



# S7R

SELF-POWERED  
REFERENCE  
MONITORING

OWNER'S MANUAL

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## 1. INTRODUCTION

Thank you for purchasing this Quested monitor. At Quested, our ethos is to provide Reference Monitoring, hand constructed using matched components and tested to our high standards. If you take time and care in positioning and aligning the system, you will appreciate why Quested monitors have a reputation for faithful reproduction covering the entire audible spectrum. They are professional monitors, and therefore are not designed to flatter but faithfully reproduce. Please take care to maintain the system and it will give you many years of service. You will also be assured the best possible performance and long term reliability of your system.

Please read this manual, which we have kept as concise as possible, it really will help you and covers important safety considerations.

The **S7R** is a self-powered, 2-way active monitor. Its 190w of linear class A-B amplification makes it an ideal choice where space is at a premium. Typical applications include near-field monitoring for recording/mixing, post production suites, broadcast and surround sound. The high power output enables the monitors to be used where high monitoring levels are required and in applications such as location work, when powerful, yet portable monitors are essential. The compact size allows for ease of placement of three or more units for LCR and multi-channel applications.

If you find that further bass extension is required in a system composed of **S7R**, the low end performance can be further extended by combining it with our **SB10R** sub bass system. The two products make an ideal combination and extend the frequency response down to 20 Hz.

The **SB10R** is the model to choose if setting up a multi-channel system. This model is shipped with a Remote Power bass management controller that will correctly process the low frequency information from the LCR and surround channels, as well as handle the LFE channel. The **SB10R** is suitable for all surround systems 5.1, 6.1, 7.1, Dolby, DTS etc. and provides a range of facilities to aid tuning of a multi-channel system to the room in which it is being used.

## 2 SAFETY CONSIDERATION

### 2.1 General

Before proceeding to connect your Quested monitor to the AC power supply, please read the following safety information:-

**CAUTION:**        **RISK OF ELECTRICAL SHOCK. REFER SERVICING TO QUALIFIED PERSONNEL THE POWER CORD MUST ALWAYS BE REMOVED BEFORE THE AMPLIFIER IS DISMANTLED.**

**WARNING:**       **TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

**WARNING:**       **THIS APPLIANCE MUST BE EARTHED.**

The cores in the supplied mains lead are colour coded in accordance with the following code:

|                   |         |
|-------------------|---------|
| Green and Yellow: | Earth   |
| Blue:             | Neutral |
| Brown:            | Live    |

As the colours of these wires may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire, which is coloured green and yellow, must be connected to the terminal in the plug, which is marked with the letter 'E' or by the earth symbol, or coloured green and yellow.

The wire, which is coloured blue, must be connected to the terminal in the plug which is marked with the letter 'N' or coloured black.

The wire, which is coloured brown, must be connected to the terminal in the plug which is marked with the letter 'L' or coloured red.

**NOTE:** For certain countries the power cord will be supplied with an integral moulded plug to satisfy national safety standards.

**CAUTION:** THE REAR PANEL OF THE S7R IS PART OF THE HEAT SINKING ARRANGEMENTS AND WILL BECOME WARM.

**CAUTION:** THIS UNIT IS FULLY SHIELDED, BUT IT DOES CONTAIN MAGNETIC COMPONENTS, WHICH CAN AFFECT ADJACENT SENSITIVE EQUIPMENT.

## 2.2 Hearing damage

This equipment can deliver sound pressure levels in excess of 100dB. At this level permanent hearing damage can occur and exposure to this level of sound, even for relatively short periods (see table below), can be harmful. Of equal importance to the maximum level of sound is the exposure to high levels of sound for extended periods. There are no internationally agreed limits and different countries have different limits, which are measured in differing ways. IT IS THEREFORE IMPORTANT THAT THE USER ESTABLISHES THE RECOMMENDED, AND IN SOME TERRITORIES, LEGAL LIMITS WHICH ARE IN PLACE.

As a guide the table below shows the levels that are acceptable in the majority of Western Europe, the US and Canada.

| dB(A)        | Listening time per day |
|--------------|------------------------|
| 90           | 8 hours                |
| 95           | 2.4 hours              |
| 100          | 40 minutes             |
| 105          | 15 minutes             |
| 110          | 5 minutes              |
| 115 and over | Not at all             |

It is also important to note that the effect of exposure to sound is cumulative. Having listened to sound, for example for 15 minutes at 105dB, then further exposure to noise levels above 80dB should be avoided until the next day.

