

Preamplifier 720

User manual



soulution

nature of sound



Dear client

We are proud that you decided yourself for a solution preamplifier. 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 720 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 720 please do not hesitate to contact your dealer.

Have fun!

A handwritten signature in black ink, appearing to read 'Gallen', written in a cursive style.

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.



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1 Quick start

<p>Unpacking</p>	<p>Unpack the preamplifier 720 and store the packing for future transportations.</p> <p><u>Security advice:</u> Your preamplifier 720 has a top class surface. Please take care during installation.</p>
<p>Positioning</p>	<p>Position the preamplifier 720 on a stable base.</p> <p><u>Security advice:</u> Cooling air must be able to circulate and escape unrestricted.</p>
<p>Cabling</p>	<p>Disconnect all electrical appliances of your HiFi-system from the mains supply. Connect your preamplifier 720 with your amplifier and signal sources (according to user manual). Use the respective signal cables and the cable for the LINK-system. Reconnect the preamplifier 720 and all other components of your HiFi-system with mains supply. Please use the enclosed high class mains cable for your preamplifier 720.</p> <p><u>Security advice:</u> While manipulating with cables the preamplifier 720 has to remain disconnected from the mains supply.</p>
<p>Programming</p>	<p>Default values for all functions are programmed. No additional programming is required for the start-up of your preamplifier.</p> <p><u>Security advice:</u> We suggest programming of the functions Start-Volume and Max-Volume. If you use recording equipment the function Record-Loop should be programmed as well.</p>
<p>Switch on</p>	<p>Switch on your source devices and the preamplifier 720. Turn down the volume of the preamplifier 720 to a minimal level. Switch on your amplifier.</p> <p><u>Security advice:</u> Before you switch on the amplifier check whether the cabling is done correctly.</p>



2 Important security advices:

User manual:

Read this user manual carefully before you start-up your preamplifier 720 and follow all installation and security advices.

Please keep this user manual. In the case this manual gets lost you have the possibility to download it from the soulution-webpage.

(<http://www.soulution-audio.com/downloads>)

Mains supply:

Exclusively use 3 phase power cords with ground conductor. They may not be crushed by objects.

Unplug your preamplifier 720 from the mains connection in the following cases:

- before you manipulate with cables
- before cleaning
- during thunder storms or
- before you leave for longer periods

Cabling:

While manipulating with cables the preamplifier 720 has to remain disconnected from the mains. Before you disconnect the mains the preamplifier 720 has to be in operating condition OFF. Wrong cabling may cause damages to your preamplifier 720, your amplifier or to your loudspeakers. Excessive volumes due to inappropriate handling may cause hearing damages.

Transport:

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.



Packing:

Please keep the original packing for future transports. The original packing is optimal protection against potential damages.

Operation:

Never run your preamplifier 720

- with opened housing
- with closed cooling-slots
- with high ambient temperatures (>40°C)
- close to heat sources like radiators, heatings, ovens or similar appliances dissipating heat
- with extremely high humidity for example in humid cellars or rooms similar humidity
- close to water (Sink, bathtub, or similar equipment) or with any object containing water residing on top of the product

Cleaning:

Use a soft and dry towel. We suggest using a non abrasive micro fibre towel. Please do not use any solvents or liquidities.

Service:

Do not try to repair your preamplifier 720 by yourself. It needs a service check by a qualified person in the following cases:

- the mains-cable or the mains connectors are damaged
- foreign substances or liquidity has entered the preamplifier 720
- the preamplifier 720 has seen rain
- the preamplifier 720 seems to malfunction
- the preamplifier 720 has fallen to the floor or the housing is damaged

Serial-Nr.: **720 -** _____

Please note the serial-number of your preamplifier 720 above.



3 Technical Highlights

3.1 Layout

The preamplifier 720 is realised as asymmetrical dual mono circuit. Left and right audio channels (incl. phono mc stage) each have identical circuit boards. Resulting in a channel separation of >105 dB, prerequisite for a three dimensional spatial reproduction.

The audio section is physically separated from the power supply units and the digital circuits. For minimal interference the different sections are shielded against each other.

3.2 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 720 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 to the high end resistor network.

3.3 Phono-Stage (moving coil)

The phono stage has a basic amplification of +54 dB or +60 dB (at 1 kHz). This can be defined with the function Phono-Gain. The phono amplifier works with an internal bandwidth of 1 MHz (-3 dB). This guarantees the most accurate reproduction of the RIAA - equalisation curve.



External phono modules ensure optimal impedance matching of your cartridge and the phono amplifier. The enclosed modules adjust the impedance to $1k\Omega$ and 100Ω . Modules with other impedances are available through your solution dealer.

3.4 Output stage

The output stage is optimised for velocity, precision and impulse current rating. Thanks to its low output impedance of 2Ω and Class-A operation (40mA idle current) the output stage is stable on every load (also long cables are driven without problems).

The theoretical maximal current rating of 3 amperes is limited to 1 ampere. This is realised with a protection circuit outside the signal path.

Due to the bandwidth of 1 MHz (-3 dB) - internally the output stage works up until frequencies of 40 MHz - all details of the music reproduced naturally. The spatial reproduction gets really three dimensional and holographic (optimal recording prerequisite). The power of the output stage ensures that all these details are truly transmitted to your amplifier. (Cable losses are minimised).

3.5 Power supply

The preamplifier 720 has two separate power supply units, one for the supply of the audio section, another for the supply of the digital circuits. The stringent separation of the power supply units is amended with a multi stage filter network. Interference between digital and analogue circuits is thus minimised.

The supply voltages for the audio section are multi stabilised. We use an amplifier like circuit working into a capacitor. The ultra stable supply voltage has a load-dependant deviation of 500 microvolt and a residual ripple $< 0,01$ microvolt. The supply voltages are distributed on the audio circuit through solid copper ($3 \times 6.5^{^2}$).

For minimal micro phonic interferences the power supply units are flex-mounted on rubber damping elements and therefore effectively decoupled from the housing.

The high quality supply voltages are made available for external components through the DC-OUT connection.



3.6 Gain-adjustment

Different signal sources typically have unequal output levels. For minimal volume differences while switching between inputs the preamplifier 720 allows adjusting the gain per input individually. This is implemented with an additional amplification stage adjustable for +3/+6/+9 dB and a level accuracy of 0.01 dB. This additional amplification is only active when really needed.

3.7 DC-PROTECT

The input signal is permanently monitored for DC-offsets. As soon as a DC-offset of > 15 mV is detected a high quality capacitor is switched into the signal path for optimal protection of the preamplifier soulution 720. The display shows the symbol for the capacitor (\oplus). If the DC-offset has disappeared for at least 15 seconds the capacitor is switched out of the signal path. This ensures optimal protection while simultaneously providing a capacitor free signal path (offset free signal prerequisite).

