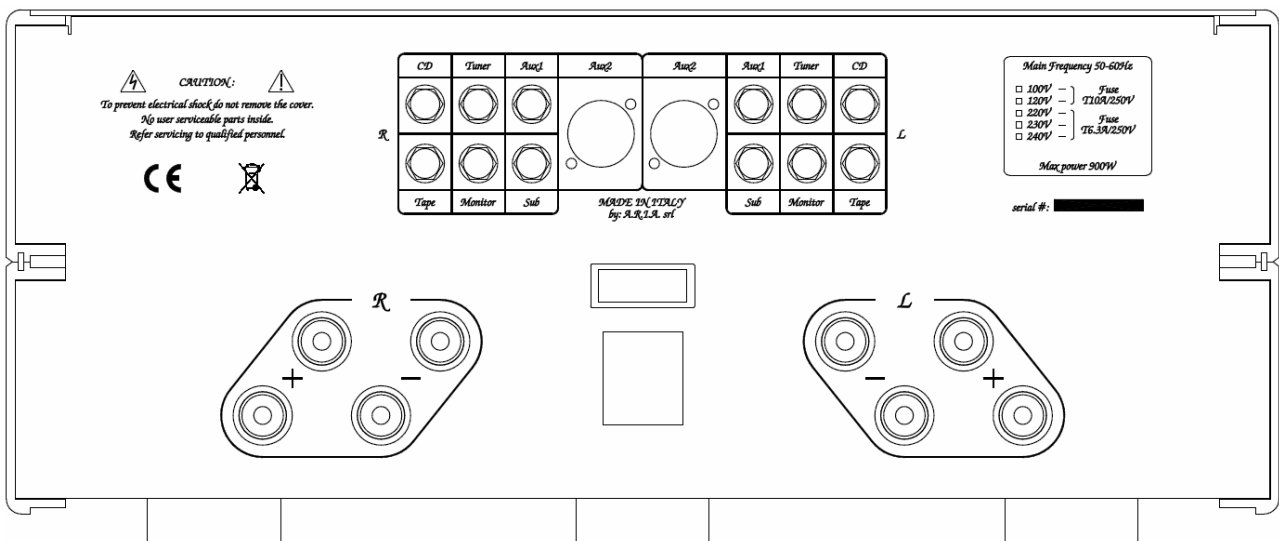


# UNISON

## *Unico100*

# RESEARCH



Exploiting the inheritance passed on by renowned forerunners and introducing revolutionary news: here's the philosophy that stays behind the design of our new *Unico100*.

### *Introducing the Unico100*

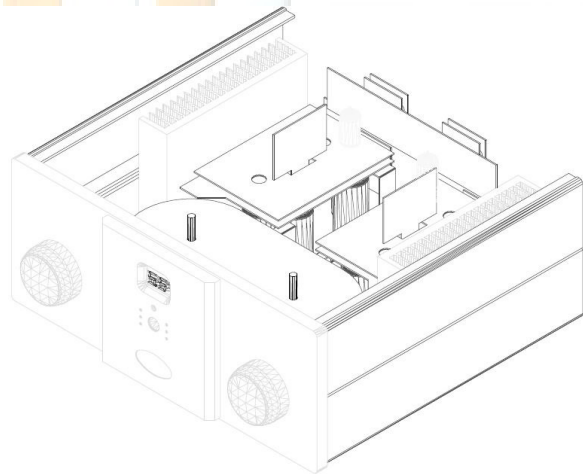
At the first glance you can see the close aesthetic tie between the new *Unico100* and the well-known, extremely valued and award-winning *Unico200*.

The structure of the front is the same, based on a double aluminium panel that give to the amplifier that massive and important look suited to the most prestigious models of *Unico* series while the chassis is in black hairlined aluminium as dictated by new aesthetic trends introduced by *Unico secondo*.

*Unico100* is a hybrid integrated amplifier in dual-mono configuration: every stage from power supply to output stages is doubled and dedicated to only one channel.

Lots of well known and tested solutions have been used in this new project. Together with these traditional elements, part of the know-how of *UnisonResearch* design staff, we introduced new and almost revolutionary features.

*Unico100* is the first model of the entire *Unison* production using a high-performance digital controlled volume control, as we'll see later this solution offers lots of interesting possibilities.



### *Details*

Introducing the new *Unico100* we enrich the proposal of high-level products of *Unico* series that keeps its flagship in *Unico200*.

As already mentioned *Unico100* and *Unico200* shares similar front panels with the same big knobs, the result is a solid looking product. It's a big amplifier but it looks smaller and compact thanks to a careful design and the right proportions. Beware that it's not only a

matter of appearance: this is really a massive and robust stuff of more than 25kg.

An iron chassis brings all the elements, power transformers, heatsinks and so on, the aluminium side modules increase the rigidity of the structure and ensure a good looking appearance, also the massive front panel (more than 3 kilos of aluminium) has a mechanical function and not only aesthetical.

One of the most important news introduced in this new project is the "digital" volume control with all the features it brings together. Actually this volume control is an integrated high-precision resistors array follower by a set of digitally controllable analog switches, it's used in reference products and has high quality performances.

If you have a microcontroller setting the volume you know in every moment exactly the attenuation of the input signal so you can show it. Using a seven segment display you'll have a visible and direct indication of the volume level, the two digit display allow the user to have a 99 step precise volume regulation.