## 3 UNPACKING

This Quested product has been carefully manufactured, tested and packed to ensure that it arrives in a flawless condition. The component parts of the packing have been thoughtfully designed to offer sufficient protection during transportation, yet remain fully recyclable and should be retained for future use. Also included in a separate bag will be the appropriate power cord for your country.

## 4 INSTALLATION

### 4.1 Positioning

The **S7R** is designed to be mounted vertically and will also function if turned on its side. However it should be noted that there will be a reduction in its thermal performance of up to 25% if positioned horizontally. See section 5.2 Thermal for implications.

The **S7R** is tolerant of a variety of mounting positions including stand, shelf, table or wall mounting. Whichever way is chosen, the support should be rigid and must not vibrate when the monitor is driven. Vibrations will result in lack of low frequency definition. The optimum location for the monitors within a room is best determined by experimenting and placing the speaker in a variety of positions. The shape of the room, normal listening position and room treatment will all have an effect on determining the speakers' final positioning.

### 4.2 Grill

The **S7R** has the option of a cloth grill, which will offer some protection to the tweeter and bass driver. It is not designed to protect the speakers during transit and it is recommended that the original packing should be retained for this purpose. Like all types of speaker protection or covering, the grill makes a small difference to the HF acoustic performance, which, for the majority of users, will not be noticeable.

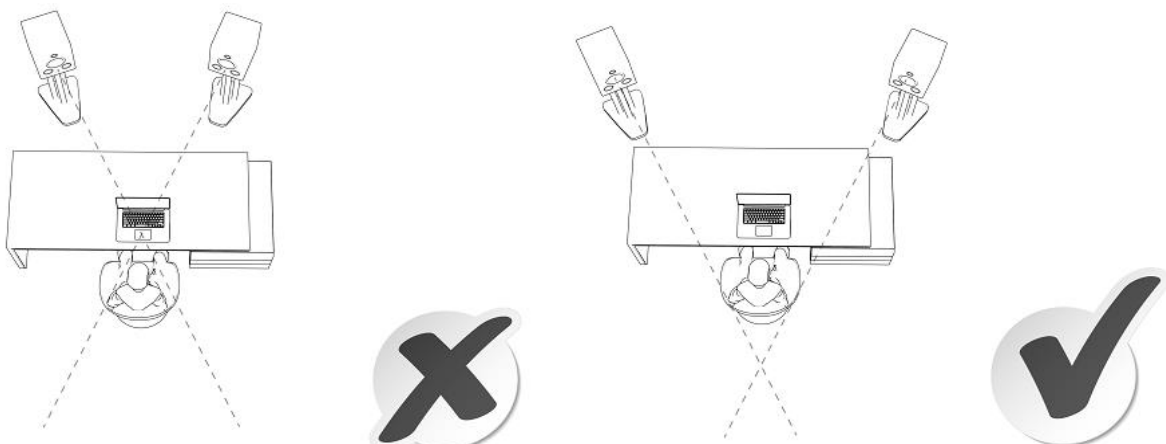
### 4.3 Aligning Speakers

The speakers should be positioned so that the axis (an imaginary line drawn from the acoustic centre of the left and right monitor) should cross between 0.5 and 1 metre behind the engineer's ear position, for the following reasons:-

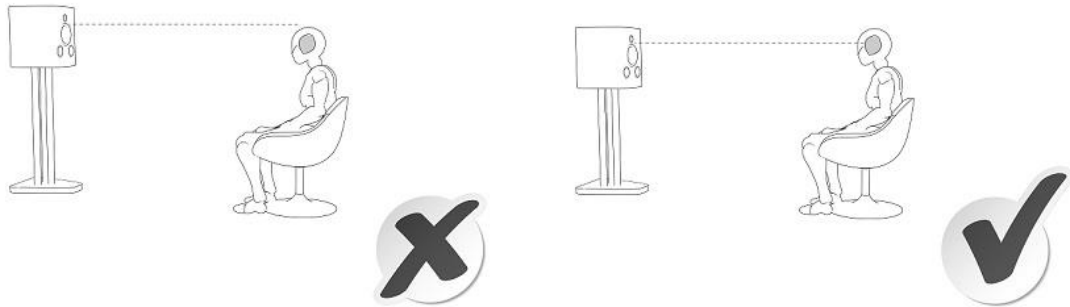
- a) To obtain the most accurate imaging, both front to rear and side to side and also to achieve as large a listening area as possible so that the engineer can move and operate the console without perceiving a change in character of the monitors.
- b) To enable listening for long periods of time without suffering strain or fatigue.

