SA45

select

ARCAM

volume

Owner's Manual

Download the setup app:

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Clean only with a dry cloth.
6. Do not block any ventilation openings. Install this apparatus in accordance with the manufacturer's instructions.
7. Do not install this apparatus near any heat sources such as radiators, heat registers, stoves or other apparatus that produce heat.
8. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
9. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
10. Use only attachments/accessories specified by the manufacturer.
11. This equipment is designed for use in moderate climates with a maximum temperature of 35°C.
12. 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 the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, or the apparatus has been exposed to rain or moisture, does not operate normally or has been dropped.
15. To disconnect this apparatus from the AC mains completely, disconnect the power-supply cord plug from the AC receptacle.
16. The mains plug of the power-supply cord shall remain readily operable.
17. This apparatus is intended to be used only with the power supply and/or charging cable provided by the manufacturer.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

- Do not use this apparatus near water.
- Do not expose this apparatus to dripping or splashing, and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.

CAUTION	
RISK OF ELECTRIC SHOCK. DO NOT OPEN.	
⚡	THIS SYMBOL ON THE PRODUCT MEANS THERE IS UNINSULATED, DANGEROUS VOLTAGE WITHIN THE PRODUCT ENCLOSURE THAT MAY PRESENT A RISK OF ELECTRICAL SHOCK.
⚠	THIS SYMBOL ON THE PRODUCT MEANS THERE ARE IMPORTANT OPERATING AND MAINTENANCE INSTRUCTIONS IN THIS GUIDE.

Visit the product page at **ARCAM.co.uk** and download the Safety Sheet for a full list of safety instructions.

Class II Product

This equipment is a Class II or double insulated electrical appliance. It has been designed in such a way that it does not require a safety connection to electrical earth ("ground" in the U.S.).

ARCAM

The "A" in ARCAM stands for Amplification - this is our core competence.

ARCAM has been producing specialist Hi-Fi and home cinema products offering state of the art sound quality for over 45 years.

The SA45 is the latest in more than 45 years of amplifier design and manufacture, going back to our first product in 1976 - the A&R Cambridge A60 amplifier. This amplifier is designed to provide you with exceptional music for decades to come.

In the unlikely event of any fault, or you require technical assistance, please contact our dedicated support teams by email at luxurysupport@harman.com, or by telephone using **+44 1707 668012** or **+1 888 691 4171**.

Or, if you simply require further information about ARCAM products, our network of dealers will be happy to help you. Further information can also be found on the ARCAM website at **ARCAM.co.uk**.

Package Contents

- ARCAM SA45 streaming integrated amplifier
- IR remote
- 2x AAA batteries for the remote control
- Region specific power cords

- Measurement microphone for use with Dirac Live
- 5M USB-C cables for use with the microphone
- Quick start guide
- Safety and compliance document

Power Management

This product has user selectable functions related to power consumption. Changing these will change the power consumption of the product when in Standby:
- By default, the SA45 will enter standby within 20 minutes with no user interaction or playback. This can be disabled in the Menu by setting the **ECO Timer** to OFF.
- By default, the SA45 network connections will remain active in standby. To reduce standby power consumption, all network connections, including Wi-Fi, can be disabled by setting **Network Standby** to OFF.

Placing The Unit

- Place the amplifier on a level, firm surface, avoiding direct sunlight and sources of heat or damp.
- Do not place the SA45 on top of a power amplifier or other source of heat.
- Make sure the remote-control receiver to the right of the front panel display is unobstructed, otherwise this will impair the use of the remote-control.
- The SA45 is designed to run warm during normal operation.

⚠️	Extended use at high volume levels can result in the amplifier becoming hot to the touch.	Do not place the amplifier in an enclosed space such as a bookcase or closed cabinet unless there is good provision for ventilation.

