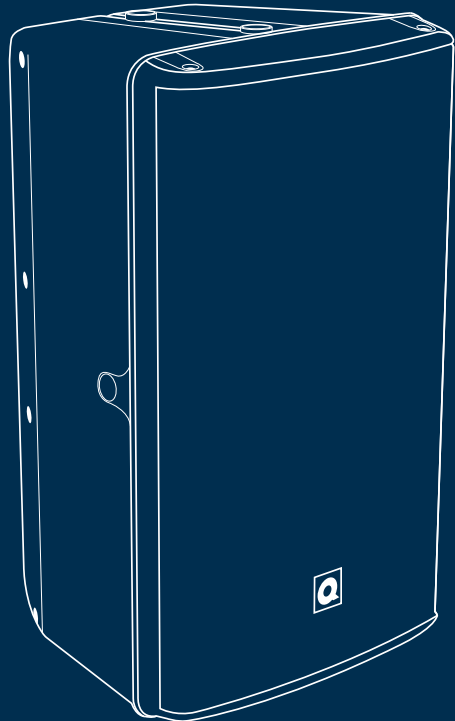


**quest**<sup>™</sup>  
engineering

# QSA 200i

ACTIVE LOUDSPEAKER  
user manual



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## Safety Precautions



Flying and installation of this speaker cabinet must be carried out by suitably qualified personnel following the approved safety standards.



Do not expose the speaker cabinet to direct precipitation or stand in water. Liquid getting into the box will risk a short circuit and will be hazardous.



Do not attempt to clean any plastic parts with solvents or petrochemical based cleaners.



Do not stack the speaker cabinet in a manner that could cause injury should a cabinet become dislodged.



The power voltages inside this device are high and could cause serious injury or death if touched while the power is connected. Do not open the amplifier case as there are no user serviceable parts inside.



Do not place sources of heat on the speaker cabinet such as lighting equipment or smoke machines.



### Attention

Before connecting or operating your new Quest Engineering speaker, please study the accompanying instruction manual paying particular attention to the operating precautions and wiring procedure.

Quest Engineering will not assume responsibility for incorrect installation or operation of this product.

### Very important

Before using your speaker check to make sure that the selection of the power supply voltage (115/230 Volts) is set correctly for your country. An incorrect setting can lead to severe damage to your new powered speaker on activation. If you are not certain that it is set correctly, check with your Quest Engineering dealer.

## Register Your Product

Thank you for choosing Quest. Please take the time to complete your product registration card which is included with the packaging. Registering your Quest Engineering product will:

- CONFIRM YOUR WARRANTY
- REGISTER YOUR PRODUCT
- PROTECT YOUR NEW PRODUCT

SAFETY

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## Description

The QSA speaker range is a two-way active bass reflex design suitable for mobile or installation use. The power amplifiers are multiple integrated A-B class design capable of high power yet light in weight. There are separate amplifiers for the high and low frequency drivers and both are protected by an “analogue engine” processor that monitors peak and RMS power and makes EQ and time alignment corrections.

The operation of these devices will not affect audio quality due to their advanced design. Audio processors will control and protect the system to a reasonable degree but are not a substitute for sensible operation. The system will sound at its best when mixers and other signal processors in the audio chain are not being over driven into distortion.

## Full range or mid-high applications

The design characteristics make the QSA series suitable for both full-range use or as the high-mid component of a multi-way system with sub-bass enhancement. Coupled with a Quest Engineering sub-bass system, the QSA200i will provide very good full bandwidth audio coverage at medium to high sound pressure levels.

## Installation

Temporary installation is possible with the 35mm stand mounting in the base of the enclosure. Fold-back installation is possible with the addition of the floor stand/wall bracket optional accessory, (WBFS8).