**For details of positioning and aligning the speakers for multi-channel systems such as 5.1, 7.1 etc. See the detailed instructions contained in the SB10R series sub-woofer user manual.**

Below is a sketch showing positioning of speakers. The **S7R** is suitable for a wide variety of applications, therefore the distance apart may range from less than 1 m to 3 m. However, the principle of the triangle and the axis of the 2 speakers crossing behind the listening position remains.



The height and angle of mounting the speaker is equally as important. The correct height and angle should result in the axis being at ear level when the engineer is sitting in his/her normal position at the console.



#### 4.4 Wall Mounting/Stand Mounting

The **S7R** has built in mounting points that are located on the base of the cabinet and are suitable for our wall mount brackets (part no. WB100) and also Quested STS stands. The position of the mounting points are indicated on the line drawing on page 13 of this manual. **BRACKET MOUNTING OF ANY HEAVY SPEAKER INVOLVES SERIOUS SAFETY ISSUES. IT IS IMPORTANT TO FOLLOW THESE GUIDELINES CAREFULLY AND TO READ THE INSTRUCTIONS THAT ACCOMPANY THE MOUNTING HARDWARE.**

When fixing the mounting plate to the loudspeaker:

- The bolt length must always penetrate at least 20 mm into the cabinet base. Our brackets and stands come with the correct bolts to attach the mounting plate or stand top plate to the base of the associated cabinet.
- Always use locking washers and thread lock compound.
- Always use all of the bolts supplied.
- Because the cabinet is a source of vibration, the bolts must be properly tightened, but caution must be exercised as over-tightening could damage the case. Always tighten the bolts a little at a time in order to spread the stress over the area of the mounting plate. If a torque wrench is available the recommended final torque is 6 Nm. A 200 mm (8") spanner will achieve the appropriate torque without needing hard work.
- If a WB bracket is being used **USE CAUTION WHEN ORIENTATING THE S8R AT SHARP DOWNWARDS ANGLES OF MORE THAN 30°. THE CENTRE OF GRAVITY IS MOVED FORWARD CAUSING HIGH BENDING TORQUE AT THE WALL PLATE JOIN AND THE CABINET FIXING POINTS (IF IN DOUBT ASK.)**
- The cabinet may safely be suspended upside down from a ceiling or top mounted bracket. Please contact Quested for further information on ceiling mounting.

**IT IS THE RESPONSIBILITY OF THE OWNER TO ENSURE THAT THE BUILDING STRUCTURE AND WALL/CEILING FIXTURES ARE STRONG ENOUGH TO SAFELY BEAR THE IMPOSED LOAD.**

The mounting plate holes are sealed by M6 x 16mm nylon countersunk machine screws. These will need to be removed before the cabinet can be screwed onto the mounting bracket.

**THESE NYLON SCREWS SHOULD NOT BE USED TO MOUNT THE CABINET, THEY ARE NOT OF SUFFICIENT STRENGTH. A STEEL MACHINE SCREW OF AT LEAST 25 mm IN LENGTH SHOULD BE USED FOR THIS PURPOSE.** If the **S7R** is subsequently removed from the bracket, the mounting holes will need to be re-sealed using the nylon screws or some other suitable sealant.

## 4.5 Electrical Connection

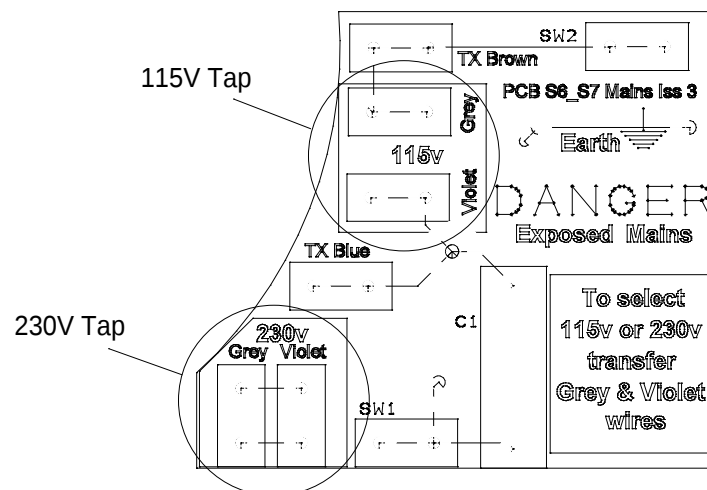
### 4.5.1 Safety Earthing

This product has been designed to comply with international safety standards. It is essential that the green/yellow core of the mains cable, or the ground pin of a 3-pin moulded plug, is connected to the electrical installations safety earth or ground. It is internally connected to all exposed metal surfaces and it is essential for personal safety as well as proper operation of the product. The audio signal in-put is electronically balanced and does not need the disconnection of any safety earth for the avoidance of hum loops.