3.8 Bandwidth limitation

Another source for potential adulterations of the music is high frequency noise. High frequency noise may be coupled through connecting cables or is present in source equipment as artefacts of digital to analogue conversion. The bandwidth can be limited individually per input therefore providing optimal sound quality also for HF-noise affected input signals.



4 Start of operation and handling of the preamplifier 720

Please take care while installing the preamplifier 720. Follow all security advices!

4.1 Scope of delivery and packing

Please check the scope of delivery:

- preamplifier 720
- remote control 720/740 (incl. batteries 2xAAA)
- phono-termination plug
- phono-module 100Ω
- phono-module 1kΩ
- mains cable
- user manual
- cotton gloves

Please store the packing of the solution 720 for future transports. Check your preamplifier 720 for transport damages. In the case your preamplifier 720 is damaged please contact your solution dealer.

Security advice: If your preamplifier 720 is still very cold from the transport, please let it warm within the packing, in order to omit condensation of water inside your preamplifier 720.

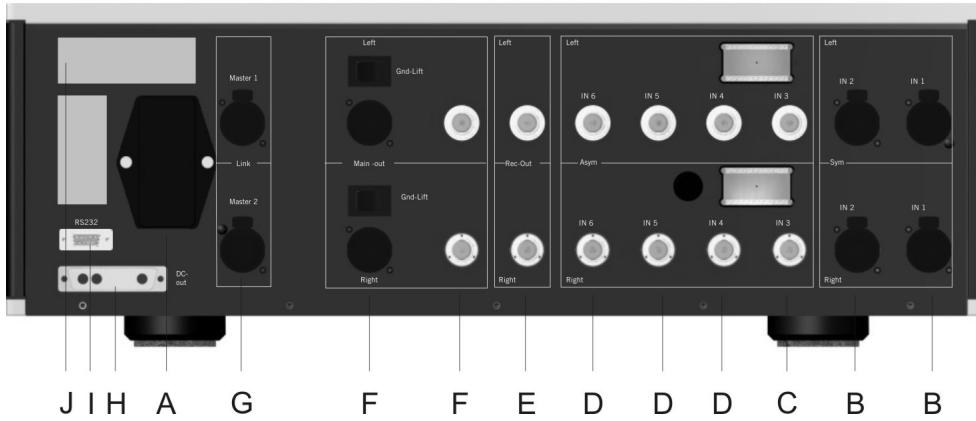
4.2 Optimal positioning of your preamplifier 720

There are no limitations on where to position your preamplifier 720. We suggest positioning it so that the connecting cables to the amplifier and the signal sources remain short.

Security advice: The preamplifier 720 has a high quality surface. Please be careful so that the surface does not get scratched. Please use the enclosed cotton gloves. Never position your preamplifier 720 on the front panel. The display glass could get scratched or even burst.



4.3 Rear panel of the preamplifier 720



Rear panel of the preamplifier 720

4.3.1 Mains (A)

Connect the preamplifier 720 with the mains supply. The enclosed power cord is optimised for this application.

After switch-on the power supplies of the preamplifier get started. The display shows "WAIT". As soon as constant conditions for the power supplies are reached the preamplifier 720 changes to operating condition OFF (red LEDs in display).



Display after switch in of the mains



Display in operating condition OFF

Security advice: Only switch-off the mains connection if your preamplifier is in operating condition OFF.



4.3.2 Symmetrical inputs IN 1/IN 2 (B)

Your preamplifier 720 has two symmetrical inputs IN 1/IN 2. Connect your high quality source equipment with symmetrical cables to the preamplifier 720.

Security advice: please follow the security advices on page 6 !

4.3.3 Phono-stage IN 3 (C)

The asymmetrical input IN 3 is reserved exclusively for phono (MC). Connect your analogue turntable with asymmetrical connectors to the preamplifier 720. Please connect only moving coil (MC) systems.

External phono modules ensure optimal impedance matching of your cartridge and the phono amplifier. The enclosed modules adjust the impedance to $1k\Omega$ and 100Ω . Modules with other impedances are available through your solution dealer.

The phono stage has a basic amplification of +54 dB or +60 dB (at 1 kHz). This can be defined with the Program-Function Phono-Gain (chapter 5.2.11, page 29). The phono amplifier works with an internal bandwidth of 1 MHz (-3 dB). This guarantees the most accurate reproduction of the RIAA - equalisation curve.

If required the subsonic filter RIAA-IEC can be activated.

In case you do not use your phono stage we recommend to terminate the input IN 3 with enclosed phono-termination plugs. This prevents from accidentally connecting a line source apparatus.

Security advice: Please follow the security advices on page 6 !

Never connect a line source to the input IN 3. The phono stage is not protected against over voltages (for sonic reasons) and would be destroyed.



4.3.4 Asymmetrical inputs IN 4...IN 6 (D)

Your preamplifier 720 has three asymmetrical inputs IN 4...IN 6. Connect your signal sources with asymmetrical cables with the preamplifier 720.

Security advice: please follow the security advices on page 6 !

4.3.5 Record-Out (E)

Connect the inputs of your recording device with the Record-Out terminals of the preamplifier 720 (asymmetrical cables).

The selected Record-In signal is directed to the Record-Out terminals through a separate signal path. Volume-, Balance- or Gain-settings do not affect the signal at the Record-Out terminals. For level adjustments please use the respective control functions of your recording device.

The signal present at the Record-Out terminals is buffered and has an output impedance of 100Ω. Therefore cable losses are minimised and top quality music signal is available for recording.

Security advice: Please follow the security advices on page 6 !

If you connect a recording device you should define the function Record-Loop. Thus you omit eventually harmful feedback loops.

4.3.6 Main-Out (F)

The preamplifier 720 provides symmetrical as well as asymmetrical output terminals (Main-Out). Connect your amplifier to the preamplifier 720 with your preferred cables. Due to the exceptional load stability there are no restrictions regarding the selection of your connecting cables.

We recommend using symmetrical cables. For short cable lengths also asymmetrical cables represent a high quality connection, top quality cable and optimal layout prerequisite. The level difference between the symmetrical and asymmetrical output accounts for 6 dB.



The symmetrical output (Main-Out) additionally offers the ground lift function. The ground-lift switch cuts off the ground connection between the audio circuit and the symmetrical output terminal. This offers the possibility to suppress a potential humm-loop between your preamplifier 720 and power amplifier. (Ground-Lift 1 = ground connected, Ground-Lift 0 = ground disconnected). The housing remains grounded independent of the ground-lift switch.

Security advice: Please follow the security advices on page 6!

