

PROFESSIONAL **AE22**  
series  
passive  
active



# 1. INTRODUCTION

Thank you for purchasing this Acoustic Energy product. As a valued customer we would like to keep you up to date with all news and events including new products, exhibitions and exclusive promotions. To enable us to communicate these exciting developments please go to our website - [www.acoustic-energy.co.uk](http://www.acoustic-energy.co.uk) - and complete the ownership registration form.

Perhaps more than any other professional audio product, monitors are sensitive to installation so please take a little time to read this manual and to follow, as far as practical, the installation guidelines it contains. Careful installation will help ensure that your monitors perform optimally.

This manual covers both the Active and Passive variants of the AE22. Following this introduction, the Manual is divided into sections covering installation, positioning, passive connection, active connection, active controls, listening, specifications, warranty and contact information. We recommend that you read at least the first six sections carefully before installing and using your AE22s. In the case of the AE22 Active please also read the Important Safety Instructions below.

## Important Safety Instructions

Ensure that your AE22 Active is set to the appropriate mains input voltage before it is connected to a mains socket. The warranty does not cover damage caused by incorrect mains voltage.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the grounding-type plug. A grounding type plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.
16. The MAINS plug is used as the disconnect device, the disconnect device shall remain readily operable.
17. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.



The AE22 is both a heavy and a relatively delicate precision engineered product that can be damaged by inappropriate handling. Please take care when unpacking or moving the monitors not to touch either of the drivers. Damage to a driver will at best degrade performance and at worst result in complete failure.

The packaging should be retained for future use.

# 2. INSTALLATION

AE22s are intended to be used mounted horizontally either on a mixing-desk meter-bridge or on speaker floor-stands in relative proximity to the rear room boundary. Alternative, on-wall, mounting arrangements such as wall brackets are possible although these may result in less consistent performance. If brackets are to be used they should be as rigid as possible and firmly attached to brick-built walls.

The construction style, rigidity and dimensions of the floor-stands are of critical significance to the performance of the AE22. Stands should broadly follow the specification below. Your retailer or distributor will be able to offer advice.

## Recommended Floor-stand Specification.

<b>Construction Style:</b>	Direct coupled pillared.
<b>Mass Loading:</b>	Preferred.
<b>Overall height:</b>	As appropriate for AE22 tweeter to be at head height when seated.
<b>Top plate Dimensions</b>	
<b>Minimum width:</b>	230 mm
<b>Maximum width:</b>	330 mm
<b>Minimum depth:</b>	200 mm
<b>Maximum depth:</b>	290 mm
<b>Top plate interface:</b>	Direct coupled tri-point or damped-compliance.
<b>Floor interface:</b>	Floor spikes (M6 minimum).

### 3. POSITIONING

The position of monitors within the studio room is likely to have more influence over their performance than any other aspect of their installation. It is worth spending some time experimenting both with the finer points of monitor positioning, as well as the larger scale issues of room layout.

If you are already familiar with the acoustic characteristics of your studio room, and the way speakers perform in it, you may already have a good feel for where to position your AE22s. However, installing any new component provides a good opportunity to review an existing set-up and perhaps make improvements.

**AE22s are NOT magnetically shielded. Magnetically sensitive equipment or media should be kept at least 1m away.**

The position requirements for a pair of AE22s installed in a typically sized and equipped studio room, illustrated in **Diagram One**, are as follows:

- Between 1.5 and 3.0 metres apart.
- Placed horizontally with tweeters outermost if the monitoring position tends to be below the horizontal axis and tweeters innermost if the monitoring position tends to be above the horizontal axis.
- Between 0.2 and 1.0 metres from the rear wall.
- At least 1.0 metre from the side walls.
- Clear of room corners.

