

SPA23

SURROUND SOUND
AMPLIFIER

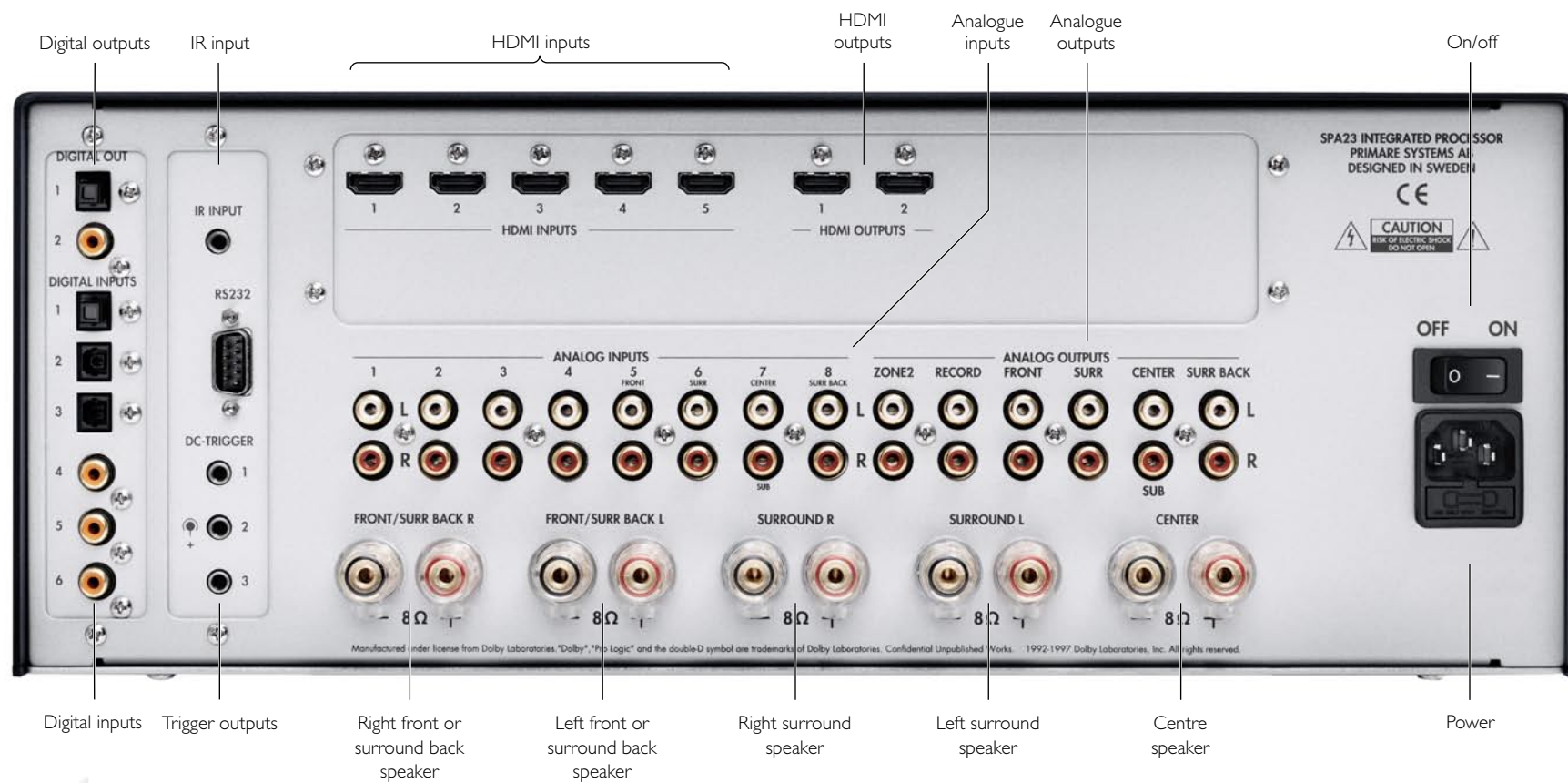
P R I M A R E

USER GUIDE



WELCOME!

Welcome to the Primare SPA23! Your SPA23 is an advanced surround sound amplifier with the latest sound and video processing, making it the ultimate choice for home theatre.



CONNECTING THE SPA23

This page shows how to connect your SPA23 to other equipment in your system.

POWER

Connect the power connector on the back panel to your power outlet using the mains cable supplied with the SPA23.

If this cable is not suitable for your power outlets contact your supplier for an alternative cable.



WARNING: Always disconnect the SPA23 from the mains power before connecting or disconnecting any cables, including the HDMI cables.

MAIN OUTPUTS

The SPA23 provides five loudspeaker outputs for connecting directly to the loudspeakers in a 5-channel surround system. It also provides eight analog audio outputs, for connecting to power amplifiers and loudspeakers.

AUDIO INPUTS

The SPA23 provides a total of eight analog inputs and six digital inputs. Because the SPA23 is configurable, you have total flexibility about which input you use for each of your sources. In addition, you can optionally use four pairs of analog inputs for a single, multi-channel source, such as SACD.

The SPA23 is supplied with a suggested set of sources already set up, and you may choose to leave the inputs assigned in this way. However, if you prefer, you can re-assign the inputs to sources in any way you prefer.

Digital inputs

The SPA23 provides a total of six digital inputs: three SPDIF digital inputs and three optical TOSlink digital inputs.

Analog inputs

The SPA23 provides eight line-level stereo RCA inputs.

