



3

350 phono stage

User manual



Dear client

We are proud that you have chosen a solution phono stage. 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 350 phono stage in your audio system. The manual contains information on how the 350 phono stage 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 350 phono stage, please do not hesitate to contact your dealer.

Enjoy!

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.





Table of contents

1	Highlights	4
2	Safety advice:	4
3	Scope of delivery	6
4	Setup.....	6
5	Rear and front view	7
6	Connections	8
7	Operation	10
8	Configuration	12
9	Remote control	13
10	Firmware Update	14
11	Troubleshooting.....	15
12	Service	15
13	Specification	16
14	Dimensions.....	16



1 Highlights

1.1 Power supply

A switched mode power supply followed by fast-switching DC-DC converters and low noise linear regulators provide the required supply voltages for the 350 phono stage. Switched mode power supplies provide supply voltages that are more stable and lower in noise than other power supply technologies.

1.2 Phono stage

A two stage, active/passive, design equalizes the input signal according to the RIAA specifications. Tight tolerance, high quality passive components in the RIAA networks ensure highest precision of the required time-constants. Three wide bandwidth, low noise amplifier stages provide 60dB gain with minimal deviations to the ideal frequency and phase response of the system. The adjustable termination impedance (via the remote or front panel controls) allows to perfectly align the 350 phono stage to your MC phono cartridge.

1.3 Output stage

The powerful output stage (max 0.2A) can also drive long connecting cables to amplifiers easily. The wide bandwidth design (> 5MHz, -3dB) ensures lowest phase shifts in the audio band.



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 350 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 350 from the mains while connecting or disconnecting interconnect cables. Incorrect cabling may cause damage to your 350, your audio system 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 350, allow it to reach room temperature before unpacking it. Keep the original packing safely for future transport requirements.</p>
Operation	<p>Never run your 350</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 350⇒ if the 350 has been rained on⇒ the 350 exhibits any form of malfunction⇒ the 350 has been dropped⇒ if the casing is damaged



3 Scope of delivery

- ⇒ 350 phono stage
- ⇒ 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

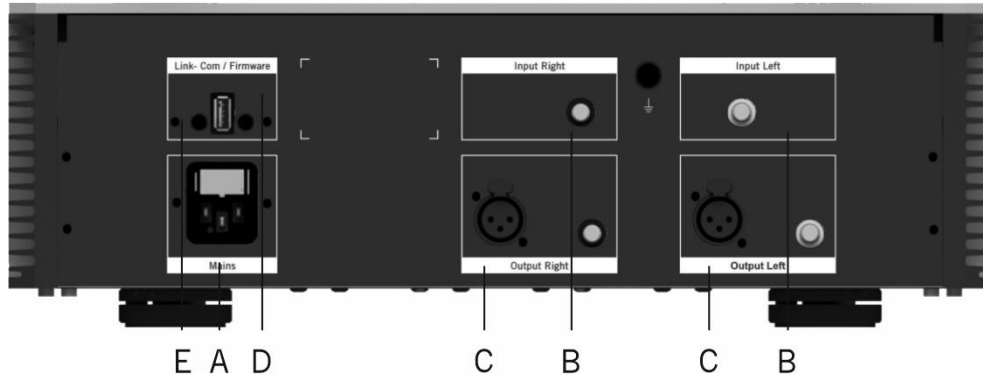
Remove the 350 phono stage carefully from the cardboard boxes and position it on a stable surface in an appropriate location ensuring cooling air can circulate and escape unhindered. Do not cover the surface of the 350 phono stage with a cloth or any other object as the complete chassis acts as a heat sink.

The feet of the 350 phono stage 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.