- Do not place any other component or item on top of the amplifier as this may obstruct airflow around the heat-sink, causing the amplifier to run hot (the unit placed on top of the amplifier would become hot too).
- Do not place your record deck on top of this unit. Record decks are very sensitive to the noise generated by mains power supplies which will be heard as a background 'hum' if the record deck is too close.
- The normal function of the unit may be disturbed by strong electromagnetic interference. If this occurs, simply reset the unit with the power button, or move the unit to another location.
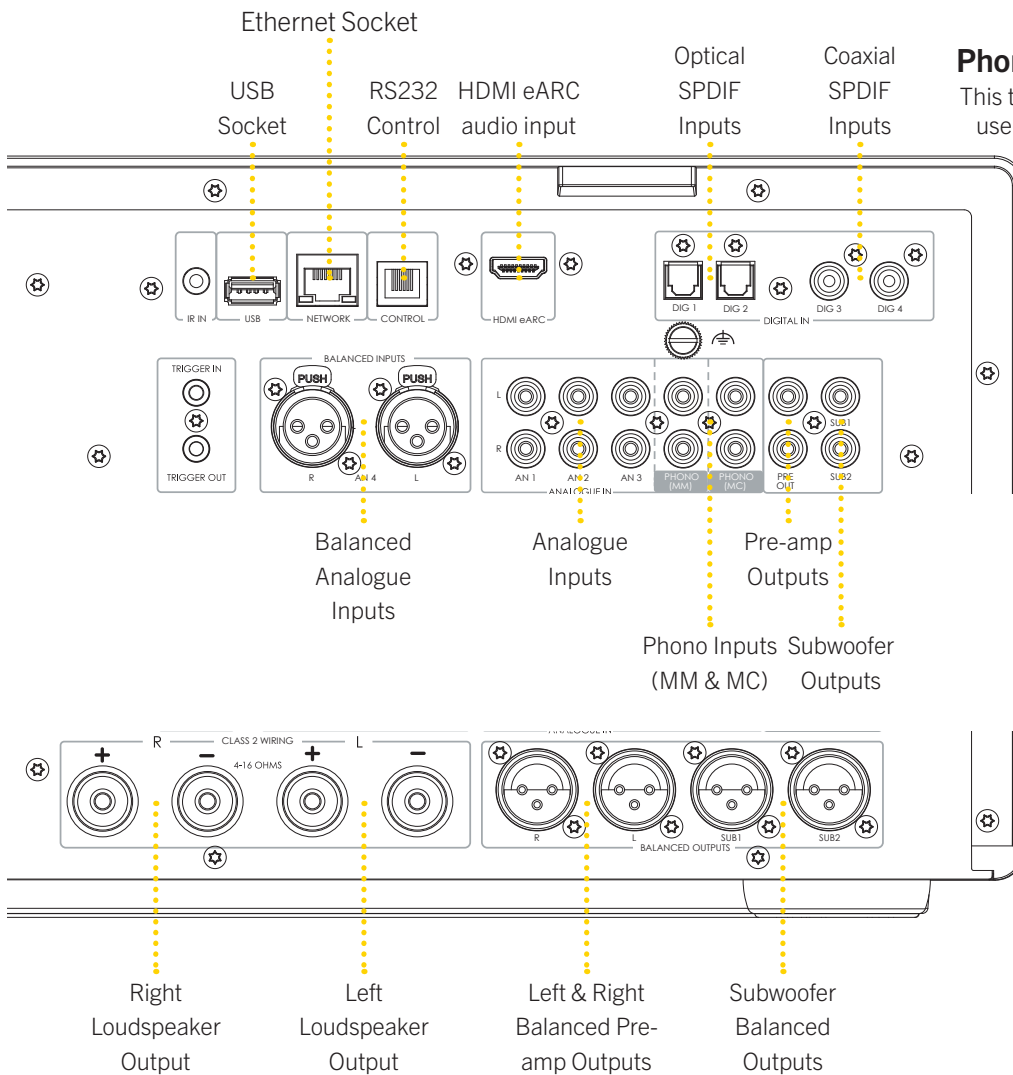
ARCAM

Front

Display
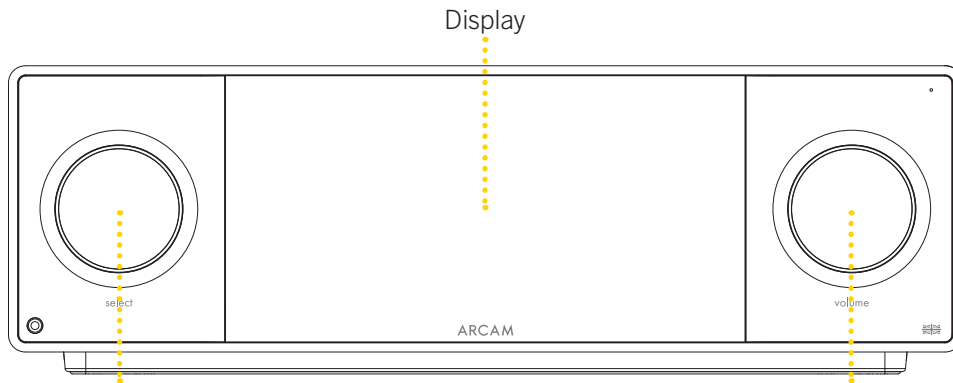
Rotate:	Input Carousel
Push:	Select Input

Rotate:	Volume Control
Push:	Mute/Unmute or Wake up from Standby
Push and Hold:	Standby

Rear

Ethernet Socket

USB Socket

RS232 Control

HDMI eARC audio input

Optical SPDIF Inputs

Coaxial SPDIF Inputs

Phono Ground
This terminal must not be used as a safety earth.