VIDEO CONNECTIONS

The SPA23 provides a choice of five HDMI inputs and two HDMI outputs.

You can adjust the settings for each output for optimum performance with the display device, for example a TV and a projector. The on-screen display is provided on both outputs.

Connecting to a television or monitor

Connect the appropriate output to your television or display.

If your television includes an HDMI tuner output you can use the SPA23 to perform switching between the television tuner and your other video sources such as DVD or Blu-Ray. In this case connect the television tuner output to the HDMI input corresponding to your TV source. If your television does not provide a tuner output you will need to switch the television between its internal tuner and the external video input.

ZONE 2

An additional audio output is provided to feed a second zone, such as a second room system.

RECORD OUTPUTS

The SPA23 Multi-Channel Processor allows you to make a recording of a digital source to the two digital record outputs, or of an analog source to the analog record output.

The SPA23 provides two digital record outputs, SPDIF and optical TOSlink, and one analog RCA record output.

IR, RS232, AND TRIGGERS

The IR input allows you to connect an external infra-red eye, for operation of the SPA23 if the front panel is inaccessible.

The RS232 input allows an authorized dealer to connect the SPA23 to a computer, for service and future upgrades, or to controller systems. For more information and details of control codes contact Primare or see the Primare Audio Web site at www.primare.net.

The Trigger outputs allow the SPA23 to control external equipment, such as power amplifiers, or a projector screen.

GETTING STARTED

Set up your SPA23 in seven simple steps:

1 UNPACK THE SPA23

Your SPA23 is supplied with the following components:

- Mains cable.
- C24 remote control.
- Two button cells for the remote control.

If any of these items are missing please contact your supplier. We recommend you retain the packaging in case you need to transport the unit at a later date.

2 CONNECT A DISPLAY

Connect the HDMI 1 or HDMI 2 output from your SPA23 to your television or display HDMI input.

For more information see *Video connections*, page 3.

3 CONNECT TO SPEAKERS

The SPA23 can directly drive the five loudspeakers in a surround system. In addition it provides line-level outputs for seven full-frequency channels and one subwoofer.

If your surround system does not include a full set of speakers, the SPA23 will distribute the signals from these channels to the other channels as appropriate in your system.

- Connect the front, centre, and surround loudspeaker outputs to the loudspeakers in your system.

If your system includes both side surround and back surround speakers:

- Reassign the LEFT and RIGHT FRONT channels to the additional surrounds, and use the analogue FRONT LEFT and RIGHT outputs to connect to an additional A34.2 stereo power amplifier; see *AUDIO SETTINGS*, page 9.

If your system includes a subwoofer:


- Connect the SUB analog output to the audio input of the subwoofer.

4 CONNECT SOURCES

The SPA23 is supplied with seven standard sources already configured; see *Selecting a source*, page 5.

Alternatively you can configure up to 15 sources to use the particular combination of analogue, digital, and video input you prefer; for more information see *Input setting*, page 8.

5 CONNECT POWER

- Connect the SPA23 to a wall socket, using the supplied mains cable.
- Switch on the SPA23, using the switch next to the power connector on the back panel.
- Press the  button to switch on the SPA23.



The button indicators will light up, showing the function of the two controls and four buttons on the front panel.

6 CONFIGURE THE SPEAKERS

Before using the SPA23 you need to configure it to specify the combination of speakers you have in your surround system. For more information see *SPEAKER SETTING*, page 10.

You then need to set up the speaker levels and speaker distances, to ensure that the sound image is correctly focused at the listening position. For more information see *LEVEL ADJUST*, page 10, and *SPEAKER DIST*, page 11.

7 PLAY A SOURCE

- Use the SELECTOR control on the front panel or the  and  buttons on the remote control to select the source.
- Use the VOLUME control on the front panel or the **VOL +** and **VOL -** buttons on the remote control to increase or decrease the volume.

For more information about playing sources see *Selecting a source*, page 5.

USING THE SPA23

This page explains how to operate your SPA23, using the functions available from the front panel or C24 remote control.

FRONT PANEL CONTROLS

Almost all the functions of the SPA23 Multi-Channel Processor can be accessed using the two front panel controls and four push buttons, and information about its operation is displayed on the front panel display:

Selector

Selects an input, or operates the on-screen menus

Menu

Selects the on-screen menus.

Select

Selects the current menu option.

Level

Selects which setting you change with the VOLUME control.

Mute/Standby

Press briefly to mute the sound.

Hold down to switch the SPA23 to standby.

Volume

Adjusts the volume.

FRONT PANEL DISPLAY

The front panel display shows:

- The processing mode; eg **STEREO**, or **NO LOCK** if there is no signal on a digital input.
- The current source; eg **DVD**
- The volume; eg **41** or **MUTE**.

To blank the front panel display

- Press the **DIM** button on the remote control.

The normal display will reappear while you adjust any settings.

Press the **DIM** button again to restore the display.


SWITCHING ON AND OFF

To switch on

- Use the switch on the back panel.

During normal operation you can leave the SPA23 switched on and in standby.

To switch to standby

- Hold down the  button on the front panel or remote control.

To switch on from standby

- Press the  button on the front panel or remote control.

SELECTING A SOURCE

The SPA23 allows you to define up to 15 sources. Each source can use one of the six digital and eight analog inputs, and any source can be combined with one of the HDMI inputs. Alternatively, a multi-channel source, called EXT 7.1, can be defined using analog inputs 5 to 8.

When the SPA23 is first supplied the seven standard sources shown in the table below are already set up for you.