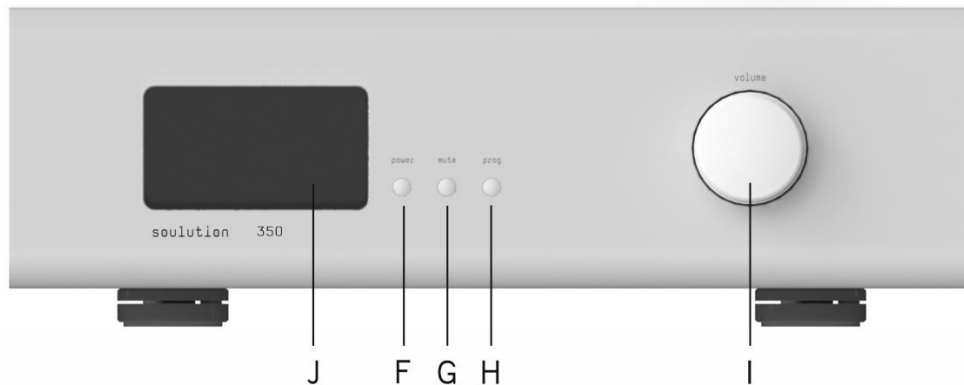


5 Rear and front view



Rear view of the 350 phono stage

- | | |
|-------------------|-------------|
| A) AC mains input | D) Link-com |
| B) Phono MC | E) Firmware |
| C) Output | |



Front view of the 350 phono stage


- | | |
|-----------------|-----------------------|
| F) power button | I) Rotary knob |
| G) mute button | J) Display and IR eye |
| H) prog button | |



6 Connections

6.1 AC mains input (A)


Connect the 350 phono stage to the mains supply. Please use a high-quality power cable for optimal sonic results. The 350 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 350 to standby before unplugging it from the mains.

6.2 Phono MC (B)

Connect your turntable (MC cartridge) to the unbalanced phono input of the 350 phono stage. The termination impedance can be optimally adjusted to your cartridge via the configuration functions.

If required, the high-pass filter according to RIAA-IEC (-3dB @ 20Hz) can be activated with the configuration function PHONO-HP. A high-grade ground terminal at the rear panel of the 350 ensures optimal ground connection to your turntable if required.

-  **Line level:** Never connect a line-level source component to the phono input. Excessive input levels will cause clipping and overheating of the phono preamplifier.

-  **Hot plugging** Before you change the cabling of the 350 phono stage always revert the unit in standby and disconnect it from the mains.

6.3 Output (C)

Due to the exceptional load stability there are no restrictions regarding the selection of your connecting cables. For long cable lengths we recommend using balanced cables.



6.4 Link-Com (D)

The Link-Com interface allows to remote power-up the 350 phono stage

6.5 Firmware (E)

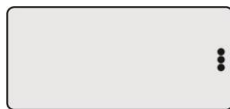
The USB input is provided for firmware updates only. For detailed instructions please refer to section 10 Firmware Update.



7 Operation

7.1 Power (F)

The power (F) button turns on the 350 phono stage. 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 (J). Once the unit is ready to operate it will show the active input and volume level in the display (J).



Standby



Power-up squence

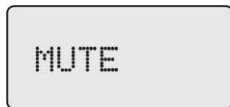


Ready to operate

If the 350 phono stage is on, the power (F) button will put the unit back into standby (power consumption <1W).

7.2 Mute (G)

The mute (G) button disconnects or reconnects the outputs from the analog circuits of 350 phono stage.



Mute

0

7.3 Prog (H)

The 350 phono stage can be configured to suit the individual requirements of your audio system. Pressing the prog (H) button (de)activates the configuration menus.



7.4 Rotary knob (I)

The multi-purpose rotary knob (I) is used to control the volume, select the input, dim the volume, and to select the configuration menus of the 350 phono stage.

Configuration mode



Turning the rotary knob (K) selects the desired configuration function.



Pressing the rotary knob (K) confirms the selected configuration function and activates the value range (3 LEDs lit).



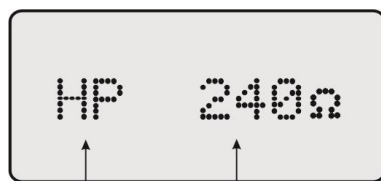
Turning the rotary knob (K) selects the desired value.