Let's start a deeper analysis of *Unico100* from the input section. As in all our most valued amplifiers we use golden connectors each one hand screwed to the chassis, the input selection uses a set of miniature high-quality relays controlled by the microprocessor. The input signal goes through a high precision integrated instrumentation amplifier featuring excellent CMRR, bandwidth and low noise; both balanced and unbalanced signal are processed through this stage in order to increase the maximum input voltage, to control input impedance and to eliminate ground loops caused by interconnection cables.

Going further the signal is passed through the volume control IC. We use a stereo control for each channel, half regulate the volume of the signal going to the audio stages, the other half control the volume of sub output. In this way we have a real dual-mono configuration and we're able to fully control the setting of the system.

The signal path is as short as possible, going from input connector to the control circuit and then to the preamp stage in only few centimetres and with minimal decay.

Preamplification stage is a double triode stage (common cathode follower by a common anode stage) using a ECC83/12AX7 tube.

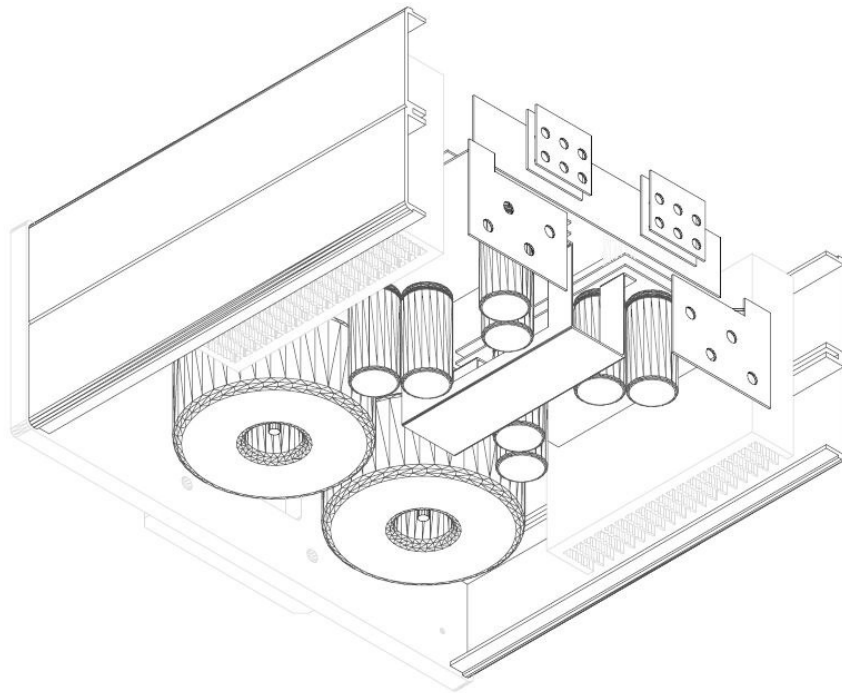
The output voltage offset correction is a non-trivial problem, especially in an amplifier where the valve pre stage is directly coupled with the solid state power stage and where a very low feedback factor is applied, so to get the best sound from an amplifier combining

the output power of a solid state design with the musicality and the warmth of the tubes.

The solution conceived consists of a circuit with a special topology which ensures an effective regulation of the dc component of the output signal, without compromising the system performances even at very low frequencies.

powered on. With a push of the front panel button or with your remote control you can wake up the system, a check will be performed and then a countdown on the display will lead you till the operating state.

The two knobs on the front are connected to a couple of ALPS high precision encoders: by rotating them you can select the input line and set the volume, by pushing them you activate the tape loop and muting function.



The driver stage employs successful solutions inherited from *Unico secondo* and *Unico200* based on multiple current mirrors, cascode structures, multiple low power high performance devices in parallel instead of few high power transistors.

Output stage uses three parallel couple of mosfet for each channel with a massive capacitors bank placed near the devices in an ideal topology.

**Unison Research** design staff has reached such a good result in spite of all the difficulties thanks to the long dated experience and the use of advanced 3D drawing software.

As in all real dual-mono amplifiers *Unico100* uses two toroidal power transformers designed for an impressive power of 450 VA each., well designed and well built, reliable and safe.

But most of the time the user can hardly, at the first glance, appreciate what's inside the amplifier, he interacts with the product through an interface that need to be easy and pleasant to use.

As in *Unico200* here there is a standby function, you can keep your *Unico100* in a very low power wasting state with only the microcontroller and the display

Since everything is microcontroller operated and we develop the software by our own we're able to experiment, improve and add functions (like ramping or fading the volume or turning off the display or setting different attenuation for the sub output and so on).

In designing the *Unico100* we took care about lots of details that can really improve the quality of a product even if they seem to be negligible.

As an example our efforts in disposing carefully every component allowed us to place only three feet beneath the chassis ensuring maximum steadiness on every surface.

In this new project we putted all our consolidated experience and lots of winning innovations, everything tends to make *Unico100* a new reference point in **Unison Research** catalogue.

### Technical characteristics

Output power: 180W RMS on 8Ω  
340W RMS on 4Ω

Frequency response: flat @ 10Hz  
-0.3dB @ 100kHz

Input impedance: 47kΩ

Input sensitivity: 280mV RMS

Input stage: Pure A Class.  
Double tube stage  
ECC83/12AX7

Output stage: Dynamic A Class  
triple POWER MOSFET  
complementary pair

Inputs: 4 line unbalanced  
1 line balanced

Line Outputs: 1 tape, 1 sub (volume  
controlled)

Outputs connectors: 4 + 4 bi-wiring

Feedback factor: 15dB

THD: < 0.1% @ 180W

Power consumption: 900W max

Dimensions: 17in x 7in x 17.3in

Net weight: 55lbs