You can simply disable any of these sources that you do not need; see *Input setting*, page 8. You can also change any source to use different inputs, or configure your own sources with any name you choose and using any particular inputs as appropriate for the source.

Input	Source	Audio	Video	2CH mode	Description
1	Blu-ray	HDMI 1	HDMI 1	Stereo	Blu-Ray disc player
2	DVB	HDMI 2	HDMI 2	Stereo	Digital satellite receiver
3	Games	HDMI 3	HDMI 3	Stereo	Game console
4	Server	HDMI 4	HDMI 4	Stereo	Streaming server
5	DVB-T	HDMI 5	HDMI 5	Stereo	Digital television receiver
6	CD	Analog 1	None	Bypass	CD player
7	SACD	Ext 7.1	None	Stereo	SACD player

To select a source

- Turn the **SELECTOR** control on the front panel until the name of the source is shown on the front panel display.
- Alternatively, press the **▲** or **▼** buttons on the remote control to step between sources.

CHANGING THE VOLUME

The SPA23 allows you to vary the volume from 0 (silence) to 99 (maximum volume).

To change the volume

- Rotate the **VOLUME** control on the front panel, or press the **VOL +** or **VOL -** buttons on the remote control.

The current volume setting is shown on the front panel display.

TO MUTE THE SOUND

- Press the **MUTE** button on the front panel or the **MUTE** button on the remote control.

To restore the sound to its original volume

- Press the **MUTE** button again.

The sound is also restored to its original volume if you increase the volume.

CHANGING THE LEVELS

You can independently change the balance, center level, surround level, surround back level, and subwoofer level to alter the balance of sound in your surround system.

Changing the balance alters the level of both the left and right main loudspeakers to shift the position of the stereo image, keeping the overall level of the sound the same. The other adjustments change the level of the corresponding speaker(s) without affecting the remaining speakers in the surround system.

To change a level

- Press the **BAL/ST** button on the front panel, or the **BAL/ST** button on the remote control, until the display shows the level you want to change.

The first step allows you to change the balance of the main speakers:

0.0dB L=R 0.0dB

Subsequent steps allow you to change the levels of the surround speakers:

CENTER 0.0dB
SUBWOOFER 0.0dB
SURROUND 0.0dB
SURR BACK 0.0dB

- Use the **VOLUME** control on the front panel, or the **▲** and **▼** buttons on the remote control, to adjust the value.

Each setting can be changed from -10.0dB to +10.0dB.

After a short delay the display will revert to the normal display.

CHANGING THE LIPSINC

You can change the AV Delay (lipsync) from the front panel to compensate for processing delay in some video displays. Choose the setting that gives correct lipsync.

To change the lipsync

- Press the **ST/BAL** button on the front panel, or the **ST/BAL** button on the remote control, until the display shows the current AV Delay:

AV DELAY 0ms

- Use the **VOLUME** control on the front panel, or the **▲** and **▼** buttons on the remote control, to adjust the value.

The AV Delay can be changed from 0ms to 140ms. After a short delay the display will revert to the normal display.

CHOOSING THE SURROUND MODE

The surround mode determines how the sound is divided between the loudspeakers in your surround system. Each source is associated with a default surround mode, which will be used when you select that source, but you can choose a different surround mode for the source if you prefer.

For example, the standard surround mode for the DVB source is PLIIX Movie, since most TV broadcasts are Pro Logic encoded, but if you

are watching a music concert you may prefer to choose the Stereo or Bypass surround modes, as these give a more natural sound when listening to music.

To change the surround mode

- Press the **AUDIO** button on the remote control to step between the available surround modes.

The options available depend on the source you are listening to.

Lossless sources

Blu-ray players provide three lossless audio formats: Dolby TrueHD, DTS-HD Master Audio, and Linear Pulse-Code Modulation (LPCM). These formats will all convey eight discrete channels (7.1) of lossless audio that exactly duplicate the original studio masters:

Format	Variants
Dolby	Dolby Prologic IIx
Dolby Digital	EX, Plus, TrueHD
DTS	DTS-ES, DTS-NEO:6, DTS 96/24, DTS-HD Master Audio, DTS-HD High Resolution Audio
PCM	2ch-PCM, Multi-PCM, LPCM

Multi-channel sources

For Dolby Digital or DTS sources only the following option is available:

Option	Description
AUTO	Automatically detects an incoming digital signal and locks onto it.

The SPA23 automatically detects a Dolby Digital or DTS input and displays Dolby Digital on the front panel display.

If the Dolby Digital input only contains two channels, or it is a PCM signal, the default surround

mode specified in the INPUT SETTINGS menu is also displayed. For more information see *Input setting*, page 8.

Two-channel sources

If you are listening to a conventional two-channel analog or digital source, such as a CD, the following options are available:

Option	Description
BYPASS (analog sources only)	The inputs are fed directly to the output, with no decoding for the most faithful possible reproduction of stereo or multi-channel sources.
STEREO	Conventional stereo, using just the main left and right loudspeakers.
PLIIX	Dolby's updated Pro Logic decoder provides 7.1 channel surround sound from any two channel source, with stereo surround back channels and full frequency range.
PLIIX CINEMA	A variant of PLIIX optimised for movie soundtracks.
PLIIX MUSIC	A variant of PLIIX optimised for music sources.
PARTY	The same signal to the front left and right, surround left and right, and surround back left and right loudspeakers, if connected and enabled.
DTS NEO:6 CINEMA	DTS Neo:6 provides up to 6.1 channel surround sound from conventional stereo sources..
DTS NEO:6 MUSIC	A version of DTS Neo:6 ideal for stereo music sources.

