

## Product Positioning:

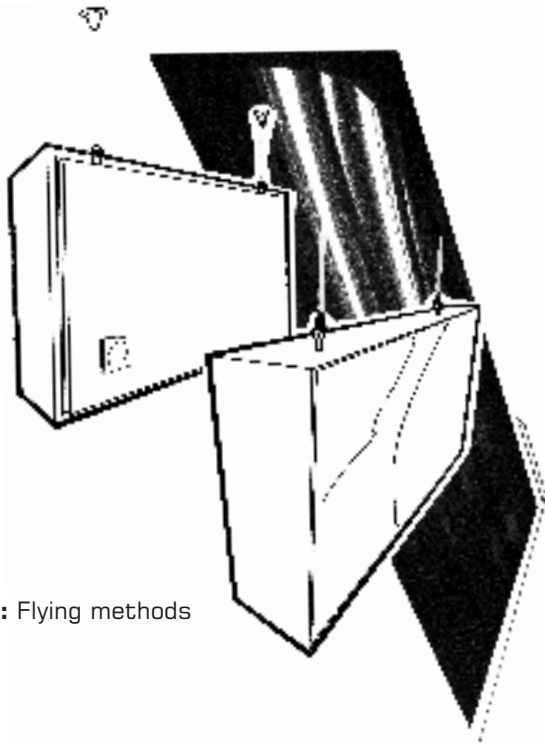
The overriding factor in terms of best product positioning for multiple source installations is, where possible, to evenly space the number of panels across the given space. This will create a very even S.P.L. across the whole environment. The direction, orientation and height are much less relevant.

As a rule of thumb, when ceiling mounting, stand mounting and in flown applications, one Compact Pro panel loudspeaker will be required every 5 to 10 metres (i.e. covering an area of 20 to 100 square metres). S.P.L. levels measured at the mid point between two panels 5m apart and 0.6m down (i.e. standing height in a room with a 2.4m high ceiling) will be 6dB lower than when measured directly under the panel. When measured at a distance of 1.1m down (i.e. sitting height) this figure changes to just 3.5dB. Therefore the higher your ceiling (or panel) the more even S.P.L. coverage will be obtained below it.

As a rule of thumb, in wall mounted applications, panels positioned every 5m will provide less than 3.5dB SPL fall-off measured at the mid-point between panels and at least 1.1m away from the wall. The measured S.P.L. in the centre of the space compared to the perimeter will depend on the width of the room and the amount of reflective surfaces in the space.

If you have special requirements please contact your supplier or Amina™ for assistance.

# Four ways to fit your unit:



**Figure 1:** Flying methods

**1**

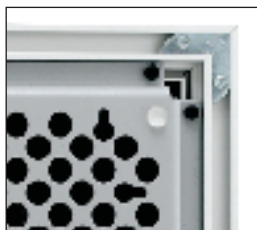
## Flying your Amina™ Compact Pro Panel Loudspeaker:

The Amina™ Compact Pro Panel Loudspeaker has a 'C' channel around its perimeter on the back of the product. A variety of industry standard fixings can be quickly applied to this channel to enable flying. Please ensure that high tensile steel cable of suitable dimensions are used to suspend this product from a structural fixing. Please ask Amina™ to supply these when ordering. See Figure 1 (Flying methods) for a possible suggestion.

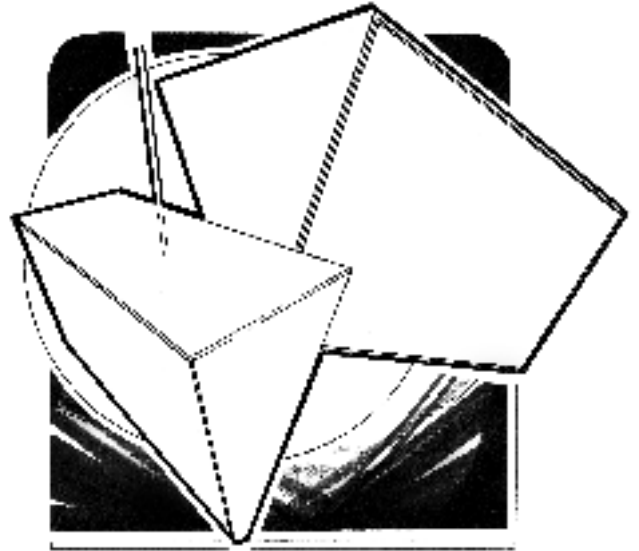
*Alternatively:* Amina™ can manufacture the Compact Pro unit with eye bolts in any edge, or can make custom made bracket systems (for example, for suspending in a V formation) to order. Please contact Amina™ to discuss your requirements prior to specifying and ordering. Please see figure 1 (Flying methods) and figure 2 (V formation custom bracket) for suggestions.



