

Series 3



330 Integrated amplifier
User manual



Dear client

We are proud that you decided yourself for a soulution product. You have acquired an integrated amplifier 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 phono 300 integrated amplifier 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 integrated amplifier please do not hesitate to contact your dealer.

Have fun!



Your soulution 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	Highlights	4
2	Safety advice: ▲	5
3	Scope of delivery	6
4	Rear side	6
5	Front side.....	13
6	Remote control	15
7	Program-Mode	16
8	Trouble shooting	20
9	Service	20
10	Safety functions.....	21
11	Warranty	21
12	Specification	22
13	Dimensions	23

Quick start

Unpacking	<ul style="list-style-type: none"> ⇒ Unpack the 330 integrated amplifier ⇒ Keep the packing for future transportations ▲ Treat the top class surface with care
Positioning	<ul style="list-style-type: none"> ⇒ Position the 330 integrated amplifier on a stable base. ▲ Cooling air must be able to escape unrestricted.
Cabling	<ul style="list-style-type: none"> ⇒ Disconnect all components of your system from the mains ⇒ Connect the 330 with your loudspeakers ⇒ Connect the 330 with your turn tables ⇒ Reconnect all appliances of your system with the mains ▲ While changing cables the 330 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 330 integrated amplifier ⇒ Select a moderate volume level ⇒ Switch-on your source components ▲ Check the cabling before switch-on



1 Highlights

Power amplifier

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

Power supply

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

Volume control

Relays switched precision resistors form the volume control for the left and right channel. A parallel volume control path based on a Programmable Gain Amplifier (PGA), only active when the volume is changed, ensures click free volume changes.

Multiamp-Mode


Two or more 330 integrated amplifiers may be combined to a Bi- or Multi-Amp setup. The audio signal of the active input is directly bypassed to the Source-Out connectors, no changes on volume or balance. The Link-Com interface allows the units in the Multi-Amp setup to align their settings for the volume, balance and changing to the required inputs.

Surround- Mode

The 330 may as well be integrated in an Audio/Video system. One input can be defined as surround input. Volume and balance settings of the 330 integrated amplifier will be ignored for the surround input.



2

Safety advice: 

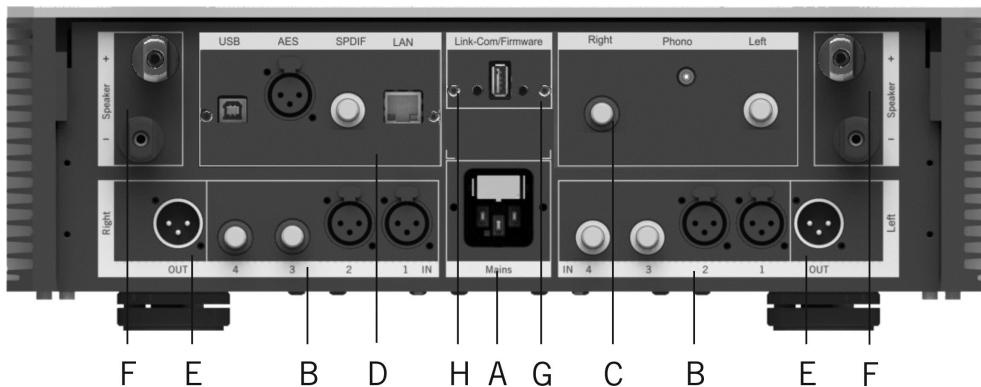
User manual	<ul style="list-style-type: none"> ⇒ Follow the safety advices ⇒ Keep this user manual.
Mains supply	<p>Exclusively use 3 phase power cords with ground conductor. Unplug the 330 from the mains in the following cases:</p> <ul style="list-style-type: none"> ⇒ before you manipulate with cables ⇒ before cleaning ⇒ during thunder storms ⇒ before you leave for longer periods
Cabling	<p>While manipulating with cables the 330 has to remain disconnected from the mains. Wrong cabling may cause damages to your 330 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 330 integrated amplifier, let it warm up within the packing. Please keep the original packing for future transports.</p>
Operation	<p>Never run your 330 integrated amplifier</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 liquidity have entered the 330 ⇒ the 330 has seen rain ⇒ the 330 seems to malfunction ⇒ the 330 has fallen to the floor or the housing is damaged



