

Qmotion

quest
engineering

MODEL: QM 100P



User Manual

Qmotion

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Safety Precautions

- Be sure to read the instructions in this section carefully before use.
- Make sure you observe the instructions in this manual as the conventions of safety symbols and messages are very important.
- We also recommend you keep this instruction manual handy for future reference.

Safety Symbol and Message Conventions

Safety symbols described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of any risks.



WARNING

Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.



CAUTION

Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.



WARNING

When Installing the Unit

- Do not expose the unit to rain or an environment where it may be splashed by water or other liquids, as doing so may result in fire or electric shock.
- Use the unit only with the voltage specified on the unit. Using a voltage higher than that which is specified may result in fire or electric shock.
- Do not cut, kink, otherwise damage nor modify the power supply cord. In addition, avoid using the power cord in close proximity to heaters, and never place heavy objects -- including the unit itself -- on the power cord, as doing so may result in fire or electric shock.
- Be sure to replace the unit's terminal cover after connection completion. Because high voltage is applied to the speaker terminals, never touch these terminals to avoid electric shock.
- Install in a well ventilated equipment rack away from heat sources.

When the Unit is in Use

- Should the following irregularity be found during use, immediately switch off the power, disconnect the power supply plug from the AC outlet and contact your nearest Quest dealer. Make no further attempt to operate the unit in this condition as this may cause fire or electric shock.
 - If you detect smoke or a strange smell coming from the unit.
 - If water or any metallic object gets into the unit
 - If protect lights are illuminated or the clip lights stay on for more than one second
 - If the power supply cord is damaged (exposure of the core, disconnection, etc.)
- To prevent a fire or electric shock, never open the unit case as there are high voltage components inside the unit. Refer all servicing to your nearest Quest dealer.
- Do not place cups, bowls, or other containers of liquid or metallic objects on top of the unit. If they accidentally spill into the unit, this may cause a fire or electric shock.
- Do not insert nor drop metallic objects or flammable materials in the ventilation slots of the unit's cover, as this may result in fire or electric shock.

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CAUTION

When Installing the Unit

- Never plug in nor remove the power supply plug with wet hands, as doing so may cause electric shock.
- When unplugging the power supply cord, be sure to grasp the power supply plug; never pull on the cord itself. Operating the unit with a damaged power supply cord may cause a fire or electric shock.
- When moving the unit, be sure to remove its power supply cord from the wall outlet. Moving the unit with the power cord connected to the outlet may cause damage to the power cord, resulting in fire or electric shock. When removing the power cord, be sure to hold its plug to pull.
- Do not block the ventilation slots front intake or rear hot air outlet. Doing so may cause heat to build up inside the unit and result in fire.
- Avoid installing the unit in humid or dusty locations, in locations exposed to direct sunlight, near heaters, or in locations generating sooty smoke or steam as doing otherwise may result in fire or electric shock.

When the Unit is in Use

- Do not place heavy objects on the unit as this may cause it to fall or break which may result in personal injury and/or property damage. In addition, the object itself may fall off and cause injury and/or damage.
- Make sure that the volume control is set to minimum position before power is switched on. The possibility of loud noise produced at high volume when power is switched on can impair hearing.
- Do not operate the unit for an extended period of time with the sound distorting. This is an indication of a malfunction, which in turn can cause heat to generate and result in a fire.
- Contact your dealer as to cleaning. If dust is allowed to accumulate in the unit over a long period of time, a fire or damage to the unit may result.
- If dust accumulates on the power supply plug or in the wall AC outlet, a fire may result. Clean it periodically. In addition, insert the plug in the wall outlet securely.
- Switch off the power, and unplug the power supply plug from the AC outlet for safety purposes when cleaning or leaving the unit unused for 10 days or more. Doing otherwise may cause a fire or electric shock.



An all-pole mains switch with a contact separation of at least 3mm in each pole shall be incorporated in the electrical installation of the building.

General Description

The compact QM 1000P amplifier is a 2-way stereo combination sub bass and satellite composite amplifier powered with three internal amplifiers. It can power up to four satellite speakers and two sub bass boxes.

It is designed as a complete multi-way amplifier package for mobile live sound and permanent installation venues. The QM 1000P is a compact alternative to the size, bulk and expense of a conventional multiple amplifier rack and system controller where a full range system of medium power is required.

