



3

312 stereo amplifier

User manual



Dear client

We are proud that you have chosen a solution stereo amplifier. In doing so, you have acquired an audio component of outstanding quality with exceptional sonic performance which we are sure you will enjoy for many years to come.

It is important that you study this user manual carefully, step by step, before you install the 312 stereo amplifier in your audio system. The manual contains information on how the 312 stereo amplifier works, relevant safety instructions and recommendations for optimizing your entire audio system.

If you have any questions regarding the installation, setup or operation of your 312 stereo amplifier, please do not hesitate to contact your dealer.

Enjoy!

A handwritten signature in blue ink, appearing to read 'Chassis'.

solution Team



CE-Declaration of Conformity

Spemot AG declares that this product conforms to the following directives and standards:

Low Voltage Directive 2014/35/EU

Electromagnetic Compatibility 2014/30/EU

FCC-Notice

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation.

If this equipment is found to cause unwanted or harmful interference to radio or television reception when switching on or off, the user is encouraged to take one or more of the following measures:

- adjust or relocate the receiving antenna of the affected appliance
- increase the separation between the equipment and the receiver
- connect the equipment into a mains outlet on a circuit different from that to which the receiver is connected
- consult your dealer or an experienced radio/TV technician for help

Disposal

According to Directive 2012/19/EU of the European Parliament, consumer electro-technical appliances must display the following symbol and must be disposed of separately. In the event of this component requiring disposal please do so in conformity with all locally applicable legal and environmental regulations.





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1 Highlights

1.1 Power amplifier

At its core is an innovative voltage amplification stage that consists of linearized amplifiers operating up to a cut-off frequency of 80MHz. Current amplification is done in three stages, each with a narrow, almost linear operating range.

1.2 Power supply

Four switched mode power modules with multistage filter networks provide the required power for the amplifier. Induction of noise is omitted by physical separation from the amplifier boards and effective shielding. Switched mode power supplies provide supply voltages that are more stable and lower in noise than other power supply technologies.



2 Safety advice:

User manual	<ul style="list-style-type: none">⇒ Follow the safety advice⇒ Keep this user manual
Mains supply	<p>3 phase power cords with a ground conductor are mandatory. Unplug the 312 from the mains:</p> <ul style="list-style-type: none">⇒ before you adjust or manipulate mains cables⇒ before cleaning the unit⇒ during thunderstorms⇒ when leaving the unit unused for longer periods
Cabling	<p>Unplug the 312 from the mains while connecting or disconnecting interconnect cables. Incorrect cabling may cause damage to your 312 or loudspeakers. Excessive volume due to inappropriate handling may cause hearing damage.</p>
Transport	<p>Use only the cart, stand, tripod, bracket or table specified by the manufacturer or sold with the apparatus. When a cart is used, take care when moving cart/apparatus combination to avoid injury or tipping over.</p>
Packing	<p>To avoid the formation of water condensation within the 312, allow it to reach room temperature before unpacking it. Keep the original packing safely for future transport requirements.</p>
Operation	<p>Never run your 312</p> <ul style="list-style-type: none">⇒ whilst the casing is open⇒ with obstructed cooling slots⇒ in high ambient temperatures (>40 °C)⇒ in proximity to heat sources like radiators, etc.⇒ in areas of extreme humidity (for example in a humid cellar)⇒ close to water (sink, bathtub, taps or similar facilities)
Cleaning	<p>Use a soft and dry towel. We suggest using a nonabrasive microfiber towel. Please do not use any solvents or liquids.</p>
Service	<p>Service by a qualified person will be required if</p> <ul style="list-style-type: none">⇒ the mains cable or the mains connectors are damaged⇒ foreign substances or liquids have entered the 312⇒ if the 312 has been rained on⇒ the 312 exhibits any form of malfunction⇒ the 312 has been dropped⇒ if the casing is damaged



3 Scope of delivery

- ⇒ 312 stereo amplifier
- ⇒ IR remote control
- ⇒ Mains cable
- ⇒ Spare fuses
- ⇒ User manual
- ⇒ Set of shims

Please check the scope of delivery. If anything is missing or you notice any damage while unpacking, please contact your authorised dealer.

