

METRONOME TECHNOLOGIE



METRONOME PRODUCTS 2008

About METRONOME TECHNOLOGIE

METRONOME TECHNOLOGIE products are manufactured in Toulouse area by a team devoted to high-end audio products with astonishing performance since 1987. Kalista drive and C2-A Signature Digital to Analogue Converter are setting standards worldwide for recreating the musical experience from the Compact Disc media.

Special care is taken by the technical team in creating highly reliable products with outstanding musicality and practically no sonic signature. The team includes designers, for the digital and analog circuits, for the power supply and for the software control.

The global management and aesthetic engineering is done by Dominique GINER. He is involved in the entire process of product development, from concept to implementation into production, and he personally makes sure that every step of the production goes smoothly, in accordance with the chosen high quality standards

METRONOME TECHNOLOGIE is selling worldwide, with dealers or representatives established in France, USA, Canada, Germany, China, Thailand, Denmark, Sweden, Spain, Portugal, Greece, Poland, Austria, Romania, Switzerland, Argentina, New-Zealand, Mexico, India, Singapore, Taiwan, Indonesia, Korea, Japan and Malaysia.

METRONOME TECHNOLOGIE does also design conception, development and production for well known high-end companies.

Objectives

All Metronome products are designed and manufactured to be the best possible electronic components, both sonically and visually.

Musical accuracy or fidelity to the original source signal as the main objective of electronic design is a very difficult result to achieve, as lower levels of performance seem to indicate that all variations of performance simply alter the “flavors” a product imparts on the music to suit various “tastes.”

Good and great products, however, have in common extreme accuracy and the ability to impart great enjoyment upon the listener. The primary sources of life and impact in a recording are the inspiration and skill of the performer or producer. True artistic skill possesses within itself the ability to move the listener without needing to be changed or “flavored” by the equipment designer. Accuracy allows the artist to communicate the impact of his work directly to the listener without any change taking place.

The more accurate the electronic equipment, the better the conveyance of the original message of the performer to the listener or “audience at home.”

Another critical objective is also taken into account: elegant external design.

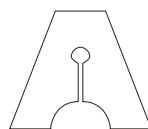
All Metronome products feature a faceplate machined from a monolithic billet of 6061-T6 aluminium with a silky smooth grain applied to the metal before being finely anodized, resulting in a finish that is both beautiful to behold and durable to the touch.

All chassis work is rigid and structurally sound, allowing the delicate audio signal within to pass through cleanly and unscathed. The Metronome products can be displayed anywhere due to their tasteful understated design and exceptional craftsmanship.

Avoiding any over-engineering, the goal is to carefully select components for good sounding and highest reliability. Only industrial-grade components are used: metal film resistors for lowest noise level, custom polypropylene capacitors ...

Faultless execution of design and assembly is observed at all steps, from conception to production, inside and outside of the box.

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Development

The development of all Metronome products is overseen by a technical team diligently pursuing the creation of extraordinarily musical products with a phenomenal fidelity to the original music source.

Team members believe circuit topology is the main determinant in products performance.

The team includes designers for power supplies, digital circuits, analog circuits, and software control.

Allowing individual designers to specialize and focus on the aspect of creation for which they have a superior skill results in superior products upon completion of the creative process. When no portion of an electronic product is compromised by the abilities of the designers, there are no weak spots in performance or reliability.

Final aesthetic and global management are overseen by Dominique Giner.

Product validation

All products are fully evaluated during and after the design process by critical listening and technical measurement. Every Metronome product must meet with the approval of all people involved in the design and development process, with each team member responsible for optimizing the performance of their portion of the design.

A team of expert listeners validates the performance of each new product in repeated critical listening tests in a number of different high performance systems. These systems include products from some of the most well known and highly accurate equipment in the world, as well as components which may not be as popular but achieve an extremely high level of fidelity. Dynamic and planar loudspeakers, tube and solid state amplifiers, CD, DVD, SACD, analogue phono, various cables, and numerous types of music are used during the evaluation process.