3 Scope of delivery


- ⇒ 330 integrated amplifier
- ⇒ IR-remote control
- ⇒ Power cord
- ⇒ Link cable
- ⇒ User manual

4 Rear side



Mains (A)

Connect the 330 integrated amplifier with the mains. Depending on the settings in the function PWR-MODE the 330 will change to operating condition OFF (consumption < 0.5W), wait for the Link-Com signal or switch-on automatically.

 Before disconnecting the 330 integrated amplifier from the mains you should bring it in operating condition OFF.

Inputs IN 1...IN4 (B)

Use high grade cables for the connection to your source components. For long cable runs we suggest using balanced cables.



Phono MC optional (C)

The 330 integrated amplifier may be optionally equipped with a top quality phono MC equalizer / preamplifier. The termination impedance can be perfectly adjusted, through a relays switched resistor network ($20\Omega - 1'260\Omega$), to the cartridge of your turntable. The settings can be changed be remote controlled from your listening position via the IR remote control (function PHON-IMP). If required the RIAA-IEC high-pass filter may be activated (function PHONO-HF).

D/A-converter optional (D)

The digital-to-analog converter features network, USB, SPDIF and AES/EBU inputs. A powerful DSP converts all digital signals to DXD, the zerophase technology ensures minimal phase errors along signal path.

AES/EBU and SPDIF

File format	Bit depth	Sampling rate
PCM (WAV, AIFF, FLAC, etc.)	16 - 24 bit	32 – 192 kHz
DSD (DoP)	1 bit	2.82 – 5.64 MHz

Network

The 330's network input will be recognized as „UPnP™ AV/DLNA Media Renderer device“ and can be accessed from your media server.

File format	Bit depth	Sampling rate
FLAC (Free Lossless Audio Codec)	16-24 bit	44.1 – 192 kHz
WAV (Waveform Audio File Format)	16-24 bit	44.1 – 192 kHz
MP3 (Mpeg Audio Layer 3)	16-24 bit	44.1 – 192 kHz
ALAC (Apple Lossless Audio Codec)	16-24 bit	44.1 – 192 kHz
AAC (Advanced Audio Coding)	16-24 bit	44.1 – 192 kHz
AIFF (Audio Interchange File Format)	16-24 bit	44.1 – 192 kHz
DSF and DFF (DSD stream file)	1 bit	2.82 – 5.64 MHz
DXD (Digital eXtreme Definition)	24 bit	352.8 kHz



USB


The readable file formats depend mainly on the used player software. The following formats can be received by the 330's D/A-converter USB input:

File format	Bit depth	Sampling rate
PCM (WAV, AIFF, FLAC, etc.)	16 - 24 bit	32 – 192 kHz
DSD (DoP)	1 bit	2.82 – 5.64 MHz

The 330's USB input supports USB Audio Class 2.0. For operating systems such as Mac OS X, it supports driver free playback up to 24bits/192kHz. Under Windows a specific USB Audio Class 2.0 driver is required for playback of files with sampling rates > 96kHz. Download www.soulution-audio.com

Source-Out (E)

The audio signal of the active input is directly bypassed, no changes on volume or balance, to the Source-Out connectors. Two or more 330 integrated amplifiers may be combined to a Bi- or Multi-Amp setup. The Link-Com interface allows the units in the Multi-Amp setup to align their settings for the volume, balance and changing to the required inputs. Several cabling options for the Multi-Amp setup are available which allow optimal positioning of the 330 amplifier according to your needs.

 The Source-Out is not attenuated. The full output level of the connected source component will be present at the Source-Out. Amplifiers without volume control function are not allowed to be connected to the Source-Out. Excessive volumes due to inappropriate handling may cause hearing damages or may damage your loudspeakers.

