



MAGNUM DYNALAB
PURE SOURCE AUDIO

MD 109

Analog FM Tuner

Featuring the World Source Platform®



- TRACC ANALOG CIRCUITRY
- THE WORLD SOURCE PLATFORM
- 8 STAGE VARACTOR TUNED FRONT END
- INDEPENDENT POWER SUPPLY
- MD REFERENCE CRYOVALVE TUBES
- 5" x 7" TOUCH SCREEN INTERFACE
- WORLD LEADING COMPONENTS
- AVAILABLE DIGITAL INTERFACE BOARD
- UPGRADEABLE DIGITAL MODULES

FEATURES

MAGNUM
dynalab

Undeniably The World's Best FM Tuner.

MD 109 FM Tuner & The World Source Platform

MD 109

HIGHLIGHTS

TRACC ANALOG CIRCUITRY

The Triode Reference Audio Control Center, featuring an analog circuit path unique to any other audio device worldwide.

THE WORLD SOURCE PLATFORM

The first of our products to be equipped with the capability to accommodate and interface with a variety of digital sources, including Satellite Radio.

EIGHT STAGE VARACTOR TUNED FRONT END

An in-house designed and manufactured analog front-end that includes 8 stages of RF filtering for the purest replication of the FM signal.

INDEPENDENT POWER SUPPLY FOR RF AND AUDIO STAGES

A separate DC feed for both stages of RF audio replication to ensure consistent and accurate voltages are supplied for the discrete sections of the device.

MD REFERENCE CRYOVALVE TUBES

4 specially designed and manufactured 6922 vacuum tubes are used in the audio stage. A unique cryofreezing process provides decreased microphonic effects, a lower dynamic noise floor and increased 'apparent gain' to greatly relax and improve the dynamic and low level resolving power.

5" x 7" TOUCH SCREEN INTERFACE

A large touchscreen creates not only a focal point on the elegant faceplate, but also an intuitive border between user and device.

WORLD LEADING COMPONENTS

The collection of components come from only world recognized and leading suppliers: Mundorf, WBT, Wima, Dale-Vishay and Burr Brown.

AVAILABLE DIGITAL INTERFACE BOARD

As the first option available for MD 109 owners, our proprietary digital-to-analog conversion technology features industry leading components for a perfectly clocked, incredibly accurate signal from any digital source. The board is equipped to accommodate Toslink, Coaxial, Balanced and BNC.

FUTURE UPGRADEABILITY

Check out www.magnumdynamalab.com for the list of options currently available. At the time of writing, our XM Satellite Radio Tuner is available as an add-on to this device.



WORLD'S BEST

Undeniably the world's best FM Tuner.

Regarded worldwide for uncompromising standards, focus and dedication in FM tuner technology and production, we are proud to introduce our most significant development in fine audio acquisition ever.

Introducing the MD 109. Undeniably, the World's best FM Tuner.

Primary highlights include an ultra stable power supply, a direct output Triode audio section and most importantly, the introduction of the World Source Platform.

The World Source Platform represents the culmination of 2 years of internal development, and the commitment with which we have embraced the evolution of the multi-format audio source environment that we live in today.

Designed to remain perpetually current, the MD 109 starts with receiving and delivering with sonic accuracy all terrestrial FM signals better than any FM tuner that we have ever developed. Beyond this, it is also upgradeable to accommodate digital audio from various sources, including satellite radio, CD, DVD and Internet Sources. Quite simply, the MD 109 serves as your source component for all future listening options and variables.

EVOLUTION

Future Ready with Confidence

From its pedigree as the most competent FM tuner we have ever built, with seamless integration you can choose current options a la carte, or later expand the 109's capabilities to accommodate future digital sources.

Whether the 109 performs solely as an FM tuner in your listening room, or the World Source Platform is employed via a secondary digital source signal, we believe the operation of a sophisticated piece should not stand in the way of listening.

The Touch-screen is a marvel of rather ingenious simplicity. The interface architecture is robust, accommodating and intuitive, and when not in active service, the overall luminance dims and bestows a little mood lighting until awakened. If one prefers a more tactile traditional approach however, precise station tuning is easy and deliberate by means of two prominent large dials.

This same tactile sensation is also achieved at a distance by means of the IR remote. Designed well beyond function and convenience, the fit and feel of the MD 109 IR remote is one of positive precision, substance and style. Immediate, accurate and in complete control of all functions is accomplished from well beyond a pragmatic range.