Balanced Analogue Inputs

Analogue Inputs

Pre-amp Outputs

Phono Inputs (MM & MC)

Subwoofer Outputs

Right Loudspeaker Output

Left Loudspeaker Output

Left & Right Balanced Pre-amp Outputs

Subwoofer Balanced Outputs

Connecting Loudspeakers

Step 1, ensure power is disconnected from the amplifier.

Step 2, using speaker cables, connect the red positive terminal of the right speaker output (R+) on the amplifier to the positive (+) terminal of your right speaker.

Step 3, connect the black negative terminal of the right speaker output (R-) on the amplifier to the negative (-) terminal of your speaker.

Step 4, repeat the process for the left speaker, using the terminals labelled L+ and L- and on the amplifier.
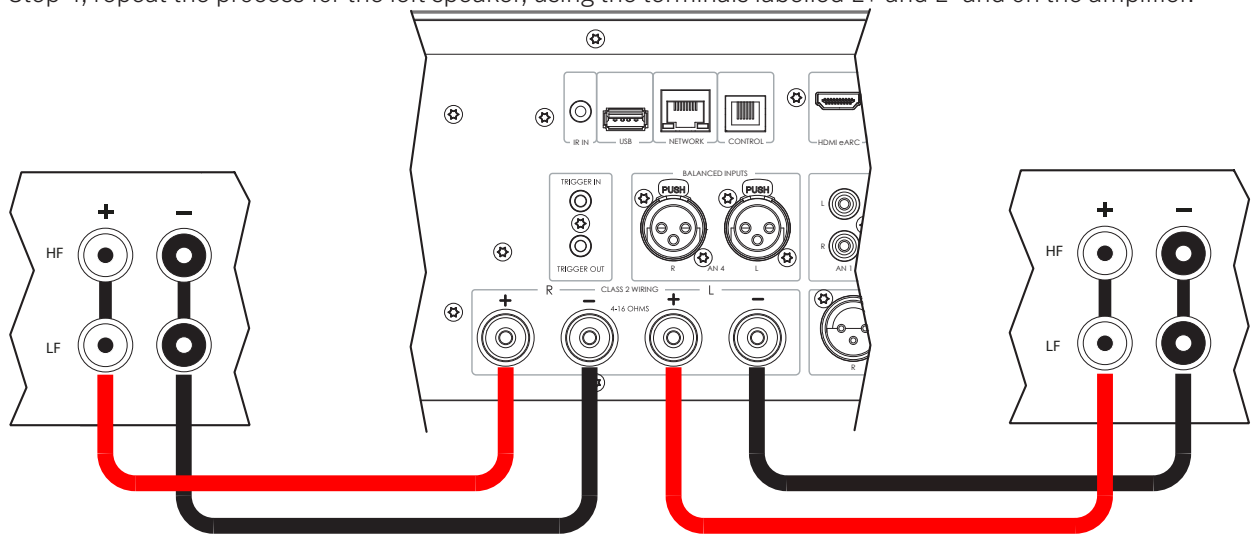

Top Tips

- Check all connections thoroughly. Ensure that exposed wires or cables are not touching each other or the amplifier's chassis (which can cause a short circuit), and that you have connected the positive (+) and negative (−) terminals correctly. Be sure to check the wiring for both the amplifier and the speakers.
- After making connections: switch the amplifier on with no input and reduce the volume to minimum. Select a source signal, and then slowly increase the volume to a suitable listening level to avoid loud sounds or product damage in the event of incorrect connection.
- If you are unsure as to how your system should be connected, please contact your ARCAM dealer who will be happy to help you.