Speaker (F)

Due to its exceptional load stability and peak current capacities the 330 integrated amplifier can easily drive any loudspeaker. If the speakers should ask for more power several 330 integrated amplifier can be combined to a Multi-Amp setup.



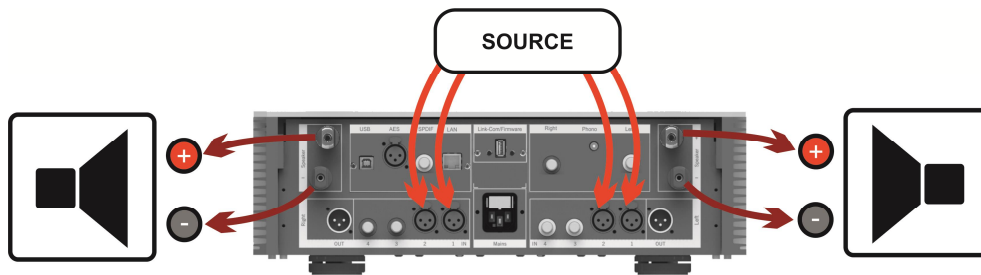
Multi-Amp mode: OFF (Single-Amp: Stereo)

In the “standard” stereo setup the left/right channel of your source components and your speakers are connected the left/right input connectors and speaker binding posts of the 330 integrated amplifier.

Relevant settings for the program functions (see chapter 7):

Function	Values	Remarks
MULTI-AMP	M-AM OFF !	Set 330 to Multi-Amp mode M-AM OFF for “standard” single amp stereo setup
SRC-TYPE	SRC L&R !	Source-Type SRC L&R gets automatically activated.

Please be aware that the Source-Type function is not available if the Multi-Amp mode is set to OFF.



! The Source-Out is not attenuated. The full output level of the connected source component will be present at the Source-Out. Amplifiers without volume control function are not allowed to be connected to the Source-Out. Excessive volumes due to inappropriate handling may cause hearing damages or may damage your loudspeakers.

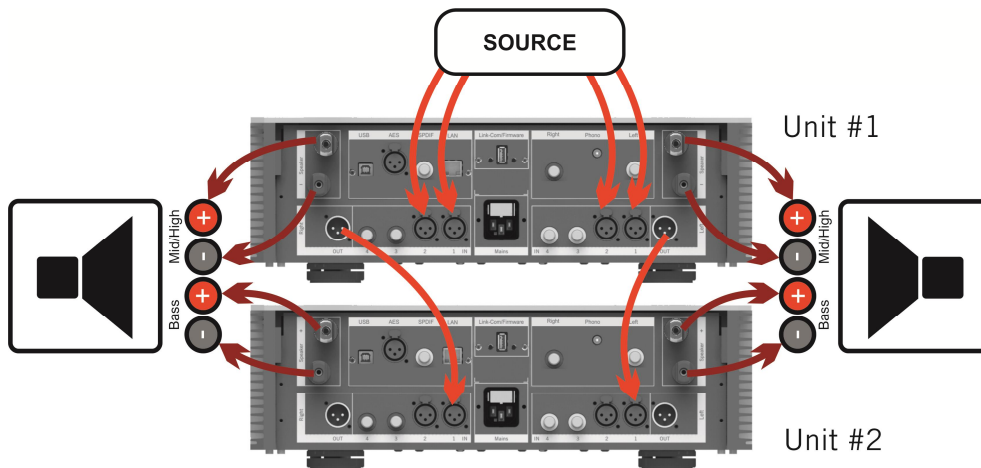


Multi-Amp mode: Stereo

The left channels of the 330 integrated amplifiers are connected with the binding posts of the left loudspeaker, right channels with the right loudspeaker. All 330s in Multi-Amp setup must be connected with the Link-Com interface. Ensure correct settings and cabling of all 330s before you power up.

