

Series 5



520 Preamplifier

User manual



Dear client

We are proud that you decided yourself for a solution product. You have acquired a preamplifier with outstanding sonic performance which you will enjoy for many years.

We understand your eagerness to get started but even though please study this manual step by step before you integrate the preamplifier 520 in your High Fidelity system. This manual contains also useful tips for the optimisation of your overall HiFi-system.

If there are any questions regarding the start-up or operation of your preamplifier please do not hesitate to contact your dealer.

Have fun!

Your solution team



CE-Declaration of Conformity

Spemot AG declares that this product is in conformance with the following directives and standards:

Low Voltage Directive 2006/95/EG (EN/IEC 60065:2002)

Electromagnetic Compatibility 2004/108/EG (EN 55013:2001, EN 55020:2002, EN 61000-3-2:2006, EN61000-3-3:1995)

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 does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- adjust or relocate the receiving antenna
- 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 the dealer or an experienced radio/TV technician for help
-

Disposal

According to the Directive 2002/96/EG of the European Parliament used consumer-electro technical appliances have to be disposed separately and have to be indicated with the following symbol.



In the case of disposal of this component please do so in conformity with legal and environmental regulations.



Table of contents

1	Technical Highlights.....	4
2	Safety advice: ▲.....	5
3	Scope of delivery.....	6
4	Rear side.....	6
5	Front side.....	8
6	Remote control.....	10
7	Program-Mode.....	11
8	Trouble shooting.....	14
9	Service.....	14
10	Safety functions.....	15
11	Warranty.....	15
12	Specification.....	16
13	Dimensions.....	17

Quick-start

Unpacking	<ul style="list-style-type: none"> ⇒ Unpack your preamplifier 520 ⇒ Keep the packing for future transportations ▲ Treat the top class surface with care
Positioning	<ul style="list-style-type: none"> ⇒ Position the preamplifier 520 on a stable base. ▲ Cooling air must be able to escape unrestricted.
Cabling	<ul style="list-style-type: none"> ⇒ Disconnect all appliances of your system from the mains ⇒ Connect the 520 with your amplifier ⇒ Connect the 520 with your source components ⇒ Connect all appliances of your system with the mains ▲ While changing cables the 520 must remain disconnect from the mains.
Programming	<ul style="list-style-type: none"> ⇒ Default values for all functions are programmed. ⇒ No additional programming is required for the start-up.
Switch-on	<ul style="list-style-type: none"> ⇒ Switch-on the 520 preamplifier ⇒ Select a moderate volume level ⇒ Switch-on your source components and your amplifier ▲ Check the cabling before switch-on



1 Technical Highlights

Layout

The audio section is physically separated from the digital circuits. For minimal interferences they are additionally shielded.

Power supply

The preamplifier 520 has separate power supply units for the audio section as well as for its digital section. A multi-stage filter network reduces potential interferences to a minimum.

Volume control

Relays switched high precision metal foil resistors form an 80 steps (1 dB) volume control. Each channel has its own volume control resistor network. The volume control allows also adjusting the balance. Depending on the balance setting the volume of the left or right channel is decreased. In order to avoid unpleasant click-noise and harmful voltage peaks while changing the volume the preamplifier 520 disposes over an additional volume control path only active while actually changing the volume. This parallel volume control is realised with a Programmable Gain Amplifier (PGA) which is able to adjust the volume without any noise. As soon as the new volume level is set, the signal path is switched back to the high end resistor network.

Output stage

The output stage is optimised for velocity, precision and impulse current rating. Thanks to its low output impedance of 10Ω the output stage is stable on every load (also long cables are driven without problems).



2

Safety advice: 