Wired Network Connection:

Ethernet Socket
Connect this to your home network
using a Cat 5e or Cat 6 cable
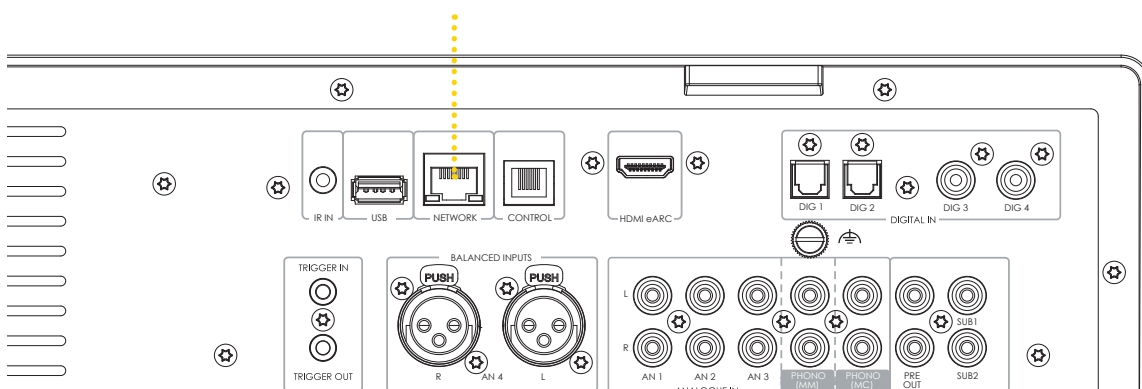
ARCAM

Wi-Fi Connection:

- To make a Wi-Fi connection, download the **ARCAM Radia** app to your smartphone or tablet.
- Links to the app are on the front page of this manual.

Setup - ARCAM Radia App

- Power on the ARCAM SA45 and open the app to discover it after the SA45 is Ready.
- Select it and follow the prompts to connect it to your Wi-Fi router.
- When connected, the SA45 will appear with a "POWER" icon.
- Select the SA45 to access Podcasts, Internet Radio and presets, USB connected media, Local network storage (UPnP), and settings.
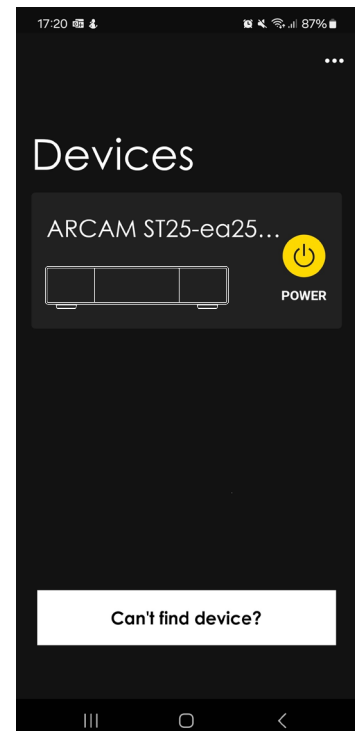
Bluetooth Operation

Bluetooth Input

- To pair your Bluetooth source device, turn on the SA45 and select the Bluetooth input.
- Now open the Bluetooth settings on your source device and scan for **SA45 ######** from the list. Each product has a unique ID.
- Select the SA45 to pair and begin playback from your device.
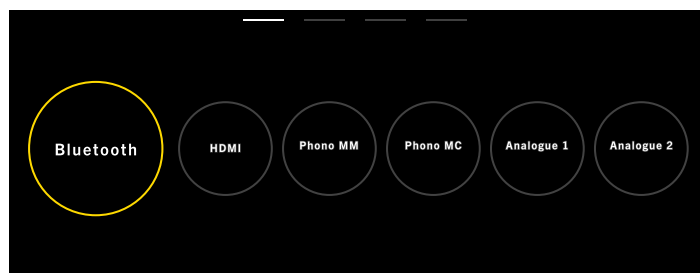
The Amplifier can recall 5 device pairings. If 5 are in memory already, the oldest will be replaced.
Because portable devices have a volume slider with large volume steps, there is a maximum volume setting in the amplifier to prevent excessive volume output being selected accidentally. The default is 40.

Bluetooth Output

To use Bluetooth headphones, select **Bluetooth Output** from the Audio menu.

Note: Bluetooth headphones cannot be used in conjunction with the Bluetooth input on the SA45.

Select whether you want to use Auracast, paired headphones or pair a new set.
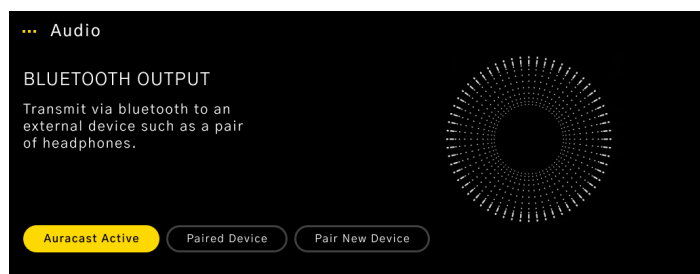
- To pair a new set of headphones set your headphones into pairing mode for the SA45 to discover them. The SA45 will pair with the first headphones it discovers that are in pairing mode.