	Function	Values	Remarks
Unit #1	MULTI-AMP	M-AM ST :	Multi-Amp mode: Stereo
	SRC-TYPE	SRC L&R :	Source-Type: Left & Right
Unit #2	MULTI-AMP	M-AM ST :	Multi-Amp Mode: Stereo
	SRC-TYPE	SRC OFF :	Source-Type: OFF Input IN1 is always active

All source components get connected to unit #1 (Source-Type: L&R). The left Source-Out of unit #1 has to be connected to input IN 1 of unit #2, likewise for the right channel. All 330 integrated amplifier with no source components connected must be set to Source-Type OFF.



! The Source-Out is not attenuated. The full output level of the connected source component will be present at the Source-Out. Amplifiers without volume control function are not allowed to be connected to the Source-Out. Excessive volumes due to inappropriate handling may cause hearing damages or may damage your loudspeakers.

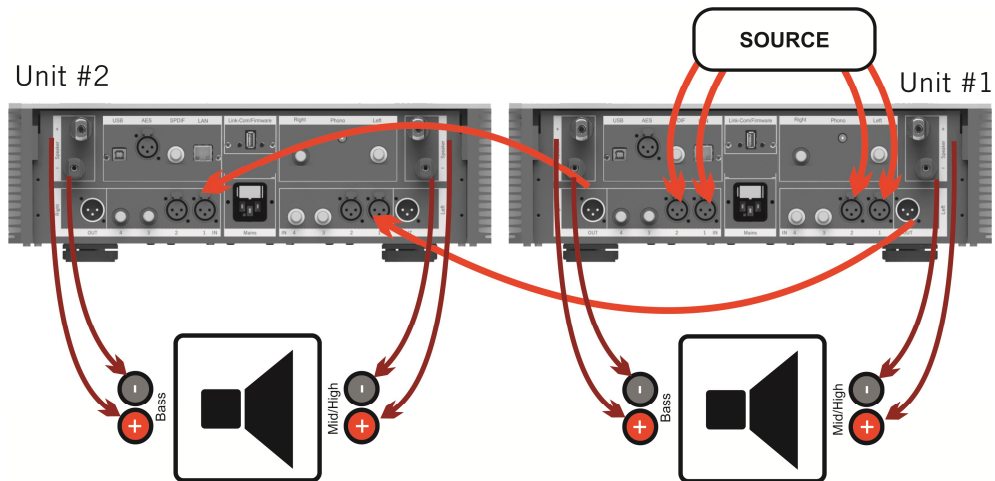


Multi-Amp mode: Mono

Both channels of the 330 integrated amplifier will be used for powering the left or the right loudspeaker. Left and right channels of the source components may either be both connected to one of the two 330s or the left channel to the “left” unit and right channel to the “right” unit. All 330s in Multi-Amp setup must be connected with the Link-Com interface. Ensure correct settings and cabling of all 330s before you power up.

Settings for multi-amp mode mono, both channels of the source components connected to the left amplifier channel.

	Function	Values	Remarks
Unit #1	MULTI-AMP	M-AM ML :	Multi-Amp Mode: Mono Left
	SRC-TYPE	SRC L&R :	Source-Type: Left & Right
Unit #2	MULTI-AMP	M-AM MR :	Multi-Amp Mode: Mono Right
	SRC-TYPE	SRC OFF :	Source-Type: OFF Input IN1 always active

