



M 10 MONO POWER AMPLIFIER

Consistently High-End, consistently two-channel!

The V-series has found two new flagships: the M 10 mono power amplifier and the S 10 stereo power amplifier. These sensational amplifiers are an ingenious combination of classic "State of the Art" valve technology, the latest transistor developments, and extremely innovative circuit topology. We deliberately designed an input stage incorporating valves to ensure that their audiophile characteristics define the amplifier's overall sound. The higher the power of an output stage, the more difficult it is to obtain that power using pure valve-based concepts. In reality it is impossible to achieve extreme power levels from a pure valve amplifier. For this reason an obvious solution is to design modern, highly sophisticated transistor circuits which are responsible for the pure power amplification, and to fine-tune these circuits to produce a perfect match to the system as a whole. The circuit concept exploited in the M 10 and S 10 is a completely new development, and is so incredibly stable and refined that we have been able to avoid the use of overall negative feedback completely. In short: we have exploited the advantages of valve and transistor technology to the full, and avoided the disadvantages! Our aim in developing the M 10 and S 10 was not just to build yet another "giant power amp" which can deliver as much power as possible; instead both amplifiers allow our music lovers to choose between different modes of operation to suit their personal taste, the loudspeakers in their system and the power required.

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In High Power mode the M 10 and S 10 are capable of delivering huge power to large loudspeakers where extreme levels are required, and they always sound superb in so doing. However, if you prefer to listen at normal volume, without ever needing such extreme levels, then both amplifiers offer High Current mode: in this mode the idle current is doubled, the amplifiers operate in Class A/B mode, and generate up to 60 Watts (M 10) and 35 Watts (S 10) of power in pure Class A. It is also possible for the M 10 to set up a genuine bi-amping arrangement, as the M 10 features two identical power amplifiers, each of which can feed a pair of dedicated loudspeaker terminals. These facilities ensure that you can fine-tune the M 10 and the S 10 to suit your loudspeakers exactly according to your personal taste, the speakers and preferences. The M 10 and S 10 are designed to work extremely well with a huge range of pre-amplifiers, although our P 102 valve pre-amplifier really is the perfect choice as the front end to the M 10, as its overall design has

been developed to deliver a perfect sound experience with the M 10 and S 10 under all circumstances. The P 10 2 features fully balanced / symmetrical outputs (optionally three-pole or four-pole with Trigger voltage) and controls the entire system via the R-Link data bus, including switching all components on and off.

No-compromise mechanical design

The whole V-series has set new standards all over the world in respect of materials used, mechanical refinement and workmanship. For the M 10 and S 10 our developers insisted on using only the finest components. We work "from the solid": the heat-sinks are pressed in a single process using extremely powerful tools, while the shielding enclosures for the transformers and capacitors are machined from solid blocks. The waste heat generated is considerable, but the substantial material mass reliably and constantly dissipates the energy, with the result that the M 10 and S 10 do not require a cooling fan in spite of their huge power. All the materials used in the amplifier section are amagnetic, and the mains power supply transformers are housed inside a steel shielding chamber. The M 10's and S 10's overall mass of more than 50 kg guarantee that they are completely de-coupled from the outside world!

Revolutionary circuit topology

The M 10 and S 10 feature a circuit design which is unique in the world. Valves are used in the input and voltage amplification stages, and all the valves work in Class-A mode, which results in a very harmonious sound image. The musical and tonal advantages of valve technology determine the sound character of the output stages. The input stage takes the form of a symmetrical differential amplifier in an all-valve cascode circuit. In the M 10 the subsequent voltage amplifier stage is based on two 6SN7 valve systems with high transverse current wired in parallel, enabling the circuit to drive the following current amplifier stages at very low impedance. In the S 10 a special high-voltage MOSFET voltage amplifier stage with the characteristics and performance of a triode is responsible for this task. This circuit ensures that both input stages have excellent bandwidth and speed, which determine the sound qualities of the amplifier as a whole. The current amplifier stages feature MOSFET driver transistors, whose transfer characteristics harmonise superbly with the Voltage Amplifier Stages of the Input sections. The high current output stages are equipped with no fewer than twenty extremely high-performance ring emitter bi-polar transistors. These transistors satisfy the most demanding requirements in terms of current delivery capability and bandwidth.

Linearity

All the amplifier stages of the M 10 and S 10 are designed in such a way that they are totally linear and undistorted in operation. Achieving this performance requires the use of nothing but the best possible components; these parts are carefully matched to each other and calibrated in-house for each unit using sophisticated selection processes.

The level of linearity and bandwidth achieved is so high that it has been possible to completely avoid the use of overall feedback. This results in avoiding any negative feedback or influence by the speakers on the sound characteristics of the amplifiers.

Twin output stages

Another special and unique feature of the M 10 is the duplication of the output current amplifier (power amplifier). Each of these output amplifiers is capable of up to 1000 Watts, and each is connected to a pair of loudspeaker terminals. The two output amplifiers can either be wired in parallel – in order to increase current delivery capability – or in bi-amping mode; in this case a separate signal is fed to the bass and mid-range / high-frequency circuits of suitable loudspeakers, i.e. types equipped with bi-amping terminals. Even if the loudspeaker connected to the amplifier is not fitted with bi-wiring / bi-amping terminals, the two loudspeaker outputs can still be connected to the loudspeaker terminals using separate cables. In this configuration all the internal and external speaker leads are wired in parallel, and all four loudspeaker relays present in the M 10 also operate in parallel, resulting in extremely low dynamic internal resistance, and optimum damping for the loudspeaker. The outcome is excellent control of speaker cone travel, maximum possible control in the bass range, and superb detail resolution in music reproduction.