4 Setup

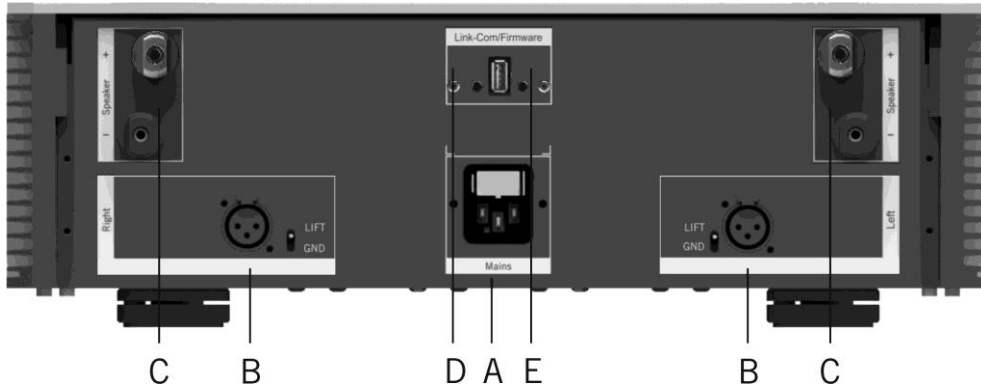
Remove the 312 stereo amplifier carefully from the cardboard boxes and position it on a stable surface in an appropriate location ensuring cooling air can circulate and escape unhindered. Do not cover the surface of the 312 stereo amplifier with a cloth or any other object as the complete chassis acts as a heat sink.

The feet of the 312 stereo amplifier feature a constrained layer damping system which will mitigate vibrations away from the unit. The damping system is designed to work on any surface material. The feet shims are used in case the surface of your audio rack is not perfectly in level.

For best results we suggest using a dedicated audio rack system for all of your audio components.

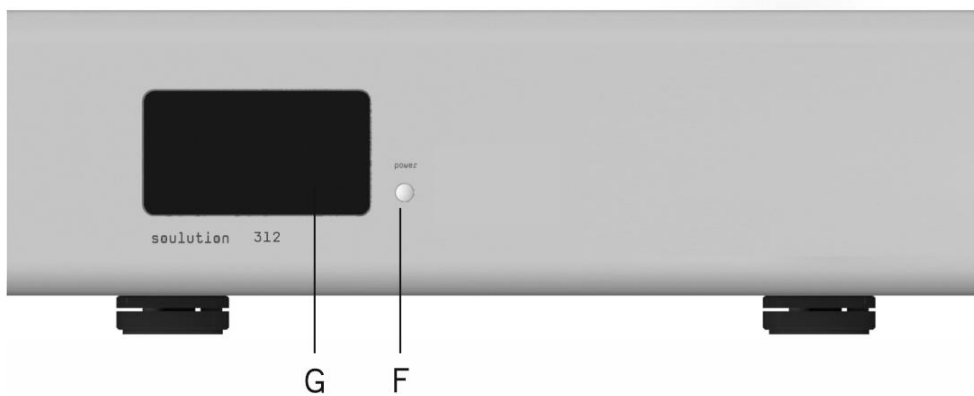


5 Rear and front view



Rear view of the 312 stereo amplifier

- | | |
|-------------------|-------------|
| A) AC mains input | D) Link-com |
| B) Input | E) Firmware |
| C) Speaker | |



Front view of the 312 stereo amplifier


- | | |
|-----------------|-----------------------|
| F) power button | G) Display and IR eye |
|-----------------|-----------------------|



6 Connections

6.1 AC mains input (A)


Connect the 312.stereo amplifier to the mains supply. Please use a high-quality power cable for optimal sonic results. The 312 has no power switch. The device will enter standby mode as soon as it is connected to the mains supply.


-  **unplug mains** Unplug the unit from the mains supply when
- ⇒ left unused for longer periods
 - ⇒ adjusting the wiring of your audio system
 - ⇒ during thunderstorms
 - ⇒ Set the 312 to standby before unplugging it from the mains.

6.2 Input (B)

Connect your preamplifier with balanced cables to the 312 stereo amplifier.

XLR-pin-out: pin1 = ground, pin2 = non-inverting input, pin3 = inverting input

-  **Clipping** Make sure that the maximum input voltage of the 312 stereo amplifier is not exceeded.

-  **Hot plugging** Before you change the cabling of the 312 stereo amplifier always revert the unit in standby and disconnect it from the mains.

6.3 Speaker (C)

Its exceptional load stability allows the 312 stereo amplifier to drive any loudspeaker.