Pressing the rotary knob (K) confirms the new value.

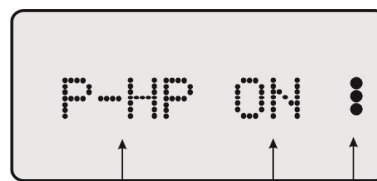
7.5 Display (J)

Normal mode



- 1) Highpass indication
- 2) Termination impedance

Configuration mode



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



8 Configuration

Function	Values	Remarks
<div style="border: 1px solid black; padding: 2px; width: fit-content;">PWR-MODE</div> <u>Power-Mode:</u> Defines start-up behaviour	<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>	350 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;">PHONO-HP</div> <u>Phono High-Pass filter</u>	<div style="border: 1px solid black; padding: 2px; width: fit-content;">P-HP ON :</div>	High-Pass-filter active, Default value
	<div style="border: 1px solid black; padding: 2px; width: fit-content;">P-HP OFF :</div>	High-Pass filter disabled
<div style="border: 1px solid black; padding: 2px; width: fit-content;">PHON-IMP</div> <u>Phono-Impedance:</u> Defines the impedance of the phono MC input.	<div style="border: 1px solid black; padding: 2px; width: fit-content;">IMP 100 :</div>	Default value
	<div style="border: 1px solid black; padding: 2px; width: fit-content;">IMP 1260 :</div>	Maximal impedance
<div style="border: 1px solid black; padding: 2px; width: fit-content;">BRIGHN.</div> <u>Brightness:</u> Defines the brightness of the display	<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. HIGH :</div>	High, Default value
<div style="border: 1px solid black; padding: 2px; width: fit-content;">REMOTE</div> <u>Remote-ID:</u> Defines the Remote-ID for the 350.	<div style="border: 1px solid black; padding: 2px; width: fit-content;">REM Pre1 :</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 9)
<div style="border: 1px solid black; padding: 2px; width: fit-content;">DEFAULT</div> <u>Default-Values</u> Activates the default values for all functions	<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;">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 350 phono stage 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 350 phono stage will be in standby mode.
- ⇒ Power up the 350 phono stage.
- ⇒ After the 350 phono has completed its start-up sequence, press the prog key.
- ⇒ Select configuration function LOAD-DEFAULT and confirm with YES.
- ⇒ Configure the 350 phono stage to suit your requirements.



11 Troubleshooting

No Display	Check the mains connection, the fuse of your house installation, the fuse of the 350 preamplifier 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 350 monitors all necessary supply voltages. If a supply voltage fails, the 350 will switch itself to MUTE with the corresponding error code shown in the display.

12 Service

If you cannot identify or rectify a fault by following the troubleshooting measures, please disconnect the 350 phono stage from the mains supply and contact your dealer.