These numerous system configurations achieve two things: the Metronome products do not develop a “sound” or “flavor” that is suited to only certain types or marques of equipment (Metronome products will perform neutrally and without peer with all other electronics), and electronic compatibility is assured as the Metronome components are connected to a very wide variety of associated equipment.

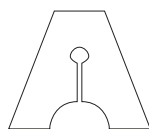
After the completion of comparative listening sessions, the new product is listened to upon its own merits for a long time with no comparative analysis being made. The component is critically evaluated and areas for improvement are defined and noted. Circuit updates and fine tuning are done to the initial design and a new round of validation listening sessions is initiated. Dominique gives the final design a touch of class and refinement via the selection of the finest materials, craftsmanship, and visual balance.

Process schedule

The complete design and development process takes between eight and eighteen months, depending of the complexity and level of performance expected from the new project. All Metronome products must meet the same stringent development and testing criteria, regardless of price point.

This thorough and lengthy development process ensures the most faithful musical reproduction and lasting pride of ownership.

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KALISTA REFERENCE CD DRIVE WITH ELEKTRA POWER SUPPLY



KALISTA REFERENCE

Made around the best materials selected for their ability to deliver the best sound, the KALISTA REFERENCE presents a totally innovative design and a new 'classic' aesthetic way to extract the best sound from CD media.

The KALISTA REFERENCE includes a new ELEKTRA POWER SUPPLY and an ingenious vibration control support: the SILENT BASE. A specially designed transparent "helmet" protects the reading mechanism when the unit is not in use.



The separated ELEKTRA POWER SUPPLY allows removing most of the EMI/RFI pollution coming from the power supply by using a special AC filter designed specially by Metronome Technologie. The high capacitor value for each stage provides a total isolation between the KALISTA and the rest of the system (1,2 Farad) . This permits to isolate mechanically the sensitive electronics components like crystal oscillator from the vibrations induced by the transformers. Also by the use of totally separated Elektra power supply for the different stages (display, servo control, motor, digital output stage) the level of noise and capability of silence reproduction are increased by a wide margin.

The display could be put OFF by a selector on the power supply rear panel: all electrical noises coming from the display are removed and the sound is again one step better.

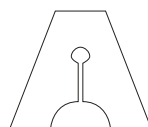


The SILENT BASE support permits a huge sonic improvement with more silence between musical notes, incredible soundstage and dynamic contrast reproduction. This platform is constituted of one 40 mm thick Perpex® part relied on 3 free stainless steel balls feet. This architecture employs the best of many vibration damping principles, including the dissipation of vibration energy in both the vertical and horizontal planes.



The KALISTA REFERENCE main unit is sited on top of the Silent Base and linked by his conical feet. All parts (CD player, battery power supply, silent base) are delivered in one FLIGHT CASE, which can also be used as to support the KALISTA REFERENCE Silent Base and main unit.

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KALISTA CD DRIVE

KALISTA



More affordable than the Reference, the Kalista is a state of the art top loaded transport, based on a **Philips CDM12 PRO** upgraded by Metronome (Shaft, suspensions, power supply, regulators, clock , axe and clamp...).

Clamp and shaft, specially designed, are used to maintain for the best the CD in place. Both the use of a special stainless steel and a Perpex® clamp made of Delrin® permit to reproduce the best sound possible with low jitter since the reading is at the pit level.

"Continuous Ground" link from the disc surface to the electrical earth: lower level of CD static charges and better working condition for the reading electronic.

Illumination of the CD surface and thickness for better information extraction: the light comes inside of the disk through the transparent Perpex® clamp.

Black "helmet" to protect the reading mechanism when the unit is not in use.

Digital outputs: AES/EBU (symmetrical), ATT (optical fiber glass), RCA and BNC (SPDIF standard). A switchable up-sampling delivers 24bit/96khz or 16bit/44.1khz signal to the D/A converter.