6.4 Link-Com (D)

The Link-Com interface is required for remote power up of the 312

6.5 Firmware (E)

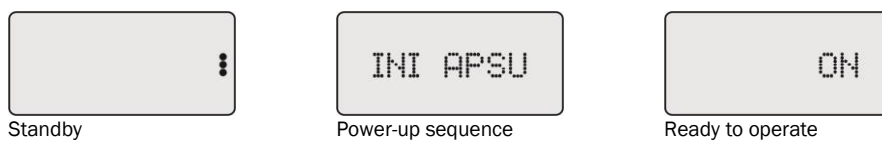
The USB input is provided for firmware updates only. Please refer to section 10



7 Operation

7.1 Power (F)

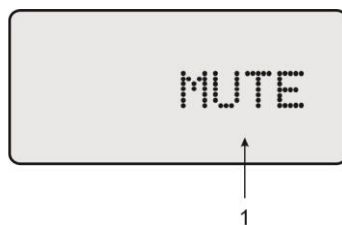
The power (I) button turns on the 312 stereo amplifier. The start up sequence takes a short while as the power supplies for the different sections of the circuit are initiated. Progress will be reported in the display (G). Once the unit is ready to operate it will show the active input and volume level in the display (G).



If the 312 stereo amplifier is on, the power (F) button will put the unit back into standby (power consumption <1W).

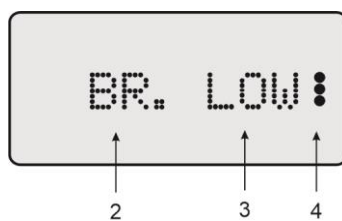
7.2 Display (G)

Normal mode



- 1) Status:ON or MUTE

Configuration mode



- 2) Configuration function
- 3) Value of function
- 4) LEDs are lit whilst values are changeable



8 Configuration

The 312 stereo amplifier as well as the IR remote control are set to the remote-ID „Pre 2“. If you deactivate the reception of IR signals for the 312 with the function REMOTE, the program functions remain accessible through the IR remote control (Remote ID: „Pre 2“).



Press the P button (Prog) for switching 312 stereo amplifier to program-mode.



The ◀ ▶ **buttons** allow selecting the desired program-function



Press the ↵ button (Enter) to activate the value domain of the selected program-function (red LEDs in display).



The ◀ ▶ **buttons** allow for adjusting the value of the selected program-function.



Press the ↵ button to approve the selected value.



Function	Values	Remarks
<div style="border: 1px solid black; padding: 2px; width: fit-content; margin-bottom: 5px;">PWR-MODE</div> <p><u>Power-Mode:</u> Defines start-up behaviour</p>	<div style="border: 1px solid black; padding: 2px; width: fit-content;">PWR-NORM :</div>	Power-up with power-button, default value
	<div style="border: 1px solid black; padding: 2px; width: fit-content;">PWR-LINK :</div>	311 waits for external LINK Signal
	<div style="border: 1px solid black; padding: 2px; width: fit-content;">PWR-AUTO :</div>	Switches on automatically as soon as mains voltage is active.
<div style="border: 1px solid black; padding: 2px; width: fit-content; margin-bottom: 5px;">BRIGHTH.</div> <p><u>Brightness:</u> Defines the brightness of the display</p>	<div style="border: 1px solid black; padding: 2px; width: fit-content;">BR. LOW :</div>	Low
	<div style="border: 1px solid black; padding: 2px; width: fit-content;">BR. MID :</div>	Mid
	<div style="border: 1px solid black; padding: 2px; width: fit-content;">BR. HIGH :</div>	High, Default value
<div style="border: 1px solid black; padding: 2px; width: fit-content; margin-bottom: 5px;">REMOTE</div> <p><u>Remote-ID:</u> Defines the Remote-ID for the 311.</p>	<div style="border: 1px solid black; padding: 2px; width: fit-content;">REM Pre2 :</div>	Default value
	<div style="border: 1px solid black; padding: 2px; width: fit-content;">REM OFF :</div>	The ID of the remote control has to be changed accordingly (see chapter 6)
	<div style="border: 1px solid black; padding: 2px; width: fit-content;">REM Pre1 :</div>	
<div style="border: 1px solid black; padding: 2px; width: fit-content; margin-bottom: 5px;">DEFAULT</div> <p><u>Default-Values</u> Activates the default values for all functions.</p>	<div style="border: 1px solid black; padding: 2px; width: fit-content;">LOAD NO :</div>	No action
	<div style="border: 1px solid black; padding: 2px; width: fit-content;">LOAD YES :</div>	Loads the default values.
	<div style="border: 1px solid black; padding: 2px; width: fit-content;">DONE</div>	
<div style="border: 1px solid black; padding: 2px; width: fit-content; margin-bottom: 5px;">FIRMWARE</div>	<div style="border: 1px solid black; padding: 2px; width: fit-content;">FW-00001</div>	Firmware version
	<div style="border: 1px solid black; padding: 2px; width: fit-content;">REV-0047</div>	Firmware revision



