

*Unico 90*



# USER MANUAL

Congratulations on your purchase of a *Unison Research*<sup>®</sup> - *A.R.I.A. Advanced Research In Audio S.r.l.* audio component.

Every *Unison Research* product is the result of our extensive electronic design experience and of the deep knowledge of vacuum tubes and the way to obtain the best performances from them we have gained over the years. It also express our passion for building unique and valuable pieces of audio equipment in which traditional craftsmanship and advanced electronics join together in harmony.

Our products are built using the finest components and materials. Each one is carefully inspected at various stages of the production process and finally tested to satisfy our own high reliability and quality standards.

Please read and observe all warnings and instructions in this owner's manual and all those marked on the unit to get the best performances from your new *Unico 90* for many years to come.

## 1. UNPACKAGING

Please make sure that the packaging is undamaged and the product has not suffered from rough handling during transportation, otherwise we highly recommend to contact your Authorised Dealer for advice before proceeding to install the unit.

Carefully remove your amplifier and all the accessories from the carton. Inside the package you'll find:

- 1 *Unico90* amplifier
- 1 power supply cable
- 1 user manual
- 1 remote control handset

**IMPORTANT!** After unpacking please allow some hours before operating the device in order to let it adapt to the room temperature. This time is needed to prevent any possible damage due to the condensation which can eventually form during transportation. Please note, that condensation can form every time the amplifier is moved from a cold to a warm place.

Keep all packing materials: every time you will need to transport the *Unico 90* , its original purpose-designed carton will provide the safest packing.

## 2. INSTALLATION

The *Unico 90* should be positioned in a safe place on a plane surface. Adequate clearance must be left above and around the device to guarantee a correct ventilation.

We also suggest to leave enough free space behind your *Unico 90* to allow the connecting cables sufficient room to bend without crimping or strain, and we strongly recommend not to place the device directly on a power amplifier top surface or, in general, close to a heat source.

### 3. CONNECTION TO THE MAINS

The *Unico 90* is set at the factory to the appropriate mains voltage of the country it will be shipped to.

**IMPORTANT!** The voltage setting may not be changed by the user.  
**Never connect the *Unico 90* to AC mains if the local voltage doesn't match the value indicated on the rear panel!**

The mains fuse is located in the fuse-holder integrated in the IEC mains socket and inside the amplifier.

**IMPORTANT!** Always replace fuses with new ones of the same type and value.

### 4. OPERATION

#### SWITCHING-ON AND WARM-UP

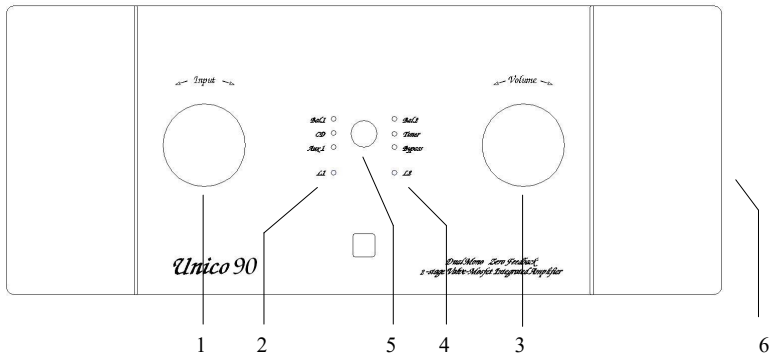
**WARNING!** Switch on the *Unico 90* only after all the connections have been made and checked.

Before switching on, ensure that the volume control is at zero (fully anti-clockwise), and allow it to remain in that position until the initial automatic start-up phase is complete.

Just after switching on *Unico 90* automatically starts a *warm-up* phase, the LEDs placed on the front panel between the input selection and volume knobs blink. In this status output stages are disabled.

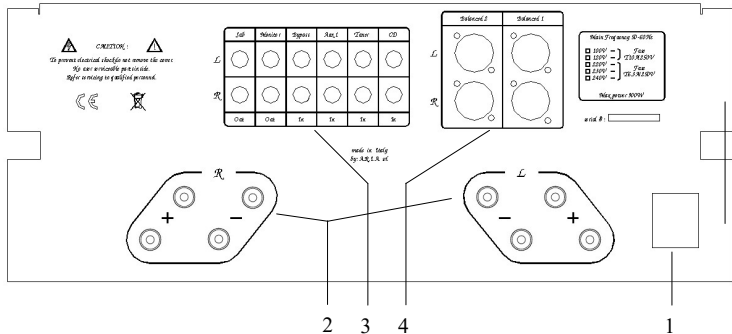
The working temperature for the tubes is reached less than 40 seconds after switching on but best results will be obtained after approximately 10 minutes from switch-on.

## FRONT PANEL



- 1) SELECTOR KNOB
- 2) LED INPUT
- 3) VOLUME KNOB
- 4) LED VOLUME
- 5) IR RECEIVER
- 6) MAIN SWITCH (ON THE SIDE)

## REAR PANEL



- 1) MAINS PLUG
- 2) OUTPUT CONNECTORS
- 3) UNBALANCED LINE-LEVEL INPUT AND OUTPUT CONNECTORS
- 4) BALANCED LINE-LEVEL INPUT CONNECTORS

L'Unico90 has two LEDs which provide the user with important information about the operating condition of the amplifier.