Connect almost any combination or type of speaker

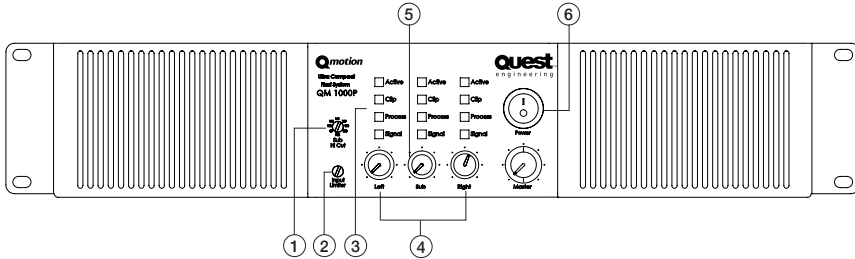
Almost any combination or style of satellite or sub bass speakers can be connected and function well with the QM 1000P amplifier. User adjustable high and low pass filter networks and a master limiter allow for a variety of speaker box options and for a variety of live and installed sound applications. The adjustable master output limiter can be set to protect lower powered speakers if the owner wishes to use an alternative speaker combination. Each internal amplifier is also equipped with soft knee clipping protection as an extra precaution.

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Your choice of QM series speakers

The ideal combination for the QM 1000P is a pair of QM600S 15" sub bass boxes and two or four QM108 or QM10DC speakers. The QS150/230/300i speakers will also function well with the QM 1000P and the satellite amplifiers can be switched to full range operation for 12" and 15" speakers.

Front Panel Layout



1. Sub bass high cut

This control can be used to change the bass crossover frequency from 80 Hz to 200 Hz. For deep sub bass response select 80 – 100Hz.

2. Limiter control

The threshold level where system limiting begins is adjustable This can be set to protect low power handling speakers or as a max SPL adjustment when noise level needs to be limited for environmental reason.

3. Status indicators

Signal presence, clip/compression and power indicators. The QM 1000P soft knee limiting will prevent severe amplifier clipping, but when a mixer signal source is driven into severe distortion, some audible amplifier clipping may result.

4. Satellite volume level controls

L + R input and sub bass volume controls drive to the satellite and bass amplifiers outputs

5. Sub Volume

Volume control for the internal 950 watt (4Ω) mono sub bass amplifier. When used in conjunction with the Master L&R input, a balance between the low frequencies of the sub bass and the mid high output from the satellite speakers can be optimised for the venue and the music source.

6. Power on/off

Note:

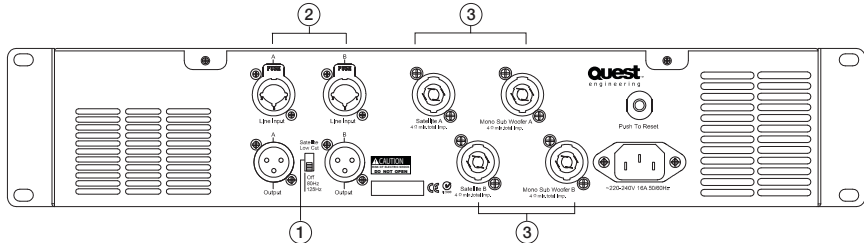
For tuning and adjusting the bass sound, set high Cut for adjustment of the upper bass cross-over frequency for the Sub bass amplifier set to below 100 Hz for low bass, above 125 for a higher range of bass frequencies.

Subwoofer volume:

To control sub bass volume level. By increasing input volume and adjusting subwoofer volume, a balance the satellite speakers and the sub bass can be achieved.



Rear Panel Layout



1. Satellite high pass crossover

The satellite speakers can be powered with full range signal or a cross-over to sub frequency of 80Hz or 120Hz can be selected. For 8" speakers, 120Hz is suggested. 10"-12" speakers 80Hz will be preferable and high powered 12" or 15" speakers can be full range or as the installation requires.

2. Inputs

Connect signal leads from your mixer (master left/right, line out, to the balanced inputs using XLR mic leads. XLR connectors to be wired as follows: 1 ground, 2 +, 3 -.

