

# Musicaster™ 100

All-Weather Voice and  
Music Speaker System



COMMERCIAL

## General Product Description

The Musicaster™ 100 is a compact high-fidelity speaker system, conservatively rated at 60 watts and engineered for voice/music reproduction in a wide variety of applications.

Clarity and balance are produced by the Musicaster's 12-inch coaxial design incorporating a Super-Dome™ tweeter coupled to a constant-directivity, coaxial Direktor™ horn. Crossing over at 1,500 Hz, this design gives wide, even dispersion throughout the critical midrange.

The Musicaster enclosure is one-piece molded mesa tan or forest green polyethylene, and all parts of the system are both weather- and fungus-proof, providing an impervious barrier to adverse elements.

An optional transformer kit, the TK60, is available where high impedance operation is necessary, and a variety of tap-connections can be easily made.

## Architects' and Engineers' Specifications

The voice and music speaker system shall be weatherproof and consist of a 12-inch coaxial speaker combination in a self-colored one-piece molded polyethylene enclosure. It shall exhibit a 90 to 18,000 Hz frequency response with sensitivity of no less than 99 dB (1 W/1 M, 500-5,000 Hz band-limited pink noise). It will be determined capable of handling 60 watts of power by testing described in the revised EIA Standard RS-426A, and produce vertical and horizontal



beamwidths (6 dB-down included angle) of 60 degrees, deviating no more than 20 degrees from this angle over the frequency range of 1,000-10,000 Hz. The speaker system shall be 44.5 cm (17.5 in.) high by 44.5 cm (17.5 in.) wide by 21.6 cm (8.5 in.) deep, not including mounting apparatus, and weigh no more than 11.2 kg (24.6 lb).

The loudspeaker shall be the Musicaster™ 100.

## Specifications:

**Frequency Response:** ..... 90-18,000 Hz  $\pm$ 5 dB (see Figure 1)

**Power Handling, 8 Hours, 6 dB Crest Factor:**  
..... 60 watts (EIA RS-426A)

**Impedance, Nominal:** ..... 8 ohms  
**Minimum:** ..... 5.3 ohms

**Sound Pressure Level at 1 Meter, 1 Watt Averaged, Pink Noise Band-Limited from 500 to 5,000 Hz:** ..... 99 dB

**Horizontal Beamwidth:**  
..... 60° @ 2 kHz (see Figure 2)

**Vertical Beamwidth:**  
..... 60° @ 2 kHz (see Figure 2)

**Directivity Factor  $R_{\theta}$  (Q):** ..... 15.7 @ 2 kHz  
**Usable Low-Frequency Limit:** ..... 80 Hz

### Construction:

Completely sealed, one-piece molded polyethylene enclosure with molded-in all-weather mesa tan or forest green color. Weather-resistant parts with foam water shield over transducers.

Positive-lock, painted steel swivel bracket.

### Voice-Coil Diameter:

**Woofers:** ..... 5.08 cm (2.0 in.)

**Tweeters:** ..... 3.81 cm (1.5 in.)

### Magnet Weight:

**Woofers:** ..... 0.71 kg (1.56 lb)

**Tweeters:** ..... 0.28 kg (0.63 lb)

**Magnet Material:** ..... Strontium ferrite

### Flux Density:

**Woofers:** ..... 1.30 Tesla

**Tweeters:** ..... 1.25 Tesla

### Dimensions:

**Height:** ..... 44.5 cm (17.5 in.)

**Width:** ..... 44.5 cm (17.5 in.)

**Depth:** ..... 21.6 cm (8.5 in.)

**Net Weight:** ..... 11.2 kg (24.6 lb)

**Shipping Weight:** ..... 13.2 kg (29.0 lb)

## Installation

### Removing the Mounting System

For easy mounting near a wall, ceiling, post or other surface, remove the wingnuts and U-bracket from the enclosure.

### Mounting the System

Mount the U-bracket in the desired position then return the Musicaster and wingnuts to the bracket. The mounting studs will help support the unit while replacing the wingnuts. For tamper-proof mounting, the wingnuts can be replaced with standard 1/4-20 nuts.

Where the U-bracket is impractical or inconvenient, a three-point suspension system using chains, can be used. Three threaded inserts are supplied and standard 1/4-20 eyelet bolts and "s" hooks are needed. Typical mounting arrangements are shown in Fig. 4.

### Line-Transformer Kit

The TK60 (25/70.7 volt) line-transformer kit is an option for high-impedance systems, generally used in multi-speaker designs and some smaller systems using long speakerwire runs. A TM60 transformer is mounted on an input panel substituted for the direct (eight ohms) panel supplied with the Musicaster system. The TK60 allows direct input to the system or access to any of seven transformer taps covering 7.5, 15, 30 and 60 watts at 25 and 70.7 volts. Connections are made on barrier strips with 8-32 screws.