**Eye bolt fixings are also available to order.**



**'C' Channel perimeter with keyhole bracket on rear**



**Figure 2:** V formation bracket system

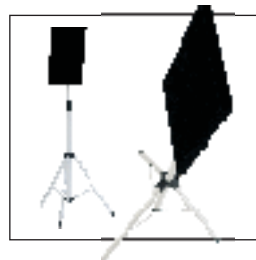
**2**

## Wall mounting your Compact Pro Loudspeaker (Flat to the surface of the wall):

The Amina™ Compact Pro Panel Loudspeaker is designed to be mounted flat on to a back wall using two simple keyhole slots (see figure 3) in both portrait and landscape orientations, situated on the rear grille section of the product. Position two screws, 313mm apart for landscape and 191mm apart for portrait, into your wall using appropriate wall fixings. Lower the panel into place. If tamperproof fixing is required, use at least one T bar screw on the lower edge of the 'C' channel (see figure 3) to lock the unit in place.

When mounted very close to a back wall in this fashion the product will have a limited low frequency response.

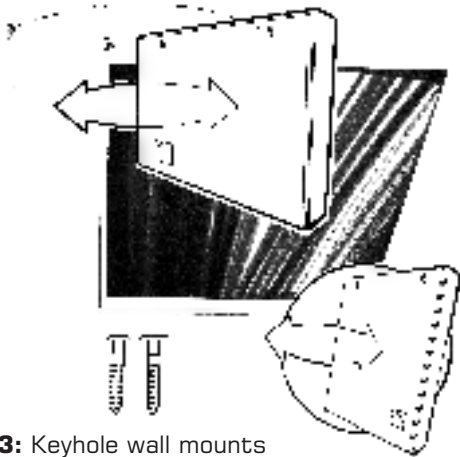
*Remember: If you choose the tamperproof method, keep your special fixing spanner in a safe place. You will need it in order to remove the panel at a later date.*



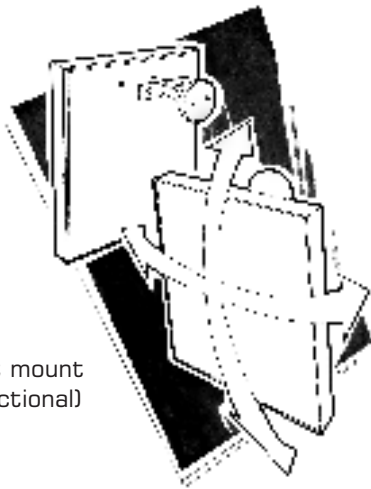
**Stand mount**



**Wall bracket mount**



**Figure 3:** Keyhole wall mounts (Landscape or Portrait)



**Figure 4:** Wall bracket mount (Multi-directional)

**3**

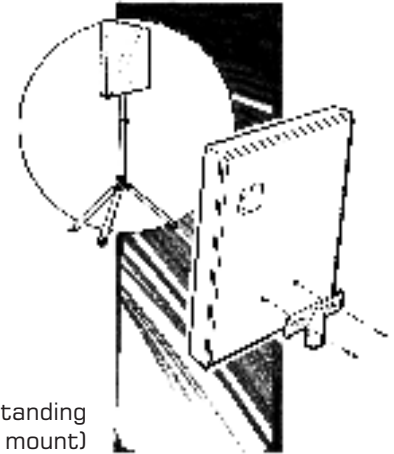
### Wall mounting your Compact Pro Loudspeaker (Proud from the wall by 100mm):

The Amina™ Compact Pro Panel Loudspeaker is designed to be mounted off a rear wall by 100mm using the Amina™ heavy-duty wall bracket. See figure 4 for details. Fasten the wall section of the bracket to the wall using suitable fixings. Fasten the speaker section of the bracket to the rear grille of the product using the provided M5 machine screws into the two captive nuts in the grille section. Screw the two halves of the bracket together and tighten with the hook shaped spanner provided.