## Flying installation

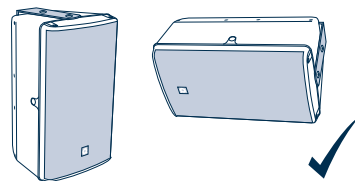
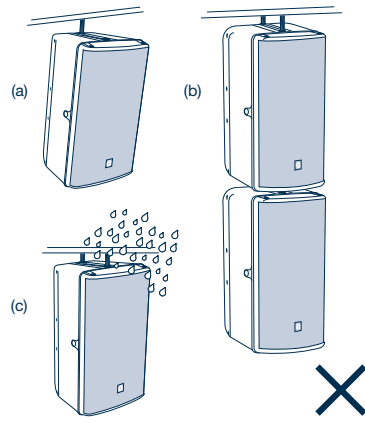
Two M6 thread inserts are located on the top and one under the QSA series enclosures. These are intended to be used with the designated wall mount bracket.

## QSA Series flying accessories

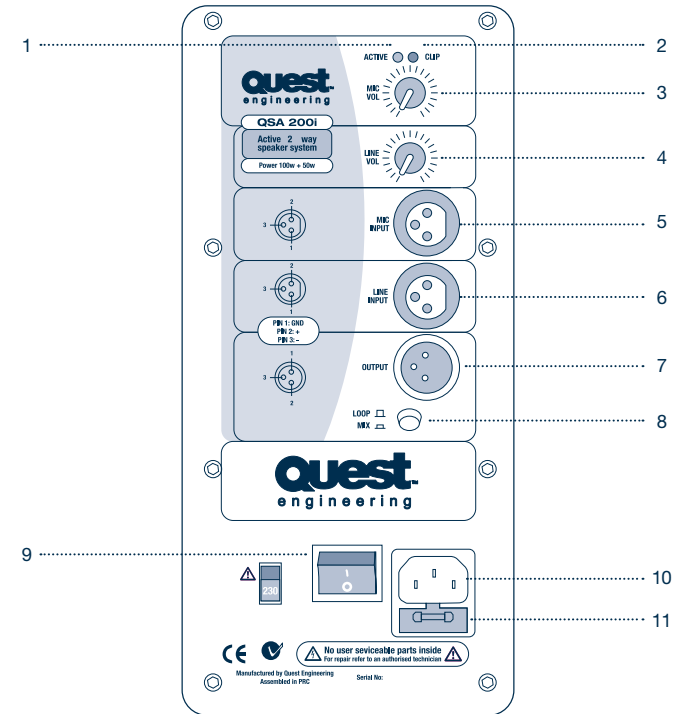
See page 11 for list of accessories.

## Safe installation procedures

- The QSA200i should be installed using the WBFS bracket and secured by both top and bottom nut inserts.
- The QSA200i can be hung with “I” bolts attached to the top 8mm insert bolts.
- Under no circumstances attach the box with less than two of the threaded inserts (see figure a)
- The speaker box must not be installed in a manner where the weight is not equally distributed between two insert points.
- One pair of threaded inserts may only carry the weight of one box. Therefore multiple box rigging from one pair of insert points should not be attempted. (see figure b)
- Do not locate boxes near sources of moisture or where water can enter the box. (see figure c)



## Quest QSA200i Series: Rear Panel Description



1. Power amp active indicator.
2. Clip/limit indicator. If this LED illuminates for more than an occasional flash, turn down the mixer output. If you need more volume, set up more speaker boxes.
3. Microphone balanced input volume control.
4. Line level volume control.
5. Microphone level (low impedance) input.
6. Line level balanced input. (To mixer or other +4 dB or less line level)
7. Line out. This is a **through** output of the same level as the line input.
8. Loop/Mix Output mix selector signal in/out through
9. Power on/off switch.
10. Power supply input. Make sure that the voltage selector is set for your Country's correct voltage.
11. Protection fuse. Use only fuses of the correct Amp rating. If it blows more than once, return the box to a Quest Engineering service centre.