### 4.5.2 Voltage Setting

The set voltage is indicated on the rear panel of the unit, adjacent to the IEC inlet connector. At this setting there is an acceptable tolerance over which the performance of the unit will continue to meet its specifications. (See power requirements on page 12 of his manual.) For the 230V setting this is 160V to 255V and for the 115V setting it is 80V to 127V. If the unit is connected to voltages in excess of its maximum, damage is likely to occur which may not be recoverable from without qualified service attention.

To change the set voltage, the amp must be removed from the speaker. The power and signal cables must be disconnected before continuing. Remove the 6 x M4 socket screws from the left and right hand side edges of the amplifier. Carefully remove the back-panel and you will see 4 wires and one 3-way cable form connecting to the amplifier with various connectors. Note the orientation and position of them all and then disconnect. If you look at the amplifier, you will see a PCB mounted on the rear of the IEC inlet connector. Marked on the PCB you will see the 2 terminals marked with the set voltage (see diagram). Locate and move the connectors to the other voltage tap, noting that the coloured wires correspond with the printing on the PCB. Reconnect the wires from the cabinet to the amplifier and replace the amplifier using the 6 bolts. You must now change the fuse located in the IEC inlet socket for the correct one as indicated on the back panel. IT IS IMPORTANT THAT YOU NOW MARK THE REAR OF THE UNIT WITH THE NEW SET VOLTAGE.



### 4.5.3 Fuse Setting

It is very unlikely the fuse will fail during normal use, but should this occur the situation must be approached with some caution. Check that the mains voltage setting is correct for your installation supply and that the original fuse was the correct rating. (See 9.2 Spares) The fuse may blow if the unit is subjected to mains power surges or spikes, or if the mains wiring has any poor or faulty connections, in which case a qualified electrician should be consulted. Very occasionally a fuse can become degraded after many years of service and simply replacing it with a new one will restore the system.

The fuse is housed in a unit integral with the IEC inlet connector (see rear panel drawing page of this manual). To gain access to the fuse remove the power cord and unclip the fuse carrier using a flat blade. A spare fuse of the correct rating is also provided within the same carrier. If none of the above is the cause of the fault it is likely that the unit has suffered an internal component failure and will need returning to a qualified agent for servicing **IF THE REPLACEMENT FUSE SHOULD FAIL DISCONNECT FROM THE MAINS IMMEDIATELY AND HAVE THE UNIT PROFESSIONALLY REPAIRED BEFORE ATTEMPTING TO USE IT.**

#### 4.6 Audio Connections

The audio signal input is RF filtered and electronically balanced to ensure a high level of rejection for common mode interference signals and to give a professional connection to external equipment. It is essential for optimal use of these specifications that a professional grade balanced two-core screened cable is used.

##### Source Balanced Pin 2 hot

In accordance with international standards, 3-pin XLR style input connectors are used, with pin 2 being designated the 'in-phase' or 'hot' terminal and pin 3, the 'out of phase' or 'cold' terminal. Pin 1 is connected to the chassis ground and **must** be connected to the screen of the audio interconnecting cable. This is necessary to ensure proper compliance with European Standards for Electromagnetic Compatibility. Pin 1 carries no signal voltages or currents and is provided purely for screening purposes. It should not be connected to either pin 2 or pin 3.

##### Source Unbalanced Pin 2 Hot

If the equipment providing the audio signal has an unbalanced output, then the interconnecting audio cable should be wired so that the hot output of the source is connected to pin 2 of speaker input XLR and the ground of the source connected to pin 3. The screen of the interconnecting audio cable should be connected to pin 1 of the input connector *only*. **There must be no connection between the ground connection of the unbalanced output and the pin 1 ground connection of the input connector.**

##### Source Unbalanced Phono

If the source output is a phono socket, then the centre pin of the phono plug should be wired to pin 2 of the speaker input XLR and the outer phono casing to pin 3. The wire from pin 1 of the XLR will not be connected to the terminals of the phono plug. Strict adherence to this will help to eliminate ground loop hums and RF break through.

## 5 OPERATIONAL CONSIDERATION

### 5.1 Mains On-Off Switching

On-Off switching is provided by a rocker switch on the rear panel. Intelligent circuitry ensures noiseless power-on and power-off.