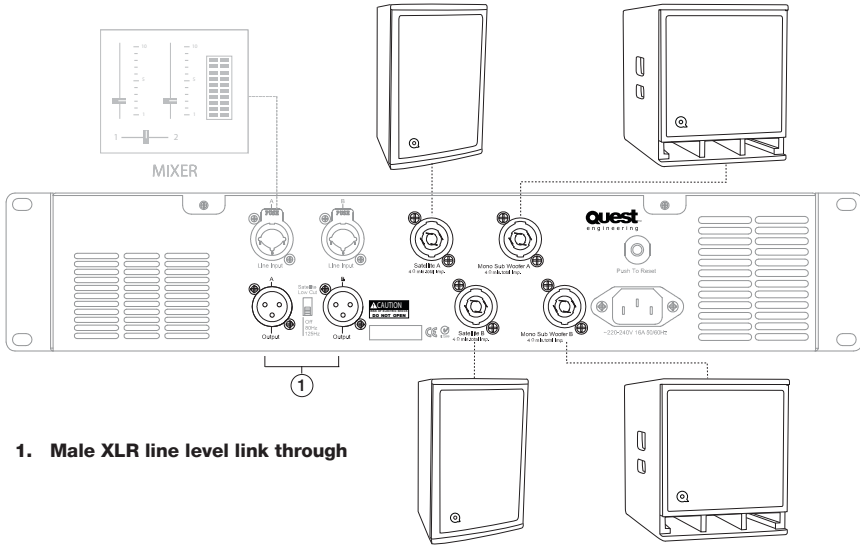
3. Outputs

Speaker output connectors on rear wired L&R pin 1+ pin1-. Neutric NL4 or NL2 connectors are recommended. The total impedance per output should not be below 4Ω (Ohms) (3.7Ω DC resistance). **2 x 8Ω satellite speakers and 1 x 8Ω bass speakers can be connected per amplifier output.**

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Connections Block Diagram

One amplifier connected to 2 x 8Ω subs and 2 full range boxes per L&R channel



1. Male XLR line level link through

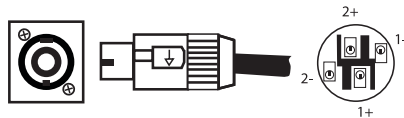
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WARNING

- Connect a maximum of two 8Ω sub bass boxes. Maximum load to the bass amplifier must not be lower than 4Ω.
- Two 8Ω speaker boxes will have a combined impedances of 4Ω. If the sub bass box is a 4Ω sub bass, only one sub box can be connected.