4.3.7 LINK (G)

The preamplifier 720 controls the start-up sequence of connected solution components through the LINK connection (Master-Slave-principle; the preamplifier 720 is always the Master). Connect the Master Out 1 or Master Out 2 terminal of your preamplifier 720 with the other solution components. Each solution component has Next-Slave output to connect further solution appliances.

4.3.8 DC-Out (H)

The ultra stable power supply of the preamplifier 720 is available for external solution components (e.g. external phono preamplifier, external DAC, etc.) through the DC-OUT connector.

Security advice: Never remove the security cover while your preamplifier is in operation. Always switch off your preamplifier 720 before you connect an external device.

4.3.9 RS232 – Interface (I)

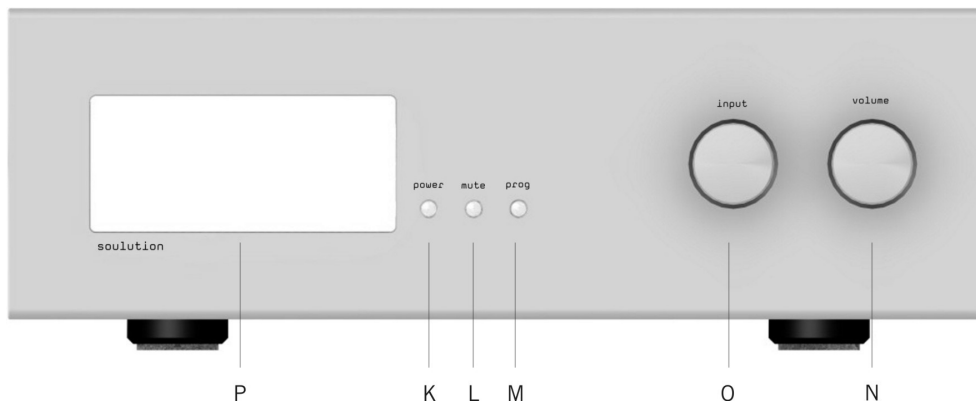
The preamplifier 720 can be remote controlled through the RS232 interface. All functions can be controlled and relevant information is provided to the controll unit.



4.3.10 Type label (J)

Please note the serial number of your preamplifier 720 on page 7 of this user manual. This allows you to have the product specific data at hand without removing your preamplifier 720 from the HiFi rack.

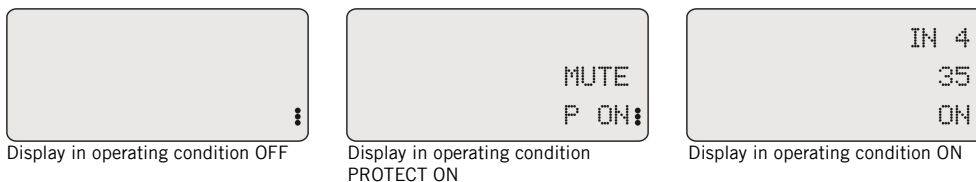
4.4 Front panel of the preamplifier 720



Front panel of the preamplifier 720

4.4.1 Power (K)

With the Power-button you define the operating condition ON or OFF (red LEDs). In operating condition OFF the audio circuits are completely disconnected from the output terminal (Main-Out). The Main-Out terminals are only activated if the preamplifier 720 is ready for operation and if no errors are present.



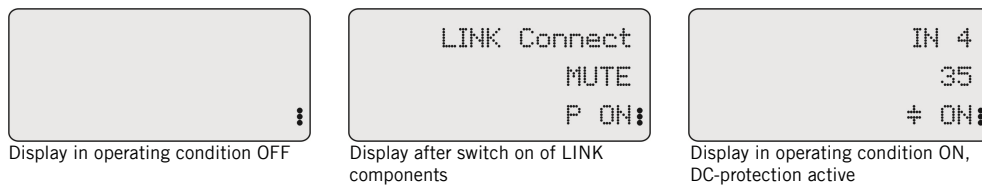
We suggest bringing your preamplifier 720 in operating condition OFF while you are not listening to music. Your preamplifier 720 may be switched on with the IR-remote control (Power consumption in operating condition OFF <0.5 W).



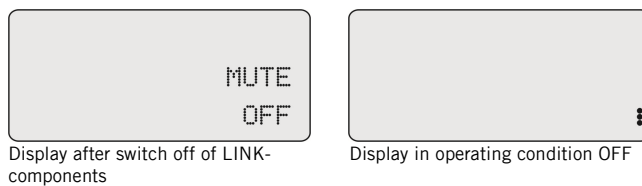
LINK-System:

In case you have connected other solution components to the preamplifier 720 with the LINK-System it remains in operating condition PROTECT ON until all connected components are switched on (Display LINK Connect).

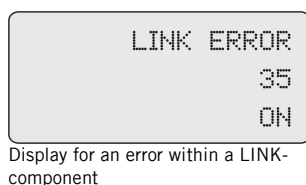
If no errors have occurred while switching-on the other components the preamplifier 720 changes into operating condition ON.



When the preamplifier 720 is switched off all connected LINK components are switched off simultaneously (operating condition OFF).



If an error occurs within a LINK-component while operating the display shows LINK ERROR.



Security advice: Please follow the security advices on page 6!

Unplug your preamplifier 720 from the mains before you manipulate with cables, before cleaning, during thunder storms or before you leave for longer periods. Before you switch off the mains bring your preamplifier 720 in operating condition OFF.



4.4.2 Mute (L)

Mute is a security function which allows you disconnecting all inputs from the outputs in case of an urgency (wrong cabling, feedback loops, etc.). Mute cuts off the symmetrical as well as the asymmetrical outputs and the record out (Display MUTE).

For reducing the volume to a predefined level please use the function Volume-Dim.



Display in operating condition MUTE

4.4.3 Prog (M)

The Prog-button switches the preamplifier 720 between Operating-Mode and Programming-Mode. In the Programming-Mode you may adjust the preamplifier 720 to your individual requirements.

4.4.4 Volume (N)

The Volume-knob controls the functions Volume +/- and Volume-Dim.

4.4.4.1 Volume +/-

The preamplifier 720 disposes over a volume control range of 80 dB. The volume is adjustable in 1 dB steps.

Display: 0 = no signal (mute)
1 = lowest level (attenuation by -79dB)
80 = maximal level (no attenuation)

Turning the Volume-knob clock wise increases the volume turning counter clock wise decreases the volume. In order to omit too high volumes we suggest limiting the volume individually with the function Volume-Max. When you reach the maximal



level the display shows for example M 60. The volume can not be further increased by turning the volume knob.