9 Remote control

Button	Pre-Mode	CD-Mode
(1) IR-transmitter	Operation until 5m distance and angel of $\pm 45^\circ$.	
(2,3) ▲ ▼	Volume +/-	
(4) DIM / ►	Volume-Dim	Play/Pause
(5/6) ◀ ▶	Select +/-	Next / Previous track
(7) ←	Enter Function for Program-Mode	
(8) P	(De)activates Program-Mode	
(9) 🔇	Mute	-
(10) ⏻	ON / OFF	
(11) 🔼	-	Open/Close
(12) PRE	-	Activates PRE-Mode
(13) CD	Activates CD-Mode	-

Change of Remote Ctrl ID:

Press the respective buttons for approx. 5 seconds.

- ⇒ Pre 1: ◀ (6), ▶ (5), ⏻ (10)
- ⇒ Pre 2: ◀ (6), ▶ (5), 🔇 (9)
- ⇒ Phono ◀ (6), ▶ (5), ← (7)
- ⇒ DAC ◀ (6), ▶ (5), P (8)

Exchange of batteries (2 x AAA):

- ⇒ Open the battery tray on the rear side.
- ⇒ Insert the batteries into the tray as indicated.
- ⇒ Ensure correct polarity of the batteries.
- ⇒ Close the tray with corresponding screw.
- ⇒ Dispose the exhausted batteries





10 Firmware Update

USB-Stick:

The firmware of all soulution products can be updated via the USB port on the back panel. To update firmware, please prepare a USB stick (FAT32 formatted, UBS2.0) containing the required firmware data.

You can find the latest firmware for your 312 stereo amplifier on our website www.soulution-audio.com. Unzip the downloaded .zip file and copy the firmware files to the root directory of the USB stick. Make sure there are no other files or folders on the USB drive.

Update-process:

- ⇒ Prepare the USB stick with the firmware files (no other files should be present).
- ⇒ Unplug the unit from the mains supply.
- ⇒ Insert the USB stick into the USB interface "Firmware".
- ⇒ Connect the unit to the mains supply.
- ⇒ Follow any instructions in the display.
- ⇒ Once the new firmware has been successfully loaded, the 312 stereo amplifier will be in standby mode.
- ⇒ Power up the 312 integrated amplifier.
- ⇒ After the 312 integrated amplifier has completed its start-up sequence, press the prog key.
- ⇒ Select configuration function LOAD-DEFAULT and confirm with YES.
- ⇒ Configure the 331 integrated amplifier to suit your requirements.



11 Troubleshooting

No Display	Check the mains connection, the fuse of your house installation, the fuse of the 312 stereo amplifier and the brightness function. For the DISPLAY-OFF setting, the display is switched off during operation.
No music	⇒ Check the cabling of your audio system ⇒ Check whether the correct input is selected ⇒ Check whether the source component is muted
PSU FAIL...	The 312 monitors all necessary supply voltages. If a supply voltage fails, the 312 will switch itself to MUTE with the corresponding error code shown in the display.
OVERCURRENT	If a current > 30 A is detected at the loudspeaker outputs of the 312, it switches to MUTE. The display shows ERR-OCR (right) or ERR-OCL (left). Check the wiring to your loudspeakers.
DC-PROTECT	If the DC offset of the input signal is too high the unit will mute the outputs and power down. The display shows ERR-DCR (right) or ERR-DCL (left).
HF-PROTECT	If there is HF oscillations in the amplifiers the unit will mute the outputs and power down. The display shows ERR-HFR (right) or ERR-HFL (left).

12 Service

If you cannot identify or rectify a fault by following the troubleshooting measures, please disconnect the 312 stereo amplifier from the mains supply and contact your dealer.