Remote Control
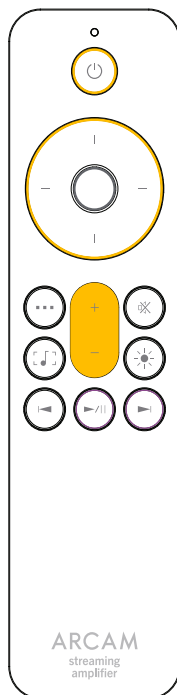
	⏻	Standby On/Off
	(navigation pad)	Menu Navigation Centre button = OK/Select
	+ −	Volume Control
	🔇	Mute On or Off
	☀	Display Off/Dim/Bright
	⏮ ⏯ ⏭	Transport Keys (Play/Pause, Skip back/forward)
	···	Settings Menu
	🎵	Display Mode

Note: Incorrect use of batteries can have hazardous results. Do not mix old and new batteries together. Do not use non-identical batteries together. Although they may look similar, different batteries may have different voltages. Ensure the batteries are inserted in the correct direction.

Remove batteries from equipment that is not going to be used for a month or more. When disposing of used batteries, please comply with governmental or local regulations that apply in your country or area.

Alternative Codes

The SA45 and it's remote control can be configured to use an alternative set of remote control codes when the default codes operate more than one device (such as an ARCAM AVR) which can be inconvenient. The System Code will need to be changed in both the SA45 and the remote control to have the desired effect.

To change the System Code in the SA45, refer to the System Code option in the **Settings Menu**.

To change the System Code in the remote control, follow these steps:
- Press and hold the **POWER** and **OK** key for 3 seconds. LED on the remote will now stay lit.
- The navigation keypad is now used to select an alternative function for the remote.
- **UP** – Sets the system code of all keys to code 19. LED will flash TWICE.
- **LEFT** – Sets the System Code of all keys to code 16 (default setting). LED will flash ONCE.

Power

The power switch on the rear panel switches the amplifier on or off. When you have finished making connections, switch the amplifier on.

Standby
Press or rotate the volume deal to bring the SA45 out of standby.
Press and hold the volume dial to place the SA45 into standby.
Use the standby button at the top of the remote control to toggle standby operation.

Home Screen

Using the remote control, navigate the Home Screen to select a preset, input or change settings.
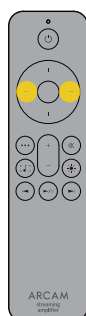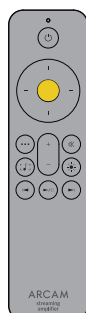

Selecting a Preset

When using the remote control, select **Presets** from the top menu bar using the cursor buttons. Press the OK or DOWN to access the list.

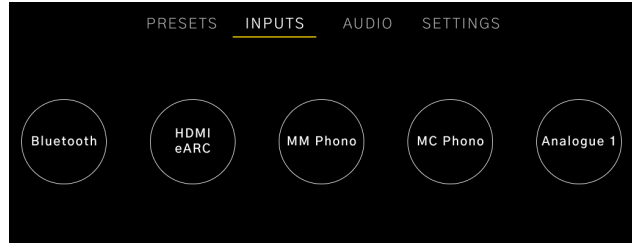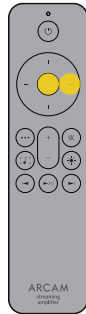Use the LEFT/RIGHT cursor buttons to select your Preset.

Press the OK to select the Preset.
 or
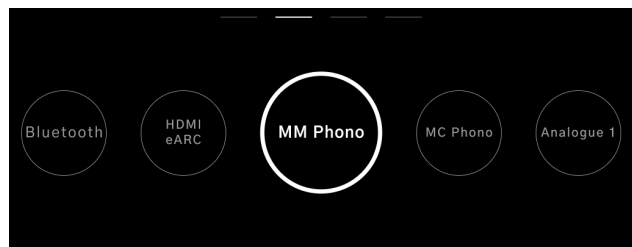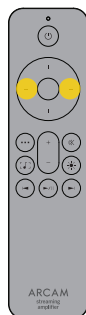Press UP, to return to the top menu.

Selecting an Audio Input

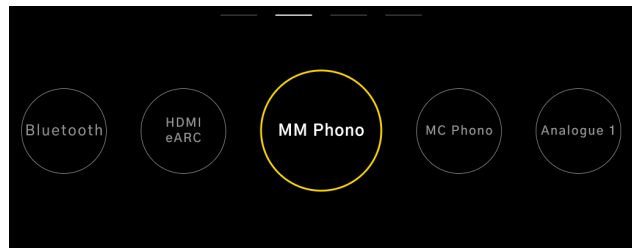Select an audio input using the left dial on the SA45.