4.4.4.2 Volume-Dim

By pushing the Volume-knob the volume is reduced to the predefined level Volume-Dim (Display for example „D 10“). By pushing the Volume-knob again the volume is increased to the original level.

As long as the Volume-Dim function is active the volume can not be altered by the Volume-knob. The volume can only be changed after the Volume-Dim function has been deactivated.



Display with active Volume-Dim function

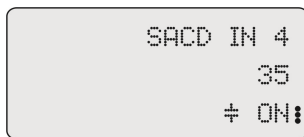
4.4.5 Input (O)

The Input-knob controls the functions Input-Select, Record-Select and is used for the Programming.

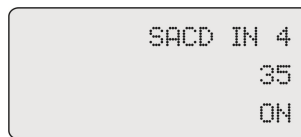
4.4.5.1 Input-Select

By turning the Input-knob you define which input of the preamplifier shall be connected. The display shows the input you want to select (for example SACD IN 4). The current input remains active until the new input has been selected and the Input-knob was not turned for ca. 3 sec.

All other inputs remain completely disconnected from the preamplifier 720. Signal and ground are (dis)connected by top class relays. Hum noise originating from eventual equalising currents between connected audio components is thus effectively eliminated. Additionally cross-talk from inactive inputs to the active input is suppressed!



Display while selecting a new input



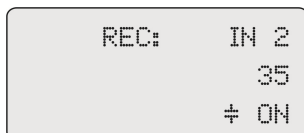
Display after the new input is switched on, DC-protection deactivated

For security reasons the DC-protection function is activated during the switch over to the new input. If there is no DC-offset the coupling capacitor is bypassed after ca. 15 seconds.

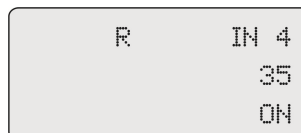
4.4.5.2 Record-Select

By pushing the Input-knob the preamplifier 720 changes into Record-Select-Mode. Now you may select the input to be looped through to the Record-Out connectors. The display shows the current Record-In for example REC IN 2. Spin the Input-knob until the desired Record-In appears in the display. The new Record-IN is only activated when you push again the Input-knob. Thus you confirm the new selection and the Record-Select-Mode is left. In the case you do not want to loop through any signal to the Record-Out connectors please choose REC-OFF.

The activated Record-Out disappears from the display after the Record-Select-Mode is left. The display shows the current input connected to the Main-Out connectors. If a Record out is activated the display shows sign "R"



Display for operating condition Record-Select-Mode



Display after exiting the Record-Select Mode with active Record-In

The settings of the Record-Select do not affect the signal present at the Main-Out connectors.

4.4.5.3 Programming:

The Input-knob is used in the Programming-Mode for selecting Program Functions and setting of values for the respective Program-Functions.



4.4.6 Display / IR-receiver (P)

The display shows all relevant information for operating your preamplifier 720 . In operating mode the volume, the operating condition and the activated input is shown.

Except for the Programming-Mode the display shows always the current volume level.

Security advice: The IR-receiver for the remote control is located in the lower left corner behind the display glass. For best reception do not place any objects in front of the display.

Never place your preamplifier 720 on the front panel. The display glass could get scratched or even burst.



5 Programming of the preamplifier 720

5.1 Overview

The available Program-Functions allow adjusting the preamplifier 720 to your individual High-Fidelity setup.

The preamplifier 720 is already programmed with default settings. Further programming is not mandatory.

We recommend to adjust the Program-Functions Start-Volume to your setup and to limit the volume with the Program-Function Max-Volume. If you connect a recording device we recommend implicitly activating the Program-Function Record-Loop.

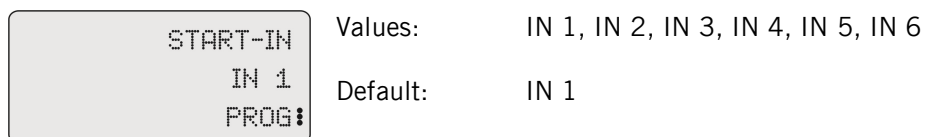
Element	Function
Prog-button	The Prog-button changes the preamplifier 720 from operating-mode to Programming-Mode and vice versa. The preamplifier 720 remains in the respective mode until the Prog-button is pressed again.
Input-knob	Spinning of the Input-knob allows selecting the desired Program-Function. Pressing the Input-knob approves the selected Program-Function. Now the value domain of the selected Program-Function is active. (red LEDs in display). Spinning of the Input-knob allows adjusting the desired value. Pressing the Input-knob approves the respective value.



5.2 Program-Functions

5.2.1 Start-In

This Program-Function defines which input shall be active after start-up if your preamplifier 720. After selecting the function Start-In the display shows the value domain (red LEDs active) and you may define the desired input.

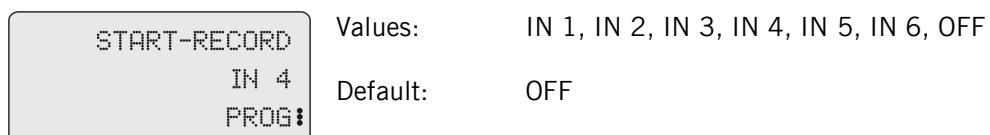


Display for function Start-In,
value domain activated

The selected input (IN 1...IN 6) will be activated when starting up (OFF -> ON) the preamplifier 720 the next time.

5.2.2 Start-Record

This Program-Function defines which input shall be looped through to the record-out connectors when starting up the preamplifier 720. After selecting the function Start-Record the display shows the value domain (red LEDs active) and you may define the desired input.



Display for function Start-Record,
value domain activated

The selected input (IN 1...IN 6) will be looped through when starting up (OFF -> ON) the preamplifier 720 the next time. Select OFF if no signal shall be presented at the record-out connectors.



5.2.3 Record-Loop

In order to avoid a feedback loop with a connected recording device you have to instruct the preamplifier 720 with which input IN 1...IN 6 a feedback loop shall be impeded. The preamplifier 720 will now omit a feedback loop with this input.

After selecting the Program-Function Record-Loop the display shows the value domain (red LEDs active) and you may define to which input you have connected your recording device.

<pre>RECORD-LOOP IN 2 PROG :</pre>	Values: IN 1, IN 2, IN 4, IN 5, IN 6, OFF
	Default: OFF

Display for function Record-Loop,
Value domain activated

The new setting is active as soon as you approve the value by pressing the Input-knob.

Example: You have connected the output of your recording device with the input IN 2 of the preamplifier 720. You have defined IN 2 for the program function Record-Loop. Now it is impossible to choose the input IN 2 as Record-In. The function Record-Select is not affected by the settings of the Program-Function Record-Loop.