USING THE REMOTE CONTROL

This page explains how to use the C24 remote control to operate the SPA23, and how to fit the batteries into the remote control.

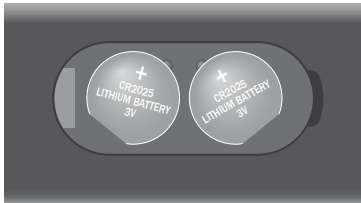
FITTING THE BATTERIES

Before using the remote control you need to insert the two button cells supplied with the C24.

- Open the cover on the back of the remote control by pressing the tab gently:



- Insert the two batteries, positive side uppermost:

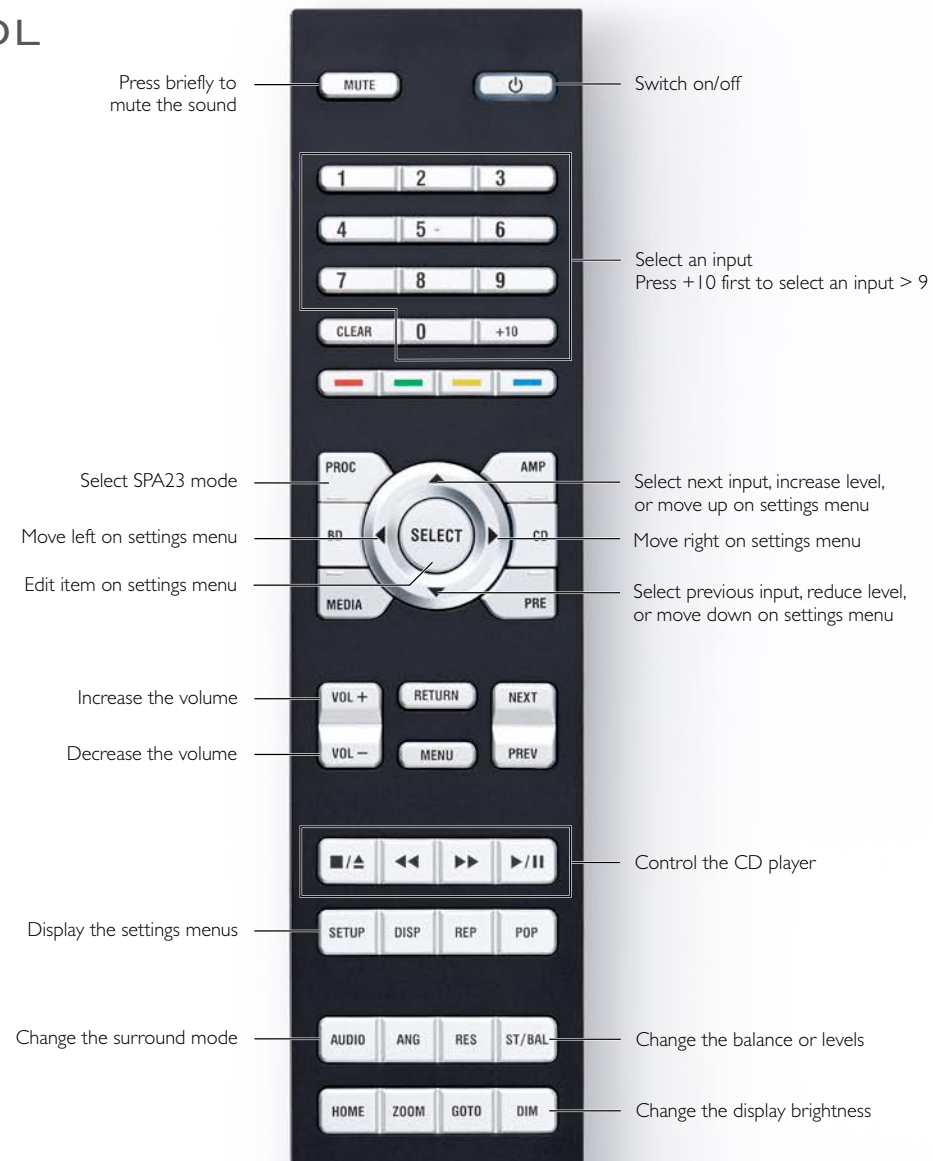


- Replace the cover and push until it clips into place.



Note: Replace only with 3V button cells type CR2025 or equivalent.

When disposing of old batteries please be considerate to the environment.



CONFIGURING THE SETTINGS

This page explains how to use the SPA23 menus to configure the operation of your SPA23.

USING THE MENUS

INPUT	SETTING
AUDIO	
VIDEO	OUTPUT
SPEAKER	SETTING
CONTROL	
MEMORY	
ABOUT	

The **SETUP MENU** gives access to a series of menus which allow you to customize different aspects of the operation of the SPA23.

To display the SETUP MENU

- Press **⏏** on the front panel or **SETUP** on the remote control.

To display a menu

- Use the **SELECTOR** control on the front panel or the **▲** or **▼** buttons on the remote control to highlight the menu on the **SETUP MENU** that you want to display.
- Press **↵** on the front panel, or **SELECT** or **▶** on the remote control, to select it.

To change a setting

- Use the **SELECTOR** on the front panel or the **▲** or **▼** buttons on the remote control to highlight the setting you want to change.