**LED INPUT AND LED VOLUME ON:**

indicates normal operation

**LED INPUT AND LED VOLUME blinking (fast):**

indicates automatic start-up phase (approx 40 seconds)

**LED INPUT AND LED VOLUME blinking (slow):**

indicates intervention of the thermal protection device, power stage is switched off.

When the internal temperature has returned to normal the amplifier will switch on automatically and repeat the initial start-up phase.

It is advisable to switch off if the amplifier if the thermal protection device intervenes. This will speed up return to normal operation

**LED INPUT ON e LED VOLUME blinking:**

indicates that the amplifier is receiving a signal from the IR remote control (volume changing).

If there is a temporary loss of mains electricity (even of very short duration) the amplifier will restart in automatic start-up mode.

## **REMOTE CONTROL**

Unison Research® amplifiers are supplied complete with infrared remote control.

Your remote control handset is fitted with a battery type CR2032 - 3V (lithium battery).

**IMPORTANT! The use of the remote control with Unico 90 allows only volume control by acting on Vol- e Vol+ buttons.**

**Line Outputs:**

**Line outputs:**

**sub out**

This output provides audio signal buffered from the selected input, the level of output is determined by the position of the volume, output is not limited in band.

**monitor**

This output provides buffered audio signal from the selected input

**Bypass input:**

This input allows to use Unico 90 as a power amplifier. The audio signal from this connector goes directly to the mainboard without passing input selector and volume control.

**ATTENTION!**

**Connect and select this input with amplifier turned off and with the source volume set to minimum, turn on source first and then the Unico 90**

**Select this entry only if it is actually connected to a source.**

**Selecting this input with amplifier already turned-on may produce noise during switching**

## 1. FUSES

Inside the *Unico 90* there are twelve fuses.:

$$F_{s1h}, F_{s2h} = 1\text{AT} / 250\text{V}$$

$$F_{saf1L}, F_{saf2L} = 1,5\text{AT} / 250\text{V}$$

$$F_{saf1R}, F_{saf2R} = 1,5\text{AT} / 250\text{V}$$

$$F_{ssrv1}, F_{ssrv2} = 400 \text{ mAT} / 250\text{V}$$

$$F_{sal1L}, F_{sal2L} = 10\text{AT} / 250\text{V}$$

$$F_{sal1R}, F_{sal2R} = 10\text{AT} / 250\text{V}$$

The value for the main fuses is:

**10AT / 250V** (mains voltage 100V/120V) or

**6,3AT / 250V** (mains voltage 220V/230V/240V).

These fuses are all 5 x 20mm glass fuses. If one of these fuses should blow we advise you to consult your Authorised Dealer or Service Centre for advice.



## 5. SAFETY AND MAINTENANCE

**Never operate the device with either the bottom or top covers removed.**

### **Do not open the amplifier !**

There are no user serviceable parts inside. For technical assistance or product service please refer to your Authorised Dealer or to a Unison Research® authorised Service Centre.

### **Do not spill liquid into the amplifier !**

If liquid should be accidentally spilled into the amplifier remove the mains plug from the wall socket immediately and seek assistance from an authorised Service Centre before attempting to operate it again.

**Before inserting the mains plug into the wall socket ensure that the switch on the amplifier is in the “OFF” position.**

**Valve replacement should be carried out using only valves of the same type and matched in pairs.**

The *Unico 90* uses two valve type ECC83 (12AX7) and four type ECC81 (12AT7). The amplifier has been designed for maximum valve life: in laboratory tests 1500 hours life have been exceeded.

### **IMPORTANT!**

**Before attempting valve replacement make sure that the amplifier is switched off and remove the mains power cord from the amplifier. If in doubt your Authorised Dealer or Service Centre will be able to assist with this operation.**

### **Cleaning the *Unico 90*.**

Cleaning has to be done after switching off the device and allowing the amplifier to cool down. Use a soft dry cloth. Do not use solvents or alcohol-based detergents. Do not rub hard on the screen-printed legends.

**Never operate the amplifier when covered!  
Adequate ventilation is essential at all times!**

## TECHNICAL SPECIFICATIONS

Output power:	100+100 W RMS su $8\Omega$ 180+180 W RMS su $4\Omega$
Frequency response:	-1dB @ 12Hz e 45kHz, -3 dB @ 6Hz e 80 kHz
Input impedance:	21k $\Omega$ //300pF
Input sensitivity:	860mV RMS
Input stage:	Pure A class, double triode totem pole ECC83 and parallel totem pole ECC81 This single stage due to the particular circuitry is able to amplify the input signal and drive directly the power stage..
Output stage:	Class AB thermostable, complementary Hexfet (3 pairs for channel)
Number of stage	2, This amplifier due to the particular circuitry is realized by only two stages: input stage and output stage, and use only local feedback
Input:	6 line (3 unbalanced, 2 balanced, 1 "bypass" unbalanced)
Line Outputs:	1 tape, 1 sub (volume controlled)
Output connectors:	4 + 4 bi-wiring
Global Feedback factor:	0 dB
THD:	< 0.15% @ 1kHz, 1 W < 0.50% @ 1kHz, 10 W
Output resistance:	<0.4 ohm, resistive on all audio frequencies
Power Consumption:	550 W (at max power on $8\Omega$ )
Dimensions:	43.5cm x 18 cm x 44 cm
Net weight:	20 kg