

treble clef audio®

Features and Technical Specification

TCA-M Active Loudspeaker

English

Built-in Analog and Digital Inputs, DSP technology and Power Amplifiers - Just connect your analog or digital music sources.

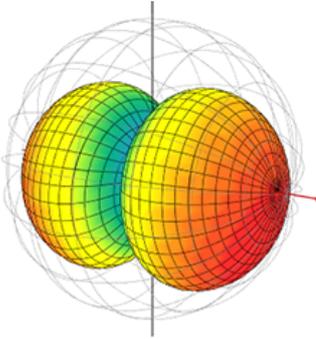


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01

Anechoic Acoustic Measurement Data



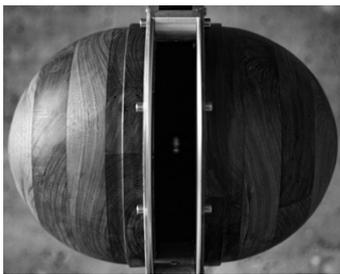
- Full Spectral (16Hz-24KHz) Sound Pressure Level 105dB at 1m
- Peak SPL 119dB at 1m
- Frequency Response 16Hz¹ to 24KHz
- Constant Group Delay above 30Hz
- Excess Group Delay 13ms at 20Hz

[1] Steady State 16Hz -3dB

02

3-Way Acoustic System

Bass System - Patented Air Velocity Transducer Bass System creating an extremely deep and detailed bass response:



- In-room steady state response from 16Hz (-3dB) to the crossover frequency at 200Hz
- Dispersion pattern significantly reducing sidewall reflections and ameliorating build-up of standing wave room modes Patented vibration and resonance free asymmetric omnidirectional air velocity transducer
- Extremely deep and detailed bass response with coherent time-domain behaviour
- Eliminating Sound Colouration through highly effective mechanical force cancelling and resonance absorbing system design
- Woofers mechanically decoupled from the enclosure
- Acoustic resonance absorbing system combining cement-based-syntactic-foam with constrained-layer damping virtually eliminating bass frequency sound energy excited enclosure vibrations
- Two 10" handmade woofers with a large Underhung Motor and Full Copper Faraday Sleeve covering the entire pole for incredibly low distortion and accurate reproduction
- Extremely low and linear inductance
- High excursion with clean suspension travel
- Crossover point 200Hz, 48dB/octave

Midrange & Tweeter System - Creating a large 3D sound-stage and coherent timbre anywhere inside and even outside the listening room:



- Minimal diffraction design
- No baffle step effect
- Uniform on- and off-axis response
- Minimal lobing effects due to proximity between mid-range and tweeter crossed over with steep slope
- **Midrange:**
 - o Extremely linear long excursion and patented under-hung Symmetrical Drive neodymium motor system
 - o Copper caps for very low distortion
 - o Unique patented cone
 - o Low loss linear suspension
- **Tweeter:**
 - o Ring Dome Diaphragm
 - o Patented Symmetrical Driver motor
 - o Patented Phase Plug Design
 - o Crossover points 200Hz and 2400Hz

03



Active Stand

- Advanced height adjustable feet, vibration isolating the speaker from the floor
- Built-in bulls eye spirit level
- Rear panel input and power cable connectors
- **Touch Control Display**
 - o Real-time signal Information
 - o Levels and Limiter Activation
 - o Selection of stored EQ presets
 - o Selection of active input
 - o Adjustment of master gain and mute

Signal Inputs and Control Connections

All Input are placed on the Rear panel of the Active Stand

Mains in - Neutrik PowerCon True

- 85 VAC – 265 VAC 45-65 Hz
- Idle power consumption 17W

Country specific mains cable supplied with the speakers

- Analog Balanced XLR Input (impedance 20 kΩ) using Dual Range 32-bit floating point Analog to Digital Converters with A-weighted 120 dB and un-weighted 118 dB dynamic range
- AES/XBU XLR and SPDIF Connection choices to the digital input (up to 24-bit / 192KHz)
- Dante® lossless audio RJ45 Ethernet LAN
- Digital Link Speaker Pair AES/EBU or SPDIF Interlink (1 x 5m of each link cable type supplied per pair of speakers)
- Configuration Port RJ45 Ethernet LAN

04

Built-in Power Amplifiers

Separate Pascal Class-D High Performance Power Amplifiers for Bass, Midrange and Tweeter systems



- Total output power 1500W @230VAC/1300W @100VAC
- Bandwidth DC to 60KHz
- Full Power Bandwidth 35KHz
- Total Harmonic Distortion + Noise 0.003 % - 0.05 %
- Transient Intermodulation 0.0015 % - 0.01 %
- Dynamic range 120 dB(A)
- Idle noise 40 μV(A)

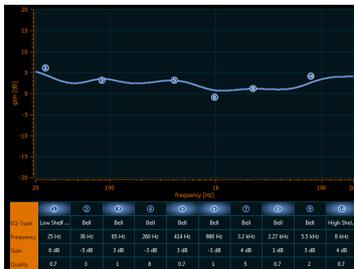
Full protection of Speaker Drivers and Electronics from thermal and overload damage

05

Digital Signal Processing (DSP) Crossover

- Built-in Target Curves and User Configurable Presets Flat, TCA-M, TCA-M Large & Small, Toole, Harman
- 10 user adjustable Room and Equalisation Bands Low-/High Pass 6 and 12 dB, Bell filter, All Pass / Shelving filter 6 dB and 12 dB
- Linear Phase system response using Finite Impulse Response Filter (FIR) Crossover Complete Time Coherence with Constant Group Delay and optimal step response
- Driver pre-equalisation Infinite Impulse Response Filters (IIR) Optimises the length of FIR filters
- Advanced Frequency Dependent Limiters, Thermal and power amplifier Overload Protection Separate RMS and Peak Limiters protecting speaker drivers from power and excursion overload
- Overall DSP System Delay 12ms
- 32-bit floating-point SHARC DSP

Software Application



- Available for Apple OSX and MS Windows 10+
- Easy User Interface for Equaliser (EQ) Configuration
- Create and Manage Room Compensation EQ
- Preset Selection
- Create and Manage User Presets
- Exporting and Importing User Presets to Mac/PC
- Real-time monitoring of Signal Levels and Limiter Activation
- Volume Level Adjustment e.g. for Home Theatre and Studio use

06

Dimensions

- 45 W x 135 H x 61 D cm
- 85 Kg
- Delivered on castors for easy unpacking

Specifications subject to future updates and improvements.

Treble Clef Audio Model-M Loudspeakers are covered by: U.S. Patent No. [11,363,369 B2](#) and the following European and international family of granted and published pending national phase patents: [AU2019338628A1](#); [DK3621312T3](#); [EP3621312B9](#); [JP2021535647A](#); [HK40017496](#); [WO2020052985A9](#)