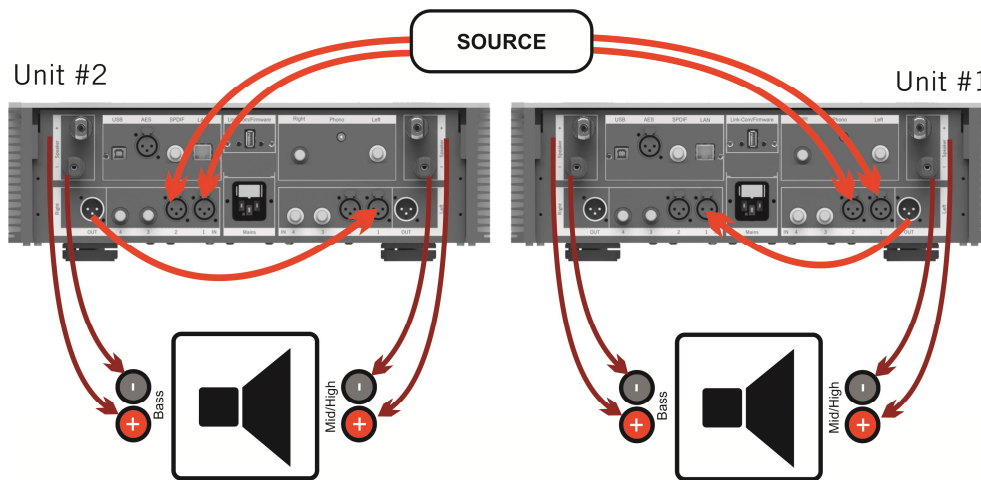


! The Source-Out is not attenuated. The full output level of the connected source component will be present at the Source-Out. Amplifiers without volume control function are not allowed to be connected to the Source-Out. Excessive volumes due to inappropriate handling may cause hearing damages or may damage your loudspeakers.



Settings for Multi-Amp mode mono, left channels of the source components connected to the left amplifier channel and right channels of the source components connected to the right amplifier channel. All 330s in Multi-Amp setup must be connected with the Link-Com interface. Ensure correct settings and cabling of all 330s before you power up.

	Function	Values	Remarks
Unit #1	MULTI-AMP	M-AM ML :	Multi-Amp Mode: Mono Left
	SRC-TYPE	SRC M-L :	Source-Type: Left channel
Unit #2	MULTI-AMP	M-AM MR :	Multi-Amp Mode: Mono Right
	SRC-TYPE	SRC M-R :	Source-Type: Right channel



! The Source-Out is not attenuated. The full output level of the connected source component will be present at the Source-Out. Amplifiers without volume control function are not allowed to be connected to the Source-Out. Excessive volumes due to inappropriate handling may cause hearing damages or may damage your loudspeakers.



Link-Com (G)

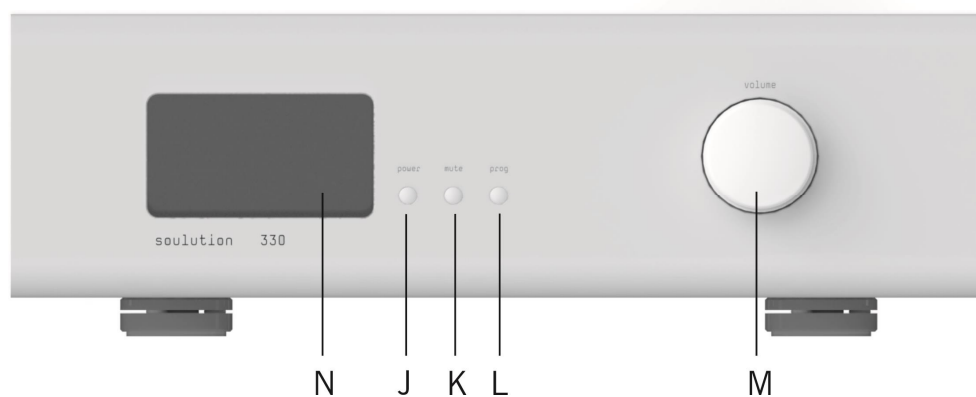
The Link-Com interface is required for Multi-Amp setups. It aligns the settings for the volume, balance and inputs among the connected 330s.

Firmware (H)

The firmware can be updated through the USB interface.