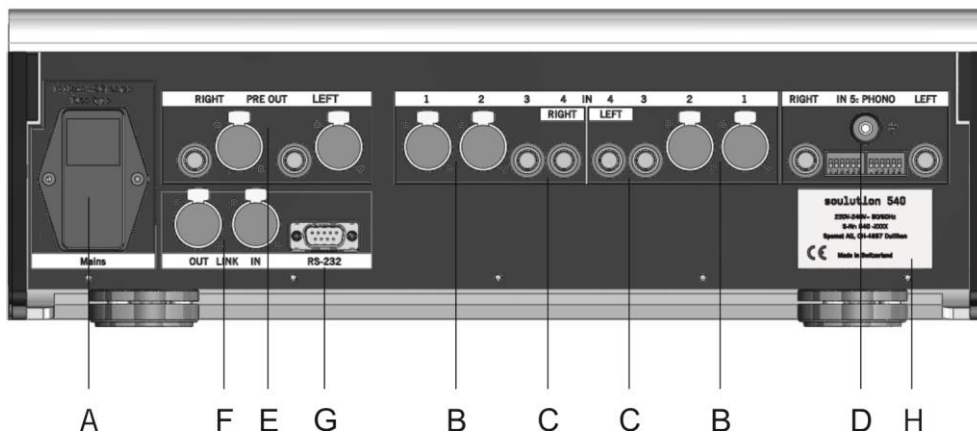
User manual	<ul style="list-style-type: none"> ⇒ Follow the safety advices ⇒ Keep this user manual.
Mains supply	<p>Exclusively use 3 phase power cords with ground conductor. Unplug the 520 from the mains in the following cases:</p> <ul style="list-style-type: none"> ⇒ before you manipulate with cables ⇒ before cleaning ⇒ during thunder storms ⇒ before you leave for longer periods
Cabling	<p>While manipulating with cables the 520 has to remain disconnected from the mains. Wrong cabling may cause damages to your 520, amplifier and loudspeakers. Excessive volumes due to inappropriate handling may cause hearing damages.</p>
Transport	<p>Use only with the cart, stand, tripod, bracket or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving cart/apparatus combination to avoid injury or tip over.</p>
Packing	<p>In order to omit condensation of water inside your preamplifier 520, let it warm up within the packing. Please keep the original packing for future transports.</p>
Operation	<p>Never run your preamplifier 520</p> <ul style="list-style-type: none"> ⇒ with opened housing ⇒ with closed cooling-slots ⇒ with high ambient temperatures (>40°C) ⇒ close to heat sources like radiators, etc. ⇒ with extremely high humidity for example in humid cellars ⇒ close to water (Sink, bathtub, or similar equipment)
Cleaning	<p>Use a soft and dry towel. We suggest using a non abrasive micro fibre towel. Please do not use any solvents or liquidities</p>
Service	<p>Service by a qualified person required if</p> <ul style="list-style-type: none"> ⇒ the mains-cable or the mains connectors are damaged ⇒ foreign substances or liquidities have entered the 520 ⇒ the 520 has seen rain ⇒ the 520 seems to malfunction ⇒ the 520 has fallen to the floor or the housing is damaged



3 Scope of delivery


- Preamplifier 520
- Remote control
- Power cord
- Phono-Termination-Plug
- User manual

4 Rear side



Mains (A)

Connect the preamplifier 520 with the mains supply. After switch-on, the 520 changes to operating condition OFF (red LEDs in display, consumption <0.5W).

 Only switch-off the mains connection in operating condition OFF.

Input IN 1...IN2 (B) & Input IN 3...IN 4 (C)

Use top quality cables for the connection to your source components. For long cables we suggest using the balanced connections.




Phono MC- Input IN 5 (D)

If required the subsonic filter RIAA-IEC can be activated. A dip-switch controlled resistor network allows for optimal adjustment of the termination impedance.

Micro-Switch	S1	S2	S3	S4	S5	S6	
Impedance in Ω	1000	20	100	215	300	405	500

Dipswitch position 1 = connected, 0 = open

 Detailed list of termination impedance available at www.soulution-audio.com
Never connect a line source to the input IN 5.

Output (E)

Due to the exceptional load stability there are no restrictions regarding the selection of your connecting cables. We recommend using balanced cables. For short cable lengths also unbalanced cables represent a high quality connection.

Gain (@ Volume 80)	IN 1 & IN 2	IN 3 & IN 4	IN 5 (Phono)
Balanced-Out (XLR)	+10dB	+16dB	+70dB
Unbalanced-Out (RCA)	+4dB	+10dB	+64dB

A potential a hum-loop may be suppressed by the Ground-Lift (page 12) function.

 Omit feedback-loops while connecting recording devices.

LINK (F)

The LINK-connection allows controlling the switch-on of other soulution products. Start-Mode (page 12) defines the behaviour of the 520 after switch-on.