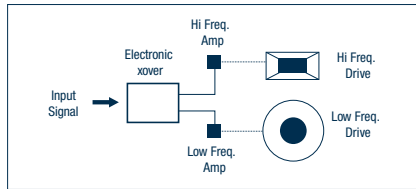
## Glossary

Basic professional audio practice and hints for best results

**PRE-AMPLIFIER:** That part of the signal chain where a signal from a microphone, turntable, CD player or other signal source is first amplified. This will normally be at the input of a mixer and is necessary to boost the signal enough to be then mixed and amplified by a power amplifier.

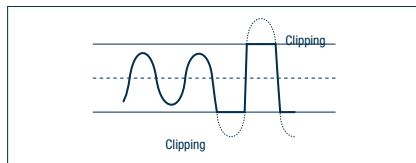
**POWER AMPLIFIER:** Boosts the signal enough so it can be reproduced by a loudspeaker.

**ELECTRONIC CROSS OVER:** Splits up the full range audio signal to separate high and low frequencies. This is done to send low frequencies to the bass speaker and high frequencies to the tweeter or high frequency horn driver.



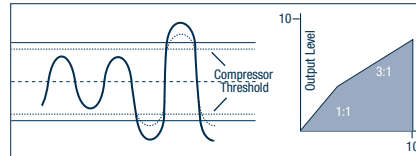
**SELF-POWERED:** Refers to a speaker or a mixer that contains a power amplifier.

**CLIPPING:** Distortion that is caused by having too much signal at an input causing the amplifier to overload. It is called clipping because it will cause a smooth wave to be cut off at the peak of the wave. In other words, “clipped”

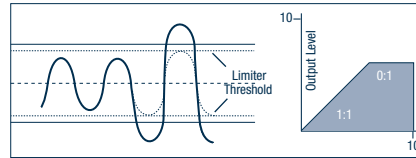


**GAIN STRUCTURE:** The relationship of input levels to output levels in a signal chain. An example of incorrect gain structure is when a mixer is turned up to the point of audible distortion (red lights flashing serious overload), and the power amplifiers are turned down and running at only 30% power.

**COMPRESSION:** An electronic device that reduces the dynamic range. In other words, makes the loud parts of the music less loud and the quiet parts appear louder. When used correctly it can make live music sound more even and balanced.



**LIMITER:** An electronic device that will prevent the signal from exceeding a set level of output. Normally used as a system protection to prevent it from being over driven by excessive input.



**PHASE (IN or OUT OF PHASE):** This really means speaker polarity. The input terminals of a normal loudspeaker have a + positive red terminal and a - negative black terminal. In the case where there are two speakers operating as a pair or together as an array, will need to all be wired the same way. If a speaker connector, speaker lead or speaker box is wired in reverse to a box near it, loss of performance will result. This may be in the form of lost low frequency response. In this case you will see the bass speaker working hard but as you move away from the box, the bass frequencies will seem to “disappear”.

Check that your speaker leads do not have one lead wired in reverse at one end and that the speaker boxes are all wired correctly internally. This can happen when a speaker box has been repaired and then not assembled with the wiring connected correctly.

## Operating Tips

To avoid overloading the pre-amp inputs, always operate the master volume at a high level and control the volume from the input volume.

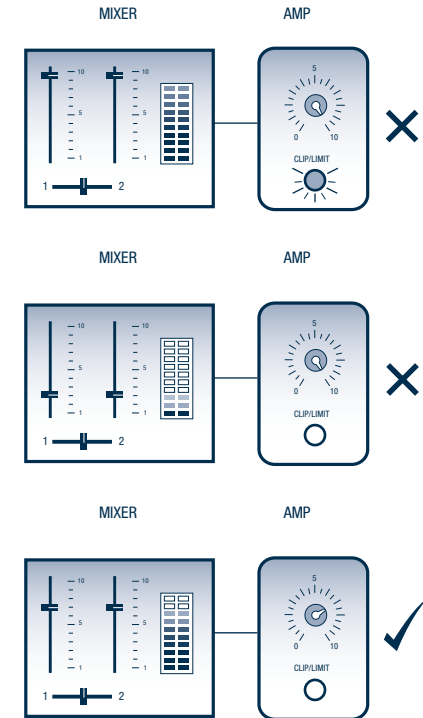
The ideal situation is to have all the components of the audio chain operating at the same operational range.