- ⇒ Disconnect the unit from the mains
- ⇒ Copy the new firmware file on a USB stick, no other files on the stick
- ⇒ Plug the USB stick in the “Firmware” interface
- ⇒ Connect the unit with the mains
- ⇒ Follow the instructions in the display

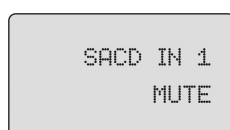
5 Front side



Power (J)

The power buttons toggles between ON and OFF (red LEDs in display). We suggest switching the 330 to OFF whenever you do not listen to music.

Mute (K)



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



Prog (L)

The Prog-button switches the 330 to Program-Mode.

Volume (M)

The volume-knob is used for the functions Volume +/-, Volume-Dim, Input-Select and for navigating in the Program-Mode.



Volume +/-

The volume control range accounts for 89dB. In order to protect your system we suggest limiting the maximal volume level with the function MAX-VOL.



Volume-Dim

Short push on the volume-knob (de)activates the Volume-Dim function. Volume-Dim level is defined with the function DIM-VOL.



Long push on the volume-knob activates the Input-Select mode.



Input-Select

The new input can be selected.

Display / IR-receiver (N)

The display shows all relevant information.



6 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

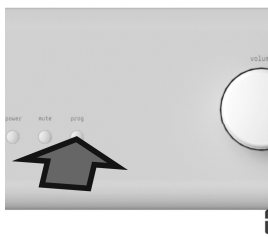




7 Program-Mode

7.1 Overview

The 330 integrated amplifier can be adjusted to your individual setup. It is already programmed with default settings. Further programming is not mandatory. Adjusting the Start-Volume (S-VOLUME) and the Max-Volume (MAX-VOL) is nonetheless suggested.



Push on the Prog button switches 330 integrated amplifier to program-mode.



Rotating the volume-knob allows selecting the desired program-function



Push on the volume-knob to activate the value domain of the selected program-function (red LEDs in display).



Rotating the volume-knob allows for adjusting the value of the selected program-function.



Push on the volume-knob to approve the selected value.



7.2 Program-Functions

Function	Values	Remarks
<p>PWR-MODE</p> <p><u>Power-Mode:</u> Defines start-up behaviour</p>	PWR-NORM :	Power-up with power-button, default value
	PWR-LINK :	330 waits for external LINK Signal
	PWR-AUTO :	Switches on automatically as soon as mains voltage is active.
<p>START-IN</p> <p><u>Start-Input:</u> Defines active input after switch-on</p>	S-IN IN1 :	Start-Input: IN 1, default value
	S-IN PHO :	Start-Input: Phono
	S-IN NET :	Start-Input: Network
<p>S-VOLUME</p> <p><u>Start-Volume:</u> Defines the volume level after switch-on</p>	S-VOL 10 :	Minimal Start-Volume
	S-VOL 30 :	Default value
	S-VOL 40 :	Maximal Start-Volume
<p>DIM-VOL</p> <p><u>DIM-Volume:</u> Defines the volume level of the DIM function</p>	D-VOL 1 :	Minimal DIM-Volume
	D-VOL 10 :	Default value
	D-VOL 40 :	Maximal DIM-Volume
<p>MAX-VOL</p> <p><u>MAX-Volume:</u> Limits the volume level</p>	M-VOL 40 :	Minimal MAX-Volume
	M-VOL 65 :	Suggested MAX-Volume
	M-VOL 90 :	Default value



Function	Value	Remarks
<p>MULTI-AMP</p> <p><u>Multi-Amp:</u> Activates the Multi-Amp Mode and defines the function of the 330 in the Multi-Amp system</p>	M-AM OFF :	Default value
	M-AM ST :	Stereo
	M-AM ML :	Mono left channel
	M-AM MR :	Mono right channel
<p>SRC-TYPE</p> <p><u>Source-Type:</u> Defines which source channels are connected to the 330.</p>	SRC L&R :	Both channels connected, Default value
	SRC M-L :	Left channel connected only
	SRC M-R :	Right channel connected only
	SRC OFF :	No source components connected. Input IN1 always active
<p>SURROUND</p> <p><u>Surround-Input</u></p>	SUR OFF :	Surround mode OFF, Default value
	SUR IN1 :	Inputs IN1 to IN4 can be defined as surround-input.
<p>SUR-VOL</p> <p><u>Surround-Volume</u> Defines the volume level of the surround-input</p>	SUR-V 10 :	Minimal volume level
	SUR-V 40 :	Default value
	SUR-V 90 :	Maximal volume level
<p>BRIGHTN.</p> <p><u>Brightness:</u> Defines the brightness of the display</p>	BR. LOW :	Low
	BR. MID :	Mid
	BR. HIGH :	High, Default value