**4**

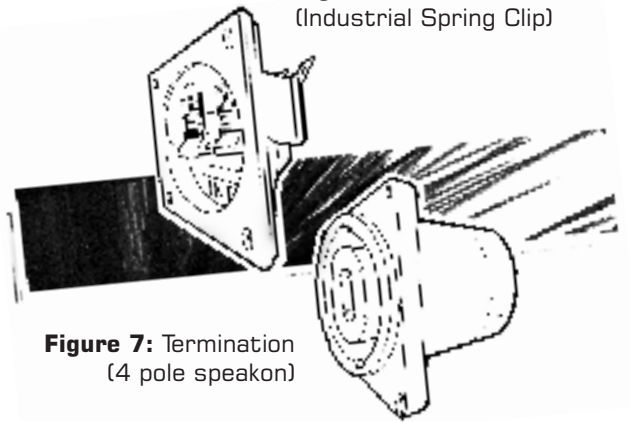
### Stand mounting your Compact Pro Panel Loudspeaker:

The Amina™ Compact Pro Panel Loudspeaker is also designed to be stand mounted for conferencing and portable PA applications. Fasten the stand adapter provided (see figure 5 for details), to the rear grille section of the product using the M5 machine screws provided. The stand adapter is designed to fit on a 25mm diameter tripod stand.



**Figure 5:** Free Standing (stand mount)

**Figure 6:** Termination (Industrial Spring Clip)



**Figure 7:** Termination (4 pole speakon)

## Electrical Information

### Low impedance and 100v line options available on the Amina™ Compact Pro Panel Loudspeaker:

Always check the specification label (situated by the terminal connector) to obtain the nominal impedance of the Amina™ Compact Pro Panel Loudspeaker. In general this is likely to be 8 Ω. However it is possible to specify an alternative nominal impedance when ordering your Amina™ product. This could range from 1 Ω to 64 Ω.

When ordering the Amina™ Compact Pro Panel Loudspeaker, clients can specify 100V line versions, with required power rating. In these instances a high quality single tap toroidal transformer is built inside the panel loudspeaker. The specification label on the rear of the product will clearly mark what power rating the transformer is specified at.

### Electrical Connection types available on the Amina™ Compact Pro Panel Loudspeaker:

The Amina™ Compact Pro Panel Loudspeaker is available in two different electrical connector formats. This is either an industrial spring clip (See figure 6) or a four pole Speakon type (see figure 7) where pin +1 is positive and pin -1 is negative.

# Fault Finding Guide:

## No Sound Output

Check that your audio system has power, is turned on and is working.

Check that all cables and connections are in tact, and made in the proper manner.

Check for continuity over cable lengths.

Take your system back to the bare minimum (e.g. amplifier, source and speakers) to eliminate faults in other components such as filters, crossovers and equalisers.

Using an impedance meter, check the nominal impedance of the product both at the product terminals and at the end of the cable. Do these measurements match each other (allowing for the impedance increase by long wire lengths), and do they match the stated nominal impedance on the product's specification label? If the nominal impedance does not match the stated impedance, one or more exciters may have gone open or short circuit. The product will need to be returned to your supplier for repair.

If the problem persists, consult your supplier for after sales service.

## Distortion, buzzing or rattling sounds at modest volume levels

Try to identify the location of the buzz or rattle. It may be caused by a loose screw or other mechanical fixing. Check the assembly and ensure screws and fixings are tight.

Without any audio playing through the panel, shake the loudspeaker gently. If the rattle is evident whilst doing this, check for foreign objects (screws, etc.) which may have fallen into the back of the product and might be resting against the panel or frame. Similarly check your wiring to the product. Ensure that wires, when the product is in the final location, are not resting against the back of the vibrating panel.

Again, with no audio signal applied, lightly push the panel in and out at its centre. Listen carefully for rubbing voice coils on the exciter. This may indicate that the unit has been overdriven and subsequently damaged, and needs to be returned to your supplier for repair. If the problem persists, consult your supplier for after sales service.

## Sound output is very low

Check the specification label on the back of the product. Ensure that you are not using a low impedance signal to drive a 100v line transformer based product.

With no audio signal applied lightly push the panel in and out at its centre. Listen carefully for rubbing voice coils on the exciter. This may indicate that the unit has been overdriven and subsequently damaged, and needs to be returned to your supplier for repair.