When using the remote control, select **Inputs** from the top menu bar using the cursor buttons. Press the OK button to access the list.

Use the LEFT/RIGHT cursor buttons to select your input.

Press the OK to select the input.
 or
Press UP, to return to the top menu.
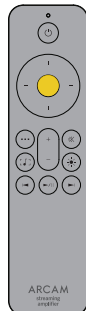
Digital Audio Inputs

The SA45 features two coaxial and two optical digital inputs for digital audio sources. The SA45 only supports stereo PCM audio through these inputs.

Warning: Multi-channel audio, or encoded audio formats played through these inputs can result in loud noise which can damage the amplifier and your speakers.

Analogue Audio Inputs

The SA45 features three stereo analogue inputs for analogue audio sources, one balanced audio input pair for a balanced analogue audio source, and two phono inputs.

The SA45 support turntables with moving magnet (MM) or moving coil (MC) cartidges fitted. Each cartridge type has a dedicated input on the rear panel. Be sure to use the correct input connection for your cartridge. If you are not sure of the type of cartridge on your turntable, check with your dealer, or the manufacturer of your cartridge.

Warning: Only connect a turntable to the Phono Inputs. Audio through these inputs from other devices can result in loud noise which can damage the amplifier and your speakers.

ARCAM

Audio Options

These audio options can be accessed from the Home Page:

PRESETS INPUTS **AUDIO** SETTINGS

Bluetooth Output
Auracast Active

DIRAC
Filter 1

DAC Filter
Minimum Phase
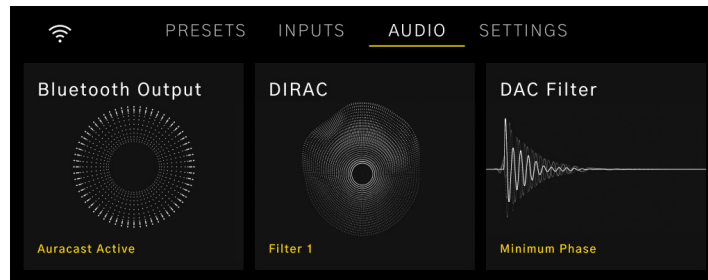
Bluetooth	DIRAC	DAC Filter
Select wireless headphones for quiet listening See page 7	Select a saved room correction filter	Select from a list of DAC filters that can subtly change the sound

DIRAC

Follow the steps in the Dirac Live software, or check out our video guide using this link:

Setting up and calibrating with Dirac Live room correction is a straightforward process that will enhance your audio experience.

- To get started with Dirac Live Room Correction, create an account at dirac.com/register
- Download the Dirac Live software suite for PC or MAC from dirac.com/live/downloads
- Use the supplied USB cable to connect the supplied USB microphone to your PC/MAC
- Download the quick start guide, microphone calibration file and target file pack from arcam.co.uk/sa45

There are 7 steps to creating room correction filters with Dirac Live:

1. Launch the software, log in with your account, and connect to the SA45. The SA45 will enter Dirac Live measurement mode when you connect to it with the Dirac Live software.
2. Select the connected microphone and load the calibration file for the microphone. The calibration file fine tunes the measurement to correct for any characteristics of the microphone itself. The microphone can be mounted to a tripod for more accurate results.
3. Volume calibration is to ensure that any measurements are loud enough to overcome background noise, but not so loud that clipping occurs (where the input is distorted). We recommend keeping microphone slider at 100% unless background noise cannot be reduced, and use the master volume slider to set the output level between -10dB and -20dB.
4. Select a measurement arrangement that best represents the listening area that you want measure. We recommend no less than 5 measurements.
5. Take measurements by selecting each measurement position and run the measurement sweeps. The microphone should be at ear level in the main position (MP). Always ensure a clear line of sight between the microphone and speakers, and keep background noise to a minimum.
6. Filter design. View the average measured response of each speaker and modify the target curve for your desired correction. We recommend the Harman target curve, supplied with the ARCAM microphone calibration file. Click the file menu in Dirac Live to load the target curve from the file.
7. Export the completed filter to your SA45 after giving it a name. Don't forget to save your project before closing the software. Reloading the saved project allows for adjustments to be made without having to retake measurements.