Security advice: If later on you connect your recording device to another input of your preamplifier 720 you have to adjust the setting of the Program-Function Record-Loop.

Never connect the output of your recording device to the phono-input IN 3. The phono stage would be destroyed immediately. Therefore the value IN 3 is not available for the Program-Function Record-Loop.



5.2.4 Start-Volume

This Program-Function defines the volume when starting up the preamplifier 720. After selecting the function Start-Volume the display shows the value domain (red LEDs active) and you may define the desired volume level.



Display for function Start-Volume,
Value domain activated

While switching to the value domain of the Program-Function Start-Volume the preamplifier 720 changes the current volume to the value defined in Start-Volume. Now you are able to judge whether the Start-Volume level is appropriate. As soon as the value domain is left the preamplifier 720 switches back to the former volume level.

5.2.5 Dim-Volume

This Program-Function defines the Dim-Volume. After selecting the Program-Function Dim-Volume the display shows the value domain (red LEDs active) and you may define the desired volume level.



Display for function Dim-Volume,
Value domain activated

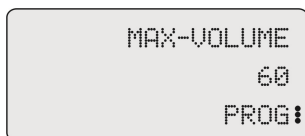
While switching to the value domain of the Program-Function Dim-Volume the preamplifier 720 changes the current volume to the value defined in Dim-Volume. Now you are able to judge whether the Dim-Volume level is appropriate. As soon as the value domain is left the preamplifier 720 switches back to the former volume level.

Security advice: Set the Dim-Volume to a moderate level. If you exchange a component of your system please check whether the setting still is appropriate.



5.2.6 Max-Volume

You may limit the maximal volume level in order to avoid dangerous volume levels through malicious handling. Especially for high efficiency loudspeakers this security function should be used. After selecting the Program-Function Max-Volume the display shows the value domain (red LEDs active) and you may define the desired volume level.



Display for function Max-Volume,
Value domain activated

Values: 40...80
Default: 80

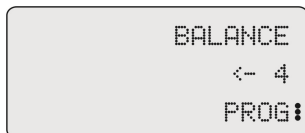
While switching to the value domain of the Program-Function Max-Volume the pre-amplifier 720 will not adjust the volume level for security reasons!

In the case you limit the volume the control range is reduced accordingly (Max-Volume = 60, the volume control range is limited to 60 dB). When you reach the maximal volume level the display shows "M" (for example M 60)

Security advice: The settings of the Program-Functions Gain IN 1...IN 6 and Phono-Gain may provoke an additional +9 dB level difference between the different inputs. Define the Max-Volume for the input with the highest level.

5.2.7 Balance

The Program-Function Balance defines the level difference between left and right channel. You can adjust the Balance in 1 dB steps. After selecting the Program-Function Balance the display shows the value domain (red LEDs active) and you may define the desired volume level.



Display for function Balance,
Value domain activated

Values: <- 9...0...9 ->
Default: 0

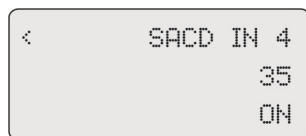
While switching to the value domain of the Program-Function Balance the preamplifier 720 changes the current volume of left or right channel according to the setting



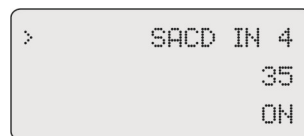
of the Balance setting. Now you are able to judge whether the Balance is appropriate.

The Balance setting reduces the maximal possible volume control range of -80dB by the Balance setting (Balance <- 7 dB ⇔ volume control range -73 dB).

After switching back to the Operating-Mode the display shows balance settings as follows:



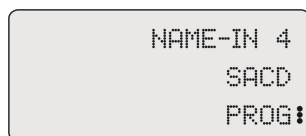
Display for Balance-setting to the left



Display for Balance-setting tot the right

5.2.8 Name IN 1...IN 6

You may rename the inputs IN 1...IN 6 by selecting on out of the predefined source name list. After selecting the Program-Function Name-IN 2 the display shows the value domain (red LEDs active) and you can define the desired name for input In 2.



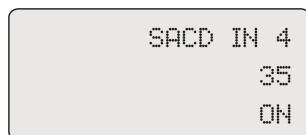
Display for function Name-IN 4, Value domain activated

Values: AUX, AUX1, AUX2, CD, CD1, CD2, DAC, DAT, DCC, DVD, DVD1, DVD2, DVDA, HD, HiMD, LD, MD, MP3, PC, PHON, SACD, TAPE, TUNE, TV, DVB, DAB, OFF

Default: OFF

If you want to switch off the name please select OFF. The respective input will then be shown as IN 1...IN 6.

Example: After you selected SACD for the input IN 4 the display shows the input as follows.



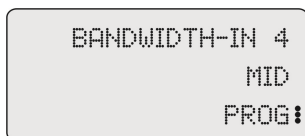
Display for Name-IN 4 = SACD

The new input names IN 1...IN 6 will be activated after you have left the Programming-Mode.



5.2.9 Bandwidth IN 1...IN 6

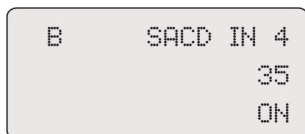
Digital signal sources can emit remarkable levels of high frequency noise through the connecting cables. This will lower the sonic performance of your overall system. You may limit the bandwidth of each input IN 1...IN 6 individually depending on the quality of the source signal. After selecting the Program-Function Bandwidth-IN 1 the display shows the value domain (red LEDs active) and you can limit the bandwidth for input In 1.



Display for function Bandwidth-IN 4
Value domain activated

Values:	high:	no limitation
	mid:	200 kHz, -3dB
	low:	20 kHz, -3dB
Default:	high	

After you have left the Programming-Mode the display shows the bandwidth limitation as follows.

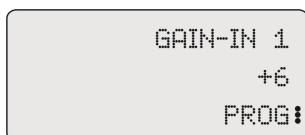


Display for Bandwidth limitation of
input IN 4

5.2.10 Gain IN 1...IN 6

Different signal sources have different output levels. You can adjust the level for each input by 0/+3/+6/+9 dB individually. After selecting the Program-Function Gain-IN 1 the display shows the value domain (red LEDs active) and you can adjust the level for input In 1.

For the input IN 3 (phono) exists additionally the Program-Function Phono Gain which defines the basic amplification in to levels (+54 dB, +60 dB)



Display for function Gain-IN 1,
Value domain activated

Values:	0/+3/+6/+9
Default:	0

Gain adjustments are immediately performed so you can check whether the Gain-setting is appropriate.



Security advice: Define which signal source has the highest output level. Set the gain for this input to +0 dB. Now adjust the other inputs accordingly. Please use a moderate volume level to do so.