Function	Value	Remarks
<p>REMOTE</p> <p><u>Remote-ID:</u> Defines the Remote-ID for the 330.</p>	REM Pre1 :	Default value
	REM DAC :	Other components may use the same IR-codes as the 330. The 330's Remote-ID can be changed. The ID of the remote control has to be changed accordingly (see chapter 6)
	REM OFF :	
<p>PHONO-HP</p> <p><u>Phono High-Pass filter</u></p>	P-HP ON :	High-Pass-filter active, Default value
	P-HP OFF :	High-Pass filter disabled
<p>PHON-IMP</p> <p><u>Phono-Impedance:</u> Defines the impedance of the phono MC input.</p>	IMP 20 :	Minimal impedance
	IMP 100 :	Default value
	IMP 1260 :	Maximal impedance
<p>POLARITY</p> <p><u>Polarity</u></p>	POL 0 :	Polarity in phase, Default value
	POL 180 :	Polarity 180°, inverted
<p>DEFAULT</p> <p><u>Default-Values</u> Activates the default values for all functions.</p>	LOAD NO :	No action
	LOAD YES :	Loads the default values.
	DONE	
<p>FIRMWARE</p>	FW 1.01	Firmware version



8 Troubleshooting

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 your source components - the cabling to your loudspeakers - if the proper input has been selected - if the source component is powered-up or in MUTE
PROTECT	Protect function is activated in the following situations: <ul style="list-style-type: none"> - output current to the loudspeakers >30 A - DC-offset in the input signal - HF oscillation in the power-amplifiers - Too high temperature on the output transistor rail
POWER FAIL	The 330 switches-off automatically if one of the 330's power supplies fails. The display shows which power supply failed. Please note the reported error code.

If you cannot identify the error please disconnect the 330 integrated amplifier 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	The 330 will switch-off automatically if the output current to the loudspeakers exceeds > 30A	
Power supplies:	The 330 switches-off automatically if one of the 330's power supplies fails. The display shows which power supply failed. Please note the reported error code	
Audio signal	The audio gets monitored for HF oscillation and DC offsets. If the tolerated thresholds are surpassed the 330 switches-off automatically.	
Temperature	In case of over-temperature the 330 gets switched-off automatically.	
Fuse:	Model 100-240V	10A/T 250V micro fuse 5x20mm
	Model 220V/60Hz	10A/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-authorized 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 a 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.