### 5.2 Thermal

The output devices of the internal power amplifiers are mounted onto an internal heatsink, which heats up and reaches temperatures well above that of ambient. The design is such that no forced cooling is necessary, provided sufficient free space can be maintained around the cabinet to allow the air to circulate freely. The internal circuitry monitors temperature to maintain its safe operating area. Should this detect unsafe temperatures, output is muted to protect the amplifier. You will need to turn the unit off and on to reset the protection. This will only work if the amplifiers temperature has fallen within its safe working threshold.

### 5.3 Front Panel Indicators

A multi-function LED is mounted behind the LOGO badge on the front of the cabinet. On initial power-up the LED will flash green this indicates that the amplifier is warming up. The LED will be continuously green when the amplifier has warmed up and is ready for normal operation. The LED will flicker red with music peaks to indicate that the amplifier is 2db under clip. The clip indication should be used as a guide that the amplifier is approaching clip, which should be avoided for audible integrity. If the amplifier detects a fault or over heats the LED will be continuously red. If the amplifier has over heated and the LED has turned red refer to section 5.2 Thermal.

### 5.4 Signal Level

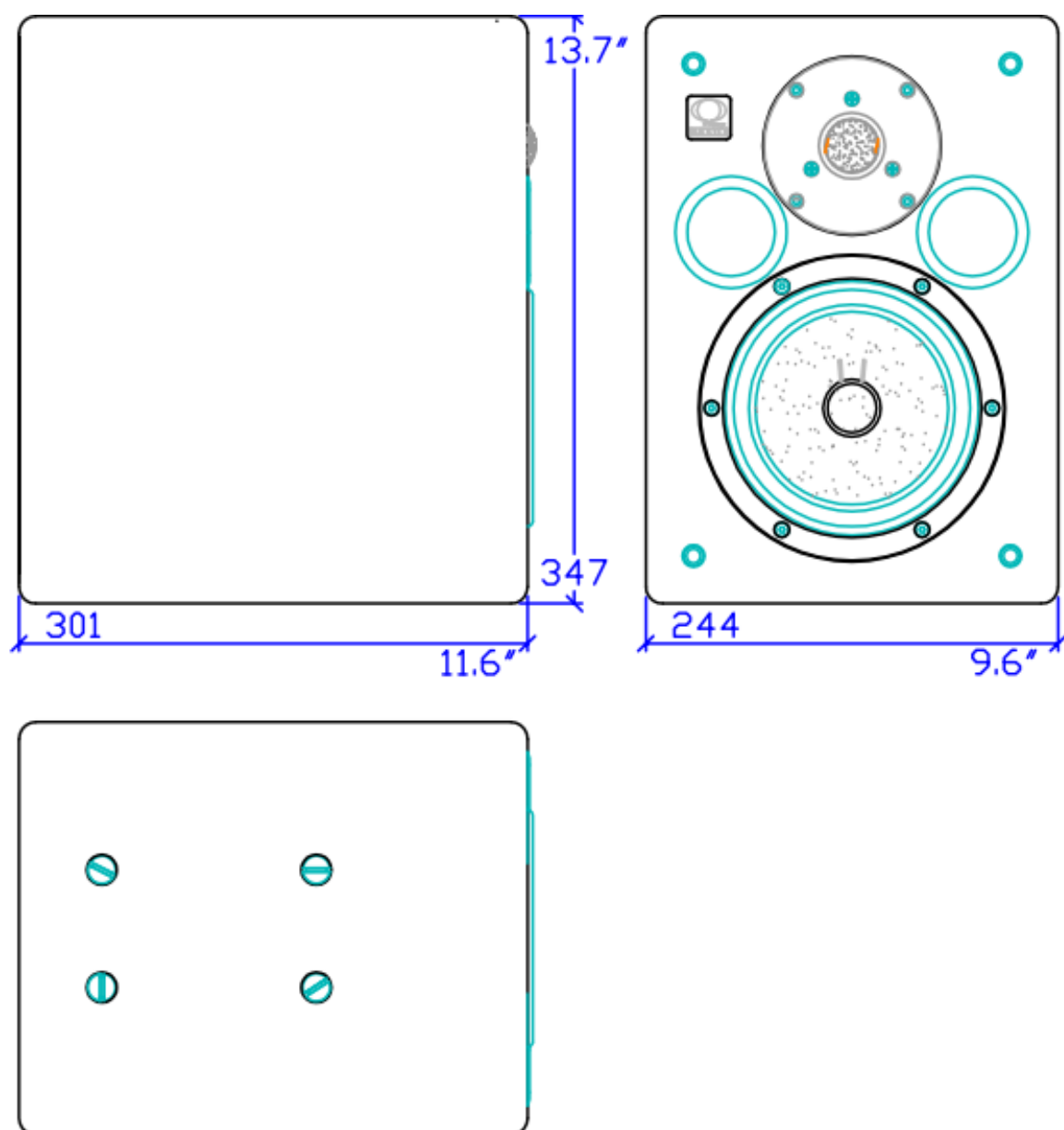
Input sensitivity can be adjusted with the ten position rotary switch recessed in the rear panel by using a flat bladed screwdriver. The control has an 18dB range in 2dB steps and accurately sets the SPL level for a known input signal level. With the switch set at the 0dB position, 0dBu of pink noise will produce 96dB SPL at 1 meter.