Speakon Input and Output Connector Wiring



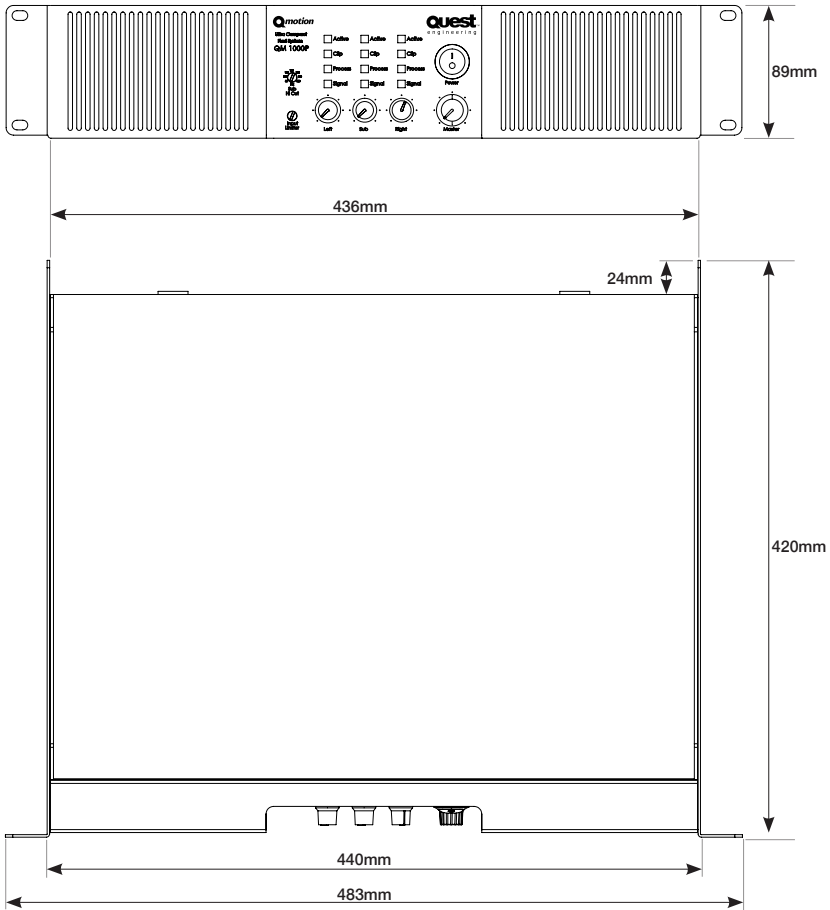
Specifications

	Test condition	Satellite amplifier	SUB Woofer amplifier
Power Output *	8Ω	2 x 210W	1 x 610W
	4Ω	2 x 350W	1 x 940W
Frequency response	+0/-0.3dB, @1W/8Ω	20----20KHz	20---300
Distortion	Rated power -10db	<=0.05%	<=0.05%
Intermodulation Distortion	60Hz&7KHz/4:1	<=0.05%	<=0.05%
Damping factor	200Hz at 8Ω	>=300	>=300
Sensitivity	Rated power 8Ω	0.775V	0.775V
Input Impedance	Balance/unbalance	20K/10K	
S/N ratio	A Weight	>106dB	
Cross talk	A Weight	>60dB	
Slew rate		>25V/uS	>25V/uS
Sensitivity		0.775V	0.775V
Satellite LOWCUT		Off,80,125Hz	
SUB HICUT			80----200HZ
Protection	Short circuit protection	DC protection	Over current protection
Dimensions (H x W x D)	89mm x 483mm x 420mm		
Weight (Net)	17.8kg		

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* **Power output** specifications will vary depending on power supply. Recommended power range 220V - 240V. Power rating tests performed at 240V. Tests at lower voltage (220v) will have a small reduction on output power

Dimensional Diagram



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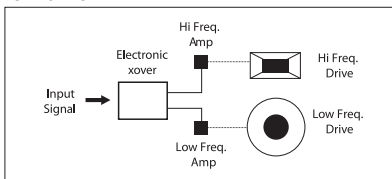
Glossary

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.

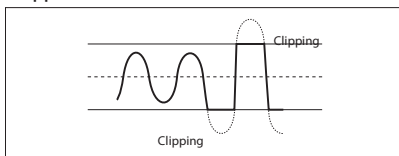
POWER AMPLIFIER: Boosts the signal enough so it can be reproduced by a loudspeaker.

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.

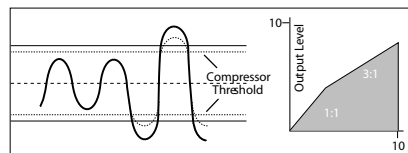
CLIPPING: Distortion that is caused by having too much signal at an input causing the amplifier to overload. It is called clipping because it will cause a smooth wave to be cut off at the peak of the wave. In other words, "clipped"



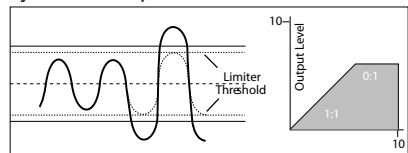
GAIN STRUCTURE: The relationship of input levels to output levels in a signal chain. An example of incorrect gain structure is when a mixer is turned up to the point of

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.

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Operating Tips

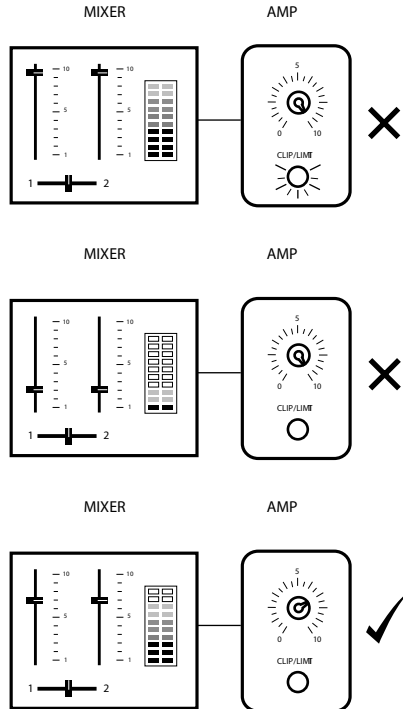
To avoid overloading the pre-amp inputs, always operate the master volume at a high level and control the volume from the input volume. The ideal situation is to have all the components of the audio chain operating at the same operational range.

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.



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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

REGISTER ONLINE:

www.questaudio.net/registration

quest[™]
engineering

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