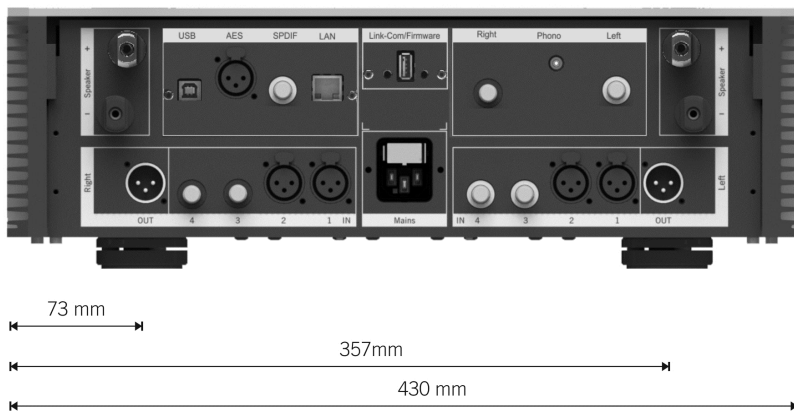
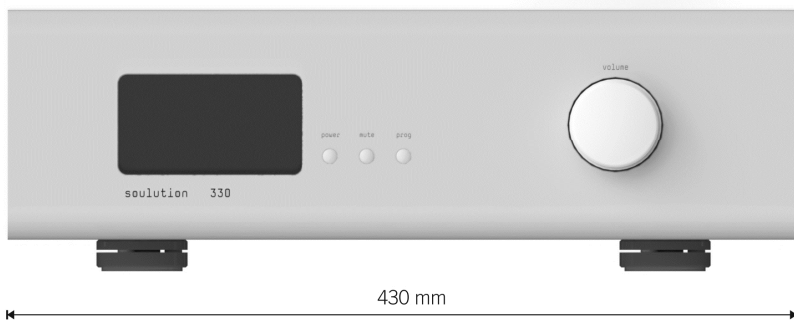
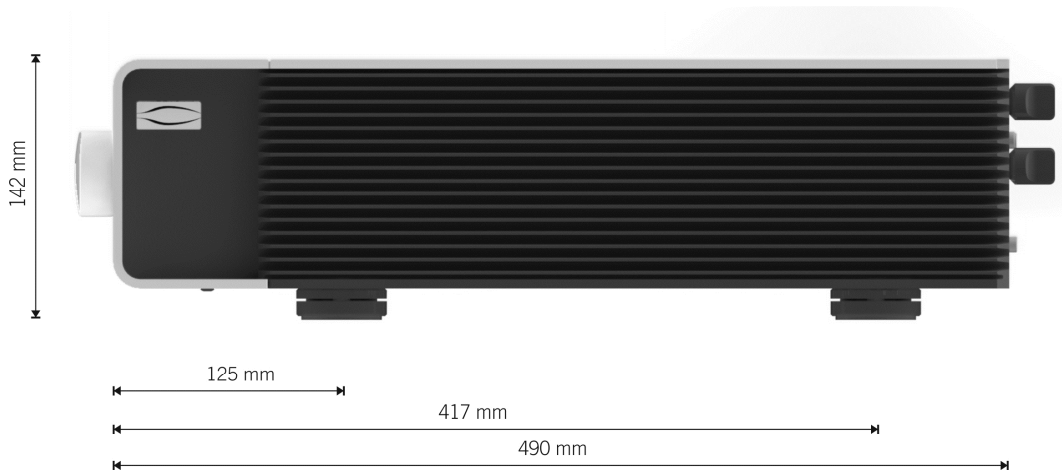
12 Specification

General		
Nominal voltage	Model 100-240V Model 220V/60Hz	100 - 240 V, 50-60Hz 220 V, 60Hz
Nominal consumption		2300 W
Consumption	Standby	<0.5 W
Inputs (IN 1...IN 4)		
Impedance	Balanced	3.3 k Ω
	Unbalanced	20 k Ω
Phono (optional)		
Impedance		20-1'260 Ω
Gain		60 dB
D/A converter (optional)		
Sensitivity		0.3 - 5 V p-p
Impedance	SPDIF	75 Ω
	AES/EBU	110 Ω
USB		
Input voltage		0.4 – 2.5V
Ethernet		
Input voltage		0.4 – 2.5 V
Main-Out		
Audio power	@ 8 Ω	120 W
	@ 4 Ω	240 W
	@ 2 Ω (dynamic)	480 W
Peak output current		30 A max.
Gain		-54...+36 dB
Frequency response		DC-800 kHz
THD+N		<0.001 %
Damping factor		>5'000
Signal-to-Noise Ratio (SNR)		>120 dB
Crosstalk		< -110 dB
Dimensions		
Dimensions		430 x 490 x 142 mm
Weight		ca. 30 kg

Technical specifications are subject to change without prior notification.



13 Dimensions



Spemot AG
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part.no. 92212