DAC Filters

The SA45 has the option to select between a number of digital filters that are used in the digital to analogue conversion process. Digital filters are required to minimise unwanted distortion in the output but no filter is perfect, there are always compromises between a few parameters:

1. Frequency response - audio level across audible frequencies. Ideally, this does not vary significantly between 20 Hz and 20 kHz.
2. Phase - The time delay introduced between reproducing different audible frequencies. Ideally, this would be as low as possible (linear phase).
3. Ringing - Additional audio artefacts that precede (pre) or follow (post) the audio. Ideally, these should be as low level and last for as short a time as possible.

The following filters are available for selection in the SA45:

Minimum Phase - Fast roll-off preserves output level to 20 kHz with no pre-ringing but extended post ringing.
Linear Phase Apodizing - A compromise between frequency response and ringing. Very slight reduction in output level of the highest frequencies. Pre and post ringing are equal and low in level.
Linear Phase Slow Roll-off - Measurable reduction in output level of the highest frequencies but pre and post ringing are equal, very short, and low in level.
Minimum Phase Slow Roll-off - Similar reduction in output level of the highest frequencies to Linear Phase Slow Roll-off. No pre-ringing and very little post ringing.

Settings Menu

Menu Option	Description	Default
Halo Brightness	Selects the brightness of the illumination of the front panel dials.	Full
Subwoofer Config	Selects whether any subwoofers are connected to the subwoofer outputs.	No Sub
Balance	Selects whether audio is weighted to either of the left or right speakers.	0
Maximum Volume	Defines maximum volume output.	40
Pre Amp Mode	Disables the internal power amplifier.	Off
Eco Timer	When enabled, the SA35 will enter standby within 20 minutes with no user interaction or playback.	On
Network Standby	Selects whether the Network Connection is maintained in standby. Increases standby power consumption.	On
BT/HDMI Autoswitch	Automatically switch to Bluetooth and HDMI inputs when the input is active.	On
TV Volume Control	Enable volume control by a connected TV using the HDMI eARC/ARC connection.	On
System Reset	Press Select/OK to initiate a reset of all settings to default.	
Bluetooth Reset	Press Select/OK to clear the saved list of paired Bluetooth devices.	
USB Update	Press Select/OK to initiate a software update from a USB stick present in the USB socket on the rear panel	
System Code	Select a different remote control code set.	16
Product Information	Displays SW versions, IP address and Network ID.	

Streaming

The ARCAM SA45 can be connected to, and play music from the following apps and services:
- Spotify Connect
- Tidal Connect
- Apple Airplay
- Google Cast
- Roon (requires setup in Roon software)

From the ARCAM Radia app, you can access setup favorites and access other services including but not limited to:
- Internet Radio
- Podcasts
- Connected USB media
- Local network storage (UPnP)

USB
The ARCAM SA45 can play music files stored on a USB flash drive.
- Insert the USB storage device into the USB socket on the rear panel.
- Do not use a USB extension cable.
- Music files contained within the USB storage can be browsed using the ARCAM Radia app.

Supported Audio Formats

File Type	Bit Depths	Sample Rates
AAC	16 or 24 bit	44.1, 48, 88.2 or 96 kHz
AIFF	16, 24 or 32 bit	44.1, 48, 88.2, 96, 176.4, 192, 352.8 or 384 kHz
ALAC	16, 24 or 32 bit	44.1, 48, 88.2, 96, 176.4, 192, 352.8 or 384 kHz
FLAC	16, 24 or 32 bit	44.1, 48, 88.2, 96, 176.4, 192, 352.8 or 384 kHz
MP3	16 bit	44.1 or 48 kHz
OGG	16 bit	44.1 or 48 kHz
WAV	16, 24 or 32 bit	44.1, 48, 88.2, 96, 176.4, 192, 352.8 or 384 kHz
WMA	16 bit	44.1 or 48 kHz
DSD	1 bit	2.8224, 5.6448 or 11.2896 MHz