During a demo, it's challenging to articulate the performance of the MD 109 without relying on the word 'perfect'. Ironically, you tend to concentrate on the artist's performance rather than the MD 109. This phenomenon is quite intentional.

We respect that when an artist shares their craft it ultimately needs



to be received with immaculate integrity. Our binding commitment to you is equal to our recognition to the efforts and fine works of performers.

For music lovers, the pure sound entertainment experience has never been more diverse and bountiful. The MD 109 is a serious solution to a multi-format way of life and worthy of your consideration.

DESIGN

The Audio Section

With delicate and fastidious detail, our Director of Design Zdenko Zivkovic's purist philosophy has established a truly unique design that realizes zero influence on the original signal. Our major design differentiator is not insignificant... to our knowledge, we are the world's only audio manufacturer to eliminate capacitors after the gain stage of the tubes.

The inclusion of capacitors in any audio stage results in a variable impedance across the frequency range. That is, output impedances can vary anywhere between 10 and 20 times from high to low frequencies, putting additional stress on interconnects, and altering the tonal subtleties of the sound stage across the spectrum. In the MD 109, direct current from the MD Reference Cryovalve 6922 tubes is delivered without the altering impact of output capacitors, resulting in incredibly low impedance (200 ohms) that is flat across the frequency range (0.2Hz to 200KHz). This flat impedance also eliminates the influence of the interconnects, resulting in a signal that is virtually identical to that which was originally recorded in the studio.

This unique design forms the backbone of our Triode Reference Audio Control Center (TRACC) technology, which is quite simply the most accomplished analog audio stage we have ever developed. In addition to its low impedance, it boasts a host of other impressive specifications:

1. Signal to noise ratio > than 110 dB, the micro information from the original signal is maintained.
2. Zero phase shift from 0.2 Hz to 200KHz
3. Zero distortion variance from 0.2 Hz to 200KHz

This demanding level of pristine signal movement requires a solid foundation. Double sided 0.093 thick printed circuit boards provide the base and minimize potentially damaging vibration. With isolation insured, individual components can perform as planned without unbridled influence from neighboring elements and activity. To maximize conductivity and insure that all micro-information is maintained, ceramic tube sockets and all circuit board contacts are generously gold plated. Special feet have been designed using Vibrapod Isolators to insure that the performance is not comprised from external vibration.

Without compromise, the MD 109 includes a collection of components supplied by world leaders Mundorf, WBT, Wima,

Dale-Vishay and Burr Brown. In the critical areas of the audio board before the tube stage we use the Mundorf Supreme/Silver/oil polypropylene dielectric capacitors and as the name indicates, high purity silver is used for the capacitor coating. The winding is impregnated with a special oil, and these features contribute



to an even fuller and smoother tonal richness and diversity. Along with their collective ability to move sound while maintaining the purity of the original signal, these components are highly regarded for extensive unwavering performance over the long haul.

To minimize the stress on the tube and insure long tube life a special turn on circuit is incorporated that has a very slow rise time slope. This brings the tube up to the optimum operating current at a very controlled and safe rate. In addition to this notable design feature, our audio tubes themselves are different. Designed and manufactured specifically for Magnum Dynalab, our have been through an exclusive process before landing in the 109. Each tube passes through a series of operations, including a 100 hour cryogenic treatment process at -320°F. This reduces microphonic effects, lowers the dynamic noise floor and increases the 'apparent gain' to greatly relax and improve the dynamic and low level resolving power. Further, the pins have been individually cleaned back to base metal and polished for much improved contact quality and sonics.

The audio stage of the MD 109 is the best we have ever created. A testament to our long-standing experience in the treatment of the analog signal path, the end result is a sound stage that puts the MD 109 in a class of audio electronics inhabited by very few.



POWER

The Power Supply

In nature to his craft and passion, designer Zdenko Zivkovic concentrated much of his efforts on the ground plane. By creating a unique grounding loop that eliminates the inherent troubles with chassis grounding, all sources of impurities that originate with the ground plane are eliminated, once again leaving only the purity of the original signal. What you notice about the MD 109 is how free the sound is of any transients and mysterious high frequency noises. To insure that the audio signal is isolated all inputs and outputs are isolated from the chassis with a special insulator. The MD 109 power supply is free of ripple at 60 Hz, 120Hz and 180 Hz.

The primary design criterion was to develop the cleanest, continuous source of DC power possible.

As you can appreciate, the importance of this stage cannot be understated. It feeds and allows all associated downstream components to perform at their highest level not withstanding the unpredictable demands placed on it by the dynamics of the music.