**Do not run the system with the mixer “peaking in the red” while the box is turned down.**

Also do not operate the system with the input peaking (red overload light on or flashing) and the master volume turned down.

Red lights flashing on a mixer indicate distortion. If you have a mixer with the facility to show you the input level on a meter, for example then you push a CUE/PFL button, set the input level to below the level of the red end of the LED ramp.

If you run the row of red lights to the end of the ramp you will cause distortion at the very start of the pre amplifier stage of the mixer. At this point it will sound dirty and “fizzy” regardless of how good the rest of your sound system is. The rest of the system will be reproducing a distorted sound. If you need more volume, turn down the input signal so it is out of the red and turn up the output of the mixer.





## Troubleshooting

### Buzzes and noises in the sound system

Getting rid of unwanted noises is a study in itself. Most of the noise, (apart from undesirable program) will fall into three categories.

**(1) WHITE NOISE:** This is the hiss that suggests that the gain structure is set incorrectly. Something in the signal chain is boosting too much or an input is set too sensitive. If your equipment has gain switches on it, set them all the same. If the switch is labelled +4dB, set them all to that figure. If one piece of equipment seems to be overloading, set them all to -10/-20dB and be prepared to boost the input level of the QSA input. The last unit in the chain should be set to +4 dB at the output stage if possible when connected to the line level input of the QSA series input.

**(2) LOW FREQUENCY HUM:** This is often caused by noise from the power leads being picked up by the audio signal cables. The preferred solution is to connect up your system with "balanced" XLR microphone cables. Especially if you are running the cables a long distance, (more than 5Mtrs /15 Ft). The other solution is to make sure that your audio cables are as far from power cables as possible.

**(3) BUZZ:** Sometimes you can experience a hum and buzz together. A buzz is almost always a problem with the "earthing" of the system. It will often occur when you have the system powered from separate power outlets in the same building or audio and lighting sharing a common power circuit.

Even when the audio and lighting systems are powered from separate sources, there can still be a common earth between them. For example, a smoke machine may be powered from the lighting system, yet the trigger mechanism could be connected to the audio system through the audio multi-core/snake.

An earth connection between the audio and lighting will now exist and a buzz could be amplified in the audio system. The simple solution is to power your audio circuit and everything connected to it from the same source. If the buzz persists, check your signal cables, one may have an earth/shield disconnected.

A cheap but possibly life saving investment is a domestic power tester to check that the power supply sockets are correctly wired. Faulty or incorrectly wired power is a booby trap that is more common than you think.

It is wise to avoid switching on or off devices in the signal path while the speaker system is powered and turned up. Otherwise loud clicks and bangs could result. When shutting down the system, always turn the speakers off first. This is to prevent the speaker amplifying the sound of the other equipment in the chain being shut down. The reverse is true when powering up. Mixers and effects on first, power amplifiers or powered speakers on last.

## Inputs and outputs

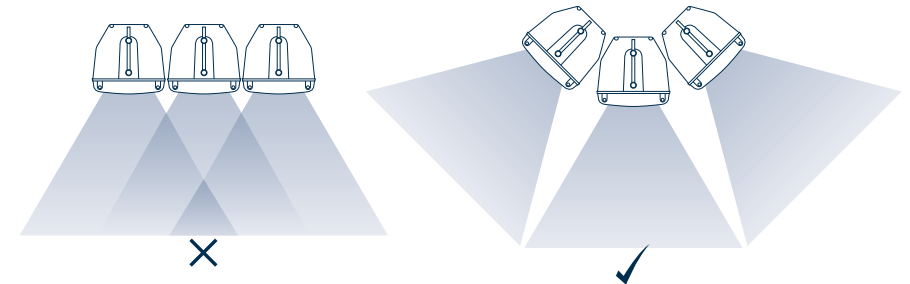
The inputs can accept both XLR and phono connectors. If you are connecting multiple boxes together is unprofessional practice to use a mixture of both phono and XLR types of leads. Use one or the other otherwise an out of phase situation can result.