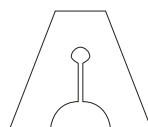
Specific circuitry developed by Metronome gives low jitter and a very good matching with D/A converters from Metronome or others manufacturers.

Separated power supply with five transformers and eight regulations. It is made of 2mm steel with Delrin® feet (3). The feet have two functions: damp the box and permit the insertion of cone. The cones are delivered with the unit and made of the same materials as the feet for a good mechanical conductivity.

The sound of the Metronome products is always validated with the cones in use. We recommend this way to setup the KALISTA, including power supply. The sound is more defined with better inter transient silence.



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CD DRIVE format CD audio 44,1khz



T2-A Signature

2 boxes compact top loaded transport based on a Philips CDM12 PRO upgraded by metronome (suspensions, power supply, regulators, clock , axe and clamp).

Main features:

- 4 digital outputs: AES/EBU (symmetrical), ATT (optical fibber glass), RCA & BNC (SPDIF standard).
- The power supply includes five transformers and seven regulations in a separate case with the same dimension and aesthetic as the transport and uses a standard 10 points cable.
- The digital output includes a selectable up-sampling who delivers 24bit/96khz or 16bit/44.1khz signal to the D/A converter.



T3-A Signature

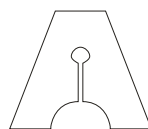
1 box top loaded transport based on a Philips CDM12 PRO upgraded by metronome (suspensions, power supply, regulators, clock , axe and clamp).

Main features:

- 3 digital outputs: AES/EBU (symmetrical), ATT (optical fibber glass), RCA (SPDIF standard)
- The power supply includes three toroidal transformers and five regulations.
- The digital outputs use 16bit/44.1khz signal to the D/A converter.



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INTEGRATED CD PLAYER format CD audio 44,1khz

T2-I Signature

2 box top loaded integrated CD player based on a Philips CDM12 PRO upgraded by metronome (suspensions, power supply, regulators, clock , axe and clamp).

This unit have an external design similar to the T2-A Signature transport.

Main features:

- The digital output includes a selectable up-sampling who delivers 24bit/96khz or 16bit/44.1khz signal to the D/A converter.
- The analog output is 24bit/192khz converter (up-sampler) with balanced and unbalanced.

Power supply includes seven transformers and nine regulations. This power supply is in a separate case with the same dimension and aesthetic as the transport.

This integrated CD player uses a high quality 16 points umbilical cable (Fischer® Connectors) to carry perfectly the power to the drive.

T1-I Signature

2 box top loaded integrated CD player based on a Philips CDM12 PRO upgraded by metronome (suspensions, power supply, regulators, clock , axe and clamp) with a small separate power supply.

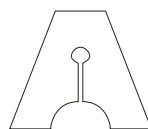
Main features:

- The digital output includes a selectable up-sampling who delivers 24bit/96khz or 16bit/44.1khz signal to the D/A converter.
- The analog output is 24bit/192khz converter (up-sampler) with balanced and unbalanced.

Power supply includes 4 transformers and 4 regulations. This power supply is in a separate small case using a standard umbilical 10 points cable.



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INTEGRATED CD PLAYER format CD audio 44,1khz

CD3 Signature



1 box top loaded transport based on a Philips CDM12 PRO upgraded by metronome (suspensions, power supply, regulators, clock , axe and clamp...).

Main features:

- 1 digital output: RCA (SPDIF standard) 16bit/44.1 Khz.
- 4 digital outputs: 2 RCA (Unblanced) / 2XLR (balanced) 24 bit / 192 Khz.
- The power supply includes four transformers and six regulations.



CD4 Signature



1 box top loaded transport based on a Philips CDM12 PRO upgraded by metronome (suspensions, power supply, regulators, clock , axe and clamp...).

Rigid chassis made in 2,5 mm (1/10 inch) aluminum to remove all electrical radiations.

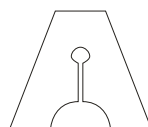
Silk screening on the rear panel for a beautiful look.