- Press **↵** on the front panel, or **SELECT** or **▶** on the remote control, to display a list of the alternative values for the setting.
- Use the **SELECTOR** control on the front panel the **▲** or **▼** buttons on the remote control to step between the alternative values.
- Press **↵** on the front panel, or **SELECT** on the remote control, to select the highlighted setting.

Alternatively, press **⏏** on the front panel, or **RETURN** or **◀** on the remote control, to return to the menu without changing the setting.

To edit an input alias

- Press **SELECT** to edit the name of the source.
- Use **◀** or **▶** to select a character.
- Use **▲** or **▼** to edit it.
- Finally press **↵** on the front panel or **SELECT** on the remote control to finish.

To exit from the current menu

- Press **⏏** on the front panel or **RETURN** on the remote control.

Exiting from the **SETUP MENU** returns to normal operation of the SPA23.

INPUT SETTING

INPUT	1
STATUS	ENABLED
ALIAS	Blu-ray
AUDIO	HDMI 1
TRIGGER 1	---
TRIGGER 2	---
TRIGGER 3	---
VIDEO	HDMI 1
HDMI VIDEO OUT	OUT 1
HDMI AUDIO	SPA23
VOLUME OFFSET	0.0dB
AV DELAY	0ms
2CH MODE	STEREO

The **INPUT SETTING** menu allows you to configure any of the 15 inputs.

- Use the **INPUT** option to select the input you want to edit.

The menu then shows the current settings for that input and allows you to edit them.

Option	Description
STATUS	ENABLED or DISABLED to specify whether the source can be selected from the front panel or remote control.
ALIAS	See <i>To edit an input alias</i> on this page.
AUDIO	The audio input used for the source: NONE , ANALOG 1 to 8 , EXT 7.1 , DIGITAL 1 to 6 , or HDMI 1 to 5 .
TRIGGER 1-3	Can be set to ON or OFF , to set the corresponding trigger; or --- to take the value from the CONTROL menu.; see <i>Trigger settings</i> , page 11.
VIDEO	The video input used for the source: NONE or HDMI 1 to 5 .
HDMI VIDEO OUT	The video output used for the source: OUT 1 or OUT 2 .
HDMI AUDIO	Set to TV to pass the HDMI audio to the TV, or SPA23 to get the SPA23 to process the audio.
VOLUME OFFSET	Press ◀ or ▶ to vary the sensitivity of the source between -12.0dB to +12.0dB in 0.5dB steps.
AV DELAY	Can be adjusted between 0ms and 140ms to compensate for processing delay in some displays.
2CH MODE	The default surround mode for two-channel sources: BYPASS , STEREO , PLIIX MOVIE , PLIIX MUSIC , NEO6 CINEMA , NEO6 MUSIC , or PARTY .

VIDEO ADJUST

INPUT	1
ALIAS	Blu-ray
ASPECT RATIO	16:9
DEINTERLACING	AUTO
PrEP	AUTO
1:1 FRAME RATE	OFF
UNDERSCAN	0
BRIGHTNESS	0
CONTRAST	0
COLOR SATURATION	0
HUE (TINT)	0
DETAIL ENHANCEMENT	0
EDGE ENHANCEMENT	0
MOSQUITO NR	DISABLE

The **VIDEO ADJUST** menu allows you to specify advanced video input settings:

- Use the **INPUT** option to select the input you want to edit.

The menu then shows the current settings for that input and allows you to edit them.

Option	Description
ALIAS	See <i>To edit an input alias</i> on the previous page.
ASPECT RATIO	Set to 16:9 or 4:3 to specify the display aspect ratio.
DEINTERLACING	Specifies how a 480i, 576i, or 1080i source is deinterlaced. FILM is for 24p film, VIDEO is for 50Hz or 60Hz video, and AUTO selects the correct option based on the input signal..
PrEP	Select AUTO to select Progressive ReProcessing to clean up poor source video processing, or DISABLE to disable it.

Option	Description
1:1 FRAME RATE	Set to ON to set the output frame rate to the input frame rate, which may cause stuttering, or OFF for a fixed output frame rate.
UNDERSCAN	Set to 0 to 20 to shrink the picture to adjust for an overscanned source..
BRIGHTNESS, CONTRAST, COLOR SATURATION, HUE (TINT)	Set to 100 to -100, default 0. Allow you to adjust the color characteristics of the image.
DETAIL/EDGE ENHANCEMENT,	Set to 100 to -100, default 0. Allow you to accurately adjust the sharpness of the picture..
MOSQUITO NR	Set to DISABLE , ON-LOW , or ON-HIGH to reduce the compression artifacts in digitally compressed signals, like cable, satellite and internet-based video.

AUDIO SETTINGS

INT AMP	FRONT
LATE NIGHT	OFF
DOUBLE BASS	OFF
LFE LEVEL	0.0dB
ADC LEVEL	0.0dB

The **AUDIO SETTINGS** menu allows you to specify options affecting all audio outputs:

Option	Description
INT AMP	The normal setting is FRONT . Can be set to BACK to change the front power amplifier to operate with the Surround Back channels, if you prefer to use a separate power amplifier with the front channels.
LATE NIGHT	Set to ON to apply dynamic range compression to the audio, to reduce loud transients for late night listening.
DOUBLE BASS	Set to ON to copy the bass from speakers specified as LARGE and send this to the subwoofer.
LFE LEVEL	Can be adjusted between 0.0dB and -10.0dB to reduce the LFE level.
ADC LEVEL	Allows you to adjust the threshold for automatically setting the ADC input level. Can be adjusted between 12.0dB (more dynamic range) and -12.0dB (more headroom).