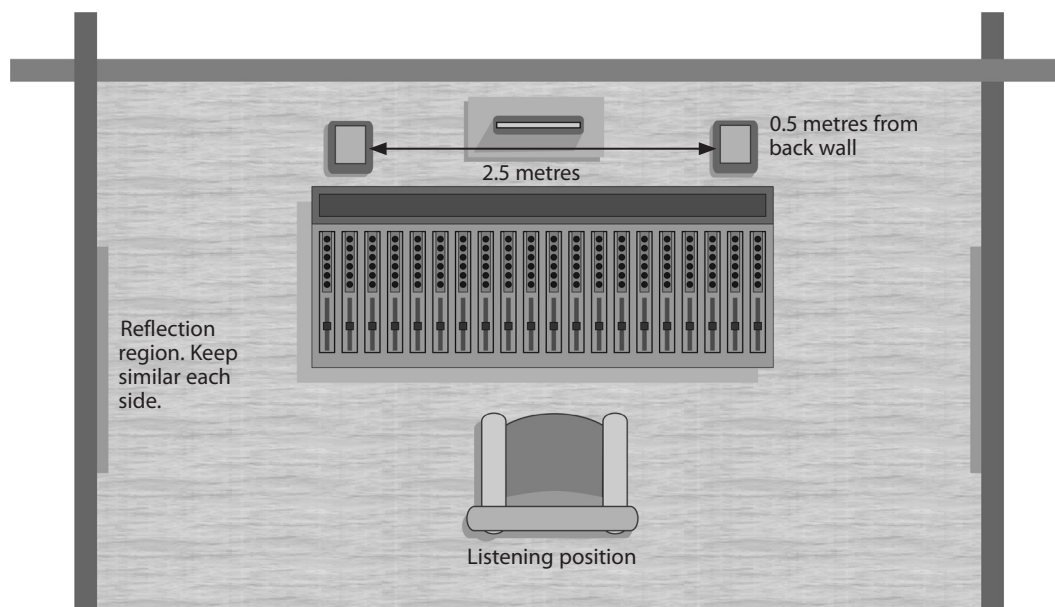
Don't worry if it is not practical to follow each requirement exactly. The most important thing is to experiment with the different options that are practical and find the one that works best.

AE22s need not be angled inward towards the listening position although adjusting this "toe-in" angle can be effective in fine-tuning the AE22s high frequency tonal balance.

Wherever your AE22s are positioned it is important that each of the pair is located in a similar acoustic environment (different environments would be, say, a curtained area and a solid wall). The acoustic character of the walls, ceiling and floor of the room in the area where the main reflections between speakers and listening position will occur should also be similar.

Once your AE22s are connected and working, and you begin to become familiar with their performance, it is likely to be worthwhile experimenting a little more with their positioning. Reducing the distance between the monitors and the rear wall will increase the level of bass and low midrange making the monitors sound warmer. The warmth however is likely to be gained at the expense of some mid-range clarity and stereo image focus and depth. Increasing the toe-in angle of the monitors may regain some image focus but again this may be at a cost of image width and high frequency balance. Learning through experimentation how AE22s behave in your studio will help you find the optimum solution.

DIAGRAM ONE



## 4. CONNECTING AE22 PASSIVE

Connecting passive AE22s to an amplifier is fundamentally a simple process. However, there are some choices to be made and issues to consider concerning speaker cable type.

Passive AE22s are fitted with a pair of binding-post terminals and a parallel Neutrik® Speakon® socket. The binding-post terminals can accept stripped wires, spade connectors, or 4mm plugs. Each of these termination methods is potentially equally effective and the choice is likely to be influenced by the type of speaker cable used.

The Speakon socket and plug provides enhanced security and reliability of connection and is the preferred option. An appropriate plug is supplied within the packaging. Speakon plugs are also widely available from audio and electronic component distributors and retailers. Either 2-pole (NL2FC) or 4-pole (NL4FC) plugs may be used.

**Diagram Two** illustrates the assembly and connection of a 2-pole Speakon plug. Remember to thread the cable through the **Rear Housing** and **Clamp Ring** before connecting it to the terminals. Strip approximately 6mm of bare wire and connect to the screw terminals within the Speakon. If 4-pole Speakon plugs are used connect to the terminals labelled +1 and -1. Once the speaker cable is connected to the terminals, the plug can be reassembled. The **Clamp Ring** secures the cable as the **Rear Housing** is tightened.

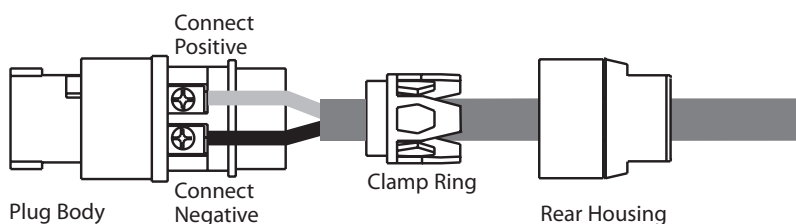
To connect the speakers simply push the Speakon plug into the socket and twist the plug clock-wise to lock. Twist counter-clockwise and pull to disconnect.