High-performance energy supply

The M 10 and S 10 feature a total of three independent mains power supply units with three high-quality toroidal transformers with low electromagnetic stray fields. A high-voltage mains section with extremely sophisticated regulation powers the valve circuits of the voltage amplifier section. It is located below the valves at the top of the cabinet. The constancy of the valve supply voltages is better than 10 ppm! The two power amplifiers are fed by a pair of high-performance transformers, each rated at 1000 Watts, and with a total reservoir capacity of more than 180,000 μ F. This guarantees more than adequate power reserves at any time, capable of coping with any imaginable load situation. These power supplies are located in the lower part of the housing. The transformers are encapsulated and housed in a steel shielding enclosure.

HighCurrent / HighPower modes

Another truly unique feature is the facility to switch the operating voltage of the M 10 and S 10 output stages between the values ± 50 V or ± 40 V respectively (High Current mode) and ± 100 V or ± 80 V respectively (High Power mode). Selecting the lower operating voltage more than doubles the idle current in the output stages, with the result that the current amplifiers of the M 10 generate up to about 60 Watts and the S 10 generate up to 35 Watts in pure Class A mode. We particularly recommend this High Current mode of operation if your system features high-efficiency loudspeakers, and for general listening at normal volume levels. The High

Power mode enables the amplifiers to generate a maximum output of well over 1500 Watts (into 2 Ohms). This mode of operation is especially recommended for use with high-impedance loudspeakers (impedance higher than 6 Ohms), and for general use when high power is required.

Intelligent control system

The M 10 and S 10 cannot simply be switched on; they have to "ramp up" slowly, otherwise the mains would collapse. For this reason a cleverly programmed micro-processor is responsible for all power-on and control processes. It also controls the protection circuit, and monitors the mains voltage, the internal supply voltages and the operating temperatures. The system also monitors the loudspeaker outputs for D.C. voltage errors, short-circuits and overload, thereby protecting the loudspeakers connected to the unit. The cause of any problem is displayed on the front display.

Construction

The case is of two-stage construction: the external aluminium parts are permanently screwed together to form a housing which contains an integral chassis frame for the steel sub-assemblies.

The valve input stage is mounted on an amagnetic chassis cradle, which is completely isolated from the power section. The valves are electromagnetically shielded by grounded protective grilles.

The two power amplifiers are located to left and right on solid aluminium heat-sinks, whose substantial mass disperses the waste heat, and effortlessly dissipates it.

The mains section circuit board is located in the bottom part of the housing, and provides a gigantic reservoir of energy. For electromagnetic shielding purposes the transformers are accommodated in a solid steel case in the bottom of the M 10.

The front and rear panels are press-formed from pure aluminium using a sophisticated tool, while the rounded side parts contain vibration dampers which de-couple the machine's feet.

Back panel connections

Pre-amplifiers can be connected using Cinch / RCA, XLR 3-pole or XLR 4-pole plugs. The M 10 features two identical output stages, each of which is connected to a pair of the latest High-End loudspeaker terminals (WBT nextgen™). This makes it possible to connect suitably equipped loudspeakers in bi-amping / bi-wiring mode. In this configuration one output stage handles the bass range and the other the treble / mid-range (bi-amping ON). In the bi-amping OFF position the output stages are wired in parallel, but bi-wiring is still possible in this mode. Moving the left slide-switch to High Current doubles the idle current. In this mode an output of up to sixty Watts is possible in pure Class A mode! In the downwards position the full operating voltage is used and the M 10 works in High Power Mode.

Specifications

High Power Mode (Auto)



<i>Nominal Power* 8 Ohm</i>	550 W
<i>Nominal Power* 4 Ohm</i>	1000 W
<i>Peak Power* 8 Ohm</i>	570 W
<i>Peak Power* 4 Ohm</i>	1070 W
High Current Mode	
	Up to 60 Watts pure Class A mode
	Up to 250 Watts in Class AB mode
* <i>Umains = 240V (230 V - Version)</i>	
* <i>Umains = 120V (115 V - Version)</i>	
<i>Frequency response (0 - -3dB)</i>	1 Hz - 150 kHz
<i>Slew rate</i>	65 V / μ s
<i>Damping factor 4 Ohm</i>	> 115
<i>Signal / noise ratio</i>	> 114 dB
<i>Total harmonic distortion (5 W, 4 Ohm, 1 kHz)</i>	< 0,009 %
<i>Inputs</i>	Cinch / RCA, XLR 3pin, XLR 4pin
<i>Power-spply reservoir capacity</i>	180000 μ F
<i>Power requirements 110 - 120 V / 50 - 60 Hz or 220 - 240 V / 50 - 60 Hz</i>	2500 W
<i>Dimensions (H x W x D)</i>	52 x 35 x 48 cm
<i>Weight</i>	52 kg
<i>Available finishes</i>	Silver aluminium, Titanium acrylic glass alternatively in grey or blue
<i>Remote control</i>	via P 10 or R-System
<i>we reserve the rights to alter specifications</i>	