### 5.5 Contour Selectors

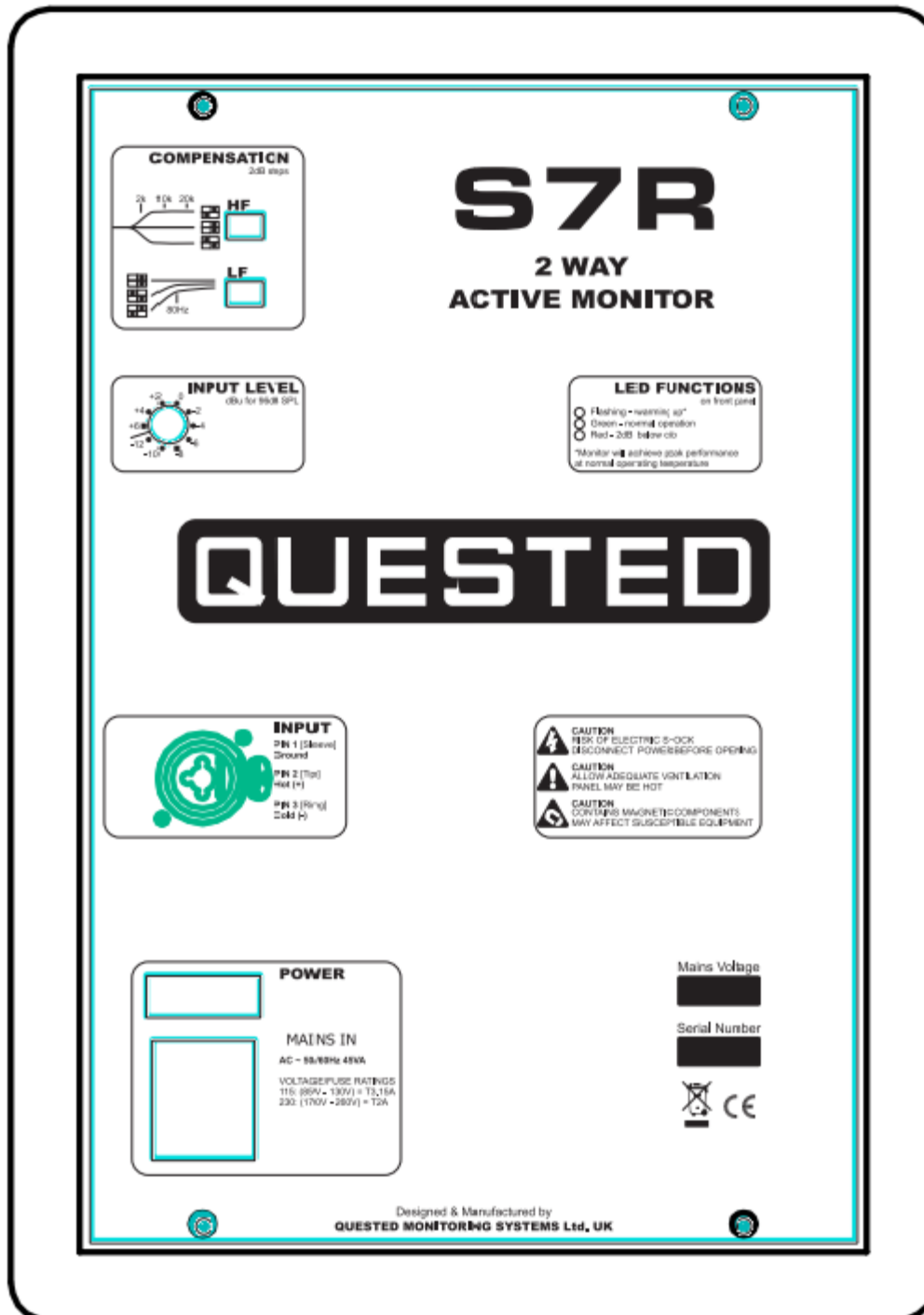
There are two switch groups that control the HF and LF contour settings. These can be used to adjust for room conditions or personal preference. The nominal flat position is indicated with a flat line. **The speaker will only operate correctly if the switches are in one of the positions shown on the rear panel.**

