

# Waterproof Marine Speaker Super Thin Series

SM – 6004



## Description:

Extremely sensitive to sound and music, Super Thin Series provides high sensitivity and high performance output units to integrate with any audio system. The loudspeaker will reproduce the professional and the smoothest music at any time. All units within the range are fully waterproof to be used in environments with high humidity and moisture. The most attractive feature, however, lies with its thinness – a mounting depth less than two inches will allow it to be installed into any place and any surface panel. As classic round style loudspeakers of different sizes, they can blend into any environment both indoor and outdoor to bring you the most comfortable music zone. UV

stabilised feature gives the units the best chance to stand against light radiation particularly in outdoor locations, such as on vessels, boats, port. Even in years after the installation, there will not be even a slightest fading in its colour.

The series provides a great freedom to clients for integration with any audio system. PA audio system, home audio system, car audio system and any other type of audio system in areas with high humidity will be inspired by this series. Applications include swimming pool areas, balcony, sauna, bathroom, food preparation area, chemical laboratories, vessels and other similar environments. Completely waterproof, resistant to UV radiation, acid, alkali, chlorine and other chemicals are exactly the qualities needed for operating in difficult and challenging environments.

<i>Features</i>	
<b>Loudspeaker type</b>	Twin cone
<b>Cone type</b>	Mica polypropylene cone
<b>Surround type</b>	Thermoplastic polyurethane
<b>Mounting type</b>	Surface mounting
<b>Fitting Mechanism</b>	Screw
<b>Colour</b>	White / black
<b>Cable type</b>	Corrosion proof silicon coated terminal wire
<b>Qualification</b>	IP 65 rating ASTM D4329 & D 2244 (600hrs UV stabilised) ASTM B117 (400hrs saltwater spray) RoHS conform (2002/95/EC) IEC-268-5 (100 hours tested)

<i>Specification</i>	
<b>Model</b>	SM-6004
<b>Loudspeaker size</b>	4" round type
<b>Loudspeaker type</b>	Twin cone
<b>Power handling RMS / MAX</b>	20 W / 40 W
<b>Average Sensitivity 1W / 1m</b>	85 ± 2 dB
<b>Maximum SPL 1m</b>	98± 2 dB/20W
<b>Frequency response</b>	90 Hz ~ 20 kHz
<b>Impedance</b>	4 Ω
<b>Operating temperature</b>	-20°C ~ 100°C
<b>Exterior diameter</b>	132 mm
<b>Installation diameter</b>	103 mm
<b>Mounting depth</b>	40 mm
<b>Weight</b>	285 g

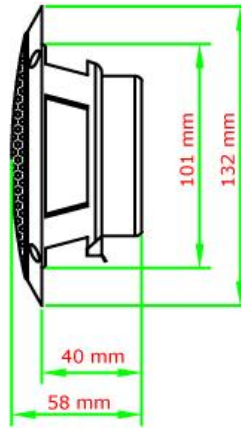


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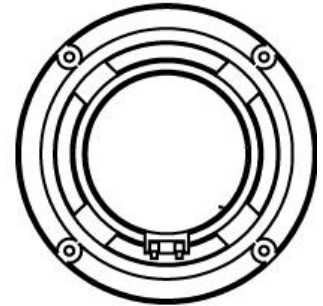
## Dimensional Diagram :