Take care not to connect any negative and positive terminals together and “short-circuit” the amplifier. Always make connections with the amplifier switched off.

### Connection Polarity.

It is important to ensure that each speaker is connected with the same polarity. **Positive** speaker terminals should always be connected back to amplifier **positive** terminals, and **negative** speaker terminals connected back to amplifier **negative** terminals. Performance will be degraded if connections are made with incorrect polarity.

### DIAGRAM TWO



### Cable Choice.

Choice of speaker cable type will be influenced by the characteristics of other components in your monitoring system and your dealer or distributor will be able to advise. There are however some simple guidelines to consider:

- The external cable diameters compatible with Speakon plugs are as follows:  
NL2FC (2-pole): 4mm - 10mm, NL4FC (4-pole)  
5mm - 11mm (white Clamp Ring), NL4FC (4 pole)  
9.5mm - 15mm (black Clamp Ring).
- Cable runs to each speaker should be kept as short as possible consistent with each being of equal length.
- Short cable runs are especially important if the cable is of relatively small cross-sectional-area.
- If the cable is advertised as “directional” care should be taken to ensure that its orientation is as recommended.

### Amplifiers

The AE22 is a medium sensitivity speaker that demands a relatively powerful amplifier for adequate monitoring volume levels to be achieved in an average studio room. A minimum of 75 and maximum of 200 Watts into 8 Ohms per channel is recommended. AE22s offer a relatively easy load to the amplifier and do not make unusually heavy demands on its current delivery.

No overload protection systems are fitted to the AE22 so it is possible to cause damage through over-driving. Such damage can occur regardless of the power rating of the driving amplifier and is not covered by any warranty. If ever the sound at high volumes becomes distorted your AE22s are at risk of damage. In such circumstances the volume must be reduced.

## 5. CONNECTING AE22 ACTIVE

Each active AE22 must be connected to mains power and signal cables. Diagram Three illustrates the rear connection and control panel.

### Mains Connection

Mains power is connected via the IEC socket on the back panel. Ensure before connecting to the mains supply that the voltage specified on the panel corresponds to your local mains voltage. A mains fuse is located adjacent to the mains socket. If the fuse fails it must be replaced by one of the same specification. Repeated mains fuse failure indicates a fault which should be investigated by a qualified service engineer.