Main features:

- 1 digital output: RCA (SPDIF standard) 16bit/44.1 Khz.
- 4 digital outputs: 2 RCA (Unblanced) / 2XLR (balanced) 24 bit / 192 Khz.
- This CD4 signature includes a new function with an analog stage called volume variable and controlled by Metronome remote control. This function allows to connect directly your CD player to a power amplifier without preamplifier.
- The power supply includes four transformers and ten regulations.



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INTEGRATED CD PLAYER format CD audio 44,1khz



CD5 Signature

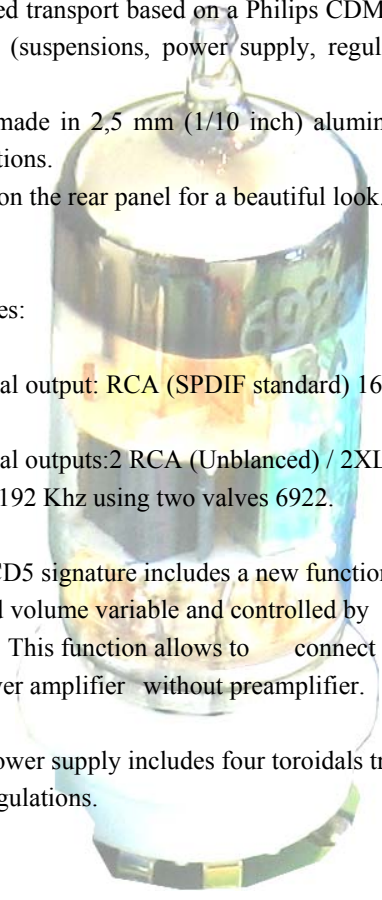
1 box top loaded transport based on a Philips CDM12 PRO upgraded by metronome (suspensions, power supply, regulators, clock, axle and clamp).

Rigid chassis made in 2,5 mm (1/10 inch) aluminum to remove all electrical radiations.

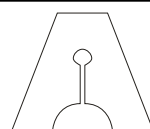
Silk screening on the rear panel for a beautiful look.

Main features:

- 1 digital output: RCA (SPDIF standard) 16bit/44.1 KHz.
- 4 digital outputs: 2 RCA (Unbalanced) / 2XLR (balanced) 24 bit / 192 KHz using two valves 6922.
- This CD5 signature includes a new function with an analog stage called volume variable and controlled by Metronome remote control. This function allows to connect directly your CD player to a power amplifier without preamplifier.
- The power supply includes four toroidals transformers and eight regulations.



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DIGITAL TO ANALOG CONVERTERS

C2-A Signature



2 boxes 24bit/192khz D/A converter with dynamic capability >120 dB

All of the 4 digital inputs accept from 34kHz to 96Khz signal sampling rate:

- 1 AES/EBU,
- 1 ATT fiber glass,
- 2 SPDIF (RCA, BNC with PLL loop adapted to 44.1 and 96khz signals)

Each of them is directly connected to its own DIR (digital input synchronization).



The converter is based on a 3 stages design:

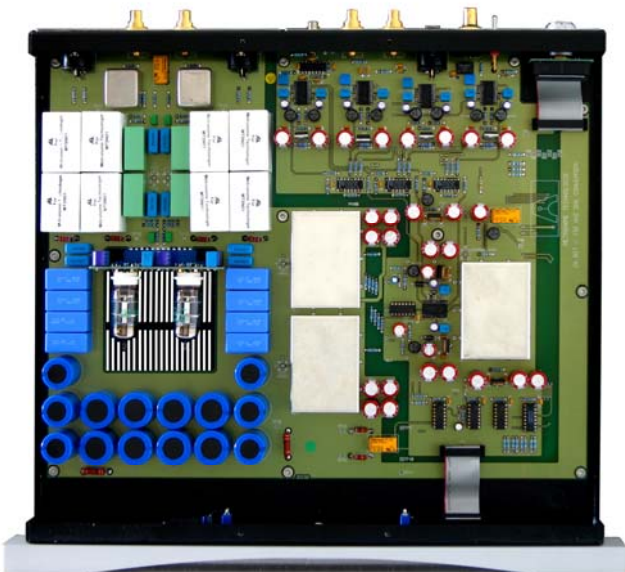
- Digital input and synchronization,
- D/A converter components
- Analog output stage.