Throughout the history of high-fidelity innovation, power supply purity and management have proven to be one of the greatest challenges for designers. A solution without capitulating to compromise was needed.

The MD109 power supply is free of ripple, transients and mysterious high frequency noises. By way of comparison, its level of purity is as close to a direct battery supply as imaginable. Finally, two custom designed Toroidal transformers are employed to provide pure power to the distinct sections of the tuner, one feeding the audio section, the other feeding the RF section and control section.

RF

The R.F. Section

Beyond personal preferences, tastes or subjective opinion, in order to justifiably crown the MD109 as 'The World's Best Tuner' we had to push the envelope well beyond the best-known standard, measurement and performance ability.

The MD109's new eight stage Varactor tuned front end is unequalled in its ability to receive and replicate a pure FM

signal. Featuring three stages of I.F. selection, you can opt for the setting that allows the most authentic, pure listening experience regardless of the reception environment and conditions.

The automatic gain control feature insures that the tuner will optimize R.F. performance no matter the strength of the input signal.

Quality, accountability and assuredness is why we design and produce our own front ends. Outsourcing this integral core would be, well... to be polite, rather inappropriate. This effort insures they meet our very rigid standards and specifications. Furthermore, great care is taken in matching all critical components, especially the IF filters.

An independent Toroidal power supply feeds this circuit and is designed to provide very stable voltages to all components. Ultimately, these particulars of dedication and uncompromising standards are not so our products will just test-out well in our lab, it's so they can perform in your listening room.

FUTURE

Future Upgradeability: The Digital Interface Board & Digital Modules

At the core of our World Source Platform technology is our pioneering digital interface board that will allow the MD 109 the capability to accept future digital sources through one of its available inputs (TOSlink, Coaxial, Balanced and BNC). The high quality demands of our TRACC technology necessitated a Digital Interface Board that provided the same high level of performance. This unique circuit board uses two industry leading core components for the receiving and rendering of the digital signal, with the front end of the board driven by the CS8416 192kHz Digital Audio Receiver from CIRRUS Logic; capable of DVD Audio performance standards. And when combined with the Texas Instruments PCM1792, 200kHz current output Delta-Sigma over-sampling DAC for audio rendering, the result is a perfectly clocked, incredibly accurate signal that is virtually jitter-free.

At the time of writing, our XM Satellite Radio Tuner is available as an add-on to the MD 109 in North America. Please visit www.magnumdynamalab.com for a list of all available add-ons for this device.



SPECS

Specifications

Usable sensitivity (Mono) – **0.7 u V 9.0 dBf**
 50 dB quieting (Mono) – **2.0 u V 9.9 dBf**
 50 dB quieting (Stereo) – **2.3 u V 20.0 dBf**
 Capture ratio – **1.5 dB**
 Image rejection – **125.0 dB**
 Alternate channel (Wide) – **46.0 dB**
 Alternate channel (Narrow) – **70.0 dB**
 Alternate channel (Attenuation ~ super narrow) – **80.0 dB**
 Adjacent channel (Wide) – **3.0 dB**
 Adjacent channel (Narrow) – **21.0 dB**
 Adjacent channel (Super Narrow) – **48.0 dB**
 THD (Mono) – **0.10 %**
 THD (Stereo) – **0.10 %**
 Stereo separation – **50.0 dB**
 AM suppression – **70.0 dB**
 SCA rejection – **80.0 dB**
 IF rejection – **80.0 dB**
 19 KHz and 38 KHz component rejection – **75.0 dB**
 Audio frequency response – **2 Hz to 200 Khz (+0,-0.1 dB)**
 Balanced audio output – **3.0 V**
 Line audio output (RCA) – **1.5 V**
 Output Impedance – **200 ohms (2Hz-200KHz)**
 Signal to noise ratio – **>110 dB**
 Fuse replacement (115 volts) – **1 amp**
 Fuse replacement (230/240 volts) – **.5 amp**
 Tube replacement (Position 1 & 2) – **6922 MD Cryovalve Reference**
 Tube replacement (Position 3 & 4) – **6922 MD Reference**
 Line power (Must be specified) (110/220/230/240) – **VAC**
 Dimensions (inches H.W.D.) – **6 x 19 x 16**
 Dimensions (cm H.W.D.) – **15.24 x 48.3 x 40.7**
 Weight (lbs./kgs) – **40/17.1**
 Power consumption (Typ/Max) – **50w/100w**



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PURE SOURCE AUDIO

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