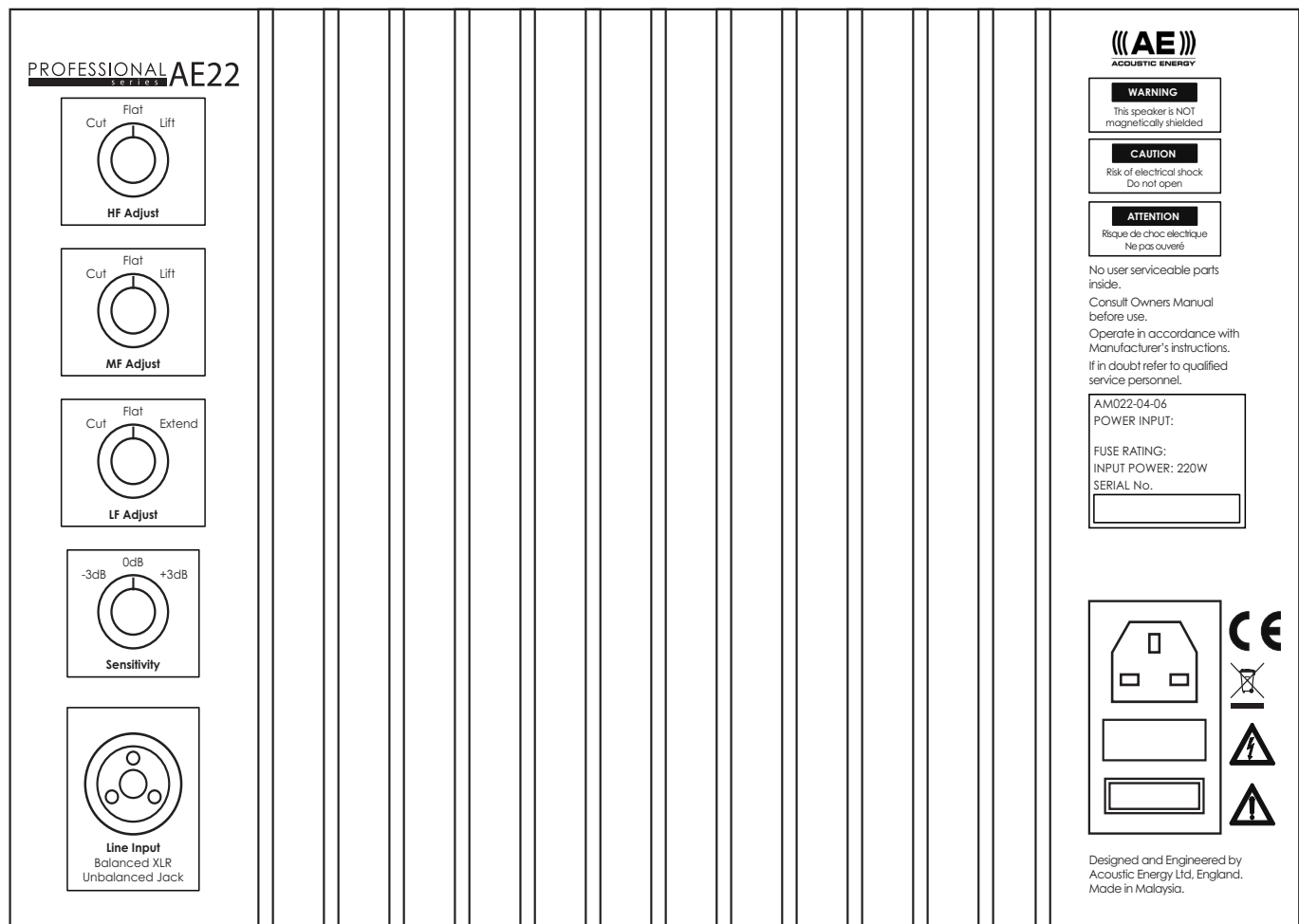
The AE22 power switch is also located adjacent to the mains socket. Do not switch-on until all connections have been made. Illumination of the front panel display indicates that the AE22 is switched on.

### Signal Connection

The AE22 provides both balanced and unbalanced line-level signal inputs for connection to the monitor outputs of the mixing desk, digital audio workstation or computer audio interface. A three position switch provides 6dB of input sensitivity adjustment.

The balanced input is via a three pin XLR socket and the unbalanced input via a concentric 6mm mono jack socket. Always use high quality professionally terminated signal cables. Do not plug or unplug signal cables while the AE22 is switched on.

DIAGRAM THREE



## 6. AE22 ACTIVE CONTROLS

The AE22 Active is fitted with gain and equalisation controls on its rear connection panel and a control configuration display on the front panel. The controls behave as described in the following paragraphs:

**Sensitivity:** Adjusts the AE22 amplifier input sensitivity to suit the output level of the mixing desk, workstation or computer interface. The three position switch offers -3dB, 0dB and +3dB. 0dB sensitivity is equivalent to 0.9V RMS input for maximum rated amplifier output at 400Hz.

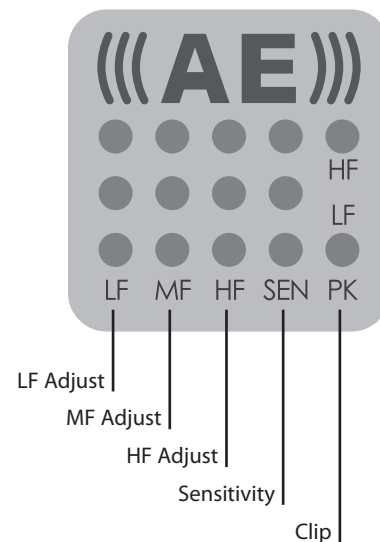
**LF Adjust:** Provides three options of low frequency equalisation. **Cut** applies -3dB of attenuation at 70Hz, **Flat** is the un-equalised response, and **Extend** applies +3dB of gain at 40Hz. LF Adjust should normally be left **Flat**. **Cut** is intended to model the LF characteristic of smaller speakers, while **Extend** enables the AE22 to reproduce low frequency programme material or information that may otherwise go unnoticed. Maximum volume capability is likely to be reduced when **Extend** is selected.