All three stages have been treated with the best possible solution. The best passive and active components have been selected.

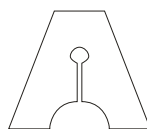
The separated power supply includes 7 transformers and 11 pre-regulators. 15 regulators are located near the critical stages in the converter box.

This separated power supply permits to remove most of the EMI/RFI pollution coming from the power supply. This permits also to isolate mechanically the sensitive electronics components of the D/A and analog stage from the vibrations induced by the transformers.

This converter uses a High Quality (Fischer® connector) 16 points umbilical cable to carry perfectly the full power to the converter.



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C3-A Signature

1 box 24bit/192khz D/A converter with dynamic capability >175 dB working in 32 Bits .

For an easy use , the C3A converter uses an display to show all information needed by the customer.

The converter is based on a 3 stages design:

- Digital input and synchronization,
- D/A converter components
- Analog output stage.

All three stages have been treated with the best possible solution. The best passive and active components have been selected.

All of the 4 digital inputs accept from 32kHz to 211Khz signal sampling rate:

- 1 AES/EBU,
- 1 ATT fiber glass,
- 2 SPDIF (RCA)

The power supply includes 3 toroidal transformers and 10 regulators located near the critical stages in the converter box.

This power supply removes most of the EMI/RFI pollution coming from the power supply. This permits also to isolate mechanically the sensitive electronics components of the D/A and analog stage from the vibrations induced by the transformers.

This converter uses four specific operational amplifiers specially chosen for their amazing sound reproduction and fast transition.



PREAMPLIFIERS

PA-1 Signature



Dual-mono preamplifier realized in two chassis: one chassis for power supply, one for the preamplifier circuits.

The design objective: “wire with gain”, means minimum active circuit in the signal path (near passive in the balanced mode except the buffered volume control). This simplicity is used to obtain the most accurate signal with a lot of transparency and detail without any form of hardness or coloration. Great transparent sound, great natural musicality and a life like dynamic capabilities. From the balanced inputs to the Remote control of all functions including stand-by mode of METRONOME TECHNOLOGIE amplifiers.

Alphanumeric display with sound level and input selection information.

Volume control by electronic selection of resistors in a network (one circuit per channel).

Separate power supply using Schottky diodes, regulation and filtering by 3 banks of capacitors and high quality choke. It includes 6 transformers: one pair per channel, one for digital circuits and one for the input selection relays. So each high sensitivity stage has one dedicated power regulation, to increase performances and decrease perturbations.



Specifications

Input impedance: 10 KOhms. Voltage gain: - 80 db to + 15 db.

Nominal output level: 2.75 V RMS (V maximum: 5.50 V RMS).

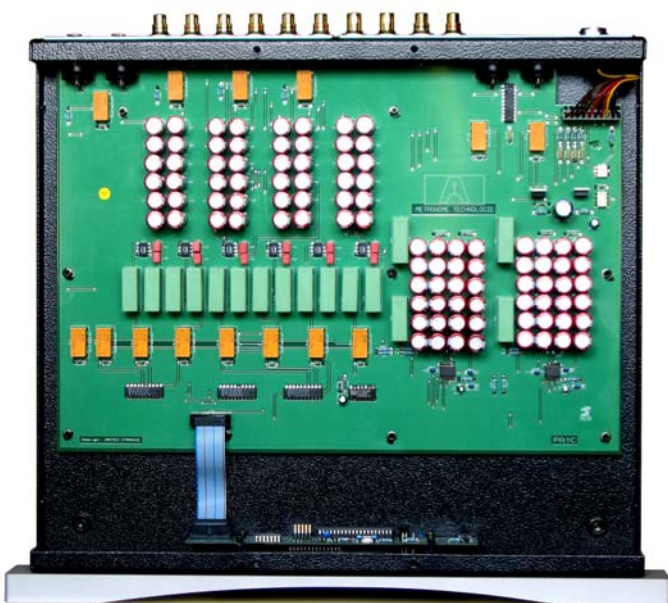
Output impedance: 150 Ohms.