If you exchange signal sources you should check whether the gain setting are still appropriate. If you run a high level signal source with a high gain the output signal could get distorted.

5.2.11 Phono Gain

This Program-Function allows you to adjust the basic amplification of Phono-amplifier to the requirements of your cartridge. Additionally you have the possibility to use the function Gain-In 3 to further adjust the level of the phono amplifier.

PHONO GAIN LOW PROG:	Values: high +54 dB @ 1 kHz low +60 dB @ 1 kHz Default: low
----------------------------	---

Display for function Phono Gain,
Value domain activated

Phono Gain settings are immediately performed so you can check whether the setting is appropriate.

5.2.12 Phono High Pass

This Program-Function (de)activates the subsonic filter (RIAA-IEC; -3 dB @ 20 Hz) of the phono amplifier.

PHONO HIGH PASS OFF PROG:	Values: ON, OFF Default: ON
---------------------------------	---

Display for function Phono High
Pass, Value domain activated

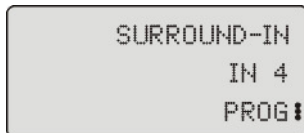
The settings of the Program-Function Phono High Pass are immediately executed for a direct feedback.

Phono High Pass = OFF should be used only for top quality LP's and decoupled turntables. For security reasons we recommend to activate the subsonic filter.



5.2.13 Surround-IN

The Program-Function Surround-IN activates the Surround-Mode for the selected input.



Display for function Surround-IN,
Value domain activated

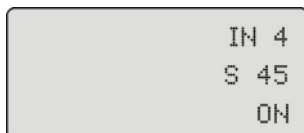
Values: IN 1, IN 2, IN 4, IN 5, IN 6, OFF

Default: OFF

In Surround-Mode the settings for Volume and Balance do not have any influence. The input-signal present at the Surround-IN is transferred to the outputs with the level defined in Program-Function Surround Max-Vol.

The Program-Function Surround-IN is not available for the input IN 3 (phono).

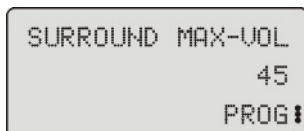
If you have activated the Surround-IN for input IN 4 the display will show as follows.



Display for activated Surround-IN,
input IN 4
and Surround Max-Vol = 45.

5.2.14 Surround Max-Vol

The Program-Function Surround Max-Vol defines the output level for the Surround-IN. The setting of this function has no impact if the Surround-IN is OFF.



Display for function Surround Max.-
Vol, Value domain activated

Values: 40...80

Default: 40

You can select the optimal volume level at the output of the preamplifier 720 depending on your surround system. The level can be adjusted in 1 dB steps.

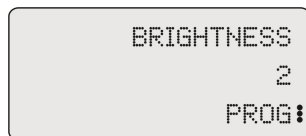


Level: 70 = - 0.5 dB total gain input to output (sym)
 71 = + 0.5 dB total gain input to output (sym)

Please be aware that the Program-Functions Gain-IN 1...IN 6 remain active in the Surround-Mode. If you select for instance + 3dB gain for the Surround IN the level 71 will result in a total gain input to output of 3.5 dB.

5.2.15 Brightness

The intensity of the display can be adjusted in three steps.



Display for function Brightness,
Value domain activated

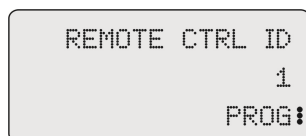
Values: 1 = low
 2 = medium
 3 = high

Default: 3

The intensity is adjusted immediately.

5.2.16 Remote Ctrl ID

If you use two different preamplifiers or the Remote Ctrl ID of the preamplifier 720 is already used by another device of your HiFi-setup you can change the identification of your preamplifier 720. Factory default is 1 (For changing the Remote ctrl ID of the remote control 720/740 please refer to chapter 6.2.11, page 36). After selecting the Program-Function Remote Ctrl ID the display shows the value domain (red LEDs active) and you can select the desired ID.



Display for function Remote Ctrl ID,
Value domain activated

Values: 1, 2

Default: 1

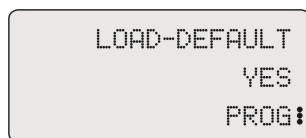
The new Remote Control ID will be activated after the Programming-Mode is left.



If you change the Remote Ctrl ID the preamplifier 720 can only be controlled by the remote control 720/740 after you have switched the Remote Ctrl ID of the remote control 720/740 alike.

5.2.17 Load-Default

In case you want to overwrite all your individual settings by the factory default values you select the Program-Function Load-Default and you confirm with YES. The following values will be loaded.



Display for function Load-Default,
Value domain activated

Start-In:	IN 1	Bandwidth IN 1.. 6	HIGH
Start-Record:	OFF	Gain IN 1.. 6:	0
Record-Loop:	OFF	Phono-Gain:	LOW
Start-Volume:	30	Phono High Pass:	ON
Dim-Volume:	20	Surround-IN:	OFF
Max-Volume:	80	Surround-Max-Vol:	40
Balance:	0	Brightness:	3
Name IN 1..6:	OFF	Remote Ctrl ID	1

Security advice: Please note your personal settings in the table „Individual Settings“ on page 44.

5.2.18 Software-Info

This function shows the version of software installed on your preamplifier 720.



6 Remote control



The remote control controls all functions of the soulution preamplifiers, integrated amplifiers and CD/SACD-Players. You can also access the Program-Functions of these products.

The Volume +/- buttons of the remote control will always control the volume of the soulution preamplifier or integrated amplifier. This is also the case when changing the remote control to CD-mode.

6.1 Start of operation and maintenance

The remote control requires 2 AAA batteries (enclosed in the scope of delivery). We recommend using only top quality products.

Exchange of batteries:

- 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

6.2 Handling

6.2.1 IR-Transmitter (1)

Ensure that the IR-Transmitter is not covered and that the IR-Receiver is not hidden by any objects. The remote control works up until a distance of 5m and a maximal angel of incident of $\pm 45^\circ$.



6.2.2 Input \pm / Next Track, (5/6)

PRE-mode: The Input \pm buttons switch between the different inputs. With the Enter-button you change to the Record-select-mode. In this mode the Input \pm buttons allow to select the Record-IN.

CD-modus: The Next Track buttons skip the tracks forward or backward.

In Programming-Mode (Prog-button) the Input \pm buttons allow to select the desired function and the Enter-button confirms the selection. If the value domain of a function is activated the Input \pm buttons allow setting the new value and Enter-button confirms the new setting.

6.2.3 Volume-Dim / Play-Pause (4)

PRE-mode: Pressing the Volume-Dim button (de)activates the Volume Dim function of the preamplifier or the integrated amplifier.