**MF Adjust:** Provides three options of mid frequency equalisation. **Cut** applies -2dB of attenuation at 400Hz, **Flat** is the un-equalised response of the speaker, and **Lift** applies +2dB of gain at 400Hz. **Cut** and **Lift** can help compensate in installations that result in an unsatisfactory midrange balance.

**HF Adjust:** Provides three options of high frequency equalisation. **Cut** applies -1.5dB of attenuation from 2kHz, **Flat** is the un-equalised response of the speaker, and **Lift** applies +1.5dB of gain at from 2kHz. **Cut** and **Lift** can help compensate in installations that result in an unsatisfactory high frequency balance.

The setting of each control is indicated by the front panel display of the AE22 - illustrated in **Diagram Four** below. The front panel display also carries two clip (peak) indicators which illuminate if either the low frequency or high frequency amplifiers reach their output limit. The volume level should be reduced if the clip indicators illuminate more than occasionally.

DIAGRAM FOUR



## 7. LISTENING

Before using your AE22s for the first time make one final check of the cables and connections. If all appears well begin listening at a relatively low level to confirm that the system is operating as expected. Only increase the volume if you are happy with the sound at low levels. If you are unhappy, turn the system off and re-check all the cables and connections.

AE22s may take a little time to reach normal operating temperatures and to "run-in". It is unwise therefore to make too rapid a judgement about the performance of the monitors. Your ears too will take some time to adjust to the new sound so revisiting the speaker positioning is best left for a few days.

## 8. SPECIFICATIONS

	<b>AE22 Passive</b>	<b>AE22 Active</b>
<b>Model:</b>	AE22 Passive	AE22 Active
<b>Type:</b>	2-way, closed-box loaded.	2-way, closed-box loaded.
<b>LF/MF Driver:</b>	200mm pressed alloy cone. Underhung, 50mm dia voice-coil.	200mm pressed alloy cone. Underhung, 50mm dia voice-coil.
<b>HF Driver:</b>	25mm Ring Radiator. Neodymium magnet.	25mm Ring Radiator. Neodymium magnet.
<b>Filter Network:</b>	3rd order Bessel at 2.0kHz.	3rd order Bessel at 2.0kHz.
<b>Frequency Response:</b>	60Hz to 40kHz $\pm 3$ dB	60Hz to 40kHz $\pm 3$ dB
<b>Power Handling:</b>	200W peak programme	N/A
<b>Nominal Impedance:</b>	8 Ohms	N/A
<b>Sensitivity:</b>	87dB for 1 Watt at 1 metre	N/A
<b>Input Sensitivity:</b>	N/A	0.9V $\pm 3$ dB
<b>Input Impedance:</b>	N/A	>10k $\Omega$
<b>LF Amplifier:</b>	N/A	100 Watts RMS
<b>HF Amplifier:</b>	N/A	60 Watts RMS
<b>LF Adjustment:</b>	N/A	+3dB @ 40Hz Q = 1, -3dB @ 70Hz Q = 1,
<b>MF Adjustment:</b>	N/A	$\pm 2$ dB @ 400Hz Q = 0.5
<b>HF Adjustment:</b>	N/A	$\pm 1.5$ dB 2kHz to 40kHz
<b>Dimensions (H x W x D):</b>	250 x 350 x 300mm	250 x 350 x 330mm
<b>Weight (single, unpacked):</b>	10kg	15kg

Acoustic Energy reserves the right to modify product specifications.

## 9. WARRANTY

Your Acoustic Energy speakers are guaranteed against original defects in materials, manufacture and workmanship for 3 years from the date of purchase.

Under this warranty Acoustic Energy agrees to repair any defect or, at the company's discretion, replace the faulty component(s) without charge for parts or labour. This warranty does not imply any acceptance by Acoustic Energy or its agents for consequential loss or damage and specifically excludes fair wear and tear, accident, misuse or unauthorised modification.

This warranty is applicable in the United Kingdom only and does not in any way limit the customer's legal rights. If you have reason to claim under the warranty please contact your dealer in the first instance

Claims and enquiries under the warranty for Acoustic Energy products purchased outside the UK should be addressed to the local importers or distributors.

Please retain all original packaging materials for possible future use.

For any sales, technical or spares enquiries contact your local dealer or distributor first.

## 10. CONTACT

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Products that display the crossed-out wheeled bin logo cannot be disposed of as domestic waste but must be taken to a facility capable of recycling them and appropriately handling any waste by-products. Contact your local authority for details of the nearest such facility.





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