RS 232 Interface (G)

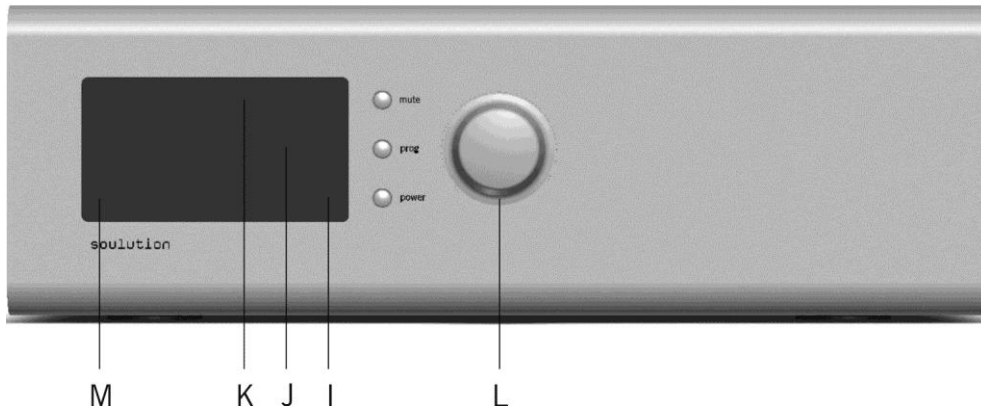
All functions can be controlled through the RS 232 interface.

Type label (H)

The type label shows the serial number and the nominal rating of your product.



5 Front side



Power (I)

The Power button defines the operating condition ON or OFF (red LEDs). In operating condition OFF the audio circuits are completely disconnected from the outputs.



Operating condition OFF




Start-up



Normal operation

We suggest switching off the 520 (power consumption in $< 0.5W$) while not listening to music. It can easily be activated with the remote control.

 Unplug your 520 from the mains before you manipulate with cables, before cleaning, during thunder storms or before you leave for longer periods.

LINK-System:

The preamplifier 520 remains in MUTE until all connected LINK-components are switched on (Display LINK Connect). If an error occurs within a LINK-component the display shows LINK ERROR.

When the preamplifier 520 is switched off all connected LINK components are switched off simultaneously (operating condition OFF).



Mute (J)



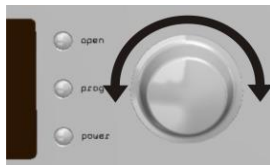
In case of an emergency the safety function Mute allows disconnecting all inputs from the outputs (wrong cabling, feedback loops, etc.).

Prog (K)

Several Program-Functions allow adjusting the 520 to your individual requirements. The Prog-button switches the 520 to Programming-Mode.

Volume (L)

The Volume knob controls the functions Volume +/-, Input-Select and is used for the Programming.



Volume +/-

The 520 has a volume control range of 79 dB. We suggest limiting the maximal volume level.

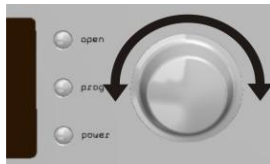


Volume-Dim

A short push (de)activates the Volume-Dim function (Display for example „D 20“). As long as the Volume-Dim function is active the volume can not be altered.



Change to
Input-Select Mode



Input-Select

The new input can be selected and will be activated after timeout of approx. 3 sec.

Display / IR-receiver (M)

The display shows all relevant information of your preamplifier 520.



6 Remote control

Taste	Pre-Modus	CD-Modus
(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.

⇒ ID 1: ◀ (6), ▶ (5), ⏻ (10)

⇒ ID 2: ◀ (6), ▶ (5), 🔇 (9)

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



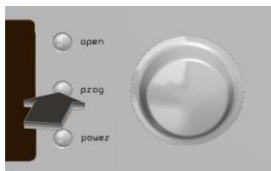


7 Program-Mode

General

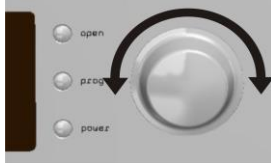
The preamplifier 520 can be adjusted to your individual setup. It is already programmed with default settings. Further programming is not mandatory.

We recommend to adjust the Start-Volume and to set the Max-Volume.



Function

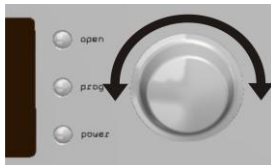
Push on the Prog button switches the preamplifier 520 between operating-mode and programming-mode. Timeout after 10 seconds.



Rotating of the Select knob allows selecting the desired Program-Function



Push on the Select knob for approval of the selected function. Now the value domain of the selected Program-Function is active. (red LEDs in display).



Rotating of the Select knob allows for adjusting the desired value.