Take your system back to the bare minimum (e.g. amplifier, source and speakers) to eliminate faults in other components such as filters, crossovers and equalisers.

Using an impedance meter check the nominal impedance of the product both at the product terminals and at the end of the cable. Do these measurements match each other (allowing for the impedance increase by long wire lengths), and do they match the stated nominal impedance on the product's specification label? If the nominal impedance does not match the stated impedance, one or more exciters may have gone open or short circuit. The product will need to be returned to your supplier for repair.

If the problem persists, consult your supplier for after sales service.

## Distortion at high volume levels

Distributed Mode panel loudspeakers of this type have an extremely fast response, articulating the signal from your drive system very accurately.

Take your system back to the bare minimum (e.g. amplifier, source and speakers) to eliminate distortions introduced by other components such as filters, crossovers and equalisers.

When using your amplifier at maximum power levels, or if the input of your power amplifier is being overloaded, the signal level may be entering the clipping phase. With some conventional speakers this may not be evident, but with a distributed mode panel loudspeaker this is much more likely to be reproduced. Consider upgrading your drive system.

## Feedback occurs easily with open live microphone channels

A disperse sound wave generated by a distributed mode panel loudspeaker helps generate a very even sound field in a given space. This can help reduce problems with microphone feedback. However, if you are experiencing feedback with lower gain structures please check the signal equalisation. The acoustics of your space and the reflectivity structures of the walls may be creating acoustic standing waves. Adjusting your system equalisation may help reduce feedback dramatically.

## Maintenance & Cleaning:

The Amina™ Compact Pro Panel Loudspeaker is designed to require minimal maintenance. A simple wipe with a soft damp cloth is all that is sufficient to keep the product clean. Please do not use detergents or solvents. For flock finished products, use a clean soft hand brush to remove any dust build up on exterior surfaces.

## Product Specifications:

Product Dimension:	456mm x 351mm x 52mm
Product weight:	3.080 Kg
Panel Material Dimensions:	450mm x 345mm x 5mm
Panel Material:	•Polyester skins, resin coated paper honeycomb core
Frame Material:	•Mitre cut silver anodised aluminium frame •Punched & formed aluminium grille back
Fixings:	Two M5 inserts on rear grille, 'C' Channel perimeter
Mounting adapters available:	Stand mount and heavy duty wall mount brackets
Electrical Connection:	Industrial spring clip / four pole Speakon
Nominal Impedance:	8
Power Rating:	80W Continuous (when brick wall filtered at 150Hz)
Minimum Filter required:	150Hz high pass at 36dB per Octave or greater
Sensitivity:	95dB at 1m/1W
Max SPL:	114dB at 1m/80W

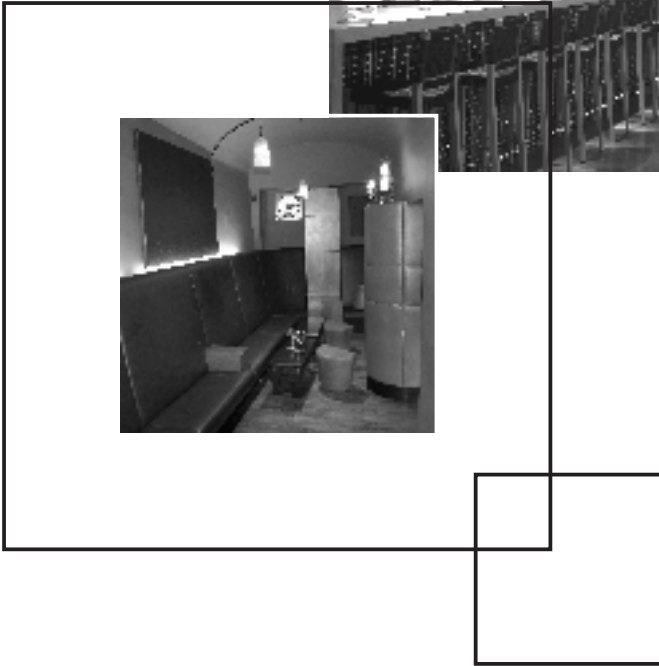
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SurfaceSound is a trademark of New Transducers Ltd Instruction

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*"sound has never looked so good"*



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