## 6 S7R TECHNICAL INFORMATION

### 6.1 Cabinet Line Drawing



## 6.2 Rear Panel Detail



### 6.3 Specification

|                     |                                                                                |
|---------------------|--------------------------------------------------------------------------------|
| Dimensions:         | 244(w) x 347(h) x 302(d) mm                                                    |
| Weight:             | 11.7 kgs                                                                       |
| Drivers:            | Bass cone – 1 x 165 mm (6 ½ ")<br>High Frequency soft dome – 1 x 28 mm (1 ⅛")  |
| Maximum SPL:        | 105 dB continuous pink noise @ 1m                                              |
| Frequency Response: | 68 Hz-20 kHz ± 2 dB                                                            |
| Connector:          | XLR and ¼ inch Jack combo socket                                               |
| Impedance:          | 10k $\Omega$ electronically balanced with RF filters                           |
| Wiring:             | Pin 1 ground    Sleeve<br>Pin 2 hot        Tip<br>Pin 3 cold       Ring        |
| Sensitivity:        | -12 dBu to +6 dBu for 96 dB SPL @ 1 m set by 10 position rotary switch on rear |
| Subsonic:           | -3dB @ 30 Hz, 24dB/oct                                                         |
| Ultrasonic:         | -3dB @ 75kHz, 24dB/oct                                                         |
| Crossover:          | 1k19                                                                           |
| LF EQ:              | -2/-4 @ 65 Hz                                                                  |
| HF EQ:              | +/- 2dB @ 10 kHz                                                               |

#### POWER AMPLIFIER

|                  |                                                                         |
|------------------|-------------------------------------------------------------------------|
| LF Output Power: | 120W RMS continuous (note 1)                                            |
| HF Output Power: | 70W RMS continuous (note 1)                                             |
| THD:             | 0.03% at levels up to 1 dB below clip, 20 Hz-20 kHz. Typ 0.005% @ 1kHz. |
| Hum & Noise:     | -100 dB referred to clip                                                |

#### NOTE 1:

The continuous rating is for a period not exceeding 5 minutes with unrestricted airflow (100 mm clearance) around the amplifier heatsinks and an ambient temperature not exceeding 30°C.

#### INDICATORS

|           |                                                  |
|-----------|--------------------------------------------------|
| Power On: | Front mounted green LED indicates power applied. |
| Clip:     | Red LED 2 dB before amplifier clip.              |

#### POWER REQUIREMENTS

|          |                                                                                                                                                                                    |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Voltage: | Set by internal plugs: nominal 115V or 230V @ 50-60 Hz AC<br>230V setting: min 160V; restricted output power: max 255V<br>115V setting: min 80V; restricted output power: max 127V |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### CONSUMPTION

|              |                      |
|--------------|----------------------|
| Quiescent:   | 18W                  |
| Typical use: | 75W (average music)  |
| Max:         | 140W (average music) |

**Note:** 0 dBu = 775 mV into open circuit

#### ENVIRONMENTAL CONDITIONS

|              |                                                                      |
|--------------|----------------------------------------------------------------------|
| Temperature: | Not recommended to be used in conditions above 30°C/86°F             |
| Altitude:    | Not recommended to be used in conditions above 2000m above sea level |

This product is built to conform to the requirements for CE marking.

## 7 GUARANTEE



The S7R electronics are guaranteed for 5 years from date of purchase. All other parts are guaranteed for 12 months. If any part of the product is found to be defective because of faulty manufacture within these periods, Quested, through its authorised distribution network, will effect repair or replacement, at its discretion, free of charge providing that:

- a) The fault is reported to the authorised distributor.
- b) Proof of purchase is provided.
- c) The fault is not caused by misuse, neglect, or faulty operation by the user.
- d) The fault is not a result of fair wear and tear.
- e) The equipment has not been modified in any way.
- f) The equipment has not been taken apart or tampered with in anyway other than described in the service manual for the adjustment and replacement of user accessible items.