Push on the Select knob for approval of the respective value.



7.1 Program-Functions

Function	Values	Remarks
<pre>START-INPUT IN 1 :</pre>	IN 1, IN 2, IN 3, IN 4, IN 5	Defines which input shall be active after start-up.
<pre>START-VOLUME 35 :</pre>	1..30..50	Defines the Start-Volume level. In the value domain it changes to the Start-Volume level.
<pre>DIM-VOLUME 20 :</pre>	1..30..50	Defines the Dim-Volume level. In the value domain it changes to the Dim-Volume level.
<pre>MAX-VOLUME 60 :</pre>	50...80	The maximal volume can be limited. Especially for high efficiency loudspeakers this function should be activated. In the value domain the volume level does not change.
<pre>BALANCE <- 2 :</pre>	<- 9...0...9 ->	Balance defines the level difference between left and right channel.
<pre>NAME IN 2 SACD :</pre>	OFF, AUX, CD, DAC, DVD, PHON, SACD, TUNE, etc.	The inputs IN 1...IN 5 can be renamed individually.
<pre>PHONO-HP ON :</pre>	ON, OFF	Phono-High-Pass (de)activates the subsonic filter (RIAA-norm). OFF should be used only for top quality LP's and decoupled turntables.



Function	Values	Remarks
SURROUND-IN IN 4 :	OFF, IN 1, In 2, IN3, IN 4,	The volume and balance settings of the preamp do not have any influence in the Surround-IN.
SURROUND-VOL 40 :	20.. 50 ..80	Defines the output level for the Surround-IN. The setting is ignored if Surround-IN is set to OFF.
GROUND-LIFT OFF :	OFF = connected ON = disconn.	(Dis)connects the ground of the balanced outputs.
BRIGHTNESS 3 :	1 = low 2 = medium 3 = high	The intensity of the display can be adjusted in three steps.
REMOTE-ID 2 :	1, 2	Defines the identification of the 520. The identification of the remote control has to be defined accordingly
LOAD-DEFAULT YES :		Activates the default values (bold) for all functions.



8 Trouble shooting

Error	Action
No display	Check the cabling to the mains supply. Eventually replace the fuse.
No music	Check <ul style="list-style-type: none">- the cabling to the source components and the amplifier.- if proper input has been selected- if the source component is in MUTE- if the amplifier is switched on
POWER FAIL	In case of a short circuit in the power supply the unit switches off automatically. The display shows POWERFAIL.
OVERCURRENT	If the current at the output is higher than 0.2 A the MUTE function is activated and the display shows OVERCURRENT.

If you cannot identify the error please disconnect the preamplifier 520 from the mains supply and contact your soulution dealer.

9 Service

If your soulution product needs service please contact your soulution dealer. For further information see www.soulution-audio.com



10 Safety functions

Overcurrent	For currents > 0.2 Ampere at the output the preamplifier 520 shuts down automatically.	
Power supply	The power supply is monitored for correct operation. In case of an error the 520 gets shut down automatically.	
Fuse	Model 220-240 V	2A/T 250V micro fuse 5x20mm
	Model 100-120 V	4A/T 250V micro fuse 5x20mm

11 Warranty

All solution products are guaranteed against defects in material and workmanship for five years from date of purchase.

The guarantee is void if the product has been subject to misuse or negligence or has been modified, repaired or opened by a non authorised person without written authorisation of Spemot AG.

For the return transport to our premises please use exclusively the original packaging. Transport damages are not subject to this guarantee, repairs will be charged. We recommend effecting transport insurance.

If you do not possess the original packaging no more please contact your solution dealer.

Basic repairs may be completed by your solution dealer. Please clarify whether he is able to do the work before you send the product back to us.