CD-mode: The Play-Pause button controls the Play/Pause function of the CD/SACD-Players

6.2.4 Volume \pm (2,3)

The Volume \pm buttons control always the volume of the preamplifier, integrated amplifier irrespective of the PRE-/CD-mode of the remote control.

6.2.5 Mute (9)

PRE-mode: The Mute-button controls always the mute function of the preamplifier, integrated amplifier. The mute function disconnects the Main-Out and the Record-Out connectors.

CD-mode: no function



6.2.6 Open/Close (11)

PRE-Mode: no function.

CD-mode: The Open/Close button controls the drawer of the player.

6.2.7 Prog-button (8)

PRE-mode: The Prog-button switches the preamplifier, integrated amplifier between Operating-Mode and Programming-Mode.

CD-mode: The Prog-button switches the CD/SACD-Player between Operating-Mode and Programming-Mode.

6.2.8 PRE-button (12)

Pressing the PRE-button switches the remote control to PRE-mode for the control of the preamplifiers or integrated amplifiers. While pressing the buttons of the remote control the red LED (14) will light up.

6.2.9 CD-button (13)

Pressing the CD-button switches the remote control to CD-mode for the control of the CD/SACD-Players. While pressing the buttons of the remote control the blue Leds under the Play/Pause button (4) will light up.



6.2.10 Power (10)

PRE-mode: The Power-button defines the operating condition ON or OFF of the preamplifier, integrated amplifier.

CD-mode: The Power-button defines the operating condition ON or OFF of the CD/SACD-Player.

6.2.11 Remote Ctrl ID

PRE-mode: Change the transmitter Remote Ctrl ID of the remote control as follows:

ID 1: Input+ button (6), Input- button (5) and Power (10)

ID 2: Input+ button (6), Input- button (5) and Mute (9)

Press the respective buttons for approximately 5 seconds. The remote control confirms the new ID via red LED on its front.

The Remote Control ID of the preamplifier, integrated amplifier has to be changed as well by selecting the Program-Function Remote Control ID, otherwise the preamplifier, integrated amplifier will not react to the remote control no more.

CD-mode: The Remote Ctrl ID can not be changed.



7 Protection functions of the preamplifier 720

Comprehensive protection functions ensure a secure operation and long durability. The preamplifier 720 disposes over the following functions:

Overcurrent:

For currents > 1 Ampere at the Main-Out the preamplifier 720 shuts down automatically.

DC-PROTECT:

Your preamplifier 720 is protected against DC-offset at the inputs IN 1...IN 6. The input signal is permanently monitored for DC-components. As soon as a DC-offset is detected a coupling capacitor is switched into the signal path. This capacitor is bypassed if the DC-offset has ceased for at least 15 seconds. The display shows the symbol for the capacitor (⊕).

While switching between inputs the capacitor is activated automatically for security reasons. This is not a malfunction of your source device.

Fuse:

The mains connection has a fuse which protects your preamplifier 720 against too high power consumption. The fuse is located within the mains switch on the rear side of the preamplifier 720.

Model 220-240 V, 50-60Hz

2A/T 250V micro fuse 5x20mm

Model 100-120 V, 50-60Hz

4A/T 250V micro fuse 5x20mm



8 Trouble shooting

Error	Action
No Display	Check the cabling to the mains supply. Eventually replace the fuse of your preamplifier 720.
No music	Check the cabling to your power amplifier, signal sources and from the power amplifier to your loudspeakers, whether you have selected the correct input, the source device is muted and if the power amplifier is switched on.
POWER FAIL	If the power supply to the audio channels is interrupted or an error in the power supply unit has occurred the preamplifier 720 is shut down automatically. The display shows POWER FAIL.
OVERCURRENT	If the current at the Main-Out exceeds 1 ampere the preamplifier 720 is shut down automatically. The display shows OVERCURRENT. Check the cabling to the power amplifier. This error may also be provoked by defect or switched off power amplifier.

8.1 Actions after the appearance of an error

If you can not identify the error please disconnect the mains supply (before you disconnect the preamplifier 720 has to be in operating condition OFF) and contact your soulution dealer.



9 Care and maintenance

9.1 Burn-in

The preamplifier 720 will play on top level immediately after the first placing into operation. However during the first 20-50 hours of operation you will notice a further improvement of its sonic qualities.

9.2 Longlife-precautions

We use only highest quality components for the preamplifier 720. Components prone to aging are kept under constant voltages in stand-by (OFF) condition in order to further increase their lifetime. In stand-by (OFF) condition the preamplifier 720 dissipates ca. 6 Watts.

Security advice: Unplug your preamplifier 720 if you leave for longer periods

9.3 Cleaning

Please use a soft towel for the cleaning of your preamplifier 720 . We recommend the use of a nonabrasive micro fibre towel. Please do not employ any solvents.

Security advice: Liquidity is not allowed to enter the preamplifier 720. The electronic may be damaged seriously.



10 **Service**

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

11 **Warranty**

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

The guarantee is void if the preamplifier 720 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 not posses the original packaging no more please contact your soulution dealer.

Basic repairs may be completed by your soulution dealer. Please clarify whether he is able to do the work before you send the preamplifier 720 back to us.