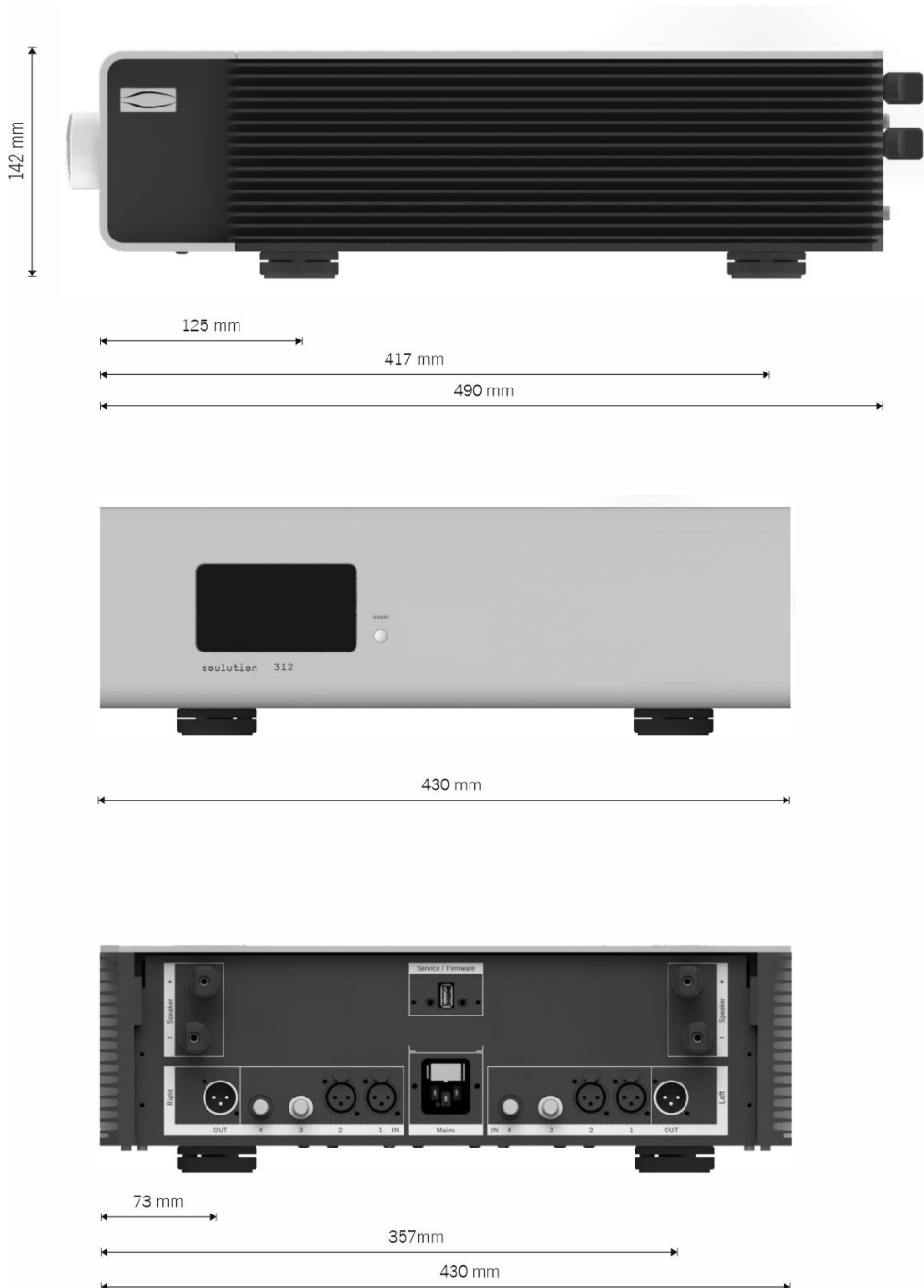
13 Specification

General		
Nominal voltage	Model 100-240V Model 220V/60Hz	100 - 240 V, 50-60Hz 220 V, 60Hz
Nominal consumption		1200 W
Consumption	Standby	<0.5 W
Input		
Impedance		2 k Ω
Sensitivity		1.55 Vrms
Main-Out		
Audio power	@ 8 Ω @ 4 Ω @ 2 Ω (< 5 sec.)	120 W 240 W 480 W
Peak output current		30 A max.
Gain		+26 dB
Frequency response		DC-800 kHz
Phase shift	@ 20kHz	<-3°
THD		<0.0004 %
Spot noise	input related	< -140 dBV/ $\sqrt{\text{Hz}}$
Damping factor		>5'000
Dimensions		
Dimensions		430 x 490 x 142 mm
Weight		ca. 17 kg

Technical specifications are subject to change without prior notification.



14 Dimensions



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