Total Harmonic distortion: < 0.005 %. Intermodulation Distortion: less than 0.005 %. Signal/noise ratio: > 100 db.

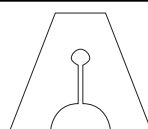
Inputs: three pairs of gold plated RCA jacks with an additional XLR balanced input.

Outputs: one pair XLR balanced + one pair RCA jacks

5 V dc trigger to turn METRONOME TECHNOLOGIE amplifiers on and off in conjunction with the preamplifier

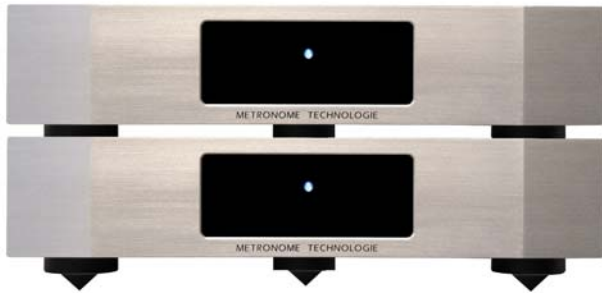


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POWER AMPLIFIERS



AMT-70

Model AMT 70 is the best illustration of “the wire with gain” concept with a minimalist circuit design and short internal wiring. Distinctive features of these amps are transparent sound, effortless natural musicality and life like dynamic capabilities.

It is a 70 Watts output power class A/AB amplifier, operating in pure class A up to 45 W.

AMT 70s' Mono chassis assures a high independence between channels

and a remarkable capacity for driving difficult loads.

Balanced (XLR) and unbalanced (RCA) inputs.

Totally separate power supplies for driver stage and power stage.

ON/OFF switching is driven from the preamplifier by a remote link cable.

The stand-by position keeps the driver stage ON as to maintain this stage at good temperature for optimum performance after a short delay of use (15mn).



Specifications

70 W pure class A amplifier, with the exception of the output stage which operates in a highly biased A/AB mode (class A up to 45 W).

Current type feedback loop.

The power supply includes 2 transformers, 160000 μF of capacitor plus inductance coil filtering.

Frequency response: 1 Hz to 100 kHz.

Input sensitivity: 0.8 V. Input Impedance : 10 KOhms (balanced or unbalanced)

Output power: 70 watts/ 8 Ohms. High current capabilities.

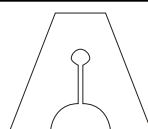
Frequency response: 1 Hz to 150 kHz.

Total Harmonic Distortion: less than 0.005%.

Signal/noise ratio: > 100 dB



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INTEGRATED STEREO POWER AMPLIFIER

MT-100.5 Signature



Integrated power amplifier. Output power: 2 x 80 watts / 8 Ohms.

Frequency response: 1 Hz to 100 kHz.

Class A operating up to 5 W.

Input sensitivity: 0.8 V. Input Impedance : 10 KOhms (balanced or unbalanced)

Total Harmonic Distortion: less than 0.05%. Signal/noise ratio: > 80dB.

Power supply: EMI rejection by Schaffner filter. Dual Mono toroidal transformers (2x300VA)



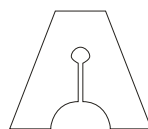
Inputs: four pairs of gold plated RCA jacks with an additional XLR balanced input.

Outputs: two pairs of gold plated binding posts

Remote control for volume and inputs selection.



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