VIDEO OUTPUT

HDMI OUTPUT 1 SETTINGS	
RESOLUTION	PASS-THRU
COLOR SPACE	AUTO
COLORIMETRY	AUTO
OUTPUT VID LEVEL	VIDEO
HDMI OUTPUT 2 SETTINGS	
RESOLUTION	PASS-THRU
COLOR SPACE	AUTO
COLORIMETRY	AUTO
OUTPUT VID LEVEL	VIDEO
DEFAULT FRAME RATE 60P	
TESTPATTERN	OFF

The **VIDEO OUTPUT** menu allows you to customise the HDMI output settings.

For each output you can set:

Option	Description
RESOLUTION	Set to PASS-THRU , AUTO , 480p/576p , 720p , 1080i , 1080p , or 1080p24 .
COLOR SPACE	Set to AUTO , RGB for a Red, Green, Blue color space standard using 8 bits per primary color; YCbCr 422 for 10-bit component, or YCbCr 444 for 8-bit component.
COLORIMETRY	Determines how RGB is converted to YCbCr: AUTO , ITU.601 for Standard Definition video formats, or ITU.709 for High Definition video formats.
OUTPUT VID LEVEL	Set to VIDEO for levels suitable for a TV, or PC for levels suitable for a computer display.

You can also set the following settings that apply to both outputs:

Option	Description
DEFAULT FRAME RATE	Set to 50p (PAL) or 60p (NTSC) to specify the native system of your display.
TESTPATTERN	Displays one of a set of alternative test patterns for aligning projection displays.

SPEAKER SETTING

MODE	GENERAL
FRONT L+R	LARGE
CENTER	SMALL
SURROUND	2 SMALL
SURR BACK	NONE
SUBWOOFER	YES
LR+LFE XOVER	80Hz
CENTER XOVER	80Hz
SURR XOVER	80Hz

The **SPEAKER SETTING** menu allows you to set up the speakers:

Option	Description
MODE	See below.
FRONT L+R	Select SMALL or LARGE to specify whether the front speakers can handle bass.
CENTER	Select NONE , SMALL , or LARGE to specify whether there is a center speaker in the system, and whether it is small or large.
SURROUND	Select NONE , SMALL , or LARGE to specify information about the surround speakers.
SURR BACK	Select NONE , 1/SMALL , 1/LARGE , 2/SMALL , or 2/LARGE to specify the number and size of the surround back speakers.
SUBWOOFER	Select OFF or ON to specify whether the layout should include a subwoofer.
LR+LFE XOVER	Allows you to define the crossover frequency (40Hz
CENTER XOVER	to 200Hz) used for the LFE,
SURR XOVER	CENTER, and SURR speakers.

- Set **MODE** to **GENERAL**, and then set the other parameters as appropriate for the speakers in your system.

You can then define **DOLBY D**, **DTS**, and **OTHER** modes, which can be used to add an offset to the **GENERAL** settings for Dolby Digital, DTS, and 2-channel sources respectively.

LEVEL ADJUST

MODE	GENERAL
FRONT LEFT	0.0dB
CENTER	0.0dB
FRONT RIGHT	0.0dB
SURROUND RIGHT	0.0dB
SURR BACK RIGHT	0.0dB
SURR BACK LEFT	0.0dB
SURROUND LEFT	0.0dB
SUBWOOFER	0.0dB

The **LEVEL ADJUST** menu allows you to adjust the levels so that the sound from each speaker is equally loud at the listening position.

- Highlight each of the speakers in turn; a white noise signal will be played through the speaker.
- Use the ◀ and ▶ buttons on the remote control to adjust the level.

For best results measure the level at the listening position using a Sound Pressure Level meter.

SPEAKER DIST

MODE	GENERAL
FRONT LEFT	10
CENTER	10
FRONT RIGHT	10
SURROUND RIGHT	10
SURR BACK L/R	10
SURROUND LEFT	10
SUBWOOFER	10
DISTANCE UNITS	FT

The **SPEAKER DIST** menu allows you to specify the distance of each speaker from the listening position, in feet or metres. The SPA23 will then add delays to each channel to ensure that the sound from each speaker reaches the listener at the same time.

You can also add an extra delay to the surround speakers to make the sound more spacious.

- Use the ◀ and ▶ buttons on the remote control to adjust the distance or delay.

In **GENERAL** mode you can adjust the distance between 0 and 20 feet (0 and 6m). Setting **DISTANCE UNITS** to **MS** shows the calculated delays and allows you to adjust them directly.

CONTROL SETTINGS

OSD TRANSPARENT	NO
OSD POPUP	FULL
OSD POPUP TIME	3s
OSD POPUP POS.	BOTTOM
VFD BRIGHTNESS	2
VFD DISPLAY TIME	3s
TRIGGER 1	INPUT S
TRIGGER 1 ON DELAY	0S
TRIGGER 2	INPUT S
TRIGGER 2 ON DELAY	0S
TRIGGER 3	INPUT S
TRIGGER 3 ON DELAY	0S
REMOTE SELECT	FRONT
FRONT PANEL	UNLOCKED

Allows you to configure hardware settings of the SPA23.

Option	Description
OSD TRANSPARENT	Set to YES to allow the video image to show through the background of the on-screen display, or NO to blank the video image when the on-screen display is displayed.
OSD POPUP	Determines what information is shown on the on-screen display when changing source. FULL shows the same information as the front panel display, SIMPLE shows just the source name, and OFF turns it off.
OSD POPUP TIME	Set to 1-10 sec to determine how long the on-screen display stays on the screen.
OSD POPUP POS.	Position of on-screen display.
VFD BRIGHTNESS	1-3 to specify the front panel display brightness.