### Tips on "flying clusters"

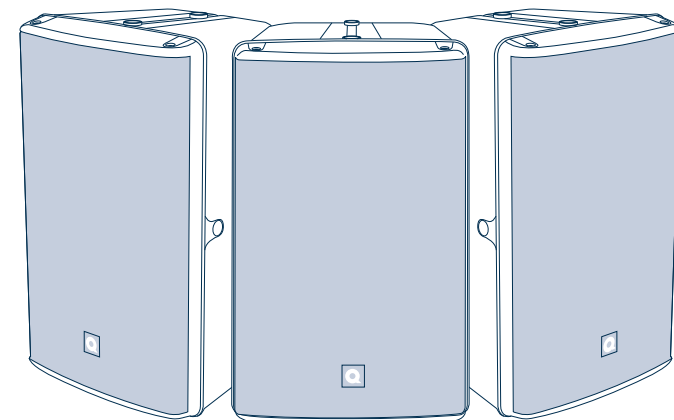
When very high output or broad coverage is required, it is common practice to assemble an array of speakers together.

In a flown horizontal array of high/mid configured speakers, best results are obtained by angling the boxes apart slightly at the front of the array while the rear of the boxes must be together on the same vertical plane.

The purpose is to minimise phase shift and interference effects between the boxes. If two boxes are directing acoustic energy into the same coverage area, loss of smooth frequency response will result. This is called "lobing" as "fingers" of both frequency peaks and dips spread out across the coverage area, especially at the area where the signal from the overlapping coverage converges.



QSA 200i Array



10 SPECIFICATIONS

Quest QSA 200i: Specifications	
Frequency Range -3dB	70 - 20 kHz
HF Coverage Angle	90° x 45° Revolving horn flare
Max SPL	123 dB (C weighted)
Amplifier Power	HF 50 Watts LF 100 Watts
Transducer	1x ¾-inch Compression driver 1x 8-inch Long coil bass driver
Enclosure	Injection molded plastic
Protective Grill	Perforated steel acoustic foam covering
Input Connections	2 channels XLR in XLR through out
Dimensions	250mm (10") x 240mm (9.5") x 430mm (17")
Net Weight	8 kg
Installation Options	365mm pole mount WBFS-8 wall bracket/floor stand WBU8i wall bracket through 6mm insert bolts

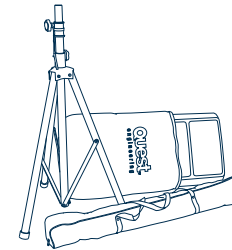
Product features

- Two-channel independent XLR mic/line inputs
- XLR line out with mix add function
- Long lasting heavy-duty Quest speaker components
- Uniform high frequency coverage with custom designed rotating HF wave-guide
- Great sonic performance through analogue engine signal processing
- Micro fan cooled multi way power amplifiers
- Steel protective full front grill

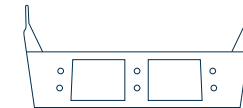
\* All specifications are correct at time of printing, Quest Engineering reserves the right to change specifications at any time and won't be held responsible for any typographic errors in this publication.

Accessories Essentials for your QSA	
QB200i	Protective nylon speak bag
QSSAL	Heavy duty aluminium speaker stand with carry bag
WBU8i	U wall bracket to suit QSA200i & QS/150
WBFJ8	Wall bracket / foldback adaptor

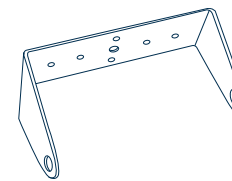
11 ACCESSORIES



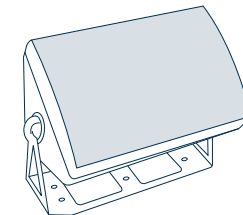
QB200i & QSSAL



WBFJ8



WBU8i



WBFJ8 with QSA200i attached



[www.questaudio.net](http://www.questaudio.net)