



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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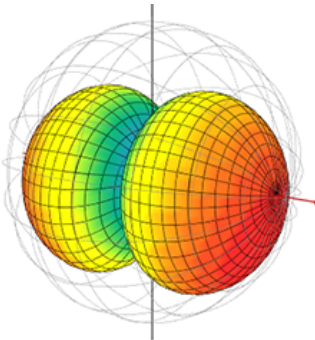
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01

Anechoic Acoustic Measurement Data



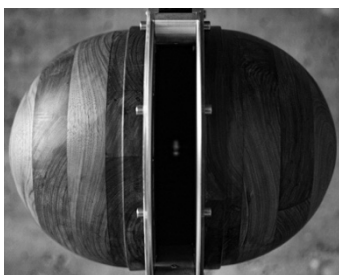
- Full Spectral (16Hz-24KHz) Sound Pressure Level 105dB at 1m
- Peak SPL 119dB at 1m
- Frequency Response 16Hz¹ to 24KHz
- Constant Group Delay above 30Hz
- Excess Group Delay 13ms at 20Hz

[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:**
 - Extremely linear long excursion and patented under-hung Symmetrical Drive neodymium motor system
 - Copper caps for very low distortion
 - Unique patented cone
 - Low loss linear suspension
- **Tweeter:**
 - Ring Dome Diaphragm
 - Patented Symmetrical Driver motor
 - Patented Phase Plug Design
 - 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**
 - Real-time signal Information
 - Levels and Limiter Activation
 - Selection of stored EQ presets
 - Selection of active input
 - 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

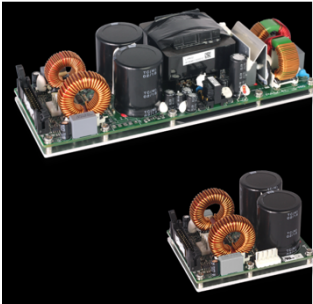
Speaker Pair AES/EBU or SPDIF Interlink (1 x 5m of each link cable type supplied per pair of speakers)
- Configuration Port

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

- 10 user adjustable Room and Equalisation Bands

- Linear Phase system response using Finite Impulse Response Filter (FIR) Crossover

- Driver pre-equalisation Infinite Impulse Response Filters (IIR)

- Advanced Frequency Dependent Limiters, Thermal and power amplifier Overload Protection

- Overall DSP System Delay

- 32-bit floating-point SHARC DSP

Flat, TCA-M, TCA-M Large & Small, Toole, Harman

Low-/High Pass 6 and 12 dB, Bell filter, All Pass / Shelving filter 6 dB and 12 dB

Complete Time Coherence with Constant Group Delay and optimal step response

Optimises the length of FIR filters

Separate RMS and Peak Limiters protecting speaker drivers from power and excursion overload

12ms



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](#)