Problem	Check the following
No Sound	Is the SA45 correctly plugged in and switched on? Is the correct input selected? Is the amplifier muted? Is the SA45 in protection mode (described below)?
Sound cuts out unexpectedly	The SA45 may enter a protection mode if a fault is detected. Following any of the faults described below, the amplifier will turn itself off. To continue using the SA45, the fault must be resolved and the unit must be turned OFF then back ON. The white front panel LED will indicate the fault type, as follows: FAST FLASHING: The internal temperature of the unit reached an unsafe level. Allow the SA45 to cool down. 1 sec FLASHING: A fault condition occurred in the amplifier. Inspect all the speaker cables to make sure none of them are shorted together. This fault more likely when bare wires are being used to make speaker connections. 2 sec FLASHING: A power fault was detected. If a condition re-occurs immediately, consult your ARCAM dealer or our support team.
The amplifier does not respond to the remote control	Does the light at the top of the remote control flash when the button is pressed? If not, replace batteries in the remote control. Are you pointing the remote control towards the amplifier window without obstruction?
The front panel display is blank	Is the display dimmed to "Off"? Press ⊕ on the remote control to change the display brightness. Is the streamer correctly plugged in and switched on? Is the streamer in standby?
No sound from speakers	Is the output muted? Is **Pre-Amp Mode** enabled in the settings menu? With speakers directly connected to the SA45, Pre-Amp Mode should be set to the default setting. Default is **Off**. Are the speaker cables connected correctly at both ends? See "Connecting Speakers" on Page 6 of this owner's manual.
Cannot discover the streamer in an app	Is the streamer correctly plugged in and switched on? Does the streamer have a network connection, wired by Ethernet or Wi-Fi? For Wi-Fi connections, has setup been completed using the **ARCAM Radia app**? Is your smartphone or tablet connected to the same local network? For Google Cast, ensure Google Terms are accepted in the **ARCAM Radia App**.
Hum on an analogue input	Are all cables making a good connection? If necessary withdraw the input cable from the connector and plug it fully in again (turn the power off before doing this). If the Hum stops when the cable is removed, replace the cable with another. If the hum originates only when one particular source device is connected, check with the supplier or manufacturer of that device, it may have a fault.

Services	
Works with (apps)	ARCAM Radia Spotify Connect Tidal Connect Roon
Works with (services)	Apple Airplay Google Cast
ARCAM Radia supported services (Global)	Internet Radio Podcasts UPnP USB Media (using USB-A mass storage input)

Continuous power output (0.5% THD), per channel	
2 channels driven, 20Hz - 20kHz, 8Ω	180W
2 channels driven, 1kHz, 4Ω	300W
Harmonic distortion, 80% power, 8Ω at 1kHz	0.002%

Analogue Inputs	
Number of inputs	3x RCA pairs + 1 XLR pair
Phono Inputs	MM and MC
Frequency response	20Hz—20kHz ± 0.2dB
Signal/noise ratio (A-wtd, ref. 50W, 1V input)	106dB

Digital Inputs	
Supported Streaming media:	FLAC, WAV (LPCM), AAC, ALAC, AIFF, DSD (up to 256), MP3, MP4, OGG, WMA
Supported Streaming Bit depth:	16, 24, 32
Supported Streaming sample rates (kHz):	Up to 384 kHz
Gapless Playback:	Yes
Digital Audio Inputs	1x HDMI eARC/ARC, 2x Coaxial (RCA), 2x Optical (Toslink)
Supported Digital input Bit depth:	16, 24
Supported Digital input sample rates (kHz):	Up to 192 kHz
Frequency response (filter 1)	20Hz—20kHz ± 0.2dB
Signal/noise ratio (A-wtd, ref. 50W, 0dBFS)	110dB

Wireless Specifications	
Bluetooth Profile	5.4; A2DP Sink/Source, AVRCP, BLE, Snapdragon Sound, AAC, LE Audio, Auracast
Bluetooth Transmitter Frequency and Power	2,400 MHz to 2,483.5 MHz: <20dBm
Wi-Fi Network	IEEE 802.11 a/b/g/n/ac (2.4GHz/5GHz)
2.4G Wi-Fi Transmitter Frequency Range and Power	2400-2483.5 MHz (USA 11 Channels, Europe and Others 13 Channels) <20dBm
5G Wi-Fi Transmitter Frequency Range and Power	5150-5250 MHz <23dBm 5250-5350 MHz <20dBm 5470-5725 MHz <20dBm (Not in China) 5725-5850 MHz <14dBm

General	
Mains voltage	100-120V/220-240V 50/60Hz
Power consumption (maximum)	1000W
Power consumption (Network standby)	<2W
Power consumption (standby)	<0.5W
Dimensions W x D (including speaker terminals) x H (including feet)	432 x 390 x 140mm
Weight (net)	17 kg
Weight (packed)	20 kg
Supplied accessories	Mains lead(s) Remote control with 2 x AAA batteries Measurement Microphone 5m USB Cable Quick Start Guide Important Safety Instructions

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Google Cast and YouTube Music are trademarks of Google LLC.

The Spotify Software is subject to third party licenses found here: https://www.spotify.com/connect/third-party-licenses

The Tidal word mark and logo are registered trademarks owned by Tidal Music AS.

Qobuz is a trademark of Xandrie SA.

Being Roon Ready means that ARCAM uses Roon streaming technology, for an incredible user interface, simple setup, rock-solid daily reliability, and the highest levels of audio performance, without compromise.

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www.arcam.co.uk

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