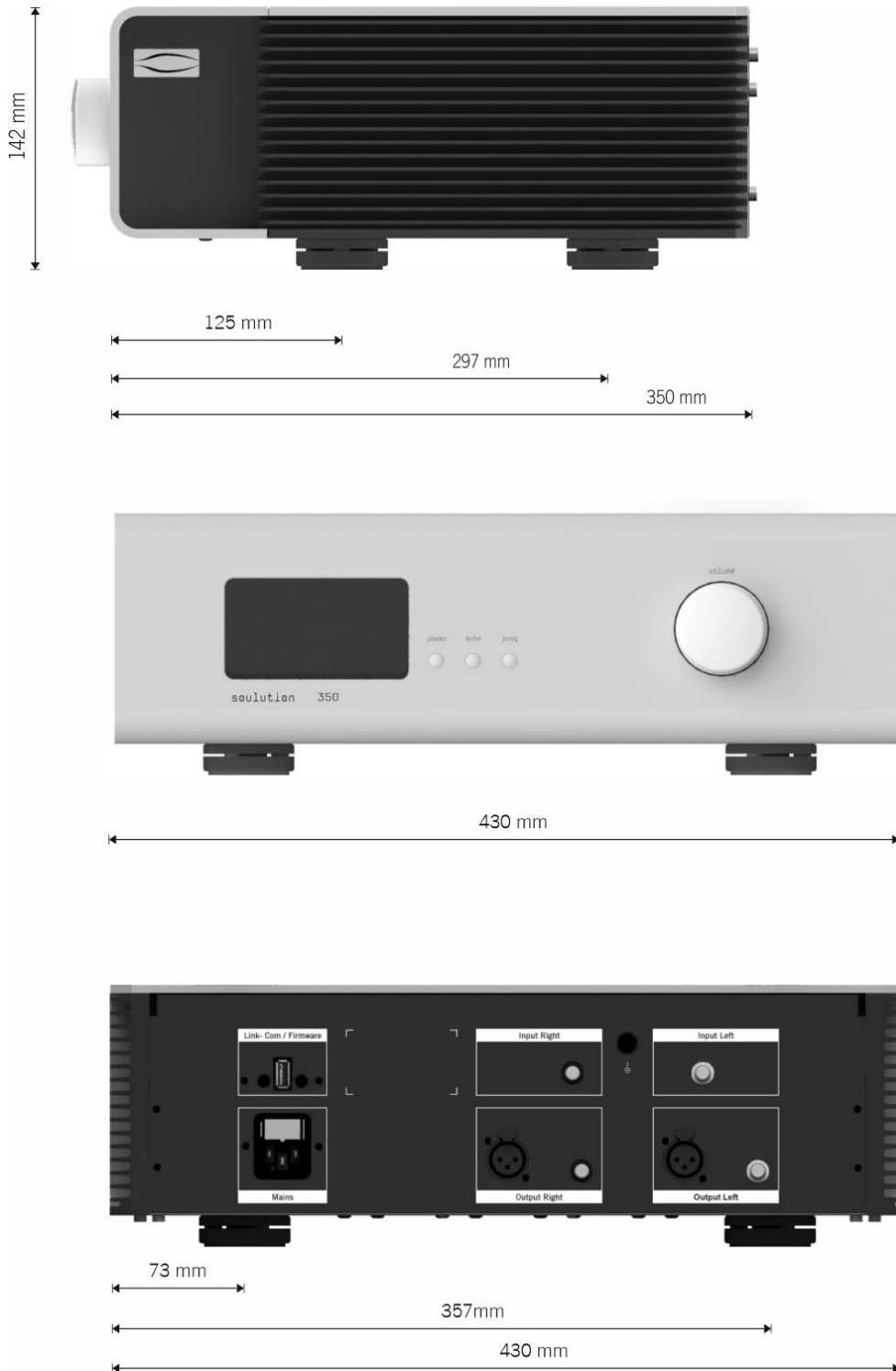
13 Specification

General		
Nominal voltage	Model 100-240V Model 220V/60Hz	100 - 240 V, 50-60Hz 220 V, 60Hz
Nominal consumption		60 W
Consumption	Standby	<0.5 W
Phono		
Input impedance		20-1'260 Ω
Gain	Balanced output Unbalanced output	+66 dB +60 dB
Frequency response	According to RIAA	DC - 2 MHz
Deviation from RIAA	20Hz - 20kHz	< ± 0.2 dB
THD		< 0.001 %
Spot noise	Input related	< -160 dBV/ $\sqrt{\text{Hz}}$
Peak output current		0.2 A max.
Output impedance	Balanced Unbalanced	10 Ω 5 Ω
Dimensions		
Dimensions		430 x 350 x 142 mm
Weight		ca. 10 kg

Technical specifications are subject to change without prior notification.



14 Dimensions



Spemot AG
Industriestrasse 70
CH-4657 Dulliken

www.soulution-audio.com
info@soulution-audio.com



part.no. 92258