The guarantee does not cover:

- a) Damage during transit
- b) Damage to diaphragms, cones and other speaker parts as a result of the over-driving of the monitors or by faulty installation or connection.
- c) Damage caused by incorrect installation or during installation caused by incorrect handling.
- d) The cost of carriage to or from the authorised repairer.

## 8 APPENDIX

### 8.1 **Accessories**

Black cloth grille  
Quested WB100 and CB100 wall and ceiling mount brackets  
Quested STS series stands

### 8.2 **Spares**

LS160.25 6.5" bass driver  
TW20 shielded soft dome tweeter  
RD20 replacement tweeter diaphragm  
Fuses T2A for 230v use  
Fuses T3.15A for 115v use

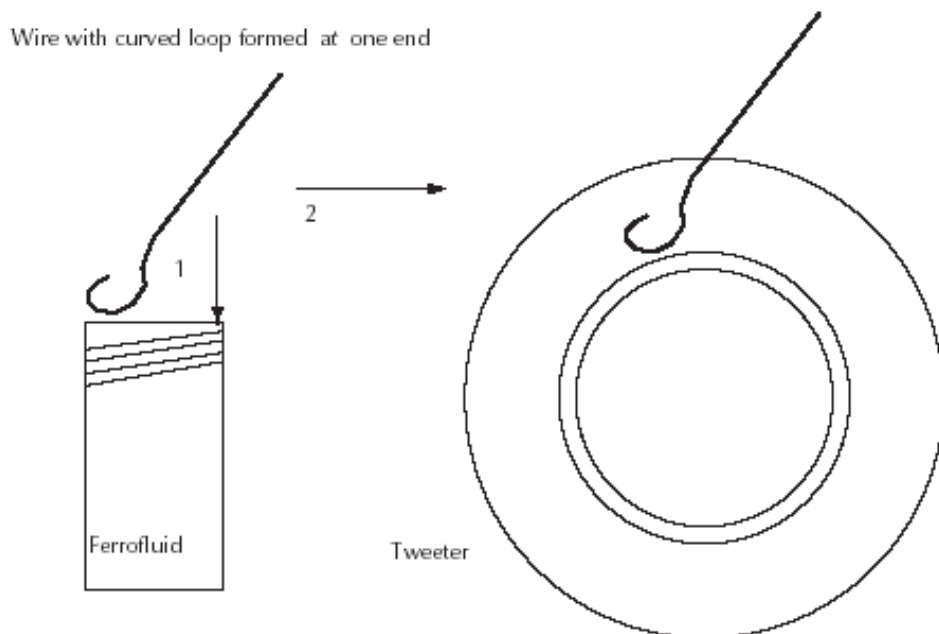
### 8.3 Driver Replacement Procedure

If it is necessary to replace the bass driver, place the cabinet on its rear and, using a 2.5mm hex head driver, remove all of the bolts. As with most objects held by a series of bolts, these bolts should initially be loosened a little, one at a time rather than each bolt being fully removed whilst the other bolts remain fully tightened.

#### Tweeter replacement procedure

The tweeter is secured by 4 x M4 machine screws. Remove these with a 2.5mm hex drive. Take out the tweeter and disconnect the two wires, noting which colour goes to which terminal. If on removing the 4 screws that hold the tweeter there is any difficulty in removing the unit, do not try to force a blade between the cabinet and tweeter, but use a small narrow bladed screwdriver in one of the screw holes to gently lever out the tweeter. If it is necessary to replace the diaphragm:

- a) Remove the 3 pozi screws on the front plate of the tweeter using a number 1 pozi driver.
- b) Remove diaphragm assembly and replace with the new diaphragm. The ferrofluid has the appearance of oil and is dark brown in colour and should cover about  $\frac{1}{3}$  of the coil. If there is less than this then additional ferrofluid should be added (generally the fluid will only need to be added after you have changed the diaphragm 2 or 3 times). This can be obtained from your dealer/distributor or directly from Quested. It should be noted that ferrofluid is best added as shown in the diagram below and not from the syringe that it is dispensed in. The fluid should never cover more than  $\frac{1}{2}$  the coil.
- c) Re-assemble when complete.



Dip wire in ferrofluid, a small amount will be retained on the wire hold wire over the tweeter gap and the magnet will attract the fluid from the wire into the gap. Do this 3 or 4 times in different position on the tweeter, then check by inserting the new diaphragm to see the amount of fluid in the tweeter.

In the event that the tweeter has been very badly blown, the voice coil may have disintegrated in the magnet assembly and will be irreparable. If this is the case, a whole new tweeter will be required.

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