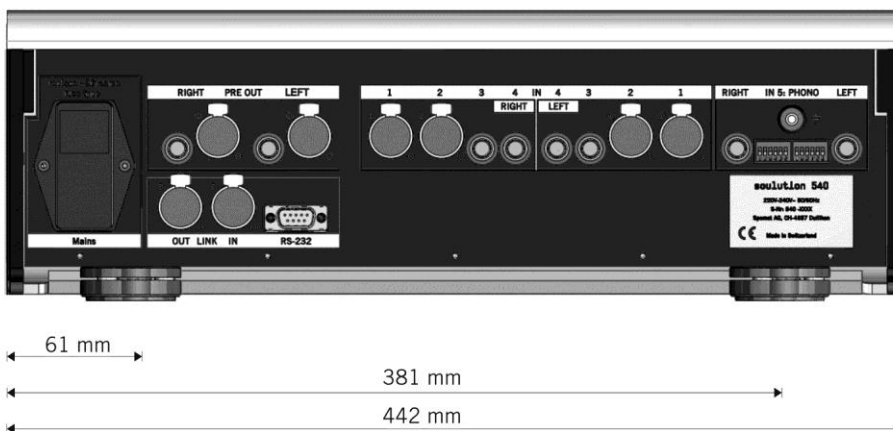
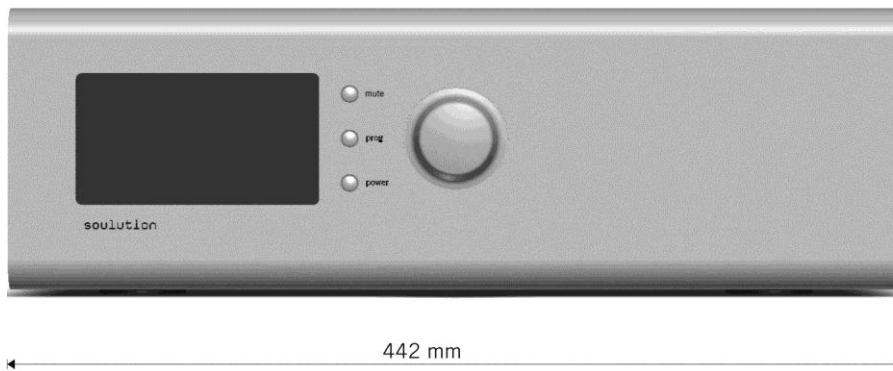
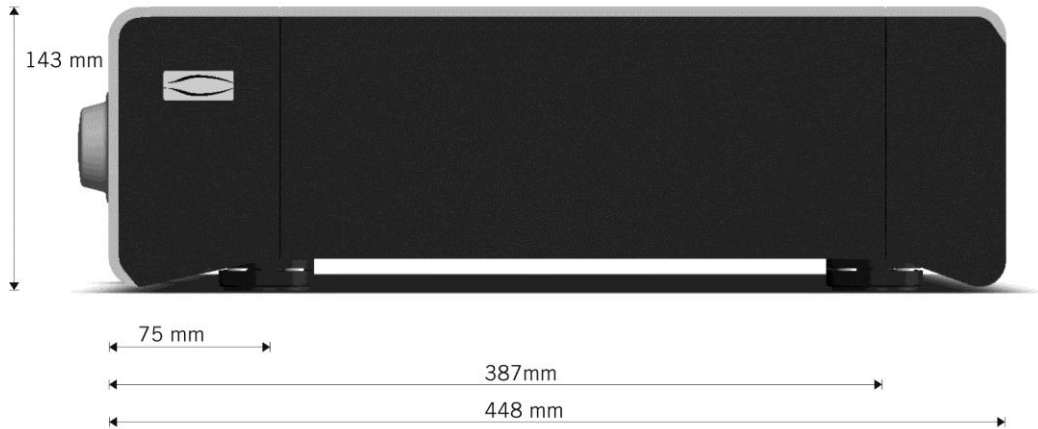
12 Specification

Specification		Data
General		
Nominal Voltage	Model 100-120V Model 220-240V	100 - 120 V, 50-60 Hz 220-240 V, 50-60 Hz
Power consumption	ON Standby	150 W <0.5 W
Input		
	(IN 1...IN 5)	
Impedance	balanced (IN 1...IN 2) unbalanced (IN 3...IN 4) Phono (IN 5)	10 kΩ 47 kΩ adjustable
Output		
Gain	RCA-In ⇒ XLR-Out RCA-In ⇒ RCA-Out XLR-In ⇒ XLR-Out XLR-In ⇒ RCA-Out	-63...+16 dB -69...+10dB -69...+10dB -75...+4dB
Frequency response		DC-500kHz
THD+N		<0.001%
Signal-to-Noise Ratio		>120dB
Crosstalk		<-120dB
Output impedance		10Ω
LINK-Out		12V
Dimensions		
Dimensions		442x448x143 mm
Weight		ca. 20 kg

Technical specifications are subject to change without prior notification.



13 Dimensions



Spemot AG
Industriestrasse 70
CH-4657 Dulliken

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



part.no. 92147