## Polar Response

The directional characteristics of the Musicaster 100 were measured by running a set of horizontal/vertical polar responses, in a large anechoic chamber, at each one-third-octave center frequency. The test signal was one-third-octave pseudo-random pink noise centered at the indicated frequencies. The measurement microphone was placed 6.1 m (20 ft.) from the horn mouth, while rotation was about the waveguide geometric apexes. These axes of rotation are quite close to the apparent (acoustic) apexes across the frequency range of measurement. Errors attributable to the slight differences between the geometric and acoustic apexes are reduced to an inconsequential level by the relatively long, 20 foot measuring distance. The horn was suspended freely with no baffle. The polar plots shown in Figure 1 display the results of these tests. The center frequency is noted on each plot. The wider plot on each chart is the horizontal polar (-) and the narrower plot is the vertical polar (- - -).

## Beamwidth

A plot of the Musicaster 100's 6 dB-down total included beamwidth angle is shown in Figure 2 for each one-third-octave center frequency.

## Frequency Response

Figure 3 shows the axial frequency response of the Musicaster. It was measured at a distance of 1 meter, using a swept sine wave.

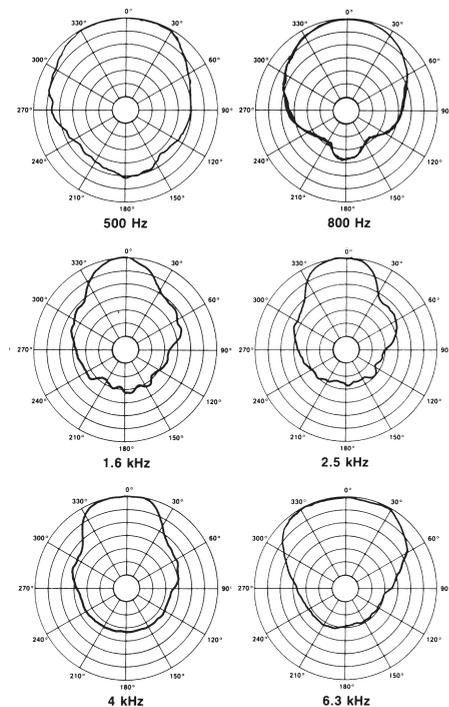


Figure 1  
Musicaster 100 Polar Response

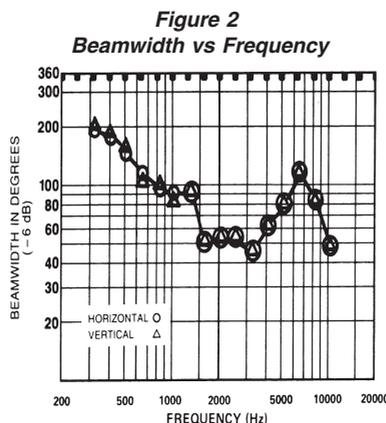


Figure 2  
Beamwidth vs Frequency

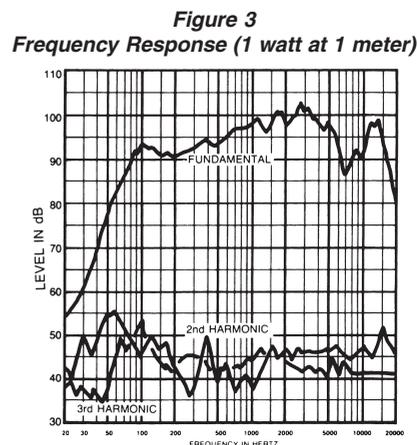


Figure 3  
Frequency Response (1 watt at 1 meter)

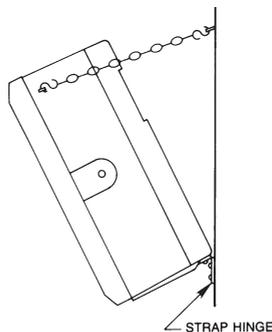
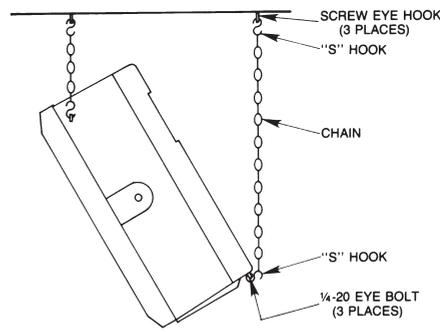


Figure 4  
Mounting Variations



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