Option	Description
VFD DISPLAY TIME	Set to 1-10 sec to set the time before the front panel display dims.
TRIGGER 1 to TRIGGER 3	See <i>Trigger settings</i> below.
REMOTE SELECT *	Select FRONT to use an infra-red remote control pointer at the front panel, or BACK to control the SPA23 using the IR input on the back panel.
FRONT PANEL	Select LOCKED to lock the front panel; you will then only be able to operate the SPA23 via the remote control. Reset to UNLOCKED when you turn off the SPA23 at the back panel.

*** Note:** After changing this option you will not be able to use the remote control to control the SPA23. To reset this option operate the menus from the front panel.

Trigger settings
For each trigger you can set the following:

Option	Description
TRIGGER 1-3	Specifies when the current trigger is active: OFF , STANDBY to enable it when the SPA23 is in standby, INPUT S to take the setting from the INPUT SETTING menu, or ZONE 2 to take the setting from the ZONE 2 menu.
TRIGGER 1-3 ON DELAY	Allows you to specify a delay of 0, 1, 2, or 5 secs before the trigger is activated.

ZONE 2

INPUT	1
AUDIO	NONE
TRIGGER 1	OFF
TRIGGER 2	OFF
TRIGGER 3	OFF
VOLUME	10
VOLUME DEFAULT	10

For each input the **ZONE 2 SETTINGS** menu allows you to specify an analogue audio input to be output to the Zone 2 output.

Option	Description
INPUT	Select one of the 15 inputs to be configured.
AUDIO	Allows you to specify an analogue audio input to be output to the Zone 2 output.
TRIGGER 1-3	Zone 2 trigger settings; see <i>Trigger settings</i> on this page.
VOLUME	Allows you to set the current Zone 2 volume (0 to 99).
VOLUME DEFAULT	Determines the default Zone 2 volume (0 to 99) when the SPA23 is turned on from standby.


MEMORY

RECALL FACT.	SETTINGS
RECALL INST.	SETTINGS
SAVE INST.	SETTINGS
CHANGE INST.	PASSWORD

The **MEMORY** menu allows you to save and recall the SPA23 settings, or restore the factory settings.

Saving installer settings

Once you have configured the SPA23 you can save the settings in a password-protected file, and then recall them at any time to restore the SPA23 to your custom configuration.

- Select **SAVE INST. SETTINGS** from the **MEMORY** menu.
- Enter the password using the number keys (or ▲, ▼, ◀, and ▶) on the remote, then press  on the front panel or **SETUP** on the remote control.

If you have successfully saved the settings you will be returned to the **MEMORY** menu..

Recalling installer settings



You can recall the installer settings at any time:

- On the **MEMORY** menu select **RECALL INST. SETTINGS**, then select **YES**



The SPA23 will restart with the new configuration.

Changing the installer password

To change the installer password:

- Highlight **CHANGE INST. PASSWORD**, then press  on the front panel or **SETUP** on the remote control.
- Enter the old password using the number keys (or ▲, ▼, ◀, and ▶) on the remote, then press  on the front panel or **SETUP** on the remote control.

The screen will prompt: **PLEASE ENTER YOUR NEW PASSWORD TWICE.**

- Enter the new password and press  on the front panel or **SETUP** on the remote control.
- Enter the new password again and press  on the front panel or **SETUP** on the remote control.

If you have successfully changed the password you will be returned to the **MEMORY** menu..

TECHNICAL SPECIFICATION

INPUTS AND OUTPUTS

Loudspeaker outputs

Front (left and right, can be switched to surr back)
Center; Sub,
Surr (left and right)

Analogue outputs

Front (left and right)
Center; Sub
Surr (left and right)
Surr back (left and right)

Analogue record output

1 RCA (left and right)

Zone2 output

1 RCA (left and right)

Digital outputs

1 RCA, 1 TOS-Link

Video Output

2 HDMI

Analogue inputs

8 RCA, incl. 7.1 inputs

Digital inputs

3 RCA, 3 TOS-Link.

Video Inputs

5 HDMI

DIGITAL

Frequency response

20Hz-20kHz ± 0.2 dB

THD and noise

0.005% @1kHz (AES17 filter)

ANALOGUE

THD

<0.005%, 20Hz-20kHz

Signal to noise ratio

-110dB

Frequency response

10Hz-100kHz, 1dB

Input impedance

47k Ω unbalanced

Output impedance

47 Ω unbalanced

POWER AMPLIFIERS

Output power

5 x 120W, 8 Ω

Output power 1kHz, one channel driven

8 Ω 150W THD+N <1%,

4 Ω 300W THD+N <1%,

AP AUX0025 Filter

Output power 1kHz, all channels driven

120W 4/8 Ω THD+N <0.1%

AP AUX0025 Filter

THD

<0.01% 20Hz-20kHz 1W 8 Ω , AP AES17 Filter

Signal-to-noise

80dB; AP AES17 filter; ref 2.828Vrms.