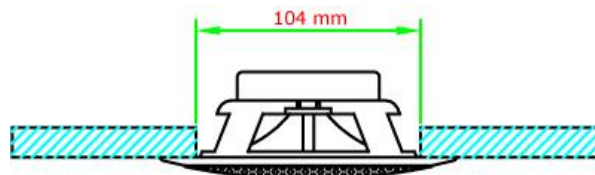
Front View



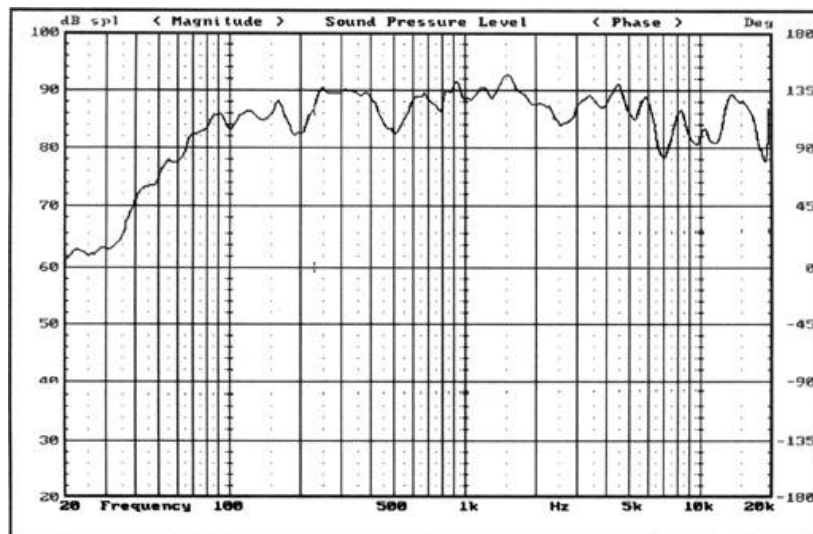
Side View



Back View



## Characteristic diagrams :



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SCIENTIFIC DESIGN SOFTWARE  
Driver Parameters From Measurement Data  
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Date: 03-31-2005  
Data for driver: SM-6004

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Entered Data as Follows:  
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Entered driver DC resistance (Re)	3.97 ohms		
Entered driver resonance frequency (Fs)	121.24 hertz		
Entered driver maximum impedance at Fs	9.26 ohms		
Entered driver F1 frequency	101.75 hertz at	6.10 ohms	
Entered driver F2 frequency	148.11 hertz at	6.10 ohms	
Calculated Square root of F1*F2	122.80 hertz		
Calculated error factor	1.30 percent		
Compliance calculated by ADDED MASS method			
Entered added mass	10.00 grams		
Entered driver new resonance frequency	56.21 hertz		
Entered driver piston diameter	90.00 mm		
Entered driver magnet gap depth	4.00 mm		
Entered driver voice coil length	4.30 mm		

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Calculated Thiele/Small Parameters:  
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Free Air Resonance (Fs)=SQR(F1*F2)	122.80 hertz		
Qts	1.7344		
Qes	3.0360		
Qms	4.05		
Equivalent acoustic compliance (Vas)	3.60 liters		
Piston area (Sd)	0.0064 square meters		
DC resistance (Re)	3.97 ohms		
Volume displacement (Vd)	6.36 ccm		
Linear displacement (Xmax)	1.00 mm		
Power handling (Pe)	TO BE ENTERED		
Coil Inductance (Le)	TO BE ENTERED		
Reference Efficiency (Ref Eff)	0.21 percent		
Efficiency Bandwidth Product (EBP)	40.45 hertz		

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Other Calculated Data:  
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Moving Mass of Diaphragm only (Mmd)	2.36 grams
Moving Mass of Diaphragm & Air Load (Mms)	2.65 grams
Mass of Air load on diaphragm (Ma)	0.29 grams
Compliance (Cms)	0.00064 m/N
BL product (BL)	1.64 N/A
Sensitivity (SPL 1w/1m)	85.24 dB



# INSTALLATION

1. Select a mounting location which will allow the speaker to lay flat and has adequate space.
2. Use the supplied template to mark the mounting holes. See Figure1.
3. Drill a starter hole in the center of the mounting hole. Using a hacksaw blade or a similar tool, cut the mount hole.
4. Drill the four  $\frac{1}{8}$ " mounting holes.
5. Connect the speaker wire to the speaker terminals and route to stereo. Be sure stripe wire is connected to the positive(+) terminal of speaker. See Figure2.
6. Slide the four U-Clips over the mounting holes and press to hold in place. See Figure3.
7. Place a bead of RTV sealant (or equivalent) around the back rim of speaker basket.
8. Secure the unit with provided screws for intergrated speakers. Or for flush-mount speakers, tighten the screws to secure the unit first before fitting the cover grille onto the speaker. See Figure 3-1.