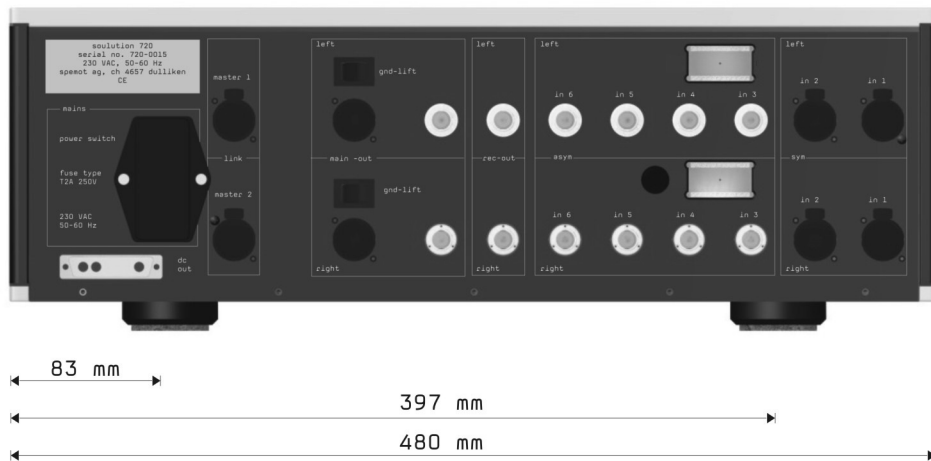
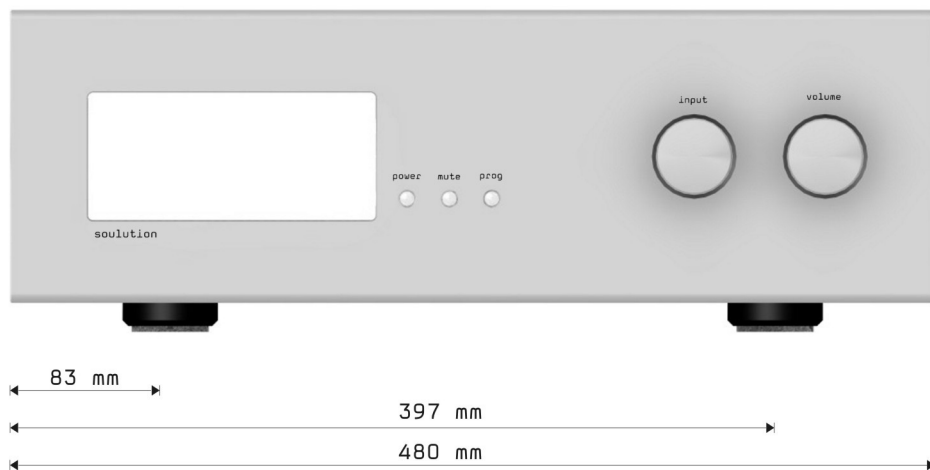
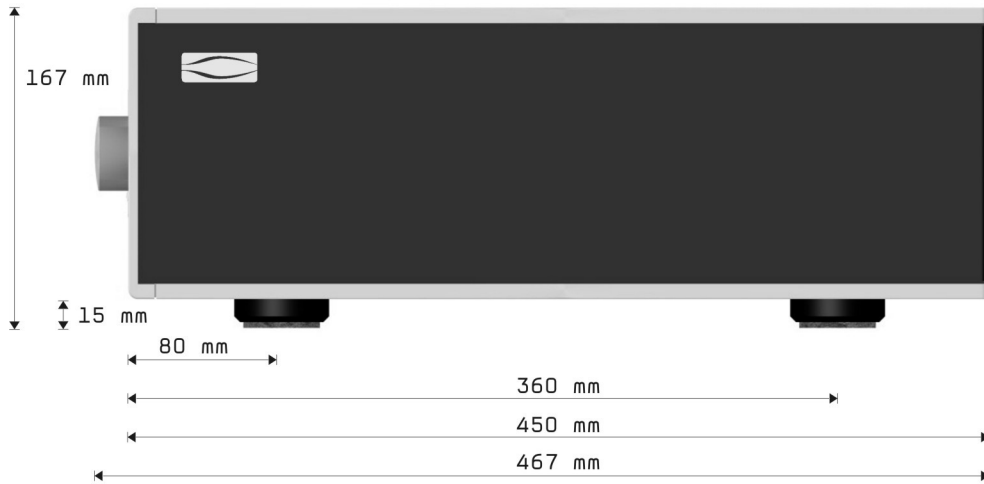
12 Specifications

Specification		Data
General		
Nominal voltage	Model 220-240V Model 100-120V	220 - 240 V, 50-60 Hz 100 - 120 V, 50-60 Hz
Nominal rating		250 W
Power consumption	(OFF)	<0.5 W
Power consumption	(ON)	60 W
Line-inputs: IN 1/IN 2, IN 4...IN 6		
Amplification	symmetrical (IN 1/IN 2) asymmetrical (IN 4...IN 6)	+9.5...+18.5 dB +3.5...+12.5 dB
Frequency response		DC-1 MHz
Slew rate		400 ns
THD+N		<0.0006 %
Signal-to-Noise ratio		140 dB
Crosstalk		105 dB
Input impedance	symmetrical (IN 1/IN 2) asymmetrical (IN 4...IN 6)	2 kΩ 47 kΩ
Phono-Input: IN 3		
Amplification		+54...+60 dB
Amplifier bandwidth	(internal)	DC-1 MHz
Slew rate		400 ns
THD+N		<0.0006 %
Input-Impedance	(no adaptation)	1 kΩ
Outputs		
Voltage	Main-Out symmetrical Main-Out asymmetrical	max. 16 Vrms@100Ω max. 8 Vrms@100Ω
Current		max. 1 A
Impedance	Main-Out symmetrical Main-Out asymmetrical Record-Out	2 Ω 2 Ω 100 Ω
LINK-Out		+12 V
Dimensions		
Dimensions		480x450x167 mm
Weight		ca. 30kg

Technical specifications are subject to change without prior notification.



13 Dimensions







14 Definitions

Operating conditions

OFF (Standby)	In operating condition OFF only the standby-power supply is active. Power consumption of <0.5 Watts.
P ON (PROTECT ON)	As soon as the preamplifier 720 is switched on it changes to the operating condition P ON. The audio power supply unit is started and the audio channels are checked for potential errors. When constant operating conditions are reached and no errors are detected the preamplifier 720 changes into operating condition ON.
ON	In operating condition ON the preamplifier 720 is ready for operation.
POWER FAIL	If the power supply to the audio channels is interrupted or an error in the power supply unit has occurred the preamplifier 720 is shut down automatically. The display shows POWER FAIL.
OVER-CURRENT	If the current at the Main-Out exceeds 1 ampere the preamplifier 720 is shut down automatically. The display shows OVERCURRENT.
LINK ERROR	In the case other solution components are controlled via the LINK connection the preamplifier shows in the display (LINK: ERROR) if an error has occurred.

Labelling

SYM	Abbreviation for symmetrical connectors.
XLR Female	 1. Ground, 2. + Phase, 3. - Phase
XLR Male	 1. Ground, 2. + Phase, 3. - Phase
ASYM	Abbreviation for asymmetrical connectors.



15 Individual Settings

Function	Setting	Default-Value
Start-In		IN 1
Start-Record		OFF
Record-Loop		OFF
Start-Volume		40
Dim-Volume		10
Max-Volume		80
Balance		0
Name IN 1		OFF
Name IN 2		OFF
Name IN 3		OFF
Name IN 4		OFF
Name IN 5		OFF
Name IN 6		OFF
Bandwidth-IN 1		HIGH
Bandwidth-IN 2		HIGH
Bandwidth-IN 3		HIGH
Bandwidth-IN 4		HIGH
Bandwidth-IN 5		HIGH
Bandwidth-IN 6		HIGH
Gain IN 1		0
Gain IN 2		0
Gain IN 3		0
Gain IN 4		0
Gain IN 5		0
Gain IN 6		0
Phono Gain		LOW
Phono High Pass		ON
Surround-IN		OFF
Surround Max-Vol		40
Brightness		3
Remote Ctrl ID		1

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