Frequency response

20Hz-20kHz -0.2dB, 1W 8 Ω

PROCESSING

Upscaling

1080p/24

Video

HDMI with HDvideo pass-tru with 3Dpass and
HDMI OSD

Modes

Stereo, Bypass, Party,
Dolby Prologic IIx Music,
Dolby Prologic IIx Movie,
DTS NEO:6 MUSIC
DTS NEO:6 CINEMA

Decoding formats

Dolby Digital
Dolby Digital EX
Dolby Prologic II
Dolby Prologic IIx
Dolby EX
Dolby Plus
Dolby TrueHD
DTS
DTS ES
DTS Neo:6
DTS 96/24
DTS HDMaster Audio
DTS HD High Res audio
MULTI/2 CH PCM/LPCM

Sampling rates

32KHz, 44.1KHz, 48KHz,
88.2KHz, 96KHz, 192KHz

CONTROL

1 IR Input

3 12V outputs (triggers),

1 RS232

RS232

The RS232 connector allows your dealer to upgrade the firmware on your SPA23, or control the SPA23 as part of a multi-room system. Do not connect anything to this socket unless instructed by your dealer.

GENERAL

Power consumption

Operating: 800W at 1K, 8 Ω , 120W all channels driven.

Fully stabilized SMPS

Size

430 x 385 x 180mm (WxDxH)

Weight

15kg

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Issue: SPA23/I

The information in this guide is believed to be correct as of the date of publication. However, our policy is one of continuous development and so the information is subject to change without notice, and does not represent a commitment on the part of Primare AB.

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This guide was produced by
Human-Computer Interface Ltd.
<http://www.interface.co.uk>

Safety compliance

This product has been designed to meet the IEC 60065 international electrical safety standard.

CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN ATTENTION RISQUE DE CHOC ELECTRIQUE NE PAS



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

CAUTION: To reduce the risk of electrical shock do not remove cover (or back). No user serviceable parts inside. Refer servicing to qualified service personnel.

WARNING: To reduce the risk of fire or electrical shock, do not expose this apparatus to rain or moisture.

CAUTION: In Canada and the USA, to prevent electric shock, match the wide blade of the plug to the wide slot in the socket and insert the plug fully into the socket.

This product is designed and manufactured to meet strict quality and safety standards. However, you should be aware of the following installation and operation precautions.

1. Take heed of warnings & instructions

You should read all the safety and operating instructions before operating this appliance. Retain this handbook for future reference and adhere to all warnings in the handbook or on the appliance.

2. Water and moisture

The presence of electricity near water can be dangerous. Do not use the appliance near water – for example next to a bathtub, washbowl, kitchen sink, in a wet basement or near a swimming pool, etc.

3. Object or liquid entry

Take care that objects do not fall and liquids are not spilled into the enclosure through any openings. Liquid-filled objects such as vases should not be placed on the equipment.



The lightning flash with an arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated 'dangerous voltage' within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

OUVRIR

4. Ventilation

Do not place the equipment on a bed, sofa, rug or similar soft surface, or in an enclosed bookcase or cabinet, since ventilation may be impeded. We recommend a minimum distance of 50mm around the sides and top of the appliance to provide adequate ventilation.

5. Heat

Locate the appliance away from naked flames or heat producing equipment such as radiators, stoves or other appliances (including other amplifiers) that produce heat.

6. Climate

The appliance has been designed for use in moderate climates.

7. Racks and stands

Only use a rack or stand that is recommended for use with audio equipment. If the equipment is on a portable rack it should be moved with great care, to avoid overturning the combination.

8. Cleaning

Unplug the unit from the mains supply before cleaning.

The case should normally only require a wipe with a soft, damp, lint-free cloth. Do not use paint thinners or other chemical solvents for cleaning.

We do not advise the use of furniture cleaning sprays or polishes as they can cause indelible white marks if the unit is subsequently wiped with a damp cloth.

9. Power sources

This appliance must be connected to a mains socket outlet using the supplied power cord. To disconnect this apparatus from power, you must disconnect the power cord. Make sure the power cord is always easily accessible.

Only connect the appliance to a power supply of the type described in the operating instructions or as marked on the appliance.

This is a Class I device and **must** be earthed.

The power switch is a single-pole switch. When the switch is in the "Off" position, the appliance is not completely disconnected from the main power.

10. Power-cord protection

Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, and the point where they exit from the appliance.

11. Grounding

Ensure that the grounding means of the appliance is not defeated.

12. Power lines

Locate any outdoor antenna/aerial away from power lines.

13. Non-use periods

If the unit has a stand-by function, a small amount of current will continue to flow into the equipment in this mode. Unplug the power cord of the appliance from the outlet if left unused for a long period of time.

14. Abnormal smell

If an abnormal smell or smoke is detected from the appliance, turn the power off immediately and unplug the unit from the wall outlet. Contact your dealer immediately.

15. Servicing

You should not attempt to service the appliance beyond that described in this handbook. All other servicing should be referred to qualified service personnel.

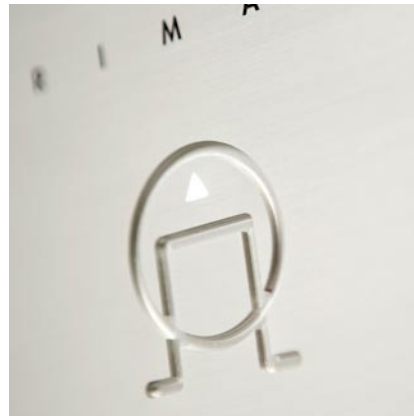
16. Damage requiring service

The appliance should be serviced by qualified service personnel when:

- A. the power-supply cord or the plug has been damaged, or

P R I M A R E

THE SOUND AND VISION OF SCANDINAVIA



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